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FINAL HISTORICAL RADIOLOGICAL ASSESSMENT HISTORY OF THE USE OF GENERAL RADIOACTIVE MATERIALS 1943 TO 2011 (APPENDIX D HRA 0004 THROUGH HRA 0295)VOLUME II OF III NAS BRUNSWICK ME

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APPENDIX D
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June 1983

INITIAL ASSESSMENT STUDY OF NAVAL AIR STATION, BRUNSWICK, MAINE

NEESA 13-031

NAVAL ENERGY AND ENVIRONMENTAL SUPPORT ACTIVITY
Port Hueneme, California 93043

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INITIAL ASSESSMENT STUDY

NAVAL AIR STATION, BRUNSWICK, MAINE

UIC: 60087

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NAVY ASSESSMENT AND CONTROL
OF INSTALLATION POLLUTANTS (NACIP) DEPARTMENT
Naval Energy and Environmental Support Activity (NEESA)
Port Hueneme, California 93043

June 1983

Click Here to Return to Main Index

EXECUTIVE SUMMARY

This report presents the results of an Initial Assessment Study (IAS) conducted at the Brunswick Naval Air Station, Brunswick, Maine. The purpose of an IAS is to identify and assess sites posing a potential threat to human health or the environment due to contamination from past hazardous materials operations.

The Brunswick Naval Air Station is located in a complex environmental setting. The Air Station is underlain by glacial-marine sediments of variable thickness and permeability. Bedrock is highly metamorphosed gneiss of uncertain age. Groundwater is used for potable water supply via individual wells and municipal wells. Groundwater is not used at the Air Station, with the exception of a drilled well used at the golf course clubhouse.

The southern edge of the Air Station includes wetlands areas, and most of the surface-water drainage from the Air Station is toward coastal coves and wetlands. A small portion of the Air Station drains to the Androscoggin River. There are no endangered species reported to occur in the vicinity of the Air Station.

Potential contaminant receptors are surface water and groundwater. As stated previously, surface-water drainage is to sensitive wetlands, and groundwater is used in the vicinity of the Air Station.

Based on information from historical records, aerial photographs, field inspections, and personnel interviews, a total of 10 potentially contaminated sites were identified at Brunswick. Each of the sites was evaluated with regard to contamination characteristics, migration pathways, and pollutant receptors.

The study concludes that, while none of the sites poses an immediate threat to human health or the environment, seven warrant further investigation under the Navy Assessment and Control of Installation Pollutants (NACIP) Program, to assess potential long-term impacts. A confirmation study, involving actual sampling and monitoring of the sites, is recommended to confirm or deny the existence of the suspected contamination and to quantify the extent of any problems that may exist. The seven sites recommended for confirmation are listed below:

(1) Landfill Orion Street Area - North -- Site 1
(2) Landfill Orion Street Area - South -- Site 2
(3) Hazardous Burial Area -- Site 3
(4) Acid/Caustic Pit -- Site 4
(5) Old Acid/Caustic Pit -- Site 7
(6) Perimeter Road Disposal Site -- Site 8
(7) Neptune Drive Disposal Site -- Site 9

The results of the confirmation study will be used to evaluate the necessity of conducting mitigating actions or cleanup operations.

Click Here to Return to Main Index

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FOREWORD

The Navy initiated the Navy Assessment and Control of Installation Pollutants (NACIP) program in OPNAVNOTE 6240 ser 45/733503 of 11 September 1980. The purpose of the program is to systematically identify, assess, and control contamination of the environment resulting from past hazardous materials management operations.

An Initial Assessment Study (IAS) was performed at the Naval Air Station, Brunswick, Maine, by a team of specialists from Roy F. Weston, Inc. of West Chester, Pennsylvania. Further confirmation studies under the NACIP program were recommended at seven areas at the activity. Chapters dealing with significant findings, conclusions, and recommendations are presented in the earlier part of the report. The later technical chapters provide more in-depth discussion on important aspects of the study.

Questions regarding NACIP should be referred to the Commanding Officer, NEESA 112N, Port Hueneme, California 93043, AUTOVON 360-3351, FTS 799-3351, or commercial (805) 982-3351.

DANIEL L. SPIEGELBERG, LCDR, CEC, USN
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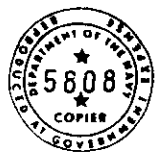

Click Here to Return to Main Index

ACKNOWLEDGEMENTS

Roy F. Weston, Inc. would like to acknowledge the support and cooperation provided by many individuals during the course of the Initial Assessment Study at the Naval Air Station, Brunswick, Maine. In particular, we wish to express our gratitude to the following:

- Commander R.R. Bersani, Public Works, NAS Brunswick
- Mr. Brent Bridges, Public Works, NAS Brunswick
- Mr. Robert Kowalczyk, Northern Division, Naval Facilities Engineering Command

A number of current and past employees from the shops and departments of the Air Station provided invaluable information on the history and operation of the facility.

5608 COPIER

Click Here to Return to Main Index

CONTENTS

			Page
Chapter	1.	Introduction	1-1
	1.1	Program Background	1-1
	1.1.1	DoD Program	1-1
	1.1.2	Navy Program	1-1
	1.2	Authority	1-1
	1.3	Scope	1-1
	1.3.1	General	1-1
	1.3.2	Past Operations	1-2
	1.3.3	Results	1-2
	1.4	Initial Assessment Study	1-2
	1.4.1	Records Search	1-2
	1.4.2	Onsite Survey	1-2
	1.4.3	Confirmation Study Ranking System	1-2
	1.4.4	Site Ranking	1-3
	1.4.5	Confirmation Study Criteria	1-3
	1.5	Confirmation Study	1-3
	1.6	IAS Report Comments	1-3
Chapter	2.	Significant Findings and Conclusions	2-1
	2.1	Introduction	2-1
	2.2	Sites Recommended for Confirmation	2-1
	2.2.1	Site 1, Landfill Orion Street Area -- North	2-1
	2.2.2	Site 2, Landfill Orion Street Area -- North	2-1
	2.2.3	Site 3, Hazardous Waste Burial Area	2-5
	2.2.4	Site 4, Acid/Caustic Pit	2-5
	2.2.5	Site 7, Old Acid/Caustic Pit	2-6
	2.2.6	Site 8, Perimeter Road Landfill	2-6
	2.2.7	Site 9, Neptune Drive Disposal Site	2-7
	2.3	Sites Not Recommended for Confirmation	2-7
	2.3.1	Site 5, Asbestos Disposal Site	2-7
	2.3.2	Site 6, Rubble and Asbestos Disposal Site	2-7
	2.3.3	Site 10, Harpswell Fuel Depot	2-8
Chapter	3.	Recommendations	3-1
	3.1	Background	3-1
	3.1.1	Confirmation Studies	3-1
	3.1.2	Confirmation Study Ranking System	3-1
	3.1.3	Mitigating Actions	3-1
	3.2	Sites 1, 2, and 3, Orion Street Area Landfills	3-1
	3.2.1	Surface-Water Investigation	3-3
	3.2.2	Groundwater Investigation	3-3
	3.2.3	Additional Recommendations	3-7
	3.3	Site 4, Acid/Caustic Pit	3-7
	3.3.1	Soil Sampling	3-7
	3.3.2	Groundwater Sampling	3-7
	3.4	Sites 7 and 8, Old Acid/Caustic Pit and Perimeter Road Disposal Site	3-7
	3.4.1	Soil Sampling	3-7

REPRODUCED BY DEPARTMENT OF THE NAVY 5608 COPIER AT GOVERNMENT EXPENSE

Click Here to Return to Main Index

CONTENTS (Continued)

			Page
	3.4.2	Groundwater Sampling	3-9
	3.4.3	Surface-Water Sampling	3-9
	3.5	Site 10, Neptune Road Disposal Site	3-9
	3.5.1	Surface Water	3-9
	3.5.2	Groundwater	3-9
	3.6	Mitigating Actions	3-11
	3.6.1	Site 6, Rubble and Asbestos Disposal	3-11
Chapter	4.	Background Information	4-1
	4.1	General Information	4-1
	4.1.1	Location	4-1
	4.1.2	Mission	4-1
	4.1.3	Command	4-1
	4.1.4	Host/Tenant Relationships	4-1
	4.1.5	Real Estate	4-5
	4.2	History	4-5
	4.2.1	Site Selection and Initial Command	4-5
	4.2.2	World War II Construction	4-5
	4.2.3	Other World War II Facilities	4-5
	4.2.4	Station Use -- 1947-1951	4-5
	4.2.5	Post-1951 Activity	4-6
	4.3	Physical Features	4-6
	4.3.1	General Information	4-6
	4.3.2	Climate	4-8
	4.3.3	Topography	4-8
	4.3.4	Geology	4-12
	4.3.5	Soils	4-16
	4.3.6	Hydrology and Migration Potential	4-16
	4.4	Biological Features	4-26
	4.4.1	Terrestrial Environment	4-26
	4.4.2	Wetlands	4-28
	4.4.3	Aquatic Environment	4-28
	4.4.4	Threatened or Endangered Species	4-29
	4.4.5	Habitat Sensitivity	4-29
	4.5	Water Quality	4-32
	4.5.1	Surface-Water Quality	4-32
	4.5.2	Groundwater Quality	4-32
	4.6	Water Supply	4-32
	4.6.1	Water Supply Wells	4-32
	4.6.2	Water Supply at Harpswell	4-32
	4.7	Adjacent Land Use	4-34
	4.7.1	Residential Land Use	4-34
	4.7.2	Commercial and Industrial Land Use	4-34
	4.7.3	Public and Semi-Public Land Use	4-34
	4.7.4	Zoning	4-35
	4.8	Legal Actions	4-35
Chapter	5.	Waste Generation	5-1
	5.1	General	5-1

Click Here to Return to Main Index

CONTENTS (Continued)

			Page
	5.2	Industrial Operations	5-1
	5.2.1	Aircraft Maintenance	5-1
	5.2.2	Aircraft Intermediate Maintenance Department	5-1
	5.2.3	Public Works Department	5-5
	5.2.4	Photography Shop	5-7
	5.2.5	Transportation Vehicle Maintenance	5-8
	5.2.6	Medical/Dental Clinic	5-8
	5.3	Ordnance Operations	5-10
	5.3.1	Weapons	5-10
	5.3.2	Explosives Safety Survey	5-10
	5.3.3	Manufacturing	5-10
	5.3.4	Demilitarization	5-10
	5.3.5	Renovation	5-10
	5.3.6	Ranges, Impact Zones	5-10
	5.4	Radiological Operations	5-10
	5.5	Defense Logistics Agency	5-11
Chapter	6.	Material Handling: Storage and Transportation	6-1
	6.1	Industrial	6-1
	6.1.1	Supply Services	6-1
	6.1.2	Disposal of Outdated Material	6-1
	6.1.3	Shop Stores	6-1
	6.1.4	Hangars	6-10
	6.2	Pesticide and Herbicide Storage	6-10
	6.2.1	Past Use of Pesticides and Herbicides	6-10
	6.2.2	Past Storage of Pesticides and Herbicides	6-10
	6.3	Defense Property Disposal Office	6-10
	6.3.1	DPDO Liquid Storage	6-10
	6.3.2	Past DPDO Storage	6-10
	6.4	Fuel Storage	6-13
	6.4.1	Brunswick Naval Air Station Fuel Farm	6-13
	6.4.2	Naval Fuel Annex, Casco Bay	6-13
	6.4.3	Heating Plants	6-13
	6.4.4	Topsham Annex	6-13
	6.5	Waste Oil	6-13
	6.5.1	Past Handling of Waste Oil	6-13
	6.5.2	Fire Practice	6-13
	6.6	Transformers	6-13
	6.7	Coal Storage	6-13
	6.8	Weapons Storage	6-16
	6.9	Asbestos Storage	6-16
Chapter	7.	Waste Processing and Disposal Operations	7-1
	7.1	Liquid Waste Processing	7-1
	7.1.1	Brunswick Wastewater Treatment Plant	7-1
	7.1.2	Permit Limitations	7-1
	7.1.3	Brunswick Naval Air Station Sanitary Sewer	7-1
	7.1.4	Topsham Annex Sanitary Sewer System	7-1

REPRODUCED BY DEPARTMENT OF THE NAVY 5808 COPIER NAVFAC

Click Here to Return to Main Index

5808

CONTENTS (Continued)

			Page
	7.1.5	Storm Sewer	7-1
	7.2	Solid Waste	7-1
	7.2.1	Collection, Transportation, and Disposal of Solid Waste	7-2
	7.3	Hazardous Wastes	7-2
	7.4	Solid Waste Disposal	7-2
	7.4.1	Solid Waste Disposal Prior to 1975	7-2
	7.5	Incinerator	7-2
	7.6	Ordnance	7-2
Chapter	8.	Disposal Sites and Potentially-Contaminated Areas	8-1
	8.1	Introduction	8-1
	8.1.1	Site Identification	8-1
	8.2	Site 1, Landfill Orion Street Area -- North	8-1
	8.2.1	Site History	8-1
	8.2.2	Site Operation	8-1
	8.2.3	Notification	8-4
	8.2.4	Hazardous Wastes Present	8-4
	8.2.5	Waste Quantity	8-4
	8.2.6	Migration Potential	8-4
	8.3	Site 2, Landfill Orion Street Area -- South	8-7
	8.3.1	Site History	8-7
	8.3.2	Site Operation	8-7
	8.3.3	Notification	8-7
	8.3.4	Hazardous Wastes Present	8-7
	8.3.5	Waste Quantity	8-7
	8.3.6	Migration Potential	8-7
	8.4	Site 3, Hazardous Waste Burial Area	8-9
	8.4.1	Site History	8-9
	8.4.2	Site Operation	8-9
	8.4.3	Notification	8-9
	8.4.4	Hazardous Wastes Present	8-9
	8.4.5	Waste Quantity	8-9
	8.4.6	Migration Potential	8-9
	8.5	Site 4, Acid/Caustic Pit	8-9
	8.5.1	Site History	8-9
	8.5.2	Site Operation	8-11
	8.5.3	Notification	8-11
	8.5.4	Hazardous Wastes Present	8-11
	8.5.5	Waste Quantity	8-11
	8.5.6	Migration Potential	8-11
	8.6	Site 5, Asbestos Disposal Site	8-13
	8.6.1	Site History	8-13
	8.6.2	Site Operation	8-13
	8.6.3	Notification	8-15
	8.6.4	Hazardous Wastes Present	8-15
	8.6.5	Migration Potential	8-15
	8.7	Site 6, Rubble and Asbestos Disposal Site	8-15
	8.7.1	Site History	8-15
	8.7.2	Hazardous Wastes Present	8-15

Click Here to Return to Main Index

CONTENTS (Continued)

		Page
8.7.3	Migration Potential	8-15
8.8	Site 7, Old Acid/Caustic Pit	8-15
8.8.1	Site History	8-15
8.8.2	Site Operation	8-15
8.8.3	Hazardous Wastes Present	8-15
8.8.4	Migration Potential	8-18
8.9	Site 8, Perimeter Road Disposal Site	8-18
8.9.1	Site History	8-18
8.9.2	Site Operation	8-18
8.9.3	Hazardous Wastes Present	8-18
8.9.4	Migration Potential	8-18
8.10	Site 9, Neptune Drive Disposal Site	8-20
8.10.1	Site History	8-22
8.10.2	Site Operation	8-22
8.10.3	Hazardous Wastes Present	8-22
8.10.4	Migration Potential	8-22
8.11	Site 10, Harpswell Fuel Depot	8-24
8.11.1	Site History	8-24
8.11.2	Site Operation	8-24
8.11.3	Hazardous Wastes Present	8-24
8.11.4	Migration Potential	8-27
References		R-1
Bibliography		B-1
Appendix A	Agencies Contacted During the IAS	A-1
Appendix B	Well Logs -- Vicinity of the Brunswick Naval Air Station	B-1
Appendix C	Common Fauna Inhabitants and/or Potential Visitors to the Brunswick Area	C-1
Appendix D	Common Birds and/or Potential Visitors to the Brunswick Naval Air Station and Nearby Coastal Areas	D-1
Appendix E	Aquatic Species of the Brunswick Naval Air Station Area	E-1

DEPARTMENT OF THE NAVY 5608 COPIER

Click Here to Return to Main Index

5808

FIGURES

Figure No.	Title	Page
1-1	Vicinity Map	1-4
2-1	Location of Disposal Sites and Potential Contaminated Areas	2-2
3-1	Sampling Locations -- Sites 1, 2, and 3	3-4
3-2	Sampling Locations -- Sites 7 and 8	3-8
3-3	Sampling Locations -- Site 9	3-10
4-1	Vicinity Map, Brunswick Naval Air Station	4-2
4-2	Surficial Geology	4-14
4-3	Bedrock Distribution in the Brunswick Naval Air Station Area	4-15
4-4	Distribution of Soil Types	4-17
4-5	Surface-Water Drainage Basins	4-20
4-6	Merriconeag Stream at the South End of the Brunswick Naval Air Station (photo)	4-22
4-7	Distribution of Wells and Test Borings in the Immediate Vicinity of the Brunswick Naval Air Station	4-24
6-1	PCB Transformer Locations	6-17
6-2	PCB Transformer Locations, Topsham Annex	6-18
8-1	Location of Disposal Sites and Potential Contaminated Areas	8-2
8-2	Site 1, Landfill Orion Street Area -- North; Site 2, Landfill Orion Street Area -- South; Site 3, Hazardous Waste Burial Area	8-3
8-3	Mere Brook -- Aerial View (photo)	8-6
8-4	Hazardous Waste Burial Area (photo)	8-10
8-5	Site 4, Acid/Caustic Pit	8-12
8-6	Site 5, Asbestos Disposal Site	8-14
8-7	Site 6, Rubble and Asbestos Disposal Site	8-16
8-8	Site 7, Old Acid/Caustic Pit; Site 8, Perimeter Road Disposal Site	8-17
8-9	Stream Adjacent to Perimeter Road Disposal Site (photo)	8-19
8-10	Site 9, Neptune Drive Disposal Site	8-21
8-11	Stream at Neptune Drive Disposal Site (photo)	8-23
8-12	Site 10, Harpswell Fuel Farm	8-25
8-13	Harpswell Fuel Depot (photo)	8-26

Click Here to Return to Main Index

TABLES

Table No.	Title	Page
2-1	Results of Confirmation Study Ranking Flow Chart	2-3
2-2	Wastes Disposed of at Site 1	2-4
3-1	Results of Confirmation Study Ranking Flow Chart	3-2
3-2	Surface-Water Analysis Parameters -- Mere Brook	3-3
3-3	Minimum Well Construction Requirements	3-6
3-4	Groundwater Analysis Parameters	3-5
4-1	Brunswick Naval Air Station Departments	4-3
4-2	State of Maine Coastal Zone Management Program	4-7
4-3	Temperature Data, Portland Airport	4-9
4-4	Precipitation Data, Portland Airport	4-10
4-5	Wind Data, Portland Airport	4-11
4-6	Stratigraphic Column	4-13
4-7	Soil Characteristics	4-18
4-8	Water-Bearing Characteristics of Unconsolidated Sediments at the Brunswick Naval Air Station	4-23
4-9	Timber Stand Characteristics, Brunswick Naval Air Station	4-27
4-10	Endangered and Threatened Species in Maine	4-30
4-11	Analysis of Surface Water from Mere Brook, at the Brunswick Naval Air Station, March 1981	4-33
5-1	Waste Generation, Hangars 1, 2, and 3	5-2
5-2	Waste Generation, Hangar 4 (includes the Aircraft Intermediate Maintenance Department and Building 7)	5-4
5-3	Waste Generation, Public Works Department	5-6
5-4	Waste Generation, Photography Shop (Building 200)	5-9
6-1	Hazardous Substances Stored at the Brunswick Naval Air Station	6-2
6-2	Storage Facilities, Brunswick Naval Air Station	6-9
6-3	Current Pesticide and Herbicide Uses at the Brunswick Naval Air Station	6-11
6-4	Past Pesticide and Herbicide Use	6-12
6-5	Storage Capacity at the Brunswick Naval Air Station Fuel Farm	6-14
6-6	Storage Capacity at the Naval Fuel Annex, Casco Bay (Harpswell)	6-14
6-7	Fuel Storage -- Heating Plants	6-15
6-8	Fuel Storage at Topsham Annex	6-15
6-9	Transformer Locations and Capacities	6-16
6-10	Weapons and Ordnance Stored at the Brunswick Naval Air Station	6-19
7-1	Materials for Detonation or Burning -- Ordnance Disposal Site	7-3
8-1	Wastes Disposed of at Site 1	8-5
8-2	Wastes Disposed of at Site 2	8-8
8-3	Hazardous Wastes Attributed to Site 3	8-11
8-4	Hazardous Wastes Disposed of at Site 4	8-13
8-5	Analysis Results -- Site 8	8-20
8-6	Analysis Results -- Site 9	8-24

DEPARTMENT OF THE NAVY 5808 COPIER

Click Here to Return to Main Index

CHAPTER 1. INTRODUCTION

1.1 PROGRAM BACKGROUND. Past hazardous waste disposal methods, although acceptable at the time, have often caused unexpected long-term problems through the release of hazardous pollutants into the soil and groundwater. In response to increasing national concern regarding these problems, Congress directed the Environmental Protection Agency (EPA) to develop a comprehensive national program to manage past disposal sites. The program is outlined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of December 1980.

1.1.1 DoD Program. Department of Defense (DoD) efforts in this area preceded the nationwide CERCLA program. In 1975, the U.S. Army developed for DoD a pilot program to investigate past disposal sites at military installations. In 1980 DoD defined the program as the Installation Restoration Program, and instructed the services to comply with program guidelines.

1.1.2 Navy Program. The Navy manages its part of the program, the Navy Assessment and Control of Installation Pollutants (NACIP), in three phases. Phase 1 identifies potential threats to human health or the environment caused by past hazardous substance storage, handling, or disposal practices at naval activities. Phase 2 analyzes contaminants present at sites of concern and determines their migration paths. Phase 3 provides the required corrective measures to mitigate or eliminate confirmed problems.

1.2 AUTHORITY. The Chief of Naval Operations initiated the NACIP Program in OPNAVNOTE 6240 of 11 September 1980. The Naval Facilities Engineering Command (NAVFAC) manages the program within the existing structure of the Naval Environmental Support Service (NEPSS). Thus, the Naval Energy and Environmental Support Activity (NEESA) conducts the program's Phase 1 Initial Assessment Studies in coordination with NAVFAC Engineering Field Divisions (EFDs). Activities are selected for an Initial Assessment Study (IAS) by the Chief of Naval Operations (CNO), based on recommendations by the Naval Facilities Engineering Command (NAVFAC), the regional EFDs, and NEESA. CNO specifically approved the Brunswick Naval Air Station, Brunswick, Maine, for an IAS by CNO letter serial 451/397464 of August 1981.

1.3 SCOPE.

1.3.1 General. The Navy Assessment and Control of Installation Pollutants (NACIP) program examines potential threats to human health or the environment that may result from past releases of hazardous materials and wastes. This effort represents a complex program, which is one aspect of the total Navy environmental quality program. Generally, potentially contaminated sites were the result of both deliberate acts (i.e., disposal) and accidental acts such as spills. Under the NACIP program sites are investigated where those actions have stopped and are no longer continuing. The current and future consequences of these potential sites are addressed by the NACIP program. Current hazardous materials/hazardous wastes operations are subject to other environmental regulations and are addressed under existing programs. The NACIP program examines releases that are historical, not addressed in other programs, and might otherwise be overlooked.

Click Here to Return to Main Index

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1.3.2 Past Operations. The NACIP program focuses attention on past hazardous substance storage, use, and disposal practices on Navy property. Current practices are regularly surveyed for conformity to state and Federal regulations, and therefore, are not included in the scope of the NACIP program. The IAS report addresses operating disposal and storage sites only if they were disposal areas in the past. Similarly, current operations are investigated solely to infer what types and quantities of chemicals were used, and what disposal methods were practiced.

1.3.3 Results. An IAS recommends, if necessary, mitigating actions to be performed by the activity or EFD, or sampling and monitoring (confirmation studies) to be administered by the EFD under the NACIP program. Based on these recommendations, NAVFAC schedules confirmation studies for those sites determined by scientific and engineering judgment to be potential hazards to human health and the environment.

1.4 INITIAL ASSESSMENT STUDY.

1.4.1 Records Search. The IAS begins with records searches at various government agencies including the EFDs, the national and regional archives and record centers, and U.S. Geological Survey offices. In this integral step, study team members review records to assimilate information about the activity's mission, industrial processes, waste disposal records, and known environmental contamination. Typical examples of records include activity master plans and histories, environmental impact statements, cadastral records, and aerial photographs. Appendix A lists the agencies contacted during this study.

1.4.2 Onsite Survey. After the records search, the study team conducts an on-site survey to complete documentation of past operating and disposal operations and to identify potentially-contaminated areas. With the assistance of an activity point of contact, the team inspects the activity during ground and aerial tours, and interviews long-term employees and retirees. The onsite survey for the Brunswick Naval Air Station was conducted from 15 through 19 November 1982; report information is current as of those dates.

1.4.2.1 Data Verification. Information obtained from interviews is verified by data from other sources before inclusion in the report. If information for certain sites is conflicting or inadequate, the team may collect samples for clarification.

1.4.3 Confirmation Study Ranking System. With information collected during the study, team members evaluate each site for its potential hazard to human health and the environment. A two-step confirmation study ranking system (CSRS), developed at NEESA, is used to systematically evaluate the relative severity of potential problems. As the first step, a flow chart based on type of waste, type of containment, and hydrology, eliminates innocuous sites from further consideration. If the flow chart indicates a site has potential contamination, a rating model is applied. The rating model assigns a numerical score from 0 to 100 to each site. The score reflects the characteristics of the wastes, the potential migration pathways from the site, and possible contaminant receptors on and off the activity.

Click Here to Return to Main Index

1.4.4 Site Ranking. After rating a site, engineering judgment is applied to determine the need for a confirmation study or an immediate mitigating action. At sites recommended for further work, CSRS scores are used to develop a priority list for scheduling projects. For a more detailed description, refer to NEESA Confirmation Study Ranking System (NEESA 20.2-042).

1.4.5 Confirmation Study Criteria. A confirmation study is recommended for sites at which sufficient evidence exists to indicate the presence of contamination, and the contamination poses a potential threat to human health or the environment.

1.5 CONFIRMATION STUDY. The EFD conducts the confirmation study, which in itself has two phases--verification and characterization. In the verification phase, short-term analytical testing and monitoring determines whether specific toxic and hazardous materials, identified in the IAS, are present in concentrations considered to be hazardous. If required, a characterization phase, using longer-term testing and monitoring, provides more detailed information concerning the horizontal and vertical distribution of migrating contamination from sites, as well as site hydrogeology. If sites require remedial actions or additional monitoring programs, the confirmation study recommendations include the necessary planning information for the work, such as design parameters.

1.6 IAS REPORT CONTENTS. In this report, the significant findings, conclusions, and recommendations from the IAS are presented in Chapters 2 and 3. Chapter 4 describes general activity information, history, physical features, and biology. Chapters 5 through 8 trace the use of chemicals and hazardous materials, from storage and transfer, through manufacturing and operations, to waste processing and disposal. The later chapters provide detailed documentation to support the findings and conclusions in Chapters 2 and 3. Figure 1-1 shows the location of the Brunswick Naval Air Station.

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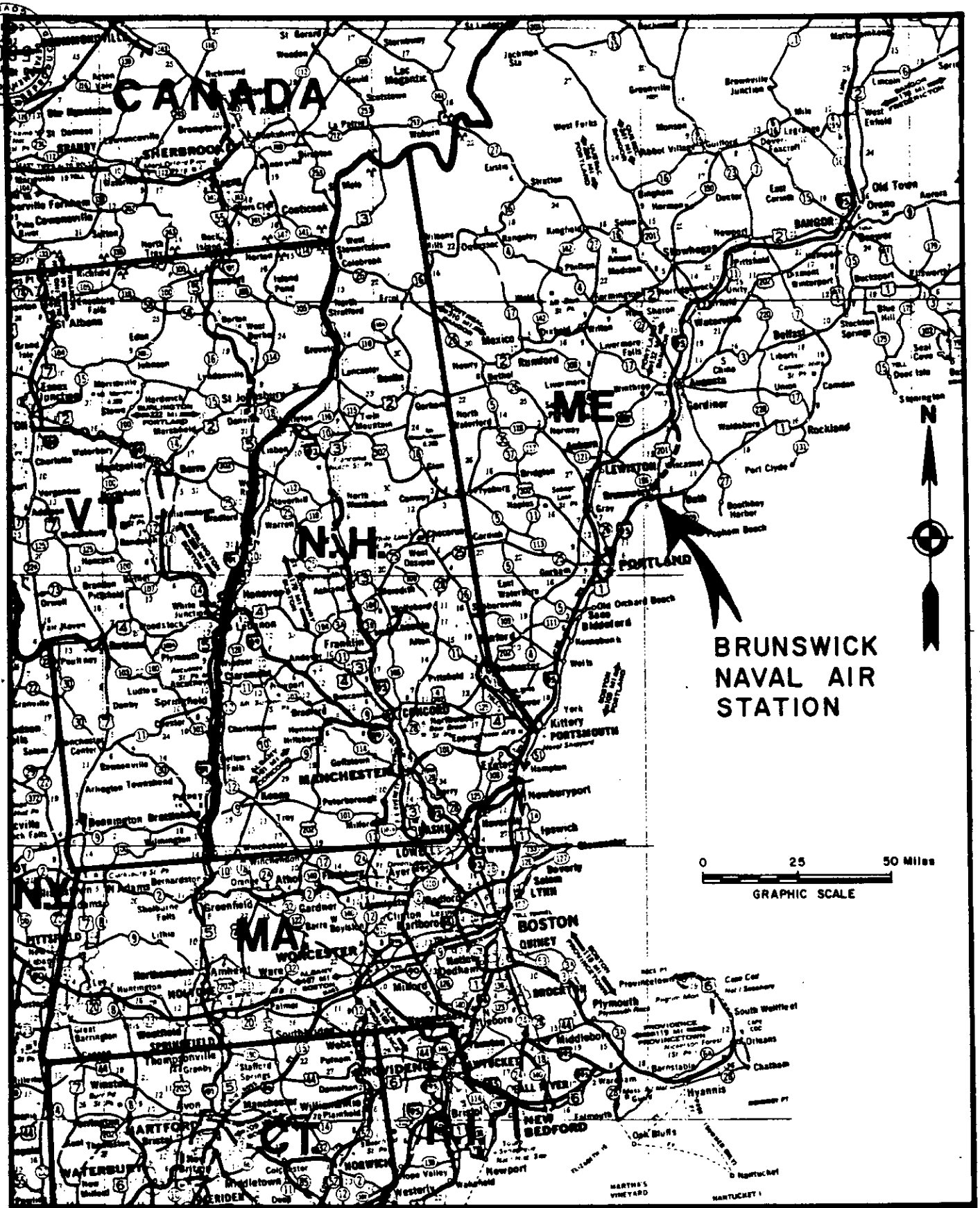

FIGURE 1-1

VICINITY MAP

INITIAL ASSESSMENT STUDY
NAVAL AIR STATION
BRUNSWICK

Click Here to Return to Main Index

CHAPTER 2. SIGNIFICANT FINDINGS AND CONCLUSIONS

2.1 INTRODUCTION. Ten areas have been identifed at the Brunswick Naval Air Station that have been used in the past for the storage or disposal of materials that contain hazardous substances. The locations of these areas are shown on Figure 2-1. Seven sites are recommended for confirmation studies. Remedial actions are recommended for one of the remaining sites. Table 2-1 summarizes the conclusions for the 10 sites. The sites recommended for confirmation are discussed first, followed by discussions of the sites not recommended for confirmation.

2.2 SITES RECOMMENDED FOR CONFIRMATION. The sites are described in the subsections that follow.

2.2.1 Site 1, Landfill Orion Street Area -- North. The site area was used as the major disposal area for Air Station waste from the 1950's to 1975. The site area is approximately 10 acres.

2.2.1.1 Wastes Present. Wastes were deposited in trenches that were reportedly excavated to an underlying clay and, at least seasonally, the water table was at or above the bottom of the trenches. Specific wastes that have been mentioned in interviews include pharmaceutical wastes, off-spec or out-of-date chemicals, waste oils, filter packing from oil/water separators, pesticide and herbicide containers, and degreasers. Table 2-2 presents the types and estimates of the quantities of wastes at the site.

2.2.1.2 Migration Pathways. Site 1 is adjacent to Mere Brook, which would be a receptor of leachate from the site. Leachate staining is apparent in the stream, however, a water sample collected in March 1981 provided inconclusive results. The ultimate receptor of surface-water contamination would be Harpswell Cove and the adjacent wetlands. The site is underlain by permeable sediments and less permeable bedrock. Migration of the contaminants to groundwater is possible. Migration of contaminated groundwater beyond the boundaries of the Air Station is possible, although not likely because of the distance. Groundwater is used for public and private water supply in the vicinity of the Air Station.

2.2.1.3 Conclusions. Hazardous wastes, including solvents, have been disposed of at the site and migration pathways to surface and groundwater exist. Therefore, Site 1 is recommended for a confirmation study.

2.2.2 Site 2, Landfill Orion Street Area -- North. This site is smaller and older than Site 1. It was used as the disposal area for most of the Air Station waste from 1945 through the mid-1950's. The site area is less than 5 acres.

2.2.2.1 Wastes Present. The wastes disposed of at this site include various solvents, paint residues, hydraulic fluid, and oils.

2.2.2.2 Migration Pathways. Site 2 is adjacent to Mere Brook, which would be the immediate surface-water receptor of contamination. Groundwater migration of contamination would be laterally through the permeable sediments, to Mere Brook as groundwater discharge, and vertically to the bedrock groundwater system.

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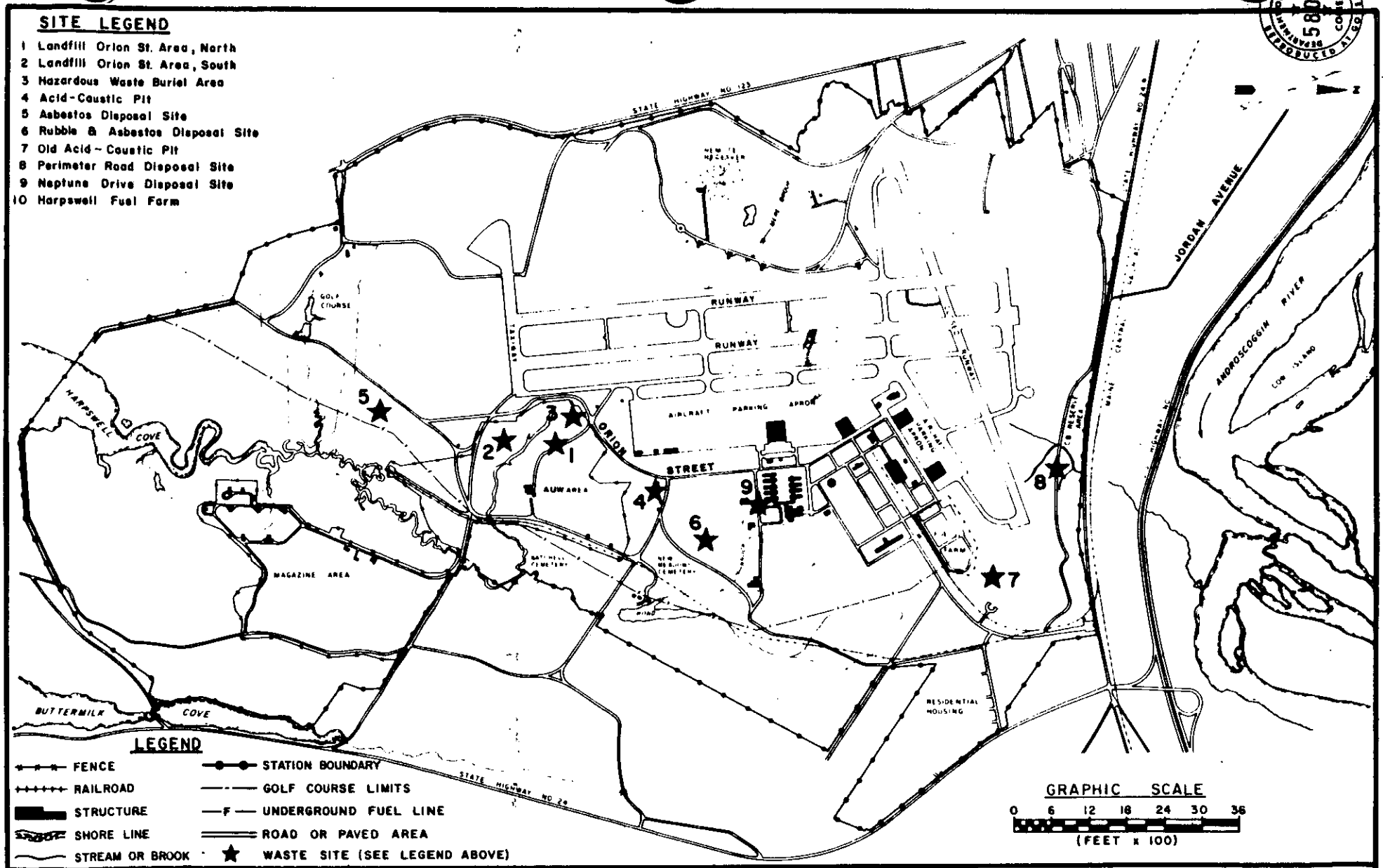

FIGURE 2-1
LOCATION OF DISPOSAL SITES AND POTENTIAL CONTAMINATED AREAS

INITIAL ASSESSMENT STUDY
NAVAL AIR STATION
BRUNSWICK

Click Here to Return to Main Index

Click Here to Return to Main Index

Table 2-1

Results of Confirmation Study Ranking Flow Chart

Site No.	Air Station Map Coordinates	Name	Confirmation Study Recommended
1	19N	Landfill Orion St. Area -- North	Yes
2	16N	Landfill Orion St. Area -- South	Yes
3	18M	Hazardous waste burial area	Yes
4	20O	Acid/caustic pit	Yes
5	11L	Asbestos disposal site	No
6	23Q	Rubble and asbestos disposal site	No[1]
7	31R	Old acid/caustic pit	Yes
8	34L	Perimeter Road disposal site	Yes
9	23O	Neptune Drive disposal site	Yes
10		Harpswell Fuel Depot	No

[1]Mitigating action is recommended for this site.

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Click Here to Return to Main Index

5808

Table 2-2

Wastes Disposed of at Site 1

Waste	Estimated Quantity Disposed of	Time
Sludge from Brunswick Naval Air Wastewater Treatment Plant	Unknown	Until 1968
Asbestos	Unknown	1955 to 1975
Fluorescent light bulbs	Unknown	1955 to 1975
Paint residues	Unknown	1955 to 1975
Solvents	4,000 gallons +	1955 to 1975
Aircraft parts	Unknown	1955 to 1975
Dead animals	Unknown	1955 to 1975
Medical supplies	Unknown	1955 to 1975
Engine oil	2,000 gallons +	1955 to 1975
Hydraulic fluid	2,000 gallons +	1955 to 1975
Toluene/MEK	2,000 gallons +	1955 to 1975
Rubble	Unknown	1955 to 1975
Saturated Speedi-dry	Unknown	1955 to 1975
Mercury vapor lights	Unknown	1955 to 1975

Click Here to Return to Main Index

2.2.2.3 Conclusions. Site 2 has been recommended for a confirmation study in the NACIP program because hazardous wastes are present, pathways exist to contaminant migration, and surface water and groundwater are the potential receptors. The receptors of surface water contamination would be Harpswell Cove and adjacent wetlands, and the wildlife in the wetlands area. The potential receptors for groundwater contamination are as described for Site 1.

2.2.3 Site 3, Hazardous Waste Burial Area. This site has been reported as being in operation from 1960 through 1973. The site is marked as containing hazardous wastes.

2.2.3.1 Wastes Present. Hazardous wastes that are known to have been deposited at the site are shown as follows:

Hazardous Wastes At Site 3

Waste	Quantity
Isopropyl alcohol	20-25 5-gallon containers
DANC	25 5-gallon containers
Outdated paints	50-60 gallons
Solvents	5-10 5-gallon containers

Additional hazardous wastes may have been deposited at the site without documentation.

2.2.3.2 Migration Pathways. Site 3 is adjacent to Mere Brook, which would be a pathway of contamination from the site. The ultimate receptors of surface-water contamination would be Harpswell Cove and adjacent wetlands. The groundwater migration pathway is through permeable sediments that underlie the site.

2.2.3.3 Conclusions. A NACIP program confirmation study has been recommended for Site 3 because of the hazardous wastes present and because migration pathways exist to groundwater and surface water with the potential for affecting vegetation, wildlife, and water supply as described for Sites 1 and 2.

2.2.4 Site 4, Acid/Caustic Pit. This site has been covered by the extension of Building 584. The site was used from 1969 to 1974 for the disposal of liquid wastes. Wastes were poured into the pit which was 4 feet by 4 feet and 3.5 feet deep.

2.2.4.1 Wastes Present. Liquid wastes, including solvents and transformer oils, were poured into the pit. It has been reported that over 1,000 gallons of transformer oil potentially containing PCBs were disposed of, as well as 400 gallons of battery acid. It is estimated that over 1,000 gallons of solvents may have been disposed of.

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5808

2.2.4.2 Migration Pathways. The site is located on permeable sediment, which is conducive to the migration of contaminants to groundwater. The migration potential of PCBs, if present, is normally very low because of their low solubility. The solubility of PCBs, if present, increases in the presence of certain solvents.

2.2.4.3 Conclusions. Site 4 has been recommended for a confirmation study under the NACIP program because of the suspected presence of PCBs and solvents, and because there is a migration pathway to groundwater and surface water. Surface-water bodies near the site flow into productive wetlands; therefore, there is a potential for affecting wetlands vegetation and wildlife. The potential for affecting drinking water due to off-site migration of contaminated groundwater is dependent on the lateral continuity of the glacial sediments.

2.2.5 Site 7, Old Acid/Caustic Pit. This site was part of the DPDO operation in the former location, east of taxiway 8. The pit was in use from 1952 to 1969. The immediate area is devoid of vegetation. The size of the pit was approximately 1 cubic yard.

2.2.5.1 Wastes Present. The wastes disposed of in this pit are battery acid, caustics, transformer oil, and other liquid wastes. The primary wastes of concern are transformer oil possibly containing PCBs, and solvents. Over 1,000 pounds of transformer oil possibly containing PCBs are suspected to have been placed in the pit, along with over 1,000 gallons of solvents.

2.2.5.2 Migration Pathways. The site is one-quarter mile from a tributary to the Androscoggin River. Contamination of the shallow aquifer is possible, and since the direction of contaminant transport depends on the local gradient, migration off the base is possible.

2.2.5.3 Conclusions. Site 7 has been recommended for a NACIP confirmation study because of the suspected presence of transformer oil possibly containing PCBs, the suspected presence of solvents, and the possiblity of migration to groundwater. Potential receptors of groundwater contamination are the water supply wells to the north of the Air Station.

2.2.6 Site 8, Perimeter Road Disposal Site. This site was reportedly used from 1964 to 1974.

2.2.6.1 Wastes Present. The majority of the wastes were nonputrescible (rubble, debris) and trash. It appears certain that solvents (TCE, MEK, toluene) were also disposed of at this site. The quantity of solvents has been estimated at 1,000 pounds minimum.

2.2.6.2 Migration Pathways. The site is approximately 3,600 feet east of the Jordan Avenue well field and is underlain by permeable sand. The site is also adjacent to a small tributary to the Androscoggin River. The results of the analyses of samples collected at this tributary during the IAS were inconclusive.

Click Here to Return to Main Index

2.2.6.3 Conclusions. Based on the suspected presence of hazardous materials and the migration pathway to surface water and groundwater, this site has been recommended for a confirmation study. As at Site 7, the receptors for groundwater contamination are the water supply wells located to the north of the Air Station.

2.2.7 Site 9, Neptune Drive Disposal Site. The extent of the site is uncertain but has been estimated at five acres from records and interviews. The site was in use from 1951 to 1960.

2.2.7.1 Wastes Present. Interviews have indicated that the site was the main disposal area for the Air Station for at least part of the site's operating period. The wastes present included solvents and paint sludges.

2.2.7.2 Migration Pathways. The site is immediately adjacent to two small streams that form a tributary to the Merriconeag Stream. These streams would be the primary pathway for the migration of contaminants. A sample collected during the IAS was inconclusive regarding the present effect on stream quality. Leachate is visible in the tributaries and at the outfall from the stormwater drainage system. Construction activities may be contributing to iron staining seen in the vicinity of the storm drainage outfall.

2.2.7.3 Conclusions. Site 9 has been recommended for a confirmation study under the NACIP program because of the suspected presence of hazardous wastes and the presence of migration pathways to surface water.

2.3 SITES NOT RECOMMENDED FOR CONFIRMATION. Three sites were not recommended for confirmation studies under the NACIP program.

2.3.1 Site 5, Asbestos Disposal Site. The site is covered and well marked as containing asbestos. The site is several hundred square feet in area and was used in 1979.

2.3.1.1 Wastes Present. The site contains asbestos-lined pipes of various lengths.

2.3.1.2 Migration Pathways. The migration pathways for asbestos are air and surface-water runoff. These pathways will not be active as long as the asbestos is covered and undisturbed.

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2.3.1.3 Conclusions. Because the site is maintained and marked no further action is recommended.

2.3.2 Site 6, Rubble and Asbestos Disposal Site. The soil cover at this site is thin and in poor condition.

2.3.2.1 Wastes Present. Asbestos-lined pipe can be seen protruding through the site cover.

2.3.2.2 Migration Pathways. The migration pathways for asbestos are air and surface-water runoff. At Site 6, these pathways are open because of the lack of adequate cover.

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2.3.2.3 Conclusions. Because covering and marking the site will close the migration pathway, this site is not recommended for a confirmation study under the NACIP program. It is recommended that the site be covered, graded, and marked similar to Site 5.

2.3.3 Site 10, Harpswell Fuel Depot. This site has been used for fuel storage and distribution for more than 20 years.

2.3.3.1 Wastes Present. An unknown quantity of lead has been discharged to the soil. The source of the lead is tank bottoms that were discharged on the ground during one of two tank cleaning cycles between 1956 and 1963.

2.3.3.2 Migration Pathway. The tank area is immediately adjacent to Middle Bay, which would be the receptor of contaminant discharge. The lead is not in a mobile form, therefore, migration is unlikely.

2.3.3.3 Conclusions. No further action is recommended since migration is unlikely.

Click Here to Return to Main Index

CHAPTER 3. RECOMMENDATIONS

3.1 BACKGROUND. Based on the results of the IAS discussed in Chapters 2 and 8, there are seven sites that have the potential to threaten human health or the environment. These sites are the result of disposal of hazardous materials in landfills or the direct discharge of hazardous materials to the ground. The hydrogeology of the Air Station is potentially conducive to migration of pollutants, and the Air Station includes sensitive wetlands on its southern boundary. Therefore, it is recommended that a confirmation study (Phase II of the NACIP program) be conducted.

3.1.1 Confirmation Studies. The identification of the sites recommended for confirmation was based on engineering judgement and application of the Confirmation Study Ranking Flow Chart. Table 3-1 summarizes the recommendations. Seven sites are recommended for confirmation, and the study plans for these sites are described in later sections of this chapter. RCRA requirements were used as a guideline in selecting the well locations and determining the number of wells.

3.1.2 Confirmation Study Ranking System. Hazardous waste sites identified by the IAS team were evaluated using a Confirmation Study Ranking System (CSRS) developed by NEESA for the NACIP program. The system is a two-step procedure for systematically evaluating a site's potential hazard to human health and the environment based on evidence collected during the IAS.

Step 1 of the system is a flow chart that eliminates innocuous sites from further consideration. Step 2 is a ranking model that assigns a numerical score, within a range of 0 to 100 to indicate the potential severity of the situation at a site. The scores are a reflection of the characteristics of the wastes disposed of at a site, contaminant migration pathways, and potential contaminant receptors on and off the installation. Confirmation Study Ranking System scores and engineering judgement are then used to evaluate the need for a confirmation study. The scores assigned to sites recommended for confirmation studies also assist Navy managers in establishing priorities for accomplishing the recommended actions.

A more detailed description of the Confirmation Study Ranking System is contained in NEESA Report 20.2-042.

3.1.3 Mitigating Actions. Site 6 is not recommended for a confirmation study, but mitigating actions are recommended. These actions are described in Section 3.11.

3.2 SITES 1, 2, AND 3, ORION STREET AREA LANDFILLS. Because of the proximity and similarity of environmental conditions at Sites 1, 2, and 3, these sites are grouped together for the confirmation study. Sites 1, 2, and 3 have the potential to adversely affect both groundwater and surface water. At present there are no reliable data for either media on which to base a conclusion regarding the effect of the sites on water quality. The study plan described has been developed to confirm whether or not the suspected contamination has occurred. The study plan will also provide data on which an accurate assessment of contamination migration can be made. The goal of this level of study is to determine if contamination has occurred.

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Table 3-1

Results of Confirmation Study Ranking Flow Chart

Site No.	Confirmation Study Ranking System Score	Name	Confirmation Study Recommended
1	25	Landfill -- AUW Area North	Yes
2	17	Landfill -- AUW Area South	Yes
3	17	Hazardous waste burial area	Yes
4	19	Acid/caustic pit	Yes
5	---	Asbestos disposal site	No
6	---	Rubble and asbestos disposal site	No[1]
7	32	Old acid/caustic pit	Yes
8	18	Perimeter Road disposal site	Yes
9	10	Neptune Drive disposal site	Yes
10	---	Harpswell Fuel Depot	No

[1]Mitigating actions are recommended for this site.

Click Here to Return to Main Index

3.2.1 Surface-Water Investigation. The purpose of the surface-water investigation is to identify the impact of the site on the quality of the receiving water body. In order to do so a sampling program has been developed. The sampling must be conducted during base flow conditions in order to eliminate the dilution effect of high volumes of runoff. Base flow conditions are normally achieved in September, October, and November. Base flow conditions are approached when there has been no precipitation for the five days preceding the sampling event. Spring months are generally not suitable because of the input of snow-melt to a stream.

Sampling locations are shown on Figure 3-1. Sample point 1 is an upstream location serving as a background sample. Sample 1 should be collected at the outlet of the culvert that carries Mere Brook under the runway. The remaining samples are downstream of the sites and locations have been selected to monitor flow from the disposal area. The three samples should be collected simultaneously if possible. If this is not feasible, the time between each sample should be minimized. The analysis parameters are shown in Table 3-2. These parameters are recommended because of the varied types of waste disposed of at the site. Boron is included because it has been found to be a useful indicator parameter. Boron is not a natural constituent in groundwater in the northeastern United States, however, it is a constituent in leachate. The major sources of boron in leachate are breakdown products of paper and ash. Boron is also relatively mobile and migrates readily.

Table 3-2

Surface-Water Analysis Parameters -- Mere Brook

Iron (soluble
Heavy metal scan[1]
TOX
TOC
BOD
COD
pH
Boron (soluble)

[1]Method: Guideline for Establishing Test Procedures for the Analysis of Pollutants, Appendix 4, EPA 600/D-80-021.

3.2.2 Groundwater Investigation. The purpose of the groundwater investigation is to determine the impact on water quality and to determine migration rates and directions. The investigation consists of well installation, surveying, and sampling.

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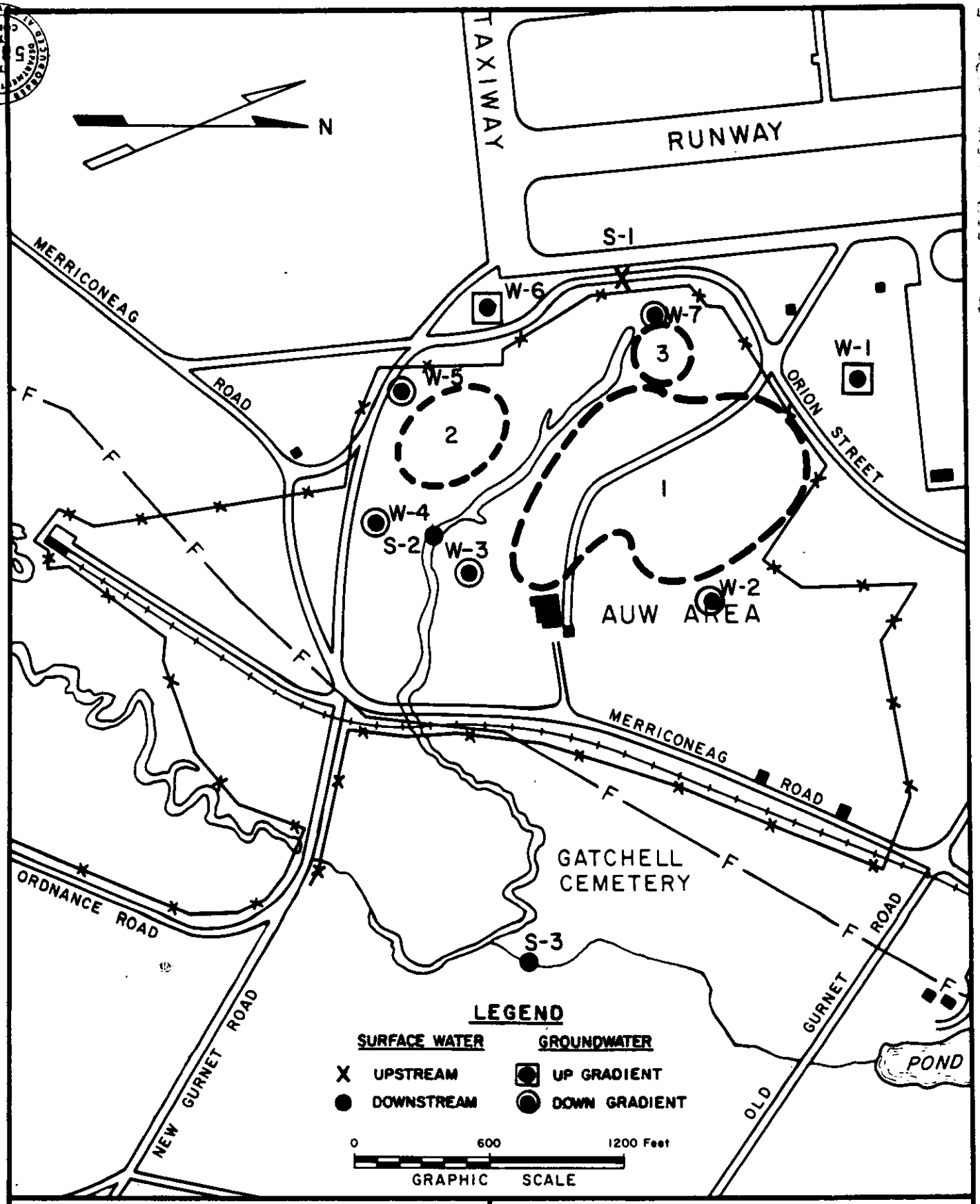

FIGURE 3-1

SAMPLING LOCATIONS – SITES 1,2 & 3

INITIAL ASSESSMENT STUDY
NAVAL AIR STATION
BRUNSWICK

Click Here to Return to Main Index

3.2.2.1 Well Installation. It is recommended that seven wells be installed. (Well locations are shown on Figure 3-1.) The wells should be drilled to 15 feet below the top of the water table. The preferred drilling method utilizes a hollow stem auger with material samples collected at standard intervals (every 5 feet or with every change in material). Hollow stem auger drilling is preferred because this method does not introduce fluid into the well. The suggested well construction is described in Table 3-3.

After the wells are completed locations and elevations should be surveyed. Detailed well logs should be compiled during drilling. Completion forms should be completed for each well and placed in a permanent file at the installation.

3.2.2.2 Sampling Procedures. Sampling and decontamination procedures should conform to U.S. EPA requirements.

Site 3 is a special case because of the presence of DANC. Safety precautions must be employed during sampling, and the actual disposal area should not be disturbed. A personnel safety plan should be developed and submitted prior to drilling and groundwater sampling. Safety procedures should be followed during these activities, and skin and respiratory protection are suggested.

3.2.3.3 Parameters for Analysis. Field pH and specific conductivity of the groundwater should be measured at the time of sampling. Each of the seven groundwater samples should be analyzed for the parameters shown in Table 3-4 because of the varied mix of waste in the site and the lack of exact records on the wastes disposed of.

3.2.2.4 Water Elevations. After surveying well elevations and allowing a suitable time for stabilization, a groundwater contour map should be prepared based on water levels measured at the time of sampling. This will provide confirmation of upgradient and downgradient locations.

Table 3-4

Groundwater Analysis Parameters

Iron (soluble)
Lead
Mercury
Cadmium
Chloride
Chromium (total)
TOX
TOC
VOA
pH
Boron (Soluble)

3.2.2.5 Follow-On Action. If contamination is found (defined as increases in nonorganics above the levels in well 1 or the presence of organic constituents), bedrock wells should be installed adjacent to each well. The bedrock wells should be sampled and analyzed for those contaminants identified in the shallow wells.

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5808

Table 3-3

Minimum Well Construction Requirements

Item	Description
Casing	PVC with nonglue fittings
Minimum casing diameter	Four inches
Screen	PVC wound with nonglue connectors and bottom cap
Top of screen	5 feet above the water table
Gravel pack	2 feet above top of the screen
Bentonite seal	A 2-foot bentonite seal should be placed above the gravel pack.
Grout	6 to 1 bentonite/cement mix to 2 feet below surface. Grout emplaced with a grout pipe. Grout pumped through pipe to the bottom of the open annulus (above the seal).
Protective cover	5-foot length of black iron pipe extending 3 feet above the ground surface and set in cement grout. Pipe diameter must be at least 2 inches greater than casing diameter.
Cap	A secure locking cap should be provided.
Survey	Locations and elevations of all wells should be surveyed.

Click Here to Return to Main Index

3.2.3 Additional Recommendations. Site 3 is small and apparently well defined. Based on the nature of the hazardous wastes known to be present at this site, it is recommended that the wastes be removed as soon as acceptable disposal arrangements can be made. Source removal will not affect any water quality degradation that may have already occurred, but will prevent further degradation.

3.3 SITE 4, ACID/CAUSTIC PIT. The potentially affected media at Site 4 are groundwater and soil. The hazardous materials of concern are transformer oils possibly containing PCBs, solvents, and lead resulting from disposal of battery acid, and solvent and transformer fluids in the pit.

3.3.1 Soil Sampling. Soil samples should be taken on each side and behind the extension on the south end of Building 584 for a total of three sampling locations. Samples should be collected with split spoons and a hollow stem auger drill rig so that accurate depths of sample can be determined. At each location, a continuous vertical sample of a 10-foot depth will be collected. Subsamples should be made of each 2-foot interval, thus providing five samples at each location. Each sample will be analyzed for PCBs.

3.3.2 Groundwater Sampling. The borings that are used for collecting soil samples should be continued to 10 feet below the water table and completed as groundwater monitoring wells. The well construction should be as described in Table 3-3. A groundwater contour map shall be prepared based on the water levels measured after the wells have stabilized and computed from the surveyed location and elevation of each well. Field pH and specific conductivity should be determined for each well at the time of sample collection. Sampling protocols should be used. The sample for volatile organics analysis should be collected with a stainless steel bailer. Care should be taken to minimize aeration of the sample. All sampling equipment should be thoroughly cleaned between wells in accordance with EPA requirements.

3.3.2.1 Parameters for Analysis. Three groundwater samples should be analyzed for volatile organics, PCBs, and lead. The presence of these constituents shall be considered indicative of contamination.

3.4 SITES 7 AND 8, OLD ACID/CAUSTIC PIT AND PERIMETER ROAD DISPOSAL SITE. These sites are located in a topographically flat area indicative of a very shallow groundwater gradient. The sites are also close to each other and located on permeable sediments. In addition, both sites are close to a surface-water drainage boundary; groundwater boundaries, however, are not necessarily contiguous with surface-water boundaries. Therefore, the confirmation studies for the sites have been developed as a single study.

3.4.1 Soil Sampling. Soil samples should be collected at three locations, W-1, W-2, and W-3 (shown on Figure 3-2), near Site 7. The pit has been covered but its location in the field is apparent by the lack of vegetation in the immedi- ate area. Samples should be collected using split spoon samplers. Samples should be collected from the surface to 10 feet below the surface. Each 2-foot interval should be composited to provide five samples at each of the three locations. Analyze each sample for PCBs.

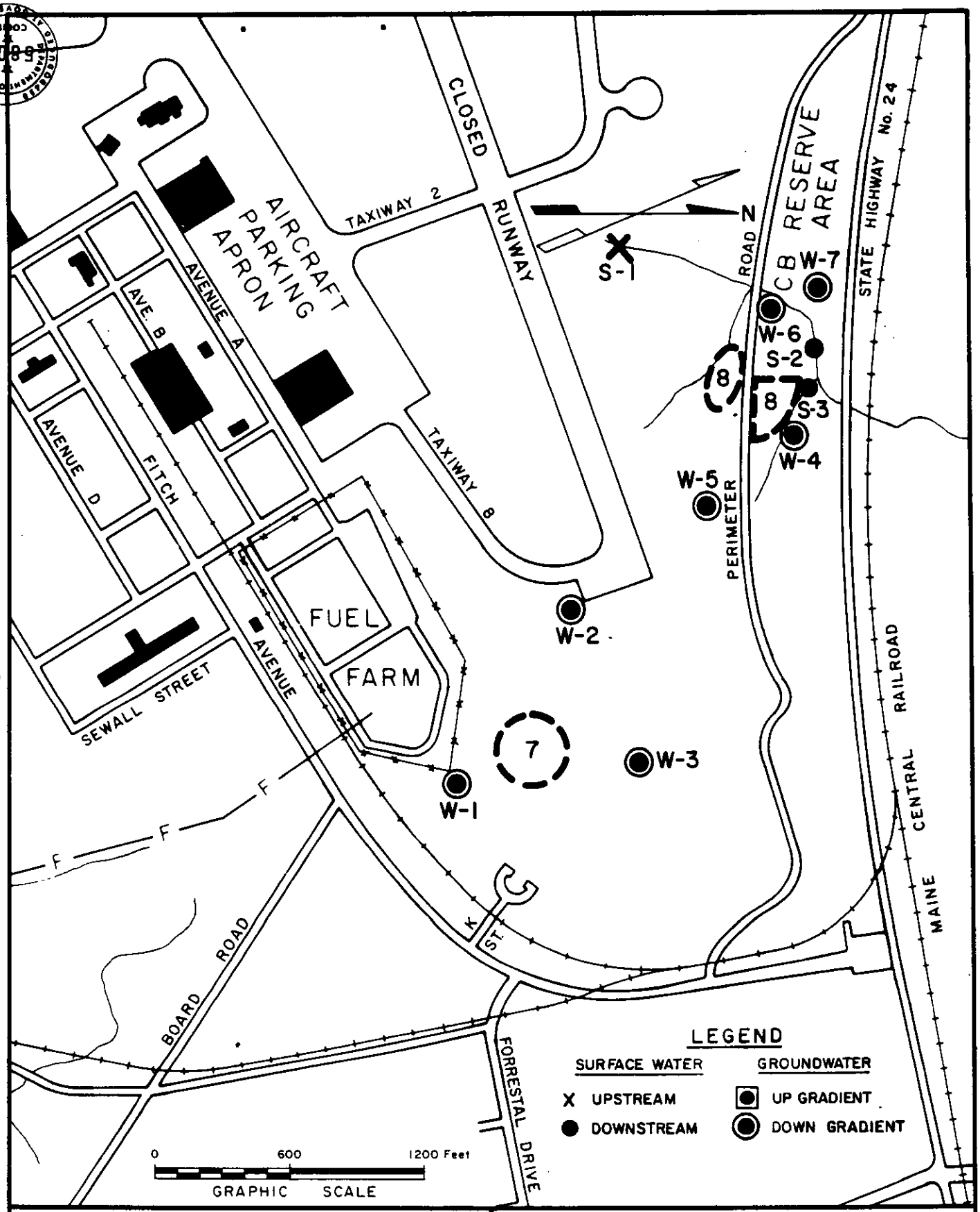

FIGURE 3-2

SAMPLING LOCATIONS - SITES 7 & 8

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Click Here to Return to Main Index

3.4.2 Groundwater Sampling. At each soil sample location drilling should be continued to 10 feet below the water table and each boring should be completed as a groundwater monitoring well according to the minimum construction requirements in Table 3-3. In addition, four groundwater monitoring wells should be constructed at locations W-4 through W-7 on Figure 3-2.

3.4.2.1 Parameters for Analysis. Groundwater samples should be analyzed for PCBs and volatile organics in all wells. Wells W-4 through W-7 should also be analyzed for TOC, iron (soluble), boron (soluble), chromium (total), chloride, lead, mercury, and cadmium.

3.4.2.2 Groundwater Sampling. Sampling should be conducted according to standard protocols. Groundwater elevations should be determined prior to sampling. Samples for volatile organics analysis should be collected with a stainless steel bailer; care should be taken to minimize aeration of the sample. Samples for nonorganic parameters should be collected after pumping five volumes of water from the well. All samples should be preserved and stored as appropriate for each parameter. A portion of each sample (250 ml) should be filtered in the field for metals analysis.

3.4.3 Surface-Water Sampling. A surface-water sample was collected during the IAS with inconclusive results. The proximity of the sites to the tributary of the Androscoggin River and the boundary of the Air Station indicate the need for additional confirmatory sampling at the three locations shown. Surface-water samples should be taken during base flow conditions as described previously. The parameters for analysis should be iron (soluble), TOC, BOD, COD, pH, boron (soluble), chromium (total), chloride, lead, mercury, and cadmium.

3.5 SITE 9, NEPTUNE ROAD DISPOSAL SITE. As discussed in Chapter 8, information regarding this site is limited regarding both the extent of the site and the wastes disposed of. The media that are potentially impacted by the site are surface water and groundwater.

3.5.1 Surface Water. Three surface-water sampling points have been identified; their approximate locations are shown on Figure 3-3. Sampling point 1, (upstream point) is the discharge point of the culvert at the western end of the stream. Sample point 2 is as shown on Figure 3-3. Sample point 3 is the discharge point of the culvert that enters the stream on the northern side and carries water from under the Marine Barracks area. The sample conditions should be baseflow conditions as described in subsection 3.2.1.

3.5.1.1 Parameters for Analysis. The three surface-water samples should be analyzed for iron (soluble), TOC, BOD, COD, pH, boron (soluble), chromium (total), chloride, lead, mercury, and cadmium.

3.5.2 Groundwater. Four well locations are shown on Figure 3-3. The wells should be installed with a hollow stem auger drill rig. The depth of the wells should be 10 feet below the first water. The well construction requirements are as shown on Table 3-3. Water elevations should be determined after wells have stabilized and well elevations and locations have been surveyed. A groundwater contour map should be prepared.

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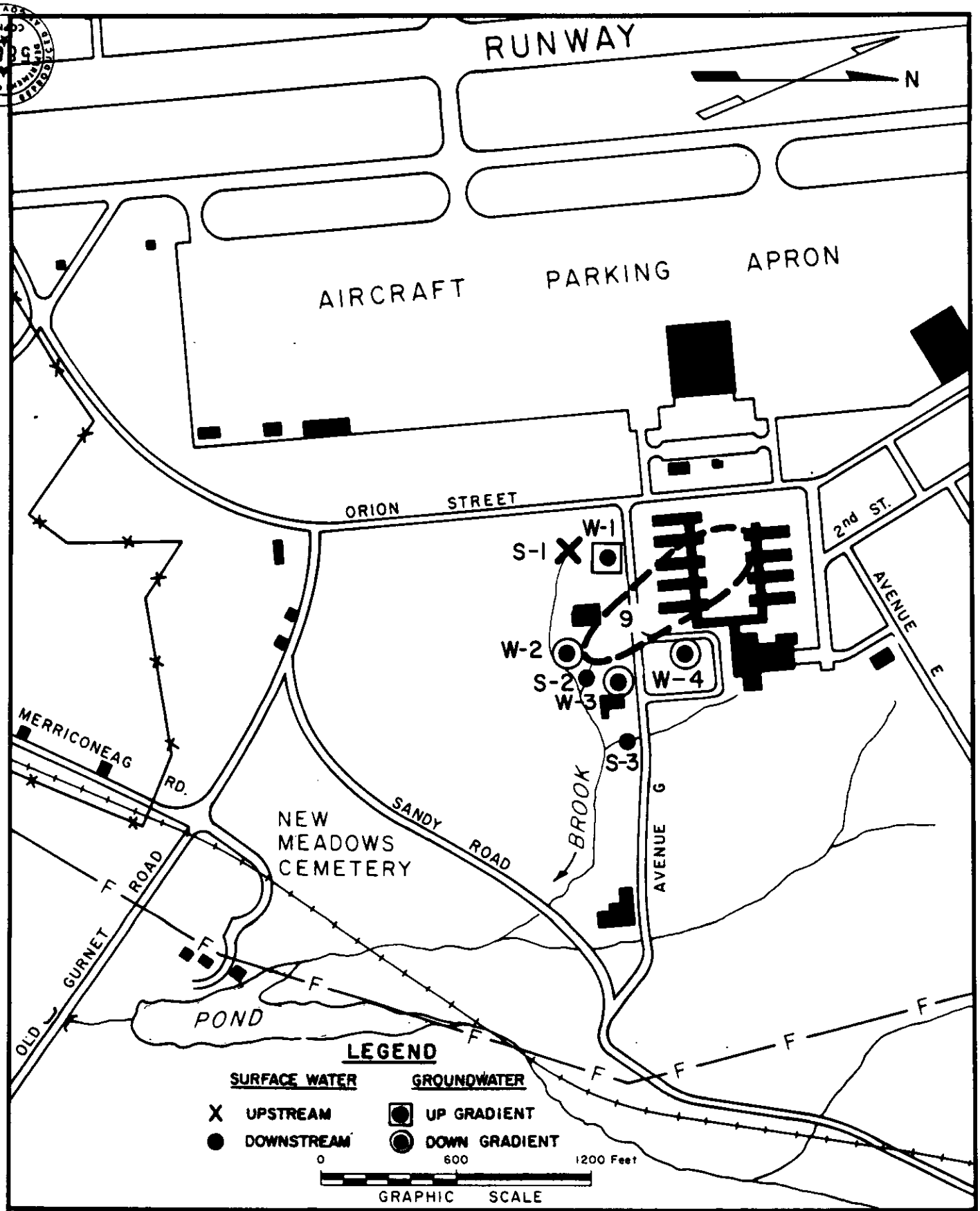

FIGURE 3-3

SAMPLING LOCATIONS - SITE 9

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Click Here to Return to Main Index

3.5.2.1 Groundwater Sampling. A sample should be collected from each well for volatile organics analyses. These samples should be collected with a stainless steel bailer; aeration of the samples should be minimized. An additional sample from each well should then be collected after pumping five volumes of water from the well being sampled. All sampling equipment should be thoroughly cleaned between wells. Field pH and specific conductivity should be measured at the time of sampling. A 250-ml portion of the pumped sample should be filtered for metals analysis. The samples should be preserved appropriately for each parameter.

3.5.2.2 Parameters for Analysis. A sample from each of the four wells should be analyzed for volatile organics, TOC, iron (soluble), boron (soluble), chromium (total), chloride, lead, mercury, and cadmium.

3.6 MITIGATING ACTIONS. At Site 6 certain mitigating actions are recommended to eliminate actual or potential discharges of contaminants.

3.6.1 Site 6, Rubble and Asbestos Disposal Site. In November 1982 asbestos pipe was seen protruding from the site. Examination of the site showed that the cover is very thin in many places. In order to prevent the discharge of asbestos to air or surface-water runoff it is recommended that at least 18 inches of cover material be applied to the site. The cover should be graded to a smooth surface and seeded. It is further recommended that the site be clearly marked as containing asbestos, and the site location noted on the facility master plan. Marking and documenting the site should be accomplished in order to prevent future unintentional disturbance and possible discharge of asbestos.

DEPARTMENT OF THE NAVY 5808 COPIER

Click Here to Return to Main Index

CHAPTER 4. BACKGROUND

4.1 GENERAL INFORMATION. The Naval Air Station, Brunswick, Maine includes the Naval Air Station installation, seven outlying special operating areas, and two related remote support installations.

4.1.1 Location. The Brunswick Naval Air Station is located within the Town of Brunswick in Cumberland County, Maine. The installation is approximately 2 miles east of Brunswick's main business district. The other population center in the vicinity is the town of Topsham, across the Androscoggin River from Brunswick. Augusta, the state capital, is 31 miles north of the Air Station; the City of Portland is 27 miles southwest. The Air Station's southern boundary includes part of Harpswell Cove, which is one of several elongated coves and inlets on the northern end of Casco Bay. Figure 4-1 shows the location of the Brunswick Naval Air Station.

4.1.2 Mission. The Brunswick Naval Air Station is a NATO facility that provides facilities, services, and materials in direct support of COMPATWINGFIVE, with its six P-3 anti-submarine warfare squadrons and OPCON Center, and COMPATWINGSLANT. The Air Station directly provides aircraft support facilities including the following:

(1) An all-weather air station

(2) Aircraft intermediate maintenance

(3) Material support to organizational and intermediate-level maintenance operations

(4) Aircraft fuel servicing

(5) Air search and rescue facilities

(6) Mining range and rake station sites

(7) Explosive ordnance storage and disposal

4.1.3 Brunswick Naval Air Station Departments. As host facility, the Air Station provides support to its tenants through a number of departments (summarized in Table 4-1).

4.1.4 Host/Tenant Relationships. The Air Station hosts a number of tenant activities. The primary tenants include the six home-based squadrons of COMPATWINGFIVE, which canvass the North Atlantic conducting all-weather, anti-submarine operations as their primary mission. Secondary missions include aerial mine laying, low-level bombing, rocketry, logistic assignments, and air search and rescue operations.

4.1.4.1 COMPATWINGFIVE. This unit provides administrative, operational, and logistic support to six subordinate patrol squadrons including: tasking, briefing, debriefing, evaluation, and communications support for operational and training flights conducted by assigned squadrons; interfacing with the supply and maintenance data reporting systems; and providing technical assistance and monitoring aircraft readiness.

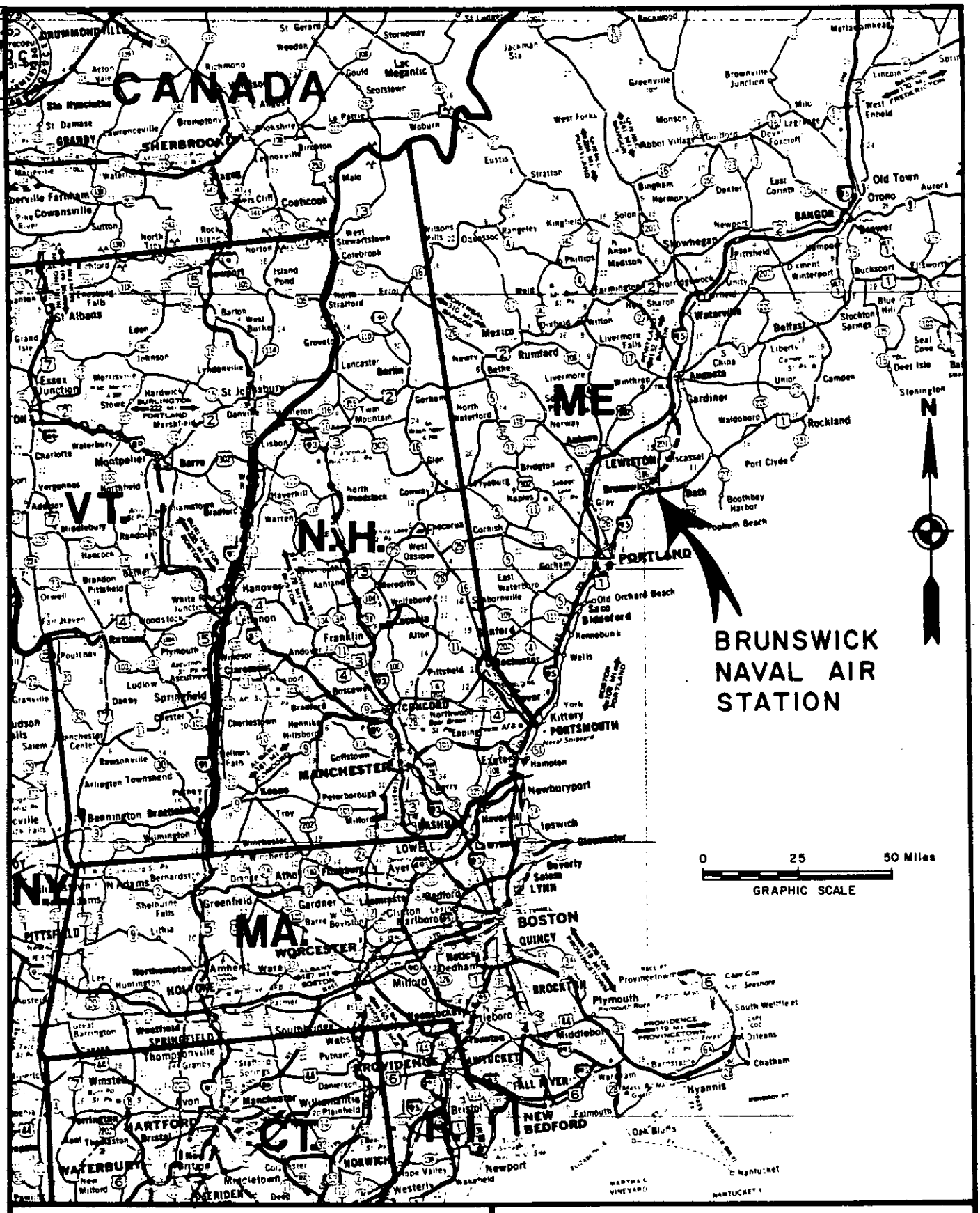

FIGURE 4-1

VICINITY MAP

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NAVAL AIR STATION
BRUNSWICK

Click Here to Return to Main Index

Table 4-1

Brunswick Naval Air Station Departments

Department	Function
Administration	General administrative services
Aircraft Intermediate Maintenance	Provides intermediate maintenance for supported aircraft. Includes power plant, air frames, avionics, armament, aviation equipment, ground support equipment, and operations maintenance.
Air Operations	Operates airfield, provides air traffic control, provides fire protection.
Communications	Provides communication and cryptographic services, operates telephone system.
Resources Management	Planning for use of resources, financial management program.
Weapons	Procures and maintains ordnance and weapons authorized for the Air Station.
Supply	Provides logistics for the Air Station and tenants; primary stock system within aeronautical supply system, Navy retail stock point in defense supply system.
Public Works	Maintenance and operation of Air Station facilities and utilities.
Morale, Welfare, and Recreation	Coordinates operation of service and recreation programs.
Security	Station and personnel security, liaison with local law enforcement.
Navy Exchange	Provides source for obtaining articles and services.

5808 COPIER

Click Here to Return to Main Index

4.1.4.2 COMPATWINGSLANT. Command responsibilities include: administration, training, and readiness of the Atlantic Fleet aircraft patrol force; conducting long-range ASW operations and surveillance; developing effective ASW tactics; and ensuring the availability of aircraft patrol forces to meet operational commitments. The unit includes two subordinate patrol wing staff, 12 operational patrol squadrons, one replacement training squadron, two Naval Air Stations (Brunswick and Bermuda), and one Naval air facility at Lajes, Azores.

4.1.4.3 VP Squadrons 8, 10, 11, 23, 26, and 44. This unit conducts all-weather anti-submarine operations and organizational-level aircraft maintenance. While operating at the Brunswick Naval Air Station proper, squadron personnel augment the various supporting departments and activities.

4.1.4.4 Naval Weather Service Environmental Detachment (NWSED). This unit provides meteorological and oceanographic services to military activities, staff, units, and transients of the Air Station and others within its local area of responsibility. The unit also provides forecast and warning services to ships at Bath and Portland, Maine, and weather planning services to NWSED South Weymouth, Massachusetts.

4.1.4.5 Explosive Ordnance Disposal Detachment (EOD). This unit locates, recovers, and subsequently renders safe or disposes of unserviceable or damaged ordnance through either surface or underwater operations.

4.1.4.6 Naval Aviation Engineering Service Unit. This unit provides field engineering assistance and instruction to Naval aviation activities involved in the installation, maintenance, repair, and operation of all types of aviation systems and equipment.

4.1.4.7 Atlantic Fleet Audio Visual Facility. This unit provides photographic services to Naval units in the state of Maine. Its services include still, ground, and aerial photographic acquisition, film processing and printing, plus a limited motion picture capability. Approximately 90 percent of the photo laboratory workload is generated by the VP squadrons.

4.1.4.8 Marine Barracks. The Marines provides Air Station security and additional functions as directed by the Chief of Naval Operations.

4.1.4.9 OICC-ROICC. This unit provides overall supervision, direction, and policy guidance as required in the execution of construction contracts.

4.1.4.10 Defense Property Disposal Office (DPDO). This unit receives, stores, and disposes of excess/surplus property for Department of Defense activities within the area.

4.1.4.11 U.S. Weather Bureau and Meteorological Observatory. The Bureau operates weather radar as part of the national network, and provides weather radar information to the Naval Weather Service Detachment at the Air Station and to National Weather Service offices.

4.1.4.12 FASOTRAGULANT. This unit provides training in the operation of airborne anti-submarine warfare equipment and systems. It also provides training in methods of survival, evasion, resistance, and escape, and cold weather survival.

Click Here to Return to Main Index

4.1.5 Real Estate. There are 7,254 acres of Class I real property under the Air Station's jurisdiction. The main station and four noncontiguous properties (Topsham Annex, remote transmitter, McKean Street housing, and rake stations) were acquired by fee-simple purchase, condemnation, or exchange. The SERE (survival, escape, resistance, and evasion) school (3,800 acres) is leased by the Navy. The land area of the main station is 3,091.8 acres. Of this amount, 57 acres are encumbered by right-to-use agreements. Acquired drainage, utility, and navigation easements total 42 acres.

4.2 HISTORY.

4.2.1 Site Selection and Initial Command. Brunswick, Maine was selected as a northeastern outpost for anti-submarine patrol because of the two runways, originally constructed by the W.P.A., which already existed in a location that was conducive to expansion. The majority of the land not taken up by the runways was covered by blueberry fields. The land and the runways were purchased from the town of Brunswick, and construction began on 15 October 1942. The Air Station was commissioned on 15 April 1943 as a base for inshore and offshore patrol squadrons.

4.2.2 World War II Construction. Because of the war emergency construction proceeded rapidly. The first building, the Operations Building, was in use by January 1943. By April 1943 the Administration Building and several other buildings were completed. Hangar 1 was completed before June 1943, and Hangar 2 was completed by August 1943. During the winter of 1943-1944, the following buildings were completed: A&R Hangar, Officer's Mess and recreation space, parachute loft, ground training department, and railroad spur. In June 1944 a new taxiway was started and existing personnel facilities were enlarged.

4.2.3 Other World War II Facilities. During World War II a number of off-base facilities were operated by the Air Station. Casco Bay, used as a seaplane ramp, was commissioned on 17 May 1943. Casco Bay became a boat facility and evolved into a largely self-supporting base. A facility at Lewiston was used for training British squadrons and later American torpedo squadrons. The Lewiston facility was declared surplus on 1 December 1945. Facilities at Rockland and Sanford, Maine were put on caretaker status on 1 November 1945.

4.2.3.1 Bar Harbor Facility. During 1934 and 1936 the W.P.A. built airstrips at Bar Harbor. The Navy took over this facility on 1 September 1943. Bar Harbor was put on a caretaker basis from 24 December 1944 to 19 March 1945. Planes from Brunswick were temporarily stationed there to practice dummy aircraft carrier deck landings. Bar Harbor was put back on caretaker status on 15 July 1945, and was declared surplus on 1 December 1945.

4.2.4 Station Use -- 1947 - 1951. The Naval Air Station at Brunswick was demobilized in the fall of 1946. During the period from 1947 to 1951 the Brunswick Naval Air Station was leased to various nonmilitary activities. From 1947 to 1949 the Air Station facilities were leased by the University of Maine and Bowdoin College and used for student housing and classrooms. Both colleges terminated their leases in 1949. The Brunswick Flying Service then took over the Air Station. Hangar 1 became a skating rink; Hangar 2 and the operations tower were part of a civilian flying school; Hangar 3 was used for automobile servicing; the ammunition magazines were used for growing mushrooms; and a shrub nursery was operated on the northern boundary.

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Click Here to Return to Main Index

5808

4.2.5 Post-1951 Activity. In December 1950 the Navy requested $35,000,000 from Congress to be used for a master jet project at the Air Station. This allocation included construction of dual 8,000-foot runways and two outlying fields. Approximately $20,000,000 was requested by the Secretary of Defense for additional barracks, a control tower, and other construction required to make a permanent installation. The Air Station was recommissioned on 15 March 1951 as an anti-submarine Naval air station with the mission of supporting three land-plane patrol squadrons, one Fleet Aircraft Service, and an anticipated future as a master jet base. On 1 December 1951 the facility was officially designated as a Naval air station.

4.2.5.1 Air Station Expansion. During the 1950's the Air Station underwent a period of expansion and attendant construction activities. In 1952 rehabilitative construction was completed on roads, existing buildings and utilities, and tanks and valve pits for the fuel farm were completed. Approximately 125 officers and 1,000 enlisted personnel were added to the Air Station's staff. During the same year a fuel pier was constructed at Harpswell Neck.

All of the existing bachelor housing and most of the on-station family housing was built between 1954 and 1958. Outlying areas at the Air Station were developed in the mid-1950's. Included in this development were the ordnance magazine area south of the runways, and communications and navigational aids west of the runways. In all, 222 structures and buildings were constructed during the 1950's.

4.2.5.2 Developments in the 1960's. The major change at the Air Station during the 1960's was the expansion of Hangars 1 and 3 in anticipation of the replacement of P2-V Neptunes with P-3 Orion aircraft. A number of facilities in support of aircraft operations were also constructed. Thirty-one family housing units, a chapel, and recreational facilities were also added.

4.2.5.3 Recent Activities. In 1973, three special weapons magazines were installed within the special weapons compound. In 1974 the Reserve Naval Mobile Construction Battalion was added, and seven semi-permanent buildings were constructed as Reserve training facilities. The most recent change at the Air Station was the addition of a six-bay aircraft maintenance hangar, with a seventh bay corrosion control hangar, which were begun in 1980 and completed recently.

4.3 PHYSICAL FEATURES. The Brunswick Naval Air Station is located 5 miles inland of the Atlantic Ocean. The proximity of the ocean is a major influence on the climate and ecology at the Air Station.

4.3.1 General Information. The Brunswick coastal area is characterized by parallel northeast-trending peninsulas extending into the Atlantic Ocean. These ridges are topped by northeast-trending eskers, remnants of the last glaciation. Between the peninsulas are coves, mudflats, and tidal marshes. The environment of the Air Station comes under the protection of the State of Maine Coastal Zone Management Program, which is based on 11 state laws regulating the development and use of the coastal zone. These laws regulate point-source discharges, land use, solid waste management, air quality, stream alteration, and spill prevention and control. Table 4-2 summarizes these regulations.

Click Here to Return to Main Index

Table 4-2

State of Maine Coastal Zone Management Program

Law	Citation	Description
Protection and Improvement of Waters	T.38, Section 361-A-454	Classifies quality of surface waters. Provides for permits for waste discharges to surface waters.
Alteration of Coastal Wetlands	T.38, Section 471-8	Establishes permitting system for construction in wetlands.
Shoreline Zoning and Subdivision Control	T.12, Section 4811-14	Requires municipalities to adopt zoning ordinances for all areas within 250 feet of the high water mark of a water body.
Land Use Regulation Commission	T.12, Section 681-9	Regulates land use in unincorporated areas.
Land Subdivisions	T.30, Section 495-6	Regulates subdivisions.
Site Location Act	T.38, Section 481-9	Regulates location of projects to minimize impacts.
Protection and Improvement of Air	T.38, Section 582-608	Controls air emissions.
Solid Waste Management	T.3, Section 1303-1308	Regulates construction and operation of solid waste facilities.
Stream Alteration Act	T.12, Section 2206-2212	Requires permits for construction, dredging, or filling.
Oil Discharge Prevention and Pollution Control	T.38, Section 344-349, 541-557, 560	Provides penalties and cleanup funding for oil spills.
Marine Resources	T.12, Section 3504-5	Regulates harvesting of marine plants and fish.

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Click Here to Return to Main Index

5808

4.3.2 Climate. The climate where the Air Station is located is strongly influenced by proximity of the Atlantic Ocean, which tends to moderate extremes in temperature and increase the amount of precipitation received by the area. Maine is noted for the variety of its weather; relative to other parts of the country, Maine is affected by a large number of storms. The state is divided into three climatic divisions; the Air Station is located in the Coastal Division.

4.3.2.1 Temperature. Winter temperatures in the Coastal Division are generally comparable with those in areas 200 or more miles south in the central part of the country. The mean maximum temperature for January is approximately 32°F, while the mean minimum temperature is 12°F. There are 10 to 20 days of subzero readings each winter. In July the mean maximum temperature is 78°F and the mean minimum temperature is 58°F. The average number of freeze-free (above 32°F) days is 163. Table 4-3 summarizes the temperature records at the Portland, Maine airport, which is only about 30 miles from the Air Station.

4.3.2.2 Precipitation. In the Coastal Division winter precipitation is greater than in the rest of the state because of coastal storms. Winter precipitation is frequently in the form of rain or wet snow; ice storms occur occasionally. The mean seasonal snowfall at Brunswick is 70 inches and the mean annual precipitation is 42.4 inches. Table 4-4 summarizes the precipitation records at the Portland Airport.

4.3.2.3 Wind. During the winter months, the wind direction is primarily from the north. During the rest of the year the prevailing winds are from the south. The strongest winds are generated in the winter by coastal storms that can produce abnormally high wind-driven tides. The wind conditions are summarized in Table 4-5.

4.3.2.4 Fog. Fog is a frequent occurrence along the Maine coast except in the winter. At the Portland Airport the mean annual number of days of heavy fog is 53.

4.3.3 Topography. The undisturbed topography of the area around the Air Station is characterized by low rolling hills and deeply incised streams. In the developed portion of the facility the topography has been altered so that the area is almost level. Elevations in this area range from 60 feet to 75 feet above mean sea level. There is an established benchmark near the Control Tower, with an elevation of 72 feet.

4.3.3.1 Topographic Variation. The highest elevations at the Air Station occur in the southeast and southwest portions of the facility. A northeast-trending ridge with an elevation of approximately 120 feet occurs near Dyer Corner. A more extensive ridge, Buttermilk Mountain, occurs northeast of Harpswell Cove; the elevation is similar to that of the Dyer Corner ridge. At the southern boundary of the facility at the Harpswell Cove shoreline, the elevation is at sea level. However, elevations do rise rapidly to 60 feet. Elevations on most of the facility are between 40 and 80 feet.

4.3.3.2 Slope. For most of the facility slopes are between 0 and 3 percent. In the southern and western margins slopes between 3 and 8 percent are more common. Slopes between 8 and 15 percent occur primarily along stream banks and as isolated occurrences on hills that generally have more gentle slopes.

Click Here to Return to Main Index

Table 4-3

Temperature Data, Portland Airport

Month	Temperature						
	Normal			Extremes			
	Daily Maximum	Daily Minimum	Monthly	Record Highest	Year	Record Lowest	Year
January	31.8	11.7	21.8	64	1950	-26	1971
February	33.5	12.1	22.8	64	1957	-39	1943
March	40.7	22.0	31.4	86	1946	-21	1950
April	52.5	32.4	42.5	85	1957	8	1954
May	64.2	41.7	53.0	92	1944	23	1956
June	73.1	51.1	62.1	97	1941	33	1944
July	79.5	56.7	68.1	98	1949+	40	1965+
August	78.4	55.2	66.8	100	1948	33	1965
September	70.2	47.2	58.7	95	1945	23	1941
October	59.8	37.4	48.6	88	1963	18	1966+
November	47.6	28.6	38.1	73	1950	5	1940
December	35.3	16.3	25.8	62	1962	-21	1963
Yearly Average	55.6	34.4	45.0	100	Aug. 1948	-39	Feb. 1943

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Table 4-4

Precipitation Data, Portland Airport
(in inches)

Month	Precipitation							Snow Ice Pellets				
	Normal Total	Maximum Monthly	Year	Minimum Monthly	Year	Maximum in 24 hrs.	Year	Mean Total	Maximum Monthly	Year	Maximum in 24 hrs.	Year
January	4.37	9.41	1958	0.76	1970+	2.04	1966	18.4	38.2	1966	14.2	1944
February	3.80	6.76	1971	1.26	1968	3.21	1965	21.0	61.2	1969	21.5	1969
March	4.34	9.97	1953	0.81	1965	3.47	1951	14.1	46.6	1956	11.5	1964
April	3.73	6.48	1961	0.71	1941	2.43	1954	3.0	15.7	1967	8.7	1971
May	3.41	7.74	1948	0.49	1965	2.33	1952	0.3	7.0	1945	7.0	1945
June	3.18	6.23	1967	0.70	1941	5.58	1967	0.0	0.0		0.0	
July	2.86	5.87	1951	0.61	1965	2.23	1947	0.0	0.0		0.0	
August	2.42	8.30	1946	0.27	1947	4.18	1946	0.0	0.0		0.0	
September	3.52	9.81	1954	0.30	1948	7.49	1954	T	T	1959	T	1959
October	3.20	12.27	1962	0.26	1947	7.71	1962	0.3	3.8	1969	3.6	1969+
November	4.17	9.81	1963	2.10	1946	3.39	1951	3.1	15.3	1968	8.5	1961
December	3.85	9.69	1969	0.98	1955	3.82	1969	15.2	54.8	1970	22.8	1970
Yearly Total	42.85	12.27		0.26		7.71		75.4	61.2		22.8	

Click Here to Return to Main Index

Click Here to Return to Main Index

Table 4-5

Wind Data, Portland Airport

Month	Wind				
	Mean Speed	Prevailing Direction	Fastest Mile		
			Speed	Direction	Year
January	9.2	N	50	SE	1951+
February	9.5	N	58	N	1952+
March	10.0	W	76	NE	1947
April	9.9	S	57	S	1946
May	9.2	S	49	NW	1950
June	8.2	S	45	SW	1969
July	7.7	S	44	W	1941
August	7.5	S	69	E	1954
September	7.8	S	62	SE	1960
October	8.5	N	45	N	1963+
November	8.8	N	76	NE	1945
December	9.0	N	62	SE	1957
Yearly Average	8.8	S	76	NE	Mar. 1947+

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Click Here to Return to Main Index

5808

3.4 Geology. The geology of the area around the Air Station is described in terms of two primary components: unconsolidated sediments and Paleozoic bedrock. Table 4-6 shows a stratigraphic column for the Air Station area.

4.3.4.1 Unconsolidated Sediments. The surficial unconsolidated sediments at the Air Station have been mapped as the Presumpscot Formation that is composed of sediments that washed out of the Late Wisconsinian glacier. Characteristic of areas underlain by this formation is relatively flat to gently sloping topography with a branching network of steep-walled stream gullies. Figure 4-2 shows the surficial geology at the Air Station.

The unconsolidated sediments were deposited within the changing environment of the glacial recession as follows:

(1) 13,000 years ago -- Most of Maine was covered by the continental glacier that was beginning to recede from the coast. The ocean was in contact with the ice margin. Marine sediments were de- posited over glacial sediments as the glacier receded.

(2) 12,800 years ago -- Much of southern Maine was ice-free as the glacier receded. Coastal land areas were still depressed from the weight of the ice so that the ocean covered coastal lowlands. Additional marine and outwash sediments were deposited.

(3) 12,000 years ago -- Central and southern Maine were ice-free and the land rebounded causing the sea to retreat.

The result of this pattern is that the Pleistocene sediments of the area are extremely variable and reflect the facies changes created by the glacial recession and sea level advances and retreats.

The Presumpscot Formation is composed of silt, clay, and sand, and is fossiliferous at some locations. The unit found at the Air Station is largely sand that may be underlain by silt and clay in some locations. Records of wells in the vicinity of the Air Station show that the thickness of the unconsolidated sediments can exceed 150 feet. Based on observations, however, it appears that the sediments at the Air Station are considerably thinner, and some areas are without sediments.

4.3.4.2 Bedrock. In the Brunswick-Harpswell-Bath area bedrock is composed of eugeosyclinal facies metasedimentary and metavolcanic rocks of the Casco Bay Group, granitic rocks and pegmitites of Middle to Late Devonian Age, and basaltic dikes that are probably of Triassic Age. The Casco Bay Group rocks are Ordivician, Silurian, or Early Devonian Age. These rocks have been complexly folded and faulted. The major folds forming the principal structural features in the Air Station vicinity are the Hen Cove anticline, the Harpswell Sound syncline, and the Menepoint Neck anticline. The Harpswell Sound syncline plunges to the south and is delineated on the basis of lithology patterns. The Cape Elizabeth Formation occupies the axial zone of the structure (Hussey, 1981). Figure 4-3 shows the bedrock distribution for the area.

A major northeast trending high angle post-metamorphic fault has been mapped as passing through the Air Station (Hussey, 1981).

Click Here to Return to Main Index

Table 4-6

Stratigraphic Column

Formation	Map Symbols	Age	Description
Alluvium	AS, TF	Recent	Sand, silt, clay, and some gravel in river flood plains.
Presumpscot Formation	TL, GS	Pleistocene	Glacial-marine deposits. Mostly sand, but may be underlain by silt and clay. Moderate to high permeability.
Casco Bay Group			
Cape Elizabeth Formation	EOc, e	Paleozoic	Thin-bedded to massive, light to medium gray quartz-plagioclase-biotite-musco-vite and garnet schist with variable interbed of muscovite-biotite-garnet ± sillimanite ± stairrolite schist.
Cushing Formation	EOc, Og	Paleozoic	Massive to poorly bedded plagioclase quartz-biotite gneiss locally with garnet and muscovite or microcline. Includes lime silicate beds and lenses. Some gneiss contains twinned plagioclase and blue quartz porphyro-blasts.

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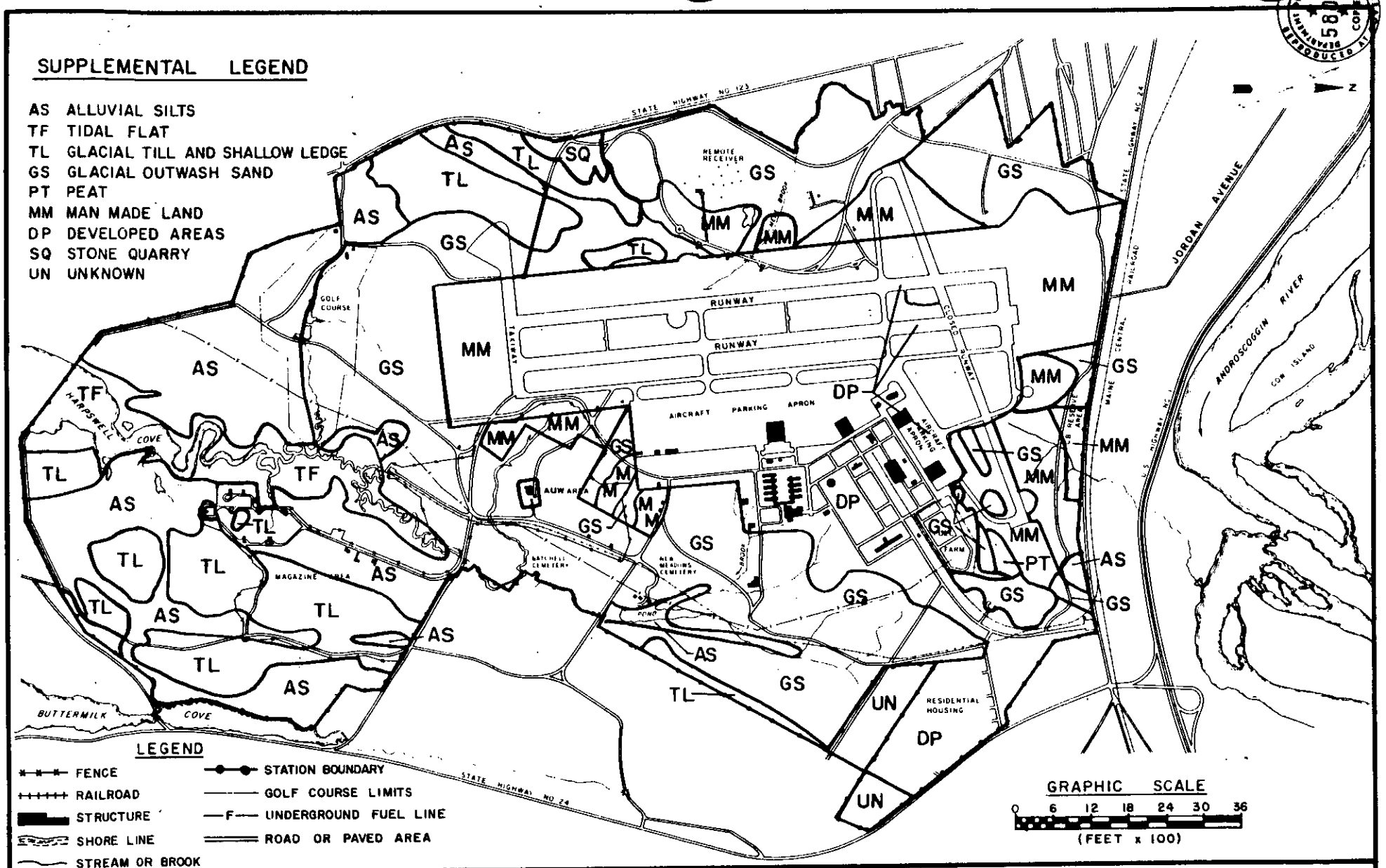

FIGURE 4-2

SURFICIAL GEOLOGY

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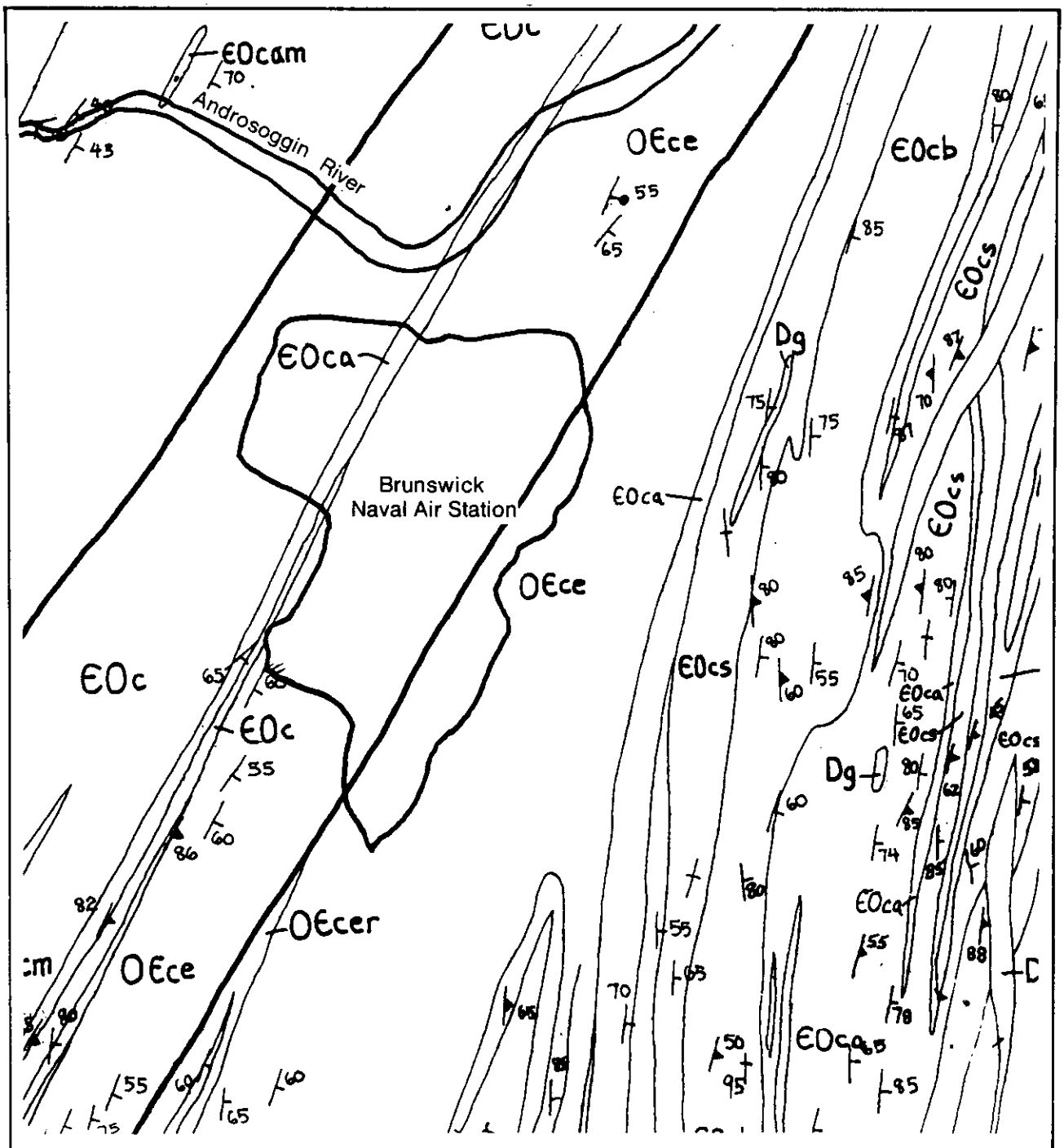

FIGURE 4-3 BEDROCK DISTRIBUTION IN THE NASB AREA

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Click Here to Return to Main Index

5808

The predominant bedrock type at the Air Station is the Cape Elizabeth Formation. The age of the formation is somewhat uncertain but is generally attributed to Ordivician or Silurian or Devonian Age. Lithologically, it is schist of complex mineralogy interbedded with quartzite (a lithology of single mineralogy). The formation was originally primarily deposited as sedimentary material but has been intensely deformed and metamorphosed to its present condition. The detailed mineralogy is described in Table 4-6. The Cape Elizabeth Formation underlies all but the northwestern third of the facility.

The other bedrock type found at the site is the Cushing Formation, which is the base unit in the Casco Bay Group. This formation differs from the Cape Elizabeth in that it is a more massive lithology, i.e., gneiss that has been more highly metamorphosed.

Both bedrock formations at the site are characterized by very limited primary porosity, generally in the saprolite or weathered zone. Secondary porosity results from structurally controlled fractures and foliations or planes of schistocity. The principal direction of such structures at the site is a northeast strike and a southeast dip.

4.3.5 Soils. The U.S. Department of Agriculture Soil Conservation Service has published (1974) a soil survey for Cumberland County. This survey, however, does not address the soils at the Air Station in detail. The Air Station area is shown as having soils belonging to the Windsor-Hinckley-Deerfield Association. These soils are described as deep, excessively drained to moderately well drained, nearly level to steep, and coarse textured. They occur on bottom lands, glacial terraces, outwash plains, and a few hills and ridges. The major soils in the association are rapidly permeable with a seasonal high water table. The southern end of the facility is covered by soils of the Suffield-Buxton-Hollis Association. This association consists of deep to shallow, moderately well-drained to somewhat poorly-drained soils. Soils in this association are characterized by low permeability.

4.3.5.1 Soil Survey. Although the Air Station was not included in the Cumberland County Soil Survey, a survey was conducted for much of the Air Station area in 1965. This survey was not published but was provided to the Commanding Officer of the Air Station. Apparently the survey was not finalized and contains some errors in boundaries and designations. Figure 4-4 shows the distribution of the mapped soils at the facility. Table 4-7 summarizes the characteristics of each soil that was mapped.

4.3.6 Hydrology and Migration Potential. Both surface water and groundwater are important at the Air Station. Surface water from the Air Station ultimately flows to nearby wetlands or to the Androscoggin River. Groundwater is used as the municipal water supply in the area and also supplies those areas not connected to public water. Due to the developed nature of the operations, cantonment, and housing areas at the facility, most of the natural drainage is directed to the storm sewer system.

4.3.6.1 Surface-Water Hydrology. The Air Station is included in four major drainage basins: the Androscoggin River, Mere Brook, Middle Bay Cove, and Buttermilk Cove. The boundaries of these basins are shown on Figure 4-5.

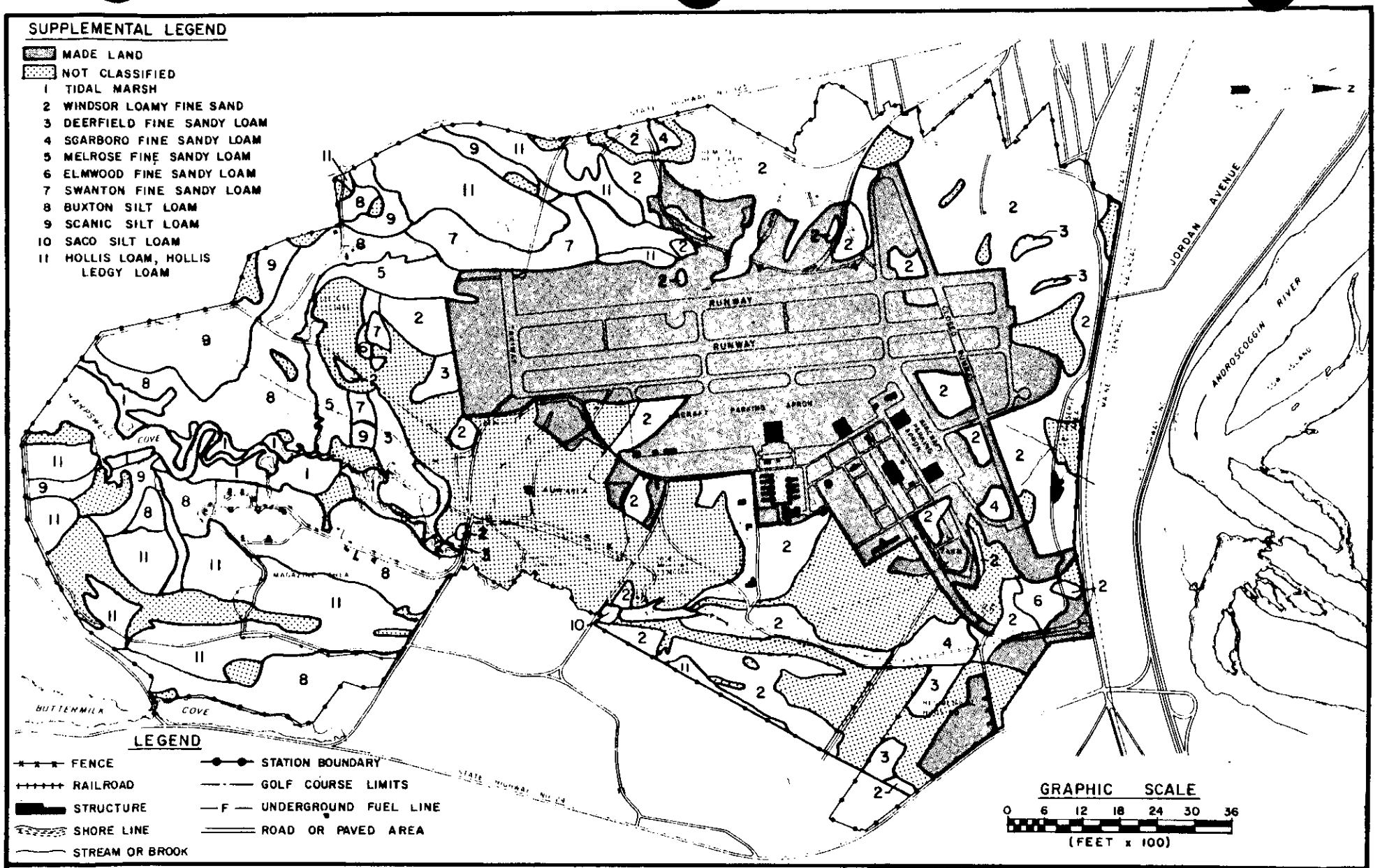

FIGURE 4-4

DISTRIBUTION OF SOIL TYPES

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Click Here to Return to Main Index

Table

Soil Characteristics

Mapping Unit	Soil and Description	Effective Depth	Texture	Permeability (in/hr) Subsoil	Permeability (in/hr) Substratum	Underlying Material	Drainage	Wetness
1	Tidal marsh. An undifferentiated deposit of recent marine alluvium.	Deep	Undifferentiated			Recent alluvium		
2	Loamy fine sand. Nearly uniform fine sand to great depth. Often underlain by clay at 10-20 feet. Brown weathered surface to 30 inches with grayish unaltered sand below.	Deep	Very light	6	6	Loose, fine	Excessive	
3	Deerfield fine sandy loam. Imperfectly drained phase of Windsor. Dark brown surface with rusty mottling in subsoil that passes into gray sand at 24-30 inches.	Deep	Light	2-6	6+	Loose, fine	Imperfect	Moderately wet
4	Scarboro fine sandy loam. Wet phase of the Windsor soil. Dark gray mottled soil and sub soil with light gray wet sand at 20-24 inches.	Deep	Light	2-6	6+	Loose, fine	Very poor	Extremely wet
5	Melrose fine sandy loam. The surface is similar to Windsor but the sand is only 4-5 feet thick and rests on clay. There is 20-30 inches of sand over the clay.	Deep	Light	2-6	0.2-0.6	Lacustrine fine sand over clay	Well drained	
6	Elmwood fine sandy loam. Imperfectly drained phase of Melrose. Brown surface with mottling in subsoil over the clay.	Deep	Light	2-6	0.2-0.6	Lacustrine fine sand over clay	Imperfect	Moderately wet
7	Swanton fine sandy loam. Poorly drained phase of Melrose. Gray surface with mottling just underneath.	Deep	Light	2-6	0.2-0.6	Lacustrine fine sand over clay	Poor	Very wet
8	Buxton silt loam. Imperfectly drained loam surface mottled in the subsoil passing into clay at 24-30 inches.	Deep	Heavy	0.2-7.0	0.2-0.6	Lacustrine clay	Imperfect	Moderately wet
9	Scantic silt loam. Gray silt loam surface passing into clay at 15-20 inches. Intensely mottled.	Deep	Heavy	0.2-6.0	0.2-0.6	Lacustrine clay	Poor	Very wet
10	Saco silt loam. Wet alluvial soil. Dark silt loam surface; high in organic matter with mottled silty subsoil grading into silty clay at about 2 feet.	Deep	Medium	0.6-2.0	0.6-2.0	Recent alluvial material	Very poor	Extremely wet
11	Hollis loam. Shallow glacial till at least 10 inches over previous schist bedrock.	Shallow	Medium	0.6-2.0	0.6-2.0	Schist	Well drained	

Click Here to Return to Main Index

Table 4-7
(continued)

Mapping Unit	Soil and Description	Effective Depth	Texture	Permeability (in/hr) Subsoil	Permeability (in/hr) Substratum	Underlying Material	Drainage	Wetness
	Hollis ledgy loam. Same as 11 but with many outcrops of ledge. Some times with a very shallow mantle of soil over the bedrock. The Westford soils are now included with the Hollis soil.	Shallow to very shallow	Ledgy medium	Moderate				
	Made land. Consists mainly of sandy Windsor soil material. Includes fills of sand, sometimes silt and silty clay loams, and is graded or otherwise disturbed land. It is the equivalent of a severely eroded Windsor soil.	Mostly deep	Undifferentiated	Mostly rapid	Mostly rapid			Mostly well drained
	(X1) Silt loam or silty clay loam (X2) Fine sand (X3) Medium sand (X4) Coarse sand (X5) Gravel (X6) Concrete slabs, rocks, etc.							
	Peat. A moderately deep deposit of peat made up principally of sedge, 20-30 feet deep over sand. The only occurrence at the Air Station is south of the drainage way in the overrun area of Runway 27.	Moderately deep	Peat	Moderate	Slow	Old alluvium, terrace, or outwash	Very poorly drained	Extremely wet

Click Here to Return to Main Index

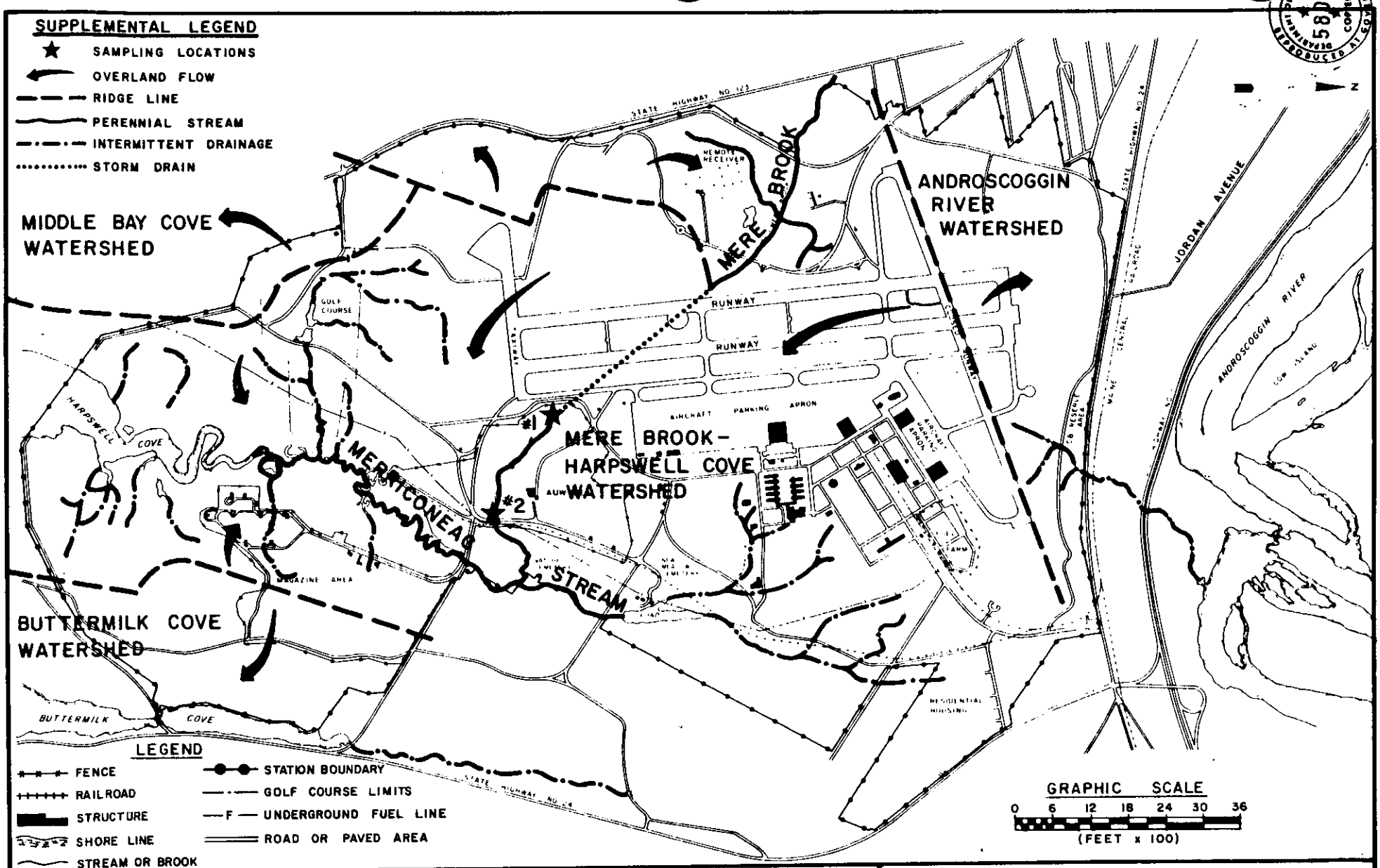

FIGURE 4-5

SURFACE WATER DRAINAGE BASINS

INITIAL ASSESSMENT STUDY
NAVAL AIR STATION
BRUNSWICK

Click Here to Return to Main Index

Click Here to Return to Main Index

Approximately 74 percent of the Air Station area is in the Mere Brook - Harpswell Cove watershed. Mere Brook enters the Air Station at the northwestern boundary and flows in its natural stream bed for approximately one-half mile. It is then routed under the operations area in an artificial conduit that is approximately one-half mile long. Mere Brook then joins a number of other very small intermittent streams to form Merriconeag Stream, which is the major stream entering Harpswell Cove at the head of the cove. Merriconeag Stream is tidal and its channel is wide and bordered by extensive tidal flats. Figure 4-6 is a photograph of Merriconeag Stream at the southern end of the Air Station. The channel of Mere Brook is relatively narrow and deeply incised for most of its length.

The Androscoggin River is the major surface-water body in the Brunswick area. It is one of the three major rivers that empty into the Atlantic Ocean on the Maine coast. The other rivers are the Kennebunk and the Penobscot. Portions of Brunswick are located in the lower Androscoggin River Basin. The Androscoggin flows to the east along the northern boundary of Brunswick and forms the boundary between Cumberland and Sagadahoc Counties. At the closet point the Androscoggin is approximately 3,000 feet from the northern boundary of the Air Station. Approximately 13 percent of the facility is in the Androscoggin watershed.

The Middle Bay Cove watershed includes about 4 percent of the Air Station. Middle Bay Cove is separated from Harpswell Cove by a northeast-trending ridge. Approximately 9 percent of the Air Station area is in the Buttermilk Cove watershed.

4.3.6.2 Flood Hazard. A flood hazard map is not available for the Air Station. The streams near the facility, however, have extremely steep high banks that are not likely to overflow. The tidal wetlands and the areas covered by alluvial silts at the southern end of the facility can be considered flood-prone.

4.3.6.3 Groundwater Hydrology. Groundwater in the Brunswick area occurs both in unconsolidated sediments and in underlying bedrock. The most productive aquifers in the area are the unconsolidated sand and gravel aquifers. Table 4-8 describes the water-bearing characteristics of the various lithologies included in the sands and gravels. As shown in Figure 4-2, the specific units are discontinuous and are obscured by development in some areas. It appears that glacial outwash sands are the most common unconsolidated material. Examination of drillers' logs for test borings and water wells on and near the Air Station show that the most common sequence encountered includes glacial outwash of variable (5 to 90 feet) thickness overlying marine clays (Presumpscot Formation). Figure 4-7 shows the distribution of wells and test borings in the immediate vicinity of the Air Station. Logs for these wells are presented in Appendix B.

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5808

FIGURE 4-6 MERRICONEAG STREAM AT SOUTH END OF NASB

INITIAL ASSESSMENT STUDY
NAVAL AIR STATION
BRUNSWICK

Click Here to Return to Main Index

Table 4-8

Water-Bearing Characteristics of Unconsolidated Sediments
at the Brunswick Naval Air Station

Geological Unit	Thickness (feet)	Water-Bearing Characteristics
Alluvium	0-27[1]	Occurs in thin, discontinuous deposits in smaller valleys but forms a mappable geological unit in places, particularly along the Androscoggin River. Yields water in a few wells where deposits are extensive and contain gravel. Subject to flooding.
Glacial Outwash Sands	0-105	Yields small to moderate quantities of water in wells. The largest reported yield is 60 gpm. Larger quantities are probably available in properly constructed and developed wells under favorable circumstances. Water quality is good.
Glacial Till	0-160	Till is widespread and is the source of water in many dug wells and a few drilled wells. The sustained yield of most dug wells is less than 1 gpm. Dug wells are likely to go dry in summer. One drilled well in till is reported to yield 20 gpm. At the Air Station the till is generally very thin and therefore not useful as an aquifer.

[1]Maximum values from drillers' logs.

Source: USGS Maine Basic Data Report No. 3, Glenn Prescott, 1967.

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Click Here to Return to Main Index

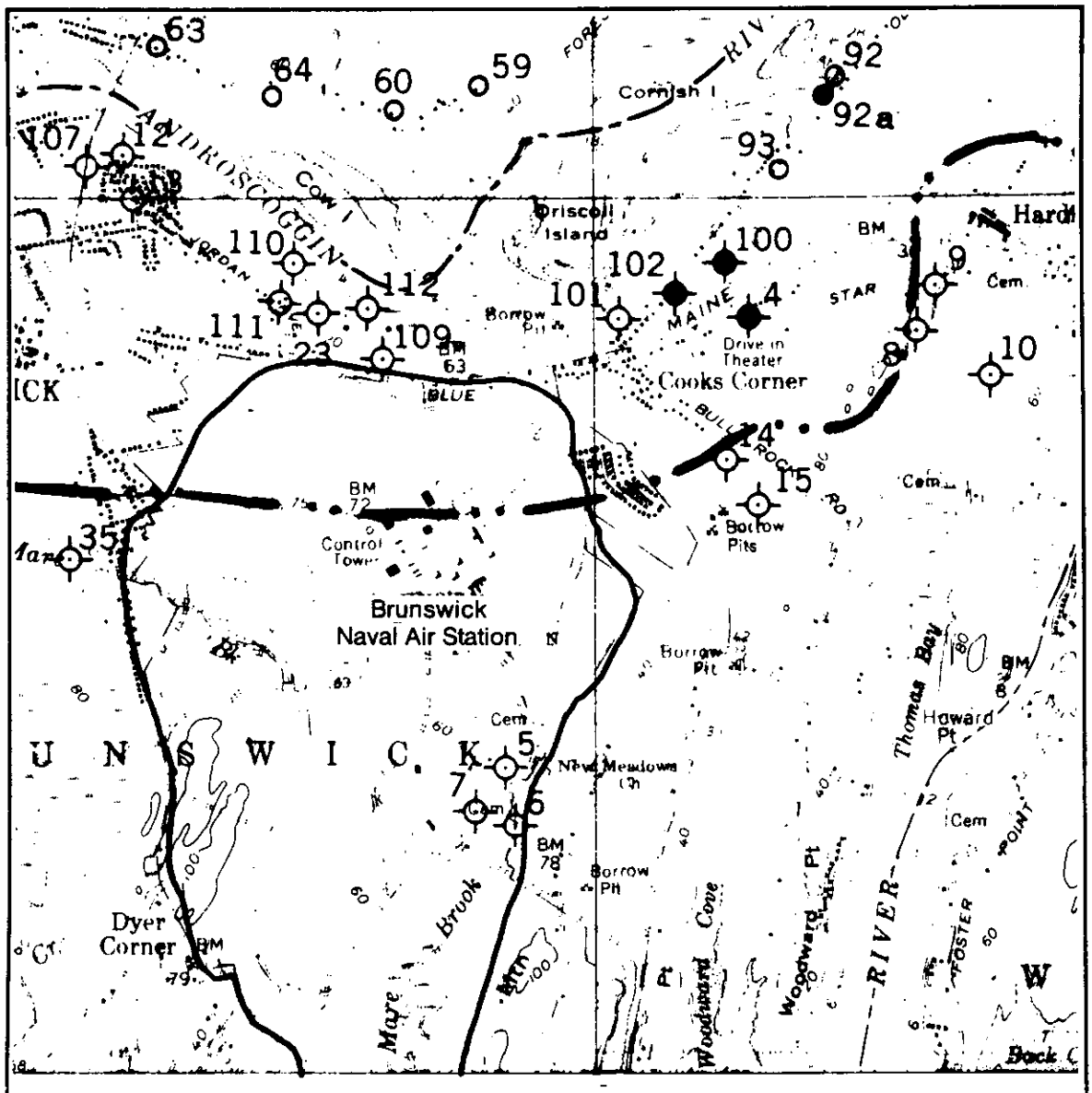

FIGURE 4-7 DISTRIBUTION OF WELLS AND TEST BORINGS IN THE IMMEDIATE VICINITY OF NASB

INITIAL ASSESSMENT STUDY NAVAL AIR STATION BRUNSWICK

Click Here to Return to Main Index

Bedrock in the Air Station area produces limited quantities of groundwater in wells. The median yield is reported as 5 gallons per minute, and the average yield as 8 gallons per minute (Prescott, 1967). Caswell and Lanctot, however, show that the yield of bedrock wells in the vicinity of the Air Station ranges from less than 10 gallons per minute to over 50 gallons per minute. Most of the wells in the vicinity are between 101 and 300 feet deep. According to Caswell and Lanctot the potentiometric surface of bedrock wells in the Air Station area is above the bedrock-overburden contact. This means that groundwater in bedrock is under local artesian pressure.

Since groundwater in bedrock is dependent on secondary porosity in structural openings, the yield of any particular well is dependent on the number of joints or fractures encountered by the well. A well located using structural geological data and fracture trace analysis may yield significantly more water. There is no apparent difference in groundwater production between the Cushing and Cape Elizabeth Formations.

4.3.6.4 Groundwater at the Brunswick Naval Air Station. There are few data available for groundwater at the facility. Wells C-5, C-6 and C-7, shown on Figure 4-7, were drilled as test borings and the logs (presented in Appendix A) do not indicate the depth to water. Similarly, foundation boring logs for the various construction projects at the facility generally do not show water levels. Based on the geology of the site, field examinations, and discussions with Air Station personnel, it appears that the depth to groundwater varies over the site. Groundwater would be expected to be shallow in areas covered by glacial outwash. A locally perched water table may be found since test boring logs indicate that discontinuous low permeability marine silts and clays are commonly found below outwash.

Because of the lack of elevation control on boring logs it is possible to correlate different material types to determine whether hydraulic connections exist across the Air Station.

There are two bedrock wells located on the Air Station near Dyers' Corner at the southwest end of the facility. These wells are reported to be no longer in use and no data were found regarding the wells.

4.3.6.5 Migration Potential. There are two routes for the migration of contaminants at any location. Contaminants can be transported to streams via surface runoff or can infiltrate into the ground and enter the groundwater system. In the developed areas of the Air Station, surface runoff is directed to the storm sewer system. In the undeveloped portions of the facility, runoff would enter the surface-water system. As discussed previously most of the facility drains to the Mere Brook/Merriconeag Stream/Harpswell Cove system.

The potential for migration of contaminants to groundwater is enhanced because of the presence of high permeability soils, coarse-grained glacial outwash, and shallow bedrock. Because of these factors contaminants introduced at the surface will enter the groundwater system rapidly. The other component of migration is the movement of contaminants within the groundwater system. Movement through glacial drift would be expected to be rapid. The field permeability of similar units in Rhode Island ranges from 2,700 to 6,000 gallons per day (Chow

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1964). At the Air Station, however, the glacial drift aquifer appears to be highly variable in thickness and permeability. Lateral movement of contaminated groundwater over long distances would be dependent on the extent to which the various units are in hydraulic connection. Such connections cannot be confirmed or discounted because of the reported differences in lithology. In addition, deposition of the sediments on an irregular surface and subsequent erosion have also obscured hydrologic relationships.

The vertical transfer of contaminants to the bedrock groundwater system will be limited in those areas where a low permeability marine clay is present above the bedrock. Where present the marine clay would act as a confining layer. This clay, however, is not ubiquitous and therefore, would only provide local protection. Contamination can enter the bedrock system where bedrock is close to the surface and where there is no clay between the glacial aquifers and bedrock. Contaminant movement within bedrock will be aniso-tropic. The direction of flow is controlled by the structural orientation of the specific fractures involved.

4.4 BIOLOGICAL FEATURES. The Brunswick Naval Air Station contains a significant amount of undeveloped, natural areas. These are predominantly woodlands; roughly 45 percent of the base (1,475 acres) is managed as forest. In addition, the southern portion of the Air Station contains about 90 acres of wetlands primarily associated with Harpswell and Buttermilk Coves. The immediate site surroundings are also characterized by extensive undeveloped areas, including woody tracts similar to those on the Air Station. The relatively continuous nature of these woodlands affords suitable habitat for a variety of animals, including moose. The area immediately south of the Air Station is comprised of tidal coves and wetlands, while the Androscoggin River, a major estuary, passes approximately one-half mile north of the Air Station. As estuaries, these aquatic systems represent biologically-productive habitats.

4.4.1 Terrestrial Environment. Most of the southern part of the Air Station is wooded and extends in a nearly contiguous pattern along the eastern and western perimeters. Because much of the Air Station is managed for timber production, natural successional processes are nearly absent from this area. After harvesting, tracts are replanted with tree seedlings and are then subject to regular timber stand improvement practices such as brush cutting, thinning, and pruning. As a result, the Air Station contains little successional meadow or brushy habitat. Thus, the majority of terrestrial ecosystems are characterized as woodland habitat. Field or brushy habitats are limited to roadside areas and in the vicinity of the airfield and buildings.

4.4.1.1 Vegetation. Terrestrial vegetation in the undeveloped sections of the Air Station consists predominantly of woodland species (Table 4-9). The individual stand compositions are the result of a combination of natural seeding, forest management, and planting. Since the Air Station's forest management program established timber stands suited to site conditions, the forest contains the species typical of the New England coastal area. Differences in species composition generally coincide with differences in site soil and physiographic conditions.

Click Here to Return to Main Index

Table 4-9

Timber Stand Characteristics, Brunswick Naval Air Station

Timber Stand Type	Size (acres)	Dominant Trees	Subdominant Trees
Softwood	86	Conifers -- spruce, hemlock, white pine, fir	Maple and other hardwoods
Pine	225	White pine	Spruce, hemlock, oak, pitch pine
Pitch pine	96	Pitch pine	White pine, maple, oak
Mixed wood	614	White pine, spruce, hemlock, oak, maple	Birch, ash
Hardwood	283	Maple, oak, yellow birch, poplar, white birch, ash, grey birch	---

5808

Click Here to Return to Main Index

The majority of the Air Station's trees are conifers (white pine, pitch pine, hemlock, spruce, and fir), with lesser numbers of hardwoods such as oak, maple, ash, poplar, and birch.

4.4.1.2 Wildlife. The extensive undeveloped land at the Brunswick Naval Air Station supports a wide variety of wildlife (Appendix C). Open areas with typical field grasses and brushy vegetation, as well as recently-planted tracts, support small mammals such as mice, shrews, voles, and rabbits. These areas may also be used as feeding grounds for deer or as hunting grounds for hawks. The woodlands support wildlife typical of the area, including squirrels, foxes, deer, and occasionally moose. The natural condition of the Air Station, together with its position within the migratory flyway, attract a wide range of avian species (Appendix D), including owls, woodpeckers, and numerous passerine and falconiform species.

4.4.2 Wetlands. The Air Station is bordered on the south by two tidal wetlands, totaling 88.8 acres, located along the the Merriconeag Stream/Harpswell Cove. The tidal wetlands represent ecologically-important areas used by a variety of aquatic and terrestrial annimals during at least part of their life cycles.

4.4.2.1 Vegetation. The Air Station's wetlands contain vegetation typical of East Coast tidal areas. Salt marsh cordgrass (Spartina alterniflora) and marsh hay (Spartina patens) are the dominant species, occurring in the areas subject to the most tidal influence. Spike grass (Disticilis spicata), black rush (Juncus gerardi) and sea lavender (limonium vulgari) occur further inland. Marsh depressions, which are subject to evaporation, sustain higher salinities and support species such as glasswort (Salicornia sp.) and seaside goldenrod (Solidago semipervirens).

4.4.2.2 Wildlife. The Air Station's wetlands, together with contiguous tidal areas to the south, support a number of aquatic and terrestrial wildlife species during at least part of their life cycles. These areas provide permanent habitat for numerous infaunal molluscs and crustaceans, as well as mammals such as muskrats, otters, and mink (Appendix C). In addition, many shore birds and waterfowl use the wetlands for feeding, breeding, and wintering (Appendix D).

4.4.3 Aquatic Environment. The aquatic environment in the vicinity of the Air Station ranges from creeks or rivers to muddy shallows and open estuaries. These areas are inhabited by a wide variety of invertebrate and vertebrate aquatic species (Appendix E). Key species of the muddy shallows include blue mussels and hard-shell clams, while the more open channels to the south of the Air Station support such commercially-important species as scallops and lobsters. Portions of these channels have been designated by the State of Maine as potential aquaculture areas.

The estuaries typically contain abundant and diverse fish populations. In addition to resident species, these areas may serve as feeding, spawning, or nursery grounds for several anadramous fish species. These are known to include sturgeon, salmon, shad, striped bass, blueback herring, and alewives.

Click Here to Return to Main Index

4.4.4 Theatened or Endangered Species. The State of Maine has not made any state designation of rare, threatened, or endangered animal species beyond those contained on the Federal lists. Several of these species may be present in the state, at least seasonally (Table 4-10); however, none are known to occur in the vicinity of the Air Station. The State of Maine does have a floral protection program (Critical Areas Program) geared toward the protection of rare or significant floral species and their habitat. None of these species are reported to occur in the Brunswick area.

4.4.5 Habitat Sensitivity.

4.4.5.1 Terrestrial Environment. The majority of the wooded areas at the Air Station is comprised of nearly mature trees. The sensitivity of this environment to contamination stress is not easily predicted. The impact to forest ecosystems by chemical leachates in groundwater is relative to the concentration of the pollutant and the extent of the root system. Since major tree systems tend to be stable, chemical toxins may require long periods of exposure to show any effect. In the meantime, vegetation may bioaccumulate toxic residues, ultimately passing these toxins through the herbivorous, and ultimately carnivorous (including man), food chains. Shallow-rooted plants such as tree seedings and shrub-grass complexes are more directly and rapidly affected by contaminant infiltration of root systems.

4.4.5.2 Tidal Marshes/Wetlands. Estuarine marshes are found along most of the cove and tidal river areas of the Air Station. Theses marshes are transitional, requiring an exposed substratum for about half the tidal period. The ecotonal qualities of tidal marshes are indicated by the dynamic sequence of communities that develop in the transition from dryland to wetland to salt water.

Variations in substratum, drainage, aeration, tidal cycling, and salinity create a wide range of community subdivisions, primarily botanical. Chemical contamination from ground- or surface-water leachate may readily upset the specific physico-chemical conditions necessary for ecosystem maintenance. In addition, wetlands are ecosystems that are integral to larger estuarine ecosystems. Plant species and communities are dynamic but delicate in balance. Chemical toxins may affect not only the marsh ecosystem, but may also cause biological magnification of contaminant residues that may ultimately become concentrated in fish, fur-bearing animals, waterfowl, crabs, and birds.

4.4.5.3 Estuarine Environment. Estuarine conditions bridge the full salinity range from fresh water to dilute sea water. Tides are the prime movers in determining the characteristics of the estuarine environment, transporting sediment, mixing fresh and salt waters, renewing nutrients, removing wastes, etc. Such activity reflects widely-changing physico-chemical conditions, causing the biotic environment to be highly adapted, yet delicately balanced. Estuaries are typically characterized by a biological productivity greater than most other aquatic systems. The same physical mechanisms of nutrient entrapment that contribute to this productivity, however, also cause contaminants to be entrapped, making estuaries vulnerable to pollution. Depending on the strength of tidal flushing, mixing, and dilution mechanisms at work, contamination potential from ground- and surface waters is high. This is due to the complex behavior of chemical pollutants in estuaries, as affected by the cyclical environmental changes in redax potential, salinity, and pH, as well as by water and

Click Here to Return to Main Index

Table 4-10

Endangered and Threatened Species in Maine

Common Name	Scientific Name	Status	Distribution
Fish			
Sturgeon, shortnose[1]	Acipenser brevirostrum	E	Kennebec River and Atlantic Coastal waters
Reptiles			
Turtle, loggerhead[1]	Caretta caretta	T	Oceanic summer resident
Turtle, leatherback[1]	Dermochelys coriacea	E	Oceanic summer resident
Turtle, Atlantic ridley[1]	Lepidochelys kempii	E	Oceanic summer resident
Birds			
Eagle, bald	Haliaeetus leucocephalus	E	Entire state -- nesting habitat
Falcon, American peregrine	Falco peregrinus anatum	E	Entire state -- rees-tablishment to former breeding range is in progress
Falcon, Arctic peregrine	Falco peregrinus tundrius	E	Entire state migratory -- no nesting

[1]Except for the sea turtle nesting habitat, the principal responsibility for these species is vested with the National Marine Fisheries Service.

Source: U.S. Fish and Wildlife Service, Region 5

Click Here to Return to Main Index

Table 4-10
(continued)

Common Name	Scientific Name	Status	Distribution
Mammals			
Cougar, eastern	*Felis concolor cougar*	E	Entire state -- may be extinct
Whale, blue[1]	*Balaenoptera musculus*	E	Oceanic
Whale, finback[1]	*Balaenoptera physalus*	E	Oceanic
Whale, humpback[1]	*Megaptera novaeangliae*	E	Oceanic
Whale, right[1]	*Eubalaena* spp. (all species)	E	Oceanic
Whale, sei[1]	*Balaenoptera borealis*	E	Oceanic
Whale, sperm[1]	*Physeter catodon*	E	Oceanic
Mollusks			
None			
Plants			
Lousewort, Furbish's	*Pedicularis furbishiae*	E	Aroostook County

[1]Except for the sea turtle nesting habitat, the principal responsibility for these species is vested with the National Marine Fisheries Service.

Source: U.S. Fish and Wildlife Service, Region 5

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Click Here to Return to Main Index

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sediment transport mechanisms. Bioaccumulation potential by estuarine organisms, including commercially-important species, is also high since environmental conditions have a profound effect not only on the form, but on the uptake bioavailability of many contaminants.

4.5 WATER QUALITY. There are few water quality data available for the Air Station area. Mere Brook and Merriconeag Stream are the only watercourses on the Air Station. A discussion of their water quality follows.

4.5.1 Surface-Water Quality. Mere Brook has been classified by the State of Maine as a Class C stream, which means that the water quality must be satisfactory for all uses except potable water supply and water contact recreation. In March 1981 two water samples were taken in Mere Brook at the Air Station at the locations shown on Figure 4-5. The samples were collected and analyzed for the Air Station by an outside laboratory. At the time of sampling, Mere Brook was receiving a great deal of water from spring runoff (determined by discussions with the person who collected the samples), and therefore, the samples may not be representative of water quality. Table 4-11 shows the results of the sample analysis. With the exception of mercury, all parameters were within the acceptable limits for Class C streams. The detectable limit for cadmium analysis was above the acceptable water quality limit, therefore, no conclusion can be drawn for cadmium.

Water quality for the region as a whole has been described by the Southern Mid-Coast Regional Planning Commission as poor relative to the rest of the Mid-coast region.

4.5.2 Groundwater Quality. Groundwater quality data were not available for the Air Station.

4.6 WATER SUPPLY. Potable water for the Air Station and Topsham is obtained from the Brunswick/Topsham Water District. The Water District also provides water to the urban areas around Brunswick, Topsham, and Cooks' Corner. The areas adjacent to the Air Station on the north, northeast, and northwest are served with public water. Lands adjacent to the southern half of the Air Station are dependent on individual wells for potable water supply.

4.6.1 Water Supply Wells. The closest public water supply well field to the Air Station is the Jordan Avenue field of the Brunswick/Topsham Water District. This well field is located less than one-half mile from the northern boundary of the Air Station. There are 136 wells in the field. The well depths range from 17 to 25 feet, and the well diameter is 2.5 inches. The wells are screened in a fine gravel-coarse sand that is reported to be limited in area.

The rated safe yield of the well field is 1,000 gallons per minute. As of December 1982 the actual pumping rate is 800 gallons per minute for 8 hours per day.

4.6.2 Water Supply at Harpswell. The Fuel Depot at Harpswell Neck relies on a groundwater well for water supply.

Click Here to Return to Main Index

Table 4-11

Analysis of Surface Water from Mere Brook
at the Brunswick Naval Air Station, March 1981

Parameter	EPA and DEP Acceptable Limits for Bodies of Fresh Water Supporting Aquatic Life -- Class C	Mere Brook (see Figure 4-5 for location) Upstream No. 1	Mere Brook (see Figure 4-5 for location) Downstream No. 2
pH	6.0 to 8.5	6.8	7.05
Fecal coliforms	1,000 colonies/100 ml	4 colonies/100 ml	13 colonies/100 ml
Total coliforms	5,000 colonies/100 ml	17 colonies/100 ml	7 colonies/100 ml
Arsenic	0.44 mg/L	< 0.01 mg/L	0.01 mg/L
Cadmium	1.5 ug/L	< 0.01 mg/L	0.01 mg/L
Chromium	2.2 mg/L	< 0.01 mg/L	< 0.01 mg/L
Copper	0.012 mg/L	< 0.01 mg/L	< 0.01 mg/L
Lead	0.074 mg/L	0.02 mg/L	0.03 mg/L
Mercury	0.0017 ug/L	0.0002 mg/L	0.0002 mg/L
Nickel	1.1 mg/L	0.02 mg/L	< 0.01 mg/L
Zinc	0.18 mg/L	< 0.01 mg/L	< 0.01 mg/L
Total phosphorus	50 mg/L	0.16 mg/L	0.06 mg/L
Alkalinity (mg/L)		18.5	23
Hardness (EDTA)		22.7	35.4
Specific conductance (umhos)		90	105
Chloride (mg/L)		10.5	7.5
BOD_5 (mg/L)		2.25	2.10
COD (mg/L)		21.2	18.1
TOC (mg/L)		6.5	8.0
Acidity (mg/L)		4.5	5.5
Color (cu)		20	10

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Click Here to Return to Main Index

ADJACENT LAND USE. Existing land use patterns within the Air Station area are the result of the expanding population centers of Brunswick and Topsham. The Air Station itself has stimulated growth in the vicinity. The area population increased 50 percent between 1950 and 1960 when the Air Station was being reactivated. The present community is comprised of families who have lived in the area for generations, military families from almost every state, and the Bowdoin College community.

4.7.1 Residential Land Use. Residential development in Brunswick originally occurred near the central business district. This area is still the most densely populated, with over 10 dwellings per acre. Uses vary from old historic neighborhoods to isolated areas of low income housing.

Residential land use in recent years has experienced growth, mostly in outlying areas. Numerous single family housing developments in the lower to upper middle income range have been constructed to the west and south of Brunswick's downtown area and to the east of Topsham. Growth has also occurred in the vicinity of Cooks' Corner due to the availability of public utilities, commercial services, and accessibility to the Air Station and Bath. Residential density is low along the coves and coast where zoning restrictions limit each dwelling to a minimum of 1 acre. Many dwellings in the Harpswell area, especially along the coast, are seasonal homes.

The use of mobile homes as dwellings is permitted by exception to current zoning. Mobile parks are located on the fringes of the community, and numerous individual mobile homes are scattered throughout the vicinity.

4.7.2 Commercial and Industrial Land Use.

4.7.2.1 Commercial. There are three types of commercial developments in the local land use pattern: the original downtown area in Brunswick, highway commercial, and a regional shopping center. Brunswick's central business district has lost much of its trade to outlying commercial growth.

Strip commercial development has occurred along Bath Road parallel to the northern boundary of the Air Station and also along Pleasant Street west of Brunswick. Cook's Corner Shopping Center is located northeast of the Air Station. Its development is due in part to the Air Station's physical separation of the town of Brunswick and recent suburban and rural residential growth.

4.7.2.2 Industrial. At present, there are no significant industrial land uses in the vicinity of the Air Station. The closest industrial facilities are the Varney Mill and the Maine shoe building at the western end of Brunswick, and the Brunswick-Topsham Water District and Pine Springs Bottling Plant north of the Air Station and Route 24.

4.7.3 Public and Semi-Public Land Use. The Air Station is a major semi-public land use in the vicinity. It has strongly influenced the expansion of the town of Brunswick by providing a buffer to the east and southeast.

Bowdoin College is another major semi-public land use in the area. It is centrally located in Brunswick's urban district, and also owns significant parcels of land in the rural and suburban areas of Brunswick, such as Bowdoin Pines and Coleman Farm.

Click Here to Return to Main Index

The towns of Brunswick and Topsham own significant tracts of land immediately north of the Air Station on both sides of the Androscoggin River. Expansion of this area from Coffin Pond upstream to the head of Merrymeeting Bay has been considered to provide recreation and conservation areas.

Other public and semi-public uses include medical and educational facilities located southwest of Brunswick. With its developable open space and proximity to services this vicinity is recognized as a potential growth area.

4.7.4 Zoning. Zoning ordinances are in effect for both Brunswick and Topsham. They regulate uses of land, height, bulk, and use of buildings, and population density within various districts.

The Brunswick zoning ordinance allows only low-density residential development adjacent to the southwestern, southern, and eastern boundaries of the Air Station.

A flood plain and flight zone regulation is included in the Brunswick zoning ordinance, and takes precedence over all uses permitted as a matter of right or by exception. The airport flight zone regulation prohibits the construction of public assembly places or any building designed to accommodate more than 50 persons per acre. It also includes a building height limitation of 35 feet or two and one-half stories.

Topsham's zoning ordinance describes the permitted uses by exception for urban residential, commercial, rural residential, and industrial districts. There are no airport flight zone regulations in the ordinance. The majority of zoned lands in Topsham to the north of the Air Station are in the urban residential district which requires a minimum lot size of 10,000 square feet.

The State of Maine has required both Brunswick and Topsham to implement shoreland zoning regulations. These govern areas within 250 feet of lakes, ponds, rivers, and salt-water bodies, and provide guidelines for uses, lot size, frontage, setback from water, and percentage of lot coverage.

4.8 LEGAL ACTIONS. No legal actions have been brought against the Air Station for environmental purposes since 1978. Records prior to 1978 are not available.

DEPARTMENT OF THE NAVY 5808 COPIER

Click Here to Return to Main Index

CHAPTER 5. WASTE GENERATION

5.1 GENERAL. The Brunswick Naval Air Station includes aircraft maintenance and storage facilities, as well as a variety of related activities. The Air Station serves and maintains aircraft for duty in the North Atlantic. There are six squadrons based at Brunswick, however, a maximum of four are located on the base at any one time. Brief descriptions are provided for those operations and shops that generate hazardous wastes. The volume of hazardous wastes currently generated at the Air Station is presented in tables for each operation discussed. Waste volumes were estimated based on an examination of records and interviews with personnel.

5.2 INDUSTRIAL OPERATIONS. The only major industrial operations at the Air Station are those related to aircraft servicing and maintenance.

5.2.1 Aircraft Maintenance. Located in each hangar is a maintenance area for aircraft and associated material storage. Hangar 4 is capable of providing services for two squadrons and Hangar 2 provides services for helicopters, as well as aircraft maintenance. In general, all maintenance services are conducted at the same location. Operations include lubrication, greasing, calibration, touch-up painting, and defueling. More extensive maintenance is available in Hangar 4, with the smaller hangars providing only the necessary preventive maintenance programs. Each squadron is responsible for procuring its own maintenance supplies. These supplies may, consequently, differ in packaging and containers. One squadron may prefer spray paint over gallon containers, and the quantities of wastes associated with these operations may be different.

Some hazardous wastes are generated by products expiring or passing the recommended use date. Some hazardous materials may also remain when a squadron is transferred. The hazardous wastes generated in Hangars 1, 2, and 3 are presented in Table 5-1.

5.2.1.1 Disposal. Most hazardous wastes generated in the hangars can be classified as waste oils, fuels, or solvents. In the past all of these chemical wastes were put into 500-gallon portable tanks (bowsers) located in the hangars. These bowsers were then taken either to the DPDO waste oil tanks or used by the fire department. Current practice separates waste fuel, waste oils, solvents, and alcohol into separate containers, and is controlled by the Public Works Department.

5.2.2 Aircraft Intermediate Maintenance Department. The Aircraft Intermediate Maintenance Department is located in Hangar 4 and consists of shops geared toward the more extensive maintenance of aircraft, and associated support facilities. The following is an abbreviated description of the shops that generate small amounts of hazardous wastes. If not specifically stated, the quantities are less than 1 gallon per month. Table 5-2 is a summary of the wastes generated in Hangar 4.

(1) Component Repair. Waste oil, hydraulic fluid, and cleaning sol- vent (PD-680).

Click Here to Return to Main Index

Table 5-1

Waste Generation, Hangars 1, 2, and 3

Generation Point	Waste	EPA Number	Annual Quantity	Disposal
Hangar 1	Trichloroethane	F001	200 gal	Public Works Department (PW)
VP 8	Engine fuel	D001	1,200 gal	PW
VP 44	Toluene/MEK	F005	100 gal	PW
	Trichlorotri-fluoroethane	F002	150 gal	PW
	Alcohol	D001	50 gal	PW
	Hydraulic fluid	---	500 gal	DPDO
	Empty containers of adhesive		100 cu yd	---
	Paint	F017	150 gal	PW
Hangar 2	Trichloroethane	F001	200 gal	PW
AOMD	Engine fuel	D001	1,000 gal	PW
TRACOR	Toluene/MEK	F005	100 gal	PW
	Trichlorofluro-ethane	F002	150 gal	PW
	Alcohol	D001	100 gal	PW
	Speedi-dry		600 lb	Brunswick Landfill
	Rags, empty solvent cans		1,200 lb	Brunswick Landfill
	Hydraulic fluid, oil		< 200 gal	DPDO

Click Here to Return to Main Index

Table 5-1
(continued)

Generation Point	Waste	EPA Number	Annual Quantity	Disposal
Hangar 3	Isopropyl alcohol	D001	300 gal	PW
VP 10, 110, 120,	Toluene/MEK	F005	100 gal	PW
123, 130, 210, 220,	Trichloroethane	F001	300 gal	PW
230, 310	Engine fuel	D001	400 gal	PW
	Trichlorofluro-ethane	F002	150 gal	PW
	Speedi-dry		250 lb	Brunswick Landfill
	Engine oil		1,500 gal	DPDO
	Hydraulic fluid		1,300 gal	DPDO
	Trichloroethane		25 gal	PW

5808

Click Here to Return to Main Index

5808

Table 5-2

Waste Generation, Hangar 4 (includes the Aircraft Intermediate Maintenance Department and Building 7)

Waste	EPA Number	Annual Quantity	Disposal
Solvent - TCE	F001	500 gal	PW
Engine fuel	D001	250 gal	PW
Xylene/MEK/toluene	F005	100 gal	PW
Alcohol	D001	225 gal	PW
Trichloromethane	F002	2 gal	PW
Trichloroethane	F002	150 gal	PW
Waste paint (1)	F017	200 gal	PW
Battery acid	D002	200 gal	DPDO
Naptha aliphating	D001	50 gal	PW
Ethyl acetate	D001	2 gal	PW
Engine oil		700 gal	DPDO
Hydraulic fluid		650 gal	DPDO
PD-680 (solvent)		300 gal	PW
Speedi-dry (empty) paint, grease, oil, and flux cans		1,200 cu yd	Brunswick Landfill
Paint filters		500	---
Building 7 (Vehicle Maintenance)			
Oil, hydraulic fluid		3,800 gal	DPDO
Empty 55-gal drums		50	DPDO
Oily rags, filters, empty cans, paint, oil		150 cu yds	Brunswick Landfill

Click Here to Return to Main Index

(2) Propeller Shop. Paint, primers, glue, toluene, and degreaser (30 gallons trichloroethane) removed to the Aircraft Intermediate Maintenance Department storage area for salvage.

(3) Paint Shop. Large spray-painting operation that generates waste paints, solvents, and air filters. Generates 5 gallons of waste paint and 40 contaminated filters per month.

(4) Battery Shop. Replaces battery acid, generates 15 gallons per month of waste acid.

(5) Electronic Component Repair. Cleans parts with trichloroethane, used oils, and lubricants.

(6) Internal Navigation. Uses small amount of trichloroethane and other spray solvents.

(7) Electronic Equipment Corrosion Control. Lube oil and grease from antenna maintenance, small amounts of chromic acid and hydro- fluoric acid, ultrasonic cleaners (tricloroethane), and adhe- sives.

(8) Tire Shop. Aircraft cleaner, PD-680 solvent, greases, oils, and rags.

(9) Life Raft Repair. Inspect and repair life rafts and preservers using glue cyanoacrylic and toluene).

5.2.3 Public Works Department. The Public Works Department is responsible for the construction, operation, and maintenance of the majority of the facilities at the Air Station. The Public Works Department employs mostly civilian personnel, and generates small amounts of wastes related to the maintenance of the Air Station. Most of the buildings associated with public works are located at the northwest corner of the facility. Table 5-3 summarizes the wastes generated by the various public works operations.

5.2.3.1 Electrical Shop. The Electrical Shop is responsible for the maintenance of the utilities at the Air Station. The Shop is responsible for the mercury vapor lights on the airfield, and disposes of approximately 50 lights a year in the dumpster. There are metal insulating sprays, acrylic resin, lubricating oils, corrosion guard, cutting foams, and greases all used in minor amounts for equipment maintenance. The empty containers are disposed of in the base dumpsters. The material deposited in the dumpsters is ultimately disposed of in the Town of Brunswick landfill. In the past, the ultimate disposal site was the landfill at the Air Station.

5.2.3.2 Paint Shop. The Paint Shop is responsible for the maintenance of numerous buildings. The shop waste consists of paint thinners, paint brushes, and degreasers. Many of these materials were stored outside in the past, and there have been incidents of leakage from corroded drums. Old paint in full containers is usually sent to the DPDO for resale, however, the partially-used containers, as well as the paint brushes and rags, are disposed of in the Town of Brunswick landfill.

5608 COPIER

Click Here to Return to Main Index

Table 5-3

Waste Generation, Public Works Department

Generation Point	Waste	EPA Number	Annual Quantity	Disposal
Garage (Building 225)	Battery acid	D002	10 gals	DPDO*
	Solvent	F001	100 gals	PW
	Waste oil, hydraulic fluid		2,000 gals	DPDO
	Ethylene glycol		500 g	Discharge to ground
	Absorbent		2,500 lb	Brunswick Landfill
	Oil filters		500	Brunswick Landfill
	Rags, empty cans		200 cu yds	Brunswick Landfill
Electrical Shop (Building 8)	Mercury vapor lights		50	Brunswick Landfill
	Empty cans of insulation spray, solvent, paint		100 cu yds	Brunswick Landfill
Paint Shop	Empty paint and solvent cans, brushes, rags		100 cu yds	Brunswick Landfill
Metal Trades Shop (Building 8	Empty oil and paint cans		10 cu yds	Brunswick Landfill
Labor Shop	Asbestos		45 cu yds	Private Contractor
Boiler House (Building 233)	Fly ash		300 cu yds	Brunswick Landfill

*Prior to 1980, acid was transported to Portsmouth Naval Shipyard for neutralization.

Click Here to Return to Main Index

5.2.3.3 Metal Trade Shop. The Metal Trade Shop does the welding and minor fabrications. Very little waste material is produced by this operation. There are some metal filings and cuttings, approximately 25 gallons per year, which are placed in special dumpsters and sent to DPDO for salvage.

5.2.3.4 Asbestos. Since the Air Station was built during the post-World War II era, most of the insulating material used was asbestos. In the last 5 years the Public Works Department has been systematically removing the material, double packaging it in containers, and disposing of it in an asbestos landfill approved by the State of Maine.

5.2.3.5 Carpentry Shop. The Carpentry Shop generates small amounts of wastes. Wood chips and pieces are disposed of in the dumpster, as well as used adhesive, varnish, stain, and paint. The disposal of this material is not exclusive to a particular dumpster, but depends on the area of work.

5.2.3.6 Boiler House. The boiler presently uses fuel oil and generates approximately 6 cubic yards of fly ash per week. The Air Station has a contract with the Town of Brunswick for removal of this material to the local landfill. The Boiler House also supplies waste oil to the fire department. It is estimated that in the past 20 gallons per year were burned by the fire department on an open concrete apron.

5.2.3.7 Public Works Garage. Building 225 houses the garage, office, and battery storage area. The garage has a 500-gallon waste oil storage tank, and generates approximately 1,500 gallons per year of waste material. In the past, various other chemicals, such as hydraulic fluids and cleaning materials, were also disposed of in the tank. In the past, a private contractor would collect this material to spray on roads. Most vehicles are cleaned on a pad adjacent to the building. The radiators are also emptied at this location, and the runoff is collected by the storm sewer, which discharges to Harpswell Cove. Oil filters, rags, Speedi-dry, and empty containers are placed in the adjacent dumpster for collection by a private contractor. In the past, the acid stored in the building was collected for transport to the Portsmouth Naval Shipyard, but is currently transferred to DPDO.

5.2.3.8 Pest Control Shop. The Pest Control Shop is located in Building 95. Presently, there are chemicals in temporary storage that were used in the past. These include 2, 4, 5, T-15 gallons, lead arsenic (3 pounds), carbaryl pesticide (10 pounds), lindane (8 pounds), and chlorodane (4 pounds). The Pest Control Shop uses Malathion, diazinon, Baygon, pyrenthrum, cynogas, Sevin, and esmethum.

Containers are triple rinsed and disposed of in the dumpster for transport to the Town of Brunswick landfill. Rinse water is used as dilution water for pesticide application.

5.2.4 Photography Shop. The Air Station Photography Shop is located in Building 200. The chemicals used in the laboratory are standard Kodak chemicals for E6 and C41 color development and black and white processing. The developers, stabilizers, stops, reversal baths, and conditioner discharge to the local sanitary sewer. The bleaches/fixer and film contain silver and are returned to the DLA for recovery. Miscellaneous cleaning chemical use includes trichloroethane and other organic solvents. The rinse waters wash continuously to the

Click Here to Return to Main Index

COPIER 8095

sanitary sewer. The shop operates a maximum of 8 hours per day, and the rinse rate is approximately 1 gpm. There are rinse baths after the color negative fixer, E-6 developer, E-6 fixer, black and white developer, black and white fixer, and C-41 fixer.

Most concentrated baths are discharged to the local sewer. The following is an approximate disposal schedule:

Substance	Quantity	Frequency of Disposal
Developer (color)	16 oz	Daily
Stabilizer	16 oz	Daily
Developer (E-6)	32 oz	Daily
Reversal bath	16 oz	Daily
Conditioner	16 oz	Daily
Stabilizer	16 oz	Daily
Developer (black and white)	32 oz	Daily
Black and white (developer-print)	1 1/2 gal	Daily
Color (developer)	5.6 gal	Monthly
Stabilizer	5.6 gal	Monthly

The developers are all alkali and contain hydroquinone and metal. The conditioners and reversal baths are acids, while the stabilizers contain formaldehyde and organic phosphates. The annual waste generation rates are shown in Table 5-4.

5.2.5 Transportation Vehicle Maintenance. Ground support vehicle maintenance is located in Building 7. This shop uses oil, hydraulic fluid, petroleum distillates, and sulfuric acid. Empty containers are disposed of in the local dumpster. There are two buried waste oil tanks, each with a capacity of 3,000 gallons. In the past, some hangars disposed of their waste oil/solvent mixtures in these tanks. The contents of the tanks were then removed by a private contractor for reuse and recycling. Both of the tanks are locked and access is controlled.

5.2.6 Medical/Dental Clinic. The Medical/Dental Clinic is a recent addition to the Brunswick Air Station. Very little waste is generated at this facility. The clinic serves personnel located at the facility, and provides emergency care.

All infectious wastes, needles, and biological cultures are sterilized and disposed of at the Brunswick landfill (50 pounds per year). The x-ray film and fixer wastes are estimated at an annual volume of 10 pounds and 600 gallons, respectively, and are sent to Portsmouth Naval Shipyard for reclamation. Narcotics and drugs that are past their useful life are diluted and disposed of via the pharmacy sink or returned to the manufacturer. All other wastes are sent directly to the dumpster.

Click Here to Return to Main Index

Table 5-4

Waste Generation, Photography Shop
(Building 200)

Waste	EPA Number	Annual Quantity	Disposal
Bleach/fix silver	D011	1,000 gal	Silver recovery at DPDO
Films (silver)		5 cu yds	DPDO
Stabilizer (formaldehyde, organic phosphates)		50 gal	Drain[1]
Developer		130 gal	Drain[1]
Color developer		30 gal	Drain[1]
Conditioner (ethyl diamine)		30 gal	Drain[1]
Acid/alkali		10 gal	---

[1]Drain goes to the Town of Brunswick Wastewater Treatment Plant.

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Click Here to Return to Main Index

5.2.6.1 Aviation Physiology. This operation is part of the Medical/Dental Clinic, and is located in Building 35. The testing program utilizes a number of greases, lubricants, and oils, and generates approximately 10 gallons per year of triaryl phosphate. Temporary storage for this material is located adjacent to the building in a 55-gallon drum. This waste material is intended to be recycled to the manufacturer.

5.3 ORDNANCE OPERATIONS.

5.3.1 Weapons. Weapons maintenance is conducted in Buildings 223 and 539. Past practices included more extensive maintenance procedures and generated larger quantities of wastes. Currently Otto fuel, a torpedo propellant, is disposed of by the weapons group. The Ordnance Officer collects the material, packages it, and has it burned in California according to appropriate Naval operations. All contaminated rags and associated materials are also packaged for shipment to California. Cleaning solvents, which include small quantities of trichloroethane and isopropyl alcohol, are disposed of in the dumpster. Paints, greases, lubricants, varnishes, styrene, and sealants are used by the weapons group. In general, these compounds are consumed in the maintenance operation and there is little waste material.

5.3.2 Explosives Safety Survey. The DoD Explosives Safety Board in Alexandria, Virginia has conducted annual surveys at the Air Station for the last 5 years. The purpose of the surveys is to inspect conditions with respect to maintenance, disposal, handling, transportation, and storage of ammunition and explosives. No contaminated areas or improper disposal practices have been uncovered at the Air Station during these surveys.

Due to the crowded conditions at the Air Station, a number of waivers have been granted to the required Explosive Safety Quantity Distance (ESQD) arcs around the berths where ordnance is handled or transferred.

5.3.3 Manufacturing. There is no manufacturing of ordnance items at the Air Station and no evidence that there ever were any such operations.

5.3.4 Demilitarization. There are no ordnance demilitarization operations at the Air Station, and no evidence that there ever were any such operations.

5.3.5 Renovation. There are no renovation operations of ammunition or explosives items at the Air Station, and no evidence that there ever were any such operations.

5.3.6 Ranges, Impact Zones. With the exception of the Ordnance Disposal Area where out-of-date munitions are detonated, there are no test ranges, bombing ranges, or any type of impact zones for ordnance testing at Air Station or evidence of any such operations.

5.4 RADIOLOGICAL OPERATIONS. There are no radiological activities at the Air Station.

Click Here to Return to Main Index

5.5 DPDO. Building 584 houses the Defense Property Disposal Office. All of the recyclable and reusable materials are processed through this building and associated area. There is one 10,000-gallon and two 5,000-gallon buried storage tanks. Until 1980, portable bowsers transferred their waste oils to these tanks. Currently, waste oils are stored in 55-gallon drums until transfer to the tanks. One tank is dedicated for waste solvents. All of the material currently disposed of in these tanks must be accompanied by a manifest.

DEPARTMENT OF THE NAVY 5808 COPIER

Click Here to Return to Main Index

CHAPTER 6. MATERIAL HANDLING: STORAGE AND TRANSPORTATION

6.1 INDUSTRIAL. Although the Air Station does not have extensive industrial operations, numerous industrial materials are used in conjunction with aircraft maintenance. Many of the shops handle small quantities of materials. The Supply Department is the receiving point and distribution center for all hazardous materials.

6.1.1 Supply Services. The Air Station has the main supply center for northern Maine. The Supply Department handles all new materials purchasing and storage for the Air Station. Materials enter the supply system through the Federal supply system. Hazardous materials arrive at the Supply Department in boxes marked with the appropriate Department of Transportation label. The unit containers are removed from the bulk containers and distributed to the various supply stations. Frequently the unit containers are marked only with the Navy identification number, not with the name of the contents. The use of substances is not consistent throughout the year because each flight squadron has different needs and procedures. Table 6-1 presents the hazardous materials stored at the Air Station in the various work areas and the quantity used on an annual basis. These data were compiled from examination of the procurement lists in the Supply Department, interviews with Air Station personnel, a hazardous substances inventory conducted in 1979, and the Air Station's RCRA Part A application.

The main materials storage for supply services is located in Building 294. Hazardous materials, defined as those on a Hazardous Property Notification List according to Department of Defense Instruction No. 6050.5-M, are stored in Building 13.

6.1.2 Disposal of Outdated Material. Hazardous materials have been disposed of by several methods when their shelf life has expired. Most materials are transferred to the DPDO for resale. This practice has been ongoing at the facility. Some items, such as pharmaceuticals and some photographic chemicals, were flushed down the drain. The remaining outdated materials were sent to the Brunswick Landfill, or to the Air Station landfill prior to 1975. Currently, these materials are removed by private contractors.

6.1.3 Shop Stores. Hazardous materials have been kept in various storage areas throughout the Air Station. In the past there has been some open storage. In particular, prior to the construction of the Public Works paint and solvent storage building, cans of paint and solvents were stored next to the Public Works Building. It has also been reported that in the past paint was stored in an old barn at the southwest corner of the facility. Table 6-2 presents the principal storage locations at the Air Station.

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Click Here to Return to Main Index

Table 6-1

Hazardous Substances Stored at the Brunswick Naval Air Station

Substance	Location Used	Quantity Used/Year (Gallons unless otherwise noted)
Acetone	Medical/Dental Bldg.	12
Acids		
Acid/developer	Photo lab.	100
Acid bleach	Photo lab.	270
Acid (HCl)	Building 7	2 qt
	Public Works (pool)	500
Acid (H_2SO_4)	Building 7	50
	Hangar 4	160-200
		250
Acid (HCl, H_2SO_4)	Laboratory	700 ml
Acid, sulfamic	Public Works	4 tons
Activator	Photo lab. (Bldg. 200)	100
Adhesives		
Glue	Hangar 1	15
Flammable	Public Works	25
Isocynate	Hangar 4	8
		48
Alcohol, isopropyl	Medical/Dental Bldg.	26
	Hangar 4	34
	Hangar 4	25
	Hangar 1	50
	Building 7 (Ground Support Equipment shop)	1
		136 (Purchasing records indicate 550 gallons for 1982)
Alcohol cleaner	Public Works	5
Alkali	Medical/Dental Bldg.	500 ml
Benzene, propylglycol dialdehyde	Medical/Dental Bldg.	2

Click Here to Return to Main Index

Table 6-1
(continued)

Substance	Location Used	Quantity Used/Year (Gallons unless otherwise noted)
Brake fluid	Building 7 (vehicle maintenance)	5
Caustic soda (NaOH)	Public Works	55
Chloroform	Medical/Dental Bldg.	1
Corrosive	Hangar 4	85
Dimethyl phthalate	Hangar 4	0.5
Developer	Avionics	26
Duplicating fluid	Photo lab.	15
Ethyl ether	Building 225	16
Ethylene dichloride	Medical/Dental Bldg.	50 ml
Ethylene glycol	Building 7 (Ground Support Equipment Shop)	10,000 - 12,000
Fixer -- silver	Photo lab.	130
Formaldehyde	Photo lab. Medical/Dental Bldg.	51 500 ml
Glue	Hangar 4	2
Grease	Hangar 1 Hangar 4	80 315 lbs
Hydrocarbon (FP 60°C)	Building 225	3
Hydrocarbon acid	Medical/Dental Bldg. (developer)	300
Hydraulic fluid	Hangar 2 Hangar 1 Hangar 4	100 700 410
		1,210
Hydraulic fluid/oil	Building 225	2,000

Click Here to Return to Main Index

Table 6-1
(continued)

Substance	Location Used	Quantity Used/Year (Gallons unless otherwise noted)
Ketone	Electric Shop	<1
Ketone, methyl ethyl	Hangar 1	250
	Hangar 4	230
		480
Mercury	Hangar 4	61 lbs
	Medical/Dental Bldg.	24 bottles
Methanol	Building 7	4
Methyl chloroform	Hangar 4	2
Monobromotrifluoromethane	Hangar 4	1.5
Morphline	Public Works	55
Naptha, aliphatic	Hangar 4	100 (Purchasing records indicate 191 gallons in 1982)
Oils		
Engine oil	Hangar 1	1,500
	Hangar 2	100
		1,600
Fuel oil	Public Works	1,800,000
Engine fuel	Hangar 2	<1,000
	Hangar 4	500
Lubricating oil	Hangar 1 (oil and grease)	30 lbs
	Hangar 2 (oil)	58
	Building 7	800
	Hangar 4	15

Click Here to Return to Main Index

Table 6-1
(continued)

Substance	Location Used	Quantity Used/Year (Gallons unless otherwise noted)
Paints and Coatings		
Corrosion coating	Hangar 4	15
Corrosion preventative	Hangar 4	3
Epoxy coating	Hangar 4	2
Epoxy lacquer paint (aerosol cans)	Hangar 4	260
Epxoy paint	Public Works	10
Lacquer paint	Public Works	30
	Photo lab.	2
	Vehicle maintenance	12
		44
Latex paint	Public Works	200
Lead-based paint	Hangar 4	10
Paint	Building 225	90
Waste paint	Hangar 4	200
Zinc chromate paint	Hangar 4	1,310
Stain	Public Works	10
Peroxide	Medical/Dental Bldg.	2 pints
Petroleum distillate	Electric Shop	112 oz
	Hangar 4	55
	Hangar 4	4 lbs
	Building 7	20
Potassium dichromate	Medical/Dental Bldg.	1 lb
Potassium hydroxide	Public Works	48 oz
Propane	Medical/Dental Bldg.	4 canisters

Click Here to Return to Main Index

Table 6-1
(continued)

Substance	Location Used	Quantity Used/Year (Gallons unless otherwise noted)
Resins		
Acrylic resin	Electric Shop	55 oz
Epoxy resin	Hangar 4	2
Fiberglass resin	Hangar 4	4
Sealant/adhesive	Hangar 1	15
Sealing compound	Hangar 4	1
	Hangar 4	2
Silver -- fixer	Medical/Dental Bldg.	600
Sodium hypochlorite	Public Works	1,000
Solder	Hangar 4	30 lbs
Solder flux	Hangar 4	5
Solder -- silver	Hangar 4	20
Solvents		
Solvent	Public Works	55
	Photo lab.	2
	Hangar 4	440
	Electric Shop	31
	Building 225	110
	Building 7 (GSE)	200
Solvent (TCE and PD-680)	Hangar 2	<200
Solvent -- acid	Photo lab.	5
Dry-cleaning solvent cmpd PD-680	Hangar 1	300
Organic cleaner solvent	Photo lab.	48 oz

Click Here to Return to Main Index

Table 6-1
(continued)

Substance	Location Used	Quantity Used/Year (Gallons unless otherwise noted)
Solvents (continued)		
Paint thinner	Public Works	200
	Hangar 4	20
Solvent base	Hangar 1	300
Solvent base (propellent hydrocarbon propane)	Hangar 1	150
Solvent -- petroleum base paint	Hangar 1	360
Stripping compound solvent	Hangar 4	17
Toluene	Hangar 4	105
	Public Works	5
	Building 7 (GSE)	100
		210
	Medical/Dental Bldg.	100 ml
Toluene/MEK	Hangar 2	<100
Toluene/MIBK	Unknown	190-380 (Purchasing records indicate 383 gallons in 1982)
Trichloroethane	Hangar 4	480-500
	Hangar 1	15
	Public Works	10
	Photo lab.	3
	Avionics	40
		568

5808 COPIES

Click Here to Return to Main Index

Table 6-1
(continued)

Substance	Location Used	Quantity Used/Year (Gallons unless otherwise noted)
Solvents (continued)		
Trichlorotrifluoro-ethane	Hangar 4	190
	Hangar 2	<150
		314
Xylene	Hangar 4	25
	Medical/Dental Bldg.	200 ml

Click Here to Return to Main Index

Table 6-2

Storage Facilities, Brunswick Naval Air Station

Building No.	Grid Location[1]	Responsibility	Use	Size (sq ft)
13	29O	Supply	Storage of hazardous materials	6,049
647	28N	Supply	Bottled gas storage	338
58	27H	Public Works	Inert storage (maintenance)	1,010
63	22G	Public Works	Maintenance	1,010
75	28M	Public Works	Shop storage	332
93	21O	Public Works	Storage	3,645
95	29P	Public Works	Insecticides storage	259
222	24O	Public Works	Maintenance storage	706
225	26N	Public Works	Vehicle maintenance shop (has a waste oil storage area)	1,244
T205	28N	Public Works	Storage (used for insecticide storage in the past)	1,474
555	24N	AIMD	Maintenance and storage building	4,020
617	21N	AIMD	AM	

[1]Grid location -- refers to established grid used on all Air Station maps.

DEPARTMENT OF THE NAVY 5808 COPIER

Click Here to Return to Main Index

6.2.4 Hangars. Each hangar has storage areas for hazardous materials. In general, there are small storage areas for each work center and a larger storage area for main supply. The volume of hazardous materials stored in Hangars 1, 2, and 3 is similar since these hangars are relatively equal in size. Because aircraft squadrons rotate on a semi-annual basis, hazardous materials storage will change yearly. In the past each new squadron would remove the previous squadron's supplies. These were most often disposed of in the nearest dumpster. Hangar 4 (Building 250) can contain two aircraft squadrons, as well as various support activities. This results in a larger quantity and variety of hazardous materials.

There are numerous cabinets for storing flammable materials in each hangar. These are located in main supply area as well as near the associated work areas. The estimated quantities of annual usage of hazardous materials is shown in Table 6-1. Since many of the materials are volatile, there is often no collectable hazardous waste associated with use.

6.2 PESTICIDE AND HERBICIDE STORAGE. The control and storage of pesticides at the Air Station is under the control of the Public Works Department. At the present time pesticides are used primarily for the control of mosquitoes, rodents, and roaches. Pesticides are stored in Building 95 on shelves in closed containers. Herbicides are used along fencelines, railroad tracks, and in the magazine areas. The current usage of pesticides and herbicides is shown in Table 6-3.

6.2.1 Past Use of Pesticides and Herbicides. Prior to 1980 various herbicides and pesticides were used at the facility. Table 6-4 summarizes the previous uses as determined by interviewing Air Station employees. Apparently a number of other pesticides and herbicides were used for single applications; available records did not provide identification of these one-time applications.

6.2.2 Past Storage of Pesticides and Herbicides. The main location for these materials prior to the construction of Building 95, was Building T205. From 1950 through the early 1970's it was common practice for frequently-used materials to be stored in drums outside the building. These drums would be used to fill smaller containers for immediate use.

6.3 DEFENSE PROPERTY DISPOSAL OFFICE. The Defense Property Disposal Office (DPDO) is a tenant at the Air Station. The function of the DPDO is to accept hazardous and nonhazardous materials and equipment for recycling, resale. The DPDO is not a disposal facility; it functions as a transfer facility. The present DPDO storage for hazardous materials is limited to outdated paint stored outside in a flammable storage locker in the vicinity of Building 19.

6.3.1 DPDO Liquid Storage. The DPDO has three tanks for storage of liquids. Two tanks are of 5,000-gallon capacity; the third tank is of 10,000-gallon capacity. Until 1982 waste oils and solvents were mixed in these tanks; they are now segregated. The wastes were brought to the DPDO by the various shops.

6.3.2 Past DPDO Storage. Until approximately 1965 the DPDO area was at the eastern end of the closed runway.

Click Here to Return to Main Index

Table 6-3

Current Pesticide and Herbicide Uses
at the Brunswick Naval Air Station

Item	Quantity (annual use)
Pesticides	
Malathion	230 gal
Diazinon	1 gal
Baygon	18 gal
Pyrethrum	2 gal
Cyndgas	
Sevin	15 lbs, 2 gal
Esmethrin	25 gal
Herbicides	
Drexel	
Simaz	
Monuron TCA	200 lbs
2, 4-D	100 gal
Maleic hazdrazide	600 gal

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Click Here to Return to Main Index

Table 6-4

Past Pesticide and Herbicide Use

Item	Estimated Quantity per Year	Period of Use
Pesticides		
DDT	110 gal 25 lbs	1955-1970
Chlordane	5 gal	1955-1970
Dieldrin	1 gal	1960
Zinc phosphide	1 lb (total used)	1970-1975
Arsenic lead	1 lb	1960 to present
Rotanon	3-5 lbs concentrate	1960 to present
Pyrethrum	2 lbs	1960 to present
Avitrol	---	1960 to 1980
Herbicides		
2, 4-D	100 gal +	1955 to present
2, 4, 5-T	2 gal (total use)	1978

Click Here to Return to Main Index

6.4 FUEL STORAGE. The fuel storage and fueling facilities at the main station are under the direction of the Air Station, while the fuel storage and fueling facilities at the Naval Fuel Annex, Casco Bay, located at Harpswell Neck, is under the operational control of the Navy Fuel Depot, Jacksonville, Florida. The transfer of responsibility for the operations at the Naval Fuel Annex occurred on 1 July 1975.

6.4.1 Brunswick Naval Air Station Fuel Farm. Fuel is stored in underground tanks at the Air Station, as detailed in Table 6-5. Fuel is issued to users by contractor trucks.

6.4.2 Naval Fuel Annex, Casco Bay. Fixed storage facilities at the Naval Fuel Annex (Harpswell) are shown in Table 6-6. Fuel is delivered to the Air Station by pipeline. The pipeline consists of two parallel welded steel pipes, one 6 inches in diameter and one 8 inches in diameter, laid in the ground with approximately 2 1/2 feet of cover. Each pipeline is approximately 10 miles in length.

6.4.3 Heating Plants. Fuel for the heating plants is delivered by tank truck directly from the supplier. Table 6-7 lists the storage capacity at the heating plants.

6.4.4 Topsham Annex. Fuel storage at the Topsham Annex is in tanks as indicated in Table 6-8.

6.5 WASTE OIL. Waste oil is generated at a number of shops and work areas at the Air Station. Drums or bowsers are used for temporary storage at the point of use. A common practice has been to put solvents and other liquids with the waste oil. When the storage containers are full they are driven to the DPDO area and emptied into one of the two storage tanks. Two 3,000-gallon tanks are located in front of Building 7 and are used by AIMD. Historically, access to these tanks has not been controlled, and therefore, a variety of liquid wastes may have been disposed of there.

6.5.1 Past Handling of Waste Oil. In the past some waste oil has always been handled as it is now, by transfer to the DPDO for resale. Until the mid-1970's, waste oil and other liquids were also handled in other ways, including disposal in the Air Station landfills and poured down floor drains.

6.5.2 Fire Practice. Some waste oils are taken to the fire practice area where they are ignited. A project is underway to line the present fire pit.

6.6 TRANSFORMERS. There are seven transformers containing PCBs located at the Air Station. At present all transformers have concrete pads and spill prevention dikes, which are a recent addition. Table 6-9 gives the locations and sizes of the transformers. The locations of the transformers are shown on Figures 6-1 and 6-2.

6.7 COAL STORAGE. Coal is no longer used at the Air Station. The coal storage area was located adjacent to the generating station at the location of the present wood chip storage area.

Click Here to Return to Main Index

Table 6-5

Storage Capacity at the Brunswick Naval Air Station Fuel Farm

Number of Tanks	Size	Contents
2	576,000-gal vertical	JP-5 fuel
2	576,000-gal vertical	AVGAS 115/145
3	100,000-gal vertical	Waste oil
2	25,000-gal vertical	Motor gasoline -- no lead
2	4,000-gal issue tank	Motor gasoline -- no lead
1	4,000-gal issue tank	JP-5 used for diesel fuel

Table 6-6

Storage Capacity at the Naval Fuel Annex, Casco Bay (Harpswell)

Number of Tanks	Size	Contents
1	50,000-bbl vertical	AVGAS
5	50,000-bbl vertical	JP-5
8	80,000-bbl vertical	JP-5

Note: All tanks are above-ground.

Click Here to Return to Main Index

Table 6-7

Fuel Storage -- Heating Plants

Number of Tanks	Size	Contents	Location
3	60,000 gal	No. 6 oil	Building 233
1	265,000 gal	No. 6 oil	Building 233
2	30,000 gal	No. 2 oil	Building 211

Table 6-8

Full Storage at Topsham Annex

Number of Tanks	Size	Contents
3	50,000 gal	No. 4 oil
2	30,000 gal	JP-5 used as diesel fuel
1	12,000 gal	No. 4 oil

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Table 6-9

Transformer Locations and Capacities

Transformer	Location	Coolant
1	Building 218	140 gal pyranol
2	Building 211	300 gal pyranol
3	Building 213	140 gal pyranol
4	Building 233 West	251 gal pyranol
5	Building 233 East	295 gal Askarel
6	Building 200	300 gal pyranol
7 (Topsham)	Building 335	340 gal pyranol

6.8 WEAPONS STORAGE. Weapons and ordnance are stored at the Air Station. These facilities are listed in Table 6-10. From 1966 to 1979 contaminated Otto fuel (generated from servicing torpedoes) was collected and stored in 55-gallon drums. When 250 to 300 gallons were accumulated, the Otto fuel was shipped to Newport Naval Base, Rhode Island for disposal by a commercial disposal firm. This activity was terminated in 1979.

6.9 ASBESTOS STORAGE. The Public Works Department is currently using structure 63, an out-of-service bunker, for storage of asbestos until a final disposal option is determined.

Click Here to Return to Main Index

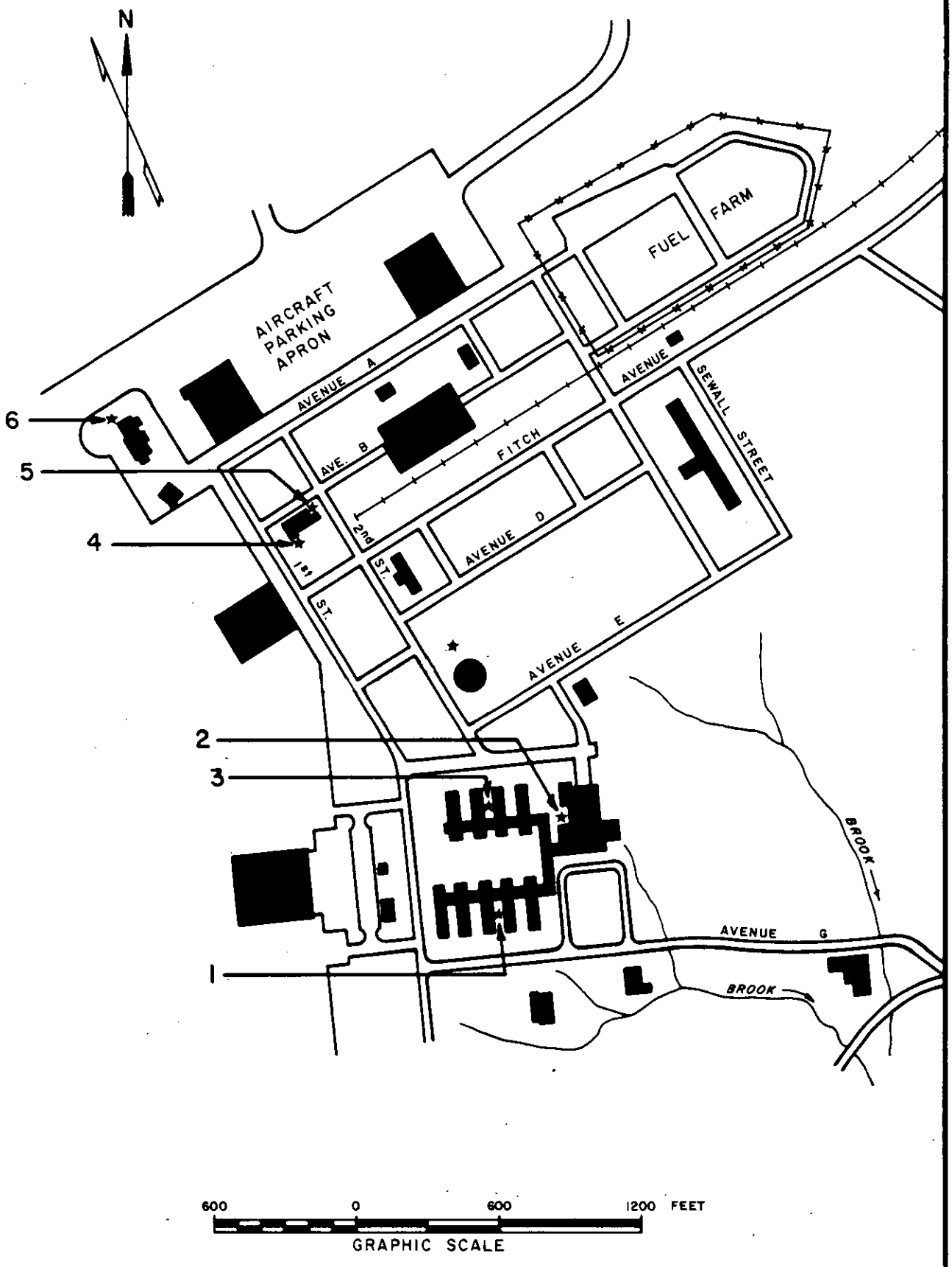

FIGURE 6-1

PCB TRANSFORMER LOCATIONS

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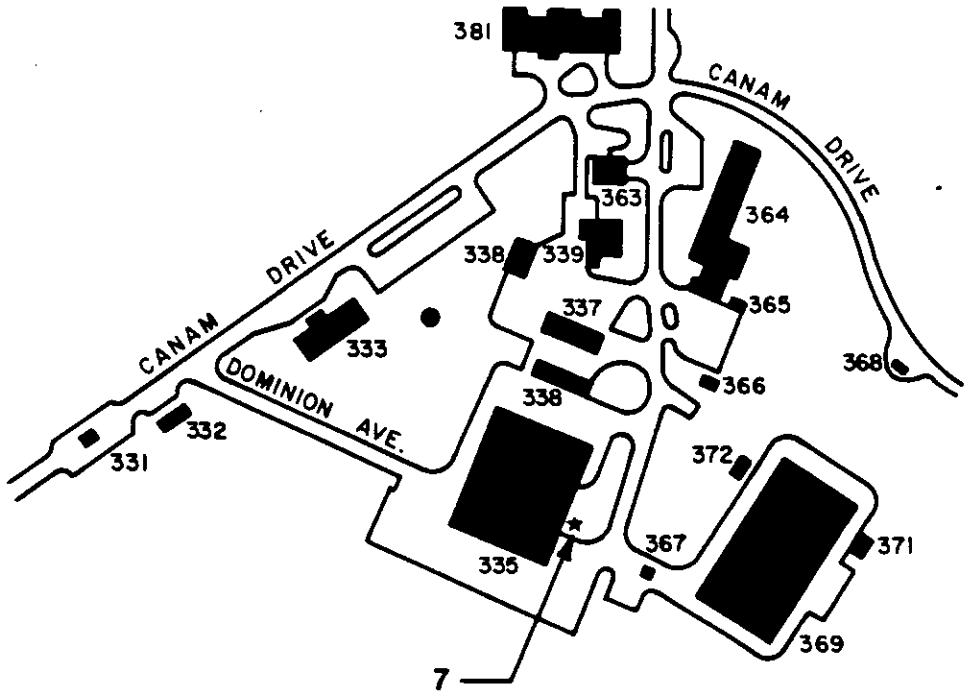

FIGURE 6-2

PCB TRANSFORMER LOCATIONS
TOPSHAM ANNEX

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Click Here to Return to Main Index

Table 6-10

Weapons and Ordnance Stored at the Brunswick Naval Air Station

Structure or Area Number	Grid Location	Use
52	23-O	Inert storage
55	12-N	Inert storage
59	9-P	Magazine
60	19-Q	Magazine
62	9-P	Magazine
69	22-O	Magazine
71	20-N	Magazine
76	23-O	Pyrotechnics locker
81	22-N	Inert storehouse
223	29-O	Armory
285	7-P	Magazine
286	8-P	Magazine
287	8-P	Magazine
288	7-P	Magazine
289	8-P	Magazine
290	6-O	Magazine
291	11-Q	Magazine
543	7-O	High explosives magazine
544	7-O	High explosives magazine
548	10-Q	Fuse and detonator magazine
549	11-Q	Fuse and detonator magazine
626	17-N	Special weapons magazine
627	17-N	Special weapons magazine
628	17-N	Special weapons magazine

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Click Here to Return to Main Index

CHAPTER 7. WASTE PROCESSING AND DISPOSAL OPERATIONS

7.1 LIQUID WASTE PROCESSING. The Brunswick Naval Air Station does not have an industrial operation that generates an industrial wastewater stream. Small amounts of industrial-type wastes are generated as off-spec and waste chemicals and solvents as discussed in Chapter 6. In the past these wastes have been disposed of in the Air Station landfill(s), down drains, or transferred to DPDO. At the present time these wastes are transferred to PW for disposal or resale (Section 7.3).

7.1.1 Brunswick Wastewater Treatment Plant. The Air Station discharges its sanitary wastes to the town of Brunswick Wastewater Treatment Plant. This facility provides primary treatment with design capacity of 2.5 million gallons per day. Brunswick has a partially combined storm and sanitary system, which results in excess flow at the plant during wet months. In the month of January 1983 the average flow was 1.6 million gallons per day, while during the normally wet month of April 1982 the average flow was 3.7 million gallons per day. The town has made some recent progress in removing part of the storm water system, and plans have been made to increase the plant capacity and treatment capability regardless of the storm-water status. These plans have been waiting for Federal support since 1976.

7.1.2 Permit Limitations. The discharge permit for the treatment plant requires 50 percent suspended solids removal and 35 percent BOD removal. These are typical operational parameters for a domestic treatment plant. This facility does not monitor for chlorinated hydrocarbons, toxic, or hazardous wastes. Furthermore, since the plant does not provide biological treatment, there is no method of determining if a compound toxic to biological organisms has been received at the facility.

7.1.3 Brunswick Naval Air Station Sanitary Sewer. The sanitary sewer system at the Air Station has experienced significant infiltration/inflow of groundwater into the system. In 1980, the Air Station and Topsham Annex generated 208,000 gallons per day of measured infiltration in excess of that allowable for lines of the type and size measured. Since 1971 (and probably earlier) sewage flows at the Air Station have exceeded potable water use. In April 1980 a form request was made for funding for a project including television inspection, sealing, and repair of the sewer lines.

7.1.4 Topsham Annex Sanitary Sewer System. Since 22 June 1977 the Topsham Annex System has bypassed the onsite primary treatment plant. Sewerage from the Topsham Annex has been rerouted to the Brunswick treatment plant.

7.1.5 Storm Sewer. The storm sewer system for the Air Station discharges to Casco Bay. In the past oil and solvent discharges from aircraft washings have discharged through the storm sewer. This problem has been rectified. An oil/water separator has been installed at the fuel storage depot near the main gate because the effluent discharges to a brook which outlets to Casco Bay. There is an NPDES permit for this discharge and the effluent is monitored by an independent laboratory.

7.2 SOLID WASTE. The Air Station generates approximately 5 tons of solid waste per day.

Click Here to Return to Main Index

5808

7.1 Collection and Transportation of Solid Waste. Trash, refuse, and garbage are disposed of in dumpsters located throughout the facility. These dumpsters are removed by a private contractor for disposal at the Brunswick landfill. There is no segregation of the wastes. The contract for waste removal is rebid and reissued yearly.

7.3 HAZARDOUS WASTES. The DPDO is tenant activity of the Air Station and is located in Building 594. The DPDO finds buyers for the materials transferred to their custody. These materials include waste oils, solvents, and hydraulic fluids, as well as unused surplus materials such as paints, solvents, alcohols, and acids.

7.4 SOLID WASTE DISPOSAL. Since 1975 solid waste from Topsham Annex and the Brunswick Naval Air Station has been disposed of at the Town of Brunswick landfill. The landfill has not been in compliance with solid waste disposal regulations. The State of Maine DEP has been working with the town to upgrade the landfill or locate a new site. In 1976, under a military construction project (P-063), $100,000 was provided to the town as the Air Station's contribution to the anticipated initial capital cost of a new facility.

7.4.1 Solid Waste Disposal Prior to 1975. Several sites at the Air Station were used as landfills prior to 1975. The primary landfill area is adjacent to the AUW area. Two sites in that area were used from 1945 to 1955 and from 1955 to 1975. During the 1960's a site near the present location of the CPO club/Marine Barracks parking lot was used as a landfill for a short time.

7.5 INCINERATOR. There are no incinerators currently in operation at the Air Station. In 1946, there was an incinerator at the present location of Building 212 in the Marine Barracks area. The incinerator was out of use by the mid-1950's.

7.6 ORDNANCE. Out-of-date ordnance is detonated in the Ordnance Disposal Area, east of the AUW compound. This practice was initiated in 1981. This is the only disposal of ordnance at the Air Station. Prior to 1981 out-of-date ordnance was stored in bunkers. Table 7-1 lists the ordnance to be disposed of and the quantities.

Click Here to Return to Main Index

Table 7-1

Materials for Detonation or Burning -- Ordnance Disposal Site

Item	Quantity
Explosives	
Retrograde high explosive-filled items	100 items
War souvenirs	
Damaged or outdated items	
Unstable bulk explosives	2,000
Recovered clandestine devices	---
Pyrotechnics	
MK-25 marine fares	50-70
Personnel distress signals	150
Military flares	---
Rocket motors and black powder	---

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Click Here to Return to Main Index

CHAPTER 8. DISPOSAL SITES AND POTENTIALLY CONTAMINATED AREAS

8.1 INTRODUCTION. This chapter describes each of the disposal sites or potentially contaminated areas identified during the IAS. The sites located on the Air Station are shown on Figure 8-1. Within the chapter are more detailed maps and photographs.

8.1.1 Site Identification. The sites described were identified through a number of sources, including Air Station records, correspondence, and maps; interviews with Air Station personnel; examination of aerial photographs; and field examination. In all cases efforts were made to confirm site data through more than one source. Sites that were used only for the disposal of rubble and vegetation generated by preconstruction site clearing have not been included. In these cases confirmation was received from several sources (as a minimum) that other materials were not disposed of at these sites.

8.2 SITE 1, LANDFILL ORION STREET AREA -- NORTH. This site is a large open area of more than 10 acres. Grass is the primary vegetation and the surface of the site is slightly rolling. There was no evidence of waste at the surface at the time of the IAS (November 1982). The southern end of the site is crossed by the access road to the AUW area and is inside the outer perimeter fence of the AUW security system. The site location is shown on Figure 8-2.

Sites 1, 2, and 3 are located in the same area and can be considered a single site. However, since the sites have been reported and documented separately, they will be described separately.

8.2.1 Site History. The site was in use from the mid-1950's until 1975. There is some discrepancy regarding the date the site first come into use; both 1955 and 1959 have been given as startup dates. Prior to use as a landfill the site was an unused blueberry patch. One source reported that the site had been a borrow area, but this was denied by other sources. An aerial photograph taken in 1953 shows the site area as an open field with little or no vegetation.

Sometime during the period the site was in operation a bulldozer operator drove over one or more drums. The drum(s) broke and the operator was reported to have lost consciousness. The operator apparently experienced no long-term after-effects. The exact date of this incident is uncertain.

8.2.2 Site Operation. Site 1 was used for a trench fill-type operation. The trenches were reported to have been 100 yards by 25 yards. A map of the site shows the trenches as side-by-side with a north-south orientation. The nature of the bottom of the trenches is uncertain because reported observations do not agree. One interviewee stated that the trenches were dug into the water table, which occurred at a blue clay. Another interviewee said that there was water in the trenches only in the spring, while a third said that there was no water in the trenches. It is probable that there was water in the trenches at least seasonally.

Refuse was hauled to the site eight hours a day. Apparently a single truck picked up dumpsters around the Air Station and hauled them to the site. Cover was applied each day as a general rule. The material that had been dug out of the trenches was used for cover and has been described as sandy. There were two reports that some wastes were placed at the northern end of the area; this

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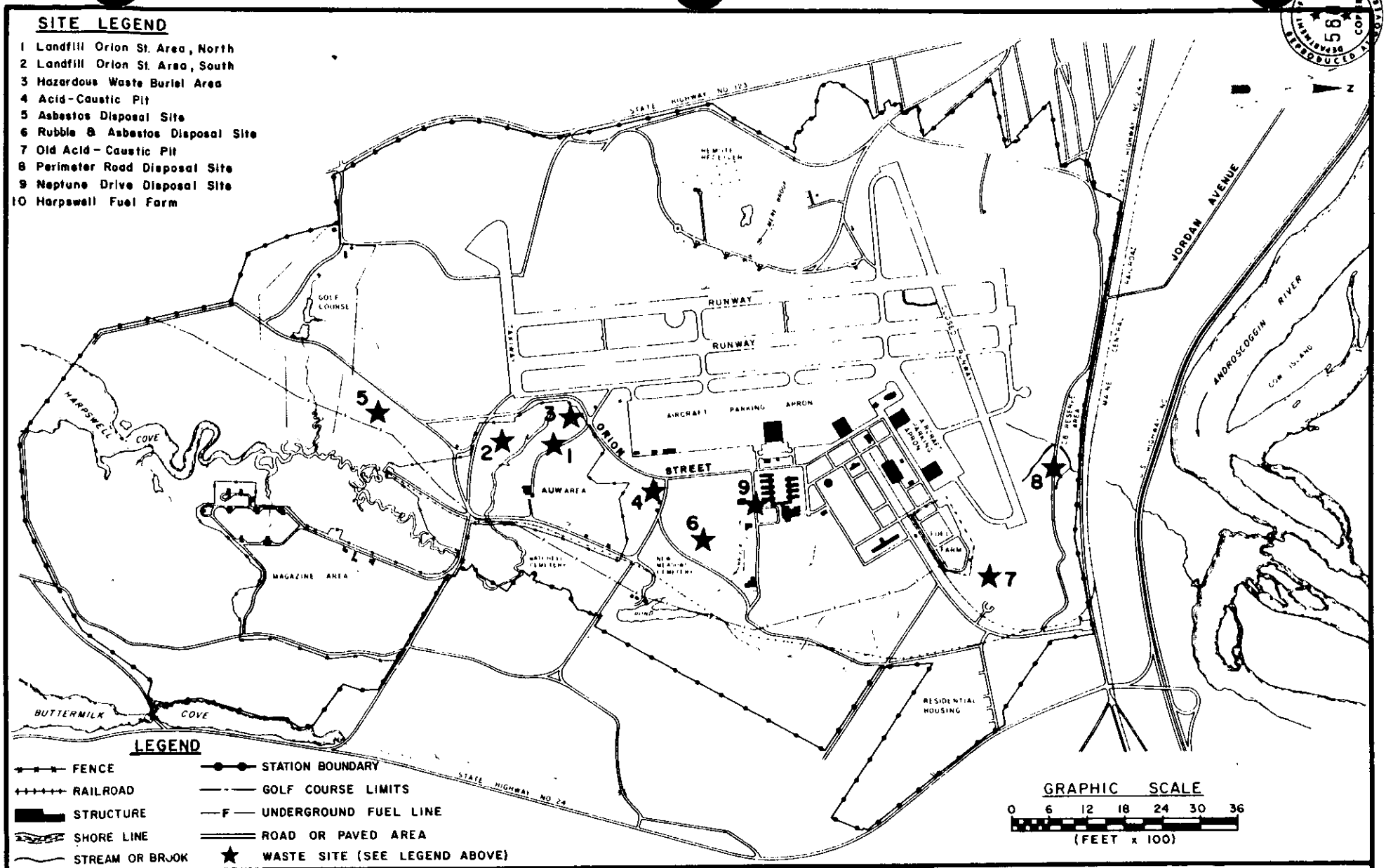

FIGURE 8-1
LOCATION OF DISPOSAL SITES AND POTENTIAL CONTAMINATED AREAS

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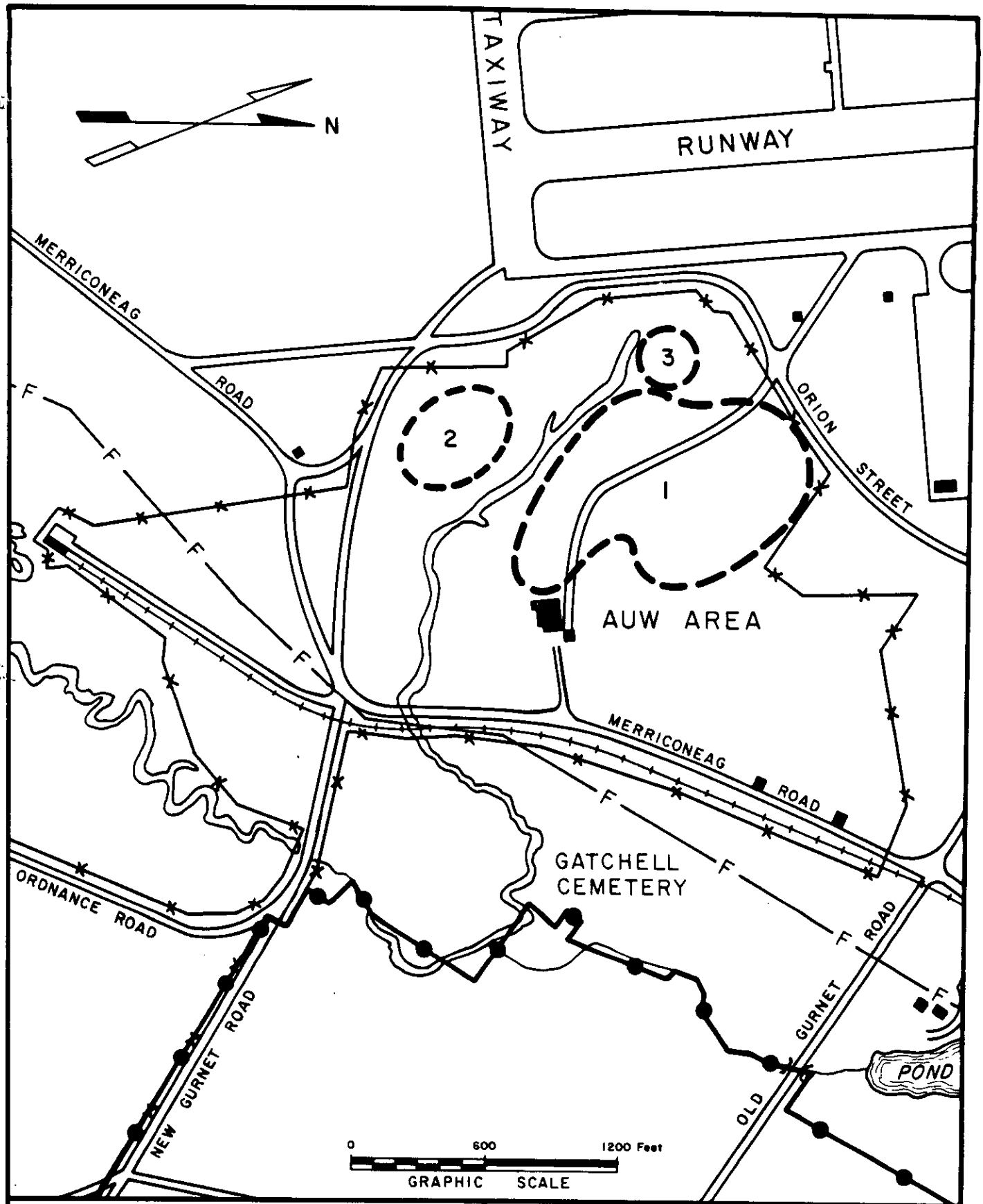

FIGURE 8-2
SITE 1-LANDFILL ORION ST. AREA, NORTH
SITE 2-LANDFILL ORION ST. AREA, SOUTH
SITE 3-HAZARDOUS WASTE BURIAL AREA

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BRUNSWICK

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5808

described as a disposal area for special wastes. According to these reports wastes were placed in this area when the primary operating area was in another location on the site.

8.2.3 Notification. Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) required that the U.S. Environmental Protection Agency be notified of all closed sites that may contain hazardous wastes. On 22 May 1981 notification of this site as a hazardous waste site was received. In the site description the wastes were described as those from housing and base operations. In addition, on 27 February 1981, the site was designated on the Navy Shore Activity Disposal Site Fact Form.

8.2.4 Hazardous Wastes Present. The Fact Form listed the following wastes: garbage, refuse, food wastes, waste oil, solvents, paint wastes, aircraft and automobile parts, and unknown chemicals. The quantities of wastes were listed as unknown. From interviews with Air Station personnel who were employed during the period the site was in operation, it was determined that any waste generated at the Air Station would have gone into the landfill, at least occasionally. Specific wastes that have been mentioned include: pharmaceutical wastes, off-spec or outdated photographic chemicals, empty hazardous chemicals containers, waste oils, filter packing from oil/water separators, paint cans, pesticide and herbicide containers, degreasers, and rubble. According to the interviews it was not uncommon for materials from DPDO to be disposed of in the landfill. Because of the period of time involved (20 years) and the lack of records regarding disposal, it is not possible to accurately determine the quantity of hazardous materials in the landfill. However, it was apparently common practice for most wastes to be put into the nearest bowser or dumpster. Therefore, a conservative estimate would be to assume that any materials described in Chapter 5 could potentially be found in Site 1. Table 8-1 presents estimates of hazardous materials disposed of at this site.

8.2.5 Waste Quantity. The determination of the quantity of waste in Site 1 has been approached based on the present solid waste generation rate of 5 tons per day. Over a 20-year period (assuming that quantity was generated 365 days per year) approximately 36,500 cubic yards of solid waste was generated. An additional 11,000 cubic yards was added for the volume of cover material, for a total of 47,500 cubic yards or roughly 30 acre feet of waste and cover emplaced in the site over 20 years. Given that the site is larger than 10 acres, this estimate appears to be very low. Based on interviews, the probable volume of the site would be several times higher than the 47,500-cubic yard estimate.

8.2.6 Migration Potential. Site 1 is adjacent to Mere Brook, which is the most obvious receptor for leachate generated by the site. Examination of Mere Brook from the air at the time of the IAS (November 1982) revealed that the iron oxide staining characteristics of the leachate was obvious in the brook. Figure 8-3 is an aerial photograph of the site showing Mere Brook.

As discussed in Chapter 4, Mere Brook was sampled in March 1981. Sampling points were located upstream and downstream of the landfill area. The results of this sampling program do not show any significant impacts on the stream. However, this sampling program was conducted during a period of high volume spring runoff. The results should not, therefore, be considered conclusive or reflective of base flow conditions.

Click Here to Return to Main Index

Table 8-1

Wastes Disposed of at Site 1

Waste	Estimated Quantity Disposed of	Time
Sludge from Brunswick Naval Air Wastewater Treatment Plant	Unknown	Until 1968
Asbestos	Unknown	1955 to 1975
Fluorescent light bulbs	Unknown	1955 to 1975
Paint residues	Unknown	1955 to 1975
Solvents	4,000 gallons +	1955 to 1975
Aircraft parts	Unknown	1955 to 1975
Dead animals	Unknown	1955 to 1975
Medical supplies	Unknown	1955 to 1975
Engine oil	2,000 gallons +	1955 to 1975
Hydraulic fluid	2,000 gallons +	1955 to 1975
Toluene/MEK	2,000 gallons +	1955 to 1975
Rubble	Unknown	1955 to 1975
Saturated Speedi-dry	Unknown	1955 to 1975
Mercury vapor lights	Unknown	1955 to 1975

Click Here to Return to Main Index

5808

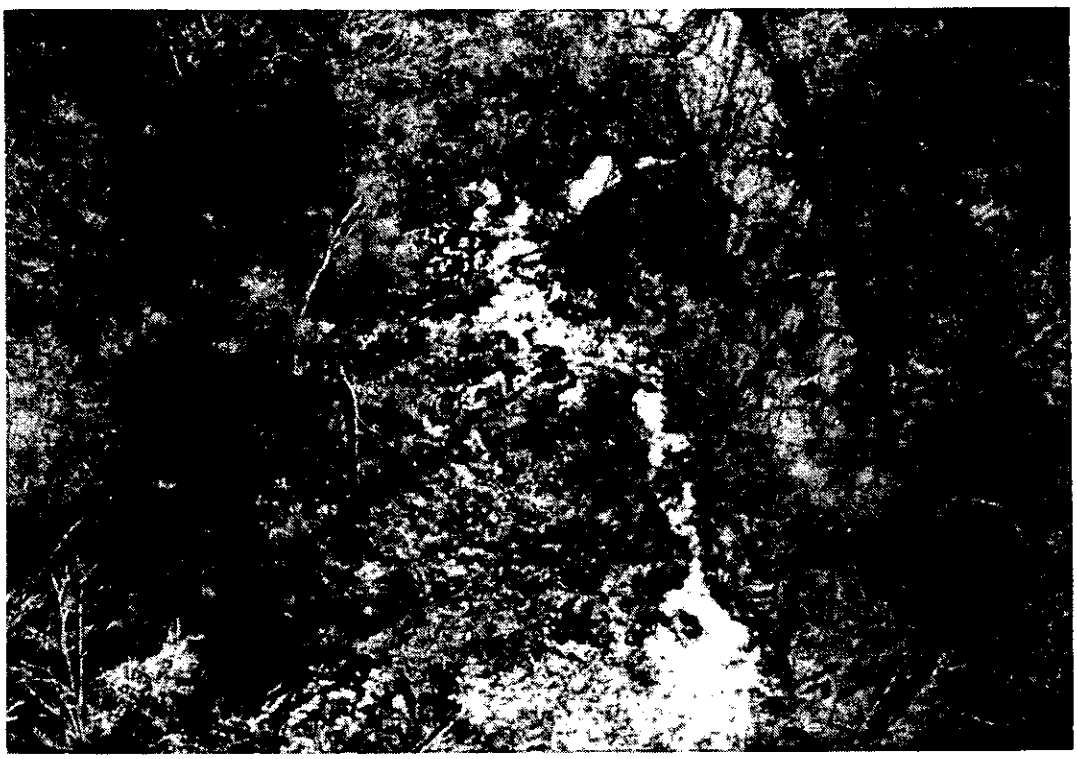

FIGURE 8-3 MERE BROOK—
AERIAL VIEW

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Click Here to Return to Main Index

The ultimate receptor of contamination in Mere Brook would be Harpswell Cove. An examination of Harpswell Cove did not show any observable impact. Water color and clarity appeared to be excellent. A number of dead horseshoe crabs (Limulius polyphemus) were found along the shoreline of the cove. This cove may be a local spawning ground, and the mortality associated with this cyclical ocurrence is typical of the species. Marsh grasses in the wet lands could be impacted with no visible evidence of an impact since these grasses tend to bio-accumulate and/or break down many metals and complex organics.

8.2.6.1 Groundwater Migration. According to soil maps the site soils are fine sand. The sand was used as cover material and the wastes were deposited on blue clay. There is no confirmation that the clay is continuous, however. The most probable migration pathway for leachate would be laterally through glacial and marine sediments, and into open fractures in bedrock.

8.3 SITE 2, LANDFILL ORION STREET AREA -- SOUTH. This is a smaller landfill located south of Site 1. The site was in operation from 1945 to 1955, however, the actual period of site operation was less than 10 years because the Air Station was closed from 1946 to 1951. It is not known whether the site was used by the various tenants during that period. The site location is shown on Figure 8-2. The site is less than 5 acres in size.

8.3.1 Site History. There is very little documentation regarding Site 2. Long-term Air Station personnel generally began working at the base in the 1950's. From 1951 until 1955 Site 2 was used as the main disposal area for the Air Station. Based on an examination of the maps and interviews it is possible that Site 2 is actually contiguous with Site 1 and the delineation of a boundary between the site is somewhat artificial. One interviewee indicated that the whole AUW compound is built on landfill.

8.3.2 Site Operation. Confirmation could not be obtained that this site was a trench operation. It has been described as originally being a natural depression, indicating that an area fill was the probable method of operation. In the site description provided on the Navy Fact Form filed for the site it is stated that an incinerator was operated in the area during the late 1940's and early 1950's. One interviewee confirmed that an incinerator was present, however, the location was given as near the present Marine Barracks.

8.3.3 Notification. This site was included in both the notification to the U.S. Environmental Protection Agency in compliance with CERCLA and in the Navy Shore Activity Disposal Site Fact Form.

8.3.4 Hazardous Wastes Present. The wastes deposited at Site 2 include those listed in Table 8-2. The quantities of hazardous wastes would be substantially lower since the Air Station was in full operation for only a few years (from 1945 to 1946 and from 1951 to 1955).

8.3.5 Waste Quantity. Based on the size of the site and assuming a 5-ton per day solid waste generation rate, the total quantity of waste in Site 2 would be approximately 15,000 cubic yards.

8.3.6 Migration Potential. As stated previously, Site 2 must be considered a part of Site 1 in terms of contaminant migration.

Click Here to Return to Main Index

5608

Table 8-2

Wastes Disposed of at Site 2

Waste	Estimated Quantity Disposed Of	Time
Paint residues	Unknown	1951-1955
Solvents	2,000 gallons +	1951-1955
Engine oil	1,000 gallons +	1951-1955
Hydraulic fluid	1,000 gallons +	1951-1955
Toluene/MEK	1,000 gallons +	1951-1955
Medical supplies	Unknown	1951-1955

Click Here to Return to Main Index

8.4 SITE 3, HAZARDOUS WASTE BURIAL AREA. This site is a small area, adjacent to Mere Brook and Sites 1 and 2. At the present time it is a small mound with small trees and undergrowth. The site is marked as a hazardous waste burial area (Figure 8-4). The site location is shown on Figure 8-2.

8.4.1 Site History. There is conflicting evidence regarding the period of operation of this site. It has been described both as a one-time use (1972), and as operating from 1960 through 1973. In addition, it is possible that the interviewee who described an area for "special waste" at the north end of Site 1 may have been referring to Site 3.

8.4.2 Site Operation. There are no available records regarding the operation of the site. Interviews with Air Station personnel did not reveal any information other than that waste was buried at the site. From an examination of the site it appears possible that wastes were simply placed on the ground and covered. This would account for the fairly distinct mound. At the edge of the site the rim of a container was visible, indicating that although the cover is thick enough to support vegetation, there are thin areas.

8.4.3 Notification. Site 3 was included in the notification to EPA in compliance with CERCLA, and in the Navy Shore Activity Disposal Site Fact Form. The site was described as a one-time disposal area.

8.4.4 Hazardous Wastes Present. The numbers and types of wastes that can be assumed to be present depend on whether the site was used only in 1972, or for a longer period. Table 8-3 presents a list of wastes that have been mentioned as being disposed of at the site. If the site was a long-term operation, then any of the wastes generated by the Air Station could have been included.

8.4.5 Waste Quantity. The known quantities of wastes in Site 3 are shown in Table 8-3.

8.4.6 Migration Potential. The potential for migration from Site 3 is somewhat different than for Sites 1 and 2 because the wastes appear to have been placed higher, and therefore can be assumed to be above the water table. In addition, the wastes are reported to have been in closed containers at the time of disposal. Given the thin cover over the site, the first migration route would be to the air. Also, the site is immediately adjacent to the steep bank of Mere Brook. Erosion of the site cover combined with deterioration of the containers would result in discharge to Mere Brook.

8.5 SITE 4, ACID/CAUSTIC PIT. The site is presently covered by an extension of Building 584 in the DPDO area. Prior to recent construction the site was a small open pit, apparently with no enclosing berm. The location of Site 4 is shown on Figure 8-5.

8.5.1 Site History. The period of site use is uncertain. One report states that the site was used only until the early 1960's. Another source states that the period of use was 1969 to 1974. A third source indicates that the site was in use from 1970 to 1975. The later dates are considered to be more accurate; the early date is probably the result of confusion with the old acid/caustic pit.

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5608

FIGURE 8-4 **HAZARDOUS WASTE BURIAL AREA**

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Click Here to Return to Main Index

Table 8-3

Hazardous Wastes Attributed to Site 3

Waste	Quantity
Isopropyl alcohol	20-25 5-gallon containers
DANC (decontaminating agent - tetrachloro-ethane and dichlorodimethyl hydantoin)	25 5-gallon containers
Outdated paints	50-60 gallons
Solvents	5-10 5-gallon containers

8.5.2 Site Operation. Site 4 has been described as a dug hole, 4 feet by 4 feet and 3 to 3.5 feet deep with railroad ties on both sides. Wooden pallets were suspended between the ties. The pit was not lined. Liquids were brought to the DPDO area and poured into the pit for disposal. The liquids apparently infiltrated into the surrounding soil rather rapidly. Transformers were drained into the pit.

8.5.3 Notification. Site 4 was included in the Navy Shore Activity Disposal Site Fact Form notification.

8.5.4 Hazardous Wastes Present. From the interviews it was determined that any large volumes of chemicals that were not resold were disposed of in the acid/caustic pit. Table 8-4 lists the types of wastes reported to have been disposed of.

8.5.5 Waste Quantity. The waste quantities shown in Table 8-4 are estimated based on interviews with Air Station personnel.

8.5.6 Migration Potential. Site 4 is now covered by the Building 584 exten-tension and pavement. Apparently the pit was filled prior to the building con-struction. Since the pit has been covered there is no longer any infiltration of water to provide a driving force for leachate migration. It is probable that contaminants migrated from the site rapidly after disposal. At this time, 7 years after the termination of use, the site proper should not be considered a source of contamination. The source would now be dispersed into the soil surrounding the pit.

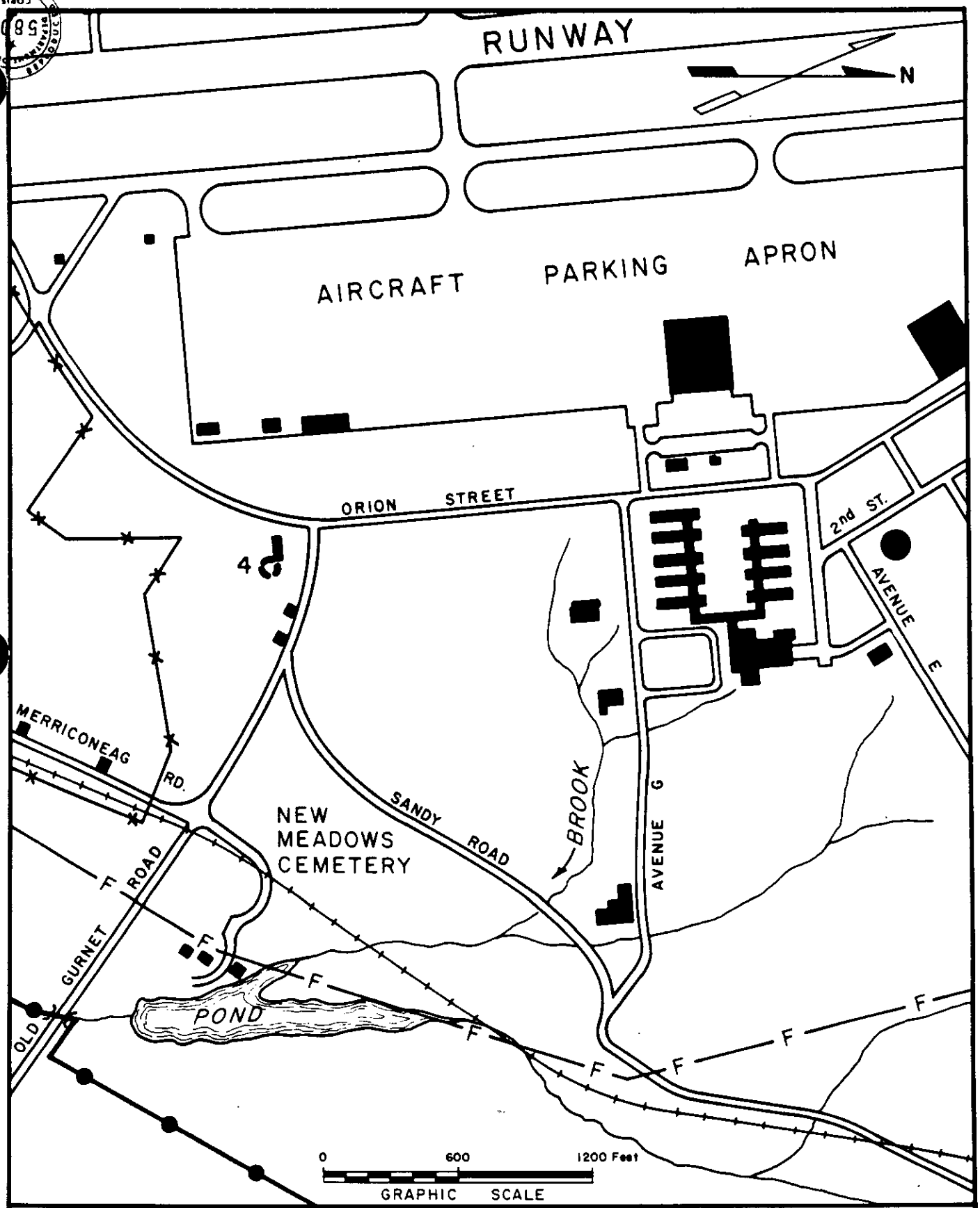

FIGURE 8-5

SITE 4 — ACID-CAUSTIC PIT

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Click Here to Return to Main Index

Table 8-4

Hazardous Wastes Disposed of at Site 4

Waste	Estimated Quantity
Transformer oil possibly containing PCBs	> 1,000 pounds
Battery acid	400 gallons
Caustics	Unknown
TCE and other solvents	> 1,000 gallons
Paint thinners	Unknown

The migration of contaminants has probably increased because of the combination of wastes placed in the pit. Although PCBs are normally not soluble in water, solubility is increased by the presence of solvents. Therefore, it is likely that PCBs have migrated via water movement.

8.5.6.1 Potential Receptors. Site 4 is approximately 1,800 feet south of a tributary of the Merriconeag Stream and 1,800 feet west of the stream itself. Migration of the contaminants to surface water would be via the discharge of contaminated groundwater into the streams. The Merriconeag enters Harpswell Cove approximately 3,600 feet from the site. It should be noted that solvents (TCE in particular) travel in groundwater generally faster than the rate of groundwater movement. The extent of migration in groundwater is dependent on the lateral extent and continuity of the permeable glacial material.

8.6 SITE 5, ASBESTOS DISPOSAL SITE. This site is located off Merriconeag Road south of the main runway. The location of Site 5 is shown on Figure 8-6. The site is in an open area and is well marked. Vegetation at the site is grass, and the cover appears to be in good condition. The soils are sandy.

8.6.1 Site History. Site 5 was apparently used for a very short time in 1979. A contractor was removing asbestos pipe from a building to be demolished and was found burying the pipe at the Air Station. The pipes were later covered with at least 1 foot of soil, and the area was seeded and marked. The State of Maine provided guidance for the closure.

8.6.2 Site Operation. The site was inspected in January 1980 by a facility engineer. He described the site as consisting of two trenches. One trench is 3 feet by 20 feet and 7 feet deep. It contains six asbestos pipes (1 inch diameter) with pipe lengths ranging from 4 to 12 feet. The second trench, adjacent to the first, is 15 feet by 30 feet and 10 feet deep. It contains six to eight lengths of corrugated pipe, with smaller asbestos pipe inside.

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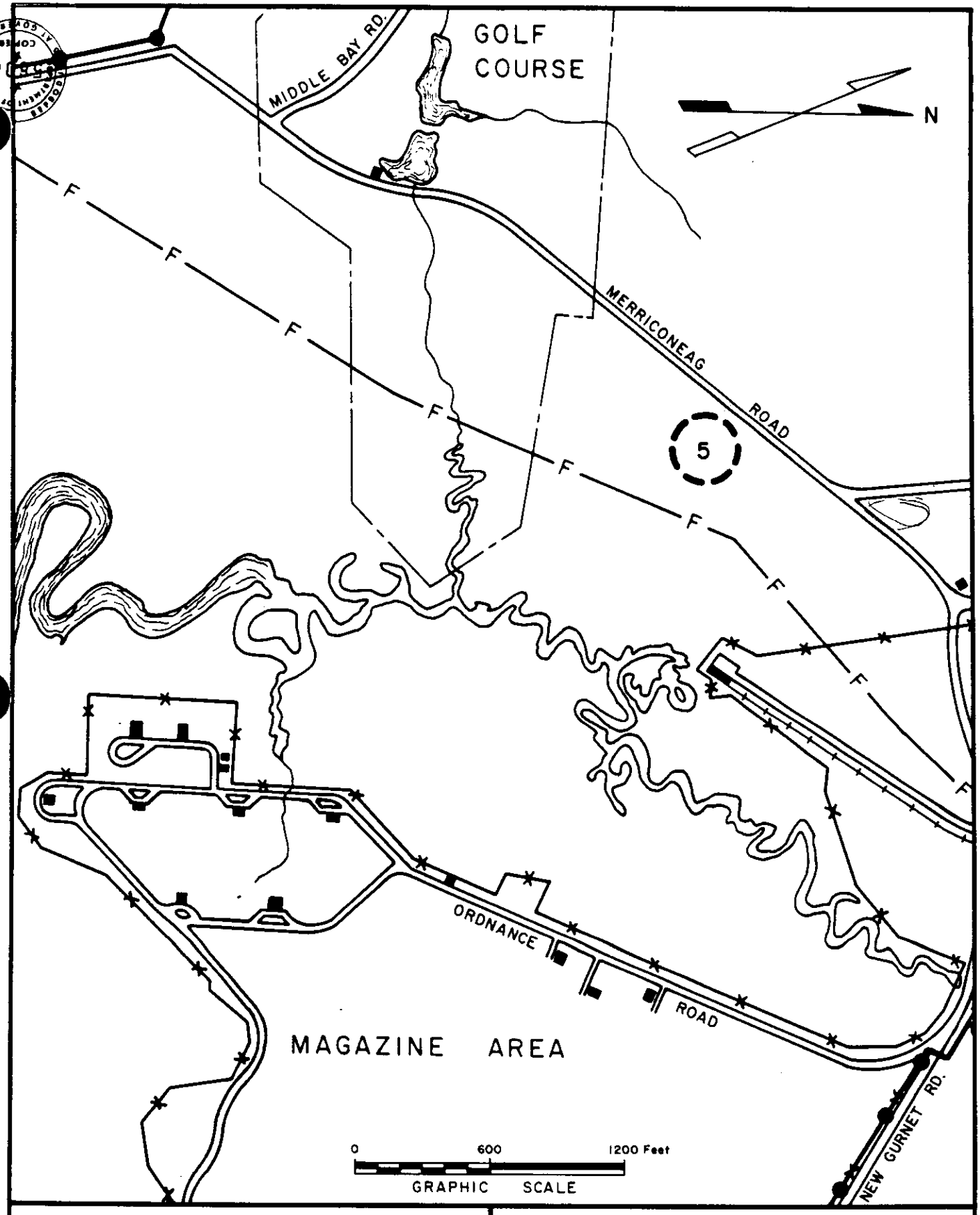

FIGURE 8-6
SITE 5-ASBESTOS DISPOSAL SITE

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Click Here to Return to Main Index

8.6.3 Notification. Site 5 was included in the notification to EPA in response to CERCLA.

8.6.4 Hazardous Wastes Present. The asbestos present is described and quantified in subsection 8.6.2

8.6.5 Migration Potential. Asbestos does not migrate in water. The migration paths for asbestos is as a solid particle in air or in surface-water runoff. These paths are closed as long as the site remains covered and undisturbed.

8.7 SITE 6, RUBBLE AND ASBESTOS DISPOSAL SITE. This site is located west of Sandy Road, between Site 5 and Building 516. The soil around the site is sandy and the site surface is irregular, indicating little cover. The location of Site 6 is shown on Figure 8-7.

8.7.1 Site History. The site is reported as having been used until the late 1970's for general dumping. From an examination of the site it appears that the area was originally a small depression that was filled with rubble. There are reports that aircraft parts were disposed of in the area. Some aircraft parts were removed by a scrap metal dealer.

8.7.2 Hazardous Wastes Present. In areas where the cover is thin asbestos-lined pipe can be seen protruding from the site. There were no reports of any other potentially hazardous materials disposed of at this site. When specifically questioned regarding the site all interviewees indicated that the site was used for rubble and nonputresible waste. The quantity of asbestos is unknown.

8.7.3 Migration Potential. Asbestos migrates only as a solid particle in air or in surface-water runoff. Placing an adequate cover over the site and maintaining the cover would close these pathways.

8.8 SITE 7, OLD ACID/CAUSTIC PIT. This site was part of the DPDO operation when it was located east of taxiway 8. Figure 8-8 shows the location of Site 7. The site has sandy soil and is devoid of vegetation.

8.8.1 Site History. Site 7 was used from 1952 to 1969 when the DPDO moved to its present location.

8.8.2 Site Operation. The site was operated as a liquid waste disposal area. Liquid wastes were poured into the pit for disposal. The liquids infiltrated the soil surrounding the pit.

8.8.3 Hazardous Wastes Present. The hazardous wastes disposed of at Site 7 include battery acid, caustics, transformer oil, and miscellaneous liquid wastes. Estimated quantities include over 1,000 pounds of transformer oil potentially containing PCBs, and more than 1,000 gallons of solvents.

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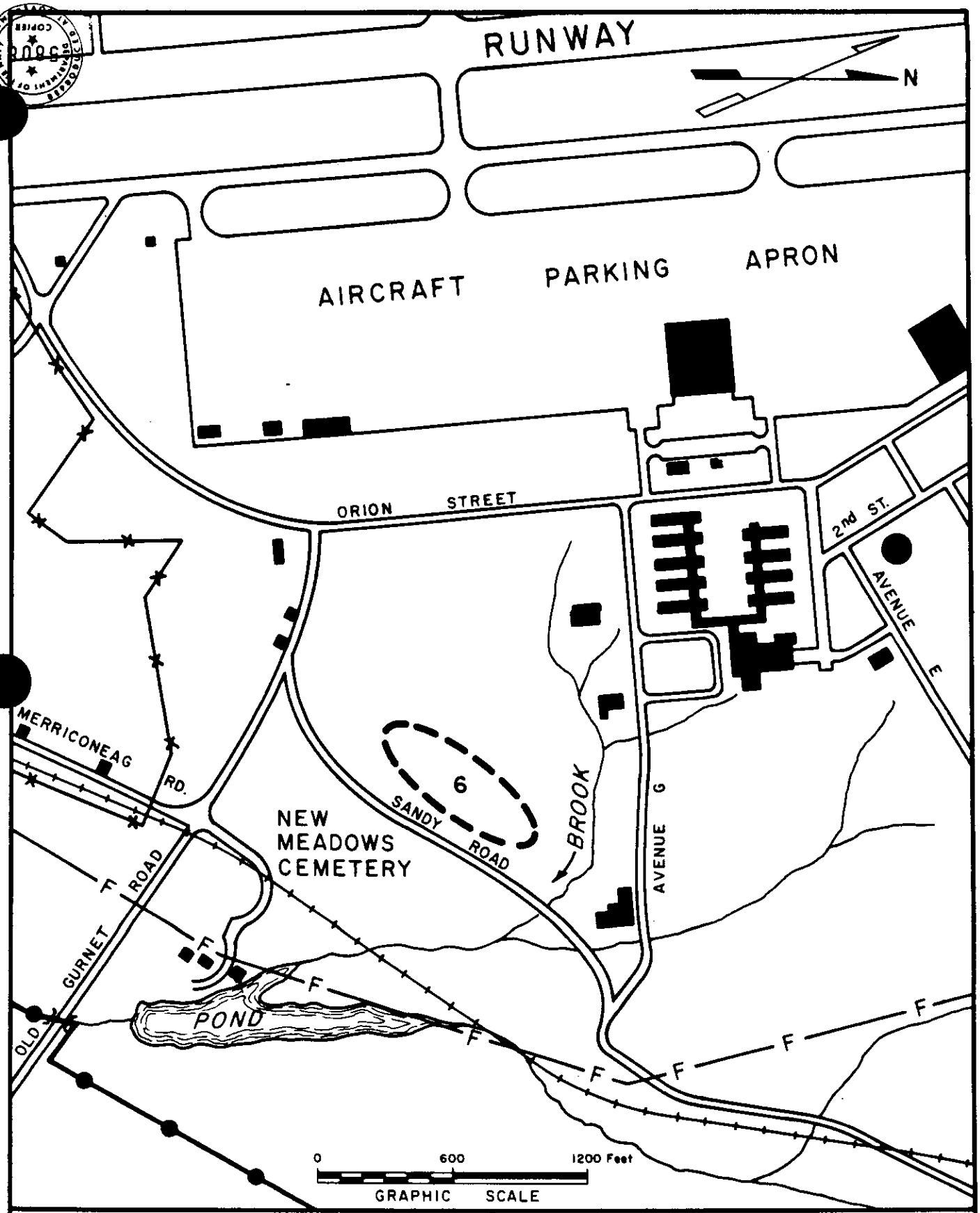

FIGURE 8-7
SITE 6-RUBBLE AND ABSESTOS DISPOSAL SITE

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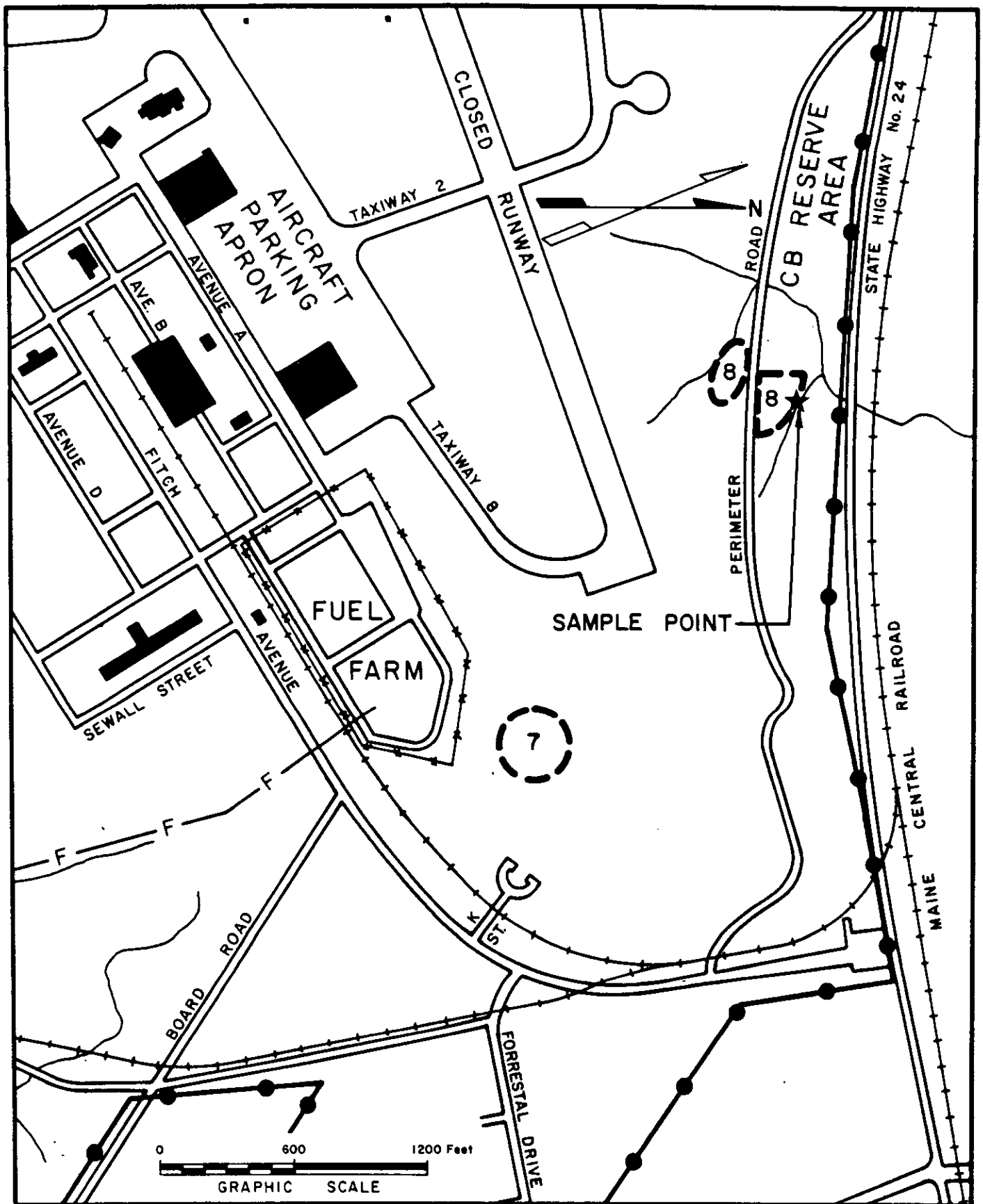

FIGURE 8-8
SITE 7-OLD ACID-CAUSTIC PIT
SITE 8-PERIMETER RD. DISPOSAL SITE

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BRUNSWICK

5608

Click Here to Return to Main Index

8098

8.8.4 Migration Potential. The site is approximately one-quarter mile from a tributary to the Androscoggin River. The topography of the area indicates that surface drainage from the site would be west to this tributary or to the Androscoggin River directly. The river is approximately 3,000 feet north of the site. Runoff from the site to the north, however, would be intercepted since the area between the facility boundary and the river is relatively urbanized. The site is approximately 1 mile east-southeast of the Jordan Avenue well field for the Brunswick Topsham Water District. The aquifer that supplies this well field has been described as limited in lateral extent, however, the actual extent is not known. In addition, the well field is a pumping center and would be expected to generate a cone of depression in the aquifer, consequently drawing water from the surrounding area. If the site is underlain by material that is hydraulically connected to the well field aquifer, then the well field is potentially in the path of migration.

8.9 SITE 8, PERIMETER ROAD DISPOSAL SITE. This site is located on the northern boundary of the Air Station approximately 1,000 feet east of the Seabee Battalion permanent drill site. The location of the site is shown on Figure 8-8. The local topography in this area is steep.

8.9.1 Site History. The site was used from 1964 to 1974. Originally the area was composed of the ravines trending north toward Route 24.

8.9.2 Site Operation. Apparently the site was used as a trench fill operation with the ravines providing the trench. There is no evidence that any excavation was conducted in connection with waste disposal activities.

8.9.3 Hazardous Wastes Present. No clear evidence of the nature and quantity of wastes buried at the site exists. From interviews with Air Station personnel it appears that the majority of the waste is construction and demolition debris, rubble, scrap metal, and general trash. It also appears certain that some solvents (TCE, MEK, and toluene) were dumped there. Although exact quantities cannot be determined, an amount greater than 1,000 pounds is estimated based on discussions with personnel at the Air Station. Other chemical wastes and plating sludges were believed to have been disposed of at this site, however, this fact could not be corroborated.

8.9.4 Migration Potential. Site 8 is approximately 3,600 feet east of the Jordan Avenue well field (described in subsection 8.8.4). The potential does exist for migration of leachate to the well field. The site is adjacent to an unnamed tributary of the Androscoggin River. This tributary was sampled during the IAS; the results are described in the following subsection.

8.9.4.1 Chemical Analysis. During the site visit a reddish brown leachate was observed in the stream at the toe of the landfill (Figure 8-9). A grab sample was taken in the field of both the sediment and the water in the stream. The samples were analyzed by Wright Pierce Engineers of Topsham, Maine. The results of the analysis are shown in Table 8-5.

Click Here to Return to Main Index

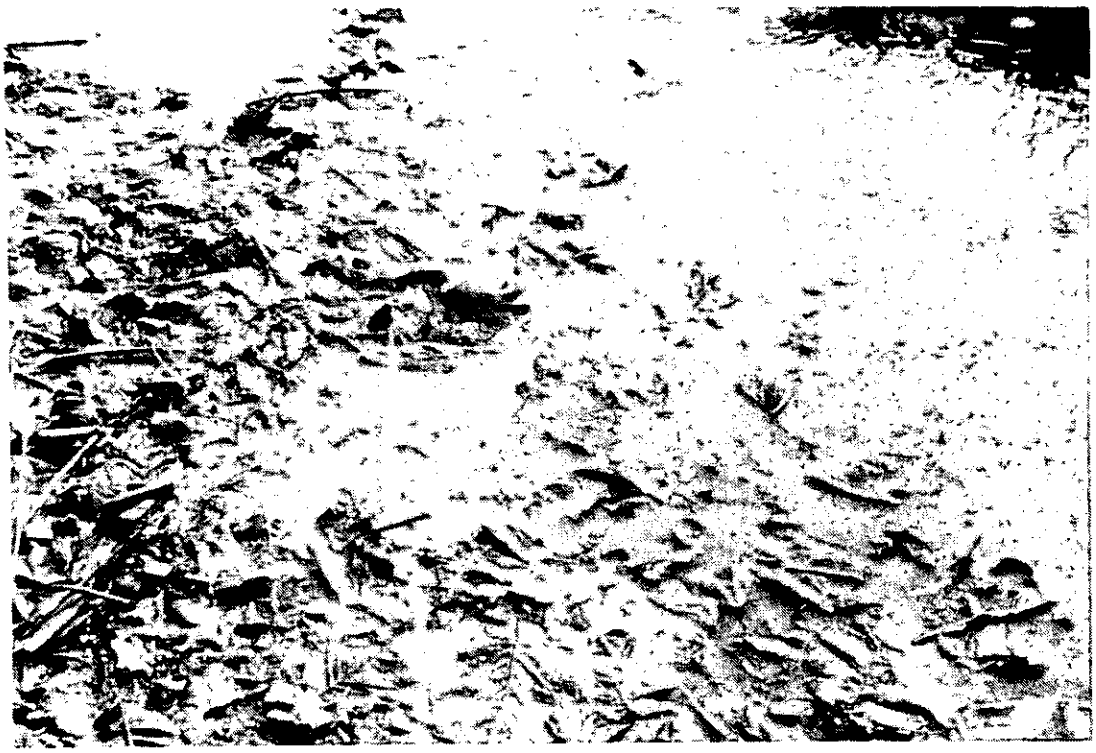

FIGURE 8-9
STREAM ADJACENT TO PERIMETER ROAD DISPOSAL SITE

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Table 8-5

Analysis Results -- Site 8

Parameter	Water Sample	Sediment Sample
Selenium	0.1 mg/l	1.43 mg/kg
Chromium	ND	17.22 mg/kg
Iron	1.5 mg/l	12,956 mg/kg
Copper	ND	11.07 mg/kg
pH	6.2	6.5

ND = None detected

Only the limited metals shown were analyzed as indicator parameters. However, this does not imply that the quality of the water is or is not in compliance with water quality standards. Further analysis will be required to make that determination. The concentration of iron and the pH suggest that the landfill may be impacting on water quality.

The results of the sediment analysis indicate that chromium and copper and, to a larger degree, iron, may be leaching out of the landfill. The results of the sediment analysis are not out of the range of naturally-occurring concentrations in soil. The stream in question is a relatively small, irregular stream with normally low flow. However, during storm events the stream flow increases substantially. Resuspension of the contaminants in the leachate may be occurring as the increased flow during storms may have a scouring effect on the sediments.

8.9.4.2 Receptors. The potential exists for leachate from this site to be transported throughout the tributary stream and ultimately into the Androscoggin River. The river is estuarine in this area, and as such is subject to natural tidal flushing. The potential for a small amount of leached metals to be detected in this system is therefore unlikely. The stream itself, however, probably contains diverse invertebrate fauna, as well as several small fish species typical of small streams. No obvious terrestrial or aquatic impact was noted at the site.

8.10 SITE 9, NEPTUNE DRIVE DISPOSAL SITE. The extent of this site is uncertain. There was a dumping area located under the Marine Barracks north of Neptune Road and a dumping area behind Building 201 south of Neptune Road. These two sites are considered to be contiguous and constitute a single site. The location of the site is shown on Figure 8-10.

Click Here to Return to Main Index

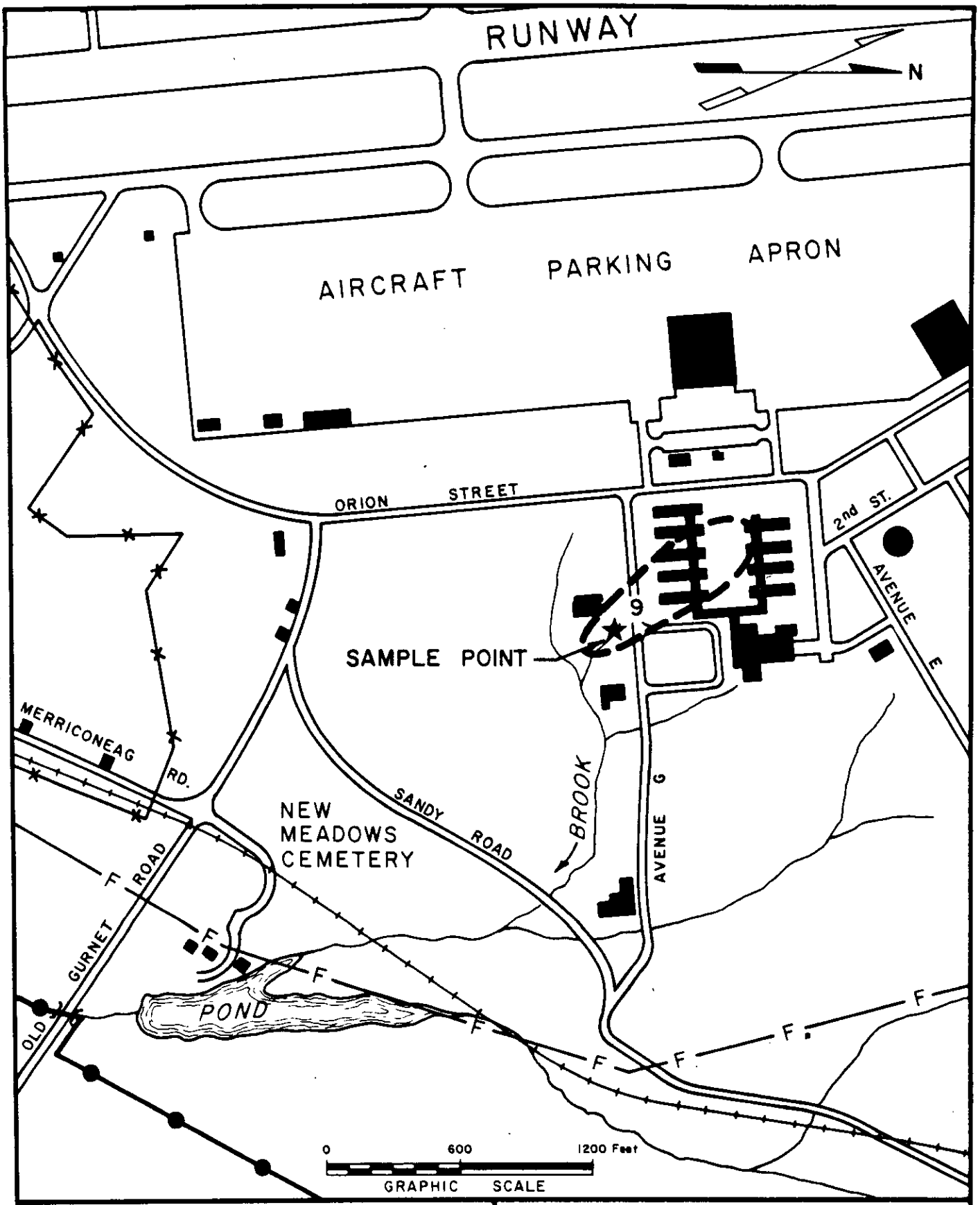

FIGURE 8-10
SITE 9-NEPTUNE DRIVE DISPOSAL SITE

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8.10.1 Site History. The site was reported to be in operation from 1951 to approximately 1960. For awhile it was the main Air Station disposal area. According to personnel interviews it was used before operations began at Site 1. As discussed previously, there is a conflict in the reported starting dates for Site 1. Another interviewee reported that Site 9 was used from 1943 to 1946 and from 1951 to 1952. It was indicated that this was the first dump area used at the Air Station, and the practice was to use only one dump area at a time. A 1946 Air Station map shows the area designated as a dump.

These conflicting data indicate that the site was used as the main Air Station dump for at least a short time in the early 1950's between the time the Air Station was reopened and Site 2 was put in use. The site may have also been used as a primary disposal area between 1955 and 1959, which would account for discrepancies in the startup date of Site 1.

8.10.1.1 Incinerator. An incinerator was located at the present location of Building 212. The incinerator was used prior to the Air Station's closure in 1946. Its later use is uncertain.

8.10.2 Site Operation. During the period the incinerator was in operation solid wastes were burned and the ash was placed in the dump. Solvents and other liquids were burned on the ground. At least some direct disposal of solid waste took place during the 1950's.

8.10.3 Hazardous Wastes Present. The wastes at the site would include solvents and paint sludges, although the quantity of waste is unknown. It has been reported that wastes from the Metal Shop were disposed of at this site for several years.

8.10.4 Migration Potential. The site is adjacent to two small streams that form an unnamed tributary to Merriconeag Stream. Both of these streams appear to sustain year-round flow. A culvert that comes from under the Marine Barracks area discharges to the northern stream. Examination of the banks of the northern stream shows heavy iron oxide staining, which is characteristic of leachate (Figure 8-11). Leachate appeared to be entering the stream from seeps in the stream bottom, from the bank behind Building 201, and from the culvert from the Marine Barracks area. A stream water sample was collected from near the bank on the south side of the stream. The sampling location was out of the influence of flow from the culvert.

8.10.4.1 Chemical Analysis. The results of water and sediment analysis are shown in Table 8-6. The sampling results are inconclusive.

8.10.4.2 Receptors. Based on the leachate seeps seen during the IAS and the position of the site, the primary migration pathway is to the two steams that flow into Merriconeag Stream and Harpswell Cove. For a discussion on the sensitivity of the cove see subsection 8.2.6.

8.10.4.3 Groundwater. The site has a shallow water table. Groundwater discharges to the two streams but it is not known if these streams are effective barriers to groundwater flow. There are no wells in the vicinity of the site.

FIGURE 8-11
STREAM AT NEPTUNE DRIVE DISPOSAL SITE

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Table 8-6

Analysis Results -- Site 9

Parameter	Sediment mg/kg	Water mg/L
Selenium	0.058	0.07
Chromium	35.96	ND
Iron	9,280	0.10
Copper	49.88	ND
pH	5.5	6.00

ND = None detected

8.11 SITE 10, HARPSWELL FUEL DEPOT. This site is a contractor-operated fuel depot located several miles south of the Air Station on Harpswell Neck (Figure 8-12). Figure 8-13 is a view from the inland part of the depot toward Middle Bay. The site topography is steep. The change in elevation is from 146 feet at the west (inland) boundary to sea level at the shoreline. The storage tanks are above-ground and are clustered near the shore. The tank area is bermed.

8.11.1 Site History. This site began operation in 1956. All of the tanks at the depot have been certified as lead free. Tank 3 has contained unleaded fuel since 1975; the other tanks have contained unleaded fuel since 1963. There have been a number of fuel spills at various times, and the soil is saturated with oil. Two recovery wells have been installed (in April 1982 and June 1982) to recover fuel from the subsurface. One pump is running all the time, and approximately 5 gallons of oil are recovered per day. The oil is collected in drums and removed by a contractor. A french drain system has been installed that carries runoff to the oil/water separator system.

8.11.2 Site Operation. Between 1956 and 1963 all of the tanks held leaded fuel. During this period when the tanks were cleaned the mainholes were opened near the bottom of the tanks and the scale was discharged near the tank inside the berm. The scale was buried in place.

8.11.3 Hazardous Wastes Present. The waste of concern is the lead contained in the tank scale that is buried inside the berms. The tanks were cleaned approximately every 4 years. Records of exact schedules were disposed of when the site operation was taken over by a contractor. In the 7-year period of leaded fuel use, tank cleaning was conducted at least once, and possibly twice. The quantity of lead that was discharged is unknown.

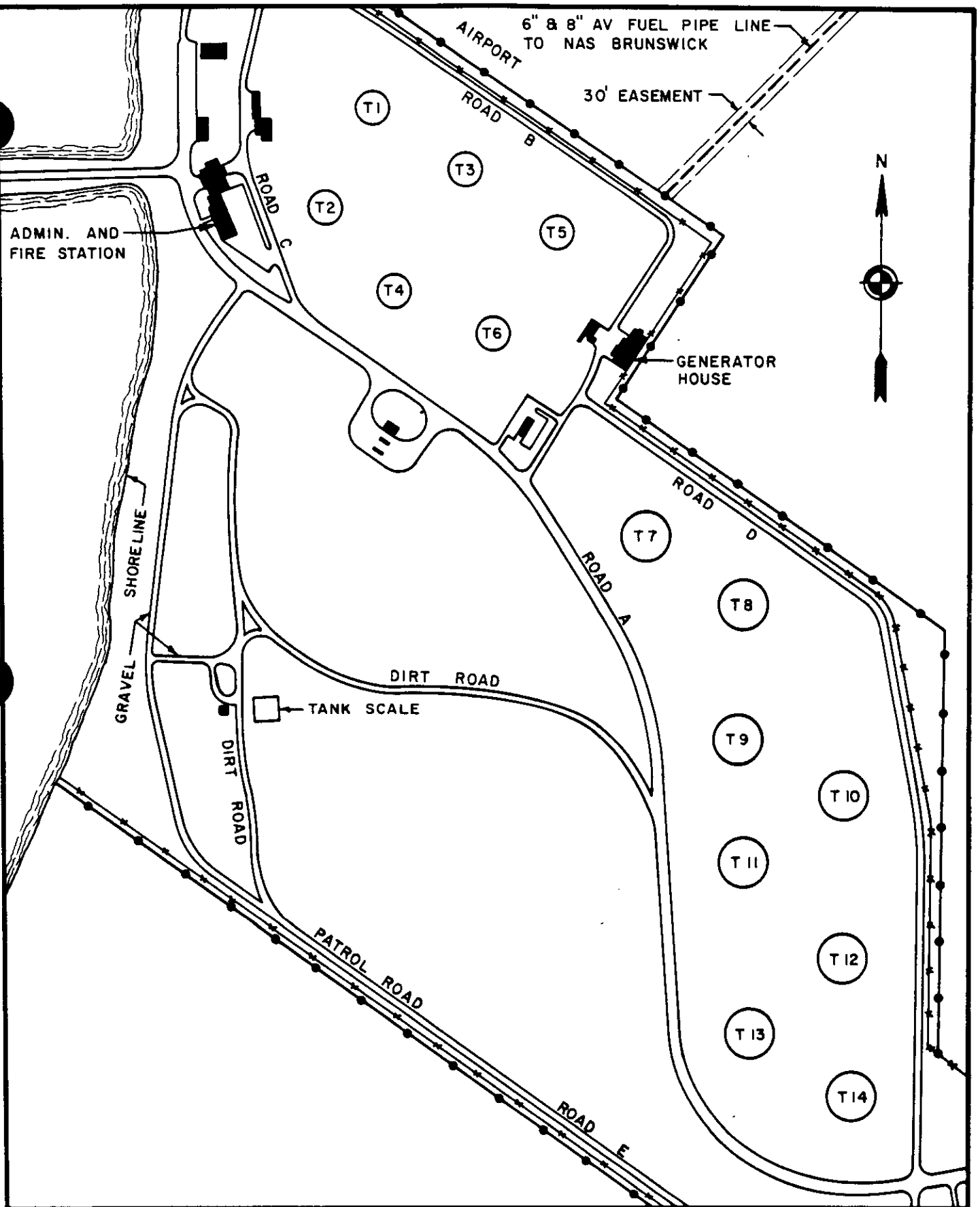

FIGURE 8-12
SITE 10-HARPSWELL FUEL FARM

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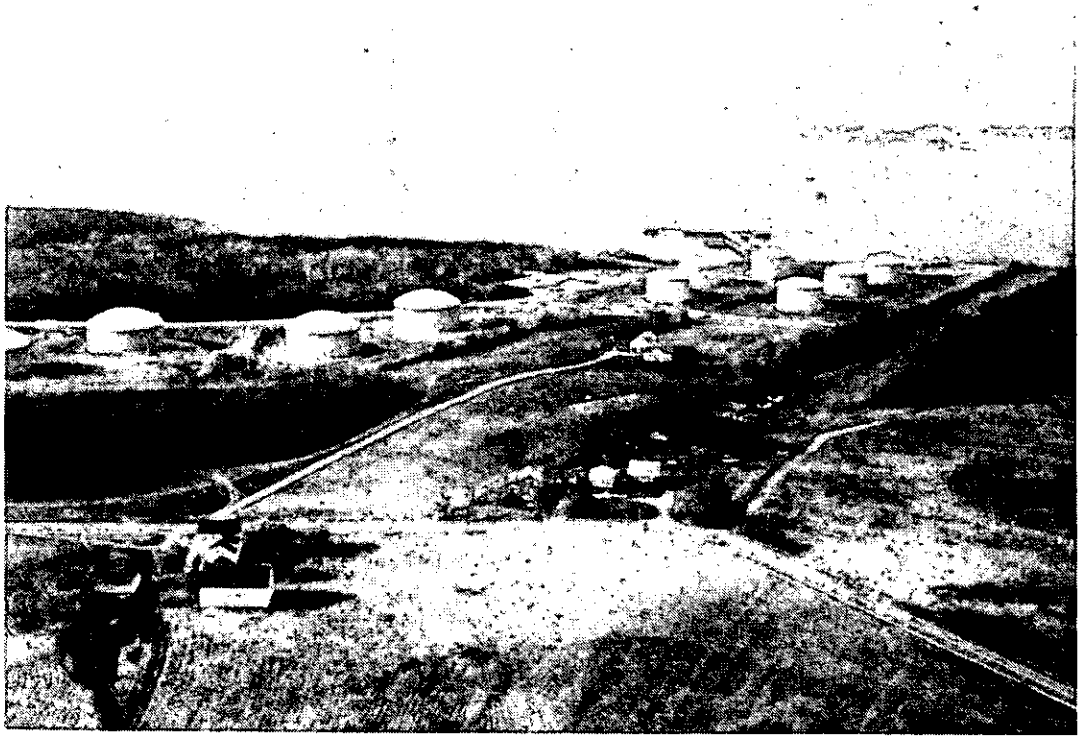

FIGURE 8-13
HARPSWELL FUEL DEPOT

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8.11.4 Migration Potential. There are two water supply wells at the site, however, only one is used. The water is tested periodically but it is not tested for lead. The probability of groundwater contamination is low because the tanks are located adjacent to the shore and groundwater discharges at the shore. The most probable migration path is to Middle Bay. The form of lead (tetraethyl lead) that was used in fuel is not a mobile form, however. Groundwater monitoring at lead disposal sites related to oil refining has shown that the lead does not migrate.

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REFERENCES

Agriculture, Department of United States Soil Conservation Service, in Cooperation with Maine Agricultural Experiment Station. Soil Survey of Cumberland County, Maine. USDA, Washington, DC. August 1974.

Bersani, R.R., Commander, CEC, USN. 1980. Correspondence from Commander Bersani to Mr. George Kaplan, State of Maine, Department of Environmental Protection, Regarding an Application for a DEP Interim License to Store Hazardous Waste. 10 November 1980.

Bersani, R.R., Commander, CEC, USN. 1981. Correspondence from Commander Bersani to Region I of the United States Environmental Protection Agency, Notifying the EPA of the Existence of Sites Where Hazardous Wastes were Disposed. June 1981.

Bridges, Brent, Environmental Engineer, USN. 1980. Correspondence from Mr. Bridges to the Public Works Officer, Regarding a DEP Interim License to Store Hazardous Waste. 10 November 1980.

Hussey, Arthur II and Pankiwsryj. 1975. Preliminary Geologic Map of Southwestern Maine. (Open File No. 75-19.)

Jensen, A.H., Commander, CEC, U.S. Navy, Public Works Officer. 1980. Correspondence from Commander Jensen to Mr. Henry E. Warren, Commissioner of Maine Department of Environmental Protection, Regarding General Refuse and Asbestos Disposal at the Naval Air Station, Brunswick, Maine. SER334. 31 February 1980.

Naval Air Station, Brunswick, Maine. Draft Master Plan for Naval Air Station, Brunswick, Maine.

Naval Air Station, Brunswick, Maine. 1967. NASB Dump Plan. PWD Drawing Number 1062.

Naval Air Station, Brunswick, Maine. 1979. Correspondence from Commanding Officer, NASB, to Chief of Naval Operations, Navy Department, Washington, DC. Transmitting a Report of an Explosive Safety Survey of NASB, and Additional Information Concerning EOD Activities and a Chemical Burial Site. 2 November 1979.

Naval Air Station, Brunswick, Maine. 1981. United States Environmental Protection Agency Notification of Hazardous Waste Site Forms, Dated 1 June 1981 and 9 June 1981.

Prescott, Glen C. 1963. Geologic Map of the Surficial Deposits of Part of Southwestern Maine and Their Water-Bearing Characteristics, Atlas HA-76. Published by USGS.

Salvesen, Robert H., Exxon Research and Engineering Company. 1974. Oil Wastes Handling and Disposal, U.S. Naval Air Station, Brunswick, Maine.

5608 COPIER

Click Here to Return to Main Index

. Soils Information and Classification, United States Naval Air Station, Brunswick, Maine. June 1963.

Wright, Pierce, Barnes, Wyman Engineers. Laboratory Reports of Analyses Conducted at Naval Air Station, Brunswick, Maine, on 25 March 1981 and 10 April 1981.

Click Here to Return to Main Index

BIBLIOGRAPHY

Agriculture, Department of United States Soil Conservation Service, in Cooperation with Maine Agricultural Experiment Station. Soil Survey of Cumberland County, Maine. USDA, Washington, DC. August 1974.

Bersani, R.R., Commander, CEC, USN. 1980. Correspondence from Commander Bersani to Mr. George Kaplan, State of Maine, Department of Environmental Protection, Regarding an Application for a DEP Interim License to Store Hazardous Waste. 10 November 1980.

Bersani, R.R., Commander, CEC, USN. 1981. Correspondence from Commander Bersani to Region I of the United States Environmental Protection Agency, Notifying the EPA of the Existence of Sites Where Hazardous Wastes were Disposed. June 1981.

Bridges, Brent, Environmental Engineer, USN. 1980. Correspondence from Mr. Bridges to the Public Works Officer, Regarding a DEP Interim License to Store Hazardous Waste. 10 November 1980.

Cowardin, L.M., Carter, V., Golet, F.C. and LaRoe, E.T. 1979. Classification of Wetlands and Deepwater Habitats of the United States, Office of Biological Services, Fish and Wildlife Service, U.S. Department of the Interior. December 1979.

Defense, Department of Explosives Safety Board. 1979. Explosives Safety Survey of Naval Air Station, Brunswick, Maine. 24 August 1979.

Defense, Department of Explosives Safety Board. 1982. Explosives Safety Survey of Naval Air Station, Brunswick, Maine. 9 June 1982.

Gawler, S.C. 1981. Annotated List of Maine's Rare Vascular Plants, Executive Department, Maine State Planning Office. December 1981.

Hawranck, M.R., P.E., Civil Engineer. 1980. Memorandum from Mr. Hawranck to LCDR Delmanzo Concerning an Inspection of Dumping Locations at the Naval Air Station, Brunswick, Maine. 10 January 1980.

Hussey, Arthur II editor. 1982. Bibliography of Maine Geology.

Hussey, Arthur II and Pankiwsryj. 1975. Preliminary Geologic Map of Southwestern Maine. (Open File No. 75-19.)

Jensen, A.H., Commander, CEC, U.S. Navy, Public Works Officer. 1980. Correspondence from Commander Jensen to Mr. Henry E. Warren, Commissioner of Maine Department of Environmental Protection, Regarding General Refuse and Asbestos Disposal at the Naval Air Station, Brunswick, Maine. SER334. 31 February 1980.

National Oceanic and Atmospheric Administration. 1974. Climates of the States, Volume I, Eastern States. U.S. Department of Commerce.

Naval Air Station, Brunswick, Maine. Draft Master Plan for Naval Air Station, Brunswick, Maine.

DEPARTMENT OF THE NAVY 5608 COPIES AT GOVERNMENT EXPENSE

Click Here to Return to Main Index

Naval Air Station, Brunswick, Maine. 1946. The Gremlin Farewell Issue. September 1946.

Naval Air Station, Brunswick, Maine. 1967. NASB Dump Plan. PWD Drawing Number 1062.

Naval Air Station, Brunswick, Maine. 1979. Correspondence from Commanding Officer, NASB, to Chief of Naval Operations, Navy Department, Washington, DC. Transmitting a Report of an Explosive Safety Survey of NASB, and Additional Information Concerning EOD Activities and a Chemical Burial Site. 2 November 1979.

Naval Air Station, Brunswick, Maine. 1980. Correspondence from Commanding Officer, NASB, to Commanding Officer, Northern Division, Naval Facilities Engineering Command (114) Regarding Chemical Burial Ground - DANC. 9 May 1980.

Naval Air Station, Brunswick, Maine. 1980. Correspondence from Commanding Officer, Naval Air Station, Brunswick, Maine to Commander, Naval Facilities Engineering Command (201) Transmitting Oil Spill Controls and Countermeasures for Pollution Abatement Project P-120. SER 928, 20 May 1980.

Naval Air Station, Brunswick, Maine. 1981. United States Environmental Protection Agency Notification of Hazardous Waste Site Forms, Dated 1 June 1981 and 9 June 1981.

Naval Air Station, Brunswick, Maine. 1981. Correspondence from Commanding Officer, Naval Air Station, Brunswick, Maine to Commander, Naval Sea Systems Command (SEA 04H) Transmitting Annual Report of Storage, Distribution of, and Available Space for Ammunition, Explosives and Inert Ordnance Material for Year Ending 31 December 1981. SER 2174, 15 December 1981.

Naval Air Station, Brunswick, Maine. 1982. Building and Structures List. 4 August 1982.

Navy, Department of Environmental Branch, Northern Division, Naval Facilities Engineering Command. 1975. Sanitary/Environmental Survey (SES), Naval Shore Activity, Naval Air Station, Brunswick, Maine.

Navy, Department of Environmental Branch, Northern Division, Naval Facilities Engineering Command. 1976. Environmental Engineering Survey. Naval Air Station, Brunswick, Maine.

Navy, Department of Environmental Branch, Utilities Division, Northern Division, Naval Facilities Engineering Command. 1977. Environmental Engineering Survey, Naval Air Station, Brunswick, Maine.

Navy, Department of Naval Facilities Engineering Command, Northern Division. 1980. Proposed Project Report of TV Inspection, Sealing and Repair of Sewer Lines. (Exhibit 1, Information). 2 April 1980.

Navy, Department of Naval Surface Weapons Center. 1980. Correspondence from Commander, Naval Surface Weapons Center to Commander. Naval Air Station, Brunswick, Maine, Regarding Chemical Types in the NASB Chemical Burial Ground. 10 April 1980.

Click Here to Return to Main Index

Navy, Department of Bureau of Yards and Docks. 1962. NASB Existing Conditions Map. Y & D Drawing Number 925129. Sheet 2 of 7.

Navy, Department of Bureau of Yards and Docks. 1963. NASB General Development Map, Existing and Planned. Y & D Drawing No. 747202. Sheet 5 of 7.

Odum, E.P. 1971. Fundamentals of Ecology, Third Edition, W.B. Sanders Company.

Prescott, Glen C. 1963. Geologic Map of the Surficial Deposits of Part of Southwestern Maine and Their Water-Bearing Characteristics, Atlas HA-76. Published by USGS.

Salvesen, Robert H., Exxon Research and Engineering Company. 1974. Oily Wastes Handling and Disposal, U.S. Naval Air Station, Brunswick, Maine.

Schoenfeld Associates, Inc. 1976. Plan of Ordnance Perimeter Fence, Naval Air Station, Brunswick, Maine, NAVFAC Drawing Numbers 2024352 and 2024353.

.... Soils Information and Classification, United States Naval Air Station, Brunswick, Maine. June 1963.

Thompson, B. 1981. New England Sersmotectonic Study Activities in Maine during Fiscal Year 1981. Prepared for USNRC.

Tompson, Woodrow B. and Crossen, Kristine J. Preliminary Report on Glacial - Marine Deltas and Late Pleistocene - Holocene Crustal Movement in Central to Southwestern Maine.

Warmer, Jeffrey, Doyle, Robert G., and Hussey, Arthur II (compiled by). 1967 General Map of Regional Metamorphic Zones.

Weston, Roy F., Inc. 1981. Draft Engineering Report on Hazardous Waste Management, Brunswick Naval Air Station, Brunswick, Maine.

Wright, Pierce, Barnes, Wyman Engineers. Laboratory Reports of Analyses Conducted at Naval Air Station, Brunswick, Maine, on 25 March 1981 and 10 April 1981.

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APPENDIX A

AGENCIES CONTACTED DURING THE IAS

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APPENDIX A

AGENCIES CONTACTED DURING THE IAS

(1) NEESA Information Management Department

(2) Naval Facilities Engineering Command Historian, Naval Construction Battalion Center, Port Hueneme, California

(3) Northern Division, Naval Facilities Engineering Command, Philadelphia, Pennsylvania including:

- (a) Environmental Engineering Branch
- (b) Installations Planning Division
- (c) Real Estate Division
- (d) Cadastral Engineering Section
- (e) Applied Biology Department
- (f) Maintenance Division

(4) DoD Explosives Safety Board, Alexandria, Virginia

(5) Ordnance Environmental Support Office, Indian Head, Maryland

(6) Naval Historical Center, Operational Archives, Navy Yard, Washington, DC

(7) National Archives, Washington, DC and Suitland, Maryland

- (a) Navy and Old Army Branch
- (b) Bureau of Ordnance

(8) Federal Archives Center, Waltham, Massachusetts

(9) Maine Bureau of Geology, Augusta, Maine

(10) Maine Department of Environmental Protection, Augusta, Maine

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APPENDIX B

WELL LOGS -- VICINITY OF THE BRUNSWICK NAVAL AIR STATION

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CUMBERLAND COUNTY

	Thickness	Depth
C 1. Alt. about 40 ft. Log of test hole drilled for Brunswick and Topsham Water Dist.		
Marine deposits:		
Clay	160	160
Bedrock	30	190
C 2. Alt. about 90 ft. Log of test hole drilled for Brunswick and Topsham Water Dist.		
Outwash:		
Topsoil	1	1
Brown sand	19	20
Gravel and clay (some iron rust)	10	30
Gray sand and mica	40	70
Marine deposits:		
Blue clay	80	150
Blue clay and fine sand	10	160
C 3. Alt. about 80 ft. Log of test hole for Brunswick and Topsham Water Dist.		
Outwash:		
Topsoil	1	1
Brown sand	29	30
Quicksand	45	75
Marine deposits:		
Blue clay	58	133
Early stratified drift:		
Blue sand	11	144
Coarse sand	8	152
Bedrock at		152
C 4. Alt. about 50 ft. Log of test hole for Brunswick and Topsham Water Dist.		
Outwash:		
Topsoil	1	1
Gray beach sand	34	35
Marine deposits:		
Blue clay	25	60
Till:		
Sharp, 1/4-inch granite	1	61
Bedrock	1	62
C 5. Alt. about 50 ft. Log of test hole for U. S. Navy.		
Swamp deposits:		
Peat	2	2
Outwash:		
Fine, gray sand	6	8
Marine deposits:		
Clay	24	32
Fine, gray sand	2	34
Fine, gray sand, some gravel	10	44
Clay, some fine, gray sand	50	94
Till:		
Gravel	1	95
Refusal at		95
C 6. Alt. about 20 ft. Log of test hole for U. S. Navy.		
Outwash:		
Fine, gray sand and clay	8	8
Marine deposits:		
Clay	10	18
Fine, gray sand, some clay	7	25
Clay	46	71
Refusal at		71
C 7. Alt. about 25 ft. Log of test hole for U. S. Navy.		
Outwash:		
Fine, gray sand, some clay	14	14
Marine deposits:		
Clay, some fine, gray sand	81	95
Refusal at		95
C 8. Alt. about 20 ft. Log of test hole for U. S. Navy.		
Swamp deposits:		
Peat	4.3	4.3
Outwash:		
Fine, brown sand	9.7	14
Fine, gray sand, some clay	64	78
Fine, brown sand	7	85
Fine, gray sand, some clay	23.5	108.5
Refusal at		108.5
C 9. Alt. about 20 ft. Log of test hole for U. S. Navy.		
Outwash:		
Fine, brown sand, some clay	10	10
Fine, gray sand, some clay	11	21
Fine, gray-brown sand, some clay	45	66
Fine, brown sand	14	80
Fine, gray sand	5	85
Marine deposits:		
Clay at		85

CUMBERLAND COUNTY--Continued

	Thickness	Depth
C 10. Alt. about 25 ft. Log of test hole for U. S. Navy.		
Outwash:		
Fine, brown sand, some clay	21	21
Fine, brown sand	11	32
Fine, gray sand, some clay	10	42
Fine, brown sand, some clay	10	52
Fine, gray sand, some clay	11	63
Fine, brown sand, some clay present	42	105
Refusal at		105
C 11. Alt. about 40 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	44	44
Refusal at		44
C 12. Alt. about 40 ft. Log of test hole for U. S. Navy.		
Outwash:		
Fine, brown sand	10	10
Medium sand and gravel	8	18
Marine deposits:		
Clay, some fine, gray sand	17	35
Clay	31	66
Refusal at		66
C 13. Alt. about 40 ft. Log of test hole for U. S. Navy.		
Outwash:		
Topsoil	4	4
Fine, gray sand, some clay	12	16
Fine, gray sand, some gravel	5	21
Clay, some fine sand	7	28
Fine, brown sand	10	38
Fine, gray sand, some clay	42	80
Fine, gray sand, some gravel	10	90
Refusal at		90
C 14. Alt. about 40 ft. Log of test hole for U. S. Navy.		
Outwash:		
Fine, brown sand, some clay	21	21
Fine, gray sand, some clay	6	27
Medium to fine, brown sand	5	32
Medium to fine, gray sand, some clay	5	37
Medium to fine, brown sand	6	43
Fine, gray sand, some clay	5	48
Marine deposits:		
Clay	39	87
Fine, gray sand, some clay	2	89
Refusal at		89
C 15. Alt. about 40 ft. Log of test hole for U. S. Navy.		
Outwash:		
Medium, brown sand	10	10
Fine, brown sand, some clay	21	31
Fine, brown sand	42	73
Fine, gray sand, some clay	25	98
Refusal at		98
C 16. Alt. about 190 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	14	14
Till:		
Fine sand, some gravel and clay	2	16
Refusal at		16
C 17. Alt. about 190 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	11	11
Refusal at		11
C 18. Alt. about 180 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	23	23
Refusal at		23
C 19. Alt. about 180 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	15	15
Fine sand	1	16
Refusal at		16
C 20. Alt. about 180 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	13	13
Fine sand and clay	10	23
Refusal at		23
C 21. Alt. about 120 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	5	5
Refusal at		5

CUMBERLAND COUNTY--Continued

	Thickness	Depth
C 22. Alt. about 120 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	10	10
Refusal at		10
C 23. Alt. about 20 ft. Log of test hole for Brunswick and Topsham Water Dist.		
Alluvium:		
Black muck	5	5
Fine, brown sand	5	10
Medium, gray sand	5	15
Outwash (?):		
Coarse, gray sand	5	20
Medium, gray sand	5	25
Marine deposits (?):		
Silt, clay	5	30
C 24. Alt. about 140 ft. Log of test hole for Brunswick and Topsham Water Dist.		
Marine deposits:		
Clay	40	40
Silt	27	67
C 25. Alt. about 100 ft. Log of test hole for Brunswick and Topsham Water Dist.		
Marine deposits:		
Hard clay	40	40
Early stratified drift or ice-contact deposits:		
Fine, gray sand	28	68
Brown sand	15	83
C 26. Alt. 139 ft. Log of well drilled for Brunswick and Topsham Water Dist.		
Outwash:		
Dirty sand	10	10
Marine deposits:		
Blue clay	25	35
Early stratified drift or ice-contact deposits:		
Dirty, fine sand	15	50
Clean, coarse sand	10	60
Dirty, fine sand	10	70
Dirty, coarse sand	5	75
Dirty, gravel and sand	10	85
Clean sand and gravel	16	101
Refusal at		101
C 27. Alt. about 100 ft. Log of test hole for Brunswick and Topsham Water Dist.		
Marine deposits:		
Firm clay	16	16
Blue clay	38	54
Fine clay and sand	28	82
Refusal at		82
C 28. Alt. about 58 ft. Log of well drilled for Brunswick and Topsham Water Dist.		
Marine deposits:		
Blue clay	25	25
Sandy clay	9	34
Early stratified drift:		
Dirty sand	16	50
Small boulders	10	60
Coarse sand and gravel	18	78
Refusal at		78
C 29. Alt. about 50 ft. Log of well drilled for Brunswick and Topsham Water Dist.		
Alluvium:		
Brown silt	10	10
Gray silt	12	22
Coarse, brown gravel	4	26
Marine deposits:		
Blue clay	24	50
Early stratified drift:		
Fine, gray sand	25	75
Medium gravel	15	90
Coarse gravel	22	112
Refusal at		112

APPENDIX B LOGS OF WELLS AND TEST BORINGS IN THE VICINITY OF NASB

INITIAL ASSESSMENT STUDY NAVAL AIR STATION BRUNSWICK

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	Thick-ness	Depth
CUMBERLAND COUNTY--Continued		
C 30. Alt. 50 ft. Log of well drilled for Brunswick and Topsham Water Dist.		
Alluvium:		
Topsoil, brown clay	5	5
Coarse gravel and clay	5	10
Brown gravel	10	20
Early stratified drift:		
Fine, brown sand and clay	5	25
Gray gravel and clay	10	35
Very fine, gray sand and clay	25	60
Dirty, very fine sand	35	95
Gray sand	5	100
Fine silty sand and clay	15	115
Coarse gravel and very fine sand	10	125
Fine, gray sand	10	135
Medium, coarse sand	15	150
Coarse gray sand	11	161
Hard-packed, dirty gray sand	3	164
Bedrock at		164
C 31. Alt. about 60 ft. Log of test hole for U. S. Navy.		
Outwash:		
Topsoil	1	1
Fine sand	25	26
Fine sand, some clay	46	72
Marine deposits:		
Clay, fine, gray sand	23	95
Refusal at		95
C 32. Alt. about 40 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Topsoil	1	1
Clay	14	15
Fine sand	4	19
Refusal at		19
C 33. Alt. about 50 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Topsoil	1	1
Clay	15	16
Fine sand	9	25
Refusal at		25
C 34. Alt. about 100 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Topsoil	1	1
Clay	19	20
Fine sand	10	30
Refusal at		30
C 35. Alt. about 80 ft. Log of test hole for U. S. Navy.		
Outwash:		
Topsoil	1	1
Fine to medium sand	13	14
Fine sand	43	57
Marine deposits:		
Clay	14	71
Refusal at		71
C 99. Alt. 170 ft. Log of test boring by State Highway Comm.		
Outwash:		
Loose, brown silty sand	3	3
Marine deposits:		
Medium consistency, gray, varved silty clay with sandy layers up to 18 inches thick. Becomes stiff consistency near bottom	66	69
Till (?):		
Medium density, gray silty sand and gravel	13	82
C 100. Alt. 46 ft. Log of test boring by State Highway Comm.		
Outwash:		
Loose, brown silty sand	24.5	24.5
Loose, greyish-brown silty sand	9.5	34.0
Marine deposits:		
Soft, very sensitive, gray silty clay--silty layers in upper portion, black spots in lower portion	20.5	54.5
Medium consistency, sensitive, gray silty clay with black spots and silt bands	10	64.5
Till (?):		
Medium density, gray sand with silty clay layers	6	70.5
Bedrock:		
Micaceous gneiss with quartz intrusion	5	75.5

	Thick-ness	Depth
CUMBERLAND COUNTY--Continued		
C 101. Alt. 48 ft. Log of test boring by State Highway Comm.		
Outwash:		
Loose, brown sand	5	5
Marine deposits:		
Stiff, grayish-brown, weathered silty clay with a few sand layers	4	9
Medium to soft consistency, sensitive, blue-gray silty clay with sand layers near top and bottom	31	40
Till (?):		
Medium density sand, fine and silty in upper portion and gravelly in lower portion	5	45
Refusal at		45
C 102. Alt. 49 ft. Log of test boring by State Highway Comm.		
Outwash:		
Loose, brown sand	6.4	6.4
Marine deposits:		
Stiff, grayish-brown, weathered silty clay with a few sand layers	6.5	12.9
Soft to medium consistency, sensitive, blue-gray silty clay with black spots, sand layers near top and bottom	39.5	52.4
Till (?):		
Medium density, gray gravelly sand	6.0	58.4
Bedrock:		
Biotite - muscovite gneiss	5.5	63.9
C 103. Alt. 152 ft. Log of test boring by State Highway Comm.		
Marine deposits:		
Weathered, brownish-gray silty clay; varved with fine sand; sand increases with depth. Medium to stiff consistency	16.5	16.5
Early stratified drift or ice-contact deposits:		
Fine, brown sand. Medium dense at top, changing to very dense at bottom. Washed ahead last 2 feet	25.5	42.0
C 104. Alt. 152 ft. Log of test boring by State Highway Comm.		
Marine deposits:		
Weathered, brownish-gray silty clay. Varved with fine sand. Sand increases with depth. Medium to stiff consistency	15	15
Early stratified drift or ice-contact deposits:		
Fine, brown sand, medium dense	23	38
Bedrock	2	40
C 105. Alt. 151 ft. Log of test boring by State Highway Comm.		
Marine deposits:		
Weathered, brownish-gray silty clay. Thin varves of fine sand. Stiff,	16	16
Blue-gray clayey silt	3	19
Early stratified drift or ice-contact deposits:		
Gray sand and silt, loose	3	22
Fine, brown silty sand, loose to medium density	16	38
Bedrock	6	44
C 106. Alt. sea level. Log of test boring by State Highway Comm.		
Water	8.5	8.5
Marine deposits:		
Soft, black silt, sand, and shells	4	12.5
Soft, gray, slightly organic sand, silt, clay and shells	5	17.5
Soft, gray silty clay with black spots	32.5	50.0
Medium consistency, gray silty clay with black spots	35	85.0
Gray sand	8.5	93.5
Refusal at		93.5
C 107. Alt. 22 ft. Log of test boring by State Highway Comm.		
Outwash:		
Medium and fine, clean, brown sand, loose to medium consistency	14.1	14.1
Alternating thin layers of fine and medium, gray sand and silty clay; loose to medium density	39.4	53.5
Marine deposits:		
Blue-gray silty clay containing large amounts of black disintegrated organic matter. Slightly varved with fine sand. Stiff consistency	22	75.5
Early stratified drift (?) and till (?):		
Blue-gray sand. Fine, loose and uniform at top, becoming silty, gravelly, and compact towards bottom	14	89.5
Refusal at		89.5

	Thick-ness	Depth
CUMBERLAND COUNTY--Continued		
C 108. Alt. 64 ft. Log of test boring by State Highway Comm.		
Fill or outwash:		
Very dense, brown gravelly sand	10.3	10.3
Marine deposits:		
Very stiff, brown, weathered silty clay with occasional thin sand layers	10	20.3
Early stratified drift:		
Medium density, brown, layered sand	3.3	23.6
Bedrock:		
Biotite gneiss	5	28.6
C 109. Alt. 24 ft. Log of test boring by State Highway Comm.		
Outwash:		
Dark-brown sandy silt and roots	3	3
Loose, brown sand	20	23
Brown silty sand, loose, becoming medium density with depth	46	69
Marine deposits:		
Bluish-gray silty clay with a few sand layers	31	100
C 110. Alt. 10 ft. Log of test boring by State Highway Comm.		
Alluvium:		
Brown silty sand with grass and roots	4.1	4.1
Very loose, brown sand	5.0	9.1
Brown sandy silt	1.0	10.1
Marine deposits:		
Layers of medium consistency, gray silty clay and gray sand	7.0	17.1
Stiff, gray, varved, sandy silty clay with sand layers	24.4	41.5
C 111. Alt. 13 ft. Log of test boring by State Highway Comm.		
Swamp deposits:		
Brown peat	2	2
Outwash:		
Alternate layers of loose, gray sand, silty clay, and medium consistency clayey silt. Sand layers up to one inch	13	15
Loose, fine, gray sand with layer of clay silt	10	25
Marine deposits:		
Soft, gray, varved silty clay with sand lines	2	27
Soft, brown, varved silty clay with sand layers	3	30
Medium consistency, gray, varved sandy silty clay	3	33
Early stratified drift (?):		
Loose, brown, stratified sand with silty clay layers	12	45
Loose, gray, stratified sand with silty clay layers	9	54
Medium density, fine, brown sand	2.5	56.5
C 112. Alt. 8 ft. Log of test boring by State Highway Comm.		
Alluvium:		
Loose, brown sandy silt	4	4
Loose, brown silty sand	2	6
Loose, brown sand	10	16
Marine deposits:		
Medium consistency, gray silty clay with sand layers	7	23
Medium consistency, gray silty clay with black spots	41	64
Early stratified drift (?) or till (?):		
Medium density, gray sand and gravel with a few silty layers	4	68
Refusal at		68
KENNEBEC COUNTY		
K 41. Alt. 284 ft. Log of test boring by State Highway Comm.		
Swamp deposits:		
Peat	1	1
Refusal at		1
K 42. Alt. 283 ft. Log of test boring by State Highway Comm.		
Swamp deposits:		
Brown peat with decayed wood	15.9	15.9
Marine deposits:		
Very soft, sensitive, gray silty clay with black spots	8	23.9
Till or early stratified drift:		
Loose, density, gray silty sand and pebbles. (Washed ahead)	9.6	33.5

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APPENDIX C

COMMON FAUNA INHABITANTS AND/OR POTENTIAL VISITORS TO THE BRUNSWICK AREA

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APPENDIX C

COMMON FAUNA INHABITANTS AND/OR POTENTIAL VISITORS
TO THE BRUNSWICK AREA

Predominant Habitat[1]	Common Name	Scientific Name
	Mammals	
T	White-footed mouse	Peromyscus leucopus
T	Deer mouse	Peromyscus maniculatus
T	Woodland jumping mouse	Napaeozapus insignis
T	Meadow jumping mouse	Zapus hudsonius
T	House mouse	Mus musculus
T	Meadow vole	Microtus pennsylvanicus
T	Boreal red-backed vole	Clethrionomys gapperi
T	Starnose mole	Condylura cristata
T	Hairytail mole	Parascalops breweri
T	Masked shrew	Sorex cinereus
T	Smokey shrew	Sorex fumeus
T	Shorttail shrew	Blarina brevicauda
T	Longtail shrew	Sorex dispar
T	Pygmy shrew	Microsorex hoyi
T	Northern water shrew	Sorex palustris
W	Southern bog lemming	Synaptomys cooperi
T	Shorttail weasel	Mustela erminea
T	Longtail weasel	Mustela frenata
T	Eastern grey squirrel	Sciurus carolinensis

[1]T = Terrestrial
W = Wetlands

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Predominant Habitat[1]	Common Name	Scientific Name
	Mammals (continued)	
T	Red squirrel	Tamiasciurus hudsonicus
T	Northern flying squirrel	Glaucomys sabrinis
T	Eastern chipmunk	Tamias striatus
T	Cottontail rabbit	Sylvilagus sp.
T	Snowshoe hare	Lepus americanus
T	Raccoon	Procyon lotor
W	Beaver	Castor canadensis
T	Opossum	Didelphis marsupialis
T	Woodchuck	Marmota monax
T	Striped skunk	Mephitis mephitis
W	Muskrat	Ondatra zibethica
W	Mink	Mustela vison
W	River otter	Lutra canadensis
T	Little brown bat	Myotis subulatus
T	Big brown bat	Eptesicus fucus
T	Keen myotis bat	Myotis keeni
T	Red bat	Lasiurus borealis
T	Hoary bat	Lasiurus cinereus
T	Silver-haired bat	Lasionycteris noctivagans
T	Small-footed myotis	Myotis subsulatus
W	Fisher	Martes pennanti
T	Bobcat	Lynx rufus

[1] T = Terrestrial
W = Wetlands

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Predominant Habitat[1]	Common Name	Scientific Name
	Mammals (continued)	
T	Red fox	Vulpes fulva
T	Grey fox	Urocyn cinereoargenteus
T	Eastern coyote	Canis latrans
T	White-tailed deer	Odocoileus virgianus
T	Moose	Alces alces

[1]T = Terrestrial
W = Wetlands

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APPENDIX D

COMMON BIRDS AND/OR POTENTIAL VISITORS TO THE BRUNSWICK NAVAL AIR STATION AND NEARBY COASTAL AREAS

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Click Here to Return to Main Index

APPENDIX D

COMMON BIRDS AND/OR POTENTIAL VISITORS TO THE BRUNSWICK NAVAL AIR STATION AND NEARBY COASTAL AREAS

Predominant Habitat[1]	Common Name	Scientific Name
	Birds	
A	Blue winged teal	Anas discors
A	Green-winged teal	Anas carolinensis
A	Black duck	Anas rubripes
A	Mallard duck	Anas platyrhynchos
A	Bufflehead duck	Bucephala albeola
A	Canada goose	Branta canadensis
A	Common loon	Gavia immer
A	Great blue heron	Ardea herodias
A	Green heron	Butorides virescens
A	Black-crowned night heron	Nycticorax nycticorax
A	American bittern	Branta canadensis
A	Pintail	Anas acuta
A	Wood duck	Aix sponsa
A/T	Marsh hawk	Circus cyaneus
A	Bald eagle (rare visitor)	Haliaectus leucocephalus
A	Osprey (rare visitor)	Pandion haliaetus
A	Double-crested cormorant	Phalacrocorax auritus
A	Semi-palmated plover	Charadrius semipalmatus
A/T	Killdeer	Charadrius vociferus

[1]A = Aquatic
T = Terrestrial

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Predominant Habitat[1]	Common Name	Scientific Name
	Birds (continued)	
A	Ring-billed gull	Larus delawarensis
A	Common tern	Sterna hirundo
A	Forster's tern	Sterna fosteri
A	Greater scaup	Aythya marila
A	Lesser scaup	Aythya affinis
A	Hooded merganser	Lophodytes cucullatus
A	Common eider	Somateria mollissima
A/T	Crows and ravens	Cornidae spp.
T	Red-shouldered hawk	Buteo lineatus
T	Broad-winged hawk	Buteo platypterus
T	Sparrow hawk	Falco sparverius
T	Great horned owl	Bubo virginianus
T	Barred owl	Strix varia
T	Sawwhet owl	Aegolius acadicus
T	Ruffled grouse	Bonasa umbellus
T	Whippoorwill	Caprimulgus vociferus
T	Nighthawk	Chordeiles minor
A/T	Turkey vulture	Cathartes aura
A	Greater yellow legs	Totanus melanoleucus
A	Lesser yellow legs	Totanus flavipes
A	Spotted sandpiper	Actitus macularia
A	Common snipe	Capella gallinago

[1] A = Aquatic
T = Terrestrial

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Predominant Habitat[1]	Common Name	Scientific Name
	Birds (continued)	
A	Solitary sandpiper	Tringa solitaria
A	Pectoral sandpiper	Erolia melanotos
A	Least sandpiper	Erolia minutilla
A	Semi-palmated sandpiper	Ereunetes pusillus
A	Short-billed dowitcher	Limnodromus griseus
A	Northern phalarope	Lobipes lobatus
T	Yellow-shafted flicker	Colaptes auratus
T	Hairy woodpecker	Dendrocopos villosus
T	Downy woodpecker	Denrocopos pubescens
T	House wren	Troglodytes aedon
T	Winter wren	Troglodytes troglodytes
T	Mockingbird	Mimus polyglottos
T	Catbird	Dumetella carolinensis
T	Brown thrasher	Toxostoma rufum
T	Black-billed cuckoo	Coccyzus erythropthalmus
T	Northern shrike	Lanius excubitor
T	Eastern kingbird	Tyrannus tyrannus
T	Great crested flycatcher	Myianhus crinitus
T	Eastern phoebe	Sayornis phoebe
T	Least flycatcher	Empidonax minimus
T	Eastern wood pewee	Contopus virens
T	Finches	Carpodacus spp.

[1]A = Aquatic
T = Terrestrial

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Click Here to Return to Main Index

5808

Predominant Habitat[1]	Common Name	Scientific Name
	Birds (continued)	
T	Wood thrush	Hylocichla mustelina
T	Hermit thrush	Hylocichla guttata
T	Veery	Hylocichla fuscescens
T	House sparrow	Passer domesticus
T	Savannah sparrow	Passerculus sandwichensis
T	Chipping sparrow	Spizella passerina
T	White-throated sparrow	Zonotrichia albicollis
A	Swamp sparrow	Melospiza georgiana
T	Song sparrow	Melospiza melodia
A	Redwing blackbird	Agelaius phoeniceus
T	Common grackle	Quiscalus quiscula
T	Bobolink	Dolichonyx oryzivorus
T	Eastern meadowlark	Sternella magna
T	Brown-headed cowbird	Molothrus ater
T	Slate-colored junco	Junco hyemalis
T	Rufus-sided towhee	Pipilo erthrophthalmus
T	Baltimore oriole	Icterus galbula
T	Scarlet tanager	Piranga olivacea
T	Rose-breasted grosbeak	Pneucticus ludovicianus
T	Purple finch	Carpodacus purpureus
T	American goldfinch	Spinus tristis
T	Redstart	Setophaga ruticilla

[1] A = Aquatic
T = Terrestrial

Click Here to Return to Main Index

Predominant Habitat[1]	Common Name	Scientific Name
	Birds (continued)	
T	Cedar waxwing	Bombycilla cedrorum
T	Solitary vireo	Vireo solitarius
T	Red-eyed vireo	Vireo olivaceus
T	Ovenbird	Seiurus aurocapillus
T	Yellowthroat	Geothlypis trichas
T	Canada warbler	Wilsonia canadensis
T	Wilson's warbler	Wilsonia pusilla
T	Other warblers	Pendroica spp.
T	Ruby-throated hummingbird	Archilochus colubris
A	Belted kingfisher	Megaceryle alcyon
A	Great black-backed gull	Larus marinus
A	Herring gull	Larus argentatus
A	Bonaparte's gull	Larus philadelphia
T	Mourning dove	Zenaidura macroura
T	Tree swallow	Iridoprocne
A/T	Bank swallow	Riparia riparia
T	Cliff swallow	Petrochelidon pyrrhonota
T	Chimney swift	Chaetura pelagica
T	Blue jay	Cyanocitta cristata
T	Black-capped chickadee	Parus atricapillus
T	White-breasted nuthatch	Sitta carolinensis
T	Red-breasted nuthatch	Sitta canadensis

[1]A = Aquatic
T = Terrestrial

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Click Here to Return to Main Index

56808

Predominant Habitat[1]	Common Name	Scientific Name
	Birds (continued)	
T	Brown creeper	Certhia familiaris
T	Robin	Turdus migratorius
T	Starling	Sturnus vulgaris

Click Here to Return to Main Index

APPENDIX E

AQUATIC SPECIES OF THE BRUNSWICK NAVAL AIR STATION AREA

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Click Here to Return to Main Index

APPENDIX E

AQUATIC SPECIES OF THE BRUNSWICK NAVAL AIR STATION AREA

Common Name	Scientific Name
Algae	
Knotted wrack	Ascophyllum modosum
Spiral rockweed	Fucus spiralis
Rockweed	Fucus vesticulosis
Eelgrass	Laminaria spp
Arthropoda	
Rock barnacle	Balanus balanoides
Crabs	Cancer spp.
American lobster	Homarus americanus
Hermit crab	Pagarus spp.
Amphipoda	
Isopoda	
Mollusca	
Atlantic plate limpet	Acmaea testudinalis
Common northern admete	Admete couthouyi
Northern dwarf cockle	Cerastoderma pinnulatum
	Cingula sp
Faba crenella	Crenella faba
Tellin-like cumingia	Cumingia tellinoides
Nut clam	Gemma gemma
Common European periwinkle	Littorina littorea
Northern yellow periwinkle	Littorina obtusata

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Click Here to Return to Main Index

Common Name	Scientific Name
Mollusca (continued)	
Northern rough periwinkle	Littorina saxatilis
Balthic macoma (clam)	Macoma balthica
Hard-shell clam	Mercenaria mericenaria
Ribbed mussel	Modiolus modiolus
Soft-shell clam	Mya arenaria
Common blue mussel	Mytilus edulis
Eastern mud nassa	Nassarius obsoletus
New England nassa	Nassarius trivittatus
Atlantic nut clam	Nucula proxima
Lea's spoon clam	Periploma leanum
Paper spoon clam	Periploma papyratium
Morrhua venus	Pitar morrhuana
Scallop	Placopecten megellanicus
Channeled barrel-bubble	Retusa canaliculata
Dog whelk	Thais lapillus
File yolida	Yolida limatula
Fish	
Yellowtail flounder	Limanda ferruginea
Smooth flounder	Liopsetta putnami
Winter flounder	Pseudopleuronectes americanus
Sand flounder	Hippoglossoides platessoides
Four-spot flounder	Paralichthys oblongus
Fluke (summer flounder)	Paralichthys dendatus

Click Here to Return to Main Index

Common Name	Scientific Name
Fish (continued)	
Windowpane	*Scopthalmus aquosus*
Hickory shad	*Alosa mediocris*
Alewife	*Alosa pseudoharengus*
Blueback herring	*Alosa aestivalis*
Atlantic herring	*Clupea harengus harengus*
Northern searobin	*Prionotus carolinus*
Cunner	*Tautoglabrus adspersus*
Atlantic silversides	*Menidia menidia*
Red hake	*Urophycis regius*
Blue hake	*Antimora rostrata*
Silver hake (whiting)	*Merluccius bilinearlis*
White hake	*Urophycis tenuis*
Tautog	*Tautoga onitis*
Atlantic mackerel	*Scomber scombrus*
Sea bass (black)	*Centropristis striata*
Atlantic cod	*Gadus morhua*
Stiped bass	*Morone saxatilis*
Bluefish	*Pomatomus saltratrix*
Dogfish	*Mustelus canis*
Menhaden	*Brevoortia tyrannus*
Cusk	*Brosme brosme*
Little skate	*Raja erinacea*
Clearnose skate	*Raja eglanteria*
Barndoor skate	*Raja laevis*

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Click Here to Return to Main Index

Common Name	Scientific Name
Fish (continued)	
Atlantic sturgeon	*Acipenser oxyrhynchus*
Shortnose sturgeon	*Acipenser brevirostrum*
American eel	*Anguilla rostrada*
Rainbow smelt	*Osmerus mordax*
Goosefish	*Lophius americanus*
Fourbeard rockling	*Enchelyopus cimbrius*
Haddock	*Melanogrammus aeglefinus*
Atlantic tomcod	*Microgadus tomcod*
Pollock	*Pollachius virens*
Mummichog	*Fundulus heteroclitus*
Striped killifish	*Fundulus majalis*
Fourspine stickleback	*Apeltes quadracus*
Threespine stickleback	*Gastrosteus aculeatus*
Black spotted stickleback	*Gastrosteus wheatlandi*
Ninespine stickleback	*Pungitius pungitius*
Northern pipefish	*Syngnathus fuscus*
Crevalle jack	*Caranx hippos*
Banded killifish	*Seriola zonata*
Striped mullet	*Mugil cephalus*
Radiated shanny	*Ulvaria subbifurcata*
Rock gunnel	*Pholis gunnellus*
Atlantic wolffish	*Anarchicas lupus*
Spotted wolffish	*Anarchicas minor*

Click Here to Return to Main Index

Common Name	Scientific Name
Fish (continued)	
American sand lace	Ammodytes americanus
Redfish (ocean perch)	Sebastes marinus
Sea raven	Hemitripterus americanus
Longhorn sculpin	Myoxocephalus octodecemspinosus
Shorthorn sculpin	Myoxocephalus scorplius
Lumpfish	Cyclopterus lumpus
Seasnail	Liparis atlanticus
Striped seasnail	Liparis liparis
Coho salmon	Oncorhynchus kisutch

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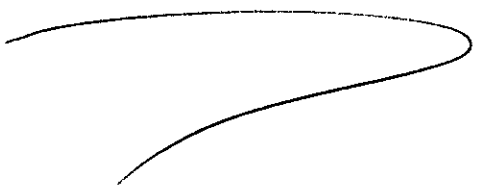
Click Here to Return to Main Index

Correspondence



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EPA Notification of Hazardous Waste Site

Environmental Protection Agency
Washington DC 20460

initial notification information is red by Section 103(c) of the Compre- sive Environmental Response, Compen- ition, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

MES000001016
Enclosure (1) of NASB
1040 of 6-1-81

8/0601

ENCLOSURE 1 Rep.

1 Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name CDR R. R. BERSANI, CEC, USN
Street PUBLIC WORKS OFFICER, NAVAL AIR STATION
City BRUNSWICK, State ME Zip Code 04011

3 Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site NAVAL AIR STATION
Street BOUNDED BY RTS 24 & 123
City BRUNSWICK County CUMBERLAND State ME Zip Code 04011

ME8170022018

2 Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title) BRIDGES, BRENT ENVIRONMENTAL ENGINEER
Phone (207) 921-2377

) Dates of Waste Handling:

Enter the years that you estimate waste tment, storage, or disposal began and d at the site.

From (Year) 1955 To (Year) 1975

Waste Type: Choose the option you prefer to complete

Option I: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☒ Organics
2. ☒ Inorganics
3. ☒ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☒ Mixed Municipal Waste
10. ☒ Unknown
11. ☒ Other (Specify)
PAINT WASTES

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☒ Other (Specify)
NAVAL AIR STATION

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

6/1/81

Click Here to Return to Main Index

F Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☒ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☐ Other (Specify) _____

Total Facility Waste Amount

cubic feet _____

gallons UNKNOWN

Total Facility Area

square feet _____

acres 10 A

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☒ None

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ENCLOSURE (2) - SITE 2

Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

MATERIAL DEPOSITED IN THE LANDFILL WAS GENERATED FROM HOUSING AND BASE OPERATIONS LOCATED AT THE NAVAL AIR STATION. THE SITE IS LOCATED IN A HIGHLY RESTRICTED FENCED AREA, SHOWN ON ENCLOSURE (2). A BROOK, WHICH RUNS THROUGH THE AREA, HAS BEEN TESTED FOR CONTAMINANTS WITH MOST RECENT TESTING DONE IN APRIL OF 1981. TEST RESULTS ARE FORWARDED AS ENCLOSURE (3).

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name CDR R. R. BERSANI, CEC, USN

PUBLIC WORKS OFFICER

Street NAVAL AIR STATION

City BRUNSWICK State ME Zip Code 04011

Signature _____ Date 22 MAY 1981

☒ Owner, Present
☐ Owner, Past
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

DEPARTMENT OF THE NAVY GOVERNMENT 5808

Click Here to Return to Main Index

EPA Notification of Hazardous Waste Site

Environmental Protection Agency
Washington DC 20460

1 This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

8 | 0601

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

MES000000|015
Enclosure ( ) of NASB

1040 on 6-1-81

ENCLOSURE 1 Reg.

2 Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name CDR R. R. BERSANI, CEC, USN
Street PUBLIC WORKS OFFICER, NAVAL AIR STATION
City BRUNSWICK State ME Zip Code 04011

3 Site Location:

Enter the common name (if known) and actual location of the site.

ME8170022018

Name of Site NAVAL AIR STATION
Street BOUNDED BY RTS 24 & 123
City BRUNSWICK County CUMBERLAND State ME Zip Code 04011

4 Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title) BRIDGES, BRENT ENVIRONMENTAL ENGINEER
Phone (207) 921-2377

5 Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year) 1945 To (Year) 1955

6 Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. [X] Organics
2. [X] Inorganics
3. [X] Solvents
4. [ ] Pesticides
5. [ ] Heavy metals
6. [ ] Acids
7. [ ] Bases
8. [ ] PCBs
9. [X] Mixed Municipal Waste
10. [X] Unknown
11. [X] Other (Specify)
PAINT WASTES

Source of Waste:
Place an X in the appropriate boxes.

1. [ ] Mining
2. [ ] Construction
3. [ ] Textiles
4. [ ] Fertilizer
5. [ ] Paper/Printing
6. [ ] Leather Tanning
7. [ ] Iron/Steel Foundry
8. [ ] Chemical, General
9. [ ] Plating/Polishing
10. [ ] Military/Ammunition
11. [ ] Electrical Conductors
12. [ ] Transformers
13. [ ] Utility Companies
14. [ ] Sanitary/Refuse
15. [ ] Photofinish
16. [ ] Lab/Hospital
17. [ ] Unknown
18. [X] Other (Specify)
NAVAL AIR STATION

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site located.

6 | 1 | 81

Form Approved
OMB No. 2009-0138

G Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☒ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☐ Other (Specify) _____

Total Facility Waste Amount

cubic feet _____

gallons UNKNOWN

Total Facility Area

square feet _____

acres 2 A

I Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☒ None

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ENCLOSURE (2) - SITE I

Y

Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

MATERIAL DEPOSITED IN THE LANDFILL WAS GENERATED FROM HOUSING AND BASE OPERATIONS LOCATED AT THE NAVAL AIR STATION. THE SITE IS LOCATED IN A HIGHLY RESTRICTED FENCED AREA, SHOWN ON ENCLOSURE (2). A BROOK, WHICH RUNS THROUGH THE AREA, HAS BEEN TESTED FOR CONTAMINANTS WITH MOST RECENT TESTING DONE IN APRIL OF 1981. TEST RESULTS ARE FORWARDED AS ENCLOSURE (3).

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name CDR R. R. BERSANI, CEC, USN
PUBLIC WORKS OFFICER

Street NAVAL AIR STATION

City BRUNSWICK State ME Zip Code 04011

Signature _____ Date 22 MAY 1981

☒ Owner, Present
☐ Owner, Past
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

5808

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EPA Notification of Hazardous Waste Site

E

United States Environmental Protection Agency Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

810601

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

MES000001017

Enclosure (/) of NASB

1040 of 6-1-81

ENCLOSURE 1

Dep.

1 Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: CDR R. R. BERSANI, CEC, USN

Street: PUBLIC WORKS OFFICER, NAVAL AIR STATION

City: BRUNSWICK State: ME Zip Code: 04011

3 Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site: NAVAL AIR STATION

Street: BOUNDED BY RTS 24+123

ME8170022018

City: BRUNSWICK County: CUMBERLAND State: ME Zip Code: 04011

5 Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): BRIDGES, BRENT ENVIRONMENTAL ENGINEER

Phone: (207) 921-2377

7 Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1972 To (Year): ~~ONE TIME BURIAL ONLY~~ 1972

9 Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item 1—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☒ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☒ Other (Specify)

DANC - DECONTAMINATING AGENT
OUTDATED PAINT

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☒ Other (Specify)

NAVAL AIR STATION

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

6/1/81

Form Approved
OMB No. 2000-0138
EPA Form 8900-1

Notification of Hazardous Waste Site — Side Two

F Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space [illegible]e the estimated combined quantity [illegible]ume) of hazardous wastes at the site [illegible]ng cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☒ Drums, Below Ground
9. ☐ Other (Specify) _____

Total Facility Waste Amount

cubic feet _____

gallons 50 G

Total Facility Area

square feet 2500 S

acres _____

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☒ None

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. [illegible]though completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ENCLOSURE (2) - SITE 3

Y

Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

MATERIAL WAS DEPOSITED IN THE HAZARDOUS WASTE LANDFILL FROM MILITARY OPERATIONS AT THE NAVAL AIR STATION. THE SITE IS POSTED AS A HAZARDOUS BURIAL SITE AND LOCATED IN A HIGHLY RESTRICTED, FENCED AREA SHOWN ON ENCLOSURE (2). TESTING FOR CONTAMINANTS OF A BROOK WHICH RUNS THROUGH THE AREA WAS PERFORMED IN APRIL OF 1981. TEST RESULTS ARE FORWARDED AS ENCLOSURE (3).

J Signature and Title:

[illegible]e person or authorized representative [illegible]h as plant managers, superintendents, [illegible]tees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required

Name CDR R. R. BERSANI, CEC, USN

PUBLIC WORKS OFFICER

Street NAVAL AIR STATION

City BRUNSWICK State ME Zip Code 04011

Signature _____ Date 22 MAY 1981

☒ Owner, Present
☐ Owner, Past
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

DEPARTMENT OF THE NAVY 0608

Click Here to Return to Main Index

EPA Notification of Hazardous Waste Site

United States Environmental Protection Agency Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

810601

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

MES000001018

Enclosure (1) of NASB

Seq. 1040 of 6-1-81

ENCLOSURE 1

I Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name: CDR R. R. BERSANI, CEC, USN
Street: PUBLIC WORKS OFFICER NAVAL AIR STATION
City: BRUNSWICK State: ME Zip Code: 04011

II Site Location:

Enter the common name (if known) and actual location of the site.

ME8170022018

Name of Site: NAVAL AIR STATION
Street: BOUNDED BY RTS 24 + 123
City: BRUNSWICK County: CUMBERLAND State: ME Zip Code: 04011

III Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title): BRIDGES, BRENT ENVIRONMENTAL ENGINEE
Phone: (207) 921-2377

IV Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year): 1979 To (Year): 1979 ~~ONE TIME BURIAL ONLY~~

V Waste Type: Choose the option you prefer to complete

Option I: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste: Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☒ Other (Specify) ASBESTOS

Source of Waste: Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☒ Other (Specify) NAVAL AIR STATION

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 300 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous was listed in the regulations under Section 3001 of RCRA. Enter t appropriate four-digit number in the boxes provided. A copy o the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site located.

6/1/87

DEPARTMENT OF THE NAVY 5808 COPIES OF GOVERNMENT

Form Approved
OMB No. 2000-0138
EPA Form 8900-1

Click Here to Return to Main Index

F Waste Quantity:

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☒ Other (Specify) DIRECT BURIAL

Total Facility Waste Amount

cubic feet 500. C

gallons

Total Facility Area

square feet 5000 S

acres

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☐ None

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. Although completing the items is not required, you are encouraged to do so.

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

SEE ENCLOSURE (2) - SITE 4

Y

I Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

ASBESTOS PIPE INSULATION WAS BURIED DIRECTLY AND COVERED. STATE AUTHORITIES AT THE DEPARTMENT OF ENVIRONMENTAL PROTECTION GAVE GUIDANCE TO THE NAVY AS TO CLOSURE PROCEDURES. THE SITE IS NO LONGER USED.

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other".

Name CDR R. R. BERSANI, CEC, USN
PUBLIC WORKS OFFICER
Street NAVAL AIR STATION
City BRUNSWICK State ME Zip Code 04011
Signature
Date 22 MAY 1981

☒ Owner, Present
☐ Owner, Past
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

15808

HRA-0013

ABB
ASEA BROWN BOVERI

September 22, 1994

Fred Evans
Department of the Navy
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, Mailstop 82
Lester, PA 19113-2090

Subject: **Radiological Survey of the West Runway Study Area**
NAS Brunswick

Dear Fred:

Attached please find a copy of the radiological survey conducted on June 4, 1994 at the West Runway Study Area. This survey was conducted in response to public comments and a request from the BACSE. I have forwarded a copy of this survey to the USEPA, MEDEP, BACSE group, and the town representative from Brunswick. This survey will be incorporated as an Appendix to the final Site Inspection Report for the West Runway Site and distributed to the TRC.

Please do not hesitate to call if you have any questions.

Sincerely,
ABB ENVIRONMENTAL SERVICES, INC.

Elizabeth R. Walter
Program Manager

cc: N. Beardsley (MEDEP)
J. Caruthers (NAS Brunswick)
R. Lim (USEPA)
C. Lepage (R. G. Gerber)
S. Weddle (Brunswick)
BACSE (cover letter only)

ABB Environmental Services, Inc.

bw092294.si

110 Free Street
P.O. Box 7050
Portland, Maine 04112-7050

Telephone (207) 775-5400

Fax (207) 772-4762

MEMO TO: Beth Walter
FROM: Meg MacLeod/Tom Hillman
DATE: September 15, 1994
SUBJECT: Radiological Survey of the West Runway Study Area at the Brunswick Naval Air Station, Brunswick, Maine

---

A radiological survey of the West Runway Study Area was conducted on the 2nd and 3rd of June 1994 to measure gamma radiation at the surface. ABB Environmental Services personnel conducting the survey were T. Hillman and M. MacLeod. John Ziegler, from the Brunswick Naval Air Station's (BNAS) Environmental Department, provided escort.

The survey was conducted in two phases. The first phase was to layout a grid on the site as shown on the enclosed map of the site. The 10 meter by 10 meter grids (about 32.5 by 32.5 feet) were placed by T. Hillman on the morning of the 2nd using a compass and 300-foot tape. Grid intersections to be surveyed were marked with pin flags or orange spray paint. The second phase of the survey was to measure the gamma radiation levels. This phase was conducted by Hillman and MacLeod using the procedure in the attached Addendum A. Enclosed in this report are the survey results, source check results, background readings, calibration certificates, map of grid used, and procedure.

The gamma scan was conducted to evaluate the exposure to gamma radiation at the surface. Two survey instruments were used to conduct the survey. Measurements were taken at the surface and three feet above the surface with both instruments. A Bicron Tissue Equivalent Survey meter, also known as an organic scintillator, was used to measure the gamma radiation in microrem per hour (urem/hr). The Bicron has a flat response regardless of the different energies coming from the gamma radiation. The Sodium Iodide (NaI) scintillator measured the gamma radiation in counts per minute (cpm). Since the NaI scintillator does not have a flat energy response, the instrument over responds to gamma radiation at low gamma energies causing high readings. Typically the exposure rate is measured in microroentgen per hour (uR/hr) by the use of a pressurized ionization chamber (PIC).

Also, a correlation of the NaI detector and organic scintillator was made at various locations at BNAS to correlate count rates to exposure rate measurements. This data can be seen in Figure 3, "Exposure Rate Correlation Data Form". By correlating the scintillation detector measurements with accurate organic scintillator measurements on a site-specific basis, correction factors can be determined and applied to the scintillation detector measurements to convert the cpm to an exposure rate value. The linear regression provided a method to correlate the measurement values from the two instruments. The correlation coefficient (R) indicated that the data could not be correlated because the value was not close to 1.0. The farther the

R value was away from 1.0, the more variable the correlation was. This R value indicated that the confidence level of the correlation was at 0.69 or 69 percent. The acceptable confidence level was set at 0.95 or 95 percent. Therefore, since R = 0.69225, the correlation of the values was not acceptable. Therefore the values were reported as measured. Also, since the Bicron meter was portable, both instruments were used to take measures at the site.

The measurements that were used in the exposure rate correlation can also be considered background measurements of the site. Background radiation is defined as the natural radiation and radioactivity found in the environment that expose humans to a radiation. Background radiation comes from cosmic sources; naturally occurring radioactive materials, including radon; and global fallout as it exists in the environment from the testing of nuclear explosive devices. People also receive exposure from occupational nuclear power generation, consumer products, miscellaneous environmental sources, and medical sources as referenced in "Ionizing Radiation Exposure of the Population of the United States", National Council on Radiation Protection and Measurements (NCRP) Report No. 93, 1987.

The following range of readings were found at the site: surface readings ranged from 8,060 to 14,500 CPM and 4 to 11 urem/hr and three feet above the readings ranged from 7,530 to 13,930 CPM and 4 to 10 urem/hr.

Twelve background locations that were all located on or near the base were measured. These measurements were taken at three feet above the surface. The following range of background readings were as follows: 9,241 to 14,460 CPM and 5 to 14 urem/hr at three feet above the surface.

Therefore, the measurements taken at the site were within the range of the background readings and did not measure as high as the background locations.

Figure 1
Gamma Ray Count-Rate Data Form

Gamma Ray Count-Rate Data

Site Name: BNAS
Location/Identification:
Date: 6/3/93
Ratemeter/Scaler Manufacturer: Ludlum — Voltage: 1004 V
Model No: 2221 — Serial No.: 82330 — Calibration Date:
Window: Out — Threshold: 103 — Battery: ✓
Probe Manufacturer: Ludlum
Model No.: 44-10 — Serial No.: 074137 — Calibration Date: 5/24/94
Source Check ID/Date/Time:
Cs-137 ; 1142 ; 30 sec ; 8/92
Source Check Measurement (CPM):
NaI - 39KCPM Bicron microrem - 140 urem/hr

Location ID	Coordinates (ft) North	Coordinates (ft) East	Meter Reading (CPM) Surface	Meter Reading (CPM) 3 ft	Exposure Rate (µR/hr) Surface	Exposure Rate (µR/hr) 3ft
Background						
Check Source			32K		140	
A-1	NOT USED					
A-2	NOT USED					
A-3	NOT USED					
A-4	NOT USED					
A-5			10202	9304	9	7
A-6			9160	9180	5	5
A-7			10570	9760	7	6
A-8			10650	10330	4	6
A-9	NOT USED					
A-10	NOT USED					
A-11	NOT USED					
A-12			8060	7820	4	6
A-13			9090	8220	6	5
A-14			10920	10320	7	6
B-1			10035	11033	7	7
B-2			10628	10022	6	6
B-3			10998	10500	7	4
B-4			10200	10420	6	7
B-5			10236	9057	7	6
B-6			10540	9920	6	6

Technicians: T. Hubman
M. Maitland
Date: 6/4/94

Figure 1
Gamma Ray Count-Rate Data Form

Gamma Ray Count-Rate Data

Site Name: BNAS
Location/Identification:
Date: 6/3/93
Ratemeter/Scaler Manufacturer: Ludlum — Voltage: 1004 V
Model No: 2221 — Serial No.: 82330 — Calibration Date:
Window: Out — Threshold: 103 — Battery: ✓
Probe Manufacturer: Ludlum
Model No.: 44-10 — Serial No.: 074137 — Calibration Date: 5/24/94
Source Check ID/Date/Time:
Cs-137 6/2/93 1307 8/92
Source Check Measurement (CPM):
NaI - 37K CPM Bicron microrem - 140 urem/hr

Location ID	Coordinates (ft) North	Coordinates (ft) East	Meter Reading (CPM) Surface	Meter Reading (CPM) 3 ft	Exposure Rate (μR/hr) Surface	Exposure Rate (μR/hr) 3ft
Background						
Check Source			37K		140	
B 7			10300	10440	6	7
B 8			10810	9800	8	10
B 9			9610	9170	7	7
B 10			8650	8690	6	5
B 11			8670	8170	7	6
B 12			7900	8270	5	5
B 13			8250	7530	6	7
B 14			9840	8300	9	6
C 1			14110	13230	10	7
C 2			11430	9520	7(11) 8	7
C 3			11210	10460	7	8
C 4			10690	9610	6	8
C 5			10930	9930	9	8
C 6			10890	10640	8	6
C 7			10430	10220	7	8
C 8			9750	10120	7	7
C 9			8040	8400	7	7
C 10			8050	8300	7	6
C 11			8570	9190	8	8
C 12			8980	8790	9	5

Technicians: T. Hillman
M. Mallard
Date: 6/3/93

Figure 1
Gamma Ray Count-Rate Data Form

Gamma Ray Count-Rate Data

Site Name: BNAS
Location/Identification:
Date: 6/3/93
Ratemeter/Scaler Manufacturer: Ludlum
Model No: 2221 Serial No.: 82330 Voltage: 1004 V
Window: Out Threshold: 103 Calibration Date:
Probe Manufacturer: Ludlum Battery: ✓
Model No.: 44-10 Serial No.: 074137 Calibration Date: 5/24/94
Source Check ID/Date/Time:
Cs-137 6/3/93 1330 8/92
Source Check Measurement (CPM):
NaI - 37K CPM Bicron microrem - 140 urem/hr

Location ID	Coordinates (ft)		Meter Reading (CPM)		Exposure Rate (µR/hr)	
	North	East	Surface	3 ft	Surface	3ft
Background						
Check Source			37K		140	
C13			8520	8980	7	7
C14			9550	8890	6	7
D1	NOT USED					
D2			12960	12360	10	7
D3			10920	10340	8	7
D4			9690	9580	5	7
D5			10860	10180	6	10
D6			10460	10190	7	6
D7			10620	10410	7	6
D8			8950	8440	5	6
D9			8640	8150	8	8
D10			9129	9220	6	5
D11			9150	8810	6	9
D12			9130	8010	6	7
D13			9540	8290	7	12
D14			10360	8910	8	10
E1	NOT USED					
E2	NOT USED					
E3			11700	11320	11	9
E4			10790	10860	7	7

Technicians: T. HILCHMAN
M. MacLEOD
Date: 6/7/94

Figure 1
Gamma Ray Count-Rate Data Form

Gamma Ray Count-Rate Data

Site Name: BNAS
Location/Identification:
Date: 6/3/93
Ratemeter/Scaler Manufacturer: Ludlum
Model No: 2221
Serial No.: 82330
Voltage: 1004 V
Window: Out
Threshold: 103
Calibration Date:
Battery: ✓
Probe Manufacturer: Ludlum
Model No.: 44-10
Serial No.: 074137
Calibration Date: 5/=4/94
Source Check ID/Date/Time:
Cs-137 / 1/4 C / 1305 / 6/93
Source Check Measurement (CPM):
NaI - 37K CPM Micron microrem - 140 urem/hr

Location ID	Coordinates (ft)		Meter Reading (CPM)		Exposure Rate (μR/hr)	
	North	East	Surface	3 ft	Surface	3ft
Background						
Check Source			37K		140	
E5			10290	10370	6	6
E6			10600	10570	6	7
E7			9790	8950	7	8
E8			10420	9270	9	7
E9			8670	9500	6	7
E10			10330	9250	9	6
E11			8250	8110	7	6
E12			8830	8640	6	6
E13			8800	8340	6	7
E14			8460	8450	7	7
F1	NOT	USED				
F2	NOT	USED				
F3			14310	14050	8	10
F4			10610	10370	6	5
F5			11660	10590	6	4
F6			10900	10510	8	8
F7			10320	8930	5	7
F8			9180	8420	7	6
F9			9090	9030	6	6
F10			9480	9150	7	6

Technicians: T. HIGGINS
M Allred
Date: 6/3/94

Figure 1
Gamma Ray Count-Rate Data Form

Gamma Ray Count-Rate Data

Site Name: BNAS
Location/Identification:
Date: 6/3/93
Ratemeter/Scaler Manufacturer: Ludlum
Voltage: 1004 V
Model No: 2221
Serial No.: 86330
Calibration Date:
Window: Out
Threshold: 10.3
Battery: ✓
Probe Manufacturer: Ludlum
Model No.: 44-10
Serial No.: 074137
Calibration Date: 5/24/92
Source Check ID/Date/Time:
CS-137 [illegible] 8/92
Source Check Measurement (CPM):
NaI - 391K CPM   Bicron microrem - 140 urem/hr

	Coordinates (ft)		Meter Reading (CPM)		Exposure Rate (µR/hr) rem	
Location ID	North	East	Surface	3 ft	Surface	3ft
Background						
Check Source			391K		140	
F11			9510	9080	5	4
F12			9130	8990	9	6
F13			8610	8690	9	6
F14			8260	8440	7	7
G-1	NOT USED					
G2	NOT USED					
G3	NOT USED					
G4			10910	10780	7	6
G5			9750	10170	7	6
G6			9700	9550	6	7
G7			9140	9300	6	6
G8			9040	9060	7	7
G9			9170	8530	8	5
G10			8690	8430	7	6
G11			10360	10820	8	7
G12			8870	8140	6	9
G13			9680	10020	8	8
G14			9990	9230	7	7
H-1	NOT USED					
H-2	NOT USED					

Technicians: T. Hillman
M. MacLeod

Date: 6/3/93

N:\WP51DOCS\HASP\RSP.080

Figure 1
Gamma Ray Count-Rate Data Form

Gamma Ray Count-Rate Data

Site Name: BNAS
Location/Identification:
Date: 6/3/93
Ratemeter/Scaler Manufacturer: Ludlum — Voltage: 1004 V
Model No: 2221 — Serial No.: 82350 — Calibration Date:
Window: Out — Threshold: 103 — Battery: ✓
Probe Manufacturer: Ludlum
Model No.: 44-10 — Serial No.: 074137 — Calibration Date: 5/24/94
Source Check ID/Date/Time:
Cs-137 1/2 ; 3055 ; 8/92
Source Check Measurement (CPM):
NaI - 39K CPM Micron microrem - 140 urem/hr

Location ID	Coordinates (ft) North	Coordinates (ft) East	Meter Reading (CPM) Surface	Meter Reading (CPM) 3 ft	Exposure Rate (uR/hr) Surface	Exposure Rate (uR/hr) 3ft
Background						
Check Source			39K		140	
H 3	NOT USED					
H 4			14500	13930	9	9
H 5			9575	10030	6	7
H 6			9500	9150	7	5
H 7			9540	9320	8	8
H 8			9070	9190	7	6
H 9			8540	8090	6	6
H 10			9130	8930	5	7
H 11			8060	9020	5	6
H 12			9240	8570	5	5
H 13			9760	9530	7	7
H 14			10190	9520	6	6
I 1	NOT USED					
I 2	NOT USED					
I 3	NOT USED					
I 4	NOT USED					
I 5			10630	10070	9	7
I 6			9830	9040	7	7
I 7			8900	9810	10	8
I 8			9040	9090	7	7

Technicians: T. Hillman
M. Woodard
Date: 6/7/94

Figure 1
Gamma Ray Count-Rate Data Form

Gamma Ray Count-Rate Data

Site Name: BNAS
Location/Identification:
Date: 6/3/93
Ratemeter/Scaler Manufacturer: Ludlum — Voltage: 1004 V
Model No: 2221 — Serial No.: 82330 — Calibration Date:
Window: Out — Threshold: 103 — Battery: ✓
Probe Manufacturer: Ludlum
Model No.: 44-10 — Serial No.: 074137 — Calibration Date: 5/4/94
Source Check ID/Date/Time:
Cs-137 ; 1/1/2 ; 3055 ; 8/92
Source Check Measurement (CPM):
NaI - 31K CPM Bicron microrem - 140 urem/hr

Location ID	Coordinates (ft)		Meter Reading (CPM)		Exposure Rate (µR/hr)	
	North	East	Surface	3 ft	Surface	3ft
Background						
Check Source			31X		140	
I 8			9300	8540	5	7
I 9			8420	8110	6	5
I 11			8540	8550	5	4
I 12			9520	8250	8	7
I 13			9970	9710	7	6
I 14			10250	10220	6	8

Technicians: T. HILLMAN
M. MacLean

Date: 6/3/93
94

Figure 1
Gamma Ray Count-Rate Data Form

Gamma Ray Count-Rate Data

Site Name: BNAS
Location/Identification:
Date: 6/3/93
Ratemeter/Scaler Manufacturer: Ludlum — **Voltage:** 1004 V
Model No: 2221 — **Serial No.:** 86330 — **Calibration Date:**
Window: Out — **Threshold:** 103 — **Battery:** ✓
Probe Manufacturer: Ludlum
Model No.: 44-10 — **Serial No.:** 074137 — **Calibration Date:** 5/24/94
Source Check ID/Date/Time:
Cs-137 ; 1 μCi ; 3057 ; 8/92
Source Check Measurement (CPM):
NaI - 391K CPM Bicron microrem - 140 urem/hr

Location ID	Coordinates (ft)		Meter Reading (CPM)		Exposure Rate (μR/hr) (1 cm)	
	North	East	Surface	3 ft	Surface	3ft
Background						
Check Source			391K		140	

Technicians: _____ Date: _____

Figure 3
Exposure Rate Correlation Data Form

Exposure Rate Correlation Data

Site Name: BNAS
Organic Scintillator: Bicron microrem Meter
Location/Identification:
Calibration Date: 5-19-94
Date: 6-3-94
Model No.: Microrem
Serial No.: 5698G
Battery: ✓
Site Area Correlation No.:
Unit of Measure: urem/hr

Scintillator: *NaI
Ratemeter/Scaler Manufacturer: Ludlum — **Serial No.:** 86330 — **Voltage:** 1004 V
Model No: 2221 — **Threshold:** 105 — **Calibration Date:** ✓
Window: Out — — **Battery:** ✓
Probe Manufacturer: Ludlum
Model No.: 44-10 — **Serial No.:** 674139 — **Calibration Date:** 5/24/94

Background Readings:
OS — **µrem/hr** — **Scintillometer** — **CPM**
Resulting Correlation Formula:
Comments: Correlation Curve Not Reproducible
All Readings were background with LITTLE variation.

Location ID	Coordinates (ft) North	Coordinates (ft) East	Measured Exposure µrem	Lapsed Time (Min)	Integrated Exposure Rate (µrem/hr)	3' above ground Scintillometer (CPM)	
Background							
Pass/ID Bldg					8	12330	surface 10575
Bldg 95					7	11888	11977
Office Trailer					6	9364	
Bldg 8 Parking	lot				10	14272	
Pick's Ramp	Adj Hangar #1				9	11812	
Landfarm (quarry)					7	9241	
Deer Fence	Perimeter Rd				8	9510	
Hangar #2					5	10594	
Hotel Gate					7	10370	
Rubber Gate					9	11750	
Perimeter	Rd - Ordinance Rd #3				8	14360	
"			"		14	14960	"

Technicians: T. Hillman
M. Macleod

Date: 6/3/94

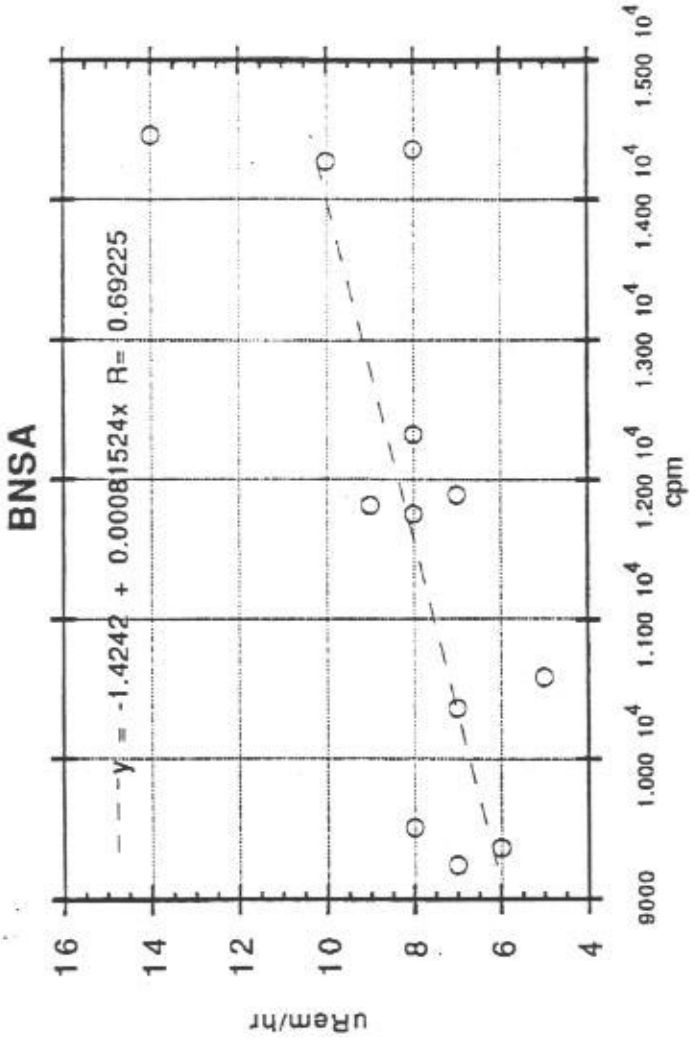


Figure 3 Correlation curve

GTS Instrument Services
2045 Route 286
Pittsburgh, PA 15239-2839
412/733-1900 Fax: 412/327-8189

CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

CUSTOMER INFORMATION

Customer Name: ABG Measurements, Inc.
Customer Address: 640 Maple Avenue
Saratoga Springs, NY 12866

Customer P.O.# 1583
Work Order # I-94-05-232

INSTRUMENT INFORMATION

Instrument Manufacturer Ludlum
Model 2221 Serial Number 86330
External Probe(s) 44-10 Serial # 074139

Calibration Method Pulser s/n 301

INSTRUMENT CALIBRATION INFORMATION

	Instrument Range	Calibration Standard Value	Instrument Response Before Calib.	Instrument Response After Calib.	Comment
1	DIGITAL	100 CPM		100 CPM	All Calibrations Btn. + & - 10%
2	DISPLAY	200		199	
3		400		398	
4		1K		1,000	
5		2K		1,998	
6		4K		3,998	
7		10K		10,000	
8		20K		19,999	
9		40K		40,000	
10		100K		100,000	
11		200K		200,025	
12		400K		400,059	
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: James Chrostek (Signed)
Calibration Date: 05-24-94
Next Calibration Due: 11-24-94

I certify that the above information is correct:
Administrative Coordinator
05-24-94
Date

GTS Instrument Services
2045 Route 286
Pittsburgh, PA 15239-2839
412/733-1900 Fax: 412/327-8189

CALIBRATION CERTIFICATE

This Certificate will be accompanied by Calibration Charts or Readings where applicable

CUSTOMER INFORMATION

Customer Name: ABG Measurements, Inc.
Customer Address: 640 Maple Avenue
Saratoga Springs, NY 12866

Customer P.O.# 1583
Work Order # I-94-05-232

INSTRUMENT INFORMATION

Instrument Manufacturer Ludlum
Model 2221 Serial Number 86330
External Probe(s) 44-10 Serial # 074139

Calibration Method Pulser s/n 301
^{137}Cs s/n 10263 200mCi
Electrostatic s/n ES-829

INSTRUMENT CALIBRATION INFORMATION

	Instrument Range	Calibration Standard Value	Instrument Response Before Calib.	Instrument Response After Calib.	Comment
1	RATEMETER				All Calibrations Btn. + & - 10%
2	X1	100 CPM		100 CPM	
3		200		200	Battery Check: OK
4		400		400	
5					Mechanical Zero: OK
6	X10	1K		1K	
7		2K		2K	Response: OK
8		4K		4K	
9					Reset: OK
10	X100	10K		10K	
11		20K		20K	Audio: OK
12		40K		40K	
13					High Voltage = 1000 Volts
14	X1K	100K		100K	
15		200K		200K	Threshold = 100 ≅ 10 mV
16		400K		400K	
17					Window = OUT
18	LOG	400		400	
19		4K		4K	.1 mR/hr = 105K CPM in ^{137}Cs field
20		40K		40K	
21		400K		400K	Calibrated as a ratemeter only
22					
23					

STATEMENT OF CERTIFICATION

We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all of the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology (We are not responsible for damage incurred during shipment or use of this instrument).

Instrument Calibrated by: James Christopher (Signed)
Calibration Date: 05-24-94
Next Calibration Due: 11-24-94

I certify that the above information is correct:
Theresa M DeBar
Administrative Coordinator
05-24-94
Date

HARSHAW BICRON RADIATION MEASUREMENT PRODUCTS

BICRON • 6801 Cochran Road • Solon, Ohio 44139

Phone: (216) 248-7400 • Fax: (216) 349-6581

CERTIFICATE OF INSTRUMENT CALIBRATION

CUSTOMER: ABG MEASUREMENTS Q# 4556

INSTRUMENT MODEL: micro rem SERIAL # B688G

CALIBRATION DATA

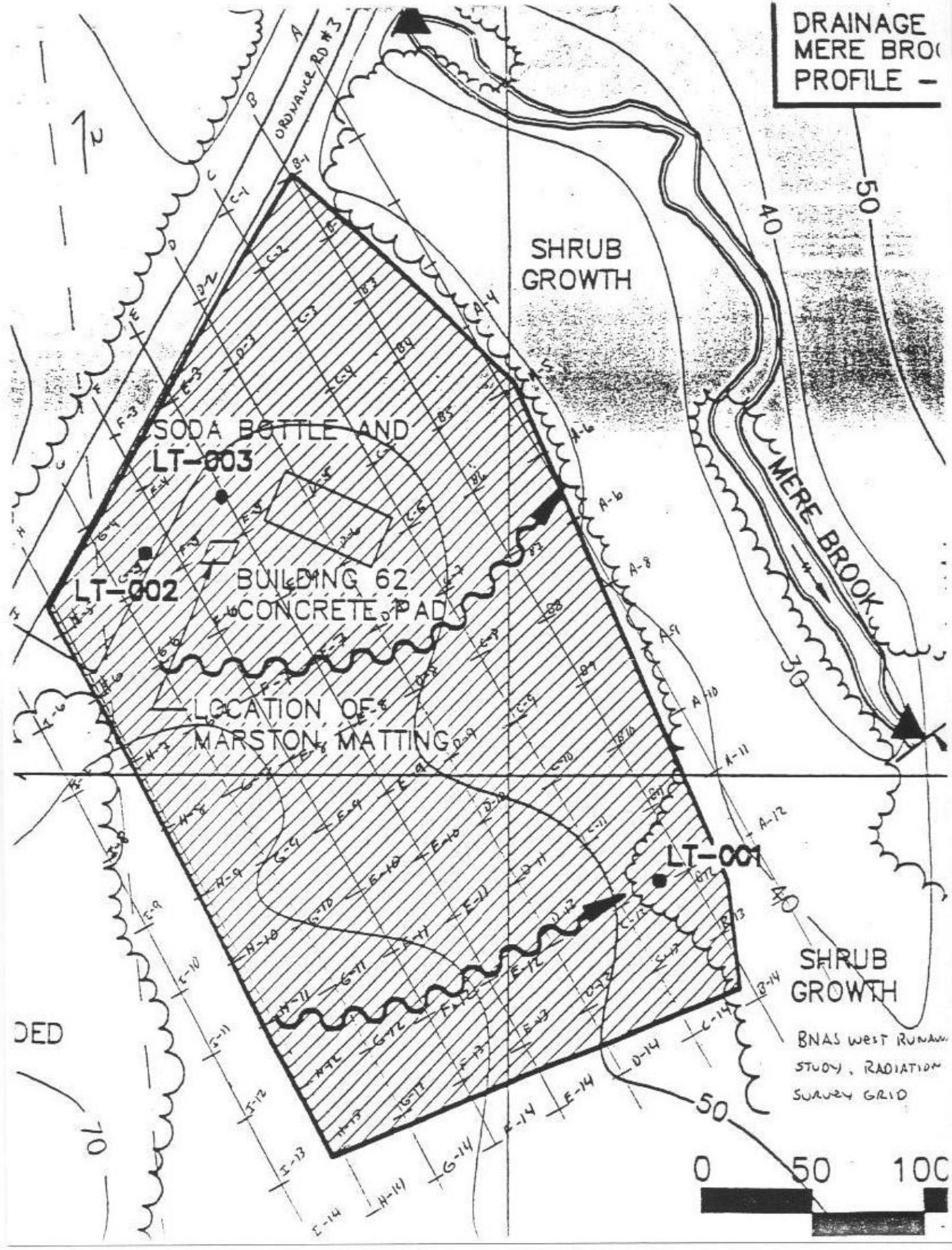
RANGE	EXPOSURE RATE	INST. READING	EXPOSURE RATE	INST. READING
X1000	160 mR/h	160	40 mR/h	41
X100	16 mR/h	16	4 mR/h	4.1
X10	1.6 mR/h	1.6	400 uR/h	410
X1	160 uR/h	160	40 uR/h	40
X0.1	16 uR/h	16		

THE Cs-137 1 Ci SOURCE USED FOR THIS CALIBRATION HAS A CERTIFICATE STATING ITS TRACEABILITY TO N.B.S. (N.I.S.T.) STANDARDS.

* INSTRUMENT CALIBRATED WITH A CS-137 GAMMA SOURCE USING A CONVERSION FACTOR OF $\frac{1 \text{ urem/h}}{1 \text{ uR/h}}$

* CALIBRATOR : J.L.SHEPHERD / MODEL: 28-6A S.N.:10081

CALIBRATED BY: for Compton DATE: 5-9-94


DRAINAGE
MERE BRO
PROFILE –
SHRUB
GROWTH
SODA BOTTLE AND
LT-003
LT-002
BUILDING 62
CONCRETE PAD
LOCATION OF
MARSTON MATTING
MERE BROOK
LT-001
SHRUB
GROWTH
BNAS West Runaw
STUDY, RADIATION
SURVEY GRID
ORDNANCE RD #3
50
40
30
40
50
0
50
100

ADDENDUM A
RADIOLOGICAL SURVEY PROCEDURES FOR GAMMA RADIATION MEASUREMENT

1.0 PURPOSE

To describe the method for measuring external gamma radiation levels over the ground surface.

2.0 PROCEDURE

A surface gamma scan will be conducted to evaluate the exposure hazard to gamma radiation, at the surface. The survey will be designed in accordance to NUREG/CR-5849, "Manual for conducting Radiological Surveys in Support of License Termination." A grid system at 10m intervals will be used. Measurements will be taken at the surface and 1 meter above the surface. The surface will be scanned linearly, in between the grid locations. The measurements will be reported in counts per minute (CPM). This measurement is qualitative only .

Also, an organic scintillation will be used to correlate the count rates (counts per minute) obtained from the sodium iodide (NaI) detector and rate meter/scaler to the exposure rate measurements (microrem per hour). By correlating scintillation detector measurements with the organic scintillator, correction factors can be determined and applied to the scintillation detector measurements to evaluate gamma-exposure rates.

3.0 SODIUM IODIDE (NaI) SCINTILLATION DETECTOR - LUDLUM MODEL 2221 RATEMETER WITH MODEL 44-10 DETECTOR

This instrument is used to measure gamma radiation fields in counts per minute (cpm) at the surface.

3.1 Equipment

1. Portable ratemeter: Ludlum model 2221
2. NaI detector: Ludlum model 44-10 (2"x2" crystal)
3. D-cell batteries
4. Connector cable
5. Calculator

6. Check source (Cs-137)
7. Record forms

3.2 Operational Check

1. Assemble unit, check battery, and adjust high voltage, as necessary. Set the instrument for 'SLOW' response, WIN in the "OUT" position, and ratemeter operation.

2. Check and record the background count rate and the detector response to the gamma source on the Gamma-Ray Count Rate Data Form. If the background or source response are outside the established limits, the unit is to be removed from service until the problem can be identified and corrected. The established limits are $\pm 10\%$ of the average readings.

3.3 Measurements

1. Hold the detector 3 ft above the ground. Then at the ground surface allow the ratemeter to integrate the count rate for a minimum of 10 seconds.

2. Estimate the average count rate and record it on the Gamma Ray Count-Rate Data Form.

3. Convert the count rate (cpm) to exposure rate (μrem/h) using factors determined by cross calibration with the organic scintillator.

3.4 Completing the Gamma Ray Count-Rate Data Form

Make an entry in each blank. Where there is no data entry, enter UNK for Unknown, NA for Not Applicable, or ND for Not Done. If any procedure was not performed as prescribed, give the reason for the change or omission on the form. To change an entry, draw a single line through it, add the correct information above it, and initial the change.

1. Ratemeter/Scaler Manufacturer. The manufacturer of the ratemeter/scaler in use.

2. Voltage. The voltage that is applied to the detector. The voltage value is set to the value given on the calibration sticker.

3. Ratemeter/Scaler Model No. The model number of the ratemeter/scaler.

4. Ratemeter/Scaler Serial No. The serial number of the ratemeter/scaler.

5. Ratemeter/Scaler Calibration Date. The date when the ratemeter/scaler was last calibrated.

6. Window. The window will be in the out position unless otherwise specified.

7. Threshold. The adjustment for the lower energy level of the discriminator. The threshold value is set to the value shown on the calibration sticker.

8. Battery. The battery charge reading at the beginning of the measurement.

9. Probe Manufacturer. The manufacturer of the sodium iodide (NaI) probe.

10. Probe Model No. The model number of the NaI probe.

11. Probe Serial No. The serial number of the NaI probe.

12. Probe Calibration Date. The date when the NaI probe was last calibrated.

13. Source Check Date/Time. The date and time that the detector response to a gamma source was last checked.

14. Source Check Measurement. The number of cpm that is displayed on the ratemeter.

15. Location ID. Coordinates assigned based on the 10m grid.

16. Coordinates (Ft). The coordinates of the measurement location in feet. The format is north and east.

17. Meter Reading (CPM). The count rate in counts per minute. There are two fields. One field is for readings at ground level, and the other is for readings at 3 ft above the ground.

18. Exposure Rate. The exposure rate in microrem/hour (μrem/hr). In order to make entries into these fields, it is necessary to determine the count rate to exposure rate conversion factor for the area of the site under investigation. A calibrated microrem meter can also be used for entries in these fields. One field is for readings at ground level, and the other is for readings at 3 ft above the ground.

4.0 ORGANIC SCINTILLATOR (OS) - BICRON MICROREM RATEMETER

This instrument is used to measure the gamma exposure rate at one meter above the surface.

4.1 Equipment

1. Bicorn microrem ratemeter
2. D-cell batteries
3. Connector cable
4. Calculator
5. Check source (Cs-137)
6. Record forms
7. Operating manual
8. Stop watch if interval measurements are taken

4.2 Operational Check

1. Follow the operations manual. Turn the instrument on and check batteries.

2. Record the background and check source exposure rates on the Exposure Rate Data Farm. Refer to Section 4.3 for instructions on taking a background measurement.

4.3 Measurements

1. Refer to the operating manual.

2. Determine the exposure rate in microrem/hr. The exposure rate may be determined in the following manner if it gives a reading microrem versus microrem/hr:

$$\text{Exposure rate (uren/hr)} = \frac{\frac{60 \text{ min}}{\text{hr}} \; \text{exposure recorded (urem)}}{\text{count time (min)}}$$

Using a lapse time interval (10 min), the exposure rate can be calculated.

4.4 Completion of the Exposure Rate Data Form

This form will not be completed if the instrument measures in an exposure rate. Make an entry in each blank. Where there is no data entry, enter UNK for Unknown, NA for Not Applicable, or ND for Not Done. If any procedure was not performed as prescribed, give the reason for the change or omission on the form. To change an entry, draw a single line through it, add the correct information above it, and initial the change.

1. OS Calibration Date. The date when the organic scintillator was last calibrated.

2. OS Model Number. The model number of the micro rem meter.

3. OS Serial Number. The serial number of the micro rem meter.

4. OS Battery. Determine whether the battery voltage readings are at the correcting operating level.

5. OS Unit of Measure. The unit is μrem/hr. Consult the manufacturer's instrument manual to determine the measurement units.

6. Comments. Any additional information.

7. OS Background Value (μrem/hr). The result of a count in an area designated as background in μrem/hr.

8. Location ID. Coordinates assigned based on the 10m grid.

9. Coordinates (FT). The coordinates of the measurement location in feet. The format is north and east.

10. Measured Exposure (urem). The OS reading indicated on the counter at the end of the counting period in microrem. Otherwise, record the units as is expressed on the meter face.

11. Lapsed Time (Min). The time indicated on the stopwatch when the counting period has ended. This statement only applies if the measurements are measured in timed intervals.

12. Integrated Exposure Rate (μrem/hr). The OS reading in μrem/hr, calculated according to the equation in Section 4.3.

5.0 CORRELATION OF A SODIUM IODIDE DETECTOR TO THE MICROREM METER

This procedure describes the method for correlating count rates obtained with a sodium iodid (NaI) detector and ratemeter/scaler to the exposure rate measurements taken with an organic scintillator.

By correlating scintillation detector measurements with accurate organic scintillator measurements on a site-specific basis, correction factors can be determined and applied to the scintillation detector measurements to evaluate gamma-exposure rates.

Perform a background measurement using both the microrem meter and the NaI scintillometer. Operational instructions for the instruments are provided in Section 3.0 and 4.0. Use the average cpm value shown on the ratemeter for the NaI scintillometer. Normal background readings at sites not exhibiting high radionuclide content may range from 5 to 20 μR/hr because of cosmic and terrestrial radiation. Measurements taken in areas of known background exposures outside of this range may indicate a mechanical problem in the instrument and should be investigated.

Perform the correlation using 5 to 20 locations, ranging in activity from normal background to the maximum level of gamma exposure found at the site. There may be several areas where these correlations will be performed. It may be necessary to subdivide a site into regions where there should be similar radionuclides within a region. Choose the measurement locations so that the exposure rate does not vary with slight differences in the positioning of the two detectors. Take measurements alternately with both instruments at approximately 3 feet off the ground at each location. Record the results on the Exposure Rate Correlation Data form. Accurate correlation can only be established when a large range of exposure rates exist.

After performing measurements at a sufficient number of locations, correlate the readings from both instruments using a linear regression. The regression equation is shown below.

$$E = a(Em) + b$$

where

E = microrem reading in urem/hr
a = slope of the line
Em = scintillometer reading in counts per minute
b = Y-axis intercept

Using the Y intercept and the slope from this equation, the cpm value from the NaI detector can be converted to an exposure rate (μrem/hr).

5.1 Equipment

Refer to Sections 3.1 and 4.1.

5.2 Completion of the Exposure Rate Correlation Data Form

Make an entry in each blank. Where there is no data entry, enter UNK for Unknown, NA for Not Applicable, or ND for Not Done. If any procedure was not performed as prescribed, give the reason for the change or omission on the form. To change an entry, draw a single line through it, add the correct information above it, and initial the change.

1. Site Area Correlation No. More than one set of correlations of organic scintillation and NaI detector data may be required for a given site. The site area correlation number is a number assigned to the correlation set by the site technician.

2. OS Calibration Date. The date when the OS was last calibrated. This data field follows the same format as the data field for log date.

3. OS Model No. The serial number of the OS.

4. OS Serial No. The serial number of the OS.

5. Battery. The battery voltage read at the beginning of the measurement.

6. OS Unit of Measure. The unit in which the OS reads. Consult the manufacturer's instrument manual to determine the measurement units.

7. Ratemeter/Scaler Manufacturer. The manufacturer of the ratemeter/scaler.

8. Ratemeter/Scaler Voltage. The voltage that is applied to the detector. The voltage for a sodium iodide (NaI) probe is usually about 900V and is given on the calibration sticker.

9. Ratemeter/Scaler Model No. The model number of the ratemeter/scaler.

10. Ratemeter/Scaler Serial No. The serial number of the ratemeter/scale.

11. Ratemeter/Scaler Calibration Date. The date when the ratemeter/scaler was last calibrated.

12. Window. The window will be in the out position (unless otherwise specified).

13. Threshold. The adjustment for the lower energy level of the discriminator. This setting is determined during calibration and before using the instrument in the field.

14. Battery. The battery level at the beginning of the activity.

15. Unit of Measure. The units in which the scintillometer (NaI) reads-usually counts per minute (cpm).

16. Probe Manufacturer. The manufacturer of the NaI probe.

17. Probe Model No. The model number of the NaI probe.

18. Probe Serial No. The serial number of the NaI probe.

19. Probe Calibration Date. The date when the probe was last calibrated.

20. OS Background Reading. The exposure rate in urem/hr as measured in an area designated as background.

21. Scintillometer Background Reading. The cpm as measured in an area designated as background.

22. Resulting Correlation Formula. The formula that can be used to convert NaI cpm values to urem/hr measurements based on the data obtained. This correlation is based on a linear regression formula given in Section 5.1.

23. Comments. Any additional information.

24. Location ID. Four-character code assigned sequentially to each borehole, test pit, or surface location where physical, chemical, biological, radiological, and other measurements are taken.

25. Coordinates (Ft). The location of the measurement spot on the survey grid in feet. There are two fields. One field is for the north coordinate, and the other is for the east coordinate.

26. Measured Exposure (urem). The OS reading indicated on the counter at the end of the counting period, in micro rem.

27. Lapsed Time (Min). The time indicated on the stopwatch when the counting period has ended.

28. Integrated Exposure Rate (urem/hr). The OS reading in the specified units (usually μrem/hr).

29. Scintillometer detector or Value. The scintillometer reading in cpm.

Figure 1
Gamma Ray Count-Rate Data Form

Gamma Ray Count-Rate Data

Site Name:
Location/Identification:
Date:
Ratemeter/Scaler Manufacturer:
Model No:
Window: Out
Probe Manufacturer:
Model No.:
Source Check ID/Date/Time:

Source Check Measurement (CPM):

Serial No.:
Threshold:

Serial No.:

Voltage:
Calibration Date:
Battery:

Calibration Date:

Location ID	Coordinates (ft)		Meter Reading (CPM)		Exposure Rate (μR/hr)	
	North	East	Surface	3 ft	Surface	3ft
Background						
Check Source						

Technicians: _____ Date: _____

Figure 2
Exposure Rate Data From

Exposure Rate Data

Site Name:
Organic Scintillator (OS):
Location/Identification:
Date:
Calibration Date:
Model No.:
Serial No.:
Battery:
Unit of Measure:

Comments:

Integrated PIC Background Value (μR/hr):

Location ID	Coordinates (ft)		Measured Exposure (μrem)	Lapsed Time (Min.)	Integrated Exposure Rate (μrem/hr)
	North	East			
Background					
Check Source					

Technicians: _____ Date: _____

Figure 3
Exposure Rate Correlation Data Form

Exposure Rate Correlation Data

Site Name:
Organic Scintillator:
Location/Identification:
Calibration Date:
Date:
Model No.:
Serial No.:
Battery:
Site Area Correlation No.:
Unit of Measure:

Scintillator:
Ratemeter/Scaler Manufacturer: **Voltage:**
Model No: **Serial No.:** **Calibration Date:**
Window: Out **Threshold:** **Battery:**
Probe Manufacturer:
Model No.: **Serial No.:** **Calibration Date:**

Background Readings:
OS _____ **µrem/hr** **Scintillometer** _____ **CPM**
Resulting Correlation Formula:
Comments:

Location ID	Coordinates (ft)		Measured Exposure µrem	Lapsed Time (Min)	Integrated Exposure Rate (µrem/hr)	Scintillometer (CPM)
	North	East				
Background						

Technicians: _____ Date: _____

HRA-0027

HEADQUARTERS
FIRST NAVAL DISTRICT
495 SUMMER STREET, BOSTON 10, MASS.

24 May 1950

AVAILABLE FOR LEASE

U. S. NAVAL AIR STATION

BRUNSWICK, MAINE

The Commandant, First Naval District, acting for the Chief of the Bureau of Yards and Docks, invites proposals for the leasing of the former Naval Air Station, Brunswick, Maine.

This facility consists of land, buildings, hangars, improvements and utilities, which were used by the Navy as a Naval Air Station.

LOCATION:

The station is located on U. S. Highway No. 1, Brunswick, Maine.

ACCESS:

The facility is located on U. S. Highway No. 1. The Maine Central Railroad Company station is approximately three (3) miles from the Station. A Maine Central Railroad freight spur is located on the station.

LAND:

Approximately 1,486 acres of land comprise the facility. There are 3 bituminous surfaced runways: (NE/SW) 4,500' x 150'; (NW/SE) 6,000' x 150'; (E/W) 6,000' x 150'. The aircraft parking area consists of 87,000 sq. yards of concrete.

BUILDINGS AND HANGARS:

The following structures are available:

Hangar No.	1		54,512	sq.	ft.	floor	space
" "	2		64,656	"	"	"	"
" "	3		54,512	"	"	"	"
Bldg. No.	4	Administration	14,947	"	"	"	"
" "	5	Control Tower	7,379	"	"	"	"
" "	6	PW Elec. Shop	1,963	"	"	"	"
" "	7	Garage & Fire Sta.	11,566	"	"	"	"
" "	8	PW Off. & Shops	15,956	"	"	"	"
" "	9	Laundry	7,296	"	"	"	"
" "	10	Encl. Shed	11,610	"	"	"	"
" "	11	Aircraft Storehouse	20,610	"	"	"	"
" "	12	Aircraft Storehouse & Supply	20,610	"	"	"	"
" "	14	Cold Storage	6,460	"	"	"	"
" "	15	General Storehouse	11,900	"	"	"	"
" "	16	General Storehouse	11,900	"	"	"	"
" "	17	Barracks	26,672	"	"	"	"
" "	18	Barracks	13,018	"	"	"	"
" "	19	Barracks	26,672	"	"	"	"
" "	20	Barracks	26,672	"	"	"	"
" "	21	Messhall	49,369	"	"	"	"
" "	22	Brig	2,680	"	"	"	"
" "	23	Ship Service & Auditorium	20,699	"	"	"	"
" "	28	CO_2 Bldg.	10,785	"	"	"	"
" "	30	Dispensary	32,600	"	"	"	"
" "	31	Incinerator	816	"	"	"	"
" "	33	Gate House	110	"	"	"	"
" "	34	Post Office	1,915	"	"	"	"
" "	35	Radio Transmittal Bldg.	1,828	"	"	"	"
" "	36	Heating Plant	4,999	"	"	"	"
" "	40	L.T.A. Office	145	"	"	"	"
" "	41 & 43	Synthetic Training & Parachute Shop	10,233	"	"	"	"
" "	44	Torpedo Storage	1,285	"	"	"	"
" "	45	General Storehouse	2,179	"	"	"	"
" "	46	Direction Finder	679	"	"	"	"
" "	47	Chapel	3,245	"	"	"	"
" "	48	PW Carpenter Shop	3,256	"	"	"	"
" "	49	Crash Truck Garage	635	"	"	"	"
" "	51	P. W. Paint Locker	1,520	"	"	"	"
" "	52	Inert Storehouse	4,000	"	"	"	"
" "	53	Magazine	1,052	"	"	"	"
" "	54	Magazine	1,052	"	"	"	"

Bldg.	No.	55	Magazine	423	sq.	ft.	floor	space
"	"	56	"	1,052	"	"	"	"
"	"	57	"	1,052	"	"	"	"
"	"	58	"	1,052	"	"	"	"
"	"	59	"	1,052	"	"	"	"
"	"	60	"	1,052	"	"	"	"
"	"	61	"	1,052	"	"	"	"
"	"	62	"	1,052	"	"	"	"
"	"	63	"	1,052	"	"	"	"
"	"	64	"	1,052	"	"	"	"
"	"	65	"	105	"	"	"	"
"	"	66	"	105	"	"	"	"
"	"	67	"	105	"	"	"	"
"	"	69	Ready Mag.	65	"	"	"	"
"	"	70	R. P. Fusing	449	"	"	"	"
"	"	71	Ready Mag.	1,052	"	"	"	"
"	"	72	Ready Mag.	216	"	"	"	"
"	"	73	Ready Mag.	65	"	"	"	"
"	"	74	Lumber Storage	6,324	"	"	"	"
"	"	75	Ammunition Belting Shack	330	"	"	"	"
"	"	76	Dwelling (Skeet Range Storehouse)	605	"	"	"	"
"	"	77	Bus Waiting Room	297	"	"	"	"
"	"	78	Line Shack	320	"	"	"	"
"	"	79	R. P. Ready Room	809	"	"	"	"
"	"	80	Sea Bag Lockers	974	"	"	"	"
"	"	81	" " "	974	"	"	"	"
"	"	82	" " "	974	"	"	"	"
"	"	83	General Storehouse	1,200	"	"	"	"
"	"	84	" "	1,200	"	"	"	"
"	"	85	" "	1,200	"	"	"	"
"	"	86	" "	1,200	"	"	"	"
"	"	87	Line Shack	777	"	"	"	"
"	"	88	Maintenance Training	1,466	"	"	"	"
"	"	89	" "	1,466	"	"	"	"
"	"	90	Line Shack (Relocated near Control Tower Bldg. #5)	535	"	"	"	"
"	"	91	Foam Generator	160	"	"	"	"
"	"	92	Aviation Gas Unloading Shed	686	"	"	"	"
"	"	93	General Storehouse	4,119	"	"	"	"

Bldg.	No.	94	Paint Locker	65	sq.	ft.	floor space
"	"	95	Gas Farm Off.	184	"	"	" "
"	"	96	General Storehouse	2,170	"	"	" "
"	"	97	General Storehouse	2,170	"	"	" "
"	"	99	Heavy Equipment Shop	10,352	"	"	" "
"	"	T-201	Storage (Q.M.)	612	"	"	" "
"	"	T-202	Storage (Q.M.)	612	"	"	" "
"	"	T-203	Storage (Prefab)	1,622	"	"	" "
"	"	T-204	Storage (Prefab)	974	"	"	" "
"	"	T-205	Storage (Prefab)	1,460	"	"	" "
"	"	T-206	Battery Shop	302	"	"	" "
"	"	T-207	Communication Storage	612	"	"	" "
"	"	T-208	Communication Storage	612	"	"	" "
"	"	T-209	Mobile Training	1,466	"	"	" "
"	"	T-210	Mobile Training	1,466	"	"	" "
"	"	T-211	Paint Locker	224	"	"	" "
"	"	T-212	Vacant	67	"	"	" "
"	"	T-213	Squadron Gear	73	"	"	" "
"	"	T-214	Squadron Gear	30	"	"	" "
"	"	T-215	Ammunition Tow Gear Storage	612	"	"	" "
"	"	T-216	P. W. Mason's Storage	196	"	"	" "
"	"	T-217	P.W. Storage	660	"	"	" "
"	"	T-218	P.W. Storage	454	"	"	" "
"	"	T-219	P.W. Storage	295	"	"	" "
"	"	T-220	Boatswain's Locker	224	"	"	" "
"	"	T-221	VBF Line Shack	612	"	"	" "
"	"	T-222	CASU Line Shack	612	"	"	" "
"	"	T-223	P.W. Storage	1,459	"	"	" "
"	"	T-224	P.W. Storage	173	"	"	" "
"	"	T-225	Storage	160	"	"	" "
"	"	T-226	Runway Maintenance	155	"	"	" "
"	"	T-227	Skeet Range Hut	312	"	"	" "
"	"	T-228	Skeet Range Storage	92	"	"	" "
			Skeet Range High House	92	"	"	" "
			Skeet Range Low House	48	"	"	" "
			Skeet Range Control House	33	"	"	" "
			Bldg. East of Hangar #3	101	"	"	" "
			Synthetic Training	977	"	"	" "
			Synthetic Training	977	"	"	" "

The Government reserves the right to withdraw from or add to the list of buildings hereinabove set forth.

SERVICES AND UTILITIES

TELEPHONE SERVICE - Connected to New England Telephone and Telegraph Company.

ELECTRIC POWER - Main source: Central Maine Power Company. Distribution system: 2,300 volts, 3 phase.

HEATING SYSTEM AND STEAM MAINS - One central heating plant, steam, 3 boilers, total 1,175 B.H.P. Bituminous coal used.

WATER SUPPLY - Main source from the Town of Brunswick. The Department of the Air Force, permittee of a portion of the Air Station, will make equitable arrangements with the lessee for joint use of water facilities.

SEWAGE DISPOSAL - The Department of the Air Force will make equitable arrangements with the lessee for joint use of sewage facilities.

RESERVATIONS:

The following land area with buildings and appurtenances located thereon are excepted from the property available for leasing.

Beginning at a point at the intersection of the northeasterly side of Fifth Street and the southeasterly side of Avenue "C"; thence running in a northeasterly direction along the southeasterly side of Avenue "C" crossing Board Road to a point northeast of Quarters A, thence southeasterly on the outside of Quarters A to a point southeast of the sewer force main; thence in a southwesterly direction along the outside of said main to Board Road; thence southeasterly along Board Road to the Government property line; thence in a southerly direction along the Government line to a corner therein; thence northwesterly along the property line to a corner in the Government fence line; thence northwesterly and northeasterly to the intersection of Avenue "L" and Fifth Street; thence northwesterly along Fifth Street to the point of beginning.

GENERAL CONDITIONS:

The following provisions will be included in any lease covering the Naval Air Station property:

a. The Department of the Navy shall reserve the right to recapture the premises in the event of a national emergency or to revoke the lease on presentation of a reasonable notice when deemed necessary for purposes of national defense and/or whenever the Secretary shall determine that the facilities are surplus to the further needs and responsibilities of the Navy.

b. No part of the premises may be sublet without prior approval of the Department of the Navy.

c. No alterations shall be made to the property without prior approval of the Department of the Navy, and any alterations so approved and made shall be subject to restoration upon termination of the lease agreement.

d. The premises shall be maintained by the lessee.

e. No expense shall be incurred by the Department of the Navy as a result of the lessee's occupancy.

f. The Department of the Navy shall not be liable for any damages as a result of accident to personnel or property as a result of the lessee's occupancy.

g. No business nor enterprise shall be conducted on the premises that is contrary to Federal, State, or municipal laws or regulations.

h. The lessee shall provide for a bond at his own expense in an amount satisfactory to the Department of the Navy to ensure satisfactory performance of the obligations assumed under the lease.

i. The lessee shall obtain at his own expense insurance in an amount satisfactory to the Department of the Navy and sufficient to cover any damages to the premises that may occur such as fire, storm, etc. The lessee shall also obtain, at his own expense, workmen's compensation, employer's liability and third party bodily injury and property damage insurance in such amounts as shall be reasonable to cover the risks assumed under the lease.

j. The lease shall contain a provision authorizing its termination at the option of the Department of the Navy, or, in lieu thereof, a provision will be included for renegotiation of the rental to be paid thereunder, in the event the leased premises shall be made subject to state or local taxation as a result of any Act of Congress.

k. In the event that the Departments of the Navy or Air Force furnish to the lessee any utilities or services (including gas, light, water, heat, power, sewage disposal, etc.), the lease shall provide for their payment separate and apart from the rental for the premises.

GENERAL INFORMATION:

The property will be leased pursuant to the Act of 5 August 1947 (Public Law 364 - 80th Congress - First Session) subject to such restrictions as the Department of the Navy may deem necessary or advisable to retain the integrity of the plant as a Naval Air Station. Leasing will be subject to congressional approval.

It is desired to lease the property in its entirety, with the exception noted, or in as large units as possible. Special consideration will be given to those proposals which provide the maximum maintenance for the existing station; however, the right to reject any or all proposals is reserved.

Written proposals, in duplicate, for the leasing of these facilities will be received by the Commandant, First Naval District, 495 Summer Street, Boston, Massachusetts, until 2 P.M. 30 June 1950.

Proposals should include, beside the name, address and occupation of the proposed lessee, a summary of the principal terms and conditions of the proposed lease as desired by the lessee, including term, rental, maintenance obligations assumed, insurance coverage proposed, as well as the contemplated use of the property.

Prospective lessees may inspect the premises or secure additional information concerning the property by application to the Commandant at the above address.

HRA-0077

CERFA Identification of Uncontaminated Property

at the

Naval Air Station

Brunswick, Maine

Naval Facilities Engineering Command
Mid-Atlantic
Contract Number N62472-03-D-0057
Contract Task Order 0067

June 2007

CERFA IDENTIFICATION OF UNCONTAMINATED PROPERTY

AT THE

NAVAL AIR STATION

BRUNSWICK, MAINE

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

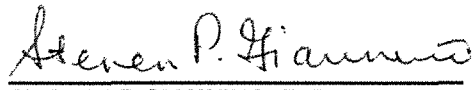
Submitted to:
BRAC PMO Northeast
4911 S. Broad St.
Philadelphia, PA 19112

Submitted by:
Tetra Tech NUS, Inc.
600 Clark Avenue, Suite 3
King of Prussia, PA 19406-1433

CONTRACT NO. N62472-03-D-0057
CONTRACT TASK ORDER 0067

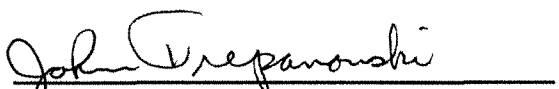
JUNE 2007

PREPARED UNDER THE DIRECTION OF:



STEVEN P GIANNINO, P.E.
PROJECT MANAGER
TETRA TECH NUS, INC.
GERMANTOWN, MARYLAND

APPROVED FOR SUBMISSION BY:



JOHN J. TREPANOWSKI, P.E.
PROGRAM MANAGER
TETRA TECH NUS, INC.
KING OF PRUSSIA, PENNSYLVANIA

CERFA IDENTIFICATION OF UNCONTAMINATED PROPERTY

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DECEMBER 2006

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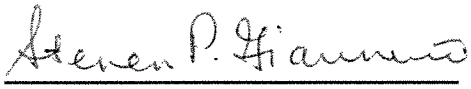

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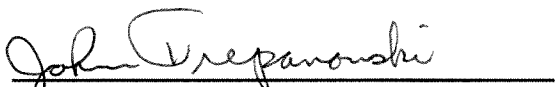

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KING OF PRUSSIA, PENNSYLVANIA

TABLE OF CONTENTS

1.0 BACKGROUND 1

2.0 PURPOSE 2

3.0 STATUTORY AUTHORITY 2

4.0 CERFA PARCEL CLASSIFICATION PROCESS 3
4.1 Detailed Search of Federal Government Records 3
4.2 Recorded Chain of Title Documents 4
4.3 Aerial Photographs 5
4.4 Visual Site Inspection 6
4.5 Inspection of Adjacent Property 6
4.6 Detailed Search of Government Records on Adjacent Property 7
4.7 Interviews 7
4.8 Sampling 8

5.0 RESULTS OF CLASSIFICATION 8

6.0 SIGNATURES 9

LIST OF TABLES
Table 1 Guidelines for Assignment of CERFA Categories 10
Table 2 Proposed CERFA Uncontaminated Property 12
Table 3 Property Classification Table 14

LIST OF FIGURES
Figure 1 Site Location Map 32
Figure 2 Rake Stations Site Location Map 33
Figure 3 CERFA Identification of Uncontaminated Property Main Base 34
Figure 4 CERFA Identification of Uncontaminated Property Topsham Annex 35
Figure 5 CERFA Identification of Uncontaminated Property McKeen Street Housing 36
Figure 6 CERFA Identification of Uncontaminated Property East Brunswick Remote Radio Transmitter Site 37
Figure 7 CERFA Identification of Uncontaminated Property Sabino Hill Rake Station 38
Figure 8 CERFA Identification of Uncontaminated Property Small Point Rake Station 39

REFERENCES 40

APPENDIX A GOVERNMENT FILE REVIEW DOCUMENTATION (INCLUDES GOVERNMENT DATABASE SEARCHES CONTAINED ON CD)
APPENDIX B PROPERTY RECORDS
APPENDIX C AERIAL PHOTOGRAPHY (APPENDICES C-2 and C-3 CONTAINED ON DVD)
APPENDIX D VISUAL SITE INSPECTION
APPENDIX E ADJACENT PROPERTY INSPECTION
APPENDIX F INTERVIEWS
APPENDIX G SAMPLING DATA
APPENDIX H REGULATORY AGENCY COMMENTS

LIST OF ACRONYMS

ACM	Asbestos-Containing Material
ADF	Automatic Direction Finder
AST	Aboveground Storage Tank
ASWOC	Anti-Submarine Warfare Operations Center
BRAC	Base Realignment and Closure Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFA	Community Environmental Response Facilitation Act
CHRIMP	Consolidated Hazardous Material Reutilization and Inventory Management Program
CY	Cubic Yard
DPDO	Defense Property Disposal Office
DOD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
EBS	Environmental Baseline Survey
EBST	Environmental Baseline Survey for Transfer
ECP	Environmental Condition of Property
EDR	Environmental Data Resources, Inc.
EOD	Explosive Ordnance Disposal
EPA	U. S. Environmental Protection Agency
EPIC	Environmental Photographic Interpretation Center
FAD	Friable, Accessible and Damaged
GCA	Ground Controlled Approach
IAS	Initial Assessment Study
IR	Installation Restoration
JFSI	Jet Fuel Supply Installation
LAST	Leaking Aboveground Storage Tank
LBP	Lead-Based Paint
LUST	Leaking Underground Storage Tank
Maine DEP	Maine Department of Environmental Protection
MMRP	Military Munitions Response Program
NAS	Naval Air Station
NAVFAC	Naval Facilities Engineering Command
NEX	Navy Exchange
NOSSA	Naval Ordnance Safety and Security Activity
NPL	National Priorities List

PCB	Polychlorinated Biphenyl
PMO NE	Program Management Office Northeast
PPM	Parts Per Million
RATCF	Radar Air Traffic Control Facility
RCRA	Resource Conservation and Recovery Act
SQG	Small Quantity Generator
TACAN	Tactical Air Navigation
TtNUS	Tetra Tech NUS, Inc.
UST	Underground Storage Tank
VORTAC	Very High Frequency Omni-directional Range Station
VSI	Visual Site Inspection

1.0 BACKGROUND

In 2005, Naval Air Station (NAS) Brunswick, Maine was designated for closure under the authority of the Defense Base Closure and Realignment Act (BRAC) of 1990, Public Law 101-510 as amended. BRAC legislation requires that the base closure be in full compliance with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). The operational closure date for NAS Brunswick is September 15, 2011, and mission operations are scheduled for relocation to NAS Jacksonville, Florida beginning in 2008.

NAS Brunswick is located in Cumberland County, Maine, and was first commissioned on April 15, 1943. The base remained active for four years, and was subsequently deactivated in 1947. On March 15, 1951, the dormant-air station was re-commissioned as a Naval Air Facility with the established mission of supporting three land-plane patrol squadrons and one Fleet Aircraft Service Squadron, and a planned future mission as a master jet air station with a primary mission of anti-submarine warfare.

On July 1, 1971 Commander Patrol Wings United States Atlantic Fleet/Commander Patrol Wing Five established its headquarters at NAS Brunswick. Changes have occurred on the Air Station since 1971 so that at present, three patrol squadrons flying the P3 Orion perform their duties at NAS Brunswick. In addition, two reserve squadrons are also based at NAS Brunswick along with VPU-1 mission, the Naval Reserve Center and the Air Reserve Center. NAS Brunswick also provides support for the ships at Bath, and various northeastern naval activities.

The NAS Brunswick Main Base is comprised of approximately 2,834 acres situated between the Androscoggin River and Casco Bay southeast of the town center of Brunswick. It is bordered by Route 123 and Route 1 on the west and north sides, respectively, and is adjacent to Route 124 on the east side.

NAS Brunswick is comprised of the Main Base and five remote properties (collectively, the Subject Properties) listed below and shown on Figures 1 and 2.

- McKeen Street Housing Complex, located in Brunswick, approximately three miles from the Main Base, which consists of approximately 70 acres of land and improvements

- Former East Brunswick Remote Radio Transmitter Site, located in Brunswick, approximately 3.2 miles northeast of the Main Base , which consists of approximately 66 acres of land

- Topsham Annex, located in the town of Topsham, approximately four miles north of the Main Base, which consists of approximately 74 acres of land and facilities. Originally, Topsham Annex consisted of 125 acres, however, 51 acres were recently transferred prior to this report.

- Sabino Hill Rake Station No. 1, approximately 0.23 acres of land located near Phippsburg, approximately 14 miles southeast of the Main Base

- Small Point Rake Station No. 2, approximately 0.23 acres of land located near Phippsburg, approximately 14 miles southeast of the Main Base

2.0 PURPOSE

The purpose of this document is to provide the results of the Navy's identification of uncontaminated property at NAS Brunswick in accordance with CERCLA, as amended by the Community Environmental Response Facilitation Act (CERFA).

3.0 STATUTORY AUTHORITY

The statutory authority for the identification of uncontaminated property at the Subject Properties is Title 42, United States Code, Section 9620 (h)(4), entitled: "identification of uncontaminated property". CERFA, Public Law 102425, October 19, 1992 amended Section 120(h) of CERCLA and stipulates that the federal government must identify "uncontaminated property" scheduled for transfer. Uncontaminated property is defined as "…real property on which no hazardous substances and no petroleum products or their derivatives were known to have been released, or disposed of" [§9620 (h)(4)(A)].

The identification process shall be completed no later than 18 months after the date on which the real property is selected for closure [§9620 (h)(4)(C)(IV) and (E)(ii)(IV)]; that is, 18 months after November 9, 2005, or May 9, 2007.

Because NAS Brunswick Main Base is listed on the CERCLA National Priorities List (NPL), this identification of uncontaminated property is not complete for Man Base until concurrence with the results is obtained from the U. S. Environmental Protection Agency (EPA) [§9620 (h)(4)(B)]. The NAS Brunswick remote properties are not on the NPL, therefore, concurrence for these properties must be obtained from the "appropriate State official" [§9620 (h)(4)(B)].

4.0 CERFA PROPERTY CLASSIFICATION PROCESS

CERFA [CERCLA Section 120 (h)(4)] requires the identification of uncontaminated property and stipulates that this identification "…shall be based on an investigation of the real property to determine or discover the obviousness of the presence or likely presence of a release or threatened release of any hazardous substance or any petroleum product or its derivatives, including aviation fuel and motor oil, on the real property". CERCLA 120(h)(4) stipulates that the identification of uncontaminated property shall consist of a review of various sources of information concerning the current and previous uses of the property.

The Navy has been conducting environmental investigations at NAS Brunswick since 1982 under its Installation Restoration (IR) Program. Most recently, the Navy conducted investigative work for the Environmental Condition of Property (ECP) Report for NAS Brunswick between September 2005 and April 2006. The purpose of the ECP was to document the environmental condition of NAS Brunswick using information available in existing reports, interviews and other documentation. The results of the ECP investigation are documented in the *Final Environmental Condition of Property Report for the Naval Air Station Brunswick, Maine (Revision 2),* dated May 30, 2006.

Preparation of the ECP Report included investigative efforts that met some of the CERCLA 120(h)(4)(A) requirements for identification of uncontaminated property, and thus was an important source of information for the preparation of this report. To fully meet the CERCLA 120(h)(4)(A) requirements for identification of uncontaminated property at the Subject Properties, the sources of information described in Sections 4.1 through 4.8 were reviewed as required by CERFA.

4.1 DETAILED SEARCH OF FEDERAL GOVERNMENT RECORDS

At the outset of the CERFA property classification process, the Navy BRAC Program Management Office Northeast (PMO NE) provided electronic copies of several comprehensive documents including the NAS Brunswick Administrative Record (through June 2003) and the Final ECP Report which included an extensive review and summation of available records and reports. Additional hard-copy documentation related to the remote properties was provided by PMO NE at a September 26, 2006 meeting at the PMO NE office in Philadelphia, and Tetra Tech NUS, Inc. (TtNUS) obtained and reviewed commercial database radius searches centered on the Main Base and the remote properties from Environmental Data Resources, Inc. (EDR) prior to the site visit. The commercial database search includes information from records and reports maintained by other federal, state and local agencies.

Records reviews were conducted during an October 2-6, 2006 site visit to NAS Brunswick. Personnel from the NAS Brunswick Environmental and Public Works Departments made available for review pertinent documentation, maps and aerial photography to provide historic information regarding hazardous material and petroleum usage and hazardous waste generation and disposal at the Subject Properties.

In addition, EPA Region 1 provided an electronic copy of the April 1987 NAS Brunswick Site Analysis report prepared by their Environmental Photographic Interpretation Center (EPIC), and the Maine Department of Environmental Protection (Maine DEP) provided oversize copies of the aerial photographs from the EPIC report for review.

Representatives of TtNUS, NAS Brunswick, and BRAC PMO NE conducted the onsite file review October 3 through 6, while the EPA and Maine DEP remedial project managers for NAS Brunswick were present and actively participated from October 4 through 6, 2006. After the initial file review, it was apparent a large portion of the Main Base could potentially have been impacted by releases or disposal of hazardous substances or petroleum products, either directly or by contaminant migration from adjoining on-base or offsite property. Due to the nature of the property development and use, and the lack of substantiating historical documentation from the period prior to the establishment of environmental recordkeeping practices in the early 1980s, the site team agreed to focus their efforts on NAS Brunswick's significant land areas that could be identified as having the greatest potential for classification as CERFA uncontaminated property. The delineation of these areas (identified as Areas A-1 through A-5 on Figure 3 of the Main Base) was adjusted by the onsite team throughout the week as available information was analyzed. While it is recognized that there exist small areas of property where it appears there have been no hazardous substances or petroleum products released or disposed; these pockets of land are in close proximity to land or structures that could potentially impact them; therefore, they are not identified as CERFA uncontaminated areas.

A detailed list of documentation reviewed is provided in the References list at the end of this report, and copies of documentation not readily available (e.g., maps or data not included in previously published reports) are included in Appendix A.

4.2 RECORDED CHAIN OF TITLE DOCUMENTS

A chain-of-title search was not performed. The search of Navy real estate records by BRAC PMO NE indicated multiple parcels were acquired by condemnation, direct purchase and transfer with individual property owners and State and local governments, and provided no evidence of previous land use that might have had a negative environmental impact on the properties. The real estate acquisition

transactions for NAS Brunswick have been summarized in a table provided by BRAC PMO NE and are included as Appendix B.

4.3 AERIAL PHOTOGRAPHS

Aerial photographs for Main Base were obtained from the EPA EPIC Report, Maine DEP and the NAS Brunswick Public Works and Environmental Departments, while aerial photographs for the remote properties were ordered from EDR. Also, 2006 aerial photographs were obtained for all properties from Google Earth.

The Main Base photographs were evaluated and discussed by the entire site visit team consisting of TtNUS, BRAC PMO NE, NAS Brunswick, EPA and Maine DEP representatives. The photographs for the remote properties were evaluated by TtNUS.

The aerial photographic analyses were used to:

- Track the developmental history of the Subject Properties.
- Track the history of surrounding land uses.
- Identify anomalies; e.g., ground scars, cleared areas, debris piles, possible disposal areas, etc., for further assessment, inspection and/or investigation.
- Adjust the delineation of potential CERFA uncontaminated property areas to create buffer between the uncontaminated property and known or potential contamination.

While informative, aerial photographs alone are rarely conclusive. Anomalies may be attributable to a number of causes unrelated to environmental concerns. Therefore, the results of the aerial photographic analyses were evaluated and cross-referenced with the:

- Results of records reviews and site inspections.
- Results of interviews with current NAS Brunswick employees.
- Results of historic map analysis.

The tables in Appendix C describe the aerial photographs reviewed and summarize the observations made. Appendix C also includes a copy of the EPA EPIC report, relevant portions of the Main Base aerial photographs and all of the remote property aerial photographs purchased from EDR.

4.4 VISUAL SITE INSPECTION

As described in the ECP Report, the Subject Properties, particularly Main Base and Topsham Annex, have been the subject of multiple environmental site investigations and compliance evaluations dating back to the 1980s. Past and ongoing investigations and evaluations have identified significant known or potentially contaminated areas on the Subject Properties. Therefore, the visual site inspections (VSIs) for the CERFA classification focused mainly on the previously uninvestigated areas. The VSIs for Main Base, the Rake Stations, the East Brunswick Remote Radio Transmitter Site, and their immediately adjacent properties were conducted by the entire site visit team, including EPA and Maine DEP, while TtNUS performed the VSIs for Topsham Annex and McKeen Street Housing. The aerial photograph review and historic map analyses also constitute a visual inspection of the subject and adjacent properties from 1940 to 2006. The completed VSI forms and associated photographs are included as Appendix D.

4.5 INSPECTION OF ADJACENT PROPERTY

Properties adjacent to Main Base Areas A-1 through A-5 and the remote properties have been inspected both during the conduct of the Navy's IR Program over the past 24 years and during the October 2-6, 2006 VSI. Evaluation of adjacent private properties included drive-by inspections, analysis of current (2006) aerial photographs and review of the commercial database search results discussed in Section 4.6. Adjacent property observations are provided in the tables in Appendix E, along with associated photographs.

During the site visit, the delineations of CERFA uncontaminated areas were adjusted to create buffer zones to mitigate the potential impact of on-base and/or off-base properties adjacent to Areas A-2 through A-5. Even though hazardous substances and petroleum products have never been used or stored in Area A-1, it was eliminated from CERFA uncontaminated property consideration because of its proximity to IR Sites 7 and 8.

Based upon these inspections, record reviews and the adjustment of CERFA uncontaminated property delineations to create buffer zones, there is no known reason to suspect that conditions on the immediately adjacent properties have impacted Areas A-2 through A-5 on the Main Base. As described in Table 3 and Appendix E, adjacent properties that could potentially impact the remote properties were identified at Topsham Annex and the former East Brunswick Remote Radio Transmitter Site.

4.6 DETAILED SEARCH OF GOVERNMENT RECORDS ON ADJACENT PROPERTY

The EDR database search in Appendix A identified numerous leaking underground and aboveground storage tanks (LUSTs and LASTs) on private properties near the north, northwest and northeast Main Base boundary lines. These LUSTs and LASTs were taken into consideration when classifying Areas A-2 and A-5. Due to the uncertainty of groundwater flow direction, the western delineation of Area A-5 and the northern delineation of Area A-2 were adjusted accordingly to create buffer zones.

The database searches for remote properties did not identify any significant issues. One replacement underground storage tank used for #2 fuel oil was identified adjacent to the north side of the McKeen Street Housing property, but both the replacement tank and the original tank have had no reported leaks.

4.7 INTERVIEWS

TtNUS and PMO NE conducted interviews with key employees of the NAS Brunswick Public Works and Environmental Departments during the October 2 through 6 site visit. The persons interviewed were:

- Tom Brubaker - Assistant Public Works Officer and an employee of the Planning Department for the past five years. He was also the Public Works Officer from 1992-94 while serving in the Navy.

- Lisa Joy – Environmental Department employee since 1994 and primary point-of-contact for the CERFA property classification effort.

- Paul Kempf – Water Resources Manager who has worked at NAS Brunswick since 2000.

- Dale Mosher – Acting Environmental Department Manager and Hazardous Waste Program Manager who has worked at NAS Brunswick since 1993.

After the initial interviews, brief follow-up interviews were conducted throughout the week as questions arose from records reviews and site visits. Appendix F contains summaries of key information provided by each of the persons interviewed during the October 2 through 6 site visit. Extensive interviews with NAS Brunswick personnel were also conducted during preparation of the ECP Report.

4.8 SAMPLING

No sampling was conducted as part of this CERFA classification process.

5.0 RESULTS OF CLASSIFICATION

All real property at NAS Brunswick, including the Main Base, the McKeen Street Housing Complex, Topsham Annex, the East Brunswick Remote Radio Transmitter Site, the Small Point Rake Station and the Sabino Hill Rake Station, was reviewed for potential release of hazardous substances, petroleum products, and petroleum product derivatives as described in the preceding section. In accordance with the stated purpose and described process, the Main Base has been subdivided into the delineated areas shown on Figure 3 based on their predominant current and/or historical use. These delineated areas and the five remote properties (Figures 4 through 8) were then classified into one or more of the three following categories using the guidelines summarized in Table 1:

- **Category 1 (CERFA Uncontaminated)** – Real property on which no hazardous substances and no petroleum products or their derivatives are known to have been released or disposed.

- **Category 2** (**Known Release and/or Disposal)** – Real property on which hazardous substances and/or petroleum products or their derivatives are known to have been released or disposed, including property where all response action necessary to protect human health and the environment with respect to hazardous substances or petroleum products/derivatives has been taken.

- **Category 3** (**Potential Release and/or Disposal)** – Real property on which there is potential for hazardous substances and/or petroleum products or their derivatives to have been released or disposed, and some level of further assessment or evaluation is required.

There were no Category 1 areas identified on the remote properties. Table 2 lists the Category 1 areas identified on the NAS Brunswick Main Base for which concurrence is being sought. These areas comprise approximately 648 acres of the approximately 2,834 acres that make up the Main Base. Table 3 summarizes the CERFA property classification findings and basis for the categories assigned to each of the Subject Properties, as illustrated on Figures 3 through 8. The tables identify known and/or potential environmental issues associated with the Category 2 and 3 areas that may require some level of further assessment or evaluation under different programs or processes. All property not otherwise classified as Category 2 or 3 is classified as CERFA uncontaminated, as defined in CERCLA Section 120 (h)(4).

6.0 SIGNATURES

Submitted

Dawn C. Kincaid
BRAC Environmental Coordinator

June 5, 2007
Date

Concurrence

Concurrence with CERFA Identification of Uncontaminated Property is indicated by signature below. This concurrence applies only to the identification of "CERFA Uncontaminated" property identified in this document as Category 1.

Christine A.P. Williams, Environmental Engineer
U.S. Environmental Protection Agency
Region 1 – New England

Date

Table 1
Guidelines for Assignment of CERFA Categories [1,2]
BRAC PMO Northeast Facilities
Page 1 of 2

Potential Source Impacting Real Property (Land) Considered Under CERFA	Category
LEAD-BASED PAINT (LBP)	
Family housing, or former site of family housing, older than 1978, no evaluation completed	3
Family housing, or former site of family housing, older than 1978, evaluation completed and response action required	2
Family housing, or former site of family housing, older than 1978, evaluation completed and no response action required	1
Family housing, or former site of family housing, newer than 1978	1
Water tower or large steel structure (e.g., >10,000-gal aboveground storage tank [AST]), older than 1978 (or former site of such), no evaluation completed.	3
Water tower or large steel structure (e.g., >10,000-gal AST), older than 1978 (or former site of such), evaluation completed and response action required.	2
Water tower or large steel structure (e.g., >10,000-gal AST), older than 1978 (or former site of such), evaluation completed and no response action required	1
Water tower or large steel structure (e.g., >10,000-gal AST), newer than 1978 (or former site of such)	1
Other structure, older than 1978, no LBP documentation, visibly peeling paint,	3
Other structure, older than 1978, no LBP documentation, no visibly peeling paint	1
Other structure, newer than 1978, regardless of paint condition	1
Note: interior painted surfaces – not a consideration	
STORAGE TANKS	
UST, documented closure, no release, regulatory concurrence	1
UST, documented closure, completed remedy, regulatory concurrence	2
UST, removed but no closure documentation and no regulatory concurrence	3
UST, documented closure, but no regulatory concurrence (or concurrence pending)	3
AST, visible evidence of possible leakage (e.g., stained pad without secondary containment)	3
AST, documented evidence of leakage	2
AST, no visible or documented evidence of possible leakage	1
MAGAZINES	
No NOSSA closure documentation.	3
NOSSA closure documentation completed, response required.	2
NOSSA closure documentation completed, no response required	1
BOILER AND MECHANICAL ROOMS, INDUSTRIAL BUILDINGS	
Significant floor stains next to **significant** floor cracks, corrosion, or holes at seams to exterior wall	3
Significant floor stains but no or only **minor** floor cracks, corrosion, or holes at seams to exterior wall	1
Good condition, no visible or documented evidence of leakage	1
Visible or documented evidence of leakage (regardless of condition)	2
ASBESTOS CONTAINING MATERIAL (ACM)	
Documented external ACM that is friable, accessible, and damaged (FAD)	2
Possible external ACM, appears to be FAD	3
External ACM (documented or possible), non-friable	1
Note: Interior ACM – not a consideration	
GROUNDWATER PLUMES	
If plume is present, regardless of aboveground conditions	2

Table 1
Guidelines for Assignment of CERFA Categories [1,2]
BRAC PMO Northeast Facilities
Page 2 of 2

Potential Source Impacting Real Property (Land) Considered Under CERFA	Category
AERIAL PHOTO OBSERVATIONS	
Historical photo shows what clearly appears to be a former industrial facility (e.g., factory, commercial garage, hangar, filling station) that stored and handled larger than household quantities of hazardous materials or petroleum products, no other information available	3
Historical photo shows what was most likely a residence, barn, private garage, or commercial establishment that did not likely store and handle larger than household quantities of hazardous materials or petroleum products (e.g., a restaurant), no other information available	1
CERCLA/RCRA/MMRP SITES	
Identified Sites, subsequent investigation confirmed a release	2
Identified Sites, subsequent investigation confirmed that release had not occurred	1

1 Developed by TtNUS in consultation with BRAC PMO Northeast, October 2006.

2 The CERFA category assignments reflect whether hazardous substances and/or petroleum products have been released to external environmental media. Assignments made for structures actually refer to the land surrounding and adjacent to the structures rather than the structures themselves.

Table 2
Proposed CERFA Uncontaminated Property
Naval Air Station Brunswick, Maine

Description	Area	Basis and Source of Evidence	Category
A-2 New Housing Area	Approx. 75 acres	This property was undeveloped and wooded from the inception of the air station until 2000 when 72 units of new housing were constructed. There has been no known release or disposal of hazardous substances or petroleum products in this area.	1
A-3 Proposed National Guard Area	Approx. 20 acres	This property has been undeveloped since the inception of the air station. The southern and eastern boundaries of this area were set to provide buffer zones between A-3 and potential or known sources of contamination. There has been no known release or disposal of hazardous substances or petroleum products in this area.	1
A-4 Golf Course and Undeveloped Area	Approx. 513 acres	IR Site 15 and an adjacent roadside ditch and IR Site 16 and the adjacent golf course maintenance shop have been carved out of this area for additional evaluation following discussions with EPA and Maine DEP during the VSI. The golf course pumphouse (constructed 1955) has been carved out due to peeling paint that could contain lead. Also, the delineation of this area was adjusted to exclude two areas to the east (now in Area B-6) of undetermined ground disturbance pictured on numerous aerial photographs. The pair of abandoned underground fuel pipelines that supplied fuel from an offsite terminal at Casco Bay to the on-base Old Fuel Farm from 1952 until 1991 traverses this area. According to a November 1997 environmental baseline survey prepared for the fuel terminal and pipelines, the pipelines were cleaned and capped prior to abandonment. Because the only documented release from the pipelines occurred near the Casco Bay end of the pipelines, it has been classified Category 1; however, the exterior coating of the pipelines likely contains asbestos, thus a deed notification will be needed to prevent disturbance of the asbestos by future property owners. There has been no known release or disposal of hazardous substances or petroleum products in this area.	1

Table 2
Proposed CERFA Uncontaminated Property
Naval Air Station Brunswick, Maine

Description	Area	Basis and Source of Evidence	Category
A-5 Former Residential Area	Approx. 40 acres	This was a residential area in the 1940s, and has had no evident use or development since the government acquired the property. The western delineation of this area was set to provide a buffer zone for potential migration of contamination from offsite sources such as leaking USTs on adjoining private property, and the northern delineation was set to exclude Navy property where trash, debris and soil disturbance of unknown origin were observed. There has been no known release or disposal of hazardous substances or petroleum products.	1

Table 3
Property Classification Table
Naval Air Station Brunswick, Maine

Description	Area	Basis and Source of Evidence	Category
MAIN BASE			
A-1 Former Quarters C (Facilities Officer's Quarters)	Approx. 11 acres	1946/53 Map – Quarters C shown 1952 Map – Quarters C shown Circa-1956 Map – Quarters C shown 1962 Map – Area not covered 1983/89 Map – Quarters C not shown (previously destroyed by fire) Current Map – Quarters C not shown Other – IR Site 7 is immediately south and closed IR Site 8 is immediately west of Area A-1. A concrete plant and auto salvage yard are north of IR Site 8 on private property. Given their proximity to the Androscoggin River, groundwater flow at those businesses is expected to be toward the river and away from Area A-1. **Category 3** – Entire area based on proximity to IR Sites 7 and 8.	3
A-2 New Housing Area	Approx. 75 acres	1946/53 Map – Undeveloped/portion of area not within the installation boundary at that time. 1952 Map – Undeveloped/portion of area not within the installation boundary at that time. Circa-1956 map – Undeveloped/portion of area not within the installation boundary at that time. 1962 Map – Undeveloped, other than Neptune Drive and railroad line passing through/entire area not shown 1983/89 Map – Undeveloped, other than Neptune Drive, an unpaved road and railroad line Current Map – 72 units of Woodland Village housing (constructed 2000) and 22 additional units (constructed 2005) shown	1

Table 3
Property Classification Table
Naval Air Station Brunswick, Maine

Description	Area	Basis and Source of Evidence	Category
		Other - Homes heated with natural gas; lead-based paint is not an issue because of construction dates **Category 1** – Entire area based on no previous development/use and no known release or disposal of hazardous substances or petroleum products.	
A-3 Proposed National Guard Area	Approx. 20 acres	1946/53 Map – Not within installation boundary 1952 Map – Not within installation boundary Circa-1956 map – Undeveloped/No structures or facilities shown 1962 Map – Area not covered 1983/89 Map – Undeveloped/ No structures or facilities shown Current Map – Undeveloped/ No structures or facilities shown Other – Delineation of this area was adjusted to ensure exclusion of a debris area of unknown origin on its east side. **Category 1** – Entire area based on no previous development/use and no known release or disposal of hazardous substances or petroleum products.	1
A-4 Golf Course and Undeveloped Area	Approx. 525 acres	1946/53 Map – Not within installation boundary 1952 Map – Not within installation boundary Circa-1956 map – Fleet Reserve clubhouse, Country Clubhouse and paved roads only structures or facilities shown 1962 Map – Area not covered 1983/89 Map – Golf course labeled and several additional paved and unpaved roads shown;	1 & 3

Description	Area	Basis and Source of Evidence	Category
		road down to area used for survival skills training shown (see VSI form); underground fuel pipeline shown Current Map – Golf course clubhouse, maintenance shop and pumphouse only structures or facilities shown Other – Two areas near Harpswell Cove have been used for survival skills and possible obstacle course training (Brubaker interview and statement by Tony Williams, NAS Brunswick Facility Planner). Peeling paint that could potentially contain lead was observed at the golf course pumphouse (constructed 1955). Also, the delineation of this area was adjusted to exclude two areas to the east (now in Area B-6) of undetermined ground disturbance pictured on numerous aerial photographs. According to a September 2002 Preliminary Close-Out Report, IR Sites 15 and 16 were closed out with No Further Action in a Consensus Statement at the Site Investigation Phase based on no CERCLA actionable contamination or risk to human health and the environment. Non-hazardous debris was removed from the sites. Because of observations during the VSI (debris at both sites and possible leachate at Site 15), USEPA and Maine DEP believe the previous decisions and documentation for these sites should be revisited to determine if they are still appropriate since the property will no longer be owned by the government and the use could change. The abandoned underground pipeline that transferred fuel 10 miles from the Casco Bay Terminal to the Old Fuel Farm in Area B-1 enters the base in Area A-4 and also traverses Areas B-6, B-5 and B-1. It consists of two pipes (6-inch and 8-inch diameter) that transported JP-5 fuel from the 1950s until it was abandoned in 1991. According to a November 1997 environmental baseline survey prepared for the fuel terminal and pipelines, the pipelines were cleaned and capped prior to abandonment. Because the only documented release from the pipelines occurred near the Casco Bay end of the pipelines, it has been classified Category 1; however, the exterior coating of the pipelines likely contains asbestos, thus a deed notification will be needed to prevent disturbance of the asbestos by future property owners. **Category 1** – Entire area, excluding the three carve-outs described above, based on no known release or disposal of hazardous substances or petroleum products. **Category 3** – IR Site 15 and adjacent roadside ditch and IR Site 16 based on consultation with	

Table 3
Property Classification Table
Naval Air Station Brunswick, Maine

Description	Area	Basis and Source of Evidence	Category
		EPA and Maine DEP; golf course maintenance shop due to potential for undocumented releases from historical operations that might have occurred prior to establishment of environmental recordkeeping practices; and, golf course pumphouse due to potential peeling lead-based paint.	
A-5 Former Residential Area	Approx. 40 acres	1946/53 Map – Two clusters of abandoned houses 1952 Map – No change Circa-1956 map – No detail 1962 Map – Area not covered 1983/89 Map – No structures or facilities shown Current Map – No structures or facilities shown Other – Area B-8 surrounds Area A-5 on all sides. The western delineation of this area was set to provide a buffer zone for potential migration of contamination from offsite sources such as leaking USTs on adjoining private property, and the northern delineation was set to exclude Navy property where trash, debris and soil disturbance of unknown origin were observed. The area has remained undeveloped during the period of government ownership. **Category 1** – Entire area based on previous residential use in 1940s, no use or development since the government acquired the property, and no known release or disposal of hazardous substances or petroleum products.	1
B-1 Fuel Farm Area	Approx. 129 acres	1946/53 Map – Old fuel farm; paint locker; east end of E-W runway; railroad line 1952 Map – No significant change; foam generator shack Circa-1956 map - No significant change; electrical substation 1962 Map – Limited coverage; fuel farm still present	2 & 3

Table 3
Property Classification Table
Naval Air Station Brunswick, Maine

Description	Area	Basis and Source of Evidence	Category
		1983/89 Map – New fuel farm (actually constructed in early 1990s), Jet Fuel Supply Installation (JFSI), to north of old fuel farm; E-W runway abandoned; underground fuel pipeline shown Current Map - No significant change; truck wash; SeaBee compound Other - IR Sites 7, 8 (closed), 17, and 19 (IAS and ECP Reports) are in B-1; the Former Defense Property Disposal Office (DPDO) operation (IAS Report) was in this area; a concrete plant and auto salvage yard are north of IR Site 8 on private property. Given their proximity to the Androscoggin River, groundwater flow at those businesses is expected to be toward the river and away from Area B-1. In March 1993, 63,000-gallons of JP-5 fuel were released from a valve in the JFSI pumphouse. The fuel entered the storm sewer system via a nearby storm drain inlet and flowed off-base to the north where it was contained in a partially frozen marsh near the Androscoggin River. The fuel spill was cleaned up in consultation with Maine DEP. Approximately 48,000 gallons were recovered and controlled burns were used to eliminate most of the remaining fuel. Approximately 100 cubic yards of contaminated soil was excavated near the pumphouse. (T. Brubaker/L. Joy) **Category 2** – IR Sites and JFSI spill area due to known releases and/or disposal **Category 3** – Remainder of area due to proximity to IR Sites and potential for undocumented releases from historical operations associated with the DPDO, fuel farm and runway/apron operations that might have occurred prior to establishment of environmental recordkeeping practices.	
B-2 Housing and Front Gate Area	Approx. 148 acres	1946/53 Map – Quarters A, B and D; sewer force main to river; sewage pump house; skeet range storage; railroad line splits – additional line heads south but doesn't go far 1952 Map - No significant change Circa-1956 map – Brunswick Gardens and additional officers' quarters added 1962 Map – No significant change	2 & 3

Table 3
Property Classification Table
Naval Air Station Brunswick, Maine

Description	Area	Basis and Source of Evidence	Category
		1983/89 Map – Mobile home park (onsite), Midway Terrace housing (onsite) and Cooks Corner Shopping Center (offsite) are shown for first time Current Map – Newer housing constructed in former Brunswick Gardens area EDR Report indicates there are residential and commercial leaking USTs on north and east offsite properties. Other - The September 2003 Main Base Housing EBST describes a number of significant repairs, leaks or discharges from former USTs in the Brunswick Gardens housing area, including recovery of 362 gallons of oil via recovery wells, and contaminated soil removals of 69 tons, 180 cubic yards (cy), 500 cy, 1,000 cy and another 1,000 cy. These releases were cleaned up in consultation with Maine DEP. **Category 2** – Original Brunswick Gardens housing area footprint due to known petroleum UST leaks and spills. **Category 3** – Remainder of area due to proximity to original Brunswick Gardens, Area B-1 IR sites, and offsite residential and commercial leaking USTs.	
B-3 Airfield Apron Area	Approx. 161 acres	1946/53 Map – Hangars 1, 2 and 3; Control Tower; Crash Truck Garage; Fusing and Arming Bldg; Ready Magazine; small arms magazines; pyrotechnics magazine; SW end of former Brunswick Airport runway 1952 Map - No significant change Circa-1956 map – Multiple line shacks and storage huts around hangars; Hangar 250; AIMD Battery Shop 1962 Map – Hangar 4/250; Fire Station in place of Crash Truck Garage 1983/89 Map – Sonobuoy/Vehicle Storage; magazines gone Current Map – Hangar 6; Hazardous Waste Transfer Facility; Ground Support Equipment	3

Table 3
Property Classification Table
Naval Air Station Brunswick, Maine

Description	Area	Basis and Source of Evidence	Category
		Maintenance Shop; T-56 Engine Test Facility; Recycling Bldg. Other – Aircraft deicing prior to construction of de-icing rinse rack in 2000s; truck to airplane fuel transfers; floor drains in industrial buildings, and possible point of generation hazardous waste disposal prior to mid-1970s and early 1980s (the advent of environmental regulations and the NAS Brunswick Environmental Department). Also, NAS Brunswick was demobilized in the fall of 1946 and not reactivated until March 1951, thus, there is little documentation available about the storage, use and disposal of hazardous substances and petroleum products during that period. Proximity to numerous IR sites and industrial activities in Areas B-1, B-4 and B-5, though groundwater at these sites generally flows away from Area B-3 (L. Joy). **Category 3** – Entire area due to potential for undocumented releases from historical operations associated with airfield operations and aircraft maintenance that might have occurred prior to establishment of environmental recordkeeping practices.	
B-4 Industrial Area	Approx. 22 acres	1946/53 Map - Public works shops; Ready Magazine; Ammo Belting Shack; Paint Locker; maintenance training buildings; Heat Plant; Coal Pile; Paint and Oil Storage; railroad line; 10,000-gallon used oil tank; Laundry; Garage and Fire Station; former Torpedo Storehouse 1952 Map - No significant change Circa-1956 map – Armory; Heavy Equipment Garage; Electronics and Ordnance Shop; Public Works Garage; Emergency Generator; Public Works Storehouses; temporary storehouse; temporary Paint Storehouse 1962 Map – Fewer buildings in this area; Armory and EOD Spaces; SeaBees and Ground Support Equipment Building; Public Works Storage 1983/89 Map – Fewer buildings than 1962 Current Map – Public Works shops gone; Pyrotechnics Storage; Supply Warehouse; Indoor Firing Range Other – NAS Brunswick was demobilized in the fall of 1946 and not reactivated until March 1951, thus, there is little documentation available about the storage, use and disposal of hazardous	3

Description	Area	Basis and Source of Evidence	Category
		substances and petroleum products during that period. Also, proximity to numerous IR sites in Areas B-1, B-5 and B-9, though groundwater at sites in Areas B-1 and B-5 generally flows away from Area B-4 (L. Joy). **Category 3** – Entire area due to potential for undocumented releases from historical operations associated with support operations of an industrial nature that might have occurred prior to establishment of environmental recordkeeping practices.	
B-5 Administrative, Commercial and Residential Area	Approx. 276 acres	1946/53 Map – Air Force transmitter, receiver, communications compound and unlabeled buildings (11, 13, 14A and 16); sewer force main; armory, auto hobby shop; incinerator building; fuel pipeline; skeet range; machine gun range; Dump Area No. 1; inert storehouse 1952 Map – No significant change Circa-1956 map - Fewer buildings; Navy Exchange service station (temporary building); hobby shop; Air Force storehouse; pistol range in place of machine gun boresite range; skeet range facing east instead of north; magazine at pistol range 1962 Map – hobby shop (new location); unlabeled buildings (21, 24, 25) later shown as child care and fitness buildings; former Air Force buildings now shown as Navy buildings (main building is ASWOC; little details on others on a January 1966 Buildings and Structures list); medical/dental clinic; EOD Building; permanent NEX service station; railroad line along Neptune Drive 1983/89 Map – Similar to 1962, but some unlabeled buildings and no Facilities List available; railroad line passes through on way to current Weapons Buildup Facility area in Area B-6; underground fuel pipeline shown; Public Works shops Current Map – Auto Hobby Shop (new location); CHRIMP facility; inert weapons storage; Police/Security Station; NEX Gas Station; barracks; Chapel; childcare/fitness facility; Public Works shops; Medical/Dental Clinic; ASWOC; Simulator Other - IR Sites 4, 6 (closed), 9, 11, 13, 20 and Eastern Plume; stormwater retention ponds that receive discharge from oil water separators and storm water drainage; DRMO facilities once located in the current Public Works area; machine gun boresite range and skeet range being	2 & 3

Description	Area	Basis and Source of Evidence	Category
		investigated under Military Munitions Response Program (MMRP). The underground pipeline that transferred fuel 10 miles from the Casco Bay Terminal to the Old Fuel Farm in Area B-1 traverses this area. It consists of two pipes (6-inch and 8-inch diameter) that transported JP-5 fuel from the 1950s until it was abandoned in 1991. According to a November 1997 environmental baseline survey prepared for the fuel terminal and pipelines, the pipelines were cleaned and capped prior to abandonment. The only documented release from the pipelines occurred near the Casco Bay end of the pipelines. The exterior coating of the pipelines likely contains asbestos, thus a deed notification will be needed to prevent disturbance of the asbestos by future property owners. **Category 2** – IR Sites due to known releases and/or disposal **Category 3** – The former Machine Gun Boresite Range and former Skeet Range are currently being investigated under the MMRP; the remainder of the area is also Category 3 because even though there are a number of buildings (e.g., Chapel, Administration Building, Galley, barracks) that are not associated with hazardous substance or petroleum use, they could potentially be impacted by contaminant migration from the IR sites in this area and the industrial activities in Areas B-1, B-3 and B-4.	
B-6 Weapons and Magazine Area	Approx. 551 acres	1946/53 Map – Little coverage (area acquired by Navy in 1950s) 1952 Map – Little coverage (area acquired by Navy in 1950s) Circa-1956 map – New magazine area; Public Works storehouses 1962 Map – No coverage 1983/89 Map – Weapons Compound; high explosives and ammo storage magazines; railroad line to Weapons Buildup Facility area in Area B-6; underground fuel pipeline shown Current Map – New TACAN (Tactical Air Navigation); additional (National Guard) magazines; Weapons Buildup Facility and Loading Platform; Dyer's Gate Other – Area delineation includes an end of runway buffer zone to allow for potential impacts associated with historic airfield operations including aircraft exhaust fallout; underground fuel	2 & 3

Description	Area	Basis and Source of Evidence	Category
		pipeline; stormwater retention pond that receives runway runoff; IR Sites 1, 2, 3, 5 12 and Eastern Plume. The underground pipeline that transferred fuel 10 miles from the Casco Bay Terminal to the Old Fuel Farm in Area B-1 traverses this area. It consists of two pipes (6-inch and 8-inch diameter) that transported JP-5 fuel from the 1950s until it was abandoned in 1991. According to a November 1997 environmental baseline survey prepared for the fuel terminal and pipelines, the pipelines were cleaned and capped prior to abandonment. The only documented release from the pipelines occurred near the Casco Bay end of the pipelines. The exterior coating of the pipelines likely contains asbestos, thus a deed notification will be needed to prevent disturbance of the asbestos by future property owners. The delineation of this area was extended to the east to include two unidentified ground disturbances noted in historic aerial photographs on the east side of the weapons compound perimeter road and chain link fence near IR Site 12 (Appendix C-1, Figure A3-1978). **Category 2** – IR Sites due to known releases and/or disposal **Category 3** – Remainder of area because of potential releases associated with magazines and weapons facilities that have not yet been through a close-out inspection conducted by the Naval Ordnance Safety and Security Activity (NOSSA) Explosives Safety Support Office. Until the mission at NAS Brunswick and use of the magazines and weapons facilities cease, the Navy cannot perform the closeout inspections.	
B-7 Former Munitions Bunker West Area	Approx. 389 acres	1946/53 Map – Public Works storehouses; Fuse and Detonator magazines; High Explosives magazines; Incendiary Magazine 1952 Map - No significant change Circa-1956 map – Quarry; two magazines not shown; communications transmitter and generator building; A.D.F. (Automatic Direction Finder) Homer; TACAN transmitter building (south of Taxiway No. 4) 1962 Map – No significant change 1983/89 Map – Red Label area (ordnance handling pad for arming planes); six antennae;	3

Description	Area	Basis and Source of Evidence	Category
		RATCF (Radar Air Traffic Control Facility) antenna and building; receiver building and generator; generator building; ammo storage facility (only magazine shown) Current Map – Similar to 1983/89; two magazines shown; Old TACAN Transmitter Building (230); water line Other – Closed IR Site 18; area delineation includes an end of runway buffer zone to allow for potential impacts associated with historic airfield operations including aircraft exhaust fallout; two generator buildings (227 and 518) had USTs installed in the 1960s that were removed in 1990. Pad mounted PCB transformers were removed from the TACAN and receiver facilities (230 and 517) in the past. NAS Brunswick Removed UST/AST/Transformers databases do not indicate that releases occurred. [Note: Individual USTs and/or PCB transformers are discussed for Areas B-7, B-8 and B-9 because they are potential environmental issues associated with the small number of past or present structures in these areas. Individual tanks and transformers were not discussed in the more developed commercial/industrial portion of the NAS (e.g., Areas B-1, B-3, B-4 and B-5) where there are a greater number of potential environmental concerns related to IR sites and historical operations.] The area was used sporadically in the 1980s to 2000 for munitions-related security training. Blank small arms ammunition, practice grenades and limited pyrotechnics (simulators and smoke devices) were used during training. This is being investigated under the MMRP. (Final Preliminary Assessment, 2006) Anecdotal report of possible disposal activity in quarry to be investigated. (L. Joy/D. Mosher) Also, NAS Brunswick was demobilized in the fall of 1946 and not reactivated until March 1951, thus, there is little documentation available about the storage, use and disposal of hazardous substances and petroleum products during that period. Mushrooms were reportedly grown in the magazines in this area. It is not known how else the magazines might have been used. **Category 3** – Entire area due to unknown use of World War II era magazines; possible disposal activity in quarry; potential lead-based paint issues associated with antennae; and former use for munitions related training.	

Table 3
Property Classification Table
Naval Air Station Brunswick, Maine

Description	Area	Basis and Source of Evidence	Category
B-8 Former Farmhouses and TACAN Area	Approx. 197 acres	1946/53 Map – "Freddie" storage; direction finder; line shack; several former farmhouses 1952 Map – No significant change other than Lighter-Than-Air mooring circle shown and Freddie storage/line shack/direction finder marked off facility ID list Circa-1956 map – No details (nothing shown) 1962 Map – No coverage 1983/89 Map – VORTAC (Very High Frequency Omni-directional Range Station; aka TACAN north of E-W runway) Current Map – VORTAC; K-9 Training Area Other – Area delineation includes an end of runway buffer zone to allow for potential impacts associated with historic airfield operations including aircraft exhaust fallout; end of former Brunswick Airport runway; the UST for the VORTAC was installed in 1984 and removed in 1992 when it was replaced with an AST; NAS Brunswick Removed UST database does not indicate that a release occurred; paint chips and dark soil were observed at former VORTAC facility during VSI; adjusted delineation of area due to trash/debris piles (consistent with old homestead debris) and disturbed ground that were observed north of A-5, and the EDR Report indicates potential for leaking USTs and ASTs on west and north off-base adjoining properties (thus the on-base areas west and north of A-5 were left in B-8 to serve as buffers from potential contamination). [Note: Individual USTs and/or PCB transformers are discussed for Areas B-7, B-8 and B-9 because they are potential environmental issues associated with the small number of past or present structures in these areas. Individual tanks and transformers were not discussed in the more developed commercial/industrial portion of the NAS (e.g., Areas B-1, B-3, B-4 and B-5) where there are a greater number of potential environmental concerns related to IR sites and historical operations.] **Category 3** – Entire area due to debris pile, disturbed ground, paint chips and dark soil at former TACAN and the potential for migration of contamination from off-base sources.	3

Table 3
Property Classification Table
Naval Air Station Brunswick, Maine

Description	Area	Basis and Source of Evidence	Category
B-9 Runways Area	Approx. 290 acres	1946/53 Map – Ready magazine; heavy equipment repair shop; Dump Area No. 3; high explosives magazine; dummy deck and catapult; transformer vault 1952 Map – No significant change, but new runway overlay shifted slightly east so transformer vault/magazine and part of heavy equipment repair shop now in B-7 Circa-1956 map – GCA (Ground Controlled Approach) hardstand; communications transmitter 1962 Map – No coverage 1983/89 Map – No details Current Map – New Control Tower Other – Closed IR Site 14; potential oil/lubricant releases associated with arresting gear; GCA hardstand had a UST installed in 1966 that was removed in 1990; NAS Brunswick Removed UST database does not indicate that a release occurred; proximity to numerous IR sites in adjoining areas, though contaminant migration would be most likely from Area B-7 based on groundwater flow direction at IR Sites (L. Joy). [Note: Individual USTs and/or PCB transformers are discussed for Areas B-7, B-8 and B-9 because they are potential environmental issues associated with the small number of past or present structures in these areas. Individual tanks and transformers were not discussed in the more developed commercial/industrial portion of the NAS (e.g., Areas B-1, B-3, B-4 and B-5) where there are a greater number of potential environmental concerns related to IR sites and historical operations.] **Category 3** – Entire area due to potential for undocumented releases from historical airfield operations that might have occurred prior to establishment of environmental recordkeeping practices.	3
REMOTE PROPERTIES			
B-10 Topsham Annex Non-Housing Area	Approx. 25 acres	1971 Map – Support operations and buildings for housing area, included; auto hobby shop, commissary, fire station, water tower, maintenance buildings.	2 & 3

Description	Area	Basis and Source of Evidence	Category
		1977 Aerial – B-10 New adjacent property growth as concrete plant and school appear along southern boundary. 1989 Aerial – B-10 central steam plant removed. Housing in B-11 remains similar to 1977. Current Map – Buildings 369, 371, and 372 (steam plant facility) that were located east of subject property have been demolished. Other – The 1996 EBS stated there were two leaking underground storage tanks located south and upgradient of the property at Mount Arat High School and Tri-Sports Honda on the EDR report. The EBS also indicated there were stormwater runoff releases of cloudy water from the adjacent concrete plant into a culvert that flows beneath the access road to the subject property (J. Canam Drive). In 2002, approximately 73 tons of PCB contaminated soil and 2 tons of concrete were excavated from the east side of the Commissary Building 335. The Final Remedial Action Report Dated March 20, 2003 indicates Maine Department of Environmental Protection was satisfied with the 62 confirmation sampling results and site restoration was completed (Foster Wheeler Environmental Corporation, 2003). **Category 2** – Majority of area based on known contamination and continuing investigation of Buildings 337 (Vehicle Service Center with former lift pit and USTs), 338 (Vehicle Storage with former AST), and 369 (Steam Plant). **Category 3** – Area southwest of Building 335 including Building 332 due to potential for contaminant migration from adjacent properties including the concrete plant and possible leaking underground storage tanks.	
B-11 Topsham Annex Housing Area	Approx. 49 acres	1960 Aerial – Grading and scarring of the land has taken place, no houses are present. Mostly surrounded by woods on southern and eastern boundaries, farming operations on the northern boundary and other businesses or dwellings along the western boundary. 1971 Map – 177 Housing units present 1989 Aerial –Unknown disturbance north of B-10 area in former NASB area. Current Map – 177 Housing units present	2 & 3

Table 3
Property Classification Table
Naval Air Station Brunswick, Maine

Description	Area	Basis and Source of Evidence	Category
		Other – Lead based paint and homes heated with heating oil are issues due to construction dates (early 1960s). Currently, housing is heated with natural gas. **Category 2** – Known petroleum spills and ongoing investigations are taking place in two locations surrounding Building 1099 and 1114. **Category 3** – Remainder of area due to potential for contaminant migration from known and potential source areas such as Buildings 1099, 1114, underground storage tanks abandoned-in-place, the former skeet range which is partly on the subject property but mostly on the adjacent property.	
B-12 McKeen Street Housing	Approx. 70 acres	1962 Map – 231 Housing units present. 1973 Aerial – B-12 surrounded by woods to the north and south, ground scaring area located to the west, few houses located to the east. 1989 Aerial – Construction of new housing being completed west of McKeen Street Housing parcel. St. Charles Church present. Current Map – 231 Housing units present. Other – Lead based paint and homes formerly heated with heating oil paint are issues due to construction dates (1960). Currently, housing is heated with natural gas. According to the EBS, in 1993, 801 gallons of unspecified material leaked from an underground storage tank at 144 Columbia and at 6 Krampf a leaking supply line was discovered and soil was removed to DEP satisfaction in July 1994. **Category 2** – Known petroleum spills in two locations surrounding 144 Columbia and 6 Krampf. **Category 3** – Remainder of area due to potential for contaminant migration from known and potential source areas such as 144 Columbia and 6 Krampf.	2 & 3

Table 3
Property Classification Table
Naval Air Station Brunswick, Maine

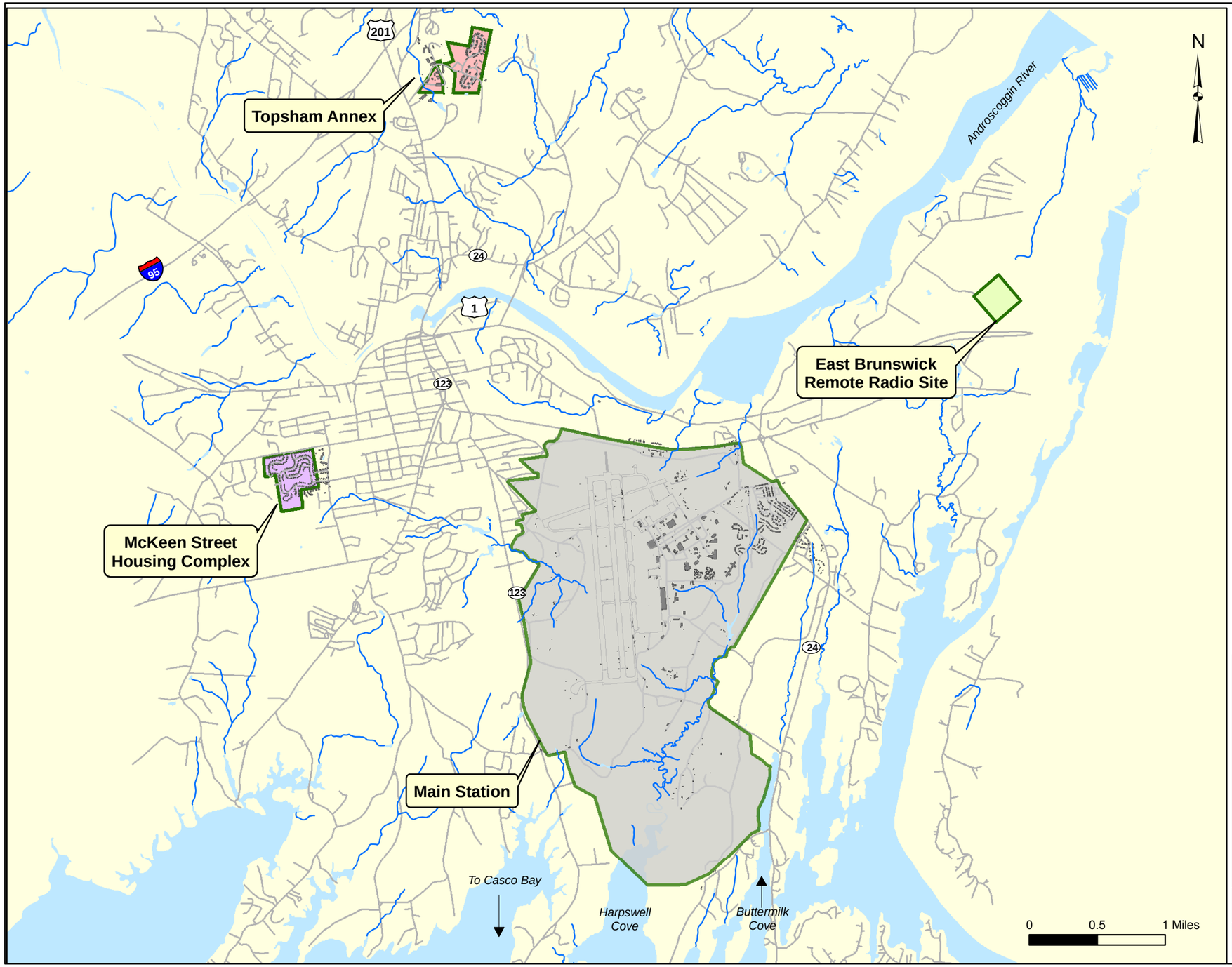
Description	Area	Basis and Source of Evidence	Category
B-13 East Brunswick Remote Radio Transmitter Site Buildings 523, 524, and Open Burn Area	Approx. 10 acres	1960 Aerial – B-13 buildings are present as well as antennae in A-6. Ground scarring present throughout area. Roadways or paths leading to and on the property from various locations. 1962 Map – Buildings 523 (Transmitter Building and 524 (Generator Building) were present 1975 Aerial – Excessive ground scarring in B-13 and A-6 seems to have dissipated. Current Map – All buildings have been removed from the site. Other – A burn area was identified in the EBS along the road leading to Building 523. The burn area appears to have been used for burning trash and debris (possibly by trespassers). The burn area contains several utility poles and wire. EBS identified stained soil with mild oily odor and a discarded battery along the former fence surrounding the Buildings 523 and 524 area. Also, the EBS identified a septic system west of Building 523. The former antenna towers have the potential due to their age to have had lead-based paint. During the VSI other waste such as wire cable, wood and plastic debris were found in the area. **Category 3** – Entire building and burn area based on potential contamination due to burn area, former sewer system, stained soil, possible lead-based paint on antenna towers, and discarded battery and other waste such as wire cable, wood and plastic debris.	3
A-6 Open Area at East Brunswick Remote Radio Transmitter Site	Approx. 56 acres	1960 Aerial – B-13 buildings are present as well as antennae in A-6. Ground scarring present throughout area. Sand and gravel mining operations appear to start take place in the northeastern adjacent property. Unknown structures located in the southeastern corner of the property or adjacent property. Roadways or paths leading to and on the property from various locations. 1962 Map –Buildings 526 through 536, 546, and 547 (all antenna towers) were present 1975 Aerial – Excessive ground scarring in B-13 and A-6 seems to have dissipated. Sand and gravel mining operations are in full operation in the northeastern and eastern adjacent property. Trees surround western property border. Current Map – All buildings/towers have been removed from the site.	3

Table 3
Property Classification Table
Naval Air Station Brunswick, Maine

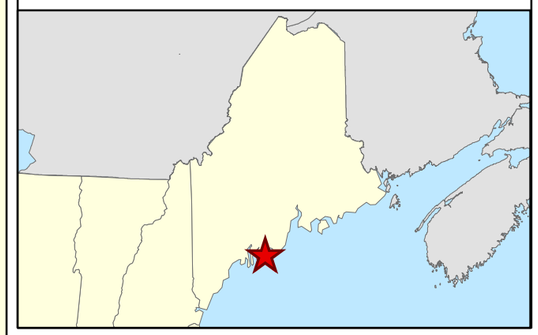
Description	Area	Basis and Source of Evidence	Category
		Other – Groundwater flow direction undetermined; debris piles and dumping found on southwest adjacent property during VSI and EBS including scrap metal, rusted drums, tires, domestic waste and construction debris. The former antenna towers have the potential due to their age to have had lead-based paint. **Category 3** – Remainder of East Brunswick Radio Site due to potential for contaminant migration from known and potential source areas including Area B-13, possible lead-based paint on antenna towers, and adjacent property dumping areas with scrap metal, rusted drums, tires, domestic waste and construction debris.	
B-14 Sabino Hill Rake Station No. 1 (Building 558)	Approx. 0.23 acres	1962 Map – Metal Rake Tower Building 558 present 1975 Aerial – B-14 surrounded mostly by wooded areas. 1997 Aerial – B-14 surrounded mostly by wooded areas, and a few residential houses. Current Map – Metal Rake Tower Building 558 present Other – During the VSI, paint was observed peeling from the tower used to observe offshore training exercises. Paint chips were observed on the ground. In May 2006, soil and paint samples were collected for lead and PCB (a potential paint ingredient) analyses. Detected lead concentrations were 60,000 parts per million (ppm) in paint, 500 ppm in a single soil sample from near the tower and 50 ppm in background soil. Detected PCB concentrations in site soil and paint were less than 1 ppm and non-detect in background soil. PCB-containing paints typically contain 5 percent or more PCBs, thus higher concentrations in paint and soil would be expected if the tower paint contains PCBs. Based on the limited number of samples and the uncertainty associated with the PCB test results, the sampling results are considered inconclusive. **Category 3** – Entire area based on peeling lead-based paint and inconclusive sampling results.	3
B-15 Small Point Rake Station No. 2 (Building 557)	Approx. 0.23 acres	1962 Map –Tower Building 557 present of unknown material also states barracks nearby. 1975 Aerial – B-15 the rake station is visible in the similar location as the current 2006 rake station and there is no residential development in the area.	3

Table 3
Property Classification Table
Naval Air Station Brunswick, Maine

Description	Area	Basis and Source of Evidence	Category
		1988 Aerial – B-15 appears with the rake station in similar location as 2006 and no other buildings in the immediate vicinity. Current Map – Concrete Rake Tower Building 557 present. Other – During the VSI, paint chips were observed on the ground near the concrete tower used to observe offshore training exercises. It is uncertain whether there was ever a steel tower on the site, and if so, where it was located. Large concrete block (possible barrack foundation) structures were found north of the current rake station along the easement (possibly not included in B-15 area). In May 2006, a soil sample was collected from near the rake tower for lead and PCB (a potential paint ingredient) analyses. Paint samples were not collected because there are very few painted surfaces on the concrete tower. The detected lead concentration was 260 ppm in soil, and the PCB concentration was well below 1 ppm. PCB-containing paints typically contain 5 percent or more PCBs, thus higher concentrations in paint and soil would be expected if the paint contains PCBs. Based on the limited number of samples (one) and the uncertainty associated with the PCB test result, the sampling results are considered inconclusive. **Category 3** – Entire area based on presence of paint chips and inconclusive sampling results.	



SITE LOCATION MAP



Legend

- NAS Brunswick
- Topsham Annex
- McKeen Street Housing
- East Brunswick Remote Radio Site
- Buildings
- Waterbodies
- Roads
- Streams

Tetra Tech NUS, Inc

SITE LOCATION MAP

NAVAL AIR STATION BRUNSWICK, ME

FILE	SCALE
NAS_BRUNSWICK_Site_Location.mxd	AS NOTED
FIGURE NUMBER: FIGURE 1	REV: 0 / DATE: 10/18/06

K:\GProject\CERFA\Brunswick\NAS_BRUNSWICK_Site_Location.mxd

K:\GProject\CERFA\Brunswick\Rake_2.mxd

SOURCE: Google Earth, 2006

SITE LOCATION

Tetra Tech NUS, Inc

RAKE STATIONS
SITE LOCATION MAP
NAVAL AIR STATION
BRUNSWICK, ME

FILE	Rake_2.mxd	SCALE	1 inch = 0.8 miles
FIGURE NUMBER	FIGURE 2	REV	0
		DATE	10/25/06

K:\GProject\CERFA\Brunswick\NAS_Brunswick_08Mar07.mxd

N

Jet Fuel Storage Installation

Former Brunswick Gardens Housing Area

Inactive Underground Jet Fuel Pipelines

Former Munitions Bunker West Area

Former Skeet Range

Former Machine Gun Boresight Range

Golf Course Maintenance Shop

Golf Course Pumphouse

A-1 A-2 A-3 A-4 A-5

B-1 B-2 B-3 B-4 B-5 B-6 B-7 B-8 B-9

1 & 3 2 4 5 6 7 8 9 11 12 13 14 15 16 17 18 19 20

Eastern Plume

Mere Brook

0 0.25 0.5 1 Miles

Legend

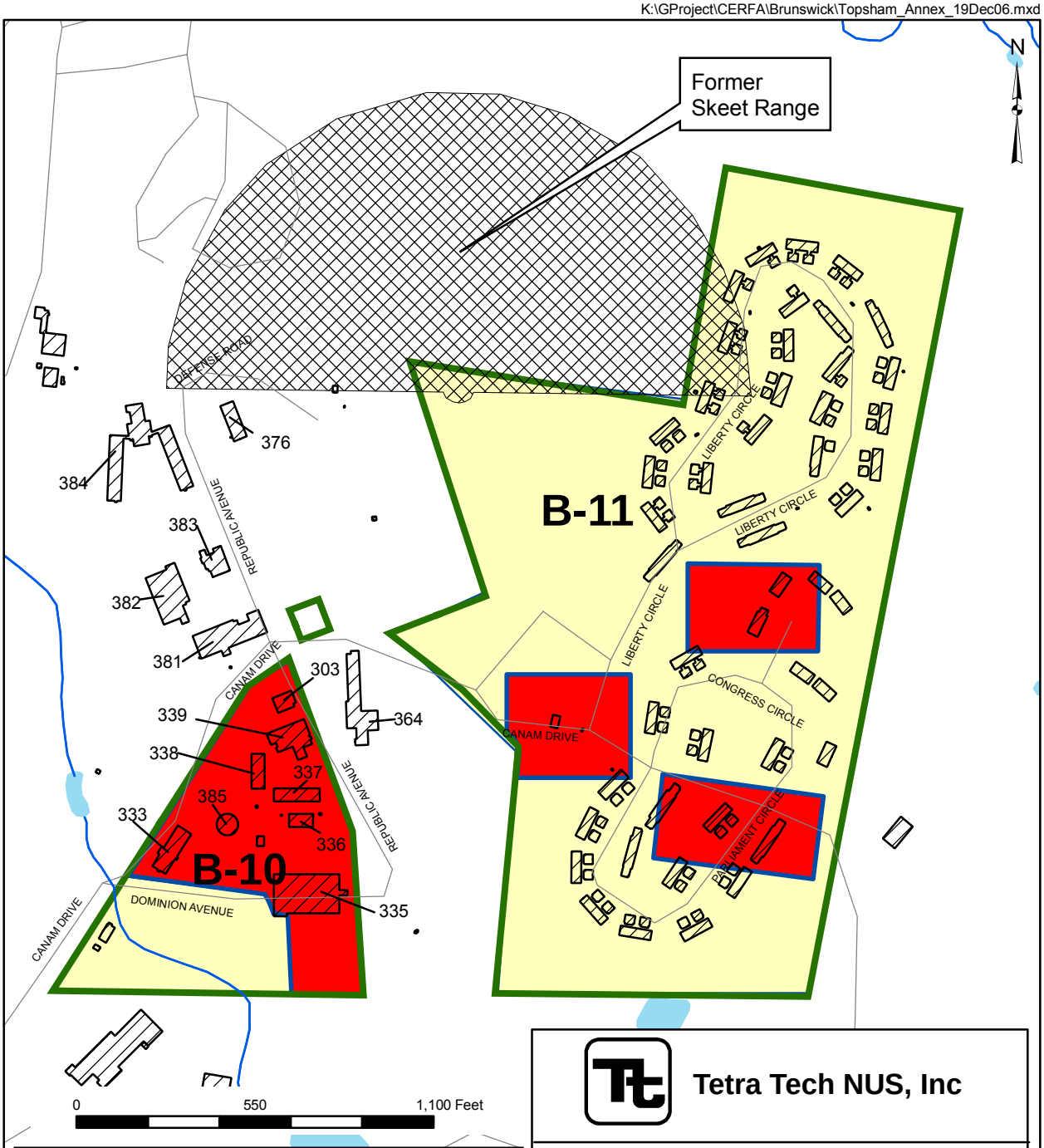
- Category 1/White-Areas of no known release and/or disposal
- Category 2/Red-Areas of known release and/or disposal
- Category 3/Yellow-Areas of potential release and/or disposal
- NAS Brunswick Boundary
- Buildings
- Water
- Roads
- Fuel Line
- 13 IR Sites
- B-1 Areas Identified on Tables 2 and 3

Tetra Tech NUS, Inc

CERFA IDENTIFICATION OF UNCONTAMINATED PROPERTY MAIN BASE NAVAL AIR STATION BRUNSWICK, ME

FILE	SCALE
NAS_Brunswick_08Mar07.mxd	AS NOTED
FIGURE NUMBER: FIGURE 3	REV: 2 — DATE: 03/08/07

K:\GProject\CERFA\Brunswick\Topsham_Annex_19Dec06.mxd



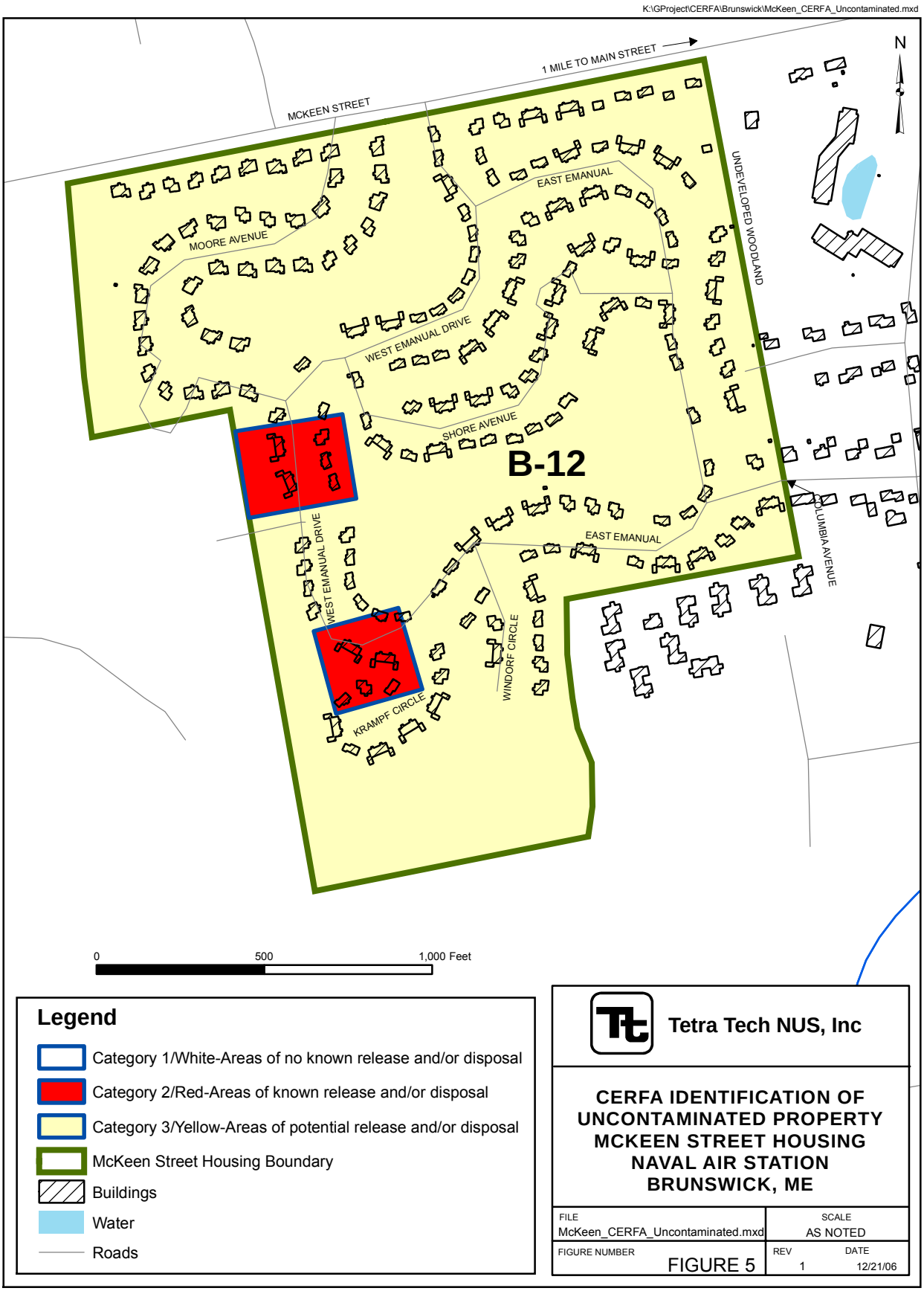
Legend

- Category 1/White-Areas of no known release and/or disposal
- Category 2/Red-Areas of known release and/or disposal
- Category 3/Yellow-Areas of potential release and/or disposal
- Topsham Annex Boundary
- Buildings
- Water
- Roads

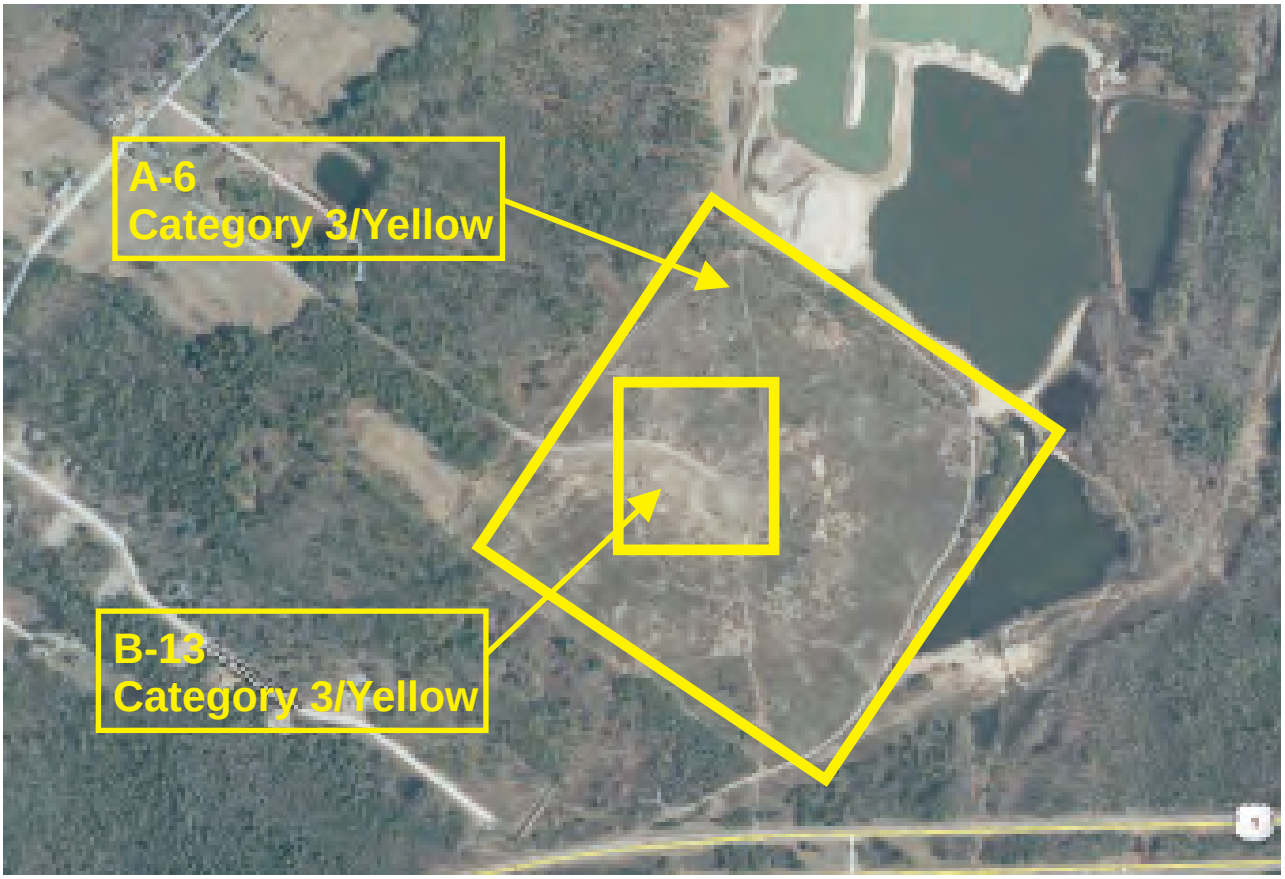
Tetra Tech NUS, Inc

CERFA IDENTIFICATION OF UNCONTAMINATED PROPERTY TOPSHAM ANNEX NAVAL AIR STATION BRUNSWICK, ME

FILE	SCALE
Topsham_Annex_19Dec06.mxd	AS NOTED
FIGURE NUMBER	**REV** / **DATE**
FIGURE 4	1 / 12/21/06


K:\GProject\CERFA\Brunswick\McKeen_CERFA_Uncontaminated.mxd
1 MILE TO MAIN STREET
MCKEEN STREET
N
MOORE AVENUE
EAST EMANUAL
UNDEVELOPED WOODLAND
WEST EMANUAL DRIVE
SHORE AVENUE
B-12
WEST EMANUAL DRIVE
EAST EMANUAL
COLUMBIA AVENUE
WINDORF CIRCLE
KRAMPF CIRCLE
0
500
1,000 Feet
Legend
Category 1/White-Areas of no known release and/or disposal
Category 2/Red-Areas of known release and/or disposal
Category 3/Yellow-Areas of potential release and/or disposal
McKeen Street Housing Boundary
Buildings
Water
Roads
Tetra Tech NUS, Inc
CERFA IDENTIFICATION OF UNCONTAMINATED PROPERTY
MCKEEN STREET HOUSING
NAVAL AIR STATION
BRUNSWICK, ME
FILE
McKeen_CERFA_Uncontaminated.mxd
SCALE
AS NOTED
FIGURE NUMBER
FIGURE 5
REV
1
DATE
12/21/06

K:\Graphics\CERFA\Brunswick\East Brunswick Radio Site Map ver 2.cdr



SOURCE: Google Earth, 2006

Boundary location is approximate

LEGEND

- Category 1/White-Areas of no known release and/or disposal
- Category 2/Red-Areas of known release and/or disposal
- Category 3/Yellow-Areas of potential release and/or disposal

Tetra Tech NUS

CERFA IDENTIFICATION OF UNCONTAMINATED PROPERTY EAST BRUNSWICK REMOTE RADIO TRANSMITTER SITE NAVAL AIR STATION BRUNSWICK, ME

FILE	SCALE
East Brunswick Radio Site Map.cdr	1" = 750 FEET
FIGURE NUMBER	REV / DATE
FIGURE 6	1 / 12/21/06

K:\Graphics\CERFA\Brunswick\Sabino Hill Rake Stn.cdr

LEGEND

- Category 1/White-Areas of no known release and/or disposal
- Category 2/Red-Areas of known release and/or disposal
- Category 3/Yellow-Areas of potential release and/or disposal

SOURCE: Google Earth, 2006

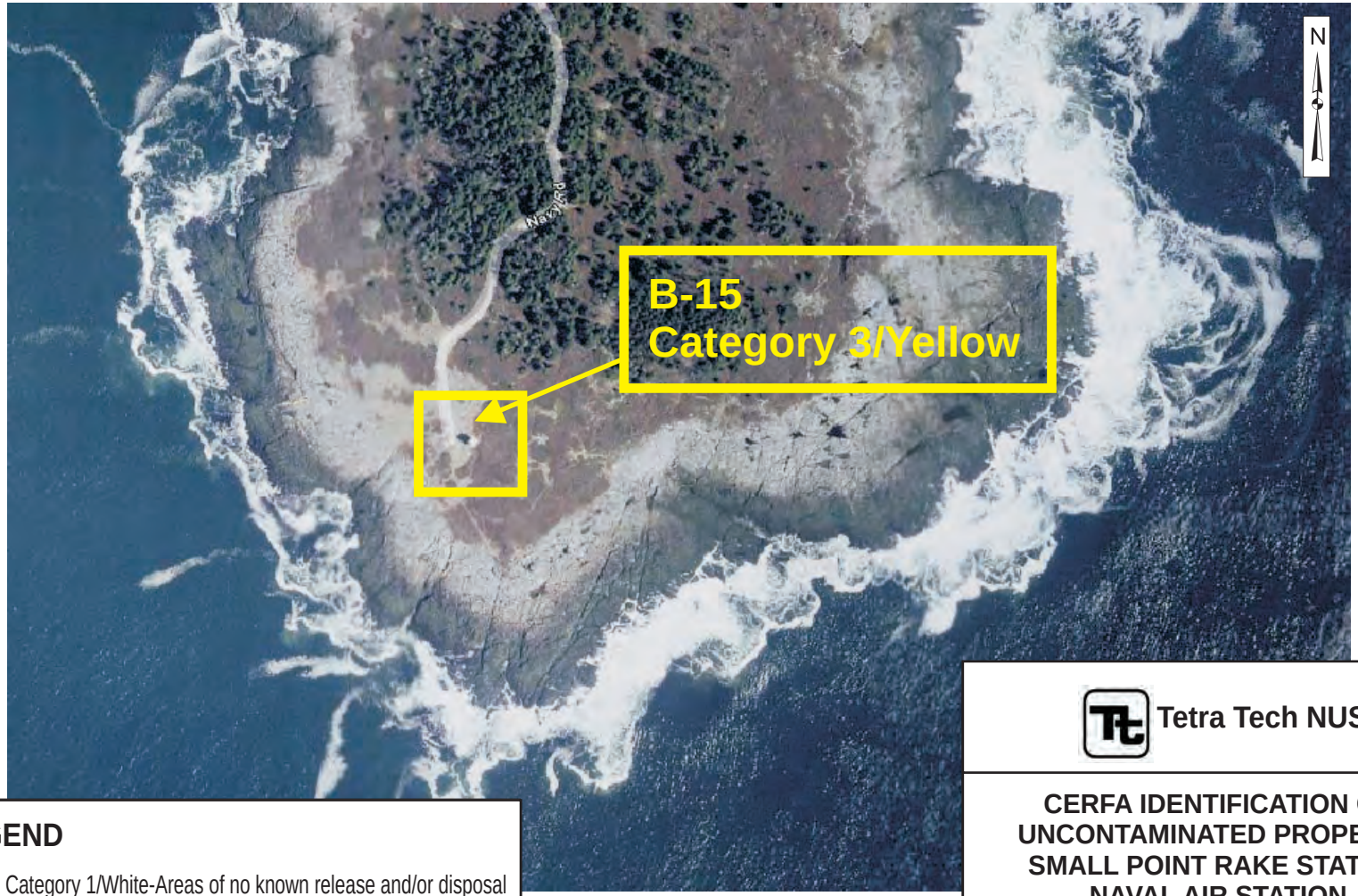
Boundary location is approximate

Tetra Tech NUS

CERFA IDENTIFICATION OF UNCONTAMINATED PROPERTY SABINO HILL RAKE STATION NAVAL AIR STATION BRUNSWICK, ME

FILE	SCALE
Sabino Hill Rake Stn.cdr	1" = 150 FEET
FIGURE NUMBER	REV / DATE
FIGURE 7	1 / 12/21/06

K:\Graphics\CERFA\Brunswick\Small Point Rake Stn.cdr



LEGEND

- Category 1/White-Areas of no known release and/or disposal
- Category 2/Red-Areas of known release and/or disposal
- Category 3/Yellow-Areas of potential release and/or disposal

SOURCE: Google Earth, 2006

Boundary location is approximate

Tetra Tech NUS

CERFA IDENTIFICATION OF UNCONTAMINATED PROPERTY SMALL POINT RAKE STATION NAVAL AIR STATION BRUNSWICK, ME

FILE	SCALE
Small Point Rake Stn.cdr	1" = 150 FEET
FIGURE NUMBER	REV / DATE
FIGURE 8	1 / 12/21/06

REFERENCES

Brubaker, 2006. Interviews and Site Tours given by Tom Brubaker, Assistant Public Works Officer, Naval Air Station (NAS) Brunswick, October 3-6, 2006.

ECC and EA Science and Technology, 2006. 2004 Investigation Report, Topsham Annex, Naval Air Station, Topsham, Maine. Prepared for: Department of the Navy Engineering Field Activity Northeast, Final 61771.04. February.2006.

Environmental Data Resources, Inc., 2006. EDR Radius Map with GeoCheck© East Brunswick Remote Radio Site, Old Bath Road, Brunswick, ME 04011, Inquiry Number 1762088.1s. September 25, 2006.

Environmental Data Resources, Inc., 2006. EDR Radius Map with GeoCheck© McKeen Street Housing Complex, Moore Avenue, Brunswick, ME 04011, Inquiry Number 1761172.1s. September 22, 2006.

Environmental Data Resources, Inc., 2006. EDR Data Map© Area Study, Naval Air Station Brunswick, ME 04011, Inquiry Number 0176127.1r. September 27, 2006.

Environmental Data Resources, Inc., 2006. EDR Radius Map with GeoCheck© Sabino Hill Rake Site, Route 209, Phippsburg, ME 04562, Inquiry Number 17619551.1s. September 25, 2006.

Environmental Data Resources, Inc., 2006. EDR Radius Map with GeoCheck© Small Point Rake Site, Navy Road, Phippsburg, ME 04562, Inquiry Number 1761944.1s. September 25, 2006.

Environmental Data Resources, Inc., 2006. EDR Radius Map with GeoCheck© Topsham Annex Housing, J. Canam Drive, Topsham, ME 04086, Inquiry Number 1762093.1s. September 26, 2006.

Environmental Data Resources, Inc. and United States Geological Survey, 2006. Historic Aerials for all Naval Air Station Brunswick, Maine Main Base and Remote Properties. September, 2006.

Google Earth, 2006. Aerial Photograph (Image 2006 Maine Office of GIS), Naval Air Station Brunswick, ME, 2006. http://earth.google.com

Foster Wheeler Environmental Corporation, 2003. Final Remedial Action Report for PCB Characterization and Removal at Building 335 (DECA Commissary) Transformer Pad, Topsham Annex of Naval Air Station Brunswick, Topsham, Maine. Prepared for Engineering Field Activity, Northeast, Lester, PA. March.

HRP Associates, Inc., 1996. Environmental Baseline Survey, East Brunswick Facility, Naval Air Station Brunswick. HRP #NAV-0083.FE, A/E Contract N72472-95-D-1448. Prepared for: Northern Division, Naval Facilities Engineering Command. Plainville, Connecticut, November 12, 1996.

HRP Associates, Inc., 1996. Environmental Baseline Survey, Topsham Annex, Naval Air Station Brunswick. HRP #NAV-0083.FE, A/E Contract N72472-95-D-1448. Prepared for: Northern Division, Naval Facilities Engineering Command. Plainville, Connecticut, November 14, 1996.

Joy, 2006. Interviews and Site Tours given by Lisa Joy, NAS Brunswick Environmental Department, October 2-6, 2006.

Kempf, 2006. Interviews with Paul Kempf, Water Resources Manager, NAS Brunswick Environmental Department, October 3-5, 2006.

Maine Department of Environmental Protection, 2006. Historic Aerial Photographs, NAS Brunswick, Maine. Brunswick, Maine, October 4-6, 2006.

Malcom Pirnie, 2003. Final Environmental Baseline Survey, Naval Air Station, Brunswick, Maine. A/E Contact No. N62472-97-D-1440, 0474-102. September 2003.

Malcom Pirnie, 2006. Final Letter Report, Liberty Circle Housing Area Topsham Annex. Topsham, Maine, February 2004.

Mosher, 2006. Interviews with Dale Mosher, Acting Department Manager/Hazardous Waste Program Manager, NAS Brunswick Environmental Department, October 3-6, 2006.

Smith, 2006. Interview with Mike Smith, Golf Course Superintendent, NAS Brunswick, October 5, 2006.

Summit Environmental Consultants Inc., 2002. August 22, 2002. Phase II Environmental Site Assessment Topsham Annex Parcel 2,. Topsham, Maine. Lewiston, Maine, August 26, 2002.

Tetra Tech NUS, Inc., 2006. Visual Site Inspection of Subject and Adjacent Properties by Lawson Anderson, Liyang Chu, and Rima Miley, October 2-6, 2006.

U.S. Defense Logistics Agency, 1997. Environmental Baseline Survey, Defense Fuel Support Point – Casco Bay Terminal, Casco Bay-to-Brunswick Naval Air Station Pipeline, South Harpswell, Maine. Ft. Belvoir, Virginia, November 1997.

U.S. Environmental Protection Agency, 1987. (Environmental Photographic Interpretation Center, Environmental Monitoring Systems Laboratory) Site Analysis Brunswick Naval Air Station, Brunswick, Maine, Volumes 1 and 2. Las Vegas, Nevada, April 1987.

U.S. Environmental Protection Agency, 2002. (EPA New England Region 1) Preliminary Closeout Report, Naval Air Station, Brunswick, Maine NPL Site. Boston, Massachusetts, September 2002.

U.S. Navy, 1952. (NAS Brunswick Public Works Department) Map of U.S. Naval Air Station Brunswick, Maine Showing Conditions on June 30, 1952, PWD Drawing #6915-?. Brunswick, Maine, January 1953.

U.S. Navy, 1953. (NAS Brunswick Public Works Department) Map of U.S. Naval Air Station Brunswick, Maine Showing Conditions on June 30, 1946, Revised January 1953, PWD Drawing #6915. Brunswick, Maine, January 1953.

U.S. Navy, circa 1956. (NAS Brunswick Public Works Department) U.S. Naval Air Station Brunswick, Maine, Public Works Department, General Station Map, Enclosure 2. Brunswick, Maine, circa 1956.

U.S. Navy, 1962. (NAS Brunswick Public Works Department) U.S. Naval Air Station Brunswick, Maine, Map of Streets. Brunswick, Maine, 1962.

U.S. Navy, 1983. (Naval Energy and Environmental Support Activity) Initial Assessment Study of Naval Air Station, Brunswick, Maine, NEESA 13-031. Port Hueneme, California, June 1983.

U.S. Navy, 1989. (Department of Navy, Naval Facilities Engineering Command) Naval Air Station Brunswick, Maine, Existing Conditions Map, Approved May 5, 1983, Revised April 23, 1984 and April 2, 1989, PWD Drawing #2157, NAVFAC Drawing #2068166. Brunswick, Maine, April 2, 1989.

U.S. Navy, 1995. (Naval Facilities Engineering Command Northern Division) 1994 Emissions Inventory Summary for NAS Brunswick. Lester, Pennsylvania, April 1999.

U.S. Navy, 1999. (Naval Facilities Engineering Command Northern Division) Draft-Final Cultural Resources Survey, U.S. Naval Air Station Brunswick, Maine. Lester, Pennsylvania, April 1999.

U.S. Navy, 1999. (NAS Brunswick Environmental Department) Environmental Incident Log Book #1, 7/88-11/99, NAS Brunswick, Maine. Brunswick, Maine, November 1999.

U.S. Navy, 2002. (Naval Facilities Engineering Command Northern Division) Underground/Aboveground Storage Tank Closure Report, Brunswick Naval Air Station, Brunswick, Maine. Lester, Pennsylvania, July 19, 2002.

U.S. Navy, 2003. (Naval Facilities Engineering Command Engineering Field Activity Northeast) Administrative Record, NAS Brunswick, Maine. Lester, Pennsylvania, April 2003.

U.S. Navy, 2006. (Department of the Navy Base Realignment and Closure Program Management Office) Final (Revision 2) Environmental Condition of Property Report for the Naval Air Station Brunswick, Maine. San Diego, California, May 30, 2006.

U.S. Navy, 2006. (Naval Facilities Engineering Command Engineering Field Activity, Northeast) Final Preliminary Assessment, Naval Air Station Brunswick, Maine. Lester, Pennsylvania, February 2006.

U.S. Navy, 2006. (Department of the Navy Naval Facilities Engineering Command Engineering Field Activity Northeast) Report On Other Accrued Environmental Liabilities for U.S. Navy Facility Naval Air Station Brunswick, Maine. Lester, Pennsylvania, July 13, 2006.

U.S. Navy, 2006. (NAS Brunswick Environmental Department) Environmental Incident Memoranda, March 6, 2002 through September 20, 2006, NAS Brunswick, Maine. Brunswick, Maine, September 20, 2006.

U.S. Navy, 2006. (NAS Brunswick Environmental Department) Small Point and Sabino Hill Rake Station Lead Based Paint Testing Results from Dale Mosher, October 6, 2006.

U.S. Navy, 2006. (BRAC Program Management Office Northeast) Visual Site Inspection of Subject and Adjacent Properties by Dawn Kincaid, October 2-6, 2006.

U.S. Navy, 2006. (NAS Brunswick Public Works Department) Historic and Current Facilities Lists, NAS Brunswick, Maine. Brunswick, Maine, October 3-6, 2006.

U.S. Navy, 2006. (NAS Brunswick Public Works Department) General Conditions Map, NAS Brunswick, Maine. Brunswick, Maine, October 2006.

U.S. Navy, 2006. (NAS Brunswick Public Works Department) Historic and Current Aerial Photographs, NAS Brunswick, Maine. Brunswick, Maine, October 3-6, 2006.

U.S. Navy, 2006. (NAS Brunswick Environmental Department) Electronic Database Files – Removed Underground Storage Tanks, Removed Aboveground Storage Tanks, Removed Transformers, NAS Brunswick, Maine. Brunswick, Maine, October 5, 2006.

U.S. Navy, 2006. (NAS Brunswick Environmental Department) Electronic Spreadsheet Files – Hazardous Wastes Generated (Current and 1990s), NAS Brunswick, Maine. Brunswick, Maine, October 6, 2006.

APPENDIX A
GOVERNMENT FILE REVIEW DOCUMENTATION

EDR REPORTS

NASB Main Base EDR Report

EDR DataMap®
Area Study

Naval Air Station Brunswick
Brunswick, ME 04011

September 27, 2006

Inquiry number 01761271.1r

EDR® Environmental Data Resources Inc

The Standard in Environmental Risk Management Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR).

TARGET PROPERTY INFORMATION

ADDRESS

BRUNSWICK, ME 04011
BRUNSWICK, ME 04011

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records within the requested search area for the following databases:

FEDERAL RECORDS

Proposed NPL	Proposed National Priority List Sites
Delisted NPL	National Priority List Deletions
NPL RECOVERY	Federal Superfund Liens
CERC-NFRAP	CERCLIS No Further Remedial Action Planned
ERNS	Emergency Response Notification System
HMIRS	Hazardous Materials Information Reporting System
FUDS	Formerly Used Defense Sites
US BROWNFIELDS	A Listing of Brownfields Sites
CONSENT	Superfund (CERCLA) Consent Decrees
UMTRA	Uranium Mill Tailings Sites
ODI	Open Dump Inventory
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
MLTS	Material Licensing Tracking System
MINES	Mines Master Index File

STATE AND LOCAL RECORDS

SHWS	Remediation Sites List
DEL HWS	Sites Removed from the Uncontrolled Sites List
SWF/LF	Solid Waste Facility List
LCP	Municipal Landfill Closure Database
AST	Aboveground Storage Tanks
ME Spills	Hazardous Material and Oil Spill System Database
INST CONTROL	Remediation Sites List
VCP	Remediation Sites List
DRYCLEANERS	Drycleaner Facilities
BROWNFIELDS	Remediation Sites List

EXECUTIVE SUMMARY

AIRS ..... Emissions Inventory Data

TRIBAL RECORDS

INDIAN RESERV ..... Indian Reservations
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land
INDIAN UST ..... Underground Storage Tanks on Indian Land

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

FEDERAL RECORDS

NPL: Also known as Superfund, the National Priority List database is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund program. The source of this database is the U.S. EPA.

A review of the NPL list, as provided by EDR, and dated 07/05/2006 has revealed that there is 1 NPL site within the searched area.

Site	Address	Map ID	Page
US NAVAL AIR STA	***BOUNDERED BY RTES 24***	***0***	***3***

CERCLIS: The Comprehensive Environmental Response, Compensation and Liability Information System contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

A review of the CERCLIS list, as provided by EDR, and dated 06/19/2006 has revealed that there is 1 CERCLIS site within the searched area.

Site	Address	Map ID	Page
US NAVAL AIR STA	***BOUNDERED BY RTES 24***	***0***	***3***

EXECUTIVE SUMMARY

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 03/15/2006 has revealed that there is 1 CORRACTS site within the searched area.

Site	Address	Map ID	Page
US NAVAL AIR STA	***BOUNDERED BY RTES 24***	***0***	***3***

RCRAInfo: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System(RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month Large quantity generators generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-TSDF list, as provided by EDR, and dated 06/13/2006 has revealed that there is 1 RCRA-TSDF site within the searched area.

Site	Address	Map ID	Page
US NAVAL AIR STA	***BOUNDERED BY RTES 24***	***0***	***3***

RCRAInfo: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System(RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month Large quantity generators generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-LQG list, as provided by EDR, and dated 06/13/2006 has revealed that there is 1 RCRA-LQG site within the searched area.

Site	Address	Map ID	Page
US NAVAL AIR STA	***BOUNDERED BY RTES 24***	***0***	***3***

EXECUTIVE SUMMARY

RCRAInfo: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System(RCRIS). The database includes selective information on sites which generate, transport, store , treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month Large quantity generators generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

A review of the RCRA-SQG list, as provided by EDR, and dated 06/13/2006 has revealed that there are 3 RCRA-SQG sites within the searched area.

Site	Address	Map ID	Page
CUMBERLAND FARMS #1818	190 BATH ROAD	5	91
SEARS #2203/6813/7203	***8 GURNET ROAD***	***10***	***114***
DYNAIR FUELING INC	BRUNSWICK NAVAL AIR STA	19	366

ENG CONTROLS: A listing of sites with engineering controls in place.

A review of the US ENG CONTROLS list, as provided by EDR, and dated 03/21/2006 has revealed that there is 1 US ENG CONTROLS site within the searched area.

Site	Address	Map ID	Page
US NAVAL AIR STA	***BOUNDERED BY RTES 24***	***0***	***3***

INST CONTROLS: A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

A review of the US INST CONTROL list, as provided by EDR, and dated 03/21/2006 has revealed that there is 1 US INST CONTROL site within the searched area.

Site	Address	Map ID	Page
US NAVAL AIR STA	***BOUNDERED BY RTES 24***	***0***	***3***

DOD: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 12/31/2004 has revealed that there is 1 DOD site within the searched area.

Site	Address	Map ID	Page
BRUNSWICK NAVAL AIR STATION		0	33

EXECUTIVE SUMMARY

RODS: Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid the cleanup.

A review of the ROD list, as provided by EDR, and dated 07/10/2006 has revealed that there is 1 ROD site within the searched area.

Site	Address	Map ID	Page
US NAVAL AIR STA	***BOUNDERED BY RTES 24***	***0***	***3***

PADS: The PCB Activity Database identifies generators, transporters, commercial storers and/or brokers and disposers of PCBs who are required to notify the United States Environmental Protection Agency of such activities. The source of this database is the U.S. EPA.

A review of the PADS list, as provided by EDR, and dated 07/07/2006 has revealed that there is 1 PADS site within the searched area.

Site	Address	Map ID	Page
US NAVAL AIR STA	***BOUNDERED BY RTES 24***	***0***	***3***

FINDS: The Facility Index System contains both facility information and "pointers" to other sources of information that contain more detail. These include: RCRIS; Permit Compliance System (PCS); Aerometric Information Retrieval System (AIRS); FATES (FIFRA [Federal Insecticide Fungicide Rodenticide Act] and TSCA Enforcement System, FTTS [FIFRA/TSCA Tracking System]; CERCLIS; DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes); Federal Underground Injection Control (FURS); Federal Reporting Data System (FRDS); Surface Impoundments (SIA); TSCA Chemicals in Commerce Information System (CICS); PADS; RCRA-J (medical waste transporters/disposers); TRIS; and TSCA. The source of this database is the U.S. EPA/NTIS.

A review of the FINDS list, as provided by EDR, and dated 07/21/2006 has revealed that there are 2 FINDS sites within the searched area.

Site	Address	Map ID	Page
US NAVAL AIR STA	***BOUNDERED BY RTES 24***	***0***	***3***
SEARS #2203/6813/7203	***8 GURNET ROAD***	***10***	***114***

RAATS: The RCRA Administration Action Tracking System contains records based on enforcement actions issued under RCRA and pertaining to major violators. It includes administrative and civil actions brought by the United States Environmental Protection Agency. The source of this database is the U.S. EPA.

A review of the RAATS list, as provided by EDR, and dated 04/17/1995 has revealed that there is 1 RAATS site within the searched area.

Site	Address	Map ID	Page
US NAVAL AIR STA	***BOUNDERED BY RTES 24***	***0***	***3***

EXECUTIVE SUMMARY

STATE AND LOCAL RECORDS

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Environmental Protection's Hazardous Material and Oil Spill System Database (H.O.S.S.).

A review of the LUST list, as provided by EDR, and dated 05/27/2006 has revealed that there are 7 LUST sites within the searched area.

Site	Address	Map ID	Page
U-HAUL	173 BATH ROAD	5	65
FANTASTIC CAR WASH	178 BATH RD, COOKS CORN	5	71
BATH ROAD PUFFIN STOP / MOBIL	101 BATH ROAD	6	103
FORMER GAS ST. / U-HAUL	173 BATH RD. COOKS CNR.	9	110
MAINE PINES RACQUET & SPORTS	***120 HARPSWELL RD RT 12***	***12***	***120***
JOHN GIBSON INC./NE DRILLING	104 HARPSWELL ST.	12	127
BRUNSWICK GARDENS	52 ENTERPRISE ST.	13	129

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Protection's Underground Storage Tank Database.

A review of the UST list, as provided by EDR, and dated 06/28/2005 has revealed that there are 23 UST sites within the searched area.

Site	Address	Map ID	Page
KEY BANK COOKS SHOPPING CENTER	JUNCTION RTS 1 & 24	5	37
BIG APPLE COOKS CORNER	COOKS CORNER	5	38
CUMBERLAND FARMS INC 1818	RTS 1 & 24	5	48
COOKS CORNER SHOPPING CENTER	RTS 1 & 24	5	56
COOKS CORNER SUNOCO	172 BATH RD	5	58
LOT 6	177 BATH RD	5	70
GETTY STATION	184 BATH RD COOKS CORNE	5	86
VALERIES LTD	203 BATH RD	5	91
BATH ROAD PUFFIN STOP	101 BATH RD	6	92
FURNITURE & APPLIANCE WAREHOUS	109 BATH RD	7	106
TIBBY MOTOR SALES	121 BATH RD	8	107
COOKS CORNER MALL	13 GURNET RD	10	113
MOODY, LILY	41 GARRISON ST	12	116
KISH, LOUIS	25 GARRISON ST	12	125
BRUNSWICK ARTESIAN WELL CO	88 HARPSWELL ST	14	132
KATES DELI	89 HARPSWELL ST	14	134
SHOREY, MARY THAYER	161 HARPSWELL RD	14	138
THOMAS, KENNETH L	40 WARD CIRCLE	15	139
MCKEEN STREET HOUSING	NAVAL AIR STATION	19	143
JFSI FUEL FARM	BRUNSWICK NAVAL BASE	19	367
EAST BRUNSWICK ANNEX	NAVAL AIR SATION	19	368
NAVAL AIR STATION	BUILDING 207	19	371
COFFIN, RICHARD A	BOX 336 COOMBS RD	21	373

EXECUTIVE SUMMARY

LAST: A listing of leaking aboveground storage tanks.

A review of the LAST list, as provided by EDR, and dated 05/27/2006 has revealed that there are 15 LAST sites within the searched area.

Site	Address	Map ID	Page
BRUNSWICK WASTE WATER TREATMEN	8 PINE TREE RD	1	34
BETTINGER RESIDENCE	11 LORI DRIVE	3	35
PARKER, ELANA TENANT	127 JORDAN AVENUE	3	35
TINA STORER	115 STORER RD	4	36
MARY HOPKINS	7 A ST	5	90
NAVAL AIR STATION BRUNSWICK, H	51 FORRESTAL ROAD	11	115
JAMES ELWELL	43 GARRISON ST	12	115
DODGE RESIDENCE	62 GARRISON AVE. N.	12	119
MAINE PINES RACQUET & SPORTS	***120 HARPSWELL RD RT 12***	***12***	***120***
UNKNOWN RESIDENT	6 BICKFORD AVE	14	137
JONATHAN DUNN	10 JONATHAN ST	16	141
FRED NELSEN	30 HICKORY DR	17	142
YVONNE WILLARD	10 LINSAWSIG PVT WAY	18	142
PETER BERG RESIDENCE	246 COOMBS RD	20	372
KATHERINE PERRY RESIDENCE	5 LEEWARD COVE ROAD	22	376

EDR PROPRIETARY RECORDS

EDR Manufactured Gas Plants: The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

A review of the Manufactured Gas Plants list, as provided by EDR, has revealed that there is 1 Manufactured Gas Plants site within the searched area.

Site	Address	Map ID	Page
BRUNSWICK MGP	17-19 MAPLE STREET	2	34

EXECUTIVE SUMMARY

Please refer to the end of the findings report for unmapped orphan sites due to poor or inadequate address information.

MAP FINDINGS SUMMARY

Database	Total Plotted
FEDERAL RECORDS	
NPL	1
Proposed NPL	0
Delisted NPL	0
NPL RECOVERY	0
CERCLIS	1
CERC-NFRAP	0
CORRACTS	1
RCRA TSD	1
RCRA Lg. Quan. Gen.	1
RCRA Sm. Quan. Gen.	3
ERNS	0
HMIRS	0
US ENG CONTROLS	1
US INST CONTROL	1
DOD	1
FUDS	0
US BROWNFIELDS	0
CONSENT	0
ROD	1
UMTRA	0
ODI	0
TRIS	0
TSCA	0
FTTS	0
SSTS	0
ICIS	0
PADS	1
MLTS	0
MINES	0
FINDS	2
RAATS	1
STATE AND LOCAL RECORDS	
State Haz. Waste	0
DEL HWS	0
State Landfill	0
LCP	0
LUST	7
UST	23
LAST	15
AST	0
ME Spills	0
INST CONTROL	0
VCP	0
DRYCLEANERS	0
BROWNFIELDS	0
AIRS	0

MAP FINDINGS SUMMARY

Database	Total Plotted
TRIBAL RECORDS	
INDIAN RESERV	0
INDIAN LUST	0
INDIAN UST	0
EDR PROPRIETARY RECORDS	
Manufactured Gas Plants	1

NOTES:

Sites may be listed in more than one database

NPL **US NAVAL AIR STA** **PADS** **1000321192**
Region **BOUNDERED BY RTES 24 123** **CERCLIS** **ME8170022018**
BRUNSWICK, ME 04011 **FINDS**
NPL
RCRA-LQG
RCRA-TSDF
RAATS
CORRACTS
ROD
CT MANIFEST
US ENG CONTROLS
US INST CONTROL
NY MANIFEST
RI MANIFEST

CERCLIS:

Site ID:	0101073
Federal Facility:	Federal Facility
NPL Status:	Currently on the Final NPL
Non NPL Status:	Not reported

CERCLIS Site Contact Name(s):

Contact Name:	Christine Williams
Contact Tel:	(617) 918-1384
Contact Title:	Remedial Project Manager (RPM)
Contact Name:	Gerardo Millan-Ramos
Contact Tel:	(617) 918-1377
Contact Title:	Site Assessment Manager (SAM)
Contact Name:	Pam Harting-Barrat
Contact Tel:	(617) 918-1318
Contact Title:	Community Involvement Coordinator

CERCLIS Site Alias Name(s):

Alias Name:	BRUNSWICK NAVAL AIR STATION
Alias Address:	Not reported ME
Alias Name:	U S NAVY NAS
Alias Address:	SEAL ISL BRUNSWICK, ME 04011
Alias Name:	BRUNSWICK NAVAL AIR STATION
Alias Address:	1251 ORION STREET BRUNSWICK, ME 04011-5009
Alias Name:	BRUNSWICK NAVAL AIR STATION
Alias Address:	RTE 24 AND 123 BRUNSWICK, ME 04011
Site Description:	In 1987, NAS Brunswick was placed on the NPL. The Navy identified the ground water at Site 9 as a distinct area of contamination. In 1990, the Navy entered into a Federal Facility Agreement (FFA) with EPA and the Maine Department of Environmental Protection regarding the cleanup of contamination at the site. As part of the RI for Site 9, the Navy conducted field activities and environmental sampling in 1988 and 1990. In 1993, additional investigations were conducted by the Navy to better evaluate the sepetic system as a source of groundwater contamination and former incinerator and ash landfill dump area. An FS for Site 9 was submitted to the regulatory agencies for review. A Technical Memorandum was prepared in May 1994 describing the results of field investigations of the septic system and former ash landfill/dump area at Site

US NAVAL AIR STA (Continued) **1000321192**

9. This document concludes that, to date, no distinct source area of ground water contamination could be identified at Site 9.The 3,094-acre U.S. Naval Air Station (NAS) Brunswick is located south of the Androscoggin River between Brunswick and Bath, Maine. Property uses surrounding NAS Brunswick are primarily suburban and rural residential, with some commercial and lightindustrial uses along Routes 1, 24, and 123. The base is connected to a public water supply administered by the Brunswick-Topsham Water District.The operations area (138 acres) lies east of the two parallel runways and consists of numerous office buildings, a steam plant, fuel farm, barracks, recreational facilities, base housing, hangars, repair shops, and other facilities to support NAS Brunswick aircraft. Forested areas (approximately 48 percent), grasslands (approximately 28 percent), andpaved areas (approximately 12 percent) comprise most of the base property. Paved areas are mostly flight ramps and runways. The remaining 12 percent of the base includes the operations area (approximately 5 percent) and miscellaneous shrubland, marsh, and open water. The southern edge of the base borders the estuary of Harpswell Cove.Current property uses surrounding NAS Brunswick are primarily suburban and rural residential with some commercial and light industry along nearby Routes 1, 24, and 123. An elementary school, college, and a hospital are located within 1 mile of the base boundary. The southern edge of the base borders the estuary of Harpswell Cove. Approximately 3,000 people live on the base within a mile of the site areas. Area surface water is used for recreation, irrigation, and commercial fishing. NAS Brunswick is an active facility supporting the U.S. Navy's antisubmarine warfare operations in the Atlantic Ocean and Mediterranean Sea. The base's primary mission is to operate and maintain Orion aircraft. NAS Brunswick first became active in the 1940s during World War II, and underwent major expansion in the 1950s. In 1987, NAS Brunswick was placed on the National Priorities List (NPL). A Federal Facilities Agreement (FFA) between EPA, Maine Department of Environmental Protection, and the Department of the Navy was executed in September 1989.Operable Unit 1 (OU1):Sites 1 and 3 are located within a restricted area in the central portion of NASBrunswick. Historical records indicate that the Site 1 landfill was used from 1955 to 1975. Material reportedly disposed of in this landfill included garbage, food waste, refuse, waste oil, solvents, pesticides, petroleum products, paint wastes, aircraft and automobile parts, and various chemicals. Site 3 is defined as the area across from Site1, next to the access road into the Weapons Compound. Historical information reports that Site 3 operated as a disposal area from 1960 to 1973. Wastes disposed of at this site included solvents, paints, and isopropyl alcohol. Sites 1 and 3 were grouped together based on their proximity and common historical land use (i.e., landfill areas). Although Site 3 was originally believed to be a separate disposal area from Site 1, field sampling activities did not show a clear delineation between these two sites. Environmental contamination was observed in several media at Sites 1 and 3, including soils, groundwater, leachate/sediment, and surface water/sediment. A Record of Decision (ROD) addressing Sites 1 and 3 was completed in June 1992.OU2:Extensive data collected during 1990, delineated a plume of volatile organic compound (VOC)-contaminated groundwater extending north to south along the eastern boundary of NAS Brunswick. This VOC plume, the result of contamination at Sites 4, 11, and 13, is known as the Eastern Plume. It is believed that these sites no longer contribute to the contamination. Groundwater in this plume flows south toward Harpswell Cove. The contaminated groundwater is currently not discharging to or impacting any surface water bodies. An Interim ROD was issued in June 1992, intended to contain the Eastern Plume and prevent it from reaching Harpswell Cove. A ROD was completed in February 1998 that addressed source area soils at Sites 4, 11, and 13 (OU5), and presented the final remedial action for the groundwater contamination within the Eastern Plume (OU2).OU3:Site 5, located off

US NAVAL AIR STA (Continued) **1000321192**

Merriconeag Road south of the main runway, apparently was used briefly in 1979 to dispose of asbestos-covered pipe from a building being demolished on the base. The site consisted of two trenches. One contained six 1-inch diameter asbestos pipes ranging in length from 4 to 12 feet. The other was found to contain up to eight pieces of corrugated pipe of varying lengths that had smaller asbestos pipes inside. The asbestos material was left in the trenches and covered with soil. The site were covered with soil, seeded, and marked with signs as an asbestos disposal area. The soil and signs are believed to have been added in 1980. Site 5 was approximately one-quarter acre and was covered mostly with grass. The surrounding area wastree-covered. The site was level except for a bank that drops off several feet just southeast of the site.Site 6, the Sandy Road Rubble and Asbestos Disposal Site, was bordered by Sandy Road to the southeast and by a stream behind Building 516 to the north. It reportedly was used for general dumping of construction debris until the late 1970s. It appears the site was originally a small depression that was later filled with construction debris and other nonputrescible wastes. Aircraft parts reportedly were disposed of at this site and asbestos-covered pipes were seen protruding from the surface. The site was nearly level except for a large soil stockpile. Empty pipes, concrete asphalt, and other debris were visible at the site surface. In addition, steel dumpsters were stored on the southwest corner of the site. Site 6 was approximately 1 acre.Sites 5 and 6 were being considered together based on their shared geologic and hydrologic conditions and historical useas disposal sites for asbestos. A ROD addressing Sites 5 and 6 was completed in August 1993.OU4:The approximately 0.6-acre Perimeter Road Disposal Site (Site 8) is located at the northern boundary of NAS Brunswick. Perimeter Road is adjacent to the southern edge of the site. North of Perimeter Road, the site is a flat, open area with steep, wooded embankments down to two small tributaries bordering the site on the northeast and northwest. Surface runoff from the northern 2,000 feet of NAS Brunswick drains into these tributaries, which flow north and discharge to the Androscoggin River. The Jordan Avenue Wellfield, a municipal drinking water supply for the Town of Brunswick, is located north-northwest and upgradient of Site 8. Seeps have been observed at the base of the slope of the embankment down to the northeastern tributary. Site 8 was a disposal area reportedly used from 1964 to 1974 for rubble, debris, and trash from NAS Brunswick. Disposal of hazardous materials reportedly included more than 1,000 pounds of solvents; however, this disposal and these quantities cannot be confirmed. Environmental contamination at Site 8 was observed in surface and subsurface soil, surface water, sediments, seeps, and groundwater. A ROD addressing Site 8 was completed in August 1993.OU5:Sites 4, 11, and 13 are all located within several hundred feet of each other off Old Gurnet Road between the intersection of Orion Street and Sandy Road. Site 4, the Acid/Caustic Pit, is under the eastern portion of Building 584. The pit was used from 1969 to 1974 for the disposal of liquid wastes. The wastes were poured into the pit, which was approximately 4 feet square and 3 feet deep. Site 11 is a former Fire Training Area (FTA) that was used regularly over a 30-year period but has not been used since the fall of 1990. Waste liquids (fuels, oils, degreasing solvents) were used as fuel for the fire training exercises. Site 13 is the Defense Reutilization and Marketing Office (DRMO) Area immediately south of Building 584 and Site 4. Site 13 consisted of three underground storage tanks (USTs): one for diesel fuel, the other two for storing waste fuels, oils, and degreasing solvent. All three tanks were removed in the late 1980s. The diesel tank was replaced with a fiberglass underground storage tank; however, this tank was subsequently removed and replaced with an aboveground tank.The Eastern Plume, the subject of the OU5 ROD, is the groundwatercontamination resulting from Sites 4, 11, and 13. A ROD was issued in February 1998, that addressed source area soils at Sites 4, 11, and 13 (OU5). This ROD also

US NAVAL AIR STA (Continued) **1000321192**

presented the final remedial action for the groundwater contamination within the Eastern Plume (OU2). This ROD was modified by an Explanation of Significant Differences (ESD) in December 2000. The ESD replaced the UV oxidation system with an air stripper, specified that the effluent would be discharged to an infiltration gallery atSite 11 rather than the POTW, and added institutional controls to protect the remedy and prevent groundwater use.OU6:Site 9 was identified as having three areas of potential contamination: the former location of an incinerator in the northeast corner of Building 220, and an inactive ash landfill/dump area in the current location of Buildings 218 and 219; a reported disposal area behind Building 201; and the two streams bordering the recreational area behind Building 201.The Navy identified thegroundwater at Site 9 as a distinct area of contamination. In 1990, the Navy entered into a Federal Facility Agreement with the Environmental Protection Agency (EPA) and the State regarding the cleanup of contamination at the site. No distinct source area of groundwater contamination could be identified at Site 9. An Interim ROD was issued for Site 9 groundwater in September 1994. OU7:Site 2, the Orion Street Landfill - South, is located adjacent to Mere Brook near the southern end of the main runways. The actual waste disposal area covers approximately 2 acres partially filling a former borrow pit. Currently, the site is covered by a dense grove of conifersSite 2 reportedly was used as the primary base landfill from 1945 to 1955. The actual operation may have been less than ten years because the Air Station was closed from 1946 to 1951, although non-military tenants used the property. Solid waste was incinerated at the site before being placed in the landfill and covered with soil. In addition to conventional solid waste and debris, wastes reportedly disposed of at Site 2 included paints, solvents, oils, toluene, methyl ethyl ketone, and medical supplies. Miscellaneous debris is exposed along theeastern face of the landfill; otherwise the landfill has been covered with soil and supports a dense grove of conifers. The site lies within the fenced Weapons Compound Area; therefore, access is strictly limited. A ROD addressing Site 2 was completed in September 1998.The old acid caustic pit site (Site 7), is located in the northern portion of NAS Brunswick northeast of the Old Navy Fuel Farm site and west of Fitch Avenue. Topography at Site 7 is flat with little relief with woods surrounding the open area. There are no wetland areas or streams associated with the site.The suspected source area at Site 7 is approximately 3,800 ft? in area and is located in the northern portion of the base. The land area is zoned industrial, and the area is undeveloped. There are no structures present such as barracks, housing, offices, etc. located at Site 7.Site 7 is a generally flat, open clearing surrounded by woods to the west, north, and east. Groundwater occurs at Site 7 at a depth of 4-7 ftbelow ground surface (bgs), and is unconfined. Based on groundwater elevation data collected during several groundwater sampling rounds, groundwater flow direction is generally toward the southeast. Site 7 was the former location of the old acid caustic pit used from 1952 to 1969 for liquid waste disposal. Wastes reportedly included transformer oil, battery acid, caustics, solvents, and other miscellaneous liquids. The site was also a Defense Reuse and Marketing Office area and used for an equipment laydown area and storage. These historical activities may have contributed to current environmental conditions.Currently, the site land area is undeveloped. Site 7 could become a residential area if NAS Brunswick is closed. The actual disposition of the property would be evaluated at the time of the decision to close the base. Groundwater at the site is unconfined and has a minimal potential for potable use.Between March and April 2002, a remedial action was conducted atSite 7 to remove the stockpiled soils. This remedial action consisted of collecting soil samples to characterize the stockpiled soil, transporting and disposal of contaminated soil, and restoring the site. A Record of Decision (ROD) addressing Site 7 was completed in September 2002.

US NAVAL AIR STA (Continued) **1000321192**

CERCLIS Assessment History:

Action:	DISCOVERY
Date Started:	Not reported
Date Completed:	06/01/1981
Priority Level:	Not reported
Action:	PRELIMINARY ASSESSMENT
Date Started:	Not reported
Date Completed:	12/01/1982
Priority Level:	High
Action:	SITE INSPECTION
Date Started:	Not reported
Date Completed:	08/01/1984
Priority Level:	High
Action:	PROPOSAL TO NATIONAL PRIORITIES LIST
Date Started:	Not reported
Date Completed:	10/15/1984
Priority Level:	Not reported
Action:	FINAL LISTING ON NATIONAL PRIORITIES LIST
Date Started:	Not reported
Date Completed:	07/22/1987
Priority Level:	Not reported
Action:	HAZARD RANKING SYSTEM PACKAGE
Date Started:	Not reported
Date Completed:	08/22/1987
Priority Level:	Not reported
Action:	Restoration Advisory Board
Date Started:	12/31/1988
Date Completed:	Not reported
Priority Level:	Not reported
Action:	FEDERAL INTERAGENCY AGREEMENT
Date Started:	09/13/1989
Date Completed:	09/13/1989
Priority Level:	Not reported
Action:	INTERAGENCY AGREEMENT NEGOTIATIONS
Date Started:	06/12/1987
Date Completed:	09/13/1989
Priority Level:	Not reported
Action:	TECHNICAL ASSISTANCE GRANT
Date Started:	12/31/1990
Date Completed:	Not reported
Priority Level:	Not reported
Action:	FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started:	02/22/1988
Date Completed:	06/16/1992
Priority Level:	Not reported
Action:	RECORD OF DECISION

US NAVAL AIR STA (Continued) **1000321192**

Date Started: Not reported
Date Completed: 06/16/1992
Priority Level: Not reported

Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 02/22/1988
Date Completed: 06/16/1992
Priority Level: Not reported

Action: RECORD OF DECISION
Date Started: Not reported
Date Completed: 06/16/1992
Priority Level: Not reported

Action: FEDERAL FACILITY REMOVAL
Date Started: 03/15/1992
Date Completed: 04/12/1993
Priority Level: Stabilized

Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 07/10/1992
Date Completed: 07/20/1993
Priority Level: Not reported

Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 07/10/1992
Date Completed: 07/20/1993
Priority Level: Not reported

Action: RECORD OF DECISION
Date Started: Not reported
Date Completed: 08/31/1993
Priority Level: Not reported

Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 06/22/1990
Date Completed: 08/31/1993
Priority Level: Not reported

Action: RECORD OF DECISION
Date Started: Not reported
Date Completed: 08/31/1993
Priority Level: Not reported

Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 02/22/1988
Date Completed: 08/31/1993
Priority Level: Not reported

Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 08/31/1993
Date Completed: 09/02/1993
Priority Level: Not reported

Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 08/31/1993
Date Completed: 09/02/1993

US NAVAL AIR STA (Continued) **1000321192**

Priority Level: Not reported

Action: Explanation Of Significant Differences
Date Started: Not reported
Date Completed: 09/30/1994
Priority Level: Not reported

Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 06/22/1990
Date Completed: 09/30/1994
Priority Level: Not reported

Action: RECORD OF DECISION
Date Started: Not reported
Date Completed: 09/30/1994
Priority Level: Not reported

Action: FEDERAL FACILITY REMOVAL
Date Started: 10/26/1994
Date Completed: 12/12/1994
Priority Level: Partially Cleaned up

Action: FEDERAL FACILITY REMEDIAL ACTION
Date Started: 12/06/1994
Date Completed: 06/01/1995
Priority Level: Final RA Report

Action: OPERATIONS AND MAINTENANCE
Date Started: 06/12/1995
Date Completed: Not reported
Priority Level: Not reported

Action: FEDERAL FACILITY REMEDIAL ACTION
Date Started: 08/22/1994
Date Completed: 06/12/1995
Priority Level: Final RA Report

Action: FEDERAL FACILITY REMEDIAL ACTION
Date Started: 12/06/1994
Date Completed: 09/14/1995
Priority Level: Final RA Report

Action: OPERATIONS AND MAINTENANCE
Date Started: 12/30/1996
Date Completed: Not reported
Priority Level: Not reported

Action: OPERATIONS AND MAINTENANCE
Date Started: 12/30/1996
Date Completed: Not reported
Priority Level: Not reported

Action: FEDERAL FACILITY REMEDIAL ACTION
Date Started: 12/06/1994
Date Completed: 12/30/1996
Priority Level: Final RA Report

US NAVAL AIR STA (Continued) **1000321192**

Action: TECHNICAL ASSISTANCE
Date Started: 07/13/1990
Date Completed: 12/30/1996
Priority Level: Not reported

Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 06/22/1990
Date Completed: 02/10/1998
Priority Level: Not reported

Action: RECORD OF DECISION
Date Started: Not reported
Date Completed: 02/10/1998
Priority Level: Not reported

Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 04/01/1998
Date Completed: 04/15/1998
Priority Level: Not reported

Action: FEDERAL FACILITY REMEDIAL ACTION
Date Started: 04/27/1998
Date Completed: 09/08/1998
Priority Level: Interim RA Report

Action: FEDERAL FACILITY REMEDIAL INVESTIGATION/FEASIBILITY STUDY
Date Started: 06/22/1990
Date Completed: 09/29/1998
Priority Level: Not reported

Action: RECORD OF DECISION
Date Started: Not reported
Date Completed: 09/29/1998
Priority Level: Not reported

Action: TECHNICAL ASSISTANCE
Date Started: 07/17/1995
Date Completed: 01/31/1999
Priority Level: Not reported

Action: FEDERAL FACILITY REMEDIAL DESIGN
Date Started: 05/06/1999
Date Completed: 06/23/1999
Priority Level: Not reported

Action: RECORD OF DECISION
Date Started: Not reported
Date Completed: 09/28/1999
Priority Level: Not reported

Action: FIVE YEAR REVIEW REPORT DUE
Date Started: Not reported
Date Completed: 03/31/2000
Priority Level: Not reported

Action: FEDERAL FACILITY FIVE YEAR REVIEW
Date Started: 06/07/1999

US NAVAL AIR STA (Continued) **1000321192**

Date Completed: 03/31/2000
Priority Level: Not reported

Action: OPERATIONS AND MAINTENANCE
Date Started: 09/26/2000
Date Completed: Not reported
Priority Level: Not reported

Action: FEDERAL FACILITY REMEDIAL ACTION
Date Started: 08/19/1999
Date Completed: 09/26/2000
Priority Level: Interim RA Report

Action: FEDERAL FACILITY REMEDIAL ACTION
Date Started: 11/03/1999
Date Completed: 12/20/2000
Priority Level: Interim RA Report

Action: OPERATIONS AND MAINTENANCE
Date Started: 12/20/2000
Date Completed: Not reported
Priority Level: Not reported

Action: Explanation Of Significant Differences
Date Started: Not reported
Date Completed: 12/27/2000
Priority Level: Not reported

Action: PRELIMINARY CLOSE-OUT REPORT PREPARED
Date Started: Not reported
Date Completed: 09/27/2002
Priority Level: Not reported

Action: RECORD OF DECISION
Date Started: Not reported
Date Completed: 09/27/2002
Priority Level: Final Remedy Selected at Site

Action: FEDERAL FACILITY FIVE YEAR REVIEW
Date Started: 09/22/2004
Date Completed: 09/29/2005
Priority Level: Not reported

Action: FIVE YEAR REVIEW REPORT DUE
Date Started: Not reported
Date Completed: 09/29/2005
Priority Level: Not reported

Action: FIVE YEAR REVIEW REPORT DUE
Date Started: Not reported
Date Completed: Not reported
Priority Level: Not reported

FINDS:
Other Pertinent Environmental Activity Identified at Site

AFS (Aerometric Information Retrieval System (AIRS) Facility Subsystem) replaces

US NAVAL AIR STA (Continued) **1000321192**

the former Compliance Data System (CDS), the National Emission Data System (NEDS), and the Storage and Retrieval of Aerometric Data (SAROAD). AIRS is the national repository for information concerning airborne pollution in the United States. AFS is used to track emissions and compliance data from industrial plants. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. AFS is undergoing a major redesign to support facility operating permits required under Title V of the Clean Air Act.

CERCLIS (Comprehensive Environmental Response, Compensation, and Liability Information System) is the Superfund database that is used to support management in all phases of the Superfund program. The system contains information on all aspects of hazardous waste sites, including an inventory of sites, planned and actual site activities, and financial information.

ICIS (Integrated Compliance Information System) is the Integrated Compliance Information System and provides a database that, when complete, will contain integrated Enforcement and Compliance information across most of EPA's programs. The vision for ICIS is to replace EPA's independent databases that contain Enforcement data with a single repository for that information. Currently, ICIS contains all Federal Administrative and Judicial enforcement actions. This information is maintained in ICIS by EPA in the Regional offices and its Headquarters. A future release of ICIS will replace the Permit Compliance System (PCS) which supports the NPDES and will integrate that information with Federal actions already in the system. ICIS also has the capability to track other activities occurring in the Region that support Compliance and Enforcement programs. These include; Incident Tracking, Compliance Assistance, and Compliance Monitoring.

NCDB (National Compliance Data Base) supports implementation of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Toxic Substances Control Act (TSCA). The system tracks inspections in regions and states with cooperative agreements, enforcement actions, and settlements.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

NPL:
EPA ID: ME8170022018
Region: 01
Federal: Federal
Final Date: 07/22/1987

US NAVAL AIR STA (Continued) **1000321192**

Category Details:

Site ID:	Not reported
NPL Status:	Currently on the Final NPL
Categ. Description:	Depth To Aquifer-> 10 And <= 25 Feet
Categ. Value:	15 FTBGS

Site ID:	Not reported
NPL Status:	Currently on the Final NPL
Categ. Description:	Distance To Nearest Population-> 1/2 And <= 1 Mile
Categ. Value:	3600

Site Details:

Site Name:	BRUNSWICK NAVAL AIR STATION
Site Status:	Final
Status Date:	07/22/1987
Site City:	BRUNSWICK
Site State	ME
Federal Site:	Federal Facility
HRS Score:	43.38
GW Score:	72.53
SW Score:	19.30
Air Score:	Not reported
Soil Score:	Not reported
DC Score:	Not reported
FE Score:	Not reported

Substance Details:

Site ID:	Not reported
NPL Status:	Currently on the Final NPL
Substance ID:	A023
CAS #:	72-55-9
Substance:	DDE
Pathway:	SURFACE WATER PATHWAY
Scoring:	4

Site ID:	Not reported
NPL Status:	Currently on the Final NPL
Substance ID:	A051
CAS #:	25322-20-7
Substance:	TETRACHLOROETHANE
Pathway:	GROUND WATER PATHWAY
Scoring:	3

Site ID:	Not reported
NPL Status:	Currently on the Final NPL
Substance ID:	U036
CAS #:	57-74-9
Substance:	CHLORDANE
Pathway:	SURFACE WATER PATHWAY
Scoring:	4

Site ID:	Not reported
NPL Status:	Currently on the Final NPL
Substance ID:	U060
CAS #:	72-54-8
Substance:	DDD
Pathway:	SURFACE WATER PATHWAY
Scoring:	4

Site ID:	Not reported
NPL Status:	Currently on the Final NPL

US NAVAL AIR STA (Continued) **1000321192**

Substance ID: U061
CAS #: 50-29-3
Substance: DDT
Pathway: SURFACE WATER PATHWAY
Scoring: 4

Site ID: Not reported
NPL Status: Currently on the Final NPL
Substance ID: U159
CAS #: 78-93-3
Substance: METHYL ETHYL KETONE
Pathway: NO PATHWAY INDICATED
Scoring: 1

Site ID: Not reported
NPL Status: Currently on the Final NPL
Substance ID: U209
CAS #: 79-34-5
Substance: TETRACHLOROETHANE, 1,1,2,2-
Pathway: SURFACE WATER PATHWAY
Scoring: 4

Site ID: Not reported
NPL Status: Currently on the Final NPL
Substance ID: U220
CAS #: 108-88-3
Substance: TOLUENE
Pathway: NO PATHWAY INDICATED
Scoring: 1

Site ID: Not reported
NPL Status: Currently on the Final NPL
Substance ID: U228
CAS #: 79-01-6
Substance: TRICHLOROETHYLENE (TCE)
Pathway: NO PATHWAY INDICATED
Scoring: 1

Site ID: Not reported
NPL Status: Currently on the Final NPL
Substance ID: Not reported
CAS #: Not reported
Substance: Not reported
Pathway: Not reported
Scoring: Not reported

Summary Details:

" Conditions at proposal (October 15, 1984): The Brunswick Naval Air Station, in Brunswick, Sagadahoc County, Maine, encompasses seven areas that were used in the past (beginning in 1942) for the storage or disposal of hazardous wastes. Th
ese areas are within a 2-mile radius and occupy a total of at least 15 acres. Of the seven areas, two were used for landfilling the station's household and office wastes. The other areas were used for disposal of acid, caustic, and asbestos wa
stes. Pesticides, solvents, and waste oils present on the site threaten ground water (including a nearby public well field serving 18,000 people), surface water, and adjacent wetlands. The Brunswick Naval Air Station is participating in
the Installation Restoration Program, established in 1978. Under this program,

US NAVAL AIR STA (Continued) **1000321192**

the Department of Defense seeks to identify, investigate, and clean up contamination from hazardous materials. The Navy has identified the potential threats to huma
n health or the environment caused by past practices at the seven areas, and in 1984 will start a study to further identify the contaminants present at the site and determine their migration paths. EPA intends to monitor future work at Br
unswick and provide technical assistance to the Navy as needed. Status (July 22, 1987): The Navy completed the Site Verification Stage of the Installation Restoration Program, which is the first phase of a multiphase program. EPA will c
ontinue to monitor work at Brunswick and provide technical assistance as needed. Within the boundaries of this Federal facility, there are areas subject to the Subtitle C corrective action authorities of the Resource Conservation and Reco
very Act (RCRA). However, no such areas were included in scoring this specific site. Therefore, this Federal facility site is being placed on the Federal section of the NPL under the NPL/RCRA policy announced on September 8, 1983 (48 FR 40662)
."

Site Status Details:
NPL Status: Final
Proposed Date: 10/15/1984
Final Date: 07/22/1987
Deleted Date: Not reported

RCRAInfo Corrective Action Summary:
Event: CA Responsibility Referred To A Non-RCRA Federal Authority, Corrective Action at the facility or area referred to CERCLA.
Event Date: 07/02/1987

Event: RFA Completed
Event Date: 10/30/1985

RCRAInfo:
Owner: UNITED STATES NAVY
(207) 921-2377
EPA ID: ME8170022018

Contact: HENRY BELTRAMINI
(207) 921-2377

Classification: Large Quantity Generator, TSDF
TSDF Activities: Not reported

BIENNIAL REPORTS:
Last Biennial Reporting Year: 2003

Waste	Quantity (Lbs)	Waste	Quantity (Lbs)
D001	8100.98	D002	4509.70
D003	4587.00	D004	9219.00
D005	4584.00	D006	20738.70
D007	17450.70	D008	12736.20
D009	1408.00	D010	4168.20
D011	3246.00	D035	1741.20
F002	394.00	F003	394.00
F005	394.00	P098	3.00

US NAVAL AIR STA (Continued) **1000321192**

Violation Status: Violations exist

Regulation Violated: 264.52-55
Area of Violation: CONTINGENCY PLAN
Date Violation Determined: 02/21/1996
Actual Date Achieved Compliance: 04/01/2002

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 04/29/1996
Penalty Type: Not reported

Regulation Violated: 268.7(c)(1)
Area of Violation: GENERATOR-LAND BAN REQUIREMENTS
Date Violation Determined: 02/21/1996
Actual Date Achieved Compliance: 04/01/2002

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 04/29/1996
Penalty Type: Not reported

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 03/12/1990
Penalty Type: Not reported

Regulation Violated: 851.13B(2), 851.8B(3) 851.8C
Area of Violation: CONTAINER MGT=SAT'LITE ACCUMS/CONTAINER
Date Violation Determined: 02/21/1996
Actual Date Achieved Compliance: 04/01/2002

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 04/29/1996
Penalty Type: Not reported

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 05/19/1992
Penalty Type: Not reported

Regulation Violated: 1306(3)
Area of Violation: GENERATOR-SPECIAL CONDITIONS
Date Violation Determined: 07/22/1994
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 08/02/1994
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 856.11(A)(9)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 06/08/1994
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/29/1994
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 851.8c
Area of Violation: GENERATOR-GENERAL REQUIREMENTS

US NAVAL AIR STA (Continued) **1000321192**

Date Violation Determined: 06/08/1994
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/29/1994
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 264.56(j)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 05/07/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 09/30/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 38 1306(3)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 04/22/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 09/30/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/29/1994
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 38 1318-B(1)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 04/22/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 09/30/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 851.8C
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 03/09/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/02/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994

US NAVAL AIR STA (Continued) **1000321192**

Penalty Type: Final Monetary Penalty

Regulation Violated: 851.13D
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 03/09/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/02/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/29/1994
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 851.8B(3)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 03/09/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/02/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/29/1994
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 851.8B(2)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 03/09/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/02/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/29/1994
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 1317-a
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 03/09/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/02/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

US NAVAL AIR STA (Continued) **1000321192**

Regulation Violated: 851.8B(5)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 03/09/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/02/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/29/1994
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 851.13C(4)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 03/09/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 09/30/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 851.8A(4)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 03/09/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/02/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 851.13C(7)(iii)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 03/09/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/02/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/29/1994
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 851.8B(5)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 03/09/1993
Actual Date Achieved Compliance: 02/21/1996

US NAVAL AIR STA (Continued) **1000321192**

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/02/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/29/1994
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 851.13B(2)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 03/09/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/02/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 851.9(d)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 03/09/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/02/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 854.5B
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 03/09/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/02/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER
Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 851.13C(7)(3)
Area of Violation: GENERATOR-GENERAL REQUIREMENTS
Date Violation Determined: 03/09/1993
Actual Date Achieved Compliance: 09/28/1994

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/02/1993
Penalty Type: Final Monetary Penalty

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 07/29/1994
Penalty Type: Final Monetary Penalty

Enforcement Action: FINAL 3008(A) COMPLIANCE ORDER

US NAVAL AIR STA (Continued) **1000321192**

Enforcement Action Date: 09/28/1994
Penalty Type: Final Monetary Penalty

Regulation Violated: 40 cfr 264.54
Area of Violation: TSD-CONTINGENCY PLAN REQUREMENTS
Date Violation Determined: 03/25/1992
Actual Date Achieved Compliance: 06/03/1992

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 04/29/1996
Penalty Type: Not reported

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 05/19/1992
Penalty Type: Not reported

Regulation Violated: 40 cfr 264.32(d)
Area of Violation: TSD-PREPAREDNESS/PREVENTION REQUIREMENTS
Date Violation Determined: 03/25/1992
Actual Date Achieved Compliance: 06/03/1992

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 05/19/1992
Penalty Type: Not reported

Regulation Violated: Not reported
Area of Violation: TSD-OTHER REQUIREMENTS (OVERSIGHT)
Date Violation Determined: 02/06/1990
Actual Date Achieved Compliance: 03/28/1990

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 04/29/1996
Penalty Type: Not reported

Enforcement Action: WRITTEN INFORMAL
Enforcement Action Date: 03/12/1990
Penalty Type: Not reported

Regulation Violated: Not reported
Area of Violation: TSD-OTHER REQUIREMENTS (OVERSIGHT)
Date Violation Determined: 06/01/1989
Actual Date Achieved Compliance: 01/04/1990

Enforcement Action: FINAL FEDERAL FACILITY COMPLIANCE AGREEMENT
Enforcement Action Date: 01/04/1990
Penalty Type: Not reported

Enforcement Action: INITIAL NOTICE OF NON-COMPLIANCE, FEDERAL FACILITY
Enforcement Action Date: 12/18/1989
Penalty Type: Not reported

Regulation Violated: Not reported
Area of Violation: TSD-OTHER REQUIREMENTS (OVERSIGHT)
Date Violation Determined: 06/01/1989
Actual Date Achieved Compliance: 01/04/1990

Enforcement Action: FINAL FEDERAL FACILITY COMPLIANCE AGREEMENT
Enforcement Action Date: 01/04/1990
Penalty Type: Not reported

Enforcement Action: INITIAL NOTICE OF NON-COMPLIANCE, FEDERAL FACILITY
Enforcement Action Date: 12/18/1989
Penalty Type: Not reported

Regulation Violated: Not reported

US NAVAL AIR STA (Continued) **1000321192**

Area of Violation: TSD-OTHER REQUIREMENTS (OVERSIGHT)
Date Violation Determined: 03/24/1987
Actual Date Achieved Compliance: 04/14/1988

Regulation Violated: Not reported
Area of Violation: TSD-CLOSURE/POST-CLOSURE REQUIREMENTS
Date Violation Determined: 04/03/1986
Actual Date Achieved Compliance: 08/20/1991

Regulation Violated: Not reported
Area of Violation: TSD-OTHER REQUIREMENTS (OVERSIGHT)
Date Violation Determined: 04/03/1986
Actual Date Achieved Compliance: 04/14/1988

Regulation Violated: Not reported
Area of Violation: TSD-OTHER REQUIREMENTS (OVERSIGHT)
Date Violation Determined: 04/03/1986
Actual Date Achieved Compliance: 04/14/1988

Regulation Violated: Not reported
Area of Violation: TSD-OTHER REQUIREMENTS (OVERSIGHT)
Date Violation Determined: 04/03/1986
Actual Date Achieved Compliance: 04/14/1988

Enforcement Action: EPA TO STATE ADMINISTRATIVE REFERRAL
Enforcement Action Date: 05/12/1986
Penalty Type: Not reported

Regulation Violated: Not reported
Area of Violation: TSD-OTHER REQUIREMENTS (OVERSIGHT)
Date Violation Determined: 04/03/1986
Actual Date Achieved Compliance: 04/14/1988

Regulation Violated: Not reported
Area of Violation: TSD-CLOSURE/POST-CLOSURE REQUIREMENTS
Date Violation Determined: 04/03/1986
Actual Date Achieved Compliance: 08/20/1991

Enforcement Action: EPA TO STATE ADMINISTRATIVE REFERRAL
Enforcement Action Date: 05/12/1986
Penalty Type: Not reported

Regulation Violated: Not reported
Area of Violation: TSD-OTHER REQUIREMENTS (OVERSIGHT)
Date Violation Determined: 04/03/1986
Actual Date Achieved Compliance: 04/14/1988

Regulation Violated: Not reported
Area of Violation: TSD-OTHER REQUIREMENTS (OVERSIGHT)
Date Violation Determined: 06/22/1984
Actual Date Achieved Compliance: 04/14/1988

Penalty Summary:

Penalty Description	Penalty Date	Penalty Amount	Lead Agency
Final Monetary Penalty	9/28/1994	59000	STATE

There are 37 violation record(s) reported at this site:

Evaluation	Area of Violation	Date of Compliance
Compliance Evaluation Inspection	CONTINGENCY PLAN	20020401
	GENERATOR-LAND BAN REQUIREMENTS	20020401
	CONTAINER MGT=SAT'LITE ACCUMS/CONTAINER	20020401

US NAVAL AIR STA (Continued) **1000321192**

	Other Evaluation	GENERATOR-SPECIAL CONDITIONS	19940928
	Compliance Evaluation Inspection	GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19960221
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
	Compliance Evaluation Inspection	GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19960221
		GENERATOR-GENERAL REQUIREMENTS	19940928
	Compliance Evaluation Inspection	GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19960221
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
		GENERATOR-GENERAL REQUIREMENTS	19940928
	Compliance Evaluation Inspection	TSD-CONTINGENCY PLAN REQUREMENTS	19920603
		TSD-PREPAREDNESS/PREVENTION REQUIREMENTS	19920603
	Compliance Schedule Evaluation	TSD-OTHER REQUIREMENTS (OVERSIGHT)	19900328
	Compliance Evaluation Inspection	TSD-OTHER REQUIREMENTS (OVERSIGHT)	19900328
	Compliance Evaluation Inspection	TSD-OTHER REQUIREMENTS (OVERSIGHT)	19900104
		TSD-OTHER REQUIREMENTS (OVERSIGHT)	19900104
	Compliance Evaluation Inspection	TSD-OTHER REQUIREMENTS (OVERSIGHT)	19880414
	Compliance Evaluation Inspection	TSD-CLOSURE/POST-CLOSURE REQUIREMENTS	19910820
		TSD-OTHER REQUIREMENTS (OVERSIGHT)	19880414
		TSD-OTHER REQUIREMENTS (OVERSIGHT)	19880414
		TSD-OTHER REQUIREMENTS (OVERSIGHT)	19880414
	Compliance Evaluation Inspection	TSD-CLOSURE/POST-CLOSURE REQUIREMENTS	19910820
		TSD-OTHER REQUIREMENTS (OVERSIGHT)	19880414
		TSD-OTHER REQUIREMENTS (OVERSIGHT)	19880414
	Compliance Evaluation Inspection	TSD-OTHER REQUIREMENTS (OVERSIGHT)	19880414

CORRACTS Data:

EPA Id:	ME8170022018
Region:	01
Area Name:	ENTIRE FACILITY
Actual Date:	07/02/1987

US NAVAL AIR STA (Continued) **1000321192**

Corrective Action: CA210SF - CA Responsibility Referred To A Non-RCRA Federal Authority, Corrective Action at the facility or area referred to CERCLA
2002 NAICS Title: National Security

EPA Id: ME8170022018
Region: 01
Area Name: ENTIRE FACILITY
Actual Date: 10/30/1985
Corrective Action: CA050 - RFA Completed
2002 NAICS Title: National Security

ROD:
Full-text of USEPA Record of Decision(s) is available from EDR.

CT MANIFEST:
Year: 1999
Manifest ID: MAK250441
TSDF EPA ID: CTD000604488
TSDF Name: CLEAN HARBORS OF CONNECTICUT, INC.
TSDF Address: 51 BRODERICK RD
TSDF City,St,Zip: BRISTOL, CT 06010
TSDF Country: USA
TSDF Telephone: Not reported
Transport Date: 05/03/99
Transporter EPA ID: MAD039322250
Transporter Name: CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Transporter Country: USA
Transporter Phone: Not reported
Trans 2 Date: 05/03/99
Trans 2 EPA ID: MAD039322250
Trans 2 Name: CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
Trans 2 Address: Not reported
Trans 2 City,St,Zip: CT
Trans 2 Country: USA
Trans 2 Phone: Not reported
Generator EPA ID: ME8170022018
Gererator Phone: 2079212377
Generator Address: Not reported
Generator City,State,Zip: Not reported
Generator Country: Not reported
Special Handling: Not reported
Discrepancies: No
Date Shipped: 05/03/99
Date Received: 05/18/99
Last modified date: 04/26/04
Last modified by: IG
Comments: Not reported

Click this hyperlink while viewing on your computer to access
10 additional CT MANIFEST: record(s) in the EDR Site Report.

US Engineering Control Sites:
EPA ID: ME8170022018
Site ID: 0101073
EPA Region: 01
County: CUMBERLAND
Event Code : Not reported
Actual Date: Not reported

US NAVAL AIR STA (Continued) **1000321192**

Action ID: 006
Action Name: FF RD
Action Completion date: 06/23/1999
Planned Completion date: 03/31/1999
Operable Unit: 07
Contaminated Media: Surface Water
Contam. Media num.: 1271956.00000
Engineering Control: Access Restriction

Action ID: 006
Action Name: FF RD
Action Completion date: 06/23/1999
Planned Completion date: 03/31/1999
Operable Unit: 07
Contaminated Media: Groundwater
Contam. Media num.: 1271957.00000
Engineering Control: Access Restriction

Action ID: 006
Action Name: FF RD
Action Completion date: 06/23/1999
Planned Completion date: 03/31/1999
Operable Unit: 07
Contaminated Media: Leachate
Contam. Media num.: 1271958.00000
Engineering Control: Access Restriction, Fencing

Action ID: 006
Action Name: FF RD
Action Completion date: 06/23/1999
Planned Completion date: 03/31/1999
Operable Unit: 07
Contaminated Media: Leachate
Contam. Media num.: 1271958.00000
Engineering Control: Access Restriction, Guards

Action ID: 006
Action Name: FF RA
Action Completion date: 09/26/2000
Planned Completion date: 09/30/2000
Operable Unit: 07
Contaminated Media: Surface Water
Contam. Media num.: 1272197.00000
Engineering Control: Access Restriction

Action ID: 006
Action Name: FF RA
Action Completion date: 09/26/2000
Planned Completion date: 09/30/2000
Operable Unit: 07
Contaminated Media: Groundwater
Contam. Media num.: 1272198.00000
Engineering Control: Access Restriction

Action ID: 006
Action Name: FF RA
Action Completion date: 09/26/2000
Planned Completion date: 09/30/2000
Operable Unit: 07
Contaminated Media: Leachate

US NAVAL AIR STA (Continued) **1000321192**

Contam. Media num.: 1272199.00000
Engineering Control: Access Restriction, Fencing

Action ID: 006
Action Name: FF RA
Action Completion date: 09/26/2000
Planned Completion date: 09/30/2000
Operable Unit: 07
Contaminated Media: Leachate
Contam. Media num.: 1272199.00000
Engineering Control: Access Restriction, Guards

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/16/1992
Planned Completion date: 06/30/1992
Operable Unit: 01
Contaminated Media: Groundwater
Contam. Media num.: 1270444.00000
Engineering Control: Pump And Treat

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/16/1992
Planned Completion date: 06/30/1992
Operable Unit: 01
Contaminated Media: Soil
Contam. Media num.: 1270445.00000
Engineering Control: Cap

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/16/1992
Planned Completion date: 06/30/1992
Operable Unit: 01
Contaminated Media: Sediment
Contam. Media num.: 1270446.00000
Engineering Control: Cap

Action ID: 001
Action Name: RECORD OF DECISION
Action Completion date: 06/16/1992
Planned Completion date: 06/30/1992
Operable Unit: 01
Contaminated Media: Sediment
Contam. Media num.: 1270446.00000
Engineering Control: Slurry Wall

Action ID: 003
Action Name: RECORD OF DECISION
Action Completion date: 08/31/1993
Planned Completion date: 09/30/1993
Operable Unit: 03
Contaminated Media: Debris
Contam. Media num.: 1270448.00000
Engineering Control: Cap

Action ID: 003
Action Name: RECORD OF DECISION
Action Completion date: 08/31/1993
Planned Completion date: 09/30/1993

US NAVAL AIR STA (Continued) **1000321192**

Operable Unit: 03
Contaminated Media: Debris
Contam. Media num.: 1270448.00000
Engineering Control: Engineering Control, (N.O.S.)

Action ID: 003
Action Name: RECORD OF DECISION
Action Completion date: 08/31/1993
Planned Completion date: 09/30/1993
Operable Unit: 03
Contaminated Media: Soil
Contam. Media num.: 1270449.00000
Engineering Control: Cap

Action ID: 003
Action Name: RECORD OF DECISION
Action Completion date: 08/31/1993
Planned Completion date: 09/30/1993
Operable Unit: 03
Contaminated Media: Soil
Contam. Media num.: 1270449.00000
Engineering Control: Engineering Control, (N.O.S.)

Action ID: 004
Action Name: RECORD OF DECISION
Action Completion date: 08/31/1993
Planned Completion date: 09/30/1993
Operable Unit: 04
Contaminated Media: Soil
Contam. Media num.: 1270451.00000
Engineering Control: Cap

Action ID: 006
Action Name: RECORD OF DECISION
Action Completion date: 02/10/1998
Planned Completion date: 03/30/1998
Operable Unit: 05
Contaminated Media: Groundwater
Contam. Media num.: 1270209.00000
Engineering Control: Pump And Treat

Action ID: 007
Action Name: RECORD OF DECISION
Action Completion date: 09/29/1998
Planned Completion date: 09/30/1998
Operable Unit: 07
Contaminated Media: Surface Water
Contam. Media num.: 1270981.00000
Engineering Control: Access Restriction

Action ID: 007
Action Name: RECORD OF DECISION
Action Completion date: 09/29/1998
Planned Completion date: 09/30/1998
Operable Unit: 07
Contaminated Media: Groundwater
Contam. Media num.: 1271054.00000
Engineering Control: Access Restriction

Action ID: 007
Action Name: RECORD OF DECISION

US NAVAL AIR STA (Continued) **1000321192**

Action Completion date: 09/29/1998
Planned Completion date: 09/30/1998
Operable Unit: 07
Contaminated Media: Leachate
Contam. Media num.: 1271055.00000
Engineering Control: Access Restriction, Fencing

Action ID: 007
Action Name: RECORD OF DECISION
Action Completion date: 09/29/1998
Planned Completion date: 09/30/1998
Operable Unit: 07
Contaminated Media: Leachate
Contam. Media num.: 1271055.00000
Engineering Control: Access Restriction, Guards

US INST CONTROL:
EPA ID : ME8170022018
Name : BRUNSWICK NAVAL AIR STATION
Address : RTE 24 AND 123
BRUNSWICK, ME 04011
County : CUMBERLAND
Region : 01
Event Code : Not reported
Actual Dt : 20001227

EPA ID : ME8170022018
Name : BRUNSWICK NAVAL AIR STATION
Address : RTE 24 AND 123
BRUNSWICK, ME 04011
County : CUMBERLAND
Region : 01
Event Code : Not reported
Actual Dt : 20001227

EPA ID : ME8170022018
Name : BRUNSWICK NAVAL AIR STATION
Address : RTE 24 AND 123
BRUNSWICK, ME 04011
County : CUMBERLAND
Region : 01
Event Code : Not reported
Actual Dt : 20001227

EPA ID : ME8170022018
Name : BRUNSWICK NAVAL AIR STATION
Address : RTE 24 AND 123
BRUNSWICK, ME 04011
County : CUMBERLAND
Region : 01
Event Code : Not reported
Actual Dt : 20001227

EPA ID : ME8170022018
Name : BRUNSWICK NAVAL AIR STATION
Address : RTE 24 AND 123
BRUNSWICK, ME 04011
County : CUMBERLAND
Region : 01
Event Code : Not reported

US NAVAL AIR STA (Continued) **1000321192**

Actual Dt : 20001227

EPA ID : ME8170022018
Name : BRUNSWICK NAVAL AIR STATION
Address : RTE 24 AND 123
BRUNSWICK, ME 04011
County : CUMBERLAND
Region : 01
Event Code : Not reported
Actual Dt : 20020927

EPA ID : ME8170022018
Name : BRUNSWICK NAVAL AIR STATION
Address : RTE 24 AND 123
BRUNSWICK, ME 04011
County : CUMBERLAND
Region : 01
Event Code : Not reported
Actual Dt : 20020927

EPA ID : ME8170022018
Name : BRUNSWICK NAVAL AIR STATION
Address : RTE 24 AND 123
BRUNSWICK, ME 04011
County : CUMBERLAND
Region : 01
Event Code : Not reported
Actual Dt : 20020927

EPA ID : ME8170022018
Name : BRUNSWICK NAVAL AIR STATION
Address : RTE 24 AND 123
BRUNSWICK, ME 04011
County : CUMBERLAND
Region : 01
Event Code : Not reported
Actual Dt : 20020927

EPA ID : ME8170022018
Name : BRUNSWICK NAVAL AIR STATION
Address : RTE 24 AND 123
BRUNSWICK, ME 04011
County : CUMBERLAND
Region : 01
Event Code : Not reported
Actual Dt : 20020927

EPA ID : ME8170022018
Name : BRUNSWICK NAVAL AIR STATION
Address : RTE 24 AND 123
BRUNSWICK, ME 04011
County : CUMBERLAND
Region : 01
Event Code : Not reported
Actual Dt : 20020927

EPA ID : ME8170022018
Name : BRUNSWICK NAVAL AIR STATION
Address : RTE 24 AND 123
BRUNSWICK, ME 04011
County : CUMBERLAND

US NAVAL AIR STA (Continued) **1000321192**

Region : 01
Event Code : Not reported
Actual Dt : 20020927

NY MANIFEST:
Document ID: NYG1517148
Manifest Status: Not reported
Trans1 State ID: MAD039322250
Trans2 State ID: Not reported
Generator Ship Date: 10/25/2000
Trans1 Recv Date: 10/25/2000
Trans2 Recv Date: Not reported
TSD Site Recv Date: 10/27/2000
Part A Recv Date: Not reported
Part B Recv Date: Not reported
Generator EPA ID: ME8170022018
Trans1 EPA ID: NYD049836679
Trans2 EPA ID: Not reported
TSDF ID: 614239ME
Waste Code: B007 - OTHER MISCELLANEOUS PCB WASTES
Quantity: 16275
Units: K - Kilograms (2.2 pounds)
Number of Containers: 001
Container Type: CM - Metal boxes, cases, roll-offs
Handling Method: L Landfill.
Specific Gravity: 01.00
Year: 00
Facility Type: Generator
EPA ID: ME8170022018
Facility Name: UNITED STATES NAVAL AIR STATION
Facility Address: DPDO - BUILDING 584
Facility City: BRUNSWICK
Facility Zip 4: Not reported
Country: Not reported
County: Not reported
Mailing Name: UNITED STATES MILITARY
Mailing Contact: UNKNOWN
Mailing Address: DPDO - BUILDING 584
Mailing City: BRUNSWICK
Mailing State: ME
Mailing Zip: 04011
Mailing Zip4: Not reported
Mailing Country: Not reported
Mailing Phone: 207-921-2627

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131 additional NY MANIFEST: record(s) in the EDR Site Report.

RI MANIFEST:
Manifest Docket Number: MAM506628
Waste Description: ADHESIVES (FLAM) (BR2042)
Quantity: 65.00
WT/Vol Units: L
Item Number: 7321
Transporter Name: 21ST CENTURY ENV. MGT. INC.
Transporter EPA ID: RID980906986
ID: 127975

US NAVAL AIR STA (Continued) **1000321192**

GEN Cert Date:	1/19/2001 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	ME8170022018
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	NORTHLAND ENVIRONMENTAL INC.
TSDF ID:	RID040098352
Data Source:	MD-ELEC
Date Imported:	4/13/2001 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	65
Fee Reported:	Not reported

Manifest Docket Number:	MAM506628
Waste Description:	PAINT FROM SUPPLY (BR2007B)
Quantity:	246.00
WT/Vol Units:	L
Item Number:	7322
Transporter Name:	21ST CENTURY ENV. MGT. INC.
Transporter EPA ID:	RID980906986
ID:	127976
GEN Cert Date:	1/19/2001 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	ME8170022018
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	NORTHLAND ENVIRONMENTAL INC.
TSDF ID:	RID040098352
Data Source:	MD-ELEC
Date Imported:	4/13/2001 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	246
Fee Reported:	Not reported

Manifest Docket Number:	MAM506628

US NAVAL AIR STA (Continued) **1000321192**

Waste Description:	PAINT/SOLVENT CONS DRUM (BR2007E)
Quantity:	205.00
WT/Vol Units:	L
Item Number:	7323
Transporter Name:	21ST CENTURY ENV. MGT. INC.
Transporter EPA ID:	RID980906986
ID:	127977
GEN Cert Date:	1/19/2001 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	ME8170022018
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	NORTHLAND ENVIRONMENTAL INC.
TSDF ID:	RID040098352
Data Source:	MD-ELEC
Date Imported:	4/13/2001 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	205
Fee Reported:	Not reported

Manifest Docket Number:	MAM506628
Waste Description:	WASTE DIESEL/GAS/KEROSENE (BR2004B)
Quantity:	147.00
WT/Vol Units:	L
Item Number:	7324
Transporter Name:	21ST CENTURY ENV. MGT. INC.
Transporter EPA ID:	RID980906986
ID:	127978
GEN Cert Date:	1/19/2001 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	ME8170022018
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	NORTHLAND ENVIRONMENTAL INC.
TSDF ID:	RID040098352
Data Source:	MD-ELEC

US NAVAL AIR STA (Continued) **1000321192**

Date Imported:	4/13/2001 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	147
Fee Reported:	Not reported
Manifest Docket Number:	MAM506629
Waste Description:	AEROSOL CANS (FLAM) (BR2024)
Quantity:	14.00
WT/Vol Units:	L
Item Number:	7325
Transporter Name:	21ST CENTURY ENV. MGT. INC.
Transporter EPA ID:	RID980906986
ID:	127981
GEN Cert Date:	1/19/2001 0:00:00
Transporter Recpt Date:	Not reported
Transporter 2 Recpt Date:	Not reported
TSDF Recpt Date:	Not reported
EPA ID:	ME8170022018
Number Of Containers:	0
Container Type:	Not reported
Waste Code1:	D001
Waste Code2:	Not reported
Waste Code3:	Not reported
Waste Code4:	Not reported
Waste Code5:	Not reported
Waste Code6:	Not reported
Comment:	Not reported
Fee Exempt Code:	Not reported
TSDF Name:	NORTHLAND ENVIRONMENTAL INC.
TSDF ID:	RID040098352
Data Source:	MD-ELEC
Date Imported:	4/13/2001 0:00:00
Transporter 2 Name:	Not reported
Transporter 2 ID:	Not reported
Quantity in LBS.:	14
Fee Reported:	Not reported

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74 additional RI MANIFEST: record(s) in the EDR Site Report.

DOD Region **BRUNSWICK NAVAL AIR STATION** **DOD** **CUSA006252** **N/A**

BRUNSWICK NAVAL AIR STATI (County), ME

FEDERAL LANDS:

Feature 1:	Navy DOD
Feature 2:	Not reported
Feature 3:	Not reported
Agency:	DOD
URL:	Not reported
Name 1:	Brunswick Naval Air Station
Name 2:	Not reported
Name 3:	Not reported
State:	ME

1 **BRUNSWICK WASTE WATER TREATMENT** **LAST** **S106073172**
8 PINE TREE RD **N/A**
BRUNSWICK, ME

LAST:

Spill Number:	P-906-2002
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	True
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False
Create Date:	12/4/2002
Create By:	EIGOBRIE
Modify Date:	9/22/2003
Modify By:	EITGALLA
Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	Not reported
Spill Date Unknown:	True
Spill Time Unknown:	True
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	OTU
Inc Location Value:	Utility - Other
Inc Source Code:	TA
Inc Source Value:	Storage Unit - Aboveground Storage Tank
Spill Cause Code:	30
Spill Cause Value:	Other - Known Cause
Material Disposal Info:	Mixed liquid media disposed of by Clean Harbors, and sludge disposed of at Pine Tree Landfill Facility.

---

2 **BRUNSWICK MGP** **Manufactured Gas Plants** **1008408910**
17-19 MAPLE STREET **N/A**
BRUNSWICK, ME 04011

Manufactured Gas Plants:
Alternate Name:CENTRAL MAINE POWER CO.

3 **BETTINGER RESIDENCE** **LAST** **S104999135**
11 LORI DRIVE **N/A**
BRUNSWICK, ME

LAST:

Spill Number:	P-653-1995
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	10/24/1995
Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	Not reported
Number of wells impacted:	Not reported
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	3
reporter type value:	Citizen Complaint
Detection Method Code:	I
Detection Method Value:	Other
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	16
Spill Cause Value:	Accident - Poor Workmanship
Material Disposal Info:	DEAD RIVER DISPOSED OF, CLEAN UP DEBRI

---

3 **PARKER, ELANA TENANT** **LAST** **S104222569**
127 JORDAN AVENUE **N/A**
BRUNSWICK, ME

LAST:

Spill Number:	P-49-1997
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS

PARKER, ELANA TENANT (Continued) **S104222569**

Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	01/23/1997
Spill Date Unknown:	False
Spill Time Unknown:	True
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	5
Spill Cause Value:	Accident - Physical Breakage
Material Disposal Info:	Not reported

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4 **TINA STORER** **LAST** **S107026872**
115 STORER RD **N/A**
BRUNSWICK, ME

LAST:

Spill Number:	P-465-2004
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	True
Create Date:	6/7/2004
Create By:	EIGOBRIE
Modify Date:	6/7/2005
Modify By:	EITGALLA
Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	05/31/2004
Spill Date Unknown:	False
Spill Time Unknown:	True
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	6

TINA STORER (Continued) **S107026872**

reporter type value:	Contractor/Consultant
Detection Method Code:	H
Detection Method Value:	Odor/Vapor/Mist
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	TA
Inc Source Value:	Storage Unit - Aboveground Storage Tank
Spill Cause Code:	1
Spill Cause Value:	Corrosion - Tank
Material Disposal Info:	Contaminated sorbents to be disposed of appropriately.

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5 **KEY BANK COOKS SHOPPING CENTER** **UST** **U003097610**
JUNCTION RTS 1 & 24 **N/A**
BRUNSWICK, ME

UST:

Facility ID:	4407
Tank Number:	1
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	08/18/86
Facility Code:	C
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2078730124
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	KEY BANK, RT.95 TO RT. 1 AND ROUTE 24 JUNCTION
Update Dt:	10/05/01
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	1
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	01/02/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	500
Total Num of Chambers for Tank:	1
Installer ID:	Not reported

KEY BANK COOKS SHOPPING CENTER (Continued) **U003097610**

Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	500
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	01/02/92
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	384
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34660
Owner/Operator Name:	BRUNSWICK ASSOCS TRUST
Owner/Operator Address:	PO BOX 296R
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04901
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2078730124

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5 **BIG APPLE COOKS CORNER** **UST** **U003052679**
COOKS CORNER **N/A**
BRUNSWICK, ME

UST:

Facility ID:	4826
Tank Number:	5
Installation Date:	01/01/73
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	08/26/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077258026
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	COOK'S CORNER

BIG APPLE COOKS CORNER (Continued) **U003052679**

Update Dt:	08/30/01
Print Cert:	Yes
Last Inspected:	4/30/2002 12:00:00 AM
Num Of Tanks:	7
Active # Of Tanks:	2
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	09/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	4000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	4000
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	09/01/94
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	814
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	15830
Owner/Operator Name:	CN BROWN CO
Owner/Operator Address:	PO BOX 200
Owner/Operator City,St,Zip:	SOUTH PARIS, ME 04281
Owner/Operator Location:	Not reported

BIG APPLE COOKS CORNER (Continued) **U003052679**

Owner/Operator Country: Not reported
Operator Contact: MOORE, KEVIN
Owner/Operator Phone: 2077439212

Facility ID: 4826
Tank Number: 4
Installation Date: 01/01/73
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 08/26/86
Facility Code: B
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2077258026
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: COOK'S CORNER
Update Dt: 08/30/01
Print Cert: Yes
Last Inspected: 4/30/2002 12:00:00 AM
Num Of Tanks: 7
Active # Of Tanks: 2
Tank Material: Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 09/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: Y
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 4000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: Yes
Chamber ID: 1
Volume (gallons): 4000
Product Type: Unleaded Gasoline
Pipe Status: REMOVED
Pipe Status Date: 09/01/94
Pipe Material: GALVANIZE
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported

BIG APPLE COOKS CORNER (Continued) **U003052679**

Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	814
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	15830
Owner/Operator Name:	CN BROWN CO
Owner/Operator Address:	PO BOX 200
Owner/Operator City,St,Zip:	SOUTH PARIS, ME 04281
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	MOORE, KEVIN
Owner/Operator Phone:	2077439212

Facility ID:	4826
Tank Number:	6
Installation Date:	10/01/94
Facility Use:	Not reported
Gen ID:	230
Reg Date:	08/26/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077258026
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	COOK'S CORNER
Update Dt:	08/30/01
Print Cert:	Yes
Last Inspected:	4/30/2002 12:00:00 AM
Num Of Tanks:	7
Active # Of Tanks:	2
Tank Material:	Double wall
Warranty Expiration:	10/25/2024 12:00:00 AM
Tank Leak Detection:	Secondary Containment-Continuous Monitoring
Tank Leak Detection Required:	Secondary Containment-Continuous Monitoring
Tank Above/Below Ground:	B
Tank Status:	**Active**
Tank Status Date:	10/25/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	35

BIG APPLE COOKS CORNER (Continued) **U003052679**

Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	12000
Total Num of Chambers for Tank:	1
Installer ID:	274
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	4000
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	09/01/94
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	PORTLAND PUMP CO.
Installer Applicant Last Name:	LETELLIER
Installer Applicants First Name:	SCOTT
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	SCARBOROUGH, ME
Installer Applicant Country:	Not reported
Installer Applicant Phone:	2078834317
Current Owner ID:	814
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	15830
Owner/Operator Name:	CN BROWN CO
Owner/Operator Address:	PO BOX 200
Owner/Operator City,St,Zip:	SOUTH PARIS, ME 04281
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	MOORE, KEVIN
Owner/Operator Phone:	2077439212

Facility ID:	4826
Tank Number:	1
Installation Date:	01/01/73
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	08/26/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No

BIG APPLE COOKS CORNER (Continued) **U003052679**

Sensitive Area:	No
Facility Tel:	2077258026
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	COOK'S CORNER
Update Dt:	08/30/01
Print Cert:	Yes
Last Inspected:	4/30/2002 12:00:00 AM
Num Of Tanks:	7
Active # Of Tanks:	2
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	09/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	4000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	4000
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	09/01/94
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	814
Ownership Begin Date:	01/01/95

BIG APPLE COOKS CORNER (Continued) **U003052679**

Ownership End Date:	Not reported
Owner/Operator ID:	15830
Owner/Operator Name:	CN BROWN CO
Owner/Operator Address:	PO BOX 200
Owner/Operator City,St,Zip:	SOUTH PARIS, ME 04281
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	MOORE, KEVIN
Owner/Operator Phone:	2077439212

Facility ID:	4826
Tank Number:	2
Installation Date:	01/01/73
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	08/26/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077258026
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	COOK'S CORNER
Update Dt:	08/30/01
Print Cert:	Yes
Last Inspected:	4/30/2002 12:00:00 AM
Num Of Tanks:	7
Active # Of Tanks:	2
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	09/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	4000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	4000
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**

BIG APPLE COOKS CORNER (Continued) **U003052679**

Pipe Status Date:	09/01/94
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	814
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	15830
Owner/Operator Name:	CN BROWN CO
Owner/Operator Address:	PO BOX 200
Owner/Operator City,St,Zip:	SOUTH PARIS, ME 04281
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	MOORE, KEVIN
Owner/Operator Phone:	2077439212

Facility ID:	4826
Tank Number:	3
Installation Date:	01/01/73
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	08/26/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077258026
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	COOK'S CORNER
Update Dt:	08/30/01
Print Cert:	Yes
Last Inspected:	4/30/2002 12:00:00 AM
Num Of Tanks:	7
Active # Of Tanks:	2
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown

BIG APPLE COOKS CORNER (Continued) **U003052679**

Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	09/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	4000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	4000
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	09/01/94
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	814
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	15830
Owner/Operator Name:	CN BROWN CO
Owner/Operator Address:	PO BOX 200
Owner/Operator City,St,Zip:	SOUTH PARIS, ME 04281
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	MOORE, KEVIN
Owner/Operator Phone:	2077439212

Facility ID:	4826
Tank Number:	7
Installation Date:	10/01/94
Facility Use:	Not reported
Gen ID:	230

BIG APPLE COOKS CORNER (Continued) **U003052679**

Reg Date:	08/26/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077258026
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	COOK'S CORNER
Update Dt:	08/30/01
Print Cert:	Yes
Last Inspected:	4/30/2002 12:00:00 AM
Num Of Tanks:	7
Active # Of Tanks:	2
Tank Material:	Double wall
Warranty Expiration:	10/25/2024 12:00:00 AM
Tank Leak Detection:	Secondary Containment-Continuous Monitoring
Tank Leak Detection Required:	Secondary Containment-Continuous Monitoring
Tank Above/Below Ground:	B
Tank Status:	**Active**
Tank Status Date:	10/25/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	35
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	10000
Total Num of Chambers for Tank:	2
Installer ID:	274
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	4000
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	09/01/94
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	PORTLAND PUMP CO.
Installer Applicant Last Name:	LETELLIER
Installer Applicants First Name:	SCOTT
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported

BIG APPLE COOKS CORNER (Continued) **U003052679**

Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	SCARBOROUGH, ME
Installer Applicant Country:	Not reported
Installer Applicant Phone:	2078834317
Current Owner ID:	814
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	15830
Owner/Operator Name:	CN BROWN CO
Owner/Operator Address:	PO BOX 200
Owner/Operator City,St,Zip:	SOUTH PARIS, ME 04281
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	MOORE, KEVIN
Owner/Operator Phone:	2077439212

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5 **CUMBERLAND FARMS INC 1818** **UST** **U003098523**
RTS 1 & 24 **N/A**
BRUNSWICK, ME

UST:

Facility ID:	9062
Tank Number:	2
Installation Date:	11/01/77
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	10/23/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077299488
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	ROUTE 1 AND 24
Update Dt:	12/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	6
Active # Of Tanks:	3
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	SIA Statistical inventory Analysis
Tank Leak Detection Required:	SIA Statistical inventory Analysis
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	09/09/96
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	165
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported

CUMBERLAND FARMS INC 1818 (Continued) **U003098523**

Removal Procedure:	Not reported
Removal Date:	09/09/96
Volume in Gallons:	8000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	8000
Product Type:	Unleaded Plus Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	09/09/96
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	1320
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	1320
Owner/Operator Name:	CUMBERLAND FARMS INC
Owner/Operator Address:	777 DEDHAM ST
Owner/Operator City,St,Zip:	CANTON, MA 02021
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	ENIVORNMENTAL DEPT
Owner/Operator Phone:	7818284900

Facility ID:	9062
Tank Number:	3
Installation Date:	11/01/77
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	10/23/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077299488
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B

CUMBERLAND FARMS INC 1818 (Continued) **U003098523**

Directions:	ROUTE 1 AND 24
Update Dt:	12/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	6
Active # Of Tanks:	3
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	SIA Statistical inventory Analysis
Tank Leak Detection Required:	SIA Statistical inventory Analysis
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	09/09/96
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	165
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	09/09/96
Volume in Gallons:	8000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	8000
Product Type:	Unleaded Plus Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	09/09/96
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	1320
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	1320
Owner/Operator Name:	CUMBERLAND FARMS INC
Owner/Operator Address:	777 DEDHAM ST
Owner/Operator City,St,Zip:	CANTON, MA 02021

CUMBERLAND FARMS INC 1818 (Continued) **U003098523**

Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: ENIVORNMENTAL DEPT
Owner/Operator Phone: 7818284900

Facility ID: 9062
Tank Number: 4
Installation Date: 10/15/96
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 10/23/86
Facility Code: B
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2077299488
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: ROUTE 1 AND 24
Update Dt: 12/13/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 6
Active # Of Tanks: 3
Tank Material: Fiberglass-secondary containment, total containment
Warranty Expiration: 10/15/2026 12:00:00 AM
Tank Leak Detection: Secondary Containment-Continuous Monitoring
Tank Leak Detection Required: Secondary Containment-Continuous Monitoring
Tank Above/Below Ground: B
Tank Status: **Active**
Tank Status Date: 10/15/96
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: 35
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: Not reported
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 8000
Total Num of Chambers for Tank: 1
Installer ID: 35
Fed Reg Ind: Yes
Chamber ID: 1
Volume (gallons): 8000
Product Type: Unleaded Plus Gasoline
Pipe Status: **REMOVED**
Pipe Status Date: 09/09/96
Pipe Material: GALVANIZE
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported

CUMBERLAND FARMS INC 1818 (Continued) **U003098523**

Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	G.R. ADAMS, INC.
Installer Applicant Last Name:	DAVIS
Installer Applicants First Name:	DENNIS
Installer Applicant MI:	M
Installer Applicant Address:	P.O. BOX 302
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	HAMPDEN, ME 04444
Installer Applicant Country:	USA
Installer Applicant Phone:	2078626312
Current Owner ID:	1320
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	1320
Owner/Operator Name:	CUMBERLAND FARMS INC
Owner/Operator Address:	777 DEDHAM ST
Owner/Operator City,St,Zip:	CANTON, MA 02021
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	ENIVORNMENTAL DEPT
Owner/Operator Phone:	7818284900

Facility ID:	9062
Tank Number:	6
Installation Date:	10/15/96
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	10/23/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077299488
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	ROUTE 1 AND 24
Update Dt:	12/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	6
Active # Of Tanks:	3
Tank Material:	Fiberglass-secondary containment, total containment
Warranty Expiration:	10/15/2026 12:00:00 AM
Tank Leak Detection:	Secondary Containment-Continuous Monitoring
Tank Leak Detection Required:	Secondary Containment-Continuous Monitoring
Tank Above/Below Ground:	B
Tank Status:	**Active**
Tank Status Date:	10/15/96
Tank Use:	Not reported
Var Permit:	Not reported

CUMBERLAND FARMS INC 1818 (Continued) **U003098523**

Tank Fee:	35
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Not reported
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	8000
Total Num of Chambers for Tank:	1
Installer ID:	35
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	8000
Product Type:	Unleaded Plus Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	09/09/96
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	G.R. ADAMS, INC.
Installer Applicant Last Name:	DAVIS
Installer Applicants First Name:	DENNIS
Installer Applicant MI:	M
Installer Applicant Address:	P.O. BOX 302
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	HAMPDEN, ME 04444
Installer Applicant Country:	USA
Installer Applicant Phone:	2078626312
Current Owner ID:	1320
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	1320
Owner/Operator Name:	CUMBERLAND FARMS INC
Owner/Operator Address:	777 DEDHAM ST
Owner/Operator City,St,Zip:	CANTON, MA 02021
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	ENIVORNMENTAL DEPT
Owner/Operator Phone:	7818284900

Facility ID:	9062
Tank Number:	5
Installation Date:	10/15/96
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	10/23/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No

CUMBERLAND FARMS INC 1818 (Continued) **U003098523**

On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077299488
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	ROUTE 1 AND 24
Update Dt:	12/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	6
Active # Of Tanks:	3
Tank Material:	Fiberglass-secondary containment, total containment
Warranty Expiration:	10/15/2026 12:00:00 AM
Tank Leak Detection:	Secondary Containment-Continuous Monitoring
Tank Leak Detection Required:	Secondary Containment-Continuous Monitoring
Tank Above/Below Ground:	B
Tank Status:	**Active**
Tank Status Date:	10/15/96
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	35
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Not reported
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	8000
Total Num of Chambers for Tank:	1
Installer ID:	35
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	8000
Product Type:	Unleaded Plus Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	09/09/96
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	G.R. ADAMS, INC.
Installer Applicant Last Name:	DAVIS
Installer Applicants First Name:	DENNIS
Installer Applicant MI:	M
Installer Applicant Address:	P.O. BOX 302
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	HAMPDEN, ME 04444
Installer Applicant Country:	USA
Installer Applicant Phone:	2078626312
Current Owner ID:	1320

CUMBERLAND FARMS INC 1818 (Continued) **U003098523**

Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	1320
Owner/Operator Name:	CUMBERLAND FARMS INC
Owner/Operator Address:	777 DEDHAM ST
Owner/Operator City,St,Zip:	CANTON, MA 02021
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	ENIVORNMENTAL DEPT
Owner/Operator Phone:	7818284900

Facility ID:	9062
Tank Number:	1
Installation Date:	11/01/77
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	10/23/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077299488
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	ROUTE 1 AND 24
Update Dt:	12/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	6
Active # Of Tanks:	3
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	SIA Statistical inventory Analysis
Tank Leak Detection Required:	SIA Statistical inventory Analysis
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	09/09/96
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	165
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	09/09/96
Volume in Gallons:	8000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	8000
Product Type:	Unleaded Plus Gasoline

CUMBERLAND FARMS INC 1818 (Continued) **U003098523**

Pipe Status:	**REMOVED**
Pipe Status Date:	09/09/96
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	1320
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	1320
Owner/Operator Name:	CUMBERLAND FARMS INC
Owner/Operator Address:	777 DEDHAM ST
Owner/Operator City,St,Zip:	CANTON, MA 02021
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	ENIVORNMENTAL DEPT
Owner/Operator Phone:	7818284900

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5 **COOKS CORNER SHOPPING CENTER** **UST** **U002252572**
RTS 1 & 24 **N/A**
BRUNSWICK, ME

UST:

Facility ID:	19157
Tank Number:	1
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	08/30/95
Facility Code:	J
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2078730124
In 100 yr flood plain:	No
Near Waterbody:	No
Facility Type:	B
Directions:	REAR OF SHOPPING CENTER AT COOKS CORNER
Update Dt:	10/05/01
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	1

COOKS CORNER SHOPPING CENTER (Continued) **U002252572**

Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	06/27/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	06/27/95
Volume in Gallons:	500
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	500
Product Type:	Hazardous Chemical Unspecified
Pipe Status:	**REMOVED**
Pipe Status Date:	06/27/95
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	384
Ownership Begin Date:	08/30/95
Ownership End Date:	Not reported
Owner/Operator ID:	34660
Owner/Operator Name:	BRUNSWICK ASSOCS TRUST
Owner/Operator Address:	PO BOX 296R
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04901
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2078730124

5 **COOKS CORNER SUNOCO** **UST** **U003098010**
172 BATH RD **N/A**
BRUNSWICK, ME

UST:

Facility ID:	6231
Tank Number:	3
Installation Date:	10/01/71
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	09/18/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2077299811
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	ROUTE 1
Update Dt:	10/17/01
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	5
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Continuous Electronic Vapor Monitoring
Tank Leak Detection Required:	Continuous Electronic Vapor Monitoring
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	06/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	6000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	1000
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	06/01/92
Pipe Material:	OTHER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported

COOKS CORNER SUNOCO (Continued) **U003098010**

Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	68
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	35155
Owner/Operator Name:	ANDERSON, CHARLIE
Owner/Operator Address:	23 CROCKETT RD
Owner/Operator City,St,Zip:	RAYMOND, ME 04071
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077255443

Facility ID:	6231
Tank Number:	5
Installation Date:	10/01/71
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	09/18/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2077299811
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	ROUTE 1
Update Dt:	10/17/01
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	5
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	06/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported

COOKS CORNER SUNOCO (Continued) **U003098010**

Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	1000
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	06/01/92
Pipe Material:	OTHER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	68
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	35155
Owner/Operator Name:	ANDERSON, CHARLIE
Owner/Operator Address:	23 CROCKETT RD
Owner/Operator City,St,Zip:	RAYMOND, ME 04071
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077255443

Facility ID:	6231
Tank Number:	1
Installation Date:	10/01/71
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	09/18/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes

COOKS CORNER SUNOCO (Continued) **U003098010**

Facility Tel:	2077299811
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	ROUTE 1
Update Dt:	10/17/01
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	5
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Continuous Electronic Vapor Monitoring
Tank Leak Detection Required:	Continuous Electronic Vapor Monitoring
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	06/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	6000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	1000
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	06/01/92
Pipe Material:	OTHER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	68
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported

COOKS CORNER SUNOCO (Continued) **U003098010**

Owner/Operator ID:	35155
Owner/Operator Name:	ANDERSON, CHARLIE
Owner/Operator Address:	23 CROCKETT RD
Owner/Operator City,St,Zip:	RAYMOND, ME 04071
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077255443

Facility ID:	6231
Tank Number:	4
Installation Date:	10/01/71
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	09/18/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2077299811
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	ROUTE 1
Update Dt:	10/17/01
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	5
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	06/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	1000
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	06/01/92

COOKS CORNER SUNOCO (Continued) **U003098010**

Pipe Material:	OTHER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	68
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	35155
Owner/Operator Name:	ANDERSON, CHARLIE
Owner/Operator Address:	23 CROCKETT RD
Owner/Operator City,St,Zip:	RAYMOND, ME 04071
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077255443

Facility ID:	6231
Tank Number:	2
Installation Date:	10/01/71
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	09/18/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2077299811
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	ROUTE 1
Update Dt:	10/17/01
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	5
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Continuous Electronic Vapor Monitoring
Tank Leak Detection Required:	Continuous Electronic Vapor Monitoring
Tank Above/Below Ground:	B

COOKS CORNER SUNOCO (Continued) **U003098010**

Tank Status:	**Removed**
Tank Status Date:	06/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	6000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	1000
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	06/01/92
Pipe Material:	OTHER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	68
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	35155
Owner/Operator Name:	ANDERSON, CHARLIE
Owner/Operator Address:	23 CROCKETT RD
Owner/Operator City,St,Zip:	RAYMOND, ME 04071
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077255443

5 **U-HAUL** **LUST** **S106795007**
173 BATH ROAD **N/A**
BRUNSWICK, ME

LUST:

Spill Number:	P-501-1996
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False
Ust Registered Flag:	True
Ust Tank Site Number:	4276
Ust Tank Number:	Not reported
Ast Inside Flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True
Actual Spill Time Unknown:	True
Number Wells At Risk:	0
Number Wells Impacted:	0
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	O
Spill Type Value:	Oil Incident
Reporter Type Code:	6
Reporter Type Value:	Contractor/Consultant
Detection Method Code:	J
Detection Method Value:	Tank and/or Piping Removal
Inc Location Code:	CM
Inc Location Value:	Business - Commercial
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	1
Spill Cause Value:	Corrosion - Tank
Material Disposal Info:	Not reported
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR
Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	U-HAUL
Contact Addr:	173 BATH ROAD
Contact Addr2:	Not reported
Contact City,St,Zip:	BRUNSWICK, ME 04011
Contact Country:	Not reported
Phone:	2077298770
Potential Rp:	False
Cont Type Code:	SR

U-HAUL (Continued) **S106795007**

Contact Type:	Reporter
Contact Name:	KEITH TAYLOR
Contact Title:	Not reported
Contact Company:	Not reported
Contact Addr:	SUMMIT ENVIRONMENTAL
Contact Addr2:	Not reported
Contact City,St,Zip:	LEWISTON, ME
Contact Country:	Not reported
Phone:	2077956009
Potential Rp:	False
Comments:	Not reported
Primary Employee:	T
Employee Name:	LINDA DORAN
Create Date:	04/02/1997
Create By:	SPILLS
Modify Date:	03/22/2006
Modify By:	IMAGING
File Num Sheets:	0
File Notes:	Report scanned into the imaging system on 22-MAR-06.
Reconcile Date:	Not reported
Medium Code:	G
Medium:	Groundwater
Medium Code:	L
Medium:	Land
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	501
Spill Year:	1996
Create Date:	12/7/2001
Created By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Spill Type Code:	O
Log Spill Type:	Oil Incident
Log Spill Datetime:	Not reported
Spill Time Unk:	True
Spill Dt Unknown:	True
Log Rep Dt Tm:	8/9/1996
Log Rep Prod Cd:	2
Log Rep Prod:	#2 Fuel Oil
Log Emp First Name:	LINDA
Log Emp MI:	Not reported
Log Emp Last Name:	DORAN
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	MM
Mat Recovered:	Mixed Liquid Media
Material Amount:	0
Material Units:	G
Material Units Val:	gals.
Mat Amt Qualifier:	ACTUAL
Create Date:	12/10/2001
Created By:	SPILLS
Modify Date:	01/24/2005

U-HAUL (Continued) **S106795007**

Modify By:	SPILLS
Point Type Code:	ASP
Utm North:	4862021
Utm East:	426266
GPS Unit:	Unknown
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Response_Spill_Points
GIS Object Id:	2387
GIS Sync Flag:	True
Rcvry Meth Code:	K
Recovery Method:	None
Prod Code:	02
Prod Code Value:	#2 Fuel Oil
Product Other:	Not reported
Product Amt:	20
Product Amt Unit:	G
Prod Amt Unit Val:	gals.
Prod Amt Qualifier:	ESTIMATE
Primary Product:	False
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported
Spill Number:	P-366-1996
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False
Ust Registered Flag:	True
Ust Tank Site Number:	4276
Ust Tank Number:	Not reported
Ast Inside Flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True
Actual Spill Time Unknown:	True
Number Wells At Risk:	0
Number Wells Impacted:	0
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	O
Spill Type Value:	Oil Incident
Reporter Type Code:	6
Reporter Type Value:	Contractor/Consultant
Detection Method Code:	J
Detection Method Value:	Tank and/or Piping Removal
Inc Location Code:	CM
Inc Location Value:	Business - Commercial

U-HAUL (Continued) **S106795007**

Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	9
Spill Cause Value:	Overfill
Material Disposal Info:	NONE AT THIS TIME.
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR
Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	AMERCO / U-HAUL
Contact Addr:	2727 NORTH CENTRAL AVE.
Contact Addr2:	Not reported
Contact City,St,Zip:	PHOENIX, AZ 85004
Contact Country:	Not reported
Phone:	8005280463
Potential Rp:	False
Cont Type Code:	SR
Contact Type:	Reporter
Contact Name:	KEITH TAYLOR
Contact Title:	Not reported
Contact Company:	Not reported
Contact Addr:	SUMMITT ENVIRONMENTAL
Contact Addr2:	Not reported
Contact City,St,Zip:	AUBURN, ME 04210
Contact Country:	Not reported
Phone:	2077956009
Potential Rp:	False
Comments:	REMOVAL OF COMMERCIAL, CONSUMPTIVE USE HEATING OIL UST FACILITY. REFERRAL FROM ENFORCEMENT.
Primary Employee:	T
Employee Name:	STEPHEN BREZINSKI
Primary Employee:	F
Employee Name:	EDWARD SCHARF
Create Date:	10/24/1996
Create By:	SPILLS
Modify Date:	03/17/2006
Modify By:	IMAGING
File Num Sheets:	0
File Notes:	Report scanned into the imaging system on 17-MAR-06.
Reconcile Date:	Not reported
Medium Code:	G
Medium:	Groundwater
Medium Code:	L
Medium:	Land
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	366
Spill Year:	1996
Create Date:	12/7/2001
Created By:	SPILLS
Modify Date:	12/7/2001

U-HAUL (Continued) **S106795007**

Modify By:	SPILLS
Spill Type Code:	O
Log Spill Type:	Oil Incident
Log Spill Datetime:	Not reported
Spill Time Unk:	True
Spill Dt Unknown:	True
Log Rep Dt Tm:	8/9/1996
Log Rep Prod Cd:	2
Log Rep Prod:	#2 Fuel Oil
Log Emp First Name:	STEPHEN
Log Emp MI:	Not reported
Log Emp Last Name:	BREZINSKI
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	MM
Mat Recovered:	Mixed Liquid Media
Material Amount:	0
Material Units:	G
Material Units Val:	gals.
Mat Amt Qualifier:	ACTUAL
Create Date:	12/10/2001
Created By:	SPILLS
Modify Date:	01/24/2005
Modify By:	SPILLS
Point Type Code:	ASP
Utm North:	4862021
Utm East:	426266
GPS Unit:	Unknown
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Response_Spill_Points
GIS Object Id:	2390
GIS Sync Flag:	True
Rcvry Meth Code:	K
Recovery Method:	None
Prod Code:	02
Prod Code Value:	#2 Fuel Oil
Product Other:	Not reported
Product Amt:	1
Product Amt Unit:	G
Prod Amt Unit Val:	gals.
Prod Amt Qualifier:	ESTIMATE
Primary Product:	False
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported

5 **LOT 6** **UST** **U001391844**
177 BATH RD **N/A**
BRUNSWICK, ME 04011

UST:

Facility ID:	18566
Tank Number:	1
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	05/06/93
Facility Code:	C
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	0
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	177 TO 181 BATH ROAD ACROSS FROM CITGO GAS STATION COOK CORN
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	1
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	06/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	450
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	450
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	06/01/93
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported

LOT 6 (Continued) **U001391844**

Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	2214
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	2214
Owner/Operator Name:	ROSENTHAL, ROBERT A
Owner/Operator Address:	PO BOX 296
Owner/Operator City,St,Zip:	WATERVILLE, ME 04903
Owner/Operator Location:	177 BATH RD
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2078730124

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5 **FANTASTIC CAR WASH** **LUST** **S104217581**
178 BATH RD, COOKS CORNER **N/A**
BRUNSWICK, ME

LUST:

Spill Number:	P-589-1994
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False
Ust Registered Flag:	True
Ust Tank Site Number:	4826
Ust Tank Number:	3
Ast Inside Flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True
Actual Spill Time Unknown:	True
Number Wells At Risk:	Not reported
Number Wells Impacted:	Not reported
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	O
Spill Type Value:	Oil Incident
Reporter Type Code:	6
Reporter Type Value:	Contractor/Consultant
Detection Method Code:	J

FANTASTIC CAR WASH (Continued) **S104217581**

Detection Method Value:	Tank and/or Piping Removal
Inc Location Code:	SS
Inc Location Value:	Terminal - Service Station
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	18
Spill Cause Value:	Other - Unknown
Material Disposal Info:	Contracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial Recycling
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR
Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	C. N. BROWN
Contact Addr:	P. O. BOX 200
Contact Addr2:	Not reported
Contact City,St,Zip:	SOUTH PARIS, ME 04281
Contact Country:	Not reported
Phone:	2077439212
Potential Rp:	False
Cont Type Code:	SR
Contact Type:	Reporter
Contact Name:	BURRILL SCOTT
Contact Title:	Not reported
Contact Company:	Not reported
Contact Addr:	ACADIA ENVIRONMENTAL
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Country:	Not reported
Phone:	2077808826
Potential Rp:	False
Comments:	CONTACT - KEVIN MOORE, OP'S MGR.
Primary Employee:	T
Employee Name:	LINDA DORAN
Create Date:	07/31/1995
Create By:	SPILLS
Modify Date:	12/07/2001
Modify By:	SPILLS
File Num Sheets:	11
File Notes:	Not reported
Reconcile Date:	Not reported
Medium Code:	G
Medium:	Groundwater
Medium Code:	L
Medium:	Land
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	589
Spill Year:	1994

FANTASTIC CAR WASH (Continued) **S104217581**

Create Date:	12/7/2001
Created By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Spill Type Code:	O
Log Spill Type:	Oil Incident
Log Spill Datetime:	Not reported
Spill Time Unk:	True
Spill Dt Unknown:	True
Log Rep Dt Tm:	9/19/1994
Log Rep Prod Cd:	20
Log Rep Prod:	Gasoline Unspecified
Log Emp First Name:	LINDA
Log Emp MI:	Not reported
Log Emp Last Name:	DORAN
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	MM
Mat Recovered:	Mixed Liquid Media
Material Amount:	Not reported
Material Units:	G
Material Units Val:	gals.
Mat Amt Qualifier:	UNKNOWN
Create Date:	12/10/2001
Created By:	SPILLS
Modify Date:	01/24/2005
Modify By:	SPILLS
Point Type Code:	ASP
Utm North:	4861990
Utm East:	426344
GPS Unit:	Unknown
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Response_Spill_Points
GIS Object Id:	157
GIS Sync Flag:	True
Rcvry Meth Code:	G
Recovery Method:	Excavation
Prod Code:	20
Prod Code Value:	Gasoline Unspecified
Product Other:	Not reported
Product Amt:	Not reported
Product Amt Unit:	G
Prod Amt Unit Val:	gals.
Prod Amt Qualifier:	UNKNOWN
Primary Product:	False
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported
Spill Number:	P-589-1994
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False

FANTASTIC CAR WASH (Continued) **S104217581**

Ust Registered Flag:	True
Ust Tank Site Number:	4826
Ust Tank Number:	2
Ast Inside Flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True
Actual Spill Time Unknown:	True
Number Wells At Risk:	Not reported
Number Wells Impacted:	Not reported
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	O
Spill Type Value:	Oil Incident
Reporter Type Code:	6
Reporter Type Value:	Contractor/Consultant
Detection Method Code:	J
Detection Method Value:	Tank and/or Piping Removal
Inc Location Code:	SS
Inc Location Value:	Terminal - Service Station
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	18
Spill Cause Value:	Other - Unknown
Material Disposal Info:	Contracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial Recycling
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR
Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	C. N. BROWN
Contact Addr:	P. O. BOX 200
Contact Addr2:	Not reported
Contact City,St,Zip:	SOUTH PARIS, ME 04281
Contact Country:	Not reported
Phone:	2077439212
Potential Rp:	False
Cont Type Code:	SR
Contact Type:	Reporter
Contact Name:	BURRILL SCOTT
Contact Title:	Not reported
Contact Company:	Not reported

FANTASTIC CAR WASH (Continued) **S104217581**

Contact Addr:	ACADIA ENVIRONMENTAL
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Country:	Not reported
Phone:	2077808826
Potential Rp:	False
Comments:	CONTACT - KEVIN MOORE, OP'S MGR.
Primary Employee:	T
Employee Name:	LINDA DORAN
Create Date:	07/31/1995
Create By:	SPILLS
Modify Date:	12/07/2001
Modify By:	SPILLS
File Num Sheets:	11
File Notes:	Not reported
Reconcile Date:	Not reported
Medium Code:	G
Medium:	Groundwater
Medium Code:	L
Medium:	Land
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	589
Spill Year:	1994
Create Date:	12/7/2001
Created By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Spill Type Code:	O
Log Spill Type:	Oil Incident
Log Spill Datetime:	Not reported
Spill Time Unk:	True
Spill Dt Unknown:	True
Log Rep Dt Tm:	9/19/1994
Log Rep Prod Cd:	20
Log Rep Prod:	Gasoline Unspecified
Log Emp First Name:	LINDA
Log Emp MI:	Not reported
Log Emp Last Name:	DORAN
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	MM
Mat Recovered:	Mixed Liquid Media
Material Amount:	Not reported
Material Units:	G
Material Units Val:	gals.
Mat Amt Qualifier:	UNKNOWN
Create Date:	12/10/2001
Created By:	SPILLS
Modify Date:	01/24/2005
Modify By:	SPILLS
Point Type Code:	ASP
Utm North:	4861990
Utm East:	426344

FANTASTIC CAR WASH (Continued) **S104217581**

GPS Unit:	Unknown
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Response_Spill_Points
GIS Object Id:	157
GIS Sync Flag:	True
Rcvry Meth Code:	G
Recovery Method:	Excavation
Prod Code:	20
Prod Code Value:	Gasoline Unspecified
Product Other:	Not reported
Product Amt:	Not reported
Product Amt Unit:	G
Prod Amt Unit Val:	gals.
Prod Amt Qualifier:	UNKNOWN
Primary Product:	False
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported
Spill Number:	P-589-1994
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False
Ust Registered Flag:	True
Ust Tank Site Number:	4826
Ust Tank Number:	4
Ast Inside Flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True
Actual Spill Time Unknown:	True
Number Wells At Risk:	Not reported
Number Wells Impacted:	Not reported
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	O
Spill Type Value:	Oil Incident
Reporter Type Code:	6
Reporter Type Value:	Contractor/Consultant
Detection Method Code:	J
Detection Method Value:	Tank and/or Piping Removal
Inc Location Code:	SS
Inc Location Value:	Terminal - Service Station
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	18
Spill Cause Value:	Other - Unknown

FANTASTIC CAR WASH (Continued) **S104217581**

Material Disposal Info:	Contracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial Recycling
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR
Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	C. N. BROWN
Contact Addr:	P. O. BOX 200
Contact Addr2:	Not reported
Contact City,St,Zip:	SOUTH PARIS, ME 04281
Contact Country:	Not reported
Phone:	2077439212
Potential Rp:	False
Cont Type Code:	SR
Contact Type:	Reporter
Contact Name:	BURRILL SCOTT
Contact Title:	Not reported
Contact Company:	Not reported
Contact Addr:	ACADIA ENVIRONMENTAL
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Country:	Not reported
Phone:	2077808826
Potential Rp:	False
Comments:	CONTACT - KEVIN MOORE, OP'S MGR.
Primary Employee:	T
Employee Name:	LINDA DORAN
Create Date:	07/31/1995
Create By:	SPILLS
Modify Date:	12/07/2001
Modify By:	SPILLS
File Num Sheets:	11
File Notes:	Not reported
Reconcile Date:	Not reported
Medium Code:	G
Medium:	Groundwater
Medium Code:	L
Medium:	Land
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	589
Spill Year:	1994
Create Date:	12/7/2001
Created By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Spill Type Code:	O
Log Spill Type:	Oil Incident
Log Spill Datetime:	Not reported

FANTASTIC CAR WASH (Continued) **S104217581**

Spill Time Unk:	True
Spill Dt Unknown:	True
Log Rep Dt Tm:	9/19/1994
Log Rep Prod Cd:	20
Log Rep Prod:	Gasoline Unspecified
Log Emp First Name:	LINDA
Log Emp MI:	Not reported
Log Emp Last Name:	DORAN
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	MM
Mat Recovered:	Mixed Liquid Media
Material Amount:	Not reported
Material Units:	G
Material Units Val:	gals.
Mat Amt Qualifier:	UNKNOWN
Create Date:	12/10/2001
Created By:	SPILLS
Modify Date:	01/24/2005
Modify By:	SPILLS
Point Type Code:	ASP
Utm North:	4861990
Utm East:	426344
GPS Unit:	Unknown
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Response_Spill_Points
GIS Object Id:	157
GIS Sync Flag:	True
Rcvry Meth Code:	G
Recovery Method:	Excavation
Prod Code:	20
Prod Code Value:	Gasoline Unspecified
Product Other:	Not reported
Product Amt:	Not reported
Product Amt Unit:	G
Prod Amt Unit Val:	gals.
Prod Amt Qualifier:	UNKNOWN
Primary Product:	False
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported
Spill Number:	P-589-1994
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False
Ust Registered Flag:	True
Ust Tank Site Number:	4826
Ust Tank Number:	6
Ast Inside Flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001

FANTASTIC CAR WASH (Continued) **S104217581**

Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True
Actual Spill Time Unknown:	True
Number Wells At Risk:	Not reported
Number Wells Impacted:	Not reported
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	O
Spill Type Value:	Oil Incident
Reporter Type Code:	6
Reporter Type Value:	Contractor/Consultant
Detection Method Code:	J
Detection Method Value:	Tank and/or Piping Removal
Inc Location Code:	SS
Inc Location Value:	Terminal - Service Station
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	18
Spill Cause Value:	Other - Unknown
Material Disposal Info:	Contracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial Recycling
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR
Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	C. N. BROWN
Contact Addr:	P. O. BOX 200
Contact Addr2:	Not reported
Contact City,St,Zip:	SOUTH PARIS, ME 04281
Contact Country:	Not reported
Phone:	2077439212
Potential Rp:	False
Cont Type Code:	SR
Contact Type:	Reporter
Contact Name:	BURRILL SCOTT
Contact Title:	Not reported
Contact Company:	Not reported
Contact Addr:	ACADIA ENVIRONMENTAL
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Country:	Not reported
Phone:	2077808826
Potential Rp:	False
Comments:	CONTACT - KEVIN MOORE, OP'S MGR.

FANTASTIC CAR WASH (Continued) **S104217581**

Primary Employee:	T
Employee Name:	LINDA DORAN
Create Date:	07/31/1995
Create By:	SPILLS
Modify Date:	12/07/2001
Modify By:	SPILLS
File Num Sheets:	11
File Notes:	Not reported
Reconcile Date:	Not reported
Medium Code:	G
Medium:	Groundwater
Medium Code:	L
Medium:	Land
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	589
Spill Year:	1994
Create Date:	12/7/2001
Created By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Spill Type Code:	O
Log Spill Type:	Oil Incident
Log Spill Datetime:	Not reported
Spill Time Unk:	True
Spill Dt Unknown:	True
Log Rep Dt Tm:	9/19/1994
Log Rep Prod Cd:	20
Log Rep Prod:	Gasoline Unspecified
Log Emp First Name:	LINDA
Log Emp MI:	Not reported
Log Emp Last Name:	DORAN
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	MM
Mat Recovered:	Mixed Liquid Media
Material Amount:	Not reported
Material Units:	G
Material Units Val:	gals.
Mat Amt Qualifier:	UNKNOWN
Create Date:	12/10/2001
Created By:	SPILLS
Modify Date:	01/24/2005
Modify By:	SPILLS
Point Type Code:	ASP
Utm North:	4861990
Utm East:	426344
GPS Unit:	Unknown
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Response_Spill_Points
GIS Object Id:	157
GIS Sync Flag:	True
Rcvry Meth Code:	G

FANTASTIC CAR WASH (Continued) **S104217581**

Recovery Method:	Excavation
Prod Code:	20
Prod Code Value:	Gasoline Unspecified
Product Other:	Not reported
Product Amt:	Not reported
Product Amt Unit:	G
Prod Amt Unit Val:	gals.
Prod Amt Qualifier:	UNKNOWN
Primary Product:	False
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported
Spill Number:	P-589-1994
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False
Ust Registered Flag:	True
Ust Tank Site Number:	4826
Ust Tank Number:	5
Ast Inside Flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True
Actual Spill Time Unknown:	True
Number Wells At Risk:	Not reported
Number Wells Impacted:	Not reported
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	O
Spill Type Value:	Oil Incident
Reporter Type Code:	6
Reporter Type Value:	Contractor/Consultant
Detection Method Code:	J
Detection Method Value:	Tank and/or Piping Removal
Inc Location Code:	SS
Inc Location Value:	Terminal - Service Station
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	18
Spill Cause Value:	Other - Unknown
Material Disposal Info:	Contracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial Recycling
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR

FANTASTIC CAR WASH (Continued) **S104217581**

Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	C. N. BROWN
Contact Addr:	P. O. BOX 200
Contact Addr2:	Not reported
Contact City,St,Zip:	SOUTH PARIS, ME 04281
Contact Country:	Not reported
Phone:	2077439212
Potential Rp:	False
Cont Type Code:	SR
Contact Type:	Reporter
Contact Name:	BURRILL SCOTT
Contact Title:	Not reported
Contact Company:	Not reported
Contact Addr:	ACADIA ENVIRONMENTAL
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Country:	Not reported
Phone:	2077808826
Potential Rp:	False
Comments:	CONTACT - KEVIN MOORE, OP'S MGR.
Primary Employee:	T
Employee Name:	LINDA DORAN
Create Date:	07/31/1995
Create By:	SPILLS
Modify Date:	12/07/2001
Modify By:	SPILLS
File Num Sheets:	11
File Notes:	Not reported
Reconcile Date:	Not reported
Medium Code:	G
Medium:	Groundwater
Medium Code:	L
Medium:	Land
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	589
Spill Year:	1994
Create Date:	12/7/2001
Created By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Spill Type Code:	O
Log Spill Type:	Oil Incident
Log Spill Datetime:	Not reported
Spill Time Unk:	True
Spill Dt Unknown:	True
Log Rep Dt Tm:	9/19/1994
Log Rep Prod Cd:	20
Log Rep Prod:	Gasoline Unspecified
Log Emp First Name:	LINDA
Log Emp MI:	Not reported

FANTASTIC CAR WASH (Continued) **S104217581**

Log Emp Last Name:	DORAN
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	MM
Mat Recovered:	Mixed Liquid Media
Material Amount:	Not reported
Material Units:	G
Material Units Val:	gals.
Mat Amt Qualifier:	UNKNOWN
Create Date:	12/10/2001
Created By:	SPILLS
Modify Date:	01/24/2005
Modify By:	SPILLS
Point Type Code:	ASP
Utm North:	4861990
Utm East:	426344
GPS Unit:	Unknown
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Response_Spill_Points
GIS Object Id:	157
GIS Sync Flag:	True
Rcvry Meth Code:	G
Recovery Method:	Excavation
Prod Code:	20
Prod Code Value:	Gasoline Unspecified
Product Other:	Not reported
Product Amt:	Not reported
Product Amt Unit:	G
Prod Amt Unit Val:	gals.
Prod Amt Qualifier:	UNKNOWN
Primary Product:	False
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported
Spill Number:	P-589-1994
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False
Ust Registered Flag:	True
Ust Tank Site Number:	4826
Ust Tank Number:	1
Ast Inside Flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True
Actual Spill Time Unknown:	True
Number Wells At Risk:	Not reported

FANTASTIC CAR WASH (Continued) **S104217581**

Number Wells Impacted:	Not reported
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	O
Spill Type Value:	Oil Incident
Reporter Type Code:	6
Reporter Type Value:	Contractor/Consultant
Detection Method Code:	J
Detection Method Value:	Tank and/or Piping Removal
Inc Location Code:	SS
Inc Location Value:	Terminal - Service Station
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	18
Spill Cause Value:	Other - Unknown
Material Disposal Info:	Contracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial RecyclingContracted soi sent to Commercial Recycling
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR
Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	C. N. BROWN
Contact Addr:	P. O. BOX 200
Contact Addr2:	Not reported
Contact City,St,Zip:	SOUTH PARIS, ME 04281
Contact Country:	Not reported
Phone:	2077439212
Potential Rp:	False
Cont Type Code:	SR
Contact Type:	Reporter
Contact Name:	BURRILL SCOTT
Contact Title:	Not reported
Contact Company:	Not reported
Contact Addr:	ACADIA ENVIRONMENTAL
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Country:	Not reported
Phone:	2077808826
Potential Rp:	False
Comments:	CONTACT - KEVIN MOORE, OP'S MGR.
Primary Employee:	T
Employee Name:	LINDA DORAN
Create Date:	07/31/1995
Create By:	SPILLS
Modify Date:	12/07/2001
Modify By:	SPILLS
File Num Sheets:	11

FANTASTIC CAR WASH (Continued) **S104217581**

File Notes:	Not reported
Reconcile Date:	Not reported
Medium Code:	G
Medium:	Groundwater
Medium Code:	L
Medium:	Land
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	589
Spill Year:	1994
Create Date:	12/7/2001
Created By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Spill Type Code:	O
Log Spill Type:	Oil Incident
Log Spill Datetime:	Not reported
Spill Time Unk:	True
Spill Dt Unknown:	True
Log Rep Dt Tm:	9/19/1994
Log Rep Prod Cd:	20
Log Rep Prod:	Gasoline Unspecified
Log Emp First Name:	LINDA
Log Emp MI:	Not reported
Log Emp Last Name:	DORAN
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	MM
Mat Recovered:	Mixed Liquid Media
Material Amount:	Not reported
Material Units:	G
Material Units Val:	gals.
Mat Amt Qualifier:	UNKNOWN
Create Date:	12/10/2001
Created By:	SPILLS
Modify Date:	01/24/2005
Modify By:	SPILLS
Point Type Code:	ASP
Utm North:	4861990
Utm East:	426344
GPS Unit:	Unknown
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Response_Spill_Points
GIS Object Id:	157
GIS Sync Flag:	True
Rcvry Meth Code:	G
Recovery Method:	Excavation
Prod Code:	20
Prod Code Value:	Gasoline Unspecified
Product Other:	Not reported
Product Amt:	Not reported
Product Amt Unit:	G
Prod Amt Unit Val:	gals.

FANTASTIC CAR WASH (Continued) **S104217581**

Prod Amt Qualifier:	UNKNOWN
Primary Product:	False
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported

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5 **GETTY STATION** **UST** **U002165164**
184 BATH RD COOKS CORNER **N/A**
BRUNSWICK, ME

UST:

Facility ID:	2216
Tank Number:	1
Installation Date:	11/01/67
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/09/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077299565
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	COOKS CORNER SHOPPING CENTER, AT 184 BATH ROAD
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	3
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	10000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	10000
Product Type:	Unleaded Gasoline

GETTY STATION (Continued) **U002165164**

Pipe Status:	**REMOVED**
Pipe Status Date:	05/01/92
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	2214
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	35680
Owner/Operator Name:	N.S.I.
Owner/Operator Address:	915 UNION ST
Owner/Operator City,St,Zip:	BANGOR, ME 04401
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	6033827900

Facility ID:	2216
Tank Number:	2
Installation Date:	11/01/67
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/09/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077299565
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	COOKS CORNER SHOPPING CENTER, AT 184 BATH ROAD
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	3
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown

GETTY STATION (Continued) **U002165164**

Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	10000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	10000
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	05/01/92
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	2214
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	35680
Owner/Operator Name:	N.S.I.
Owner/Operator Address:	915 UNION ST
Owner/Operator City,St,Zip:	BANGOR, ME 04401
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	6033827900

Facility ID:	2216
Tank Number:	3
Installation Date:	11/01/67
Facility Use:	Not reported

GETTY STATION (Continued) **U002165164**

Gen ID:	Not reported
Reg Date:	07/09/86
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077299565
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	COOKS CORNER SHOPPING CENTER, AT 184 BATH ROAD
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	3
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	10000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	10000
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	05/01/92
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported

GETTY STATION (Continued) **U002165164**

Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	2214
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	35680
Owner/Operator Name:	N.S.I.
Owner/Operator Address:	915 UNION ST
Owner/Operator City,St,Zip:	BANGOR, ME 04401
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	6033827900

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5 **MARY HOPKINS** **LAST** **S106673802**
7 A ST **N/A**
BRUNSWICK, ME

LAST:

Spill Number:	P-874-2003
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False
Create Date:	10/21/2003
Create By:	EICPAQUE
Modify Date:	10/20/2004
Modify By:	EITGALLA
Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	Not reported
Spill Date Unknown:	True
Spill Time Unknown:	True
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	H
Detection Method Value:	Odor/Vapor/Mist
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	TA
Inc Source Value:	Storage Unit - Aboveground Storage Tank
Spill Cause Code:	16
Spill Cause Value:	Accident - Poor Workmanship

MARY HOPKINS (Continued) **S106673802**

Material Disposal Info: Not reported

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5 **CUMBERLAND FARMS #1818** **RCRA-SQG** **1007264417**
190 BATH ROAD **MER000502351**
BRUNSWICK, ME 04011

RCRAInfo:
Owner: CUMBERLAND FARMS INC
1-800-225-9702
EPA ID: MER000502351

Contact: RICHARD ETZOLD
1-800-225-9702

Classification: Small Quantity Generator
TSDF Activities: Not reported

Violation Status: No violations found

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5 **VALERIES LTD** **UST** **U003052806**
203 BATH RD **N/A**
BRUNSWICK, ME 04011

UST:
Facility ID: 9367
Tank Number: 1
Installation Date: 09/01/83
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 11/03/86
Facility Code: C
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2077290604
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: COOK'S CORNER
Update Dt: 08/13/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 1
Active # Of Tanks: 0
Tank Material: Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: **Removed**
Tank Status Date: 11/30/97
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: 35
Tank Location Method: Not reported
Lat/Long (dms): Not reported

VALERIES LTD (Continued) **U003052806**

Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	11/30/97
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	1000
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	11/30/97
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	15687
Ownership Begin Date:	01/01/95
Ownership End Date:	12/6/1996 12:00:00 AM
Owner/Operator ID:	39202
Owner/Operator Name:	VALERIE'S L.T.D.
Owner/Operator Address:	203 BATH ROAD
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077258141

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6 **BATH ROAD PUFFIN STOP** **UST** **U002165220**
101 BATH RD **N/A**
BRUNSWICK, ME 04011

UST:

Facility ID:	9426
Tank Number:	1
Installation Date:	01/01/70
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	11/04/86
Facility Code:	B
Near Public Water:	Yes
Near Pvt Water:	No

BATH ROAD PUFFIN STOP (Continued) **U002165220**

Near Other Water:	No
On Aquifer:	No
Sensitive Area:	Yes
Facility Tel:	2077299484
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	101 BATH ROAD, BRUNSWICK
Update Dt:	05/07/02
Print Cert:	Yes
Last Inspected:	4/30/2002 12:00:00 AM
Num Of Tanks:	8
Active # Of Tanks:	3
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	12/01/89
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	8000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	8000
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	12/01/89
Pipe Material:	STEEL_ASP
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported

BATH ROAD PUFFIN STOP (Continued) **U002165220**

Current Owner ID:	22143
Ownership Begin Date:	01/01/95
Ownership End Date:	12/18/2001 12:00:00 AM
Owner/Operator ID:	22143
Owner/Operator Name:	ALLIANCE ENERGY CORP
Owner/Operator Address:	36 EAST INDUSTRIAL RD
Owner/Operator City,St,Zip:	BRANFORD, CT 06405
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	8008998602

Facility ID:	9426
Tank Number:	4
Installation Date:	01/01/70
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	11/04/86
Facility Code:	B
Near Public Water:	Yes
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	Yes
Facility Tel:	2077299484
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	101 BATH ROAD, BRUNSWICK
Update Dt:	05/07/02
Print Cert:	Yes
Last Inspected:	4/30/2002 12:00:00 AM
Num Of Tanks:	8
Active # Of Tanks:	3
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	12/01/89
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	500
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	8000

BATH ROAD PUFFIN STOP (Continued) **U002165220**

Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	12/01/89
Pipe Material:	STEEL_ASP
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	22143
Ownership Begin Date:	01/01/95
Ownership End Date:	12/18/2001 12:00:00 AM
Owner/Operator ID:	22143
Owner/Operator Name:	ALLIANCE ENERGY CORP
Owner/Operator Address:	36 EAST INDUSTRIAL RD
Owner/Operator City,St,Zip:	BRANFORD, CT 06405
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	8008998602

Facility ID:	9426
Tank Number:	5
Installation Date:	09/01/89
Facility Use:	Not reported
Gen ID:	276
Reg Date:	11/04/86
Facility Code:	B
Near Public Water:	Yes
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	Yes
Facility Tel:	2077299484
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	101 BATH ROAD, BRUNSWICK
Update Dt:	05/07/02
Print Cert:	Yes
Last Inspected:	4/30/2002 12:00:00 AM
Num Of Tanks:	8
Active # Of Tanks:	3
Tank Material:	Fiberglass-secondary containment, total containment
Warranty Expiration:	9/1/2019 12:00:00 AM

BATH ROAD PUFFIN STOP (Continued) **U002165220**

Tank Leak Detection:	Secondary Containment-Continuous Monitoring
Tank Leak Detection Required:	Secondary Containment-Continuous Monitoring
Tank Above/Below Ground:	B
Tank Status:	**Active**
Tank Status Date:	09/01/89
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	35
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	12000
Total Num of Chambers for Tank:	1
Installer ID:	270
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	8000
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	12/01/89
Pipe Material:	STEEL_ASP
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	FEARON, PAUL
Installer Applicant Last Name:	FEARON
Installer Applicants First Name:	PAUL
Installer Applicant MI:	Not reported
Installer Applicant Address:	112 HUSTON RD
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	GORHAM, ME 04038
Installer Applicant Country:	Not reported
Installer Applicant Phone:	2078544044
Current Owner ID:	22143
Ownership Begin Date:	01/01/95
Ownership End Date:	12/18/2001 12:00:00 AM
Owner/Operator ID:	22143
Owner/Operator Name:	ALLIANCE ENERGY CORP
Owner/Operator Address:	36 EAST INDUSTRIAL RD
Owner/Operator City,St,Zip:	BRANFORD, CT 06405
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	8008998602

Facility ID:	9426
Tank Number:	8
Installation Date:	09/01/89

BATH ROAD PUFFIN STOP (Continued) **U002165220**

Facility Use:	Not reported
Gen ID:	276
Reg Date:	11/04/86
Facility Code:	B
Near Public Water:	Yes
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	Yes
Facility Tel:	2077299484
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	101 BATH ROAD, BRUNSWICK
Update Dt:	05/07/02
Print Cert:	Yes
Last Inspected:	4/30/2002 12:00:00 AM
Num Of Tanks:	8
Active # Of Tanks:	3
Tank Material:	Fiberglass-secondary containment, total containment
Warranty Expiration:	Not reported
Tank Leak Detection:	Secondary Containment-Continuous Monitoring
Tank Leak Detection Required:	Secondary Containment-Continuous Monitoring
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/31/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	08/31/92
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	270
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	8000
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	12/01/89
Pipe Material:	STEEL_ASP
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	FEARON, PAUL
Installer Applicant Last Name:	FEARON
Installer Applicants First Name:	PAUL

BATH ROAD PUFFIN STOP (Continued) **U002165220**

Installer Applicant MI:	Not reported
Installer Applicant Address:	112 HUSTON RD
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	GORHAM, ME 04038
Installer Applicant Country:	Not reported
Installer Applicant Phone:	2078544044
Current Owner ID:	22143
Ownership Begin Date:	01/01/95
Ownership End Date:	12/18/2001 12:00:00 AM
Owner/Operator ID:	22143
Owner/Operator Name:	ALLIANCE ENERGY CORP
Owner/Operator Address:	36 EAST INDUSTRIAL RD
Owner/Operator City,St,Zip:	BRANFORD, CT 06405
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	8008998602

Facility ID:	9426
Tank Number:	2
Installation Date:	01/01/70
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	11/04/86
Facility Code:	B
Near Public Water:	Yes
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	Yes
Facility Tel:	2077299484
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	101 BATH ROAD, BRUNSWICK
Update Dt:	05/07/02
Print Cert:	Yes
Last Inspected:	4/30/2002 12:00:00 AM
Num Of Tanks:	8
Active # Of Tanks:	3
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	12/01/89
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /

BATH ROAD PUFFIN STOP (Continued) **U002165220**

Volume in Gallons:	8000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	8000
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	12/01/89
Pipe Material:	STEEL_ASP
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	22143
Ownership Begin Date:	01/01/95
Ownership End Date:	12/18/2001 12:00:00 AM
Owner/Operator ID:	22143
Owner/Operator Name:	ALLIANCE ENERGY CORP
Owner/Operator Address:	36 EAST INDUSTRIAL RD
Owner/Operator City,St,Zip:	BRANFORD, CT 06405
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	8008998602

Facility ID:	9426
Tank Number:	6
Installation Date:	09/01/89
Facility Use:	Not reported
Gen ID:	276
Reg Date:	11/04/86
Facility Code:	B
Near Public Water:	Yes
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	Yes
Facility Tel:	2077299484
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	101 BATH ROAD, BRUNSWICK
Update Dt:	05/07/02

BATH ROAD PUFFIN STOP (Continued) **U002165220**

Print Cert:	Yes
Last Inspected:	4/30/2002 12:00:00 AM
Num Of Tanks:	8
Active # Of Tanks:	3
Tank Material:	Fiberglass-secondary containment, total containment
Warranty Expiration:	9/1/2019 12:00:00 AM
Tank Leak Detection:	Secondary Containment-Continuous Monitoring
Tank Leak Detection Required:	Secondary Containment-Continuous Monitoring
Tank Above/Below Ground:	B
Tank Status:	**Active**
Tank Status Date:	09/01/89
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	35
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	10000
Total Num of Chambers for Tank:	1
Installer ID:	270
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	8000
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	12/01/89
Pipe Material:	STEEL_ASP
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	FEARON, PAUL
Installer Applicant Last Name:	FEARON
Installer Applicants First Name:	PAUL
Installer Applicant MI:	Not reported
Installer Applicant Address:	112 HUSTON RD
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	GORHAM, ME 04038
Installer Applicant Country:	Not reported
Installer Applicant Phone:	2078544044
Current Owner ID:	22143
Ownership Begin Date:	01/01/95
Ownership End Date:	12/18/2001 12:00:00 AM
Owner/Operator ID:	22143
Owner/Operator Name:	ALLIANCE ENERGY CORP
Owner/Operator Address:	36 EAST INDUSTRIAL RD
Owner/Operator City,St,Zip:	BRANFORD, CT 06405
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported

BATH ROAD PUFFIN STOP (Continued) **U002165220**

Operator Contact: Not reported
Owner/Operator Phone: 8008998602

Facility ID: 9426
Tank Number: 3
Installation Date: 01/01/70
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 11/04/86
Facility Code: B
Near Public Water: Yes
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: Yes
Facility Tel: 2077299484
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: 101 BATH ROAD, BRUNSWICK
Update Dt: 05/07/02
Print Cert: Yes
Last Inspected: 4/30/2002 12:00:00 AM
Num Of Tanks: 8
Active # Of Tanks: 3
Tank Material: Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 12/01/89
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 8000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: Yes
Chamber ID: 1
Volume (gallons): 8000
Product Type: Unleaded Gasoline
Pipe Status: REMOVED
Pipe Status Date: 12/01/89
Pipe Material: STEEL_ASP
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported

BATH ROAD PUFFIN STOP (Continued) **U002165220**

Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	22143
Ownership Begin Date:	01/01/95
Ownership End Date:	12/18/2001 12:00:00 AM
Owner/Operator ID:	22143
Owner/Operator Name:	ALLIANCE ENERGY CORP
Owner/Operator Address:	36 EAST INDUSTRIAL RD
Owner/Operator City,St,Zip:	BRANFORD, CT 06405
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	8008998602

Facility ID:	9426
Tank Number:	7
Installation Date:	09/01/89
Facility Use:	Not reported
Gen ID:	276
Reg Date:	11/04/86
Facility Code:	B
Near Public Water:	Yes
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	Yes
Facility Tel:	2077299484
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	101 BATH ROAD, BRUNSWICK
Update Dt:	05/07/02
Print Cert:	Yes
Last Inspected:	4/30/2002 12:00:00 AM
Num Of Tanks:	8
Active # Of Tanks:	3
Tank Material:	Fiberglass-secondary containment, total containment
Warranty Expiration:	9/1/2019 12:00:00 AM
Tank Leak Detection:	Secondary Containment-Continuous Monitoring
Tank Leak Detection Required:	Secondary Containment-Continuous Monitoring
Tank Above/Below Ground:	B
Tank Status:	**Active**
Tank Status Date:	09/01/89
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	35
Tank Location Method:	Not reported

BATH ROAD PUFFIN STOP (Continued) **U002165220**

Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Y
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	10000
Total Num of Chambers for Tank:	1
Installer ID:	270
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	8000
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	12/01/89
Pipe Material:	STEEL_ASP
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	FEARON, PAUL
Installer Applicant Last Name:	FEARON
Installer Applicants First Name:	PAUL
Installer Applicant MI:	Not reported
Installer Applicant Address:	112 HUSTON RD
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	GORHAM, ME 04038
Installer Applicant Country:	Not reported
Installer Applicant Phone:	2078544044
Current Owner ID:	22143
Ownership Begin Date:	01/01/95
Ownership End Date:	12/18/2001 12:00:00 AM
Owner/Operator ID:	22143
Owner/Operator Name:	ALLIANCE ENERGY CORP
Owner/Operator Address:	36 EAST INDUSTRIAL RD
Owner/Operator City,St,Zip:	BRANFORD, CT 06405
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	8008998602

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6 **BATH ROAD PUFFIN STOP / MOBIL** **LUST** **S104222790**
101 BATH ROAD **N/A**
BRUNSWICK, ME

LUST:

Spill Number:	P-160-1997
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False
Ust Registered Flag:	True
Ust Tank Site Number:	9426
Ust Tank Number:	Not reported
Ast Inside Flag:	False

BATH ROAD PUFFIN STOP / MOBIL (Continued) **S104222790**

Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True
Actual Spill Time Unknown:	True
Number Wells At Risk:	0
Number Wells Impacted:	0
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	O
Spill Type Value:	Oil Incident
Reporter Type Code:	6
Reporter Type Value:	Contractor/Consultant
Detection Method Code:	J
Detection Method Value:	Tank and/or Piping Removal
Inc Location Code:	SS
Inc Location Value:	Terminal - Service Station
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	18
Spill Cause Value:	Other - Unknown
Material Disposal Info:	none
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR
Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	DOWNEAST ENERGY CORP.
Contact Addr:	55 MAIN STREET
Contact Addr2:	Not reported
Contact City,St,Zip:	YARMOUTH, ME 04096
Contact Country:	Not reported
Phone:	8002445585
Potential Rp:	False
Cont Type Code:	SR
Contact Type:	Reporter
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	ROUTINE OBSERVATION
Contact Addr:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Country:	Not reported
Phone:	Not reported
Potential Rp:	False
Comments:	UST PIPING REMOVAL & UPGRADE INVESTIGATION, RETAIL MOTOR FUELS UST FACILITY.

BATH ROAD PUFFIN STOP / MOBIL (Continued) **S104222790**

SENSITIVE AREA OVER AQUIFER. HISTROICAL CONTAMINATION, SEE ALSO P-712-89. FORMER MOBIL OIL CORP. FACILITY.

Primary Employee:	T
Employee Name:	STEPHEN BREZINSKI
Create Date:	08/06/1997
Create By:	SPILLS
Modify Date:	12/07/2001
Modify By:	SPILLS
File Num Sheets:	4
File Notes:	Not reported
Reconcile Date:	Not reported
Medium Code:	N
Medium:	None
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	160
Spill Year:	1997
Create Date:	12/7/2001
Created By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Spill Type Code:	O
Log Spill Type:	Oil Incident
Log Spill Datetime:	Not reported
Spill Time Unk:	True
Spill Dt Unknown:	True
Log Rep Dt Tm:	3/25/1997
Log Rep Prod Cd:	23
Log Rep Prod:	Unleaded Gasoline
Log Emp First Name:	STEPHEN
Log Emp MI:	Not reported
Log Emp Last Name:	BREZINSKI
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	MM
Mat Recovered:	Mixed Liquid Media
Material Amount:	0
Material Units:	G
Material Units Val:	gals.
Mat Amt Qualifier:	ACTUAL
Create Date:	Not reported
Created By:	Not reported
Modify Date:	Not reported
Modify By:	Not reported
Point Type Code:	Not reported
Utm North:	Not reported
Utm East:	Not reported
GPS Unit:	Not reported
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Not reported
GIS Object Id:	Not reported
GIS Sync Flag:	Not reported
Rcvry Meth Code:	K

BATH ROAD PUFFIN STOP / MOBIL (Continued) **S104222790**

Recovery Method:	None
Prod Code:	23
Prod Code Value:	Unleaded Gasoline
Product Other:	Not reported
Product Amt:	Not reported
Product Amt Unit:	G
Prod Amt Unit Val:	gals.
Prod Amt Qualifier:	UNKNOWN
Primary Product:	False
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported

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7 **FURNITURE & APPLIANCE WAREHOUS** **UST** **U000234543**
109 BATH RD **N/A**
BRUNSWICK, ME 04011

UST:

Facility ID:	17975
Tank Number:	1
Installation Date:	11/01/85
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	08/27/91
Facility Code:	C
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077293019
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	BETWEEN BOWDOIN COLLEGE AND NAVAL AIR STATION
Update Dt:	10/05/01
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	1
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Manual Groundwater Sampling
Tank Leak Detection Required:	Manual Groundwater Sampling
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/19/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	04/19/95

FURNITURE & APPLIANCE WAREHOUS (Continued) **U000234543**

Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	1000
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	04/19/95
Pipe Material:	BLACK STE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	2950
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	2950
Owner/Operator Name:	BOLLINGER, J BOYD
Owner/Operator Address:	RR 2 BOX 5355
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	139 STATE ST
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077293019

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8 **TIBBY MOTOR SALES** **UST** **U002164174**
121 BATH RD **N/A**
BRUNSWICK, ME

UST:

Facility ID:	8088
Tank Number:	1
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	08/24/87
Facility Code:	L
Near Public Water:	Yes
Near Pvt Water:	Yes
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2077258288
In 100 yr flood plain:	Not reported

TIBBY MOTOR SALES (Continued) **U002164174**

Near Waterbody:	Not reported
Facility Type:	B
Directions:	BATH ROAD, 3/4 MILE WEST OF COOKS CORNER
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	2
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/87
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	2000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	4000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/87
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	587
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	587
Owner/Operator Name:	TIBBY MOTOR SALES

TIBBY MOTOR SALES (Continued) **U002164174**

Owner/Operator Address:	121 BATH RD
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077258288

Facility ID:	8088
Tank Number:	2
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	08/24/87
Facility Code:	L
Near Public Water:	Yes
Near Pvt Water:	Yes
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2077258288
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	BATH ROAD, 3/4 MILE WEST OF COOKS CORNER
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	2
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/87
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	4000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	4000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/87
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN

TIBBY MOTOR SALES (Continued) **U002164174**

Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	587
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	587
Owner/Operator Name:	TIBBY MOTOR SALES
Owner/Operator Address:	121 BATH RD
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077258288

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9 **FORMER GAS ST. / U-HAUL** **LUST** **S104215027**
173 BATH RD. COOKS CNR. **N/A**
BRUNSWICK, ME

LUST:

Spill Number:	P-93-1993
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False
Ust Registered Flag:	True
Ust Tank Site Number:	4276
Ust Tank Number:	Not reported
Ast Inside Flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True
Actual Spill Time Unknown:	True
Number Wells At Risk:	0
Number Wells Impacted:	0
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	I

FORMER GAS ST. / U-HAUL (Continued) **S104215027**

Spill Type Value:	Non-Oil, Non-Hazardous Incident
Reporter Type Code:	1
Reporter Type Value:	DEP Personnel
Detection Method Code:	A
Detection Method Value:	UST Tank Anomaly
Inc Location Code:	SS
Inc Location Value:	Terminal - Service Station
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	0
Spill Cause Value:	Other - No Cause
Material Disposal Info:	NONE AT THIS TIME
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR
Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	U-HAUL CORP. (REG 4276)
Contact Addr:	173 BATH RD
Contact Addr2:	Not reported
Contact City,St,Zip:	BRUNSWICK, ME 04011
Contact Country:	Not reported
Phone:	Not reported
Potential Rp:	False
Cont Type Code:	SR
Contact Type:	Reporter
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	ROUTINE OBSERVATION
Contact Addr:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Country:	Not reported
Phone:	Not reported
Potential Rp:	False
Comments:	Not reported
Primary Employee:	T
Employee Name:	STEPHEN BREZINSKI
Create Date:	06/30/1999
Create By:	SPILLS
Modify Date:	04/04/2003
Modify By:	EILMOORE
File Num Sheets:	5
File Notes:	Not reported
Reconcile Date:	04/04/2003
Medium Code:	G
Medium:	Groundwater
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	93
Spill Year:	1993
Create Date:	12/7/2001

FORMER GAS ST. / U-HAUL (Continued) **S104215027**

Created By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Spill Type Code:	I
Log Spill Type:	Non-Oil, Non-Hazardous Incident
Log Spill Datetime:	Not reported
Spill Time Unk:	True
Spill Dt Unknown:	True
Log Rep Dt Tm:	1/29/1992
Log Rep Prod Cd:	2
Log Rep Prod:	#2 Fuel Oil
Log Emp First Name:	STEPHEN
Log Emp MI:	Not reported
Log Emp Last Name:	BREZINSKI
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	Not reported
Mat Recovered:	Not reported
Material Amount:	Not reported
Material Units:	Not reported
Material Units Val:	Not reported
Mat Amt Qualifier:	Not reported
Create Date:	Not reported
Created By:	Not reported
Modify Date:	Not reported
Modify By:	Not reported
Point Type Code:	Not reported
Utm North:	Not reported
Utm East:	Not reported
GPS Unit:	Not reported
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Not reported
GIS Object Id:	Not reported
GIS Sync Flag:	Not reported
Rcvry Meth Code:	K
Recovery Method:	None
Prod Code:	02
Prod Code Value:	#2 Fuel Oil
Product Other:	Not reported
Product Amt:	Not reported
Product Amt Unit:	Not reported
Prod Amt Unit Val:	Not reported
Prod Amt Qualifier:	Not reported
Primary Product:	False
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported

10 **COOKS CORNER MALL** **UST** **U003428991**
13 GURNET RD **N/A**
BRUNSWICK, ME 04011

UST:

Facility ID:	20088
Tank Number:	1
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	01/21/99
Facility Code:	C
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	5088209550
In 100 yr flood plain:	No
Near Waterbody:	No
Facility Type:	B
Directions:	BEHIND MALL IN FENCED AREA
Update Dt:	01/09/01
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	1
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	None
Tank Leak Detection Required:	None
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	01/22/99
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	35
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	Not reported
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	01/22/99
Volume in Gallons:	500
Total Num of Chambers for Tank:	1
Installer ID:	316
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	500
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	01/22/99
Pipe Material:	STEEL_ASP
Pipe Leak Detection:	NONE
Pump Type:	SUCTION
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported

COOKS CORNER MALL (Continued) **U003428991**

Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	SIMARD & SONS, INC.
Installer Applicant Last Name:	SIMARD
Installer Applicants First Name:	MICHAEL
Installer Applicant MI:	Not reported
Installer Applicant Address:	3 TRIDENT DRIVE
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	LEWISTON, ME 04210
Installer Applicant Country:	Not reported
Installer Applicant Phone:	2077830297
Current Owner ID:	16871
Ownership Begin Date:	01/21/99
Ownership End Date:	Not reported
Owner/Operator ID:	16871
Owner/Operator Name:	DEVELOPERS DIVERSIFIED REALTY
Owner/Operator Address:	ONE WORCESTER RD
Owner/Operator City,St,Zip:	FRAMINGHAM, MA 01701
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	5088209550

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10 **SEARS #2203/6813/7203** **RCRA-SQG** **1006808341**
8 GURNET ROAD **FINDS** **MER000501445**
BRUNSWICK, ME 04011

RCRAInfo:

Owner:	DDR DOWNREIT LLC (847) 286-7199
EPA ID:	MER000501445
Contact:	KATHLEEN FLAHERTY (847) 286-7199
Classification:	Small Quantity Generator
TSDF Activities:	Not reported

Violation Status: No violations found

FINDS:

Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

11 **NAVAL AIR STATION BRUNSWICK, HOUSIN** **LAST** **S105111551**
51 FORRESTAL ROAD **N/A**
BRUNSWICK, ME

LAST:

Spill Number:	P-734-2000
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	2/12/2002
Modify By:	EIPCOLLI
Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	11/28/2000
Spill Date Unknown:	False
Spill Time Unknown:	True
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	01/02/2001
DTREE code:	I
DTREE value:	Intermediate
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	16
Spill Cause Value:	Accident - Poor Workmanship
Material Disposal Info:	Free phase product recovered w. vacuum truck and disposed by Clean Harbors of Maine, S. Portland and soil brought to Commerical Recyling.

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12 **JAMES ELWELL** **LAST** **S106673852**
43 GARRISON ST **N/A**
BRUNSWICK, ME

LAST:

Spill Number:	P-979-2003
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	True
Create Date:	11/21/2003
Create By:	EICPAQUE
Modify Date:	8/18/2004

JAMES ELWELL (Continued) **S106673852**

Modify By:	EITGALLA
Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	11/21/2003
Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	TA
Inc Source Value:	Storage Unit - Aboveground Storage Tank
Spill Cause Code:	17
Spill Cause Value:	Accident - Human Error
Material Disposal Info:	spilled clean up debris to be managed by M W Sewall

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12 **MOODY, LILY** **UST** **U000232250**
41 GARRISON ST **N/A**
BRUNSWICK, ME 04011

UST:

Facility ID:	15894
Tank Number:	2
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/27/89
Facility Code:	E
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	0
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	41 GARRISON STREET
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	2
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown

MOODY, LILY (Continued) **U000232250**

Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/89
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	07/01/89
Pipe Material:	OTHER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	1036
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	1036
Owner/Operator Name:	MOODY, LILY
Owner/Operator Address:	41 GARRISON ST
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	0

Facility ID:	15894
Tank Number:	1
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported

MOODY, LILY (Continued) **U000232250**

Reg Date:	07/27/89
Facility Code:	E
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	0
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	41 GARRISON STREET
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	2
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/89
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	07/01/89
Pipe Material:	OTHER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported

MOODY, LILY (Continued) **U000232250**

Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	1036
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	1036
Owner/Operator Name:	MOODY, LILY
Owner/Operator Address:	41 GARRISON ST
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	0

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12 **DODGE RESIDENCE** **LAST** **S104219165**
62 GARRISON AVE. N. **N/A**
BRUNSWICK, ME

LAST:

Spill Number:	P-404-1995
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	07/15/1995
Spill Date Unknown:	False
Spill Time Unknown:	True
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	H
Detection Method Value:	Odor/Vapor/Mist
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	1
Spill Cause Value:	Corrosion - Tank
Material Disposal Info:	To MMWAC

12 **MAINE PINES RACQUET & SPORTS** **LUST S104214594**
120 HARPSWELL RD RT 123 **LAST N/A**
BRUNSWICK, ME

LUST:

Spill Number:	P-810-1992
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False
Ust Registered Flag:	True
Ust Tank Site Number:	11028
Ust Tank Number:	Not reported
Ast Inside Flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True
Actual Spill Time Unknown:	True
Number Wells At Risk:	2
Number Wells Impacted:	0
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	I
Spill Type Value:	Non-Oil, Non-Hazardous Incident
Reporter Type Code:	1
Reporter Type Value:	DEP Personnel
Detection Method Code:	J
Detection Method Value:	Tank and/or Piping Removal
Inc Location Code:	CM
Inc Location Value:	Business - Commercial
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	0
Spill Cause Value:	Other - No Cause
Material Disposal Info:	Not reported
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR
Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	FORMER MERRYMEETING HEALTH & FIT
Contact Addr:	RT 123, 120 HARPSWELL ST.
Contact Addr2:	Not reported
Contact City,St,Zip:	BRUNSWICK, ME 04011
Contact Country:	Not reported
Phone:	2077298433
Potential Rp:	False
Cont Type Code:	SR

MAINE PINES RACQUET & SPORTS (Continued) **S104214594**

Contact Type:	Reporter
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	ROUTINE OBSERVATION
Contact Addr:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Country:	Not reported
Phone:	Not reported
Potential Rp:	False
Comments:	5/13/99 REPORT UPDATE: UST REMOVAL W/ AST INSTALLATION REFERAL TO OIL & SOLID FUELS BOARD. NEW OWNERSHIP IN 1997-98.
Primary Employee:	T
Employee Name:	STEPHEN BREZINSKI
Create Date:	04/21/1993
Create By:	SPILLS
Modify Date:	01/31/2002
Modify By:	EIMMASON
File Num Sheets:	8
File Notes:	Not reported
Reconcile Date:	01/31/2002
Medium Code:	G
Medium:	Groundwater
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	810
Spill Year:	1992
Create Date:	12/7/2001
Created By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Spill Type Code:	I
Log Spill Type:	Non-Oil, Non-Hazardous Incident
Log Spill Datetime:	Not reported
Spill Time Unk:	True
Spill Dt Unknown:	True
Log Rep Dt Tm:	12/30/1992
Log Rep Prod Cd:	2
Log Rep Prod:	#2 Fuel Oil
Log Emp First Name:	STEPHEN
Log Emp MI:	Not reported
Log Emp Last Name:	BREZINSKI
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	Not reported
Mat Recovered:	Not reported
Material Amount:	Not reported
Material Units:	Not reported
Material Units Val:	Not reported
Mat Amt Qualifier:	Not reported
Create Date:	Not reported
Created By:	Not reported
Modify Date:	Not reported
Modify By:	Not reported

MAINE PINES RACQUET & SPORTS (Continued) **S104214594**

Point Type Code:	Not reported
Utm North:	Not reported
Utm East:	Not reported
GPS Unit:	Not reported
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Not reported
GIS Object Id:	Not reported
GIS Sync Flag:	Not reported
Rcvry Meth Code:	K
Recovery Method:	None
Prod Code:	02
Prod Code Value:	#2 Fuel Oil
Product Other:	Not reported
Product Amt:	Not reported
Product Amt Unit:	Not reported
Prod Amt Unit Val:	Not reported
Prod Amt Qualifier:	Not reported
Primary Product:	False
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported
Spill Number:	P-810-1992
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False
Ust Registered Flag:	True
Ust Tank Site Number:	11028
Ust Tank Number:	Not reported
Ast Inside Flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True
Actual Spill Time Unknown:	True
Number Wells At Risk:	2
Number Wells Impacted:	0
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	I
Spill Type Value:	Non-Oil, Non-Hazardous Incident
Reporter Type Code:	1
Reporter Type Value:	DEP Personnel
Detection Method Code:	J
Detection Method Value:	Tank and/or Piping Removal
Inc Location Code:	CM
Inc Location Value:	Business - Commercial
Inc Source Code:	Not reported

MAINE PINES RACQUET & SPORTS (Continued) **S104214594**

Inc Source Value:	Not reported
Spill Cause Code:	0
Spill Cause Value:	Other - No Cause
Material Disposal Info:	Not reported
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR
Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	FORMER MERRYMEETING HEALTH & FIT
Contact Addr:	RT 123, 120 HARPSWELL ST.
Contact Addr2:	Not reported
Contact City,St,Zip:	BRUNSWICK, ME 04011
Contact Country:	Not reported
Phone:	2077298433
Potential Rp:	False
Cont Type Code:	SR
Contact Type:	Reporter
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	ROUTINE OBSERVATION
Contact Addr:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Country:	Not reported
Phone:	Not reported
Potential Rp:	False
Comments:	5/13/99 REPORT UPDATE: UST REMOVAL W/ AST INSTALLATION REFERAL TO OIL & SOLID FUELS BOARD. NEW OWNERSHIP IN 1997-98.
Primary Employee:	T
Employee Name:	STEPHEN BREZINSKI
Create Date:	04/21/1993
Create By:	SPILLS
Modify Date:	01/31/2002
Modify By:	EIMMASON
File Num Sheets:	8
File Notes:	Not reported
Reconcile Date:	01/31/2002
Medium Code:	G
Medium:	Groundwater
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	810
Spill Year:	1992
Create Date:	12/7/2001
Created By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Spill Type Code:	I
Log Spill Type:	Non-Oil, Non-Hazardous Incident
Log Spill Datetime:	Not reported
Spill Time Unk:	True

MAINE PINES RACQUET & SPORTS (Continued) **S104214594**

Spill Dt Unknown:	True
Log Rep Dt Tm:	12/30/1992
Log Rep Prod Cd:	2
Log Rep Prod:	#2 Fuel Oil
Log Emp First Name:	STEPHEN
Log Emp MI:	Not reported
Log Emp Last Name:	BREZINSKI
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	Not reported
Mat Recovered:	Not reported
Material Amount:	Not reported
Material Units:	Not reported
Material Units Val:	Not reported
Mat Amt Qualifier:	Not reported
Create Date:	Not reported
Created By:	Not reported
Modify Date:	Not reported
Modify By:	Not reported
Point Type Code:	Not reported
Utm North:	Not reported
Utm East:	Not reported
GPS Unit:	Not reported
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Not reported
GIS Object Id:	Not reported
GIS Sync Flag:	Not reported
Rcvry Meth Code:	K
Recovery Method:	None
Prod Code:	02
Prod Code Value:	#2 Fuel Oil
Product Other:	Not reported
Product Amt:	Not reported
Product Amt Unit:	Not reported
Prod Amt Unit Val:	Not reported
Prod Amt Qualifier:	Not reported
Primary Product:	False
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported

LAST:

Spill Number:	P-12-2001
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001

MAINE PINES RACQUET & SPORTS (Continued) **S104214594**

Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	Not reported
Spill Date Unknown:	True
Spill Time Unknown:	True
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	I
spill type value:	Non-Oil, Non-Hazardous Incident
reporter type code:	1
reporter type value:	DEP Personnel
Detection Method Code:	N
Detection Method Value:	AST Tank Anomaly
Inc Location Code:	CM
Inc Location Value:	Business - Commercial
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	0
Spill Cause Value:	Other - No Cause
Material Disposal Info:	n/a

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12 **KISH, LOUIS** **UST** **U000236543**
25 GARRISON ST **N/A**
BRUNSWICK, ME 04011

UST:

Facility ID:	16596
Tank Number:	1
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	12/13/89
Facility Code:	E
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077299073
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	ROUTE 123 SOUTH BARE LEFT AT CINDY'S STORE
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	1
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown

KISH, LOUIS (Continued) **U000236543**

Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/90
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	500
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	500
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	07/01/90
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	4731
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	4731
Owner/Operator Name:	KISH, LOUIS
Owner/Operator Address:	25 GARRISON ST
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077299073

12 **JOHN GIBSON INC./NE DRILLING** **LUST** **S104222620**
104 HARPSWELL ST. **N/A**
BRUNSWICK, ME

LUST:

Spill Number:	P-92-1997
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False
Ust Registered Flag:	False
Ust Tank Site Number:	Not reported
Ust Tank Number:	Not reported
Ast Inside Flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True
Actual Spill Time Unknown:	True
Number Wells At Risk:	0
Number Wells Impacted:	0
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	I
Spill Type Value:	Non-Oil, Non-Hazardous Incident
Reporter Type Code:	1
Reporter Type Value:	DEP Personnel
Detection Method Code:	J
Detection Method Value:	Tank and/or Piping Removal
Inc Location Code:	OTT
Inc Location Value:	Terminal - Other
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	0
Spill Cause Value:	Other - No Cause
Material Disposal Info:	NONE KNOWN.
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR
Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	JOHN GIBSON INC./NE DRILLING
Contact Addr:	104 HARPSWELL ST.
Contact Addr2:	Not reported
Contact City,St,Zip:	BRUNSWICK, ME 04011
Contact Country:	Not reported
Phone:	2077291102
Potential Rp:	False
Cont Type Code:	SR

JOHN GIBSON INC./NE DRILLING (Continued) **S104222620**

Contact Type:	Reporter
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	ROUTINE OBS.
Contact Addr:	Not reported
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Country:	Not reported
Phone:	Not reported
Potential Rp:	False
Comments:	REMOVAL CONFIRMATION VISIT FOR FORMER CONSUMPTIVE-USE MOTOR FUELS UST FACILITY. NO UST'S NOTED DURING 2/17/97 VISIT. FORMER TRUCKING/VEHICLE REPAIR TYPE BUSINESS; NOW COMMERCIAL MULTI-BUSINESS. NO NARRATIVE, SEE ATTACHED.
Primary Employee:	T
Employee Name:	STEPHEN BREZINSKI
Create Date:	Not reported
Create By:	Not reported
Modify Date:	Not reported
Modify By:	Not reported
File Num Sheets:	Not reported
File Notes:	Not reported
Reconcile Date:	Not reported
Medium Code:	N
Medium:	None
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	92
Spill Year:	1997
Create Date:	12/7/2001
Created By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Spill Type Code:	I
Log Spill Type:	Non-Oil, Non-Hazardous Incident
Log Spill Datetime:	Not reported
Spill Time Unk:	True
Spill Dt Unknown:	True
Log Rep Dt Tm:	2/17/1997
Log Rep Prod Cd:	29
Log Rep Prod:	Diesel
Log Emp First Name:	STEPHEN
Log Emp MI:	Not reported
Log Emp Last Name:	BREZINSKI
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	MM
Mat Recovered:	Mixed Liquid Media
Material Amount:	0
Material Units:	G
Material Units Val:	gals.
Mat Amt Qualifier:	ACTUAL
Create Date:	Not reported
Created By:	Not reported
Modify Date:	Not reported

JOHN GIBSON INC./NE DRILLING (Continued) **S104222620**

Modify By:	Not reported
Point Type Code:	Not reported
Utm North:	Not reported
Utm East:	Not reported
GPS Unit:	Not reported
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Not reported
GIS Object Id:	Not reported
GIS Sync Flag:	Not reported
Rcvry Meth Code:	K
Recovery Method:	None
Prod Code:	00
Prod Code Value:	None
Product Other:	Not reported
Product Amt:	0
Product Amt Unit:	G
Prod Amt Unit Val:	gals.
Prod Amt Qualifier:	ACTUAL
Primary Product:	False
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported

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13 **BRUNSWICK GARDENS** **LUST** **S104996438**
52 ENTERPRISE ST. **N/A**
BRUNSWICK, ME

LUST:

Spill Number:	P-125-1994
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False
Ust Registered Flag:	True
Ust Tank Site Number:	10045
Ust Tank Number:	189
Ast Inside Flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	10/21/2005
Modify By:	EISBREZI
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	03/10/1994
Actual Spill Date Unknown:	False
Actual Spill Time Unknown:	True
Number Wells At Risk:	Not reported
Number Wells Impacted:	Not reported
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	O
Spill Type Value:	Oil Incident
Reporter Type Code:	2
Reporter Type Value:	Subject/Spiller

BRUNSWICK GARDENS (Continued) **S104996438**

Detection Method Code:	A
Detection Method Value:	UST Tank Anomaly
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	TU
Inc Source Value:	Storage Unit - Underground Storage Tank
Spill Cause Code:	8
Spill Cause Value:	Mechanical Failure - Loose Fitting
Material Disposal Info:	none
Change Type Code:	FC
Change Type Value:	Final Report Changed
Change Desc:	Not reported
Change Date:	10/21/2005
Change By:	eisbrezi
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR
Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	BNAS
Contact Addr:	BATH RD., BOX 33
Contact Addr2:	Not reported
Contact City,St,Zip:	BRUNSWICK, ME 04011
Contact Country:	Not reported
Phone:	2079212445
Potential Rp:	False
Cont Type Code:	SR
Contact Type:	Reporter
Contact Name:	ASSELYN RAY
Contact Title:	Not reported
Contact Company:	Not reported
Contact Addr:	BNAS
Contact Addr2:	Not reported
Contact City,St,Zip:	BRUNSWICK, ME 04011
Contact Country:	Not reported
Phone:	2079212445
Potential Rp:	False
Comments:	RESIDENTIAL UST LEAK
Primary Employee:	T
Employee Name:	STEPHEN BREZINSKI
Create Date:	07/06/1994
Create By:	SPILLS
Modify Date:	12/07/2001
Modify By:	SPILLS
File Num Sheets:	6
File Notes:	Not reported
Reconcile Date:	Not reported
Medium Code:	G
Medium:	Groundwater
Medium Code:	L
Medium:	Land
Spill Void Flag:	False
Spill Office Code:	P

BRUNSWICK GARDENS (Continued) **S104996438**

Spill Office:	Portland
Spill Off Sequence:	125
Spill Year:	1994
Create Date:	12/7/2001
Created By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Spill Type Code:	O
Log Spill Type:	Oil Incident
Log Spill Datetime:	03/10/1994
Spill Time Unk:	True
Spill Dt Unknown:	False
Log Rep Dt Tm:	3/11/1994
Log Rep Prod Cd:	2
Log Rep Prod:	#2 Fuel Oil
Log Emp First Name:	STEPHEN
Log Emp MI:	Not reported
Log Emp Last Name:	BREZINSKI
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	Not reported
Mat Recovered:	Not reported
Material Amount:	Not reported
Material Units:	Not reported
Material Units Val:	Not reported
Mat Amt Qualifier:	Not reported
Create Date:	Not reported
Created By:	Not reported
Modify Date:	Not reported
Modify By:	Not reported
Point Type Code:	Not reported
Utm North:	Not reported
Utm East:	Not reported
GPS Unit:	Not reported
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Not reported
GIS Object Id:	Not reported
GIS Sync Flag:	Not reported
Rcvry Meth Code:	K
Recovery Method:	None
Prod Code:	02
Prod Code Value:	#2 Fuel Oil
Product Other:	Not reported
Product Amt:	Not reported
Product Amt Unit:	Not reported
Prod Amt Unit Val:	Not reported
Prod Amt Qualifier:	UNKNOWN
Primary Product:	True
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported

14 **BRUNSWICK ARTESIAN WELL CO** **UST** **U002166854**
88 HARPSWELL ST **N/A**
BRUNSWICK, ME 04011

UST:

Facility ID:	313
Tank Number:	2
Installation Date:	01/01/50
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	05/27/86
Facility Code:	D
Near Public Water:	No
Near Pvt Water:	Yes
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2077254318
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	5000 TANK BACK OF SHOP, 900 TANK INSIDE UNDER DRIVEWAY.
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	2
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	12/01/90
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	900
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	900
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	12/01/90
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported

BRUNSWICK ARTESIAN WELL CO (Continued) **U002166854**

Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	12104
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	12104
Owner/Operator Name:	STARK, H ALAN
Owner/Operator Address:	88 HARPSWELL ST
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077254318

Facility ID:	313
Tank Number:	1
Installation Date:	01/01/50
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	05/27/86
Facility Code:	D
Near Public Water:	No
Near Pvt Water:	Yes
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2077254318
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	5000 TANK BACK OF SHOP, 900 TANK INSIDE UNDER DRIVEWAY.
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	2
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	12/01/90
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported

BRUNSWICK ARTESIAN WELL CO (Continued) **U002166854**

Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	5000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	900
Product Type:	Unleaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	12/01/90
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	12104
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	12104
Owner/Operator Name:	STARK, H ALAN
Owner/Operator Address:	88 HARPSWELL ST
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077254318

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14 **KATES DELI** **UST** **U003100190**
89 HARPSWELL ST **N/A**
BRUNSWICK, ME 04011

UST:

Facility ID:	16784
Tank Number:	1
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	03/22/90
Facility Code:	B
Near Public Water:	No

KATES DELI (Continued) **U003100190**

Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2077291521
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	SOUTH ON ROUTE 123 TO SOUTH HARPSWELL
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	2
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/01/91
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	2000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	2000
Product Type:	Leaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	04/01/91
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported

KATES DELI (Continued) **U003100190**

Installer Applicant Phone:	Not reported
Current Owner ID:	9307
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	9307
Owner/Operator Name:	COFFIN, BARBARA
Owner/Operator Address:	89 HARPSWELL ST
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077291521

Facility ID:	16784
Tank Number:	2
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	03/22/90
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2077291521
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	SOUTH ON ROUTE 123 TO SOUTH HARPSWELL
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	2
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/01/91
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	3000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1

KATES DELI (Continued) **U003100190**

Volume (gallons):	2000
Product Type:	Leaded Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	04/01/91
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	9307
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	9307
Owner/Operator Name:	COFFIN, BARBARA
Owner/Operator Address:	89 HARPSWELL ST
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077291521

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14 **UNKNOWN RESIDENT** **LAST** **S106403914**
6 BICKFORD AVE **N/A**
BRUNSWICK, ME

LAST:

Spill Number:	P-151-2003
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	True
Create Date:	3/4/2003
Create By:	EICPAQUE
Modify Date:	4/9/2004
Modify By:	EITGALLA
Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	02/25/2003
Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	0
Number of wells impacted:	0

UNKNOWN RESIDENT (Continued) **S106403914**

DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	TT
Inc Source Value:	Land Transportation - Tank Truck
Spill Cause Code:	17
Spill Cause Value:	Accident - Human Error
Material Disposal Info:	Waste managed by Thibeault Oil.

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14 **SHOREY, MARY THAYER** **UST** **U002252588**
161 HARPSWELL RD **N/A**
BRUNSWICK, ME 04011

UST:

Facility ID:	19173
Tank Number:	1
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	09/25/95
Facility Code:	E
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	Not reported
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2077257588
In 100 yr flood plain:	No
Near Waterbody:	No
Facility Type:	B
Directions:	ABOUT ONE MILE & 1/2 FROM BOWDOIN COLLEGE ON RT 123
Update Dt:	11/14/95
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	1
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	11/20/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported

SHOREY, MARY THAYER (Continued) **U002252588**

Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	11/20/95
Volume in Gallons:	275
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	275
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	11/20/95
Pipe Material:	OTHER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	14810
Ownership Begin Date:	09/25/95
Ownership End Date:	Not reported
Owner/Operator ID:	14810
Owner/Operator Name:	SHOREY, MARY THAYER
Owner/Operator Address:	161 HARPSWELL RD
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077257588

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15 **THOMAS, KENNETH L** **UST** **U000241900**
40 WARD CIRCLE **N/A**
BRUNSWICK, ME 04011

UST:

Facility ID:	14685
Tank Number:	1
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	04/11/88
Facility Code:	B
Near Public Water:	No
Near Pvt Water:	No

THOMAS, KENNETH L (Continued) **U000241900**

Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2077297050
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	40 WARD CIRCLE
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	1
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/01/88
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	750
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	750
Product Type:	Waste Oil/Used Motor Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	04/01/88
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported

THOMAS, KENNETH L (Continued) **U000241900**

Current Owner ID:	9112
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	9112
Owner/Operator Name:	THOMAS, KENNETH L
Owner/Operator Address:	40 WARD CIRCLE
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077297050

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16 **JONATHAN DUNN** **LAST** **S107771022**
10 JONATHAN ST **N/A**
BRUNSWICK, ME

LAST:

Spill Number:	P-141-2005
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	True
Create Date:	2/23/2005
Create By:	EICPAQUE
Modify Date:	3/2/2006
Modify By:	EITGALLA
Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	03/02/2005
Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	TA
Inc Source Value:	Storage Unit - Aboveground Storage Tank
Spill Cause Code:	5
Spill Cause Value:	Accident - Physical Breakage
Material Disposal Info:	Dead River to manage spill clean up debris and repaired broken line

17 **FRED NELSEN** **LAST** **S105849364**
30 HICKORY DR **N/A**
BRUNSWICK, ME

LAST:

Spill Number:	P-228-2002
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	Not reported
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	True
Create Date:	9/3/2002
Create By:	EICPAQUE
Modify Date:	3/11/2003
Modify By:	EITGALLA
Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	03/28/2002
Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	TT
Inc Source Value:	Land Transportation - Tank Truck
Spill Cause Code:	6
Spill Cause Value:	Mechanical Failure - Piping/Hose
Material Disposal Info:	Waste managed by DEE.

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18 **YVONNE WILLARD** **LAST** **S106403858**
10 LINSAWSIG PVT WAY **N/A**
FALMOUTH, ME

LAST:

Spill Number:	P-115-2003
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	True
Create Date:	2/14/2003
Create By:	EISFLANN
Modify Date:	4/6/2004
Modify By:	EITGALLA

YVONNE WILLARD (Continued) **S106403858**

Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	02/13/2003
Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	0
Number of wells impacted:	Not reported
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	7
reporter type value:	Other Involved Party
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	TA
Inc Source Value:	Storage Unit - Aboveground Storage Tank
Spill Cause Code:	16
Spill Cause Value:	Accident - Poor Workmanship
Material Disposal Info:	CLEAN HARBORS DISPOSED OF WASTE.

---

19 **MCKEEN STREET HOUSING** **UST** **U000244200**
NAVAL AIR STATION **N/A**
BRUNSWICK, ME

UST:

Facility ID:	10201
Tank Number:	73
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Status:	**Removed**
Tank Status Date:	11/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	27
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	116
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	62
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163

MCKEEN STREET HOUSING (Continued) **U000244200**

Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility ID:	10201
Tank Number:	9
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	15
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N

MCKEEN STREET HOUSING (Continued) **U000244200**

Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	22
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	09/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 32
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: **Removed**
Tank Status Date: 08/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: **REMOVED**
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	41
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	48
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No

MCKEEN STREET HOUSING (Continued) **U000244200**

Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	55
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	11/01/91
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550

MCKEEN STREET HOUSING (Continued) **U000244200**

Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	64
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	70
Installation Date:	01/01/80

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	78
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /

MCKEEN STREET HOUSING (Continued) **U000244200**

Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	85
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99

MCKEEN STREET HOUSING (Continued) **U000244200**

Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 90
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 06/01/93
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: REMOVED
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	97
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	106
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	114
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	124
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	133
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	139
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	145
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163

MCKEEN STREET HOUSING (Continued) **U000244200**

Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility ID:	10201
Tank Number:	152
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	160
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N

MCKEEN STREET HOUSING (Continued) **U000244200**

Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	2
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 3
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: **Removed**
Tank Status Date: 08/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: **REMOVED**
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	4
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	6
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No

MCKEEN STREET HOUSING (Continued) **U000244200**

Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	10
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550

MCKEEN STREET HOUSING (Continued) **U000244200**

Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	11
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	12
Installation Date:	01/01/80

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	14
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /

MCKEEN STREET HOUSING (Continued) **U000244200**

Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	16
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99

MCKEEN STREET HOUSING (Continued) **U000244200**

Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	09/06/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 17
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 08/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: REMOVED
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	20
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	21
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator ID: 34675
Owner/Operator Name: UNITED STATES NAVY
Owner/Operator Address: NAVAL AIR STATION
Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 24
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 08/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: REMOVED
Pipe Status Date: 08/01/94

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	26
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	28
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	29
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	10/01/91
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	31
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163

MCKEEN STREET HOUSING (Continued) **U000244200**

Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility ID:	10201
Tank Number:	35
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	36
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N

MCKEEN STREET HOUSING (Continued) **U000244200**

Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	37
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	10/01/91
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 39
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: **Removed**
Tank Status Date: 07/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: **REMOVED**
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	42
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	43
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No

MCKEEN STREET HOUSING (Continued) **U000244200**

Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	45
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550

MCKEEN STREET HOUSING (Continued) **U000244200**

Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	47
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	50
Installation Date:	01/01/80

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	51
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	09/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /

MCKEEN STREET HOUSING (Continued) **U000244200**

Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	52
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99

MCKEEN STREET HOUSING (Continued) **U000244200**

Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	10/01/91
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 53
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 07/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: REMOVED
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	56
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	57
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	10/01/91
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator ID: 34675
Owner/Operator Name: UNITED STATES NAVY
Owner/Operator Address: NAVAL AIR STATION
Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 60
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 07/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: REMOVED
Pipe Status Date: 08/01/94

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	63
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	65
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	66
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	67
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163

MCKEEN STREET HOUSING (Continued) **U000244200**

Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility ID:	10201
Tank Number:	69
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	72
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	10/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N

MCKEEN STREET HOUSING (Continued) **U000244200**

Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	75
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	11/01/91
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 76
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: **Removed**
Tank Status Date: 07/01/92
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: **REMOVED**
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	77
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	79
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No

MCKEEN STREET HOUSING (Continued) **U000244200**

Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	80
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550

MCKEEN STREET HOUSING (Continued) **U000244200**

Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	81
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	84
Installation Date:	01/01/80

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	86
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /

MCKEEN STREET HOUSING (Continued) **U000244200**

Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	87
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99

MCKEEN STREET HOUSING (Continued) **U000244200**

Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 88
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 08/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: REMOVED
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	89
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	10/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	91
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	06/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	92
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	95
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	96
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	98
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	99
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163

MCKEEN STREET HOUSING (Continued) **U000244200**

Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility ID:	10201
Tank Number:	100
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	101
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N

MCKEEN STREET HOUSING (Continued) **U000244200**

Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	103
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 107
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: **Removed**
Tank Status Date: 07/01/92
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: **REMOVED**
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	108
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	112
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No

MCKEEN STREET HOUSING (Continued) **U000244200**

Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	113
Installation Date:	01/01/82
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550

MCKEEN STREET HOUSING (Continued) **U000244200**

Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	118
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	10/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	119
Installation Date:	01/01/80

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	120
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /

MCKEEN STREET HOUSING (Continued) **U000244200**

Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	123
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99

MCKEEN STREET HOUSING (Continued) **U000244200**

Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	11/01/91
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 125
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 07/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: REMOVED
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	127
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	128
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator ID: 34675
Owner/Operator Name: UNITED STATES NAVY
Owner/Operator Address: NAVAL AIR STATION
Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 129
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 07/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: REMOVED
Pipe Status Date: 08/01/94

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	130
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	132
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	134
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	135
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163

MCKEEN STREET HOUSING (Continued) **U000244200**

Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility ID:	10201
Tank Number:	137
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	138
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N

MCKEEN STREET HOUSING (Continued) **U000244200**

Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	140
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 142
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: **Removed**
Tank Status Date: 07/01/93
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: **REMOVED**
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	143
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	144
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No

MCKEEN STREET HOUSING (Continued) **U000244200**

Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	146
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550

MCKEEN STREET HOUSING (Continued) **U000244200**

Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	148
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	150
Installation Date:	01/01/80

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	151
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /

MCKEEN STREET HOUSING (Continued) **U000244200**

Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	153
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99

MCKEEN STREET HOUSING (Continued) **U000244200**

Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 155
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 07/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: REMOVED
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	156
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	158
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator ID: 34675
Owner/Operator Name: UNITED STATES NAVY
Owner/Operator Address: NAVAL AIR STATION
Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 161
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 07/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: REMOVED
Pipe Status Date: 08/01/94

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	162
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	61
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	111
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	93
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163

MCKEEN STREET HOUSING (Continued) **U000244200**

Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility ID:	10201
Tank Number:	7
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	38
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	11/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N

MCKEEN STREET HOUSING (Continued) **U000244200**

Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	102
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 131
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 12/01/93
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: REMOVED
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	159
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	30
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No

MCKEEN STREET HOUSING (Continued) **U000244200**

Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	09/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	82
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550

MCKEEN STREET HOUSING (Continued) **U000244200**

Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	68
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	74
Installation Date:	01/01/80

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	83
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /

MCKEEN STREET HOUSING (Continued) **U000244200**

Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	104
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99

MCKEEN STREET HOUSING (Continued) **U000244200**

Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 5
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 08/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: REMOVED
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	25
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	40
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	11/01/91
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator ID: 34675
Owner/Operator Name: UNITED STATES NAVY
Owner/Operator Address: NAVAL AIR STATION
Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 147
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 07/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: REMOVED
Pipe Status Date: 08/01/94

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	13
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	18
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	23
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	33
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163

MCKEEN STREET HOUSING (Continued) **U000244200**

Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility ID:	10201
Tank Number:	44
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	10/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	49
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N

MCKEEN STREET HOUSING (Continued) **U000244200**

Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	54
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 59
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: **Removed**
Tank Status Date: 07/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: **REMOVED**
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	109
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	115
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No

MCKEEN STREET HOUSING (Continued) **U000244200**

Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	121
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550

MCKEEN STREET HOUSING (Continued) **U000244200**

Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	126
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	136
Installation Date:	01/01/80

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	141
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	10/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /

MCKEEN STREET HOUSING (Continued) **U000244200**

Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	149
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99

MCKEEN STREET HOUSING (Continued) **U000244200**

Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Operator Contact:	Not reported
Owner/Operator Phone:	2079212445
Facility ID:	10201
Tank Number:	154
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	163
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	1
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator ID: 34675
Owner/Operator Name: UNITED STATES NAVY
Owner/Operator Address: NAVAL AIR STATION
Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 110
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 07/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: REMOVED
Pipe Status Date: 08/01/94

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	117
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B

MCKEEN STREET HOUSING (Continued) **U000244200**

Tank Status:	**Removed**
Tank Status Date:	09/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	8
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	19
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	34
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163

MCKEEN STREET HOUSING (Continued) **U000244200**

Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility ID:	10201
Tank Number:	46
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	58
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/01/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N

MCKEEN STREET HOUSING (Continued) **U000244200**

Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	71
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	10/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION

MCKEEN STREET HOUSING (Continued) **U000244200**

Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 10201
Tank Number: 94
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 02/05/88
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: Yes
Sensitive Area: Yes
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 163
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: **Removed**
Tank Status Date: 08/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 550
Product Type: #2 Fuel Oil
Pipe Status: **REMOVED**
Pipe Status Date: 08/01/94
Pipe Material: COPPER
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN

MCKEEN STREET HOUSING (Continued) **U000244200**

Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	105
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/94
Tank Use:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	122
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No

MCKEEN STREET HOUSING (Continued) **U000244200**

Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported

MCKEEN STREET HOUSING (Continued) **U000244200**

Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	10201
Tank Number:	157
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/05/88
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	OFF MCKEEN STREET IN TOWN BRUNSWICK
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	163
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	07/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550

MCKEEN STREET HOUSING (Continued) **U000244200**

Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	08/01/94
Pipe Material:	COPPER
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

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19 **DYNAIR FUELING INC** **RCRA-SQG** **1000146794**
BRUNSWICK NAVAL AIR STATION **MED981209430**
BRUNSWICK, ME 04011

RCRAInfo:

Owner:	US NAVY (207) 555-1212
EPA ID:	MED981209430
Contact:	VICTOR LEEMAN (207) 921-2582
Classification:	Small Quantity Generator
TSDF Activities:	Not reported
Violation Status:	No violations found

19 **JFSI FUEL FARM** **UST** **U003053058**
BRUNSWICK NAVAL BASE **N/A**
BRUNSWICK, ME

UST:

Facility ID:	18147
Tank Number:	1
Installation Date:	03/01/92
Facility Use:	Not reported
Gen ID:	35
Reg Date:	03/06/92
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212665
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	Not reported
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	9/27/2002 12:00:00 AM
Num Of Tanks:	1
Active # Of Tanks:	1
Tank Material:	Fiberglass-secondary containment, total containment
Warranty Expiration:	3/1/2022 12:00:00 AM
Tank Leak Detection:	Secondary Containment-Continuous Monitoring
Tank Leak Detection Required:	Secondary Containment-Continuous Monitoring
Tank Above/Below Ground:	B
Tank Status:	**Active**
Tank Status Date:	03/01/92
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	35
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	3000
Total Num of Chambers for Tank:	1
Installer ID:	261
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Jet Fuel
Pipe Status:	**ACTIVE**
Pipe Status Date:	11/04/04
Pipe Material:	FLEXIBLE_
Pipe Leak Detection:	CONFORMIN
Pump Type:	SUCTION
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported

JFSI FUEL FARM (Continued) **U003053058**

Overfill:	Not reported
Manifold Number:	0
Chamber ID:	0
Installer Applicants Company:	BUTCHART, WALTER
Installer Applicant Last Name:	BUTCHART
Installer Applicants First Name:	WALTER
Installer Applicant MI:	Not reported
Installer Applicant Address:	PO BOX 1377
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	PORTLAND, ME 04104
Installer Applicant Country:	Not reported
Installer Applicant Phone:	2077727444
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

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19 **EAST BRUNSWICK ANNEX** **UST** **U000236081**
NAVAL AIR SATION **N/A**
BRUNSWICK, ME

UST:

Facility ID:	14519
Tank Number:	1
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	11/12/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	NAVAL AIR STATION
Update Dt:	08/20/01
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	2
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	11/01/89

EAST BRUNSWICK ANNEX (Continued) **U000236081**

Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	11/01/89
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14519
Tank Number:	2
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	11/12/87
Facility Code:	I
Near Public Water:	No

EAST BRUNSWICK ANNEX (Continued) **U000236081**

Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	NAVAL AIR STATION
Update Dt:	08/20/01
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	2
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	11/01/89
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	550
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	11/01/89
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported

EAST BRUNSWICK ANNEX (Continued) **U000236081**

Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

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19 **NAVAL AIR STATION** **UST** **U000231634**
BUILDING 207 **N/A**
BRUNSWICK, ME

UST:

Facility ID:	16765
Tank Number:	1
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	02/27/91
Facility Code:	H
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	Yes
Sensitive Area:	Yes
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	BUILDING 207 FUEL FARM NEXT TO 7TH STREET
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	1
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	01/27/93
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550

NAVAL AIR STATION (Continued) **U000231634**

Total Num of Chambers for Tank: 1

Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	550
Product Type:	Waste Oil/Used Motor Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	01/27/93
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

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20 **PETER BERG RESIDENCE** **LAST** **S105794497**
246 COOMBS RD **N/A**
BRUNSWICK, ME

LAST:

Spill Number:	P-393-2001
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	True
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	3/18/2002
Modify By:	EITGALLA
Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	05/15/2001

PETER BERG RESIDENCE (Continued) **S105794497**

Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	TA
Inc Source Value:	Storage Unit - Aboveground Storage Tank
Spill Cause Code:	9
Spill Cause Value:	Overfill
Material Disposal Info:	Waste to DEE for disposal.

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21 **COFFIN, RICHARD A** **UST** **U002165697**
BOX 336 COOMBS RD **N/A**
BRUNSWICK, ME

UST:

Facility ID:	6435
Tank Number:	2
Installation Date:	06/01/62
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	09/23/86
Facility Code:	F
Near Public Water:	No
Near Pvt Water:	Yes
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	Yes
Facility Tel:	2077255898
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	ROUTE 5
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	2
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	11/01/91
Tank Use:	Not reported

COFFIN, RICHARD A (Continued) **U002165697**

Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	500
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	500
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	11/01/91
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	7353
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	7353
Owner/Operator Name:	COFFIN, RICHARD A
Owner/Operator Address:	BOX 336 COOMBS RD
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077255898

Facility ID:	6435
Tank Number:	1
Installation Date:	04/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	09/23/86
Facility Code:	F
Near Public Water:	No
Near Pvt Water:	Yes

COFFIN, RICHARD A (Continued) **U002165697**

Near Other Water:	No
On Aquifer:	No
Sensitive Area:	Yes
Facility Tel:	2077255898
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	ROUTE 5
Update Dt:	08/13/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	2
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	SIA Statistical inventory Analysis
Tank Leak Detection Required:	SIA Statistical inventory Analysis
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	10/02/97
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	165
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	10/02/97
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	500
Product Type:	#2 Fuel Oil
Pipe Status:	**REMOVED**
Pipe Status Date:	11/01/91
Pipe Material:	GALVANIZE
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported

COFFIN, RICHARD A (Continued) **U002165697**

Current Owner ID:	7353
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	7353
Owner/Operator Name:	COFFIN, RICHARD A
Owner/Operator Address:	BOX 336 COOMBS RD
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2077255898

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22 **KATHERINE PERRY RESIDENCE** **LAST** **S105110901**
5 LEEWARD COVE ROAD **N/A**
BRUNSWICK, ME

LAST:

Spill Number:	P-271-2000
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	True
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	3/13/2002
Modify By:	EITGALLA
Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	Not reported
Spill Date Unknown:	True
Spill Time Unknown:	True
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	3
reporter type value:	Citizen Complaint
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	TT
Inc Source Value:	Land Transportation - Tank Truck
Spill Cause Code:	8
Spill Cause Value:	Mechanical Failure - Loose Fitting
Material Disposal Info:	Disposed of by Dead River Oil Company

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BOX 250	1007915900	BRUNSWICK COAL & LUNBER	18 SPRING ST.	04011	CT MANIFEST
BRUNSWICH	1007913151	MOROG BRUNSWCK	BATH RD.	04011	CT MANIFEST
BRUNSWICK	1007902434	CUMBERLAND FARMS	RTE 1 / 24	04011	CT MANIFEST
BRUNSWICK	S104877747	BEN'S MOBIL (DOWNEAST ENERGY)	RT. 1	04011	LUST
BRUNSWICK	S105000614	RAY LABBE AND SONS; GARAGE	ROUTE 1	04011	LAST
BRUNSWICK	S105794175	BNAS & OFFSITE WETLAND	RT. 1 / BNAS	04011	LAST
BRUNSWICK	S106789426	COOKS CORNER SHOPPING CENTER	ROUTE 1 / 24	04011	LUST
BRUNSWICK	U000234390	COMMERCIAL BUILDING	RT 1	04011	UST
BRUNSWICK	1007978726	STATE OF MAINE DOT	RT 1 RAMP BRIDGE 6032		CT MANIFEST
BRUNSWICK	S106073350	ROBERTA ROGERS	RT 123	04011	LAST
BRUNSWICK	98466454	RT 24 BRUINSWICK NAVAL AIR ST FUEL FARM	RT 24 BRUINSWICK NAVAL AIR ST FUEL FARM	04011	ERNS
BRUNSWICK	U000726785	MERRYMEETING PLAZA	RT 24		UST
BRUNSWICK	S106796017	ELDRIDGE'S GEN. STORE & GAS	RT. 24, GURNET RD.	04011	LUST
BRUNSWICK	1008040212	BRUNSWICK & TOPSHAM WATER DISTRICT	ADDRESS NOT IN SDWIS	04011	FINDS
BRUNSWICK	S106794136	IRISH, JUDITH L.	APRT. BUILDING - 19 UNION	04011	LUST
BRUNSWICK	S106793827	BRUNSWICK NAVAL AIR STATION GYM	AVENUE F	04011	LUST
BRUNSWICK	S106788998	BNAS UST FUEL FARM LOADING RACK	AVENUE B / 7TH ST.	04011	LUST
BRUNSWICK	S106793590	BNAS FUEL FARM 200 SERIES	AVENUE B / 7TH STREET	04011	LUST
BRUNSWICK	1007906683	BRUNSWICK SCHOOL DEPT	BARRELL'S DRIVE	04011	CT MANIFEST
BRUNSWICK	1008986112	BRUNSWICK SCHOOL DEPT	20 BARROWS ST		CT MANIFEST
BRUNSWICK	S107609643	BRUNSWICK SCHOOL DEPT	20 BARROWS ROAD	04011	NJ MANIFEST
BRUNSWICK	1004530209	BRUNSWICK JR HIGH SC	BARROWS STREET	04011	FINDS
BRUNSWICK	S106794727	FORMER GAS STATION	177-181 BATH RD. COOKS CNR.	04011	LUST
BRUNSWICK	S106403910	BRUNSWICK SERVICE CTR	BATH RD	04011	ME Spills
BRUNSWICK	S106403591	COOKS CORNER SUB STATION	BATH RD	04011	ME Spills
BRUNSWICK	1007913210	AUTO METRICS	121 BATH RD.	04011	CT MANIFEST
BRUNSWICK	1007915888	NEW MEADOWS MARINA	5541 BATH ROAD	04011	CT MANIFEST
BRUNSWICK	A100204870	DE MERRYMEETING PLAZA	BATH RD	04011	AST
BRUNSWICK	A100272934	DE DOWNEAST ENERGY	BATH ROAD	04011	AST
BRUNSWICK	S107446865	BIW HARDING FACILITY	BATH RD	04011	LAST
BRUNSWICK	1007899628	C M P	280 BATH RD		CT MANIFEST
BRUNSWICK	U002166200	NEW MEADOWS MARINA	5541 BATH RD		UST
BRUNSWICK	S106787778	COOKS CORNER SUNOCO	BATH RD. @ COOKS CORNER	04011	LUST
BRUNSWICK	S106788799	GETTY (TOP GAS) COOKS CORNER	184 BATH RD. / RT. 24	04011	LUST
BRUNSWICK	S106789428	COOKS CORNER MALL	BATH RD. / RT. 24	04011	LUST
BRUNSWICK	S106790782	DRAGON PRODUCTS INC.	BATH ROAD	04011	LUST
BRUNSWICK	S106791805	FANATSTIC CAR WASH CITGO	BATH RD. COOKS CORNER	04011	LUST
BRUNSWICK	S106792381	COOKS CORNER SUNOCO	BATH RD. COOKS CRNR.	04011	LUST
BRUNSWICK	S106894126	U-HAUL	BATH RD. COOKS CNR.	04011	LUST
BRUNSWICK	S107446895	COOKS CORNER GETTY TOP GAS	BATH RD.	04011	LUST
BRUNSWICK	1008387661	BRUNSWICK SWINGING BRIDGE	BLUE STAR MEMORIAL HIGHWAY	04011	FINDS
BRUNSWICK	1008373334	BRUNSWICK SWINGING BRIDGE	BLUE STAR MEMORIAL HIGHWAY	04011	RCRA-SQG
BRUNSWICK	S106790995	BOWDOIN COLLEGE	BOWDOIN PINES	04011	LUST

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BRUNSWICK	8868986	BRUNSWICK HYDRO	BRUNSWICK HYDRO		ERNS
BRUNSWICK	99635268	BRUNSWICK HYDRO-STATION MAIN STREET	BRUNSWICK HYDRO-STATION MAIN STREET		ERNS
BRUNSWICK	99612076	BRUNSWICK HYDRO ELECT ROUTE 201	BRUNSWICK HYDRO ELECT ROUTE 201		ERNS
BRUNSWICK	S106799999	NAVY EXCHANGE TAILOR SHOP	BRUNSWICK NAVAL AIR STATION	04011	DRYCLEANERS
BRUNSWICK	U003053051	LL BEANS MANUFACTURING	BRUNSWICK INDUSTRIAL PARK		UST
BRUNSWICK	S106790044	# 2 DELGADA	BRUNSWICK GARDENS	04011	LUST
BRUNSWICK	U003052980	NAVAL AIR STA BLDG 538	BUILDING 538		UST
BRUNSWICK	S106792838	BRUNSWICK NAVAL AIR STATION	BUILDING #211	04011	LUST
BRUNSWICK	S106787902	NAVAL AIR STATION BRUNSWICK	BUILDING #77	04011	LUST
BRUNSWICK	S104222990	BRUNSWICK NAVAL AIR STATION	BUILDING 227	04011	LAST
BRUNSWICK	S106789861	EXCHANGE GAS STATION	2ND. / BURBANK ST.	04011	LUST
BRUNSWICK	S106673865	JORDAN ACRES SCHOOL EARLY CHILDHOOD	CHARLES CT	04011	LAST
BRUNSWICK	1007906616	BOWDOIN COLLEGE	14 CLEAVELAND STREET	04011	CT MANIFEST
BRUNSWICK	S104222619	FIRST PARISH CHURCH	9 CLEVELAND ST. / MAINE ST.	04011	LUST
BRUNSWICK	U002252550	BAXTER HOUSE	COLLEGE ST		UST
BRUNSWICK	S106797405	COFFIN & JUNIOR HIGH SCHOOLS	COLUMBIA AVE	04011	LAST
BRUNSWICK	U003098755	SEKENGER COUNCIL 1947 K OF C	COLUMBUS DR		UST
BRUNSWICK	S104996392	ATRIUM MOTEL	24 COOKS CORNER RD., RT. 24	04011	LUST
BRUNSWICK	S106789097	CUMBERLAND FARMS GULF #1818	COOKS CORNER, BATH ROAD	04011	LUST
BRUNSWICK	A100272958	DR BRUNSWICK BULK PLANT	DISTRICT OFFICE/TWO INDUSTRIAL PARKWAY	04011	AST
BRUNSWICK	S104222763	BRUNSWICK COAL AND LUMBER CO'S BULK	AT END OF PAUL STREET	04011	LAST
BRUNSWICK	1008209803	BRUNSWICK NAVAL AIR STATION	EXCHANGE-AVE. E-#11	04011	FINDS
BRUNSWICK	U000237512	EAST BRUNSWICK BAPTIST CHURCH	FARLEY RD		UST
BRUNSWICK	1007899591	P. ANDREWS NIXON	71 FEDERAL STREET		CT MANIFEST
BRUNSWICK	S106789574	E-BUILDING RESIDENCE	FITCH AVE.	04011	LUST
BRUNSWICK	S105849641	BNAS-BRUNSWICK GARDENS HOUSING	FORESTAL, ANTIETUM / ENTERPRISE STS	04011	LUST, LAST
BRUNSWICK	S104324389	BRUNSWICK NAVAL AIR STATION	41 FORRESTALL	04011	LAST
BRUNSWICK	S107446719	BRUNSWICK NAVAL AIR STATION	FUEL FARM PUMP HOUSE	04011	LUST, LAST
BRUNSWICK	1006837133	BRUNSWICK LANDFILL	GRAHAM ROAD	04011	FINDS
BRUNSWICK	1000193961	GOODYEAR AUTO SERVICE CENTER	GURNET RD	04011	RCRA-SQG, FINDS
BRUNSWICK	1007909934	SEARS AUTO SERVICE	8 GURNET RD	04011	CT MANIFEST
BRUNSWICK	U002164533	GOODYEAR TIRE & RUBBER CO	GURNET RD		UST
BRUNSWICK	S107554461	BOWDOIN COLLEGE	38 HARPSWELL ST	04011	LAST
BRUNSWICK	U000248016	BAMFORTH, CORAL	HARPSWELL RD		UST
BRUNSWICK	U000235309	MERRY MEETING HEALTH & FITNESS	HARPSWELL ST		UST
BRUNSWICK	1007909855	BRUNSWICK COAL & LUMBER	HENNESEY STREET		CT MANIFEST
BRUNSWICK	1007924958	BRUNSWICK COAL AND LUMBER	HENNESEY AVE.	04011	CT MANIFEST
BRUNSWICK	S104218381	BRUNSWICK COAL AND LUMBER	HENNESSEY AVENUE	04011	LAST
BRUNSWICK	U002167234	BRUNSWICK RADIO	HILLSIDE RD		UST
BRUNSWICK	1008339547	U.S. NAVY NAVAL AIR STATION BRUNSWICK	437 HUEY DR	04011	TRIS
BRUNSWICK	1006824894	BRUNSWICK NAVAL AIR STATION	437 HUEY DRIVE	04011	FINDS, AIRS
BRUNSWICK	8710609	HYDRO STATION ON MAIN ST.	HYDRO STATION ON MAIN ST.		ERNS
BRUNSWICK	A100272937	DE DOWNEAST ENERGY	INDUSTRIAL PARK	04011	AST
BRUNSWICK	1007937559	TOWN OF BRUNSWICK PUBLIC WORKS	9 INDUSTRY RD.		CT MANIFEST
BRUNSWICK	1007940996	TOWN OF BRUNSWICK PUBLIC WORKS	9 INDUSTRY RD.		CT MANIFEST
BRUNSWICK	1007929991	TOWN OF BRUNSWICK PUBLIC WORKS	9 INDUSTRY RD.		CT MANIFEST
BRUNSWICK	1009254808	BRUNSWICK PUBLIC WORKS GARAGE	9 INDUSTRY RD	04011	ICIS

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BRUNSWICK	1007915890	BRUNSWICK PUBLIC WORKS DEPARTMENT	INDUSTRY ROAD	04011	CT MANIFEST
BRUNSWICK	S104222254	JORDAN ACRES ELEMENTRY SCHOOL	JORDAN AVENUE	04011	LAST
BRUNSWICK	U002164348	MERRYMAN, JOHN A	JORDAN AVE RT 5		UST
BRUNSWICK	U000245541	MERRYMAN, IDA M	JORDAN AVE RT 5		UST
BRUNSWICK	S105001614	BRUNSWICK NAVAL AIR STATION	LAODING RACK OF AST FUEL FARM	04011	LAST
BRUNSWICK	U002167025	GULAK, HYMAN M	LAUREL COVE RD		UST
BRUNSWICK	S106464594	BRUNSWICK PLAZA DRY CLEANING	176 MAIN STREET	04011	DRYCLEANERS
BRUNSWICK	1008162112	BRUNSWICK PLAZA DRY CLEANING	176 MAIN STREET	04011	FINDS
BRUNSWICK	1007911696	BRUNSWICK TECHNOLOGIES	1 MAIN ST (FORT ANDROS BLDG)	04011	CT MANIFEST
BRUNSWICK	1007907507	BRUNSWICK PLAZA CLEANERS	176 MAIN STREET	04011	CT MANIFEST
BRUNSWICK	S106795113	SHOP N SAVE	MAIN ST. / RAILROAD AVENUE	04011	LUST
BRUNSWICK	S107026719	MAINE STREET STATION	MAINE STREET	04011	SHWS, BROWNFIELDS, VCP
BRUNSWICK	S105568353	MAINE STREET STATION	MAINE / UNION & NOBLE ST.	04011	DEL HWS
BRUNSWICK	1009309827	MAINE STREET STATION	MAINE STREET	04011	US BROWNFIELDS
BRUNSWICK	S106791635	MYSTERY UST	MAINE / CLEVELAND STS.	04011	LUST
BRUNSWICK	1001025920	US DEPT OF THE NAVY SHIPBUILDING SUPVR	MALLET PARK BATH RD	04011	RCRA-SQG, FINDS
BRUNSWICK	1000100557	A T & T PORTLAND RADIO STA RN1	MEADOW RD	04011	RCRA-SQG, FINDS
BRUNSWICK	1007906724	PAUL'S MARINA	MERE POINT ROAD	04011	CT MANIFEST
BRUNSWICK	S104324548	PRINDALL RESID. W/THIBEAULT OIL CO.	MERE POINT RD.	04011	LAST
BRUNSWICK	U003052809	ROANE, PAUL M JR	MERE POINT RD		UST
BRUNSWICK	U002166718	MERE POINT NURSING HOME	MERE POINT RD		UST
BRUNSWICK	U002165827	FISCHER, JOHN L	MERE POINT		UST
BRUNSWICK	U002166092	JORDAN ACRES SCHOOL	MERRYMEETING RD		UST
BRUNSWICK	S105849376	MAINELINE BUS GARAGE	2123 MIDDLE / ELM STS	04011	LUST
BRUNSWICK	U002166101	MILL ST PUMP STATION	MILL ST		UST
BRUNSWICK	91240792	MILL STREET PUMP STATION ON MILL STREET	MILL STREET PUMP STATION ON MILL STREET		ERNS
BRUNSWICK	1007271340	BRUNSWICK NAVAL AIR BASE	NAS BRUNSWICK	04011	FTTS
BRUNSWICK	93310390	NAVAL AIR STATION FUEL BARN	NAVAL AIR STATION FUEL BARN	04011	ERNS
BRUNSWICK	2000536256	NAVAL AIR STATION HANGAR	NAVAL AIR STATION HANGAR	04011	ERNS
BRUNSWICK	U000239604	NAVAL AIR STATION	US NAVY		UST
BRUNSWICK	S106615806	NASB SITE 9	NEPTUNE DRIVE BLDG 219	04011	INST CONTROL
BRUNSWICK	A100193339	VERIZON 731401 BRUNSWICK	OLD US RT 1	04011	AST
BRUNSWICK	1000333067	CROOKER HARRY C & SONS INC	OLD BATH RD	04011	RCRA-SQG, FINDS
BRUNSWICK	1007916577	DRAGON PRODUCTS	OLD BATH RD.	04011	CT MANIFEST
BRUNSWICK	S106615802	NASB EASTERN PLUME	OLD GURNET ROAD	04011	INST CONTROL
BRUNSWICK	S106615808	NASB SITES 1 AND 3	OLD GURNET ROAD	04011	INST CONTROL
BRUNSWICK	S106894013	RUSHS MOBILE HOME PARK - NEIL MATTI	OLD BATH RD - LOT 11	04011	LAST
BRUNSWICK	S107609625	MOORE PAINTING	228 OLD PORTLAND ROAD	04011	NJ MANIFEST
BRUNSWICK	U003098712	THIBEAULT, RAOUL J ESTATE	OLD PORTLAND RD		UST
BRUNSWICK	U003559746	LACHANCE, DONALD G	OLD PORTLAND RD		UST
BRUNSWICK	S106794997	VERIZEN (NE TELE.) GARAGE	OLD RT. 1, BATH RD.	04011	LUST
BRUNSWICK	U003149245	COMBINED WITH FILE # 10849	OLD RT 1		UST
BRUNSWICK	S104877927	BRUNSWICK NAVAL AIR STATION	1251 ORION ST	04011	ME Spills, AST
BRUNSWICK	A100273114	NAS NAVAL AIR STATION BRUNSWICK	1251 ORION STREET	04011	AST
BRUNSWICK	1007287627	NAVAL AIR STATION BRUNSWICK	400 ORION ST NORTH	04011	FTTS
BRUNSWICK	U000233374	TAYLOR, STEPHEN B	PENNELLVILLE RD		UST
BRUNSWICK	U002165054	BRUNSWICK SEWER DISTRICT	PINE TREE DR		UST

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BRUNSWICK	U003053032	SECONDARY WST WTR TREAT FAC	PINE TREE DR		UST
BRUNSWICK	S107026765	BRUNSWICK CLIPPER MART	162 PLEASANT ST- RT 1	04011	LUST
BRUNSWICK	S106795075	BIG APPLE BRUNSWICK	111 PLEASANT AVE	04011	LUST
BRUNSWICK	S106794632	BRUNSWICK CLIPPERMART	162 PLEASANT ST - RT 1	04011	LUST
BRUNSWICK	S106791118	BIG APPLE BRUNSWICK	PLEASANT STREET (ROUTE 1)	04011	LUST
BRUNSWICK	S106673948	BRUNSWICK SAN. DIST. SLUDGE LANDFIL	PLEASANT HILL RD	04011	LCP
BRUNSWICK	S106403322	BIG APPLE BRUNSWICK	PLEASANT / WEBSTER STS - RT 1	04011	LUST
BRUNSWICK	S105110922	BRUNSWICK MAINEWAY IRVING	205 PLEASANT ST. (RT. 1 N)	04011	LUST
BRUNSWICK	1009254805	BRUNSWICK FORD SALES	157 PLEASANT STREET	04011	ICIS
BRUNSWICK	1007893959	BRUNSWICK FORD SALES	PLEASANT STREET (ROUTE 1)	04011	CT MANIFEST
BRUNSWICK	1007886325	BRUNSWICK FORD SALES, INC.	157 PLEASANT STREET	04011	CT MANIFEST
BRUNSWICK	S104204594	BEN'S MOBIL (PUFFIN STOP)	PLEASANT ST (RT 1)	04011	LUST
BRUNSWICK	S106793995	PUFFIN STOP / DOWNEAST ENERGY	PLEASANT ST. (RT. 1)	04011	LUST
BRUNSWICK	U003560084	RUSH, ROLAND SR	POLLARD AVE		UST
BRUNSWICK	U000238051	BRUNSWICK GOLF CLUB	RIVER RD		UST
BRUNSWICK	U002165721	TAYLOR STATION	RIVER RD		UST
BRUNSWICK	U002165974	RIVER RD PUMP STATION	RIVER RD		UST
BRUNSWICK	S105111605	BRUNSWICK FORD SALES	US ROUTE 1	04011	LAST
BRUNSWICK	1000238233	BATH IRON WORKS CORP	US RTE 1	04011	FINDS, RCRA-LQG, TRIS, RCRA-TSDF, UST, CORRACTS
BRUNSWICK	96518812	SPOT 53 NAVAL AIRSTA BRUNSWICK	SPOT 53 NAVAL AIRSTA BRUNSWICK	04011	ERNS
BRUNSWICK	1007906515	BRUNSWICK COAL & LUMBER	18 SPRING ST		CT MANIFEST
BRUNSWICK	1007900015	BRUNSWICK COAL & LUMBER	SPRING STREET		CT MANIFEST
BRUNSWICK	1007909843	BRUNSWICK COAL & LUMBER	SPRING STREET		CT MANIFEST
BRUNSWICK	S106675681	TOWN OF BRUNSWICK	SPRING ST	04011	LUST
BRUNSWICK	S106073344	MABEL SMITH	6 C ST - MERRY MEETING PARK	04011	LAST
BRUNSWICK	U002165967	LONGFELLOW SCHOOL	SOUTH ST		UST
BRUNSWICK	2000672444	R STATION HANGAR	R STATION HANGAR	04011	ERNS
BRUNSWICK	S106789941	BNAS EXCHANGE, BUILDING 538	2ND STREET / BURBANK	04011	LUST
BRUNSWICK	S105794715	CHRISTOPHER WEED	84A UNION ST	04011	LUST
BRUNSWICK	S104219810	WATER STREET DUMP SITE	WATER STREET	04011	INST CONTROL
BRUNSWICK	S105577097	BPD RANGE	WATER STREET (BIKE PATH)	04011	VCP, INST CONTROL
BRUNSWICK	U002164940	DODGE, WILLIAM S	WOODWARD ST RD		UST
HARPSWELL	S104204659	DFSP HARPSWELL	RT. 123	04079	LAST
HARPSWELL	S105795650	BABINEAU RESIDENCE	RT 123 BOX 111	04079	LAST
HARPSWELL	S105954234	HARPSWELL MUNICIPAL DUMP	ROUTE 123	04079	INST CONTROL
HARPSWELL	S106674047	HARPSWELL MUNICIPAL DUMP	RT 123	04079	LCP
HARPSWELL	S106791704	BURGESS MARKET & GAS (BAILEY STORE)	RT. 123	04079	LUST
HARPSWELL	S106796662	5TH HOUSE ON RT. AFTER AUBURN COLON	ROUTE 123	04079	LUST
HARPSWELL	S106797521	DEFENSE FUEL SUPPLY POINT	ROUTE 123	04079	SHWS, INST CONTROL
HARPSWELL	U000231943	WEST HARPSWELL SCHOOL	RT 123	04079	UST
HARPSWELL	U000236056	WEST HARPSWELL BAPTIST CHURCH	RT 123	04079	UST
HARPSWELL	U000237505	HIGH HEAD FARM	RT 123	04079	UST
HARPSWELL	U000239724	KORSIAK, HENRY	RT 123	04079	UST
HARPSWELL	U002166839	ELIJAH KELLOGG CHURCH INC	RT 123	04079	UST
HARPSWELL	U003559801	BAILEY STORE	RT 123	04079	UST
HARPSWELL	U003559909	LOCKE, WILLIAM N	RT 123	04079	UST

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
HARPSWELL	U003560325	DEF FUEL SVC CTR CASCO BAY	RT 123	04079	UST
HARPSWELL	U003561152	DEF FUEL SVC CTR CASCO BAY	RT 123	04079	UST
HARPSWELL	U003561427	DAY, ALAN ESTATE OF	RT 123	04079	UST
HARPSWELL	S106788431	DFSP OIL TERMINAL	RT 123, BOX 148	04079	LUST
HARPSWELL	U003096948	OUELLETTE, DAVID L & JENNA	RR 24 SO GURNET BRIDGE	04079	UST
HARPSWELL	S104221365	MEHTODIST CHURCH SUNDAY SCHOOL	ROUTE 24	04079	LAST
HARPSWELL	S104222586	HARPSWELL ROUTE 24 DUMP SITE	ROUTE 24	04079	LAST, INST CONTROL
HARPSWELL	S104998804	H.L. COOMBS CONSTRUCTION	RT. 24 / SINNET LANE	04079	LAST
HARPSWELL	S106674046	HARPSWELL DUMP SITE	RT. 24	04079	LCP
HARPSWELL	S106790049	BAILEY ISLAND TOP GAS / GEN. STORE	RT. 24	04079	LUST
HARPSWELL	S106792025	BAILEY ISL. SVCE. (OLD GARAGE DRIVE	RT. 24 / SINNETT DRIVE	04079	LUST
HARPSWELL	S106795369	UNITED STATES POST OFFICE	ROUTE 24 BAILEY ISLAND	04079	LUST
HARPSWELL	S106797332	BAILEY ISLAND SVC GAS (COLYER PROP.	RT 24 / SINNETT DR	04079	LUST, LAST
HARPSWELL	S106894116	JOHNSON GARAGE	RT 24 ORR'S ISLAND	04079	LUST
HARPSWELL	U000244291	COFFIN, DONALD W	RT 24	04079	UST
HARPSWELL	U000244988	PRINCE, SANFORD J	RT 24	04079	UST
HARPSWELL	U002167340	HARPSWELL ISLANDS SCHOOL	RT 24	04079	UST
HARPSWELL	U003098150	JOHNSONS OIL SVC INC	RT 24	04079	UST
HARPSWELL	U003098417	COOMBS, HERMAN L SR	RT 24	04079	UST
HARPSWELL	U003099482	DARLING, EVERETT ESTATE OF	RT 24	04079	UST
HARPSWELL	U003100590	US POST OFFICE BAILEY ISLAND	RT 24	04079	UST
HARPSWELL	U003561369	THURSTON, BERNADETTE E	RT 24	04079	UST
HARPSWELL	1007902308	ARLENE PROCTOR	RTE 24	04011	CT MANIFEST
HARPSWELL	U000238223	NOWASACKI, CHET J	RT 4	04079	UST
HARPSWELL	S106794531	SENTER'S BED & BREAKFAST	FR 858 / RT. 123	04079	LUST
HARPSWELL	S106791417	CHASE LANGMAID, III	P.O. BOX 153, RT 24	04079	LUST
HARPSWELL	S106965559		PO BOX 139	04079	SWF/LF
HARPSWELL	S105003142	PARKEE, LEON	CNR RTE 24 / JOHNSON PT. RD.	04079	LAST
HARPSWELL	S104222759	PELICAN PROPERTY MANAGEMENT	GROVER LANE	04079	LAST
HARPSWELL	S107446851	CONSTANCE ROBERTS	239 HARPSELL RD - RT 24	04079	LAST
HARPSWELL	S105795429	MISKILL, DON	1759 HARPSWELL ISLAND RD	04079	LAST
HARPSWELL	S106796467	GEORGE BUTTLE RESID.	SOUTH HARPSWELL	04079	LUST
HARPSWELL	U002166936	HARPSWELL CENTRAL OFFICE	ST HIGHWAY	04079	UST
HARPSWELL	S105795811	INDIAN REST	INDIAN REST RD #2	04079	LAST
HARPSWELL	U000236915	LYMAN, ROBERT W	JOHNSON POINT RD	04079	UST
HARPSWELL	U003560088	DEEMER, RUSSELL R	LAUREL COVE RD	04079	UST
HARPSWELL	S105002486	NEWMAN, LAURENCE	LONG POINT ROAD	04079	LAST
HARPSWELL	U003229419	BUTLER, HOWARD	LONG POINT RD GREAT ISLAND	04079	UST
HARPSWELL	1004529674	STRAWBERRY CREEK RECYCLING CENTER	MOUNTAIN ROAD	04079	FINDS, LAST
HARPSWELL	S106615853	HARPSWELL MUNICIPAL LANDFILL	MOUNTAIN ROAD	04079	INST CONTROL
HARPSWELL	S106674045	HARPSWELL ASH DISPOSAL SITE	MOUNTAIN RD	04079	LCP
HARPSWELL	S106674048	HARPSWELL MUNICIPAL LANDFILL	MOUNTAIN RD	04079	LCP
HARPSWELL	1000112230	NEW ENGLAND TELE CO CTL OFFICE	STATE HIGHWAY RTE 24	04079	RCRA-SQG, FINDS
HARPSWELL	S107446698	ROBERT & MARIE SCHMON	WHITE SAILS LN	04079	LAST
RT 201	1007924950	BRUNSWICK TOYOTA	109 MAIN ST	04086	CT MANIFEST
TOPSHAM	1003862690	MAINE RECYCLING	ROUTE 196	04086	SHWS, CERC-NFRAP
TOPSHAM	1003862824	CROOKER & SONS INC	ROUTE 196	04086	SHWS, CERC-NFRAP

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
TOPSHAM	A100204872	DE TOPSHAM FAIR MALL	RT 196	04086	AST
TOPSHAM	A100272940	DE DOWNEAST ENERGY	ROUTE 196	04086	AST
TOPSHAM	S105794499	COASTWAY OIL CO. BULK PLANT	ROUTE 196	04086	LAST
TOPSHAM	S106073176	GIBBS	RT 196 - TOPSHAM MALL	04086	LUST
TOPSHAM	S106788001	MDOT MAINTENANCE FACILITY	ROUTE 196	04086	LUST
TOPSHAM	S106791439	PEJEBSCOT PAPER	RT. 196	04086	LUST
TOPSHAM	S106795480	COASTAL METAL FABRICATION, INC.	ROUTE 196 BOX 458	04086	LUST
TOPSHAM	U002158832	MDOT MAINTENANCE FACILITY	ROUTE 196	04086	UST
TOPSHAM	U003097589	LEES TIRE & SERVICE	RT 196	04086	UST
TOPSHAM	U003097697	LJ KENNEDY TRUCKING	RT 196	04086	UST
TOPSHAM	U003179572	TOPSHAM SUPER STOP	RT 196	04086	UST
TOPSHAM	A100193505	BRUNSWICK NAVAL AIR STATION TOPSHAM ANNEX	RT 201	04086	AST
TOPSHAM	U003229489	TOPSHAM IRVING MAINWAY	RT 4 HAMLIN COURT	04086	UST
TOPSHAM	S106893912	FRANKS MECHANICAL SERVICE	AUGUSTA RD - RT 201	04086	LAST
TOPSHAM	1007900465	PRE-CAST CONCRETE PRODUCS OF ME	PO BOX 307 RT.201	04086	CT MANIFEST
TOPSHAM	S106965617		PO BOX 5001	04086	SWF/LF
TOPSHAM	S105754361	TOPSHAM ANNEX	CANAM DRIVE	04086	SHWS
TOPSHAM	S104872393	TOPSHAM RADIATOR	CORNER OF ROUTE 196 / 201	04086	SHWS
TOPSHAM	S106615961	TOPSHAM MUNICIPAL LANDFILL	FORESIDE ROAD	04086	INST CONTROL
TOPSHAM	S106893935	UNKNOWN RESIDENT	29 FRANKLIN PARKWAY	04086	LAST
TOPSHAM	U002163232	TOPSHAM FIRE STATION	GREEN STREET	04086	UST
TOPSHAM	S107446781	DAVE GLEASON	8 GREEN ST - APT 2	04086	LAST
TOPSHAM	1007913551	CUMBERLAND FARMS	MAIN ST. / RT. 196	04086	CT MANIFEST
TOPSHAM	1007918213	CUMBERLAND FARMS	MAIN ST. RT. 196	04086	CT MANIFEST
TOPSHAM	1007919070	CUMBERLAND FARMS	MAIN STREET / ROUTE 196	04086	CT MANIFEST
TOPSHAM	1007925169	CUMBERLAND FARMS	MAIN ST / RT 196	04086	CT MANIFEST
TOPSHAM	S106178126	J T L HEUREUX INC	15 MAIN ST - RT 201	04086	LUST
TOPSHAM	S106402944	GIBBS - 4722	96 MAIN ST - RT. 201	04086	LUST
TOPSHAM	S106520065	TOPSHAM CITGO - EXXON	4 MAIN ST - RT 24	04086	LUST, LAST
TOPSHAM	U000233741	HERBERT, PAUL & SUSAN	MEADOW RD	04086	UST
TOPSHAM	U002158614	KELLY, DEAN	MEADOW RD	04086	UST
TOPSHAM	U003765954	ATC TOPSHAM FACILITY	MEADOW ROAD	04086	UST
TOPSHAM	U003838710	FERRAIOLO CORP	MEADOW RD	04086	UST
TOPSHAM	U002160104	JACKSON STATION	OLD LEWISTON ROAD	04086	UST
TOPSHAM	1007896394	BRUNSWICK - TOPSHAM WATER DISTRIC	OLD LEWISTON RD.	04086	CT MANIFEST
TOPSHAM	1000333066	CROOKER HARRY C & SONS INC	PAVING DIVISION RTE 196	04086	RCRA-SQG, FINDS
TOPSHAM	U000247904	TOPSHAM WARD	PINEWOOD DRIVE	04086	UST
USA COUNTY	1007919722	CUMBERLAND FARMS	ROUTE 1 / 2 BRUNSWICK	04011	CT MANIFEST
USA COUNTY	1007910731	BUS GARAGE	BARROWS ST. BRUNSWICK ME.	04011	CT MANIFEST
USA COUNTY	1007911551	MORONG BRUNSWICK	BATH RD. BRUNSWICK	04011	CT MANIFEST
USA COUNTY	1007912625	BILL DODGE OLDS	BATH RD. BRUNSWICK	04011	CT MANIFEST
USA COUNTY	1007912626	AUTO METRICS	BATH RD. BRUNSWICK	04011	CT MANIFEST
USA COUNTY	1007924056	DOWNEASST ENERGY	101 BATH RD. BRUNSWICK	04011	CT MANIFEST
USA COUNTY	1007887306	DROMO BRUNSWICK N.A.S.	BRUNSWICK	04011	CT MANIFEST
USA COUNTY	1007887305	DRMO BRUNSWICK N.A.S.	BRUNSWICK	04011	CT MANIFEST
USA COUNTY	1007913740	COOKS CORNER	BRUNSWICK	04011	CT MANIFEST
USA COUNTY	1007976467	MAINE VOCATIONAL - REGION 10	68 CHURCH RD. BRUNSWICK	04011	CT MANIFEST

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
USA COUNTY	1007981601	MAINE VOCATIONAL - REGION 10	68 CHURCH RD. BRUNSWICK	04011	CT MANIFEST
USA COUNTY	1007891039	SAD # NO.75	22 ELM ST THOMPSHAM	04086	CT MANIFEST
USA COUNTY	1007976157	TOWN OF BRUNSWICK/PUBLIC WORKS	9 INDUSTRY RD. BRUNSWICK	04011	CT MANIFEST
USA COUNTY	1007917518	TOWN OF BRUNSWICK PUBLIC WORKS	9 INDUSTRY RD. BRUNSWICK	04011	CT MANIFEST
USA COUNTY	1007917427	BRUNSWICK PUBLIC WORKS	9 INDUSTRY RD. BRUNSWICK	04011	CT MANIFEST
USA COUNTY	1007887796	VAILANCOURT AUTO	39 JORDAN AVENUE BRUNSWICK	04011	CT MANIFEST
USA COUNTY	1007911645	CITY OF BRUNSWICK	PUBLIC WORKS DEPT. INDUSTRY RD. BRU	04011	CT MANIFEST
USA COUNTY	1007926800	BRUNSWICK COAL & LUMBER	18 SPRING ST. BRUNSWICK	04011	CT MANIFEST
USA COUNTY	1007980750	BRUNSWICK HOME GARDEN	26 STAND WOOD ST. BRUNSWICK	04011	CT MANIFEST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 10
Telephone 206-553-8665

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

Proposed NPL: Proposed National Priority List Sites

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL RECOVERY: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 06/19/2006
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 09/21/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 07/17/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/15/2006
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 27

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/15/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 01/12/2006
Date Made Active in Reports: 02/21/2006
Number of Days to Update: 40

Source: National Response Center, United States Coast Guard
Telephone: 202-260-2342
Last EDR Contact: 07/25/2006
Next Scheduled EDR Contact: 10/23/2006
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 07/03/2006
Date Data Arrived at EDR: 07/19/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 35

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/19/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/21/2006
Date Data Arrived at EDR: 03/27/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 09/07/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/21/2006
Date Data Arrived at EDR: 03/27/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 09/07/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/08/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 177

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 08/11/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 01/19/2006
Date Made Active in Reports: 02/21/2006
Number of Days to Update: 33

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 01/01/2007
Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/13/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 55

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/14/2004
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 04/25/2005
Number of Days to Update: 69

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 10/23/2006
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/21/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 47

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 07/06/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Annually

Topsham Facilities List

FAC NO	FACILITY NAME	PRN	CCN	BUILT	MAP GRID	MEASURE	
	FENCING	220028	87210	1958		19621	LF
		100047				11	AC
		100048				43.35	AC
		100046				36.81	AC
	PLAYGROUND	201044	75057	1973			
	WATER DISTRIBUTION LINES	220097	84210	1958		8194	LF
	INTERIOR FENCING	220029	87215	1965		48	LF
	STORM DRAINAGE OUTFALL	220036	87110	1958		6643	LF
	SIDEWALK	220037	85220	1958		2834	SY
	ROADS	220038	85110	1958		28887	SY
	VEHICLE PARKING	220039	85210	1958		26972	SY
	STORM DRAINAGE OUTFALL	220098	87110	1958		8375	LF
	ELECTRICAL DISTRIBUTION LINE	220095	81230	1958		7305	LF
	SANITARY SEWER	220096	83210	1958		6995	LF
	STREET LIGHTING	220040	81220	1958			
	WATER DISTRIBUTION LINES	220035	84210	1958		13431	LF
	SANITARY SEWER	220034	83210	1958		11803	LF
	SIDEWALK	220099	85220	1958		1685	SY
	ELECTRICAL DIST. LINES	220030	81230	1958		14845	LF
	VEHICLE PARKING	220101	85210	1958		4425	SY
	ROADS	220100	85110	1958		23333	SY
	SEWAGE SEPTIC TANK	220031	83130	1964			
332	OFFICE BUILDING (VACANT)	220002	61077	1964	2C	1248	SF
333	FLAG HDQTRS/ARMY RES. OFFICE	220003	61010	1958	2C	12672	SF
334	FLAG POLE	220004	69010	1958	2C		
335	COMMISSARY STORE	220005	74023	1957	3C	35466	SF
336	GENERAL STORAGE SHED	220006	74023	1963	3C	2960	SF
337	SUPPLY WAREHOUSE	220007	17115	1958	3C	5282	SF
338	STORAGE FOR DRILL HALL	220008	17115	1963	2C	4320	SF
339	ADMIN RESERVE	220009	17115	1964	3C	9013	SF
363	FIRE STATION	220010	73010	1962	3C	2651	SF
370	PLAYING COURT	220016	75010	1966	3C		
374	VACANT	220018	61077	1959	E4	1900	SF
378	PUMPING STATION	220022	84209	1962	3C	529	SF
385	WATER STORAGE TANK	220042	84140	1958	2C	575000	GA
386	WATER METER PIT SHELTER	201115	84209	1987	J2	204	SF

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 11/04/2005
Date Data Arrived at EDR: 11/28/2005
Date Made Active in Reports: 01/30/2006
Number of Days to Update: 63

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 07/20/2006
Date Data Arrived at EDR: 07/21/2006
Date Made Active in Reports: 08/22/2006
Number of Days to Update: 32

Source: EPA
Telephone: 202-564-6064
Last EDR Contact: 07/06/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Quarterly

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/14/2006
Date Data Arrived at EDR: 07/18/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 50

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Date of Government Version: 07/14/2006
Date Data Arrived at EDR: 07/18/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 50

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 05/11/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 02/13/2006
Date Data Arrived at EDR: 04/21/2006
Date Made Active in Reports: 05/11/2006
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/07/2006
Date Data Arrived at EDR: 08/09/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 28

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 08/09/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/20/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 48

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/03/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/16/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 09/27/2006
Next Scheduled EDR Contact: 12/25/2006
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/21/2006
Date Data Arrived at EDR: 07/25/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 43

Source: EPA
Telephone: N/A
Last EDR Contact: 04/03/2006
Next Scheduled EDR Contact: 07/03/2006
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2003
Date Data Arrived at EDR: 06/17/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 48

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/15/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Biennially

STATE AND LOCAL RECORDS

SHWS: Remediation Sites List

Uncontrolled Sites locations included in the Remediation Sites List.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-4850
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

DEL HWS: Sites Removed from the Uncontrolled Sites List

Sites are removed from the List once it is determined that they are not "worthy of listing". This term is used as there are a number of reasons to remove a site from the List, including: no file exists, the site was reported as an oil spill, there is no evidence of a hazardous substance release or based on an investigation the site is referred to another program unrelated to hazardous substance or hazardous waste. Sites are removed on a case by case basis. The USP intends this to be an on-going process, as time and resources allow.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SWF/LF: Solid Waste Facility List

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/19/2006
Date Data Arrived at EDR: 06/19/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 11

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Annually

LCP: Municipal Landfill Closure Database

The Municipal Landfill Closure and Remediation Program was established in 1988 to assist nearly 400 municipalities with the closure of their unlicensed municipal solid waste landfills. Project managers in this program have conducted site investigations and provided technical engineering assistance to aid municipalities in this process. Funding to accomplish this goal was provided by the state, utilizing several bonds that supported a 75% state cost sharing reimbursement process.

Date of Government Version: 12/15/2005
Date Data Arrived at EDR: 12/20/2005
Date Made Active in Reports: 01/16/2006
Number of Days to Update: 27

Source: Department of Environmental Protection
Telephone: 207-287-8552
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Varies

LUST: Hazardous Material and Oil Spill System Database (H.O.S.S.)

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

UST: Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 06/28/2005
Date Data Arrived at EDR: 07/25/2005
Date Made Active in Reports: 08/25/2005
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 09/13/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Quarterly

LAST: HOSS Database

A listing of leaking aboveground storage tanks.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

AST: Aboveground Storage Tanks

Registered Aboveground Storage Tanks.

Date of Government Version: 07/26/2005
Date Data Arrived at EDR: 07/26/2005
Date Made Active in Reports: 08/30/2005
Number of Days to Update: 35

Source: Maine Emergency Management Agency
Telephone: 207-626-4503
Last EDR Contact: 09/21/2006
Next Scheduled EDR Contact: 10/09/2006
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS: Hazardous Material and Oil Spill System Database
The database contains surface, groundwater and hazardous material spills.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29
Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

INST CONTROL: Remediation Sites List
Sites with Institutional Controls in place included in the Remediation Sites List. Institutional Controls are legally enforceable site use restrictions recorded on the property deed and therefore operate in perpetuity regardless of change in site ownership.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31
Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

VCP: Remediation Sites List
Voluntary Response Action Program sites included in the Remediation Sites List. VRAP promotes the investigation, remediation and redevelopment of contaminated properties by offering liability assurances/protections from state enforcement actions for applicants to the program.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31
Source: Department of Environmental Protection
Telephone: 207-287-4854
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Varies

DRYCLEANERS: Drycleaner Facilities
A listing of drycleaning facilities that use perchloroethylene.

Date of Government Version: 09/06/2005
Date Data Arrived at EDR: 09/08/2005
Date Made Active in Reports: 10/07/2005
Number of Days to Update: 29
Source: Department of Environmental Protection
Telephone: 207-287-7030
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

BROWNFIELDS: Remediation Sites List
Brownfields site locations included in the Remediation Sites List. Brownfields are "Real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant".

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31
Source: Department of Environmental Protection
Telephone: 207-287-7716
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Varies

AIRS: Emissions Inventory Data
Point Source Criteria Pollutant Emissions Inventory data. Criteria air pollutant emissions, expressed in tons, by facility and pollutant.

Date of Government Version: 12/31/2003
Date Data Arrived at EDR: 05/02/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 35
Source: Department of Environmental Protection
Telephone: 207-287-7036
Last EDR Contact: 07/14/2006
Next Scheduled EDR Contact: 10/09/2006
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/08/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 177
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 08/11/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 06/28/2006
Number of Days to Update: 19
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 06/23/2006
Date Made Active in Reports: 08/02/2006
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 06/06/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/10/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 64
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 06/23/2006
Date Made Active in Reports: 08/02/2006
Number of Days to Update: 40

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 06/06/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 06/30/2006
Date Data Arrived at EDR: 07/03/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 65

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

A listing of underground storage tank locations on Indian Land.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 21

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/10/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/17/2006
Date Made Active in Reports: 04/07/2006
Number of Days to Update: 49

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/06/2006
Date Made Active in Reports: 08/01/2006
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/05/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/02/2006
Date Data Arrived at EDR: 05/31/2006
Date Made Active in Reports: 06/27/2006
Number of Days to Update: 27

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/30/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 05/04/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 33

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 09/30/2005
Date Data Arrived at EDR: 05/09/2006
Date Made Active in Reports: 05/24/2006
Number of Days to Update: 15

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Annually

VT MANIFEST: Hazardous Waste Manifest Data
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 06/29/2006
Date Made Active in Reports: 07/31/2006
Number of Days to Update: 32

Source: Department of Environmental Conservation
Telephone: 802-241-3443
Last EDR Contact: 08/15/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Annually

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: child Care Listing
Source: Department of Human Services
Telephone: 207-287-5060

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Office of Geographic Information Systems
Telephone: 207-287-6144

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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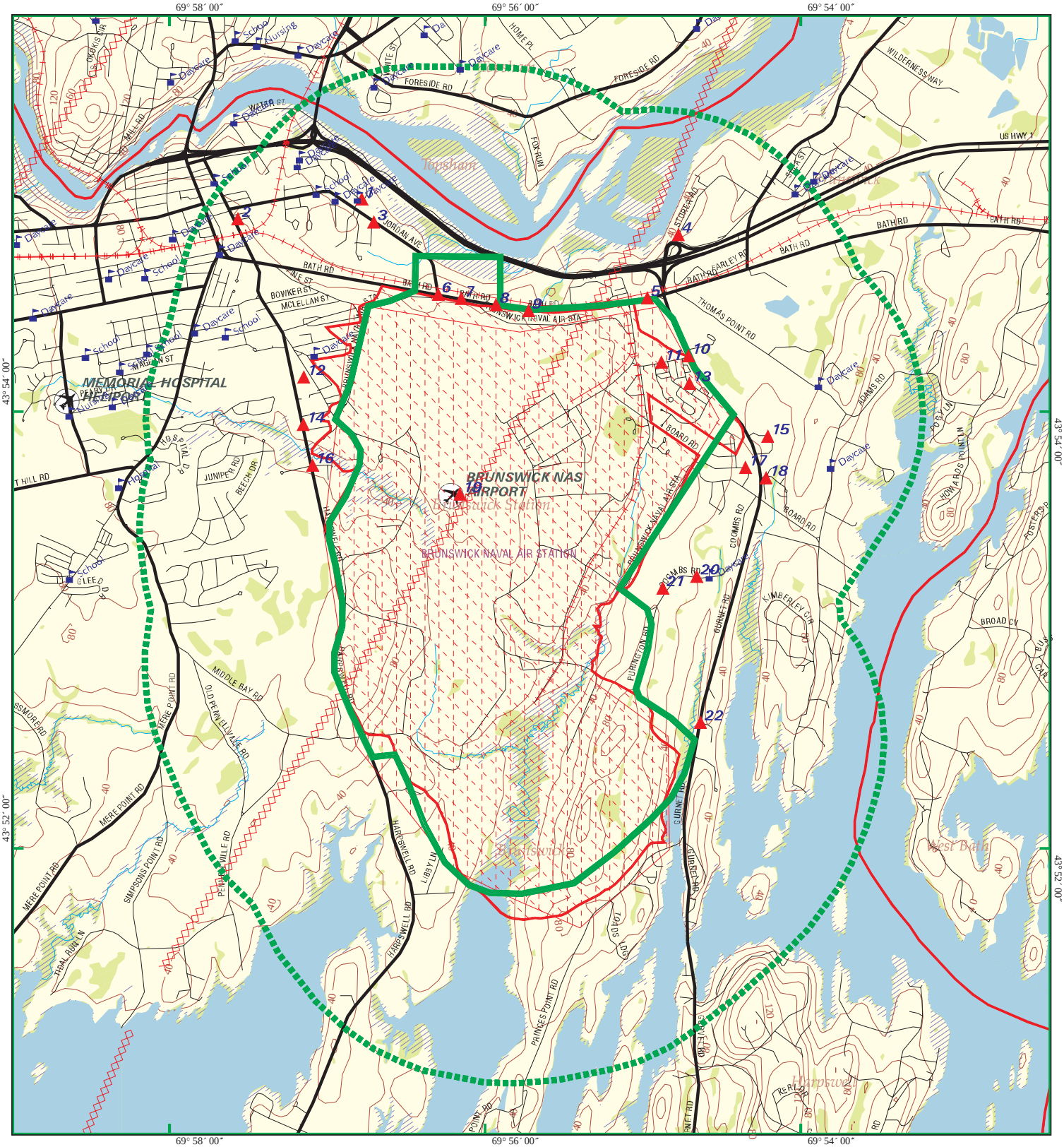
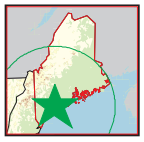
NASB Main Base EDR Report Findings Map



EDR DataMap ® −Area Study

Naval Air Station Brunswick

EDR® Environmental Data Resources Inc



Brunswick, ME

- Listed Sites
- Earthquake Epicenters (Richter 5 or greater)
- Search Boundary
- Roads
- Major Roads
- Waterways
- Railroads
- Contour Lines
- Pipelines
- Powerlines
- Fault Lines
- Water
- Superfund Sites
- Federal DOD Sites
- Indian Reservations BIA
- 100-Yr Flood Zones
- National Wetland Inventory

N

0 1/4 1/2

Scale in Miles

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01761271.1r - 27 Sep 06

East Brunswick Remote Radio Site EDR

The EDR Radius Map
with GeoCheck®

East Brunswick Remote Radio Site
Old Bath Road
Brunswick, ME 04011

Inquiry Number: 1762088.1s

September 25, 2006

The Standard in Environmental Risk Management Information

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Milford, Connecticut 06461

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TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	6
Orphan Summary	11
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-8
Physical Setting Source Map Findings	A-9
Physical Setting Source Records Searched	A-20

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

OLD BATH ROAD
BRUNSWICK, ME 04011

COORDINATES

Latitude (North):	43.922700 - 43° 55' 21.7''
Longitude (West):	69.883100 - 69° 52' 59.2''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	429104.2
UTM Y (Meters):	4863450.5
Elevation:	23 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	43069-H8 BRUNSWICK, ME
Most Recent Revision:	2001
East Map:	43069-H7 BATH, ME
Most Recent Revision:	2001

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
Delisted NPL ..... National Priority List Deletions
NPL RECOVERY ..... Federal Superfund Liens
CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
CORRACTS ..... Corrective Action Report

EXECUTIVE SUMMARY

RCRA-TSDF Resource Conservation and Recovery Act Information
RCRA-LQG Resource Conservation and Recovery Act Information
RCRA-SQG Resource Conservation and Recovery Act Information
ERNS Emergency Response Notification System
HMIRS Hazardous Materials Information Reporting System
US ENG CONTROLS Engineering Controls Sites List
US INST CONTROL Sites with Institutional Controls
DOD Department of Defense Sites
FUDS Formerly Used Defense Sites
US BROWNFIELDS A Listing of Brownfields Sites
CONSENT Superfund (CERCLA) Consent Decrees
ROD Records Of Decision
UMTRA Uranium Mill Tailings Sites
ODI Open Dump Inventory
TRIS Toxic Chemical Release Inventory System
TSCA Toxic Substances Control Act
FTTS FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS Section 7 Tracking Systems
ICIS Integrated Compliance Information System
PADS PCB Activity Database System
MLTS Material Licensing Tracking System
MINES Mines Master Index File
FINDS Facility Index System/Facility Registry System
RAATS RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

DEL HWS Sites Removed from the Uncontrolled Sites List
SWF/LF Solid Waste Facility List
LCP Municipal Landfill Closure Database
UST Underground Storage Tank Database
AST Aboveground Storage Tanks
ME Spills Hazardous Material and Oil Spill System Database
INST CONTROL Remediation Sites List
VCP Remediation Sites List
DRYCLEANERS Drycleaner Facilities
BROWNFIELDS Remediation Sites List
AIRS Emissions Inventory Data

TRIBAL RECORDS

INDIAN RESERV Indian Reservations
INDIAN LUST Leaking Underground Storage Tanks on Indian Land
INDIAN UST Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

EXECUTIVE SUMMARY

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

FEDERAL RECORDS

CERCLIS-NFRAP: Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

A review of the CERC-NFRAP list, as provided by EDR, and dated 07/17/2006 has revealed that there is 1 CERC-NFRAP site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
JEWETT JUNKYARD	***373 BATH ROAD***	***1/4 - 1/2 S***	***3***	***9***

STATE AND LOCAL RECORDS

SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Environmental Protection's Uncontrolled Hazardous Substance Sites Program List of Investigations.

A review of the SHWS list, as provided by EDR, and dated 05/01/2006 has revealed that there is 1 SHWS site within approximately 1 mile of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
JEWETT JUNKYARD	***373 BATH ROAD***	***1/4 - 1/2 S***	***3***	***9***
: No Further Action				

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Environmental Protection's Hazardous Material and Oil Spill System Database (H.O.S.S.).

A review of the LUST list, as provided by EDR, and dated 05/27/2006 has revealed that there is 1 LUST site within approximately 0.5 miles of the target property.

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
HARRY CARD	11 HOLLIS LN	1/4 - 1/2 NW	1	6

LAST: A listing of leaking aboveground storage tanks.

A review of the LAST list, as provided by EDR, and dated 05/27/2006 has revealed that there is 1 LAST site within approximately 0.5 miles of the target property.

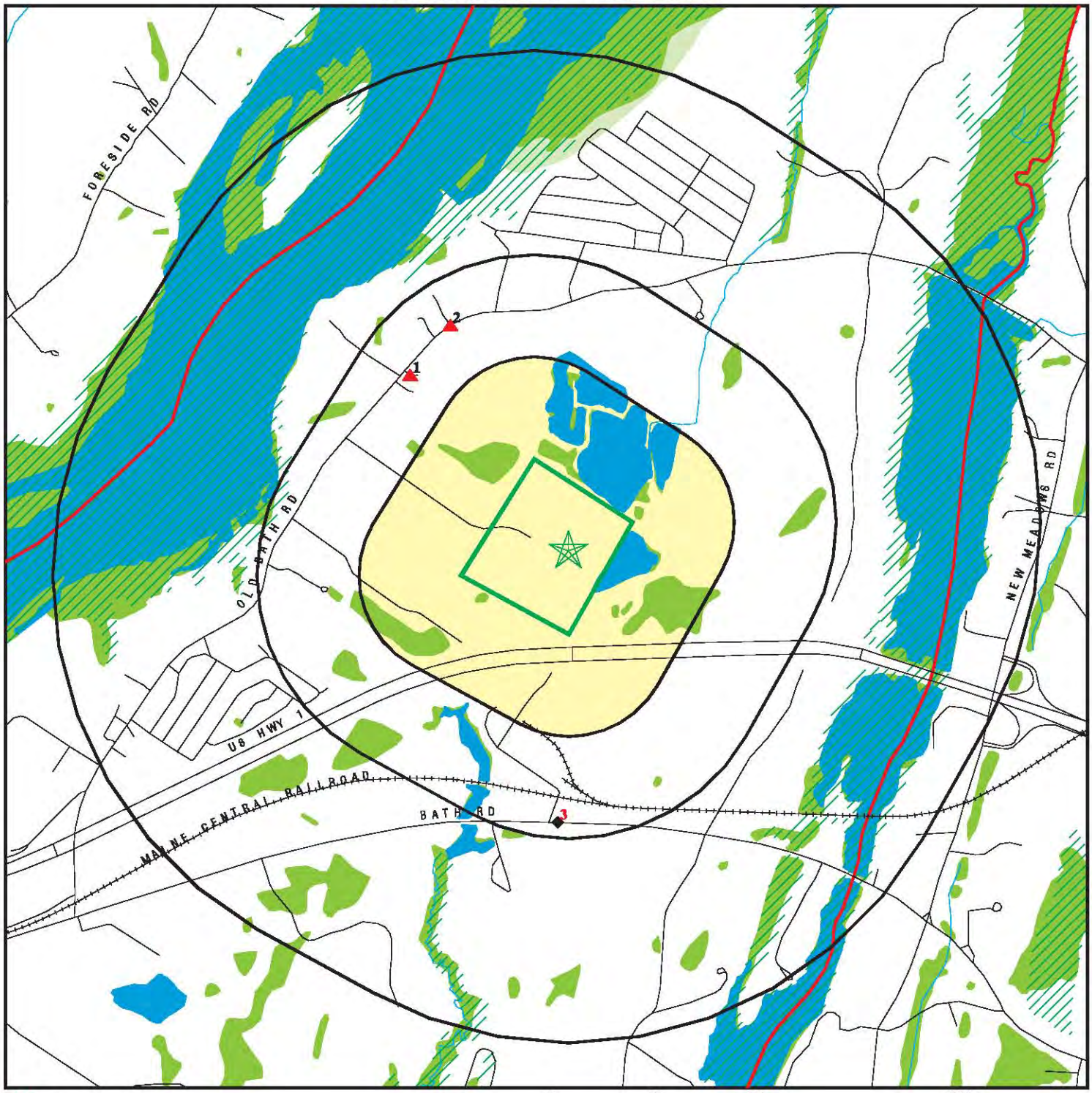
Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
AMES KENDALL	349 OLD BATH RD	1/4 - 1/2 NNW	2	8

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
BATH IRON WORKS CORP	FINDS, RCRA-LQG, TRIS, RCRA-TSDF, UST, CORRACTS
RAY LABBE AND SONS; GARAGE	LAST
BNAS & OFFSITE WETLAND	LAST
RUSHS MOBILE HOME PARK - NEIL MATT	LAST
BRUNSWICK FORD SALES	LAST
BEN'S MOBIL (DOWNEAST ENERGY)	LUST
COOKS CORNER SHOPPING CENTER	LUST
GETTY (TOP GAS) COOKS CORNER	LUST
COOKS CORNER MALL	LUST
VERIZEN (NE TELE.) GARAGE	LUST
BIG APPLE BRUNSWICK	LUST
BRUNSWICK SWINGING BRIDGE	RCRA-SQG
CROOKER HARRY C & SONS INC	RCRA-SQG, FINDS
BRUNSWICK HYDRO ELECT ROUTE 201	ERNS
BRUNSWICK SWINGING BRIDGE	FINDS
BRUNSWICK SERVICE CTR	ME Spills
BRUNSWICK FORD SALES	CT MANIFEST
MORONG BRUNSWICK	CT MANIFEST
BRUNSWICK COAL & LUNBER	CT MANIFEST
DOWN EAST ENERGY	CT MANIFEST

OVERVIEW MAP - 1762088.1s



Target Property
Sites at elevations higher than or equal to the target property
Sites at elevations lower than the target property
Manufactured Gas Plants
National Priority List Sites
Landfill Sites
Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA
County Boundary
Oil & Gas pipelines
100-year flood zone
500-year flood zone
National Wetland Inventory
State Wetlands

SITE NAME: East Brunswick Remote Radio Site	CLIENT: Tetra Tech NUS, Inc.
ADDRESS: Old Bath Road Brunswick ME 04011	CONTACT: Rima Miley INQUIRY #: 1762088.1s
LAT/LONG: 43.9227 / 69.8831	DATE: September 25, 2006 5:03 pm

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DETAIL MAP - 1762088.1s

0 1/8 1/4 1/2 Miles

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

SITE NAME: East Brunswick Remote Radio Site	CLIENT: Tetra Tech NUS, Inc.
ADDRESS: Old Bath Road	CONTACT: Rima Miley
Brunswick ME 04011	INQUIRY #: 1762088.1s
LAT/LONG: 43.9227 / 69.8831	DATE: September 25, 2006 5:03 pm

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL RECORDS								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
NPL RECOVERY		TP	NR	NR	NR	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	1	NR	NR	1
CORRACTS		1.000	0	0	0	0	NR	0
RCRA TSD		0.500	0	0	0	NR	NR	0
RCRA Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRA Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
STATE AND LOCAL RECORDS								
State Haz. Waste		1.000	0	0	1	0	NR	1
DEL HWS		1.000	0	0	0	0	NR	0
State Landfill		0.500	0	0	0	NR	NR	0
LCP		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	1	NR	NR	1
UST		0.250	0	0	NR	NR	NR	0
LAST		0.500	0	0	1	NR	NR	1
AST		0.250	0	0	NR	NR	NR	0
ME Spills		TP	NR	NR	NR	NR	NR	0
INST CONTROL		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
BROWNFIELDS		0.500	0	0	0	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
TRIBAL RECORDS								
INDIAN RESERV		1.000	0	0	0	0	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
NW
1/4-1/2
1938 ft.

HARRY CARD
11 HOLLIS LN
BRUNSWICK, ME

LUST

S106894157
N/A

Relative:
Higher

Actual:
37 ft.

LUST:

Spill Number:	P-342-2004
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	True
Ust Registered Flag:	True
Ust Tank Site Number:	20512
Ust Tank Number:	Not reported
Ast Inside Flag:	False
Create Date:	4/23/2004
Create By:	EICPAQUE
Modify Date:	4/19/2005
Modify By:	EITGALLA
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True
Actual Spill Time Unknown:	True
Number Wells At Risk:	1
Number Wells Impacted:	0
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	I
Spill Type Value:	Non-Oil, Non-Hazardous Incident
Reporter Type Code:	2
Reporter Type Value:	Subject/Spiller
Detection Method Code:	J
Detection Method Value:	Tank and/or Piping Removal
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	NO
Inc Source Value:	No Source
Spill Cause Code:	0
Spill Cause Value:	Other - No Cause
Material Disposal Info:	n/a
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = DR
Change Date:	04/23/2004
Change By:	EICPAQUE
Change Type Code:	SC
Change Type Value:	Report Status Changed
Change Desc:	Report Status change from DQA to FR
Change Date:	04/19/2005
Change By:	EITGALLA
Change Type Code:	SC
Change Type Value:	Report Status Changed
Change Desc:	Report Status change from DR to DRV
Change Date:	12/14/2004
Change By:	EISBREZI
Change Type Code:	SC

HARRY CARD (Continued) **S106894157**

Change Type Value:	Report Status Changed
Change Desc:	Report Status change from DRV to DQA
Change Date:	01/07/2005
Change By:	EIJWOODA
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	HARRY M CARD
Contact Title:	Not reported
Contact Company:	Not reported
Contact Addr:	873 SE 13TH RD
Contact Addr2:	Not reported
Contact City,St,Zip:	HOMESTEAD, FL 33035
Contact Country:	USA
Phone:	305-248-0915
Potential Rp:	True
Cont Type Code:	SR
Contact Type:	Reporter
Contact Name:	MICHAEL BARIBEAU
Contact Title:	Not reported
Contact Company:	Not reported
Contact Addr:	51 PLEASANT ST
Contact Addr2:	Not reported
Contact City,St,Zip:	BRUNSWICK, ME 04011
Contact Country:	USA
Phone:	207-729-3333
Potential Rp:	False
Comments:	Agent for Mr. Cardfacility owner’s new address
Primary Employee:	T
Employee Name:	STEPHEN G BREZINSKI
Create Date:	04/22/2005
Create By:	IMAGING
Modify Date:	04/22/2005
Modify By:	IMAGING
File Num Sheets:	0
File Notes:	Report scanned into the imaging system on 22-APR-05.
Reconcile Date:	Not reported
Medium Code:	N
Medium:	None
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	342
Spill Year:	2004
Create Date:	4/23/2004
Created By:	EICPAQUE
Modify Date:	12/14/2004
Modify By:	EISBREZI
Spill Type Code:	O
Log Spill Type:	Oil Incident
Log Spill Datetime:	Not reported
Spill Time Unk:	True
Spill Dt Unknown:	True
Log Rep Dt Tm:	4/13/2004
Log Rep Prod Cd:	2
Log Rep Prod:	#2 Fuel Oil
Log Emp First Name:	STEPHEN
Log Emp MI:	G

HARRY CARD (Continued) **S106894157**

Log Emp Last Name:	BREZINSKI
Log Location Town:	BRUNSWICK
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Card residence 11 Hollis Lane
Mat Rec Type:	Not reported
Mat Recovered:	Not reported
Material Amount:	Not reported
Material Units:	Not reported
Material Units Val:	Not reported
Mat Amt Qualifier:	Not reported
Create Date:	Not reported
Created By:	Not reported
Modify Date:	Not reported
Modify By:	Not reported
Point Type Code:	Not reported
Utm North:	Not reported
Utm East:	Not reported
GPS Unit:	Not reported
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Not reported
GIS Object Id:	Not reported
GIS Sync Flag:	Not reported
Rcvry Meth Code:	K
Recovery Method:	None
Prod Code:	00
Prod Code Value:	None
Product Other:	Not reported
Product Amt:	Not reported
Product Amt Unit:	Not reported
Prod Amt Unit Val:	Not reported
Prod Amt Qualifier:	Not reported
Primary Product:	True
Description:	site sketch
Attach type Code:	PATTA
Attach type Value:	Paper Attach
File Name:	Not reported
File Modify Date:	12/14/2004
Description:	UST Abandonment Notice
Attach type Code:	PATTA
Attach type Value:	Paper Attach
File Name:	Not reported
File Modify Date:	12/14/2004

---

2 **AMES KENDALL** **LAST** **S106403626**
NNW **349 OLD BATH RD** **N/A**
1/4-1/2 **BRUNSWICK, ME**
2045 ft.

Relative:
Higher

Actual:
37 ft.

LAST:

Spill Number:	P-830-2003
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	True
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False

AMES KENDALL (Continued) **S106403626**

Create Date:	10/15/2003
Create By:	EICPAQUE
Modify Date:	3/16/2004
Modify By:	EITGALLA
Report Status Value:	FR
Report Status Value:	Final Report
Spill Datetime:	10/02/2003
Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	2
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Further response action:	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	TA
Inc Source Value:	Storage Unit - Aboveground Storage Tank
Spill Cause Code:	9
Spill Cause Value:	Overfill
Material Disposal Info:	M W Sewall

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3 **JEWETT JUNKYARD** **SHWS 1003862689**
South **373 BATH ROAD** **CERC-NFRAP MED985466036**
1/4-1/2 **BRUNSWICK, ME 04011**
2437 ft.

Relative:
Lower

Actual:
22 ft.

SHWS:

Facility ID:	REM00474
Facility Status:	**No Further Action**
Program Type:	UNCONTROLLED SITES
Lat/Long:	43.92 / -69.88
IC:	False

CERC-NFRAP:

Site ID:	0101680
Federal Facility:	Not a Federal Facility
NPL Status:	Not on the NPL
Non NPL Status:	NFRAP

CERCLIS-NFRAP Site Contact Name(s):

Contact Name:	Gerardo Millan-Ramos
Contact Tel:	(617) 918-1377
Contact Title:	Site Assessment Manager (SAM)

CERCLIS-NFRAP Site Alias Name(s):

Alias Name:	JEWETT JUNKYARD
Alias Address:	Not reported

JEWETT JUNKYARD (Continued) **1003862689**

CUMBERLAND, ME
Site Description: Not reported

CERCLIS-NFRAP Assessment History:
Action: DISCOVERY
Date Started: Not reported
Date Completed: 06/14/1988
Priority Level: Not reported

Action: PRELIMINARY ASSESSMENT
Date Started: Not reported
Date Completed: 12/30/1988
Priority Level: High

Action: SITE INSPECTION
Date Started: 11/26/1990
Date Completed: 10/08/1991
Priority Level: Low

Action: ARCHIVE SITE
Date Started: Not reported
Date Completed: 08/28/1998
Priority Level: Not reported

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BRUNSWICK	S105000614	RAY LABBE AND SONS; GARAGE	ROUTE 1	04011	LAST
BRUNSWICK	S106789426	COOKS CORNER SHOPPING CENTER	ROUTE 1 / 24	04011	LUST
BRUNSWICK	S106403910	BRUNSWICK SERVICE CTR	BATH RD	04011	ME Spills
BRUNSWICK	S106788799	GETTY (TOP GAS) COOKS CORNER	184 BATH RD. / RT. 24	04011	LUST
BRUNSWICK	S106789428	COOKS CORNER MALL	BATH RD. / RT. 24	04011	LUST
BRUNSWICK	1008387661	BRUNSWICK SWINGING BRIDGE	BLUE STAR MEMORIAL HIGHWAY	04011	FINDS
BRUNSWICK	1008373334	BRUNSWICK SWINGING BRIDGE	BLUE STAR MEMORIAL HIGHWAY	04011	RCRA-SQG
BRUNSWICK	99612076	BRUNSWICK HYDRO ELECT ROUTE 201	BRUNSWICK HYDRO ELECT ROUTE 20		ERNS
BRUNSWICK	1000333067	CROOKER HARRY C & SONS INC	OLD BATH RD	04011	RCRA-SQG, FINDS
BRUNSWICK	S106894013	RUSHS MOBILE HOME PARK - NEIL MATT	OLD BATH RD - LOT 11	04011	LAST
BRUNSWICK	S106794997	VERIZEN (NE TELE.) GARAGE	OLD RT. 1, BATH RD.	04011	LUST
BRUNSWICK	S106791118	BIG APPLE BRUNSWICK	PLEASANT STREET (ROUTE 1)	04011	LUST
BRUNSWICK	1007893959	BRUNSWICK FORD SALES	PLEASANT STREET (ROUTE 1)	04011	CT MANIFEST
BRUNSWICK	S105111605	BRUNSWICK FORD SALES	US ROUTE 1	04011	LAST
BRUNSWICK	1000238233	BATH IRON WORKS CORP	US RTE 1	04011	FINDS, RCRA-LQG, TRIS, RCRA-TSDF, UST, CORRACTS
USA COUNTY	1007911551	MORONG BRUNSWICK	BATH RD. BRUNSWICK	04011	CT MANIFEST
BOX 250	1007915900	BRUNSWICK COAL & LUNBER	18 SPRING ST.	04011	CT MANIFEST
BRONSWICK	1007910753	DOWN EAST ENERGY	PLEASANT ST.	04011	CT MANIFEST
BRUNSWICK	S104877747	BEN'S MOBIL (DOWNEAST ENERGY)	RT. 1	04011	LUST
BRUNSWICK	S105794175	BNAS & OFFSITE WETLAND	RT. 1 / BNAS	04011	LAST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL RECOVERY: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 06/19/2006
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 09/21/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 07/17/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/15/2006
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 27

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/15/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 01/12/2006
Date Made Active in Reports: 02/21/2006
Number of Days to Update: 40

Source: National Response Center, United States Coast Guard
Telephone: 202-260-2342
Last EDR Contact: 07/25/2006
Next Scheduled EDR Contact: 10/23/2006
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 07/03/2006
Date Data Arrived at EDR: 07/19/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 35

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/19/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/21/2006
Date Data Arrived at EDR: 03/27/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 09/07/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/21/2006
Date Data Arrived at EDR: 03/27/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 09/07/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/08/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 177

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 08/11/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 01/19/2006
Date Made Active in Reports: 02/21/2006
Number of Days to Update: 33

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 01/01/2007
Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/13/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 55

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/14/2004
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 04/25/2005
Number of Days to Update: 69

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 10/23/2006
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/21/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 47

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 07/06/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 11/04/2005
Date Data Arrived at EDR: 11/28/2005
Date Made Active in Reports: 01/30/2006
Number of Days to Update: 63

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 07/20/2006
Date Data Arrived at EDR: 07/21/2006
Date Made Active in Reports: 08/22/2006
Number of Days to Update: 32

Source: EPA
Telephone: 202-564-6064
Last EDR Contact: 07/06/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Quarterly

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/14/2006
Date Data Arrived at EDR: 07/18/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 50

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Date of Government Version: 07/14/2006
Date Data Arrived at EDR: 07/18/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 50

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 05/11/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 02/13/2006
Date Data Arrived at EDR: 04/21/2006
Date Made Active in Reports: 05/11/2006
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/07/2006
Date Data Arrived at EDR: 08/09/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 28

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 08/09/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/20/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 48

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/03/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/16/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/28/2006
Next Scheduled EDR Contact: 09/25/2006
Data Release Frequency: Semi-Annually

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/21/2006
Date Data Arrived at EDR: 07/25/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 43

Source: EPA
Telephone: N/A
Last EDR Contact: 04/03/2006
Next Scheduled EDR Contact: 07/03/2006
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2003
Date Data Arrived at EDR: 06/17/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 48

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/15/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Biennially

STATE AND LOCAL RECORDS

SHWS: Remediation Sites List

Uncontrolled Sites locations included in the Remediation Sites List.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-4850
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

DEL HWS: Sites Removed from the Uncontrolled Sites List

Sites are removed from the List once it is determined that they are not "worthy of listing". This term is used as there are a number of reasons to remove a site from the List, including: no file exists, the site was reported as an oil spill, there is no evidence of a hazardous substance release or based on an investigation the site is referred to another program unrelated to hazardous substance or hazardous waste. Sites are removed on a case by case basis. The USP intends this to be an on-going process, as time and resources allow.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SWF/LF: Solid Waste Facility List

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/19/2006
Date Data Arrived at EDR: 06/19/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 11

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Annually

LCP: Municipal Landfill Closure Database

The Municipal Landfill Closure and Remediation Program was established in 1988 to assist nearly 400 municipalities with the closure of their unlicensed municipal solid waste landfills. Project managers in this program have conducted site investigations and provided technical engineering assistance to aid municipalities in this process. Funding to accomplish this goal was provided by the state, utilizing several bonds that supported a 75% state cost sharing reimbursement process.

Date of Government Version: 12/15/2005
Date Data Arrived at EDR: 12/20/2005
Date Made Active in Reports: 01/16/2006
Number of Days to Update: 27

Source: Department of Environmental Protection
Telephone: 207-287-8552
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Varies

LUST: Hazardous Material and Oil Spill System Database (H.O.S.S.)

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

UST: Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 06/28/2005
Date Data Arrived at EDR: 07/25/2005
Date Made Active in Reports: 08/25/2005
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 09/13/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Quarterly

LAST: HOSS Database

A listing of leaking aboveground storage tanks.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

AST: Aboveground Storage Tanks

Registered Aboveground Storage Tanks.

Date of Government Version: 07/26/2005
Date Data Arrived at EDR: 07/26/2005
Date Made Active in Reports: 08/30/2005
Number of Days to Update: 35

Source: Maine Emergency Management Agency
Telephone: 207-626-4503
Last EDR Contact: 09/21/2006
Next Scheduled EDR Contact: 10/09/2006
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS: Hazardous Material and Oil Spill System Database
The database contains surface, groundwater and hazardous material spills.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

INST CONTROL: Remediation Sites List
Sites with Institutional Controls in place included in the Remediation Sites List. Institutional Controls are legally enforceable site use restrictions recorded on the property deed and therefore operate in perpetuity regardless of change in site ownership.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

VCP: Remediation Sites List
Voluntary Response Action Program sites included in the Remediation Sites List. VRAP promotes the investigation, remediation and redevelopment of contaminated properties by offering liability assurances/protections from state enforcement actions for applicants to the program.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-4854
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Varies

DRYCLEANERS: Drycleaner Facilities
A listing of drycleaning facilities that use perchloroethylene.

Date of Government Version: 09/06/2005
Date Data Arrived at EDR: 09/08/2005
Date Made Active in Reports: 10/07/2005
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-7030
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

BROWNFIELDS: Remediation Sites List
Brownfields site locations included in the Remediation Sites List. Brownfields are "Real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant".

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-7716
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Varies

AIRS: Emissions Inventory Data
Point Source Criteria Pollutant Emissions Inventory data. Criteria air pollutant emissions, expressed in tons, by facility and pollutant.

Date of Government Version: 12/31/2003
Date Data Arrived at EDR: 05/02/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 207-287-7036
Last EDR Contact: 07/14/2006
Next Scheduled EDR Contact: 10/09/2006
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/08/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 177
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 08/11/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 06/28/2006
Number of Days to Update: 19
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 06/23/2006
Date Made Active in Reports: 08/02/2006
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 06/06/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/10/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 64
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 06/23/2006
Date Made Active in Reports: 08/02/2006
Number of Days to Update: 40

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 06/06/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 06/30/2006
Date Data Arrived at EDR: 07/03/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 65

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

A listing of underground storage tank locations on Indian Land.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 21

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/10/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/17/2006
Date Made Active in Reports: 04/07/2006
Number of Days to Update: 49

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/06/2006
Date Made Active in Reports: 08/01/2006
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/05/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/02/2006
Date Data Arrived at EDR: 05/31/2006
Date Made Active in Reports: 06/27/2006
Number of Days to Update: 27

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/30/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 05/04/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 33

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 09/30/2005
Date Data Arrived at EDR: 05/09/2006
Date Made Active in Reports: 05/24/2006
Number of Days to Update: 15

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Annually

VT MANIFEST: Hazardous Waste Manifest Data
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 06/29/2006
Date Made Active in Reports: 07/31/2006
Number of Days to Update: 32

Source: Department of Environmental Conservation
Telephone: 802-241-3443
Last EDR Contact: 08/15/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: child Care Listing
Source: Department of Human Services
Telephone: 207-287-5060

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Office of Geographic Information Systems
Telephone: 207-287-6144

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

EAST BRUNSWICK REMOTE RADIO SITE
OLD BATH ROAD
BRUNSWICK, ME 04011

TARGET PROPERTY COORDINATES

Latitude (North):	43.92270 - 43° 55' 21.7''
Longitude (West):	69.8831 - 69° 52' 59.2''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	429104.2
UTM Y (Meters):	4863450.5
Elevation:	23 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	43069-H8 BRUNSWICK, ME
Most Recent Revision:	2001
East Map:	43069-H7 BATH, ME
Most Recent Revision:	2001

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

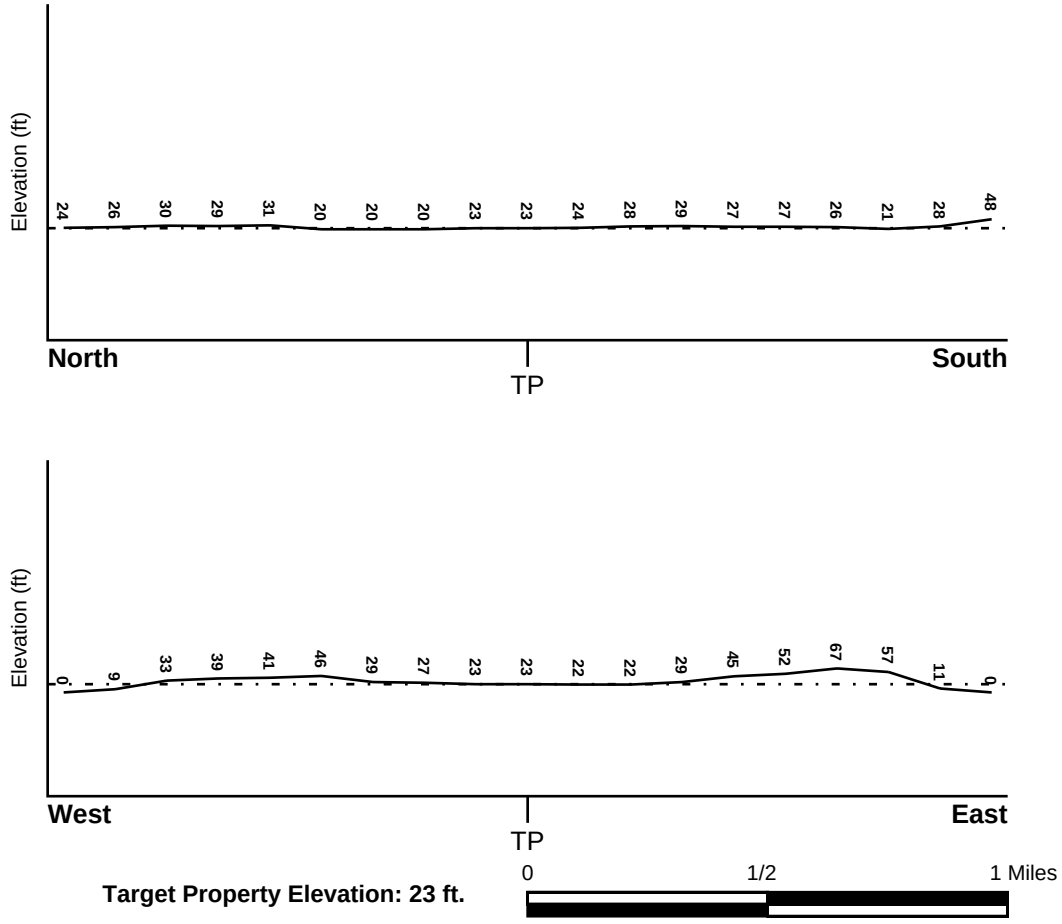
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NNE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
CUMBERLAND, ME	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 2300420005B

Additional Panels in search area: 2300420015B
2302110005A

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
BRUNSWICK	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Paleozoic
System:	Devonian and Silurian
Series:	Devonian and Silurian
Code:	DSe *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	ADAMS
Soil Surface Texture:	loamy sand
Hydrologic Group:	Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.
Soil Drainage Class:	Not reported

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	LOW
Depth to Bedrock Min:	> 60 inches
Depth to Bedrock Max:	> 60 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	4 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 20.00 Min: 6.00	Max: 6.00 Min: 3.60
2	4 inches	6 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.00 Min: 3.60
3	6 inches	26 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 20.00 Min: 6.00	Max: 6.00 Min: 4.50
4	26 inches	70 inches	fine sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 20.00 Min: 20.00	Max: 6.50 Min: 4.50

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: fine sandy loam
silt loam
gravelly - sandy loam
very fine sandy loam
muck
sand

Surficial Soil Types: fine sandy loam
silt loam
gravelly - sandy loam
very fine sandy loam
muck

sand

Shallow Soil Types: gravelly - coarse sandy loam
fine sandy loam
very fine sandy loam
loamy fine sand

Deeper Soil Types: very fine sandy loam
very gravelly - loamy sand
fine sandy loam
silty clay loam
sand

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS2047873	1/2 - 1 Mile NW
2	USGS2047878	1/2 - 1 Mile NNE
A4	USGS2047868	1/2 - 1 Mile West
A5	USGS2047867	1/2 - 1 Mile West
6	USGS2047884	1/2 - 1 Mile North
10	USGS2047860	1/2 - 1 Mile ESE
11	USGS2047855	1/2 - 1 Mile SSW
12	USGS2575556	1/2 - 1 Mile SSW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
3	ME0093080	1/2 - 1 Mile SSW

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

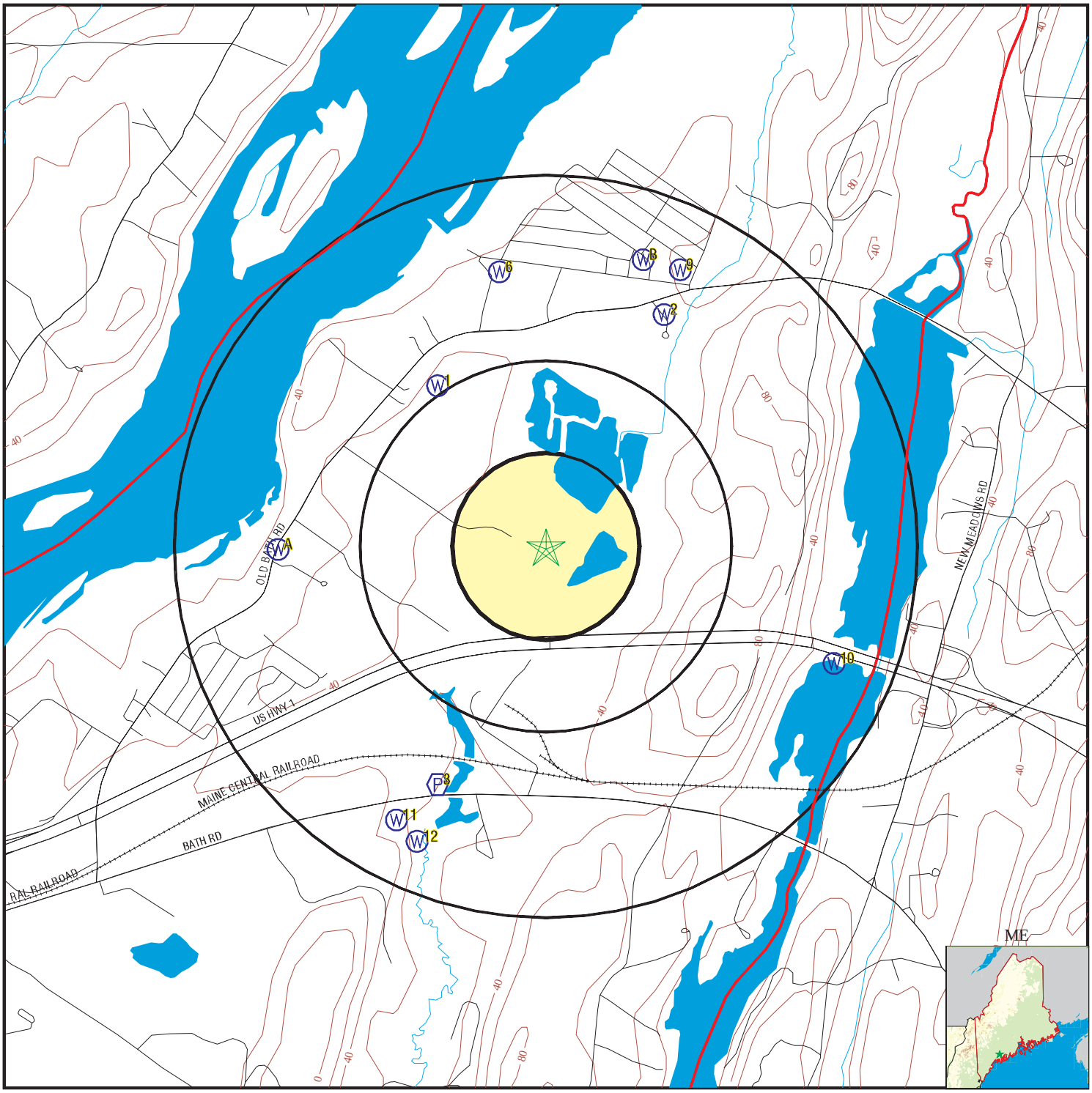
MAP ID	WELL ID	LOCATION FROM TP

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
B7	ME20000553	1/2 - 1 Mile NNE
B8	ME20000554	1/2 - 1 Mile NNE
9	ME20000550	1/2 - 1 Mile NNE

PHYSICAL SETTING SOURCE MAP - 1762088.1s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location

SITE NAME:	East Brunswick Remote Radio Site	CLIENT:	Tetra Tech NUS, Inc.
ADDRESS:	Old Bath Road Brunswick ME 04011	CONTACT:	Rima Miley
		INQUIRY #:	1762088.1s
LAT/LONG:	43.9227 / 69.8831	DATE:	September 25, 2006 5:03 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
NW
1/2 - 1 Mile
Higher

FED USGS **USGS2047873**

Agency cd:	USGS	Site no:	435544069532201
Site name:	CW 91		
Latitude:	435544		
Longitude:	0695322	Dec lat:	43.9289683
Dec lon:	-69.8889375	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	005
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 3	Map scale:	Not Reported
Altitude:	20.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	17	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

2
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS2047878**

Agency cd:	USGS	Site no:	435554069523801
Site name:	CW 90		
Latitude:	435554		
Longitude:	0695238	Dec lat:	43.9317458
Dec lon:	-69.876715	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	005
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 3	Map scale:	Not Reported
Altitude:	20.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST

Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	15.0	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

3
SSW **FRDS PWS** **ME0093080**
1/2 - 1 Mile
Lower

PWS ID:	ME0093080	PWS Status:	Active
Date Initiated:	7906	Date Deactivated:	Not Reported
PWS Name:	MALLET SPRINGS 343 BATH RD BRUNSWICK, ME 04011		
Addressee / Facility:	Not Reported		
Facility Latitude:	43 54 48	Facility Longitude:	069 53 22
City Served:	BRUNSWICK		
Treatment Class:	Untreated	Population:	00000080

PWS currently has or had major violation(s) or enforcement: No

---

A4
West **FED USGS** **USGS2047868**
1/2 - 1 Mile
Higher

Agency cd:	USGS	Site no:	435521069535302
Site name:	CW 92A		
Latitude:	435521		
Longitude:	0695353	Dec lat:	43.9225797
Dec lon:	-69.8975486	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	005
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 3	Map scale:	Not Reported
Altitude:	20.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	170	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported

Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

A5
West
1/2 - 1 Mile
Higher

FED USGS **USGS2047867**

Agency cd:	USGS	Site no:	435521069535301
Site name:	CW 92		
Latitude:	435521		
Longitude:	0695353	Dec lat:	43.9225797
Dec lon:	-69.8975486	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	005
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 3	Map scale:	Not Reported
Altitude:	20.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	16.9	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	0000-00-00
Water quality data end date:	0000-00-00	Water quality data count:	0
Ground water data begin date:	1965-08-01	Ground water data end date:	1965-08-01
Ground water data count:	1		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1965-08-01	10.90	

6
North
1/2 - 1 Mile
Higher

FED USGS **USGS2047884**

Agency cd:	USGS	Site no:	435600069531001
Site name:	CW 77		
Latitude:	435600		
Longitude:	0695310	Dec lat:	43.9334125
Dec lon:	-69.8856042	Coor meth:	M
Coor accr:	U	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	005
Country:	US	Land net:	Not Reported
Location map:	Not Reported	Map scale:	Not Reported
Altitude:	25.00	Altitude method:	U
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	OUTWASH		
Well depth:	20	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	1964-11-16
Water quality data end date:	1964-11-16	Water quality data count:	1
Ground water data begin date:	0000-00-00	Ground water data end date:	0000-00-00
Ground water data count:	0		

Ground-water levels, Number of Measurements: 0

B7
NNE **ME WELLS** **ME20000553**
1/2 - 1 Mile
Higher

Pwsid:	2175102		
Type:	C		
Buffer id:	6103	Radius:	2500
Swap:	2175102.pdf	Fmsrc:	Not Reported
Fmsrcdat:	Not Reported	Fmsrcorg:	Not Reported
Fmprocss:	Not Reported	Fmupdorg:	Not Reported
Fmupddat:	Not Reported	Fmnote:	Not Reported

B8
NNE **ME WELLS** **ME20000554**
1/2 - 1 Mile
Higher

Pwsid:	2175101		
Type:	C		
Buffer id:	5738	Radius:	2500
Swap:	2175101.pdf	Fmsrc:	Not Reported
Fmsrcdat:	Not Reported	Fmsrcorg:	Not Reported
Fmprocss:	Not Reported	Fmupdorg:	Not Reported
Fmupddat:	Not Reported	Fmnote:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

9
NNE | **ME WELLS** | **ME20000550**
1/2 - 1 Mile
Lower

Pwsid:	2175103		
Type:	C		
Buffer id:	6515	Radius:	2500
Swap:	2175103.pdf	Fmsrc:	Not Reported
Fmsrcdat:	Not Reported	Fmsrcorg:	Not Reported
Fmprocss:	Not Reported	Fmupdorg:	Not Reported
Fmupddat:	Not Reported	Fmnote:	Not Reported

10
ESE | **FED USGS** | **USGS2047860**
1/2 - 1 Mile
Lower

Agency cd:	USGS	Site no:	435505069520501
Site name:	CW 106		
Latitude:	435505		
Longitude:	0695205	Dec lat:	43.91813528
Dec lon:	-69.86754778	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	005
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 3	Map scale:	Not Reported
Altitude:	0	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Presumpscot. Maine. Area = 1240 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	1962
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	94.0	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

11
SSW | **FED USGS** | **USGS2047855**
1/2 - 1 Mile
Lower

Agency cd:	USGS	Site no:	435443069533001
Site name:	CW 8		
Latitude:	435443		
Longitude:	0695330	Dec lat:	43.91202417
Dec lon:	-69.8911594	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	005
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 3	Map scale:	Not Reported
Altitude:	25.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	1951
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	108	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

12
SSW
1/2 - 1 Mile
Lower

FED USGS **USGS2575556**

Agency cd:	USGS	Site no:	435440069532601
Site name:	CW 9		
Latitude:	435440		
Longitude:	0695326	Dec lat:	43.9111908
Dec lon:	-69.8900483	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	005
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 3	Map scale:	Not Reported
Altitude:	20.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Presumpscot. Maine. Area = 1240 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	1951
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	85.0	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Peak flow data count: Not Reported
Water quality data end date: Not Reported
Ground water data begin date: Not Reported
Ground water data count: Not Reported

Water quality data begin date: Not Reported
Water quality data count: Not Reported
Ground water data end date: Not Reported

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: ME Radon

Radon Test Results

Zip	City	Floor	Results
04011	Harpswell	B	1.4
04011	Brunswick	B	1.6
04011	Harpswell	B	1.1
04011	Brunswick	B	3.0
04011	Brunswick	B	3.3
04011	Brunswick	B	3.3
04011	Brunswick	B	1.2
04011	Brunswick	B	1.2
04011	Harpswell	B	1.2
04011		B	1.0
04011	Brunswick	B	16.2
04011	Brunswick	B	1.8
04011	Brunswick	B	8.0
04011	Brunswick	B	16.2
04011	Brunswick	B	1.8
04011	Brunswick	B	8.0
04011		B	1.2
04011		B	1.3
04011		F	2.0
04011		F	2.1
04011		B	1.2
04011		B	1.3
04011		F	1.9
04011		F	1.6
04011		F	1.0
04011		F	1.2
04011		B	6.6
04011		B	1.2
04011		F	0.7
04011		F	0.8
04011		B	0.9
04011		F	1.2
04011		B	4.5
04011		B	4.5
04011		F	3.9
04011		B	9.8
04011		B	9.6
04011		F	0.7
04011		F	0.8
04011		B	0.1
04011		B	0.1
04011		B	0.1
04011		B	0.1
04011		F	2.4
04011		F	2.5
04011		B	5.1
04011			

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

		B	5.3
04011		F	2.1
04011		B	10.0
04011		B	11.0
04011		F	0.9
04011		B	1.6
04011		B	1.5
04011		F	3.3
04011		B	0.7
04011		B	1.0
04011		B	1.1
04011		B	0.1
04011		B	0.1
04011		B	1.1
04011		B	1.0
04011		B	0.1
04011		B	0.1
04011		F	1.4
04011		F	1.7
04011		F	1.2
04011		B	8.8
04011		B	8.9
04011		F	0.5
04011		F	0.6
04011		B	4.7
04011		B	3.2
04011		B	3.3
04011		B	3.8
04011		F	0.6
04011		F	0.5
04011		B	3.2
04011		B	3.3
04011	brunswick	B	1.0
04011	Brunswick	B	1.2
04011	Harpswell	B	0.8
04011	brunswick	B	1.0
04011	Brunswick	B	1.2
04011	Harpswell	B	0.8
04011	Brunswick	B	5.0
04011	Brunswick	B	5.0
04011		B	1.3
04011	Brunswick	B	9.5
04011	Brunswick	B	4.8
04011	Brunswick	B	9.5
04011	Brunswick	B	4.8
04011		B	6.2
04011	Harpswell	B	0.9
04011	Harpswell	B	1.9
04011	Harpswell	B	0.9
04011	Harpswell	B	1.9
04011	Harpswell	B	4.2
04011	Diamond Cove	B	3.3
04011	Harpswell	B	4.2
04011	Diamond Cove	B	3.3
04011	Brunswick	B	7.6
04011	Brunswick	B	7.6
04011			

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

	Brunswick	B	3.5
04011	Brunswick	B	3.5
04011	Brunswick	B	1.0
04011	Brunswick	B	1.4
04011	Brunswick	B	1.0
04011	Brunswick	B	1.4
04011	Brunswick	B	4.7
04011	Brunswick	B	8.8
04011	Brunswick	B	1.6
04011	Brunswick	B	4.7
04011	Brunswick	B	8.8
04011	Brunswick	B	1.6
04011	Brunswick	B	2.9
04011	Brunswick	B	2.9
04011	Brunswick	B	1.5
04011	Brunswick	B	11.4
04011	Brunswick	B	2.9
04011	Brunswick	B	2.9
04011	Brunswick	B	1.5
04011	Brunswick	B	11.4
04011		B	4.7
04011	Brunswick	B	11.9
04011	Brunswick	B	1.7
04011	Brunswick	B	11.9
04011	Brunswick	B	1.7
04011	Brunswick	B	7.4
04011	Brunswick	B	5.2
04011	Brunswick	B	1.6
04011	Harpswell	B	12.9
04011	Brunswick	B	7.4
04011	Brunswick	B	5.2
04011	Brunswick	B	1.6
04011	Harpswell	B	12.9
04011	Harpswell	B	11.8
04011	Harpswell	B	11.8
04011	Brunswick	B	3.8
04011	Brunswick	B	4.9
04011	Brunswick	B	15.8
04011	Brunswick	B	3.8
04011	Brunswick	B	4.9
04011	Brunswick	B	15.8
04011	Brunswick	B	0.6
04011	Peaks Island	B	1.4
04011	Brunswick	B	0.6
04011	Peaks Island	B	1.4
04011	Brunswick	B	2.5
04011	Brunswick	B	2.5
04011	Brunswick	B	1.8
04011	Brunswick	B	1.8
04011	Cumberland Foreside	B	1.9
04011	Cumberland Foreside	B	1.9
04011	Brunswick	B	1.5
04011	Brunswick	B	1.5
04011	Brunswick	B	4.1
04011	Brunswick	B	32.0
04011	Brunswick	B	4.1
04011			

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Brunswick B 32.0

Federal EPA Radon Zone for CUMBERLAND County: 1

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 04011

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.300 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	2.558 pCi/L	92%	8%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Office of Geographic Information Systems
Telephone: 207-287-6144

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Public Water Supply Wells Database
Source: Department of Human Services, Drinking Water Program
Telephone: 207-287-6196
There are 3 types of public water systems in Maine: Transient Systems; Community Systems and Non-transient Non-community Systems

OTHER STATE DATABASE INFORMATION

RADON

Maine Radon Test Results
Source: Department of Human Services
Telephone: 207-287-5698
The state of Maine Radiation Control Program's - Radon/Indor Air Quality Section's position on radon map, is that they should be used neither to predict the presence of high nor low values in any given geographic or geologic area. The only conclusion that should be drawn from this data is that radon in omnipresent in the soil gasses in the state of Maine, and therefore all residences and buildings that come in contact with the ground should be tested for radon.

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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McKeen St. Housing EDR Report

The EDR Radius Map
with GeoCheck®

McKeen Street Housing Complex
Moore Avenue
Brunswick, ME 04011

Inquiry Number: 1761172.1s

September 22, 2006

The Standard in Environmental Risk Management Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

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TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	6
Orphan Summary	86
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-8
Physical Setting Source Records Searched	A-14

Thank you for your business.
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with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

MOORE AVENUE
BRUNSWICK, ME 04011

COORDINATES

Latitude (North):	43.903800 - 43° 54' 13.7''
Longitude (West):	69.985900 - 69° 59' 9.2''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	420826.3
UTM Y (Meters):	4861444.5
Elevation:	91 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	43069-H8 BRUNSWICK, ME
Most Recent Revision:	2001
West Map:	43070-H1 LISBON FALLS SOUTH, ME
Most Recent Revision:	2001

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
Delisted NPL ---------- National Priority List Deletions
NPL RECOVERY ---------- Federal Superfund Liens
CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP ---------- CERCLIS No Further Remedial Action Planned

EXECUTIVE SUMMARY

CORRACTS Corrective Action Report
RCRA-TSDF Resource Conservation and Recovery Act Information
RCRA-LQG Resource Conservation and Recovery Act Information
RCRA-SQG Resource Conservation and Recovery Act Information
ERNS Emergency Response Notification System
HMIRS Hazardous Materials Information Reporting System
US ENG CONTROLS Engineering Controls Sites List
US INST CONTROL Sites with Institutional Controls
DOD Department of Defense Sites
FUDS Formerly Used Defense Sites
US BROWNFIELDS A Listing of Brownfields Sites
CONSENT Superfund (CERCLA) Consent Decrees
ROD Records Of Decision
UMTRA Uranium Mill Tailings Sites
ODI Open Dump Inventory
TRIS Toxic Chemical Release Inventory System
TSCA Toxic Substances Control Act
FTTS FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS Section 7 Tracking Systems
ICIS Integrated Compliance Information System
PADS PCB Activity Database System
MLTS Material Licensing Tracking System
MINES Mines Master Index File
FINDS Facility Index System/Facility Registry System
RAATS RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

SHWS Remediation Sites List
DEL HWS Sites Removed from the Uncontrolled Sites List
SWF/LF Solid Waste Facility List
LCP Municipal Landfill Closure Database
ME Spills Hazardous Material and Oil Spill System Database
DRYCLEANERS Drycleaner Facilities
BROWNFIELDS Remediation Sites List
AIRS Emissions Inventory Data

TRIBAL RECORDS

INDIAN RESERV Indian Reservations
INDIAN LUST Leaking Underground Storage Tanks on Indian Land
INDIAN UST Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STATE AND LOCAL RECORDS

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the Department of Environmental Protection's Hazardous Material and Oil Spill System Database (H.O.S.S.).

A review of the LUST list, as provided by EDR, and dated 05/27/2006 has revealed that there are 13 LUST sites within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
BNAS MCKEEN STREET HOUSING	144 COLUMBIA STREET	0 - 1/8	1	6

Lower Elevation	Address	Dist / Dir	Map ID	Page
MIDCOAST HOSPITAL	58 BARIBEAU DRIVE	1/4 - 1/2 SSE	7	14
CLIFF'S BACKYARD CAR DEALERSHI	15 PAUL ST.	1/4 - 1/2 N	A9	17
SIESTA MOTEL	***130 PLEASANT ST***	***1/4 - 1/2 N***	***B12***	***24***
MAINLINE MOTEL	133 PLEASANT ST	1/4 - 1/2 N	B13	27
INTERSTATE SUNOCO / A.K.A. IRV	205 PLEASANT (RT. 1 N)	1/4 - 1/2 N	C14	30
CRESSY MOTORS	148 PLEASANT ST.	1/4 - 1/2 N	D16	56
MCDONALDS	154 PLEASANT ST.	1/4 - 1/2 N	E17	58
CITGO / D W SMALL OIL	156 PLEASANT ST., RT 1	1/4 - 1/2 N	E19	61
FORMER BRUNSWICK IRVING	156 PLEASANT ST	1/4 - 1/2 N	E20	64
CLIPPER MART (M W SEWALL OIL)	162 PLEASANT STREET, RT	1/4 - 1/2 N	C21	67
BODWELL CHRYSLER PLYMOUTH DODG	***169 PLEASANT STREET***	***1/4 - 1/2 N***	***22***	***70***
BIG APPLE CITGO	111 PLEASANT ST.	1/4 - 1/2 NNE	23	83

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Environmental Protection's Underground Storage Tank Database.

A review of the UST list, as provided by EDR, and dated 06/28/2005 has revealed that there are 2 UST sites within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
ST CHARLES CHURCH	132 MCKEEN ST	0 - 1/8	2	8
STURGEON, ALFRED	9 BARIBEAU DR	1/8 - 1/4 NNE	3	10

LAST: A listing of leaking aboveground storage tanks.

A review of the LAST list, as provided by EDR, and dated 05/27/2006 has revealed that there are 5 LAST sites within approximately 0.5 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
NANCY ANDERSON	54 HENNESSEY AVE	1/4 - 1/2 NE	5	12
CABELKA RESIDENCE	23 BODWELL	1/4 - 1/2 ENE	6	13
DOWNEAST ENERGY BULK PLANT	11 PAUL ST	1/4 - 1/2 N	A8	16
BERNICE HOLBROOK	48 BOODY ST	1/4 - 1/2 E	10	20
DOWNEAST ENERGY	PLEASANT ST	1/4 - 1/2 N	11	21

EXECUTIVE SUMMARY

AST: The Aboveground Storage Tank database contains registered ASTs. The data come from the Department of Environmental Protection's Aboveground Storage Tank Database.

A review of the AST list, as provided by EDR, and dated 07/26/2005 has revealed that there is 1 AST site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
DE DOWNEAST ENERGY	25 THORNTON WAY	1/8 - 1/4 SSE	4	11

INST CONTROL: Sites with Land Use Restrictions in place.

A review of the INST CONTROL list, as provided by EDR, and dated 05/01/2006 has revealed that there is 1 INST CONTROL site within approximately 0.5 miles of the target property.

Lower Elevation	Address	Dist / Dir	Map ID	Page
FORMER IRVING SERVICE STATION	***156 PLEASANT STREET***	***1/4 - 1/2 N***	***E18***	***61***

VCP: A list of sites where the necessary investigation and/or remedation activities have been completed to the Department's satisfaction and the applicants to the VRAP have been issued final certification documents. The list does not include those sites that are currently participating in the VRAP but have not yet received certification.

A review of the VCP list, as provided by EDR, and dated 05/01/2006 has revealed that there are 2 VCP sites within approximately 0.5 miles of the target property.

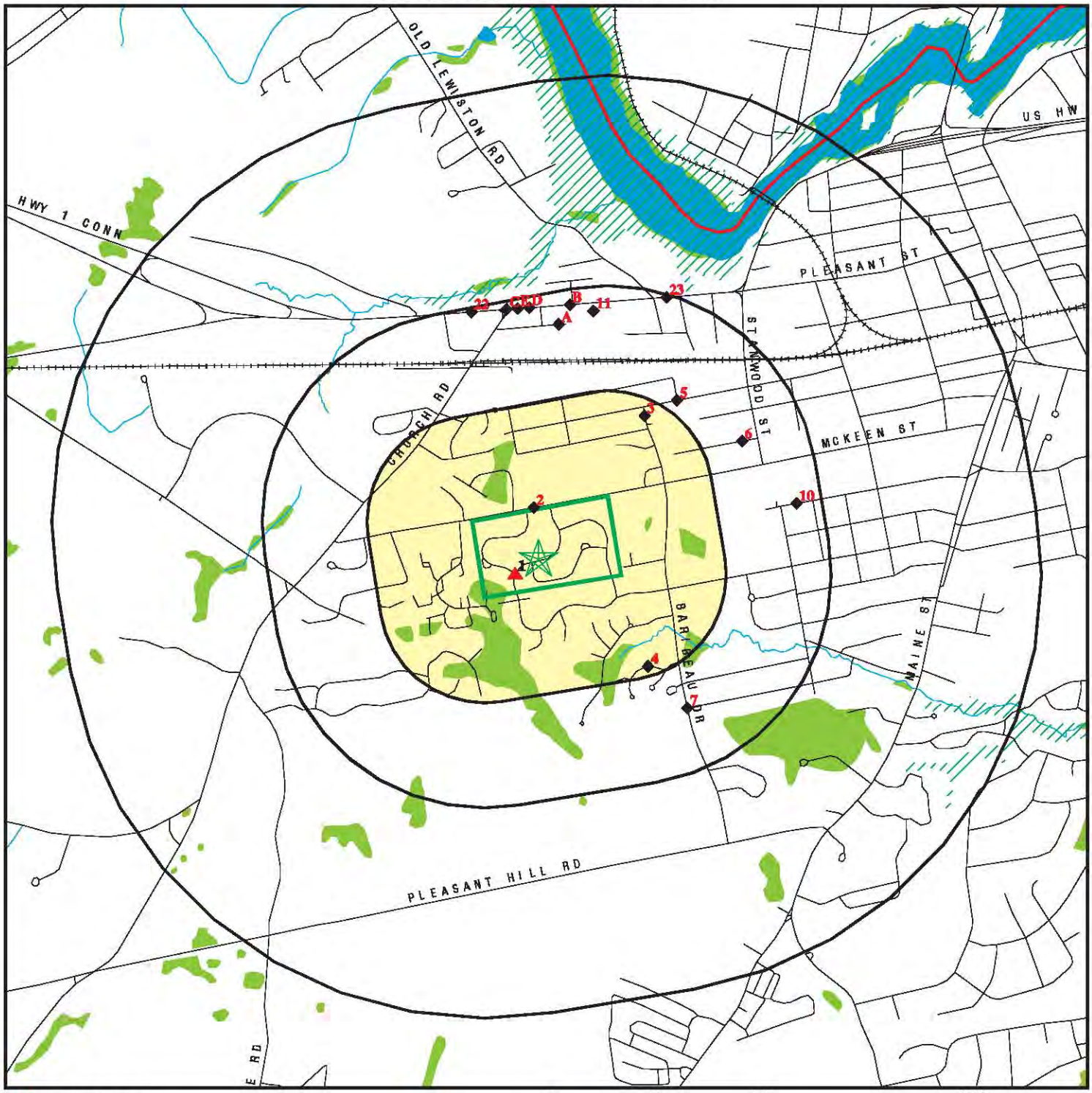
Lower Elevation	Address	Dist / Dir	Map ID	Page
CRESSEY MOTORS INC	***148 PLEASANT ST***	***1/4 - 1/2 N***	***D15***	***54***
FORMER IRVING SERVICE STATION	***156 PLEASANT STREET***	***1/4 - 1/2 N***	***E18***	***61***

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
BATH IRON WORKS CORP	FINDS, RCRA-LQG, TRIS, RCRA-TSDF, UST, CORRACTS
RAY LABBE AND SONS; GARAGE	LAST
COFFIN & JUNIOR HIGH SCHOOLS	LAST
BRUNSWICK FORD SALES	LAST
MAINE STREET STATION	SHWS, BROWNFIELDS, VCP
MAINE RECYCLING	SHWS, CERC-NFRAP
CROOKER & SONS INC	SHWS, CERC-NFRAP
TOPSHAM RADIATOR	SHWS
COOKS CORNER SHOPPING CENTER	LUST
MIDCOAST HOSPITAL	LUST
BEN'S MOBIL (PUFFIN STOP)	LUST
BRUNSWICK MAINEWAY IRVING	LUST
BIG APPLE BRUNSWICK	LUST
BIG APPLE BRUNSWICK	LUST
PUFFIN STOP / DOWNEAST ENERGY	LUST
BRUNSWICK CLIPPERMART	LUST
BRUNSWICK CLIPPER MART	LUST
PLEASANT STREET COMPANY	AST
DE PLEASANT STREET COMPANY	AST
BRUNSWICK SWINGING BRIDGE	RCRA-SQG
MAINE STREET STATION	US BROWNFIELDS

OVERVIEW MAP - 1761172.1s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

SITE NAME: McKeen Street Housing Complex	CLIENT: Tetra Tech NUS, Inc.
ADDRESS: Moore Avenue Brunswick ME 04011	CONTACT: Rima Miley INQUIRY #: 1761172.1s
LAT/LONG: 43.9038 / 69.9859	DATE: September 22, 2006 5:49 pm

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DETAIL MAP - 1761172.1s

Target Property
Sites at elevations higher than or equal to the target property
Sites at elevations lower than the target property
Manufactured Gas Plants
Sensitive Receptors
National Priority List Sites
Landfill Sites
Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA
Oil & Gas pipelines
100-year flood zone
500-year flood zone
National Wetland Inventory
State Wetlands

SITE NAME: McKeen Street Housing Complex	CLIENT: Tetra Tech NUS, Inc.
ADDRESS: Moore Avenue	CONTACT: Rima Miley
Brunswick ME 04011	INQUIRY #: 1761172.1s
LAT/LONG: 43.9038 / 69.9859	DATE: September 22, 2006 5:49 pm

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL RECORDS								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
NPL RECOVERY		TP	NR	NR	NR	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	0	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRA TSD		0.500	0	0	0	NR	NR	0
RCRA Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRA Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
STATE AND LOCAL RECORDS								
State Haz. Waste		1.000	0	0	0	0	NR	0
DEL HWS		1.000	0	0	0	0	NR	0
State Landfill		0.500	0	0	0	NR	NR	0
LCP		0.500	0	0	0	NR	NR	0
LUST		0.500	1	0	12	NR	NR	13
UST		0.250	1	1	NR	NR	NR	2
LAST		0.500	0	0	5	NR	NR	5
AST		0.250	0	1	NR	NR	NR	1
ME Spills		TP	NR	NR	NR	NR	NR	0
INST CONTROL		0.500	0	0	1	NR	NR	1
VCP		0.500	0	0	2	NR	NR	2
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
BROWNFIELDS		0.500	0	0	0	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
TRIBAL RECORDS								
INDIAN RESERV		1.000	0	0	0	0	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
< 1/8
1 ft.

Relative:
Higher

Actual:
93 ft.

BNAS MCKEEN STREET HOUSING
144 COLUMBIA STREET
BRUNSWICK, ME

LUST

S104216540
N/A

LUST:

Inc Tank Code :	U
Spill Number :	P-808-1993
Inc Tank Value :	Underground Tank(s) Involved
Removal Flag :	False
Ust Registered Flag :	True
Ust Tank Site Number :	10201
Ust Tank Number :	131
Ast Inside Flag :	False
Create Date :	12/7/2001
Create By :	SPILLS
Modify Date :	10/21/2005
Modify By :	EISBREZI
Report Status :	FR
Report Status Value :	Final Report
Actual Spill Datetime :	Not reported
Actual Spill Date Unknown :	True
Actual Spill Time Unknown :	True
Number Wells At Risk :	Not reported
Number Wells Impacted :	Not reported
Dtree Completed Flag :	False
Dtree Date :	Not reported
Dtree Code :	Not reported
Dtree Value :	Not reported
Material Disposal Info :	no clean-up.
Further Response Action :	False
Spill Type Code :	O
Spill Type Value :	Oil Incident
Reporter Type Code :	2
Reporter Type Value :	Subject/Spiller
Detection Method Code :	I
Detection Method Value :	Other
Inc Location Code :	MF
Inc Location Value :	Residential - Multi Family
Inc Source Code :	TU
Inc Source Value :	Storage Unit - Underground Storage Tank
Spill Cause Code :	0
Spill Cause Value :	Other - No Cause

LUST SPILL CHANGE:

Change Type Code :	CR
Change Type Value :	Report Created
Change Desc :	Report Created with Report Status = FR
Change Date :	12/07/2001
Change By :	SPILLS
Change Type Code :	FC
Change Type Value :	Final Report Changed
Change Desc :	
Change Date :	10/21/2005
Change By :	eisbrezi

LUST SPILL EMPLOYEE:

Primary Flag : True
Employee name STEPHEN BREZINSKI

BNAS MCKEEN STREET HOUSING (Continued) **S104216540**

LUST SPILL FILE:
Create Date : 02/18/1994 Create By : SPILLS
Modify Date : 04/08/2003 Modify By : EILMOORE
File Num Sheets : 9
File Notes : Not reported
Reconcile Dt : 04/08/2003

LUST SPILL INC MEDIUM:
Medium Code : G Medium Code : Groundwater

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 808
Spill Year : 1993 Spill Type Code : O
Log Spill Type : Oil Incident Log Spill Datetime : Not reported
Spill Time Unk : True Spill Dt Unknown : True
Log Rep Dt Tm : 12/17/1993 Log Rep Prod Cd : 2
Log Rep Prod : #2 Fuel Oil Log Emp Name : STEPHEN BREZINSKI
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001 Created By : SPILLS
Modify Date : 12/7/2001 Modify By : SPILLS
Log Loc Desc : Not reported

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : Not reported Mat Recovered : Not reported
Mat Units : Not reported Material Units Val : Not reported
Material Amount : Not reported Mat Amt Qualifier : Not reported

LUST SPILL POINT :
Point Type Code : ASP Utm North : 4861523
Utm East : 420752 GPS Unit : Unknown
GPS Date : Not reported GPS Time : Not reported
GIS Object Id : 2773 GIS Feature Class : Response_Spill_Points
GIS Sync Flag : True
Create Date : 12/10/2001 Created By : SPILLS
Modify Date : 01/24/2005 Modify By : SPILLS

LUST SPILL RECOVERY :
Rcvry Meth Cd : K Recovery Method : None

LUST SPILL PRODUCT :
Product Code : 00 Prod Code Value : None
Product Other : Not reported Product Amount : 800
Product Amt Unit : G Prod Amt Unit Val : gals.
Primary Product : False Prod Amt Qualifier : ESTIMATE

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported
File Name: Not reported
File Modify Dt: Not reported
Description :

LUST SPILL CONTACT:
Cont Type Code : SS Contact Type : Subject/Owner
Potential Rp : True Contact Name :
Contact Title : Not reported
Contact Co.: BNAS [@ MCKEEN ST HOUSING]
Contact Addr: PWKS DEPT. BOX 33
BRUNSWICK, ME 04011

BNAS MCKEEN STREET HOUSING (Continued) **S104216540**

Contact country: Not reported
Contact Phone : (207) 921-2445 Phone Ext : Not reported
Comments : BASE HOUSING, NON-LEAKING.

Cont Type Code SR Contact Type : Reporter
Potential Rp : False Contact Name : ASSELYN RAY
Contact Title : Not reported
Contact Co.: Not reported
Contact Addr: BNAS, ENVIRONMENTAL DIV.
BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (207) 921-2445 Phone Ext : Not reported
Comments : BASE HOUSING, NON-LEAKING.

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2 **ST CHARLES CHURCH** **UST** **U003096881**
132 MCKEEN ST **N/A**
< 1/8 **BRUNSWICK, ME 04011**
1 ft.

Relative:
Lower

Actual:
90 ft.

UST:
Registration #: 1110
Facility Tel: (207) 725-2624
Tank Number: 2
Chamber ID: Not reported
Ownership Begin Date: 01/01/95
Ownership End Date : Not reported
Operator Contact : Not reported
Owner / Operator Name : ST. CHARLES CHURCH
Owner / Owner Address: RR 1
BRUNSWICK, ME 04011
Owner / Operator Phone Number : (207) 725-2624
Tank Above/Below Ground: Belowground
Tank Status: Active
Product Type: #2 Fuel Oil
Tank Status Date: 07/01/90
Tank Use: Not reported
Tank Material: Fiberglass-secondary containment, total containment
Tank Leak Detection: Secondary Containment
Tank Leak Detection Required: Secondary Containment
Installation Date: 07/01/90
Removal Procedure: Not reported
Removal Date: / /
Category: Not reported
Total Num of Chambers for Tank: 1
Facility Use: Not reported
Tank Location Method: Not reported
Location Date: Not reported
Replaced Pipe Date: Not reported
Manifold Number: Not reported
Installer ID: 289
Warranty Expiration: Not reported
Lat/long: Not reported
Fee Billable: No
Var Permit: Not reported
Volume in Gallons: 2500
Installer Applicant's Company: GUERIN ASSOCIATES
Installer Applicant Name: THOMPSON
Installer Applicant Address: 332 NEW PORTLAND RD.
GORHAM, ME 04038

ST CHARLES CHURCH (Continued) **U003096881**

Installer Applicant Phone:	(207) 854-8942
Gen ID :	56
Tank Fee :	35
Fed Reg Ind :	No
Chamber ID :	1
Overfill :	Not reported
Pipe Install Dt :	Not reported
Reg Date :	06/18/86
Num Of Tanks :	2
Facility Code :	H
Near Public Water :	No
Near Pvt Water :	No
Near Other Water :	No
On Aquifer :	Yes
Sensitive Area :	Yes
In 100 yr flood plain :	No
Near Waterbody :	No
Owner Oper ID :	37302
Facility Type :	B
Directions :	RIGHT IN FRONT OF FURNACE ROOM FRONT SIDE OF CHURCH
Update Dt :	09/30/03
Print Cert :	Yes
Active Number Of Tanks :	1
Last Inspected :	Not reported
Current Owner ID :	6387

Registration #:	1110
Facility Tel:	(207) 725-2624
Tank Number:	1
Chamber ID:	Not reported
Ownership Begin Date:	01/01/95
Ownership End Date :	Not reported
Operator Contact :	Not reported
Owner / Operator Name :	ST. CHARLES CHURCH
Owner / Owner Address:	RR 1 BRUNSWICK, ME 04011
Owner / Operator Phone Number :	(207) 725-2624
Tank Above/Below Ground:	Belowground
Tank Status:	Removed
Product Type:	#2 Fuel Oil
Tank Status Date:	08/01/90
Tank Use:	Not reported
Tank Material:	Bare or asphalt & coal-tar epoxy coated steel
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Installation Date:	10/01/69
Removal Procedure:	Not reported
Removal Date:	/ /
Category:	Not reported
Total Num of Chambers for Tank:	1
Facility Use:	Not reported
Tank Location Method:	Not reported
Location Date:	Not reported
Replaced Pipe Date:	Not reported
Manifold Number:	Not reported
Installer ID:	Not reported
Warranty Expiration:	Not reported

ST CHARLES CHURCH (Continued) **U003096881**

Lat/long:	Not reported
Fee Billable:	No
Var Permit:	Not reported
Volume in Gallons:	1500
Installer Applicant's Company:	Not reported
Installer Applicant Name:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Phone:	Not reported
Gen ID :	Not reported
Tank Fee :	Not reported
Fed Reg Ind :	No
Chamber ID :	1
Overfill :	Not reported
Pipe Install Dt :	Not reported
Reg Date :	06/18/86
Num Of Tanks :	2
Facility Code :	H
Near Public Water :	No
Near Pvt Water :	No
Near Other Water :	No
On Aquifer :	Yes
Sensitive Area :	Yes
In 100 yr flood plain :	No
Near Waterbody :	No
Owner Oper ID :	37302
Facility Type :	B
Directions :	RIGHT IN FRONT OF FURNACE ROOM FRONT SIDE OF CHURCH
Update Dt :	09/30/03
Print Cert :	Yes
Active Number Of Tanks :	1
Last Inspected :	Not reported
Current Owner ID :	6387

---

3 **STURGEON, ALFRED** **UST** **U000236061**
NNE **9 BARIBEAU DR** **N/A**
1/8-1/4 **BRUNSWICK, ME 04011**
1108 ft.

Relative:
Lower

Actual:
80 ft.

UST:

Registration #:	10249
Facility Tel:	(207) 725-5316
Tank Number:	1
Chamber ID:	Not reported
Ownership Begin Date:	01/01/95
Ownership End Date :	9/18/1996 12:00:00 AM
Operator Contact :	Not reported
Owner / Operator Name :	STURGEON, ALFRED
Owner / Owner Address:	9 BARIBEAU DR BRUNSWICK, ME 04011
Owner / Operator Phone Number :	(207) 725-5316
Tank Above/Below Ground:	Belowground
Tank Status:	Removed
Product Type:	#2 Fuel Oil
Tank Status Date:	12/16/86
Tank Use:	Not reported
Tank Material:	Bare or asphalt & coal-tar epoxy coated steel
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Installation Date:	06/01/77

STURGEON, ALFRED (Continued) **U000236061**

Removal Procedure:	Not reported
Removal Date:	12/16/86
Category:	Not reported
Total Num of Chambers for Tank:	1
Facility Use:	Not reported
Tank Location Method:	Not reported
Location Date:	Not reported
Replaced Pipe Date:	Not reported
Manifold Number:	Not reported
Installer ID:	Not reported
Warranty Expiration:	Not reported
Lat/long:	Not reported
Fee Billable:	No
Var Permit:	Not reported
Volume in Gallons:	500
Installer Applicant's Company:	Not reported
Installer Applicant Name:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Phone:	Not reported
Gen ID :	Not reported
Tank Fee :	Not reported
Fed Reg Ind :	No
Chamber ID :	1
Overfill :	Not reported
Pipe Install Dt :	Not reported
Reg Date :	12/09/86
Num Of Tanks :	1
Facility Code :	E
Near Public Water :	No
Near Pvt Water :	No
Near Other Water :	No
On Aquifer :	No
Sensitive Area :	No
In 100 yr flood plain :	Not reported
Near Waterbody :	Not reported
Owner Oper ID :	4295
Facility Type :	B
Directions :	FROM STREET RIGHT FRONT CORNER OF HOUSE
Update Dt :	08/13/99
Print Cert :	Yes
Active Number Of Tanks :	0
Last Inspected :	Not reported
Current Owner ID :	15523

---

4 **DE DOWNEAST ENERGY** **AST** **A100272927**
SSE **25 THORNTON WAY** **N/A**
1/8-1/4 **BRUNSWICK, ME 04011**
1192 ft.

Relative:
Lower

Actual:
80 ft.

AST:

Chemical:	Propane
Facility Status :	Not reported
Site ID :	Not reported
Max Container is Holding:	67840
Year Report Made For:	2004
Max Amount Container :	3392
Mixture :	True
Pressure :	True
Pure :	Not reported

DE DOWNEAST ENERGY (Continued) **A100272927**

Reactive :	Not reported
Solid :	Not reported
Phone Number :	Not reported
Lat/Long :	Not reported
Lat/Long Desc :	Not reported
Lat/Long Method :	Not reported
Facility Email :	Not reported
Facility Dept :	Thornton Oaks
Date Modified :	3/3/2005
Fire District :	Not reported
Mail Address :	P.O. Box 250 Brunswick, ME 04011
Mail Country :	USA
Notes:	Not reported
Acute :	True
Average Amount :	38160
Average Amount Code :	04
Record Id :	Not reported
Chemical Inventory Record Id :	CVTR20043DCJAD014HJG
Chemical Same As Last Year :	T
Chronic :	Not reported
CAS Number :	74-98-6
EHS Chemcical :	Not reported
Last Modified :	3/3/2005
Msds :	Not reported
CI Notes :	Not reported
Days On Site :	365
Gas :	True
Liquid :	True
Fire :	True
Max Amount :	04
Date Signed :	2/18/2005
Date Tier 11 Received :	Not reported
Number Of Employees :	Not reported
Number Of Sites :	Not reported
State Contact :	Carrier Information
Submitted By :	Sue Daignault
Trade Secret :	Not reported

---

5 **NANCY ANDERSON** **LAST** **S107554436**
NE **54 HENNESSEY AVE** **N/A**
1/4-1/2 **BRUNSWICK, ME**
1484 ft.

Relative:
Lower

Actual:
78 ft.

LAST:

Spill Number:	P-544-2005
Create Date:	7/13/2005
Create By:	EISBERNA
Modify Date:	2/21/2006
Modify By:	EITGALLA
Report Status:	FR
Report Status Value:	Final Report
Spill Datetime:	Not reported
Spill Date Unknown:	True
Spill Time Unknown:	True
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported

NANCY ANDERSON (Continued) **S107554436**

DTREE code:	Not reported
DTREE value:	Not reported
Material Disposal Info :	Not reported
Further response action :	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	6
reporter type value:	Contractor/Consultant
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	TA
Inc Source Value:	Storage Unit - Aboveground Storage Tank
Spill Cause Code:	22
Spill Cause Value:	Mechanical Failure - Gasket/Seal
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	True

---

6 **CABELKA RESIDENCE** **LAST** **S104324516**
ENE **23 BODWELL** **N/A**
1/4-1/2 **BRUNSWICK, ME**
1824 ft.

Relative:
Lower

Actual:
76 ft.

LAST:

Spill Number:	P-668-1997
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status:	FR
Report Status Value:	Final Report
Spill Datetime:	11/20/1997
Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Material Disposal Info :	Not reported
Further response action :	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	6
reporter type value:	Contractor/Consultant
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	14

CABELKA RESIDENCE (Continued) **S104324516**

Spill Cause Value:	Accident - Other
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False

---

7 **MIDCOAST HOSPITAL** **LUST** **S104222789**
SSE **58 BARIBEAU DRIVE** **N/A**
1/4-1/2 **BRUNSWICK, ME**
1866 ft.

Relative:
Lower

Actual:
79 ft.

LUST:

Inc Tank Code :	U
Spill Number :	P-139-1997
Inc Tank Value :	Underground Tank(s) Involved
Removal Flag :	False
Ust Registered Flag :	True
Ust Tank Site Number :	1023
Ust Tank Number :	Not reported
Ast Inside Flag :	False
Create Date :	12/7/2001
Create By :	SPILLS
Modify Date :	12/7/2001
Modify By :	SPILLS
Report Status :	FR
Report Status Value :	Final Report
Actual Spill Datetime :	Not reported
Actual Spill Date Unknown :	True
Actual Spill Time Unknown :	True
Number Wells At Risk :	0
Number Wells Impacted :	0
Dtree Completed Flag :	False
Dtree Date :	Not reported
Dtree Code :	Not reported
Dtree Value :	Not reported
Material Disposal Info :	NONE.
Further Response Action :	False
Spill Type Code :	I
Spill Type Value :	Non-Oil, Non-Hazardous Incident
Reporter Type Code :	1
Reporter Type Value :	DEP Personnel
Detection Method Code :	J
Detection Method Value :	Tank and/or Piping Removal
Inc Location Code :	CM
Inc Location Value :	Business - Commercial
Inc Source Code :	Not reported
Inc Source Value :	Not reported
Spill Cause Code :	0
Spill Cause Value :	Other - No Cause

LUST SPILL CHANGE:

Change Type Code :	CR
Change Type Value :	Report Created
Change Desc :	Report Created with Report Status = FR
Change Date :	12/07/2001
Change By :	SPILLS

MIDCOAST HOSPITAL (Continued) **S104222789**

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : STEPHEN BREZINSKI

LUST SPILL FILE:
Create Date : 09/29/1997 Create By : SPILLS
Modify Date : 12/07/2001 Modify By : SPILLS
File Num Sheets : 3
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : N Medium Code : None

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 139
Spill Year : 1997 Spill Type Code : I
Log Spill Type : Non-Oil, Non-Hazardous Incident Log Spill Datetime : Not reported
Spill Time Unk : True Spill Dt Unknown : True
Log Rep Dt Tm : 2/18/1997 Log Rep Prod Cd : 2
Log Rep Prod : #2 Fuel Oil Log Emp Name : STEPHEN BREZINSKI
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001 Created By : SPILLS
Modify Date : 12/7/2001 Modify By : SPILLS
Log Loc Desc : Not reported

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : Not reported Mat Recovered : Not reported
Mat Units : Not reported Material Units Val : Not reported
Material Amount : Not reported Mat Amt Qualifier : Not reported

LUST SPILL POINT :
Point Type Code : Not reported Utm North : Not reported
Utm East : Not reported GPS Unit : Not reported
GPS Date : Not reported GPS Time : Not reported
GIS Object Id : Not reported GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported Created By : Not reported
Modify Date : Not reported Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : K Recovery Method : None

LUST SPILL PRODUCT :
Product Code : 00 Prod Code Value : None
Product Other : Not reported Product Amount : 0
Product Amt Unit : G Prod Amt Unit Val : gals.
Primary Product : False Prod Amt Qualifier : ACTUAL

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported
File Name: Not reported
File Modify Dt: Not reported
Description :

LUST SPILL CONTACT:
Cont Type Code : SS Contact Type : Subject/Owner
Potential Rp : False Contact Name :

MIDCOAST HOSPITAL (Continued) **S104222789**

Contact Title : Not reported
Contact Co.: MIDCOAST HOSPITAL
Contact Addr: 58 BARIBEAU DRIVE
BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (207) 721-1399 Phone Ext : Not reported
Comments : UST REMOVAL CONFIRMATION VISIT. NO PROBLEMS REPORTED AND NO FURTHER ACTIONS EXPECTED. NO NARRATIVE, SEE ATTACHED.

Cont Type Code SR Contact Type : Reporter
Potential Rp : False Contact Name :
Contact Title : Not reported
Contact Co.: ROUTINE OBS.
Contact Addr:
Contact country: Not reported
Contact Phone : Not reported Phone Ext : Not reported
Comments : UST REMOVAL CONFIRMATION VISIT. NO PROBLEMS REPORTED AND NO FURTHER ACTIONS EXPECTED. NO NARRATIVE, SEE ATTACHED.

A8 **DOWNEAST ENERGY BULK PLANT** **LAST** **S106404220**
North **11 PAUL ST** **N/A**
1/4-1/2 **BRUNSWICK, ME**
2232 ft.

Site 1 of 2 in cluster A

Relative:
Lower

Actual:
84 ft.

LAST:

Spill Number:	P-930-2004
Create Date:	10/12/2004
Create By:	EISBERNA
Modify Date:	8/17/2005
Modify By:	EITGALLA
Report Status:	FR
Report Status Value:	Final Report
Spill Datetime:	10/11/2004
Spill Date Unknown:	False
Spill Time Unknown:	True
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Material Disposal Info :	Contaminated soil to Commercial Recycling.
Further response action :	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	BP
Inc Location Value:	Terminal - Bulk Plant
Inc Source Code:	TT
Inc Source Value:	Land Transportation - Tank Truck
Spill Cause Code:	9
Spill Cause Value:	Overfill
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False

DOWNEAST ENERGY BULK PLANT (Continued) **S106404220**

UST registered flag:	True
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False
Spill Number:	P-422-2003
Create Date:	6/11/2003
Create By:	EICPAQUE
Modify Date:	3/18/2004
Modify By:	EITGALLA
Report Status:	FR
Report Status Value:	Final Report
Spill Datetime:	Not reported
Spill Date Unknown:	True
Spill Time Unknown:	True
Number of wells at risk:	0
Number of wells impacted:	Not reported
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Material Disposal Info :	SOIL TO COMMERCIAL RECYCLING SYSTEMS.
Further response action :	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	BP
Inc Location Value:	Terminal - Bulk Plant
Inc Source Code:	TA
Inc Source Value:	Storage Unit - Aboveground Storage Tank
Spill Cause Code:	1
Spill Cause Value:	Corrosion - Tank
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False

A9
North
1/4-1/2
2234 ft.

Relative:
Lower

Actual:
84 ft.

CLIFF'S BACKYARD CAR DEALERSHIP **LUST** **S105109605**
15 PAUL ST. **N/A**
BRUNSWICK, ME

Site 2 of 2 in cluster A

LUST:

Inc Tank Code :	U
Spill Number :	P-71-2000
Inc Tank Value :	Underground Tank(s) Involved
Removal Flag :	False
Ust Registered Flag :	True
Ust Tank Site Number :	20272
Ust Tank Number :	Not reported
Ast Inside Flag :	False
Create Date :	12/7/2001

CLIFF'S BACKYARD CAR DEALERSHIP (Continued) **S105109605**

Create By : SPILLS
Modify Date : 12/7/2001
Modify By : SPILLS
Report Status : FR
Report Status Value : Final Report
Actual Spill Datetime : Not reported
Actual Spill Date Unknown : True
Actual Spill Time Unknown : True
Number Wells At Risk : 0
Number Wells Impacted : 0
Dtree Completed Flag : False
Dtree Date : Not reported
Dtree Code : Not reported
Dtree Value : Not reported
Material Disposal Info : n/a
Further Response Action : False
Spill Type Code : I
Spill Type Value : Non-Oil, Non-Hazardous Incident
Reporter Type Code : 6
Reporter Type Value : Contractor/Consultant
Detection Method Code : J
Detection Method Value : Tank and/or Piping Removal
Inc Location Code : CM
Inc Location Value : Business - Commercial
Inc Source Code : Not reported
Inc Source Value : Not reported
Spill Cause Code : 0
Spill Cause Value : Other - No Cause

LUST SPILL CHANGE:
Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc :
Change Date : 01/31/2002
Change By : eitgalla

Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : STEPHEN BREZINSKI

LUST SPILL FILE:
Create Date : 03/07/2002 Create By : EICSTULT
Modify Date : 03/07/2002 Modify By : EICSTULT
File Num Sheets : 3
File Notes : Not reported
Reconcile Dt : 03/07/2002

LUST SPILL INC MEDIUM:
Medium Code : N Medium Code : None

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 71
Spill Year : 2000 Spill Type Code : I

CLIFF'S BACKYARD CAR DEALERSHIP (Continued) **S105109605**

Log Spill Type : Non-Oil, Non-Hazardous Incident
Log Spill Datetime : Not reported
Spill Time Unk : True
Spill Dt Unknown : True
Log Rep Dt Tm 1/24/2000
Log Rep Prod Cd : 2
Log Rep Prod : #2 Fuel Oil
Log Emp Name : STEPHEN BREZINSKI
Log Loc Town : BRUNSWICK
Log Tank Inv Cd U
Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001
Created By : SPILLS
Modify Date : 12/7/2001
Modify By : SPILLS
Log Loc Desc : Not reported

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : NO
Mat Recovered : None
Mat Units : G
Material Units Val : gals.
Material Amount 0
Mat Amt Qualifier : ACTUAL

LUST SPILL POINT :
Point Type Code Not reported
Utm North : Not reported
Utm East : Not reported
GPS Unit : Not reported
GPS Date : Not reported
GPS Time : Not reported
GIS Object Id : Not reported
GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported
Created By : Not reported
Modify Date : Not reported
Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : K
Recovery Method : None

LUST SPILL PRODUCT :
Product Code : 00
Prod Code Value : None
Product Other : Not reported
Product Amount : 0
Product Amt Unit : G
Prod Amt Unit Val : gals.
Primary Product : True
Prod Amt Qualifier : ACTUAL

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported
File Name: Not reported
File Modify Dt: Not reported
Description :

LUST SPILL CONTACT:
Cont Type Code SR
Contact Type : Reporter
Potential Rp : False
Contact Name : PAUL LABBE
Contact Title : Not reported
Contact Co.: Not reported
Contact Addr: RAY LABBE CONST.
BRUNSWICK, ME
Contact country: Not reported
Contact Phone : (207) 725-7336
Phone Ext : Not reported
Comments : UST ABANDONMENT OF COMMERCIAL, CONSUMPTIVE-USE, HEATING OIL UST FACILITY (AFTER 10/1/97 DEADLINE). NO RELEASE NOTED AT TIME. NON-SENSITIVE AREA. NO NARRATIVE, SEE ATTACHED & UST REG. FILE FOR FURTHER INFO.

Cont Type Code SS
Contact Type : Subject/Owner
Potential Rp : False
Contact Name : CLIFFORD KILFOIL
Contact Title : Not reported
Contact Co.: Not reported
Contact Addr: 9 PAUL ST.
BRUNSWICK, ME 04011
Contact country: Not reported

CLIFF'S BACKYARD CAR DEALERSHIP (Continued) **S105109605**

Contact Phone : (207) 725-5555 Phone Ext : Not reported
Comments : UST ABANDONMENT OF COMMERCIAL, CONSUMPTIVE-USE, HEATING OIL UST FACILITY (AFTER 10/1/97 DEADLINE). NO RELEASE NOTED AT TIME. NON-SENSITIVE AREA. NO NARRATIVE, SEE ATTACHED & UST REG. FILE FOR FURTHER INFO.

10
East
1/4-1/2
2324 ft.

BERNICE HOLBROOK
48 BOODY ST
BRUNSWICK, ME

LAST **S105112311**
N/A

Relative:
Lower

Actual:
74 ft.

LAST:

Spill Number:	P-441-2001
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	8/11/2003
Modify By:	EITGALLA
Report Status:	FR
Report Status Value:	Final Report
Spill Datetime:	05/31/2001
Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Material Disposal Info :	no product recovery to date 6/27
Further response action :	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	6
reporter type value:	Contractor/Consultant
Detection Method Code:	I
Detection Method Value:	Other
Inc Location Code:	SF
Inc Location Value:	Residential - Single Family
Inc Source Code:	TA
Inc Source Value:	Storage Unit - Aboveground Storage Tank
Spill Cause Code:	3
Spill Cause Value:	Corrosion - Piping
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	True
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	True

11
North
1/4-1/2
2327 ft.

DOWNEAST ENERGY
PLEASANT ST
BRUNSWICK, ME

LAST

S105111606
N/A

Relative:
Lower

Actual:
81 ft.

LAST:

Spill Number:	P-277-2005
Create Date:	4/15/2005
Create By:	EISBERNA
Modify Date:	2/17/2006
Modify By:	EITGALLA
Report Status:	FR
Report Status Value:	Final Report
Spill Datetime:	03/31/2005
Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Material Disposal Info :	Not reported
Further response action :	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	BP
Inc Location Value:	Terminal - Bulk Plant
Inc Source Code:	TT
Inc Source Value:	Land Transportation - Tank Truck
Spill Cause Code:	9
Spill Cause Value:	Overfill
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	True
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False

Spill Number:	P-150-2005
Create Date:	3/4/2005
Create By:	EIGOBRIE
Modify Date:	9/21/2005
Modify By:	EITGALLA
Report Status:	FR
Report Status Value:	Final Report
Spill Datetime:	02/26/2005
Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported

DOWNEAST ENERGY (Continued) **S105111606**

DTREE value:	Not reported
Material Disposal Info :	by DEE
Further response action :	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	BP
Inc Location Value:	Terminal - Bulk Plant
Inc Source Code:	TA
Inc Source Value:	Storage Unit - Aboveground Storage Tank
Spill Cause Code:	17
Spill Cause Value:	Accident - Human Error
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	True
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False

Spill Number:	P-112-2001
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status:	FR
Report Status Value:	Final Report
Spill Datetime:	02/17/2001
Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Material Disposal Info :	Contaminated ice and snow taken to Clean Harbors.
Further response action :	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	BP
Inc Location Value:	Terminal - Bulk Plant
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	17
Spill Cause Value:	Accident - Human Error
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	False

DOWNEAST ENERGY (Continued) **S105111606**

UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False
Spill Number:	P-47-2002
Create Date:	1/16/2002
Create By:	EIGOBRIE
Modify Date:	6/18/2002
Modify By:	EITGALLA
Report Status:	FR
Report Status Value:	Final Report
Spill Datetime:	01/16/2002
Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	0
Number of wells impacted:	Not reported
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported
DTREE value:	Not reported
Material Disposal Info :	Downeast Energy stores and disposes of their waste in bulk.
Further response action :	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	BP
Inc Location Value:	Terminal - Bulk Plant
Inc Source Code:	TT
Inc Source Value:	Land Transportation - Tank Truck
Spill Cause Code:	17
Spill Cause Value:	Accident - Human Error
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	Not reported
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False
Spill Number:	P-986-2003
Create Date:	11/24/2003
Create By:	EIGOBRIE
Modify Date:	6/22/2004
Modify By:	EITGALLA
Report Status:	FR
Report Status Value:	Final Report
Spill Datetime:	11/23/2003
Spill Date Unknown:	False
Spill Time Unknown:	False
Number of wells at risk:	0
Number of wells impacted:	0
DTREE completed flag:	False
DTREE date:	Not reported
DTREE code:	Not reported

DOWNEAST ENERGY (Continued) **S105111606**

DTREE value:	Not reported
Material Disposal Info :	Contaminated materials to be disposed of appropriately.
Further response action :	False
Spill type code:	O
spill type value:	Oil Incident
reporter type code:	2
reporter type value:	Subject/Spiller
Detection Method Code:	L
Detection Method Value:	Visual Product
Inc Location Code:	BP
Inc Location Value:	Terminal - Bulk Plant
Inc Source Code:	TA
Inc Source Value:	Storage Unit - Aboveground Storage Tank
Spill Cause Code:	7
Spill Cause Value:	Mechanical Failure - Valve
Inc Tank Code:	A
Inc Tank Value:	Above Ground Tank(s) Involved
Removal Flag:	False
UST registered flag:	True
UST tank site number:	Not reported
UST tank number:	Not reported
AST inside flag:	False

B12 **SIESTA MOTEL** **LUST U002164377**
North **130 PLEASANT ST** **UST N/A**
1/4-1/2 **BRUNSWICK, ME 05030**
2446 ft.

Site 1 of 2 in cluster B

Relative:
Lower

Actual:
83 ft.

LUST:

Inc Tank Code :	U
Spill Number :	P-766-1996
Inc Tank Value :	Underground Tank(s) Involved
Removal Flag :	False
Ust Registered Flag :	True
Ust Tank Site Number :	2847
Ust Tank Number :	Not reported
Ast Inside Flag :	False
Create Date :	12/7/2001
Create By :	SPILLS
Modify Date :	12/7/2001
Modify By :	SPILLS
Report Status :	FR
Report Status Value :	Final Report
Actual Spill Datetime :	Not reported
Actual Spill Date Unknown :	True
Actual Spill Time Unknown :	True
Number Wells At Risk :	0
Number Wells Impacted :	0
Dtree Completed Flag :	False
Dtree Date :	Not reported
Dtree Code :	Not reported
Dtree Value :	Not reported
Material Disposal Info :	No discharge observed.
Further Response Action :	False
Spill Type Code :	I
Spill Type Value :	Non-Oil, Non-Hazardous Incident
Reporter Type Code :	6
Reporter Type Value :	Contractor/Consultant

SIESTA MOTEL (Continued) **U002164377**

Detection Method Code : J
Detection Method Value : Tank and/or Piping Removal
Inc Location Code : CM
Inc Location Value : Business - Commercial
Inc Source Code : Not reported
Inc Source Value : Not reported
Spill Cause Code : 0
Spill Cause Value : Other - No Cause

LUST SPILL CHANGE:
Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : SHERYL BERNARD

LUST SPILL FILE:
Create Date : 03/12/1997 Create By : SPILLS
Modify Date : 04/18/2006 Modify By : IMAGING
File Num Sheets : 0
File Notes : Report scanned into the imaging system on 18-APR-06.
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : N Medium Code : None

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 766
Spill Year : 1996 Spill Type Code : I
Log Spill Type : Non-Oil, Non-Hazardous Incident Log Spill Datetime : Not reported
Spill Time Unk : True Spill Dt Unknown : True
Log Rep Dt Tm 11/27/1996 Log Rep Prod Cd : 0
Log Rep Prod : None Log Emp Name : SHERYL BERNARD
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001 Created By : SPILLS
Modify Date : 12/7/2001 Modify By : SPILLS
Log Loc Desc : Not reported

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : MM Mat Recovered : Mixed Liquid Media
Mat Units : G Material Units Val : gals.
Material Amount : 0 Mat Amt Qualifier : ACTUAL

LUST SPILL POINT :
Point Type Code : Not reported Utm North : Not reported
Utm East : Not reported GPS Unit : Not reported
GPS Date : Not reported GPS Time : Not reported
GIS Object Id : Not reported GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported Created By : Not reported
Modify Date : Not reported Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : K Recovery Method : None

SIESTA MOTEL (Continued) **U002164377**

LUST SPILL PRODUCT :
Product Code : 00
Product Other : Not reported
Product Amt Unit : G
Primary Product : False
Prod Code Value : None
Product Amount : 0
Prod Amt Unit Val : gals.
Prod Amt Qualifier : ACTUAL

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported
File Name: Not reported
File Modify Dt: Not reported
Description :

LUST SPILL CONTACT:
Cont Type Code SS
Potential Rp : False
Contact Title : Not reported
Contact Co.: SIESTA MOTEL
Contact Addr: 130 PLEASANT ST
BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (207) 729-3364
Comments : Not reported
Contact Type : Subject/Owner
Contact Name :
Phone Ext : Not reported

Cont Type Code SR
Potential Rp : False
Contact Title : Not reported
Contact Co.: RAY LABBE & SONS
Contact Addr: BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (207) 725-7336
Comments : Not reported
Contact Type : Reporter
Contact Name :
Phone Ext : Not reported

UST:
Registration #: 2847
Facility Tel: (207) 729-3364
Tank Number: 1
Chamber ID: Not reported
Ownership Begin Date: 01/01/95
Ownership End Date : Not reported
Operator Contact : Not reported
Owner / Operator Name : GAGNE CS INC
Owner / Owner Address: 130 PLEASANT ST
BRUNSWICK, ME 04011
Owner / Operator Phone Number : (207) 729-3364
Tank Above/Below Ground: Belowground
Tank Status: Removed
Product Type: #2 Fuel Oil
Tank Status Date: 11/26/96
Tank Use: Not reported
Tank Material: Bare or asphalt & coal-tar epoxy coated steel
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Installation Date: 06/01/75
Removal Procedure: Not reported
Removal Date: 11/26/96
Category: Not reported
Total Num of Chambers for Tank: 1

SIESTA MOTEL (Continued) **U002164377**

Facility Use:	Not reported
Tank Location Method:	Not reported
Location Date:	Not reported
Replaced Pipe Date:	Not reported
Manifold Number:	Not reported
Installer ID:	Not reported
Warranty Expiration:	Not reported
Lat/long:	Not reported
Fee Billable:	No
Var Permit:	Not reported
Volume in Gallons:	4000
Installer Applicant's Company:	Not reported
Installer Applicant Name:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Phone:	Not reported
Gen ID :	Not reported
Tank Fee :	35
Fed Reg Ind :	No
Chamber ID :	1
Overfill :	Not reported
Pipe Install Dt :	Not reported
Reg Date :	07/23/86
Num Of Tanks :	1
Facility Code :	C
Near Public Water :	No
Near Pvt Water :	No
Near Other Water :	No
On Aquifer :	No
Sensitive Area :	No
In 100 yr flood plain :	Not reported
Near Waterbody :	Not reported
Owner Oper ID :	1569
Facility Type :	B
Directions :	I-95 TO BRUNSWICK, ROUTE 1, NORTH FOR ABOUT 1 MILE.
Update Dt :	08/13/99
Print Cert :	Yes
Active Number Of Tanks :	0
Last Inspected :	Not reported
Current Owner ID :	1569

B13 **MAINLINE MOTEL** **LUST** **S105795219**
North **133 PLEASANT ST** **N/A**
1/4-1/2 **BRUNSWICK, ME**
2451 ft.

Site 2 of 2 in cluster B

Relative:
Lower

Actual:
83 ft.

LUST:

Inc Tank Code :	U
Spill Number :	P-66-2002
Inc Tank Value :	Underground Tank(s) Involved
Removal Flag :	False
Ust Registered Flag :	True
Ust Tank Site Number :	3720
Ust Tank Number :	3
Ast Inside Flag :	False
Create Date :	1/25/2002
Create By :	EIGOBRIE
Modify Date :	6/18/2002
Modify By :	EITGALLA

MAINLINE MOTEL (Continued) **S105795219**

Report Status :	FR
Report Status Value :	Final Report
Actual Spill Datetime :	Not reported
Actual Spill Date Unknown :	True
Actual Spill Time Unknown :	True
Number Wells At Risk :	0
Number Wells Impacted :	0
Dtree Completed Flag :	False
Dtree Date :	Not reported
Dtree Code :	Not reported
Dtree Value :	Not reported
Material Disposal Info :	None
Further Response Action :	False
Spill Type Code :	I
Spill Type Value :	Non-Oil, Non-Hazardous Incident
Reporter Type Code :	2
Reporter Type Value :	Subject/Spiller
Detection Method Code :	C
Detection Method Value :	Monitoring Well
Inc Location Code :	CM
Inc Location Value :	Business - Commercial
Inc Source Code :	NO
Inc Source Value :	No Source
Spill Cause Code :	0
Spill Cause Value :	Other - No Cause

LUST SPILL CHANGE:

Change Type Code :	CR
Change Type Value :	Report Created
Change Desc :	Report Created with Report Status = DR
Change Date :	01/25/2002
Change By :	EIGOBRIE
Change Type Code :	SC
Change Type Value :	Report Status Changed
Change Desc :	Report Status change from DRV to DQA
Change Date :	03/15/2002
Change By :	EIJWOODA
Change Type Code :	SC
Change Type Value :	Report Status Changed
Change Desc :	Report Status change from DQA to FR
Change Date :	05/22/2002
Change By :	EIPCOLLI
Change Type Code :	SC
Change Type Value :	Report Status Changed
Change Desc :	Report Status change from DR to DRV
Change Date :	01/25/2002
Change By :	EIGOBRIE
Change Type Code :	FC
Change Type Value :	Final Report Changed
Change Desc :	
Change Date :	06/18/2002
Change By :	eitgalla
Change Type Code :	FC

MAINLINE MOTEL (Continued) **S105795219**

Change Type Value : Final Report Changed
Change Desc :
Change Date : 06/18/2002
Change By : eitgalla

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : GREGORY B O'BRIEN

LUST SPILL FILE:
Create Date : 07/31/2002 Create By : EICSTULT
Modify Date : 08/25/2005 Modify By : IMAGING
File Num Sheets : 0
File Notes : Report scanned into the imaging system on 25-AUG-05.
Reconcile Dt : 07/31/2002

LUST SPILL INC MEDIUM:
Medium Code : N Medium Code : None

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 66
Spill Year : 2002 Spill Type Code : I
Log Spill Type : Non-Oil, Non-Hazardous Incident Log Spill Datetime : Not reported
Spill Time Unk : True Spill Dt Unknown : True
Log Rep Dt Tm 1/25/2002 Log Rep Prod Cd : 2
Log Rep Prod : #2 Fuel Oil Log Emp Name : GREGORY B O'BRIEN
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U Log Tank Involved : Underground Tank(s) Involved
Create Date : 1/25/2002 Created By : EIGOBRIE
Modify Date : 1/25/2002 Modify By : EIGOBRIE
Log Loc Desc : Not reported

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : Not reported Mat Recovered : Not reported
Mat Units : Not reported Material Units Val : Not reported
Material Amount : Not reported Mat Amt Qualifier : Not reported

LUST SPILL POINT :
Point Type Code : Not reported Utm North : Not reported
Utm East : Not reported GPS Unit : Not reported
GPS Date : Not reported GPS Time : Not reported
GIS Object Id : Not reported GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported Created By : Not reported
Modify Date : Not reported Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : K Recovery Method : None

LUST SPILL PRODUCT :
Product Code : 00 Prod Code Value : None
Product Other : Not reported Product Amount : 0
Product Amt Unit : G Prod Amt Unit Val : gals.
Primary Product : True Prod Amt Qualifier : ACTUAL

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported
File Name: Not reported
File Modify Dt: Not reported
Description :

MAINLINE MOTEL (Continued) **S105795219**

LUST SPILL CONTACT:

Cont Type Code	SS	Contact Type :	Subject/Owner
Potential Rp :	False	Contact Name :	KISHOR PATEL
Contact Title :	Not reported		
Contact Co.:	MAINLINE MOTEL		
Contact Addr:	133 PLEASANT ST BRUNSWICK, ME 04011		
Contact country:	USA		
Contact Phone :	207-725-8761	Phone Ext :	Not reported
Comments :	Not reported		

Cont Type Code	SR	Contact Type :	Reporter
Potential Rp :	False	Contact Name :	KISHOR PATEL
Contact Title :	Not reported		
Contact Co.:	MAINLINE MOTEL		
Contact Addr:	133 PLEASANT ST BRUNSWICK, ME 04011		
Contact country:	USA		
Contact Phone :	207-725-8761	Phone Ext :	Not reported
Comments :	Not reported		

C14 **INTERSTATE SUNOCO / A.K.A. IRVING M** **LUST** **S104211551**
North **205 PLEASANT (RT. 1 N)** **N/A**
1/4-1/2 **BRUNSWICK, ME**
2455 ft.

Site 1 of 2 in cluster C

Relative:
Lower

Actual:
89 ft.

LUST:

Inc Tank Code :	U
Spill Number :	P-342-1991
Inc Tank Value :	Underground Tank(s) Involved
Removal Flag :	False
Ust Registered Flag :	True
Ust Tank Site Number :	13954
Ust Tank Number :	Not reported
Ast Inside Flag :	False
Create Date :	12/7/2001
Create By :	SPILLS
Modify Date :	7/31/2003
Modify By :	EISBREZI
Report Status :	FR
Report Status Value :	Final Report
Actual Spill Datetime :	06/26/1991
Actual Spill Date Unknown :	False
Actual Spill Time Unknown :	True
Number Wells At Risk :	0
Number Wells Impacted :	0
Dtree Completed Flag :	False
Dtree Date :	Not reported
Dtree Code :	Not reported
Dtree Value :	Not reported
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Further Response Action :	False
Spill Type Code :	O

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Spill Type Value : Oil Incident
Reporter Type Code : 6
Reporter Type Value : Contractor/Consultant
Detection Method Code : J
Detection Method Value : Tank and/or Piping Removal
Inc Location Code : SS
Inc Location Value : Terminal - Service Station
Inc Source Code : TU
Inc Source Value : Storage Unit - Underground Storage Tank
Spill Cause Code : 9
Spill Cause Value : Overfill

LUST SPILL CHANGE:

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc :
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added PETER EREMITA as an employee.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc :
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc :
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added IRVING OIL CORP as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added SANDY BROOK ENTERPRISES (PLEASANT ST. SUNOCO) as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added ROBERT G GERBER, INC. as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 07/31/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added LES WILSON & SONS as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : False
Employee name : PETER M EREMITA

Primary Flag : True
Employee name : JOHN DUNLAP

LUST SPILL FILE:
Create Date : 02/20/2001 Create By : SPILLS
Modify Date : 12/07/2001 Modify By : SPILLS
File Num Sheets : 97
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : G Medium Code : Groundwater

Medium Code : L Medium Code : Land

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 342
Spill Year : 1991 Spill Type Code : O
Log Spill Type : Oil Incident Log Spill Datetime : 06/26/1991
Spill Time Unk : True Spill Dt Unknown : False
Log Rep Dt Tm 6/26/1991 Log Rep Prod Cd : 20
Log Rep Prod : Gasoline Unspecified Log Emp Name : JOHN DUNLAP
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001 Created By : SPILLS
Modify Date : 7/31/2003 Modify By : EISBREZI
Log Loc Desc : BRUNSWICK MAINWAY IRVING (former Brunswick SUNOCO) 205 Pleasant St., Route 1. UST

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Facility Reg. 13945

LUST SPILL MATERIAL RECOVERED:

Mat Rec Type :	SP	Mat Recovered :	Spilled Product
Mat Units :	Not reported	Material Units Val :	Not reported
Material Amount	Not reported	Mat Amt Qualifier :	UNKNOWN
Mat Rec Type :	CS	Mat Recovered :	Contaminated Soil
Mat Units :	Y	Material Units Val :	cu. yds.
Material Amount	60	Mat Amt Qualifier :	ESTIMATE

LUST SPILL POINT :

Point Type Code	Not reported	Utm North :	Not reported
Utm East :	Not reported	GPS Unit :	Not reported
GPS Date :	Not reported	GPS Time :	Not reported
GIS Object Id :	Not reported	GIS Feature Class :	Not reported
GIS Sync Flag :	Not reported		
Create Date :	Not reported	Created By :	Not reported
Modify Date :	Not reported	Modify By :	Not reported

LUST SPILL RECOVERY :

Rcvry Meth Cd :	G	Recovery Method :	Excavation
Rcvry Meth Cd :	C	Recovery Method :	Sorbents

LUST SPILL PRODUCT :

Product Code :	20	Prod Code Value :	Gasoline Unspecified
Product Other :	Not reported	Product Amount :	99
Product Amt Unit :	G	Prod Amt Unit Val :	gals.
Primary Product :	True	Prod Amt Qualifier :	ESTIMATE

LUST SPILL ATTACH :

Attach type Code :	PATTA
Attach type Value:	Paper Attach
File Name:	Not reported
File Modify Dt:	07/30/2003
Description :	Removal info.
Attach type Code :	PATTA
Attach type Value:	Paper Attach
File Name:	Not reported
File Modify Dt:	07/30/2003
Description :	remediation assessments
Attach type Code :	PATTA
Attach type Value:	Paper Attach
File Name:	Not reported
File Modify Dt:	07/30/2003
Description :	photos
Attach type Code :	PATTA
Attach type Value:	Paper Attach
File Name:	Not reported
File Modify Dt:	07/30/2003
Description :	narrative

LUST SPILL CONTACT:

Cont Type Code	OC	Contact Type :	Other Contact
Potential Rp :	False	Contact Name :	
Contact Title :	Not reported		

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Contact Co.: LES WILSON & SONS
Contact Addr: WESTBROOK, ME
Contact country: USA
Contact Phone : 207 854-4583 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code OC Contact Type : Other Contact
Potential Rp : False Contact Name :
Contact Title : Not reported
Contact Co.: ROBERT G GERBER, INC.
Contact Addr: 17 WEST ST.
FREEPORT, ME
Contact country: USA
Contact Phone : 207 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code OC Contact Type : Other Contact
Potential Rp : True Contact Name :
Contact Title : Not reported
Contact Co.: IRVING OIL CORP [FACILITY REG. 13954]
Contact Addr: PO BOX 401
BANGOR, ME 04402
Contact country: USA
Contact Phone : 800-552-2004 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code SR Contact Type : Reporter
Potential Rp : False Contact Name : PAT BRUBACH
Contact Title : Not reported
Contact Co.: Not reported
Contact Addr: SANDY BROOK ENT.

Contact country: Not reported
Contact Phone : (207) 729-9851 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code SS Contact Type : Subject/Owner
Potential Rp : True Contact Name :
Contact Title : [UST REG. 13945.]
Contact Co.: SANDY BROOK ENTERPRISES (PLEASANT ST. SUNOCO)
Contact Addr: 205 PLEASANT ST.

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (207) 729-9851 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Inc Tank Code :	U
Spill Number :	P-342-1991
Inc Tank Value :	Underground Tank(s) Involved
Removal Flag :	False
Ust Registered Flag :	True
Ust Tank Site Number :	13954
Ust Tank Number :	Not reported
Ast Inside Flag :	False
Create Date :	12/7/2001
Create By :	SPILLS
Modify Date :	7/31/2003
Modify By :	EISBREZI
Report Status :	FR
Report Status Value :	Final Report
Actual Spill Datetime :	06/26/1991
Actual Spill Date Unknown :	False
Actual Spill Time Unknown :	True
Number Wells At Risk :	0
Number Wells Impacted :	0
Dtree Completed Flag :	False
Dtree Date :	Not reported
Dtree Code :	Not reported
Dtree Value :	Not reported
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Further Response Action :	False
Spill Type Code :	O
Spill Type Value :	Oil Incident
Reporter Type Code :	6
Reporter Type Value :	Contractor/Consultant
Detection Method Code :	J
Detection Method Value :	Tank and/or Piping Removal
Inc Location Code :	SS
Inc Location Value :	Terminal - Service Station
Inc Source Code :	TU
Inc Source Value :	Storage Unit - Underground Storage Tank
Spill Cause Code :	9
Spill Cause Value :	Overfill

LUST SPILL CHANGE:

Change Type Code :	FC
Change Type Value :	Final Report Changed
Change Desc :	
Change Date :	07/30/2003
Change By :	eisbrezi

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added PETER EREMITA as an employee.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc :
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc :
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added IRVING OIL CORP as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added SANDY BROOK ENTERPRISES (PLEASANT ST. SUNOCO) as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added ROBERT G GERBER, INC. as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 07/31/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Change Desc : Added LES WILSON & SONS as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : False
Employee name : PETER M EREMITA

Primary Flag : True
Employee name : JOHN DUNLAP

LUST SPILL FILE:
Create Date : 02/20/2001 Create By : SPILLS
Modify Date : 12/07/2001 Modify By : SPILLS
File Num Sheets : 97
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : G Medium Code : Groundwater

Medium Code : L Medium Code : Land

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 342
Spill Year : 1991 Spill Type Code : O
Log Spill Type : Oil Incident Log Spill Datetime : 06/26/1991
Spill Time Unk : True Spill Dt Unknown : False
Log Rep Dt Tm : 6/26/1991 Log Rep Prod Cd : 20
Log Rep Prod : Gasoline Unspecified Log Emp Name : JOHN DUNLAP
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001 Created By : SPILLS
Modify Date : 7/31/2003 Modify By : EISBREZI
Log Loc Desc : BRUNSWICK MAINWAY IRVING (former Brunswick SUNOCO) 205 Pleasant St., Route 1. UST Facility Reg. 13945

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : SP Mat Recovered : Spilled Product
Mat Units : Not reported Material Units Val : Not reported
Material Amount : Not reported Mat Amt Qualifier : UNKNOWN

Mat Rec Type : CS Mat Recovered : Contaminated Soil
Mat Units : Y Material Units Val : cu. yds.
Material Amount : 60 Mat Amt Qualifier : ESTIMATE

LUST SPILL POINT :
Point Type Code : Not reported Utm North : Not reported
Utm East : Not reported GPS Unit : Not reported
GPS Date : Not reported GPS Time : Not reported
GIS Object Id : Not reported GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported Created By : Not reported

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Modify Date : Not reported Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : G Recovery Method : Excavation

Rcvry Meth Cd : C Recovery Method : Sorbents

LUST SPILL PRODUCT :
Product Code : 20 Prod Code Value : Gasoline Unspecified
Product Other : Not reported Product Amount : 99
Product Amt Unit : G Prod Amt Unit Val : gals.
Primary Product : True Prod Amt Qualifier : ESTIMATE

LUST SPILL ATTACH :
Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : Removal info.

Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : remediation assessments

Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : photos

Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : narrative

LUST SPILL CONTACT:
Cont Type Code : OC Contact Type : Other Contact
Potential Rp : False Contact Name :
Contact Title : Not reported
Contact Co.: LES WILSON & SONS
Contact Addr: WESTBROOK, ME
Contact country: USA
Contact Phone : 207 854-4583 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code : OC Contact Type : Other Contact
Potential Rp : False Contact Name :
Contact Title : Not reported
Contact Co.: ROBERT G GERBER, INC.
Contact Addr: 17 WEST ST.
FREEPORT, ME
Contact country: USA

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Contact Phone : 207 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code OC Contact Type : Other Contact
Potential Rp : True Contact Name :
Contact Title : Not reported
Contact Co.: IRVING OIL CORP [FACILITY REG. 13954]
Contact Addr: PO BOX 401
BANGOR, ME 04402
Contact country: USA
Contact Phone : 800-552-2004 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code SR Contact Type : Reporter
Potential Rp : False Contact Name : PAT BRUBACH
Contact Title : Not reported
Contact Co.: Not reported
Contact Addr: SANDY BROOK ENT.

Contact country: Not reported
Contact Phone : (207) 729-9851 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code SS Contact Type : Subject/Owner
Potential Rp : True Contact Name :
Contact Title : [UST REG. 13945.]
Contact Co.: SANDY BROOK ENTERPRISES (PLEASANT ST. SUNOCO)
Contact Addr: 205 PLEASANT ST.
BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (207) 729-9851 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Inc Tank Code : U
Spill Number : P-342-1991
Inc Tank Value : Underground Tank(s) Involved
Removal Flag : False
Ust Registered Flag : True
Ust Tank Site Number : 13954
Ust Tank Number : Not reported
Ast Inside Flag : False

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Create Date :	12/7/2001
Create By :	SPILLS
Modify Date :	7/31/2003
Modify By :	EISBREZI
Report Status :	FR
Report Status Value :	Final Report
Actual Spill Datetime :	06/26/1991
Actual Spill Date Unknown :	False
Actual Spill Time Unknown :	True
Number Wells At Risk :	0
Number Wells Impacted :	0
Dtree Completed Flag :	False
Dtree Date :	Not reported
Dtree Code :	Not reported
Dtree Value :	Not reported
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info :	SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Further Response Action :	False
Spill Type Code :	O
Spill Type Value :	Oil Incident
Reporter Type Code :	6
Reporter Type Value :	Contractor/Consultant
Detection Method Code :	J
Detection Method Value :	Tank and/or Piping Removal
Inc Location Code :	SS
Inc Location Value :	Terminal - Service Station
Inc Source Code :	TU
Inc Source Value :	Storage Unit - Underground Storage Tank
Spill Cause Code :	9
Spill Cause Value :	Overfill

LUST SPILL CHANGE:

Change Type Code :	FC
Change Type Value :	Final Report Changed
Change Desc :	
Change Date :	07/30/2003
Change By :	eisbrezi
Change Type Code :	FC
Change Type Value :	Final Report Changed
Change Desc :	Added PETER EREMITA as an employee.
Change Date :	07/30/2003
Change By :	eisbrezi
Change Type Code :	FC
Change Type Value :	Final Report Changed
Change Desc :	
Change Date :	07/30/2003
Change By :	eisbrezi
Change Type Code :	FC
Change Type Value :	Final Report Changed
Change Desc :	
Change Date :	07/30/2003
Change By :	eisbrezi

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added IRVING OIL CORP as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added SANDY BROOK ENTERPRISES (PLEASANT ST. SUNOCO) as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added ROBERT G GERBER, INC. as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 07/31/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added LES WILSON & SONS as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : False
Employee name : PETER M EREMITA

Primary Flag : True
Employee name : JOHN DUNLAP

LUST SPILL FILE:
Create Date : 02/20/2001 Create By : SPILLS

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Modify Date : 12/07/2001 Modify By : SPILLS
File Num Sheets 97
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : G Medium Code : Groundwater

Medium Code : L Medium Code : Land

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 342
Spill Year : 1991 Spill Type Code : O
Log Spill Type : Oil Incident Log Spill Datetime : 06/26/1991
Spill Time Unk : True Spill Dt Unknown : False
Log Rep Dt Tm 6/26/1991 Log Rep Prod Cd : 20
Log Rep Prod : Gasoline Unspecified Log Emp Name : JOHN DUNLAP
Log Loc Town : BRUNSWICK
Log Tank Inv Cd U Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001 Created By : SPILLS
Modify Date : 7/31/2003 Modify By : EISBREZI
Log Loc Desc : BRUNSWICK MAINWAY IRVING (former Brunswick SUNOCO) 205 Pleasant St., Route 1. UST Facility Reg. 13945

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : SP Mat Recovered : Spilled Product
Mat Units : Not reported Material Units Val : Not reported
Material Amount Not reported Mat Amt Qualifier : UNKNOWN

Mat Rec Type : CS Mat Recovered : Contaminated Soil
Mat Units : Y Material Units Val : cu. yds.
Material Amount 60 Mat Amt Qualifier : ESTIMATE

LUST SPILL POINT :
Point Type Code Not reported Utm North : Not reported
Utm East : Not reported GPS Unit : Not reported
GPS Date : Not reported GPS Time : Not reported
GIS Object Id : Not reported GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported Created By : Not reported
Modify Date : Not reported Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : G Recovery Method : Excavation

Rcvry Meth Cd : C Recovery Method : Sorbents

LUST SPILL PRODUCT :
Product Code : 20 Prod Code Value : Gasoline Unspecified
Product Other : Not reported Product Amount : 99
Product Amt Unit : G Prod Amt Unit Val : gals.
Primary Product : True Prod Amt Qualifier : ESTIMATE

LUST SPILL ATTACH :
Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : Removal info.

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : remediation assessments

Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : photos

Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : narrative

LUST SPILL CONTACT:
Cont Type Code : OC
Contact Type : Other Contact
Potential Rp : False
Contact Name :
Contact Title : Not reported
Contact Co.: LES WILSON & SONS
Contact Addr: WESTBROOK, ME
Contact country: USA
Contact Phone : 207 854-4583
Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code : OC
Contact Type : Other Contact
Potential Rp : False
Contact Name :
Contact Title : Not reported
Contact Co.: ROBERT G GERBER, INC.
Contact Addr: 17 WEST ST.
FREEPORT, ME
Contact country: USA
Contact Phone : 207
Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code : OC
Contact Type : Other Contact
Potential Rp : True
Contact Name :
Contact Title : Not reported
Contact Co.: IRVING OIL CORP [FACILITY REG. 13954]
Contact Addr: PO BOX 401
BANGOR, ME 04402
Contact country: USA
Contact Phone : 800-552-2004
Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code SR
Potential Rp : False
Contact Title : Not reported
Contact Co.: Not reported
Contact Addr: SANDY BROOK ENT.

Contact country: Not reported
Contact Phone : (207) 729-9851
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Contact Type : Reporter
Contact Name : PAT BRUBACH
Phone Ext : Not reported

Cont Type Code SS
Potential Rp : True
Contact Title : [UST REG. 13945.]
Contact Co.: SANDY BROOK ENTERPRISES (PLEASANT ST. SUNOCO)
Contact Addr: 205 PLEASANT ST.
BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (207) 729-9851
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Contact Type : Subject/Owner
Contact Name :
Phone Ext : Not reported

Inc Tank Code : U
Spill Number : P-342-1991
Inc Tank Value : Underground Tank(s) Involved
Removal Flag : True
Ust Registered Flag : True
Ust Tank Site Number : 13954
Ust Tank Number : Not reported
Ast Inside Flag : False
Create Date : 12/7/2001
Create By : SPILLS
Modify Date : 7/31/2003
Modify By : EISBREZI
Report Status : FR
Report Status Value : Final Report
Actual Spill Datetime : 06/26/1991
Actual Spill Date Unknown : False
Actual Spill Time Unknown : True
Number Wells At Risk : 0
Number Wells Impacted : 0
Dtree Completed Flag : False
Dtree Date : Not reported
Dtree Code : Not reported
Dtree Value : Not reported
Material Disposal Info : SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info : SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Material Disposal Info : SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info : SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info : SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Further Response Action : False
Spill Type Code : O
Spill Type Value : Oil Incident
Reporter Type Code : 6
Reporter Type Value : Contractor/Consultant
Detection Method Code : J
Detection Method Value : Tank and/or Piping Removal
Inc Location Code : SS
Inc Location Value : Terminal - Service Station
Inc Source Code : TU
Inc Source Value : Storage Unit - Underground Storage Tank
Spill Cause Code : 9
Spill Cause Value : Overfill

LUST SPILL CHANGE:
Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc :
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added PETER EREMITA as an employee.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc :
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc :
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added IRVING OIL CORP as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added SANDY BROOK ENTERPRISES (PLEASANT ST. SUNOCO) as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added ROBERT G GERBER, INC. as a contact.
Change Date : 07/30/2003

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 07/31/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added LES WILSON & SONS as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : False
Employee name : PETER M EREMITA

Primary Flag : True
Employee name : JOHN DUNLAP

LUST SPILL FILE:
Create Date : 02/20/2001
Create By : SPILLS
Modify Date : 12/07/2001
Modify By : SPILLS
File Num Sheets : 97
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : G
Medium Code : Groundwater

Medium Code : L
Medium Code : Land

LUST SPILL LOG:
Spill Void Flag : False
Spill Office Code : P
Spill Office : Portland
Spill Off Sequence : 342
Spill Year : 1991
Spill Type Code : O
Log Spill Type : Oil Incident
Log Spill Datetime : 06/26/1991
Spill Time Unk : True
Spill Dt Unknown : False
Log Rep Dt Tm 6/26/1991
Log Rep Prod Cd : 20
Log Rep Prod : Gasoline Unspecified
Log Emp Name : JOHN DUNLAP

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U
Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001
Created By : SPILLS
Modify Date : 7/31/2003
Modify By : EISBREZI
Log Loc Desc : BRUNSWICK MAINWAY IRVING (former Brunswick SUNOCO) 205 Pleasant St., Route 1. UST Facility Reg. 13945

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : SP
Mat Recovered : Spilled Product
Mat Units : Not reported
Material Units Val : Not reported
Material Amount Not reported
Mat Amt Qualifier : UNKNOWN

Mat Rec Type : CS
Mat Recovered : Contaminated Soil
Mat Units : Y
Material Units Val : cu. yds.
Material Amount 60
Mat Amt Qualifier : ESTIMATE

LUST SPILL POINT :
Point Type Code : Not reported
Utm North : Not reported
Utm East : Not reported
GPS Unit : Not reported
GPS Date : Not reported
GPS Time : Not reported
GIS Object Id : Not reported
GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported
Created By : Not reported
Modify Date : Not reported
Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : G
Recovery Method : Excavation

Rcvry Meth Cd : C
Recovery Method : Sorbents

LUST SPILL PRODUCT :
Product Code : 20
Prod Code Value : Gasoline Unspecified
Product Other : Not reported
Product Amount : 99
Product Amt Unit : G
Prod Amt Unit Val : gals.
Primary Product : True
Prod Amt Qualifier : ESTIMATE

LUST SPILL ATTACH :
Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : Removal info.

Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : remediation assessments

Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : photos

Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : narrative

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

LUST SPILL CONTACT:

Cont Type Code OC Contact Type : Other Contact
Potential Rp : False Contact Name :
Contact Title : Not reported
Contact Co.: LES WILSON & SONS
Contact Addr: WESTBROOK, ME
Contact country: USA
Contact Phone : 207 854-4583 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS
REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code OC Contact Type : Other Contact
Potential Rp : False Contact Name :
Contact Title : Not reported
Contact Co.: ROBERT G GERBER, INC.
Contact Addr: 17 WEST ST.
FREEPORT, ME
Contact country: USA
Contact Phone : 207 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS
REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code OC Contact Type : Other Contact
Potential Rp : True Contact Name :
Contact Title : Not reported
Contact Co.: IRVING OIL CORP [FACILITY REG. 13954]
Contact Addr: PO BOX 401
BANGOR, ME 04402
Contact country: USA
Contact Phone : 800-552-2004 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS
REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code SR Contact Type : Reporter
Potential Rp : False Contact Name : PAT BRUBACH
Contact Title : Not reported
Contact Co.: Not reported
Contact Addr: SANDY BROOK ENT.

Contact country: Not reported
Contact Phone : (207) 729-9851 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS
REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code SS Contact Type : Subject/Owner

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Potential Rp : True Contact Name :
Contact Title : [UST REG. 13945.]
Contact Co.: SANDY BROOK ENTERPRISES (PLEASANT ST. SUNOCO)
Contact Addr: 205 PLEASANT ST.
BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (207) 729-9851 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Inc Tank Code : U
Spill Number : P-342-1991
Inc Tank Value : Underground Tank(s) Involved
Removal Flag : True
Ust Registered Flag : True
Ust Tank Site Number : 13954
Ust Tank Number : Not reported
Ast Inside Flag : False
Create Date : 12/7/2001
Create By : SPILLS
Modify Date : 7/31/2003
Modify By : EISBREZI
Report Status : FR
Report Status Value : Final Report
Actual Spill Datetime : 06/26/1991
Actual Spill Date Unknown : False
Actual Spill Time Unknown : True
Number Wells At Risk : 0
Number Wells Impacted : 0
Dtree Completed Flag : False
Dtree Date : Not reported
Dtree Code : Not reported
Dtree Value : Not reported
Material Disposal Info : SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info : SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info : SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info : SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Material Disposal Info : SOIL TO BRUNSWICK LANDFILL & H C CROOKER INC.
Further Response Action : False
Spill Type Code : O
Spill Type Value : Oil Incident
Reporter Type Code : 6
Reporter Type Value : Contractor/Consultant
Detection Method Code : J
Detection Method Value : Tank and/or Piping Removal
Inc Location Code : SS
Inc Location Value : Terminal - Service Station
Inc Source Code : TU
Inc Source Value : Storage Unit - Underground Storage Tank
Spill Cause Code : 9
Spill Cause Value : Overfill

LUST SPILL CHANGE:
Change Type Code : FC
Change Type Value : Final Report Changed

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Change Desc :
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added PETER EREMITA as an employee.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc :
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc :
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added IRVING OIL CORP as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added SANDY BROOK ENTERPRISES (PLEASANT ST. SUNOCO) as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added ROBERT G GERBER, INC. as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 07/31/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 07/30/2003
Change By : eisbrezi

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added LES WILSON & SONS as a contact.
Change Date : 07/30/2003
Change By : eisbrezi

Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : False
Employee name : PETER M EREMITA

Primary Flag : True
Employee name : JOHN DUNLAP

LUST SPILL FILE:
Create Date : 02/20/2001 Create By : SPILLS
Modify Date : 12/07/2001 Modify By : SPILLS
File Num Sheets : 97
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : G Medium Code : Groundwater

Medium Code : L Medium Code : Land

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 342
Spill Year : 1991 Spill Type Code : O
Log Spill Type : Oil Incident Log Spill Datetime : 06/26/1991
Spill Time Unk : True Spill Dt Unknown : False
Log Rep Dt Tm 6/26/1991 Log Rep Prod Cd : 20
Log Rep Prod : Gasoline Unspecified Log Emp Name : JOHN DUNLAP
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001 Created By : SPILLS
Modify Date : 7/31/2003 Modify By : EISBREZI
Log Loc Desc : BRUNSWICK MAINWAY IRVING (former Brunswick SUNOCO) 205 Pleasant St., Route 1. UST Facility Reg. 13945

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : SP Mat Recovered : Spilled Product
Mat Units : Not reported Material Units Val : Not reported
Material Amount Not reported Mat Amt Qualifier : UNKNOWN

Mat Rec Type : CS Mat Recovered : Contaminated Soil
Mat Units : Y Material Units Val : cu. yds.
Material Amount 60 Mat Amt Qualifier : ESTIMATE

LUST SPILL POINT :
Point Type Code Not reported Utm North : Not reported
Utm East : Not reported GPS Unit : Not reported
GPS Date : Not reported GPS Time : Not reported

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

GIS Object Id : Not reported
GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported
Created By : Not reported
Modify Date : Not reported
Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : G
Recovery Method : Excavation

Rcvry Meth Cd : C
Recovery Method : Sorbents

LUST SPILL PRODUCT :
Product Code : 20
Prod Code Value : Gasoline Unspecified
Product Other : Not reported
Product Amount : 99
Product Amt Unit : G
Prod Amt Unit Val : gals.
Primary Product : True
Prod Amt Qualifier : ESTIMATE

LUST SPILL ATTACH :
Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : Removal info.

Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : remediation assessments

Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : photos

Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/30/2003
Description : narrative

LUST SPILL CONTACT:
Cont Type Code : OC
Contact Type : Other Contact
Potential Rp : False
Contact Name :
Contact Title : Not reported
Contact Co.: LES WILSON & SONS
Contact Addr: WESTBROOK, ME
Contact country: USA
Contact Phone : 207 854-4583
Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code : OC
Contact Type : Other Contact
Potential Rp : False
Contact Name :
Contact Title : Not reported
Contact Co.: ROBERT G GERBER, INC.

INTERSTATE SUNOCO / A.K.A. IRVING M (Continued) **S104211551**

Contact Addr: 17 WEST ST.
FREEPORT, ME
Contact country: USA
Contact Phone : 207 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code OC Contact Type : Other Contact
Potential Rp : True Contact Name :
Contact Title : Not reported
Contact Co.: IRVING OIL CORP [FACILITY REG. 13954]
Contact Addr: PO BOX 401
BANGOR, ME 04402
Contact country: USA
Contact Phone : 800-552-2004 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code SR Contact Type : Reporter
Potential Rp : False Contact Name : PAT BRUBACH
Contact Title : Not reported
Contact Co.: Not reported
Contact Addr: SANDY BROOK ENT.

Contact country: Not reported
Contact Phone : (207) 729-9851 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

Cont Type Code SS Contact Type : Subject/Owner
Potential Rp : True Contact Name :
Contact Title : [UST REG. 13945.]
Contact Co.: SANDY BROOK ENTERPRISES (PLEASANT ST. SUNOCO)
Contact Addr: 205 PLEASANT ST.
BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (207) 729-9851 Phone Ext : Not reported
Comments : Maine CTI performing UST abandonment.
Environmental consultant for facility owners Sandy Brook Enterprises.
Property buyers and new, replacement UST operators.
ABANDONMENT OF RETAIL, MOTOR FUELS UST FACILITY AND ASSOCIATED CLEAN-UP. HOSS REPORT UPDATED 9/00. FUTURE BRUNSWICK MAINEWAY IRVING FACILITY.

D15
North
1/4-1/2
2505 ft.

Relative:
Lower

Actual:
82 ft.

CRESSEY MOTORS INC
148 PLEASANT ST
BRUNSWICK, ME

Site 1 of 2 in cluster D

UST U002165237
VCP N/A

UST:

Registration #:	4421
Facility Tel:	(207) 725-8866
Tank Number:	1
Chamber ID:	Not reported
Ownership Begin Date:	01/01/95
Ownership End Date :	Not reported
Operator Contact :	Not reported
Owner / Operator Name :	CRESSEY MOTORS INC
Owner / Owner Address:	148 PLEASANT ST BRUNSWICK, ME 04011
Owner / Operator Phone Number :	(207) 725-8866
Tank Above/Below Ground:	Belowground
Tank Status:	Removed
Product Type:	Waste Oil/Used Motor Oil
Tank Status Date:	05/01/87
Tank Use:	Not reported
Tank Material:	Bare or asphalt & coal-tar epoxy coated steel
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Installation Date:	10/01/69
Removal Procedure:	Not reported
Removal Date:	/ /
Category:	Not reported
Total Num of Chambers for Tank:	1
Facility Use:	Not reported
Tank Location Method:	Not reported
Location Date:	Not reported
Replaced Pipe Date:	Not reported
Manifold Number:	Not reported
Installer ID:	Not reported
Warranty Expiration:	Not reported
Lat/long:	Not reported
Fee Billable:	No
Var Permit:	Not reported
Volume in Gallons:	550
Installer Applicant’s Company:	Not reported
Installer Applicant Name:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Phone:	Not reported
Gen ID :	Not reported
Tank Fee :	Not reported
Fed Reg Ind :	No
Chamber ID :	1
Overfill :	Not reported
Pipe Install Dt :	Not reported
Reg Date :	08/18/86
Num Of Tanks :	2
Facility Code :	C
Near Public Water :	No
Near Pvt Water :	No
Near Other Water :	No
On Aquifer :	No

CRESSEY MOTORS INC (Continued) **U002165237**

Sensitive Area :	No
In 100 yr flood plain :	Not reported
Near Waterbody :	Not reported
Owner Oper ID :	5368
Facility Type :	B
Directions :	148 PLEASANT STREET
Update Dt :	08/13/99
Print Cert :	Yes
Active Number Of Tanks :	0
Last Inspected :	Not reported
Current Owner ID :	5368
Registration #:	4421
Facility Tel:	(207) 725-8866
Tank Number:	2
Chamber ID:	Not reported
Ownership Begin Date:	01/01/95
Ownership End Date :	Not reported
Operator Contact :	Not reported
Owner / Operator Name :	CRESSEY MOTORS INC
Owner / Owner Address:	148 PLEASANT ST BRUNSWICK, ME 04011
Owner / Operator Phone Number :	(207) 725-8866
Tank Above/Below Ground:	Belowground
Tank Status:	Removed
Product Type:	Waste Oil/Used Motor Oil
Tank Status Date:	05/01/87
Tank Use:	Not reported
Tank Material:	Bare or asphalt & coal-tar epoxy coated steel
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Installation Date:	10/01/69
Removal Procedure:	Not reported
Removal Date:	/ /
Category:	Not reported
Total Num of Chambers for Tank:	1
Facility Use:	Not reported
Tank Location Method:	Not reported
Location Date:	Not reported
Replaced Pipe Date:	Not reported
Manifold Number:	Not reported
Installer ID:	Not reported
Warranty Expiration:	Not reported
Lat/long:	Not reported
Fee Billable:	No
Var Permit:	Not reported
Volume in Gallons:	550
Installer Applicant's Company:	Not reported
Installer Applicant Name:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Phone:	Not reported
Gen ID :	Not reported
Tank Fee :	Not reported
Fed Reg Ind :	No
Chamber ID :	1
Overfill :	Not reported
Pipe Install Dt :	Not reported

CRESSEY MOTORS INC (Continued) **U002165237**

Reg Date :	08/18/86
Num Of Tanks :	2
Facility Code :	C
Near Public Water :	No
Near Pvt Water :	No
Near Other Water :	No
On Aquifer :	No
Sensitive Area :	No
In 100 yr flood plain :	Not reported
Near Waterbody :	Not reported
Owner Oper ID :	5368
Facility Type :	B
Directions :	148 PLEASANT STREET
Update Dt :	08/13/99
Print Cert :	Yes
Active Number Of Tanks :	0
Last Inspected :	Not reported
Current Owner ID :	5368

ME VCP:

Facility Status:	No Further Action
Program Type:	VRAP
Lat/Long:	Not reported
Inst Controls:	False

D16 **CRESSY MOTORS** **LUST** **S105849396**
North **148 PLEASANT ST.** **N/A**
1/4-1/2 **BRUNSWICK, ME**
2505 ft.

Site 2 of 2 in cluster D

Relative: Lower

Actual: 82 ft.

LUST:

Inc Tank Code :	U
Spill Number :	P-346-1986
Inc Tank Value :	Underground Tank(s) Involved
Removal Flag :	False
Ust Registered Flag :	False
Ust Tank Site Number :	Not reported
Ust Tank Number :	Not reported
Ast Inside Flag :	False
Create Date :	12/7/2001
Create By :	SPILLS
Modify Date :	5/14/2003
Modify By :	EISBREZI
Report Status :	FR
Report Status Value :	Final Report
Actual Spill Datetime :	Not reported
Actual Spill Date Unknown :	True
Actual Spill Time Unknown :	True
Number Wells At Risk :	0
Number Wells Impacted :	0
Dtree Completed Flag :	False
Dtree Date :	Not reported
Dtree Code :	Not reported
Dtree Value :	Not reported
Material Disposal Info :	Not reported
Further Response Action :	False
Spill Type Code :	I
Spill Type Value :	Non-Oil, Non-Hazardous Incident

CRESSY MOTORS (Continued) **S105849396**

Reporter Type Code : 5
Reporter Type Value : Anonymous
Detection Method Code : I
Detection Method Value : Other
Inc Location Code : CM
Inc Location Value : Business - Commercial
Inc Source Code : Not reported
Inc Source Value : Not reported
Spill Cause Code : 0
Spill Cause Value : Other - No Cause

LUST SPILL CHANGE:
Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 05/14/2003
Change By : eisbrezi

Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : ST. GERMAIN MARK

LUST SPILL FILE:
Create Date : 07/11/1994 Create By : SPILLS
Modify Date : 12/07/2001 Modify By : SPILLS
File Num Sheets : 1
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : N Medium Code : None

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 346
Spill Year : 1986 Spill Type Code : I
Log Spill Type : Non-Oil, Non-Hazardous Incident Log Spill Datetime : Not reported
Spill Time Unk : True Spill Dt Unknown : True
Log Rep Dt Tm : 9/19/1986 Log Rep Prod Cd : 0
Log Rep Prod : None Log Emp Name : ST. GERMAIN, MARK
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001 Created By : SPILLS
Modify Date : 5/14/2003 Modify By : EISBREZI
Log Loc Desc : Cressy Motors, 148 Pleasand st.

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : Not reported Mat Recovered : Not reported
Mat Units : Not reported Material Units Val : Not reported
Material Amount : Not reported Mat Amt Qualifier : Not reported

LUST SPILL POINT :
Point Type Code : Not reported Utm North : Not reported
Utm East : Not reported GPS Unit : Not reported
GPS Date : Not reported GPS Time : Not reported

CRESSY MOTORS (Continued) **S105849396**

GIS Object Id : Not reported
GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported
Created By : Not reported
Modify Date : Not reported
Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : K
Recovery Method : None

LUST SPILL PRODUCT :
Product Code : 00
Prod Code Value : None
Product Other : Not reported
Product Amount : 0
Product Amt Unit : G
Prod Amt Unit Val : gals.
Primary Product : False
Prod Amt Qualifier : ACTUAL

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported
File Name: Not reported
File Modify Dt: Not reported
Description :

LUST SPILL CONTACT:
Cont Type Code SS
Contact Type : Subject/Owner
Potential Rp : True
Contact Name :
Contact Title : Not reported
Contact Co.: CRESSY MOTORS, INC.
Contact Addr: 148 PLEASANT ST.
BRUNSWICK, ME
Contact country: Not reported
Contact Phone : (207) 725-8866
Phone Ext : Not reported
Comments : Not reported

Cont Type Code SR
Contact Type : Reporter
Potential Rp : False
Contact Name :
Contact Title : Not reported
Contact Co.: ANONYMOUS
Contact Addr:
Contact country: Not reported
Contact Phone : Not reported
Phone Ext : Not reported
Comments : Not reported

E17 **MCDONALDS** **LUST** **S104208555**
North **154 PLEASANT ST.** **N/A**
1/4-1/2 **BRUNSWICK, ME**
2522 ft.

Site 1 of 4 in cluster E

Relative:
Lower

Actual:
84 ft.

LUST:
Inc Tank Code : U
Spill Number : P-139-1990
Inc Tank Value : Underground Tank(s) Involved
Removal Flag : False
Ust Registered Flag : True
Ust Tank Site Number : 7752
Ust Tank Number : Not reported
Ast Inside Flag : False
Create Date : 12/7/2001
Create By : SPILLS
Modify Date : 12/7/2001
Modify By : SPILLS
Report Status : FR

MCDONALDS (Continued) **S104208555**

Report Status Value : Final Report
Actual Spill Datetime : Not reported
Actual Spill Date Unknown : True
Actual Spill Time Unknown : True
Number Wells At Risk : 0
Number Wells Impacted : 0
Dtree Completed Flag : False
Dtree Date : Not reported
Dtree Code : Not reported
Dtree Value : Not reported
Material Disposal Info : Not reported
Further Response Action : False
Spill Type Code : I
Spill Type Value : Non-Oil, Non-Hazardous Incident
Reporter Type Code : 6
Reporter Type Value : Contractor/Consultant
Detection Method Code : J
Detection Method Value : Tank and/or Piping Removal
Inc Location Code : CM
Inc Location Value : Business - Commercial
Inc Source Code : Not reported
Inc Source Value : Not reported
Spill Cause Code : 0
Spill Cause Value : Other - No Cause

LUST SPILL CHANGE:
Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : SHERYL SMITH

LUST SPILL FILE:
Create Date : 07/28/1993 Create By : SPILLS
Modify Date : 12/07/2001 Modify By : SPILLS
File Num Sheets : 4
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : L Medium Code : Land

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 139
Spill Year : 1990 Spill Type Code : I
Log Spill Type : Non-Oil, Non-Hazardous Incident Log Spill Datetime : Not reported
Spill Time Unk : True Spill Dt Unknown : True
Log Rep Dt Tm : 3/14/1990 Log Rep Prod Cd : 2
Log Rep Prod : #2 Fuel Oil Log Emp Name : SHERYL SMITH
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001 Created By : SPILLS
Modify Date : 12/7/2001 Modify By : SPILLS
Log Loc Desc : Not reported

MCDONALDS (Continued) **S104208555**

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : MM
Mat Units : G
Material Amount 0
Mat Recovered : Mixed Liquid Media
Material Units Val : gals.
Mat Amt Qualifier : ACTUAL

LUST SPILL POINT :
Point Type Code: Not reported
Utm East : Not reported
GPS Date : Not reported
GIS Object Id : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported
Modify Date : Not reported
Utm North : Not reported
GPS Unit : Not reported
GPS Time : Not reported
GIS Feature Class : Not reported
Created By : Not reported
Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : C
Recovery Method : Sorbents

LUST SPILL PRODUCT :
Product Code : 02
Product Other : Not reported
Product Amt Unit : G
Primary Product : False
Prod Code Value : #2 Fuel Oil
Product Amount : 0
Prod Amt Unit Val : gals.
Prod Amt Qualifier : ACTUAL

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported
File Name: Not reported
File Modify Dt: Not reported
Description :

LUST SPILL CONTACT:
Cont Type Code SR
Potential Rp : False
Contact Title : Not reported
Contact Co.: LAUKKA CONSTRUCTION R. MERCIER
Contact Addr: BOX 717,32,US ROUTE1
YARMOUTH, ME 04096
Contact country: Not reported
Contact Phone : (207) 846-6436
Comments : Not reported
Contact Type : Reporter
Contact Name :
Phone Ext : Not reported

Cont Type Code SS
Potential Rp : False
Contact Title : Not reported
Contact Co.: MCDONALDS
Contact Addr: 154 PLEASANT STREET
BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : Not reported
Comments : Not reported
Contact Type : Subject/Owner
Contact Name :
Phone Ext : Not reported

E18 **FORMER IRVING SERVICE STATION** **VCP** **S105738325**
North **156 PLEASANT STREET** **INST CONTROL** **N/A**
1/4-1/2 **BRUNSWICK, ME**
2527 ft.

Site 2 of 4 in cluster E

Relative:
Lower

ME VCP:

Facility Status:	No Further Action
Program Type:	VRAP
Lat/Long:	Not reported
Inst Controls:	True

Actual:
86 ft.

INST CONTROL:

Facility Status:	No Further Action
Program Type:	VRAP
Lat/Long:	Not reported
Inst Controls:	True

E19 **CITGO / D W SMALL OIL** **LUST** **S105796011**
North **156 PLEASANT ST., RT 1** **N/A**
1/4-1/2 **BRUNSWICK, ME**
2527 ft.

Site 3 of 4 in cluster E

Relative:
Lower

LUST:

Inc Tank Code :	U
Spill Number :	P-95-1979
Inc Tank Value :	Underground Tank(s) Involved
Removal Flag :	False
Ust Registered Flag :	True
Ust Tank Site Number :	3518
Ust Tank Number :	Not reported
Ast Inside Flag :	False
Create Date :	12/7/2001
Create By :	SPILLS
Modify Date :	1/21/2003
Modify By :	EISBREZI
Report Status :	FR
Report Status Value :	Final Report
Actual Spill Datetime :	Not reported
Actual Spill Date Unknown :	True
Actual Spill Time Unknown :	True
Number Wells At Risk :	0
Number Wells Impacted :	0
Dtree Completed Flag :	False
Dtree Date :	Not reported
Dtree Code :	Not reported
Dtree Value :	Not reported
Material Disposal Info :	See narative.
Further Response Action :	True
Spill Type Code :	O
Spill Type Value :	Oil Incident
Reporter Type Code :	4
Reporter Type Value :	Public Official
Detection Method Code :	L
Detection Method Value :	Visual Product
Inc Location Code :	SS
Inc Location Value :	Terminal - Service Station
Inc Source Code :	TU
Inc Source Value :	Storage Unit - Underground Storage Tank
Spill Cause Code :	1

CITGO / D W SMALL OIL (Continued) **S105796011**

Spill Cause Value : Corrosion - Tank

LUST SPILL CHANGE:

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 01/21/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 01/21/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 01/21/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 01/21/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update
Change Date : 01/21/2003
Change By : eisbrezi

Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:

Primary Flag : True
Employee name : JAMES DAYE

LUST SPILL FILE:

Create Date : Not reported
Modify Date : Not reported
File Num Sheets : Not reported
File Notes : Not reported
Reconcile Dt : Not reported
Create By : Not reported
Modify By : Not reported

LUST SPILL INC MEDIUM:

Medium Code : G
Medium Code : Groundwater

Medium Code : L
Medium Code : Land

LUST SPILL LOG:

Spill Void Flag : False
Spill Office : Portland
Spill Year : 1979
Log Spill Type : Oil Incident
Spill Office Code : P
Spill Off Sequence : 95
Spill Type Code : O
Log Spill Datetime : Not reported

CITGO / D W SMALL OIL (Continued) **S105796011**

Spill Time Unk : True
Spill Dt Unknown : True
Log Rep Dt Tm 6/2/1979
Log Rep Prod Cd : 20
Log Rep Prod : Gasoline Unspecified
Log Emp Name : JAMES DAYE
Log Loc Town : BRUNSWICK
Log Tank Inv Cd U
Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001
Created By : SPILLS
Modify Date : 1/21/2003
Modify By : EISBREZI
Log Loc Desc : D W Small gas station (future CITGO and Irving facilities).

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : MM
Mat Recovered : Mixed Liquid Media
Mat Units : G
Material Units Val : gals.
Material Amount 2325.9
Mat Amt Qualifier : ACTUAL

Mat Rec Type : CS
Mat Recovered : Contaminated Soil
Mat Units : Not reported
Material Units Val : Not reported
Material Amount Not reported
Mat Amt Qualifier : UNKNOWN

LUST SPILL POINT :
Point Type Code ASP
Utm North : 4862634
Utm East : 420743
GPS Unit : Unknown
GPS Date : Not reported
GPS Time : Not reported
GIS Object Id : 1627
GIS Feature Class : Response_Spill_Points
GIS Sync Flag : True
Create Date : 12/10/2001
Created By : SPILLS
Modify Date : 01/24/2005
Modify By : SPILLS

LUST SPILL RECOVERY :
Rcvry Meth Cd : A
Recovery Method : Vacuum Trucks

Rcvry Meth Cd : C
Recovery Method : Sorbents

LUST SPILL PRODUCT :
Product Code : 20
Prod Code Value : Gasoline Unspecified
Product Other : Not reported
Product Amount : 2800
Product Amt Unit : G
Prod Amt Unit Val : gals.
Primary Product : True
Prod Amt Qualifier : ESTIMATE

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported
File Name: Not reported
File Modify Dt: Not reported
Description :

LUST SPILL CONTACT:
Cont Type Code SR
Contact Type : Reporter
Potential Rp : False
Contact Name :
Contact Title : Not reported
Contact Co.: BRUNSWICK FIRE DEPT.
Contact Addr:
Contact country: Not reported
Contact Phone : Not reported
Phone Ext : Not reported
Comments : LARGE UST LEAK FROM RETAIL MOTOR FUELS UST FACILITY. FUTURE IRVING MAINWAY GAS STATION. SEE ALSO P-503-97 AND P-437-00. FINALY ABANDONED AS UST FACILITY IN AUGUST, 2000.

Cont Type Code SS
Contact Type : Subject/Owner
Potential Rp : False
Contact Name :
Contact Title : Not reported

CITGO / D W SMALL OIL (Continued) **S105796011**

Contact Co.: D W SMALL OIL CO.
Contact Addr: 156 PLEASANT ST.
BRUNSWICK, ME
Contact country: Not reported
Contact Phone : Not reported Phone Ext : Not reported
Comments : LARGE UST LEAK FROM RETAIL MOTOR FUELS UST FACILITY. FUTURE IRVING MAINWAY GAS STATION. SEE ALSO P-503-97 AND P-437-00. FINALY ABANDONED AS UST FACILITY IN AUGUST, 2000.

E20 **FORMER BRUNSWICK IRVING** **LUST** **S106674426**
North **156 PLEASANT ST** **N/A**
1/4-1/2 **BRUNSWICK, ME**
2527 ft.

Site 4 of 4 in cluster E

Relative:
Lower

Actual:
86 ft.

LUST:

Inc Tank Code :	U
Spill Number :	P-885-2002
Inc Tank Value :	Underground Tank(s) Involved
Removal Flag :	False
Ust Registered Flag :	False
Ust Tank Site Number :	Not reported
Ust Tank Number :	Not reported
Ast Inside Flag :	Not reported
Create Date :	11/26/2002
Create By :	EICPAQUE
Modify Date :	9/18/2003
Modify By :	EITGALLA
Report Status :	FR
Report Status Value :	Final Report
Actual Spill Datetime :	06/03/1979
Actual Spill Date Unknown :	False
Actual Spill Time Unknown :	True
Number Wells At Risk :	0
Number Wells Impacted :	0
Dtree Completed Flag :	False
Dtree Date :	Not reported
Dtree Code :	Not reported
Dtree Value :	Not reported
Material Disposal Info :	n/a
Further Response Action :	False
Spill Type Code :	O
Spill Type Value :	Oil Incident
Reporter Type Code :	6
Reporter Type Value :	Contractor/Consultant
Detection Method Code :	O
Detection Method Value :	Site Assessment
Inc Location Code :	SS
Inc Location Value :	Terminal - Service Station
Inc Source Code :	TU
Inc Source Value :	Storage Unit - Underground Storage Tank
Spill Cause Code :	30
Spill Cause Value :	Other - Known Cause

LUST SPILL CHANGE:

Change Type Code :	CR
Change Type Value :	Report Created
Change Desc :	Report Created with Report Status = DR
Change Date :	11/26/2002

FORMER BRUNSWICK IRVING (Continued) **S106674426**

Change By : EICPAQUE

Change Type Code : SC
Change Type Value : Report Status Changed
Change Desc : Report Status change from DRV to DQA
Change Date : 02/18/2003
Change By : EIJWOODA

Change Type Code : SC
Change Type Value : Report Status Changed
Change Desc : Report Status change from DQA to FR
Change Date : 09/18/2003
Change By : EITGALLA

Change Type Code : SC
Change Type Value : Report Status Changed
Change Desc : Report Status change from DR to DRV
Change Date : 01/21/2003
Change By : EISBREZI

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : STEPHEN G BREZINSKI

LUST SPILL FILE:
Create Date : 09/22/2003 Create By : EIPLAMBE
Modify Date : 09/22/2003 Modify By : EIPLAMBE
File Num Sheets : 6
File Notes : Not reported
Reconcile Dt : 09/22/2003

LUST SPILL INC MEDIUM:
Medium Code : G Medium Code : Groundwater

Medium Code : L Medium Code : Land

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 885
Spill Year : 2002 Spill Type Code : O
Log Spill Type : Oil Incident Log Spill Datetime : 06/03/1979
Spill Time Unk : True Spill Dt Unknown : False
Log Rep Dt Tm 9/2/2002 Log Rep Prod Cd : 20
Log Rep Prod : Gasoline Unspecified Log Emp Name : STEPHEN G BREZINSKI
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U Log Tank Involved : Underground Tank(s) Involved
Create Date : 11/26/2002 Created By : EICPAQUE
Modify Date : 1/21/2003 Modify By : EISBREZI
Log Loc Desc : Brunswick IRVING @ 156 Pleasant St.

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : NO Mat Recovered : None
Mat Units : G Material Units Val : gals.
Material Amount : 0 Mat Amt Qualifier : ESTIMATE

LUST SPILL POINT :
Point Type Code : Not reported Utm North : Not reported
Utm East : Not reported GPS Unit : Not reported
GPS Date : Not reported GPS Time : Not reported
GIS Object Id : Not reported GIS Feature Class : Not reported

FORMER BRUNSWICK IRVING (Continued) **S106674426**

GIS Sync Flag : Not reported
Create Date : Not reported Created By : Not reported
Modify Date : Not reported Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : K Recovery Method : None

LUST SPILL PRODUCT :
Product Code : 20 Prod Code Value : Gasoline Unspecified
Product Other : Not reported Product Amount : Not reported
Product Amt Unit : Not reported Prod Amt Unit Val : Not reported
Primary Product : True Prod Amt Qualifier : UNKNOWN

LUST SPILL ATTACH :
Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 01/21/2003
Description : Historical info.

LUST SPILL CONTACT:
Cont Type Code SS Contact Type : Subject/Owner
Potential Rp : True Contact Name :
Contact Title : Not reported
Contact Co.: IRVING OIL CORP
Contact Addr: PO BOX 401
BANGOR, ME 04402
Contact country: USA
Contact Phone : 800-552-2004 Phone Ext : Not reported
Comments : Consultant for Irving Oil Co. overseeing boring and assessment of Haley & Aldrich. Attn. Tom Schwarm
Consultant working for potential property buyer. Attn. David Deardon
Property owner.

Cont Type Code OC Contact Type : Other Contact
Potential Rp : False Contact Name :
Contact Title : Not reported
Contact Co.: ACADIA ENVIRONMENTAL
Contact Addr: 4 MILK ST
PORTLAND, ME
Contact country: USA
Contact Phone : 207-780-8826 Phone Ext : Not reported
Comments : Consultant for Irving Oil Co. overseeing boring and assessment of Haley & Aldrich. Attn. Tom Schwarm
Consultant working for potential property buyer. Attn. David Deardon
Property owner.

Cont Type Code SR Contact Type : Reporter
Potential Rp : False Contact Name :
Contact Title : Not reported
Contact Co.: HALEY & ALDRICH INC
Contact Addr: 500 SOUTHBOROUGH DR
SOUTH PORTLAND, ME 04106
Contact country: USA
Contact Phone : 207-772-5439 Phone Ext : Not reported
Comments : Consultant for Irving Oil Co. overseeing boring and assessment of Haley & Aldrich. Attn. Tom Schwarm
Consultant working for potential property buyer. Attn. David Deardon
Property owner.

C21
North
1/4-1/2
2538 ft.

Relative:
Lower

Actual:
88 ft.

CLIPPER MART (M W SEWALL OIL)
162 PLEASANT STREET, RT. 1
BRUNSWICK, ME

Site 2 of 2 in cluster C

LUST **S106674373**
N/A

LUST:

Inc Tank Code :	U
Spill Number :	P-23-1999
Inc Tank Value :	Underground Tank(s) Involved
Removal Flag :	False
Ust Registered Flag :	True
Ust Tank Site Number :	5632
Ust Tank Number :	Not reported
Ast Inside Flag :	False
Create Date :	12/7/2001
Create By :	SPILLS
Modify Date :	7/21/2004
Modify By :	EISBREZI
Report Status :	FR
Report Status Value :	Final Report
Actual Spill Datetime :	Not reported
Actual Spill Date Unknown :	True
Actual Spill Time Unknown :	True
Number Wells At Risk :	0
Number Wells Impacted :	0
Dtree Completed Flag :	False
Dtree Date :	Not reported
Dtree Code :	Not reported
Dtree Value :	Not reported
Material Disposal Info :	SEE NARRATIVE
Further Response Action :	False
Spill Type Code :	O
Spill Type Value :	Oil Incident
Reporter Type Code :	1
Reporter Type Value :	DEP Personnel
Detection Method Code :	L
Detection Method Value :	Visual Product
Inc Location Code :	SS
Inc Location Value :	Terminal - Service Station
Inc Source Code :	TU
Inc Source Value :	Storage Unit - Underground Storage Tank
Spill Cause Code :	23
Spill Cause Value :	Mechanical Failure - Other

LUST SPILL CHANGE:

Change Type Code :	FC
Change Type Value :	Final Report Changed
Change Desc :	Added M W SEWALL OIL CO. as a contact.
Change Date :	05/19/2003
Change By :	eisbrezi
Change Type Code :	FC
Change Type Value :	Final Report Changed
Change Desc :	UPDATE
Change Date :	05/19/2003
Change By :	eisbrezi
Change Type Code :	FC
Change Type Value :	Final Report Changed

CLIPPER MART (M W SEWALL OIL) (Continued) **S106674373**

Change Desc : Added BRUNSWICK CLIPPER MART as a contact.
Change Date : 05/19/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc :
Change Date : 05/19/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc :
Change Date : 05/19/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc :
Change Date : 05/19/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : UPDATE
Change Date : 05/19/2003
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : update by SGB on 7/21/04
Change Date : 07/21/2004
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added HAROLD EVANS as a contact.
Change Date : 07/21/2004
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added BRUNSWICK CLIPPER MART as a contact.
Change Date : 07/21/2004
Change By : eisbrezi

Change Type Code : FC
Change Type Value : Final Report Changed
Change Desc : Added M W SEWALL OIL CO. as a contact.
Change Date : 07/21/2004
Change By : eisbrezi

Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

CLIPPER MART (M W SEWALL OIL) (Continued) **S106674373**

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : JOHN DUNLAP

Primary Flag : False
Employee name : EVANS JR HAROLD

LUST SPILL FILE:
Create Date : 12/07/1999 Create By : SPILLS
Modify Date : 12/07/2001 Modify By : SPILLS
File Num Sheets : 4
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : G Medium Code : Groundwater

Medium Code : L Medium Code : Land

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 23
Spill Year : 1999 Spill Type Code : O
Log Spill Type : Oil Incident Log Spill Datetime : Not reported
Spill Time Unk : True Spill Dt Unknown : True
Log Rep Dt Tm 12/10/1998 Log Rep Prod Cd : 23
Log Rep Prod : Unleaded Gasoline Log Emp Name : JOHN DUNLAP
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001 Created By : SPILLS
Modify Date : 7/21/2004 Modify By : EISBREZI
Log Loc Desc : BRUNSWICK CLIPPERMART, RT. 1

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : NO Mat Recovered : None
Mat Units : G Material Units Val : gals.
Material Amount : 0 Mat Amt Qualifier : ESTIMATE

LUST SPILL POINT :
Point Type Code : Not reported Utm North : Not reported
Utm East : Not reported GPS Unit : Not reported
GPS Date : Not reported GPS Time : Not reported
GIS Object Id : Not reported GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported Created By : Not reported
Modify Date : Not reported Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : K Recovery Method : None

LUST SPILL PRODUCT :
Product Code : 23 Prod Code Value : Unleaded Gasoline
Product Other : Not reported Product Amount : Not reported
Product Amt Unit : Not reported Prod Amt Unit Val : Not reported
Primary Product : True Prod Amt Qualifier : UNKNOWN

LUST SPILL ATTACH :
Attach type Code : PATTA
Attach type Value: Paper Attach
File Name: Not reported
File Modify Dt: 07/21/2004

CLIPPER MART (M W SEWALL OIL) (Continued) **S106674373**

Description : NOV

LUST SPILL CONTACT:

Cont Type Code OC — Contact Type : Other Contact
Potential Rp : True — Contact Name :
Contact Title : Not reported
Contact Co.: BRUNSWICK CLIPPER MART
Contact Addr: 162 PLEASANT STREET
RT. 1
BRUNSWICK, ME 04530
Contact country: Not reported
Contact Phone : Not reported — Phone Ext : Not reported
Comments : SEE ATTACHED NOTICE OF VIOLATION
DEP Oil Enforcement Inspector
UST facility owner & operator

Cont Type Code SR — Contact Type : Reporter
Potential Rp : False — Contact Name : HAROLD EVANS
Contact Title : Not reported
Contact Co.: Not reported
Contact Addr: MAINE DEP
AUGUSTA, ME
Contact country: Not reported
Contact Phone : Not reported — Phone Ext : Not reported
Comments : SEE ATTACHED NOTICE OF VIOLATION
DEP Oil Enforcement Inspector
UST facility owner & operator

Cont Type Code SS — Contact Type : Subject/Owner
Potential Rp : True — Contact Name :
Contact Title : Not reported
Contact Co.: M W SEWALL OIL CO.
Contact Addr: 259 FRONT ST.
BATH, ME
Contact country: USA
Contact Phone : 207 442-7994 — Phone Ext : Not reported
Comments : SEE ATTACHED NOTICE OF VIOLATION
DEP Oil Enforcement Inspector
UST facility owner & operator

22
North
1/4-1/2
2587 ft.

BODWELL CHRYSLER PLYMOUTH DODGE INCORPORATED **RCRA-SQG** **1000436057**
169 PLEASANT STREET **FINDS** **MED045112109**
BRUNSWICK, ME 04011 **LUST**

Relative:
Lower

Actual:
82 ft.

RCRAInfo:
Owner: WILLIAM BODWELL
(207) 555-1212
EPA ID: MED045112109
Contact: DAVID P HENNESSEY
(207) 729-3375
Classification: Small Quantity Generator
TSDF Activities: Not reported

BODWELL CHRYSLER PLYMOUTH DODGE INCORPORATED (Continued) **1000436057**

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

LUST:

Inc Tank Code :	U
Spill Number :	P-264-1997
Inc Tank Value :	Underground Tank(s) Involved
Removal Flag :	False
Ust Registered Flag :	True
Ust Tank Site Number :	10703
Ust Tank Number :	Not reported
Ast Inside Flag :	False
Create Date :	12/7/2001
Create By :	SPILLS
Modify Date :	12/7/2001
Modify By :	SPILLS
Report Status :	FR
Report Status Value :	Final Report
Actual Spill Datetime :	05/13/1997
Actual Spill Date Unknown :	False
Actual Spill Time Unknown :	True
Number Wells At Risk :	Not reported
Number Wells Impacted :	Not reported
Dtree Completed Flag :	False
Dtree Date :	Not reported
Dtree Code :	Not reported
Dtree Value :	Not reported
Material Disposal Info :	Not reported
Further Response Action :	False
Spill Type Code :	I
Spill Type Value :	Non-Oil, Non-Hazardous Incident
Reporter Type Code :	6
Reporter Type Value :	Contractor/Consultant
Detection Method Code :	O
Detection Method Value :	Site Assessment
Inc Location Code :	CM
Inc Location Value :	Business - Commercial
Inc Source Code :	Not reported
Inc Source Value :	Not reported
Spill Cause Code :	0
Spill Cause Value :	Other - No Cause

LUST SPILL CHANGE:

Change Type Code :	CR
Change Type Value :	Report Created
Change Desc :	Report Created with Report Status = FR

BODWELL CHRYSLER PLYMOUTH DODGE INCORPORATED (Continued) **1000436057**

Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : JOHN DUNLAP

LUST SPILL FILE:
Create Date : 08/27/1997 Create By : SPILLS
Modify Date : 12/07/2001 Modify By : SPILLS
File Num Sheets : 21
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : N Medium Code : None

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 264
Spill Year : 1997 Spill Type Code : I
Log Spill Type : Non-Oil, Non-Hazardous Incident Log Spill Datetime : 05/13/1997
Spill Time Unk : True Spill Dt Unknown : False
Log Rep Dt Tm 5/13/1997 Log Rep Prod Cd : Not reported
Log Rep Prod : Not reported Log Emp Name : JOHN DUNLAP
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001 Created By : SPILLS
Modify Date : 12/7/2001 Modify By : SPILLS
Log Loc Desc : Not reported

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : MM Mat Recovered : Mixed Liquid Media
Mat Units : G Material Units Val : gals.
Material Amount 0 Mat Amt Qualifier : ACTUAL

LUST SPILL POINT :
Point Type Code : Not reported Utm North : Not reported
Utm East : Not reported GPS Unit : Not reported
GPS Date : Not reported GPS Time : Not reported
GIS Object Id : Not reported GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported Created By : Not reported
Modify Date : Not reported Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : K Recovery Method : None

LUST SPILL PRODUCT :
Product Code : 00 Prod Code Value : None
Product Other : Not reported Product Amount : 0
Product Amt Unit : G Prod Amt Unit Val : gals.
Primary Product : False Prod Amt Qualifier : ACTUAL

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported
File Name: Not reported
File Modify Dt: Not reported
Description :

LUST SPILL CONTACT:

BODWELL CHRYSLER PLYMOUTH DODGE INCORPORATED (Continued) **1000436057**

Cont Type Code SS Contact Type : Subject/Owner
Potential Rp : False Contact Name :
Contact Title : Not reported
Contact Co.: BODWELL-CHEVY-PLYMOUTH-DODGE, INC.
Contact Addr: 169 PLEASANT ST
BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (800) 339-2455 Phone Ext : Not reported
Comments : SEE ATTACHED SITE ASSESSMENT FROM DAMES & MOORE

Cont Type Code SR Contact Type : Reporter
Potential Rp : False Contact Name :
Contact Title : Not reported
Contact Co.: ANONYMOUS
Contact Addr:
Contact country: Not reported
Contact Phone : Not reported Phone Ext : Not reported
Comments : SEE ATTACHED SITE ASSESSMENT FROM DAMES & MOORE

Inc Tank Code : U
Spill Number : P-264-1997
Inc Tank Value : Underground Tank(s) Involved
Removal Flag : False
Ust Registered Flag : True
Ust Tank Site Number : 10703
Ust Tank Number : Not reported
Ast Inside Flag : False
Create Date : 12/7/2001
Create By : SPILLS
Modify Date : 12/7/2001
Modify By : SPILLS
Report Status : FR
Report Status Value : Final Report
Actual Spill Datetime : 05/13/1997
Actual Spill Date Unknown : False
Actual Spill Time Unknown : True
Number Wells At Risk : Not reported
Number Wells Impacted : Not reported
Dtree Completed Flag : False
Dtree Date : Not reported
Dtree Code : Not reported
Dtree Value : Not reported
Material Disposal Info : Not reported
Further Response Action : False
Spill Type Code : I
Spill Type Value : Non-Oil, Non-Hazardous Incident
Reporter Type Code : 6
Reporter Type Value : Contractor/Consultant
Detection Method Code : O
Detection Method Value : Site Assessment
Inc Location Code : CM
Inc Location Value : Business - Commercial
Inc Source Code : Not reported
Inc Source Value : Not reported
Spill Cause Code : 0
Spill Cause Value : Other - No Cause

BODWELL CHRYSLER PLYMOUTH DODGE INCORPORATED (Continued) **1000436057**

LUST SPILL CHANGE:
Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : JOHN DUNLAP

LUST SPILL FILE:
Create Date : 08/27/1997 Create By : SPILLS
Modify Date : 12/07/2001 Modify By : SPILLS
File Num Sheets : 21
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : N Medium Code : None

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 264
Spill Year : 1997 Spill Type Code : I
Log Spill Type : Non-Oil, Non-Hazardous Incident Log Spill Datetime : 05/13/1997
Spill Time Unk : True Spill Dt Unknown : False
Log Rep Dt Tm : 5/13/1997 Log Rep Prod Cd : Not reported
Log Rep Prod : Not reported Log Emp Name : JOHN DUNLAP
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001 Created By : SPILLS
Modify Date : 12/7/2001 Modify By : SPILLS
Log Loc Desc : Not reported

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : MM Mat Recovered : Mixed Liquid Media
Mat Units : G Material Units Val : gals.
Material Amount : 0 Mat Amt Qualifier : ACTUAL

LUST SPILL POINT :
Point Type Code : Not reported Utm North : Not reported
Utm East : Not reported GPS Unit : Not reported
GPS Date : Not reported GPS Time : Not reported
GIS Object Id : Not reported GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported Created By : Not reported
Modify Date : Not reported Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : K Recovery Method : None

LUST SPILL PRODUCT :
Product Code : 00 Prod Code Value : None
Product Other : Not reported Product Amount : 0
Product Amt Unit : G Prod Amt Unit Val : gals.
Primary Product : False Prod Amt Qualifier : ACTUAL

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported

BODWELL CHRYSLER PLYMOUTH DODGE INCORPORATED (Continued) **1000436057**

File Name: Not reported
File Modify Dt: Not reported
Description :

LUST SPILL CONTACT:
Cont Type Code SS — Contact Type : Subject/Owner
Potential Rp : False — Contact Name :
Contact Title : Not reported
Contact Co.: BODWELL-CHEVY-PLYMOUTH-DODGE, INC.
Contact Addr: 169 PLEASANT ST
BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (800) 339-2455 — Phone Ext : Not reported
Comments : SEE ATTACHED SITE ASSESSMENT FROM DAMES & MOORE

Cont Type Code SR — Contact Type : Reporter
Potential Rp : False — Contact Name :
Contact Title : Not reported
Contact Co.: ANONYMOUS
Contact Addr:
Contact country: Not reported
Contact Phone : Not reported — Phone Ext : Not reported
Comments : SEE ATTACHED SITE ASSESSMENT FROM DAMES & MOORE

Inc Tank Code : U
Spill Number : P-264-1997
Inc Tank Value : Underground Tank(s) Involved
Removal Flag : False
Ust Registered Flag : True
Ust Tank Site Number : 10703
Ust Tank Number : Not reported
Ast Inside Flag : False
Create Date : 12/7/2001
Create By : SPILLS
Modify Date : 12/7/2001
Modify By : SPILLS
Report Status : FR
Report Status Value : Final Report
Actual Spill Datetime : 05/13/1997
Actual Spill Date Unknown : False
Actual Spill Time Unknown : True
Number Wells At Risk : Not reported
Number Wells Impacted : Not reported
Dtree Completed Flag : False
Dtree Date : Not reported
Dtree Code : Not reported
Dtree Value : Not reported
Material Disposal Info : Not reported
Further Response Action : False
Spill Type Code : I
Spill Type Value : Non-Oil, Non-Hazardous Incident
Reporter Type Code : 6
Reporter Type Value : Contractor/Consultant
Detection Method Code : O
Detection Method Value : Site Assessment
Inc Location Code : CM
Inc Location Value : Business - Commercial
Inc Source Code : Not reported

BODWELL CHRYSLER PLYMOUTH DODGE INCORPORATED (Continued) **1000436057**

Inc Source Value : Not reported
Spill Cause Code : 0
Spill Cause Value : Other - No Cause

LUST SPILL CHANGE:
Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : JOHN DUNLAP

LUST SPILL FILE:
Create Date : 08/27/1997
Create By : SPILLS
Modify Date : 12/07/2001
Modify By : SPILLS
File Num Sheets : 21
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : N
Medium Code : None

LUST SPILL LOG:
Spill Void Flag : False
Spill Office Code : P
Spill Office : Portland
Spill Off Sequence : 264
Spill Year : 1997
Spill Type Code : I
Log Spill Type : Non-Oil, Non-Hazardous Incident
Log Spill Datetime : 05/13/1997
Spill Time Unk : True
Spill Dt Unknown : False
Log Rep Dt Tm 5/13/1997
Log Rep Prod Cd : Not reported
Log Rep Prod : Not reported
Log Emp Name : JOHN DUNLAP
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U
Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001
Created By : SPILLS
Modify Date : 12/7/2001
Modify By : SPILLS
Log Loc Desc : Not reported

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : MM
Mat Recovered : Mixed Liquid Media
Mat Units : G
Material Units Val : gals.
Material Amount 0
Mat Amt Qualifier : ACTUAL

LUST SPILL POINT :
Point Type Code : Not reported
Utm North : Not reported
Utm East : Not reported
GPS Unit : Not reported
GPS Date : Not reported
GPS Time : Not reported
GIS Object Id : Not reported
GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported
Created By : Not reported
Modify Date : Not reported
Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : K
Recovery Method : None

LUST SPILL PRODUCT :
Product Code : 00
Prod Code Value : None
Product Other : Not reported
Product Amount : 0
Product Amt Unit : G
Prod Amt Unit Val : gals.
Primary Product : False
Prod Amt Qualifier : ACTUAL

BODWELL CHRYSLER PLYMOUTH DODGE INCORPORATED (Continued) **1000436057**

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported
File Name: Not reported
File Modify Dt: Not reported
Description :

LUST SPILL CONTACT:
Cont Type Code SS Contact Type : Subject/Owner
Potential Rp : False Contact Name :
Contact Title : Not reported
Contact Co.: BODWELL-CHEVY-PLYMOUTH-DODGE, INC.
Contact Addr: 169 PLEASANT ST
BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (800) 339-2455 Phone Ext : Not reported
Comments : SEE ATTACHED SITE ASSESSMENT FROM DAMES & MOORE

Cont Type Code SR Contact Type : Reporter
Potential Rp : False Contact Name :
Contact Title : Not reported
Contact Co.: ANONYMOUS
Contact Addr:
Contact country: Not reported
Contact Phone : Not reported Phone Ext : Not reported
Comments : SEE ATTACHED SITE ASSESSMENT FROM DAMES & MOORE

Inc Tank Code : U
Spill Number : P-264-1997
Inc Tank Value : Underground Tank(s) Involved
Removal Flag : False
Ust Registered Flag : True
Ust Tank Site Number : 10703
Ust Tank Number : Not reported
Ast Inside Flag : False
Create Date : 12/7/2001
Create By : SPILLS
Modify Date : 12/7/2001
Modify By : SPILLS
Report Status : FR
Report Status Value : Final Report
Actual Spill Datetime : 05/13/1997
Actual Spill Date Unknown : False
Actual Spill Time Unknown : True
Number Wells At Risk : Not reported
Number Wells Impacted : Not reported
Dtree Completed Flag : False
Dtree Date : Not reported
Dtree Code : Not reported
Dtree Value : Not reported
Material Disposal Info : Not reported
Further Response Action : False
Spill Type Code : I
Spill Type Value : Non-Oil, Non-Hazardous Incident
Reporter Type Code : 6
Reporter Type Value : Contractor/Consultant
Detection Method Code : O

BODWELL CHRYSLER PLYMOUTH DODGE INCORPORATED (Continued) **1000436057**

Detection Method Value : Site Assessment
Inc Location Code : CM
Inc Location Value : Business - Commercial
Inc Source Code : Not reported
Inc Source Value : Not reported
Spill Cause Code : 0
Spill Cause Value : Other - No Cause

LUST SPILL CHANGE:
Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : JOHN DUNLAP

LUST SPILL FILE:
Create Date : 08/27/1997 Create By : SPILLS
Modify Date : 12/07/2001 Modify By : SPILLS
File Num Sheets : 21
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : N Medium Code : None

LUST SPILL LOG:
Spill Void Flag : False Spill Office Code : P
Spill Office : Portland Spill Off Sequence : 264
Spill Year : 1997 Spill Type Code : I
Log Spill Type : Non-Oil, Non-Hazardous Incident Log Spill Datetime : 05/13/1997
Spill Time Unk : True Spill Dt Unknown : False
Log Rep Dt Tm 5/13/1997 Log Rep Prod Cd : Not reported
Log Rep Prod : Not reported Log Emp Name : JOHN DUNLAP
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001 Created By : SPILLS
Modify Date : 12/7/2001 Modify By : SPILLS
Log Loc Desc : Not reported

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : MM Mat Recovered : Mixed Liquid Media
Mat Units : G Material Units Val : gals.
Material Amount : 0 Mat Amt Qualifier : ACTUAL

LUST SPILL POINT :
Point Type Code : Not reported Utm North : Not reported
Utm East : Not reported GPS Unit : Not reported
GPS Date : Not reported GPS Time : Not reported
GIS Object Id : Not reported GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported Created By : Not reported
Modify Date : Not reported Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : K Recovery Method : None

LUST SPILL PRODUCT :
Product Code : 00 Prod Code Value : None

BODWELL CHRYSLER PLYMOUTH DODGE INCORPORATED (Continued) **1000436057**

Product Other : Not reported
Product Amount : 0
Product Amt Unit : G
Prod Amt Unit Val : gals.
Primary Product : False
Prod Amt Qualifier : ACTUAL

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported
File Name: Not reported
File Modify Dt: Not reported
Description :

LUST SPILL CONTACT:
Cont Type Code SS
Contact Type : Subject/Owner
Potential Rp : False
Contact Name :
Contact Title : Not reported
Contact Co.: BODWELL-CHEVY-PLYMOUTH-DODGE, INC.
Contact Addr: 169 PLEASANT ST
BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (800) 339-2455
Phone Ext : Not reported
Comments : SEE ATTACHED SITE ASSESSMENT FROM DAMES & MOORE

Cont Type Code SR
Contact Type : Reporter
Potential Rp : False
Contact Name :
Contact Title : Not reported
Contact Co.: ANONYMOUS
Contact Addr:
Contact country: Not reported
Contact Phone : Not reported
Phone Ext : Not reported
Comments : SEE ATTACHED SITE ASSESSMENT FROM DAMES & MOORE

Inc Tank Code : U
Spill Number : P-264-1997
Inc Tank Value : Underground Tank(s) Involved
Removal Flag : False
Ust Registered Flag : True
Ust Tank Site Number : 10703
Ust Tank Number : Not reported
Ast Inside Flag : False
Create Date : 12/7/2001
Create By : SPILLS
Modify Date : 12/7/2001
Modify By : SPILLS
Report Status : FR
Report Status Value : Final Report
Actual Spill Datetime : 05/13/1997
Actual Spill Date Unknown : False
Actual Spill Time Unknown : True
Number Wells At Risk : Not reported
Number Wells Impacted : Not reported
Dtree Completed Flag : False
Dtree Date : Not reported
Dtree Code : Not reported
Dtree Value : Not reported
Material Disposal Info : Not reported
Further Response Action : False
Spill Type Code : I
Spill Type Value : Non-Oil, Non-Hazardous Incident

BODWELL CHRYSLER PLYMOUTH DODGE INCORPORATED (Continued) **1000436057**

Reporter Type Code : 6
Reporter Type Value : Contractor/Consultant
Detection Method Code : O
Detection Method Value : Site Assessment
Inc Location Code : CM
Inc Location Value : Business - Commercial
Inc Source Code : Not reported
Inc Source Value : Not reported
Spill Cause Code : 0
Spill Cause Value : Other - No Cause

LUST SPILL CHANGE:
Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : JOHN DUNLAP

LUST SPILL FILE:
Create Date : 08/27/1997
Create By : SPILLS
Modify Date : 12/07/2001
Modify By : SPILLS
File Num Sheets : 21
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : N
Medium Code : None

LUST SPILL LOG:
Spill Void Flag : False
Spill Office Code : P
Spill Office : Portland
Spill Off Sequence : 264
Spill Year : 1997
Spill Type Code : I
Log Spill Type : Non-Oil, Non-Hazardous Incident
Log Spill Datetime : 05/13/1997
Spill Time Unk : True
Spill Dt Unknown : False
Log Rep Dt Tm : 5/13/1997
Log Rep Prod Cd : Not reported
Log Rep Prod : Not reported
Log Emp Name : JOHN DUNLAP
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U
Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001
Created By : SPILLS
Modify Date : 12/7/2001
Modify By : SPILLS
Log Loc Desc : Not reported

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : MM
Mat Recovered : Mixed Liquid Media
Mat Units : G
Material Units Val : gals.
Material Amount : 0
Mat Amt Qualifier : ACTUAL

LUST SPILL POINT :
Point Type Code : Not reported
Utm North : Not reported
Utm East : Not reported
GPS Unit : Not reported
GPS Date : Not reported
GPS Time : Not reported
GIS Object Id : Not reported
GIS Feature Class : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported
Created By : Not reported
Modify Date : Not reported
Modify By : Not reported

LUST SPILL RECOVERY :

BODWELL CHRYSLER PLYMOUTH DODGE INCORPORATED (Continued) **1000436057**

Rcvry Meth Cd : K
Recovery Method : None

LUST SPILL PRODUCT :
Product Code : 00
Prod Code Value : None
Product Other : Not reported
Product Amount : 0
Product Amt Unit : G
Prod Amt Unit Val : gals.
Primary Product : False
Prod Amt Qualifier : ACTUAL

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported
File Name: Not reported
File Modify Dt: Not reported
Description :

LUST SPILL CONTACT:
Cont Type Code SS
Contact Type : Subject/Owner
Potential Rp : False
Contact Name :
Contact Title : Not reported
Contact Co.: BODWELL-CHEVY-PLYMOUTH-DODGE, INC.
Contact Addr: 169 PLEASANT ST
BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (800) 339-2455
Phone Ext : Not reported
Comments : SEE ATTACHED SITE ASSESSMENT FROM DAMES & MOORE

Cont Type Code SR
Contact Type : Reporter
Potential Rp : False
Contact Name :
Contact Title : Not reported
Contact Co.: ANONYMOUS
Contact Addr:
Contact country: Not reported
Contact Phone : Not reported
Phone Ext : Not reported
Comments : SEE ATTACHED SITE ASSESSMENT FROM DAMES & MOORE

Inc Tank Code : U
Spill Number : P-264-1997
Inc Tank Value : Underground Tank(s) Involved
Removal Flag : False
Ust Registered Flag : True
Ust Tank Site Number : 10703
Ust Tank Number : Not reported
Ast Inside Flag : False
Create Date : 12/7/2001
Create By : SPILLS
Modify Date : 12/7/2001
Modify By : SPILLS
Report Status : FR
Report Status Value : Final Report
Actual Spill Datetime : 05/13/1997
Actual Spill Date Unknown : False
Actual Spill Time Unknown : True
Number Wells At Risk : Not reported
Number Wells Impacted : Not reported
Dtree Completed Flag : False
Dtree Date : Not reported
Dtree Code : Not reported
Dtree Value : Not reported

BODWELL CHRYSLER PLYMOUTH DODGE INCORPORATED (Continued) **1000436057**

Material Disposal Info : Not reported
Further Response Action : False
Spill Type Code : I
Spill Type Value : Non-Oil, Non-Hazardous Incident
Reporter Type Code : 6
Reporter Type Value : Contractor/Consultant
Detection Method Code : O
Detection Method Value : Site Assessment
Inc Location Code : CM
Inc Location Value : Business - Commercial
Inc Source Code : Not reported
Inc Source Value : Not reported
Spill Cause Code : 0
Spill Cause Value : Other - No Cause

LUST SPILL CHANGE:
Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : JOHN DUNLAP

LUST SPILL FILE:
Create Date : 08/27/1997
Create By : SPILLS
Modify Date : 12/07/2001
Modify By : SPILLS
File Num Sheets : 21
File Notes : Not reported
Reconcile Dt : Not reported

LUST SPILL INC MEDIUM:
Medium Code : N
Medium Code : None

LUST SPILL LOG:
Spill Void Flag : False
Spill Office Code : P
Spill Office : Portland
Spill Off Sequence : 264
Spill Year : 1997
Spill Type Code : I
Log Spill Type : Non-Oil, Non-Hazardous Incident
Log Spill Datetime : 05/13/1997
Spill Time Unk : True
Spill Dt Unknown : False
Log Rep Dt Tm : 5/13/1997
Log Rep Prod Cd : Not reported
Log Rep Prod : Not reported
Log Emp Name : JOHN DUNLAP
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U
Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001
Created By : SPILLS
Modify Date : 12/7/2001
Modify By : SPILLS
Log Loc Desc : Not reported

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : MM
Mat Recovered : Mixed Liquid Media
Mat Units : G
Material Units Val : gals.
Material Amount : 0
Mat Amt Qualifier : ACTUAL

LUST SPILL POINT :
Point Type Code : Not reported
Utm North : Not reported
Utm East : Not reported
GPS Unit : Not reported
GPS Date : Not reported
GPS Time : Not reported
GIS Object Id : Not reported
GIS Feature Class : Not reported
GIS Sync Flag : Not reported

BODWELL CHRYSLER PLYMOUTH DODGE INCORPORATED (Continued) **1000436057**

Create Date : Not reported
Created By : Not reported
Modify Date : Not reported
Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : K
Recovery Method : None

LUST SPILL PRODUCT :
Product Code : 00
Prod Code Value : None
Product Other : Not reported
Product Amount : 0
Product Amt Unit : G
Prod Amt Unit Val : gals.
Primary Product : False
Prod Amt Qualifier : ACTUAL

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported
File Name: Not reported
File Modify Dt: Not reported
Description :

LUST SPILL CONTACT:
Cont Type Code SS
Contact Type : Subject/Owner
Potential Rp : False
Contact Name :
Contact Title : Not reported
Contact Co.: BODWELL-CHEVY-PLYMOUTH-DODGE, INC.
Contact Addr: 169 PLEASANT ST
BRUNSWICK, ME 04011
Contact country: Not reported
Contact Phone : (800) 339-2455
Phone Ext : Not reported
Comments : SEE ATTACHED SITE ASSESSMENT FROM DAMES & MOORE

Cont Type Code SR
Contact Type : Reporter
Potential Rp : False
Contact Name :
Contact Title : Not reported
Contact Co.: ANONYMOUS
Contact Addr:
Contact country: Not reported
Contact Phone : Not reported
Phone Ext : Not reported
Comments : SEE ATTACHED SITE ASSESSMENT FROM DAMES & MOORE

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23 **BIG APPLE CITGO** **LUST** **S104214605**
NNE **111 PLEASANT ST.** **N/A**
1/4-1/2 **BRUNSWICK, ME**
2600 ft.

Relative:
Lower

Actual:
73 ft.

LUST:
Inc Tank Code : U
Spill Number : P-39-1993
Inc Tank Value : Underground Tank(s) Involved
Removal Flag : False
Ust Registered Flag : False
Ust Tank Site Number : Not reported
Ust Tank Number : Not reported
Ast Inside Flag : False
Create Date : 12/7/2001
Create By : SPILLS
Modify Date : 12/7/2001
Modify By : SPILLS
Report Status : FR
Report Status Value : Final Report
Actual Spill Datetime : 01/25/1992
Actual Spill Date Unknown : False

BIG APPLE CITGO (Continued) **S104214605**

Actual Spill Time Unknown : False
Number Wells At Risk : 0
Number Wells Impacted : 0
Dtree Completed Flag : False
Dtree Date : Not reported
Dtree Code : Not reported
Dtree Value : Not reported
Material Disposal Info : TO C N BROWN CO, S. PARIS
Further Response Action : False
Spill Type Code : O
Spill Type Value : Oil Incident
Reporter Type Code : 2
Reporter Type Value : Subject/Spiller
Detection Method Code : L
Detection Method Value : Visual Product
Inc Location Code : SS
Inc Location Value : Terminal - Service Station
Inc Source Code : Not reported
Inc Source Value : Not reported
Spill Cause Code : 17
Spill Cause Value : Accident - Human Error

LUST SPILL CHANGE:
Change Type Code : CR
Change Type Value : Report Created
Change Desc : Report Created with Report Status = FR
Change Date : 12/07/2001
Change By : SPILLS

LUST SPILL EMPLOYEE:
Primary Flag : True
Employee name : STEPHEN BREZINSKI

Primary Flag : False
Employee name : STEVEN EUFEMIA

LUST SPILL FILE:
Create Date : 06/30/1999
Create By : SPILLS
Modify Date : 04/04/2003
Modify By : EILMOORE
File Num Sheets : 4
File Notes : Not reported
Reconcile Dt : 04/04/2003

LUST SPILL INC MEDIUM:
Medium Code : G
Medium Code : Groundwater

LUST SPILL LOG:
Spill Void Flag : False
Spill Office Code : P
Spill Office : Portland
Spill Off Sequence : 39
Spill Year : 1993
Spill Type Code : O
Log Spill Type : Oil Incident
Log Spill Datetime : 01/25/1992
Spill Time Unk : False
Spill Dt Unknown : False
Log Rep Dt Tm 1/25/1992
Log Rep Prod Cd : 2
Log Rep Prod : #2 Fuel Oil
Log Emp Name : STEPHEN BREZINSKI
Log Loc Town : BRUNSWICK
Log Tank Inv Cd : U
Log Tank Involved : Underground Tank(s) Involved
Create Date : 12/7/2001
Created By : SPILLS
Modify Date : 12/7/2001
Modify By : SPILLS
Log Loc Desc : Not reported

BIG APPLE CITGO (Continued) **S104214605**

LUST SPILL MATERIAL RECOVERED:
Mat Rec Type : MM
Mat Units : G
Material Amount : 75.99
Mat Recovered : Mixed Liquid Media
Material Units Val : gals.
Mat Amt Qualifier : ACTUAL

LUST SPILL POINT :
Point Type Code : Not reported
Utm East : Not reported
GPS Date : Not reported
GIS Object Id : Not reported
GIS Sync Flag : Not reported
Create Date : Not reported
Modify Date : Not reported
Utm North : Not reported
GPS Unit : Not reported
GPS Time : Not reported
GIS Feature Class : Not reported
Created By : Not reported
Modify By : Not reported

LUST SPILL RECOVERY :
Rcvry Meth Cd : C
Recovery Method : Sorbents

Rcvry Meth Cd : C
Recovery Method : Sorbents

LUST SPILL PRODUCT :
Product Code : 02
Product Other : Not reported
Product Amt Unit : G
Primary Product : False
Prod Code Value : #2 Fuel Oil
Product Amount : 80
Prod Amt Unit Val : gals.
Prod Amt Qualifier : ACTUAL

LUST SPILL ATTACH :
Attach type Code : Not reported
Attach type Value: Not reported
File Name: Not reported
File Modify Dt: Not reported
Description :

LUST SPILL CONTACT:
Cont Type Code SS
Potential Rp : False
Contact Title : Not reported
Contact Co.: C N BROWN CO. BIG APPLE
Contact Addr: 111 PLEASANT ST
BRUNSWICK, ME
Contact country: Not reported
Contact Phone : Not reported
Comments : Not reported
Contact Type : Subject/Owner
Contact Name :
Phone Ext : Not reported

Cont Type Code SR
Potential Rp : False
Contact Title : Not reported
Contact Co.: Not reported
Contact Addr: C N BROWN CO
S. PARIS, ME
Contact country: Not reported
Contact Phone : (800) 442-6330
Comments : Not reported
Contact Type : Reporter
Contact Name : MOORE KEVIN
Phone Ext : Not reported

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BRUNSWICK	S105000614	RAY LABBE AND SONS; GARAGE	ROUTE 1	04011	LAST
BRUNSWICK	S106789426	COOKS CORNER SHOPPING CENTER	ROUTE 1 / 24	04011	LUST
BRUNSWICK	S105795218	MIDCOAST HOSPITAL	58 / 66 BARIBEAU DR	04011	LUST
BRUNSWICK	1008373334	BRUNSWICK SWINGING BRIDGE	BLUE STAR MEMORIAL HIGHWAY	04011	RCRA-SQG
BRUNSWICK	S106797405	COFFIN & JUNIOR HIGH SCHOOLS	COLUMBIA AVE	04011	LAST
BRUNSWICK	S107026719	MAINE STREET STATION	MAINE STREET	04011	SHWS, BROWNFIELDS, VCP
BRUNSWICK	1009309827	MAINE STREET STATION	MAINE STREET	04011	US BROWNFIELDS
BRUNSWICK	A100273137	PLEASANT STREET COMPANY	PAUL STREET	04011	AST
BRUNSWICK	A100193813	DE PLEASANT STREET COMPANY	PAUL STREET	04011	AST
BRUNSWICK	S104204594	BEN'S MOBIL (PUFFIN STOP)	PLEASANT ST (RT 1)	04011	LUST
BRUNSWICK	S105110922	BRUNSWICK MAINEWAY IRVING	205 PLEASANT ST. (RT. 1 N)	04011	LUST
BRUNSWICK	S106403322	BIG APPLE BRUNSWICK	PLEASANT / WEBSTER STS - RT	04011	LUST
BRUNSWICK	S106791118	BIG APPLE BRUNSWICK	PLEASANT STREET (ROUTE 1)	04011	LUST
BRUNSWICK	S106793995	PUFFIN STOP / DOWNEAST ENERGY	PLEASANT ST. (RT. 1)	04011	LUST
BRUNSWICK	S106794632	BRUNSWICK CLIPPERMART	162 PLEASANT ST - RT 1	04011	LUST
BRUNSWICK	S107026765	BRUNSWICK CLIPPER MART	162 PLEASANT ST- RT 1	04011	LUST
BRUNSWICK	S105111605	BRUNSWICK FORD SALES	US ROUTE 1	04011	LAST
BRUNSWICK	1000238233	BATH IRON WORKS CORP	US RTE 1	04011	FINDS, RCRA-LQG, TRIS, RCRA-TSDF, UST, CORRACTS
TOPSHAM	1003862690	MAINE RECYCLING	ROUTE 196	04086	SHWS, CERC-NFRAP
TOPSHAM	1003862824	CROOKER & SONS INC	ROUTE 196	04086	SHWS, CERC-NFRAP
TOPSHAM	S104872393	TOPSHAM RADIATOR	CORNER OF ROUTE 196 / 201	04086	SHWS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL RECOVERY: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 06/19/2006
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 09/21/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 07/17/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/15/2006
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 27

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/15/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 01/12/2006
Date Made Active in Reports: 02/21/2006
Number of Days to Update: 40

Source: National Response Center, United States Coast Guard
Telephone: 202-260-2342
Last EDR Contact: 07/25/2006
Next Scheduled EDR Contact: 10/23/2006
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 07/03/2006
Date Data Arrived at EDR: 07/19/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 35

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/19/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/21/2006
Date Data Arrived at EDR: 03/27/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 09/07/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/21/2006
Date Data Arrived at EDR: 03/27/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 09/07/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/08/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 177

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 08/11/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 01/19/2006
Date Made Active in Reports: 02/21/2006
Number of Days to Update: 33

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 01/01/2007
Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/13/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 55

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/14/2004
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 04/25/2005
Number of Days to Update: 69

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 10/23/2006
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/21/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 47

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 07/06/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 11/04/2005
Date Data Arrived at EDR: 11/28/2005
Date Made Active in Reports: 01/30/2006
Number of Days to Update: 63

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 07/20/2006
Date Data Arrived at EDR: 07/21/2006
Date Made Active in Reports: 08/22/2006
Number of Days to Update: 32

Source: EPA
Telephone: 202-564-6064
Last EDR Contact: 07/06/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Quarterly

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/14/2006
Date Data Arrived at EDR: 07/18/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 50

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Date of Government Version: 07/14/2006
Date Data Arrived at EDR: 07/18/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 50

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 05/11/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 02/13/2006
Date Data Arrived at EDR: 04/21/2006
Date Made Active in Reports: 05/11/2006
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/07/2006
Date Data Arrived at EDR: 08/09/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 28

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 08/09/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/20/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 48

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/03/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/16/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/28/2006
Next Scheduled EDR Contact: 09/25/2006
Data Release Frequency: Semi-Annually

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/21/2006
Date Data Arrived at EDR: 07/25/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 43

Source: EPA
Telephone: N/A
Last EDR Contact: 04/03/2006
Next Scheduled EDR Contact: 07/03/2006
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2003
Date Data Arrived at EDR: 06/17/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 48

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/15/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Biennially

STATE AND LOCAL RECORDS

SHWS: Remediation Sites List

Uncontrolled Sites locations included in the Remediation Sites List.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-4850
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

DEL HWS: Sites Removed from the Uncontrolled Sites List

Sites are removed from the List once it is determined that they are not "worthy of listing". This term is used as there are a number of reasons to remove a site from the List, including: no file exists, the site was reported as an oil spill, there is no evidence of a hazardous substance release or based on an investigation the site is referred to another program unrelated to hazardous substance or hazardous waste. Sites are removed on a case by case basis. The USP intends this to be an on-going process, as time and resources allow.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SWF/LF: Solid Waste Facility List

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/19/2006
Date Data Arrived at EDR: 06/19/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 11

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Annually

LCP: Municipal Landfill Closure Database

The Municipal Landfill Closure and Remediation Program was established in 1988 to assist nearly 400 municipalities with the closure of their unlicensed municipal solid waste landfills. Project managers in this program have conducted site investigations and provided technical engineering assistance to aid municipalities in this process. Funding to accomplish this goal was provided by the state, utilizing several bonds that supported a 75% state cost sharing reimbursement process.

Date of Government Version: 12/15/2005
Date Data Arrived at EDR: 12/20/2005
Date Made Active in Reports: 01/16/2006
Number of Days to Update: 27

Source: Department of Environmental Protection
Telephone: 207-287-8552
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Varies

LUST: Hazardous Material and Oil Spill System Database (H.O.S.S.)

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

UST: Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 06/28/2005
Date Data Arrived at EDR: 07/25/2005
Date Made Active in Reports: 08/25/2005
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 09/13/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Quarterly

LAST: HOSS Database

A listing of leaking aboveground storage tanks.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

AST: Aboveground Storage Tanks

Registered Aboveground Storage Tanks.

Date of Government Version: 07/26/2005
Date Data Arrived at EDR: 07/26/2005
Date Made Active in Reports: 08/30/2005
Number of Days to Update: 35

Source: Maine Emergency Management Agency
Telephone: 207-626-4503
Last EDR Contact: 09/21/2006
Next Scheduled EDR Contact: 10/09/2006
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS: Hazardous Material and Oil Spill System Database
The database contains surface, groundwater and hazardous material spills.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

INST CONTROL: Remediation Sites List
Sites with Institutional Controls in place included in the Remediation Sites List. Institutional Controls are legally enforceable site use restrictions recorded on the property deed and therefore operate in perpetuity regardless of change in site ownership.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

VCP: Remediation Sites List
Voluntary Response Action Program sites included in the Remediation Sites List. VRAP promotes the investigation, remediation and redevelopment of contaminated properties by offering liability assurances/protections from state enforcement actions for applicants to the program.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-4854
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Varies

DRYCLEANERS: Drycleaner Facilities
A listing of drycleaning facilities that use perchloroethylene.

Date of Government Version: 09/06/2005
Date Data Arrived at EDR: 09/08/2005
Date Made Active in Reports: 10/07/2005
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-7030
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

BROWNFIELDS: Remediation Sites List
Brownfields site locations included in the Remediation Sites List. Brownfields are "Real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant".

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-7716
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Varies

AIRS: Emissions Inventory Data
Point Source Criteria Pollutant Emissions Inventory data. Criteria air pollutant emissions, expressed in tons, by facility and pollutant.

Date of Government Version: 12/31/2003
Date Data Arrived at EDR: 05/02/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 207-287-7036
Last EDR Contact: 07/14/2006
Next Scheduled EDR Contact: 10/09/2006
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/08/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 177
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 08/11/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 06/28/2006
Number of Days to Update: 19
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 06/23/2006
Date Made Active in Reports: 08/02/2006
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 06/06/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/10/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 64
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 06/23/2006
Date Made Active in Reports: 08/02/2006
Number of Days to Update: 40

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 06/06/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 06/30/2006
Date Data Arrived at EDR: 07/03/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 65

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

A listing of underground storage tank locations on Indian Land.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 21

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/10/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/17/2006
Date Made Active in Reports: 04/07/2006
Number of Days to Update: 49

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/06/2006
Date Made Active in Reports: 08/01/2006
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/05/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/02/2006
Date Data Arrived at EDR: 05/31/2006
Date Made Active in Reports: 06/27/2006
Number of Days to Update: 27

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/30/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 05/04/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 33

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 09/30/2005
Date Data Arrived at EDR: 05/09/2006
Date Made Active in Reports: 05/24/2006
Number of Days to Update: 15

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Annually

VT MANIFEST: Hazardous Waste Manifest Data
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 06/29/2006
Date Made Active in Reports: 07/31/2006
Number of Days to Update: 32

Source: Department of Environmental Conservation
Telephone: 802-241-3443
Last EDR Contact: 08/15/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: child Care Listing
Source: Department of Human Services
Telephone: 207-287-5060

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Office of Geographic Information Systems
Telephone: 207-287-6144

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

MCKEEN STREET HOUSING COMPLEX
MOORE AVENUE
BRUNSWICK, ME 04011

TARGET PROPERTY COORDINATES

Latitude (North):	43.90380 - 43° 54' 13.7''
Longitude (West):	69.9859 - 69° 59' 9.2''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	420826.3
UTM Y (Meters):	4861444.5
Elevation:	91 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	43069-H8 BRUNSWICK, ME
Most Recent Revision:	2001
West Map:	43070-H1 LISBON FALLS SOUTH, ME
Most Recent Revision:	2001

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

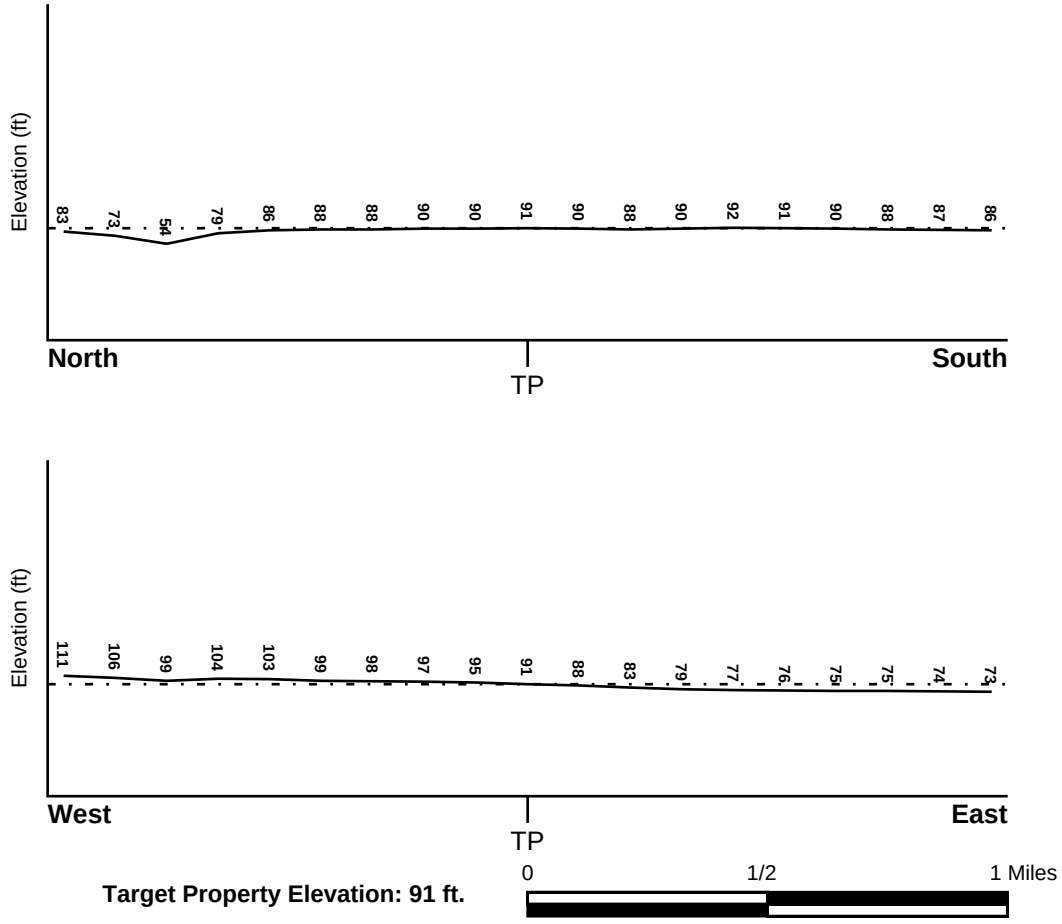
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General East

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
CUMBERLAND, ME	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 2300420015B

Additional Panels in search area: 2301220018B

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
BRUNSWICK	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Paleozoic
System:	Devonian and Silurian
Series:	Devonian and Silurian
Code:	DSv *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Volcanic Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	ADAMS
Soil Surface Texture:	loamy sand
Hydrologic Group:	Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.
Soil Drainage Class:	Not reported

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	LOW
Depth to Bedrock Min:	> 60 inches
Depth to Bedrock Max:	> 60 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	4 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 20.00 Min: 6.00	Max: 6.00 Min: 3.60
2	4 inches	6 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.00 Min: 3.60
3	6 inches	26 inches	loamy sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 20.00 Min: 6.00	Max: 6.00 Min: 4.50
4	26 inches	70 inches	fine sand	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 20.00 Min: 20.00	Max: 6.50 Min: 4.50

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: fine sandy loam
silt loam
gravelly - sandy loam
very fine sandy loam
muck
sand

Surficial Soil Types: fine sandy loam
silt loam
gravelly - sandy loam
very fine sandy loam
muck

sand

Shallow Soil Types: gravelly - coarse sandy loam
fine sandy loam
very fine sandy loam
loamy fine sand

Deeper Soil Types: very fine sandy loam
very gravelly - loamy sand
fine sandy loam
silty clay loam
sand

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS2047853	1/2 - 1 Mile South
2	USGS2477962	1/2 - 1 Mile West
3	USGS2047854	1/2 - 1 Mile WNW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

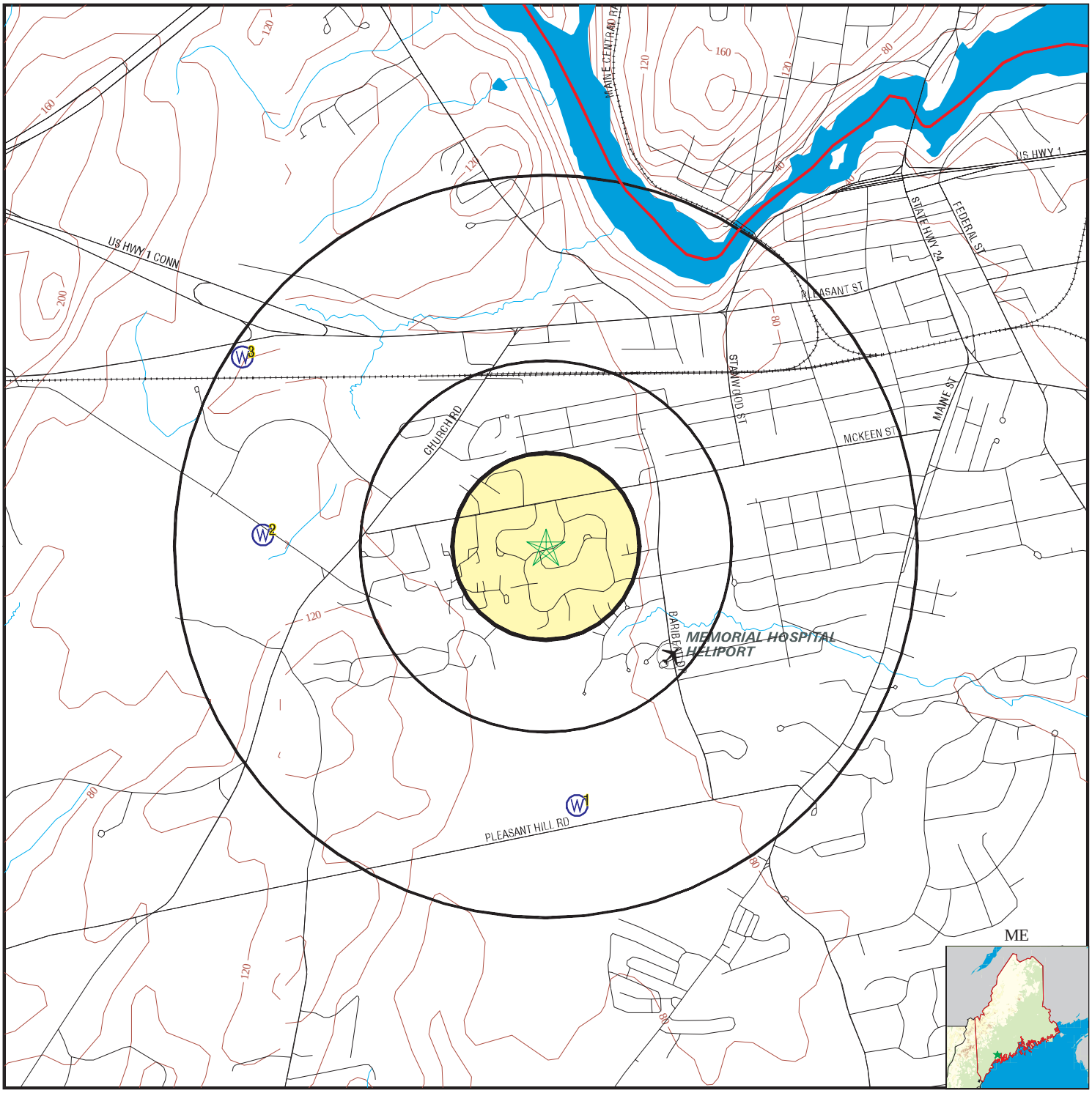
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 1761172.1s



- County Boundary
- Major Roads
- Contour Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location

SITE NAME:	McKeen Street Housing Complex	CLIENT:	Tetra Tech NUS, Inc.
ADDRESS:	Moore Avenue Brunswick ME 04011	CONTACT:	Rima Miley
		INQUIRY #:	1761172.1s
LAT/LONG:	43.9038 / 69.9859	DATE:	September 22, 2006 5:49 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
South
1/2 - 1 Mile
Lower

FED USGS **USGS2047853**

Agency cd:	USGS	Site no:	435337069590501
Site name:	CW 2		
Latitude:	435337		
Longitude:	0695905	Dec lat:	43.89369167
Dec lon:	-69.9842167	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	005
Country:	US	Land net:	Not Reported
Location map:	Not Reported	Map scale:	Not Reported
Altitude:	90	Altitude method:	U
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	1951
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	160	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

2
West
1/2 - 1 Mile
Higher

FED USGS **USGS2477962**

Agency cd:	USGS	Site no:	435415070000601
Site name:	CW 993		
Latitude:	435415		
Longitude:	0700006	Dec lat:	43.90424694
Dec lon:	-70.0011617	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	005
Country:	US	Land net:	Not Reported
Location map:	Not Reported	Map scale:	Not Reported
Altitude:	80	Altitude method:	U
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST

Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

3
WNW **FED USGS** **USGS2047854**
1/2 - 1 Mile
Higher

Agency cd:	USGS	Site no:	435440070001001
Site name:	CW 1353		
Latitude:	435440		
Longitude:	0700010	Dec lat:	43.9111911
Dec lon:	-70.002273	Coor meth:	M
Coor accr:	U	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	005
Country:	US	Land net:	Not Reported
Location map:	Not Reported	Map scale:	Not Reported
Altitude:	Not Reported	Altitude method:	Not Reported
Altitude accuracy:	Not Reported	Altitude datum:	Not Reported
Hydrologic:	Presumpscot. Maine. Area = 1240 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Confined single aquifer		
Aquifer:	BEDROCK UNDIFFERENTIATED		
Well depth:	149	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	1977-12-27
Water quality data end date:	1977-12-27	Water quality data count:	1
Ground water data begin date:	0000-00-00	Ground water data end date:	0000-00-00
Ground water data count:	0		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: ME Radon

Radon Test Results

Zip	City	Floor	Results
04011	Harpswell	B	1.4
04011	Brunswick	B	1.6
04011	Harpswell	B	1.1
04011	Brunswick	B	3.0
04011	Brunswick	B	3.3
04011	Brunswick	B	3.3
04011	Brunswick	B	1.2
04011	Brunswick	B	1.2
04011	Harpswell	B	1.2
04011		B	1.0
04011	Brunswick	B	16.2
04011	Brunswick	B	1.8
04011	Brunswick	B	8.0
04011	Brunswick	B	16.2
04011	Brunswick	B	1.8
04011	Brunswick	B	8.0
04011		B	1.2
04011		B	1.3
04011		F	2.0
04011		F	2.1
04011		B	1.2
04011		B	1.3
04011		F	1.9
04011		F	1.6
04011		F	1.0
04011		F	1.2
04011		B	6.6
04011		B	1.2
04011		F	0.7
04011		F	0.8
04011		B	0.9
04011		F	1.2
04011		B	4.5
04011		B	4.5
04011		F	3.9
04011		B	9.8
04011		B	9.6
04011		F	0.7
04011		F	0.8
04011		B	0.1
04011		B	0.1
04011		B	0.1
04011		B	0.1
04011		F	2.4
04011		F	2.5
04011		B	5.1
04011			

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

		B	5.3
04011		F	2.1
04011		B	10.0
04011		B	11.0
04011		F	0.9
04011		B	1.6
04011		B	1.5
04011		F	3.3
04011		B	0.7
04011		B	1.0
04011		B	1.1
04011		B	0.1
04011		B	0.1
04011		B	1.1
04011		B	1.0
04011		B	0.1
04011		B	0.1
04011		F	1.4
04011		F	1.7
04011		F	1.2
04011		B	8.8
04011		B	8.9
04011		F	0.5
04011		F	0.6
04011		B	4.7
04011		B	3.2
04011		B	3.3
04011		B	3.8
04011		F	0.6
04011		F	0.5
04011		B	3.2
04011		B	3.3
04011	brunswick	B	1.0
04011	Brunswick	B	1.2
04011	Harpswell	B	0.8
04011	brunswick	B	1.0
04011	Brunswick	B	1.2
04011	Harpswell	B	0.8
04011	Brunswick	B	5.0
04011	Brunswick	B	5.0
04011		B	1.3
04011	Brunswick	B	9.5
04011	Brunswick	B	4.8
04011	Brunswick	B	9.5
04011	Brunswick	B	4.8
04011		B	6.2
04011	Harpswell	B	0.9
04011	Harpswell	B	1.9
04011	Harpswell	B	0.9
04011	Harpswell	B	1.9
04011	Harpswell	B	4.2
04011	Diamond Cove	B	3.3
04011	Harpswell	B	4.2
04011	Diamond Cove	B	3.3
04011	Brunswick	B	7.6
04011	Brunswick	B	7.6
04011			

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

	Brunswick	B	3.5
04011	Brunswick	B	3.5
04011	Brunswick	B	1.0
04011	Brunswick	B	1.4
04011	Brunswick	B	1.0
04011	Brunswick	B	1.4
04011	Brunswick	B	4.7
04011	Brunswick	B	8.8
04011	Brunswick	B	1.6
04011	Brunswick	B	4.7
04011	Brunswick	B	8.8
04011	Brunswick	B	1.6
04011	Brunswick	B	2.9
04011	Brunswick	B	2.9
04011	Brunswick	B	1.5
04011	Brunswick	B	11.4
04011	Brunswick	B	2.9
04011	Brunswick	B	2.9
04011	Brunswick	B	1.5
04011	Brunswick	B	11.4
04011		B	4.7
04011	Brunswick	B	11.9
04011	Brunswick	B	1.7
04011	Brunswick	B	11.9
04011	Brunswick	B	1.7
04011	Brunswick	B	7.4
04011	Brunswick	B	5.2
04011	Brunswick	B	1.6
04011	Harpswell	B	12.9
04011	Brunswick	B	7.4
04011	Brunswick	B	5.2
04011	Brunswick	B	1.6
04011	Harpswell	B	12.9
04011	Harpswell	B	11.8
04011	Harpswell	B	11.8
04011	Brunswick	B	3.8
04011	Brunswick	B	4.9
04011	Brunswick	B	15.8
04011	Brunswick	B	3.8
04011	Brunswick	B	4.9
04011	Brunswick	B	15.8
04011	Brunswick	B	0.6
04011	Peaks Island	B	1.4
04011	Brunswick	B	0.6
04011	Peaks Island	B	1.4
04011	Brunswick	B	2.5
04011	Brunswick	B	2.5
04011	Brunswick	B	1.8
04011	Brunswick	B	1.8
04011	Cumberland Fores	B	1.9
04011	Cumberland Fores	B	1.9
04011	Brunswick	B	1.5
04011	Brunswick	B	1.5
04011	Brunswick	B	4.1
04011	Brunswick	B	32.0
04011	Brunswick	B	4.1
04011			

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Brunswick B 32.0

Federal EPA Radon Zone for CUMBERLAND County: 1

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 04011

Number of sites tested: 12

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	1.300 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	2.558 pCi/L	92%	8%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Office of Geographic Information Systems
Telephone: 207-287-6144

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Public Water Supply Wells Database
Source: Department of Human Services, Drinking Water Program
Telephone: 207-287-6196
There are 3 types of public water systems in Maine: Transient Systems; Community Systems and Non-transient Non-community Systems

OTHER STATE DATABASE INFORMATION

RADON

Maine Radon Test Results
Source: Department of Human Services
Telephone: 207-287-5698
The state of Maine Radiation Control Program's - Radon/Indor Air Quality Section's position on radon map, is that they should be used neither to predict the presence of high nor low values in any given geographic or geologic area. The only conclusion that should be drawn from this data is that radon in omnipresent in the soil gasses in the state of Maine, and therefore all residences and buildings that come in contact with the ground should be tested for radon.

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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Sabino Hill EDR Report

The EDR Radius Map
with GeoCheck®

Sabino Hill Rake Site
Route 209
Phippsburg, ME 04562

Inquiry Number: 1761951.1s

September 25, 2006

The Standard in Environmental Risk Management Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	6
Orphan Summary	7
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-8
Physical Setting Source Records Searched	A-10

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

ROUTE 209
PHIPPSBURG, ME 04562

COORDINATES

Latitude (North):	43.739000 - 43° 44' 20.4''
Longitude (West):	69.794500 - 69° 47' 40.2''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	436021.2
UTM Y (Meters):	4842975.5
Elevation:	18 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	43069-F7 SMALL POINT, ME
Most Recent Revision:	1957
North Map:	43069-G7 PHIPPSBURG, ME
Most Recent Revision:	1957

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
Delisted NPL ---------- National Priority List Deletions
NPL RECOVERY ---------- Federal Superfund Liens
CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP ---------- CERCLIS No Further Remedial Action Planned

EXECUTIVE SUMMARY

CORRACTS Corrective Action Report
RCRA-TSDF Resource Conservation and Recovery Act Information
RCRA-LQG Resource Conservation and Recovery Act Information
RCRA-SQG Resource Conservation and Recovery Act Information
ERNS Emergency Response Notification System
HMIRS Hazardous Materials Information Reporting System
US ENG CONTROLS Engineering Controls Sites List
US INST CONTROL Sites with Institutional Controls
DOD Department of Defense Sites
US BROWNFIELDS A Listing of Brownfields Sites
CONSENT Superfund (CERCLA) Consent Decrees
ROD Records Of Decision
UMTRA Uranium Mill Tailings Sites
ODI Open Dump Inventory
TRIS Toxic Chemical Release Inventory System
TSCA Toxic Substances Control Act
FTTS FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS Section 7 Tracking Systems
ICIS Integrated Compliance Information System
PADS PCB Activity Database System
MLTS Material Licensing Tracking System
MINES Mines Master Index File
FINDS Facility Index System/Facility Registry System
RAATS RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

SHWS Remediation Sites List
DEL HWS Sites Removed from the Uncontrolled Sites List
SWF/LF Solid Waste Facility List
LCP Municipal Landfill Closure Database
LUST Hazardous Material and Oil Spill System Database (H.O.S.S.)
UST Underground Storage Tank Database
LAST HOSS Database
AST Aboveground Storage Tanks
ME Spills Hazardous Material and Oil Spill System Database
INST CONTROL Remediation Sites List
VCP Remediation Sites List
DRYCLEANERS Drycleaner Facilities
BROWNFIELDS Remediation Sites List
AIRS Emissions Inventory Data

TRIBAL RECORDS

INDIAN RESERV Indian Reservations
INDIAN LUST Leaking Underground Storage Tanks on Indian Land
INDIAN UST Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified.

EXECUTIVE SUMMARY

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

FEDERAL RECORDS

FUDS: The Listing includes locations of Formerly Used Defense Sites Properties where the US Army Corps Of Engineers is actively working or will take necessary cleanup actions.

A review of the FUDS list, as provided by EDR, and dated 12/05/2005 has revealed that there is 1 FUDS site within approximately 1 mile of the target property.

Equal/Higher Elevation	Address	Dist / Dir	Map ID	Page
FORT BAL FIRE CON STA		1/2 - 1 NNE	1	6

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
BURT'S OIL CO & TOTMAN PROP.	LUST, LAST
BERTS OIL SERVICE	LAST
EXXON @ PINE TREE SERVICE	LUST, LAST
ROGER CONDON	LAST
KATES WHARF	LAST
PHIPPSBURG ELEMENTARY SCHOOL	LUST
J & J VARIETY GAS STA.	LUST
PHIPPSBURG CTR. STORE	LUST
PINE TREE MOBIL	LUST
PINE TREE SERVICE CITGO / MOBIL	LUST
PINE TREE SERVICE CITGO / MOBIL	LUST
PINE TREE SERVICE CITGO / MOBIL	LUST
WYMAN STORE @ MAP 24, LOT 12	LUST
PHIPPSBURG ELEMENTARY SCHOOL	UST
KANIA, RICHARD	UST
HARRINGTON, RANDY	UST
SEBASCO LODGE & COTTAGES	UST
PHIPPSBURG RADIO	UST
WYMAN'S STORE	VCP, INST CONTROL

OVERVIEW MAP - 1761951.1s

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

0 1/4 1/2 1 Miles

N

SITE NAME:	Sabino Hill Rake Site	CLIENT:	Tetra Tech NUS, Inc.
ADDRESS:	Route 209	CONTACT:	Rima Miley
	Phippsburg ME 04562	INQUIRY #:	1761951.1s
LAT/LONG:	43.7390 / 69.7945	DATE:	September 25, 2006 3:25 pm

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DETAIL MAP - 1761951.1s

- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites

0 1/16 1/8 1/4 Miles

- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

SITE NAME: Sabino Hill Rake Site	CLIENT: Tetra Tech NUS, Inc.
ADDRESS: Route 209	CONTACT: Rima Miley
Phippsburg ME 04562	INQUIRY #: 1761951.1s
LAT/LONG: 43.7390 / 69.7945	DATE: September 25, 2006 3:25 pm

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL RECORDS								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
NPL RECOVERY		TP	NR	NR	NR	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	0	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRA TSD		0.500	0	0	0	NR	NR	0
RCRA Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRA Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	1	NR	1
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
STATE AND LOCAL RECORDS								
State Haz. Waste		1.000	0	0	0	0	NR	0
DEL HWS		1.000	0	0	0	0	NR	0
State Landfill		0.500	0	0	0	NR	NR	0
LCP		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
LAST		0.500	0	0	0	NR	NR	0
AST		0.250	0	0	NR	NR	NR	0
ME Spills		TP	NR	NR	NR	NR	NR	0
INST CONTROL		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
BROWNFIELDS		0.500	0	0	0	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
TRIBAL RECORDS								
INDIAN RESERV		1.000	0	0	0	0	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1 **FORT BAL FIRE CON STA** **FUDS** **1007211299**
NNE **N/A**
1/2-1 **PHIPPSBURG, ME**
2753 ft.

Relative:
Higher

Actual:
33 ft.

FUDS:

Federal Facility ID:	ME9799F2018
Facility Name:	FORT BAL FIRE CON STA
City:	PHIPPSBURG
State:	ME
EPA Region:	1
County:	SAGADAHOC
Congressional District:	01
US Army District:	New England District (NAE)
Fiscal Year:	2004
Phone:	978-318-8238
Inst ID:	Not reported
CTC:	Not reported
RAB:	Not reported
FUDS History :	The site was purchased between 1902 and 1905 It was conveyed to the State of Maine in 1924 but at the onset of WW II the U.S. leased the site. In 1941 the Army constructed four 155-mm batteries at the site. In 1942, the Army constructed a fire contr ol tower. All leases were terminated in 1949 and the improvements were conveyed to the State of Maine.
FUDS Description :	The site consisting of 43.13 acres is located at Sabino head at the mouth of the Kennebec river in Phippsburg, Maine. A fort was constructed by the Army between 1905 and 1908 consisting of two main areas. One area contained three massive concrete an d block batteries and the other area was an administration area. An 800-foot wooden pier was constructed at the north end of the site sometime between 1905 and 1924. The site is owned by the State of Maine which operates it as a historic park. This property is known or suspected to contain military munitions and explosives of concern (e.g., unexploded ordnance) and therefore may present an explosive hazard.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
PHIPPSBURG	S106790321	PHIPPSBURG ELEMENTARY SCHOOL	ROUTE 20	04562	LUST
PHIPPSBURG	U000245988	PHIPPSBURG ELEMENTARY SCHOOL	RT 209		UST
PHIPPSBURG	U003100752	KANIA, RICHARD	RT 209		UST
PHIPPSBURG	U003099677	HARRINGTON, RANDY	RT 209		UST
PHIPPSBURG	U002165380	SEBASCO LODGE & COTTAGES	RT 209		UST
PHIPPSBURG	U002167309	PHIPPSBURG RADIO	RT 209		UST
PHIPPSBURG	S106797329	BURT'S OIL CO & TOTMAN PROP.	RT. 209 MAIN RD	04562	LUST, LAST
PHIPPSBURG	S106795339	J & J VARIETY GAS STA.	RT. 209	04562	LUST
PHIPPSBURG	S106790764	PHIPPSBURG CTR. STORE	RT. 209	04562	LUST
PHIPPSBURG	S106787962	PINE TREE MOBIL	RT. 209	04562	LUST
PHIPPSBURG	S105794138	BERTS OIL SERVICE	RT 209 @ PINE TREE	04562	LAST
PHIPPSBURG	S105795990	EXXON @ PINE TREE SERVICE	RT. 209, BOX 442	04562	LUST, LAST
PHIPPSBURG	S106615722	WYMAN'S STORE	ROUTE 216	04562	VCP, INST CONTROL
PHIPPSBURG	S106795942	PINE TREE SERVICE CITGO / MOBIL	BOX 442, ROUTE 209	04562	LUST
PHIPPSBURG	S106789129	PINE TREE SERVICE CITGO / MOBIL	BOX 442, ROUTE 209	04562	LUST
PHIPPSBURG	S106788523	PINE TREE SERVICE CITGO / MOBIL	BOX 442, ROUTE 209	04562	LUST
PHIPPSBURG	S106403934	ROGER CONDON	1332 MAIN RD - RT 209	04562	LAST
PHIPPSBURG	S105794960	KATES WHARF	OFF RT 217	04562	LAST
PHIPPSBURG	S106790921	WYMAN STORE @ MAP 24, LOT 12	SMALL POINT ROAD, RT. 216	04562	LUST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL RECOVERY: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 06/19/2006
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 09/21/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 07/17/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/15/2006
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 27

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/15/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 01/12/2006
Date Made Active in Reports: 02/21/2006
Number of Days to Update: 40

Source: National Response Center, United States Coast Guard
Telephone: 202-260-2342
Last EDR Contact: 07/25/2006
Next Scheduled EDR Contact: 10/23/2006
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 07/03/2006
Date Data Arrived at EDR: 07/19/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 35

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/19/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/21/2006
Date Data Arrived at EDR: 03/27/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 09/07/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/21/2006
Date Data Arrived at EDR: 03/27/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 09/07/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/08/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 177

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 08/11/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 01/19/2006
Date Made Active in Reports: 02/21/2006
Number of Days to Update: 33

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 01/01/2007
Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/13/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 55

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/14/2004
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 04/25/2005
Number of Days to Update: 69

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 10/23/2006
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/21/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 47

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 07/06/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 11/04/2005
Date Data Arrived at EDR: 11/28/2005
Date Made Active in Reports: 01/30/2006
Number of Days to Update: 63

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 07/20/2006
Date Data Arrived at EDR: 07/21/2006
Date Made Active in Reports: 08/22/2006
Number of Days to Update: 32

Source: EPA
Telephone: 202-564-6064
Last EDR Contact: 07/06/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Quarterly

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/14/2006
Date Data Arrived at EDR: 07/18/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 50

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Date of Government Version: 07/14/2006
Date Data Arrived at EDR: 07/18/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 50

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 05/11/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 02/13/2006
Date Data Arrived at EDR: 04/21/2006
Date Made Active in Reports: 05/11/2006
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/07/2006
Date Data Arrived at EDR: 08/09/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 28

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 08/09/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/20/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 48

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/03/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/16/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/28/2006
Next Scheduled EDR Contact: 09/25/2006
Data Release Frequency: Semi-Annually

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/21/2006
Date Data Arrived at EDR: 07/25/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 43

Source: EPA
Telephone: N/A
Last EDR Contact: 04/03/2006
Next Scheduled EDR Contact: 07/03/2006
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2003
Date Data Arrived at EDR: 06/17/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 48

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/15/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Biennially

STATE AND LOCAL RECORDS

SHWS: Remediation Sites List

Uncontrolled Sites locations included in the Remediation Sites List.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-4850
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

DEL HWS: Sites Removed from the Uncontrolled Sites List

Sites are removed from the List once it is determined that they are not "worthy of listing". This term is used as there are a number of reasons to remove a site from the List, including: no file exists, the site was reported as an oil spill, there is no evidence of a hazardous substance release or based on an investigation the site is referred to another program unrelated to hazardous substance or hazardous waste. Sites are removed on a case by case basis. The USP intends this to be an on-going process, as time and resources allow.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SWF/LF: Solid Waste Facility List

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/19/2006
Date Data Arrived at EDR: 06/19/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 11

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Annually

LCP: Municipal Landfill Closure Database

The Municipal Landfill Closure and Remediation Program was established in 1988 to assist nearly 400 municipalities with the closure of their unlicensed municipal solid waste landfills. Project managers in this program have conducted site investigations and provided technical engineering assistance to aid municipalities in this process. Funding to accomplish this goal was provided by the state, utilizing several bonds that supported a 75% state cost sharing reimbursement process.

Date of Government Version: 12/15/2005
Date Data Arrived at EDR: 12/20/2005
Date Made Active in Reports: 01/16/2006
Number of Days to Update: 27

Source: Department of Environmental Protection
Telephone: 207-287-8552
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Varies

LUST: Hazardous Material and Oil Spill System Database (H.O.S.S.)

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

UST: Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 06/28/2005
Date Data Arrived at EDR: 07/25/2005
Date Made Active in Reports: 08/25/2005
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 09/13/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Quarterly

LAST: HOSS Database

A listing of leaking aboveground storage tanks.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

AST: Aboveground Storage Tanks

Registered Aboveground Storage Tanks.

Date of Government Version: 07/26/2005
Date Data Arrived at EDR: 07/26/2005
Date Made Active in Reports: 08/30/2005
Number of Days to Update: 35

Source: Maine Emergency Management Agency
Telephone: 207-626-4503
Last EDR Contact: 09/21/2006
Next Scheduled EDR Contact: 10/09/2006
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS: Hazardous Material and Oil Spill System Database
The database contains surface, groundwater and hazardous material spills.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

INST CONTROL: Remediation Sites List
Sites with Institutional Controls in place included in the Remediation Sites List. Institutional Controls are legally enforceable site use restrictions recorded on the property deed and therefore operate in perpetuity regardless of change in site ownership.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

VCP: Remediation Sites List
Voluntary Response Action Program sites included in the Remediation Sites List. VRAP promotes the investigation, remediation and redevelopment of contaminated properties by offering liability assurances/protections from state enforcement actions for applicants to the program.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-4854
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Varies

DRYCLEANERS: Drycleaner Facilities
A listing of drycleaning facilities that use perchloroethylene.

Date of Government Version: 09/06/2005
Date Data Arrived at EDR: 09/08/2005
Date Made Active in Reports: 10/07/2005
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-7030
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

BROWNFIELDS: Remediation Sites List
Brownfields site locations included in the Remediation Sites List. Brownfields are "Real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant".

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-7716
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Varies

AIRS: Emissions Inventory Data
Point Source Criteria Pollutant Emissions Inventory data. Criteria air pollutant emissions, expressed in tons, by facility and pollutant.

Date of Government Version: 12/31/2003
Date Data Arrived at EDR: 05/02/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 207-287-7036
Last EDR Contact: 07/14/2006
Next Scheduled EDR Contact: 10/09/2006
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/08/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 177
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 08/11/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 06/28/2006
Number of Days to Update: 19
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 06/23/2006
Date Made Active in Reports: 08/02/2006
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 06/06/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/10/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 64
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 06/23/2006
Date Made Active in Reports: 08/02/2006
Number of Days to Update: 40

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 06/06/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 06/30/2006
Date Data Arrived at EDR: 07/03/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 65

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

A listing of underground storage tank locations on Indian Land.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 21

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/10/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/17/2006
Date Made Active in Reports: 04/07/2006
Number of Days to Update: 49

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/06/2006
Date Made Active in Reports: 08/01/2006
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/05/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/02/2006
Date Data Arrived at EDR: 05/31/2006
Date Made Active in Reports: 06/27/2006
Number of Days to Update: 27

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/30/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 05/04/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 33

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 09/30/2005
Date Data Arrived at EDR: 05/09/2006
Date Made Active in Reports: 05/24/2006
Number of Days to Update: 15

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Annually

VT MANIFEST: Hazardous Waste Manifest Data
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 06/29/2006
Date Made Active in Reports: 07/31/2006
Number of Days to Update: 32

Source: Department of Environmental Conservation
Telephone: 802-241-3443
Last EDR Contact: 08/15/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: child Care Listing
Source: Department of Human Services
Telephone: 207-287-5060

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Office of Geographic Information Systems
Telephone: 207-287-6144

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

SABINO HILL RAKE SITE
ROUTE 209
PHIPPSBURG, ME 04562

TARGET PROPERTY COORDINATES

Latitude (North):	43.73900 - 43° 44' 20.4''
Longitude (West):	69.7945 - 69° 47' 40.2''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	436021.2
UTM Y (Meters):	4842975.5
Elevation:	18 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	43069-F7 SMALL POINT, ME
Most Recent Revision:	1957
North Map:	43069-G7 PHIPPSBURG, ME
Most Recent Revision:	1957

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

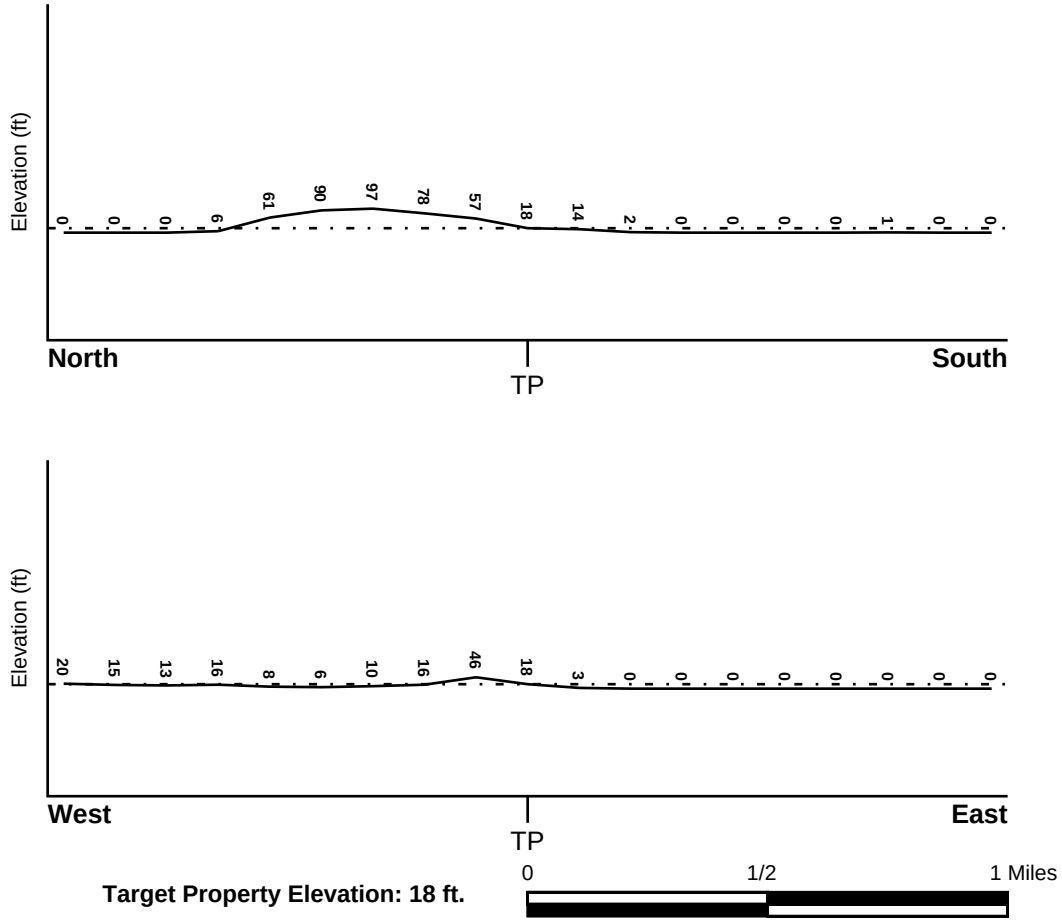
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General South

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Target Property Elevation: 18 ft.

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
SAGADAHOC, ME	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 2301200012D

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
SMALL POINT	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Paleozoic
System:	Devonian and Silurian
Series:	Devonian and Silurian
Code:	DSe *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	LYMAN
Soil Surface Texture:	very stony - fine sandy loam
Hydrologic Group:	Class C/D - Drained/undrained hydrology class of soils that can be drained and classified.
Soil Drainage Class:	Somewhat excessive. Soils have high hydraulic conductivity and low water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: LOW

Depth to Bedrock Min: > 10 inches

Depth to Bedrock Max: > 20 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	6 inches	very stony - fine sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.00 Min: 3.60
2	6 inches	17 inches	loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.00 Min: 3.60
3	17 inches	21 inches	unweathered bedrock	Not reported	Not reported	Max: 20.00 Min: 0.01	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: fine sandy loam
unweathered bedrock
silt loam
mucky-peat
muck
loamy sand

Surficial Soil Types: fine sandy loam
unweathered bedrock
silt loam
mucky-peat
muck
loamy sand

Shallow Soil Types: fine sandy loam

Deeper Soil Types: fine sandy loam
silt loam
hemic material
muck
very gravelly - coarse sand
silty clay loam
gravelly - fine sandy loam
coarse sand

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

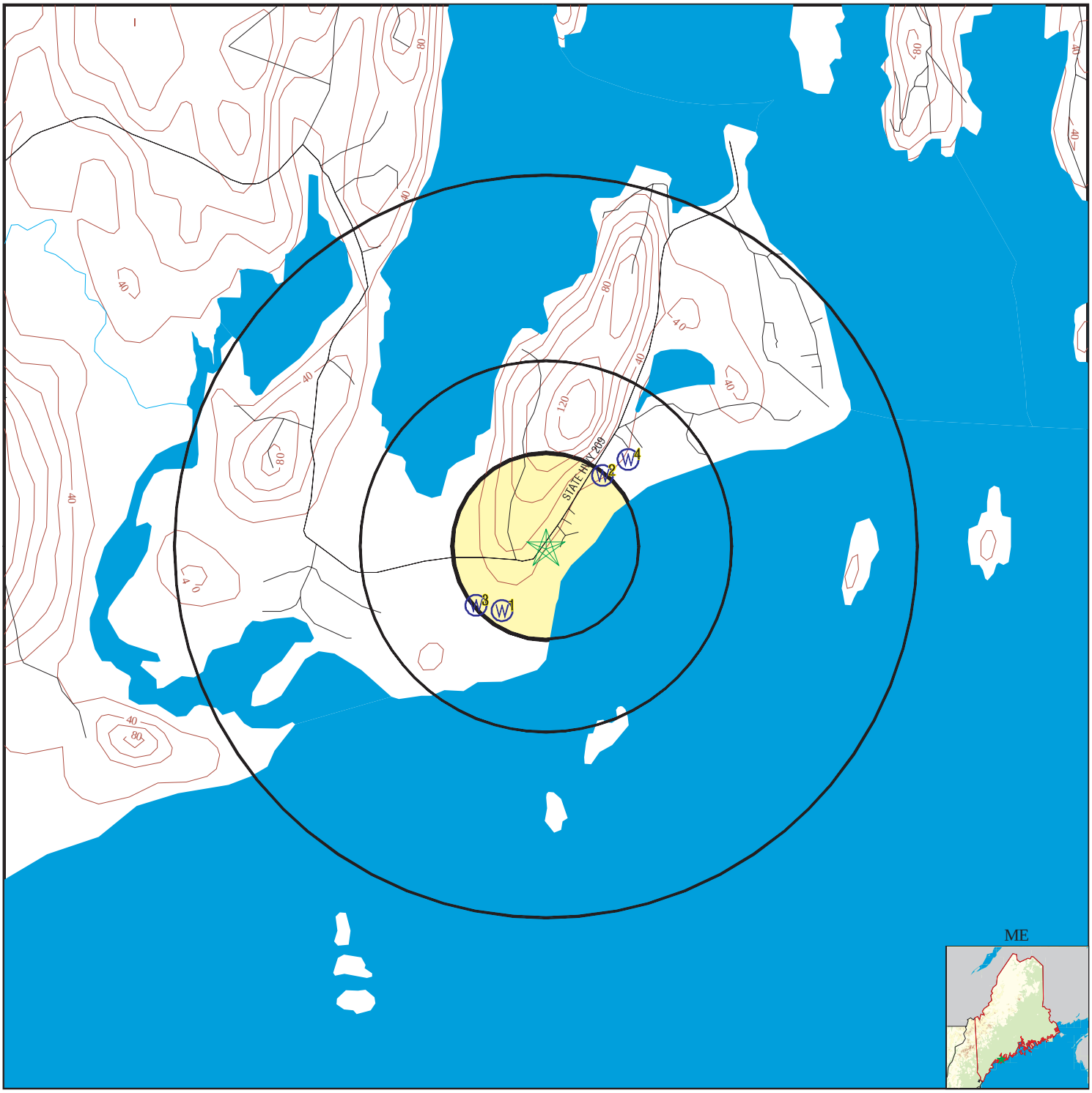
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	ME20000289	1/8 - 1/4 Mile SW
2	ME20000297	1/8 - 1/4 Mile NE
3	ME20000291	1/8 - 1/4 Mile SW
4	ME20000298	1/4 - 1/2 Mile NE

PHYSICAL SETTING SOURCE MAP - 1761951.1s



County Boundary
Major Roads
Contour Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location

SITE NAME:	Sabino Hill Rake Site	CLIENT:	Tetra Tech NUS, Inc.
ADDRESS:	Route 209	CONTACT:	Rima Miley
	Phippsburg ME 04562	INQUIRY #:	1761951.1s
LAT/LONG:	43.7390 / 69.7945	DATE:	September 25, 2006 3:25 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
SW
1/8 - 1/4 Mile
Higher

ME WELLS **ME20000289**

Pwsid:	93917201		
Type:	NC		
Buffer id:	5982	Radius:	2000
Swap:	93917201.pdf	Fmsrc:	Not Reported
Fmsrcdat:	Not Reported	Fmsrcorg:	Not Reported
Fmprocss:	Not Reported	Fmupdorg:	Not Reported
Fmupddat:	Not Reported	Fmnote:	Not Reported

2
NE
1/8 - 1/4 Mile
Higher

ME WELLS **ME20000297**

Pwsid:	5782701		
Type:	NC		
Buffer id:	6634	Radius:	300
Swap:	5782701.pdf	Fmsrc:	Not Reported
Fmsrcdat:	Not Reported	Fmsrcorg:	Not Reported
Fmprocss:	Not Reported	Fmupdorg:	Not Reported
Fmupddat:	Not Reported	Fmnote:	Not Reported

3
SW
1/8 - 1/4 Mile
Higher

ME WELLS **ME20000291**

Pwsid:	193917701		
Type:	NC		
Buffer id:	6425	Radius:	900
Swap:	193917701.pdf	Fmsrc:	Not Reported
Fmsrcdat:	Not Reported	Fmsrcorg:	Not Reported
Fmprocss:	Not Reported	Fmupdorg:	Not Reported
Fmupddat:	Not Reported	Fmnote:	Not Reported

4
NE
1/4 - 1/2 Mile
Higher

ME WELLS **ME20000298**

Pwsid:	5767701		
Type:	NC		
Buffer id:	6204	Radius:	300
Swap:	5767701.pdf	Fmsrc:	Not Reported
Fmsrcdat:	Not Reported	Fmsrcorg:	Not Reported
Fmprocss:	Not Reported	Fmupdorg:	Not Reported
Fmupddat:	Not Reported	Fmnote:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: ME Radon

Radon Test Results

Zip	City	Floor	Results
04562		F	3.5
04562		F	3.7
04562		F	2.2
04562		F	2.2
04562		B	1.2
04562		B	1.4
04562		B	2.3
04562		B	2.1
04562		B	2.5
04562		B	2.3
04562		B	2.3
04562		B	2.1
04562		B	2.5
04562		B	2.3
04562	Phippsburg	B	0.7
04562	Phippsburg	B	0.7
04562	Phippsburg	0	1.1
04562	Phippsburg	B	1.1
04562		B	3.0

Federal EPA Radon Zone for SAGADAHOC County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 04562

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.600 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Office of Geographic Information Systems
Telephone: 207-287-6144

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Public Water Supply Wells Database
Source: Department of Human Services, Drinking Water Program
Telephone: 207-287-6196
There are 3 types of public water systems in Maine: Transient Systems; Community Systems and Non-transient Non-community Systems

OTHER STATE DATABASE INFORMATION

RADON

Maine Radon Test Results
Source: Department of Human Services
Telephone: 207-287-5698
The state of Maine Radiation Control Program's - Radon/Indor Air Quality Section's position on radon map, is that they should be used neither to predict the presence of high nor low values in any given geographic or geologic area. The only conclusion that should be drawn from this data is that radon in omnipresent in the soil gasses in the state of Maine, and therefore all residences and buildings that come in contact with the ground should be tested for radon.

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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Small Point EDR Report

The EDR Radius Map
with GeoCheck®

Small Point Site Rake
Navy Road
Phippsburg, ME 04562

Inquiry Number: 1761944.1s

September 25, 2006

The Standard in Environmental Risk Management Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	6
Orphan Summary	7
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-8
Physical Setting Source Records Searched	A-9

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

NAVY ROAD
PHIPPSBURG, ME 04562

COORDINATES

Latitude (North):	43.703000 - 43° 42' 10.8''
Longitude (West):	69.836800 - 69° 50' 12.5''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	432574.5
UTM Y (Meters):	4839011.0
Elevation:	22 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	43069-F7 SMALL POINT, ME
Most Recent Revision:	1957

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL National Priority List
Proposed NPL Proposed National Priority List Sites
Delisted NPL National Priority List Deletions
NPL RECOVERY Federal Superfund Liens
CERCLIS Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP CERCLIS No Further Remedial Action Planned
CORRACTS Corrective Action Report
RCRA-TSDF Resource Conservation and Recovery Act Information
RCRA-LQG Resource Conservation and Recovery Act Information

EXECUTIVE SUMMARY

RCRA-SQG Resource Conservation and Recovery Act Information
ERNS Emergency Response Notification System
HMIRS Hazardous Materials Information Reporting System
US ENG CONTROLS Engineering Controls Sites List
US INST CONTROL Sites with Institutional Controls
DOD Department of Defense Sites
FUDS Formerly Used Defense Sites
US BROWNFIELDS A Listing of Brownfields Sites
CONSENT Superfund (CERCLA) Consent Decrees
ROD Records Of Decision
UMTRA Uranium Mill Tailings Sites
ODI Open Dump Inventory
TRIS Toxic Chemical Release Inventory System
TSCA Toxic Substances Control Act
FTTS FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS Section 7 Tracking Systems
ICIS Integrated Compliance Information System
PADS PCB Activity Database System
MLTS Material Licensing Tracking System
MINES Mines Master Index File
FINDS Facility Index System/Facility Registry System
RAATS RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

SHWS Remediation Sites List
DEL HWS Sites Removed from the Uncontrolled Sites List
SWF/LF Solid Waste Facility List
LCP Municipal Landfill Closure Database
LUST Hazardous Material and Oil Spill System Database (H.O.S.S.)
UST Underground Storage Tank Database
LAST HOSS Database
AST Aboveground Storage Tanks
ME Spills Hazardous Material and Oil Spill System Database
INST CONTROL Remediation Sites List
VCP Remediation Sites List
DRYCLEANERS Drycleaner Facilities
BROWNFIELDS Remediation Sites List
AIRS Emissions Inventory Data

TRIBAL RECORDS

INDIAN RESERV Indian Reservations
INDIAN LUST Leaking Underground Storage Tanks on Indian Land
INDIAN UST Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

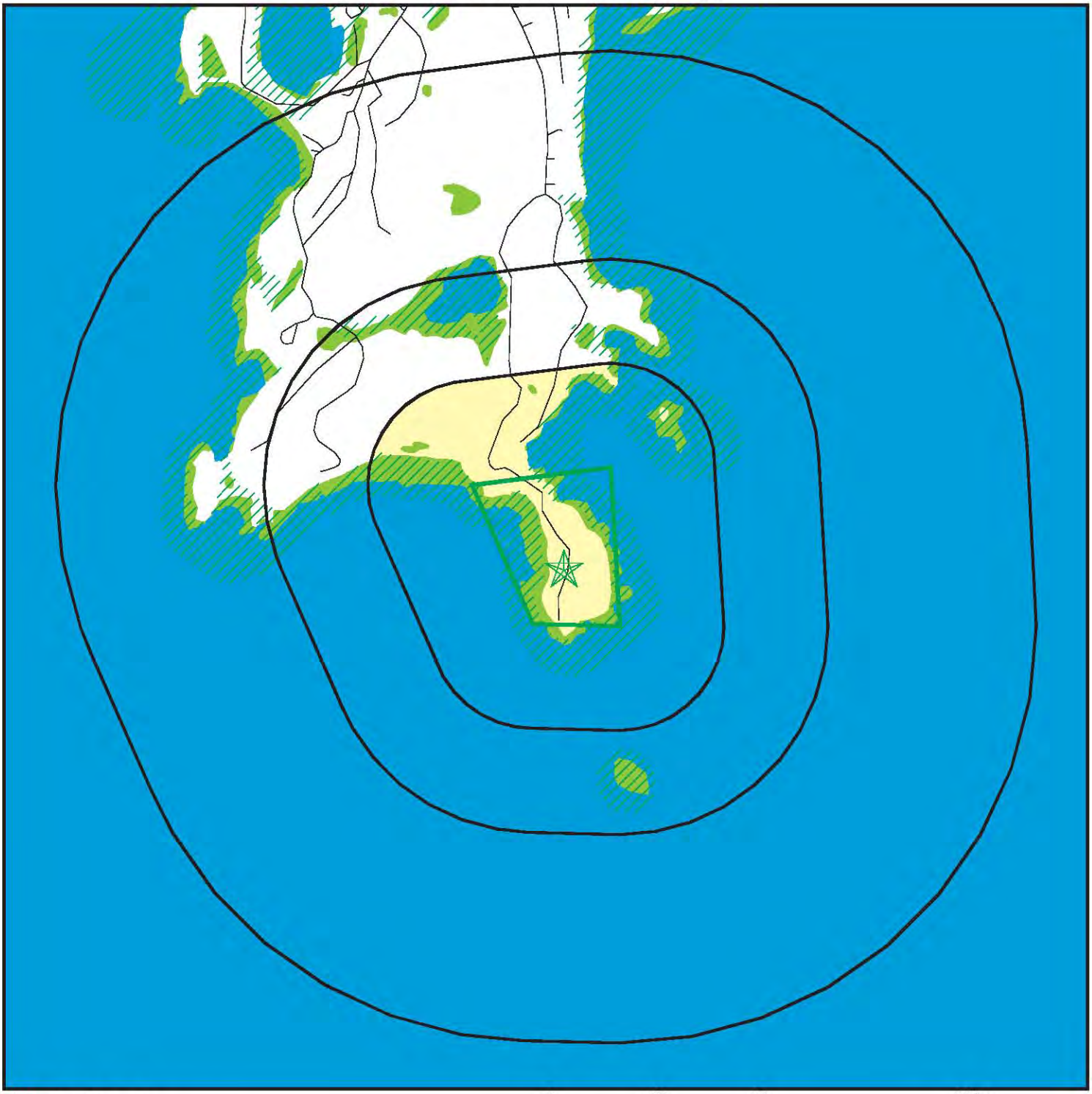
Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
BERTS OIL SERVICE	LAST
BURT'S OIL CO & TOTMAN PROP.	LUST, LAST
EXXON @ PINE TREE SERVICE	LUST, LAST
ROGER CONDON	LAST
KATES WHARF	LAST
PHIPPSBURG ELEMENTARY SCHOOL	LUST
PINE TREE MOBIL	LUST
PHIPPSBURG CTR. STORE	LUST
J & J VARIETY GAS STA.	LUST
PINE TREE SERVICE CITGO / MOBIL	LUST
PINE TREE SERVICE CITGO / MOBIL	LUST
PINE TREE SERVICE CITGO / MOBIL	LUST
WEST POINT GEN. STORE & GAS	LUST
WYMAN STORE @ MAP 24, LOT 12	LUST
PHIPPSBURG RADIO	UST
SEBASCO LODGE & COTTAGES	UST
HARRINGTON, RANDY	UST
KANIA, RICHARD	UST
PHIPPSBURG ELEMENTARY SCHOOL	UST
WYMAN'S STORE	VCP, INST CONTROL

OVERVIEW MAP - 1761944.1s



Target Property
Sites at elevations higher than or equal to the target property
Sites at elevations lower than the target property
Manufactured Gas Plants
National Priority List Sites
Landfill Sites
Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA
Oil & Gas pipelines
100-year flood zone
500-year flood zone
National Wetland Inventory
State Wetlands

N

SITE NAME:	Small Point Site Rake	CLIENT:	Tetra Tech NUS, Inc.
ADDRESS:	Navy Road	CONTACT:	Rima Miley
	Phippsburg ME 04562	INQUIRY #:	1761944.1s
LAT/LONG:	43.7030 / 69.8368	DATE:	September 25, 2006 3:22 pm

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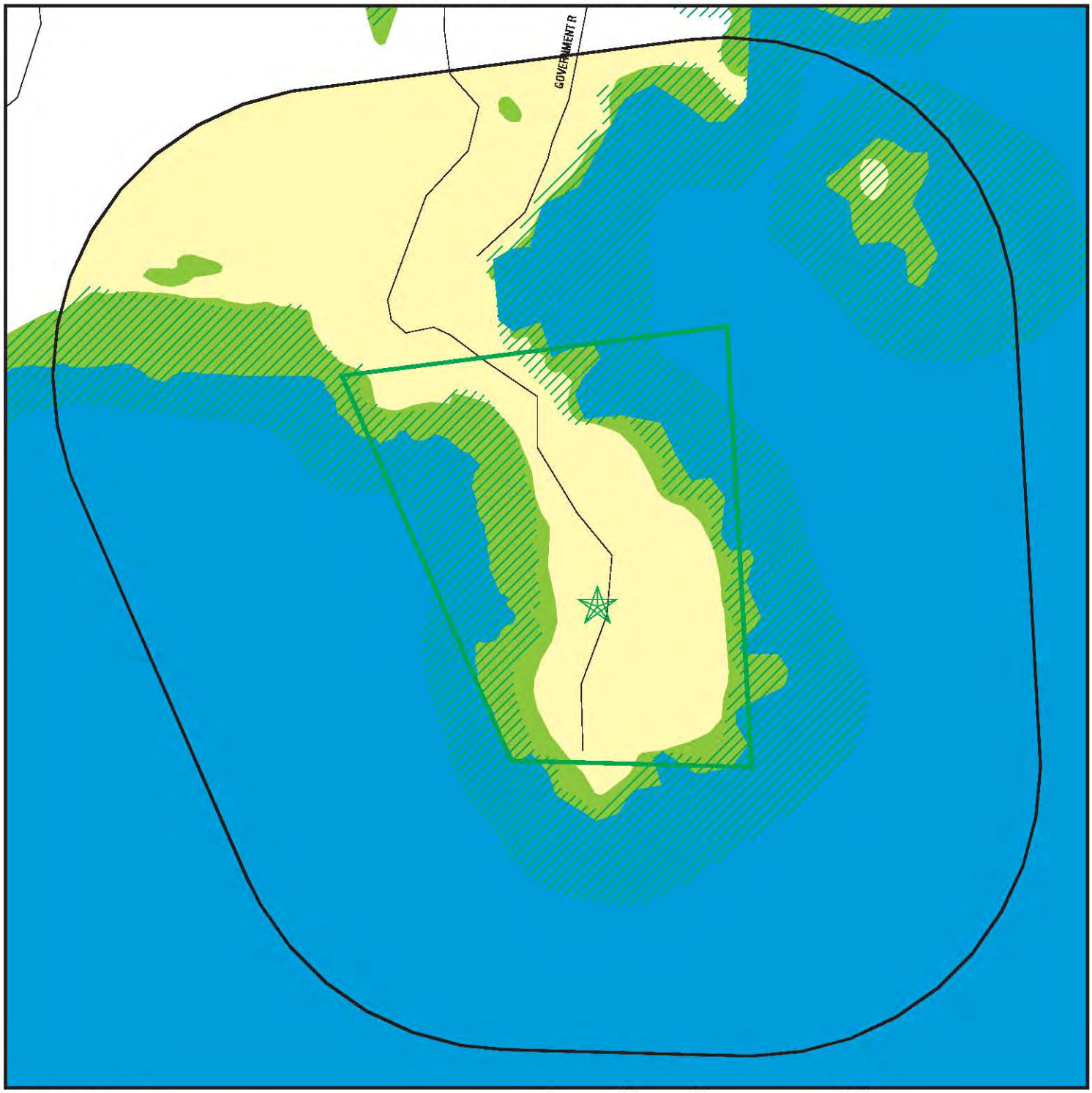
DETAIL MAP - 1761944.1s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

0 1/16 1/8 1/4 Miles

N

SITE NAME: Small Point Site Rake	CLIENT: Tetra Tech NUS, Inc.
ADDRESS: Navy Road	CONTACT: Rima Miley
Phippsburg ME 04562	INQUIRY #: 1761944.1s
LAT/LONG: 43.7030 / 69.8368	DATE: September 25, 2006 3:22 pm

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL RECORDS								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
NPL RECOVERY		TP	NR	NR	NR	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	0	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRA TSD		0.500	0	0	0	NR	NR	0
RCRA Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRA Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
STATE AND LOCAL RECORDS								
State Haz. Waste		1.000	0	0	0	0	NR	0
DEL HWS		1.000	0	0	0	0	NR	0
State Landfill		0.500	0	0	0	NR	NR	0
LCP		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
LAST		0.500	0	0	0	NR	NR	0
AST		0.250	0	0	NR	NR	NR	0
ME Spills		TP	NR	NR	NR	NR	NR	0
INST CONTROL		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
BROWNFIELDS		0.500	0	0	0	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
TRIBAL RECORDS								
INDIAN RESERV		1.000	0	0	0	0	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID Direction Distance Distance (ft.) Elevation	Site	Database(s)	EDR ID Number EPA ID Number
	NO SITES FOUND		

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
PHIPPSBURG	S106790321	PHIPPSBURG ELEMENTARY SCHOOL	ROUTE 20	04562	LUST
PHIPPSBURG	S105794138	BERTS OIL SERVICE	RT 209 @ PINE TREE	04562	LAST
PHIPPSBURG	S106787962	PINE TREE MOBIL	RT. 209	04562	LUST
PHIPPSBURG	S106790764	PHIPPSBURG CTR. STORE	RT. 209	04562	LUST
PHIPPSBURG	S106795339	J & J VARIETY GAS STA.	RT. 209	04562	LUST
PHIPPSBURG	S106797329	BURT'S OIL CO & TOTMAN PROP.	RT. 209 MAIN RD	04562	LUST, LAST
PHIPPSBURG	U002167309	PHIPPSBURG RADIO	RT 209		UST
PHIPPSBURG	U002165380	SEBASCO LODGE & COTTAGES	RT 209		UST
PHIPPSBURG	U003099677	HARRINGTON, RANDY	RT 209		UST
PHIPPSBURG	U003100752	KANIA, RICHARD	RT 209		UST
PHIPPSBURG	U000245988	PHIPPSBURG ELEMENTARY SCHOOL	RT 209		UST
PHIPPSBURG	S105795990	EXXON @ PINE TREE SERVICE	RT. 209, BOX 442	04562	LUST, LAST
PHIPPSBURG	S106615722	WYMAN'S STORE	ROUTE 216	04562	VCP, INST CONTROL
PHIPPSBURG	S106788523	PINE TREE SERVICE CITGO / MOBIL	BOX 442, ROUTE 209	04562	LUST
PHIPPSBURG	S106789129	PINE TREE SERVICE CITGO / MOBIL	BOX 442, ROUTE 209	04562	LUST
PHIPPSBURG	S106795942	PINE TREE SERVICE CITGO / MOBIL	BOX 442, ROUTE 209	04562	LUST
PHIPPSBURG	S106403934	ROGER CONDON	1332 MAIN RD - RT 209	04562	LAST
PHIPPSBURG	S105794960	KATES WHARF	OFF RT 217	04562	LAST
PHIPPSBURG	S106792466	WEST POINT GEN. STORE & GAS	WEST POINT	04562	LUST
PHIPPSBURG	S106790921	WYMAN STORE @ MAP 24, LOT 12	SMALL POINT ROAD, RT. 216	04562	LUST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL RECOVERY: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 06/19/2006
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 09/21/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 07/17/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/15/2006
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 27

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/15/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 01/12/2006
Date Made Active in Reports: 02/21/2006
Number of Days to Update: 40

Source: National Response Center, United States Coast Guard
Telephone: 202-260-2342
Last EDR Contact: 07/25/2006
Next Scheduled EDR Contact: 10/23/2006
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 07/03/2006
Date Data Arrived at EDR: 07/19/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 35

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/19/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/21/2006
Date Data Arrived at EDR: 03/27/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 09/07/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/21/2006
Date Data Arrived at EDR: 03/27/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 09/07/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/08/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 177

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 08/11/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 01/19/2006
Date Made Active in Reports: 02/21/2006
Number of Days to Update: 33

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 01/01/2007
Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/13/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 55

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/14/2004
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 04/25/2005
Number of Days to Update: 69

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 10/23/2006
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/21/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 47

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 07/06/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 11/04/2005
Date Data Arrived at EDR: 11/28/2005
Date Made Active in Reports: 01/30/2006
Number of Days to Update: 63

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 07/20/2006
Date Data Arrived at EDR: 07/21/2006
Date Made Active in Reports: 08/22/2006
Number of Days to Update: 32

Source: EPA
Telephone: 202-564-6064
Last EDR Contact: 07/06/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Quarterly

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/14/2006
Date Data Arrived at EDR: 07/18/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 50

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Date of Government Version: 07/14/2006
Date Data Arrived at EDR: 07/18/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 50

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 05/11/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 02/13/2006
Date Data Arrived at EDR: 04/21/2006
Date Made Active in Reports: 05/11/2006
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/07/2006
Date Data Arrived at EDR: 08/09/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 28

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 08/09/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/20/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 48

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/03/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/16/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/28/2006
Next Scheduled EDR Contact: 09/25/2006
Data Release Frequency: Semi-Annually

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/21/2006
Date Data Arrived at EDR: 07/25/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 43

Source: EPA
Telephone: N/A
Last EDR Contact: 04/03/2006
Next Scheduled EDR Contact: 07/03/2006
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2003
Date Data Arrived at EDR: 06/17/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 48

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/15/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Biennially

STATE AND LOCAL RECORDS

SHWS: Remediation Sites List

Uncontrolled Sites locations included in the Remediation Sites List.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-4850
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

DEL HWS: Sites Removed from the Uncontrolled Sites List

Sites are removed from the List once it is determined that they are not "worthy of listing". This term is used as there are a number of reasons to remove a site from the List, including: no file exists, the site was reported as an oil spill, there is no evidence of a hazardous substance release or based on an investigation the site is referred to another program unrelated to hazardous substance or hazardous waste. Sites are removed on a case by case basis. The USP intends this to be an on-going process, as time and resources allow.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SWF/LF: Solid Waste Facility List

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/19/2006
Date Data Arrived at EDR: 06/19/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 11

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Annually

LCP: Municipal Landfill Closure Database

The Municipal Landfill Closure and Remediation Program was established in 1988 to assist nearly 400 municipalities with the closure of their unlicensed municipal solid waste landfills. Project managers in this program have conducted site investigations and provided technical engineering assistance to aid municipalities in this process. Funding to accomplish this goal was provided by the state, utilizing several bonds that supported a 75% state cost sharing reimbursement process.

Date of Government Version: 12/15/2005
Date Data Arrived at EDR: 12/20/2005
Date Made Active in Reports: 01/16/2006
Number of Days to Update: 27

Source: Department of Environmental Protection
Telephone: 207-287-8552
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Varies

LUST: Hazardous Material and Oil Spill System Database (H.O.S.S.)

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

UST: Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 06/28/2005
Date Data Arrived at EDR: 07/25/2005
Date Made Active in Reports: 08/25/2005
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 09/13/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Quarterly

LAST: HOSS Database

A listing of leaking aboveground storage tanks.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

AST: Aboveground Storage Tanks

Registered Aboveground Storage Tanks.

Date of Government Version: 07/26/2005
Date Data Arrived at EDR: 07/26/2005
Date Made Active in Reports: 08/30/2005
Number of Days to Update: 35

Source: Maine Emergency Management Agency
Telephone: 207-626-4503
Last EDR Contact: 09/21/2006
Next Scheduled EDR Contact: 10/09/2006
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS: Hazardous Material and Oil Spill System Database
The database contains surface, groundwater and hazardous material spills.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

INST CONTROL: Remediation Sites List
Sites with Institutional Controls in place included in the Remediation Sites List. Institutional Controls are legally enforceable site use restrictions recorded on the property deed and therefore operate in perpetuity regardless of change in site ownership.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

VCP: Remediation Sites List
Voluntary Response Action Program sites included in the Remediation Sites List. VRAP promotes the investigation, remediation and redevelopment of contaminated properties by offering liability assurances/protections from state enforcement actions for applicants to the program.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-4854
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Varies

DRYCLEANERS: Drycleaner Facilities
A listing of drycleaning facilities that use perchloroethylene.

Date of Government Version: 09/06/2005
Date Data Arrived at EDR: 09/08/2005
Date Made Active in Reports: 10/07/2005
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-7030
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

BROWNFIELDS: Remediation Sites List
Brownfields site locations included in the Remediation Sites List. Brownfields are "Real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant".

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-7716
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Varies

AIRS: Emissions Inventory Data
Point Source Criteria Pollutant Emissions Inventory data. Criteria air pollutant emissions, expressed in tons, by facility and pollutant.

Date of Government Version: 12/31/2003
Date Data Arrived at EDR: 05/02/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 207-287-7036
Last EDR Contact: 07/14/2006
Next Scheduled EDR Contact: 10/09/2006
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/08/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 177
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 08/11/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 06/28/2006
Number of Days to Update: 19
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 06/23/2006
Date Made Active in Reports: 08/02/2006
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 06/06/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/10/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 64
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 06/23/2006
Date Made Active in Reports: 08/02/2006
Number of Days to Update: 40

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 06/06/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 06/30/2006
Date Data Arrived at EDR: 07/03/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 65

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

A listing of underground storage tank locations on Indian Land.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 21

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/10/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/17/2006
Date Made Active in Reports: 04/07/2006
Number of Days to Update: 49

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/06/2006
Date Made Active in Reports: 08/01/2006
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/05/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/02/2006
Date Data Arrived at EDR: 05/31/2006
Date Made Active in Reports: 06/27/2006
Number of Days to Update: 27

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/30/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 05/04/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 33

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 09/30/2005
Date Data Arrived at EDR: 05/09/2006
Date Made Active in Reports: 05/24/2006
Number of Days to Update: 15

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Annually

VT MANIFEST: Hazardous Waste Manifest Data
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 06/29/2006
Date Made Active in Reports: 07/31/2006
Number of Days to Update: 32

Source: Department of Environmental Conservation
Telephone: 802-241-3443
Last EDR Contact: 08/15/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: child Care Listing
Source: Department of Human Services
Telephone: 207-287-5060

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Office of Geographic Information Systems
Telephone: 207-287-6144

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

SMALL POINT SITE RAKE
NAVY ROAD
PHIPPSBURG, ME 04562

TARGET PROPERTY COORDINATES

Latitude (North):	43.70300 - 43° 42' 10.8''
Longitude (West):	69.8368 - 69° 50' 12.5''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	432574.5
UTM Y (Meters):	4839011.0
Elevation:	22 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	43069-F7 SMALL POINT, ME
Most Recent Revision:	1957

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

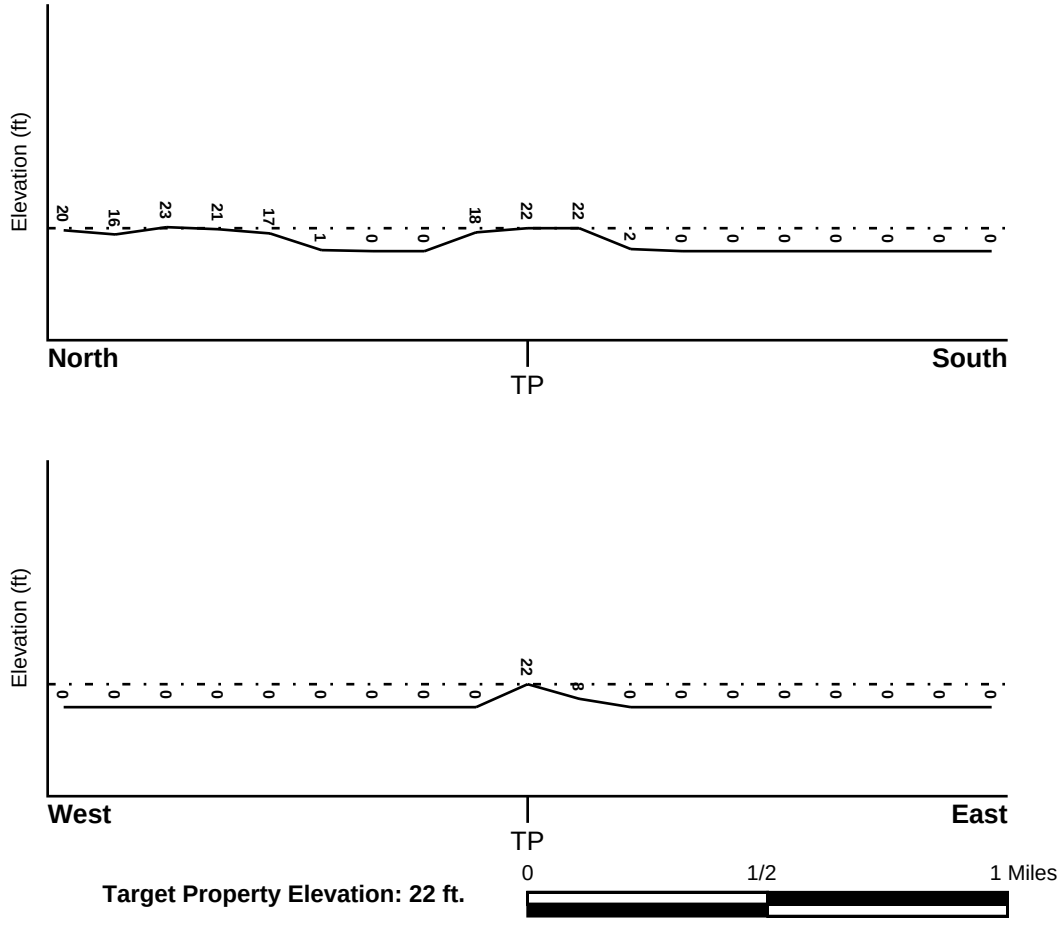
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: Undeterminable

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
SAGADAHOC, ME	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 2301200011D

Additional Panels in search area: 00000000000

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
SMALL POINT	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Paleozoic
System:	Devonian and Silurian
Series:	Devonian and Silurian
Code:	DSe *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	LYMAN
Soil Surface Texture:	very stony - fine sandy loam
Hydrologic Group:	Class C/D - Drained/undrained hydrology class of soils that can be drained and classified.
Soil Drainage Class:	Somewhat excessive. Soils have high hydraulic conductivity and low water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: LOW

Depth to Bedrock Min: > 10 inches

Depth to Bedrock Max: > 20 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	6 inches	very stony - fine sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.00 Min: 3.60
2	6 inches	17 inches	loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.00 Min: 3.60
3	17 inches	21 inches	unweathered bedrock	Not reported	Not reported	Max: 20.00 Min: 0.01	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: fine sandy loam
unweathered bedrock
silt loam
mucky-peat
muck
loamy sand

Surficial Soil Types: fine sandy loam
unweathered bedrock
silt loam
mucky-peat
muck
loamy sand

Shallow Soil Types: fine sandy loam

Deeper Soil Types: fine sandy loam
silt loam
hemic material
muck
very gravelly - coarse sand
silty clay loam
gravelly - fine sandy loam
coarse sand

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

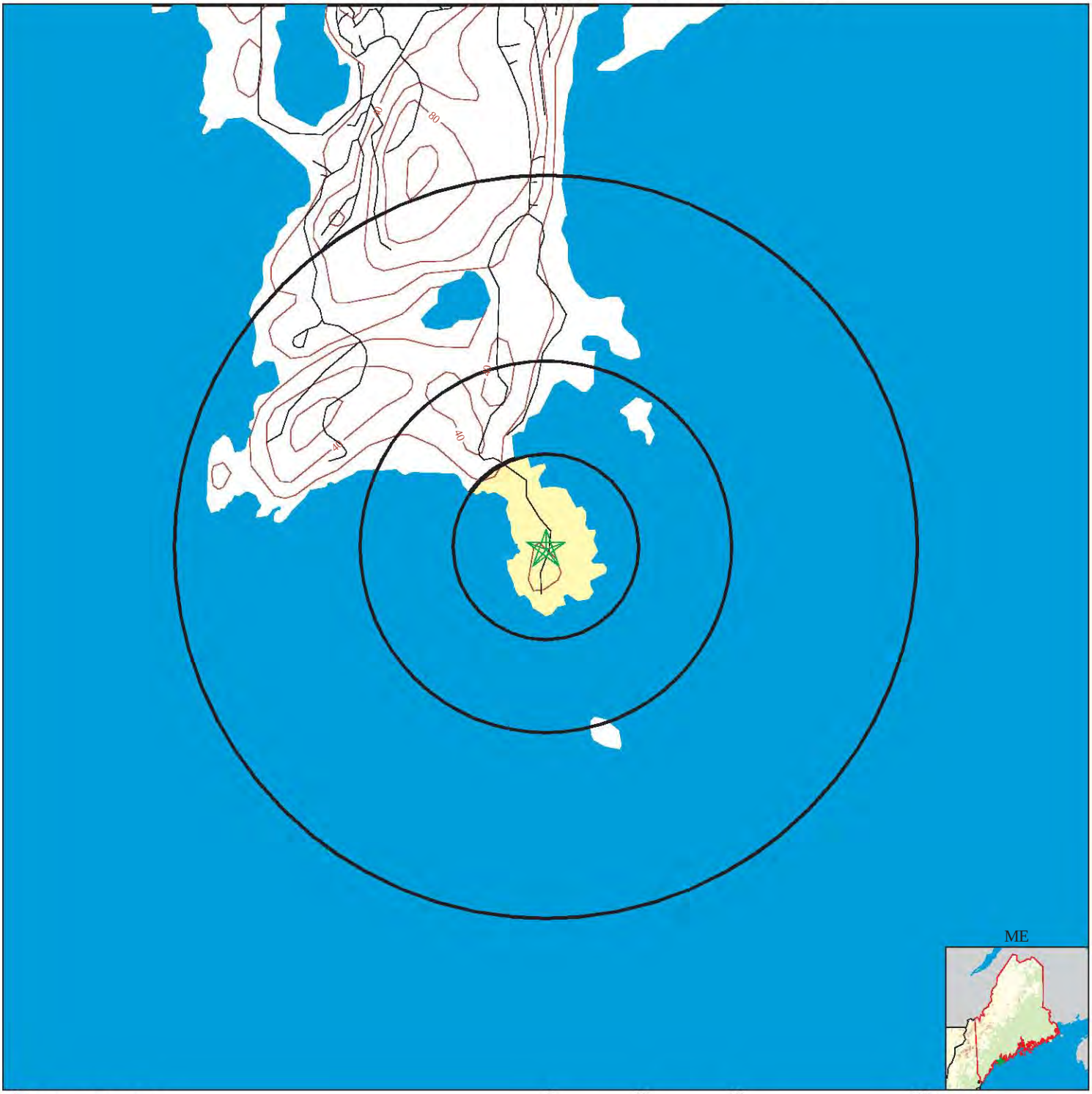
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 1761944.1s



County Boundary
Major Roads
Contour Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
GI Indeterminate Groundwater Flow at Location
GV Groundwater Flow Varies at Location

N

SITE NAME:	Small Point Site Rake	CLIENT:	Tetra Tech NUS, Inc.
ADDRESS:	Navy Road	CONTACT:	Rima Miley
	Phippsburg ME 04562	INQUIRY #:	1761944.1s
LAT/LONG:	43.7030 / 69.8368	DATE:	September 25, 2006 3:22 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: ME Radon

Radon Test Results

Zip	City	Floor	Results
04562		F	3.5
04562		F	3.7
04562		F	2.2
04562		F	2.2
04562		B	1.2
04562		B	1.4
04562		B	2.3
04562		B	2.1
04562		B	2.5
04562		B	2.3
04562		B	2.3
04562		B	2.1
04562		B	2.5
04562		B	2.3
04562	Phippsburg	B	0.7
04562	Phippsburg	B	0.7
04562	Phippsburg	0	1.1
04562	Phippsburg	B	1.1
04562		B	3.0

Federal EPA Radon Zone for SAGADAHOC County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 04562

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.600 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Office of Geographic Information Systems
Telephone: 207-287-6144

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Public Water Supply Wells Database
Source: Department of Human Services, Drinking Water Program
Telephone: 207-287-6196
There are 3 types of public water systems in Maine: Transient Systems; Community Systems and Non-transient Non-community Systems

OTHER STATE DATABASE INFORMATION

RADON

Maine Radon Test Results
Source: Department of Human Services
Telephone: 207-287-5698
The state of Maine Radiation Control Program's - Radon/Indor Air Quality Section's position on radon map, is that they should be used neither to predict the presence of high nor low values in any given geographic or geologic area. The only conclusion that should be drawn from this data is that radon in omnipresent in the soil gasses in the state of Maine, and therefore all residences and buildings that come in contact with the ground should be tested for radon.

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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Topsham Housing annex EDR Report

The EDR Radius Map
with GeoCheck®

Topsham Annex Housing
J. Canam Drive
Topsham, ME 04086

Inquiry Number: 1762093.1s

September 26, 2006

The Standard in Environmental Risk Management Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	6
Orphan Summary	108
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-8
Physical Setting Source Records Searched	A-18

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

J. CANAM DRIVE
TOPSHAM, ME 04086

COORDINATES

Latitude (North):	43.947300 - 43° 56' 50.3''
Longitude (West):	69.960600 - 69° 57' 38.2''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	422914.2
UTM Y (Meters):	4866252.0
Elevation:	125 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	43069-H8 BRUNSWICK, ME
Most Recent Revision:	2001

TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following government records. For more information on this property see page 6 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
TOPSHAM ANNEX NAVAL AIR STATION TOPSHAM, ME 04086	UST	N/A
TOPSHAM ANNEX NAVY LODGE NAVAL AIR STATIOJN TOPSHAM, ME	LUST	N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL ---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL Proposed National Priority List Sites
Delisted NPL National Priority List Deletions
NPL RECOVERY Federal Superfund Liens
CERCLIS Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP CERCLIS No Further Remedial Action Planned
CORRACTS Corrective Action Report
RCRA-TSDF Resource Conservation and Recovery Act Information
RCRA-LQG Resource Conservation and Recovery Act Information
RCRA-SQG Resource Conservation and Recovery Act Information
ERNS Emergency Response Notification System
HMIRS Hazardous Materials Information Reporting System
US ENG CONTROLS Engineering Controls Sites List
US INST CONTROL Sites with Institutional Controls
DOD Department of Defense Sites
FUDS Formerly Used Defense Sites
US BROWNFIELDS A Listing of Brownfields Sites
CONSENT Superfund (CERCLA) Consent Decrees
ROD Records Of Decision
UMTRA Uranium Mill Tailings Sites
ODI Open Dump Inventory
TRIS Toxic Chemical Release Inventory System
TSCA Toxic Substances Control Act
FTTS FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS Section 7 Tracking Systems
ICIS Integrated Compliance Information System
PADS PCB Activity Database System
MLTS Material Licensing Tracking System
MINES Mines Master Index File
FINDS Facility Index System/Facility Registry System
RAATS RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

SHWS Remediation Sites List
DEL HWS Sites Removed from the Uncontrolled Sites List
SWF/LF Solid Waste Facility List
LCP Municipal Landfill Closure Database
LAST HOSS Database
AST Aboveground Storage Tanks
ME Spills Hazardous Material and Oil Spill System Database
INST CONTROL Remediation Sites List
VCP Remediation Sites List
DRYCLEANERS Drycleaner Facilities
BROWNFIELDS Remediation Sites List
AIRS Emissions Inventory Data

TRIBAL RECORDS

INDIAN RESERV Indian Reservations
INDIAN LUST Leaking Underground Storage Tanks on Indian Land
INDIAN UST Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

Manufactured Gas Plants EDR Proprietary Manufactured Gas Plants

EXECUTIVE SUMMARY

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

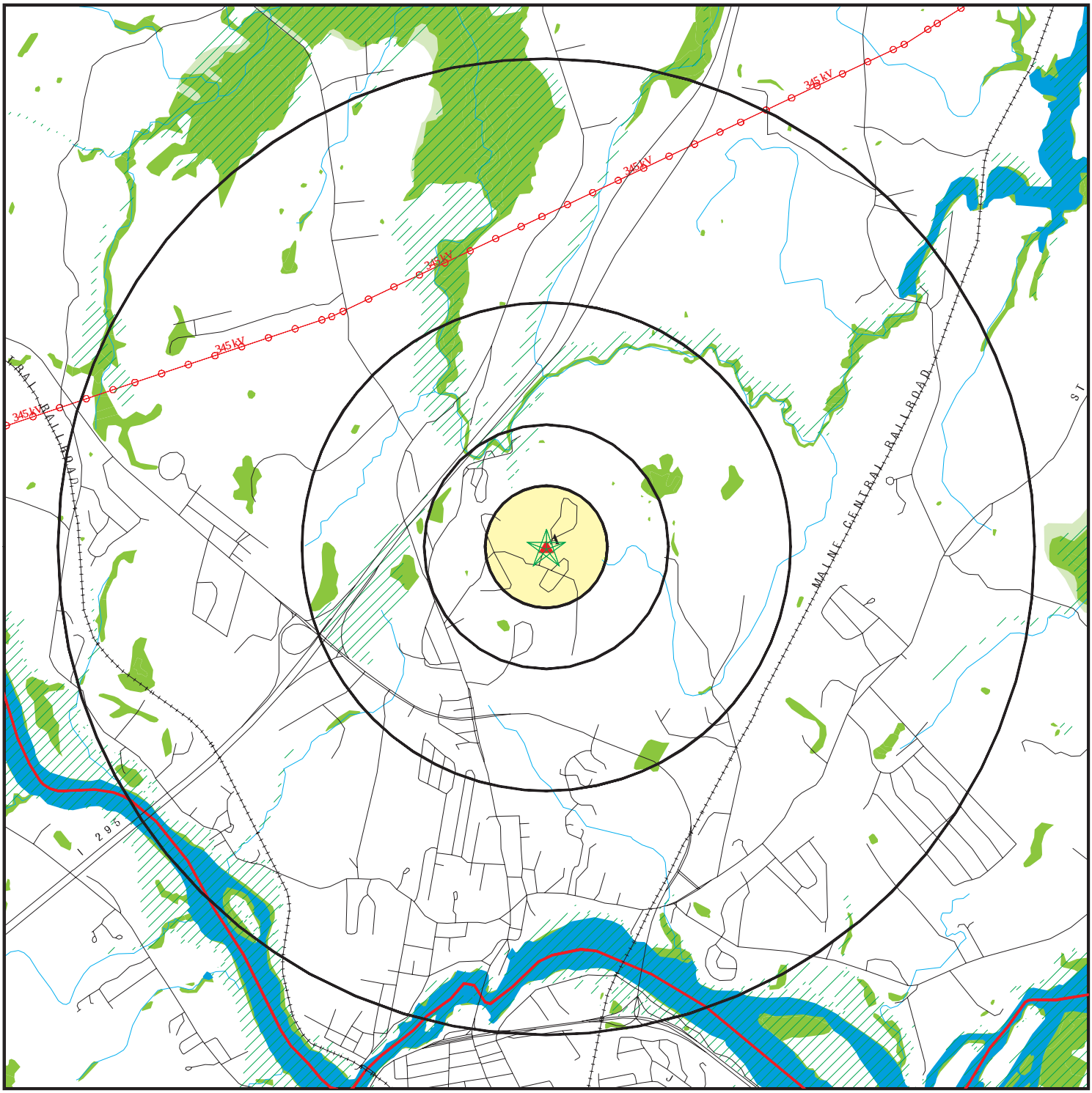
Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
MT ARAT SCHOOL	FTTS
COASTWAY OIL CO. BULK PLANT	LAST
FRANKS MECHANICAL SERVICE	LAST
TOPSHAM CITGO - EXXON	LUST, LAST
MAINE RECYCLING	SHWS, CERC-NFRAP
CROOKER & SONS INC	SHWS, CERC-NFRAP
TOPSHAM ANNEX	SHWS
TOPSHAM RADIATOR	SHWS
MDOT MAINTENANCE FACILITY	LUST
COASTAL METAL FABRICATION, INC.	LUST
J T L HEUREUX INC	LUST
GIBBS - 4722	LUST
CUMBERLAND FARMS 1837	LUST
MDOT MAINTENANCE FACILITY	UST
TOPSHAM FIRE STATION	UST
TOPSHAM WARD	UST
TOPSHAM PUBLIC WORKS GARAGE	UST
DE DOWNEAST ENERGY	AST
NAS TOPSHAM ANNEX	AST
CROOKER HARRY C & SONS INC	RCRA-SQG, FINDS
NOTTA ROAD,RTE 196 TOPSHAM	ERNS
TOPSHAM CHRISTIAN ACADEMY	FINDS
TOPSHAM ME PUBLIC WORKS	ICIS
TOPSHAM AUTO PREP.	CT MANIFEST
BRUNSWICK - TOPSHAM WATER DISTRIC	CT MANIFEST
PUBLIC WORKS GARAGE, (TOWN OF TOPS	CT MANIFEST

OVERVIEW MAP - 1762093.1s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

SITE NAME: Topsham Annex Housing	CLIENT: Tetra Tech NUS, Inc.
ADDRESS: J. Canam Drive	CONTACT: Rima Miley
Topsham ME 04086	INQUIRY #: 1762093.1s
LAT/LONG: 43.9473 / 69.9606	DATE: September 26, 2006 9:29 am

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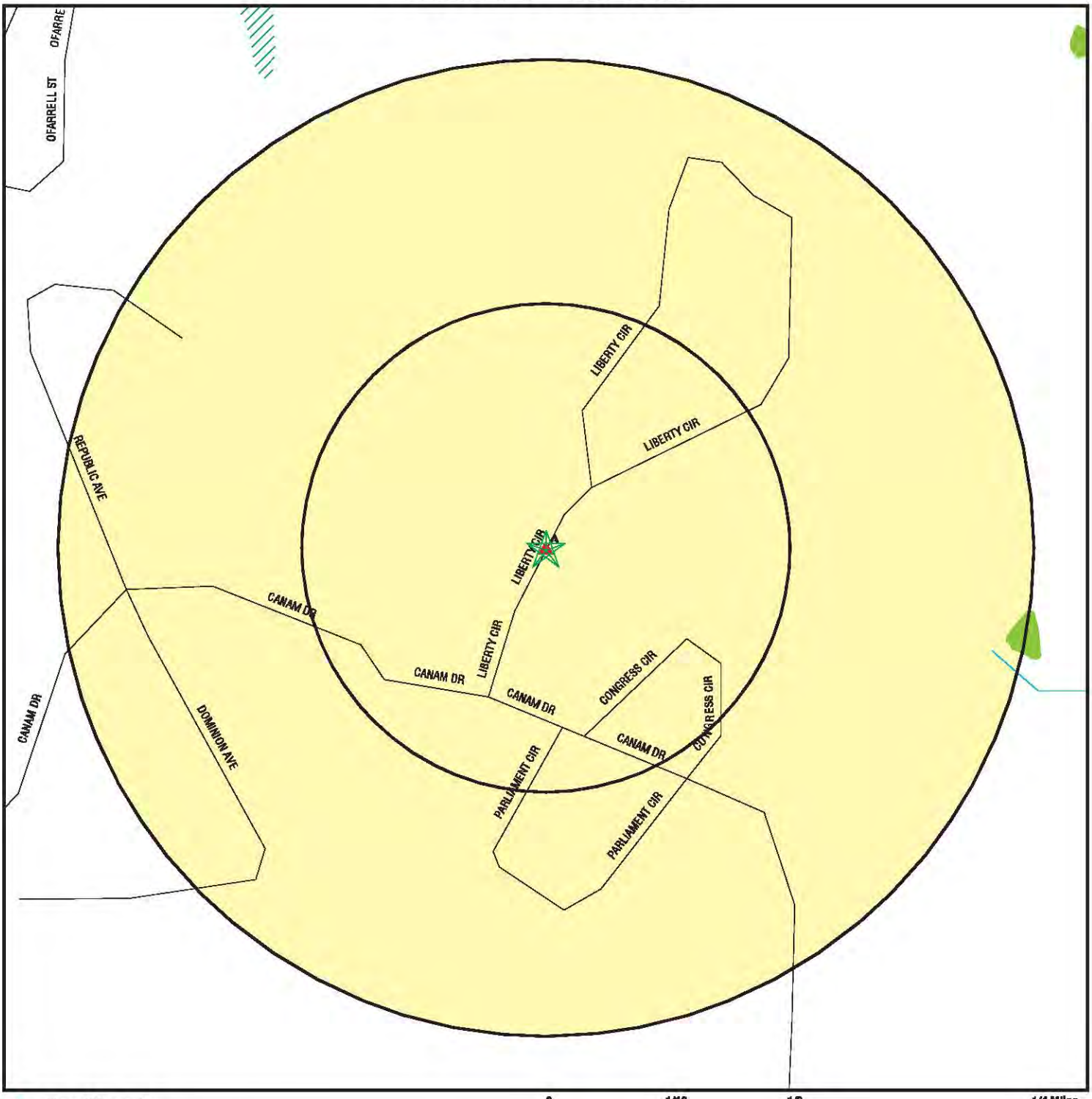
DETAIL MAP - 1762093.1s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Landfill Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- State Wetlands

SITE NAME: Topsham Annex Housing	CLIENT: Tetra Tech NUS, Inc.
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LAT/LONG: 43.9473 / 69.9606	DATE: September 26, 2006 9:29 am

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL RECORDS								
NPL		1.125	0	0	0	0	0	0
Proposed NPL		1.125	0	0	0	0	0	0
Delisted NPL		1.125	0	0	0	0	0	0
NPL RECOVERY		0.125	0	NR	NR	NR	NR	0
CERCLIS		0.625	0	0	0	0	NR	0
CERC-NFRAP		0.625	0	0	0	0	NR	0
CORRACTS		1.125	0	0	0	0	0	0
RCRA TSD		0.625	0	0	0	0	NR	0
RCRA Lg. Quan. Gen.		0.375	0	0	0	NR	NR	0
RCRA Sm. Quan. Gen.		0.375	0	0	0	NR	NR	0
ERNS		0.125	0	NR	NR	NR	NR	0
HMIRS		0.125	0	NR	NR	NR	NR	0
US ENG CONTROLS		0.625	0	0	0	0	NR	0
US INST CONTROL		0.625	0	0	0	0	NR	0
DOD		1.125	0	0	0	0	0	0
FUDS		1.125	0	0	0	0	0	0
US BROWNFIELDS		0.625	0	0	0	0	NR	0
CONSENT		1.125	0	0	0	0	0	0
ROD		1.125	0	0	0	0	0	0
UMTRA		0.625	0	0	0	0	NR	0
ODI		0.625	0	0	0	0	NR	0
TRIS		0.125	0	NR	NR	NR	NR	0
TSCA		0.125	0	NR	NR	NR	NR	0
FTTS		0.125	0	NR	NR	NR	NR	0
SSTS		0.125	0	NR	NR	NR	NR	0
ICIS		0.125	0	NR	NR	NR	NR	0
PADS		0.125	0	NR	NR	NR	NR	0
MLTS		0.125	0	NR	NR	NR	NR	0
MINES		0.375	0	0	0	NR	NR	0
FINDS		0.125	0	NR	NR	NR	NR	0
RAATS		0.125	0	NR	NR	NR	NR	0
STATE AND LOCAL RECORDS								
State Haz. Waste		1.125	0	0	0	0	0	0
DEL HWS		1.125	0	0	0	0	0	0
State Landfill		0.625	0	0	0	0	NR	0
LCP		0.625	0	0	0	0	NR	0
LUST	X	0.625	0	0	0	0	NR	0
UST	X	0.375	0	0	0	NR	NR	0
LAST		0.625	0	0	0	0	NR	0
AST		0.375	0	0	0	NR	NR	0
ME Spills		0.125	0	NR	NR	NR	NR	0
INST CONTROL		0.625	0	0	0	0	NR	0
VCP		0.625	0	0	0	0	NR	0
DRYCLEANERS		0.375	0	0	0	NR	NR	0
BROWNFIELDS		0.625	0	0	0	0	NR	0
AIRS		0.125	0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
TRIBAL RECORDS								
INDIAN RESERV		1.125	0	0	0	0	0	0
INDIAN LUST		0.625	0	0	0	0	NR	0
INDIAN UST		0.375	0	0	0	NR	NR	0
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.125	0	0	0	0	0	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 Target Property **TOPSHAM ANNEX**
NAVAL AIR STATION
TOPSHAM, ME 04086

UST **U000247812**
N/A

Site 1 of 2 in cluster A

Actual: 126 ft.

UST:

Facility ID:	14261
Tank Number:	32
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	03/24/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	03/24/95
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	47
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/03/95
Tank Use:	Not reported
Var Permit:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/03/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	59
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No

TOPSHAM ANNEX (Continued) **U000247812**

On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/11/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/11/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435

TOPSHAM ANNEX (Continued) **U000247812**

Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	73
Installation Date:	08/01/90
Facility Use:	Not reported
Gen ID:	98
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0

Tank Material:	Double wall-with cathodic protection
Warranty Expiration:	Not reported
Tank Leak Detection:	Secondary Containment
Tank Leak Detection Required:	Secondary Containment
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	03/31/95
Tank Use:	Not reported
Var Permit:	No
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	03/31/95
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	284
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline

TOPSHAM ANNEX (Continued) **U000247812**

Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	LEARY, BRIAN
Installer Applicant Last Name:	LEARY
Installer Applicants First Name:	BRIAN
Installer Applicant MI:	Not reported
Installer Applicant Address:	20 SIX RD
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	FAIFIELD, ME 04937
Installer Applicant Country:	Not reported
Installer Applicant Phone:	2078974994
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	28
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown

TOPSHAM ANNEX (Continued) **U000247812**

Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	03/23/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	03/23/95
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	7
Installation Date:	01/01/84
Facility Use:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	06/01/90
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	2000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	15
Installation Date:	01/01/84
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	12/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000

TOPSHAM ANNEX (Continued) **U000247812**

Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	22
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes

TOPSHAM ANNEX (Continued) **U000247812**

Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/12/95
Tank Use:	Not reported
Var Permit:	No
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 29
Installation Date: 01/01/83
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 72
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 03/28/95
Tank Use: Not reported
Var Permit: No
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: 03/28/95
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 3000
Product Type: Regular Gasoline
Pipe Status: REMOVED
Pipe Status Date: 10/01/89
Pipe Material: BACKIRON_
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported
Overfill: Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	37
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/06/95
Tank Use:	Not reported
Var Permit:	No
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	45
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445

TOPSHAM ANNEX (Continued) **U000247812**

In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/03/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/03/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675

TOPSHAM ANNEX (Continued) **U000247812**

Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	53
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/28/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	04/28/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_

TOPSHAM ANNEX (Continued) **U000247812**

Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	60
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**

TOPSHAM ANNEX (Continued) **U000247812**

Tank Status Date:	05/11/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/11/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	68
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I

TOPSHAM ANNEX (Continued) **U000247812**

Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	06/02/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	0
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Installer Applicant Country: Not reported
Installer Applicant Phone: Not reported
Current Owner ID: 435
Ownership Begin Date: 01/01/95
Ownership End Date: Not reported
Owner/Operator ID: 34675
Owner/Operator Name: UNITED STATES NAVY
Owner/Operator Address: NAVAL AIR STATION
Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 21
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 72
Active # Of Tanks: 0
Tank Material: Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 02/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No

TOPSHAM ANNEX (Continued) **U000247812**

Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	20
Installation Date:	01/01/80
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0

TOPSHAM ANNEX (Continued) **U000247812**

Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	02/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID: 14261

TOPSHAM ANNEX (Continued) **U000247812**

Tank Number:	1
Installation Date:	08/01/56
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	10/01/89
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	3000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	3
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	10/01/89
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	4
Installation Date:	01/01/84
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B

TOPSHAM ANNEX (Continued) **U000247812**

Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	12/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	500
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011

TOPSHAM ANNEX (Continued) **U000247812**

Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 5
Installation Date: 01/01/84
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 72
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: **Removed**
Tank Status Date: 01/01/95
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 2000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 3000
Product Type: Regular Gasoline
Pipe Status: **REMOVED**
Pipe Status Date: 10/01/89
Pipe Material: BACKIRON_
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	6
Installation Date:	01/01/84
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	12/01/93
Tank Use:	Not reported
Var Permit:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	6000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	8
Installation Date:	01/01/84
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No

TOPSHAM ANNEX (Continued) **U000247812**

On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/18/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/18/95
Volume in Gallons:	4000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435

TOPSHAM ANNEX (Continued) **U000247812**

Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	10
Installation Date:	01/01/84
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0

Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	01/30/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	6000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline

TOPSHAM ANNEX (Continued) **U000247812**

Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	12
Installation Date:	01/01/84
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown

TOPSHAM ANNEX (Continued) **U000247812**

Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	03/01/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	03/01/95
Volume in Gallons:	2000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	14
Installation Date:	01/01/84
Facility Use:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	12/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	10000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Installer Applicant Address: Not reported
Installer Applicant Addr2: Not reported
Installer Applicant City,St,Zip: Not reported
Installer Applicant Country: Not reported
Installer Applicant Phone: Not reported
Current Owner ID: 435
Ownership Begin Date: 01/01/95
Ownership End Date: Not reported
Owner/Operator ID: 34675
Owner/Operator Name: UNITED STATES NAVY
Owner/Operator Address: NAVAL AIR STATION
Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 16
Installation Date: 01/01/84
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 72
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 01/01/95
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 10000

TOPSHAM ANNEX (Continued) **U000247812**

Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 3000
Product Type: Regular Gasoline
Pipe Status: **REMOVED**
Pipe Status Date: 10/01/89
Pipe Material: BACKIRON_
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported
Overfill: Not reported
Manifold Number: Not reported
Chamber ID: Not reported
Installer Applicants Company: Not reported
Installer Applicant Last Name: Not reported
Installer Applicants First Name: Not reported
Installer Applicant MI: Not reported
Installer Applicant Address: Not reported
Installer Applicant Addr2: Not reported
Installer Applicant City,St,Zip: Not reported
Installer Applicant Country: Not reported
Installer Applicant Phone: Not reported
Current Owner ID: 435
Ownership Begin Date: 01/01/95
Ownership End Date: Not reported
Owner/Operator ID: 34675
Owner/Operator Name: UNITED STATES NAVY
Owner/Operator Address: NAVAL AIR STATION
Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 17
Installation Date: 01/01/83
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes

TOPSHAM ANNEX (Continued) **U000247812**

Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/17/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	04/17/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 18
Installation Date: 01/01/83
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 72
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 04/14/95
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: 04/14/95
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 3000
Product Type: Regular Gasoline
Pipe Status: REMOVED
Pipe Status Date: 10/01/89
Pipe Material: BACKIRON_
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported
Overfill: Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	19
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/13/95
Tank Use:	Not reported
Var Permit:	No
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	23
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445

TOPSHAM ANNEX (Continued) **U000247812**

In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/12/95
Tank Use:	Not reported
Var Permit:	No
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675

TOPSHAM ANNEX (Continued) **U000247812**

Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	24
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	03/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_

TOPSHAM ANNEX (Continued) **U000247812**

Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	25
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**

TOPSHAM ANNEX (Continued) **U000247812**

Tank Status Date:	03/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	26
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I

TOPSHAM ANNEX (Continued) **U000247812**

Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	03/21/95
Tank Use:	Not reported
Var Permit:	No
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	03/21/95
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Installer Applicant Country: Not reported
Installer Applicant Phone: Not reported
Current Owner ID: 435
Ownership Begin Date: 01/01/95
Ownership End Date: Not reported
Owner/Operator ID: 34675
Owner/Operator Name: UNITED STATES NAVY
Owner/Operator Address: NAVAL AIR STATION
Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 27
Installation Date: 01/01/83
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 72
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 03/23/95
Tank Use: Not reported
Var Permit: No
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: 03/23/95
Volume in Gallons: 550
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No

TOPSHAM ANNEX (Continued) **U000247812**

Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	30
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0

TOPSHAM ANNEX (Continued) **U000247812**

Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	03/24/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	03/24/95
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID: 14261

TOPSHAM ANNEX (Continued) **U000247812**

Tank Number:	33
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/90
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	35
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/06/95
Tank Use:	Not reported
Var Permit:	No
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	36
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B

TOPSHAM ANNEX (Continued) **U000247812**

Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/10/95
Tank Use:	Not reported
Var Permit:	No
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011

TOPSHAM ANNEX (Continued) **U000247812**

Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 38
Installation Date: 01/01/83
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 72
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: **Removed**
Tank Status Date: 04/18/95
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: 04/18/95
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 3000
Product Type: Regular Gasoline
Pipe Status: **REMOVED**
Pipe Status Date: 10/01/89
Pipe Material: BACKIRON_
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	39
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	11/01/91
Tank Use:	Not reported
Var Permit:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	40
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No

TOPSHAM ANNEX (Continued) **U000247812**

On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/03/95
Tank Use:	Not reported
Var Permit:	No
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	04/03/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435

TOPSHAM ANNEX (Continued) **U000247812**

Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	41
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0

Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/11/95
Tank Use:	Not reported
Var Permit:	No
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline

TOPSHAM ANNEX (Continued) **U000247812**

Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	46
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown

TOPSHAM ANNEX (Continued) **U000247812**

Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/05/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/05/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	48
Installation Date:	01/01/83
Facility Use:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/02/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/02/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	50
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/02/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/02/95
Volume in Gallons:	1000

TOPSHAM ANNEX (Continued) **U000247812**

Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 3000
Product Type: Regular Gasoline
Pipe Status: **REMOVED**
Pipe Status Date: 10/01/89
Pipe Material: BACKIRON_
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported
Overfill: Not reported
Manifold Number: Not reported
Chamber ID: Not reported
Installer Applicants Company: Not reported
Installer Applicant Last Name: Not reported
Installer Applicants First Name: Not reported
Installer Applicant MI: Not reported
Installer Applicant Address: Not reported
Installer Applicant Addr2: Not reported
Installer Applicant City,St,Zip: Not reported
Installer Applicant Country: Not reported
Installer Applicant Phone: Not reported
Current Owner ID: 435
Ownership Begin Date: 01/01/95
Ownership End Date: Not reported
Owner/Operator ID: 34675
Owner/Operator Name: UNITED STATES NAVY
Owner/Operator Address: NAVAL AIR STATION
Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 51
Installation Date: 01/01/83
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes

TOPSHAM ANNEX (Continued) **U000247812**

Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/01/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/01/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 52
Installation Date: 01/01/80
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 72
Active # Of Tanks: 0
Tank Material: Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 06/01/94
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 3000
Product Type: Regular Gasoline
Pipe Status: REMOVED
Pipe Status Date: 10/01/89
Pipe Material: BACKIRON_
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported
Overfill: Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	55
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/27/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	04/27/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	56
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445

TOPSHAM ANNEX (Continued) **U000247812**

In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/27/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	04/27/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675

TOPSHAM ANNEX (Continued) **U000247812**

Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	57
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	03/22/95
Tank Use:	Not reported
Var Permit:	No
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	03/22/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_

TOPSHAM ANNEX (Continued) **U000247812**

Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	58
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**

TOPSHAM ANNEX (Continued) **U000247812**

Tank Status Date:	05/12/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/12/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	62
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I

TOPSHAM ANNEX (Continued) **U000247812**

Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/10/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/10/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Installer Applicant Country: Not reported
Installer Applicant Phone: Not reported
Current Owner ID: 435
Ownership Begin Date: 01/01/95
Ownership End Date: Not reported
Owner/Operator ID: 34675
Owner/Operator Name: UNITED STATES NAVY
Owner/Operator Address: NAVAL AIR STATION
Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 63
Installation Date: 01/01/83
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 72
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 03/29/95
Tank Use: Not reported
Var Permit: No
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: 03/29/95
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No

TOPSHAM ANNEX (Continued) **U000247812**

Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	64
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0

TOPSHAM ANNEX (Continued) **U000247812**

Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/09/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/09/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID: 14261

TOPSHAM ANNEX (Continued) **U000247812**

Tank Number:	65
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/09/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/09/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	66
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/08/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Removal Procedure:	Not reported
Removal Date:	05/08/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	69
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B

TOPSHAM ANNEX (Continued) **U000247812**

Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	06/02/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	0
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011

TOPSHAM ANNEX (Continued) **U000247812**

Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 74
Installation Date: 12/01/91
Facility Use: Not reported
Gen ID: 146
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 72
Active # Of Tanks: 0
Tank Material: Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration: Not reported
Tank Leak Detection: Secondary Containment
Tank Leak Detection Required: Secondary Containment
Tank Above/Below Ground: B
Tank Status: **Removed**
Tank Status Date: 04/18/95
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: 04/18/95
Volume in Gallons: 1000
Total Num of Chambers for Tank: 1
Installer ID: 302
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 3000
Product Type: Regular Gasoline
Pipe Status: **REMOVED**
Pipe Status Date: 10/01/89
Pipe Material: BACKIRON_
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	BROOKS, STEVE
Installer Applicant Last Name:	BROOKS
Installer Applicants First Name:	STEVE
Installer Applicant MI:	Not reported
Installer Applicant Address:	BOX 318 LEACH HILL
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	CASCO, ME 04015
Installer Applicant Country:	Not reported
Installer Applicant Phone:	2077977214
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	61
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/10/95
Tank Use:	Not reported
Var Permit:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/10/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	31
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No

TOPSHAM ANNEX (Continued) **U000247812**

On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	03/24/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	03/24/95
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435

TOPSHAM ANNEX (Continued) **U000247812**

Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	42
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0

Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/01/94
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline

TOPSHAM ANNEX (Continued) **U000247812**

Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	67
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown

TOPSHAM ANNEX (Continued) **U000247812**

Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	03/28/95
Tank Use:	Not reported
Var Permit:	No
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	03/28/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	34
Installation Date:	01/01/83
Facility Use:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/04/95
Tank Use:	Not reported
Var Permit:	No
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	70
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	06/02/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	0

TOPSHAM ANNEX (Continued) **U000247812**

Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 3000
Product Type: Regular Gasoline
Pipe Status: **REMOVED**
Pipe Status Date: 10/01/89
Pipe Material: BACKIRON_
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported
Overfill: Not reported
Manifold Number: Not reported
Chamber ID: Not reported
Installer Applicants Company: Not reported
Installer Applicant Last Name: Not reported
Installer Applicants First Name: Not reported
Installer Applicant MI: Not reported
Installer Applicant Address: Not reported
Installer Applicant Addr2: Not reported
Installer Applicant City,St,Zip: Not reported
Installer Applicant Country: Not reported
Installer Applicant Phone: Not reported
Current Owner ID: 435
Ownership Begin Date: 01/01/95
Ownership End Date: Not reported
Owner/Operator ID: 34675
Owner/Operator Name: UNITED STATES NAVY
Owner/Operator Address: NAVAL AIR STATION
Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 2
Installation Date: 10/01/69
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes

TOPSHAM ANNEX (Continued) **U000247812**

Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	10/01/89
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 13
Installation Date: 01/01/84
Facility Use: Not reported
Gen ID: Not reported
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 72
Active # Of Tanks: 0
Tank Material: Fiberglass-alcohol and petroleum
Warranty Expiration: Not reported
Tank Leak Detection: Unknown
Tank Leak Detection Required: Unknown
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 01/01/95
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: / /
Volume in Gallons: 6000
Total Num of Chambers for Tank: 1
Installer ID: Not reported
Fed Reg Ind: No
Chamber ID: 1
Volume (gallons): 3000
Product Type: Regular Gasoline
Pipe Status: REMOVED
Pipe Status Date: 10/01/89
Pipe Material: BACKIRON_
Pipe Leak Detection: UNKNOWN
Pump Type: UNKNOWN
Pipe Leak Detection Required: Not reported
Pipe Install Dt: Not reported
Replaced Pipe Date: Not reported
Overfill: Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	43
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/05/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/05/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	54
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445

TOPSHAM ANNEX (Continued) **U000247812**

In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	04/28/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	04/28/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675

TOPSHAM ANNEX (Continued) **U000247812**

Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	71
Installation Date:	10/01/69
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Bare or asphalt and coal-tar epoxy coated steel
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	08/01/90
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	/ /
Volume in Gallons:	550
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	Yes
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_

TOPSHAM ANNEX (Continued) **U000247812**

Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	44
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I
Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**

TOPSHAM ANNEX (Continued) **U000247812**

Tank Status Date:	05/05/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/05/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported
Installer Applicant Country:	Not reported
Installer Applicant Phone:	Not reported
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

Facility ID:	14261
Tank Number:	49
Installation Date:	01/01/83
Facility Use:	Not reported
Gen ID:	Not reported
Reg Date:	07/28/87
Facility Code:	I

TOPSHAM ANNEX (Continued) **U000247812**

Near Public Water:	No
Near Pvt Water:	No
Near Other Water:	No
On Aquifer:	No
Sensitive Area:	No
Facility Tel:	2079212445
In 100 yr flood plain:	Not reported
Near Waterbody:	Not reported
Facility Type:	B
Directions:	TOPSHAM ANNEX
Update Dt:	11/08/99
Print Cert:	Yes
Last Inspected:	Not reported
Num Of Tanks:	72
Active # Of Tanks:	0
Tank Material:	Fiberglass-alcohol and petroleum
Warranty Expiration:	Not reported
Tank Leak Detection:	Unknown
Tank Leak Detection Required:	Unknown
Tank Above/Below Ground:	B
Tank Status:	**Removed**
Tank Status Date:	05/02/95
Tank Use:	Not reported
Var Permit:	Not reported
Tank Fee:	Not reported
Tank Location Method:	Not reported
Lat/Long (dms):	Not reported
Location Date:	Not reported
Fee Billable:	N
Category:	Not reported
Removal Procedure:	Not reported
Removal Date:	05/02/95
Volume in Gallons:	1000
Total Num of Chambers for Tank:	1
Installer ID:	Not reported
Fed Reg Ind:	No
Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	Not reported
Installer Applicant Last Name:	Not reported
Installer Applicants First Name:	Not reported
Installer Applicant MI:	Not reported
Installer Applicant Address:	Not reported
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	Not reported

TOPSHAM ANNEX (Continued) **U000247812**

Installer Applicant Country: Not reported
Installer Applicant Phone: Not reported
Current Owner ID: 435
Ownership Begin Date: 01/01/95
Ownership End Date: Not reported
Owner/Operator ID: 34675
Owner/Operator Name: UNITED STATES NAVY
Owner/Operator Address: NAVAL AIR STATION
Owner/Operator City,St,Zip: BRUNSWICK, ME 04011
Owner/Operator Location: Not reported
Owner/Operator Country: Not reported
Operator Contact: Not reported
Owner/Operator Phone: 2079212445

Facility ID: 14261
Tank Number: 72
Installation Date: 06/01/90
Facility Use: Not reported
Gen ID: 75
Reg Date: 07/28/87
Facility Code: I
Near Public Water: No
Near Pvt Water: No
Near Other Water: No
On Aquifer: No
Sensitive Area: No
Facility Tel: 2079212445
In 100 yr flood plain: Not reported
Near Waterbody: Not reported
Facility Type: B
Directions: TOPSHAM ANNEX
Update Dt: 11/08/99
Print Cert: Yes
Last Inspected: Not reported
Num Of Tanks: 72
Active # Of Tanks: 0
Tank Material: Double wall-with cathodic protection
Warranty Expiration: Not reported
Tank Leak Detection: Secondary Containment
Tank Leak Detection Required: Secondary Containment
Tank Above/Below Ground: B
Tank Status: Removed
Tank Status Date: 04/25/95
Tank Use: Not reported
Var Permit: Not reported
Tank Fee: Not reported
Tank Location Method: Not reported
Lat/Long (dms): Not reported
Location Date: Not reported
Fee Billable: N
Category: Not reported
Removal Procedure: Not reported
Removal Date: 04/25/95
Volume in Gallons: 2000
Total Num of Chambers for Tank: 1
Installer ID: 198
Fed Reg Ind: No

TOPSHAM ANNEX (Continued) **U000247812**

Chamber ID:	1
Volume (gallons):	3000
Product Type:	Regular Gasoline
Pipe Status:	**REMOVED**
Pipe Status Date:	10/01/89
Pipe Material:	BACKIRON_
Pipe Leak Detection:	UNKNOWN
Pump Type:	UNKNOWN
Pipe Leak Detection Required:	Not reported
Pipe Install Dt:	Not reported
Replaced Pipe Date:	Not reported
Overfill:	Not reported
Manifold Number:	Not reported
Chamber ID:	Not reported
Installer Applicants Company:	REYNOLDS, PETER
Installer Applicant Last Name:	REYNOLDS
Installer Applicants First Name:	PETER
Installer Applicant MI:	A
Installer Applicant Address:	37 BAYVIEW AVE
Installer Applicant Addr2:	Not reported
Installer Applicant City,St,Zip:	SOUTH PORTLAND, ME 04106
Installer Applicant Country:	Not reported
Installer Applicant Phone:	2076227561
Current Owner ID:	435
Ownership Begin Date:	01/01/95
Ownership End Date:	Not reported
Owner/Operator ID:	34675
Owner/Operator Name:	UNITED STATES NAVY
Owner/Operator Address:	NAVAL AIR STATION
Owner/Operator City,St,Zip:	BRUNSWICK, ME 04011
Owner/Operator Location:	Not reported
Owner/Operator Country:	Not reported
Operator Contact:	Not reported
Owner/Operator Phone:	2079212445

A2 **TOPSHAM ANNEX NAVY LODGE** **LUST** **S106791117**
Target **NAVAL AIR STATIOJN** **N/A**
Property **TOPSHAM, ME**

Site 2 of 2 in cluster A

Actual:
126 ft.

LUST:

Spill Number:	P-22-1994
Inc Tank Code:	U
Inc Tank Value:	Underground Tank(s) Involved
Removal Flag:	False
Ust Registered Flag:	True
Ust Tank Site Number:	14261
Ust Tank Number:	Not reported
Ast Inside Flag:	False
Create Date:	12/7/2001
Create By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Report Status Value:	FR
Report Status Value:	Final Report
Actual Spill Datetime:	Not reported
Actual Spill Date Unknown:	True

TOPSHAM ANNEX NAVY LODGE (Continued) **S106791117**

Actual Spill Time Unknown:	True
Number Wells At Risk:	Not reported
Number Wells Impacted:	Not reported
Dtree Completed Flag:	False
Dtree Date:	Not reported
Dtree Code:	Not reported
Dtree Value:	Not reported
Further Response Action:	False
Spill Type Code:	O
Spill Type Value:	Oil Incident
Reporter Type Code:	1
Reporter Type Value:	DEP Personnel
Detection Method Code:	A
Detection Method Value:	UST Tank Anomaly
Inc Location Code:	NA
Inc Location Value:	Government, Municipal or Religious Facility
Inc Source Code:	Not reported
Inc Source Value:	Not reported
Spill Cause Code:	18
Spill Cause Value:	Other - Unknown
Material Disposal Info:	Not reported
Change Type Code:	CR
Change Type Value:	Report Created
Change Desc:	Report Created with Report Status = FR
Change Date:	12/07/2001
Change By:	SPILLS
Cont Type Code:	SS
Contact Type:	Subject/Owner
Contact Name:	Not reported
Contact Title:	Not reported
Contact Company:	BRUNSWICK NAVAL AIR TOPSHAM ANNEX NAVY LODGE
Contact Addr:	NAVAL AIR STATION
Contact Addr2:	Not reported
Contact City,St,Zip:	TOPSHAM, ME 04086
Contact Country:	Not reported
Phone:	2079212445
Potential Rp:	False
Cont Type Code:	SR
Contact Type:	Reporter
Contact Name:	RAY ASSELIN
Contact Title:	Not reported
Contact Company:	Not reported
Contact Addr:	BNAS
Contact Addr2:	Not reported
Contact City,St,Zip:	Not reported
Contact Country:	Not reported
Phone:	2079212445
Potential Rp:	False
Comments:	POSSIBLE LEAKING TANK
Primary Employee:	T
Employee Name:	JOHN DUNLAP
Create Date:	Not reported
Create By:	Not reported
Modify Date:	Not reported
Modify By:	Not reported
File Num Sheets:	Not reported
File Notes:	Not reported

TOPSHAM ANNEX NAVY LODGE (Continued) **S106791117**

Reconcile Date:	Not reported
Medium Code:	G
Medium:	Groundwater
Medium Code:	L
Medium:	Land
Spill Void Flag:	False
Spill Office Code:	P
Spill Office:	Portland
Spill Off Sequence:	22
Spill Year:	1994
Create Date:	12/7/2001
Created By:	SPILLS
Modify Date:	12/7/2001
Modify By:	SPILLS
Spill Type Code:	O
Log Spill Type:	Oil Incident
Log Spill Datetime:	Not reported
Spill Time Unk:	True
Spill Dt Unknown:	True
Log Rep Dt Tm:	1/14/1994
Log Rep Prod Cd:	2
Log Rep Prod:	#2 Fuel Oil
Log Emp First Name:	JOHN
Log Emp MI:	Not reported
Log Emp Last Name:	DUNLAP
Log Location Town:	TOPSHAM
Log Tank Inv Cd:	U
Log Tank Involved:	Underground Tank(s) Involved
Long Loc Desc:	Not reported
Mat Rec Type:	MM
Mat Recovered:	Mixed Liquid Media
Material Amount:	4000
Material Units:	G
Material Units Val:	gals.
Mat Amt Qualifier:	ACTUAL
Create Date:	Not reported
Created By:	Not reported
Modify Date:	Not reported
Modify By:	Not reported
Point Type Code:	Not reported
Utm North:	Not reported
Utm East:	Not reported
GPS Unit:	Not reported
GPS Date:	Not reported
GPS Time:	Not reported
GIS Feature Class:	Not reported
GIS Object Id:	Not reported
GIS Sync Flag:	Not reported
Rcvry Meth Code:	A
Recovery Method:	Vacuum Trucks
Prod Code:	02
Prod Code Value:	#2 Fuel Oil
Product Other:	Not reported
Product Amt:	Not reported
Product Amt Unit:	Not reported
Prod Amt Unit Val:	Not reported
Prod Amt Qualifier:	Not reported

TOPSHAM ANNEX NAVY LODGE (Continued) **S106791117**

Primary Product:	False
Description:	Not reported
Attach type Code:	Not reported
Attach type Value:	Not reported
File Name:	Not reported
File Modify Date:	Not reported

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
TOPSHAM	1003862690	MAINE RECYCLING	ROUTE 196	04086	SHWS, CERC-NFRAP
TOPSHAM	1003862824	CROOKER & SONS INC	ROUTE 196	04086	SHWS, CERC-NFRAP
TOPSHAM	A100272940	DE DOWNEAST ENERGY	ROUTE 196	04086	AST
TOPSHAM	S105794499	COASTWAY OIL CO. BULK PLANT	ROUTE 196	04086	LAST
TOPSHAM	S106788001	MDOT MAINTENANCE FACILITY	ROUTE 196	04086	LUST
TOPSHAM	S106795480	COASTAL METAL FABRICATION, INC.	ROUTE 196 BOX 458	04086	LUST
TOPSHAM	U002158832	MDOT MAINTENANCE FACILITY	ROUTE 196	04086	UST
TOPSHAM	1004530498	TOPSHAM CHRISTIAN ACADEMY	ROUTE 201	04086	FINDS
TOPSHAM	1007287262	MT ARAT SCHOOL	RTE 201	04086	FTTS
TOPSHAM	S106893912	FRANKS MECHANICAL SERVICE	AUGUSTA RD - RT 201	04086	LAST
TOPSHAM	S105754361	TOPSHAM ANNEX	CANAM DRIVE	04086	SHWS
TOPSHAM	S104872393	TOPSHAM RADIATOR	CORNER OF ROUTE 196 / 201	04086	SHWS
TOPSHAM	U002163232	TOPSHAM FIRE STATION	GREEN STREET	04086	UST
TOPSHAM	S106520065	TOPSHAM CITGO - EXXON	4 MAIN ST - RT 24	04086	LUST, LAST
TOPSHAM	1007896406	TOPSHAM AUTO PREP.	4 MAIN STREET	04086	CT MANIFEST
TOPSHAM	S106178126	J T L HEUREUX INC	15 MAIN ST - RT 201	04086	LUST
TOPSHAM	S106402944	GIBBS - 4722	96 MAIN ST - RT. 201	04086	LUST
TOPSHAM	S107770860	CUMBERLAND FARMS 1837	98 MAIN ST	04086	LUST
TOPSHAM	99620213	NOTTA ROAD,RTE 196 TOPSHAM	NOTTA ROAD,RTE 196 TOPSHAM		ERNS
TOPSHAM	1007896394	BRUNSWICK - TOPSHAM WATER DISTRIC	OLD LEWISTON RD.	04086	CT MANIFEST
TOPSHAM	1000333066	CROOKER HARRY C & SONS INC	PAVING DIVISION RTE 196	04086	RCRA-SQG, FINDS
TOPSHAM	U000247904	TOPSHAM WARD	PINEWOOD DRIVE	04086	UST
TOPSHAM	A100266184	NAS TOPSHAM ANNEX	REPUBLIC AVENUE	04086	AST
TOPSHAM	U002163742	TOPSHAM PUBLIC WORKS GARAGE	SUMMER STREET	04086	UST
TOPSHAM	1009297213	TOPSHAM ME PUBLIC WORKS	1 SUMMER ST	04086	ICIS
TOPSHAM	1007918791	PUBLIC WORKS GARAGE, (TOWN OF TOPS	SUMMER STREET	04086	CT MANIFEST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 07/05/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: N/A
Last EDR Contact: 08/02/2006
Next Scheduled EDR Contact: 10/30/2006
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL RECOVERY: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 06/19/2006
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 09/21/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 07/17/2006
Date Data Arrived at EDR: 08/02/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 41

Source: EPA
Telephone: 703-413-0223
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/15/2006
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 04/13/2006
Number of Days to Update: 27

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 09/15/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 01/12/2006
Date Made Active in Reports: 02/21/2006
Number of Days to Update: 40

Source: National Response Center, United States Coast Guard
Telephone: 202-260-2342
Last EDR Contact: 07/25/2006
Next Scheduled EDR Contact: 10/23/2006
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 07/03/2006
Date Data Arrived at EDR: 07/19/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 35

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/19/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/21/2006
Date Data Arrived at EDR: 03/27/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 09/07/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/21/2006
Date Data Arrived at EDR: 03/27/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 09/07/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/08/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 177

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 08/11/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/05/2005
Date Data Arrived at EDR: 01/19/2006
Date Made Active in Reports: 02/21/2006
Number of Days to Update: 33

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 01/01/2007
Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/13/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 55

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/14/2004
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 04/25/2005
Number of Days to Update: 69

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 10/23/2006
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/21/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 47

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 07/06/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 11/04/2005
Date Data Arrived at EDR: 11/28/2005
Date Made Active in Reports: 01/30/2006
Number of Days to Update: 63

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 07/20/2006
Date Data Arrived at EDR: 07/21/2006
Date Made Active in Reports: 08/22/2006
Number of Days to Update: 32

Source: EPA
Telephone: 202-564-6064
Last EDR Contact: 07/06/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Quarterly

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 09/22/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/14/2006
Date Data Arrived at EDR: 07/18/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 50

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

Date of Government Version: 07/14/2006
Date Data Arrived at EDR: 07/18/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 50

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Quarterly

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 05/11/2006
Date Made Active in Reports: 05/22/2006
Number of Days to Update: 11

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 02/13/2006
Date Data Arrived at EDR: 04/21/2006
Date Made Active in Reports: 05/11/2006
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 07/17/2006
Next Scheduled EDR Contact: 10/16/2006
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/07/2006
Date Data Arrived at EDR: 08/09/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 28

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 08/09/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/10/2006
Date Data Arrived at EDR: 07/20/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 48

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/03/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 05/16/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/28/2006
Next Scheduled EDR Contact: 09/25/2006
Data Release Frequency: Semi-Annually

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/21/2006
Date Data Arrived at EDR: 07/25/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 43

Source: EPA
Telephone: N/A
Last EDR Contact: 04/03/2006
Next Scheduled EDR Contact: 07/03/2006
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2003
Date Data Arrived at EDR: 06/17/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 48

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 09/15/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Biennially

STATE AND LOCAL RECORDS

SHWS: Remediation Sites List

Uncontrolled Sites locations included in the Remediation Sites List.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-4850
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

DEL HWS: Sites Removed from the Uncontrolled Sites List

Sites are removed from the List once it is determined that they are not "worthy of listing". This term is used as there are a number of reasons to remove a site from the List, including: no file exists, the site was reported as an oil spill, there is no evidence of a hazardous substance release or based on an investigation the site is referred to another program unrelated to hazardous substance or hazardous waste. Sites are removed on a case by case basis. The USP intends this to be an on-going process, as time and resources allow.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SWF/LF: Solid Waste Facility List

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 06/19/2006
Date Data Arrived at EDR: 06/19/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 11

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 09/05/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Annually

LCP: Municipal Landfill Closure Database

The Municipal Landfill Closure and Remediation Program was established in 1988 to assist nearly 400 municipalities with the closure of their unlicensed municipal solid waste landfills. Project managers in this program have conducted site investigations and provided technical engineering assistance to aid municipalities in this process. Funding to accomplish this goal was provided by the state, utilizing several bonds that supported a 75% state cost sharing reimbursement process.

Date of Government Version: 12/15/2005
Date Data Arrived at EDR: 12/20/2005
Date Made Active in Reports: 01/16/2006
Number of Days to Update: 27

Source: Department of Environmental Protection
Telephone: 207-287-8552
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/04/2006
Data Release Frequency: Varies

LUST: Hazardous Material and Oil Spill System Database (H.O.S.S.)

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

UST: Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 06/28/2005
Date Data Arrived at EDR: 07/25/2005
Date Made Active in Reports: 08/25/2005
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 09/13/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Quarterly

LAST: HOSS Database

A listing of leaking aboveground storage tanks.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

AST: Aboveground Storage Tanks

Registered Aboveground Storage Tanks.

Date of Government Version: 07/26/2005
Date Data Arrived at EDR: 07/26/2005
Date Made Active in Reports: 08/30/2005
Number of Days to Update: 35

Source: Maine Emergency Management Agency
Telephone: 207-626-4503
Last EDR Contact: 09/21/2006
Next Scheduled EDR Contact: 10/09/2006
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS: Hazardous Material and Oil Spill System Database
The database contains surface, groundwater and hazardous material spills.

Date of Government Version: 05/27/2006
Date Data Arrived at EDR: 06/01/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/31/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Quarterly

INST CONTROL: Remediation Sites List
Sites with Institutional Controls in place included in the Remediation Sites List. Institutional Controls are legally enforceable site use restrictions recorded on the property deed and therefore operate in perpetuity regardless of change in site ownership.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-2651
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Semi-Annually

VCP: Remediation Sites List
Voluntary Response Action Program sites included in the Remediation Sites List. VRAP promotes the investigation, remediation and redevelopment of contaminated properties by offering liability assurances/protections from state enforcement actions for applicants to the program.

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-4854
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Varies

DRYCLEANERS: Drycleaner Facilities
A listing of drycleaning facilities that use perchloroethylene.

Date of Government Version: 09/06/2005
Date Data Arrived at EDR: 09/08/2005
Date Made Active in Reports: 10/07/2005
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 207-287-7030
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

BROWNFIELDS: Remediation Sites List
Brownfields site locations included in the Remediation Sites List. Brownfields are "Real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant".

Date of Government Version: 05/01/2006
Date Data Arrived at EDR: 05/30/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 31

Source: Department of Environmental Protection
Telephone: 207-287-7716
Last EDR Contact: 08/16/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Varies

AIRS: Emissions Inventory Data
Point Source Criteria Pollutant Emissions Inventory data. Criteria air pollutant emissions, expressed in tons, by facility and pollutant.

Date of Government Version: 12/31/2003
Date Data Arrived at EDR: 05/02/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 207-287-7036
Last EDR Contact: 07/14/2006
Next Scheduled EDR Contact: 10/09/2006
Data Release Frequency: Annually

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/08/2005
Date Made Active in Reports: 08/04/2005
Number of Days to Update: 177
Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 08/11/2006
Next Scheduled EDR Contact: 11/06/2006
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 06/28/2006
Number of Days to Update: 19
Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 06/23/2006
Date Made Active in Reports: 08/02/2006
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 06/06/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/10/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 64
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 06/23/2006
Date Made Active in Reports: 08/02/2006
Number of Days to Update: 40

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 06/06/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 07/28/2006
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Quarterly

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 06/30/2006
Date Data Arrived at EDR: 07/03/2006
Date Made Active in Reports: 09/06/2006
Number of Days to Update: 65

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

A listing of underground storage tank locations on Indian Land.

Date of Government Version: 06/08/2006
Date Data Arrived at EDR: 06/09/2006
Date Made Active in Reports: 06/30/2006
Number of Days to Update: 21

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/10/2006
Date Made Active in Reports: 09/12/2006
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 08/21/2006
Next Scheduled EDR Contact: 11/20/2006
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 02/17/2006
Date Made Active in Reports: 04/07/2006
Number of Days to Update: 49

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 06/01/2006
Date Data Arrived at EDR: 07/06/2006
Date Made Active in Reports: 08/01/2006
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/05/2006
Next Scheduled EDR Contact: 10/02/2006
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data

Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/02/2006
Date Data Arrived at EDR: 05/31/2006
Date Made Active in Reports: 06/27/2006
Number of Days to Update: 27

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/30/2006
Next Scheduled EDR Contact: 11/27/2006
Data Release Frequency: Annually

PA MANIFEST: Manifest Information

Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 05/04/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 33

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 09/11/2006
Next Scheduled EDR Contact: 12/11/2006
Data Release Frequency: Annually

RI MANIFEST: Manifest information

Hazardous waste manifest information

Date of Government Version: 09/30/2005
Date Data Arrived at EDR: 05/09/2006
Date Made Active in Reports: 05/24/2006
Number of Days to Update: 15

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 09/18/2006
Next Scheduled EDR Contact: 12/18/2006
Data Release Frequency: Annually

VT MANIFEST: Hazardous Waste Manifest Data
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 06/29/2006
Date Made Active in Reports: 07/31/2006
Number of Days to Update: 32

Source: Department of Environmental Conservation
Telephone: 802-241-3443
Last EDR Contact: 08/15/2006
Next Scheduled EDR Contact: 11/13/2006
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: child Care Listing
Source: Department of Human Services
Telephone: 207-287-5060

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Office of Geographic Information Systems
Telephone: 207-287-6144

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

TOPSHAM ANNEX HOUSING
J. CANAM DRIVE
TOPSHAM, ME 04086

TARGET PROPERTY COORDINATES

Latitude (North):	43.94730 - 43° 56' 50.3''
Longitude (West):	69.9606 - 69° 57' 38.2''
Universal Tranverse Mercator:	Zone 19
UTM X (Meters):	422914.2
UTM Y (Meters):	4866252.0
Elevation:	125 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	43069-H8 BRUNSWICK, ME
Most Recent Revision:	2001

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

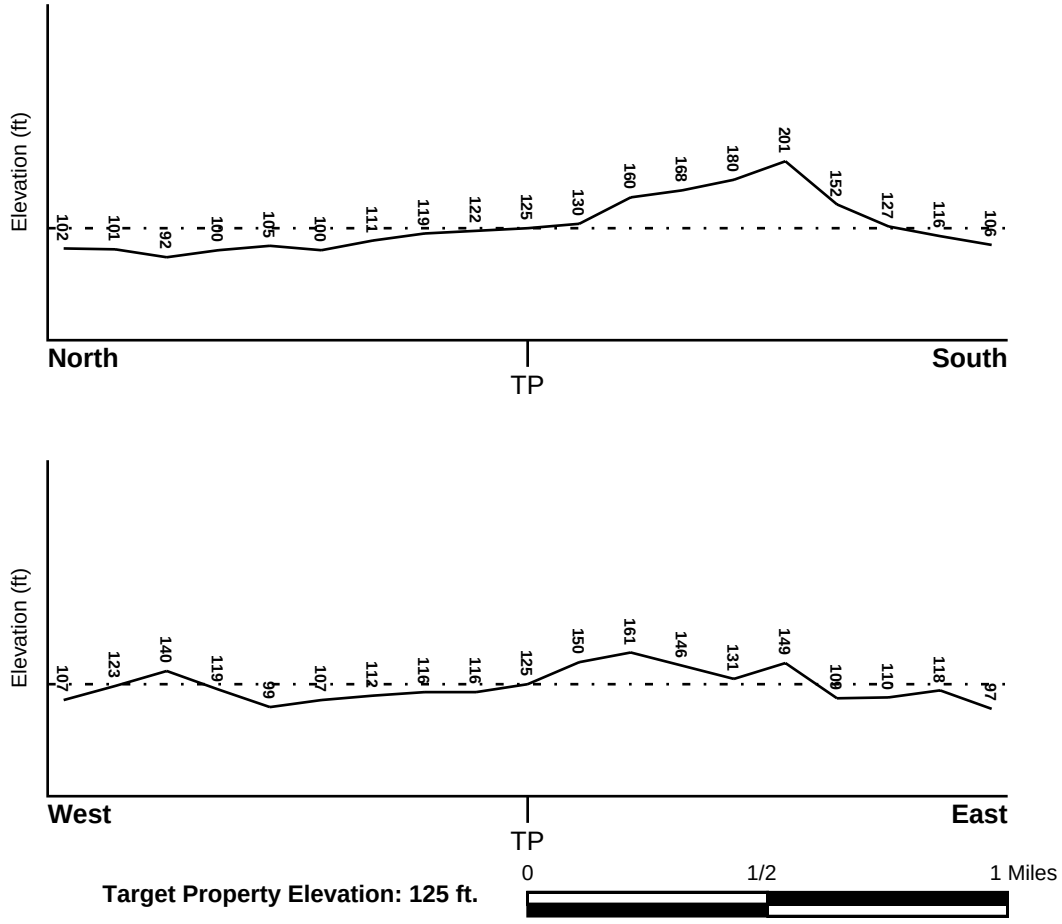
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
SAGADAHOC, ME	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 2301220016B

Additional Panels in search area: 2301220005B
2301220008B
2301220012B

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
BRUNSWICK	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Paleozoic
System:	Devonian and Silurian
Series:	Devonian and Silurian
Code:	DSv *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Volcanic Rocks

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	LYMAN
Soil Surface Texture:	very stony - fine sandy loam
Hydrologic Group:	Class C/D - Drained/undrained hydrology class of soils that can be drained and classified.
Soil Drainage Class:	Somewhat excessive. Soils have high hydraulic conductivity and low water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	LOW
Depth to Bedrock Min:	> 10 inches
Depth to Bedrock Max:	> 20 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	6 inches	very stony - fine sandy loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.00 Min: 3.60
2	6 inches	17 inches	loam	Granular materials (35 pct. or less passing No. 200), Stone Fragments, Gravel and Sand.	COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 6.00 Min: 2.00	Max: 6.00 Min: 3.60
3	17 inches	21 inches	unweathered bedrock	Not reported	Not reported	Max: 20.00 Min: 0.01	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: silt loam
unweathered bedrock
fine sandy loam
muck

Surficial Soil Types: silt loam
unweathered bedrock
fine sandy loam
muck

Shallow Soil Types: No Other Soil Types

Deeper Soil Types: silty clay
clay
silty clay loam
fine sandy loam
gravelly - fine sandy loam
silt loam
muck

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
B4	USGS2047909	1/2 - 1 Mile WSW
B5	USGS2047908	1/2 - 1 Mile WSW
6	USGS2047916	1/2 - 1 Mile WNW
C7	USGS2047702	1/2 - 1 Mile NNE
C8	USGS2047701	1/2 - 1 Mile NNE
10	USGS2047895	1/2 - 1 Mile WSW
D11	USGS2047707	1/2 - 1 Mile North
D12	USGS2047706	1/2 - 1 Mile North
13	USGS2047703	1/2 - 1 Mile NW
E14	USGS2047903	1/2 - 1 Mile WSW
E15	USGS2047902	1/2 - 1 Mile WSW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

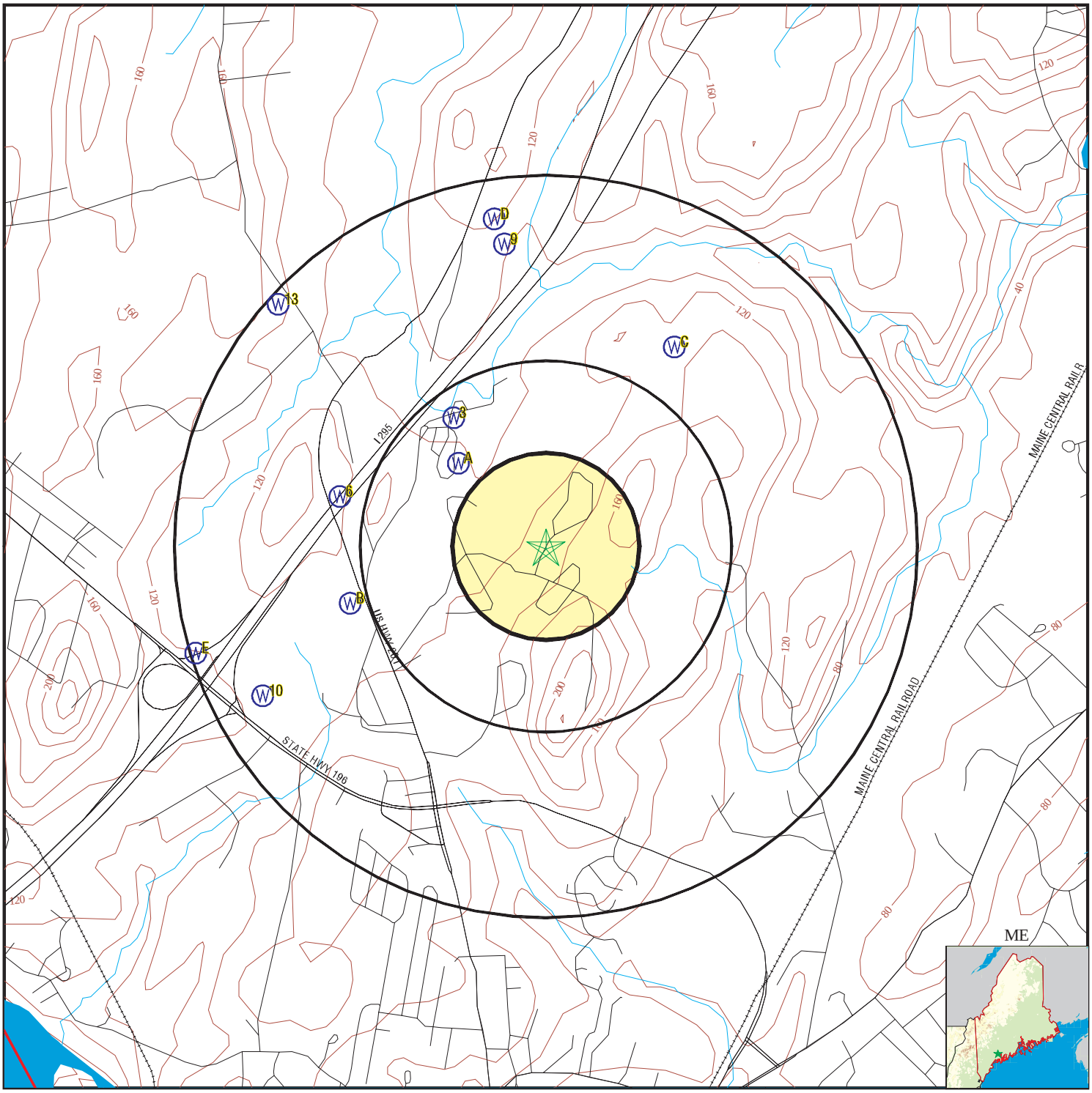
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	ME20000592	1/4 - 1/2 Mile NW
A2	ME20000591	1/4 - 1/2 Mile NW
3	ME20000598	1/4 - 1/2 Mile NW
9	ME20000611	1/2 - 1 Mile North

PHYSICAL SETTING SOURCE MAP - 1762093.1s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location

SITE NAME: Topsham Annex Housing	CLIENT: Tetra Tech NUS, Inc.
ADDRESS: J. Canam Drive	CONTACT: Rima Miley
Topsham ME 04086	INQUIRY #: 1762093.1s
LAT/LONG: 43.9473 / 69.9606	DATE: September 26, 2006 9:29 am

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A1
NW
1/4 - 1/2 Mile
Lower

ME WELLS **ME20000592**

Pwsid:	3375101		
Type:	C		
Buffer id:	5887	Radius:	300
Swap:	3375101.pdf	Fmsrc:	Not Reported
Fmsrcdat:	Not Reported	Fmsrcorg:	Not Reported
Fmprocss:	Not Reported	Fmupdorg:	Not Reported
Fmupddat:	Not Reported	Fmnote:	Not Reported

A2
NW
1/4 - 1/2 Mile
Lower

ME WELLS **ME20000591**

Pwsid:	3375103		
Type:	C		
Buffer id:	6250	Radius:	300
Swap:	3375103.pdf	Fmsrc:	Not Reported
Fmsrcdat:	Not Reported	Fmsrcorg:	Not Reported
Fmprocss:	Not Reported	Fmupdorg:	Not Reported
Fmupddat:	Not Reported	Fmnote:	Not Reported

3
NW
1/4 - 1/2 Mile
Lower

ME WELLS **ME20000598**

Pwsid:	3375102		
Type:	C		
Buffer id:	6944	Radius:	300
Swap:	3375102.pdf	Fmsrc:	Not Reported
Fmsrcdat:	Not Reported	Fmsrcorg:	Not Reported
Fmprocss:	Not Reported	Fmupdorg:	Not Reported
Fmupddat:	Not Reported	Fmnote:	Not Reported

B4
WSW
1/2 - 1 Mile
Lower

FED USGS **USGS2047909**

Agency cd:	USGS	Site no:	435642069581802
Site name:	SW 16B		
Latitude:	435642		
Longitude:	0695818	Dec lat:	43.94507944
Dec lon:	-69.9711619	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	023
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 4	Map scale:	Not Reported

Altitude:	130.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	1952
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	30.0	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

B5
WSW **FED USGS** **USGS2047908**
1/2 - 1 Mile
Lower

Agency cd:	USGS	Site no:	435642069581801
Site name:	SW 16A		
Latitude:	435642		
Longitude:	0695818	Dec lat:	43.94507944
Dec lon:	-69.9711619	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	023
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 3	Map scale:	Not Reported
Altitude:	130.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	1952
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	30.0	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

6
WNW
1/2 - 1 Mile
Higher | **FED USGS** | **USGS2047916**

Agency cd:	USGS	Site no:	435657069582001
Site name:	SW 17		
Latitude:	435657		
Longitude:	0695820	Dec lat:	43.9492458
Dec lon:	-69.9717175	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	023
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 4	Map scale:	Not Reported
Altitude:	120.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Maine Coastal. Maine. Area = 4880 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	1952
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

C7
NNE
1/2 - 1 Mile
Higher | **FED USGS** | **USGS2047702**

Agency cd:	USGS	Site no:	435718069571502
Site name:	SW 1B		
Latitude:	435718		
Longitude:	0695715	Dec lat:	43.95507889
Dec lon:	-69.9536617	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	023
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 4	Map scale:	Not Reported
Altitude:	100.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	1951
Date inventoried:	Not Reported	Mean greenwich time offset:	EST

Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	130	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

C8
NNE
1/2 - 1 Mile
Higher

FED USGS **USGS2047701**

Agency cd:	USGS	Site no:	435718069571501
Site name:	SW 1A		
Latitude:	435718		
Longitude:	0695715	Dec lat:	43.95507889
Dec lon:	-69.9536617	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	023
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 3	Map scale:	Not Reported
Altitude:	100.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	1951
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	130	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

9
North
1/2 - 1 Mile
Lower

ME WELLS **ME20000611**

Pwsid:	13649101		
Type:	NC		
Buffer id:	5671	Radius:	300
Swap:	13649101.pdf	Fmsrc:	Not Reported
Fmsrcdat:	Not Reported	Fmsrcorg:	Not Reported
Fmprocss:	Not Reported	Fmupdorg:	Not Reported
Fmupddat:	Not Reported	Fmnote:	Not Reported

10
WSW
1/2 - 1 Mile
Lower

FED USGS **USGS2047895**

Agency cd:	USGS	Site no:	435629069583501
Site name:	SW 13		
Latitude:	435629		
Longitude:	0695835	Dec lat:	43.9414683
Dec lon:	-69.9758842	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	023
Country:	US	Land net:	Not Reported
Location map:	Not Reported	Map scale:	Not Reported
Altitude:	130	Altitude method:	U
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Not Reported		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	19520000
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Test hole, not completed as a well		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	Not Reported	Hole depth:	133
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

D11
North
1/2 - 1 Mile
Lower

FED USGS **USGS2047707**

Agency cd:	USGS	Site no:	435736069575002
Site name:	SW 122		
Latitude:	435736		
Longitude:	0695750	Dec lat:	43.96007889
Dec lon:	-69.9633842	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	023
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 4	Map scale:	Not Reported
Altitude:	125.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	1963
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	205	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

D12
North
1/2 - 1 Mile
Lower

FED USGS **USGS2047706**

Agency cd:	USGS	Site no:	435736069575001
Site name:	SW 121		
Latitude:	435736		
Longitude:	0695750	Dec lat:	43.96007889
Dec lon:	-69.9633842	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	023
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 4	Map scale:	Not Reported
Altitude:	120.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	Not Reported
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	14.0	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported

Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

13
NW
1/2 - 1 Mile
Higher

FED USGS **USGS2047703**

Agency cd:	USGS	Site no:	435724069583201
Site name:	SW 120		
Latitude:	435724		
Longitude:	0695832	Dec lat:	43.9567458
Dec lon:	-69.9750511	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	023
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 4	Map scale:	Not Reported
Altitude:	135.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	1951
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	185	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

E14
WSW
1/2 - 1 Mile
Higher

FED USGS **USGS2047903**

Agency cd:	USGS	Site no:	435635069584802
Site name:	SW 14B		
Latitude:	435635		
Longitude:	0695848	Dec lat:	43.943135
Dec lon:	-69.97949528	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	023
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 4	Map scale:	Not Reported

Altitude:	120.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	1952
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	82.0	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

E15
WSW **FED USGS** **USGS2047902**
1/2 - 1 Mile
Higher

Agency cd:	USGS	Site no:	435635069584801
Site name:	SW 14A		
Latitude:	435635		
Longitude:	0695848	Dec lat:	43.943135
Dec lon:	-69.97949528	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	23
State:	23	County:	023
Country:	US	Land net:	Not Reported
Location map:	BASIC DATA NO 3	Map scale:	Not Reported
Altitude:	120.00	Altitude method:	M
Altitude accuracy:	Not Reported	Altitude datum:	NGVD29
Hydrologic:	Lower Androscoggin. Maine, New Hampshire. Area = 2060 sq.mi.		
Topographic:	Not Reported		
Site type:	Ground-water other than Spring	Date construction:	1952
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	Not Reported		
Well depth:	82.0	Hole depth:	Not Reported
Source of depth data:	Not Reported	Project number:	Not Reported
Real time data flag:	Not Reported	Daily flow data begin date:	Not Reported
Daily flow data end date:	Not Reported	Daily flow data count:	Not Reported
Peak flow data begin date:	Not Reported	Peak flow data end date:	Not Reported
Peak flow data count:	Not Reported	Water quality data begin date:	Not Reported
Water quality data end date:	Not Reported	Water quality data count:	Not Reported
Ground water data begin date:	Not Reported	Ground water data end date:	Not Reported
Ground water data count:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: ME Radon

Radon Test Results

Zip	City	Floor	Results
04086		B	1.6
04086		B	1.6
04086	Topsham	B	3.6
04086	Topsham	B	3.6
04086	Topsham	B	3.7
04086		B	0.4
04086		B	3.7
04086		B	3.4
04086		F	0.5
04086		F	0.5
04086		F	3.7
04086		F	3.7
04086		B	1.7
04086		B	1.9
04086		B	19.0
04086		B	18.0
04086		B	5.1
04086		B	4.7
04086		B	0.8
04086		B	0.6
04086		B	0.8
04086		B	0.6
04086		B	10.0
04086		B	10.0
04086		F	0.8
04086		B	1.0
04086		B	0.9
04086		B	1.6
04086		B	1.9
04086	Topsham	B	2.7
04086	Topsham	B	2.7
04086	Topsham	B	1.4
04086	Topsham	B	1.4
04086	Topsham	B	2.0
04086	Topsham	B	9.0
04086	Topsham	B	2.0
04086	Topsham	B	9.0
04086	Topsham	B	5.6
04086	Topsham	B	5.3
04086	Topsham	B	5.6
04086	Topsham	B	5.3
04086	Topsham	B	1.0
04086	Topsham	B	1.0
04086	Topsham	B	2.7
04086	Topsham	B	0.8
04086	Topsham	B	2.7
04086			

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

	Topsham	B	0.8
04086	Topsham	B	7.2
04086	Topsham	B	7.2
04086	Topsham	B	0.7
04086	Topsham	B	0.7
04086	Topsham	B	3.0
04086	Topsham	B	0.4
04086	Topsham	B	4.8
04086	Topsham	B	4.1
04086	Topsham	B	1.8
04086	Topsham	B	3.0
04086	Topsham	B	0.4
04086	Topsham	B	4.8
04086	Topsham	B	4.1
04086	Topsham	B	1.8
04086	Turner	B	2.2
04086	Turner	B	2.2

Federal EPA Radon Zone for SAGADAHOC County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 04086

Number of sites tested: 6

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	4.233 pCi/L	50%	50%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetlands Inventory
Source: Office of Geographic Information Systems
Telephone: 207-287-6144

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Public Water Supply Wells Database
Source: Department of Human Services, Drinking Water Program
Telephone: 207-287-6196
There are 3 types of public water systems in Maine: Transient Systems; Community Systems and Non-transient Non-community Systems

OTHER STATE DATABASE INFORMATION

RADON

Maine Radon Test Results
Source: Department of Human Services
Telephone: 207-287-5698
The state of Maine Radiation Control Program's - Radon/Indor Air Quality Section's position on radon map, is that they should be used neither to predict the presence of high nor low values in any given geographic or geologic area. The only conclusion that should be drawn from this data is that radon in omnipresent in the soil gasses in the state of Maine, and therefore all residences and buildings that come in contact with the ground should be tested for radon.

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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FACILITIES LISTS

NASB Facilities Lists Current

NASB Facilities List

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
	RAILROAD DOCK	1959	27N	249	SY
	TRANSHIPMENT AREA	1957		10666	SY
	ROADS BITUMINOUS	1943		145212	SY
	PARKING AREAS BIT	1943		332054	SY
	PARKING AREA/OTHER/	1943		15391	SY
	ROADS/OTHER/	1943		147390	SY
	STATION NAME SIGN	1953	34S		
	RUNWAY LIGHTING	1943			
	FUEL DISTRIBUTION SYSTEM	1953	30Q		
	SECURITY FENCE	1969		105605	LF
	AIRCRAFT ARRESTING GEAR	1958			
	A/C PARKING APRONS	1951		471189	SY
	TAXIWAYS	1953		128813	SY
	ROADS BITUMINOUS	1954		80326	SY
	SIDEWALKS BITUMINOUS	1954		6083	SY
	STORM SEWER	1954		8807	LF
	FIREFIGHTING PRACTICE PAD	1960	21P		
	A/C ACCESS APRON	1951		9867	SY
	R/W END REFERENCE LIGHTS	1964			
	PAPI	1964			
	CENTERLINE LIGHTING	1965			
	TAXIWAY LIGHTING	1953			
	CLEAR ZONE (P-069)			23	AC
	AICUZ J. & L. DAVIS PAR.#2			0.22	AC
				5.59	AC
				23.46	AC
	DEED FRM V & M THIBODEAU			0.2	AC
				1.5	AC
				1.13	AC
				40.95	AC
				4.34	AC
	STORM SEWER	1952		74677	LF
				6.54	AC
				0.05	AC
				8.63	AC
				521.65	AC
	N/A			2594.15	AC
	RUNWAY OUTBOARD DUAL	1953	NA	177778	SY
	RUNWAY INBOARD DUAL	1953	NA	177778	SY
	OPEN STORAGE	1943		7310	SY
		1973			
	SIDEWALKS	1943		11611	SY
	TAXIWAYS	1953		57008	SY
				7.37	AC
		1952			
		1952			
	PERIMETER/SECURITY LIGHTING	1973	N17	715	LF
		1952			
		1954			
	SANITARY SEWER	1954		13490	LF
	COMMUNICATION LINES	1959			
	AIR RAID ALARM SYSTEM	1957	27M		

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
	FIRE ALARM SYSTEM	1957			
		1943			
	COMPRESSED AIR LINES	1953	28M		
		1954			
		1952			
	APPROACH LIGHTING	1981			
	NORTH C/L APPROACH LTNG	1967	33-I		
	R/W DISTANCE MARKERS	1971			
	VOR/TACAN CK SG	1970			
	SANITARY SEWER	1943		34950	LF
	PLAYGROUND	1973	30T		
	SEWAGE PUMPING STATION	1958	23P		
	HOT SPOT	1983	15F	10666	SY
	VEHICLE PARKING SURFACE	2005	P32	416	SY
				48.36	AC
	LINE VEHICLE PARKING	1957		5888	SY
	PLAYGROUND	1973	30W		
1	HANGAR	1942	26M	107376	SF
5	MAINTENANCE HANGAR	1982	23Q	163454	SF
6	MAINTENANCE HANGAR	2005	30N	166335	SF
9	ADMINISTRATIVE SPACE (VACANT)	1943	27M	8723	SF
10	OIL SPILL EQUIPMENT STORAGE	2004	30O		SF
11	NAVY EXCHANGE RETAIL COMPLEX	1981	260	52381	SF
19	PUBLIC WORKS SHOPS	1981	21O	6000	SF
20	COMMUNITY FACILITIES	1943	27O	25871	SF
21	CHILD CARE CENTER	1983	25P	4975	SF
23	CAR WASH	1994	26P	1335	SF
24	PERSONNEL SUPPORT DET BLDG	1982	26P	10000	SF
25	INDOOR FITNESS CNTR	1983	25P	16658	SF
26	CHILD CARE CENTER	1990	25P	6496	SF
27	FAMILY SERVICES CENTER	1984	26-O	7862	SF
28	OXYGEN SHOP (VACANT)	1944	27P	784	SF
29	AUTO HOBBY SHOP	1988	23O	12000	SF
30	FSC STORAGE	1995	26D	512	SY
31	NAVY LODGE	1999	27O	15054	SF
32	RECREATION PAVILLION	1981	30-Q	1500	SF
33	SENTRYHOUSE/FRONT GATE	1954	34S	106	SF
35	SENTRY HOUSE/FRONT GATE	2004	32T		
36	DYERS GATE SENTRY HOUSE	2004	16L		
37	NCIS	1943	34S	2320	SF
38	PASS & ID OFFICE	2004	33S		
39	GOLF COURSE MAINT BLDG	1985	10G	2800	SF
41	POLICE/SECURITY STATION (VACANT)	1944	29N	10526	SF
42	PUMPHOUSE	1944	28N	660	SF
43	TELEPHONE EXCHANGE BLDG	1988	026Q	1156	SF
44	INERT ORDNANCE STORAGE	1943	27N	1258	SF
45	HAZ WASTE TRANSFER FACILITY	1992	27L	3000	SF
46	SECURITY INSPECTION OFFICE	2004	15M		
47	BALLFIELD STORAGE	1999	29P	400	SF
49	REGULATOR/SUBSTATION BLDG	1981	L15	315	SF
50	GROUND WATER EXTRACTION & TREATMENT FACILITY	1995	21O	6500	SF
51	HAZARDOUS WASTE FACILITY	2005	22O	5000	SF
53	PUBLIC WORKS SHOP	1996	21O	10000	SF
54	APPLIED INSTR. BUILDING	1988	28R	30000	SF

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
55	POLICE/SECURITY STATION	2005	22O	11000	SF
57	BEACON TOWER	2005	21O		
58	TACAN	2005	10R		
59	HE MAGAZINE	1943	9P	1010	SF
60	INERT ORDNANCE STORAGE	1943	Q19	1010	SF
62	AMMO STORAGE FACILITY	1943	9P	1010	SF
63	STORAGE FACILITY	1943	22G	1010	SF
64	STORAGE FACILITY	1943	21F	1010	SF
65	PICNIC SHELTER (QTY 5)	1986	21S	3380	SF
71	AMMO MAGAZINE	1943	20N	1010	SF
77	WEAPONS BUILD-UP FACILITY	1993	12O	4000	SF
78	GOLF CLUBHOUSE	1981	10G	3040	SF
79	HOBBY SHOP STORAGE	1980	23N	540	SF
81	CHRIMP FACILITY	1980	N22	7000	SF
83	ORDNANCE DISPOSAL SITE(18 AC	1981	R8		
86	GSE MAINT. SHOP	1992	25N	31980	SF
87	ASWOC/TSC	1988	26R	52513	SF
102	INDOOR SMALL ARMS RANGE	2004	28O	4975	SF
103	MILITARY WORKING DOG KENNEL	2004	29O	1600	SF
104	MECH SEC BARRIERS (DYERS GATE)	2004	16L	80	SF
109	DOG KENNEL (VACANT)	1983	34S	529	SF
111	SEWAGE PUMP HOUSE	1943	30S	64	SF
117	FILLING STATION	1984	30P	124	SF
118	FILLING STATION STORAGE	1984	30P	42	SF
122	FLAG POLE /ADMIN/	1953	27N		
124	STOR TANK-GROUND LEVEL	1944	28N	3721	SY
125	GUARD TOWER	1983	160	256	SF
126	NATL GUARD MAGAZINE	1983	09P	2040	SF
127	NATL. GUARD MAGAZINE	1983	09P	264	SF
128	NATL GUARD MAGAZINE	1983	09P	266	SF
145	LOADING PLATFORM	1943	12N	826	SY
146	WATERMAIN ENTRANCE SHELTER	1987	34E	230	SF
147	WATER METER PIT SHELTER	1987	33L	240	SF
150	NAVAL AIR RESERVE CENTER	1992	29R	13196	SF
151	NAVAL SURFACE RESERVE CENTER	2002	29Q	24480	SF
153	RECYCLING CENTER	1992	16K	7800	SF
156	MONUMENT	1943	270		
157	MONUMENT	1943	270		
200	OPERATIONS-CONTROL TOWER BLD	1954	28L	22409	SF
201	GALLEY/NEPTUNE HALL	1953	23O	9425	SF
209	ELECTRIC DISTRBN BLD/SHLTR	1954	28M	2283	SF
211	PHYSICAL FITNESS FACILITY	1954	25P	50984	SF
221	THRIFT SHOP	1999	23P	600	SF
222	BEQ MAINT STORAGE	1954	24O	706	SF
223	NMCI	1953	29O	4284	SF
225	AUTOMOTIVE EQUIP REPAIR SHOP	1953	26N	15020	SF
226	SEA CADETS BUILDING	2001	24P	2560	SF
227	GENERATOR BUILDING	1956	25E	160	SF
228	SENTRYHOUSE/CW5	1980	26Q	96	SF
229	GCA TURNTABLE	1963	24I	1428	SY
231	AIR TRAFFIC CONTROL TOWER	2005	28E	15661	SF
245	PAVEMENT & GRND EQUIP SHED	1956	9P	229	SF
250	MAINTENANCE HANGAR	1956	24M	184400	SF
251	DE-ICE/RINSE PUMPHOUSE	2002	23N	114	SY

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
252	AUTO EQUIP REPR SHP	1957	26N	5100	SF
254	DRAFTING TANK	1957	28L	0.01	AC
255	GOLF COURSE & DRIVING RANGE	1955	8H		
256	ATHLETIC FIELD	1943	28Q	175000	SY
257	PLAYING COURTS	1965	27P		
265	SENTRYHOUSE/FORRESTAL RD/HSG	1960	31T	31	SF
277	SEWAGE PUMPING STATION	1953	34N		
280	TRANSMITTER BLDG VHF/UHF	1956	26E	974	SF
282	COMPASS ROSE	1956	32L	1257	SY
285	AMMO STORAGE FACILITY	1956	7P	1493	SF
286	AMMO STORAGE FACILITY	1956	8P	1493	SF
287	AMMO STORAGE FACILITY	1956	8P	1493	SF
288	AMMO STORAGE FACILITY	1956	7P	1493	SF
289	AMMO STORAGE FACILITY	1956	8P	1493	SF
290	HIGH EXPLOSIVE MAGAZINE	1956	6O	1493	SF
291	HE MAGAZINE	1956	11Q	192	SF
292	FIRE/RESCUE FACILITY	1957	27L	10665	SF
294	WAREHOUSE	1956	28N	64530	SF
295	WATER RESERVOIR PUMP HOUSE	1957	26-0		
296	VORTAC	1956	31F	408	SF
309	PUMPHOUSE/IRRIGATION	1954	8J	180	SF
310	DAM	1955	8J		
311	OIL SPILL CONTROL WEIR	1994	32O		
323	STORAGE BLDG	1949	30U	440	SF
347	DAM (PICNIC POND)	1954	19S		
512	BOQ	1958	28Q	61882	SF
516	NITEFLIGHT	1958	23R	14983	SF
517	RECEIVER BUILDING	1958	22E	1106	SF
518	GENERATOR BUILDING	1958	22E	176	SF
537	SEWAGE PUMP HOUSE	1958	23P	597	SF
538	NX SERVICE STATION	1957	26O	5292	SF
539	EXPL ADMIN/ARMORY	1958	16O	10311	SF
543	HIGH EXPLOSIVES MAGAZINE	1958	7O	1232	SF
544	HIGH EXPLOSIVE MAGAZINE	1958	7O	2252	SF
548	HIGH EXPLOSIVE MAGAZINE	1959	10Q	192	SF
549	HIGH EXPLOSIVE MAGAZINE	1959	11Q	192	SF
553	AIRFIELD SUPPORT BUILDING	2004	24N	15888	SF
554	P3 SUPPORT FACILITY	2002	21N	10000	SF
555	SONOBOUY / VEHICLE STORAGE	1959	24N	6400	SF
562	TRANSMISSOMETER TOWER	1960	19L		
563	TRANSMISSOMETER TOWER	1960	18L		
583	BOWLING CENTER/REC MALL	1965	27P	19380	SF
584	PW SHOPS	1965	210	7200	SF
585	CHAPEL	1965	270	13610	SF
590	TRANSPORTATION MAINTENANCE BUILDING	2004	20O	8000	SF
592	VET CLINIC	1950	26Q	1621	SF
594	RADAR TOWER/MECH @ ASWOC	1950	26Q	900	SF
600	TRANSMISSOMETER TOWER	1965	30K		
601	ASOS TOWER	1965	29K		
602	GLIDE SLOPE ANTENNA BUILDING	1997	18L	94	SF
603	LOCALIZER ANTENNA SHELTER	1997	34J	94	SF
611	T-56 ENGINE TEST FACILITY	1967	20N	2484	SF
613	PICNIC AREA TOILET	1966	24Q	150	SF
618	FLAG POLE 1 FAW-3	1954	24N		

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
626	INERT ORDNANCE STORAGE	1973	N17	3198	SF
629	NMCB 27/SEABEE CAMP	1974	M34	960	SF
630	NMCB27/SEABEE CAMP	1974	M34	960	SF
631	NMCB 27/SEABEE CAMP	1974	M34	960	SF
632	FATS TRAINER	2005	33M		SF
633	NMCB 27/SEABEE CAMP	1974	M34	2640	SF
634	NMCB 27/SEABEE CAMP	1974	N34	960	SF
635	NMCB 27/SEABEE CAMP	1974	M33	4700	SF
638	SEWAGE PUMPING STATION	1954	30U		
639	OPERATIONAL TRAINING BLDG (D	1975	27Q	3540	SF
642	WEPS ADMIN	1978	16O	2640	SF
643	SENTRY HOUSE/WEAPONS AREA	1978	16O	140	SF
644	OPERATIONAL TRAINER BLDG	1979	27R	13571	SF
645	BR MEDICAL/DENTAL CLINIC	1979	28R	31559	SF
646	RATCF ANTENNA BUILDING	1979	19D	480	SF
647	BOTT GAS STRG BLDG/PEST CONT	1978	28N	1541	SF
649	AMBULANCE GARAGE	1979	28R	1377	SF
650	JP-8 TANK 20000 BBLS	1992	N31		
651	JP-8 TANK 20000 BBLS	1992	N32		
652	JP-8 TRUCK LOADING RACK	1992	N33	2508	SF
653	FUEL FARM FOAM HOUSE	1992	P31	540	SF
654	JP-8 PUMP HOUSE	1992	P32	2145	SF
655	JP-8 TRUCK OFFLOAD RACK	1992	N31	5038	SF
656	JP-8 SLOP TANK	1992			
657	RESERVE TRAINING BUILDING	1992	M33	960	SF
658	FUEL FARM POL TESTING FAC	1998	O32	2000	SF
660	TRUCK WASH	1998	P31	2016	SF
730	BEQ	2002	24P	5679	SF
731	BEQ	2002	24P	7083	SF
732	BEQ	2002	24P	5679	SF
733	BEQ	2002	24P	7083	SF
734	BEQ	2002	24P	7083	SF
735	BEQ	2002	24P	7083	SF
736	BEQ	2002	24P	7083	SF
737	BEQ	2002	24Q	7083	SF
738	BEQ	2002	24Q	7083	SF
739	BEQ	2002	24Q	7083	SF
740	BEQ	2002	24Q	7083	SF
741	BEQ	2002	24Q	5679	SF
742	BEQ	2002	24Q	7083	SF
743	BEQ	2002	24Q	5679	SF
744	BEQ	2002	24Q	7083	SF
745	BEQ	2002	24Q	7083	SF
746	BEQ	2002	24P	7083	SF
747	BEQ	2002	24Q	7083	SF
748	BEQ	2002	24Q	7083	SF
749	BEQ	2002	24Q	5679	SF
750	TRANSIENT VISITOR QUARTERS	2004	25S	115000	SF
751	SCHOOL AGE CARE CENTER	2003	27T	2500	SF
927	RUNWAY E/W INACTIVE	1943	NA	93116	SY
927	RUNWAY E/W INACTIVE	1943	NA	93116	SY
1156	STORAGE YARD	1965	200	9556	SY

NASB Facilities Lists Current and Historic

NASB Facilities List

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
	RAILROAD DOCK	1959	27N	249	SY
	TRANSHIPMENT AREA	1957		10666	SY
	ROADS BITUMINOUS	1943		145212	SY
	PARKING AREAS BIT	1943		332054	SY
	PARKING AREA/OTHER/	1943		15391	SY
	ROADS/OTHER/	1943		147390	SY
	STATION NAME SIGN	1953	34S		
	RUNWAY LIGHTING	1943			
	FUEL DISTRIBUTION SYSTEM	1953	30Q		
	SECURITY FENCE	1969		105605	LF
	AIRCRAFT ARRESTING GEAR	1958			
	A/C PARKING APRONS	1951		471189	SY
	TAXIWAYS	1953		128813	SY
	ROADS BITUMINOUS	1954		80326	SY
	SIDEWALKS BITUMINOUS	1954		6083	SY
	STORM SEWER	1954		8807	LF
	FIREFIGHTING PRACTICE PAD	1960	21P		
	A/C ACCESS APRON	1951		9867	SY
	R/W END REFERENCE LIGHTS	1964			
	PAPI	1964			
	CENTERLINE LIGHTING	1965			
	TAXIWAY LIGHTING	1953			
	CLEAR ZONE (P-069)			23	AC
	AICUZ J. & L. DAVIS PAR.#2			0.22	AC
				5.59	AC
				23.46	AC
	DEED FRM V & M THIBODEAU			0.2	AC
				1.5	AC
				1.13	AC
				40.95	AC
				4.34	AC
	STORM SEWER	1952		74677	LF
				6.54	AC
				0.05	AC
				8.63	AC
				521.65	AC
	N/A			2594.15	AC
	RUNWAY OUTBOARD DUAL	1953	NA	177778	SY
	RUNWAY INBOARD DUAL	1953	NA	177778	SY
	OPEN STORAGE	1943		7310	SY
		1973			
	SIDEWALKS	1943		11611	SY
	TAXIWAYS	1953		57008	SY
				7.37	AC
		1952			
		1952			
	PERIMETER/SECURITY LIGHTING	1973	N17	715	LF
		1952			
		1954			
	SANITARY SEWER	1954		13490	LF
	COMMUNICATION LINES	1959			
	AIR RAID ALARM SYSTEM	1957	27M		

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
	FIRE ALARM SYSTEM	1957			
		1943			
	COMPRESSED AIR LINES	1953	28M		
		1954			
		1952			
	APPROACH LIGHTING	1981			
	NORTH C/L APPROACH LTNG	1967	33-I		
	R/W DISTANCE MARKERS	1971			
	VOR/TACAN CK SG	1970			
	SANITARY SEWER	1943		34950	LF
	PLAYGROUND	1973	30T		
	SEWAGE PUMPING STATION	1958	23P		
	HOT SPOT	1983	15F	10666	SY
	VEHICLE PARKING SURFACE	2005	P32	416	SY
				48.36	AC
	LINE VEHICLE PARKING	1957		5888	SY
	PLAYGROUND	1973	30W		
1	HANGAR	1942	26M	107376	SF
5	MAINTENANCE HANGAR	1982	23Q	163454	SF
6	MAINTENANCE HANGAR	2005	30N	166335	SF
9	ADMINISTRATIVE SPACE (VACANT)	1943	27M	8723	SF
10	OIL SPILL EQUIPMENT STORAGE	2004	30O		SF
11	NAVY EXCHANGE RETAIL COMPLEX	1981	260	52381	SF
19	PUBLIC WORKS SHOPS	1981	21O	6000	SF
20	COMMUNITY FACILITIES	1943	27O	25871	SF
21	CHILD CARE CENTER	1983	25P	4975	SF
23	CAR WASH	1994	26P	1335	SF
24	PERSONNEL SUPPORT DET BLDG	1982	26P	10000	SF
25	INDOOR FITNESS CNTR	1983	25P	16658	SF
26	CHILD CARE CENTER	1990	25P	6496	SF
27	FAMILY SERVICES CENTER	1984	26-O	7862	SF
28	OXYGEN SHOP (VACANT)	1944	27P	784	SF
29	AUTO HOBBY SHOP	1988	23O	12000	SF
30	FSC STORAGE	1995	26D	512	SY
31	NAVY LODGE	1999	27O	15054	SF
32	RECREATION PAVILLION	1981	30-Q	1500	SF
33	SENTRYHOUSE/FRONT GATE	1954	34S	106	SF
35	SENTRY HOUSE/FRONT GATE	2004	32T		
36	DYERS GATE SENTRY HOUSE	2004	16L		
37	NCIS	1943	34S	2320	SF
38	PASS & ID OFFICE	2004	33S		
39	GOLF COURSE MAINT BLDG	1985	10G	2800	SF
41	POLICE/SECURITY STATION (VACANT)	1944	29N	10526	SF
42	PUMPHOUSE	1944	28N	660	SF
43	TELEPHONE EXCHANGE BLDG	1988	026Q	1156	SF
44	INERT ORDNANCE STORAGE	1943	27N	1258	SF
45	HAZ WASTE TRANSFER FACILITY	1992	27L	3000	SF
46	SECURITY INSPECTION OFFICE	2004	15M		
47	BALLFIELD STORAGE	1999	29P	400	SF
49	REGULATOR/SUBSTATION BLDG	1981	L15	315	SF
50	GROUND WATER EXTRACTION & TREATMENT FACILITY	1995	21O	6500	SF
51	HAZARDOUS WASTE FACILITY	2005	22O	5000	SF
53	PUBLIC WORKS SHOP	1996	21O	10000	SF
54	APPLIED INSTR. BUILDING	1988	28R	30000	SF

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
55	POLICE/SECURITY STATION	2005	22O	11000	SF
57	BEACON TOWER	2005	21O		
58	TACAN	2005	10R		
59	HE MAGAZINE	1943	9P	1010	SF
60	INERT ORDNANCE STORAGE	1943	Q19	1010	SF
62	AMMO STORAGE FACILITY	1943	9P	1010	SF
63	STORAGE FACILITY	1943	22G	1010	SF
64	STORAGE FACILITY	1943	21F	1010	SF
65	PICNIC SHELTER (QTY 5)	1986	21S	3380	SF
71	AMMO MAGAZINE	1943	20N	1010	SF
77	WEAPONS BUILD-UP FACILITY	1993	12O	4000	SF
78	GOLF CLUBHOUSE	1981	10G	3040	SF
79	HOBBY SHOP STORAGE	1980	23N	540	SF
81	CHRIMP FACILITY	1980	N22	7000	SF
83	ORDNANCE DISPOSAL SITE(18 AC	1981	R8		
86	GSE MAINT. SHOP	1992	25N	31980	SF
87	ASWOC/TSC	1988	26R	52513	SF
102	INDOOR SMALL ARMS RANGE	2004	28O	4975	SF
103	MILITARY WORKING DOG KENNEL	2004	29O	1600	SF
104	MECH SEC BARRIERS (DYERS GATE)	2004	16L	80	SF
109	DOG KENNEL (VACANT)	1983	34S	529	SF
111	SEWAGE PUMP HOUSE	1943	30S	64	SF
117	FILLING STATION	1984	30P	124	SF
118	FILLING STATION STORAGE	1984	30P	42	SF
122	FLAG POLE /ADMIN/	1953	27N		
124	STOR TANK-GROUND LEVEL	1944	28N	3721	SY
125	GUARD TOWER	1983	160	256	SF
126	NATL GUARD MAGAZINE	1983	09P	2040	SF
127	NATL. GUARD MAGAZINE	1983	09P	264	SF
128	NATL GUARD MAGAZINE	1983	09P	266	SF
145	LOADING PLATFORM	1943	12N	826	SY
146	WATERMAIN ENTRANCE SHELTER	1987	34E	230	SF
147	WATER METER PIT SHELTER	1987	33L	240	SF
150	NAVAL AIR RESERVE CENTER	1992	29R	13196	SF
151	NAVAL SURFACE RESERVE CENTER	2002	29Q	24480	SF
153	RECYCLING CENTER	1992	16K	7800	SF
156	MONUMENT	1943	270		
157	MONUMENT	1943	270		
200	OPERATIONS-CONTROL TOWER BLD	1954	28L	22409	SF
201	GALLEY/NEPTUNE HALL	1953	23O	9425	SF
209	ELECTRIC DISTRBN BLD/SHLTR	1954	28M	2283	SF
211	PHYSICAL FITNESS FACILITY	1954	25P	50984	SF
221	THRIFT SHOP	1999	23P	600	SF
222	BEQ MAINT STORAGE	1954	24O	706	SF
223	NMCI	1953	29O	4284	SF
225	AUTOMOTIVE EQUIP REPAIR SHOP	1953	26N	15020	SF
226	SEA CADETS BUILDING	2001	24P	2560	SF
227	GENERATOR BUILDING	1956	25E	160	SF
228	SENTRYHOUSE/CW5	1980	26Q	96	SF
229	GCA TURNTABLE	1963	24I	1428	SY
231	AIR TRAFFIC CONTROL TOWER	2005	28E	15661	SF
245	PAVEMENT & GRND EQUIP SHED	1956	9P	229	SF
250	MAINTENANCE HANGAR	1956	24M	184400	SF
251	DE-ICE/RINSE PUMPHOUSE	2002	23N	114	SY

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
252	AUTO EQUIP REPR SHP	1957	26N	5100	SF
254	DRAFTING TANK	1957	28L	0.01	AC
255	GOLF COURSE & DRIVING RANGE	1955	8H		
256	ATHLETIC FIELD	1943	28Q	175000	SY
257	PLAYING COURTS	1965	27P		
265	SENTRYHOUSE/FORRESTAL RD/HSG	1960	31T	31	SF
277	SEWAGE PUMPING STATION	1953	34N		
280	TRANSMITTER BLDG VHF/UHF	1956	26E	974	SF
282	COMPASS ROSE	1956	32L	1257	SY
285	AMMO STORAGE FACILITY	1956	7P	1493	SF
286	AMMO STORAGE FACILITY	1956	8P	1493	SF
287	AMMO STORAGE FACILITY	1956	8P	1493	SF
288	AMMO STORAGE FACILITY	1956	7P	1493	SF
289	AMMO STORAGE FACILITY	1956	8P	1493	SF
290	HIGH EXPLOSIVE MAGAZINE	1956	6O	1493	SF
291	HE MAGAZINE	1956	11Q	192	SF
292	FIRE/RESCUE FACILITY	1957	27L	10665	SF
294	WAREHOUSE	1956	28N	64530	SF
295	WATER RESERVOIR PUMP HOUSE	1957	26-0		
296	VORTAC	1956	31F	408	SF
309	PUMPHOUSE/IRRIGATION	1954	8J	180	SF
310	DAM	1955	8J		
311	OIL SPILL CONTROL WEIR	1994	32O		
323	STORAGE BLDG	1949	30U	440	SF
347	DAM (PICNIC POND)	1954	19S		
512	BOQ	1958	28Q	61882	SF
516	NITEFLIGHT	1958	23R	14983	SF
517	RECEIVER BUILDING	1958	22E	1106	SF
518	GENERATOR BUILDING	1958	22E	176	SF
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538	NX SERVICE STATION	1957	26O	5292	SF
539	EXPL ADMIN/ARMORY	1958	16O	10311	SF
543	HIGH EXPLOSIVES MAGAZINE	1958	7O	1232	SF
544	HIGH EXPLOSIVE MAGAZINE	1958	7O	2252	SF
548	HIGH EXPLOSIVE MAGAZINE	1959	10Q	192	SF
549	HIGH EXPLOSIVE MAGAZINE	1959	11Q	192	SF
553	AIRFIELD SUPPORT BUILDING	2004	24N	15888	SF
554	P3 SUPPORT FACILITY	2002	21N	10000	SF
555	SONOBOUY / VEHICLE STORAGE	1959	24N	6400	SF
562	TRANSMISSOMETER TOWER	1960	19L		
563	TRANSMISSOMETER TOWER	1960	18L		
583	BOWLING CENTER/REC MALL	1965	27P	19380	SF
584	PW SHOPS	1965	21O	7200	SF
585	CHAPEL	1965	27O	13610	SF
590	TRANSPORTATION MAINTENANCE BUILDING	2004	20O	8000	SF
592	VET CLINIC	1950	26Q	1621	SF
594	RADAR TOWER/MECH @ ASWOC	1950	26Q	900	SF
600	TRANSMISSOMETER TOWER	1965	30K		
601	ASOS TOWER	1965	29K		
602	GLIDE SLOPE ANTENNA BUILDING	1997	18L	94	SF
603	LOCALIZER ANTENNA SHELTER	1997	34J	94	SF
611	T-56 ENGINE TEST FACILITY	1967	20N	2484	SF
613	PICNIC AREA TOILET	1966	24Q	150	SF
618	FLAG POLE 1 FAW-3	1954	24N		

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
626	INERT ORDNANCE STORAGE	1973	N17	3198	SF
629	NMCB 27/SEABEE CAMP	1974	M34	960	SF
630	NMCB27/SEABEE CAMP	1974	M34	960	SF
631	NMCB 27/SEABEE CAMP	1974	M34	960	SF
632	FATS TRAINER	2005	33M		SF
633	NMCB 27/SEABEE CAMP	1974	M34	2640	SF
634	NMCB 27/SEABEE CAMP	1974	N34	960	SF
635	NMCB 27/SEABEE CAMP	1974	M33	4700	SF
638	SEWAGE PUMPING STATION	1954	30U		
639	OPERATIONAL TRAINING BLDG (D	1975	27Q	3540	SF
642	WEPS ADMIN	1978	16O	2640	SF
643	SENTRY HOUSE/WEAPONS AREA	1978	16O	140	SF
644	OPERATIONAL TRAINER BLDG	1979	27R	13571	SF
645	BR MEDICAL/DENTAL CLINIC	1979	28R	31559	SF
646	RATCF ANTENNA BUILDING	1979	19D	480	SF
647	BOTT GAS STRG BLDG/PEST CONT	1978	28N	1541	SF
649	AMBULANCE GARAGE	1979	28R	1377	SF
650	JP-8 TANK 20000 BBLS	1992	N31		
651	JP-8 TANK 20000 BBLS	1992	N32		
652	JP-8 TRUCK LOADING RACK	1992	N33	2508	SF
653	FUEL FARM FOAM HOUSE	1992	P31	540	SF
654	JP-8 PUMP HOUSE	1992	P32	2145	SF
655	JP-8 TRUCK OFFLOAD RACK	1992	N31	5038	SF
656	JP-8 SLOP TANK	1992			
657	RESERVE TRAINING BUILDING	1992	M33	960	SF
658	FUEL FARM POL TESTING FAC	1998	O32	2000	SF
660	TRUCK WASH	1998	P31	2016	SF
730	BEQ	2002	24P	5679	SF
731	BEQ	2002	24P	7083	SF
732	BEQ	2002	24P	5679	SF
733	BEQ	2002	24P	7083	SF
734	BEQ	2002	24P	7083	SF
735	BEQ	2002	24P	7083	SF
736	BEQ	2002	24P	7083	SF
737	BEQ	2002	24Q	7083	SF
738	BEQ	2002	24Q	7083	SF
739	BEQ	2002	24Q	7083	SF
740	BEQ	2002	24Q	7083	SF
741	BEQ	2002	24Q	5679	SF
742	BEQ	2002	24Q	7083	SF
743	BEQ	2002	24Q	5679	SF
744	BEQ	2002	24Q	7083	SF
745	BEQ	2002	24Q	7083	SF
746	BEQ	2002	24P	7083	SF
747	BEQ	2002	24Q	7083	SF
748	BEQ	2002	24Q	7083	SF
749	BEQ	2002	24Q	5679	SF
750	TRANSIENT VISITOR QUARTERS	2004	25S	115000	SF
751	SCHOOL AGE CARE CENTER	2003	27T	2500	SF
927	RUNWAY E/W INACTIVE	1943	NA	93116	SY
927	RUNWAY E/W INACTIVE	1943	NA	93116	SY
1156	STORAGE YARD	1965	200	9556	SY

PWO

Revised 1 January 1966

BUILDING & STRUCTURE LIST

NO.	LOCATION	RESPONSIBILITY	USE
1	26-M	CFAD/Public Works *	Hangar
2	28-M	CFAD/Public Works *	Hangar
3	29-M	CFAD/AF/OPS/PW *	Hangar
4	27-N	Administration	Station Administration Bldg.
6	28-M	Public Works	General Services
7	27-N	Public Works/AMD	C.E.'s & Ground Support Equip.
8	27-M	Public Works	Shop and Offices
9	27-M	Public Works	Housing Office & Warehouse
10	26-N	Public Works/Security/AMD	Shops and Storage
12	27-N	Supply	Storage and Offices
13	29-0	Supply	Storage, Paint and Oil
14	28-P	Supply	Storage, Cold & Dry Stores
15	28-0	Navy Exchange	Navy Exchange
16	28-0	Commissary Store	Commissary Store
17	26-N	CFAD/IRO/AMD	ARC/Credit Union/Survival,Shop Training
18	27-0	Administration	C.P.O. Barracks
19	26-0	Marine Barracks	Barracks
20	27-0	Admin/Brunswick School	Nursery/Public School/Sunday School/ Hobby Shop
22	27-P	Security	Brig
23	28-P	Administration/Navy Exchange	Gymnasium/Navy Exchange Cafeteria/Country Store
26	28-P	Administration	Steward's Barracks
28	29-0	A/C Maintenance	Oxygen Shop
29	26-N	Public Works	Snow Removal Central
30	26-P	Medical/Dental	Station Hospital/Dental Clinic
32	27-R	Public Works	Vacant
33	34-S	Marine Barracks	Sentry Booth, Main Entrance
34	28-0	Navy Exchange	N.X. Office
35	24-S	A/C Maintenance	M.A.D. Building
37	34-S	Security	Pass Office & Shore Patrol
38	28-Q	Administration	Officers' Club
41	28-N	FAETULANT Det 1	Training Bldg.
42	28-N	Public Works	Pump House, Emergency Water
44	27-N	Weapons	Magazine
45	26-0	Aircraft Maintenance Dept	Storage
48	28-M	Public Works	Carpenter Shop
50	28-0	Supply	Pump House, Oil
51	28-M	Public Works	Paint Shop
52	23-0	Weapons	Storage, Inert
55	12-N	Weapons	N.O.T. Shelter

Enclosure (1)

NO.	LOCATION	RESPONSIBILITY	USE
58	27-H	Weapons	Magazine
59	20-0	Public Works	Storage
60	21-0	Public Works	Storage
61	24-H	Weapons	Magazine
62	23-G	Weapons	Magazine
63	22-G	Weapons	Magazine
64	21-F	Weapons	Magazine
69	22-0	Weapons	Magazine
71	20-P	Administration	Storage, Special Services
73	28-M	Weapons	Pyrotechnics Locker
74	28-N	Supply	Lumber Shed
75	28-M	Public Works	Paint Storage
88	28-M	Public Works	Storage
89	29-N	Air Operations	Storage
91	29-0	Security	Storage, Foam, for Gas Farm
92	29-P	Supply	Shelter, AvGas Pumps
93	21-0	Public Works	Storage
94	29-N	Weapons	Storage, Pyrotechnics
95	29-P	Public Works	Storage, Insecticide
96	25-0	A/C Maintenance	Storage, A/C Material
97	26-0	Marine Barracks	Storage, Fleet
100	34-R	Public Works	Garage, Quarters "D"
101	29-P	Supply	Gasoline Tank, 100,000 gals
102	29-P	Supply	Gasoline Tank, 100,000 gals
103	29-P	Supply	Gasoline Tank, 100,000 gals
104	30-P	Supply	Gasoline Tank, 25,000 gals
105	30-P	Supply	Gasoline Tank, 25,000 gals
106	30-P	Supply	Pump House, Gasoline
107	30-P	Supply	Truck Dock, Gasoline
110	30-S	Public Works	Garage, Quarters "A" & "B"
111	30-S	Public Works	Pump House, Sewage
122	27-N	Marine Barracks	Flagpole
124	28-N	Public Works	Water Tank, 250,000 gals. for fire
125	28-0	Supply	Avtube Tank, 10,000 gals
127	27-M	Supply	Gasoline Tank, 3,000 gals
128	27-N	Supply	Gasoline Tank, 3,000 gals
135	27-P	Administration	Basketball
136	29-Q	Administration	Athletic Field
139	22-0	Marines	Pistol Range
145	12-N	Weapons	Railroad Dock
146	26-P	Administration	Athletic Field
148	22-P	Administration	Skeet House - Low
149	23-P	Administration	Skeet Operator House - Middle

Enclosure (2)

NO.	LOCATION	RESPONSIBILITY	USE
150	23-P	Administration	Skeet House - High
156	27-N	Administration	Gun Emplacement, Ornamental - South
157	27-N	Administration	Gun Emplacement, Ornamental - North
200	28-L	Air Operations	Operations Building
201	23-0	Administration	CPO Club
202	30-Q	Supply	AvGas Tank, 13,500 bbls
203	30-Q	Supply	Jet Fuel Tank, 13,500 bbls
204	30-Q	Supply	AvGas Tank, 13,500 bbls
205	30-Q	Supply	Jet Fuel Tank, 13,500 bbls
206	30-P	Supply	Truck Dock & Separator House
207	30-Q	Supply	Fuel Pump House
208	30-Q	Public Works	Transformer Vault, Gas Farm
209	28-M	Public Works	Transformer Vault, Runway Lighting
210	28-M	Air Operations	Beacon Tower
211	25-P	Supply	Subsistence Bldg. (Neptune Hall)
212	25-0	Administration	Barracks
213	25-0	Administration	Barracks
214	25-0	Administration	Barracks
215	25-0	Administration	Barracks
216	24-N	Administration	Barracks
217	24-0	Administration	Barracks
218	24-0	Administration	Barracks
219	24-0	Administration	Barracks
220	24-0	Administration	Barracks
222	24-0	Administration	Storage
223	29-0	Weapons	Armory and EOD Spaces
224	29-0	FAETULANT Det 1	Training Building
225	26-N	Public Works	Vehicle Maintenance Shop
226	25-E	Air Operations	Storage - Electronics
227	25-E	Public Works	Generator Building
229	24-I	Air Operations	GCA Hardstand
230	27-F	Air Operations	Transmitter Building, TACAN
231	24-N	A/C Maintenance	Battery Shop
232	26-P	Public Works	Emergency Generator Building
233	27-M	Public Works	Central Heating Plant
234	27-N	Public Works	Emergency Generator Building
235	31-T	Public Works	Garage, Quarters "E"
236	31-S	Public Works	Garage, Quarters "F"
237	30-S	Public Works	Garage, Quarters "G"
238	30-S	Public Works	Garage, Quarters "H"

NO.	LOCATION	RESPONSIBILITY	USE
239	30-R	Public Works	Garage, Quarters "I"
240	31-T	Public Works	Garage, Quarters "EA"
241	31-T	Public Works	Garage, Quarters "EB"
242	21-T	Public Works	Garage, Quarters "EC"
243	31-T	Public Works	Garage, Quarters "ED"
244	30-T	Public Works	Garage, Quarters "EE"
245	10-P	Weapons	Vehicle Storage
246	27-F	Air Operations	Antenna Tower, TACAN
250	24-M	A/C Maintenance/FAW-3/ Communications	Hangar/CFAW Hdqtrs/OpCon
251	29-Q	Supply	Flagpole, Fuel Farm
252	26-P	Administration	Hobby Shop
254	28-L	Security	Pump Test Pit
255	9-J	Administration	Golf Course
257	20-R	Administration	Picnic Storage
260	16-M	Public Works	Inactive
261	16-M	Public Works	Inactive
262	31-R	Supply	Shelter (Salvage Dump)
264	29-P	Public Works	Electrical Substation
265	31-T	Marine Barracks	Sentry Booth, Forrestal Gate
266	28-L	CFAD/Public Works *	Line Shack, Hangar 2
267	30-0	Supply	Gas Farm Office
274	26-0	Navy Exchange	Gasoline Tank, 5,000 gal. east
275	26-0	Navy Exchange	Gasoline Tank, 5,000 gal. west
277	33-N	Public Works	Sewage Pump Sta. (inactive)
279	31-T	Public Works	Shelter, Bus Waiting
280	26-E	Air Operations	Transmitter Building
281	26-E	Air Operations	Antenna System, VHF/UHF
282	32-L	Air Operations	Compass Rose
283	26-M	Weapons	Pyrotechnics Locker
284	23-N	Weapons	Pyrotechnics Locker
285	7-P	Weapons	Magazine
286	8-P	Weapons	Magazine
287	9-P	Weapons	Magazine
288	8-P	Weapons	Magazine
289	8-P	Weapons	Magazine
290	7-0	Weapons	Magazine
291	11-Q	Weapons	Magazine
292	27-L	Security	Crash Facility & Fire Station
293	23-P	Administration	Theater
294	28-N	Supply	Storage & Material Div. Office
295	26-0	Public Works	Water Reservoir & Pump House
296	31-F	Air Operations	Transmitter Bldg. VOR
305	10-G	Administration	Clubhouse, Golf Course
306	11-G	Administration	Shed, Golf Course

NO.	LOCATION	RESPONSIBILITY	USE
308	9-H	Public Works	Pump House, Water
309	8-J	Public Works	Pump House, Water
310	9-J	Public Works	Dam (Golf Course)
316	14-M	Weapons	Rocket Assembly Shop
323	30-U	Public Works	Garage, Storage
347	19-S	Public Works	Dam, Picnic Area
349	30-T	Public Works	Public Quarters
399	34-M	Public Works	Vacant
400	34-M	Public Works	Laundry
407, 408, 409	Redington	Faetulant Det 1	Training
411	17-L	Public Works	Shelter, Dump Attendant
452	29-0	Faetualnt Det 1	Maintenance Shop
510	29-P	Supply	Gas Tank, 4,000 gal. west
511	29-P	Supply	Kerosene Tank, 4,000 gal. east
512	28-Q	Administration	Bachelor Officers' Quarters
513	26-M	CFAD	Inflammable Storage Cage, Hgr 1
514	28-M	CFAD	Inflammable Storage Cage, Hgr 2
515	29-N	CFAD	Inflammable Storage Cage, Hgr 3
516	23-R	Navy Exchange	E. M. Club
517	22-E	Air Operations	Receiver Building
518	22-E	Public Works	Generator Building
519	21-E	Air Operations	2.5 - 7.5 M.C. Antenna Tower
520	22-E	Air Operations	4 - 12 M.C. Antenna Tower
521	22-E	Air Operations	6 - 18 M.C. Antenna Tower
522	23-E	Air Operations	7 - 21 M.C. Antenna Tower
523	Off Station	Air Operations	Transmitter Building
524	"	Public Works	Generator Building
525	"	Air Operations	Microwave Tower
526	"	Air Operations	2 - 6 M.C. Antenna Tower
527	"	Air Operations	6 - 18 M.C. Antenna Tower
528	"	Air Operations	7 - 21 M.C. Antenna Tower
529	"	Air Operations	2.5 - 7.5. M.C. Antenna Tower
530	"	Air Operations	6 - 18 M.C. Antenna Tower
531	"	Air Operations	3 - 9 M.C. Antenna Tower
532	"	Air Operations	4 - 12 M.C. Antenna Tower
533	"	Air Operations	3 - 9 M.C. Antenna Tower
534	"	Air Operations	5 - 15 M.C. Antenna Tower
535	"	Air Operations	4 - 12 M.C. Antenna Tower
536	"	Air Operations	3 - 9 M.C. Antenna Tower
537	23-P	Public Works	Sewage Pump House
538	26-0	Navy Exchange	Service Station
539	16-0	Weapons	AUW Shop
540	17-0	Marine Barracks	Sentry House, AUW Shop
541	7-0	Marine Barracks	Sentry House, AUW Storage
542	7-0	Public Works	Generator Building

NO.	LOCATION	RESPONSIBILITY	USE
543	7-0	Weapons	AUW Magazine
544	7-0	Weapons	AUW Magazine
545	Off Station	Air Operations	YA-2 Localizer
546	"	Air Operations	4 - 12 M. C. Antenna Tower
547	"	Air Operations	4 - 12 M. C. Antenna Tower
548	10-Q	Weapons	Fuse & Detonator Magazine
549	11-Q	Weapons	Fuse & Detonator Magazine
550	Off Station	Public Works	Sewage Control House & Digestor
551	"	Public Works	Primary Subsiding Basin
552	"	Public Works	Chlorine Contact Basin
553	"	Public Works	Sludge Drying Bed - South
554	"	Public Works	Sludge Drying Bed - North
555	24-N	A/C Maintenance	Ground Support Equipment
556	27-N	Supply	Loading Dock
557	Off Station	Weapons	Rake Tower, Small Point
558	"	Weapons	Rake Tower, Sabino Hill
559	28-0	Supply	Used Avlube Tank, North
560	28-0	Supply	Used Avlube Tank, South
561	Off Station	Public Works	McKeen Capehart Storage
562	19-L	Air Operations	Transmissometer Rec. Tower
563	18-L	Air Operations	Transmissometer Trans. Tower
564	28-M	Air Operations	Radar Tower
565	Redington	Faetulant Det 1	Multi-purpose building
566	"	Faetulant Det 1	Storage
567	"	Public Works	Generator Building
568	"	Public Works	Maintenance Building
569	"	Public Works	Sewage Treatment Plant
570	"	Faetulant Det 1	Classroom
571	"	Public Works	Fire Station
572	"	Public Works	Generator Building
573	"	Faetulant Det 1	Guard House
574	"	Faetulant Det 1	Interrogation Hut
575	"	Faetulant Det 1	Latrine
576	"	Faetulant Det 1	Guard Tower
577	"	Faetulant Det 1	Bunker Hut
578	"	Faetulant Det 1	Guard Tower
579	20-S	Administration	Picnic Shelter
580	28-Q	Administration	Waves Barracks
581	Off Station	Air Operations	Conical Monopole Antenna
582	"	Air Operations	Concial Monopole Antenna
583	28-P	Administration	Bowling Alley
584	21-N	Supply	Disposal Building
585	27-0	Chaplain	Chapel
586	29-R	Administration	Ham Shack, former AF-4

Enclosure (1)

NO.	LOCATION	RESPONSIBILITY	USE
587	28-Q	Navy Exchange	Storage, Former SF 14
588	28-Q	Public Works	Former AF 16
589	28-Q	Air Operations	Mobile Radio Maint. former AF-11
590	26-P	Public Works	Storage, Former AF 5
591	26-P	Public Works	Former AF 10
592	25-Q	AMD	Storage, Former AF 15
593	25-Q	Public Works	Storage, Former AF-12
594	25-Q	Public Works	Former AF-R2
595	25-Q	Public Works	Former AF R8
596	26-Q	Public Works	Former AF 1
597	26-Q	Public Works	Former AF 2
598	26-Q	AMD	Storage, Former AF-3
599	26-Q	AMD	Former AF-R6
600	31-K	Air Operations	Transmissometer Rec. Tower
601	31-K	Air Operations	Transmissometer Trans. Tower
801 thru 866	30-W	Public Works	Public Quarters, Wherry
867 thru 874	30-W	Public Works	Garages, Wherry
875 thru 903	29-V	Public Works	Public Quarters, Capehart
904	31-R	Public Works	Public Quarters, Capehart
905	31-S	Public Works	Public Quarters, Capehart
906 thru 1091	Off Station	Public Works	
A	30-S	Public Works	Public Quarters, Officer
B	30-S	Public Works	Public Quarters, Officer
C	34-Q	Public Works	Public Quarters, Officer
D	34-R	Public Works	Public Quarters, Officer
E	31-T	Public Works	Public Quarters, Officer
F	30-T	Public Works	Public Quarters, Officer
G	30-S	Public Works	Public Quarters, Officer
H	30-S	Public Works	Public Quarters, Officer
I	30-R	Public Works	Public Quarters, Officer
EA	31-T	Public Works	Public Quarters, Enlisted
EB	31-T	Public Works	Public Quarters, Enlisted
EC	31-T	Public Works	Public Quarters, Enlisted
ED	31-T	Public Works	Public Quarters, Enlisted
EE	30-T	Public Works	Public Quarters, Enlisted
T-201	26-0	Disaster Control Officer	Disaster Control Storage
T-202	26-0	Public Works	Storage

Enclosure (1)

* 602 WEAPONS TRANSHIPMENT OFFICE

NO.	LOCATION	RESPONSIBILITY	USE
T-204	20-P	Public Works	Storage
T-205	28-M	Public Works	Storage
T-207	24-S	Marine Barracks	Storage
T-208	24-S	Public Works	Storage
T-209	29-N	Supply	Storage
T-210	29-N	Supply	Storage
T-212	27-G	Supply	Storage use for Refuelding Contractor
T-214	21-0	Marines	Pistol Range Storage
T-221	26-M	CFAD/Public Works*	Line Shack, Hangar 1
T-222	29-N	Air Force	Line Shack
T-227	22-P	Administration	Skeet Clubhouse
T-229	29-Q	Public Works	Shed, RR Tools

*Indicates Public Works responsibility when not occupied by a squadron.

BUILDING & STRUCTURE LIST
Casco Bay Fuel Farm (Harpswell)

NO.	LOCATION	RESPONSIBILITY	USE
1	2-G	Supply	Admin Bldg. & Fire Station
2	I-G	Public Works	Maintenance Shop
3	I-G	Supply	Storage Building
4	I-G	Public Works	Utility Garage
5	3-D	Public Works	Standby Generator House
6	3-F	Supply	Gasoline Separator Building
7	8-B	Public Works	Water Treatment Plant & Pumphouse
8	8-B	Public Works	Public Quarters
9	8-B	Public Works	Public Quarters
10	8-B	Security	Gate House & Guard Office
11	9-B	Public Works	Well House & Well No. 1
12	7-B	Public Works	Well House & Well No. 2
13	2-J	Supply	Checker Bldg. - Pier
14	2-J	Supply	Fueling Pier & Causeway
15	2-H	Supply	Small Boat Dock
16	8-B	Public Works	Elevated Water Tank & Heater Rm.
20	5-G	Public Works	Storage
26	I-F	Supply	Pump House No. 1
27	3-E	Supply	Pump House No. 2
28	3-D	Supply	Booster Pump House
29	2-J	Supply	Salt Water Pump House
30	2-H	Supply	Stripper Pump Pit
31	1-F	Supply	Valve House No. 1
32	3-E	Supply	Valve House No. 2
33	KEY	Supply	Scraper Pit (Underground)
34	3-D	Supply	Valve Pit "A"
35	3-F	Supply	2 Truck Loading Racks (1 Roof)
36	8-B	Public Works	Garage
37	8-B	Public Works	Garage
T-1	2-F	Supply	Fuel Tank
T-2	1-F	Supply	Fuel Tank
T-3	2-E	Supply	Fuel Tank
T-4	2-E	Supply	Fuel Tank
T-5	3-E	Supply	Fuel Tank
T-6	2-E	Supply	Fuel Tank
T-7	4-D	Supply	Fuel Tank
T-8	4-C	Supply	Fuel Tank
T-9	5-C	Supply	Fuel Tank
T-10	5-C	Supply	Fuel Tank
T-11	6-C	Supply	Fuel Tank
T-12	6-C	Supply	Fuel Tank
T-13	7-C	Supply	Fuel Tank
T-14	8-B	Public Works	Fuel Tank

Enclosure (1)

ALPHABETICAL LISTING OF BUILDINGS AND NUMBERS

A

	NO.
Administration Building	4
AIMD	250
AIMD A/C Material Storage	96
AIMD-AMSE Storage Bldg.	617
AIMD Battery Shop	231
AIMD Ground Support Equip.	555
AIMD-M.A.D. Bldg.	35
AIMD Nitrogen Shop	28
AIMD T-56 Eng. Test Fac.	611
Air Operations Bldg.	200
AMSE Storage (AIMD)	617
nna 2.5-10 MHZ	619
6-24 MHZ	620
2.5-10 MHZ	621
" 2.8 MHZ	622
" 4.5-18 MHZ	623
Antenna, Conical Monopole	581
" " "	582
Antenna System, VHF/UHF	281
Antenna Tower, TACAN	246
Antenna Tower 4-12 MHZ	546
" " 4-12 MHZ	547
" " 2.5-7.5 MHZ	519
" " 4-12 MHZ	520
" " 6-18 MHZ	521
" " 7-21 MHZ	522
" " 2-6 MHZ	526
" " 6-18 MHZ	527
" " 7-21 MHZ	528
" " 2.5-7.5 MHZ	529
" " 6-18 MHZ	530
" " 3-9 MHZ	531
" " 4-12 MHZ	532
" " 3-9 MHZ	533
" " 5-15 MHZ	534
" " 4-12 MHZ	535
" " 3-9 MHZ	536
Armory	223
AUW Shop	539
AVGAS Pumps, Shelter	92
AVGAS Tank	202
" "	204
AVLUBE Tank, N. (Used)	559
AVLUBE Tank, S. (Used)	560

B

	NO.
Bachelor Officer's Quarters	512
Bank	4
Barber Shop	23
Barracks	213
"	214
"	215
"	216
"	217
"	218
"	219
"	220
Barracks, Marine	212
Battery Shop (AIMD)	231
Beacon Tower	210
Beauty Shop	23
Bachelor Enlisted Quarters (BEQ)	213
"	214
"	215
"	216
"	217
"	218
"	219
"	220
Bomb Trailer Storage (Weapons)	97
Bowling Alley	583
Bunker Hut - Redington (FASO)	577

C

CAAC	12
Cafeteria	23
Capehart Storage, McKeen	561
Carpenter Shop	48
Central Heating Plant	233
Chapel	585
Civilian Personnel	18
Classified Materials Disintegrator	598
Classroom, FASO (Redington)	570
Clubhouse	305
Communications Center	596
Compass Rose	282
Conical Monopole Antenna	581
" "	582
Convenience Store (NAVEX)	16

C (continued)

	NO.
Country Store	23
CPO Club	201
CPW-5 Offices	250
Crash Facility	292
Credit Union	18

D

Dam (Golf Course)	310
Dam, Picnic Area	347
Data Processing	12
Defense Intelligence Serv Off	580
Dental Clinic	30
Detonator & Fuse Magazine	291
" " "	548
" " "	549
DIFAR (Faso)	639
Disaster Preparedness	612
" "	T-201
Disbursing Office	12
Disintegrator, Classified Mat	598
Dispensary	30
Disposal Building	584
Dock, Loading (Supply)	556
Dock, Railroad (Weapons)	145
Dock, Truck (Gas) (Supply)	107

E

Electric Shop	6
Electrical Substation	264
EM Club	516
Emergency Generator Bldg.	232
" " "	234
Emergency Water	42
EOD Spaces	223

F

FASO Classroom (Redington)	570
FASO, Maintenance Shop	423
" " "	452
FASO Multi-Purpose Bldg.(Red.)	565
FASO Storage (Redington)	566
FASO Training Bldg.	41
" " "	224
" " "(Redington)	409
" " "(Redington)	411
Filling Station (Supply)	91
Fire Station	292
Fire Station - Redington	571
Flagpole	122
Flagpole - CPW-5	618
Flagpole - Fuel Farm	251
Fuel Pump House	207
Fuel Storage Tanks	615
Fuel Tank, Jet	203
Fuel Tank, Jet	205
Fuse & Detonator Magazine	291
" " "	548
" " "	549

G

Garage Qtrs "D"	100
" " "A" & "B"	110
" " "E"	235
" " "F"	236
" " "G"	237
" " "H"	238
" " "I"	239
" " "EA"	240
" " "EB"	241
" " "EC"	242
" " "ED"	243
" " "EE"	244
Garages, Wherry	867 thru 874
Gas Farm Office (Supply)	267
Gasoline Tank	101
" "	102
" "	103
" "	104
" "	105
" "	127
" "	128
" "	510
GCA Hardstand	229
Generator Building	227
" "	518
" "	524
" "	542
Generator Building (Redington)	567
" " "	572
Golf Course	305
Golf Course Dam	310
Golf Course Storage	306

NO.

G (continued)

Ground Support Equip. (AIMD)	7
" " " "	555
Guardhouse - Redington (FASO)	573
Guard Tower - Redington	576
" " "	578
Gun Emplacement, Ornamental S -	156
" " " N -	157
Gym	23

H

Hangar	1
"	2
"	3
"	250
Hobby Shop	20
Hobby Shop	252
Housing Office & Warehouse	9

I

Inactive (PW)	599
Inert Storage (Weapons)	52
" " "	55
" " "	316
Insecticides Storage (PW)	95
Interrogation Hut (FASO) Red.	574

J

Jamesway Shelter-Red. Large	624
" " " Small	625
Jet Fuel Tank (Supply)	203
" " " "	205

L

Latrine - Redington (FASO)	575
Legal	18
Library	20
Line Shack, Hangar 2 (Air Ops)	266
Line Shack (CPW-5)	603
" " "	604
" " " Hgr. 1	637
" " " Hgr. 1	T-221
" " "	T-222
Loading Dock (Supply)	556
Lumber Shed (PW)	74

NO.

M

M.A.D. Bldg. (AIMD)	35
Magazine (Weapons)	59
" "	60
" "	62
" "	69
" "	71
" "	285
" "	286
" "	287
" "	288
" "	289
" "	290
" "	543
" "	544
Magazine (Fuse & Detonator)	291
" " "	548
" " "	549
Magazine, Special Weapons	626
" " "	627
" " "	628
Main Entrance	33
Maintenance Bldg. Redington	568
Maintenance Shop, FASO	423
" " "	452
Maintenance Trailer (FASO)	636
Marine Barracks	212
Marine Barracks - Vacant	541
Material Div. Off's & Stg-Supply	294
McKeen Capehart Storage	561
Mess Hall (Neptune Hall)	211
Microwave Tower	525
Mobile Radio Maint. (Air Ops)	589
Motel	26

N

NAVEX Cafeteria	23
" Convenience Store	16
" Motel	26
" Office	34
" Retail Store	15
Navy Wives Club	588
Neptune Hall (Subsistence Bldg.)	211
Nitrogen Shop	28
Nursery	20

O

	NO.
Operations Bldg. (Air Ops)	200
Officers's Club	38

P

Package Store	22
Paint Shop	51
Pass Office	37
Personnel Support	20
Picnic Area	347
Picnic Shelter	579
Pistol Range	139
Pistol Range Storage	T-214
Playing Courts	605-610
Pool, Swimming	614
Post Office	4
Public Quarters, Capehart	875-903
" " "	904
" " "	905
" " "	906-1091
Public Quarters, Enlisted	EA
" " "	EB
" " "	EC
" " "	ED
" " "	EE
Public Quarters, Officer	A
" " "	B
" " "	D
" " "	E
" " "	F
" " "	G
" " "	H
" " "	I
Public Quarters, Wherry	866
Public Quarters	349
Public Works Shop & Offices	8
Public Works Shops & Storage	10
Public Works Storage	17
" " "	75
" " "	88
" " "	93
" " "	T-202
" " "	T-205
Pump House	42
Pump House, Gasoline	106
Pump House, Oil	50
Pump House, Sewage	111
Pump House & Water Reservoir	295
Pump House, Water	309
Pump Test Pit	254
PW Shop, Storage	323
PW Storage, Insecticide	95
Pyrotechnics Locker	73
" "	283
" "	284
" Storage	94

R

Radar Bldg, (NOAA), Transformer Vault, R/W Lighting	209
Radar Tower (NOAA)	564
Railroad Dock (Weapons)	145
Rake Tower, Sabino Hill	558
Rake Tower, Small Point	557
Receiver Bldg. (Air Ops)	517
Reserve Battalion Hdqtrs.	635
Reservoir, Water & Pump House	295
Retail Store (NAVEX)	15

S

Sabino Hill Rake Tower	558
Security	37
Sentry Booth	33
Sentry Booth, Forrestal Gate	265
Sentry House, AUW Shop	540
Service Station (NAVEX)	538
Sewage Pump House	537
Sewage Pump House,Bruns. Gardens	638
Sewage Pump Station (Inactive)	277
Sewage Treatment Plant-Redington	569
Shelter, AVGAS Pumps	92
Shelter, Bus Waiting	279
Shelter, Jamesway - Large	624
" " - Small	625
Shore Patrol	37
Small Arms Magazine (Weapons)	44
Small Point Rake Tower	557
Sonobuoy Storage (CPW-5)	602
Special Weapons Magazine	626
" " "	627
" " "	628
Station Theater	293
Storage, A/C Material (AIMD)	96
Storage (Air Ops)	89
Storage (Communications)	593 & 595
Storage (CPW-5/PW)	45
Storage, Dry Stores (NAVEX)	14

S (Continued)

Shed, RR Tools (PW) T-229
Storage - Electronics 226
Storage, FASO (Redington) 566
Storage, Golf Course 306
Storage, Inert (Weapons) 52
" " " 55
" " " 316
Storage, Insecticides (PW) 95
Storage (NAVEX) 16
" " 287
" " T-209
" " T-210
Storage, Paint & Oil (Supply) 13
Storage (Personnel Support) 222
Storage (PW) 17
" " 75
" " 88
" " 93
" " T-202
" " T-205
Storage, PW Shop 323
" " " 590
Storage, Pyrotechnics (CPW-5) 94
Storage Use for Refueling Contractor (Supply) T-212
Storage (RMCB-27) 58
" " 60
" " 63
" " 64
Storage (Security) 591
Storage (Supply) T-209
Storage, Vehicle (Weapons) 245
Subsistence Bldg.(Mess Hall) 211
Supply 12
Supply Pump House, Oil 50
Swimming Pool 614

T

TACAN, Transmitter Bldg. 230
Tactical Support Center (TSC) 596
Tailor Shop 23
Telephone Exchange 592
Tennis Courts (Playing Courts) 605 thru 610
T-56 Engine Test Facility 611
Theater 293
Toilets/Picnic Area 613
Tower (see Antenna)
Tower, Microwave 525
Training Bldg. (FASO) 41
" " " 224
" " "(Redington) 409
" " "(Redington) 411
Transformer Vault, Gas Farm 208
Transformer Vault, NOAA Radar Bldg., R/W Lighting 209
Transmissometer Rec Tower(AirOps) 562
" " " " 600
Transmissometer Trans Tower 563
" " " 601
Transmitter Bldg. (Air Ops) 280
" " " 523
Transmitter Bldg., TACAN 230
Transmitter Bldg. VOR 296
Truck Dock, Gasoline 107
Truck Dock & Seperator House 206

UV

Vacant (Public Works) 586
" " " 594
Vacant (Marine Barracks) 541
Vehicle Maintenance Shop 225
Vehicle Storage (Weapons) 245

W

Water Reservoir & Pump House 295
Water Tank, 250,000 gal. for fire 124
Weapons Bomb Trailer Storage 97
Weapons Inert Storage 52
" " " 55
" " " 316
Weapons Magazine 59
" " 60
" " 62
" " 69
" " 71
" " 285
" " 286
" " 287
" " 288
" " 289
" " 290
" " 543
" " 544
Weapons Magazine (Fuse & Detonator) 291
Weapons Small Arms Magazine 44

TOPSHAM ANNEX - ALPHABETICAL LISTING OF BUILDINGS

Auto Maint. Shop	337
Auto Storage Shed	336
BEQ	376
BEQ	384
CAPEHART HOUSING	1092-1142
Community Center	375
Cooling Tower (East) (Unused)	371
Cooling Tower (West) (Unused)	372
Court, Recreational	370
CPO BEQ	364
Commissary	335
Direction Center Sentry (Vacant)	367
Direction Center - Storage	369
Fire Station	363
Flag Pole	334
Gas Station	368
Gym/Small Arms Range	382
HQ, COMPATWINGSLANT	333
Maintenance Shop	338
Maintenance Shop	339
Maintenance Shop	373
Maintenance Shop	374
NCO Club (Vacant)	383
NX & Comm. Store Offices	381
Pumphouse	378
Pump Station	366
Sewage Facility Bldg.	377
Shed, Sup & Equip Base (Vac.)	365
Traffic Check House (Vacant)	331
Vacant	332
Warehouse, Cold Storage and Commissary	335
Water Storage Tank	385

PARTIAL LIST

NASB Facility Disposals

FAC NC	FACILITY NAME	MAP GR	AREA	YEAR DISPO	SITE REUSE
2	HANGAR	28M	65954 SF	1999	ACFT PARKING APR
3	HANGAR	29M		2005	NONE
4	ADMINISTRATIVE BUILDING (COMMAND HQ)	27N	17509 SF	2000	VACANT
6	PUBLIC WORKS GENERAL SERVICES	28M	1973 SF	2000	VACANT
7	PUBLIC WORKS/AMD	27N		XXXX	
8	PUBLIC WORKS SHOPS AND OFFICES	27M	18428 SF	2000	VACANT
10	PUBLIC WORKS SHOPS AND STORAGE	26N		XXXX	
12	SUPPLY STORAGE AND OFFICES	27N	27792 SF	2000	VACANT
13	SUPPLY PAINT AND OIL STORAGE	29O	6049 SF	1998	
14	SUPPLY COLD AND DRY STORAGE	28P		XXXX	
15	NAVY EXCHANGE	28O	11898 SF	1998	VACANT
16	COMMISSARY	28O	12131 SF	1998	VACANT
17	CFAD/IRO/AMD	26N		XXXX	
18	CPO BARRACKS	27O		XXXX	
19	MARINE BARRACKS	27O		XXXX	
22	BRIG	27P	2687 SF	1998	
23	GYM/NAVY EXCHANGE/CAFETERIA/COUNTRY ST	28P		XXXX	
26	STEWARDS' BARRACKS	28P		XXXX	
29	PUBLIC WORKS SNOW REMOVAL CENTRAL	26N		XXXX	
30	STATION HOSPITAL/DENTAL CLINIC	26P		XXXX	
35	A/C MAINTENANCE	24S	2704 SF	1998	
36			8640 SF	1998	
38	OFFICERS' CLUB	28Q	19612 SF	1998	BLDG 151
45	AMD STORAGE	26O		XXXX	
48	PUBLIC WORKS CARPENTER SHOP	28M	3260 SF	2000	
50	SUPPLY OIL PUMP HOUSE	28O		XXXX	
51	PUBLIC WORKS PAINT SHOP	28M	1870 SF	2000	VACANT
55	E.O.D. SHELTER	12N		XXXX	
73	WEAPONS PYROTECHNICS LOCKER	28M	64 SF	2000	
74	SUPPLY LUMBER STORAGE SHED	28N	3072 SF	2000	
75	PUBLIC WORKS PAINT STORAGE	28M	332 SF	2000	
88	PUBLIC WORKS STORAGE	28M	1462 SF	2000	
93	PUBLIC WORKS STORAGE	21O	2400 SF	1998	
94	WEAPONS PYROTECHNICS STORAGE		64 SF	2000	
212	BARRACKS	25O	22174 SF	2003	VACANT
213	BARRACKS	25O	22174 SF	2003	VACANT
214	BARRACKS	25O	22174 SF	2003	VACANT
215	BARRACKS	25O	22174 SF	2003	VACANT
216	BARRACKS	24N	22174 SF	2003	VACANT
217	BARRACKS	24O	22174 SF	2004	VACANT
218	BARRACKS	24O	22174 SF	2004	VACANT

FAC NC	FACILITY NAME	MAP GR	AREA	YEAR DISPO	SITE REUSE
219	BARRACKS	24O	22174 SF	2004	VACANT
220	BARRACKS	24O	22174 SF	2004	VACANT
222	BARRACKS STORAGE	24O			VACANT
224	TRAINING BUILDING	29O	4000 SF	1999	
233	PUBLIC WORKS CENTRAL HEATING PLANT	27M	24048 SF	2001	VACANT
234	PUBLIC WORKS EMERGENCY GENERATOR BUIL		768 SF	1998	VACANT
293	THEATER	23P	8803 SF	1997	BLDGS 221 AND 226
821	FAMILY HOUSING		2498 SF	2002	MARINER LANDING
822	FAMILY HOUSING		1604 SF	2002	MARINER LANDING
823	FAMILY HOUSING		2406 SF	2002	MARINER LANDING
824	FAMILY HOUSING		3810 SF	2002	MARINER LANDING
825	FAMILY HOUSING		5360 SF	2002	MARINER LANDING
826	FAMILY HOUSING		2206 SF	2002	MARINER LANDING
827	FAMILY HOUSING		1990 SF	2002	MARINER LANDING
828	FAMILY HOUSING		4036 SF	2002	MARINER LANDING
829	FAMILY HOUSING		2692 SF	2002	MARINER LANDING
830	FAMILY HOUSING		2066 SF	2002	MARINER LANDING
831	FAMILY HOUSING		2371 SF	2002	MARINER LANDING
832	FAMILY HOUSING		3780 SF	2002	MARINER LANDING
833	FAMILY HOUSING		2571 SF	2002	MARINER LANDING
834	FAMILY HOUSING		2066 SF	2002	MARINER LANDING
835	FAMILY HOUSING		2043 SF	2002	MARINER LANDING
836	FAMILY HOUSING		2066 SF	2002	MARINER LANDING
837	FAMILY HOUSING		2043 SF	2002	MARINER LANDING
838	FAMILY HOUSING		2043 SF	2002	MARINER LANDING
839	FAMILY HOUSING		2498 SF	2002	MARINER LANDING
840	FAMILY HOUSING		2498 SF	2002	MARINER LANDING
841	FAMILY HOUSING		5104 SF	2002	MARINER LANDING
842	FAMILY HOUSING		5104 SF	2002	MARINER LANDING
1157			1474 SF	2000	

NASB Facilities List OEL

NAS Brunswick, ME

Buildings or Areas with Potential Candidates for OEL Assessment

UID#	Fac No	Facility Name	Source Document	Facility ID/ Tank ID/Transformer ID	Description	User Title
1	1	HANGAR 1 SO	SPCC	A1.0	AST WASTE OIL	NAS BRUNSWICK ME
2	1	HANGAR 1 SO	SPCC	A1.1	AST WASTE OIL	NAS BRUNSWICK ME
3	1	HANGAR 1 NO	SPCC	A1.4	AST #1 OIL	NAS BRUNSWICK ME
4	1	HANGAR	INFADS	NFA100000973994		PATWING 5
5	3	HANGAR 3	SPCC	A3.2	AST #1 OIL	NAS BRUNSWICK ME
6	3	HANGAR	INFADS	NFA100000974010		NAS BRUNSWICK ME
7	5	HANGAR 5 SO	SPCC	A5.0	AST WASTE OIL	NAS BRUNSWICK ME
8	5	HANGAR 5 SO	SPCC	A5.1	AST WASTE OIL	NAS BRUNSWICK ME
9	5	HANGAR 5 NO	SPCC	A5.2	AST WASTE OIL	NAS BRUNSWICK ME
10	5	HANGAR 5 NO	SPCC	A5.3	AST WASTE OIL	NAS BRUNSWICK ME
11	5	HANGAR 5 NO	SPCC	A5.4	AST #1 OIL	NAS BRUNSWICK ME
12	5	HANGAR 5 NO	SPCC	A5.5	AST #1 OIL	NAS BRUNSWICK ME
13	5	HANGAR 5 EAST (GEN)	SPCC	A5.6	AST DIESEL	NAS BRUNSWICK ME
14	5	MAINTENANCE HANGAR	INFADS	NFA100000979382		NAS BRUNSWICK ME
15	9	VPU-1/OLD HSG OFFICE (I)	SPCC	A9.0	AST #2 OIL	NAS BRUNSWICK ME
16	9	VPU1	INFADS	NFA100000974056		PATWING 5
17	11	NEX	SPCC	A11.0	AST #1 OIL	NAS BRUNSWICK ME
18	11	NAVY EXCHANGE RETAIL COMPLEX	INFADS	NFA100000979186		NEX BRUNSWICK ME
19	19	PW (SHOPS)	SPCC	A19.1	AST #2 OIL	NAS BRUNSWICK ME
20	19	PW (SHOPS)	SPCC	A19.2	AST #2 OIL	NAS BRUNSWICK ME
21	19	PUBLIC WORKS SHOPS	INFADS	NFA100000979195		NAS BRUNSWICK ME
22	20	N.H. COLL/HRO	SPCC	A20.0	AST #1 OIL	NAS BRUNSWICK ME
23	20	COMMUNITY FACILITIES	INFADS	NFA100000974092		NAS BRUNSWICK ME
24	21	CHILD CARE CENTER	INFADS	NFA100000979257		NAS BRUNSWICK ME
25	23	CAR WASH	INFADS	NFA100001735679		NAS BRUNSWICK ME
26	24	PSD BLDG	INFADS	NFA100000979202		PERSUPPDET BRUNSWICK ME
27	25	GYM	SPCC	A25.0	AST #1 OIL	NAS BRUNSWICK ME
28	25	INDOOR FITNESS CNTR	INFADS	NFA100000979248		NAS BRUNSWICK ME
29	26	CHILD CARE CENTER	INFADS	NFA100000979596		NAS BRUNSWICK ME
30	27	FSC	SPCC	A27.0	AST #1 OIL	NAS BRUNSWICK ME
31	27	FAMILY SERVICES CENTER	INFADS	NFA100000979391		NAS BRUNSWICK ME
32	28	OXYGEN SHOP	INFADS	NFA100000974109		NAS BRUNSWICK ME
33	29	HOBBY SHOP	SPCC	A29.3	AST WASTE OIL	NAS BRUNSWICK ME
34	29	HOBBY SHOP	SPCC	A29.4	AST #1 OIL	NAS BRUNSWICK ME
35	29	AUTO HOBBY SHOP	INFADS	NFA100000979460		NAS BRUNSWICK ME
36	30	FSC STORAGE	INFADS	NFA100001735713		NAS BRUNSWICK ME
37	31	NAVY LODGE	INFADS	NFA100001735668		NAVEXCH BRUNSWICK ME
38	32	RECREATION PAVILLION	INFADS	NFA100000979168		NAS BRUNSWICK ME
39	33	SENTRYHOUSE/FRONT GATE	INFADS	NFA100000974118		NAS BRUNSWICK ME
40	37	NIS OFFICE (I)	SPCC	A37.0	AST #2 OIL	NAS BRUNSWICK ME
41	37	NCIS	INFADS	NFA100000974127		NAS BRUNSWICK ME
42	39	GOLF COURSE (I)	SPCC	A39.1	AST #1 OIL	NAS BRUNSWICK ME
43	39	GOLF COURSE MAINT BLDG	INFADS	NFA100000979505		NAS BRUNSWICK ME
44	40	ENVIRONMENTAL	INFADS	NFA100000979532		NAS BRUNSWICK ME
45	41	SECURITY (I) (GEN)	SPCC	A41.0	AST DIESEL	NAS BRUNSWICK ME
46	41	SECURITY (I)	SPCC	A41.2	AST #2 OIL	NAS BRUNSWICK ME
47	41	SECURITY (I)	SPCC	A41.3	AST #2 OIL	NAS BRUNSWICK ME
48	41	5406SF(C)16984SF(A)PARKING	INFADS	NFA100000864576		NAVSECGRUACT WINTER HARBOR ME
49	41	POLICE/SECURITY STATION	INFADS	NFA100000974797		NAS BRUNSWICK ME
50	42	PUMPHOUSE	INFADS	NFA100000973878		NAS BRUNSWICK ME
51	43	TELEPHONE EXCHANGE BLDG	INFADS	NFA100000979471		NAS BRUNSWICK ME
52	44	INERT ORDNANCE STORAGE	INFADS	NFA100000974136		NAS BRUNSWICK ME
53	45	HAZ WASTE STORAGE	SPCC	A45.1	AST WASTE OIL	NAS BRUNSWICK ME
54	45	HAZ WASTE STORAGE	SPCC	A45.2	AST WASTE OIL	NAS BRUNSWICK ME
55	45	HAZ WASTE STORAGE	SPCC	A45.3	AST #1 OIL	NAS BRUNSWICK ME
56	45	HAZ WASTE TRANSFER FACILITY	INFADS	NFA100000979729		NAS BRUNSWICK ME
57	49	GULL COTTAGE	INFADS	NFA100000900019		NAVSATOPCENDET A PROS HB ME
58	49	REGULATOR/SUBSTATION BLDG	INFADS	NFA100000979122		NAS BRUNSWICK ME
59	50	TREATMENT PLANT	SPCC	A50.0	AST #1 OIL	NAS BRUNSWICK ME
60	52	STONE HOUSE	INFADS	NFA100000900000		NAVSATOPCENDET A PROS HB ME
61	52	INERT STORAGE BUILDING	INFADS	NFA100000974163		NAS BRUNSWICK ME
62	53	PW MAINT SHOP	INFADS	NFA100000899895		NAVSATOPCENDET A PROS HB ME
63	53	PUBLIC WORKS SHOP	INFADS	NFA100000979783		NAVFAC EFA NORTHEAST
64	54	FASO	SPCC	A54.0	AST #2 OIL	NAS BRUNSWICK ME
65	54	APPLIED INSTR. BUILDING	INFADS	NFA100000979469		FASOTRAGRULANT DET BRUNSWICK
66	55	RECYCLING CENTER	INFADS	NFA100001735697		NAS BRUNSWICK ME
67	59	HE MAGAZINE	INFADS	NFA100000974172		NAS BRUNSWICK ME
68	60	INERT ORDNANCE STORAGE	INFADS	NFA100000974181		NAS BRUNSWICK ME
69	62	AMMO STORAGE FACILITY	INFADS	NFA100000974190		NAS BRUNSWICK ME
70	63	STORAGE FACILITY	INFADS	NFA100000974207		PATWING 5
71	64	STORAGE FACILITY	INFADS	NFA100000974216		PATWING 5
72	65	PICNIC SHELTER (QTY 5)	INFADS	NFA100000979462		NAS BRUNSWICK ME
73	71	AMMO MAGAZINE	INFADS	NFA100000974788		NAS BRUNSWICK ME
74	75	GOLF COURSE	SPCC	A75.0	AST #1 OIL	NAS BRUNSWICK ME
75	77	MAG AREA (V)	SPCC	A77.0	AST #2 OIL	NAS BRUNSWICK ME
76	77	WEAPONS BUILD-UP FACILITY	INFADS	NFA100000979738		NAS BRUNSWICK ME
77	78	GOLF CLUBHOUSE	INFADS	NFA100000979177		NAS BRUNSWICK ME
78	79	HOBBY SHOP STORAGE	INFADS	NFA100000979060		NAS BRUNSWICK ME
79	80	GARAGE	SPCC	A80.4	AST #1 OIL	NAS BRUNSWICK ME
80	80	MAINTENANCE BUILDING	INFADS	NFA100000979239		FASOTRAGRULANT DET BRUNSWICK
81	81	HAZMAT STORAGE	SPCC	A81.0	AST #1 OIL	NAS BRUNSWICK ME
82	81	CHRIMP FACILITY	INFADS	NFA100000979086		NAS BRUNSWICK ME
83	82	CPD-BLOCKHOUSE	SPCC	A82.0	AST #1 OIL	NAS BRUNSWICK ME
84	82	ISOLATION BUILDING	INFADS	NFA100000979140		FASOTRAGRULANT DET BRUNSWICK
85	83	ORDNANCE DISPOSAL SITE(18 AC	INFADS	NFA100000979159		NAS BRUNSWICK ME
86	85	DIRECTION FINDER BLDG	INFADS	NFA100000865192		NAVSECGRUACT WINTER HARBOR ME
87	86	GSE	SPCC	A86.11	AST #1 OIL	NAS BRUNSWICK ME
88	86	GSE A/C DEICING FACILITY	SPCC	A86.12	AST WASTE GLYCOL	NAS BRUNSWICK ME
89	86	GSE MAINT. SHOP	INFADS	NFA100000979676		NAS BRUNSWICK ME
90	87	ASWOC	INFADS	NFA100000979578		PATWING 5
91	89	EMERGENCY VEHICLE SHELTER	INFADS	NFA100000979211		FASOTRAGRULANT DET BRUNSWICK
92	100	GARAGE /QUARTERS D/	INFADS	NFA100000974298		NAS BRUNSWICK ME
93	101	SATELLITE TRACKING FACILITY	INFADS	NFA100000900028		NAVSATOPCENDET A PROS HB ME
94	102	GENERATOR BUILDING	INFADS	NFA100000900037		NAVSATOPCENDET A PROS HB ME
95	103	UPS/GENERATOR BLDG	INFADS	NFA100000865316		NAVSECGRUACT WINTER HARBOR ME
96	103	SATELLITE TRACKING ANTENNA	INFADS	NFA100000900126		NAVSATOPCENDET A PROS HB ME
97	104	VEHICLE STORAGE GARAGE	INFADS	NFA100000900136		NAVSATOPCENDET A PROS HB ME
98	104	MECH SEC BARRIERS	INFADS	NFA200000454269		NAS BRUNSWICK ME
99	105	BUTLER BUILDING	INFADS	NFA100000930162		BOS NAVAL COMP AND TELCON STA
100	107	BATH HOUSE	INFADS	NFA100000900180		BOS NAVAL COMP AND TELCON STA
101	108	KENNEL	SPCC	A108.0	AST #1 OIL	NAS BRUNSWICK ME
102	109	GYMNASIUM	INFADS	NFA100000900206		NAVSATOPCENDET A PROS HB ME
103	109	DOG KENNEL	INFADS	NFA100000979266		NAS BRUNSWICK ME
104	110	ELECT. SPARES/MISC STRG	INFADS	NFA100000900279		NAVSATOPCENDET A PROS HB ME
105	110	GARAGE QTRS A-B	INFADS	NFA100000974289		NAS BRUNSWICK ME
106	111	SWIMMING POOL	INFADS	NFA100000900215		NAVSATOPCENDET A PROS HB ME
107	111	SEWAGE PUMP HOUSE	INFADS	NFA100000973632		NAS BRUNSWICK ME
108	112	ADMIN BLDG	INFADS	NFA100000900233		NAVSATOPCENDET A PROS HB ME
109	113	SBAND ANTENNA	INFADS	NFA100000900242		NAVSATOPCENDET A PROS HB ME
110	114	FEPOC ANTENNA	INFADS	NFA100000900251		NAVSATOPCENDET A PROS HB ME
111	116	LOG CABIN INSTRUCTION BLDG.	INFADS	NFA100000979220		FASOTRAGRULANT DET BRUNSWICK

112	117	FILLING STATION	INFADS	NFA100000979792		NAS BRUNSWICK ME
113	118	FILLING STATION STORAGE	INFADS	NFA100000979417		NAS BRUNSWICK ME
114	122	FLAG POLE (ADMIN)	INFADS	NFA100000973958		NAS BRUNSWICK ME
115	124	STOR TANK-GROUND LEVEL	INFADS	NFA100000974396		NAS BRUNSWICK ME
116	125	GUARD TOWER	INFADS	NFA100000979408		NAS BRUNSWICK ME
117	126	NATL GUARD MAGAZINE	INFADS	NFA100000979435		NAS BRUNSWICK ME
118	127	NATL GUARD MAGAZINE	INFADS	NFA100000979444		NAS BRUNSWICK ME
119	128	NATL GUARD MAGAZINE	INFADS	NFA100000979453		NAS BRUNSWICK ME
120	145	LOADING PLATFORM	INFADS	NFA100000974695		NAS BRUNSWICK ME
121	146	WATERMAIN ENTRANCE SHELTER	INFADS	NFA100000979550		NAS BRUNSWICK ME
122	147	WATER METER PIT SHELTER	INFADS	NFA100000979569		NAS BRUNSWICK ME
123	150	NAVAL AIR RESERVE CENTER	INFADS	NFA100000979685		NAS BRUNSWICK ME
124	151	NAVAL SURFACE RESERVE CENTER	INFADS	NFA200000129656		NAVRESCEN PORTLAND ME
125	153	RECYCLING BUILDING	SPCC	A153.0	AST #2 OIL	NAS BRUNSWICK ME
126	153	RECYCLING BUILDING	SPCC	A153.1	AST #2 OIL	NAS BRUNSWICK ME
127	153	CLASSIC WIZARD OPS/TRNG BLDG	INFADS	NFA100000865815		NAVSECGRUACT WINTER HARBOR ME
128	153	SAND/SALT SHED	INFADS	NFA100000979694		NAS BRUNSWICK ME
129	154	UPS/GENERATOR BLDG	INFADS	NFA100000865824		NAVSECGRUACT WINTER HARBOR ME
130	156	ANTENNA MAINTENANCE	INFADS	NFA100000865833		NAVSECGRUACT WINTER HARBOR ME
131	156	MONUMENT	INFADS	NFA100000978748		NAS BRUNSWICK ME
132	157	MONUMENT	INFADS	NFA100000978757		NAS BRUNSWICK ME
133	160	GATE/SENTRY HOUSE	INFADS	NFA100000865940		NAVSECGRUACT WINTER HARBOR ME
134	200	AIROPS (GEN)	SPCC	A200.0	AST DIESEL	NAS BRUNSWICK ME
135	200	AIROPS	SPCC	A200.1	AST #1 OIL	NAS BRUNSWICK ME
136	200	OPERATIONS-CONTROL TOWER BLD	INFADS	NFA100000974653		NAS BRUNSWICK ME
137	201	NEW GALLEY	SPCC	A201.3	AST #1 OIL	NAS BRUNSWICK ME
138	201	GALLEY/NEPTUNE HALL	INFADS	NFA100000974323		NAS BRUNSWICK ME
139	206	CLASSIC WIZARD STORAGE	INFADS	NFA100000866226		NAVSECGRUACT WINTER HARBOR ME
140	209	RIGGERS SHOP (GEN)	SPCC	A209.0	AST DIESEL	NAS BRUNSWICK ME
141	209	ELECTRIC DISTRBN BLD/SHLTR	INFADS	NFA100000974369		NAS BRUNSWICK ME
142	210	BEACON TOWER	INFADS	NFA100000973949		NAS BRUNSWICK ME
143	211	PHYSICAL FITNESS FACILITY	INFADS	NFA100000974555		NAS BRUNSWICK ME
144	212	COREA MAINTENANCE BUILDING	INFADS	NFA100000866280		NAVSECGRUACT WINTER HARBOR ME
145	214	SEC. TURNSTILE BLDG(UNMANNED	INFADS	NFA100000866306		NAVSECGRUACT WINTER HARBOR ME
146	217	P. W. WAREHSE, COREA	INFADS	NFA100000866333		NAVSECGRUACT WINTER HARBOR ME
147	218	STRGE,ANTENNA MAINT.	INFADS	NFA100000866324		NAVSECGRUACT WINTER HARBOR ME
148	218	BARRACKS	INFADS	NFA100000974626		NAS BRUNSWICK ME
149	219	BARRACKS	INFADS	NFA100000974635		NAS BRUNSWICK ME
150	220	BARRACKS	INFADS	NFA100000974644		NAS BRUNSWICK ME
151	221	THRIFT SHOP (I)	SPCC	A221.0	AST #2 OIL	NAS BRUNSWICK ME
152	221	THRIFT SHOP	INFADS	NFA100001735704		NAS BRUNSWICK ME
153	222	BEQ MAINT STORAGE	INFADS	NFA100000974341		NAS BRUNSWICK ME
154	223	NMCI	INFADS	NFA100000974332		NAS BRUNSWICK ME
155	225	TRANS GARAGE (I)	SPCC	A225.1	AST LUBE OIL	NAS BRUNSWICK ME
156	225	TRANS GARAGE	SPCC	A225.6	AST #1 OIL	NAS BRUNSWICK ME
157	225	AUTOMOTIVE EQUIP REPAIR SHOP	INFADS	NFA100000974378		NAS BRUNSWICK ME
158	226	ELECTRONICS STORAGE	INFADS	NFA100000866486		NAVSECGRUACT WINTER HARBOR ME
159	226	SEA CADETS BUILDING	INFADS	NFA200000129978		NAS BRUNSWICK ME
160	227	ANT SITE #1 (GEN)	SPCC	A227.0	AST DIESEL	NAS BRUNSWICK ME
161	227	GENERATOR BUILDING	INFADS	NFA100000974962		NAS BRUNSWICK ME
162	228	SENTRYHOUSE/CW5	INFADS	NFA100000979523		NAS BRUNSWICK ME
163	229	POTABLE WATER STORAGE BLDG	INFADS	NFA100000864415		NAVSECGRUACT WINTER HARBOR ME
164	229	GCA TURNTABLE	INFADS	NFA100000974671		NAS BRUNSWICK ME
165	230	POTABLE WATER STORAGE BLDG	INFADS	NFA100000864424		NAVSECGRUACT WINTER HARBOR ME
166	230	OLD TACAN TRANSMITTER BLDG	INFADS	NFA100000974822		NAS BRUNSWICK ME
167	235	GARAGE QTRS E	INFADS	NFA100000974680		NAS BRUNSWICK ME
168	236	GARAGE QTRS. F	INFADS	NFA100000974699		NAS BRUNSWICK ME
169	237	GARAGE QTRS G	INFADS	NFA100000974706		NAS BRUNSWICK ME
170	238	GARAGE QTRS. H	INFADS	NFA100000974715		NAS BRUNSWICK ME
171	239	GARAGE QTRS. I	INFADS	NFA100000974724		NAS BRUNSWICK ME
172	240	GARAGE QTRS EA	INFADS	NFA100000974760		NAS BRUNSWICK ME
173	241	GARAGE QTRS EB	INFADS	NFA100000974779		NAS BRUNSWICK ME
174	242	GARAGE QTRS EC	INFADS	NFA100000974751		NAS BRUNSWICK ME
175	243	GARAGE QTRS. ED	INFADS	NFA100000974742		NAS BRUNSWICK ME
176	244	GARAGE QTRS. EE	INFADS	NFA100000974733		NAS BRUNSWICK ME
177	245	PAVEMENT & GRND EQUIP SHED	INFADS	NFA100000974920		NAS BRUNSWICK ME
178	250	BLDG 250	SPCC	A250.3	AST #1 OIL	NAS BRUNSWICK ME
179	250	BLDG 250 (GEN)	SPCC	A250.4	AST DIESEL	NAS BRUNSWICK ME
180	250	MAINTENANCE HANGAR	INFADS	NFA100000974911		NAS BRUNSWICK ME
181	251	DE-ICE/RINSE PUMPHOUSE	INFADS	NFA200000129896		NAS BRUNSWICK ME
182	254	DRAFTING TANK	INFADS	NFA100000975630		NAS BRUNSWICK ME
183	255	GOLF COURSE & DRIVING RANGE	INFADS	NFA100000974831		NAS BRUNSWICK ME
184	256	ATHLETIC FIELD	INFADS	NFA100000973823		NAS BRUNSWICK ME
185	257	PLAYING COURTS	INFADS	NFA100000978622		NAS BRUNSWICK ME
186	265	SENTRYHOUSE/FORRESTAL RD/HSG	INFADS	NFA100000974868		NAS BRUNSWICK ME
187	277	SEWAGE PUMPING STATION	INFADS	NFA100000974948		NAS BRUNSWICK ME
188	280	TRANSMITTER BLDG VHF/UHF	INFADS	NFA100000974984		NAS BRUNSWICK ME
189	282	COMPASS ROSE	INFADS	NFA100000974939		NAS BRUNSWICK ME
190	285	AMMO STORAGE FACILITY	INFADS	NFA100000975019		NAS BRUNSWICK ME
191	286	AMMO STORAGE FACILITY	INFADS	NFA100000975028		NAS BRUNSWICK ME
192	287	AMMO STORAGE FACILITY	INFADS	NFA100000975037		NAS BRUNSWICK ME
193	288	AMMO STORAGE FACILITY	INFADS	NFA100000975046		NAS BRUNSWICK ME
194	289	AMMO STORAGE FACILITY	INFADS	NFA100000975055		NAS BRUNSWICK ME
195	290	HIGH EXPLOSIVE MAGAZINE	INFADS	NFA100000975064		NAS BRUNSWICK ME
196	291	HE MAGAZINE	INFADS	NFA100000975073		NAS BRUNSWICK ME
197	292	FIRE DEPT	SPCC	A292.2	AST #1 OIL	NAS BRUNSWICK ME
198	292	FIRE/RESCUE FACILITY	INFADS	NFA100000974975		NAS BRUNSWICK ME
199	294	SUPPLY WAREHOUSE	SPCC	A294.0	AST #1 OIL	NAS BRUNSWICK ME
200	294	WAREHOUSE	INFADS	NFA100000974966		NAS BRUNSWICK ME
201	295	H20 PUMP HOUSE(I)(GEN)	SPCC	A295.0	AST DIESEL	NAS BRUNSWICK ME
202	295	H20 PUMP HOUSE(I)(GEN)	SPCC	A295.1	AST DIESEL	NAS BRUNSWICK ME
203	295	H20 PUMP HOUSE(I)(GEN)	SPCC	A295.2	AST DIESEL	NAS BRUNSWICK ME
204	295	H20 PUMP HOUSE(I)(GEN)	SPCC	A295.3	AST DIESEL	NAS BRUNSWICK ME
205	295	WATER RESERVOIR PUMP HOUSE	INFADS	NFA100000975091		NAS BRUNSWICK ME
206	296	VORTAC (ANT) (GEN)	SPCC	A296.0	AST DIESEL	NAS BRUNSWICK ME
207	296	TACAN	INFADS	NFA100000974957		NAS BRUNSWICK ME
208	309	PUMPHOUSE/IRRIGATION	INFADS	NFA100000974513		NAS BRUNSWICK ME
209	310	DAM	INFADS	NFA100000974877		NAS BRUNSWICK ME
210	311	OIL SPILL CONTROL WEIR	INFADS	NFA100000974903		NAS BRUNSWICK ME
211	323	STORAGE BLDG	INFADS	NFA100001734144		NAS BRUNSWICK ME
212	332	OFFICE BUILDING (VACANT)	INFADS	NFA100000979845		NAS BRUNSWICK ME
213	333	ARMY RECRUITERS	SPCC	A333.0	AST #1 OIL	NAS BRUNSWICK ME
214	333	FLAG HDQTRS/ARMY RES. OFFICE	INFADS	NFA100000979854		NAVRESCRUITCOMDET5 BURTONSVILL
215	334	FLAG POLE	INFADS	NFA100000979863		NAS BRUNSWICK ME
216	335	COMMISSARY	SPCC	A335.0	AST #1 OIL	NAS BRUNSWICK ME
217	337	MARINES	SPCC	A337.0	AST #1 OIL	NAS BRUNSWICK ME
218	338	MARINES	SPCC	A338.2	AST #1 OIL	NAS BRUNSWICK ME
219	338	MARINES	SPCC	A338.3	AST #1 OIL	NAS BRUNSWICK ME
220	339	MARINES	SPCC	A339.0	AST #1 OIL	NAS BRUNSWICK ME
221	347	DAM	INFADS	NFA100000974886		NAS BRUNSWICK ME
222	349	QUARTERS	INFADS	NFA100000975052		NAS BRUNSWICK ME
223	363	FIRE HOUSE	SPCC	A363.0	AST #1 OIL	NAS BRUNSWICK ME
224	363	FIRE STATION	INFADS	NFA100000979925		NAS BRUNSWICK ME
225	370	PLAYING COURT	INFADS	NFA100000979943		NAS BRUNSWICK ME

226	374	VACANT	INFADS	NFA100000979952		NAS BRUNSWICK ME
227	378	PUMPING STATION	INFADS	NFA100000979989		NAS BRUNSWICK ME
228	385	WATER STORAGE TANK	INFADS	NFA100000980147		NAS BRUNSWICK ME
229	386	WATER METER PIT SHELTER	INFADS	NFA100000979641		NAS BRUNSWICK ME
230	512	BOQ	SPCC	A512.1	AST #1 OIL	NAS BRUNSWICK ME
231	512	BOQ	INFADS	NFA100000975144		NAS BRUNSWICK ME
232	516	NITEFLITE	SPCC	A516.1	AST #1 OIL	NAS BRUNSWICK ME
233	516	NITEFLIGHT	INFADS	NFA100000975929		NAS BRUNSWICK ME
234	517	RECEIVER BUILDING	INFADS	NFA100000975858		NAS BRUNSWICK ME
235	518	ANT SITE #2 (GEN)	SPCC	A518.0	AST DIESEL	NAS BRUNSWICK ME
236	518	GENERATOR BUILDING	INFADS	NFA100000975867		NAS BRUNSWICK ME
237	524	GENERATOR BUILDING	INFADS	NFA100000975885		NAS BRUNSWICK ME
238	537	SEWAGE PUMP HSE(GEN)	SPCC	A537.0	AST DIESEL	NAS BRUNSWICK ME
239	537	SEWAGE PUMP HOUSE	INFADS	NFA100000975153		NAS BRUNSWICK ME
240	538	NEX - SERVICE STATION	SPCC	A538.0	AST #1 OIL	NAS BRUNSWICK ME
241	538	NX SERVICE STATION	INFADS	NFA100000975135		NEX BRUNSWICK ME
242	539	EXPL ADMIN/ARMORY	INFADS	NFA100000975894		NAS BRUNSWICK ME
243	543	HIGH EXPLOSIVES MAGAZINE	INFADS	NFA100000975901		NAS BRUNSWICK ME
244	544	HIGH EXPLOSIVE MAGAZINE	INFADS	NFA100000975910		NAS BRUNSWICK ME
245	548	HIGH EXPLOSIVE MAGAZINE	INFADS	NFA100000976027		NAS BRUNSWICK ME
246	549	HIGH EXPLOSIVE MAGAZINE	INFADS	NFA100000976036		NAS BRUNSWICK ME
247	555	SONOBOUY / VEHICLE STORAGE	INFADS	NFA100000976063		PATWING 5
248	555.1	SONOBUOY LOCK	EFANE		UST #2 FUEL OIL	NAS BRUNSWICK ME
249	557	RAKE TOWER	INFADS	NFA100000978374		NAS BRUNSWICK ME
250	558	RAKE TOWER	INFADS	NFA100000978363		NAS BRUNSWICK ME
251	561	PUBLIC WORKS STORAGE	INFADS	NFA100000976152		NAS BRUNSWICK ME
252	562	TRANSMISSOMETER TOWER	INFADS	NFA100000978338		NAS BRUNSWICK ME
253	563	TRANSMISSOMETER TOWER	INFADS	NFA100000978347		NAS BRUNSWICK ME
254	565	MULTI-PURPOSE BLDG	SPCC	A565.0	AST #1 OIL	NAS BRUNSWICK ME
255	566	MULTI-PURPOSE	INFADS	NFA100001756762		FASOTRAGRULANT DET BRUNSWICK
256	567	MAIN GEN BLDG (GEN)	SPCC	A567.0	AST #1 OIL	NAS BRUNSWICK ME
257	569	SEWAGE TREATMENT PLANT	INFADS	NFA100000978463		FASOTRAGRULANT DET BRUNSWICK
258	572	GENERATING PLANT	INFADS	NFA100000978445		FASOTRAGRULANT DET BRUNSWICK
259	576	GUARD TOWERS	INFADS	NFA100000976515		FASOTRAGRULANT DET BRUNSWICK
260	578	GUARD TOWER	INFADS	NFA100000976524		FASOTRAGRULANT DET BRUNSWICK
261	583	BOWLING ALLEY	SPCC	A583.1	AST #1 OIL	NAS BRUNSWICK ME
262	583	BOWLING CENTER/REC MALL	INFADS	NFA100000976579		NEX BRUNSWICK ME
263	584	GENERAL WAREHOUSE	INFADS	NFA100000976597		NAS BRUNSWICK ME
264	585	CHAPEL	SPCC	A585.0	AST #1 OIL	NAS BRUNSWICK ME
265	585	CHAPEL	INFADS	NFA100000978631		NAS BRUNSWICK ME
266	592	VET CLINIC	INFADS	NFA100000976604		NAS BRUNSWICK ME
267	594	ASWOC TOWER (GEN)	SPCC	A594.0	AST DIESEL	NAS BRUNSWICK ME
268	594	ASWOC TOWER	SPCC	A594.1	AST #1 OIL	NAS BRUNSWICK ME
269	594	RADAR TOWER/MECH @ ASWOC	INFADS	NFA100000978613		PATWING 5
270	600	TRANSMISSOMETER TOWER	INFADS	NFA100000978766		NAS BRUNSWICK ME
271	601	ASOS TOWER	INFADS	NFA100000978775		NAS BRUNSWICK ME
272	602	GLIDE SLOPE ANTENNA BUILDING	INFADS	NFA100000979747		NAS BRUNSWICK ME
273	603	LOCALIZER ANTENNA SHELTER	INFADS	NFA100000979756		NAS BRUNSWICK ME
274	611	TEST CELL - LARGE	SPCC	A611.0	AST JP8	NAS BRUNSWICK ME
275	611	T-56 ENGINE TEST FACILITY	INFADS	NFA100000978640		NAS BRUNSWICK ME
276	612	TREATMENT PLANT	SPCC	A612.0	AST #1 OIL	NAS BRUNSWICK ME
277	613	PICNIC AREA TOILET	INFADS	NFA100000978686		NAS BRUNSWICK ME
278	616	FLAG POLE 1 FAW-3	INFADS	NFA100000978695		NAS BRUNSWICK ME
279	624	JAMESWAY SHELTER	INFADS	NFA100000978720		FASOTRAGRULANT DET BRUNSWICK
280	625	JAMESWAY SHELTER	INFADS	NFA100000978739		FASOTRAGRULANT DET BRUNSWICK
281	626	INERT ORDNANCE STORAGE	INFADS	NFA100000978891		NAS BRUNSWICK ME
282	629	NMCB 27/SEABEE CAMP	INFADS	NFA100000978908		NMCB 27 BRUNSWICK ME
283	630	NMCB27/SEABEE CAMP	INFADS	NFA100000978917		NMCB 27 BRUNSWICK ME
284	631	NMCB 27/SEABEE CAMP	INFADS	NFA100000978926		NMCB 27 BRUNSWICK ME
285	633	NMCB 27/SEABEE CAMP	INFADS	NFA100000978935		NMCB 27 BRUNSWICK ME
286	634	NMCB 27/SEABEE CAMP	INFADS	NFA100000978944		NMCB 27 BRUNSWICK ME
287	635	NMCB 27/SEABEE CAMP	INFADS	NFA100000978953		NMCB 27 BRUNSWICK ME
288	638	SEWAGE PUMPING STATION	INFADS	NFA100000976018		NAS BRUNSWICK ME
289	639	OPERATIONAL TRAINING BLDG (D	INFADS	NFA100000978962		NAVSECGRUACT
290	642	WEPS ADMIN	INFADS	NFA100000979042		NAS BRUNSWICK ME
291	643	SENTRY HOUSE/WEAPONS AREA	INFADS	NFA100000979033		NAS BRUNSWICK ME
292	644	OP TRAINER	SPCC	A644.2	AST #2 OIL	NAS BRUNSWICK ME
293	644	OPERATIONAL TRAINER BLDG	INFADS	NFA100000979079		PATWING 5
294	645	BRANCH CLINIC (GEN)	SPCC	A645.0	AST DIESEL	NAS BRUNSWICK ME
295	645	BRANCH CLINIC	SPCC	A645.1	AST #1 OIL	NAS BRUNSWICK ME
296	645	BR MEDICAL/DENTAL CLINIC	INFADS	NFA100000979097		NAVCLINBR BRUNSWICK ME
297	646	ASR-8 ANT SITE (GEN)	SPCC	A646.0	AST DIESEL	NAS BRUNSWICK ME
298	646	RATCF ANTENNA BUILDING	INFADS	NFA100000979051		NAS BRUNSWICK ME
299	647	PEST CONTROL BLDG (I)	SPCC	A647.0	AST #2 OIL	NAS BRUNSWICK ME
300	647	BOTT GAS STRG BLDG/PEST CONT	INFADS	NFA100000979024		NAS BRUNSWICK ME
301	649	AMBULANCE GARAGE	INFADS	NFA100000979104		NAVCLINBR BRUNSWICK ME
302	650	JFSI	SPCC	A650.0	AST JP8	NAS BRUNSWICK ME
303	650	JP-8 TANK 20000 BBLS	INFADS	NFA100000979603		NAS BRUNSWICK ME
304	651	JFSI	SPCC	A651.0	AST JP8	NAS BRUNSWICK ME
305	651	JP-8 TANK 20000 BBLS	INFADS	NFA100000979612		NAS BRUNSWICK ME
306	652	JP-8 TRUCK LOADING RACK	INFADS	NFA100000979621		NAS BRUNSWICK ME
307	653	FUEL FARM FOAM HOUSE	INFADS	NFA100000979710		NAS BRUNSWICK ME
308	654	JP-8 PUMP HOUSE	INFADS	NFA100000979630		NAS BRUNSWICK ME
309	655	JP-8 TRUCK OFFLOAD RACK	INFADS	NFA100000979649		NAS BRUNSWICK ME
310	657	RESERVE TRAINING BUILDING	INFADS	NFA100000979667		NMCB 27 BRUNSWICK ME
311	658	FUEL FARM MAINT (I)	SPCC	A658.0	AST #2 OIL	NAS BRUNSWICK ME
312	658	FUEL FARM MAINT (I)	SPCC	A658.1	AST #2 OIL	NAS BRUNSWICK ME
313	658	FUEL FARM POL TESTING FAC	INFADS	NFA100000979774		NAS BRUNSWICK ME
314	660	VEHICLE WASH RACK (I)	SPCC	A660.0	AST #1 OIL	NAS BRUNSWICK ME
315	660	TRUCK WASH	INFADS	NFA100000979765		NAS BRUNSWICK ME
316	730	BEQ	INFADS	NFA200000342684		NAS BRUNSWICK ME
317	731	BEQ	INFADS	NFA200000342755		NAS BRUNSWICK ME
318	732	BEQ	INFADS	NFA200000342719		NAS BRUNSWICK ME
319	733	BEQ	INFADS	NFA200000342764		NAS BRUNSWICK ME
320	734	BEQ	INFADS	NFA200000342835		NAS BRUNSWICK ME
321	735	BEQ	INFADS	NFA200000342844		NAS BRUNSWICK ME
322	736	BEQ	INFADS	NFA200000342853		NAS BRUNSWICK ME
323	737	BEQ	INFADS	NFA200000342862		NAS BRUNSWICK ME
324	738	BEQ	INFADS	NFA200000342871		NAS BRUNSWICK ME
325	739	BEQ	INFADS	NFA200000343031		NAS BRUNSWICK ME
326	740	BEQ	INFADS	NFA200000343040		NAS BRUNSWICK ME
327	741	BEQ	INFADS	NFA200000342728		NAS BRUNSWICK ME
328	742	BEQ	INFADS	NFA200000343068		NAS BRUNSWICK ME
329	743	BEQ	INFADS	NFA200000342737		NAS BRUNSWICK ME
330	744	BEQ	INFADS	NFA200000343077		NAS BRUNSWICK ME
331	745	BEQ	INFADS	NFA200000343086		NAS BRUNSWICK ME
332	746	BEQ	INFADS	NFA200000343102		NAS BRUNSWICK ME
333	747	BEQ	INFADS	NFA200000343111		NAS BRUNSWICK ME
334	748	BEQ	INFADS	NFA200000343120		NAS BRUNSWICK ME
335	749	BEQ	INFADS	NFA200000342746		NAS BRUNSWICK ME
336	790	MIDWAY TERRACE	INFADS	NFA100000979275		NAS BRUNSWICK ME
337	791	MIDWAY TERRACE	INFADS	NFA100000979284		NAS BRUNSWICK ME
338	792	MIDWAY TERRACE	INFADS	NFA100000979293		NAS BRUNSWICK ME
339	793	MIDWAY TERRACE	INFADS	NFA100000979300		NAS BRUNSWICK ME

340	794	MIDWAY TERRACE	INFADS	NFA100000979319	NAS BRUNSWICK ME
341	795	MIDWAY TERRACE	INFADS	NFA100000979328	NAS BRUNSWICK ME
342	796	MIDWAY TERRACE	INFADS	NFA100000979337	NAS BRUNSWICK ME
343	797	MIDWAY TERRACE	INFADS	NFA100000979346	NAS BRUNSWICK ME
344	798	MIDWAY TERRACE	INFADS	NFA100000979355	NAS BRUNSWICK ME
345	799	MIDWAY TERRACE	INFADS	NFA100000979364	NAS BRUNSWICK ME
346	800	MIDWAY TERRACE	INFADS	NFA100000979373	NAS BRUNSWICK ME
347	875	PUB QTRS CAPEHART-SR OFF	INFADS	NFA100000976223	NAS BRUNSWICK ME
348	876	PUBLIC QUARTERS SR OFFICER	INFADS	NFA100000976232	NAS BRUNSWICK ME
349	877	PUB QTRS CAPEHART-SR OFF	INFADS	NFA100000976241	NAS BRUNSWICK ME
350	878	PUB QTRS CAPEHART-SR OFF	INFADS	NFA100000976250	NAS BRUNSWICK ME
351	879	PUB QTRS CAPEHART-SR OFF	INFADS	NFA100000976269	NAS BRUNSWICK ME
352	880	PUB QTRS CAPEHART-SR OFF	INFADS	NFA100000976278	NAS BRUNSWICK ME
353	881	PUBLIC QUARTER CAPEHART-CPT	INFADS	NFA100000976189	NAS BRUNSWICK ME
354	882	PUBLIC QUARTERS CAPEHART	INFADS	NFA100000976198	NAS BRUNSWICK ME
355	883	PUB QTRS CAPEHART CAPTAIN	INFADS	NFA100000976205	NAS BRUNSWICK ME
356	884	PUB QTRS CAPEHART CAPTAIN	INFADS	NFA100000976214	NAS BRUNSWICK ME
357	885	PUB QTRS CAPEHART-SR OFF	INFADS	NFA100000976287	NAS BRUNSWICK ME
358	886	PUB QTRS CAPEHART-SR OFF	INFADS	NFA100000976296	NAS BRUNSWICK ME
359	887	PUB QTRS CAPEHART-SR OFF	INFADS	NFA100000976303	NAS BRUNSWICK ME
360	888	PUB QTRS CAPEHART-SR OFF	INFADS	NFA100000976312	NAS BRUNSWICK ME
361	889	PUB QTRS CH JR OFF	INFADS	NFA100000977044	NAS BRUNSWICK ME
362	890	PUB QTRS CH JR OFF	INFADS	NFA100000977053	NAS BRUNSWICK ME
363	891	PUB QTRS CH JR OFF	INFADS	NFA100000977062	NAS BRUNSWICK ME
364	892	PUB QTRS CH JR OFF	INFADS	NFA100000977071	NAS BRUNSWICK ME
365	893	PUB QTRS CH JR OFF	INFADS	NFA100000977080	NAS BRUNSWICK ME
366	894	PUB QTRS CH JR OFF	INFADS	NFA100000977099	NAS BRUNSWICK ME
367	895	PUB QTRS CH JR OFF	INFADS	NFA100000977106	NAS BRUNSWICK ME
368	896	PUB QTRS CH JR OFF	INFADS	NFA100000977115	NAS BRUNSWICK ME
369	897	PUB QTRS CH JR OFF	INFADS	NFA100000977124	NAS BRUNSWICK ME
370	898	PUB QTRS CH JR OFF	INFADS	NFA100000977133	NAS BRUNSWICK ME
371	899	PUB QTRS CH JR OFF	INFADS	NFA100000977142	NAS BRUNSWICK ME
372	900	PUB QTRS CH JR OFF	INFADS	NFA100000977151	NAS BRUNSWICK ME
373	901	PUB QTRS CH JR OFF	INFADS	NFA100000977160	NAS BRUNSWICK ME
374	902	PUB QTRS CH JR OFF	INFADS	NFA100000977179	NAS BRUNSWICK ME
375	903	PUB QTRS CH JR OFF	INFADS	NFA100000977188	NAS BRUNSWICK ME
376	904	PUBLIC QUARTERS CAPEHART	INFADS	NFA100000976170	NAS BRUNSWICK ME
377	905	PUBLIC QUARTERS CAPEHART	INFADS	NFA100000976161	NAS BRUNSWICK ME
378	906	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000977669	NAS BRUNSWICK ME
379	907	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977678	NAS BRUNSWICK ME
380	908	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977687	NAS BRUNSWICK ME
381	909	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977696	NAS BRUNSWICK ME
382	910	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977703	NAS BRUNSWICK ME
383	911	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977197	NAS BRUNSWICK ME
384	912	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977204	NAS BRUNSWICK ME
385	913	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977712	NAS BRUNSWICK ME
386	914	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976722	NAS BRUNSWICK ME
387	915	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976429	NAS BRUNSWICK ME
388	916	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976438	NAS BRUNSWICK ME
389	917	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976447	NAS BRUNSWICK ME
390	918	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976456	NAS BRUNSWICK ME
391	919	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976465	NAS BRUNSWICK ME
392	920	PUBLIC QUARTERS JR OFFICERS	INFADS	NFA100000976321	NAS BRUNSWICK ME
393	921	PUBLIC QUARTERS JR OFFICERS	INFADS	NFA100000976330	NAS BRUNSWICK ME
394	922	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976349	NAS BRUNSWICK ME
395	923	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976474	NAS BRUNSWICK ME
396	924	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976483	NAS BRUNSWICK ME
397	925	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976492	NAS BRUNSWICK ME
398	926	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976508	NAS BRUNSWICK ME
399	927	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976358	NAS BRUNSWICK ME
400	927	RUNWAY E/W INACTIVE	INFADS	NFA100000978365	NAS BRUNSWICK ME
401	928	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976367	NAS BRUNSWICK ME
402	929	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976517	NAS BRUNSWICK ME
403	930	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976526	NAS BRUNSWICK ME
404	931	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976535	NAS BRUNSWICK ME
405	932	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976544	NAS BRUNSWICK ME
406	933	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976553	NAS BRUNSWICK ME
407	934	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976562	NAS BRUNSWICK ME
408	935	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976571	NAS BRUNSWICK ME
409	936	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976376	NAS BRUNSWICK ME
410	937	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976385	NAS BRUNSWICK ME
411	938	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976580	NAS BRUNSWICK ME
412	939	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976599	NAS BRUNSWICK ME
413	940	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976606	NAS BRUNSWICK ME
414	941	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976982	NAS BRUNSWICK ME
415	942	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977482	NAS BRUNSWICK ME
416	943	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977491	NAS BRUNSWICK ME
417	944	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976991	NAS BRUNSWICK ME
418	945	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000977008	NAS BRUNSWICK ME
419	946	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978221	NAS BRUNSWICK ME
420	947	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000977017	NAS BRUNSWICK ME
421	948	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977632	NAS BRUNSWICK ME
422	949	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977623	NAS BRUNSWICK ME
423	950	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978230	NAS BRUNSWICK ME
424	951	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000977026	NAS BRUNSWICK ME
425	952	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978249	NAS BRUNSWICK ME
426	953	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977614	NAS BRUNSWICK ME
427	954	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978258	NAS BRUNSWICK ME
428	955	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977605	NAS BRUNSWICK ME
429	956	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977596	NAS BRUNSWICK ME
430	957	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977589	NAS BRUNSWICK ME
431	958	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976964	NAS BRUNSWICK ME
432	959	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976955	NAS BRUNSWICK ME
433	960	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978267	NAS BRUNSWICK ME
434	961	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978276	NAS BRUNSWICK ME
435	962	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976946	NAS BRUNSWICK ME
436	963	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977570	NAS BRUNSWICK ME
437	964	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976937	NAS BRUNSWICK ME
438	965	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976928	NAS BRUNSWICK ME
439	966	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978285	NAS BRUNSWICK ME
440	967	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978294	NAS BRUNSWICK ME
441	968	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977561	NAS BRUNSWICK ME
442	969	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978301	NAS BRUNSWICK ME
443	970	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978310	NAS BRUNSWICK ME
444	971	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977552	NAS BRUNSWICK ME
445	972	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978329	NAS BRUNSWICK ME
446	973	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977543	NAS BRUNSWICK ME
447	974	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977534	NAS BRUNSWICK ME
448	975	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976884	NAS BRUNSWICK ME
449	976	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976875	NAS BRUNSWICK ME
450	977	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977525	NAS BRUNSWICK ME
451	978	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976866	NAS BRUNSWICK ME
452	979	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977516	NAS BRUNSWICK ME
453	980	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976857	NAS BRUNSWICK ME

454	981	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976848	NAS BRUNSWICK ME
455	982	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976839	NAS BRUNSWICK ME
456	983	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977507	NAS BRUNSWICK ME
457	984	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976820	NAS BRUNSWICK ME
458	985	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976811	NAS BRUNSWICK ME
459	986	PUBLIC QTRS ENL-CAPEHART	INFADS	NFA100000977776	NAS BRUNSWICK ME
460	987	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977231	NAS BRUNSWICK ME
461	988	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977222	NAS BRUNSWICK ME
462	989	PUBLIC QTRS ENL-CAPEHART	INFADS	NFA100000977767	NAS BRUNSWICK ME
463	990	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977213	NAS BRUNSWICK ME
464	991	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977758	NAS BRUNSWICK ME
465	992	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977749	NAS BRUNSWICK ME
466	993	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977730	NAS BRUNSWICK ME
467	994	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977721	NAS BRUNSWICK ME
468	995	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976615	NAS BRUNSWICK ME
469	996	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976624	NAS BRUNSWICK ME
470	997	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976633	NAS BRUNSWICK ME
471	998	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976394	NAS BRUNSWICK ME
472	999	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976401	NAS BRUNSWICK ME
473	1000	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976410	NAS BRUNSWICK ME
474	1001	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976642	NAS BRUNSWICK ME
475	1002	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976651	NAS BRUNSWICK ME
476	1003	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976660	NAS BRUNSWICK ME
477	1004	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976679	NAS BRUNSWICK ME
478	1005	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976686	NAS BRUNSWICK ME
479	1006	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976697	NAS BRUNSWICK ME
480	1007	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976704	NAS BRUNSWICK ME
481	1008	PUBLIC QUARTERS JR OFFICER	INFADS	NFA100000976713	NAS BRUNSWICK ME
482	1009	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977785	NAS BRUNSWICK ME
483	1010	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977259	NAS BRUNSWICK ME
484	1011	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977268	NAS BRUNSWICK ME
485	1012	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977794	NAS BRUNSWICK ME
486	1013	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977801	NAS BRUNSWICK ME
487	1014	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977810	NAS BRUNSWICK ME
488	1015	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977829	NAS BRUNSWICK ME
489	1016	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977838	NAS BRUNSWICK ME
490	1017	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977847	NAS BRUNSWICK ME
491	1018	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977856	NAS BRUNSWICK ME
492	1019	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977240	NAS BRUNSWICK ME
493	1020	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976650	NAS BRUNSWICK ME
494	1021	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977641	NAS BRUNSWICK ME
495	1022	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976731	NAS BRUNSWICK ME
496	1023	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976740	NAS BRUNSWICK ME
497	1024	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977311	NAS BRUNSWICK ME
498	1025	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977348	NAS BRUNSWICK ME
499	1026	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977357	NAS BRUNSWICK ME
500	1027	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977865	NAS BRUNSWICK ME
501	1028	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977874	NAS BRUNSWICK ME
502	1029	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977883	NAS BRUNSWICK ME
503	1030	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976759	NAS BRUNSWICK ME
504	1031	PUBLIC QTRS CAPEHART ENLISTE	INFADS	NFA100000977366	NAS BRUNSWICK ME
505	1032	PUBLIC QTRS CAPEHART ENL	INFADS	NFA100000977375	NAS BRUNSWICK ME
506	1033	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976768	NAS BRUNSWICK ME
507	1034	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976777	NAS BRUNSWICK ME
508	1035	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976786	NAS BRUNSWICK ME
509	1036	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977339	NAS BRUNSWICK ME
510	1037	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977320	NAS BRUNSWICK ME
511	1038	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977892	NAS BRUNSWICK ME
512	1039	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977295	NAS BRUNSWICK ME
513	1040	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976795	NAS BRUNSWICK ME
514	1041	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977302	NAS BRUNSWICK ME
515	1042	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977909	NAS BRUNSWICK ME
516	1043	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977918	NAS BRUNSWICK ME
517	1044	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977927	NAS BRUNSWICK ME
518	1045	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977936	NAS BRUNSWICK ME
519	1046	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977945	NAS BRUNSWICK ME
520	1047	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977286	NAS BRUNSWICK ME
521	1048	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977277	NAS BRUNSWICK ME
522	1049	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976802	NAS BRUNSWICK ME
523	1050	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977954	NAS BRUNSWICK ME
524	1051	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976973	NAS BRUNSWICK ME
525	1052	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977963	NAS BRUNSWICK ME
526	1053	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977972	NAS BRUNSWICK ME
527	1054	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000977035	NAS BRUNSWICK ME
528	1055	PUBLIC QTRS-ENLISTED	INFADS	NFA100000977981	NAS BRUNSWICK ME
529	1056	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000977990	NAS BRUNSWICK ME
530	1057	PUBLIC QTRS ENL	INFADS	NFA100000978007	NAS BRUNSWICK ME
531	1058	PUBLIC QTRS ENL	INFADS	NFA100000978016	NAS BRUNSWICK ME
532	1059	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978025	NAS BRUNSWICK ME
533	1060	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978034	NAS BRUNSWICK ME
534	1061	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978043	NAS BRUNSWICK ME
535	1062	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977473	NAS BRUNSWICK ME
536	1063	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000977464	NAS BRUNSWICK ME
537	1064	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977455	NAS BRUNSWICK ME
538	1065	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976919	NAS BRUNSWICK ME
539	1066	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976900	NAS BRUNSWICK ME
540	1067	PUBLIC QUARTERS ENLISTED	INFADS	NFA100000976893	NAS BRUNSWICK ME
541	1068	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978052	NAS BRUNSWICK ME
542	1069	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978061	NAS BRUNSWICK ME
543	1070	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978070	NAS BRUNSWICK ME
544	1071	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978089	NAS BRUNSWICK ME
545	1072	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978098	NAS BRUNSWICK ME
546	1073	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977446	NAS BRUNSWICK ME
547	1074	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978105	NAS BRUNSWICK ME
548	1075	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978114	NAS BRUNSWICK ME
549	1076	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977437	NAS BRUNSWICK ME
550	1077	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978123	NAS BRUNSWICK ME
551	1078	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977428	NAS BRUNSWICK ME
552	1079	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977419	NAS BRUNSWICK ME
553	1080	PUBLIC QUARTERS CAPEHART ENL	INFADS	NFA100000977400	NAS BRUNSWICK ME
554	1081	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978132	NAS BRUNSWICK ME
555	1082	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978141	NAS BRUNSWICK ME
556	1083	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978150	NAS BRUNSWICK ME
557	1084	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978169	NAS BRUNSWICK ME
558	1085	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978178	NAS BRUNSWICK ME
559	1086	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978187	NAS BRUNSWICK ME
560	1087	PUBLIC QUARTERS CAPEHART-ENL	INFADS	NFA100000977393	NAS BRUNSWICK ME
561	1088	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978196	NAS BRUNSWICK ME
562	1089	PUBLIC QTRS CAPEHART ENL	INFADS	NFA100000977384	NAS BRUNSWICK ME
563	1090	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978203	NAS BRUNSWICK ME
564	1091	PUBLIC QTRS ENL CAPEHART	INFADS	NFA100000978212	NAS BRUNSWICK ME
565	1092	CAPEHART HOUSING 0-1,0-2,0-3	INFADS	NFA100000980156	NAS BRUNSWICK ME
566	1093	CAPEHART HOUSING, 0-1,0-2,0-	INFADS	NFA100000980165	NAS BRUNSWICK ME
567	1094	CAPEHART HSG. 0-1,0-2,0-3	INFADS	NFA100000980174	NAS BRUNSWICK ME

568	1095	CAPEHART HSG. 0-1,0-2,0-3	/NFADS	NFA100000980183		NAS BRUNSWICK ME
569	1096	CAPEHART HSG. 0-1,0-2,0-3	/NFADS	NFA100000980192		NAS BRUNSWICK ME
570	1097	CAPEHART HOUSING-0-1,0-2,0-3	/NFADS	NFA100000980209		NAS BRUNSWICK ME
571	1098	CAPEHART HSG. 0-1,0-2,0-3	/NFADS	NFA100000980218		NAS BRUNSWICK ME
572	1099	CAPEHART HSG. 0-1,0-2,0-3	/NFADS	NFA100000980227		NAS BRUNSWICK ME
573	1100	CAPEHART HSG 0-4,0-5	/NFADS	NFA100000980236		NAS BRUNSWICK ME
574	1101	CAPEHART HSG 0-4,0-5	/NFADS	NFA100000980245		NAS BRUNSWICK ME
575	1102	CAPEHART HOUSING. 0-4,0-5	/NFADS	NFA100000980254		NAS BRUNSWICK ME
576	1103	CAPEHART HSG 0-4,0-5	/NFADS	NFA100000980263		NAS BRUNSWICK ME
577	1104	CAPEHART HSG 0-4,0-5	/NFADS	NFA100000980272		NAS BRUNSWICK ME
578	1105	CAPEHART HSG 0-4,0-5	/NFADS	NFA100000980281		NAS BRUNSWICK ME
579	1106	CAPEHART HOUSING 0-4,0-5	/NFADS	NFA100000980290		NAS BRUNSWICK ME
580	1107	CAPEHART HSG 0-4,0-5	/NFADS	NFA100000980307		NAS BRUNSWICK ME
581	1108	CAPEHART HSG 0-4,0-5	/NFADS	NFA100000980316		NAS BRUNSWICK ME
582	1109	CAPEHART HOUSING O-1, O-2, O	/NFADS	NFA100000980325		NAS BRUNSWICK ME
583	1110	CAPEHART HOUSING O-1,O-2,O-3	/NFADS	NFA100000980334		NAS BRUNSWICK ME
584	1111	CAPEHART HSG O-1, O-2, O-3	/NFADS	NFA100000980343		NAS BRUNSWICK ME
585	1112	CAPEHART HSG O-1, O-2, O-3	/NFADS	NFA100000980352		NAS BRUNSWICK ME
586	1113	CAPEHART HOUSING O-1, O-2, O	/NFADS	NFA100000980361		NAS BRUNSWICK ME
587	1114	CAPEHART HSG O-1, O-2, O-3	/NFADS	NFA100000980370		NAS BRUNSWICK ME
588	1115	CAPEHART HOUSING O-1, O-2, O	/NFADS	NFA100000980389		NAS BRUNSWICK ME
589	1116	CAPEHART HSG O-1, O-2, O-3	/NFADS	NFA100000980398		NAS BRUNSWICK ME
590	1117	CAPEHART HSG ENLISTED	/NFADS	NFA100000980405		NAS BRUNSWICK ME
591	1118	CAPEHART HSG ENLISTED	/NFADS	NFA100000980414		NAS BRUNSWICK ME
592	1119	CAPEHART HSG ENLISTED	/NFADS	NFA100000980423		NAS BRUNSWICK ME
593	1120	CAPEHART HSG ENLISTED	/NFADS	NFA100000980432		NAS BRUNSWICK ME
594	1121	CAPEHART HSG ENLISTED	/NFADS	NFA100000980441		NAS BRUNSWICK ME
595	1122	CAPEHART HSG ENLISTED	/NFADS	NFA100000980450		NAS BRUNSWICK ME
596	1123	CAPEHART HOUSING ENLISTED	/NFADS	NFA100000980469		NAS BRUNSWICK ME
597	1124	CAPEHART HSG ENLISTED	/NFADS	NFA100000980478		NAS BRUNSWICK ME
598	1125	CAPEHART HSG ENLISTED	/NFADS	NFA100000980487		NAS BRUNSWICK ME
599	1126	CAPEHART HSG ENLISTED	/NFADS	NFA100000980496		NAS BRUNSWICK ME
600	1127	CAPEHART HSG ENLISTED	/NFADS	NFA100000980502		NAS BRUNSWICK ME
601	1128	CAPEHART HSG ENLISTED	/NFADS	NFA100000980511		NAS BRUNSWICK ME
602	1129	CAPEHART HOUSING ENLISTED	/NFADS	NFA100000980520		NAS BRUNSWICK ME
603	1130	CAPEHART HOUSING ENLISTED	/NFADS	NFA100000980539		NAS BRUNSWICK ME
604	1131	CAPEHART HOUSING ENLISTED	/NFADS	NFA100000980548		NAS BRUNSWICK ME
605	1132	CAPEHART HOUSING ENLISTED	/NFADS	NFA100000980557		NAS BRUNSWICK ME
606	1133	CAPEHART HSG ENLISTED	/NFADS	NFA100000980566		NAS BRUNSWICK ME
607	1134	CAPEHART HSG ENLISTED	/NFADS	NFA100000980575		NAS BRUNSWICK ME
608	1135	CAPEHART HSG ENLISTED	/NFADS	NFA100000980584		NAS BRUNSWICK ME
609	1136	CAPEHART HSG ENLISTED	/NFADS	NFA100000980593		NAS BRUNSWICK ME
610	1137	CAPEHART HSG ENLISTED	/NFADS	NFA100000980600		NAS BRUNSWICK ME
611	1138	CAPEHART HSG ENLISTED	/NFADS	NFA100000980619		NAS BRUNSWICK ME
612	1139	CAPEHART HSG ENLISTED	/NFADS	NFA100000980628		NAS BRUNSWICK ME
613	1140	CAPEHART HSG ENLISTED	/NFADS	NFA100000980637		NAS BRUNSWICK ME
614	1141	CAPEHART HSG ENLISTED	/NFADS	NFA100000980646		NAS BRUNSWICK ME
615	1142	CAPEHART HSG ENLISTED	/NFADS	NFA100000980655		NAS BRUNSWICK ME
616	1143	PUB QTR/CAPT	/NFADS	NFA100000973967		NAS BRUNSWICK ME
617	1144	MOQ	/NFADS	NFA100000973976		NAS BRUNSWICK ME
618	1145	PUBLIC QUARTERS-OFFICERS	/NFADS	NFA100000973985		NAS BRUNSWICK ME
619	1146	MOQ	/NFADS	NFA100000974458		NAS BRUNSWICK ME
620	1147	QUARTERS /MEMQ/	/NFADS	NFA100000974509		NAS BRUNSWICK ME
621	1148	QUARTERS /MEMQ/	/NFADS	NFA100000974519		NAS BRUNSWICK ME
622	1149	QUARTERS /MEMQ/	/NFADS	NFA100000974528		NAS BRUNSWICK ME
623	1150	QUARTERS /MEMQ/	/NFADS	NFA100000974537		NAS BRUNSWICK ME
624	1151	QUARTERS /MEMQ/	/NFADS	NFA100000974546		NAS BRUNSWICK ME
625	1152	MOQ	/NFADS	NFA100000974467		NAS BRUNSWICK ME
626	1153	MOQ	/NFADS	NFA100000974476		NAS BRUNSWICK ME
627	1154	MOQ	/NFADS	NFA100000974485		NAS BRUNSWICK ME
628	1155	QUARTERS /MOQ/	/NFADS	NFA100000974494		NAS BRUNSWICK ME
629	1156	STORAGE YARD	/NFADS	NFA100000978864		NAS BRUNSWICK ME
630	1200	QUADPLEX HOUSING	/NFADS	NFA200000026909		NAS BRUNSWICK ME
631	1201	QUADPLEX HOUSING	/NFADS	NFA200000026990		NAS BRUNSWICK ME
632	1202	DUPLEX HOUSING	/NFADS	NFA200000027007		NAS BRUNSWICK ME
633	1203	QUADPLEX HOUSING	/NFADS	NFA200000027016		NAS BRUNSWICK ME
634	1204	DUPLEX HOUSING	/NFADS	NFA200000027025		NAS BRUNSWICK ME
635	1205	QUADPLEX HOUSING	/NFADS	NFA200000027034		NAS BRUNSWICK ME
636	1206	DUPLEX HOUSING	/NFADS	NFA200000027043		NAS BRUNSWICK ME
637	1207	DUPLEX HOUSING	/NFADS	NFA200000027052		NAS BRUNSWICK ME
638	1208	QUADPLEX HOUSING	/NFADS	NFA200000027123		NAS BRUNSWICK ME
639	1209	DUPLEX HOUSING	/NFADS	NFA200000027141		NAS BRUNSWICK ME
640	1210	QUADPLEX HOUSING	/NFADS	NFA200000027189		NAS BRUNSWICK ME
641	1211	QUADPLEX HOUSING	/NFADS	NFA200000061576		NAS BRUNSWICK ME
642	1212	QUADPLEX HOUSING	/NFADS	NFA200000062682		NAS BRUNSWICK ME
643	1213	DUPLEX HOUSING	/NFADS	NFA200000062691		NAS BRUNSWICK ME
644	1214	QUADPLEX HOUSING	/NFADS	NFA200000062708		NAS BRUNSWICK ME
645	1215	DUPLEX HOUSING	/NFADS	NFA200000062717		NAS BRUNSWICK ME
646	1216	QUADPLEX HOUSING	/NFADS	NFA200000062726		NAS BRUNSWICK ME
647	1217	QUADPLEX HOUSING	/NFADS	NFA200000062735		NAS BRUNSWICK ME
648	1218	QUADPLEX HOUSING	/NFADS	NFA200000062744		NAS BRUNSWICK ME
649	1219	DUPLEX HOUSING	/NFADS	NFA200000062753		NAS BRUNSWICK ME
650	1220	QUADPLEX HOUSING	/NFADS	NFA200000062771		NAS BRUNSWICK ME
651	1221	DUPLEX HOUSING	/NFADS	NFA200000062799		NAS BRUNSWICK ME
652	1222	DUPLEX HOUSING	/NFADS	NFA200000062806		NAS BRUNSWICK ME
653	4006	PUMP HOUSE	/NFADS	NFA200000192328		NAS BRUNSWICK ME
654	4007	BATH HOUSE	/NFADS	NFA200000192337		NAS BRUNSWICK ME
655	4025	DOW PINES REC HALL	SPCC	A4025.0	AST #1 OIL	NAS BRUNSWICK ME
656	4025	DOW PINES REC HALL	SPCC	A4025.1	AST #1 OIL	NAS BRUNSWICK ME
657	4025	RECREATION CENTER	/NFADS	NFA200000192348		NAS BRUNSWICK ME
658	4031	DOW PINES GUEST COTTAGE	SPCC	A4031.0	AST #1 OIL	NAS BRUNSWICK ME
659	4031	GUEST HOUSE	/NFADS	NFA200000192355		NAS BRUNSWICK ME
660	4032	MAIN LODGE	/NFADS	NFA200000192364		NAS BRUNSWICK ME
661	4033	DOW PINES CARETAKER	SPCC	A4033.0	AST #1 OIL	NAS BRUNSWICK ME
662	4033	CARETAKER QUARTERS	/NFADS	NFA200000192373		NAS BRUNSWICK ME
663	4040	DOW PINES FUEL TANK	SPCC	A4040.0	AST DIESEL	NAS BRUNSWICK ME
664	4040	DOW PINES FUEL TANK	SPCC	A4040.1	AST GASOLINE	NAS BRUNSWICK ME
665	4041	WORKSHOP	/NFADS	NFA200000192382		NAS BRUNSWICK ME
666	4070	PUMP HOUSE	/NFADS	NFA200000192391		NAS BRUNSWICK ME
667	4071	FAMILY CABIN	/NFADS	NFA200000192408		NAS BRUNSWICK ME
668	4072	FAMILY CABIN	/NFADS	NFA200000192426		NAS BRUNSWICK ME
669	4073	FAMILY CABIN	/NFADS	NFA200000192435		NAS BRUNSWICK ME
670	4074	FAMILY CABIN	/NFADS	NFA200000192444		NAS BRUNSWICK ME
671	4075	FAMILY CABIN	/NFADS	NFA200000192453		NAS BRUNSWICK ME
672	4198	HUNTING/FISHING SHELTER	/NFADS	NFA200000192462		NAS BRUNSWICK ME
673	24000	WATER DISTRIBUTION LINES	/NFADS	NFA200000183953		NAS BRUNSWICK ME
674	24010	WATER WELL NEAR 4032	/NFADS	NFA200000184097		NAS BRUNSWICK ME
675	24045	SEWAGE SEPTIC TANK	/NFADS	NFA200000183962		NAS BRUNSWICK ME
676	24046	SEWAGE SEPTIC TANK	/NFADS	NFA200000183971		NAS BRUNSWICK ME
677	24047	SEWAGE SEPTIC TANK	/NFADS	NFA200000183980		NAS BRUNSWICK ME
678	24048	SEWAGE SEPTIC TANK	/NFADS	NFA200000183999		NAS BRUNSWICK ME
679	24049	SEWAGE SEPTIC TANK	/NFADS	NFA200000184015		NAS BRUNSWICK ME
680	24055	SEWAGE SEPTIC TANK	/NFADS	NFA200000184033		NAS BRUNSWICK ME
681	24056	SEWAGE SEPTIC TANK	/NFADS	NFA200000184042		NAS BRUNSWICK ME

682	24057	SEWAGE SEPTIC TANK	INFADS	NFA200000184051			NAS BRUNSWICK ME
683	24060	SANITARY SEWER LINES	INFADS	NFA200000184060			NAS BRUNSWICK ME
684	34003	WATER WELL NEAR 4033	INFADS	NFA200000184079			NAS BRUNSWICK ME
685	34004	WATER WELL NEAR 4073	INFADS	NFA200000184088			NAS BRUNSWICK ME
686	34020	WATER WELL AT TRAILER PARK	INFADS	NFA200000184104			NAS BRUNSWICK ME
687	41000	ELECTRICAL DISTRIBUTION LINE	INFADS	NFA200000184300			NAS BRUNSWICK ME
688	74001	INTERIOR FENCE	INFADS	NFA200000184319			NAS BRUNSWICK ME
689	594.0	ASWOC GENERATOR	EFANE	519		UST DIESEL	NAS BRUNSWICK ME
690	594.1	ASWOC HEATING	EFANE	518		UST FUEL OIL # 1	NAS BRUNSWICK ME
691	86.0	GSE (DE-ICE)	EFANE	514		UST ANTI-FREEZE	NAS BRUNSWICK ME
692	86.1	GSE (DE-ICE)	EFANE	515		UST ANTI-FREEZE	NAS BRUNSWICK ME
693	117.5	FUEL FARM	EFANE	27		UST NO-LEAD	NAS BRUNSWICK ME
694	117.6	FUEL FARM	EFANE	28		UST NO-LEAD	NAS BRUNSWICK ME
695	117.7	FUEL FARM	EFANE	29		UST DIESEL	NAS BRUNSWICK ME
696	211.4	FIELD HOUSE	EFANE	41		UST FUEL OIL #2	NAS BRUNSWICK ME
697	211.5	FIELD HOUSE	EFANE	42		UST FUEL OIL #3	NAS BRUNSWICK ME
698	538.4	NEX GAS STATION	EFANE	95		UST UNLEADED PR	NAS BRUNSWICK ME
699	538.5	NEX GAS STATION	EFANE	97		UST UNLEADED PL	NAS BRUNSWICK ME
700	538.6	NEX GAS STATION	EFANE	98		UST UNLEADED	NAS BRUNSWICK ME
701	539.2	WPN (AUW) (GEN)	EFANE	101		UST DIESEL	NAS BRUNSWICK ME
702	642.1	WPNS (AUC) (GEN)	EFANE	119		UST FUEL OIL #2	NAS BRUNSWICK ME
703	654.0	JFSI FUEL FARM	EFANE	126		UST AVIATION	NAS BRUNSWICK ME
704	1L19R	RUNWAY OUTBOARD DUAL	INFADS	NFA100000973896			NAS BRUNSWICK ME
705	1R19L	RUNWAY INBOARD DUAL	INFADS	NFA100000976081			NAS BRUNSWICK ME
706	252A	AUTO EQUIP REPR SHP(FMR #252	INFADS	NFA100000979701			NAS BRUNSWICK ME
707	5.0	HANGAR FIVE GENERATOR	EFANE	521		UST DIESEL	NAS BRUNSWICK ME
708	537A	SEWAGE PUMPING STATION	INFADS	NFA100000975108			NAS BRUNSWICK ME
709	77.0	WEAPONS MAGAZINE AREA	EFANE	520		UST FUEL OIL # 1	NAS BRUNSWICK ME
710	AR9	OUTHOUSE (NEW)(I)	SPCC	AR9.1		AST #1 OIL	NAS BRUNSWICK ME
711	AT1	AIRCRAFT ARRESTOR	SPCC	AT1.1		AST ETHYLENE GLYCOL	NAS BRUNSWICK ME
712	AT1	AIRCRAFT ARRESTOR	SPCC	AT2.1		AST ETHYLENE GLYCOL	NAS BRUNSWICK ME
713			INFADS	NFA100000021825			NAVSECGRUACT WINTER HARBOR ME
714			INFADS	NFA100000022931			COMNAVNETSPAOPSCOM DAHLGREN VA
715			INFADS	NFA100000022940			COMNAVNETSPAOPSCOM DAHLGREN VA
716		N/A	INFADS	NFA100000025803			NAS BRUNSWICK ME
717			INFADS	NFA100000025812			NAS BRUNSWICK ME
718			INFADS	NFA100000025821			NAS BRUNSWICK ME
719			INFADS	NFA100000025830			NAS BRUNSWICK ME
720			INFADS	NFA100000025849			NAS BRUNSWICK ME
721			INFADS	NFA100000025858			NAS BRUNSWICK ME
722			INFADS	NFA100000025867			NAS BRUNSWICK ME
723			INFADS	NFA100000025876			NAS BRUNSWICK ME
724			INFADS	NFA100000025885			NAS BRUNSWICK ME
725			INFADS	NFA100000025894			NAS BRUNSWICK ME
726			INFADS	NFA100000025901			NAS BRUNSWICK ME
727			INFADS	NFA100000025910			NAS BRUNSWICK ME
728			INFADS	NFA100000025929			NAS BRUNSWICK ME
729			INFADS	NFA100000025947			NAS BRUNSWICK ME
730			INFADS	NFA100000025956			NAS BRUNSWICK ME
731			INFADS	NFA100000025965			NAS BRUNSWICK ME
732			INFADS	NFA100000025974			NAS BRUNSWICK ME
733		CLEAR ZONE (P-069)	INFADS	NFA100000025983			NAS BRUNSWICK ME
734		AICUZ, J. & L. DAVIS, PAR.#2	INFADS	NFA100000025992			NAS BRUNSWICK ME
735			INFADS	NFA100000026009			NAS BRUNSWICK ME
736			INFADS	NFA100000026018			NAS BRUNSWICK ME
737		DEED FRM V & M THIBODEAU	INFADS	NFA100000026027			NAS BRUNSWICK ME
738		SERE SCHOOL	INFADS	NFA100000026036			NAS BRUNSWICK ME
739			INFADS	NFA100000026045			NAS BRUNSWICK ME
740			INFADS	NFA100000045667			NCTS CUTLER ME
741			INFADS	NFA100000045676			NCTS CUTLER ME
742			INFADS	NFA100000045694			NCTS CUTLER ME
743			INFADS	NFA100000045701			NCTS CUTLER ME
744		SANITARY SEWER SYSTEM	INFADS	NFA100000864451			NAVSECGRUACT WINTER HARBOR ME
745			INFADS	NFA100000865218			NAVSECGRUACT WINTER HARBOR ME
746			INFADS	NFA100000865227			NAVSECGRUACT WINTER HARBOR ME
747		SEWAGE TREATMENT PLANT	INFADS	NFA100000865236			NAVSECGRUACT WINTER HARBOR ME
748		ROADS	INFADS	NFA100000865245			NAVSECGRUACT WINTER HARBOR ME
749		PARKING AREA 85	INFADS	NFA100000865254			NAVSECGRUACT WINTER HARBOR ME
750		SANITARY SEWER	INFADS	NFA100000865263			NAVSECGRUACT WINTER HARBOR ME
751		WELLS RESERVOIRS	INFADS	NFA100000865272			NAVSECGRUACT WINTER HARBOR ME
752		DRAINAGE DITCH	INFADS	NFA100000865281			NAVSECGRUACT WINTER HARBOR ME
753		ELECTRICAL DISTRIBUTION LINE	INFADS	NFA100000865922			NAVSECGRUACT WINTER HARBOR ME
754		SECURITY PERIMETER FENCE	INFADS	NFA100000865931			NAVSECGRUACT WINTER HARBOR ME
755		SECURITY FENCE (RSSPS)	INFADS	NFA100000866360			NAVSECGRUACT WINTER HARBOR ME
756		SECURITY LIGHTING,RSSPS,CDAA	INFADS	NFA100000866379			NAVSECGRUACT WINTER HARBOR ME
757		WELL	INFADS	NFA100000866397			NAVSECGRUACT WINTER HARBOR ME
758		WATER DIST. LINR,POT. COREA	INFADS	NFA100000866413			NAVSECGRUACT WINTER HARBOR ME
759		PAVED ROAD	INFADS	NFA100000900046			NAVSATOPCENDET A PROS HB ME
760		SIDEWALKS	INFADS	NFA100000900055			NAVSATOPCENDET A PROS HB ME
761		PARKING AREA	INFADS	NFA100000900064			NAVSATOPCENDET A PROS HB ME
762		FENCING	INFADS	NFA100000900073			NAVSATOPCENDET A PROS HB ME
763		SANITARY SEP. SYS.(BLDG 101)	INFADS	NFA100000900082			NAVSATOPCENDET A PROS HB ME
764		SANITARY SEPTIC SYSTEM	INFADS	NFA100000900091			NAVSATOPCENDET A PROS HB ME
765		WATER MAIN	INFADS	NFA100000900108			NAVSATOPCENDET A PROS HB ME
766		SEAWALL	INFADS	NFA100000900117			NAVSATOPCENDET A PROS HB ME
767		COTTAGE WELL LENGTH 265LF	INFADS	NFA100000900144			NAVSATOPCENDET A PROS HB ME
768		350 KW GENERATOR	INFADS	NFA100000900153			NAVSATOPCENDET A PROS HB ME
769		SHALLOW WELL POOL/LGTH 180LF	INFADS	NFA100000900171			NAVSATOPCENDET A PROS HB ME
770		DEEP WELL-BUTLER(565 LF)	INFADS	NFA100000900199			NAVSATOPCENDET A PROS HB ME
771		SEPTIC SYS-COTTAGE (600 SY)	INFADS	NFA100000900224			NAVSATOPCENDET A PROS HB ME
772		DRAIN FIELD	INFADS	NFA100000900260			NAVSATOPCENDET A PROS HB ME
773			INFADS	NFA100000973805			NAS BRUNSWICK ME
774			INFADS	NFA100000973814			NAS BRUNSWICK ME
775		OPEN STORAGE	INFADS	NFA100000973841			NAS BRUNSWICK ME
776		SIDEWALKS	INFADS	NFA100000973850			NAS BRUNSWICK ME
777		TAXIWAYS	INFADS	NFA100000973887			NAS BRUNSWICK ME
778		A/C PARKING APRONS	INFADS	NFA100000973903			NAS BRUNSWICK ME
779		SECURITY FENCE	INFADS	NFA100000973912			NAS BRUNSWICK ME
780		STORM SEWER	INFADS	NFA100000973921			NAS BRUNSWICK ME
781		SANITARY SEWER	INFADS	NFA100000973930			NAS BRUNSWICK ME
782		COMPRESSED AIR LINES	INFADS	NFA100000974314			NAS BRUNSWICK ME
783		ROADS BITUMINOUS	INFADS	NFA100000974403			NAS BRUNSWICK ME
784		PARKING AREAS BIT	INFADS	NFA100000974412			NAS BRUNSWICK ME
785		PARKING AREA/OTHER/	INFADS	NFA100000974421			NAS BRUNSWICK ME
786		ROADS/OTHER/	INFADS	NFA100000974430			NAS BRUNSWICK ME
787			INFADS	NFA100000974449			NAS BRUNSWICK ME
788		STATION NAME SIGN	INFADS	NFA100000974804			NAS BRUNSWICK ME
789		FIRE ALARM SYSTEM	INFADS	NFA100000974993			NAS BRUNSWICK ME
790		RUNWAY LIGHTING	INFADS	NFA100000975000			NAS BRUNSWICK ME
791		AIR RAID ALARM SYSTEM	INFADS	NFA100000975117			NAS BRUNSWICK ME
792		FUEL DISTRIBUTION SYSTEM	INFADS	NFA100000975126			NAS BRUNSWICK ME
793		TAXIWAY LIGHTING	INFADS	NFA100000975821			NAS BRUNSWICK ME
794		AIRCRAFT ARRESTING GEAR	INFADS	NFA100000975849			NAS BRUNSWICK ME
795		RAILROAD DOCK	INFADS	NFA100000976045			NAS BRUNSWICK ME

796	COMMUNICATION LINES	INFADS	NFA100000976054	NAS BRUNSWICK ME
797	TAXIWAYS	INFADS	NFA100000976072	NAS BRUNSWICK ME
798	ROADS BITUMINOUS	INFADS	NFA100000976090	NAS BRUNSWICK ME
799	SIDEWALKS BITUMINOUS	INFADS	NFA100000976107	NAS BRUNSWICK ME
800	STORM SEWER	INFADS	NFA100000976116	NAS BRUNSWICK ME
801	SANITARY SEWER	INFADS	NFA100000976125	NAS BRUNSWICK ME
802		INFADS	NFA100000976134	NAS BRUNSWICK ME
803	FIREFIGHTING PRACTICE PAD	INFADS	NFA100000976143	NAS BRUNSWICK ME
804	A/C ACCESS APRON	INFADS	NFA100000978356	NAS BRUNSWICK ME
805	FENCING	INFADS	NFA100000978392	NAS BRUNSWICK ME
806	FENCING	INFADS	NFA100000978409	NAS BRUNSWICK ME
807	ROADS	INFADS	NFA100000978418	NAS BRUNSWICK ME
808	ROADS	INFADS	NFA100000978427	NAS BRUNSWICK ME
809	HELICOPTER LANDING PAD	INFADS	NFA100000978436	FASOTRAGRULANT DET BRUNSWICK
810	ELECT PWER PLANT & DIST LINE	INFADS	NFA100000978454	FASOTRAGRULANT DET BRUNSWICK
811	SEWER LINE	INFADS	NFA100000978472	FASOTRAGRULANT DET BRUNSWICK
812	ROAD/GRAVEL/	INFADS	NFA100000978481	FASOTRAGRULANT DET BRUNSWICK
813	DAM-SPILLWAY	INFADS	NFA100000978490	NAS BRUNSWICK ME
814	FENCING	INFADS	NFA100000978506	FASOTRAGRULANT DET BRUNSWICK
815	POTABL & NONPOTBL H2O LINE	INFADS	NFA100000978533	FASOTRAGRULANT DET BRUNSWICK
816	R/W END REFERENCE LIGHTS	INFADS	NFA100000978542	NAS BRUNSWICK ME
817	PAPI	INFADS	NFA100000978551	NAS BRUNSWICK ME
818	FRESH WATER WELL	INFADS	NFA100000978560	FASOTRAGRULANT DET BRUNSWICK
819	CENTERLINE LIGHTING	INFADS	NFA100000978588	NAS BRUNSWICK ME
820	TRANSHIPMENT AREA	INFADS	NFA100000978659	NAS BRUNSWICK ME
821	LINE VEHICLE PARKING	INFADS	NFA100000978668	NAS BRUNSWICK ME
822		INFADS	NFA100000978702	NAS BRUNSWICK ME
823	NORTH C/L APPROACH LTNG	INFADS	NFA100000978711	NAS BRUNSWICK ME
824	STORM DRAINAGE	INFADS	NFA100000978784	NAS BRUNSWICK ME
825	SANITARY SEWER	INFADS	NFA100000978793	NAS BRUNSWICK ME
826	ELECTRICAL DISTRIBUTION	INFADS	NFA100000978800	NAS BRUNSWICK ME
827	WATER DISTRIBUTION	INFADS	NFA100000978819	NAS BRUNSWICK ME
828	ROADS	INFADS	NFA100000978828	NAS BRUNSWICK ME
829	SIDEWALK	INFADS	NFA100000978837	NAS BRUNSWICK ME
830	R/W DISTANCE MARKERS	INFADS	NFA100000978846	NAS BRUNSWICK ME
831	VOR/TACAN CK SG	INFADS	NFA100000978855	NAS BRUNSWICK ME
832	FLAG POLE	INFADS	NFA100000978873	FASOTRAGRULANT DET BRUNSWICK
833	PERIMETER/SECURITY LIGHTING	INFADS	NFA100000978882	NAS BRUNSWICK ME
834	PLAYGROUND	INFADS	NFA100000978980	NAS BRUNSWICK ME
835	PLAYGROUND	INFADS	NFA100000978999	NAS BRUNSWICK ME
836	PLAYGROUND	INFADS	NFA100000979006	NAS BRUNSWICK ME
837	PLAYGROUND	INFADS	NFA100000979015	NAS BRUNSWICK ME
838	APPROACH LIGHTING	INFADS	NFA100000979131	NAS BRUNSWICK ME
839	HOT SPOT	INFADS	NFA100000979426	NAS BRUNSWICK ME
840	FENCING	INFADS	NFA100000980021	NAS BRUNSWICK ME
841	INTERIOR FENCING	INFADS	NFA100000980030	NAS BRUNSWICK ME
842	ELECTRICAL DIST. LINES	INFADS	NFA100000980049	NAS BRUNSWICK ME
843	SEWAGE SEPTIC TANK	INFADS	NFA100000980058	NAS BRUNSWICK ME
844	SANITARY SEWER	INFADS	NFA100000980067	NAS BRUNSWICK ME
845	WATER DISTRIBUTION LINES	INFADS	NFA100000980076	NAS BRUNSWICK ME
846	STORM DRAINAGE OUTFALL	INFADS	NFA100000980085	NAS BRUNSWICK ME
847	SIDEWALK	INFADS	NFA100000980094	NAS BRUNSWICK ME
848	ROADS	INFADS	NFA100000980101	NAS BRUNSWICK ME
849	VEHICLE PARKING	INFADS	NFA100000980110	NAS BRUNSWICK ME
850	STREET LIGHTING	INFADS	NFA100000980129	NAS BRUNSWICK ME
851	ELECTRICAL DISTRIBUTION LINE	INFADS	NFA100000980664	NAS BRUNSWICK ME
852	SANITARY SEWER	INFADS	NFA100000980673	NAS BRUNSWICK ME
853	WATER DISTRIBUTION LINES	INFADS	NFA100000980682	NAS BRUNSWICK ME
854	STORM DRAINAGE OUTFALL	INFADS	NFA100000980691	NAS BRUNSWICK ME
855	SIDEWALK	INFADS	NFA100000980708	NAS BRUNSWICK ME
856	ROADS	INFADS	NFA100000980717	NAS BRUNSWICK ME
857	VEHICLE PARKING	INFADS	NFA100000980726	NAS BRUNSWICK ME
858		INFADS	NFA100000980744	NAS BRUNSWICK ME
859		INFADS	NFA100001090133	NAVRESCEN PORTLAND ME
860	ROADS	INFADS	NFA200000184328	NAS BRUNSWICK ME
861	VEHICLE PARKING SURFACE	INFADS	NFA200000454072	NAS BRUNSWICK ME

Topsham Facilities List

Topsham Facilities List

FAC NO	FACILITY NAME	PRN	CCN	BUILT	MAP GRID	MEASURE	
	FENCING	220028	87210	1958		19621	LF
		100047				11	AC
		100048				43.35	AC
		100046				36.81	AC
	PLAYGROUND	201044	75057	1973			
	WATER DISTRIBUTION LINES	220097	84210	1958		8194	LF
	INTERIOR FENCING	220029	87215	1965		48	LF
	STORM DRAINAGE OUTFALL	220036	87110	1958		6643	LF
	SIDEWALK	220037	85220	1958		2834	SY
	ROADS	220038	85110	1958		28887	SY
	VEHICLE PARKING	220039	85210	1958		26972	SY
	STORM DRAINAGE OUTFALL	220098	87110	1958		8375	LF
	ELECTRICAL DISTRIBUTION LINE	220095	81230	1958		7305	LF
	SANITARY SEWER	220096	83210	1958		6995	LF
	STREET LIGHTING	220040	81220	1958			
	WATER DISTRIBUTION LINES	220035	84210	1958		13431	LF
	SANITARY SEWER	220034	83210	1958		11803	LF
	SIDEWALK	220099	85220	1958		1685	SY
	ELECTRICAL DIST. LINES	220030	81230	1958		14845	LF
	VEHICLE PARKING	220101	85210	1958		4425	SY
	ROADS	220100	85110	1958		23333	SY
	SEWAGE SEPTIC TANK	220031	83130	1964			
332	OFFICE BUILDING (VACANT)	220002	61077	1964	2C	1248	SF
333	FLAG HDQTRS/ARMY RES. OFFICE	220003	61010	1958	2C	12672	SF
334	FLAG POLE	220004	69010	1958	2C		
335	COMMISSARY STORE	220005	74023	1957	3C	35466	SF
336	GENERAL STORAGE SHED	220006	74023	1963	3C	2960	SF
337	SUPPLY WAREHOUSE	220007	17115	1958	3C	5282	SF
338	STORAGE FOR DRILL HALL	220008	17115	1963	2C	4320	SF
339	ADMIN RESERVE	220009	17115	1964	3C	9013	SF
363	FIRE STATION	220010	73010	1962	3C	2651	SF
370	PLAYING COURT	220016	75010	1966	3C		
374	VACANT	220018	61077	1959	E4	1900	SF
378	PUMPING STATION	220022	84209	1962	3C	529	SF
385	WATER STORAGE TANK	220042	84140	1958	2C	575000	GA
386	WATER METER PIT SHELTER	201115	84209	1987	J2	204	SF

HAZWASTE GENERATION RECORDS

NASB HW Current Oct 06

HW Code	WasteStream	NOMENC	EPA_NO
1	Acid Batteries Damaged	BATTERY LEAD (DAMAGED)	D002 D008
1	Acid Batteries Damaged	Battery lead acid	D002 D008
1	ACID, CHROMIC ACID SOLUTION (ALODINE)	ALODINE	D002 D007
1	ACID, MISC. (INORGANIC)	ACID	D002 D006
1	ACID, MISC. (INORGANIC)	ACID	D002 D006 D007
1	ACID, MISC. (INORGANIC)	ALODINE	D002 D006 D007
1	ACID, MISC. (INORGANIC)	SOAP	D002 D006 D007
1	ACID, SULFURIC <51%	Sulfuric acid	D002
1	ADHESIVE	ADHESIVE	D001 D007 D035
1	ADHESIVE	ADHESIVES, NON-FLAMMABLE	D007 D035
1	ADHESIVE	SEALANT	D001 D007 D035
1	ADHESIVE	SEALANT	D007 D035
1	ADHESIVE	SEM PEN	D001 D007 D035
1	ADHESIVES, MISC. FLAMMABLE	ADHESIVE	D001 D007 D035
1	ADHESIVES, MISC. FLAMMABLE	SEALANT	D001 D007 D035
1	ADHESIVES, MISC. FLAMMABLE	SEMPEN	D001 D007 D035
1	Aerosols		D001 D006 D007 D035
1	Aerosols	AEROSOL	D001
1	Aerosols	AEROSOL	D001 D006 D007 D035
1	Aerosols	AEROSOL	D001 D006 D007 D35
1	Aerosols	AEROSOL	D001 D006 D007 DO35
1	Aerosols	AEROSOL EMPTY	D001 D006 D007 D035
1	AMYL ACETATE	AMYL ACETATE	D001
1	ANTIFREEZE	ANTIFREEZE (REGULATED)	D004 D008
1	ANTIFREEZE	GLYCOL	D004 D008
1	BARIUM	BARIUM	D005
1	BATTERIES, LEAD ACID (DAMAGED)	BATTERY LEAD (DAMAGED)	D002 D008
1	blast media	BLAST MEDIA	D006 D007
1	blast media	BLAST MEDIA MAVERIC	D006 D007
1	Blast Media drums	BLAST BOOTH FILTER	D006 D007
1	Blast Media drums	BLAST MEDIA	D006 D007
1	Blast Media drums	DENTAL SUPPLIES	D006 D007
1	BLASTING GRIT (REGULATED)	BLAST MEDIA	D006
1	BLASTING GRIT (REGULATED)	BLAST MEDIA	D006 D007
1	Broken Light Bulbs	LAMPS, FLUORESCENT BROKEN	D009
1	Caustic Solutions	ANTIFREEZE NRCR	D002

1	Caustic Solutions	CAUSTIC CLEANER	D002
1	Caustic Solutions	CAUSTIC SOLUTION	D002
1	Caustic Solutions	DEGREASER	D002
1	Caustic Solutions	SOAP	D002
1	Caustic Solutions	SODIUM HYDROXIDE	D002
1	Caustic Solutions	WAX FLOOR	D002
1	Caustic Solutions	WAX STRIPPER	D002
1	CLEANING COMPOUND	DEGREASER	D002 D006 D008 D010
1	CLEANING COMPOUND, AIR CRAFT SURFACE	JET WASHER SOLVENT (REGULATED)	D004 D006 D007 D008 D010
1	CORROSIVE SOLIDS (SODIUM HYDROXIDE)	DEGREASER	D002
1	Corrosive Solids Sodium Hy	SODIUM HYDROXIDE	D002
1	CORROSIVE SOLIDS, OXIDIZER	CORROSIVE SOLIDS	D001
1	CORROSIVE SOLIDS, OXIDIZER	CORROSIVE SOLIDS	MA99
1	CORROSIVE SOLIDS, OXIDIZER	POTASSIUM PERMANGANATE	D001
1	EEBD	EEBD	D001 D003 D005
1	Engine Wash	ENGINE WASH	D004 D006 D007 D008 D010
1	ENGINE WASH	JET WASHER SLUDGE	D004 D006 D007 D008 D010
1	ENGINE WASH	JET WASHER SOLVENT (REGULATED)	D004 D006 D007 D008 D010
1	ENGINE WASH	OXYGEN CLEANING COMPOUND	D004 D006 D007 D008 D010
1	FILTERS	PAINT BOOTH FILTERS	D006 D007 D008 D009
1	FLAMABLE LIQUIDS	METHANOL, CYLOHERANONE	U154 U057
1	FLAMABLE LIQUIDS,CORROSIVE	FLAMABLE LIQUIDS,CORROSIVE	D001 D002
1	Flammable Liquids corrosive	BOILER CHEMICALS	D001 D002
1	Flammable Liquids corrosive	FLAMABLE LIQUIDS,CORROSIVE	D001 D002
1	FLOOR CLEANING COMPOUND	DEGREASER	D002 D006 D008 D010
1	Formaldehyde (Formalin)	FORMALDAHIDE	U122
1	FREON	FREON	F002
1	FUEL	FUEL	D001 D018
1	FUEL/DIESEL/DEBRIS	FUEL FILTERS	D001 D018
1	FUEL/DIESEL/DEBRIS	GAS SOKED RAGS	D001 D018
1	FUEL/DIESEL/DEBRIS	JP RAGS	D001 D018
1	HYDROGEN PEROXIDE SOLUTION	HYDROGEN PEROXIDE SOLUTION	D001 D002
1	Hypo Solution Corrosive	WAX STRIPPER	D002 D004 D006 D011
1	Hypo Solution Neutral	BOILER CHEMICAL	D009 D010 D011
1	Hypo Solution Neutral	FIXER AND DEVELOPER	D009 D010 D011
1	HYPO SOLUTION, ALKALINE	FIXER AND DEVELOPER	D002 D004 D006 D010 D011
1	HYPO SOLUTION, ALKALINE	FIXER AND DEVELOPER	D002 D004 D006 D011

1	HYPO SOLUTION, ALKALINE	WAX STRIPPER	D002 D004 D006 D011
1	HYPO SOLUTION, ALKALINE DOUBLE ENTRY FOR 110	FIXER AND DEVELOPER	D002 D004 D006 D011 D010
1	HYPO SOLUTION, NEUTRAL	FIXER AND DEVELOPER	D009 D010 D011
1	HYPO SOLUTION, NEUTRAL (ADDED TO 1101)	FIXER AND DEVELOPER	D009 D010 D011
1	JP FUEL SPILL	JP RAGS	D001 D018
1	JP Rags	JP RAGS	D001 D006 D007 D035
1	LAMPS, FLUORESCENT BROKEN	LAMPS, FLUORESCENT BROKEN	D006 MRD009
1	LAMPS, FLUORESCENT BROKEN	LAMPS, FLUORESCENT BROKEN	NRCR
1	Lead	AIR FILTERS	D008
1	LEAD	LEAD	D008
1	LEAD	PAINT CHIPS	D008
1	Lead/Asbestos Debris	LEAD	D008
1	LIQUID WITH HEAVY METALS	LIQUIDS NON-REG	D008 D010
1	Liquids containing Silver and Mercury	WATER WITH MERCURY AND SILVER	D009 D011
1	MAERCURIC NITRITE	MARCURIC NITRITE	D001, D009
1	MAGNESIUM TURNINGS	MAGNESIUM TURNINGS	D001,D003
1	Misc acids	ACID	D002 D006 D007
1	Misc acids	ALODINE	D002 D006 D007
1	Misc acids	CLEANER	D002 D006 D007
1	Misc acids	CONCRETE HARDNER	D002 D006 D007
1	OBA Canisters	EEBD	D001 D003 D005
1	PAINT (CONSOLIDATION DRUM)	AEROSOL	D001 D006 D007 D008 D035
1	PAINT (CONSOLIDATION DRUM)	PAINT CONSOLIDATION	D001 D006 D007 D008 D035
1	PAINT (CONSOLIDATION DRUM)	PAINT WASTE	D001 D006 D007 D008 D035
1	PAINT (LOOSE PACK)	PAINT AIRCRAFT	D001 D006 D007 D008 D035
1	PAINT (LOOSE PACK)	RTV	D001 D006 D007 D008 D035
1	PAINT (LOOSE PACK)	SEALANT	D001 D006 D007 D008 D035
1	PAINT (LOOSE PACK)	THINER	D001 D006 D007 D008 D035
1	PAINT BOOTH FILTERS	PAINT BOOTH FILTERS	D006 D007 D008 D009
1	PAINT BOOTH FILTERS	LAMPS, FLUORESCENT BROKEN	D006 D007 D008 D009 D011
1	Paint Booth Filters	PAINT BOOTH FILTERS	D001 D006 D007 D035
1	PAINT BOOTH FILTERS	PAINT BOOTH FILTERS	D006 D007 D008 D009 D011
1	PAINT BOOTH FILTERS	SOLIDS RCRA MAVERIC	D006 D007 D008 D009 D011
1	PAINT CORROSIVE	FLAMABLE LIQUIDS,CORROSIVE	D001 D002
1	Paint Loose Pack		D001 D006 D007 D008 D035
1	Paint Loose Pack	ALCOHOL	D001 D006 D007 D008 D035
1	Paint Loose Pack	EPOXY LAB PACK	D001 D006 D007 D008 D035

1	Paint Loose Pack	PAINT	D001 D006 D007 D008 D035
1	Paint Loose Pack	PAINT AIRCRAFT	D001 D006 D007 D008 D035
1	Paint Loose Pack	PAINT STRIPPER	D001 D006 D007 D008 D035
1	Paint Loose Pack	PLASTIC POLISH	D001 D006 D007 D008 D035
1	Paint Loose Pack	RTV	D001 D006 D007 D008 D035
1	Paint Loose Pack	SEALANT	D001 D006 D007 D008 D035
1	Paint Loose Pack	SEALANT KIT LAB PACK	D001 D006 D007 D008 D035
1	Paint Loose Pack	SEM PEN	D001 D006 D007 D008 D035
1	Paint Loose Pack	SOLVENT	D001 D006 D007 D008 D035
1	Paint Loose Pack	THINER	D001 D006 D007 D008 D035
1	Paint Loose Pack	THINER LAB PACK	D001 D006 D007 D008 D035
1	Paint Rags		D001 D006 D007 D035
1	PAINT RAGS	JP RAGS	D001 D006 D007 D035
1	Paint Rags	PAINT BOOTH FILTERS	D001 D006 D007 D035
1	PAINT RAGS	PAINT RAGS	D001 D006 D007 D035
1	PAINT RAGS	PAINT RAGS	D001 D006 D007 D035 F003 F005
1	PAINT RAGS	SEALANT	D001 D006 D007 D035
1	Paint Rags	SEALANT LAB PACK	D001 D006 D007 D035
1	PAINT STRIPPER	PAINT STRIPPER	D002
1	PAINT STRIPPER	PAINT STRIPPER	D002, F002
1	PAINT/SOLVENT CONSOLIDATION DRUM	METHANOL	D001 D006 D007 D035 F002 F003 F005
1	PAINT/SOLVENT CONSOLIDATION DRUM	PAINT CONSOLIDATION	D001 D006 D007 D035 F002 F003 F005
1	PAINT/SOLVENT CONSOLIDATION DRUM	THINER	D001 D006 D007 D035 F002 F003 F005
1	Paint/Solvent Cosolidate	THINNER	D001 D006 D007 D035 F002 F003 F005
1	Parts Washer	ENGINE WASH	D004 D006 D007 D008 D010
1	Parts Washer	JET WASHER SLUDGE	D004 D006 D007 D008 D010
1	Parts Washer	JET WASHER SOLVENT (REGULATED)	D004 D006 D007 D008 D010
1	Parts Washer	Parts Washer Fluid	D004 D006 D007 D008 D010
1	PESTICIDES LIQUID, FLAMMABLE	INSECTICIDE	D001
1	PESTICIDES LIQUID, FLAMMABLE	PESTICIDES LIQUID	D001
1	Pesticides, Solid Toxic	TURCAM	U278
1	POTASSIUM CHLORATE	CORROSIVE SOLIDS	D001
1	POTASSIUM CHLORATE	POTASSIUM CHLORATE	D001
1	Potassium Chlorate	POTASSIUM DICHROMATE	D001
1	Potassium Chlorate	SODIUM CHLORATE	D001
1	POTASSIUM CYANIDE	POTASSIUM CYNIDE	D003
1	RCRA Antifreeze	ANTIFREEZE (REGULATED)	D004 D008

1	Rcra Antifreeze	ANTIFREEZE NRCR	D004 D008
1	Rcra Solids Drums	AIR FILTERS	D006 D007 D008 D009 D011
1	Rcra Solids Drums	amalgam	D006 D007 D008 D009 D011
1	Rcra Solids Drums	Broken fluorescent lamp	D006 D007 D008 D009 D011
1	Rcra Solids Drums	LAMPS, FLUORESCENT BROKEN	D006 D007 D008 D009 D011
1	Rcra Solids Drums	LEAD	D006 D007 D008 D009
1	Rcra Solids Drums	LEAD	D006 D007 D008 D009 D011
1	Rcra Solids Drums	LEAD CONTAMINATED DEBRIES	D006 D007 D008 D009 D011
1	Rcra Solids Drums	LEAD DEBRIS	D006 D007 D008 D009 D011
1	Rcra Solids Drums	PAINT BOOTH FILTERS	D006 D007 D008 D009 D011
1	Rcra Solids Drums	SOLDER	D006 D007 D008 D009 D011
1	Rcra Solids Drums	SOLIDS RCRA MAVERIC	D006 D007 D008 D009 D011
1	Rcra Solids Drums	Thermometer, broken	D006 D007 D008 D009 D011
1	Rcra Solids Maveric	LAMPS, FLUORESCENT BROKEN	D006 D007 D008 D009
1	Rcra Solids Maveric	LEAD	D006 D007 D008 D009
1	Rcra Solids Maveric	PAINT BOOTH FILTER	D006 D007 D008 D009
1	Rcra Solids Maveric	PAINT BOOTH FILTERS	D006 D007 D008 D009
1	Rcra Solids Maveric	PISTOL RANGE FILTERS	D006 D007 D008 D009
1	Rcra Solids Maveric	SOLIDS RCRA MAVERIC	D006 D007 D008 D009
1	SEALANTS	SEALANT	D001 D007 D035
1	SELANT RAGS	PAINT RAGS	D001 D006 D007 D035
1	SELANT RAGS	SEALANT LAB PACK	D001 D006 D007 D035
1	SODIUM CHLORATE	CORROSIVE SOLIDS	D001
1	SODIUM CHLORATE	POTASSIUM CHLORATE	D001
1	SODIUM CHLORATE	SODIUM CHLORATE	D001
1	SODIUM HYDROXIDE	ACID	D002
1	SODIUM HYDROXIDE	DEGREASER	D002 D006 D008 D010
1	SODIUM HYDROXIDE	PATASSIUM HYDROXIDE	D002 D006 D008 D010
1	Sodium/Potassium hydroxide	BOILER CHEMICALS	D002 D006 D008 D010
1	SOLIDS, RCRA HAZARDOUS		D006 D007 D008 D009
1	SOLIDS, RCRA HAZARDOUS	BLAST BOOTH FILTER	D006 D007 D008
1	SOLIDS, RCRA HAZARDOUS	Boiler Ash	D006 D007 D008 D009
1	SOLIDS, RCRA HAZARDOUS	LAMPS, FLUORESCENT BROKEN	D006 D007 D008 D009
1	SOLIDS, RCRA HAZARDOUS	LEAD	D006 D007 D008 D009
1	SOLIDS, RCRA HAZARDOUS	LEAD SOLDER	D006 D007 D008 D009
1	SOLIDS, RCRA HAZARDOUS	PAINT BOOTH FILTERS	D006 D007 D008 D009
1	SOLIDS, RCRA HAZARDOUS	SOLIDS RCRA HAZARDOUS	D006 D007 D008 D009

1	Sulfuric acid	Sulfuric acid	D002
1	TRICHLOROETHYLENE	TRICHLOROETHYLENE	D040
1	URINAL DEODORANT BLOCK	URINAL DEODERANT BLOCK	U072
1	WASH WATER FROM LAMELLA CHANGE OUT	LEAD	D008 D010
1	WASTE DIESEL/GASOLINE/KERO	CONTAMINATED OIL	D001 D018
1	WASTE DIESEL/GASOLINE/KERO	MO GAS	D001 D018
1	WASTE DIESEL/GASOLINE/KERO	NUMBER 2 FUEL	D001 D018
1	WASTE DIESEL/GASOLINE/KERO	WASTE GAS	D001 D018
1	WATER CONTAMINATED WITH GASOLINE	WATER CONTAMINATED WITH GASOLINE	D018
3	BATTERIES, Ag	AIR CRAFT BATTERIES	MRD002 MRD006
3	BATTERIES, Ag	BATTERIES, Ag	MRD002 MRD006
3	BATTERIES, HG	BATTERIES, HG	MRD009
3	BATTERIES, Hg	MERCURY BATTERIES	MRD009
3	BATTERIES, Li		MRD003
3	BATTERIES, Li	BATTERY LITHIUM	
3	BATTERIES, Li	BATTERY LITHIUM	MRD003
3	Batteries, Magnesium	Batteries, Magnesium	MRD005 MRD007
3	BATTERIES, NI CAD		MRD006
3	BATTERIES, NI CAD	BATTERY LITHIUM	MRD006
3	BATTERIES, NI CAD	BATTERY NI-CAD	MRD006
3	BATTERIES, NI CAD	BATTERY NI-MH	MRD006
3	BATTERIES, NI CAD	SEALED LEAD ACID	MRD006
3	BATTERIES, ni-cad	BATTERY NI-CAD	MRD006
3	CATHODE RAY TUBES (CRTS)	CATHODE RAY TUBES (CRTS)	D008
3	CATHODE RAY TUBES (CRTS)	CATHODE RAY TUBES (CRTS)	D008UW
3	CATHODE RAY TUBES (CRTS)	CATHODE RAY TUBES (CRTS)	MRD008
3	LAMP, HIGH PRESSURE SODIUM	LAMPS, HIGH PRESSURE SODIUM	MRD008 MRD009
3	LAMP, HIGH PRESSURE SODIUM	LAMPS, HIGH PRESSURE SODIUM	MRD008, MRD009
3	LAMPS, FLUORESCENT (ODD SHAPES)	LAMPS, FLUORESCENT ODD SHAPES	D009
3	LAMPS, FLUORESCENT (ODD SHAPES)	LAMPS, FLUORESCENT ODD SHAPES	MRD009
3	LAMPS, FLUORESCENT (ODD SHAPES)	LAMPS, FLUORESCENT ROUND	MRD009
3	LAMPS, FLUORESCENT (ODD SHAPES)	LAMPS, FLUORESCENT U TUBE	MRD009
3	LAMPS, FLUORESCENT (STICK)	LAMPS, FLUORESCENT STICK	MRD009
3	LAMPS, FLUORESCENT (U TUBE)	LAMPS, FLUORESCENT U TUBE	MRD009
3	LAMPS, FLUORESCENT 1 FOOT	LAMPs, FLUORESCENT 1 FOOT	MRD009
3	LAMPS, FLUORESCENT 10 FOOT	LAMPS, FLUORESCENT 10 FOOT	MRD009
3	LAMPS, FLUORESCENT 18 INCH	LAMPS, FLUORESCENT 1 FOOT	MRD009

3	LAMPS, FLUORESCENT 18 INCH	LAMPS, FLUORESCENT 18 INCH	MRD009
3	LAMPS, FLUORESCENT 18 INCH	LAMPS, FLUORESCENT 2 FOOT	MRD009
3	LAMPS, FLUORESCENT 2 FOOT	LAMPS, FLUORESCENT 18 INCH	MRD009
3	LAMPS, FLUORESCENT 2 FOOT	LAMPS, FLUORESCENT 2 FOOT	MRD009
3	LAMPS, FLUORESCENT 3 FOOT	LAMPS, FLUORESCENT 18 INCH	MRD009
3	LAMPS, FLUORESCENT 3 FOOT	LAMPS, FLUORESCENT 2 FOOT	MRD009
3	LAMPS, FLUORESCENT 3 FOOT	LAMPS, FLUORESCENT 3 FOOT	MRD009
3	LAMPS, FLUORESCENT 4 FOOT	LAMPS, FLUORESCENT 2 FOOT	MRD009
3	LAMPS, FLUORESCENT 4 FOOT	LAMPS, FLUORESCENT 4 FOOT	MD009
3	LAMPS, FLUORESCENT 4 FOOT	LAMPS, FLUORESCENT 4 FOOT	MRD009
3	LAMPS, FLUORESCENT 4 FOOT	LAMPS, HIGH PRESSURE SODIUM	MRD009
3	LAMPS, FLUORESCENT 5 FOOT	LAMPS, FLUORESCENT 4 FOOT	MRD009
3	LAMPS, FLUORESCENT 5 FOOT	LAMPS, FLUORESCENT 5 FOOT	MRD009
3	LAMPS, FLUORESCENT 6 FOOT	LAMPS, FLUORESCENT 6 FOOT	MRD009
3	LAMPS, FLUORESCENT 8 FOOT	LAMPS, FLUORESCENT 8 FOOT	MRD009
3	LAMPS, FLUORESCENT ROUND	LAMPS, FLUORESCENT ROUND	MRD009
3	LAMPS, FLUORESCENT STICK	LAMPS, FLUORESCENT STICK	MRD009
3	LAMPS, FLUORESCENT STICK	LAMPS, FLUORESCENT U TUBE	MRD009
3	LAMPS, FLUORESCENT U TUBE	LAMPS, FLUORESCENT ODD SHAPE	MRD009
3	LAMPS, FLUORESCENT U TUBE	LAMPS, FLUORESCENT U TUBE	MRD009
3	LAMPS, SODIUM HIGH PRESSURE	LAMPS, HIGH PRESSURE SODIUM	MRD008 MRD009
3	LAMPS, SODIUM HIGH PRESSURE	LAMPS, LOW PRESSURE SODIUM	MRD008 MRD009
3	MERCURY THERMOMETERS	THERMOMETERS	MRD009
3	MERCURY THERMOSTATS/SWITCHE	MERCURY THERMOSTATS/ SWITCHES	MRD009
3	MERCURY THERMOSTATS/SWITCHE	THERMOMETERS	MRD009
3	PCB BALLAST	BALLAST PCB	None
3	PCB BALLAST	PCB BALAST	NRCR
3	PCB BALLASTS	BALLAST PCB	None
3	WASTE CATHODE RAY TUBES (CRTS)	CATHODE RAY TUBES (CRTS)	MRD008

NASB HW From 90s

NOMENC	StandardNomen	COMPOS1	EPA_NO
1,1,1 TRICHLOETHANE	SOLVENT HALOGENATED		D001
1,1,1 TRICHLOETHANE	SOLVENT HALOGENATED		F001
1,1,1 TRICHLOETHANE	SOLVENT HALOGENATED	1,1,1 TRICH	F001
1,1,1 TRICHLOETHANE	SOLVENT HALOGENATED	1,1,1 TRICHLORETHANE	F001
1,1,1 TRICHLOETHANE	SOLVENT HALOGENATED	1,1,1 TRICHLOROETHANE, SPENT, DIRTY	F002
1,1,1 TRICHLORETANE	SOLVENT HALOGENATED		D001
1,1,1 TRICHLORETHAN	SOLVENT HALOGENATED		D001
1,1,1 TRICHLORETHAN	SOLVENT HALOGENATED	1,1,1 TRICHLORETHANE	F001
1,1,1 TRICHLOROETHA	SOLVENT HALOGENATED	1,1,1 TRICHLORETHANE	F002
1,1,1 TRICHLOROETHA	SOLVENT HALOGENATED	1,1,1 TRICHLOROETHANE	F001
1,1,1 TRICHLOROETHA	SOLVENT HALOGENATED	1,1,1 TRICHLOROETHANE, DIRTY, SPENT	F001
1,1,1 TRICHLOROETHA	SOLVENT HALOGENATED	1,1,1 TRICHLOROETHANE, SPENT	F001
1,1,1 TRICHLOROETHA	SOLVENT HALOGENATED	1,1,1 TRICHLOROETHANE, SPENT	F002
1,1,1 TRICHLOROETHA	SOLVENT HALOGENATED	1,1,1 TRICHLOROETHANE, SPENT, DIRTY	F001
1,1,1 TRICHLOROETHA	SOLVENT HALOGENATED	1,1,1 TRICHLOROETHANE, SPENT, DIRTY	F002
1,1,1, TRICH	SOLVENT HALOGENATED	1,1,1, TRICHLOROETHANE, SPENT	F002
1,1,1,TRICHLOROETHA	SOLVENT HALOGENATED	1,1,1, TRICHLOROETHANE, SPENT	F001
A/C CLEANING CMPD	SOAP		D001
A/C CLEANING CMPD	SOAP		ORMA
A/C CLEANING CMPD	SOAP	A/C CLEANING COMPOUND	D001
ACETIC ACID		ACETIC ACID GLACIAL TECHNICAL	D001 DOO2
ACETONE	SOLVENT		D001
ACETONE	SOLVENT	ACETONE, CONTAMINATED	D001
ACETONE	SOLVENT	ACETONE, CONTAMINATED	F003
ACETONE	SOLVENT	ACETONE,CONTAMANATED	D001
ACETONE	SOLVENT	ACETONE,CONTAMANATED	F003
ACETONE	SOLVENT	CONTAMINATED ACETONE	D001
ACETONE, CONTAM.	SOLVENT	ACETONE, CONTAMINATED	D001
ACETONE, CONTAM.	SOLVENT	ACETONE, CONTAMINATED	D001 F003
ACETONE, CONTAM.	SOLVENT	ACETONE, CONTAMINATED W/ WATER & JP-5	F003
ACETONE, CONTAM.	SOLVENT	ACETONE, CONTAMINATED W/WATER & JP-5	D001 F003
ACETONE, CONTAMIN.	SOLVENT	ACETONE, CONTAMINATED	D001 F003
ACETONE, CONTAMINAT	SOLVENT	ACETONE CONTAMINATED WITH WATER	D001 F003
ACETONE, CONTAMINAT	SOLVENT	ACETONE, WATER (1%), JP5 (3%)	D001 F003
ACETONE,CONTAM	SOLVENT	ACETONE, JP-5, WATER	D001 F003
ACID	ACID		D002

ACID	ACID	ACETIC ACID FROM MEDICAL	D001 D002
ACID	ACID	ACETIC ACID PHOTO GRADE	D001 D002
ACID	ACID	ACETIC ACID,GLACIAL	D001 D002
ACID	ACID	ACID	D002
ACID	ACID	ALODINE	D002 D007
ACID	ACID	ALODINE & WATER	D007
ACID	ACID	ALODINE AND WATER	D007
ACID	ACID	ALODINE PH=4	D002 D007
ACID	ACID	ALODINE WASTE	D002 D007
ACID	ACID	ALODINE WASTE	D007
ACID	ACID	ALODINE WASTE AND WATER	D007
ACID	ACID	ALUMINIZED COMPOUND	D002
ACID	ACID	ARCHER ETCHANT	D002
ACID	ACID	BATTERY ACID PH2	D002
ACID	ACID	CHROMIC ACID	D002 D007
ACID	ACID	CONCENTRATED FLOOR CLEANER	D002
ACID	ACID	CORROSIVE LIQUID	D002
ACID	ACID	CUPROUS CHLORIDE	D002
ACID	ACID	FERRIC CHLORIDE SOLUTION	D002
ACID	ACID	FERRIC CHLORIDE SOLUTION	D002
ACID	ACID	HAZMAT	D002
ACID	ACID	HYDROCHLORIC ACID	D002
ACID	ACID	HYDROCHLORIC ACID LEFT BEHIND BY CONTRACTORS	D002
ACID	ACID	INHIBITOR 46	D002
ACID	ACID	LDC 01 ELECTROCLEAN	D002
ACID	ACID	LEMON TUB TILE CLEANER	D002
ACID	ACID	MURATIC ACID	D002
ACID	ACID	MURIATIC ACID	D002
ACID	ACID	MURIATIC ACID	D002
ACID	ACID	NITRIC ACID	D002
ACID	ACID	NITRIC ACID	D002
ACID	ACID	PC BOARD ETCHING SOLUTION	D002
ACID	ACID	POTASSIUM HYDROXIDE	D002
ACID	ACID	SCM 4200 ACTIVATOR SOLUTION	D002
ACID	ACID	SCM4100 SELECTRON SOLUTION	D002
ACID	ACID	SOLDERING FLUX	D002
ACID	ACID	SULFURIC ACID	D002

ACID	ACID	SULFURIC ACID FROM TREATMENT PLANT	D002
ACID	ACID	WASTE ACID	D002
ACID	ACID	WASTE ALODINE	D007
ACID	ACID	WASTE FERRIC CHLORIDE/DRILLING WASTE	D002 MA99
ACID	ACID	WASTE NITRIC ACID FROM DECON	D002
ACID ACETIC	ACID	ACETIC ACID GLACIAL	D001 D002
ACID BATTERY	ACID	BATTERY ACID	D002
ACID SULFURIC	ACID	SULFURIC ACID	D002
ADESILEX B (MAPEI)	ADHESIVE	ADHESIVE	D001
ADHESIVE			D001
ADHESIVE			D007 D035
ADHESIVE			D007 D035
ADHESIVE		1030 ADHESIVE TOLUENE	D001
ADHESIVE		2 PART KIT	D001
ADHESIVE		2TQ SEALER	D001
ADHESIVE		AC-102 ACCELERATOR	D001
ADHESIVE		ACCUMULATION	D001
ADHESIVE		ACCUMULATION BARREL OF ADHESIVE	D007 D035
ADHESIVE		ACCUMULATION CONTAINER	D001 D007 D035
ADHESIVE		ACTIVATOR PART B	D001 D035
ADHESIVE		ADHESIVE	D001
ADHESIVE		ADHESIVE	D001 D005 D007 D035
ADHESIVE		ADHESIVE	D001 D007
ADHESIVE		ADHESIVE	D001 D007 D035
ADHESIVE		ADHESIVE	D001 D008 D035
ADHESIVE		ADHESIVE	D001 D018
ADHESIVE		ADHESIVE	D001 D019 D035
ADHESIVE		ADHESIVE	D001 D035
ADHESIVE		ADHESIVE	D001 D035 F003
ADHESIVE		ADHESIVE	D001 D035 F003 F005
ADHESIVE		ADHESIVE	D001 F002
ADHESIVE		ADHESIVE	D001 F002 F003
ADHESIVE		ADHESIVE	D001 F003
ADHESIVE		ADHESIVE	D001 F003 F005
ADHESIVE		ADHESIVE	D001 F005
ADHESIVE		ADHESIVE	D005 D008 D035
ADHESIVE		ADHESIVE	D007

ADHESIVE	ADHESIVE	D007 D035
ADHESIVE	ADHESIVE	D008
ADHESIVE	ADHESIVE	D008 D035
ADHESIVE	ADHESIVE	D011
ADHESIVE	ADHESIVE	D011 D018 F005
ADHESIVE	ADHESIVE	D035
ADHESIVE	ADHESIVE	F002
ADHESIVE	ADHESIVE	F003
ADHESIVE	ADHESIVE	FOO5
ADHESIVE	ADHESIVE	D002
ADHESIVE	ADHESIVE - OVER-AGE HAZMAT * RETURNED TO COMPAN	F005 F027
ADHESIVE	ADHESIVE - SEALANT, OVER-AGED	U244
ADHESIVE	ADHESIVE - SILVER, CHROMIUM	D007 D011
ADHESIVE	ADHESIVE VP8-68 VPU1-6 VP92-15 VP8-10 VP92-20	D007 D035
ADHESIVE	ADHESIVE AEROSOL	D001
ADHESIVE	ADHESIVE ASPHALT	D001
ADHESIVE	ADHESIVE- FLAMMABLE LIQUID	D001
ADHESIVE	ADHESIVE KIT	D002
ADHESIVE	ADHESIVE MIL-S-8802	D001 D007 D008
ADHESIVE	ADHESIVE PART A, MEK, CARBON TET.	D001 D019 D035
ADHESIVE	ADHESIVE PART B, MEK, LEAD MONOXIDE, TOLUENE	D001 D008 D035
ADHESIVE	ADHESIVE PRIMER	D001
ADHESIVE	ADHESIVE PROMOTER	D001 D035
ADHESIVE	ADHESIVE RESIN	D001
ADHESIVE	ADHESIVE SEALANT	D001
ADHESIVE	ADHESIVE SEALANT	D001 D018
ADHESIVE	ADHESIVE SEALANT, MEK	D001 D035
ADHESIVE	ADHESIVE SEALENT	FOO5
ADHESIVE	ADHESIVE VP26-22 VQ11-20 AIMD-2 VP10-14 VP92-13	D007 D035
ADHESIVE	ADHESIVE WASTE MEK	D001 D035
ADHESIVE	ADHESIVE, FLAMMABLE LIQUID	D001
ADHESIVE	ADHESIVE, OVER-AGED	D001
ADHESIVE	ADHESIVE, SEALING COMPOUND	D001
ADHESIVE	ADHESIVE, SPENT	D001
ADHESIVE	ADHESIVE, SPENT	D001 F003 F005
ADHESIVE	ADHESIVE, SPENT	D001 F005
ADHESIVE	ADHESIVE, SPENT	D006

ADHESIVE	ADHESIVE, SPENT	U041
ADHESIVE	ADHESIVE, XYLENE	D001
ADHESIVE	ADHESIVE,SPENT	D001
ADHESIVE	ADHESIVES	D006
ADHESIVE	ADHESIVES	D007 D035
ADHESIVE	ADHESIVE-SEALANT	D001
ADHESIVE	ADHESSIVE	D001
ADHESIVE	ASBESTOS	D001
ADHESIVE	ASPHALT ROOF CEMENT	D001
ADHESIVE	ASSORTED ADHESIVES	D001 D035
ADHESIVE	ASSORTED ADHESIVES	D007 D035
ADHESIVE	ASSORTED ADHESIVES	D007 D035
ADHESIVE	BASE COMPOUND	D001 D007
ADHESIVE	BOSCODUR #9	D001 D008 D035
ADHESIVE	BOSTICK 1096	D001 D019 D035
ADHESIVE	BOSTIK 1007 PRIMER	D001 D035
ADHESIVE	BOSTIK ADHESIVE 1095 PART A	D001 D019 D035
ADHESIVE	BOSTIK ADHESIVE 1095 PART B	D001 D008 D035
ADHESIVE	BRQQC BQYLB BNRSV CCCBY CBTFS CJFBB	D007 D035
ADHESIVE	BZFXX	D007 D035
ADHESIVE	CARBON TETRACHLORIDE, MEK, TOLUENE,	D001 D019 D035
ADHESIVE	CARBON TETRACHLORIDE, MEK, TOLUENE, XYLENE, ETH	D001 D019 D035
ADHESIVE	CBTFS CFJTD BRQQC BQYLB CCCBY	D007 D035
ADHESIVE	CCCBY BAQQC BQYLB CBTFS/T CFJTD/C	DOO7 D035
ADHESIVE	CCCBY BRQQC CFJTD CBTFS BQYLC CBKBP 44201	D007 D035
ADHESIVE	CERAMIC ADHESIVE	D001 D035
ADHESIVE	CERAMIC TILE MASTIC	D001
ADHESIVE	CLIFTON ADHESIVE	D001 D035
ADHESIVE	CONDUCTIVE COATING	D001
ADHESIVE	CONSOLIDATION DRUM	D007 D035
ADHESIVE	COURTALDS ADHESIVE	D007 D035
ADHESIVE	CS3204	D001
ADHESIVE	CURING AGENT	D001 D008 D035
ADHESIVE	DAPACAST	D008
ADHESIVE	DAPCO 18-4	D008
ADHESIVE	DAPCO FIREWALL SEALANT	D008
ADHESIVE	EPI SEAL	D005

ADHESIVE	EPI SEAL PART B	D005
ADHESIVE	EPI SEAL PLUS	D001
ADHESIVE	EPI SEASL	D005
ADHESIVE	EPOXY	D001
ADHESIVE	EPOXY CEMENT	D005
ADHESIVE	EPOXY REPAIR KIT	D001
ADHESIVE	EPOXY RESIN, ADHESIVE	D001
ADHESIVE	ETHANOL, TRICHLOROETHANE	D001 F002
ADHESIVE	EXCESS SEALANT ACCELRATOR	D007
ADHESIVE	EXCESS SEALANTS	D001 D007 D035
ADHESIVE	EXPIRED ADHESIVES	D001 D035
ADHESIVE	EXPIRED ADHESIVES	D001 D007 D035
ADHESIVE	EXPIRED DUE TO POOR MANAGEMENT	D007 D035
ADHESIVE	FA 1030 NEUTRAL	D001
ADHESIVE	FIREWALL SEALING COMPOUND	D001 D035
ADHESIVE	GF8 ASPHALT CUTBACK	D001
ADHESIVE	HAZMAT	D007
ADHESIVE	HEAT TRANSFER CEMENT	D001
ADHESIVE	HENRY 232	D001
ADHESIVE	HI-VIS CLEAR SEALER	D001
ADHESIVE	LAMINAR X 500	D001 D018
ADHESIVE	LEAK LOSKPIPE JOINT COMPOUND	D001
ADHESIVE	LIQUID NAILS	D001
ADHESIVE	LX-500 HARDNER	D005
ADHESIVE	MEK	D001 D035
ADHESIVE	MEK, CYCLOHEXANONE, RESINS, TETRAHYDROFURAN	D001 D035 F005
ADHESIVE	MEK, TOLUENE, XYLENE	D001 D035
ADHESIVE	MIKED SEALANTS	D007 D035
ADHESIVE	MIL-81733	D007
ADHESIVE	MIL-8802F	D035
ADHESIVE	MIL-L-81733C	D007
ADHESIVE	MIL-L-8802	D001 D035
ADHESIVE	MIL-L-8802F	D007
ADHESIVE	MILL-S-8802	D001 D035
ADHESIVE	MIL-S-38249	D001 D035
ADHESIVE	MIL-S-81733 38249 8802	D001 D007 D035
ADHESIVE	MIL-S-81733C	DO35

ADHESIVE	MIL-S-8802	D001 D007 D035
ADHESIVE	MISC ADHESIVES/SEALANTS/VARNISH	D001 D018 D035
ADHESIVE	NAPTHA, TOLUENE	D001
ADHESIVE	NEOPRENE PHENOLIC RESIN	D001
ADHESIVE	NEOPRENE RUBBER ADHESIVE	D001
ADHESIVE	NEOPRENE SOLVENT PART A	D001
ADHESIVE	NEOPRENE SOLVENT PART B	D001
ADHESIVE	PATCH KIT FUEL	D007 D035
ADHESIVE	PATCH KIT PART B	D001 D035
ADHESIVE	PERMATEX SEALANT 1372	D001
ADHESIVE	PETROLEUM SOLVENTS	D001
ADHESIVE	PLASTIC PIPE ADHESIVE	D001
ADHESIVE	PLASTIC PIPE ADHESIVE	D001 D035 D043
ADHESIVE	POLY SILOXANE PART A	D008
ADHESIVE	POLYCHLOROPRENE ADHESIVE	D001
ADHESIVE	POLYURETHANE ACCELERATOR	D001 D035
ADHESIVE	PR 1426 ADHESIVE PROMOTOR	D001
ADHESIVE	PR 1440 PART A	D001 D035
ADHESIVE	PR-1422 A-2 PART A	D007
ADHESIVE	PR-1422 PART B	D001 D035
ADHESIVE	PR-1440 PART A	D001
ADHESIVE	PR-1440 PART B	D001 D035
ADHESIVE	PR-1440 PT B	D001 D035
ADHESIVE	PR1463	D001 D007
ADHESIVE	PRIMER ADHESIVE	D001 D019 D035
ADHESIVE	PRIMER ADHESIVE	D001 D035
ADHESIVE	PRIMER SEALING COMPOUND	U226
ADHESIVE	PRIMER WASH PRETREATMENT	D001 D007
ADHESIVE	PRO SEAL	D001 D007
ADHESIVE	PRO SEAL	D001 D007 D035
ADHESIVE	PRO SEAL	D007
ADHESIVE	PRO SEAL	D007 D035
ADHESIVE	PRO SEAL	D035
ADHESIVE	PRO SEAL 81733C	D007
ADHESIVE	PRO SEAL 870 PART B	D035
ADHESIVE	PRO SEAL 8802F	D035
ADHESIVE	PRO SEAL MIL S 8802F	D035

ADHESIVE	PRO SEAL PART A	D007
ADHESIVE	PRO SEAL PART B	D001
ADHESIVE	PROSEAL	D001 D007
ADHESIVE	PROSEAL	D001 D035
ADHESIVE	PROSEAL	D007
ADHESIVE	PROSEAL	D035
ADHESIVE	PROSEAL 870 B1/2	D035
ADHESIVE	PROSEAL BASE	D001 D035
ADHESIVE	PROSEAL SEAL	D035
ADHESIVE	PVC CEMENT	D001 D035
ADHESIVE	PVC SOLVENT CEMENT	D035
ADHESIVE	RAIN EROSION KIT	D001 D005 D035
ADHESIVE	RUBBER ADHESIVE	D001 D007 d035
ADHESIVE	RUBBER BASE ADHESIVE	D001
ADHESIVE	S-90 ADHESIVE	D001
ADHESIVE	SAEALING COMPOUND	D035
ADHESIVE	SCOTCH GRIP ADHESIVE	D001
ADHESIVE	SCOTCHBRAND SEALER	D001
ADHESIVE	SCOTCHGUARD 1099	D001
ADHESIVE	SEALANT	D001 D007
ADHESIVE	SEALANT	D001 D035
ADHESIVE	SEALANT	D007 D035
ADHESIVE	SEALANT- ADHESIVE	D001
ADHESIVE	SEALANT MIL-S-733C	D007 D035
ADHESIVE	SEALANT MIL-S-8802	D001 D007
ADHESIVE	SEALANT MIL-S-8802F	D001 D007 D035
ADHESIVE	SEALANTS	D001 D007 D008 D035
ADHESIVE	SEALANTS	D007 D008 D035
ADHESIVE	SEALIND COMPOUND	D007
ADHESIVE	SEALING COMPOUIND MIL-S-8802F	D035
ADHESIVE	SEALING COMPOUND	D001
ADHESIVE	SEALING COMPOUND	D001 D007
ADHESIVE	SEALING COMPOUND	D001 D007 D008
ADHESIVE	SEALING COMPOUND	D001 D007 D035
ADHESIVE	SEALING COMPOUND	D001 D008
ADHESIVE	SEALING COMPOUND	D001 D008 D035
ADHESIVE	SEALING COMPOUND	D001 D035

ADHESIVE	SEALING COMPOUND	D006
ADHESIVE	SEALING COMPOUND	D007
ADHESIVE	SEALING COMPOUND	D007 D035
ADHESIVE	SEALING COMPOUND	D007 DO35
ADHESIVE	SEALING COMPOUND	D008
ADHESIVE	SEALING COMPOUND	D035
ADHESIVE	SEALING COMPOUND	D007 D035
ADHESIVE	SEALING COMPOUND (PART A)	D001
ADHESIVE	SEALING COMPOUND (PART B)	D008
ADHESIVE	SEALING COMPOUND 8802F	D001 DO35
ADHESIVE	SEALING COMPOUND ACETONE	D001
ADHESIVE	SEALING COMPOUND CARTRIDGE	D001 D007 D035
ADHESIVE	SEALING COMPOUND MIL 81733C	D007
ADHESIVE	SEALING COMPOUND MIL S 81733C	D007
ADHESIVE	SEALING COMPOUND MIL-S-45180	D001
ADHESIVE	SEALING COMPOUND MIL-S-7124	D008
ADHESIVE	SEALING COMPOUND MIL-S-7124B	D008
ADHESIVE	SEALING COMPOUND MIL-S-81733C	D007 D035
ADHESIVE	SEALING COMPOUND MIL-S-8802	D035
ADHESIVE	SEALING COMPOUND MIL-S-8802 PART A	D007
ADHESIVE	SEALING COMPOUND MIL-S-8802 PART B	D001 D035
ADHESIVE	SEALING COMPOUND PART A	D001
ADHESIVE	SEALING COMPOUND PART A	D001 D007
ADHESIVE	SEALING COMPOUND PART A	D007
ADHESIVE	SEALING COMPOUND PART A	D007 D035
ADHESIVE	SEALING COMPOUND PART A	D035
ADHESIVE	SEALING COMPOUND PART B	D001
ADHESIVE	SEALING COMPOUND PART B	D001 D007
ADHESIVE	SEALING COMPOUND PART B	D001 D035
ADHESIVE	SEALING COMPOUND PART B	D007
ADHESIVE	SEALING COMPOUND PART B	D008
ADHESIVE	SEALING COMPOUND PART B	DOO7
ADHESIVE	SEALING COMPOUNDS	D001 D007 D008
ADHESIVE	SEALING COMPOUNDS	D007 D035
ADHESIVE	SEE ATTACHED	D007 D035
ADHESIVE	SEE DUMP LOGS	D007 D035
ADHESIVE	SEE WASTE LOGS	D007 D035

ADHESIVE		SILICONE ADHESIVE	D001
ADHESIVE		SILICONE ADHESIVE	D001 D018
ADHESIVE		SILVER, COPPER	D011
ADHESIVE		SOLVENT BORNE ACCELERATOR PART B	D001
ADHESIVE		SOLVENT BORNE ADHESIVE PART A	D001
ADHESIVE		SPLICING ADHESIVE	D001
ADHESIVE		SSEALING COMPOUND MIL S 8802F	D001 D035
ADHESIVE		TAMPER PROOF SEALANT	D035
ADHESIVE		TOLUENE 40-45%, HEXANE 30-36%	D001 F005
ADHESIVE		TOLUENE, ACETONE, TEXTILE SPIRIT	D001 F003 F005
ADHESIVE		TOLUENE, ALIPHATIC PETROLEUM NAPTHA	D001 F003 F005
ADHESIVE		TOLUENE, HEXANE, MAPTHA, MEK	D001 D019 D035 F005
ADHESIVE		TOLUENE, HEXANE, MEK	D001 D035 F005
ADHESIVE		TOLUENE, METHANOL, POLYCHLOROPRENE ELASTOMER	F003 F005
ADHESIVE		TOPCOAT ADHESIVE	D001
ADHESIVE		TOPCOAT ADHESIVE	D001 D035
ADHESIVE		TRICHLOROEHTYLENE	D001
ADHESIVE		USED SEALANT	D001
ADHESIVE		USED SEALANTS FROM SCA	D007 D035
ADHESIVE		VARIOUS ADHESIVES	D001
ADHESIVE		WASTE BOSCODUR 9	D001 D008 D035
ADHESIVE		WASTE SEALANT	D005 D007 D035
ADHESIVE		WELD-ON 28 PART A&C	D001
ADHESIVE		WELD-ON 28 PART B	D001 D003
ADHESIVE		WELDWOOD CEMENT, BONDING AGENT	D001 D035
ADHESIVE	ADHESIVE	ADHESIVE	D001
ADHESIVE	ADHESIVE	ADHESIVES AND SEALANTS	D001 D005 D035
ADHESIVE	ADHESIVE	MIL A 5540B CLASS 3	D001
ADHESIVE	ADHESIVE	SEALING COMPOUND	D001
ADHESIVE	ADHESIVE	SEALING COMPOUND	D001 D035
ADHESIVE	ADHESIVE	SEALING COMPOUND 81733	D007
ADHESIVE - A		ADHESIVE - PART A	D001
ADHESIVE - B		ADHESIVE - PART B	D001
ADHESIVE - B		OILS, CONTAMINATED W/ SOLVENTS	D001
ADHESIVE - PART A		ADHESIVE - PART A , SPENT	F005
ADHESIVE - PART A		ADHESIVE - PART A , SPENT	U055
ADHESIVE - PART A		ADHESIVE - PART A RCRA	F005

ADHESIVE - PART A	ADHEWSIVE - PART A , SPENT	D001
ADHESIVE - PART B	ADHESIVE - PART B , SPENT	D008
ADHESIVE - PART B	ADHESIVE - PART B, SPENT	U201
ADHESIVE - PART B	ADHESIVE- PART B , SPENT	D008
ADHESIVE ACCELERATO	ETHANOL, POLYMERIC ALIPHATIC AMINE	D001
ADHESIVE CEMENT	ADHESIVE CEMENT	D001
ADHESIVE CONTACT	SOLVENTS	D001
ADHESIVE FLOOR	NAPTHA 3.4%, METHANOL 1.7%	F003
ADHESIVE MMM-A-121	SOLVENTS	D001
ADHESIVE PART A		D001 D005
ADHESIVE PART A	ADHESIVE- PART A	D001
ADHESIVE PART A	TOLUENE, HEXANE	D001
ADHESIVE PART A	TOLUENE, HEXANE	D001 F003 F005
ADHESIVE PART B	ADHESIVE PART B	D001
ADHESIVE PART B	ETHYL ALCOHOL, POLYMERIC ALIPHATIC AMINE	D001 F003 F005
ADHESIVE PART B	METHANOL, ALIPHATIC AMINE	D001
ADHESIVE PART B	TOLUENE	D001
ADHESIVE POLY	ADHESIVE	D001
ADHESIVE POLY	ADHESIVE POLYCHLOROPRENE	D001
ADHESIVE POLY	ADHESIVE POLYCHLOROPRENE FLAMABLE	D001
ADHESIVE POLY RESIN	ADHESIVE POLY RESIN	D001
ADHESIVE PVC	MEK, VINYL CHLORIDE, CYCLOHEXANONE	D001 D035 D043
ADHESIVE SPRAY		D001
ADHESIVE WASTES	ACETONE, HEXANE, RESIN, DECANE, ALUMINUM OXIDE	D001
ADHESIVE,	ADHESIVE, RESIN POLYESTER	D001
ADHESIVE, ASPHALT	ASBESTOS, PETROLEUM DISTILLATES	D001
ADHESIVE, CLEAR	NAPTHA	D001
ADHESIVE, DENTAL	TOLUENE, ACETONE, METHYL ETHYL KETONE	D001 D035
ADHESIVE, E-1293	MEK, TOLUENE, ACETONE	D035
ADHESIVE, EXCESS	ADHESIVE, EXCESS	D001 D035 F005
ADHESIVE, EXCESS	ADHESIVE, EXCESS	D007
ADHESIVE, HENRY-232	PETROLEUM DISTILLATE	D001
ADHESIVE, MMM-A-110	ASBESTOS, PETROLEUM DISTILLATE	D001
ADHESIVE, PRIMER		D001
ADHESIVE, PRIMER		D001 F002
ADHESIVE, PVC	TETRAHYDROFURIN, PROPYLENE OXIDE	D001
ADHESIVE, SB-709	PETROLEUM DISTILLATE	D001

ADHESIVE, SEALANT		ADHESIVE, SEALANT	D001
ADHESIVE, WELDWOOD		MEK, TOLUENE, HEXANE	D001
ADHESIVE,SEALING CD		ADHESIVE, SEALING COMPOUND	D001
ADHESIVES		ADHESIVES, DIRTY	D001
ADHESIVE-VOID		ADHESIVE	D001
AEROSOL	AEROSOL	1 1 1 TRICH	U226
AEROSOL	AEROSOL	AEROSOL	D001
AEROSOL	AEROSOL	AEROSOL PAINT CANS	D001 D007 D008
AEROSOL	AEROSOL	AEROSOL STARTING FLUID	D001
AEROSOL	AEROSOL	AEROSOLS	D001 D007 D008
AEROSOL	AEROSOL	AREOSOL SPRAY CANS	D001
AEROSOL	AEROSOL	ASSORTED SPRAY CANS	D001
AEROSOL	AEROSOL	COND-X	D001
AEROSOL	AEROSOL	CORROSION PREVENTIVE COMPOUND	D001 D005
AEROSOL	AEROSOL	DUSTER REFILL GAS	U075
AEROSOL	AEROSOL	EXPIRED INSECTICIDE	U226
AEROSOL	AEROSOL	EXPIRED PAINT	D001
AEROSOL	AEROSOL	EXPIRED PAINT	D001 D008 D035
AEROSOL	AEROSOL	FREEZING COMPOUND	U075
AEROSOL	AEROSOL	LHB INDUSTRIES SPRAY PAINT	D001
AEROSOL	AEROSOL	LUBRICANT	D001 D008 D035
AEROSOL	AEROSOL	LUBRICANT AEROSOL	D005 D008
AEROSOL	AEROSOL	MISC AERSOLS FLAMMABLE	D001
AEROSOL	AEROSOL	OVEN CLEANER	D002
AEROSOL	AEROSOL	PAINT AEROSOLS	D001
AEROSOL	AEROSOL	PEPPER SPRAY	D001
AEROSOL	AEROSOL	WASTE AEROSOL	D001
AEROSOL	AEROSOL	WHITE ENAMEL PAINT	D001
AEROSOL	AEROSOL	ZYGLO PENETRANT	D001
AEROSOL START FLUID	AEROSOL	STARTING FLUID	D001
AEROSOL, SOLVENTS	AEROSOL	AEROSOL, SOLVENTS	D001
AFFF		AFFF/JP8 AT FUEL FARM	MA01
AL ROOF COATING		ASBESTOS, ALUMINUM, ASPHAULT, MINERAL SPIRITS	D001
ALCOHOL		ALCOHOL	D001
ALCOHOL		DEICING FLUID	D001
ALCOHOL		DENATURED ALCOHOL	D001
ALCOHOL		DETECTOR TICKETS, METHYL ALCOHOL, LIGROINE	D001

ALCOHOL	ETHYL ALCOHOL	D001
ALCOHOL	ISOPROPANOL	D001
ALCOHOL	ISOPROPYL ALCOHOL	D001
ALCOHOL	ISOPROPYL ALCOHOLS	D001
ALCOHOL	METHANOL	D001 U154
ALCOHOL	METHANOL TECHNICAL	D001 U154
ALCOHOL	WASTE ALCOHOL	D001
ALCOHOL, DENATURED	ALCOHOL, DENATURED	D001 F003
ALCOHOL, DENATURED	ALCOHOL, DENATURED, DIRTY	D001
ALCOHOL, DENATURED	METHANOL, ETHANOL	D001
ALKALINE	CO & O2 ABSORBER	D002
ALKALINE	TY-ION-20 7520	D002
ALKYD SATIN ENAMEL	MINERAL SPRITS, LIGHT PETROLEUM, TITANIUM DIOXIDE	D001
ALODINE		D002
ALODINE	ALODINE	D002
ALODINE	ALODINE	D002 D006 D007
ALODINE	ALODINE	D002 D007
ALODINE	ALODINE	D007
ALODINE	ALODINE + WATER	D002
ALODINE	ALODINE AND WATER	D007
ALODINE	ALODINE PH2	D002
ALODINE	ALODINE POWDER	D007
ALODINE	ALODINE WASTE PH 4	DOO7
ALODINE	CHROMIC ACID	D001 D002 D007
ALODINE	CHROMIC ACID	D002 D007
ALODINE	CHROMIC ACID DRY MIXTURE	D001 D007
ALODINE	EXPIRED ALODINE PENS	D002
ALODINE	OVERAGE ALODINE	D002 D007
ALODINE	USED ALODINE	D002 D007
ALODINE	USED ALODINE	D007
ALODINE	WASTE ALODINE	D007
ALODINE	WASTE ALODINE PH4	D007
ALODINE (CHROMIC A)	CHROMIC ACID (1%)	D002 D007
ALODINE 1202	ALODINE 1202	D002
ALODINE AND WATER	CHROMIC ACID	D002 D007
ALODINE WASTE	ALODINE	D001 D007
ALODINE WASTE	CHROMIC ACID	D002 D007

ALODINE, SPENT		ALODINE, SPENT	D002
ALODINE, SPENT		ALODINE, SPENT, DIRTY	D002
AMALGAM, DENTAL		SILVER, MERCURY	D009 D011
AMLGARD		1,1,2 TRICHLORO-1,2,2 TRIFLUOROETHANE, BARIUM	D005
AMM0NIUM HYDROXIDE		AMMONIA HYDROXIDE	D002
AMMONIUM HYDROXIDE		AMMONIUM HYDROXIDE	D002
AMMONIUM HYDROXIDE		AMMONIUM HYDROXIDE	D002
AMMONIUM HYDROXIDE		AMMONIUM HYDROXIDE SOLUTION	D002
AMYL ACETATE		AMYL ACETATE	D001
AMYL ACETATE		AMYL ACETATE	D001
ANTI SEIZE COMPOUND		ANTI SEIZE COMPOUND	D001
ANTIFREEZE	ANTIFREEZE	ANALYSIS	D006
ANTIFREEZE	ANTIFREEZE	ANALYSIS AE02498	D004 D008
ANTIFREEZE	ANTIFREEZE	ARRESTING GEAR	D010
ANTIFREEZE	ANTIFREEZE	AWAITING ANALYSIS	D004 D008
ANTIFREEZE	ANTIFREEZE	BDGNL BJYSL	D004 D008
ANTIFREEZE	ANTIFREEZE	FROM DIV 900	D008
ANTIFREEZE	ANTIFREEZE	FROM RANGELY	DOO8
ANTIFREEZE	ANTIFREEZE	HOBBY SHOP	D004 D008
ANTIFREEZE	ANTIFREEZE	MWR HOBBY SHOP	D004 D008
ANTI-FREEZE		ANTI-FREEZE	D001
ANTIFREEZE EXTENDER	ANTIFREEZE	EXTENDER FROM HOBBY SHOP	D002
ANTISTATIC FLUID		ANTISTATIC FLUID	D001
ANTI-STATIC SPRAY		ANTI-STATIC SPRAY - AEROSOL CANS	D001 D007 D035
ARMOR KOTRLINE FINI		ISOBUTYL ALCOHOL, ISOBUTYL ACETATE, CELLUSOLVE A	D001 F005
ARSENIC STANDARD		ARSENIC STANDARD	D002 D004
ASBESTOS	ASBESTOS	ASBESTOS FROM BUILDING DEMOLITION	CONTRACT
ASBESTOS DEBRIS	ASBESTOS	ASBESTOS DEBRIS	ORMC
ASBESTOS DROSS	ASBESTOS	ASBESTOS DROSS	ORMC
ASBESTOS DROSS	ASBESTOS	ASBESTOS DROSS	ORME
ASH		BOILER ASH	D006
ASH		SOOT AND ASH FROM BOILER CLEANING	D010
ASH		SOOT FROM BOILER CLEANING	D010
ASHESIVE		USED SEALANTS	D007 D035
ASPHALT ADHESIVE		ASPHALT ADHESIVE, CONTAMINATED W/ DIRT	D001
B & B WASH	B&B WASH	B & B WASH	D006
B & B WASH	B&B WASH	B B WASH	D006

B&B Wash	B&B WASH	AIMD W/C 414	D006
B&B Wash	B&B WASH	ANALYSIS	D006
B&B WASH	B&B WASH	B&B ENGINE WASH	D006
B&B WASH	B&B WASH	B&B WASH	D006
B&B Wash	B&B WASH	ENGINE WASH	D006
B&B Wash	B&B WASH	ENGINE WASH	D006
B&B WASH	B&B WASH	ENGINE WASH	D006
B&B WASH	B&B WASH	ENGINE WASH ACCUMULATION	D006
B&B WASH	B&B WASH	ENGINE WASH AFFLUENT	D006
B&B WASH	B&B WASH	ENGINE WASH RESIDUE	D006
B&B WASH	B&B WASH	FLIGHT LINE	D006
B&B Wash	B&B WASH	SEE ANALYSIS	DOO6
B&B Wash	B&B WASH	SQUADRONS	D006
B&B Wash	B&B WASH	SQUADRONS	D006
B&B Wash	B&B WASH	WC 414	D006
BALLAST		PCB CONTAMINATED BALLAST	M002
BALLASTS, PCB CONTA		BALLASTS, CONTAMINATEED W/ PCBS	M002
BARIUM CHLORIDE		BARIUM CHLORIDE	D005
BARIUM STANDARD		BARIUM STANDARD	D002 D005
BASE, CORROSIVE		BASE, CORROSIVE SOLID	D002
BATTERY	BATERY ALKALINE	ALKALINE BATTERY, MERCURY, LEAD, CADMIUM, KOH	D006 D008 D009
BATTERY	BATERY ALKALINE	STORAGE BATTERY, KOH	D002
BATTERY	BATERY NI-CAD	BATTERY, NI-CAD	D002 D006
BATTERY ACID	ACID		D002
BATTERY ACID	ACID	BATTERY ACID ELECTROLYTE, SPENT	D002
BATTERY ACID	ACID	LEAD, SULFURIC ACID	D002 D008
BATTERY ACID	ACID	USED BATTERY ACID	D002
BATTERY ACID ELECTR	ACID	BATTERY ACID ELECTROLYTE	D002
BATTERY DRY	BATTERY ALKALINE	POTASSIUM HYDROXIDE, MANGANESE DIOXIDE, ZINC,	D002 D009
BATTERY FLUID, ACID	ACID	PH 0.356	D002
BATTERY FLUID, ACID	ACID	SULFERIC ACID 37%; LEAD <4.12 PPM; PH 0.356	D002
BATTERY GEL	ACID	BATTERY SULFURIC ACID/IN GEL	D009
BATTERY LEAD	BATTERY LEAD	AIRCRAFT BATTERY LEAD SULFURIC ACID	D002 D008
BATTERY LEAD	BATTERY LEAD	BATTERY	D002 D008
BATTERY LEAD	BATTERY LEAD	BATTERY DEBRIS	D008
BATTERY LEAD	BATTERY LEAD	BATTERY DRAINED	D008
BATTERY LEAD	BATTERY LEAD	BATTERY LEAD	D008

BATTERY LEAD	BATTERY LEAD	BATTERY RECHARGEABLE	D002 D008
BATTERY LEAD	BATTERY LEAD	EXPLODED BATTERY	D008
BATTERY LEAD	BATTERY LEAD	GEL CELL BATTERY	D002 D008
BATTERY LEAD	BATTERY LEAD	GEL TYPE ACID BATTERIES	D008
BATTERY LEAD	BATTERY LEAD	LEAD ACID BATTERIES	D002 D008
BATTERY LEAD	BATTERY LEAD	LEAD ACID BATTERY	D002 D008
BATTERY LEAD	BATTERY LEAD	LEAD ACID BATTERY LEAD & SULFURIC ACID	D002 D008
BATTERY LEAD	BATTERY LEAD	LEAD ACID BATTERY, LEAD, SULFURIC ACID	D002 D008
BATTERY LEAD	BATTERY LEAD	LEAD ACID BATTERYS	D002 D008
BATTERY LEAD	BATTERY LEAD	LEAD ACID GEL BATTERY	D002 D008
BATTERY LEAD	BATTERY LEAD	LEAD ACID GEL BATTERY	D006
BATTERY LEAD	BATTERY LEAD	LEAD, ARSENIC, SULPHURIC ACID, ANTIMONY	D002 D004 D008
BATTERY LEAD	BATTERY LEAD	RECHARGEABLE BATTERY	D002 D008
BATTERY LEAD	BATTERY LEAD	SONOBUOY BATTERIES	D008
BATTERY LEAD ACID	BATTERY LEAD		D008
BATTERY LEAD ACID	BATTERY LEAD	ARSENIC, LEAD, ANTIMONY, SULFURIC ACID	D002 D004 D008
BATTERY LEAD ACID	BATTERY LEAD	BATTERY LEAD ACID	D008
BATTERY LEAD ACID	BATTERY LEAD	BATTERY LEAD ACID EMPTY	D009
BATTERY LEAD ACID	BATTERY LEAD	LEAD, SULFURIC ACID	D002 D008
BATTERY LEAD ACID	BATTERY LEAD	LEAD, SULFURIC ACID HAS BEEN DRAINED	D008
BATTERY LEAD GEL	BATTERY LEAD	LEAD, ARSENIC, SULPHURIC ACID, ANTIMONY	D002 D004 D008
BATTERY LITHIUM	BATTERY LI	4286.1	D001 D003
BATTERY LITHIUM	BATTERY LI	BATTERY	D003
BATTERY LITHIUM	BATTERY LI	BATTERY CHANGEOUT	D003
BATTERY LITHIUM	BATTERY LI	BATTERY REPLACEMENT ADDED TO 678	D001 D003
BATTERY LITHIUM	BATTERY LI	BLXLF CKFWF BRSVY BMWYS	D001 D003
BATTERY LITHIUM	BATTERY LI	CHHRX BWKXT BVZQB	D001 D003
BATTERY LITHIUM	BATTERY LI	LITHIUM BATTERIES	D001
BATTERY LITHIUM	BATTERY LI	LITHIUM BATTERIES	D001 D003
BATTERY LITHIUM	BATTERY LI	LITHIUM BATTERIES	D003
BATTERY LITHIUM	BATTERY LI	LITHIUM BATTERIES	D001 D003
BATTERY LITHIUM	BATTERY LI	LITHIUM BATTERIES	D001 D003
BATTERY LITHIUM	BATTERY LI	LITHIUM BATTERIES	D001 D003
BATTERY LITHIUM	BATTERY LI	LITHIUM BATTERIES FROM COMM	D003
BATTERY LITHIUM	BATTERY LI	LITHIUM BATTERY	D003
BATTERY LITHIUM	BATTERY LI	LITHIUM BATTERY ACCUMULATION	D001 D003
BATTERY LITHIUM	BATTERY LI	LITHIUM BATTERY LITHIUM ACETONITRILE	D001 D003

BATTERY LITHIUM	BATTERY LI	LITHIUM BATTERY LITHIUM ACETONITRILE 4060 5057	D001 D003
BATTERY LITHIUM	BATTERY LI	LITHIUM BATTERY LITHIUM ACETONITRILE 4090 SP54	D001 D003
BATTERY LITHIUM	BATTERY LI	LITHIUM BATTERY VP92-2	D003
BATTERY LITHIUM	BATTERY LI	LITHIUM BATTERY WITHOUT ACETONITRILE	D003
BATTERY LITHIUM	BATTERY LI	LITHIUM METAL, SULPHUR DIOXIDE, ACETONITRILE	D001 D003
BATTERY LITHIUM	BATTERY LI	LITHIUM METAL, SULPHUR DIOXIDE, ACETONITRILE	D001 D003 U003
BATTERY LITHIUM	BATTERY LI	SONOBUOY BATTERY & VP10,VPU1 RADIO BATTERIES	D003
BATTERY LITHIUM	BATTERY LI	SONOBUOY BATTERY CHANGEOUT	D001 D003
BATTERY LITHIUM	BATTERY LI	SPENT BATTERIES	D001 D003
BATTERY LITHIUM	BATTERY LI	SPENT LITHIUM BATTERY	D003
BATTERY MAGNESIUM	BATTERY MAGNESIUM	BATTERIES	D005 D007
BATTERY MAGNESIUM	BATTERY MAGNESIUM	BATTERY CHANGEOUT	D005 D007
BATTERY MAGNESIUM	BATTERY MAGNESIUM	BATTERY MAGNESIUM	D002
BATTERY MAGNESIUM	BATTERY MAGNESIUM	BATTERY MAGNESIUM	D005 D007
BATTERY MAGNESIUM	BATTERY MAGNESIUM	MAGNESIUM BATTERIES	D005 D007
BATTERY MAGNESIUM	BATTERY MAGNESIUM	MAGNESIUM BATTERY	D005 D007
BATTERY MAGNESIUM	BATTERY MAGNESIUM	NONRCHARGE BATTERY	D007
BATTERY MERC/LITHI	BATTERY MAGNESIUM	LITHIUM AND MERCURY BATTERIES	D001 D003 D009
BATTERY MERCURY	BATTERY MERCURY	AIMD	D009
BATTERY MERCURY	BATTERY MERCURY	AIMD BATTERIES	D009
BATTERY MERCURY	BATTERY MERCURY	ALKALINE BATTERY, MERCURY,	D009
BATTERY MERCURY	BATTERY MERCURY	ALKALINE BATTERY, MERCURY, LEAD, CADMIUM, KOH	D006 D008 D009
BATTERY MERCURY	BATTERY MERCURY	BA1574 DRY BATTERY	D009
BATTERY MERCURY	BATTERY MERCURY	BATTERY MERCURY	D009
BATTERY MERCURY	BATTERY MERCURY	BATTERY MERCURY,DRY CELL	D009
BATTERY MERCURY	BATTERY MERCURY	BATTERY NONRECHARGEABLE DRY	D009
BATTERY MERCURY	BATTERY MERCURY	BATTERY,DRY	D009
BATTERY MERCURY	BATTERY MERCURY	BNZRP BNBCL	D009
BATTERY MERCURY	BATTERY MERCURY	CARBON ZINC	D009
BATTERY MERCURY	BATTERY MERCURY	CARBON ZINC BATTERY	D009
BATTERY MERCURY	BATTERY MERCURY	EQUIPMENT CHANGEOUT	D009
BATTERY MERCURY	BATTERY MERCURY	FROM SQUADRONS	D009
BATTERY MERCURY	BATTERY MERCURY	MERCURIC BATTERIES	D009
BATTERY MERCURY	BATTERY MERCURY	MERCURY BATTERIES	D009
BATTERY MERCURY	BATTERY MERCURY	MERCURY BATTERIES	D009
BATTERY MERCURY	BATTERY MERCURY	MERCURY BATTERIES VP92-3	D009
BATTERY MERCURY	BATTERY MERCURY	MERCURY BATTERIES FROM AIMD/VP92	D009

BATTERY MERCURY	BATTERY MERCURY	MERCURY BATTERIES FROM STROBE LITES	D009
BATTERY MERCURY	BATTERY MERCURY	MERCURY BATTERIES HAZMAT-5	D009
BATTERY MERCURY	BATTERY MERCURY	MERCURY BATTERY	D009
BATTERY MERCURY	BATTERY MERCURY	MERCURY BATTERY	D009
BATTERY MERCURY	BATTERY MERCURY	RED OXIDE MERCURY BATTERIES	D009
BATTERY MERCURY	BATTERY MERCURY	STORAGE BATTERY, KOH	D009
BATTERY MERCURY	BATTERY MERCURY	UNICOR ADDED TO DO 26-0016	D009
BATTERY MERCURY	BATTERY MERCURY	USED MERCURY BATTERY	D009
BATTERY MERCURY	BATTERY MERCURY	WASTE MERCURY BATTERIES	D009
BATTERY MERCURY	BATTERY MERCURY	WASTE MERCURY BATTERY	D009
BATTERY NI CAD	BATTERY NI-CAD	HELICOPTER BATTERY FROM OMD	D002 D006
BATTERY NI/CAD	BATTERY NI-CAD	BATTERY NI/CAD	DOI8
BATTERY NICAD	BATTERY NI-CAD	AIMD	D002 D006
BATTERY NICAD	BATTERY NI-CAD	AIMD	D006UW
BATTERY NICAD	BATTERY NI-CAD	BATTERY CHANGEOUT	D006
BATTERY NICAD	BATTERY NI-CAD	BATTERY CHANGEOUT	D002 D006
BATTERY NICAD	BATTERY NI-CAD	BATTERY NICAD	D002 D006
BATTERY NICAD	BATTERY NI-CAD	BATTERY TURN IN FROM AIMD	D006
BATTERY NICAD	BATTERY NI-CAD	CADIMIUM OXIDE, NICKEL HYDROXIDE, POTASSIUM	D002 D006
BATTERY NICAD	BATTERY NI-CAD	CCMHV	D002 D006
BATTERY NICAD	BATTERY NI-CAD	EMERGENCY LIGHT BATTERIES	D002 D006
BATTERY NICAD	BATTERY NI-CAD	GENERATOR KNOWLEDGE	D006
BATTERY NICAD	BATTERY NI-CAD	MEDICAL	D006
BATTERY NICAD	BATTERY NI-CAD	NICAD BATERIES	D002 D006
BATTERY NICAD	BATTERY NI-CAD	NICAD BATTERIES	D002 D006
BATTERY NICAD	BATTERY NI-CAD	NICAD BATTERIES	D006
BATTERY NICAD	BATTERY NI-CAD	NICAD BATTERIES	D002 D006
BATTERY NICAD	BATTERY NI-CAD	NICAD BATTERIES	D006
BATTERY NICAD	BATTERY NI-CAD	NICAD BATTERIES FROM BOB	D002 D006
BATTERY NICAD	BATTERY NI-CAD	NICAD BATTERIES VP8-3 AIMD-50	D002 D006
BATTERY NICAD	BATTERY NI-CAD	NICAD BATTERIES WITH KOH	D002 D006
BATTERY NICAD	BATTERY NI-CAD	NICAD BATTERY	D002 D006
BATTERY NICAD	BATTERY NI-CAD	NICAD BATTERY	D002 DOO6
BATTERY NICAD	BATTERY NI-CAD	NICAD BATTERY	D006
BATTERY NICAD	BATTERY NI-CAD	NICAD BATTERYS	D006
BATTERY NICAD	BATTERY NI-CAD	NICADS FROM MEDICA	D006
BATTERY NICAD	BATTERY NI-CAD	NICAF BATTERY	D002 D006

BATTERY NICAD	BATTERY NI-CAD	NICKEL CADMIUM BATTERIES	D002 D006
BATTERY NICAD	BATTERY NI-CAD	NICKEL-CADMIUM BATTERY	D006
BATTERY NICAD	BATTERY NI-CAD	NIFE NICAD BATTERYS	D002 D006
BATTERY NICAD	BATTERY NI-CAD	SCA BATTERIES	D006
BATTERY NICAD	BATTERY NI-CAD	USED BATTERIES FROM PW	D002 D006
BATTERY NICAD	BATTERY NI-CAD	VARIOUS TYPES	D006
BATTERY NI-CAD	BATTERY NI-CAD	NICKEL, POTASSIUM HYDROXIDE, CADMIUM	D002 D006
BATTERY PACK	BATTERY NI-CAD	CADMIUM	D002 D006
BATTERY WASTE	BATTERY ALKALINE	POTASSIUM HYDROXIDE, MERCURIC OXIDE, MERCURY	D002 D009
BATTERY, ALDALINE	BATTERY ALKALINE	BATTERY, ALKALINE; MERCURY, POTASSIUM HYDROXIDE	D002 D009
BATTERY, ALKALINE	BATTERY ALKALINE		D002
BATTERY, ALKALINE	BATTERY ALKALINE	MERCURY, LEAD, CADMIUM, KOH	D006 D008 D009
BATTERY, DRY	BATTERY ALKALINE	MERCURY, MECURIC OXIDE, ZINC, POTASSIUM HYDROXII	D002 D009
BATTERY, LEAD ACID	BATTERY LEAD	BATTERY, LEAD ACID	D008
BATTERY, LEAD ACID	BATTERY LEAD	BATTERY, LEAD ACID STORAGE	D002 D008
BATTERY, LEAD ACID	BATTERY LEAD	BATTERY, LEAD ACID, SEALED	D002
BATTERY, LIGHTALARM	BATTERY LEAD	SULFURIC ACID, WATER	D002
BATTERY, LITHIUM	BATTERY LI	BATTERY, LITHIUM	D003
BATTERY, LITHIUM	BATTERY LI	LITHIUM METAL, 5 ADDED WITH 1348 3344/5017,	D003
BATTERY, LITHIUM	BATTERY LI	LITHIUM METAL, SULPHUR DIOXIDE, ACETONITRILE	D003 U003
BATTERY, MAG/MN DIO	BATTERY MAGNESIUM	BATTERY, MAGNESIUM/ MANGANESE DIOXIDE	D005
BATTERY, MAGNESIUM	BATTERY MAGNESIUM	BATTERY, DRY, MAGNESIUM, SPENT	D007
BATTERY, MAGNESIUM	BATTERY MAGNESIUM	MAGNESIUM-CARBON BATTERYS, SPENT	D003 D005 D007
BATTERY, MERCURY	BATTERY MERCURY		D009
BATTERY, MERCURY	BATTERY MERCURY	BATTERY, MERCURY	D009
BATTERY, MERCURY	BATTERY MERCURY	BATTERY, MERCURY SPENT	D009
BATTERY, MERCURY	BATTERY MERCURY	BATTERY, MERCURY, SPENT	D009
BATTERY, MERCURY	BATTERY MERCURY	MERCURY < 5%	D009
BATTERY, MERCURY	BATTERY MERCURY	MERCURY BATTERYS	D002 D009
BATTERY, MERCURY	BATTERY MERCURY	MERCURY BATTERYS, SPENT	D002 D009
BATTERY, MERCURY	BATTERY MERCURY	MERCURY, KOH	D002 D009
BATTERY, MERCURY	BATTERY MERCURY	MERCURY, KOH	D009
BATTERY, MERCURY	BATTERY MERCURY	MERCURY, MERCURY OXIDE, POTASSIUM HYDROXIDE	D002 D009
BATTERY, MG/CARBON	BATTERY MAGNESIUM	BATTERY, MAGNESIUM-CARBON	D007
BATTERY, MG/MNO2	BATTERY MAGNESIUM	BATTERY, MAGNESIUM/ MANGANESE DIOXIDE	D005
BATTERY, NI/CAD	BATTERY NI-CAD	BATTERY, NICKEL/ CADMIUM	D018
BATTERY, NI/CAD	BATTERY NI-CAD	BATTERY, NICKEL-CADMIUM	D006

BATTERY, NICAD	BATTERY NI-CAD	BATTERY, NICAD W/POTASSIUM HYDROXIDE	D006
BATTERY, NI-CAD	BATTERY NI-CAD		D002
BATTERY, NI-CAD	BATTERY NI-CAD		D002 D006
BATTERY, NI-CAD	BATTERY NI-CAD		D006
BATTERY, NI-CAD	BATTERY NI-CAD	BATTERY, NI-CAD	D002
BATTERY, NI-CAD	BATTERY NI-CAD	BATTERY, NI-CAD, SPENT	D002
BATTERY, NI-CAD	BATTERY NI-CAD	BATTERY, NI-CAD, SPENT	D006
BATTERY, NI-CAD	BATTERY NI-CAD	BATTERY, NICKEL-CADMIUM	D002
BATTERY, NI-CAD	BATTERY NI-CAD	NICKEL	D002 D006
BATTERY, NI-CAD	BATTERY NI-CAD	NICKEL, CADMIUM, POTASSIUM HYDROXIDE	D002 D006
BATTERY, NI-CAD	BATTERY NI-CAD	NICKEL-CADMIUM BATTERIES, SPENT	D002 D006
BATTERY, NI-CAD	BATTERY NI-CAD	NICKEL-CADMIUM BATTERY W/ POTASSIUM HYDROXIDE	D002 D006
BATTERY, NI-CAD	BATTERY NI-CAD	NICKEL-CADMIUM BATTERYS	D002 D006
BATTERY, NI-CAD	BATTERY NI-CAD	NICKEL-CADMIUM BATTERYS	D006
BATTERY, NI-CAD	BATTERY NI-CAD	NICKEL-CADMIUM BATTERYS, SPENT	D006 D002
BATTERY, NI-CAD	BATTERY NI-CAD	NICKEL-CADMIUM BATTERYS, SPENT, CONTAINING LIQUII	D002 D006
BATTERY, NONRECH	BATTERY MERCURY	MERCURY, KOH	D009
BATTERY, SILVER	BATTERY SILVER	SILVER BATTERY, SPENT	D002 D011
BATTERY, STORAGE	BATTERY MERCURY	BATTERY, STORAGE	D002
BATTERY, STORAGE	BATTERY MERCURY	POTASSIUM HYDROXIDE	D002
BATTERY, WASTE	BATTERY MERCURY	POTASSIUM HYDROXIDE, MERCURY, MANGANESE DIOXID	D002 D009
BATTERY, WASTE	BATTERY MERCURY	POTASSIUM HYDROXIDE, MERCURY, MANGANESE DIOXID	D009
BATTERY, WET W/ALKA	BATTERY NI-CAD WET	BATTERY, WET FILLED W/ ALKALI, NI-CAD	D002
BATTERY, WET, NI-CA	BATTERY NI-CAD WET	BATTERY, NI-CAD, WET W/ ALKALI	D002
BATTERY,LEAD ACID	BATTERY LEAD	BATTERY, LEAD ACID	D008
BATTERY,MERCURY	BATTERY MERCURY	BATTERY, MERCURY	D009
BATTERY/LITHUIM	BATTERY LI	BATTERY /LITHUIM	D002
BATTERY/SILICA GEL	BATTERY LEAD	BATTERY /SILICA GEL	D002
BB WASH	B&B WASH	BB WASH WITH CADMIUM	D006
BENZOIN IN ALCOHOL		BENZOIN TINCTURE IN ALCOHOL	D001
BIOGENIC SOLVENT		D-LIMONENE, ALKALINE BUILDERS, EMULSIFIERS	D001
BLACK UNKNOWN		LEAD 78.88; CHROMIUM 68.0; XYLENE 170.0; TOLUENE	D001 D007 D008 F003 F005
BLANKET WASH		LITHOGRAPHIC BLANKET WASH	D001
BLANKET WASH		TETRACHLOROETHYLENE 25%, MINERAL SPIRITS, UNK	D001 D039 F002
BLAST BOOTH FILTERS	BLAST BOOTH FILTERS	BLAST BOOTH FILTERS FROM 900 DIV	D006 D007
BLAST BOOTH FILTERS	BLAST BOOTH FILTERS	W/C 52A	D006 D007
BLAST BOOTH FILTERS	BLAST BOOTH FILTERS	WC 520 & WC510	D006 D007

BLAST MEDIA	BLAST MEDIA	710 BLAST MEDIA	D006 D007
BLAST MEDIA	BLAST MEDIA	900 BLAST MEDIA	D006 D007
BLAST MEDIA	BLAST MEDIA	ALUMINUM OXIDE	D006 D007
BLAST MEDIA	BLAST MEDIA	ALUMINUM OXIDE BLAST MEDIA	D006
BLAST MEDIA	BLAST MEDIA	ALUMINUM OXIDE FROM WC 900	D006
BLAST MEDIA	BLAST MEDIA	ALUMINUM OXIDE WC 900	D006
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA	D006
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA	D006 D007 D008
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA	D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA AIMD-250 PW ELEC-37	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA BLDG 250	D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA BLDG 86	D006
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA BLDG 86 900 DIV	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA BLDG 86 900 DIVISION	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA BLDG 86 INSIDE	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA BLDG 86 OUTSIDE	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA BLDG 86 OUTSIDE HOPPER	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA BLDG 86 WC 900	D006
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA FILTERS BLDG 86 900	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA FROM 520	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA FROM 900 DIV	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA FROM 900DIV	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA FROM AIMD	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA FROM GSE CLEANOUT	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA FROM W/C 520	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA FROM W/C 520 BOOTH 14	D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA FROM W/C 710	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA FROM W/C 900	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA FROM WC 250	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA FROM WC900	D006 D007 D008
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA W/C 520 BLDG 250	D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA W/C 520 BOOTH #14	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA WC 900	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA WC520	D006 D007
BLAST MEDIA	BLAST MEDIA	BLAST MEDIA WC900	D006 D007
BLAST MEDIA	BLAST MEDIA	BLASTMEDIA W/C520 BLAST BOOTH	D006 D007

BLAST MEDIA	BLAST MEDIA	CADMIUM	D006
BLAST MEDIA	BLAST MEDIA	CHROMIUM	D007
BLAST MEDIA	BLAST MEDIA	CHROMIUM 7.75 PPM	D007
BLAST MEDIA	BLAST MEDIA	GLASS SPERES	D005
BLAST MEDIA	BLAST MEDIA	HOBBY SHOP	D006 D007
BLAST MEDIA	BLAST MEDIA	PAINT WASTE BLAST MEDIA	D006 D007
BLAST MEDIA	BLAST MEDIA	PLASTIC BEADS/BLACK BEAUTY/GLASS BEADS BLAST ME	D006 D007
BLAST MEDIA	BLAST MEDIA	PLASTIC BEADS/BLACK BEAUTY/GLASS BEADS BLAST ME	D007
BLAST MEDIA	BLAST MEDIA	PLASTIC BLAST MEDIA	D006 D007
BLAST MEDIA	BLAST MEDIA	PLASTIC BLAST MEDIA	D006 D007
BLAST MEDIA	BLAST MEDIA	PLASTIC BLAST MEDIA 900DIV BLDG 86	D006
BLAST MEDIA	BLAST MEDIA	PLASTIC BLAST MEDIA FROM WC 520	D006 D007
BLAST MEDIA	BLAST MEDIA	PLASTIC BLAST MEDIA WC 520	D006 D007
BLAST MEDIA	BLAST MEDIA	PLASTIC MEDIA WC 60A 520 710	D006 D007
BLAST MEDIA	BLAST MEDIA	SHOP05H	D006 D007
BLAST MEDIA	BLAST MEDIA	USED ALUMINUM OXIDE MEDIA	D006
BLAST MEDIA	BLAST MEDIA	USED BLAST MEDIA	D006 D007
BLAST MEDIA	BLAST MEDIA	USED PLASTIC MEDIA	D006 D007
BLAST MEDIA	BLAST MEDIA	W/C 800	D006 D007
BLAST MEDIA	BLAST MEDIA	WALNUT SHELL BLAST MEDIA	D006 D007
BLAST MEDIA	BLAST MEDIA	WASTE BLAST MEDIA	D006
BLAST MEDIA	BLAST MEDIA	WASTE BLAST MEDIA	D006 D007
BLAST MEDIA	BLAST MEDIA	WASTE BLAST MEDIA	D007
BLAST MEDIA	BLAST MEDIA	WASTE BLAST MEDIA BLDG 86 GSE INSIDE	D006 D007
BLAST MEDIA	BLAST MEDIA	WASTE BLAST MEDIA FROM GSE	D006 D007
BLAST MEDIA	BLAST MEDIA	WC 92D	D006 D007
BLAST MEDIA, DIRT	BLAST MEDIA	DIRT & BLAST MEDIA	D007 D008
BLEACH			D002
BLEACH		STB BLEACH	D001
BLEACH		STP DECONTAMINATING AGENT	D001
BLEACH FIXATIVE			D011
BLEACH FIXATIVE		BLEACH FIXATIVE	D003
BLEACH FIXER		BLEACH FIXER	D011
BLEACH FIXER STAB.		BLEACH FIXER STAB.	D011
BLEACH NEUTRALIZER		BLEACH NEUTRALIZER	D011
BLEACH STB			D002
BLIND NAIL CEMENT		NAPTHA, ASBESTOS	D001

BOILER ASH		ANALYSIS	D010
BOILER ASH		ANALYSIS AEO8368	D010
BOILER TREATMENT		BOILER TREATMENT CMPD - CORROSIVE BASE	D002
BRAZING ALLOY		BRAZING ALLOY, CONTAINING SILVER	D011
CADMIUM SOLUTION		CADMIUM SOLUTION	D002 D006
CADMIUM STANDARD		CADMIUM STANDARD	D002 D006
CALCIUM HYPO		CALCIUM HYPOCHLORITE TECHINAL	D001
CALCIUM HYPO DRY		CALCIUM HYPOCHLORITE POWDER	D001
CALCIUM HYPOCHLORIT		CALCIUM HYPOCHLORITE	D001
CARBON REMOVAL COMP		METHYLENE CHLORIDE, CRESOL, POTASSIUM HYDROXID	D002 F002 F004
CARPET CLEANER		2-BUTOXY-ETHANOL, DIPROPYLENE GLYCOL METHYL ETI	D002
CAUSTIC		CALCLEAN	D002
CAUSTIC		CORROSION REMOVING COMPOUND	D002 D005
CAUSTIC		DETERGENT	D002
CAUSTIC		FLOOR STRIPPER	D002
CAUSTIC		FLOOR STRIPPER	D002
CAUSTIC		FLOOR WAX REMOVER Ph 13	D002
CAUSTIC		INDUSTRIAL WATER TREATMENT W142	D002
CAUSTIC		Ph 14	D002
CAUSTIC AEROSOL	AEROSOL	OVEN CLEANER	D002
CEMENT ADHESIVE		CEMENT ADHESIVE	D001
CEMENT, CONTACT		SEE ANALYSIS KAL-153	D001
CEMENT, ROOF		ASPHALT	D001
CEMENT, ROOF, UNK		SEE ANALYSIS DCM-157	D001 D007
CEMENT, RUBBER		MEK, TOLUENE	D001 D035
CHARCOAL CANISTER		CHARCOAL CANISTER	D007
CHECK SOLUTION		WOOD FIBER CHECK SOLUTION	D001 D002
CHLORHEXIDINE		CHLORHEXIDINE GLUCONATE SOLUTION	D001
CHLOROFORM		TREATMENT PLANT	D022 U044
CHLOROFORM ACS		CHLOROFORM ACS	D022
CHROMATE INDICATOR		CHROMATE INDICATOR	DOO7
CHROMIC ACID			D002
CHROMIC ACID		CHROMIC ACID	D001 D007
CHROMIC ACID		CHROMIC ACID, SOLID	D001
CHROMIUM STANDARD		CHROMIUM STANDARD	D002 D007
CLEAN UP DEBRIS		RAGS, CLEAN UP, SATURATED W/JP-5	D001
CLEANER		ANTI STATIC CLEANER COMPOUND	D001

CLEANER		CLEANER, LUBRICANT & PRESERVATIVE	F001 F002 D005
CLEANER		CLEANING COMPOUND	D001
CLEANER		CLOROBEN PT-4	D001
CLEANER		DEMKOTE STEAM SOLV	D002
CLEANER		DRAINO	D002
CLEANER		EXPIRED CLEANER	D002
CLEANER		FILM CLEANER	D001
CLEANER		FLOOR WAX	D002
CLEANER		PORCELAIN CLEANING COMPOUND	D002
CLEANER		SOARBEN SOAP	D002
CLEANER		TC-100 WASH CONTAMINATED WITH CADMIUM	D006
CLEANER		ZOLV DRAIN CLEANER	D039
CLEANER AEROSOL	AEROSOL	CRT SCREEN CLEANER	D001
CLEANER GAS PATH		CLEANER GAS PATH	D001
CLEANER GEN PURPOSE		CLEANER GEN PURPOSE	D001
CLEANER LENS		ETHYL ALCOHOL, METHYL ALCOHOL	D001
CLEANER WASTE		SODIUM DICHROMATE, SULFURIC ACID	D002 D007
CLEANER, OVEN			D001 D002
CLEANER, SUPER BRIT			D001
CLEANING CMPD		CLEANING COMPOUND - CONTACT X	D001
CLEANING CMPD A/C		CLEANING COMPOUND A/C SURFACE, OVERAGED	D001
CLEANING CMPD, SOLV		CLEANING COMPOUND, SOLVENT	D001
CLEANING CMPD, SOLV		CLEANING COMPOUND, SOLVENT	F002
CLEANING COMP.		CLEANING COMP.	D001
CLEANING COMPOUND			F002
CLEANING COMPOUND		1,1,2 TRICHLORO-1,2,2 TRIFLUOROETHANE	F002
CLEANING COMPOUND		CLEANING COMPOUND	D001
CLEANING COMPOUND		CLEANING COMPOUND (CONTACT X)	D001
CLEANING COMPOUND		CLEANING COMPOUND A/C SURFACE	D001
CLEANING COMPOUND		CLEANING COMPOUND, LENS	D001
CLEANING COMPOUND		CLEANING COMPOUND-CORROSIVE LIQUID	D002
CLEANING SOLVENT			D001
CLEANING SOLVENT		METHYLENE CHLORIDE, NAPTHA	F001
CLEANING SOLVENTS		CLEANING SOLVENTS (DE-75) W/ CUTTING OILS	D001
CLEAR FINISH		NAPTHA, SILICA EARTH VOL ORGANIC COMPOUNDS	D001
CLICK PATCH		INORGANIC DICHROMATE	D007
CLICK PATCH		MEK	D001 D035 F005

COATING COMPOUND		COATING COMPOUND FOR AMMUNITION	D001
COATING CORROSION			D001
COATING ROOF			D001
COATING, EPOXY		COATING, EPOXY	D001
COD REAGENT		CHEMICAL OXYGEN DEMAND REAGENT	D002 D007 D009 D011
COLOR DEVELOPER	DEVLOPER	COLOR DEVELOPER	D002
COLOR DEVELOPER	DEVLOPER	COLOR DEVELOPER	D011
COLOR FIX USED		SILVER + FIXER	D011
COMPOUND CLEANING		1,1,2-TRICHLORO-TRIFLOUROETHANE, DICHLORODIFLUO	F002
COMPOUND CORROSION		PETROLEUM BASED CORROSION PREVENTATIVE	D001
COMPOUND CORROSION		TECTYL 846 CORROSION COMPOUND	D001
COMPOUND SEALING		TOLUENE, LEAD	D001 D008
COMPOUND WALKWAY		NAPTHA, MINERAL SPRITS	D001
CONCRETE SEALER		XYLENE	D001 F003
CONDUCTIVE COATING		CONDUCTIVE COATING - VOID	D001
CONDUCTIVE COATING		PAINT RELATED MATERIAL	D001
CONDUCTIVE COATING		TOLUENE, MEK	D001 D035 F005
CONDUCTIVE COATING		TOLUENE, MEK,	D001 D035
CONDUCTIVE COATING		TOLUENE, XYLENE, TOLUENE-2,4-DIISOCYANATE,	D001 F003 F005
CONFORMAL COATING		CONFORMAL COATING	D001
CONTAMINATED SOIL		BENZENE 5%; SOIL 95% 27 DRUMS (2-D018/25-SOIL)	D018
CORR. PREV. CMPD.		CORROSION PREVENTIVE COMPOUND	D002
CORRECTION FLUID		CORRECTION FLUID	D001 F003
CORRECTION FLUID		CORRECTION FLUID	D001 F003 U359
CORROSION COATING		ALODINE	D002 D007
CORROSION COATING		CHROMIC ACID	D002 D007
CORROSION COATING		CHROMIUM OXIDE	D002 D007
CORROSION COMPOUND			D001
CORROSION PREV CMPD			D001
CORROSION PREV CMPD		112 TRICHLORO 122-TRIFLUOROETHANE; NAPTHA; CO2	F002
CORROSION PREV CMPD		112-TRICHLORO 122-TRIFLUOROETHANE; CO2;	F002
CORROSION PREV CMPD		BARIUM SOAP OF AN OSYGENATED HYDROCARBON	D005
CORROSION PREV CMPD		CORROSION PREVENTATIVE COMPOUND; FREON 113 & F	F002
CORROSION PREV CMPD		CORROSION PREVENTIVE COMPOUND	D001
CORROSION PREV CMPD		CORROSION PREVENTIVE COMPOUND	D001 D005 F002
CORROSION PREV CMPD		CORROSION PREVENTIVE COMPOUND	D001 F003 F005 U075
CORROSION PREV CMPD		CORROSION PREVENTIVE COMPOUND	D005 F002

CORROSION PREV CMPD	CORROSION PREVENTIVE COMPOUND, SPENT	D001
CORROSION PREV CMPD	CORROSION PREVENTIVE COMPOUND, SPENT	F002
CORROSION PREV CMPD	CORROSION PREVENTIVE XCOMPOUND, SPENT	D001
CORROSION PREV COM		F002
CORROSION PREV COM		ORMD
CORROSION PREV. CMP	CORROSION PREVENTIVE COMPOUND	D001
CORROSION PREV. CPD		D001
CORROSION PREV. CPD	BARIUM COMPOUNDS, FREON 113	D005
CORROSION PREVENT	BARIUM COMPOUNDS 20%; FREON 113 45%	D005
CORROSION PREVENT	STODDARD SOLVENT 40-55%	D001
CORROSION PREVENTAT	CORROSION PREVENTATIVE COMPOUND	F002
CORROSION PREVENTIV		D001
CORROSION PREVENTIV	STODDARD SOLVENT 40-55%	D001
CORROSION RESIST CD	CORROSION RESISTENT COMPOUND	D002 D007
CORROSION RESISTENT	CORROSION RESISTENT COMPOUND-ALODINE	D002
CORROSION RMVG CMPD	CORROSION REMOVING COMPOUND	D002
CORROSIVE		D002
CORROSIVE		D002 D004 D008 D018
CORROSIVE	AMMONIUM HYDROXIDE	D002
CORROSIVE	AQUA TREET FROM HEAT PLANT	D002
CORROSIVE	CORROSIVE LIQUID	D002
CORROSIVE	DETERGENT	D002
CORROSIVE	EXCESS EXTENDER FROM MACHINE	D002
CORROSIVE	EXTEND RUST TREATMENT	D002 D005
CORROSIVE	FLOOR POLISH REMOVER	D002 D006 D008 D010
CORROSIVE	FLOOR POLISH REMOVER	D002
CORROSIVE	FLOOR POLISH REMOVER	D002
CORROSIVE	FLOOR STRIPPER	D002
CORROSIVE	FLOOR WAX REMOVER	D002
CORROSIVE	MACRO MAG D-19	D002 D007
CORROSIVE	ND-66 CLEANER	D001
CORROSIVE	OLD WAX SYSTEM	D002
CORROSIVE	OVERAGE DUE POOR MANAGEMENT	D001 D002
CORROSIVE	PAINT REMOVER	D002 D006
CORROSIVE	SULFURIC ACID	D002
CORROSIVE	VP-10/AIMD	D007
CORROSIVE ACID	DEVELOPER CLEANER, SULFURIC ACID, SODIUM CHROM/	D002 D007

CORROSIVE ACID	DILUTE ACID	D002
CORROSIVE ACID	MURIATIC ACID	D002
CORROSIVE ACID	SOLUTION "E"	D002
CORROSIVE ALK	OVEN CLEANER, SODIUM HYDROXIDE	D002
CORROSIVE PREVENTIV	CORROSIVE PREVENTIVE	D001
CORROSIVE PREVENTIV	CORROSIVE PREVENTIVE	D002
CORRSION COMPOUND		D001
CREOSOTE	CREOSOTE, SPENT	U051
CRT 10EA	VARIOUS	D008UW
CRT 12EA		D008
CRT 12EA	GENERATOR KNOWLEDGE	D008
CRT 12EA	GENERATOR KNOWLEDGE	DOO8
CRT 12EA	GENERATOR KNOWLEDGE	D008UW
CRT 12EA	NCTAMS LANT DET	D008UW
CRT 12EA	VP-92	D008UW
CRT 13EA	IT & 62	D008UW
CRT 16EA	GENERATOR KNOWLEDGE	D008
CRT 16EA	GENERATOR KNOWLEDGE	D008UW
CRT 18EA	GENERATOR KNOWLEDGE	DOO8
CRT 1EA	GENERATOR KNOWLEDGE	D008UW
CRT 1EA	MWR	D008
CRT 20EA	CRTS FROM DRMO PORTMOUTH	D008
CRT 21EA	SEE ATTACHED	D008UW
CRT 24EA		D008UW
CRT 27EA	NAVAL SECURITY	D008UW
CRT 38EA	GENERATOR KNOWLEDGE	D008UW
CRT 40EA	WING FIVE	D008UW
CRT 48EA	GENERATOR KNOWLEDGE	D008UW
CRT 5EA	BEQ/IT	D008UW
CRT 5EA	GENERATOR KNOWLEDGE	D008
CRT 6EA	GENERATOR KNOWLEDGE	D008UW
CRT 9EA	GENERATOR KNOWLEDGE	D008
CRT 9EA	GENERATOR KNOWLEDGE	D008UW
CRT SCREEN CARE	2-BUTOXYETHANOL, HYDROCARBON PROPELLANT	D001
CUPRIC SULFATE		ORME
CUT-THRU, 1740	CLEANER COIL HEAVY DUTY	DOO1
CUTTING FLUID	CUTTING FLUID	D001

CUTTING FLUID		CUTTING FLUID	ORME
CUTTING FLUID		CUTTING FLUID, DIRTY	D001
CYCLOHEXANONE			D001 F003
CYCLOHEXYLAMINE		CYCLOHEXYLAMINE	D001
CYLINDERS EMPTY FRO		CYLINDERS EMPTY FROEN DICHLORODIFLOROMETHANE	D009
DAMPING FLUID		DAMPING FLUID	D001
DAMPING FLUID		DAMPING FLUID	ORMC
DE-75 SOLVENT		DE-75 CLEANING SOLVENT	D001
DE-75 SOLVENT		DE-75 PETROLEUM SOLVENT, SPENT	D001
DEBRIS		HANGAR ONE LEAD AND ASBESTOS DEBRIS	D008
DEBRIS		LEAD PAINT DEBRIS BEQ REHAB N62472-91-0494	D008
DEBRIS		LEAD PAINT DEBRIS BLDG 13/295 N62472-95-M-7205/720	D008
DEBRIS		LEAD PAINT DEBRIS HGR 250 N62472-94-B-0421	D008
DEBRIS SPILL		FUEL/OIL/WATER FROM SPILL AND BLDG 77	D001
DEBRIS SPILL		TRANSFORMER OIL PADS SPEEDY DRY AND DEBRIS	MA01
DEBRIS, CLEAN-UP		CLEAN UP DEBRIS, RAGS W/ SOLVENTS	D035
DECON KIT		DECON 1 DECON 2	D001
DECON KITS		EXPIRED DECON KITS	D001 D002
DECONTAM AGENT		CHLORINATED LIME	D001
DEICER FLUID		DEICER FLUID	D001
DENATURED ALCOHOL		ALCOHOL, DENATURED, EXCESS	D001 F003
DENTAL RESIN		ETHYL METHACRYLATE, ETHYLENE GLYCOL DIMETHACR`	D001
DENTAL RESIN		ETHYL METHACRYLATE, TOLUIDINE	D001
DEODORANT		DEODORANT	U072
DEODORANT, GEN PURP		GENERAL PURPOSE DEODORANT	D001
DERA		1,1,1 TRICHLOROETHANE	U226
DERA		BLDG 95 DEBRIS	U061
DERA		BLDG 95 SOILS U120 D012 D014 D031 D041	U022 U031 U036 U050 U060 U061
DERA		BLDG 95 SOILS U120 D012 D014 D031 D041 P123	U022 U031 U036 U050 U060 U061
DERA		FIRE TRAINING PIT	D001
DERA		LEAD SITE 11	D008
DERA		RQ WASTE PESTICIDES LIQUID TOXIC NOS	D012 D014 D031 D041 U022 U031
DERA		SITE 1 & 3	U036 D002 D020 D016 U240
DESEALANT			D001
DETERGENT		SODIUM HYDROXIDE	D002
DEVELOPED BLEACH			D011
DEVELOPER	DEVLOPER		D011

DEVELOPER	DEVLOPER	DEVELOPER	D001
DEVELOPER	DEVLOPER	DEVELOPER	D002
DEVELOPER	DEVLOPER	DEVELOPER STARTER	D002
DEVELOPER	DEVLOPER	OVERAGE DEVELOPER	D002
DEVELOPER PART A	DEVLOPER	POTASSIUM CARBONATE, POTASSIUM SULFITE	D002
DEVELOPER REPLENISH	DEVLOPER	ACID	D002
DEVELOPER REPLENISH	DEVLOPER	BASIC - K HYDROXIDE	D002
DEVOLPER USED		DEVOLPER USED	D002
DEVOLPER USED		DEVOLPER USED	D011
DEVOLPER,ZEROX		DEVOLPER,ZEROX	D002
DIAZINON		DIAZINON SOLUTION	ORM-A
DICHLORODIFLUOROMET		DICHLORODIFLUOROMETHANE	U075
DICHLOROMETHANE		DICHLOROMETHANE	F001
DICHLOROMETHANE		DICHLOROMETHANE	U080
DICHLOROMETHANE		DICHLOROMETHANE (METHYLENE CHLORIDE), CONTAMI	U080
DICHLOROMETHANE		DICHLOROMETHANE 100%	U080
DICHLOROMETHANE		METHYLENE CHLORIDE	F002
DIE SPACE BLUE		DIE SPACE BLUE FROM DENTAL	D001
DIESEL START FLUID		DIESEL STARTING FLUID - VOID	D001 F003
DIETHALAMINEPROPAL		BPFKJ	D001 D02
DIETHANOL AMINE		DIETHANOL AMINE SALT OF 2- METHYL, 4-CHLORO-	U240
DIETHYERETRIAMINE		DIETHYERETRIAMINE	D002
DIETHYLENE TRIAMINE		DIETHYLENTRIAMINE, CORROSIVE	D002
DIETHYLENETRIAMINE		AIMD	D002
DIETHYLENETRIAMINE		DIETHYLENETRIAMINE	D001
DIETHYLENETRIAMINE		DIETHYLENETRIAMINE	D002
DIETHYLENETRIAMINE		DIETHYLENETRIAMINE	D002
DIETHYLENETRIAMINE		DIETHYLENETRIAMINE TECHNICAL	D001 D002
DIETHYLENETRIAMINE		DIETHYLENETRIAMINE, DIRTY	D002
DISPERSANT		DISPERSANT	D001
DISPERSANT		SAVIN COPIER DISPERSANT	D001
DISPERSION COATING		DISPERSION COATING-FLAMMABLE LIQUID	D001
D-PHENOTHRIN		TRICHLOROMETHANE, DICHLORODIFLUOROMETHANE	F002
DRY BATTERIES		MERCURY, POTASSIUM HYDROXIDE	D002 D009
DRY-CLEANING SOLV		DRY CLEANING SOLVENT	D001
DRY-CLEANING SOLVEN		DRY-CLEANING SOLVENT	D001
DS-2 DECONTAM AGENT		DS-2 DECONTAMINATING AGENT	D002

DUOFILM		ETHYL ETHER	D001 F003
DUPLICATING FLUID		DUPLICATING FLUID	D001
DUPLICATING FLUID		DUPLICATING FLUID	D001 F003
DUPLICATING FLUID		DUPLICATING FLUID	DOO1 F003 U359
DUPLICATING FLUID		DUPLICATING FLUID- FLAMMABLE LIQUID	D001
DUPLICATING FLUID		METHANOL, ETHANOL	D001
DUPLICATING FLUID		METHANOL, ETHANOL, ETHYLENE GLYCOL	D001
DYE, RED LIQUID		DYE, RED LIQUID - FLAMMABLE LIQUIDS	D001 F003
EEBD		EMERGENCY BREATHING DEVICE	D005
EEBD		EXPENDED O2 CANISTERS	D001 D003 D005
EEBD		OXYGEN BREATHING EXPENDED	D005
ELECT INSULATING CP		TOLUENE 20%, POLYMER 76%	D001 F005
ENAMEL ALKYD YELLOW		LEAD CHROMATE	D001 D007 D008
ENAMEL BLACK GLOSS		SOLVENT, NAPTHA	D001
ENAMEL GLOSS GRAY		MEK	D001 D035
ENCAPSULANT, NONRCR	PAINT LATEX	ENCAPSULANT, NON-RCRA	UNK
ENCAPSULANT-NONRCRA	PAINT LATEX	ENCAPSULANT	UNK
ENVIROSOLVE		ULTRASONIC CLEANER WASTE W/C 400	D006 D007
EPO-LUX 100E		XYLENE, N-BUTYL ALCOHOL	D001 F003
EPO-LUX 100ME		XYLENE, EHTYL BENZENE, N-BUTYL ALCOHOL	D001 F003
EPOXY CATALYST		METHYL ETHYL KETONE	D001 D035
EPOXY CHROMATE PRIM		TOLUENE, CHROMIUM	D001 D007 F005
EPOXY COAT PART A		METHYL ETHYL KETONE, TOLUENE	D001 D035
EPOXY COAT PART A		METHYL ETHYL KETONE, TOLUENE	D001 FOO5 D035
EPOXY COAT PART A		TOLUENE	D001 D007
EPOXY COAT PART A		TOLUENE, MEK	D001 D035
EPOXY COAT PART B			D001
EPOXY COAT PART B		MEK, ISOPROPYL ALCOHOL	D001 D035
EPOXY COAT PART B		METHYL ETHYL KETONE, N-BUTYL ALCOHOL	D001 FOO3
EPOXY COATING			D001 D035 F003 F005
EPOXY COATING		ISOPROPYL ALCOHOL 15%, TOLUENE 10%, MEK 15%	D001 F003 F005
EPOXY COATING		MEK, TOLUENE	D001 D035 F005
EPOXY COATING		N-BUTYL ALCOHOL	D001 F003
EPOXY COATING COMPA		METHYL ETHYL KETONE, XYLENE, ISOUTANOL, TOLUENE	D001 F003 F005 D035
EPOXY COATING COMPB		METHYL ETHYL KETONE	D001 F005 D035
EPOXY COATING KIT			D001 D035 F005
EPOXY COATING PT A			D001 D035

EPOXY COATING PT A		MEK, BARIUM, CADMIUM	D001 D005 D006 D035
EPOXY COATING PT A		MEK, XYLENE	D001 D035
EPOXY COATING PT B			D001 D035
EPOXY COATING PT B		MEK	D001 D035
EPOXY COMPONENT "B"		NITROETHANE	D001
EPOXY CURING AGENT		BENZENE, MIK	D001 D018
EPOXY CURING AGENT		XYLENE	D001 F003
EPOXY PATCH KIT		EPOXY PATCH KIT TRIETHYLENE DIETHYLENE TRIAMINE	D001
EPOXY PATCH PART A		EPOXY PATCH PART A	D001
EPOXY POLY PAINT		TOLUENE, MEK	D001 D035
EPOXY PRIMER PART A		TOLUENE, XYLENE, BUTYL ALCOHOL	D001 F003 F005
EPOXY PRIMER PART B		BUTYL ALCOHOL	D001 FOO3
EPOXY REPAIR KIT		EPOXY REPAIR KIT	D001
EPOXY RESIN PART A		CHROMIUM, TOLUENE	D001 D007 F005
EPOXY RESIN PART A		EPOXY RESIN - PART "A"	D001
EPOXY RESIN-PART B		EPOXY RESIN - PART "B"	D001
EPOXY RESIST FINISH		BENZENE	D001 D018
EPOXY THINNER			D001
ETHER, PETROLEUM		NAPTHA	D001
ETHYL ACETATE TECH		ETHYL ACETATE, ETHYL ALCOHOL	D001
ETHYL ALCOHOL TECH		ETHYL ALCOHOL	D001
ETHYLMETHYL ALCOHOL		ETHYL ALCOHOL, METHYL ALCOHOL	D001
FIBERGLASS RESIN		FIBERGLASS RESIN	D001 D035
FILLER, WOOD		MEK	D001 D035
FILM CLEANER, COND.		FILM CLEANER - 1,1,1 TRICHLOROETHANE	F002
FILTER	LEAD	LEAD	D008
FILTER	PAINT FILTER	60A PAINT FILTERS	D007
FILTER	PAINT FILTER	PAINT FILTERS	D007
FILTERS		BLAST BOOTH FILTERS	D007
FILTERS FUEL		JP-8 FILTERS	D001
FILTERS, CARBON		CHROMIC ACID	D007
FILTERS, LEAD		LEAD DEBRIS - FILTERS	D008
FIXATIVE			D011
FIXATIVE X-RAY		FIXATIVE X-RAY	D011
FIXER		ANALYSIS AEO2497	D009 D010 D011
FIXER		BDQKX	D009
FIXER		DENTAL/MEDICAL	D009 D010 D011

FIXER	DUPONT DEVELOPER	D002
FIXER	FIXER	D011
FIXER	FIXER FROM DENTAL	D011
FIXER	FIXER FROM MEDICAL	D011
FIXER	FIXER FROM MEDICAL	DO11
FIXER	FIXER FROM MEDICAL	D011
FIXER	FIXER FROM MEDICAL	D011
FIXER	HAZMAT AND MEDICAL	D009 D010 D011
FIXER	KODAK BLEACH II STARTER	D002
FIXER	MEDICAL	D009 D010 D011
FIXER	PHOTO FIXER	D011
FIXER	PHOTOGRAPHIC FIXER	D011
FIXER	SILVER FIXER	D011
FIXER	SILVER LADEN BLACK & WHITE CHEMISTRY	D011
FIXER	SILVER WASTE	D011
FIXER	USED BLACK & WHITE FIXER	D011
FIXER	USED BLACK AND WHITE FIXER	D011
FIXER	USED COLOR FIXER	D011
FIXER	USED DEVELOPER	D011
FIXER	USED FIXER	D011
FIXER	USED FIXER FROM MEDICAL	D011
FIXER	USED X RAY FIXER	D011
FIXER	USED X-RAY FIXER	D011
FIXER	USED XRAY FIXER ACCUMULATION	D011
FIXER	X-RAY FIXER	D011
FIXER	XRAY FIXER CONSOLIDATION	D011
FIXER	XRAY FIXER FROM MEDICAL/DENTAL	D011
FIXER STABILIZER		D011
FIXER STABILIZER	FIXER STABILIZER	D011
FIXER WASTE	SILVER, ACETIC ACID, ALUMNIUM CHLORIDE, AMMONIUM	D011
FIXER WORK STRENGTH	SILVER + FIXER	D011
FIXER, X-RAY, USED	AMMONIUM THIOSULFATE, ACETIC ACID, SODIUM SULFITI	D011
FLOOR COAT	XYLENE	D001 F003
FLOOR POLISH REMOVE	FLOOR POLISH REMOVER; SODIUM HYDROXIDE	D002
FLUID, SPIRIT	METHANOL	D001
FLUORCARBON LUBE	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ISOBUTANE	D001
FLUORESCENT BULBS	BROKEN LIGHT BULBS	D009

FLUORESCENT BULBS		FLUORESCENT BULBS	D009
FLUX		FLUX	D002
FLUX		ROSIN FLUX	D001
FLUX SOLDERING		SOLDERING FLUX	D001
FORMALDEHYDE		FORMALDEHYDE	D001
FORMULA 724 CLEANER		FORMULA 724 CLEANER, SPENT	D001
FREEZING COMPOUND			D001
FREON		CONTAMINATED FREON	F002
FREON 113		FREON 113	F003
FREON SPRAY KIT		TRICHLOROTRIFLUOROETHANE, ISOBUTANE,	F002
FROSTING SPRAY		NAPTHA, TOLUENE, METHYLENE CHLORIDE	D001
FUMITOXIN #5857-2		ALUMINUM PHOSPHIDE, AMMONIUM CARBONATE	P006
GALVANIZING POWDER		GAVALNIZING POWDER	D005
GAS PATH CLEANER		GAS PATH CLEANER	D001
GASOLINE		GASOLINE	D001 D018
GASOLINE		GASOLINE AND OIL	D001 D008 D018
GASOLINE		GASOLINE/DIESEL WASTE	D001
GASOLINE		GASOLINE/SPEEDY DRY	D001 D018
GASOLINE /WATER		BENEZENE, TOLUENE, ETHYL BENEZENE, XYLENE	D001 D018 F003 F005
GASOLINE CONTAM.		CONTAMINATED GASOLINE	D001 D018
GASOLINE FILTER	GAS FILTER	GASOLINE FILTERS	D001 D018
GASOLINE WASTE		FUEL FARM TANK CLEANING - CONTRACT CLEANING FOR	D001 D018
GASOLINE, CONTAM.		GASOLINE, CONTAMINATED W/ WATER & DIRT	D001
GLASS CLEANER		ETHANOL, 2- BUTOXY ETHANOL, DETERGENT, BUTANE,	D001
GLASS, GARNET		STRONTIUM CHROMATE	D007
GREASE		ANTISEIZE COMPOUND	D008
GREASE		ASSORTED GREASE	D005 D007
GREASE		BARIUM, SODIUM CHROMATE	D005 D007
GREASE		EXPIRED GREASE	D008
GREASE		GREASE	D001
GREASE		GREASE	F003
GREASE		GREASE	MA01
GREASE		GREASE WIRE ROPE	D008
GREASE		GREASE, AIRCRAFT, EXCESS	D007
GREASE		GREASE, AIRCRAFT, EXCESS	U012
GREASE		GREASE, GENERAL PURPOSE, EXCESS	D005
GREASE		GREASE, SPENT	D001

GREASE		HEAT GREASE	MA01
GREASE		LEAD PLATE	D008
GREASE		LEAD-COTE	D008
GREASE		LUBRICANT	MA01
GREASE		LUBRICANT SOLID FLUX	D001 D008 D035
GREASE		LUBRICATING COMPOUND	D001
GREASE		MOLYBDENUM DISULFIDE	MA01
GREASE A/C		GREASE AIRCRAFT AND INSTRUMENT	D025
GREASE, AIRCRAFT		GREASE, AIRCRAFT	D001
GREASE, AUTOMOTIVE		LEAD ALKYL DITHIOCARBANATE	D008
GREASE, FLAMMABLE		GREASE, FLAMMABLE SOLID	D001
GREASE, MOLY		GREASE, MOLYBDENUM DISULFIDE	D025
GREASE, WIRE ROPE		GREASE, WIRE ROPE, DIRTY	D008
HALGENATED SOLVENTS		HALOGENATED SOLVENTS	F003
HALGENATED SOLVENTS	SOLVENT HALOGENATED	HALOGENATED SOLVENTS	F002
HALGENATED SOLVENTS	SOLVENT HALOGENATED	HALOGENATED SOLVENTS	F003
HALO RAGS W/ SOLV	HALOGENATED RAGS	WASTE RAGS, CONTAMINATED W/ HALOGENATED SOLVE	F002
HALO SOLVENT			F002
HALO SOLVENT		1,1,2 TRICHLORO,	F002
HALO SOLVENT		HAL SOLV; FREON 113	F002
HALO SOLVENT		HAL SOLV; TRICHLOROTRIFLUOROETHANE (FREON 113)	F002
HALO SOLVENT		HALO SOLVENT	F002
HALO SOLVENT		HYDRAULIC FLUID, 1,1,2 TRICHLORO,	F002
HALO SOLVENT		HYDRAULIC FLUID, ENGINE OIL, JP5, 1,1,2 TRICHLORO,	F002
HALO SOLVENT RAG		TRICHLOROETHANE, 1,1,1-	F002
HALO SOLVENTS			F001
HALO SOLVENTS			F002
HALO SOLVENTS		HALOGENATED SOLVENTS	F001
HALO SOLVENTS		HALOGENATED SOLVENTS	F002
HALO SOLVENTS		HALOGENATED SOLVENTS; PRM; JP5; HYD FLUID	D007 D008 D035 F002 F003 F005
HALO SOVLENT		HAL SOLV; FREON 113, ISOPROPYL ALCOHOL	D001 F002
HALO WASTE RAGS W/S	HALOGENATED RAGS	WASTE RAGS SATURATED W/ SOLVENTS	D001 F002
HALOGENATE SOLVENTS			F001
HALOGENATED		HALOGENATED SOLVENT HYD OIL FREON 113 ISOPROPYI	D001 F002
HALOGENATED		HALOGENATED SOLVENT HYD OIL FREON 113 TURBINE O	D001 F002
HALOGENATED		HALOGENATED SOLVENT HYD OIL FREON 113 TURBINE O	F002
HALOGENATED		HALOGENATED SOLVENT HYD OIL ISOPROPYL	D001

HALOGENATED		HALOGENATED SOLVENT, HYD OIL, FREON 113, BARIUM	D005 F002
HALOGENATED		HALOGENATED SOLVENT, HYDRAULIC OIL, 1,1,1 TRICH	F002
HALOGENATED		HALOGENATED SOLVENT, HYDRAULIC OIL, 1,1,2 TRICH	F002
HALOGENATED		METHYL CHLOROFORM CFC	U226
HALOGENATED		NDI DEVELOPER	F002
HALOGENATED AEROSOL	AEROSOL HALOGENATED	CORROSION PREVENTATIVE COMPOUND	D005
HALOGENATED RAGS	HALOGENATED RAGS		D001
HALOGENATED RAGS	HALOGENATED RAGS	1,1,2 TRICHLORO-1,2,2 TRIFLUOROETHANE	F002
HALOGENATED SOLV			F002
HALOGENATED SOLV		HALOGENATED SOLVENTS	D001
HALOGENATED SOLV		HALOGENATED SOLVENTS	F002
HALOGENATED SOLV		HALOGENATED SOLVENTS	F005
HALOGENATED SOLV		HAOGENATED SOLVENTS	F003
HALOGENATED SOLV		HYDRAULIC FLUID; TRICHLOROTRIFLUOROETHANE	F002
HALOGENATED SOLV.		HALOGENATED SOLVENT	F002
HALOGENATED SOLV.		HALOGENATED SOLVENTS	D001
HALOGENATED SOLV.		HALOGENATED SOLVENTS	F001
HALOGENATED SOLV.		HALOGENATED SOLVENTS	F002
HALOGENATED SOLV.		HALOGENATED SOLVENTS, CLEANERS, SPENT	F002
HALOGENATED SOLV.		HALOGENATED SOLVENTS, CONTAMINATED	F002
HALOGENATED SOLV.		HALOGENATED SOLVENTS, CONTAMINATED W/ OILS, FUE	D001
HALOGENATED SOLVENT			F001
HALOGENATED SOLVENT		1,1,2 TRICHLORO-1,2,2 TRIFLUORETHANE,	F002
HALOGENATED SOLVENT		1,1,2 TRICHLORO-1,2,2 TRIFLUOROETHANE	F002
HALOGENATED SOLVENT		1,1,2TRICHLORO-1,2,2-TRIFLUORETHANE, CADMIUM	D006 F002
HALOGENATED SOLVENT		FREON 113, HYDRAULIC FLUID	F002
HALOGENATED SOLVENT		FREON 113, ISOPROPYL ALCOHOL, HYDRAULIC FLUID	D001 F002
HALOGENATED SOLVENT		FREON 16.7, 1,1,1 TRICH 66.6, HYD FLUID 16.7	F002
HALOGENATED SOLVENT		HALOGENATED SOLVENT	D001
HALOGENATED SOLVENT		HALOGENATED SOLVENT	F001
HALOGENATED SOLVENT		HALOGENATED SOLVENT	F002
HALOGENATED SOLVENT		HALOGENATED SOLVENT	F005
HALOGENATED SOLVENT		HALOGENATED SOLVENTS	F002
HALOGENATED SOLVENT		HALOGENATED SOLVENTS	F003
HALOGENATED SOLVENT		HALOGENATED SOLVENTS, AEROSOL CANS	F002
HALOGENATED SOLVENT		HALOGENATED SOLVENTS, CONTAMINATED	D001
HALOGENATED SOLVENT		HALOGENATED SOLVENTS, CONTAMINATED W/ OILS, FUE	F002

HALOGENATED SOLVENT		HYDRAULIC FLUID,	F002
HALOGENATED SOLVENT		HYDRAULIC FLUID, 1,1,2 TRICHLORO-1,2,2-	F002
HALOGENATED SOLVENT		HYDRAULIC FLUID, BARIUM, 1,1,2 TRICHLORO-1,2,2-	D005 F002
HALOGENATED SOLVENT		HYDRAULIC FLUID, FREON 113, METHYL CHLOROFORM	F002
HALOGENATED SOLVENT		HYDRAULIC FLUID, ISOPROPYL ALCOHOL, 1,1,2 TRICH-	D001 D005 F002
HALOGENATED SOLVENT		HYDRAULIC FLUID, ISOPROPYL ALCOHOL, 1,1,2 TRICH-	D001 F002
HALOGENATED SOLVENT		HYDRAULIC FLUID, METHYL CHLOROFORM	F002
HALOGENATED SOLVENT		HYDRAULIC OIL, 1,1,2-TRICHLORO-1,2,2 TRIFLUOR-	F002
HALOGENATED SOLVENT		HYDRAULIC OIL, JP-5, 1,12-TRICHLORO-1,2,2 TRIFLUOR	F002
HALOGENATED SOLVENT		ISOPROPYL ALCOHOL, HYDRAULIC FLUID, JP-5	D001 F002
HALOGENATED SOLVENT		ISOPROPYL ALCOHOL-<2%, 1,1,2 TRICHLORO-1,2,2-TRIF-	F002
HALOGENATED SOLVENT	SOLVENT HALOGENATED	HYDRAULIC FLUID, PD 680, 1,1,2-TRICHLORO 1,2,2-	F002
HALOGENATED WASTE		HALOGENATED WASTE	D001 D005 F002
HALOGENATED WASTE R		1,1,1-TRICHLOROETHANE, HYD FLUID	F002
HALO-SOLVENT		AEROSOL	F002
HEATING OIL #2		KEROSENE, NAPHTHALENE	D001
HELMET LINER MATERI		TRICHLOROFLUOROMETHANE	F002
HYD FLUID WITH TRIC		HYD FLUID WITH TRIC	F001
HYD FLUID/FREON		HYD FLUID /FREON	D001
HYDRAULIC FLUID		HYDRAULIC FLUID WITH FROEN	D001
HYDRAULIC FLUID		HYDRAULIC FLUID, CONTAMINATED	D001
HYDRAULIC FLUIDS		HYDRAULIC FLUID /HALOGENS	D001
HYDROCHLORIC ACID			D002
HYDROCHLORIC ACID		HYDROCHLORIC ACID	D002
HYDROCHLORIC ACID		HYDROCHLORIC ACID	D002
HYDROCHLORIC ACID		HYDROCHLORIC ACID	D002
HYDROGEN PEROXIDE		HYDORGEN PEROXIDE 50% SOLUTION	D001 D002
INHIBITOR 46		PHOSPHORIC ACID	D002
INK		INDELIBLE INK	D001
INK		INK CLEANER	D001
INK, MARKING		INK, MARKING	D001 F003
INSECT FOGGER		METHYL CHLOROFORM <89.5%, PYRETHRUM 0.5%	F002
INSECTICIDE		D-PHENOTHRIN, TRICHLOROFLUOROMETHANE	F002
INSECTICIDE		DURSBAN (R) 4 E	D001
INSECTICIDE		DURSBAN PRENTOX CARBAMATE	F002
INSECTICIDE		INSECTICIDE AEROSOL	D022
INSECTICIDE, GOVT		TRICHLOROFLUOROMETHANE, DICHLORODIFLUOROMETI	F002

INSP PENETRANT PT B	METHYL CHLOROFORM	F002
INSP PENETRANT PT C	METHYL CHLOROFORM	F002
INSULATING CMPD	INSULATING CMPD, AEROSOL-FLAMMABLE GAS	D001
INSULATING COMPOUND	INSULATING COMPOUND PO-12-007M	D001
INSULATING VARNISH	INSULATING VARNISH; ACETONE, MEK, TOLUENE	D001 D035 F003 F005
INSULATING VARNISH	XYLENE, PROPYLENE GLYCOL, ETHYL BENZENE	D001
IODIDE IODATE REAGE	R-0699 BOILER PLANT	D002
IODINE SOLUTION		D00N
ISOAMYL ACETATE	ISOAMYL ACETATE	D001
ISOBUTANE GAS BOTTL	ISOBUTANE GAS BOTTLES	D001
ISOCYANATE		D001 D035 F003 F005
ISOPAR		D001
ISOPAR M-CUTTING	ISOPAR M-CUTTING FLUID	D001
ISOPROPYL ALCOHOL		D001
ISOPROPYL ALCOHOL	ISOPROPYL ALCOHOL	D001
ISOPROPYL ALCOHOL	ISOPROPYL ALCOHOL, CONTAMINATED W/ RUST & WATEI	D001
ISOPROPYL ALCOHOL	ISOPROPYL ALCOHOL, DIRTY	D001
ISOPROPYL ALCOHOL	ISOPROPYL ALCOHOL,DIRTY	D001
JP 8 AND WATER	JP8 AND WATER FROM FUEL FARM	D001 D018
JP-5, CONTAMINATED	JP-5, CONTAMINATED W/ WATER	D001
KAL-144 UNKNOWN		D001 D028 D035
KAL-145	CHROMIUM 3510 PPM	D001 D007
KAL-148 UNKNOWN		D001
KAL-149 UNKNOWN		D001
KIT, EPOXY PART A	MEK, ISOPROPYL ALCOHOL	D001 D035
LAB DEBRIS & SOILS	SOILS & LAB GLASS, CONTAMINATED W/ VARIOUS	D012 D013 D014 D032
LAB WASTE, LIQUIDS	REANALYSIS & RESUBMITTED BY DOC#s 3R3E DERA 2 (DI	F002
LAB WASTE, LIQUIDS	REANAYLSIS & RESUBMITTED BY DOC# 3R3E DERA 1	D001 F002 F003
LABORATORY LIQUIDS	D039 D040 D043 SEE CWM PROFILE AB6345	D002 D018 D019 D022 D029 D035
LABORATORY LIQUIDS	DM #2 CHANGED TO 3R3E DERA 1 ID NO 93001	D002
LABORATORY LIQUIDS	RESUBMITTED AS 3R3E DERA 2 (DM #3) 93002	D002
LABORATORY WASTES	CWM PROFILE AB6346	D043
LAMP SODIUM	LOW PRESSURE SODIUM LAMP	D003
LAMP, MERCURY	LAMP, MERCURY	D009
LAMPS	CRUSHED BULBS	D009
LAMPS	CRUSHED BULBS	D009
LAMPS	CRUSHED FLUORESCENT BULBS	D009

LAMPS		FLUORESCENT BULBS ACCUMULATION	D009
LAMPS		HIGH PRESSURE SODIUM	D008 D009
LAMPS		ROUND BULBS IN BOXES	D009
LAMPS 284		GENERATOR KNOWLEDGE	D009
LAMPS 312		GENERATOR KNOWLEDGE	D009UW
LAMPS 52		GENERATOR KNOWLEDGE	D009
LAMPS 331		ANALYSIS 01241	D009UW
LATEX PAINT	PAINT LATEX	MERCURY, MEK, ACETONE	D009 D035
LATEX, ACRYLIC		VINYL CHLORIDE	D043
LEAD		DUST FILTERS	D008
LEAD		EXPLODED BATTERY	D002 D008
LEAD		LAMELLAS FROM SHOOTING RANGE	D007 D008
LEAD		LAMELLAS FROM SHOOTING RANGE	D008
LEAD		LEAD BLINDS	D008
LEAD		LEAD BLINDS FROM HOUSING	D008
LEAD		LEAD DEBRIS	D008
LEAD		LEAD DEBRIS FROM HGR THREE	D008
LEAD		LEAD DUST AND DEBRIS	D008
LEAD		LEAD LAMELLAS	D008
LEAD		LEAD LAMELLAS FROM SHOOTING RANGE	D008
LEAD		LEAD SOLDER	D007 D008
LEAD		LEAD SOLDER	D008
LEAD		NORTHEAST TEST CONSULTANTS	D008
LEAD		ROUNDS FROM FIRING RANGE	D008
LEAD		ROUNDS FROM FIRING RANGE	D008
LEAD		ROUNDS FROM FIRING RANGE	D008
LEAD		SEE ANALYSIS	DOO8
LEAD		SHOOTING RANGE LEAD LAMELLAS	D008
LEAD ACID BATTERY	BATTERY LEAD	LEAD ACID BATTERY	D002
LEAD ACID BATTERY	BATTERY LEAD	SULFURIC ACID, LEAD	D002 D008
LEAD BLINDS		LEAD BLINDS	D008
LEAD BLINDS		LEAD BLINDS FROM HOUSING	D008
LEAD CONTAM DEBRIS		LEAD, CADMIUM	D006 D008 D035
LEAD DEBRIS			D008
LEAD DEBRIS		LEAD BLINDS	D008
LEAD DEBRIS		LEAD CONTAMINATED DEBRIS	D008
LEAD DEBRIS		LEAD DEBRIS	D008

LEAD DEBRIS		LEAD DEBRIS FROM HANGER THREE	D008
LEAD DEBRIS		LEAD LAMELAS	D008
LEAD DEBRIS		LEAD SOLDER	D008
LEAD DEBRIS		PAINT CHIPS, VACUUM BAGS, CARTRIDGES	D008
LEAD DEBRIS(FILTERS		LEAD DEBRIS (FILTERS)	D005 D006 D007 D008
LEAD DROSS			D008
LEAD DROSS		LEAD DROSS, FILTERS	D008
LEAD DUST & DEBRIS		LEAD 2,630.0 PPM	D008
LEAD FILTER	LEAD	HEPA VAC FILTERS & DEBRIS	D008
LEAD FILTER	LEAD	LEAD COMTAMINATED LAMELLAS	D008
LEAD FILTER	LEAD	SMALL ARM RANGE FILTERS	D008
LEAD FILTERS		LEAD CONTAMINATED FILTERS	D008
LEAD FILTERS		LEAD FILTERS	D008
LEAD FILTERS, SOLID		LEAD FILTERS, SOLID	D008
LEAD REMOVAL		BODG 905 LEAD REMOVAL	D008
LEAD RINSATE		LEAD RINSATE FROM INDOOR FIRING RANGE	D006 D008
LEAD RINSATE		RINSE WATER FROM PISTOL RANGE	D006 D008
LEAD SCRAP		LEAD	D008
LEAD STANDARD		LEAD STANDARD	D002 D008
LEAD WASTE		DEMOLITION OF BLDG 293+614	D008
LEAD WASTE		HANGAR 5 REPAIRS	D008
LEAD WASTE		HEPA FILTERS	D008
LEAD WASTE		LEAD DEBRIS FROM CONTRACTORS	D008
LEAD WASTE		LEAD PAINT CHIPS	D008
LEAD WASTE		LEAD WASTE	D008
LEAD WASTE		RANGE AIR FILTERS	D008
LEAD WASTE		REPAIR OF BLDG 25	D008
LEAD WASTE		TOPSHAM SHOOTING RANGE	D008
LINE CLEANING SOLV.		LINE CLEANING SOLVENTS	F002
LITHIUM BATTERY	BATTERY LI	LITHIUM BATTERYS, SPENT	D003
LUBE OIL			F002
LUBE OIL		LUBE OIL	D001
LUBE OIL, GEAR		LUBRICATING OIL, GEAR	D001
LUBRICANT		BRAKE FREE LUBRICANT	D005
LUBRICANT		DRY FILM LUBRICANT	D001
LUBRICANT		GENERAL PURPOSE LUBE OIL	D005
LUBRICANT		INORGANIC LEAD COMPOUND, MEK, XYLENE = UNK %	D001 D008 D035 F003 F005

LUBRICANT		LEAD, MEK	D001 D008 D035
LUBRICANT		LUBRICANT	D001
LUBRICANT		SOLID LUBRICANT	D001 D008
LUBRICANT AEROSOL	AEROSOL	LUBRICATING COMPOUND	D001
LUBRICATING COMP		METHYL CHLORFORM	FOO2
LUBRICATING COMPOUN		LUBRICATING COMPOUND	D001
LUBRICATING OIL			D001
LUBRICATING OIL		LUBRICATING OIL, AEROSOL	F002
MD-1931		XYLENE, MEK, N-BUTYNOL	D001 D035 F003 F005
MEK		MEK	D001 D035 U159
MEK		METHYL ETHYL KETONE	F005
MERCURY		BROCKED FLUORESCENT BULBS	D009
MERCURY		BROKEN LAMPS	D009
MERCURY		BROKEN LAMPS	D009
MERCURY		BROKEN MERCURY THERMOMETER	D009
MERCURY		BROKEN THERMOMETER	D009
MERCURY		CHANGE OUT OF SWITCHES	D009
MERCURY		FROM CONTRACTOR GYM FLOOR	D009
MERCURY		GENERATOR KNOWLEDGE	D009
MERCURY		LIGHT BULBS	D009
MERCURY		MERCURY	D009
MERCURY		MERCURY ANALYZED	D002 D009
MERCURY		MERCURY SWITCH	D009
MERCURY		MERCURY SWITCHES	D009
MERCURY		MERCURY SWITCHES FROM HANGAR 2	D009
MERCURY		MERCURY SWITCHS	D009
MERCURY		MERCURY SWITCHS FROM DELUGE SYSTEM HGR 250	D009
MERCURY		MERCURY THERMOMETER	D009
MERCURY		MERCURY THERMOMETER	D009
MERCURY		MERCURY THERMOMETERS	D009
MERCURY		MERCURY THERMOMETERS CLIN 6630MM=8.00	D009
MERCURY		MERCURY THERMOSTAT	D009UW
MERCURY		MERTHIOLATE	D001 D009
MERCURY		STEAM PLANT BROKEN MANOMETER	D009
MERCURY		STEAM PLANT BROKEN MANOMETER	D009
MERCURY		WASTE MERCURY	D009
MERCURY ANALYZED		MERCURY ANALYZED	D009

MERCURY BATTERIES		BYDZQ	D009
MERCURY BATTERY	BATTERY MERCURY		D009
MERCURY BATTERYS	BATTERY MERCURY	BATTERY, MERCURY, SPENT	D002
MERCURY BATTERYS	BATTERY MERCURY	BATTERYS, MERCURY, SPENT	D002
MERCURY BATTERYS	BATTERY MERCURY	MERCURY BATTERYS ,SPENT	D009
MERCURY BATTERYS	BATTERY MERCURY	MERCURY BATTERYS, SPENT	D002
MERCURY BATTERYS	BATTERY MERCURY	MERCURY BATTERYS, SPENT	D009
MERCURY DEBRIS			D009
MERCURY DEBRIS		MERCURY	D009
MERCURY DEBRIS		MERCURY CONTAMINATED DEBRIS	D009
MERCURY DEBRIS		MERCURY DEBRIS	D009
MERCURY DEBRIS		MERCURY THERMOMETER	D009
MERCURY DIRTY			D009
MERCURY GAUGES		MERCURY	D009
MERCURY STANDARD		MERCURY STANDARD	D002 D009
MERCURY SURCHARGE		MERCURY SURCHARGE	SURCHARGE
MERCURY SWITCHS		MERCURY	D009
MERCURY THERMOMETER		MERCURY DEBRIS	D009
MERCURY VAPOR LAMP			D005
MERCURY VAPOR LAMPS		MERCURY VAPOR LAMPS, SPENT	D009
MERCURY WASTE		MERCURY	D009
MERCURY WASTE		WASATE MERCURY, DIRTY	D009
MERCURY, DIRTY		MERCURY, DIRTY	D009
MERTHIOLATE		ACETONE 10%; ETHYL ALCOHOL 50%	D001 F003
MERTHIOLATE		MERTHIOLATE - FLAMMABLE LIQUID	D001 F003
METAL CONDITIONER		PHOSPHORIC ACID	D002
METAL PRE TREAT			D002
METHANOL		METHANOL	F003
METHYL CHLOROFORM		METHYL CHLOROFORM	U226
METHYL ETHYL KETONE		METHYL ETHYL KETONE	D001 D035
METHYL ETHYL KETONE		METHYL ETHYL KETONE	D035
METHYLENE CHLORIDE		METHYLENE CHLORIDE	U080
METHYLENE CHLORIDE		METHYLENE CHLORIDE SOLVENT	F002
M-GARD			D001
MINERAL SPIRITS		MINERAL SPIRITS	D001
MINWAX POLYSHADE		STODDARD SOLVENT, VEHICLE, ADDITIVES, PIGMENTS	D001
MODEL SPRAY		TOLUENE, HALOGENATED HYDROCARBON	F002, F005

MOTH BALLS		URINAL CAKES	U072
MOTHBALLS		MOTHBALLS	U072
MULTI-PURPOSE PATCH		CHROMIUM	D007
NAPHTHA		CYCLOHEXANE, N-HEPTANE, TOLUENE, METHYLCYCLOHE	D001 F005
NAPTHA, ALIPHATIC		TOLUENE	D001
NI CAD BATTERY	BATTERY NI-CAD	NI CAD BATTERY	D006
NICAD BATTERIES		NICAD BATTERY	D006
NI-CAD BATTERIES			D006
NI-CAD BATTERIES		NI-CAD BATTERIES	D006
NICAD BATTERY	BATTERY NI-CAD	BFRPT BGNVG BPTVC	D006
NI-CAD BATTERY	BATTERY NI-CAD		D006
NI-CAD BATTERY	BATTERY NI-CAD	NI-CAD BATTERY	D006
NI-CAD BATTERY	BATTERY NI-CAD	NICKEL-CADMIUM BATTERYS, SPENT	D002
NI-CAD BATTERYS	BATTERY NI-CAD	NICKEL-CADMIUM BATTERYS, SPENT	D002
NITRATE		SODIUM NITRATE CRYSTALS	D001
NITRIC ACID			D002
NON HALO SOLVENT			D001
NON HALO SOLVENT		NON HALOGENATED SOLVENT	F005
NON HALO SOLVENTS			D001
NON HALO SOLVENTS		NON HALOGENATED SOLVENTS	D001
NON HALOGENATED SOL		NON HALOGENATED SOLVENTS	D001
NON-HAL SOLVENT		NON-HALOGENATED SOLVENTS	D001
NON-HAL SOLVENTS		ALCOHOL 58.6%; PD-680 36.45%; VVL-800 3.3%;	D001
NON-HAL SOLVENTS		ISOPROPYL ALCOHOL 43.3%; PD-680 56.6%;	D001 F002
NON-HAL SOLVENTS		JP5, LUBRICATING OIL, TYPE II DRY CLEANING SOLVENT	D001
NON-HALO SOLVENT		ISOPROPYL ALCOHOL, HYDRAULIC FLUID	D001
NON-HALO SOLVENT		MEK, NAPTHA	D001 D035 F005
NON-HALO SOLVENTS		NON-HALO SOLVENTS	D001
NON-HALOGENATED		NON-HALOGENATED WASTE	D001
NON-HALOGENATED SOL			D001
NON-HALOGENATED SOL		N0N-HALOGENATED SOLVENTS	D001
NON-HALOGENATED SOL		NON-HALOGENATED SO0LVENTS, SPENT	D001
NON-HALOGENATED SOL		NON-HALOGENATED SOLVENT	D001
NON-HALOGENATED SOL		NON-HALOGENATED SOLVENTS	D001
NON-HALOGENATED SOL		NON-HALOGENATED SOLVENTS, CONTAMINATED	D001
NON-HALOGENATED SOL		NON-HALOGENATED SOLVENTS, DIRTY	D001
NON-HALOGENATED SOL		NON-HALOGENATED SOLVENTS, ISOPROPYL ALCOHOL	D001

NON-HALOGENATED SOL		NON-HALOGENATED SOLVENTS, MIXED, SPENT	D001
NON-HALOGENATED SOL		NON-HALOGENATED SOLVENTS, SPENT	D001
NON-HALOGENATED SOL		NON-HALOGENATED SOLVENTS, SPENT, DIRTY	D001
NON-HALOGENATED SOL		PETROLEUM SOLVENTS	D001
O2 CLEANER		BYRXJ	D002
O2 CLEANER		SHOP 81C	D002
OBA		BYBYB	D001 D003 D005
OBA		CJHDJ	D001 D003 D005
OBA		EEBD	D001 D003 D005
OBA CANDLES		OBA CANDLES FROM MARINES	D001 D005
OBA CANNISTER		EXPENDED OBA CANINSTER	D001 D003 D005
OBA CANNISTER		EXPENDED OBA CANNISTER	D001
OBA CANNISTER		EXPENDED OBA CANNISTER	D001 D003 D005
OBA CANNISTER		OVERAGE BREATHING DEVICES	D001 D003 D005
OBA GENERATORS		EXPENDED OBA GENERATORS	D001 D003 D005
OIL		FLUID CHANGE OUT OIL	D035
OIL		VV-L-800 CFC	F002
OIL /HALOGENS		OIL CANTAINING /HALOGENS	D001
OIL ABSORBENT PADS		# 2 FUEL OIL	DOO1
OIL AEROSOL	AEROSOL	SPRAY LUBE CFC	F002
OIL GAS		JET FUEL CONTAMINATED WITH WATER	D001
OIL SWITCH		OIL SWITCH W/ PCBS	M002
OIL SWITCH		OIL SWITCH W/PCBS	M002
OIL, CONTAM W/SOLV.		WASTE OILS, CONTAMINATED W/ HALOGENATED SOLVEN	D001
OIL, CONTAM. W/SOLV		OILS, CONTAMINATED W/ HALOGENATED SOLVENTS	F002
OIL, CONTAMINATED		OILS, CONTAMINATED W/ SOLVENTS	D001
OIL, CONTAMINATED		OILS, CONTAMINATED W/ SOLVENTS	F002
OIL, CONTAMINATED		WASTE OILS, CONTAMINATED W/ SOLVENTS	D001
OIL, CONTAMINATEED		OILS, CONTAMINATED W/ SOLVENTS	D001
OIL, LUBE			F002
OIL, LUBRICATING		BARIUM SULFONATE	D005
OIL, LUBRICATING		LUBRICATING OIL, WASTE	D025
OIL, LUBRICATING		WASTE OILS	D001
OIL, WASTE		WASTE OIL, WATER, SLUDGE	D001
OIL,LUBRICATING		OIL,LUBRICATING	D001
OIL/FUEL		REMOVAL OF FUEL FROM BLDG 42 UST	D001 D008 D018
OIL/GAS		ACETONE AND JP8	D001 D018

OIL/GAS	CONTAMINATED DIESEL	D001 D018
OIL/GAS	CONTAMINATED DIESEL FUEL	D001 D018
OIL/GAS	CONTAMINATED GAS FROM AUTO	D001 D018
OIL/GAS	CONTAMINATED GAS FROM TRANSPORTATION	D001 D018
OIL/GAS	FUEL AND OIL FROM TRANSFORMER	D001 D018
OIL/GAS	GASOLINE	D001 D008
OIL/GAS	GASOLINE	D001 D008 D018
OIL/GAS	GASOLINE AND OIL MIXTURE	D001
OIL/GAS	GASOLINE AND WATER	D001 D018
OIL/GAS	GENERATOR KNOWLEDGE	D001
OIL/GAS	JP8 & WATER SPILL CLEANUP	D001
OIL/GAS	JP8 AND MO GAS MIXTURE	D001 D018
OIL/GAS	JP8 AND WATER	D001 D018
OIL/GAS	JP8 FROM PRODUCT RECOVERY TANK	MA01
OIL/GAS	JP-8 SPILL CLEAN UP	D001 D018
OIL/GAS	LUBRICATING OIL GENERAL PURPOSE	D005
OIL/GAS	MOGAS AND OIL	D001 D018
OIL/GAS	MO-GAS OIL MIXTURE	D001 D008
OIL/GAS	MOTOR OIL AND GASOLINE	D001 D018
OIL/GAS	OIL AND GAS MIXTURE	D001 D018
OIL/GAS	PENETRATING OIL	D001
OIL/GAS	POL TANK HGR 3	DO18 D035
OIL/GAS	SPILL DEBRIS	D001
OIL/GAS	TANK FROM STEAM PLANT	D018 D035
OIL/GAS	USED OIL WITH GAS	D001 D018
OILS, CONTAM W/ SOL	WASTE OILS, CONTAMINATED W/ HALOGENATED SOLVEN	F002
OILS, CONTAM W/SOLV	OILS, CONTAMINATED W/ HALOGENATED SOLVENTS	F002
OILS, CONTAM W/SOLV	OILS, CONTAMINATED W/ SOLVENTS	F002
OILS, CONTAM.	OILS/HYDRAULIC FLUIDS, CONTAMINATED W/ SOLVENTS	F002
OILS, CONTAM.	WASTE OILS, CONTAMINATED W/ SOLVENTS	D001
OILS, CONTAM.	WASTE OILS, CONTAMINATED W/ SOLVENTS	F001
OILS, CONTAMINATED	OILS CONTAMINATED W/ SOLVENTS	D001
OILS, CONTAMINATED	OILS, CONTAMINATED W HALOGENATED SOLVENTS	F002
OILS, CONTAMINATED	OILS, CONTAMINATED W/ HALOGENATED SOLVENTS	F002
OILS, CONTAMINATED	OILS, CONTAMINATED W/ SOLVENTS	D001
OILS, CONTAMINATED	OILS, CONTAMINATED W/ SOLVENTS	F002
OILS, CONTAMINATED	WASTE HYDRAULIC OILS, CONTAMINATED W/HALOGENAT	F001 F002

OILS, CONTAMINATED	WASTE OILS CONTAMINATED W/ HALOGENATED SOLVEN	F002
OILS, CONTAMINATED	WASTE OILS CONTAMINATED W/ SOLVENTS	D001 F001 F002
OILS, CONTAMINATED	WASTE OILS, CONTAMINATED W/ HALOGENATED SOLVEN	D001
OILS, CONTAMINATED	WASTE OILS, CONTAMINATED W/ HALOGENATED SOLVEN	D001 F002
OILS, CONTAMINATED	WASTE OILS, CONTAMINATED W/ HALOGENATED SOLVEN	F002
ORGANIC PEROXIDE	HARDNER FIBERGLASS RESIN	D003
ORTHOPHOSPHORIC ACI	ORTHO-PHOSPHORIC ACID 85	D002
OVEN CLEANER	OVEN CLEANER	D001
OVEN CLEANER	SODIUM HYDROXIDE	D002
OVEN CLEANER	SODIUM HYDROXIDE, ETHANOLAMINE, BUTANE, H20	D002
PAINT		D001 D006 D007 D008 D035
PAINT	05 RED PPAINT	D001
PAINT	1544 ROSIN FLUX	D001
PAINT	60A PAINT FILTERS & WASTE PAINT RAGS	D001 D007 D035
PAINT	7268 ELECTRICAL COATING	D001
PAINT	728013 METAL PRETREATMENT PART A	D001 D007
PAINT	728013 METAL PRETREATMENT PART B	D001 D002
PAINT	8B6A LAMINAR X500 CONDUCTIVE BLACK	D001 D035
PAINT	ABANDONED PAINT FROM NCTD	D001 D035
PAINT	ACCELERATORS	D001 D035
PAINT	ACCUMULATION DRUM	D001 D006 D007 D008 D035
PAINT	ACCUMULATION DRUM	D001 D006 D007 D035
PAINT	ACCUMULATION OF OVERAGE PAINTS	D001 D005 D035
PAINT	ACLYRLIC LACQUER, MEK, LEAD, TOLUENE, CHROMIUM	D001 D007 D008 D035
PAINT	ACRYLIC MASONRY FINISH	D001 D009
PAINT	AEROSOL	D001 D008 D035
PAINT	AEROSOL PAINT	D001
PAINT	AIMD	D001 D006 D007 D035
PAINT	AIRCRAFT WAX	D001
PAINT	AIROPS/AIMD	D005
PAINT	ALIPHATIC NAPTHA	D001
PAINT	ALKYD ENAMEL PAINT	D001
PAINT	ALKYD ENAMEL PAINT	D001 D008
PAINT	ALODINE WASTE	D007
PAINT	ALUMICUT	D001
PAINT	ANALYSIS	D001 D006 D007 D008 D035
PAINT	ASSORTED OVERAGE PAINTS	D001 D006 D007 D008 D035

PAINT	ASSORTED PAINT WASTE	D001 D007 D008
PAINT	ASSORTED PAINT XYLENE MEK	D001 D035
PAINT	ASSORTED PAINT XYLENE MEK LEAD CHROMATE LEAD	D001 D007 D008 D035
PAINT	ASSORTED PAINTS	D001 D008
PAINT	ASSORTED PAINTS	D001 D007 D008 D035 F002 F003 F005
PAINT	BLACK CONDUCTIVE COATING	D001 D035
PAINT	BLACK ENAMEL PAINT	D001 D005
PAINT	BOOTH COAT	D001 D035
PAINT	BQGWX/Y BJQGB CCZXL BZFXY	D001 D006 D007 D035 F002 F003
PAINT	BTJQR CGFDN BJZSL CBVKP CGYBR	D001 D006 D007 D035
PAINT	CAMI GREY LACQUER	D001
PAINT	CARON CANORAMA TONER	D001
PAINT	CGNCV	D002
PAINT	CGNCV	D002
PAINT	CGNDT BZTBN 40501	D001 D006 D007 D008 D035
PAINT	CGXTF BQGTP CDRVX G26684 K45331	D001 D006 D007 D008 D035
PAINT	CGYBR BZTBQ CDHLT CCGMX CCMTM BJRNH CFCDW BV	D001 D006 D007 D008 D035
PAINT	CHO-BOND PRIMER 1085	D011
PAINT	CHROMATE PAINT	D001 D007 D008
PAINT	CLEAR URETHANE FINNISH	D001
PAINT	COATING COMPOUND	D001
PAINT	COATING COMPOUND PART A	D001 D007
PAINT	COATING COMPOUND PART B	D001
PAINT	COATING EPOXY POLYAMIDE	D001
PAINT	COND X AEROSOL	D001
PAINT	CONDUCTIVE COATINEG	D001 D035
PAINT	CONDUCTIVE COATING	D001 D005 D018 D035
PAINT	CONDUCTIVE COATING	D001 D005 D035
PAINT	CONDUCTIVE COATING	D001 D018
PAINT	CONDUCTIVE COATING	D001 D035
PAINT	CONDUCTIVE COATING BLACK PAINT	D035
PAINT	CONFORMAL COATING	D001
PAINT	CONSOLIDATION	BRQMW
PAINT	CONSOLIDATION DRUM	D001 D006 D007 D008 D035
PAINT	CONSOLIDATION DRUM	D001 D006 D007 D035 F002 F003
PAINT	CONTRACTOR	D008
PAINT	COPIER DEGLAZE	D001

PAINT	CORROSION COMPOUND	D001
PAINT	CORROSION PREVENTATIVE	D001
PAINT	CORROSION PREVENTATIVE	D001 D007 D035
PAINT	CORROSION PREVENTATIVE BARIUM	D005
PAINT	CORROSION PREVENTATIVE BARIUM FREON 113	D005
PAINT	CORROSION PREVENTATIVE COMPOUND	D001
PAINT	CORROSION PREVENTATIVE COMPOUND	D005
PAINT	CORROSION PREVENTAVE	D001
PAINT	CORROSION PREVENTION COMP	D001
PAINT	CORROSION PREVENTIVE	D001
PAINT	CORROSION PREVENTIVE	D005
PAINT	CORROSION PREVENTIVE COMPOUND	D001
PAINT	CORROSION PREVENTIVE COMPOUND	D005
PAINT	CORROSIVE PREVENTION COMPOUND	D001
PAINT	CPC TYPE II	D005
PAINT	DYE LIQUID	D001
PAINT	ELECTROSTATIC PRIMER EPOXY	D001 D007
PAINT	ENAMEL	D001 D005 D035
PAINT	ENAMEL ALKYD GLOSS BLUE	D001 D035
PAINT	ENAMEL GLOSS	D001 D007 D008 D035
PAINT	ENAMEL GLOSS ALKYD	D001
PAINT	ENAMEL GLOSS ALKYD	D001 D035
PAINT	ENAMEL PAINT	D001
PAINT	ENAMEL PAINT, LEAD CHROMATE	D001 D007 D008
PAINT	ENAMEL SILICONE ALKYD COPOLYMER	D001
PAINT	EPO-LUX THINNER	D001
PAINT	EPOXY COAT PART A	D001 D035
PAINT	EPOXY COAT PART B	D001 D035
PAINT	EPOXY COATING	D001 D035
PAINT	EPOXY COATING KIT	D001 D035
PAINT	EPOXY COATING KIT PART A	D001 D006 D035
PAINT	EPOXY COATING KIT PART A	D001 D018 D035
PAINT	EPOXY COATING KIT PART B	D001 D035
PAINT	EPOXY COATING PART A	D001 D035
PAINT	EPOXY COATING PART A	D007
PAINT	EPOXY POLYMIDE PART A	D001
PAINT	EPOXY POLYMIDE PART B	D001

PAINT	EPOXY PRIMER BASE ONLY	D001 D007
PAINT	EPOXY PRIMER BASE ONLY	D001 D007 D035
PAINT	EPOXY PRIMER COATING PART A	D001 D007 D035
PAINT	EPOXY PRIMER COATING PART B	D001 D018
PAINT	EPOXY PRIMER PART B	D001
PAINT	EPOXY THINNER	D001 D035
PAINT	ETHYL ACETATE, TOULENE, MEK	D001 D035 F003 F005
PAINT	EUCLID FLOOR PAINT	D001
PAINT	EXCESS PAINTS FROM SUPPLY PART A	D001 D035
PAINT	EXCESS PAINTS FROM SUPPLY PART B	D001 D035
PAINT	EXPIRED AEROSOL PAINT	D001
PAINT	EXPIRED PAINT	D001
PAINT	EXPIRED PAINT REMOVER	D007
PAINT	EXPIRED PAINTS	D001 D008
PAINT	EXPIRED PAINTS	D001 D006 D007 D008 D035
PAINT	EXPIRED PAINTS FROM HAZMAT	D001 D035
PAINT	EXPIRED PAINTS FROM HAZMAT + ITEM 304 FROM 1997	D001 D035
PAINT	EXPIRED SHELF LIFE PAINTS	D001 D007 D035
PAINT	FAST DRYING POLYURETHANE CLEAR SEMIGLOSS II	D001
PAINT	FINISH COATING	D001 D035
PAINT	FIRESTONE ACRYLITOP	D001
PAINT	FLAT BLACK NO 412	D001
PAINT	FLAT BLACK PAINT	D001 D035
PAINT	FLOOR POLISH REMOVER	D002
PAINT	FUEL FARM	D001 D006 D007 D007 D035
PAINT	GOLD PAINT	D001
PAINT	GRAY ACTUATOR B	D001 D035
PAINT	GRAY COMP A	D001 D018 D035
PAINT	GRAY PRIMER PART A	D001
PAINT	GRAY PRIMER PART B	D001
PAINT	GREEN PAINT	D001 D019
PAINT	GREY SPRAY PAINT	D001
PAINT	HAZMAT AEROSOL	D001
PAINT	HAZMAT OVERAGE PAINT	D001 D006 D007 D035 F002 F003 F005
PAINT	HEAT RESISTANT PAINT	D001
PAINT	HOUSING DROP OFFS	D001 D006 D007 D008 D035
PAINT	INSULATING COMPOUND	D001

PAINT	INSULATING COMPOUND XYLENE TOLUENE-2-4DIISOCYAI	D001
PAINT	INSULATING PAINT	D001 D035
PAINT	INSULATING VARNISH	D001
PAINT	INTERIOR PAINT	D001
PAINT	KRYLON 16022 ULTRA FLAT BLACK	D001 D035
PAINT	LACQUER	D001 D007 D008 D035
PAINT	LACQUER PAINT	D001
PAINT	LACQUER SPRAY PAINT	D001 D007 D008 D035
PAINT	LAMINAR HARDENER	D001
PAINT	LAMINAR HARDNER	D001
PAINT	LAMINAR X500	D001 D005 D035
PAINT	LAMINAR X-500	D001 D005 D008 D018
PAINT	LATEX PAINT	D001
PAINT	LATEX PAINT	F002
PAINT	LAYOUT DYE	D001
PAINT	LEAD CONTAMINATED PAINT CHIPS	D008
PAINT	LEAD PAINT CHIPS	D008
PAINT	LEAD, FP 58 DEG F	D001 D008
PAINT	LEFT BY CONTRACTOR	D001 D006 D007 D035
PAINT	LEFT BY VP-10	D001 D007 D008 D035
PAINT	LEFT OVER PAINTS	D001 D007 D035
PAINT	LENMAR PAINT	D001 D008 D035
PAINT	LIQUID PAINT AND PENETRANTS	D001 D005
PAINT	MARINE POLYESTER RESIN	D001
PAINT	MARKING PAINT	D001
PAINT	MEK, TOLUENE, XYLENE	D001 D035
PAINT	METAL POLISH	D001
PAINT	METHYL N AMYL KETONE, XYLENE, TITANIUM DIOXIDE	D001
PAINT	MIL-P-23377E PART B	D001
PAINT	MIL-P-23377E PART B	D001 D007 D035
PAINT	MISC PAINT CANS	D001 D007 D035
PAINT	MISCELANEOUS PAINT	D001 D007 D035
PAINT	MIXED ASSORTMENT OF PAINT CANS	D001 D007 D035
PAINT	NAPTHA	D001
PAINT	NAPTHA, MINERAL SPIRITS	D001
PAINT	NOKORODE CORROSION PREVENTATIVE	D001
PAINT	NORSIC PRIMER ACCELERATOR	D001

PAINT	OATEY PURPLE PRIMER	D001 D035
PAINT	OIL BASED PAINT	D001
PAINT	OLD ENAMEL PAINT	D001 D007 D008
PAINT	OLD PAINT FROM FUEL FARM	D001 D006 D007 D035 F002 F003
PAINT	OMD PAINT BARREL	D001 D035
PAINT	OVERAGE PAINT	D001 D006 D007 D008
PAINT	OVERAGE PAINT	D001 D007 D035 D005
PAINT	OVERAGE PAINT	D001 D006 D007 D007 D035
PAINT	OVERAGE PAINT FROM BOB	D001 D007 D035
PAINT	OVERAGE PAINTS	D001 D007 D035
PAINT	OVERAGE PAINTS	D001 D035
PAINT	OVERAGE PAINTS VP8 AND HAZMAT	D001 D007 D035
PAINT	PAINT	D001
PAINT	PAINT	D001 D005 D035
PAINT	PAINT	D001 D006 D007 D008 D035
PAINT	PAINT	D001 D006 D008 D009 D018
PAINT	PAINT	D001 D007
PAINT	PAINT	D001 D007 D035
PAINT	PAINT	D001 D018
PAINT	PAINT	D001 D035
PAINT	PAINT	D001 F003
PAINT	PAINT	D007 D035
PAINT	PAINT VPU1-6	D001 D004 D006
PAINT	PAINT WASTE	D001 D007 D035 F003 F005
PAINT	PAINT & ADHESIVE WASTE	D001 D007 D008 D035
PAINT	PAINT AND THINNER AWAITING ANALYSIS 5201 A&B	D001 D035 F003 F005
PAINT	PAINT AND THINNER WASTE	D001 D005 D007 F001 F003 F005
PAINT	PAINT AND THINNER WASTE	D001 D007 D018 D035
PAINT	PAINT CHIPS	D008
PAINT	PAINT CHIPS CONTAMINATED WITH LEAD	D007 D008
PAINT	PAINT CHIPS FROM CHAPEL	D008
PAINT	PAINT CHIPS FROM CONTRACTOR	D008
PAINT	PAINT CHIPS FROM DECK	D008
PAINT	PAINT CHIPS FROM GUARDRAIL	D007 D008
PAINT	PAINT CHIPS FROM SEABEES	D008
PAINT	PAINT CONSOLIDATION DRUM	D001 D035 F002 F005
PAINT	PAINT DRUM	D001 D006 D007 D035 F002 F003 F005

PAINT	PAINT DRUM FROM SCA	D001 D006 D007 D035 F002 F003 F005
PAINT	PAINT FILTERS	D007
PAINT	PAINT FROM AEROSOL PUNCHER	D001 D005 D019 D028 D029 D039 D035 D040
PAINT	PAINT FROM OMD	D001 D007 D035
PAINT	PAINT FROM SEABEES	D001 D035
PAINT	PAINT FROM SUPPLY	D001 D007 D035
PAINT	PAINT FROM TREATMENT PLANT	D001 D035
PAINT	PAINT HARDNER	D007 D008 D018
PAINT	PAINT HEAT RESISTANT	D001
PAINT	PAINT LACQUER	D001
PAINT	PAINT LIQUID	D001 D006 D007 D035
PAINT	PAINT MISC	D001 D007 D008 D035
PAINT	PAINT POLY GREY	D001
PAINT	PAINT REMOVER	D007
PAINT	PAINT REMOVER	D007 D035
PAINT	PAINT RUBBER	D001
PAINT	PAINT SHOP	D001 D006 D007 D035
PAINT	PAINT SHOP	D001
PAINT	PAINT SHOP	D001 D006 D007 D008 D035
PAINT	PAINT SHOP MISC GENERATORS	D001 D006 D007 D035
PAINT	PAINT SHOP MISC GENERATORS	D001
PAINT	PAINT STRIPPER	D002 D007
PAINT	PAINT STRIPPER	D007
PAINT	PAINT STRIPPER & WATER	D007 F002
PAINT	PAINT STRIPPER RINSE WATER	D007 F001
PAINT	PAINT THINNER	D001
PAINT	PAINT THINNER	D001 D035
PAINT	PAINT THINNER WASTE	D001 D005 D007 D035 F001 F002
PAINT	PAINT WASTE	D001
PAINT	PAINT WASTE	D001 D005 D007 D035 F002 F003
PAINT	PAINT WASTE	D001 D005 D035
PAINT	PAINT WASTE	D001 D006 D007 D008 D035
PAINT	PAINT WASTE	D001 D006 D007 D035 F002 F003 F005
PAINT	PAINT WASTE	D001 D007 D008
PAINT	PAINT WASTE	D001 D007 D008 D035
PAINT	PAINT WASTE	D001 D007 D008 D035 F003
PAINT	PAINT WASTE	D001 D007 D035

PAINT	PAINT WASTE	D001 D007 D035 F002 F003 F005
PAINT	PAINT WASTE	D001 D007 D035 F003 F005
PAINT	PAINT WASTE	D001 D018 D035 F005
PAINT	PAINT WASTE	D001 D035
PAINT	PAINT WASTE	D001 D035 F003 F005
PAINT	PAINT WASTE F003 F005	D001 D008 D019 D035 F001 F002
PAINT	PAINT WASTE AND THINNER	D001 D007 D035 F003 F005
PAINT	PAINT WASTE BARREL	D001 D035 F005
PAINT	PAINT WASTE F005	D001 D005 D007 D035 F002 F003
PAINT	PAINT WASTE FROM HANGAR 250	F002
PAINT	PAINT WASTE FROM SCA	D001 D035
PAINT	PAINT WASTE FROM SCA	D001
PAINT	PAINT WASTE MEK	D001 D035
PAINT	PAINT WASTE MEK F005	D001 D019 D035 F001 F002 F003
PAINT	PAINT WASTE MIK XYLENE TOLUENE MEK CHROMATE CA	D001 D006 D007 D035
PAINT	PAINT WASTE XYLENE LEAD MEK CHROMIUM	D001 D007 D008 D035 D039
PAINT	PAINT WASTE, CHROMIUM, BARIUM, LEAD CHROMATE, MI	D001 D005 D007 D008 D035
PAINT	PAINT WASTE, LEAD MEK	D001 D008 D035
PAINT	PAINT WASTE, MEK, ACETONE, XYLENE, TOLUENE	D001 D035
PAINT	PAINT, ALUMINUM	D001
PAINT	PART A and B PAINT	D001 D035
PAINT	PETROLEUM HYDROCARBONS	D001
PAINT	PETROLIUM BASED RUST PREVENTATIVE	D001
PAINT	PLASTIC POLISH	D001
PAINT	POLISH REMOVER	D002
PAINT	POLY COAT PART A	D001
PAINT	POLY COAT PART A	D001 D007
PAINT	POLY COAT PART A	D001 D035
PAINT	POLY COAT PART A	D001 DO35
PAINT	POLY COAT PART B	D001
PAINT	POLY COAT PART B	D001 D035
PAINT	POLY COAT PART B	D001 DO35
PAINT	POLY COATING	D001 D035
PAINT	POLYURETHANE	D001
PAINT	POLYURETHANE	D001 D007 D035
PAINT	POLYURETHANE COATING	D001
PAINT	POLYURETHANE COATING KIT	D001 D035

PAINT	POLYURETHANE GREY	D001 D035
PAINT	POLYURETHANE KIT	D001
PAINT	POLYURETHANE PAINT PART A	D001
PAINT	POLYURETHANE PAINT PART A	D001 D035
PAINT	POLYURETHANE PAINT PART B	D001 D035
PAINT	POLYURETHANEE CURING AGENT	D001
PAINT	PPAINT	D001 D005 D035
PAINT	PPG GLOSS WHITE	D001
PAINT	PRIMER	D001 D035
PAINT	PRIMER ADHESIVE	D001
PAINT	PRIMER COATING	D001 D005
PAINT	PRIMER COATING	D001 D005 D007
PAINT	PRIMER COATING PART A	D001 D007
PAINT	PRIMER COATING PART B	D001
PAINT	PRIMER COATING PART B	D001 D035
PAINT	PRIMER COATING ZINC CHROMATE	D001 D007 D008
PAINT	PRIMER ENAMEL-UNDERCOAT ODORLESS INT WH	D001
PAINT	PRIMER PAINT	D001
PAINT	PRIMER T	U226
PAINT	PRIMER WASH PAINT	D001 D007
PAINT	PRIMER WASH PART A	D001
PAINT	PW TOM WRIGHT	D001 D006 D007 D035
PAINT	QASTE PAINT	D001 D035
PAINT	RAIN EROSION	D001 D005 D035
PAINT	RAIN EROSION COATING	D005 D035
PAINT	RAIN EROSION CONDUCTIVE BLACK	D001 D005 D035
PAINT	RAIN EROSION PAINT	D001 D005 D035
PAINT	RAIN EROSION PAINT	D001 D035
PAINT	RAIN ERROSION COATING	D001 D035
PAINT	RESIN	D001
PAINT	RID RUST	D001
PAINT	RUBBER PAINT	D001 D035
PAINT	RUST TREATMENT	D002 D005
PAINT	SCA PAINT DRUM	D001 D006 D007 D035 F002 F003 F005
PAINT	SCOTCHKOTE ELECTRICAL COATING	D001 D035
PAINT	SEALER-PRIMER	D001
PAINT	SEE ANALYSIS	D001 D006 D007 D035

PAINT	SEE DUMP LOG	D001 D006 D007 D008 D035 F002 F003
PAINT	SELF PRIMING TOPCOAT	D001
PAINT	SEMI-GLOSS PAINT	D001
PAINT	SILICONE PRIMER	D001 D018
PAINT	SILICONE PRIMER	D001 D035
PAINT	SOLVENTS	D001
PAINT	SO-SURE SPRAY LACQUER	D001
PAINT	STAIN DARK REDWOOD	D001
PAINT	STAIN SOLUTION	D001
PAINT	STATICIDE	D001
PAINT	STODDARD SOLVENT	D001
PAINT	STRIPING PAINT	D001 D005 D035
PAINT	SUPER X FORM RELEASE	D001
PAINT	TECTIVE COATING V114L	D001 D035
PAINT	THINNER EPOXY	D001 D035
PAINT	TILECLAD ENAMEL	D001 D007 D008
PAINT	TOLUENE, ISOBUTYL ALCOHOL, PROPYLENE GLYCOL,	D001 D007
PAINT	TOLUENE, XYLENE, ACETONE, MEK	D001 D005 D007 D008 D035
PAINT	TONER CARTRIDGE	D007
PAINT	TRAFFIC PAINT	D001
PAINT	TTE489G WHITE ENAMEL	D001 D008
PAINT	TTE489H ENAMEL GLOSS	D001 D005
PAINT	TURPENTINE	D001
PAINT	TURPINTINE	D001
PAINT	TYPE M WHITE	D001
PAINT	UNKNOWN	D001 D006 F003 F005
PAINT	UNKNOWN	D001 D008
PAINT	USED PAINTS	D001 D007 D035
PAINT	VARIOUS PAINTS	D001 D035
PAINT	VARNISH	D001
PAINT	VP-10	D001 D006 D007 D035
PAINT	VP-10 PAINT BARREL	D001 D006 D007 D035
PAINT	VP-8	D001 D006 D00 D035 F002 F003 F005
PAINT	VP-92	D001 D006 D007 D008 D035
PAINT	VR-62	D001 D006 D007 D035
PAINT	WALKWAY COMPOUND	D001
PAINT	WALKWAY COMPOUND	D001 D008

PAINT	WALKWAY COMPOUND NON-SLIP	D001
PAINT	WASTE FROM J A JONES	D008
PAINT	WASTE LATEX PAINT	D001
PAINT	WASTE OIL BASE PAINT	D001 D035
PAINT	WASTE PAINT	D001
PAINT	WASTE PAINT	D001 D005 D035 F003 F005
PAINT	WASTE PAINT	D001 D007 D035
PAINT	WASTE PAINT	D001 D007 D035 F001 F003 F005
PAINT	WASTE PAINT	D001 D007 D035 F002 F003
PAINT	WASTE PAINT	D001 D007 D035 F003 F005
PAINT	WASTE PAINT	D001 D008
PAINT	WASTE PAINT	D001 D008 D035
PAINT	WASTE PAINT	D001 D018 D035 F003 F005
PAINT	WASTE PAINT	D001 D035
PAINT	WASTE PAINT	D001 D035 F003 F005
PAINT	WASTE PAINT	D001 D007 D035
PAINT	WASTE PAINT AND THINNER	D001 D007 D035 F003 F005
PAINT	WASTE PAINT AND THINNER	D001 D035 F003 F005
PAINT	WASTE PAINT F005	D001 D007 D008 D018 D035 F003
PAINT	WASTE PAINT FROM AEROSOL	D001 D005 D019 D028 D029 D039
PAINT	WASTE PAINT FROM HAZMAT AEROSOL DRUM	D001 D005 D007 D008 D035
PAINT	WASTE PAINT FROM HOBBY SHOP	D001
PAINT	WASTE PAINT RAGS	D001 D035 F003 F005
PAINT	WASTE PAINT THINNER AND REMOVER	D001 D007 D0035 F002 F005
PAINT	WASTE RAGS, TOLUENE, XYLENE, ACETONE, MEK	D001 D007 D035 F003 F005
PAINT	WASTE RAGS, TOLUENE, XYLENE, ACETONE, MEK	D001 D035 F002 F003
PAINT	WASTE RAGS, TOLUENE, XYLENE, ACETONE, MEK	D007 D035 F001 F003 F005
PAINT	WASTE RAGS, TOLUENE, XYLENE, CHROMATE, MEK, MIK	D001 D007 D035
PAINT	WHITE ENAMEL PAINT	D001
PAINT	WHITE LACQUER	D001
PAINT	WHITE PAINT	D001
PAINT	WHITE UNICOAT	D001 F003 F005
PAINT	X O RUST	D001
PAINT	XYLENE, TOLUENE	D001
PAINT	XYLENE, TOLUENE, MIK, ISOBUTYL ALCOHOL, ACETATE	D001
PAINT	YELLOW A/D ENAMEL 13538	D001
PAINT	YELLOW ENAMEL	D001

PAINT		YELLOW LACQUER	D001
PAINT		YELLOW PAINT	D001
PAINT		ZAR SATIN EXTERIOR POLYURETHANE	D001
PAINT		ZINC CHROMATE	D001 D007
PAINT	AEROSOL	AEROSOL PAINT	D001 D035
PAINT	AEROSOL	AEROSOL PAINT	D001
PAINT	AEROSOL	AEROSOL WATER DISPLACING COMPOUND	D001
PAINT	AEROSOL	EXCESS AEROSOLS FROM VPU-1	D001
PAINT	AEROSOL	STEEL INK BLUE AEROSOL	D001
PAINT	LAED	LEAD CONTAMINATED DEBRIS	D008
PAINT	LEAD	LEAD CONTAMINATED DEBRIS	D008
PAINT	PAINT RAGS	WASTE RAGS, TOLUENE, XYLENE, ACETONE, MEK	D001 D007 D035 F002 F003 F005
PAINT	PAITN LATEX	PW PAINT SHOP	D001 D006 D007 D035
PAINT	PAITN LATEX	PW PAINT SHOP	D001 D006 D007 D035
PAINT	PAITN LATEX	WASTE PAINT FROM PW	D001 D035
PAINT AEROSOL	AEROSOL		D001
PAINT AEROSOL	AEROSOL	AEROSOL	D001
PAINT AEROSOL	AEROSOL	AEROSOL PAINT	D001 D007
PAINT AEROSOL	AEROSOL	AEROSOL PAINT WASTE CHROMIUM MEK XYLENE	D001 D007 D035
PAINT AEROSOL	AEROSOL	AEROSOL PAINTS	D001
PAINT AEROSOL	AEROSOL	ASSORTED SPRAY PAINT	D001 D005
PAINT AEROSOL	AEROSOL	ASSORTED SPRAY PAINT	D001 D035
PAINT AEROSOL	AEROSOL	CORROSION PREVENTATIVE FREON 113	D005
PAINT AEROSOL	AEROSOL	CORROSION PREVENTIVE COMPOUND	D005
PAINT AEROSOL	AEROSOL	CORROSION PREVENTIVE COMPOUND FREON 113	F002
PAINT AEROSOL	AEROSOL	ENAMEL FLAT GREY PAINT	D001
PAINT AEROSOL	AEROSOL	ENAMEL PAINT LEAD TOLUENE XYLENE ACETONE	D001 D008
PAINT AEROSOL	AEROSOL	LACQUER AEROSOL CLEAR	D001
PAINT AEROSOL	AEROSOL	SO SURE SPRAY PAINT CHROMATE LEAD TOLUENE XYLE	D001 D007 D008
PAINT AEROSOL	AEROSOL	SPRAY PAINT TOLUENE XYLENE ETHYL BENZENE ACETOI	D001 D007 D008
PAINT AEROSOL	AEROSOL	TRAFFIC PAINT ETC	D001
PAINT AEROSOL	AEROSOL	UNKNOWN	D001 D035
PAINT AEROSOL	AEROSOL	WASTE AEROSOL PAINT	D001
PAINT AEROSOL CAN	AEROSOL	PAINT AEROSOL CAN	D001
PAINT ALUMINUM			D001
PAINT BLACK LAC			D001
PAINT BLUE LAC			D001

PAINT CHIPS		LEAD PAINT CHIPS AND DEBRIS	D008
PAINT CHIPS		PAINT CHIPS FROM BUILDING	D008
PAINT CONDUCTING			D001
PAINT DEBRIS		PAINT DEBRIS	D008
PAINT DEBRIS		PAINT SCRAPPINGS	D008
PAINT DECK		MINERAL SPIRITS, TALC, IRON OXIDE, TITANIUM OXIDE	D001
PAINT DROSS			D001
PAINT DROSS		PAINT DROSS	D001
PAINT DROSS		PAINT DROSS (SOAK RAGS)	D001
PAINT DROSS		PAINT DROSS FILTERS	D001
PAINT DROSS		PAINT FILTERS	D001
PAINT DROSS		PAINT FILTERS	D008
PAINT ENAMEL		STODDARD SOLVENT	D001
PAINT ENAMEL		TOLUENE, ACETONE, CALCIUM-BARIUM PHOSPHOSILICAT	D001 D005
PAINT ENAMEL LATEX	PAINT LATEX	MEDIUM ALIPHATIC NAPTHA	D001
PAINT EPOXY			D001
PAINT FILTER	PAINT FILTER	ANALAYSIS AEO2499	D006 D007
PAINT FILTER	PAINT FILTER	ANALYSIS 53041	D006 D007 D008
PAINT FILTER	PAINT FILTER	ANALYSIS 53041	D006 D007 D008 D009
PAINT FILTER	PAINT FILTER	FROM W/520	D007
PAINT FILTER	PAINT FILTER	PAINT FILTERS FROM WC 500	D007
PAINT FILTER	PAINT FILTER	PAINT FILTERS FROM WC60A	D007
PAINT FILTER	PAINT FILTER	W/C 51B	D007
PAINT FILTER	PAINT FILTER	W/C 920/60A	D007
PAINT FILTER	PAINT FILTER	WC/92D	D007
PAINT FILTERS		AIR FILTERS	D007
PAINT FILTERS		AIR FILTERS EXHAUST	D007
PAINT FILTERS		BLAST BOOTH FILTERS 900 DIV	D006
PAINT FILTERS		CONTAMINATED LEAD FILTERS	D008
PAINT FILTERS		EXHAUST FILTERS FROM 500 DIVISION BLDG 250	D007
PAINT FILTERS		EXHAUST PAINT FILTERS 900 DIV	D006 D007
PAINT FILTERS		FIBERGLASS/POLY PAINT DUST FILTERS	D006 DOO7
PAINT FILTERS		FILTER ELEMENTS	D007
PAINT FILTERS		PAINT BOOTH FILTERS OMD	D007
PAINT FILTERS		PAINT FILTER	D007
PAINT FILTERS		PAINT FILTERS	D007
PAINT FILTERS		PAINT FILTERS 51 A/B	D007

PAINT FILTERS		PAINT FILTERS AIMD BLDG86 EXHAUST	D007
PAINT FILTERS		PAINT FILTERS BLDG 86 GSE	D007
PAINT FILTERS		PAINT FILTERS EXHAUST 51 A/B BLDG 250	D007
PAINT FILTERS		PAINT FILTERS EXHAUST PAINT BOOTH #16	D007
PAINT FILTERS		PAINT FILTERS EXHAUST PAINTBOOTH #18	D007
PAINT FILTERS		PAINT FILTERS FROM 51B	D007
PAINT FILTERS		PAINT FILTERS FROM 51B LARGE BOOTH	D007
PAINT FILTERS		PAINT FILTERS FROM 51B SMALL AND LARGE BOOTH	D007
PAINT FILTERS		PAINT FILTERS FROM 900 BLAST BOOTH	D007
PAINT FILTERS		PAINT FILTERS FROM GSE BLDG 86	D007
PAINT FILTERS		PAINT FILTERS FROM W/C 500 BLDG 250	D007
PAINT FILTERS		PAINT FILTERS FROM W/C 51A	D007 D008
PAINT FILTERS		PAINT FILTERS FROM W/C 51B LARGE PAINT BOOTH	D007
PAINT FILTERS		PAINT FILTERS FROM W/C 900	D007
PAINT FILTERS		PAINT FILTERS FROM WC 510	D007
PAINT FILTERS		PAINT FILTERS FROM WC51B	D007
PAINT FILTERS		PAINT FILTERS W/C 900 BLDG 86	D007
PAINT FILTERS		PAINT FILTERS WC 51B	D007
PAINT FILTERS		PAINT FILTERS WC 51B/900	D007
PAINT FILTERS		PAINT RELATED MATERIAL-SOLID PAINT WASTE	D007
PAINT FILTERS		USED PAINT FILTERS	D007 D035
PAINT FILTERS		WASTE FIBERGLASS/POLY PAINT FILTER DUST FROM 51A	D006
PAINT FILTERS		WASTE PAINT FILTERS	D007
PAINT FILTERS		WC 51B AND 900 PAINT FILTERS	D007
PAINT FILTERS		WC 900 AND 520 PAINT FILTERS	D007
PAINT FILTERS		WC 900 PAINT BOOTH FILTERS	D007
PAINT FILTERS		WC 900 PAINT FILTERS	D007
PAINT FILTERS	PAINT FILTERS	CHROMIUM	D007
PAINT FILTERS	PAINT FILTERS	CHROMIUM, PAINT FILTERS	D007
PAINT FILTERS	PAINT FILTERS	PAINT FILTERS	D007
PAINT FILTERS	PAINT FILTERS	PAINT FILTERS FROM WC51B	D007 D008
PAINT FILTERS	PAINT FILTERS	PAINT FILTERS, CHROMIUM	D007
PAINT FILTERS	PAINT FILTERS	PAINT RELATED MATERIAL	D007
PAINT FILTERS	PAINT FILTERS	PAINT RELATED MATERIAL	D008
PAINT FILTERS	PAINT FILTERS	WC 900	D007
PAINT FILTERS	PAINT FILTERS	WC51B PAINT BOOTH	D007 D008
PAINT FILTERS, WAST	PAINT FILTERS	CHROMIUM	D007

PAINT GRAY LAC			D001
PAINT ORANGE LAC			D001
PAINT PRIMER			D001
PAINT RAGS	PAINT RAGS		D001 D006 D007 D008 D035 F003 F005
PAINT RAGS	PAINT RAGS	ACCUMULATION DRUM	D006 D007 D035
PAINT RAGS	PAINT RAGS	ACCUMULATION OF RAGS AIMD-39	D001 D018 D035 F003
PAINT RAGS	PAINT RAGS	ACCUMULATION OF RAGS VP10-68 VPU1-60 AIMD-54 VP92	D035 F003 F004
PAINT RAGS	PAINT RAGS	ACCUMULATION OF RAGS VP26-82 VR62-37	D035 F003 F005
PAINT RAGS	PAINT RAGS	AIMD	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	AIMD	D001 D006 D007 D035
PAINT RAGS	PAINT RAGS	AIMD	D035
PAINT RAGS	PAINT RAGS	AIMD PAINT RAGS	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	BWGXZ BMWXJ BHDBV CFCSM CFCZF BWSDNBJSPR CBT	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	BXMCP CDMCQ BHBVF BTJQH	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	BZTBQ CKZHS	D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	CDALR CFCSM BYRTW BQXZN	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	CONSOLIDATION	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	OIL AND PAINT RAGS	D007 D035 F002 F003 F005
PAINT RAGS	PAINT RAGS	OIL SOAKED RAGS	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	PAINT AND THINNER RAGS	D005 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	PAINT AND THINNER RAGS	D005 D007 D035 F001 F003 F005
PAINT RAGS	PAINT RAGS	PAINT RAG CONSOLIDATION	D001 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	PAINT RAGS	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	PAINT RAGS	D005 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	PAINT RAGS	D005 D035 F003 F005
PAINT RAGS	PAINT RAGS	PAINT RAGS	D006 D008 D035 F003 F005
PAINT RAGS	PAINT RAGS	PAINT RAGS	D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	PAINT RAGS	D007 DO35 F003 F005
PAINT RAGS	PAINT RAGS	PAINT RAGS	D035 F003 F005
PAINT RAGS	PAINT RAGS	PAINT RAGS	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	PAINT RAGS	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	PAINT RAGS FROM OMD	DO35 F005
PAINT RAGS	PAINT RAGS	PAINT RAGS FROM OMD-90,VR62-40, VPU1-45,AIMD-93	D035 F003 F004
PAINT RAGS	PAINT RAGS	PAINT RAGS FROM VP10-86	D007 D018 D035 F003 F005
PAINT RAGS	PAINT RAGS	PAINT REMOVER RAGS	D007 D035 F002 F003
PAINT RAGS	PAINT RAGS	PAINT WASTE RAGS	D001 D035
PAINT RAGS	PAINT RAGS	RAG ACCUMLATION	D001 D006 D007 D035

PAINT RAGS	PAINT RAGS	RAG ACCUMULATION	D001 D006 D007 D008 D035
PAINT RAGS	PAINT RAGS	RAGS	D007 D035 F002 F003 F005
PAINT RAGS	PAINT RAGS	RAGS	D035 F003 F004
PAINT RAGS	PAINT RAGS	SEE ATTACHED	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	SEE ATTACHED	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	SEE DUMP LOG	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	SOLVENT AND PAINT RAGS	D035 F003 F005
PAINT RAGS	PAINT RAGS	STRIPPER WASTE RAGS	D007 D035 F002
PAINT RAGS	PAINT RAGS	USED PAINT RAGS	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	USED PAINT RAGS	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	VP-8	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	VP-8 VP-10	D001 D006 D007 D035
PAINT RAGS	PAINT RAGS	VPU-1, VP-92	D006 D007 D035
PAINT RAGS	PAINT RAGS	VR-62 SPILL CLEAN-UP	D001
PAINT RAGS	PAINT RAGS	WASTE PAINT RAGS	D005 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	WASTE PAINT RAGS	D005 D007 F003 F005
PAINT RAGS	PAINT RAGS	WASTE PAINT RAGS	D007 D008 D035 F003 F005
PAINT RAGS	PAINT RAGS	WASTE PAINT RAGS	D007 D035 F001 F003 F005
PAINT RAGS	PAINT RAGS	WASTE PAINT RAGS	D007 D035 F002 F003 F005
PAINT RAGS	PAINT RAGS	WASTE PAINT RAGS	D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	WASTE PAINT RAGS	D035 F003 F005
PAINT RAGS	PAINT RAGS	WASTE PAINT RAGS	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	WASTE PAINT RAGS	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	WASTE PAINT RAGS	D006 D007 D035
PAINT RAGS	PAINT RAGS	WASTE PAINT RAGS	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	WASTE RAGS	D007
PAINT RAGS	PAINT RAGS	WASTE RAGS	D007 F002 F003 F005
PAINT RAGS	PAINT RAGS	WASTE RAGS	D007 D008 D035 F003 F005
PAINT RAGS	PAINT RAGS	WASTE RAGS	D007 D035 F002 F003 F005
PAINT RAGS	PAINT RAGS	WASTE RAGS	D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	WASTE RAGS	D007 F002 F003 F005
PAINT RAGS	PAINT RAGS	WASTE RAGS	D035 F003 F004
PAINT RAGS	PAINT RAGS	WASTE RAGS	D035 F003 F005
PAINT RAGS	PAINT RAGS	WASTE RAGS	D035 F005
PAINT RAGS	PAINT RAGS	WASTE RAGS	D001 D006 D007 D035 F003 F005
PAINT RAGS	PAINT RAGS	WASTE RAGS	D006 D007 D035
PAINT RAGS	PAINT RAGS	WASTE RAGS	D001 D006 D007 D035 F003 F005

PAINT RED LAC		D001
PAINT REMOVER	METHYLENE CHLORIDE 55%, PHENOL (CARBOLIC ACID) 1(	D002 D007 F002
PAINT REMOVER	PAINT REMOVER	D007
PAINT STRIPPER	AIRCRAFT PAINT REMOVER	D007 F001
PAINT STRIPPER	PAINT REMOVER	D007
PAINT STRIPPER	PAINT STRIPPER DILUTED W/WATER	D007
PAINT THINNER	PAINT RELATED MATERIAL	D001
PAINT THINNER	RETOUCHING FLUID, PETROLEUM DISTILLATE, TURPENTI	D001
PAINT THINNER	XYLENE, PARAFFINS, AROMATIC COMPOUNDS	D001
PAINT THINNER EPOXY	MEK, XYLENE, TOLUENE	D001 D035
PAINT TRAFFIC	METHANOL	D001
PAINT WASTE		D001
PAINT WASTE		D001 D035 F003 F005
PAINT WASTE		F005
PAINT WASTE	ACETONE, MEK,	D001 D035
PAINT WASTE	ACETONE, N-BUTYL ALCOHOL, METHYLENE CHLORIDE, M	D001 D007 D008 D035 F002 F003
PAINT WASTE	BARIUM CHROMATE 25%	D001 D007
PAINT WASTE	BARIUM, CHROMIUM, LEAD, BENZENE, MEK	D001 D003 D005 D007 D008 D018
PAINT WASTE	BARIUM, CHROMIUM, METHYLENE CHLORIDE, MEK,	D001 D005 D007 D035 F002 F003
PAINT WASTE	BENZENE, STRONTIUM CHROMATE, LEAD, MEK,	D001 D007 D008 D018 D035
PAINT WASTE	CHROMIUM	D001 D007
PAINT WASTE	CHROMIUM, LEAD, ACETONE, TOLUENE, 1,1,1 TRICHLORC	D001 D007 D008 D018
PAINT WASTE	CHROMIUM, METHYLEEN CHLORIDE, ISOCYANATE, PRM	D001 D003 D007 D035 F002 F003
PAINT WASTE	EPOXY COATING	D001 D035 F003 F005
PAINT WASTE	INSULATING CMPD, ELECTRICAL	D001
PAINT WASTE	MEK	D001 D035
PAINT WASTE	MEK, ACETATE, 1-METHOXY-2-PROPANOL, BUTYL ACETAT	D001 D005 D035
PAINT WASTE	MEK, BARIUM	D001 D005 D035
PAINT WASTE	MEK, BENZENE, CADMIUM, LEAD OXIDES,	D001 D005 D006 D007 D008 D018
PAINT WASTE	MEK, BENZENE, METHYLENE CHLORIDE, CADMIUM	D001 D005 D006 D007 D018 D035
PAINT WASTE	MEK, BUTYL ACETATE, TOLUENE, XYLENE, N-BUTYL ACET	D001 D005 D008 D018 D035
PAINT WASTE	MEK, BUTYL ACETATE, TOLUENE, XYLENE, N-BUTYL ACET	D001 D005 D008 D035
PAINT WASTE	MEK, LEAD, CHROMIUM, XYLENE	D001 D007 D008
PAINT WASTE	MEK, METHYLENE CHLORIDE, BARIUM, LEAD, BENZENE,	D001 D003 D005 D007 D008 D018
PAINT WASTE	MEK, MIK, TOLUENE, BARIUM, XYLENE, LEAD CHROMATE	D001 D005 D007 D008 D035
PAINT WASTE	MEK, STRONTIUM CHROMATE, DIISOCYANATOHEXANE	D001 D003 D007 D035
PAINT WASTE	MEK, STRONTIUM CHROMATE, METHYL BENZENE,	D001 D007 D035

PAINT WASTE	MEK, TOLUENE, XYLENE	D001 D035
PAINT WASTE	MEK, XYLENE, TOLUENE, CHROMIUM, ALODINE, D018 D03	D001 D002 D005 D006 D007 D008
PAINT WASTE	MEK,MIK, TOLUENE, ETHYL ACETATE, XYLENE, ACETONE,	D001 D007 D035 F003 F005
PAINT WASTE	METHYL ETHYL KETONE, XYLENE, TOLUENE, CHROMIUM	D001 D002 D007 D035
PAINT WASTE	METHYL ETHYL KETONE, XYLENE, TOLUENE, CHROMIUM	D001 D007 F003 F005 D035
PAINT WASTE	MINERAL SPIRITS	D001
PAINT WASTE	N-BUTYL ALCOHOL, MEK, MIK, TOLUENE, CADIMUM,	D001 D006 D007 D035 F003 F005
PAINT WASTE	N-BUTYL ALCOHOL, MEK, TOLUENE	D001 D035 F003 F005
PAINT WASTE	PAINT	D001
PAINT WASTE	PAINT RELATED MATERIAL	D001
PAINT WASTE	PAINT PRIMER WASTE (ZINC CHROMATE)	D001
PAINT WASTE	PAINT RELATED MATERIAL	D001
PAINT WASTE	PAINT RELATED MATERIAL	D001 D005 D006 D035
PAINT WASTE	PAINT RELATED MATERIAL	D001 D005 D007 D008 D035 F001
PAINT WASTE	PAINT RELATED MATERIAL	D001 D005 D007 D008 D035 F002
PAINT WASTE	PAINT RELATED MATERIAL	D001 D005 D007 D035 F002 F003
PAINT WASTE	PAINT RELATED MATERIAL	D001 D007 D008
PAINT WASTE	PAINT RELATED MATERIAL	D001 D007 D008 D035 F002 F003
PAINT WASTE	PAINT RELATED MATERIAL	D001 D007 D008 D035 F003 F005
PAINT WASTE	PAINT RELATED MATERIAL	D001 D007 D018 D035 F003 F005
PAINT WASTE	PAINT RELATED MATERIAL	D001 D007 D035 F003 F005
PAINT WASTE	PAINT RELATED MATERIAL	D001 D007 D035 F003 F005 U080
PAINT WASTE	PAINT RELATED MATERIAL	D001 D007 D035 F005
PAINT WASTE	PAINT RELATED MATERIAL	D001 D035 F002 F003 F005
PAINT WASTE	PAINT RELATED MATERIAL	D001 D035 F003 F005
PAINT WASTE	PAINT RELATED MATERIAL	D001 D035 F005
PAINT WASTE	PAINT RELATED MATERIAL	D001 F003
PAINT WASTE	PAINT RELATED MATERIAL	D001 F003 F005
PAINT WASTE	PAINT RELATED MATERIAL	D001 F005
PAINT WASTE	PAINT RELATED MATERIAL	D002
PAINT WASTE	PAINT RELATED MATERIAL	D006 D007 D008
PAINT WASTE	PAINT RELATED MATERIAL	D007
PAINT WASTE	PAINT RELATED MATERIAL	D007 D008 D035 F003 F005
PAINT WASTE	PAINT RELATED MATERIAL	D007 U080 U188
PAINT WASTE	PAINT RELATED MATERIAL	D008 F002 D005
PAINT WASTE	PAINT RELATED MATERIAL	D009
PAINT WASTE	PAINT RELATED MATERIAL	D01 D035 F003 F005

PAINT WASTE	PAINT RELATED MATERIAL	F003
PAINT WASTE	PAINT RELATED MATERIAL	F005
PAINT WASTE	PAINT RELATED MATERIAL - FLAMMABLE LIQUID	D001 D007 D008 D035 F003 F005
PAINT WASTE	PAINT RELATED MATERIAL - INSULATING VARNISH, ELECT	D001
PAINT WASTE	PAINT RELATED MATERIAL - PAINT FILTERS	D007 D008
PAINT WASTE	PAINT RELATED MATERIAL- AEROSOL CANS	D001
PAINT WASTE	PAINT RELATED MATERIAL -F004;F005	D001
PAINT WASTE	PAINT RELATED MATERIAL -F005	D001
PAINT WASTE	PAINT RELATED MATERIAL W/ THINNERS	D001
PAINT WASTE	PAINT RELATED MATERIAL, CONTAINING LEAD, CHROMIU	D001 D007 D008 D035 F003 F005
PAINT WASTE	PAINT RELATED MATERIAL, ELCTRICAL VARNISH	F005
PAINT WASTE	PAINT RELATED MATERIAL, THINNER	D001 D003 D007 D035 F002 F003
PAINT WASTE	PAINT RELATED MATERIAL-FLAMMABLE LIQUID	D001
PAINT WASTE	PAINT RELATED MATERIALS	D008
PAINT WASTE	PAINT REMOVER - METHYLENE CHLORIDE	D007 F002 U188
PAINT WASTE	PAINT WASET - FILTERS	D007
PAINT WASTE	PAINT WASTE	D001
PAINT WASTE	PAINT WASTE	D001 D003 D007 D008 D035 F003*
PAINT WASTE	PAINT WASTE	D001 D003 D007 D035 F003 F005
PAINT WASTE	PAINT WASTE	D001 D008 D035 F003 F005
PAINT WASTE	PAINT WASTE	D001 D035 F003 F005
PAINT WASTE	PAINT WASTE	D001 F003 F005
PAINT WASTE	PAINT WASTE	F003
PAINT WASTE	PAINT WASTE	F005
PAINT WASTE	PAINT WASTE #3	D001 D035 F003 F005
PAINT WASTE	PAINT WASTE,	D001
PAINT WASTE	PAINT WASTE, MIXED	D001
PAINT WASTE	PAINT WASTE, SOLID, FILTERS	D001
PAINT WASTE	PAINT WASTE,TRAFFIC	D001
PAINT WASTE	PAINT, ENAMEL	D001
PAINT WASTE	PAINT, EPOXY (PART A)	D001
PAINT WASTE	PAINT, EPOXY (PART B)	D001
PAINT WASTE	POLYURETHANE	D001
PAINT WASTE	PRM & THINNER	D001 D007 D035 F003 F005
PAINT WASTE	THINNER 23% MEK 8.2% MAPTHA 0.7% ACETONE 5.5%	D001 D007 D018 D035 F002 F003
PAINT WASTE	THINNER 46.7% PAINT WASTE 53.3%	D001 D007 D035 F003 F005
PAINT WASTE	THINNER, PRM, WATER	D001 D003 D007 D008 D035 F002

PAINT WASTE		THINNER, VARNISH, OIL BASE PAINT, LATEX PAINT	D001
PAINT WASTE		TOLUENE, MEK, STRONTIUM CHROMATE	D001 D007 D035
PAINT WASTE		TOLUENE, XYLENE, MEK, N-BUTYL ALCOHOL, LEAD,	D001 D003 D007 D008 D035 F003
PAINT WASTE		XYLENE, TOLUENE, LEAD CHROMATE	D001 D007 D008
PAINT WASTE		XYLENE, TOLUENE, MEK, ETHYL BENZENE, LEAD CHROM/	D001 D007 D008 D018 D035
PAINT WASTE		ZINC CHROMATE, STRONTIUM CHROMATE, CADIMIUM,	D001 D005 D006 D007 D008
PAINT WASTE (RAGS)	PAINT RAGS	PAINT RELATED MATERIAL - RAGS	D001
PAINT WASTE - SOLID		PAINT RELATED MATERIAL	D007 D008
PAINT WASTE - VOID		PAINT RELATED MATERIAL - VOID ADDED TO ANOTHER W	D001
PAINT WASTE (RAGS)	PAINT RAGS	PAINT RELATED MATERIAL (WASTE RAGS)	D007 D008 D035 F003 F005
PAINT WASTE DRIED		LEAD CHROMATE	D001 D007 D008
PAINT WASTE FILTERS	PAINT FILTERS		D007
PAINT WASTE RAGS	PAINT RAGS	CHROMIUM, ACETONE, LEAD	D001 D005 D007 D008 D035
PAINT WASTE RAGS	PAINT RAGS	FOO5, ISOCYANATE, CHROMIUM, ACETONE, ETHYL ACET/	D001 D003 D007 D035 F002 F003
PAINT WASTE RAGS	PAINT RAGS	ISOCYANATE, CHROMIUM, ACETONE, ETHYL ACETATE	D001 D003 D007 D018 D035
PAINT WASTE RAGS	PAINT RAGS	ISOCYANATE, CHROMIUM, ACETONE, ETHYL ACETATE	D001 D003 D007 D035
PAINT WASTE W/LEAD		PAINT CHIPS CONTAMINATED WITH LEAD, WASTE CHEES	D008
PAINT WASTE, AEROSO		PAINT RELATED MATERIAL	D001 D007 F005
PAINT WASTE-AEROSOL	AEROSOL	PAINT RELATED MATERIAL, AEROSOL CANS, SPENT	D001
PAINT WASTE-AEROSOL	AEROSOL	PAINT RELATED MATERIAL-AEROSOL CANS, SPENT	D001
PAINT WASTE-FILTERS	PAINT FILTERS	PAINT RELATED MATERIAL, FILTERS, SOLID	D006 D007 D008
PAINT WASTE-FILTERS	PAINT FILTERS	PAINT RELATED MATERIALS - FILTERS	D006 D007 D008
PAINT WASTE-VOID		PAINT RELATED MATERIAL	D001
PAINT WHITE		TOLUENE, XYLENE,	D001
PAINT WHITE GLOSS			D001
PAINT YELLOW LAC			D001
PAINT YELLOW PRIMER			D001
PAINT, AEROSOL	AEROSOL	TOLUENE, ACETONE, XYLENE, METHYLENE CHLORIDE,	D001 D035
PAINT, AEROSOL	AEROSOL	TOLUENE, METHYLENE CHLORIDE, LEAD, PROPANE	D001 D008 F002 F005
PAINT, AEROSOLS	AEROSOL	TOLUENE, XYLENE, MEK, METHYLENE CHLORIDE	D001 D035 F002 F003 F005
PAINT, CONCRETE		MINERAL SPIRITS 13%; LINSEED OIL 12%	D001
PAINT, CONDUCT. COA		CONDUCTIVE COATING - FLAT BLACK	D001
PAINT, DARK RED		SEE ANALYSIS KAL-151&152	D001
PAINT, DRIED		LEAD; DRIED PIGMENT	D001 D008
PAINT, ENAMEL			D001
PAINT, ENAMEL		XYLENE, CHROMATE, LEAD CHROMATE, MINERAL SPIRITS	D001 D007 D008
PAINT, EPOXY COAT		2 PART KIT	D001

PAINT, INSULATING			D001
PAINT, OIL BASE		BARIUM, LEAD, MEK, FP 70 DEG F	D001 D005 D008 D035
PAINT, PART A		ISOPROPYL ALCOHOL	D001
PAINT, PART A		ISOPROPYL ALCOHOL, ZINC CHROMATE	D001 D007
PAINT, PART B		ISOPROPYL ALCOHOL	D001
PAINT, PRIMER		ZINC CHROMATE	D007
PAINT, PRIMER COAT		PART B	D001
PAINT, PRIMER COATI		MEK <10%; STRONTIUM CHROMATE <15%; TOLUENT <15%	D001 D007 D035
PAINT, RED ACRYLIC		LEAD CHROMATE <1%; MEK 5%	D001 D007 D008 D035
PAINT, RED ENAMEL		LEAD DRIER, ALKYD RESIN, MINERAL SPIRITS, ZINC	DOO1 DOO8
PAINT, TREE		LEAD CHROMATE, MINERAL SPIRITS	D001 D007 D008
PAINT, UNK ALUMINUM		SEE ANALYSIS DCM-159	D001
PAINT, UNK WHITE		SEE ANALYSIS DCM-158	D001
PAINT, UNK YELLOW		SEE ANALYSIS DCM-160	D001 D008
PAINT, VARNISH		XYLENE 24%, TOLUENE DIISOCYANATE 5%,	D001 F003
PAINT, WASTE			D001
PAINT, WASTE		BARIUM, MEK, TOLUENE, XYLENE, LEAD, CADIMIUM,	D001 D005 D006 D007 D008 D035
PAINT, WASTE		BARIUM, TOLUENE, XYLENE, LEAD, METHANOL, ETHANOL	D001 D005 D007 D008
PAINT, WASTE		LEAD CHROMATE, MEK	D001 D007 D008 D035
PAINT, WASTE		ZINC CHROMATE, LEAD, MIK	D001 D007 D008 D035
PAINT,ENAMEL		MID CHROME YELLOW 25%; LEAD NAPTHENATE <5%	D001 D008
PAINT,ENAMEL PART A		LEAD CHROMATE	D001 D007 D008
PAINTS AEROSOL	AEROSOL	AEROSOL PAINTS	D001 D007 D008 D035
PAPER		DRY SILVER PHOTO PAPER	D009 D011
PAPER		MICORFICHE COPY PAPER	D009
PCB		12 GAL 10 KVA #2643-1-7 303 LBS 92PPM 321-0002	M002
PCB		BALLAST 5EA	M002
PCB		BALLAST FROM OLD HEATING PLANT	M002
PCB		COMMISARY RENOVATION	M002
PCB		LIGHTING CHANGEOUT	MA99
PCB		LIGHTING CHANGEOUT AT MARINE RESERVES	MA99
PCB		PCB BALLAST	M002
PCB		PCB BALLAST	MOO2
PCB		PCB BALLASTS	M002
PCB		PCB LIGHT BALLASTS	M002
PCB		PCB OIL FROM PW SHOPS	M002
PCB		PCB SAMPLES	M002

PCB	PCB SWITCH	M002
PCB	PCB TRANSFORMER	M002
PCB	PCB TRANSFORMER 66 PPM	M002
PCB	PCB TRANSFORMER 66PPM	M002
PCB	PCB TRANSFORMER S/N C666213, S/N 2643-5-6	M002
PCB	SUSPECT PCB BALLASTS	M002
PCB BALLASTS	PCB BALLASTS	M002
PCB BALLASTS	PCB BALLASTS (603/202/160/133/151#)	M002
PCB CAPACITOR	PCB CAPACITOR S19247	M002
PCB CAPACITORS	PCB CAPACITORS & LIGHT BALLAST	M002
PCB CONTAM. DEBRIS	PCB CONTAMINATED DEBRIS	M002
PCB DEBRIS	LIGHT BALLASTS, CONTAMINATED W/ PCBS	M002
PCB DEBRIS	PCB DEBRIS, CONTAMINATED W/ PCBS	M002
PCB OIL	OIL FROM TRANSFORMER >39PPM NOW 100 PPM	M002 MA02
PCB OIL	PCB OIL FROM O CLUB PARKING LOT TX	M002
PCB SOIL	PCB CONTAMINATED SOIL FROM O CLUB	MOO2 BOO7
PCB SOIL	PCB SOIL FROM TRANSFORMER OIL SPILL	M002
PCB TRANSFORMER	PCB TRANSFORMER	M002
PCB TRANSFORMER	POLYCHLORINATED BIPHENYLS (PCBS)	M002
PCB TRANSFORMER	SER #2643-10	M002
PCB TRANSFORMER	SER #2643-2-15	M002
PCB TRANSFORMER	SER #2643-2-17	M002
PCB TRANSFORMER	SER #2643-3	M002
PCB TRANSFORMER	SER #2643-7	M002
PCB TRANSFORMER	SER #B539647	M002
PCB TRANSFORMER	SER #B539648	M002
PCBS-TRANSFORMER	TRANSFORMER CONTAINING PCBS	M002
PD 680	PD 680	D001
PD 680 CONTAMINATED		D001
PD 680,CONTAM.	PD 680, CONTAMINATED	D001
PD 680,CONTAM.	PD 680,CONTAMINATED W/OILS, GREASES (2%)	D001
PD-680		D001
PD-680	PD-680	D001
PD-680	PD-680	D011
PD-680	PD-680, CONTAMINATED	D001
PD-680	PD-680, DRY-CLEANING SOLVENT	D001
PD-680 CONTAMINATED		D001

PD-680 CONTAMINATED		PETROLEUM DISTILLATE, NOS	D001
PD-680 FROM WC430		PD-680 FROM WC430	D006 D010
PD-680, CONTAM.		PD-680, CONTAMINATED	D001
PD-680, CONTAM.		PD-680, CONTAMINATED W/ GREASES & OILS	D001
PD-680, CONTAM.		PD-680, CONTAMINATED W/ OILS & GREASE	D001
PD-680, CONTAM.		PD-680, CONTAMINATED W/ SOLVENTS	D001
PENETRATING OIL		PENETRATING OIL	D001
PESTICIDE		INSECTICIDE	D001
PESTICIDE		ORTHO INSECTICIDE	D001
PESTICIDE		ORTHO ISOTOX INSECT SPRAY	D001
PESTICIDE		PESTICIDE	D002
PESTICIDE		PESTICIDE	F002
PESTICIDE		PESTICIDE AND WATER	D001
PESTICIDE 2,4,5-T		2,4,5-T/SILVEX DIOXIN PESTICIDES	F027
PETROLEUM NAPHTHA		PETROLEUM NAPHTHA	D001
PETROLEUM NAPTHA		PETROLEUM NAPTHA	D001
PETTCOTE 30 FINISH		PETROLEUM DISTILLATES	D001
PHENOL		PHENOL	D001
PHOTO		PHOTO WASTE	D011
PHOTO		SILVER	D011
PHOTO		SILVER NITRATE	D011
PHOTO BLEACH			D011
PHOTO CHEM. SPILL		SILVER RECOVERY SOLUTION & SPEEDYDRY	D011
PHOTO CHEMISTRY		PHOTO CHEMISTRY (XP1) 1 OF 5 PARTS	D002
PHOTO CLEANER		PHOTOGRAPHIC CLEANER, SPENT	D007 D007
PHOTO DEVELOPER	DEVLOPER		D011
PHOTO FIXATIVE		PHOTO FIXATIVE	D011
PHOTO FIXATIVE		PHOTO FIXATIVE W/ HIGH LEVEL OF SILVER	D011
PHOTO FIXATIVE		PHOTO FIXATIVE W/ SILVER	D011
PHOTO FIXATIVE		PHOTO FIXATIVE, BLACK /WHITE, SPENT	D011
PHOTO FIXATIVE		PHOTO FIXATIVE, COLOR, SPENT	D011
PHOTO FIXATIVE		PHOTO FIXATIVE, SPENT	D011
PHOTO FIXATIVE		PHOTO FIXATIVE, SPENT W/ SILVER	D011
PHOTO FIXATIVE		PHOTO FIXATIVE,CONTAMINATED WITH SILVER	D011
PHOTO FIXATIVE		PHOTOGRAPHIC WASTE	D011
PHOTO FIXATIVE		PHOTOGRAPHIC WASTES	D011
PHOTO FIXATIVE		PHOTOGRAPHIC WASTES, SPENT	D011

PHOTO FIXER			D011
PHOTO FIXER		PHOTO FIXER	D011
PHOTO FIXER		PHOTO FIXER /STABLIZER	D011
PHOTO FIXER		PHOTO FIXER BLEACH	D011
PHOTO FIXER B/W		PHOTO FIXER BLACK/WHITE	D011
PHOTO FIXER WASTE		SILVER + FIXER	D011
PHOTO FIXER, X-RAY		SILVER, ACETIC ACID, SODIUM ACETATE	D011
PHOTO PAPER		PHOTOGRAPHIC PAPER	D011
PHOTO SYSTEM CLEANR		CHROMIUM; SULFERIC ACID; SULFAMIC ACID; WATER	D002 D007
PHOTO SYSTEM CLEANR		POTASSIUM DICHROMATE, SULFAMIC ACID	D007
PHOTO WASTE		2-55 GAL/1-15 GAL	D011
PHOTO WASTE		PHOTO FIXATIVE	D011
PHOTO WASTE		PHOTO OR X-RAY FIXATIVE W/ SILVER	D011
PHOTO WASTE		PHOTO OR X-RAY FIXATIVE W/SILVER	D011
PHOTO WASTE		PHOTO WASTE	D011
PHOTO WASTE		PHOTOGRAPHIC WASTE	D002
PHOTO WASTE		PHOTOGRAPHIC WASTE	D011
PHOTO WASTE		X-RAY FIXATIVE, CONTAINING EXCESS SILVER	D011
PHOTO WASTE		XR-DEVELOPER-REPL (PART B) - PHOTO WASTE	D002
PHOTO WASTE, SILVER		SILVER	D011
PHOTOGRAPHIC FILM		SILVER 1-5%	D011
PLASTI DIP		PLASTI DIP	D001
PLASTIC BLAST MEDIA	BLAST MEDIA	PLASTIC BLAST BEAD MEDIA, CONTAMINATED	D007
PLASTIC BLAST MEDIA	BLAST MEDIA	PLASTIC BLAST MEDIA, SPENT	D006 D007
PLASTIC BLAST MEDIA	BLAST MEDIA	PLASTIC BLAST MEDIA, SPENT	D006 D007 D008
PLASTIC MOLDING		ISOCYANATE	D003 F002
PLASTIC POLISH		PETROLEUM HYDROCARBONS	D001
POLISH		GYM FINISH	D001
POLISH		METAL POLISH	D001
POLISH		PLASTIC POLISH	D001
POLISH		PLASTIC POLISH	DOO1
POLISH AUTO		POLISH, AUTO	D001
POLISH LIQUID		POLISH LIQUID	D001
POLISH REMOVER		FLOOR POLISH REMOVER	D002
POLISH REMOVER		SODIUM HYDROXIDE	D002
POLISH, AUTOMOTIVE			D001
POLISH, PLASTIC		MINERAL SPIRITS	D001

POLISH, PLASTIC		PLASTIC POLISH	D001
POLISH, REMOVER		PH>13	D002
POLY COAT PART A		METHYL ETHYL KETONE, ETHYL ACETATE, ETHYL BENZEI	D001 FOO3 F005 D035
POLY COAT PART B		METHYL ETHYL KETONE, XYLENE, TOLUENE, DIISOCYNAT	D001 D003 F003 F005 D035
POLYAMIDE PAINT "A"		BARIUM CHROMATE, 2-BUTOXYETHANOL, CS&10 AROMAT	D001 D007
POLYAMIDE RESIN B		TOLUENE, ISOBUTANOL, MEK	D001 D035 F005
POLYESTER RESIN		RESIN, STYRENE	D001
POLYURETHANE			D001 D035 F003 F005
POLYURETHANE			D001 F005
POLYURETHANE		2-BUTANOL, 2-ETHOXYETHYL ACETATE	D001
POLYURETHANE		STODDARD SOLVENT	D001
POLYURETHANE		XYLENE, ETHYLENE GLYCOL, MINERAL SPIRITS	D001
POLYURETHANE COATIN			D001 D035 F003 F005
POLYURETHANE COATIN		MEK 10%, ETHYL ACETATE 11%, CELLOSOLVE ACETATE 2	D001 D035 F005
POLYURETHANE COATIN		MEK 10%, MIK 11.5%, XYLENE 5%, CELLUOSOLVE 11%	D001 D035 F003 F005
POLYURETHANE COATIN		MEK 5-10%, XYLENE 35-40%, POLYURETHANE 40-45%	D001 F003
POTASSIUM		POTASSIUM DICHROMATE TECH	D007
POTASSIUM CHLORATE		4000 GM POTASSIUM CHLORATE	D001
POTASSIUM CHLORATE		DOG TRAINING	D001
POTASSIUM CHLORATE		EXPIRED POTASSIUM CHLORATE	D001
POTASSIUM CHLORATE		EXPIRED SODIUM CHLORATE	D001
POTASSIUM CHLORATE		POTASSIUM CHLORATE	D001
POTASSIUM CHLORATE		POTASSIUM CHLORATE	D003
POTASSIUM CHLORATE		POTASSIUM CHLORATE FROM KENNEL	D001
POTASSIUM CHLORATE		TEST KIT FROM DOG HANDLERS	D001
POTASSIUM CHLORATE		TESTING BOMB DOG	D001
POTASSIUM CHLORIDE		POTASSIUM CHLORIDE	D001
POTASSIUM CYANIDE		WASTE POTASSIUM CYANIDE	D003 P068
POTASSIUM DICHROMAT		POTASSIUM DICHROMATE	D001 D007
POTASSIUM DICHROMAT		POTASSIUM DICHROMATE	D003 D007
POTASSIUM DICHROMAT		POTASSIUM DICHROMATE, OVER-AGED	D003
POTASSIUM HYDROXIDE		MEDICAL	D002
POTASSIUM HYDROXIDE		POTASSIUM HYDROXIDE	D002
POTASSIUM HYDROXIDE		POTASSIUM HYDROXIDE ELECTROLYTE	D002
POTASSIUM PERMAGANT		POTASSIUM PERMAGANATE	D001
POWER PAK AEROSOL	AEROSOL	POWER PAK AEROSOL CONTAINING CFCS	F002
PRIME COAT		NAPTHA, TOLUENE, N-BUTYL ALCOHOL	D001

PRIMER		MEK, ACDTONE, METHANOL, CHROMATE,	D001 D007 D035 F003 F005
PRIMER COATING		SOLVENTS	D001
PRIMER COATING -A		TOLUENE MEK CHROMIUM ETHANOL METHYL ETHER	D001 D007 D035 F005
PRIMER COATING -B		TOLUENE	D001 F005
PRIMER COATING YEL		CHROMIUM, LEAD, BENZENE, METHYLENE CHLORIDE,	D001 D007 D008 D018
PRIMER PRE TREAT			D002
PRO SEAL ADHESIVE		PART A	D001
PRO SEAL ADHESIVE		PART A	F005
PRO SEAL ADHESIVE		PART A & B	D001
PRO SEAL ADHESIVE		PART B	D001
PROSEAL 870 PART A		MAGNESIUM DICHROMATE, MANGANESE DIOXIDE,	D007
PROSEAL 870 PART A		TOLUENE, PHENOL POLYMER WITH FORMALDEHYDE	D001
PROSEAL 870 PART B		MEK, TOLUENE, RESIN	D035
PRO-SEAL PART A		METHYL BENZENE	D001
PRO-SEAL PART B		MAGNESIUM CHROMATE	D007
PUTTY		ZINC CHROMATE PUTTY	D007
PUTTY, ZINC CHR		ZINC CHROMATE	D007
RAGS	PAINT RAGS	JP-8 CONTAMINATED MATS AND RAGS AND SPEEDY DRY	D018
RAGS	PAINT RAGS	OIL AND FUEL SOAKED FUEL SPILL DEBRIS	D001
RAGS	PAINT RAGS	OILY RAGS FROM MRCR TOPSHAM	D005
RAGS	PAINT RAGS	PAINT RAGS	D035 F003 F005
RAGS	PAINT RAGS	PAINT RAGS	DO35
RAGS	PAINT RAGS	PAINT THINNER SOILED RAGS	D005 D035 F003 F005
RAGS	PAINT RAGS	PAINT WASTE RAGS	D005 D007 D035 F003 F005
RAGS	PAINT RAGS	PAINT WASTE RAGS	D007 D035 F002 F003 F005
RAGS	PAINT RAGS	PAINT WASTE RAGS	D035
RAGS	PAINT RAGS	RAGS AND SPEEDY DRY	D007 D035 F003 F005
RAGS	PAINT RAGS	SAFETY KLEEN BLDG 339	D005
RAGS	PAINT RAGS	USED RAGS FROM MARINE RESERVE TOPSHAM	D005
RAGS	PAINT RAGS	WASTE PAINT RAGS	D005 D007 D035
RAGS	PAINT RAGS	WASTE PAINT RAGS	D007 D018 D035
RAGS	PAINT RAGS	WASTE PAINT RAGS	D007 D035 F003 F005
RAGS	PAINT RAGS	WASTE PAINT RAGS	D035
RAGS	PAINT RAGS	WASTE RAGS	D005 D007 D008 D035
RAGS	PAINT RAGS	WASTE RAGS	D005 D007 D018 D035
RAGS	PAINT RAGS	WASTE RAGS	D005 D007 D035
RAGS	PAINT RAGS	WASTE RAGS	D005 D008 D035 F003 F005

RAGS	PAINT RAGS	WASTE RAGS	D005 D035
RAGS	PAINT RAGS	WASTE RAGS	D007
RAGS	PAINT RAGS	WASTE RAGS	D007 D008 D035
RAGS	PAINT RAGS	WASTE RAGS	D007 D035
RAGS	PAINT RAGS	WASTE RAGS	D007 D035 F003 F005
RAGS	PAINT RAGS	WASTE RAGS	D018
RAGS	PAINT RAGS	WASTE RAGS	D018 D035
RAGS	PAINT RAGS	WASTE RAGS	D035 F002 F003
RAGS	PAINT RAGS	WASTE RAGS	D035 F003 F005
RAGS	PAINT RAGS	WASTE RAGS	D035 FOO3
RAGS SOLVENT	PAINT RAGS	GUN CLEANING RAGS FROM MARINES	D005
RAGS W/ PAINTS & TH	PAINT RAGS	RAGS, SATURATED W/ PAINTS AND THINNERS	D007 D008 D035 F003 F005
RAGS, CONTAM W/SOLV	PAINT RAGS	RAGS, CONTAMINATED W/ SOLVENTS	F001 F003
RAIN COATING KIT	PAINT	ETHYL BENZENE <10%, XYLENE 10-20%, TOLUENE	D001 D003 F003
RAIN COATING KIT	PAINT	MEK <10%, TOLUENE <10%, BUTYL ACETATE <10%	D001 D035 F005
RAIN EROSION RESIS	RESIN	RAIN EROSION RESISTENT KIT	D001
RAIN EROSION RESIS	RESIN	RAIN EROSION RESISTENT KIT	D001 F003
RAIN EROSION RESIST	RESIN	RAIN EROSION RESISTENT KIT	D001
RAIN EROSION RESIST	RESIN	RAIN EROSION RESISTENT KIT	D001 F003
RCRA CLOSURE		RCRA CLOSURE - FINAL RINSATE (SILVER RECOVERY,	F003 F005
RCRA CLOSURE		RCRA CLOSURE - QUONSET HUT ASPHALT FLOOR	D008
REDUCER	REDUCER	REDUCER	D001 D035
RESIN	RESIN	ISOPROPYL ALCOHOL, POLYAMIDE RESIN	D001
RESIN POLYESTER	RESIN	RESIN POLYESTER	D001
RESIN, POLYESTER	RESIN	FLAMMABLE	D001
RESMETHRIN	RESIN	D TRANS ALLETHRIN RESMETHRIN	D001
ROOF COATING CMPD	PAINT	ROOF COATING COMPOUND - COMBUSTIBLE LIQUID	D001
RUBBER COMPOUND	PAINT	CHROMIUM	D007
RUBBER COMPOUND	PAINT	TOLUENE, MEK, CHROMIUM	D001 D007 D035 F005
RUG SHAMPOO	SOAP	2-BUTOXYETHANOL, ISOPROPYL ALCOHOL, PETROLEUM	D001
RUST ELIMINATOR	ACID	CONSOLIDATED INTO #823	D002
RUST PREVENT COMP	ACID	CHROMIC ACID, SODIUM FLUASILCATE	D002 D007
RUST PREVENTATIVE	SOLVENT	STODDARD SOLVENT, PETROLEUM DISTILATES	D001
SALICYLIC ACID	ACID	SALICYLIC ACID AND LACTIC ACID	D001 D002
SAND BLAST MEDIA	BLAST MEDIA	SAND BLAST MEDIA, CONTAMINATED W/ METALS	D006
SCALE REMOVER	ACID	PHOSPHORIC ACID	D002
SCRAP AMALGAM			D009

SEALANT		D001
SEALANT	MEK, CHROMIUM	D001 D007 D035
SEALANT	SEALANT	D001
SEALANT	SEALING COMPOUND	U226
SEALANT- "A"	SEALANT- PART A	D006
SEALANT -"A"	SEALANT - PART A	D001
SEALANT (PART A)		D006
SEALANT PART A	LEAD OXIDE	D008
SEALANT PART A	TOLUENE	D001
SEALANT PART B	MAGNESIUM CHROMATE	D007
SEALANT TOPCOAT	SEALANT TOP COAT	F005
SEALER, ADHESIVE	SEALER, ADHESIVE	D001
SEALING CMPD		D001
SEALING CMPD	TOLUENE	D001
SEALING CMPD PART B	SEALING COMPOUND ADHESIVE PART B	F005
SEALING CMPD PT B	CHROMIUM	D007
SEALING CMPD, PAINT	MEK 50%, 2-PROPANOL 15%, MIK (HEXONE) 10%	D001 D035 F003 F005
SEALING COM PART B	CALCIUM DICHROMATE, TOLUENE, MIXED RESINS	D007
SEALING COMP PART A	TOLUENE, PHENOL POLYMER WITH FORMALDEHYDE,	D001
SEALING COMP PART B	MAGNESIUM CHROMATE, 1,3 DIPHENYL GUANADINE,	D007
SEALING COMPOUND		D001
SEALING COMPOUND		D001 F003
SEALING COMPOUND		D007
SEALING COMPOUND		D035 F005
SEALING COMPOUND	CHROMIUM	D007
SEALING COMPOUND	CHROMIUM 25%; MEK <5%	D007 D035
SEALING COMPOUND	CHROMIUM, MEK	D001 D007 D035
SEALING COMPOUND	CHROMIUM, MEK	D001 D007 D035 F005
SEALING COMPOUND	LEAD	D008
SEALING COMPOUND	LEAD DIOXIDE	D008
SEALING COMPOUND	MAGNESIUM DICHROMATE, CALCIUM DICHROMATE MEK	D001 D007 D035
SEALING COMPOUND	MEK	D001 D035
SEALING COMPOUND	MEK,	D001 D035
SEALING COMPOUND	MEK, PHENOLIC	D001 D035
SEALING COMPOUND	MEK, PHENOLIC	D001 D035 F005
SEALING COMPOUND	SEALING COMPOPUND	D001 D007 D035 F005
SEALING COMPOUND	SEALING COMPOUND	D001

SEALING COMPOUND	SEALING COMPOUND	D001 D007 D035 F005
SEALING COMPOUND	SEALING COMPOUND	D001 D007 F005
SEALING COMPOUND	SEALING COMPOUND	D001 F003
SEALING COMPOUND	SEALING COMPOUND	D001 F005
SEALING COMPOUND	SEALING COMPOUND	D008
SEALING COMPOUND	SEALING COMPOUND	F005
SEALING COMPOUND	SEALING COMPOUND, SPENT	D001 F003
SEALING COMPOUND	SEALING COMPOUND, SPENT	D001 F005
SEALING COMPOUND	TOLUENE	D001
SEALING COMPOUND	TOLUENE	D001 F005
SEALING COMPOUND	TOLUENE	F005
SEALING COMPOUND-	TOLUENE, PART A	D001 F005
SEALING COMPOUND A	METHYL BENZENE	D001 D018
SEALING COMPOUND A	TOLUENE, MEK	D035
SEALING COMPOUND -A	CHROMIUM	D001 D007 D035 F005
SEALING COMPOUND B	CALCIUM DICHROMATE	D007
SEALING COMPOUND B	MAGNESIUM CHROMATE	D007
SEALING COMPOUND-B	CHROMIUM	D007
SELENIUM STANDARD	SELENIUM STANDARD	D002 D010
SEWER CLEANER	SEWER CLEANER - SODIUM HYDROXIDE	D002
SILICONE ADHESIVE		D001
SILVER	AMALGAM	D009
SILVER	DRY SILVER PAPER	D011
SILVER NITRATE	SIVLER NITRATE 75%; POTASSIUM NITRATE 25%	D001
SILVER RECOVERY SOL	SILVER RECOVERY SOLUTION	D011
SILVER STANDARD	SILVER STANDARD	D002 D011
SLUDGE	BLDG 225 PARTS WASHER	D006
SLUDGE	JET WASHER SLUDGE FROM GSE	D008
SLUDGE	SLUDGE & WATER	MA01
SLUDGE	SLUDGE FROM JET WASH	D006
SO SURE ENAMEL	TOLUENE, ACETONE,	D001
SO SURE LACQUER	TOLUENE, XYLENE, ACETONE	D001
SODIUM CHLORATE	1000 GM SODIUM CHLORAT	D001
SODIUM CHLORATE	DOG TRAINING	D001
SODIUM CHLORATE	EXPIRED SODIUM CHLORATE	D001
SODIUM CHLORATE	EXPIRED SODIUM CHLORATE	D001
SODIUM CHLORATE	SODIUM CHLORATE	D001

SODIUM CHLORATE		SODIUM CHLORATE	D003
SODIUM CHLORATE		SODIUM CHLORATE FROM KENNEL	D001
SODIUM CHLORATE		TEST KIT FOR BOMB DOGS	D001
SODIUM CHLORATE		TESTING BOMB DOG	D001
SODIUM DICHROMATE		SODIUM DICHROMATE	D001 D007
SODIUM HYDROXIDE		SODIUM HYDROXIDE	D002
SODIUM HYDROXIDE		SODIUM HYDROXIDE	D002
SODIUM HYDROXIDE		SODIUM HYDROXIDE, IMPURITIES	D002
SODIUM HYDROXIDE		TREATMENT PLANT LEAK	D002
SODIUM HYDROXIDE SO		SODIUM HYDROXIDE SOLUTION	D002
SODIUM HYPOCHLORITE		SODIUM HYPOCHLORITE SOLUTION	D002
SODIUM SULFIDE		SODIUM SULFIDE MARKED 7% FROM MEDICAL	D002
SOLDER		USED SOLDER	D008
SOLDER		WASTE SOLDER	D008
SOLDERING FLUX		SOLDERING FLUX	D001
SOLDERING FLUX		SOLDERING FLUX	D002
SOLDERING FLUX		WHITE ROSIN FLUX	D001
SOLVENT	B&B WASH	UNUSED B&B CLEANER	D010
SOLVENT	SOLVENT	111 TRICHLOROETHANE	U226
SOLVENT	SOLVENT	1-1-1-TRICLOROETHANE	F002
SOLVENT	SOLVENT	ANALYSIS	D001 D006 D007
SOLVENT	SOLVENT	ANALYSIS 73-008DD PARTS WASHER	D006
SOLVENT	SOLVENT	BLDG 8 SAFETY KLEEN SOLVENT	D006
SOLVENT	SOLVENT	BTKXZ ANALYSIS 6311N	D001 D006 D007
SOLVENT	SOLVENT	CARBON REMOVING COMPOUND	D007 F002
SOLVENT	SOLVENT	CLEANING COMPOUND	D001 D035
SOLVENT	SOLVENT	CONTAMINATED ACETONE	D001 F003
SOLVENT	SOLVENT	CONTAMINATED WASTE OIL	F002 F003
SOLVENT	SOLVENT	CORROSION PREVENTATIVE COMPOUND	D005
SOLVENT	SOLVENT	CORROSION PREVENTIVE	D001
SOLVENT	SOLVENT	CRX ENVIROSOL	D001 D006 D007
SOLVENT	SOLVENT	CRX ENVIROSOL	D006 D007
SOLVENT	SOLVENT	DETERGENT FROM 51E TIRE SHOP	D006
SOLVENT	SOLVENT	DRY CLEANING SOLVENT	D001
SOLVENT	SOLVENT	ENVIROSOL CRX W/C 400	D006 D007
SOLVENT	SOLVENT	ENVIROSOLV	D001 D006 D007
SOLVENT	SOLVENT	ENVIROSOLV	D002

SOLVENT	SOLVENT	ENVIROSOLV CRX AND WATER FROM PARTS WASHER	D006 D007
SOLVENT	SOLVENT	ENVIROSOLV FROM DIV 400	D001 D006 D007
SOLVENT	SOLVENT	ENVIROSOLV FROM W/C HOD #9	D006
SOLVENT	SOLVENT	ENVIROSOLV FROM WC 400	D001 D006 D007
SOLVENT	SOLVENT	ENVIROSOLVE FROM WC520	D001 D006 D007
SOLVENT	SOLVENT	ENVIROSOLVE FROM WC520	D001 D006 D007
SOLVENT	SOLVENT	EXPIRED SOLVENT	D001
SOLVENT	SOLVENT	EXPIRED SOLVENT	D001 U002
SOLVENT	SOLVENT	FROM BETTER ENGINEERING MACHINE	CONSOLIDATED INTO #798
SOLVENT	SOLVENT	HALOGENATED SOLVENT	F002
SOLVENT	SOLVENT	HALOGENATED WASTE DRUM	D001 F002
SOLVENT	SOLVENT	HAZMAT	D039
SOLVENT	SOLVENT	HOBBY SHOP SOLVENT	D001 D006 D008 D035 D040
SOLVENT	SOLVENT	HOBBY SHOP SOLVENT	D008 D018 D039 D040
SOLVENT	SOLVENT	JET WASHER SLUDGE FROM PROP SHOP	D006
SOLVENT	SOLVENT	LUBRICANT SOLID FILM AIR DRYING	D001 D008 D035
SOLVENT	SOLVENT	MINERAL SPIRITS	D001
SOLVENT	SOLVENT	NON HALOGENATED SOLVENT	D001 D035 F003 F005
SOLVENT	SOLVENT	NON HALOGENATED SOLVENT	MA01
SOLVENT	SOLVENT	NONHAL SOLVENT	D001 D006 D007 D035 F002 F003 F005
SOLVENT	SOLVENT	NON-HAL SOLVENT	D001 D005 D035 F003 F005
SOLVENT	SOLVENT	NON-HALOGENATED SOLVENT	D001
SOLVENT	SOLVENT	NON-HALOGENATED SOLVENT	D001 D035 F002 F003 F005
SOLVENT	SOLVENT	NON-HALOGENATED SOLVENT	D001 D035 F003 F005
SOLVENT	SOLVENT	NON-HALOGENATED SOLVENT	D001 F002
SOLVENT	SOLVENT	OIL & WATER FROM BLDG 337 TOPSHAM	F003 F005
SOLVENT	SOLVENT	PAINT THINNER	D001 D018 D035
SOLVENT	SOLVENT	PARTS WASH AT WC414 PROP SHOP	D008
SOLVENT	SOLVENT	PARTS WASHER 51E TIRE SHOP	D006
SOLVENT	SOLVENT	PD 680 FROM WC 430	D001 D006
SOLVENT	SOLVENT	PD 680 FROM WC 430	D006
SOLVENT	SOLVENT	PD-680 FROM BEARING CLEANER WC/411	D001
SOLVENT	SOLVENT	PD680 FROM PARTS WASHER	D006
SOLVENT	SOLVENT	PD-680 FROM PARTS WASHER 730	D006 D007 D008 D011
SOLVENT	SOLVENT	PD-680 FROM W/C 411	D001
SOLVENT	SOLVENT	PD-680 FROM W/C 430	D006 D007
SOLVENT	SOLVENT	PD680 FROM W/C 730	D006 D007 D008 D011

SOLVENT	SOLVENT	PD680 MIXED WITH COSMOLINE	D006
SOLVENT	SOLVENT	PD-680 WASTE FROM WASHER INW/C 411	D001
SOLVENT	SOLVENT	PF DEGREASER BLDG 86 #17	D006
SOLVENT	SOLVENT	PRECISION CLEANING AGENT	F002
SOLVENT	SOLVENT	PUBLIC WORKS SOLVENT	MA01
SOLVENT	SOLVENT	SAFETY KLEEN	D001 D006 D008 D018 D035 D039
SOLVENT	SOLVENT	SAFETY KLEEN BLDG 635	D001 D018 D039
SOLVENT	SOLVENT	SAFETY KLEEN CHANGE OUT	D007 D008
SOLVENT	SOLVENT	SAFETY KLEEN NEX SERVICE STATION	D008 D018 D039
SOLVENT	SOLVENT	SAFETY KLEEN NEX SERVICE STATION	D039 D040
SOLVENT	SOLVENT	SERVICE STATION SOLVENT	D001 D006 D008 D035 D040
SOLVENT	SOLVENT	SERVICE STATION SOLVENT	D001 D018 D039 D040
SOLVENT	SOLVENT	SERVICE STATION SOLVENT	D006 D039
SOLVENT	SOLVENT	SOLVENT	D039
SOLVENT	SOLVENT	SOLVENT CHANGEOUT	D001 D018 D039
SOLVENT	SOLVENT	SOLVENT CHANGEOUT	D001 D018 D039 D040
SOLVENT	SOLVENT	SOLVENT CHANGEOUT	D039
SOLVENT	SOLVENT	SOLVENT CHANGEOUT/REMOVAL	D039
SOLVENT	SOLVENT	SOLVENT FROM CPW5 IN BOTTLE LABELED WASH UP	D001
SOLVENT	SOLVENT	SOLVENT FROM WC 430	D001 D006 D007
SOLVENT	SOLVENT	SOLVENT PARTS WASHER 51E	D006
SOLVENT	SOLVENT	SOLVENT TANK CHANGEOUT	D001 D006 D008 D018 D039 D040
SOLVENT	SOLVENT	SOLVENT TANK REMOVAL FROM RMCB27	D001 D018 D039 D040
SOLVENT	SOLVENT	SPRAY WASHER WASTE 900 DIVISION	D008
SOLVENT	SOLVENT	STEAM PLANT	D002
SOLVENT	SOLVENT	TEKSOL AND PD 680	D001
SOLVENT	SOLVENT	TEKSOL SOLVENT	D001
SOLVENT	SOLVENT	TURPENTINE	D001
SOLVENT	SOLVENT	WASHER WASTE FROM W/C 51E	D006
SOLVENT	SOLVENT	WASTE BRAKE CLEANER FROM HOBBY SHOP	D001
SOLVENT	SOLVENT	WASTE ENVIROSOLV TANK 9	D006
SOLVENT	SOLVENT	WC51E BOLT WASHER	D006
SOLVENT	SOLVENT halogenated	HALOGENATED SOLVENT	D001 F001
SOLVENT	SOLVENT HALOGENATED	HALOGENATED SOLVENTS	D001 D005 F002
SOLVENT	SOLVENT halogenated	HALOGENATED WASTE	D001
SOLVENT	SOLVENT HALOGENATED	HALOGENATED WASTE	F002
SOLVENT	SOLVENT HALOGENATED	TRICHCLOROETHANE 100%	D040

SOLVENT	SOLVENT HALOGENATED	TRICHLOROETHANE	F001 F002
SOLVENT	SOLVENT HALOGENATED	TRICHLOROTRIFLUOROETHANE CLEANER	F002
SOLVENT DEGREASER		SOLVENT DEGREASER	F002
SOLVENT HALO		1 1 1 TRICH	F001 F002
SOLVENT HALO		1 1 1 TRICH	U226
SOLVENT HALO		FREON HCFC-141	F001
SOLVENT NON-HAL		51E PARTS WASHER	D006
SOLVENT NON-HAL		BLDG 555 OIL WATER SEPARATOR	D027 D035
SOLVENT NON-HAL		DRY CLEANING SOLVENT	D001
SOLVENT NON-HAL		ENVIROSOLV CRX WASTE FROM 520/400	D006
SOLVENT NON-HAL		ENVIROSOLVE CRX	D006 D018 F003 F005
SOLVENT NON-HAL		HOBBY SHOP OIL AND WATER SEPARATOR	F003
SOLVENT NON-HAL		MARINE RESERVE LIFT SUMP	F001 F003
SOLVENT NON-HAL		NON HALOGENATED SOLVENT PD 680 TYPE II	D006
SOLVENT NON-HAL		NON HALOGENATED SOLVENTS	D001
SOLVENT NON-HAL		NON-HALOGENATED SOLVENT WASTE	D001
SOLVENT NON-HAL		PD-680 WASTE FROM PARTS WASHER #11 BLDG 250/400D	D006
SOLVENT NON-HAL		PD-680 WITH FLASH POINT LESS THAN 140DEGREES	D001
SOLVENT NON-HAL		PF DEGREASER 900 DIV PARTS WASHER	D006
SOLVENT NON-HAL		SOLVENT	D001 D006 D008 D035 D040
SOLVENT NON-HAL		SOLVENT	DOO1 D006 D008 D035 D040
SOLVENT NON-HAL		SOLVENT	F005
SOLVENT NON-HAL		STEELE COTE SOLVENT	D001
SOLVENT NON-HAL		USED SOLVENT	D001 D018 D035 F003
SOLVENT NON-HAL		WASTE ACETONE	D001
SOLVENT NON-HAL		WASTE FROM 51E JET SPRAY WASHER #30	D006
SPILL DEBRIS		RAGS, SOAKED W/ JP-5, COMBUSTIBLE	D001
SPILL DEBRIS		SPILL DEBRIS	D011
SPILL DEBRIS		SPILL DEBRIS	D018
SPILL DEBRIS FUEL		ABSORBANT BOOMS ETHYLENE GLYCOL, KEROSENE, #2	D001
SPILL DROSS		SPILL RESIDUE JP-5 SPEEDY DRY	D001
SPILL RESIDUE			D001
SPLICING CEMENT		HEXANE, TOLUENE, XYLENE, N-BUTYL ACETATE,	D001
SPRAY KIT		AEROSOL SPRAY KIT	D001
SPRAY KIT		MEK, 1,1,1 TRICHLOROETHANE, ACETONE, XYLENE	D001 D035
STAIN REMOVER		STAIN REMOVER	D002
STAIN, MAPLE		MINERAL SPIRITS	D001

STANDARD		BOILER PLANT PRODUCT	D002
STENCIL CORR. FLUID		STENCIL CORRECTION FLUID	D001 F003
STRIPPER		PROTECTIVE COATING	D002
STRIPPER		SALVATION	D002
SULFURIC ACID		SULFURIC ACID	D002
SULFURIC ACID, SPEN		SULFURIC ACID, PH 0.5 (FIELD TEST); LEAD	D002 D008
SUPER AGITENE CLEAN			D001
SYSTEMS CLEANER		PHOTO SYSTEMS CLEANER, SPENT	D007
SYTEMS CLEANER, EXC		PHOTO SYSTEMS CLEANER, EXCESS	D007
TANK CARCASS		DENTAL TANK CARCASS	D009 D011
TECH PETROLATUM			D001
TEST KIT		ACID TEST KIT	D001
THINNER		XYLENE, N-BUTYL ALCOHOL, ISOPROPYL ALCOHOL	D001 F003
THINNER		XYLENE, TOLUENE, MEK, --BUTYL ACETATE, OXOHEXYL	D001 D035 F003 F005
THINNER A/C COATING		MEK, MIK	D001 D035
THINNER PAINT WASTE		THINNER PAINT WASTE	D001
THINNER, A/C COATIN		XYLENE, TOLUENE, MEK, N-BUTYL ACETATE, ACETATE	D001 D035 F003 F005
THINNER, PAINT		TOLUENE, MEK, PAINT RELATED MATERIAL	D001 D035 F005
THINNERS C23 SOLVEN		THINNERS C23 SOLVENTS	F003
TOLUENE		TOLUENE	D001 U220
TOLUENE		TOLUENE	U220
TOLUENE		TOLUENE, SPENT	D001
TOLUENE MIBK MIX		TOLUENE, METHYLISOBUTYLKETONE	D001
TONER	TONER	MITA TONER	D006
TONER	TONER	TONER	D001
TONER	TONER	TONER	D007
TONER	TONER	TONER AND DISPERSAN	D001
TONER	TONER	TONER AND DISPERSANT	D001
TONER	TONER	TONER CARTRIDGES	D007
TONER	TONER	TONER INDIRECT ELEC	D001
TONER, COPY	TONER		D001
TONER, RICOH	TONER	NAPTHA, RESIN, CARBON BLACK	D001
TONER, USED, DIRTY	TONER	TONER, USED, DIRTY	D001
TOULENE			D001
TRANSFORMER		TRANSFORMER W/ PCBS - 310 PPM	M002
TRANSFORMER		TRANSFORMER W/ PCBS 86 PPM	M002
TRANSFORMER		TRANSFORMER W/PCBS - 62PPM	M002

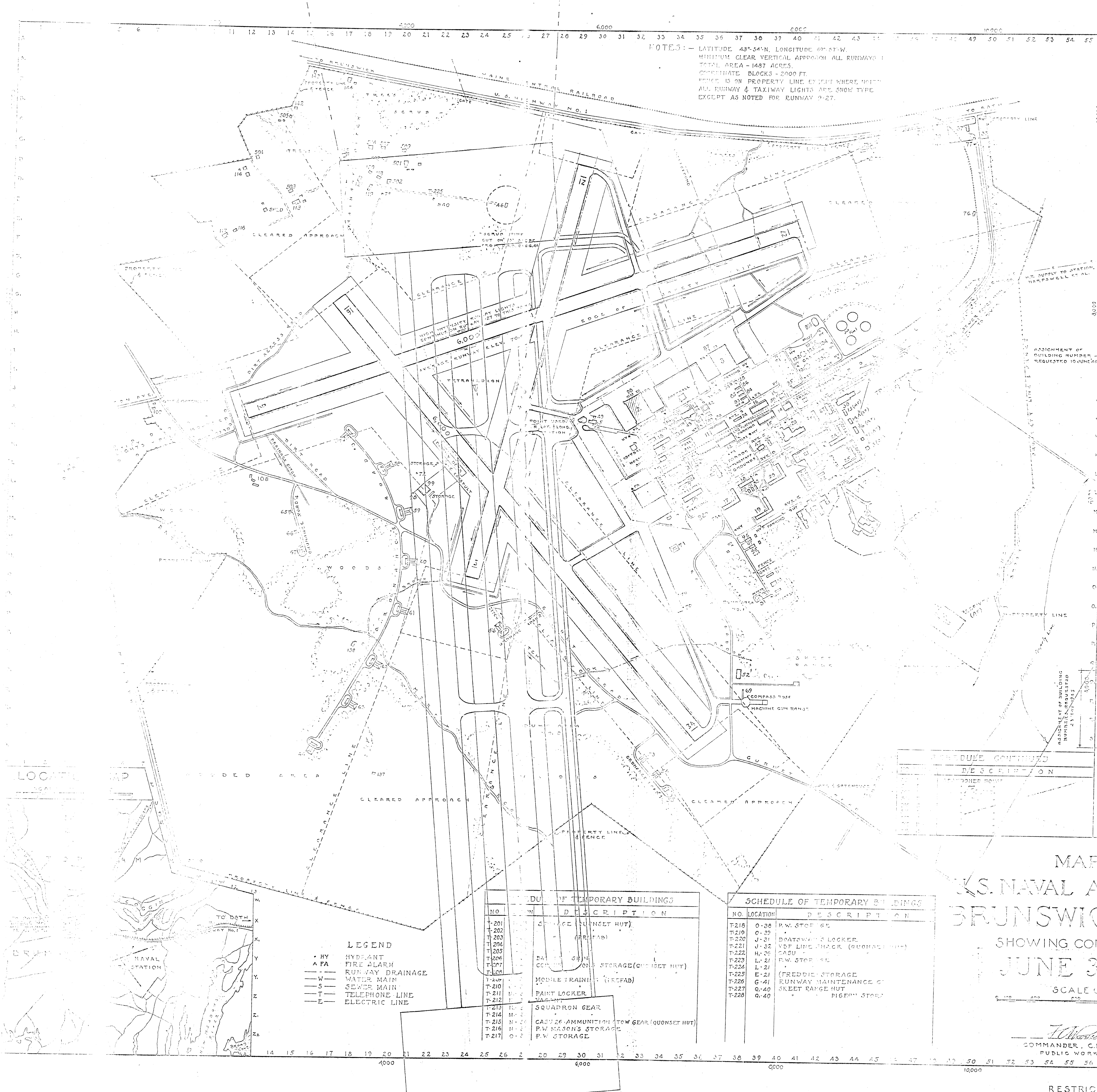
TRANSFORMER	TRANSFORMER W/PCBS 80 PPM	M002
TRANSFORMER	TRANSFORMER W/PCBS 86PPM	M002
TRICHLOROETHANE	1 1 1 TRICHLOROETHENE	U226
TRICHLOROETHANE	1,1,1, TRICHLOROETHANE, DIRTY	F002
TRICHLOROETHANE	1,1,1, TRICHLOROETHANE, SPENT	F002
TRICHLOROETHANE	111 TRICHLOROETHANE	U226
TRICHLOROETHANE	TRICHLOROETHANE	F002
TRICHLOROETHANE	TRICHLOROETHANE 111	U226
TRICHLOROETHANE,CTM	TRICHLOROETHANE, 1,1,1- ; CONTAMINATED	F001
TRICHLOROETHYLENE	TRICHLOROEHTYLENE	D040
TRICHLOROTRIFLUOROE	TRICHLOROTRIFLUOROETHANE	F002
TRNSFRMR OIL<5O PPM	TRANSFORMER OILS, LESS THAN 50 PPM PCBS	M002
TURCO SOLVENT	TURCO SOLVENT	D007 F002 F003
TY-ION I20 NA NITRI	TY-ION I20; SODIUM NITRITE	D001
UNDERCOATING	UNDERCOATING SUPERGUARD	D001
UNIVERSAL CEMENT	1,1,1-TRICHLOROETHANE	F002
UNKNOWN	ANALYSIS 4116	D001
UNKNOWN	PAINT	D001 D035
UNKNOWN	PAINT ETC	D001
UNKNOWN	SEE ANALYSIS KAL-155	D035
UNKNOWN	UNKNOWN BLUE LIQUID	D035
UNKNOWN	UNKNOWN FOUND IN DRUM STORAGE	D010
UNKNOWN	UNKNOWN LIQUID FROM AIMD	D006
UNKNOWN	UNKNOWN TAR FROM WEAPONS AREA	D018
UNKNOWN	UNKNOWN YELLOW LIQUID	F003
UNKNOWN KAL-147	CHROMIUM, TOLUENE, KEROSENE	D001 D007 F005
UNKNOWN LIQUID	560 MG/KG MEK, FP 80 DEG F	D001 D006 D008 D035
UNKNOWN LIQUID	TANK FROM STEAM PLANT	D001 D018 D035
URETHANE VARNISH	XYLENE, ETHYL BENZENE, TOLUENE	D001 F003 F005
USED FIXATIVE		D011
VANADIUM STANDARD	VANADIUM STANDARD	D002
VARNISH	VARNISH	D001
VARNISH SPAR	SOLVENT	D001
VARNISH, ELECTRICAL	VARNISH, ELECTRICAL- PAINT WASTE	D001
WALKWAY COMPOUND	NAPTHA, LEAD, COBALT	D001 D008
WALKWAY COMPOUND	WALKWAY COMPOUND	D001
WARFARIN	WARFARIN <.3	U248

WASH PRIMER COATING	ZINC CHROMATE, 2-ETHOXYETHYL ACETATE,	D001 D007
WASTE CARBONATE	PESTICIDE SHOP	F002
WASTE DIESEL FUEL	WASTE DIESEL FUEL, CONTAMINATED W/WATER	D001
WASTE FUEL	WASTE FUEL	D001
WASTE FUEL, CONTAM.	WASTE DIESEL FUEL, CONTAMINATED W/OIL,WATER,ANTI	D001
WASTE FUEL, CONTAM.	WASTE FUEL, CONTAMINATED	D001
WASTE FUEL,CONTAM.	WASTE JP-5, CONTAMINATED W/WATER & DIRT	D001
WASTE FUELS, CONTAM	WASTE MOTOR FUELS, CONTAMINATED W/ WATER, DIRT	D001
WASTE GASOLINE	WASTE GASOLINE	D001
WASTE GASOLINE	WASTE GASOLINE	D001 D018
WASTE OIL	CONTAMINATED WASTE OIL	D005 D008 F002
WASTE OIL	OILS, LUBRICATING, INSTRUMENT	D001
WASTE OIL	WASTE LUBRICATING OIL	D001
WASTE OIL CONTAM		D001
WASTE OIL, CONTAM	WASTE OIL, CONTAMINATED	D001
WASTE OIL, CONTAM.	WASTE HYDRAULIC OILS CONTAMINATED W/ SOLVENTS	D001
WASTE OIL, CONTAM.	WASTE HYDRAULIC OILS, CONTAMINATED W/ SOLVENTS	D001
WASTE OIL, CONTAM.	WASTE OIL, CONTAMINATED W/THINNERS	D001
WASTE OIL, CONTAM.	WASTE OILS, CONTAMINATED W/ HALOGENS	D001
WASTE OIL, CONTAM.	WASTE OILS, CONTAMINATED W/SOLVENTS	D001
WASTE OIL, CONTAM.	WASTE OILS, CONTAMINATED, COMBUSTIBLE	D001
WASTE OIL, CONTAM.	WASTE OILS,CONTAMINATED W/HALOGENS	D001
WASTE OIL, CONTAMIN	CADMIUM (2.57 MG/L), LEAD (12.58 MG/L)	D006 D008
WASTE OIL, CONTAMIN	CHROMIUM (136.0MG/L)	D007
WASTE OIL,CONTAM.	WASTE OIL,CONTAMINATED W/HALOGENS	D001
WASTE OIL,CONTAM.	WASTE OILS, CONTAMINATED	D001
WASTE OIL,CONTAM.	WASTE OILS, CONTAMINATED W/HALOGENS	D001
WASTE OIL,CONTAM.	WASTE OILS,CONTAMINATED W./HALOGENS	D001
WASTE OILS, CONTAM.	WASTE ENGINE OILS, CONTAMINATED W/ SOLVENTS	D001
WASTE OILS, CONTAM.	WASTE OILS, CONTAMINATED	D001
WASTE OILS, CONTAM.	WASTE OILS, CONTAMINATED W/ HALOGENATED SOLVEN	F002
WASTE OILS, CONTAM.	WASTE OILS, CONTAMINATED W/ SOLVENTS	F002
WASTE OILS, CONTAM.	WASTE OILS, CONTAMINATED W/HALOGENATED SOLVEN	D001
WASTE OILS, CONTAM.	WASTE OILS, CONTAMINATED W/SOLVENTS	D001
WASTE OILS, CONTAM.	WASTE OILS, CONTAMINATED W/SOLVENTS	F002
WASTE PAINT		D001
WASTE PAINT	PAINT RELATED MATERIAL	D001

WASTE PAINT		PAINT RELATED MATERIAL	F003
WASTE PAINT		PAINT RELATED MATERIAL	F005
WASTE PAINT		PAINT WASTE, CADIMUM, MEK, N-BUTYL ALCOHOL	D001 D006 D035 F003 F005
WASTE PAINT		TOLUENE 2.5%, MAPTHA 97.5%	D001 F005
WASTE PAINT FILTERS	PAINT FILTERS	STRONTIUM CHROMATE	D007
WASTE POL RAGS	POL RAGS	POL WASTE RAGS, THINNER, VVL-800	D001
WASTE RAGS	HALOGENATED RAGS	CHROMIUM, 1,1,1-TRICHLOROETHANE; RAGS; PRM;	D001 D007 F002
WASTE RAGS	PAINT RAGS	BARIUM, XYLENE, TOLUENE,N-BUTYL ACETATE, MIK	D001 D005 D035 F002
WASTE RAGS	PAINT RAGS	WASTE RAGS	F002
WASTE RAGS	POL RAGS	WASTE RAGS, CONTAMINATED W/ JP-5, ENGINE OILS AND	D001
WASTE RAGS W/ PRM	PAINT RAGS	MEK, MIK, N-BUTYL ALCOHOL, XYLENE, ETHYL BENZENE,	D001 D007 D008 D018 D035 F002
WASTE RAGS W/ PRM	PAINT RAGS	MEK, MIK, N-BUTYL ALCOHOL, XYLENE, ETHYL BENZENE,	D001 D007 D035 F002 F003 F005
WASTE RAGS W/ PRM	PAINT RAGS	MEK, XYLENE, JP-5	D001 D035 F003 F005
WASTE RAGS W/ PRM	PAINT RAGS	PAINT WASTE	D001 D035 F003 F005
WASTE RAGS W/PAINTS	PAINT RAGS	WASTE RAGS, CONTAMINATED W/ PAINTS & THINNERS	D007 D008 D035 F002 F003 F005
WASTE RAGS, PAINT	PAINT RAGS	PAINT RELATED MATERIAL - RAGS, PAINT & THINNER SAT	D001
WASTE RAGS, PRM	PAINT RAGS	WASTE RAGS	D001 D035 F002 F003 F005
WASTE RAGS, SOLVENT	PAINT RAGS	WASTE RAGS, SOLVENT SATURATED, HALO & NON-HALO	F002
WASTE TONER/DISPER	TONER	NAPTHA (PETROLEUM)	D001
WATER & STRIPPER		LUBE OIL, PENAIR M5573, TURCO 6037	D002 D007
WATER LEAD CONTAM		LEAD, WATER	D008
WAX		AIRCRAFT WAX (ADDED TO ITEM 361)	D001 D007 D035
WAX		STODDARD SOLVENT	D001
WAX STRIPPER		SODIUM HYDROXIDE	D002
WAX, AUTOMOBILE		STODDARD SOLVENT	D001
WOOD STAIN		VM&P NAPTHA, TALC, VOL ORGANIC COMPOUNDS	D001
X-RAY FIXATIVE			D011
X-RAY FIXATIVE		PHOTOGRAPHY WASTES	D011
X-RAY FIXATIVE		X-RAY FIXATIVE	D011
X-RAY FIXER		X-RAY FIXER	D011
XYLENE		XYLENE	D001 U239
XYLENE		XYLENE, SPENT, DIRTY	F003
XYLENE REAGENT		XYLENE, ETHYL BENZENE	D001
ZINC CHROMATE		BENZENE, ZINC CHROMATE, LEAD, METHYLENE CHLORID	D001 D007 D008 D018
ZINC CHROMATE PRIME			D001

HISTORIC BASE MAPS

NASB Archival Map – 1946



SCHEDULE OF BUILDINGS

NO.	LOCATION	DESCRIPTION
A	H-48	COMMANDING OFFICER'S QUARTERS
B	H-48	EXECUTIVE " "
C	C-44	FACILITIES " "
D	C-46	MEDICAL " "
1	L-33	HANGAR NO. 1
2	J-32	" " 2
3	I-36	" " 3
4	L-36	ADMINISTRATION BUILDING
5	J-30	CONTROL TOWER
6	K-33	ELECTRIC SHOP - PUBLIC WORKS
7	L-35	GARAGE & FIRE STATION
8	K-34	PUBLIC WORKS
9	L-34	LAUNDRY
10	L-35	ENCLOSED SHED
11	K-36	AIRCRAFT STOREHOUSE
12	K-37	" "
13	J-39	PAINT & OIL "
14	J-40	COLD "
15	J-39	GENERAL "
16	J-38	" "
17	M-37	BARRACKS
18	L-38	"
19	M-39	"
20	L-39	"
21	K-41	MESS HALL
22	L-42	BRIG
23	K-40	SHIPS SERVICE & AUDITORIUM
24	K-42	B.O.Q. BUILDING, JR.
25	K-43	" " "
26	J-41	" " SR.
27	J-42	" " "
28	I-37	[illegible] BUILDING [illegible]
29	M-34	WATER SUPPLY & PUMPHOUSE
30	M-41	DISPENSARY [illegible]
31	O-39	INCINERATOR BUILDING
32	L-45	SEWERAGE PUMPING BUILDING
33	C-49	GATEHOUSE BUILDING
34	K-39	POST OFFICE [illegible]
35	P-48	RADIO TRANSMISSION BUILDING
36	K-34	HEATING PLANT
37	C-49	SECURITY & LABOR BOARD BUILDING
38	J-43	OFFICERS' MESS & LOUNGE CLUB
39		BUILDING RAZED
40	[illegible]	[illegible] OFFICE
41	J-35	SYNTHETIC TRAINING GROUP
42	J-36	AUX. WATER STORAGE & PUMPING STATION
43	J-35	PARACHUTE SHOP
44	K-35	TORPEDO STORAGE [illegible]
45	M-38	GENERAL STOREHOUSE
46	E-25	DIRECTION FINDER
47	K-38	CHAPEL
48	K-33	CARPENTER SHOP - PUBLIC WORKS
49	J-30	CRASH TRUCK GARAGE
50	J-39	10,000 GAL. USED OIL TANK
51	K-34	PAINT LOCKER - PUBLIC WORKS
52	Q-33	INERT STOREHOUSE
53	S-33	SMALL ARMS MAGAZINE
54	T-34	" " "
55	T-34	PYROTECHNIC "
56	P-25	HIGH EXPLOSIVE "
57	K-17	" " "
58	L-20	" " "
59	M-21	" " "
60	H-21	" " "
61	F-21	" " "
62	G-19	" " "
63	E-19	" " "
64	S-16	INCENDIARY "
65	M-14	FUSE & DETONATOR "
66	M-15	" " "
67	N-15	" " "
68	J-[illegible]	[illegible] HUT
69	S-[illegible]	READY MAGAZINE
70	O-[illegible]	F.P. FUSING & ARMING BUILDING
71	N-[illegible]	READY MAGAZINE
72	L-21	" "
73	J-34	"
74	J-33	LUMBER SHED
75	J-34	AMMUNITION BELTING SHACK
76	E-49	SKEET RANGE STOREHOUSE QTRS
77	C-49	BUS WAITING ROOM
78	D-19	LINE SHACK (FREDDIE)
79	O-35	R.P. READY ROOM
80	L-38	SEABAG LOCKERS [illegible]
81	L-38	" "
82	L-38	" "
83	J-38	GENERAL STOREHOUSES [illegible]
84	J-38	" "
85	J-38	" "
86	I-33	" "
87	[illegible]	LINE SHACK [illegible]
88	J-[illegible]	MAINTENANCE TRAINER BUILDING
89	J-35	" " "
90	[illegible]	LINE SHACK [illegible]
91	I-39	FOAM GENERATOR SHACK
92	I-41	AVIATION GAS UNLOADING SHED
93	O-32	GENERAL STOREHOUSE
94	I-37	PAINT LOCKER - HANGAR NO. 3
95	I-40	GAS FARM OFFICE
96	M-33	GENERAL STOREHOUSE
97	N-33	" "
98	L-21	TRANSFORMER VAULT
99	L-21	HEAVY EQUIPMENT REPAIR SHOP
100	C-47	GARAGE - QUARTERS D
101	I-41	100,000 GAL. GASOLINE STORAGE TANK
102	I-40	" " " "
103	I-42	" " " "
104	H-41	25,000 " " "
105	H-41	" " " "
106	H-41	GASOLINE PUMP HOUSE
107	H-41	" LOADING PLATFORM
108	L-13	STOREHOUSE - PUBLIC WORKS
109	J-7	" " "
110	H-48	GARAGE - C.O. & E.O. QUARTERS
111	H-48	SEWAGE PUMP HOUSE
113	[illegible]	ABANDONED HOUSE
114	D-11	" "
115	D-10	" "
116	[illegible]	" "
117	[illegible]	" "
118	[illegible]	" "
119	[illegible]	" "
[illegible]	[illegible]	" "
121	D-17	" "
[illegible]	[illegible]	" "
[illegible]	[illegible]	" "
[illegible]	[illegible]	" "
[illegible]	A-17	" "
[illegible]	D-17	" "

SCHEDULE OF TEMPORARY BUILDINGS

NO.	LOCATION	DESCRIPTION
T-201	[illegible]	STORAGE (QUONSET HUT)
T-202	[illegible]	" " "
T-203	[illegible]	" (PREFAB)
T-204	[illegible]	
T-205	[illegible]	
T-206	[illegible]	BAT[illegible] SHOP
T-207	[illegible]	COM[illegible] STORAGE (QUONSET HUT)
T-208	[illegible]	"
T-209	[illegible]	MOBILE TRAINING (PREFAB)
T-210	[illegible]	" "
T-211	M-[illegible]	PAINT LOCKER
T-212	N-[illegible]	VACANT
T-213	M-[illegible]	SQUADRON GEAR
T-214	M-[illegible]	" "
T-215	N-36	CASU 26 - AMMUNITION STOW GEAR (QUONSET HUT)
T-216	N-[illegible]	P.W. MASON'S STORAGE
T-217	O-[illegible]	P.W. STORAGE

SCHEDULE OF TEMPORARY BUILDINGS

NO.	LOCATION	DESCRIPTION
T-218	O-38	P.W. STORAGE
T-219	O-39	"
T-220	J-31	BOATSWAIN'S LOCKER
T-221	J-32	VBF LINE SHACK (QUONSET HUT)
T-222	H-36	CASU " "
T-223	L-21	P.W. STORAGE
T-224	L-21	"
T-225	E-21	(FREDDIE) STORAGE
T-226	G-41	RUNWAY MAINTENANCE [illegible]
T-227	Q-40	SKEET RANGE HUT
T-228	Q-40	" " PIGEON STORAGE

REVISED - JANUARY 1953.

MAP OF U.S. NAVAL AIR STATION BRUNSWICK, MAINE

SHOWING CONDITIONS ON

JUNE 30, 1946

SCALE OF FEET

0 400 800 1200 1600 2000

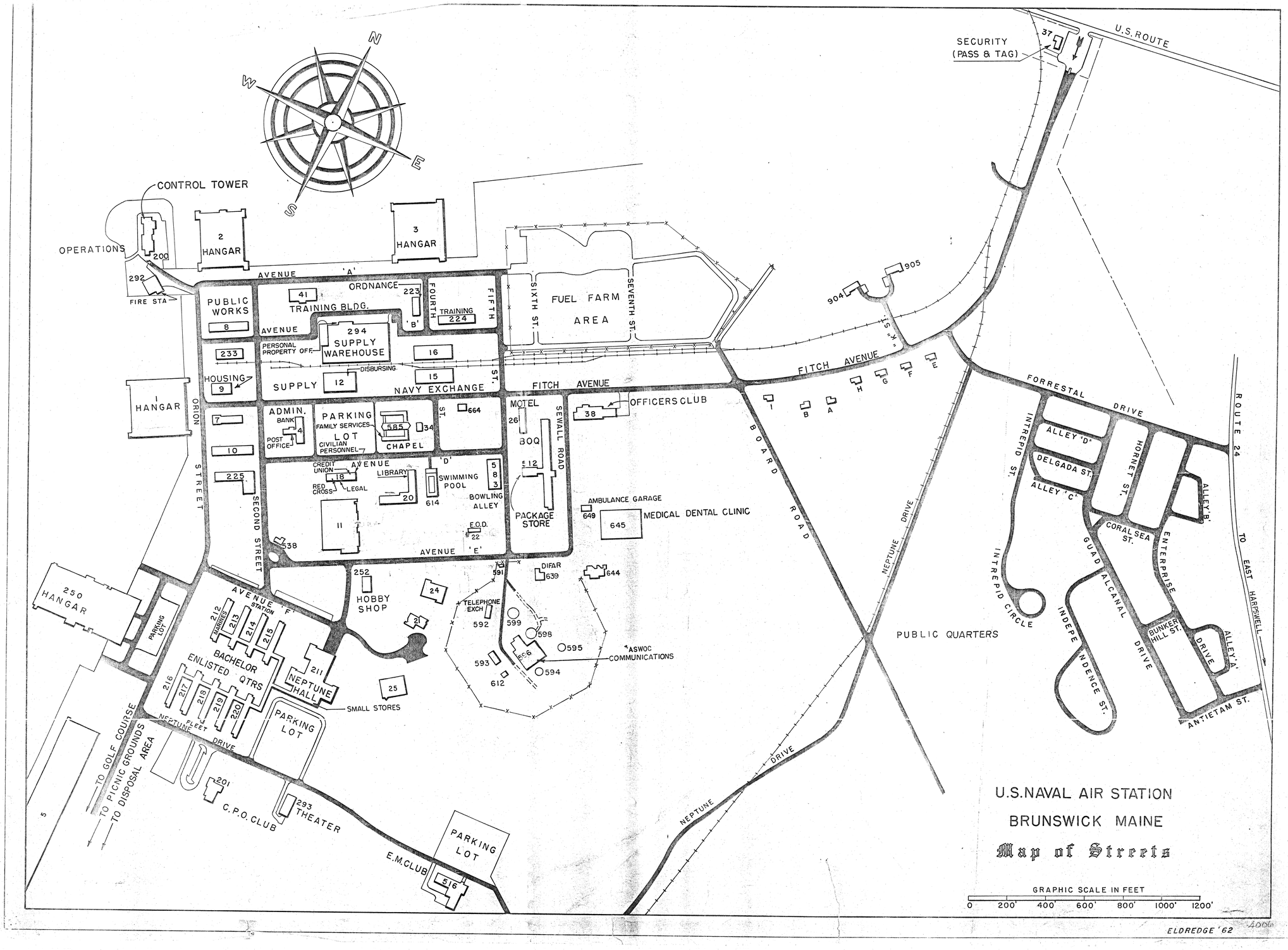
COMMANDER, C.E.C., U.S.N.R.
PUBLIC WORKS OFFICER

CHAS. A. JOHNSON - DEL.

RESTRICTED (FOR OFFICIAL USE ONLY)

P.W.D. DWG. NO.

NASB Archival Map – 1962 Industrial Area


N
W
E
S
CONTROL TOWER
OPERATIONS
200
292
FIRE STA
2 HANGAR
3 HANGAR
1 HANGAR
AVENUE 'A'
PUBLIC WORKS
8
41
TRAINING BLDG.
ORDNANCE
223
'B'
FOURTH
FIFTH
TRAINING
224
AVENUE
294 SUPPLY WAREHOUSE
PERSONAL PROPERTY OFF.
DISBURSING
16
233
HOUSING
9
SUPPLY
12
NAVY EXCHANGE
15
ST.
FUEL FARM AREA
SIXTH ST.
SEVENTH ST.
904
905
SECURITY (PASS & TAG)
37
U.S. ROUTE
FITCH AVENUE
ORION STREET
7
10
225
ADMIN.
BANK
4
POST OFFICE
PARKING LOT
CIVILIAN PERSONNEL
FAMILY SERVICES
585
34
CHAPEL
664
MOTEL
26
BOQ
512
SEWALL ROAD
OFFICERS CLUB
38
BOARD ROAD
CREDIT UNION
18
LEGAL
RED CROSS
AVENUE 'D'
LIBRARY
20
614
SWIMMING POOL
583
BOWLING ALLEY
11
E.O.D.
22
PACKAGE STORE
AMBULANCE GARAGE
649
MEDICAL DENTAL CLINIC
645
538
AVENUE 'E'
SECOND STREET
252
HOBBY SHOP
24
591
DIFAR
639
644
TELEPHONE EXCH
592
599
598
595
*ASWOC COMMUNICATIONS
C66
593
594
612
25
SMALL STORES
250 HANGAR
PARKING 101
AVENUE 'F'
212
ARMORIES
213
214
215
BACHELOR ENLISTED QTRS
216
217
218
219
220
211
NEPTUNE HALL
NEPTUNE
FLEET
DRIVE
PARKING LOT
TO GOLF COURSE
TO PICNIC GROUNDS
TO DISPOSAL AREA
5
201
C.P.O. CLUB
293
THEATER
E.M.CLUB
516
PARKING LOT
NEPTUNE DRIVE
NEPTUNE
DRIVE
PUBLIC QUARTERS
INTREPID CIRCLE
INDEPENDENCE ST.
GUADALCANAL DRIVE
BUNKER HILL ST.
DRIVE
ALLEY 'B'
ANTIETAM ST.
CORAL SEA ST.
ENTERPRISE
TO EAST HARPSWELL
ROUTE 24
FORRESTAL DRIVE
INTREPID ST.
ALLEY 'D'
DELGADA ST.
HORNET ST.
ALLEY 'C'
U.S.NAVAL AIR STATION
BRUNSWICK MAINE
Map of Streets
GRAPHIC SCALE IN FEET
0 200' 400' 600' 800' 1000' 1200'
ELDREDGE '62
4006

NASB Archival Map – circa 1952

NOTES:- LATITUDE 43°-54'-N. LONGITUDE 69°-57'-W.
MINIMUM CLEAR VERTICAL APPROACH ALL RUNWAYS 1-40.
TOTAL AREA - 1487 ACRES.
COORDINATE BLOCKS - 2000 FT.
FENCE IS ON PROPERTY LINE EXCEPT WHERE NOTED.
ALL RUNWAY & TAXIWAY LIGHTS ARE SNOW TYPE
EXCEPT AS NOTED FOR RUNWAY 9-27.

SCHEDULE OF BUILDINGS

NO.	LOCATION	DESCRIPTION
A	H,-48	COMMANDING OFFICER'S QUARTERS
B	H,-48	EXECUTIVE " "
C	C,-44	FACILITIES " "
D	C-46	MEDICAL " "
1	L-33	HANGAR NO.1
2	J,-32	" " 2
3	I-36	" " 3
4	L-36	ADMINISTRATION BUILDING
5	J,-36	CONTROL TOWER
6	K-33	ELECTRIC SHOP - PUBLIC WORKS
7	L-35	GARAGE & FIRE STATION
8	K,-34	PUBLIC WORKS
9	L-34	LAUNDRY
10	L,-35	ENCLOSED SHED
11	K-36	AIRCRAFT STOREHOUSE
12	K-37	" "
13	J-39	PAINT & OIL "
14	J-40	COLD "
15	J,-39	GENERAL "
16	J-38	" "
17	M-37	BARRACKS
18	L-38	"
19	M-39	"
20	L-39	"
21	K-41	MESS HALL
22	L-42	BRIG
23	K-40	SHIPS SERVICE & AUDITORIUM
24	K-42	B.O.Q. BUILDING, JR.
25	K,-43	" " " SR.
26	J,-41	" " " SR.
27	J-42	" " "
28	I-37	~~CO2 BUILDING~~ Fasron Storage.
29	M-36	WATER SUPPLY & PUMPHOUSE
30	M-41	~~DISPENSARY~~ Infirmary
31	O,-39	INCINERATOR BUILDING
32	L-45	SEWERAGE PUMPING BUILDING
33	C-49	GATEHOUSE BUILDING
34	K-39	~~POST OFFICE~~ Armory
35	P-48	RADIO TRANSMISSION BUILDING
36	K,-34	HEATING PLANT
37	C-49	SECURITY & LABOR BOARD BUILDING
38	J-43	OFFICERS ~~MESS & LOUNGE~~ CLUB
39		BUILDING RAZED
40	E-22	~~R.T.H. OFFICE~~
41	J,-35	SYNTHETIC TRAINING GROUP
42	J-36	AUX. WATER STORAGE & PUMPING STATION
43	J,-37	PARACHUTE SHOP
44	K,-35	~~TORPEDO~~ STORAGE Werehouse
45	N-38	GENERAL STOREHOUSE
46	E-25	~~DIRECTION FINDER~~
47	K-38	CHAPEL
48	K-33	CARPENTER SHOP - PUBLIC WORKS
49	J,-30	CRASH TRUCK GARAGE
50	J-39	10,000 GAL. USED OIL TANK
51	K-34	PAINT LOCKER - PUBLIC WORKS
52	Q,-38	INERT STOREHOUSE
53	J,-33	SMALL ARMS MAGAZINE
54	T-34	" "
55	T-34	PYROTECHNIC "
56	P-23	~~HIGH EXPLOSIVE~~ "
57	N,-17	" " "
58	L-20	" " "
59	M-21	" " "
60	H-21	" " "
61		~~" "~~
62	Q-19	" " "
63	R-18	" " "
64	S,-16	INCENDIARY "
65	M-14	FUSE & DETONATOR "
66	M,-15	" " "
67	N-15	" " "
68	J,-43	~~FIELD HUT~~
69	R-38	READY MAGAZINE
70	O,-35	~~R.P. FUSING & ARMING BUILDING~~
71	N-34	READY MAGAZINE
72	L-21	" "
73	J-34	" "
74	J,-38	LUMBER SHED
75	J,-34	AMMUNITION BELTING SHACK
76	E-49	~~SKEET RANGE STOREHOUSE~~ QTRS-MEM
77	C-49	BUS WAITING ROOM
78	O,-19	~~WELL CASING (FREDDIE)~~
79	O,-35	R.P. READY ROOM
80	L-38	~~SEA BAG LOCKERS~~ Hobby Shop
81	L-38	" " " "
82	L-38	" " " "
83	J-38	GENERAL STOREHOUSES to be razed
84	J-38	" "
85	J-38	" "
86	I-38	" "
87	M-36	~~LINE SHACK~~ Removed
88	J,-32	MAINTENANCE TRAINER, BUILDING
89	J,-35	" "
90	J-35	~~LINE SHACK~~ Removed
91	I-39	FOAM GENERATOR SHACK
92	I,-41	AVIATION GAS UNLOADING SHED
93	O-39	GENERAL STOREHOUSE
94	I-37	PAINT LOCKER - HANGAR NO.3
95	I,-40	GAS FARM OFFICE
96	M,-38	GENERAL STOREHOUSE
97	N-38	" "
98	L-21	~~TRANSFORMER VAULT~~
99	L,-21	~~HEAVY EQUIPMENT REPAIR SHOP~~
100	C-47	GARAGE - QUARTERS D
101	I-41	100,000 GAL. GASOLINE STORAGE TANK
102	I,-40	" " " " " "
103	I,-42	" " " " " "
104	H,-41	25,000 " " " " "
105	H,-41	" " " " " "
106	H,-41	GASOLINE PUMP HOUSE
107	H,-41	" LOADING PLATFORM
108	L-13	STOREHOUSE - PUBLIC WORKS
109	L-7	" " "
110	H,-48	GARAGE - C.O. & E.O. QUARTERS
111	H,-48	SEWAGE PUMP HOUSE
112	E-18	ABANDONED HOUSE
113	D,-11	" "
114	D,-16	" "
115	D,-16	" "
116	F-10	" "
117	F-10	" "
118	D,-18	" "
119	D,-18	" "
120	D-18	" "
121	D,-17	" "
137	T-19	" "
138	P,-18	" "
142	B-14	" "
143	A,-15	" "
144	B-17	" "

ASSIGNMENT OF BUILDING NUMBER REQUESTED 10 JUNE 46

ASSIGNMENT OF BUILDING NUMBERS REQUESTED 23 MAY, 1946

SCHEDULE CONTINUED

NO	LOCATION	DESCRIPTION
501	D,-19	ABANDONED HOUSE
502	D,-19	" " Removed
503	D,-14	" "
504	D-12	" "
505	C-14	" "
506	C,-18	" "
507	C,-18	" "
508	D,-18	" "
509	C,-19	" "

SCHEDULE OF TEMPORARY BUILDINGS

NO	LOCATION	DESCRIPTION
T-201	N-38	STORAGE (QUONSET HUT)
T-202	N-38	" " "
T-203	Q-38	" (PREFAB)
T-204	Q-38	" "
T-205	D-38	" "
T-206	K-32	BATTLE SHOP
T-207	P-41	COMMUNICATIONS STORAGE (QUONSET HUT)
T-208	P-37	" " " " "
T-209	J-38	MOBILE TRAINING (PREFAB)
T-210	J-38	" "
T-211	M-37	PAINT LOCKER
T-212	N-38	VACANT
T-213	M-32	SQUADRON GEAR
T-214	M-33	" "
T-215	N-36	CASU 26 AMMUNITION & TOW GEAR (QUONSET HUT)
T-216	N-36	P.W. MASONS STORAGE
T-217	O-38	P.W. STORAGE

SCHEDULE OF TEMPORARY BUILDINGS

NO	LOCATION	DESCRIPTION
T-218	O-38	P.W. STORAGE
T-219	O-39	" "
T-220	J-31	BOATSWAIN'S LOCKER
T-221	J-32	VBF LINE SHACK (QUONSET HUT)
T-222	H,-36	CASU " "
T-223	L,-21	P.W. STORAGE
T-224	L-21	" "
T-225	E-21	(FREDDIE) STORAGE
T-226	G-41	RUNWAY MAINTENANCE CREW
T-227	Q-40	SKEET RANGE HUT
T-228	Q-40	" " PIGEON STORAGE

LOCATION MAP
SCALE IN MILES

LEGEND
- HY HYDRANT
- FA FIRE ALARM
- —·— RUNWAY DRAINAGE
- —W— WATER MAIN
- —S— SEWER MAIN
- —T— TELEPHONE LINE
- —E— ELECTRIC LINE

MAP OF U.S. NAVAL AIR STATION BRUNSWICK, MAINE

SHOWING CONDITIONS ON 4/30/52

[redacted]

SCALE OF FEET

RG71, Bur. of Yds + Docks
Naval Property Card File
Brunswick, Box 518
Permit to Air Force

F. J. Mowatt
COMMANDER, C.E.C. U.S.N.R.
PUBLIC WORKS OFFICER

CHAS. A. JOHNSON - DEL.

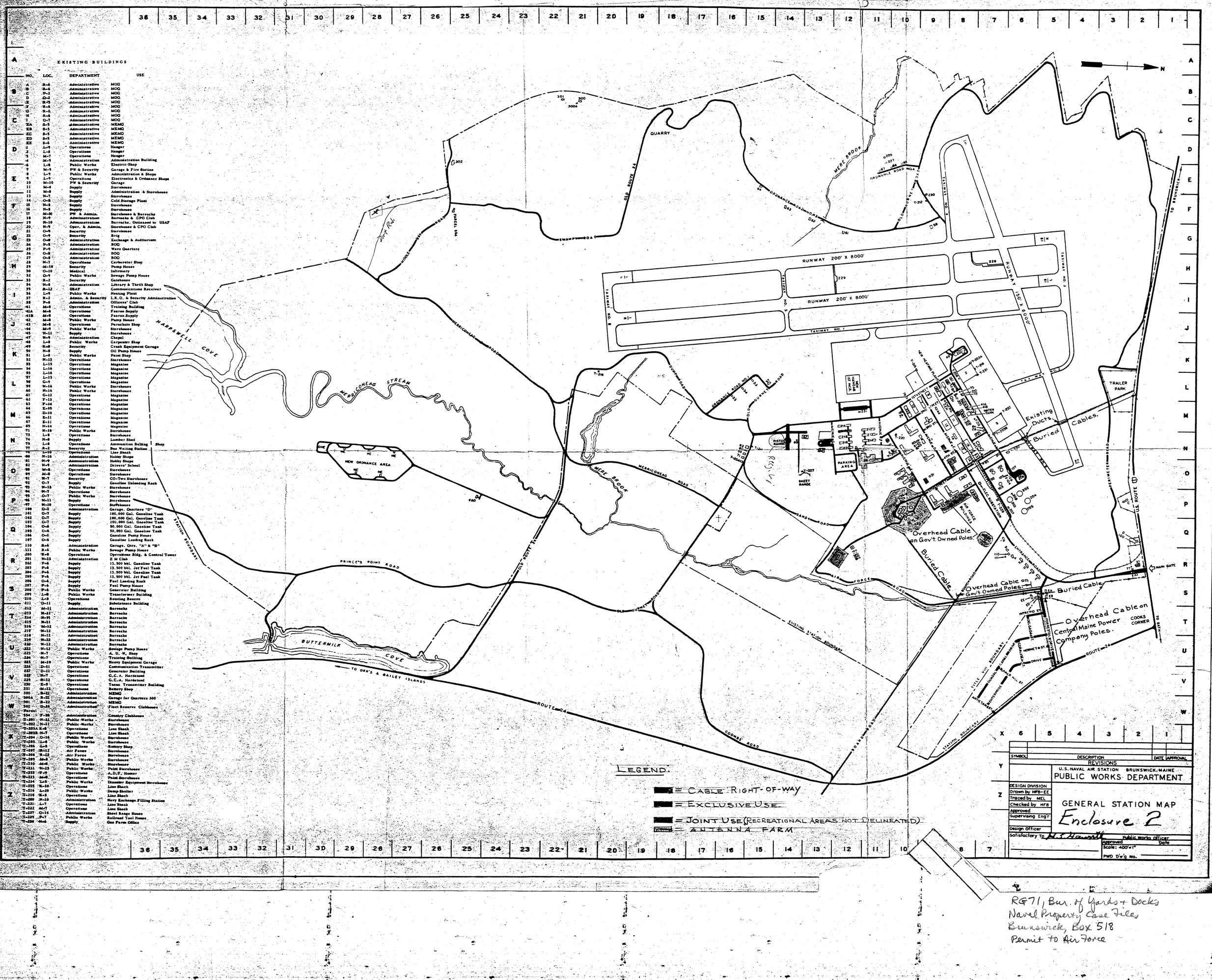
RESTRICTED (FOR OFFICIAL USE ONLY)

DWG NO 6915-

NASB Archival Map – circa 1956

EXISTING BUILDINGS

NO.	LOC.	DEPARTMENT	USE
A	R-6	Administrative	MOQ
B	R-6	Administrative	MOQ
C	P-7	Administrative	MOQ
D	O-7	Administrative	MOQ
E	R-5	Administrative	MOQ
F	R-6	Administrative	MOQ
G	R-6	Administrative	MOQ
H	O-7	Administrative	MOQ
2A	S-5	Administrative	MEMO
2B	S-5	Administrative	MEMO
2C	S-5	Administrative	MEMO
2D	S-5	Administrative	MEMO
2E	S-6	Administrative	MEMO
1	L-9	Operations	Hangar
2	L-8	Operations	Hangar
3	M-7	Operations	Hangar
4	M-9	Administration	Administration Building
6	L-8	Public Works	Electric-Shop
7	M-9	PW & Security	Garage & Fire Station
8	L-9	Public Works	Administration & Shops
9	L-9	Operations	Electronics & Ordnance Shops
10	M-10	PW & Security	Garage
11	M-8	Supply	Storehouse
12	M-8	Supply	Administration & Storehouse
13	N-7	Supply	Storehouse
14	O-8	Supply	Cold Storage Plant
15	N-8	Supply	Storehouse
16	N-8	Supply	Storehouse
17	M-10	PW & Admin.	Storehouse & Barracks
18	N-9	Administration	Barracks & CPO Club
19	N-10	Administration	Barracks. Outleased to USAF
20	N-9	Oper. & Admin.	Storehouse & CPO Club
21	O-9	Security	Storehouse
22	O-9	Security	Brig
23	O-8	Administration	Exchange & Auditorium
24	P-9	Administration	BOQ
25	P-9	Administration	Wave Quarters
26	O-8	Administration	BOQ
27	O-8	Administration	BOQ
28	N-7	Operations	Carburetor Shop
29	M-10	Security	Pump House
30	O-10	Medical	Infirmary
32	O-9	Public Works	Sewage Pump House
33	R-2	Security	Gatehouse
34	N-8	Administration	Library & Thrift Shop
35	R-12	USAF	Communications Receiver
36	L-9	Public Works	Heating Plant
37	R-2	Admin. & Security	I. R. O. & Security Administration
38	P-8	Administration	Officers' Club
41	M-9	Operations	Training Building
41A	M-8	Operations	Fasron Supply
41B	M-8	Operations	Fasron Supply
42	M-8	Public Works	Pump House
43	M-8	Operations	Parachute Shop
44	M-9	Public Works	Storehouse
45	N-11	Supply	Storehouse
47	M-9	Administration	Chapel
48	L-8	Public Works	Carpenter Shop
49	K-8	Security	Crash Equipment Garage
50	N-8	Supply	Oil Pump House
51	L-8	Public Works	Paint Shop
52	N-13	Operations	Storehouse
53	L-15	Operations	Magazine
54	L-16	Operations	Magazine
55	L-16	Operations	Magazine
57	L-15	Operations	Magazine
58	G-9	Operations	Magazine
59	N-16	Public Works	Storehouse
60	N-16	Public Works	Storehouse
61	G-12	Operations	Magazine
62	F-13	Operations	Magazine
63	F-14	Operations	Magazine
64	K-15	Operations	Magazine
65	D-10	Operations	Magazine
66	E-11	Operations	Magazine
67	E-11	Operations	Magazine
69	N-14	Operations	Magazine
71	N-16	Public Works	Storehouse
73	L-8	Operations	Storehouse
74	N-8	Supply	Lumber Shed
75	L-8	Operations	Ammunition Belting Shop
77	R-2	Security	Bus Waiting Station
78	N-10	Operations	Line Shack
80	N-10	Administration	Hobby Shops
81	N-9	Administration	Hobby Shops
82	N-9	Administration	Drivers' School
88	M-8	Operations	Storehouse
89	M-8	Operations	Storehouse
91	N-7	Security	CO-Two Storehouse
92	O-7	Supply	Gasoline Unloading Rack
93	N-15	Public Works	Storehouse
94	N-7	Operations	Storehouse
95	O-7	Public Works	Storehouse
96	N-11	Supply	Storehouse
97	N-10	Operations	Stofehouse
100	O-2	Administration	Garage, Quarters "D"
101	O-7	Supply	100,000 Gal. Gasoline Tank
102	O-7	Supply	100,000 Gal. Gasoline Tank
103	O-7	Supply	100,000 Gal. Gasoline Tank
104	O-6	Supply	50,000 Gal. Gasoline Tank
105	O-6	Supply	50,000 Gal. Gasoline Tank
106	O-6	Supply	Gasoline Pump House
107	O-6	Supply	Gasoline Loading Rack
110	R-6	Administration	Garage, Qtrs. "A" & "B"
111	R-6	Public Works	Sewage Pump House
200	R-8	Operations	Operations Bldg. & Control Tower
201	N-13	Administration	E M Club
202	P-6	Supply	13,500 bbl. Gasoline Tank
203	P-6	Supply	13,500 bbl. Jet Fuel Tank
204	P-6	Supply	13,500 bbl. Gasoline Tank
205	P-6	Supply	13,500 bbl. Jet Fuel Tank
206	O-6	Supply	Fuel Loading Rack
207	P-6	Supply	Fuel Pump House
208	P-6	Public Works	Generator Building
209	L-8	Public Works	Transformer Building
210	L-9	Operations	Rotating Beacon
211	D-11	Supply	Subsistence Building
212	M-11	Administration	Barracks
213	M-11	Administration	Barracks
214	M-11	Administration	Barracks
215	M-11	Administration	Barracks
216	M-12	Administration	Barracks
217	M-12	Administration	Barracks
218	N-12	Administration	Barracks
219	N-12	Administration	Barracks
220	N-12	Administration	Barracks
222	N-12	Public Works	Sewage Pump House
223	N-7	Operations	A. D. W. Shop
224	N-7	Operations	Training Building
225	M-10	Public Works	Heavy Equipment Garage
226	D-11	Operations	Communication Transmitter
227	D-11	Operations	Generator Building
228	N-7	Operations	G.C.A. Hardstand
229	N-12	Operations	G.C.A. Hardstand
230	E-9	Operations	Tacan Transmitter Building
231	M-12	Operations	Battery Shop
300	R-22	Administration	MEMO
300A	R-22	Administration	Garage for Quarters 300
301	R-22	Administration	MEMO
302	R-24	Administration	Fleet Reserve Clubhouse
Parcel 154	P-28	Administration	Country Clubhouse
T-201	O-15	Public Works	Storehouse
T-202	N-11	Public Works	Storehouse
T-203A	K-8	Operations	Line Shack
T-203B	N-7	Operations	Line Shack
T-204	O-16	Public Works	Storehouse
T-205	L-8	Public Works	Storehouse
T-206	L-8	Operations	Battery Shop
T-207	M-12	Air Force	Storehouse
T-208	N-12	Air Force	Storehouse
T-209	M-8	Public Works	Storehouse
T-210	M-8	Public Works	Storehouse
T-211	N-13	Public Works	Paint Storehouse
T-212	F-9	Operations	A.D.W. Hower
T-213	M-8	Operations	Paint Storehouse
T-214	L-8	Public Works	Disaster Equipment Storehouse
T-215	K-10	Operations	Line Shack
T-216	L-20	Public Works	Dump Shelter
T-218	K-8	Operations	Line Shack
T-220	N-10	Administration	Navy Exchange Filling Station
T-221	L-7	Operations	Line Shack
T-222	M-7	Operations	Line Shack
T-227	O-14	Administration	Skeet Range House
T-229	P-7	Public Works	Railroad Tool House
T-230	M-6	Supply	Gas Farm Office



LEGEND.

- = CABLE RIGHT-OF-WAY
- = EXCLUSIVE USE
- = JOINT USE (RECREATIONAL AREAS NOT DELINEATED)
- = ANTENNA FARM

SYMBOL	DESCRIPTION	DATE	APPROVAL
	REVISIONS		

U.S. NAVAL AIR STATION BRUNSWICK, MAINE
PUBLIC WORKS DEPARTMENT

DESIGN DIVISION
Drawn by MFB-EE
Traced by MEL
Checked by MFB
Approved
Supervising Engr
Design Officer
Satisfactory To H. S. Haworth Public Works Officer
Approved Date
Scale: 400'=1"
PWD D'w'g No.

GENERAL STATION MAP
Enclosure 2

RG71, Bur. of Yards + Docks
Naval Property Case Files
Brunswick, Box 518
Permit to Air Force

NASB Archival Map – circa 1983

REVISION		
SYM.	DESCRIPTION	DATE

AIRCRAFT PARKING APRON

AIRCRAFT PARKING APRON

TAXIWAY

STREET

AVENUE

ROAD

ORION

NEPTUNE

FITCH

4th. ST.

6th. ST.

7th. ST.

FUEL

FARM

ATHLETIC FIELD

TENNIS

CANAL

MAINE

CENTRAL

PERIMETER

BOARD

Little

Mere

Brook

KEY MAP

MILES

LEGEND

- STATION BOUNDARY
- FENCE
- RAILROAD
- ROAD OR PAVED AREA
- STRUCTURE
- UNDERGROUND FUEL LINE
- MAIN STATION ENTRANCE

GRAPHIC SCALE

0 100 200 400 600 800 1000 1200 FEET

PWD DRAWING NO. 2156	
ENGINEERING DIVISION	
DES	SAF OFF
DR	FIRE CHIEF
CHK	
TEL DIV	
DIR OF ENG	
SATISFACTORY TO	
APPROVED 5-5-83	DATE
PUBLIC WORKS OFFICER	

34

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND

NAVAL AIR STATION BRUNSWICK, MAINE

EXISTING CONDITIONS MAP
OPERATIONS AREA

SIZE	CODE IDENT NO.	NAVFAC DRAWING NO
F	80091	2068165

CONST CONTR NO N62472- 81-C-2713

SCALE 1"=400' | SPEC

NASB Archival Map – circa 1989

REVISION		
SYM	DESCRIPTION	DATE
	REVISED BY JAMES W. SEWALL CO. PHOTO	4-23-84
	REVISED BY JAMES W. SEWALL CO. PHOTO	4-2-89

LOCATION MAP

LEGEND

- STATION BOUNDARY
- FENCE
- RAILROAD
- TRANSMISSION LINE
- ROAD OR PAVED AREA
- STRUCTURE
- MAIN STATION ENTRANCE
- SHORE LINE
- LIMIT OF FLIGHT CLEARANCE ZONE
- F — UNDERGROUND FUEL LINE

REAL ESTATE DATA

ON STATION:

GOVERNMENT OWNED	3086.68 Acres

OFF STATION:

GOVERNMENT OWNED	
REMOTE TRANSMITTER-E.BRUNSWICK	66.13 Acres
RAKE STATIONS	0.46 "
CAPEHART HOUSING - McKEEN STREET	70.40 "
EASEMENTS	59.56 "
RESTRICTED AREAS	
MINING RANGE - SMALL POINT (Caution Area)	12,130 "

GRAPHIC SCALE

0 600 1200 1800 2400 3000 3600 FEET

COMPILED & CONTROLLED BY JAMES W. SEWALL COMPANY, OLD TOWN, MAINE
BY PHOTOGRAMMETRIC METHODS
FROM AERIAL PHOTOGRAPHS DATED 11-12-81

PWD DRAWING NO. 2157

ENGINEERING DIVISION

DES	SAF OFF
DR	FIRE CHIEF
CHK	
TEL DIV	
DIR OF ENG	
SATISFACTORY TO	
APPROVED 5-5-83	DATE
PUBLIC WORKS OFFICER	

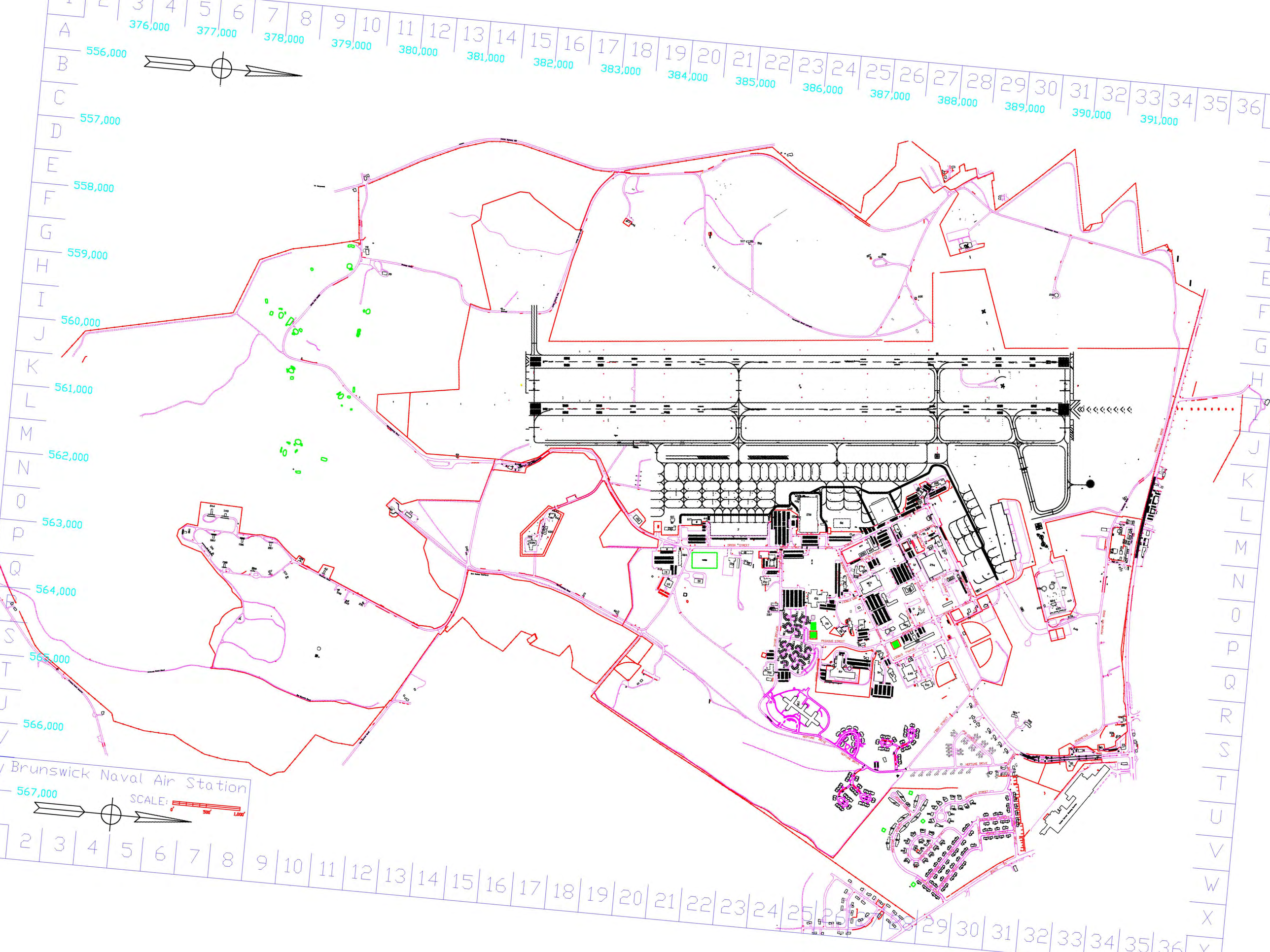
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND

NAVAL AIR STATION BRUNSWICK, MAINE

EXISTING CONDITIONS MAP

SIZE	CODE IDENT NO.	NAVFAC DRAWING NO.
F	80091	2068166
		CONST. CONTR NO. N62472- 81-C-2713
SCALE: 1"=600'	SPEC	SHEET 1 OF 1

NASB Gen Base Map – 2006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A B C D E F G H I J K L M N O P Q S T U V
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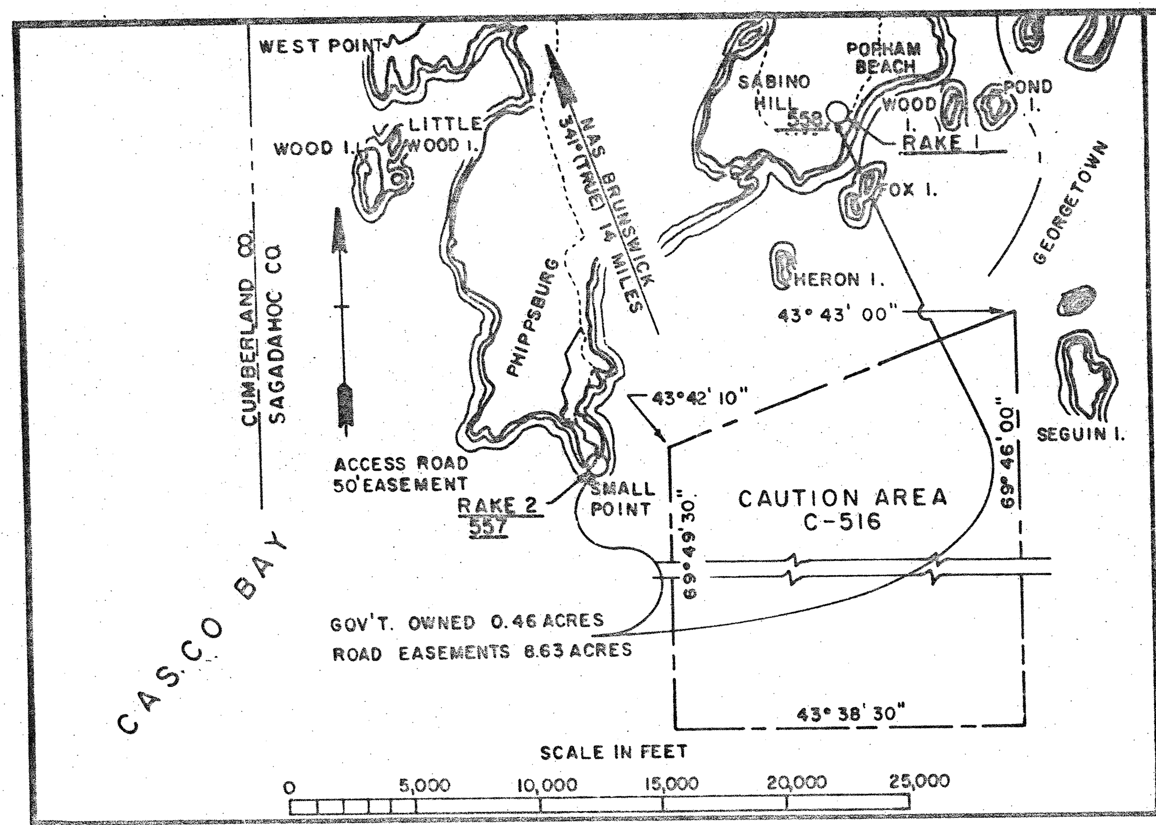
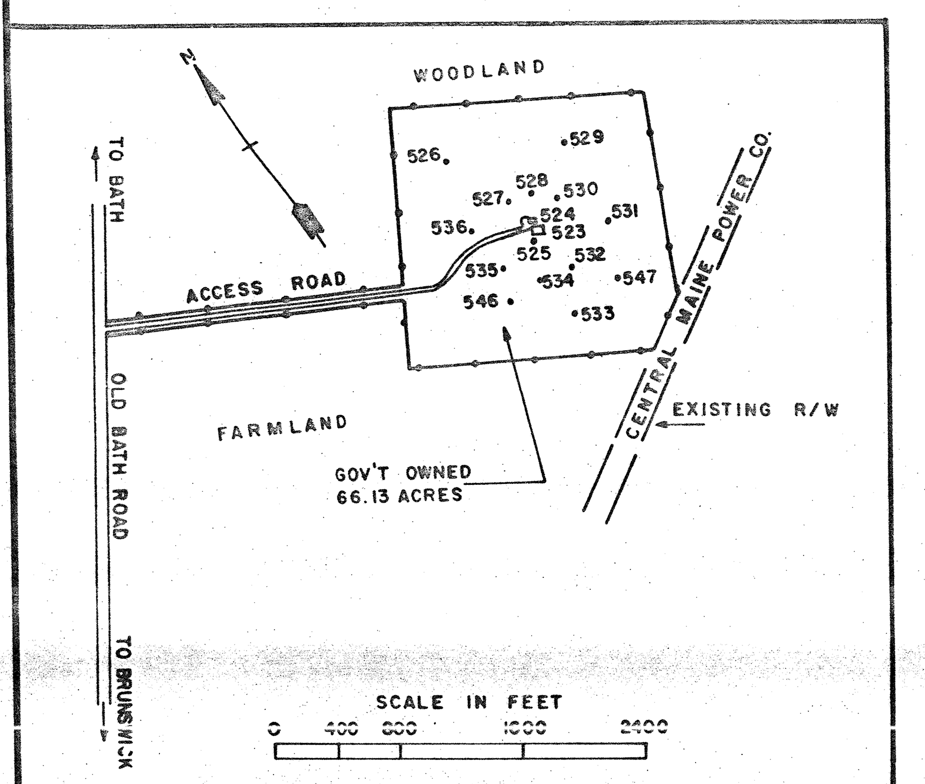
567,000
Brunswick Naval Air Station
SCALE:
0'
500'
1,000'

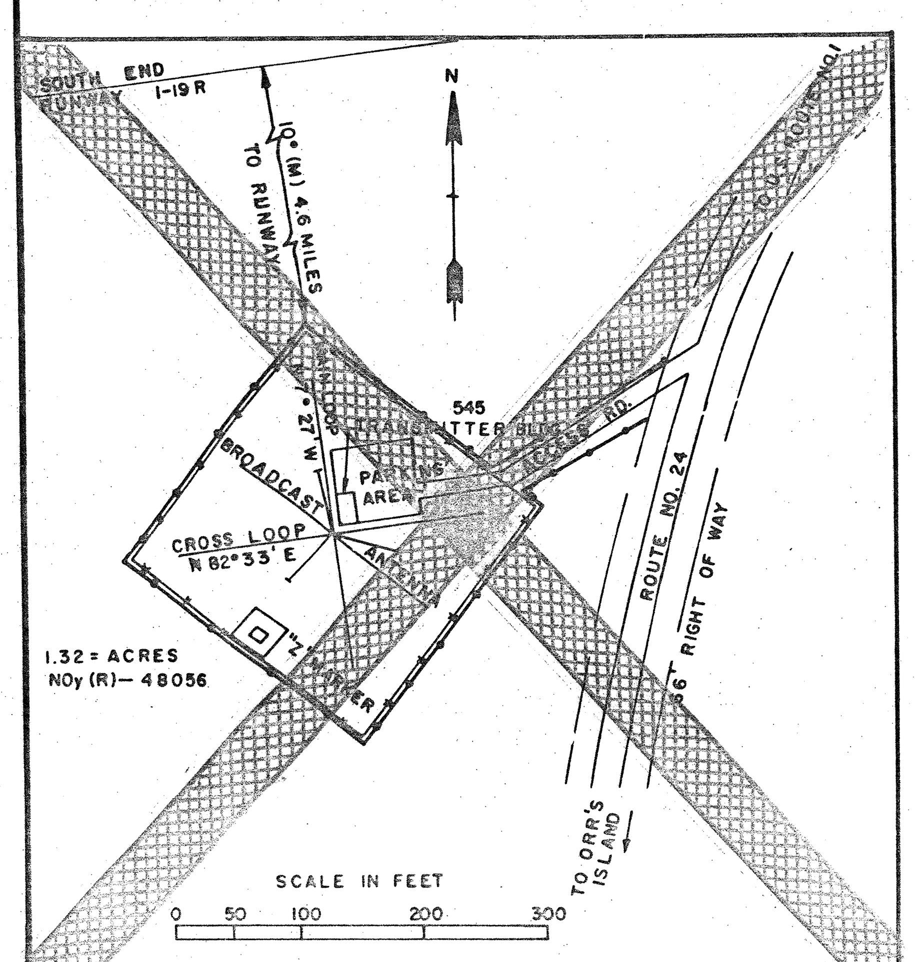
Offsite Properties Archival Map – circa 1962 revised 1976



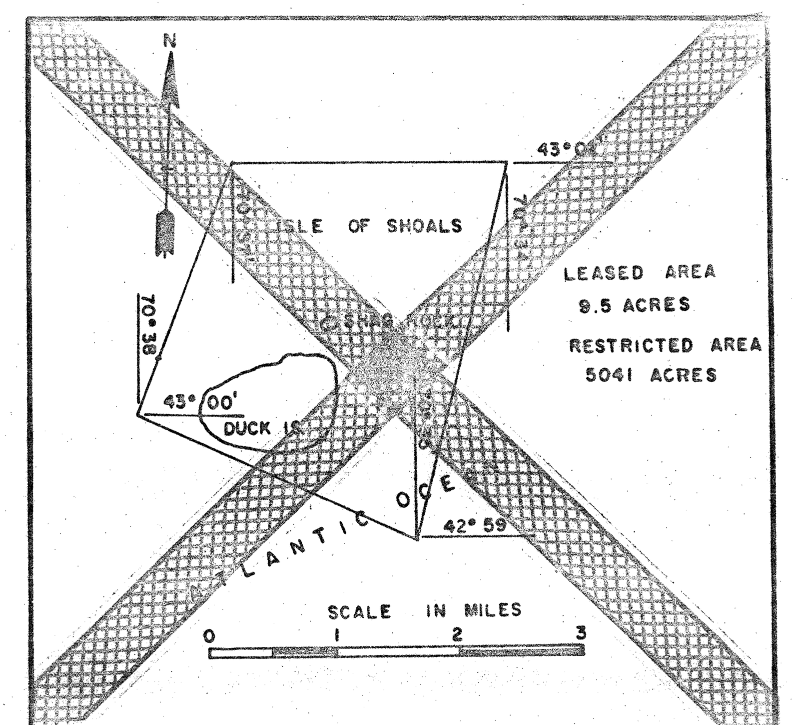
MINE LAYING RANGE AND RAKE STATIONS



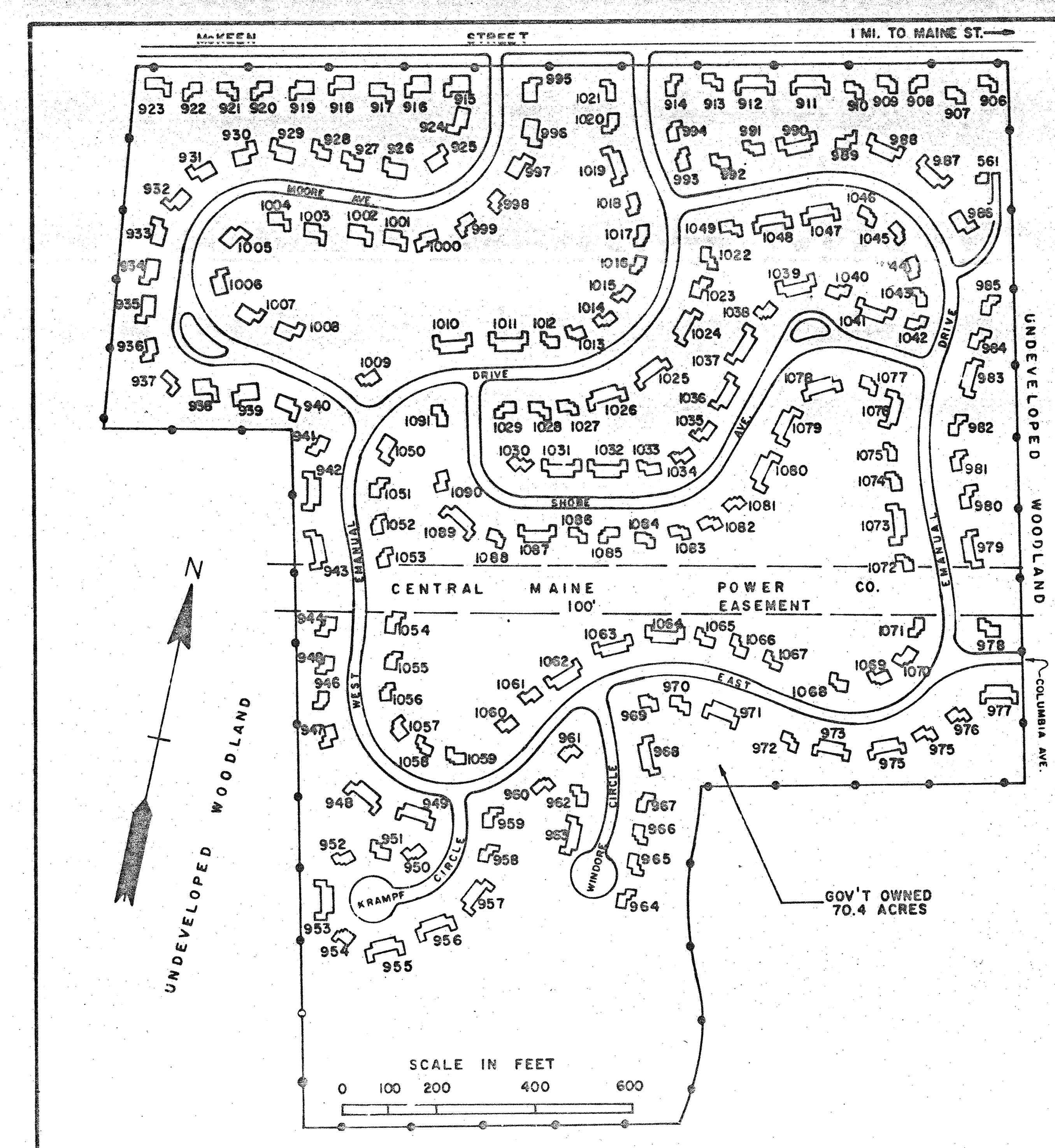
REMOTE TRANSMITTER BUILDING & FACILITIES



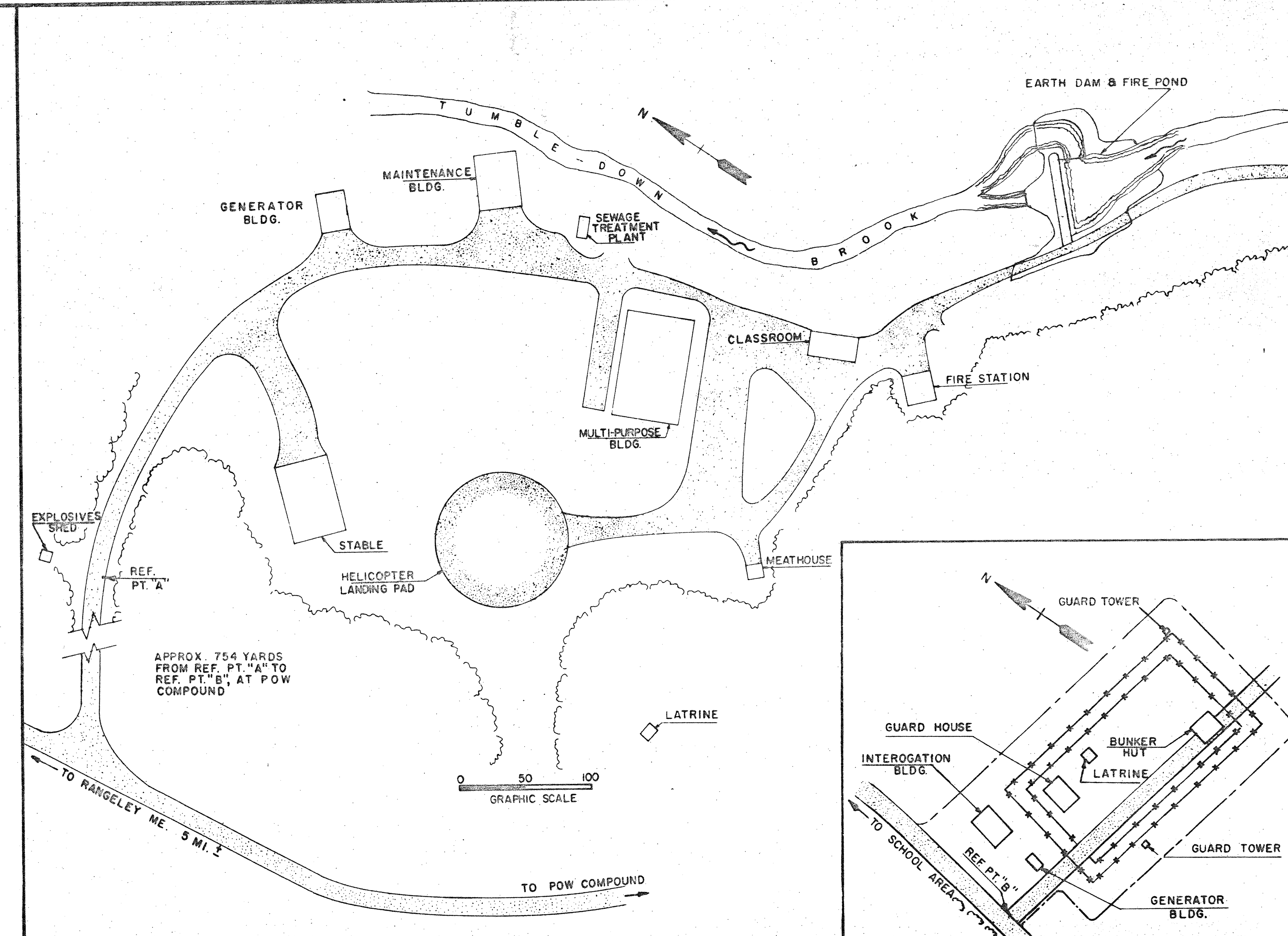
YA-2 LOCALIZER



DUCK ISLAND TARGET

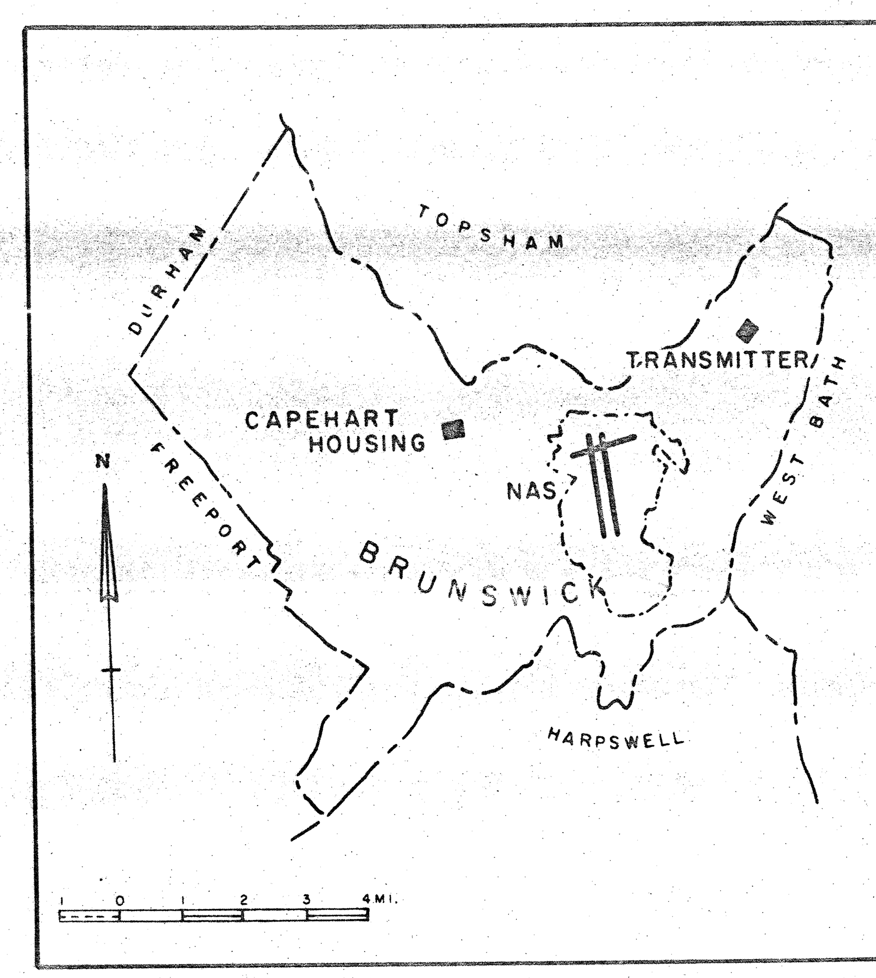


CAPEHART HOUSING



POW COMPOUND

SURVIVAL, ESCAPE & EVASION TRAINING FACILITY



VICINITY LOCATION PLAN

LEGEND

- PROPERTY BOUNDARY
- FENCE
- ROAD OR PAVED AREA
- STRUCTURE
- SHORE LINE

NO.	AMD OR COR	DESCRIPTION OF AMENDMENT OR CORRECTION	DATE	DPWO APPROVAL
3	COR	DUCK ISLAND TARGET & YA-2 LOCALIZER DELETED	9/15/76	G.W.W.
2	AMD	SEAL ISLAND RANGE INSET REMOVED	2/2/66	[signature]
1	AMD	SHEET # CHANGED & SUPERSEDURE NOTE ADDED	11/19/65	[signature]

DRAWN BY BABBIDGE / H.C. Henry

BRANCH MGR Nazar

DIV. DIR. MacLEARN

SUBMITTED BY DEP DPWO C. Allegue DATE 10/62

CONCUR CO K. L. Pack DATE 10/16/62

APPROVED BY BUDOCKS

DEPARTMENT OF THE NAVY BUREAU OF YARDS & DOCKS

U.S. NAVAL AIR STATION BRUNSWICK, MAINE

EXISTING CONDITIONS MAP
REGIONAL MAP
AND
OFF STATION FACILITIES

SCALE: GRAPHIC

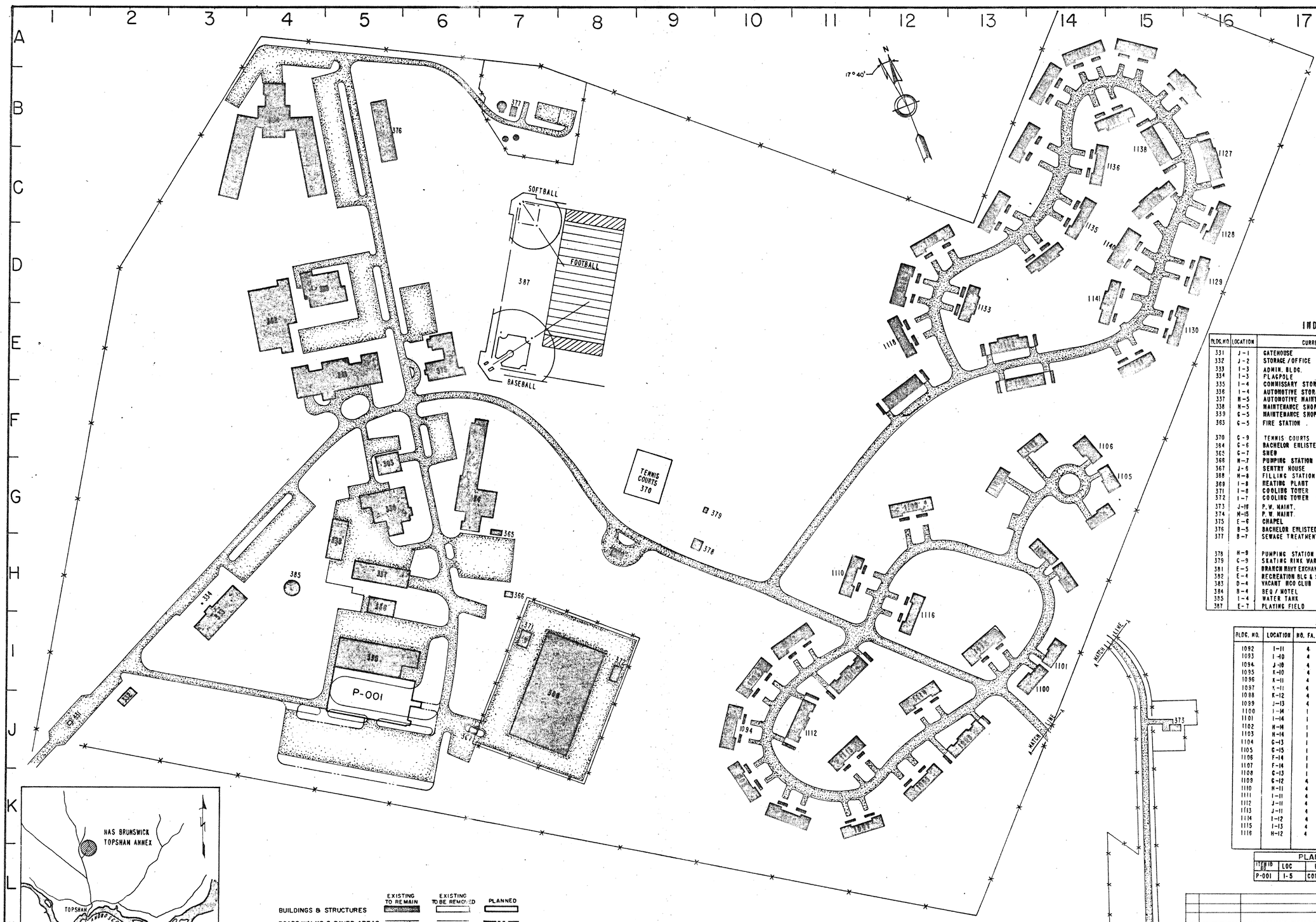
SHEET 1 OF 1

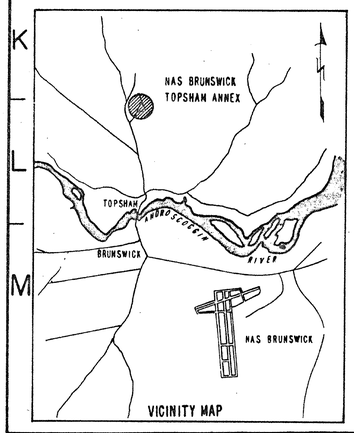
Y & D DWG No. 925132

THIS DWG. SUPERSEDES Y&D DWG. 747255

(2)

Topsham Annex Archival Map – circa 1972





	EXISTING TO REMAIN	EXISTING TO BE REMOVED	PLANNED
BUILDINGS & STRUCTURES			
ROADS, WALKS & PAVED AREAS			
NAVY PROPERTY			
NAVY PROPERTY W/ FENCE			
FENCE			
MAIN STATION ENTRANCE			

GRAPHIC SCALE IN FEET
100 0 100 200 300 400

GRAPHIC SCALE IN FEET
200 0 200 400

INDEX OF STRUCTURES

BLDG. NO.	LOCATION	CURRENT USE	QUANTITY	UNIT	PLANNED
331	J-1	GATEHOUSE	35	SF	
332	J-2	STORAGE / OFFICE	1,248	SF	
333	I-3	ADMIN. BLDG.	15,827	SF	
334	I-3	FLAGPOLE	2	EA	
335	I-4	COMMISSARY STORE	12,896	SF	
336	I-4	AUTOMOTIVE STORAGE SHED	2,000	SF	
337	H-5	AUTOMOTIVE MAINTENANCE SHOP	5282	SF	
338	H-5	MAINTENANCE SHOP	4,320	SF	
339	G-5	MAINTENANCE SHOP	8,015	SF	
363	G-5	FIRE STATION	2851	SF	
370	G-9	TENNIS COURTS	1	EA	
364	G-6	BACHELOR ENLISTED QUARTERS	19,250	SF	
365	G-7	SHED	127	SF	
366	H-7	PUMPING STATION	274	SF	
367	J-6	SENTRY HOUSE	96	SF	
368	H-8	FILLING STATION			
369	I-8	HEATING PLANT	10,043	SF	
371	I-8	COOLING TOWER			
372	I-7	COOLING TOWER			
373	J-10	P.W. MAINT.	1,300	SF	
374	H-15	P.W. MAINT.	1,000	SF	
375	E-6	CHAPEL	8,159	SF	
376	B-5	BACHELOR ENLISTED QUARTERS	9,003	SF	
377	B-7	SEWAGE TREATMENT PLANT	496	SF	
378	H-9	PUMPING STATION	514	SF	
379	G-9	SKATING RINK WARMING HUT	1	EA	
381	E-5	BRANCH NAVY EXCHANGE/COMM STORE OFFICE	14,057	SF	
382	E-4	RECREATION BLG & SMALL ARMS RANGE	14,955	SF	
383	D-4	VACANT BOQ CLUB	6,631	SF	
384	B-4	BEQ / MOTEL	38,574	SF	
385	I-4	WATER TANK	575	TG	
387	E-7	PLAYING FIELD	4	EA	

FAMILY HOUSING

BLDG. NO.	LOCATION	NO. FA.
1092	I-11	4
1093	I-10	4
1094	J-10	4
1095	K-10	4
1096	K-11	4
1097	K-11	4
1098	K-12	4
1099	J-13	4
1100	I-14	1
1101	I-14	1
1102	H-14	1
1103	H-14	1
1104	G-13	1
1105	G-15	1
1106	F-14	1
1107	F-14	1
1108	G-13	1
1109	G-12	4
1110	H-11	4
1111	I-11	4
1112	J-11	4
1113	J-11	4
1114	I-12	4
1115	I-13	4
1116	H-12	4

BLDG. NO.	LOCATION	NO. FA.
1117	E-12	4
1118	E-12	4
1119	D-12	4
1120	D-12	4
1121	C-13	4
1122	B-13	4
1123	B-14	4
1124	A-14	4
1125	A-15	4
1126	B-16	4
1127	B-16	4
1128	C-16	4
1129	D-16	4
1130	E-15	4
1131	E-15	4
1132	E-13	4
1133	D-13	4
1134	D-14	4
1135	C-14	4
1136	C-14	4
1137	B-15	4
1138	B-15	4
1139	C-15	4
1140	D-15	4
1141	D-15	4
1142	E-13	4

PLANNED STRUCTURES

ITEM ID NO.	LOC	LINE ITEM TITLE	QUANTITY	UNIT
P-001	I-5	COMMISSARY STORE EXPANSION	36,000	SF

NO.	AMD. OR COR.	DESCRIPTION OF AMENDMENT OR CORRECTION	DATE	NORTHDIV APPROVAL

SUBMITTED BY NORTHDIVNAVFAC
DATE 4/9/82
CONCURRED
DATE 9/6/82
APPROVED BY NFEC HQ

NAVAL FACILITIES ENGINEERING COMMAND
NORTHERN DIVISION

NAVAL AIR STATION BRUNSWICK, MAINE

TOPSHAM ANNEX

GENERAL DEVELOPMENT MAP

SCALE: GRAPHIC
SHEET 1 OF 1
FEC DWG NO. 1,388,526

MISCELLANEOUS DOCUMENTS

NASB Admin Record Index

rd Nu	Record Date	Sites Addressed	Title/Description	D RC	ecord Ty	Subject/Keywords
1	01-Jun-83	1-10	Initial Assessment Study, NASB	1	Report	Identifies and assesses sites posing a potential threat to human health or the environment due to contamination from past hazardous materials operation.
2	27-Aug-84	General	Final Site Inspection Report for the U.S. Naval Air Station Brunswick, Maine	1	Report	The NUSFIT Site inspection was performed so as to generate data which would confirm the existence of hazardous waste at the site, and aid in evaluation the sites potential impact on human health and the local environment.
3	01-Jun-85	1-4, 7-9	Pollution Abatement Confirmation Study, Step 1A-Verification	1	Report	The purpose of the Verification step 1A was to identify and evaluate suspected waste disposal sites in regards to specific toxicants and the potential impacts they pose upon human and environmental health.
4	22-Sep-83	landfill#2	Correspondence concerning a site inspection	1	Letter	The field activity involved the characterization of ambient air at the site with an OVA, follow by the acquisition of soil and surface water samples.
5	30-Oct-84	1-4, 7-9	Schedule for Onsite Activities, Pollution Abatement Confirmation Study	1	Letter	Schedule for on-site activities
6	11-Dec-84	1-4, 7	Telephone Conversation Summary	1	Meeting	Confirmation Study at NASB, report of drilling and well sampling progress
7	03-Jan-85	1-3	Telephone Conversation Summary	1	Meeting	NACIP Study NASB, Bill states that lab results are coming in, asks for time extenuation of one week for Draft Report, request was granted by NorthDiv.
8	15-Jan-85	1,3,4,7-9	Telephone Conversation Summary	1	Meeting	NACIP Study NASB, preliminary lab results
9	15-Apr-85	1-4, 7-9	Comments on Draft Verification Step Report	1	Letter	Comments on Draft Verification Step Report
10	24-May-85		Internal memo describing a meeting on 22 May 1985	1	Memo	Details the response by E.C. Jordan to Northern Division comments on Draft Verification Step report.
11	02-Aug-85		Comments on the revised Confirmation Study Verification Step report	1	Letter	Comments on the revised Confirmation Study Verification Step report
12	03-Dec-85		Correspondence accompanying a copy of the confirmation study by E.C. Jordan	1	Letter	Correspondence accompanying a copy of the confirmation study by E.C. Jordan
13	13-Jan-86		Comments concerning the Pollution Abatement Confirmation Study Step 1A-Verification	1	Letter	Comments concerning the Pollution Abatement Confirmation Study Step 1A-Verification.
14	15-May-86	1-3,7-9	Response to Pollution Abatement Confirmation Study Step 1A-Verification Report	1	Letter	Response to Pollution Abatement Confirmation Study Step 1A-Verification Report
15	01-Apr-93	9	Comments on proposed field activities at Site 09	1	Letter	Discussion of TRC meeting on 18 March 1998
16	03-Dec-87		Minutes of Technical Review Committee	1	Meeting	
17	26-Jan-88		Memorandum of Meeting Minutes	1	Meeting	Meeting Minutes from BNAS Project Meeting, 1000; 11 January; Brunswick Naval Air Station, Brunswick, ME
18	03-Feb-88		Comments on Minutes of meeting from 11 January 1988	1	Memo	Comments on Minutes of meeting from 11 January 1988

19	17-May-88		Memorandum of Meeting held on 17 May 1988	1	Meeting	
20	08-Jul-88		Technical Review Committee Minutes from 7 July 1988	1	Meeting	Meeting Minutes, list of attendees
21	22-Nov-88		Technical Review Committee Meeting Minutes	1	Meeting	Meeting minutes, list of attendees, handout of preliminary data results, including maps and schedules
22	22-Feb-89		Technical Review Committee Meeting Minutes	1	Meeting	Meeting minutes, list of attendees, and data qualifier symbols used in the First Round Data Package, maps of wells and associated contaminants found
23	10-Apr-89		Technical Review Committee Meeting Minutes from 28 March 1989	1	Meeting	Meeting minutes, list of attendees, parameters for sampling round #3, maps of wells and associated contaminants
24	18-Apr-89		Request for Technical Review Committee Meeting Minutes	1	Letter	Request for Technical Review Committee Meeting Minutes
25	28-Apr-89		Response to the Request for TRC Meeting Minutes	1	Letter	Letter indicates to direct all further inquiries to Ron Springfield of Northern Division
26	20-Jun-89		Technical Review Committee Meeting Minutes	1	Meeting	Meeting minutes, list of attendees, comments received from Region 1 USEPA, comments received form Maine DEP
27	27-Jun-89		Memorandum of Technical Review Committee Meeting Minutes	1	Meeting	Meeting minutes, list of attendees
28	10-Aug-89		Technical Review Committee Meeting Minutes	1	Meeting	Meeting Minutes, list of attendees, summary of round 3 sampling results, maps of wells and associated contaminants
29	17-Apr-90		Technical Review Committee Meeting Minutes from 13 February 1990	1	Meeting	Meeting minutes, list of attendees, site maps and other general information.
30	12-Jul-90		Technical Review Committee Meeting Minutes of 23 May 1990	1	Meeting	Meeting minutes, list of attendees.
31	19-Jul-90		Memorandum to insert handout material into the Administrative Record to accompany the TRC Meeting Minutes of 23 May 1990	1	Meeting	Handout includes site maps and other general information.
32	31-Oct-90		Technical Review Committee Meeting Minutes	1	Meeting	Meeting minutes, list of attendees,
33	28-Jan-91		Technical Review Committee Meeting Minutes	1	Meeting	Meeting minutes, list of attendees, general handout material
34	25-Feb-91		Technical Review Committee Meeting Minutes	1	Meeting	Meeting Minutes, list of attendees
35	02-Jan-92		Technical review Committee Meeting Minutes	1	Meeting	Meeting minutes, list of attendees.
36	20-Feb-92		Technical Review Committee Meeting Minutes	1	Meeting	Meeting Minutes, list of attendees, general handout information.
37	20-May-92		Technical Review Committee Meeting Minutes	1	Meeting	Meeting minutes, list of attendees.

38	01-Oct-92		Technical Review Committee Meeting Minutes	1	Meeting	Meeting minutes, list of attendees.
39	10-Dec-92		Technical Review Committee Meeting Minutes	1	Meeting	Meeting Minutes, list of attendees.
40	01-Feb-88	General	Quality Assurance Program Plan for the Installation Restoration Program	1	Report	The purpose of this generalized QAPP is to indicate prime responsibilities and prescribe requirements for assuring that the specific site investigations are planned and executed in a manner consistent with quality assurance objectives.
41	19-Oct-90		Federal Facility Agreement under CERCLA Section 120 As Amended	1	Report	
42	24-Feb-86		Correspondence requesting information and the most recent Phase II report	1	Letter	Correspondence requesting information and the most recent Phase II report.
43	25-Feb-86		Correspondence requesting that MEDEP receives all information regarding the cleanup of hazardous materials	1	Letter	Correspondence requesting that Maine DEP receives all information regarding the cleanup of hazardous materials.
44	11-Mar-86		Request for clarification in adhering to federal and state authority under NACIP program issues	1	Letter	Request for clarification in adhering to Federal and State authority under NACIP program issues.
45	07-Apr-86		Response to a request for advice concerning federal and state authority under the NACIP program	1	Letter	Response to a request for advice concerning Federal and State authority under the NACIP program.
46	22-Oct-87		Timetable representing the Navy's intentions to complete the RI/FS at NASB and outlines the Navy's understanding of the various agencies involved in the RI/FS process	1	Letter	Timetable representing the Navy's intentions to complete the RI/FS at NASB and outlines the Navy's understanding of the various agencies involved in the RI/FS process.
47	10-Nov-87		Correspondence indicating NOAA's interest in the NASB Superfund project	1	Letter	Correspondence indicating NOAA's interest in the NASB Superfund project.
48	16-Nov-86		Correspondence concerning the current status of the NASB IR Program	1	Letter	Correspondence concerning the current status of the NASB IR program.
49	20-Nov-87		Correspondence requesting a more detailed schedule of RI/FS work to be completed at NASB	1	Letter	Correspondence requesting a more detailed schedule of RI/FS work to be completed at NASB.
50	10-Dec-87	Jordan Ave	Report Summary of Jordan Avenue Wellfield Sampling	1	Report	Report Summary of the sampling operations of 21 wells and the pump station at the Jordan Ave. wellfield on 09/21-09/22/87. All water samples showed no detectable levels of VOCs.

51	17-Dec-87		Correspondence requesting that certain items be including in the forthcoming RI/FS work plan	1	Letter	Correspondence requesting that certain items be including in the forth-coming RI/FS work plan.
52	20-Jan-87		Correspondence restating the Navy's position with regards to the definition of commencing of the RI/FS process at NASB	1	Letter	Correspondence restating the Navy's position with regards to the definition of commencing of the RI/FS process at NASB.
53	25-Apr-88		Correspondence stating that NASB IR Program must adhere to the same QA/QC criteria as other Superfund sites	1	Letter	Correspondence stating that NASB IR program must adhere to the same QA/QC criteria as other Superfund sites.
54	25-Apr-88		Request that all sites contained within NASB be subjected to the NPC evaluation and remedy process	1	FAX	Correspondence from the EPA requesting that all sites contained within NASB be subjected to the NPC evaluation and remedy process.
55	08-Nov-89		Response to the FFA of NASB	1	Letter	Correspondence containing a response to the FFA of NASB.
56	16-Nov-89		Comments of the FFA for NASB	1	Letter	Correspondence containing comments of the FFA for NASB
57	17-Nov-89		Correspondence requesting an extension for review and comment of NASB contamination sites	1	Letter	Letter expresses displeasure that the Town of Brunswick has, so far, been un-represented in dealing with NASB contamination issues.
58	18-Dec-89		Response to MEDEP's request for maintaining an active role in NASB	1	Letter	Correspondence containing response to Maine DEP's request for maintaining an active role in NASB.
59	01-Feb-90		Correspondence requesting absolute adherence to Draft Initial Screening Report schedules	1	Letter	Correspondence requesting absolute adherence to Draft Initial Screening Report schedules.
60	09-Feb-90		Correspondence confirming EPA acceptance of Amendment 1 to the FFA	1	Letter	Contains correspondence as well as Amendment 1 to the FFA.
61	06-Mar-90		Applicable or Relevant and Appropriate Requirements for RI/FS, NASB	1	FAX	Correspondence containing Applicable of Relevant and Appropriate Requirements for Remedial Investigation/Feasibility Study, NASB.
62	12-Mar-90		EPA concurrence with Northern Division's request for a time extenuation for a published schedule for the RI	1	Letter	Correspondence containing EPA concurrence with Northern Division's request for a time extenuation for a published schedule for the Remedial Investigation.
63	09-Apr-90		MEDEP's Appropriate Standards, Requirements, Criteria, or Limitations for the NASB Superfund site	1	Letter	Correspondence concerning Maine DEP's Appropriate Standards, Requirements, Criteria or Limitations for the NASB Superfund Site.
64	18-May-90		Request for time extension for submittal of response to comments the Draft Phase I FS	1	Letter	Correspondence requesting time extension for submittal of response to comments the Draft Phase I Feasibility Study.
65	21-Jun-90		Notice To Proceed with FS activities as NASB	1	Letter	Correspondence containing a Notice To Proceed with Feasibility Study activities as NASB.

66	25-Jun-90		Navy request for time extension for submittal of response to comments for Draft RI Report and Draft Phase I FS	1	Letter	Correspondence containing a Navy request for time extension for submittal of response to comments for Draft Remedial Investigation Report and Draft Phase I Feasibility Study.
67	23-Apr-92	1,2,3	Request that the Navy initiate studies to identify upstream contamination of iron and zinc within Mere Brook	1	Letter	Correspondence requesting that the Navy initiate studies to identify upstream contamination of Iron and Zinc within Mere Brook.
68	11-Jan-93		Correspondence concerning Navy proposed schedule accelerations	1	Letter	Correspondence concerning Navy proposed schedule accelerations.
69	01-Sep-88	General	Community Relations Plan for NASB, National Priority List Site	1	Report	This Community relations plan addresses the needs of the public who are interested in and/or impacted by the presence and planned redemption of hazardous waste sites at NASB.
70	24-Feb-88		Public Notice of RI/FS Schedule for NASB Superfund Site	1	Public N	Public Notice of RI/FS Schedule for NASB Superfund Site.
71	14-Jul-88		Correspondence concerning community relations	1	Letter	Interviews, NorthDiv comments on Draft Community relations Plan, TRC interviews.
72	06-Oct-89		EPA and Navy announce Interagency FFA for the NASB Superfund site	1	Public N	The USEPA and US Navy announce Interagency FFA for the NASB Superfund Site.
73	27-Dec-89		Residential Sampling Results	1	Letter	Residential Sampling Results from the Rosenweig residence on Coombs Rd..
74	06-Mar-90		Request for information under the Freedom of Information Act pertaining to specific NASB Superfund site activities	1	Letter	Request for information under the Freedom of Information Act pertaining to specific NASB Superfund Site activities.
75	26-Mar-90		EPA Announces Extension of Application Notification Deadline for TAG Application to be Filed for the NASB Superfund Site	1	Public N	The USEPA Announces Extension of Application Notification Deadline for TAG Application to be Filed for the NASB Superfund Site.
76	06-Apr-90		Response to request for NASB IR Study information	1	Letter	Response to request for NASB IR Study information.
77	12-Apr-90		Request for data pertaining to NASB IR Study	1	Letter	Request for data pertaining to NASB IR Study
78	23-Apr-90		Memo recording NASB's position that offsite underground storage tanks and concrete plant pose a greater threat to the Jordan Avenue wellfield than does NASB	1	Memo	Memo recording NASB's position that Offsite UST's and Concrete Plant pose a greater threat the Jordan Ave. wellfield than does NASB.
79	01-Jan-90	08	Navy will test wells	1	Public N	Editorial in Public Newspaper responding to BACSE calls for off-site well installation at Site 08

80	22-Jun-90		Data from onsite well at Consolidated Auto, Revised Maximum Exposure Guidelines	1	Letter	Data from on-site well at Consolidated Auto, Revised Maximum Exposure Guidelines.
81	15-Aug-90		Questions and answers about National Priorities List Sites	1	Public N	NASB Q&A, site map, general site info, NPL timeline.
82	02-Nov-90		Public Comment Period begins on FFA for NASB	1	Public N	Public Comment Period Begins on FFA for NASB.
83	03-Jan-91		Brunswick Citizens Receive $50,000 Federal Grant for "Superfund" Advisor	1	Public N	BACSE receives TAG.
84	12-Dec-91		Notice for and Fact Sheet from Public Meeting to discuss cleanup alternatives for NASB	1	Public N	Notice for and Fact Sheet from Public Meeting to discuss cleanup alternatives for NASB.
85	01-Jan-92		Public Notice Decision announced for waste site cleanup as NASB	1	Public N	Public Notice Decision announced for waste site cleanup as NASB
86	01-Jan-92		Public Meeting and Hearing Regarding Cleanup of Perimeter Disposal Area at NASB	1	Public N	Public Meeting and Hearing Regarding Cleanup of Perimeter Disposal Area at NASB.
87	01-Jan-92		Fact Sheet for NASB Summary of the Proposed Plan for Site 08, The Perimeter Road Disposal Site	1	Public N	Fact Sheet for NASB Summary of The Proposed Plan for Site 08, The Perimeter Road Disposal Site.
88	01-Jan-92		Navy Announces Environmental Cleanup Public Comment Period	1	Public N	Public Notice announcing public comment period.
89	01-Nov-92		NASB IR Program Fact Sheet	1	Public N	Fact sheet concerning proposed removal actions at Building 95.
90	01-Jan-92	08	Navy Announces Environmental Cleanup Public Comment Period	1	Public N	The Navy is holding a second public comment period to solicit further input on the revised Proposed Plan to address Site 08.
91	01-Jan-93		Navy Announces Public Meeting/Hearing and Comment Period for Cleanup	1	Public N	Comments and Meeting concerning "Proposed Plan for Sites 5 and 6 Consolidates Excavated Material"
92	01-Mar-93	05,06	Fact Sheet For NASB IRP, Site 5 and Site 6	1	Public N	Site 5 and Site 6 public fact sheet
93	17-Feb-88	General	Comments received from regulatory agencies at the Technical Committee meeting on 2/10/88 to clarify position with regards to status of our RI/FS efforts	1	Letter	Letter regarding comments received from regulatory agencies at Meeting 2/10/88 regarding RI/FS
94	15-May-90		Comments on Draft RI Report, Volumes 1-4	1	Letter	Comments on Draft RI Report, Volumes 1-4
95	17-May-90	1-4,7-9	EPA Comments on Draft RI Report and DRAFT Post-Screening Work Plan	1	Letter	EPA comments on referenced Report, NOAA comments, U.S. Fish and Wildlife comments

96	17-May-90		Comments on Draft RI Report and on the Public Health and Environmental Risk Assessment report	1	Letter	Comments on Draft RI Report and on the Public Health and Environmental Risk Assessment report
97	10-Oct-90		Comments on Draft Final RI Report including the Public Health and Environmental Risk Assessment	1	Letter	Comments on Draft Final RI Report including the Public Health and Environmental Risk Assessment
98	01-Jan-89	General	Round 1 Data Package, RI/FS Program, NASB	1	Data	Round 1 Data Package, RI/FS Program, NASB; includes data, site maps, etc.
99	13-Jan-89		Correspondence accompanying Data Package I	1	Letter	Comments on Data Package I from E.C. Jordan
100	13-Mar-89		Comments concerning RI/FS Study Round I Data Package	1	Letter	Comments concerning RI/FS Round I Data Package
101	13-Mar-89		Comments concerning Round 1 and 2 Data Packages	1	Letter	Comments concerning Round 1 and 2 Data Packages
102	25-Oct-95	1,3,5,6,8	Restoration Advisory Board Meeting, NASB	1	Meeting	RAB, Construction Update on Eastern Plume, Sites 1 and 3 Landfill, Sites 5,6,8, and 11, Long-Term Monitoring, Operation and Maintenance, Site 9 Source Investigation, Other Issues and Comments, next RAB meeting
103	13-May-88	8	Work plan received with comments	1	Letter	WorkPlan, Mare Brook, Androscoggin River, Site 8, NOAA, data utilization
104				1		
105				1		
106				1		
107				1		
108				1		
109				1		
110				1		
111				1		
112				1		
113	01-Aug-90		Correspondence stating that past data must be presented in the risk assessment report where applicable	1	Letter	Correspondence stating that past data must be presented in the risk assessment report where applicable
114	05-May-89		Correspondence containing responses to Phase I FS, Preliminary Development of Alternatives, and Preliminary Risk Assessment	1	Letter	Responses to Phase I FS, Preliminary Development of Alternatives and Preliminary Risk Assessment
115	08-Feb-90		Correspondence including comments on Preliminary Risk Assessment	1	Letter	Comments on Preliminary Risk Assessment

116	17-May-90		Correspondence containing comments on Draft RI Report including comments on the Public Health and Environmental Risk Assessment	1	Letter	Comment letter containing comments on Draft RI Report including comments on the Public Health and Environmental Risk Assessment
117	01-Aug-90	1,2,3,4,7	Draft Final Remedial Investigation Report, Volume 4; Appendix Q	1	Report	1990 RI Report for Sites 1,2,3,4,7,8,9,11,13,Pinic Pond and Eastern Plume, Risk Assessment part of the RI/FS, August 1990
118	01-Aug-90	1,2,3,4,7	Draft Final Remedial Investigation Report, Volume 3; Appendixes K-P	1	Report	1990 RI Report appendices for laboratory analytical data, groundwater contaminant summary maps, surface water, sediment, and leachate summary maps, soil contaminant maps, piper diagrams, water level summary table
119	01-Aug-90		Draft Final Remedial Investigation Report, Volume 2; Appendixes A-J	1	Report	1990 RI appendices, ARARS, field boring logs, test pit records, soil gas survey, grain size analysis, monitoring well details, field parameters, ground survey data, permeability test data, laboratory data summary tables including TICS
120	01-Aug-90		Draft Final RI Report, Volume 1, RI/FS	1	Report	1990 RI Report text for Sites 1,2,3,4,7,8,9,11,13 and Eastern Plume
121	25-Jan-01	16	Cover Letter for Final Debris Removal Report for Site 16	1	Letter	Cover letter for the Final Site 16 Debris Removal Report
122	24-Jan-01	16	Final Site 16 Post-Field Work Magnetometer Survey and Debris Removal Action Swampy Road Debris Site, Site 16	1	Report	Final report for the debris removal at Site 16 (Swampy Road Debris Site), laboratory data, and figures are attached
123	31-Jul-01	16	Cover letter for Final Findings Report for Post Field Work Magnetometer Survey Merriconeag Extention Debris Site, Site 15, and Swampy Road Debris Site, Site 16, NASB	1	Letter	Cover letter for the Final Findings Report for Post Field Work Magnetometer Survey Merriconeag Extention Debris Site, Site 15, and Swampy Road Debris Site, Site 16, NASB, Brunswick, Maine
124	29-Feb-00	15,16	Final Findings From Post-Field Work Magnetometer Survey, Merriconeag Extention Debris Site, Site 15, Swampy Road Debris Site, Site 16, NASB	1	Report	Final Findings from Post-Field Work Magnetometer Survey, Merriconeag Extention Debris Site, Site 15, Swampy Road Debris Site, Site 16, NASB, Brunswick, Maine with laboratory data and figures attached
125	09-Mar-01	11, EP	Eastern Plume and Site 11 Direct-Push Investigation, NASB	1	Letter	MEDEP comment letter on the Draft Work Plan (dated 8 February 2001) for the direct-push investigation of the Southern Boundary of the Eastern Plume and Site 11
126	01-Mar-89		Round II Data Package, RI/FS Program, NASB, Phase I RI	1	Data	Round II Data Package, RI/FS Program, NASB, Phase I RI
127	01-Jul-89		Round III Data Package, RI/FS Program, NASB, Phase I RI	1	Data	Round III Data Package, RI/FS Program, NASB, Phase I Remedial Investigation
128	10-Mar-89		Correspondence accompanying Round II Data Package	1	Letter	Contains E.C. Jordan comments on Round II Data Package
129	14-Jul-89		Correspondence accompanying Round III Data Package	1	Letter	Contains E.C. Jordan comments on Round III Data Package

130	31-Aug-89		Correspondence containing comments on Round III Data Package	1	Letter	Correspondence containing comments on Round III Data Package
131	04-Oct-89		EPA and NOAA comments on Round III Data Package	1	Letter	Correspondence containing EPA and NOAA comments on Round III Data Package
132	07-Mar-90		NASB National Priorities List Information Repository	1	Public N	Title Page
133	23-Feb-90		Handout to the attendees at the 21 February 1990 Public Hearing	1	Public N	Contains: Site map, NPL timeline, History and present info regarding NASB and the NPL.
134	21-Mar-90		Question and answers about National Priorities List Sites [NASB]	1	Public N	Q&A of NASBs relation with the NPL, Site Map and general information about the cleanup effort.
135	01-Jan-00		Brunswick Area Citizens for a Safe Environment membership flyer	1	Public N	Brunswick Area Citizens for a Safe Environment membership flyer.
136	26-Mar-90		Compilation of references to public articles and news stories regarding NASB and its cleanup	1	Public N	Contains stories from 6 July 1986 to 3 March 1990.
137	01-Apr-88		RI/FS Work Plan, NASB	1	Workplar	RI/FS Work Plan, NASB
138	01-Jul-88		Addendum to RI/FS Work Plan, NASB	1	Workplar	Addendum to RI/FS Work Plan, NASB
139	10-Apr-01	Bldg 95	Building 95, NASB	1	Letter	Folllow-up letter to March 2001 Technical Meeting regarding Bldg 95 contaminants Alpha-chlordane and Heptachlor epoxide in ground water samples during April and Sept 2000.
140	24-Nov-86		EPA and NOAA comments on the Pollution Confirmation Abatement Study Step 1B	1	Letter	Correspondence containing EPA and NOAA comments on the Pollution Confirmation Abatement Study Step 1B.
141	31-Mar-87		Navy response to EPA Region 1 comments on the work plan for additional investigation under the confirmation study	1	Letter	Correspondence containing Navy response to USEPA Region 1's comments on the work plan for additional investigation under the confirmation study.
142	09-Apr-87		Correspondence to clarify the status of the Navy's incorporation of EPA comments into the next step in the NACIP process	1	Letter	Correspondence to clarify the status of the Navy's incorporation of EPA comments into the next step in the NACIP process.
143	08-May-87		Response to Navy's comments on our Work Plan recommendations	1	Memo	Response to Navy's Comments on NOAA's Work Plan Recommendations.
144	29-Jun-87		Correspondence stating items to be discussed by Northern Division and EPA in the future	1	Letter	Correspondence stating items to be discussed by Northern Division and USEPA in the future.
145	30-Jun-87		Correspondence containing meeting minutes for Work Plan Review,12 June 1987	1	Letter	Meeting minutes for Work Plan Review,12 June 1987.

146	08-Jul-87		Meeting minutes for Work Plan Review,12 June 1987	1	FAX	Meeting minutes for Work Plan Review,12 June 1987.
147	10-Nov-87		Correspondence indicating NOAA's interest in activities of the RI/FS at NASB	1	Letter	Correspondence indicating NOAA's interest in activities of the RI/FS at NASB.
148	15-Mar-88		Correspondence indicating EPA's desire for all RI/FS activities be carried out under CERCLA/SARA guidance documents, and comments on Work Plan, Site Quality Assurance Plan, and the QAPP-IR Program	1	Letter	Correspondence indicating EPA's desire for all RI/FS activities be carried out under CERCLA/SARA guidance documents, and comments on "Work Plan", "Site Quality Assurance Plan", and the "QAPP-IR Program".
149	07-Apr-88		Comments on the Remedial Investigation Work Plan for NASB	1	Letter	Correspondence containing comments on the "Remedial Investigation Work Plan for NASB".
150	13-May-88		Comments on the NASB RI/FS Work Plan	1	Letter	Correspondence containing comments on the NASB RI/FS Work Plan.
151	06-Jun-88		Additional comments on RI/FS Study Work Plan	1	Letter	Correspondence containing additional comments on RI/FS Study Work Plan.
152	17-Jun-88		Comments on RI/FS Study Work Plan	1	Letter	Correspondence containing comments on RI/FS Study Work Plan.
153	12-Aug-88	8	Telephone Conversation Record	1	Memo	Contains a discussion surrounding the substitution of analytical methods used at Site 08
154	22-Aug-88		Laboratory approval for IR Program Analyses	1	Memo	Laboratory Approval for IR Program Analyses.
155	26-Oct-88		Changes to the RI/FS Work Plan	1	Letter	Correspondence containing changes to the RI/FS Work Plan.
156	14-Apr-89		Comments on the RI/FS Work Plan	1	Letter	Correspondence containing comments on the RI/FS Work Plan.
157	22-May-89		Comments on Additional Sampling Plan, RI/FS Program	1	Letter	Correspondence containing comments on Additional Sampling Plan, RI/FS Program.
158	09-Jun-89		Comments on Draft Additional Sampling Plan RI/FS Program	1	Letter	Correspondence containing comments on Draft Additional Sampling Plan RI/FS Program.
159	15-Jun-89		Approval for Draft Additional Sampling Plan, RI/FS Program	1	Letter	Correspondence stating approval for Draft Additional Sampling Plan, RI/FS Program.
160	09-Aug-89		Final version of Additional Sampling Plan, RI/FS Program	1	Letter	Correspondence containing the final version of Additional Sampling Plan, RI/FS Program.
161	26-Sep-89		Comments on Additional Sampling Plan RI/FS Program	1	Letter	Correspondence containing comments on Additional Sampling Plan RI/FS Program.
162	28-Dec-89		Comments on Additional Sampling Plan RI/FS Program	1	Letter	Correspondence containing comments on Additional Sampling Plan RI/FS Program.
163	01-Jan-90		RI/FS Round IV Data Package	1	Letter	Contains site maps, analytical data, boring logs, and other information
164	28-Aug-89		Comments on RI/FS Study, Round IV Data Package	1	Letter	Correspondence containing comments on RI/FS Study, Round IV Data Package.
165	05-Mar-90		Comments on RI/FS, Round IV Data Package from EPA and NOAA	1	Letter	Correspondence containing comments on RI/FS Study, Round IV Data Package from USEPA and NOAA.

166	16-Jul-01	Bldg 95	Building 95, Monitoring Event 12, Naval Air Station, Brunswick, Maine	1	Letter	Comment letter from the MEDEP regarding the Bldg 95 Monitoring Event No. 12 report.
167	19-Jul-01	Bldg 95	Building 95 - Avitrol, Naval Air Station, Brunswick, Maine	1	Letter	Follow up letter to the Navy regarding the Navy's previous correspondence on previous soil and groundwater sampling activities for the Avitrol at Building 95, Naval Air Station, Brunswick, Maine.
168	18-Apr-01	Bldg 95	Building 95 NASB	1	Letter	Followup letter to discussions from the Technical Meeting regarding Building 95 groundwater. Navy proposes adding Rotenone to analysis for the upcoming round of Long-Term Monitoring Sampling.
169	05-Nov-01	Bldg 95	Draft 2000 Annual Report for Building 95, NASB	1	Letter	Comment letter from EPA on the 2000 Draft Annual Report for Building 95.
170	22-Mar-01	2	Site 2, Summary of Monitoring Well Installation, NASB	1	Letter	MEDEP received letter report regarding the well installation at Site 2 on 22 June 2000. Reviewed report, no comments on the report.
171	11-Apr-01	11, EP	Review of the Draft Letter Work Plan for the Direct-Push Investigation of the Southern Boundary and Near Site 11	1	Letter	Lepage Environmental is the consultant for the Brunswick Area Citizens for a Safe Environment (BACSE) reviewed and commented on the draft work for the direct push investigation of the Southern Boundary of the Eastern Plume and Site 11.
172	21-Mar-01	7	Final Letter Work Plan for Ground-Water and Soil Investigation at Site 7	1	Letter	Comment letter from Lepage Environmental, who reviewed and commented on the final Site 7 work plan for ground-water and soil investigation activities.
173				1		
174				1		
175				1		
176				1		
177	01-Jul-90		Post Screening Work Plan, RI/FS Program	1	Report	This report describes the scope of work and methodologies used to collect information to address data gaps identified in the Draft Phase II FS screening report and Draft RI Report.
178	01-Nov-90		Addendum Post-Screening Work Plan	1	Report	Additional work and changes provided for Post Screening Work Plan, RI/FS Program, plus MEDEP and EPA comments.
179	01-May-90		Comments on Draft Post Screening Work Plan	1	Letter	Correspondence containing comments on Draft Post Screening Work Plan.
180	17-May-90		Comments on Draft RI Report and Draft Post-Screening Work Plan from EPA, NOAA, and USFWS	1	Letter	Correspondence containing comments on Draft RI report and Draft Post-Screening Work Plan from USEPA, NOAA, and USFWS.
181	27-Jul-90		Comments on Post-Screening Work Plan	1	Letter	Correspondence containing comments on Post-Screening Work Plan.
182	30-Aug-90		Comments on Post-Screening Work Plan	1		Correspondence containing comments on Post-Screening Work Plan.
183	01-Aug-90		Draft Final Phase I FS, Development and Screening of Alternatives	1	Report	This report develops and screens remedial alternatives to control and mitigate contamination.
184	01-Jul-91	5,6,12	Draft Final Supplemental Feasibility Study, Sites 5, 6, and 12	1	Report	This study develops and screens remedial alternatives to control and mitigate contamination at Sites 5, 6, and 12.

185	05-May-89		Correspondence containing comments on Phase I FS, Preliminary Development of Alternatives and Preliminary Risk Assessment	1	Letter	Correspondence containing comments on "Phase I FS, Preliminary Development of Alternatives" and "Preliminary Risk Assessment ".
186	06-Mar-90		Correspondence requesting that MEDEP provide the ARARs for the State of Maine	1	Letter	Correspondence requesting that the DEP provide the ARARs for the State of Maine.
187	17-Apr-90		Comments on the Draft Phase I FS Development and Screening of Alternatives	1	Letter	Correspondence containing comment on the "Draft Phase I FS Development and Screening of Alternatives".
188	23-Apr-90		Comments on the Draft Phase I FS, Development and Screening of Alternatives	1	Letter	Correspondence containing comments on the "Draft Phase I FS, Development and Screening of Alternatives."
189	23-May-90		Comments on the Draft Phase I FS, Development and Screening of Alternatives	1	Letter	Correspondence containing comments on the "Draft Phase I FS, Development and Screening of Alternatives."
190	28-Sep-90		Comments on the Draft Final Phase I FS, Development and Screening of Alternatives	1	Letter	Correspondence containing comments on the "Draft Final Phase I FS, Development and Screening of Alternatives."
191	16-Oct-90		Comments on the Draft Final Phase I FS, Development and Screening of Alternatives	1	Letter	Correspondence containing comments on the "Draft Final Phase I FS, Development and Screening of Alternatives."
192	01-May-91		Comments on Draft FS, Sites 5, 6, and 12	1	Letter	Correspondence containing comments on "Draft FS, Sites 5, 6, and 12".
193	01-May-91		Comments on Draft Focused FS of Sites 1 and 3, Draft Supplemental RI for Site 3, and Draft Supplemental RI for Sites 5, 6, and 12	1	FAX	Correspondence containing comments on "Draft Focused FS of Sites 1 and 3", "Draft Supplemental RI for Site 3", and "Draft Supplemental RI for Sites 5, 6, and 12".
194	03-Jun-91		Comments on Draft FS, Sites 5, 6, and 12	1	Letter	Correspondence containing comments on "Draft FS, Sites 5, 6, and 12".
195	07-Jun-91	5,6,12	Comments on Draft Final Supplemental FS Sites 5, 6, and 12	1	Letter	Correspondence containing comments on "Draft Final Supplemental FS Sites 5, 6, and 12".
196	23-Aug-91	5,6,12	Comments on Draft Final Supplemental FS Sites 5, 6, and 12	1	Letter	Correspondence containing comments on "Draft Final Supplemental FS Sites 5, 6, and 12".
197	01-Aug-91		Draft Final Supplemental RI Report, Volumes 1, 2 and 3; Appendices A-Q .	1	Report	ARARs for Potential RA, Boring and Well Development Logs, test pit Records, PCPT Logs, PCPT/Test Pit/Hydropunch/ and Air GC Data, Grain Size Analyses, Monitoring Well Installation, PAC study, IAS, ecological RA, stream calcs, lab data, EPA/DEP response
198	01-Mar-91		RI/FS Round V Data Package, RI/FS Program	1	Data	Contains: Maps of exploration locations, geological cross sections, contaminant summary maps, GW contour maps and water level summary, aquifer permeability data, analytical data, and various other field data.

199				1		
200	01-May-91		Comments on Draft Supplemental RI Report	1	Letter	Correspondence containing comments on "Draft Supplemental RI Report".
201	23-May-91		Comments on Draft Supplemental RI Report	1	Letter	Correspondence containing comments on "Draft Supplemental RI Report".
202	30-May-91		Comments on Draft Supplemental RI Report	1	Letter	Correspondence containing comments on "Draft Supplemental RI Report"
203	04-Sep-91		Ccomments on Draft Final Supplemental RI Report	1	Letter	Correspondence containing comments on "Draft Final Supplemental RI Report"
204	10-Sep-91		Comments on Draft Final Supplemental RI Report	1	Letter	Correspondence containing comments on "Draft Final Supplemental RI Report"
205	24-Feb-92		Mercury levels of shellfish near Harpswell Cove	1	FAX	Correspondence containing mercury levels of shellfish near Harpswell Cove.
206	01-Oct-91	1,3	Focused FS, Sites 1 and 3	1	Report	Contains: site history and response objectives, evaluates alternatives in accordance with the criteria set in the NCP, a general description of and cost estimate for each remedial action, and a comparative summary of alternatives.
207	01-Jan-93		Numerical Modeling Report	1	Report	Contains a design level numerical GW flow model
208	01-May-91	1,3	Comments on Draft Focused Feasibility Study, Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Focused FS, Sites 1 & 3".
209	09-May-91	1,3	Comments on Draft Focused Feasibility Study, Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Focused Feasibility Study, Sites 1 & 3."
210	09-May-91	1,3	Comments on Draft Focused Feasibility Study, Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Focused Feasibility Study, Sites 1 & 3."
211	10-May-91	1,3	Comments on Draft Focused Feasibility Study, Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Focused Feasibility Study, Sites 1 & 3."
212	13-May-91	1,3	Additional comments on Draft Focused Feasibility Study, Sites 1 and 3	1	Letter	Correspondence containing additional comments on "Draft Focused Feasibility Study, Sites 1 & 3."
213	21-May-91	1,3	Additional comments on Draft Focused Feasibility Study, Sites 1 and 3, including State requirements for off-gas treatment	1	Letter	Correspondence containing additional comments on "Draft Focused Feasibility Study, Sites 1 & 3." including State requirements for Off-Gas Treatment.
214	14-Aug-91	1,3	Additional comments on Draft Focused Feasibility Study, Sites 1 and 3	1	Letter	Correspondence containing additional comments on "Draft Focused Feasibility Study, Sites 1 & 3."
215	14-Aug-91	1,3	Comments on Draft Final Focused Feasibility Study, Sites 1 and 3	1	FAX	Correspondence containing comments on "Draft Final Focused Feasibility Study, Sites 1 & 3."
216	15-Aug-91	1,3	Comments on Draft Final Focused Feasibility Study, Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Final Focused Feasibility Study, Sites 1 & 3."

217	28-Aug-91		Comments on Draft Final Focused Feasibility Study, Sites 1 and 3, specifically comments on target cleanup levels for vinyl chloride	1	FAX	Correspondence containing comments on "Draft Final Focused Feasibility Study, Sites 1 & 3", specifically comments on target clean-up levels for vinyl chloride.
218	23-Sep-91		Memorandum of Agreement	1	Memo	To Resolve Dispute Initiated Pursuant to Section 12.2 of the FFA for NASB.
219	16-Sep-91		Comments on Draft Final Focused Feasibility Study, Sites 1 and 3, specifically comments on Appendix B	1	Letter	Correspondence containing comments on "Draft Final Focused Feasibility Study, Sites 1 & 3", specifically comments on Appendix B.
220	22-Nov-91		Comments on Numerical Modeling Work Plan	1	Workplai	Correspondence containing comments on "Numerical Modeling Work Plan".
221	05-Dec-91		Comments on Draft Numerical Modeling Work Plan	1	Workplai	Correspondence containing comments on "Draft Numerical Modeling Work Plan".
222	13-Jan-92		Comments on Numerical Modeling Work Plan	1	Letter	Correspondence containing comments on "Numerical Modeling Work Plan".
223	04-Dec-92		Comments on Draft Numerical Modeling Report	1	Letter	Correspondence containing comments on "Draft Numerical Modeling Report".
224				1		
225	01-Dec-91		Proposed Plan, Eastern Plume	1	Report	This proposed plan served to summarize the results and conclusions of the RI and FS reports.
226	01-Dec-91	1,3	Proposed Plan, Sites 1 & 3	1	Report	This proposed plan served to summarize the results and conclusions of the RI and FS reports.
227	12-Dec-91		Meeting Minutes from 12 December, 1991, Environmental Public Hearing	1	Meeting	Meeting Minutes
228	02-Aug-91		Comments on Draft Proposed Plan - Eastern Plume	1	FAX	Correspondence containing comments on "Draft Proposed Plan- Eastern Plume".
229	15-Aug-91		Comments on Draft Proposed Plan - Eastern Plume	1	Letter	Correspondence containing comments on "Draft Proposed Plan- Eastern Plume".
230	23-Sep-91		Comments on Draft Proposed Plan - Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Proposed Plan- Sites 1&3".
231	26-Sep-91		Comments on Draft Proposed Plan- Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Proposed Plan- Sites 1&3".
232	31-Oct-91		Comments on Draft Proposed Plan - Eastern Plume	1	Letter	Correspondence containing comments on "Draft Proposed Plan- Eastern Plume".
233	06-Nov-91		Comments on Draft Proposed Plan - Eastern Plume	1	Letter	Correspondence containing comments on "Draft Proposed Plan- Eastern Plume".
234	06-Nov-91	1,3	Comments on Draft Proposed Plan- Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Proposed Plan- Sites 1&3".
235	12-Nov-91		Comments on Draft Proposed Plan - Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Proposed Plan- Sites 1&3".
236	03-Jan-92		Comments on NASB cleanup proposals	1	Letter	Correspondence containing comments on NASB clean-up proposals.

237	08-Jan-92		Comments on NASB cleanup proposals	1	Letter	Correspondence containing comments on NASB clean-up proposals.
238	13-Jan-92		Comments on Draft Proposed Plan - Sites 1 and 3 and Draft Proposed Plan - Eastern Plume	1	Letter	Correspondence containing comments on "Draft Proposed Plan- Sites 1&3" and "Draft Proposed Plan- Eastern Plume".
239	13-Jan-92		Comments on Draft Proposed Plan - Sites 1 and 3 and Draft Proposed Plan - Eastern Plume	1	Letter	Correspondence containing comments on "Draft Proposed Plan- Sites 1&3" and "Draft Proposed Plan- Eastern Plume".
240	13-Jan-92		Comments on NASB cleanup proposals	1	FAX	Correspondence containing comments on NASB clean-up proposals.
241	01-Nov-92		Engineering Evaluation/Cost Analysis, Building 95, Volume II, Appendixes	1	Data	Contains: Field Sampling Logs, Field Analytical Results, CLP Lab Analytical results, Data Quality Evaluation, Environmental Fate and Behavior of chemicals detected at 95, IRIS Files, Human Health Risk Calc., Eco Risk calc., Alternative cost backup, etc..
242	21-Apr-91		Findings of Fact and Order for Interim License #I-052	1	Memo	Findings of Fact from the Maine DEP Hazardous Waste Management Rules.
243	01-Nov-91		Site Evaluation Work Plan, Building 95	1	Workplar	Describes the scope of work and methodologies used to collect information to address Building 95.
244	01-Nov-92		Engineering Evaluation/Cost Analysis Report, Building 95	1	Report	This report's purpose is to identify removal action objectives for pesticide contaminated soil in the vicinity of Building 95 and evaluate removal action alternatives that will achieve these objectives.
245	09-May-91		Request that Building 95 be included in the IR Program	1	Letter	Correspondence requesting that Building 95 be included in the IR Program.
246	22-May-91		License issue with NASB, specifically the closure of Building 95	1	Memo	License Issue with NASB, specifically the closure of Building 95.
247	29-May-91		MEDEP concurrence with the Navy request to include the Building 95 cleanup effort under CERCLA	1	Letter	Correspondence containing Maine DEP concurrence with the Navy request to include the Building 95 clean-up effort under CERCLA.
248	19-Dec-91		Comments on Draft Site Evaluation Work Plan for Building 95	1	Letter	Correspondence containing comments on "Draft Site Evaluation Work Plan for Building 95".
249	20-Dec-91		Comments on Draft Site Evaluation Work Plan for Building 95	1	Letter	Correspondence containing comments on "Draft Site Evaluation Work Plan for Building 95".
250	28-Jan-92		Comments on Draft Site Evaluation Work Plan for Building 95	1	Letter	Correspondence containing comments on "Draft Site Evaluation Work Plan for Building 95".
251	16-Oct-92		Comments on Draft Engineering/Cost Analysis, Building 95	1	FAX	Correspondence containing comments on "Draft Engineering/Cost Analysis, Building 95".
252	22-Dec-92		Comments on Draft Engineering/Cost Analysis, Building 95	1	Letter	Correspondence containing comments on "Draft Engineering/Cost Analysis, Building 95".

253	23-Dec-92		Comments on Draft Engineering/Cost Analysis, Building 95	1	Letter	Correspondence containing comments on "Draft Engineering/Cost Analysis, Building 95".
254	28-Dec-92		Comments on Draft Engineering/Cost Analysis, Building 95	1	Letter	Correspondence containing comments on "Draft Engineering/Cost Analysis, Building 95".
255	01-Mar-92		Feasibility Study, Volumes 1 and 2, Appendixes A-O	1	Letter	Contains various supporting documentation for the FS, detailed evaluation and comparative analysis of the remedial alternatives for seven sites (2,4,5,6,9,11,& 13) and provides rationale for no remedial action at Sites 7, 12, & 14.
256	16-Aug-91		Comments on Draft FS Report	1	Letter	Correspondence containing comments on "Draft Feasibility Study Report".
257	20-Sep-91		Comments on Draft FS Report	1	Letter	Correspondence containing comments on "Draft Feasibility Study Report".
258	23-Sep-91		Comments on Draft FS Report	1	Letter	Correspondence containing comments on "Draft Feasibility Study Report".
259	26-Dec-91		Comments on Draft Final FS Report	1	Letter	Correspondence containing comments on "Draft Final Feasibility Study Report".
260	02-Jan-92		Comments on Draft Final FS Report	1	FAX	Correspondence containing comments on "Draft Final Feasibility Study Report".
261	15-Feb-92		Comments on Draft Final FS Report	1	Letter	Correspondence containing comments on "Draft Final Feasibility Study Report".
262	01-Sep-92		Proposed Plan, Site 8, Perimeter Road Disposal Site	1	Report	This report summarizes the results and conclusions of the RI and FFS, so that they are more easily understood.
263	15-Oct-92		Public Meeting for Proposed Plan, Site 8, Perimeter Disposal Site	1	Meeting	Meeting Minutes from 10 October 1992.
264	01-Mar-93		NASB, IRP, Revised Proposed Plan for Site 8, the Perimeter Road Disposal Site, Fact Sheet	1	Public N	NASB, IRP, Revised Proposed Plan for Site 8, the Perimeter Road Disposal Site, Fact Sheet.
265	01-Mar-93		Proposed Plan, Sites 5 and 6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site	1	Report	This report summarizes the results and conclusions of the RI and FS, so that they are more easily understood.
266	01-Mar-93		Technical Memorandum, Detailed Evaluation of Alternative 5, 6E: Excavation and Use as Subgrade Material at Sites 1 and 3	1	Memo	This memo describes the Excavation and Use as Subgrade Material at Sites 1 and 3 Alternative and presents the detailed evaluation of this alternative against the nine evaluation criteria specified in the NOHSPCP.
267	01-Mar-93	1,3	Technical Memorandum, Detailed Evaluation of Alternative 8D: Excavation and Use as Subgrade Material at Sites 1 and 3	1	Memo	This memo describes the New Preferred Alternative and presents the detailed evaluation of this alternative against the nine evaluation criteria specified in the National Oil and Hazardous Substances Contingency Plan.
268	08-Apr-93	6	Public Meeting for Proposed Plan Site 5, Orion Street Asbestos Disposal Site, Site 6, Sandy Road Rubble and Asbestos Disposal Site	1	Meeting	Meeting Minutes from 8 April 1993.
269	18-Jun-92	8	Memo containing no response required for Draft Proposed Plan, Site 8	1	Memo	Memo containing "No response required" for "Draft Proposed Plan, Site 8".

270	28-May-92	8	Comments on Draft Proposed Plan, Site 8, Perimeter Road Disposal Site	1	Letter	Correspondence containing comments on "Draft Proposed Plan, Site 8, Perimeter Road Disposal Site".
271	29-Jun-92	8	Comments on Draft Proposed Plan, Site 8	1	Letter	Correspondence containing comment on "Draft Proposed Plan, Site 8".
272	30-Jun-92	8	Comments on Draft Proposed Plan, Site 8	1	Letter	Correspondence containing comment on "Draft Proposed Plan, Site 8".
273	27-Aug-92	8	Comment on Draft Proposed Plan, Site 8	1	Letter	Correspondence containing comment on "Draft Proposed Plan, Site 8".
274	31-Aug-92	8	Comment on Draft Proposed Plan, Site 8	1	Letter	Correspondence containing comment on "Draft Proposed Plan, Site 8".
275	10-Sep-92	8	Comment on Draft Proposed Plan, Site 8	1	Letter	Correspondence containing comment on "Draft Proposed Plan, Site 8".
276	08-Feb-93		Comments on Draft Proposed Plan, Site 8, and Draft Technical Memorandum, Detailed Evaluation of Alternative 8E: Excavation and Use as Subgrade Material at Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Proposed Plan, Site 8", and " Draft Technical Memorandum, Detailed Evaluation of Alternative 8E: Excavation and Use as Subgrade Material at Sites 1 and 3".
277	28-Oct-92	8	Comments on Draft Proposed Plan, Site 8	1	Letter	Correspondence containing comments on "Draft Proposed Plan, Site 8"
278	06-Nov-92	5,6	Comments on Draft Proposed Plan, Sites 5 and 6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site	1	Letter	Correspondence containing comments on "Draft Proposed Plan, Sites 5&6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site".
279	10-Nov-92	5,6	Comments on Draft Proposed Plan, Sites 5 and 6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site	1	FAX	Correspondence containing comments on "Draft Proposed Plan, Sites 5&6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site".
280	06-Nov-92	5,6	Comments on Draft Proposed Plan, Sites 5 and 6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site	1	Letter	Correspondence containing comments on "Draft Proposed Plan, Sites 5&6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site".
281	18-Dec-92	5,6	Comments on Draft Final Proposed Plan, Sites 5 and 6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site	1	Letter	Correspondence containing comments on "Draft Final Proposed Plan, Sites 5&6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site".

282	22-Dec-92	5,6	Comments on Draft Final Proposed Plan, Sites 5 and 6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site	1	Letter	Correspondence containing comments on "Draft Final Proposed Plan, Sites 5&6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site".
283	25-Jan-93		Comments on Draft Final Proposed Plan, Sites 5 and 6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site	1	Letter	Correspondence containing comments on "Draft Final Proposed Plan, Sites 5&6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site".
284	27-Jan-93	5,6	Comments on Draft Proposed Plan, Sites 5 and 6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site	1	Letter	Correspondence containing comments on "Draft Proposed Plan, Sites 5&6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site".
285	29-Jan-93	5,6	Comments on Draft Proposed Plan, Sites 5 and 6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site	1	Letter	Correspondence containing comments on "Draft Proposed Plan, Sites 5 & 6, Orion Street Asbestos Disposal Site, Sandy Road Rubble and Asbestos Disposal Site".
286	02-Feb-93	1,3	Comments on Draft Technical Memorandum, Detailed Evaluation of Alternative 5, 6E: Excavation and Use if Subgrade Material at Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Technical Memorandum, Detailed Evaluation of Alternative 5, 6E: Excavation and Use if Subgrade Material at Sites 1 & 3".
287	08-Feb-93	8	Comments on Revised Draft Proposed Plan for Site 8, the Perimeter Road Disposal Site	1	Letter	Correspondence containing comments on "Revised Draft Proposed Plan for Site 8, the Perimeter Road Disposal Site".
288	17-Feb-93	8	Comments on Revised Draft Proposed Plan for Site 8, the Perimeter Road Disposal Site	1	Letter	Correspondence containing comments on "Revised Draft Proposed Plan for Site 8, the Perimeter Road Disposal Site".
289	17-Feb-93	8,1,3	Comments on Revised Draft Proposed Plan for Site 8, the Perimeter Road Disposal Site and Draft Technical Memorandum, Detailed Evaluation of Alternative 8E, Excavation and Use as Subgrade Material at Sites 1 and 3	1	Letter	Correspondence containing comments on "Revised Draft Proposed Plan for Site 8, the Perimeter Road Disposal Site" and "Draft Technical Memorandum, Detailed Evaluation of Alternative 8E, Excavation and Use as Subgrade Material at Sites 1 and 3".

290	24-Feb-92	1,3,8	Comments on Revised Draft Proposed Plan for Site 8, the Perimeter Road Disposal Site and Draft Technical Memorandum, Detailed Evaluation of Alternative 5,6E: Excavation and Use as Subgrade Material at Sites 1 and 3	1	Letter	Correspondence containing comments on "Revised Draft Proposed Plan for Site 8, the Perimeter Road Disposal Site" and "Draft Technical Memorandum, Detailed Evaluation of Alternative 5,6E: Excavation and Use as Subgrade Material at Sites 1 and 3".
291	04-Mar-93	1,3,8	Comments on Revised Draft Proposed Plan for Site 8, the Perimeter Road Disposal Site and Draft Technical Memorandum, Detailed Evaluation of Alternative 5,6E: Excavation and Use as Subgrade Material at Sites 1 and 3	1	Letter	Correspondence containing comments on "Revised Draft Proposed Plan for Site 8, the Perimeter Road Disposal Site" and "Draft Technical Memorandum, Detailed Evaluation of Alternative 5,6E: Excavation and Use as Subgrade Material at Sites 1 and 3".
292	05-Mar-93	1,3,8	Comments on Revised Draft Proposed Plan for Site 8, the Perimeter Road Disposal Site and Draft Technical Memorandum, Detailed Evaluation of Alternative 5,6E: Excavation and Use as Subgrade Material at Sites 1 and 3	1	Letter	Correspondence containing comments on "Revised Draft Proposed Plan for Site 8, the Perimeter Road Disposal Site" and "Draft Technical Memorandum, Detailed Evaluation of Alternative 5,6E: Excavation and Use as Subgrade Material at Sites 1 and 3".
293	01-Apr-93	5,6	Comments on Proposed Plan Sites 5 and 6	1	Letter	Correspondence containing comments on "Proposed Plan Sites 5 and 6".
294	01-Jun-92		Record of Decision for a Remedial Action at Sites 1 and 3, NASB	1	Report	Record of Decision for a Remedial Action at Sites 1 & 3, NASB
295	25-Mar-92	1,3 E.P.	Comments on Records of Decision on the NASB Sites 1,3, and Eastern Plume	1	Letter	Correspondence containing comments on "Records of Decision on the NASB Sites 1,3, and Eastern Plume".
296	02-Apr-92	1,3, E.P.	Comments on Records of Decision on the NASB Sites 1 and 3 and Draft Interim Record of Decision, Eastern Plume	1	Letter	Correspondence containing comments on "Records of Decision on the NASB Sites 1 & 3" and "Draft Interim Record of Decision, Eastern Plume".
297	02-Apr-92	E.P.	Comments on Draft Interim Record of Decision, Eastern Plume	1	Letter	Correspondence containing comments on "Draft Interim Record of Decision, Eastern Plume".
298	06-Apr-92		Comments on Records of Decision on the NASB Sites 1 and 3	1	Letter	Correspondence containing comments on "Records of Decision on the NASB Sites 1 & 3"
299	04-Jun-92		Comments on Record of Decision for Interim Remedial Action, Eastern Plume	1	Letter	Correspondence containing comments on "Record of Decision for Interim Remedial Action, Eastern Plume".
300	04-Jun-92		Comments on Draft Records of Decision, Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Records of Decision, Sites 1 & 3"

301	01-Apr-92	8	Focused Feasibility Study, Site 8	1	Report	This report consists of detailed evaluation and comparative analysis of the remedial alternatives developed and screened for Site 8 that were presented in the Phase I FS.
302	11-May-92	8	Comments on Focused Feasibility Study, Site 8	1	Memo	Correspondence containing comments on "Focused Feasibility Study, Site 8".
303	28-May-91	8	Comments on Focused Feasibility Study, Site 8	1	Letter	Correspondence containing comments on "Focused Feasibility Study, Site 8".
304	05-Jun-91	8	Comments on Draft FS, Detailed Analysis of Alternatives, Site 8	1	Letter	Correspondence containing comments on "Draft FS, Detailed Analysis of Alternatives, Site 8".
305	17-Jun-91	8	Comments on Draft FS, Detailed Analysis of Alternatives, Site 8	1	Letter	Correspondence containing comments on "Draft FS, Detailed Analysis of Alternatives, Site 8".
306	27-Jun-91	8	Comments on Draft Focused Feasibility Study, Site 8	1	Letter	Correspondence containing comments on "Draft Focused Feasibility Study, Site 8".
307	11-Aug-91	8	Comments on Draft Focused Feasibility Study, Site 8	1	Letter	Correspondence containing comments on "Draft Focused Feasibility Study, Site 8".
308	09-Sep-91	8	Comments on Draft Final Focused Feasibility Study, Site 8	1	Letter	Correspondence containing comments on "Draft Final Focused Feasibility Study, Site 8".
309	19-Feb-92	8	EPA acceptable maximum exposure levels for Site 8	1	Letter	Correspondence containing USEPA acceptable maximum exposure levels for Site 8.
310				1		
311	01-Apr-93	Bldg. 95	Action Memorandum, Building 95	1	Memo	This Memorandum documents the US Navy's proposed removal action at Building 95 at NASB.
312	25-Feb-93	Bldg. 95	Comments on Draft Action Memorandum, Building 95	1	Letter	Correspondence containing comments on "Draft Action Memorandum, Building 95".
313	12-Mar-93	Bldg. 95	Comments on Draft Action Memorandum, Building 95	1	Letter	Correspondence containing comments on "Draft Action Memorandum, Building 95".
314	15-Mar-93	Bldg. 95	Comments on Draft Action Memorandum, Building 95	1	Letter	Correspondence containing comments on "Draft Action Memorandum, Building 95".
315	01-May-93		Remedial Design Summary Report, Sites 1,3,5,6,8, and Eastern Plume.	1	Report	This report defines the design basis for the Remedial Design at Sites 1,3,5,6,8 and the Eastern Plume.
316	01-Jun-93	Bldg. 95	Remedial Design Summary Report, Building 95	1	Report	This report defines the design basis and provides design information for the removal action at Building 95.
317	01-Aug-94	95,1,3,E.P	Final Long-Term Monitoring Plan, Building 95, Sites 1 & 3, and Eastern Plume	1	Report	This report identifies the tasks to monitor the long-term effectiveness of the remedial actions conducted at Building 95, Sites 1 & 3, and the Eastern Plume.
318	20-Dec-93		Comments on Draft Long-Term Monitoring Plan for Sites 1 & 3, Building 95, and the Eastern Plume	1	Letter	Correspondence containing comments on "Draft Long Term Monitoring Plan for Sites 1 & 3, Building 95, and the Eastern Plume."
319	02-Mar-93		Comments on Draft Long Term Monitoring Plan for Sites 1 & 3, Building 95, and the Eastern Plume	1	Letter	Correspondence containing comments on "Draft Long Term Monitoring Plan for Sites 1 & 3, Building 95, and the Eastern Plume."

320	07-Feb-94		Comments on Draft Final Long-Term Monitoring Plan for Sites 1 & 3, Building 95, and the Eastern Plume	1	Letter	Correspondence containing comments on "Draft Final Long Term Monitoring Plan for Sites 1 & 3, Building 95, and the Eastern Plume."
321	18-Mar-93		TRC Meeting Minutes	1	Meeting	TRC Meeting Minutes.
322	10-Jun-93		TRC Meeting Minutes	1	Meeting	TRC Meeting Minutes.
323	23-Sep-93		TRC Meeting Minutes	1	Meeting	TRC Meeting Minutes.
324	13-Jan-94		TRC Meeting Minutes	1	Meeting	TRC Meeting Minutes.
325	17-Mar-94		TRC Meeting Minutes	1	Meeting	TRC Meeting Minutes.
326	28-Apr-94		TRC Meeting Minutes	1	Maps	TRC Meeting Minutes.
327	19-May-94		TRC Meeting Minutes	1	Meeting	TRC Meeting Minutes.
328	09-Jun-94		TRC Meeting Minutes	1	Meeting	TRC Meeting Minutes.
329	23-Jun-94		TRC Meeting Minutes	1	Meeting	TRC Meeting Minutes.
330	04-Aug-94		TRC Meeting Minutes	1	Meeting	TRC Meeting Minutes.
331	22-Sep-94		TRC Meeting Minutes	1	Letter	TRC Meeting Minutes.
332	03-Nov-94		TRC Meeting Minutes	1	Meeting	TRC Meeting Minutes.
333	08-Dec-94		TRC Meeting Minutes	1	Meeting	TRC Meeting Minutes.
334	11-Jan-95		TRC Meeting Minutes	1	Meeting	TRC Meeting Minutes.
335	08-Mar-95		TRC Meeting Minutes	1	Meeting	TRC Meeting Minutes.
336	19-Apr-95		TRC Meeting Minutes	1	Meeting	TRC Meeting Minutes.
337	25-Jul-95		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
338	13-Sep-95		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
339	25-Jan-96		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
340	01-May-96		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
341	01-Aug-96		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
342	05-Sep-96		Technical Meeting	1	Meeting	Technical Meeting
343	31-Oct-96		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
344	10-Mar-97		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
345	23-Apr-97		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
346	23-Jul-97		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
347	08-Oct-97		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
348	14-Jan-98		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
349	29-Apr-98		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
350	20-May-98		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
351	29-Jul-98		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
352	21-Oct-98		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
353	03-Dec-98		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
354	21-Jan-99		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.
355	10-Feb-99		RAB Meeting Minutes	1	Meeting	RAB Meeting Minutes.

356	03-Mar-99		Technical Meeting	1	Meeting	Technical Meeting
357	01-Aug-93	5,6	Record of Decision for a Remedial Action at Sites 5 and 6	1	Report	This decision document presents a selected remedial action that will remove asbestos-containing material from Site 5 & 6.
358	01-Aug-93	8	Record of Decision for a Remedial Action at Site 8	1	Report	This decision document presents a selected remedial action that will remove soil, construction debris, and rubble from Site 8.
359	25-May-93	8	Comments on Record of Decision for a Remedial Action at Site 8	1	Letter	Correspondence containing comments on "Record of Decision for a Remedial Action at Site 8".
360	26-May-93	8	Comments on Record of Decision for a Remedial Action at Site 8	1	Letter	Correspondence containing comments on "Record of Decision for a Remedial Action at Site 8".
361	26-May-93	8	Comments on Record of Decision for a Remedial Action at Site 8	1	FAX	Correspondence containing comments on "Record of Decision for a Remedial Action at Site 8".
362	24-Jun-93	5,6	Comments on Record of Decision for a Remedial Action at Sites 5 and 6	1	Letter	Correspondence containing comments on "Record of Decision for a Remedial Action at Sites 5 & 6".
363	24-Jun-93	5,6	Comments on Record of Decision for a Remedial Action at Sites 5 and 6	1	Letter	Correspondence containing comments on "Record of Decision for a Remedial Action at Sites 5 & 6".
364	25-Jun-93	5,6	Comments on Record of Decision for a Remedial Action at Sites 5 and 6	1	Letter	Correspondence containing comments on "Record of Decision for a Remedial Action at Sites 5 & 6".
365	25-Jun-93	8	Comments on Record of Decision for a Remedial Action at Site 8	1	Letter	Correspondence containing comments on "Record of Decision for a Remedial Action at Site 8".
366	25-Jun-93	8	Comments on Record of Decision for a Remedial Action at Site 8	1	Letter	Correspondence containing comments on "Record of Decision for a Remedial Action at Site 8".
367	29-Jun-93	8	Comments on Record of Decision for a Remedial Action at Site 8	1	Letter	Correspondence containing comments on "Record of Decision for a Remedial Action at Site 8".
368	11-Jul-93	5,6	Comments on Record of Decision for a Remedial Action at Sites 5 and 6	1	Letter	Correspondence containing comments on "Record of Decision for a Remedial Action at Sites 5 & 6".
369	03-Aug-93	8	Final changes for the Site 8 Record of Decision	1	FAX	Final changes for the Site 8 Record of Decision
370	13-Aug-93	5,6	Final changes for the Sites 5 and 6 Record of Decision	1	FAX	Final changes for the Site 5 & 6 Record of Decision.
371	01-Apr-93		Site Inspection Work Plan, West Runway Study Area	1	Workplar	This work plan sets to identify possible hazardous material contamination from routine base operations.
372	01-Jan-94	11	Technical Memorandum, Preliminary Assessment and Field Investigation: Site 11	1	Memo	This assessment was to determine the presence and characterization of possible buried drums at Site 11.
373	01-May-94	9	Draft Final, Technical Memorandum, Site 9, Neptune Disposal Site	1	Memo	This memorandum amends the RI/FS and provides part of the basis for the Navy's preferred alternative selection, which will be described in the Interim Proposed Plan and Interim Record of Decision for Site 9.

374	06-Aug-93	9	Comments on Draft Technical Memorandum, Site 9, Neptune Drive Disposal Site	1	Letter	Correspondence containing comments on "Draft Technical Memorandum, Site 9, Neptune Drive Disposal Site".
375	10-Aug-93	9	Comments on Draft Technical Memorandum, Site 9, Neptune Drive Disposal Site	1	Letter	Correspondence containing comments on "Draft Technical Memorandum, Site 9, Neptune Drive Disposal Site".
376	10-Aug-93	9	Comments on Draft Technical Memorandum, Site 9, Neptune Drive Disposal Site	1	Letter	Correspondence containing comments on "Draft Technical Memorandum, Site 9, Neptune Drive Disposal Site".
377	11-Aug-93	9	Comments on Draft Technical Memorandum, Site 9, Neptune Drive Disposal Site	1	Letter	Correspondence containing comments on "Draft Technical Memorandum, Site 9, Neptune Drive Disposal Site".
378	26-Oct-93	9	Comments on Draft Final Technical Memorandum, Site 9, Neptune Drive Disposal Site	1	Letter	Correspondence containing comments on "Draft Final Technical Memorandum, Site 9, Neptune Drive Disposal Site".
379	27-Oct-93	9	Comments on Draft Final Technical Memorandum, Site 9, Neptune Drive Disposal Site	1	Letter	Correspondence containing comments on "Draft Final Technical Memorandum, Site 9, Neptune Drive Disposal Site".
380	27-Oct-93	9	Comments on Draft Technical Memorandum, Site 9, Neptune Drive Disposal Site	1	Letter	Correspondence containing comments on "Draft Technical Memorandum, Site 9, Neptune Drive Disposal Site".
381	06-Dec-93	11	Comments on Draft Technical Memorandum, Site 11 ,Fire Fighting Training Area	1	Letter	Correspondence containing comments on "Draft Technical Memorandum, Site 11 ,Fire Fighting Training Area".
382	08-Dec-93	11	Comments on Draft Technical Memorandum, Site11 ,Fire Fighting Training Area	1	Letter	Correspondence containing comments on "Draft Technical Memorandum, Site 11 ,Fire Fighting Training Area".
383	10-Dec-93	11	Comments on Draft Technical Memorandum, Site11 ,Fire Fighting Training Area	1	Letter	Correspondence containing comments on "Draft Technical Memorandum, Site11 ,Fire Fighting Training Area".
384	29-Aug-94	9	Memo directing recipients of the Final Technical Memorandum for Site 9 to change "Draft Final" to "Final" on the cover page	1	Memo	Memo directing recipients of the Final Technical Memorandum for Site 9 to change "Draft Final" to "Final" on the cover page.
385	01-Sep-94	1,3	Explanation of Significant Differences at Sites 1 and 3	1	Report	This decision document sets forth the basis for the determination to issue the attached Explanation of Significant Differences for Sites 1 and 3.
386	01-Sep-94	9	Interim Record of Decision for the Groundwater Operable Unit at Site 9	1	Report	This document presents the selected interim remedial action of groundwater remediation through natural attenuation, institutional controls, and long-term monitoring of the groundwater operable unit at Site 9.

387	01-Feb-98	4,11,13,EP	Record of Decision for No Further Action at Sites 4, 11, and 13 and a Remedial Action for the Eastern Plume	1	Report	This document presents the selected final remedial action for the Eastern Plume and the no action decision for Sites 4, 11, and 13.
388	01-Sep-98	2	Final Record of Decision for Site 2	1	Report	This document presents the final remedy for Site 2.
389	25-Jan-93	5,6	Comments on Draft Proposed Plan, Sites 5 and 6	1	Letter	Correspondence containing comments on "Draft Proposed Plan, Sites 5 and 6".
390	09-Dec-93	1,3	Comments on Draft Explanation of Significant Differences, Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Explanation of Significant Differences, Sites 1 and 3".
391	20-Dec-93	1,3	Comments on Draft Explanation of Significant Differences, Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Explanation of Significant Differences, Sites 1 and 3".
392	31-Mar-94	5,6,1,3	Correspondence detailing consolidation activities from Sites 5 and 6 to Sites 1 and 3	1	Letter	Correspondence detailing consolidation activities from Sites 5 and 6 to Sites 1 and 3.
393	03-May-94	1,3,5,6	Comments on Draft Explanation of Significant Differences, Sites 1 and 3	1	Letter	Correspondence containing comments on "Draft Explanation of Significant Differences, Sites 1 and 3".
394	15-Jul-94	9	Comments on Draft Record of Decision for an Interim Remedial Action at Site 9	1	Letter	Correspondence containing comments on "Draft Record of Decision for an Interim Remedial Action at Site 9".
395	18-Jul-94	9	Comments on Draft Record of Decision for an Interim Remedial Action at Site 9	1	Letter	Correspondence containing comments on "Draft Record of Decision for an Interim Remedial Action at Site 9".
396	18-Jul-94	9	Comments on Draft Record of Decision for an Interim Remedial Action at Site 9	1	Letter	Correspondence containing comments on "Draft Record of Decision for an Interim Remedial Action at Site 9".
397	29-Jul-94	9	Comments on Draft Record of Decision for an Interim Remedial Action at Site 9	1	Letter	Correspondence containing comments on "Draft Record of Decision for an Interim Remedial Action at Site 9".
398	01-Sep-94	9	Comments on Draft Interim Record of Decision for the Groundwater Operable Unit at Site 9	1	Letter	Correspondence containing comments on "Draft Interim Record of Decision for the Groundwater Operable Unit at Site 9".
399	01-Sep-94	9	Comments on Draft Interim Record of Decision for the Groundwater Operable Unit at Site 9	1	Letter	Correspondence containing comments on "Draft Interim Record of Decision for the Groundwater Operable Unit at Site 9".
400	02-Sep-94	9	Comments on Draft Final Interim Record of Decision for the Groundwater Operable Unit at Site 9	1	Letter	Correspondence containing comments on "Draft Final Interim Record of Decision for the Groundwater Operable Unit at Site 9".

401	03-Apr-97	4,11,13	Comments on Draft Record of Decision for a Remedial Action at Sites 4, 11, and 13	1	Letter	Correspondence containing comments on "Draft record of Decision for a Remedial Action at Sites 4, 11, and 13.
402	04-Apr-97	4,11,13	Comments on Draft Record of Decision for a Remedial Action at Sites 4, 11, and 13	1	Letter	Correspondence containing comments on "Draft record of Decision for a Remedial Action at Sites 4, 11, and 13.
403	10-Apr-97	4,11,13	Comments on Draft Record of Decision for a Remedial Action at Sites 4, 11, and 13	1	Letter	Correspondence containing comments on "Draft record of Decision for a Remedial Action at Sites 4, 11, and 13.
404	16-Aug-97	4,11,13	Comments on Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13	1	Letter	Correspondence containing comments on "Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13.
405	18-Aug-97	4,11,13	Comments on Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13	1	Letter	Correspondence containing comments on "Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13.
406	25-Aug-97	4,11,13	Comments on Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13	1	Letter	Correspondence containing comments on "Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13.
407	17-Dec-97	4,11,13,EP	Comments on Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13 and a Remedial Action for the Eastern Plume	1	Letter	Correspondence containing comments on "Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13 and a Remedial Action for the Eastern Plume".
408	30-Dec-97	4,11,13,EP	Comments on Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13 and a Remedial Action for the Eastern Plume	1	Letter	Correspondence containing comments on "Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13 and a Remedial Action for the Eastern Plume".
409	05-Jan-98	4,11,13,EP	Comments on Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13 and a Remedial Action for the Eastern Plume	1	Letter	Correspondence containing comments on "Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13 and a Remedial Action for the Eastern Plume".
410	22-Jan-98	4,11,13,EP	Response to comments on Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13 and a Remedial Action for the Eastern Plume	1	Letter	Correspondence containing response to comments on "Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13 and a Remedial Action for the Eastern Plume".
411	22-Jan-98	4,11,13,EP	Response to comments on Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13 and a Remedial Action for the Eastern Plume	1		Correspondence containing response to comments on "Draft Final Record of Decision for a Remedial Action at Sites 4, 11, and 13 and a Remedial Action for the Eastern Plume".
412	12-Feb-98	2	Comments on Draft Record of Decision for Site 2	1	Letter	Correspondence containing comments on "Draft Record of Decision for Site 2".

413	24-Feb-98	2	Comments on Draft Record of Decision for Site 2	1	Letter	Correspondence containing comments on "Draft Record of Decision for Site 2".
414	24-Feb-98	2	Comments on Draft Record of Decision for Site 2	1	Letter	Correspondence containing comments on "Draft Record of Decision for Site 2".
415	23-Jul-98	2	Comments on Draft Final Record of Decision for Site 2	1	Letter	Correspondence containing comments on "Draft Final Record of Decision for Site 2".
416	31-Jul-98	2	Comments on Draft Final Record of Decision for Site 2	1	Letter	Correspondence containing comments on "Draft Final Record of Decision for Site 2".
417	13-Aug-98	2	Comments on Draft Final Record of Decision for Site 2	1	FAX	Correspondence containing comments on "Draft Final Record of Decision for Site 2".
418	18-Aug-98	2	Comments on Draft Final Record of Decision for Site 2	1	Letter	Correspondence containing comments on "Draft Final Record of Decision for Site 2".
419	01-Jul-94	9	Proposed Plan, Site 9, Neptune Drive Disposal Site	1	Report	This document proposes a remedial plan to address, on an interim basis, an area of groundwater contamination emanating from Site 9.
420	14-Jul-94	9	Meeting Minutes from Public Meeting for the Proposed Plan, Interim Remedial Action, Site 9	1	Meeting	Meeting Minutes form "Public Meeting for the Proposed Plan, Interim Remedial Action, Site 9".
421	01-Oct-96	4,11,13	Fact Sheet on Proposed Plan for Sites 4, 11, and 13	1	Public N	Fact Sheet on Proposed Plan for Sites 4, 11, and 13.
422	17-Oct-96	4,11,13	Meeting Minutes from Public Meeting, Sites 4, 11, and 13 Proposed Plan	1	Meeting	Meeting Minutes from "Public Meeting, Sites 4, 11, and 13 Proposed Plan".
423	01-May-97	2	Fact Sheet on Proposed Plan for Site 2	1	Public N	Fact Sheet on Proposed Plan for Site 2.
424	13-May-97	2	Meeting Minutes on Proposed Plan, Site 2, Public Meeting	1	Meeting	Meeting Minutes on "Proposed Plan, Site 2, Public Meeting".
425	08-Dec-93	9	MEDEP support for moving Site 9 into the Proposed Plan/Interim Record of Decision Phase.	1	Letter	Meeting Minutes on "Proposed Plan, Site 2, Public Meeting".
426	02-Jun-94	9	Comments on Draft Proposed Plan for Site 9, Neptune Drive Disposal Site	1	Letter	Correspondence containing comments on "Draft Proposed Plan for Site 9, Neptune Drive Disposal Site".
427	15-Jun-94	9	Comments on Draft Proposed Plan for Site 9, Neptune Drive Disposal Site	1	Letter	Correspondence containing comments on "Draft Proposed Plan for Site 9, Neptune Drive Disposal Site".
428	15-Jun-94	9	Comments on Draft Proposed Plan for Site 9, Neptune Drive Disposal Site	1	Letter	Correspondence containing comments on "Draft Proposed Plan for Site 9, Neptune Drive Disposal Site".
429	16-Jun-94	9	Comments on Draft Proposed Plan for Site 9, Neptune Drive Disposal Site	1	Letter	Correspondence containing comments on "Draft Proposed Plan for Site 9, Neptune Drive Disposal Site".

430	07-Jul-94	9	Comments on Second Draft Proposed Plan for Site 9, Neptune Drive Disposal Site	1	Letter	Correspondence containing comments on "Second Draft Proposed Plan for Site 9, Neptune Drive Disposal Site".
431	19-Jul-94	9	Summary of the Site 9 work plan for site investigation	1	Letter	Correspondence containing a summary of the Site 9 work plan for site investigation
432	24-Jul-96		Comments on Draft Sites 4, 11, and 13 Proposed Plan	1	Letter	Correspondence containing comments on "Draft Sites 4, 11, and 13 Proposed Plan".
433	25-Jul-96	4,11,13	Comments on Draft Sites 4, 11, and 13 Proposed Plan	1	Letter	Correspondence containing comments on "Draft Sites 4, 11, and 13 Proposed Plan".
434	26-Jul-96	4,11,13	Comments on Draft Sites 4, 11, and 13 Proposed Plan	1	Letter	Correspondence containing comments on "Draft Sites 4, 11, and 13 Proposed Plan".
435	24-Feb-97	2	Comments on Draft (Revised) Site 2 Proposed Plan	1	Letter	Correspondence containing comments on "Draft (Revised) Site 2 Proposed Plan".
436	27-Feb-97	2	Comments on Draft Site 2 Proposed Plan	1	Letter	Correspondence containing comments on "Draft Site 2 Proposed Plan".
437	04-Mar-97	2	Comments on Draft Site 2 Proposed Plan	1	Letter	Correspondence containing comments on "Draft Site 2 Proposed Plan".
438	09-Apr-97	1	Comments on Draft Final Site 2 Proposed Plan	1	Letter	Correspondence containing comments on "Draft Final Site 2 Proposed Plan".
439	01-Jan-95	9	Source Investigation Sampling and Analysis Plan, Site 9, Neptune Disposal Site	1	Letter	The objective of this plan is to present the site-specific activities for additional source investigations at Site 9
440	01-Aug-94	9	Comments on Draft Work Plan, Site 9	1	FAX	Correspondence containing comments on "Draft Work Plan, Site 9".
441	02-Aug-94	9	Comments on Draft Work Plan, Site 9	1	Letter	Correspondence containing comments on "Draft Work Plan, Site 9".
442	03-Aug-94	9	Comments on Draft Work Plan, Site 9	1	Letter	Correspondence containing comments on "Draft Work Plan, Site 9".
443	14-Oct-94	9	Comments on Draft Final Work Plan, Site 9	1	Letter	Correspondence containing comments on "Draft Final Work Plan, Site 9".
444	17-Oct-94	9	Comments on Draft Final Work Plan, Site 9	1	Letter	Correspondence containing comments on "Draft Final Work Plan, Site 9".
445	18-Oct-94	9	Comments on Draft Final Work Plan, Site 9	1	Letter	Correspondence containing comments on "Draft Final Work Plan, Site 9".
446	01-Jan-95	9	Long-Term Monitoring Plan, Site 9, Neptune Drive Disposal Site	1	Report	The purpose of this report is to identify the tasks to be performed to characterize the groundwater and surface water quality on-site and downgradient of Site 9 and identify contamination associated with past disposal activities.
447	01-Feb-97	Mere Brook	Environmental Contaminants in Fish from Mere Brook, NASB	1	Report	This report describes the results of a study to measure trace element and organochlorine contaminants in fish collect in Mere Brook.
448	12-Jun-98	Bldg95,11	Summary report on sampling and analysis of soil and ground water at Building 95 and Site 11	1	Letter	Correspondence containing a summary report on sampling and analysis of soil and groundwater at Building 95 and Site 11.

449	29-Jun-94	9	Comments on Draft Long-Term Monitoring Plan: Site 9, Neptune Drive Disposal Site	1	Letter	Correspondence containing comments on "Draft Long Term Monitoring Plan: Site 9, Neptune Drive Disposal Site".
450	01-Jul-94	9	Comments on Draft Long Term Monitoring Plan: Site 9, Neptune Drive Disposal Site	1	Letter	Correspondence containing comments on "Draft Long Term Monitoring Plan: Site 9, Neptune Drive Disposal Site".
451	01-Jul-94	9	Comments on Draft Long-Term Monitoring Plan: Site 9, Neptune Drive Disposal Site	2	Letter	Correspondence containing comments on "Draft Long Term Monitoring Plan: Site 9, Neptune Drive Disposal Site".
452	19-Aug-94	9	Comments on Draft Final Long-Term Monitoring Plan: Site 9, Neptune Drive Disposal Site	2	Letter	Correspondence containing comments on "Draft Final Long Term Monitoring Plan: Site 9, Neptune Drive Disposal Site".
453	07-Sep-94	9	Comments on Draft Final Long-Term Monitoring Plan: Site 9, Neptune Drive Disposal Site	2	Letter	Correspondence containing comments on "Draft Final Long Term Monitoring Plan: Site 9, Neptune Drive Disposal Site".
454	08-Sep-94	9	Comments on Draft Final Long-Term Monitoring Plan: Site 9, Neptune Drive Disposal Site	2	Letter	Correspondence containing comments on "Draft Final Long Term Monitoring Plan: Site 9, Neptune Drive Disposal Site".
455	23-Mar-96	9	Comments on Draft Source Investigation Report, Site 9, Neptune Drive Disposal Site	2	Letter	Correspondence containing comments on "Draft Source Investigation Report, Site 9, Neptune Drive Disposal Site".
456	25-Mar-96	9	Comments on Draft Source Investigation Report, Site 9, Neptune Drive Disposal Site	2	Letter	Correspondence containing comments on "Draft Source Investigation Report, Site 9, Neptune Drive Disposal Site".
457	05-Apr-96	9	Comments on Draft Source Investigation Report, Site 9, Neptune Drive Disposal Site	2	Letter	Correspondence containing comments on "Draft Source Investigation Report, Site 9, Neptune Drive Disposal Site".
458	11-Feb-97	9	Comments on Draft Final Source Investigation Report, Site 9, Neptune Drive Disposal Site	2	Letter	Correspondence containing comments on "Draft Final Source Investigation Report, Site 9, Neptune Drive Disposal Site".
459	18-Feb-97	9	Comments on Draft Final Source Investigation Report, Site 9, Neptune Drive Disposal Site	2	Letter	Correspondence containing comments on "Draft Final Source Investigation Report, Site 9, Neptune Drive Disposal Site".
460	12-Mar-97	E.P.	Comments on Packer Test Pilot Study of the Eastern Plume	2	Letter	Correspondence containing comments on "Packer Test Pilot Study of the Eastern Plume".
461	07-Feb-97	E.P.	Comments on Draft Work Plan for the Geostatistical Assessment of the Eastern Plume	2	Letter	Correspondence containing comments on "Draft Work Plan for the Geostatistical Assessment of the Eastern Plume".
462	13-Feb-97	E.P.	Comments on Draft Work Plan for the Geostatistical Assessment of the Eastern Plume	2	Letter	Correspondence containing comments on "Draft Work Plan for the Geostatistical Assessment of the Eastern Plume".

463	16-Jul-97	E.P.	Comments on Final Work Plan for the Geostatistical Assessment of the Eastern Plume	2	Letter	Correspondence containing comments on "Final Work Plan for the Geostatistical Assessment of the Eastern Plume".
464	23-Oct-97	1,3	Comments on the cessation of pumping at landfill extraction well Site 1 and 3	2	Letter	Correspondence containing comments on the cessation of pumping at landfill extraction well Site 1 and 3.
465	31-Oct-97	1,3	Comments on the cessation of pumping at landfill extraction well Site 1 and 3	2	Letter	Correspondence containing comments on the cessation of pumping at landfill extraction well Site 1 and 3.
466	07-Nov-97	1,3	Comments on the cessation of pumping at landfill extraction well Site 1 and 3	2	Letter	Correspondence containing comments on the cessation of pumping at landfill extraction well Site 1 and 3.
467	28-Jul-98	Bldg.95,11	Comments on Summary Report on Sampling and Analysis of Soil and Ground Water at Building 95 and Site 11	2	Letter	Correspondence containing comments on "Summary Report on Sampling and Analysis of Soil and Groundwater at Building 95 and Site 11".
468	31-Jul-98	Bldg.95,11	Comments on Summary Report on Sampling and Analysis of Soil and Ground Water at Building 95 and Site 11	2	Letter	Correspondence containing comments on "Summary Report on Sampling and Analysis of Soil and Groundwater at Building 95 and Site 11".
469	31-Aug-98	Bldg.95,11	Comments on Summary Report on Sampling and Analysis of Soil and Ground Water at Building 95 and Site 11	2	Letter	Correspondence containing comments on "Summary Report on Sampling and Analysis of Soil and Groundwater at Building 95 and Site 11".
470	01-Sep-98	Bldg.95,11	Response to comments on Summary Report on Sampling and Analysis of Soil and Ground Water at Building 95 and Site 11	2	Letter	Correspondence containing response to comments on "Summary Report on Sampling and Analysis of Soil and Groundwater at Building 95 and Site 11".
471	01-Aug-95	9	Final Report, Quarterly Event 2-May 1995, Site 9:Neptune Drive Disposal Site	2	Report	This report establishes the requirements for monitoring/sampling of ground water, surface water, sediment, and leachate to be conducted on a quarterly basis, along with the implementation of institutional controls to prevent human contact.
472	01-Jun-95	Bldg. 95	Final Report, Quarterly Monitoring Event 1-March 1995, Building 95	2	Report	This report contains an LTMP, QAPP, health and safety plan, and remedial construction specifications for Building 95.
473	01-Aug-95	Bldg. 95	Final Report, Quarterly Monitoring Event 2-May 1995, Building 95	2	Report	This report contains an LTMP, QAPP, health and safety plan, and remedial construction specifications for Building 95.
474	01-Jun-95	1,3, EP	Final Report, Quarterly Monitoring Event 1-March 1 1995, Sites 1 and 3 and Eastern Plume	2	Report	This report contains an LTMP, QAPP, health and safety plan, and remedial construction specifications for Sites 1 and 3 and Eastern Plume.
475	01-Nov-95	9	Final Report, Quarterly Monitoring Event 3-August 1995, Site 9: Neptune Drive Disposal Site	2	Report	This report establishes the requirements for monitoring/sampling of ground water, surface water, sediment, and leachate to be conducted on a quarterly basis, along with the implementation of institutional controls to prevent human contact.

476	01-Nov-95	Bldg. 95	Final Report, Quarterly Monitoring Event 3-August 1995, Building 95	2	Report	This report contains an LTMP, QAPP, health and safety plan, and remedial construction specifications for Building 95.
477				2		
478	01-Jun-95	9	Final Report, Quarterly Monitoring Event 1-March 1995, Site 9: Neptune Drive Disposal Site	2	Report	This report establishes the requirements for monitoring/sampling of ground water, surface water, sediment, and leachate to be conducted on a quarterly basis, along with the implementation of institutional controls to prevent human contact.
479	01-Dec-95	1,3, E.P.	Final Report, Quarterly Monitoring Event 3-August 1995, Sites 1 and 3 and Eastern Plume	2	Report	This report contains an LTMP, QAPP, health and safety plan, and remedial construction specifications for Sites 1 and 3 and Eastern Plume
480	01-Aug-95	1,3, E.P.	Final Report, Quarterly Monitoring Event 2-May 1995, Sites 1 and 3 and Eastern Plume	2	Report	This report contains an LTMP, QAPP, health and safety plan, and remedial construction specifications for Sites 1 and 3 and Eastern Plume.
481	21-Apr-95	11	Work Plan for Fuel Farm Remediation	2	Workplar	This work plan describes the installation procedures for an air sparging/soil vapor extraction system.
482	01-Aug-95	11	Drum Investigation Summary Report, Revision 1	2	Report	This report summarizes activities associated with the work performed at site 11.
483	01-Oct-96	9	Final Report, Monitoring Event 6-June1996, Site 9: Neptune Drive Disposal Site	2	Report	This report establishes the requirements for monitoring/sampling of ground water, surface water, sediment, and leachate to be conducted on a quarterly basis, along with the implementation of institutional controls to prevent human contact.
484				2		
485	01-Feb-96	1,3, E.P.	Final Report, Quarterly Monitoring Event 4-November 1995, Sites 1 and 3 and Eastern Plume, Volume 1 of 2, Text through Appendix D	2	Report	This report contains an LTMP, QAPP, health and safety plan, and remedial construction specifications for Sites 1 and 3 and Eastern Plume.
486				2		
487				2		
488	01-Feb-96	Bldg. 95	Final Report, Quarterly Monitoring Event 4- November 1995, Building 95	2	Memo	This report contains an LTMP, QAPP, health and safety plan, and remedial construction specifications for Building 95.
489	01-Oct-96	1,3, E.P.	Final Report, Monitoring Event 6-June 1996, Sites 1 and 3 and Eastern Plume, Volume 1 of 2, text through Appendix C and Volume 2 of 2 (Appendix D)	2	Report	This report provides the results for the June 1996 monitoring/sampling event and analytical report data tables.
490	01-Jul-96	9	Final Report, Quarterly Monitoring Event 5- February 1996, Site 9: Neptune Drive Disposal Area	2	Report	This report establishes the requirements for monitoring/sampling of ground water, surface water, sediment, and leachate to be conducted on a quarterly basis, along with the implementation of institutional controls to prevent human contact.
491	01-Jul-96	1,3, E.P.	Final Report, Quarterly Monitoring Event 5-February 1996, Sites 1 and 3 and Eastern Plume (Volume 1 of 2, Appendix D)	2	Report	This report provides the results for the February 1996 monitoring/sampling event and analytical report data tables.

492	01-Jul-96	Bldg. 95	Final Report, Quarterly Monitoring Event 5-February 1996, Building 95	2	Report	This report provides the results for the February 1996 monitoring/sampling event.
493	25-Oct-96	near MW311	Results of Direct-Push Ground-Water Sampling	2	Letter w/	Results from sampling event on 27-29 August and 4 Sept. 1996.
494	01-Oct-96	Bldg. 95	Final Report, Monitoring Event 6-June 1996, Building 95	2	Report	This report details the results of monitoring and sampling completed June 1996.
495	01-Jul-96	9	Final, 1995 Annual Report, Monitoring Events 1 through 4, Site 9: Neptune Drive Disposal Site	2	Report	This report details the results of monitoring and sampling completed as part of the 1995 LTMP.
496	01-Jul-96	Bldg. 95	Final, 1995 Annual Report, Monitoring Events 1 through 4, Building 95	2	Memo	This report details the results of monitoring and sampling completed as part of the 1995 LTMP.
497	01-Jul-96	1,3, E.P.	Final 1995 Annual Report, Monitoring Events 1 through 4, Sites 1 and 3 and Eastern Plume	2	Report	This report details the results of monitoring and sampling completed as part of the 1995 LTMP.
498	01-Feb-96	9	Final Report, Quarterly Monitoring Event 4-November 1995, Site 9: Neptune Drive Disposal Area	2	Report	This report establishes the requirements for monitoring/sampling of ground water, surface water, sediment, and leachate to be conducted on a quarterly basis, along with the implementation of institutional controls to prevent human contact.
499				2		
500	01-Feb-91	Fuel Farm	Summary Report Biosparging System Operations at Old Navy Fuel Farm, August-December 1996	2	Report	This report provides the results for baseline ground-water sampling, including chemical and microbial analyses, as well as operational data for the first four months of the biosparging systems operations.
501	01-Mar-97	Bldg. 95	Final Report, Monitoring Event 7-November 1996, Building 95	2		This report details the results of monitoring and sampling completed November 1996.
502	01-Aug-97	Fuel Farm	Summary Report Biosparging System Operations at Old Navy Fuel Farm, January-June 1997	2	Report	This report provides the results for baseline ground-water sampling, including chemical and microbial analyses, as well as operational data of the biosparging systems operations.
503	01-Dec-97	1,3, E.P.	Final 1996 Annual Report, Monitoring Event 5 through 7, Sites 1 and 3 and Eastern Plume	2	Report	This report details the results of monitoring and sampling completed as part of the 1996 LTMP.
504	01-Mar-97	1,3, E.P.	Final Report, Monitoring Event 7-November 1996, Sites 1 and 3 and Eastern Plume, Volume 1 of 2, Text through Appendix C	2	Report	This report details the results of monitoring and sampling completed November 1996, as well as, an LTMP, QAPP, HASP and remedial construction specs for Sites 1 and 3 and Eastern Plume.
505	01-Jul-97	9	Final 1996 Annual Report, Monitoring Events 5 through 7, Site 9: Neptune Drive Disposal Site	2	Report	This report details the results of monitoring and sampling completed as part of the 1996 LTMP.
506	01-Jul-97	E.P.	Work Plan for the Geostatistical Assessment of the Eastern Plume	2	Work Pla	This work plan presents the objectives and geostatistical methods that will be used as part of the assessment of the Eastern Plume.
507	01-Mar-97	9	Final Report, Monitoring Event 7-November 1996, Site 9: Neptune Drive Disposal Site	2	Report	This report details the results of monitoring and sampling completed November 1996.

508	01-Apr-97	95,FF,7	Results of Bi-Monthly Monitoring Well Gauging at Building 95, Old Navy Fuel Farm, and Site 7	2	Report	This summary report presents the results of five water level gauging events conducted during 1996.
509	01-Jan-97	E.P.	Packer Test Pilot Study of the Eastern Plume	2	Report	This report details the results of the packer test performed in 1996.
510	01-Feb-98	Fuel Farm	Summary Report, Biosparging System Operations at Old Navy Fuel Farm, July-December 1997	2	Report	This report provides the results for baseline ground-water sampling, including chemical and microbial analyses, as well as operational data of the biosparging systems operations.
511	19-Feb-98	E.P.	Geotechnical Assessment of the Eastern Plume	2	Report	This report presents methods used to evaluate the existing monitoring well network, and provides recommendations based on these results.
512	01-Aug-98	95,FF,7	Results of Bi-Monthly Monitoring Well Gauging Program Conducted at Building 95, Old Navy Fuel Farm, and Site 7	2	Report	This summary report presents the results of five water level gauging events conducted during 1997
513	01-Nov-99	1,3 E.P.	Monitoring Event 15-September 1999, Sites 1 and 3 and Eastern Plume	2	Report	This report provides the results for the September 1999 monitoring/sampling event.
514	01-Aug-99	Bldg. 95	1998 Annual Report, Monitoring Event 10, Building 95	2	Report	This Annual Report documents the findings, conclusions, and recommendations based on the 1998 monitoring activities.
515	01-Nov-99	9	Monitoring Event 15-September 1999, Site 9: Neptune Drive Disposal Site	2	Report	This report provides results for the September and October 1999 monitoring events.
516	01-Nov-99	1,3,E.P.	Monitoring Event 15-September 1999, Sites 1 and 3 and Eastern Plume	2	Report	This report provides the results for the September 1999 monitoring/sampling event.
517	01-Nov-99	9	Monitoring Event 15-September 1999, Site 9: Neptune Drive Disposal Site	2	Report	This report provides for the September and October 1999 monitoring event.
518	23-Jun-00	E.P.	Summary of the April 2000 Aqueous Diffusion Sampling Pilot Study, Eastern Plume	2	Letter	This letter summarizes the construction technique and sampling methodologies for the aqueous diffusion samplers.
519	01-Feb-00	2	Long-Term Monitoring Plan, Site 2	2		This report seeks to verify the effectiveness of the selected remedial action for Site 2.
520	01-Jan-00	E.P.	Geostatistical Assessment of the Eastern Plume	2	Report	This report presents the methods used to evaluate the existing monitoring well network to identify data gaps and redundancies, examine the distribution of daughter products, and use the results to assess the effectiveness of the remedial action.
521	01-Feb-00	1,3,E.P.	1998 Annual Report, Monitoring Events 11 through 13, Sites 1 and 3 and Eastern Plume	2	Report	This annual report details the project activities conducted as part of the Long-Term Monitoring Program as Sites 1 and 3 and the Eastern Plume during the three monitoring events completed in 1998.
522	30-Jun-00	17	Summary of Monitoring Well Installation Conducted 20-21 March 2000 at Building 95 (Site 17)	2	Letter	This letter report includes the well logs, summary of survey information, and the Field Record of Well Development forms.

523	30-Jun-00	1,3,9	Summary of Monitoring Well Redevelopment Conducted 15-16 March, 23 March 2000, and 5 and 7 April 2000 at Three Sites	2	Letter	Included in the letter report are the Field Record of Well Development forms which are used to record field measurements collected during redevelopment activities.
524	17-Aug-00	Bldg. 95	Comments on Monitoring Event 11, Building 95	2	Letter	Correspondence containing comments on "Monitoring Event 11, Building 95".
525	07-Aug-00		Comments on Liquid Diffusion Pilot Study	2	Letter	Correspondence containing comments on " Liquid Diffusion Pilot Study".
526	01-Aug-00	17,1,3,9	Comments on Summary of Monitoring Well Installation Conducted 20-21 March 2000 at Building 95 and Summary of Monitoring Well Redevelopment Conducted 15-16 March 2000 and 5 and 7 April 2000 at Three Sites	2	Letter	Correspondence containing comments on "Summary of Monitoring Well Installation Conducted 20-21 March 2000 at Building 95" and "Summary of Monitoring Well Redevelopment Conducted 15-16 March 2000 and 5 and 7 April 2000 at Three Sites".
527	23-May-00	9	Comments on "1999 Annual Report, Monitoring Events 14 and 15, Site 9 Neptune Drive Disposal Area	2	Letter	Correspondence containing comments on " 1999 Annual Report, Monitoring Events 14 & 15, Site 9 Neptune Drive Disposal Area".
528	23-May-00	1,3, E.P.	Comments on 1999 Annual Report, Monitoring Events 14 and 15, Sites 1 and 3 and Eastern Plume	2	Letter	Correspondence containing comments on " 1999 Annual Report, Monitoring Events 14 & 15, Sites 1 and 3 and Eastern Plume."
529	23-May-00	1,3,E.P,9	Comments on "1999 Annual Report, Monitoring Events 14 and 15, Sites 1 and 3 and Eastern Plume and 1999 Annual Report, Monitoring Events 14 and 15, Site 9:Neptune Drive Disposal Area	2	Letter	Correspondence containing comments on " 1999 Annual Report, Monitoring Events 14 & 15, Sites 1 and 3 and Eastern Plume" and " 1999 Annual Report, Monitoring Events 14 & 15, Site 9:Neptune Drive Disposal Area".
530	22-May-00	9	Comments regarding methods for detecting vinyl chloride	2	Letter	Correspondence containing comments regarding methods for detecting Vinyl Chloride.
531	12-May-00		Comments on Five-Year Review Report	2	Letter	Correspondence containing comments on "Five-Year Review Report".
532	06-May-99		Comments regarding methods for detecting vinyl chloride	2	Letter	Correspondence containing comments regarding methods for detecting Vinyl Chloride.
533	28-Apr-00	Bldg. 95	Comments on Building 95 Draft Final Long-Term Monitoring Plan	2	Letter	Correspondence containing comments on "Building 95 Draft Final Long Term Monitoring Plan".
534	21-Apr-00	Bldg. 95	Comments on Building 95 Draft Final Long-Term Monitoring Plan	2	FAX	Correspondence containing comments on "Building 95 Draft Final Long Term Monitoring Plan".
535	18-Apr-00	1,3,E.P.	Comments on Draft 1999 Annual Monitoring Report, Site 1,3 and the Eastern Plume	2	Letter	Correspondence containing comments on "Draft 1999 Annual Monitoring Report, Site 1,3 and the Eastern Plume".

552	07-Mar-00	E.P.	Comments on Final Geostatistical Assessment Report of the Eastern Plume	2	Letter	Correspondence containing comments on "Final Geostatistical Assessment Report of the Eastern Plume".
553	01-Mar-00	E.P.	Comments on Remedial Action Operation Optimization Case Study, Eastern Ground-Water Plume	2	Letter	Correspondence containing comments on "Remedial Action Operation Optimization case Study, Eastern Groundwater Plume".
554	01-Mar-00	1,3, E.P.	Comments on Final 1998 Annual Report, Monitoring Events 11-13, Sites 1, 3, and Eastern Plume	2	Letter	Correspondence containing comments on "Final 1998 Annual Report, Monitoring events 11-13, Sites 1, 3, and Eastern Plume".
555	16-Feb-00		Comments on Draft Five-Year Review	2	Letter	Correspondence containing comments on "Draft Five Year Review".
556	17-Feb-00	NEX	Comments on Quarterly Progress Report of Soil Vapor Extraction/Aquifer Air Sparging Remedial System Operations, 1 July - 30 September 1999, Navy Exchange Service Station	2	Letter	Correspondence containing comments on "Quarterly Progress Report of Soil Vapor Extraction/Aquifer Air Sparging Remedial System Operations, 1 July-30 September 1999, Navy Exchange Service Station.
557	09-Mar-00	E.P.	Post-Record of Decision Change	2	Memo	This change is to clarify the role of the RAB and the public revision and eventual termination of the LTMP for the Eastern Plume.
558	15-Feb-00	E.P.	Comments on Aqueous Diffusion Sampling Pilot Study Conducted at the Eastern Plume	2	Letter	Correspondence containing comments on "Aqueous Diffusion Sampling Pilot Study Conducted at the Eastern Plume".
559	15-Feb-00		Electronic Deliverable Document Version of Final Reports	2	Letter	Letter accompanying the CD with Final Reports from 1 December 1998 and 15 December 2000.
560	10-Feb-00	E.P.	Comments on Geostatistical Assessment of the Eastern Plume	2	Letter	Correspondence containing comments on "Geostatistical Assessment of the Eastern Plume".
561	07-Feb-00	Bldg. 95	Comments on Building 95, Target Analytes - Ground-Water Sampling, NASB	2	Letter	Correspondence containing comments on "Building 95, Target Analytes-Groundwater Sampling, NASB".
562	03-Feb-00		Comments on Draft Five-Year Review	2	Letter	Correspondence containing comments on "Draft Five Year Review".
563	28-Jan-00		Correspondence informing EPA and MEDEP that the Navy is changing RPMs from Emil Klawitter to Arthur Coccoli.	2	Letter	Correspondence informing USEPA and Maine DEP that the Navy is changing RPMs from Emil Klawitter to Arthur Coccoli.
564	20-Jan-00	9	Comments on Long-Term Monitoring Plan, Site 9: Neptune drive Disposal Site	2	Letter	Correspondence containing comments on "Long-Term Monitoring Plan, Site 9:Neptune drive Disposal Site".
565	10-Jan-00	1,3,E.P.	Comments on Monitoring Event 15-September 1999, Sites 1 and 3 and the Eastern Plume	2	Letter	Correspondence containing comments on "Monitoring Event 15-September 1999, Sites 1 & 3 and the Eastern Plume".

536	07-Apr-00	1,3,E.P.	Comments on Draft 1999 Annual Monitoring Report, Site 1,3 and the Eastern Plume	2	Letter	Correspondence containing comments On "Draft 1999 Annual Monitoring Report, Site 1,3 and the Eastern Plume".
537	05-Apr-00		Ground-Water Treatment Plant Test Procedures for NASB	2	Letter	Contains EPA concurrence on new Groundwater Treatment Plant test procedures on its' wastewater.
538	05-Apr-00		Amendment to 8-9 March Technical Meeting Minutes	2	E-mail	Amendment to 8-9 March Technical Meeting Minutes.
539	04-Apr-00		Agenda for 12 April 2000 RAB Meeting	2	Letter	Agenda for April 12, 2000 RAB Meeting.
540	02-Apr-99		Comments on Project Schedule for NASB	2	Letter	Correspondence containing comments on "Project Schedule for NASB".
541	31-Mar-00		Comments on Five-Year Review Report	2	Letter	Correspondence containing comments on "Five-Year Review Report".
542	27-Mar-00		Comments on Five-Year Review Report	2	Letter	Correspondence containing comments on "Five-Year Review Report".
543	24-Mar-00	1,3,E.P.	Comments on Comments on Monitoring Event 14, Sites 1, 3, and the Eastern Plume, Comment No. 3	2	Letter	Correspondence containing comments on "Comments on 'Monitoring Event 14, Sites 1, 3, and the Eastern Plume', comment #3."
544	21-Mar-00	1,3,E.P.	Comments on Final Long-Term Monitoring Plan for Sites 1,3, and the Eastern Plume	2	Letter	Correspondence containing comments on "Final Long Term Monitoring Plan for Sites 1,3, and the Eastern Plume".
545	14-Mar-00	1,3,E.P.	Comments on Final Long-Term Monitoring Plan for Sites 1,3, and the Eastern Plume and comments on the accompanying Response to Comments	2	Letter	Correspondence containing comments on "Final Long Term Monitoring Plan for Sites 1,3, and the Eastern Plume" and comments on the accompanying "Response to Comments".
546	13-Mar-00		Response to a Navy request for a time extension for Five-Year Review deadline	2	Letter	Correspondence containing a response to a Navy request for a time extension for "Five Year Review" deadline.
547	10-Mar-00	2	Comments on Response to Comments for Long-Term Monitoring Plan, Site 2	2	Letter	Correspondence containing comments on "Response to Comments for Long Term Monitoring Plan, Site 2".
548	09-Mar-00		Request for a time extension for the submittal of Five-Year Review	2	Letter	Correspondence containing a request for a time extension for the submittal of "Five Year Review".
549	09-Mar-00		Technical Meeting Minutes, 8-9 March 2000	2	Meeting	Technical Meeting Minutes, 8-9 March 2000.
550	07-Mar-00	1,3,E.P.	Comments on Response to Comments on Final 1998 Annual report for Sites 1,3, and the Eastern Plume	2	Letter	Correspondence containing comments on "Response to Comments on Final 1998 Annual report for Sites 1,3, and the Eastern Plume".
551	07-Mar-00	1,3	Comments on Landfill Cap Repairs Letter Report, Sites 1, 3	2	Letter	Correspondence containing comments on "Landfill Cap Repairs Letter Report, Sites 1, 3".

566	06-Jan-00	9	Comments on Monitoring Event 15-September 1999, Site 9: Neptune Drive Disposal Site	2	Letter	Correspondence containing comments on "Monitoring Event 15-September 1999, Site 9:Neptune drive Disposal Site".
567	28-Dec-99		Comments on NAS Brunswick Instruction 5090.1A Restriction on Excavation Activities	2	Letter	Correspondence containing comments on "NAS Brunswick Instruction 5090.1A Restriction on Excavation Activities".
568	15-Dec-99	1,3,E.P.	Comments on Monitoring Event 15-September 1999, Sites 1 and 3 and the Eastern Plume	2	Letter	Correspondence containing comments on "Monitoring Event 15-September 1999, Sites 1 & 3 and the Eastern Plume".
569	15-Dec-99		Comments on Final Report on Monitoring Event 15-September 1999: Site 9 Neptune Drive Disposal Site	2	Letter	Correspondence containing comments on "Final Report on Monitoring Event 15-September 1999:Site 9 Neptune Drive Disposal Site".
570	14-Dec-99	9	Comments on Site 9 Institutional Controls, Proposed Enlisted Quarters Construction Project	2	Letter	Correspondence containing comments on "Site 9 Institutional Controls, Proposed Enlisted Quarters Construction Project."
571	02-Dec-99	7	Comments on Summary of Installation and Sampling of Monitoring Well MW-NASB-229, Site 7	2	Letter	Correspondence containing comments on "Summary of Installation and Sampling of Monitoring Well MW-NASB-229, Site 7".
572	02-Dec-99		Response to submittal time extension request for Five-Year Review	2	Letter	Correspondence containing a response to submittal time extension request for "Five Year Review".
573	02-Dec-99	14-16,18	Comments on Draft Consensus Statement for Sites 14, 15, 16, and 18	2	Letter	Correspondence containing comments on "Draft Consensus Statement for Sites 14, 15, 16, and 18".
574	09-Dec-99	9	Comments on Site 9 Institutional Controls-New Construction at NASB	2	Letter	Correspondence containing comments on "Site 9 Institutional Controls-New Construction at NASB".
575	01-Dec-99		Request for extension for completion of the Five-Year Review	2		Correspondence containing a Request for Extension completion of the "Five Year Review".
576	24-Nov-99	1,3,E.P.	Comment on Navy Response to Comments on the Draft 1998 Annual Monitoring Report for Sites 1, 3, and the Eastern Plume	2	Letter	Correspondence containing comment on "Navy Response to Comments on the Draft 1998 Annual Monitoring Report for Sites 1, 3, and the Eastern Plume".
577	10-Nov-99	2,16	Comments on Final Reports for Debris Removal at Sites 2 and 16	2	Letter	Correspondence containing comments on "Final Reports for Debris Removal at Sites 2 and 16".
578	03-Nov-99	9	Comments on Final Long-Term Monitoring Plan for Site 9	2	Letter	Correspondence containing comments on "Final Long-Term Monitoring Plan for Site 9".
579	03-Nov-99		Comments on Well Book Survey Data, Boring Logs and Well Construction Diagrams	2	Letter	Correspondence containing comments on "Well Book Survey Data, Boring Logs and Well Construction Diagrams".

580	28-Oct-99		Comments on the 1997 Final Reports concerning Sites 1,3, Eastern Plume, Site 9, and Building 95 as well as 1998 Final Reports concerning Site 9 and Building 95	2	Letter	Correspondence containing comments on the 1997 Final Reports concerning Sites: 1,3,Eastern Plume, 9, and Building 95. As well as 1998 Final Reports concerning Site 9 and Building 95.
581	22-Oct-99	1,3,E.P.	Correspondence accompanying the Final 1997 Annual Report, Monitoring Events 8 Through 10, Sites 1 and 3 and Eastern Plume	2	Letter	Correspondence accompanying the "Final 1997 Annual Report, Monitoring Events 8 Through 10, Sites 1 and 3 and Eastern Plume".
582	12-Oct-99	2	Comments on Draft Long-Term Monitoring Plan, Site 2	2	Letter	Correspondence accompanying the "Draft Long Term Monitoring Plan, Site 2".
583	22-Sep-99	1,3,E.P.	Comments on Monitoring Event 14, Sites 1 and 3 and the Eastern Plume	2	Letter	Correspondence accompanying the "Monitoring Event 14, Sites 1, 3, and the Eastern Plume".
584	10-Sep-99	1,3,E.P.	Correspondence accompanying the Monitoring Event 14, Sites 1 and 3 and the Eastern Plume	2	Letter	Correspondence accompanying the "Monitoring Event 14, Sites 1, 3, and the Eastern Plume".
585	19-Aug-99	9, Bldg95	Correspondence accompanying the Final 1998 Annual Report for Site 9: Neptune Drive Disposal Site, and Building 95	2	Letter	Correspondence accompanying the "Final 1998 Annual Report for Site 9: Neptune Drive Disposal Site, and Building 95".
586	06-Aug-99		Comments regarding the most recent Technical Meeting	2	Letter	Correspondence containing comments regarding the most recent Technical Meeting.
587	15-Jul-99	2	Comments on Final Work Plan, Site 2	2	Letter	Correspondence containing comments on "Final Work Plan, Site 2".
588	14-Jul-99		Agenda for the 21 July 1999, RAB Meeting	2	Letter	Correspondence continuing the agenda for the 21 July 1999, RAB Meeting.
589	25-Jun-99	2	Comments on Final Remedial Action Work Plan for Site 2 Landfill	2	Letter	Correspondence containing comments on "Final Remedial Action Work Plan for Site 2 Landfill".
590	25-Jun-99		Comments on Maine Report and Comments Tracking Form	2	Memo	Memo containing comments on "Maine Report and Comments Tracking Form".
591	24-Jun-99	9	Response to comments for Draft Final Proposed Plan, Site 9	2	Letter	Correspondence containing response to comments for "Draft Final Proposed Plan, Site 9".
592	23-Jun-99	2	Correspondence accompanying Draft Long-Term Monitoring Plan for Site 2	2	Letter	Correspondence accompanying "Draft Long-Term Monitoring Plan for Site 2".
593	04-Jun-99	1,3, E.P.	Correspondence accompanying Draft Final Long-Term Monitoring Plan for Sites 1 and 3 and Eastern Plume	2	Letter	Correspondence accompanying "Draft Final Long-Term Monitoring Plan for Sites 1 and 3 and Eastern Plume".
594	24-May-99	1,3,E.P.	Correspondence accompanying Draft 1998 Annual Report, Sites 1 and 3 and Eastern Plume	2	Letter	Correspondence accompanying "Draft 1998 Annual Report, Sites 1 and 3 and Eastern Plume".

595	12-May-99	7	Correspondence stating that an exeedance of the MCLs/MEG for cadmium was discovered in well MW-NASB-094. The Navy states that they intend to install a temporary well downgradient of MW-NASB-094.	2	Letter	Correspondence stating that an exeedance of the MCLs/MEG for cadmium was discovered in well MW-NASB-094. The Navy states that intends to install a temporary well down-gradient of MW-NASB-094.
596	10-May-99	9, Bldg.95	Correspondence accompanying Draft Long-Term Monitoring Plans for Site 9 and Building 95	2	Letter	Correspondence accompanying " Draft Long-Term Monitoring Plans for Site 9 and Building 95".
597	05-May-99		NASB, IRP, RAB update from 5 May 1999	2	Public N	NASB, IRP, RAB update from 5 May 1999.
598	01-Apr-99	7	Correspondence accompanying Water Level Gauging at Monitoring Wells at Site 7	2	Letter	Correspondence accompanying "Water Level Gauging at Monitoring Wells at Site 7".
599	01-Apr-99		Correspondence accompanying Adobe Acrobat Versions of Long-Term Monitoring Event Reports for 1998	2	Letter	Correspondence accompanying "Adobe Acrobat Versions of Long-Term Monitoring Event Reports for 1998".
600	01-Apr-99	2	Correspondence accompanying Water Level Gauging at Monitoring Wells at Site 2	2	Letter	Correspondence accompanying "Water Level Gauging at Monitoring Wells at Site 7".
601	18-Mar-99		Correspondence accompanying Geographic Information System	2	Letter	Correspondence accompanying "Geographic Information System".
602	16-Mar-99	1,3,E.P.,9	Correspondence accompanying Reports for Monitoring Event 13, Sites 1 and 3 and Eastern Plume and Monitoring Event 13, Site 9	2	Letter	Correspondence accompanying "Reports for Monitoring Event 13, Sites 1 and 3 and Eastern Plume and Monitoring Event 13, Site 9.
603	21-Jan-99		NASB, IRP, RAB Update for 21 January 1999	2	Public N	NASB, IRP, RAB Update for 21 January, 1999.
604	15-Jan-99	1,3	Comments on the current Site 1 and 3 water level management program.	2	Letter	Correspondence containing comments on the current Site 1 and 3 water level management program.
605	30-Jun-00	Bldg.95,2	Correspondence accompanying Reports for Monitoring Event 11, Building 95, and Monitoring Event 1, Site 2	2	Letter	Correspondence accompanying "Reports for Monitoring Event 11, Building 95, and Monitoring Event 1, Site 2".
606	09-Mar-00		Correspondence containing a request for a time extension for the submittal of the Five-Year Review Report	2	Letter	Correspondence containing a request for a time extension for the submittal of the "Five Year Review Report".

607	11-Aug-00		Correspondence accompanying Aqueous Diffusion Sampler Pilot Study for the September 2000 Monitoring Event	2	Letter	Correspondence accompanying "Aqueous diffusion Sampler Pilot Study for the September 2000 Monitoring Event".
608	17-Aug-00	Fuel Farm	Correspondence containing comments on Bi-Annual Progress Report on Soil Vapor Extraction/Aquifer Air Sparging Remedial System Operations for January-June 2000, Old Navy Fuel Farm	2	Letter	Correspondence containing comments on "Bi-Annual Progress Report on Soil Vapor Extraction/Aquifer Air Sparging Remedial System Operations for January-June 2000, Old Navy Fuel Farm".
609	21-Aug-00		Comments on Ground-Water Treatment Plant Modification Work Plan	2	Letter	Correspondence containing comments on "Groundwater Treatment Plant Modification Workplan".
610	02-Oct-00		Notification of Change in Remedial Project Manager for NASB	2	Letter	Correspondence containing "Notification of Change in Remedial Project Manager for NASB".
611	07-Sep-00	E.P.	comments on Draft Explanation of Significant Differences to the Record of Decision for the Eastern Plume	2	Letter	Correspondence containing comments on "Draft Explanation of Significant Differences to the Record of Decision for the Eastern Plume".
612	11-Sep-00		Agenda for 14 September 2000 RAB Meeting for NASB	2	Letter	Correspondence containing "Agenda for September 14, 2000 RAB Meeting for NASB".
613	31-Aug-00		Documentation of the 2 August 2000 Technical Meeting discussion regarding elimination of monitoring well MW-NASB-077	2	Letter	Correspondence containing a documentation of the 2 August 2000 Technical Meeting discussion regarding elimination of monitoring well MW-NASB-077.
614	28-Aug-00	7	Correspondence accompanying Revised Technical Memorandum for Proposed Actions for Site 7	2	Letter	Correspondence accompanying "Revised Technical Memorandum for Proposed Actions for Site 7".
615	17-Aug-00		Response to a request for a change in the sampling program for the Base ground-water extraction and treatment system	2	FAX	Correspondence containing a response to a request for a change in the sampling program for the Base groundwater extraction and treatment system.
616	08-Aug-00		Memorandum concerning GWETS Monthly Sampling Program at NASB	2	Memo	Memorandum concerning "GWETS Monthly Sampling Program at NASB".
617	12-Sep-00		Letter of Transmittal containing Response to Comments received from Lepage Environmental Services, Inc. on the Final Five-Year Review Report	2	Letter	Letter of Transmittal containing "Response to Comments received from Lepage Environmental Services, Inc. on the Final Five-Year Review Report".
618	05-Oct-00	9	Comments on Monitoring Event 16-April 2000, Site 9	2	Letter	Correspondence containing comments on "Monitoring Event 16-April 2000, Site 9".

619	20-Oct-00	7	"Draft Letter Work Plan for Ground-Water and Soil Investigation at Site 7 and accompanying Letter of Transmittal	2	Workplai	"Draft Letter Work Plan for Ground-Water and Soil Investigation at Site 7" and accompanying Letter of Transmittal
620	28-Nov-00	E.P.	Correspondence accompanying Final Explanation of Significant Differences for the Installation Restoration Program Remedial Action for the Eastern Plume	2	Letter	Correspondence accompanying "Final Explanation of Significant Differences for the Installation Restoration Program Remedial Action for the Eastern Plume".
621	29-Nov-00	E.P.	Final response to comments from C. Lepage, dated 10 October 2000, and Claudia Sait, dated 6 October 2000, on the Draft Final Explanation of Significant Difference for the ROD for the IRP Remedial Action for the Eastern Plume	2	Letter	"Final response to comments from C. Lepage, dated 10 October 2000, and Claudia Sait, dated 6 October 2000, on the 'Draft Final Explanation of Significant Difference for the ROD for the IRP Remedial Action for the Eastern Plume.'"
622	29-Nov-00	7,9	Correspondence accompanying Reports for Monitoring Event 2, Site 2, and Monitoring Event 17, Site 9	2	Letter	Correspondence accompanying "Reports for Monitoring Event 2, Site 2, and Monitoring Event 17, Site 9".
623	03-Oct-00		Correspondence accompanying Well Decommissioning List, NASB	2	Letter	Correspondence accompanying "Well Decommissioning List, NASB".
624	03-Oct-00	1,3,E.P.	Comments on Monitoring Event 16-April 2000, Sites 1 and 3 and the Eastern Plume	2	Letter	Correspondence containing comments on "Monitoring event 16-April 2000, Sites 1 & 3 and the Eastern Plume".
625	06-Oct-00		Revised Well Decommissioning List, NASB and accompanying correspondence.	2	Letter	Revised "Well Decommissioning List, NASB" and accompanying correspondence.
626	13-Oct-00	7	Letter Work Plan for Ground-Water and Soil Investigation at Site 7 and accompanying correspondence	2	Workplai	"Letter Work Plan for Ground-Water and Soil Investigation at Site 7" and accompanying correspondence.
627	27-Oct-00	7	Comments on Draft Letter Work Plan for Ground-Water and Soil Investigations/Removal at Site 7	2	Letter	Correspondence containing comments on "Draft Letter Work Plan for Groundwater and Soil Investigations/Removal at Site 7."
628	01-Nov-00	7	Comments on Draft Letter Work Plan for Ground-Water and Soil Investigations/Removal at Site 7	2	Letter	Correspondence containing comments on "Draft Letter Work Plan for Groundwater and Soil Investigations/Removal at Site 7."
629	27-Nov-00	E.P.	Final Explanation of Significant Differences for the Record of Decision for the Installation Restoration Program Remedial Action for Eastern Plume	2	Report	"Final Explanation of Significant Differences for the Record of Decision for the Installation Restoration Program Remedial Action for Eastern Plume.

630	20-Nov-00	NEX	Summary of Analytical Results for Ground-Water Samples Collected on 25-26 September at the Navy Exchange Service Station and accompanying correspondence	2	Report	"Summary of Analytical Results for Ground-Water Samples Collected on 25-26 September at the Navy Exchange Service Station" and accompanying correspondence.
631	11-Dec-00		Comments on NASB Instruction 5090.1B	2	Letter	Correspondence containing comments on "NASB Instruction 5090.1B".
632	21-Dec-00		Correspondence containing request for comments on Draft Report, Results of Year 2000 Vapor and Liquid Diffusion Sampler Study, NASB	2	Letter	Correspondence containing request for comments on "Draft Report, Results of Year 2000 Vapor and Liquid Diffusion Sampler Study, NASB".
633	21-Dec-00	1,3,E.P.	Comments on Monitoring Event 17-September 2000, Sites 1 and 3 and the Eastern Plume	2	Letter	Correspondence containing comments on "Monitoring Event 17-September 2000, Sites 1 & 3 and the Eastern Plume".
634	01-Dec-00	E.P.	Comments on Explanation of Significant Difference for the Record of Decision for the Remedial Action for the Eastern Plume	2	Letter	Correspondence containing comments on "Explanation of Significant Difference for the Record of Decision for the Remedial Action for the Eastern Plume".
635	01-Mar-00		Final Five-Year Review Report	2	Report	The purpose of this review is to ensure that the remedial actions selected for NASB National Priority List sites remain protective of human health and the environment, and are functioning as designed.
636	01-Feb-00	1,3,E.P.	Final Long-Term Monitoring Plan, Sites 1 and 3 and Eastern Plume	2	Report	This document develops a monitoring program that identifies monitoring points and the media to be sampled, identifies the type of sampling and sampling frequency, and specifies the laboratory analysis to be implemented to validate the remedial actions.
637	01-Jun-00	1,3,E.P.	Monitoring Event 16-April 2000, Sites 1 and 3 and Eastern Plume	2	Report	This Monitoring Event report provides the results for the April 2000 monitoring/sampling event.
638	01-May-00	Bldg. 95	Long-Term Monitoring Plan, Building 95, Naval Air Station, Brunswick, Maine	2	Report	Final Long-Term Monitoring Plan for Building 95 site at NAS Brunswick.
639	01-Jun-00	2	Monitoring Event 1 - April 2000, Site 2, Naval Air Station, Brunswick, Maine	2	Report	Final report presents the laboratory and field data collected during Monitoring Event No. 1 at Site 2. Included in the report are text, tables, figures, laboratory data, field data sheets.
640	20-Jun-00	Bldg. 95	Monitoring Event 11 - April 2000, Building 95, Naval Air Station, Brunswick, Maine	2	Report	Final report presents the laboratory and field data collected during Monitoring Event No. 11 at Bldg 95. Report includes text, tables and figures.
641	01-Jun-00	9	Monitoring Event 16 - April 2000, Site 9: Neptune Drive Disposal Site	2	Report	This final report presents the laboratory and field data collected during Monitoring Event No. 16 at Site 9. Report includes text, tables, figures and graphs.
642	12-May-00	9	1999 Annual Report Monitoring Events 14 and 15, Site 9: Neptune Drive Disposal Site, Naval Air Station, Brunswick, Maine	2	Report	Final annual report for Site 9 for 1999 describing long-term monitoring task completed during the year. Report including graphs, figures and table.

643	20-May-00	1,3, EP	1999 Annual Report, Monitoring Events 14 and 15, Sites 1 and 3 and Eastern Plume, Naval Air Station, Brunswick, Maine	2	Report	Final annual report for the long-term monitoring tasks at Sites 1 and 3 and Eastern Plume for 1999.
644	29-Nov-00		Responses to Comment from Lepage Environmental Services and MEDEP, on DRAFT FINAL Explanation of Significant Difference for the ROD for installation restoration program remedial action for Eastern Plume	2	Report	Responses to Comments
645	20-Nov-00		Summary of analytical results for ground water samples collected 25-26 September 2000	2	Data	summary of analytical results
646	03-Oct-00	1,3,6,8	Well Decommissioning List	2	Data	Well Decommissioning List
647	21-Dec-00	1,3	Sites 1 & 3, Monitoring Event 17	2	Letter	comments from Claudia Sait, from Maine DEP to the NAVY for Site 1&3, Monitoring Event 17
648	28-Dec-00	1,3,9,2	Monitoring Event 17 (September 2000) report for Sites 1 and 3 and Eastern Plume. Summary of the September 2000 Aqueous Diffusion Pilot Study, Eastern Plume Monitoring Event 17 (September 2000) report for Site 9, Monitoring Event 2 (September 2000) Site 2	2	Letter	Comments from Michael Barry at Region1, USEPA for Monitoring Event 17, Sites 1,3,9, and Eastern Plumealso Monitoring Event 2, Site 2
649	28-Nov-00	E. Plume	Final Explanation of Significant Difference for the Installation Restoration Program Remedial Action for the Eastern Plume	2	Letter	Final Explanation of Significant Difference for the Installation Restoration Program
650	15-Dec-00	fuel farm	Final Ground-Water Monitoring Plan, Old Navy Fuel Farm, Naval Air Station	2	Report	Final Ground-Water Monitoring Plan for review and comment
651	09-Nov-01		Reporting Format for Long-Term Monitoring	2	Letter	Reporting format for Long Term Monitoring (LTM)
652	14-Nov-01	9	Draft 2000 Annual Long-Term Monitoring Report, Site 9	2	Letter	Comments on the DRAFT 2000 Annual Long Term Monitoring Report
653	10-Dec-01	1,3,9	Report Format - Long-Term Monitoring Program	2	Letter	Comment from the Maine DEP on format for the Long Term Monitoring Program
654	21-Dec-00		Draft Report, Results of Year 2000 Vapor and Liquid Diffusion Sampler Study	2	Letter	Draft Report, Results of Year 2000 Vapor and Liquid Diffusion Sampler Study submitted by Gannett-Fleming on behalf of EPA

655	11-Dec-00		NAS Brunswick Instruction 5090.1B	2	Letter	comments on the DRAFT NAS Brunswick Instruction 5090.1B, Restriction on Excavation Activity and Groundwater Use.
656	06-Jan-00	9	Site 9 Monitoring Event 15	2	Letter	Comments from the Maine DEP to NAVY on the Site 09 Monitoring Event 15 September 1999
657	10-Jan-00	1&3	Monitoring Event 15, Sites 1 and 3 and the Eastern Plume	2	Letter	Comments from Claudia Sait from the Maine DEP for Monitoring Event 15, Sites 1 & 3 and the Eastern Plume.
658	20-Jan-00	9	Site 9 Long-Term Monitoring Plan	2	Letter	Comments from Claudia Sait, from the Maine DEP on Site 09 Long Term Monitoring Plan
659	28-Jan-00		Nofication of change in Remedial Project Manager for NASB	2	Letter	Nofication of change in Remedial Project Manager for NAS Brunswick, ME
660	03-Feb-00		Naval Air Station, Brunswick, ME, Five-Year Review	2	Letter	Comments from Claudia Sait, MEDEP about the Five Year Review for the Naval Air Station, Brunswick, ME
661	07-Feb-00	bldg 95	Building 95 Target Analytes-Ground-Water Sampling	2	Letter	letter to follow up on numerous meetings, conference calls and emails regarding the groundwater dampling as the form Pesticide Shop-Building 95.
662	10-Feb-00		Geostatistical Assessment	2	Letter	Comments on the Geostatistical Assessment of the Eastern Plume Report
663	15-Feb-00		Aqueous Diffusion Sampling Pilot Study	2	Letter	Comments on the Aqueous Diffusion Sampling Plot Study
664	16-Feb-00		Draft Five-Year Review	2	Letter	additional comment to the Draft Five Year Review
665	15-Feb-00		EDD version of Final Report, Naval Air Station	2	Letter	compact disk contains the EDD version of the final report
666	01-Mar-00		Remedial Action Operation Optimization Case Study, Eastern Ground-Water Plume	2	Letter	Comments on the Remedial Action Operation Optimization Case Study
667	01-Mar-00	1,3	Final 1998 Annual Report, Monitoring Events 11-13, Sites 1 and 3 and the Eastern Plume	2	Letter	Comments on the Final 1998 Annual Report, Monitoring Events 11-13, Sites 1,3 and the Eastern Plume
668	10-Mar-00	2	Long-Term Monitoring Plan, Site 2 RTC	2	Letter	Response to Comments on the Long Term Monitoring Plan-Site 2
669	07-Mar-00	1,3	Final 1998 Annual Report for Sites 1 and 3 and the Eastern Plume	2	Letter	acknowledgement of the Final 1998 Annual Report for Site 1,3 and the Eastern Plume
670	07-Mar-00	1,3	Landfill Cap Repairs Letter Report, Sites 1 and 3 Naval Air Station, Brunswick, ME	2	Letter	acknowledgement of the Landfill Cap Reairs Letter Report, Sites 1,3
671	07-Mar-00	plume	Final Geostatistical Assessment Report of the Eastern Plume	2	Letter	Acknowledgement of the Final Geostatistical Assessment Report of the Eastern Plume.
672	08-Mar-00		Technical Meeting Minutes from 8-9 March 2000 Meeting	2	Meeting	Technical meeting minutes for 8-9 March 2000
673	15-Feb-00		EDD Version of Final Reports	2	Letter	EDD Version of Final Reports
674	09-Mar-00		Five-Year Review Report	2	Letter	the Navy request an extension for submittal of the Naval Air Station, Brunswick, ME Five Year Review Report
675	13-Mar-00		Five Year Review Extension-2nd Request for Naval Air Station	2	Letter	EPA concurs with the Navy's extension request to 24 March for the five year review

676	14-Mar-00	1,3	Long-Term Monitoring Plan Sites 1 and 3 and Eastern Plume RTC	2	Letter	the letter is a summation of the resolutions and no written responses are required on the Long Term Monitoring Paln Sites 1,3 & Eastern Plume RTC
677	21-Mar-00	1,3	Final Long-Term Monitoring Plan for Sites 1 and 3 and Eastern Plume	2	Letter	Responses to EPA comments on the Final Long Term Monitoring Plan (LTMP) for Sites 1,3 and the Eastern Plume, Naval Air Station, Brunswick, ME
678	24-Mar-00	1, 3, EP	Sites 1 and 3 and Eastern Plume, Monitoring Event 14, Clarification of MEDEP's Comment 3, Letter of 22 September 1999	2	Letter	a request for clarification on MEDEP reiew comment included in a letter on Sites 1,3 and the Eastern Plume Monitoring Event 14 dated September 22,1999, comment #3
679	27-Mar-00		Five-Year Review Report	2	Letter	Maine DEP has review the Final Five Year Review
680	21-Mar-00		Five-Year Review Report	2	Letter	USEPA, Region 1 has reviewed the Five Year Review Report
681	04-Apr-00		Agenda for 12 April 2000 RAB Meeting	2	Letter	Agenda for April 12, 2000 RAB Meeting
682	05-Apr-00		Ground-Water Treatment Plant Test Procedures for Naval Air Station	2	Letter	Groundwater Treatmnet Plant Test Procedures for Naval Air Station
683	07-Apr-00	1,3	Comments on 1999 Annual Report - Sites 1 and 3 and Eastern Plume	2		Comments on Sites 1,3 and Eastern Plume
684	18-Apr-00	1,3	Draft 1999 Annual Monitoring Report, Site 1 and 3 and Eastern Plume	2		Comments on the Draft 1999 Annual Monitoring Report
685	21-Apr-00		Building 95, Draft Final Long-Term Monitoring Plan	2	Letter	Comments on the Building 95, Draft Final Long Term Monitoring Plan
686	28-Apr-00	Bldg 95	Building 95 Draft Long-Term Monitoring Plan	2	Letter	reviewed the Building 95 Draft Long Term Monitoring Plan Report
687	23-May-00	1,3,9	Final 1999 Annual Reports for Site 9 and Sites 1 and 3	2	Letter	RTC on Final 1999 Annual Report Naval Air Station
688	23-May-00	1,3	1999 Annual Report, Monitoring Events 14 and 15, Sites 1 and 3 and Eastern Plume	2	Letter	1999 Annual Report
689	23-May-00	9	1999 Annual Report, Monitoring Event 14 and 15, Site 9: Neptune Drive Disposal Site	2	Letter	1999 Annual Report, Monitoring Events 14 & 15, Site 9
690	01-Aug-00	17	Summary of Monitoring Well Installation Conducted 20-21 March 2000 at Building 95 (Site 17), also conducted on 15-16 March 2000 and 5 and 7 April 2000 at 3 sites	2	Letter	Maine Dep has no comment on the referenced report
691	02-Aug-00		Technical Meeting 2 August 2000, Meeting Minutes	2	Meeting	Technical Meeting, 2 August 2000, Meeting Minutes
692	28-Aug-00		Eastern Plume-Aqueous Diffusion Sampler Pilot Study for the September 2000 Monitoring Event	2	Letter	comments on the Eastern Plume-Aqueous Diffusion Sampler Pilot Study for the September 2000 Monitoring Event

693	28-Aug-00	2	Site 2, Monitoring Event 1- April 2000	2	Letter	Comments on the Site2, Monitoring Event 1- April 2000
694	19-Sep-00		RTC received fron Lepage Environmental Services, Inc., on the Final Five-Year Review Report	2	Letter	RTC received fron Lepage Environmental Services, Inc., on the Final Five Year Review Report
697	11-Jan-01	GWETS	GWETS switch-over from UV oxidation to air strippers	2	FAX	GWETS switch-over from UV oxidation to air strippers
698	05-Jan-01	9	Aqueous Diffusion Sampling Pilot Study-Eastern Plume	2	Letter	Comments on the Aqueous Diffusion Sampling Pilot Study-Eastern Plume Report
699	08-Jan-01	2	Site 2, Monitoring Event 2-September 2000	2	Letter	Comments on the Site 2, Monitoring Event 2 - September 2000 Report
700	24-Jan-01		Eastern Plume, EPA Diffusion Sampling	2	Letter	Comments on the Eastern Plume, EPA Diffusion Sampling
701	25-Jan-01	16	Final Site 16 Debris Removal Report, 24 January 2001 and the Draft Consensus Statement for Sites 14,15,16, and 18	2	Letter	Final Site 16 Debris Removal Report, January 24, 2001 and the Draft Consensus Statement for Sites 14,15,16, & 18
702	29-Jan-01	9	Site 9 Institutional Controls for Proposed Natural Gas Pipeline Project	2	Letter	reviewed the Site 9 Institutional Controls for Proposed Natural Gas Pipeline Project
703	05-Feb-01		Site 9 Institutional Controls for Proposed Natural Gas Pipeline Project	2	Letter	Site 9 Institutional Controls for Proposed Natural Gas Pipeline Project
704	08-Feb-01	11	Draft Letter Work Plan for the Direct-Push Investigations of the Southern Boundary and near Site 11.	2	Letter	Draft Letter Work Plan for the Direct Push Investigations of the Southern Boundary and near Site 11.
705	14-Feb-01	9	Site 9, Monitoring Event 17-September 2000	2	Letter	Comments for Site 9, Monitoring Event 17- September 2000
706	20-Feb-01	7	Site 7, Work Plan for Ground-Water and Soil Investigation	2	Letter	Comments on the Site 7, Work Plan for Ground-Water & Soil Investigation
707	26-Feb-01	7	Final Letter Work Plan for Ground-Water and Soil Investigation at Site 7	2	Letter	Final Letter Work Plan for Groundwater and Soil Investigation at Site 7
708	28-Feb-01		Review of the Second Draft Consensus Statement, No Further Actions Required under CERCLA for Sites 14,15,16, and 18	2	Letter	Review of the Second Draft Consensus Statement, No Further Actions Required under CERCLA for Sites 14,15,16, and 18
709	09-Mar-01	11	Eastern Plume and Site 11 Direct -Push Investigation	2	Letter	Comments on Eastern Plume & Site 11 Direct -Push Investigation
710	21-Mar-01	7	Comments on the Final Letter Work Plan for Ground-Water and Soil Investigation at Site 7	2	Letter	Final Letter Work Plan for Ground-Water and Soil Investigation at Site 7

711	08-May-01	11	Final Letter Work Plan for the Direct-Push Investigation of the Southern Boundary and near Site 11	2	Workplan	Final Letter Work Plan for the Direct-Push Investigation of the Southern Boundary and near Site 11
712	14-Jun-01	7	Comments on the Site 7 Work Plan for Ground-Water and Soil Investigation	2	Letter	Site 7 Work Plan for Groundwater and Soil Investigation
713	15-Jun-01	11	Final Letter Work Plan for the Direct-Push Investigation of the Southern Boundary and near Site 11	2	Letter	Final Letter Work Plan for the Direct-Push Investigation of the Southern Boundary and near Site 11
714	26-Jun-01	7	Letter for plans to use a Niton brand X-Ray Fluorescene to field screen soils	2	Letter	This letter is intended to notify the Radiation Control Program of our planned use of this low-level radioctive instrument.
715	16-Jul-01	bldg 95	Building 95, Monitoring Event 12	2	Letter	Building 95, Monitoring Event 12
716	07-Aug-01	2	Site 2 Revised Long-Term Monitoring Plan	2	Letter	Site 2 Revised Long Term Monitoring Plan
717	10-Aug-01	2	Comments on the Draft Revised Long-Term Monitoring Plan for Site 2, Naval Air Station Brunswick, Maine	2	Letter	Draft Revised Long Term Monitoring Plan (LTMP) for Site 2, Naval Air Station Brunswick, Maine
718	10-Aug-01	9	Comments on Site 9 Revised Long-Term Monitoring Plan, Naval Air Station, Brunswick, Maine	2	Letter	Site 9 Revised Long Term Monitoring Plan, Naval Air Station, Brunswick, Maine
719	17-Aug-01	9	Comments on Draft Revised Long-Term Monitoring Plan, Site 9, Naval Air Station Brunswick, Maine	2	Letter	Draft Revised Long Term Monitoring Plan, Site 9, Naval Air Station Brunswick, Maine
720	21-Aug-01	9	Letter regarding changes made to text of July 2001 Site 9 Long-Term Monitoring Plan	2	Letter	July 2001 Site 9 Long Term Monitoring Plan
721	31-Aug-01	9	Response to Comments from MEDEP on the Draft Revised Long-Term Monitoring Plan, Site 9 Naval Air Station Brunswick, Maine	2	Letter	Response to Comments from the State of Maine Department of Environmental Protection on the Draft Revised Long-Term Monitoring Plan, Site 9 Naval Air Station Brunswick, Maine
722	29-Aug-01		Draft Report of the Overburden Investigation of the Southwestern Boundary Naval Air Station, Brunswick, Maine	2	Report	Draft Report of the Overburden Investigation of the Southwestern Boundary Naval Air Station, Brunswick, Maine
723	12-Sep-01		Response to Navy Comments to Draft Report, Results of Year 2000 Vapor and Liquid Diffusion Sampler Study, Naval Air Station Brunswick, Maine	2	Letter	Response to Navy Comments to Draft Report, Results of Year 2000 Vapor and Liquid Diffusion Sampler Study, Naval Air Station Brunswick, Maine

724	12-Sep-01		Response to MEDEP Comments to Draft Report, Results of Year 2000 Vapor and Liquid Diffusion Sampler Study, Naval Air Station Brunswick, Maine	2	Letter	Response to Maine DEP Comments to Draft Report, Results of Year 2000 Vapor and Liquid Diffusion Sampler Study, Naval Air Station Brunswick, Maine
725	12-Sep-01		Draft Report of the Overburden Investigation of the Southwestern Boundary Naval Air Station Brunswick, Maine - Recent Updating	2	Report	Draft Report of the Overburden Investigation of the Southwestern Boundary Naval Air Station Brunswick, Maine - Recent Updating
726	21-Sep-01	9	Site 9 Long-Term Monitoring Plan - Naval Air Station Brunswick, Response to Comment Letter (08/31/01)	2	Letter	Site 9 LTMP - Naval Air Station Brunswick, Response to Comment Letter (08/31/01)
727	27-Sep-01	9	Summary of April/May 2001 Aqueous Diffusion Sampling Pilot Study at the Eastern Plume and Site 9, Naval Air Station Brunswick, Maine	2	Letter	Summary of April/May 2001 Aqueous Diffusion Sampling Pilot Study at the Eastern Plume and Site 9, Naval Air Station Brunswick, Maine
728	28-Sep-01		Review of MEDEP Draft Investigation of Overburden Geology to Assess Ground-Water Migration Across the Southwestern Boundary, 23-27 October 2000, dated 11 Septemper 2001	2	Letter	Review of Maine DEP Draft Investigation of Overburden Geology to Assess Groundwater Migration Across the Southwestern Boundary, 23-27 Oct 2000, dated 11 Sep 2001
729	12-Oct-01		Comments on Eastern Plume-Aqueous Diffusion Sampling April 2001 Naval Air Station, Brunswick, Maine	2	Letter	Eastern Plume-Aqueous Diffusion Sampling April 2001 Naval Air Station, Brunswick, Maine
730	12-Oct-01	9	Comments on Site 9 - Aqueous Diffusion Sampling Pilot Study Naval Air Station, Brunswick, Maine	2	Letter	Site 9 - Aqueous Diffusion Sampling Pilot Study Naval Air Station, Brunswick, Maine
731	18-Oct-01	11	Comments on Direct-Push Investigation - Eastern Plume Southern Boundary and Site 11 Naval Air Station, Brunswick, Maine	2	Letter	Direct Push Investigation - Eastern Plume Southern Boundary & Site 11 Naval Air Station, Brunswick, Maine
732	19-Oct-01		Wastewater Discharge Permit, NAS Brunswick	2	Memo	Wastewater Discharge Permit, NAS Brunswick
733	26-Oct-01	2	Comments on Site 2, Monitoring Event 3, April 2001 Naval Air Station Brunswick, Maine	2	Letter	Site 2; Monitoring Event 3, April 2001 Naval Air Station Brunswick, Maine

734	02-Nov-01		Response to Comments from EA Engineering, Science and Technology dated 11 September 201 on the Draft Investigation of Overburden Geology to Assess Ground-Water Migration Across the Southwestern Boundary, 23-27 Oct 2000, Naval Air Station Brunswick, Maine	2	Letter	Draft Investigation of Overburden Geology to Assess Groundwater Migration Across the Southwestern Boundary, 23-27 Oct 2000, Response to Comments from EA Engineering, Science and Technology dated 11 Sept 01, Naval Air Station Brunswick, Maine
735	05-Nov-01	Bldg 95	Draft 2000 Annual Report for Building 95, Naval Air Station Brunswick, Maine	2	Letter	Draft 2000 Annual Report, for Building 95, Naval Air Station Brunswick, Maine
736	05-Nov-01	7	Comments on Site 7 Draft Summary Report of the Ground-Water and Soil Investigation, Naval Air Station, Brunswick, Maine	2	Letter	Site 7 Draft Summary Report of the Ground-Water and Soil Investigation Naval Air Station, Brunswick, Maine
737	13-Nov-01	7	Comments on Draft Summary Report of Ground-Water and Soil Investigations at Site 7, Naval Air Station Brunswick, Maine	2	Letter	Draft Summary Report of Ground-Water and Soil Investigations at Site 7, Naval Air Station Brunswick, Maine
738	21-Dec-01	11	Agency Comments on the September 2001 Draft Summary Report of the Direct-Push Investigation of the Southern Boundary of the Eastern Plume and Site 11	2	Letter	Agency Comments on the September 2001 Draft Summary Report of the Direct Push Investigation of the Southern Boundary of the Eastern Plume and Site 11
739	04-Feb-02	9	Passive Diffusion Samplers Pilot Study for Long-Term Monitoring at Brunswick Naval Air Station	2	Letter	Passive Diffusion Samplers Pilot Study for Long Term Monitoring at Brunswick Naval Air Station
740	04-Feb-02	9	2000 Annual Report, Site 9, Neptune Drive Disposal Area, Monitoring Events 16 and 17	2	Letter	Comments on the Site 9, Neptune Drive Disposal Area, 2000 Annual Report, Monitoring Events 16 & 17
741	08-Jan-02	bldg 95	Draft 2000 Annual Report, Building 95	2	Letter	Comments on the Building 95, 200 Annual Report (DRAFT)
742	16-Jan-02		DRAFT Digitized Administrative Record	2	Letter	DRAFT Digitized Administrative Record
743	22-Jan-02	7	Response to Comments on Draft Site 7 Summary Report of the Ground-Water and Soil Investigation	2	Letter	Site 7 Response to Comments-Draft Summary Report of the Groundwater & Soil Investigation
744	05-Feb-02	9	MEDEP's comments on the Site 9 Monitoring Event 18 Report	2	Letter	Maine DEP's comments on the Site 9 Monitoring Event 18 report
745	13-Sep-02	2	Site 2 Round 4 Report - Addendum	2	Letter	Site 2 Round 4 Report - Addendum

746	06-Feb-02	1,3,EP	Monitoring Event 18, Sites 1 and 3 and Eastern Plume	2	Letter	Comments for Sites 1,3, & Eastern Plume, Monitoring Event 18
747	25-Feb-02	7	Site 7 Proposed Remedial Action Plan	2	Letter	comments on the Site 7 Proposed Remedial Action Plan
748	28-Feb-02	7	Draft Proposed Remedial Action Plan for Site 7	2	Letter	Comments on the Draft Proposed Remedial Action Plan (PRAP)
749	04-Mar-02	7	February 2002 Draft Proposed Remedial Action Plan for Site 7	2	Letter	Comments on the February 2002 Draft Proposed Remedial Action Plan for Site 7
750	13-Mar-02	7	Site 7, Ground-Water Sampling Results	2	Letter	Comments on the Site 7, Groundwater Sampling Results
751	14-Mar-02		In Situ Chemical Oxidation, Naval Exchange Service Station	2	Letter	Comments on the Naval Exchange Service Station-In Situ Chemical Oxidation
752	19-Mar-02	7	March 2002 Draft Site 7-Ground-Water Sampling Results	2	Letter	Comments on the March 2002 Draft Site 7- Groundwater Sampling Results
753	22-Mar-02		Summary Report of the Limited Site Investigation Conducted at the Naval Reserve Center, 350 Commerial Street Property, Portland, Maine	2	Report	Summary Report of the Limited Site Investigation Conducted at the Naval Reserve Center, 350 Commerial Street Property, Portland, ME
754	27-Mar-02	7	Revised Draft Proposed Remedial Action Plan, Site 7 (OU7)	2	Letter	comments on revised DRAFT PRAP, Site 7 (OU7)
755	12-Mar-02	7	Draft Proposed Remedial Action Plan Site 7 (March 2002)	2	Letter	Comments on the DRAFT Proposed Remedial Action Plan Site 7 (March 2002)
756	30-Apr-02	7	March 2002 Proposed Remedial Action Plan for Site 7	2	Letter	Comments on the March 2002 Proposed Remedial Action Plan for Site 7
757	03-Apr-02		Electronic Data Deliverable for MEDEP Bureau of Remediation and Waste Management	2	Letter	Disk containing the proposed Electronic Data Deliverable (EDD) for the Maine Department of Environmental Protection's Bureau of Remediation and Waste Management
758	03-Apr-02	bldg.95	Long-Term Monitoring at Building 95	2	Letter	Long-Term Monitoring at Building 95
759	04-Apr-02	bldg.95	Building 95, Long-Term Monitoring Plan Revisions	2	Letter	Building 95, Long Term Monitoring Plan Revisions
760	04-Apr-02	bldg.95	Building 95, Monitoring Event 14, October 2001	2	Letter	Comments on Building 95, Monitoring Event 14 October 2001
761	05-Apr-02	7	Presentation of the Proposed Remedial Action Plan for site 7	2	Letter	notice in The Times Record for the US Navy invites public attendance to a presentation of the proposed remedial action plan for site 7.
762	21-May-02	9	Monitoring Event 19 Report-October/November 2001 for Site 9: Neptune Drive Diposal Site and Monitoring Event 19 Report-October/November 2001 for Stes 1 and 3 and Eastern Plume	2	Letter	Monitoring Event 19 Report-October/November 2001 for Site 9: Neptune Drive Diposal Site and Monitoring Event 19 Report-October/November 2001 for Stes 1,3, ad Eastern Plume

763	23-Mar-01	11, EP	Draft Letter Work Plan for the Direct-Push Investigation of the Southern Boundary and near Site 11, Eastern Plume	2	Letter	Comments on the Draft Letter Work Plan for the Direct Push Investigation of the Southern boundary and near Site 11, Eastern Plume
764	23-May-02	1,3	Draft 2000 Annual Report for Sites 1 and 3 and the Eastern Plume	2	Letter	comments on the Draft 2000 Annual Report for Site 1,3, and the Eastern Plume
765	24-May-02		Site 7 Proposed Remedial Action Plan Public Notice	2	Letter	Site 7 Proposed Remedial Action Plan Public Notice
766	30-May-02		Additional Investigation Tasks at the Eastern Plume Southern Boundary	2	Letter	comments on the Additional Investigation Tasks at the Eastern Plume Southern Boundary
767	30-May-02	11	Additional Investigation Tasks at Site 11 and the Eastern Plume Southern Boundary	2	Letter	Comments for the Additional Investigation Tasks at Site 11 and the Eastern Plume Southern Boundary
768	01-Apr-02	11	Draft 2000 Annual Report for Site 2	2	Letter	Comments Draft 2000 Annual Report for Site 2
769	13-Jun-02		Response to Comment Letters	2		RTC regarding additional investigation work in the Southern Boundary of the Eastern Plume and at Site 11
770				2		
771	13-Jun-02	7	Draft Record of Decision for Site 7 (Old Acid/Caustic Pit)	2	Letter	Draft Record of Decision for Site 7 (Old Acid/Caustic Pit)
772	14-Jun-02	1,3	2000 Annual Report, Sites 1 and 3 and EasternPlume	2	Letter	Comments on the Sites 1,3, and Eastern Plume, 2000 Annual Report
773	21-Jun-02	9,1,3	Monitoring Event 19 (October/November 2002) Report for Site 9 Monitoring Event 19 (October/November 2002) Report for Sites 1 and 3 and Eastern Plume	2	Letter	No comments at this time for the Monitoring Event 19 (october/november 2002) Report for Site 9 Monitoring Event 19 (October/November 2002) Report for Sites 1,3, and Eastern Plume
774	03-Jul-02	7	Draft Record of Decision, Site 7	2	Letter	Comments on the Site 7-DRAFT Receord of Decision
775	09-Jul-02	7	Draft Site 7 Record of Decision	2	Letter	Comments on DRAFT Record of Decision (ROD) for Site 7
776	11-Jul-02	7	Draft Site 7 Record of Decision, June 2002	2	Letter	Comments for June 2002 Draft Record of Decision for Site 7
777	22-Jul-02		Bioscreen Modeling, Old Navy Fuel Farm	2	Letter	Comments for Bioscreen Modeling-Old Navy Fuel Farm
778	23-Jul-02	7	Supplemental Comments, Site 7 Record of Decision	2	Letter	Supplemental Comments-Site 7 Record of Decision
779	24-Jul-02	1,3	Monitoring Event 19 (October/November 2001) Site 1 and 3 and Eastern Plume	2	Letter	Comments on Sites 1,3 & Eastern Plume-Monitoring Event 19-October/November 2001
780	25-Jul-02	9	Site 9, Monitoring Event 19	2	Letter	Comments for Site 9, Monitoring Event 19.
781	15-Aug-02	7	Site 7, Manganese	2	Letter	comments on Site 7 Manganese
782	21-Aug-02		Proposed Long-Term Monitoring Program field sampling schedule change for September 2002	2	Letter	email re: to Proposed LTMP field sampling schedule change for september 2002

783	30-Aug-02	bldg 95	Technical Memorandum for Reduction in Long-Term Monitoring Sample Analysis at Building 95	2	Letter	Technical Memorandum for Reduction in Long Term Monitoring Sample Analysis at Building 95
784	05-Sep-02	7	Site 7 Record of Decision	2	Letter	comments on Site 7 Record of Decision
785	11-Sep-02	7	Comments on August 2002 Draft Final Record of Decision for Site 7	2	Letter	Comments on August 2002 Draft Final Record of Decision for Site 7
786	13-Sep-02	bldg.95	Building 95 Long-Term Monitoring Plan	2	Letter	Building 95 Long Term Monitoring Plan (LTMP)
787	05-Feb-01		Consensus Statement for Sites 14,15,16, and 18	2	Letter	Consensus Statement for Sites 14,15,16,and 18
788	01-Apr-02	2	Draft 2000 Annual Report for Site 2, Naval Air Station, Brunswick, ME	2	Letter	Draft 2000 Annual Report for Site 2, Naval Air Station, Brunswick, ME
789	26-Jul-02	9	Internal Review Copy-2001 Annual Report for Monitoring Events 19 and 19, Site 9: Neptune Drvie Diposal Site, Naval Air Station, Brunswick, Maine	2	Letter	Internal Review Copy-2001 Annual Report for Monitoring Events 19 and 19, Site 9: Neptune Drvie Diposal Site. Naval Air Station, Brunswick, ME
790	16-Sep-02	Bldg 95	Reduction in Long-Term Monitoring Sample Analysis, Building 95, Naval Air Station, Brunswick, Maine	2	Letter	Reduction in Long Term Monitoring Sample Analysis, Building 95, Naval Air Station, Brunswick, ME
791	18-Sep-02		Draft Final Record of Decision for Site 7, September 2002	2	Report	September 2002 Draft Final Record of Decision for Site 7
792	19-Sep-02	7	Draft Final Record of Decision (16 September) Site 7, Naval Air Station Brunswick, Maine	2	Letter	Draft Final Record of Decision (16 Sep),Site 7, Naval Air Station Brunswick, ME
793	23-Sep-02	7	BACSE Support for Navy's Selected Remedy at Site 7	2	Letter	BACSE Support for Navy's Selected Remedy at Site 7
794	25-Sep-02	7	Navy's Responsiveness to BACSE Comments on the Record of Decision for Site 7	2	Letter	Navy's Responsiveness to BACSE Comments on the Record of Decision for Site
795	26-Sep-02	7	Record of Decision, Site 7, Naval Air Station, Brunswick, Maine	2	Letter	Record of Decision- Site 07, Naval Air Station, Brunswick, Maine
796	30-Sep-02		Fax of Record of Decision signature	2	FAX	Fax of ROD signature
797	01-Oct-02		Comments on EPA Draft Work Plan for Geophysical Investigations	2	Report	Comments on EPA'sysical Investigations Draft Work Plan for Geophysical Investigations
799	04-Oct-02	7	Project Conference Call 4 October 2002, Meeting Minutes	2	Meeting	Project Conference Call 4 October 2002, Meeting Minutes
800	01-Sep-02	Maine NPL	Preliminary Closeout Report, Naval Air Station Brunswick, Maine NPL Site, EPA New England Region 1, September 2002	2	Report	Preliminary Close-Out Report, Naval Air Station Brunswick, Maine NPL Site, US EPA New England Region 1, September 2002

801	17-Oct-02	9	Site 9, 2001 Annual Report Monitoring Events 18 and 19	2	Report	Site 9, 2001 Annual Report Monitoring Events 18 & 19
802	17-Oct-02		The Navy invites public attendance at the Restoration Advisory Board, Fall 2002	2	Letter	Classified ad from the NAVY invites public attendance at the Restoration Advisory Board, Fall 2002
803	18-Oct-02	2	Site 2 Final 2000 Annual Report and Response to Comments	2	Letter	Site 2 Final 2000 Annual Report & Response to Comments Naval Air Station, Brunswick, Maine
804	25-Oct-02	11	Response to Comments from MEDEP on the Draft Work Plan for Additional Investigation for the Direct-Push Investigation of the Southern Boundary of the Eastern Plume and Site 11	2	Report	RTC from the MADEP on Draft workplan for additional investigation for the Direct-Push Investigation of the Southern Boundary of the Eastern Plume and Site 11
805	22-Oct-02	various	RAB Meeting Minutes for 22 October 2002	2	Meeting	RAB Meeting Minutes for 22 October 2002
806	30-Oct-02	11	Draft Work Plan for Additional Investigation for the Southern Boundary of the Eastern Plume and Site 11	2	Letter	Draft Work Plan for Additional Investigation for the Southern Boundary of the Eastern Plume and Site 11
807	06-Nov-02		Recommendations for the Use of Polyethylene Diffusion Bag Samplers for the Long-Term Monitoring of Volatile Organic Compounds in Ground Water	2	Report	Recommendations for the Use of Polyethylene Diffusion Bag Samplers for the Long-Term Monitoring of Volatile Organic Compounds in Groundwater
808	07-Nov-02	2	Site 2, Monitoring Event 4	2	Letter	Site 2. Monitoring Event 4
809	12-Nov-02	bldg. 95	Draft 2001 Annual and Monitoring Event 15 Reports for Building 95	2	Letter	Draft 2001 Annual and Monitoring Event 15 Reports for Building 95
810	12-Nov-02	9	Draft 2001 Annual and Monitoring Event 20 Reports for Site 9	2	Letter	Draft 2001 Annual and Monitoring Event 20 Reports for Site 9
811	21-Nov-02	bldg 95	Building 95, Monitoring Event 15 Report (April 2002)	2	Letter	Building 95, Monitoring Event 15 Report-April 2002
812	21-Nov-02	bldg. 95	Building 95, Monitoring Event 15 Report (April 2002)	2	Report	Building 95, Monitoring Event 15 Report-April 2002
813	09-Dec-02	9	Site 9, Monitoring Event 20	2	Letter	Site 9, Monitoring Event 20
814	12-Dec-02		Direct-Push Soil and Ground-Water Investigation at the Family Services Center and NEX Service Station, NAS Brunswick	2	Memo	Direct Push Soil & Ground-Water Investigation at the Family Services Center and NEX Service Station, NAS Brunswick
815	12-Dec-02		Direct-Push Soil and Ground-Water Investigation at the Family Services Center and NEX Service Station, NAS Brunswick	2	Letter	Direct Push Soil & Ground-Water Investigation at the Family Services Center and NEX Service Station, NAS Brunswick

816				2		
817	17-Dec-02		Direct-Push Soil and Ground-Water Investigation at the Family Services Center and NEX Service Station, NAS Brunswick	2	Memo	Direct Push Soil & Ground-Water Investigation at the Family Services Center and NEX Service Station, NAS Brunswick
818	17-Dec-02		Building 95, 2001 Annual Report	2	Letter	Building 95, 2001 Annual Report
819	08-Jan-03	1, 3	Draft 2001 Annual Report for Sites 1 and 3 and Eastern Plume, dated December 2002, Naval Air Station Brunswick, Maine	2	Letter	Draft 2001 Annual Report for Sites 1 & 3 and Eastern Plume, dated December 2002, Naval Air Station Brunswick, Maine
820	09-Jan-03		NAS Brunswick Conference Call	2	Letter	NAS Brunswick Conference Call
821	15-Jan-03		Naval Air Station Brunswick, Maine Project Farewell and Thanks	2	Memo	Naval Air Station Brunswick, Maine Project Farewell and Thanks
822	22-Jan-03		Field Investigation of Bedrock in the Explosive Ordinance Disposal Range, Brunswick Naval Air Station	2	Report	Field Investigation of Bedrock in the Explosive Ordinance Disposal Range, Brunswick Naval Air Station
823	04-Feb-03	1, 3, EP	2001 Annual Report, Sites 1 and 3 and Eastern Plume, Naval Air Station, Brunswick	2	Letter	Sites 1, 3 and Eastern Plume; 2001 Annual Report, Naval Air Station, Brunswick
824	05-Feb-03	9	Historical (National) Archive Drawing of Site 9	2	FAX	Historical (National) Archive Drawing of Site 9
825	07-Feb-03		Diffusion Sampling Pilot Study, Naval Air Station, Brunswick	2	Letter	Diffusion Sampling Pilot Study, Naval Air Station, Brunswick
826	10-Feb-03		Old Fuel Farm-Bioscreen, Naval Air Station, Brunswick, Maine	2	Letter	Old Fuel Farm-Bioscreen, Naval Air Station, Brunswick, Maine
827	11-Feb-03		Review of the January 2003 Site-Wide Diffusion Sampler Pilot Study Summary Report	2	Letter	Review of the January 2003 Site-Wide Diffusion Sampler Pilot Study Summary Report
828	13-Feb-03	1, 3, EP	Internal Review - Draft Monitoring Event 20 (April 2002), Sites 1 and 3 and Eastern Plume, Naval Air Station, Brunswick, Maine	2	Letter	Internal Review - Draft Monitoring Event 20 - April 2002 for Sites 1 and 3 and Eastern Plume, Naval Air Station, Brunswick, Maine
829	03-Mar-03	Bldg 95	Response to Navy's Response to MEDEP Review of Monitoring Event 15 (21 November 2002), Building 95, Naval Air Station, Brunswick, Maine	2	Memo	Response to Navy's Response to MEDEP Review of Monitoring Event 15 (21 November 2002), Building 95, Naval Air Station, Brunswick, Maine
830	04-Mar-03	NEX	Navy Exchange, Naval Air Station, Brunswick, Maine	2	Letter	Navy Exchange, Naval Air Station, Brunswick, Maine
831	24-Feb-00	EP	Post Record of Decision Change	2	Letter	Post Record of Decision Change
832	09-Sep-99	BLDG 95	1997 Annual Report, Building 95		Report	1997 Annual Report, Building 95
833	09-Sep-99	9	1997 Annual Report, Site 9	2	Report	1997 Annual Report, Site 9

834	22-Oct-99	1,3,ep	1997 Annual, Sites 1 and 3 and Eastern Plume		Report	1997 Annual, Sites 1 and 3 and Eastern Plume
835	28-Jan-99	1,3,EP	MEDEP Response to Comments on 1997 Annual, Sites 1 and 3 and Eastern Plume		Report	MEDEP Response to Comments on 1997 Annual, Sites 1 and 3 and Eastern Plume
836	01-Oct-98	bldg.95	MEDEP Response to Comments on 1997 Annual, Building 95		Report	MEDEP Response to Comments on 1997 Annual, Building 95
837	28-Aug-98	9	MEDEP Response to Comments on 1997 Annual, Site 9		Report	MEDEP Response to Comments on 1997 Annual, Site 9
838	03-May-99	1,3,EP	EPA Response to Comments on 1997 Annual, Sites 1 and 3 and Eastern Plume		Report	EPA Response to Comments on 1997 Annual, Sites 1 and 3 and Eastern Plume
839	22-Sep-98	bldg.95	EPA Response to Comments on 1997 Annual, Building 95		Report	EPA Response to Comments on 1997 Annual, Building 95
841	13-Nov-98	9	EPA Response to Comments on 1997 Annual, Site 9		Report	EPA Response to Comments on 1997 Annual, Site 9
842	19-Aug-99	Bldg 95	1998 Annual Report, Monitoring Event 10, Building 95		Report	1998 Annual Report, Monitoring Event 10, Building 95
843	19-Aug-99	6	1998 Anuual Report, Monitoring Events 11-13, Site 9: Neptune Drive Disposal Site		Report	1998 Anuual Report, Monitoring Events 11-13, Site 9: Neptune Drive Disposal Site
844	10-Feb-00	1,3,EP	1998 Annual Report, Monitoring Events 11-13, Sites 1 and 3 and Eastern Plume		Report	1998 Annual Report, Monitoring Events 11-13, Sites 1 and 3 and Eastern Plume
845	23-Jun-99	9	MEDEP Response to Comments on 1998 Annual, Site 9		Report	MEDEP Response to Comments on 1998 Annual, Site 9
846	02-Aug-99	1,3,EP	MEDEP Response to Comments on 1998 Annual, Sites 1 and 3 and Eastern Plume		Report	MEDEP Response to Comments on 1998 Annual, Sites 1 and 3 and Eastern Plume
847	23-Jun-99	Bldg95	MEDEP Response to Comments on 1998 Annual, Building 95		Report	MEDEP Response to Comments on 1998 Annual, Building 95
848	17-May-99	9	EPA Response to Comments on 1998 Annual, Site 9		Report	EPA Response to Comments on 1998 Annual, Site 9
849	29-Jul-99	1,3,EP	EPA Response to Comments on 1998 Annual, Sites 1 and 3 and Eastern Plume		Report	EPA Response to Comments on 1998 Annual, Sites 1 and 3 and Eastern Plume
850	17-May-99	Bldg 95	EPA Response to Comments on 1998 Annual, Building 95		Report	EPA Response to Comments on 1998 Annual, Building 95
851	11-May-00	1,3,EP	1999 Annual Report, Monitoring Events 14 and 15, Sites 1 and 3 and Eastern Plume		Report	1999 Annual Report, Monitoring Events 14 and 15, Sites 1 and 3 and Eastern Plume

852	11-May-00	9	1999 Annual Report, Monitoring Events 14 and 15, Site 9: Neptune Drive Disposal Site		Report	1999 Annual Report, Monitoring Events 14 and 15, Site 9: Neptune Drive Disposal Site
853	04-Apr-00	9	MEDEP Response to Comments on 1999 Annual, Site 9		Report	MEDEP Response to Comments on 1999 Annual, Site 9
854	07-Apr-00	1,3,EP	MEDEP Response to Comments on 1999 Annual Sites 1 and 3 and Eastern Plume		Report	MEDEP Response to Comments on 1999 Annual Sites 1 and 3 and Eastern Plume
855	10-Apr-03	9	EPA Response to Comments on 1999 Annual Site 9		Report	EPA Response to Comments on 1999 Annual Site 9
856	18-Apr-00	1,3,EP	EPA Response to Comments on 1999 Annual Sites 1 and 3 and Eastern Plume		Report	EPA Response to Comments on 1999 Annual Sites 1 and 3 and Eastern Plume
857	24-Mar-00		5-Year Review Report		Report	5-year review
858	20-Apr-00	Bldg 95	MEDEP Response to Comments on Long-Term Monitoring Plan, Building 95		Report	MEDEP Response to Comments on Long-Term Monitoring Plan, Building 95
859	18-May-99	bldg 95	EPA Response to Comments on Long-Term Monitoring Plan, Building 95		Report	EPA Response to Comments on Long-Term Monitoring Plan, Building 95
860	25-May-00	Bldg 95	Long-Term Monitoring Plan, Building 95		Report	Long-Term Monitoring Plan, Building 95
861	03-Dec-99		Summary of the Aqueous Diffusion Sampling Pilot Study Conducted at the Eastern Plume, NASB		Report	Summary of the Aqueous Diffusion Sampling Pilot Study Conducted at the Eastern Plume, NASB (Aqueous Diffusion Pilot Study)
862	23-Jun-00		Summary of the April 2000 Aqueous Diffusion Sampling Pilot Study, Eastern Plume, NASB		Report	Summary of the April 2000 Aqueous Diffusion Sampling Pilot Study, Eastern Plume, NASB (Second Aqueous Diffusion Pilot Study)
863	05-Apr-00		Direct-Push as NEX		Report	Direct-Push as NEX
864	05-Apr-00		Direct-Push for OFF		Report	Direct-Push for OFF
865	21-Jul-99		MEDEP Response to Comments on Geostatistical Assessment of the Eastern Plume, NASB		Report	MEDEP Response to Comments on Geostatistical Assessment of the Eastern Plume, NASB
866	19-May-98		EPA Response to Comments on Geostatistical Assessment of the Eastern Plume, NASB		Report	EPA Response to Comments on Geostatistical Assessment of the Eastern Plume, NASB
867	31-Jan-00		Geostatistical Assessment of the Eastern Plume, NASB		Report	Geostatistical Assessment of the Eastern Plume, NASB
868	18-May-98		Lepage Response to Comments on Geostatistical Assessment of the Eastern Plume, NASB		Report	Lepage Response to Comments on Geostatistical Assessment of the Eastern Plume, NASB

869	18-Jun-99	1,3,EP	Monitoring Event 14, Sites 1 and 3 and Eastern Plume		Report	Monitoring Event 14, Sites 1 and 3 and Eastern Plume
870	18-Jun-99	9	Monitoring Event 14, Site 9		Report	Monitoring Event 14, Site 9
871	29-Nov-99	9	Monitoring Event 15, Site 9		Report	Monitoring Event 15, Site 9
872	29-Nov-99	1,3,EP	Monitoring Event 15, Sites 1 and 3 and Eastern Plume		Report	Monitoring Event 15, Sites 1 and 3 and Eastern Plume
873	29-Feb-00	2	Long-Term Monitoring Plan, Site 2		Report	Long-Term Monitoring Plan, Site 2
874	18-Oct-99	2	Lepage Response to Comments on Long-Term Monitoring Plan, Site 2		Report	Lepage Response to Comments on Long-Term Monitoring Plan, Site 2
875	19-Jul-99	2	EPA Response to Comments on Long-Term Monitoring Plan, Site 2		Report	EPA Response to Comments on Long-Term Monitoring Plan, Site 2
876	12-Oct-99	2	MEDEP Response to Comments on Long-Term Monitoring Plan, Site 2		Report	MEDEP Response to Comments on Long-Term Monitoring Plan, Site 2
877	30-Jun-99		MEDEP Response to Comments on Long-Term Monitoring Plan, Site 9		Report	MEDEP Response to Comments on Long-Term Monitoring Plan, Site 9
878	17-May-99	9	EPA Response to Comments on Long-Term Monitoring Plan, Site 9		Report	EPA Response to Comments on Long-Term Monitoring Plan, Site 9
879	12-Aug-99	9	Long-Term Monitoring Plan, Site 9		Report	Long-Term Monitoring Plan, Site 9
880	28-Feb-00	1,3,EP	Long-Term Monitoring Plan, Sites 1 and 3 and Eastern Plume		Report	Long-Term Monitoring Plan, Sites 1 and 3 and Eastern Plume
881	25-Jun-99	1,3,EP	EPA Response to Comments on the Long-Term Monitoring Plan, Sites 1 and 3 and Eastern Plume		Report	EPA Response to Comments on the Long-Term Monitoring Plan, Sites 1 and 3 and Eastern Plume
882	13-Aug-99	1,3,EP	MEDEP Response to Comments on the Long-Term Monitoring Plan, Sites 1 and 3 and Eastern Plume		Report	MEDEP Response to Comments on the Long-Term Monitoring Plan, Sites 1 and 3 and Eastern Plume
883	21-Aug-02	1 & 3	Sites 1 and 3 and Eastern Plume, 2000 Annual		Report	Sites 1 and 3 and Eastern Plume,
884	15-Aug-02	2	Site 2, 2000 Annual		Report	Site 2, 2000 Annual
885	05-Jun-02	9	Site 9, 2000 Annual		Report	Site 9, 2000 Annual
886	19-Feb-02	bldg.95	Site 9, 2000 Annual		Report	Site 9, 2000 Annual
887	22-Jan-03	Bldg 95	Building 95, 2001 Annual		Report	Building 95, 2001 Annual
888	23-Jan-03	9	Site 9 2001 Annual		Report	Site 9 2001 Annual
889	29-Aug-01		Summary of the April 2001 Aqueous Diffusion Sampling Pilot Study for Site 9, NASB		Report	Summary of the April 2001 Aqueous Diffusion Sampling Pilot Study for Site 9, NASB (First Aqueous Diffusion Pilot Study)
890	29-Aug-01		Summary of the April/May 2001 Aqueous Diffusion Sampling Pilot Study, Eastern Plume, NASB		Report	Summary of the April/May 2001 Aqueous Diffusion Sampling Pilot Study, Eastern Plume, NASB (Fourth Aqueous Diffusion Pilot Study)

891	30-Nov-00		Summary of the September 2000 Aqueous Diffusion Sampling Pilot Study, Eastern Plume, NASB		Report	Summary of the September 2000 Aqueous Diffusion Sampling Pilot Study, Eastern Plume, NASB
892	01-Dec-00		Final Explanation of Significant Difference (signed)		Report	Final Explanation of Significant Difference (signed)
893	26-Jun-00	2	Monitoring Event 1, Site 2		Report	Monitoring Event 1, Site 2
894	27-Jun-00		Monitoring Event 11, Building 95		Report	Monitoring Event 11, Building 95
895	08-Feb-01		Monitoring Event 12, Building 95		Report	Monitoring Event 12, Building 95
896	21-Aug-01		Monitoring Event 13, Building 95		Report	Monitoring Event 13, Building 95
897	20-Feb-02		Monitoring Event 14, Building 95		Report	Monitoring Event 14, Building 95
898	22-Jun-00		Monitoring Event 16, Site 9		Report	Monitoring Event 16, Site 9
899	23-Jun-00	1,3,EP	Monitoring Event 16, Sites 1 and 3 and Eastern Plume		Report	Monitoring Event 16, Sites 1 and 3 and Eastern Plume
900	27-Nov-00	9	Monitoring Event 17, Site 9		Report	Monitoring Event 17, Site 9
901	30-Nov-02	1,3,EP	Monitoring Event 17, Sites 1 and 3 and Eastern Plume		Report	Monitoring Event 17, Sites 1 and 3 and Eastern Plume
902	19-Dec-01	9	Monitoring Event 18, Site 9		Report	Monitoring Event 18, Site 9
903	22-Jan-02	1,3,EP	Monitoring Event 18, Sites 1 and 3 and Eastern Plume		Report	Monitoring Event 18, Sites 1 and 3 and Eastern Plume
904	17-May-02	9	Monitoring Event 19, Site 9		Report	Monitoring Event 19, Site 9
905	20-May-02	1,3,EP	Monitoring Event 19, Sites 1 and 3 and Eastern Plume		Report	Monitoring Event 19, Sites 1 and 3 and Eastern Plume
906	29-Nov-00	2	Monitoring Event 2, Site 2		Report	Monitoring Event 2, Site 2
907	23-Jan-03	9	Monitoring Event 20, Site 9		Report	Monitoring Event 20, Site 09
908	31-Aug-01	2	Monitoring Event 3, Site 2		Report	Monitoring Event 3, Site 2
911	15-Aug-02	2	Monitoring Event 4, Site 2		Report	Monitoring Event 4, Site 2
912	30-Jan-01	2	Monitoring Well Installation, Site 2		Report	Monitoring Well Installation, Site 2
913	25-Sep-02	7	Site 7 Record of Decision		Report	Site 7, Record of Decision
914	14-Mar-02	7	Site 7 Summary Report		Report	Site 7 Summary Report
915	01-Jun-01		Letter Work Plan - Revised Final Letter Report-RI		Report	Letter Work Plan - Revised Final Letter Report-RI
916	15-Jun-01		Letter Work Plan - Southern Boundary		Report	Letter Work Plan - Southern Boundary
917	18-Jan-01		Summary of Monitoring Well Decommissioning		Report	Summary of Monitoring Well Decommissioning

USTs ASTs TRANSFORMERS REMOVED

NASB ASTs Removed

NASB ASTs REMOVED

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A1.0	HANGAR 1 SO	NB	500	WASTE OIL	DWSV	DW	96	05	REM	GOOD, MOVED FROM HGR 1, TO HGR 6,
A1.1	HANGAR 1 SO	NB	500	WASTE OIL	DWSV	DW	96	05	REM	GOOD, MOVED FROM HGR 1, TO HGR 6,
A1.2	HANGAR 1 NO	NB	250	WASTE OIL	DWSV	DW	96	05	REM	GOOD, MOVED FROM HGR 1, TO HGR 6,
A1.3	HANGAR 1 NO	NB	250	WASTE OIL	DWSV	DW	96	05	REM	GOOD, MOVED FROM HGR 1, TO HGR 6,
A1.4	HANGAR 1 NO	NB	15000	#1 OIL	DWS	DW	99	06	REM	DUAL FUEL (NORTH SIDE OF HANGAR) REMOVED TO B553
A2.0	HANGAR 2	NB	250	JP8/OIL	DWSV	DW	96	99	REM	SPARE-STORED AT B209/MOVED TO B55
A2.1	HANGAR 2	NB	250	JP8/OIL	DWSV	DW	96	99	REM	SPARE-STORED AT B209MOVED TO B45
A3.0	HANGAR 6 E	NB	250	WASTE OIL	DWSV	DW	96	04	REM	GOOD, MOVED FROM HGR 3, TO HGR 6, HGR 3 DEMOLISHED
A3.1	HANGAR 6 E	NB	250	WASTE OIL	DWSV	DW	96	04	REM	GOOD, MOVED FROM HGR 3, TO HGR 6, HGR 3 DEMOLISHED
A4.0	ADMIN BLDG (GEN)	NB	25	DIESEL	SWS	NONE	NK	02	REM	GOOD (GEN)/BLDG DEMO/SPARE
A19.0	DRMO	NB	500	#1 OIL	DWS	DW	95	99	REM	RELOCATED TO B45
A19.3	PW PARKING LOT	NB	275	WASTE OIL	DWS		96	06	REM	MOVED TO BLDG 55 SECURITY GENERATOR
A21.0	CHILD DEV SVCS (I)	NB	275	#1 OIL	SWS	SC	97	01	REM	IN BOILER BLDG/GOOD
A21.1	CHILD DEV SVCS (I)	NB	275	#1 OIL	SWS	SC	97	01	REM	IN BOILER BLDG/GOOD
A23.0	MWR CAR WASH (I)	NB	275	#1 OIL	SWS	SC	94	02	REM	INSIDE BERM LEFT
A24.0	PSD (I)	NB	275	#1 OIL	SWS	SC	97	01	REM	GOOD (INSIDE)
A24.1	PSD (I)	NB	275	#1 OIL	SWS	SC	97	01	REM	GOOD (INSIDE)
A26.0	CHILDCARE CTR	NB	250	#1 OIL	DWSV	DW	99	02	REM	FROM INSIDE B53/DUAL FUEL
A26.1	CHILDCARE CTR	NB	250	#1 OIL	DWSV	DW	99	02	REM	FROM INSIDE B53/DUAL FUEL
A29.0	HOBBY SHOP	NB	275	WASTE OIL	SWS	NONE	94	96	REM	NPP GOOD
A29.1	HOBBY SHOP	NB	275	WASTE OIL	SWS	NONE	94	96	REM	NPP GOOD
A29.2	HOBBY SHOP	NB	275	WASTE OIL	SWS	NONE	94	96	REM	NPP GOOD
A32.0	SUPPLY - FF BLDG	NB	275	#1 OIL	SWS	NONE	NK	96	REM	NPP-MODERATE RUST
A35.0	OLD APTU (I)	NB	275	#1 OIL	SWS	SC	91	98	REM	GOOD (I); BLDG DEMO
A35.1	OLD APTU (I)	NB	275	#1 OIL	SWS	SC	91	98	REM	GOOD (I); BLDG DEMO
A38.0	ORION'S	NB	250	COOKING GR	SWS	NONE	NK	98?	REM	NPP-GOOD; BLDG DEMO
A39.0	GOLF COURSE	NB	275	GASOLINE	SWS	NONE	NK	95	REM	NPP-BADLY RUSTED
A39.4	GOLF COURSE-MAINT (I)	NB	55	WASTE OIL	SWS	SC	97	01	REM	GOOD- REPL BY 250 GAL AST
A42.0	PUMP HOUSE	NB	275	DIESEL	SWS	NONE	NK	98	REM	REMOVED
A45.0	HAZ WASTE STORAGE	NB	1000	JP8/OIL	DWSV	DW	96	99	REM	RELOCATED TO B27 (FSC)
A53.0	PW ROICC ENV ENG	NB	1000	#1 OIL	DWSV	DW	98	99	REM	RELOCATED TO B19
A55.0	RECYCLING BLDG (I)	NB	550	#1 OIL	DWS	DW	99	04	REM	FROM B234 WOOD CHIP (INSIDE)
A55.1	RECYCLING BLDG (I)	NB	550	#1 OIL	DWS	DW	99	04	REM	GOOD (INSIDE)
A55.1	SECURITY (I)	NB	275	DIESEL	SWS	SC	06	06	REM	GOOD (INSIDE SHED) INSIDE CONTAINEMENT TUB
A55.2	BLDG 55 RECYCLING	NB	250	WASTE OIL	DWSV	DW	01	04	REM	RELOCATED FROM HGR 2
A80.0	GARAGE	RG	275	#1 OIL	SWS	NONE	NK	96	REM	NPP-MODERATE RUST
A80.1	GARAGE	RG	275	#1 OIL	SWS	NONE	NK	96	REM	NPP-MODERATE RUST

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A86.0	GSE	NB	275	WASTE OIL	SWS	NONE	93	96	REM	GOOD
A89.1	FIREHOUSE	RG	275	#1 OIL	SWS	NONE	NK	96	REM	NPP GOOD
A89.2	FIREHOUSE (BEHIND)	RG	275	JP5/KERO	SWS	NONE	NK	96	REM	BAD DISPENSING HOSE
AR1.0	COMPOUND-TRLR OPP B82	RG	275	#1 OIL	SWS	NONE	NK	96	REM	MODERATE RUST
AR2.0	ALPHA SITE-SM GEN BLDG	RG	55	JP-5/ #1	SWS	NONE	NK	96	REM	GOOD COND (ALUM PT)
AR3.0	OLD OVERNIGHT SITE	RG	55	#1 OIL	SWS	NONE	NK	96	REM	PAINTED RED
AR4.0	BRAVO SITE-INSTRS SHACK	RG	55	#1 OIL	SWS	NONE	NK	96	REM	BADLY RUSTED-WALL MT
AR4.1	BRAVO SITE-INSTRS SHAK	RG	250	#1 OIL	DWSV	DW	96	99	REM	VAULTED-MOVED TO ALPHA SITE
AR5.0	BERTHING TRAILER	RG	275	#1 OIL	SWS	NONE	94	96	REM	PIPING UNDERGROUND !!
AR6.0	BERTHING TRAILER	RG	275	#1 OIL	SWS	NONE	94	96	REM	PIPING UNDERGROUND !!
AR7.0	BERTHING TRAILER	RG	275	#1 OIL	SWS	NONE	94	96	REM	PIPING UNDERGROUND !!
AR8.0	BERTHING TRAILER	RG	275	#1 OIL	SWS	NONE	94	96	REM	PIPING UNDERGROUND !!
A000.0	MAYTAG - REFUELLERS	NB	275	#1 OIL	SWS	NONE	92	96	REM	NPP-GOOD
A00C.0	QTRS C (BASEMENT)	BH	275	#2 OIL	SWS	SC	NK	NK	REM	REM FROM INV - NO QTRS C
A201.1	NEW GALLEY (I)	NB	330	#1 OIL	SWS	NONE	95	99	REM	INSIDE- RELOCATED TO B19 (PWKS)
A201.2	NEW GALLEY (I)	NB	330	#1 OIL	SWS	NONE	95	99	REM	INSIDE- RELOCATED TO B19 (PWKS)
A207.0	OLD FF-GAS PUMP HOUSE	NB	250	JP-5	SWS	SC	NK	93	REM	GOOD
A208.0	FF TRANS VAULT (GEN)	NB	275	#1 OIL	SWS	SC	92	95	REM	GOOD
A211.0	SUPPLY - GALLEY (GEN)	NB	275	DIESEL	SWS	NONE	NK	95	REM	NPP-MODERATE RUST
A211.1	GALLEY - SUPPLY	NB	250	COOKING GR	SWS	NONE	NK	NK	REM	NPP-GOOD
A212.0	SUPPLY - BEQ (GEN)	NB	25	DIESEL	SWS	NONE	NK	98	REM	GOOD (EMERG GEN)
A224.0	NEX-THRIFT SHOP (GEN)	NB	6	DIESEL	SWS	NONE	MK	98	REM	NPP-BADLY RUSTED
A225.0	TRANS GARAGE	NB	275	WASTE OIL	SWS	NONE	93	96	REM	NPP-GOOD
A225.3	TRANS GARAGE	NB	275	WASTE OIL	SWS	NONE	93	96	REM	NPP-GOOD
A229.0	GCA HARTSTAND	NB	275	DIESEL	SWS	NONE	92	96	REM	GOOD
A233.0	HEATING PLANT	NB	250	WASTE OIL	DWSV	DW	96	99	REM	RELOCATED TO B19
A234.0	WOOD CHIP BLDG (GEN)	NB	550	DIESEL	DWS	DW	92	98	REM	GOOD/RELOCATED TO B55
A234.1	WOOD SHIP BLDG	NB	275	WASTE OIL	SWS	NONE	93	98	REM	NPP-GOOD
A235.0	QTRS E	BH	500	#1 OIL	SWS	SC	95	01	REM	GOOD/REM IN 9/01
A236.0	QTRS F	BH	500	#1 OIL	SWS	SC	95	01	REM	GOOD-HAZMAT IN SHED/REM IN 9/01
A237.0	QTRS G	BH	500	#1 OIL	SWS	SC	95	01	REM	GOOD/REM IN 9/01
A238.0	QTRS H	BH	500	#1 OIL	SWS	SC	95	01	REM	GOOD/REM IN 9/01
A239.0	QTRS I	BH	500	#1 OIL	SWS	SC	95	01	REM	GOOD-BURIED PIPING/REM IN 9/01
A240.0	QTRS EA	BH	500	#1 OIL	SWS	SC	95	01	REM	GOOD/REM IN 01
A241.0	QTRS EB	BH	500	#1 OIL	SWS	SC	95	01	REM	GOOD-CAN'T OPEN DOOR/REM IN 9/01
A242.0	QTRS EC	BH	500	#1 OIL	SWS	SC	95	01	REM	GOOD-PIPING BURIED/REM IN 9/01
A243.0	QTRS ED	BH	500	#1 OIL	SWS	SC	95	01	REM	GOOD-PIPING BURIED/REM IN 9/01

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A244.0	QTRS EE	BH	500	#1 OIL	SWS	SC	95	01	REM	GOOD/REM IN 9/01
A252.0	TRANS GARAGE	NB	275	WASTE OIL	SWS	NONE	93	95	REM	NPP-GOOD
A252.2	TRANS GARAGE	NB	250	WASTE OIL	DWS	DW	93	05	REM	MOVED TO BLDG 590 NEW TRANSPORTATION BLDG
A292.0	FIRE DEPT (GEN)	NB	25	DIESEL	SWS	NONE	NK	98	REM	NPP-GOOD (EMERG GEN)
A323.0	ALLEY C - MAINT SHED	BH	275	#1 OIL	SWS	NONE	NK	96	REM	GOOD
A336.0	COMMISSARY (DISPENSING)	TP	275	GASOLINE	SWS	NONE	NK	97	REM	BAD !! INACTIVE!!
A338.0	MARINES	TP	275	#1 OIL	SWS	NONE	NK	96	REM	BADLY RUSTED
A338.1	MARINES	TP	275	#1 OIL	SWS	NONE	NK	96	REM	BADLY RUSTED
A349.0	NEPTUNE (BASEMENT) (I)	BH	275	#2 OIL	SWS	NONE	NK	01	REM	GOOD/REM IN 12/01
A373.0	OLD MAINT SHED (HILL)	TP	1000	#1 OIL	SWS	NONE	NK	97	REM	GOOD-INACTIVE (OOS)
A377.0	PUMP STATION (GEN)	TP	275	#1 DIESEL	SWS	NONE	89	96	REM	BADLY RUSTED (FENCED)
A512.0	BOQ	NB	2000	#1 OIL	DWS	DW+PSC	95	98	REM	GOOD-RELOCATED TO B201.3
A516.0	NITEFLITE	NB	250	COOKING GR	SWS	NONE	NK	04	REM	GOOD, GREASE CONTAINER NO LONGER REQUIRED
A538.1	NEX - SERVICE STATION	NB	275	WASTE OIL	SWS	NONE	93	96	REM	BADLY RUSTED
A538.2	NEX - SERVICE STATION	NB	250	WASTE OIL	DWSV	DWSV	96	01	REM	GOOD-NO GARAGE/MOVED TO B39
A561.0	MCKEEN ST (MAINT)	MK	275	#1 OIL	SWS	NONE	NK	96	REM	MODERATE RUST
A561.1	MCKEEN ST (MAINT)	MK	250	#1 OIL	DWSV	DW	96	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A567.1	MAIN GEN BLDG (GEN)	RG	2000	#1 OIL	DWS	DW	91	03	REM	PIPING UPGRADE 1/96, REMOVED BY CONTRACTOR
A570.0	OUTHOUSE (OLD)	RG	275	#1 OIL	SWS	NONE	NK	96	REM	BADLY RUSTED
A572.0	CPD - SM GEN BLDG	RG	55	#1 OIL	SWS	NONE	NK	94	REM	MODERATE RUST
A573.0	COMPOUND-MAJOR'S OFF	RG	275	#1 OIL	SWS	NONE	NK	96	REM	BADLY RUSTED
A574.0	COMPOUND-SICKBAY	RG	275	#1 OIL	SWS	NONE	NK	96	REM	BADLY RUSTED
A584.0	DRMO	NB	275	#1 OIL	SWS	NONE	NK	96	REM	BADLY RUSTED
A584.1	DRMO	NB	275	#1 OIL	SWS	NONE	NK	96	REM	BADLY RUSTED
A584.2	PW SHOPS/OLD DRMO	NB	500	#1 OIL	DWSV	DW	96	02	REM	LOCATED AT B 55
A592.0	TELEPHONE OFFICE (I)	NB	330	#1 OIL	SWS	SC	96	98	REM	GOOD - INSIDE
A592.1	TELEPHONE OFFICE (I)	NB	330	#1 OIL	SWS	SC	96	98	REM	GOOD - INSIDE
A592.2	TELEPHONE OFFICE (I)	NB	330	#1 OIL	SWS	SC	98	03	REM	GOOD-INSIDE/CONVERTED TO GAS
A611.2	TEST CELL	NB	1000	#1 OIL	DWS	DW+PSC	94	99	REM	RELOCATED TO HGR 5E
A611.4	TEST CELL (I)	NB	330	#1 OIL	SWS	SC	98	02	REM	REMOVED FROM BOILER ROOM/NO REPLACMENT
A611.5	TEST CELL (I)	NB	330	#1 OIL	SWS	SC	98	02	REM	REMOVED FROM BOILER ROOM/NO REPLACMENT
A631.0	RNMCB (TRAILER NEXT TO)	NB	275	#1 OIL	SWS	SC	NK	97	REM	NPP-GOOD (OOS)
A635.10	RNMCB-27 (I)	NB	275	#1 OIL	SWS	SC	NK	03	REM	GOOD-INSIDE
A635.11	RNMCB	NB	55	WASTE OIL	SWS	SC	NK	96	REM	GOOD (DRUM)
A635.12	RNMCB-27 (I)	NB	25	DIESEL	SWS	NONE	NK	05	REM	(EMERG GEN) (I) SHIPPED TO GULFPORT
A635.13	RNMCB-27 (I)	NB	30	DIESEL	SWS	NONE	NK	05	REM	GOOD-(EMERG GEN) (I) SHIPPED TO DRMO
A635.7	RNMCB-27 (I)	NB	275	#1 OIL	SWS	SC	NK	03	REM	GOOD-INSIDE

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A635.8	RNMCB-27 (I)	NB	275	#1 OIL	SWS	SC	NK	03	REM	GOOD-INSIDE
A635.9	RNMCB-27 (I)	NB	275	#1 OIL	SWS	SC	NK	03	REM	GOOD-INSIDE
A636.0	RNMCB-27	NB	550	#1 OIL	SWS	SC	NK	03	REM	GOOD
A638.0	ALLEY C (GEN BLDG)	BH	275	DIESEL	SWS	NONE	NK	96	REM	BADLY RUSTED
A644.0	OP TRAINER	NB	500	DIESEL	DWS	DW	94	96	REM	GOOD
A656.0	JFSI	NB	25950	WASTE OIL	SWS	SC	92	94	REM	REM 8/2/94 NO REPL
A790.0	14-18 ANTIETAM	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 9/01
A791.0	20-24 ANTIETAM	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 9/01
A792.0	26-30 ANTIETAM	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD-UNAUTH STORAGE/REM IN 9/01
A793.0	33-36 ANTIETAM	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 9/01
A794.0	33-37 ANTIETAM	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD-BAD FILL CAP/REM IN 9/01
A795.0	2-4 MIDWAY CIR	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 10/01
A796.0	6-10 MIDWAY CIR	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 10/01
A797.0	5-9 MIDWAY CIR	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 9/01
A798.0	27-31 ANTIETAM	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 9/01
A799.0	21-25 ANTIETAM	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 9/01
A800.0	15-19 ANTIETAM	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 9/01
A801.0	59 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A801.1	55 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	UK	REM	GOOD; TEMP TIL DEMO; EMPTY; TANK REMOVED IN 00?
A802.0	58 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A802.1	54 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A803.0	52 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A803.1	50 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A803.2	48 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A803.3	46 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A803.4	32 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A803.4	44 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A803.5	42 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A804.0	40 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	00	REM	GOOD; TEMP TIL DEMO; REM 5/00
A804.1	38 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A804.2	36 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A804.3	34 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A804.4	40 FORRESTAL	BG	275	#1 OIL	SWS	NONE	00	02	REM	GOOD; TEMP TIL DEMO; REPLACEMENT
A805.0	35 FORRESTAL	BG	275	#1 OIL	SWS	NONE	95	02	REM	GOOD; TEMP TIL DEMO
A805.1	41 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A805.2	39 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A805.3	37 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A806.0	24 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A806.1	26 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A806.2	28 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A806.3	30 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A807.0	12 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	04	REM	GOOD; TEMP TIL DEMO IN SPRING
A807.1	14 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	04	REM	GOOD; TEMP TIL DEMO IN SPRING
A807.2	16 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	04	REM	GOOD; TEMP TIL DEMO IN SPRING
A807.3	18 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	04	REM	GOOD; TEMP TIL DEMO IN SPRING
A807.4	20 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	04	REM	GOOD; TEMP TIL DEMO IN SPRING
A807.5	22 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	04	REM	GOOD; TEMP TIL DEMO IN SPRING
A808.0	2 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	00	REM	GOOD; TEMP DEMO; RELOC 40 FORRESTAL
A808.1	4 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	00	REM	GOOD; TEMP DEMO; RELOC 66 GUADALCANAL
A808.2	6 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	00	REM	GOOD; TEMP DEMO; RELOC 10 INTREPID
A808.3	8 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A808.4	10 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	00	REM	GOOD; TEMP DEMO; RELOC 36 ENTERPRISE
A808.5	2 FORRESTAL	BG	275	#1 OIL	SWS	NONE	00	02	REM	GOOD; TEMP TIL DEMO; RELOCATED FROM BG; EMPTY
A808.6	4 FORRESTAL	BG	275	#1 OIL	SWS	NONE	00	02	REM	GOOD; TEMP TIL DEMO; RELOCATED FROM BG - HOOKED UP?
A808.7	6 FORRESTAL	BG	275	#1 OIL	SWS	NONE	00	02	REM	GOOD; TEMP TIL DEMO; RELOCATED FROM BG - HOOKED UP?
A808.8	10 FORRESTAL	BG	275	#1 OIL	SWS	NONE	00	02	REM	GOOD; TEMP TIL DEMO; RELOCATED FROM BG - HOOKED UP?
A809.0	51 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO; EMPTY; MOVED TO ADJ YARD
A809.1	2 INTREPID	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A809.2	4 INTREPID	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A809.3	6 INTREPID	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A810.0	43 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO; EMPTY
A810.1	3 INTREPID	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A810.2	1 INTREPID	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A811.0	8 INTREPID	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A811.1	10 INTREPID	BG	275	#1 OIL	SWS	NONE	97	00	REM	GOOD; TEMP TIL DEMO; REM 5/00
A811.2	10 INTREPID	BG	275	#1 OIL	SWS	NONE	00	02	REM	GOOD; TEMP TIL DEMO; REPLACEMENT
A812.0	5 INTREPID	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A812.1	7 INTREPID	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A812.2	12 DELGADA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A813.0	11 DELGADA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A814.0	9 DELGADA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A814.1	7 DELGADA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A814.2	5 DELGADA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A814.3	3 DELGADA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A815.0	10 DELGADA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A815.1	8 DELGADA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A815.2	6 DELGADA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A815.3	4 DELGADA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A816.0	31 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A816.1	2 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A816.2	4 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A817.0	25 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A817.1	1 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A817.2	3 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A818.0	8 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	95	02	REM	TEMP TIL DEMO
A818.1	2 DELGADA	BG	275	#1 OIL	SWS	NONE	95	02	REM	TEMP TIL DEMO
A818.2	6 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO; EMPTY?
A819.0	15 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A819.1	13 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A819.2	11 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	UK	REM	GOOD; TEMP TIL DEMO; EMPTY; TANK REMOVED IN 00?
A819.3	9 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A819.4	7 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A819.5	5 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A820.0	1 DELGADA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO; EMPTY?
A820.1	10 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A820.2	12 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A821.0	17 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A821.1	19 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A821.2	8 CORAL SEA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO; EMPTY?
A822.0	14 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A822.1	16 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A823.0	18 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A823.1	20 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A823.2	22 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A824.0	24 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A824.1	26 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A824.2	28 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A824.3	30 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A824.4	32 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A825.0	37 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A825.1	35 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A825.2	33 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A825.3	31 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	UK	REM	GOOD; TEMP TIL DEMO; TANK REMOVED IN 00?
A825.4	29 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A825.5	27 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A825.6	25 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A826.0	34 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A826.1	36 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A826.2	38 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A827.0	43 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A827.1	39 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A828.0	40 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD;TEMP; EMPTY 1/00
A828.1	42 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A828.2	44 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A828.3	46 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A828.4	48 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A829.0	49 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A829.1	45 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A829.2	4 BUNKER HILL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A830.0	50 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A830.1	52 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A831.0	3 BUNKER HILL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A831.1	57 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A831.2	55 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A832.0	54 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A832.1	56 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A832.2	58 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO; EMPTY
A832.3	60 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A833.0	63 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A833.1	61 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A833.2	59 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A834.0	62 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A834.1	64 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A836.0	66 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	00	REM	GOOD; TEMP TIL DEMO; REM 5/00
A836.1	68 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A836.2	66 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	00	02	REM	GOOD; TEMP TIL DEMO; REPLACEMENT
A837.0	6 ANTIETAM	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A837.1	69 GUADALCANAL	BG	275	#1 OIL	SWS	NONE	95	02	REM	TEMP TIL DEMO

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A838.0	7 ANTIETAM	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A838.1	5 ANTIETAM	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A839.0	1 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A839.1	3 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A839.2	21 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A840.0	15 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	UK	REM	GOOD; TEMP TIL DEMO; TANK REMOVED IN 00?
A840.1	2 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A840.2	4 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A841.0	6 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A841.1	8 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO; EMPTY?
A841.2	10 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A841.3	12 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A841.4	14 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A841.5	16 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A842.0	5 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A842.1	7 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A842.2	9 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A842.3	11 HORNET	BG	275	#1 OIL	SWS	NONE	97	UK	REM	GOOD; TEMP TIL DEMO; EMPTY; TANK REMOVED IN 00?
A842.4	13 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A842.5	15 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A843.0	18 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A843.1	20 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A843.2	6 CORAL SEA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A844.0	4 CORAL SEA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A844.1	17 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A844.2	19 HORNET	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A845.0	11 CORAL SEA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A845.1	9 CORAL SEA	BG	275	#1 OIL	SWS	NONE	97	UK	REM	GOOD; TEMP TIL DEMO; TANK REMOVED IN 00?
A845.2	7 CORAL SEA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A845.3	5 CORAL SEA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A846.0	2 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A846.1	4 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A846.2	11 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A847.0	1 FORRESTAL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A847.1	5 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A847.2	3 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A847.3	1 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A848.0	6 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A848.1	8 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A848.2	10 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A848.3	12 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A848.4	14 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A848.5	16 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A849.0	15 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A849.1	13 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A849.2	11 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A849.3	9 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A849.4	7 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A850.0	18 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A850.1	20 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A850.2	2 CORAL SEA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A851.0	17 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	00	REM	GOOD; TEMP; RELOC 47 ENTERPRISE
A851.1	31 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A851.2	29 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A851.3	27 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO; EMPTY
A851.4	25 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A851.5	23 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A851.6	21 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A851.7	19 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A852.0	3 CORAL SEA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A852.0	30 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A852.1	1 CORAL SEA	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A852.1	32 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A853.0	34 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A853.1	36 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	00	REM	GOOD; TEMP TIL DEMO; REM 5/00
A853.2	36 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	00	02	REM	GOOD; TEMP TIL DEMO; REPLACEMENT
A854.0	35 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A854.1	33 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A855.0	38 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A855.1	42 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A856.0	39 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A856.1	37 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A857.0	2 BUNKER HILL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A857.1	44 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO; EMPTY

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A857.2	48 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A858.0	51 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A858.1	49 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO; EMPTY
A858.2	47 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	00	REM	GOOD; TEMP TIL DEMO; REM 5/00
A858.3	45 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A858.4	43 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A858.5	41 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A858.6	47 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	00	02	REM	GOOD; TEMP TIL DEMO; REPLACEMENT
A859.0	1 BUNKER HILL	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A859.1	50 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A859.2	52 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A860.0	55 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A860.1	53 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO; EMPTY
A861.0	54 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A861.1	56 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A861.2	58 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO; EMPTY
A862.0	57 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A862.1	59 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A862.2	61 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A862.3	63 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A863.0	60 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A863.1	62 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A864.0	65 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A864.1	2 ANTIETAM	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A865.0	4 ANTIETAM	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A865.1	64 ENTERPRISE	BG	275	#1 OIL	SWS	NONE	97	02	REM	GOOD; TEMP TIL DEMO
A866.0	3 ANTIETAM	BG	275	#1 OIL	SWS	NONE	97	01	REM	GOOD; TEMP TIL DEMO
A866.1	1 ANTIETAM	BG	275	#1 OIL	SWS	NONE	97	01	REM	GOOD; TEMP TIL DEMO
A875.0	12 INTREPID	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A876.0	14 INTREPID	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A877.0	16 INTREPID	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A878.0	18 INTREPID	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A879.0	20 INTREPID	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A880.0	22 INTREPID	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A881.0	24 INTREPID	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A882.0	21 INTREPID	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A883.0	19 INTREPID	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A884.0	17 INTREPID	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD-MISSING 1 PLUG/REM IN 11/01
A885.0	15 INTREPID	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD-MISSING 1 PLUG/REM IN 11/01
A886.0	13 INTREPID	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD-MISSING 1 PLUG/REM IN 11/01
A887.0	11 INTREPID	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD-MISSING 2 PLUGS/REM IN 11/01
A888.0	9 INTREPID	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD-BAD FILL CAP/REM IN 11/01
A889.0	41 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A889.1	43 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOODREM IN 11/01
A890.0	37 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A890.1	39 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A891.0	33 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A891.1	35 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD-FILL CAP INOP/REM IN 11/01
A892.0	29 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A892.1	31 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A893.0	25 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A893.1	27 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A894.0	21 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A894.1	23 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A895.0	17 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A895.1	19 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A896.0	13 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A896.1	15 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A897.0	9 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A897.1	11 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A898.0	5 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A898.1	7 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A899.0	1 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A899.1	3 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	FUEL & WATER IN S/C/REM IN 11/01
A900.0	34 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A900.1	36 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A901.0	28 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A901.1	30 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A902.0	14 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A902.1	12 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	OIL IN S/C (2 GALS)/REM IN 11/01
A903.0	6 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A903.1	8 INDEPENDENCE	BG	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 11/01
A904.0	CO WING-5	BH	275	#2 OIL	SWS	SC	89	01	REM	GOOD/BERM IN 98/REM IN 11/01
A905.0	NAS CO	BH	275	#2 OIL	SWS	SC	92	01	REM	GOOD/BERM IN 98/REM IN 11/01

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A906.0	113 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A907.0	115 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A908.0	117 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A909.0	119 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A910.0	121 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A911.0	123 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A911.1	125 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A912.0	127 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A912.1	129 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A913.0	131 MCKEEN	MK	275	#1 OIL	SWS	NONE	93	98	REM	GOOD/FENCED-NO LK CP
A913.1	131 MCKEEN	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A914.0	190 COLUMBIA	MK	275	#1 OIL	SWS	NONE	93	98	REM	GOOD/FENCED
A914.1	190 COLUMBIA	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A915.0	133 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A916.0	135 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A917.0	137 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A918.0	139 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A919.0	141 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GOOD-MOVED TO BUILDING 55
A920.0	143 MCKEEN	MK	275	#1 OIL	SWS	NONE	92	98	REM	GOOD/FENCED
A920.1	143 MCKEEN	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A921.0	145 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A922.0	147 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A923.0	149 MCKEEN	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A924.0	2 MOORE	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A925.0	8 MOORE	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A926.0	12 MOORE	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A927.0	14 MOORE	MK	275	#1 OIL	SWS	NONE	93	98	REM	GOOD/FENCED
A927.1	14 MOORE	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A928.0	16 MOORE	MK	275	#1 OIL	SWS	NONE	93	98	REM	GOOD/FENCED
A928.1	16 MOORE	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A929.0	18 MOORE	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A930.0	20 MOORE	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A931.0	22 MOORE	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A932.0	24 MOORE	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A933.0	26 MOORE	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A934.0	28 MOORE	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A935.0	30 MOORE	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A936.0	32 MOORE	MK	275	#1 OIL	SWS	NONE	91	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A937.0	34 MOORE	MK	275	#1 OIL	SWS	NONE	93	98	REM	GOOD/FENCED
A937.1	34 MOORE	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A938.0	36 MOORE	MK	500	#1 OIL	SWS	SC	94	98	REM	GOOD
A938.1	36 MOORE	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A939.0	38 MOORE	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A940.0	40 MOORE	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A941.0	151 COLUMBIA	MK	275	#1 OIL	SWS	NONE	93	98	REM	GOOD/FENCED
A941.1	151 COLUMBIA	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A942.0	147 COLUMBIA	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A942.1	149 COLUMBIA	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A943.0	143 COLUMBIA	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A943.1	145 COLUMBIA	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A944.0	141 COLUMBIA	MK	275	#1 OIL	SWS	NONE	91	98	REM	GOOD/FENCED
A944.1	141 COLUMBIA	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A945.0	139 COLUMBIA	MK	275	#1 OIL	SWS	NONE	93	98	REM	GOOD/FENCED
A945.1	139 COLUMBIA	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A946.0	137 COLUMBIA	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A947.0	135 COLUMBIA	MK	275	#1 OIL	SWS	NONE	91	98	REM	GOOD/FENCED
A947.1	135 COLUMBIA	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A948.0	131 COLUMBIA	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A948.1	133 COLUMBIA	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A949.0	127 COLUMBIA	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A949.1	129 COLUMBIA	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A950.0	6 KRAMPF	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A951.0	12 KRAMPF	MK	275	#1 OIL	SWS	NONE	92	98	REM	GOOD/FENCED
A951.1	12 KRAMPF	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A952.0	14 KRAMPF	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A953.0	16 KRAMPF	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A953.1	18 KRAMPF	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A954.0	17 KRAMPF	MK	275	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A955.0	13 KRAMPF	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A955.1	15 KRAMPF	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A956.0	9 KRAMPF	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A956.1	11 KRAMPF	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A957.0	5 KRAMPF	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A957.1	7 KRAMPF	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A958.0	3 KRAMPF	MK	275	#1 OIL	SWS	NONE	93	98	REM	GOOD/FENCED
A958.1	3 KRAMPF	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A959.0	1 KRAMPF	MK	275	#1 OIL			91	98	REM	GOOD/FENCED
A959.1	1 KRAMPF	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A960.0	125 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A961.0	121 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A962.0	4 WINDORF	MK	275	#1 OIL			91	98	REM	GOOD/FENCED
A962.1	4 WINDORF	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A963.0	8 WINDORF	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A963.1	10 WINDORF	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A964.0	11 WINDORF	MK	275	#1 OIL			91	98	REM	GOOD/FENCED
A964.1	11 WINDORF	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A965.0	9 WINDORF	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A965.1	9 WINDORF	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A966.0	7 WINDORF	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A967.0	5 WINDORF	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A968.0	1 WINDORF	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A968.1	3 WINDORF	MK	500	#1 OIL	SWS	SC	94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A969.0	113 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A970.0	111 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A971.0	105 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A971.1	107 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A972.0	103 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A973.0	99 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A973.1	101 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A974.0	95 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A974.1	97 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A975.0	93 COLUMBIA	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A975.1	93 COLUMBIA	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A976.0	91 COLUMBIA	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A976.1	91 COLUMBIA	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A977.0	87 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A977.1	89 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A978.0	88 COLUMBIA	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A978.1	88 COLUMBIA	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A979.0	41 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A979.1	43 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A980.0	39 EMANUAL	MK	275	#1 OIL			92	98	REM	GOOD/FENCED
A980.1	39 EMANUAL	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A981.0	35 EMANUAL	MK	275	#1 OIL			92	98	REM	GOOD/FENCED
A981.1	35 EMANUAL	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A982.0	33 EMANUAL	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A982.1	33 EMANUAL	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A983.0	27 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A983.1	29 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A984.0	25 EMANUAL	MK	275	#1 OIL			91	98	REM	GOOD/FENCED
A984.1	25 EMANUAL	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A985.0	23 EMANUAL	MK	275	#1 OIL			90	98	REM	GOOD/FENCED
A985.1	23 EMANUAL	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A986.0	21 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A987.0	17 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A987.1	19 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A988.0	13 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A988.1	15 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A989.0	11 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A990.0	7 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A990.1	9 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A991.0	5 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A992.0	3 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A993.0	184 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A994.0	186 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A995.0	1 MOORE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A996.0	3 MOORE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A997.0	5 MOORE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A998.0	7 MOORE	MK	275	#1 OIL			92	98	REM	GOOD/FENCED
A998.1	7 MOORE	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A999.0	9 MOORE	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A999.1	9 MOORE	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1000.0	11 MOORE	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A1000.1	11 MOORE	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1001.0	13 MOORE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1002.0	15 MOORE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1003.0	17 MOORE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1004.0	19 MOORE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A1005.0	23 MOORE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1006.0	29 MOORE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1007.0	35 MOORE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1008.0	37 MOORE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1009.0	153 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1010.0	155 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1010.1	157 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1011.0	159 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1011.1	161 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1012.0	163 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1013.0	165 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1014.0	169 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1015.0	175 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1016.0	177 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1017.0	181 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1018.0	183 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1019.0	185 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1019.1	187 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1020.0	189 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1021.0	191 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1022.0	180 COLUMBIA	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A1022.1	180 COLUMBIA	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1023.0	178 COLUMBIA	MK	275	#1 OIL			92	98	REM	GOOD/FENCED
A1023.1	178 COLUMBIA	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1024.0	174 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1024.1	176 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1025.0	170 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1025.1	172 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1026.0	166 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1026.1	168 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1027.0	164 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1028.0	162 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1029.0	160 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1030.0	9 SHOBE	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A1030.1	9 SHOBE	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1031.0	13 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1031.1	15 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A1032.0	17 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1032.1	19 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1033.0	21 SHOBE	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A1033.1	21 SHOBE	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1034.0	25 SHOBE	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A1034.1	25 SHOBE	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1035.0	29 SHOBE	MK	275	#1 OIL			92	98	REM	GOOD/FENCED
A1035.1	29 SHOBE	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1036.0	31 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1036.1	33 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1037.0	35 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1037.1	37 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1038.0	39 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1039.0	41 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1039.1	43 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1040.0	45 SHOBE	MK	275	#1 OIL			91	98	REM	GOOD/FENCED
A1040.1	45 SHOBE	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1041.0	47 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1041.1	49 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1042.0	51 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1043.0	22 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1044.0	20 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1045.0	16 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1046.0	14 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1047.0	8 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1047.1	10 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1048.0	4 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1048.1	6 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1049.0	2 EMANUAL	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A1049.1	2 EMANUAL	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1050.1	150 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1051.0	148 COLUMBIA	MK	500	#1 OIL			93	94	REM	
A1051.1	148 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1052.0	144 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1053.0	142 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1054.0	140 COLUMBIA	MK	275	#1 OIL			NK	94	REM	
A1054.1	140 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A1055.0	138 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1056.0	136 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1057.0	132 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1057.0	132 COLUMBIA	MK	275	#1 OIL			NK	94	REM	
A1058.0	128 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1059.0	126 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1060.0	124 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1061.0	122 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1062.0	118 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1062.1	120 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1063.0	114 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1063.1	116 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1064.0	110 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1064.1	112 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1065.0	108 COLUMBIA	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A1065.1	108 COLUMBIA	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1066.0	106 COLUMBIA	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A1066.1	106 COLUMBIA	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1067.0	104 COLUMBIA	MK	275	#1 OIL			93	98	REM	GOOD/FENCED
A1067.1	104 COLUMBIA	MK	500	#1 OIL	SWS	SC	98	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1068.0	100 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1069.0	94 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1070.0	92 COLUMBIA	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1071.0	44 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1072.0	42 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1073.0	38 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1073.1	40 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1074.0	36 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1075.0	34 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1076.0	30 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1076.1	32 EMANUAL	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1077.0	48 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1078.0	40 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1078.1	42 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1079.0	32 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1079.1	34 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1080.0	28 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A1080.1	30 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1081.0	26 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1082.0	24 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1083.0	22 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1084.0	20 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1085.0	18 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1086.0	16 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1087.0	12 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1087.1	14 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1088.0	10 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1089.0	6 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1089.1	8 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1090.0	4 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1091.0	2 SHOBE	MK	500	#1 OIL			94	02	REM	GAS CONVERSION/TANKS TAKEN BY CONTRACTOR
A1092.0	294-300 PARLIAMENT	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1093.0	286-292 PARLIAMENT	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1094.0	278-284 PARLIAMENT	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD-BURIED PIPING!!/REM IN 10/01
A1095.0	270-276 PARLIAMENT	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 11/01
A1096.0	262-268 PARLIAMENT	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD-DOOR WON'T LOCK/REM IN 10/01
A1097.0	254-260 PARLIAMENT	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1099.0	238-244 PARLIAMENT	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 11/01
A1100.0	236 CONGRESS	TP	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 10/01
A1101.0	234 CONGRESS	TP	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 10/01
A1102.0	232 CONGRESS	TP	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 10/01
A1103.0	230 CONGRESS	TP	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 10/01
A1104.0	228 CONGRESS	TP	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 10/01
A1105.0	226 CONGRESS	TP	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 10/01
A1106.0	224 CONGRESS	TP	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 10/01
A1107.0	222 CONGRESS	TP	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 10/01
A1108.0	220 CONGRESS	TP	500	#1 OIL	SWS	SC	94	01	REM	GOOD/REM IN 10/01
A1109.0	208-214 CONGRESS	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 11/01
A1110.0	200-206 CONGRESS	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 11/01
A1111.0	257-263 PARLIAMENT	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 11/01
A1112.0	249-255 PARLIAMENT	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 11/01
A1113.0	241-247 PARLIAMENT	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1114.0	233-239 PARLIAMENT	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1115.0	225-231 CONGRESS	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 11/01

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
A1116.0	201-207 CONGRESS	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 11/01
A1117.0	400-406 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1118.0	408-414 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 11/01
A1119.0	416-422 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 11/01
A1120.0	424-430 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 11/01
A1122.0	440-446 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1123.0	448-454 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD-BURIED PIPING/REM IN 10/01
A1124.0	456-462 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1125.0	464-470 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1126.0	472-478 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1127.0	480-486 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1128.0	488-494 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD-BURIED PIPING/REM IN 10/01
A1129.0	496-502 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1130.0	504-510 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1131.0	512-518 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1132.0	520-526 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1133.0	401-407 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 11/01
A1134.0	409-415 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 11/01
A1135.0	417-423 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 11/01
A1136.0	425-431 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1138.0	441-447 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1139.0	449-455 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD-BURIED PIPING/REM IN 10/01
A1140.0	457-463 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1141.0	465-471 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1142.0	473-479 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	GOOD/REM IN 10/01
A1143.1	QTRS A (BASEMENT)	BH	275	#2 OIL	SWS	SC	95	01	REM	GOOD-INSIDE/REM IN 10/01
A1144.0	QTRS B (BASEMENT)	BH	275	#2 OIL	SWS	SC	94	01	REM	GOOD-MODERATE RUST/REM IN 10/01
A1145.0	QTRS D (BASEMENT)	BH	275	#2 OIL	SWS	SC	94	01	REM	GOOD (INSIDE)/REM IN 11/01
PDS	246-252 PARLIAMENT	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	REMOVED BY PORTLAND DIVERSIFIED SERVICES
PDS	432-438 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	REMOVED BY PORTLAND DIVERSIFIED SERVICES
PDS	433-439 LIBERTY CIRCLE	TP	1000	#1 OIL	DWSV	DW-PSC	94	01	REM	REMOVED BY PORTLAND DIVERSIFIED SERVICES
PDS	ALLEY C (GEN)	NB	250	DIESEL	DWSV	DW	96	05	REM	REMOVED BY PORTLAND DIVERSIFIED SERVICES
PDS	HANGAR 3	NB	15000	#1 OIL	DWS	DW	99	05	REM	HGR DEMOLISHED/TANK REMOVED 4/05
PDS	NAVOSH (FORMER)	NB	500	#1 OIL	DWS	DW	99	05	REM	REMOVED BY PORTLAND DIVERSIFIED SERVICES
PDS	OLD RECYCLING BLDG	NB	275	#1 OIL	SWS	NONE	99	05	REM	REMOVED BY PORTLAND DIVERSIFIED SERVICES
PDS	OLD RECYCLING BLDG	NB	275	#1 OIL	SWS	NONE	99	05	REM	REMOVED BY PORTLAND DIVERSIFIED SERVICES
PDS	RECYCLING BLDG	NB	1000	# 2 OIL	DWSV	DW-PSC	01	05	REM	REMOVED BY PORTLAND DIVERSIFIED SERVICES

Bldg#	Address	Site	Cap	Product	TankType	TkConType	Yr/In	Yr/R	Stat	Remarks/Location
PDS	RECYCLING BLDG	NB	1000	# 2 OIL	DWSV	DW-PSC	01	05	REM	REMOVED BY PORTLAND DIVERSIFIED SERVICES
PDS	RECYCLING BLDG	NB	500	DIESEL	DWSV	DW	99	05	REM	REMOVED BY PORTLAND DIVERSIFIED SERVICES
PDS	RECYCLING BLDG	NB	250	#1 OIL	DWS	DW	02	05	REM	REMOVED BY PORTLAND DIVERSIFIED SERVICES
PDS	RECYCLING BLDG	NB	500	#1 OIL	DWSV	DW	02	05	REM	REMOVED BY PORTLAND DIVERSIFIED SERVICES
PDS	RECYCLING BLDG	NB	1000	# 2 OIL	DWSV	DW-PSC	01	05	REM	REMOVED BY PORTLAND DIVERSIFIED SERVICES

NASB USTs Removed

NASB USTs REMOVED

BLDG	TANK	ADDRESS	TYPE	SIZE	PRODUCT	MOI	YRI	MOR	YRR	STATUS	SITE	REMARKS
0.0	10045-469	FIRE TRNG PIT	FRP	6,000	WASTE OIL	NK	87	12	94	REM	NB	REMOVED
5.0	10045-001	HANGAR 5	FRP	1,000	DIESEL	NK	82	09	92	REM	NB	REPLACED WITH NEW UST 9-9-92
5.1	10045-488	HANGAR 5 (GEN)	CATH PR DW	1,000	FUEL OIL #2	09	92	06	99	REM	NB	REMOVED; REPLACED W/ AST
7.0	10045-002	GSE MAINT	OTHER	3,000	LUBE OIL	NK	43	NK	88	REM	NB	REMOVED
25.0	10045-003	GYM	FRP	3,000	FUEL OIL #2	NK	80	01	95	REM	NB	REMOVED; REPLACED W/ AST
26.0	10045-483	NEW CHILD CARE	FRP DW	550	FUEL OIL #2	07	90	06	99	REM	NB	REMOVED; REPLACED W/ ASTS
29.0	10045-430	HOBBY SHOP	FRP	550	WASTE OIL	12	87	01	94	REM	NB	REMOVED WITH NO REPLACEMENT
35.0	10045-467	APTU	FRP	1,000	FUEL OIL #2	NK	74	NK	91	REM	NB	REMOVED
77.0	10045-492/500	MAG AREA	FRP DW	600	FUEL OIL #2	09	92	07	97	REM	NB	REPL W/ AST IN VAULT;SAME MON USE
78.0	10045-433	GOLF COURSE	FRP	550	FUEL OIL #2	NK	80	05	95	REM	NB	REPLACE PIPING
82.0	14483-004	RANGELEY	BR ASPH ST	1,000	FUEL OIL #2	NK	80	NK	91	REM	RG	REMOVED WITH NO REPLACEMENT
89.0	14483-008	RANGELEY	BR ASPH ST	550	FUEL OIL #2	NK	NK	NK	91	REM	RG	REMOVED WITH NO REPLACEMENT
91.0	10045-008	PWKS	FRP	4,000	UNKNOWN	NK	80	NK	82	REM	NB	REMOVED
91.1	10045-009	- -	FRP	4,000	UNKNOWN	NK	80	NK	82	REM	NB	REMOVED
91.2	10045-010	- -	FRP	4,000	DIESEL	NK	80	NK	82	REM	NB	REMOVED
101.0	10045-011	FUEL FARM	CONCRETE	100,000	EMPTY	NK	43	01	93	REM	NB	REMOVED
102.0	10045-012	FUEL FARM	CONCRETE	100,000	EMPTY	NK	43	01	93	REM	NB	REMOVED
103.0	10045-013	FUEL FARM	CONCRETE	100,000	EMPTY	NK	43	02	93	REM	NB	REMOVED
109.0	10045-016	KENNEL	BR ASPH ST	550	FUEL OIL #2	NK	83	01	94	REM	NB	REPL W/ AST (REM UST WAS FRP)
117.0	10045-441	FUEL FARM	FRP	10,000	NO LEAD GAS	08	83	09	92	REM	NB	REMOVED
117.1	10045-442	FUEL FARM	FRP	6,000	DIESEL	08	83	09	92	REM	NB	REMOVED
117.2	10045-472	FUEL FARM	BR ASPH ST	4,000	GASOLINE	NK	NK	11	89	REM	NB	REMOVED
117.3	10045-473	FUEL FARM	BR ASPH ST	4,000	GASOLINE	NK	NK	11	89	REM	NB	REMOVED
117.4	10045-475	FUEL FARM	BR ASPH ST	4,000	GASOLINE	NK	NK	11	89	REM	NB	REMOVED
150.0	10045-486	APTU BLDG (NEW)	CATH PR DW	2,500	FUEL OIL #2	10	92	10	03	REM	NB	SC, LD, S, OV; MOD 4/98/DUAL FUEL
200.0	10045-427	AIR OPS	FRP	550	DIESEL	10	86	08	92	REM	NB	REPLACED WITH ABOVEGROUND
202.0	10045-019	FUEL FARM	CATH PR ST	567,000	AVIATION	NK	53	08	95	REM	NB	REMOVE DURING REMEDIATION
203.0	10045-020	FUEL FARM	CATH PR ST	567,000	AVIATION	NK	53	08	95	REM	NB	REMOVE DURING REMEDIATION
204.0	10045-021	FUEL FARM	CATH PR ST	567,000	AVIATION	NK	53	05	93	REM	NB	REMOVED
205.0	10045-022	FUEL FARM	CATH PR ST	567,000	AVIATION	NK	53	05	93	REM	NB	REMOVED
207.0	16765-001	FUEL FARM	BR STEEL	550	JP-5		51		91	REM	NB	REMOVED
209.0	10045-434	UNION	FRP	550	DIESEL	NK	77	10	92	REM	NB	REPLACED WITH ABOVEGROUND
211.0	10045-023	GALLEY	BR ASPH ST	30,000	FUEL OIL #2	NK	53	11	89	REM	NB	REMOVED
211.1	10045-024	GALLEY	BR ASPH ST	30,000	FUEL OIL #2	NK	53	11	89	REM	NB	REMOVED
211.2	10045-471	GALLEY	BR ASPH ST	250	FUEL OIL #2	NK	53	NK	91	REM	NB	REMOVED
222.0	10045-470	ADMIN STORAGE	BR ASPH ST	550	UNKNOWN	NK	NK	11	90	REM	NB	REMOVED
225.0	10045-025	TRANS GARAGE	OTHER	3,000	LUBE OIL	NK	43	11	89	REM	NB	REMOVED

NB = MAIN BASE
RG = SERE SCHOOL, RANGELEY
EB = E. BRUNSWICK

EX = NAVY EXCHANGE
BG = BRUNSWICK GARDENS HSG
MK = McKEEN ST. HSG

TP = TOPSHAM ANNEX

BLDG	TANK	ADDRESS	TYPE	SIZE	PRODUCT	MOI	YRI	MOR	YRR	STATUS	SITE	REMARKS
227.0	10045-435	GEN BLDG	BR ASPH ST	550	DIESEL	NK	66	10	90	REM	NB	REMOVED
229.0	10045-439	GCA HARDSTAND	FRP	550	FUEL OIL #2	NK	79	11	92	REM	NB	REPLACED WITH ABOVEGROUND
233.0	10045-026	BOILER PLANT	BR ASPH ST	262,000	FUEL OIL #2	NK	59	08	94	REM	NB	REPLACED WITH FIELD CONSTR AST
233.1	10045-027	BOILER PLANT	OTHER	20,000	FUEL OIL #2	NK	54	11	89	REM	NB	REMOVED
233.2	10045-028	BOILER PLANT	BR ASPH ST	20,000	FUEL OIL #2	NK	54		89	REM	NB	REMOVED
233.3	10045-428	BOILER PLANT	BR ASPH ST	20,000	FUEL OIL #2	05	54	11	89	REM	NB	REMOVED
233.4	10045-436	BOILER PLANT	BR ASPH ST	2,000	DIESEL	NK	84	07	94	REM	NB	REPLACED WITH NEW 4000 GAL UST
233.5	10045-494	BOILER PLANT	CATH PR DW	330,000	FUEL OIL #4	08	94	08	01	REM	NB	SC, LD, S, OV, FIELD CNST; 00S 7/99; REM
233.6	10045-493	BOILER PLANT (GE	CATH PR DW	4,000	DIESEL	08	94	08	01	REM	NB	SC, LD, S, OV; MOD 4/98; REM 08/01/01
234.0	10045-029	WOOD CHIP	BR ASPH ST	1,000	DIESEL	NK	84	10	92	REM	NB	REPLACED WITH ABOVEGROUND
235.0	10045-030	QTRS E (FITCH)	FRP	550	FUEL OIL #2	NK	80	01	95	REM	BH	REPLACED WITH ABOVEGROUND
236.0	10045-031	QTRS F (FITCH)	FRP	550	FUEL OIL #2	NK	80	05	95	REM	BH	REPLACE PIPING
237.0	10045-032	QTRS G (FITCH)	FRP	550	FUEL OIL #2	NK	80	06	95	REM	BH	REPLACE PIPING
238.0	10045-033	QTRS H (FITCH)	FRP	550	FUEL OIL #2	NK	80	06	95	REM	BH	REPLACED WITH ABOVEGROUND
239.0	10045-034	QTRS I (FITCH)	FRP	550	FUEL OIL #2	NK	80	05	95	REM	BH	REPLACED WITH ABOVEGROUND
240.0	10045-035	CHIEF QTRS (EA)	FRP	550	FUEL OIL #2	NK	80	05	95	REM	BH	REPLACED WITH ABOVEGROUND
241.0	10045-036	CHIEF QTRS (EB)	FRP	550	FUEL OIL #2	NK	80	05	95	REM	BH	REPLACED WITH ABOVEGROUND
242.0	10045-037	CHIEF QTRS (EC)	FRP	550	FUEL OIL #2	NK	80	06	95	REM	BH	REPLACE PIPING
243.0	10045-038	CHIEF QTRS (ED)	FRP	550	FUEL OIL #2	NK	80	06	95	REM	BH	REPLACE PIPING
244.0	10045-039	CHIEF QTRS (EE)	FRP	550	FUEL OIL #2	NK	80	06	96	REM	BH	REPLACE PIPING
296.0	10045-040	VORTAC (ANT)	FRP	550	DIESEL	NK	84	10	92	REM	NB	REPLACED WITH ABOVEGROUND
332.0	14261-004	TOPSHAM (DIS)	FRP	500	FUEL OIL #2	NK	84	12	94	REM	TP	REPLACED WITH ABOVEGROUND
333.0	14261-005	ARMY RECRUITER	FRP	2,000	FUEL OIL #2	NK	84	01	95	REM	TP	REPLACED WITH ABOVEGROUND
335.0	14261-006	COMMISSARY	FRP	6,000	FUEL OIL #2	NK	84	12	93	REM	TP	DAMAGE DURING PREC TEST-NEW AST
337.0	14261-007	MARINES	FRP	2,000	FUEL OIL #2	NK	84	06	90	REM	TP	REMOVED
337.1	14261-001	MARINES	BR ASPH ST	3,000	REGULAR	08	56	10	89	REM	TP	REMOVED
337.2	14261-072	MARINES	CATH PR DW	2,000	FUEL OIL #2	06	90	04	95	REM	TP	REPLACED WITH ABOVEGROUND
339.0	14261-008	MARINES	FRP	4,000	FUEL OIL #2	NK	84	05	95	REM	TP	REPLACED WITH ABOVEGROUND
364.0	14261-010	NEX MOTEL	FRP	6,000	FUEL OIL #2	NK	84	01	95	REM	TP	REPLACED WITH ABOVEGROUND
368.0	14261-068	NEX TOPSHAM	OTHER	NK	UNKNOWN	NK	74	NK	85	REM	TP	REMOVED
368.1	14261-069	NEX TOPSHAM	OTHER	NK	UNKNOWN	NK	74	NK	85	REM	TP	REMOVED
368.2	14261-070	NEX TOPSHAM	OTHER	NK	UNKNOWN	NK	74	NK	85	REM	TP	REMOVED
376.0	14261-012	TOPSHAM (BKS)	FRP	2,000	FUEL OIL #2	NK	84	03	95	REM	TP	REM W/ NO PLANNED REPLACEMENT
377.0	14261-002	UNKNOWN	FRP	550	DIESEL	NK	NK	10	89	REM	TP	REMOVED
377.1	14261-071	SEWAGE PLANT	BR ASPH ST	550	DIESEL	NK	NK	10	89	REM	TP	REMOVED
378.0	14261-003	UNKNOWN	FRP	550	DIESEL	NK	NK	11	89	REM	TP	REMOVED
381.0	14261-013	CPWL	FRP	6,000	FUEL OIL #2	NK	84	02	95	REM	TP	REM W/ NO PLANNED REPLACEMENT

BLDG	TANK	ADDRESS	TYPE	SIZE	PRODUCT	MOI	YRI	MOR	YRR	STATUS	SITE	REMARKS
382.0	14261-014	PISTOL RNG/GYM	FRP	10,000	FUEL OIL #2	NK	84	12	94	REM	TP	REPLACED WITH ABOVEGROUND
383.0	14261-015	CPWL	FRP	1,000	FUEL OIL #2	NK	84	12	94	REM	TP	REMOVED WITH NO REPLACEMENT
384.0	14261-016	TOPSHAM (BKS)	FRP	10,000	FUEL OIL #2	NK	84	01	95	REM	TP	REM W/ NO PLANNED REPLACEMENT
512.0	10045-054	BOQ	FRP	2,000	FUEL OIL #2	NK	85	05	95	REM	NB	REPLACED WITH ABOVEGROUND
516.0	10045-055	NITEFLITE	FRP	6,000	FUEL OIL #2	NK	84	06	95	REM	NB	REPLACE PIPING ADD S/O PROT
518.0	10045-056	GEN BLDG	BR ASPH ST	550	DIESEL	NK	62	10	90	REM	NB	REMOVED
523.0	14519-001	EAST BRUNSWICK	BR ASPH ST	550	FUEL OIL #2	NK	NK	10	89	REM	EB	REMOVED
524.0	14519-002	EAST BRUNSWICK	BR ASPH ST	550	DIESEL	NK	NK	10	89	REM	EB	REMOVED
537.0	10045-437	SEW PUMP STN	BR ASPH ST	550	DIESEL	NK	57	10	90	REM	NB	REMOVED
538.0	10045-059	NEX GARAGE	BR ASPH ST	275	LUBE OIL	NK	74	11	89	REM	NB	REMOVED
538.1	14682-001	NEX GAS STATION	BR STEEL	10,000	N0-LEAD	NK	74	10	92	REM	EX	REMOVED 10/22/92
538.2	14682-002	NEX GAS STATION	BR STEEL	10,000	PRM NO-LEAD	NK	74	10	92	REM	EX	REMOVED 10/26/92
538.3	14682-003	NEX GAS STATION	BR STEEL	10,000	PREMIUM	NK	74	10	92	REM	EX	REMOVED 10/27/92
538.4	10045-063	NEX GAS STATION	BR ASPH ST	1,000	FUEL OIL #2	NK	75	NK	91	REM	NB	REMOVED
539.0	10045-064	AUW SHOP	BR ASPH ST	1500	DIESEL	NK	60	11	90	REM	NB	REMOVED
539.1	10045-474	AUW SHOP	BR ASPH ST	550	DIESEL	NK	NK	11	90	REM	NB	REMOVED
555.0	10045-065	AUW SHOP	BR ASPH ST	2,000	FUEL OIL #2	NK	60	11	90	REM	NB	REMOVED
555.1	10045-485	SONOBUOY LOCK	CATH PR DW	2,000	FUEL OIL #2	11	90	10	03	REM	NB	SC, LD (RPL 4/98), S, OV; MOD 4/98/DUAL F
565.0	14483-005	RANGELEY	BR ASPH ST	2,000	FUEL OIL #2	NK	62	NK	91	REM	RG	REMOVED
567.0	14483-006	RANGELEY	BR ASPH ST	2,000	FUEL OIL #2	NK	62	NK	91	REM	RG	REMOVED
567.1	14483-001	RANGELEY	BR ASPH ST	1,000	FUEL OIL #2	NK	62	NK	91	REM	RG	REMOVED
568.0	14483-003	RANGELEY	BR ASPH ST	2,000	FUEL OIL #2	NK	62	NK	91	REM	RG	REMOVED
568.1	14483-002	RANGELEY	BR ASPH ST	1,000	FUEL OIL #2	NK	62	NK	91	REM	RG	REMOVED
584.0	10045-058	DRMO	BR ASPH ST	10,000	LUBE OIL	NK	71	11	89	REM	NB	REMOVED
584.1	10045-468	DRMO	FRP	550	DIESEL	NK	84	01	94	REM	NB	REMOVED WITH NO REPLACEMENT
594.0	10045-069	ASWOC	FRP	6,000	FUEL OIL #2	03	86	07	92	REM	NB	REPLACED WITH NEW UST
594.1	10045-490	ASWOC CPD	CATH PR DW	3,000	FUEL OIL #2	09	92	07	99	REM	NB	REMOVED; REPLACED W/ AST
611.0	10045-070	TEST CELL	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	NB	REPLACED WITH ABOVEGROUND
612.0	10045-071	UNKNOWN	BR ASPH ST	1,500	FUEL OIL #2	NK	73	04	88	REM	NB	REMOVED
635.0	10045-072	RMCB-27	BR ASPH ST	5,000	FUEL OIL #2	NK	74	10	90	REM	NB	REMOVED
635.1	10045-429	RMCB-27	BR ASPH ST	250	LUBE OIL	NK	73	10	89	REM	NB	REMOVED
642.0	10045-073	WEAPONS (AUC)	BR ASPH ST	1,000	FUEL OIL #2	NK	77	09	92	REM	NB	REPLACED WITH NEW UST
644.0	10045-074	TRAINER	FRP	550	FUEL OIL #2	NK	85	01	94	REM	NB	REPLACED WITH AST
644.1	10045-440	OP TRAINER	FRP	500	HYDRLIC OIL	NK	77	NK	91	REM	NB	REMOVED
645.0	10045-075	CLINIC	BR ASPH ST	1,500	FUEL OIL #2	NK	77	08	92	REM	NB	REPLACED WITH ABOVEGROUND
645.1	10045-076	CLINIC	BR ASPH ST	2,000	FUEL OIL #2	NK	77	08	92	REM	NB	REPLACED WITH NEW UST (FOR HEAT)
645.2	10045-489	CLINIC	CATH PR DW	2,000	FUEL OIL #2	09	92	06	99	REM	NB	REMOVED; REPLACED W/ AST

BLDG	TANK	ADDRESS	TYPE	SIZE	PRODUCT	MOI	YRI	MOR	YRR	STATUS	SITE	REMARKS
646.0	10045-438	ASR-8 (ANT)	FRP	1,000	DIESEL	NK	79	08	92	REM	NB	REPLACED WITH AST
790.0	10045-077	14-18 ANTIETAM	CATH PR ST	1,000	FUEL OIL #2	NK	79	09	94	REM	BG	REPLACED WITH ABOVEGROUND
791.0	10045-078	20-24 ANTIETAM	CATH PR ST	1,000	FUEL OIL #2	NK	79	09	94	REM	BG	REPLACED WITH ABOVEGROUND
792.0	10045-079	26-30 ANTIETAM	CATH PR ST	1,000	FUEL OIL #2	NK	79	09	94	REM	BG	REPLACED WITH ABOVEGROUND
793.0	10045-080	32-36 ANTIETAM	CATH PR ST	1,000	FUEL OIL #2	NK	79	09	94	REM	BG	REPLACED WITH ABOVEGROUND
794.0	10045-081	33-37 ANTIETAM	CATH PR ST	1,000	FUEL OIL #2	NK	79	09	94	REM	BG	REPLACED WITH ABOVEGROUND
795.0	10045-082	2-4 MIDWAY CIR	CATH PR ST	550	FUEL OIL #2	NK	79	09	94	REM	BG	REPLACED WITH ABOVEGROUND
796.0	10045-083	6-10 MIDWAY CIR	CATH PR ST	1,000	FUEL OIL #2	NK	79	09	94	REM	BG	REPLACED WITH ABOVEGROUND
797.0	10045-084	5-9 MIDWAY CIR	CATH PR ST	1,000	FUEL OIL #2	NK	79	09	94	REM	BG	REPLACED WITH ABOVEGROUND
798.0	10045-085	27-31 ANTIETAM	CATH PR ST	1,000	FUEL OIL #2	NK	79	09	94	REM	BG	REPLACED WITH ABOVEGROUND
799.0	10045-086	21-25 ANTIETAM	CATH PR ST	1,000	FUEL OIL #2	NK	79	09	94	REM	BG	REPLACED WITH ABOVEGROUND
800.0	10045-087	15-19 ANTIETAM	CATH PR ST	1,000	FUEL OIL #2	NK	79	09	94	REM	BG	REPLACED WITH ABOVEGROUND
801.0	10045-088	55-59 FORRESTAL	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
802.0	10045-089	54-58 FORRESTAL	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
803.0	10045-090	50-52 FORRESTAL	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
803.1	10045-091	46-48 FORRESTAL	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
803.2	10045-092	42-44 FORRESTAL	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
804.0	10045-093	40 FORRESTAL	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
804.1	10045-094	34 FORRESTAL	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
804.2	10045-095	36-38 FORRESTAL	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
805.0	10045-096	41 FORRESTAL	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
805.1	10045-097	35 FORRESTAL	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
805.2	10045-098	37-39 FORRESTAL	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
806.0	10045-099	32 FORRESTAL	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
806.1	10045-100	28-30 FORRESTAL	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
806.2	10045-101	24-26 FORRESTAL	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
807.0	10045-102	20-22 FORRESTAL	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
807.1	10045-103	12-14 FORRESTAL	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
807.2	10045-104	16-18 FORRESTAL	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
808.0	10045-105	6 FORRESTAL	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
808.1	10045-106	2-4 FORRESTAL	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
808.2	10045-107	8-10 FORRESTAL	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
809.0	10045-108	2 INTREP/51 FORR	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
809.1	10045-109	4-6 INTREPID	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
810.0	10045-110	1-3 INTREP/43 FOR	FRP	1,500	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
811.0	10045-111	8-10 INTREPID	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
812.0	10045-112	12 DEL/5-7 INTREP	FRP	1,500	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS

BLDG	TANK	ADDRESS	TYPE	SIZE	PRODUCT	MOI	YRI	MOR	YRR	STATUS	SITE	REMARKS
813.0	10045-113	11 DELGADA	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
814.0	10045-114	9 DELGADA	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
814.1	10045-115	3 DELGADA	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
814.2	10045-116	5-7 DELGADA	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
815.0	10045-117	10 DELGADA	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
815.1	10045-118	4 DELGADA	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
815.2	10045-119	6-8 DELGADA	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
816.0	10045-120	33 FORR/2-4 GUAD	FRP	1,500	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
817.0	10045-121	25 FORR/1-3 GUAD	FRP	1,500	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
818.0	10045-122	2 DEL/6-8 GUADAL	FRP	1,500	FUEL OIL #2	NK	80	02	95	REM	BG	REPL W/ TEMP ASTs-SUSPECTED LEAK
819.0	10045-123	5-7 GUADALCANA	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
819.1	10045-124	9-11 GUADALCANA	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
819.2	10045-125	13-15 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
820.0	10045-126	1 DEL/10-12 GUADA	FRP	1,500	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
821.0	10045-127	8 C.SEA/17-19 GUA	FRP	1,500	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
822.0	10045-128	14-16 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
823.0	10045-131	20-22 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
823.1	10045-447	18 GUADALCANA	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
824.0	10045-129	30-32 GUADALCAN	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
824.1	10045-130	26-28 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
824.2	10045-448	24 GUADALCANA	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
825.0	10045-132	35-37 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
825.1	10045-133	31-33 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
825.2	10045-134	25-29 GUADALCAN	FRP	1,500	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
826.0	10045-135	34-38 GUADALCAN	FRP	1,500	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
827.0	10045-136	39-43 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
828.0	10045-137	44 GUADALCANA	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
828.1	10045-138	46-48 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
828.2	10045-139	40-42 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
829.0	10045-140	45-49 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
829.1	10045-443	4 BUNKER HILL	FRP	550	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
830.0	10045-141	50-52 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
831.0	10045-142	57 GUADALCANA	FRP	550	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
831.1	10045-143	3 B.HILL/55 GUADA	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
832.0	10045-144	60 GUADALCANA	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
832.1	10045-145	54 GUADALCANA	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
832.2	10045-444	56-58 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS

BLDG	TANK	ADDRESS	TYPE	SIZE	PRODUCT	MOI	YRI	MOR	YRR	STATUS	SITE	REMARKS
833.0	10045-445	59 GUADALCANA	FRP	550	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
833.1	10045-146	61-63 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
834.0	10045-147	62-64 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
835.0	10045-148	65-67 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	NA	NA	REM	BG	NO UST INSTALLED; ELECTRIC HEAT
836.0	10045-149	66-68 GUADALCAN	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
837.0	10045-150	69 GUADAL/6 ANTI	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
838.0	10045-151	5-7 ANTIETAM	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
839.0	10045-152	21 FORR/2-4 HORN	FRP	1,500	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
840.0	10045-153	15 FORR/1-3 HORN	FRP	1,500	FUEL OIL #2	NK	80	06	02	REM	BG	CO REQUIRED FOR SOIL REMOVAL
841.0	10045-154	6-8 HORNET	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
841.1	10045-155	10-12 HORNET	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
841.2	10045-156	14-16 HORNET	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
842.0	10045-157	5-7 HORNET	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
842.1	10045-158	9-11 HORNET	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
842.2	10045-159	13-15 HORNET	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
843.0	10045-160	18-20 HORN/6 C.SE	FRP	1,500	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
844.0	10045-161	4 C.SEA/17-19 HOR	FRP	1,500	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
845.0	10045-162	5-7 CORAL SEA	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
845.1	10045-163	9-11 CORAL SEA	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
846.0	10045-164	11 FORR/2-4 ENTE	FRP	1,500	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
847.0	10045-165	1 FORR/1 ENTERP	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
847.1	10045-166	3-5 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
848.0	10045-167	6-8 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
848.1	10045-168	10-12 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
848.2	10045-169	14-16 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
849.0	10045-170	7 ENTERPRISE	FRP	550	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
849.1	10045-171	9-11 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
849.2	10045-172	13-15 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
850.0	10045-173	2 C.SEA/18-20 ENT	FRP	1,500	FUEL OIL #2	NK	80	06	02	REM	BG	DEMO; NEW HOUSING NAT GAS
851.0	10045-174	21 ENTERPRISE	FRP	550	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
851.1	10045-175	27 ENTERPRISE	FRP	550	FUEL OIL #2	NK	80	07	02	REM	BG	2 CU YDS SOIL; NEW HOUSING NAT GAS
851.2	10045-176	17-19 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
851.3	10045-177	23-25 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
851.4	10045-178	29-31 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
852.0	10045-179	30-32 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
852.1	10045-180	1-3 CORAL SEA	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
853.0	10045-181	34-36 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS

BLDG	TANK	ADDRESS	TYPE	SIZE	PRODUCT	MOI	YRI	MOR	YRR	STATUS	SITE	REMARKS
854.0	10045-182	33-35 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
855.0	10045-183	38-42 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
856.0	10045-184	37-39 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
857.0	10045-185	44-48 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
857.1	10045-446	2 BUNKER HILL	FRP	550	FUEL OIL #2	NK	80	07	02	REM	BG	DEMO; NEW HOUSING NAT GAS
858.0	10045-186	45-47 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
858.1	10045-187	41-43 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
858.2	10045-188	49-51 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
859.0	10045-189	52 ENTERPRISE	FRP	550	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
859.1	10045-190	1 B.HILL/50 ENTER	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
860.0	10045-191	53-55 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
861.0	10045-192	58 ENTERPRISE	FRP	550	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
861.1	10045-193	54-56 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
862.0	10045-194	57-63 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
863.0	10045-195	60-62 ENTERPRISE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
864.0	10045-196	65 ENTER/2 ANTIE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	DEMO; NEW HOUSING NAT GAS
865.0	10045-197	64 ENTER/4 ANTIE	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	5 CU YDS SOIL; NEW HOUSING NAT GAS
866.0	10045-198	1-3 ANTIETAM	FRP	1,000	FUEL OIL #2	NK	80	05	02	REM	BG	294 YDS SOIL;NEW HOUSING NAT GAS
875.0	10045-453	12 INTREPID	FRP	550	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
876.0	10045-454	14 INTREPID	FRP	550	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
877.0	10045-455	16 INTREPID	FRP	550	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
878.0	10045-456	18 INTREPID	FRP	550	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
879.0	10045-457	20 INTREPID	FRP	550	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
880.0	10045-458	22 INTREPID	FRP	550	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
881.0	10045-459	24 INTREPID	FRP	550	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
882.0	10045-460	21 INTREPID	FRP	550	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
883.0	10045-461	19 INTREPID	FRP	550	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
884.0	10045-462	17 INTREPID	FRP	550	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
885.0	10045-463	15 INTREPID	FRP	550	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
886.0	10045-464	13 INTREPID	FRP	550	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
887.0	10045-465	11 INTREPID	FRP	550	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
888.0	10045-466	9 INTREPID	FRP	550	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
889.0	10045-199	41-43 INDEPENDEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
890.0	10045-200	37-39 INDEPENDEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
891.0	10045-201	33-35 INDEPENDEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
892.0	10045-202	29-31 INDEPENDEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
893.0	10045-203	25-27 INDEPENDEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND

BLDG	TANK	ADDRESS	TYPE	SIZE	PRODUCT	MOI	YRI	MOR	YRR	STATUS	SITE	REMARKS
894.0	10045-204	21-23 INDEPENDEN	FRP	1,000	FUEL OIL #2	NK	80	09	94	REM	BG	REPLACED WITH ABOVEGROUND
895.0	10045-205	17-19 INDEPENDEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
896.0	10045-206	13-15 INDEPENDEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
897.0	10045-207	9-11 INDEPENDEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
898.0	10045-208	5-7 INDEPENDEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
899.0	10045-209	1-3 INDEPENDEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
900.0	10045-449	34-36 INDEPENDEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
901.0	10045-450	28-30 INDEPENDEN	FRP	1,000	FULE OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
902.0	10045-451	12-14 INDEPENDEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
903.0	10045-452	6-8 INDEPENDEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	BG	REPLACED WITH ABOVEGROUND
904.0	10045-210	NAS CO	FRP	550	FUEL OIL #2	NK	76	07	89	REM	BH	REPLACED WITH AST (IN GARAGE)
905.0	10045-211	CPWL - ADMIRAL	FRP	550	FUEL OIL #2	NK	76	10	92	REM	BH	REPLACED WITH AST (IN GARAGE)
906.0	10201-003	113 MCKEEN	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
907.0	10201-004	115 MCKEEN	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
908.0	10201-005	117 MCKEEN	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
909.0	10201-006	119 MCKEEN	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
910.0	10201-007	121 MCKEEN	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
911.0	10201-008	123-125 MCKEEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
912.0	10201-009	127-129 MCKEEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
913.0	10201-010	131 MCK/190 COLU	FRP	1,000	FUEL OIL #2	NK	80	08	93	REM	MK	REPLACED WITH ABOVEGROUND
915.0	10201-011	133 MCK/2 MOORE	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
916.0	10201-012	135 MCKEEN	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
917.0	10201-013	137 MCKEEN	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
918.0	10201-014	139 MCKEEN	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
919.0	10201-015	141 MCKEEN	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
920.0	10201-016	143 MCKEEN	FRP	550	FUEL OIL #2	NK	80		92	REM	MK	REPLACED WITH ABOVEGROUND
922.0	10201-017	145-147 MCKEEN	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
923.0	10201-018	149 MCKEEN	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
925.0	10201-019	8 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
926.0	10201-020	12 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
927.0	10201-021	14 MOORE	FRP	550	FUEL OIL #2	NK	80	05	93	REM	MK	REPLACED WITH ABOVEGROUND
928.0	10201-022	16 MOORE	FRP	550	FUEL OIL #2	NK	80	09	92	REM	MK	REPLACED WITH ABOVEGROUND
929.0	10201-023	18 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
931.0	10201-024	20-22 MOORE	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
932.0	10201-025	24 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
933.0	10201-026	26 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
934.0	10201-027	28 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND

BLDG	TANK	ADDRESS	TYPE	SIZE	PRODUCT	MOI	YRI	MOR	YRR	STATUS	SITE	REMARKS
935.0	10201-028	30 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
936.0	10201-029	32 MOORE	FRP	550	FUEL OIL #2	NK	80		91	REM	MK	REPLACED WITH ABOVEGROUND
937.0	10201-030	34 MOORE	FRP	550	FUEL OIL #2	NK	80	09	92	REM	MK	REPLACED WITH ABOVEGROUND
938.0	10201-031	36 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
939.0	10201-032	38 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
940.0	10201-033	40 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
941.0	10201-034	151 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	08	93	REM	MK	REPLACED WITH ABOVEGROUND
942.0	10201-035	147-149 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
943.0	10201-036	143-145 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
944.0	10201-037	141 COLUMBIA	FRP	550	FUEL OIL #2	NK	80		91	REM	MK	REPLACED WITH ABOVEGROUND
945.0	10201-038	139 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	11	93	REM	MK	REPLACED WITH ABOVEGROUND
946.0	10201-039	137 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
947.0	10201-040	135 COLUMBIA	FRP	550	FUEL OIL #2	NK	80		91	REM	MK	REPLACED WITH ABOVEGROUND
948.0	10201-041	131-133 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
949.0	10201-042	127-129 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
950.0	10201-043	6 KRAMPF	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
951.0	10201-044	12 KRAMPF	FRP	550	FUEL OIL #2	NK	80		92	REM	MK	REPLACED WITH ABOVEGROUND
952.0	10201-045	14 KRAMPF	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
953.0	10201-046	16-18 KRAMPF	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
954.0	10201-047	17 KRAMPF	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
955.0	10201-048	13-15 KRAMPF	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
956.0	10201-049	9-11 KRAMPF	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
957.0	10201-050	5-7 KRAMPF	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
958.0	10201-051	3 KRAMPF	FRP	550	FUEL OIL #2	NK	80	09	92	REM	MK	REPLACED WITH ABOVEGROUND
959.0	10201-052	1 KRAMPF	FRP	550	FUEL OIL #2	NK	80		91	REM	MK	REPLACED WITH ABOVEGROUND
960.0	10201-053	125 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
961.0	10201-054	121 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
962.0	10201-055	4 WINDORF	FRP	550	FUEL OIL #2	NK	80		91	REM	MK	REPLACED WITH ABOVEGROUND
963.0	10201-056	8-10 WINDORF	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
964.0	10201-057	11 WINDORF	FRP	550	FUEL OIL #2	NK	80		91	REM	MK	REPLACED WITH ABOVEGROUND
965.0	10201-058	9 WINDORF	FRP	550	FUEL OIL #2	NK	80	05	93	REM	MK	REPLACED WITH ABOVEGROUND
966.0	10201-059	5-7 WINDORF	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
968.0	10201-060	1-3 WINDORF	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
969.0	10201-061	113 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
970.0	10201-062	111 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
971.0	10201-063	105-107 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
972.0	10201-064	103 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND

BLDG	TANK	ADDRESS	TYPE	SIZE	PRODUCT	MOI	YRI	MOR	YRR	STATUS	SITE	REMARKS
973.0	10201-065	99-101 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
974.0	10201-066	95-97 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
975.0	10201-001	93 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	93	REM	MK	REPLACED WITH ABOVEGROUND
976.0	10201-067	91 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	08	93	REM	MK	REPLACED WITH ABOVEGROUND
977.0	10201-068	87-89 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
978.0	10201-069	88 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	93	REM	MK	REPLACED WITH ABOVEGROUND
979.0	10201-070	41-43 EMANUAL	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
980.0	10201-071	39 EMANUAL	FRP	550	FUEL OIL #2	NK	80		92	REM	MK	REPLACED WITH ABOVEGROUND
981.0	10201-072	35 EMANUAL	FRP	550	FUEL OIL #2	NK	80		92	REM	MK	REPLACED WITH ABOVEGROUND
982.0	10201-073	33 EMANUAL	FRP	550	FUEL OIL #2	NK	80	11	93	REM	MK	REPLACED WITH ABOVEGROUND
983.0	10201-074	27-29 EMANUAL	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
984.0	10201-075	25 EMANUAL	FRP	550	FUEL OIL #2	NK	80		91	REM	MK	REPLACED WITH ABOVEGROUND
985.0	10201-076	23 EMANUAL	FRP	550	FUEL OIL #2	NK	80	07	92	REM	MK	REPLACED WITH ABOVEGROUND
986.0	10201-077	21 EMANUAL	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
987.0	10201-078	17-19 EMANUAL	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
988.0	10201-079	13-15 EMANUAL	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUNE
989.0	10201-080	11 EMANUAL	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
990.0	10201-081	7-9 EMANUAL	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
991.0	10201-082	5 EMANUAL	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
992.0	10201-083	3 EMANUAL	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
993.0	10201-084	184 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
994.0	10201-085	186 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
995.0	10201-086	1 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
996.0	10201-087	3 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
997.0	10201-088	5 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
998.0	10201-089	7 MOORE	FRP	550	FUEL OIL #2	NK	80		92	REM	MK	REPLACED WITH ABOVEGROUND
999.0	10201-090	9 MOORE	FRP	550	FUEL OIL #2	NK	80	06	93	REM	MK	REPLACED WITH ABOVEGROUND
1000.0	10201-091	11 MOORE	FRP	550	FUEL OIL #2	NK	80	06	93	REM	MK	REPLACED WITH ABOVEGROUND
1002.0	10201-092	13-15 MOORE	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
1003.0	10201-002	17 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
1004.0	10201-093	19 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
1005.0	10201-094	23 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
1007.0	10201-095	29-35 MOORE	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
1008.0	10201-096	37 MOORE	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
1009.0	10201-097	153 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
1010.0	10201-098	155-157 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
1011.0	10201-099	159-161 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND

BLDG	TANK	ADDRESS	TYPE	SIZE	PRODUCT	MOI	YRI	MOR	YRR	STATUS	SITE	REMARKS
1012.0	10201-100	163 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
1014.0	10201-101	165-169 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
1016.0	10201-102	175-177 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
1018.0	10201-103	181-183 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
1019.0	10201-104	185-187 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
1021.0	10201-105	189-191 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	08	94	REM	MK	REPLACED WITH ABOVEGROUND
1022.0	10201-106	180 COLUMB/2 EM	FRP	1,000	FUEL OIL #2	NK	80	08	93	REM	MK	REPLACED WITH ABOVEGROUND
1023.0	10201-107	178 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	08	92	REM	MK	REPLACED WITH ABOVEGROUND
1024.0	10201-108	174-176 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1025.0	10201-109	170-172 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1026.0	10201-110	166-168 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1027.0	10201-111	164 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1029.0	10201-112	160-162 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1030.0	10201-113	9 SHOBE	FRP	550	FUEL OIL #2	NK	80	08	93	REM	MK	REPLACED WITH ABOVEGROUND
1031.0	10201-114	13-15 SHOBE	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1032.0	10201-115	17-19 SHOBE	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1033.0	10201-116	21 SHOBE	FRP	550	FUEL OIL #2	NK	80	07	93	REM	MK	REPLACED WITH ABOVEGROUND
1034.0	10201-117	25 SHOBE	FRP	550	FUEL OIL #2	NK	80	09	92	REM	MK	REPLACED WITH ABOVEGROUND
1035.0	10201-118	29 SHOBE	FRP	550	FUEL OIL #2	NK	80	09	92	REM	MK	REPLACED WITH ABOVEGROUND
1036.0	10201-119	31-33 SHOBE	FRP	1,000	FUEL OIL #2	NK	80	O7	94	REM	MK	REPLACED WITH ABOVEGROUND
1037.0	10201-120	35-37 SHOBE	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1038.0	10201-121	39 SHOBE	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1039.0	10201-122	41-43 SHOBE	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1040.0	10201-123	45 SHOBE	FRP	550	FUEL OIL #2	NK	80		91	REM	MK	REPLACED WITH ABOVEGROUND
1041.0	10201-124	47-49 SHOBE	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1042.0	10201-125	51 SHOBE/22 EMAN	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1045.0	10201-126	16 EMANUAL	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1046.0	10201-127	14 EMANUAL	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1047.0	10201-128	8-10 EMANUAL	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1048.0	10201-129	4-6 EMANUAL	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1050.0	10201-130	150 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1052.0	10201-131	144-148 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	12	93	REM	MK	REPLACED WITH ABOVEGROUND
1053.0	10201-132	142 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1055.0	10201-133	138-140 COLUMBIA	FRP	1,000	FUEL OIL #2	MK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1057.0	10201-134	132-136 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1059.0	10201-135	126-128 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1061.0	10201-136	122-124 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND

BLDG	TANK	ADDRESS	TYPE	SIZE	PRODUCT	MOI	YRI	MOR	YRR	STATUS	SITE	REMARKS
1062.0	10201-137	118-120 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1063.0	10201-138	114-116 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1064.0	10201-139	110-112 COLUMBIA	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WTIH ABPVEGROUND
1065.0	10201-140	108 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	93	REM	MK	REPLACED WITH ABOVEGROUND
1066.0	10201-141	106 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	10	93	REM	MK	REPLACED WITH ABOVEGROUND
1067.0	10201-142	104 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	92	REM	MK	REPLACED WITH ABOVEGROUND
1068.0	10201-143	100 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MR	REPLACED WITH ABOVEGROUND
1069.0	10201-144	94 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1070.0	10201-145	92 COLUMBIA	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1071.0	10201-146	44 EMANUAL	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1072.0	10201-147	42 EMANUAL	FRP	550	FUEL OIL #2	NK	80	O7	94	REM	MK	REPLACED WITH ABOVEGROUND
1073.0	10201-148	38-40 EMANUAL	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1075.0	10201-149	34-36 EMANUAL	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1076.0	10201-150	30-32 EMANUAL	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1077.0	10201-151	48 SHOBE	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1078.0	10201-152	40-42 SHOBE	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1079.0	10201-153	32-34 SHOBE	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUNS
1080.0	10201-154	28-30 SHOBE	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1081.0	10201-155	26 SHOBE	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1083.0	10201-156	22-24 SHOBE	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1085.0	10201-157	18-20 SHOBE	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1086.0	10201-158	16 SHOBE	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1087.0	10201-159	12-14 SHOBE	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1088.0	10201-160	10 SHOBE	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1089.0	10201-161	6-8 SHOBE	FRP	1,000	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1090.0	10201-162	4 SHOBE	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1091.0	10201-163	2 SHOBE	FRP	550	FUEL OIL #2	NK	80	07	94	REM	MK	REPLACED WITH ABOVEGROUND
1092.0	14261-017	294-300 PARLIAME	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1093.0	14261-018	286-292 PARLIAME	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGTOUND
1094.0	14261-019	278-284 PARLIAME	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1095.0	14261-020	270-276 PARLIAME	BR ASPH ST	1,000	FUEL OIL #2	NK	80	02	94	REM	TP	REPLACED WITH ABOVEGROUND
1096.0	14261-021	262-268 PARLIAME	BR ASPH ST	1,000	FUEL OIL #2	NK	80	02	94	REM	TP	REPLACED WITH ABOVEGROUND
1097.0	14261-022	254-260 PARLIAME	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1098.0	14261-023	246-252 PARLIAME	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1099.0	14261-024	238-244 PARLIAME	FRP	1,000	FUEL OIL #2	NK	83	03	94	REM	TP	REM-CRACKED FITT-REPL W/AST
1100.0	14261-025	236 CONGRESS	FRP	550	FUEL OIL #2	NK	83	03	94	REM	TP	REM-CRACKED FITT-REPL W/AST
1101.0	14261-026	234 CONGRESS	FRP	550	FUEL OIL #2	NK	83	03	93	REM	TP	REPLACED WITH ABOVEGROUND

BLDG	TANK	ADDRESS	TYPE	SIZE	PRODUCT	MOI	YRI	MOR	YRR	STATUS	SITE	REMARKS
1102.0	14261-027	232 CONGRESS	FRP	550	FUEL OIL #2	NK	83	03	95	REM	TP	REPLACED WITH ABOVEGROUND
1103.0	14261-028	230 CONGRESS	FRP	550	FUEL OIL #2	NK	83	03	95	REM	TP	REPLACED WITH ABOVEGROUND
1104.0	14261-029	228 CONGRESS	FRP	550	FUEL OIL #2	NK	83	03	95	REM	TP	REPLACED WITH ABOVEGROUND
1105.0	14261-030	226 CONGRESS	FRP	550	FUEL OIL #2	NK	83	03	95	REM	TP	REPLACED WITH ABOVEGROUND
1106.0	14261-031	224 CONGRESS	FRP	550	FUEL OIL #2	NK	83	03	95	REM	TP	REPLACED WITH ABOVEGROUND
1107.0	14261-032	222 CONGRESS	FRP	550	FUEL OIL #2	NK	83	03	95	REM	TP	REPLACED WITH ABOVEGROUND
1108.0	14261-033	220 CONGRESS	FRP	550	FUEL OIL #2	NK	83	08	90	REM	TP	REMOVED - REPLACED WITH UST
1108.1	14261-073	220 CONGRESS	CATH PR DW	550	FUEL OIL #2	08	90	03	95	REM	TP	REPLACED WITH ABOVEGROUND
1109.0	14261-034	208-214 CONGRES	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1110.0	14261-035	200-206 CONGRES	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1111.0	14261-036	257-263 PARLIAME	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1112.0	14261-037	249-255 PARLIAME	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1113.0	14261-038	241-247 PARLIAME	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1114.0	14261-039	233-239 PARLIAME	FRP	1,000	FUEL OIL #2	NK	83	12	91	REM	TP	REM FOR LEAK - REPLACED WITH UST
1114.1	14261-074	233-239 PARLIAME	JAC ST DW	1,000	FUEL OIL #2	12	91	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1115.0	14261-040	225-231 CONGRES	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1116.0	14261-041	201-207 CONGRES	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1117.0	14261-042	400-406 LIBERTY C	BR ASPH ST	1,000	FUEL OIL #2	NK	83	04	94	REM	TP	REPLACED WITH ABOVEGROUND
1118.0	14261-043	408-414 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1119.0	14261-044	416-422 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1120.0	14261-045	424-430 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1121.0	14261-046	432-438 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1122.0	14261-047	440-446 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1123.0	14261-048	448-454 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1124.0	14261-049	456-462 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1125.0	14261-050	464-470 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1126.0	14261-051	472-478 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1127.0	14261-052	480-486 LIBERTY C	GALV STEEL	1,000	FUEL OIL #2	NK	80	07	94	REM	TP	REPLACED WITH ABOVEGROUND
1128.0	14261-053	488-494 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1129.0	14261-054	496-502 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1130.0	14261-055	504-510 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1131.0	14261-056	512-516 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	04	95	REM	TP	REPLACED WITH ABOVEGROUND
1132.0	14261-057	520-526 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	03	95	REM	TP	REPLACED WITH ABOVEGROUND
1133.0	14261-058	401-407 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1134.0	14261-059	409-415 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1135.0	14261-060	417-423 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1136.0	14261-061	425-431 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND

BLDG	TANK	ADDRESS	TYPE	SIZE	PRODUCT	MOI	YRI	MOR	YRR	STATUS	SITE	REMARKS
1137.0	14261-062	433-439 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1138.0	14261-063	441-447 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	03	95	REM	TP	REPLACED WITH ABOVEGROUND
1139.0	14261-064	449-455 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1140.0	14261-065	457-463 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1141.0	14261-066	465-471 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	05	95	REM	TP	REPLACED WITH ABOVEGROUND
1142.0	14261-067	473-479 LIBERTY C	FRP	1,000	FUEL OIL #2	NK	83	03	95	REM	TP	REPLACED WITH ABOVEGROUND
233.7	10045-501	BOILER PLANT	STEEL	300	UNKNOWN	NK	NK	02	02	REM	NB	DISCOVERED DURING DEMO
35.1	10045-502	APTU	STEEL	550	UNKNOWN	NK	NK	04	03	REM	NB	DISCOVERED DURING BEQ CONSTRUCTI

NASB Transformers Removed

NAS B TRANSFORMERS REMOVED

IDNo	SerialNo	Type	Site	Status	Class	PPM	Volt	KVA	Volume	Manufacturer	Location
I	6615868	TR	BH	R	NONPCB	39**	2400 120/240	10	13	WESTINGHOUSE	POLE/QTRS I - FITCH AVE
22.0	916002735	TR	NB	R	NONPCB	<1*	34500 120/208	75	324	COOPER	PAD/B-22/PARKING LOT/DEMO IN 98/MOVE TO B29
29.0	850323	SW	NB	R	NONPCB	MO	UNKNOWN	NA	360	UNKNOWN	PAD/CORNER ORION & NEPTUNE/REPL W/ SW BO
36.0	C-45209-1-1	TR	NB	R	NONPCB	MO**	34500 480/277	750	460	MCGRAW-EDISON	PAD/B-36 (DEMO IN 98); DISPOSED OF
38.2	B95766	TR	NB	R	NONPCB	39**	34400 4160	5000	2085		PAD/ACROSS ORION'S
49.0	522	RE	NB	R	NONPCB	<1**	2400	20	85	CROUSEHINDS	SOUTH REGULATOR VAULT
49.1	534	RE	NB	R	NONPCB	<1**	2400	20	85	CROUSEHINDS	SOUTH REGULATOR VAULT
50.0	90766A2281	TR	NB	R	NONPCB	<1*	480Y 480/277	500	370	COOPER	PAD/B-50 TREATMENT PLANT
81.0	2643-2-4	TR	NB	R	PCBCONTAM	66**	UNKNOWN	50	45	CENTRAL TRANS	POLE/B-81 WEAPONS BLDG
81.1	2643-2-23	TR	NB	R	PCBCONTAM	73**	UNKNOWN	50	45	CENTRAL TRANS	POLE/B-81 WEAPONS BLDG
81.2	2643-2-3	TR	NB	R	PCBCONTAM	66**	UNKNOWN	50	45	CENTRAL TRANS	POLE/B-81 WEAPONS BLDG
93.0	6879935	TR	NB	R	PCBCONTAM	120**	UNKNOWN	10	11	GENERAL ELECT	POLE/FIRE TRAINING PIT
200.0	22058-1	TR	TP	R	NONPCB	<50**	7200 120/240	50	24	PRECISION TRANS	POLE/B-200-206 (CONGRESS)
208.0	RT901018650	TR	NB	R	NONPCB	<1*	34500 122/40	50	29	COOPER RTE	PAD/REM FR FUEL FARM
209	3830		NB	R	NONPCB		2400			CROUSEHINDS	
209	3831		NB	R	NONPCB		2400			CROUSEHINDS	
209	3832		NB	R	NONPCB		2400			CROUSEHINDS	
209.0	9F2F3CA0	SW	NB	R	NONPCB	<50**	4160	NA	2	UNKNOWN	WALL MOUNTED OIL SWITCH - B-209
209.1	846001669	TR	NB	R	NONPCB	MO**	34500 4160	500	286	RTE CORP	PAD/B_209 LIGHTING VAULT
209.1	PM01246	RE	NB	R	NONPCB	12**	2400	W 15	60	HEVI-DUTY ELECT	FLOOR-INSIDE B-209 NAGE
209.1	PM01244	RE	NB	R	NONPCB	12**	2400	W 15	60	HEVI-DUTY ELECT	FLOOR-INSIDE B-209 NAGE
209.1	9F2F3CB0	SW	NB	R	NONPCB	<50**	4160	NA	2	UNKNOWN	WALL MOUNTED OIL SWITCH - B-209
209.1	846000298	TR	NB	R	NONPCB	MO**	4160 480	300	209	RTE CORP	PAD/B-209 AIR FLD GEN
209.2	9980656	RE	NB	R	NONPCB	18**	2400	W 15	80	GENERAL ELECT	FLOOR-INSIDE B-209 NAGE (REM 3/10/99)
209.2	9F2F3C0	SW	NB	R	NONPCB	<50**	4160	NA	2	UNKNOWN	WALL MOUNTED OIL SWITCH - B-209
209.3	A67075	RE	NB	R	NONPCB	6**	2400	W 37	60	HEVI-DUTY ELECT	FLOOR-INSIDE B-209 NAGE
209.4	A11274	TR	NB	R	NONPCB	<50**	7500 400	NA	46	G & W ELECTRIC	PAD/FLOOR-INSIDE B-209 NAGE
209.4	A39415-6	RE	NB	R	NONPCB	17**	2400	W 15	60	HEVI-DUTY ELECT	SPARE/B19
209.6	PMR536595	TR	NB	R	NONPCB	<50**	2400/4160	60	115	EASTERN ELEC.	PAD/NEW, INSIDE BLDG. 209
222.0	MISSING PLATE	TR	TP	R	NONPCB	<50**	7200 120/240	50	24	PRECISION TRANS	POLE/B-222 (CONGRESS)
225.1	911057387	TR	NB	R	NONPCB	<1*	34500 120/240	10	13	COOPER	POLE/ORION ST
225.2	12659	TR	NB	R	NONPCB	0**	2400 120/240	15	14	UNKNOWN	POLE/B-225 ON ORION ST
230.0	2643-2-17	TR	NB	R	PCBCONTAM	61**	UNKNOWN	25	25	CENTRAL TRANS	PAD/B-230 OLD TACAN BLDG
230.0	2643-2-28	TR	NB	R	NONPCB	<5**	UNKNOWN	25	17	GEN TRANSFORMER	PAD/B-230 OLD TACAN BLDG
230.1	2643-2-15	TR	NB	R	PCBCONTAM	160**	UNKNOWN	25	25	CENTRAL TRANS	PAD/B-230 OLD TACAN BLDG
234.0	22057-2	TR	TP	R	NONPCB	<50**	7200 120/240	750	24	PRECISION TRANS	POLE/B-234 (CONGRESS)
245.0	B539647	TR	NB	R	PCBCONTAM	390**	UNKNOWN	10	11	GENERAL ELECT	POLE/B-245 MAG AREA

IDNo	SerialNo	Type	Site	Status	Class	PPM	Volt	KVA	Volume	Manufacturer	Location
246.0	22058-6	TR	TP	R	NONPCB	<50**	7200 120/240	75	20	PRECISION TRANS	POLE/B-246-252 (PARLIAMENT)
250.0	896003751	TR	NB	R	NONPCB	MO**	34500 277/480	750	497	RTE	PAD/B-250 AIMD
270.0	22058-4	TR	NB	R	NONPCB	<50**	7200 120/240	75	20	PRECISION TRANS	POLE/B-270-276
286.0	89A290701	TR	TP	R	NONPCB	<1*	7200 120/240	75	60	WESTINGHOUSE	POLE/B-286-290 (PARLIAMENT)
293.0	896003385	TR	NB	R	NONPCB	MO**	34500 120/208	225	292	RTE	PAD/B-293/MOVED TO B-31 NAVY LODGE
294.0	906003908	TR	NB	R	NONPCB	<2*	34500 208/120	75	317	COOPER RTE	PAD/B-294 FROM SUPPLY WAREHOUSE
335 FIEL	1269	SW	TP	R	NONPCB	<0.1*	400 AMP	14.4	409	MCGRAW-EDISON	POLE/FIELD ACROSS B335/BURNED/DISP
349.0	C529171	TR	NB	R	PCBCONTAM	60**	UNKNOWN	10	11		POLE/B-349 NEPTUNE DRIVE
375.0	90DB3470804U3	TR	TP	R	NONPCB	<1*	12-47 208/120	75	156	DOWSER	PAD/B-375 OLD CHAPEL
376.0	D402424-59P	TR	TP	R	PCBCONTAM	63**	UNKNOWN	15	11	GENERAL ELECT	POLE/B-376 TOPSHAM SMALL BARRACKS
377.1	C719426-56P	TR	TP	R	PCBCONTAM	54**	UNKNOWN	15	11	GENERAL ELECT	POLE/B-377 TOPSHAM SEW. PUMP STAT
377.2	C719429-56P	TR	TP	R	PCBCONTAM	57**	UNKNOWN	15	11	GENERAL ELECT	POLE/B-377 TOPSHAM SEW. PUMP STAT
377.3	941133351	TR	TP	R	NONPCB	<1*	7200 120/240	15	14	RTE	POLE/B-377 TOPSHAM SEWER LIFT STAT
377.4	941133352	TR	TP	R	NONPCB	<1*	7200 120/240	15	14	RTE	POLE/B-377 TOPSHAM SEWER LIFT STAT
377.5	941133355	TR	TP	R	NONPCB	<1*	7200 120/240	15	14	RTE	POLE/B-377 TOPSHAM SEWER LIFT STAT
378.0	22900	TR	TP	R	NONPCB	6**	7200 120/240	15	16	NIAGARA	POLE/B-378 (MAINT BLDG)
382.0	941133353	TR	TP	R	NONPCB	<1*	7200 120/240	15	14	RTE	POLE/B-382
382.0	C719419-56P	TR	TP	R	PCBCONTAM	75**	UNKNOWN	15	11	GENERAL ELECT	POLE/B-382 TOPSHAM GYM
382.1	C719427-56P	TR	TP	R	PCBCONTAM	67**	UNKNOWN	15	11	GENERAL ELECT	POLE/B-382 TOPSHAM GYM
382.2	C719428-56P	TR	TP	R	PCBCONTAM	66**	UNKNOWN	15	11	GENERAL ELECT	POLE/B-382 TOPSHAM GYM
383.0	D40242059P	TR	TP	R	NONPCB	42**	7200 120/240	25	20	GENERAL ELECT	POLE/B-383 CPWL
383.1	D40242259P	TR	TP	R	NONPCB	49**	7200 120/240	25	20	GENERAL ELECT	POLE/B-383 CPWL
383.2	D40242159P	TR	TP	R	NONPCB	43**	7200 120/240	25	20	GENERAL ELECT	POLE/B-383 CPWL
384.0	C677881-56P	TR	TP	R	PCBCONTAM	390**	UNKNOWN	100	51	GENERAL ELECT	POLE/B-384 TOPSHAM LARGE BARRACKS
384.1	C677880-56P	TR	TP	R	PCBCONTAM	390**	UNKNOWN	100	51	GENERAL ELECT	POLE/B-384 TOPSHAM LARGE BARRACKS
384.2	C677882-56P	TR	TP	R	PCBCONTAM	340**	UNKNOWN	100	51	GENERAL ELECT	POLE/B-384 TOPSHAM LARGE BARRACKS
400.0	22063-2	TR	TP	R	NONPCB	<50**	7200 120/240	75	20	PRECISION TRANS	POLE/B-400-406 (LIBERTY)
416.0	22063-3	TR	TP	R	NONPCB	<50**	7200 120/240	75	20	PRECISION TRANS	POLE/B-416-422 (LIBERTY)
432.0	22063-1	TR	TP	R	NONPCB	0*	7200 120/240	75	20	PRECISION TRANS	POLE/B-432-438 (LIBERTY)
440.0	22063-5	TR	TP	R	NONPCB	<50**	7200 120/240	75	20	PRECISION TRANS	POLE/B-440-446 (LIBERTY)
472.0	22063-4	TR	TP	R	NONPCB	<50**	7200 120/240	75	20	PRECISION TRANS	POLE/B-472-476 (LIBERTY)
480.0	89A290702	TR	TP	R	NONPCB	<1*	7200 120/240	75	60	WESTINGHOUSE	POLE/B-480-486 (LIBERTY)
504.0	62058-2	TR	TP	R	NONPCB	0*	7200 120/240	75	20	PRECISION TRANS	POLE/B-504-510 (LIBERTY)
516.0	896003343	TR	NB	R	NONPCB	MO**	34500 120/208	150	292	RTE	PAD/B-516 NITEFLIGHT/MOVED TO B-53
517.0	2643-1-6	TR	NB	R	NONPCB	44**	UNKNOWN	10	10	GEN TRANSFORMER	PAD/B-517 & 518 OLD TACAN BLDG
517.0	2643-1-2	TR	NB	R	PCBCONTAM	50**	UNKNOWN	10	11	CENTRAL TRANS	PAD/B-517 OLD TACAN BLDG
517.1	2643-1-5	TR	NB	R	PCBCONTAM	120**	UNKNOWN	10	11	CENTRAL TRANS	PAD/B-517 OLD TACAN BLDG

IDNo	SerialNo	Type	Site	Status	Class	PPM	Volt	KVA	Volume	Manufacturer	Location
555.0	NO28120YASA	TR	NB	R	NONPCB	0**	4160 244/80	15	14	GENERAL ELECT	POLE/B-555 AREA LTG-SONOBUOY LCKR
584.0	2643-1-8	TR	NB	R	NONPCB	37**	4160 120/240	10	11	GEN TRANSFORMER	POLE/B-584 DRMO
584.3	2643-1-7	TR	NB	R	PCBCONTAM	92**	UNKNOWN	10	11	CENTRAL TRANS	POLE/B-584 DRMO
584.4	2643-1-11	TR	NB	R	PCBCONTAM	84**	UNKNOWN	10	11	CENTRAL TRANS	POLE/B-584 DRMO
611.0	G567256-66Y	TR	NB	R	NONPCB	<50**	4160 120/240	38	35	GENERAL ELECT	POLE/B-611, 617 TEST CELL AREA
611.1	G567255-66Y	TR	NB	R	NONPCB	0**	4160 120/240	38	35	GENERAL ELECT	POLE/B-611, 617 TEST CELL AREA
611.2	G567254-66Y	TR	NB	R	NONPCB	<50**	4160 120/240	38	35	GENERAL ELECT	POLE/B-611, 617 TEST CELL AREA
633.0	6954550	TR	NB	R	PCBCONTAM	280**	UNKNOWN	50	45		POLE/B-633 RMCB-27
636.0	E999218-63P	TR	NB	R	PCBCONTAM	130**	UNKNOWN	38	41		POLE/RMCB-27 ACROSS STREET
658.0	6879930	TR	NB	R	PCBCONTAM	220**	UNKNOWN	15	11	GENERAL ELECT	POLE/B-658 RMCB-27
904.0	59AM4437	TR	BH	R	NONPCB	0**	4160 120/240	25	21	WESTINGHOUSE	POLE/QTRS 904 & 905 (ADMIRAL'S)
SP.12	2530704492	TR	NB	R	NONPCB	0*	34500 120/208	150	197	HOWARD INDUSTR	PAD/SPARE B-19/MOVED TO B-584
SP.13	86V7026	TR	NB	R	NONPCB	<1*	34500 4160	750	540	VANTRAN	PAD/SPARE FROM B-512 & FITCH (BOQ)
SP.15	89C36482	TR	NB	R	NONPCB	<1*	34500 277/480	750	240	PAUWELS	PAD/SPARE B-19
SP.21	92E47683	TR	NB	R	NONPCB	<1*	7200 120/208	300	142	PAUWELS	PAD/SPARE B-294
SP.22	906003908	TR	NB	R	NONPCB	<2*	34500 120/208	75	317	COOPER	PAD/SPARE B-294 (FROM B516/FF)
SP.23	92E47682	TR	NB	R	NONPCB	<1*	12470 120/208	750	239	PAUWELS	PAD/SPARE B-19
SP.3	931062415	TR	NB	R	NONPCB	<1	12470-240/120	50	65	COOPER	PAD/SPARE BLDG. 19
SP.30	87600112	TR	NB	R	NONPCB	MO**	34500 120/208	150	270	RTE	PAD/SPARE/FROM B-512/MOVED TO B-19
SP.35	931062418	TR	NB	R	NONPCB	<50	12470	50		COOPER	SPARE/B19
SP.36	000514-A1	TR	NB	R	NONPCB	<1	34000/19920	1000		SQUARE D	SPARE/B294
SP.6	961031040	TR	NB	R	NONPCB	<1	12470-240/120	50	65	COOPER	PAD/SPARE B19
SP.9	97A020233	TR	NB	R	NONPCB	<1	4160-120/240	15	9.7	ABB	POLE/SPARE B19
CMP	76C195089	TR	NB	R	UNKNOWN	UNKNOW	12400 120/208	112	UNKNO	WESTINGHOUSE	PAD/CMP OWNED/NOW OURS-B646(INSIDE)
CNTR.0	896003751	TR	NB	R	NONPCB	<50	34500-480/277	750	497	RTE	PAD/OLD; HANGAR 4
D	C529173	TR	NB	R	PCBCONTAM	72**	UNKNOWN	10	11	GENERAL ELECT	POLE/QTRS D OUTSIDE GATE
EFGH	14H324	TR	BH	R	NONPCB	14**	4160 120/240	50	45	UNKNOWN	POLE/BLDGS E,F,G,H- FITCH AVE.
FITCH	2643-3	TR	NB	R	PCBCONTAM	220**	UNKNOWN	15	14	CENTRAL TRANS	POLE/B-A & B FITCH AVE
FITCH	2643-7	TR	NB	R	PCBCONTAM	230**	UNKNOWN	15	14	CENTRAL TRANS	POLE/B-A & B FITCH AVE
FITCH	2643-10	TR	NB	R	PCBCONTAM	250**	UNKNOWN	15	14	CENTRAL TRANS	POLE/B-A & B FITCH AVE
LOTS	2643-5-6	TR	BG	R	PCBCONTAM	140**	UNKNOWN	50	45	UNKNOWN	POLE/LOTS 8-15 NEPTUNE DRIVE
LOTS	C666213	TR	BG	R	PCBCONTAM	350**	UNKNOWN	50	45	GENERAL ELECT	POLE/LOTS 16-20 NEPTUNE DRIVE
LOTS	D114424	TR	BG	R	NONPCB	14**	4160 120/240	50	45	GENERAL ELECT	POLE/LOTS 1-7 - TRAILER PARK
MAG	B539648	TR	NB	R	PCBCONTAM	420**	UNKNOWN	10	11		POLE/MAG AREA
OHM.0	941133356	TR	NB	R	NONPCB	MO*	2300 120/240	15	13	RTE	SPARE/B19
OS.0	B957766	TR	NB	R	NONPCB	MO*	34500-4160/2400	5000	2085	GENERAL ELECT	PAD/OLD SUBSTATION

APPENDIX B
PROPERTY RECORDS

Table B-1
Real Estate Acquisition Transactions
NAS Brunswick, ME

TRANSACTION	ACQUISITION DATE	ACREAGE/ PROPERTY ACQUIRED	GRANTOR
MAIN BASE			
Condemnation (Civil Action No. 1633)	5/15/1943	1486.42 AC	Annie L. Hammond, et al (Original Petition for 500 AC dtd 27 Nov 1942. 15 May 1943 Petition increased area to 1486.42 AC)
Condemnation (Civil Action No. 857)	10/25/1951	145.11 AC	Mary E. Sinclair, et al
Condemnation (Civil Action No. 942)	10/9/1952	134.76 AC	Whitman Holbrook, et al
Condemnation (Civil Action No. 981)	3/20/1953	483.34 AC	Inhabitants of Town of Brunswick, et al
Deed	7/15/1953	41.6 AC	Augustus J. Snowe et ux
Deed	7/12/1955	37.54 AC	Emery Booker
Condemnation (Civil Action No. 4-108)	10/19/1955	373.65 AC	Milton P. Sadler, et al
Deed (Parcel 814)	10/19/1955	10.3 AC	Gorham H. Gatchell
Deed (Parcel 808)	10/20/1955	53 AC	Mary Leo
Deed (Parcel 820)	10/20/1955	0.8 AC	Don E. Coffin et ux
Deed (Parcel 825)	10/20/1955	3.1 AC	Alfred C. Chard et ux
Deed (Parcel 802)	11/8/1955	1.5 AC	Paul H. Pulsifer et ux
Deed (Parcel 803)	11/9/1955	11.6 AC	Wilbur R. Purinton et ux

Table B-1
Real Estate Acquisition Transactions
NAS Brunswick, ME

TRANSACTION	ACQUISITION DATE	ACREAGE/ PROPERTY ACQUIRED	GRANTOR
Deed (Parcel 812)	11/9/1955	13 AC	Julien J. Lavigna et ux
Deed (Parcel 822)	11/9/1955	0.5 AC	Allen J. Abair et ux
Deed (Parcel 807)	2/8/1956	2 AC	Grace P. Jordan et vir
Deed (Parcel 806A)	2/8/1956	46.5 AC	Paul C. Pulsifer et ux
Deed (Parcel 811)	3/30/1956	11.3 AC	Paul L. Dehan et ux
Deed (Parcel 816)	8/1/1956	80 AC	Beatrice E. Dubois et vir
Deed (Parcel 821)	8/1/1956	0.2 AC	Arid W. Jobes et ux
Deed (Parcel 826)	10/19/1955	1.5 AC	Elizabeth M. Crooker and Harold O. Crooker
Deed (Parcels 624, 625 & 626)	3/11/1957	1 AC	Edwin Chase & Dorothy L. Chase
Deed (Parcel 616)	3/20/1957	4.9 AC	Erma V. Burke
Deed (Parcel 611-A)	3/27/1957	26.5 AC	Grace P. Jordan et vir
Deed (Parcel 613)	3/27/1957	24.97 AC	John C. Coffin et al
Deed (Parcel 619)	3/29/1957	8.5 AC	Laura W. Williams
Deed (Parcel 628)	3/29/1957	0.25 AC	Henrietta Rand & Ernest L. Rand

Table B-1
Real Estate Acquisition Transactions
NAS Brunswick, ME

TRANSACTION	ACQUISITION DATE	ACREAGE/ PROPERTY ACQUIRED	GRANTOR
Deed (Parcel 615)	3/30/1957	43.39 AC	John C. Coffin
Deed (Parcel 627)	3/30/1957	1.0 AC	Maude A. & Jewel Rush
Deed (Parcel 623)	4/11/1957	0.5 AC	Town of Brunswick
Deed (Parcel 620)	6/4/1957	4.62 AC	Erwin R. Elwell et al
Deed (Parcel 618)	3/21/1958	13.9 AC	Annie P. Smith et vir
Condemnation (Civil Action No. 6-38)	5/29/1959	Leasehold Interest	Brunswick Gardens et al (Government acquired Leasehold Interest 41.919 AC, comprised of 33.36 AC Fee and 8.559 AC Easement)
Deed (Land Exchange)	3/30/1973	29 AC	Harry C. Crooker
AICUZ PARCELS - NORTH OF BATH ROAD			
Civil 9-38	3/30/1966	1.13 AC	Stanley E. Curtis et al
Deed	8/13/1981	0.217 AC	James V. Davis et ux
Deed	8/13/1981	0.322 AC	James V. Davis et ux
Deed	8/27/1981	0.694 AC	David N. Taft et ux
Deed	12/2/1981	0.271 AC	Richard Hunt and Faye E. Hunt
Deed	2/25/1982	0.483 AC	Richard A. Bryant et ux

Table B-1
Real Estate Acquisition Transactions
NAS Brunswick, ME

TRANSACTION	ACQUISITION DATE	ACREAGE/ PROPERTY ACQUIRED	GRANTOR
Deed	12/26/1982	0.198 AC	Vernon N. Thibodeau et ux
Deed	12/30/1982	20.436 AC	Estate of Samuel S. Holbrook
Deed	7/12/1983	0.181 AC	George A. Durfee et ux
Deed	11/21/1983	0.550 AC	Lido Company of New England, Inc.
Deed	6/21/1985	0.690 AC	John Boyd Bollinger and Miriam E. N. Bollinger
Deed	6/27/1985	0.687 AC	Leo C. Pelletier
Deed	7/5/1985	0.550 AC	Jordan
EAST BRUNSWICK - REMOTE FORMER TRANSMITTER SITE			
Deed	3/20/1957	22.89 AC	Mary T. Simpson
Deed	3/27/1957	31.16 AC	Frank F. Nadeau et ux
Deed	3/27/1957	10.13 AC	Dorothy B. Wright
Deed	6/4/1957	1.05 AC	Carl D. Robinson
Deed	1/23/1958	0.9 AC	Annie D. Powers
MCKEEN STREET - REMOTE HOUSING AREA			
Civil 6-34	5/15/1959	61.5 AC	Adelard Caron, et al

Table B-1
Real Estate Acquisition Transactions
NAS Brunswick, ME

TRANSACTION	ACQUISITION DATE	ACREAGE/ PROPERTY ACQUIRED	GRANTOR
Deed	5/27/1959	2.4 AC	Ovila and Alphonse Fortin
Deed	6/12/1959	2.6 AC	Julia and Alfred Coulombe
Deed	6/5/1959	3 AC	Leon Belanger
Deed	5/27/1959	0.5 AC	Joseph and Gay Ginn
Deed	6/5/1959	0.4 AC	Leon and Pauline Burgess
TOPSHAM ANNEX - REMOTE HOUSING AREA			
Transfer from Air Force	4/1/1971	125.04 AC	Parcel A-100 - 1/24/1956 - 113 AC - Harold S. Ward et ux Parcel A-102-1 & 102-2 - 7/11/1956 - 5.70 AC - Leon F. Howland and Florence L. Howland Parcel A-103 - 3/10/1956 - 0.80 AC - Edward B. Nickerson Civil 5-146 - 8/14/1958 - 5.54 AC - Leon F. Howland et al
RAKE STATION NO. 1 - SABINO HILL			
Civil 6-108	6/22/1960	0.23 AC	Robert D. Stevens et al
RAKE STATION NO. 1 - SMALL POINT			
Deed	6/21/1960	0.23 AC	Camilla Sewall Edge
Note: 51 acres of Topsham Annex were transferred after the creation of this table.			

APPENDIX C

AERIAL PHOTOGRAPHY

APPENDIX C

Appendix C consists of three separate sections:

- **C-1** – Appendix C-1 presents the evaluation of select historical aerial photographs to verify that past land uses have not resulted in potential contamination or releases of hazardous substances or petroleum products at the Main Base CERFA Category 1 areas (A-2 through A-5) and at the remote properties. For Main Base, review of aerial photographs from the 1940s through 2001 was performed to identify activities or problems that helped to delineate the areas that were finally designated as Category 1. Aerial photographs from 1960 to 1997 were analyzed for the remote properties.

  Table C-1 summarizes the observations recorded by the team for select Main Base aerial photographs from 1940, 1953, 1958, 1978, 1989, and 1997. These aerial photographs were selected to represent approximately each decade from the 1940s through 1990s. Observations for the remote properties are summarized in Tables C-2 through C-6, as follows:

  - Table C-2 – Topsham Annex 1960, 1977, 1985, 1989, 1993 and 1997
  - Table C-3 – McKeen Street Housing 1973, 1985, 1989, 1993 and 1997
  - Table C-4 – East Brunswick Remote Radio Transmitter Site 1960, 1975, 1985 and 1996
  - Table C-5 – Sabino Hill Rake Station 1960, 1975, 1985 and 1997
  - Table C-6 – Small Point Rake Station 1960, 1975, 1985 and 1988

  Figures were prepared to accompany Tables C-1 through C-6. The figures for each area were created by extracting portions of the historical aerial photographs. Features pertinent to the CERFA evaluations were then added to each figure and the observations were recorded in the tables. Each figure is labeled by the area and year. For example, Figure A4-1979 presents a section of a 1979 aerial photograph that depicts Area A-4. The approximate area delineation and NAS boundaries were added to support the evaluations. Sabino Hill and Small Point Rake Station boundaries are approximate as no boundary maps were found.

- **C-2** – presents the Site Analysis, Naval Air Station Brunswick, Brunswick, Maine, Volumes I and II. Report No. TS-PIC-86130. April 1987. The site analysis was prepared by the U.S. Environmental Protection Agency, Environmental Photographic Interpretation Center (EPIC), Environmental Systems Monitoring Laboratory, Warrenton, Virginia, 22186.

  Volumes I and II were scanned and converted into an electronic Portable Document Format (PDF) on 13 September 2006. Volumes I and II were prepared as two separate files (768 MB and 780 MB, respectively). To facilitate use of these scanned image files, TtNUS extracted each page of Volumes I and II, and included these in the enclosed DVD due to their large file sizes.

- **C-3** – presents scanned images of select Main Base aerial photographs currently available at the Public Works and Environmental Departments of NAS Brunswick. Appendix C-3 consists of Tagged Image File Format (TIFF) files for each scanned aerial photograph. The aerial photographs are stored on the DVD in folders sorted by the year in which the photographs were taken.

  The file name for each aerial photograph consists of the year and the identification number on the photograph. For example 1979 217354-3-6.tiff indicates a 1979 aerial photograph, the surveyor's project or job or series number 217354, Line number 3 of the flight, and Station 6 where the photograph was taken.

  It should be noted that not all available Main Base aerial photographs were scanned. Only those that were pertinent to the CERFA evaluations were selected and included in C-3. Aerial photographs scanned were from 1953, 1957, 1978, 1989, 1993, and 1997. An aerial photograph

photographs scanned were from 1953, 1957, 1978, 1989, 1993, and 1997. An aerial photograph (in PDF format) for the entire base from 2001, provided by the NAS Brunswick Public Works Department is also included.

Aerial photographs for the Topsham Annex and McKeen Street Housing were available for 1989 and 1993 from the NAS Brunswick Public Works and Environmental Departments. Appendix C-3 includes PDF files for each scanned aerial photograph. The aerial photographs are stored in folders sorted by the applicable remote property name. It should be noted that not all available Topsham Annex and McKeen Street Housing aerial photographs were scanned, just those relevant to the areas presented in this report.

All other remote property aerial photographs were purchased from Environmental Data Resources, Inc., and consist of PDF files. The aerial photograph file names include the year in which the aerial photograph was taken, and the photographs are stored in folders sorted by the applicable remote property name.

APPENDIX C - 1

**HISTORICAL AERIAL PHOTOGRAPHS
OBSERVATIONS TABLES**

Table C-1
Historical Aerial Photographs Observation Table
Naval Air Station Brunswick, Maine
Main Base

AREA	YEAR - 1940	IMAGE SOURCE
A-2	Area A-2 appears to be an undeveloped, wooded area. A stream traverses A-2 from north to south. Areas surrounding A-2 appears to be similar (**Fig. A2-1940**). At the eastern corner of A-2, the adjacent property appears to have been cleared. Land use appears to be unknown. Farther east, the land appeared to have been cleared for agricultural use. Area A-2 was not included in the areas evaluated in the EPIC report. **Summary:** A-2 was undeveloped and unused in 1940.	EPIC[1], Figure 2
A-3	The northwestern quadrant of Area A-3 appears to have been cleared, possibly for agricultural use (**Fig. A3-1940**). The southwestern quadrant appears to be undeveloped and wooded. The northeastern quadrant appears to have several dirt paths and a small clearing. Along the eastern perimeter is a road that bifurcates into two paths and then rejoins into one. This portion of A-3 appears to have had some ground disturbance. The areas north and south of A-3 were generally undeveloped and wooded. To the east, most of the land appeared to have been cleared for farming. Along the eastern perimeter is a road that bifurcates into two paths and then rejoins into one. To the west, A-3 was bounded by undeveloped and wooded land, and a meandering stream. Area A-3 was not included in the areas evaluated in the EPIC report. **Summary:** A-3 was mostly undeveloped in 1940; however, one portion appeared to have been used for farming and another portion had ground disturbance.	EPIC[1], Figure 2
A-4	In 1940, several portions of Area A-4 appeared to be in use (**Fig. A4-1940**). Near the eastern perimeter, a round cleared area is visible. Several areas in the southern central and western portions of A-4 appeared to have been cleared and used for agriculture. Several roads, oriented primarily north-south, are visible in this photograph. A meandering stream runs through A-4. Surrounding A-4 are wooded areas and several cleared areas, which appeared to have been used for agricultural purposes. Area A-4 was not included in the areas evaluated in the EPIC report. **Summary**: Most of A-4 appeared to be undeveloped and wooded. Although a few areas were identified that appeared to have been used for farming.	EPIC[1], Figure 2

Table C-1
Historical Aerial Photographs Observation Table
Naval Air Station Brunswick, Maine
Main Base

AREA	YEAR - 1940	IMAGE SOURCE
A-5	Residences appeared to have been situated within Area A-5 in 1940 **(Fig. A4-1940)**. A road runs west-east through the middle of A-5. The areas immediately adjacent to the east and south of A-5 appeared to be undeveloped and vegetated. The cemetery and Bath Road are identifiable to the north. Immediately to the west, the land appears to be undeveloped. Further west, residential neighborhoods appear to be present. Area A-5 was not included in the areas evaluated in the EPIC report. **Summary**: There appeared to be some residences in A-5 during this period.	EPIC[1], Figure 2

Table C-1
Historical Aerial Photographs Observation Table
Naval Air Station Brunswick, Maine
Main Base

AREA	YEAR - 1953	IMAGE SOURCE
General	High altitude photographs. Low level of details. Base has numerous completed constructions.	
A-2	In 1953, A-2 does not appear to have development, and appears to be generally wooded (**Fig. A2_A5-1953**). Areas in the immediate vicinity adjacent to A-2 appear to be undeveloped. **Summary:** In 1953, A-2 appears to be free of development or use.	Aerial photo SDW-19-16
A-3	Difficult to discern details within Area A-3 and surrounding areas due to resolution of aerial photograph (**Fig. A3_A4-1953**). Area to north appears to be wooded. To the east, these areas still appear to be cleared and likely consisted of cultivated fields. To the immediate west, there is still a cleared rectangular plot of land. **Summary:** In 1953, it is presumed A-3 was still undeveloped.	Aerial photo SDW-19-17
A-4	Difficult to discern details within Area A-4 due to resolution of aerial photograph (**Fig. A3_A4-1953**). Several cleared areas are present within A-4. however, there is insufficient resolution to allow more definition of land use. The area surrounding A-4 remains similar to the 1940 aerial photograph depicting cleared areas that likely consisted of cultivated fields and some private residences. The underground fuel pipeline supplying fuel from an offsite terminal to the Old Fuel Farm is visible. **Summary:** Some portions of A-4 appear to have been cleared, but no structures are visible. Lack of details in the aerial photograph does not allow for more detailed evaluations.	Aerial photo SDW-19-17
A-5	In **Fig. A2_A5-1953**, A-5 appears to be partially cleared for the runway end zone and clear zone. No other constructions are visible. Outside of the Main Base, densely spaced residences are noted. **Summary:** A-5 appears to be partially cleared during 1953 because of its location near the runway's end and clear zones.	Aerial photo SDW-19-16

Table C-1
Historical Aerial Photographs Observation Table
Naval Air Station Brunswick, Maine
Main Base

AREA	YEAR - 1958	IMAGE SOURCE
A-2	Not available.	
A-3	In **Fig. A3-1958,** Area A-3 is still undeveloped. The northwest quadrant is cleared, but there is no evidence of structures or releases within A-3. To the north, bounded by dirt road connecting to Coombs Road. To the west, A-3 is bounded by paved road leading into the Weapons Area. To the south, two areas were noted that indicated use by the base. The A-3 southern delineation was determined by presence of these areas. To the southeast is a mounded, unidentified disturbed area. This was originally within Area A-4, but the A-4 delineation was moved to carve this out and it is now in Area B-6. **Summary:** In 1958, A-3 appeared to be undeveloped and unused.	Aerial photo AN-2-5, dated 9 Oct. 1958.
A-4	Due to the numerous aerial photos covering A-4 for 1958, it was not possible to create a composite photograph. Review of 1958 aerial photographs (see Appendix C-3) in the AN-2-series, the AN-3-series, the AN-4-series, and the AN-5-series indicated that Area A-4 was mostly undeveloped. However, the golf course is under construction. **Summary:** In 1958, the golf course's presence is noted. The remainder of A-4 appeared to be undeveloped.	
A-5	In **Fig. A5-1958,** the eastern portion of A-5 was cleared, while the western portion appears to be sparsely wooded. The TACAN is situated south of Area A-5. Ground disturbances were noted surrounding the TACAN. Three house foundations were also noted in this aerial photograph. The cemetery is present to the northwest of A-5. **Summary:** In 1958, A-5 appeared to be undeveloped.	Aerial photo AN-5-16, dated 9 Oct. 1958.

Table C-1
Historical Aerial Photographs Observation Table
Naval Air Station Brunswick, Maine
Main Base

AREA	YEAR - 1978	IMAGE SOURCE
A-2	A large wall-mounted 1970s-era aerial photograph in the Public Works Department Conference Room shows A-2 as undeveloped.	Public Works Dept. 1970s-era aerial photo
A-3	In **Fig. A3-1978,** Area A-3 remains undeveloped. The northwest quadrant has now become populated by trees. No structures or features are noted within A-3. To the north, bounded by dirt road connecting to Coombs Road. To the west, A-3 is bounded by Ordnance Road No. 5, leading into the Weapons Area. To the south, the IR Site 12 - EOD Training Area appears to be present. Bunkers are situated on the east side of the road to the Weapons Area. To the southeast are two ground disturbances that resulted in a delineation change for A-4 and that area's incorporation into B-6. **Summary:** In 1978, A-3 appeared to remain undeveloped and unused.	Aerial photo K1363-28-6, dated 22 Nov. 1978.
A-4	Aerial photo (**Fig. A4-1978**) available for western portion of Area A-4. The Mere Brook Golf Course is prominent in the western portion of Area A-4. The remainder of A-4 appears to be undeveloped. A wet area or stain is noted in an area between the runway and A-4. It is unclear whether this is a liquid or the direction of runoff. The underground fuel pipeline right-of-way and the pond created by the soil and debris dam at IR Site 15 are visible. West of A-4, land use appeared to be some residential and agricultural. **Summary:** In 1978, the golf course, abandoned underground fuel pipeline and IR Site 15 are present in A-4 and the remainder appears undeveloped.	Aerial photo K1363-28-6, dated 22 Nov. 1978.
A-5	In **Fig. A5-1978,** the eastern portion of A-5 was cleared, while the western portion appears to be wooded. The TACAN is situated south of Area A-5. The cemetery is present to the northwest of A-5. **Summary:** In 1978, A-5 appeared to remain undeveloped and unused.	Aerial photo K1363-30-8, dated 22 Nov. 1978.

Table C-1
Historical Aerial Photographs Observation Table
Naval Air Station Brunswick, Maine
Main Base

	YEAR - 1989	IMAGE SOURCE
A-2	No aerial photo available.	
A-3	In **Fig. A3-1989,** Area A-3 remains undeveloped. No structures or features are noted within A-3. To the north, the adjacent property is undeveloped and wooded. A private residence is located at the northeast corner. To the west, A-3 is bounded by Ordnance Road No. 5, leading into the Weapons Area. Bunkers are situated on the east side of the road to the Weapons Area. The former homestead occupies an area that has few trees. **Summary:** In 1989, A-3 appeared to remain undeveloped and unused.	Aerial photo P8324-2-5, dated 22 Nov. 1989.
A-4	In **Fig. A4-1989,** an aerial photo was available for western portion of Area A-4. The Mere Brook Golf Course is prominent in the western portion of Area A-4. The underground fuel pipeline right-of-way and the pond created by the soil and debris dam at IR Site 15 are visible. The remainder of A-4 appears to be undeveloped. **Summary:** In 1989, the golf course, abandoned underground fuel pipeline and IR Site 15 are present in A-4 and the remainder appears undeveloped.	Aerial photo P8324-3-5, dated 22 Nov. 1989.
A-5	In **Fig. A5-1989,** the eastern portion of A-5 was cleared, while the western portion appears to be wooded. The TACAN is situated south of Area A-5. The cemetery is present to the northwest of A-5. A-5 remains undeveloped. **Summary:** In 1989, A-5 appeared to remain undeveloped and unused.	Aerial photo P8324-4-12, dated 22 Nov. 1989.

Table C-1
Historical Aerial Photographs Observation Table
Naval Air Station Brunswick, Maine
Main Base

	YEAR - 1997	IMAGE SOURCE
A-2	Area A-2 does not appear to have development, and appears to be generally wooded (**Fig. A2-1997**). Several roads criss-cross through A-2. A residential development, Mariner Landing, is situated to the north. A buffer zone of woods separates A-2 from Area B-3. **Summary:** In 1997, A-2 appears to be free of development or use.	Aerial photo 217354-2-11, dated 27 May 1997.
A-3	In **Fig. A3-1997,** Area A-3 remains undeveloped. No structures or features are noted within A-3. To the north, the adjacent property is undeveloped and wooded. Private residences are located to the northeast. To the west, A-3 is bounded by Ordnance Road No. 5, leading into the Weapons Area. Magazines are situated on the east side of the road to the Weapons Area. The IR Site 12 - EOD Training Area is located south of A-3. **Summary:** In 1997, A-3 appeared to remain undeveloped and unused.	Aerial photo 217354-2-8, dated 27 May 1997.
A-4	In **Fig. A4-1997,** an aerial photo was available for western portion of Area A-4. The Mere Brook Golf Course is prominent in the western portion of Area A-4. The underground fuel pipeline is visible. The pipeline was abandoned in 1995. The remainder of A-4 appears to be undeveloped. **Summary:** In 1997, the golf course is present in A-4 and the remainder appears undeveloped.	Aerial photo 217354-3-5, dated 27 May 1997.
A-5	In **Fig. A5-1997,** the eastern portion of A-5 remains cleared, while the western portion appears to have more mature growth of trees. The TACAN is situated south of Area A-5. The cemetery is present to the northwest of A-5. A-5 remains undeveloped. To the west of A-5, the private residences are evident. To the north, businesses are situated on Route 24. The areas to the east and south of A-5 remain undeveloped. **Summary:** In 1997, A-5 appears to remain undeveloped and unused.	Aerial photo 217354-4-11, dated 27 May 1997.

Table C - 2
Historical Aerial Photographs Observation Table
Naval Air Station Brunswick, Maine
Topsham Annex

TOPSHAM AREA	YEAR - 1960	IMAGE SOURCE
B-10 & B-11	B-10 central steam plant remains in place, all other buildings are present as well. B-11 grading and scarring of the land has taken place, no houses are present. Mostly surrounded by woods on southern and eastern boundaries, farming operations on the northern boundary and other businesses or dwellings along the western boundary.	Aerial photo 1960 ABB590330000077 _7567_a

TOPSHAM AREA	YEAR - 1977	IMAGE SOURCE
B-10 & B-11	B-10 remains similar to 1960, new growth as concrete plant and school appear along southern boundary. B-11 houses are present. Disturbed area located northwest of B-11 area.	Aerial photo 1977 AB1VECJ0000000 3_42_a

TOPSHAM AREA	YEAR - 1985	IMAGE SOURCE
B-10 & B-11	High altitude and poor quality, appears similar to 1977.	Aerial photo: 1985 NB1NHAP8402540 80

TOPSHAM AREA	YEAR - 1989	IMAGE SOURCE
B-10 & B-11	B-10 central steam plant removed. Housing in B-11 remains similar to 1977. Unknown disturbance north of B-10 area in former NASB area.	Aerial photo: 1989 P8324-6-1, 1989 P8324-6-3, and 1989 P8324-6-4

Table C - 2
Historical Aerial Photographs Observation Table
Naval Air Station Brunswick, Maine
Topsham Annex

TOPSHAM AREA	YEAR - 1993	IMAGE SOURCE
B-10 & B-11	B-10 and B-11 low altitude shows detail of adjacent property and subject property. B-11 remains similar to 1989.	Aerial photo: 1993 1993 P8988-3-3, P8988-12-2, 1993 P8988-12-3, 1993 P8988-12-4, 1993 P8988-12-5, 1993 P8988-13-4, and 1993 P8988-13-5

TOPSHAM AREA	YEAR - 1997	IMAGE SOURCE
B-10 & B-11	B-10 mostly wooded to the west of subject property. B-11 mostly wooded to the north and east.	Aerial photo 1997 N10NAPPW09208 216

Table C - 3
Historical Aerial Photographs Observation Table
Naval Air Station Brunswick, Maine
McKeen Street Housing

MCKEEN STREET HOUSING AREA	YEAR - 1973	IMAGE SOURCE
B-12	B-12 surrounded by woods to the north and south, ground scaring area located to the west, few houses located to the east.	Aerial photo 1972 VCYV_1_88_a

MCKEEN STREET HOUSING AREA	YEAR - 1985	IMAGE SOURCE
B-12	Similar to 1973, B-12 surrounded by woods to the north and south, ground scarring area located to the west, few houses located to the east.	Aerial photo 1985 NHAP84_254_80

MCKEEN STREET HOUSING AREA	YEAR - 1989	IMAGE SOURCE
B-12	Construction of new housing being completed west of McKeen Street Housing parcel. St. Charles Church present.	Aerial Photos: 1989 P8324-5-1, 1989 P8324-5-3

MCKEEN STREET HOUSING AREA	YEAR - 1993	IMAGE SOURCE
B-12	Low altitude photos, similar to 1989.	Aerial Photos: 1993 P8988-14-4, 1993 P8988-14-4

Table C - 3
Historical Aerial Photographs Observation Table
Naval Air Station Brunswick, Maine
McKeen Street Housing

MCKEEN STREET HOUSING AREA	YEAR - 1997	IMAGE SOURCE
B-12	Well developed area surrounding McKeen Street Housing. Hospital present southeast of housing area.	Aerial photo 1997 NAPPW_9208_217

Table C - 4
Historical Aerial Photographs Observation Table
Naval Air Station Brunswick, Maine
East Brunswick Remote Radio Transmitter Site

EAST BRUNSWICK REMOTE RADIO TRANSMITTER AREA	YEAR - 1960	IMAGE SOURCE
B-13 & A-6	B-13 buildings are present as well as antennae in A-6. Ground scarring present throughout area. Sand and gravel mining operations appear to start take place in the northeastern adjacent property. Unknown structures located in the southeastern corner of the property or adjacent property. Roadways or paths leading to and on the property from various locations.	Aerial Photo: 1960 ABB59033000007 7_7567_a

EAST BRUNSWICK REMOTE RADIO TRANSMITTER AREA	YEAR - 1975	IMAGE SOURCE
B-13 & A-6	Excessive ground scarring in B-13 and A-6 seems to dissipated. Sand and gravel mining operations are in full operation in the northeastern and eastern adjacent property. Trees surround western property border.	Aerial photo 1975 AB1VDLB0000000 4_4_a

EAST BRUNSWICK REMOTE TRANSMITTER RADIO AREA	YEAR - 1985	IMAGE SOURCE
B-13 & A-6	Similar to 1975, building remains present.	Aerial Photo: 1985 NB1NHAP840254 069

EAST BRUNSWICK REMOTE TRANSMITTER RADIO AREA	YEAR - 1996	IMAGE SOURCE
B-13 & A-6	B-13 buildings are present in 1996 aerial. Ground scarring present throughout area. Sand and gravel mining operations are in full operation in the northeastern and eastern adjacent property. Roadways or paths leading to and on the property from various locations.	Aerial Photo: 1996 N10NAPPW09204 079

Table C - 5
Historical Aerial Photographs Observation Table
Naval Air Station Brunswick, Maine
Sabino Hill Rake Station

SABINO HILL RAKE STATION AREA	YEAR - 1960	IMAGE SOURCE
B-14	B-14 surrounded mostly by wooded areas.	Aerial Photo: 1960 59033_77_7664_a

SABINO HILL RAKE STATION AREA	YEAR - 1975	IMAGE SOURCE
B-14	B-14 surrounded mostly by wooded areas.	Aerial Photo: 1975 VDLB_4_2_a

SABINO HILL RAKE STATION AREA	YEAR - 1985	IMAGE SOURCE
B-14	High altitude aerial Shot B-14 appears to be in the photo but due to altitude analysis was unable to be completed.	Aerial Photo: 1985 NHAP84_254_72

SABINO HILL RAKE STATION AREA	YEAR - 1997	IMAGE SOURCE
B-14	B-14 surrounded mostly by wooded areas, and a few residential houses.	Aerial Photo: 1997 NAPPW_9208_165

Table C - 6
Historical Aerial Photographs Observation Table
Naval Air Station Brunswick, Maine
Small Point Rake Station

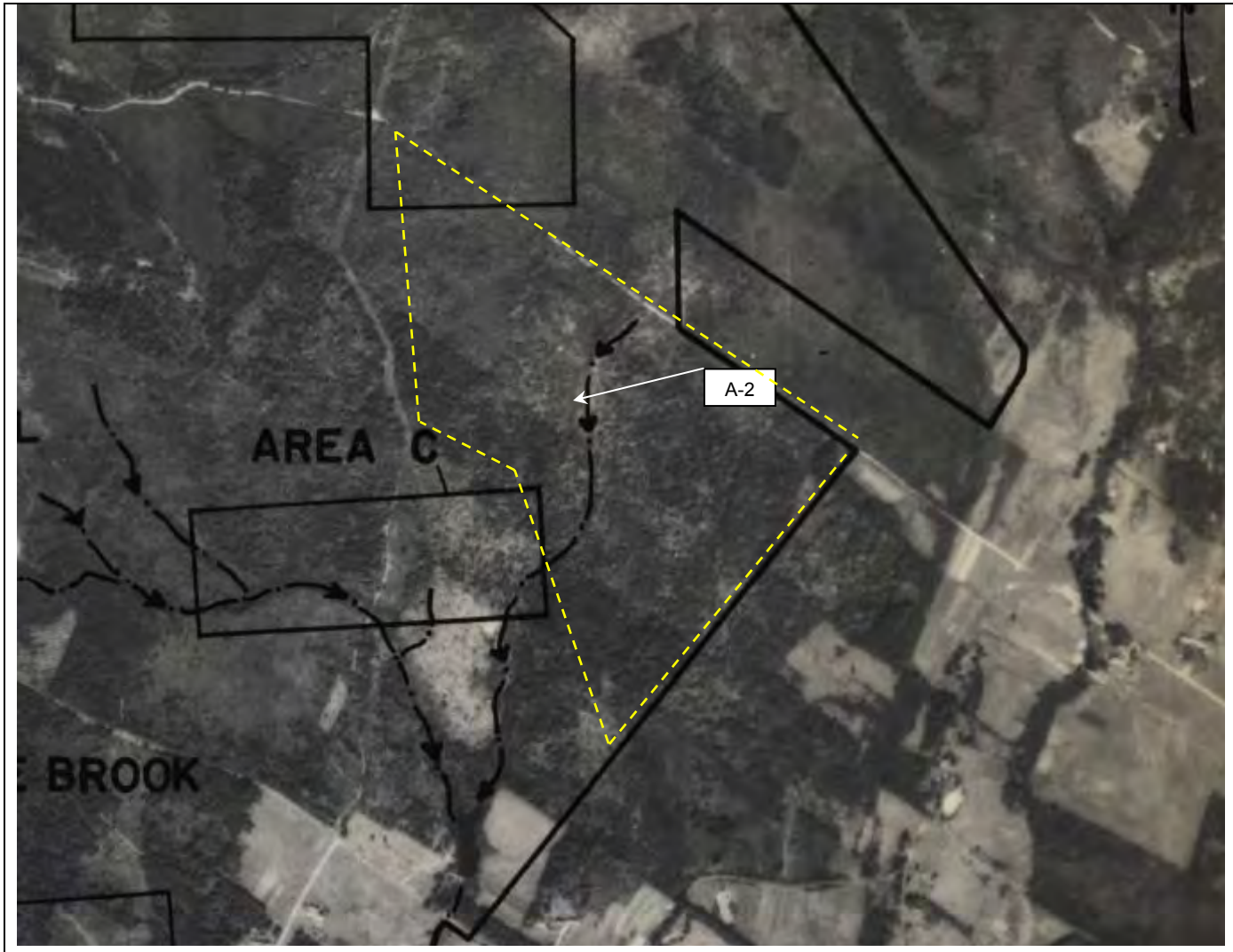
SMALL POINT RAKE STATION AREA	YEAR - 1960	IMAGE SOURCE
B-15	B-15 appears to have a building located in the similar location as the current 2006 rake station. Other ground disturbances are noted but due to quality unable to determine type.	Aerial photo 1960 59033_77_7665_a

SMALL POINT RAKE STATION AREA	YEAR - 1975	IMAGE SOURCE
B-15	In 1975, B-15 the rake station is visible in the similar location as the current 2006 rake station and there is no residential development in the area.	Aerial photo 1975 VDLB_4_2_a.

SMALL POINT RAKE STATION AREA	YEAR - 1985	IMAGE SOURCE
B-15	Image quality poor.	Aerial photo 1985 NHAP84_254_72

SMALL POINT RAKE STATION AREA	YEAR - 1988	IMAGE SOURCE
B-15	In 1988, B-15 appears with the rake station in similar location as 2006 and no other buildings in the immediate vicinity.	Aerial photo 1988 NAPPW_9204_88

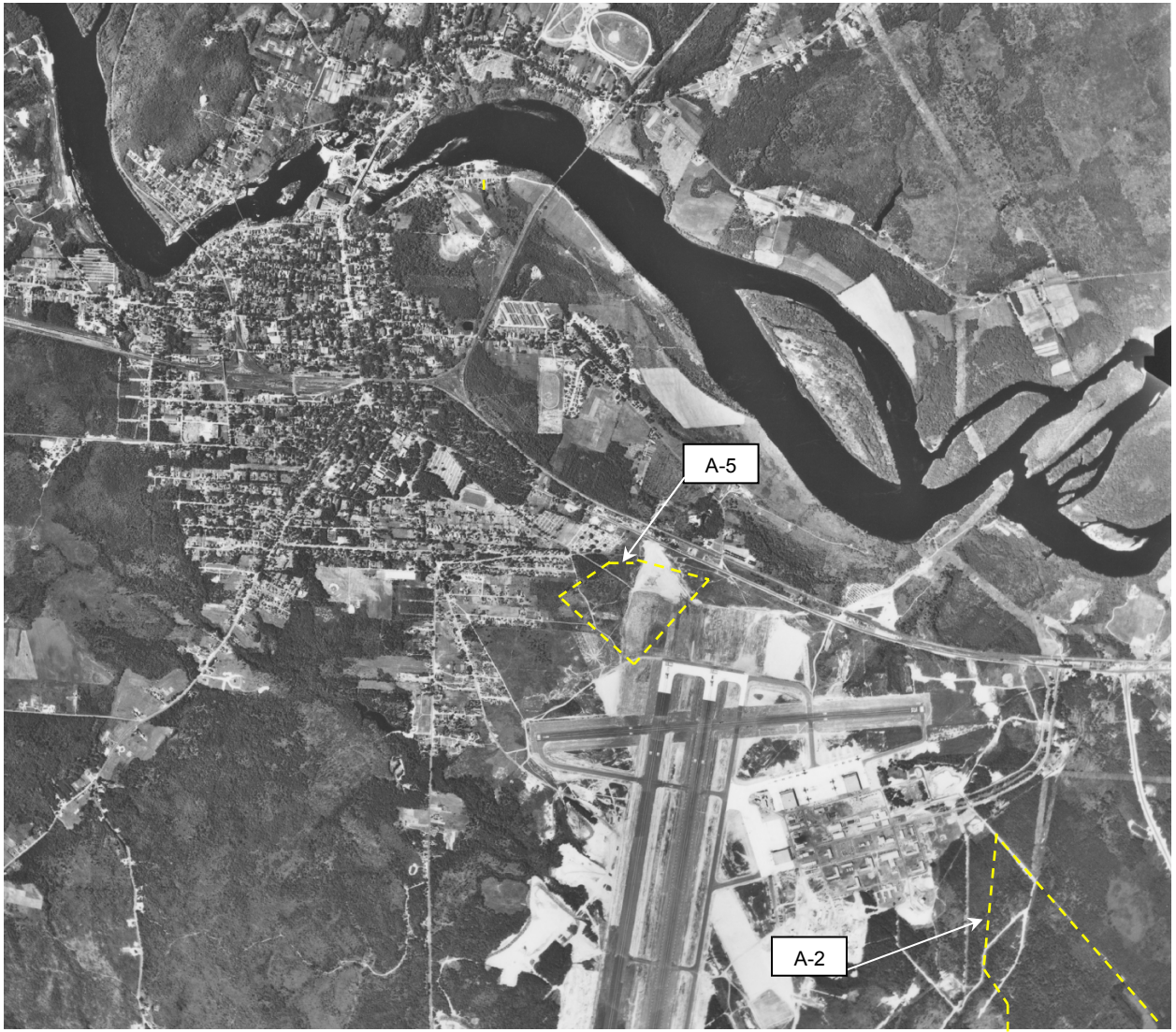
APPENDIX C - 1
FIGURE A2-1940



Note: Area A-2 delineation is approximate.

Excerpt of aerial photograph dated 28 Sep.1940 of Area A-2 and surrounding areas. Image source: Figure 2, Vol. 2, EPIC (US EPA, 1987)

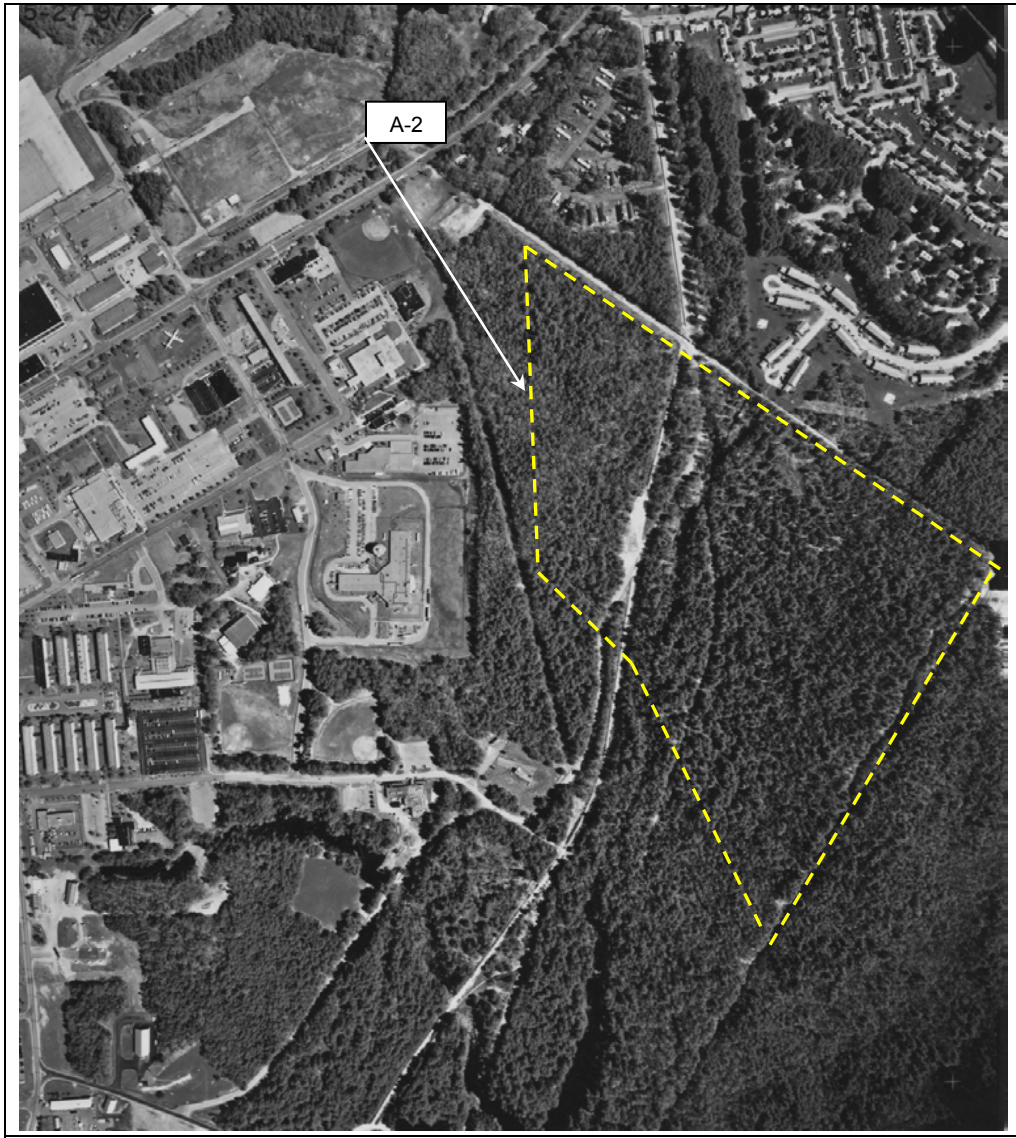
APPENDIX C-1
FIGURE A2_A5-1953



Note: Areas A-2 and A-5 delineations are approximate.

Excerpt of aerial photograph dated 1953. Image source: Aerial photo SDW-19-16. Originator: unknown

APPENDIX C-1
FIGURE A2-1997



Note: Area A-2 delineation is approximate.

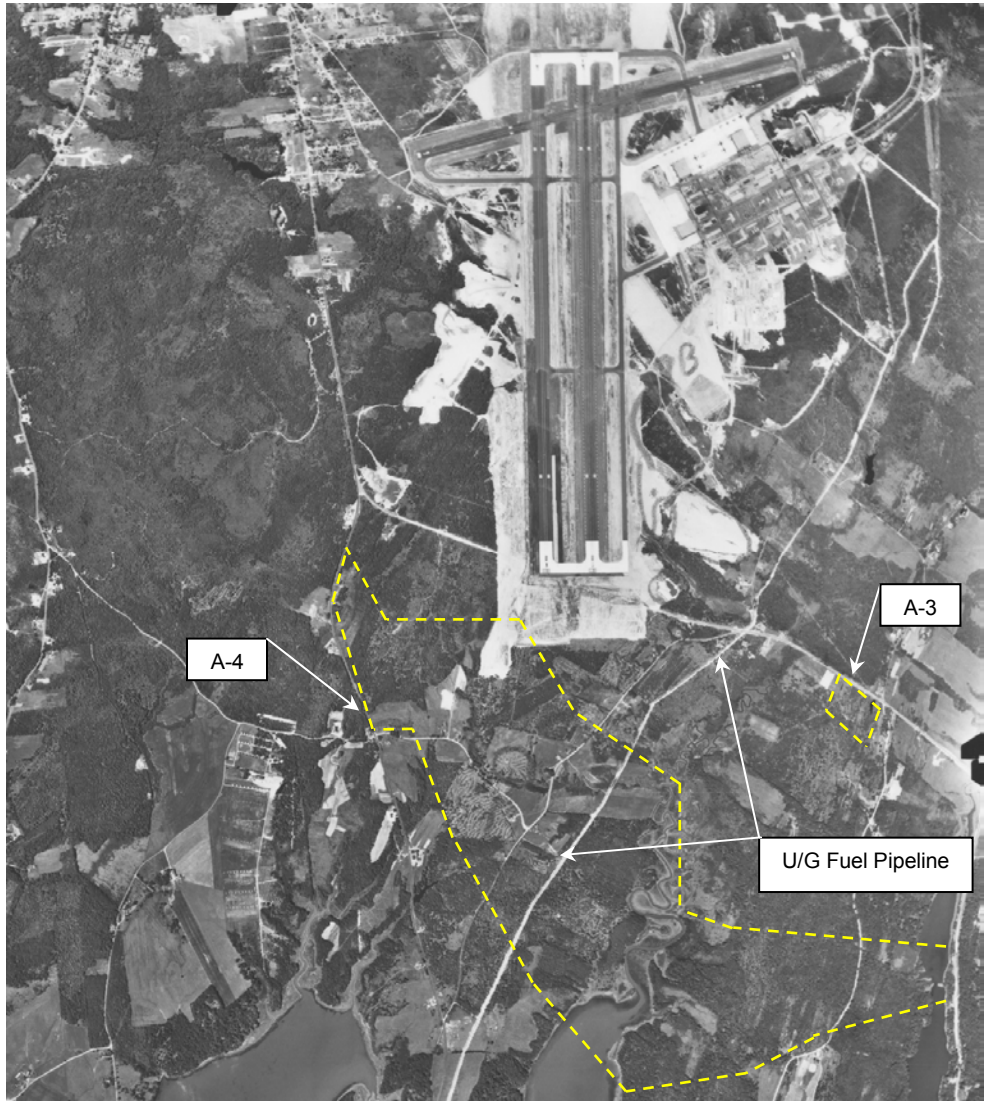
Excerpt of aerial photograph dated 27 May 1997. Image source: Aerial photo 217354-2-11. Originator: James W. Sewall Co., Old Town, Maine

APPENDIX C - 1
FIGURE A3-1940

Note: Area A-3 delineation is approximate.

Excerpt of aerial photograph dated 28 Sep.1940 of Area A-3 and surrounding areas. Image source: Figure 2, Vol. 2, EPIC (US EPA, 1986)

APPENDIX C-1
FIGURE A3_A4-1953



Note: Areas A-3 and A-4 delineations are approximate.

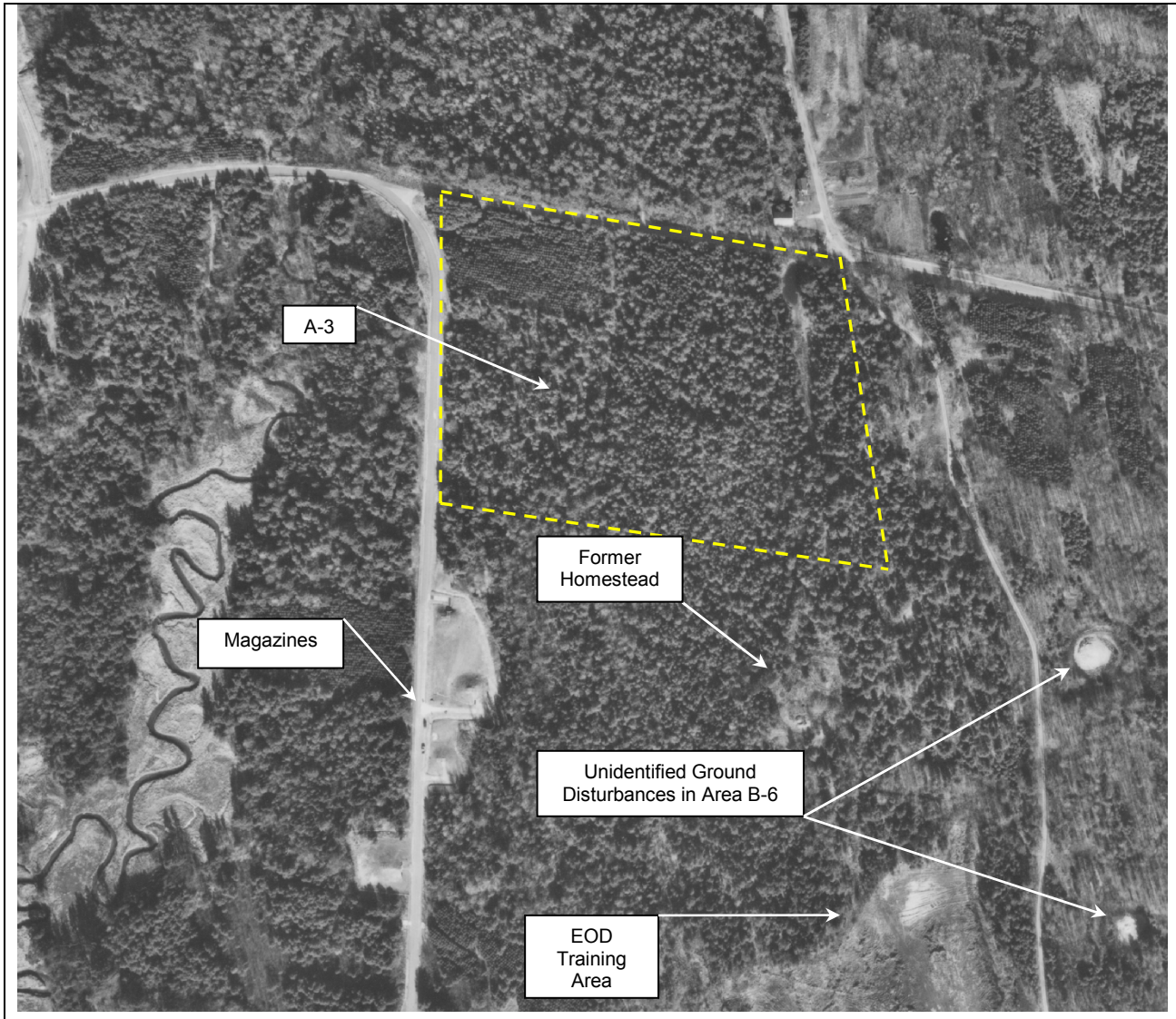
Excerpt of aerial photograph dated 1953. Image source: Aerial photo SDW-19-17. Originator: unknown

APPENDIX C-1
FIGURE A3-1958

Note: Area A-3 delineation is approximate.

Excerpt of aerial photograph dated 9 Oct. 1958. Image source: Aerial photo AN-2-5. Originator: unknown

APPENDIX C-1
FIGURE A3-1978



Note: Area A-3 delineation is approximate.

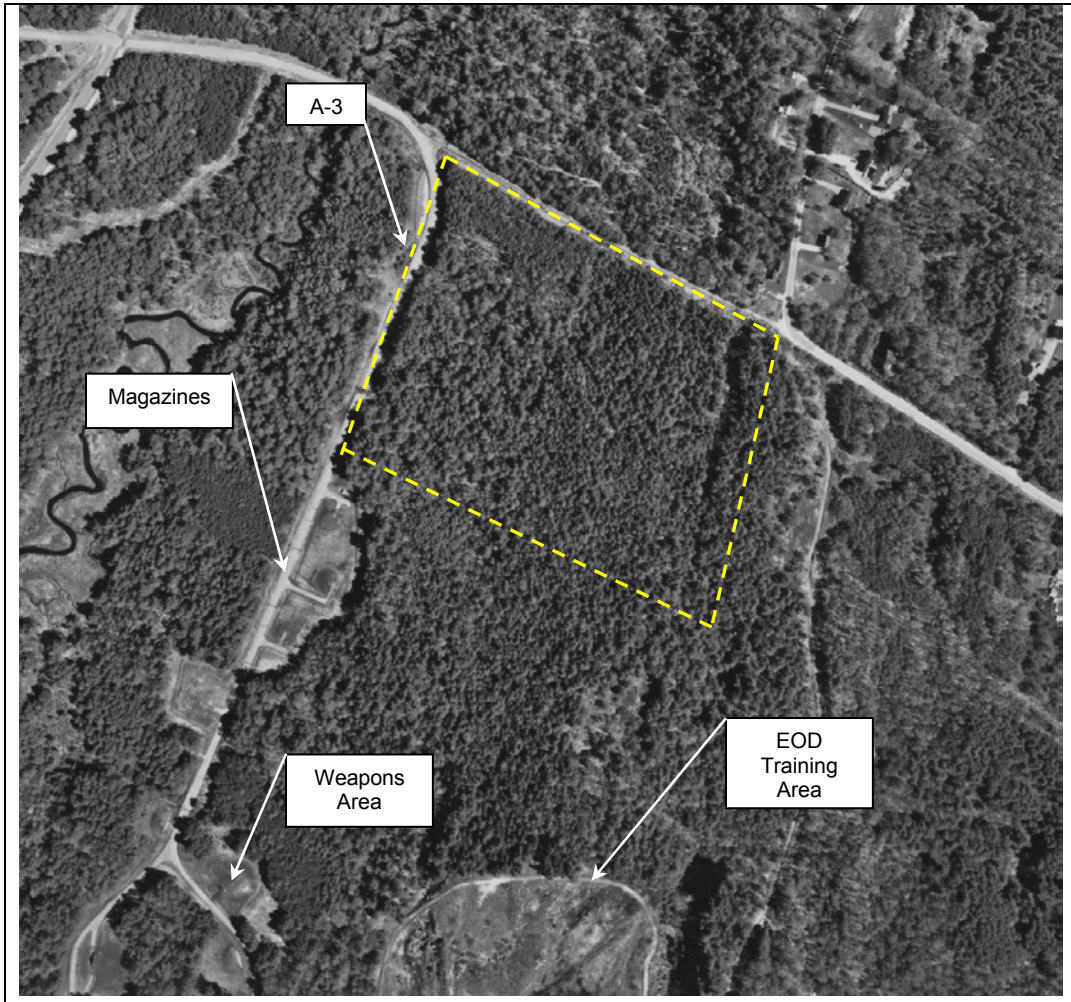
Excerpt of aerial photograph dated 22 Nov., 1978. Image source: Aerial photo K1363-28-6. Originator: unknown

APPENDIX C-1
FIGURE A3-1989

Note: Area A-3 delineation is approximate.

Excerpt of aerial photograph dated 2 Apr. 1989. Image source: Aerial photo P-8324-2-5. Originator: James W. Sewall Co., Old Town, Maine

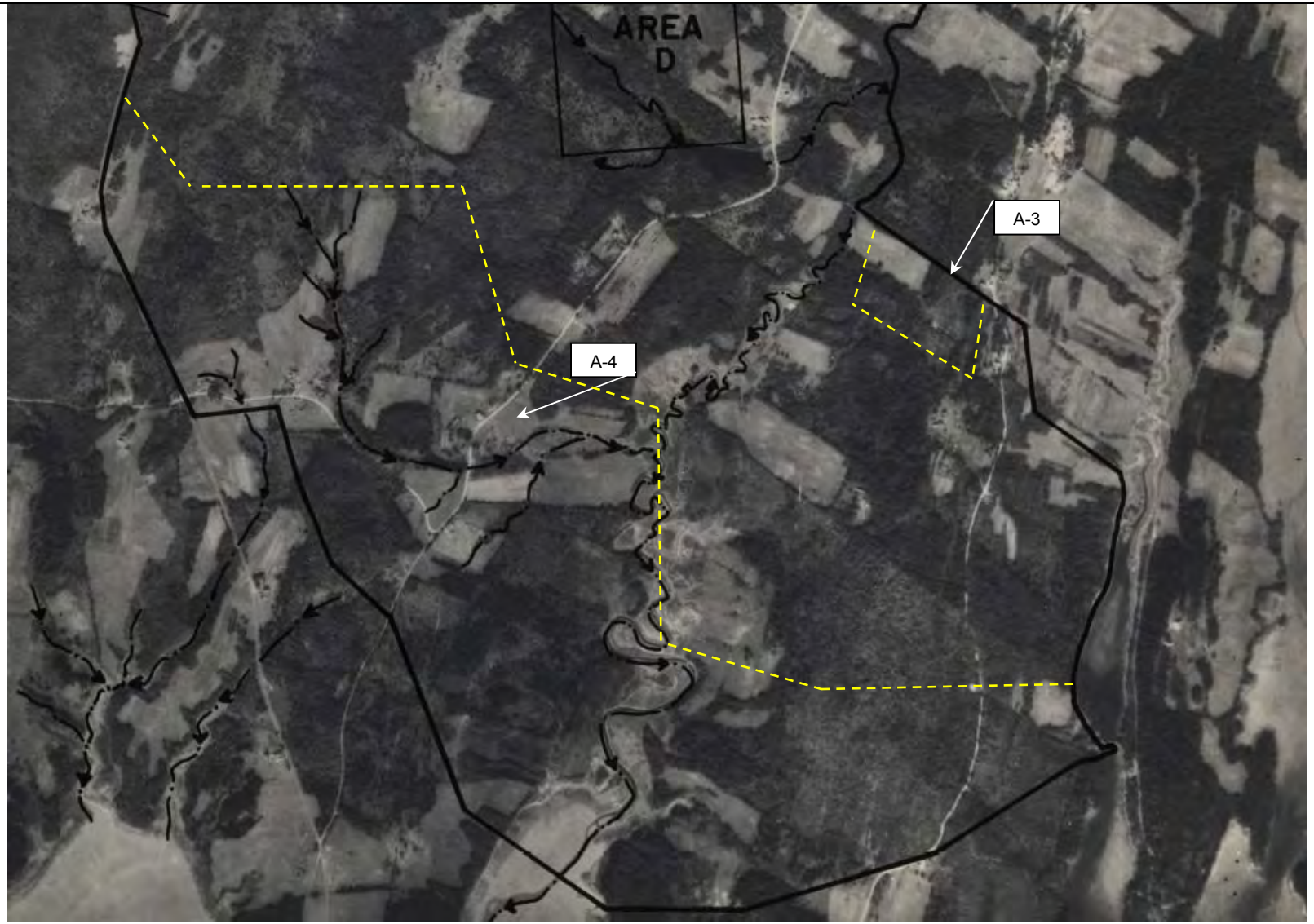
APPENDIX C-1
FIGURE A3-1997



Note: Area A-3 delineation is approximate.

Excerpt of aerial photograph dated 27 May 1997. Image source: Aerial photo 217354-2-8. Originator: James W. Sewall Co., Old Town, Maine

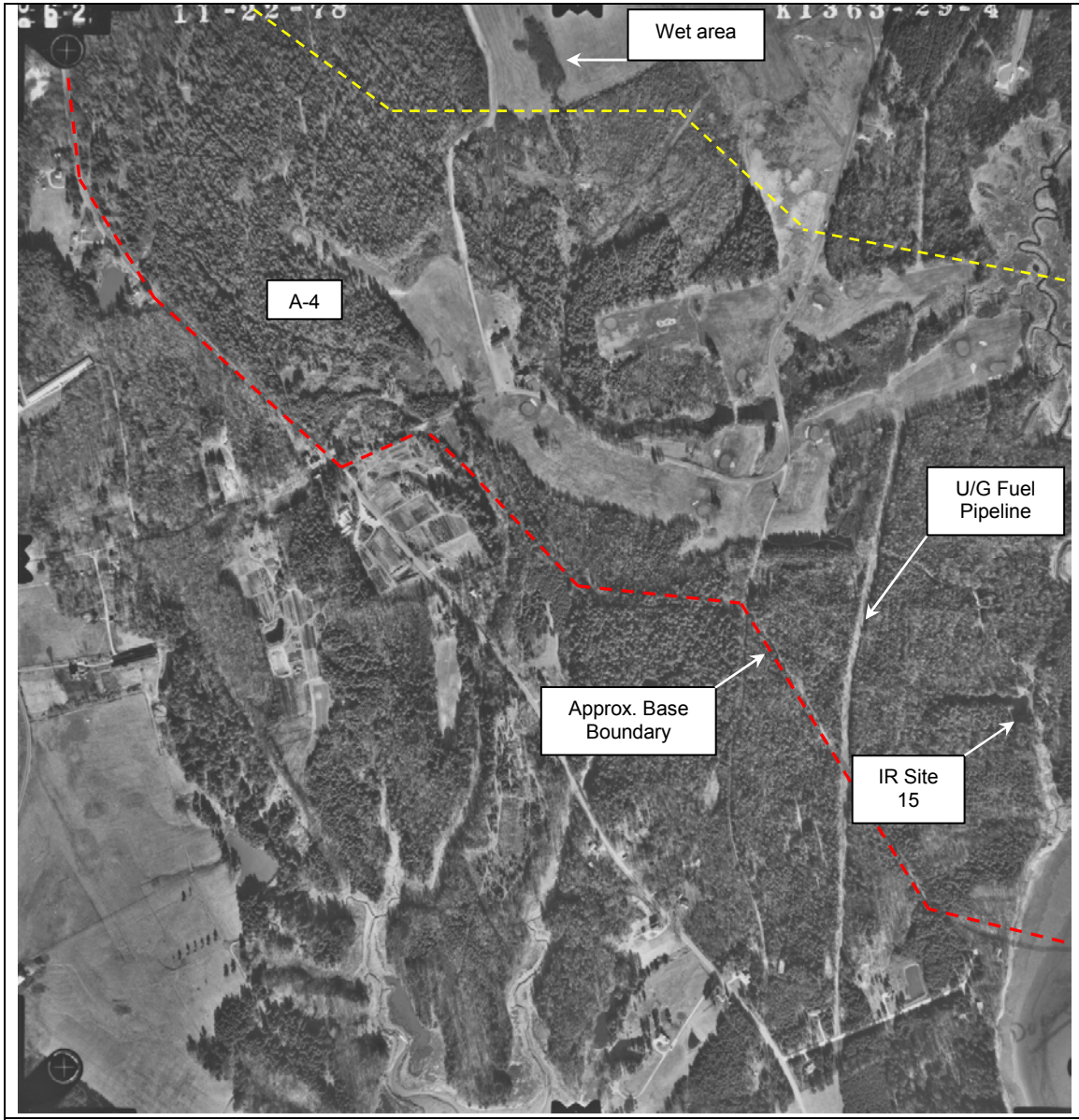
APPENDIX C - 1
FIGURE A4-1940



Note: Area A-4 delineation is approximate.

Excerpt of aerial photograph dated 28 Sep.1940 of Area A-4 and surrounding areas. Image source: Figure 2, Vol. 2, EPIC (US EPA, 1987)

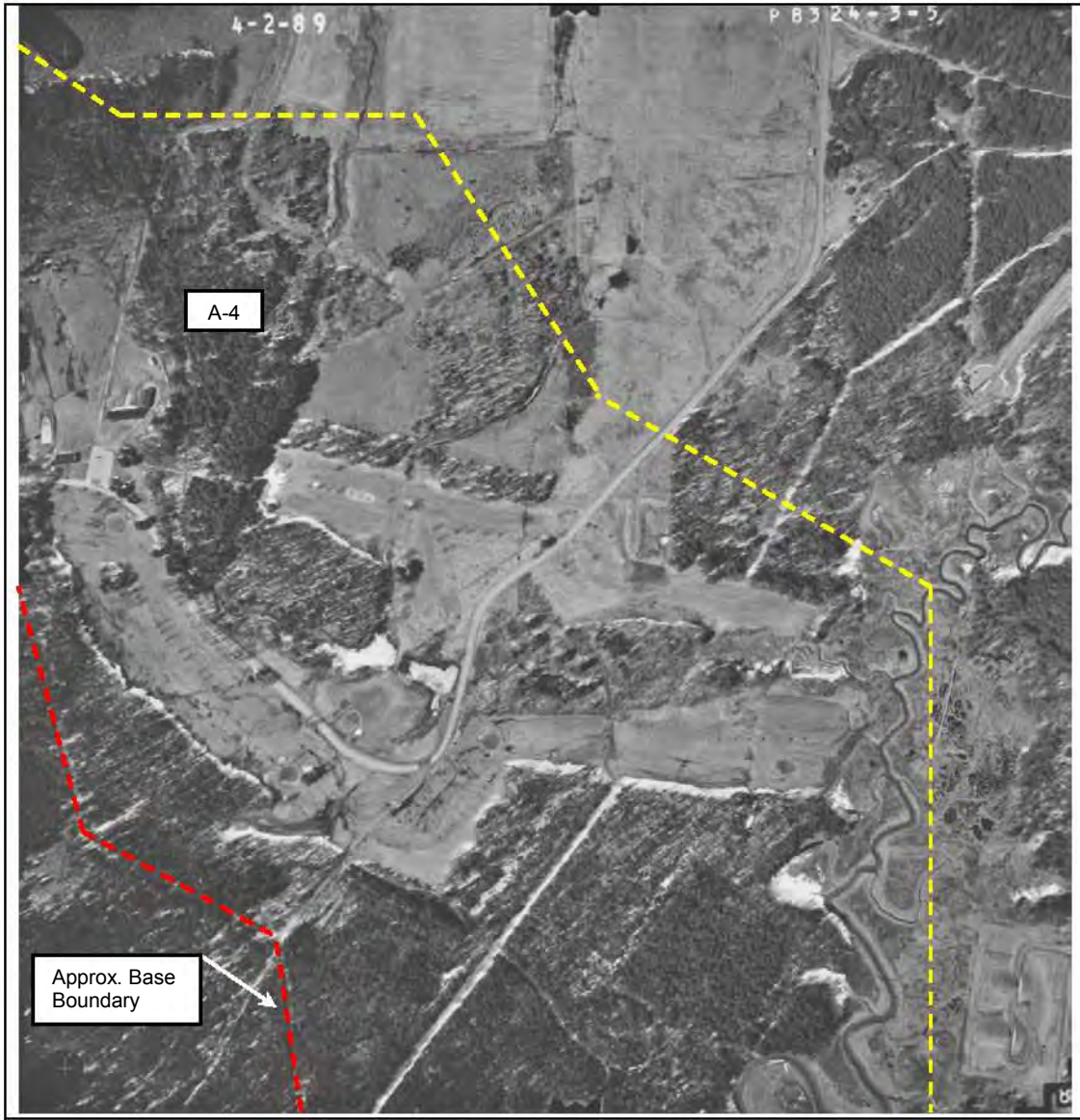
APPENDIX C - 1
FIGURE A4-1978



Note: Area A-4 delineation is approximate.

Excerpt of aerial photograph dated 22 Nov.1978 of Area A-4 and western surrounding areas. Image source: Aerial Photo K1363-29-4

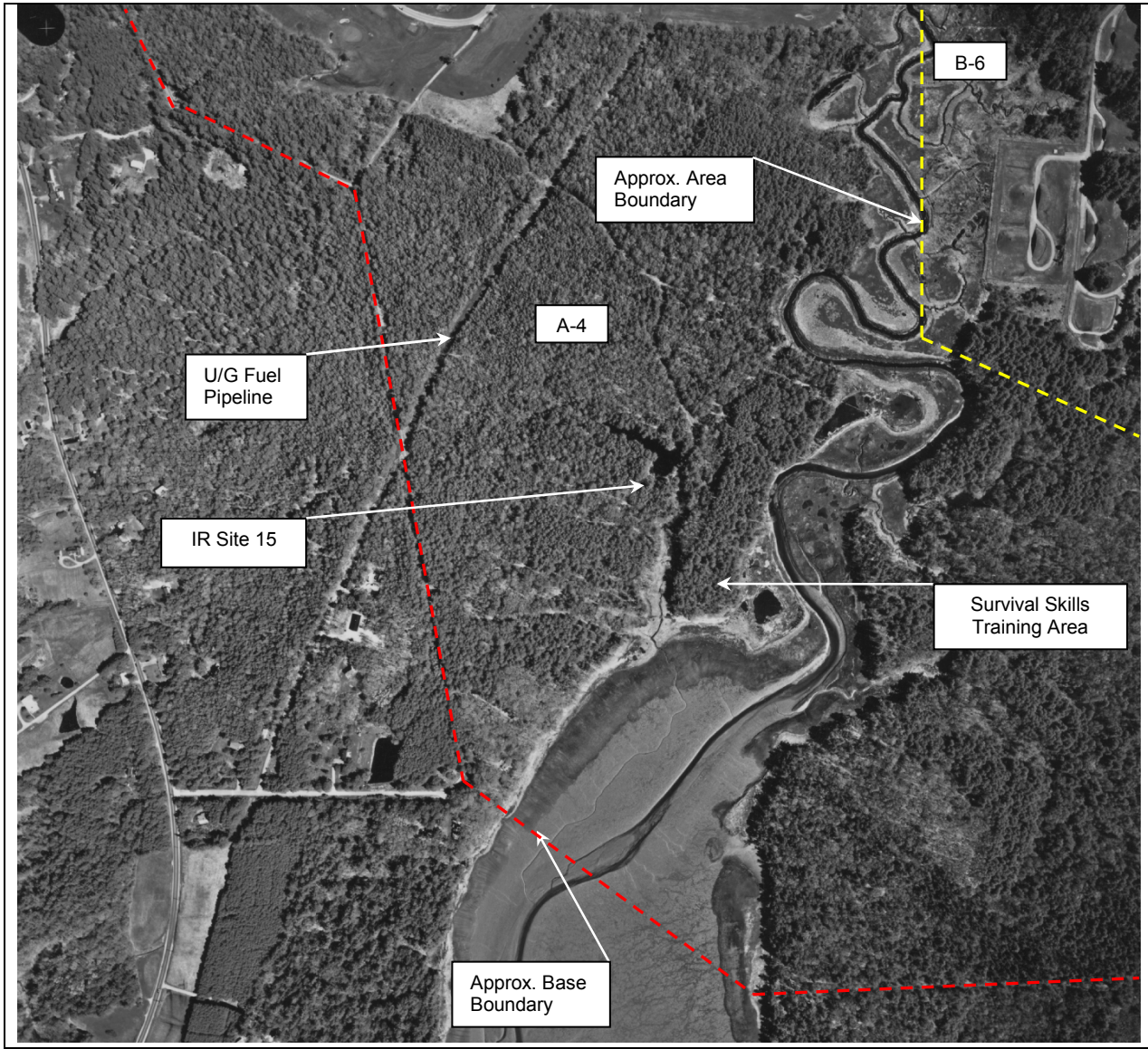
APPENDIX C-1
FIGURE A4-1989



Note: Area A-4 delineation is approximate.

Excerpt of aerial photograph dated 2 Apr. 1989. Image source: Aerial photo P-8324-3-5. Originator: James W. Sewall Co., Old Town, Maine

APPENDIX C-1
FIGURE A4-1997



Note: Area A-4 delineation is approximate.

Excerpt of aerial photograph dated 27 May 1997. Image source: Aerial photo 217354-3-5. Originator: James W. Sewall Co., Old Town, Maine

APPENDIX C-1
FIGURE A5-1940

Note: Area A-5 delineation is approximate.

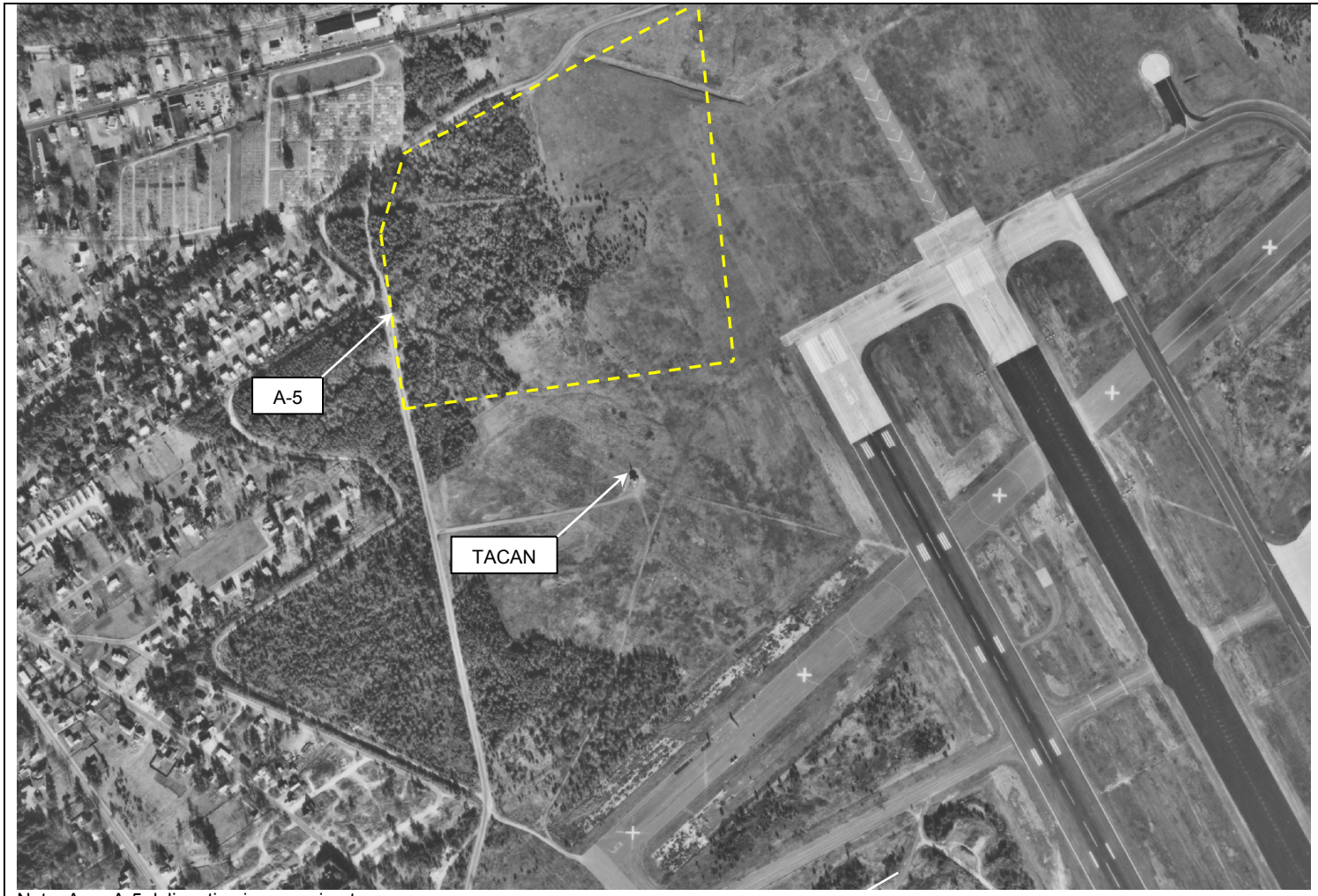
Excerpt of aerial photograph dated 28 Sep.1940 of Area A-5 and surrounding areas. Image source: Figure 2, Vol. 2, EPIC (US EPA, 1987)

APPENDIX C-1
FIGURE A5-1958

Note: Area A-5 delineation is approximate.

Excerpt of aerial photograph dated 10 Oct. 1958. Image source: Aerial photo AN-5-16. Originator: unknown

APPENDIX C-1
FIGURE A5-1978



Note: Area A-5 delineation is approximate.

Excerpt of aerial photograph dated 22 Nov., 1978. Image source: Aerial photo K1363-30-8. Originator: unknown

APPENDIX C-1
FIGURE A5-1989

Note: Area A-5 delineation is approximate.

Excerpt of aerial photograph dated 2 Apr. 1989. Image source: Aerial photo P-8324-3-5. Originator: James W. Sewall Co., Old Town, Maine

APPENDIX C-1
FIGURE A5-1997

Note: Area A-5 delineation is approximate.

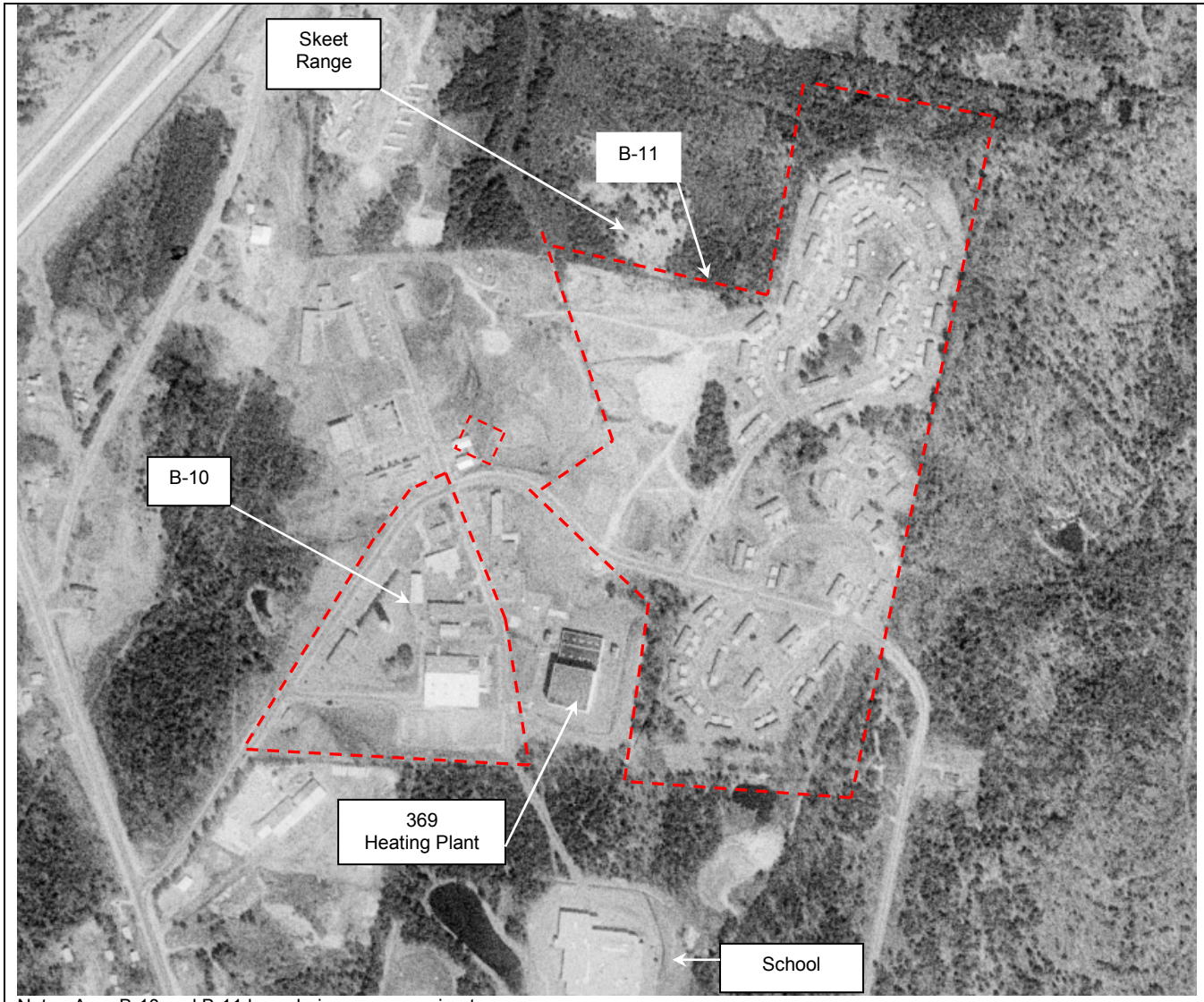
Excerpt of aerial photograph dated 27 May 1997. Image source: Aerial photo 217354-4-11. Originator: James W. Sewall Co., Old Town, Maine

APPENDIX C - 1
FIGURE B10 & B11-1960

Note:Area B-10 & B-11 boundaries are approximate.

Excerpt of aerial photograph dated 1960 of B-10 and B-11 Topsham Annex and surrounding areas. Image source: Aerial photo 1960 ABB590330000077_7567_a. (EDR, 2006)

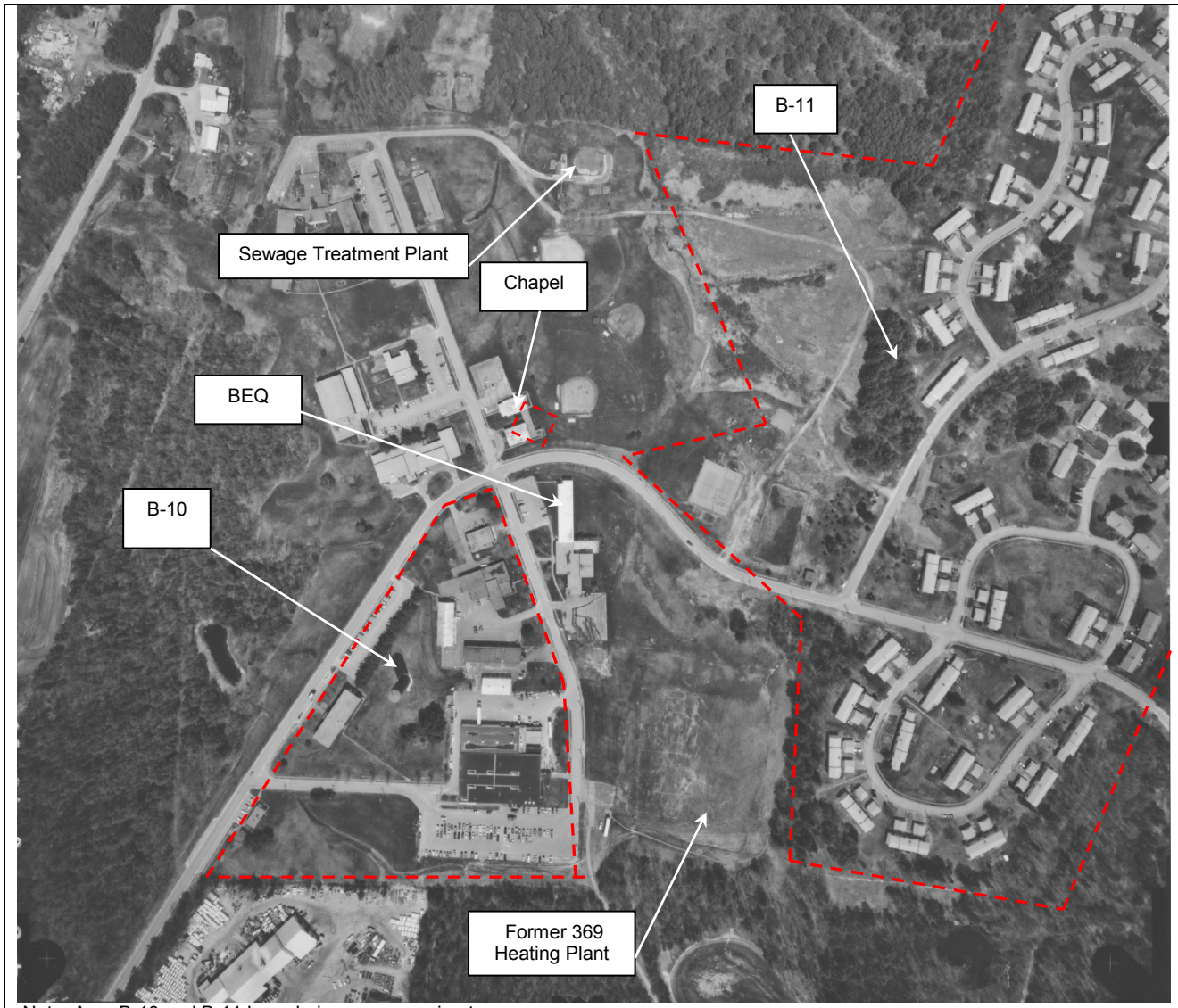
APPENDIX C - 1
FIGURE B10 & B11-1977



Note: Area B-10 and B-11 boundaries are approximate.

Excerpt of aerial photograph dated 1977 of B-10 and B-11 Topsham Annex and surrounding areas. Image source: Aerial photo 1977 AB1VECJ00000003_42_a. (EDR, 2006)

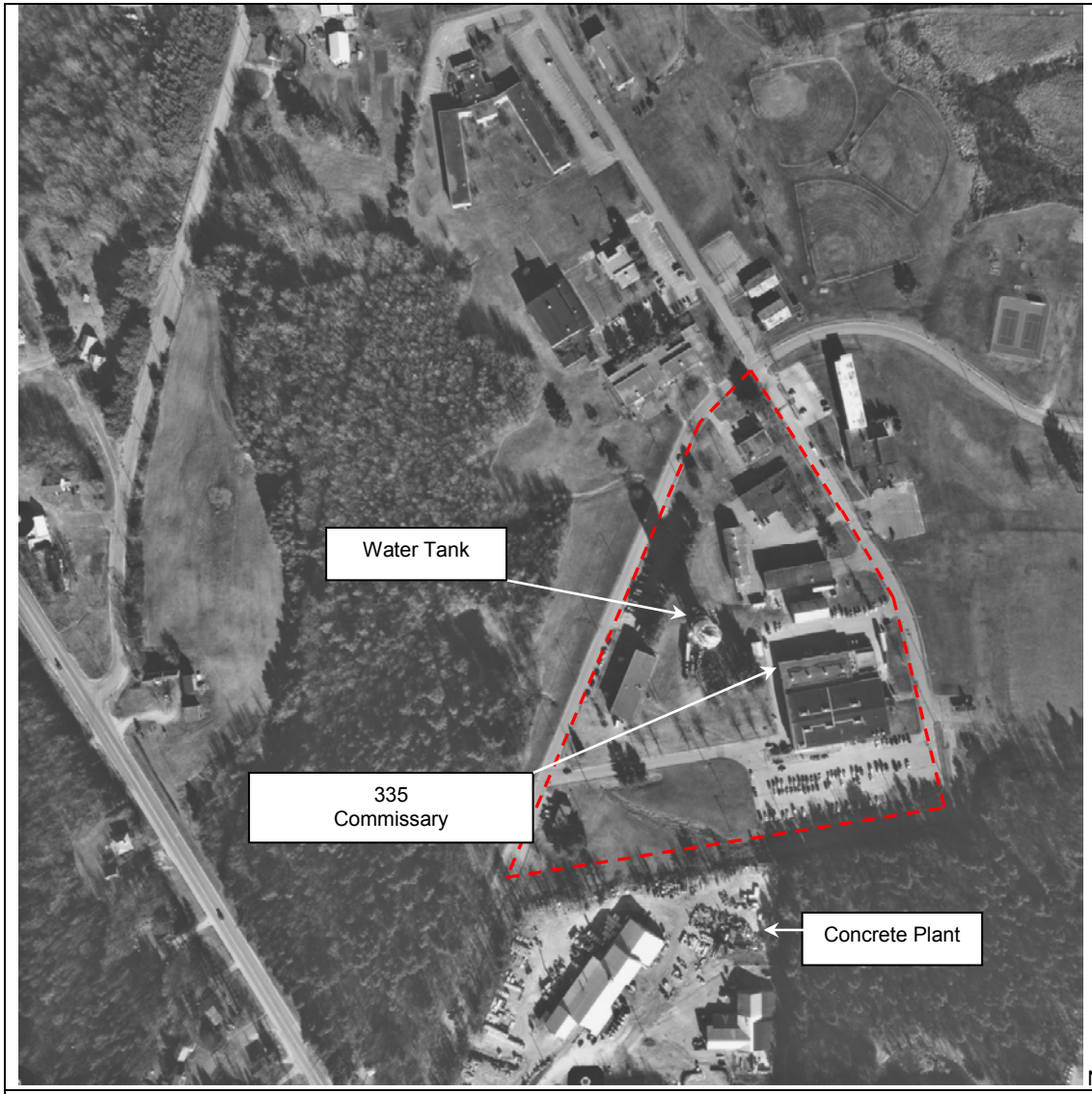
APPENDIX C - 1
FIGURE B10 & B11 - 1989



Note: Area B-10 and B-11 boundaries are approximate.

Excerpt of aerial photograph dated 1989 of B-10 & B-11 Topsham Annex and surrounding areas. Image source: Aerial photo 1989 P8324-6-3. (Public Works, 2006)

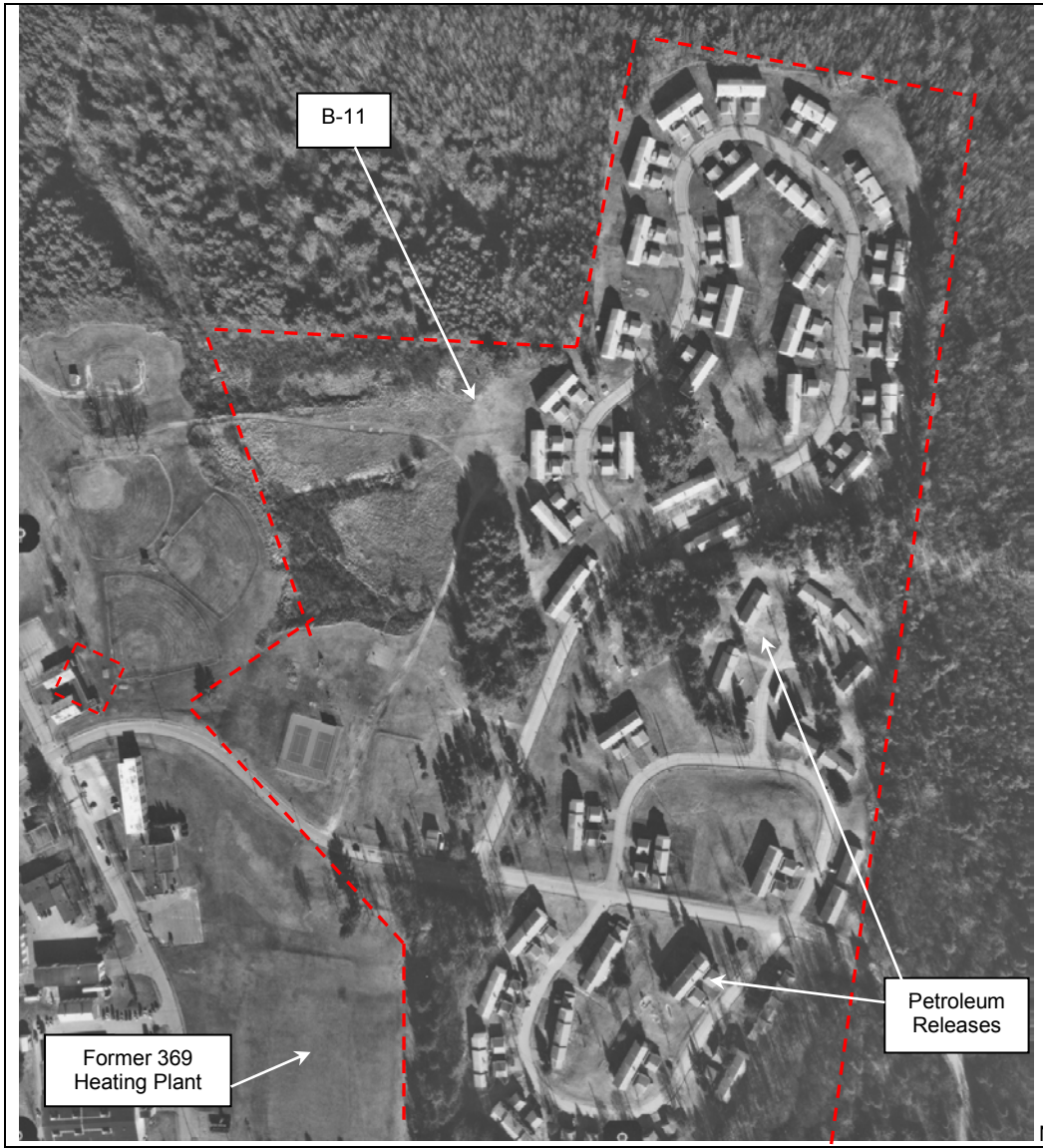
APPENDIX C - 1
FIGURE B10 - 1993



Note: Area B-10 boundary is approximate.

Excerpt of aerial photograph dated 1993 of B-10 Topsham Annex and surrounding areas. Image source: Aerial photo P8988-13-4. (Public Works, 2006)

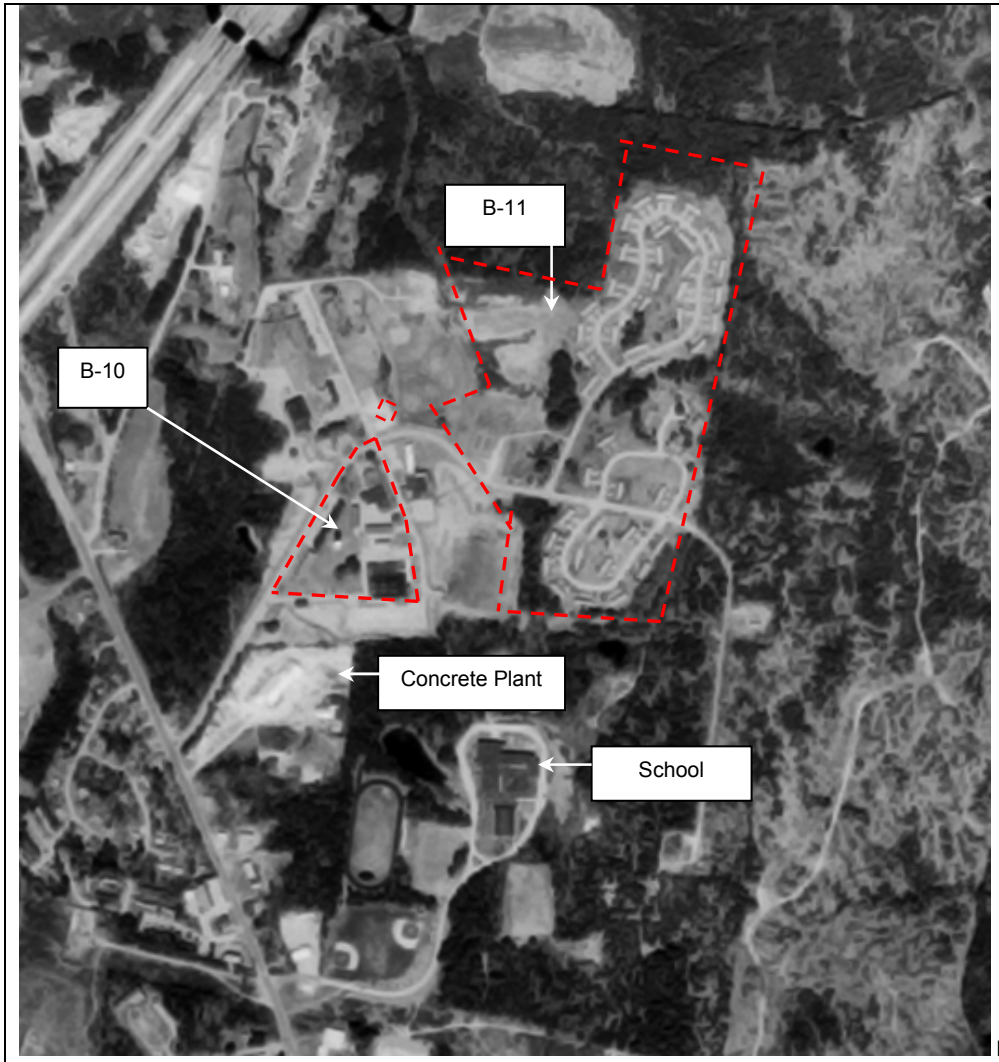
APPENDIX C - 1
FIGURE B11 - 1993



Note: Area B-11 boundaries are approximate.

Excerpt of aerial photograph dated 1993 of B-11 Topsham Annex and surrounding areas. Image source: Aerial photo P8988-12-4. (Public Works, 2006)

APPENDIX C - 1
FIGURE B10 & B11 - 1997



Note: Area B-10 and B-11 boundaries are approximate.

Excerpt of aerial photograph dated 1997 of B-10 and B-11 Topsham Annex and surrounding areas. Image source: Aerial photo 1997 N10NAPPW09208216. (EDR, 2006)

APPENDIX C - 1
FIGURE B12-1972

Note: Area B-12 boundary is approximate.

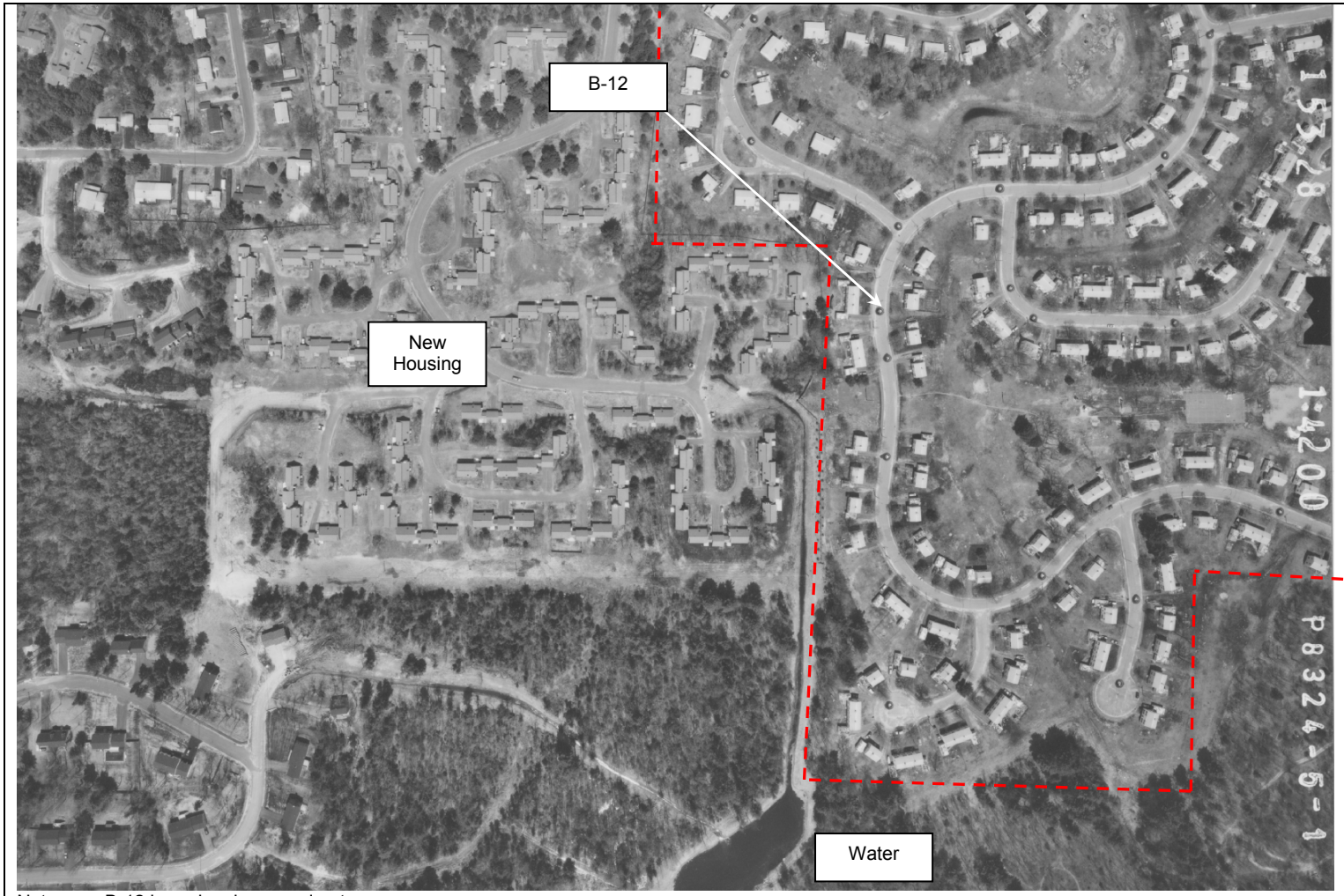
Excerpt of aerial photograph dated 1972 of B-12 McKeen Street Housing and surrounding areas. Image source: Aerial photo 1972 VCYV_1_88_a. (EDR, 2006)

APPENDIX C - 1
FIGURE B12-1985

Note: Area B-12 boundary is approximate.

Excerpt of aerial photograph dated 1985 of B-12 McKeen Street Housing and surrounding areas. Image source: Aerial photo 1985 NHAP84_254_80. (EDR, 2006)

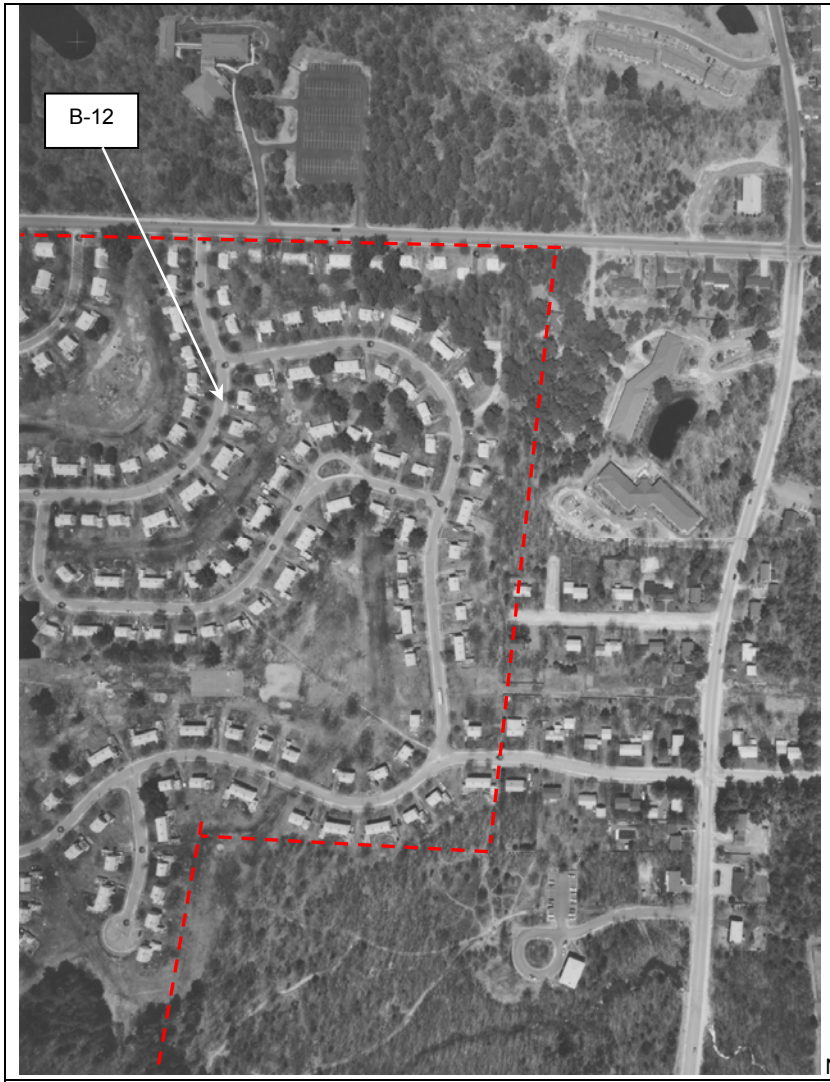
APPENDIX C - 1
FIGURE B12-1989-1



Note: rea B-12 boundary is approximate.

Excerpt of aerial photograph dated 1989 of B-12 McKeen Street Housing and surrounding areas. Image source: Aerial photo 1989 P8324-5-1. (Public Works, 2006)

APPENDIX C - 1
FIGURE B12-1989-2



Note: Area B-12 boundary is approximate.

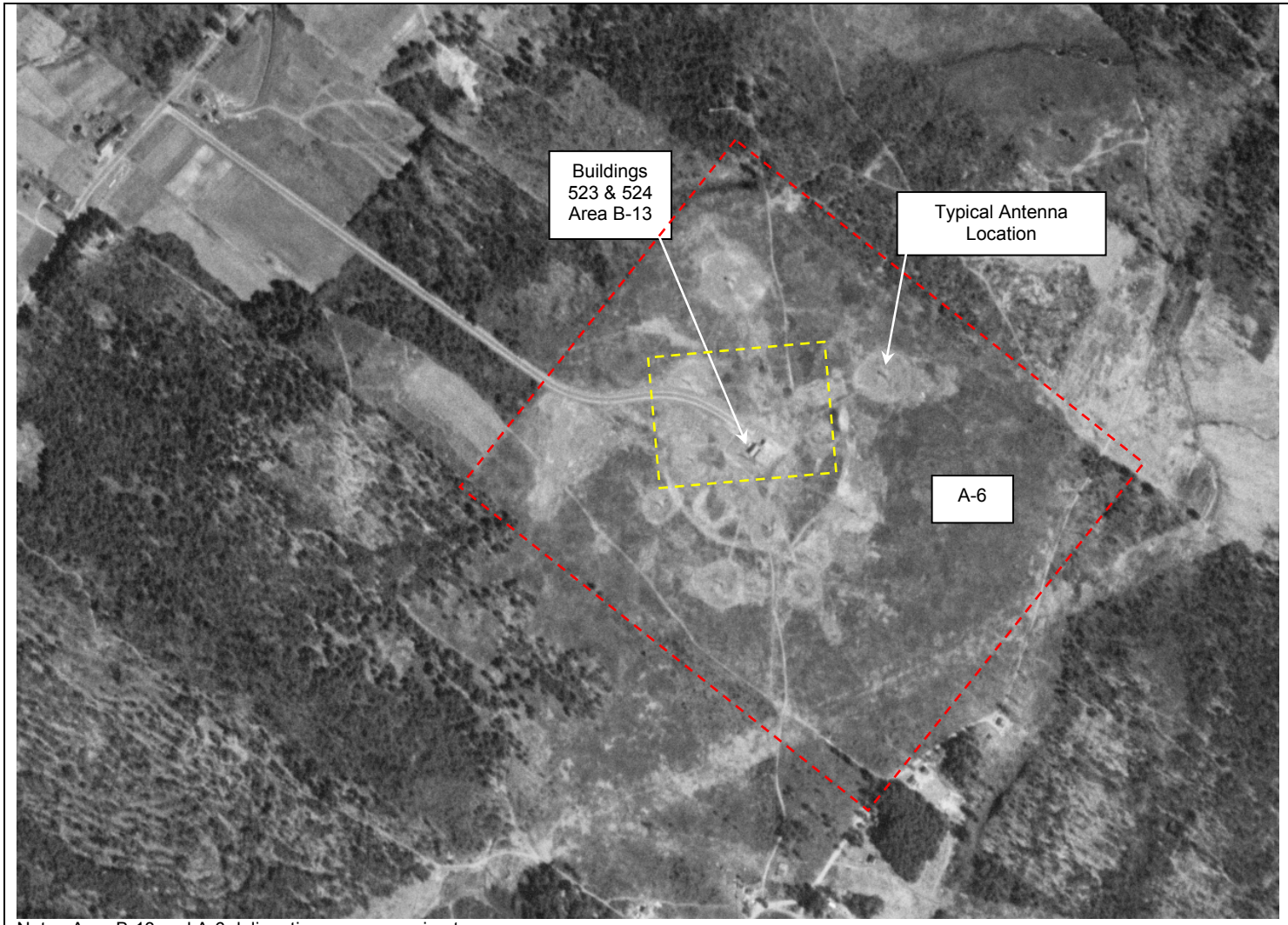
Excerpt of aerial photograph dated 1989 of B-12 McKeen Street Housing and surrounding areas. Image source: Aerial photo 1989 P8324-5-3. (Public Works, 2006)

APPENDIX C - 1
FIGURE B12-1997

Note: Area B-12 boundary is approximate.

Excerpt of aerial photograph dated 1997 of B-12 McKeen Street Housing and surrounding areas. Image source: Aerial photo 1997 NAPPW_9208_217. (EDR, 2006)

APPENDIX C - 1
FIGURE B13 & A6-1960



Note: Area B-13 and A-6 delineations are approximate.

Excerpt of aerial photograph dated 1960 of B-13 & A-6 East Brunswick Remote Radio Site and surrounding areas. Image source: Aerial photo 1960 ABB590330000077_7567_a. (EDR, 2006)

APPENDIX C - 1
FIGURE B13 & A6-1975

Note: Area B-13 and A-6 delineations are approximate.

Excerpt of aerial photograph dated 1975 of B-13 & A-6 East Brunswick Remote Radio Site and surrounding areas. Image source: Aerial photo 1975 AB1VDLB00000004_4_a. (EDR, 2006)

APPENDIX C - 1
FIGURE B13 & A6-1996

Note: Area B-13 and A-6 delineations are approximate.

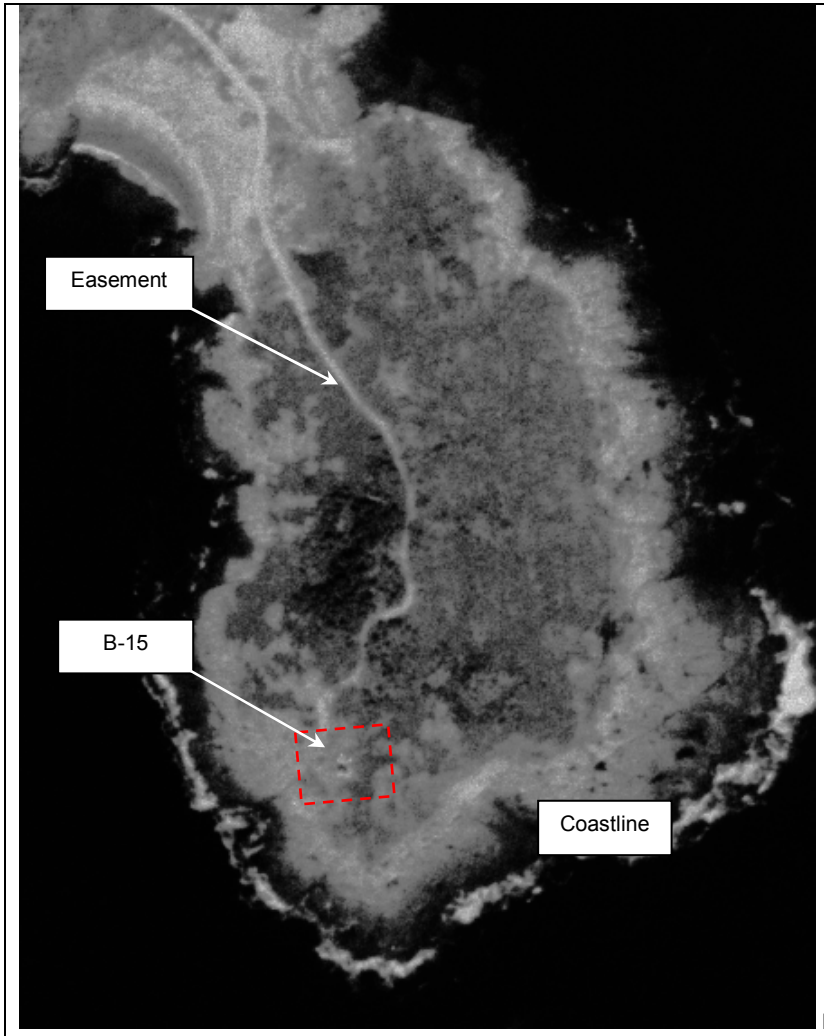
Excerpt of aerial photograph dated 1996 of B-13 & A-6 East Brunswick Remote Radio Site and surrounding areas. Image source: Aerial photo 1996 N10NAPPW09204079. (EDR, 2006)

APPENDIX C - 1
FIGURE B14-1960

Note: Area B-14 boundary is approximate.

Excerpt of aerial photograph dated 1960 of B-14 Sabino Hill Rake Station and surrounding areas. Image source: Aerial photo 1960 59033_77_7664_a. (EDR, 2006)

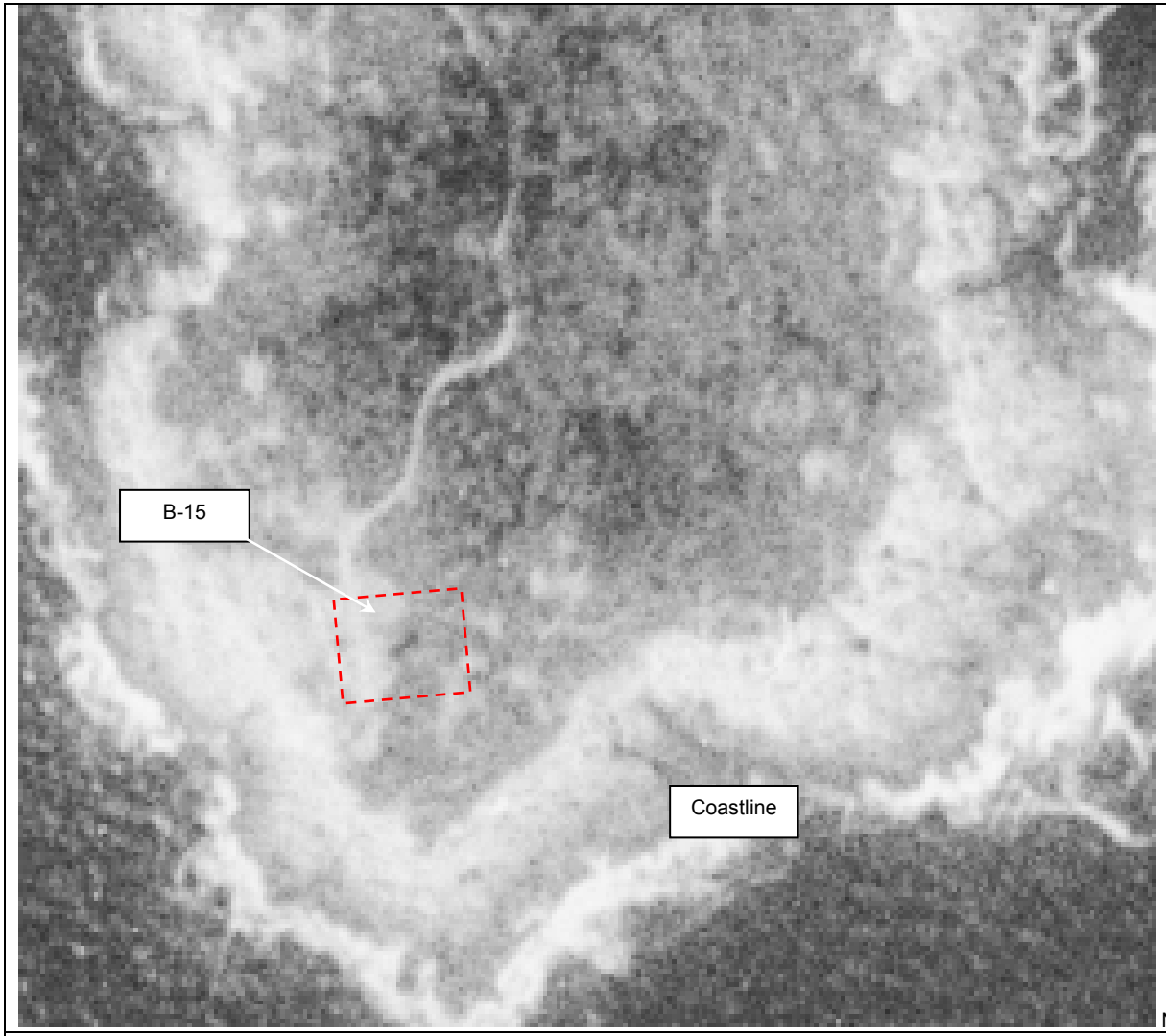
APPENDIX C - 1
FIGURE B15-1960



Note: Area B-15 boundary is approximate.

Excerpt of aerial photograph dated 1960 of B-15 Small Point Rake Station and surrounding areas. Image source: Aerial photo 1960 59033_77_7665_a. (EDR, 2006)

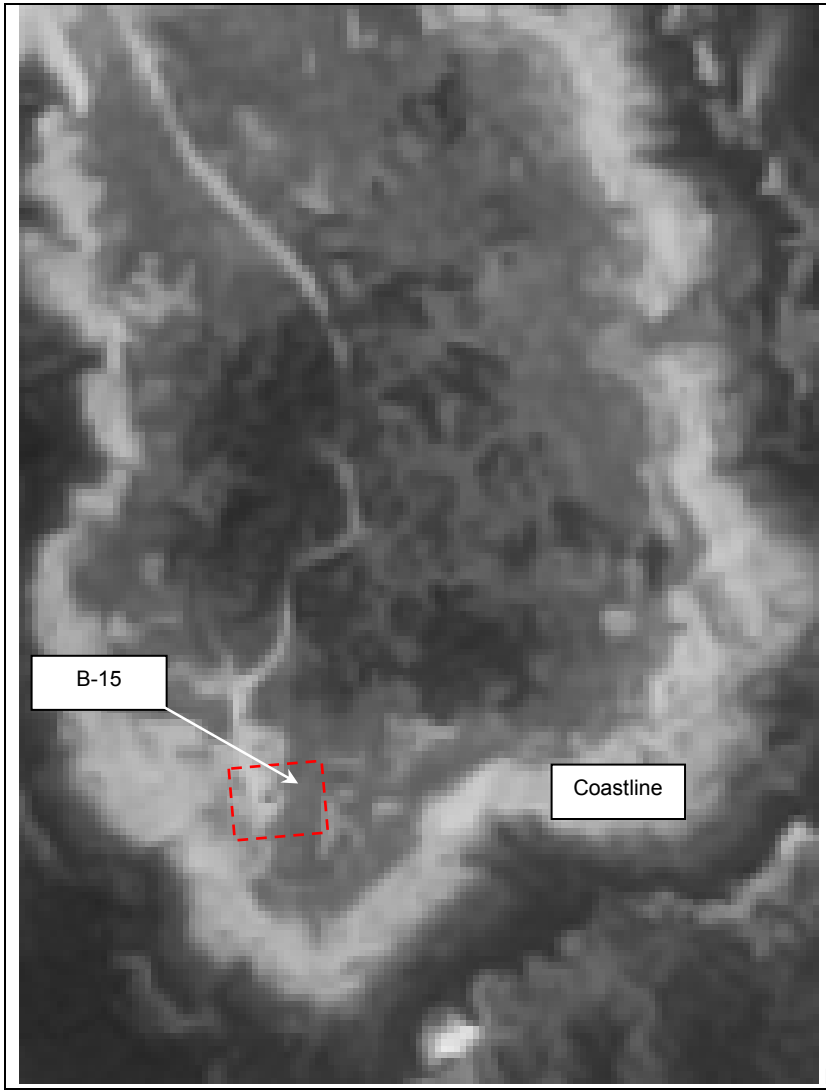
APPENDIX C - 1
FIGURE B15-1975



Note: Area B-15 boundary is approximate.

Excerpt of aerial photograph dated 1975 of B-15 Small Point Rake Station and surrounding areas. Image source: Aerial photo 1975 VDLB_4_2_a. (EDR, 2006)

APPENDIX C - 1
FIGURE B15-1988



Note: Area B-15 boundary is approximate.

Excerpt of aerial photograph dated 1988 of B-15 Small Point Rake Station and surrounding areas. Image source: Aerial photo 1988 NAPPW_9204_88. (EDR, 2006)

APPENDIX C - 2

SITE ANALYSIS

VOLUMES I AND II

NAVAL AIR STATION BRUNSWICK, BRUNSWICK, MAINE

REPORT NO. TS-PIC-86130

APRIL 1987

U.S. ENVIRONMENTAL PROTECTION AGENCY

ENVIRONMENTAL PHOTOGRAPHIC INTERPRETATION CENTER (EPIC)

ENVIRONMENTAL SYSTEMS MONITORING LABORATORY

This information appears on the DVD due to its size.

APPENDIX C – 3

HISTORICAL AERIAL PHOTOGRAPHS

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APPENDIX C - 2

SITE ANALYSIS

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VOLUME 1

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Environmental Protection
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TS-PIC-86130
April 1987

Research and Development

Site Analysis Brunswick Naval Air Station, Brunswick, Maine Volume 1

EPA Region 1
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Site Analysis
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Brunswick, Maine

Volume 1

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ABSTRACT

As a result of a request by the U.S. Environmental Protection Agency (EPA) Region 1, historical black and white and color aerial photographs were used to analyze four specific areas of the Brunswick Naval Air Station, located in Brunswick, Maine. A list of important features and overlays to photographic enlargements are included to document land disposal and related activities in each of the four areas from 1940 to 1980.

Significant findings include the following:

1. Debris and several hundred possible and probable drums were identified in Area A from 1959 to 1966.

2. No land disposal activity was identified in Area B throughout the survey period.

3. Fill activity occurred at Area C sporadically throughout the survey period. Approximately 50-100 possible and probable drums were identified in 1978 and 1980.

4. Landfilling activity occurred at Area D from 1965 to 1972. Both solid and liquid waste disposal activities are probable.

The EPA's Environmental Photographic Interpretation Center in Warrenton, Virginia, a branch of the Advanced Monitoring Systems Division of the Environmental Monitoring Systems Laboratory in Las Vegas, Nevada, performed this study at the request of EPA Region 1. This analysis covers the period from 1940 to 1980, and this report was completed in April 1987.

CONTENTS

Volume 1	Page
Abstract	iii
Introduction	1
Methodology	3
Aerial Photo Site Analysis:	
September 28, 1940	5
April 18, 1959	6
August 31, 1965	9
August 28, 1966	12
May 13, 1972	15
August 15, 1978	17
September 9, 1980.	19
References	22

FIGURES

Volume 2

1. Location Map 1

Aerial Photos:

2. September 28, 1940 (Areas A, B, C and D) 2
3. April 18, 1959 (Areas A and C) 3
4. April 18, 1959 (Areas B and D) 4
5. August 31, 1965 (Area A). 5
6. August 31, 1965 (Area B). 6
7. August 31, 1965 (Areas C and D) 7
8. August 28, 1966 (Areas A and C) 8
9. August 28, 1966 (Areas B and D) 9
10. May 13, 1972 (Area A). 10
11. May 13, 1972 (Area B). 11
12. May 13, 1972 (Area C). 12
13. May 13, 1972 (Area D). 13
14. August 15, 1978 (Areas A and C) 14
15. August 15, 1978 (Areas B and D) 15
16. September 9, 1980 (Areas A and C) 16
17. September 9, 1980 (Areas B and D) 17

The EPA's Environmental Photographic Interpretation Center in Warrenton, Virginia, a branch of the Advanced Monitoring Systems Division of the Environmental Monitoring Systems Laboratory in Las Vegas, Nevada, performed this study at the request of EPA Region 1. This analysis was completed in April 1987.

METHODOLOGY

A search of government and commercial aerial photographic sources was undertaken to obtain the best photography available of the site spanning the desired time frame. A listing of all maps, photography and publications used for this report can be found in the References section.

The analysis was performed by stereoscopically viewing transparencies, backlit on a light table. By observing the site three-dimensionally, and at various magnifications, the analyst could search for objects, features, or signatures associated with different environmental conditions. The term "signature" refers to a combination of characteristics (such as color, tone, shadow, texture and size) which indicate a specific object or condition, even though the object itself is not identifiable from the photography.

Prints were made from coverages that reveal significant changes in the study area. Findings are annotated on overlays to these prints, or to maps of the study area, and full descriptions are provided in the accompanying text. The resolution quality of the original, transparent photography used by the analyst is degraded on the prints due to factors inherent in the printing process. Therefore, some objects or features identified from the original film and described in the text may not be clearly discernible, or even visible, on the photographic prints presented in this report.

Site boundaries or areas used in this analysis were determined from observations made from the aerial photography or other sources and do not necessarily denote legal property lines or ownership.

Throughout this report, the qualifiers "probable" and "possible" are used to indicate different levels of certainty with the photo identifications. "Probable" is used when a limited number of discernible features allow the analyst to be reasonably sure of a particular identification. "Possible" is used when only a few features are discernible, or the features are not unique to that signature.

AERIAL PHOTO SITE ANALYSIS

SEPTEMBER 28, 1940

Areas A, B, C and D (Figure 2)

General Condition - The Brunswick N.A.S. has not yet been constructed. The overall area appears to be in a natural state, consisting mainly of mixed forest with some minor agricultural land use.

Four small areas of disturbed ground (DG) are located at and around the southwest corner of Area B. These are probably minor extraction activities.

One large area of disturbed ground in linear patterns can be seen immediately east of Area B. Standing liquid (SL) is located near the southeast corner of this area.

The direction and pattern of the ground scars (not annotated) in this area do not appear to bear any relationship to future site construction or activities at the Brunswick N.A.S.

Tanks - None visible.

Drums - None visible.

Standing Liquid - See Figure 2. Standing liquid is located between Areas B and C, in the southeast corner of the disturbed area.

Drainage - See Figure 2. Areas B, C and D all drain south via Mare Brook into Harpswell Cove. Area A drains north into the Androscoggin River.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - None observed.

Type and Appearance of Fill/Waste Material - Not applicable.

Leachate/Leachate Lagoons - Not applicable.

Additional Comments - The Brunswick N.A.S. lies entirely within the Windsor-Hinckley-Deerfield soil association. The major soils of this association have severe limitations with respect to their suitability for sanitary landfills. High seasonal water tables and rapid permeability of the substratum present a serious ground water pollution hazard.[1]

APRIL 18, 1959

Area A (Figure 3)

General Condition - Area A is located immediately north and east of active Runway 9/27. The northern part of Area A shows several areas of disturbed ground, possibly related to recent road construction. One disturbed ground area contains mounded material (MM). The southern part of Area A exhibits several ground stains (GST) and possible land disposal (LD) activity.

Tanks - None observed.

Drums - Approximately 15-20 neatly stacked possible drums (D) are located in the vehicle and equipment (V/E) storage area.

Standing Liquid - None. The ground stains were probably caused by standing liquid and/or excessive soil moisture.

Drainage - See Figure 3.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - Possible land disposal northeast of vehicle and equipment storage area.

[1]See References section for citation of this source.

Type and Appearance of Fill/Waste Material - Dark-toned mounded material, possibly of a viscous nature, such as sludge.

Leachate/Leachate Lagoons - None observed.

Additional Comments - None.

Area C (Figure 3)

General Condition - Area C is located just east of the central flight line area. The area contains several buildings (none of which are annotated), including five probable barracks and parking areas in the northwest corner. An antenna facility is located near the eastern border. Three probable underground (U/G) pipelines are located in or near the northeast corner. A possible mounded storage bunker is located in the southwest corner.

Tanks - None observed.

Drums - None observed.

Standing Liquid - None observed.

Drainage - See Figure 3. The drainage channels through the area exit near the southeast corner and eventually flow into Mare Brook. One east-flowing drainage channel possibly emanates from culverts which may be linked to the facility storm drain system.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - Landfilling activity is occurring in the depression located in the south central part of the area. Numerous mounds of material can be seen within the depression.

Type and Appearance of Fill/Waste Material - The fill material does not appear to be debris, but rather earthen material. The mounded materials vary in tone from very light to very dark, suggesting that the fill material is some type of dredge or sludge, similar to that in Area A, containing different amounts of soil moisture.

Leachate/Leachate Lagoons - None observed.

Additional Comments - None.

Area B (Figure 4)

General Condition - Area B is located immediately west of Runway 1L/19R. Large-scale ground disturbance (not annotated) is evident in the eastern half of the area. However, this activity appears to be related to future construction of military facilities.

Tanks - None.

Drums - None.

Standing Liquid - One small lagoon (L) is located near the center of the site.

Drainage - The main drainge channel through Area B is Mare Brook, which flows southeastward, enters a culvert, flows under the runways, and probably exits through an underground drainage system in Area D.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - None observed.

Type and Appearance of Fill/Waste Material - Not applicable.

Leachate/Leachate Lagoons - None observed.

Additional Comments - None.

Area D (Figure 4)

General Condition - Area D is located immediately southeast of the airfield. Much of the ground surface has been disturbed, possibly in connection with land disposal activities. Solid and liquid waste disposal is possible. One fenced building is located near the southeast corner, and two smaller buildings are located near the depression in the southwest corner.

Tanks - Two possible tanks (T) are located near the southwest corner.

Drums - None observed.

Standing Liquid - Standing liquid and possible standing liquid are located near the center of the area. Possible standing liquid is also located in the southeast corner of the depression.

Drainage - Mare Brook drains southeastward through the area. It enters the area via a culvert which may be connected to a storm drain system for the facility.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - The central area of possible standing liquid is located in an excavated trench, indicating possible liquid waste disposal. Near the southwest corner of Area D is a depression that is possibly being used for dumping or landfilling purposes. Possible debris (DB) is located along the northwest edge of the depression and down the embankment.

Type and Appearance of Fill/Waste Material - The possible debris is light-toned and fine-textured.

Additional Comments - None.

AUGUST 31, 1965

Area A (Figure 5)

General Condition - Several small areas of disturbed ground are located in the northern half of the area. North of the east end of Runway 9/27 (now closed) are several mounds of material, debris and possible drums. East of the runway are areas of possible vegetation stress (VS) corresponding to activity in 1959. Mounded debris and probable drums are located in the vehicle and equipment storage area.

Tanks - None observed.

Drums - Approximately 25 probable drums are located in the vehicle and equipment storage area. Debris in this area and north of the east end of Runway 9/27 contains numerous possible drums. There is a potential of several hundred drums in these two locations.

Standing Liquid - None observed.

Drainage - See Figure 5.

Vegetation Stress/Damage - East of Runway 9/27 are two patches of possible vegetation stress which correlate with possible land disposal activity in 1959.

Waste Burial/Land Disposal - North of the east end of Runway 9/27, mounded material, debris and possible drums indicate possible landfilling activity.

Type and Appearance of Fill/Waste Material - Debris is rough-textured and multi-toned. The size and shape of some objects suggest construction and/or industrial waste.

Additional Comments - None.

Area B (Figure 6)

General Condition - Disturbed ground (not annotated) is visible throughout the area. However, it appears to be related solely to military construction activity at this time.

Tanks - None observed.

Drums - None observed.

Standing Liquid - The small lagoon remains near the center of the site.

Drainage - See Figure 6.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - None observed.

Type and Appearance of Fill/Waste Material - Not applicable.

Leachate/Leachate Lagoons - Not applicable.

Additional Comments - Only partial, monoscopic photo coverage was available.

Area C (Figure 7)

General Condition - A recreation area and a parking lot have been constructed since 1959. Possible ground stains appear in the southwest corner of the area. No other significant activity.

Tanks - None observed.

Drums - None observed.

Standing Liquid - None observed.

Drainage - See Figure 7.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - The depression seen in 1959 is still present. Light-toned mounded material is located within it, but much of the area appears to be revegetating, indicating probable inactivity.

Type and Appearance of Fill/Waste Material - The mounded material is light-toned and fine-textured, probably earthen.

Additional Comments - None.

Area D (Figure 7)

General Condition - Disposal of solid waste is evident. Liquid waste disposal is possible. The area northeast of Mare Brook is involved in landfilling operations, while the area southwest of Mare Brook appears to be an open dump. Two small structures (S) are located in the northern part of the site.

Tanks - The two small, possible tanks are still present near the southwest corner.

Drums - There are approximately 50-100 possible drums along the treeline in the northwest section.

Standing Liquid - None observed.

Drainage - See Figure 7.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - The existence of debris, mounded cover material, vehicles and equipment, and grading (GR) scars confirms landfilling activity in the section northeast of Mare Brook. Also in this general area, possible drums and possible standing liquid indicate some potential for liquid waste disposal. In the southwest section, two large areas of scattered debris indicate open dumping.

Type and Appearance of Fill/Waste Material - All the debris in Area D appears to be of multiple tones and textures, indicating a possible mix of household and industrial waste materials.

Additional Comments - Monoscopic photo coverage only.

AUGUST 28, 1966

Area A (Figure 8)

General Condition - Little activity is visible in 1966. The debris, possible debris, and mounded material in the northern section are completely gone. One small area of possible debris is located in the vehicle and equipment storage area. The vehicle and equipment storage area now appears to be idle.

Tanks - None observed.

Drums - None observed.

Standing Liquid - None observed.

Drainage - See Figure 8.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - None observed.

Type and Appearance of Fill/Waste Material - One small mound of possible light-toned debris is located in the vehicle and equipment storage area.

Leachate/Leachate Lagoons - None.

Additional Comments - None.

Area C (Figure 8)

General Condition - No significant change has taken place since 1965.

Tanks - None observed.

Drums - None observed.

Standing Liquid - None observed.

Drainage - See Figure 8.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - No apparent change since 1965.

Type and Appearance of Fill/Waste Material - No apparent change since 1965.

Additional Comments - None.

Area B (Figure 9)

General Condition - Area B still shows no signs of disposal activity. Primary activities in the area appear to be related to military communications facilities. Most of the areas of disturbed ground have begun to revegetate.

Tanks - None observed.

Drums - None observed.

Standing Liquid - The small lagoon remains near the center of the site. One small area of standing liquid is located southwest of the lagoon.

Drainage - See Figure 9.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - None observed.

Type and Appearance of Fill/Waste Material - Not applicable.

Leachate/Leachate Lagoons - None.

Additional Comments - None.

Area D (Figure 9)

General Condition - Landfilling activity continues. Solid waste disposal and possible liquid waste disposal are evident in the northeast section. The section in the southwest corner, where open dumping was evident in 1965, now appears to be inactive. The buildings probably have been dismantled (DSB), and the depression appears to be revegetating. No debris is visible.

Tanks - None observed.

Drums - In the northeast section of the area, 50-100 possible drums are located along the treeline. These are in the same position as in 1965.

Standing Liquid - A large pool of standing liquid is located along the treeline in the northeast section of the area.

Drainage - See Figure 9.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - Mounded debris, mounded cover material and grading scars indicate solid waste landfilling activity northeast of Mare Brook. Additionally, standing liquid, possible drums and a trench (TR) indicate possible liquid waste disposal.

Type and Appearance of Fill/Waste Material - The mound of debris appears to be multi-toned and medium-textured, such as household debris.

Additional Comments - None.

MAY 13, 1972

Area A (Figure 10)

General Condition - No land disposal activity is evident. A few ground scars (GS) can be seen. The vehicle and equipment storage area appears to have been completely abandoned.

Tanks - None observed.

Drums - None observed.

Standing Liquid - None observed.

Drainage - See Figure 10.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - None observed.

Type and Appearance of Fill/Waste Material - None observed.

Leachate/Leachate Lagoons - None.

Additional Comments - None.

Area B (Figure 11)

General Condition - Land disposal activity still cannot be identified in this area. Much of the area is revegetating. One large area of disturbed ground is visible in the northwest corner.

Tanks - None observed.

Drums - None observed.

Standing Liquid - The lagoon remains near the center of site; it is significantly larger than in 1966.

Drainage - See Figure 11.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - None observed.

Type and Appearance of Fill/Waste Material - None observed.

Additional Comments - None.

Area C (Figure 12)

General Condition - No new activity has taken place in this area since 1966.

Tanks - None observed.

Drums - None observed.

Standing Liquid - None observed.

Drainage - See Figure 12.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - No apparent change since 1965.

Type and Appearance of Fill/Waste Material - No apparent change since 1965.

Leachate/Leachate Lagoons - None.

Additional Comments - None.

Area D (Figure 13)

General Condition - Landfilling activity is still taking place in Area D. Debris, a bulldozer, and other vehicles can be observed. The landfilling is taking place near the southwest end of the trench that appeared in 1966. The majority of the trench appears to have been filled. One linear possible ground stain can be seen in the northern section of the area.

Tanks - None observed.

Drums - None observed.

Standing Liquid - Liquid is draining from the area of landfilling activity into Mare Brook.

Drainage - See Figure 13.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - Active landfilling can be observed near the central portion of the area.

Type and Appearance of Fill/Waste Material - The debris appears to be of multiple tones and textures.

Leachate/Leachate Lagoons - One rectangular lagoon is located in a low-lying area in the central part of the area.

Additional Comments - None.

AUGUST 15, 1978

Area A (Figure 14)

General Condition - No land disposal activity can be detected. No significant change since 1972.

Tanks - None observed.

Drums - None observed.

Standing Liquid - None observed.

Drainage - See Figure 14.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - None observed.

Type and Appearance of Fill/Waste Material - None observed.

Additional Comments - None.

Area C (Figure 14)

General Condition - Possible land disposal or related activities can be seen at the mounded bunker area in the southwest corner. The bunker is being excavated, and approximately 50 possible drums are located nearby.

Tanks - One possible tank is located northwest of the bunker.

Drums - Approximately 50 possible drums are located immediately west of the mounded bunker in the southwest corner.

Standing Liquid - None observed.

Drainage - See Figure 14.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - Fill activity has taken place in the depression area since 1972; the depression is now almost completely filled. However, revegetation in and around the embankment (working face) indicates recent inactivity.

Type and Appearance of Fill/Waste Material - The fill material appears to be a light-toned, earthen-type fill.

Additional Comments - None.

Area B (Figure 15)

General Condition - There appears to be no significant change since 1972. The disturbed ground in the northwest corner has expanded slightly.

Tanks - None observed.

Drums - None observed.

Standing Liquid - The small lagoon remains near the center of the area.

Drainage - See Figure 15.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - None observed.

Type and Appearance of Fill/Waste Material - None observed.

Additional Comments - Monoscopic photo coverage only.

Area D (Figure 15)

General Condition - All landfilling activity has ceased by this date. Much of the former landfill area appears to be revegetating. The southern half of the landfill area has been converted to military usage.

Tanks - None observed.

Drums - None observed.

Standing Liquid - None observed.

Drainage - See Figure 15.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - None observed.

Type and Appearance of Fill/Waste Material - None observed.

Additional Comments - None.

SEPTEMBER 9, 1980

Area A (Figure 16)

General Condition - Some activity is taking place at the eastern end of Runway 9/27. The rest of the area appears to be inactive.

Tanks - None observed.

Drums - None observed.

Standing Liquid - None observed.

Drainage - See Figure 16.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - Two areas of mounded material can be seen near the end of Runway 9/27. One is dark-toned (DT) and one is light-toned (LT).

Type and Appearance of Fill/Waste Material - The earthen-type material is both light- and dark-toned and fine-textured.

Additional Comments - None.

Area C (Figure 16)

General Condition - Activity continues in the bunker area. Excavation of the mounded bunker continues. Light-toned mounded material can also be seen in this area. The remainder of Area C appears to be inactive.

Tanks - None observed.

Drums - Approximately 100 probable drums are located immediately west of the bunker.

Standing Liquid - None observed.

Drainage - See Figure 16.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - The activity in the southwest corner of Area C could possibly develop into land disposal or related activity, although this cannot be determined at this time.

Type and Appearance of Fill/Waste Material - None observed.

Additional Comments - None.

Area B (Figure 17)

General Condition - A significant increase in general activity can be seen in 1980, although direct land disposal activities are still not evident. Two new areas of disturbed ground are present, and a recently cleared area (CL) is visible in southwest corner of the area.

Tanks - None observed.

Drums - None observed.

Standing Liquid - The small lagoon remains near the center of the area.

Drainage - See Figure 17.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - None observed.

Type and Appearance of Fill/Waste Material - None observed.

Additional Comments - The disturbed and cleared areas appear to be related to the electronic/communications activities in the area.

Area D (Figure 17)

General Condition - There has been no significant change since 1978. All landfilling activity has ceased.

Tanks - None observed.

Drums - None observed.

Standing Liquid - None observed.

Drainage - See Figure 17.

Vegetation Stress/Damage - None observed.

Waste Burial/Land Disposal - None observed.

Type and Appearance of Fill/Waste Material - None observed.

Additional Comments - None.

REFERENCES

AERIAL PHOTOGRAPHY

Date	Agency	Mission Code	Agency Frame #	Orig. Scale	EPIC Frame #
September 28, 1940	NARS[1]	M	8:93-95	1:44,000	14381-14383
April 18, 1959	NOS[2]	59W	4041-4044	1:29,500	14819-14821, 15632
August 31, 1965	NOS	65-5-2	65SC:7371-7376	1:15,000	14772,14773, 15627-15630
August 28/29, 1966	NOS	66K	2197-2199, 2298,2299	1:40,000	16490-16492, 16816,16817
May 13, 1972	USGS[3]	VCYV	88-103	1:20,000	4070:88-103
August 15, 1978	NOS	78 B-6	6227-6229	1:36,000	14817,14818, 15631
September 9, 1980	ASCS[4]	23023	350-353, 411-413	1:40,000	14313:035-041

MAPS

Source	Name	Scale	Date
USGS	Bath, Maine	1:62,500	1957
USGS	Brunswick, Maine	1:24,000	1980
USGS	Orrs Island, Maine	1:24,000	1957

PUBLICATION

Hestrom, G. 1974. Soil Survey, Cumberland County, Maine. U.S. Department of Agriculture, Soil Conservation Service.

[1]National Archives and Records Administration

[2]National Ocean Survey, U.S. Department of Commerce

[3]U.S. Geological Survey, U.S. Department of the Interior

[4]Agricultural Stabilization and Conservation Service, U.S. Department of Agriculture

VOLUME 2

United States
Environmental Protection
Agency

Environmental Monitoring
Systems Laboratory
P.O. Box 15027
Las Vegas NV 89114

TS-PIC-86130
April 1987

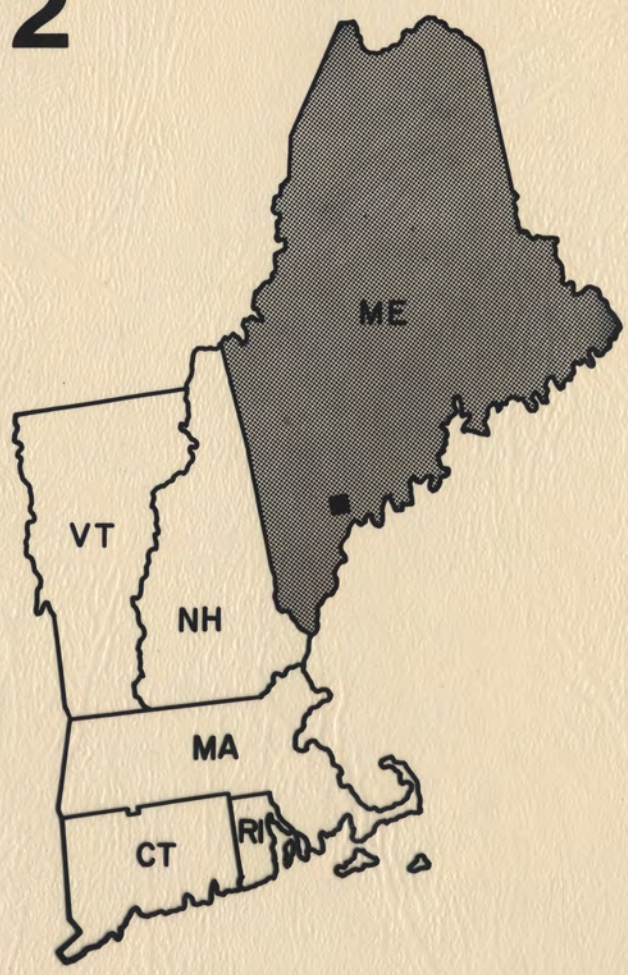
Research and Development

EPA

Site Analysis Brunswick Naval Air Station, Brunswick, Maine

Volume 2

EPA Region 1
and OERR



EPA
RB 0000051

TS-PIC-86130
April 1987

Site Analysis
Brunswick Naval Air Station
Brunswick, Maine

Volume 2

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CONTENTS

Volume 1	Page
Abstract	iii
Introduction	1
Methodology	3
Aerial Photo Site Analysis:	
September 28, 1940	5
April 18, 1959	6
August 31, 1965	9
August 28, 1966	12
May 13, 1972	15
August 15, 1978	17
September 9, 1980.	19
References	22

FIGURES

Volume 2

1. Location Map 1

Aerial Photos:

2. September 28, 1940 (Areas A, B, C and D) 2
3. April 18, 1959 (Areas A and C) 3
4. April 18, 1959 (Areas B and D) 4
5. August 31, 1965 (Area A). 5
6. August 31, 1965 (Area B). 6
7. August 31, 1965 (Areas C and D) 7
8. August 28, 1966 (Areas A and C) 8
9. August 28, 1966 (Areas B and D) 9
10. May 13, 1972 (Area A). 10
11. May 13, 1972 (Area B). 11
12. May 13, 1972 (Area C). 12
13. May 13, 1972 (Area D). 13
14. August 15, 1978 (Areas A and C) 14
15. August 15, 1978 (Areas B and D) 15
16. September 9, 1980 (Areas A and C) 16
17. September 9, 1980 (Areas B and D) 17

LEGEND

CL - Cleared Area
D - Drums
DB - Debris
DG - Disturbed Ground
DSB - Dismantled Building
DT - Dark-Toned
GR - Graded Area
GS - Ground Scar
GST - Ground Stain
L - Lagoon
LD - land Disposal
LT - Light-Toned
MM - Mounded Material
S - Structure
SL - Standing Liquid
T - Tanks
TP - Trailer Park
TR - Trench
U/G - Underground
V/E - Vehicle and Equipment Storage
VS - Vegetation Stress
——— - Area Boundary
)(- Culvert
- Depression
—·→ - Drainage
- Embankment
×—×—× - Fence
——— - Site Boundary
—··→ - Suspected Drainage

FIGURE 3
BRUNSWICK N.A.S. AREAS A & C APRIL 18, 1959 APPROX SCALE 1:11,800

FIGURE 4
BRUNSWICK N.A.S. AREAS B & D APRIL 18, 1959 APPROX SCALE 1:11,500

FIGURE 5
BRUNSWICK N.A.S. AREA A AUGUST 31, 1965 APPROX SCALE 1:5,150

FIGURE 6
BRUNSWICK N.A.S. AREA B AUGUST 31, 1965 APPROX SCALE 1:7,350

FIGURE 7
BRUNSWICK N.A.S. AREAS C & D AUGUST 31, 1965 APPROX SCALE 1:7,375

FIGURE 8
BRUNSWICK N.A.S. AREAS A & C AUGUST 28, 1966 APPROX SCALE 1:9,750

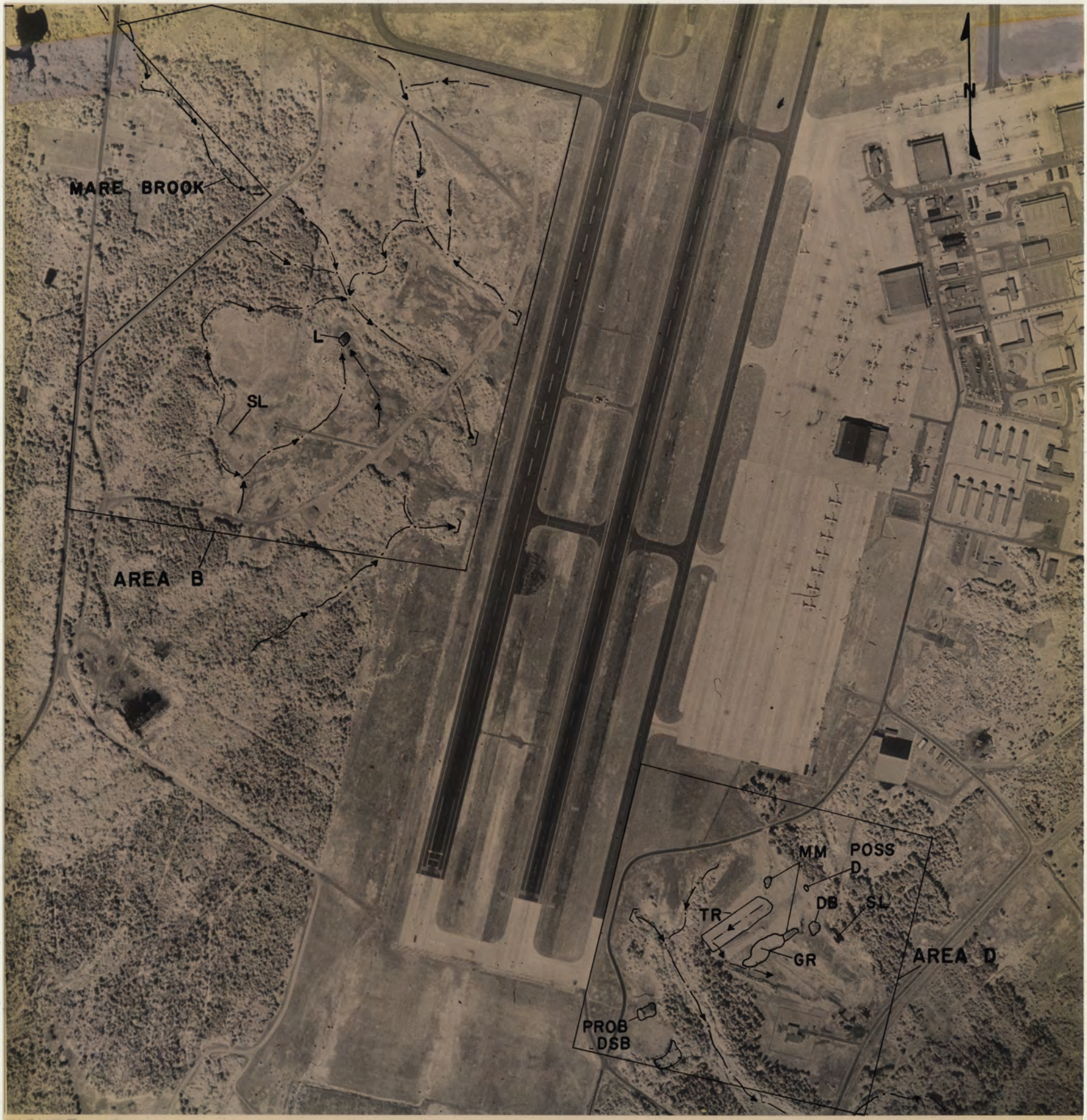


FIGURE 9
BRUNSWICK N.A.S. AREAS B & D AUGUST 28, 1966 APPROX SCALE 1:9,700

FIGURE 10
BRUNSWICK N.A.S. AREA A MAY 13, 1972 APPROX SCALE 1:5,000

FIGURE 11
BRUNSWICK N.A.S. AREA B MAY 13, 1972 APPROX SCALE 1:4,650

FIGURE 12
BRUNSWICK N.A.S. AREA C MAY 13, 1972 APPROX SCALE 1:3,750

FIGURE 13
BRUNSWICK N.A.S. AREA D MAY 13, 1972 APPROX SCALE 1:3,750

FIGURE 14
BRUNSWICK N.A.S. AREAS A & C AUGUST 15, 1978 APPROX SCALE 1:10,400

FIGURE 15
BRUNSWICK N.A.S AREAS B & D AUGUST 15, 1978 APPROX SCALE 1:11,450

FIGURE 16
BRUNSWICK N.A.S. AREAS A & C SEPTEMBER 9, 1980 APPROX SCALE 1:10,010

FIGURE 17
BRUNSWICK N.A.S. AREAS B & D SEPTEMBER 9, 1980 APPROX SCALE 1:10,020

APPENDIX D
VISUAL SITE INSPECTION

Visual Site Inspection Forms

ATTACHMENT A
VISUAL SITE INSPECTION FORM
2006 CERFA REPORT

Real Property Area: A-2
Inspector(s): LAWSON ANDERSON, TtNUS 901-523-9500
Escort: Lisa Joy, NASB ENVT DEPT

Date of Initial Construction: WOODLAND VILLAGE HOUSING 2000-2001
Inspection Date: 10-5-06
Phone: 207-921-1777 FAX:

Interviews: If escorted, list escort name below and complete an Interview Transcript. Also, list names of other people interviewed for this Area, and complete Transcript for each. INSPECTION TEAM: LAWSON ANDERSON - TtNUS
DAWN KINCAID - BRAC PMO NE
LISA JOY - NASB ENVT DEPT
Claudia Sait/~~Gordon Fullerton~~ MAINE DEP
Christine Williams - USEPA

Structure Description/Current Use: Indicate approx. size, number of rooms, type of floor, type of doors, and other information relevant to how well the building can contain interior leaks and spills.
Woodland Village Housing Units - 72 constructed in previously undeveloped area in 2000-2001. Twenty-two additional units were constructed in 2005 (NEW Mil-can B).

Visible Evidence of Previous Uses (indicate if there is evidence that a previous structure may have once existed on the site):

None observed

Hazardous Materials/Petroleum Products Observed
Current: NONE
Evidence of Former Use: NONE

Describe the overall apparent condition of the structure:
Describe the Heating/Cooling System: NATURAL GAS HEAT
Describe Current and Former Water Supplies:
Describe Current and Former Wastewater Treatment:

Site Description Checklist: Check if any of the following were observed, and provide supporting notes on back:
Basement:
Floor Pits:
Closet(s):
Exterior Storage Area:
Sumps:
Upper Floor(s):
Utility Room(s):
Underfloor Utilities:
Elevator(s):

DRIVE-by inspection only due to RECENT construction date.

See attached description from HOUSING EBST

Adjacent Properties: Describe each adjacent property SEE p. 2

Observation Checklist: Check if any of the following were observed, and provide supporting notes on back:

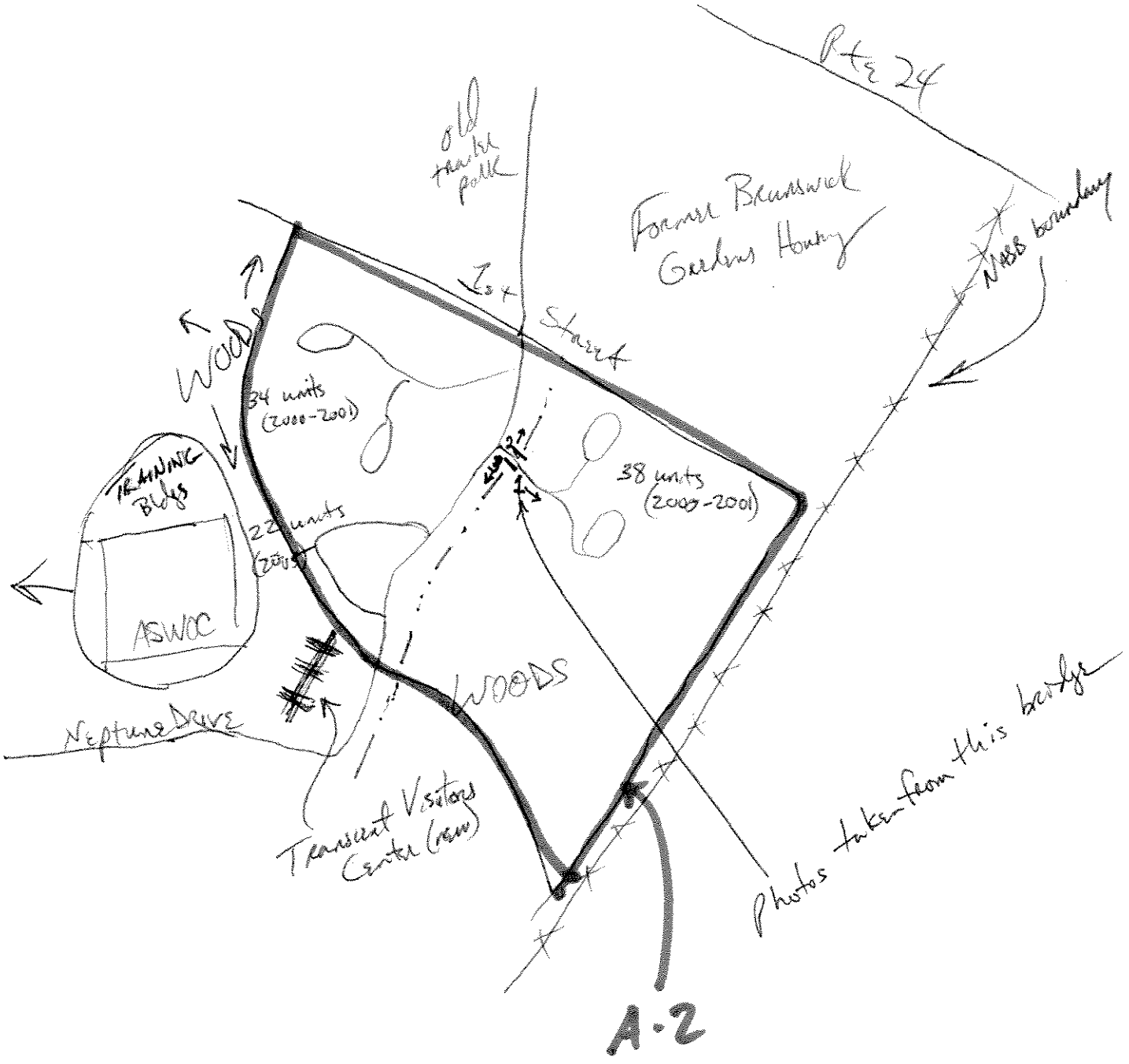
USTs:	ASTs:
Odors:	Pools of Liquid:
Drums:	Other Containers:
Stressed Vegetation:	Stained Soils:
Electrical Equipment:	Labeled as PCB? Non-PCB?
Floor Drains:	Sumps:
Oil/Water Separators: No	Grease Traps:
Floor Stains:	Located Next to Cracks/Corrosion?
Floor Cracks:	Hairline? Major?
Floor Corrosion:	Shallow? To Soil?
Holes in Wall:	At Floor Seam? Elsewhere?
Satellite Accumulation Areas:	Flammable Lockers:
Floor Tiles:	Known to Contain Asbestos?
Other Possible ACM:	Friable? Nonfriable? Unknown?
Peeling Paint:	Surface Older than 1978?
Evidence of Pesticide Use:	Monitoring Wells:
(Possible) Air Emissions Sources:	(Possible) UXO:

No

Onsite Records: Look for the following while inspecting the area:

Hazardous Material Inventory Lists	Warning Signage
MSDSs	Photographs
Record Binders	

Use this space to prepare a sketch of the Area and to provide supporting notes concerning features checked on the front page.



Adjacent properties

N - former Brunswick Gardens Housing Area (1950's era); newer homes have been built in this area following demolition & removal of USTs (heating oil) and contaminated soil.

E - Offbase private residences with wooded area in-between

S - Transient Visitors Center (new) and woods

W - WOODS; further west are some training bldgs and ASWOC communications center to SW.

5.0 WOODLAND VILLAGE

5.1 Introduction

5.1.1 Background

Naval Air Station Brunswick (NASB) is located in Cumberland County, Maine, and was commissioned on April 15, 1943. The base remained active for four years, and was subsequently deactivated in 1947. Five years later, however, it was recommissioned to provide facilities, service, and materials in support of anti-submarine warfare.

The NASB main station is situated between the Androscoggin River and Casco Bay southeast of the town center of Brunswick. It is bordered by Route 123 and Route 1 on the west and north sides, respectively, and is adjacent to Route 124 on the east side.

The Woodland Village housing area is located in the northeastern part of NASB and contains a total of 72 housing units.

5.1.2 Organization of Environmental Baseline Survey for Transfer

The purpose of the Environmental Baseline Survey for Transfer (EBST) is to collect and evaluate data pertaining to potential storage, treatment, or disposal of hazardous substances or petroleum products in or around the facility. The findings of the EBST may be used to determine whether the property is suitable for transfer. The EBST for Woodland Village is organized as follows:

- Section 5.1 is an introduction to the EBST providing a brief description of Woodland Village and explaining the purpose and layout of the EBST.
- Section 5.2 summarizes the procedure that was followed to conduct the EBST, including descriptions of the site visit, document review, and interviews with on-site personnel.
- Section 5.3 describes the past and current uses of Woodland Village.
- Section 5.4 includes a description of previous environmental sampling events conducted at Woodland Village.
- Section 5.5 provides the findings of the EBST for Woodland Village.
- Section 5.6 summarizes past and current operations at properties adjacent to Woodland Village.
- Section 5.7 presents conclusions drawn from the findings of the EBST.

5.1.3 Boundaries of the Survey Area

This EBST addresses the interior and exterior visual surveys of an accessible housing unit in the Woodland Village housing area, located on Naval Air Station Brunswick base property. Surrounding sites were visually surveyed.

5.2 Survey Methodology

5.2.1 Approach and Rationale

Engineering Field Activity Northeast, Naval Facilities Engineering Command, Lester, Pennsylvania retained Malcolm Pirnie to conduct an EBST for specified housing areas of Naval Air Station Brunswick, Brunswick, Maine. Mr. Tony Williams met with the Malcolm Pirnie staff for an in-briefing, followed by a windshield tour of most of the housing areas and several guided walkthroughs of vacant units. The following information relating to the buildings, property, and immediate vicinity was provided:

- Site map
- Wetland Delineation Maps
- List of all Underground and Aboveground Storage Tanks, specifying their contents, status, and locations.
- Installation Restoration Program (IRP) Site Status Summary, IRP Site Map, and Preparation or Last Revision Dates
- Cultural Resources Survey, Naval Air Station Brunswick
- Military Housing Comprehensive Neighborhood Plan, Naval Air Station Brunswick
- Department of the Navy Utilities Privatization RFP Technical Data Package
- Lead and Asbestos Housing Survey Results Summaries
- Lead and Asbestos Training Records
- Lead and Asbestos Programs
- Standard Operating Procedure for Incidental Disturbance of Lead Containing Paint
- Location, Status, and Ownership Listing of Transformers
- PCB Elimination Survey, Naval Air Station Brunswick
- Navy Radon Assessment and Mitigation Program Screening Results, January 1991
- Radon Assessment Data by PCIL Range, December 1997
- Records of releases or suspected releases, and repairs

5.2.2 Visual Survey

The visual survey of the Woodland Village housing area was composed of a walkthrough of an accessible vacant unit, and observation of the immediate surrounding area. Photographs of the features observed during the survey are included in Appendix A. The building were surveyed for the following potential features of concern:

- Aboveground and underground storage tanks
- Odors

- Pools of liquid
- Hazardous substance and petroleum product containers
- Potential asbestos-containing materials
- PCB-containing electrical equipment
- Condition of painted surfaces
- Stains and corrosion
- Septic system(s)
- Stained soil or pavement
- Stressed vegetation
- Solid waste
- Indoor surface mold

An EBST Checklist developed by Malcolm Pirnie (based on ASTM Standard D6008) and an EBST checklist developed by the Navy were followed during the site visit. These checklists are included in Appendix B of this document.

5.2.3 Document Review

An environmental regulatory database records search, Sanborn Co. fire insurance maps, and aerial photographs were ordered from Environmental Data Resources (EDR) to obtain background information for NASB. Sanborn map coverage was not available for the property. The EDR report is included in Appendix C, and the Sanborn map notice is included in Appendix D.

5.2.3.1 Drawing Review

Environmental department staff provided a current site map of the Woodland Village housing area. This is included at the end of this chapter as Figure 5-1.

5.2.3.2 Technical Documents

A number of technical documents and reports were reviewed in evaluation of this area. See Section 1.0: Introduction for a complete list.

5.2.3.3 Asbestos/Industrial Hygiene Records

Summaries describing findings related to asbestos and lead-based paint were reviewed.

5.2.4 Base Personnel Interviews

Malcolm Pirnie interviewed the following NASB staff members:

- Tony Williams – Environmental Department
- Rich Howard – Housing Department

- Linda Repoza – Housing Department
- Lisa Joy – Environmental Director
- Carla Sanders – Environmental Department, Lead Paint and Asbestos
- Don Rickel – Environmental Department, Tanks, PCBs
- Kari Moore – Environmental Department, Natural, and Cultural Resources

All documents, reports, and other information on Woodland Village were provided by the above-listed staff members.

5.3 Current and Past Operations

5.3.1 Building Descriptions

The EBST site visit included a visual survey of an accessible building in the Woodland Village housing area and the surrounding grounds. Facility management staff provided some information regarding site history and characteristics.

The Woodland Village housing area was constructed in 2000 and 2001 using slab on grade and standard wood construction. Each building component was factory built and assembled on site. Each unit has an attached garage, and is two stories in height. Buildings have attic access, but no storage. All units utilize gas heat and hot water, and all utilities are run underground.

There are four different unit configurations in Woodland Village, the details of which are listed in the table below:

# of Units in Woodland Village	# of Bedrooms	# of Bathrooms	Net SF per unit (# of units)
4	3	2	1,635
61	3	2.5	1,289 (18) and 1,697 (43)
1	4	2	1,467
6	4	2.5	1,933 (3) and 1,535 (3)

Total # of units: 72 **Total Net SF: 114,584**

5.3.2 Past Operations

Naval Air Station Brunswick (NASB) was commissioned on April 15, 1943. It was originally conceived to serve as a base for in-shore and off-shore patrol squadrons. Later, the mission was shifted to encompass the training of Royal Canadian Air Force Pilots of the British Naval Command, with over 215 British squadrons receiving training at the facility. Anti-submarine warfare missions were also flown 24 hours a day at this time, and the station also supported satellite landing fields in Sanford, Rockland, and Auburn during this period. The air station was

deactivated in 1947.

Four years later, in 1951 the facility was recommissioned and Fleet Air Wing Three was assigned the primary mission of anti-submarine warfare. The Air Force's 654th Radar Squadron also moved in to operate the control and warning facilities as part of the continental circumferential radar screen. On July 1, 1971, Fleet Air Wings Atlantic was established at NASB. In July 1973, the Fleet Air Wings Atlantic was redesignated as Commander Patrol Wings Atlantic, and in 1974 Commander Patrol Wings Atlantic was established as a separate command to provide direct operational control for the six anti-submarine squadrons assigned to the station.

Prior to the construction of the Woodland Village housing in 2000 and 2001, the area was vacant, existing as forested land.

5.3.3 Current Usage

The Navy currently maintains Woodland Village as a housing area.

5.4 Environmental Sampling and Analysis

5.4.1 Hazardous Material Usage/Storage Background at Woodland Village

Hazardous materials have neither been used nor stored in the Woodland Village housing area in significant quantities. Small quantities (a single weeks' supply) of household cleansers and paints are kept in the maintenance building that serves the Woodland Village housing area.

5.4.2 Groundwater Monitoring

Facility management staff indicated that groundwater monitoring is taking place on the main base to observe a VOC plume undergoing treatment by a groundwater extraction and treatment system, but that none of the monitoring wells are located within any of the housing areas.

The two sites that are closest in proximity to the housing areas are the Old Acid/Caustic Pit (Site 7) (approximately 2000 feet away) and the Old Navy Fuel Farm (approximately (1700 feet away). See IRP Site Status Information in Appendix F for additional details.

The general topographic gradient for this area is to the south-southwest, indicating the general groundwater flow direction for the property is north-northeast, toward the Atlantic Ocean.

5.4.3 Soil Sampling

Information provided by the facility management staff indicated that soil sampling is taking place on the main base at Naval Air Station Brunswick, but that none of the sampling was occurring in the on-base housing areas. See IRP Site Status Information in Appendix F for details.

5.4.4 Sediment and Seep Sampling

Information provided by the facility management staff and review of available records indicated no sediment and seep sampling was conducted at the Woodland Village site.

5.4.5 References

See Appendix F for IRP Site Status and Location information.

5.5 Findings for Base Property

5.5.1 Chain of Title Review

The title history for Naval Air Station Brunswick was not available for review

5.5.2 U.S. Environmental Protection Agency, State, and Local Notices of Violation

Environmental Data Resources (EDR) conducted a search for sites listed in government environmental regulatory databases within a one-mile radius of the property, as required in ASTM D6008. No violations regarding the property were found by EDR or during the records review at the time of the site inspection.

5.5.3 Hazardous Materials and Petroleum Product Management

All housing units in Woodland Village are heated by natural gas. Interviews with facility personnel indicated that petroleum products are not currently stored or used in the Woodland Village area.

5.5.4 CERCLA Related Contamination/National Priority List (NPL)

NASB is currently on the NPL list, and has a number of sites that are in various stages of remediation. The station CERCLIS ID number is ME8170022018. The two sites that are closest in proximity to the housing areas are the Old Acid/Caustic Pit (Site 7) and the Old Navy Fuel Farm, but neither appear to pose a hazard to the housing areas.

Please see the IRP Site List Summary in Appendix F and the EDR Report in Appendix C for further details.

5.5.5 RCRA Related Contamination

The subject property is listed as a RCRIS- Large Quantity Generator (RCRIS-LQG). The LQG generator name is Naval Air Station Brunswick, and encompasses the whole of the facility rather than a single area. For details, please see the IRP Site List Summary in Appendix F and the EDR Report in Appendix C.

5.5.6 Storage Tanks

Neither underground or aboveground storage tanks have been utilized in the Woodland Village area. The units were constructed to utilize natural gas heating.

5.5.7 Air Quality

NASB s considered a Synthetic Minor Source under Clean Air Act Title V. The case holds an air emissions license with the Maine Department of Environmental Protection (MEDEP). The license primarily includes boilers, generators, and fuel usage and emissions limits.

Emissions from on-base housing units are tracked and included in the base's overall emissions totals (i.e. those that are reported annually to the MEDEP). Off-base housing are emissions are tracked but are not included in the base's emissions totals. Emissions records may be reviewed at the NASB environmental office located in Building # 53.

5.5.8 Asbestos

Asbestos-containing building materials were not observed in the Woodland Village housing area.

An asbestos survey was conducted previously of Navy family housing. This information will be updated as part of the LBP inspection and risk assessment. The results will be provided as a separate report.

5.5.9 Pesticides Management/ Pesticide Control

There was no documentation of significant pesticide use or storage on the property. Facility staff indicated that pesticides are not used or stored on the grounds.

5.5.10 Polychlorinated Biphenyls (PCBs)

All transformers on the NASB property are owned either by the Navy or by the Central Maine Power (CMP) corporation. According to Navy environmental staff, all Navy-owned transformers are PCB-free. CMP has been contacted regarding the PCB status of CMP-owned transformers. At this time, the PCB status of transformers owned by CMP is unknown.

5.5.11 Radon

No documentation on radar surveys for Woodland Village was observed.

5.5.12 Medical or Biohazardous Waste

No medical or biohazardous waste is generated at Woodland Village.

5.5.13 Ordnance

Ordnance is not stored nor used in the Woodland Village housing area.

5.5.14 Water and Wastewater

Water is supplied to the facility via the public supply that is administered by the Brunswick-Topsham Water District. Sanitary wastewater is discharged into the city sewer system. Facility staff indicated that there are no operating septic systems in the Woodland Village housing area. Stormwater runoff in the Woodland Village area is collected and transported in a drainage system separate from sanitary wastewater. Sanitary and storm water systems are sampled four times per year.

5.5.15 Lead-Based Paint

Lead-based paint was not used in the Woodland Village housing area.

The Navy previously conducted lead based paint (LBP) inspections in housing. An updated inspection and risk assessment will be performed as part of the Public Private Venture (PPV) process to transfer the federally owned target housing identified in this document as required by 24 CFR 35 Subparts B, C and R. Disclosure of the presence of any known LBP and/or LBP hazards will be provided as part of this study to comply with Subpart A of the same regulation. The results will be provided as a separate report.

5.5.16 Radioactive and Mixed Wastes

No radioactive materials or mixed wastes are used or stored in Woodland Village.

5.5.17 Stressed Vegetation/ Stained Soils

No stressed vegetation or stained soils were observed on the property.

5.5.18 Landfill Sites

No records were found indicating that an on-site landfill was used for waste disposal in the Woodland Village housing area.

5.5.19 Other Findings

All units are equipped with one smoke and carbon monoxide detector per floor.

5.6 Findings at Adjacent Sites

5.6.1 Introduction

Woodland Village is located in the northeastern section of the main base. Open and forested land borders the area on all sides.

NASB itself is located south of the Androscoggin River between Brunswick and Bath, Maine. The base is bordered on 3 sides by main thoroughfares; Route 1 runs along the northern edge of the base, Route 123 the western edge, and Route 124 the eastern site. The southern part of the property appears to be undeveloped.

5.6.2 Historical and Current Activities of Adjacent Properties

Generally, the uses of the property surrounding the NASB are primarily suburban and rural residential, with some commercial and light industrial usage along Routes 1, 24, and 123.

5.6.3 CERCLA Related Contamination/National Priority List (NPL)

The EDR did not list any off-base sites within a one-mile radius as CERCLIS sites. Please see the EDR report in Appendix C for details.

5.6.4 RCRA Related Contamination

The EDR listed one site off base that falls under RCRA. The Bath Iron Works Corp., which was listed in the RCRIS-LQG, RCRIS-TSD, TRIS, and CORRACTS databases, among others. Please see the EDR Report in Appendix C for details. The Bath Iron Works is located approximately eight miles from the Woodland Village area.

5.6.5 Storage Tanks

The EDR listed a number of off-base sites that were found in databases related to storage tanks like LUST, UST, AST, or ME Spills. Please see the EDR Report in Appendix C for details.

5.6.6 Landfill Sites

The EDR did not list any off-base landfill sites within a one-mile radius of NASB. Please see the EDR Report in Appendix C for details.

5.6.7 Conclusions

There is no indication of environmental impacts to NASB from surrounding sites' activities.

5.7 Conclusion

5.7.1 Summary of Findings

Based on observations made during the site visit and through interviews and record reviews, there are no obvious potential or documented environmental issues of concern for the property.

Natural gas is currently used to heat the buildings in Woodland Village. No hazardous waste was disposed of at the property according to the records review, interviews and history search.

5.7.2 Property Classification

Based on the current occupancy and use at Woodland Village, the information reviewed as part of this EBST, and professional judgment, the Recognized Environmental Conditions (as defined in ASTM D6008) do not appear to present an imminent health hazard to occupants. Information presented in Section 5.7.1 should be incorporated into the transfer agreement. Subject to the foregoing and based on such Recognized Environmental Conditions, in our professional opinion, the property appears to be environmentally suitable for transfer.

5.7.2.1 ASTM Classification

The following categories exist under the ASTM property classification system (ASTM Standard D5746, Classification of Environmental Condition of Property Area Types):

- Standard Environmental Condition of Property Area Type 1 - An area or parcel of real property where no release or disposal of hazardous substances or petroleum derivatives has occurred (including no migration of these substances from adjacent properties).

- Standard Environmental Condition of Property Area Type 2 - An area or parcel of real property where only the release or disposal of petroleum products or their derivatives has occurred.

- Standard Environmental Condition of Property Area Type 3 - An area or parcel of real property where release, disposal, or migration, or some combination thereof, of hazardous substances has occurred, but at concentrations that do not require a removal or remedial action.

- Standard Environmental Condition of Property Area Type 4 - An area or parcel of real property where release, disposal, or migration, or some combination thereof, of hazardous substances has occurred, and all remedial actions necessary to protect human health and the environment have been taken.

- Standard Environmental Condition of Property Area Type 5 - An area or parcel of real property where release, disposal, or migration, or some combination thereof, of hazardous substances has occurred, and all removal or remedial actions, or both, are

under way, but all required actions have not yet been taken.

- Standard Environmental Condition of Property Area Type 6 - An area or parcel of real property where release, disposal, or migration, or some combination thereof, of hazardous substances has occurred, but required response actions have not yet been initiated.

- Standard Environmental Condition of Property Area Type 7 - An area or parcel of real property that is unevaluated or requires additional evaluation.

Based on the information presented herein, we believe the Woodland Village parcel should be classified as Standard Environmental Condition of Property Type 1 under the ASTM classification.

5.7.3 Notice of CERCLA Hazardous Substances

In accordance with the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) 120(h)(1), Title 40 Code of Federal Regulation Part 373 (40 CFR 373), and the Department of Defense (DOD) policy of 17 June 1994, notice is required when:

- A hazardous substance has been stored for one year or more in quantities greater than 1,000 kilograms or the substance's CERCLA reportable quantity, whichever is greater.

- Hazardous substances that are also listed under 40 CFR 261.30 as acutely hazardous wastes, and that are stored for one year or more, have been stored in quantities greater than or equal to the substance's reportable quantity.

Hazardous substances in excess of the above quantities are not stored at Woodland Village.

There have been no known releases or disposals of hazardous substances on the parcels. Although there has been storage of hazardous substances, it is unlikely that quantities of hazardous substances stored, by housing residents, were sufficient to warrant CERCLA notice.

ATTACHMENT A
VISUAL SITE INSPECTION FORM
2006 CERFA REPORT

Real Property Area: NASB CERFA A-3
Inspector(s): Dawn Kincaid, BRAC PMO NE
Escort: N/A Christine Williams, EPA Reg 1
Claudia Sait, MEDEP

Date of Initial Construction: No construction
Inspection Date: 10-5-06
Phone: 215 897 4915 **FAX:** x 4902
D. Kincaid

Interviews: If escorted, list escort name below and complete an Interview Transcript. Also, list names of other people interviewed for this Area, and complete Transcript for each. See above

Structure Description/Current Use: Indicate approx. size, number of rooms, type of floor, type of doors, and other information relevant to how well the building can contain interior leaks and spills. See attached sketch (Pg. 2 of 2). Wooded area with pond observed from outside NASB Weapons Compound fenceline. See photos. See notes on sketch.

Visible Evidence of Previous Uses (indicate if there is evidence that a previous structure may have once existed on the site): No evidence of previous use on parcel A-3.

Hazardous Materials/Petroleum Products Observed None
Current: N/A
Evidence of Former Use: N/A

Describe the overall apparent condition of the structure: only structure is fence line and a few remnants of posts from guard rail along previously paved road.
Describe the Heating/Cooling System:
Describe Current and Former Water Supplies:
Describe Current and Former Wastewater Treatment:

Site Description Checklist: Check if any of the following were observed, and provide supporting notes on back:

Basement:	N/A	**Upper Floor(s):**	N/A
Floor Pits:		**Utility Room(s):**	
Closet(s):		**Underfloor Utilities:**	
Exterior Storage Area:		**Elevator(s):**	
Sumps:			

Adjacent Properties: Describe each adjacent property Residences on Old Gurnet & New Gurnet Rds.
See photos: Residence #1, photos taken at 17:10:56, at 17:12:38 of large wood pile,
Residence #2, photo taken at 17:33:28

Observation Checklist: Check if any of the following were observed, and provide supporting notes on back:

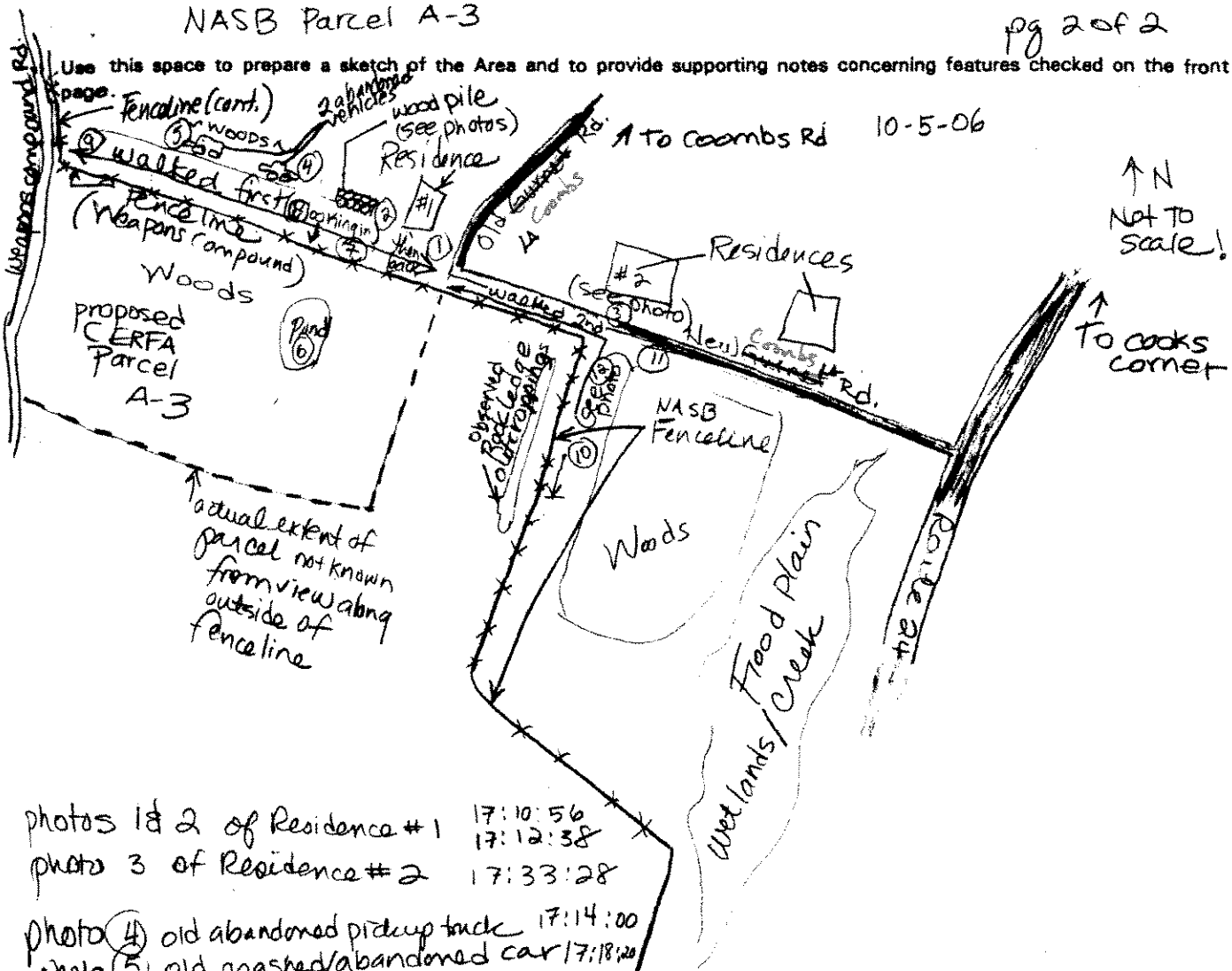
USTs:	N/A	**ASTs:**	N/A
Odors:		**Pools of Liquid:**	
Drums:		**Other Containers:**	
Stressed Vegetation:		**Stained Soils:**	
Electrical Equipment:		**Labeled as PCB?** Non-PCB?	
Floor Drains:		**Sumps:**	
Oil/Water Separators:		**Grease Traps:**	
Floor Stains:		**Located Next to Cracks/Corrosion?**	
Floor Cracks:		**Hairline?** Major?	
Floor Corrosion:		**Shallow?** To Soil?	
Holes in Wall:		**At Floor Seam?** Elsewhere?	
Satellite Accumulation Areas:		**Flammable Lockers:**	
Floor Tiles:		**Known to Contain Asbestos?**	
Other Possible ACM:		**Friable?** Nonfriable? Unknown?	
Peeling Paint:		**Surface Older than 1978?**	
Evidence of Pesticide Use:		**Monitoring Wells:**	
(Possible) Air Emissions Sources:		**(Possible) UXO:**	

Onsite Records: Look for the following while inspecting the area:

Hazardous Material Inventory Lists	Warning Signage
MSDSs	Photographs aerial photos reviewed, photos taken on 10/5/06.
Record Binders	

NASB Parcel A-3

Use this space to prepare a sketch of the Area and to provide supporting notes concerning features checked on the front page.



photos 1 & 2 of Residence #1 17:10:56 17:12:38
photo 3 of Residence #2 17:33:28

photo (4) old abandoned pickup truck 17:14:00
photo (5) old crashed/abandoned car 17:18:20
photo (6) of "pond" w/in Weapons Compound 17:12:10
photo (7) looking West, along fenceline 17:12:26
photo (8) looking South, in through fenceline 17:15:18 typical Woods in Parcel 3A
photo (9) nearing end of path near Weapons compound road 17:22:26
photo (10) looking up clearing toward South 17:33:34
photo (11) looking East, down New Gurnet Rd & adjacent Woods 17:33:40
photo (12) looking into Rock ledge 17:33:50

ATTACHMENT A
VISUAL SITE INSPECTION FORM
2006 CERFA REPORT

Real Property Area: A-4
Inspector(s): LAWSON ANDERSON, TETRA TECH NUS 901-523-9500
Escort: LISA JOY, NASB ENVT DEPT → Phone: 207-921-1717 FAX:

Date of Initial Construction: N/A - OPEN LAND
Inspection Date: 10-6-06

Interviews: If escorted, list escort name below and complete an Interview Transcript. Also, list names of other people interviewed for this Area, and complete Transcript for each.
LISA JOY - ENVT POC, NASB
TOM BRUBAKER - ASST PUBLIC WORKS OFFICER, NASB
TONY WILLIAMS - FACILITY PLANNER, NASB

INSPECTION TEAM: LAWSON ANDERSON - TETRA TECH NUS
LISA JOY - NASB ENVT DEPT
CLAUDIA SAIT - MAINE DEP
CHRISTINE WILLIAMS - USEPA

Structure Description/Current Use: Indicate approx. size, number of rooms, type of floor, type of doors, and other information relevant to how well the building can contain interior leaks and spills.
No structures other those associated with golf course (separate VSI form). Other than golf course and a floodplain, entire area is wooded and makes up the southwestern part of NASB (see attached figure).

Visible Evidence of Previous Uses (indicate if there is evidence that a previous structure may have once existed on the site):
No visible evidence of former structures. We walked to southernmost end of road shown on many aerials which has a turnaround at end near Harpswell Cove. Tom Brubaker had told us this was an area where survival skills have been taught. There were signs of this activity. Also, at end of perimeter road to west, there were signs of what might have been an obstacle course which Tony Williams mentioned he had come across before.

Hazardous Materials/Petroleum Products Observed
Current:
Evidence of Former Use: SEE page 2

Describe the overall apparent condition of the structure:
Describe the Heating/Cooling System:
Describe Current and Former Water Supplies:
Describe Current and Former Wastewater Treatment:
N/A

Site Description Checklist: Check if any of the following were observed, and provide supporting notes on back:

Basement:	N/A	Upper Floor(s):	N/A
Floor Pits:		Utility Room(s):	
Closet(s):		Underfloor Utilities:	
Exterior Storage Area:		Elevator(s):	
Sumps:			

Adjacent Properties: Describe each adjacent property SEE page 2

Observation Checklist: Check if any of the following were observed, and provide supporting notes on back:

USTs: N		ASTs:	N
Odors: N		Pools of Liquid:	
Drums: Y		Other Containers:	
Stressed Vegetation: N		Stained Soils:	
Electrical Equipment: N		Labeled as PCB? Non-PCB?	
Floor Drains: N		Sumps:	
Oil/Water Separators:	N	Grease Traps:	
Floor Stains:		Located Next to Cracks/Corrosion?	
Floor Cracks:		Hairline? Major?	
Floor Corrosion:		Shallow? To Soil?	
Holes in Wall:		At Floor Seam? Elsewhere?	
Satellite Accumulation Areas:		Flammable Lockers:	
Floor Tiles:		Known to Contain Asbestos?	
Other Possible ACM:		Friable? Nonfriable? Unknown?	
Peeling Paint:		Surface Older than 1978?	
Evidence of Pesticide Use:		Monitoring Wells:	
(Possible) Air Emissions Sources:		(Possible) UXO:	

Onsite Records: Look for the following while inspecting the area:
Hazardous Material Inventory Lists
MSDSs
Record Binders
NA

Warning Signage → for underground fuel pipeline (mothballed)
Photographs (photos taken)

Use this space to prepare a sketch of the Area and to provide supporting notes concerning features checked on the front page.

Areas of known & potential hazmaterial use or disposal:

Golf Course Maintenance Shop Area (Bldg 39) – carved out

IR Site 16 (Swampy Road Debris Site) behind Bldg 39 – carved out

IR Site 15 (Merriconeag Extension Debris Site) – carved out

Roadside ditch below/south of IR Site 15 - possible leaching/staining w/ sheen on water – carved out

Golf course pumphouse – possible peeling LBP

Some debris still visible at both IR sites (photos taken)

A couple of rusted drum remnants were observed in the survival skills training area (photos taken); makeshift sleeping shelter present and stacked firewood.

Not sure about sheen on water – whether biological or oil? (photos taken)

Fill material including asphalt observed in road bed where it crossed low spot.

Fuel pipeline (buried) R-O-W observed. Warning signal post. Pipeline is not in use.

Also drove north of golf course maint shop/driving range until we ran into airfield fence (photos taken)

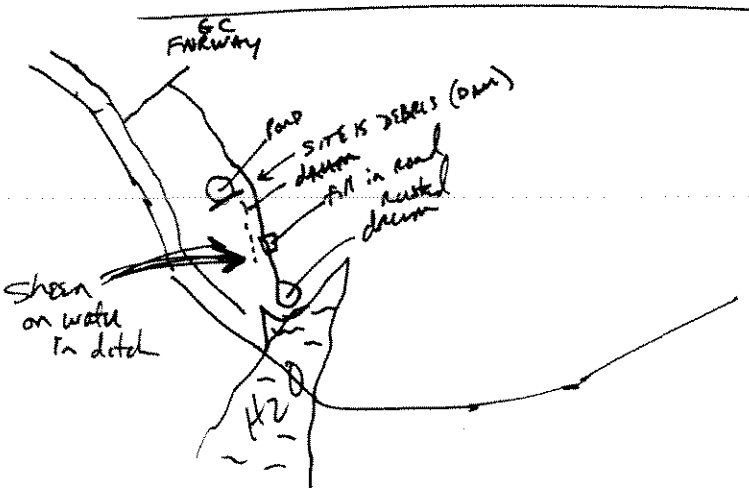
Adjacent Properties

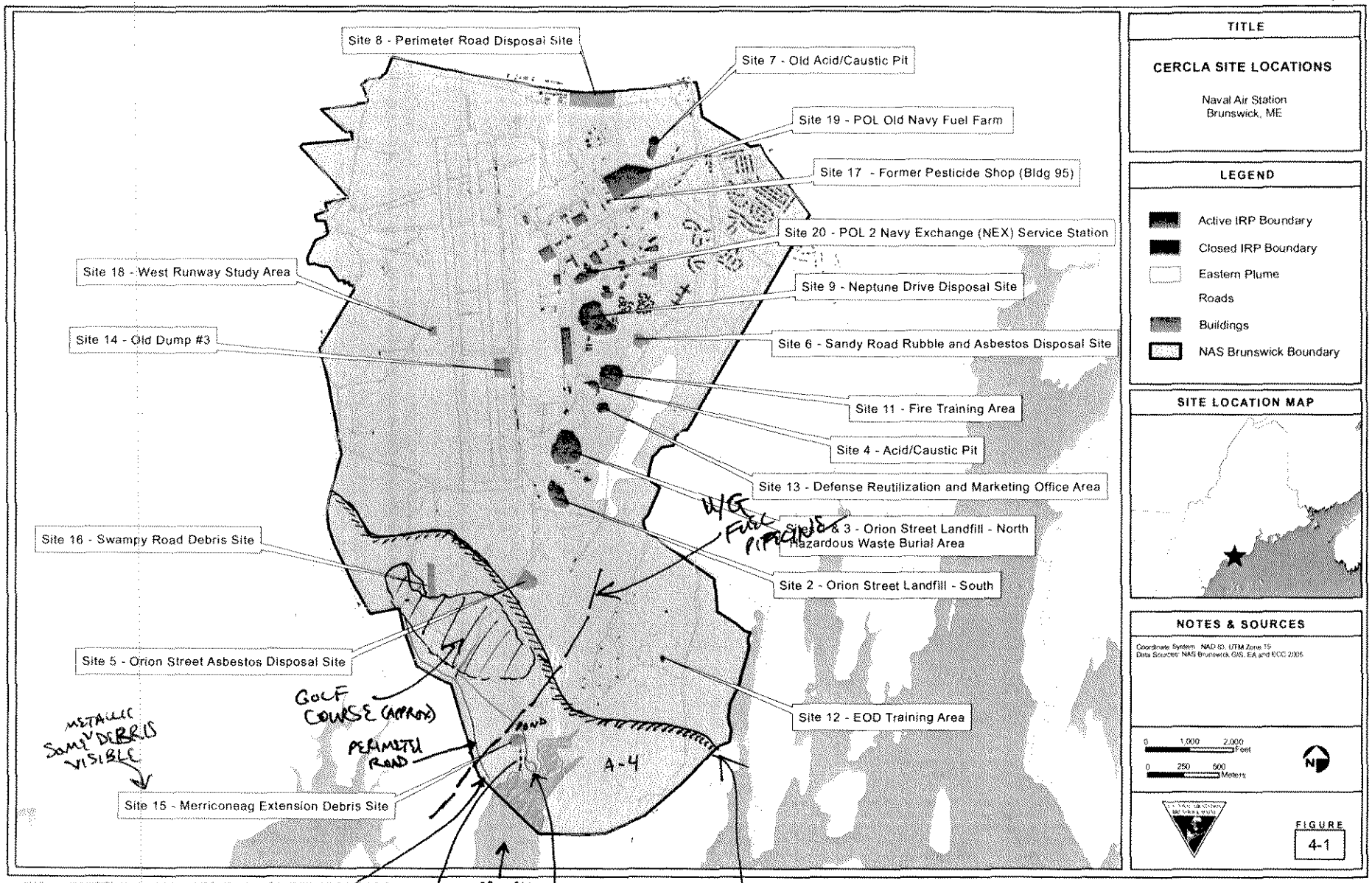
W - Harpswell ~~Neck~~ Road (Hwy 123) – woods with some residential

S - Harpswell Cove (water) and woods

E - Princes Point Road – woods with a few residences

N - Woods, Weapons Area ~~and~~ South end of runway including "red label" area all on NASB property (Areas B-6 and B-7).





FORMER OBSTACLE COURSE?

FILL IN ROAD

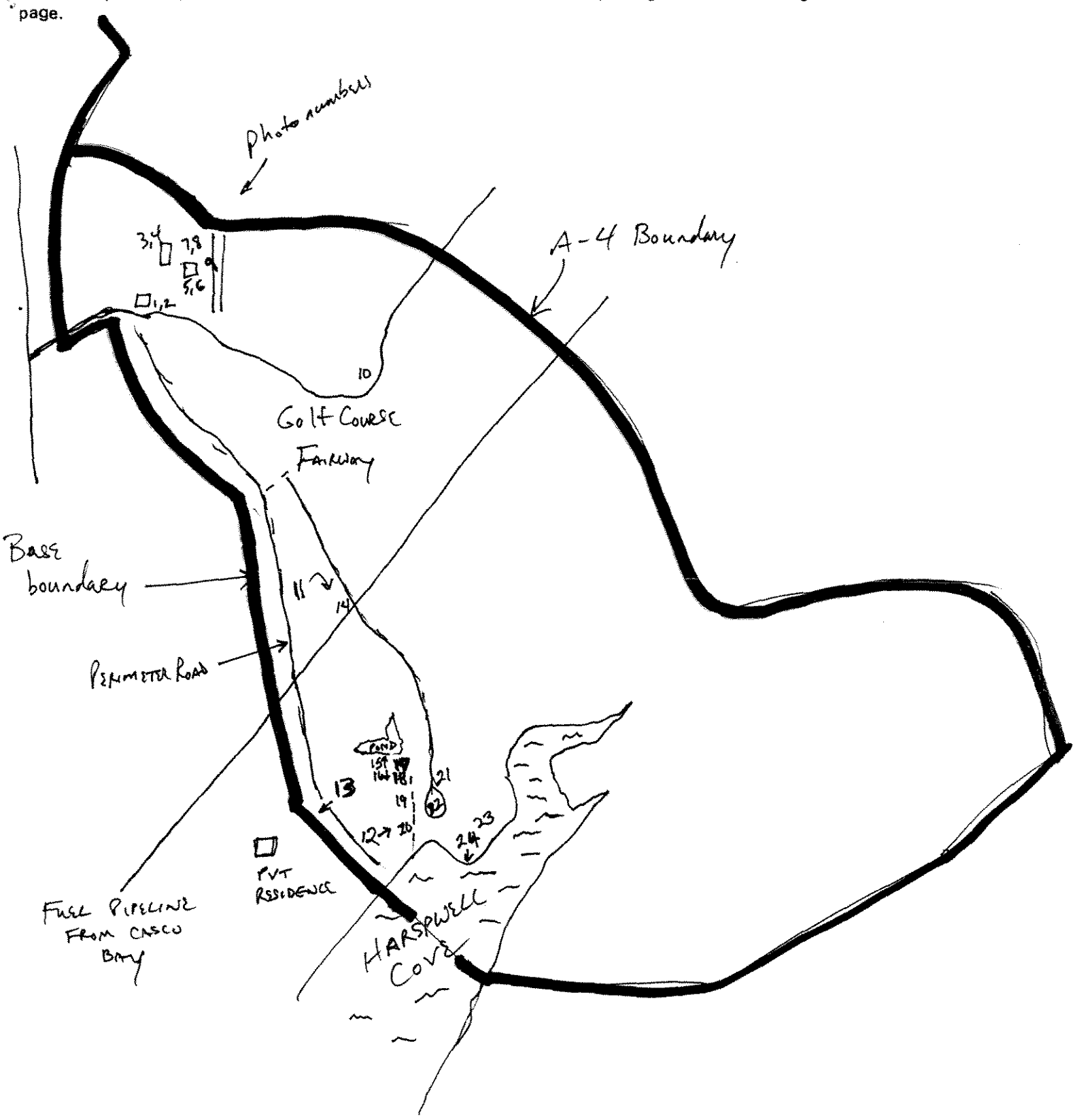
SHEEN/LEACHATE IN ROADSIDE DITCH – POSSIBLY FROM SITE 15

SURVIVAL SKILLS TRAINING AREA

Approx boundary of A-4 (not fence or road)

SIGNS OF MAKESHIFT SHELTERS, LOGS CUT FOR FIRE, SMALL RUSTED DRUMS (2)

Use this space to prepare a sketch of the Area and to provide supporting notes concerning features checked on the front page.



ATTACHMENT A
VISUAL SITE INSPECTION FORM
2006 CERFA REPORT

Real Property Area: Golf Course Clubhouse, Bldg 78 Date of Initial Construction: 1981
Inspector(s): Lawson Anderson - Tetra Tech 901-523-9500 Inspection Date: 10-5-06
Escort: Lisa Joy - NASB Envt Dept → Phone: 207-921-1717 FAX:

Interviews: If escorted, list escort name below and complete an Interview Transcript. Also, list names of other people interviewed for this Area, and complete Transcript for each.

Mike Smith - Golf Pro since 1993

Structure Description/Current Use: Indicate approx. size, number of rooms, type of floor, type of doors, and other information relevant to how well the building can contain interior leaks and spills.

See attached sketch; siding; roof shingles; ~~concrete block~~ LL wooden shed (non-haz contents) behind bldg; Golf course constructed in 1955 (Facility 255)

Visible Evidence of Previous Uses (indicate if there is evidence that a previous structure may have once existed on the site):

None Observed

Hazardous Materials/Petroleum Products Observed Heating Oil AST (Photo)
Current:
Evidence of Former Use: None observed

Describe the overall apparent condition of the structure: Excellent
Describe the Heating/Cooling System:
Describe Current and Former Water Supplies: Artesian well ~~(Photo)~~ LL
Describe Current and Former Wastewater Treatment: Septic system (See sketch)

Site Description Checklist: Check if any of the following were observed, and provide supporting notes on back:

Basement:	N	Upper Floor(s):	N
Floor Pits:	N	Utility Room(s):	N
Closet(s):	N	Underfloor Utilities:	N
Exterior Storage Area:	Y	Elevator(s):	N
Sumps:	N		

Adjacent Properties: Describe each adjacent property

Observation Checklist: Check if any of the following were observed, and provide supporting notes on back:

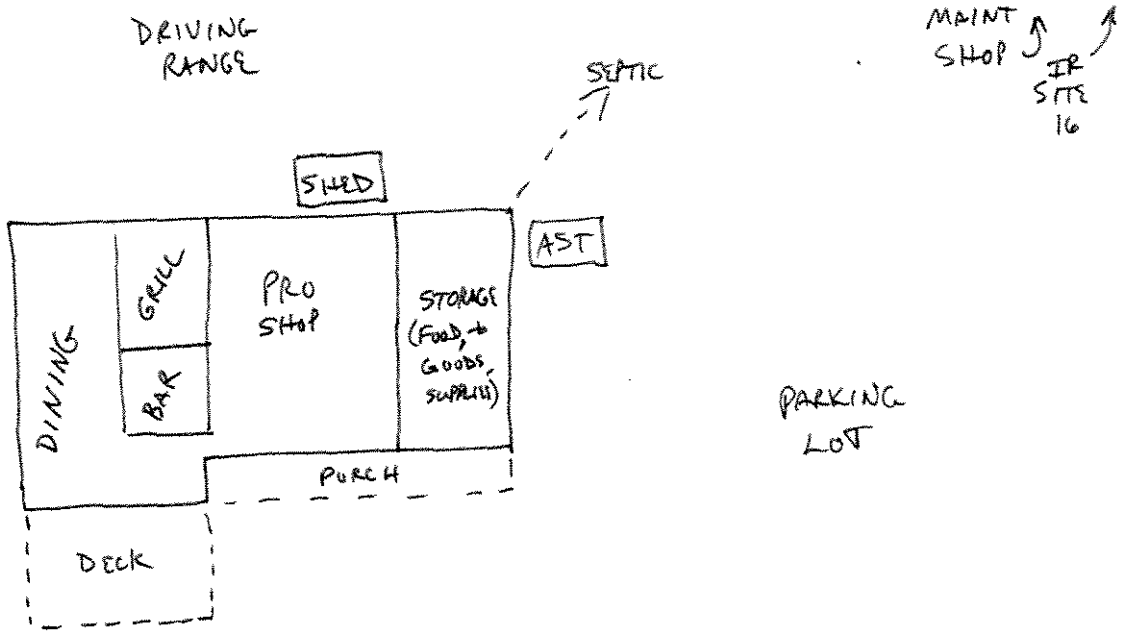
USTs:	N	ASTs:	Y
Odors:	N	Pools of Liquid:	N
Drums:	N	Other Containers:	
Stressed Vegetation:	N	Stained Soils:	N
Electrical Equipment:	N	Labeled as PCB?	Non-PCB?
Floor Drains:	N	Sumps:	N
Oil/Water Separators:	Adj. property	Grease Traps:	?
Floor Stains:	N	Located Next to Cracks/Corrosion?	
Floor Cracks:	N	Hairline?	Major?
Floor Corrosion:	N	Shallow?	To Soil?
Holes in Wall:	N	At Floor Seam?	Elsewhere?
Satellite Accumulation Areas:	N	Flammable Lockers:	Adj property
Floor Tiles:		Known to Contain Asbestos?	
Other Possible ACM:		Friable?	Nonfriable? Unknown?
Peeling Paint:	~~Adj~~ Y - Pumphouse (Bldg 304)	Surface Older than 1978?	~~Adj~~ Y
Evidence of Pesticide Use:	Y	Monitoring Wells:	N
(Possible) Air Emissions Sources:	N	(Possible) UXO:	N

Onsite Records: Look for the following while inspecting the area:

Hazardous Material Inventory Lists	Warning Signage
MSDSs	(Photographs) clubhouse, maint shop area, pumphouse
Record Binders	

Use this space to prepare a sketch of the Area and to provide supporting notes concerning features checked on the front page.

See A-4 VSI for photo locations



MR. SMITH has been the pesticide applicator since 1998 and has worked at golf course since 1993. His asst., Mark, has worked there since mid-70s.

No excess pesticides to dispose of - everything gets used. Has applied granular fungicide twice this year. Ten to 15 years ago, they applied pesticides to kill grubs (crows tear up turf to get to them). Now they don't apply anything for grubs. Tight budget, so pest/herb use is in accordance with standard practices and not excessive.

Heating oil AST on site; OWS and AST at maintenance shop (Bldg 39 - adj. prop; carried out of CERFA).

Maint. Shop (Bldg 39) - limited use; no sinks or drains; pest/herb storage in lockers; OWS in event of fuel spill.; IR Site 16 is directly behind maint shop in ravine. Minor maintenance on tractors, mowers, & other equip.; BUILT 1985

CART STORAGE BLDG (UNNUMBERED) - WOODEN BARN BUILT 9 YRS AGO

GOLF COURSE PUMPHOUSE (309) & DAM (310) FOR IRRIGATION POND CONSTRUCTED 1954 & 1955 - 8 x 10 bldg - wood w/ roof shingles, peeling paint; pumps all electric. Pond water tested monthly as part of storm water system.

CLUBHOUSE/MAINT SHOP SITE VISIT INCLUDED: LISA JOY - NASB ENVT DEPT
DAWN KINCAID - BRAC PMO NE
CLAUDIA SAIT - MAINE DEP
CHRISTINE WILLIAMS - EPA

* DECISION MADE TO CARVE OUT BOTH THE MAINT. SHOP AREA (UNKNOWN HISTORICAL MIXING AND/OR DISPOSAL PRACTICES) AND IR SITE 16 (NEEDS FURTHER EVAL - DEBRIS PRESENT).

ATTACHMENT A
VISUAL SITE INSPECTION FORM
2006 CERFA REPORT

Real Property Area: A-5
Inspector(s): LAWSON ANDERSON, TENUS 901-523-9500
Escort: LISA JOY, NASB ENVT DEPT
Date of Initial Construction: N/A
Inspection Date: 10-5-06
Phone: 207-921-[illegible] FAX:

Interviews: If escorted, list escort name below and complete an Interview Transcript. Also, list names of other people interviewed for this Area, and complete Transcript for each. Inspection Team: LAWSON ANDERSON, TENUS; DAWN KINCAID, BRAC PMO NE; LISA JOY, NASB ENVT DEPT; Claudia Sait, MAINE DEP; Christine Williams, USEPA

Structure Description/Current Use: Indicate approx. size, number of rooms, type of floor, type of doors, and other information relevant to how well the building can contain interior leaks and spills.
NO STRUCTURES

Visible Evidence of Previous Uses (indicate if there is evidence that a previous structure may have once existed on the site):
1940s maps show farm houses & farm bldgs.

Hazardous Materials/Petroleum Products Observed
Current: NONE
Evidence of Former Use:

Describe the overall apparent condition of the structure:
Describe the Heating/Cooling System:
Describe Current and Former Water Supplies:
Describe Current and Former Wastewater Treatment:
N/A

Site Description Checklist: Check if any of the following were observed, and provide supporting notes on back:
Basement:
Floor Pits:
Closet(s):
Exterior Storage Area:
Sumps:
N/A
Upper Floor(s):
Utility Room(s):
Underfloor Utilities:
Elevator(s):
N/A

Adjacent Properties: Describe each adjacent property SEE P. 2

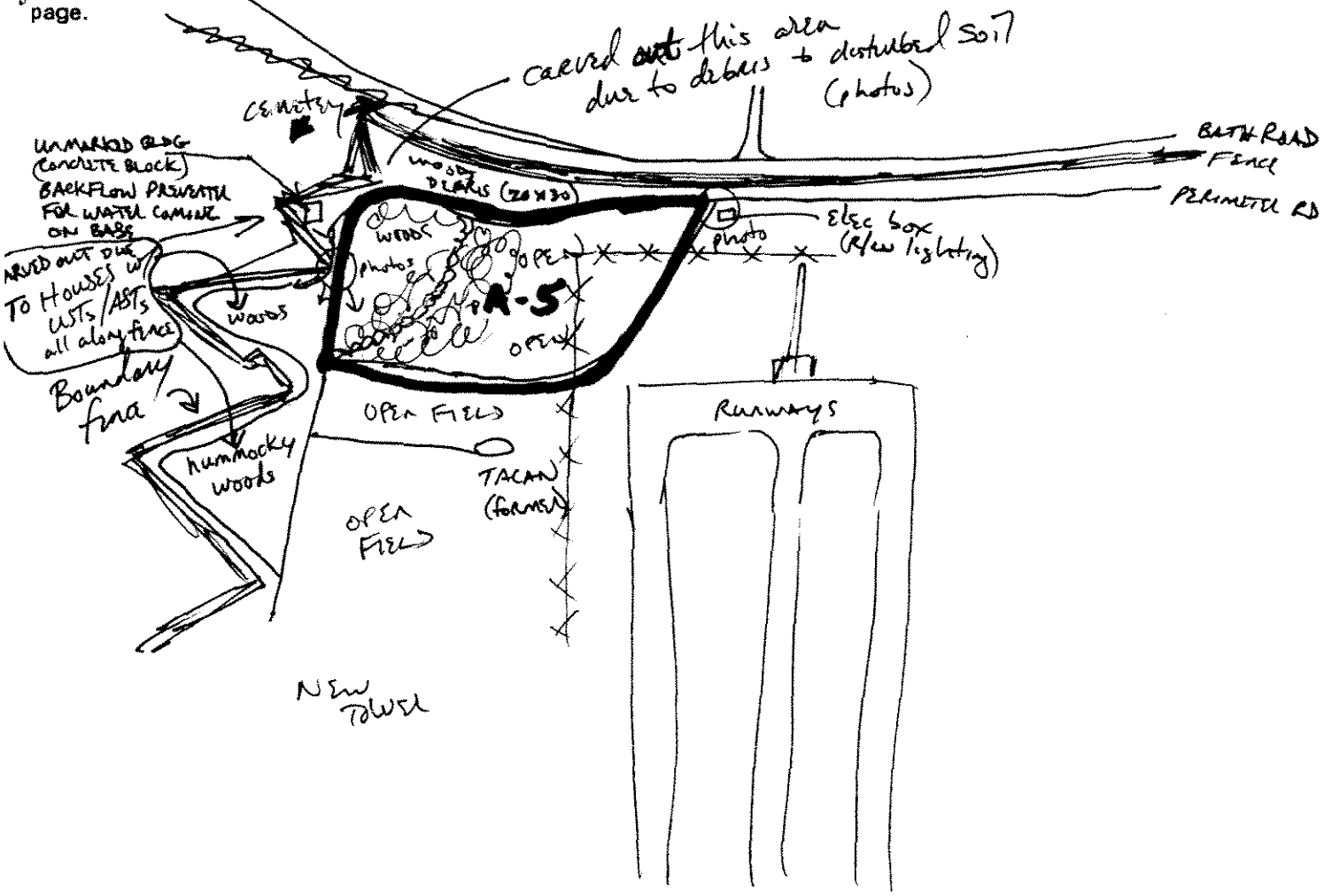
Observation Checklist: Check if any of the following were observed, and provide supporting notes on back:

USTs:	ASTs:
Odors:	Pools of Liquid:
Drums:	Other Containers:
Stressed Vegetation:	Stained Soils:
Electrical Equipment:	Labeled as PCB? Non-PCB?
Floor Drains:	Sumps:
Oil/Water Separators:	Grease Traps:
Floor Stains:	Located Next to Cracks/Corrosion?
Floor Cracks:	Hairline? Major?
Floor Corrosion:	Shallow? To Soil?
Holes in Wall:	At Floor Seam? Elsewhere?
Satellite Accumulation Areas:	Flammable Lockers:
Floor Tiles:	Known to Contain Asbestos?
Other Possible ACM:	Friable? Nonfriable? Unknown?
Peeling Paint:	Surface Older than 1978?
Evidence of Pesticide Use:	Monitoring Wells:
(Possible) Air Emissions Sources:	(Possible) UXO:

N/A
N/A

Onsite Records: Look for the following while inspecting the area:
Hazardous Material Inventory Lists
MSDSs
Record Binders
Warning Signage
Photographs

Use this space to prepare a sketch of the Area and to provide supporting notes concerning features checked on the front page.



- BACKFLOW PREVENTER BLDG - APPEARS THERE WAS AN OLDER BLDG AT THAT LOCATION AT SOME TIME IN PAST (SLAB IN FRONT OF DOOR IS OLD → THERE MIGHT BE SOME DEMO DEBRIS PILED UP NEARBY.
- FORMER TACAN > former UST; paint chips on ground; dark soil
  Generator w/ AST; PCBs in past?

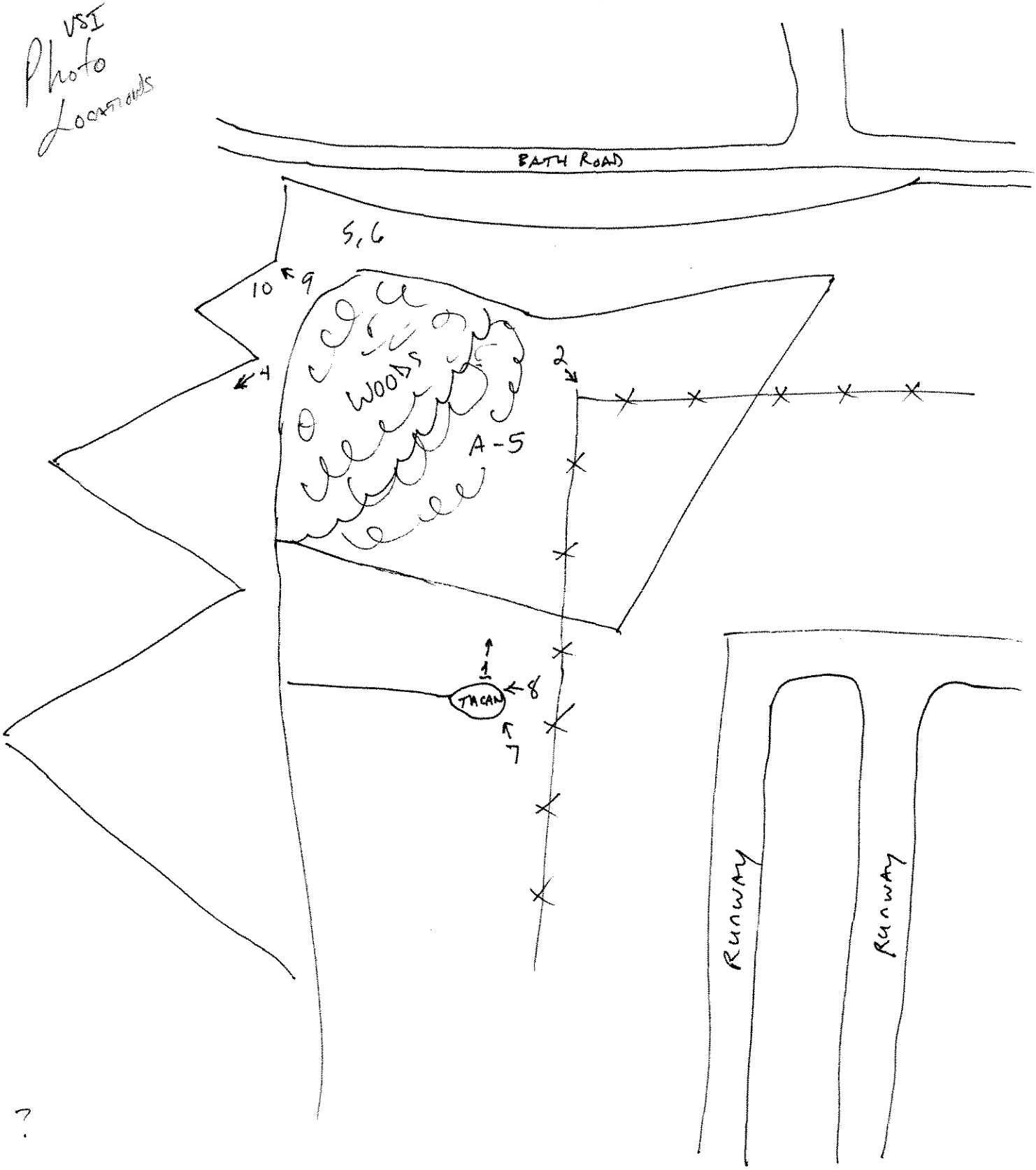
] CARVED OUT - MOVED SOUTHERN BOUNDARY OF A-5 to NORTH

- Added buffer zone to west side due to residential USTs/ASTs and pile of demolition debris (probably the predecessor to the unmarked backflow preventer bldg).
- Added buffer zone to north due to debris (household?) pile and places where soil pushed up by heavy equipment → unknown use.

Adjoining Properties

N - Woods and open land on NASB property, then Bath Road; cemetery abuts NW boundary on N to W.
W - CEMETERY AND RESIDENTIAL AREA (BOTH OFF GOVT PROPERTY); WOODS ON GOVT. PROPERTY PROVIDE A BUFFER FOR MOST OF BOUNDARY; BACKFLOW PREVENTER BLDG ON GOVT. PRO
S - OPEN LAND ON GOVT PROPERTY (B-8); FORMER TACAN SITE

Use this space to prepare a sketch of the Area and to provide supporting notes concerning features checked on the front page.



3 - ?

ATTACHMENT A
VISUAL SITE INSPECTION FORM
2006 CERFA REPORT

Real Property Area: Topsham Annex
Inspector(s): Rima Miley
Escort: N/A

Date of Initial Construction: 1956 Air Force
Inspection Date: 10/6/06
Phone: 3015283010 FAX: 3015283000

Interviews: If escorted, list escort name below and complete an Interview Transcript. Also, list names of other people interviewed for this Area, and complete Transcript for each.
N/A

Note: No interiors were visually inspected only exterior facility

Structure Description/Current Use: Indicate approx. size, number of rooms, type of floor, type of doors, and other information relevant to how well the building can contain interior leaks and spills.
Housing Units, Commissary 335, Army Reserve Buildings (338 339), 385 - water tank, 333 Admin Building (See historical map and building lists) - Appen A

Visible Evidence of Previous Uses (indicate if there is evidence that a previous structure may have once existed on the site):
No

Hazardous Materials/Petroleum Products Observed - outdoor storage tanks
Current: see above
Evidence of Former Use: N/A

Describe the overall apparent condition of the structure: OK some peeling paint
Describe the Heating/Cooling System:
Describe Current and Former Water Supplies: Water Tanks
Describe Current and Former Wastewater Treatment: Sewage Treatment Plant Bldg 377 (not included in this parcel)

Site Description Checklist: Check if any of the following were observed, and provide supporting notes on back:

Basement:	Upper Floor(s):
Floor Pits: No interior survey completed	Utility Room(s):
Closet(s):	Underfloor Utilities:
Exterior Storage Area:	Elevator(s):
Sumps:	

Adjacent Properties: Describe each adjacent property South concrete plant & Mount Arat School, North - housing area - woods, industrial buildings - former NASB property now School/ System, East - woods, housing eventually, West - wood/residential area & farmland

Observation Checklist: Check if any of the following were observed, and provide supporting notes on back:

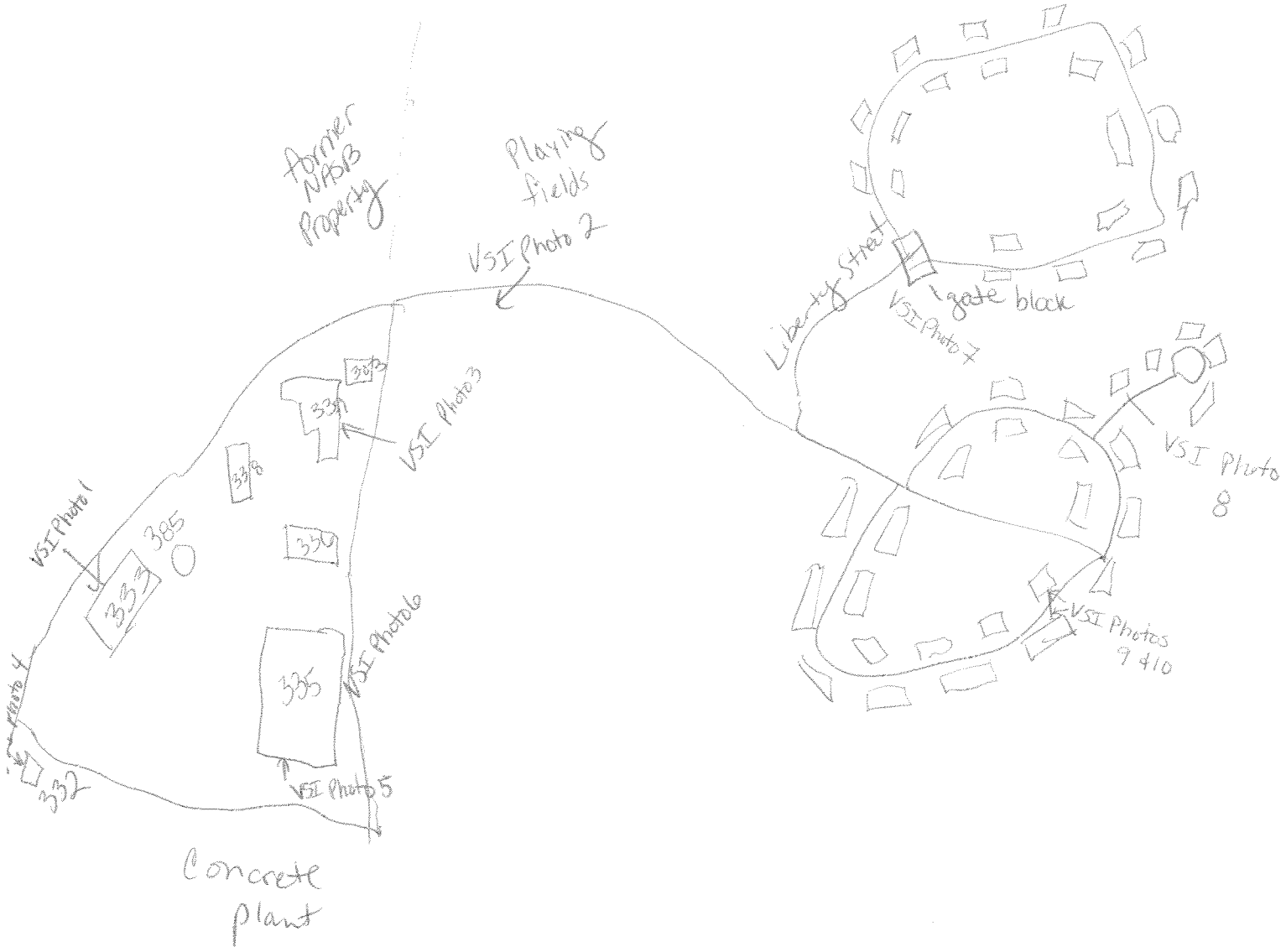
USTs: N/A	ASTs: Yes
Odors: ND	Pools of Liquid: NO
Drums: No	Other Containers: ND
Stressed Vegetation: No	Stained Soils: NO
Electrical Equipment: N/A	Labeled as PCB? N/A Non-PCB?
Floor Drains: N/A	Sumps: N/A
Oil/Water Separators: NO	Grease Traps: N/A
Floor Stains: N/A	Located Next to Cracks/Corrosion? N/A
Floor Cracks: N/A	Hairline? Major? N/A
Floor Corrosion: N/A	Shallow? To Soil?
Holes in Wall: N/A	At Floor Seam? Elsewhere? N/A
Satellite Accumulation Areas: No/N/a	Flammable Lockers: No
Floor Tiles: N/A	Known to Contain Asbestos? Housing ACM testing done
Other Possible ACM: ND	Friable? Nonfriable? Unknown?
Peeling Paint: Yes commissary	Surface Older than 1978? Yes
Evidence of Pesticide Use: No	Monitoring Wells: Yes
(Possible) Air Emissions Sources: NO	(Possible) UXO: No

Onsite Records: Look for the following while inspecting the area:

Hazardous Material Inventory Lists	Warning Signage
MSDSs	Photographs - Aerials Public Works
Record Binders EBS & other sampling reports found. Various areas remain with sampling & landuse controls	

Use this space to prepare a sketch of the Area and to provide supporting notes concerning features checked on the front page.

Representative - not to scale



ATTACHMENT A
VISUAL SITE INSPECTION FORM
2006 CERFA REPORT

Real Property Area: Mckeen Housing
Inspector(s): Rima Mikey
Escort: N/A

Date of Initial Construction: 1960
Inspection Date: 10/6/06
Phone: 3015283010 FAX: 3032833000

Interviews: If escorted, list escort name below and complete an Interview Transcript. Also, list names of other people interviewed for this Area, and complete Transcript for each.
N/A

Note: No interior visual inspection was completed only exteriors of facilities

Structure Description/Current Use: Indicate approx. size, number of rooms, type of floor, type of doors, and other information relevant to how well the building can contain interior leaks and spills.
Housing 231 units 3 different types of units.

Visible Evidence of Previous Uses (indicate if there is evidence that a previous structure may have once existed on the site):
NO

Hazardous Materials/Petroleum Products Observed None
Current: None
Evidence of Former Use: None

Describe the overall apparent condition of the structure: Good
Describe the Heating/Cooling System: Gas heat
Describe Current and Former Water Supplies: City supplied
Describe Current and Former Wastewater Treatment: City supplied

Site Description Checklist: Check if any of the following were observed, and provide supporting notes on back:
Basement:
Floor Pits:
Closet(s):
Exterior Storage Area:
Sumps:
Upper Floor(s):
Utility Room(s):
Underfloor Utilities:
Elevator(s):

No interior survey completed

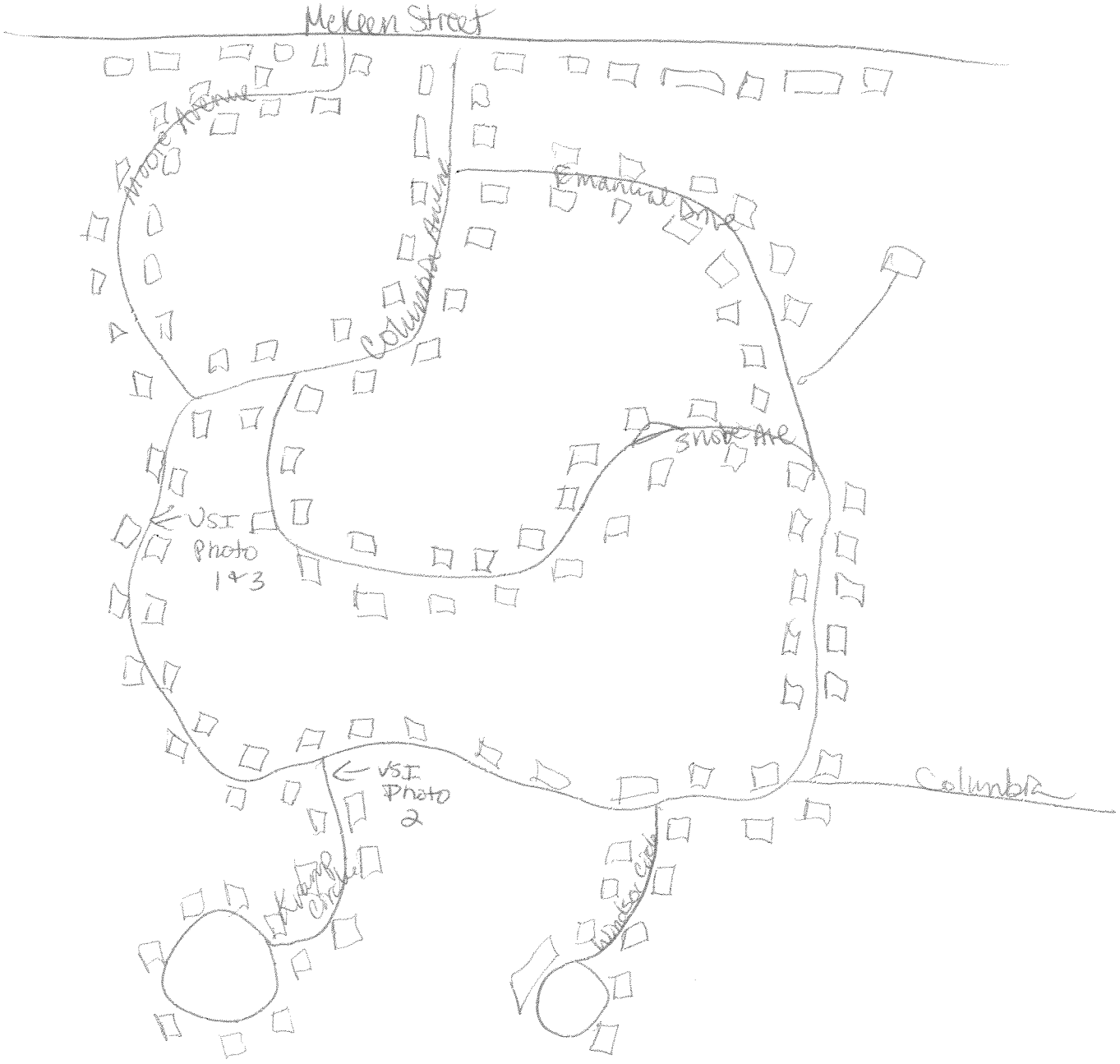
Adjacent Properties: Describe each adjacent property North Mckeen Street & St. Charles Church, South wooded area and housing, east housing and Bartbeam Drive, West residential housing and woods.

Observation Checklist: Check if any of the following were observed, and provide supporting notes on back:
USTs: (former)
Odors: None
Drums: None
Stressed Vegetation: None
Electrical Equipment: None
Floor Drains: None
Oil/Water Separators: None
Floor Stains: N/A
Floor Cracks: N/A
Floor Corrosion: N/A
Holes in Wall: N/A
Satellite Accumulation Areas: None
Floor Tiles: N/A
Other Possible ACM: None
Peeling Paint: None
Evidence of Pesticide Use: None
(Possible) Air Emissions Sources: None
ASTs: None (former)
Pools of Liquid: None
Other Containers: None
Stained Soils: None
Labeled as PCB? N/A Non-PCB?
Sumps: N/A
Grease Traps: N/A
Located Next to Cracks/Corrosion? N/A
Hairline? N/A Major?
Shallow? N/A To Soil?
At Floor Seam? N/A Elsewhere?
Flammable Lockers: None
Known to Contain Asbestos? N/A
Friable? Nonfriable? Unknown?
Surface Older than 1978? Yes
Monitoring Wells: None
(Possible) UXO: None

Onsite Records: Look for the following while inspecting the area:
Hazardous Material Inventory Lists
MSDSs
Record Binders EBS - 2 petroleum spills - noteworthy cleaned up
Warning Signage
Photographs aerials public work's

Use this space to prepare a sketch of the Area and to provide supporting notes concerning features checked on the front page.

Representation - Not to Scale



historic 149 Columbia & 6 Krampf
Local AST/LW

ATTACHMENT A
VISUAL SITE INSPECTION FORM
2006 CERFA REPORT

Real Property Area: East Brunswick Radio Site
Date of Initial Construction: 1956
Inspector(s): Rima Miley, Lawson Anderson
Inspection Date: 10-4-06
Escort: Lisa Joy - NASB Env. Dept → Tom Brubaker - NASB Env. Dept Asst. PW Officer
Phone: 207-921-1717 FAX:

Interviews: If escorted, list escort name below and complete an Interview Transcript. Also, list names of other people interviewed for this Area, and complete Transcript for each.
Completed in Appendix F

Structure Description/Current Use: Indicate approx. size, number of rooms, type of floor, type of doors, and other information relevant to how well the building can contain interior leaks and spills.
60 acres in size, currently no structures and not used by Navy. No fence present evidence of ATV use present. Some debris - metal & other present at location.

Visible Evidence of Previous Uses (indicate if there is evidence that a previous structure may have once existed on the site):
Antenna grounding wires present, open burn area evident due to vegetation missing.

Hazardous Materials/Petroleum Products Observed None
Current: None
Evidence of Former Use: None

Describe the overall apparent condition of the structure: Vegetated with pathways (brush no canopy trees)
Describe the Heating/Cooling System: N/A
Describe Current and Former Water Supplies: Wells formerly
Describe Current and Former Wastewater Treatment: Septic System drainfields formerly

Site Description Checklist: Check if any of the following were observed, and provide supporting notes on back:

Basement:		Upper Floor(s):	
Floor Pits:		Utility Room(s):	
Closet(s):	No buildings currently	Underfloor Utilities:	
Exterior Storage Area:		Elevator(s):	
Sumps:			

Adjacent Properties: Describe each adjacent property North and Northeastern Crocker & Sons Sand & gravel mine, remaining are individual property owners.

Observation Checklist: Check if any of the following were observed, and provide supporting notes on back:

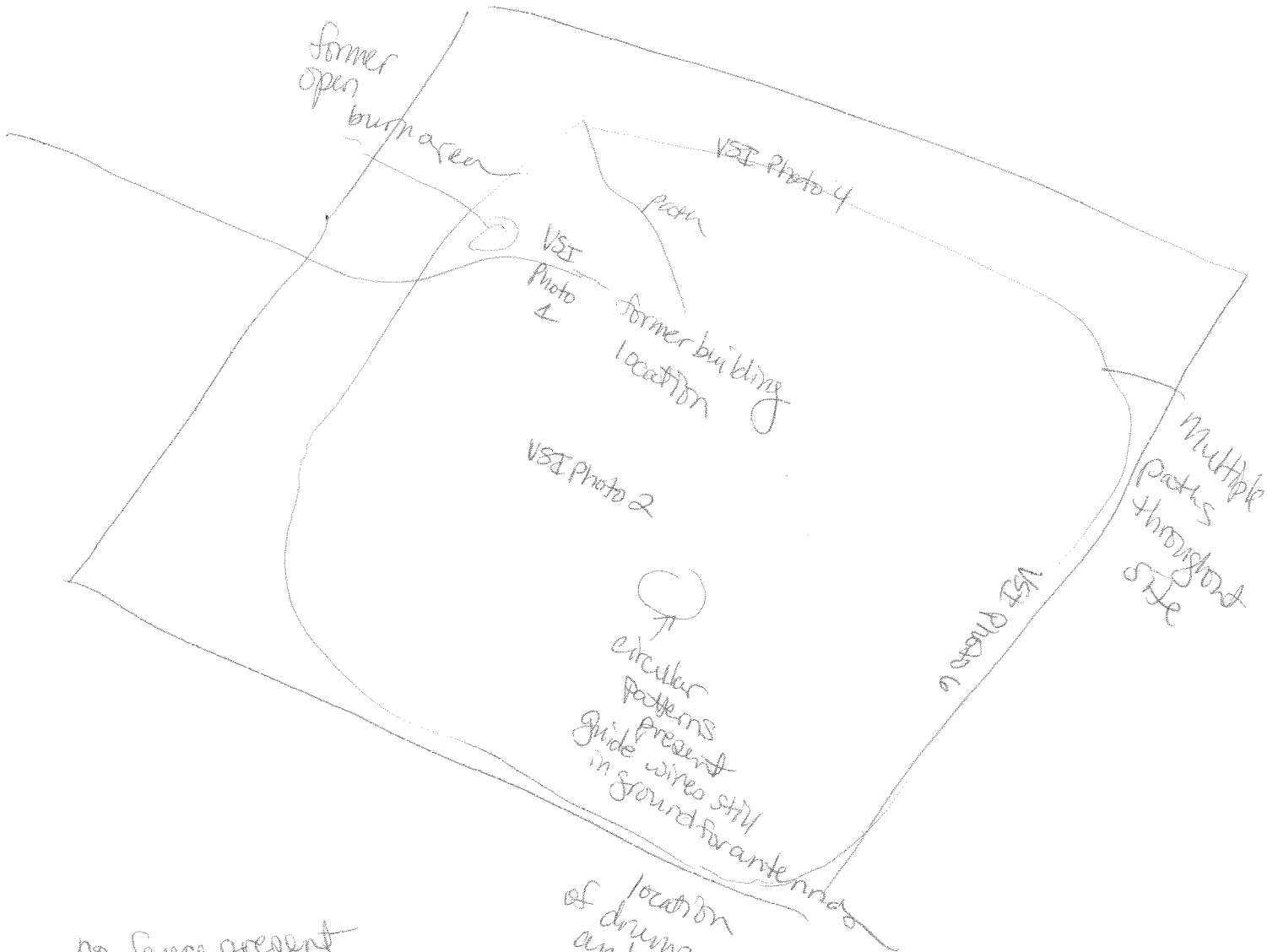
USTs:	None	ASTs:	None
Odors:	None	Pools of Liquid:	No
Drums:	Adjacent Property	Other Containers:	Adjacent southern property
Stressed Vegetation:	Some throughout & former open burn area	Stained Soils:	Somewhat - yes in #6
Electrical Equipment:	Yes - unknown equip. VSI Photo 2	Labeled as PCB?	N/A Non-PCB?
Floor Drains:	N/A	Sumps:	N/A
Oil/Water Separators:	None	Grease Traps:	N/A
Floor Stains:	N/A	Located Next to Cracks/Corrosion?	N/A
Floor Cracks:	N/A	Hairline?	Major?
Floor Corrosion:	N/A	Shallow?	To Soil? N/A
Holes in Wall:	N/A	At Floor Seam?	Elsewhere?
Satellite Accumulation Areas:	N/A	Flammable Lockers:	None
Floor Tiles:	N/A	Known to Contain Asbestos?	N/A
Other Possible ACM:	None	Friable?	Nonfriable? Unknown?
Peeling Paint:	None	Surface Older than 1978?	N/A former yes
Evidence of Pesticide Use:	Probable	Monitoring Wells:	Done
(Possible) Air Emissions Sources:	None	(Possible) UXO:	

Onsite Records: Look for the following while inspecting the area:

Hazardous Material Inventory Lists	Warning Signage
MSDSs	Photographs - EDR Aerials & Digital Rima/Lawson
Record Binders - EBS x 2 - many areas of concern	septic, condition of bldgs, discarded batteries

Use this space to prepare a sketch of the Area and to provide supporting notes concerning features checked on the front page.

Representative - Not to scale



- no fence present
- ATV paths throughout
- see if we can determine GW flow direction (update undetermined) 10/27/06

East Bournswick Remote Radio Site Visit included:

Lisa Joy - NASB ~~Env~~ Dept
Tom Brubaker - NASB PW
Dawn Kincaid - BRACPMO NE
Claudia Salt - Maine DEP
Christine Williams - EPA
Rhea Mikky & Lawson Anderson - FENNS

ATTACHMENT A
VISUAL SITE INSPECTION FORM
2006 CERFA REPORT

Real Property Area: Sabino Hill Lake Station 558 Date of Initial Construction: Pre-1960
Inspector(s): Rima Mikeyd Lawson Anderson Inspection Date: 10/4/16
Escort: Lisa Joy - NAS B Env. Dept Phone: 207-921-1777 FAX:

Interviews: If escorted, list escort name below and complete an Interview Transcript. Also, list names of other people interviewed for this Area, and complete Transcript for each.
completed in Appendix F

Structure Description/Current Use: Indicate approx. size, number of rooms, type of floor, type of doors, and other information relevant to how well the building can contain interior leaks and spills.
Metal Lake Station (observation tower) off Perkins Farm Lane to observe flight exercises over water nearby. (Phippsburg, Me)

Visible Evidence of Previous Uses (indicate if there is evidence that a previous structure may have once existed on the site):
None

Hazardous Materials/Petroleum Products Observed
Current: None
Evidence of Former Use: None

Describe the overall apparent condition of the structure: poor peeling paint + rusting
Describe the Heating/Cooling System: Unknown
Describe Current and Former Water Supplies: none
Describe Current and Former Wastewater Treatment: none

Site Description Checklist: Check if any of the following were observed, and provide supporting notes on back:
Basement: No
Floor Pits: No
Closet(s): No
Exterior Storage Area: No
Sumps: No
Upper Floor(s): tower room (unable to inspect)
Utility Room(s): No
Underfloor Utilities: Yes
Elevator(s): No

Adjacent Properties: Describe each adjacent property North residential housing and woods south wood residential housing Popham Beach, West rural road + wooded area, east woods and residential housing

Observation Checklist: Check if any of the following were observed, and provide supporting notes on back:
USTs: No
Odors: No
Drums: No
Stressed Vegetation: No
Electrical Equipment: line, generator? west of station two utility boxes
Floor Drains: No
Oil/Water Separators: No
Floor Stains: No
Floor Cracks: No
Floor Corrosion: No
Holes in Wall: No
Satellite Accumulation Areas: No
Floor Tiles: No
Other Possible ACM: No
Peeling Paint: Yes
Evidence of Pesticide Use: No
(Possible) Air Emissions Sources: No
ASTs: No
Pools of Liquid: No
Other Containers: No
Stained Soils: No but flakes of paint
Labeled as PCB? No Non-PCB?
Sumps: No
Grease Traps: No
Located Next to Cracks/Corrosion? No
Hairline? Major?
Shallow? To Soil? No
At Floor Seam? Elsewhere? No
Flammable Lockers:
Known to Contain Asbestos? No ND.
Friable? Nonfriable? Unknown?
Surface Older than 1978? Yes
Monitoring Wells: No
(Possible) UXO: ND

Onsite Records: Look for the following while inspecting the area:
Hazardous Material Inventory Lists
MSDSs PCBs
Record Binders - LBP test results
Warning Signage
Photographs - EDR + Rima + Lawson digital

Use this space to prepare a sketch of the Area and to provide supporting notes concerning features checked on the front page.

Representative Sketch - Not to scale

Paint peeling + rusting metal
Easy Road Access

Sabino Hill Rake Station Site Visit included:

Lisa Joy - NASB Env. Dept
Dawn Kincaid - BRAC PMO NE
Claudia Sait a Brownfield ~~Assistant~~ - Maine DEP
Christine Williams - EPA
Rima Miley & Lawson Anderson - TtNUS

ATTACHMENT A
VISUAL SITE INSPECTION FORM
2006 CERFA REPORT

Real Property Area: Small Point Rake Station 557 Date of Initial Construction: Pre-1960
Inspector(s): Rima Mikey & Lawson Anderson Inspection Date: 10-4-06
Escort: Lisa Joy-NASB Env. Dept → Phone: 207-921-1717 FAX:

Interviews: If escorted, list escort name below and complete an Interview Transcript. Also, list names of other people interviewed for this Area, and complete Transcript for each.
completed in Appendix F

Structure Description/Current Use: Indicate approx. size, number of rooms, type of floor, type of doors, and other information relevant to how well the building can contain interior leaks and spills.
Concrete observation tower off Navy Road in Phippsburg, ME. Walk access path to concrete tower used to observe airplane exercises over water

Visible Evidence of Previous Uses (indicate if there is evidence that a previous structure may have once existed on the site):
Found 6 footings of old structure north of concrete rake tower. Building Unknown - old map states barracks located north of rake tower. Also, told metal rake tower used to be present at this site - no verification at time of report.

Hazardous Materials/Petroleum Products Observed
Current: None
Evidence of Former Use: None

Describe the overall apparent condition of the structure: Poor rusting/peeling paint on door to top
Describe the Heating/Cooling System: Unknown
Describe Current and Former Water Supplies: None
Describe Current and Former Wastewater Treatment: None

Site Description Checklist: Check if any of the following were observed, and provide supporting notes on back:
Basement: No
Floor Pits: No
Closet(s): No
Exterior Storage Area: No
Sumps: No
Upper Floor(s): Tower Room (unable to inspect interior)
Utility Room(s): No
Underfloor Utilities: yes
Elevator(s): No

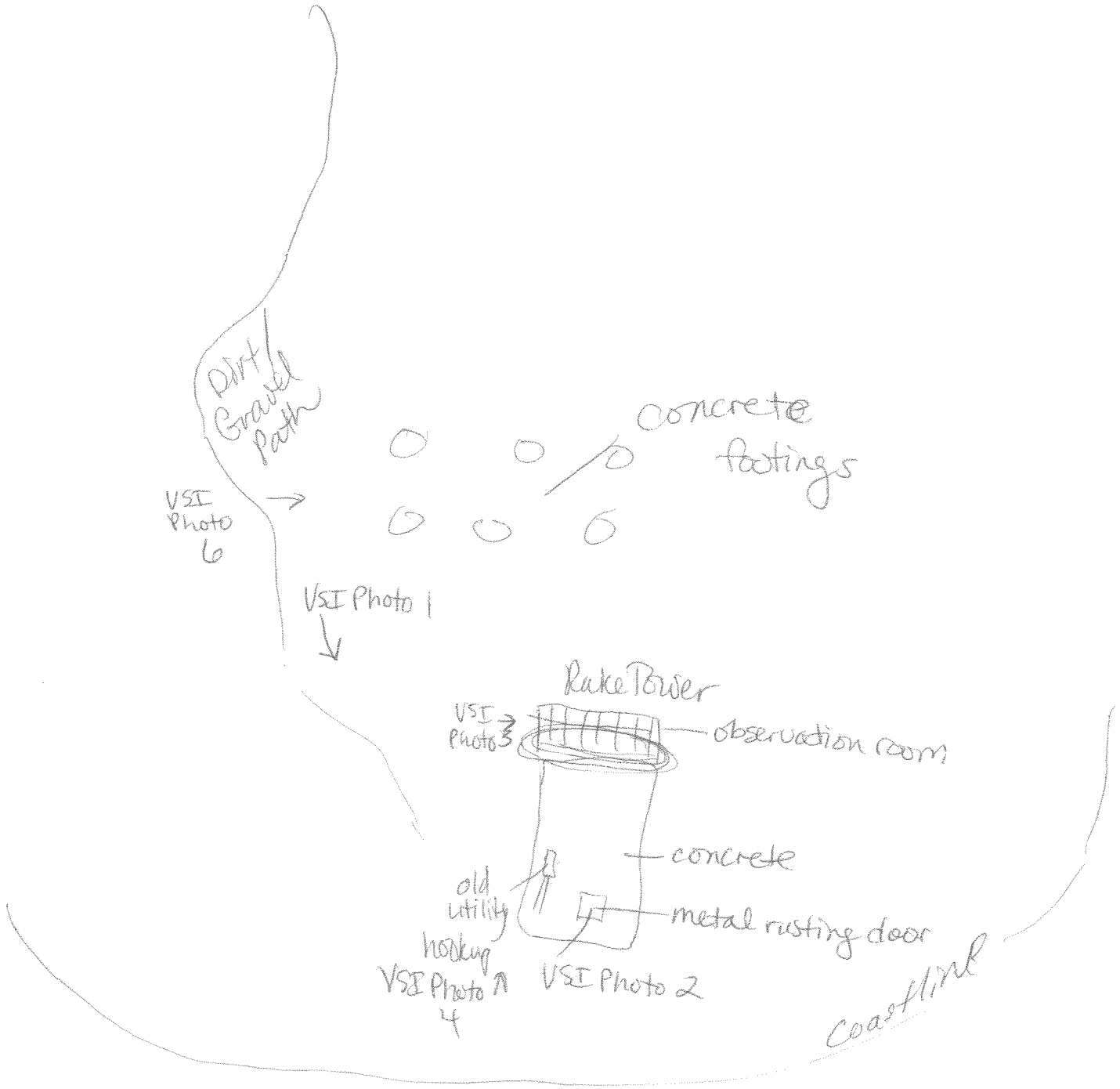
Adjacent Properties: Describe each adjacent property South coast & water West & east coast & water, north residential homes & woods

Observation Checklist: Check if any of the following were observed, and provide supporting notes on back:
USTs: No
Odors: No
Drums: No
Stressed Vegetation: No
Electrical Equipment: attached to pole
Floor Drains: No
Oil/Water Separators: No
Floor Stains: No
Floor Cracks: No
Floor Corrosion: No
Holes in Wall: No
Satellite Accumulation Areas: No
Floor Tiles: No
Other Possible ACM: No
Peeling Paint: exterior door
Evidence of Pesticide Use: None
(Possible) Air Emissions Sources: None
ASTs: No
Pools of Liquid: No
Other Containers: No
Stained Soils: No
Labeled as PCB? Unk Non-PCB?
Sumps: No
Grease Traps: No
Located Next to Cracks/Corrosion? No
Hairline? Major? No
Shallow? To Soil? No
At Floor Seam? Elsewhere? No
Flammable Lockers: No
Known to Contain Asbestos? No
Friable? Nonfriable? Unknown?
Surface Older than 1978? Possible
Monitoring Wells: No
(Possible) UXO: No

Onsite Records: Look for the following while inspecting the area:
Hazardous Material Inventory Lists
MSDSs
Record Binders PCB & LBP test results
Warning Signage
Photographs - EDR & Rima Mikey & Lawson Anderson digital photos

Use this space to prepare a sketch of the Area and to provide supporting notes concerning features checked on the front page.

Representative Sketch - Not to Scale



Small Point Rake Station Site Visit Included:

Lisa Joy - NASB Env. Dept.
Dawn Kincaid - BRAC PMO NE
Claudia Sait & Brownfields Asst. - Maine DEP
Christine Williams - EPA
Rima Mikey & Ingerson Anderson - Tetra Tech

Visual Site Inspection Photographs
(In color on attached CD)

APPENDIX D

Photo A2 VSI-1: Area A-2 -Typical housing units in eastern half of Woodland Hills. (Source: TtNUS, 5 Oct 2006)

Photo A2 VSI-2: Facing north on bridge in eastern half of Woodland Hills housing area. Neptune Drive is beyond trees on left. (Source: TtNUS, 5 Oct 2006)

APPENDIX D

Photo A2 VSI-3: Facing south on bridge in eastern half of Woodland Hills housing area. Neptune Drive is beyond trees on right. (Source: TtNUS, 5 Oct 2006)

APPENDIX D

Photo A3 VSI-1: Private residence were Old Coombs Road becomes New Coombs Road; facing north at NE corner of Area A-3. (Source: BRAC PMO NE, 5 Oct 2006)

Photo A3 VSI-2: Woodpile at private residence where Old Coombs Road becomes New Coombs Road; facing NE; north side of Area A-3 is on the left. (Source: BRAC PMO NE, 5 Oct 2006)

APPENDIX D

Photo A3 VSI-3: Private residence on New Coombs Road; facing north where NAS boundary turns south (east of Area A-3). (Source: BRAC PMO NE, 5 Oct 2006)

Photo A3 VSI-4: Facing north - abandoned pickup truck just outside of Area A-3 to north. (Source: BRAC PMO NE, 5 Oct 2006)

APPENDIX D

Photo A3 VSI-5: Facing north – abandoned car in woods just outside north side of Area A-3. (Source: BRAC PMO NE, 5 Oct 2006)

Photo A3 VSI-6: Pond in Area A-3; Facing south looking in from northern border. (Source: BRAC PMO NE, 5 Oct 2006)

APPENDIX D

Photo A3 VSI-7: Area A-3 looking west along northern fence line. (Source: BRAC PMO NE, 5 Oct 2006)

Photo A3 VSI-8: Looking south into typical woods in Area A-3. (Source: BRAC PMO NE, 5 Oct 2006)

APPENDIX D

Photo A3 VSI-9: NW end of northern side of Area A-3 looking at Weapons Compound Road. (Source: BRAC PMO NE, 5 Oct 2006)

Photo A3 VSI-10: Facing south; area on other side of fence is the east adjacent property to Area A-3. (Source: BRAC PMO NE, 5 Oct 2006)

APPENDIX D

Photo A3 VSI-11: Looking east down new Coombs Road east of Area A-3; woods on right are on private property. (Source: BRAC PMO NE, 5 Oct 2006)

Photo A3 VSI-12: Looking into NAS property east of Area A-3 at rock ledge/outcropping where trash/debris pile discovered in May 2006. (Source: BRAC PMO NE, 5 Oct 2006)

APPENDIX D

Photo A4 VSI-1: Golf Course Clubhouse. (Source: TtNUS, 5 Oct 2006)

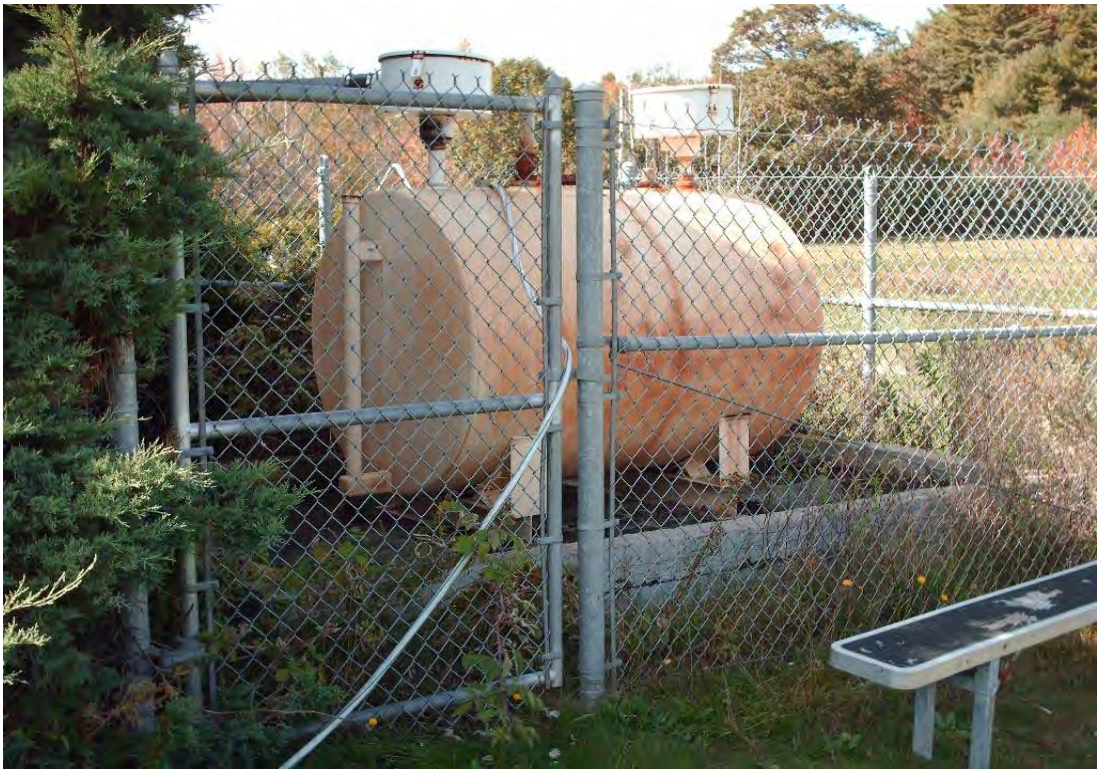


Photo A4 VSI-2: Golf Course Clubhouse AST. (Source: TtNUS, 5 Oct 2006)

APPENDIX D

Photo A4 VSI-3: Golf Cart Storage Shed. (Source: TtNUS, 5 Oct 2006)

Photo A4 VSI-4: Golf Cart Storage Shed. (Source: TtNUS, 5 Oct 2006)

APPENDIX D

Photo A4 VSI-5: Golf Course Maintenance Shop. (Source: TtNUS, 5 Oct 2006)

Photo A4 VSI-6: Golf Course Maintenance Shop - hazardous materials storage lockers. (Source: TtNUS, 5 Oct 2006)

APPENDIX D

Photo A4 VSI-7: Golf Course Maintenance Shop Oil-Water Separator. (Source: TtNUS, 5 Oct 2006)

Photo A4 VSI-8: Golf Course Maintenance Shop ASTs. (Source: TtNUS, 5 Oct 2006)

APPENDIX D

Photo A4 VSI-9: Debris at IR Site 16 behind Golf Course Maintenance Shop. (Source: TtNUS, 5 Oct 2006)

Photo A4 VSI-10: Golf Course Pumphouse. (Source: TtNUS, 5 Oct 2006)

APPENDIX D

Photo A4 VSI-11: Road down to Harpswell Cove in Area A-4. (Source: TtNUS, 6 Oct 2006)

Photo A4 VSI-12: "Obstacle course" at end of western perimeter road in Area A-4 (Source: TtNUS, 6 Oct 2006)

APPENDIX D

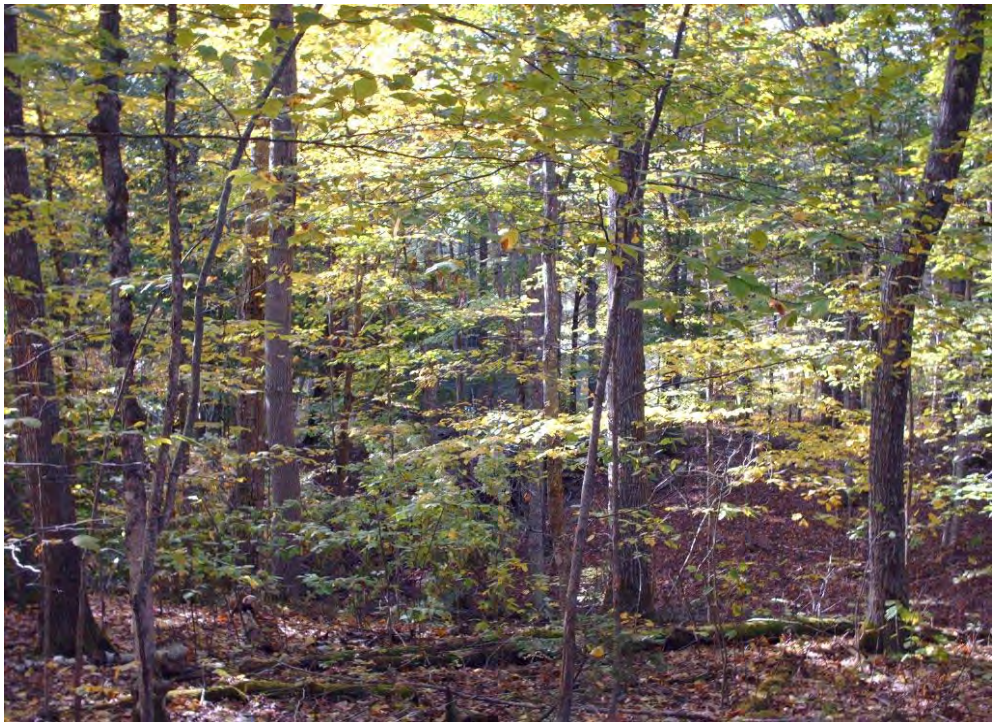


Photo A4 VSI-13: West adjacent property at end of western perimeter road in Area A-4. There is a private home just across the fence line. (Source: TtNUS, 6 Oct 2006)

Photo A4 VSI-14: Abandoned underground fuel pipeline right-of-way in Area A-4. (Source: TtNUS, 6 Oct 2006)

APPENDIX D

Photo A4 VSI-15: IR Site 15 - pond created by soil and debris dam in left foreground . (Source: TtNUS, 6 Oct 2006)

Photo A4 VSI-16: IR Site 15 – debris on downstream side of dam. (Source: TtNUS, 6 Oct 2006)

APPENDIX D

Photo A4 VSI-17: Drum remnant on side of road between IR Site 15 and survival skills training area near Harpswell Cove . (Source: TtNUS, 6 Oct 2006)

Photo A4 VSI-18: Leaching into roadside ditch below IR Site 15. (Source: TtNUS, 6 Oct 2006)

APPENDIX D

Photo A4 VSI-19: Roadside ditch with leachate staining below IR Site 15. (Source: TtNUS, 6 Oct 2006)

Photo A4 VSI-20: Harpswell Cove tidal area that roadside ditch drains to. (Source: TtNUS, 6 Oct 2006)

APPENDIX D

Photo A4 VSI-21: Survival skills training area at Harspwell Cove. (Source: TtNUS, 6 Oct 2006)

Photo A4 VSI-22: Drum remnant in survival skills training area at Harpswell Cove. (Source: TtNUS, 6 Oct 2006)

APPENDIX D

Photo A4 VSI-23: Remnants of temporary shelter at survival skills training area. (Source: TtNUS, 6 Oct 2006)

Photo A4 VSI-24: Harpswell Cove at survival skills training area. (Source: TtNUS, 6 Oct 2006)

APPENDIX D

Photo A5 VSI-1: View of south side of Area A-5 from former TACAN in Area B-8. (Source: TtNUS, 5 Oct 2006)

Photo A5 VSI-2: Airfield portion of Area A-5 facing southeast. (Source: TtNUS, 5 Oct 2006)

APPENDIX D

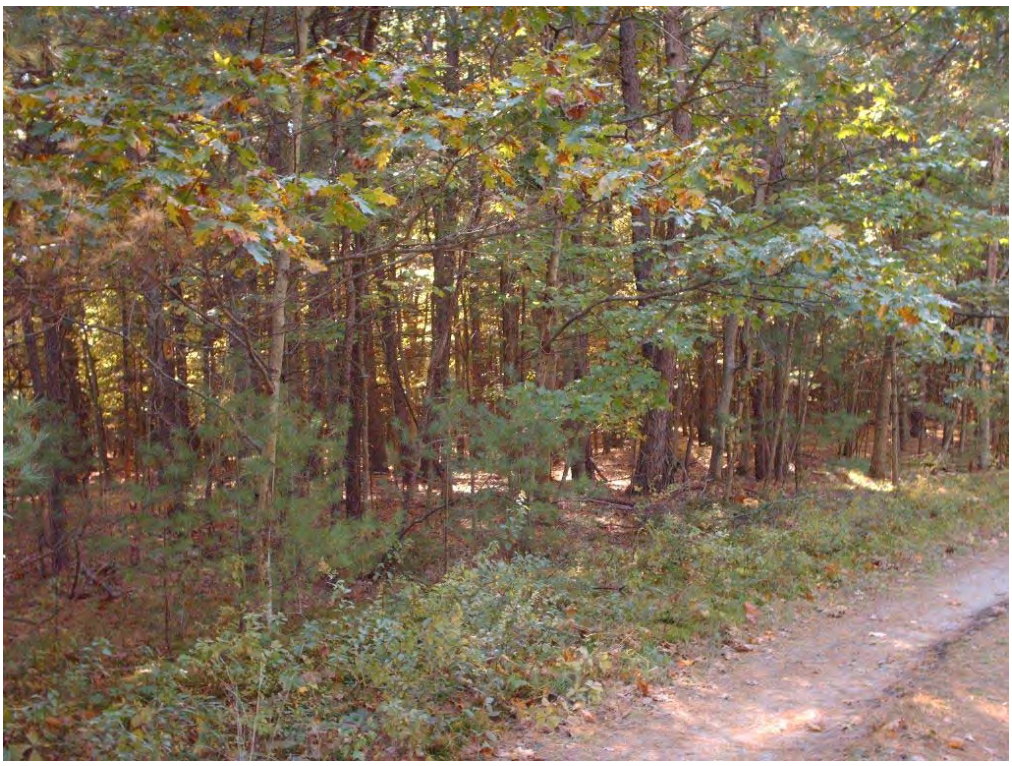


Photo A5 VSI-3: Typical wooded area in Area A-5 from western perimeter road. (Source: TtNUS, 5 Oct 2006)

Photo A5 VSI-4: West adjoining property facing south. (Source: TtNUS, 5 Oct 2006)

APPENDIX D

Photo A5 VSI-5: Disturbed ground on NAS property north of Area A-5.
(Source: TtNUS, 5 Oct 2006)

Photo A5 VSI-6: Trash and debris on NAS property north of Area A-5.
(Source: TtNUS, 5 Oct 2006)

APPENDIX D

Photo A5 VSI-7: Former TACAN/VORTAC location in Area B-8 south of Area A-5. (Source: TtNUS, 5 Oct 2006)

Photo A5 VSI-8: AST at former TACAN/VORTAC. (Source: TtNUS, 5 Oct 2006)

APPENDIX D

Photo A5 VSI-9: Cemetery on private property north and west of Area A-5.
(Source: TtNUS, 5 Oct 2006)

Photo A5 VSI-10: Backflow prevention valve building on NAS property NW of Area A-5.
(Source: TtNUS, 5 Oct 2006)

APPENDIX D
TOPSHAM ANNEX

Photo B10 VSI-1: Building 333 Army Reserve Office/Administration Building. (Source: TtNUS, Oct 2006)

Photo B10 VSI-2: Looking at western side of area of B-10. (Source: TtNUS, Oct 2006)

APPENDIX D
TOPSHAM ANNEX

Photo B10 VSI-3: Building 339 Former Maintenance Shop (Source: TtNUS, Oct 2006)

Photo B10 VSI-4: Building 332 former storage office building located in southwest corner of B-10. (Source: TtNUS, Oct 2006)

APPENDIX D
TOPSHAM ANNEX

Photo B10 VSI-5: Front of Commissary Building 335 (Source: TtNUS, Oct 2006)

Photo B10 VSI-6: Rear of Commissary Building 335, peeling paint evident.
(Source: TtNUS, Oct 2006)

APPENDIX D
TOPSHAM ANNEX

Photo B11 VSI-7: Liberty Circle housing circle entrance. (Source: TtNUS, Oct 2006)

Photo B11 VSI-8: Northeastern Category 2/Red area due to storage tank leak and investigation. (Source: TtNUS, Oct 2006)

APPENDIX D
TOPSHAM ANNEX

Photo B11 VSI-9 Southeastern Category 2/Red area due to storage tank leak and investigation. (Source: TtNUS, Oct 2006)

Photo B11 VSI-10: Southeastern Category 2/Red area due to storage tank leak and investigation. (Source: TtNUS, Oct 2006)

APPENDIX D
MCKEEN STREET HOUSING

Photo B12 VSI-1: View of 144 Columbia location of central (northern) Category 2/Red area of B-12. (Source: TtNUS, Oct 2006)

Photo B12 VSI-2: View of 6 Krampf Street location of southern Category 2/Red area of B-12. (Source: TtNUS, Oct 2006)

APPENDIX D
MCKEEN STREET HOUSING

Photo B12 VSI-3: Possible location of former leaking storage tank (Source: TtNUS, Oct 2006)

Photo B12 VSI-4: Example of the various types of housing within McKeen Street Housing Area (Source: TtNUS, Oct 2006)

APPENDIX D
EAST BRUNSWICK RADIO SITE

Photo A6/B13 VSI-1: Looking west at entrance road exiting the site.
(Source: TtNUS, Oct 2006)

Photo A6 VSI-2: Looking at unknown utility/tubing exiting from ground in Area A-6.
(Source: TtNUS, Oct 2006)

APPENDIX D
EAST BRUNSWICK RADIO SITE

Photo A6 VSI-3: Looking southwest, rusting metal debris in center of photo.
(Source: TtNUS, Oct 2006)

Photo A6 VSI-4: Looking at northern portion of East Brunswick Radio Site.
(Source: TtNUS, Oct 2006)

APPENDIX D
EAST BRUNSWICK RADIO SITE

Photo A6 VSI-5: Example of guide wiring or anchoring from antennae that is present throughout the site. (Source: TtNUS, Oct 2006)

Photo A6 VSI-6: Looking at northeastern boundary of East Brunswick Radio Site, ATV paths throughout the site. (Source: TtNUS, Oct 2006)

APPENDIX D
EAST BRUNSWICK RADIO SITE

Photo B13 VSI-7: Typical site photograph of B-13, buildings removed.
(Source: TtNUS, Oct 2006)

Photo B13 VSI-8: Open burn area. (Source: TtNUS, Oct 2006)

APPENDIX D
SABINO HILL RAKE STATION

Photo B14 VSI-1: View of Sabino Hill Rake Station from ground.
(Source: TtNUS, Oct 2006)

Photo B14 VSI-2: Secure fenced portion of rake station.
(Source: TtNUS, Oct 2006)

APPENDIX D
SABINO HILL RAKE STATION

Photo B14 VSI-3: Peeling paint and rusting metal of Sabino Hill Rake Station
(Source: TtNUS, Oct 2006)

Photo B14 VSI-4: Utility boxes located west of metal rake tower.
(Source: TtNUS, Oct 2006)

APPENDIX D
SABINO HILL RAKE STATION

Photo B14 VSI-5: Close up of condition of peeling paint and rusting metal of Sabino Hill Rake Station (Source: TtNUS, Oct 2006)

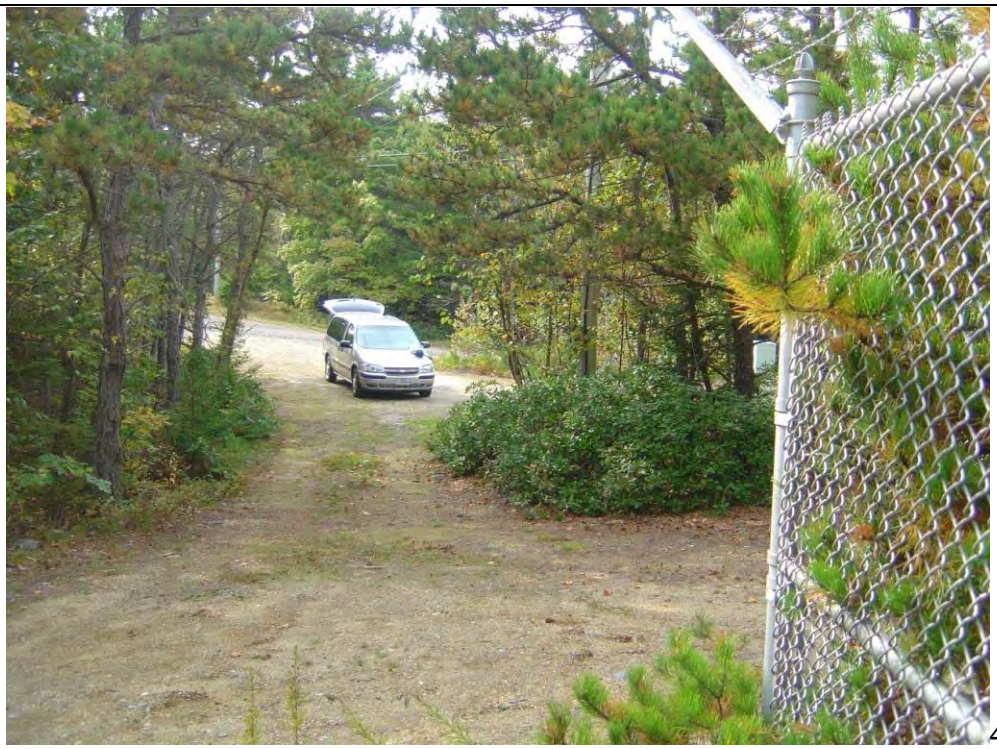


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Photo B14 VSI-6: Easement leading to tower from Perkins Farm Road (Source: TtNUS, Oct 2006)

APPENDIX D
SMALL POINT RAKE STATION

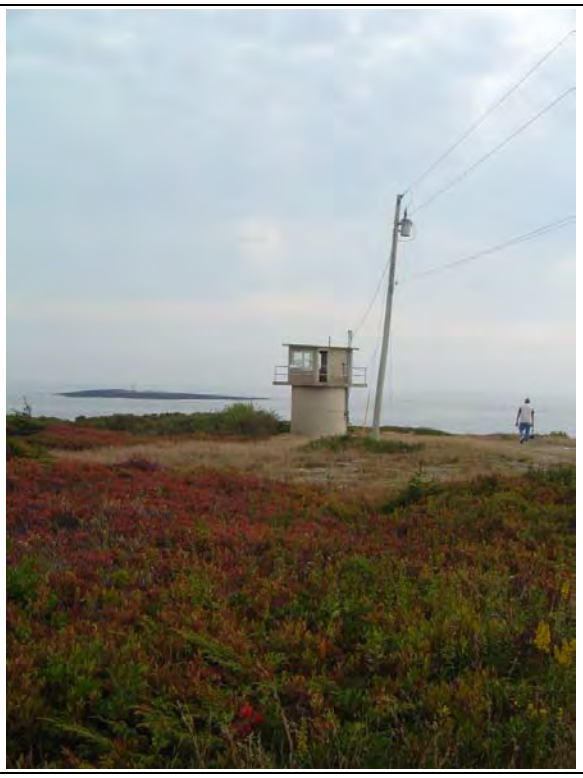


Photo B15 VSI-1: View of Small Point Rake Station from easement path, looking southeast. (Source: TtNUS, Oct 2006)

Photo B15 VSI-2: Peeling paint and rusting on door of rake station
(Source: TtNUS, Oct 2006)

APPENDIX D
SMALL POINT RAKE STATION

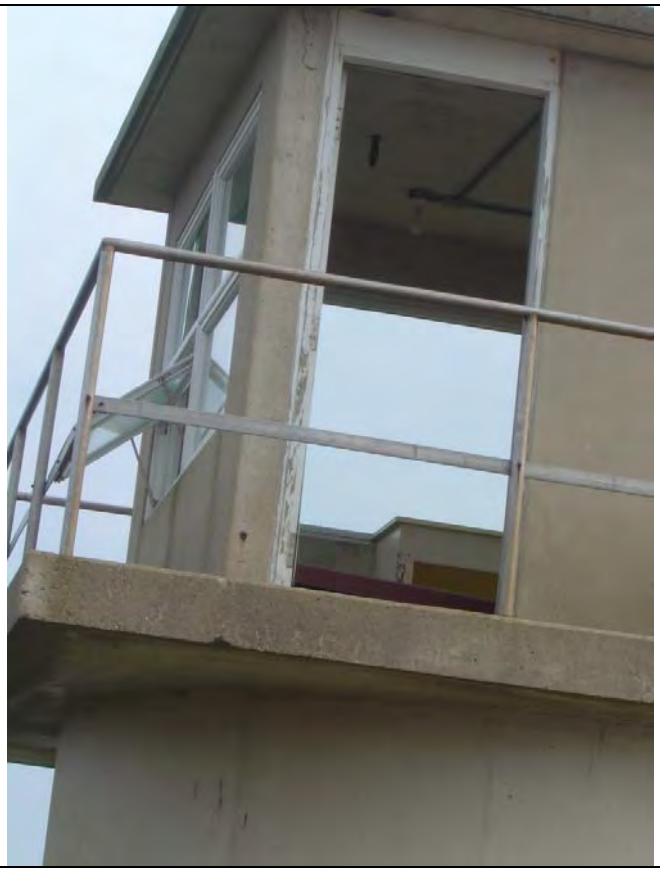


Photo B15 VSI-3: Sabino Hill Rake Station observation area on north side of building (Source: TtNUS, Oct 2006)

Photo B15 VSI-4: Incoming utility boxes located next to entrance door. (Source: TtNUS, Oct 2006)

APPENDIX D
SMALL POINT RAKE STATION

Photo B15 VSI-5: View of south face of rake station (Source: TtNUS, Oct 2006)

Photo B15 VSI-6: Concrete footings or foundation to possible barracks located north of Sabino Hill Rake Tower. (Source: TtNUS, Oct 2006)

APPENDIX E
ADJACENT PROPERTY INSPECTION

APPENDIX E

Appendix E consists of two separate sections:

- E-1 – Appendix E-1 presents the evaluation of properties adjacent to the Main Base Category 1 Areas (A-2 through A-5). The evaluation included: a review of the Environmental Data Resources, Inc. (EDR) DataMap Area Study for Naval Air Station Brunswick, Brunswick ME 04011, EDR, 27 September, 2006; field observations of sites identified in the EDR report that abutted the Main Base Category 1 areas; a general windshield survey of the properties adjacent to the Category 1 Areas; and evaluation of recent aerial photographs obtained through Google Map.

  Table E-1 summarizes the observations of adjacent properties in the four directions (north, south, east, and west) surrounding each of the Category 1 Areas. Table E-1 is supplemented by photographs associated with the observations. The photographs are labeled by the area and a sequence number. For photographs that use a current aerial photograph, features pertinent to the CERFA evaluations were added and the observations were recorded in Table E-1.

- E-2 – Appendix E-2 presents the evaluation of properties adjacent to the remote properties. The evaluation included: a review of the EDR Radius Map Reports with GeoCheck© for McKeen Street Housing Complex, East Brunswick Remote Radio Site, Sabino Hill Rake Site, Small Point Rake Site, and Topsham Annex Housing, Environmental Data Resources, Inc., September 22-26, 2006; evaluation of environmental baseline survey report adjacent property analysis; a general windshield survey of the properties adjacent to the subject properties; and evaluation of recent aerial photographs obtained through Google Map.

  Table E-2 summarizes the observations of adjacent properties in the four directions (north, south, east, and west) surrounding each of the remote properties. Table E-2 is supplemented by photographs associated with the observations. The photographs are labeled by the area and a sequence number. For photographs that use a current aerial photograph, features pertinent to the CERFA evaluations were added and the observations were recorded in Table E-2.

APPENDIX E - 1
MAIN BASE ADJACENT PROPERTIES

APPENDIX E
ADJACENT PROPERTIES OBSERVATION TABLES
NAVAL AIR STATION BRUNSWICK, MAINE
MAIN BASE

Area	North	South	East	West
A-2	Bordered by an existing residential development, Mariner Landing (formerly Brunswick Gardens), Area B-2. Mariner Landing extends east of Neptune Drive and north of Midway Circle (A2-1, A2-2). Area B-2 consists of single-family, multiple-story, townhouse units (A2-3, A2-4, A2-5, A2-6). North of A-2 and B-2 is the Cooks Corner Shopping Center (A2-7, A2-8). The Sears Auto Center service facility is located just north of Area B-2 (A2-9). The EDR DataMap Area Study[1] identified numerous businesses along Bath Road with USTs/ASTs (A2-10, A2-11). Some have had reported releases. A number of gasoline service stations were also noted by visual observation (A2-12, A2-13). If releases occurred in the Cooks Corner area, it is likely that direction of groundwater flow would be towards the Androscoggin River away from Area A-2. The northern delineation of A-2 based on the location of the former Brunswick Gardens property where there were known heating oil releases in the past.	Bordered by wooded, undeveloped land on the southeast and the recently constructed Transient Visitors Center (lodging facility) on the southwest (not shown on aerial photo). (A2-1, A2-14). Area B-5 adjoins Area A-2 to the southwest, and consists of Base administrative, commercial, and residential uses. IR Sites 2, 6, 9, 11, 13, and 20 are located within Area B-5. The Eastern Plume (TCE contamination), is located in B-5. However, this TCE is migrating downgradient in a southeasterly direction and is unlikely to affect Area A-2. The southern delineation of A-2 was defined by its proximity to Area B-5 IR Sites and Eastern Plume. .	Bordered to the immediate east by an unpaved road/trail and undeveloped land. Further east, A-2 is bordered by private, single-family residences, beginning at Wildwood Drive and extending eastward. (A2-1, A2-15) The eastern delineation of A-2 was defined by the Base property boundary.	Area A-2 is bordered to the west by woods in the eastern portion of Area B-5, an administrative, commercial, and residential area (A2-1, A2-16). IR Sites 2, 6, 9, 11, 13, and 20 are located within Area B-5. The abandoned underground fuel pipeline that once served the Old Fuel Farm in Area B-1 is immediately west of A-2 and the pipeline right-of-way is visible in aerial photographs. (A2-1) Further west are Areas B-3 and B-4, which are the part of the active portions of the Base where fuel and chemicals are used. Past releases have been documented in the area west of A-2. Areas extending west of the cut lane in the wooded area comprise the active areas. The western delineation of A-2 was defined by its proximity to Area B-5 IR Sites and facilities with potential for undocumented releases from historical operations that might have occurred prior to establishment of environmental recordkeeping practices.

APPENDIX E
ADJACENT PROPERTIES OBSERVATION TABLES
NAVAL AIR STATION BRUNSWICK, MAINE
MAIN BASE

Area	North	South	East	West
A-3	Bordered by an unpaved road that extends NW from the bend where Old Coombs Road becomes New Coombs Road. North of the unpaved road is wooded, undeveloped land. (A3-1, A3-2). A farm and residence are located to the northeast of A-3. One small structure (unknown) is noted just west of the first residence in the area immediately north of A-3. Single family residences are located northeast of A-3. The northern delineation of A-3 is defined by the Base property boundary.	Area A-3 is bordered to the south by Area B-6, which includes the Magazine Area and IR Site 12, the Explosive Ordnance Detonation (EOD) Training Area (A3-1, A3-3). The land between Area A-3 and IRP Site 12 is generally wooded. A cleared area, situated between A-3 and Site 12 is where the TACAN is now located and a homestead was formerly located. Area A-4 is located further south of Area B-6. The southern delineation of A-3 was defined by the presence of IR Site 12 and the Magazine Area.	Bordered on east by a wooded area and further east by a road leading down to IR Site 12, the EOD Training Area. East of the road is a partially wooded area, with a single-family private residence (A3-1, A3-4). The eastern delineation of A-3 was adjusted to exclude a historic trash and debris pile to the east that was discovered in May 2006. (A3-6, A3-7).	Area A-3 is bordered on the west by Ordnance Road No. 5, which is paved. Area B-6 is west of A-3. West of the road are woods and a meandering stream (A3-1, A3-5). The western delineation of A-3 was defined by its proximity to an area potentially affected by the Eastern Plume.

APPENDIX E
ADJACENT PROPERTIES OBSERVATION TABLES
NAVAL AIR STATION BRUNSWICK, MAINE
MAIN BASE

Area	North	South	East	West
A-4	The lower portion of Area A-4 is bordered to the north by Area B-6, which includes the Magazine Area, Site 12 (EOD Training Area), and IR Site 5 (the Orion Street Asbestos Disposal Area) (A4-1, A4-2). With the exception of the IR sites and the Magazine Area, most of the area north of Area A-4 is wooded or occupied by the floodplain of the stream. The central portion of A-4 is situated south of the runway. The area between A-4 and the runway is cleared. Other areas just north of A-4 consist of wooded, undeveloped land. Various roads and unpaved lanes are present. The upper portion of Area A-4 is bounded by Area B-7, which includes areas cleared for the "Red Label Area" (ordnance handling pad for arming aircraft), several antennae and a quarry and former Munitions Bunker West Area which are being investigated under the Munitions Response Program. The northern delineation of Area A-4 was based on proximity to potential environmental issues associated with Areas B-6 and B-7.	A-4 is bordered to the south by Harpswell Cove and a few private residences and farms with cultivated fields (A4-1, A4-3). Most of the area south of A-4 is undeveloped and wooded. If agricultural chemicals or fuel were released by the farms or residences, the contamination would likely migrate with groundwater into Harpswell Cove or other water bodies due to their proximities and anticipated directions of groundwater flow. The southern delineation of Area A-4 is defined by the Base property boundary and limited land use for a few residences and farms with cultivated fields.	To the east, near the lower portion of Area A-4, it is bounded by a few private residences on Princes Point Road (A4-1, A4-4). A farm appears to be present. Most of the area east of A-4 is undeveloped and wooded. If agricultural chemicals or fuel were released by the farms or residences, the contamination would likely migrate with groundwater into Buttermilk Cove due to their proximities and anticipated directions of groundwater flow. The eastern delineation of Area A-4 is defined by the Base property boundary and limited land use for a few residences and farms with cultivated fields	To the southwest, A-4 is bordered by a few private residences, and several cultivated fields just west of Route 123, Harpswell Road (A4-1, A4-5). Situated to the west of A-4 are private residences and a plant nursery, located on Route 123, Harpswell Road, near the entrance to the Mere Creek Golf Course (A4-6, A4-7). Further north, A-4 is bordered on the west by Route 123 (Harpswell Road) and an area with storage of unknown rectangular shaped objects and a farm (A4-9). There is also a surface impoundment visible in the aerial photograph. The western delineation of Area A-4 is defined by the Base property boundary.

APPENDIX E
ADJACENT PROPERTIES OBSERVATION TABLES
NAVAL AIR STATION BRUNSWICK, MAINE
MAIN BASE

Area	North	South	East	West
A-5	Bordered to the northwest by St. Joseph's Cemetery (A5-1, A5-2, A5-3). Situated further northwest along Route 24, Bath Road, are various commercial and retail businesses including a gas station (with USTs), an auto body repair shop, an automotive parts and service store, a marine parts and supplies store, and an auto conditioning shop (A5-4, A5-5, A5-6). If petroleum and chemicals used or stored at these businesses were released, the chemicals would potentially migrate with groundwater flow. Based on topography and the proximity of the Androscoggin River to these businesses, (estimated 2000 feet), the regional groundwater flow is expected to be northward away from A-5 and would not be likely to affect Area A-5. Also north of A-5 are railroad tracks that parallel Route 24 (A5-2). Three facilities (Brunswick WWTP, Brunswick MGP Site, and a residence) are listed in the EDR DataMap Area Study[1] and are locate northwest of Area A-5 (A5-7). These sites are reported to have had releases from USTs or ASTs. Based on their proximity to	Bordered to the south by Area B-8, which consists of an open area where the TACAN was located before it was moved to Area B-6 when the new tower was constructed at the west end of the former E-W runway. (A5-1, A5-8). The southern delineation for A-5 was adjusted northward because of potential lead-based paint chips and dark soil noted at the former TACAN during the VSI, and is now delineated by Area B-8.	Bordered to the east by Area B-8. This portion of B-8 area consists of the open land that includes the runway end zone and clear zone (A5-1, A5-9). The eastern delineation for A-5 is defined by Area B-8, which contains the runway end and clear zones.	Bordered to the immediate west by several streets with closely spaced private residences and St. Joseph's Cemetery. Several businesses are located along Route 123, Harpswell Road. Bowdoin College buildings and facilities are located further west of the residential areas (A5-1, A5-10, A5-11). The EDR DataMap Area Study[1] identified 4 locations with USTs or ASTs that stored gasoline or fuel oil. Past releases were reported for some of these locations, which are all situated west of Harpswell Road. Based on the ages of the homes and the types of construction, it is likely that many residences in this area are heated by oil. Releases of oil and gasoline from these potential sources could potentially affect A-5. Hence, a buffer zone was allowed for between the Base boundary and the start of Area A-5. The western delineation for A-5 was adjusted to provide a buffer zone between A-5 and the offsite residential heating oil USTs listed in the EDR DataMap Area Study.

Area	North	South	East	West
	the Androscoggin River, releases of petroleum hydrocarbons likely would migrate to the river and would not be likely to affect Area A-5. The northern delineation for A-5 was adjusted so there would be a buffer zone between A-5 and the commercial properties on Route 24 that use or store solvents and fuels, and because of the unknown use of the NAS property immediately to the north where trash and debris piles and disturbed ground were observed during the VSI.			

Note: Photograph numbers are shown in parentheses, and are presented in Appendix F.

1. EDR DataMap Area Study, Naval Air Station Brunswick, Brunswick, ME 04011. Sept. 27, 2006.

APPENDIX E

Photo A2-1: Aerial photograph of Area A-2 and adjacent properties. Image source: Google Map October 2006.

APPENDIX E

Photo A2-2: Aerial photograph of Area A-2 and adjoining northern properties. Source: Google Map October 2006.

APPENDIX E

Photo A2-3: Adjacent property north of A-2. Entrance to Mariner Landing residential development (Area B-2). (Source: TtNUS, 6 Oct 2006)

Photo A2-4: Example housing unit in Mariner Landing. (Source: TtNUS, 6 Oct 2006)

APPENDIX E

Photo A2-5: Adjacent property north of A-2. Example Area B-2 housing unit.
(Source: TtNUS, 6 Oct 2006)

Photo A2-6: Example Area B-2 housing unit. Facing west from Route 24
(Source: TtNUS, 6 Oct 2006)

APPENDIX E

Photo A2-7: Aerial photograph of Area A-2 and adjacent northern properties, including Cooks Corner Shopping Center. Numerous businesses with USTs on Bath Road. Image source: Google Map October 2006.

APPENDIX E

Photo A2-8: Cooks Corner Shopping Center. (Source: TtNUS, 6 Oct 2006)

Photo A2-9: Auto service facility due north of Areas B-2 and A-2.
(Source: TtNUS, 6 Oct 2006)

APPENDIX E

Photo A2-10: Business with UST along Bath Road north of Areas A-2 and B-2.
(Source: TtNUS, 6 Oct 2006)

Photo A2-11: Business with UST along Bath Road, north of Areas A-2 and B-2.
(Source: TtNUS, 6 Oct 2006)

APPENDIX E

Photo A2-12: Service station at Bath Road and Cooks Corner north of Areas A-2 and B-2. (Source: TtNUS, 6 Oct 2006)

Photo A2-13: Service station at Bath Road and Cooks Corner north of Areas A-2 and B-2. (Source: TtNUS, 6 Oct 2006)

APPENDIX E

Photo A2-14: Aerial photograph of Area A-2 with southern areas. (Source: Google Map October 2006)

Photo A2-15: Aerial photograph of Area A-2 with eastern areas, consisting of single family residential units. (Source: Google Map October 2006)

APPENDIX E

Photo A2-16: Aerial photograph of Area A-2 with western areas. (Source: Google Map October 2006)

APPENDIX E

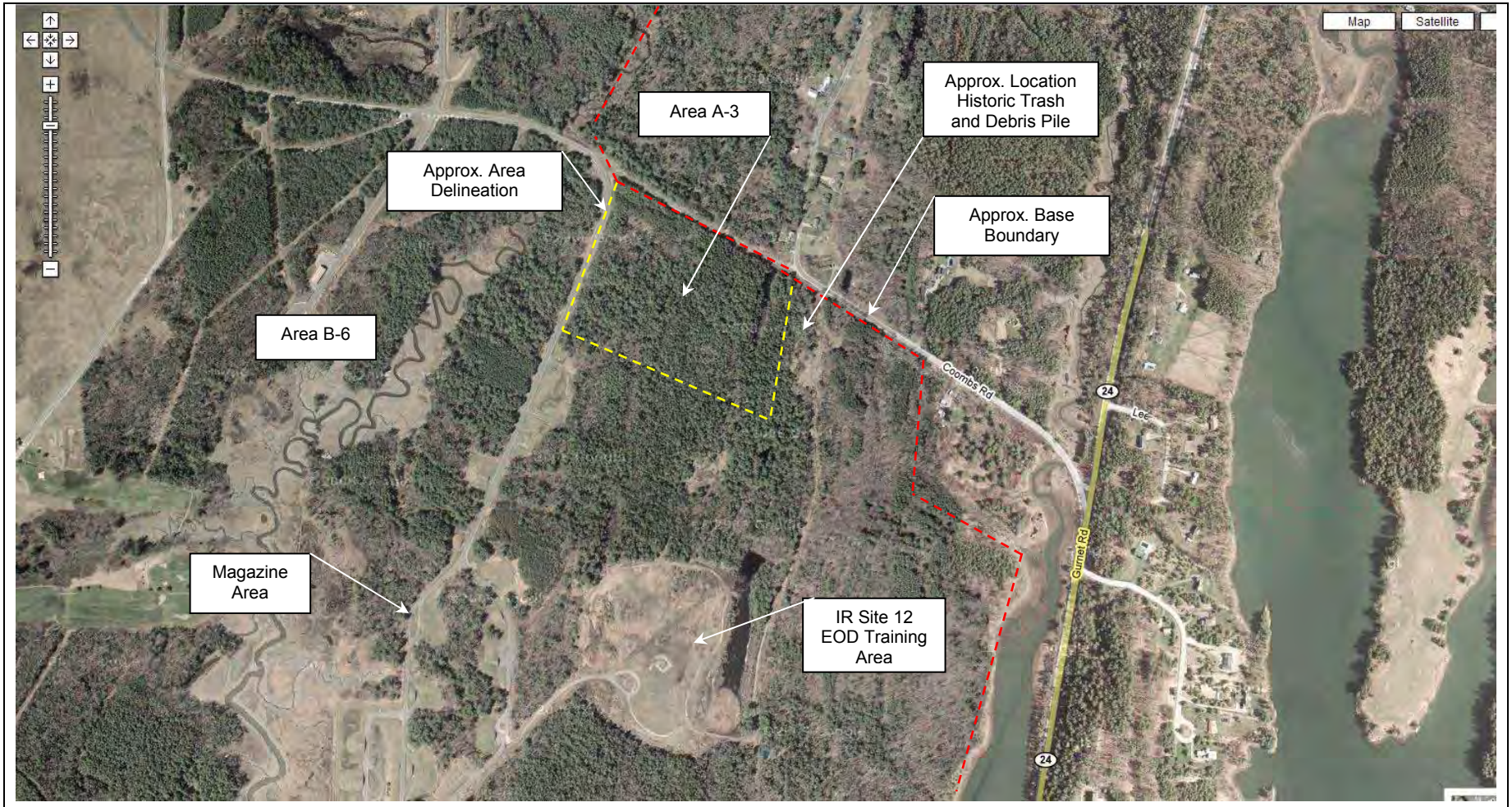


Photo A3-1: Aerial photograph of Area A-3 and adjacent properties. Source: Google Map October 2006.

APPENDIX E

Photo A3-2: Aerial photograph of Area A-3 and adjacent northern properties. Source: Google Map October 2006.

APPENDIX E

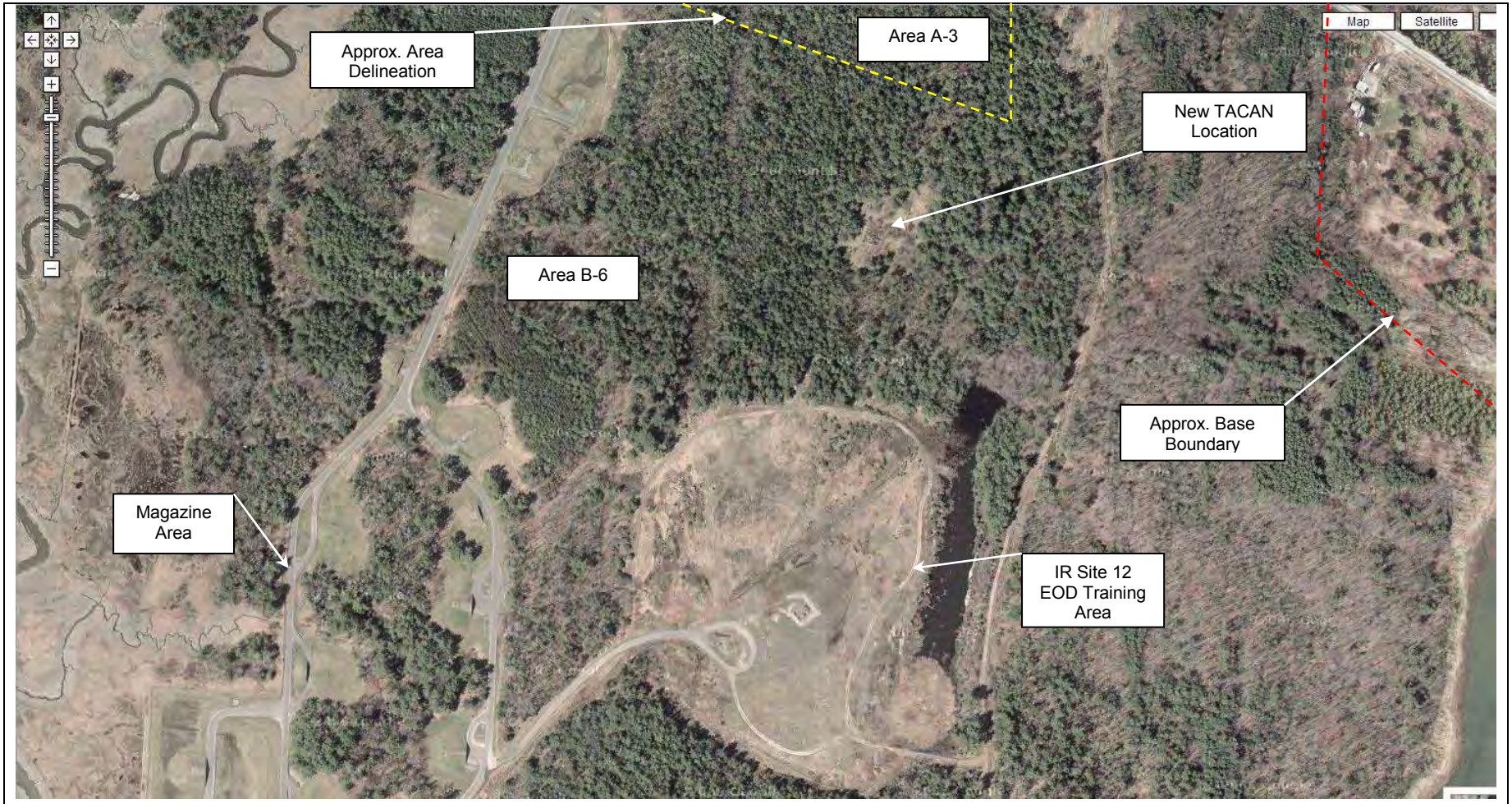


Photo A3-3: Aerial photograph of Area A-3 and adjacent southern properties. Source: Google Map October 2006.

APPENDIX E

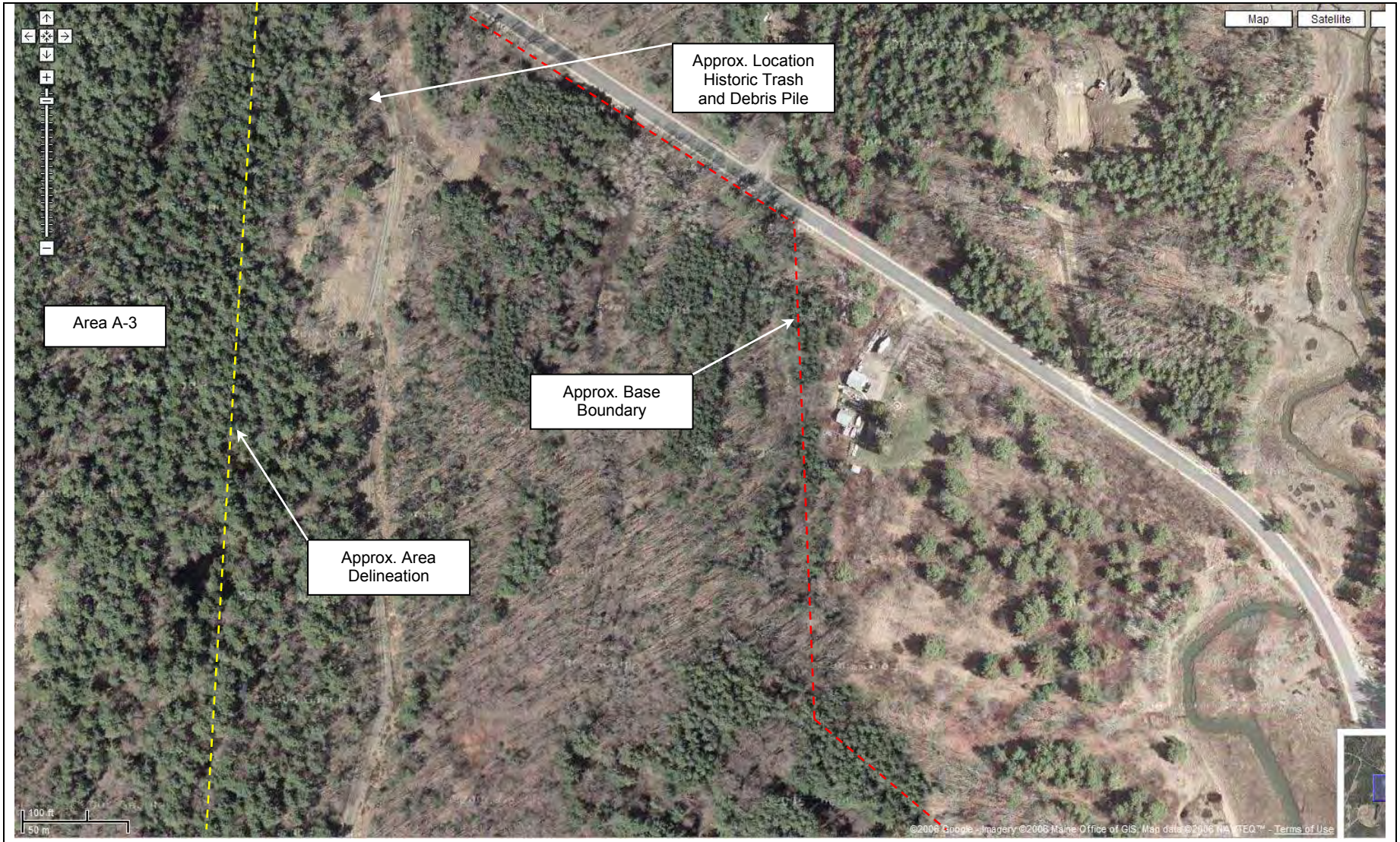


Photo A3-4: Aerial photograph of Area A-3 and adjacent eastern properties. Source: Google Map October 2006.

APPENDIX E

Photo A3-5: Aerial photograph of Area A-3 and adjacent western area. Source: Google Map October 2006.

APPENDIX E

Photo A3-6: Historic trash and debris pile on Area B-6 immediately east of Area A-3.
(Source: NAS Brunswick Environmental Department, 20 Oct 2006)

Photo A3-7: Historic trash and debris pile on Area B-6 immediately east of Area A-3.
(Source: NAS Brunswick Environmental Department, 20 Oct 2006)

APPENDIX E

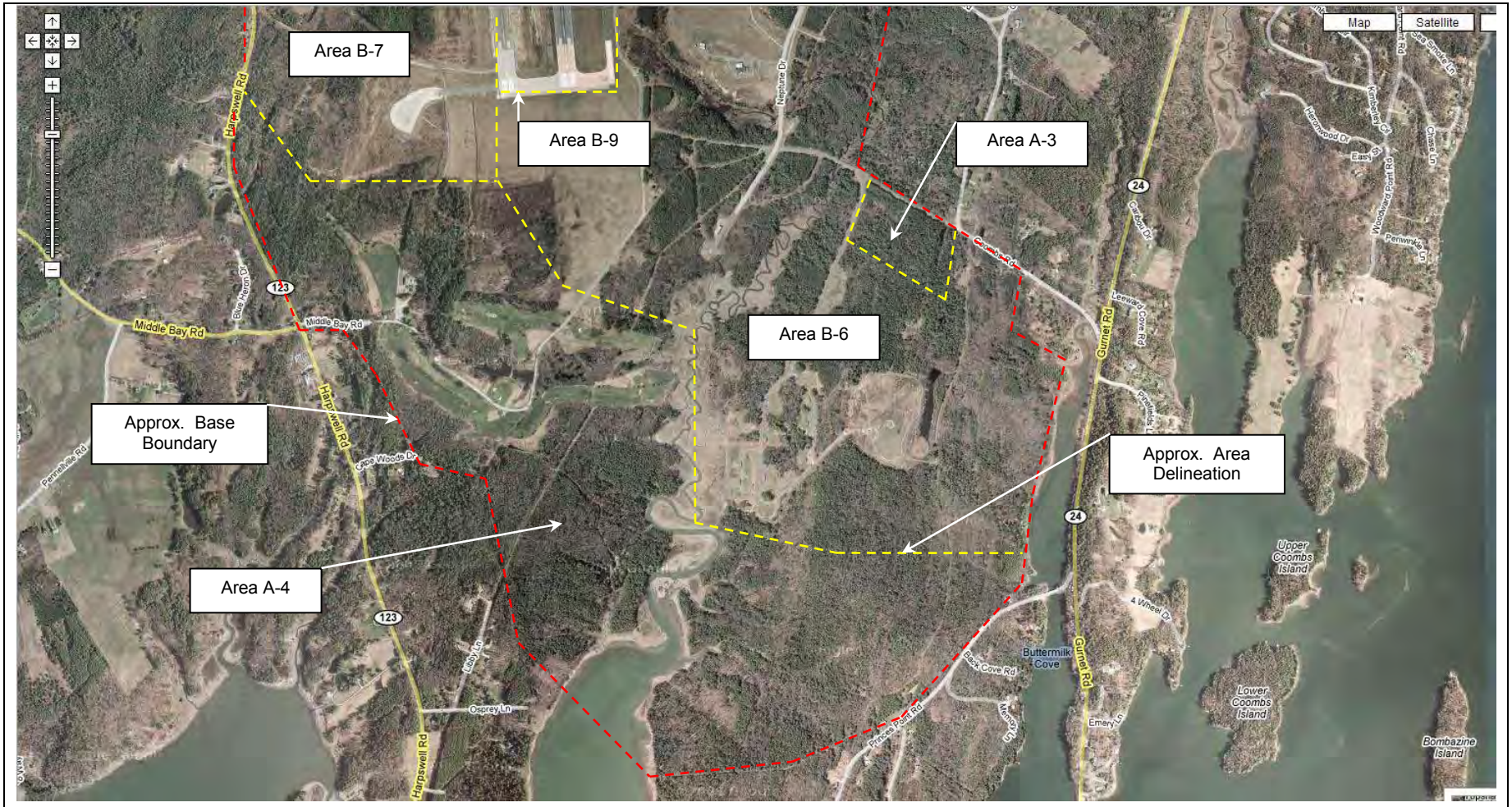


Photo A4-1: Aerial photograph of Area A-4 and adjacent properties. Source: Google Map October 2006.

APPENDIX E

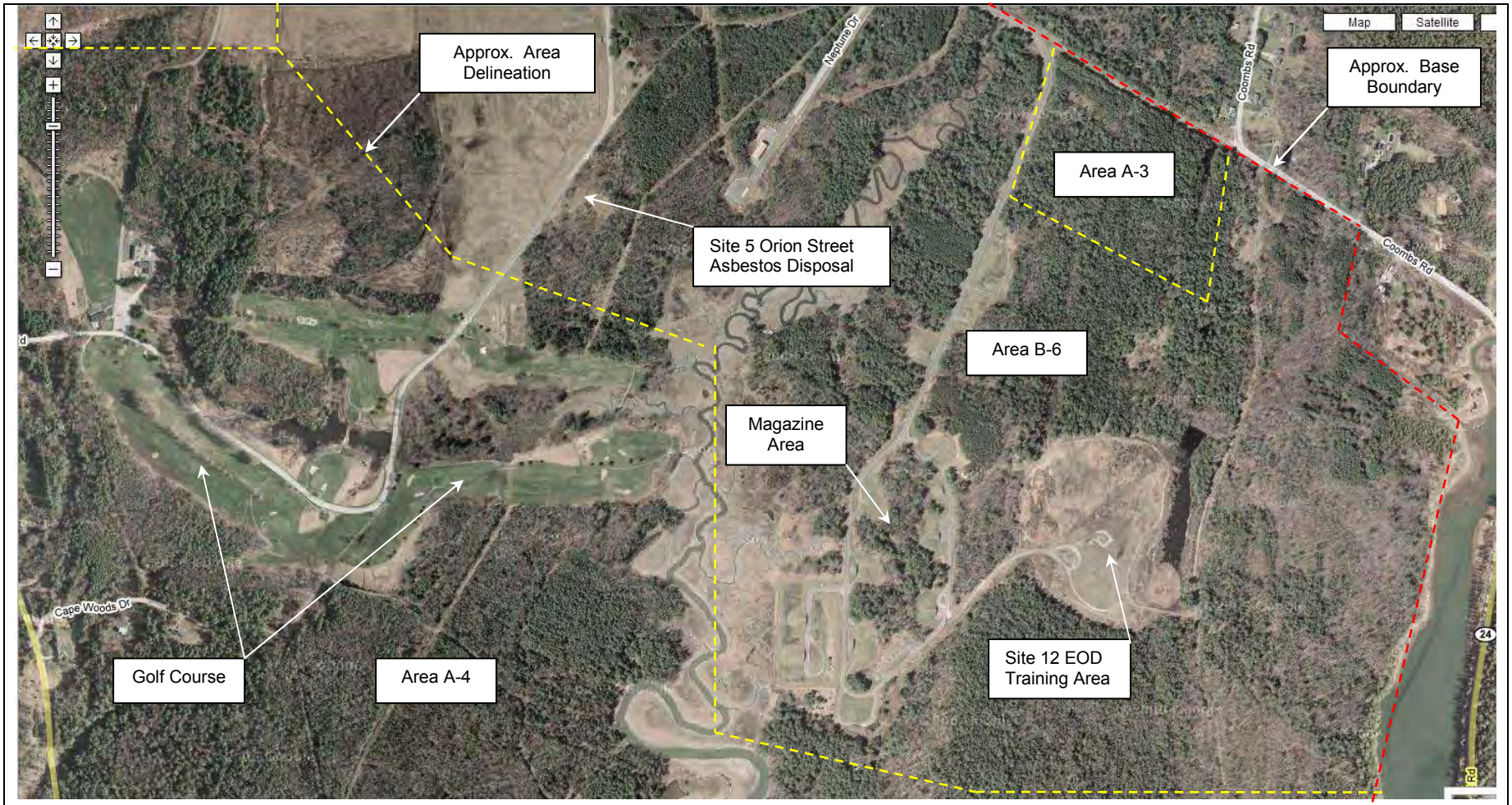


Photo A4-2: Aerial photograph of Area A-4 and adjacent northern areas, including Area B-6. Source: Google Map October 2006.

APPENDIX E

Photo A4-3: Aerial photograph of Area A-4 and adjacent southern areas. Source: Google Map October 2006.

APPENDIX E

Photo A4-4: Aerial photograph of Area A-4 and adjacent eastern areas. Source: Google Map October 2006.

APPENDIX E

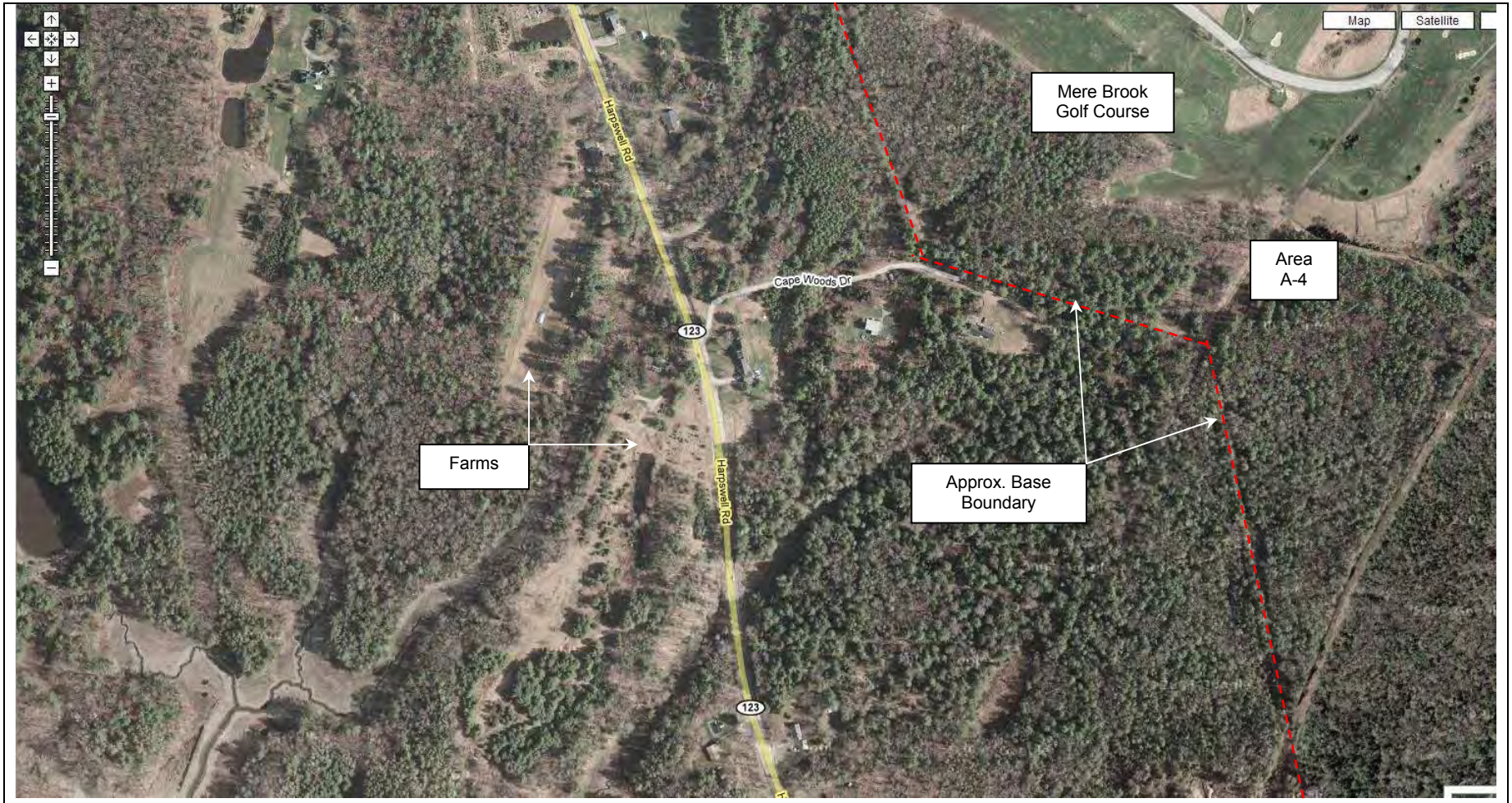


Photo A4-5: Aerial photograph of Area A-4 and southwestern areas. Source: Google Map October 2006.

APPENDIX E

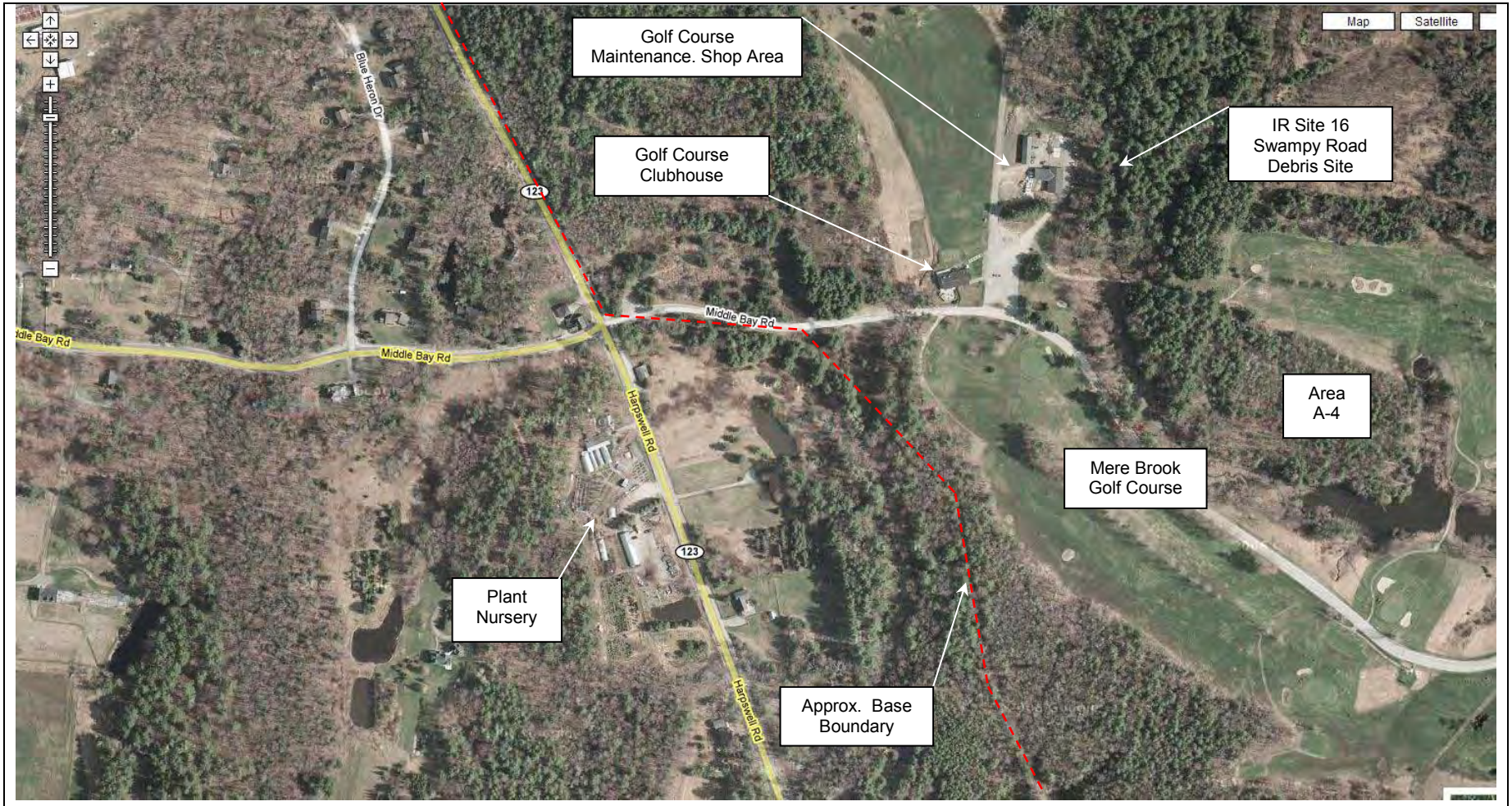


Photo A4-6: Aerial photograph of Area A-4 and adjacent western properties. Source: Google Map October 2006.

APPENDIX E

Photo A4-7: Private residence adjacent to A-4 near entrance to Mere Creek Golf Course. (Source: TtNUS, 6 Oct 2006)

Photo A4-8: Plant nursery near Mere Creek Golf Course entrance on Route 123. (Source: TtNUS, 6 Oct 2006)

APPENDIX E

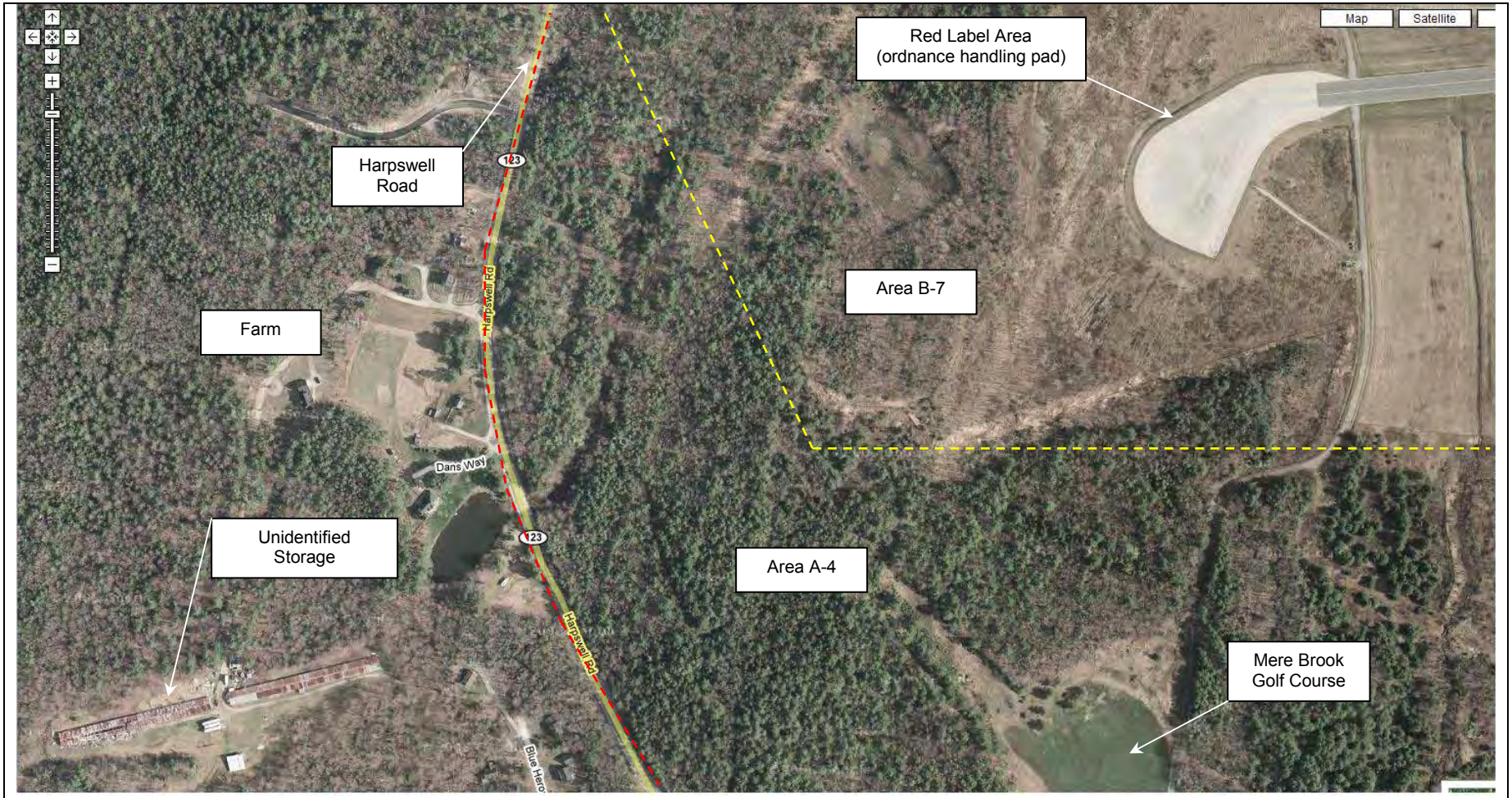


Photo A4-9: Aerial photograph of Area A-4 and adjacent western properties, north of golf course entrance. Source: Google Map October 2006.

APPENDIX E

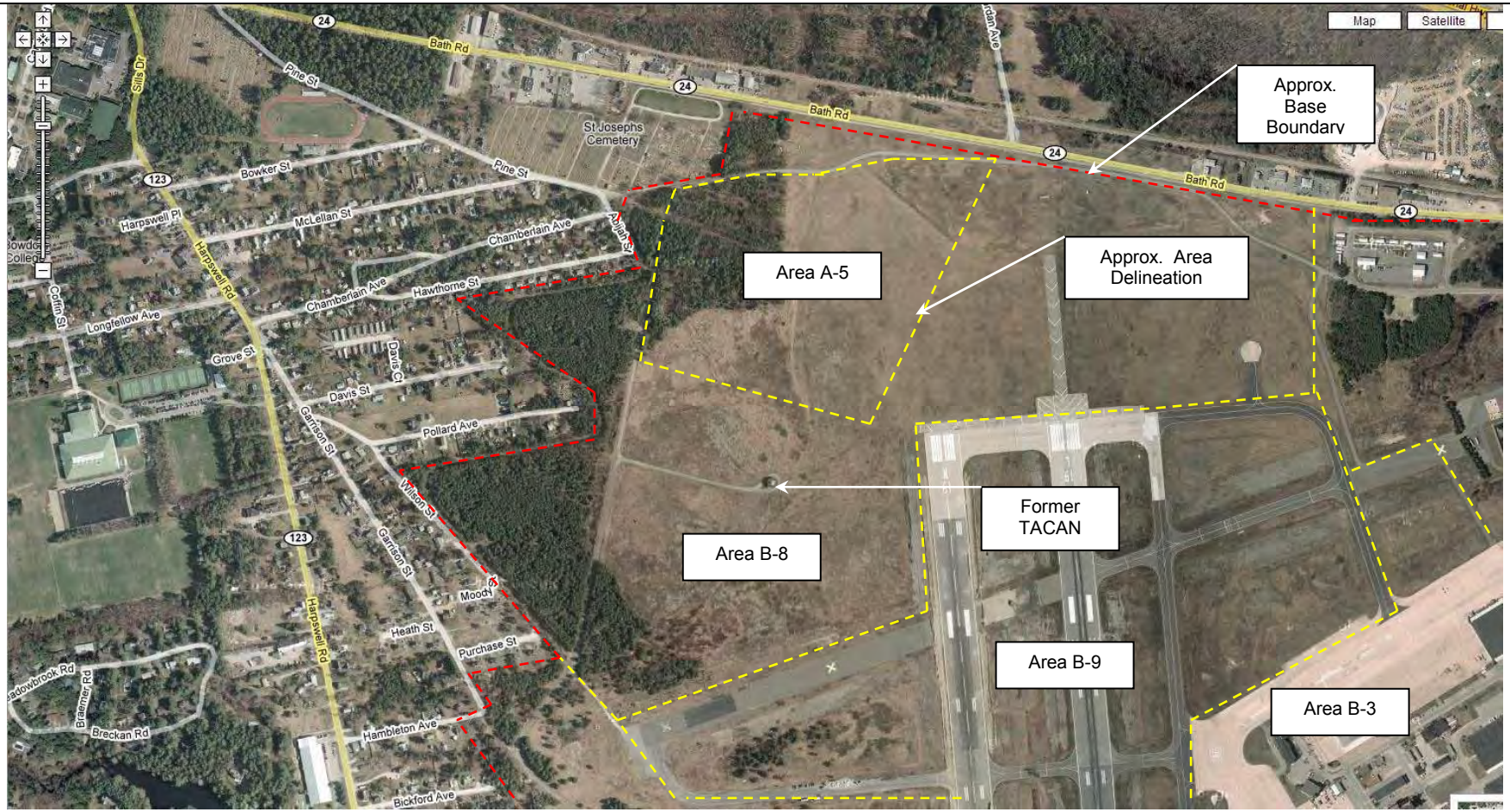


Photo A5-1: Aerial photograph of Area A-5 and adjacent properties. Source: Google Map October 2006.

APPENDIX E

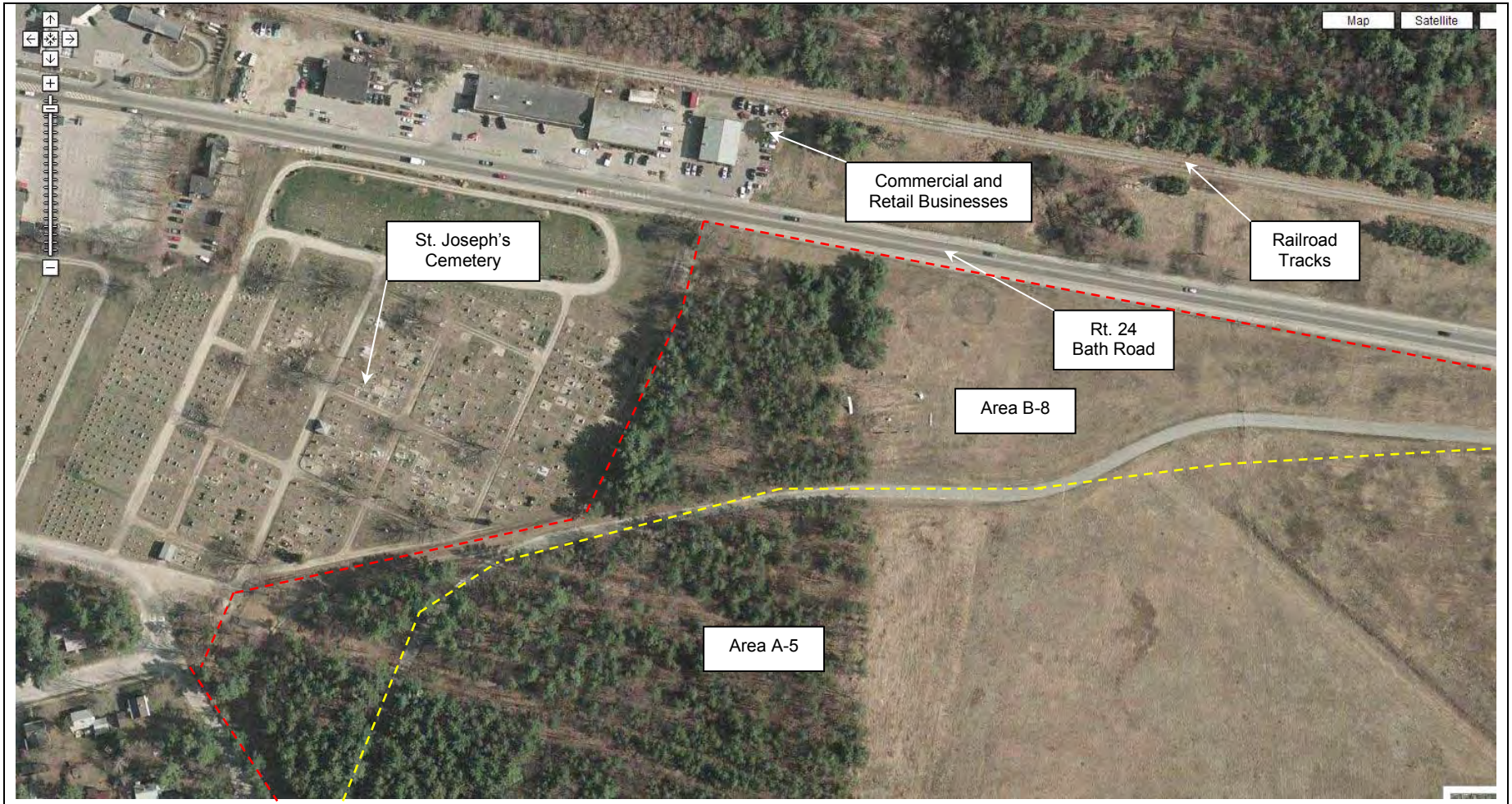


Photo A5-2: Aerial photograph of Area A-5 and adjacent northern properties. Image source: Google Map October 2006.

APPENDIX E

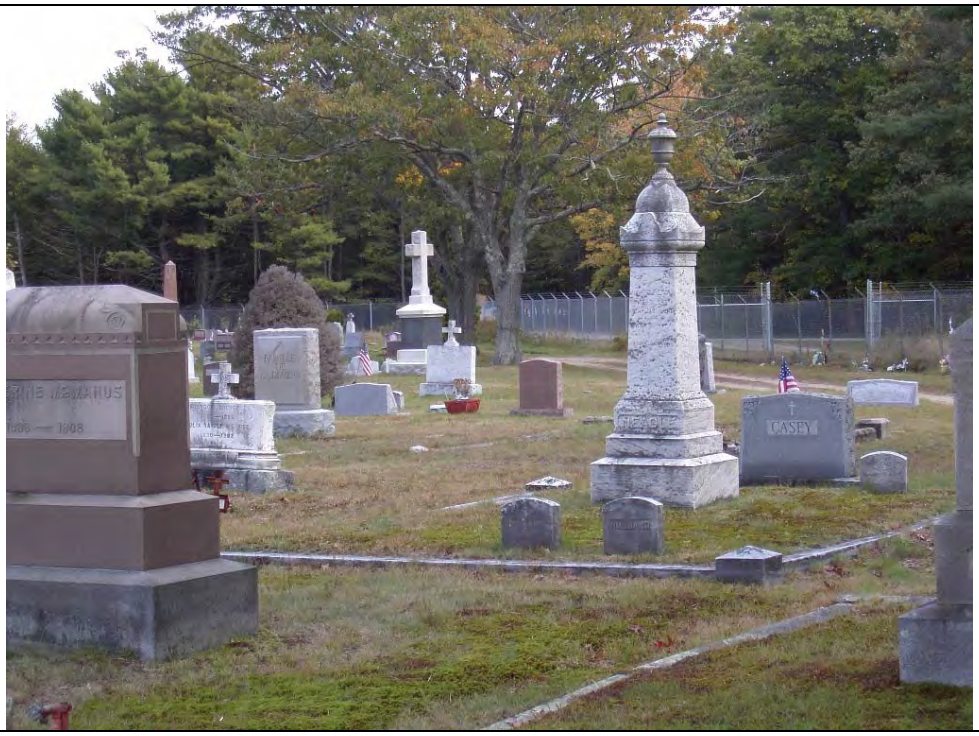


Photo A5-3: St. Joseph's Cemetery facing NAS perimeter road.
(Source: TtNUS, 6 Oct 2006)

Photo A5-4: Gas station and mini-mart on Route 24, NW of A-5
(Source: TtNUS, 6 Oct 2006)

APPENDIX E

Photo A5-5: Auto body shop, north of Area A-5 on Route 24. (Source: TtNUS, 6 Oct 2006)

Photo A5-6: Auto reconditioning shop on Route 24, north of Area A-5.
(Source: TtNUS, 6 Oct 2006)

APPENDIX E

Photo A5-7: Aerial photograph of Area A-5 and adjacent northern properties. Image source: Google Map October 2006.

APPENDIX E

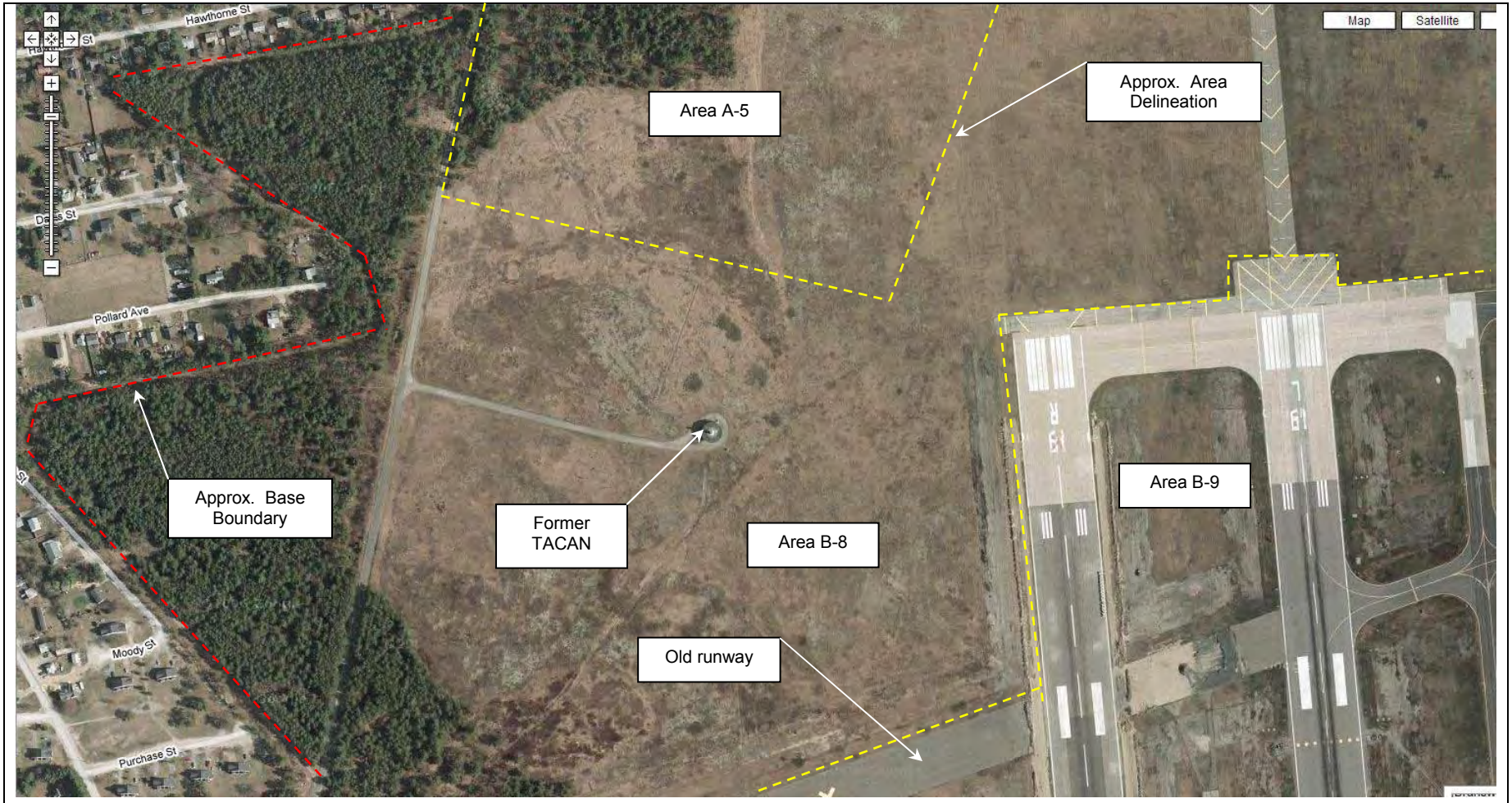


Photo A5-8: Aerial photograph of Area A-5 and adjacent southern areas including former TACAN and old runway. Image source: Google Map October 2006.

APPENDIX E

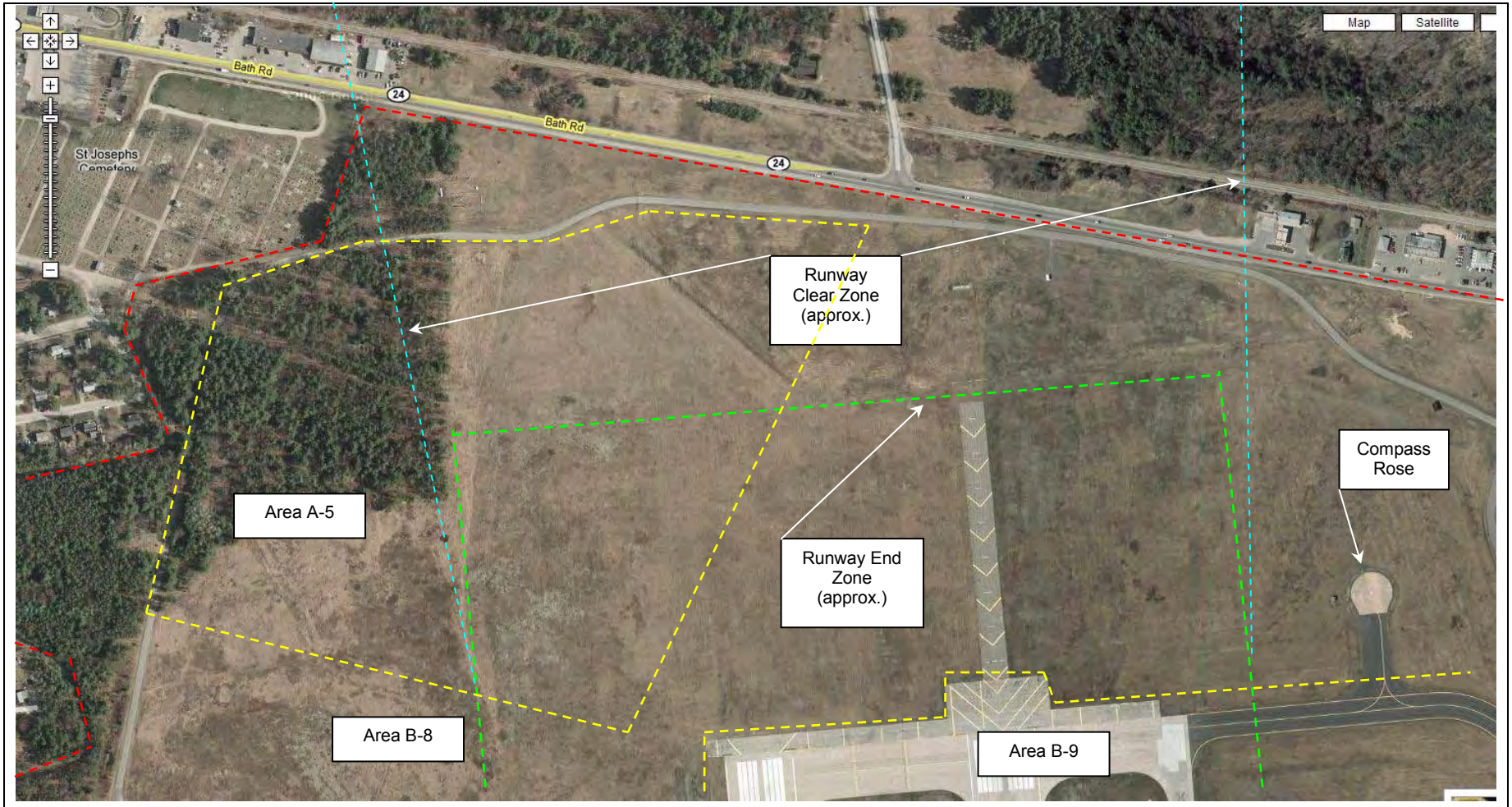


Photo A5-9: Aerial photograph of Area A-5 and adjacent eastern areas runway end and clear zones. Image source: Google Map October 2006.

APPENDIX E

Photo A5-10: Aerial photograph of Area A-5 adjacent western areas, including private residences, businesses, and Bowdoin College. Image source: Google Map October 2006.

APPENDIX E

Photo A5-11: Residences on street west of Area A-5. (Source: TtNUS, 6 Oct 2006)

APPENDIX E - 2
PROPERTIES ADJACENT TO REMOTE PROPERTIES

APPENDIX E
ADJACENT PROPERTIES OBSERVATION TABLES
REMOTE PROPERTIES
NAVAL AIR STATION
BRUNSWICK, MAINE

Area	North	South	East	West
Topsham Annex B-10 and B-11	B-10 is bordered by former Naval Air Station Brunswick, Topsham Annex property, currently owned by the Maine school administration. Former buildings included a small arms range, chapel, and bachelors quarters (hotel), The area north of B-11 is mostly wooded and includes the former skeet range fallout zone.	B-10 and B-11 are bordered by the concrete plant, woods, and Mount Arat School. The EDR Radius Map with GeoCheck©4 identified the concrete plant and school and other businesses along Route 201 with USTs/ASTs (B-10, B-11-1). None have had reported releases. Both areas are upgradient of the subject property and therefore any releases are likely to impact B-10 and B-11.	B-10 is bordered to the immediate east by former Naval Air Station Brunswick, Topsham Annex property, currently owned by the county schools. Further east, B-11 exists. Past releases have been documented in this area (B-11 VSI-8 through 10). B-11 is bordered to the immediate east by woods. Further east, includes housing.	B-10 and B-11 are bordered to the west by woods and residential area and farmland. Further west of B-11 is the former Naval Air Station Brunswick, Topsham Annex property, currently owned by the county schools.
McKeen Street Housing B-12	Bordered by McKeen Street a paved two lane road. North of the road is St. Charles Church and housing units. The EDR Radius Map with GeoCheck© 1 identified the St. Charles Church with storage tanks (B-12-1). No releases have been reported.	B-12 is bordered by a wooded area and housing. Further southeast is the Mid Coast Senior Health Center and Hospital. The EDR Radius Map with GeoCheck©1 identified the Senior Center and Hospital with a leaking underground storage tank (B-12-1).	Bordered on east by residential housing and Baribeau Drive which has few commercial properties.	B-12 is bordered by residential housing and woods.

APPENDIX E
ADJACENT PROPERTIES OBSERVATION TABLES
REMOTE PROPERTIES
NAVAL AIR STATION
BRUNSWICK, MAINE

Area	North	South	East	West
East Brunswick Remote Radio Transmitter Site B-13 and A-6	East Brunswick Remote Radio Transmitter Site is bordered by Crooker & Sons. gravel and sand mine operation and wooded areas. The EBS also found a waste debris area located northwest of the property that contained tanks, drums, tires, and brush (this area was not located during the VSI). The EDR Radius Map with GeoCheck©2 identified the gravel mine (A6-1) as a small quantity generator of hazardous waste. .	A-6 is bordered by wooded area to the south. The wooded area contained drums, tires, domestic and construction debris and waste (A6-1 through 6). Further south is the Blue Memorial Star Highway and Jewett's Junkyard a CERC-NFRAP site according to the EDR Radius Map with GeoCheck©2 .	East Brunswick Remote Radio Site is bordered by Crooker & Sons. gravel and sand mine operation and wooded vacant lots. The EDR Radius Map with GeoCheck©2 identified the gravel mine (A6-1) as a small quantity use generator of hazardous waste.	To the west of A-6 are wooded residential lots and farming fields.
B-14 Sabino Hill Rake Station	Bordered to the north by wooded area with residential housing.	Bordered to the south by wooded area with residential housing.	B-14 was bordered by wooded area and residential housing.	B-14 was bordered to the west by a rural road, electrical substation, and wooded area.
B-15 Small Point Rake Station	Bordered to the north by wooded area with residential housing. Concrete foundation blocks also found that possibly indicate former barracks area.	Bordered to the south by the coastline and water.	Bordered to the east by brush, the coastline and water.	Bordered to the west by the coastline and water.

Note: Photograph numbers are shown in parentheses, and are presented in Appendix D and E.

1. Environmental Data Resources, Inc., 2006. EDR Radius Map with GeoCheck© McKeen Street Housing Complex, Moore Avenue, Brunswick, ME 04011, Inquiry Number 1761172.1s. September 22, 2006.

2. Environmental Data Resources, Inc., 2006. EDR Radius Map with GeoCheck© East Brunswick Remote Radio Site, Old Bath Road, Brunswick, ME 04011, Inquiry Number 1762088.1s. September 25, 2006.
3. Environmental Data Resources, Inc., 2006. EDR Radius Map with GeoCheck© Sabino Hill Rake Site, Route 209, Phippsburg, ME 04562, Inquiry Number 17619551.1s. September 25, 2006.
4. Environmental Data Resources, Inc., 2006. EDR Radius Map with GeoCheck© Small Point Rake Site, Navy Road, Phippsburg, ME 04562, Inquiry Number 1761944.1s. September 25, 2006.
5. Environmental Data Resources, Inc., 2006. EDR Radius Map with GeoCheck© Topsham Annex Housing, J. Canam Drive, Topsham, ME 04086, Inquiry Number 1762093.1s. September 26, 2006.

APPENDIX E

Note: Area B-10 and B-11 boundaries are approximate.

Photo B10/B11-1: Topsham Annex aerial photograph of Areas B-10 and B-11 and adjacent properties. Image source: Google Map October 2006.

APPENDIX E

Note: Approximate Area B-12 boundary.

Photo B12-1: McKeen Street Housing aerial photograph of area B-12 and adjacent properties. Image source: Google Map October 2006.

APPENDIX E

Note: Approximate Area B-13 and A-6 boundaries.

Photo B13/A6-1: East Brunswick Remote Radio Site aerial photograph of area B-13 and A-6 and adjacent properties. Image source: Google Map October 2006.

APPENDIX E

Photo A6-2: Adjacent land to the south of Area A-6, metal debris (Source: TtNUS, Oct 2006)

Photo A6-3: Adjacent land to the south of Area A-6, household waste, metal debris (Source: TtNUS, Oct 2006)

APPENDIX E

Photo A6-4: Adjacent land to the south of Area A-6, tires, drums and other discarded items (Source: TtNUS, Oct 2006)

Photo A6-5: Adjacent land to the south of Area A-6, note condition of drums. (Source: TtNUS, Oct 2006)

APPENDIX E

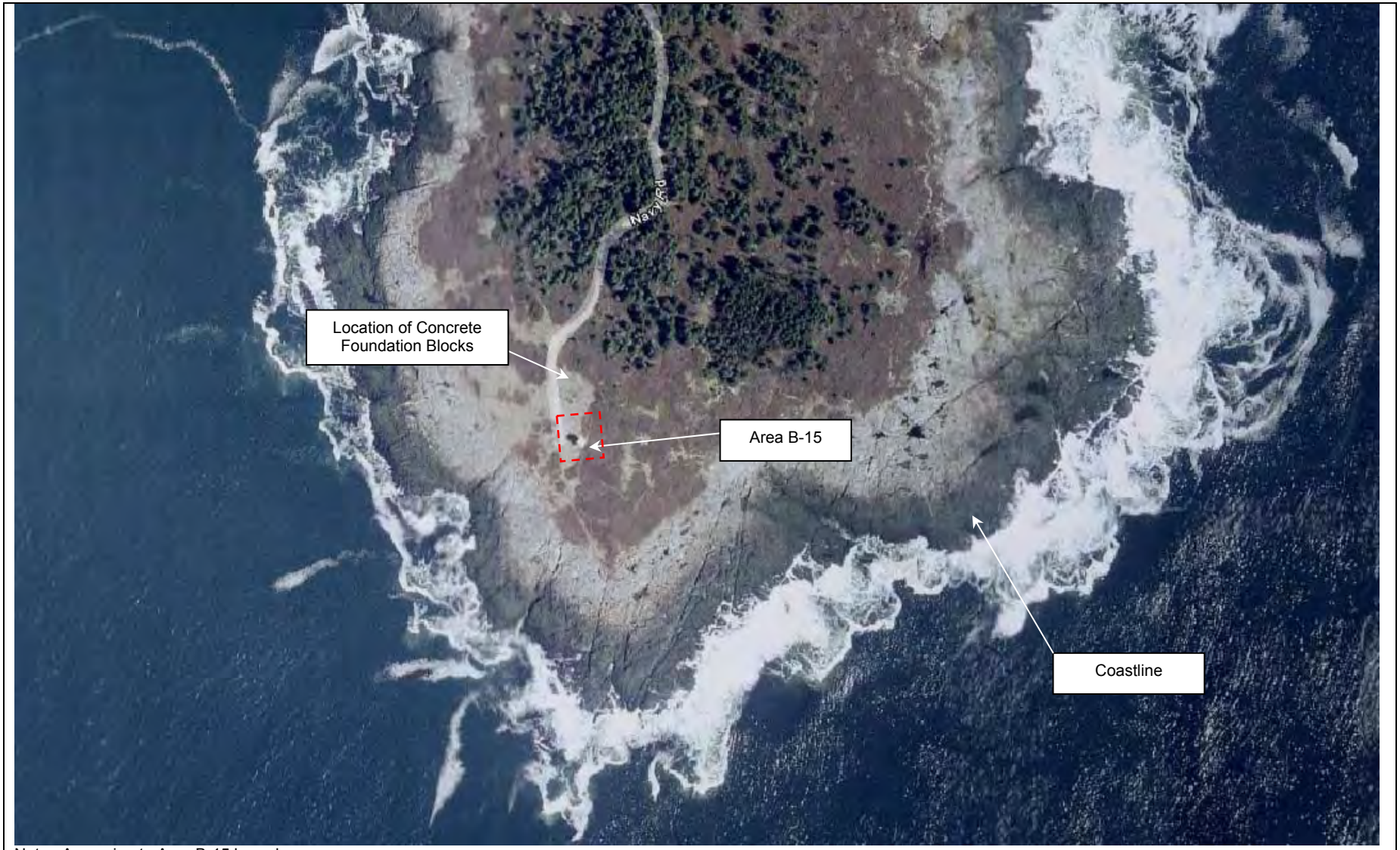
Photo A6-6: Adjacent land to the south of Area A-6, note condition of drum (Source: TtNUS, Oct 2006)

APPENDIX E

Note: Approximate Area B-14 boundary.

Photo B14-1: Sabino Hill Rake Station aerial photograph of area B-14 and adjacent properties. Image source: Google Map October 2006.

APPENDIX E



Note: Approximate Area B-15 boundary.

Photo B15-1: Small Point Rake Station aerial photograph of area B-14 and adjacent properties. Image source: Google Map October 2006.

APPENDIX F
INTERVIEWS

Interview Notes
Naval Air Station Brunswick (NASB)
Identification of CERFA Uncontaminated Property
October 3-6, 2006

Interviewer: Lawson Anderson
Tetra Tech NUS, Inc.

Interviewee: Tom Brubaker
Assistant Public Works Officer, NASB

Notes:

1. Mr. Brubaker was the Public Works Officer (uniformed) 1992-94; has been working at NASB in the Planning Department or as Assistant Public Works Officer for the past five years.

2. Floor drains – waste oil could have been poured down some floor drains prior to mid-1970s.

3. Magazines/bunkers – Otto fuel propellant could conceivably be released if a weapon were dropped; an incident report would be required; components are assembled in Bldg 77 – there is no maintenance on the propellant end of weapons (that component arrives assembled).

4. Duplicate building numbers do exist (e.g., 6, 11, 51).

5. No official list of demolished buildings. Not likely to have been recorded when an individual building demolished. More likely if multiple buildings demolished as part of one project, especially lately. He started a list, but it is not complete (list provided).

6. "Special Weapons" means nuclear capable; not sure if they were actually stored at NASB.

7. Hazardous materials (HM) inventories – he is not aware of any; authorized users lists were instituted in late 1990s (CHRIMP).

8. Bldg 93 – briefly used for hazardous waste storage.

9. Aircraft fueling – always done by truck (no distribution system on apron).

10. Fuel progression over time – AVGAS, JP-4, JP-5, JP-8

11. Bldg 13 = old HM storage.

12. EOD Burn Area – no knowledge of any other area prior to 1981.

13. OWSs connected to floor drains and rinse rack; 19 discharge to sanitary sewer and 3 discharge to storm sewer system.

14. No knowledge of radium instrument/dial shops; AIMD had/has (?) survival vests that use radium.

15. Navy Exchange (NEX) Service Station has always been at its current location.

16. There have been only two service stations on base that he is aware of – the NEX for individuals and Fuel Farm (Bldgs 117/118) for government vehicles.

17. Some buildings demolished since 1994 include the old Public Works shops and buildings, the heat plant (had a 300,000 field-constructed tank with no leaks) and Bldg 224 FASO Training Bldg.

18. Mr. Brubaker was the Public Works Officer in 1993 when 66,000 gallons of JP-5 were spilled at the fuel farm. The fuel entered a swale and flowed north offsite across Route 1 and was contained in a frozen marsh. Approximately 48,000 gallons were recovered.

19. The epoxy floor in Hangar 5 was cleaned with blasting media which caused cadmium, chromium and lead dust from the paint to be deposited over a large area of the hangar in the mid-1980s. Accessible areas were cleaned.

20. Topsham Annex has a pained water tank; there is no water tower/tank on NASB Main Base.

21. Drafting tank – used for testing firefighting pumps.

22. Some blasting inside AIMD.

23. Bldg 38 (gone) – lead and asbestos in soil from demolition removed.

24. West of runways – antennae, USCG GPS station, approach radar and former magazines and TACAN.

25. New TACAN located near Site 12.

Interview Notes
Naval Air Station Brunswick (NASB)
Identification of CERFA Uncontaminated Property
October 2-6, 2006

Interviewer: Lawson Anderson
Tetra Tech NUS, Inc.

Interviewee: Lisa Joy
Primary Point of Contact, NASB Environmental Department

Notes:

1. Ms. Joy has been working at NASB since 1994.

2. USTs/ASTs – ECP Report includes list of current USTs and ASTs; Ms. Joy provided lists of USTs, ASTs and transformers that have been removed. The lists include only the tanks that the Environmental Department has become aware of since its inception in the 1980s.

3. Prior to 1999, a Steam Plant provided heating for most buildings, thus there were fewer individual heating oil tanks for buildings. In 1999, the steam plant was demolished and heating decentralized. ASTs were installed for individual building heating oil storage. Lately, heating oil has been replaced by natural gas.

4. All housing units are now heated with natural gas. All housing is privatized (Navy owns land, but housing is owned/operated by private companies).

5. There is a large, buried fuel pipeline that brought fuel from offsite to the base. It runs up the east side of the base and has been mothballed. Ms. Joy provided a copy of the EBS for the pipeline and offsite fuel storage depot.

6. Most environmental sites at NASB were known, large disposal sites identified in the 1983 IAS. Sites identified since then have been discovered as a result of construction activities and through investigation of the original IAS sites. Otherwise, there has not been a specific effort to identify new sites based on historical operations (i.e., those with point of generation disposal) . Per Dale Mosher, buildings with operations involving hazardous materials (HM) and/or hazardous wastes (HW) go through a RCRA close out process prior to demolition, but most are on concrete slabs or foundations and the closeout process does not involve subsurface soil or groundwater sampling.

7. Wash racks – a new rinse rack was installed three years ago that includes a glycol (deicing compound) collection system. The rinse rack was/is used for rinsing marine salt water off airplanes and for applying deicing compound. The old rinse rack drained to an oil water separator, then to the storm water sewer system.

8. HM use - The CHRIMP (hazardous materials supply) facility did not begin operation until the late 1990s and they have lost their database several times. A better source of information regarding relatively recent HM usage would be air emissions inventories. The 2005/2005 inventory is included in the ECP Report. Ms. Joy provided a copy of the 1994 air emissions inventory which reflects the use of more volatile chemicals before the Navy switched to water-based solvents.

9. Aircraft fueling practices – trucks transfer fuel from the fuel farm to the planes which are fueled on the apron. Ms. Joy was not aware of there having been any historical fueling systems on the apron.

10. Compliance in general – assume from 1985 forward that compliance by today's standards was common. Prior to that, there were either few environmental regulations and/or there was not a formal environmental department.

11. Typically, building numbers not reused after demolition, but some have been.

12. Building 52 – now gone; was once inert weapons storage; area now used for bulk dumpster loading.

13. Building 51 – one of the building numbers that has been reused. The original Bldg 51 was a Public Works Paint Shop (since demolished). It is now the building number for Fire Department offices and equipment storage.

14. EOD Burn Area – prior to 1981, what did they do? To Ms. Joy's knowledge, there was no pre-1981 EOD burn pit. It has been alleged that burning of EOD materials has taken place in the past at an old quarry on the west side of the base. Environmental Department personnel believe this is an anecdotal report with little basis; however, the site will be investigated.

15. There is a partial list of demolished buildings, but it is not complete.

16. As buildings are mothballed during the base closure, the closeout process will look at each building on a site-specific basis.

17. Spill/release reporting and tracking has been documented since the mid-1980s. Reports have been filed with the Environmental Department until recently; now, reports are filed with the Fire Department. Environmental Incident Log Book #1, 7/88-11/99, and a file of individual memos date 03/06/02 through September 20, 2006 were provided for review.

18. Ms. Joy provided historical general development maps: 1946/53 with index, 1962 commercial/industrial area, 1983, 1989 and 2006.

19. Ms. Joy provided aerial photographs - 1970s-era, 1981, 1984, 1987, 1993, 2001).

20. Ms. Joy provided miscellaneous reports and facility index lists (current, 1966 and one undated, but old list).

Interview Notes
Naval Air Station Brunswick (NASB)
Identification of CERFA Uncontaminated Property
October 3-5, 2006

Interviewer: Lawson Anderson
Tetra Tech NUS, Inc.

Interviewee: Paul Kempf
Water Resources Manager, NASB Environmental Department

Notes:

1. Mr. Kempf has been working at NASB since 2000.

2. Storm sewer – over 20 miles long; some slip-lined in 1990s; some roof drains connected.

3. Outfall sampling – BOD, inorganics, PAHs, and SVOCs.

4. Retention ponds form part of storm sewer system – there are seven ponds.

5. Oil Water Separators (OWS) – there are approximately 47 OWSs, of which three discharge to the storm water system (golf course parking lot; jet fuel storage parking lot/containment area, and rinse rack for washing marine salt off planes).

6. Deicing operations formerly used rinse rack; new glycol collection pad constructed 3 years ago collects runoff and directs it to a tank for recycling; switched from ethylene glycol to propylene glycol in the 1990s; current deicing equipment has infrared cameras that identify cold spots to focus spraying.

7. Septic systems – Seven current systems: golf course kitchen/bathroom; Bldg 153 bathroom; back gate bathroom; two systems for two bathrooms in Weapons area; new control tower (dual beds/tanks count as one system) for bathrooms/showers; and, radar site on west side of runways for bathroom.

8. Historical septic systems – one under barracks; one at front gate; one where Bldg 50 GW treatment bldg currently sits.

9. Floor drains – smoke and dye tested in 1997; all floor drains in industrial buildings going to sanitary sewer via OWSs, except Topsham Annex Marine Barracks/Garage.

10. Potassium acetate used for deicing runways.

Interview Notes
Naval Air Station Brunswick (NASB)
Identification of CERFA Uncontaminated Property
October 3-6, 2006

Interviewer: Lawson Anderson
Tetra Tech NUS, Inc.

Interviewee: Dale Mosher
Acting Manager/Hazardous Waste Program Manager, NASB
Environmental Department

Notes:

1. Mr. Mosher has been working at NASB since 1993.

2. Hazardous material (HM) usage – HM usage has been tracked from 1990 forward. Mr. Mosher has not seen the 1979 HM Inventory cited in the 1983 IAS. The CHRIMP facility (HM supply) was established in 1999. Their database contains information from 2003 forward. A lot of HM have been eliminated since then. He believes hazardous waste (HW) generation records provide a better picture of what is/was used on base because a lot of out of date products are disposed unused as waste. Mr. Mosher provided HW generation records on diskette for the 1990s forward.

3. No RCRA permit, so no RCRA Facility Assessment has been required/performed.

4. RCRA closeouts of buildings focus on the industrial processes and equipment, so no soil/groundwater sampling associated with them.

5. Hangar 2 demolished in 1996-97; Hangar 3 demolished 2004; all other hangars are still standing.

6. Magazines/bunkers - There were once 30 magazines on west side of runways. Two remain. They have cement floors and walls. Navy stores weapons at NASB; do not maintain weapons. No records of deterioration or leaks that he is aware of.

7. Floor drains – disposal of oil and flammable wastes not likely down floor drains if central collection (e.g., bowsers) was available so the wastes could be burned.

8. Mr. Mosher had a Master Chief working for him that was at NASB from 1968 until recently. The Master Chief was confident that all disposal sites have been identified.

9. Quarry site – Someone made an anecdotal statement that unlicensed EOD activity took place there. No records or documentation to support the statement.

10. The 1983 IAS refers to an old barn in the southwest corner of the facility where paint was stored. Mr. Mosher believes this is a reference to a former HW storage area west of Bldg 53 that underwent a RCRA closeout in the mid-1990s, and there was no indication of leaks, spills, etc.

11. Since 1993 when Mr. Mosher came to NASB, there have been no known releases from HW storage areas.

12. Bldg 225 acid-neutralization – this was a licensed operation that was never set up, so Mr. Mosher terminated the license.

13. Bldg 250 battery locker – the acid neutralization unit was a lead sink that discharged to a 15-20 gallon water trap with limestone gravel, then to the sanitary sewer. License terminated when facility closed (in accordance with MEDEP rules, per ECP Report).

14. Bldg 250 silver recovery system – recovered silver from development of x-rays and aerial photograph development; electroplating process collected silver, then discharged through an iron filter to drums for disposal. License terminated when facility closed (in accordance with MEDEP rules, per ECP Report).

15. Weapons maintenance – little use of HM; more related to maintenance of equipment used to move weapons around than to the actual weapons.

16. Recycling Bldg (current) – originally, this was the location of the sand/salt shed; solid waste only, such as cardboard, paper and wood.

17. SeaBees – use some HM in carpentry shop.

18. Medical waste – disposed of by contract incineration.

19. LBP at Rake Stations – sampling indicated PCBs (anti-flaking) in paint at low concentrations; the existing metal tower had low concentration of lead in soil and high concentration of lead in paint; at the station where the metal tower was replaced by a cement tower in the mid-1980s, there were low concentrations of lead and PCBs detected in soil, but samples might have been collected too far from the original steel tower. Mr. Mosher later provided the sampling data.

20. Skeet Range – originally faced north, not east.

21. Machine Gun Boresite Range – location is south side of Bldg 55; has not been sampled yet.

APPENDIX G
SAMPLING DATA

During the records review various documents including underground storage tank closure reports, investigation studies and environmental baseline survey reports contained sampling results. All documents are referenced in the References. No sampling was conducted as part of this CERFA process.

APPENDIX H
REGULATORY AGENCY COMMENTS

Transmittal Letter of Draft Report

DEPARTMENT OF THE NAVY
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE, NORTHEAST
4911 SOUTH BROAD STREET
PHILADELPHIA, PA 19112-1303

5090
Code BPMO NE/DK
Ser 07-026
December 21, 2006

Ms. Christine A.P. Williams
US EPA New England, Region 1
Office of Site Remediation & Restoration
1 Congress Street, Suite 1100 (HBT)
Boston, MA 02114-2023

Dear Ms. Williams:

SUBJECT: DISTRIBUTION OF DRAFT CERFA REPORT FOR NAVAL AIR STATION BRUNSWICK, ME

The Comprehensive Environmental Response Compensation and Liability Act (CERCLA), Section 120(h)(4), as amended by the Community Environmental Response Facilitation Act (CERFA), requires the Navy to identify real property on which no hazardous substances and no petroleum products or their derivatives were known to have been released or disposed of prior to transfer of the property to non-federal entities.

The attached Identification of Uncontaminated Property report for the Naval Air Station Brunswick has been prepared to satisfy the requirements of CERFA. Two copies are provided for your use.

For NPL sites, this identification is not complete until concurrence is obtained from the EPA. In accordance with CERFA, this identification must be made not later than eighteen months after the date on which the real property was selected for closure or realignment pursuant to the base closure law. The BRAC 2005 closure took effect on November 9, 2005; therefore, this determination of uncontaminated property must be made no later than May 9, 2007.

If you have comments on this report, such as increasing the CERFA delineation, based on the additional information provided in this report, please provide them by March 1, 2007. We will address these as part of the final report which will hopefully allow you to concur with the determination of uncontaminated

property. If you have no comments, then a statement of concurrence is requested.

If you have any questions, please do not hesitate to contact me at (215) 897-4915.

Sincerely,

Dawn C. Kincaid

Dawn C. Kincaid, P.E.
By direction of BRAC PMO

Enclosure:
Draft CERFA Report for NAS Brunswick, ME, dated 21 Dec 2006 (2 copies)

Copy to:
MEDEP (C. Sait - 2 copies)
NAS Brunswick, ME (2 copies)
PMO NE (S. Zamorski)
CNRMA (C. Barnett - 1 copy)

TETRA TECH NUS, INC.
20251 Century Blvd, Suite 200, Germantown, MD 20874-7114
(301) 528-5552

112G00629
December 21, 2006

Navy BRAC PMO Northeast
4911 South Broad Street
Building 679, PNBC
Philadelphia, PA 19112-1303

Attention: Ms Dawn Kincaid
BRAC Environmental Coordinator

Reference: Contract No. N62472-03-D-0057
Contract Task Order No. 067

Subject: Submittal of Draft CERFA Report for the NAS Brunswick, Maine

Dear Ms Kincaid:

Enclosed are two (2) copies of the above referenced report for your review. Each copy consists of a hard copy of the report plus selected appendices and a CD of the entire report minus Appendices C-2 and C-3 which are on the included DVD due to their file size. Additional copies have been sent to those on the attached distribution list.

If you have any questions about the report please call me at (301) 528-3074 or technical questions can be addressed to the principal author, Mr. Lawson Anderson at (901) 523-9500.

Sincerely

Steven P. Giannino

Steven P. Giannino, P.E.
Project Manager, CTO 067

SPG/dms

Distribution List **Draft CERFA Report** **NAS Brunswick, ME**	
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NAS Brunswick 437 Huey Drive Building 53 Brunswick, ME 04011 Attn: Dale Mosher, Env. Dir.	2 hard copies 2 CDs 2 DVDs
CNRMA 1510 Gilbert Street Building N-26 Norfolk, VA 23511 Attn: Cherryl Barnett, Env. Dir.	1 hard copy 1 CD 1 DVDs
USEPA Region 1 – New England Office of Site Remediation & Restoration 1 Congress Street, Suite 1100 (HBT) Boston, MA 02114-2023 Attn: Ms Christine A. P. Williams, Environmental Engineer	3 hard copies 3 CDs 3 DVDs
Maine Department of Environmental Protection Bureau of Remediation and Waste Management Division of Remediation 17 State House Station Augusta, ME 04333-0017 Attn: Ms Claudia Sait, Project Manager	2 hard copies 2 CDs 2 DVDs
Transmittal Letter Only (via e-mail): • Mr. Curt Frye, BRAC PMO Northeast • Ms. Bonnie Capito, Librarian, NAVFAC Mid Atlantic • Ms. Lee Anne Rapp, COR, NAVFAC Mid Atlantic • Mr. Garth Glenn, TtNUS • Mr. John Trepanowski, TtNUS	 curtis.frye@navy.mil bonnie.capito@navy.mil leeanne.rapp@navy.mil garth.glenn@ttnus.com john.trepanowski@ttnus.com

U.S. Environmental Protection Agency Comments

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
1 CONGRESS STREET, SUITE 1100 (HBT)
BOSTON, MASSACHUSETTS 02114-2023

March 1, 2007

Orlando Monaco
Dept of the Navy, BRAC PMO Northeast
Code 5090 BPMO NE/LM, 4911 South Broad St
Philadelphia, PA 19112-1303

Re: CERFA Identification of Uncontaminated Property at the Naval Air Station Brunswick, Maine

Dear Mr. Monaco:

The Navy has requested, in a December 21, 2006 letter, the U.S. Environmental Protection Agency's concurrence on the Navy's "uncontaminated" property determination for Naval Air Station Brunswick (NASB) Navy Installation pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, (CERCLA), Section 120(h)(4). As stated in CERCLA § 120 (h)(4)(B), in the case of real property that is part of a facility on the National Priorities List (NPL), EPA is the appropriate concurring regulatory official. In the case of real property that is not part of a facility on the NPL, the State is the appropriate concurring regulatory official.

EPA has reviewed the following documents in an effort to concur on the "uncontaminated" parcels that are a part of the NASB on the NPL:

1. Navy's Draft Community Environmental Response Facilitation Act (CERFA) Report ("the Report") for the Naval Air Station Brunswick, Maine dated December 2006.

2. Letter, dated December 21, 2006, from Dawn Kincaid, BRAC Program Management Office North East to Christine Williams, Federal Facilities Superfund Section, U.S. Environmental Protection Agency (EPA), New England.

EPA understands that the Navy's determination for these parcels was based on record searches, review of aerial photographs, visual inspections, and interviews with current employees regarding knowledge of past and current activities on the property. The Navy, EPA, and the Maine Department of Environmental Protection (ME DEP) conducted a site reconnaissance of the proposed parcels in October 2006.

The review of the above-referenced documents was undertaken pursuant to CERCLA §120(h)(4)(B) and the sole purpose of the concurrence is to satisfy the requirements of that provision.

EPA reserves all rights and authorities relating to information not contained in the above-

referenced documents, whether or not such information was known as of the dates of such documents or was discovered after such dates.

Based on the review of the above-referenced documents, and without any independent investigation or verification of the information, EPA does not concur in the results of the Navy's identification of Parcels pursuant to the provisions of § 120(h)(4)(A) of CERCLA.

Specific comments relating to EPA's non-concurrence regarding Parcel A-2, A-3, A-4, and A-5 are set forth below.

I. Base Wide Groundwater/ Institutional Controls

The Navy has issued Records of Decision (RODs) which require institutional controls (ICs) to prevent the use of groundwater across the entire NPL Site. The RODs never defined the extent of groundwater contamination present and whether groundwater under Parcels A-2, A-3, A-4, and A-5 meets unrestricted groundwater use standards. Due to the remedies the Navy has established under the RODs, the Parcels A-2, A-3, A-4, and A-5 cannot be considered uncontaminated under § 120(h)(4) of CERCLA since they are subject to ICs which prevent the use of groundwater. In order to satisfy § 120(h)(4) of CERCLA, the Navy must define the extent of groundwater contamination , identify a buffer zone around the groundwater contamination in the various plumes, and modify the RODs to specify the boundaries of the institutional controls.

II. Legal Description of Parcel

EPA notes that the Report does not contain the specific property identification of parcels (address, assessor parcel number, legal description). Future concurrence is subject to the Navy providing a precise legal description in the Finding of Suitability to Lease/Finding of Suitability to Transfer which is consistent with the parcels as shown on Figure 3 in the CERFA document, prior to the transfer of this parcel.

III. Pesticides

EPA notes that pesticides containing hazardous substances may have been applied to all of the parcels. Prior to concurring that these parcels can be considered uncontaminated pursuant to CERCLA Section 120(h)(4), EPA requests information of the nature and quantity of pesticides applied or the results of confirmatory sampling to assure that residual levels of pesticides, if any, do not pose a threat to human health and the environment.

IV. Adjacent Parcels

EPA notes that Parcels A-3 and A-4 are adjacent to Parcel B-6 which contains operable unit 9, the site 12- explosive ordnance disposal (EOD) pit, where there may have been release of munitions contaminants into the bedrock aquifer and that groundwater may flow from Parcel B-6 in the direction of Parcel A-3 or toward the eastern part of A-4.

Parcel A-2 is adjacent to Parcel B-2 (a base housing area) where there may have been release of petroleum products associated with the household underground heating oil storage tanks and that groundwater may flow from Parcel B-2 in the direction of Parcel A-2. In addition, please see attached ME DEP comments on this issue.

EPA cannot concur that Parcels A-2, A-3, and A-4 can be considered uncontaminated under CERCLA § 120(h)(4) because there is no information in the above-referenced documents indicating that the residual levels, if any, of petroleum products associated with the possible groundwater contamination on the adjacent parcels do not pose a threat to human health or the environment on Parcels A-2, A-3, and A-4.

V. Asbestos

The report does not reference an asbestos survey. EPA requests information on the results of a base wide asbestos survey or the results of confirmatory sampling to assure that asbestos does not pose a threat to human health and the environment.

The ME DEP, as the appropriate regulatory official to make the determination for the non-NPL portions of the report, has provided their comments to EPA. I have attached their comments to this letter. EPA agrees with the comments and requests the Navy address these comments also.

EPA continues to look for opportunities to work with the Navy to resolve these issues so that parcels on the base may qualify to be included in the unencumbered CERFA process or otherwise be available for reuse through the regular transfer process.

If you have any questions, please call Ms. Christine Williams at (617) 918-1384.

Sincerely,

Mary Sanderson

Mary Sanderson, Chief
Remediation and Restoration II Branch

Attachment

cc: Christine Williams/EPA NE
David Peterson/EPA NE
Bryan Olson/EPA NE
Dick Willey/EPA NE
Dianna Young/EPA HQ
Claudia Sait/ME DEP
Dawn Kincaid/BRAC PMO
Dale Mosher/NASB

Maine Department of Environmental Protection Comments

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN ELIAS BALDACCI
GOVERNOR

DAVID P. LITTELL
COMMISSIONER

January 30, 2007

Ms. Christine Williams
U.S. Environmental Protection Agency
1 Congress Street
(1100 HBT)
Boston, Massachusetts 02114-2023

Re: Community Environmental Response Facilitation Act (CERFA)
Identification of Uncontaminated Property
Naval Air Station, Brunswick, Maine

Dear Ms. Williams:

Pursuant to Section VI of the Naval Air Station, Brunswick, Maine Federal Facility Agreement (Oct 1990), as amended, the Maine Department of Environmental Protection (MEDEP) has reviewed the draft "CERFA Identification of Uncontaminated Property at the Naval Air Station, Brunswick, Maine", dated December 2006, prepared by Tetra Tech NUS, Incorporated. Based on that review MEDEP is providing EPA with the following comments.

General Comments:

1. Based on the information provided, MEDEP's primary concern with the parcels designated for CERFA uncontaminated is groundwater. Since the Records of Decision for the Installation Restoration sites are not protective for groundwater due to the false assumption that the entire main base had access to public water supply, the buffer zones for the various groundwater plumes were never determined. While MEDEP does not expect the selected CERFA uncontaminated sites to be affected due to groundwater flow direction and/or distance it cannot be supported scientifically. MEDEP also has more specific concerns for groundwater impacts with some of the selected sites due to their proximity to potentially contaminated sites as outlined below.

   a.) Parcel A-2 was an undeveloped wooded area until 2000 when 72 units of new housing were constructed on approximately 75 acres. Parcel A-2 lies southwest of Mariners Landing (formerly Brunswick Gardens) which is roughly 400 feet away at the closest point. Mariners Landing has had numerous known repairs, leaks or discharges from former Underground Storage Tanks (USTs) and, although soil impacts may have been remediated, MEDEP is concerned that the groundwater under Parcel A-2 could be impacted. In addition there was a mobile home park located to the north of Parcel A-2 and the impacts form USTs and Above Ground Storage Tanks (ASTs) for this site are also unknown. Therefore there is a potential for the groundwater to be contaminated and MEDEP cannot concur at this time with the Category 1 designation for parcel A-2.

   b.) Parcel A-3 is an undeveloped wooded area approximately 20 acres in size located along the southeastern base boundary. Parcel A-3 is approximately 1400 feet from Operable Unit (OU) 12, which has not been investigated under the Installation

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Restoration program. OU 12 was used for explosives and ordnance disposal (EOD) and as the site is shallow to bedrock there is a potential for perchlorate contamination in bedrock. To date, there is no groundwater data for OU 12, therefore MEDEP cannot concur with the Category 1 designation for A-3 at this time.

b.) Parcel A-4 is approximately 525 acres in size and includes the golf course and undeveloped wooded areas along the Base's southern boundary. The site is approximately 1300 feet south OU 12 at the closest point. Without knowing the impact from OU 12 to groundwater it is impossible to determine groundwater impacts to the eastern portion of Parcel A-4.

The abandoned underground pipeline runs from the former Harpswell Defense Fuel Farm in Harpswell to the former Old Fuel Farm (OFF) at the Naval Air Station. A section of this pipeline lies under Parcel A-4. There is the potential for this pipeline to have leaked unless the Navy has records of the pipeline having been pressurized or smart pigged to check for leaks in the pipe prior to abandonment.

In addition to the potential for asbestos in the coating on the pipeline, the coating must also be sampled and analyzed for Polycyclic Aromatic Hydrocarbons (PAHs) and Poly Chlorinated Biphenyls (PCBs) which were often used as moisture barriers to prevent corrosion. (When testing for non liquid PCBs an aggressive extraction method such as soxlet –EPA method 3540C must be used.)

Currently the Golf course endorses the minimal use of herbicides and pesticide use, however please provide more information regarding where the herbicides and pesticides used on the golf course were stored and mixed both now and historically. Also please clarify the historic disposal method for excess herbicides and pesticides.

For these reasons, MEDEP can not concur with the Category 1 designation for Parcel A-4 at this time.

d.) Parcel A-5 is approximately 40 acres located in the northwest corner of the Base. The 1946 figure of the Base indicates that there were a number of structures within Parcel A-5. Figure A2_A5-1953 in Appendix C-1 shows ground disturbance in a portion of this parcel possibly from the relocation of the runway and/or the removal of the buildings and structures. The Navy needs to provide more information regarding the former buildings and structures and what is known about their uses and any impacts from air craft exhaust fallout that might have occurred. MEDEP cannot concur with the Category 1 designation for Parcel A-5 at this time.

2. Report Section 3.0, Statutory Authority, identifies the authority for the identification of "uncontaminated property" scheduled for transfer. This section goes on to state that because this site is a CERCLA-NPL site, the identification is not complete until concurrence is obtained from USEPA.

This section fails to acknowledge that the Main Base of the Naval Air Station at Brunswick is also regulated under RCRA as a large quantity hazardous waste generator. As the State of Maine is authorized to administer hazardous waste regulations under RCRA, the appropriate authority for RCRA issues will be the State of Maine Hazardous Waste Management Rules, 06-096 Chapters 850 thru 857. Closure requirements for a hazardous waste generator site will be found in Chapter 851, Section 11 of these Rules. The closure requirements include certification by an independent, Maine registered, professional engineer.

These rules define a site to include all geographically contiguous property. In the case such as this when a generator site will continue to operate while portions of the site are intended to be separated or removed from control of the current operator, a partial generator closure is required. A partial closure will be conducted in the same manner and with the same standards as for a full closure except that it will cover only defined portion of the original generator site. Before any property is removed from operation and control of the Naval Air Station, it must have undergone a (partial) hazardous waste generator closure and certification in accordance with Chapter 851 Section 11.

3. Please determine if and where there were fuel drop sites for both the historic and current runways.

4. Please determine if and where any airplane crashes occurred at the Base.

5. Please provide additional information on the type of contaminants that would be found in aircraft exhaust fallout and address why the parcels selected as uncontaminated would not have been affected.

6. The Navy needs to consider non liquid PCBs in products, such as paint, sealants, caulking, etc., and determine which structures need to be tested.

7. The Navy needs to perform analyses on areas that had PCB containing equipment since the equipment and the Base predate the requirements for reporting hazardous substance spills. (Also see comment 11 below.)

8. Please provide information on any land farming of petroleum contaminated soil that occurred on or adjacent to the subject properties.

Specific comments:

9. Page 3, Section 4.0, CERFA Property Classification Process, para 2: "The results of the ECP investigation are documented in the *Final Environmental Conditions of Property Report for the Naval Air Station Brunswick, Maine* (Revision 2), dated May 30, 2006."

   MEDEP cautions against over reliance on the ECP (Revision 2). On July 28, 2006, MEDEP submitted comments to the Navy regarding serious omissions and inaccuracies in the ECP (Revision 2). The Navy did not correct the ECP or respond to these comments therefore the omission and inaccuracies remain.

10. Table 1, Guidelines for Assignment of CERFA Categories, page 1, Boiler and Mechanical Rooms...:

    Item 2 indicates that "significant floor stains but no or only minor floor cracks, corrosion or holes to exterior wall" are category 1, while item 4 categorizes "Visible or documented evidence of leakage (regardless of condition)" as category 2. This is contradictory and both items should be categorized as 2 or item 2 changed to category 3.

11. Table 2, page 12, A-4, Golf Course..., Basis...:

    The picture (Appendix D, photo A4 VSI-10) of the pump house show a transformer area. Does or did this transformer ever contain PCB's oil?

12. Table 2, page 13, A-5, Former Residential Area, Basis...: "This was a residential area in the 1940s, and has had no evident use or development since the government acquired the property."

    Please review the 1946 figure of the Base which appears to show buildings and structures within the A-5 parcel. While they may have been abandoned by 1953, they appear to have military numbers and designations on the figure and were likely in use during World War II. (MEDEP could not generate a clear copy of the figure from the PDF file.) If so, please describe the buildings/structures and their known usage and potential for environmental impacts.

13. Table 3, A-2, New Housing Area, Basis ..."

    There needs to be more discussion regarding impacts or potential impacts (e.g., USTs and ASTs) from the mobile home park that is located on Neptune Drive.

14. Table 3, A-5, Former Residential Area, Basis...: "The area has remained undeveloped during the period of government ownership." (See Comment 12 above.)

15. Table 3, B-4-Industrial Area, 1946/53 Map:

    a.) What was the coal pile used for? If there was a former coal gasification plant on the Base then there is the potential for PAHs from coal tar, a by-product of gasification.

    b.) Please discuss what happened to the Air Force transmitter, receiver and communications compound (also shown as ASWOC [Anti Submarine Warfare Operations Center]). It appears to change between 1962 and 1983.

16. Table 3, B-10, Topsham Annex-Non Housing Area, Basis...

    This section should include the PCB contaminated soil removal from behind the commissary.

17. Figure 3 depicts Parcel A-2 as the former Brunswick Gardens. Please correct.

18. Appendix A, Historic Base Maps: MEDEP attempted to print a copy of the 1946 map of the Base as part of its review and the quality of the PDF copy is extremely poor. Please provide a good quality hard copy of this figure, preferably no small than 11"X17".

19. Appendix D, Section 5.4.2, A-2, 7 of 13: "The general topographic gradient for this area is to the south-southwest, indicating the general groundwater flow direction for the property is north-northeast, toward the Atlantic Ocean."

    This is counter intuitive especially since the stream in the area flows south to Merriconeag Stream and to Mere Brook which flows south-southwest to Harpswell Cove. Please recheck and rewrite as necessary.

20. Appendix D

    a.) Section 5.5.5, A-2, 8 of 13: The subject property is listed as a RCRIS-Large Quantity Generator (RCRIS-LQG). The LQG generator name is Naval Air Station Brunswick, and encompasses the whole of the facility rather than a single area."

This paragraph acknowledges that this site is a RCRA facility (site) and that designation applies to the entire site rather than a single area as discussed however, this paragraph fails to recognize the requirements for certification of generator closure. (See comment 2 above.)

b.) Appendix D, Section 5.5.10, A-2, 9 of 13: This section describes all Navy-owned transformers on the NASB property as being PCB free. It is unclear if this statement was intended to apply only to the Woodland Village portion or to the entire Base as the statement would suggest. Please clarify.

Based on the recent construction (2000-2001) of the Woodland Village, it would be very unlikely that any PCB transformers were ever present there. However, regarding transformers in older parts of the Base, the fact that the current transformers may be PCB free is not particularly relevant as they may have been refilled or replaced with PCB free oil/equipment but the original equipment may well have contained PCBs and spills/leaks may have occurred. With very few exceptions, MEDEP considers that any location where electrical transformers are or have been located is suspect of PCB contamination.

21. Appendix D, Photo A4 VSI-10: A Danger, High Voltage sign is visible in this photo so there may have been PCB transformers here at one time. (See comments 11 and 20 above.)

22. Appendix E, Adjacent Properties Observation Tables, Main Base:

    a.) Page 1 of 5: (A-2) (See comment 19 above.) Groundwater flow direction is more likely to be to the south.

    b.) Page 3 of 5: (A-4) In the North column please address the groundwater flow direction.

    c.) Page 4 of 5: (A-5), In the South column, please address groundwater flow direction.

23. Appendix E, Adjacent Properties Observation Tables, Remote Properties:

    a.) Topsham Annex: North of Area B-11 is the former skeet range fall out zone. Please include this in the table.

    b.) Sabino Hill Rake Station: West of the property is a substation which needs to be listed in this table.

24. Appendix F, Personnel Interviews:

    a) As knowledgeable as these people are, none of them have been at the Naval Air Station long enough to know the storage, handling or disposal practices of hazardous materials prior to environmental regulations. The Navy should attempt to find and interview people who worked on the Base in the 1950's through the 1980's.

    b.) Lisa Joy, NASB Environmental: In note # 6, Ms. Joy acknowledged several RCRA (partial) closures that have been completed on several buildings recently. She stated that the closure process does not involve subsurface soil or groundwater sampling. At the time of closure, the only reason that the subsurface was not specifically sampled is because there was no specific evidence or indication of possible impacts to the subsurface. However if additional information becomes available that suggests possible impacts to the subsurface in any of the previously "closed" areas, additional investigation and necessary corrective action would be in order.

Any failure to discuss any finding or conclusion of this document is not intended to imply MEDEP or RCRA Program's approval. Please contact me at (207) 287-7713 or claudia.b.sait@maine.gov, if you have any questions or comments.

Respectfully,

Claudia Sait
Project Manager-Federal Facilities
Bureau of Remediation & Waste Management

Cf: File
Ted Wolfe-MEDEP
Chris Evans-MEDEP

U.S. Department of the Navy Letter Accepting Position of No CERFA Uncontaminated Property

DEPARTMENT OF THE NAVY
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE, NORTHEAST
4911 SOUTH BROAD STREET
PHILADELPHIA, PA 19112-1303

5090
Code BPMO NE/DK
Ser 07-055
April 3, 2007

Ms. Christine A.P. Williams
Federal Facilities Superfund Section
United States Environmental Protection Agency
1 Congress Street, Suite 1100 (HBT)
Boston, MA 02114-2023

Ms. Claudia Sait
Maine Department of Environmental Protection
Bureau of Remediation and Waste Management
State House, Station 17
Augusta, ME 04333-0017

Dear Ms. Williams and Ms. Sait:

SUBJECT: COMMUNITY ENVIRONMENTAL RESPONSE FACILITATION ACT (CERFA) IDENTIFICATION OF UNCONTAMINATED PROPERTY AT THE NAVAL AIR STATION BRUNSWICK (NASB), MAINE

As discussed during the NASB Stakeholder's technical review meetings, March 20-22, 2007 and with the community during the Restoration Advisory Board (RAB) on March 21, 2007, the Navy accepts the EPA's position that no CERFA Uncontaminated Property could be identified at NASB at this time.

The Navy appreciates the EPA's and MEDEP's comments provided in the EPA's letter dated March 1, 2007, on this subject. The Navy's response to comments will follow, as well as necessary modifications to the Navy's CERFA report dated December 2006.

If you have any questions or comments, please contact me at (215) 897-4915, or Lonnie Monaco at (215) 897-4911.

Sincerely,

Dawn C. Kincaid

Dawn C. Kincaid, P.E.
BRAC Environmental Coordinator
By direction of BRAC PMO

Copy to:
Lisa Joy - BNAS
Dale Mosher - BNAS
Ralph Lombardo - BRAC PMO
Lonnie Monaco - MIDLANT
Captain Womack - BNAS
Tom Fusco - RAB Co-Chair
Ed Benedikt - BACSE
Carolyn LePage - LePage Environmental
Carol Warren - Brunswick LRA
Richard Roedner - Topsham LRA
Lawson Anderson - TtNUS
Al Easterday, Mark Carver, Catherine Guido - ECC

U.S. Department of the Navy Response to Regulatory Agency Comments

DEPARTMENT OF THE NAVY
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE, NORTHEAST
4911 SOUTH BROAD STREET
PHILADELPHIA, PA 19112-1303

5900
PMO NE/DK
Ser 07-072
May 16, 2007

Ms. Mary Sanderson, Chief
Remediation and Restoration II Branch
United States Environmental Protection Agency
New England – Region 1
1 Congress Street, Suite 1100 (HBT)
Boston, MA 02114-2023

Ms. Claudia Sait
Maine Department of Environmental Protection
Bureau of Remediation and Waste Management
State House, Station 17
Augusta, ME 04333-0017

Dear Ms. Sanderson and Ms. Sait:

SUBJECT: COMMUNITY ENVIRONMENTAL RESPONSE FACILITATION ACT (CERFA) IDENTIFICATION OF UNCONTAMINATED PROPERTY AT NAVAL AIR STATION, BRUNSWICK (NASB), MAINE

This letter is in response to the comments, questions and concerns outlined in your letters of March 1, 2007 and January 30, 2007, respectively, from the review of the draft "CERFA Identification of Uncontaminated Property at the Naval Air Station Brunswick, Maine", dated December 2006.

As stated in my letter of April 3, 2007, the Navy accepts the decision of the United States Environmental Protection Agency (EPA) and Maine Department of Environmental Protection (MEDEP) not to concur with the proposed categorization of select areas of the NAS as CERFA uncontaminated property at this time due to the data gaps and questions raised in your letters. Many of these data gaps will be filled and questions answered by the ongoing environmental investigation and cleanup work being conducted at NAS Brunswick under the Navy Installation Restoration Program (IRP). Additional research and investigation will be performed during a follow-up phase addressing issues and potential new sites identified as a result of the CERFA process.

To ensure that all data gaps and concerns are addressed, including those identified through regulatory review comments on Navy documents, calls/tips from the general public, Restoration Advisory Board meetings, anecdotal evidence, interviews, etc., the Navy intends to develop a tracking system and use a standard decision-making process for determining the follow-up actions necessary. All such "outstanding issues" will be addressed under the appropriate Navy environmental program. This will ensure that all issues are given proper attention and a record of issue resolution is included in the Administrative Record.

Information generated through this tracking and follow-up system will be compiled and presented as supporting documentation for Findings of Suitability to Transfer (FOSTs) and other property transfer documents.

Your comments are appreciated, and will be incorporated into the aforementioned environmental issue tracking system (ITS) and follow-up process as the Navy moves toward closure and disposal of NAS Brunswick property.

Responses to EPA and MEDEP comments follow:

RESPONSES TO EPA COMMENTS

I. Base Wide Groundwater / Institutional Controls

Plume boundaries, buffer zones and groundwater flow directions will be better defined upon completion of the ongoing and/or planned IRP site investigations and groundwater modeling. The Navy intends to review with USEPA and MEDEP (the Regulators) each Record of Decision (ROD) for NAS Brunswick in light of the BRAC 2005 decision to close and transfer property outside of the Federal Government. RODs and institutional controls boundaries will then be modified, as deemed necessary based on these reviews.

II. Legal Description of Parcel

The Navy is currently arranging for a boundary survey of the NAS Brunswick Main Base and each remote property. Legal descriptions and surveys will be provided for transfer parcels as they are identified in the future.

III. Pesticides

Historic pesticide application practices will be incorporated into the ITS, and research will be performed to determine the proper follow-up action(s).

IV. Adjacent Parcels

A Site 12 groundwater investigation is planned under the IRP. This investigation will assist in determining the potential for contaminated groundwater (if identified) to impact Areas A-3 or A-4. Also, the potential for groundwater contamination in the former Brunswick Gardens housing area (Area A-2) will be incorporated into the ITS, and research will be performed to determine the proper follow-up action(s).

V. Asbestos

The report did not reference an asbestos survey because the proposed CERFA uncontaminated areas did not include buildings (other than the recently constructed housing in Area A-2 and the Golf Course Clubhouse). Much of the information on

the existence, extent and condition of asbestos-containing materials at NAS Brunswick was included in the May 30, 2006 *Environmental Condition of Property Report, Revision 2* (ECP). Additional information collection and compilation will be needed to support the applicable FOSTs as parcels are identified for transfer. This item will be incorporated into the ITS for appropriate follow-up action.

RESPONSES TO MEDEP COMMENTS

General Comments:

1. Plume boundaries and groundwater flow directions will be better defined upon completion of the ongoing and/or planned IRP site investigations and groundwater modeling. The Navy intends to review with the Regulators each NAS Brunswick ROD in light of the BRAC 2005 decision to close and transfer property outside of the Federal Government.

    a.) The potential for groundwater contamination in the former Brunswick Gardens housing area will be incorporated into the ITS, and research will be performed to determine the proper follow-up action(s).
    b.) A Site 12 groundwater investigation is planned under the IRP.
    c.) A Site 12 groundwater investigation is planned under the IRP; the abandoned underground pipeline and herbicide/pesticide practices associated with the Golf Course will be incorporated into the ITS, and research will be performed to determine the proper follow-up action(s).
    d.) The legend for the 1946 base map indicates these structures were all houses or sheds, except for one line shack. A "D" size or larger hard copy of the map will be provided to the Regulators by the NAS Brunswick Environmental Department. The issue of aircraft exhaust fallout will be incorporated into the ITS, and research will be performed to determine the proper follow-up action(s).

2. Noted. The discussion of statutory authority was intentionally limited to explaining the requirements for identification of uncontaminated property under CERFA. The section will be modified to state that concurrence for the non-NPL remote properties must be obtained from the "appropriate State official."

3. Fuel drop sites will be incorporated into the ITS, and research will be performed to determine the proper follow-up action(s).

4. Past airplane crashes at the NAS will be incorporated into the ITS, and research will be performed to determine the proper follow-up action(s).

5. The issue of aircraft exhaust fallout will be incorporated into the ITS, and research will be performed to determine the proper follow-up action(s).

6. The issue of non-liquid PCBs in products will be incorporated into the ITS, and research will be performed to determine the proper follow-up action(s).

7. Identification and possible sampling of areas that formerly had PCB-containing equipment will be incorporated into the ITS, and research will be performed to determine the proper follow-up action(s).

8. Land farming of petroleum-contaminated soil will be incorporated into the ITS, and research will be performed to determine the proper follow-up action(s).

Specific Comments:

9. Questions and concerns included in MEDEP comments on the ECP Report will be reviewed to determine which should be included in the ITS.

10. The leakage referred to is leakage to the exterior of the building (i.e., to the environment). If there is no pathway (e.g., significant floor cracks or holes in wall seams) for liquids to exit the boiler or mechanical room, then the room is Category 1. Should this table be used in the future to evaluate buildings at NAS Brunswick, it will have the words "to the environment" added after "leakage" to clarify.

11. The transformer area at the Golf Course Pump House will be incorporated into the ITS, and research will be performed to determine the proper follow-up action(s).

12. The legend for the 1946 base map indicates these structures were all houses or sheds, except for one line shack. A "D" size or larger hard copy of the map will be provided to the Regulators by the NAS Brunswick Environmental Department.

13. Because there is no concurrence on the proposed uncontaminated property, the Navy does not plan to produce a revision to this document other than changed pages for error corrections, which will result in a final CERFA report. The issue of impacts or potential impacts to the A-2 New Housing Area from the Mobile Home Park will be incorporated into the ITS, and research will be performed to determine the proper follow-up action(s).

14. See response to Comment 12.

15. Because there is no concurrence on the proposed uncontaminated property, the Navy does not plan to produce a revision to this document other than changed pages for error corrections, which will result in a final CERFA report.

    a.) Coal stored at NASB was burnt in the heating plant and locomotives on the base. There is no evidence of any coal gasification plant at NASB, but we will add this item to the ITS for verification.
    b.) The Air Force transmitter, receiver and communications compound was transferred to the Navy and is currently the location of Building 87, the

Tactical Support Center (TSC), formerly the Anti Submarine Warfare Operations Center (ASWOC). The Navy's use of the compound is similar to the Air Force's use, being an operational function. A remnant of the former Air Force compound is Building 594, behind the TSC. Building 594 (TSC tower) is used primarily to support mounted antennas.

16. The requested text regarding removal of PCB-contaminated soil will be added and a new page provided.

17. The Area A-2 label was inadvertently moved. A new Figure 3 will be provided.

18. A "D" size or larger hard copy of the 1946 map will be provided by NASB at the next technical meeting in June.

19. Noted. The text referred to is a PDF copy of a page from the Housing Environmental Baseline Survey for Transfer (EBST). Thus, it cannot be edited.

20. Noted. The text referred to is a PDF copy of a page from the Housing EBST. Thus, it cannot be edited. Also, see response to Comment 7 regarding PCB transformers.

21. See response to Comment 11 regarding Golf Course Pump House transformer area.

22. Appendix E, Adjacent Properties Observations Tables, Main Base: Groundwater flow directions will be better defined for future documents upon completion of the ongoing and/or planned IRP site investigations and groundwater modeling.

23. Appendix E, Adjacent Properties Tables, Remote Properties:

    a.) The skeet range fallout zone north of Area A-11 (Topsham) will be added to the table and a new page provided.
    b.) The substation west of the Sabino Hill Rake Station will be added to the table and to ITS, and a new page provided. The Navy will verify the ownership of this equipment, which may be the utility company.

24. Appendix F, Personnel Interviews:

    a.) The Navy concurs with this suggestion. The CERFA follow-up process will allow more time for attempting to locate former NAS personnel to interview. This suggestion will be incorporated into the ITS, and research will be performed to determine the proper follow-up action(s).
    b.) Noted and concur.

The Navy is currently gathering information and ideas for development of the environmental ITS and follow-up process, and would like to include a discussion of them on the agenda for the next NAS Brunswick Technical Team Meeting scheduled for June 12-14,

2007. We would be especially interested in seeing any examples you may have from working with other teams and sites.

Please contact me at (215) 897-4915 or dawn.kincaid@navy.mil if you have any questions or comments.

Sincerely,

Dawn C. Kincaid

Dawn C. Kincaid, P.E., R.E.M.
BRAC Environmental Coordinator
By direction of BRAC PMO

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Transmittal Letter of Replacement Pages

DEPARTMENT OF THE NAVY
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE, NORTHEAST
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5090
Code BPMO NE/DK
Ser 07-078
June 5, 2007

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Ms. Claudia Sait
Maine Department of Environmental Protection (MEDEP)
Bureau of Remediation and Waste Management
State House, Station 17
Augusta, ME 04333-0017

Dear Ms. Williams and Ms. Sait:

SUBJECT: COMMUNITY ENVIRONMENTAL RESPONSE FACILITATION ACT (CERFA) REPORT REVISIONS FOR THE NAVAL AIR STATION BRUNSWICK (NASB), MAINE

As discussed in the March Stakeholder meetings, followed by my letter of April 3, 2007, the Navy is providing replacement pages and a new Appendix for insertion into copies of the December 2006 NASB CERFA report. The new Appendix in this modified CERFA report will establish for the record the basis for the NASB CERFA determination; that there are currently no CERFA "uncontaminated" parcels at the NASB main base or at the remote parcels.

As proposed in my letter of May 16, 2007, the Navy has included an agenda item during the June Technical Team Meetings for initial discussions on an environmental issue tracking system (ITS) that addresses CERFA comment follow-up.

If you have any questions or comments, please contact me at (215) 897-4915, or Lonnie Monaco at (215) 897-4911.

Sincerely,

Dawn Kincaid

Dawn Kincaid, P.E.
BRAC Environmental Coordinator
By direction of BRAC PMO

Enclosure:
CERFA Report Revisions for NASB Maine and new Appendix

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112G00629
June 7, 2007

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4911 South Broad Street
Building 679, PNBC
Philadelphia, PA 19112-1303

Attention: Ms Dawn Kincaid
BRAC Environmental Coordinator

Reference: Contract No. N62472-03-D-0057
Contract Task Order No. 067

Subject: Submittal of CERFA Report Replacement Pages for the NAS Brunswick, Maine

Dear Ms Kincaid:

Enclosed are two (2) copies of the replacement pages for the above referenced report. Each hard copy consists of replacement pages for the report plus new appendix. The CD copies are for the entire revised report plus all appendices. Additional copies (replacement pages plus CDs and DVDs) have been sent to those on the attached distribution list.

If you have any questions about the report please call me at (301) 528-3074 or technical questions can be addressed to the principal author, Mr. Lawson Anderson at (901) 523-9500.

Sincerely

Steven P. Giannino

Steven P. Giannino, P.E.
Project Manager, CTO 067

SPG/dms

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HRA-0080

USF 85

DECLASSIFIED

CONFIDENTIAL

RESTRICTED

RADIOLOGICAL SAFETY MANUAL

1947

USF 85

Declassified by authority of OPNAV Inst C5513.10A, Encl 5, and Navy Tactical Support Activity ltr Ser 45/556 of 7 Jun 1984 on 20 June 1984 by OP-981T, CNO.

W. H. Loeffler

W. H. LOEFFLER, CAPT, USN

NAVY DEPARTMENT

OFFICE OF THE CHIEF OF NAVAL OPERATIONS

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NAVY DEPARTMENT
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON 25, D. C.

8 December, 1947.

LETTER OF PROMULGATION

1. Radiological Safety Manual, USF 85, is issued for the guidance of the operating forces. It becomes effective upon receipt.

2. This publication has a direct relationship to other tactical, operational, and training publications and should be used in conjunction with them.

3. Recommendations for changes in USF 85 to meet future requirements are solicited. They shall be forwarded to the Chief of Naval Operations via the chain of command.

4. Serially numbered changes will be issued by the Chief of Naval Operations to all holders of USF 85 as the need becomes apparent.

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FORREST SHERMAN,
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LIST OF EFFECTIVE PAGES

Subject matter	Change in effect	Page Nos.
Title page	Original	I (II blank).
Letter of Promulgation, dated 8 Dec., 1947	do	III (IV blank).
Record of corrections	do	V (VI blank).
List of effective pages	do	VII (VIII blank).
Table of contents	do	IX to XII.
Foreword	do	XIII (XIV blank).
Chapter I	do	1–1 to 1–8.
Chapter II	do	2–1 to 2–16.
Chapter III	do	3–1 to 3–22.
Chapter IV	do	4–1 to 4–10.
Chapter V	do	5–1 to 5–10.
Bibliography	do	XV (XVI blank).

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TABLE OF CONTENTS

CHAPTER I

	Page
100. General	1-1
110. Objective of the manual	1-1
111. Definition of Radiological Safety	1-1
120. Radiological Safety Training policy within the fleets	1-1
121. RadSafe organization a part of damage control	1-1
122. Available personnel	1-1
123. Instruments	1-1
124. Importance of setting up organization	1-1
125. Responsibility for RadSafe training and inspections	1-1
126. Information relative to personnel and sources of information	1-1
130. Security Restrictions	1-2
140. General information re: Bomb Bursts	1-3
141. Typical atomic burst	1-3
142. Bursts to date	1-3
143. Variations to be expected	1-3
150. Tactical Implications	1-3
151. Considerations governing formation changes	1-3
152. Suggested changes relative to interval and distance	1-4
153. Tolerance dosage	1-4
154. Some radiation effects not immediate	1-4
155. Avoidance by ship control	1-5
156. Rescue	1-5
160. Terms relating to Radiological Safety	1-5

DECLASSIFIED

CHAPTER II

	Page
200. Nature of the hazards	2-1
210. Phenomona of the detonation	2-1
211. General	2-1
212. Blast effect	2-1
213. Thermal Energy (Infra Red)	2-3
214. Other Non-Ionizing Energy	2-3
215. Radioactivity	2-3
220. Physiological Effects	2-5
221. Blast	2-5
222. Heat	2-5
223. Radioactivity	2-5
224. Psychological effects	2-6
230. Consequences peculiar to an air detonation	2-6
231. Description	2-6
232. Personal damage with respect to range	2-9
233. Ship damage from air burst	2-11
234. Land structure damage from air blast	2-11
240. Consequences peculiar to an underwater detonation	2-13
241. Description	2-13
242. Damage to personnel with respect to range	2-13
243. Ship damage from an underwater burst	2-15
244. Shore damage from a harbor detonation	2-15

DECLASSIFIED

CHAPTER III

	Page
300. Detection: Instruments, Facilities and Procedures	3-1
310. Measuring devices	3-1
311. Instantaneous type	3-1
312. Accumulative type	3-7
313. Instrument development projects	3-9
320. Supplementary Equipment and Facilities	3-9
321. Standard electronics calibration and repair equipment	3-9
322. Stowage	3-9
323. Equipment required for photographic dosimetry	3-9
324. Additional monitoring equipment	3-11
325. Laboratory functions	3-11
326. Centralized Control Station	3-11
327. Change Station	3-11
330. Procedures	3-11
331. Personnel monitoring	3-12
332. Ship monitoring	3-12
333. Sea monitoring	3-15
334. Land monitoring	3-15
335. Air monitoring	3-16

ORIGINAL
DECLASSIFIED

CHAPTER IV

	Page
400. Decontamination	4-1
410. General	4-1
411. Objective of Decontamination	4-1
412. Phases of Decontamination	4-1
413. Prevention of spread	4-1
414. Induced radioactivity	4-2
415. Fission product decay	4-2
420. Personnel Decontamination	4-2
421. Objectives, Preventative and Corrective	4-2
422. Safety Regulations	4-2
430. Ship Decontamination	4-3
431. Weather surfaces	4-3
432. Contamination from being in contaminated water	4-5
433. Cleaning of hull	4-5
434. Small boat decontamination	4-6
435. Contaminated ground tackle	4-7
436. Porous material	4-7
440. Decontamination of a Naval Base	4-7
441. General	4-7
442. Alternate base	4-7
443. Materials other than shipboard material subject to contamination	4-7
444. Fresh water supply	4-7
445. Advantages of bases for decontamination	4-9
450. Plane Decontamination	4-9

CHAPTER V

500. Training	5-1
510. Operational Instruction Program	5-1
511. General indoctrination of All Hands	5-1
512. Specialized instruction	5-1
513. Application of existing tactical and seamanship exercises	5-3
520. Basic Operational Exercises in Detection and Decontamination	5-3
530. Lecture Outline	5-9
Bibliography	XV

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FOREWORD

1. The Radiological Safety Manual USF 85 is issued to provide the Operating Forces all the basic information, of that presently available, which is considered necessary to gain and maintain standards of Operational Readiness.

2. In Order to keep the classification of the material contained in the manual to no higher than Confidential and thus to permit reasonably wide dissemination, much of the material reviewed in its compilation was rejected or edited to insure against violation of security. Damage and casualty radii although inexact are sufficiently representative to form a basis for effective training.

3. This publication is based upon Hiroshima and Nagasaki results as well as upon postwar CROSSROADS Tests. Expert opinion has not yet crystallized upon all implications of Atomic Warfare. Laboratory experiments and theory may be expected to progress, thus making Radiological Safety a continually changing science. Operational training drills and exercises are expected to result in recommendations for improvement in tactics and techniques.

4. This manual presupposes that all officers are familiar with other basic tactical and damage-control publications and that the contents herein will be integrated with, rather than supercede, those manuals.

5. This manual is divided into chapters, the chapters into sections, and sections into paragraphs. Chapters are designated by Roman numerals with the sections and paragraphs indicated by three-digit numbers for convenience in reference and signal. The first digit indicates the chapter, the second digit the section within the chapter, and the last digit indicates the paragraph. Where further subdivision has been necessary, those subdivisions are indicated by lower case letters and arabic numerals.

6. Recommendations for changes to USF 85 shall be forwarded to the Chief of Naval Operations via the chain of command.

7. The issue of temporary addenda to augment the exercises contained herein or the issue of additional exercises by fleet, type or training commands is authorized to meet the training requirements.

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BIBLIOGRAPHY

All Hands Magazine of 1 July 1946. BuPers Info Bulletin.
An Introduction to Radiological Safety. BuMed.
Applied Nuclear Physics. Pollard and Davidson. Wiley & Sons, Inc., 1942. 249 p.
Atomic Bomb Explosion Effects on an American City. Dr. R. E. Lapp.
BuShips-BuMed General Radiological Safety Precautions. Enclosures to BuShips-BuMed letter of 22 Nov. 1946.
BuShips-BuMed Decontamination Procedures. Enclosures to BuShips-BuMed letter of 22 Nov. 1946.
Effects of Atomic Bomb on Navies and Naval Strategy. Bernard Brodie. Library of Congress.
Effects of the Atomic Bombs at Hiroshima and Nagasaki. His Majesty's Treasury. Report of the British Mission to Japan. London: His Majesty's Stationery Office.
Epoch in the Desert. Dr. Charles A. Thomas. Monsanto Magazine. Vol. XXIV, No. 6.
Essential Information on Atomic Energy, Committee Monograph No. 1. Special Committee on Atomic Energy. U. S. Senate (Report 1211).
Geiger Counter. Life Magazine.
General Account of the Development of Methods of Using Atomic Energy for Military Purposes Under the Auspices of the United States Government 1940–1945. 1946. H. D. Smyth.
General Report Atomic Bomb Casualty Commission. National Research Council. January 1947.
Hearings Before a Special Committee on Atomic Energy. U. S. Senate.
Hiroshima. John Hersey.
International Control of Atomic Energy—Scientific Information Transmitted to the United Nations Atomic Energy Commission June 14, 1946–October 14, 1946. Prepared by Office of Bernard Baruch. U. S. Department of State.
Lectures Radiological Safety School—Joint Task Force One. Section 1. Chief of Naval Operations. September 1946.
Statements Relating to the Atomic Bomb. London: His Majesty's Stationery Office 1945. His Majesty's Treasury.
One World or None. N. Bohr, A. H. Compton, etc. McGraw-Hill Co., 1946. 80 pp.
CROSSROADS RadSafe Manual. Vol. I. Joint Crossroads Committee.

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CHAPTER I

100. General

110. The objective of the Manual is to provide the Operating Forces with a basis for readiness in radiological safety by:

(*a*) Acquainting all personnel with the hazards that may be expected.

(*b*) Setting forth currently accepted methods of detection.

(*c*) Setting forth currently accepted methods of decontamination.

(*d*) Providing an operational instruction program and basic operational exercises in detection and decontamination.

111. Definition of Radiological Safety.

Radiological Safety is the means to control damage from radioactivity. It includes:

(*a*) Preliminary measures to prevent damage such as:

(1) Training, organization and distribution of personnel.

(2) Development, provision and maintenance of fixed and portable material.

(*b*) Measures following release of radioactive matter such as:

(1) Use of detecting equipment.

(2) Protection and/or removal of exposed personnel.

(3) Decontamination of personnel, equipment, structure or terrain.

120. Essentials extracted from CNO Confidential Letter Op34E6/ab (SC) P11-1 Serial 0756P34 of 29 September 1947 along with relevant comments pertaining to radiological safety training within the fleets follow in subparagraphs 121 through 126.

121. Fleet Commanders are directed to establish in each ship of the active fleet an organization for handling shipboard radiological safety. Except for some techniques of detection and decontamination, the principles associated with radiological safety are identical with those of chemical-warfare defense. They consist essentially of physical protection of personnel and physical removal of the agents. Therefore, as a matter of policy, it is directed that initially the "RadSafe" organization be a part of the ship's damage-control organization.

122. Specially trained personnel sufficient to man these organizations will be available only in limited numbers far below requirements. However, by the end of 1947, there will be available to all ships, information and instructions appropriate for self-training of officers and for the instruction of enlisted men.

123. Instruments for detection of hazards will not be available until 1948 or later. The present designs are delicate of construction, limited in application, and unsuited for general shipboard use. They are undergoing redesign and will be produced in quantity as soon as the prototype models have been evaluated. Present designs are described in chapter III.

124. Because of the above factors, training initially will lack realism. However, since there is an operational requirement for Navy-wide ability to handle this problem, it is necessary that organization and training be started as early as practicable.

125. Responsibility for radiological safety training and inspections parallels responsibility for all other training.

126. In order that responsible commanders may plan effective interim and ultimate organization and readiness, the following information relative to personnel and sources of information is given:

(*a*) Officers who graduate from special postgraduate courses in radiological safety will be ordered to senior staffs to act as advisors in radiological matters. These specially qualified officers will be designated by BuPers as "RadSafe Engineers." Until RadSafe Engineers are available, these duties may be performed by graduates of shorter courses.

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(*b*) The officer in each ship who heads up the RadSafe organization will be designated by the Commanding Officer as the "RadSafe Officer." When practicable, this officer will be a graduate of the 6 weeks' Radiological Safety Officer course conducted by BuPers or of a similar course conducted by the Army using an identical curriculum and for which quotas are being granted to the Navy. The RadSafe Officer may be the Engineer Officer, the Damage Control Officer, or another officer, but in the latter case he will function under the Damage Control Officer and hence the Engineer Officer whose senior responsibilities relative to prevention and control of all damage remain unchanged. Except as governed by the availability of quotas, Commanding Officers are not restricted as to the number of officers qualified by special courses nor are they limited in the number which they may have undergoing self-training. It is conceivable that large units may require several officers to gain competence in radiological safety.

(*c*) RadSafe Monitors will be required as an integral part of the RadSafe organization. They will become qualified in the use of detection equipment and in decontamination procedures. Ultimately all repair party personnel should be so qualified. Their training must be conducted on board by the RadSafe Officer using instructional material similar to that outlined in subparagraph (*e*) below. Consequently chapter V of this publication contains a proposed shipboard course of instruction to produce the necessary qualifications.

(*d*) When detection equipment is allocated and on board, maintenance personnel other than the regular complement of electronics repair personnel will not be required. The circuits of radiological detection instruments are relatively simple when compared with those customarily maintained by ETM ratings.

(*e*) Sources of information dealing with radiological safety which are now available or which will be published during the current year are:

(1) **The Joint Crossroads RadSafe Manual** (available in Dec. 1947) will be a detailed, technical, and advanced manual. It will contain information which exceeds the scope of fundamental details required for operational purposes and is designed as a basic source book for other publications. It is usable as a text in schools.

(2) The Bureau of Naval Personnel has distributed the following:

(i) A special issue of **All Hands** magazine (July 1946) containing a simplified, concrete summation of the principles of nuclear physics used in the development of the atomic bomb.

(ii) A correspondence course in Nuclear Physics (Nov.-1946).

(iii) Copies of the **Smyth Report.**—A General Account of the Development of Methods of Using Atomic Energy for Military Purposes Under the Auspices of the United States Government 1940–45 (1946).

(3) Within their respective areas of cognizance, the Bureau of Ships and the Bureau of Yards and Docks may be expected to distribute instructions on protection, the operation of detection equipment, and on decontamination as developed and as appropriate.

(4) The Bureau of Medicine and Surgery has been directed to disseminate instructions on the medical aspects of radiological safety as appropriate. The Bureau of Medicine and Surgery is responsible for all basic and technical training of medical personnel as individuals. Special training of Radiological Health Officers is in the planning stages. This and the necessary instruction of all medical personnel to cope with radiological safety may be expected to progress in accordance with an orderly program.

130. Security Restrictions.

By an act of Congress, all control of atomic energy and direct subsidiary activities, such as safety pertaining to radioactive materials, is vested in the Atomic Energy Commission (AEC). Although the military branches of our Government must premise preparedness on the fact that information dealing with atomic energy is not exclusively the property of our own and friendly governments, there are, in this field, many data vital to national security. All information dealing

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with this subject, its background, its scientific aspects, and its implications from a military or naval standpoint must be given clearance by the AEC prior to release.

140. General Information re Bomb Bursts.

141. Eyewitnesses in Hiroshima were agreed that they saw a blinding white flash in the sky, felt a rush of air, and heard a loud rumble of noise, followed by the sound of rending and falling buildings. All spoke of the settling darkness as they found themselves enveloped by a thick cloud of dust. The action of the bomb can best be explained by the analogy of the destruction expected to a model town built to the scale of Gulliver's Lilliput, 1 inch to 1 foot, if there were exploded above it a bomb more than twice as large as the largest "blockbuster." A more complete summary of the action of the bomb is set forth in chapter II.

142. There have been five atomic bomb bursts to date:

(*a*) Alamorgordo, New Mexico, trial burst 16 July 1945, air burst above ground.

(*b*) Hiroshima, Honshu, Japan, 6 August 1945, air burst above ground.

(*c*) Nagasaki, Kyushu, Japan, 9 August 1945, air burst above ground.

(*d*) Bikini, Marshall Islands, Operation CROSSROADS Test Able, 1 July 1946, air burst above water.

(*e*) Bikini, Marshall Islands, Operation CROSSROADS Test Baker, 25 July 1946, underwater detonation.

143. Although Radiological Safety Training is based on the experience gained from the five atomic bursts to date, it is obvious that variations may occur in future detonations. These variations may be:

(*a*) The altitude or depth of the burst could be such that:

(1) A different combination of effects from those previously experienced will result. More specifically, should the burst be placed slightly above or below the surface of the water, a combination of the outstanding effects of Bikini Tests Able and Baker may result.

(2) A deep-water detonation, such as that proposed for the canceled third Bikini test, would produce effects that can only be visualized in theory.

(*b*) The method of delivering the bomb may be different. Possibilities are:

(1) Aircraft, for ranges of thousands of miles.

(2) Guided Missiles, for ranges of a few hundred miles.

(3) Clandestine (Trojan Horse), for seaports, canals, and airports.

(4) Clandestine, sabotage.

(5) Torpedo.

(6) Mine.

(*c*) The bomb efficiency achieved to date may be improved upon or may not be attained by foreign manufacture. In fact, the possibility of an enemy producing an identical bomb is quite remote.

(*d*) There exists the possibility of using radioactive agents without a detonation.

150. Tactical Implications.

The tactical implications of Atomic Warfare and Radiological Safety are not firm and therefore no specific tactical training program is set forth in chapter V (Training). There are, however, some known significant factors that may contribute to sound decisions by Tactical Commanders and by Commanding Officers and which may lead to the development of good tactical procedures. These factors are:

151. Increased distances and intervals may be used to minimize the effects of each bomb delivered if the following conditions obtain:

(*a*) Available and reliable intelligence bearing upon the probability of Atomic Attack employ-

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ing any of the methods of delivery listed in paragraph 143 (*b*) above has been considered and results affirmatively.

(*b*) Effectiveness of own control of the air and own screening measures against the several methods of delivery has been evaluated as inadequate.

(*c*) The consequent reduction in fire concentration will not result in failure to accomplish the assigned mission or outweigh the gain in safety.

152. Generally advisable, but not conclusively nor invariably so, are the following procedures relative to distance and interval:

(*a*) For fast carrier task groups with adequate air and screening support: no change, or not more than 3,000 yards between heavy units.

(*b*) For anchorages:

(1) Sortie as practicable.

(2) Berth heavy valuable units no closer together than 4,000 yards.

(3) If necessary, assign intervening berths to light units, otherwise maintain 4,000 yards between all units.

(*c*) For convoys: Increase distances and intervals to not less than 3,000 yards and to 4,000 yards if screen effectiveness is not reduced over 50 percent thereby.

(*d*) For amphibious operations: Keep heavy valuable units as well separated up to 4,000 yards as consistency with mission accomplishment permits, filling intervals as necessary with lighter units.

153. Tolerance dosages of radiation may be exceeded somewhat without fatal or serious effect. Radiation is measured by a unit called a roentgen (r). One-tenth of one roentgen per day (0.1 r/day) is the established national standard tolerance which will inflict no deleterious effect whatsoever even if such exposure is habitual. On the other hand, it is known that several hundred r is fatal and that various degrees of permanent ill effects are inflicted proportionately by various lesser amounts. Results of animal tests of Operation CROSSROADS will be promulgated when complete and with appropriate security classification. As in subjecting his units to enemy gunfire, the calculated risk vs. the probable gain by exceeding tolerance dosages will be a matter for decision by the O. T. C. No medical authority has yet expressed a maximum nonfatal dosage; however, the following table indicates total body irradiation exposure-effect ranges agreed upon by some medical authorities:

0.1 r/day	Maximum medico-legal peacetime exposure.
0.1 to 10	Relatively little risk.
10 to 25	Some injury likely but probably not incapacitating.
25 to 100	Injury practically certain, probably incapacitating.
100 to 300	Serious injury, some deaths practically certain but may be delayed.
300 to 600	Serious injury or deaths certain, very serious incapacitation, some may linger for weeks or months requiring extensive medical attention and even then die.
600 to 1,000	Death certain, usually in first 24 hours.
Above 1,000	Death certain, usually in a few hours.

154. Radiation effects are not always immediately noticeable. In infrequent cases of lethal dosage, nausea may set in within fifteen minutes to one hour after exposure. This may disappear and no effects be noticed for several days when gradual weakness may develop and death eventually occur. In emergencies, exposed personnel may continue their normal functions for many hours before the effects are discernable. However, personnel monitoring should be the first step after radiation exposure has been a possibility and if tolerance dosage has been exceeded, evacuation, decontamination, and special treatment by competent medical personnel should follow at once.

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155. Prompt action by conning officers can be taken to keep contamination at a minimum by using rudder and engines to avoid cloud fall-out, base surge and/or contaminated areas.

(a) Cloud fall-out from a water burst first falls to the surface outside the column 10 to 20 seconds after the column forms and immediately diffuses vertically to a depth of about five feet. Subsequent diffusion downward is at a rate of about ten feet per five minutes. Sea suction fifteen feet below the waterline thus may not become contaminated for several minutes and the possibility of gaining uncontaminated sea water for decontamination and for fire fighting might be realized from outside of several hundred yards at the time of the burst if prompt rudder action is taken. Horizontal water diffusion is much slower than any normal ship speed.

(b) Although the radioactive base surge initially rolls out from the foot of the water burst column at high speed, it soon slows appreciably so that avoidance may be achieved near the edge of its effective area by prompt action of ship control personnel.

156. Rescue in connection with contaminated ships indicates the need of continued emphasis in the techniques of evacuating personnel by the alongside method. Whereas formerly ships were abandoned only because of uncontrollable fire, loss of buoyancy and/or loss of stability, abandonment may now be necessary because of excessive contamination. Unless an uncontaminated area has been gained, little profit and possibly increased hazard may result from personnel entering the radioactive water. Getting the ship out of the contaminated area may require expeditious towing, another phase of seamanship which has been given increased importance by this type of warfare.

160. The study of Radiological Safety, like the study of any new subject, involves a new "language." Certain elementary terms frequently used in this field but not previously in common naval usage, follow. Definition of them is brief. For more complete definition, reference to the special July 1946 issue of **All Hands** magazine or to any good text on Nuclear Physics is recommended.

(*a*) Terms relating to Radiological Safety:

Alpha (α) *Particle.*—A positively charged nuclear particle emitted by certain naturally radioactive substances like uranium and radium. The alpha particle has been found to be identical with the nucleus of the helium atom which consists of two protons and two neutrons.

Amplification.—As related to detection instruments is the process, either gas, electronic or both, by which ionization effects are multiplied to a quantity suitable for measuring.

Atom.—The smallest division of an element that can enter into a chemical change. It consists of a central nucleus surrounded by one or more electrons rotating about the nucleus in definite orbits.

Beta (β) *Particle.*—A negatively charged particle emitted by certain radioactive substances. The beta particle is a high-speed electron having energies such as would be obtained by accelerating an electron by a potential of from ten thousand to several million volts. While beta particles are emitted by the nucleus it is believed that they are created (and immediately emitted) by a transformation in the nucleus.

Cathode.—The negative electrode. The electrode to which positive ions are attracted. (The anode is the positive electrode to which the negative ions are attracted.)

Chain Reaction.—A term applied to any chemical or nuclear process in which some of the products of a particular change assist the further occurrences of that change.

Critical Size.—In respect to atomic energy, critical size is the minimum amount of material which will support a chain reaction.

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(a) Terms relating to Radiological Safety—Continued.

Decay.—The disintegration of the nuclei of an unstable element due to the spontaneous emission of charged particles or energy quanta. Elements which decay are called radioactive.

Densitometer.—Instrument utilizing a photoelectric cell for determination of the degree of opacity of developed photographic film.

Density.—The compactness of matter measured in terms of mass per unit volume.

Dosimeter.—This instrument, about the size of a fountain pen, is used to detect and measure accumulated dosage of radiation. It utilizes the principle of the electroscope such that radiation neutralizes the charge on the quartz fibers causing collapse of the fibers.

Electrode.—An electrical conductor inserted into a liquid, solution or gas.

Electron.—The smallest known particle having a negative electric charge. The part of the atom outside the nucleus is made of electrons, the number of which, being equal to the protons in the nucleus, is the same as the atomic number of the atom.

Electron Volt.—The energy given to an electron by a potential difference of one volt and so by definition, is in reality a unit of energy rather than of potential. It is designated by e. v. and 1 e. v.$=1.6\times10^{-19}$ joules$=1.6\times10^{-12}$ ergs. 1 Mev$=1.6\times10^{-6}$ ergs.

Element.—One of the basic kinds of matter from which all chemical compounds are formed.

Energy.—The capacity for doing work.

Fission.—A peculiar kind of disintegration of an atomic nucleus. The nucleus upon being struck by a neutron becomes unstable, breaks into two main fragments which are nuclei of elements of medium atomic weight and emits several free neutrons. The atomic nuclei produced as fragments and the several neutrons rush apart at high speed from the point where fission occurred.

Fission Products.—The elements produced by fission. Those having atomic numbers ranging from 30 (Zn) to 64 (Gd) and which are in most cases radioactive.

Frequency.—The number of cycles of a wave motion completed in a unit time.

Gamma (γ) *Ray.*—A non-material short wave radiation emitted by some radioactive atoms. Since these rays are electromagnetic radiations, they are not deflected by electric or magnetic fields as particles would be deflected. The gamma ray differs from other electromagnetic radiations in that it comes from transformations taking place within the nucleus of the atom rather than from the electrons outside the nucleus which are the source of light and X-rays. The gamma ray has a high frequency, high penetrability, and moves as a wave motion at the speed of light.

Geiger-Muller Counter.—A radiation measuring device using a high voltage source to amplify the ionization produced by the radiation.

Half-Life.—The rate at which radioactive materials decay is measured by time intervals, called half-life; in the first half-life, the amount of radioactive material left unchanged is one-half the original amount; in the next half-life interval, half the remaining amount or one fourth the original amount remains. The half-life of different materials varies widely—from several billion years to millionths of a second.

Ion.—An atom bearing an electrical charge caused by a temporary excess or deficiency of electrons.

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(a) Terms relating to Radiological Safety—Continued.

Ionization.—The process by which an atom which is ordinarily electrically neutral acquires an electric charge.

Isotopes.—Two or more forms of the same element differing slightly in atomic weight, but having the same chemical properties. All isotopes of a given element have the same atomic number or nuclear charge. The nuclei of all isotopes of a given element have the same number of protons, differing only in the number of neutrons. Most chemical elements occur as a mixture of several isotopes, i. e., as a mixture of atoms which are alike in chemical properties but fall into several groups according to weight. Certain isotopes are unstable or radioactive and through spontaneous emission, will give off small particles and/or high frequency electromagnetic radiations changing the isotopes to a stable isotope of the element or a different element.

Mass.—The quantity of matter of a body.

Neutron.—A nuclear particle with no electrical charge but with a mass approximately the same as that of the proton.

Nucleus.—The central part of the atom which makes up most of the weight of the atom. An atomic nucleus is made up of two kinds of fundamental particles, protons and neutrons. It has a positive charge equal to the number of protons it contains.

Photoelectric effect.—The emission of electrons from a substance by the action of radiant energy being absorbed by the substance.

Proton.—A nuclear particle with a positive electric charge equal numerically to the negative electric charge of the electron. The mass of the proton is 1,820 times greater than that of the electron.

Quanta.—All of the components of the electromagnetic spectrum exhibit wave properties, however, as a result of experimental evidence, these radiations are not a smooth, continuous flow of energy as pictured by the wave theory, but are rather a series of discontinuous packages of energy. The energy in each package, which is known as a *photon* or *quantum*, increases with the frequency of the radiation.

Radiation (Ionizing).—Radiation which produces ionization directly or indirectly. It includes: alpha α, beta β, gamma γ, X-ray and neutrons.

Radiation (Nonionizing).—Radiation which does not produce ionization. It includes infrared, ultraviolet and visible light.

Radioactivity.—A property of certain elements which causes their atomic nuclei spontaneously to disintegrate, gradually transmuting the original elements into stable isotopes of that element or into another element of different chemical properties. The process is accomplished by the emission of one or more radiations, such as alpha particles, beta particles, gamma rays or positrons.

Roentgen.—The unit of electromagnetic radiation which will produce one electrostatic unit (e. s. u.) of ions in a cubic centimeter of air under standard conditions of temperature and pressure. One electrostatic unit of charge is 2×10^9 ion pairs.

Wave Length.—This is the distance between any two similar points of any two consecutive waves and is conventionally designated by the Greek letter lambda (λ).

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CHAPTER II

200. Nature of the Hazards.

210. Phenomena of the Detonation.

211. An ordinary explosion, such as that of TNT or gunpowder, consists of a flash of fire, a blast with the accompanying sound, and the generation of smoke. These explosions are the results of violent chemical reactions. In other words, the atoms of the elements which make up the explosive are torn loose from each other and recombined and rearranged to form entirely different compounds with the evolution of intense heat. Specifically, certain materials are burned extremely fast, the oxygen being provided by and taken away from one of the components of the explosive. The sensory evidences of explosion are present in an atomic detonation but the degree to which they may be observed is so great that they are almost beyond comprehension. Furthermore, these effects, perceptible to the senses, represent only a part of the total energy given off by an atomic bomb burst. Other energy emissions can be detected and measured only by special instruments.

(*a*) The question that arises in the minds of many is "Where does this energy originate?" The answer is that an atomic detonation is not a chemical change but a physical change. In 1905, Albert Einstein formulated an equation which is a simple relationship of the equivalence of mass and energy. His equation, E equals mc^2, states, in words, that if a mass of matter could be converted to energy, the amount of energy released would be equal to the product of mass times the square of the speed of light. By this equation, if one pound of material were consumed by some process so as to give off its equivalent in energy, 3×10^{16} or thirty million billion foot-pounds of energy would result.[1] In the detonation of an atomic bomb, the nuclei of the atoms which comprise the bomb material are split up, or fissioned, to form entirely different elements. In so doing, a certain amount of the material disappears and in its place energy appears in accordance with Einstein's equation. In this process, the energy is released in about a millionth of a second. Thus it can be seen that the consumption of a small amount of material releases a tremendous quantity of energy. The manner in which this energy manifests itself and the actual products of an atomic bomb detonation are illustrated in figure 1 and are described in the succeeding paragraphs.

212. Blast effect.

Whereas common explosions to date have been capable of damaging a portion of a building or ship or, in rare cases, demolishing a whole unit, an atomic bomb burst could engulf and damage whole buildings or ships. Not just one is affected but all within a radius of several hundred yards. The actual pressure at the center of the detonation is estimated at over a million pounds per square inch. This pressure is the result of the high temperatures produced by the detonation and it is immediately followed by rapid expansion and displacement of the surrounding material. There are three well-defined consequences of such a blast:

(*a*) A positive pressure wave, or blast wave, travels from the center of the burst in all directions. It is not a short shock but more like a very strong gust of wind. The duration of the positive pressure pulse is about one-third of a second.

(*b*) A negative pressure, or blast suction phase, follows the blast pressure wave as in any explosion. The blast suction is considerably weaker in force but it lasts several times as long.

(*c*) A secondary shock effect is the outcome of the impinging of the two blasts on a structure. The pulses will be transmitted throughout the stricken object and will be capable of damaging the interiors of ships or buildings, displacing machinery and equipment and injuring persons within.

[1] $E = mc^2$
$= 1$ pound $(186{,}000$ miles/second $\times 5{,}280$ feet/mile$)^2$.
$= 1$ pound $(9.82 \times 10^8$ feet/second$)^2 = 96 \times 10^{16}$ foot^2 pound/second.^{2}
$= \frac{96 \times 10^{16} \text{ foot}^2 \text{ pound/second}^2}{32 \text{ foot/second}^2} = 3 \times 10^{16}$ foot-pounds.

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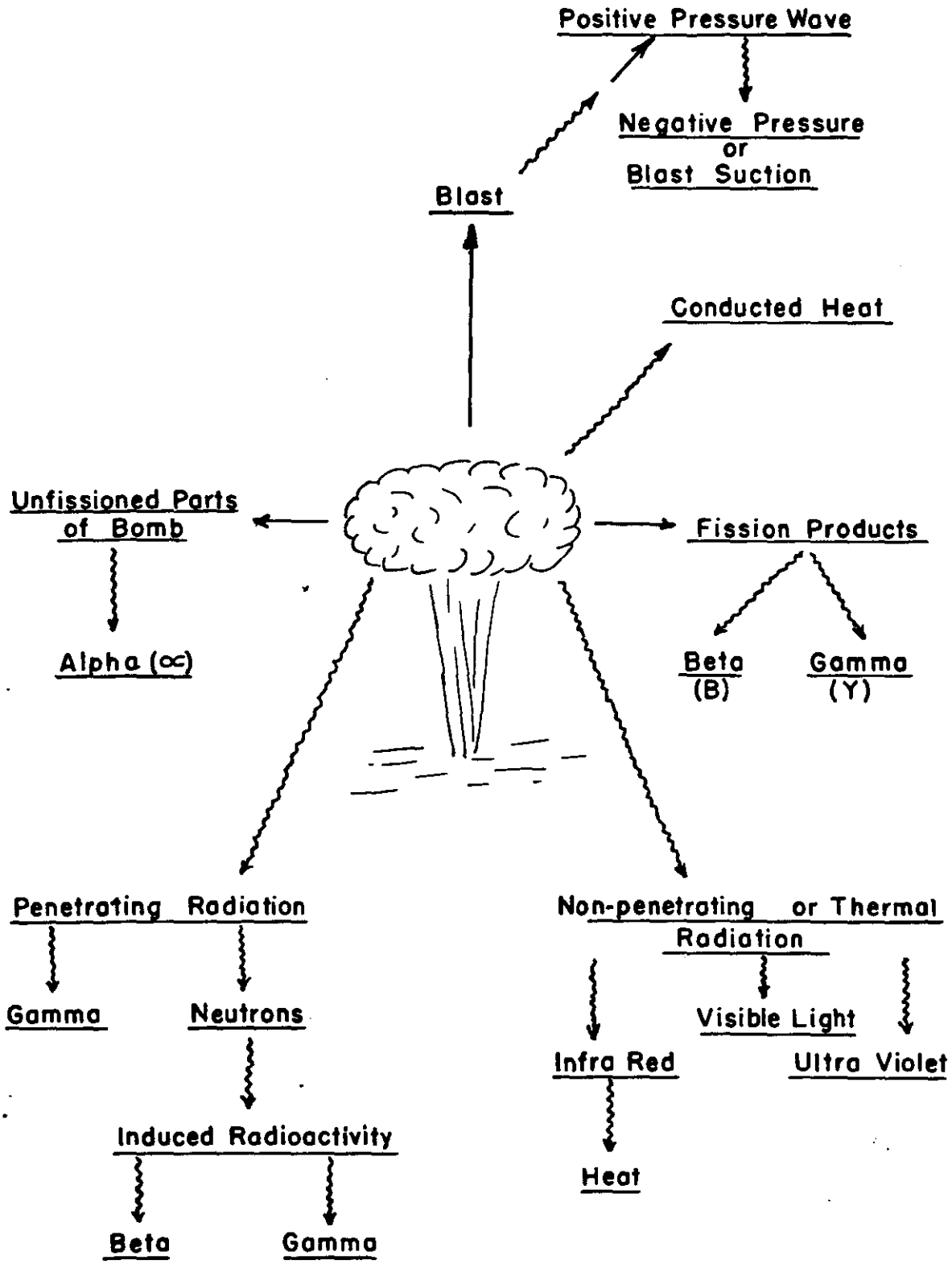

Figure 1.

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213. Thermal Energy.

(*a*) Thermal energy constitutes a large percentage of the total energy emission of the atomic bomb detonation. It manifests itself in the form of heat (infra red).

(*b*) The heat is conducted from the exploding bomb to surrounding materials, heating them to incandescence. This first gives the effect known as the "ball of fire," the interior of which reaches temperatures of millions of degrees Centigrade.

214. Other Nonionizing Energy.

(*a*) Other energy emissions are in the form of nonionizing electromagnetic radiation. An electromagnetic radiation is a form of energy transmission by waves such as those used for radio transmission. The family of electromagnetic waves (electric, radio, radar, infra red, visible light, ultra violet, X-rays, gamma rays, cosmic rays) compose what is known as the electromagnetic spectrum (fig. 2). The latter is a graphic representation of the relationship between various types of emanations. The characteristics of the electromagnetic radiations are determined by their respective wave lengths and frequencies. As can be seen in the diagram, high frequency radiations will have short wave lengths. Furthermore, the highest frequencies transmit the most energy per quantum. The frequencies up to and including ultra violet rays are classed as non-penetrating and the following types in this category are emitted from the atomic bomb detonation: Infra red, visible light and ultra violet light. These are also classed as nonionizing radiations.

(*b*) As the name non-penetrating radiation implies, very thin shielding gives good protection from these forms of energy.

215. Radioactivity.

The elements which compose the universe are found in various forms, or isotopes. All isotopes of an element have the same chemical properties, but slight variations in the atomic nuclei cause them to have slightly different weights. Certain unstable isotopes will, through spontaneous emission, give off small particles or high frequency electromagnetic radiations from their nuclei. The fission process also gives off certain of these emissions. These rays and particles, called nuclear radiations, are emitted with very high energies and are capable of ionizing various atoms if they come in contact with them. Ionization is that process in which a particle of molecular size or smaller which is ordinarily electrically neutral, acquires an electrical charge. For example, if a beta particle collides with an oxygen atom and the latter has a negative particle knocked off, it acquires a charge of plus one and is an oxygen ion. Any such positively charged ion together with the electron knocked off (negative ion) are called an ion pair.

(*a*) At the instant of detonation, two penetrating emissions are of importance:

(1) Gamma rays transmit some of the explosion energy. These high frequency, high energy, long range electromagnetic waves are quite similar to X-rays. These rays, originating from the bomb burst, come in two phases. The first is a very intense burst of energy lasting a few milliseconds and resulting from the actual fission process. The other phase is less intense but lasts several seconds. Its origin is the mass of fission products carrying a large fraction of the total gamma energy radiated but having almost infinitessimally short half-lives (i. e., an isotope with a half-life of 2 seconds would have emitted one-half its radiation at the end of 2 seconds; in the next 2 seconds half the remainder of its radiations would be expended and so on.)

(2) In the process of fission, neutrons are shot from the center of the burst at high energies. A neutron is a small uncharged particle which is one of the building blocks of atomic nuclei. They are capable of penetrating heavy thicknesses of steel and several inches of steel will reduce neutron flux by only one half. Thus, neutrons may penetrate deeper into a ship than some gamma rays if the ship is within neutron range. Whereas charged particles ionize the atoms they strike, neutrons are ineffective directly in this ionizing process. However, if they collide with an atom such as hydrogen, they will impart energy to that atom which will in turn produce dense ionization. More-

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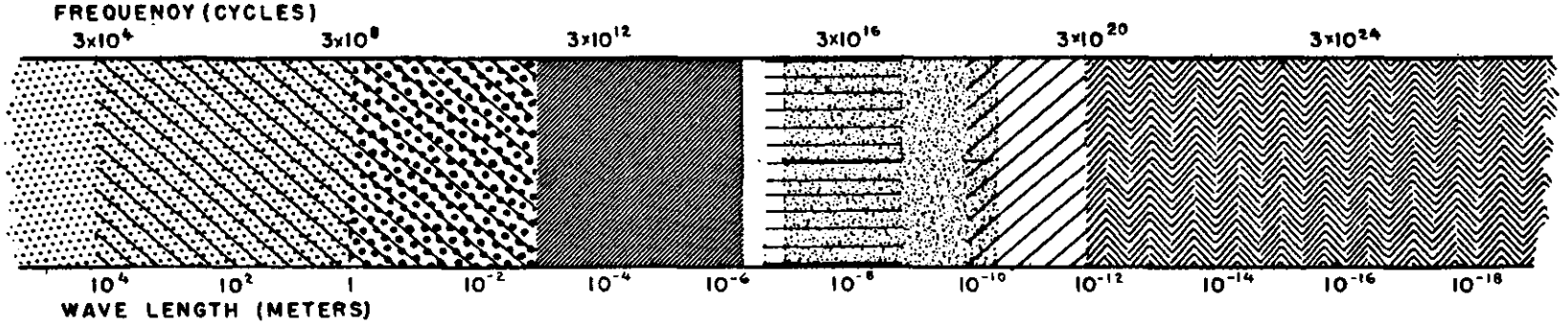
ELECTRO-MAGNETIC SPECTRUM



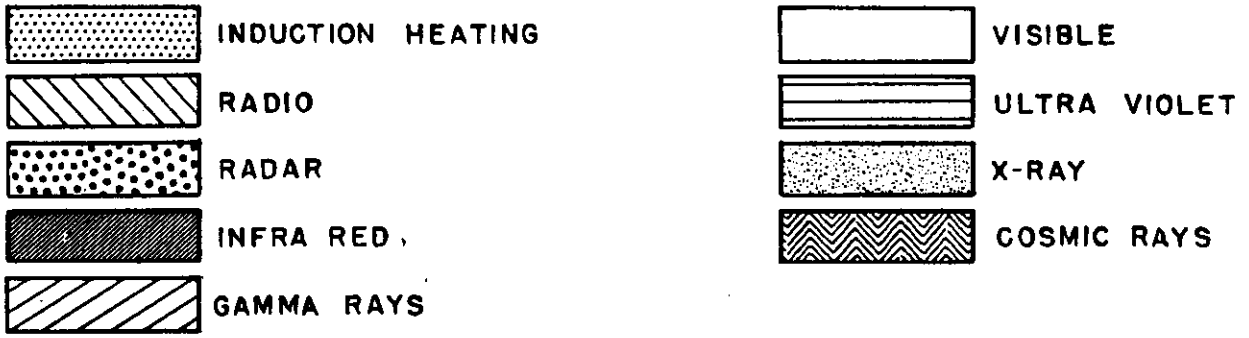


Figure 2.

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over, high energy neutrons are capable of penetrating the atomic nucleus, thus changing its structure. This forms a different isotope of the original or a new element, and this isotope may be an unstable (or radioactive) isotope. To return to stability, the radioactive isotope will give off some form of radiation to reach a balanced condition having a stable nucleus of the same element or of an entirely different element. Materials which are especially susceptible to induced radioactivity are sodium, arsenic, phosphorus, and sulfur.

(*b*) The splitting up of the atoms of bomb material results in the diffusion of minute radioactive particles. The total intensity of these radiations equals that emitted by hundreds of tons of radium.

(1) The bomb efficiency is not 100 percent, so that unfissioned particles of bomb material, either uranium (U 235) or plutonium (Pu), are scattered. Each of these elements is an emitter of alpha particles. An alpha particle is emitted from the nucleus with very high energy but its range in air is only about 4 centimeters. It can be seen that the amount of ionization caused by the alpha particle must be great in relation to distance traveled if such very high energies are dissipated. Only a few elements are known to give off alpha particles.

(2) The fission products are the elements formed when the atoms of U 235 or Pu split. They range in the middle third of the Periodic Table, or from zinc to gadolinium. The unsystematic splitting of the fissionable atoms leaves remnants of more or less unpredictable combinations of protons, neutrons and electrons and which are the fission products. Thus, a wide range of isotopes is formed with the majority of them being radioactive. These isotopes, in decaying to the stable state, emit beta particles and gamma rays with high energies. A beta particle is a high speed electron emitted by an atomic nucleus and its range depends upon its energy and may be as great as 45 feet in air but can be expected to average about 10 feet in air.

220. Physiological effects.

Since the phenomena of detonation are of a varied nature, the resulting physiological effects will be of many types. Casualties resulting from an atomic bomb burst will be the result of one or more actions of the bomb and it is difficult to ascertain which phenomenon is most responsible for any injury. The consequences of each effect of the bomb independent of all others are being studied, although all of the medical aspects are not yet known.

221. The effects of the primary blast wave and the following suction wave are similar to those in any other explosion except in magnitude. However, anyone exposed within lethal blast range would be a casualty from other factors before the blast pulse reached him. The secondary effect is a great source of casualties, as it reached those shielded from the direct blast. The shock which is transmitted is capable of causing injury directly. Displaced or falling structures are an additional hazard.

222. The heat and nonpenetrating radiations are responsible for two types of injuries. The visible light is of such intensity that persons looking directly at an unshielded detonation would be momentarily blinded at a range of several miles. The other consequence consists of burns. Within the range of radiant heat, temperatures may be so great as to char the whole body. Persons not exposed to the fire ball but unprotected from the thermal radiations will have severe burns, ranging from a charring of the skin to mild burns much like severe sunburn. The severe burns are known to affect internal organs as well as the outer skin.

223. The effects of radioactivity on personnel.

(*a*) Alpha emitters are an insidious hazard to personnel. They are difficult to detect and their effect is lasting. These emitters are a primary hazard when absorbed by way of the respiratory system, digestive system or directly into the blood through open wounds. Alpha emitters are distributed by the body in a manner similar to that of calcium; they are carried to the bones, liver, kidneys, etc., and deposited. Constant alpha bombardment of the tissue surrounding this

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material causes irritation which is not given an opportunity to heal and thus may lead to malignancy. Alpha emitters deposited in the chest or lung cavity may cause cancer of the lungs or chest.

(*b*) Beta emitters are harmful both externally and internally. A large quantity of these materials concentrated near the skin will cause ionization of the tissue and hence skin irritations much like burns. Beta-emitting substances taken into the body have two consequences. In the intestinal tract, beta particles bombarding the walls will cause irritation. Beta emissions kill white blood cells, decreasing resistance to infection.

(*c*) Gamma radiation is the most dangerous type of radioactivity because it has both a long range and a great penetrating power. Its ionizing properties destroy the body cells and upset the normal functions of the body. Low energy gamma radiations cause loss of hair. Light doses may cause nausea and aplastic anemia. As dosage becomes greater, the bone marrow, spleen, and lymph nodes are affected. The marrow of the long bones of the body is affected and the mechanisms which manufacture red and white blood cells are destroyed along with the red blood cells themselves, although the latter are more resistant. Red and white blood cells not destroyed by beta and gamma are depleted through normal functioning of the body and if they cannot be replaced, the natural medium of conveying nourishment and oxygen to the body cells (red corpuscles) and of combating infection (white corpuscles) is lost, thus allowing anemia and disease to go unchecked. Furthermore, a wide variety of hemorrhages is caused by interference with the blood-clotting mechanism. As time is required to deplete the corpuscles, the effects of intense gamma exposure are not evident for about 24 hours (pars. 153–154). Death does not normally occur in less than a week. Fatalities occur upon exposure to a dosage of about 300 roentgens of gamma radiation all over the body though some individuals may have sufficient resistance to receive about 600 roentgens and live. (As previously stated, authoritative medical opinion is not yet firm on these amounts.) Sterility has been noted as a result of gamma irradiation, but experience to date indicates that this is only temporary. Mutations in humans as a consequence of gamma exposure have not been noted as yet, but a relatively short time has passed since persons were subject to this form of radioactivity. Future studies may validate present theories that gamma radiation can result in mutations.

(*d*) Neutron radiation causes intense ionization within the body because of neutron-hydrogen interactions. Neutrons bombarding the body will also induce radioactivity. Phosphorus in the bones is the most susceptible of all body material to induced radioactivity. The penetration of neutrons may change the structure of the atomic nucleus such that the atom, to return to its stable state must emit rays and particles as was explained in paragraph 215 (*a*) (2).

224. Psychological effects.

The psychological aspects of atomic warfare may be based on the bombings in Japan, although differences in race, general point of view, and standards of education will cause distinct variations. In Japan, there was a general panic and break-down of morale after each bomb burst. This occurred after years of strife and hardship which had already put the Japanese people into a sort of lethargy. The American public is somewhat better informed and has knowledge of the existence of this weapon and of its potentialities. We, however, are much less accustomed to hardship. It is to be expected that our military personnel will differ from the Japanese even more due to our being a disciplined body having leadership and standards of action and thought in cases of emergency. The ill effects of a single atomic bomb detonation or of an atomic war will be held to a minimum only through discipline, training, and proper dissemination of information.

230. Consequences peculiar to an air detonation.

231. Description.

The first evidences of an atomic bomb burst in air is a brilliant flash of light lasting a few millionths of a second followed by a seething mass of gases, heated to incandescence, which grows

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PERSONNEL DAMAGE
AIR BURST SIMILAR TO HIROSHIMA AND NAGASAKI
PERSONNEL UNSHIELDED EXCEPT FOR CLOTHING

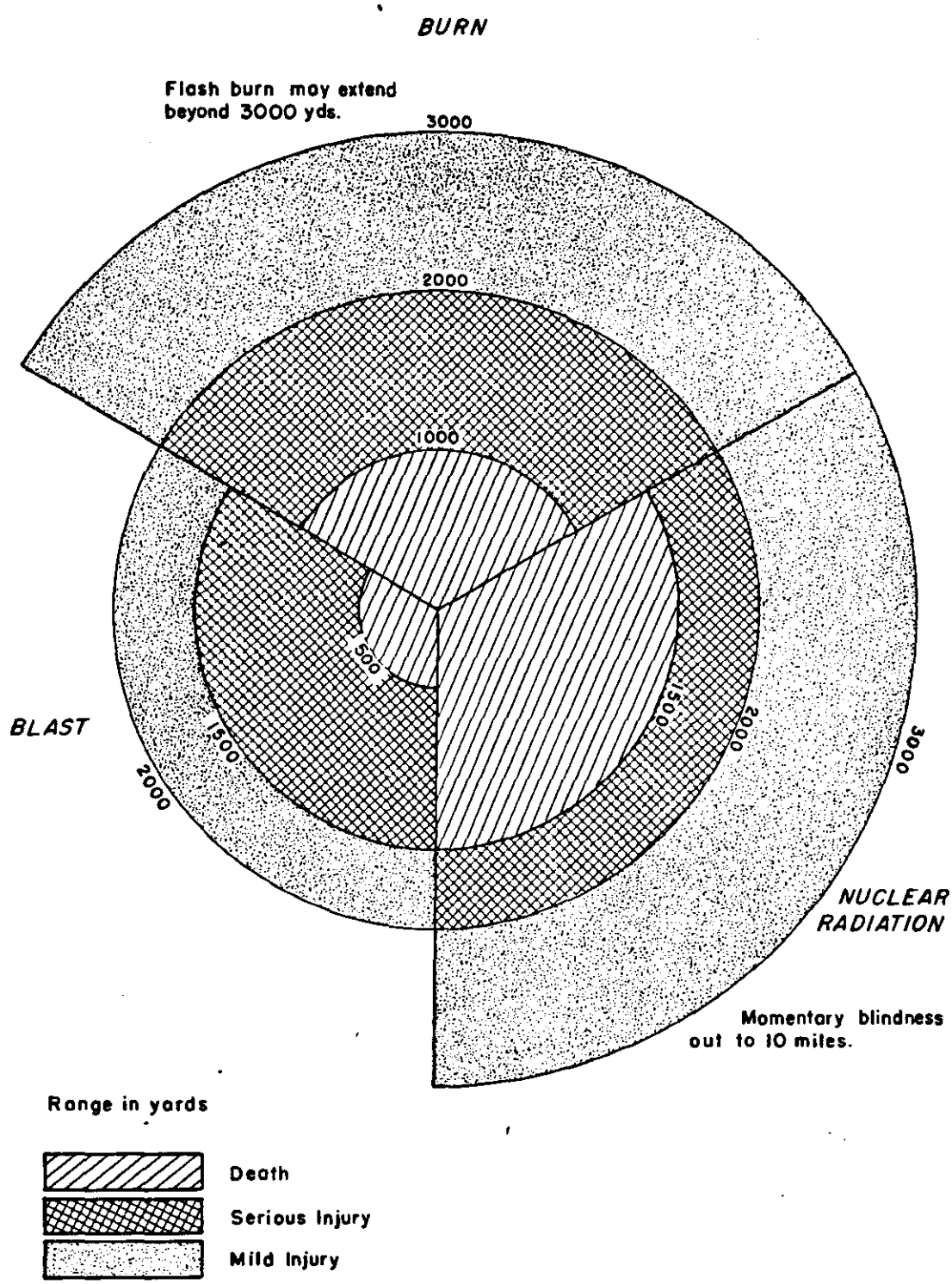

Figure 3.

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rapidly to become a large ball of fire. A shock wave travels from the center of the burst, its path visible on the water where it looks like a tremendous surface shimmer traveling in all directions. A condensation cloud appears, caused by the nearly instantaneous expansion of the atmosphere following the passage of the shock wave. The glow of the ball of fire dies out and leaves a great cloud of smoke, fission products, unfissioned particles, and moisture, which ascends rapidly, assuming a mushroom shape and having a peach color. Depending on the atmospheric conditions, such a cloud may rise to 60,000 feet and is shaped as shown in plate I. All data given in succeeding paragraphs are based on previous bombings. It must again be noted that larger bombs or different altitudes of burst will cause variations in the results.

232. Personnel damage with respect to range (fig. 3).

(*a*) Direct blast is a partial factor in causing casualties. For the most part, persons exposed to direct blast alone would probably be killed within 500 yards, but experience has shown that other phenomena will kill most individuals that would otherwise be blast casualties. It may be said that direct blast will aggravate the injuries of radiation casualties having, otherwise, some chance of recovery to such an extent as to cause death.

Secondary effects of blast are of major importance. Persons protected from direct phenomena are in danger of being injured by displaced or falling structures or through pulses transmitted through a ship or building. This one factor contributed most to the casualties in Hiroshima and Nagasaki.

(*b*) Injuries to personnel from nonionizing radiations. The thermal effects of an air burst may be a most serious cause of casualties. The heat radiations are intense and of greater range than any other phenomena.

(1) Persons in the actual ball of fire will most certainly be fatalities, and death could be caused by many factors.

(2) The visible light rays are capable of causing momentary blindness up to a distance of ten miles if an individual is looking directly at the detonation.

(3) The remainder of the thermal radiations will cause severe burns at a great radius. Certain figures based on studies in Japan have been compiled and are given below:

(i) People unsheltered at 500 yards will all be killed.

(ii) At 1,500 yards, severe burns on unprotected skin may be expected. Some severe burns will be evident up to a mile and a quarter. However, Army summer khaki gives ample protection at 1,500 yards.

(iii) At 2½ miles, persons exposed to the direct rays will have mild burns, much like severe sunburn on unprotected skin.

(*c*) Radioactivity.

1. Direct radiations will cause the ultimate death of all persons fully exposed at one-half mile, if other factors were neglected. Some persons within a few hundred yards will be affected by neutron bombardment, but this effect is unimportant except in locations which are well shielded against gamma radiations. The lethal range of gamma rays is about three-fourths of a mile, and from this distance to 1 mile there is a more moderate effect. A British report estimated that a person fully exposed at three-quarters of a mile has a 50 percent chance of survival. The effects drop rapidly beyond 1 mile, with loss of hair being the most serious injury at 1½ miles, though mild radiation sickness may occur at 2 miles.

(2) Contamination is normally carried away from the scene of an air burst in the radioactive cloud and is dispersed into the atmosphere over a large area, thus reducing its effectiveness against personnel. Some fall-out may occur, particularly in the case of a rainstorm in the area, but the intensities will not be great. A burst very near the ground, in which the earth is melted, will cause a greater spread of contamination, as radioactive particles may be fuzed into the molten materials. Some contamination may be blown onto adjacent materials where it will stick. In

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STRUCTURAL DAMAGE
AIR BLAST SIMILAR TO HIROSHIMA AND NAGASAKI

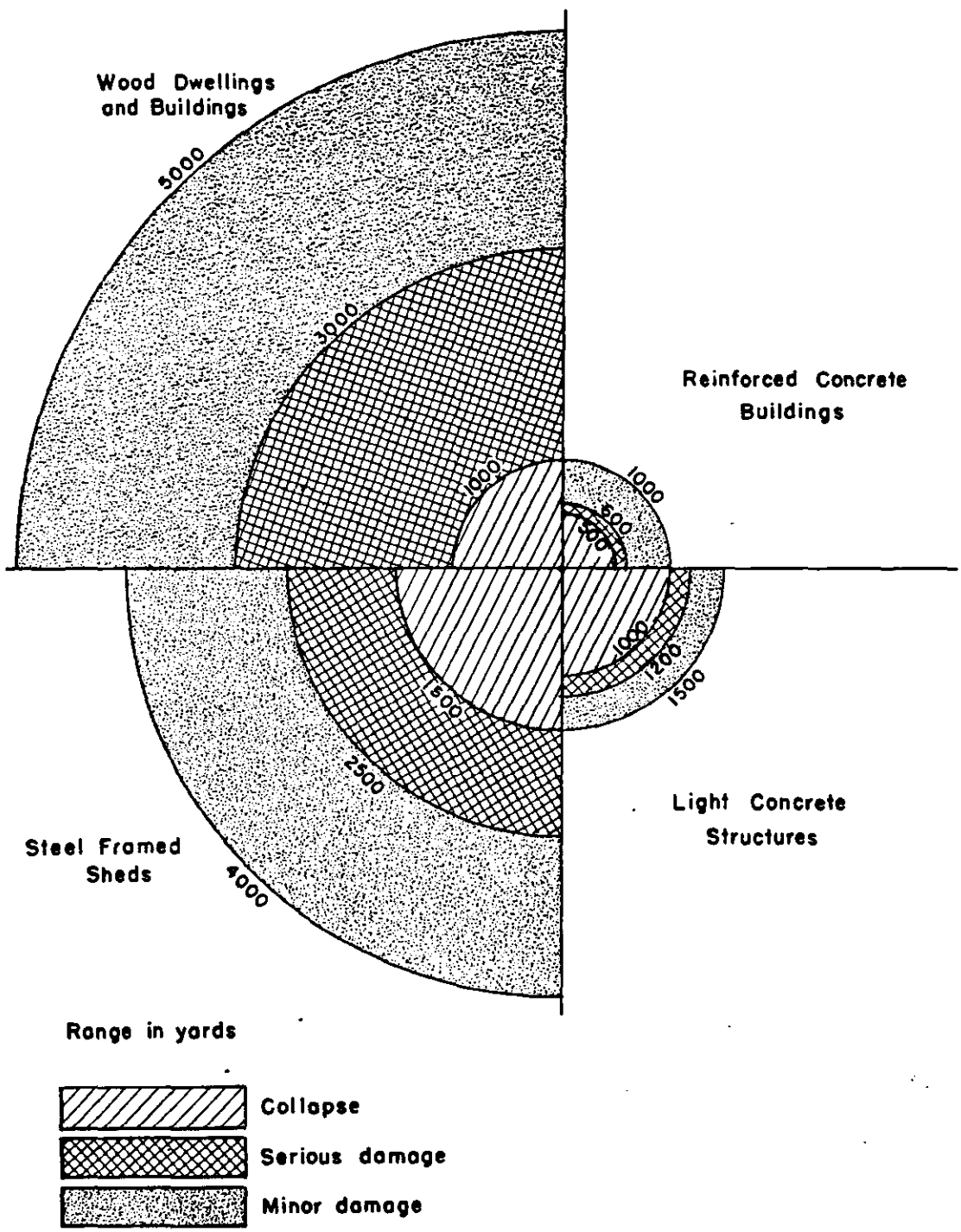

Figure 4.

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case the blast is close to water, some contamination will lodge in the water and in steam generated by the heat, creating personnel hazards, but in most cases this will not provide a serious problem.

233. Ship damage from air burst.

Most information on ship damage results from Operation CROSSROADS and is, as yet, highly classified. However, damage may be described in general statements which are adequate for some operational problems.

(*a*) The blast is sufficient to sink any ship afloat if the latter is close enough. A broadside blast can capsize smaller vessels at several hundred yards. Present day bomb types can cause minor damage at 2,000 yards or more. Stacks and flat surfaces are especially vulnerable. Radio and radar antennas are subject to distortion and displacement at greater ranges. The blast wave is capable of funneling down stacks and doing considerable damage to boilers and firerooms.

The secondary shock damage is considerable. All loose gear and that not securely fastened will be displaced within several hundred yards. Light bulbs will be broken, heavy machinery may be displaced and internal members are liable to distortion from the shock transmitted throughout the ship.

(*b*) Thermal radiations are capable of causing material damage over a large area. This radiation is instantaneous, but the amount of heat energy dispersed is sufficient to scorch wood and paint at 1,500 yards or more. Inflammable materials at closer ranges will be ignited, though no record of the exploding of ammunition directly either by shock or thermal energies has been recorded.

(*c*) Induced radioactivity aboard ship may be expected from fairly low altitude bursts. In such a case, the salt water used aboard ship will also be radioactive, both factors reducing the operational readiness of the unit. The materials most susceptible to this phenomenon are listed earlier in this chapter and may be found particularly in such items as salt, baking soda and soap.

234. Land structure damage from an air blast (fig. 4).

The relationship between land-structure damage and range are based on findings in Japan, and it must again be noted that these are special cases. In general, the damage is from two major causes and combinations of the two.

(*a*) The significant feature of blast damage is mass distortion of structure as in damage done by wind of hurricane force. Some effects of suction have been noted but the duration of the positive pressure wave is such that most of the structures failed before suction began. A British report estimated that normal dwellings such as are common in England would collapse at 1,000 yards, become beyond repair at 1 mile and suffer some damage up to 2½ miles. Some glass would shatter at 12 miles. The following features of blast damage were noted in Japan.

(1) At 200 yards, flat, concrete roof slabs 7 inches thick were dished by the downward thrust of the blast.

(2) Very heavy construction concrete buildings were safe from partial collapse but not safe from structural damage within one-half mile.

(3) Light single story concrete buildings failed at one-half mile from the center of the damage.

(4) Steel framed single-story sheds were damaged by mass distortion away from the explosion up to three-fourths of a mile with steel stanchions and roof trusses collapsed. The structural framework of these sheds was damaged up to 1¼ miles. A point of interest is the fact that the pliable covering of these sheds transmitted pressure to the framework with more damage resulting than did coverings which shatter, such as asbestos cement, which absorbed some of the energy in failing and thus gave more blast protection to the framework.

(*b*) Thermal energy and the ball of fire from an air burst are of extremely short duration. However, at 400 yards from the center of the damage, the temperature was well over 1,100° F. Fire damage in Japan was divided into two categories: direct-heat damage and secondary fires.

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MATERIAL DAMAGE BY FIRE

AIR BURST SIMILAR TO HIROSHIMA AND NAGASAKI

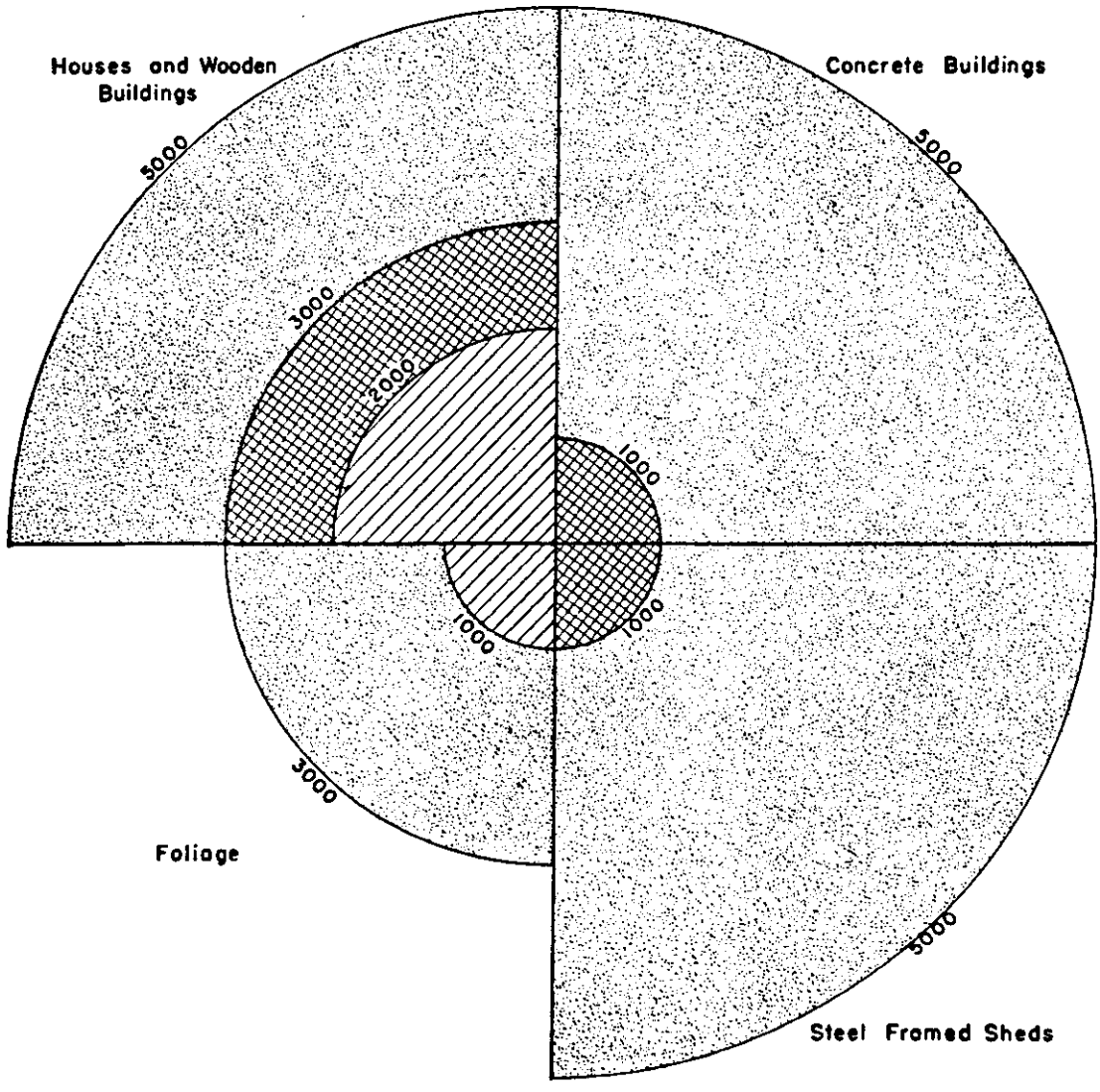

Figure 5.

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(1) Direct-heat damage from the explosion, from the ball of fire and from thermal radiation is believed to have accounted for 60 percent of all fire damage in Nagasaki. Surveys showed that vegitation was burned completely at 1,000 yards with some fired at greater distances. Unscreened buildings at 1 mile were subject to fire from direct radiation. Trees at 3,000 yards showed flash-burn marks and some materials ignited at this distance.

(2) Secondary fires originate from overturned stoves and furnaces, broken power lines or spreading of other fires.

240. Consequences peculiar to an underwater detonation.

241. An underwater detonation (plate II) first becomes visible with the appearance of a relatively small (50 to 500 yard diameter) white spray dome followed by a dull red flash. This dome expands and rises. A surface shimmer of about 800 yard radius, caused by the shock, appears. A column of water is forced up to a height of about 2,000 feet. This column has an inverted cone shape, is 450 plus yards in diameter at the base and is estimated to contain several hundred thousand tons of water. As the shock wave spreads, the air behind it expands causing condensation and giving the effect of a huge vapor dome. A mushroom shaped cloud, made up of mist, steam, smoke, fission products, and unfissioned particles, rises and spreads to a great diameter. The sea waves propogated from the center of the burst are about 30 feet high at a distance of 1,000 yards with 500 yards from crest to crest. At 5,000 yards they are about 6 feet high. A dense spray, caused by base surge and falling water is formed at the bottom of the column. This heavily contaminated mist rolls out covering an area of several square miles and turns into a heavy fog. Finally, a downpour of rain begins, its origin being the base spray, fog, and the moisture in the cloud. At Bikini it covered an elliptical area of over 5 square miles with the longer axis being the result of a light breeze. This combination of rain, mist and fog carries contaminating agents which initially give off radiation intensities in thousands of roentgens. The water below it becomes contaminated on the surface, the radioactive agents diffusing vertically at the rate of about 10 feet in 5 minutes. All effects of a subsurface detonation, as in air detonations, are subject to variations as bomb size and depth of detonation vary. The succeeding paragraphs explain the effects which manifest themselves as hazards to personnel and to operability as a result of an underwater detonation.

242. Damage to personnel vs. range.

(*a*) The actual blast hazard to personnel extends to about 600 yards, although shock injuries will extend to one-half mile. Personnel low in the ship are especially susceptible to secondary shock injuries, and it is estimated that about 25 percent of lower-deck personnel will be casualties at 600 yards. This figure falls for persons on higher-deck levels (from secondary shock effect only).

(*b*) The high waves will sweep over the deck washing people and loose gear over the side. On large ships this hazard exists up to 600 yards, whereas landing craft and other small ships will be subject to this hazard as well as to capsizing as far out as 1,000 yards from the center of the burst. The original waves caused by the burst carry few radioactive agents.

(*c*) Water is an effective shielding device against thermal radiations, neutrons and gamma rays given off at the instant of burst. Several feet of water stops the most penetrating neutrons emitted.

(*d*) Contamination is the greatest hazard to personnel. All men exposed directly to the contaminating rain, spray or water may get lethal doses of radioactivity. The effects may not become evident, however, for a period of at least 24 hours (pars. 153–154). The water within neutron range of the detonation will become contaminated through high intensity induced radioactivity in the sodium as well as from the fission products and the unfissioned parts of the bomb it will hold. This volume of water will diffuse horizontally contaminating surrounding water. The range of contamination will depend somewhat on wind and current. Personnel protected

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from direct contact with this contamination but not well shielded from that which lodges on the ship are likely to receive a fatal dose of radiation within a variable period of time if decontamination is not effected or the men evacuated. Openings in the ship, such as hatches, ventilation ducts or sea suction chests, will be a means of entry for contamination, allowing the hazard to extend well inside the ship and adding to the effects of gamma rays which penetrate from contaminated weather surfaces. Prompt maneuvering may aid materially in getting the ship beyond the areas of heavy contamination in the water, mist and rain. Contamination of personnel may be lessened a great deal by prompt donning of gas masks.

243. Ship damage from an underwater burst.

(*a*) Blast causes four distinct effects which, with their combinations, will damage ships within several hundred yards. These four effects are: the subsurface shock pulse, sea waves, air blast waves and secondary shock. The shock pulse is transmitted through the water and is capable of sinking ships within 500 yards. Its effectiveness diminishes rapidly with distance beyond this range.

The strength of the blast pulse, transmitted through the atmosphere, varies with the depth of the detonation. Its effect is considered along with the high sea waves also propagated. The combination of the two will cause considerable topside damage to ships within a few hundred yards.

The secondary shock pulse transmitted throughout the ship is capable of displacing machinery and other objects which have high inertia or are mounted on flimsy supports.

(*b*) The operability of ships is greatly affected by contamination, as discussed in paragraph 242.

244. Shore damage from a harbor detonation.

(*a*) There is no precedent of a harbor detonation from which to derive information. In visualizing such an attack, results can only be estimated in general terms because of the numerous variables involved. The principal causes of variations are depth of the harbor, distance the detonation is from the shore, the contours of the surrounding terrain, depth of the detonation and the physical arrangement of the structures in the harbor area. The hazards resulting from a harbor detonation will be similar to those in any subsurface detonation and the consequences will differ only because of the above variables and the type of material within effective radius.

(*b*) The shock pulse will collapse docks and other structures built out in the harbor and will sink ships in the harbor if the burst is within several hundred yards. Air blast and sea waves will wreck structures on the shore if they are within a certain range.

(*c*) Ships, land, water, and land structures within the contamination pattern will receive radioactive agents, denying or restricting the use of the entire pattern area until decontamination can be effected. Most harbors contain floating debris and oil slicks which are effective holders of radioactive particles and this hazard must be taken into account before the area is declared safe.

(*d*) The contamination in the water must pass out through the harbor entrance or lose its radioactivity very slowly through the settling of fission products and unfissioned particles to the bottom or through natural decay before the harbor is again completely safe for operation. The change of water will be rapid in the case of harbors into which large rivers flow or those which are only partly enclosed, whereas harbors with small entrances and little source of new water may hold contamination for weeks or years. The bottom will, in any case, hold contamination for a considerable period, rendering operations involving divers hazardous and only advisable if undertaken under the supervision of Radiological Safety personnel.

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CHAPTER III

300. Detection: Instruments, Facilities and Procedures.

310. Measuring devices which indicate the presence and amount of radioactivity in an area are divided into those which provide a reading of the intensity and those which register accumulated radiation over a period of time. In lack of the latter type, the instantaneous reading instrument may be used with a watch in lieu thereof, providing intensity is constant. Similarly the accumulative type can be used with a stop watch to determine instantaneous or rate of radiation if kept in an area of constant intensity during the short period observed.

311. Detection instruments that give readings of radiation intensity are of three types: Ion Chambers, Proportional Counters, and Geiger Counters. These types vary principally in their voltage ranges (fig. 6) but also have other differences. The voltages expressed in figure 6 are typical of those employed in early instruments. The services are not yet firm on the exact characteristics of instruments to be used in the field. Because of changes in geometry and in the gas filler, counters finally accepted will probably vary from the voltage ranges herein used for exemplification.

(*a*) The Ion Chamber is a "rate" meter consisting of an enclosed volume in which ionization is produced by radiation passing through it and which has a means for collecting the charge resulting from such production of ion pairs. (As previously stated, ionization is that process in which a particle of molecular size or smaller, ordinarily electrically neutral, acquires an electrical charge in the production of an ion pair.) One electrostatic unit of charge is 2×10^9 (2 followed by nine zeros) ion pairs. And since the amount of X-ray or gamma ray energy which creates 2×10^9 ion pairs is equal to one roentgen unit, the ionization taking place in an ion chamber can thus be calibrated in roentgens per unit time (r/day). There is no ion amplification in Ion Chambers because the low voltage used does not give the ions sufficient velocity to cause further ionization. The voltage range is below 500 volts (fig. 6). At low voltages, a geiger tube may be used as an ion chamber.

(1) At present, the most common adaptation of the ion chamber for field purposes is the Victoreen 247 Survey Meter. This is an instrument about 1 cubic foot in size and between 17 and 20 pounds in weight. The chambers and associated circuits are in moisture-proof containers. The 247 has 3 scales covering the range of 0 to 200 r/day and records gamma radiation only. Because of its range, the ionization type instrument is used when high levels of radiation are encountered.

(2) General characteristics of ionization chambers are:

(i) Sensitivity, at least in portable instruments, is inferior to that of the portable Geiger counters so that the ion chamber is not a good instrument for obtaining very low readings.

(ii) Insulation of the highest quality must be maintained in the chamber circuit. Therefore, careful stowage and handling to insure adequate shielding from moisture and contamination is required.

(iii) Considerable D. C. amplification is required in the amplifying circuits and the amplifier may be unstable or may change sensitivity.

(iv) Current drain of the D. C. amplifier requires large batteries thus resulting in cumbersome weight.

(v) Very thin windows may be used in laboratory instruments, permitting the detection of alpha particles. Up to the present, it has been found impracticable to measure alpha with the 247.

(vi) A wide band of intensity may be covered by one instrument.

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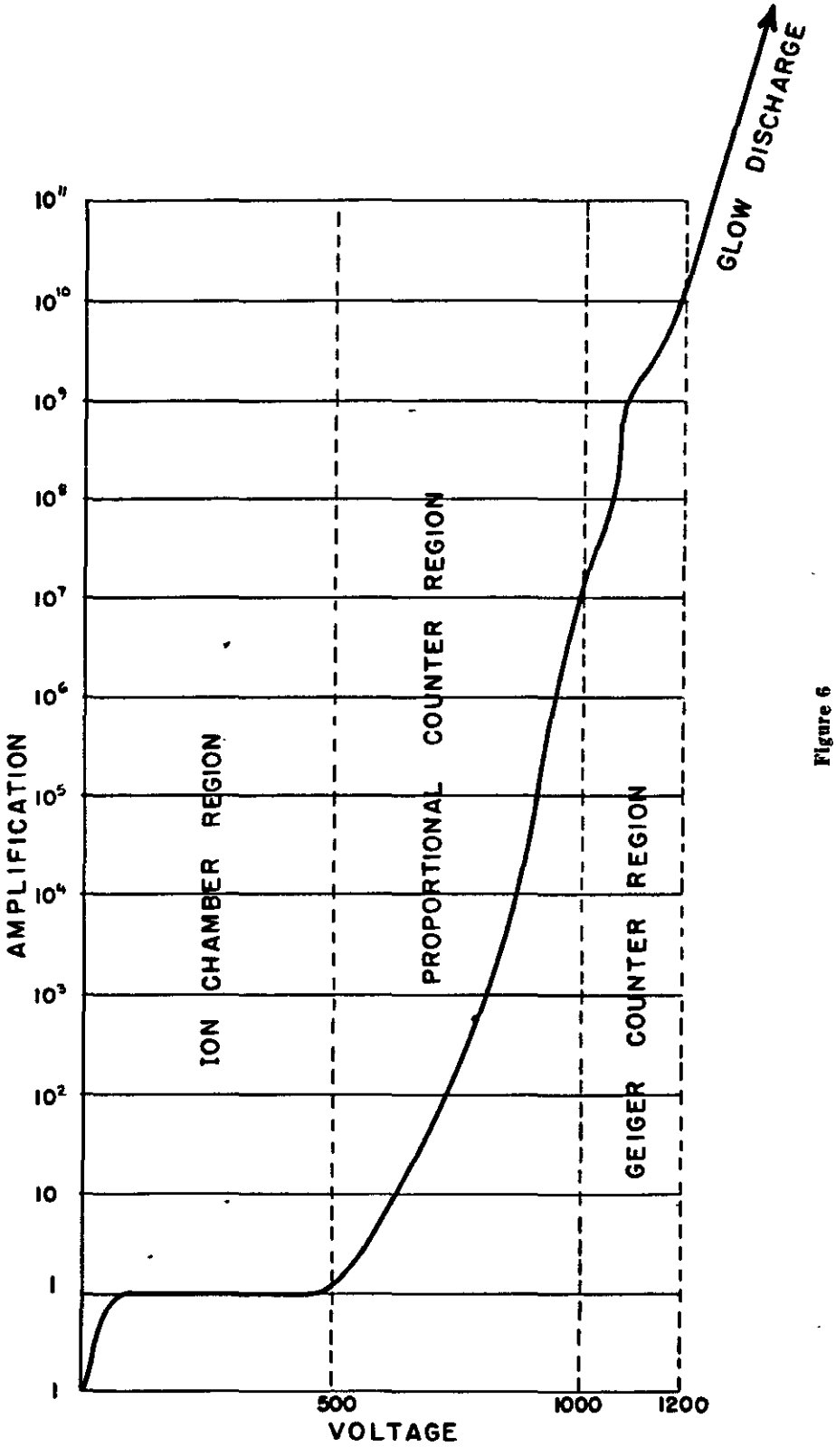

Figure 6

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(*b*) The Proportional Counter is a Geiger tube in which ion pairs are multiplied by an amplification feature due to the fact that a voltage range of 500 to 1,000 volts is used, thus giving the ions velocity sufficient to cause further ionization. This amplification takes place in rarified gas and has been given the name of "gas amplification." This increased pulse intensity is effected in order to obtain greater sensitivity and thereby detect lower intensities. Ionization is amplified as high as 10 million times. Proportional Counters, although usable in the field, are more extensively used in laboratories.

(1) The common application of the Proportional Counter uses an electronic scaling device and measures alpha disintegrations. The scaling device consists of a mechanical counter attached to a Geiger tube through a suitable electronic circuit. The mechanical scaler registers a certain fraction of the pulses. The most common scaling circuits are calibrated so that they must be multiplied by 32 or 64 to obtain the actual count.

(2) General characteristics of proportional counters are:

(i) Primarily a laboratory instrument in its present state of development.

(ii) High sensitivity and wide range. This instrument registers separate disintegrations. It can resolve disintegrations received at rates from 1 to 50,000 disintegrations per minute.

(iii) It requires a high voltage, but includes a means for adjusting applied voltage.

(iv) Voltage must be adjusted as a calibration prior to and during each use.

(v) Readings are in counts or disintegrations rather than intensity or dosage as in the rate meter (Ion Chamber or Geiger Counter).

(*c*) The Geiger Counter principle in instruments issued to the fleet will be as a "rate" meter consisting of a suitable electronic circuit and a Geiger tube. This tube is a simple gas-filled thin-walled tube lined inside with a metallic cylinder to serve as one electrode and a fine tungsten wire axially mounted in the center of the tube acting as the other electrode. Since the Geiger Counter is operated in the voltage range of 1,000 to 1,200 volts (fig. 6), the ions produced in the tube are amplified as high as 10 billion times. This high amplification gives very high sensitivity and enables the detection of intensities as low as 0.002 r/day. However, since it has such high sensitivity, it has a very low range. The Geiger counter detects gamma and beta-gamma radiation.

(1) A common adaptation of the Geiger Counter for field purposes at present is the Victoreen model X–263 (plate III). This is a small (about 250 cubic inches) and light (between two and four pounds) instrument encasing its own portable batteries. Earphones are provided for audible detection of the pulses in addition to a meter for scale readings. The X–263 records readings in milliroentgens per hour (mr/hr) and must be converted by the operator. Present types have a range from about 0.01 mr/hr to 20 mr/hr (0.002 r/day to 0.48 r/day) and are therefore used for surveying lower levels of gamma and beta-gamma radiation.

(2) General characteristics of Geiger Counters are:

(i) High sensitivity and low range.

(ii) While extremely good insulation is not required, there is a relatively high voltage on the Geiger tube and the leakage problem may be serious.

(iii) Because of the higher gas amplification, more simple electronic circuits are used in portable meters of this type.

(iv) Exact voltage on the Geiger tube is vitally important and correct readjustment of voltage is not easily attained.

(v) At high radiation intensities, counts may be lost, or meter may become "paralysed." For example, if the upper limit of the X–263's range of 0.48 r/day is exceeded, the meter will swing off off scale and audible sound will change from clicks either to a steady buzz or the meter will become "paralysed" and no sound will be heard.

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(*d*) Special applications of instantaneous measuring devices:

(1) *Deep Water Probe.*—A Geiger tube is attached to a waterproof cable and lowered to various depths. A meter registers the readings topside and the length of cable reeled out determines the depth at which the reading was taken.

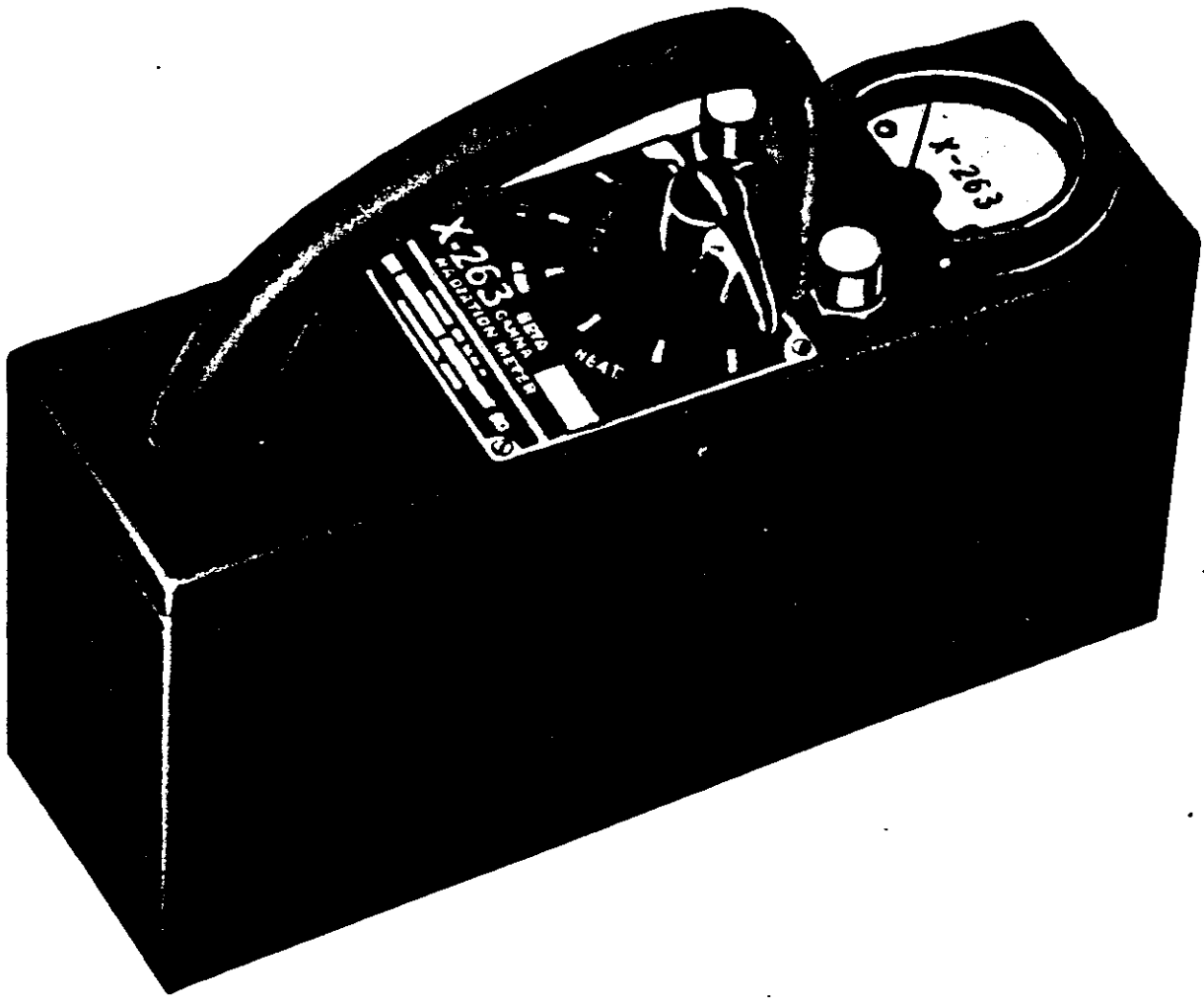

Plate III. Typical Geiger tube survey meter with integral battery supply (X–263).

(2) *Water Sampler.*—A Geiger tube is located inside a pipe and samples of fluid are passed around the Geiger tube constantly. An indicator is located outside of the pipe which registers the amount of radiation in the fluid samples tested.

(3) *Sonobuoy Geiger Meter.*—Geiger tube connected to Sonobuoy, pulses of which key a radio transmitter. The radio pulses are picked up by a remote telemeter and recorded.

(4) *Telemeter.*—Remote meter connected to a radio receiver which registers readings sent to it by radio from a source at some distance from the telemeter.

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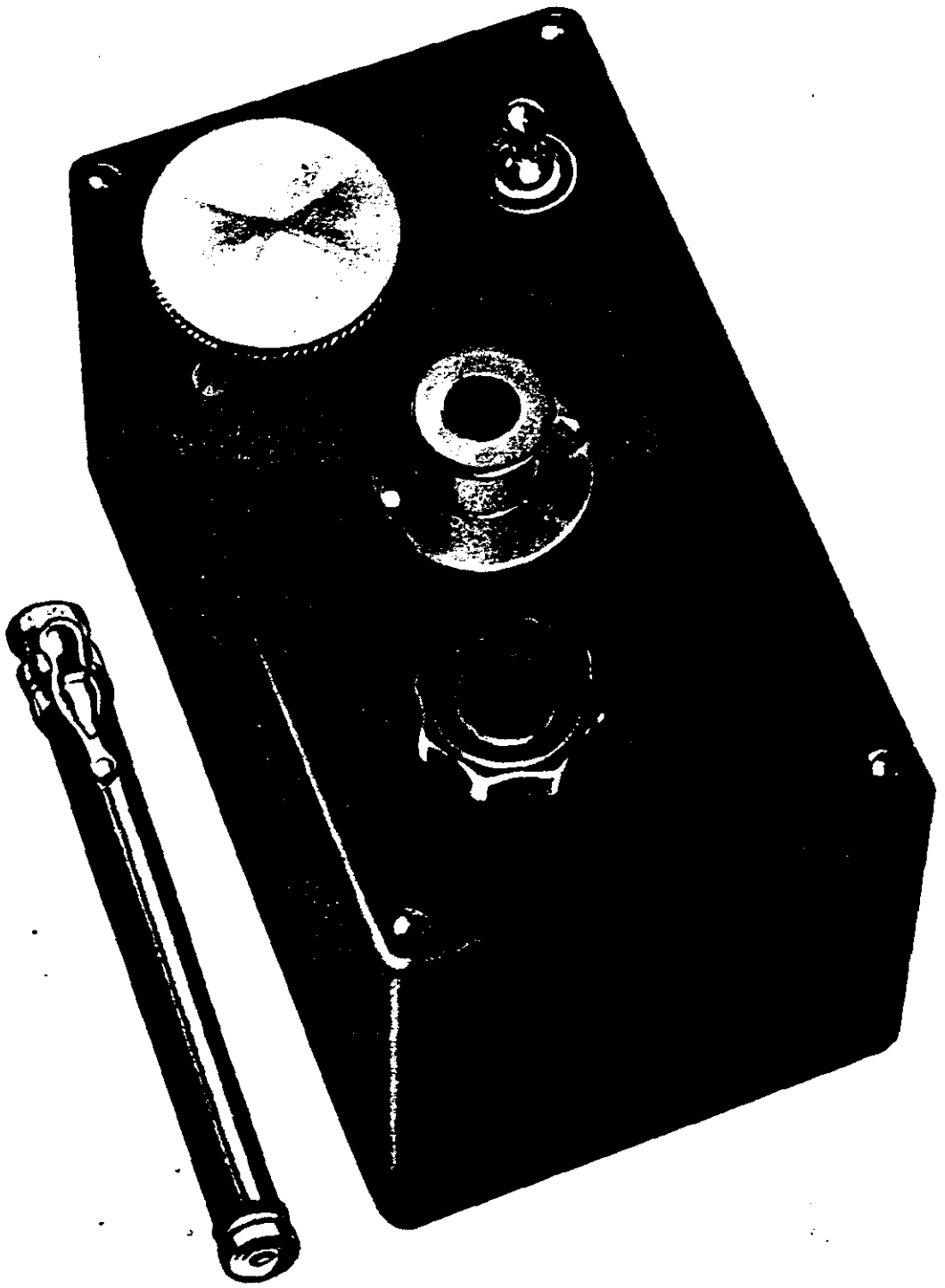

Plate IV. Electroscope type (L-W) pocket dosimeter and charging box.

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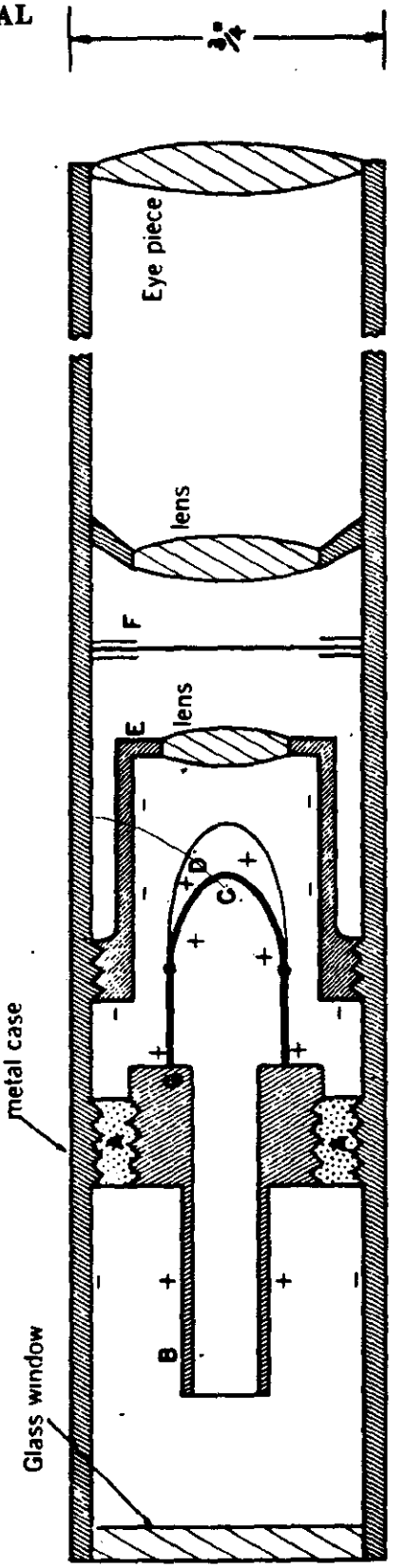
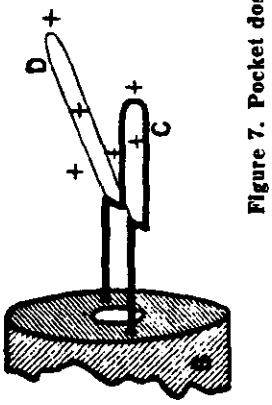


A - Insulating ring
B - Charging rod (hollow to admit light from window)
C - Fixed heavy metal coated quartz fiber
D - Movable fine metal coated quartz fiber
E - Metal cylinder
F - Transparent scale
G - Metal support for fibers



Side view showing arrangement of fixed and movable fibers

Figure 7. Pocket dosimeter electroscope.

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312. Detection devices that give accumulative or integrated readings of radiation have been arbitrarily divided into three types: Electroscopes, Electrometers and those involving photochemical reactions. These types vary greatly in their design but they all record the total dosage received over a period of time.

(*a*) The Electroscope contains a charged metal foil or fiber which becomes neutralized when ions are formed inside the case by radiation. The amount of radiation received by the instrument is proportional to the amount of neutralization of charge. This instrument utilizes the principle of electricity wherein like charges repel each other. The ionization within the chamber neutralizes these charges so that the metal foil or fiber returns to its uncharged position. The electroscope does not require continuous external voltage for operation but when discharged must be recharged from an external source.

(1) The Lauritsen Electroscope is one conception of this type of instrument.

(2) The Pocket Dosimeter is the application of the electroscope that is most important in field usage. Instruments of this type can be made sufficiently rugged to withstand the shock of normal human activity, are small enough to be worn comfortably, and are very useful for measuring integrated exposures. The instrument is about the size of a large fountain pen (fig. 7). The conducting system in the dosimeter consists of two quartz fibers each bent into a U (*C* and *D* in illustration). The two fibers are fused together at the ends of the U and a microscope is focused at the end of one fiber (*D* in illustration). Contained within the microscope is a transparent scale so that the movement of the movable fiber gives direct readings of radiation received. A charge placed on the fiber system causes the fibers to diverge by mutual repulsion and ionization within the chamber will neutralize this charge. The protective cap on the end of the dosimeter has a small window for illumination of the fiber and scale. When the cap is removed, a contact is exposed for charging the fiber system from an external battery.

(*b*) The Electrometer is essentially a laboratory instrument that is particularly suitable for measuring low-energy beta rays. In this instrument, a metalized quartz fiber is held under spring tension between two charged plates which are connected to a 100 to 200 volt battery contained in the instrument. The position of the fiber depends on its own charge, since any charge will be repelled from one plate and attracted to the other. The central fiber is connected to an ion chamber which collects the ions produced by radiation. Thus, the movement of the fiber determines the radiation received by the instrument over a period of time.

(1) Wulf String Electrometer is essentially a laboratory instrument and the field use adaptation of it is the Proteximeter.

(2) The Proteximeter is an instrument using an electrometer tube to measure the charge collected in an ionization chamber. It is a small instrument which records the accumulative dose of radiation to which it is exposed. It covers a greater range than the pocket dosimeter and contains its own portable batteries for producing an electric field between the collecting electrodes.

(*c*) Photographic Dosimetry is the use of photographic film to determine the amount of radiation received over a period of time. Upon exposure to radioactivity, the silver salt contained in the photographic film is converted to developable metallic silver. Upon developing the film, the opacity caused by this deposit indicates the amount of radiation received. Usually the film is the size of small dental X-ray film (1½″ by 1¼″) with a lead foil cross wrapped around it so that only the corners of the film are exposed (fig. 8). Most gamma rays will pass completely through the uncovered portion of the film so this uncovered portion will record beta readings. The lead foil excludes the beta radiation so that only gamma exposure is recorded under the foil. The film badge is worn by everyone working in or near radioactive areas and upon developing of the film, gives a reading of exposure received by personnel.

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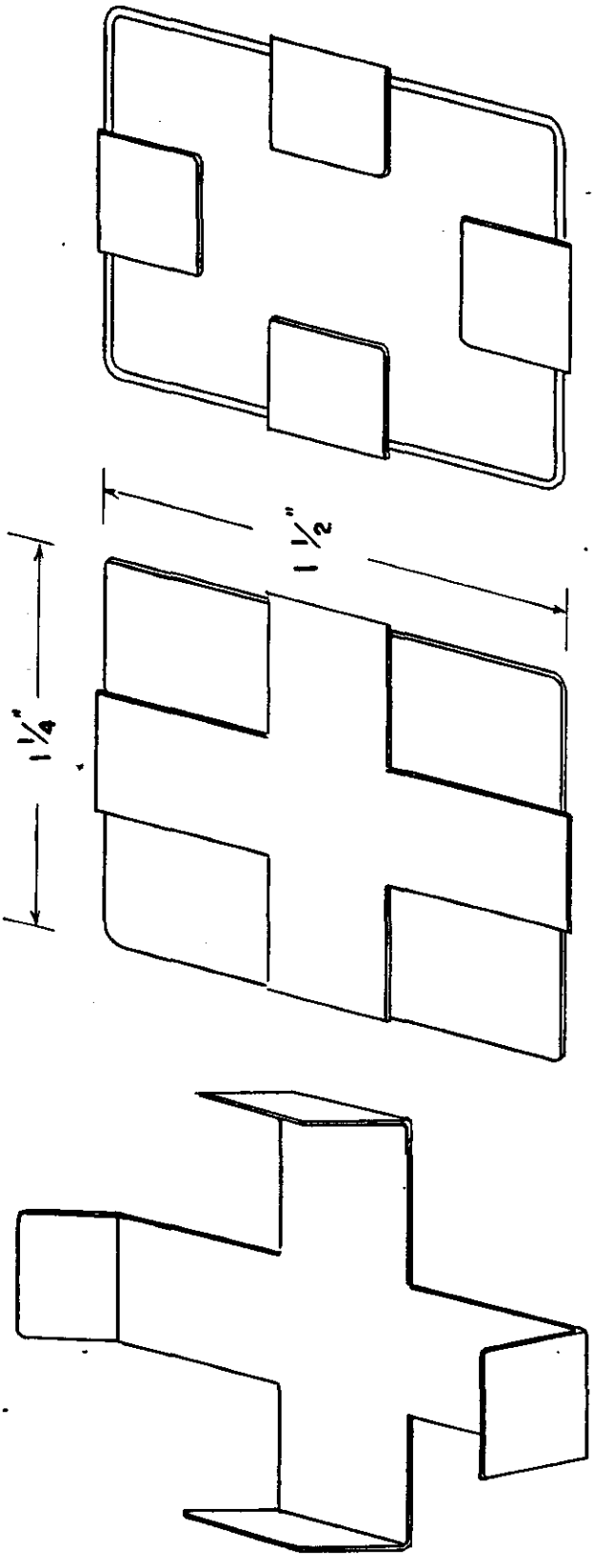

Figure 8.

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313. Instrument Development Projects.

(*a*) There are new requirements in instruments which are being incorporated by BuShips in new specifications. It is expected that these will result in:

(1) Improved portable, high sensitivity, beta-gamma survey meter.

(2) Portable alpha survey meter.

(3) Portable, low sensitivity, high-range beta-gamma survey meter.

(4) Portable, high sensitivity, directional, beta-gamma survey meter.

(5) Fixed or mobile installations for detection of all degrees of concentration of beta and gamma radiation with local readings, plus telemetering equipment for remote indication.

(6) Portable dosimeter, pocket type, with higher ranges than present types.

(7) Improved film badges, direct indicating, if possible, covering alpha, beta and gamma radiation.

320. Supplementary Equipment and Facilities.

321. Standard electronics calibration and repair equipment.

(*a*) The luminous buttons placed aboard nearly every vessel of the fleet contain 10 micrograms of radium per button and these can be used to calibrate the various instruments used in Radiological Safety work since they give off 2.0 r/day at one centimeter range in air. It is expected, however, that eventually calibrated sources of radiation will be supplied to each ship or station for use in calibration of instruments.

(*b*) The circuits used in the various Geiger counters and ion chamber units are elementary and any ETM will find them easy to check, repair, and keep in condition if he has sufficient spares. It will only be necessary, that he be taught the additional principle of the Geiger tube.

322. Stowage.

(*a*) A dry place well within the interior of the ship (such as the gas-mask stowages) must be found for the instruments. These stowages must be well padded so that instruments are not jarred or broken. A routine check should be made weekly to see that batteries show proper voltage, that instruments record properly and that the space is clean and free of dust. The reason these instruments must be located well within the interior of the ship is so that they will be afforded maximum shielding from initial radiation in case of an atomic attack. The continual exposure of one or more accumulative instruments for the purpose of determining the amount of radiation sustained prior to intentional use and as a warning measure may at first seem advisable. However, the following factors eliminate the use of existing instruments for this purpose:

(1) The life of the batteries contained in the protexímeter prevent such use for any length of time.

(2) Film badges deteriorate with time and under unfavorable temperature and humidity conditions.

(3) Dosimeters have the fault of natural leakage of charge over short periods but would be acceptable except for their low range.

(*b*) Undoubtedly the developments mentioned in paragraph 313 above will eventually include such a warning and initial dosage reading instruments, thus permitting proper stowage and shielding of all other instruments.

323. Equipment required for photographic dosimetry.

(*a*) Dark room capable of accurate and constant control of temperature of room and of water used in developing film.

(*b*) An accounting system must be kept for the filing of records of film badges. All film badges must be numbered and an accurate check must be kept to determine who has used each film. This file should contain the records of film processed plus a record of composite dosage received by each person.

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(*c*) A densitometer, calibration scale and calibration chart.

(1) On larger ships, a densitometer and calibration scale will be available for photoelectric comparison of opacity (darkness) of film exposure. The densitometer is an instrument using a photoelectric cell to determine the degree of darkness and the calibration scale converts this reading into roentgens.

(2) For smaller ships, photographic dosimetry facilities will be furnished as much as possible by bases, tenders or large combatant ships. However, a calibration chart will be available for such small ships. This is a strip film developed to various degrees of darkness and each frame is calibrated as to the amount of radiation capable of producing such exposure. By visual comparison of exposed film with the calibration chart, a fairly accurate estimate may be made of the exposure the film has received.

324. Additional monitoring equipment.

(*a*) "Filter Queen"—modified vacuum cleaner used on ventilators and deck to pick-up and pass dust and air through a filter which in turn is checked for radiation intensity by the various instruments.

325. Laboratory functions.

Laboratories located ashore or on hospital or other large ships and equipped with instruments, more sensitive and more reliable than those used in the field, will be of value in calibrating the latter or for checking samples so used in calibration.

326. Centralized Control Station.

The exercising of centralized control is a command function. The station selected as the central control station after an atomic attack should be one affording communication and plotting facilities. Normally, for a task group at sea, if undamaged, uncontaminated and not completely engaged in more urgent tactical use, it will be the regular station of the O. T. C. with its CIC. For a naval base, a similar station will be necessary. For a vessel it will be the normal Damage Control Central unless damage or contamination demands use of a secondary or an improvised station. In any case, the OTC or Commanding Officer should have the best available RadSafe advice (including medical and aerological) at this station. As reports are received from monitors, they will be evaluated and the necessary action prescribed.

327. Change Station.

This will be an uncontaminated compartment, building, ship or area with two entrances, one labelled "contaminated" and the other "uncontaminated." A shower or washroom will be located between these entrances, if only a makeshift one. Monitoring and laundering facilities will be available in conjunction with this station.

330. Procedures.

Applicable to most problems of detection are procedures for estimating intensities that cannot be reached by instruments or probes without endangering personnel.

(*a*) Upon first reaching a point of tolerance radioactivity, circling tactics are best for determining the limits of the radioactive area. Although shielding may blanket some sections or sectors, it should be continuously borne in mind that radiation is three-dimensional and *distance is the best protection.*

(*b*) A rough rule for computing the intensity near a point source through air is the Inverse Square Law. This law states that intensity of radiation varies inversely with the square of the distance in air. For example, if in circling a source of radiation, a monitor obtains a reading of 0.1 r/day around a circumference which has a radius of 9 feet, he may assume an intensity 1-foot from the center of 8.1 r/day. Obviously, this rule has its fallacies in that the medium through which the radiation passes may not consist entirely of air nor will the source be a point source. It therefore must be applied with good judgment.

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(*c*) Intensity may be estimated by extrapolation. This procedure involves passing the source at two, or better, several different distances and plotting a curve which may then be extended for points within the closest range. In this case, as well as in the application of the inverse square law, shielding mediums should be taken into consideration.

(*d*) In all detection procedures, the safety regulations of paragraph 422 apply.

331. Personnel Monitoring.

(*a*) Whenever personnel have been exposed to radiation by atomic attack or by subsequent sorties into a contaminated area for rescue, detection or decontamination purposes, their person and clothing will probably be contaminated. The determination of the existence and degree of this contamination will be established at once by personnel monitoring, which will be conducted at the Change Station. Personnel evacuating the contaminated area will enter the Change Station through the "contaminated" entrance and the Radiological Safety Officer or one of his assistants will monitor clothing, shoes, gloves, skin, and hair of each individual. Pocket dosimeters and film badges will be checked at this time. Personnel decontamination measures (sec. 420) will then be taken as indicated by the radiation readings thus obtained. After showering a second monitoring check will be made. Departure from the Change Station then will be made through the "uncontaminated" entrance.

(*b*) Personnel will carry pocket dosimeters and film badges while working in contaminated areas. These will be checked at the end of work and readings recorded on individual reports of each person. Should an entire vessel or station be subjected to radiation hazards or become engaged in rescue or salvage operations assisting a contaminated vessel or station, the accounting system is likely to reach vast proportions. Only full understanding and cooperation by all hands involved can keep the necessary clerical work within reasonable limits. Although dosage received is a medical department responsibility, it is conceivable that flexibility of organization will be needed to provide additional clerical assistance.

(*c*) Further check of evidence of radiation will be made by urinalysis, nasal swipes, blood counts and bone marrow samples as BuMed may direct.

332. Ship Monitoring presents a problem very similar to others in damage control. Time is the important factor and the Commanding Officer, after an atomic detonation, will require all information so that he can quickly arrive at sound decisions. Monitoring of the ship will entail, therefore, two steps: first, an initial or preliminary inspection and following this, a detailed inspection.

(*a*) The preliminary inspection will be conducted with two aims in view. The Radiological Safety Officer will want to know the location and intensity of radiation hazards and refuge areas of low intensity so that personnel can be protected by distributing them within the latter. To accomplish this, the repair parties should have a definite route of travel decided upon prior to the burst. This will allow a maximum area to be inspected in the minimum of time. These parties should be furnished with a rough plan of the ship (or parts of the ship that they are to inspect) so that readings may be recorded directly on this plan and highly radioactive areas marked off to restrict personnel from such areas or if a greater part of the ship is highly radioactive, it may be easier to mark off safe areas. By marking intensities on this rough plan, it is much easier to envisage the areas of high contamination and the consequent limitations imposed. In a case where a ship is necessarily abandoned because of high intensity, the salvage of the ship by another vessel or group will be simplified by this data.

(1) Care must be taken in the use of the various instruments so that they do not become contaminated with use. The instruments, in checking radioactivity, should be held as close to the surface to be measured as possible, yet not touching the surface. If the instrument becomes contaminated itself, the readings will be false.

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(2) There are certain areas and material on a ship that will be especially subject to radioactivity. These should be carefully checked. They are cordage and canvas, rough and rusted surfaces, greasy and oily surfaces, bituminous coverings, low places, pumps, drains, scuppers, and any wood.

(*b*) Following the preliminary inspection and at regular intervals as decontamination proceeds, a detailed inspection of the ship should be made by the Radiological Safety Officer and his assistants. This inspection is made to obtain more knowledge concerning the location and intensity of contamination in order to further protect personnel and to give the information needed for decontamination parties. For this inspection, it will be found that BuMed–BuShips Form #1 (p. 3–17) will be very helpful as a guide in obtaining the information needed.

333. Sea Monitoring is a new item in ship tactics evoked by the advent of atomic warfare. The existence of radiological hazard at sea (or in a harbor) will require the determination of exact locations and intensities which, with probable movement resulting from wind and current, will influence the course of action. This type of monitoring involves the survey of any water surface and below the surface to ascertain the area or areas completely denied to our own forces and those into which intermittent or full access is possible for salvage, rescue or other operations.

(*a*) Although the use of drone planes and boats with adequate instrumentation installed would be ideal for the preliminary survey of a contaminated area, their existence in a ready condition is improbable. Consequently full dependence should be placed upon personnel operated planes and boats. As stated under air monitoring, preliminary reconnaissance by planes may roughly establish water areas of high intensity by extrapolation. Low freeboard vessels or boats carrying counters are most desirable for survey of water areas. Larger ships, by using detection devices on sea intakes, by lowering counters from decks or by extrapolation of readings because of freeboard can be used but the desirable feature of maneuverability would be lacking. The instruments described under paragraph 311 (*d*) may find application in some cases of sea monitoring but normally the standard hand carried detection meters will be used.

(*b*) The procedure to follow will vary with the circumstances particularly the tactical, oceanographical, and aerological situations and the forces and materials available.

(1) Normally the Centralized Control (OTC) will determine the need and nature of the survey to be made and devise an appropriate plan using a direct approach from upwind sectors until contact with the edge of radioactivity is made, at which point, either a tangential or radical zigzag approach will be used to penetrate the area.

(2) The communication plan should provide reliable and immediate exchange of information between centralized control and monitoring parties to permit vectoring and in order that isodose lines may be established and promulgated. Isodose lines are defined as lines of constant intensity. From precedent established at Bikini, the Red Isodose Line is that bounding the area within which no ships or boats can operate. The Blue Isodose Line is that bounding the area within which daily tolerance is exceeded and in which ships and boats can operate only with specific permission and for specified lengths of time.

(3) Operations by monitoring boats should be in pairs unless the depth of water is such that anchoring is possible in case of break-down.

(4) Any oil slicks and debris in or near the area of an atomic burst should be investigated and monitored, as these will pick up and retain radioactive particles so that radioactivity is not dispersed over large areas as with water but rather concentrated in one spot.

334. Land Monitoring following a low altitude, underground or underwater detonation will present some problems not encountered in the monitoring procedures mentioned above. Although there are some advantages in the nature of a shore station such as the lack of the confining features of a ship, possibility of more ready outside assistance and the probability that instruments will

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have been afforded shielding by dispersed underground stowage, such a command does not present the compact, unified, and controllable features of a ship. For example, liaison with Army and civilian agencies will be required. A naval base will contain all materials found aboard ship plus many found only ashore. Because of the great amount of wood and concrete structures ashore, the porous nature of such material and the probability that it will be highly contaminated, monitoring will be a more extensive problem than aboard ship. In addition, road pavements, earth, docks, machinery, and vehicles will be present and add to detection problems. A further problem is that water used for decontamination of one place merely transfers the contamination to another place which may be equally important.

(*a*) Firefighting, rescue, and salvage personnel must be protected from excessive radiation by the attendance and the advice of a Radiological Safety Officer or his trained assistants. As soon as possible after, or concurrently with, the performance of this duty, an over-all inspection will be necessary to determine roughly all areas of contamination with location and intensity of high radiation sections to which access must be denied or curtailed. The readings gained by this inspection will form a basis for initial isodose lines plotted on a master chart and subsequently corrected as additional information is received.

(*b*) When time is available, a thorough and detailed inspection of the entire area will be made and the preliminary isodose lines carefully checked and corrected. This master chart should be copied as necessary and its information promulgated to all concerned. Decay and decontamination will require remonitoring and changing of the isodose lines.

335. Air Monitoring may be used to determine roughly areas of radioactivity in the air or on the surface.

(*a*) Planes used for cloud tracking with the objective of obtaining data required for avoidance by own air forces or avoidance of possible cloud fall-out by own surface forces will be equipped with airborne Geiger counters. In the early stages (several hours after an atomic burst), visual contact is a possibility but counter readings will be necessary to derive intensities and to identify the cloud sighted with radioactivity. Aerological data should indicate the most probable course of the cloud and the likelihood of cloud fall-out. This data should be consulted in planning the coverage by the monitoring plane or planes in radioactive reconnaissance. The plotting station will maintain constant radar contact and voice communication with each plane, vectoring the latter as intensity readings and ballistic wind or other aerological data requires. Intensity readings and the radar operator's fixes of the plane will be simultaneous. If so directed by the OTC, the plotting station will initiate appropriate warning to own forces. Extrapolation of readings may be desirable in lieu of the monitoring plane actually entering the high intensity areas. The speed of the plane may carry it into some relatively high radiation but in this event, high speed is an asset in that the time of exposure will be correspondingly reduced. Ingestion will be the greatest hazard but it is believed that pressurized masks or cabins will reduce or eliminate this danger.

(*b*) Planes used for preliminary monitoring in connection with a contaminated surface area will be similarly equipped with Geiger counters. Extrapolation for altitude will be necessary. Constant radar plot of and communication with the plane will be maintained by the plotting station. Rough isodose lines of surface intensity can thus be obtained with a consequent reduction in the coverage required of surface monitoring personnel. Also the plotting station will have earlier information upon which to base appropriate warnings for avoidance. Isodose lines thus obtained should be checked by surface monitoring if the situation requires greater accuracy.

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BuMed-BuShips Form #1

SHIP ..... Location .....

Instrument Type ..... Serial ..... Date .....

WEATHER DECKS AND TOPSIDE EQUIPMENT

1. Anchor Chain

   Forward port ..... gb stbd .....gb
   Aft (if present).....gb

2. Chain Locker

   Compartment background .....gb
   Chain port ..... gb stbd.....gb

3. Topside Line, Fenders, Cable, Bitts and Winches

Object	*Location*	*Reading*
.....	.....	.....gb
.....	.....	.....gb
.....	.....	.....gb
.....	.....	.....gb
.....	.....	.....gb
.....	.....	.....gb

4. Gangway

   Forward port .....gb stbd .....gb
   Aft port .....gb stbd .....gb

5. Small Boats

   Hull No. .....
   Maximum keel.....gb
   Maximum rudder .....gb
   Maximum propeller .....gb
   Heat Exchanger .....gb

   Hull No. .....
   Maximum keel .....gb
   Maximum rudder .....gb
   Maximum propeller .....gb
   Heat Exchanger .....gb

6. Small Boat Camels and Skids

Location	*Readings*
.....	.....gb
.....	.....gb
.....	.....gb
.....	.....gb
.....	.....gb

7. Deck (Monitor places known to gather contamination and every tenth frame port and starboard).

Location	*Readings*
.....	.....gb
.....	.....gb
.....	.....gb
.....	.....gb
.....	.....gb

.....
(Signature of Monitor)

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BuMed-BuShips Form #1

SHIP ---------- Location ----------

Instrument Type ---------- Serial ----------

COMPARTMENT MEASUREMENT

Compartment	*Reading*	*Compartment*	*Reading*
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb

HULL MEASUREMENT

1. Afloat

Location Stbd	*Reading*	*Location Port*	*Reading*
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb

2. In Drydock

Location Stbd at Waterline	*Reading*	*Location Port at Waterline*	*Reading*
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb

3.

Stbd midway between Waterline and Keel	*Reading*	*Port midway between Waterline and Keel*	*Reading*
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb
----------	----------gb	----------	----------gb

Location Keel	*Reading*
----------	----------gb
----------	----------gb
----------	----------gb
----------	----------gb

Propellers Port ----------gb
Stbd ----------gb

Rudder ----------gb

Surface of Hull Coated with:	*Percentage*	*Average Reading*
Green growth near waterline	----------	----------gb
Rust covered areas	----------	----------gb
Heavy marine growth other than green	----------	----------gb
Clean hull	----------	----------gb

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BuMed-BuShips Form #1

SHIP_____ Location_____

Instrument Type _____ Serial _____ Date _____

ENGINEERING SPACES

1. Auxiliary Condenser System
   - Auxiliary injection sea chest (on valve) port ----------g
   - Auxiliary injection sea chest (on valve) stbd ----------g
   - Auxiliary circulating pump inlet ----------g
   - Auxiliary circulating pump outlet ----------g
   - #1 Auxiliary condenser salt water inlet ----------g
   - #1 Auxiliary condenser header ----------g
   - #1 Auxiliary condenser shell, mid-section ----------g
   - #1 Auxiliary condenser cooling water outlet ----------g
   - #1 Auxiliary condenser outlet elbow (open) ----------gb
   - #2 Auxiliary condenser salt water inlet ----------g
   - #2 Auxiliary condenser salt water header ----------g
   - #2 Auxiliary condenser shell, mid-section ----------g
   - #2 Auxiliary condenser salt water cooling water outlet ----------g
   - #2 Auxiliary condenser salt water outlet elbow (open) ----------gb

2. Cooling Water for Refrigeration System
   - Salt water inlet ----------g
   - Salt water outlet ----------g
   - #1 Condenser top ----------g
   - #1 Condenser bottom ----------g
   - #2 Condenser top ----------g
   - #2 Condenser bottom ----------g
   - #3 Condenser top ----------g
   - #3 Condenser bottom ----------g
   - #4 Condenser top ----------g
   - #4 Condenser bottom ----------g

3. Main Condenser ----------g
   - Head ----------g
   - Shell (near tubes) ----------g
   - Cooling water, high injection ----------g
   - Main circulating pump ----------g

4. Main Engine Cooling System
   - #1 Main lube oil cooler ----------g
   - #2 Main lube oil cooler ----------g
   - #1 Generator lube oil cooler shell ----------g
   - #1 Generator lube oil cooler outlet (open) ----------gb
   - #2 Generator lube oil cooler shell ----------g
   - #2 Generator lube oil cooler outlet (open) ----------gb

5. Emergency Generator
   - Lube oil cooler ----------g

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BuMed-BuShips Form #1

SHIP ---------- Location ----------

Instrument Type ---------- Serial ---------- Date ----------

EVAPORATORS
- #1 Unit
- First Effect
  - Shell ----------g
  - Feed heater ----------g
  - Inspection plate on sump ----------g
  - Inside sump ----------gb
  - On evaporator scale ----------gb
- Second Effect
  - Shell ----------g
  - Feed heater ----------g
  - Distiller condenser shell ----------g
- Inspection plate on sump ----------g
  - Inside sump ----------gb
  - On evaporator scale ----------gb
- Third effect
  - Shell ----------g
  - Feed heater ----------g
  - Distiller condenser shell ----------g
  - Inspector plate on sump ----------g
  - Inside sump ----------gb
  - On evaporator scale ----------gb
- #2 Unit (as in #1 Unit)

Salt water circulating line ----------g

Condensate cooling condenser
- shell #1 ----------g
- shell #2 ----------g

Air injection sea suction (at valve) ----------g

Overboard, brine ----------g

Brine pump strainer
- inboard of ----------g
- outboard of ----------g

FIRE AND FLUSHING SYSTEMS

Main injection	port----------g	stbd----------g
Sea chest	port----------g	stbd----------g
Pump	port----------g	stbd----------g
Overboard discharge	port----------g	stbd----------g
Auxiliary injection	port----------g	stbd----------g
Sea chest	port----------g	stbd----------g
Pump	port----------g	stbd----------g
Overboard discharge	port----------g	stbd----------g

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BuMed-BuShips Form #1

SHIP _____ Location _____

Instrument Type _____ Serial _____ Date _____

FIRE AND FLUSHING SYSTEMS

Heads and Fire Stations

Location	*Indicate g or gb*	*Location*	*Indicate g or gb*

Mains and Risers

Location	*Indicate g or gb*	*Location*	*Indicate g or gb*

Sanitary Drainage System

Location	*Indicate g or gb*	*Location*	*Indicate g or gb*

Sprinkler System

Location	*Indicate g or gb*	*Location*	*Indicate g or gb*

_____
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CHAPTER IV

400. Decontamination.

410. General.

411. The objective of decontamination is the freeing of an area from persistant radioactive agents.

Inasmuch as there is no practical way to destroy radioactivity, decontamination means the actual removal of radioactive materials which will be in the form of induced radioactive isotopes, fission products and/or unfissioned parts of the fissionable material. At present there are few firm concepts of what the best decontamination procedures should be. BuShips, BuMed and/or the Chief of Naval Operations will release information as it becomes known. It seems probable that considerable emphasis will be placed on the reduction of contamination by design changes and by suitable surface finishes. This chapter outlines principles of decontamination that are currently accepted.

412. Attending an atomic detonation, there are two phases of decontamination which are: (*a*) immediate and (*b*) complete (for practicable purposes).

(*a*) Immediate measures will consist of:

(1) The prevention of the contaminating particles lodging on personnel and structural surfaces or at least reducing this action by

(i) Previously covering structural surfaces with a film of water.

(ii) Gaining a condition of complete closure.

(iii) Warning personnel to take shelter.

(iv) Maneuvering to avoid cloud fall-out and base surge (in case of ships).

(2) The reduction to a minimum of that contamination which is not prevented from lodging by:

(i) Complete bathing, reclothing, monitoring, administering required medical treatment and evacuation of personnel.

(ii) Washing down exposed surfaces to free them of loose contaminating particles.

(iii) Temporarily covering short range emitters with a coating such as paint and which will sufficiently shield against the emissions.

(*b*) Subsequent thorough decontamination may be necessary in order to restore the ship or base to complete radiological safety. Should the survey that follows any possibility of contamination disclose vital areas contaminated beyond tolerance, personnel distribution must be accomplished with their safety the predominant factor but with due regard for the tactical situation. Possibly complete abandonment will be directed with salvage operations falling upon unexposed personnel from another ship or station. Possibly the situation will indicate that personnel can remain on board or near their stations from where they can enter the area and perform their functions intermittently. Possibly only some areas will be found to be dangerous and a sufficiently high percentage of stations will be habitable for the unit to carry on for an almost indefinite period. But if relatively complete decontamination of a ship is in order, an appreciable period of at least two weeks with good decontamination equipment and under experienced personnel must be considered as the necessary lost time.

413. Whether the decontamination measures dictated by the situation are immediate, relatively complete or both, definite steps will be taken to prevent the spread of contamination. These will consist of:

(*a*) Improvising a Change Station and executing the cleanliness doctrine as set forth elsewhere in this publication (par. 422).

(*b*) Preventing access to particularly "hot" areas by proper isolation which will include plainly marking off dangerous areas.

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(*c*) Insuring a clear over-the-side drainage for water used to wash off free particles of contamination.

(*d*) Using great care in disposing of contaminated objects.

(*e*) Carrying out ventilation doctrine explained elsewhere in this publication (par. 422).

414. Induced radioactive isotopes which were previously mentioned in chapter II under the "Nature of Hazards" are important in decontamination in that familiarity with their existence and characteristics is required. Highly active immediately after the neutrons of detonation produce these isotopes, most of the important ones have the fortunate attribute of decaying rapidly into stable elements which no longer emit dangerous beta or gamma radiation and usually within 24 hours their threat becomes self-exhausted. For example, Na^{24} (Sodium ^{23} plus 1 neutron) has a "half life" of 14.8 hours after which one-half of it has resolved itself into Mg^{24} (which is stable) by radioactive emissions. In 14.8 more hours, half of the remainder also so expends its radioactivity—and so on. The bearing that this characteristic has upon decontamination is twofold. First these emissions must be avoided by repair parties and second their decay must not be over optimistically attributed to immediate decontamination washing with a result of false expectancy for the success of further measures and access without cautious monitoring. A possible third factor which should be mentioned is that competent decontamination personnel will always assume the presence of alpha emitters when gamma and beta are detected but will allow for induced radioactivity and its decay.

415. Fission products will decay roughly in proportion to the fraction $1/T^{1.3}$ where T is time in hours.

420. Personnel Decontamination.

421. Personnel decontamination is based upon the lessons gained from Operation CROSSROADS and studies made from atomic bomb casualties in Japan. The objective of personnel decontamination is identical with the objective of all radiological safety in that the ultimate goal of both is the safeguarding of personnel by preventative or by corrective measures. These will include:

(*a*) Preventing any person from being exposed to an injurious amount of external radiation and insuring that no person ingests or inhales radioactive materials by any means whatsoever.

(*b*) Corrective steps, i. e., external and internal decontamination, to minimize and alleviate the effects of any radiation received. Internal decontamination, the study of which is the responsibility of the Bureau of Medicine and Surgery, is still being investigated and information will be released by that Bureau as it becomes available.

422. In gaining the objectives of 421 (*a*) and (*b*) above, no commanding officer is restricted in promulgating orders necessary to achieve their end while still accomplishing any specific mission to which he may be assigned. As an aid, contributing to his decisions and to his promulgation of adequate orders, the following safety regulations relative to both preventive and corrective measures (personnel protection and decontamination) are advanced. Attention is invited to the applicability of these to detection as well as decontamination procedures.

(*a*) Where operationally feasible, the nationally accepted standard peacetime tolerance doses of one-tenth of one roentgen per day (0.1 r/day or its equivalent) of gamma or beta will not be exceeded. Tolerance levels of alpha (as well as wartime levels of gamma and beta) when established, will be promulgated.

(*b*) Any person receiving over-tolerance dosage will not be further exposed until succeeding days have taken up the extra dosage, unless.

(*c*) A person receives 60 r total body irradiation in which case he will not be exposed further until so authorized by BuMed or competent authority.

(*d*) Any person exposed to radioactive spray, rain or dust should immediately scrub his entire body, leave contaminated clothing in the Change Station, and report to the dispensary or the Radiological Medical Officer for examination and, if necessary, treatment.

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(*e*) When operationally possible, adequate detection measures will be employed in conjunction with all decontamination procedures.

(*f*) Routine Radiological medical examination, as directed by BuMed, will be carried out.

(*g*) Film badges, supplemented by portable dosimeters if available, will be carried by all persons working in a radioactive area and a complete running record of each individual's exposure will be maintained.

(*h*) Ingestion of radioactive material will be prevented by prohibiting smoking, eating, or drinking in any contaminated area.

(*i*) High intensity areas will be plainly marked as dangerous for over —— hours —— minutes with chalk or paint. Isolation will then be maintained except for authorized persons, and not to exceed time specified.

(*j*) Complete clothing will be worn and skin exposure kept to a minimum. Change Station doctrine (pars. 327, 331) will be enforced.

(*k*) Bathing must include vigorous scrubbing of hair, hands, and fingernails. When working in contaminated areas, it is advised that fingernails be clipped short to prevent lodging of radioactive particles under them.

(*l*) Contaminated clothing will be laundered in the normal fashion but separately from other clothing. The laundry equipment used will be scrubbed with grit soap and both equipment and clothes will be monitored before returning them to normal use.

(*m*) No person with an open wound will be permitted to enter a contaminated area. Personnel acquiring an abrasion or open wound while in such an area will have the wound washed at the Change Station and report for treatment by the Radiological Medical Officer or his representative.

(*n*) Ventilation systems of contaminated ships will not be restarted without prior inspection by the Radiological Safety Officer and upon advice of the Medical Officer.

(*o*) When a certain tolerance (specified by BuMed) of radioactive isotopes or alpha emitters may be exceeded in the air, a suitable mask will be worn for protection of personnel against inhalation.

(*p*) Hands, clothing, and gloves which might have become contaminated will be kept away from the face. If swabbing in the contaminated area is necessary, swabs will not be wrung out by hand.

(*q*) Radioactive material such as contaminated debris or waste solutions used in decontamination will be dumped at sea beyond the 10-mile limit or outside the 100-fathom curve if the contamination is of high intensity irreducible to below tolerance by distributing its parts.

430. Ship Decontamination.

Ship Decontamination is based upon the lessons gained from Operation CROSSROADS and studies recently undertaken by the United States Naval Radiation Laboratory. By a Chief of Naval Operations directive, responsibility for accomplishment in connection with those tests and for research in this field has been assigned to the Bureau of Ships. The following sets forth basic procedure that are relatively firm and currently accepted. Detailed procedures and new developments will be issued by the Bureau of Ships as appropriate. Because of the confining feature of all ships, time is essential in accomplishing the immediate measures of decontamination.

431. Weather surfaces are subjected to the direct impingement of radioactivity and are thus most highly contaminated. If the contaminating particles are of the loose type deposited by cloud fall-out or base surge, the optimum condition would be a previously started, continuous film of water passing over all weather surfaces and preventing the particles from lodging in crevices and interstices. Lacking this condition, the best alternative is immediate washing of weather surfaces with a high-pressure stream of uncontaminated water. It is estimated that sea suction taken from 10 to 15 feet below the surface would not be contaminated for several minutes after a detonation even if a vessel was within several hundred yards of the burst column. For maximum effectiveness,

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this process of washing down the ship must begin at the highest levels and be continued down to the water line. To keep spray clear of the pumping ship and personnel it may be necessary to use own power or tugs in order that all hoses are directed downwind. This procedure may possibly reduce contamination by as much as 50 percent. A clear watershed as directly to sea as possible and perfect closure of openings that lead to the ship's interior in the section being thus processed are prerequisites. Monitoring, before and after, must be undertaken to determine results. Initial washing down may not reduce contamination to below tolerance, in which case subsequent monitoring will dictate repeating the process or taking more vigorous measures. The latter consist of the removal of closely adhering particles by chemical action or by removal of the surface to which the particles are clinging. In removal by chemical means, some fission products deposited in phosphates, carbonates, and hydroxides are soluble as citrates and some as chlorides. Therefore, either citric acid or hydrochloric (muriatic) acid, or combinations of both, may be expected to be the decontaminating solvent prescribed by BuShips upon completion of research now in progress.

(*a*) Painted surfaces are treated with a paint-removing solution. (At present a combination of 5 pounds lye, 5 pounds boiler compound, 1 pound cornstarch, and 10 gallons of water is considered the best combination.) The mixture is sprayed on the painted surface and allowed to remain 2 hours before being washed off with salt water. Residual contamination may be removed by scrubbing the surface with the same solution and hosing down.

(*b*) Bare or corroded metal surfaces should be treated by scrubbing with a solution of citric acid and/or a solution of 18° Baume muriatic acid in water followed by washing down with salt water. Should this method not suffice, wet sand blasting must be resorted to. In any case of sand blasting or scraping, the surface and the waste must be kept wet.

432. Vessels which enter or are in a body of contaminated water, such as existed within the lagoon after the underwater detonation at Bikini, will acquire some of the radioactive materials from the water. This type of contamination will consist of the lodging of radioactive materials within the salt-water systems and on the exterior hull which comes in contact with sea water. It has been found that the degree of contamination from operating for several hours in waters where the surface reading was considerably over 0.1r/day did not exceed about 0.5r/ day. The amount of contamination picked up by the salt water systems of a ship will be generally proportional to the duration of operation and the degree of contamination of the water. Experience to date indicates that this type of contamination will seldom become of operational importance and decontamination of internal systems usually may be delayed until time and materials are more readily available. It is conceivable, however, that individual cases may appear which make delay inadvisable and commanding officers will be guided by actual degrees of contamination which exist. In any case, the monitoring of systems will be necessary for the protection of personnel berthed or working adjacent to these systems. If the contaminated system is vital to the functioning or to the habitability of the ship, decontamination should proceed at once.

(*a*) Decontamination of ventilation systems is still under study and the Bureau of Ships will issue instructions when available.

(*b*) Salt water systems, heat exchangers, and evaporators may be freed from radiation hazards by the circulation of a solution of citric acid or a solution of 18° Baume muriatic acid in water throughout the contaminated units. Evaporators will be given one or more thermal-shock treatments prior to acid treatment.

433. Where vessels have a good intact coat of plastic underwater-body paint the amount of contamination retained will be minimal. Since marine growths absorb radioactive particles, their removal will greatly reduce underwater body intensities. Some removal may be accomplished with long-handled scrapers while water-borne, however, it is better accomplished by drydocking and then scraping. To prevent the creation of a potential respiratory hazard, the hull must be

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kept wet throughout the operation. If scraping does not reduce the contamination to a safe level, wet and blasting will be completely effective.

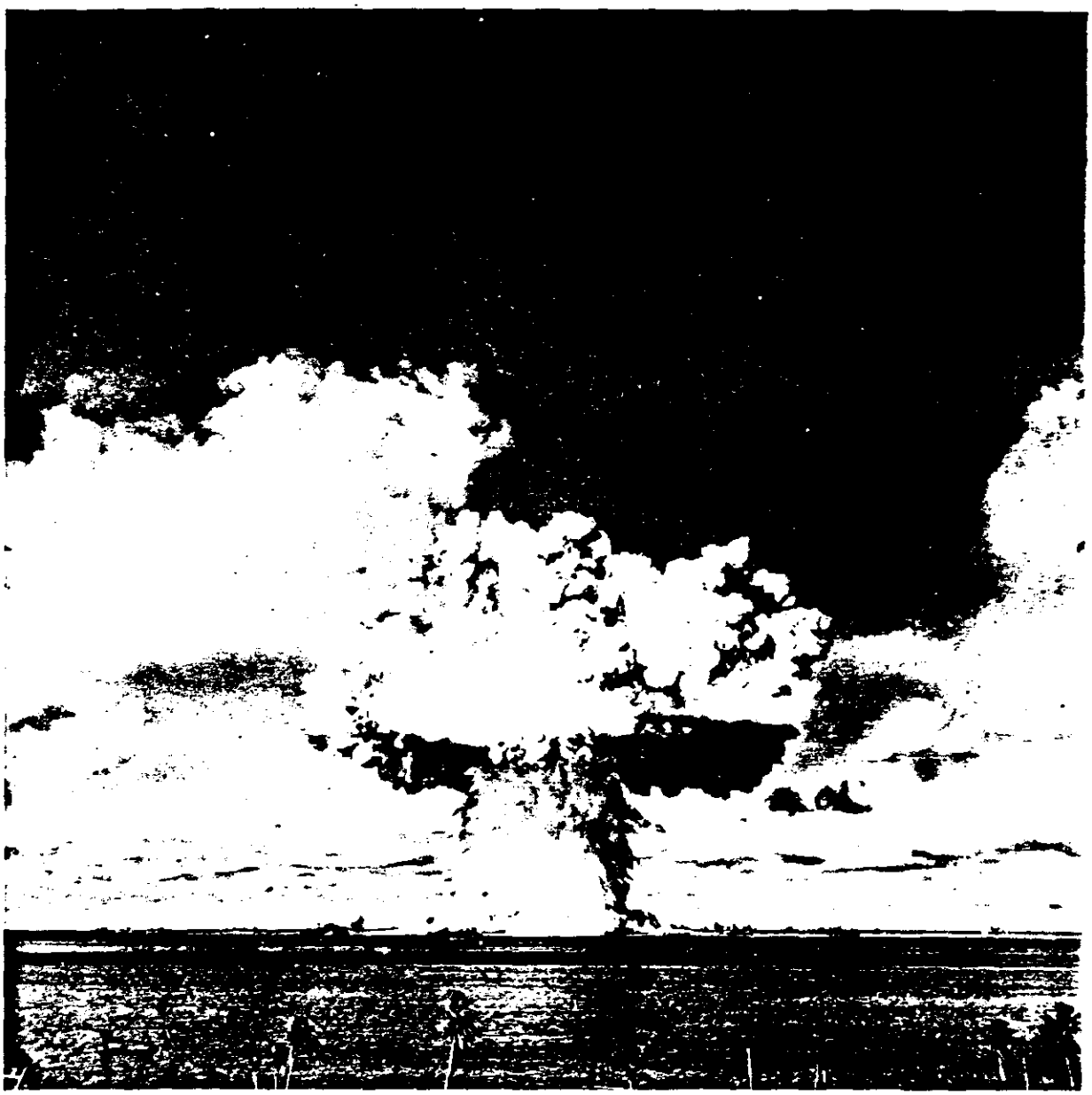

Plate IX.

434. Small boats may collect contamination on their weather surfaces, their underwater bodies and, if water-borne, in their internal piping, i. e., cooling systems. Unless of wood construction, decontamination will be the same as for ships themselves. The porous nature of wood may require a complete replacement of that material if the lye and boiler compound solution does not decontaminate sufficiently. Manila line and fenders as well as canvas canopies should be discarded if above tolerance. Propellers of water-borne boats will be scraped and washed with the muriatic acid solution.

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435. Contaminated ground tackle should be treated in the same manner as corroded steel surfaces. That is, if complete washing does not suffice, a removal of the outer surface by the muriatic acid treatment or by wet sand blasting will be required.

436. Some porous materials may be expected to be replaced in the near future by substitute materials less apt to collect and hold contamination. That which is irreplaceable by a satisfactory substitute will require a shielded stowage. Decontamination being impracticable for manila, canvas, wood, and bituminous coverings, complete discarding at sea will usually be the only means of freeing a vessel of these hazards. Sinking of these materials when discarded will require expending weights.

440. Decontamination of a Naval Base.

441. Among other necessary measures, decontamination must be considered when visualizing an atomic attack against a naval base. Although no precedent exists for exactly such an attack, combinations of previous bomb effects undoubtedly will obtain. A water burst in the harbor or a low air burst will deposit contaminating materials. The first efforts of survivors will be directed toward localizing damage and toward the rescue of personnel. Detection of hazards will precede both efforts and immediate decontamination measures will be required to gain access for fire-fighting, rescue, and salvage parties. Relatively complete decontamination will take place preliminary to restoration of the area to as nearly a normal functioning status as possible. Except for differences of materials and for characteristics inherent in bases but not in ships, decontamination of bases will be essentially the same as for ships. Those features of bases and their decontamination implications which are at variance with those of ships are discussed below.

442. Rebuilding in an unaffected area will probably be advisable. The use of an alternative base for at least a month will be necessary. Some equipment and stores will be salvageable providing decontamination is effected.

443. Practically all shipboard materials are used in a naval base but in addition, the latter contains materials not encountered in ship decontamination. For example, there are greater quantities of porous materials such as concrete and wood. Although concrete is good shielding material, it absorbs contamination and presents greater difficulty in decontamination. Much greater surface removal is required and it is conceivable that the labor and waste connected with such removal may entirely obviate the gain. Among the many substances of which earth is composed there are few such as sodium, phosphorous, sulphur, etc., that absorb neutrons and thus become dangerous from induced radioactivity. However, in the case of a low air burst or an underground burst, a similar hazard to that encountered after the Alamagordo detonation will exist in that radioactive particles will be fused into the ground materials which will remain radioactive indefinitely. Only complete removal or complete denial of access can be dictated by such a condition, depending upon the requirements of the situation; i. e., the gain by removal vs. the hazard which will be proportional to the extent of contamination. The disposal of contaminated waste will present a vast problem. A temporary isolation area should be established for such disposal if sinking at sea is impracticable.

444. In most bases, fresh water is used in fire mains and for flushing purposes. Many of these mains will be ruptured, but unless the source of supply is destroyed, jumpers will reestablish the supply. The advantage of fresh water over sea water lies in the almost complete absence of sodium. Unless the presence of other minerals in unusual quantities exists, or unless contaminated by fission products, fresh water will therefore be highly acceptable for decontamination washing as well as for fire-fighting without the danger of increasing contamination. Water so used carries the radioactive particles to another location. Such redistribution, if used, must be carefully controlled and closely monitored.

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445. There are some advantages among the characteristics of bases which tend favorably toward the achievement of decontamination. The confining nature of ships does not exist and refuge may be intermittently sought outside the effective range of radiation. The availability of Radsafe, Medical, and fire-fighting assistance from outside sources is a possibility. Instruments required for detection in decontamination will have previously been dispersed in stowages well shielded from initial contamination. Tide and current characteristics should be known and the natural renewal of harbor water can be anticipated. Future construction should provide for the dispersal of vital units.

450. Plane Decontamination.

The promulgation of techniques relative to plane decontamination is the responsiblility of BuAer and may be expected soon after they are resolved into firm procedures. Plane areas most contaminated will be carburetor intakes, air-cooling fins, engines, propellers, and greasy or oily surfaces contacted by contaminated air. Removal will be by washing with and without chemical solvents depending on the nature of the material contaminated and the extent of contamination. Intensities and circumstances may dictate stripping and disposal of parts or even disposal of complete planes. In any event, the protection and safety of personnel is the first consideration, and in this, paragraph 422 applies.

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CHAPTER V

500. Training.

Operational Readiness in Radiological Safety depends on two types of training: (a) an Operational Instruction Program, and (b) Operational Exercises.

510. The Operational Instruction Program is again divided into (1) General Indoctrination of All Hands, and (2) Specialized Instruction. The competence of the Radiological Safety Officer largely depends upon his ability to administer General and Specialized Instruction as directed by the Commanding Officer and by the Damage Control Officer.

511. General Indoctrination of All Hands will be conducted in a manner comparable to the dissemination of general knowledge damage-control information using the lecture and quiz methods. It will include:

(*a*) General Knowledge of the Nature of the Hazards (ch. II).

(*b*) General Knowledge of Detection (ch. III), including capabilities and limitations of the various types of instruments especially the film badge and dosimeter which apply to all hands.

(*c*) General Knowledge of Decontamination (ch. IV), including Safety Measures applicable to all hands.

(*d*) The place of Radiological Safety in relation to the unit organization and individual responsibilities in connection with this type of attack.

(*e*) A suggested outline for a General Indoctrination lecture is included (p. 5–9). It is suggested that in addition to this lecture, the RadSafe film (Training Film #MN 5367 B) be shown.

512. Specialized Instruction.

(*a*) Specialized instruction of the Radiological Safety Officer himself will be largely self-administered, but the Commanding Officer should be cognizant of the constantly changing nature of this new science and the need of the Radiological Safety Officer's keeping abreast of new techniques and developments in this field. Sources of information are listed in chapter I. In addition, the RadSafe School will maintain a mailing list of graduate officers for the purpose of disseminating new developments insofar as security restrictions permit. Such information will augment or parallel that promulgated by the Chief of Naval Operations and by cognizant bureaus. It is desirable that officers nominated to the Damage Control School and its adjunct, the RadSafe School, have the qualification of a previous course comparable to Naval Academy physics. In addition, they will be better prepared if they have completed the BuPers Correspondence course in Nuclear Physics.

(*b*) It will be the duty of the Medical Officer to learn techniques and maintain standards specified by BuMed for the personnel for which he is responsible. In this duty, his responsibilities to the Commanding Officer and his relationship to the Damage Control Officer are identical to those existing in connection with preparing for and treating any personnel damage.

(*c*) Although eventually Radiological Safety Monitors will be trained in special BuPers schools, such schools are at present still in the planning stage. Consequently, specialized training required to produce adequate enlisted operators from among repair party personnel will be conducted within each unit by the Radiological Safety Officer. An outline of a recommended course and the division of the material to be covered including practical exercises into 28 periods follow:

(1) Training course for Radiological Safety Monitors:

(I) Background and Nature of the Hazards. Use General Indoctrination Lecture, parts I and II.

(II) Detection.

(A) Theory of measuring devices.

(1) Explanation of atom and molecules.

(2) Ionization.

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(II) Detection—Continued.
(A) Theory of measuring devices—Continued.
(3) Electroscope.
(4) Geiger-Muller tube.
(5) Darkening of film.
(6) Applications of Geiger tube. (Ion Chamber, Proportional Counter, Geiger Counter.)
(B) Instruments—specific types.
(1) X-263
(2) 247
} or instruments in use that supersede these.
(3) Dosimeter, proteximeter (if aboard).
(4) Scaling Counters.
(C) Film badges and photographic dosimetry.
(D) Figuring intensity and time tolerance.
(III) Decontamination.
(A) Reiteration of areas susceptible to contamination.
(B) Exterior decontamination.
(1) Immediate measures.
(2) Later, more thorough steps to be taken.
(C) Interior decontamination.
(1) Ventilation.
(2) Heat. exchangers.
(3) Evaporators.
(4) Piping.
(D) Personnel decontamination.
(IV) Integration into ship's organization.
(A) Damage Control Parties.
(B) Specific duties of CIC.
(C) Organizational requirements for all phases of decontamination.
(D) Functions of RadSafe in advisory capacity.
(V) Safety Regulations.
(VI) Explanation of drills.
(2) Periods, division into for training.
(1) Background and nature of hazards (Repeat this period as necessary).
(2) Explanation of atom and molecule; ionization.
(3) Electroscope, Geiger tube.
(4) Ion Chamber, Proportional Counter, Geiger Counter.
(5) Photographic dosimetry.
(6) X-263 (or similar type instrument).
(7) X-263 (or similar type instrument).
(8) 247 (or similar type instrument).
(9) Dosimeter, proteximeter, scalers.
(10) Review.
(11) Practical exercise—instruments (figure intensity and time tolerance).
(12) Practical exercise—instruments (figure intensity and time tolerance).
(13) Practical exercise—instrument calibration.
(14) Practical exercise—instrument calibration.
(15) Practical exercise—instruments Basic drill.
(16) Practical exercise—instruments Basic drill.
(17) Indoctrination and decontamination—Ship contamination; background data.

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(2) Periods, division into for training—Continued.
(18) Exterior decontamination.
(19) Decontamination of boats, ground tackle.
(20) Interior decontamination.
(21) Personnel decontamination.
(22) Review.
(23) Decontamination drill.
(24) Details of ship's RadSafe Organization.
(25) Safety regulations.
(26) Review.
(27) Drills.
(28) Drills.

(*d*) Electronics technician mates will be capable of material upkeep of instruments providing adequate spares are supplied. The circuits of these instruments are relatively simple compared to those in radar equipment. However, BuShips may be expected to provide instruction booklets whenever more complicated instruments are issued (par. 321 (*b*)).

(*e*) The plotting of contours of equal intensity in connection with air and sea monitoring will introduce only slight variations in standard procedures to CIC. Of these variations, those which are not obvious from the General Indoctrination Course are:

(1) Relationship between aerology and air diffusion and transfer rates.
(2) Relationship between oceanography and water diffusion and transfer rates.

Reports of resultant plots required by flag and commanding officers will depend upon the nature of the information obtained and the mission to be accomplished. CIC personnel will be instructed by the Radiological Safety Officer in (1) and (2) above.

(*f*) Repair-party personnel will require some specialized instruction in decontamination processes.

513. Section 150 of chapter I lists some tactical implications which indicate an increased need for proficiency in certain ship tactics. Because existing USF publications provide formations of various intervals and distances between units and because existing exercises in ship control and seamanship are adequate if given special emphasis, no specific tactical exercises other than avoidance of contamination are included in this publication. However, as circumstances permit, tactical commanders will be expected to conduct such normal exercises with a view toward achieving and maintaining high standards in:

(*a*) Formation changes to gain increased distances and intervals between units.
(*b*) Prompt action of ship control personnel in the avoidance of contamination.
(*c*) Alongside shiphandling for the purpose of evacuating presonnel.
(*d*) Towing with the objective of removing a damaged unit from a contaminated sea area.

520. Basic Operational Exercise.

(*a*) Especially in those exercises that visualize an atomic burst it is intended that as a result of drill, correct procedure will automatically follow and panic will be minimal. However, it is easily imaginable that a large chemical explosion in a harbor could cause some hysteria with a disruption of organization unless immediately identified as non-atomic. Consequently, in the execution of such exercises, emphasis should be placed upon the fact that the detonation has been reliably identified as atomic and the following important steps should be expedited:

(1) Quick and reliable determination of how much radiation the ship as a whole has received.

(2) Same for individual crew members.

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(*b*) Basic Operational Exercises follow:

Training Exercise 85F–1–R

BASIC DRILL IN INDOCTRINATION OF ALL HANDS

1. Purpose:
   (*a*) To evaluate the performance of All Hands immediately following an atomic burst.
2. Situation:
   (*a*) Facilities and services.
   No outside facilities and services are required.
   (*b*) The problem assumes that:
      (1) A bomb has been detonated underwater within 1,000 to 3,000 yards from the vessel and has been reliably identified as atomic.
      (2) All personnel have received general indoctrination in Radiological Safety.
   (*c*) Actual initial set up.
   Ship in Condition 2 and Material Condition Y(B).
   (*d*) Reference: Chapters I and II, USF85.
   (*e*) Preparation:
      (1) Exercise problem.
3. Procedure:
   (a) Ship and personnel take appropriate action in accordance with information disclosed by observer.
4. Evaluation:
   (a) Judge performance and readiness on the basis of:
      (1) Speed and completeness of exposed personnel taking cover and gaining shielding.
      (2) Speed and correctness of ship control party action.
      (3) Speed and completeness of ship closure.
      (4) Speed in donning gas masks.
      (5) Speed and completeness of measures to determine total ship and individual exposure.

Training Exercise 85F–2–R

USE OF CHANGE STATION

1. Purpose:
   (*a*) To evaluate the general knowledge of All Hands in respect to Change Station procedure.
2. Situation:
   (*a*) Facilities and services:
      No outside facilities or services are required.
   (*b*) The problem assumes that:
      (1) An underwater atomic burst has been detonated nearby the ship so that a number of exposed personnel have been covered with radio-active spray. The burst has been reliably identified as atomic.
      (2) The crew has received general indoctrination in Radiological Safety.
   (*c*) Actual initial set-up:
      (1) Ship in Condition I Material Condition Z (A).
      (2) No Change Station has been designated.
   (*d*) Reference: Chapter III and IV USF 85.
   (*e*) Preparation:
      (1) Exercise problem.

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3. Procedure:
   (a) Crew members selected at random by observer take appropriate action toward self-decontamination.
4. Evaluation:
   (a) Judge performance and readiness on the basis of:
      (1) Speed and correctness of designating the most uncontaminated and most readily available washroom as Change Station, disseminating this information and setting up its operation.
      (2) Speed, correctness and thoroughness of action taken by each contaminated individual.
      (3) Functioning of Change Station personnel, including medical.
      (4) Functioning of measures to determine exposure of individuals.

Training Exercise 85F–3–R

ATOMIC ATTACK

1. Purpose:
   (a) To evaluate the performance of All Hands in case of an atomic attack from which contamination and casualties are moderate.
2. Situation:
   (a) Facilities and services:
      No outside facilities or services are required.
   (b) The problem assumes that:
      (1) An atomic bomb was detonated in close proximity to the ship such that there is moderate contamination in which the hazards are localized but with most ship control and gunnery stations sufficiently habitable to permit at least intermittent occupancy and functioning.
      (2) Personnel have been instructed as to action to be taken in case of an atomic attack.
      (3) Radiological Safety Monitors have been trained and detection instruments have been allocated and are on board. (If instruments are not available, locations and intensities will be prescribed by observer).
   (c) Actual initial setup:
      Radioactive samples of various intensities (in the form of radium buttons) have been concealed in various points about ship to denote areas of contamination. Assume multiple values of their intensity. (As in (b) (3) above, observer may prescribe locations and intensities).
   (d) Reference: Chapters III and IV, USF 85.
   (e) Preparation:
      Standard exercise problem.
3. Procedure:
   Ship take or simulate appropriate action in accordance with information disclosed by observer.
4. Evaluation:
   (a) Judge performance and readiness on the basis of:
      (1) Maneuvering of ship to gain uncontaminated water.
      (2) Speed in determining total ship radiation received.

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4. Evaluation—Continued.
   (*a*) Judge performance and readiness on the basis of—Continued.
      (3) Speed and organization in detection of contaminated areas and the carrying out of isolation procedures, i.e., marking, restricting access, personnel monitoring, personnel distribution, use of change station first aid procedures, etc.
      (4) Coordination of decontamination with the general problem.

Training Exercise 85F–4–R

DETECTION AND THE ESTABLISHMENT OF TOLERANCE PERIODS

1. Purpose:
   (*a*) To evaluate the performance of Radiological Safety Personnel in detecting radiation and in establishing time limits for proximity to various intensities.
2. Situation:
   (*a*) Facilities and services:
      No outside facilities or services are required.
   (*b*) The problem assumed that:
      (1) Certain areas about the ship have become radioactive because of an atomic burst.
      (2) RadSafe Monitors have been trained.
      (3) Sources, in the form of radium buttons, are readily available.
      (4) Detection instruments have been allocated and are on board.
   (*c*) Actual initial set-up:
      Radioactive samples of various intensities have been concealed in the drill area. (Assume multiple values if desirable.)
   (*d*) Reference: Chapter III, USF 85.
   (*e*) Preparation:
      (1) Issue Geiger Counters, film badges and dosimeters.
      (2) Drill area markings to restrict nonparticipating personnel.
      (3) Samples to be hidden prior to drill.
3. Procedure:
   Check calibration of instruments and take appropriate action in accordance with information disclosed by observer. Fill out applicable parts of BuShips-BuMed Form #1.
4. Evaluation:
   (*a*) Judge performance and readiness on the basis of:
      (1) Instrument calibration and state of repair.
      (2) Ability of participants to locate sources.
      (3) Proficiency in establishing safe time limits at various intensity levels.

Training Exercise 85F–5–R

EVALUATION OF SITUATION

1. Purpose:
   (*a*) To evaluate the efficiency of the Radiological Safety organization in estimating the composite situation after an atomic attack.
2. Situation:
   (*a*) Facilities and services:
      No outside facilities or services required.
   (*b*) The problem assumes that:
      (1) A burst has occurred near the ship possibly contaminating certain areas of the ship.

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2. Situation—Continued.
   (*b*) The problem assumes that—Continued.
      (2) Monitors have been trained in covering normal routes to gain information required for the composite report of the entire ship as quickly as possible and giving precedence to coverage of vital stations.
      (3) Structural damage, communication failures and areas of high intensity will be prescribed by the observer to cause variations in normal procedure.
   (*c*) Actual initial set-up:
      (1) Ship in Condition 1 Material Condition Z (A).
      (2) Various areas of the ship have been barricaded to simulate displaced or distorted structure.
   (*d*) References: Chapter III, USF 85.
   (*e*) Preparation:
      (1) Exercise problem.
3. Procedure:
   (*a*) Repair parties take or simulate appropriate action in accordance with information disclosed by the observer.
4. Evaluation:
   (*a*) Judge performance and readiness on the basis of:
      (1) Speed and completeness of measures to identify burst as atomic.
      (2) Speed, completeness, conformance with safety precautions and adaptation to casualties of the Radiological Safety organization in their coverage of all areas.
      (3) Recording and evaluating intensities on a rough plan of the ship and making essential reports to the Commanding Officer and other departments.

Training Exercise 85F–6–R

BASIC DRILL IN DECONTAMINATION

1. Purpose:
   (*a*) To evaluate the performance of repair parties in decontamination after an atomic bomb attack.
2. Situation:
   (*a*) Facilities and services:
      No outside facilities or services are required.
   (*b*) The problem assumes that:
      (1) An atomic bomb has been detonated below the surface 1,000 to 3,000 yards from the vessel. Ship control action has carried ship to uncontaminated water.
      (2) Radiological Safety Monitors have been trained in their duties and repair parties have been instructed in decontamination measures.
   (*c*) Actual initial set-up:
      Ship in Condition 1 Material Condition Z (A).
   (*d*) References: Chapter IV, USF 85.
   (*e*) Preparation:
      (1) Exercise problem.
3. Procedure:
   (*a*) Repair parties take or simulate appropriate action in accordance with information disclosed by the observer.

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4. Evaluation:
   (a) Judge performance and readiness on the basis of:
      (1) Adequacy of measures taken to identify burst as atomic.
      (2) Speed, completeness and conformance with safety precautions in applying uncontaminated water to weather surfaces.
      (3) Speed and effectiveness in ridding the ship of simulated high radioactivity using complete decontamination measures on both painted and unpainted metal surfaces.
      (4) Cooperation between monitors and rest of repair party.

Training Exercise 85F-7-R

PLOTTING OF RADIOACTIVE SEA AREA

1. Purpose:
   (a) To evaluate the performance of CIC personnel in tracking and plotting a radioactive sea area given prepared values of intensities, bearings and ranges.
2. Situation:
   (a) Facilities and services.
      No outside facilities or services are required.
   (b) The problem assumed that:
      (1) An underwater atomic burst has been detonated in the area and this CIC has been assigned the task of tracking and defining the radiological sea area.
      (2) CIC personnel have been instructed by the Radiological Safety Officer in the plotting of lines of equal intensity.
   (c) Actual initial setup:
      CIC and Communications in Condition 1.
   (d) References: Chapter III, USF 85.
   (e) Preparation:
      (1) Exercise problem.
3. Procedure:
   (a) CIC will plot the reports of various intensities, ranges and bearings as furnished by the observer. Red and blue lines of equal intensity will be included in this plot.
4. Evaluation:
   (a) Judge performance and readiness on the basis of:
      (1) Speed, efficiency and accuracy of plotting of intensity contours by CIC.
      (2) Speed in formulating reports to OTC relative to avoidance of sea areas.

Training Exercise 85F-8-R

CLOUD TRACKING AND PLOTTING

1. Purpose:
   (a) To evaluate the performance of CIC personnel in tracking a cloud formation given prepared values of intensities, bearings, ranges and altitudes.
2. Situation:
   (a) Facilities and services.
      No outside facilities or services are required.
   (b) The problem assumes that:
      (1) An atomic air burst has been detonated in the area and this CIC has been assigned the task of tracking the cloud of radioactive dust, fission products and unfissioned particles of the bomb.

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2. Situation—Continued.
   (*b*) The problem assumes that—Continued.
      (2) CIC personnel have been instructed by the Radiological Safety Officer in probable cloud movement.
      (3) There is a well defined cloud that may be followed and tracked by planes and/or ships. Periodic reports of location and intensities will be assumed.
      (4) Ballistic wind data has been received.
   (*c*) Actual initial setup:
      CIC and Communications in Condition 1.
   (*d*) References: Chapter III, USF 85.
   (*e*) Preparation:
      (1) Exercise problem.
3. Procedure:
   (*a*) Reports of various intensities will be furnished by the observer to CIC at different ranges, bearings and altitudes.
4. Evaluation:
   (*a*) Judge performance and readiness on basis of:
      (1) Speed, efficiency and accuracy of plotting done by CIC.
      (2) Speed in formulating reports to OTC relative to avoidance of cloud and cloud fall-out.

530. General Indoctrination Lecture (2 hours).

I. Introduction.
   A. The purpose of this lecture is to familiarize all shipboard personnel with the hazards of atomic warfare and with the measures prescribed for defense.
   B. A general discussion of bursts.
      1. Background data.
      2. A description of air and shallow water bursts.
   C. Tactical applications of atomic warfare.
      1. Methods of delivery:
         a. Aircraft, for ranges of thousands of miles.
         b. Guided missiles, for ranges of a few hundred miles.
         c. Clandestine (Trojan Horse), for seaports, canals, and airports.
         d. Clandestine, sabotage.
         e. Torpedo.
         f. Mine.
      2. Units most likely to be attacked:
         a. Strategic locations (large seaports, urban industrial centers, etc.).
         b. Bases.
         c. Amphibious operations.
         d. Any relatively immobile concentration of important ships.
      3. Radiological warfare as a possibility.

II. Burst phenomena and their effects.
   A. Blast effects on:
      1. Material.
      2. Personnel.
   B. The "ball of fire."
   C. The types of nonionizing radiation and their effects.
      1. Infra-red rays.
      2. Visible light.
      3. Ultra-violet rays.

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II. Burst phenomena and their effects--Continued.
  D. The results of exposure to neutrons and gamma rays.
    1. Immediate physiological hazards.
    2. Induced radioactivity.
  E. The principal contamination results from unfissioned parts of the bomb and fission products.
    1. A discussion of the distribution of these particles by various types of bursts.
    2. The resulting radioactivity and the effects.
      a. Beta particles.
      b. Alpha particles.
      c. Gamma rays emitted.

III. A general explanation of detection.
  A. A demonstration of the currently used instruments.
  B. Instructions in the use of film badges and the dosimeter.
  C. The capabilities and limitations of the above.

IV. Shipboard defense.
  A. RadSafe integrated into the Damage Control organization.
  B. All hands required for decontamination.
    1. Procedures immediately after attack.
    2. Later, more thorough decontamination:
      a. Weather surfaces.
      b. Underwater body.
      c. Internal piping.
      d. Evaporators.
      e. Heat exchangers.
  C. All hands will have functions in various drills incorporating Radiological Safety.

V. Safety Regulations applicable to All Hands.

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HRA-0084

DEPARTMENT OF THE NAVY
BUREAU OF SHIPS
WASHINGTON 25, D. C.

IN REPLY REFER TO

BUSHIPS 5100.16
Ser 362B3-9
24 April 1963

BUSHIPS INSTRUCTION 5100.16

From: Chief, Bureau of Ships
To: Distribution List

Subj: Control of Contamination from Radioactive Luminescent Materials (including Decontamination)

Ref: (a) BUSHIPS INSTRUCTION 5100.15 of 5 September 1962

Encl: (1) Additional Guidance on the Control of Contamination from Radioactive Luminescent Materials (including Decontamination)

1. Purpose. This Instruction is intended to provide additional guidance to Naval activities, both ashore and afloat, on the control of contamination from radioactive luminescent materials and on related decontamination and disposal procedures.

2. Background. Reference (a) was issued to alert the addressees to certain hazards associated with the presence of radioactive luminescent material, to direct attention to existing instructions on this subject, and to reiterate safety precautions pertinent to the handling of this material. Repair activities have requested that the Bureau provide detailed instructions for monitoring repair spaces that might be contaminated from radioactive luminescent material. Enclosure (1) provides such guidance and includes further guidance on decontamination and disposal procedures. In preparing enclosure (1) pertinent information in NAVSHIPS 389-0153, "Radiological Controls for Naval Nuclear Propulsion Plants," and in NAVSHIPS 250-341-3, "Principles of Radiation and Contamination Control," was considered and modified to be applicable to contamination from radioactive luminescent material in Naval activities, both ashore and afloat.

3. Action.

a. Naval activities, both ashore and afloat, shall follow the additional guidance provided in enclosure (1) in establishing procedures for the control of contamination from radioactive luminescent materials and in establishing related procedures for decontamination and disposal.

(See next page for distribution)

K. N. SARGENT
By direction

S887

Enclosure (1)

BUSHIPSINST 5100.16
24 April 1963

Additional Guidance on the
Control of Contamination from
Radioactive Luminescent Materials
(Including Decontamination)

1. Spaces, such as repair shops, in which radioactive luminescent materials are regularly used, shall be periodically surveyed for surface contamination. The surveys shall cover all exposed surfaces of the spaces and all equipment therein. Drawers and shelves containing radioactive luminescent materials shall also be monitored.

2. For any material or equipment to be considered non-radioactive or for any space to be considered an uncontrolled space the following criteria shall be met:

a. The highest radiation level shall not exceed one-tenth of one millirem per hour above background as determined by an open-window beta-gamma survey meter (AN/PDR-27 or other instrument of equivalent sensitivity) held approximately one inch from the surface being surveyed.

b. The loose surface contamination shall not exceed one hundred micromicrocuries beta-gamma activity above background when measured on a dry filter paper wiped over one hundred square centimeters of the surface being surveyed or over the total surface area if less than one hundred square centimeters. The measurement shall be made on beta-gamma counting equipment such as that described in NAVSHIPS 93393 or other equipment of equal sensitivity. If equipment of adequate sensitivity is not available at the activity where the swipes are taken, the swipes shall be measured for radioactivity by an activity possessing suitable equipment. In such cases the swipes shall be transported in leak-proof plastic bags.

c. Alpha radioactivity shall be undetectable, using the AN/PDR-10 or AN/PDR-56 alpha survey meter or instrument of equivalent sensitivity, either by direct alpha radiation measurement of the surfaces being surveyed or by alpha measurement of the dry filter paper used for the measurement in (b) above.

3. Complete surveys for surface contamination in accordance with paragraph (2), above should be conducted at regular intervals as determined by the Commanding Officer of the activity; the period between successive surveys should not exceed 6 months. It is recommended that spaces where considerable quantities of radioactive materials are used be surveyed at more frequent intervals.

4. If compartment surfaces exceed the contamination limits specified in paragraph 2., the affected space should be designated as a controlled contamination area. Access to the area should immediately be controlled to allow only personnel in anti-contamination clothing to enter. If the area must be controlled for more than several hours, barriers should be erected and if practical the space should be locked when unoccupied. Signs should be posted conspicuously and should state the access restrictions, anti-contamination clothing requirements for access, level of loose surface contamination, radiation dose rate, and type of radiation.

5. Any materials which do not meet the criteria in paragraph 2. above should be marked or labeled with the standard magenta and yellow radiation symbol and the words "Caution-Radioactive Material."

6. The following safety precautions in addition to those outlined in BUSHIP INSTRUCTION 5100.15 shall be followed in the handling of radioactive luminescent material:

a. Protection of Personnel. When handling components bearing radioactive material, wear gloves to prevent contamination of the hands. Provide each worker with washable work clothing (as distinguished from ordinary street clothing) while actively engaged in the repair and handling of radioactive luminescent parts. Provide masks or respirators for workers if there is likelihood of radioactivity dusting or otherwise becoming airborne. Workers should wash hands after handling radioactive materials.

b. Covering of Surfaces. Avoid the use of wooden work benches, wooden drawers, and wooden shelves which are difficult to decontaminate. Components should be dismantled and disassembled over a piece of disposable absorbent paper. The components should be monitored after the radioactive parts are removed. If the body of the component is contaminated and not reusable it should be placed in a plastic bag and transferred to a supply activity for ultimate disposal in accordance with SECNAV INSTRUCTION 4555.1 of 17 October 1961. After use the absorbent paper should be similarly bagged and disposed of; other potentially contaminated surfaces should be cleaned.

After all radioactive materials and surfaces have been bagged or covered or cleaned so as to prevent further spread of contamination, requirements for gloves and other anti-contamination clothing may be lifted. Contaminated gloves and anti-clothing should be collected in plastic bags for subsequent laundry or for disposal.

7. Procedures for decontamination should be in accordance with the following:

a. Wounds. Radioactively contaminated wounds of any kind shall be decontaminated under the direction of medical personnel. Medical attention should be obtained promptly if wounds are contaminated, to avoid having the radioactive material absorbed into the body.

b. Skin. Skin should be decontaminated using soap and water. Scrub brushes should not normally be used since it is relatively easy to abrade the skin and thus work contamination into the skin. Washing should be repeated several times, monitoring after each washing. If these procedures are not sufficient, further decontamination should be performed under the direction of medical personnel. Spot cleaning to remove local hot spots should be done before showering to avoid spread of contamination over the entire body.

c. Clothing. Contaminated personal clothing and anti-contamination clothing shall be decontaminated or disposed of. Activities not equipped with radioactive clothing laundry facilities should store contaminated clothing and masks in plastic bags and have it laundered by activities possessing such facilities. If necessary, activities not equipped with a decontamination laundry may use normal laundry facilities for clothing and masks contaminated to level less than 0.1 mrem per hour. Laundry water need not be monitored before discharge under these special circumstances since it would not exceed discharge limits at these low levels of contamination. The possibility of contaminating laundry machines is slight in this case, but washing machines should be washed out before subsequent use on uncontaminated laundry. This washing may be performed by running the machine through a washing cycle with no clothes inside. The machine should be checked for contamination before re-use on uncontaminated laundry by analyzing swipes from inside the machine.

d. Means of minimizing decontamination. The need for decontamination may be minimized by covering surfaces and equipment or by taping the handles of tools prior to use and removing the contaminated covering or tape after use. During decontamination precautions should be taken to limit the spread of surface contamination such as by taking care not to splash solutions. Emphasis should be on taking up the contamination rather than on washing it down. Gummed tape may be used to lift contamination from surfaces. If large variations in surface contamination levels exist on a surface, cleaning generally is done from less contaminated toward more contaminated areas. Ventilation may be required to minimize the contamination breathed by personnel performing decontamination, although ventilation may have to be secured or filtered in some cases to limit the spread of contamination to other areas.

e. Decontamination of surfaces and equipment. Work benches, compartment surfaces, tools and equipment can usually be decontaminated by ordinary cleaning methods. In general any procedures which will remove the surface dirt will remove surface contamination. In all cases where liquid is used in decontamination care should be taken to avoid spreading radioactivity. Washing with soapless detergent in water is generally an effective decontamination method. If contamination levels are not specifically reduced, use of solvents, strong chemicals, and mechanical removal of some of the surface may be necessary. If contamination levels are low, wiping with a cloth may provide sufficient decontamination. Organic solvents may be used for machinery with greasy or oily surfaces.

Acid is used only when it will not damage the equipment. On paint or covered surfaces, if washing will not remove the contamination, the paint or covering may need to be removed to affect decontamination.

f. Waste Disposal. Liquid wastes incidental to the above types of cleaning operations are expected to have low enough radioactivity for disposal via ordinary sanitary waste systems or directly overboard. Materials which cannot be decontaminated and contaminated solid waste such as rags used in cleaning should be collected and promptly sealed in leak proof containers, marked as radioactive, and transferred to the nearest naval supply activity for ultimate disposal in accordance with SECNAV INSTRUCTION 4555.1 of 17 October 1961.

BUSHIPS INSTRUCTION 5100.16

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BUSHIPS 5100.15
Ser 682-178
5 September 1962

BUSHIPS INSTRUCTION 5100.15

From: Chief, Bureau of Ships
To: DISTRIBUTION LIST

Subj: Hazards of Radioactive Luminescent Material

Ref: (a) BUSHIPS INSTRUCTION 5100.7 of 21 September 1956
(b) BUSHIPS INSTRUCTION 9240.21 of 29 March 1957
(c) BUSHIPS INSTRUCTION 5100.9 of 10 June 1958
(d) BUSHIPS INSTRUCTION 9650.31A of 2 January 1959
(e) SECNAV INSTRUCTION 4555.1 of 17 October 1961

1. Purpose. This Instruction is intended to alert the addressees to certain hazards associated with the presence of radioactive luminescent material, to direct attention to existing instructions on this subject, and to reiterate safety precautions pertinent to the handling of this material.

2. Background. References (b) and (c) warned of the potential hazard associated with radium treated components in certain navigation instruments, and references (a) and (d) directed removal of certain radioactive luminous markers. In spite of the existance of these instructions, hazardous luminous markers continue to be found in ships.

3. Discussion. Radioactive luminescent material is that to which a radioactive isotope has been added as an activating agent to produce continuous luminescence. Direct radiation from this material is in general of little consequence, but radioactive particles from this material constitute a serious internal radiation hazard if taken into the body. For example, only a small fraction (less than 1/100th) of the strontium-90 contained in one of the markers cited by reference (a) represents a person's life time body burden for this isotope. Damaged or deteriorated luminescent markers or equipment can contaminate local areas with radioactive particles which can then circulate in the air or be picked up on the hands and clothing of personnel. Also, whenever airborne radioactive particles are present, ventilation filters and electrostatic precipitators will collect and concentrate these particles and may become a radiological hazard. All of these conditions can lead to the ingestion or inhalation of radioactive particles. This hazard is frequently ignored because the physiological effects of unsafe exposure to small amounts of radioactivity are not immediately apparent; they may take months or years to appear and may never be traced

to the initial cause. Radium markers, even without being damaged, can cause a build up of airborne particulate activity in the closed atmosphere of submarines through the release of the gaseous decay product, radon. The small amounts of radium in luminous dials of personal wrist watches have been enough to cause significant airborne activity in some submarines.

4. Action.

a. Initiate action to assure compliance with references (a) and (d).

b. Make visual inspections and conduct monitoring to detect the presence of radioactive luminescent materials. Monitoring should include periodic checks of spaces such as watch repair shops where the work involves the handling of components bearing this material. Any material exhibiting a radiation level of more than one tenth of one milliroentgen per hour (mr/hr) above background at a distance of approximately one inch from the material should be treated as radioactive. Radiac Set AN/PDR-27( ) with the detector end window open is a suitable instrument for detecting this radioactivity.

c. Remove all radioactive luminescent items, including repair parts, which are not operationally essential.

d. In submarines, monitor ventilation filters and electrostatic precipitators before replacing or cleaning them to determine if they are radioactive.

e. Follow safety precautions in paragraph 5 below in the handling of radioactive luminescent material.

5. Safety Precautions.

a. Do not handle components bearing radioactive material any more than necessary. When handling is necessary, wear gloves to prevent contamination of the hands. Refrain from smoking or eating while handling radioactive material. Keep radioactive material away from personal property and foodstuffs.

b. Note the condition of the radioactive material and exercise special care in handling any equipment on which the material is flaking or dusting. When this condition is observed, isolate or cover the item until it can be removed.

c. Clean all areas suspected of being contaminated so as to prevent inhalation or ingestion of the material or the spread of contamination.

All radioactive material removed, including contaminated solid waste such as rags used in cleaning, should be collected and promptly sealed in leak-proof containers, marked as radioactive and transferred to the nearest naval supply activity for ultimate disposal in accordance with reference (e). Liquid wastes incidental to cleaning operations are expected to have low enough radioactivity for disposal via ordinary sanitary waste systems or directly overboard.

d. Contaminated ventilation filters should be disposed of as in 5 c above. Washdown of contaminated electrostatic precipitators should be followed by liberal flushing of any affected areas to remove residual contamination.

R. B. FULTON
Assistant Chief of Bureau for Technical Logistics

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HRA-0086

DEPARTMENT OF THE NAVY
NAVAL ELECTRONIC SYSTEMS COMMAND
WASHINGTON, D.C. 20360

NAVELEX INST 5100.1
ELEX 0516
1 July 1968

NAVELEX INSTRUCTION 5100.1

From: Commander, Naval Electronic Systems Command
To: ALL SHIPS AND STATIONS

Subj: Radioluminescent Materials; Hazards of

Ref: (a) NAVELEX INST 5100.2 (NOTAL)

1. Purpose. The purpose of this Instruction is to reemphasize the need for awareness of the hazards associated with radioluminescent material and to provide information pertinent to the handling of this material.

2. Cancellation. BUSHIPS INSTRUCTION 5100.15 of 5 September 1962 (NOTAL) is hereby cancelled.

3. Scope. This Instruction applies to all radioluminescent material whether government property or privately owned.

4. Definition. Radioluminescent Material - Any material which luminesces (emits light) while being bombarded by Nuclear Radiation if, and only if, the source of Nuclear Radiation (radioactive material) is contained within the device.

5. Background. Clocks, compasses, depth-gauges, wrist watches and other items containing radioluminescent material constitute a potential health hazard. Direct radiation from this material is of little consequence; however, radioactive particles from this material may constitute a serious internal radiation hazard if taken into the body. Another potential hazard is the inhalation of radon daughter products if some radioactive luminescent material is displaced in an enclosed atmosphere. For example, experience on submarines has indicated that a watch with luminescent (i.e., radium) dial and hands with an unbroken crystal can produce airborne particulate radioactivity levels greater than the permissible limit. This particulate radioactivity is the result of radon-222 decay and this level of radon gas approaches the limit for continuous exposure which would result in personnel radiation exposure greater than 0.5 rem/year. Damaged or deteriorated radioluminescent material or devices containing this material may contaminate local

areas with radioactive particles which can then circulate in the air or be picked up on the hands and clothing of personnel. Also, whenever airborne radioactive particles are present, ventilation filters and electrostatic precipitators will collect and concentrate these particles and may become a radiological hazard. These conditions can lead to the ingestion or inhalation of radioactive particles. This hazard is frequently ignored because the physiological effects of unsafe exposure to small amounts of radioactivity are not immediately apparent; they may take months or years to appear and may never be traced to the initial cause.

6. Action. In order to guard against the hazards of radioluminescent material, addressees shall:

a. Take appropriate action to inform all hands of the hazards associated with radioluminescent materials. Breakage of a device containing such material, or even unobservable leakage of the material out of the device, can create a potential health hazard should the material get into the body either orally or through open cuts or scratches. A person's life-time body burden can be acquired with extremely small quantities of some radioluminescent materials.

b. Make visual inspections and conduct monitoring to detect the presence of radioluminescent materials. Monitoring should include periodic checks of areas where the work might involve the handling of components bearing this material. Any material exhibiting a radiation level of more than one tenth of one milliroentgen per hour (mr/hr) above background at a distance of approximately one inch from the material should be treated as radioactive. Radiac Set AN/PDR-27 (series), or an instrument of equivalent sensitivity, with the detector end window open is a suitable radiacmeter for detecting this radioactivity.

c. Remove all radioluminescent devices, including repair parts, which are not operationally essential.

d. Insure that modification or repair of radioluminescent materials be performed only by organizations qualified for such work, in accordance with reference (a). A statement by the repair facility that it is so qualified will be sufficient evidence thereof.

e. Do not handle components bearing radioluminescent material any more than necessary. When handling is necessary, wear gloves to prevent contamination of the hands. Refrain from smoking or eating while handling radioactive material. Keep radioactive material away from personal property and foodstuffs.

f. Exercise special care in handling any equipment on which the radioluminescent material is flaking or dusting. When this condition is observed, isolate or cover the item until it can be removed.

g. Prohibit handling of broken or damaged items containing radioluminescent material except by individuals wearing rubber gloves. Broken or damaged items should be placed in leak proof containers, marked as radioactive, and transferred to the nearest naval supply activity for ultimate disposal in accordance with NAVSUP INSTRUCTION 4510.27 of 3 January 1968.

h. Clean all areas suspected of being contaminated so as to prevent inhalation or ingestion of the material or the spread of contamination. All radioactive material removed, including contaminated liquid waste and solid was such as rags used in cleaning, should be collected and promptly sealed in leak proof containers, marked as radioactive, and transferred to the nearest Radiac Repair Facility for ultimate disposal. Cleaning operations shall be so conducted as to minimize contaminated waste.

i. Contaminated ventilation filters should be disposed of as in 6 h. above. Washdown of contaminated electrostatic precipitators should be followed by liberal flushing of any affected areas to remove residual contamination.

H. C. MASON
Vice Commander

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U.S. DEPARTMENT OF THE NAVY

INSTALLATION RESTORATION PROGRAM

NAVAL AIR STATION, BRUNSWICK

BRUNSWICK, MAINE

SITE INSPECTION WORK PLAN

WEST RUNWAY STUDY AREA

APRIL 1993

SITE INSPECTION WORK PLAN
WEST RUNWAY STUDY AREA

FINAL

Prepared for:

U.S. Department of the Navy
Northern Division
Naval Facilities Engineering Command
Contract N62472-84-C-1108

Prepared by:

ABB Environmental Services, Inc.
Portland, Maine
Project No. 7126-02

APRIL 1993

NAS BRUNSWICK
SITE INSPECTION WORK PLAN
WEST RUNWAY STUDY AREA

TABLE OF CONTENTS

Section	Title	Page No.
1.0	INTRODUCTION	1-1
1.1	OBJECTIVES OF THE WORK PLAN	1-4
1.2	WORK PLAN OVERVIEW	1-4
2.0	WORK PLAN RATIONALE	2-1
2.1	STUDY AREA DESCRIPTION AND BACKGROUND	2-1
2.2	TECHNICAL OBJECTIVES	2-5
2.3	DATA QUALITY OBJECTIVES	2-6
2.4	PROPOSED SI SAMPLING ACTIVITIES	2-6
2.4.1	Seep and Sediment Samples	2-6
2.4.2	Mere Brook Samples	2-12
2.4.3	Geophysical Survey	2-13
2.4.4	Test Pits	2-14
2.5	SURVEY OF EXPLORATIONS	2-16
3.0	LABORATORY ANALYTICAL PROGRAM SUMMARY	3-1
4.0	FIELD MANAGEMENT	4-1
4.1	ACCESS TO NAS BRUNSWICK AND EXPLORATION LOCATIONS	4-1
4.2	INITIAL PREPARATION ACTIVITIES	4-1
4.2.1	Site Reconnaissance	4-1
4.2.2	Site Preparation	4-2
4.3	FIELD OPERATIONS	4-2
4.3.1	Field Communication	4-2
4.3.2	Sample Designation and Documentation	4-2
4.3.3	Utility Clearances and Explorations	4-3
4.3.4	Field Change Requests	4-3

TABLE OF CONTENTS
(continued)

Section	Title	Page No.
4.4	SITE INSPECTION-DERIVED WASTE MANAGEMENT	4-3
4.4.1	Decontamination Facilities	4-4
4.4.2	Disposal of Investigation-Related Wastes	4-5

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

REFERENCES

ATTACHMENT 1 - PRELIMINARY ASSESSMENT REPORT FOR THE WEST RUNWAY STUDY AREA

ATTACHMENT 2 - HEALTH AND SAFETY PLAN

ATTACHMENT 3 - RESPONSE TO REGULATORY AND TECHNICAL REVIEW COMMITTEE COMMENTS

NAS BRUNSWICK
SITE INSPECTION WORK PLAN
WEST RUNWAY STUDY AREA

LIST OF FIGURES

Figure	Title	Page No.
1-1	Location of West Runway Study Area	1-2
1-2	Site Features	1-3
2-1	Area of Exploration	2-11

LIST OF TABLES

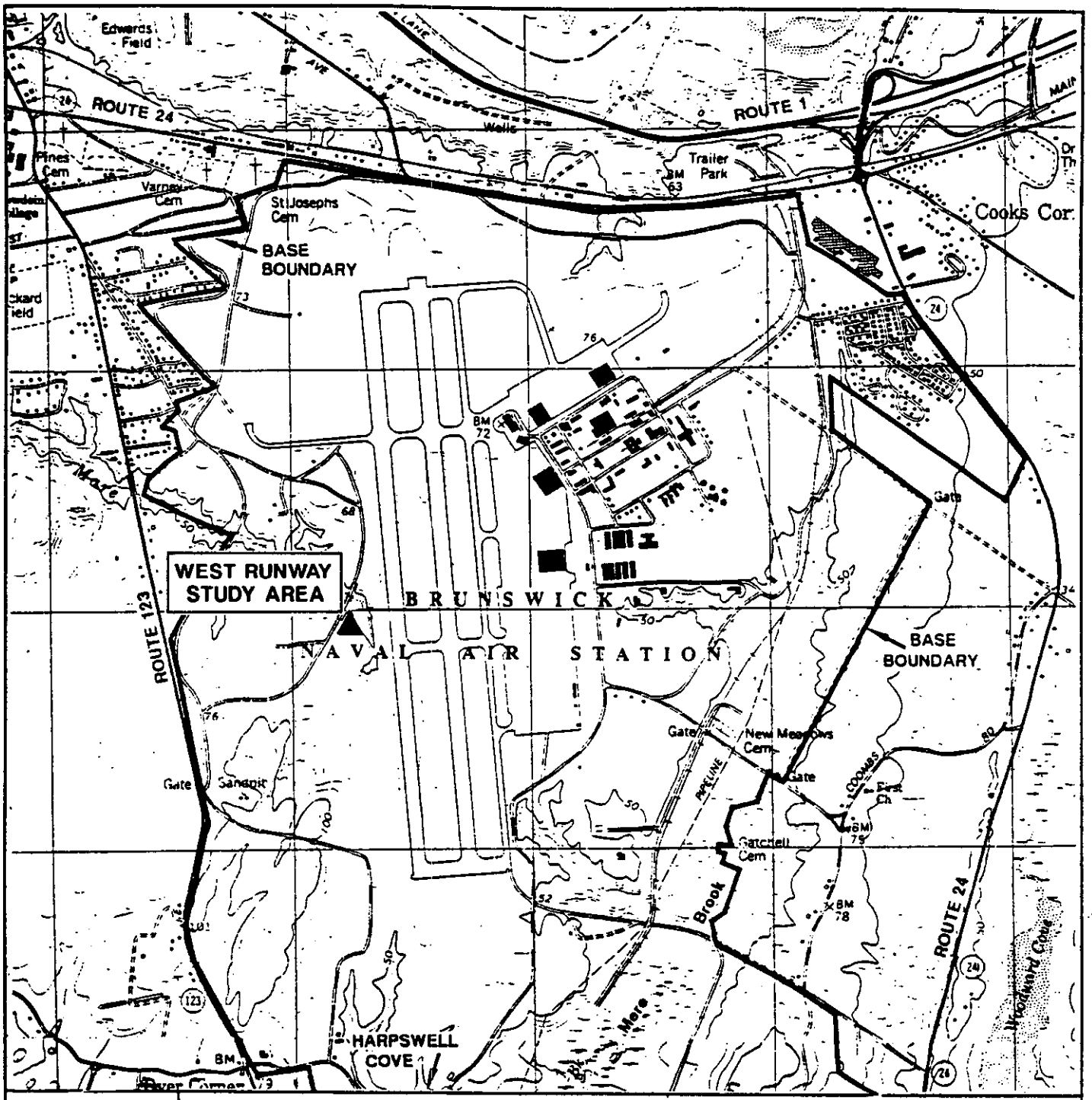
Table	Title	Page No.
2-1	Compounds Analyzed for During Field Screening	2-2
2-2	Previous Analytical Results	2-3
2-3	Data Quality Objectives	2-7
2-4	Exploration and Sample Information	2-8
3-1	Laboratory Analytical Program	3-2
3-2	Summary of Proposed Laboratory Analytical Program	3-4
3-3	Contract Required Quantitation Limits for Target Compound List Analytes - USEPA 3/90 SOW	3-5

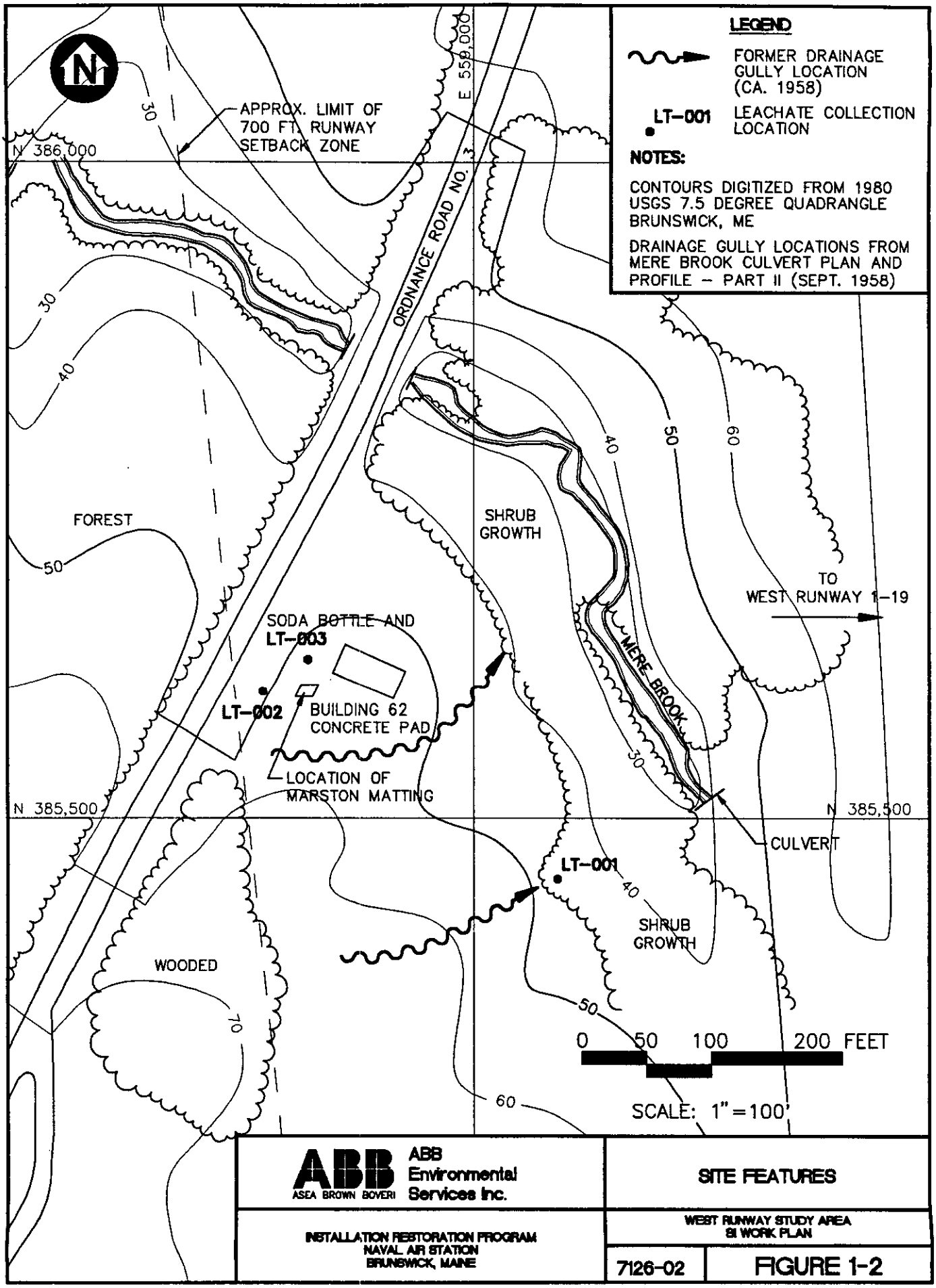
1.0 INTRODUCTION

The Naval Air Station (NAS) Brunswick, located in Brunswick, Maine, is included in the U.S. Department of the Navy's Installation Restoration Program (IRP), which was established to identify potential contamination at Navy and Marine Corps facilities resulting from past operations and, if needed, to institute corrective remedial measures.

The U.S. Environmental Protection Agency (USEPA), in accordance with the National Oil and Hazardous Substances Contingency Plan (NCP), placed NAS Brunswick on the National Priorities List in 1987. According to the 1980 Comprehensive Environmental Response, Compensation, and Liability Act and the 1986 Superfund Amendments and Reauthorization Act, NAS Brunswick follows USEPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (USEPA, 1988) and the NCP (USEPA, 1990a). In addition, the USEPA and the Maine Department of Environmental Protection provide review and input throughout the Remedial Investigation/Feasibility Study (RI/FS) process, pursuant to a Federal Facility Agreement (FFA). At this time, the West Runway Study Area is not one of the sites included in the FFA, although it may be changed to that status in the future.

ABB Environmental Services, Inc. (ABB-ES) was tasked by the U.S. Navy, Northern Division, Naval Facilities Engineering Command, to conduct a Preliminary Assessment (PA) of a newly identified area referred to as the "West Runway Study Area" and to develop a Site Inspection (SI) Work Plan based on the PA results. The location of this area is shown in Figures 1-1 and 1-2. The PA Report, which is included as Attachment 1, did not identify routine base operations possibly associated with fuel- or solvent-related contamination previously detected in sediment and seep analytical samples collected in the area in the spring of 1992. However, the PA recommended additional sampling activities to confirm the presence of contamination, and to establish the appropriate course of action (i.e., a removal action, an RI/FS, or no action). This Work Plan identifies the activities necessary to accomplish those objectives.


Edwards Field
ROUTE 24
ROUTE 1
Wells
Trailer Park
BM 63
Pines Cem
Varney Cem
St Josephs Cem
BASE BOUNDARY
Cooks Cor
BM 72
WEST RUNWAY STUDY AREA
BRUNSWICK
NAVAL AIR STATION
ROUTE 123
BASE BOUNDARY
Gate
New Meadows Cem
Sandpit
PIPELINE
Gatchell Cem
BM 75
BM 78
Brook
ROUTE 24
HARPSWELL COVE
Mere
Maquoit Bay
SOURCE: USGS QUADRANGLE, BRUNSWICK, AND ORRS ISLAND, ME, DATED 1980, 1978. 7.5 MINUTE SERIES.
MAINE
QUADRANGLE LOCATION
N
SCALE IN FEET
0
2,000
4,000
ABB Environmental Services Inc.
ASEA BROWN BOVERI
LOCATION OF WEST RUNWAY STUDY AREA
INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE
WEST RUNWAY STUDY AREA
SI WORK PLAN
7126-02
FIGURE 1-1


LEGEND
FORMER DRAINAGE GULLY LOCATION (CA. 1958)
LT-001 LEACHATE COLLECTION LOCATION
NOTES:
CONTOURS DIGITIZED FROM 1980 USGS 7.5 DEGREE QUADRANGLE BRUNSWICK, ME
DRAINAGE GULLY LOCATIONS FROM MERE BROOK CULVERT PLAN AND PROFILE – PART II (SEPT. 1958)
APPROX. LIMIT OF 700 FT. RUNWAY SETBACK ZONE
N 386,000
E 559,000
ORDNANCE ROAD NO. 3
FOREST
SHRUB GROWTH
SODA BOTTLE AND LT-003
LT-002
BUILDING 62 CONCRETE PAD
LOCATION OF MARSTON MATTING
MERE BROOK
TO WEST RUNWAY 1-19
N 385,500
CULVERT
LT-001
SHRUB GROWTH
WOODED
0 50 100 200 FEET
SCALE: 1"=100'
ABB Environmental Services Inc.
ASEA BROWN BOVERI
SITE FEATURES
INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE
WEST RUNWAY STUDY AREA
SI WORK PLAN
7126-02
FIGURE 1-2
Z:\7126-02\7126F002

1.1 OBJECTIVES OF THE WORK PLAN

The objectives of this SI Work Plan are to (1) outline the technical goals of the fieldwork, (2) summarize procedures for conducting field activities, and (3) present a site-specific Health and Safety Plan (HASP).

1.2 WORK PLAN OVERVIEW

This plan consists of four sections; a supporting document is incorporated as an attachment, and three documents are incorporated by reference. Section 1.0 introduces the Navy's IRP. Section 2.0 addresses the field program, including exploration techniques, and site-specific exploration programs. Section 3.0 outlines the analytical program. Section 4.0 discusses project logistics, including security, communications, field operations, decontamination, and the disposal of investigation-derived wastes.

A corporate HASP, developed by ABB-ES and submitted to the Navy in September 1985, addresses potential hazards that investigative activities could present to site investigation teams, base personnel, and the community. ABB-ES prepared a HASP for NAS Brunswick addressing site-specific contaminants, personnel, decontamination procedures, emergency procedures, and field equipment. The site-specific HASP has been updated to reflect current understanding of hazards and is included as an attachment to this document.

The documents incorporated by reference are ABB-ES' corporate HASP (ABB-ES, 1990), the Quality Assurance Program Plan (QAPP) prepared for the Navy IRP (E.C. Jordan Co., 1988), and the Navy's IRP "Sampling and Chemical Analysis Quality Assurance Requirements" (NEESA 20.2-047B, 1988).

2.0 WORK PLAN RATIONALE

Information collected to date for the West Runway Study Area suggests that SI information should be gathered (see Attachment 1). This section presents the rationale of the SI Work Plan, including a brief description of the study area, the background information from the PA Report, the technical and data quality objectives (DQOs), and the proposed SI sampling activities.

2.1 STUDY AREA DESCRIPTION AND BACKGROUND

In the spring of 1992, an NAS Brunswick employee was traveling on Ordnance Road No. 3, a restricted access area on base, when he observed a liquid seeping from a hillside. The seep was located within a 700-foot runway setback zone that recently had been graded along the west side of West Runway 1-19. Clearing and leveling the flightline setback zone began in 1986 and continued into 1992. The NAS Brunswick employee noticed the seeping liquid in the area where the grading had occurred.

The employee collected a sample of the seep in a soda bottle retrieved from a nearby dumpster. The sample was collected on May 22, 1992, approximately 650 feet west of Runway 1-19, between Mere Brook and Ordnance Road No. 3 (see Figure 1-2). The soda bottle sample was analyzed by a field laboratory (operating as part of another investigation) for the volatile organic compounds (VOCs) and organochlorine pesticides listed in Table 2-1. Elevated levels of fuel- and solvent-related compounds were detected; these are listed in Table 2-2. This sample was collected using undocumented protocol and no associated QA/QC samples were collected. The level of contamination detected in this sample has not been reproduced.

To better characterize the potential contamination, two liquid and two sediment samples (denoted as LT-001, LT-002; SD-001, SD-002, respectively) were collected on May 22, 1992, for on-site field laboratory analysis (see Figure 1-2). Samples LT-001 and SD-001 were collected from the same location, as were LT-002 and SD-002. These samples were also analyzed for VOCs and organochlorine pesticides (see Table 2-1); detected compounds are listed in Table 2-2. A replicate sample of

TABLE 2-1
COMPOUNDS ANALYZED FOR DURING FIELD SCREENING

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

VOCs	PESTICIDES
Vinyl chloride	alpha-, beta-, delta-BHC
1,1-Dichloroethene	Lindane
cis-1,2-Dichloroethene	Heptachlor
trans-1,2-Dichloroethene	Aldrin
1,1-Dichloroethane	Heptachlor epoxide
1,1,1-Trichloroethane	Endosulfan I and II
Carbon tetrachloride	4,4'-DDE
Trichloroethene	Dieldrin
Tetrachloroethene	Endrin
Benzene	4,4'-DDD
Toluene	4,4'-DDT
Ethylbenzene	Endrin aldehyde
Xylenes	Endosulfan sulfate
	Methoxychlor
	Endrin ketone

Notes:

VOCs = Volatile organic compounds

TABLE 2-2
PREVIOUS ANALYTICAL RESULTS[a]

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

COMPOUND/ANALYTE	SODA BOTTLE	LT-001 WATER	LT-001 SEDIMENT	LT-002 WATER	LT-002 SEDIMENT	LT-003[b] WATER	PQL/CRQL/ CRDL
Field Screening Results							
1,1-Dichloroethene	52,434	<2.5	<2.5	<2.5	<2.5	<2.5/<2.5	2.5
Trichloroethene	188	<5.0	<5.0	<5.0	<5.0	<5.0/<5.0	5.0
Tetrachloroethene	12,124	<2.5	<2.5	<2.5	<2.5	<2.5/3.7	2.5
Toluene	121,332	<5.0	<5.0	<5.0	<5.0	<30/43	5.0
Ethylbenzene	45,930	<5.0	<5.0	<5.0	<5.0	<5.0/<5.0	5.0
m/p-Xylene	126,597	<5.0	<5.0	<5.0	<5.0	<5.0/<5.0	5.0
o-Xylene	32,333	<5.0	<5.0	<5.0	<5.0	<5.0/<5.0	5.0
4,4'DDT	NA	<200	<102	<200	<31	<24/NA	200
4,4'DDD	NA	<100	<49	<100	<100	<13/NA	100
Lindane	NA	<100	<16	<100	<100	<100/NA	100
CLP Results							
Toluene	NA	3.3	NA	NA	NA	NA/NA	1.0
Aluminum	NA	13,700	NA	NA	NA	NA/NA	100
Iron	NA	54,300	NA	NA	NA	NA/NA	100

continued

TABLE 2-2
PREVIOUS ANALYTICAL RESULTS[a]

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

COMPOUND/ANALYTE	SODA BOTTLE	LT-001 WATER	LT-001 SEDIMENT	LT-002 WATER	LT-002 SEDIMENT	LT-003[b] WATER	PQL/CRQL/ CRDL
Lead	NA	18.9	NA	NA	NA	NA/NA	2.0
Zinc	NA	57.7	NA	NA	NA	NA/NA	20

Notes:

a May 1992 sampling results are in micrograms per liter (µg/L)
b Sample collected in the same vicinity as the soda bottle sample was analyzed twice in the field
PQL = Practical Quantitation Limit for Field Screening
CRQL = Contract Required Quantitation Limit for CLP Results for Organic Analytes
CRDL = Contract Required Detection Limit for CLP Results for Inorganic Analytes
CLP = Contract Laboratory Program
NA = Not Analyzed
< (XX) = Non-Detect

LT-001 was analyzed at an off-site laboratory for Target Compound List (TCL) VOCs, TCL semivolatile organic compounds (SVOCs), TCL pesticides/ polychlorinated biphenyls (PCBs), and Target Analyte List (TAL) inorganics using USEPA Contract Laboratory Program (CLP) protocols; the results are also listed in Table 2-2. On May 27, 1992, a third seep sample (LT-003) was collected in the same vicinity as the soda bottle sample and analyzed at the on-site field laboratory. These results are also presented in Table 2-2.

A PA was conducted to identify routine historical base operations that could have been related to the contamination detected in the soda bottle sample. The PA consisted of interviews with NAS Brunswick personnel, a review of aerial photographs, a site tour, and a review of the 1992 analytical data. The PA report is presented in Attachment 1.

The PA was inconclusive about the nature of base activities in this area. This area encompasses locations of original seep sampling, and two former natural drainage gullies that were filled during grading of the runway setback zone (see Figure 1-2). The interviews, aerial photograph review, and site tour did not indicate that this part of the base was used for waste disposal. The levels of contamination detected in the soda bottle sample were not reproduced in the subsequent sampling (i.e., samples LT-001, SD-001, LT-002, SD-002, LT-003). Runoff from this area would flow to Mere Brook. A specific evaluation of environmental concerns is not possible without additional information. Therefore, an SI was recommended for this area to establish whether further action or investigation is appropriate.

2.2 TECHNICAL OBJECTIVES

The following technical objectives were identified for the Site Inspection of the West Runway Study Area:

- Evaluate whether hazardous substances were disposed of in the vicinity of the seep.
- Excavate near any detected magnetic anomalies.

- Establish the levels of VOCs, SVOCs, inorganics, PCBs, and pesticides in the soil and seep in the vicinity of the previous samples.

- Establish the levels of VOCs, SVOCs, inorganics, PCBs, and pesticides in Mere Brook sediment and water.

2.3 DATA QUALITY OBJECTIVES

DQOs developed based on the technical objectives include data uses, types, quality, and quantity. Table 2-3 lists the DQOs for this area.

2.4 PROPOSED SI SAMPLING ACTIVITIES

Exploration locations are described, by exploration type, in the following subsections. Sample identifiers, depths, analytical parameters, and analytical quality are listed in Table 2-4. Sampling protocols are described briefly; additional procedural and documentation requirements are detailed in the QAPP (E.C. Jordan Co., 1988).

2.4.1 Seep and Sediment Samples

Up to three collocated seep and three sediment samples (LT-004 through LT-006; SD-004 through SD-006) will be collected from locations near the original sample location (i.e., LT-003). Particular areas of concern are locations of orange-colored staining observed during the PA site tour and near the observed metal debris. The area within which these samples will be collected is shown in Figure 2-1; however, sample locations will be moved if there is visual evidence of contamination outside the indicated area. Sampling will be conducted from lower elevations to higher elevations with the seep sample collected before the sediment sample at each location. The seep samples will be discrete grab samples of the seep. Sediment samples will be collected using a bucket auger or hand corer. The sediment sample will be collected by screwing the bucket auger 6 inches into the sediment and retrieving it. The contents of the auger will be placed directly into VOC sample containers; additional required sample material will be collected, placed in a stainless steel bucket, and stirred to homogenize it. The remaining sample containers (e.g., SVOC, inorganics) will be filled from the bucket. Sediment and seep samples will

TABLE 2-3
DATA QUALITY OBJECTIVES

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

INVESTIGATION AREA (MEDIA)	DATA USES	EXPLORATION TYPES	DATA TYPES[1]	NEESA DATA QUALITY LEVEL	DATA QUANTITY
Area west of Building No. 62 concrete pad	Site characterization	Magnetometer/ GPR survey	physical		300 ft x 300 ft grid
Hillside seep liquid (water)	Site characterization of original seep location	3 hand-dug test pits	VOCs, SVOCs, Pesticides, PCBs, Inorganics	Level D	3 samples • LT-004 • LT-005 • LT-006
Sediment samples in hillside seep area (soil)	Site characterization of subsurface soil at seep location	3 hand-dug test pits	VOCs, SVOCs, Pesticides, PCBs, Inorganics, TCLP	Level D	3 samples • SD-004 • SD-005 • SD-006
Geophysical anomaly (soil)	Site characterization of subsurface soil	8 (backhoe) test pits	VOCs, SVOCs, Pesticides, PCBs, Inorganics	Level C, D	16 samples • TP-001 • TP-002 • TP-003 • TP-004 • TP-005 • TP-006 • TP-007 • TP-008
Mere Brook Sample (Water)	Site characterization of upgradient and downgradient water quality	Grab Sample	VOCs, SVOCs, Pesticides, PCBs, Inorganics	Level D	2 samples • SW-009 • SW-010
Mere Brook Sample (Soil)	Site characterization; correlation with water quality	Grab Sample	VOCs, SVOCs, Pesticides, PCBs, Inorganics	Level D	2 samples • SD-009 • SD-010
Area 200 feet east of Building No. 62 concrete pad (soil)	Site characterization of surface soil near bottom of hill (i.e., LT-001)	2 hand-dug test pits	VOCs, SVOCs, Pesticides, PCBs, Inorganics	Level D	2 samples • SD-007 • SD-008
Area 200 feet east of Building No. 62 concrete pad (water)	Site characterization of liquid near bottom of hill(i.e., LT-001)	Grab Sample	VOCs, SVOCs, Pesticides, PCBs, Inorganics	Level D	2 samples • LT-007 • LT-008

Notes:

[1]Analytical data consists of USEPA Contract Laboratory Program Target Compound List Organic Compounds or Target Analyte List Inorganic Analytes.

GPR = ground-penetrating radar
VOCs = volatile organic compounds
SVOCs = semivolatile organic compounds
PCBs = Polychlorinated biphenyls
TCLP = Toxicity Characteristic Leachate Procedure
ft = feet
NEESA = Naval Energy and Environmental Support Agency

TABLE 2-4
EXPLORATION AND SAMPLE INFORMATION

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

EXPLORATION	SAMPLE DEPTH[1]	SAMPLE ID	LABORATORY ANALYSES					LABORATORY DATA PACKAGE[6]
			VOCs[3]	SVOCs[4]	PESTICIDES/ PCBs[4]	INORGANICS[5]	TCLP	
TP-1	TBD	WRPS001???01XX	CLP	CLP	CLP	CLP	-	Level D
	TBD	WRPS001???01XX	CLP	CLP	CLP	CLP	-	Level D
TP-2	TBD	WRPS002???01XX	CLP	CLP	CLP	CLP	-	Level D
	TBD	WRPS002???01XX	CLP	CLP	CLP	CLP	-	Level D
TP-3	TBD	WRPS003???01XX	CLP	CLP	CLP	CLP	-	Level D
	TBD	WRPS003???01XX	CLP	CLP	CLP	CLP	-	Level D
TP-4	TBD	WRPS004???01XX	CLP	CLP	CLP	CLP	-	Level D
	TBD	WRPS004???01XX	CLP	CLP	CLP	CLP	-	Level D
TP-5	TBD	WRPS005???01XX	CLP	CLP	CLP	CLP	-	Level D
	TBD	WRPS005???01XX	CLP	CLP	CLP	CLP	-	Level D
TP-6	TBD	WRPS006???01XX	CLP	CLP	CLP	CLP	-	Level D
	TBD	WRPS006???01XD[2]	CLP	CLP	CLP	CLP	-	Level D
TP-7	TBD	WRPS007???01XX	CLP	CLP	CLP	CLP	-	Level D
	TBD	WRPS007???01XX	CLP	CLP	CLP	CLP	-	Level D
TP-8	TBD	WRPS008???01XX	CLP	CLP	CLP	CLP	-	Level D
	TBD	WRPS008???01XX	CLP	CLP	CLP	CLP	-	Level D
LT-4	0-2	WRLT00400?01XX	CLP	CLP	CLP	CLP	-	Level D

continued

TABLE 2-4
EXPLORATION AND SAMPLE INFORMATION

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

EXPLORATION	SAMPLE DEPTH[1]	SAMPLE ID	LABORATORY ANALYSES					LABORATORY DATA PACKAGE[6]
			VOCs[3]	SVOCs[4]	PESTICIDES/ PCBs[4]	INORGANICS[5]	TCLP	
LT-5	0-2	WRLT00500?01XX	CLP	CLP	CLP	CLP	-	Level D
LT-6	0-2	WRLT00600?01XX	CLP	CLP	CLP	CLP	-	Level D
LT-7	0-2	WRLT00700?01XX	CLP	CLP	CLP	CLP	-	Level D
LT-8	0-2	WRLT00800?01XX	CLP	CLP	CLP	CLP	-	Level D
SD-4	0-2	WRSD00400?01XX	CLP	CLP	CLP	CLP	USEPA	Level C,D
SD-5	0-2	WRSD00500?01XX	CLP	CLP	CLP	CLP	USEPA	Level C,D
SD-6	0-2	WRSD00600?01XX	CLP	CLP	CLP	CLP	USEPA	Level C,D
	0-2	WRSD00600?01XD	CLP	CLP	CLP	CLP	USEPA	Level C,D
SD-7	0-2	WRSD00700?01XX	CLP	CLP	CLP	CLP	-	Level D
SD-8	0-2	WRSD00800?01XX	CLP	CLP	CLP	CLP	-	Level D
SD-9	0-2	WRSD00900?01XX	CLP	CLP	CLP	CLP	-	Level D
SD-10	0-2	WRSD01000?01XX	CLP	CLP	CLP	CLP	-	Level D

continued

TABLE 2-4
EXPLORATION AND SAMPLE INFORMATION

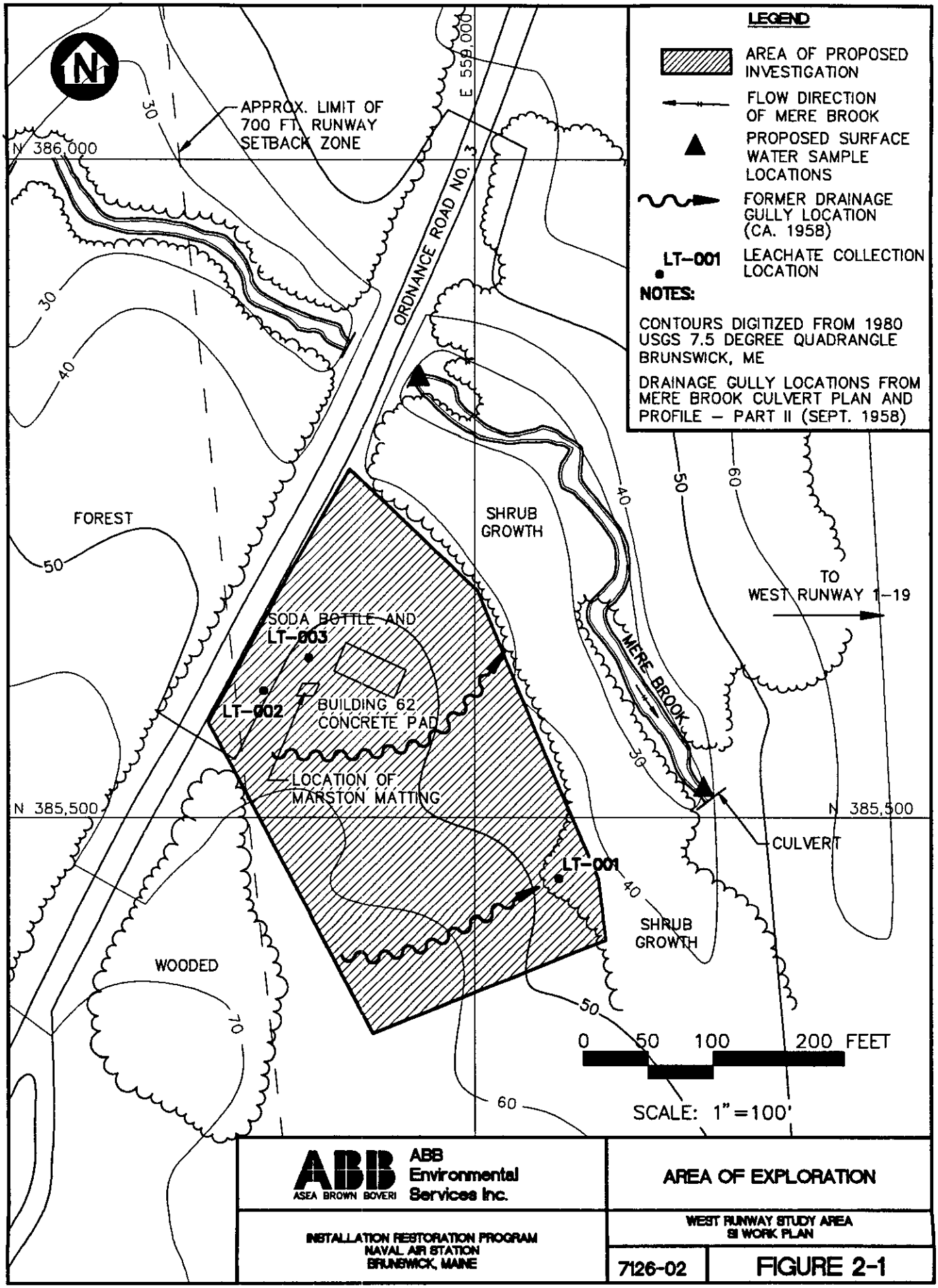
WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

EXPLORATION	SAMPLE DEPTH[1]	SAMPLE ID	LABORATORY ANALYSES					LABORATORY DATA PACKAGE[6]
			VOCs[3]	SVOCs[4]	PESTICIDES/ PCBs[4]	INORGANICS[5]	TCLP	
SW-9	Middle of Flow	WRSW00900?01XX	CLP	CLP	CLP	CLP	-	Level D
SW-10	Middle of Flow	WRSW01000?01XX	CLP	CLP	CLP	CLP	-	Level D

Notes:

1 feet below ground surface (estimated)
2 duplicate samples
3 Target Compund List with tentatively identified compounds; liquid samples (i.e., seep and surface water) will be analyzed using "Superfund Analytical Methods for Low-Concentration Water for Organic Analysis," 6/91 Statement of Work
4 Target Compound List
5 Target Analyte List
6 Level D data packages will be produced by the laboratory

TBD = to be determined
ID = identifier
WR = West Runway Study Area
PS = Test pit soil sample
LT = seep (leachate) sample
SD = sediment sample
SW = surface water sample
CLP = Contract Laboratory Program 3/90 Statement of Work (Revisions OLM 01.8 [8/91] and ILM 02.1 [10/91])
VOCs = Volatile Organic Compounds
SVOCs = Semivolatile Organic Compounds
PCBs = Polychlorinated biphenyls
??? = to be replaced by the depth at which the sample is taken
TCLP = Toxicity Characteristic Leachate Procedure
USEPA = U.S. Environmental Protection Agency Method 1311
- = not appropriate for this media



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be analyzed for TCL VOCs, SVOCs, pesticides, and PCBs, and TAL inorganics. Sediment samples will also be analyzed for the full suite of Toxicity Characteristic Leachate Procedure (TCLP) analytes (i.e., VOCs, SVOCs, pesticides/herbicides, and elements).

Up to two liquid and two sediment samples (LT-007 through LT-008; SD-007 through SD-008) will be collected near sample location LT-001. Because of access problems that would prevent the use of a backhoe, a bucket auger will be used to collect the sediment samples. Staining, similar to what was seen near the location of the soda bottle sample, was observed in this area during the site tour, and toluene was detected at 3.3 micrograms per liter during the 1992 sampling. As with the other samples, the sample locations will be moved if there is visual evidence of contamination outside the indicated area. These samples will be analyzed for TCL VOCs, SVOCs, pesticides, and PCBs, and TAL inorganics.

2.4.2 Mere Brook Samples

Because the topography slopes toward Mere Brook, the seep may have affected water quality. To determine the current concentrations in Mere Brook, up to two surface water and two sediment samples (SW-009 through SW-010; SD-009 through SD-010) will be collected from Mere Brook. A bucket auger will be used to collect the sediment samples. The approximate location of one sample will be on the downgradient side of the bridge where Ordnance Road No. 3 crosses Mere Brook. The second sample will be collected near the culvert channeling Mere Brook under West Runway 1-19. The sample locations will be moved if there is visual evidence of contamination along Mere Brook in the area shown in Figure 2-1. The sediment and surface water samples will be analyzed for TCL VOCs, SVOCs, pesticides, and PCBs, and TAL inorganics. To represent existing conditions, these surface water and sediment samples will be collected prior to invasive activities near the Building 62 concrete pad.

Surface water and sediment sampling will be conducted during low-flow conditions (e.g., rainfall has not occurred within 48 hours before the time of sampling). Sampling will be conducted from downstream to upstream, with the surface water sample collected before the sediment sample at each location. Surface water samples will be collected using a subsurface grab sampler. The sample will be collected by extending the grab sampler to the mid-depth of the water body, and engaging the cap

opening device. After the sampler bottle is filled, the cap is re-engaged and the sampler is removed from the water. The water sample is then decanted into pre-labeled, pre-preserved sample containers. In order to be consistent with sampling protocols for comparison of water quality to Safe Drinking Water Act Maximum Contaminant Levels (40 CFR 141.23), these samples will not be filtered in the field prior to shipment to the laboratory. After the containers are filled, an aliquot of the water sample will be screened with a PI meter, and field measurements of temperature, pH, specific conductivity, and turbidity will be taken.

Sediment samples will be collected using a bucket auger. The sediment sample will be collected by screwing the bucket auger 6 inches into the sediment and retrieving it. The contents of the auger will be placed directly into containers for VOC analysis. Leaves and branches will be removed from the sample. Once these containers are filled and capped, any additional sample material required will be collected and placed in a stainless steel bucket and stirred to homogenize it. Then the remaining sample containers will be filled from the bucket. A reference jar of the sediment will be collected and screened with a PI meter.

2.4.3 Geophysical Survey

Two geophysical techniques will be used during the SI. Magnetometer and ground-penetrating radar (GPR) will be used to delineate the extent of any buried debris. These two techniques will be conducted in the area surrounding the Building No. 62 concrete pad as indicated in Figure 2-1. This area encompasses the original seep sampling locations, and two former natural drainage gullies that have since been filled as part of the runway setback leveling project. Measurements will be taken every 10 feet within a grid established with a measuring tape and compass. Areas of exposed debris (i.e., metal, rubble) will be noted in the field logbook. All exposed debris will be excavated using a backhoe prior to the beginning of the geophysical survey and test pitting. During the geophysical survey, the grid area may be increased, as needed, to evaluate detected anomalies.

Magnetometer Survey. Because they are relatively reliable and cost-effective, magnetometer surveys are routinely used to map anomalous subsurface conditions where the presence of metals is suspected. The magnetic geophysical technique uses a proton-precession magnetometer, which measures local deviations in the earth's magnetic field caused by surficial and buried metallic objects. The proton-precession

magnetometer has two sensors mounted 0.5 meters apart on a staff held vertically during operation. Total magnetic field values are recorded simultaneously by both sensors. The difference between the upper and lower sensors divided by the distance between them is the vertical gradient value. These values are downloaded from the instrument to a personal computer for processing, contouring, and interpretation.

Ground-Penetrating Radar Survey. GPR will be used as a confirmatory technique subsequent to the completion of the magnetometer survey to verify the extent of any detected anomalies. Because the GPR methodology is different from that of the magnetometer, confirmation of anomalies provides a higher degree of confidence in the data and greater detail than would be available from either technique alone. The GPR technique uses high-frequency radio waves to establish the presence of subsurface objects and structures. Typical applications for GPR include locating underground storage tanks and locating and mapping buried utilities. Radio waves, radiated downward into the subsurface from the antenna, are reflected from the surfaces of buried materials because of differences in electrical properties of the materials. The reflected wave energy is processed and displayed on a continuous strip chart as a recording of distance versus time, where time is proportional to depth.

2.4.4 Test Pits

Exposed debris will be removed from the study area and segregated (see Subsection 4.4.2) prior to initiation of geophysical/test pitting activities. The test pits will be used to investigate the magnetic anomalies detected during the geophysical survey, to examine subsurface soils, and to assess the horizontal and vertical distribution of potential shallow source contamination. The backhoe bucket will be steam-cleaned between test pit locations to prevent cross-contamination. Steam-cleaning fluids that show no evidence of contamination, based on PI meter readings of less than 5 parts per million (ppm) above background, will be disposed of at the ground surface of respective exploration locations. Cleaning fluids that have PI meter readings exceeding 5 ppm above background will be contained, and placed in U.S. Department of Transportation (DOT) approved, 55-gallon steel drums for transport by the test pit subcontractor to the NAS Brunswick's hazardous waste storage area. Test pits (denoted TP) will consist of hand-dug bucket auger or shovel excavations to depths of up to 2 feet or backhoe excavations to depths of up to 12 feet. The bedrock outcrops and unknown subsurface geology in this area may

limit the depth of the test pits to 2 feet or less. If the subsurface geology does not limit the depth of the test pit, it will be excavated up to 12 feet, the typical working depth of a backhoe.

Test pit soils and stratigraphy will be logged by a qualified geologist, soil scientist, or geotechnical engineer. A detailed field log of each test pit will be completed before backfilling. The test pits will also be documented with photographs, which will supplement the log information. Air quality in the breathing zone will be monitored with a PI meter during test pit activities. Buried debris that is uncovered will be removed temporarily from the excavation by the test pit contractor. Prior to backfilling, each test pit will be cleared for additional debris using a metal detector. If a metallic anomaly is detected, the test pit will be extended. Any debris and contaminated soil removed from an excavation will be returned to the lower portion of the pit after the test pit is logged and samples are collected. The original surface soil segregated during excavation will be placed at the top of the pit.

Up to two soil samples will be collected directly from the test pit face (or with extendable hand tools) only if potential contamination is uncovered, as indicated by PI meter readings, visual indications of contamination, and/or odors. Soil samples will also be collected if obvious sources of potential contamination (e.g., drums, cans) are uncovered. The samples will be analyzed for TCL VOCs, SVOCs, pesticides and PCBs, and TAL inorganics.

Shallow and surface soil samples (zero to 2 feet) will be collected with a bucket auger or hand shovel. Deep soil samples (greater than 2 feet) will be collected from backhoe-excavated test pits. Sample material will be placed directly into containers for VOC analysis. Once these containers are filled and capped, any additional sample material required will be collected and placed in a stainless steel bucket and stirred to homogenize it. Then the remaining sample containers will be filled from the bucket. A reference jar of the soil will be collected, screened with a PI meter, and described using the Unified Soil Classification System. Surface soil samples will not include any leaf litter.

2.5 SURVEY OF EXPLORATIONS

The location and elevation of new explorations will be surveyed to the nearest 0.5 foot horizontally and 0.01 foot vertically, and referenced to NAS Brunswick datum. This will include all soil, sediment, and surface water sampling locations, and three grid points from the magnetometer survey.

3.0 LABORATORY ANALYTICAL PROGRAM SUMMARY

Soil, sediment, surface water, and seep samples will be selected for laboratory analysis to identify and quantify chemical contaminants present in these media at the West Runway Study Area. The samples collected for laboratory analyses will be analyzed for the USEPA TCL VOCs, SVOCs, pesticides/PCBs, and TAL inorganics. These laboratory analyses will be conducted in accordance with the USEPA CLP March 1990 Statement of Work, Document Number ILM 02.1, October 1991 revision (inorganics) and Document Number OLM 01.8 August 1991 revision (organics). Surface water and seep samples will be analyzed for TCL VOCs using the low-detection-limit method referenced in the USEPA CLP June 1991 revision of the Statement of Work. Some selected soil samples will also be analyzed for TCLP VOCs, SVOCs, pesticides/herbicides, and elements. The analytical methods are listed in Table 3-1, the proposed analytical program including quality assurance and quality control samples in Table 3-2, and the method-associated detection limits are listed in Table 3-3. Data collection and validation packages from the laboratory will be consistent with requirements of the Navy IRP (NEESA 20.2-047B, 1988). Sample tracking and chain-of-custody will be maintained as detailed in the QAPP (E.C. Jordan Co., 1988).

Data obtained during the NAS Brunswick field program will be used for site characterization and to establish whether hazardous substances are present. The levels of data quality applicable to the NAS Brunswick investigation are described in the following paragraphs and are consistent with requirements for USEPA (USEPA, 1987) and for the Navy IRP (NEESA 20.2-047B, 1988).

USEPA Level I. Generated data provide information on the presence or absence of contamination and are generally qualitative rather than quantitative. Level A data (including PI meter readings, pH, temperature, turbidity, and specific conductance measurements) will be collected to aid in the identification of sampling locations, health and safety monitoring, and characterization of samples.

USEPA Level II. This level of data quality is characterized by the use of analytical instruments used in the field. Depending on the instrumentation, environmental matrix, and other factors, the data may be either semi-quantitative or quantitative.

TABLE 3-1
LABORATORY ANALYTICAL PROGRAM

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

MEDIA	PARAMETER	METHOD	REFERENCE	CONTAINER REQUIREMENTS	PRESERVATION REQUIREMENTS	HOLDING TIME[1] LIMITS
Soil/Sediment	TCL VOCs	Purge & Trap GC/MS	3/90 SOW, OLM 01.8	4 oz, Glass, Teflon Cap	4°C	10 days
	TCL SVOCs	GC/MS	3/90 SOW, OLM 01.8	4 oz, Glass, Teflon Cap	4°C	10 days to Extraction, 40 days after Extraction
	TCL Pesticides/PCBs	GC/ECD	3/90 SOW, OLM 01.8	4 oz, Glass, Teflon Cap	4°C	10 days to Extraction, 40 days after Extraction
	TAL Elements	AAS/PES/CVAA	3/90 SOW, revised ILM 02.1 (9/91)	4 oz, Glass, Teflon Cap	4°C	6 months (30 days for mercury)
	TCLP VOCs	Purge & Trap GC/MS	USEPA Method 1311	4 oz, Glass, Teflon Cap	4°C	14 days
	TCLP SVOCs	GC/MS	USEPA Method 1311	4 oz, Glass, Teflon Cap	4°C	7 days to Extraction, 40 days after Extraction
	TCLP Pesticides/ Herbicides	GC/ECD	USEPA Method 1311	4 oz, Glass, Teflon Cap	4°C	7 days to Extraction, 40 days after Extraction
	TCLP Elements	AAS/PES	USEPA Method 1311	4 oz, Glass, Teflon Cap	4°C	6 months (28 days for mercury)
Seep/Surface Water	TCL VOCs	Purge & Trap GC/MS*	3/90 SOW Low Detection Limit (6/91)*	40 ml Vial (2), Glass Teflon-lined Septa	4°C, HCL	10 days (preserved)
	TCL SVOCs	GC/MS	3/90 SOW, OLM 01.8	1-liter Amber Glass	4°C	5 days to Extraction, 40 days after Extraction
	TCL Pesticides/PCBs	GC/ECD	3/90 SOW, OLM 01.8	1-liter Amber Glass	4°C	5 days to Extraction, 40 days after Extraction

continued

TABLE 3-1
LABORATORY ANALYTICAL PROGRAM

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

MEDIA	PARAMETER	METHOD	REFERENCE	CONTAINER REQUIREMENTS	PRESERVATION REQUIREMENTS	HOLDING TIME[1] LIMITS
	TAL Elements	AAS/PES/CVAA	3/90 SOW, revised ILM 02.1 (9/91)	1-liter Plastic	4°C, HNO_3 pH<2	6 months (30 days for mercury)
	Temperature (field)	Thermometric	USEPA Method 170.1	N/A	N/A	N/A
	pH (field)	Potentiometric	USEPA Method 150.1	N/A	N/A	N/A
	Specific Conductivity (field)	Electronometric	USEPA Method 120.1	N/A	N/A	N/A
	Hardness	Colorimetric	USEPA Method 130.1	1-liter Glass	4°C, HNO_3 pH<2	6 months
	Turbidity (field)	Nephelometric	USEPA Method 180.1	N/A	N/A	N/A

Notes:

GC/MS = Gas Chromatography/Mass Spectrometry
SOW = USEPA Contract Laboratory Program, Statement of Work
GC/ECD = Gas Chromatography/Electron Capture Detection
AAS = Atomic Absorption Spectroscopy
PES = Plasma Emission Spectroscopy
TCL = Target Compound List
TAL = Target Analyte List
VOC = Volatile Organic Compound
SVOC = Semivolatile Organic Compound
PCB = Polychlorinated Biphenyl
* = 6/91 Statement of Work, "Superfund Analytical Methods for Low-Concentration Water for Organics Analysis"; USEPA Contract Laboratory Program; USEPA, 1991.
(1) = Holding times from date of receipt by the Laboratory (NEESA 20.2-047B, 1988)
TCLP = Toxicity Characteristic Leachate Procedure
CVAA = Cold Vapor Atomic Absorption

TABLE 3-2
SUMMARY OF PROPOSED LABORATORY ANALYTICAL PROGRAM

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

WEST RUNWAY STUDY AREA	LABORATORY ANALYTICAL PROCEDURES									
	SOIL/SEDIMENT SAMPLES					SEEP/SURFACE WATER SAMPLES				
	TCL VOCs	TCL SVOCs	TCL PEST./ PCBs	TAL INORGANICS	TCLP	TCL VOCs	TCL SVOCs	TCL PEST./ PCBs	TAL INORGANICS	HARDNESS
Subtotal	23	23	23	23	12	7	7	7	7	2
Field Duplicates	3	3	3	3	2	1	1	1	1	1
Sampler Blanks	3	3	3	3	N/A	1	1	1	1	1
Trip Blanks*	8	0	0	0	N/A	3	0	0	0	0
Source Water Blanks	3	3	3	3	N/A	1	1	1	1	1
MS/MSD Samples	2/2	2/2	2/2	2/2	2	2	2	2	2	2
Total	36	36	36	36	16	13	12	12	12	8

Notes:

VOC = Volatile Organic Compounds
TCL = USEPA Target Compound List
TAL = USEPA Target Analyte List
SVOCs = Semivolatile Organic Compounds
Pest = Pesticides
PCBs = Polychlorinated biphenyls
TCLP = Toxicity Characteristic Leachate Procedure
MS/MSD = Matrix spike/matris spike duplicate
N/A = Not applicable
* = Assumes up to three samples will be collected each day and sent off site in one cooler to the laboratory for analysis.

TABLE 3-3
CONTRACT REQUIRED QUANTITATION LIMITS FOR TARGET COMPOUND LIST ANALYTES - USEPA 3/90 SOW

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

PARM NO.	VOLATILE ORGANIC ANALYTES TCL PARAMETER NAME	CRQL* (water) µg/L	CRQL (soil) µg/kg
100	Chloromethane	1	10
101	Bromomethane	1	10
102	Vinyl Chloride	1	10
103	Chloroethane	1	10
104	Methylene Chloride	2	10
105	Acetone	5	10
106	Carbon Disulfide	1	10
107	1,1-Dichloroethene	1	10
108	1,1-Dichloroethane	1	10
109	1,2-Dichloroethene (total)	NA	10
110	Chloroform	1	10
111	1,2-Dichloroethane	1	10
112	2-Butanone	5	10
113	1,1,1-Trichloroethane	1	10
114	Carbon Tetrachloride	1	10
116	Bromodichloromethane	1	10
117	1,2-Dichloropropane	1	10
118	cis-1,3-Dichloropropene	1	10
119	Trichloroethene	1	10
120	Dibromochloromethane	1	10
121	1,1,2-Trichloroethane	1	10
122	Benzene	1	10
123	trans-1,3-Dichloropropene	1	10
125	Bromoform	1	10
126	4-Methyl-2-Pentanone	5	10
127	2-Hexanone	5	10
128	Tetrachloroethene	1	10
129	1,1,2,2-Tetrachloroethane	1	10

continued

TABLE 3-3
CONTRACT REQUIRED QUANTITATION LIMITS FOR TARGET COMPOUND LIST ANALYTES - USEPA 3/90 SOW

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

PARM NO.	VOLATILE ORGANIC ANALYTES TCL PARAMETER NAME	CRQL* (water) µg/L	CRQL (soil) µg/kg
130	Toluene	1	10
131	Chlorobenzene	1	10
132	Ethylbenzene	1	10
133	Styrene	1	10
134	Total Xylenes	1	10
143	Cis-1,2-dichloroethene	1	NA
144	trans-1,2-dichloroethene	1	NA
145	bromochloromethane	1	NA
146	1,2-dibromoethane	1	NA
147	1,3-dichlorobenzene	1	NA
148	1,4-dichlorobenzene	1	NA
149	1,2-dichlorobenzene	1	NA
150	1,2-dibromo-3-chloropropane	1	NA

continued

TABLE 3-3
CONTRACT REQUIRED QUANTITATION LIMITS FOR TARGET COMPOUND LIST ANALYTES - USEPA 3/90 SOW

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

PARM NO.	SEMIVOLATILE ORGANIC ANALYTES TCL PARAMETER NAME	CRQL (water) µg/L	CRQL (soil) µg/L
200	Phenol	5	330
201	bis(2-Chloroethyl)ether	5	330
202	2-Chlorophenol	5	330
203	1,3-Dichlorobenzene	NA	330
204	1,4-Dichlorobenzene	NA	330
206	1,2-Dichlorobenzene	NA	330
207	2-Methylphenol	5	330
208	2-2'-oxybis(1-chloropropane)	5	330
209	4-Methylphenol	5	330
210	n-Nitroso-di-n-propylamine	5	330
211	Hexachloroethane	5	330
212	Nitrobenzene	5	330
213	Isophorone	5	330
214	2-Nitrophenol	5	330
215	2,4-Dimethylphenol	5	330
217	bis(2-Chloroethoxy)methane	5	330
218	2,4-Dichlorophenol	5	330
219	1,2,4-Trichlorobenzene	5	330
220	Naphthalene	5	330
221	4-Chloroaniline	5	330
222	Hexachlorobutadiene	5	330
223	4-Chloro-3-methylphenol	5	330
224	2-Methylnaphthalene	5	330
225	Hexachlorocyclopentadiene	5	330
226	2,4,6-Trichlorophenol	5	330
227	2,4,5-Trichlorophenol	20	800
228	2-Chloronaphthalene	5	330
229	2-Nitroaniline	20	800

continued

TABLE 3-3
CONTRACT REQUIRED QUANTITATION LIMITS FOR TARGET COMPOUND LIST ANALYTES - USEPA 3/90 SOW

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

PARM NO.	SEMIVOLATILE ORGANIC ANALYTES TCL PARAMETER NAME	CRQL (water) µg/L	CRQL (soil) µg/L
230	Dimethylphthalate	5	330
231	Acenaphthylene	5	330
232	2-6,Dinitrotoluene	5	330
233	3-Nitroaniline	20	800
234	Acenaphthene	5	330
235	2,4-Dinitrophenol	20	800
236	4-Nitrophenol	20	800
237	Dibenzofuran	5	330
238	2,4-Dinitrotoluene	5	330
239	Diethylphthalate	5	330
240	4-Chlorophenyl-phenylether	5	330
241	Fluorene	5	330
242	4-Nitroaniline	20	800
243	4,6-Dinitro-2-methylphenol	20	800
244	n-Nitrosodiphenylamine	5	330
245	4-Bromophenyl-phenylether	5	330
246	Hexachlorobenzene	5	330
247	Pentachlorophenol	20	800
248	Phenanthrene	5	330
249	Anthracene	5	330
250	Di-n-butylphthalate	5	330
251	Fluoranthene	5	330
252	Pyrene	5	330
253	Butylbenzylphthalate	5	330
254	3,3'-Dichlorobenzidine	5	330
255	Benzo(a)anthracene	5	330
256	Chrysene	5	330
257	bis(2-Ethylhexyl)phthalate	5	330

TABLE 3-3
CONTRACT REQUIRED QUANTITATION LIMITS FOR TARGET COMPOUND LIST ANALYTES - USEPA 3/90 SOW

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

PARM NO.	SEMIVOLATILE ORGANIC ANALYTES TCL PARAMETER NAME	CRQL (water) µg/L	CRQL (soil) µg/L
258	Di-n-octylphthalate	5	330
259	Benzo(b)fluoranthene	5	330
260	Benzo(k)fluoranthene	5	330
261	Benzo(a)pyrene	5	330
262	Indeno(1,2,3-cd)pyrene	5	330
263	Dibenz(a,h)anthracene	5	330
264	Benzo(g,h,i)perylene	5	330

continued

TABLE 3-3
CONTRACT REQUIRED QUANTITATION LIMITS FOR TARGET COMPOUND LIST ANALYTES - USEPA 3/90 SOW

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

PARM NO.	SEMIVOLATILE ORGANIC ANALYTES TCL PARAMETER NAME	CRQL (water) µg/L	CRQL (soil) µg/L
300	alpha-BHC	0.01	1.7
301	beta-BHC	0.01	1.7
302	delta-BHC	0.01	1.7
303	gamma-BHC (Lindane)	0.01	1.7
304	Heptachlor	0.01	1.7
305	Aldrin	0.01	1.7
306	Heptachlor Epoxide	0.01	1.7
307	Endosulfan I	0.01	1.7
308	Dieldrin	0.02	3.3
309	4,4'-DDE	0.02	3.3
310	Endrin	0.02	3.3
311	Endosulfan II	0.02	3.3
312	4,4'-DDD	0.02	3.3
313	Endrin Aldehyde	0.02	3.3
314	Endosulfan Sulfate	0.02	3.3
315	4,4'-DDT	0.02	3.3
316	Methoxychlor	0.01	1.7
317	Endrin Ketone	0.02	3.3
318	alpha-Chlordane	0.01	1.7
319	gamma-Chlordane	0.01	1.7
320	Toxaphene	1.0	170
321	Aroclor-516	0.20	33
322	Aroclor-1221	0.40	67
323	Aroclor-1232	0.20	33
324	Aroclor-1242	0.20	33
325	Aroclor-1248	0.20	33
326	Aroclor-1254	0.20	33
327	Aroclor-1260	0.20	33

continued

TABLE 3-3
CONTRACT REQUIRED QUANTITATION LIMITS FOR TARGET COMPOUND LIST ANALYTES - USEPA 3/90 SOW

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

PARM NO.	INORGANIC ANALYTES TAL PARAMETER NAME	CRDL (water) µg/L	CRQL (soil) µg/kg
400	Aluminum	100	40
401	Antimony	5	12
402	Arsenic	2	2
403	Barium	20	40
404	Beryllium	1	1
405	Cadmium	1	1
406	Calcium	500	1,000
407	Chromium	10	2
408	Cobalt	10	5
409	Copper	10	5
410	Iron	100	20
411	Lead	2	0.6
412	Magnesium	500	1,000
413	Manganese	10	3
414	Mercury	0.2	0.1
415	Nickel	20	8
416	Potassium	750	1,000
417	Selenium	3	1
418	Silver	10	2
419	Sodium	500	1,000
420	Thallium	10	2
421	Vanadium	10	10
422	Zinc	20	4

continued

TABLE 3-3
CONTRACT REQUIRED QUANTITATION LIMITS FOR TARGET COMPOUND LIST ANALYTES - USEPA 3/90 SOW

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

USEPA HW No.	TCLP ANALYTES PARAMETER NAME	PQL (WATER) µg/L	CRQL (SOIL) µg/kg
D019	Carbon Tetrachloride	5	
D021	Chlorobenzene	5	
D022	Chloroform	5	
D028	1,2-Dichloroethane	5	
D029	1,1-Dichloroethylene	5	
D035	2-Butanone	100	
D039	Tetrachloroethylene	5	
D040	Trichloroethylene	5	
D018	Benzene	5	
D027	1,4-Dichlorobenzene	NA	
D030	2,4-Dinitrotoluene	10	
D016	2,4-D	120	
D020	Chlordane	0.14	
D012	Endrin	0.06	
D031	Heptachlor	0.03	
D032	Hexachlorobenzene	10	
D033	Hexachlorobutadiene	5	
D034	Hexachloroethane	5	
D013	Lindane	0.04	
D014	Methoxychlor	1.76	
D036	Nitrobenzene	5	
D037	Pentachlorophenol	50	
D038	Pyridine	50	
D015	Toxaphene	2.4	
D041	2,4,5-Trichlorophenol	20	
D042	2,4,6-Trichlorophenol	5	
D017	2,4,5-TP	1.7	
D043	Vinyl Chloride	10	

continued

TABLE 3-3
CONTRACT REQUIRED QUANTITATION LIMITS FOR TARGET COMPOUND LIST ANALYTES - USEPA 3/90 SOW

WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN
NAS BRUNSWICK

USEPA HW No.	TCLP ANALYTES PARAMETER NAME	PQL (WATER) µg/L	CRQL (SOIL) µg/kg
D004	Arsenic	5	
D005	Barium	2	
D006	Cadmium	4	
D007	Chromium	7	
D008	Lead	1	
D009	Mercury	0.2	
D010	Selenium	2	
D011	Silver	7	

Notes:

* = USEPA Contract Laboratory Program, 6/91 SOW "Superfund Analytical Methods for Low-Concentration Water for Organics Analysis". Applies to VOC analysis only.
NA = Not Applicable
TCLP = Toxicity Characteristic Leachate Procedure analytes
HW = Hazardous Waste
CRQL = Contract Required Quantitation Limit for volatile, semivolatile, pesticide, and PCB compounds
CRDL = Contract Required Detection Limit for inorganic analytes
PQL = Practical Quantitation Limit for TCLP analytes
TCL = Target Compound List
µg/L = micrograms per liter
µg/kg = micrograms per kilogram
TAL = Target Analyte List
SOW = Statement of Work
USEPA = U.S. Environmental Protection Agency

NEESA Level C. This level of data quality represents data generated under laboratory conditions using USEPA-approved procedures, but using methods other than CLP - Routine Analytical Services protocols. This level of data is used for certain types of source, extent, or characterization and to support engineering treatability studies. Level C data closely correspond to USEPA Level III. These data are both qualitative and quantitative.

NEESA Level D. These data represent confirmational laboratory information generated using USEPA CLP methods and supported by rigorous quality control, documentation, and validation procedures. These data are typically used for site characterization, risk assessment, engineering alternative selection and design, and enforcement/litigation activities. Level D data closely correspond with USEPA Level IV data with additional quality assurance requirements.

Data from the NAS Brunswick field program will be used for several purposes, depending on the specific task and medium of concern. DQOs are identified by medium as follows:

- Temperature, pH, specific conductance, and PI meter measurements will be conducted in the field, providing Level A data quality.
- Selected soil samples will be analyzed for TCLP VOCs, SVOCs, pesticides/herbicides, and elements using USEPA protocol to provide Level C data packages.
- Soil, sediment, seep, and surface water samples collected during the field program will be analyzed for TCL VOCs, SVOCs, pesticides/ PCBs, and TAL inorganics using USEPA CLP protocols to provide laboratory Level D data packages.

4.0 FIELD MANAGEMENT

This section describes the techniques to manage the SI fieldwork. Topics such as on-base access, field operations, and waste management are discussed in the following subsections. Additional procedures are presented in the QAPP (E.C. Jordan Co., 1988).

4.1 ACCESS TO NAS BRUNSWICK AND EXPLORATION LOCATIONS

Contracted personnel and their subcontractors will use NAS Brunswick as a base for field operations. Arrangements for access to NAS Brunswick will be made through base Public Works and Security. Final exploration locations will be selected after a site reconnaissance to observe current conditions in the field at the proposed locations and after utilities have been cleared (see Subsection 4.3.3).

Each individual participating in the field activities will have a security pass for access to the base. The pass will be a photographic identification pass or contractor pass valid for the duration of the field program. Required information about personnel involved in the fieldwork will be provided to NAS Brunswick Public Works and Security as soon as project personnel are identified. Representatives from regulatory agencies will be responsible for arranging their own security clearances through the Public Works Officer, NAS Brunswick.

4.2 INITIAL PREPARATION ACTIVITIES

Tasks to be performed before sampling and analysis activities are described in this subsection.

4.2.1 Site Reconnaissance

The first activity of the field program will be to identify and physically mark exploration and sampling locations. This will require marking the exploration locations for the geophysical survey and soil/seep sampling with wooden stakes or

surveyor's flagging tape. Surface water sampling locations will be marked with surveyor's stakes or pin flags.

4.2.2 Site Preparation

Site preparation activities for the SI field program will be performed by contractor personnel with the support of NAS Brunswick Public Works. Preparations will include establishing a base of operations with electricity and telephone service. Field and office equipment and supplies will be transported to the site and set up before fieldwork begins.

4.3 FIELD OPERATIONS

Methods for field communication, sample designation and documentation, utility clearances, and field changes to be used during field operations are described in this subsection. Fieldwork during this program will be conducted using a five-day work schedule.

4.3.1 Field Communication

While on base, contractor personnel will use telephones to communicate with off-base parties. As required by the HASP, a list of emergency telephone numbers will be available at all times in the on-base vehicles. Personnel conducting site work at NAS Brunswick will use two-way radios to maintain communications with on-site field leaders and personnel working in other areas. Only specific radio frequencies (assigned by NAS Brunswick) will be used during the field program. This will enable Naval Security and Public Works to monitor on-base communications for security and worker safety.

4.3.2 Sample Designation and Documentation

The QAPP provides details on the sampling methods that will be used (E.C. Jordan Co., 1988a).

Samples collected for chemical analysis during the field investigation will have computer-generated labels displaying a sample identification code. The sample

identification code will consist of a 14-digit code (for example, WRPS00100201XX) that represents the designation code for the site (WR), the sample type (PS), the horizontal and vertical locators (001; 002), the event number (01), and the modifier (XX). Sample type codes indicate whether the sample is a test pit soil sample (PS), seep or leachate sample (LT), sediment sample (SD), or surface water sample (SW). Modifiers (i.e., the last two digits of the code) indicate whether the sample was a duplicate sample (XD) or the original sample (XX). The list of sample identification codes for the West Runway Study Area are indicated in Table 2-4. Samples will be labeled at the study area at the time of sampling. In addition to sample label generation, the Integrated Site Information System, a database system designed by ABB-ES, will be used for sample tracking and data manipulation. The contractor will follow chain-of-custody and shipping procedures outlined in the QAPP.

4.3.3 Utility Clearances and Explorations

Contracted personnel will work with NAS Brunswick personnel to provide clearance of military-operated underground tanks and utilities (i.e., sewer, water, and communication/electricity).

4.3.4 Field Change Requests

Field changes (i.e., deviations from the activities in this Work Plan) will only be conducted after a field change request has been submitted in writing to the Navy Northern Division office for approval. Field changes will be noted in the site logbook and will be described in a subsequent report.

4.4 Site Inspection-Derived Waste Management

The activities described in this Work Plan will generate wastes, primarily potentially contaminated decontamination fluid and excavated materials, that may require off-site disposal or further decontamination. This subsection briefly describes the types of decontamination to be used and the disposal procedures to be followed.

4.4.1 Decontamination Facilities

The fieldwork will require the mobilization and the field support of subcontractors and sampling crews. Staging and decontamination facilities will be needed to support these personnel. Field activities will be staged from vehicles used by contracted personnel. Specific personnel decontamination procedures are outlined in the HASP (see Attachment). Sampling and non-sampling equipment used to conduct explorations will be decontaminated using the procedures described in the following text.

Expendable sampling equipment (i.e., shovels, pails) will be either decontaminated between each sample or disposed of after use (see Subsection 4.4.2). After screening with the PI meter, the decontamination procedure for sampling equipment consists of the following steps: (1) wash with water; (2) wash with a soap (Liquinox) and water solution; (3) rinse with water; (4) rinse with 10 percent (volume basis) pesticide-grade methanol; and (5) rinse with deionized water. If PI meter readings of the sampling equipment are above 100 ppm or if gross contamination is otherwise indicated, the methanol rinse will be done using 100 percent pesticide-grade methanol.

Full sample bottles will be stored in clean, insulated coolers for transport to the laboratory. If necessary, the exterior surfaces of sample bottles will be cleaned with disposable wipes before shipment.

A heavy equipment decontamination zone will be designated at the work site. The backhoe and associated equipment will be decontaminated using high-pressure water before the exploration program begins and after each exploration is completed. The water will not be containerized. Additional decontamination requirements and procedures are detailed in the QAPP (E.C. Jordan Co., 1988).

Decontamination zones for personnel and equipment will be set up at locations established as appropriate for each exploration. Contaminated sampling equipment (e.g., buckets, stainless steel spoons) and protective gear will either be decontaminated before site personnel proceed into the clean zone or be disposed of in DOT-approved Spec 17, 55-gallon drums with locking ring lids. Drums will be provided by the SI fieldwork subcontractors and disposed of by NAS Brunswick.

4.4.2 Disposal of Investigation-Related Wastes

Wastes generated during the exploration activities will be disposed of consistent with USEPA guidance (USEPA, 1990) and according to the following procedures:

- Debris excavated during test pitting that has higher than background PI meter readings will be returned to the bottom of the pit upon completion and logging of the excavation. This will minimize or eliminate an exposure route to possible human and ecological receptors.

- Soil excavated during test pitting that has higher than background PI meter readings will be returned to the bottom of the pit upon completion and logging of the excavation. This will minimize or eliminate an exposure route to possible human and ecological receptors.

- Sampling procedures may result in contaminated sampling equipment (i.e., spoons, Tyvek coveralls) and decontamination fluids. Typically, contaminated equipment will be disposed in double-bagged trash bags in on-site dumpsters as solid waste. After decontamination, if PI meter readings exceed 5 ppm in the air above the fluid or equipment, the article will be drummed. If necessary, the grossly contaminated decontamination fluids and the disposable sampling equipment will be drummed and handled as hazardous waste.

ABB-ES	ABB Environmental Services, Inc.
CLP	Contract Laboratory Program
DOT	U.S. Department of Transportation
DQO	data quality objectives
FFA	Federal Facility Agreement
FS	Feasibility Study
GPR	ground-penetrating radar
HASP	Health and Safety Plan
IRP	Installation Restoration Program
NAS	Naval Air Station
NCP	National Oil and Hazardous Substance Contingency Plan
PA	preliminary assessment
PCBs	polychlorinated biphenyls
PI	photoionization
ppm	parts per million
QAPP	Quality Assurance Project Plan
RI	Remedial Investigation
SI	Site Inspection
SVOC	semivolatile organic compound
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

ABB Environmental Services, Inc., 1990. "Health and Safety Plan"; Portland, Maine; June 1990.

E.C. Jordan Co., 1988. "Quality Assurance Program Plan - U.S. Navy Installation Restoration Program"; Portland, Maine; February 1988.

Naval Energy and Environmental Support Activity (NEESA) 20.2-047B, 1988. "Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program"; June 1988.

U.S. Environmental Protection Agency (USEPA), 1988. "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA"; USEPA/540/G-89/004; Washington, D.C.; October 1988.

U.S. Environmental Protection Agency (USEPA), 1990a. "National Oil and Hazardous Substances Pollution Contingency Plan "; 40 CFR Part 300; Washington, D.C.; March 8, 1990.

U.S. Environmental Protection Agency (USEPA), 1990b. "Management of Investigation-Derived Waste During Site Investigations"; USEPA/540/G-91/009; May 1990.

U.S. Environmental Protection Agency (USEPA), 1991a. "National Functional Guidelines for Organic Data Review"; Draft December 1990; revised June 1991.

U.S. Environmental Protection Agency (USEPA), 1991b. "Region I Laboratory Data Validation: Functional Guidelines for Evaluating Organics Analysis"; prepared for the USEPA Hazardous Site Evaluation Division; February 1988; revised August 1991.

U.S. Environmental Protection Agency (USEPA), 1991c. "Region I Laboratory Data Validation: Functional Guidelines for Evaluating Inorganics Analysis"; prepared for the USEPA Hazardous Site Evaluation Division; EPA 68-01-7443; June 1988; revised October 1991.

U.S. Environmental Protection Agency (USEPA), 1987. "Data Quality Objectives for Remedial Response Activities, Development Process"; OSWER Directive 9355.0-7B, March 1987.

ATTACHMENT 1

PRELIMINARY ASSESSMENT REPORT
FOR THE WEST RUNWAY STUDY AREA

PRELIMINARY ASSESSMENT REPORT

FOR THE WEST RUNWAY STUDY AREA

NAVAL AIR STATION BRUNSWICK

BRUNSWICK, MAINE

Prepared for:

U.S. Department of the Navy
Naval Facilities Engineering Command
Northern Division
Contract: N62472-84-C-1108

Prepared by:

ABB Environmental Services, Inc.
Portland, Maine

Project No. 7126-02

JANUARY 1993

ABB Environmental Services, Inc. (ABB-ES) was tasked by the U.S. Navy, Northern Division, to conduct a preliminary assessment (PA) of a newly identified area referred to as the "West Runway Study Area" at Naval Air Station (NAS) Brunswick in Brunswick, Maine. The purpose of the PA is to identify past activities that could be related to contamination detected during routine base operations. The PA consisted of interviews with NAS Brunswick personnel, a review of available aerial photographs, a site tour, and a review of analytical data from initial sampling. This report summarizes the results of the PA efforts.

1.0 PROGRAM DESCRIPTION

NAS Brunswick is included in the Navy's Installation Restoration Program, which was established to identify potential contamination at Navy and Marine Corps facilities resulting from past operations and, if needed, to institute corrective remedial measures.

The U.S. Environmental Protection Agency (USEPA), in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), placed NAS Brunswick on the National Priorities List in 1987. According to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the 1986 Superfund Amendments and Reauthorization Act, NAS Brunswick follows USEPA's *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (USEPA, 1988) and the NCP (USEPA, 1990). In addition, the USEPA and the Maine Department of Environmental Protection provide review and input throughout the Remedial Investigation/Feasibility Study process pursuant to a Federal Facility Agreement (FFA).

2.0 INSTALLATION DESCRIPTION

NAS Brunswick is the operating base for the Navy's Patrol Wing Five. The base provides logistic and maintenance support to the wing's five aviation squadrons operating Lockheed P3 Orion surveillance aircraft. Air crews fulfill various surface and subsurface reconnaissance missions in support of aircraft carrier battle groups, antisubmarine operations, illegal drug interdiction, and search and rescue. NAS Brunswick covers 3,091 acres between Brunswick and Bath, Maine. The station is bordered by Route 1 and the Androscoggin River to the north, residential areas to the east, Brunswick's business district to the west, and Harpswell Cove's peninsulas, mudflats, and tidal marshes to the south.

3.0 DISCOVERY OF WEST RUNWAY STUDY AREA

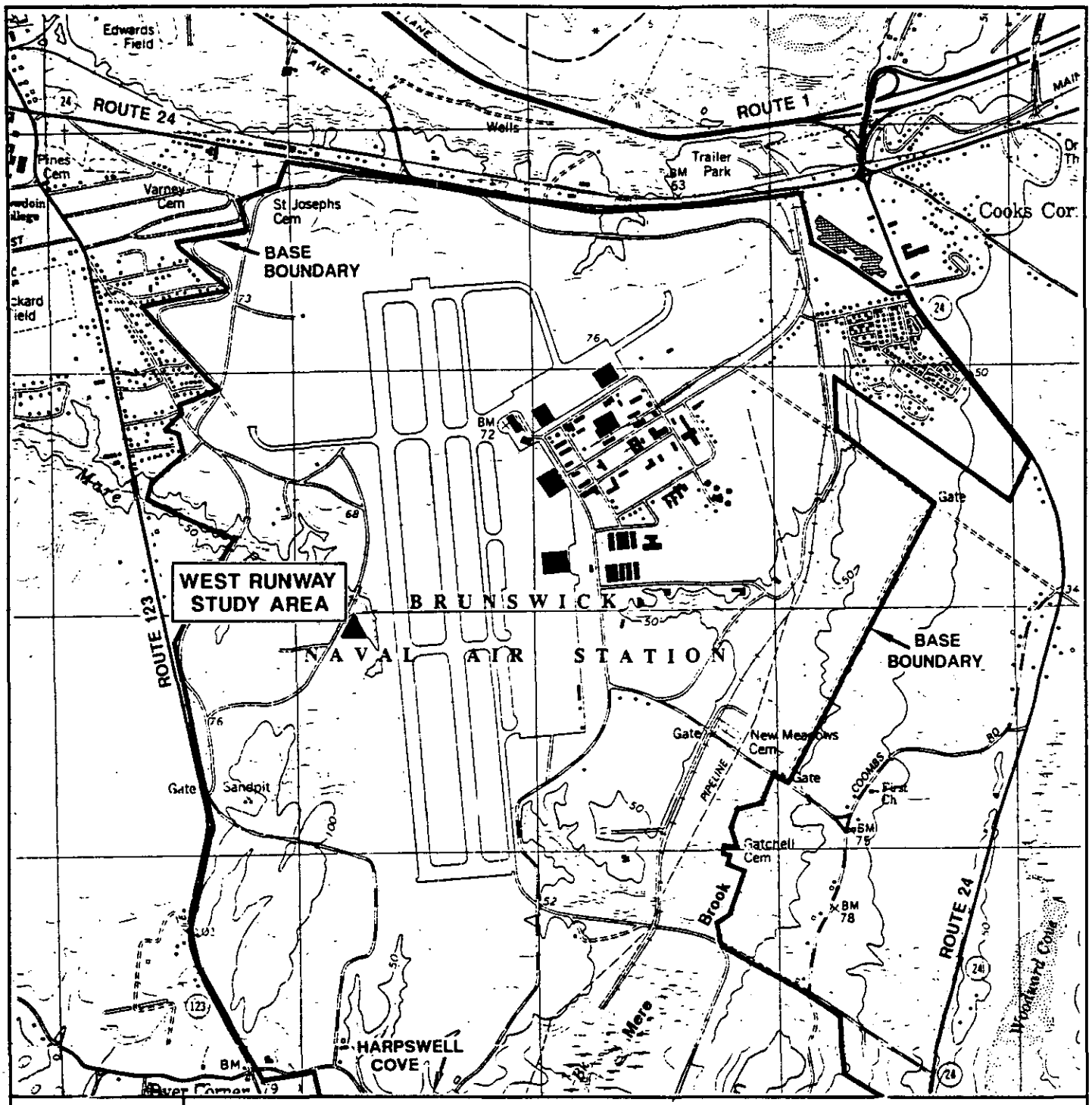
Clearing and leveling of the flightline setback zone began in 1986 and continued into 1992. In the spring of 1992, an NAS Brunswick employee was traveling on Ordnance Road No. 3, a restricted access area on base, when he observed a liquid seeping from a hillside. The seep was located within a 700-foot runway setback zone that recently had been graded along the west side of West Runway 1-19. The NAS Brunswick employee noticed the seeping liquid during the grading activity.

The employee described the fluid as "shiny, like water running over a rock," which is what caught his eye. The employee collected a sample of the seep in a soda bottle retrieved from a nearby trash dumpster. The sample was collected approximately 650 feet west of Runway 1-19, between Mere Brook and Ordnance Road No. 3, as shown in Figures 1 and 2.

3.1 SAMPLING RESULTS

The soda bottle sample, collected by the NAS Brunswick employee was analyzed by a field laboratory (which was operating as part of another investigation) for the volatile organic compounds (VOCs) and organochlorine pesticides listed in Table 1. Elevated levels of fuel- and solvent-related compounds were detected; these are listed in Table 2.

Because of contaminants detected in the soda bottle sample, two liquid samples and two sediment samples (denoted as LT-001 and LT-002) were collected on May 22, 1992 for on-site field laboratory analysis (see Figure 1). These samples were also analyzed for VOCs and organochlorine pesticides (see Table 1); detected compounds are presented in Table 2. A replicate sample of LT-001 was analyzed at an off-site laboratory for Target Compound List (TCL) VOCs, TCL semivolatile organic compounds, TCL pesticides/polychlorinated biphenyls, and Target Analyte List inorganics using USEPA Contract Laboratory Program protocols; the results are listed in Table 2. On May 27, 1992, a third seep sample (LT-003) was collected in the same vicinity as the soda bottle sample and analyzed at the on-site field laboratory (Table 2).



SOURCE: USGS QUADRANGLE, BRUNSWICK, AND ORRS ISLAND, ME, DATED 1980, 1978. 7.5 MINUTE SERIES.

SCALE IN FEET

0 2,000 4,000

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LOCATION OF WEST RUNWAY STUDY AREA

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

WEST RUNWAY STUDY AREA
PRELIMINARY ASSESSMENT REPORT

7126-02

FIGURE 1

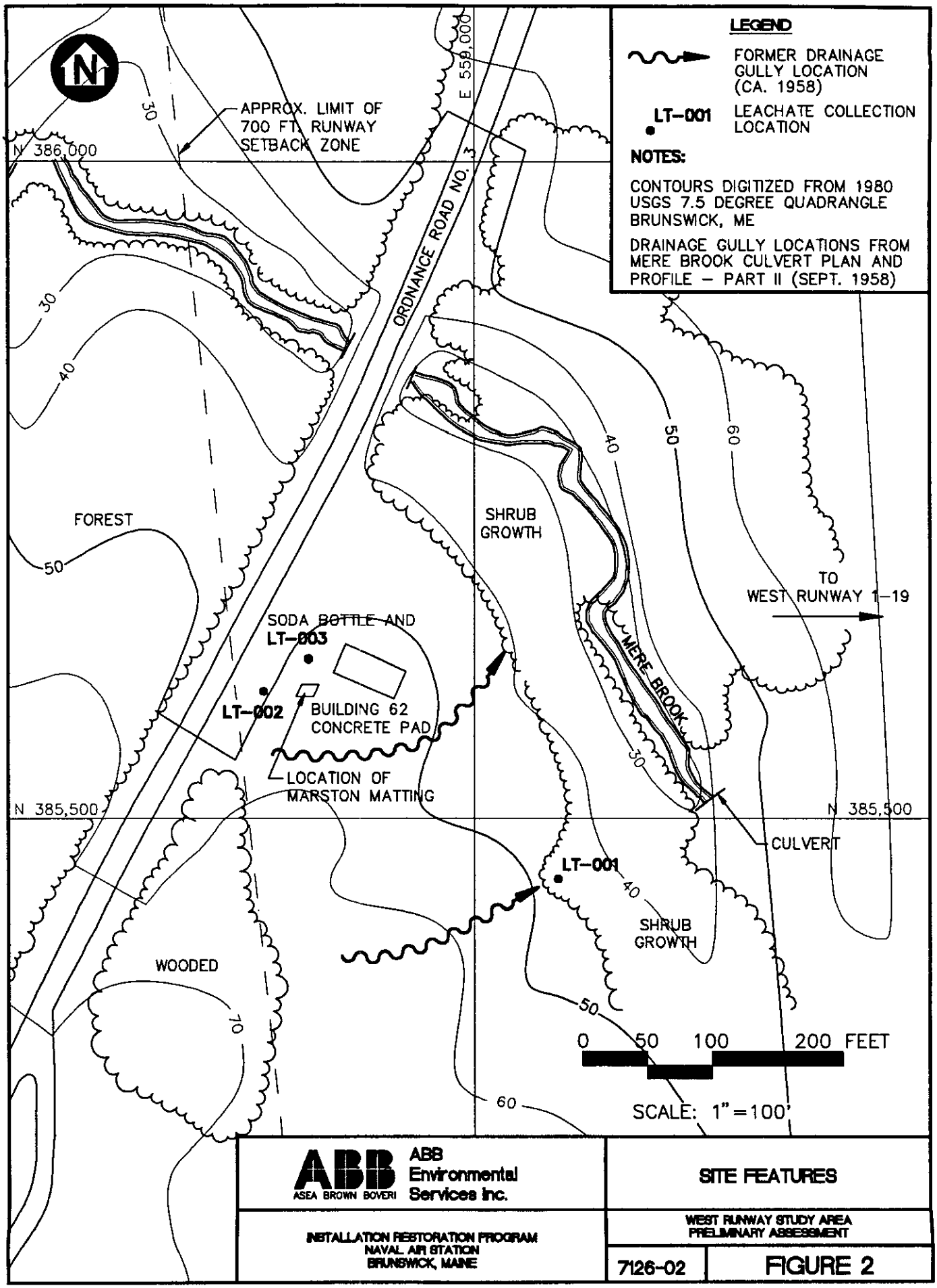

LEGEND
FORMER DRAINAGE GULLY LOCATION (CA. 1958)
LT-001 LEACHATE COLLECTION LOCATION
NOTES:
CONTOURS DIGITIZED FROM 1980 USGS 7.5 DEGREE QUADRANGLE BRUNSWICK, ME
DRAINAGE GULLY LOCATIONS FROM MERE BROOK CULVERT PLAN AND PROFILE – PART II (SEPT. 1958)
N
APPROX. LIMIT OF 700 FT. RUNWAY SETBACK ZONE
N 386,000
E 559,000
ORDNANCE ROAD NO. 3
FOREST
SHRUB GROWTH
TO WEST RUNWAY 1–19
MERE BROOK
SODA BOTTLE AND LT-003
LT-002
BUILDING 62 CONCRETE PAD
LOCATION OF MARSTON MATTING
N 385,500
CULVERT
LT-001
SHRUB GROWTH
WOODED
0 50 100 200 FEET
SCALE: 1"=100'
ABB Environmental Services Inc.
ASEA BROWN BOVERI
SITE FEATURES
INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE
WEST RUNWAY STUDY AREA
PRELIMINARY ASSESSMENT
7126-02
FIGURE 2
Z:\7126-02\7126F003

TABLE 1
COMPOUNDS ANALYZED FOR DURING FIELD SCREENING

WEST RUNWAY STUDY AREA PRELIMINARY ASSESSMENT
NAS BRUNSWICK

VOCs	PESTICIDES
Vinyl chloride	alpha-, beta-, delta-BHC
1,1-Dichloroethene	Lindane
cis-1,2-Dichloroethene	Heptachlor
trans-1,2-Dichloroethene	Aldrin
1,1-Dichloroethane	Heptachlor epoxide
1,1,1-Trichloroethane	Endosulfan I and II
Carbon tetrachloride	4,4'-DDE
Trichloroethene	Dieldrin
Tetrachloroethene	Endrin
Benzene	4,4'-DDD
Toluene	4,4'-DDT
Ethylbenzene	Endrin aldehyde
Xylenes	Endosulfan sulfate
	Methoxychlor
	Endrin ketone

Notes:

VOCs = Volatile organic compounds

W0129285.080/1

TABLE 2
ANALYTICAL RESULTS[a]

WEST RUNWAY STUDY AREA PRELIMINARY ASSESSMENT
NAS BRUNSWICK

COMPOUND/ANALYTE	SODA BOTTLE	LT-001 WATER	LT-001 SEDIMENT	LT-002 WATER	LT-002 SEDIMENT	LT-003[b] WATER	PQL/CRQL/ CRDL
Field Screening Results							
1,1-Dichloroethene	52,434	<2.5	<2.5	<2.5	<2.5	<2.5/<2.5	2.5
Trichloroethene	188	<5.0	<5.0	<5.0	<5.0	<5.0/<5.0	5.0
Tetrachloroethene	12,124	<2.5	<2.5	<2.5	<2.5	<2.5/3.7	2.5
Toluene	121,332	<5.0	<5.0	<5.0	<5.0	<30/43	5.0
Ethylbenzene	45,930	<5.0	<5.0	<5.0	<5.0	<5.0/<5.0	5.0
m/p-Xylene	126,597	<5.0	<5.0	<5.0	<5.0	<5.0/<5.0	5.0
o-Xylene	32,333	<5.0	<5.0	<5.0	<5.0	<5.0/<5.0	5.0
4,4'DDT	NA	<200	<102	<200	<31	<24/NA	200
4,4'DDD	NA	<100	<49	<100	<100	<13/NA	100
Lindane	NA	<100	<16	<100	<100	<100/NA	100
CLP Results							
Toluene	NA	3.3	NA	NA	NA	NA/NA	1.0
Aluminum	NA	13,700	NA	NA	NA	NA/NA	100
Iron	NA	54,300	NA	NA	NA	NA/NA	100

TABLE 2
ANALYTICAL RESULTS[a]

WEST RUNWAY STUDY AREA PRELIMINARY ASSESSMENT
NAS BRUNSWICK

COMPOUND/ANALYTE	SODA BOTTLE	LT-001 WATER	LT-001 SEDIMENT	LT-002 WATER	LT-002 SEDIMENT	LT-003[b] WATER	PQL/CRQL/ CRDL
Lead	NA	18.9	NA	NA	NA	NA/NA	2.0
Zinc	NA	57.7	NA	NA	NA	NA/NA	20

Notes:

[a] units are in micrograms per liter (µg/L)
[b] Sample was analyzed twice in the field
PQL = Practical Quantitation Limit for Field Screening
CRQL = Contract Required Quantitation Limit for CLP Results for Organic Analytes
CRDL = Contract Required Detection Limit for CLP Results for Inorganic Analytes
CLP = Contract Laboratory Program
NA = Not Analyzed
< (XX) = Non-Detect

3.2 RESULTS OF THE PRELIMINARY ASSESSMENT

Interviews with available NAS Brunswick personnel (i.e., from Weapons and Explosive Ordnance Disposal) and a review of available aerial photographs revealed that the seep is southwest of a 22-by-50-foot concrete pad from a former high-explosive magazine, known as Building (or Bunker) No. 62. This building was one of eight similarly built structures located on Ordnance Road No. 3 to store high-explosive ammunition (i.e., 250-, 500-, and 750-pound solid-propellant bombs). The exact time of construction for Building No. 62 could not be established, although the interviewees speculated it was constructed in the early 1940s. Activity on this side of the base during World War II was heavy during the wartime effort and again in 1953 with construction of NAS Brunswick's main runways. Communication and navigation equipment was installed west of Ordnance Road No. 3 in the mid-1950s. Since the 1950s, activity in this area of the base has been minimal and access is restricted. Building No. 62 was probably not used for munitions storage after World War II, but could have been used for storage of equipment until it was dismantled sometime between 1972 and 1978. A concrete pad measuring 22 feet wide and 50 feet long is all that remains of Building No. 62.

Available aerial photographs of this area (i.e., 1940, 1959, 1965, 1966, 1972, 1978, 1980) were studied for obvious signs of disposal activity; the review did not confirm the speculation that this area was used for waste disposal. There were no visible traffic patterns; however, a road was observed to the west of the seep, and a bunker-like structure did exist east of that location as late as 1972 (USEPA, 1987). The operational history described in the interviews was consistent with the aerial photograph review.

A site tour was conducted on December 16, 1992, by ABB-ES and NAS Brunswick personnel. The Building No. 62 concrete pad lies within the 700-foot setback zone from the runways, and evidence of recent groundwork activity was observed. The NAS Brunswick employee who collected the initial sample indicated the approximate sampling location; an orange-colored liquid was visible near the soda bottle sampling location and LT-001 during the site tour (see Figure 2). A watery fluid flowed from the hillside near LT-002 and a portion of "Marston matting" protruded from the ground (see Figure 2). According to NAS Brunswick personnel, Marston matting is a heavy gauge steel mesh installed at on-base locations where year-round, damp ground conditions can cause a vehicle to become stuck.

4.0 CONCLUSIONS

The nature of disposal activities, if any, near the seep remains unknown. The levels of contamination detected in the soda bottle sample were not reproduced in subsequent samples. Uncertainty exists regarding the past use of the soda bottle. Uncertainty remains regarding the operational history in this area of the base; a specific evaluation of environmental concerns is impossible without additional information. However, because of contaminant levels detected in the original sample, a site inspection should be conducted to confirm or deny the presence of contamination in this area.

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

ABB-ES	ABB Environmental Services, Inc.
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
FFA	Federal Facility Agreement
NAS	Naval Air Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
PA	preliminary assessment
TCL	Target Compound List
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

BIBLIOGRAPHY

U.S. Environmental Protection Agency (USEPA), 1987. *Site Analysis, Brunswick Naval Air Station, Brunswick, Maine*, Volume 2 (TS-PIC-86130); E.T. Slonecker, The Bionetics Corporation, Warrenton, Virginia; Prepared for the Office of Research and Development, Las Vegas, Nevada; April 1987.

U.S. Environmental Protection Agency (USEPA), 1988. "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA"; Office of Solid Waste and Emergency Response; OSWER Directive 9335.3-01; October 1988.

U.S. Environmental Protection Agency (USEPA), 1990. "National Oil and Hazardous Substance Pollution Contingency Plan"; 40 CFR Part 300, Washington, D.C.; March 8, 1990.

ATTACHMENT 2

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN:

WEST RUNWAY STUDY AREA

SITE INSPECTION WORK PLAN

NAVAL AIR STATION BRUNSWICK

BRUNSWICK, MAINE

Prepared for:

U.S. Department of the Navy
Naval Facilities Engineering Command
Northern Division
Contract: N62472-84-C-1108

Prepared by:

ABB Environmental Services, Inc.
Portland, Maine

Project No. 7126-02

APRIL 1993

HEALTH AND SAFETY PLAN
WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN

NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

TABLE OF CONTENTS

Section	Title	Page No.
1.0	GENERAL	1-1
1.1	SCOPE AND PURPOSE	1-1
1.2	HEALTH AND SAFETY PERSONNEL	1-1
1.2.1	Director of Health and Safety	1-1
1.2.2	Health and Safety Officer	1-1
1.3	TRAINING	1-2
1.4	MEDICAL SURVEILLANCE	1-2
2.0	SITE CHARACTERIZATION AND ANALYSIS	2-1
2.1	SITE NAME, LOCATION, AND SIZE	2-1
2.2	SCOPE OF WORK	2-1
2.3	SITE HISTORY	2-1
2.4	HAZARDOUS SUBSTANCES/CONDITIONS	2-3
2.5	INITIAL SITE ENTRY	2-5
2.5.1	Initial Level of Protection	2-5
2.5.2	Initial Monitoring	2-5
2.6	SITE RISKS	2-5
2.6.1	Health Hazards	2-5
2.6.2	Safety Hazards	2-5
2.6.3	Conclusions/Risk Assessment	2-6
3.0	SITE CONTROL	3-1
3.1	ZONATION	3-1
3.1.1	Exclusion Zone	3-1
3.1.2	Contamination Reduction Zone	3-1
3.1.3	Support Zone	3-2

HEALTH AND SAFETY PLAN
WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN

NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

TABLE OF CONTENTS
(continued)

Section	Title	Page No.
4.0	ENGINEERING CONTROLS, WORK PRACTICES, AND PERSONAL PROTECTIVE EQUIPMENT	4-1
4.1	ENGINEERING CONTROLS	4-1
4.2	WORK PRACTICES	4-1
4.3	PERSONAL PROTECTIVE EQUIPMENT	4-3
4.3.1	Levels of Protection	4-3
4.3.2	Other Protective Equipment	4-5
5.0	MONITORING	5-1
5.1	AIR SAMPLING: EQUIPMENT, CALIBRATION, AND MAINTENANCE	5-1
5.2	PERSONAL MONITORING: EQUIPMENT, MAINTENANCE, AND CALIBRATION	5-2
6.0	DECONTAMINATION/DISPOSAL	6-1
6.1	PERSONNEL DECONTAMINATION	6-1
6.2	SMALL EQUIPMENT DECONTAMINATION	6-3
6.3	DISPOSAL OF DECONTAMINATED MATERIALS	6-4
7.0	EMERGENCY/CONTINGENCY PLAN	7-1
7.1	PERSONNEL ROLES, LINES OF AUTHORITY, AND COMMUNICATION	7-1
7.2	EVACUATION	7-1
7.2.1	Withdrawal Upwind	7-1
7.2.2	Site Evacuation	7-2

HEALTH AND SAFETY PLAN
WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN

NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

TABLE OF CONTENTS
(continued)

Section	Title	Page No.
	7.2.3 Evacuation of Surrounding Area	7-2
	7.3 EMERGENCY MEDICAL TREATMENT/FIRST AID	7-2
8.0	OTHER	8-1
	8.1 ILLUMINATION	8-1
	8.2 SANITATION	8-1
9.0	ADMINISTRATIVE	9-1
	9.1 PERSONNEL AUTHORIZED DOWNRANGE	9-1
	9.2 HASP APPROVALS	9-3
	9.3 FIELD TEAM REVIEW	9-4
	9.4 MEDICAL DATA SHEET	9-5

GLOSSARY OF ACRONYMS

APPENDICES

APPENDIX A	-	CHRIS DATA SHEETS/MATERIAL SAFETY DATA SHEETS FOR CONTAMINANTS OF CONCERN
APPENDIX B	-	TEMPERATURE EXTREMES
APPENDIX C	-	EXCAVATION AND TRENCHING
APPENDIX D	-	CONFINED SPACE ENTRY PROCEDURES
APPENDIX E	-	OSHA JOB SAFETY & HEALTH PROTECTION POSTER
APPENDIX F	-	EMERGENCY INFORMATION

HEALTH AND SAFETY PLAN
WEST RUNWAY STUDY AREA
SITE INSPECTION WORK PLAN

NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

LIST OF FIGURES

Figure	Title	Page No.
1	Location of West Runway Study Area	2-2
2	Area of Exploration	2-4
3	Typical Personnel Decontamination Station	6-2

1.0 GENERAL

1.1 SCOPE AND PURPOSE

This Health and Safety Plan (HASP) was prepared in accordance with the ABB Environmental Services, Inc. (ABB-ES) Health and Safety Program, and is intended to meet the requirements found in 29 Code of Federal Regulations (CFR) 1910.120. As such, the HASP addresses all activities associated with field operations at Naval Air Station (NAS) Brunswick. Compliance with this HASP is required of all ABB-ES personnel, contractor personnel, or third parties entering the site.

1.2 HEALTH AND SAFETY PERSONNEL

The following subsections briefly describe the health and safety designations and general responsibilities that will be employed for the NAS Brunswick project.

1.2.1 Director of Health and Safety

The Director of Health and Safety (DHS) for ABB-ES, Cynthia Sundquist, can be reached at Telephone: (207) 775-5401, in Portland, Maine. The DHS has final authority to resolve health and safety issues that are not resolved at the site, and has overall responsibility for ensuring that the policies and procedures of this HASP are implemented by the Health and Safety Officer (HSO). The DHS will be responsible for (1) approval of the individual chosen to serve as the site HSO for this field operation; (2) review and approval of site-specific HASPs developed by the HSO, as well as any significant changes made over time to the site HASP; (3) oversight of the daily efforts of the HSO; (4) resolution of site disputes involving health and safety issues; and (5) implementation of the HASP by the HSO. The HSO will notify the DHS of any Stop Work Orders issued.

1.2.2 Health and Safety Officer

The HSO is responsible for implementing this site-specific HASP in accordance with the ABB-ES Health and Safety Program. The HSO will conduct safety inspections and investigate all accidents, illnesses, and incidents occurring on-site. The HSO will also conduct safety briefings and site-specific training for on-site personnel. As necessary, the HSO or designated alternate will accompany all U.S. Environmental Protection Agency (USEPA), Occupational Safety and Health Administration (OSHA), or other governmental agency personnel visiting the site in response to health and safety issues. The HSO, in consultation with the DHS, is responsible for updating and modifying this HASP as site or environmental conditions change.

The HSO is vested with the authority to stop site operations (i.e., Stop Work Authority) if he/she determines that an imminent health or safety hazard or other potentially dangerous situation exists. The HSO is to immediately notify the DHS of any Stop Work Orders issued. The HSO may also recommend to the DHS that the downrange authorization of individual site personnel be revoked for health and/or safety reasons.

The HSO, through the DHS, ensures that all personnel entering the NAS Brunswick site are qualified for downrange deployment, in accordance with the ABB-ES Health and Safety Program requirements.

1.3 TRAINING

Training, as defined under the ABB-ES Health and Safety Program, Section 4.5.3, and meeting the requirements of 29 CFR 1910.120, is required for all personnel entering potentially contaminated areas of this site. Personnel without the required training will not be permitted in a downrange position.

1.4 MEDICAL SURVEILLANCE

All personnel entering potentially contaminated areas of this site must be medically qualified for site assignment as determined by a medical surveillance program, such as that outlined in the ABB-ES Health and Safety Program, Section 3.0. Personnel without medical clearance will not be permitted in a downrange position.

2.0 SITE CHARACTERIZATION AND ANALYSIS

2.1 SITE NAME, LOCATION, AND SIZE

NAS Brunswick is located in the City of Brunswick, Cumberland County, Maine, about 25 miles northeast of Portland (Figure 1). The base property covers approximately 3,091 acres.

2.2 SCOPE OF WORK

During the field investigation, a number of invasive field activities will be carried out by ABB-ES. Following is a listing of these activities with a brief description of how health and safety hazards might be encountered.

Magnetometer/GPR Survey	Minimum health risk on site. Exposure to hazardous materials unlikely.
Sampling	Exposure to hazardous substances is possible while sampling soil, surface water, and sediments in and near the source area. Use of appropriate safety measures will be required.

2.3 SITE HISTORY

NAS Brunswick is the operating base for the Navy's Patrol Wing Five. The base provides logistic and maintenance support for the wing's aviation squadrons operating Lockheed P3 Orion Surveillance aircraft. Air crews fulfill various surface and subsurface reconnaissance missions in support of aircraft carrier battle groups, antisubmarine operations, illegal drug interdiction, and search and rescue. NAS Brunswick covers 3,091 acres between Brunswick and Bath, Maine. The station is bordered by Route 1 and the Androscoggin River to the north, residential areas to the east, Brunswick's business district to the west, and Harpswell Cove's peninsulas, mudflats, and tidal marshes to the south.

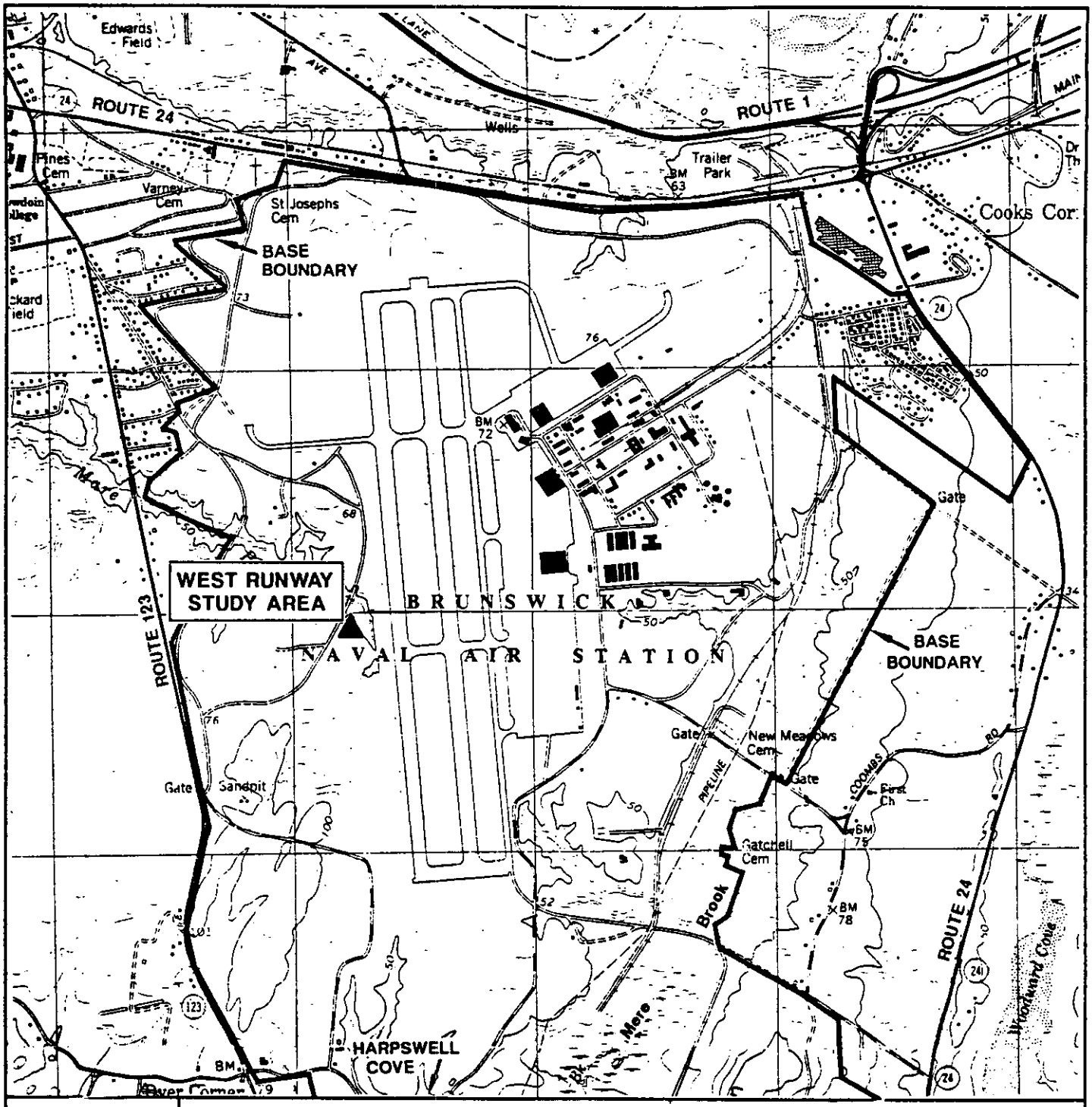


ABB Environmental Services Inc.

ASEA BROWN BOVERI

LOCATION OF WEST RUNWAY STUDY AREA

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

WEST RUNWAY STUDY AREA

7126-02

FIGURE 1

The "West Runway Study Area" is a newly identified area located within a 700-foot setback zone that recently had been graded along the west side of West Runway 1-19 (Figure 2). Clearing and leveling of the flightline setback zone began in 1986 and continued into 1992. In the spring of 1992, an employee of NAS Brunswick observed a liquid (described as "shiny, like a water running over a rock"), seeping from a hillside while traveling in a restricted access area along Ordnance Road No. 3.

The employee collected a sample, in a soda bottle, approximately 650 feet west of Runway 1-19, between Mere Brook and Ordnance Road No. 3 (see Figures 1 and 2).

The sample in the soda bottle was analyzed by a field laboratory for volatile organic compounds (VOCs) and organochlorine pesticides. Elevated levels of fuel- and solvent-related compounds were detected.

On May 22, 1992, two liquid and two sediment samples were collected for on-site field laboratory analysis of VOCs and organochlorine pesticides. A replicate sample was sent to an off-site laboratory for Target Compound List (TCL) VOCs, TCL semivolatile organic compounds, TCL pesticides/polychlorinated biphenyls, and Target Analyte List inorganics. The levels of contamination detected in the soda bottle sample were not reproduced in the subsequent samples. After interviewing base personnel and reviewing aerial photographs it was determined that the seep is southwest of an abandoned high-explosive magazine, formerly known as Building No. 62. This building was one of eight similarly built structures located along Ordnance Road No. 3 to store high explosive ammunition. Construction of the building was speculated to be around the early 1940s. Communication and navigation equipment was installed west of Ordnance Road in the mid 1950s. Since the 1950s, activity in this area of the base has been minimal and access restricted. Building No. 62 was dismantled sometime between 1972 and 1978.

2.4 HAZARDOUS SUBSTANCES/CONDITIONS

On-site field analysis of the soda bottle sample detected 52.4 ppm 1,1-dichloroethylene (1,1-DCE), 12.1 ppm tetrachloroethylene, 121.3 ppm toluene, 45.9 ppm ethylbenzene, and a total of 158.9 ppm of xylenes. A lesser amount of trichloroethylene (0.188 ppm) was also found. Subsequent soil and water samples did not duplicate the initial soda bottle sample results.

Figure 2 Area of Exploration

2.5 INITIAL SITE ENTRY

2.5.1 Initial Level of Protection

All sites require OSHA Level D or modified Level D protection for site entry. Upgrades will be based on the results of field measurements with monitoring equipment. Initial site entry has been completed at all sites at this time.

2.5.2 Initial Monitoring

Where the development of site information either shows the potential for or is unable to rule out the possibility of ionizing radiation or "immediately dangerous to life or health" (IDLH) conditions, initial monitoring will consist (at a minimum) of an ionizing radiation survey (using a Radiation Monitor 4) and air monitoring using devices such as a combustible gas indicator, oxygen meter, and photoionization (PI) meter. Any readings from monitoring equipment that exceed background will be evaluated to determine if upgrading to OSHA Level C protection or greater is required.

2.6 SITE RISKS

2.6.1 Health Hazards

Table 1 lists the health hazards that site personnel are anticipated to encounter as a result of site conditions and operations. Section 2.6.3 details the specific health and safety procedures that will be implemented at each site.

2.6.2 Safety Hazards

Workers should use caution when lifting heavy or awkward objects to avoid back/ shoulder strain. Mechanical aids will be used if possible. Otherwise, two workers will be used to lift heavy objects. Care must be taken when walking over rough or snowy/icy terrain to avoid slips and falls. Stand well away from the backhoe when test pitting to avoid accidentally being struck by the swing of the bucket. Stay well away from the edge (i.e., at least 2 feet) of the test pit to avoid falling in from being accidentally bumped or from cave in of soil around the edge of the pit. Do not enter

test pit unless no other option is available. Remote sampling equipment will be used if at all possible. If entry into the test pit is required, the walls of the pit will be properly sloped or shored (see Appendix D) and workers will follow proper confined space entry procedures (see Appendix E). Monitor yourself and co-workers for cold stress or heat stress (see Appendix B) based on weather conditions.

2.6.3 Conclusions/Risk Assessment

The amount of health risks presented to field workers who will be on site during the field operations at NAS Brunswick vary according to the site and activity to be performed. Specific health and safety procedures for monitoring, levels of protection, and upgrades and downgrades of levels of protection are described in the following subsections.

Surveying. Surveying is non-intrusive, although PI meter readings of ambient air during surveying will be required. No elevated ambient readings are anticipated. Level D personal protective equipment (PPE) will be used.

Test Pitting. The initial level of protection for the test pitting operation is modified Level D. Workers will monitor the breathing zone with a PI meter and vinyl chloride 0.5/a Draeger Tube (to detect 1,1-DCE). If 1,1-DCE levels reach or exceed 1 ppm, workers will upgrade to Level B. If 1,1-DCE levels are below 1 ppm, work can continue at Modified Level D until PI meter readings reach or exceed 11 ppm at which time Level C is required. Upgrade to Level B if PI meter readings reach or exceed 550 ppm in the breathing zone.

The above action levels are summarized below:

Level B required if:

PI meter reading $\geq$ 550 ppm; or
1,1-DCE (as read on the vinyl chloride 0.5/a Draeger Tube) $\geq$ 1 ppm

Level C required if:

PI meter reading < 550 ppm but > 11 ppm; and/or
1,1 DCE (as read on the vinyl chloride 0.5/a Draeger Tube) < 1 ppm

Modified Level D acceptable if:

PI meter reading < 11 ppm
1,1 DCE (as read on the vinyl chloride 0.5/a Draeger Tube) < 1 ppm

3.0 SITE CONTROL

3.1 ZONATION

The site itself will normally be divided into three zones: the majority of the work area will be considered the Exclusion Zone, with limited areas serving as the Support Zone, and an area for decontamination called the Contamination Reduction Zone (CRZ).

3.1.1 Exclusion Zone

The Exclusion Zone isolates the area of contaminant generation and restricts (to the extent possible) the spread of contamination from active areas of the site to support areas and off-site locations. The Exclusion Zone is demarcated by the Hot Line (i.e., a cape line or physical barrier). Personnel entering the Exclusion Zone must (1) enter through the CRZ; (2) wear the prescribed level of protection (see Section 4.3.1); and (3) be otherwise authorized to enter the Exclusion Zone (see Sections 1.3, 1.4, and 9.1). Any personnel, equipment, or materials exiting the Exclusion Zone will be considered contaminated. Personnel will be subject to decontamination; equipment and materials will either be subject to decontamination or containerized in uncontaminated devices.

Within the Exclusion Zone, specific locations or restricted areas (clearly marked or identified) will be established as necessary for particular locations or around specific site operations. In the case of well drilling or excavation operations, a restricted area will be established that includes a minimum 30-foot radius from the drill rig or excavation operation. Other restricted areas may include drum areas, active site areas, sources of combustible gases or air contaminants, or other dangerous areas as they are identified. Specific access for emergency services to areas of specific site operations will be established.

3.1.2 Contamination Reduction Zone

Moving out from the Exclusion Zone, starting at the Hot Line and continuing to the Contamination Control Line, is the CRZ. The CRZ is a transition zone between contaminated and uncontaminated areas of the site. When "hot" or contaminated personnel, equipment, or materials cross the Hot Line, they are assumed to be as "hot" or contaminated as they are going to be from site operations. Being subjected

to the decontamination process, they become less contaminated; when they reach the Contamination Control Line, they are clean and can exit this zone without spreading contamination.

Within the CRZ is the Contamination Reduction Corridor, where materials necessary for full personnel and portable equipment decontamination are kept. A separate facility will be established for heavy equipment decontamination. In addition, certain safety equipment (e.g., emergency eye wash, fire extinguisher, stretcher, and first aid kit) are staged in this zone.

3.1.3 Support Zone

The Support Zone is the outermost zone of the site, separated from the CRZ by the Contamination Control Line; it is considered a clean area. Movement of personnel and materials from this zone into the CRZ is generally unrestricted, except as required through access points controlled for administrative purposes. However, only uncontaminated/decontaminated personnel or materials may enter this zone from the CRZ.

The Support Zone contains the necessary support facilities (including personal hygiene facilities) for site operations. It also serves as the communications center and source of emergency assistance for operations in the Exclusion Zone and CRZ. A log of all persons entering the site will be maintained by the HSO, the field operations leader, or the site designee.

3.2 MEDICAL ASSISTANCE

The primary source of medical assistance for the NAS Brunswick site is:

Parkview Memorial Hospital
Maine Street
Brunswick, ME
(207) 729-9941

The alternate source of medical assistance is:

Regional Memorial Hospital
Baribeau Drive
Brunswick, ME
(207) 729-0181

4.0 ENGINEERING CONTROLS, WORK PRACTICES, AND PERSONAL PROTECTIVE EQUIPMENT

4.1 ENGINEERING CONTROLS

No engineering controls are necessary for conducting work at NAS Brunswick.

4.2 WORK PRACTICES

Workers are expected to adhere to established safe work practices for their respective specialties (e.g., TerraProbe Investigations and sampling). The need to exercise caution in the performance of specific work tasks is made more acute due to (1) weather conditions; (2) restricted mobility and reduced peripheral vision caused by protective gear; (3) the need to maintain the integrity of the protective gear; and (4) the increased difficulty in communication caused by respirators. Work at the site will be conducted according to established protocols and guidelines for the safety and health of all involved. Among the most important of these principles for working at a hazardous waste site are the following:

- In any unknown situation, always assume the worst conditions and plan responses accordingly.

- Use the buddy system. Under no conditions will any person be permitted to enter an Exclusion Zone alone. Establish and maintain communication. In addition to radio communications, it is advisable to develop a set of hand signals, because conditions may greatly impair verbal communications.

- Because no personal protective equipment is 100-percent effective, all personnel must minimize contact with excavated or contaminated materials. Plan work areas, decontamination areas, and procedures accordingly. Do not place equipment on drums or the ground. Do not sit on drums or other materials. Do not sit or kneel on the ground in the Exclusion Zone or CRZ. Avoid standing in or walking through puddles or stained soil.

- Smoking, eating, or drinking in the work area and before decontamination will not be allowed. Oral ingestion of contaminants is the second most likely means of introducing toxic substances into the body (inhalation is the first).

- Avoid heat and other work stresses related to wearing protective gear. Work breaks should be planned to prevent stress-related accidents or fatigue.

- To the extent feasible, handling of contaminated materials should be done remotely, particularly when drummed or other containerized hazardous waste materials are found on-site. Every effort should be made to identify the contents of containers found on-site before they are subject to material-handling applications.

- Personnel must be observant of not only one's own immediate surroundings, but also those of others. Everyone will be working under constraints; therefore, a team effort is needed to notice and warn of impending dangerous situations. Extra precautions are necessary when working near heavy equipment and while utilizing personal protective gear because vision, hearing, and communication can be restricted.

- Contact lenses are not allowed to be worn on-site; if corrosive or lachrymose substances enter the eyes, proper flushing is impeded.

- All facial hair that interferes with the face-piece fit must be removed prior to donning a respirator at all sites requiring Level C or B protection.

- Rigorous contingency planning and dissemination of plans to all personnel minimizes the impact of rapidly changing safety protocols in response to changing site conditions.

- Personnel must be aware that chemical contaminants may mimic or enhance symptoms of other illnesses or intoxication. Avoid excess use of alcohol or working while ill during field investigation assignments.

- The site leader, HSO, and sampling personnel will maintain project records in a bound notebook (e.g., daily activities, meetings, incidents,

and data). Notebooks will remain on-site for the duration of the project so that replacement personnel may add information, thereby maintaining continuity. These notebooks and daily records will become part of the permanent project file.

4.3 PERSONAL PROTECTIVE EQUIPMENT

4.3.1 Levels of Protection

The following descriptions provide the basic composition of the generally recognized protective ensembles to be used for site operations. Specific components for any level of protection will be selected based on hazard assessment; additional elements will be added as necessary. Disposable protective clothing, gloves, and other equipment, exclusive of respirators, should be used when feasible to minimize risks during decontamination and possible cross-contamination during sample handling.

OSHA Level A

- pressure-demand full-face piece atmosphere supplying respirator (ASR) (if ASR is an airline respirator, it must have an escape self-contained breathing apparatus [SCBA])
- fully encapsulating, chemical-resistant suit
- inner chemical-resistant gloves
- chemical-resistant safety boots/shoes
- two-way radio communications
- cooling unit*
- coveralls*
- hardhat*
- disposable gloves and boot covers*

OSHA Level B

- Pressure-demand full-face piece ASR (if ASR is an airline respirator, it must have an escape SCBA)
- chemical-resistant clothing (i.e., coveralls and long-sleeved jacket; hooded, one- or two-piece chemical-splash suit; disposable chemical-resistant one-piece suit)
- inner and outer chemical-resistant gloves
- chemical-resistant safety boots/shoes
- hardhat
- two-way radio communications
- coveralls*
- disposable boot covers*
- face shield*
- long cotton underwear*

OSHA Level C

- full-face piece; air-purifying respirator with appropriate sorbents
- chemical-resistant clothing (i.e., coveralls and long-sleeved jacket; hooded, one- or two-piece chemical-splash suit; disposable chemical-resistant one-piece suit)
- inner and outer chemical-resistant gloves
- chemical-resistant safety boots/shoes
- hardhat

- two-way radio communications
- coveralls*
- disposable boot covers*
- face shield*
- escape mask*
- long cotton underwear*

OSHA Modified Level D

- Level C equipment without the use of a cartridge respirator.

OSHA Level D

- coveralls
- safety boots/shoes
- safety glasses or chemical-splash goggles
- hardhat
- gloves*
- escape mask*
- face shield*

*optional items

4.3.2 Other Protective Equipment

No other personal protection equipment is necessary on site.

5.0 MONITORING

The work environment will be monitored to ensure that IDLH or other dangerous conditions are identified. At a minimum, monitoring will include evaluations for combustible atmospheres, oxygen-deficient environments, hazardous concentrations of airborne contaminants, and radioactivity.

5.1 AIR SAMPLING: EQUIPMENT, CALIBRATION, AND MAINTENANCE

To the extent feasible, the presence of airborne contaminants will be evaluated through the use of direct-reading instrumentation. Information gathered will be used to insure the adequacy of the levels of protection being employed at the site, and may be used as the basis for upgrading or downgrading levels of protection, at the discretion of the site HSO.

The PI meter (e.g., HNU, Photovac TIP or Thermoenvironmental Photoionization Detector (PID), or equivalent) will be used on a constant basis during exploration activities.

- HNU IS101 Photovac TIP or Thermoenvironmental PID. The PI meter operates on the basis of ionization of the contaminant, which results in a meter deflection proportional to the concentration of the contaminant. In the PI meter, ionization is caused by a ultraviolet (UV) light source. The strength of the UV (measured in electron volts [eV]) determines which contaminants can be ionized. The HNU can use three different UV sources, including 9.6, 10.2, and 11.7 eV. Only the 10.2- and 11.7-eV probes are currently available for field use. The TIP operates using a UV light source of 10.6 eV and the Thermoenvironmental PID uses a UV light source of 10.0 eV. Calibration and maintenance will be performed in accordance with the manufacturer's instructions.

- ISD Dual Detector. This meter monitors for combustible gases and oxygen. It can be used to determine (1) if an area contains concentrations of combustible gases with readings in percentage of the lower explosive limit (LEL); and (2) the percentage of oxygen. This equipment is calibrated in accordance with manufacturer's instructions.

- Detector Tubes. A colorimetric detector tube is a direct-reading instrument consisting of a glass tube impregnated with an indicating chemical which is connected to a piston cylinder or bellows-type pump. A known volume of air is drawn through the glass tube. The contaminant in the air reacts with the indicator chemical, producing a stain the length of which is proportional to the contaminant's concentration. Care must be taken when using the detector tubes because reliability of the results depends on the proper pump calibration, the degree of stability of the reacting chemical and the ambient temperature. Interfering gases or vapors can also positively or negatively affect measured results. Calibration and maintenance will be done in accordance with the manufacturer's instructions.

- Radiation Monitor 4. This meter monitors for the presence of ionizing radiation. It directly reads total alpha-, beta-, gamma-, and X-ray radiation in milliRems per hour (mRem/hour). Calibration is not performed. The Radiation Monitor 4 senses ionizing radiation by means of a Geiger-Mueller tube with a thin mica end window. About 5 to 25 counts, at random intervals, can be expected every minute from naturally occurring radiation (i.e., 0.005 to 0.025 mRem/hour.)

- Gas Filled Radiation Detector. This meter monitors for gamma-ray radiation measured in pico curies. The meter, such as the Geiger-Mueller pancake probe with a ratemeter, detects radiation that interacts with the gas and produces ion pairs which are collected by charged electrodes.

- Sodium-Iodide Scintillator Probe. Radiation interacting with a solid or liquid medium results in a small flash of light, known as a scintillation, which is converted to an electrical signal by a photomultiplier tube. The probe scans for a direct measurement of gamma radiation in curies or mRem per hour.

5.2 PERSONAL MONITORING: EQUIPMENT, MAINTENANCE, AND CALIBRATION

In addition to the air monitoring equipment described in Section 5.1, all ABB-ES personnel will be wearing thermoluminescent dosimetry (TLD) Badges. These are nonmechanical devices used to monitor for X-ray, beta-, and gamma-radiation

exposure. They are worn by ABB-ES employees and sent to Tech/Ops Landauer, Inc. for analysis on a quarterly basis.

6.0 DECONTAMINATION/DISPOSAL

All personnel and/or equipment leaving contaminated site areas are subject to decontamination in the CRZ (see Section 3.1).

6.1 PERSONNEL DECONTAMINATION

Decontamination procedures are followed by all personnel leaving hazardous waste sites. Under no circumstances (except emergency evacuation) will personnel be allowed to leave the site prior to decontamination. The layout of a typical personnel decontamination station is presented in Figure 3. Generalized procedures for removal of protective clothing are as follows:

1. Drop tools, monitors, samples, and trash at designated drop stations (i.e., plastic containers or drop sheets).

2. Step into the designated shuffle pit area and scuff feet to remove gross amounts of dirt from outer boots.

3. Scrub outer boots and outer gloves with decon solution or detergent and water. Rinse with water.

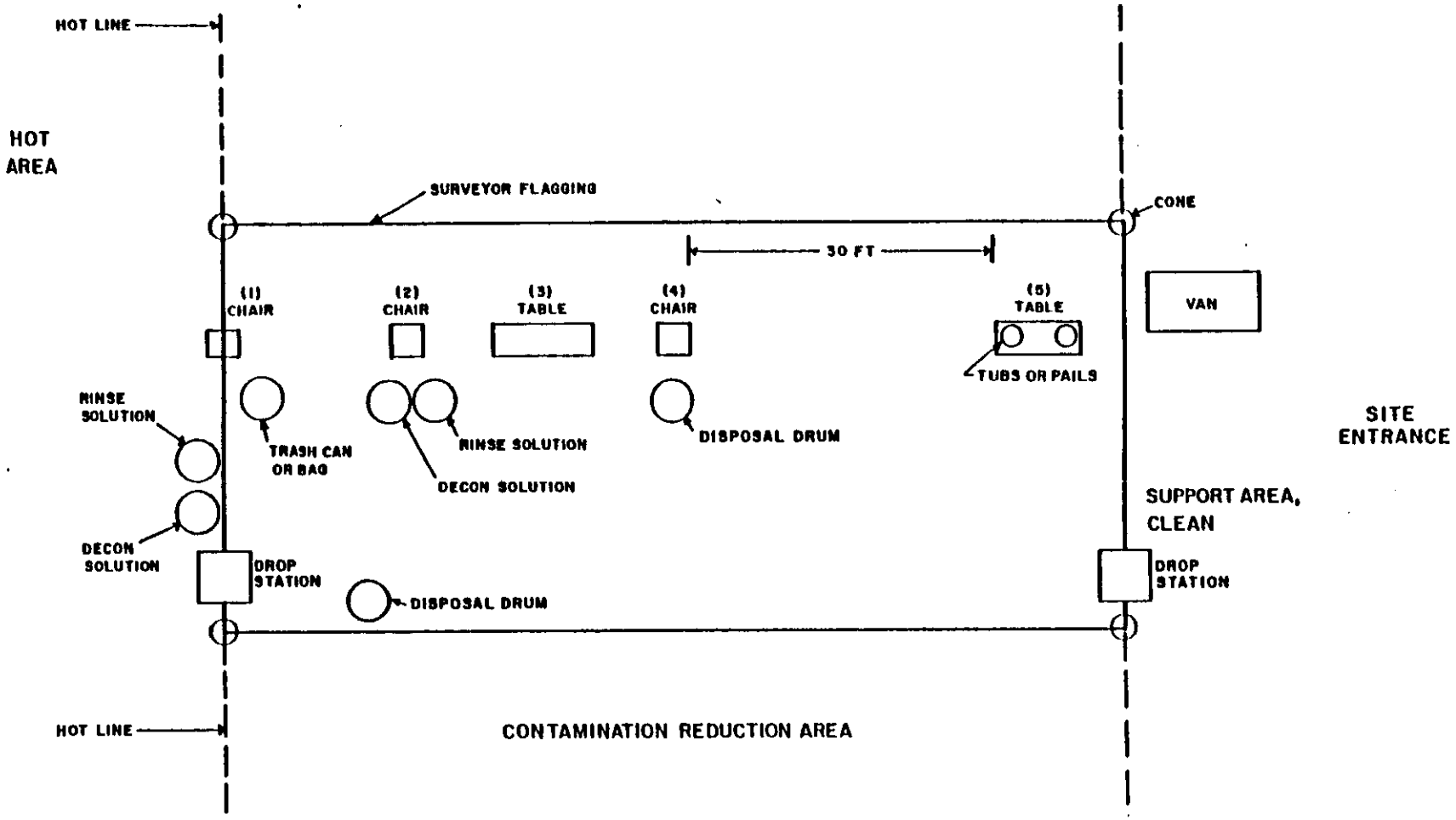
4. Remove tape from outer boots and remove boots; discard in disposal container.

5. Remove tape from outer gloves and remove gloves; discard in disposal container.

6. If the worker has left the exclusion zone to change the air tank on his/her SCBA, or the canister on his/her air purifying respirator, this is the last step in the decontamination procedure. The tank or cartridge should be exchanged, new outer gloves and boot covers donned, the joints taped, and the worker returns to duty.

7. Remove outer garments and discard in disposal container.

8. Remove respirator and place or hang in the designated area.



TASK

(1) Wash boots
(2) Wash gloves–Rinse gloves
(3) SCBA Tank change over table w/spare tanks
(4) Remove boots, gloves
(5) Remove SCBA, wash mask in pails or tubs

NOT TO SCALE

FIGURE 3
TYPICAL PERSONNEL DECONTAMINATION STATION

EC JORDAN CO

9. Remove inner gloves and discard in disposal container.

10. If the site requires use of a decontamination trailer, all personnel must shower before leaving the site at the end of the work day.

NOTE: Disposable items (i.e., Tyvek coveralls, inner gloves, and latex overboots) will be changed on a daily basis unless there is reason to change sooner. Dual respirator canisters will be changed daily, unless more frequent changes are deemed appropriate by site surveillance data or personnel assessment.

Pressurized sprayers or other designated equipment will be available in the decontamination area for wash down and cleaning of personnel, samples, and equipment.

Respirators will be decontaminated daily and taken from the drop area. The masks will be dissembled, the cartridges set aside, and all other parts placed in a cleansing solution. Parts will be pre-coded (e.g., #1 on all parts of Mask #1). After an appropriate time in the solution, the parts will be removed and rinsed with tap water. Old cartridges will be marked to indicate length of usage (i.e., if means to evaluate the cartridges' remaining utility are available) or will be discarded in the contaminated trash container for disposal. In the morning, the masks will be reassembled and new cartridges installed, if appropriate. Personnel will inspect their own masks and readjust the straps for proper fit.

6.2 SMALL EQUIPMENT DECONTAMINATION

Small equipment will be protected from contamination as much as possible by draping, masking, or otherwise covering the instruments with plastic (to the extent feasible) without hindering operation of the unit. For example, the HNU meter can be placed in a clear plastic bag to allow reading the scale and operating the knobs. The HNU sensor can be partially wrapped, keeping the sensor tip and discharge port clear.

The contaminated equipment will be taken from the drop area and the protective coverings removed and disposed of in appropriate containers. Any dirt or obvious contamination will be brushed or wiped with a disposable paper wipe. The units can

then be taken inside in a clean plastic tub, wiped off with damp disposable wipes, and dried. The units will be checked, standardized, and recharged as necessary for the next day's operation, and then prepared with new protective coverings.

6.3 Disposal of Decontaminated Materials

The decontamination fluids (for both personal and equipment) will be disposed at each site. Decontamination fluids, used to decontaminate sampling equipment (e.g., split spoons and groundwater sampling pump) will be disposed on the ground surface at each exploration site or sampling location, or in a designated decontamination area at each site. Disposable materials (e.g., gloves and Tyveks) will be bagged and disposed in site dumpsters. Disposable materials or decontamination fluids with significant contamination ($\geq$5 ppm on the PID in airspace above material in question) will be containerized and disposed of properly.

7.0 EMERGENCY/CONTINGENCY PLAN

This section identifies the emergency contingency planning undertaken for operation at this site. Other sections provide further information to be used under emergency conditions. Refer to Appendix D for emergency telephone numbers, routes to emergency medical facilities, and emergency signals.

7.1 PERSONNEL ROLES, LINES OF AUTHORITY, AND COMMUNICATION

The site HSO is the primary authority for directing site operations under emergency conditions. All communications both on- and off-site will be directed through the HSO.

7.2 EVACUATION

In the event that a site may have to be evacuated, contingency plans will be discussed by the HSO and workers before entry to that site is allowed.

7.2.1 Withdrawal Upwind

The work party will continually note general wind directions while on-site. (A windsock may be set up near the work site for visual determinations.) When conditions warrant moving away from the work site, the crew will relocate upwind a distance of approximately 100 feet or farther, as indicated by site monitoring instruments. Donning an SCBA and a safety harness and line, the HSO and a member of the crew (the buddy system must be used) may return to the work site to determine if the condition noted was transient or persistent. If persistent, an alarm should be raised to notify on-site personnel of the situation and the need to leave the site or don an SCBA. An attempt to decrease emissions should be made only if greater respiratory protection is donned. The DHS and client will be notified of conditions. When site access is restricted, thus hindering escape, the crew may be instructed to evacuate the site rather than move upwind, especially if withdrawal upwind moves the crew away from escape routes.

7.2.2 Site Evacuation

When conditions warrant site evacuation, the work party will proceed upwind of the work site and notify the security force, HSO, and field office of site conditions. If the decontamination area is upwind and greater than 500 feet from the work site, the crew will pass quickly through decontamination to remove contaminated outer suits. If the hazard is toxic gas, respirators will be retained. The crew will proceed to the field office to assess the situation. If instrumentation indicates an acceptable condition, respirators may be removed. As more information is received from the field crew, it will be relayed to the appropriate agencies. The advisability and type of further response action will be coordinated and carried out by the HSO.

7.2.3 Evacuation of Surrounding Area

When the HSO determines that conditions warrant evacuation of downwind residences and commercial operations, local agencies will be notified and assistance requested. Designated on-site personnel will initiate evacuation of the immediate off-site area without delay.

7.3 Emergency Medical Treatment/First Aid

First aid will be rendered to any person injured on-site, as appropriate. The injured person will then be transported to medical personnel for further examination and/or treatment. The preferred transport method is a professional emergency transportation service; however, when this is not readily available or would result in excessive delay, other transport is authorized. Under no circumstances will injured persons transport themselves to a medical facility for emergency treatment.

When an injury occurs in a downrange position, provisions for decontamination of the victim will be made. However, life-threatening conditions may preclude normal decontamination procedures. In such cases, arrangements will be made with the medical facility and transporter to provide for the situation.

8.0 OTHER

8.1 ILLUMINATION

Artificial illumination will presumably not be necessary as work is intended to be performed during normal daylight hours.

8.2 SANITATION

Portable toilets will be available for all personnel. These will be located near the field office.

9.0 ADMINISTRATIVE

9.1 PERSONNEL AUTHORIZED DOWNRANGE

Personnel authorized to participate in downrange activities at this site have been reviewed and certified for site operations by the Site Manager and HSS. Certification involves the completion of appropriate training, a medical examination, and a review of this site-specific HASP. All persons entering the site must utilize the buddy system, and check in with the Site Manager and/or HSO before proceeding downrange.

Certified ABB-ES Team Personnel:

HSO: _____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Other Certified Personnel:

_____ _____

_____ _____

_____

* Current First Aid Training
\+ Current CPR Training

9.2 HASP APPROVALS

By signature, the undersigned approve this HASP for applicability in the protection of the health and safety of all persons entering the West Runway Study Area at NAS Brunswick .

Health and Safety Officer	Date
Project and Health and Safety Supervisor	Date
ABB-ES Health and Safety Supervisor	Date

9.3 FIELD TEAM REVIEW

I have read and reviewed the HASP for the West Runway Study Area at NAS Brunswick, understand the information contained, and agree to comply.

NAME:_____ DATE:_____

SITE/PROJECT:_____

9.4 MEDICAL DATA SHEET

This Medical Data Sheet will be completed by all on-site personnel and will be kept in the Support Zone during site operations. It is in no way a substitute for the Medical Surveillance Program requirements consistent with the ABB-ES Corporate Health and Safety Program for Hazardous Waste Sites. This data sheet will accompany any personnel when medical assistance or transport to hospital facilities is required. If more information is required, use the back of this sheet.

Project:_____

Name:_____

Address:_____

Home Phone: Area Code ( )_____

DOB:_____ Height:_____ Weight:_____

In case of emergency, contact:_____
(name)

Address:_____

Telephone: Area Code ( )_____

Do you wear contacts: ( ) Yes ( ) No

Allergies:

_____

List medication taken regularly:

_____

Particular sensitivities:

_____

_____

Previous/recent illnesses or exposures to hazardous chemicals:

Name of Personal Physician:

Telephone:

Area Code ( )

ABB-ES	ABB Environmental Services, Inc.
ASR	atmospheric supplying respirator
CFR	Code of Federal Regulations
CPR	cardiopulmonary resuscitation
CRZ	Contamination Reduction Zone
DCE	dichloroethylene
DHS	Director of Health and Safety
eV	electron volts
GPR	ground-penetrating radar
HASP	Health and Safety Plan
HSO	Health and Safety Officer
IDLH	immediately dangerous to life or health
LEL	lower explosive limit
mRem/hr	milliRems per hour
NAS	Naval Air Station
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PI	photoionization
PPE	personal protective equipment
ppm	parts per million
SCBA	self-contained breathing apparatus
TAL	Target Analyte List
TCL	Target Compound List
TLV	Threshold Limit Value
USEPA	U.S. Environmental Protection Agency

UV	ultraviolet
VOC	volatile organic compounds

CHRIS DATA SHEETS

ETHYLBENZENE

ETB

Common Synonyms	Liquid	Colorless	Sweet, gasoline-like odor
Phenylethane EB	Floats on water. Flammable, irritating vapor is produced.		

Avoid contact with liquid and vapor. Keep people away.
Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).
Shut off ignition sources and call fire department.
Stop discharge if possible.
Stay upwind and use water spray to "knock down" vapor.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

FLAMMABLE.
Flashback along vapor trail may occur.
Vapor may explode if ignited in an enclosed area.
Wear goggles, self-contained breathing apparatus, and rubber overclothing (including gloves).
Extinguish with dry chemical, foam, or carbon dioxide.
Water may be ineffective on fire.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Irritating to eyes, nose and throat.
If inhaled, will cause dizziness or difficult breathing.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Will burn skin and eyes.
Harmful if swallowed.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
DO NOT INDUCE VOMITING.

Water Pollution

HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
Fouling to shoreline.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Mechanical containment
Should be removed
Chemical and physical treatment

2. LABEL

2.1 **Category:** Flammable liquid
2.2 **Class:** 3

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Aromatic hydrocarbon
3.2 **Formula:** $C_6H_5CH_2CH_3$
3.3 **IMO/UN Designation:** 3.3/1175
3.4 **DOT ID No.:** 1175
3.5 **CAS Registry No.:** 100-41-4

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Colorless
4.3 **Odor:** Aromatic

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Self-contained breathing apparatus; safety goggles.
5.2 **Symptoms Following Exposure:** Inhalation may cause irritation of nose, dizziness, depression. Moderate irritation of eye with corneal injury possible. Irritates skin and may cause blisters.
5.3 **Treatment of Exposure:** INHALATION: if ill effects occur, remove victim to fresh air, keep him warm and quiet, and get medical help promptly; if breathing stops, give artificial respiration. INGESTION: induce vomiting only upon physician's approval; material in lung may cause chemical pneumonitis. SKIN AND EYES: promptly flush with plenty of water (15 min. for eyes) and get medical attention; remove and wash contaminated clothing before reuse.
5.4 **Threshold Limit Value:** 100 ppm
5.5 **Short Term Inhalation Limits:** 200 ppm for 30 min.
5.6 **Toxicity by Ingestion:** Grade 2; LD_{50} = 0.5 to 5 g/kg (rat)
5.7 **Late Toxicity:** Data not available
5.8 **Vapor (Gas) Irritant Characteristics:** Vapors cause moderate irritation such that personnel will find high concentrations unpleasant. The effect is temporary.
5.9 **Liquid or Solid Irritant Characteristics:** Causes smarting of the skin and first-degree burns on short exposure; may cause secondary burns on long exposure.
5.10 **Odor Threshold:** 140 ppm
5.11 **IDLH Value:** 2,000 ppm

6. FIRE HAZARDS

6.1 **Flash Point:** 80°F O.C., 59°F C.C.
6.2 **Flammable Limits in Air:** 1.0%-6.7%
6.3 **Fire Extinguishing Agents:** Foam (most effective), water fog, carbon dioxide or dry chemical.
6.4 **Fire Extinguishing Agents Not to be Used:** Not pertinent
6.5 **Special Hazards of Combustion Products:** Irritating vapors are generated when heated.
6.6 **Behavior in Fire:** Vapor is heavier than air and may travel considerable distance to the source of ignition and flash back.
6.7 **Ignition Temperature:** 860°F
6.8 **Electrical Hazard:** Not pertinent
6.9 **Burning Rate:** 5.8 mm/min.
6.10 **Adiabatic Flame Temperature:** Data Not Available

(Continued)

7. CHEMICAL REACTIVITY

7.1 **Reactivity With Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data Not Available
7.8 **Reactivity Group:** 32

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** 29 ppm/96 hr/bluegill/TL_m/fresh water
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** 2.8% (theor.), 5 days
8.4 **Food Chain Concentration Potential:** None

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Research grade: 99.98%, pure grade: 99.5%; technical grade: 99.0%
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Open (flame arrester) or pressure-vacuum

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

A-T-U

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** Flammable liquid
11.2 **NAS Hazard Rating for Bulk Water Transportation:**

Category	Rating
Fire	3
Health	
Vapor Irritant	2
Liquid or Solid Irritant	2
Poisons	2
Water Pollution	
Human Toxicity	1
Aquatic Toxicity	3
Aesthetic Effect	2
Reactivity	
Other Chemicals	1
Water	0
Self Reaction	0

11.3 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	2
Flammability (Red)	3
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** 106.17
12.3 **Boiling Point at 1 atm:** 277.2°F = 136.2°C = 409.4°K
12.4 **Freezing Point:** −139°F = −95°C = 178°K
12.5 **Critical Temperature:** 651.0°F = 343.9°C = 617.1°K
12.6 **Critical Pressure:** 523 psia = 35.6 atm = 3.61 MN/m²
12.7 **Specific Gravity:** 0.867 at 20°C (liquid)
12.8 **Liquid Surface Tension:** 29.2 dynes/cm = 0.0292 N/m at 20°C
12.9 **Liquid Water Interfacial Tension:** 35.46 dynes/cm = 0.03546 N/m at 20°C
12.10 **Vapor (Gas) Specific Gravity:** Not pertinent
12.11 **Ratio of Specific Heats of Vapor (Gas):** 1.071
12.12 **Latent Heat of Vaporization:** 144 Btu/lb = 80.1 cal/g = 3.35 X 10⁵ J/kg
12.13 **Heat of Combustion:** −17,780 Btu/lb = −9877 cal/g = −413.5 X 10⁵ J/kg
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** Data Not Available
12.26 **Limiting Value:** Data Not Available
12.27 **Reid Vapor Pressure:** 0.4 psia

6. FIRE HAZARDS (Continued)

6.11 **Stoichiometric Air to Fuel Ratio:** Data Not Available
6.12 **Flame Temperature:** Data Not Available

TETRACHLOROETHYLENE

TTE

Common Synonyms	Watery liquid	Colorless	Sweet odor
Tetracap Perclene Perchloroethylene Perk	Sinks in water. Irritating vapor is produced.		

Stop discharge if possible
Avoid contact with liquid and vapor
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

Not flammable.
Poisonous gases are produced when heated.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Irritating to eyes, nose and throat.
If inhaled, will cause difficult breathing, or loss of consciousness.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Irritating to skin and eyes.
Harmful if swallowed.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.

Water Pollution

Effect of low concentrations on aquatic life is unknown.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Should be removed
Chemical and physical treatment

2. LABEL

2.1 **Category:** None
2.2 **Class:** Not pertinent

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Not listed
3.2 **Formula:** $Cl_2C=CCl_2$
3.3 **IMO/UN Designation:** 9.0/1897
3.4 **DOT ID No.:** 1897
3.5 **CAS Registry No.:** 127-18-4

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Colorless
4.3 **Odor:** Ethereal; like chloroform; mildly sweet

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** For high vapor concentrations use approved canister or air-supplied mask; chemical goggles or face shield; plastic gloves.
5.2 **Symptoms Following Exposure:** Vapor can affect central nervous system and cause anesthesia. Liquid may irritate skin after prolonged contact. May irritate eyes but causes no injury.
5.3 **Treatment of Exposure:** INHALATION: if illness occurs, remove patient to fresh air, keep him warm and quiet, and get medical attention. INGESTION: induce vomiting only on physician's recommendation. EYES AND SKIN: flush with plenty of water and get medical attention if irritation or injury occurs.
5.4 **Threshold Limit Value:** ~~50 ppm~~ 25 ppm
5.5 **Short Term Inhalation Limits:** 100 ppm for 60 min.
5.6 **Toxicity by Ingestion:** Grade 2; LD_{50} = 0.5 to 5 g/kg
5.7 **Late Toxicity:** None
5.8 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or throat if present in high concentrations. The effect is temporary.
5.9 **Liquid or Solid Irritant Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
5.10 **Odor Threshold:** 5 ppm
5.11 **IDLH Value:** 500 ppm

6. FIRE HAZARDS

6.1 **Flash Point:** Not flammable
6.2 **Flammable Limits in Air:** Not flammable
6.3 **Fire Extinguishing Agents:** Not pertinent
6.4 **Fire Extinguishing Agents Not to be Used:** Not pertinent
6.5 **Special Hazards of Combustion Products:** Toxic, irritating gases may be generated in fires.
6.6 **Behavior in Fire:** Not pertinent
6.7 **Ignition Temperature:** Not flammable
6.8 **Electrical Hazard:** Not pertinent
6.9 **Burning Rate:** Not flammable
6.10 **Adiabatic Flame Temperature:** Data not available
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** Data not available

7. CHEMICAL REACTIVITY

7.1 **Reactivity With Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** Data not available

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** Data not available
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** None
8.4 **Food Chain Concentration Potential:** None

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Dry cleaning and industrial grades: 95+%
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Pressure-vacuum

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

A-X

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** ORM-A
11.2 **NAS Hazard Rating for Bulk Water Transportation:**

Category	Rating
Fire	0
Health	
Vapor Irritant	1
Liquid or Solid Irritant	1
Poisons	2
Water Pollution	
Human Toxicity	1
Aquatic Toxicity	3
Aesthetic Effect	2
Reactivity	
Other Chemicals	1
Water	0
Self Reaction	1

11.3 **NFPA Hazard Classification:** Not listed

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** 165.83
12.3 **Boiling Point at 1 atm:** 250°F = 121°C = 394°K
12.4 **Freezing Point:** −8.3°F = −22.4°C = 250.8°K
12.5 **Critical Temperature:** 657°F = 347°C = 620°K
12.6 **Critical Pressure:** Not pertinent
12.7 **Specific Gravity:** 1.63 at 20°C (liquid)
12.8 **Liquid Surface Tension:** 31.3 dynes/cm = 0.0313 N/m at 20°C
12.9 **Liquid Water Interfacial Tension:** 44.4 dynes/cm = 0.0444 N/m at 25°C
12.10 **Vapor (Gas) Specific Gravity:** Not pertinent
12.11 **Ratio of Specific Heats of Vapor (Gas):** 1.116
12.12 **Latent Heat of Vaporization:** 90.2 Btu/lb = 50.1 cal/g = 2.10×10^5 J/kg
12.13 **Heat of Combustion:** Not pertinent
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** Data not available
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** Data not available

NOTES

TOLUENE

TOL

Common Synonyms	Watery liquid	Colorless	Pleasant odor
Toluol Methylbenzene Methylbenzol	Floats on water. Flammable, irritating vapor is produced.		

Stop discharge if possible. Keep people away.
Shut off ignition sources and call fire department.
Stay upwind and use water spray to "knock down" vapor.
Avoid contact with liquid and vapor.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

FLAMMABLE.
Flashback along vapor trail may occur.
Vapor may explode if ignited in an enclosed area.
Wear goggles and self-contained breathing apparatus.
Extinguish with dry chemical, foam, or carbon dioxide.
Water may be ineffective on fire.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Irritating to eyes, nose and throat.
If inhaled, will cause nausea, vomiting, headache, dizziness, difficult breathing, or loss of consciousness.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing difficult, give oxygen.

LIQUID
Irritating to skin and eyes.
If swallowed, will cause nausea, vomiting or loss of consciousness.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
DO NOT INDUCE VOMITING.

Water Pollution

Dangerous to aquatic life in high concentrations.
Fouling to shoreline.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Issue warning-high flammability
Evacuate area

2. LABEL

2.1 **Category:** Flammable liquid
2.2 **Class:** 3

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Aromatic Hydrocarbon
3.2 **Formula:** $C_6H_5CH_3$
3.3 **IMO/UN Designation:** 3.2/1294
3.4 **DOT ID No.:** 1294
3.5 **CAS Registry No.:** 108-88-3

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Colorless
4.3 **Odor:** Pungent; aromatic, benzene-like; distinct, pleasant

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Air-supplied mask; goggles or face shield; plastic gloves.
5.2 **Symptoms Following Exposure:** Vapors irritate eyes and upper respiratory tract; cause dizziness, headache, anesthesia, respiratory arrest. Liquid irritates eyes and causes drying of skin. If aspirated, causes coughing, gagging, distress, and rapidly developing pulmonary edema. If ingested causes vomiting, griping, diarrhea, depressed respiration.
5.3 **Treatment of Exposure:** INHALATION: remove to fresh air, give artificial respiration and oxygen if needed; call a doctor. INGESTION: do NOT induce vomiting; call a doctor. EYES: flush with water for at least 15 min. SKIN: wipe off, wash with soap and water.
5.4 **Threshold Limit Value:** 100 ppm
5.5 **Short Term Inhalation Limits:** 600 ppm for 30 min.
5.6 **Toxicity by Ingestion:** Grade 2; LD_{50} = 0.5 to 5 g/kg
5.7 **Late Toxicity:** Kidney and liver damage may follow ingestion.
5.8 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
5.9 **Liquid or Solid Irritant Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
5.10 **Odor Threshold:** 0.17 ppm
5.11 **IDLH Value:** 2,000 ppm

6. FIRE HAZARDS

6.1 **Flash Point:** 40°F C.C.; 55°F O.C.
6.2 **Flammable Limits in Air:** 1.27%-7%
6.3 **Fire Extinguishing Agents:** Carbon dioxide or dry chemical for small fires, ordinary foam for large fires.
6.4 **Fire Extinguishing Agents Not to be Used:** Water may be ineffective
6.5 **Special Hazards of Combustion Products:** Not pertinent
6.6 **Behavior in Fire:** Vapor is heavier than air and may travel a considerable distance to a source of ignition and flash back.
6.7 **Ignition Temperature:** 997°F
6.8 **Electrical Hazard:** Class I, Group D
6.9 **Burning Rate:** 5.7 mm/min.
6.10 **Adiabatic Flame Temperature:** Data not available

(Continued)

7. CHEMICAL REACTIVITY

7.1 **Reactivity With Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** 32

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** 1180 mg/l/96 hr/sunfish/TL_m/fresh water
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** 0%, 5 days; 38% (theor), 8 days
8.4 **Food Chain Concentration Potential:** None

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Research, reagent, nitration-at 99.8 + %; industrial: contains 94 + %, with 5% xylene and small amounts of benzene and nonaromatic hydrocarbons; 90/120: less pure than industrial.
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Open (flame arrester) or pressure-vacuum

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

A-T-U

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** Flammable liquid
11.2 **NAS Hazard Rating for Bulk Water Transportation:**

Category	Rating
Fire	3
Health	
Vapor Irritant	1
Liquid or Solid Irritant	1
Poisons	2
Water Pollution	
Human Toxicity	1
Aquatic Toxicity	3
Aesthetic Effect	2
Reactivity	
Other Chemicals	1
Water	0
Self Reaction	0

11.3 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	2
Flammability (Red)	3
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** 92.14
12.3 **Boiling Point at 1 atm:** 231.1°F = 110.6°C = 383.8°K
12.4 **Freezing Point:** −139°F = −95.0°C = 178.2°K
12.5 **Critical Temperature:** 605.4°F = 318.6°C = 591.8°K
12.6 **Critical Pressure:** 596.1 psa = 40.55 atm = 4.108 MN/m²
12.7 **Specific Gravity:** 0.867 at 20°C (liquid)
12.8 **Liquid Surface Tension:** 29.0 dynes/cm = 0.0290 N/m at 20°C
12.9 **Liquid Water Interfacial Tension:** 36.1 dynes/cm = 0.0361 N/m at 25°C
12.10 **Vapor (Gas) Specific Gravity:** Not pertinent
12.11 **Ratio of Specific Heats of Vapor (Gas):** 1.089
12.12 **Latent Heat of Vaporization:** 155 Btu/lb = 86.1 cal/g = 3.61 X 10^5 J/kg
12.13 **Heat of Combustion:** −17,430 Btu/lb = −9686 cal/g = −405.5 X 10^5 J/kg
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** 17.17 cal/g
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** 1.1 psa

6. FIRE HAZARDS (Continued)

6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** Data not available

TRICHLOROETHYLENE

TCL

Common Synonyms	Watery liquid	Colorless	Sweet odor
Trichloroethylene Trichlene; Algylen Chlorylen Gemalgene Trethylene Trichloran; Trilene	Sinks in water. Irritating vapor is produced.		

Stop discharge if possible. Keep people away.
Avoid contact with liquid and vapor.
Call fire department.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

Combustible.
POISONOUS GASES ARE PRODUCED IN FIRE.
Wear goggles and self-contained breathing apparatus.
Extinguish with dry chemical, carbon dioxide, or foam.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Irritating to eyes, nose and throat.
If inhaled, will cause nausea, vomiting, difficult breathing, or loss of consciousness.

Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Irritating to skin and eyes.
If swallowed, will cause nausea, vomiting, difficult breathing, or loss of consciousness.

Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk and have victim induce vomiting.
IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS, do nothing except keep victim warm.

Water Pollution

Effect of low concentrations on aquatic life is unknown.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Should be removed
Chemical and physical treatment

2. LABEL

2.1 **Category:** None
2.2 **Class:** Not pertinent

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Halogenated hydrocarbon
3.2 **Formula:** $CHCl=CCl_2$
3.3 **IMO/UN Designation:** 9.0/1710
3.4 **DOT ID No.:** 1710
3.5 **CAS Registry No.:** 79-01-6

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Colorless
4.3 **Odor:** Chloroform-like; ethereal

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Organic, vapor-acid gas canister; self-contained breathing apparatus for emergencies; neoprene or vinyl gloves; chemical safety goggles; face-shield; neoprene safety shoes; neoprene suit or apron for splash protection.

5.2 **Symptoms Following Exposure:** INHALATION: symptoms range from irritation of the nose and throat to nausea, an attitude of irresponsibility, blurred vision, and finally disturbance of central nervous system resulting in cardiac failure. Chronic exposure may cause organic injury. INGESTION: symptoms similar to inhalation. SKIN: defatting action can cause dermatitis. EYES: slightly irritating sensation and lachrymation.

5.3 **Treatment of Exposure:** Do NOT administer adrenalin or epinephrine; get medical attention for all cases of overexposure. INHALATION: remove victim to fresh air; if necessary, apply artificial respiration and/or administer oxygen. INGESTION: have victim drink water and induce vomiting; repeat three times; then give 1 tablespoon epsom salts in water. EYES: flush thoroughly with water. SKIN: wash thoroughly with soap and warm water.

5.4 **Threshold Limit Value:** 50 ppm
5.5 **Short Term Inhalation Limits:** 200 ppm for 30 min.
5.6 **Toxicity by Ingestion:** Grade 3; LD_{50} = 50 to 500 mg/kg
5.7 **Late Toxicity:** Data not available
5.8 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
5.9 **Liquid or Solid Irritant Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
5.10 **Odor Threshold:** 50 ppm
5.11 **IDLH Value:** 1,000 ppm

6. FIRE HAZARDS

6.1 **Flash Point:** 90°F C.C.; practically nonflammable
6.2 **Flammable Limits in Air:** 8.0%-10.5%
6.3 **Fire Extinguishing Agents:** Water fog
6.4 **Fire Extinguishing Agents Not to be Used:** Not pertinent
6.5 **Special Hazards of Combustion Products:** Toxic and irritating gases are produced in fire situations.
6.6 **Behavior in Fire:** Not pertinent
6.7 **Ignition Temperature:** 770°F
6.8 **Electrical Hazard:** Not pertinent
6.9 **Burning Rate:** Not pertinent
6.10 **Adiabatic Flame Temperature:** Data not available
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** Data not available

7. CHEMICAL REACTIVITY

7.1 **Reactivity With Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** 36

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** 660 mg/l/40 hr/daphnia/kill/fresh water
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** Data not available
8.4 **Food Chain Concentration Potential:** None

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Technical; dry cleaning; degreasing; extraction
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Pressure-vacuum

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

A-X-Y

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** ORM-A
11.2 **NAS Hazard Rating for Bulk Water Transportation:**

Category	Rating
Fire	1
Health	
Vapor Irritant	1
Liquid or Solid Irritant	1
Poisons	2
Water Pollution	
Human Toxicity	1
Aquatic Toxicity	2
Aesthetic Effect	2
Reactivity	
Other Chemicals	1
Water	0
Self Reaction	1

11.3 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	2
Flammability (Red)	1
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** 131.39
12.3 **Boiling Point at 1 atm:** 189°F = 87°C = 360°K
12.4 **Freezing Point:** −123.5°F = −86.4°C = 186.8°K
12.5 **Critical Temperature:** Not pertinent
12.6 **Critical Pressure:** Not pertinent
12.7 **Specific Gravity:** 1.46 at 20°C (liquid)
12.8 **Liquid Surface Tension:** 29.3 dynes/cm = 0.0293 N/m at 20°C
12.9 **Liquid Water Interfacial Tension:** 34.5 dynes/cm = 0.0345 N/m at 24°C
12.10 **Vapor (Gas) Specific Gravity:** 4.5
12.11 **Ratio of Specific Heats of Vapor (Gas):** 1.116
12.12 **Latent Heat of Vaporization:** 103 Btu/lb = 57.2 cal/g = 2.4×10^5 J/kg
12.13 **Heat of Combustion:** Not pertinent
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** Data not available
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** 2.5 psia

NOTES

m-XYLENE

XLM

Common Synonyms	Watery liquid	Colorless	Sweet odor
1, 3-Dimethylbenzene Xylol	Floats on water. Flammable, irritating vapor is produced.		

Stop discharge if possible. Keep people away.
Call fire department.
Avoid contact with liquid and vapor
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

FLAMMABLE
Flashback along vapor trail may occur.
Vapor may explode if ignited in an enclosed area.
Wear self-contained breathing apparatus.
Extinguish with foam, dry chemical, or carbon dioxide.
Water may be ineffective on fire.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Irritating to eyes, nose, and throat.
If inhaled, will cause headache, difficult breathing, or loss of consciousness.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Irritating to skin and eyes.
If swallowed, will cause nausea, vomiting, or loss of consciousness.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
DO NOT INDUCE VOMITING.

Water Pollution

HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
Fouling to shoreline.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Issue warning-high flammability
Evacuate area
Should be removed
Chemical and physical treatment

2. LABEL

2.1 Category: Flammable liquid
2.2 Class: 3

3. CHEMICAL DESIGNATIONS

3.1 CG Compatibility Class: Aromatic Hydrocarbon
3.2 Formula: $m\text{-}C_6H_4(CH_3)_2$
3.3 IMO/UN Designation: 3.2/1307
3.4 DOT ID No.: 1307
3.5 CAS Registry No.: 108-38-3

4. OBSERVABLE CHARACTERISTICS

4.1 Physical State (as shipped): Liquid
4.2 Color: Colorless
4.3 Odor: Like benzene; characteristic aromatic

5. HEALTH HAZARDS

5.1 Personal Protective Equipment: Approved canister or air-supplied mask; goggles or face shield; plastic gloves and boots.
5.2 Symptoms Following Exposure: Vapors cause headache and dizziness. Liquid irritates eyes and skin. If taken into lungs, causes severe coughing, distress, and rapidly developing pulmonary edema. If ingested, causes nausea, vomiting, cramps, headache, and coma, can be fatal. Kidney and liver damage can occur.
5.3 Treatment of Exposure: INHALATION: remove to fresh air; administer artificial respiration and oxygen if required; call a doctor. INGESTION: do NOT induce vomiting; call a doctor. EYES: flush with water for at least 15 min. SKIN: wipe off, wash with soap and water.
5.4 Threshold Limit Value: 100 ppm
5.5 Short Term Inhalation Limits: 300 ppm for 30 min.
5.6 Toxicity by Ingestion: Grade 3; LD_{50} = 50 to 500 g/kg
5.7 Late Toxicity: Kidney and liver damage.
5.8 Vapor (Gas) Irritant Characteristics: Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
5.9 Liquid or Solid Irritant Characteristics: Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
5.10 Odor Threshold: 0.05 ppm
5.11 IDLH Value: 10,000 ppm

6. FIRE HAZARDS

6.1 Flash Point: 84°F C.C.
6.2 Flammable Limits in Air: 1.1%-6.4%
6.3 Fire Extinguishing Agents: Foam, dry chemical, or carbon dioxide
6.4 Fire Extinguishing Agents Not to be Used: Water may be ineffective.
6.5 Special Hazards of Combustion Products: Not pertinent
6.6 Behavior in Fire: Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back.
6.7 Ignition Temperature: 986°F
6.8 Electrical Hazard: Class I, Group D
6.9 Burning Rate: 5.8 mm/min.
6.10 Adiabatic Flame Temperature: Data not available
6.11 Stoichiometric Air to Fuel Ratio: Data not available
6.12 Flame Temperature: Data not available

7. CHEMICAL REACTIVITY

7.1 Reactivity With Water: No reaction
7.2 Reactivity with Common Materials: No reaction
7.3 Stability During Transport: Stable
7.4 Neutralizing Agents for Acids and Caustics: Not pertinent
7.5 Polymerization: Not pertinent
7.6 Inhibitor of Polymerization: Not pertinent
7.7 Molar Ratio (Reactant to Product): Data not available
7.8 Reactivity Group: 32

8. WATER POLLUTION

8.1 Aquatic Toxicity: 22 ppm/96 hr/bluegill/TL_m/fresh water
8.2 Waterfowl Toxicity: Data not available
8.3 Biological Oxygen Demand (BOD): 0 lb/lb, 5 days: 0% (theor.), 8 days
8.4 Food Chain Concentration Potential: Data not available

9. SHIPPING INFORMATION

9.1 Grades of Purity: Research: 99.99%; Pure: 99.9%; Technical: 99.2%
9.2 Storage Temperature: Ambient
9.3 Inert Atmosphere: No requirement
9.4 Venting: Open (flame arrester) or pressure-vacuum

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

A-T-U

11. HAZARD CLASSIFICATIONS

11.1 Code of Federal Regulations: Flammable liquid
11.2 NAS Hazard Rating for Bulk Water Transportation:

Category	Rating
Fire	3
Health	
Vapor Irritant	1
Liquid or Solid Irritant	1
Poisons	2
Water Pollution	
Human Toxicity	1
Aquatic Toxicity	3
Aesthetic Effect	2
Reactivity	
Other Chemicals	1
Water	0
Self Reaction	0

11.3 NFPA Hazard Classification:

Category	Classification
Health Hazard (Blue)	2
Flammability (Red)	3
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 Physical State at 15°C and 1 atm: Liquid
12.2 Molecular Weight: 106.16
12.3 Boiling Point at 1 atm: 269.4°F = 131.9°C = 405.1°K
12.4 Freezing Point: −54.2°F = −47.9°C = 225.3°K
12.5 Critical Temperature: 650.8°F = 343.8°C = 617.0°K
12.6 Critical Pressure: 513.8 atm = 34.95 psia = 3.540 MN/m^2
12.7 Specific Gravity: 0.864 at 20°C (liquid)
12.8 Liquid Surface Tension: 28.6 dynes/cm = 0.0286 N/m at 20°C
12.9 Liquid Water Interfacial Tension: 36.4 dynes/cm = 0.0364 N/m at 30°C
12.10 Vapor (Gas) Specific Gravity: Not pertinent
12.11 Ratio of Specific Heats of Vapor (Gas): 1.071
12.12 Latent Heat of Vaporization: 147 Btu/lb = 81.9 cal/g = 3.43×10^5 J/kg
12.13 Heat of Combustion: −17,554 Btu/lb = −9752.4 cal/g = -408.31×10^4 J/kg
12.14 Heat of Decomposition: Not pertinent
12.15 Heat of Solution: Not pertinent
12.16 Heat of Polymerization: Not pertinent
12.25 Heat of Fusion: 26.01 cal/g
12.26 Limiting Value: Data not available
12.27 Reid Vapor Pressure: 0.34 psia

NOTES

o-XYLENE

XLO

Common Synonyms	Watery liquid	Colorless	Sweet odor
1, 2-Dimethylbenzene Xylol	Floats on water. Flammable, irritating vapor is produced.		

Stop discharge if possible. Keep people away.
Call fire department.
Avoid contact with liquid and vapor.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

FLAMMABLE
Flashback along vapor trail may occur.
Vapor may explode if ignited in an enclosed area.
Wear self-contained breathing apparatus.
Extinguish with foam, dry chemical, or carbon dioxide.
Water may be ineffective on fire.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Irritating to eyes, nose and throat.
If inhaled, will cause headache, difficult breathing, or loss of consciousness.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Irritating to skin and eyes.
If swallowed, will cause nausea, vomiting, or loss of consciousness.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
DO NOT INDUCE VOMITING.

Water Pollution

Dangerous to aquatic life in high concentrations.
Fouling to shoreline.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Issue warning-high flammability
Evacuate area
Should be removed
Chemical and physical treatment

2. LABEL

2.1 **Category:** Flammable liquid
2.2 **Class:** 3

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Aromatic Hydrocarbon
3.2 **Formula:** $o\text{-}C_6H_4(CH_3)_2$
3.3 **IMO/UN Designation:** 3.2/1307
3.4 **DOT ID No.:** 1307
3.5 **CAS Registry No.:** 95-47-6

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Colorless
4.3 **Odor:** Benzene-like; characteristic aromatic

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Approved canister or air-supplied mask; goggles or face shield; plastic gloves and boots.
5.2 **Symptoms Following Exposure:** Vapors cause headache and dizziness. Liquid irritates eyes and skin. If taken into lungs, causes severe coughing, distress, and rapidly developing pulmonary edema. If ingested, causes nausea, vomiting, cramps, headache, and coma. Can be fatal. Kidney and liver damage can occur.
5.3 **Treatment of Exposure:** INHALATION: remove to fresh air; administer artificial respiration and oxygen if required; call a doctor. INGESTION: do NOT induce vomiting; call a doctor. EYES: flush with water for at least 15 min. SKIN: wipe off, wash with soap and water.
5.4 **Threshold Limit Value:** 100 ppm
5.5 **Short Term Inhalation Limits:** 300 ppm for 30 min.
5.6 **Toxicity by Ingestion:** Grade 3; LD_{50} = 50 to 500 mg/kg
5.7 **Late Toxicity:** Kidney and liver damage.
5.8 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
5.9 **Liquid or Solid Irritant Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
5.10 **Odor Threshold:** 0.05 ppm
5.11 **IDLH Value:** 10,000 ppm

6. FIRE HAZARDS

6.1 **Flash Point:** 63°F C.C.; 75°F O.C.
6.2 **Flammable Limits in Air:** 1.1%-7.0%
6.3 **Fire Extinguishing Agents:** Foam, dry chemical, or carbon dioxide
6.4 **Fire Extinguishing Agents Not to be Used:** Water may be ineffective.
6.5 **Special Hazards of Combustion Products:** Not pertinent
6.6 **Behavior in Fire:** Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back.
6.7 **Ignition Temperature:** 869°F
6.8 **Electrical Hazard:** Class I, Group D
6.9 **Burning Rate:** 5.8 mm/min.
6.10 **Adiabatic Flame Temperature:** Data not available
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** Data not available

7. CHEMICAL REACTIVITY

7.1 **Reactivity With Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** 32

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** >100 mg/l/96 hr/D. magna/TL_m/fresh water
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** 0 lb/lb, 5 days; 2.5% (theor.), 8 days
8.4 **Food Chain Concentration Potential:** Data not available

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Research: 99.99%; Pure: 99.7%; Commercial: 95+%
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No reaction
9.4 **Venting:** Open (flame arrester) or pressure-vacuum

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

A-T-U

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** Flammable liquid
11.2 **NAS Hazard Rating for Bulk Water Transportation:**

Category	Rating
Fire	3
Health	
Vapor irritant	1
Liquid or Solid Irritant	1
Poisons	2
Water Pollution	
Human Toxicity	1
Aquatic Toxicity	3
Aesthetic Effect	2
Reactivity	
Other Chemicals	1
Water	0
Self Reaction	0

11.3 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	2
Flammability (Red)	3
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** 106.16
12.3 **Boiling Point at 1 atm:** 291.9°F = 144.4°C = 417.6°K
12.4 **Freezing Point:** −13.3°F = −25.2°C = 248.0°K
12.5 **Critical Temperature:** 674.8°F = 357.1°C = 630.3°K
12.6 **Critical Pressure:** 541.5 atm = 36.84 psa = 3.732 MN/m^2
12.7 **Specific Gravity:** 0.880 at 20°C (liquid)
12.8 **Liquid Surface Tension:** 30.53 dynes/cm = 0.03053 N/m at 15.5°C
12.9 **Liquid Water Interfacial Tension:** 36.06 dynes/cm = 0.03606 N/m at 20°C
12.10 **Vapor (Gas) Specific Gravity:** Not pertinent
12.11 **Ratio of Specific Heats of Vapor (Gas):** 1.068
12.12 **Latent Heat of Vaporization:** 149 Btu/lb = 82.9 cal/g = 3.47 X 10^5 J/kg
12.13 **Heat of Combustion:** −17,558 Btu/lb = −9754.7 cal/g = −408.41 X 10^3 J/kg
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** 30.64 cal/g
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** 0.26 psa

NOTES

p-XYLENE

XLP

Common Synonyms
1, 4-Dimethylbenzene
Xylol

Watery liquid Colorless Sweet odor

Floats on water. Flammable, irritating vapor is produced.
Freezing point is 56°F

Stop discharge if possible. Keep people away.
Call fire department.
Avoid contact with liquid and vapor.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

FLAMMABLE
Flashback along vapor trail may occur.
Vapor may explode if ignited in an enclosed area.

Wear self-contained breathing apparatus.
Extinguish with foam, dry chemical, or carbon dioxide.
Water may be ineffective on fire.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID

VAPOR
Irritating to eyes, nose and throat.
If inhaled, will cause dizziness, difficult breathing, or loss of consciousness.

Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Irritating to skin and eyes.
If swallowed, will cause nausea, vomiting, loss of consciousness.

Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.
DO NOT INDUCE VOMITING.

Water Pollution

HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
Fouling to shoreline.
May be dangerous if it enters water intakes.

Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)

Issue warning-high flammability
Evacuate area
Should be removed
Chemical and physical treatment

2. LABEL

2.1 **Category:** Flammable liquid
2.2 **Class:** 3

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Aromatic Hydrocarbon
3.2 **Formula:** $p\text{-}C_8H_4(CH_3)_2$
3.3 **IMO/UN Designation:** 3.2/1307
3.4 **DOT ID No.:** 1307
3.5 **CAS Registry No.:** 106-42-3

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Colorless
4.3 **Odor:** Like benzene; characteristic aromatic

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Approved canister or air-supplied mask; goggles or face shield; plastic gloves and boots.
5.2 **Symptoms Following Exposure:** Vapors cause headache and dizziness. Liquid irritates eyes and skin. If taken into lungs, causes severe coughing, distress, and rapidly developing pulmonary edema. If ingested, causes nausea, vomiting, cramps, headache, and coma. Can be fatal. Kidney and liver damage can occur.
5.3 **Treatment of Exposure:** INHALATION: remove to fresh air; administer artificial respiration and oxygen if required; call a doctor. INGESTION: do NOT induce vomiting; call a doctor. EYES: flush with water for at least 15 min. SKIN: wipe off, wash with soap and water.
5.4 **Threshold Limit Value:** 100 ppm
5.5 **Short Term Inhalation Limits:** 300 ppm for 30 min.
5.6 **Toxicity by Ingestion:** Grade 3; LD_{50} = 50 to 500 mg/kg
5.7 **Late Toxicity:** Kidney and liver damage.
5.8 **Vapor (Gas) Irritant Characteristics:** Vapors cause a slight smarting of the eyes or respiratory system if present in high concentrations. The effect is temporary.
5.9 **Liquid or Solid Irritant Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
5.10 **Odor Threshold:** 0.05 ppm
5.11 **IDLH Value:** 10,000 ppm

6. FIRE HAZARDS

6.1 **Flash Point:** 81°F C.C.
6.2 **Flammable Limits in Air:** 1.1%-6.6%
6.3 **Fire Extinguishing Agents:** Foam, dry chemical, or carbon dioxide
6.4 **Fire Extinguishing Agents Not to be Used:** Water may be ineffective.
6.5 **Special Hazards of Combustion Products:** Not pertinent
6.6 **Behavior in Fire:** Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back.
6.7 **Ignition Temperature:** 870°F
6.8 **Electrical Hazard:** Class I, Group D
6.9 **Burning Rate:** 5.8 mm/min.
6.10 **Adiabatic Flame Temperature:** Data not available
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** Data not available

7. CHEMICAL REACTIVITY

7.1 **Reactivity With Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** 32

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** 22 ppm/96 hr/bluegill/TL_m/fresh water
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** 0 lb/lb in 5 days
8.4 **Food Chain Concentration Potential:** Data not available

9. SHIPPING INFORMATION

9.1 **Grades of Purity:** Research: 99.99%; Pure: 99.8%; Technical: 99.0%
9.2 **Storage Temperature:** Ambient
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Open (flame arrester) or pressure-vacuum

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)

A-T-U

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** Flammable liquid
11.2 **NAS Hazard Rating for Bulk Water Transportation:**

Category	Rating
Fire	3
Health	
Vapor Irritant	1
Liquid or Solid Irritant	1
Poisons	2
Water Pollution	
Human Toxicity	1
Aquatic Toxicity	3
Aesthetic Effect	2
Reactivity	
Other Chemicals	1
Water	0
Self Reaction	0

11.3 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	2
Flammability (Red)	3
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** 106.16
12.3 **Boiling Point at 1 atm:** 280.9°F = 138.3°C = 411.5°K
12.4 **Freezing Point:** 55.9°F = 13.3°C = 286.5°K
12.5 **Critical Temperature:** 649.4°F = 343.0°C = 616.2°K
12.6 **Critical Pressure:** 509.4 atm = 34.65 psia = 3.510 MN/m²
12.7 **Specific Gravity:** 0.861 at 20°C (liquid)
12.8 **Liquid Surface Tension:** 28.3 dynes/cm = 0.0283 N/m at 20°C
12.9 **Liquid Water Interfacial Tension:** 37.6 dynes/cm = 0.0376 N/m at 20°C
12.10 **Vapor (Gas) Specific Gravity:** Not pertinent
12.11 **Ratio of Specific Heats of Vapor (Gas):** 1.071
12.12 **Latent Heat of Vaporization:** 150 Btu/lb = 81 cal/g = 3.4 X 10^5 J/kg
12.13 **Heat of Combustion:** −17,559 Btu/lb = −9754.7 cal/g = −408.41 X 10^5 J/kg
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** 37.63 cal/g
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** 0.34 psia

NOTES

TEMPERATURE EXTREMES

HEAT STRESS

Due to the increase in ambient air temperatures and the effects of protective outer wear decreasing body ventilation, there is increased potential for injury, specifically heat casualties. Site personnel will be instructed in the identification of a heat stress victim, the first-aid treatment procedures for the victim, and the prevention of heat stress casualties.

Identification and Treatment

Heat Exhaustion.

Symptoms. Heat exhaustion usually begins with muscular weakness, dizziness, nausea, and a staggering gait. Vomiting is frequent. The bowels may move involuntarily. The victim is very pale, the skin is clammy, and he or she may perspire profusely. The pulse is weak and fast; breathing is shallow. The victim may faint unless he or she lies down. This may pass; however, sometimes it persists and, while heat exhaustion is generally not considered life threatening, death could occur.

First Aid. Immediately remove the victim to the CRZ in a shady or cool area with good air circulation. Remove all protective outer wear. Call a physician. Treat the victim for shock (i.e., have the victim lie down, raise the feet 6 to 12 inches, and maintain body temperature but loosen all clothing). If the victim is conscious, it may be helpful to give sips of water. Transport the victim to a medical facility.

Heat Stroke.

Symptoms. This is the most serious of heat casualties because the body excessively overheats. Body temperatures often are between 107 and 110°F. The victim will have a red face and will not be sweating. First there is often pain in the head, dizziness, nausea, oppression, and dryness of the skin and mouth. Unconsciousness follows quickly and death is imminent if exposure continues. The attack will usually occur suddenly. Heat stroke is always serious.

First Aid. Immediately evacuate the victim to a cool and shady area in the CRZ. Remove all protective outer wear and all personal clothing. Lay the victim on his or her back with the head and shoulders slightly elevated. It is imperative that the body temperature be lowered immediately. This can be accomplished by applying cold wet towels or ice bags to the head and groin. Sponge off the bare skin with cool

water or rubbing alcohol, if available, or even place the victim in a tub of cool water. The main objective is to cool without chilling. Do not give stimulants. Transport the victim to a medical facility as soon as possible.

Prevention of Heat Stress

One of the major causes of heat casualties is the depletion of body fluids and salts through sweating. Fluids should be maintained in the Support Zone. Salts can be replaced by either a 0.1 percent salt solution, more heavily salted foods, or commercial mixes such as Gatorade. The commercial mixes are advised for personnel on low-sodium diets.

During warm weather, a work schedule will be established that allows most work to be conducted during the morning hours, before ambient air temperature levels reach highs.

A work/rest schedule will be implemented for personnel required to wear Level B or C protection (i.e., an impervious outer garment) with sufficient time allowed for personnel to "cool down" (this may require working in shifts). Two hours is the maximum time between breaks at Level B or C, regardless of temperature. At elevated temperatures, breaks should be scheduled as follows:

Ambient Temperatures	Maximum Time Between Cool Down Breaks
Above 90°F	¼ hour
85° to 90°F	½ hour
80° to 85°F	1 hour
70° to 80°F	1½ hours

Heat Stress Monitoring

Monitoring of personnel wearing impervious clothing should commence when the ambient temperature reaches 70°F, with increased frequency if ambient temperature increases or as slow recovery rates are indicated. When temperatures exceed 85°F, workers should be monitored for heat stress after every work period. As a screening mechanism of the body's recuperative ability to excess heat, one or more of the following techniques should be used.

1. Measure the heart rate (HR) for 30 seconds, by radial pulse, as early in the resting period as possible. At the beginning of the rest period, the HR should not exceed 110 beats per minute. If the HR is higher, the next work period should be shortened by 10 minutes (or 33 percent), with the length of the rest period staying the same. If the pulse rate is still above 110 beats per minute at the beginning of the next rest period, the following work cycle should again be shortened by 33 percent.

2. Measure oral body temperature with a clinical thermometer, as early as possible in the resting period. At the beginning of the rest period, oral temperature (OT) should not exceed 99°F. If OT exceeds 99°F, the next work period should be shortened by 10 minutes (or 33 percent), with the length of the rest period staying the same. If the OT again exceeds 99°F at the beginning of the next period, the following work cycle should be further shortened by 33 percent. OT should also be measured at the end of the rest period to ensure that it has dropped below 99°F.

3. Maintain good hygienic standards by changing clothes frequently, showering daily, and allowing clothing to dry during rest periods. Persons who notice skin problems should immediately consult medical personnel.

COLD STRESS

Cold weather may often cause problems for personnel working outside, even at temperatures above freezing. As temperatures drop below freezing, the potential for cold weather injuries increases dramatically, as does the potential for equipment failure. Because of the considerable danger to personnel, outdoor work should be suspended if the ambient temperature drops below 0°F (-18°C) or if the windchill factor drops below -29°F (-34°C). These levels represent guidelines that should be used as an action level unless the HSO determines and documents otherwise. Table B-1, which shows equivalent temperatures (i.e., windchill) for a range of ambient conditions, should also be referred to.

Snow and ice increase the risks to personnel and operations through reduced visibility, increased potential for falling injuries, reduced on-site mobility, and the increased time required to access the site (or off-site support services).

In view of these factors, it is critical that the HSO establish site-specific safety and operating protocols, and that all on-site personnel be made aware of the risks.

TABLE B-1

COOLING POWER OF WIND ON EXPOSED FLESH EXPRESSED AS AN EQUIVALENT TEMPERATURE (UNDER CALM CONDITIONS)

HEALTH AND SAFETY PLAN
PART II

ESTIMATED WIND SPEED (in mph)	ACTUAL TEMPERATURE READING (°F)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	EQUIVALENT CHILL TEMPERATURE (°F)											
calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148

(Wind speeds greater than 40 mph have little additional effect.)

LITTLE DANGER
In <hour with dry skin. Maximum danger of false sense of security.

INCREASING DANGER
Danger from freezing of exposed flesh within 1 minute.

GREAT DANGER
Flesh may freeze within 30 seconds.

Trenchfoot and immersion foot may occur at any point on this chart.

Source: Developed by U.S. Army Research Institute of Environmental Medicine, Natick, Massachusetts.

Local Cold Injuries

Local cold injuries affect specific areas of the body (e.g., fingers, ears, or toes), including the more commonly recognized injuries described in the following subsections.

Chilblains. Chilblains is a chronic condition affecting the skin and peripheral capillary circulation, resulting from prolonged exposure of the bare skin, primarily in the extremities, to temperatures at or below 60°F. The best method of preventing and treating chilblains is to cover and protect the skin, thereby avoiding prolonged exposure to the cold.

Frostbite. Frostbite is freezing of the hands, feet, ears, and exposed parts of the face as a result of exposure to very low temperatures. Frostbite occurs when ice crystals form in the fluid in cells of the skin and tissue. As long as blood circulation remains good, frostbite will not occur.

There are three stages of frostbite: incipient frost bite (frostnip), superficial frostbite, and deep frostbite. The classification depends on severity and can range from incipient frostbite (frostnip), which affects the skin; to superficial frostbite, which involves the skin and the tissues immediately beneath it; to deep frostbite, which is much more serious with damage that may affect deeper tissue and even bone.

Symptoms

Symptoms for each of the three stages of frostbite are described as follows.

- Frostnip. Skin first turns red and then later becomes pale or waxy white. There may be tingling, stinging, aching, an uncomfortable sensation of coldness or numbness, or no noticeable symptoms.

- Superficial Frostbite. The skin turns white or gray-white and is waxy in appearance. It is firm to touch (i.e., does not move easily) and the tissue beneath the skin is soft and resilient. There is a lack of sensation in the area.

- Deep Frostbite. The tissue is pale, cold, and solid with possible blisters and swelling. The hands and feet are especially susceptible to deep frostbite.

Emergency Treatment of Frostbite.

Frostnip is easily treated in the field by the application of body heat, which should be applied before the affected area becomes numb. If frostnip affects your fingers and hands, place them against the skin of your chest or in your armpits. To warm your face, hold a mitten or scarf over the lower part of your face and breathe into it. Thaw frozen spots immediately. Do not rub affected areas.

Superficial frostbite usually responds to the application of body heat, as described previously. If the skin does not respond to body heat or if it resembles the early stages of deep frostbite, follow the emergency treatments listed in the following paragraphs. DO NOT rub affected areas.

For deep frostbite, if possible, the injured person should be taken to a heated shelter to avoid further frostbite. If it can be done without the danger of further frostbite, remove all constricting items (e.g., boots, gloves, and socks) from the injured area. RAPID REWARMING WILL MINIMIZE TISSUE LOSS. If possible, warm the extremities in a carefully controlled water bath (104 to 106°F) until tips of the fingers or toes turn pink and feeling is restored. If a water bath is not available, either apply wet packs (100 to 112°F) to the person's body, or gently wrap frostbitten area in blankets or some other warm material.

DO NOT attempt to thaw the affected parts by exercising them or heating them in front of an open fire, heat lamp, radiator, or stove. The person could receive a heat injury as a result of sensation loss.

DO NOT use snow to thaw frostbite. DO NOT rub, massage, or use pressure on the affected areas. Keep the frostbitten parts elevated if possible. Watch to see if CPR is necessary. Give the victim warm drinks such as tea, coffee, or soup. DO NOT GIVE ALCOHOLIC BEVERAGES. Have the victim exercise fingers or toes as soon as possible, but only after they are warmed. DO NOT allow a person with frostbitten feet to walk; walking may cause additional damage.

Medical Treatment of Frostbite.

- Frostnip. Usually does not require medical care.
- Superficial Frostbite. Blisters may require medical care.

- Deep Frostbite. EARLY MEDICAL TREATMENT IS URGENT! Transport the victim to medical care facilities at once.

Prevention of Frostbite

It is far easier to prevent or stop frostbite in earlier stages than to thaw and take care of badly frozen flesh. To protect the body against frostbite, the following precautions should be taken:

- Wear enough clothing to protect against the cold and wind.
- Wear warm gloves and boots.
- Pull a scarf or jacket flap over the lower part of the face or pull a hood tightly around the face.
- Occasionally exercise the face, fingers, and toes to keep them warm and to detect any areas that may have become numb.
- Crew members should watch each other closely, especially the face, for signs of frostbite.

Immersion Foot. Immersion foot (formerly called trenchfoot) is a cold injury resulting from prolonged exposure to near-freezing temperatures when standing or walking on wet or swampy ground.

Symptoms

In the early stages, the feet and toes are pale, cold, numb, and stiff, and walking is difficult. If preventive action is not taken, the feet will swell and ache; in extreme cases, this may result in irreversible damage to the tissues of the foot or leg.

Emergency Treatment of Immersion Foot

Handle feet very gently. DO NOT rub or massage. If necessary, clean feet carefully with soap and warm water, then dry, elevate, and expose to warm but not hot air.

Prevention of Immersion Foot

Because the early stages of immersion foot are not painful, crew members must be constantly on the alert and check feet often when working in cold, wet conditions. Keep feet dry by wearing waterproof footgear and changing socks frequently because perspiration, trapped inside waterproof boots or heavy footgear, can contribute to immersion foot symptoms. Avoid standing in wet areas. If feet get wet, dry them as soon as possible, warm them with your hands, then use foot powder, and change to dry socks. If you cannot change wet boots and socks, exercise your feet frequently by wriggling your toes and moving your ankles. Never wear tight boots.

Systemic Cold Injuries. Systemic injuries are those that affect the entire body system. Severe body cooling, known as systemic hypothermia, can occur at temperatures well above freezing. Hypothermia, which can be fatal, is the progressive lowering of body temperature accompanied by rapid, progressive mental and physical collapse. A large percentage of wilderness deaths are the result of hypothermia.

Hypothermia is caused by exposure to cold, and is aggravated by moisture, cold winds, fatigue, hunger, inadequate clothing or shelter, and excessive perspiration from strenuous exercise followed by too rapid cooling.

Hypothermia often occurs between temperatures of 30 to 50°F, which most people believe are not dangerous. Crew members should be alert for symptoms of hypothermia, especially when temperatures are dropping rapidly or when they must work in rain, snow, or ice.

Hypothermia may occur on land or following submersion in even moderately cold water (i.e., 65°F or lower). On land, hypothermia may take a full day or more of exposure to develop; however, if the conditions are extremely severe, death may occur within a few hours of initial symptoms.

In cold water, death may seem to be from drowning; in reality, it is usually the result of hypothermia. In water, skin and nearby tissues chill very fast; in 10 to 15 minutes, the temperature of the heart and brain may drop. When the core (i.e., internal body) temperature reaches 90°F, unconsciousness may occur; when body temperature drops to 80°F, heart failure is possible.

Symptoms

In the early stages of hypothermia, the body begins to lose heat faster than it can be produced, making an effort to stay warm by shivering. When the body can no longer generate enough heat to overcome heat loss and the energy reserves of the body become exhausted, body temperature begins to drop. This affects the ability of the brain to make judgments and also results in loss of muscular control. As the body temperature drops, hypothermia symptoms become increasingly severe, as shown in the following table:

SYMPTOMS OF HYPOTHERMIA	APPROXIMATE CORE TEMPERATURE
Person is conscious, alert with increased respiration. Shivering may become uncontrollable as core temperature nears 95°F.	Above 95°
Person is conscious but disoriented and apathetic. Shivering is present but diminishes as temperature drops. Below 92°F, respiratory rate gradually diminishes and pupils being to dilate.	95° to 90°F
Person is semiconscious. Shivering is replaced by muscular rigidity. Pupils are fully dilated at about 86°F.	90° to 86°F
Unconscious; diminished respiration.	Below 86°F
Barely detectable or nondetectable respiration.	Below 80°F

Emergency Treatment of Hypothermia.

Move hypothermia victim to shelter and warmth as rapidly as possible. In very mild cases, dry clothing and shelter may be all that is needed. Gently remove all of the victim's wet clothing (so energy is not expended by warming and drying wet clothing) and replace it with a dry set. Give the person something warm to drink. DO NOT GIVE ALCOHOLIC BEVERAGES.

ALL OTHER HYPOTHERMIA CASES SHOULD BE CONSIDERED MEDICAL EMERGENCIES. PROVIDE EXTERNAL HEAT IN ANY WAY POSSIBLE! A warm bath (with the water kept between 105° and 110°F) is the most effective way of warming a victim of hypothermia. NEVER put an UNCONSCIOUS VICTIM in a bathtub.

If it is not possible to give the person a warm bath, use one of the following ALTERNATE METHODS:

- Wrap warm moist towels (or other fabric) around the victim's head, neck, sides, and groin. As the packs cool, rewarm them by adding warm water (approximately 105°F). Check the temperature of the water with your elbow or the inside of your arm; it should be warm but not hot.

- If you are at a remote outdoor location and cannot use the other method, make a "human sandwich" by placing the unclothed victim in a sleeping bag (or between blankets) with two other undressed persons to provide body-to-body heat transfer. THIS WILL SAVE LIVES. Additional sleeping bags or blankets can be placed over and under the victim.

DO NOT wrap a hypothermia victim in a blanket without an auxiliary source of heat unless it is to protect against any further heat loss before treatment can begin, or you need to go for help and there is no other alternative.

Continue treatment once the victim has stabilized. Give warm liquids and nourishing food if the person is conscious. Check the person for symptoms of frostbite and if necessary, give treatment.

Handle the patient gently and do not allow him or her to walk. Exertion can circulate cold stagnant blood from extremities to the central body and cause "after-drop," in which the patient's core temperature drops below the level that will sustain life. ALCOHOL CONTRIBUTES TO AFTER-DROP.

Medical Care for Hypothermia

HYPOTHERMIA IS A SEVERE EMERGENCY. GET MEDICAL TREATMENT AS SOON AS POSSIBLE. Even persons with mild hypothermia should see a doctor.

Prevention of Hypothermia

In cold weather, never go into the field without wearing adequate clothing. Take a complete change of warm clothes and one or two extra pairs of socks (in plastic bags). Wear or carry a windproof, water-resistant outer jacket and, in rain or snow, wear adequate raingear.

Stay dry. If your clothing becomes wet from perspiration, rain, snow, or immersion in water, change it as soon as possible. If you start to shiver in a prolonged or violent way, seek shelter at once. Shivering may produce heat but it also uses up energy. Violent shivering may be an early sign of hypothermia.

Avoid accidental immersion in water. Practice boat safety and learn cold water survival techniques. If you fall into water and you are not very close to shore, remain quiet. Keep your head out of water, climb onto the boat, or hold or climb onto any other object that will support you and keep you up out of the water.

Safety/First Aid Equipment. In view of the causes, results, and appropriate treatment of cold weather injuries discussed previously, as a minimum, the following safety equipment should be included during cold weather operations:

- extra clothing for all personnel
- blankets and/or sleeping bag
- high-energy food and drinking water supply
- toboggan
- tow ropes

In extreme cold conditions, add the following safety items:

- electric blanket (if an electrical source is available)
- portable emergency generator (with fuel, oil, and cords)
- space heater and fuel

General Winter Operations. Cold weather conditions can severely affect winter operations. The Site Manager and HSO must plan work schedules and project tasks accordingly.

Preliminary Assessment. If you will be working outdoors in cold weather, assess the local weather conditions through the news media (i.e., radio, television, and

newspapers) to determine whether work should progress and/or the amount of preparation needed. Carefully consider questions such as the following:

- What are the typical wind and weather conditions for the period in which you will be working?
- Are the areas in which you will work sheltered or open to the wind?
- Is there a place nearby for periodic warming breaks? Can you obtain or heat warm food and beverages there? Is there a source of drinking water?
- Are there ways to minimize the length of time that crew members will have to work outdoors in the cold?
- If you use a vehicle for a warming area or will use a heater in a closed room, how can you ensure there is adequate ventilation to prevent carbon monoxide poisoning?

Scheduling. Wherever possible, try to schedule work during the least severe weather. Rotate crew members to keep cold exposures short and allow sufficient time for frequent warming breaks. Remember that workers in heavy clothing often need more time to complete the tasks and may become fatigued more easily. Be aware that operations may have to be discontinued if winds increase or the temperature drops.

Because winter days are short, scheduling should allow time for taking care of equipment and supplies before nightfall. Once it becomes dark, it is more difficult to gauge terrain, and temperatures are likely to drop.

Site Access. Snow and ice could make travel on site access roads impossible, or treacherous at best. Personnel should not be allowed to work on-site if conditions could severely hamper the arrival or departure of emergency vehicles. If the route to off-site medical facilities is blocked by snow or ice, an otherwise minor injury could result in a major medical emergency. If conditions warrant, the following provisions should be made:

- snow removal/plowing services for site access roads

- a dependable, four-wheel-drive vehicle available to on-site personnel for transporting an injured person to an off-site medical facility

- sleeping bags, blankets, a food supply, and water kept on-site in the event a sudden storm requires personnel to remain overnight

The HSO is responsible for deciding when weather conditions make site access unsafe, thereby requiring work to stop until conditions improve.

Equipment and Supplies. Obtain equipment and supplies that will help prevent cold stress and will help in the treatment of cold stress disorders. Required equipment includes a reliable ambient temperature thermometer, a wind gauge, and a windchill chart. If the site is potentially windy due to a lack of natural or manmade windbreaks (e.g., trees, valleys, and structures), try to provide means of shielding workers from the wind. If working at a remote location, carry extra food and water because hunger and dehydration contribute to cold stress. If possible, make provisions for hot food and beverages. Ensure that emergency communication equipment is available and operational for crew members working in the cold, at heights, or in remote locations.

Close attention must be given to the effects of cold weather on field equipment. Batteries can be severely affected by cold resulting in disabled radios, air monitoring equipment, sampling pumps, and vehicles. A supply of fresh batteries, a sufficient number of charging units, and a set of automotive jumper cables should be maintained on-site. In addition, the electronics in many field instruments such as PI, LEL, and oxygen meters, as well as the chemical reactions in detector tubes (e.g., Draeger tubes) can also be adversely affected by the cold. The manufacturers' literature must be consulted for minimum operating temperatures.

If at all possible, monitoring well sampling tasks should not be scheduled during cold weather. These tasks generally require the use of relatively delicate pumps; long, uninsulated stretches of tubing; and significant quantities of decontamination solutions. Unless considerable effort is expended to prevent pumps, hoses, decontamination solutions, and sample containers from freezing, attempting to sample monitoring wells in cold weather may be counterproductive. Portable shelters should be considered if cold weather sampling is necessary.

EXCAVATION AND TRENCHING

EXCAVATION PROCEDURES

Because excavations and trenches pose a hazard to employees, structures, and equipment, all excavations created during site operations will be done in accordance with 29 CFR 1926 Subpart P. The following steps summarize the excavation procedures that will be followed by all ABB Environmental personnel:

- Prior to excavating or trenching, all surface encumbrances located so as to create a hazard to the employees will be removed or supported, and all underground utilities will be determined and located.

- Entry into excavations will be avoided at all costs. If entry is unavoidable, the excavation will be considered a confined space; as such, entry will be done in accordance with the Confined Space Entry Program (see Appendix D).

- Under no circumstances will site personnel enter excavations with a depth of over 5 feet that are not adequately protected from cave-ins by shoring or sloping.

- Stairways, ladders, or ramps will be located in trenches deeper than 4 feet and situated to require no more than 25 feet of lateral travel.

- Excavations below the base of a building or structure will not be permitted unless the building or structure is adequately supported or a registered professional engineer determines that the excavation will not pose a hazard to the employee.

- All equipment will be kept at least 2 feet from the edge of the excavation.

- Any excavation left open and unattended will be barricaded or covered until it can be backfilled.

SLOPING

Acceptable options for sloping or benching include the following:

Option 1. A slope of 1½ horizontal to 1 vertical (34 degrees measured from the horizontal).

Option 2. Determination of the maximum allowable slope based on soil conditions and in accordance with the conditions and requirements set forth in 1926 Subpart P, Appendices A and B (see Attachment A).

Option 3. Designs of sloping or benching systems using tabulated data approved by a registered professional engineer.

Option 4. Other systems designed by a registered professional engineer.

SHORING

Acceptable options for shoring include the following:

Option 1. Designs using Appendices A, C, and D of 1926 Subpart P (see Attachment A).

Option 2. Designs using manufacturers tabulated data.

Option 3. Designs using tabulated data approved by a registered professional engineer.

Option 4. Other support systems designed by a registered professional engineer.

29 CFR 1926 SUBPART P
APPENDICES A THROUGH D

OCCUPATIONAL SAFETY AND HEALTH STANDARDS - EXCAVATIONS

(ii) Installation of a support system shall be closely coordinated with the excavation of trenches.

(f) *Sloping and benching systems.* Employees shall not be permitted to work on the faces of sloped or benched excavations at levels above other employees except when employees at the lower levels are adequately protected from the hazard of falling, rolling, or sliding material or equipment.

(g) *Shield systems*—(1) *General.* (i) Shield systems shall not be subjected to loads exceeding those which the system was designed to withstand.

(ii) Shields shall be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.

(iii) Employees shall be protected from the hazard of cave-ins when entering or exiting the areas protected by shields.

(iv) Employees shall not be allowed in shields when shields are being installed, removed, or moved vertically.

(2) *Additional requirement for shield systems used in trench excavations.* Excavations of earth material to a level not greater than 2 feet (.61 m) below the bottom of a shield shall be permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench, and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the shield.

Appendix A to Subpart P

Soil Classification

(a) *Scope and application*—(1) *Scope.* This appendix describes a method of classifying soil and rock deposits based on site and environmental conditions, and on the structure and composition of the earth deposits. The appendix contains definitions, sets forth requirements, and describes acceptable visual and manual tests for use in classifying soils.

(2) *Application.* This appendix applies when a sloping or benching system is designed in accordance with the requirements set forth in § 1926.652(b)(2) as a method of protection for employees from cave-ins. This appendix also applies when timber shoring for excavations is designed as a method of protection from cave-ins in accordance with appendix C to subpart P of part 1926, and when aluminum hydraulic shoring is designed in accordance with appendix D. This Appendix also applies if other protective systems are designed and selected for use from data prepared in accordance with the requirements set forth in § 1926.652(c), and the use of the data is predicated on the use of the soil classification system set forth in this appendix.

(b) *Definitions.* The definitions and examples given below are based on, in whole or in part, the following: American Society for Testing Materials (ASTM) Standards D653–85 and D2488; The Unified Soils Classification System. The U.S. Department of Agriculture (USDA) Textural Classification Scheme; and The National Bureau of Standards Report BSS–121.

Cemented soil means a soil in which the particles are held together by a chemical agent, such as calcium carbonate, such that a hand-size sample cannot be crushed into powder or individual soil particles by finger pressure.

Cohesive soil means clay (fine grained soil), or soil with a high clay content, which has cohesive strength. Cohesive soil does not crumble, can be excavated with vertical sideslopes, and is plastic when moist. Cohesive soil is hard to break up when dry, and exhibits significant cohesion when submerged. Cohesive soils include clayey silt, sandy clay, silty clay, clay and organic clay.

Dry soil means soil that does not exhibit visible signs of moisture content.

Fissured means a soil material that has a tendency to break along definite planes of fracture with little resistance, or a material that exhibits open cracks, such as tension cracks, in an exposed surface.

Granular soil means gravel, sand, or silt (coarse grained soil) with little or no clay content. Granular soil has no cohesive strength. Some moist granular soils exhibit apparent cohesion. Granular soil cannot be molded when moist and crumbles easily when dry.

Layered system means two or more distinctly different soil or rock types arranged in layers. Micaceous seams or weakened planes in rock or shale are considered layered.

Moist soil means a condition in which a soil looks and feels damp. Moist cohesive soil can easily be shaped into a ball and rolled into small diameter threads before crumbling. Moist granular soil that contains some cohesive material will exhibit signs of cohesion between particles.

Plastic means a property of a soil which allows the soil to be deformed or molded without cracking, or appreciable volume change.

Saturated soil means a soil in which the voids are filled with water. Saturation does not require flow. Saturation, or near saturation, is necessary for the proper use of instruments such as a pocket penetrometer or shear vane.

Soil classification system means, for the purpose of this subpart, a method of categorizing soil and rock deposits in a hierarchy of Stable Rock, Type A, Type B, and Type C, in decreasing order of stability. The categories are determined based on an analysis of the properties and performance characteristics of the deposits and the environmental conditions of exposure.

Stable rock means natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

Submerged soil means soil which is underwater or is free seeping.

Type A means cohesive soils with an unconfined compressive strength of 1.5 ton per square foot (tsf) (144 kPa) or greater. Examples of cohesive soils are: clay, silty clay, sandy clay, clay loam and, in some cases, silty clay loam and sandy clay loam. Cemented soils such as caliche and hardpan are also considered Type A. However, no soil is Type A if:

(i) The soil is fissured; or

(ii) The soil is subject to vibration from heavy traffic, pile driving, or similar effects; or

(iii) The soil has been previously disturbed; or

(iv) The soil is part of a sloped, layered system where the layers dip into the excavation on a slope of four horizontal to one vertical (4H:1V) or greater; or

(v) The material is subject to other factors that would require it to be classified as a less stable material.

Type B means:

(i) Cohesive soil with an unconfined compressive strength greater than 0.5 tsf (48 kPa) but less than 1.5 tsf (144 kPa); or

(ii) Granular cohesionless soils including: angular gravel (similar to crushed rock), silt, silt loam, sandy loam and, in some cases, silty clay loam and sandy clay loam.

(iii) Previously disturbed soils except those which would otherwise be classed as Type C soil.

(iv) Soil that meets the unconfined compressive strength or cementation requirements for Type A, but is fissured or subject to vibration; or

(v) Dry rock that is not stable; or

(vi) Material that is part of a sloped, layered system where the layers dip into the excavation on a slope less steep than four horizontal to one vertical (4H:1V), but only if the material would otherwise be classified as Type B.

Type C means:

(i) Cohesive soil with an unconfined compressive strength of 0.5 tsf (48 kPa) or less; or

(ii) Granular soils including gravel, sand, and loamy sand; or

(iii) Submerged soil or soil from which water is freely seeping; or

(iv) Submerged rock that is not stable, or

(v) Material in a sloped, layered system where the layers dip into the excavation or a slope of four horizontal to one vertical (4H:1V) or steeper.

Unconfined compressive strength means the load per unit area at which a soil will fail in compression. It can be determined by laboratory testing, or estimated in the field using a pocket penetrometer, by thumb penetration tests, and other methods.

Wet soil means soil that contains significantly more moisture than moist soil, but in such a range of values that cohesive material will slump or begin to flow when vibrated. Granular material that would exhibit cohesive properties when moist will lose those cohesive properties when wet.

(c) *Requirements*—(1) *Classification of soil and rock deposits.* Each soil and rock deposit shall be classified by a competent person as Stable Rock, Type A, Type B, or Type C in accordance with the definitions set forth in paragraph (b) of this appendix.

(2) *Basis of classification.* The classification of the deposits shall be made based on the results of at least one visual and at least one manual analysis. Such analyses

shall be conducted by a competent person using tests described in paragraph (d) below, or in other recognized methods of soil classification and testing such as those adopted by the American Society for Testing Materials, or the U.S. Department of Agriculture textural classification system.

(3) *Visual and manual analyses.* The visual and manual analyses, such as those noted as being acceptable in paragraph (d) of this appendix, shall be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to identify properly the properties, factors, and conditions affecting the classification of the deposits.

(4) *Layered systems.* In a layered system, the system shall be classified in accordance with its weakest layer. However, such layer may be classified individually where a more stable layer lies under a less stable layer.

(5) *Reclassification.* If, after classifying a deposit, the properties, factors, or conditions affecting its classification change in any way, the changes shall be evaluated by a competent person. The deposit shall be reclassified as necessary to reflect the changed circumstances.

(d) *Acceptable visual and manual tests.*—(1) *Visual tests.* Visual analysis is conducted to determine qualitative information regarding the excavation site in general, the soil adjacent to the excavation, the soil forming the sides of the open excavation, and the soil taken as samples from excavated material.

(i) Observe samples of soil that are excavated and soil in the sides of the excavation. Estimate the range of particle sizes and the relative amounts of the particle sizes. Soil that is primarily composed of fine-grained material is cohesive material. Soil composed primarily of coarse-grained sand or gravel is granular material.

(ii) Observe soil as it is excavated. Soil that remains in clumps when excavated is cohesive. Soil that breaks up easily and does not stay in clumps is granular.

(iii) Observe the side of the opened excavation and the surface area adjacent to the excavation. Crack-like openings such as tension cracks could indicate fissured material. If chunks of soil spall off a vertical side, the soil could be fissured. Small spalls are evidence of moving ground and are indications of potentially hazardous situations.

(iv) Observe the area adjacent to the excavation and the excavation itself for evidence of existing utility and other underground structures, and to identify previously disturbed soil.

(v) Observe the opened side of the excavation to identify layered systems. Examine layered systems to identify if the layers slope toward the excavation. Estimate the degree of slope of the layers.

(vi) Observe the area adjacent to the excavation and the sides of the opened excavation for evidence of surface water, water seeping from the sides of the excavation, or the location of the level of the water table.

(vii) Observe the area adjacent to the excavation and the area within the excavation for sources of vibration that may affect the stability of the excavation face.

(2) *Manual tests.* Manual analysis of soil samples is conducted to determine quantitative as well as qualitative properties of soil and to provide more information in order to classify soil properly.

(i) *Plasticity.* Mold a moist or wet sample of soil into a ball and attempt to roll it into threads as thin as ⅛-inch in diameter. Cohesive material can be successfully rolled into threads without crumbling. For example, if at least a two inch (50 mm) length of ⅛-inch thread can be held on one end without tearing, the soil is cohesive.

(ii) *Dry strength.* If the soil is dry and crumbles on its own or with moderate pressure into individual grains or fine powder, it is granular (any combination of gravel, sand, or silt). If the soil is dry and falls into clumps which break up into smaller clumps, but the smaller clumps can only be broken up with difficulty, it may be clay in any combination with gravel, sand or silt. If the dry soil breaks into clumps which do not break up into small clumps and which can only be broken with difficulty, and there is no visual indication the soil is fissured, the soil may be considered unfissured.

(iii) *Thumb penetration.* The thumb penetration test can be used to estimate the unconfined compressive strength of cohesive soils. (This test is based on the thumb penetration test described in American Society for Testing and Materials (ASTM) Standard designation D2488—"Standard Recommended Practice for Description of Soils (Visual—Manual Procedure)."). Type A soils with an unconfined compressive strength of 1.5 tsf can be readily indented by the thumb; however, they can be penetrated by the thumb only with very great effort. Type C soils with an unconfined compressive strength of 0.5 tsf can be easily penetrated several inches by the thumb, and can be molded by light finger pressure. This test should be conducted on an undisturbed soil sample, such as a large clump of spoil, as soon as practicable after excavation to keep to a minimum the effects of exposure to drying influences. If the excavation is later exposed to wetting influences (rain, flooding), the classification of the soil must be changed accordingly.

(iv) *Other strength tests.* Estimates of unconfined compressive strength of soils can also be obtained by use of a pocket penetrometer or by using a hand-operated shearvane.

(v) *Drying test.* The basic purpose of the drying test is to differentiate between cohesive material with fissures, unfissured cohesive material, and granular material. The procedure for the drying test involves drying a sample of soil that is approximately one inch thick (2.54 cm) and six inches (15.24 cm) in diameter until it is thoroughly dry:

(A) If the sample develops cracks as it dries, significant fissures are indicated.

(B) Samples that dry without cracking are to be broken by hand. If considerable force is necessary to break a sample, the soil has significant cohesive material content. The soil can be classified as a unfissured cohesive material and the unconfined compressive strength should be determined.

(C) If a sample breaks easily by hand, it is either a fissured cohesive material or a granular material. To distinguish between the two, pulverize the dried clumps of the sample by hand or by stepping on them. If the clumps do not pulverize easily, the material is cohesive with fissures. If they pulverize easily into very small fragments, the material is granular.

Appendix B to Subpart P

Sloping and Benching

(a) *Scope and application.* This appendix contains specifications for sloping and benching when used as methods of protecting employees working in excavations from cave-ins. The requirements of this appendix apply when the design of sloping and benching protective systems is to be performed in accordance with the requirements set forth in § 1926.652(b)(2).

(b) *Definitions.*

Actual slope means the slope to which an excavation face is excavated.

Distress means that the soil is in a condition where a cave-in is imminent or is likely to occur. Distress is evidenced by such phenomena as the development of fissures in the face of or adjacent to an open excavation; the subsidence of the edge of an excavation; the slumping of material from the face or the bulging or heaving of material from the bottom of an excavation; the spalling of material from the face of an excavation; and raveling, i.e., small amounts of material such as pebbles or little clumps of material suddenly separating from the face of an excavation and trickling or rolling down into the excavation.

Maximum allowable slope means the steepest incline of an excavation face that is acceptable for the most favorable site conditions as protection against cave-ins, and is expressed as the ratio of horizontal distance to vertical rise (H:V).

Short term exposure means a period of time less than or equal to 24 hours that an excavation is open.

(c) *Requirements*—(1) *Soil classification.* Soil and rock deposits shall be classified in accordance with appendix A to subpart P of part 1926.

(2) *Maximum allowable slope.* The maximum allowable slope for a soil or rock deposit shall be determined from Table B-1 of this appendix.

(3) *Actual slope.* (i) The actual slope shall not be steeper than the maximum allowable slope.

(ii) The actual slope shall be less steep than the maximum allowable slope, when there are signs of distress. If that situation occurs, the slope shall be cut back to an actual slope which is at least ½ horizontal to one vertical (½H:1V) less steep than the maximum allowable slope.

(iii) When surcharge loads from stored material or equipment, operating equipment, or traffic are present, a competent person shall determine the degree to which the actual slope must be reduced below the maximum allowable slope, and shall assure that such reduction is achieved. Surcharge loads from adjacent structures shall be evaluated in accordance with § 1926.651(i).

(4) *Configurations.* Configurations of sloping and benching systems shall be in accordance with Figure B-1.

TABLE B-1

MAXIMUM ALLOWABLE SLOPES

SOIL OR ROCK TYPE	MAXIMUM ALLOWABLE SLOPES (H:V) [1] FOR EXCAVATIONS LESS THAN 20 FEET DEEP [3]
STABLE ROCK TYPE A [2] TYPE B TYPE C	VERTICAL (90°) 3/4 : 1 (53°) 1:1 (45°) 1½: 1 (34°)

NOTES:

1. Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.
2. A short-term maximum allowable slope of 1/2H:1V (63°) is allowed in excavations in Type A soil that are 12 feet (3.67 m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth shall be 3/4H:1V (53°).
3. Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

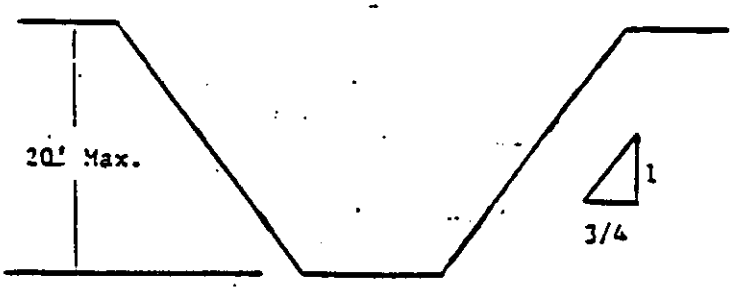
Figure B-.

Slope Configurations

(All slopes stated below are in the horizontal to vertical ratio)

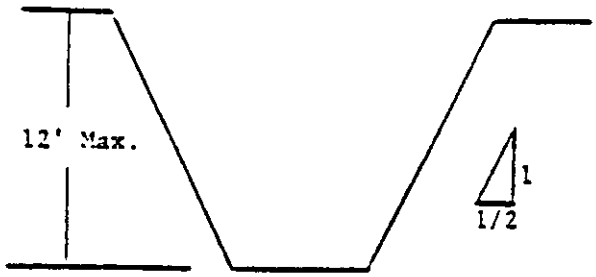
B-1.1 Excavations made in Type A soil.

1. All simple slope excavation 20 feet or less in depth shall have a maximum allowable slope of ¾:1.



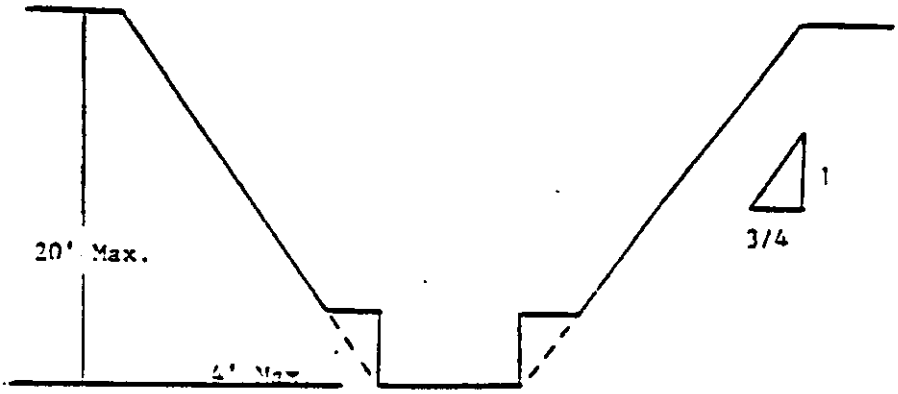
Simple Slope—General

Exception: Simple slope excavations which are open 24 hours or less (short term) and which are 12 feet or less in depth shall have a maximum allowable slope of ½:1.

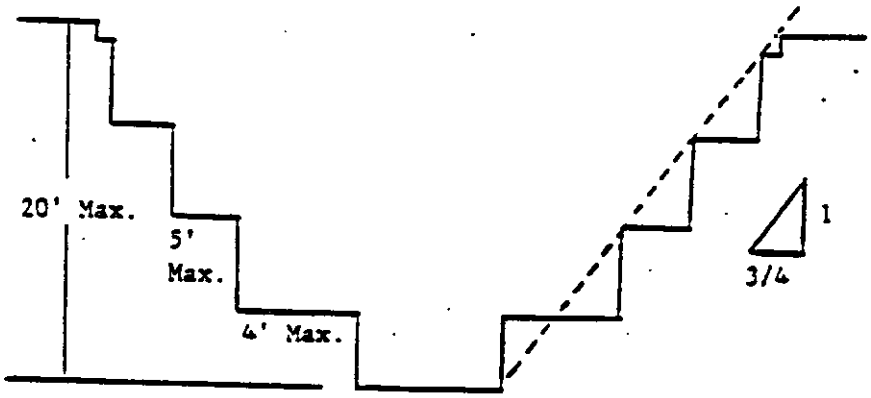


Simple Slope—Short Term

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of ¾ to 1 and maximum bench dimensions as follows:

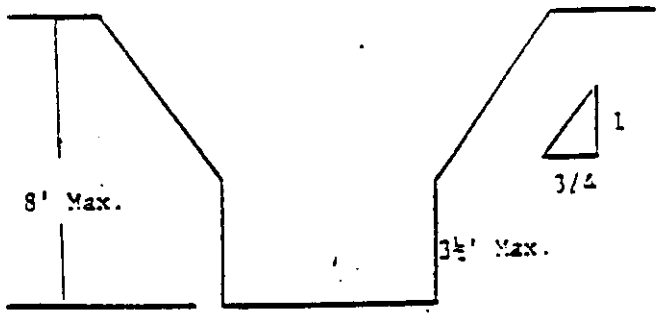


Simple Bench



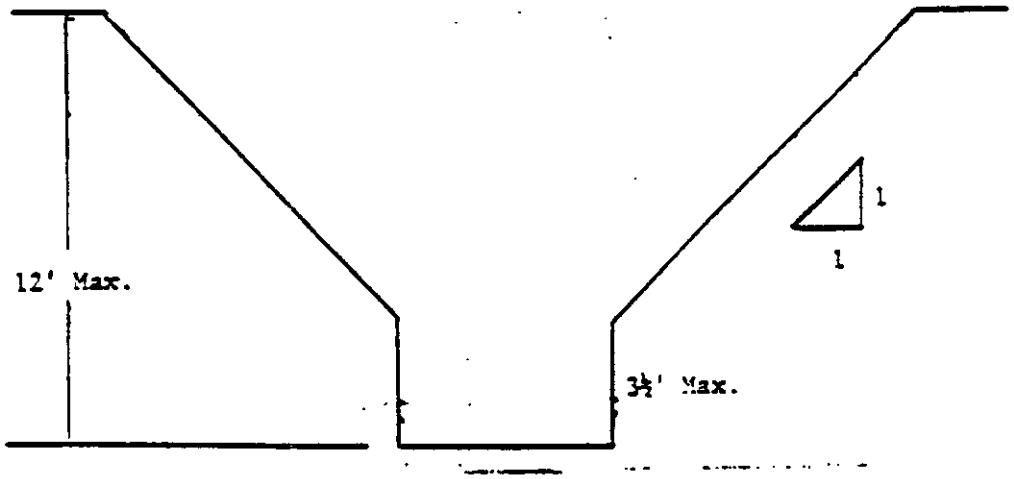
Multiple Bench

3. All excavations 8 feet or less in depth which have unsupported vertically sided lower portions shall have a maximum vertical side of 3½ feet.



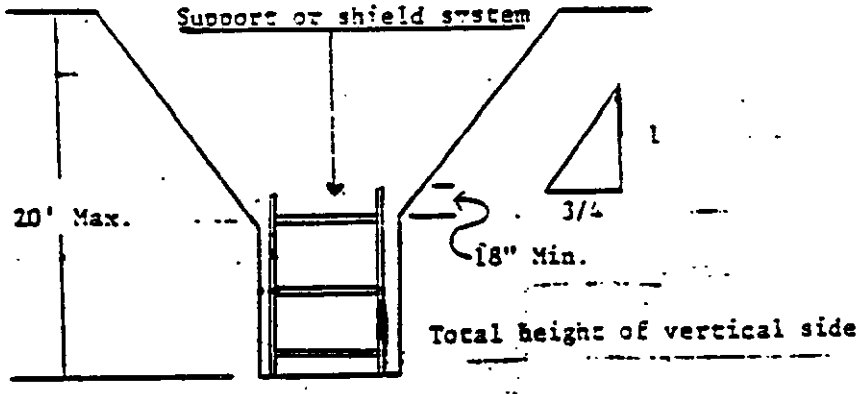
Unsupported Vertically Sided Lower Portion—Maximum 8 Feet in Depth

All excavations more than 8 feet but not more than 12 feet in depth which unsupported vertically sided lower portions shall have a maximum allowable slope of 1:1 and a maximum vertical side of 3½ feet.



Unsupported Vertically Sided Lower Portion—Maximum 12 Feet in Depth

All excavations 20 feet or less in depth which have vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of ¾:1. The support or shield system must extend at least 18 inches above the top of the vertical side.

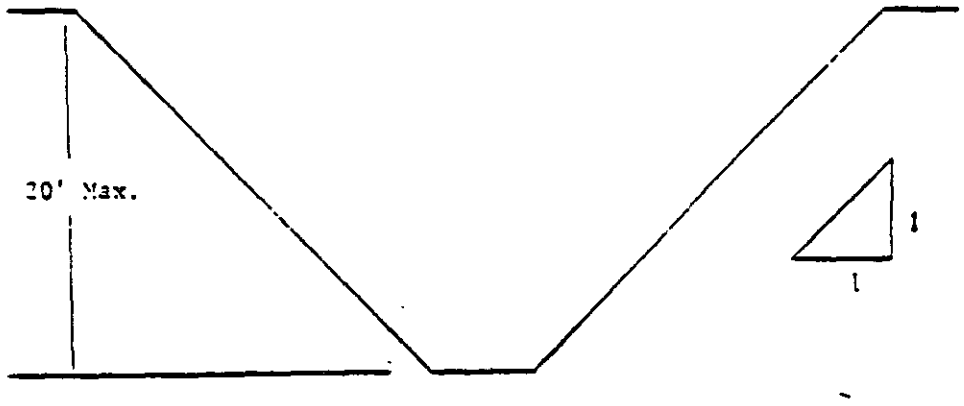


Suported or Shielded Vertically Sided Lower Portion

4. All other simple slope, compound slope, and vertically sided lower portion excavations shall be in accordance with the other options permitted under § 1926.652(b).

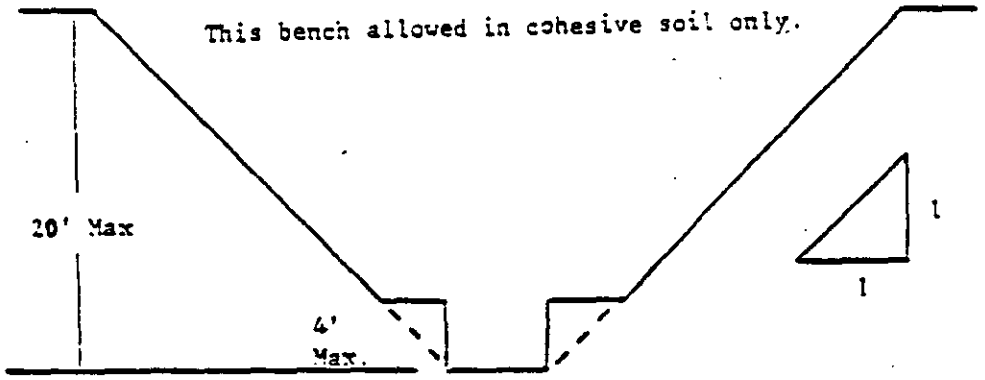
B-1.2 Excavations Made in Type B Soil

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1.

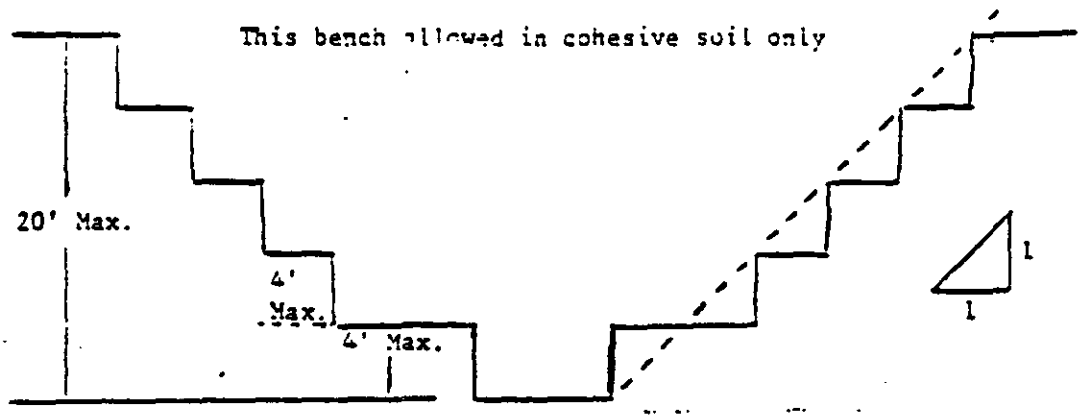


Simple Slope

2. All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1 and maximum bench dimensions as follows:

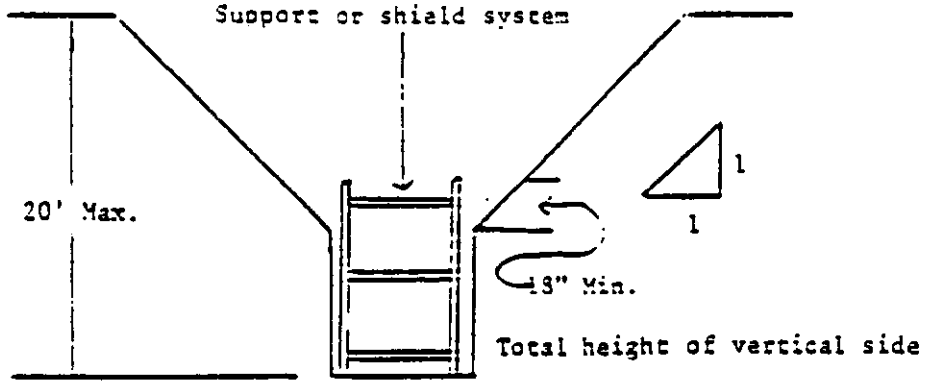


Single Bench



Multiple Bench

3. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1:1.

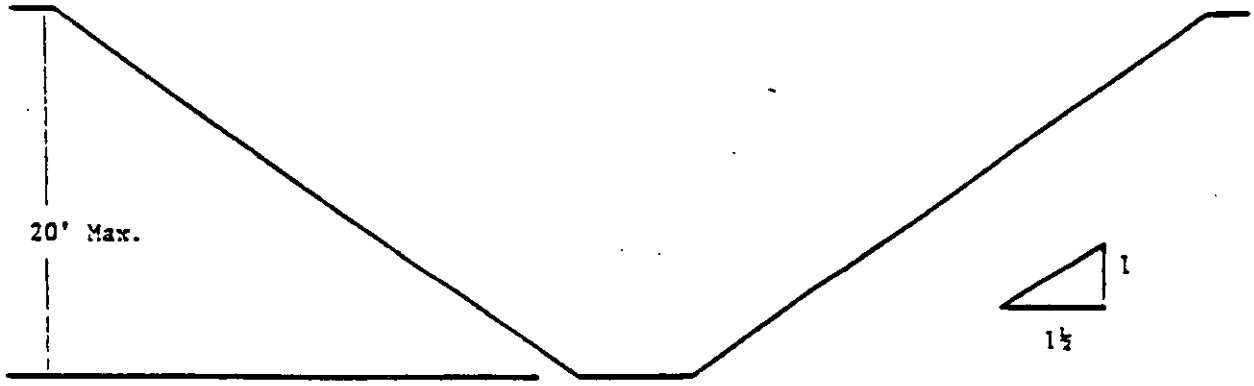


Vertically Sided Lower Portion

4. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

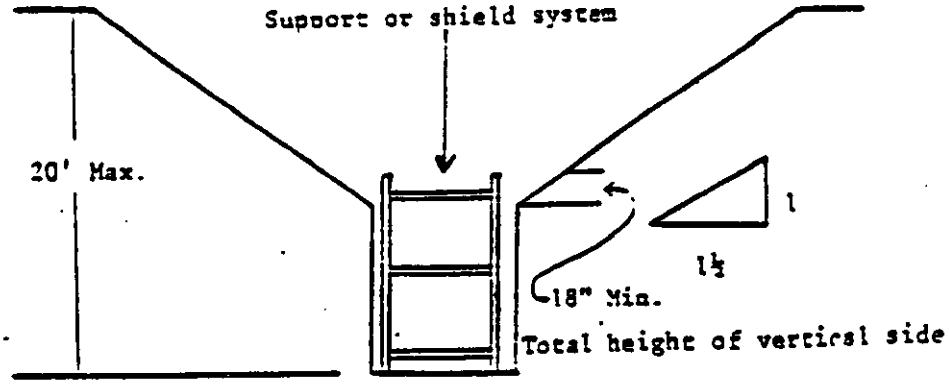
B–1.3 Excavations Made in Type C Soil

1. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1½:1.



Simple Slope

2. All excavations 20 feet or less in depth which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. All such excavations shall have a maximum allowable slope of 1½:1.

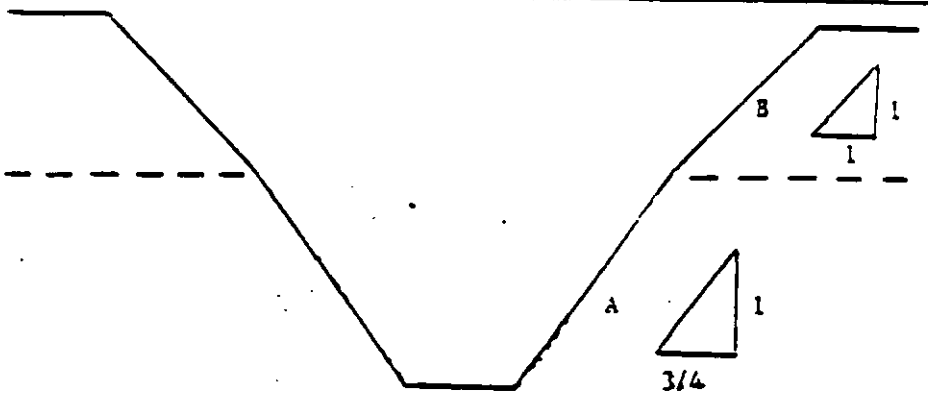


Vertical Sided Lower Portion

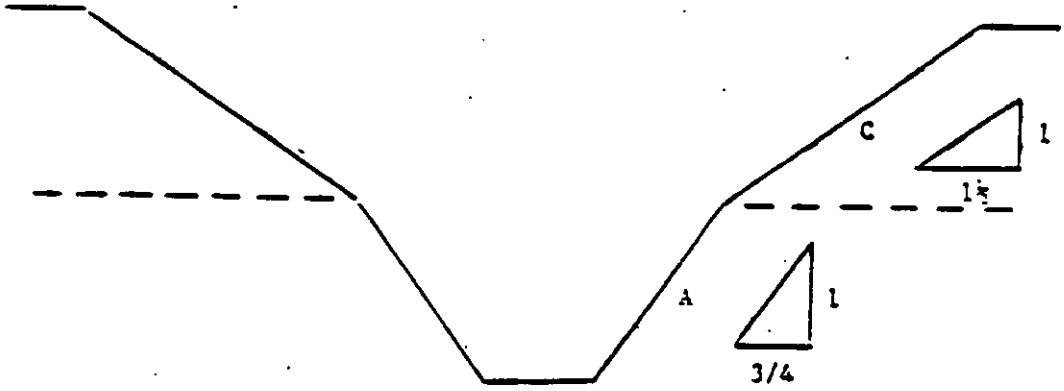
3. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

B–1.4 Excavations Made in Layered Soils

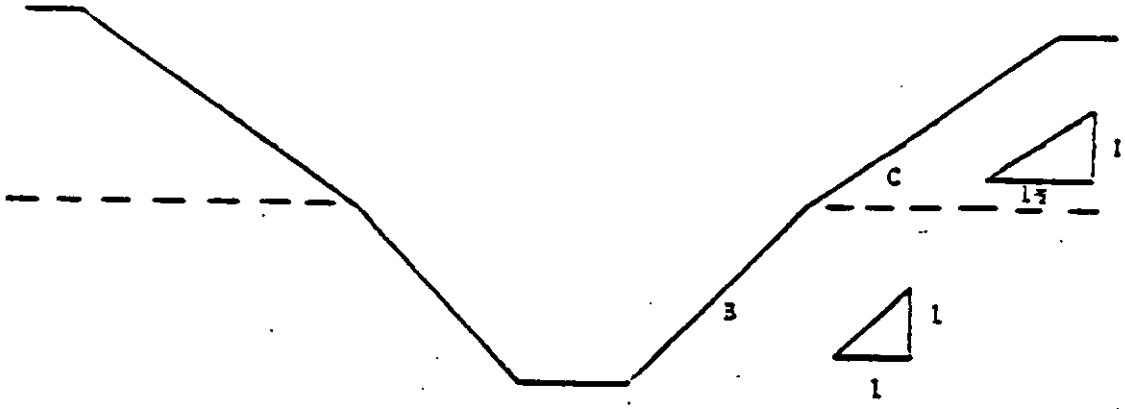
1. All excavations 20 feet or less in depth made in layered soils shall have a maximum allowable slope for each layer as set forth below.



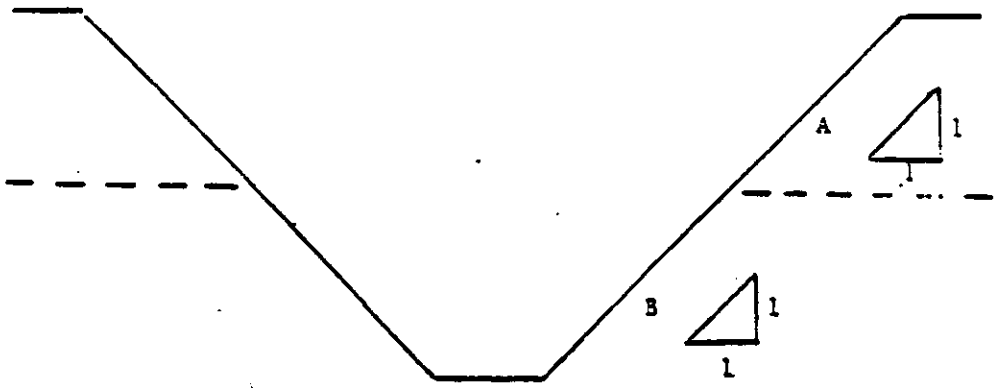
B OVER A



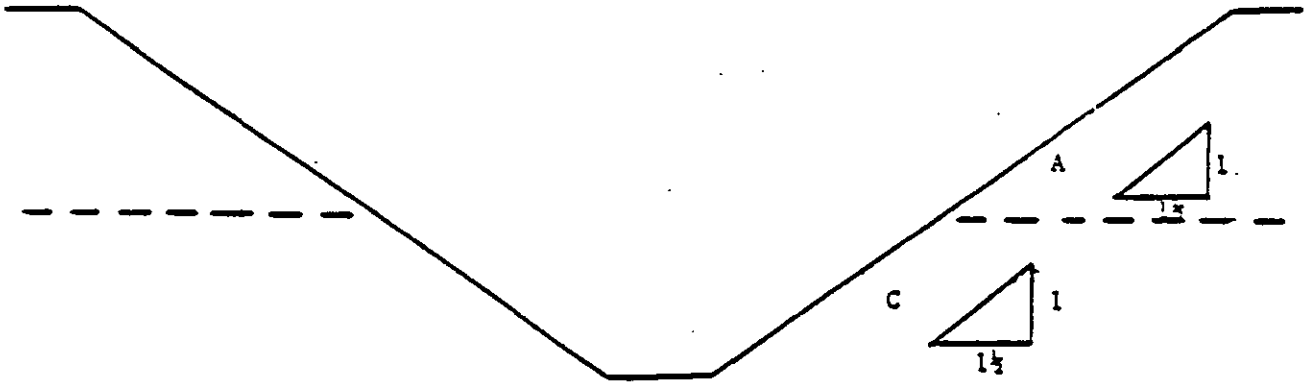
C OVER A



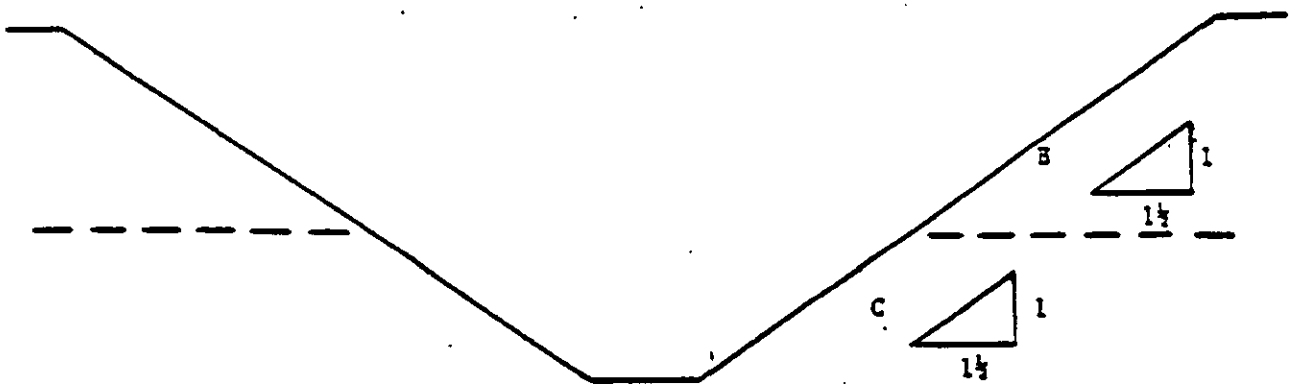
C OVER B



A OVER B



A OVER C



B OVER C

2. All other sloped excavations shall be in accordance with the other options permitted in § 1926.652(b).

Appendix C to Subpart P

Timber Shoring for Trenches

(a) *Scope.* This appendix contains information that can be used timber shoring is provided as a method of protection from cave-ins in trenches that do not exceed 20 feet (6.1 m) in depth. This appendix must be used when design of timber shoring protective systems is to be performed in accordance with § 1926.652(c)(1). Other timber shoring configurations; other systems of support such as hydraulic and pneumatic systems; and other protective systems such as sloping, benching, shielding, and freezing systems must be designed in accordance with the requirements set forth in § 1926.652(b) and § 1926.652(c).

(b) *Soil Classification.* In order to use the data presented in this appendix, the soil type or types in which the excavation is made must first be determined using the soil

classification method set forth in appendix A of subpart P of this part.

(c) *Presentation of information.* Information is presented in several forms as follows:

(1) Information is presented in tabular form in Tables C–1.1, C–1.2, and C–1.3, and Tables C–2.1, C–2.2 and C–2.3 following paragraph (g) of the appendix. Each table presents the minimum sizes of timber members to use in a shoring system, and each table contains data only for the particular soil type in which the excavation or portion of the excavation is made. The data are arranged to allow the user the flexibility to select from among several acceptable configurations of members based on varying the horizontal spacing of the crossbraces. Stable rock is exempt from shoring requirements and therefore, no data are presented for this condition.

(2) Information concerning the basis of the tabular data and the limitations of the data is presented in paragraph (d) of this appendix, and on the tables themselves.

(3) Information explaining the use of the tabular data is presented in paragraph (e) of this appendix.

(4) Information illustrating the use of the tabular data is presented in paragraph (f) of this appendix.

(5) Miscellaneous notations regarding Tables C–1.1 through C–1.3 and Tables C–2.1 through C–2.3 are presented in paragraph (g) of this Appendix.

(d) *Basis and limitations of the data.*—(1) *Dimensions of timber members.* (i) The sizes of the timber members listed in Tables C–1.1 through C–1.3 are taken from the National Bureau of Standards (NBS) report, "Recommended Technical Provisions for Construction Practice in Shoring and Sloping of Trenches and Excavations." In addition, where NBS did not recommend specific sizes of members, member sizes are based on an analysis of the sizes required for use by existing codes and on empirical practice.

(ii) The required dimensions of the members listed in Tables C–1.1 through C–1.3 refer to actual dimensions and not nominal dimensions of the timber. Employers wanting to use nominal size shoring are directed to Tables C–2.1 through C–2.3, or have the choice under § 1926.652(c)(3), and are referred to The Corps of Engineers, The Bureau of Reclamation or data from other acceptable sources.

(2) *Limitation of application.* (i) It is not intended that the timber shoring specification apply to every situation that may be experienced in the field. These data were developed to apply to the situations that are most commonly experienced in current trenching practice. Shoring systems for use in situations that are not covered by the data in this appendix must be designed as specified in § 1926.652(c).

(ii) When any of the following conditions are present, the members specified in the tables are not considered adequate. Either an alternate timber shoring system must be designed or another type of protective system designed in accordance with § 1926.652.

(A) When loads imposed by structures or by stored material adjacent to the trench weigh in excess of the load imposed by a two-foot soil surcharge. The term "adjacent" as used here means the area within a horizontal distance from the edge of the trench equal to the depth of the trench.

(B) When vertical loads imposed on cross braces exceed a 240-pound gravity load distributed on a one-foot section of the center of the crossbrace.

(C) When surcharge loads are present from equipment weighing in excess of 20,000 pounds.

(D) When only the lower portion of a trench is shored and the remaining portion of the trench is sloped or benched unless: The sloped portion is sloped at an angle less steep than three horizontal to one vertical; or the members are selected from the tables for use at a depth which is determined from the top of the overall trench, and not from the toe of the sloped portion.

(e) *Use of Tables.* The members of the shoring system that are to be selected using this information are the cross braces, the uprights, and the wales, where wales are required. Minimum sizes of members are specified for use in different types of soil. There are six tables of information, two for each soil type. The soil type must first be determined in accordance with the soil classification system described in appendix A to subpart P of part 1926. Using the appropriate table, the selection of the size and spacing of the members is then made. The selection is based on the depth and width of the trench where the members are to be installed and, in most instances, the selection is also based on the horizontal spacing of the crossbraces. Instances where a choice of horizontal spacing of crossbracing is available, the horizontal spacing of the crossbraces must be chosen by the user before the size of any member can be determined. When the soil type, the width and depth of the trench, and the horizontal spacing of the crossbraces are known, the size and vertical spacing of the crossbraces, the size and vertical spacing of the wales, and the size and horizontal spacing of the uprights can be read from the appropriate table.

(f) *Examples to Illustrate the Use of Tables C–1.1 through C–1.3.*

(1) *Example 1.*

A trench dug in Type A soil is 13 feet deep and five feet wide.

From *Table C–1.1,* for acceptable arrangements of timber can be used.

Arrangement #1

Space 4×4 crossbraces at six feet horizontally and four feet vertically.

Wales are not required.

Space 3×8 uprights at six feet horizontally. This arrangement is commonly called "skip shoring."

Arrangement #2

Space 4×6 crossbraces at eight feet horizontally and four feet vertically.

Space 8×8 wales at four feet vertically.

Space 2×6 uprights at four feet horizontally.

Arrangement #3

Space 6×6 crossbraces at 10 feet horizontally and four feet vertically.

Space 8×10 wales at four feet vertically.

Space 2×6 uprights at five feet horizontally.

Arrangement #4

Space 6×6 crossbraces at 12 feet horizontally and four feet vertically.

Space 10×10 wales at four feet vertically.

Spaces 3×8 uprights at six feet horizontally.

(2) *Example 2.*

A trench dug in Type B soil in 13 feet deep and five feet wide. From Table C–1.2 three acceptable arrangements of members are listed.

Arrangement #1

Space 6×6 crossbraces at six feet horizontally and five feet vertically.

Space 8×8 wales at five feet vertically.

Space 2×6 uprights at two feet horizontally.

Arrangement #2

Space 6×8 crossbraces at eight feet horizontally and five feet vertically.

Space 10×10 wales at five feet vertically.

Space 2×6 uprights at two feet horizontally.

Arrangement #3

Space 8×8 crossbraces at 10 feet horizontally and five feet vertically.

Space 10×12 wales at five feet vertically.

Space 2×6 uprights at two feet vertically.

(3) *Example 3.*

A trench dug in Type C soil is 13 feet deep and five feet wide.

From Table C–1.3 two acceptable arrangements of members can be used.

Arrangement #1

Space 6×8 crossbraces at six feet horizontally and five feet vertically.

Space 10×12 wales at five feet vertically.

Position 2×6 uprights as closely together as possible.

If water must be retained use special tongue and groove uprights to form tight sheeting.

Arrangement #2

Space 8×10 crossbraces at eight feet horizontally and five feet vertically.

Space 12×12 wales at five feet vertically.

Position 2×6 uprights in a close sheeting configuration unless water pressure must be resisted. Tight sheeting must be used where water must be retained.

(4) *Example 4.*

A trench dug in Type C soil is 20 feet deep and 11 feet wide. The size and spacing of members for the section of trench that is over 15 feet in depth is determined using Table C–1.3. Only one arrangement of members is provided.

Space 8×10 crossbraces at six feet horizontally and five feet vertically.

Space 12×12 wales at five feet vertically.

Use 3×6 tight sheeting.

Use of Tables C–2.1 through C–2.3 would follow the same procedures.

(g) *Notes for all Tables.*

1. Member sizes at spacings other than indicated are to be determined as specified in § 1926.652(c), "Design of Protective Systems."

2. When conditions are saturated or submerged use Tight Sheeting. Tight Sheeting refers to the use of specially-edged timber planks (e.g., tongue and groove) at least three inches thick, steel sheet piling, or similar construction that when driven or placed in position provide a tight wall to resist the lateral pressure of water and to prevent the loss of backfill material. Close Sheeting refers to the placement of planks side-by-side allowing as little space as possible between them.

3. All spacing indicated is measured center to center.

4. Wales to be installed with greater dimension horizontal.

5. If the vertical distance from the center of the lowest crossbrace to the bottom of the trench exceeds two and one-half feet, uprights shall be firmly embedded or a mudsill shall be used. Where uprights are embedded, the vertical distance from the center of the lowest crossbrace to the bottom of the trench shall not exceed 30 inches. When mudsills are used, the vertical distance shall not exceed 42 inches. Mudsills are wales that are installed at the toe of the trench side.

6. Trench jacks may be used in lieu of or in combination with timber crossbraces.

7. Placement of crossbraces. When the vertical spacing of crossbraces is four feet, place the top crossbrace no more than two feet below the top of the trench. When the vertical spacing of crossbraces is five feet, place the top crossbrace no more than 2.5 feet below the top of the trench.

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TABLE C-1.1

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS *

SOIL TYPE A $P_a = 25 \times H + 72$ psf (2 ft Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (ACTUAL) AND SPACING OF MEMBERS **													
	CROSS BRACES						WALES		UPRIGHTS					
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)					VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)				
		UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				CLOSE	4	5	6	8
5 TO 10	UP TO 6	4X4	4X4	4X6	6X6	6X6	4	Not Req'd	---				2X6	
	UP TO 8	4X4	4X4	4X6	6X6	6X6	4	Not Req'd	---					2X8
	UP TO 10	4X6	4X6	4X6	6X6	6X6	4	8X8	4			2X6		
	UP TO 12	4X6	4X6	6X6	6X6	6X6	4	8X8	4				2X6	
10 TO 15	UP TO 6	4X4	4X4	4X6	6X6	6X6	4	Not Req'd	---				3X8	
	UP TO 8	4X6	4X6	6X6	6X6	6X6	4	8X8	4		2X6			
	UP TO 10	6X6	6X6	6X6	6X8	6X8	4	8X10	4			2X6		
	UP TO 12	6X6	6X6	6X6	6X8	6X8	4	10X10	4				3X8	
15 TO 20	UP TO 6	6X6	6X6	6X6	6X8	6X8	4	6X8	4	3X6				
	UP TO 8	6X6	6X6	6X6	6X8	6X8	4	8X8	4	3X6				
	UP TO 10	8X8	8X8	8X8	8X8	8X10	4	8X10	4	3X6				
	UP TO 12	8X8	8X8	8X8	8X8	8X10	4	10X10	4	3X6				
OVER 20	SEE NOTE 1													

* Mixed oak or equivalent with a bending strength not less than 850 psi.
** Manufactured members of equivalent strength may by substituted for wood.

TABLE C-1.2

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS *

SOIL TYPE B $P_a = 45 \times H + 72$ psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (ACTUAL) AND SPACING OF MEMBERS**												
	CROSS BRACES						WALES		UPRIGHTS				
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)					VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)				
		UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				CLOSE	2	3		
5 TO 10	UP TO 6	4X6	4X6	6X6	6X6	6X6	5	6X8	5			2X6		
	UP TO 8	6X6	6X6	6X6	6X8	6X8	5	8X10	5			2X6		
	UP TO 10	6X6	6X6	6X6	6X8	6X8	5	10X10	5			2X6		
	See Note 1													
10 TO 15	UP TO 6	6X6	6X6	6X6	6X8	6X8	5	8X8	5		2X6			
	UP TO 8	6X8	6X8	6X8	8X8	8X8	5	10X10	5		2X6			
	UP TO 10	8X8	8X8	8X8	8X8	8X10	5	10X12	5		2X6			
	See Note 1													
15 TO 20	UP TO 6	6X8	6X8	6X8	8X8	8X8	5	8X10	5	3X6				
	UP TO 8	8X8	8X8	8X8	8X8	8X10	5	10X12	5	3X6				
	UP TO 10	8X10	8X10	8X10	8X10	10X10	5	12X12	5	3X6				
	See Note 1													
OVER 20	SEE NOTE 1													

* Mixed oak or equivalent with a bending strength not less than 850 psi.
** Manufactured members of equivalent strength may by substituted for wood.

TABLE C-1.3

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS *

SOIL TYPE C P_a = 80 X H + 72 psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (ACTUAL) AND SPACING OF MEMBERS**													
	CROSS BRACES									UPRIGHTS				
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)					VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET) (See Note 2)				
		UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				CLOSE				
5 TO 10	UP TO 6	6X8	6X8	6X8	8X8	8X8	5	8X10	5	2X6				
	UP TO 8	8X8	8X8	8X8	8X8	8X10	5	10X12	5	2X6				
	UP TO 10	8X10	8X10	8X10	8X10	10X10	5	12X12	5	2X6				
	See Note 1													
10 TO 15	UP TO 6	8X8	8X8	8X8	8X8	8X10	5	10X12	5	2X6				
	UP TO 8	8X10	8X10	8X10	8X10	10X10	5	12X12	5	2X6				
	See Note 1													
	See Note 1													
15 TO 20	UP TO 6	8X10	8X10	8X10	8X10	10X10	5	12X12	5	2X6				
	See Note 1													
	See Note 1													
	See Note 1													
OVER 20	SEE NOTE 1													

* Mixed Oak or equivalent with a bending strength not less than 850 psi.

** Manufactured members of equivalent strength may be substituted for wood.

TABLE C-2.1

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS *

SOIL TYPE A P_a = 25 X H + 72 psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (S4S) AND SPACING OF MEMBERS **													
	CROSS BRACES							WALES		UPRIGHTS				
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)					VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)				
		UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				CLOSE	4	5	6	8
5 TO 10	UP TO 6	4X4	4X4	4X4	4X4	4X6	4	Not Req'd	Not Req'd				4X6	
	UP TO 8	4X4	4X4	4X4	4X6	4X6	4	Not Req'd	Not Req'd					4X8
	UP TO 10	4X6	4X6	4X6	6X6	6X6	4	8X8	4			4X6		
	UP TO 12	4X6	4X6	4X6	6X6	6X6	4	8X8	4				4X6	
10 TO 15	UP TO 6	4X4	4X4	4X4	6X6	6X6	4	Not Req'd	Not Req'd				4X10	
	UP TO 8	4X6	4X6	4X6	6X6	6X6	4	6X8	4		4X6			
	UP TO 10	6X6	6X6	6X6	6X6	6X6	4	8X8	4			4X8		
	UP TO 12	6X6	6X6	6X6	6X6	6X6	4	8X10	4		4X6		4X10	
15 TO 20	UP TO 6	6X6	6X6	6X6	6X6	6X6	4	6X8	4	3X6				
	UP TO 8	6X6	6X6	6X6	6X6	6X6	4	8X8	4	3X6	4X12			
	UP TO 10	6X6	6X6	6X6	6X6	6X8	4	8X10	4	3X6				
	UP TO 12	6X6	6X6	6X6	6X8	6X8	4	8X12	4	3X6	4X12			
OVER 20	SEE NOTE 1													

* Douglas fir or equivalent with a bending strength not less than 1500 psi.

** Manufactured members of equivalent strength may be substituted for wood.

TABLE C-2.2

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS *

SOIL TYPE B P_a = 45 X H + 72 psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (S4S) AND SPACING OF MEMBERS **												
	CROSS BRACES						WALES		UPRIGHTS				
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)					VERT. SPACING (FEET)	SIZE (IN)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)				
		UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				CLOSE	2	3	4	6
5 TO 10	UP TO 6	4X6	4X6	4X6	6X6	6X6	5	6X8	5			3X12 4X8		4X12
	UP TO 8	4X6	4X6	6X6	6X6	6X6	5	8X8	5		3X8		4X8	
	UP TO 10	4X6	4X6	6X6	6X6	6X8	5	8X10	5			4X8		
	See Note 1													
10 TO 15	UP TO 6	6X6	6X6	6X6	6X8	6X8	5	8X8	5	3X6	4X10			
	UP TO 8	6X8	6X8	6X8	8X8	8X8	5	10X10	5	3X6	4X10			
	UP TO 10	6X8	6X8	8X8	8X8	8X8	5	10X12	5	3X6	4X10			
	See Note 1													
15 TO 20	UP TO 6	6X8	6X8	6X8	6X8	8X8	5	8X10	5	4X6				
	UP TO 8	6X8	6X8	6X8	8X8	8X8	5	10X12	5	4X6				
	UP TO 10	8X8	8X8	8X8	8X8	8X8	5	12X12	5	4X6				
	See Note 1													
OVER 20	SEE NOTE 1													

* Douglas fir or equivalent with a bending strength not less than 1500 psi.

** Manufactured members of equivalent strength may be substituted for wood.

TABLE C-2.1

TIMBER TRENCH SHORING -- MINIMUM TIMBER REQUIREMENTS *

SOIL TYPE C P_a = 80 X H + 72 psf (2 ft. Surcharge)

DEPTH OF TRENCH (FEET)	SIZE (S4S) AND SPACING OF MEMBERS **														
	CROSS BRACES							WALES		UPRIGHTS					
	HORIZ. SPACING (FEET)	WIDTH OF TRENCH (FEET)					VERT. SPACING (FEET)	SIZE (IN.)	VERT. SPACING (FEET)	MAXIMUM ALLOWABLE HORIZONTAL SPACING (FEET)				
		UP TO 4	UP TO 6	UP TO 9	UP TO 12	UP TO 15				CLOSE				
5 TO 10	UP TO 6	6X6	6X6	6X6	6X6	8X8	5	8X8	5	3X6				
	UP TO 8	6X6	6X6	6X6	8X8	8X8	5	10X10	5	3X6				
	UP TO 10	6X6	6X6	8X8	8X8	8X8	5	10X12	5	3X6				
	See Note 1													
10 TO 15	UP TO 6	6X8	6X8	6X8	8X8	8X8	5	10X10	5	4X6				
	UP TO 8	8X8	8X8	8X8	8X8	8X8	5	12X12	5	4X6				
	See Note 1													
	See Note 1													
15 TO 20	UP TO 6	8X8	8X8	8X8	8X10	8X10	5	10X12	5	4X6				
	See Note 1													
	See Note 1													
	See Note 1													
OVER 20	SEE NOTE 1													

* Douglas fir or equivalent with a bending strength not less than 1500 psi.

** Manufactured members of equivalent strength may be substituted for wood.

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Appendix D to Subpart P

Aluminum Hydraulic Shoring for Trenches

(a) *Scope.* This appendix contains information that can be used when aluminum hydraulic shoring is provided as a method of protection against cave-ins in trenches that do not exceed 20 feet (6.1m) in depth. This appendix must be used when design of the aluminum hydraulic protective system cannot be performed in accordance with § 1926.652(c)(2).

(b) *Soil Classification.* In order to use data presented in this appendix, the soil type or types in which the excavation is made must first be determined using the soil classification method set forth in appendix A of subpart P of part 1926.

(c) *Presentation of Information.* Information is presented in several forms as follows:

(1) Information is presented in tabular form in Tables D–1.1, D–1.2, D–1.3 and E–1.4. Each table presents the maximum vertical and horizontal spacings that may be used with various aluminum member sizes and various hydraulic cylinder sizes. Each table contains data only for the particular soil type in which the excavation or portion of the excavation is made. Tables D–1.1 and D–1.2 are for vertical shores in Types A and B soil. Tables D–1.3 and D1.4 are for horizontal waler systems in Types B and C soil.

(2) Information concerning the basis of the tabular data and the limitations of the data is presented in paragraph (d) of this appendix.

(3) Information explaining the use of the tabular data is presented in paragraph (e) of this appendix.

(4) Information illustrating the use of the tabular data is presented in paragraph (f) of this appendix.

(5) Miscellaneous notations (footnotes) regarding Table D–1.1 through D–1.4 are presented in paragraph (g) of this appendix.

(6) Figures, illustrating typical installations of hydraulic shoring, are included just prior to the Tables. The illustrations page is entitled "Aluminum Hydraulic Shoring; Typical Installations."

(d) *Basis and limitations of the data.*

(1) Vertical shore rails and horizontal wales are those that meet the Section Modulus requirements in the D–1 Tables. Aluminum material is 6061–T6 or material of equivalent strength and properties.

(2) Hydraulic cylinders specifications. (i) 2-inch cylinders shall be a minimum 2-inch inside diameter with a minimum safe working capacity of no less than 18,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as recommended by product manufacturer.

(ii) 3-inch cylinders shall be a minimum 3-inch inside diameter with a safe working capacity of not less than 30,000 pounds axial compressive load at extensions as recommended by product manufacturer.

(3) Limitation of application.

(i) It is not intended that the aluminum hydraulic specification apply to every situation that may be experienced in the field. These data were developed to apply to the situations that are most commonly experienced in current trenching practice. Shoring systems for use in situations that are not covered by the data in this appendix must be otherwise designed as specified in § 1926.652(c).

(ii) When any of the following conditions are present, the members specified in the Tables are not considered adequate. In this case, an alternative aluminum hydraulic shoring system or other type of protective system must be designed in accordance with § 1926.652.

(A) When vertical loads imposed on cross braces exceed a 100 Pound gravity load distributed on a one foot section of the center of the hydraulic cylinder.

(B) When surcharge loads are present from equipment weighing in excess of 20,000 pounds.

(C) When only the lower portion of a trench is shored and the remaining portion of the trench is sloped or benched unless: The sloped portion is sloped at an angle less steep than three horizontal to one vertical; or the members are selected from the tables for use at a depth which is determined from the top of the overall trench, and not from the toe of the sloped portion.

(e) *Use of Tables D–1.1, D–1.2, D–1.3 and D–1.4.* The members of the shoring system that are to be selected using this information are the hydraulic cylinders, and either the vertical shores or the horizontal wales. When a waler system is used the vertical timber sheeting to be used is also selected from these tables. The Tables D–1.1 and D–1.2 for vertical shores are used in Type A and B soils that do not require sheeting. Type B soils that may require sheeting, and Type C soils that always require sheeting are found in the horizontal wale Tables D–1.3 and D–1.4. The soil type must first be determined in accordance with the soil classification system described in appendix A to subpart P of part 1926. Using the appropriate table, the selection of the size and spacing of the members is made. The selection is based on the depth and width of the trench where the members are to be installed. In these tables the vertical spacing is held constant at four feet on center. The tables show the maximum horizontal spacing of cylinders allowed for each size of wale in the waler system tables, and in the vertical shore tables, the hydraulic cylinder horizontal spacing is the same as the vertical shore spacing.

(f) *Example to Illustrate the Use of the Tables:*

(1) Example 1:

A trench dug in Type A soil is 6 feet deep and 3 feet wide. From Table D–1.1: Find vertical shores and 2 inch diameter cylinders spaced 8 feet on center (o.c.) horizontally and 4 feet on center (o.c.) vertically. (See Figures 1 & 3 for typical installations.)

(2) Example 2:

A trench is dug in Type B soil that does not require sheeting, 13 feet deep and 5 feet wide. From Table D–1.2: Find vertical shores and 2 inch diameter cylinders spaced 6.5 feet o.c. horizontally and 4 feet o.c. vertically. (See Figures 1 & 3 for typical installations.)

(3) A trench is dug in Type B soil that does not require sheeting, but does experience some minor raveling of the trench face. The trench is 16 feet deep and 9 feet wide. From Table D–1.2: Find vertical shores and 2 inch diameter cylinder (with special oversleeves as designated by footnote #2) spaced 5.5 feet o.c. horizontally and 4 feet o.c. vertically. plywood (per footnote (g)(7) to the D–1 Table) should be used behind the shores. (See Figures 2 & 3 for typical installations.)

(4) Example 4: A trench is dug in previously disturbed Type B soil, with characteristics of a Type C soil, and will require sheeting. The trench is 18 feet deep and 12 feet wide. 8 foot horizontal spacing between cylinders is desired for working space. From Table D–1.3: Find horizontal wale with a section modulus of 14.0 spaced at 4 feet o.c. vertically and 3 inch diameter cylinder spaced at 9 feet maximum o.c. horizontally. 3×12 timber sheeting is required at close spacing vertically. (See Figure 4 for typical installation.)

(5) Example 5: A trench is dug in Type C soil, 9 feet deep and 4 feet wide. Horizontal cylinder spacing in excess of 6 feet is desired for working space. From Table D–1.4: Find horizontal wale with a section modulus of 7.0 and 2 inch diameter cylinders spaced at 6.5 feet o.c. horizontally. Or, find horizontal wale with a 14.0 section modulus and 3 inch diameter cylinder spaced at 10 feet o.c. horizontally. Both wales are spaced 4 feet o.c. vertically. 3×12 timber sheeting is required at close spacing vertically. (See Figure 4 for typical installation.)

(g) *Footnotes, and general notes, for Tables D–1.1, D–1.2, D–1.3, and D–1.4.*

(1) For applications other than those listed in the tables, refer to § 1926.652(c)(2) for use of manufacturer's tabulated data. For trench depths in excess of 20 feet, refer to § 1926.652(c)(2) and § 1926.652(c)(3).

(2) 2 inch diameter cylinders, at this width, shall have structural steel tube (3.5×3.5×0.1875) oversleeves, or structural oversleeves of manufacturer's specification, extending the full, collapsed length.

(3) Hydraulic cylinders capacities. (i) 2 inch cylinders shall be a minimum 2-inch inside diameter with a safe working capacity of not less than 18,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as recommended by product manufacturer.

(ii) 3-inch cylinders shall be a minimum 3-inch inside diameter with a safe work capacity of not less than 30,000 pounds axial compressive load at maximum extension. Maximum extension is to include full range of cylinder extensions as recommended by product manufacturer.

(4) All spacing indicated is measured center to center.

(5) Vertical shoring rails shall have a minimum section modulus of 0.40 inch.

(6) When vertical shores are used, there must be a minimum of three shores spaced equally, horizontally, in a group.

(7) Plywood shall be 1.125 in. thick softwood or 0.75 inch, thick, 14 ply, arctic white birch (Finland form). Please note that plywood is not intended as a structural member, but only for prevention of local raveling (sloughing of the trench face) between shores.

(8) See appendix C for timber specifications.

(9) Wales are calculated for simple span conditions.

(10) See appendix D, item (d), for basis and limitations of the data.

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ALUMINUM HYDRAULIC SHORING
TYPICAL INSTALLATIONS

FIGURE NO. 1
VERTICAL ALUMINUM HYDRAULIC SHORING (SPOT BRACING)

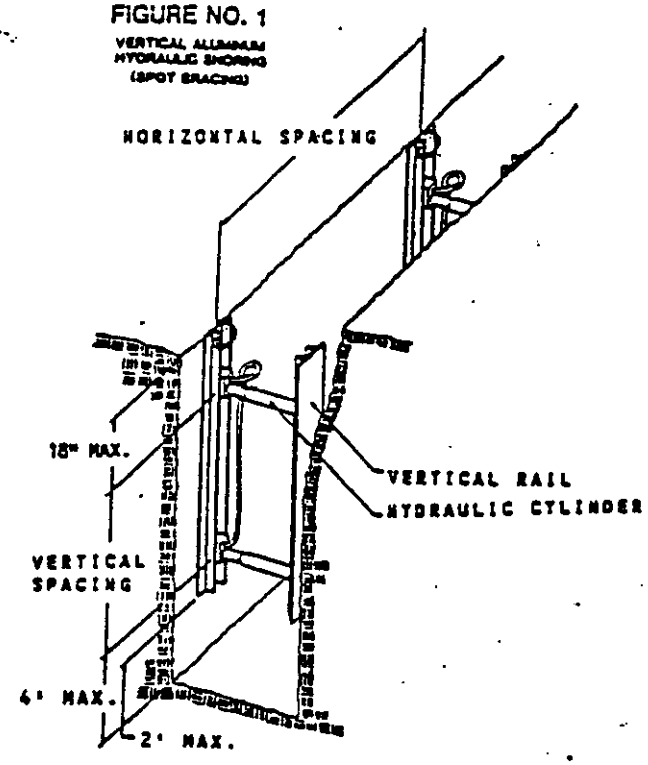

FIGURE NO. 2
VERTICAL ALUMINUM HYDRAULIC SHORING (WITH PLYWOOD)

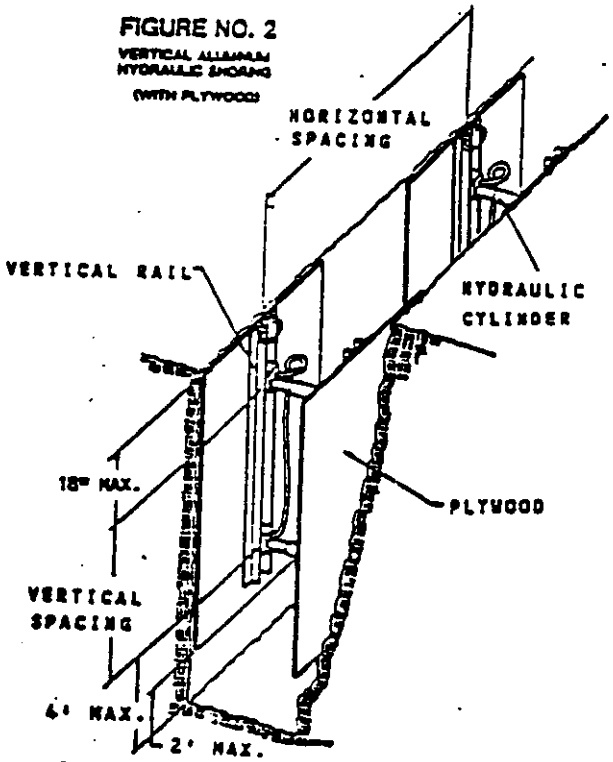

FIGURE NO. 3
VERTICAL ALUMINUM HYDRAULIC SHORING (STACKED)

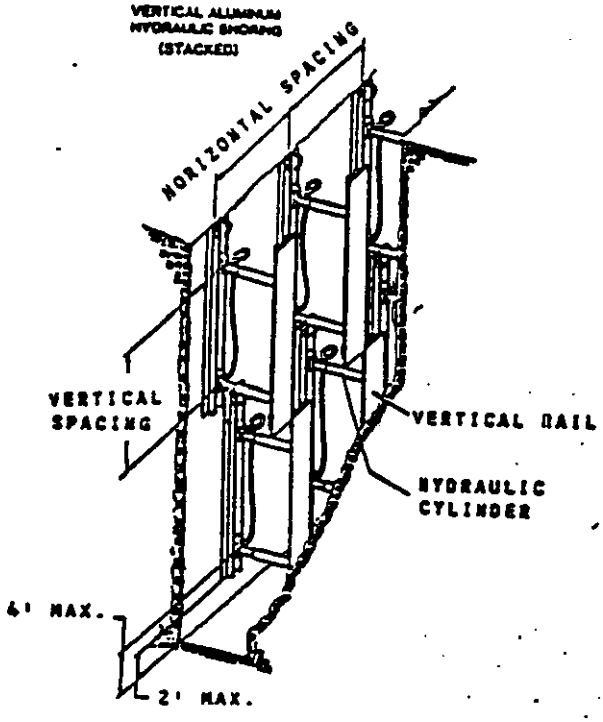

FIGURE NO. 4
ALUMINUM HYDRAULIC SHORING WALER SYSTEM (TYPICAL)

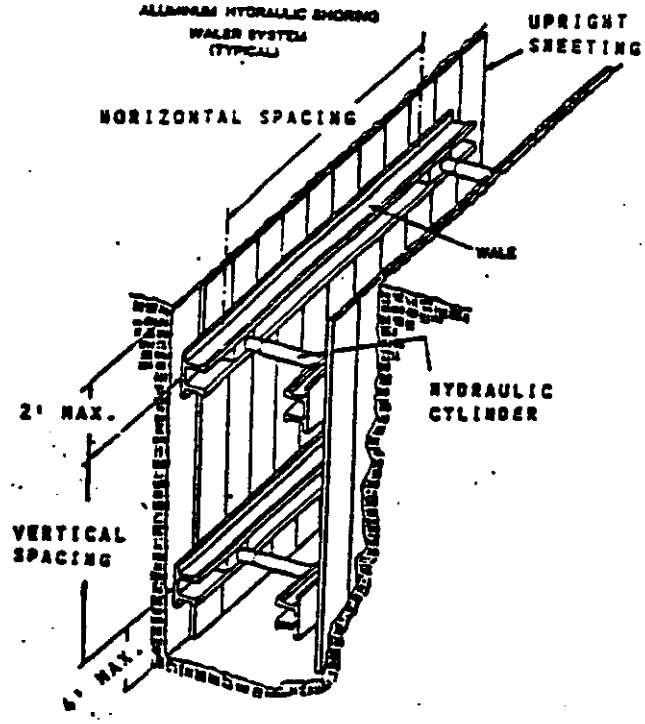

TABLE D - 1.1
ALUMINUM HYDRAULIC SHORING
VERTICAL SHORES
FOR SOIL TYPE A

DEPTH OF TRENCH (FEET)	HYDRAULIC CYLINDERS				
	MAXIMUM HORIZONTAL SPACING (FEET)	MAXIMUM VERTICAL SPACING (FEET)	WIDTH OF TRENCH (FEET)		
			UP TO 8	OVER 8 UP TO 12	OVER 12 UP TO 15
OVER 5 UP TO 10	8	4	2 INCH DIAMETER	2 INCH DIAMETER NOTE (2)	3 INCH DIAMETER
OVER 10 UP TO 15	8				
OVER 15 UP TO 20	7				
OVER 20	NOTE (1)				

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)
Note (1): See Appendix D, Item (g) (1)
Note (2): See Appendix D, Item (g) (2)

TABLE D - 1.2
ALUMINUM HYDRAULIC SHORING
VERTICAL SHORES
FOR SOIL TYPE B

DEPTH OF TRENCH (FEET)	HYDRAULIC CYLINDERS				
	MAXIMUM HORIZONTAL SPACING (FEET)	MAXIMUM VERTICAL SPACING (FEET)	WIDTH OF TRENCH (FEET)		
			UP TO 8	OVER 8 UP TO 12	OVER 12 UP TO 15
OVER 5 UP TO 10	8	4	2 INCH DIAMETER	2 INCH DIAMETER NOTE (2)	3 INCH DIAMETER
OVER 10 UP TO 15	6.5				
OVER 15 UP TO 20	5.5				
OVER 20	NOTE (1)				

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)
Note (1): See Appendix D, Item (g) (1)
Note (2): See Appendix D, Item (g) (2)

TABLE D - 1.3
ALUMINUM HYDRAULIC SHORING
WALER SYSTEMS
FOR SOIL TYPE B

DEPTH OF TRENCH (FEET)	WALES		HYDRAULIC CYLINDERS						TIMBER UPRIGHTS		
			WIDTH OF TRENCH (FEET)						MAX. HORIZ. SPACING (ON CENTER)		
	VERTICAL SPACING (FEET)	SECTION MODULUS (IN³) *	UP TO 8		OVER 8 UP TO 12		OVER 12 UP TO15		SOLID SHEET	2 FT.	3 FT.
			HORIZ. SPACING	CYLINDER DIAMETER	HORIZ. SPACING	CYLINDER DIAMETER	HORIZ. SPACING	CYLINDER DIAMETER			
OVER 5 UP TO 10	4	3.5	8.0	2 IN	8.0	2 IN NOTE(2)	8.0	3 IN	—	—	3x12
		7.0	9.0	2 IN	9.0	2 IN NOTE(2)	9.0	3 IN			
		14.0	12.0	3 IN	12.0	3 IN	12.0	3 IN			
OVER 10 UP TO 15	4	3.5	6.0	2 IN	6.0	2 IN NOTE(2)	6.0	3 IN	—	3x12	—
		7.0	8.0	3 IN	8.0	3 IN	8.0	3 IN			
		14.0	10.0	3 IN	10.0	3 IN	10.0	3 IN			
OVER 15 UP TO 20	4	3.5	5.5	2 IN	5.5	2 IN NOTE(2)	5.5	3 IN	3x12	—	—
		7.0	6.0	3 IN	6.0	3 IN	6.0	3 IN			
		14.0	9.0	3 IN	9.0	3 IN	9.0	3 IN			
OVER 20	NOTE (1)										

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)
Notes (1): See Appendix D, item (g) (1)
Notes (2): See Appendix D, Item (g) (2)
* Consult product manufacturer and/or qualified engineer for Section Modulus of available wales.

TABLE D - 1.4
ALUMINUM HYDRAULIC SHORING
WALER SYSTEMS
FOR SOIL TYPE C

DEPTH OF TRENCH (FEET)	WALES		HYDRAULIC CYLINDERS						TIMBER UPRIGHTS		
			WIDTH OF TRENCH (FEET)						MAX.HORIZ SPACING (ON CENTER)		
	VERTICAL SPACING (FEET)	SECTION MODULUS (IN³) *	UP TO 8		OVER 8 UP TO 12		OVER 12 UP TO 15		SOLID SHEET	2 FT.	3 FT.
			HORIZ. SPACING	CYLINDER DIAMETER	HORIZ. SPACING	CYLINDER DIAMETER	HORIZ. SPACING	CYLINDER DIAMETER			
OVER 5 UP TO 10	4	3.5	6.0	2 IN	6.0	2 IN NOTE(2)	6.0	3 IN	3x12	—	—
		7.0	6.5	2 IN	6.5	2 IN NOTE(2)	6.5	3 IN			
		14.0	10.0	3 IN	10.0	3 IN	10.0	3 IN			
OVER 10 UP TO 15	4	3.5	4.0	2 IN	4.0	2 IN NOTE(2)	4.0	3 IN	3x12	—	—
		7.0	5.5	3 IN	5.5	3 IN	5.5	3 IN			
		14.0	8.0	3 IN	8.0	3 IN	8.0	3 IN			
OVER 15 UP TO 20	4	3.5	3.5	2 IN	3.5	2 IN NOTE(2)	3.5	3 IN	3x12	—	—
		7.0	5.0	3 IN	5.0	3 IN	5.0	3 IN			
		14.0	6.0	3 IN	6.0	3 IN	6.0	3 IN			
OVER 20	NOTE (1)										

Footnotes to tables, and general notes on hydraulic shoring, are found in Appendix D, Item (g)
Notes (1): See Appendix D, item (g) (1)
Notes (2): See Appendix D, Item (g) (2)
* Consult product manufacturer and/or qualified engineer for Section Modulus of available wales.

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Appendix E to Subpart P—Alternatives to Timber Shoring

Figure 1. Aluminum Hydraulic Shoring

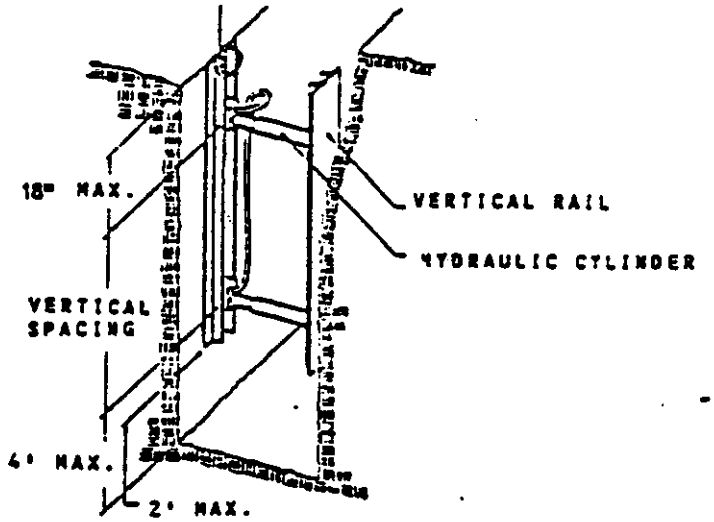
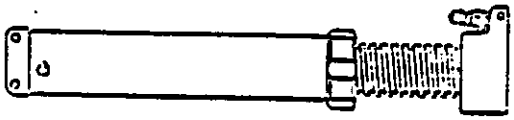


Figure 2. Pneumatic/hydraulic Shoring



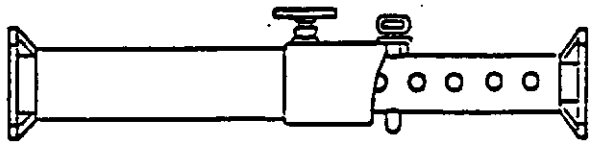


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Figure 3. Trench Jacks (Screw Jacks)

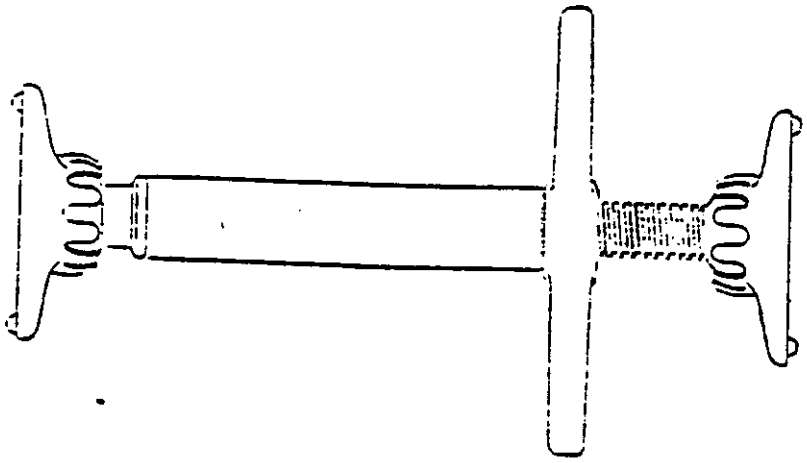
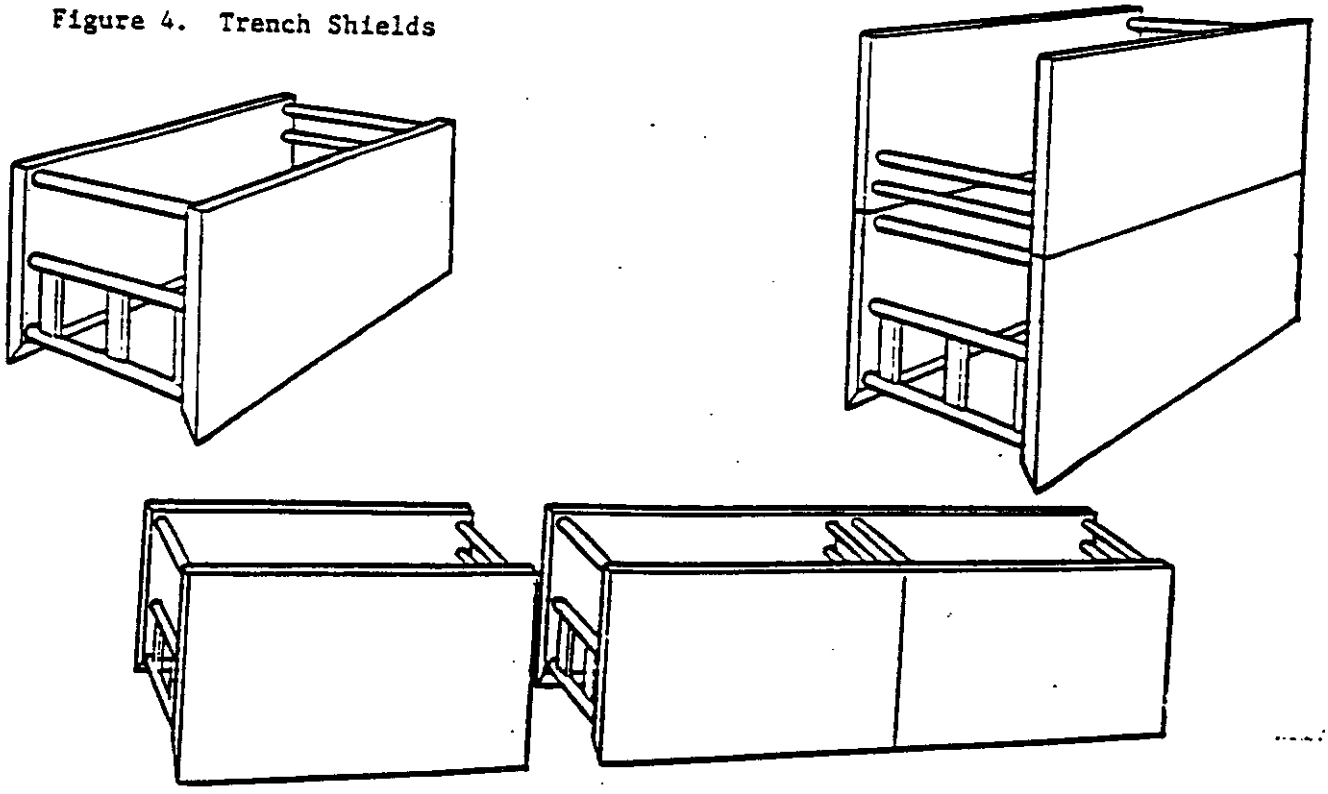


Figure 4. Trench Shields



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Appendix F to Subpart P—Selection of Protective Systems

The following figures are a graphic summary of the requirements contained in subpart P for excavations 20 feet or less in depth. Protective systems for use in excavations more than 20 feet in depth must be designed by a registered professional engineer in accordance with § 1926.652 (b) and (c).

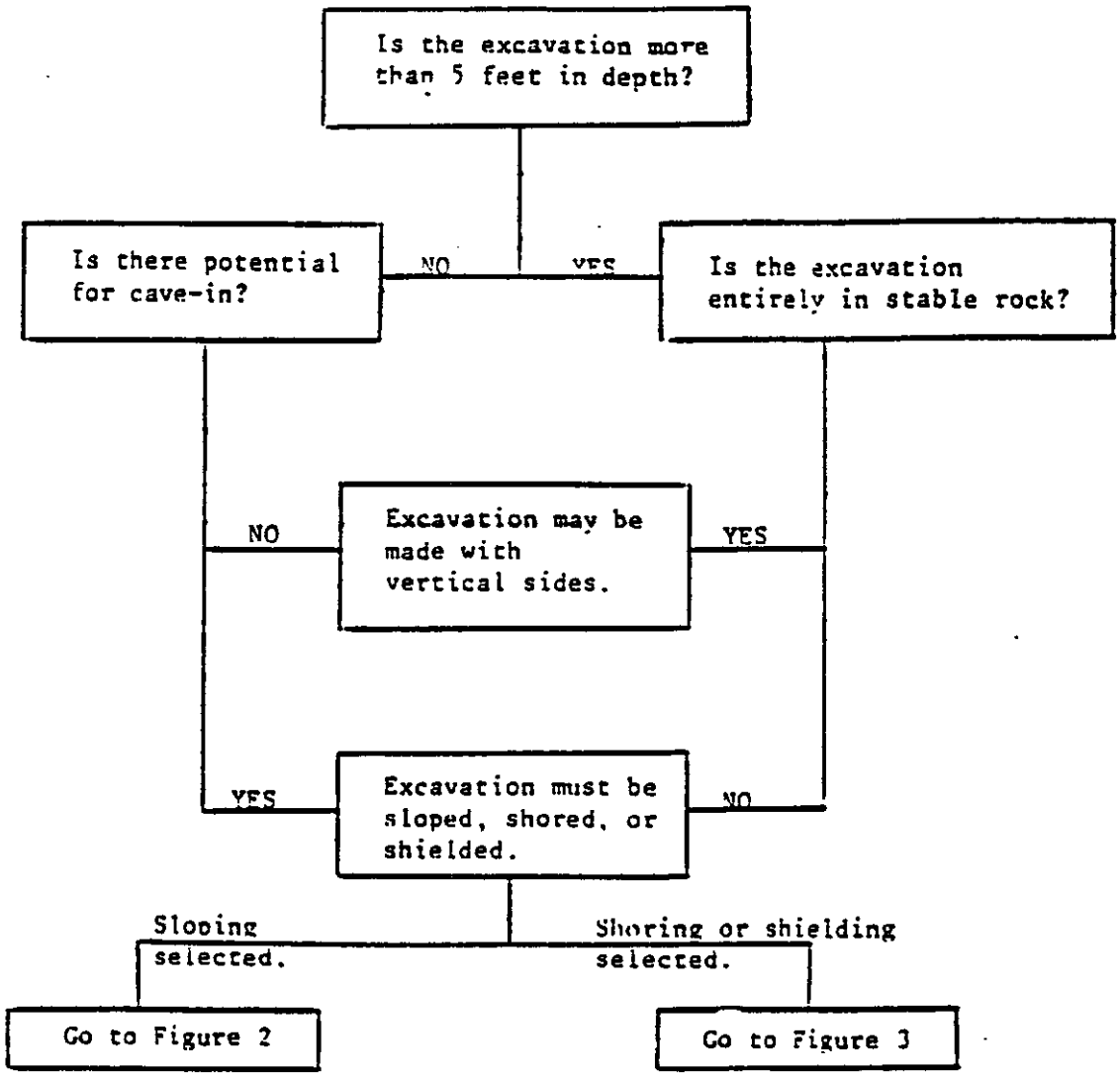

FIGURE 1 - PRELIMINARY DECISIONS

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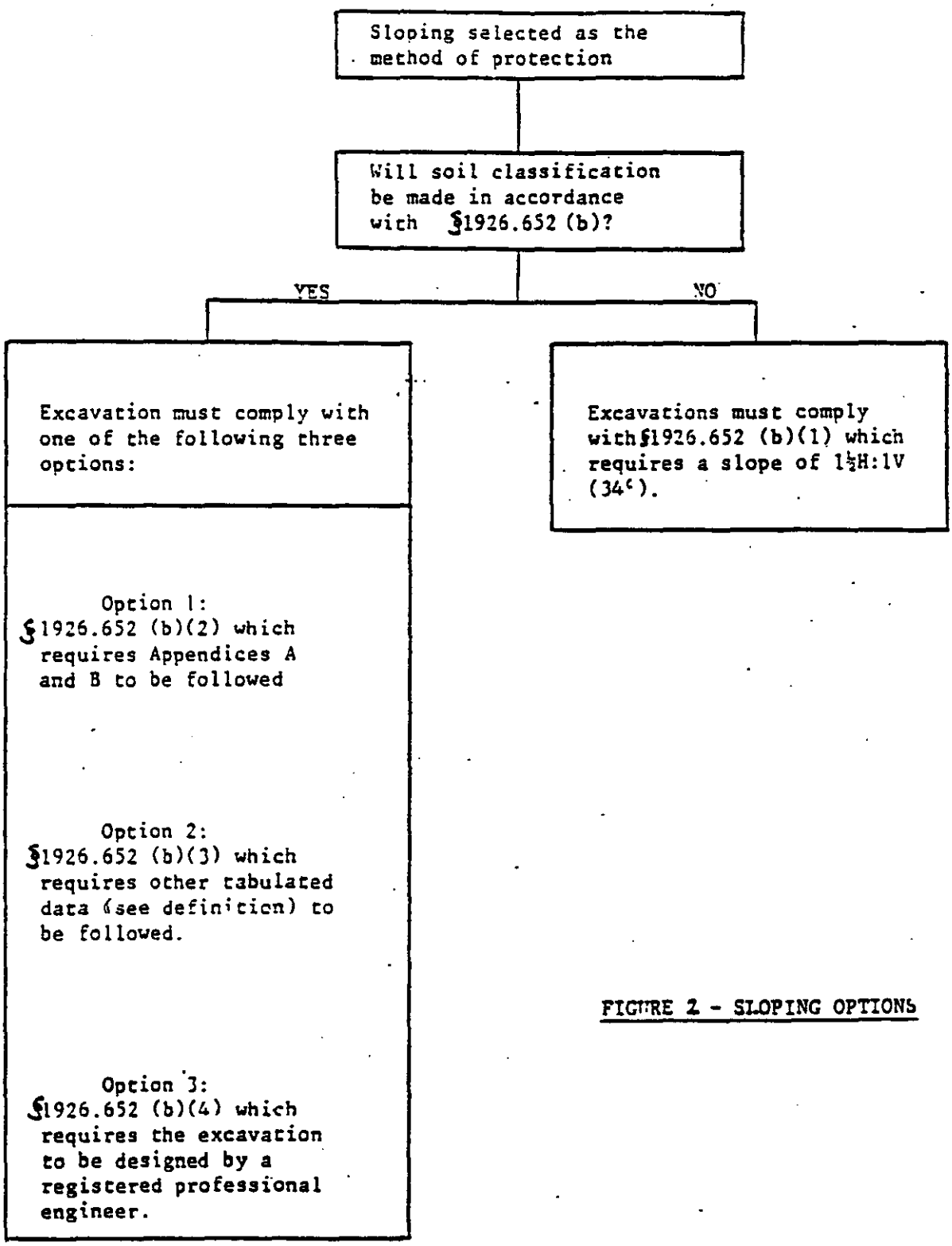

FIGURE 2 - SLOPING OPTIONS

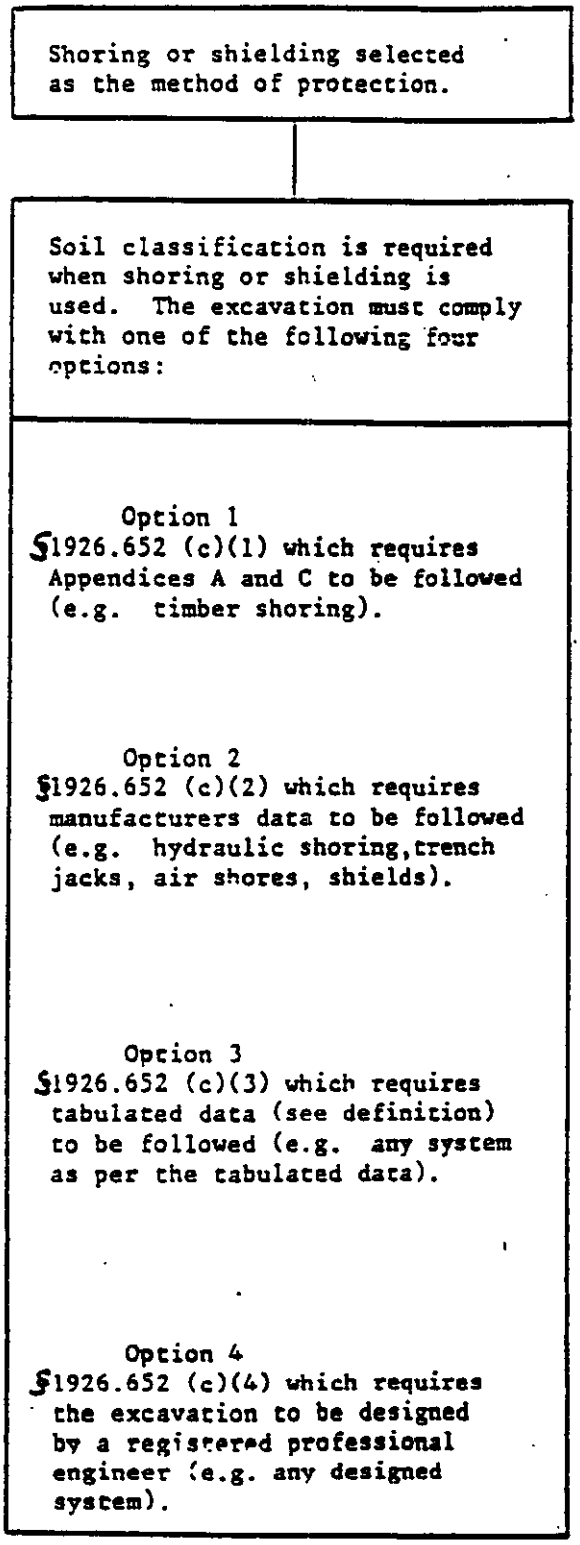

FIGURE 3 - SHORING AND SHIELDING OPTIONS

[FR Doc. 89-25217 Filed 10-30-89: 8:45 am]
BILLING CODE 4510-26-C

CONFINED SPACE ENTRY PROCEDURES

CONFINED SPACE CLASSIFICATION

Confined spaces are classified according to existing or potential chemical and physical hazards. Classification is based on characteristics of the confined space, oxygen level, flammability, and toxicity. Table D-1 defines the parameters of each classification. If any hazard presents a situation that is IDLH, the confined space is classified as Class A. Classification is determined by the most hazardous condition of entering, working in, and exiting a confined space. Class B confined spaces have the potential for causing injury and illness but are not IDLH. Class C entry is one in which the chemical hazard potential is minimal and does not require any special modification in work procedures.

ENTRY PROCEDURES

Entry Team

A minimum of three workers are required for each confined space activity, one entrant, one attendant and the HSO who serves as the Entry Supervisor. All workers entering a confined space, supervising those entering a confined space, or acting in a rescue capacity must be trained.

General Entry Procedures

The following steps must be taken when entering a confined space:

1. Inspect all pieces of equipment to ensure they are in good working order. DO NOT ENTER CONFINED SPACE WITH DEFECTIVE EQUIPMENT.

2. Conduct a background check to identify all potential hazards that may be encountered in the confined space. Determine whether there is potential for fire and/or explosion hazards, as well as a toxic or oxygen-deficient atmosphere.

3. Before entry, the atmosphere inside the confined space must be tested. An attempt should be made to test the atmosphere without opening the entryway (i.e., through a vent line or a small opening). If the entryway must be opened to test and only low levels are expected in the confined space, crack open the entryway, test the breathing zone first, and then test the confined space. If

TABLE D-1

CONFINED SPACE CLASSIFICATION TABLE

PARAMETERS	CLASS A (LEVEL A OR B PPE)	CLASS B (LEVEL B OR C PPE)	CLASS C (LEVEL D PPE)
Characteristics	Immediately dangerous to life: Rescue procedures require the entry of more than one individual fully equipped with life-support equipment; maintenance of communication requires an additional standby person stationed within the confined space.	Dangerous, but not immediately life-threatening: Rescue procedures require the entry of no more than one individual fully equipped with life-support equipment; indirect visual or auditory communication with workers.	Potential hazard requires no modification of work procedures: Standard rescue procedures, direct communication with workers from outside the confined space.
Oxygen	19.4 percent or less *(122-mm Hg) or greater than 25 percent *(190 mm Hg)	19.5 to 21.4 percent *(122- to 147-mm Hg) or 21.5 to 25 percent (163- to 190-mm Hg)	19.5 to 21.4 percent *(148- to 163-mm Hg)
Flammability Characteristics	20-percent or greater LEL	10- to 19-percent LEL	10-percent LEL or less
Toxicity	**IDLH	Between the TLV/PEL and the **IDLH. If air-purifying respirators are used, maximum level based on breakthrough time (1,000 ppm maximum).	Less than the TLV/PEL
Respiratory Protection	SCBA or supplied air respirator with escape bottle.	SCBA, supplied air respirator with escape bottle or air-purifying respirator.	None.

* Based on total atmospheric pressure of 760-mm Hg (sea level).

** Immediately Dangerous to Life or Health, as referenced in NIOSH Registry of Toxic and Chemical Substances, Manufacturing Chemists data sheets, industrial hygiene guides, or other recognized authorities.

NOTES: Hg = mercury; LEL = Lower Explosive Limit; PEL = Permissible Exposure Limit; SCBA = Self Contained Breathing Apparatus; TLV = Threshold Limit Value PPE = Personal Protective Equipment

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potentially high levels are expected in the breathing zone, respiratory protection should be worn before opening the entryway cover.

4. If an explosive, toxic, or oxygen-deficient atmosphere is detected, purge or ventilate the confined space prior to entry. Retest the atmosphere three times at 5-minute intervals. A person can enter the confined space without respiratory protection only if all three test results are below the Permissible Exposure Limit/Threshold Limit Value (PEL/TLV), 10 percent of the LEL, and above 19.5-percent oxygen (all three conditions must be met). (NOTE: Any downward deflection of the readings on the oxygen meter from background [i.e., 20.9 percent] should be viewed as potential for an IDLH atmosphere. Unless contaminants are known to be nontoxic, do not enter the confined space without respiratory protection if the oxygen level is below background.)

5. Install a blank or a block, or otherwise isolate, lockout, and tag all chemical, physical, and/or electrical hazards wherever possible before entering the confined space.

6. If using an air-purifying respirator or if an IDLH and/or explosive atmosphere exists, air monitoring must be on a continuous basis. If respiratory protection is not used and there is potential for atmospheric conditions to change due to work practices or conditions, air monitoring should be done periodically. In all these cases, a 5-minute escape pack must be used.

7. Record all results of the tests for hazardous conditions including the location, time, date, and weather (if applicable); and readings on the PID, combustible gas meter, oxygen-deficiency meter, Draeger tubes, and any other equipment used on the Confined-Space Entry Daily Permit-General Entry form (Figure D-1) and the Confined-Space Entry Daily Permit-General Entry Worksheet (Figure D-2). Send a copy of the completed form to the HSM or the HSS.

8. Wear appropriate clothing for site conditions, as determined by the HSO.

9. A safety belt or harness with lifeline must be worn if hazardous conditions exist, although good safety precautions dictate their use regardless of "existing" conditions. If the diameter of the entryway is less than 18 inches, the wrist-

FIGURE D-1

CONFINED SPACE ENTRY DAILY PERMIT
GENERAL ENTRY

Site Name: _____

Site Location: _____

Type of Confined Space: _____ Weather: (if applicable) _____

Work to be Performed: _____

Level of Personal Protection: _____

Date of Entry: _____ Time of Entry: _____

Potential Hazards: (Check all that apply)

☐ Corrosive	☐ Reactive	☐ Radioactive	☐ Hot Equipment
☐ Ignitable	☐ Volatiles	☐ Noise	☐ Falling Objects
☐ Toxic	☐ Biological	☐ Sharp Objects	☐ Pressure Systems
☐ Other: (list) _____			

Yes	No	N/A	
☐	☐	☐	Will work performed produce additional hazards (e.g., cleaning)? List: _____
☐	☐	☐	Were instruments calibrated prior to entry?
☐	☐	☐	Was confined space ventilated prior to entry?
☐	☐	☐	Will ventilation continue during entry?
☐	☐	☐	Is air intake of the ventilation system located in an area free of exhaust and combustible/toxic substances?
☐	☐	☐	Has space been isolated from other systems?
☐	☐	☐	Has mechanical equipment been locked–out or disconnected?
☐	☐	☐	Has mechanical equipment been blocked, chocked, disengaged, and/or disconnected where necessary?
☐	☐	☐	Are safety lines and harnesses used?
☐	☐	☐	Will wrist–type harnesses be used if entryway is less than 18 in.?
☐	☐	☐	Are non–sparking tools and intrinsically safe/explosion–proof powered tools and lighting used?

Entry Person(s): _____

Standby Person: _____ Rescue Person: _____

Other: _____

Approval: HSO: _____

Task Supervisor: _____

FIGURE D-2

CONFINED SPACE ENTRY DAILY PERMIT
GENERAL ENTRY – WORKSHEET

INITIAL ATMOSPHERE TESTING RESULTS: Record time and results of initial testing. If ventilation is necessary, record readings when the atmosphere stabilizes and at 5–minute intervals.

	Breathing Zone	Initial	Atmosphere Stabilized	@ 5 min.	@ 10 min.
Time					
Combustible Gas Meter (%LEL)					
Oxygen Meter (%Oxygen)					
Hydrogen Sulfide Meter (ppm)					
PID Meter (ppm)					
Draeger Tube (ppm) Tube:					
Other List:					

ENTRY ATMOSPHERE TESTING RESULTS: Record time and the results of monitoring at initial entry and at 10–minute intervals. If no change in levels, extend to every 15 minutes. If significant fluctuations occur, reduce to every 5 minutes. (Note: Meters should be operated continuously in the confined space.)

	Initial				Final
Time					
Combustible Gas Meter (%LEL)					
Oxygen Meter (%Oxygen)					
Hydrogen Sulfide Meter (ppm)					
PID Meter (ppm)					
Draeger Tube (ppm) Tube:					
Other List:					

Completed by:_____

Approval: HSO_____Task Supervisor_____

type harness must be used and special provisions made if a supplied-air respirator is necessary.

10. One person (i.e., attendant) must remain at the entryway at all times and must keep continuous contact with the person entering the confined space. Contact can be maintained by line of sight, listening for sounds, the safety line, and/or radio. The attendant must not enter the confined space unless he/she is trained, another trained person is available to replace him/her, and he or she is equipped with adequate respiratory and dermal protection. (In most cases, respiratory protection would be an airline respirator or SCBA.)

11. Do not smoke when working in or near confined spaces and do not take flash-lit photographs when explosive gases are known or suspected to be present.

12. Do not rely on permanent ladders because they are often in poor condition. If they must be used, be sure of footing. Inspect permanent ladders for deterioration before entering and while descending. Try each step with one foot, while standing on the step above. When in doubt, use either a portable ladder of adequate height to reach 3 feet above opening or a rope ladder, or lower the entry person using the tripod. If a portable ladder is used, it should be tied off, if possible; otherwise, it should be held in place by the standby person.

13. Do not work without adequate lighting. Use only "explosion-proof" lights or hand lamps if combustible atmospheres are possible.

14. The entry person must not remain in the confined space if he or she becomes even slightly drowsy, faint, dizzy, or otherwise uncomfortable. Many of the gases that cause the most problems are odorless, tasteless, and invisible.

OSHA JOB SAFETY & HEALTH PROTECTION POSTER

JOB SAFETY & HEALTH PROTECTION

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers by promoting safe and healthful working conditions throughout the Nation. Requirements of the Act include the following:

Employers

All employers must furnish to employees employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm to employees. Employers must comply with occupational safety and health standards issued under the Act.

Employees

Employees must comply with all occupational safety and health standards, rules, regulations and orders issued under the Act that apply to their own actions and conduct on the job.

The Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational safety and health standards, and its Compliance Safety and Health Officers conduct jobsite inspections to help ensure compliance with the Act.

Inspection

The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA inspector for the purpose of aiding the inspection.

Where there is no authorized employee representative, the OSHA Compliance Officer must consult with a reasonable number of employees concerning safety and health conditions in the workplace.

Complaint

Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection if they believe unsafe or unhealthful conditions exist in their workplace. OSHA will withhold, on request, names of employees complaining.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or for otherwise exercising their rights under the Act.

Employees who believe they have been discriminated against may file a complaint with their nearest OSHA office within 30 days of the alleged discrimination.

Citation

If upon inspection OSHA believes an employer has violated the Act, a citation alleging such violations will be issued to the employer. Each citation will specify a time period within which the alleged violation must be corrected.

The OSHA citation must be prominently displayed at or near the place of alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

Proposed Penalty

The Act provides for mandatory penalties against employers of up to $1,000 for each serious violation and for optional penalties of up to $1,000 for each nonserious violation. Penalties of up to $1,000 per day may be proposed for failure to correct violations within the proposed time period. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to $10,000 for each such violation.

Criminal penalties are also provided for in the Act. Any willful violation resulting in death of an employee, upon conviction, is punishable by a fine of not more than $10,000, or by imprisonment for not more than six months, or by both. Conviction of an employer after a first conviction doubles these maximum penalties.

Voluntary Activity

While providing penalties for violations, the Act also encourages efforts by labor and management, before an OSHA inspection, to reduce workplace hazards voluntarily and to develop and improve safety and health programs in all workplaces and industries. OSHA's Voluntary Protection Programs recognize outstanding efforts of this nature.

Such voluntary action should initially focus on the identification and elimination of hazards that could cause death, injury, or illness to employees and supervisors. There are many public and private organizations that can provide information and assistance in this effort, if requested. Also, your local OSHA office can provide considerable help and advice on solving safety and health problems or can refer you to other sources for help such as training.

Consultation

Free consultative assistance, without citation or penalty, is available to employers, on request, through OSHA supported programs in most State departments of labor or health.

[illegible] OFFICE

121

More Information

Additional information and copies of the Act, specific OSHA safety and health standards, and other applicable regulations may be obtained from your employer or from the nearest OSHA Regional Office in the following locations.

Atlanta, Georgia
Boston, Massachusetts
Chicago, Illinois
Dallas, Texas
Denver, Colorado
Kansas City, Missouri
New York, New York
Philadelphia, Pennsylvania
San Francisco, California
Seattle, Washington

Telephone numbers for these offices, and additional area office locations, are listed in the telephone directory under the United States Department of Labor in the United States Government listing.

Washington, D.C.
1985
OSHA 2203

William E. Brock, Secretary of Labor

U.S. Department of Labor

Occupational Safety and Health Administration

Under provisions of Title 29, Code of Federal Regulations, Part 1903.2(a)(1) employers must post this notice (or a facsimile) in a conspicuous place where notices to employees are customarily posted.

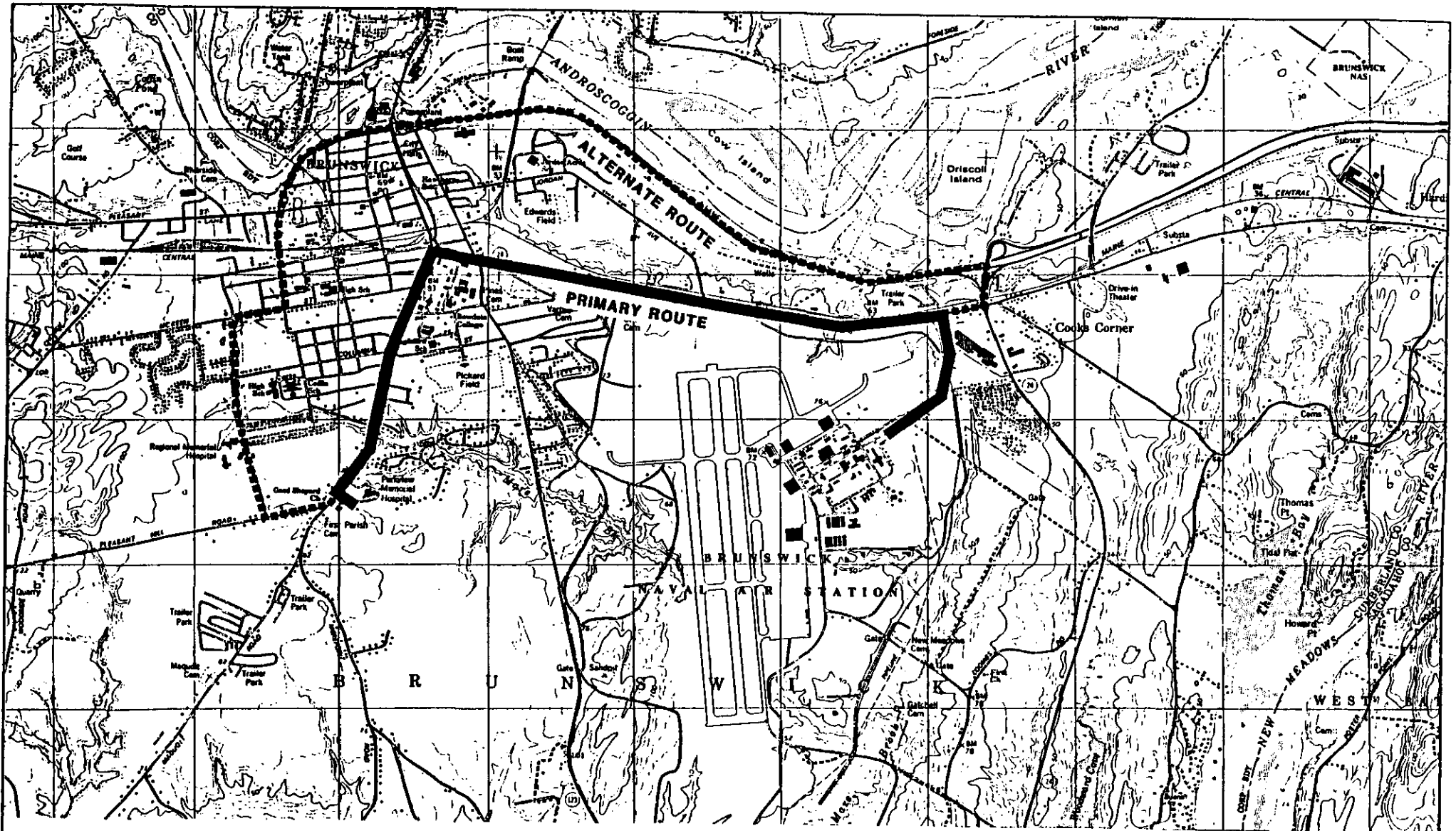

FIGURE 2
EMERGENCY EVACUATION - HOSPITAL ROUTE
NAVAL AIR STATION
BRUNSWICK, MAINE
E.C. JORDAN CO.

EMERGENCY INFORMATION

(TO BE POSTED IN THE TRAILER)

POST IN TRAILER

EMERGENCY TELEPHONE NUMBERS

(Local) Police Department		(207) 725-5521
(Local) Rescue Service		(207) 443-3300
Base Public Works		(207) 921-2661
On Base Hospital		(207) 921-2992
Parkview Memorial Hospital		(207) 729-9941
(Local) Fire Department	On Base (207) 921-2457	(207) 725-5521
Off-site Emergency Services		(207) 443-3300
National Poison Control Center		(800) 492-2414
Maine Poison Control Center		(207) 871-2950
National Response Center		(800) 424-8802
Regional USEPA Emergency Response		(800) 424-8802
Chemical Manufacturers Association Chemical Referral Center		(800) 262-8200
Site HSO: Glenn Daukas		(207) 775-5401 x 2655
Site Manager: Bill Weber		(207) 775-5401 x 2695
ABB-ES HSM: C.E. Sundquist		(207) 775-5401 x 2111
Ambulance		On Base: (207) 921-2222 Local: (207) 729-1477 & (207) 725-5521
Police		(207) 725-5521

POST IN TRAILER

ROUTES TO EMERGENCY MEDICAL FACILITIES

Primary source of medical assistance for the NASB Site:

Parkview Memorial Hospital
Maine Street
Brunswick, ME
729-9941

Directions to primary source of medical assistance:

Exit front gate, go left on Route 24, go one mile to Maine Street, take left on Maine Street, go one mile. Parkview Hospital is on the left.

Alternate source of medical assistance:

Regional Memorial Hospital
Baribeau Drive
Brunswick, ME
729-0181

Directions to alternate source of medical assistance:

Exit from gate, go left on Route 24, go one mile to Maine Street, take left on Maine Street, go one mile to Pleasant Hill Road, take right on Pleasant Hill Road, go one-quarter mile to Baribean Drive, take a right on Baribean Drive and go one-quarter mile. Regional Memorial Hospital is on the left.

POST IN TRAILER

EMERGENCY SIGNALS

In most cases, field personnel will carry portable radios for communications. If this is the case, a transmission that indicates it is of an emergency nature will take priority over all other transmissions. All other site radios will yield the frequency to the emergency transmissions.

Where radio communication is not available, the following air-horn signals will be used:

HELP	three short blasts	(. . .)
EVACUATION	three long blasts	(_ _ _)
ALL CLEAR	alternating long and short blasts	(_._.)

ATTACHMENT 3

RESPONSE TO REGULATORY AND
TECHNICAL REVIEW COMMITTEE COMMENTS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

March 4, 1993

Mr. James Shafer
Northern Division
Naval Facilities Engineering Command
Code 1821/JS
10 Industrial Hwy., Mail Stop #82
Lester, PA 19113-2090

Re: Draft Site Inspection Work Plan
West Runway Study Area
NAS Brunswick
Brunswick, Maine

Dear Jim:

The United States Environmental Protection Agency (EPA) has reviewed the report entitled "Draft Site Inspection Work Plan, West Runway Study Area, NAS Brunswick" dated February 1993.

EPA's comments regarding the above-mentioned report are as follows.

1. Page 2-6, ¶ 2 and 3: Figure 1-2 shows a concrete pad and page 2-18 refers to Building 62. Indicate in these paragraphs whether the concrete pad is at the Building 62 location. Also, provide any historical information available regarding Building 62.

2. Page 2-6, ¶ 2 and 3: Page 2-18 refers to two drainage gullies which have been filled in. These gullies should also be mentioned in this section of the text.

3. Page 2-15: This page presents information on collection of surface water and sediment samples. However, page 2-13 (the preceding page of text) begins the discussion regarding collection of seep and seep sediment samples. Provide the appropriate information regarding the collection of seep and seep sediment samples.

4. Page 2-18, ¶ 2: The approximate location of the drainage gullies mentioned here should be shown on Figures 1-2 and 2-1.

5. Page 2-20, ¶ 2: The text indicates that the depth of test pits will be from two to twelve feet. Provide the rationale that will be used to determine the depth of each test pit.

SAVE IT!
PRINTED ON RECYCLED PAPER

6. Page 2-21, ¶ 1: Any contaminated soil removed from test pits should be segregated, drummed and removed from the site by appropriate means.

7. Page 2-21, ¶ 3: Clarify whether the soil samples discussed in this paragraph will be collected regardless of whether contamination is detected/observed during screening.

8. Page 4-8, ¶ 2: Indicate, in the text, how the drums will be handled once they contain contaminated materials.

9. Page 4-9. 2nd bullet: Soil removed during test pitting must be screened with the PID. If the soil is contaminated it must be placed in drums and disposed of properly.

10. Page 4-9, 3rd bullet: The text indicates that contaminated equipment will be disposed of as a solid waste. Contaminated material/equipment etc., must be handled as a hazardous waste. Clarify this in the text.

In addition to responding to the comments above, EPA requests that the Navy notify EPA of the schedule to complete the field work outlined in this work plan as soon as it is available.

If you have any questions regarding this matter, please contact me at (617)573-5785.

Sincerely,

Meghan F. Cassidy
Remedial Project Manager

cc: Nancy Beardsley/ME DEP
Jim Caruthers/NASB
[redacted]/ABB
Susan Weddle/BASCE
Sam Butcher/Town of Hapswell

Responses to U.S. Environmental Protection Agency Comments
Dated March 4, 1993

1. Page 2-6, ¶ 2 and 3: The concrete pad indicated in Figure 1-2 will be labeled "Building 62 concrete pad"; this will be clarified on pages 2-6 and 2-18. The historical information on Building 62 is presented in the Preliminary Assessment, Attachment A to the Work Plan.

2. Page 2-6, ¶ 2 and 3: The two drainage gullies referred to on page 2-18 will be mentioned on this page.

3. Page 2-15: The description of the collection of seep liquid and seep sediment samples will be clarified. The seep samples will be discrete samples of the seep, and the sediment samples will be collected with a bucket auger or hand corer to protect the representativeness of the sample.

4. Page 2-18, ¶ 2: The approximate location of the drainage gullies will be indicated on Figures 1-2 and 2-1.

5. Page 2-20, ¶ 2: The bedrock outcrops and unknown subsurface geology in this area may limit the depth of test pits to 2 feet or less. If the subsurface geology does not limit the depth of the test pit, it will be excavated up to 12 feet, the typical working depth of a backhoe. This uncertainty and rationale for the test pit depth of 2 to 12 feet will be provided in the text.

6. Page 2-21, ¶ 1: As discussed on page 4-9 in the "Disposal of Investigation-Related Wastes", soil excavated during test pitting will be returned to the pit upon completion and logging of the excavated area. This is consistent with previous site inspections and is in compliance with USEPA guidance ("Guide to Management of Investigation-Derived Wastes." USEPA/540/G-91/009).

7. Page 2-21, ¶ 3: Paragraph 2 states that soil samples collected and submitted for laboratory analysis will be selected on the basis of photoionization meter readings and visual evidence of contamination to represent the most contaminated material encountered. If no contamination is observed in the field, no laboratory samples will be collected. No change to text.

8. Page 4-8, ¶ 2: Text will be clarified: "contaminated material" on this page was referring to "contaminated material (e.g., buckets, stainless steel spoons)" that may be generated during the site investigations and could be handled as solid waste. During current operations at Naval Air Station Brunswick, the hazardous waste is taken to a hazardous waste storage area from which it is transported off-base by a qualified hauler to the appropriate, off-base disposal facility.

9. Page 4-9, 2nd bullet: Soils will be screened in the field with the photoionization meter

to determine what samples will be sent for laboratory analysis. According to USEPA's "Guide to Management of Investigation-Derived Wastes" (USEPA/540/G-91/009), soil excavated during test pitting which is not sent off-site for analysis will be returned to the pit upon the completion and logging of the area. After samples have been collected, debris and soil that has higher than background PI meter readings will be returned to the lower portion of the pit to minimize or eliminate an exposure route to possible human and ecological receptors.

10. Page 4-9, 3rd bullet: Last sentence of this bullet will be clarified as follows: "If necessary, the grossly contaminated decontamination fluids and the disposable sampling equipment will be drummed and handled as hazardous waste."

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

JOHN R. McKERNAN, JR.
GOVERNOR

DEAN C. MARRIOTT
COMMISSIONER

DEBRAH RICHARD
DEPUTY COMMISSIONER

March 10, 1993

Mr. James Shafer
Project Manager, Code 1821
Department of the Navy, Northern Division
Naval Facilities Engineering Command
10 Industrial Highway, Mailstop 82
Lester, Penn. 19112-2090

Dear Jim:

The Maine Department of Environmental Protection has received and reviewed the "Draft Site Inspection Work Plan for the West Runway Study Area", dated February 1993, for Naval Air Station Brunswick. In addition to the attached technical review comments, the Department has the following comments on the Draft Site Inspection Work Plan for the West Runway Study Area:

1. Page 1-4: Please show topography on this Figure.

2. Page 2-1, Section 2-1: Please indicate on a site plan the extent of grading that occurred in this area.

3. Page 2-2, paragraph 2: What are the results for the replicate sample of LT-001? Where are these results listed?

4. Page 2-13, paragraph 2: Please clarify what the staining mentioned in the third sentence is similar to.

Please call me if you have any questions or comments.

Sincerely,

Nancy Beardsley

Nancy Beardsley
Federal Facilities Project Manager
Office of the Commissioner

attachments: Technical Review Comments

AUGUSTA
STATE HOUSE STATION 17
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX (207) 287-7826
OFFICE LOCATED AT RAY BUILDING, HOSPITAL STREET

PORTLAND
312 CANCO ROAD
PORTLAND ME 04103
(207) 879-6300 FAX (207) 879-6303

BANGOR
106 HOGAN ROAD
BANGOR ME 04401
(207) 941-4570 FAX (207) 941-4584

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, ME 04769
(207) 764-0477 FAX (207) 764-1507

printed on recycled paper

cc: Meghan Cassidy USEPA
Jim Carruthers NAS Brunswick
Carolyn Lepage R.G. Gerber Inc.
Beth Walter ABB ES
Rene Bernier Topsham
Sam Butcher Harpswell
Susan Weddle Brunswick
Brunswick Topsham Water District

Responses to Maine Department of Environmental Protection Comments
Dated March 10, 1993

1. Page 1-4: The topography will be shown on Figure 1-2.

2. Page 2-1: The grading in this area is presented as the approximate limit of the 700 foot runway setback zone on Figures 1-2 and 2-1.

3. Page 2-2, paragraph 2: The results of the LT-001 replicate sample that was sent off-site for analysis are listed in Table 2-2 as the "CLP Results."

4. Page 2-13, paragraph 2: The third sentence of this paragraph will be reworded as follows: "Staining, similar to what was seen near the location of the soda bottle sample, was observed in this area during the site tour, and toluene was detected at 3.3 micrograms per liter during the previous sampling."

ROBERT G.
GERBER, INC.

Consulting Geotechnical Engineers and Geologists

17 West Street • Freeport, Maine • 04032-1133

207-865-6138

March 17, 1993
File #965

Ms. Loukie Lofchie
Brunswick Area Citizens for a Safe Environment
P. O. Box 245
Brunswick, ME 04011

Subject: Review of "Draft Site Inspection Work Plan, West Runway Study Area", February 1993, Naval Air Station Brunswick, Brunswick, Maine

Dear Ms. Lofchie:

As requested by the Brunswick Area Citizens for a Safe Environment (BACSE), Robert G. Gerber, Inc., has reviewed the "Draft Site Inspection Work Plan, West Runway Study Area", dated February 1993. The document was prepared by ABB Environmental Services, Inc., (ABB) for the U. S. Department of the Navy for the Naval Air Station Brunswick (NASB), Brunswick, Maine.

The West Runway Study Area is located near the western edge of the base along Ordnance Road in a restricted area. The site was discovered in the spring of 1992 by a NASB employee who observed a liquid seeping from a hillside. Analysis of a sample collected from the seep detected concentrations of fuel- and solvent-related compounds. A Preliminary Assessment (PA) was performed later in 1992 to identify past activities that could be related to the detected contamination. Historical analysis indicates the site used to be occupied by Building (or Bunker) 62, which stored solid-propellant bombs during World War II. The building may have been used for storage of other materials until it was dismantled sometime between 1972 and 1978.

The results of the Preliminary Assessment did not clearly identify routine base operations possibly associated with the contamination detected at the West Runway Study Area. The PA also recommended additional sampling activities to confirm the presence of contamination and determine what should be done with the site.

The purpose of the subject document (the work plan) is to identify the activities necessary to confirm the presence of contamination and establish the proper course of action for the area. Possible future actions include no action, a removal action, or a Remedial Investigation/Feasibility Study. The West Runway Study Area is not one of the sites included in the Federal Facilities Agreement, although the results of the investigations may cause it to be included in the future.

Our comments on the subject document are as follows:

1. **Page 1-6.** Are any of the documents cited on page 1-6, and elsewhere in the work plan, part of the Information Repository at Curtis Memorial Library?

2. **Page 2-2.** Clarify if samples LT-001 and SD-001 were collected from the same location. Likewise for samples LT-002 and SD-002.

3. **Page 2-4.** The sample designation of LT for water samples and SD for sediment samples does not appear to be consistent with the sample notation on page 2-2 and elsewhere in the document.

4. **Page 2-4.** Why was only sample LT-001 analyzed for CLP parameters? Was the sample filtered?

5. **Page 2-6.** Does the "subsequent sampling" mentioned in the last paragraph mean the samples reported in Table 2-2?

6. **Page 2-8.** The numbering of the sediment samples should be SD-004 through SD-006.

7. **Page 2-9.** A map showing the proposed locations of the various samples listed in Table 2-3 would be helpful. The Mere Brook water samples are described in the Data Uses column as being upgradiant. However, one of the proposed sampling locations shown on Figure 2-1 appears to be downgradient. Also, the numbering of the samples listed in the Data Quantity column should be consistent with the sample designation used elsewhere in the text (TP-001, SD-004, LT-007, etc.)

8. **Page 2-13.** The first complete sentence on page 2-13 states that the area within which the samples will be collected is shown on Figure 2-1. However, the cross-hatched area shown on Figure 2-1 is labelled as the "area of proposed geophysical exploration". Are we to assume that all the samples, with the exception of the Mere Brook samples will be collected from within the cross-hatched area shown on Figure 2-1? See comment 16 below.

9. **Page 2-15.** Will the samples collected from the seeps and surface water be filtered in the laboratory if they are not filtered in the field?

10. **Page 2-19.** It appears that ground penetrating radar (GPR) will only be used to confirm the extent of any magnetic anomalies detected. However, since there is the possibility of buried non-metallic debris at the site, GPR should be utilized across the area, regardless of the magnetometer survey results.

11. **Page 2-22.** Why are only three grid points of the magnetometer survey being surveyed? How will the coordinates of the magnetometer and GPR survey be determined?

12. **Pages 3-1 and 3-16.** What are the criteria for selecting certain soil samples for analysis for Target Compound List volatile organic compounds, semivolatile organic compounds, pesticides/herbicides, and elements?

13. **Page 3-4.** In Table 3-2, only one trip blank is listed for water samples. If sampling takes more than one day, or if separate coolers are used, more than one trip blank will be required.

14. **Page 4-9.** What are the circumstances that would warrant drumming decontamination fluids and disposable equipment for disposal?

15. **Attachment 1, Page 10.** What sorts of materials or compounds were in the solid-propellent bombs that were stored in Building 62?

16. **Attachment 2, Page 2-4.** The area of proposed exploration shown on Figure 2 is different from the cross-hatched area shown on Figure 2-1 in the text. The figures used in the Health and Safety Plan should be consistent with the figures in the body of the work plan.

17. **Attachment 2, Page 2-6.** The test pits are described in page 2-20 of the text as being 12 feet deep. Sloping or shoring of test pits should be in compliance with OSHA 1926. In addition to monitoring for cold stress, workers should also be monitoring for heat stress, depending on the climatic conditions when the investigations are conducted.

18. **Attachment 2, Page 5-1.** Given the concerns BACSE has expressed on numerous occasions concerning the potential for radioactive hazards at the various sites at NASB, the Navy should report the results of the radioactivity monitoring, including the results of the direct-reading instrument and the dosimeter badges.

19. **Attachment 2, Page 6-4.** The disposal methods described in Section 6.3 are inconsistent with the disposal methods described on page 4-8 of the work plan text. Containerization of wastes for off-site disposal may be appropriate.

20. **Attachment 2, Appendix B.** The Health and Safety Plan should also address heat stress, as field investigations may not occur under winter conditions. Also, Table B-1 is missing.

If you have any questions, please do not hesitate to give us a call.

Sincerely,
Robert G. Gerber, Inc.

Carolyn A. Lepage

STATE OF MAINE
CAROLYN A LEPAGE
#202
CERTIFIED GEOLOGIST

Carolyn A. Lepage, C.G.
Director of Operations

Andrews L. Tolman, C.G.
Chief Hydrogeologist

Responses to Brunswick Area Citizens for a Safe Environment Comments Dated March 10, 1993

1. Page 1-6: The documents produced by the Navy for Naval Air Station Brunswick are available at the Curtis Memorial Library. Other guidance material (i.e., USEPA documents) are available from the USEPA Records Center in Boston, Massachusetts.

2. Page 2-2: Samples LT-001 and SD-001 were collected from the same location to potentially correlate the results of the leachate to the underlying sediment. The same is true for samples LT-002 and SD-002. This will be clarified in the text.

3. Page 2-4: The sample designations of "LT" for seep liquid samples and "SD" for sediment samples are used consistently. The sample designation "SW" is sued for surface water samples (i.e. Mere Brook). No change.

4. Page 2-4: The initial collection of samples from this area done upon the discovery of the seep; at that time, it was decided to send only LT-001 off-site. The LT-001 replicate sample was sent to an off-site laboratory that had the capability to quantify the results for the Contract Laboratory Program (CLP) parameters. The sample was not filtered in the field prior to shipment.

5. Page 2-6: The "subsequent sampling" mentioned in this paragraph will be clarified to indicate the samples collected shortly after collecting the original soda bottle sample.

6. Page 2-8: The numbering of the sediment samples will be changed from "SD-4 through SD-6" to "SD-004 through SD-006."

7. Page 2-9: The location of the samples referred to in Table 2-3 will be determined in the field based on visual observations of contamination and photoionization meter readings, and therefore they cannot be explicitly located at this time. The areas to be investigated are indicated on Figure 2-1 on page 2-14. The "Data Uses" column will be changed to indicate that both upgradient and downgradient surface water samples will be collected from Mere Brook. The sample designations listed in Table 2-3, "Data Quantity" column will be changed to be consistent with sample designations used in the text and other tables.

8. Page 2-13: The legend for the cross-hatched area shown on Figure 2-1 will be changed to indicate the area to be investigated, which includes the geophysical exploration. Unless field conditions necessitate changing samples locations, most of the samples (with the exception of the Mere Brook samples) will be collected from within the cross-hatched area.

9. Page 2-15: The seep and surface water samples collected will be filtered in the laboratory, not in the field, only if deemed necessary by the analytical laboratory to obtain valid results.

10. Page 2-19: If the records search indicated that non-metallic debris (e.g., sludge, stumps, paper waste) which might consitute hazardous waste was buried at the study area, then a ground penetrating radar (GPR) would be appropriate for the entire site; however, the records search did not indicate that these materials would be in this area. No change.

11. Page 2-22: Prior to the start of the magnetometer/GPR survey, an internal survey grid will be established within the survey area with flagged, wooden stakes or highway flags. These will be situated with a compass and a cloth tape, and landmarks (e.g., woodlines, roads, pathways, structures) will be located on sketched field maps with respect to the grid nodes which were established. Because the gridded survey area is not too large, accurately surveying and locating only two or three survey points along a baseline through the center of the survey area is sufficient accuracy for this reconnaissance study.

12. Page 3-1 and 3-16: The criteria for selecting certain soil samples for analysis will be visual observations of contamination and photoionization meter readings.

13. Page 3-4: One trip blank will be used for each cooler containing soil or water samples being submitted for volatile organic compound analysis. The table summarizing the total amount of samples will be corrected.

14. Page 4-9: Circumstances under which decontamination fluids and disposable equipment will be drummed will be clarified in the text. If the photoionization meter readings exceed 5 parts per million in the air just above the fluid or equipment or if the article becomes grossly contaminated, the article will be drummed.

15. Attachment 1, Page 10: Examples of solid propellants that are used in rockets include nitrogen-based compounds mixed with metallic fuels, plasticizers, and catalysts. The preliminary assessment of this study area could not identify the types of solid propellants stored in Building 62.

16. Attachment 2, Page 2-4: The figures in the Health and Safety plan will be corrected to be consistent with figures in the body of the report.

17. Attachment 2, Page 2-6: Test pits will be excavated using the appropriate Occupational Safety and Health Administration requirements. Remote sampling equipment will be used where feasible to avoid having personnel enter deep pits. The Health and Safety Plan will be revised to include heat-related monitoring.

18. Attachment 2, Page 5-1: A sodium iodide scintillation probe will be used to measure the gross radiation present in this area. The results of the radiation monitoring equipment will be recorded in the log books for on-site field activities and will be reported in the site inspection report. The employee dosimeter badges are analyzed at the end of each quarter (i.e., 3 months) and the results are recorded in an employee's health and safety file. This dosimeter badge information is confidential and will not be disclosed in a site inspection report.

19. Attachment 2, Page 6-4: The inconsistency in disposal method descriptions will be revised to include possible containerization of these wastes.

20. Attachment 2, Appendix B: The Health and Safety Plan will be revised to include heat-related monitoring. Table B-1 will be included in the revised work plan.

HRA-0089

Build List

NASB Facilities List

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
	RAILROAD DOCK	1959	27N	249	SY
	TRANSHIPMENT AREA	1957		10666	SY
	ROADS BITUMINOUS	1943		145212	SY
	PARKING AREAS BIT	1943		332054	SY
	PARKING AREA/OTHER/	1943		15391	SY
	ROADS/OTHER/	1943		147390	SY
	STATION NAME SIGN	1953	34S		
	RUNWAY LIGHTING	1943			
	FUEL DISTRIBUTION SYSTEM	1953	30Q		
	SECURITY FENCE	1969		105605	LF
	AIRCRAFT ARRESTING GEAR	1958			
	A/C PARKING APRONS	1951		471189	SY
	TAXIWAYS	1953		128813	SY
	ROADS BITUMINOUS	1954		80326	SY
	SIDEWALKS BITUMINOUS	1954		6083	SY
	STORM SEWER	1954		8807	LF
	FIREFIGHTING PRACTICE PAD	1960	21P		
	A/C ACCESS APRON	1951		9867	SY
	R/W END REFERENCE LIGHTS	1964			
	PAPI	1964			
	CENTERLINE LIGHTING	1965			
	TAXIWAY LIGHTING	1953			
	CLEAR ZONE (P-069)			23	AC
	AICUZ J. & L. DAVIS PAR.#2			0.22	AC
				5.59	AC
				23.46	AC
	DEED FRM V & M THIBODEAU			0.2	AC
				1.5	AC
				1.13	AC
				40.95	AC
				4.34	AC
	STORM SEWER	1952		74677	LF
				6.54	AC
				0.05	AC
				8.63	AC
				521.65	AC
	N/A			2594.15	AC
	RUNWAY OUTBOARD DUAL	1953	NA	177778	SY
	RUNWAY INBOARD DUAL	1953	NA	177778	SY
	OPEN STORAGE	1943		7310	SY
		1973			
	SIDEWALKS	1943		11611	SY
	TAXIWAYS	1953		57008	SY
				7.37	AC
		1952			
		1952			
	PERIMETER/SECURITY LIGHTING	1973	N17	715	LF
		1952			
		1954			
	SANITARY SEWER	1954		13490	LF
	COMMUNICATION LINES	1959			
	AIR RAID ALARM SYSTEM	1957	27M		

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
	FIRE ALARM SYSTEM	1957			
		1943			
	COMPRESSED AIR LINES	1953	28M		
		1954			
		1952			
	APPROACH LIGHTING	1981			
	NORTH C/L APPROACH LTNG	1967	33-I		
	R/W DISTANCE MARKERS	1971			
	VOR/TACAN CK SG	1970			
	SANITARY SEWER	1943		34950	LF
	PLAYGROUND	1973	30T		
	SEWAGE PUMPING STATION	1958	23P		
	HOT SPOT	1983	15F	10666	SY
	VEHICLE PARKING SURFACE	2005	P32	416	SY
				48.36	AC
	LINE VEHICLE PARKING	1957		5888	SY
	PLAYGROUND	1973	30W		
1	HANGAR	1942	26M	107376	SF
5	MAINTENANCE HANGAR	1982	23Q	163454	SF
6	MAINTENANCE HANGAR	2005	30N	166335	SF
9	ADMINISTRATIVE SPACE (VACANT)	1943	27M	8723	SF
10	OIL SPILL EQUIPMENT STORAGE	2004	30O		SF
11	NAVY EXCHANGE RETAIL COMPLEX	1981	260	52381	SF
19	PUBLIC WORKS SHOPS	1981	21O	6000	SF
20	COMMUNITY FACILITIES	1943	27O	25871	SF
21	CHILD CARE CENTER	1983	25P	4975	SF
23	CAR WASH	1994	26P	1335	SF
24	PERSONNEL SUPPORT DET BLDG	1982	26P	10000	SF
25	INDOOR FITNESS CNTR	1983	25P	16658	SF
26	CHILD CARE CENTER	1990	25P	6496	SF
27	FAMILY SERVICES CENTER	1984	26-O	7862	SF
28	OXYGEN SHOP (VACANT)	1944	27P	784	SF
29	AUTO HOBBY SHOP	1988	23O	12000	SF
30	FSC STORAGE	1995	26D	512	SY
31	NAVY LODGE	1999	27O	15054	SF
32	RECREATION PAVILLION	1981	30-Q	1500	SF
33	SENTRYHOUSE/FRONT GATE	1954	34S	106	SF
35	SENTRY HOUSE/FRONT GATE	2004	32T		
36	DYERS GATE SENTRY HOUSE	2004	16L		
37	NCIS	1943	34S	2320	SF
38	PASS & ID OFFICE	2004	33S		
39	GOLF COURSE MAINT BLDG	1985	10G	2800	SF
41	POLICE/SECURITY STATION (VACANT)	1944	29N	10526	SF
42	PUMPHOUSE	1944	28N	660	SF
43	TELEPHONE EXCHANGE BLDG	1988	026Q	1156	SF
44	INERT ORDNANCE STORAGE	1943	27N	1258	SF
45	HAZ WASTE TRANSFER FACILITY	1992	27L	3000	SF
46	SECURITY INSPECTION OFFICE	2004	15M		
47	BALLFIELD STORAGE	1999	29P	400	SF
49	REGULATOR/SUBSTATION BLDG	1981	L15	315	SF
50	GROUND WATER EXTRACTION & TREATMENT FACILITY	1995	21O	6500	SF
51	HAZARDOUS WASTE FACILITY	2005	22O	5000	SF
53	PUBLIC WORKS SHOP	1996	21O	10000	SF
54	APPLIED INSTR. BUILDING	1988	28R	30000	SF

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
55	POLICE/SECURITY STATION	2005	22O	11000	SF
57	BEACON TOWER	2005	21O		
58	TACAN	2005	10R		
59	HE MAGAZINE	1943	9P	1010	SF
60	INERT ORDNANCE STORAGE	1943	Q19	1010	SF
62	AMMO STORAGE FACILITY	1943	9P	1010	SF
63	STORAGE FACILITY	1943	22G	1010	SF
64	STORAGE FACILITY	1943	21F	1010	SF
65	PICNIC SHELTER (QTY 5)	1986	21S	3380	SF
71	AMMO MAGAZINE	1943	20N	1010	SF
77	WEAPONS BUILD-UP FACILITY	1993	12O	4000	SF
78	GOLF CLUBHOUSE	1981	10G	3040	SF
79	HOBBY SHOP STORAGE	1980	23N	540	SF
81	CHRIMP FACILITY	1980	N22	7000	SF
83	ORDNANCE DISPOSAL SITE(18 AC	1981	R8		
86	GSE MAINT. SHOP	1992	25N	31980	SF
87	ASWOC/TSC	1988	26R	52513	SF
102	INDOOR SMALL ARMS RANGE	2004	28O	4975	SF
103	MILITARY WORKING DOG KENNEL	2004	29O	1600	SF
104	MECH SEC BARRIERS (DYERS GATE)	2004	16L	80	SF
109	DOG KENNEL (VACANT)	1983	34S	529	SF
111	SEWAGE PUMP HOUSE	1943	30S	64	SF
117	FILLING STATION	1984	30P	124	SF
118	FILLING STATION STORAGE	1984	30P	42	SF
122	FLAG POLE /ADMIN/	1953	27N		
124	STOR TANK-GROUND LEVEL	1944	28N	3721	SY
125	GUARD TOWER	1983	160	256	SF
126	NATL GUARD MAGAZINE	1983	09P	2040	SF
127	NATL. GUARD MAGAZINE	1983	09P	264	SF
128	NATL GUARD MAGAZINE	1983	09P	266	SF
145	LOADING PLATFORM	1943	12N	826	SY
146	WATERMAIN ENTRANCE SHELTER	1987	34E	230	SF
147	WATER METER PIT SHELTER	1987	33L	240	SF
150	NAVAL AIR RESERVE CENTER	1992	29R	13196	SF
151	NAVAL SURFACE RESERVE CENTER	2002	29Q	24480	SF
153	RECYCLING CENTER	1992	16K	7800	SF
156	MONUMENT	1943	270		
157	MONUMENT	1943	270		
200	OPERATIONS-CONTROL TOWER BLD	1954	28L	22409	SF
201	GALLEY/NEPTUNE HALL	1953	23O	9425	SF
209	ELECTRIC DISTRBN BLD/SHLTR	1954	28M	2283	SF
211	PHYSICAL FITNESS FACILITY	1954	25P	50984	SF
221	THRIFT SHOP	1999	23P	600	SF
222	BEQ MAINT STORAGE	1954	24O	706	SF
223	NMCI	1953	29O	4284	SF
225	AUTOMOTIVE EQUIP REPAIR SHOP	1953	26N	15020	SF
226	SEA CADETS BUILDING	2001	24P	2560	SF
227	GENERATOR BUILDING	1956	25E	160	SF
228	SENTRYHOUSE/CW5	1980	26Q	96	SF
229	GCA TURNTABLE	1963	24I	1428	SY
231	AIR TRAFFIC CONTROL TOWER	2005	28E	15661	SF
245	PAVEMENT & GRND EQUIP SHED	1956	9P	229	SF
250	MAINTENANCE HANGAR	1956	24M	184400	SF
251	DE-ICE/RINSE PUMPHOUSE	2002	23N	114	SY

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
252	AUTO EQUIP REPR SHP	1957	26N	5100	SF
254	DRAFTING TANK	1957	28L	0.01	AC
255	GOLF COURSE & DRIVING RANGE	1955	8H		
256	ATHLETIC FIELD	1943	28Q	175000	SY
257	PLAYING COURTS	1965	27P		
265	SENTRYHOUSE/FORRESTAL RD/HSG	1960	31T	31	SF
277	SEWAGE PUMPING STATION	1953	34N		
280	TRANSMITTER BLDG VHF/UHF	1956	26E	974	SF
282	COMPASS ROSE	1956	32L	1257	SY
285	AMMO STORAGE FACILITY	1956	7P	1493	SF
286	AMMO STORAGE FACILITY	1956	8P	1493	SF
287	AMMO STORAGE FACILITY	1956	8P	1493	SF
288	AMMO STORAGE FACILITY	1956	7P	1493	SF
289	AMMO STORAGE FACILITY	1956	8P	1493	SF
290	HIGH EXPLOSIVE MAGAZINE	1956	6O	1493	SF
291	HE MAGAZINE	1956	11Q	192	SF
292	FIRE/RESCUE FACILITY	1957	27L	10665	SF
294	WAREHOUSE	1956	28N	64530	SF
295	WATER RESERVOIR PUMP HOUSE	1957	26-0		
296	VORTAC	1956	31F	408	SF
309	PUMPHOUSE/IRRIGATION	1954	8J	180	SF
310	DAM	1955	8J		
311	OIL SPILL CONTROL WEIR	1994	32O		
323	STORAGE BLDG	1949	30U	440	SF
347	DAM (PICNIC POND)	1954	19S		
512	BOQ	1958	28Q	61882	SF
516	NITEFLIGHT	1958	23R	14983	SF
517	RECEIVER BUILDING	1958	22E	1106	SF
518	GENERATOR BUILDING	1958	22E	176	SF
537	SEWAGE PUMP HOUSE	1958	23P	597	SF
538	NX SERVICE STATION	1957	26O	5292	SF
539	EXPL ADMIN/ARMORY	1958	16O	10311	SF
543	HIGH EXPLOSIVES MAGAZINE	1958	7O	1232	SF
544	HIGH EXPLOSIVE MAGAZINE	1958	7O	2252	SF
548	HIGH EXPLOSIVE MAGAZINE	1959	10Q	192	SF
549	HIGH EXPLOSIVE MAGAZINE	1959	11Q	192	SF
553	AIRFIELD SUPPORT BUILDING	2004	24N	15888	SF
554	P3 SUPPORT FACILITY	2002	21N	10000	SF
555	SONOBOUY / VEHICLE STORAGE	1959	24N	6400	SF
562	TRANSMISSOMETER TOWER	1960	19L		
563	TRANSMISSOMETER TOWER	1960	18L		
583	BOWLING CENTER/REC MALL	1965	27P	19380	SF
584	PW SHOPS	1965	210	7200	SF
585	CHAPEL	1965	270	13610	SF
590	TRANSPORTATION MAINTENANCE BUILDING	2004	20O	8000	SF
592	VET CLINIC	1950	26Q	1621	SF
594	RADAR TOWER/MECH @ ASWOC	1950	26Q	900	SF
600	TRANSMISSOMETER TOWER	1965	30K		
601	ASOS TOWER	1965	29K		
602	GLIDE SLOPE ANTENNA BUILDING	1997	18L	94	SF
603	LOCALIZER ANTENNA SHELTER	1997	34J	94	SF
611	T-56 ENGINE TEST FACILITY	1967	20N	2484	SF
613	PICNIC AREA TOILET	1966	24Q	150	SF
618	FLAG POLE 1 FAW-3	1954	24N		

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
626	INERT ORDNANCE STORAGE	1973	N17	3198	SF
629	NMCB 27/SEABEE CAMP	1974	M34	960	SF
630	NMCB27/SEABEE CAMP	1974	M34	960	SF
631	NMCB 27/SEABEE CAMP	1974	M34	960	SF
632	FATS TRAINER	2005	33M		SF
633	NMCB 27/SEABEE CAMP	1974	M34	2640	SF
634	NMCB 27/SEABEE CAMP	1974	N34	960	SF
635	NMCB 27/SEABEE CAMP	1974	M33	4700	SF
638	SEWAGE PUMPING STATION	1954	30U		
639	OPERATIONAL TRAINING BLDG (D	1975	27Q	3540	SF
642	WEPS ADMIN	1978	16O	2640	SF
643	SENTRY HOUSE/WEAPONS AREA	1978	16O	140	SF
644	OPERATIONAL TRAINER BLDG	1979	27R	13571	SF
645	BR MEDICAL/DENTAL CLINIC	1979	28R	31559	SF
646	RATCF ANTENNA BUILDING	1979	19D	480	SF
647	BOTT GAS STRG BLDG/PEST CONT	1978	28N	1541	SF
649	AMBULANCE GARAGE	1979	28R	1377	SF
650	JP-8 TANK 20000 BBLS	1992	N31		
651	JP-8 TANK 20000 BBLS	1992	N32		
652	JP-8 TRUCK LOADING RACK	1992	N33	2508	SF
653	FUEL FARM FOAM HOUSE	1992	P31	540	SF
654	JP-8 PUMP HOUSE	1992	P32	2145	SF
655	JP-8 TRUCK OFFLOAD RACK	1992	N31	5038	SF
656	JP-8 SLOP TANK	1992			
657	RESERVE TRAINING BUILDING	1992	M33	960	SF
658	FUEL FARM POL TESTING FAC	1998	O32	2000	SF
660	TRUCK WASH	1998	P31	2016	SF
730	BEQ	2002	24P	5679	SF
731	BEQ	2002	24P	7083	SF
732	BEQ	2002	24P	5679	SF
733	BEQ	2002	24P	7083	SF
734	BEQ	2002	24P	7083	SF
735	BEQ	2002	24P	7083	SF
736	BEQ	2002	24P	7083	SF
737	BEQ	2002	24Q	7083	SF
738	BEQ	2002	24Q	7083	SF
739	BEQ	2002	24Q	7083	SF
740	BEQ	2002	24Q	7083	SF
741	BEQ	2002	24Q	5679	SF
742	BEQ	2002	24Q	7083	SF
743	BEQ	2002	24Q	5679	SF
744	BEQ	2002	24Q	7083	SF
745	BEQ	2002	24Q	7083	SF
746	BEQ	2002	24P	7083	SF
747	BEQ	2002	24Q	7083	SF
748	BEQ	2002	24Q	7083	SF
749	BEQ	2002	24Q	5679	SF
750	TRANSIENT VISITOR QUARTERS	2004	25S	115000	SF
751	SCHOOL AGE CARE CENTER	2003	27T	2500	SF
927	RUNWAY E/W INACTIVE	1943	NA	93116	SY
927	RUNWAY E/W INACTIVE	1943	NA	93116	SY
1156	STORAGE YARD	1965	200	9556	SY

HRA-0091

United States
Department of Defense
Legacy Resource Management Program

Cultural Resources Survey
U.S Naval Air Station
Brunswick, MAINE

APRIL 1999

Cultural Resources Survey
U.S. Naval Air Station Brunswick, Maine

Northern Division
Naval Facilities Engineering Command

Prepared For
Naval Air Station Brunswick
Brunswick, Maine

Draft January 1996
Draft Final April 1999

Stewardship ● Leadership ● Partnership

CULTURAL RESOURCES SURVEY

U.S. NAVAL AIR STATION BRUNSWICK, MAINE

Prepared By

The Cultural Resource Group
Louis Berger & Associates, Inc.

For

BCM Engineers, Inc.
Contract No. N62472-94-D-1397
Appendix E

Submitted To

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Naval Facilities Engineering Command
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Naval Air Station Brunswick
Brunswick, Maine

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Executive Summary

A cultural resources survey of the Naval Air Station Brunswick (NASB), Brunswick, Cumberland County, Maine, was undertaken in 1995 in accordance with Section 110 of the National Historic Preservation Act of 1966 (as amended). This survey covered the main base of NASB as well as the following outlying facilities: the East Brunswick Remote Radio Transmitter Site and the McKeen Street Housing Complex, Brunswick; the Topsham Annex, Topsham, Sagadahoc County; and the Survival, Evasion, Resistance and Escape (SERE) School, Redington, Franklin County. The area covered by this study totals 15,901 acres, including 3,157 acres at the main station and 12,468 acres at the SERE School. The work program included a Phase IA archaeological resource study, and a comprehensive inventory of architectural resources and evaluation of their eligibility for the National Register of Historic Places (NRHP). The Maine Historic Preservation Commission (State Historic Preservation Office) issued comments on the draft cultural resources survey report in 1998.

With respect to archaeological resources, results of these investigations are as follows:

Main Station: Areas of high sensitivity for prehistoric sites are located along the northern boundary; areas of moderate sensitivity for prehistoric sites are situated along portions of Mere Brook, its tributaries, and the shorelines of Harpswell and Buttermilk coves. Restricted areas of high sensitivity for historic sites are widely scattered across the facility. No additional information was obtained in the course of the archaeological reconnaissance on two purported prehistoric sites. Five historic archaeological localities were noted, including salt marsh dikes, three nineteenth-century cemeteries, and a scatter of nineteenth-century household artifacts. These known and rumored localities represent only a fraction of the archaeological sites that may be present at the facility.

McKeen Street Housing Complex: This facility is judged to have a low sensitivity for both prehistoric and historic archaeological sites.

East Brunswick Remote Radio Transmitter Site: This facility is judged to have a low sensitivity for both prehistoric and historic archaeological sites.

Topsham Annex: This facility is judged to have a low sensitivity for prehistoric archaeological sites. The western half of the annex is rated as having a moderate sensitivity for historic sites.

SERE School: Overall, the sensitivity of this facility for prehistoric archaeological resources is judged to be low. However, restricted areas of moderate to high potential have been identified in certain topographic-environmental settings, including portions of the valley floor and areas of mountain slope. High historic archaeological sensitivity has been found to be restricted to the locations of Redington Village and the Redington Pond dam.

Since this study was conducted at a Phase IA reconnaissance level, few conclusions can be drawn concerning the potential significance, in terms of NRHP Criteria, of archaeological resources at NASB. It is recommended that planners for future Navy undertakings at NASB employ the models of archaeological site sensitivity presented in this report to evaluate the parcels of land for archaeological resources prior to execution of the undertaking. If a parcel is rated as having a moderate or high sensitivity, additional archaeological investigations (Phase IB and Phase II) may be required to ascertain the actual presence of sites and to obtain the data necessary for an evaluation of the site's significance using NRHP Criteria. Any conclusions with respect to the need for and level of effort of additional archaeological investigations must be made in consultation with the Maine State Historic Preservation Officer.

With respect to architectural resources, results of this study and review by the Maine SHPO are as follows:

Pre-1946 Resources: Buildings 44, 53, and 64, earth-covered steel magazines constructed in 1943, possess integrity and meet National Register Criterion C. Building 35, a former radio transmitter facility, and Hangars 1, 2, and 3, meet National Register Criterion A.

The remaining pre-1946 architectural resources at NASB do not meet National Register Criteria, due to lack of demonstrable significance and/or lack of historical integrity.

Resources Constructed Since 1946: Building 373 at Topsham Annex and Buildings 523 and 524 at the Remote Radio Transmitter Site meet National Register Criterion A and Criteria Consideration G governing resources less than 50 years of age.

The post-1946 resources that, on the basis of information available for this study, appear to have the greatest potential for National Register eligibility once they reach the age of 50 years are as follows: Buildings 211-220 (BEQ Barracks and Subsistence Building, main station); Buildings 226, 227, 517, and 518 (radio communications buildings, main station); Buildings 82, 451, 576, 578, 573, 574, 575, 577, LBA-16, LBA-17, LBA-18, LBA-19, and LBA 20 (Resistance Training Laboratory).

Cultural Resources Survey
Naval Air Station Brunswick, Maine

Contents

Executive Summary

Introduction 1

Description of the Study Area 3
- General Physical Characteristics 3
- Environmental Setting 11
  - Brunswick-Topsham Area 11
  - Redington 12
- Quaternary History and Paleoenvironments 13

Previous Research - Background Information 17
- Previous Research and Existing Cultural Resources Information 17
  - Archaeological Resources 17
  - Architectural Resources 21
- Prehistoric and Historic Contexts 22
  - Regional Prehistory 22
  - Historic Context for the Pre-Navy Period 25
  - Historic Context for the Navy Period 40

Research Design and Survey Methods 51
- Research Design 51
  - Archaeological Resources 51
  - Architectural Resources 52
- Methods 53
  - Background Research 53
  - Archaeological Resources Investigation 53
  - Architectural Resources Investigation 54

Results of Archaeological Resources Survey 55
- Introduction 55
- Main Station 55
- Outlying Facilities, Brunswick-Topsham Area 63
  - McKeen Street Housing Complex 63
  - East Brunswick Remote Radio Transmitter Site 63

Topsham Annex 64
Outlying Facility, SERE School, Redington, Maine 65

Results of Architectural Resources Survey 67
Introduction 67
Built Environment - Spatial Organization 68
Built Environment - Transportation 70
World War II-Era Resources 71
Patrol Mission 73
Training Mission 75
Administration and Support Facilities 75
Cold War-Era Resources 77
Patrol Mission 79
Training Mission 81
National Defense and Air Force Detachment 81
Administration and Support Facilities 82
Outlying Facilities 87

Evaluation of Results 101
Archaeological Resources 101
Main Station 101
Outlying Facilities, Brunswick-Topsham Area 111
Outlying Facility, SERE School, Redington, Maine 116
Architectural Resources 118
Main Station - Historic District Potential 118
Main Station - Individual Resources 121
Outlying Facilities - East Brunswick Remote Radio Transmitter Site 122
Outlying Facilities - Topsham Annex 122
Outlying Facilities - McKeen Street Housing Complex 122
Outlying Facilities - SERE School, Redington, Maine 122

Conclusions 145
Archaeological Resources 145
Architectural Resources 147

Bibliography and References Cited 149

Appendix A
Photographic Inventory of Buildings A-1
Appendix B
Forms K B-1
Appendix C
List of Preparers C-1

Figures

1	Regional Location Map	2
2	Brunswick Area Facilities	5
3	Topographic Setting of Main Station	8
4	Topographic Setting of SERE School	9
5	Brunswick in 1857	30
6	Brunswick in 1871	32
7	Brunswick in 1938	34
8	Topsham in 1858	35
9	Redington Township and Vicinity in 1895	36
10	Redington Township, Circa 1932	38
11	Northeastern Redington Township in 1956	39
12	Main Station in 1946	43
13	Main Station Built Environment, Showing Activity Areas	57
14	Public Quarters on the Main Station	84
15	East Brunswick Remote Radio Transmitter Site, Built Environment	88
16	Topsham Annex, Built Environment	91
17	McKeen Street Housing Complex	95
18	SERE School Resistance Training Laboratory, Built Environment	98
19	Soils at Main Station	102
20	Ground Disturbance at Main Station	104
21	Decision Tree for Prehistoric Archaeological Sensitivity at NASB Brunswick - Topsham Properties	107

22 Prehistoric Archaeological Sensitivity at Main Station 110

23 Historic Archaeological Sensitivity at Main Station 113

24 Archaeological Sensitivity at SERE School 119

Tables

1 Naval Air Station Brunswick, Summary of Buildings by Facility 68

2 Architectural Resources Inventory for Naval Air Station Brunswick 124

Introduction

This document presents the results of a cultural resources inventory and assessment conducted in May and September 1995 at Naval Air Station Brunswick (NASB), Brunswick, Maine (Figure 1). Pursuant to Section 110 of the National Historic Preservation Act of 1966 (as amended), the Department of the Navy commissioned this study in order to identify historic properties within its jurisdiction at NASB. The Navy will utilize the results of the study to meet its obligations under Section 106 of the National Historic Preservation Act, and in accordance with Executive Order 11593, 36 CFR 800, and with OPNAVINST 5090.1A, Environmental and Natural Resources Program Manual.

The cultural resources survey for NASB consisted of a Phase IA archaeological investigation and an architectural resources survey. The general purpose of the Phase IA archaeological investigation was to assess the potential of NASB property to contain prehistoric and/or historic archaeological resources. The objective of the architectural resources survey was to develop an inventory and assessment of buildings and structures with respect to the NRHP Criteria for Evaluation (36 CFR 60.4). According to the criteria, resources less than 50 years of age, unless of exceptional significance, are considered too recent to permit proper interpretation and evaluation. However, this cultural resources survey seeks to extend the useful life of this report as a planning document by including discussion of buildings and structures from the station's commissioning (1942) to the present.

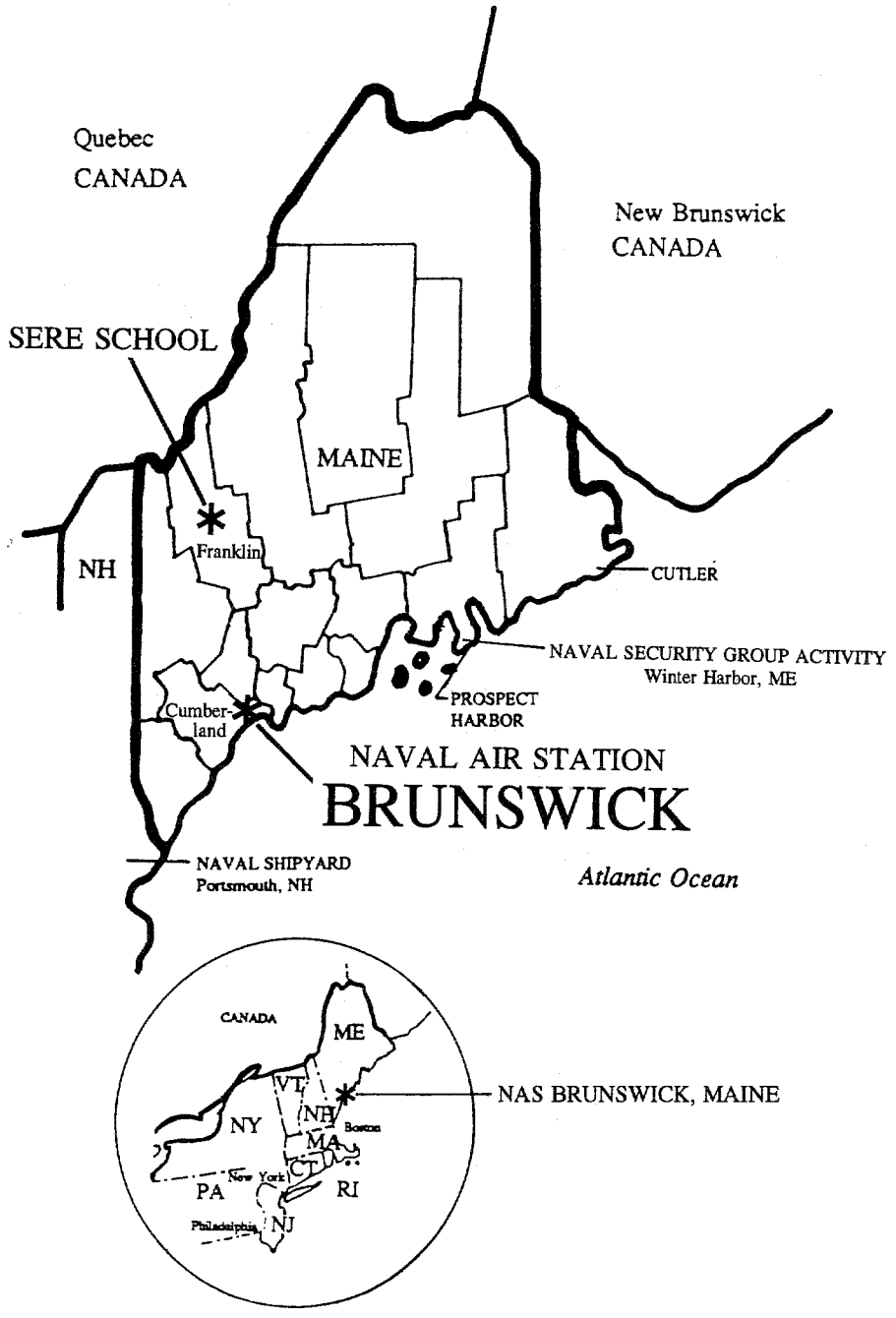


Figure 1: Regional Location Map

Description of the Study Area

General Physical Characteristics

The mission of NASB is to provide the facilities, services, and matériel for the six home-based squadrons of Command Patrol Atlantic Wing Five (COMPATWINGFIVE). These squadrons, comprised of long-range Orion P-3 aircraft, are primarily engaged in all-weather, anti-submarine activities and regularly patrol a broad sector of the North Atlantic (NASB 1986). The air station also serves as host for the SERE School, a training facility situated in western interior Maine. The school trains selected personnel of the Atlantic Fleet, NATO, and other allies in survival on land, avoidance of capture, and prisoner-of-war resistance (Michael Baker, Jr., Inc. [Baker] 1989).

NASB currently consists of the main station in the Town of Brunswick, Cumberland County, and several noncontiguous remote areas (see Figure 1). Off-station areas include sites in Brunswick and the towns of Topsham and Phippsburg, Sagadahoc County, as well as the SERE School in Redington Township, Franklin County (Figure 2). NASB's facilities cover a total of approximately 15,901 acres. Of this total, 15,848 acres are owned by the Navy, and 53 acres are controlled through easements, leases, and right-to-use agreements.

The NASB facilities are distributed over a fairly large portion of Maine's coastal region. The Androscoggin River, which here flows from west to east, forms a part of the Cumberland-Sagadahoc county boundary, separating the Town of Brunswick station facilities from the Topsham Annex. The city of Brunswick is located by the falls of the Androscoggin, the river having meandered generally southward some 165 miles and turned east just before the falls. About five miles east by northeast of the city of Brunswick, the Androscoggin empties into Merrymeeting Bay, an inland tidal bay, meeting the waters of the Kennebec River flowing from the north. From the eastern side of this bay the estuarial channel of the Kennebec River flows south to the sea, and is quite narrow in places. Brunswick's neighboring small city of Bath is situated on the west bank of the Kennebec (south or seaward of Merrymeeting Bay), in Sagadahoc County, about nine miles east of the city of Brunswick. Along the coast to the south of the mouth of the Kennebec are Sabino Hill, rising above the village of Popham Beach, and, about four miles to the southwest, the diminutive round peninsula called Small Point. The sea can also be reached overland from the city of Brunswick relatively quickly, as the falls of the Androscoggin are just three and one-half miles north of the head of Maquoit Bay.

The main station is situated between the Androscoggin River and Casco Bay southeast of the town center of Brunswick (see Figure 2). Activities at the main station include all-weather, round-the-clock aircraft operations and maintenance, weapons handling, administration, facility maintenance, housing, and recreation. Of a total area of 3,157 acres, 3,096 acres (including 5 leased acres) comprise the air station proper. The remaining 61 acres constitutes the North Clear Zone, which is made up of property both owned and leased by the Navy. The station proper is a roughly rectangular tract that extends south from State Route 24 to Harpswell and Buttermilk

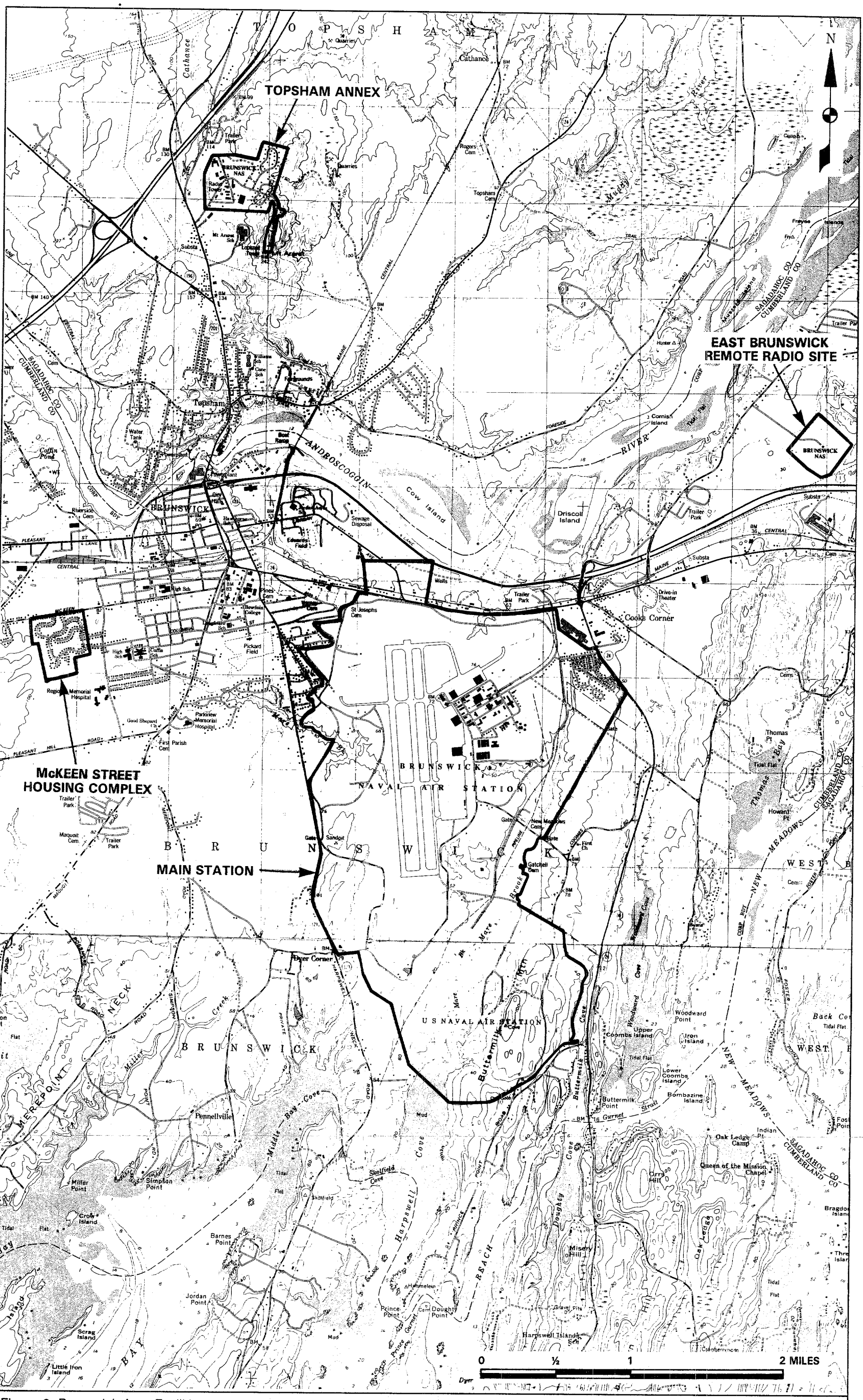


Figure 2: Brunswick Area Facilities

Source: USGS 7.5 Minute Maine Quadrangles, Brunswick 1980 and Orrs Island 1957 (Photorevised 1978)

coves. The North Clear Zone, established to provide safe aviation operations for Runways 19-R and 19-L, is a trapezoidal tract located between Route 24 and U.S. Route 1. The main station is situated primarily on a gently rolling sandy plain, which has been deeply incised by streams (Figure 3). These streams flow either to the north, into the lower Androscoggin River, or to the south, into the heads of the narrow, fingering bays of eastern Casco Bay. Low bedrock ridges rise above the sandy plain on the southeastern and southwestern ends of the station. The landscape of the main station is varied, ranging from pine and oak woodlands in undeveloped portions of the station to the densely developed main operations-administration area and the open, highly controlled space of the runways.

The McKeen Street Housing Complex is situated about three miles from the main station on the west side of central Brunswick (see Figure 2). The housing area occupies a roughly square tract of 70 acres southwest of the intersection of McKeen Street and Baribeau Drive. The site comprises 231 units of Capehart housing in a suburban setting. Like the majority of the main station, the terrain at McKeen Street is sandy and nearly level.

The East Brunswick Remote Radio Transmitter Site is located between Route 1 and Old Bath Road, about 3.2 miles northeast of the main station (see Figure 2). The site, situated on level, sandy terrain, covers a diamond-shaped tract of 66 acres adjoined by gravel pits, farmland, and woods. The property is largely covered in blueberry heath. The transmitter is no longer operational and the antenna array has been dismantled. Trespassing dirt-bikers favor the site for off-road riding and racing.

The Topsham Annex is situated in the neighboring town of Topsham, about four and one-half miles north of the main station (see Figure 2). The total area of the annex is 125 acres, containing 177 units of Capehart housing. In addition to housing and associated recreational facilities, the annex contains operations and training activities. The annex was formerly an Air Force radar station, and several abandoned structures from that era are located along a narrow arm of property that climbs to the top of Mount Ararat. Terrain at the Topsham Annex is hilly, and there is a general slope from southeast to northwest across the property. The area surrounding the annex is wooded and lightly developed.

Two rake stations, used for observing mine-laying operations, are located 14 miles southeast of the main station in Phippsburg. The two stations comprise some nine acres, nearly all of which is controlled by easement. The stations, situated on low hills a short distance from Small Point and the Gulf of Maine, were not included in the present study.

The SERE School is located 90 miles north of the main station in central Franklin County. The school covers an irregular tract of 12,468 acres of remote, mountainous terrain (Figure 4). The school is covered by northern hardwood-conifer forest, with numerous streams, ponds, bogs, and wetlands. In this rugged setting, the Navy provides training in the basic skills of short-term land survival; evasion of capture by hostile forces; resistance to interrogation, indoctrination, and exploitation; and escape from detention when held by the enemy. The Air Force also makes use of the property as a cruise missile recovery site. The school occupies about two-thirds of the unorganized township of Redington. The nearest community of any significant size is the town

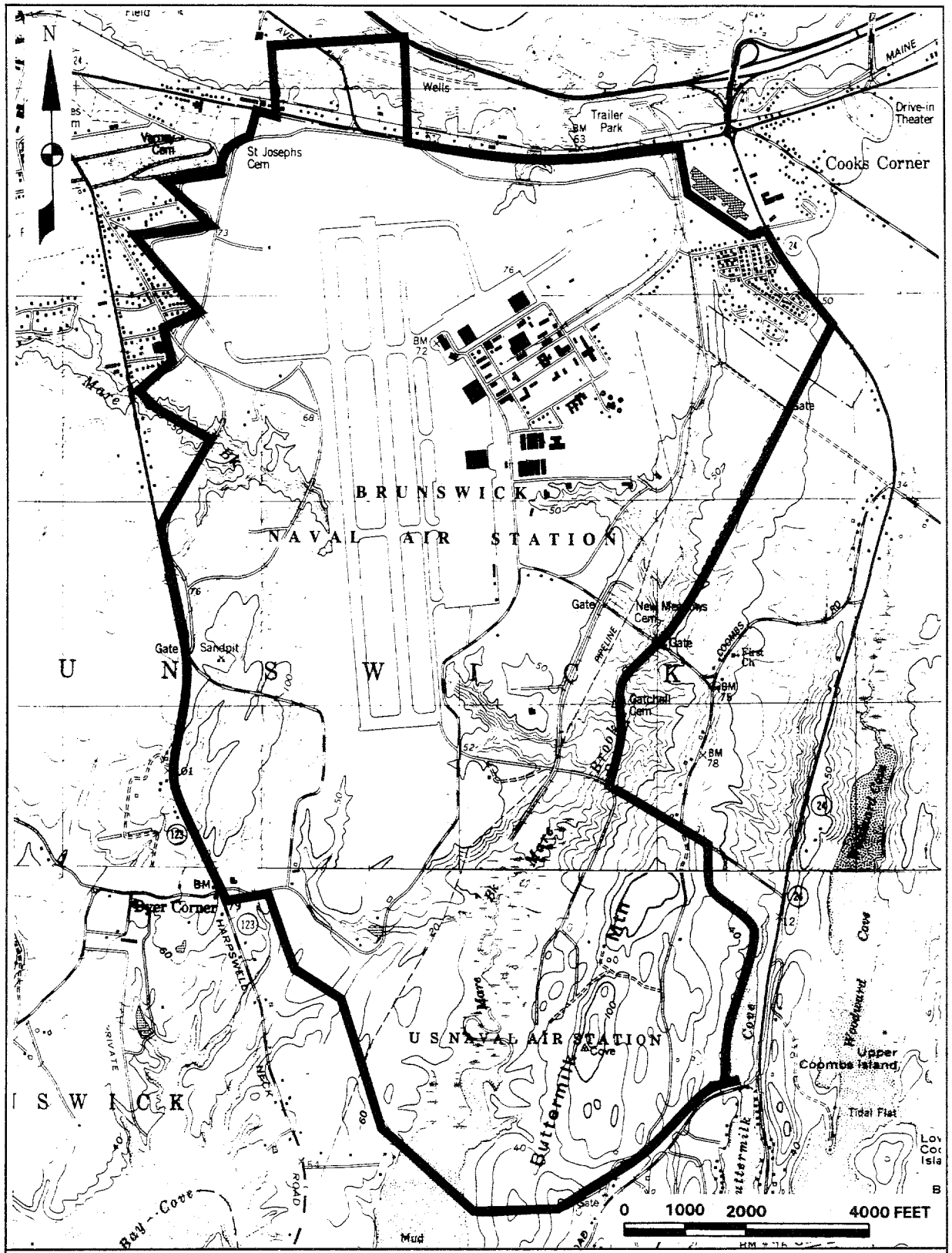
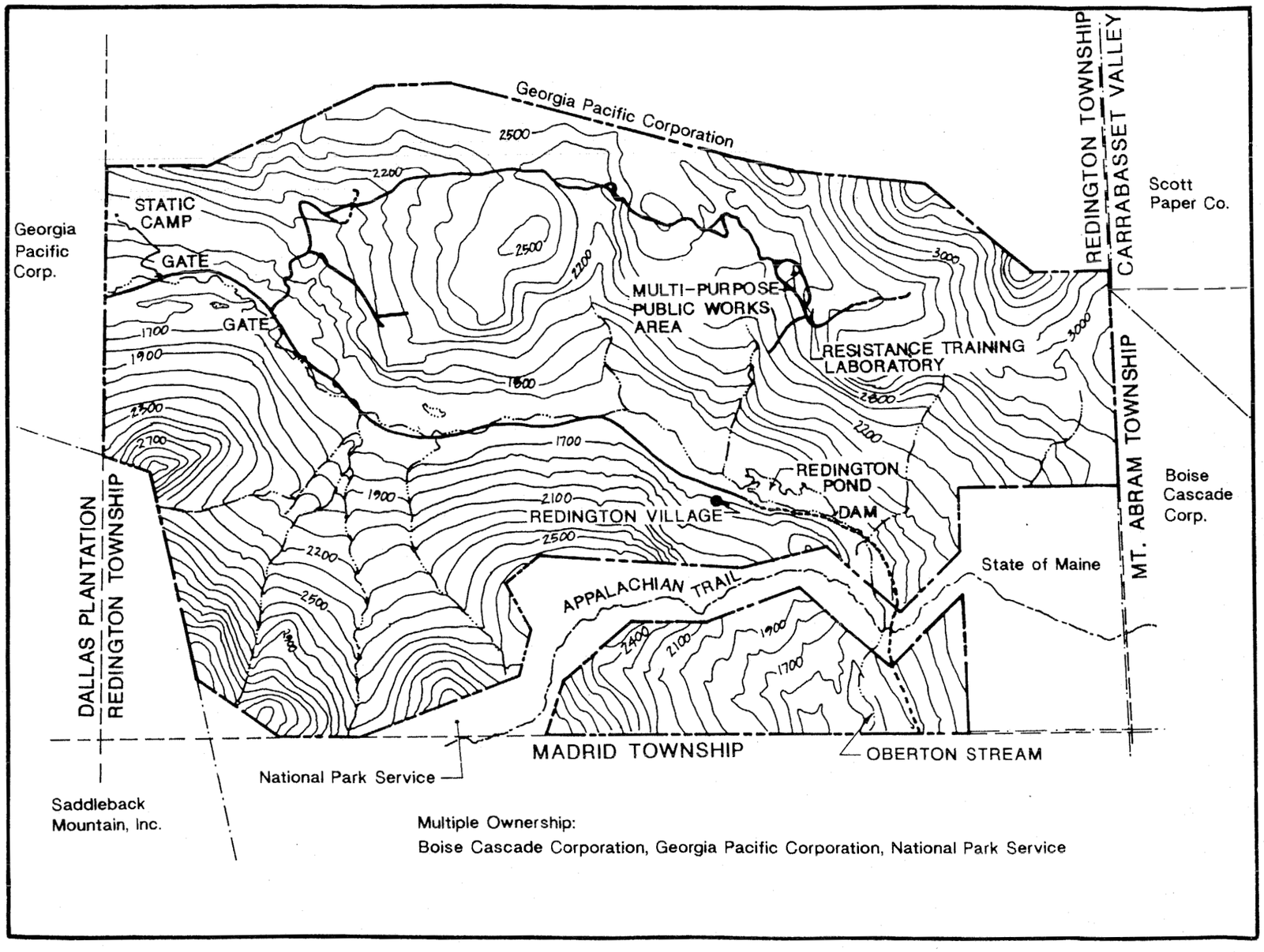
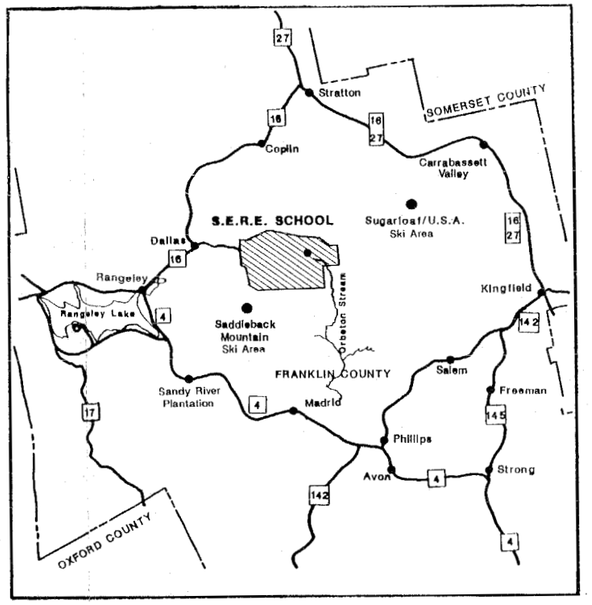


Figure 3: Topographic Setting of Main Station

Source: USGS 7.5 Minute Maine Quadrangles, Brunswick 1980 and Orrs Island 1957 (Photorevised 1978)





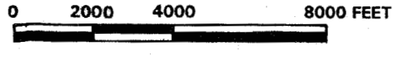


Figure 4: Topographic Setting of SERE School

Source: Baker 1989: Figures 5-1 and 5-2

of Rangeley, about 11 miles to the west. The Navy's property is divided into two parcels by a corridor owned by the National Park Service; this corridor is occupied by the Appalachian Trail. Land surrounding the school belongs primarily to various paper and timber companies and the State of Maine.

Environmental Setting

Brunswick-Topsham Area

The Brunswick-Topsham area is situated in a region of folded and faulted metamorphic bedrock on the coast of Maine. The area lies within the Norumbega Fault Zone, a band within which numerous major and minor faults occur, which extends from Kittery and Berwick at the southern end of the state to Vanceboro and Calais on its eastern side (Osberg et al. 1985). Bedrock in the area consists of metamorphosed volcanic rocks of the Cushing Formation, which are Precambrian to Ordovician (i.e., >570 to 435 million years) in age. Because unconsolidated late Pleistocene and Holocene sediments blanket the area, exposures of bedrock are limited in Brunswick and Topsham. In the vicinity of the Navy property, bedrock outcrops are found along the periphery of the air station, at Cook's Corner, near Route 123, and along the shores of Harpswell and Buttermilk coves, by the Androscoggin River, and on Mount Ararat and adjoining hills near the Topsham Annex.

The Flying Point Normal Fault runs southwest to northeast under the air station proper. To the northwest of central Brunswick and Topsham, the Nonesuch Thrust Fault marks the boundary between the older metavolcanic rocks of the Cushing Formation and the somewhat younger calcareous sandstones of the Vassalboro Formation, which are Ordovician to Silurian in age. The Cape Elizabeth Fault, located in the eastern part of the Town of Brunswick, marks the contact between the Cushing Formation and the Cape Elizabeth Formation, a unit of interbedded pelite (mudstone) and sandstone ranging in age from Precambrian to Ordovician. Merrymeeting Bay, the confluence of the Androscoggin, Kennebec, and Eastern rivers, is also situated on this fault (Hussey 1981, 1985).

The topography of Brunswick, Topsham, and adjoining areas trends from southwest to northeast, reflecting the orientation of folds and faults in the underlying bedrock. As a result of these structural controls, fingers of land extend into the Gulf of Maine, creating a series of long and narrow bays (Johnson 1925). Examples along the coast to the south of Brunswick include Middle Bay, Harpswell Sound, and Quahog Bay. Many rivers, including the Kennebec and its tributary, the Eastern River, follow the trend of regional topography and flow in narrow, straight, deeply incised channels. Certain rivers, however, cut across the topographic grain, the lower Androscoggin being one example. As a result of its tendency to run across the regional topographic trend, the lower Androscoggin flows through bedrock ridges in a shallow channel, and it is divided into discrete basins by bedrock outcrops (Lowell 1984).

Surficial deposits along the coast of Maine are the product of glacial and postglacial events (Thompson 1978). In general, the Brunswick-Topsham area is covered by glacial till and glacial-

marine sediments of Wisconsinan age (60,000 to 12,000 years old) (Thompson and Borns 1985). Of these two types of deposits, those of the glacial-marine Presumpscot Formation (Bloom 1963) are of greater extent. Typical Presumpscot Formation sediments are fine-grained, composed mostly of silts and clays derived from glacially pulverized bedrock, but the formation includes coarser, sandy facies as well. In Brunswick and Topsham, areas of slightly higher elevation, including much of the air station proper, the East Brunswick Remote Radio Transmitter Site, and portions of the Topsham Annex, are situated on such sandy facies, while finer-grained facies are exposed in lower areas and along drainages. In addition to the glacial-marine sediments, till also occurs, primarily in the form of minor recessional moraines extending east to west across the Brunswick-Topsham area (Smith 1977).

Holocene deposits consist chiefly of alluvium laid down along the Androscoggin River and its major and minor tributaries (Smith 1977). Several series of terraces have been mapped along the Androscoggin River, but their chronology and genesis have not been completely clarified (Balogh and Gordon 1985; Lowell 1984, 1990a, 1990b; Spiess 1985).

Soils in the Brunswick-Topsham area formed on the glacial deposits range from the somewhat poorly drained Au Gres loamy sand to the excessively drained Windsor loamy sand. At the air station proper, soils are divided between those of the Windsor-Hinckley-Deerfield association to the north and those of the Suffield-Buxton-Hollis association to the south. This division between the two associations is a product of the somewhat higher, coarser, and better-drained sandy sediments that comprise the northern part of the air station to the north and the lower, somewhat less well-drained mix of tills and glacial-marine silty clays to the south (NASB 1986:V-C-5–6).

More specifically, soils in the northern part of the air station include large areas of Croghan, Adams, and Finch loamy fine sands. These spodic (podzolic) soils vary from excessively drained (Adams soils) to moderately well drained (Croghan soils) to somewhat poorly drained (Finch soils). The southern portion of the air station includes Tunbridge soils, which are formed in glacial till, and Lamoine soils, which are formed in fine-grained marine sediments. Extensive areas of udorthents and haplaquents, manmade or urban soil units produced by cutting and filling, building construction, and paving, also occur at the air station, comprising much of the facility devoted to runways, flight deck, weapons storage, and operations and maintenance. At the Topsham Annex, poorly drained Lamoine and Elmwood soils predominate, while at the East Brunswick facility, they are classified as well-drained Adams soils (Soil Conservation Service [SCS] 1987). At both of these outlying facilities, construction activities have resulted in an intricate pattern of cutting, filling, and other disturbance.

Redington

The SERE School in the unorganized town of Redington is situated in the rugged hills of western Maine. These hills are a northern extension of the Appalachian Mountain chain. In general, the region is dominated by four tectonic and stratigraphic divisions, which formed at the margins of interacting continental plates (Boudette 1978, 1991). Ancient sedimentary and volcanic

rocks have been metamorphosed and complexly folded and faulted into a rugged terrain. The bedrock underlying the SERE School is predominantly Devonian muscovite-biotite granodiorite of the Redington Pluton. This pluton is intruded into the Silurian-age rocks of the Rangeley Formation (Osberg et al. 1985).

Most of the study area is hilly or mountainous with steep slopes. Surficial deposits are thin on topographic highs and on the slopes, and consist predominantly of glacial till (Borns 1986; Caldwell 1975; Thompson and Borns 1985). Isolated areas of glacial-aged fluvial deposits are present as kame terraces and eskers. A well-developed esker is present along the Redington Stream west of Redington. Poorly drained marsh and swamp areas have developed along the margins of the esker.

Soils consists primarily of those developed in till on moderate to steep slopes. These soils range from very shallow to very deep, and are typically acidic and stony. They are generally described as well-drained, presumably owing to the steep slopes on which they are located. Majority soil types include those of the Marlow-Dixfield association (comprising about 16 percent of the SERE School land), Lyman-Tunbridge-Abram complex (comprising 12 percent), and Hermon-Monadnock association (also comprising 12 percent). In addition to mineral soils, organic soils also occur on some slope and shoulder areas. Characteristic are Ricker soils, which in association with Saddleback mineral soils comprise about 14 percent of the SERE School land. The length of frost-free period, which is partly controlled by elevation, also affects soil type. Several soils characteristic of short frost-free periods are typically found in areas of the facility at elevations of 2,300 feet above sea level. Among these soils are those of the Saddleback-Mahoosuc-Sisk association, comprising 10 percent of the SERE School land (SCS 1989).

Quaternary History and Paleoenvironments

The surficial geology of Maine was determined by repeated glaciations that eroded the bedrock and sculpted the topography. The low mountains in the western part of the state include numerous igneous intrusions that resisted glacial erosion, although the generally rounded form of the landscape reflects the effects of glacial erosion. On the coast, metasedimentary and metavolcanic rocks were more readily eroded, and the topography of the Brunswick-Topsham area is more subdued than in the state's western mountains.

The most recent continental glaciation reached a maximum between 24,000 and 14,000 years before present (BP). Maine and the entire Gulf of Maine were covered by thick ice. An enormous dome or cap of ice centered in the Hudson Bay region and extending as far south as New York City, known as the Laurentide ice sheet, was substantially thicker over northwestern Maine than over the southeastern part of the state. The weight of this mass of ice was so great as to depress the Earth's crust, a response known as isostatic adjustment. Because of the greater thickness of ice to the northwest, the Earth's surface was also more greatly depressed in that direction. In effect, the entire surface of the state of Maine was tilted downward to the northwest (Denton and Hughes 1982).

As a result of both global climatic factors and the physical dynamics of the ice sheet, Laurentide ice began to retreat some 16,000 to 14,000 years ago. The ice sheet withdrew past the coast of Maine sometime around 13,000 BP (Smith 1985). Withdrawal was so rapid that marine waters were able to flood coastal areas, because for a period of time the Earth's crust remained depressed from the former weight of the ice sheet (Hughes et al. 1985). During the marine transgression that occurred simultaneously with ice withdrawal, sediments were carried out of the retreating ice sheet by meltwater and deposited as deltas in shallow water and as Presumpscot Formation silts and clays in deeper water (Belknap et al. 1987; Bloom 1963). Around 12,700 BP, the marine transgression reached its maximum extent. Sea level in Maine stood roughly 300 feet above its present height and the entire coast and much of the Penobscot Valley in the central part of the state were flooded. In a short time, however, removal of the great weight of the ice sheet induced compensating isostatic adjustments in the elevation of the Earth's crust, and the depressed land rebounded, resulting in the recession of the sea. Recession continued until approximately 12,000 BP, when the sea had dropped to a position about 200 feet below the present level (Kelley et al. 1992). Largely in response to subsequent changes in the global water budget, sea level has risen to its present position over the last 12,000 years (Belknap et al. 1987; Kellogg 1988).

In the western part of the state, deglaciation began around 14,000 BP. However, unlike coastal areas, there was no marine invasion, hence the glacial-marine Presumpscot Formation does not extend into the western part of the state. The style of deglaciation was also different in that part of the state. Instead of rivers of ice flowing to the southeast and dissipating by calving icebergs into the sea, in western Maine much of the ice became stagnant and wasted away in place. As a result, there are extensive areas of till as well as glacial lake deposits, kame terraces, and eskers (Borns 1985; Caldwell et al. 1985).

In addition to affecting the extent of the Gulf of Maine and the position of its coastline, isostatic adjustments of the Earth's crust also affected Maine's rivers and lakes. Rebound altered river gradients, affecting rates and locations of downcutting and deposition. Similarly, on large lakes, such as Flagstaff Lake to the north of the SERE School, locations of outlets, and hence size and depth, were affected. By around 9000 BP most of the crustal rebound was over, and subsequent changes in river and lake drainages were primarily influenced by climate, sea level rise, and the geomorphic dynamics of individual drainage systems (Belknap et al. 1989).

Since the end of the last glacial epoch, the landscape of Maine has been altered by several processes. In coastal regions sea level rise and erosion have caused the shoreline to retreat and have shaped Maine's coast into a landscape of rocky cliffs and pocket beaches. With the slowing of sea level rise over the past several thousand years, extensive tidal marshes have developed in more protected portions of the inner coast. In interior areas, streams and rivers have downcut through glacial sediments and built terraces along their banks. Drainage systems have become somewhat more mature, but interior Maine is still characterized by extensive areas of bog and marsh (Sanger et al. 1977). Soils have developed on glacial deposits, and the topography of hill and mountain slopes has been modified through gradual downhill creep and through landslides (Thompson 1978).

Changes in the region's plant and animal communities were the product of both climatic and nonclimatic factors, which together shaped the environmental history of the Maine coast over the past 12,000 years. After ice and sea withdrew from the land, tundra conditions prevailed for a relatively short time, before giving way to boreal park environments as trees migrated into the region (Davis and Jacobson 1985). Poplar, then larch, spruce, and birch, occupied the landscape. Now-extinct animals, such as mastodons and mammoths, were present, along with caribou and other Arctics and northern species of animals. In western Maine, the late glacial climate was colder than along the coast because of the higher elevation and the proximity to stagnant ice. Tundra environments may have developed in the region of the SERE School as early as 13,000 BP as the Laurentide ice sheet broke up over central Maine (Bonnichsen et al. 1985). Most of the glacial ice had melted in western Maine by 12,000 BP, and Tundra covered the mountains and hills (Bonnichsen et al. 1985). By 11,000 BP, tundra was restricted to the highest elevations and boreal woodlands and forests were developing.

By 10,000 BP the climate had warmed considerably and red and white pines dominated the forests of Maine. The warmest time of the Holocene epoch (the last 10,000 years) was centered on 9000 BP. Forest fires were relatively common and lake levels dropped appreciably (H. Almquist-Jacobson, personal communication, February 1995; Kellogg 1991:86). By 8000 BP hemlock and oaks had begun to replace pines on the landscape in coastal and central Maine. In western Maine, the dominance of northern pines lasted longer, spanning roughly 4,000 years, from 11,000 to 7000 BP. Northern hardwoods were also present in western Maine, and their populations increased as the climate cooled somewhat and became wetter starting about 7000 BP. At approximately 5000 BP hemlock underwent a severe decline in Maine, part of an apparent population collapse seen across all of northeastern North America and possibly resulting from an insect infestation (Davis et al. 1980). After the hemlock decline, mixed forests prevailed.

The climate has been cooling for the last 4,000 years, and spruce and fir populations have been increasing, especially in northern, central, and western Maine, as well as along the immediate coast (Gajewski 1987; Gajewski et al. 1987). At present, the highest elevations of the state, such as the peak of Sugarloaf Mountain (elevation 4,237 feet) located about eight miles east of SERE School, are too cold for trees and boreal woodland grades into boreal forest and then northern mixed forests as elevation decreases. In southern Maine the mixed forests have been very productive over the last 5,000 years, providing nut-bearing trees and plentiful browse for deer. The forests have supported abundant populations of beaver, bear, and other game as well.

The climate of the Brunswick-Topsham area is dominated by proximity to the Gulf of Maine. The gulf's surface waters are cooled by upwelling from deep, northerly currents. Brunswick and Topsham typically have cold winters and cool to moderately warm summers with ample moisture. Marine influences are felt even in inland areas, but the effects are seasonal, with sea breezes common in the summer. Winter temperature in January averages about 20 degrees Fahrenheit and the mean for the five warmest months is 55 degrees. Annual precipitation averages between 42 and 46 inches, with summer rainfall accounting for about 20 percent of the total. Snowfall is variable from year to year but ranges from 70 to 85 inches per year (Appolonia 1979; Hedstrom 1987).

Because of higher elevation and distance from the coast, the climate of the SERE School is colder and more severe than that of the Brunswick-Topsham area. Mean January temperature averages 12 degrees Fahrenheit, with extremes of -40 degrees Fahrenheit and even more severe wind chills not uncommon. Summers are mild, and mean July temperature averages 64 degrees Fahrenheit. Annual precipitation is about 40 inches per year. Snowfall is variable from year to year, ranging from 80 to 150 inches per year. Snow can begin as early as October and can fall as late as May. Snow cover often lasts throughout the season, because the prevailing low temperatures and dense woods prevent rapid melting (Baker 1989:5-4–5-5).

Previous Research - Background Information

Previous Research and Existing Cultural Resources Information

Archaeological Resources

Brunswick-Topsham Area

Previous information concerning archaeological sites at NASB and the outlying facilities in the Brunswick-Topsham area is limited. For these landholdings, no sites are listed in the NRHP and no *confirmed* archaeological sites are recorded in the files of the Maine Historic Preservation Commission (MHPC). One prehistoric site, ME 15-7, is reputed to be (or to have been) located at the north end of Runway 1-19 on the main station. Reportedly situated between Perimeter Road and Route 24, the site was apparently recorded by the R.S. Peabody Foundation in Andover, Massachusetts, either by Warren K. Moorehead in the 1920s or by Douglas Byers and Frederick Johnson in the 1940s or 1950s. The precise location of the site and its age and contents are unknown; the site form on file at MHPC is notable for its lack of information.

According to records at the Maine State Museum, Augusta (MSM), a prehistoric site may also have been located near Mere Brook at a place called Mather Farm. The farm is said to have been located within the present boundaries of the main station. However, information on this site, which has been provided by a local avocational archaeologist, is sketchy. It is thought that this site was probably located in an area now buried or disturbed by the construction of Runway 1-19 (Bruce Bourque, Curator, MSM, personal communication, February 1995). Based on the styles of artifacts reputed to have come from Mather Farm and shown in a photograph on file at MSM, it appears that the site may have included Late Archaic period (5000 to 3000 BP) and Ceramic period (3000 BP to circa AD 1600) components. This locality has not been recorded in MHPC's prehistoric site file.

Only one cultural resources investigation involving subsurface archaeological survey has been completed for NASB. This study was performed in 1980 by R. Michael Gramly, then of MSM, and it covered the North Clear Zone. Despite extensive shovel testing on terraces adjoining a small low-order drainage and the Androscoggin River, no evidence of prehistoric sites was found.

A fuel oil spill on the north side of the main station in 1993 resulted in contamination of a small tributary of the Androscoggin River. The Navy undertook containment and remediation work on the tributary in an area outside the station's boundaries. Ground disturbances by heavy machinery during this work caused the exposure of a purported Moorehead burial tradition feature. The feature was apparently located on a small terrace adjoining the tributary somewhere close to the stream's confluence with the Androscoggin River. Further information on this find is not available, and no site form is on file with MHPC (James Caruthers, NASB Public Works Office,

personal communication, May 1995; letter from Earle G. Shettleworth, Maine State Historic Preservation Officer, to Jacquelyn Katzmire, BCM Engineers, Inc., June 26, 1995).

Looking beyond the boundaries of Navy landholdings in the Brunswick-Topsham areas, archaeologists have been active in the Androscoggin-Kennebec-Casco Bay region for more than a century. A review of the results of this work provides a context for the present investigation at NASB and yields information concerning the settings in which certain types of archaeological sites are most likely to occur.

The earliest known archaeological investigations in the Kennebec Valley and vicinity were conducted by Charles C. Willoughby in the 1880s and 1890s. Willoughby made the first systematic effort to record the types of artifacts found in the region and the locations of prehistoric sites. He focused his attention principally on the collections of two men, Charles Nash of Augusta and H.H. Snell of Riverside. Willoughby was also among the first to conduct a careful excavation of a prehistoric site in Maine, carrying out work at a site near Popham Beach about 1890. Beginning with his early studies of Maine artifacts, Willoughby, who had been trained as an artist, went on to become a leading authority on New England archaeology, ending his career as director of Harvard's Peabody Museum (Spiess 1984; Willoughby 1935, 1980).

Following Willoughby's pioneering efforts, archaeological research continued sporadically in Maine during the first half of the twentieth century, mostly along the coast (Snow 1968; Spiess 1985). Moorehead (1922) examined "Red Paint" burial sites in Winslow and Oakland on the Kennebec River, but found few "village" sites in his hit-and-run surveys of that river and the Androscoggin. He discovered one large site on a terrace 12 meters above the Kennebec River at Riverside in Vassalboro, just north of Augusta (Moorehead 1922:213-214). But in collections from the Auburn area Moorehead believed that "the proportion of rough and crude material is unusually high. . . . These seem characteristic of the Androscoggin area" (Moorehead 1922:213). Moorehead found that many modern towns along the rivers of Maine are situated in the same locations as were occupied by prehistoric Native Americans.

Modern archaeological research in Maine began in the mid-1960s with a tabulation of the known prehistoric sites by Dean Snow (1968), who was then teaching at the University of Maine at Orono. Although he sought to collate information on archaeological sites throughout the state, Snow concentrated his field efforts on the Penobscot Valley. Consequently, it was not until the 1970s that research began in the Brunswick-Topsham area. The first of the modern studies consisted of a series of archaeological surveys conducted by Bruce Bourque of MSM. Bourque's work included surveys of several sections of the Kennebec's riverbanks, as well as shorelines of several lakes and portions of Merrymeeting Bay. Bourque also undertook documentation of amateur collections from the region. Bourque's work along the Androscoggin River concentrated on the tidal portion of that river — that is, the portion located below the town center of Brunswick (Spiess 1984). Of particular interest to Bourque was the large number of Susquehanna tradition sites encountered along the lower Androscoggin River (Wilson et al. 1990:2-4, 20-21). Recently he has suggested that this cluster of sites may indicate that the Merrymeeting Bay region was a jumping-off point for Susquehanna tradition peoples migrating to the east around 3700 BP (Bruce Bourque, personal communication, February 1995).

Archaeological research in the region intensified in the 1980s and continues at a rapid pace today. In 1980 portions of the Cathance River, located about four miles north of the main station, were surveyed (Will and Cole-Will 1980) as part of a state-wide effort to improve archaeologists' knowledge of site locations and patterning. Following on the initial work by Bourque and the Wills, Spiess (1984) became interested in the region and initiated a survey of the lower Kennebec and Androscoggin rivers, emphasizing survey of river terraces for prehistoric sites. A survey of the proposed Pejepscot Water Power impoundment, located some seven miles northwest of the main station, on the Androscoggin River discovered one Ceramic to Contact period site on the 4- to 5-meter terrace (Hamilton et al. 1985, 1986). Survey also was undertaken upstream on the Androscoggin River for the Gulf Island and Deer Rips hydroelectric dams (Cowie 1990), located above Lewiston, more than 15 miles northwest of the main station. Sites were found concentrated on alluvial terraces near confluences of the Androscoggin and smaller tributaries.

The Topsham Archaeological Project (Wilson et al. 1990) has added substantially to knowledge of the region and has provided a model for site survey in the area. The project was intended as an archaeological survey of the town as a whole, but also sought to place the Cary's Garden Site complex, first reported in 1977, into a local and regional prehistoric context. The Cary's Garden Site complex includes four sites along the south shore of the Muddy River, located about five miles northeast of NASB. The majority of the occupation dates to the Late Archaic Susquehanna tradition (Wilson et al. 1990:2-3). Wilson et al. (1990:4) considered the Topsham area as "one of the highest concentrations of significant archaeological sites of any township in Maine." A subsidiary goal of the Topsham survey was the investigation of the development of river terrace systems and other landforms and an evaluation of the effects of this landscape evolution upon prehistoric settlement (Wilson et al. 1990:4-5).

Areas of high archaeological potential were identified by the Topsham Archaeological Project using a scoring system based on overlays of landscape data (Wilson et al. 1990:73-74), such as slope, soil type, distance to water (both navigable and otherwise), and distance to drainage features such as rapids and lake outlets. Wilson and her colleagues used the data to define areas of low, medium, and high potential. High-potential areas were relatively limited and confined to the river margins. River terraces fell into either the medium- or high-potential classes because they are relatively well-drained and flat, as well as located close to water. The Topsham side of the Androscoggin River from the town center to Merrymeeting Bay was almost completely surveyed. Seven new sites were recorded as a result of the survey, bringing the total of known sites to 19. Most areas distant from water were considered to have a low potential for prehistoric archaeological resources. Only a few such areas were surveyed, and the findings were consistently negative (Wilson et al. 1990:167-168).

Archaeological investigations have also been undertaken for a variety of development projects in the Brunswick-Topsham area. These can be briefly summarized.

Several of these investigations have taken place in the Town of Brunswick at locations relatively close to the main station. Cox (1988) surveyed the Sandy Ridge development near Cook's Corner two miles east of the station. The area was considered potentially sensitive for Paleoindian occupations because of the sandy soils and the vantage point of the high ground. Bourque (1992) surveyed another property close to Cook's Corner adjacent to the Sandy Ridge property. Extensive shovel testing in high-sensitivity terrace edges yielded no sites. Cox (1989)

also conducted a survey with negative results for the expansion of the Labbe Gravel Pit three miles west of the main station. In contrast to these negative findings, Wilson's (1991) survey of a proposed retail development near Cook's Corner one mile north of the main station yielded significant results. A small prehistoric site was located at the edge of the high ground along the Androscoggin River. The single-component Susquehanna tradition site had three distinct concentrations of artifacts and provided strong evidence of ritualistic activities during the Late Archaic period (Bourque and Wilson 1992).

Additional investigations have taken place along the north (left) bank of the Androscoggin in the town of Topsham. Among these investigations were several studies associated with the proposed Route 1. A survey of the proposed alignment resulted in the discovery of two small but valuable prehistoric sites, as well as the early nineteenth-century Purinton House Site. These three sites were situated between two and three miles north of the main station on terraces of the river and one of its tributaries (Cranmer 1993; Cranmer et al. 1992; Spiess and Cranmer 1989; Spiess et al. 1990). In another study, Wilson (1990) conducted a survey in Topsham on terraces near the Androscoggin River for the Michaud subdivision. A known site on a river terrace was investigated, but no new sites were discovered in areas that were examined away from the river. Considerable archaeological effort also has been devoted to the Rosie-Mugford site complex, situated on terraces of the Androscoggin about two miles north of the main station (Cox 1992, 1994; Cox and Wilson 1991).

Coastal areas south of Brunswick, along the shores of Casco Bay, have also been the subject of recent archaeological research. This work has been conducted principally by Nathan Hamilton of the University of Maine at Portland. Hamilton's work has demonstrated that the Casco Bay region, like other areas of the convoluted central Maine coast (e.g., Kellogg 1984, 1994), contains an abundance of Ceramic period shell midden sites. Hamilton has concentrated his efforts on the middle and outer portions of the Casco Bay shoreline and has not extended his surveys to the heads of the bays. Thus, there have been no known studies of Harpswell and Buttermilk coves, which are located at the southern end of the main station (Arthur Spiess, MHPC, personal communication, February 1995).

In sum, several important archaeological surveys and excavations have taken place in the vicinity of NASB's coastal facilities during the last 15 years. These investigations have concentrated on terraces along the Androscoggin River and around the shores of Merrymeeting and Casco bays. This work has revealed many prehistoric sites dating from the Late Archaic through the Ceramic periods. Late Archaic sites representative of the Susquehanna tradition (ca. 3700 to 3000 BP) are especially common along the lower Androscoggin. By far the greater number of these sites have been found in the immediate vicinity of the river, its tributaries, or the coastline. Along the river, sites occur on terraces of undetermined age at a variety of elevations. Sites also occur on the highest ground above the river where it has cut through the outwash plain. On the other hand, several investigations of areas located at substantial distances from the river, its tributaries, or the coast have been unproductive. These surveys include investigations of portions of the proposed Brunswick-Topsham Bypass, two surveys in the vicinity of Cook's Corner, and the proposed expansion of the Labbe Gravel Pit to the west of the station.

Redington

No prehistoric archaeological sites have been recorded in MHPC site files for the area included within the boundaries of the SERE School. In fact, no sites have been recorded on any of the 7.5-minute United States Geological Survey [USGS] quadrangles (Quill Hill, Black Nubble, Sugarloaf Mountain, Saddleback, Redington, and Mount Abraham) that cover Redington Township and its vicinity. Nor are any sites known for the adjoining areas of western Maine covered by the Kennebago Lake (MHPC Quadrangle Number 83), Rangeley (MHPC Quadrangle Number 66), and Phillips (MHPC Quadrangle Number 67) 15-minute quadrangles. The nearest cluster of sites in the region around the SERE School is located at Flagstaff Lake, 16 miles north of Redington. Most of the sites are associated with the course of the Dead River and have been drowned by the artificial level of Flagstaff Lake. When lake levels are low, sites are exposed on what is now the lake bottom.

Two surveys have been undertaken in the region recently. The first was a survey of a proposed power transmission line in western Maine (Baker 1989), which covered an alignment situated approximately 30 miles west of the SERE School. The alignment roughly paralleled the Androscoggin drainage system, beginning in the upper Magalloway River near the Maine-New Hampshire-Quebec border and extending to Lewiston-Auburn. The survey covered upland and mountainous areas, generally at some distance from major rivers and streams. Twenty-five sites were found on fluvial terraces. However, 10 sites were found in upland settings away from any water source, and one was found at a spring head (Baker 1989:17-18). At least 9,000 years of occupation were represented. Although the survey identified more than 30 sites, only eight were found in the northern three-quarters of the alignment between the Canadian border and the town of Jay. Covering a distance of 90 miles, the northern portion of the survey both was closest to the SERE School and had terrain most like that of Redington Township. The results suggest that archaeological sites may be comparatively rare (or difficult to find) in upland areas of western Maine like those characteristic of the SERE School.

The other study in the region was undertaken by Spiess and Cranmer (1990) in the upper Piscataquis drainage some 50 miles east of the SERE School. The survey assumed that sites were most likely located along canoe travel routes, either navigable streams or portages. Only a limited amount of fieldwork was undertaken for the project, but 10 sites were discovered. All of the sites are associated with fluvial landforms or flowing water.

Architectural Resources

None of the properties comprising the NASB, including the SERE School, have been formally surveyed to identify or evaluate architectural resources. No formal architectural surveys have been undertaken in the vicinity of the Navy facilities at Brunswick, Topsham, or Redington.

Prehistoric and Historic Contexts

Regional Prehistory

The prehistory of Maine can be divided into four major time periods: Paleoindian (11,500 to 9000 BP), Archaic (9000 to 3000 BP), Ceramic (3000 BP to AD 1500), and Contact (AD 1500 to 1680).

The Paleoindian period encompasses the end of the last continental glaciation of Maine and subsequent migrations of vegetation, fauna, and people into the area. The Archaic period includes a diversification of adaptations to the landscape of Maine, and changes in climate, vegetation, sea level, and other environmental factors. In addition, movements of people and contacts between different cultures left a complex archaeological record, with many unresolved questions. The Ceramic period begins with the introduction of fired-clay pottery into Maine and perhaps also some cultivated plant foods. The prehistory of Maine ends with the arrival of European colonists in northern New England, which brought disease and conflict to the Native Americans, ultimately leading to the demise of their traditional cultures and lifeways.

The Paleoindian Period

Paleoindian period occupation of Maine began as ice withdrew from the Gulf of Maine region (Kellogg 1988; Oldale 1985). A widening wedge of new, barren land was exposed between retreating ice and the receding sea. Plants rapidly colonized the gap, and animals, and then humans, soon followed (Davis and Jacobson 1985; Kellogg 1991:68-73). These new arrivals could have entered Maine from the southwest. They also might have reached Maine from the north as ice became isolated over the Appalachian highlands of central Maine (Bonnichsen et al. 1985; Borns 1985).

Interest in the Paleoindian period in Maine has increased recently because of a number of finds on new sites (Arthur Spiess, MHPC, personal communication, February 1995). Paleoindian sites most often occur on well-drained landforms next to wetlands or former wetlands. Sites are usually small, and are identified by distinctive tools which are typically manufactured of high-quality stone. Information on diet is seldom recovered, but it is believed that caribou was a favored prey (Gramly 1984; Wilson and Spiess 1990).

The Early and Middle Archaic Periods

Both the Early Archaic period (9000 to 8000 BP) and the Middle Archaic period (8000 to 5000 BP) are poorly understood in Maine and in northern New England generally (Spiess et al. 1983). Recent finds, particularly along the main stems of some of the region's major rivers have, however, shed more light on these periods of prehistory. It has come to be recognized that the traditional projectile point sequence established for New York and southern New England does not fit the Maine data. There is also some evidence that groundstone woodworking tools such as axes, adzes, and gouges, usually considered to be hallmarks of the Late Archaic period, were

already in use far earlier in the Archaic period. It now appears that the Early and Middle Archaic periods in Maine were more culturally diverse and dynamic than was formerly understood.

Archaeologists have begun to gather evidence showing that Early Archaic sites in northern New England may contain parallel flaked (Plano-like) tools of high-quality stone, as well as the bifurcate base projectile points characteristic of the period in the Southeastern and Middle Atlantic regions of the United States. Both tool types are, however, rare in Maine, and the Early Archaic remains to be characterized in detail in the state.

Evidence of occupation dating to the Early and especially to the Middle Archaic in Maine has been found deeply buried in river terraces along major rivers (Petersen 1991; Robinson, Petersen, and Robinson 1992). Middle Archaic period sites are rare along the Maine coast (Sanger and Kellogg 1989). Hints of occupation along the coastline in the earlier part of the Archaic period have been brought to light by scallop dredgers in the Penobscot Bay region (Crock et al. 1993; Sanger 1988). The exact context of the finds is not known, but these finds and other data suggest that the beginnings of coastal adaptations along the central Maine coast lie in the Middle Archaic period. Although archaeologists are beginning to develop a deeper understanding of these periods for portions of the coast and the lower reaches of some of the major rivers, Early and Middle Archaic use of the headwaters of these rivers remains poorly documented.

The Late Archaic Period

In Maine, as elsewhere in the Northeast, the Late Archaic period (5000 to 3000 BP) is much better known than earlier periods (Sanger 1975; Snow 1980). A wide variety of projectile point styles are recognized for this period in Maine, suggesting that several different cultural groups were present or that rapid cultural change occurred. In central interior and coastal Maine a set of funerary practices referred to as the Moorehead ("Red Paint") burial tradition flourished around 4000 BP. The tradition is characterized by burials containing elaborate grave goods and abundant use of powdered hematite (Moorehead 1922; Sanger 1973; Snow 1975, 1980). The Moorehead tradition is also tied to coastal sites that contain evidence of marine adaptations and swordfish hunting (Bourque 1975; Sanger 1975). The roots of the Moorehead burial tradition may lie as far back as the Middle Archaic period (Robinson, Petersen, and Robinson 1992), but the tradition did not become prominent until after the hemlock decline (Kellogg 1991:196-197), when the forests of Maine diversified. Outside of cemeteries, Laurentian-related assemblages are present (Borstel 1982; Cox 1991; Petersen 1991; Sanger 1975; Sanger et al. 1977) and probably represent nonfunerary aspects of the same culture responsible for the Moorehead burial tradition. The closest connections appear to exist between the Moorehead burial tradition and the widely distributed Vergennes phase of the Laurentian. This cultural phase is widespread and extends from northern New York to Vermont, New Hampshire, and Maine (Spiess 1992). The Androscoggin-Kennebec drainage may have been an eastern boundary for another phase of the Laurentian, the Brewerton (Wilson et al. 1990:13). In addition to the Laurentian, a second major Late Archaic tradition, the small stemmed point tradition, whose core area appears to be further south, is also represented in Maine. Widely distributed in southern and western Maine, the small stemmed tradition is not much in evidence in eastern Maine. As with the Brewerton phase of the Laurentian tradition, the Androscoggin-Kennebec drainage may have been a boundary zone

between this southerly cultural tradition and those occupying eastern Maine and the Canadian Maritimes.

The Susquehanna tradition in Maine is recognized by broadspear bifacial tools (Borstel 1982). These tools are key diagnostic types of the widespread Atlantic Slope tradition, found along much of the eastern coast of the United States during the Late Archaic period (Dincauze 1972, 1975). Susquehanna tradition assemblages abruptly appear in Maine around 3700 BP, apparently replacing both small-stemmed and Moorehead-Laurentian tradition assemblages. There are no obvious antecedents in the material culture of either earlier tradition for that of the Susquehanna tradition. These characteristics have led many archaeologists to hypothesize that the appearance of this cultural manifestation is the result of a migration of people into the area from the south, rather than a result of the adoption of new tool styles and technologies by groups already residing in Maine (Bourque 1975; Sanger 1975; Wilson et al. 1990; cf. Cross 1990 for a dissenting view). Once established in Maine, the Susquehanna tradition follows a sequence of artifact types and associations seen across most of New England (Ritchie 1980; Snow 1980).

The Ceramic Period

In most of the eastern United States the period following the Archaic, marked by the beginnings of plant horticulture and ceramic technology, is called the Woodland period. However, in Maine there has been little evidence of domesticated plant use, and Sanger (1979) and other archaeologists have therefore rejected the term "Woodland" in favor of the more descriptive term "Ceramic" to designate the latest period of Maine's prehistory. The inhabitants of Maine continued a hunting-gathering-fishing lifestyle as during earlier times, but with the addition of pottery to their material culture.

The earliest pottery type, known as Vinette I, is a thick, grit-tempered ware with fabric-impressed interior and exterior, dated to 2700 BP (Belcher 1989). Ceramic period occupation in Maine is focused on the coast, where shell middens are abundant and easily found (Kellogg 1984, 1994; Sanger 1988). Interior sites are dispersed and appear to be less abundant, or at any rate, occur in lower densities per unit area than on the coast. Research on ceramic attributes suggests that there was a cultural division between coastal and interior groups (Doyle et al. 1982; Petersen and Hamilton 1984). Ceramic period groups relied most heavily on locally available stone for stone tool making, but there are some suggestions of wide-ranging trade (Spiess et al. 1983).

Subsistence information preserved in coastal shell middens has yielded a detailed picture of life between 3000 BP and the time of European colonization. In such sites, animal bones are preserved because shell neutralizes soil acids. Faunal data show that the Ceramic period diet was diverse and also that seasonal variations in food abundance influenced site use and settlement patterns (Sanger 1982, 1988). Domesticated food remains have been found in southwestern Maine (Cowie and Petersen 1990), but are unknown east of the Kennebec River. There is evidence of year-round occupation of coastal areas that bolsters the interpretation of a cultural division between the coast and the interior suggested by differences in pottery from the two regions. Accessibility by boat strongly influenced the patterns of land use and settlement in both coastal and interior Maine (Cook 1985; Kellogg 1994; Spiess 1991). Very few Ceramic period sites have been found

at any significant distance from water, suggesting that watercourses were important as transportation arteries and for fishing and other subsistence activities (Spiess 1991).

The Contact Period

Several explorers sailed along the Maine coast in the years after Columbus's voyages. Giovanni da Verrazzano (in 1524), Bartholomew Gosnold (in 1602), Estevan Gomez (in 1525), Henry Hudson (in 1609), Champlain (in 1605), George Weymouth (in 1605), and John Smith (in 1614) all reported contacts with the native inhabitants of Maine (Bourque and Whitehead 1985; Clark 1977:5-16). Large rivers were often explored by European sailors in search of inland routes, safe harbors, and habitable land. Champlain, for example, visited Merrymeeting Bay and reported Native American agriculture in the vicinity (Thwaites 1959:31:189). "Rune stones" found near Spirit Pond south of Brunswick were purported to document a Viking visit to Maine circa AD 1000. The stones are now considered fakes (Williams 1991:220-221).

At least three groups occupied the coast of Maine (Spiess 1991). Abenaki groups occupied southern Maine. Agriculture was reported along the Kennebec River and in the vicinity of Casco Bay by Champlain (Thwaites 1959:31:189). Bourque and Whitehead (1985) argue that extensive trade in European goods among Native Americans developed through pre-Contact channels. Epidemics of diseases occurred as early as AD 1616 (Bourque 1989; Spiess and Spiess 1987). Early land deeds clearly show the extent of contact between Native Americans and European colonists (Baker 1989), but only a very few Contact period sites have been identified along the Maine coast (Grumet 1990; Spiess 1991:5-6). King Philip's War broke out in 1676 and flared repeatedly thereafter. Hostilities between Native Americans and colonists continued in Maine until after 1750 (Clark 1977:36-37; Prins and Bourque 1987).

Historic Context for the Pre-Navy Period

General Discussion of Brunswick and Vicinity

Cumberland County was created out of the existing county of York in 1760. Lincoln County, to the northeast, was set off from York County in the same year. These three counties composed the District of Maine, a part of the province of Massachusetts. Maine entered the union as a separate state in 1820. Cumberland County has gained and lost territory a number of times, most notably for the creation of Oxford County in 1805 and Androscoggin County in 1854. Sagadahoc County dates to 1854, its jurisdiction having been part of Lincoln County since 1760 (Maine Historical Records Survey Project 1940:25-26, 42). Cumberland County, which has as its county seat the state's principal urban center of Portland, is by far Maine's most populous county today (215,789 people in 1980, about 20,000 living in the Town of Brunswick). Sagadahoc County is much smaller in terms of both expanse and population (28,795 in 1980).

The historical development of Brunswick as a community, and largely a prosperous one, has been favored by a number of natural geographical factors as well as by decisions made by people outside Brunswick. Its site, by the falls of the Androscoggin but in close proximity to the Atlantic Ocean, perhaps has been the most beneficial of these factors. The fall of the river

provided abundant water power to run sawmills, paper mills, and textile mills. The unnavigable falls also made Brunswick a natural transfer and processing point for lumber cut in the extensive forests along the upper stretches of the long Androscoggin Valley. The proximity of the sea has meant easy export of commodities, whether raw, refined, or finished materials, as well as participation by the vicinity's inhabitants in the fishing and shipping industries so closely identified with maritime Maine. Brunswick's central location relative to its fellow cities of Augusta, Portland, Bath, and Lewiston conferred a role as transportation center throughout the nineteenth and early twentieth centuries. The state government (then Massachusetts) chose Brunswick for the location of Bowdoin College, Maine's first institution of higher learning, at the onset of the nineteenth century, and the Navy selected the town for an air station site during World War II. Both of these decisions did much to guarantee Brunswick an important role in regional and national life.

The Brunswick vicinity was the location of one of Maine's (and New England's) earliest European settlements, initiated circa 1628. The first century or so of Euro-American occupation, however, was a period of repeated starts and failures. Not until circa 1730 was settlement able to take permanent root at Brunswick. The reason for the intermittent settlement process was the protracted resistance by the region's native people. Warfare continued in the immediate vicinity up to about 1760. Brunswick was directly affected (or at least its settlement was discouraged) by six of New England's Indian wars: King Philip's War (1675-1676), King William's War (1689-1699), Queen Anne's War (1702-1713), Governor Dummer's War (1722-1725), King George's War (1744-1749), and the French and Indian War (1754-1760). Apart from the wars mentioned, throughout the period incidental raids were made by small bands of Native Americans and directed against a few Brunswick homesteads on each occasion.

The Brunswick area was first known generally as Pejepscot, more properly the Native American name for the lower stretch of the Androscoggin River extending from the falls to Merrymeeting Bay. The first settler, circa 1628, was Thomas Purchase, a pioneer who came to Pejepscot as an individual, independent of any larger party. His motive appears to have been an entrepreneurial one rather than Puritan devotion. Extensively involved in the Native American trade, in 1632 Purchase, and his nonresident partner George Way, obtained a patent from the Plymouth Company on a large tract of land straddling the Androscoggin River below the falls, and extending southward to the sea. The patent extended over the future towns of Brunswick and Topsham, as well as over some additional land. The charter of the Plymouth Company had conferred jurisdiction over this region. In 1639, however, Purchase made an agreement with the Massachusetts Bay government placing his lands under the jurisdiction of the latter colony, a form of agreement that was successively subscribed to by the other small Maine area settlements, until in 1658 all were under Massachusetts Bay governance. Purchase raised a family at Pejepscot, and, as he was apparently a fairly wealthy man by regional standards, he may have had tenancies inhabited by employees or servants. No other freeholding settlers are known to have purchased land out of Purchase's large estate, although he lived there some 47 years (Ashby and Congdon 1939:15-17; Town of Brunswick 1989:23).

Driven away by Native inhabitants during King Philip's War, Purchase sold his interest in the Pejepscot patent to Richard Wharton, a Boston merchant, in 1683. Wharton also purchased the remaining Pejepscot interest held by the heirs of George Way, as well as neighboring lands held by others that included the area of the future town of Phippsburg. In 1684 Wharton

persuaded several of the region's Native American tribes to recognize his right as Pejepscot proprietor. Wharton's plans for a settlement never came to fruition, although in 1688 he successfully exerted his influence as a member of arch-royalist Governor Edmund Andros's council to have one of Andros's new chain of forts built by the falls, on the future site of the city of Brunswick. This uninhabited area, away from the principal waterways likely to be used by advancing French or Native American forces, was not one of the most appropriate locations to fortify. Wharton most likely hoped that the presence of Fort Andros, as it was named, would encourage settlement. In this he was disappointed. Within a year or two the fort was abandoned, Andros having been deposed in New England's follow-up to the English Revolution of 1688. Wharton died in 1693 (Ashby and Congdon 1939:18, 33; Town of Brunswick 1989:26, 28, 31-32).

It was not until 1714 that another effort was mounted to settle the Pejepscot area. Eight well-placed investors, seven from Boston and one from Portsmouth, New Hampshire, formed a partnership, known as the Pejepscot Proprietors, and purchased the 800-square-mile tract from the Wharton estate. In the following year, in return for the pledge of the proprietors to establish at least three towns and to provide the necessary appurtenances of community life such as meetinghouses and roads, the General Court of Massachusetts Bay (the provincial legislature) confirmed the proprietors' title and agreed to rebuild and to garrison the small fort by the falls. Construction of Fort George, named for the first Hanoverian king who had ascended the throne in 1714, took place, using stone masonry, in late 1715 on a site a short distance north of the earlier stronghold. The proprietors named their first town Brunswick after one of the German principalities in the possession of the new king. Brunswick received its recognition as a township by the General Court in 1717 (Ashby and Congdon 1939:19-25, 33; Town of Brunswick 1989:33-36).

The Pejepscot Proprietors' initial plan was for the settlement to be centered on a thoroughfare, long known as the Twelve Rod Road (present-day Maine Street-Maquoit Road) because of its 198-foot breadth, that led from Fort George (by the falls) south by southwest to the most convenient sea landing at the head of Maquoit Bay. This road was cut in 1715. The homestead lots, each consisting of 95 acres, and long and narrow in shape, were to be laid out on either side of Twelve Rod Road, thereby confining the built settlement for some time "in one line of houses" and creating an elongated nuclear village. Although the nuclear village was common among a number of settlement patterns employed in early New England towns, it apparently took on additional appeal for the Pejepscot Proprietors. The width of the roadcut meant that a person could walk down the center and have nearly 100 feet of cleared land to either side, lessening the danger of ambush. A blockhouse was built near the Maquoit landing to afford a place of refuge to those living along the southerly half of the road. A lot for a future meetinghouse and school was set off at about the road's midpoint. The proprietors built a sawmill on Bunganuc Brook, about two miles west of the Twelve Rod Road, probably in 1717. In 1719, they set aside a 1,000-acre expanse of nonarable heath land for use as a town commons; the parcel extended eastward from the back boundary of the homestead lots lining the east side of the Twelve Rod Road. This land would be used by townspeople for limited livestock grazing, and later largely as a blueberry barren, until the construction of a municipal airport in the 1930s (Ashby and Congdon 1939:27, 33; Town of Brunswick 1989:36, 47, 86; Wheeler and Wheeler 1974:521).

The new homesteaders began arriving in Brunswick in 1717. From 1717 to 1722, 41 people purchased land in Brunswick, so that by the latter year there may have been 200 or so inhabitants, depending on how many owners had actually come to the settlement. The settlers appear to have been divided about equally between Anglo-American migrants from Massachusetts and some of the Ulster Scots who came to Maine in a brief, though significant, migration during the late 1710s (Ashby and Congdon 1939:27-31; Town of Brunswick 1989:36).

In July 1722, during the so-called Governor Dummer's War, a disastrous Native American raid was mounted on Brunswick. The inhabitants took shelter in their fortifications and a few garrison houses, while the remaining dwellings and farmstead buildings were razed by fire. After the raiding party retired, the settlers, except for a few who resided with the Fort George garrison, fled en masse to more secure settlements. Brunswick lay largely deserted for several years (Ashby and Congdon 1939:29; Town of Brunswick 1989:37-43).

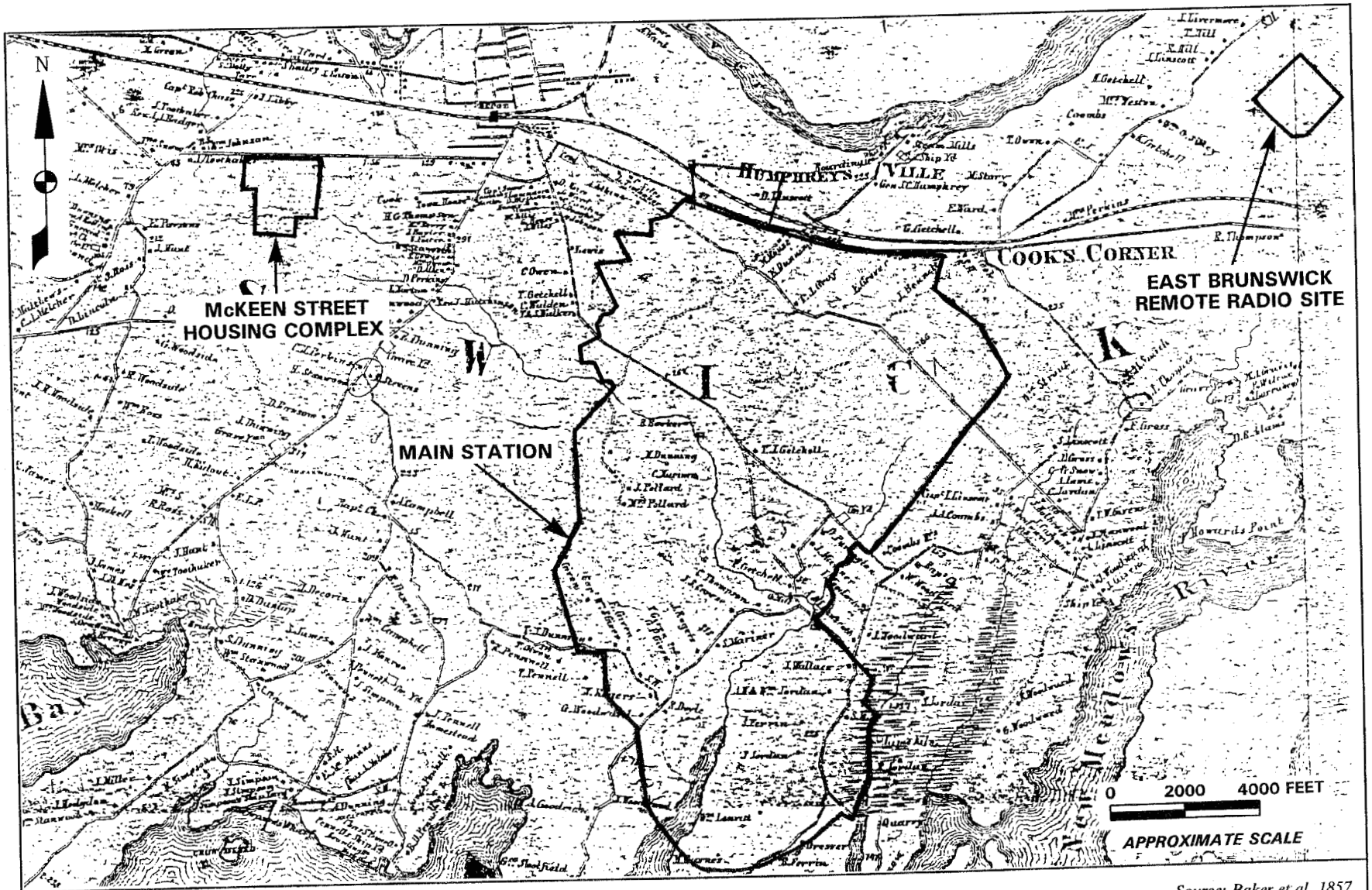
The final rebirth of the Pejepscot settlement, circa 1730, started slowly but endured, though sporadic Native American raids continued for approximately another 30 years. Some of the earlier settlers returned and were joined by new arrivals. The settlement of the adjacent Topsham and Phippsburg areas commenced around the same time. The Town of Brunswick was incorporated in 1739, though at that point the population still lagged below 100. In 1742 there were just 19 inhabited homesteads. The subsequent development of the settlement landscape soon departed from the proprietors' blueprint. Through most of the eighteenth century there was no village center. A pattern of dispersed settlement emerged, with homesteads clustered along the shores of the rivers and bays that formed much of Brunswick's periphery. At first, only limited settlement activity took place along the extensive interior section of the Twelve Rod Road, although the many old 95-acre homestead lots lay surveyed and deeded as assets in the possession of individuals. By 1765 the Brunswick population was counted at 500 people distributed among 173 households. Over the next quarter-century the population proceeded to grow rapidly, nearly tripling, to 1,387, by the census of 1790. The town's industrial development had commenced, with four dams built above the falls on the Androscoggin, from 1753 to 1772, to provide power for mills (gristmills or sawmills — there were gristmills on two of these dams in 1795). Three gristmills were built on other watercourses during the mid-eighteenth century. In 1768 the first ship was launched from a shipyard in New Meadows, a waterside community on the east side of the town, and in 1789 the first log boom on the Androscoggin was constructed above the falls (Ashby and Congdon 1939:33, 45, 59-60; Hebert 1951:512; Town of Brunswick 1989:53).

The years from about 1790 to 1820 were an era of considerable transition for Brunswick. As of 1790, the future site of today's small city was a small, loose cluster of homesteads located by the falls and by the ruins of Fort George, which had been in disuse since about 1760. In the 1790s it took on an increasingly urban character in response to the incipient Androscoggin lumber industry, centered in the vicinity of the falls. Timber was floated down the river to Brunswick in massive quantities. There it was sawn and was employed for shipbuilding, or was exported. By 1820 there were 11 log booms on the Androscoggin, six above the falls and five below, and 25 sawmills in the towns of Brunswick and Topsham. Apart from the lumber industry, Brunswick increasingly participated in the New England commercial shipping industry, which was in its golden age, providing additional opportunities for employment and entrepreneurship. Brunswick ships took lumber to the growing American cities that lay southward, to England, and elsewhere (Ashby and Congdon 1939:33, 45-47, 60).

By 1802 the thriving village center by the falls had grown to at least 43 buildings, including 23 houses, six stores, four sawmills, three gristmills, two artisans' shops, one inn, one bakery, one law office, one schoolhouse, and Massachusetts Hall. This hall, constructed in 1798, was the first building for Bowdoin College. Chartered in 1794 by the General Court to be the District of Maine's first college, Bowdoin's choice of Brunswick had been won in 1796 by a gift of 200 acres from the Pejepscot Proprietors. The presence of the college was perhaps one inspiration for improving transportation routes. A bridge was built crossing the river just below the falls in 1796, and in 1805 a turnpike road was constructed leading from Bowdoin College to Bath. Given its central location relative to the then-settled area of Maine, Brunswick emerged during these years as a hub for stagecoach travel, with routes to Portland, Augusta, and Bath. Aware that waterpowered mills had potential beyond grain and even the lumber that had become the town's lifeblood, Brunswick investors opened the town's first textile mill, the Brunswick Cotton Manufactory, in 1809. The village center of Topsham, which shared the Brunswick center's ease of access to water power, was about as well developed in the first decade of the nineteenth century, but soon lagged well behind in growth (Ashby and Congdon 1939:51; Town of Brunswick 1989:63-64, 68).

Brunswick entered the rail age in 1849, via the Kennebec and Portland Railroad line, which connected Brunswick with Yarmouth to the west and with Bath and Augusta to the east and north (Figure 5). In the following year the company opened a line from Yarmouth to Portland, and in 1861 the Androscoggin Railroad started service from Brunswick to Lewiston. Stagecoach lines remained a significant presence in Brunswick through the remainder of the century, connecting with numerous small towns which lacked rail service, and thereby reinforcing Brunswick's role as a transportation hub. The railroad construction brought a small contingent of Irish immigrants to Brunswick who stayed to work in local industry; they were the first addition to the ethnic composition of the town in the 120 years or so since the onset of permanent settlement (Ashby and Congdon 1939:57-59; Town of Brunswick 1989:67-69).

The presence of the railroad also brought the onset of another period of transition for Brunswick. The town's textile mill had had periods of success and decline, and had been reorganized several times, finally as the Cabot Manufacturing Company in 1857. The Cabot management would endure for over 80 years, repeatedly expanding the mill so that before long it was a leading influence on the life of the town. The mill's work force grew from 175 employees in 1857, to over 300 in 1866, to about 550 in 1875, to 700 in 1892, and to over 1,000 in 1939, perhaps one in every 10 residents of Brunswick and Topsham. The native labor pool for the mill, composed in 1857 primarily of the vicinity's young unmarried women (as at other New England mills of the period), was not able to meet Cabot's demand. However, French Canadians had access to the area via new rail lines running from Portland to Montreal. Pleased with the work of a few adventurous Canadians who came to the mill in the 1850s, the Cabot Manufacturing Company began to actively recruit in Quebec after 1860. Economic conditions were straitened in that province during the period; by 1877 there were approximately 800 Quebecois living in the town center, largely in the extensive Cabot tenements, outnumbering the Irish by about six to one. It was estimated in 1904 that people of French Canadian background made up slightly less than half of the population of the Town of Brunswick, and resided throughout the town. From around that time immigration from Quebec fell rapidly, and then ceased in the 1930s. But the character of life in Brunswick had changed permanently. There was some initial cultural friction in the late nineteenth century, but this was ameliorated as the French Canadian community matured and its



Source: Baker et al. 1857

Figure 5: Brunswick in 1857

members diversified into the full range of local occupations, such as farmer, professional, storekeeper, and fisherman (Ashby and Congdon 1939:63-65; Town of Brunswick 1989:64-65, 75-81).

Through the early twentieth century, Brunswick's economy continued to grow, and increasingly centered on the Cabot Manufacturing Company mill. The local lumber and shipbuilding industries had declined, but a number of other manufacturing concerns were active in Brunswick and Topsham, notably a large paper mill in Topsham, founded in 1868, and several box-making companies. Transportation innovation again ushered in change for Brunswick when in the mid-1930s the town constructed a small municipal airport on a part of the relatively flat land of the old town commons. In 1943, during World War II, the Navy took over and expanded the airport, creating NASB. The air station was deactivated in 1947, was reactivated in 1951, and has since stood with Bowdoin College as a preeminent employer and general influence on town life. Another major military-related development in Brunswick during the war years was the construction of a new shipbuilding yard by the Bath Iron Works at Harding Station on the eastern edge of the town. Brunswick's population underwent a brief burst in growth during the war, from 8,658 in 1940, it rose to 10,996 in 1950. The number of "permanent" residents (as opposed to Navy personnel assigned temporarily to the air station) was likely around 13,000 in 1945, but the deactivation of the station, coupled with a considerable reduction of the Bath Iron Works workforce, impelled people to leave town in the late 1940s. Topsham, always more rural in character, was home to 2,613. The former Cabot Manufacturing Company mill closed in 1955, forced under, like many New England textile mills, by competition with southern and foreign plants (Ashby and Congdon 1939:65-67; Hebert 1951:512; Town of Brunswick 1989:81, 86-87, 97).

The Naval Air Station, Bowdoin College, and a variety of manufacturing concerns have provided a stable economic foundation for the Brunswick community in the late twentieth century. Brunswick remains an important transportation junction, because of Interstate 95, completed in this area in 1957, and Route 1, improved in 1960. As stated by the author of the town's recent commemorative history, "Brunswick defies labeling as a college town, a navy town, a manufacturing town, a shopping center, a professional center, a transportation center, an urban community, a rural community or a bedroom community. It is all of these . . ." (Town of Brunswick 1989:5, 100-101).

Site-Specific Information

- *Main Station*

An 1857 map indicates that 31 homesteads, one of them accompanied by a mill, stood on this land at that date, as well as a schoolhouse and a cemetery (depicted on current USGS maps as the New Meadows Cemetery), despite the fact that much of this acreage is said to have been encompassed within the town commons (see Figure 5). In 1871, the number of homesteads on the future NASB tract was 35, with the mill of 1857 now referred to as a wool carding shop, and three schoolhouses and the cemetery also present (Figure 6). There seems to have been considerable mobility with regard to settlement location in the Town of Brunswick during the mid-

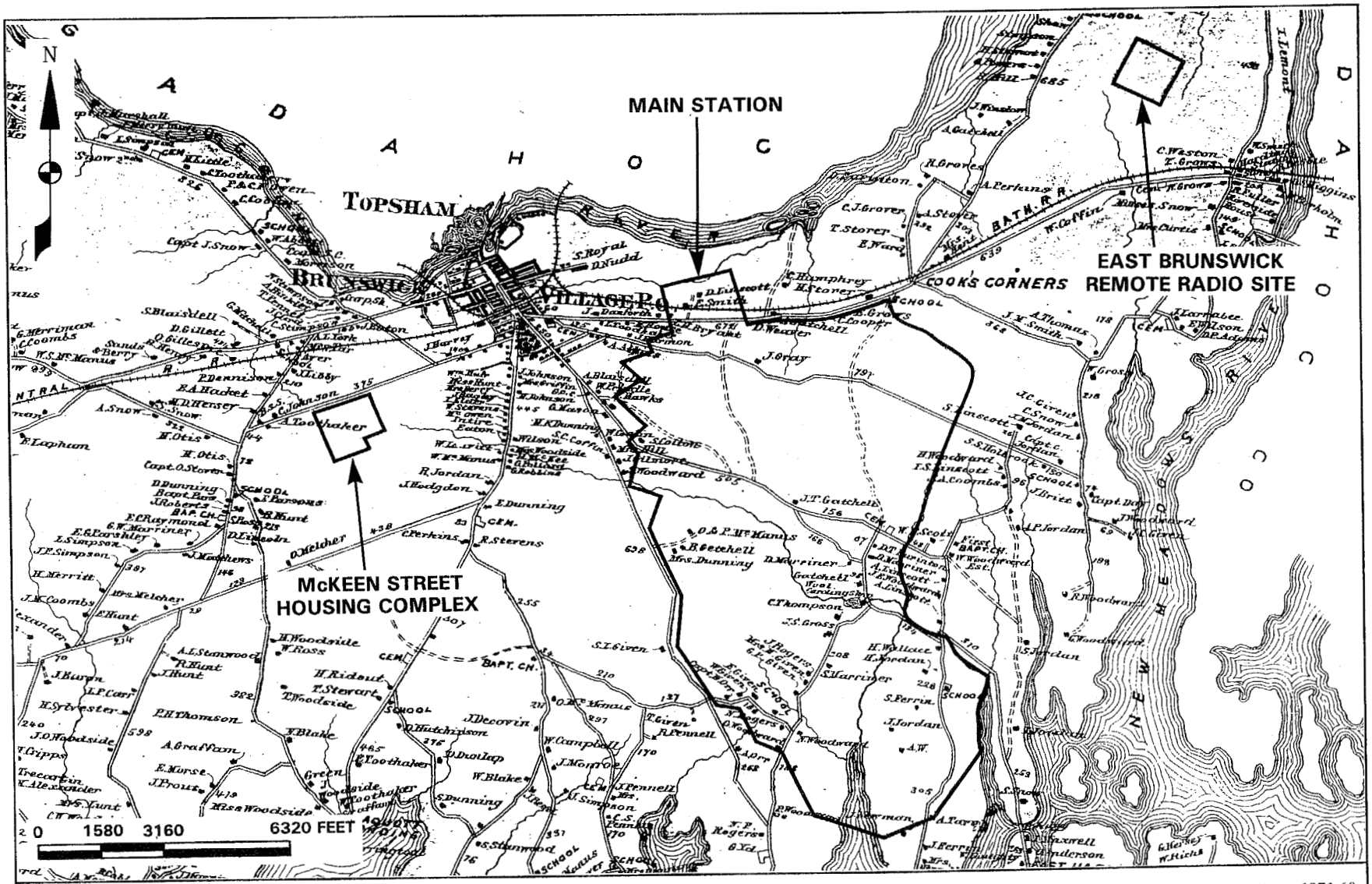


Figure 6: Brunswick in 1871

Source: Beers 1871:60

nineteenth century. Comparison of the two maps shows that 10 of the 1857 homesteads were no longer present in 1871, and that 14 new homesteads had been constructed since 1857. Some of the homesteads indicated on the 1857 map but no longer present in 1871 may have represented squatters' use of the town commons. It is also possible that in the intervening years some of the buildings had been moved, a practice that was not uncommon in nineteenth-century Maine. A second cemetery, known as the Getchell Cemetery, is not depicted on either the 1857 or the 1871 map, but is shown on current USGS maps.

- *East Brunswick Remote Radio Transmitter Site*

Maps from 1857, 1871, 1894, and 1945 indicate that no buildings were present at the location of the Remote Radio Transmitter Site at those dates (Baker et al. 1857; Beers, Sanford et al. 1871; USGS 1894, 1945).

- *McKeen Street Housing Complex*

Maps from 1857, 1871, and 1894 indicate no buildings present in those years. A map from 1938 appears to show one house present on the property, along McKeen Street (Baker et al. 1857; Beers, Sanford et al. 1871; USGS 1894) (Figure 7). The house was actually outside the present facility boundaries, as indicated by the more accurate USGS map of 1945.

- *Topsham Annex*

According to an 1858 map, one homestead was present on the Topsham Annex property in that year (Figure 8).

SERE School, Redington, Maine

The SERE School is located in Redington Township, Franklin County, Maine, approximately 90 miles north by northwest of Brunswick (see Figure 1). It is situated on an irregularly shaped tract of about 17,731 acres that occupies most of the southernmost 60 percent of the township.

Franklin County was established in 1838. Prior to that date, the area presently encompassed by Franklin County was divided among the counties of Kennebec, Oxford, and Somerset. The survey township (T1R2 WBKP), now known as Redington, originally was situated in Oxford County (Maine Historical Records Survey Project 1940:27).

The secondary literature as well as historical maps suggest that there was little or no historic-period (i.e., European-American) settlement in Redington Township until the Phillips & Rangeley Railroad was built through the township in 1891 (Karr 1989:42) (Figure 9). A standard geography of the state published in 1951 referred to Redington Township as one of 13 wild land townships in Franklin County. Although some of the other wild land townships in the county attained plantation or incorporated town status for a period, and then reverted to that of wild land due to depopulation, Redington was never organized as either a plantation or a town (Hebert 1951:273-274).

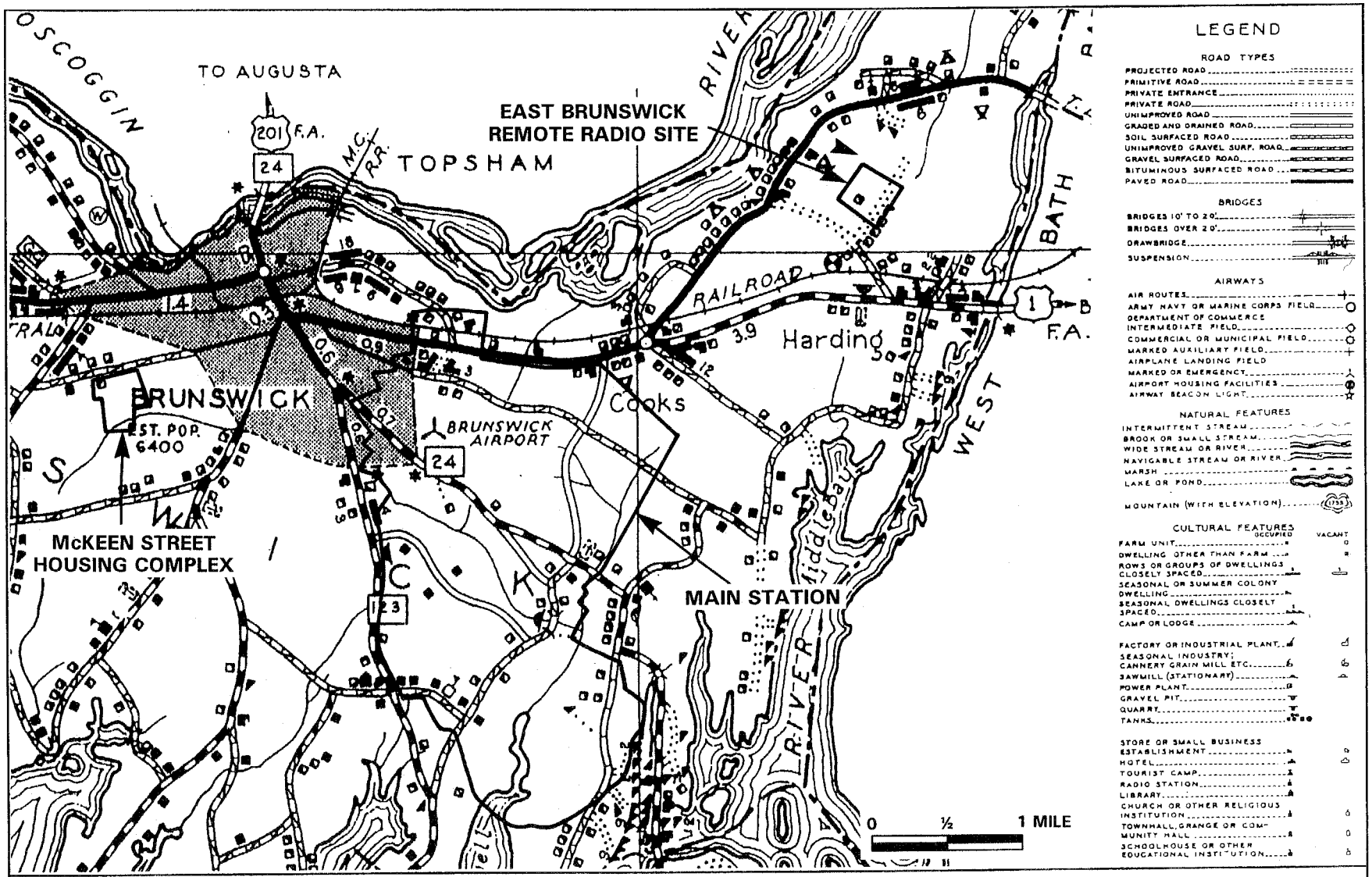


Figure 7: Brunswick in 1938

Source: Maine Highway Commission 1938a

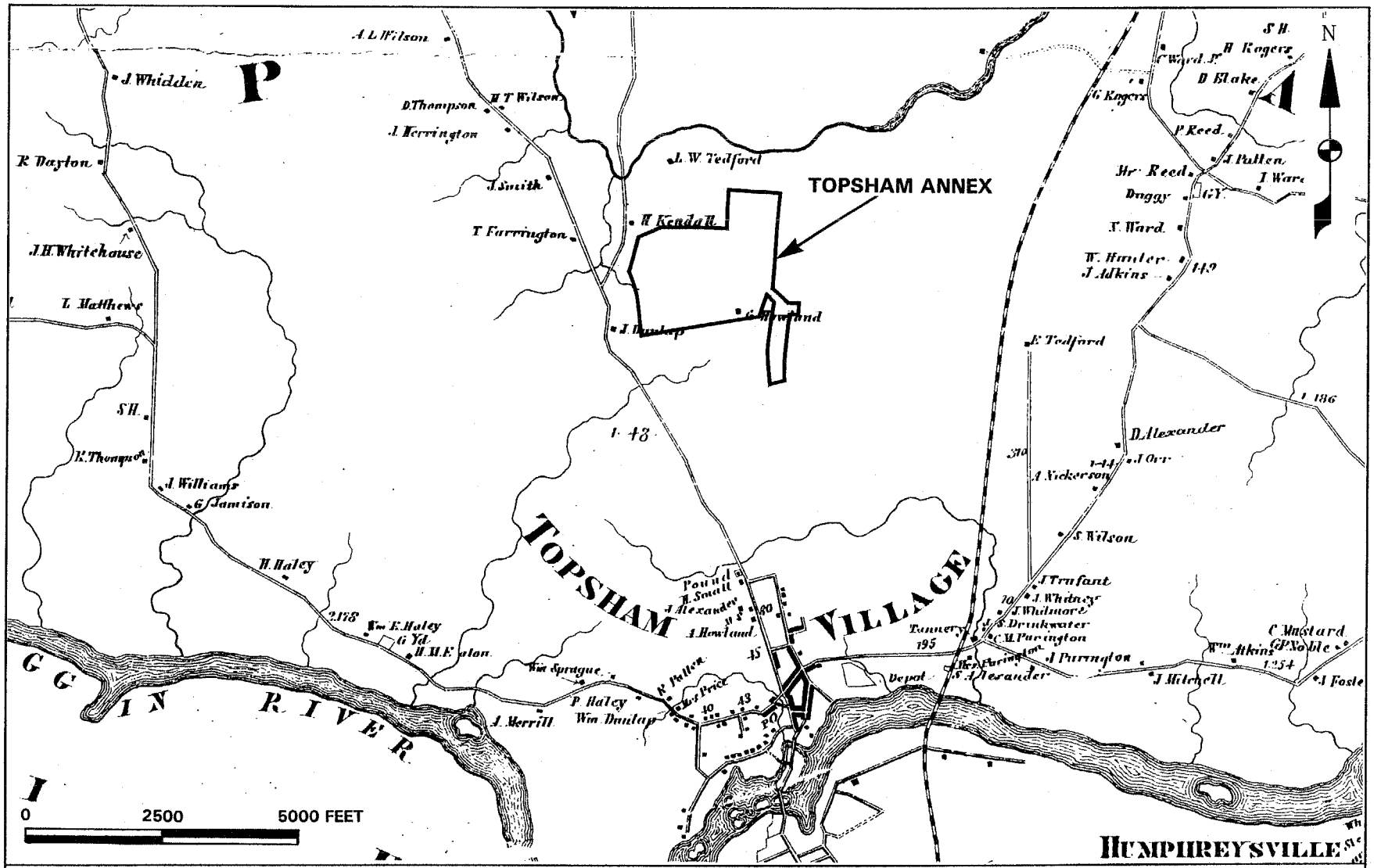


Figure 8: Topsham in 1858

Source: Chace et al. 1858

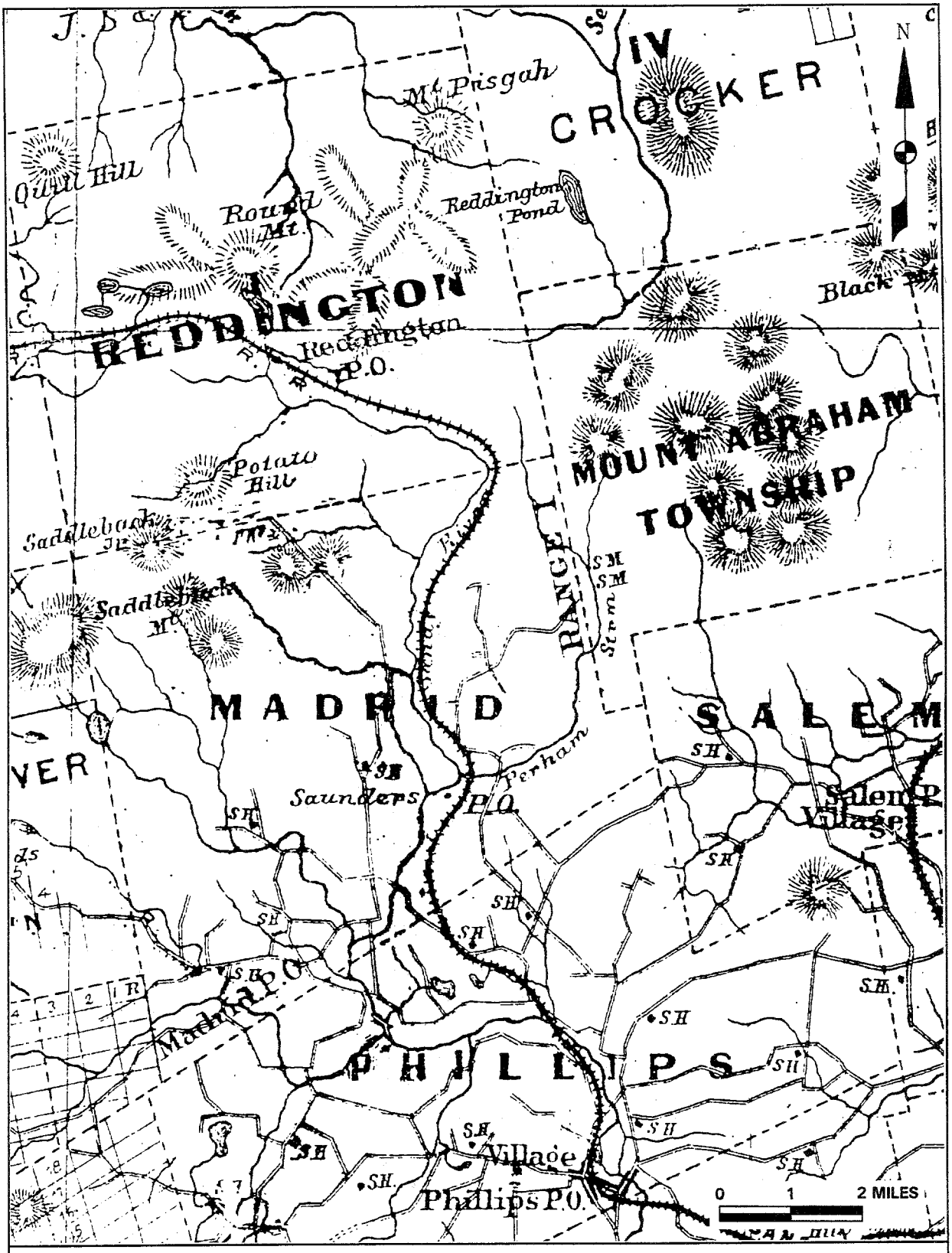


Figure 9: Redington Township and Vicinity in 1895 *Source: Stewart 1895*

The Phillips & Rangeley Railroad was chartered in 1889 to expand a unique system of very narrow gauge rail lines that had been started in the rugged country of west-central Maine in 1879. Several such intersecting lines were operated by small local companies, companies that were amalgamated in 1908 to make the Sandy River & Rangeley Lakes Railroad. Narrow gauge rail lines were favored in America during the late nineteenth century, especially by lumber companies, to operate in mountainous regions. It was thought that they would prove to be cheaper to build and run. Most narrow gauge lines were constructed in a three-foot breadth, but the west-central Maine lines were constructed as only two feet in width, an application of rail technology developed in America by entrepreneur George E. Mansfield from British precedents. The Phillips & Rangeley Railroad line had two objectives: (1) to bring rail passenger service to the lakeside resort town of Rangeley (located about seven miles west by southwest of the SERE School), which had been developing since 1865 as one of the nation's first centers for outdoor sports; and (2) to make possible the exploitation of the timber stands that intervened between the towns of Phillips and Rangeley (Ellis 1983:21-22; Karr 1989:40-42).

Research found no specific data on the history of the timber industry in Redington Township, although the fact that Georgia-Pacific was the owner of the land before the Navy is probably a legacy of intensive lumbering activity that was carried on in Redington during the late nineteenth and the early twentieth century. The forests of the larger Redington vicinity consist mostly of conifers, such as spruce and fir, which are suitable for paper manufacturing. Large numbers of these trees were (and still are) cut in the region and sent to paper mills situated along the Androscoggin River to the south. A limited amount of hardwood timber was also cut and sent to board mills and turning mills (Ellis 1983:44-45).

Other than hunting, fishing, and trapping, lumbering was probably the first use to which Redington Township lands were put, beginning circa 1891, after construction of the Phillips & Rangeley rail line. By 1895 a settlement of unknown size known as Redington Post Office had been established, the postal service perhaps being conducted for the loggers (see Figure 9). This location, on the SERE School property, appears to have remained a site of habitation at least up to the establishment of the Navy training school. By 1932 there were at least 12 buildings at this location, then known as Redington, the only place of habitation on the future SERE land and one of just four in Redington Township (Figure 10). The 1938 county road map suggests that by the 1930s this group of buildings composed one of the many hunting and fishing camp businesses scattered over the larger Rangeley Lakes region, as the road map indicated the presence of one dwelling and one "intensive recreational area" (Maine State Highway Commission 1938a). The land for the camp was perhaps leased by an owning lumber company to a guide entrepreneur. By 1956, another cluster of buildings, at least four in number, had been constructed at a location within the future SERE School boundary, approximately 1.5 miles north of Redington camp or village. The new settlement was located at a higher elevation than the old settlement (about 2,100 feet above sea level as opposed to about 1,650 feet), and was reached by car only by a long road cut in from the west, most of the land surface between the settlements consisting of steep slope (Figure 11).

After 1933, Redington was served by road alone, the rail line from Phillips to Rangeley having been closed in that year. The Sandy River & Rangeley Lakes Railroad had enjoyed a profitable period circa 1908 to 1918. Following World War I, however, the increasing reliance

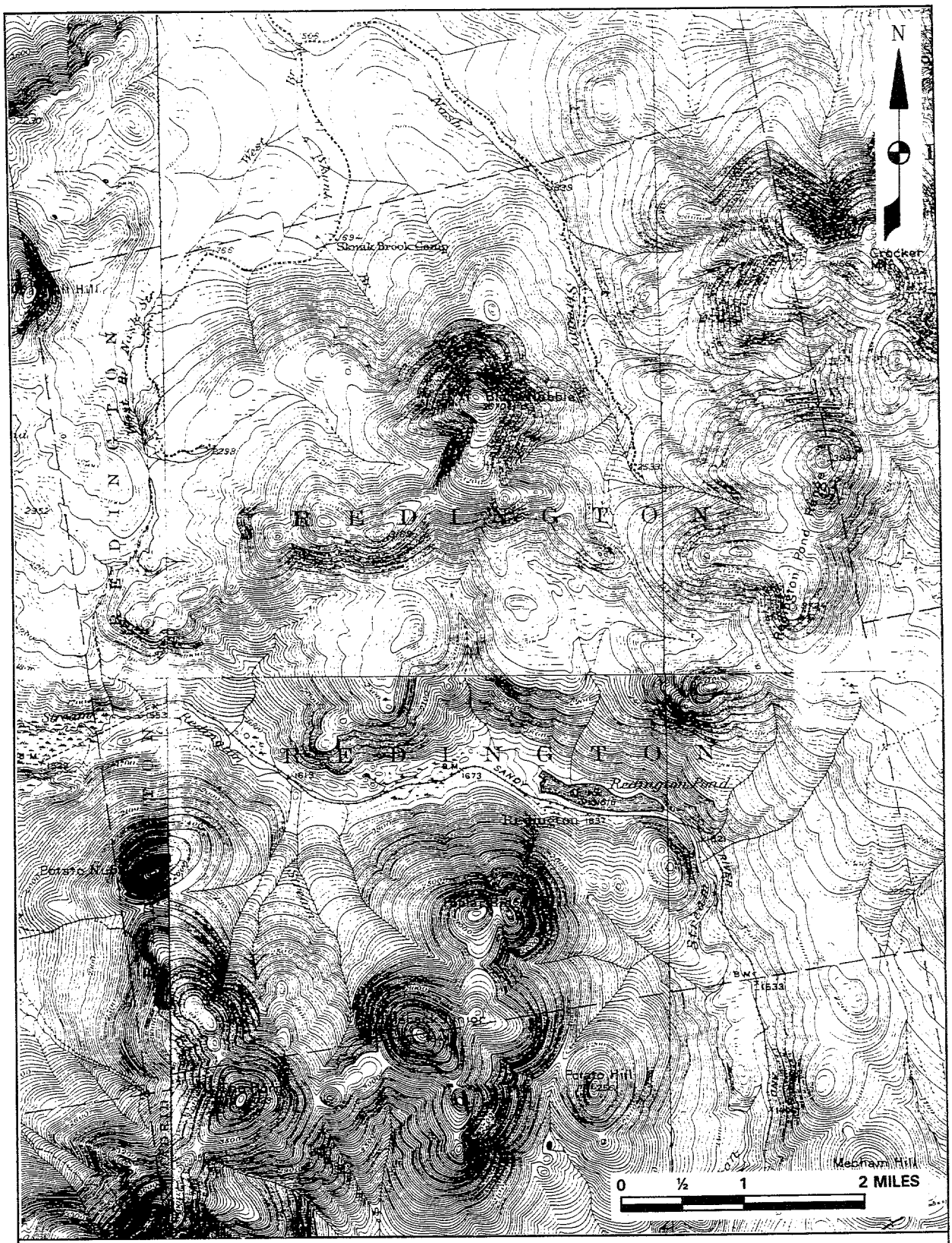


Figure 10: Redington Township, Circa 1932

Sources: USGS 15 Minute Maine Quadrangles, Kennebago Lake 1936, Phillips 1932, Rangeley 1939, and Stratton 1932

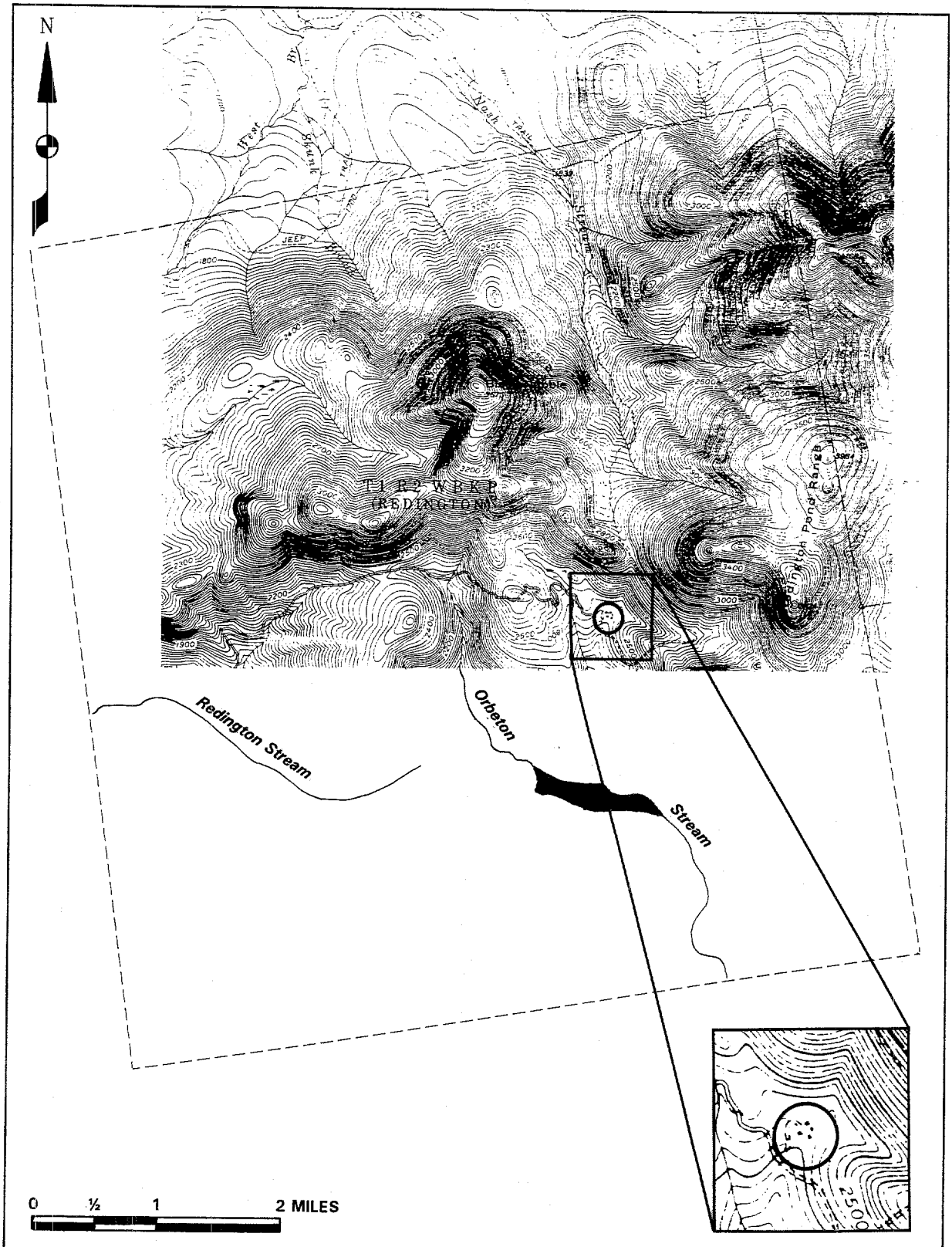


Figure 11: Northeastern Redington Township in 1956 *Source: USGS 15 Minute Maine Quadrangle, Stratton 1956*

of sportsman tourists on automobile transportation, as well as a noticeable reduction in the region's pulp lumbering activity, had brought mounting debts to the railroad. In 1935 the railroad went under altogether and the rails were taken up for scrap (Karr 1989:42-43).

Historic Context for the Navy Period

Municipal Airfield (Circa 1935-Late 1942)

NASB was developed on the site of a municipal airfield established around 1935. By 1942, the airfield consisted of two intersecting runways (reportedly constructed by the Works Progress Administration), two hangars, and an office building (NASB 1942-1946: memo dated June 24, 1942; NASB 1946:3). The runways were oriented generally north-south and northwest-southeast, with several pads for parking or tying down aircraft situated along each axis. Locations of the original structures are unknown.

World War II, Brunswick Naval Airfield (1942-1946)

The Naval Expansion Act of May 17, 1938, prompted a significant increase in Navy building activities. Although this bill allowed the president to request additional airplanes for the Navy, it did not provide for the necessary expansion of shore stations, ground support, and training of additional pilots. Consequently, a Navy board was convened in 1938 to address the issue of air stations (Turnbull and Lord 1949:300-301). Headed by Admiral A.J. Hepburn, the "Hepburn Board" recommended that 11 existing air stations be enlarged, and that 16 new ones be built. Among these new stations was one at Quonset Point, Rhode Island (Turnbull and Lord 1949:301).

When the German offensive reached the English Channel in May 1940, it became clear that the old naval expansion plan was inadequate (U.S. Navy, Bureau of Aeronautics 1957:310-311). On May 16, 1940, President Roosevelt ordered the Army and Navy to increase their combined number of aircraft to 50,000 (Turnbull and Lord 1949:311-313). Congress authorized a naval air force of 4,500 planes on June 14, 1940, and increased it to 10,000 on the next day (U.S. Navy, Bureau of Aeronautics 1957:313). In December 1941, the Navy had 5,261 aircraft (Turnbull and Lord 1949:317), and by V-J Day in 1945, the number had increased to 41,272 planes (Turnbull and Lord 1949:322).

By 1945, the Navy's aviation shore facilities had expanded to 80 stations and uncounted satellite fields, a direct response to the increase in numbers of naval aircraft and the need to train crews to operate and maintain them. Most primary (or beginning) training of Navy aircrews was centered at Pensacola and Corpus Christi, and there was a greatly expanded system of reserve air bases at both coastal and inland locations. In addition to these training bases, the Navy established so-called operational training bases that were to support two major missions: serving as operating bases for patrol squadrons, and providing secondary (or "post-graduate") training for air crews. Locations initially designated for operational training bases included Norfolk, Quonset Point, San Diego, Jacksonville, and Alameda. The Navy realized early on that Quonset Point, then the major naval air facility in the northeast, was already congested with airplane traffic and would not

accommodate expansion easily. Accordingly, the Bureau of Aeronautics recommended that a new base be constructed at the site of the municipal airport in Brunswick, Maine, and another at Atlantic City, New Jersey (U.S. Navy, Bureau of Aeronautics 1957:350).

The Naval Airfield at Brunswick, Maine, was commissioned on April 15, 1943 (Figure 12). Occupying the site of an existing municipal airfield, it originally consisted of "two reasonably good W.P.A. runways," two hangars, and an office building (NASB 1946:3; NASB 1942-1946: memo dated June 24, 1942). The airfield was purchased from the Town of Brunswick, and additional land was evidently also purchased from surrounding private landowners (NASB 1946:3). Construction commenced October 15, 1942, and the first naval personnel arrived in December 1942. By January, the "Operations Building was sufficiently completed . . . to be used as a combination Operations Building, Barracks, Recreation Hall, Mess Hall, Sick Bay and Officer's Ready Room" (NASB 1946:3).

The first patrol detachments arrived at NASB in January 1943 and operated out of an "old Red Hangar on the far side of the field" (NASB 1946:3). This hangar was a remnant of the former municipal airfield. The first detachments, of VS1D1 (in-shore patrols), arrived beginning in late January 1943 and were followed by Hedron 9 and VB126 detachments (NASB 1946:3). As the Administration Building and several other buildings were sufficiently completed by April 1943, the air station could be commissioned at that time, but construction continued on several other buildings (NASB 1946:3).

NASB was initially conceived chiefly as an operations base, to serve as the northernmost base for North Atlantic antisubmarine patrol squadrons. Air patrols had begun upon the outbreak of war in Europe in 1939 when the Atlantic Squadron of the Navy had ordered the establishment of air and surface patrols over the Atlantic Ocean as "neutrality patrols" (Turnbull and Lord 1949:311). German U-boats were a threat to the New England coast and to surface ships in the North Atlantic. Patrols were responsible for detecting and reporting submarines, conducting reconnaissance, and completing search and rescue, all in support of fleet activities.

By the time the station was formally commissioned, however, the German submarine threat had subsided, and the patrol function assumed a lesser priority, although antisubmarine warfare (ASW) missions continued to be flown round the clock. NASB instead became largely devoted to the training mission. With the enormous expansion of naval training bases in 1942-1943, it was possible for the Navy to turn NASB over to the training of crews from the British Fleet Air Arm, as part of Britain's worldwide training program which included facilities in Africa, Canada, and the United States, as well as in the British Isles. The first Royal Navy contingent (chiefly Canadian Air Force pilots) arrived on June 4, 1943, and was housed in Hangar 1; work on Hangar 2 was rushed in order to accommodate a British Corsair Squadron, which arrived on August 25, 1943 (NASB 1946:3-4). By the end of the war, more than 25 British squadrons had received their training at NASB (NASB 1969:2).

The Royal Navy left NASB on July 13, 1945, but the U.S. Navy continued its training and patrol missions until the demobilization of the station (NASB 1969:2). Brunswick's auxiliary fields were put on caretaker status one by one beginning in August, and in October 1946, NASB itself was placed on caretaker status (*Naval Aviation New* 1959:15).

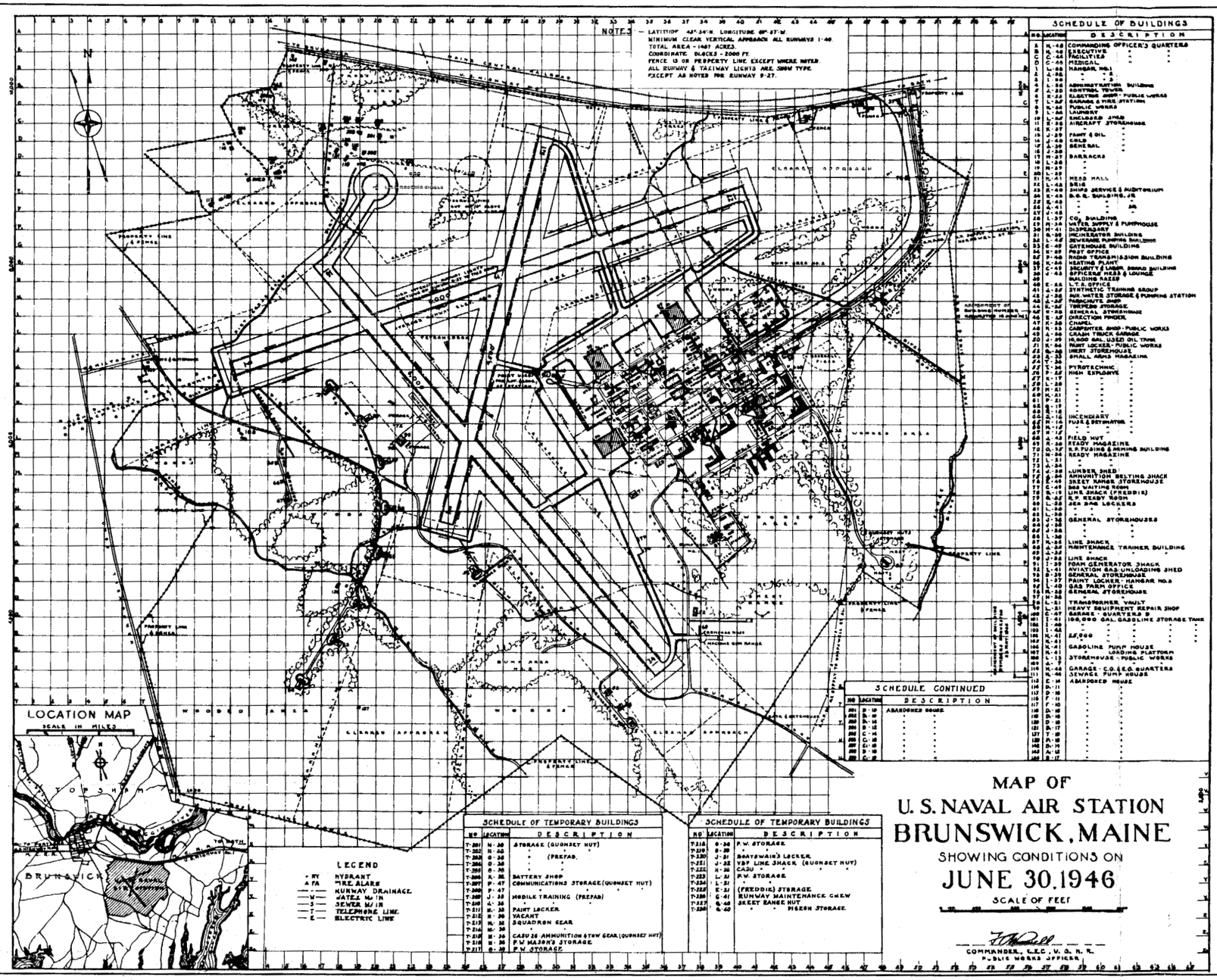


Figure 12: Main Station in 1946

Source: NASB, Public Works Office

The "Interregnum" (1946-1951)

From 1946 to 1951, the Navy retained ownership of the station, and even maintained a small contingent of personnel. Facilities at the station were gradually leased to a variety of organizations. Part of the station was leased jointly to the University of Maine and to Bowdoin College, and these organizations both housed students and taught a few courses on the base between September 1946 and the spring of 1951. Barracks were used to house college students beginning in October 1946 (*Naval Aviation News* 1959:15). The hangars were used for a variety of activities by the college during this period. Hangar 1 was used for a while as an indoor parking area for Bowdoin College students, and it also functioned as an indoor skating rink in the winter. Some of the old ordnance magazines at the south end of the airfield housed mushroom farms during this period, although it is not clear which magazines were used (NAHC Archives Box 708, *Naval Aviation News*).

In 1947, following several months of negotiations, the Town of Brunswick took over all the runways, the control tower, one hangar, and the maintenance equipment at the former air station, and promptly subleased them to the Brunswick Flying Service. In addition to chartering planes, the Brunswick Flying Service provided pilot instruction both in the classroom and in the air. The school also permitted the take-off, landing, parking, and tying down of private aircraft (*Naval Aviation News* 1959:15; PHS Vertical File: Airports-Aviation folder, "Flying Service Takes Over Airport," Brunswick *Record* June 12, 1947). The Brunswick Flying Service initiated a G.I. Flight Training Program in August 1947, which turned out to be a popular program (PHS Vertical File: Airports-Aviation folder, "G.I. Flying School Proving Successful" September 4, 1947). The teaching and chartering business boomed, and the flying service finally was able to lease Hangar 2 directly from the Navy in June 1948 (PHS Vertical File: Airports-Aviation folder, "Flying Service Leases Hangar" Brunswick *Record* July 1, 1948). The hangar that the company subleased from the town may have been one of the hangars that the Navy had acquired with the property in 1942. The old air station was ideally suited to the Brunswick Flying Service's activities, and the company continued to do well between 1948 and 1951.

A number of civilian businesses also operated on the station during this period. Besides the Brunswick Flying Service, there were the Merrymeeting Nurseries, several car dealerships, and Northeastern Airlines, which had established direct service to Brunswick in the summer of 1950 ([*Portland Press Herald*], May 24, 1951, no page).

The Cold War Era, Naval Air Station, Brunswick (1951-1989)

When the Soviet Union exploded its first atomic bomb in September 1949, the continental defenses of the United States had reached a postwar nadir. The Navy and the newly formed Air Force rushed to organize programs for the detection and interception of Soviet threats. Among other actions, the Navy designated Jacksonville, Patuxent River, and Brunswick — which was to be reopened — as homes for antisubmarine patrol squadrons that would be deployed as part of a larger NATO strategy for protecting the North Atlantic from incursions by the Soviet navy. All of the squadrons initially flew Lockheed PV2 Neptunes, converting in the mid-1960s to P3A Orions. By 1970, the three bases would support 12 ASW patrol squadrons: four were at Brunswick, five at Patuxent River, and three at Jacksonville. Beginning that year, however, the

squadrons at Patuxent River were gradually transferred, two flying north to Brunswick and three south to Jacksonville. Both of these stations continue the North Atlantic ASW mission today.

In February 1951, the Navy terminated the Town of Brunswick's lease of the old Naval Air Facility. By May, the public and private concerns using the former air station evacuated the complex, all moving to other locations, or in the case of Northeastern Airlines, ceasing their operations in Brunswick entirely ([*Portland Press Herald*], May 24, 1951, no page). The air station was recommissioned as the Naval Air Facility, Brunswick, on March 15, 1951, and in December 1, 1951, as the Naval Air Station, Brunswick (U.S. Navy Training Publications Center 1955:94). The primary mission of the station was to "provide facilities to support regular operations of fleet reconnaissance and antisubmarine aircraft" (NASB Historical Report for July 1-December 31, 1951).

The recommissioned facility was planned to constitute one of a small number of "master jet bases" under a program conceived in 1949 by then-Captain R.W.D. Woods. Historically, the Navy had placed its air stations near its seaports on both coasts. The stations, designed primarily to support landplane and seaplane operations of "reciprocating aircraft," were expanded during World War II to the greatest extent possible given their frequent location in proximity to population centers. After the war, it became evident that many of these stations were not large enough, or capable of being expanded sufficiently to support the operations of airgroups utilizing jet aircraft (Craig, May "What the Navy Plans for Maine," *Portland Press Herald*, October 12, 1951). Thus, the Brunswick station was selected for development as a master jet base as backup to Naval Air Station Quonset, a seaport station.

Brunswick was formally recommissioned on March 15, 1951, as a Naval Air Facility, and was renamed Naval Air Station, Brunswick, on December 1. Accommodations were at first exceedingly limited. All Navy offices were clustered on the first floor of Building 4 because the utilities had been stripped from most of the other buildings after the war. Oil-burning stoves provided heat, and drinking water had to be supplied on a weekly basis by a local purveyor of spring water (NASB 1952).

Initial efforts to rehabilitate the air station were focused on simply returning the property to a condition approximating that of its initial development in 1943. The construction firm Stewart and Williams, of Augusta, Maine, which had "built the original station," was involved in this first phase. This phase did not include extending runways or erecting new buildings. Instead, priority actions included reestablishment of security and fire protection, property inventory, and procurement of new materials. New piping was installed in existing buildings, and "new tubes" were provided to the power plant (PHS Vertical File: Brunswick Naval Air Station folder, "Bids Submitted to Navy for Work on Rehabilitation of Air Facility Here," Brunswick *Record*, May 17, 1951, "Rehabilitation Work at Naval Air Station Here To Be Completed by Fall; New Buildings Planned," Brunswick *Record*, July 5, 1951).

A contract for $3.6 million was awarded to W.H. Hinman, Inc., of North Anson, Maine, for new runways, taxiways, and parking aprons. Engineers for this project were Fay, Spofford, and Thorndike of Boston. Two new 8,000-foot runways were completed by late 1952, and existing parking facilities, designed to accommodate carrier-based aircraft during the war, were expanded to provide space for the "much larger, land-based patrol planes" (NASB Historical

Report, July 1-December 31, 1951). The first three patrol squadrons assigned to the station (VP-26, VP-10, and VP-23) arrived in 1952. Two more (VP-11 and VP-21), also equipped with PV2 Neptunes, flew on board in 1955 to form Fleet Air Wing THREE (Coletta 1985:64). Aircraft maintenance was supplied by Fleet Aircraft Service Squadron (FASON) 108.

In 1948, the Air Force had proposed construction of a chain of radar sites to provide advance warning of enemy attack, and to guide interceptors to their targets. At the time, the proposal received little support, and the Air Force had instead to install refurbished World War II radar systems in hastily erected buildings on whatever government land was available. By 1950, however, the Air Force had obtained appropriations for a so-called "permanent system" of some 80 stations across the continental United States and in Alaska. One of these was established at NASB, manned by the 654th Aircraft Control & Warning (ACW) Squadron in a newly constructed radar facility that in 1956 was designated "Brunswick Air Force Station." The Air Force's Brunswick radar station was one of eight Ground Controlled Interception (GCI) facilities under the cognizance of the 32nd Air Division at Hancock Field in Syracuse, New York, which was responsible for the program in the northeast.

In 1955, the United States and Canada began construction of the Distant Early Warning (DEW) line, a chain of radar facilities extending from Greenland across Canada to Alaska about 1,200 miles south of the North Pole. Information gathered by the DEW line stations was to be passed to GCI facilities, which would then guide fighters or interceptors to the desired location. The east end of the DEW line continued across the Atlantic, where the Navy deployed destroyer escorts and World War II Liberty ships refitted with air and surface radar, as well as specially equipped PV2 Neptunes, to provide data to the shore-based GCI stations, such as that at Brunswick. In further support of the DEW line, the Air Force began work on its Semi-Automatic Ground Environment (SAGE) program, in which high-speed digital computers were to analyze information gathered from a wide range of sources, including weather stations, interceptor squadrons, radar stations, and Ground Observer Corps centers, and then transmit the information via data-link signals to interceptors (Green 1994:141).

In January 1957, the Air Force activated the Bangor Air Defense Sector, temporarily housing it at NASB until new facilities were completed at a new site in Topsham. The Bangor Sector was one of five (the others being Boston [Hanscom Field], New York [Roslyn, NY], Syracuse [Hancock Field], and Washington, D.C.) in the 26th Division, which covered New England, New York, Pennsylvania, Delaware, Virginia, Maryland, and part of North Carolina. Each sector had a SAGE Direction Center, with radio data links to the Division's SAGE computers at Hancock. Data from ships, radar-equipped aircraft, and shore facilities, including the GCI stations, were fed to the Centers' computers, and from there relayed to the Division facility. The Bangor Air Defense Sector at Topsham was manned by the 654th, which was redesignated the 654th Radar Squadron (SAGE) in May 1959.

In 1956, the Navy constructed an ammunition depot on Prince's Point. A safety zone and railroad spur, linking the depot with the main station, were located on 134 acres of land acquired for that purpose. That same year, the Navy acquired land for the East Brunswick Remote Radio Transmitter Site. Constructed by the Brown Construction Company of Portland, Maine, the facility became operational in 1958. The "remote" location of the facility was intended to avoid interference from other electrical and electronic equipment on the main station. This "more

powerful transmitter [was] expected to have an all-weather range of some 1,500 miles" (PHS Vertical File: Brunswick Naval Air Station folder, "U.S. Navy Radio Center to be Built Off Station," March 14, 1957).

The Navy established a variety of training programs to support the mission of NASB. In 1954, the Naval Air Mobile Training Detachment was formed to provide technical instruction in the operation, maintenance, and repair of the PV2 Neptune patrol bomber. The Aviation Training Aids Branch of Fleet Airborne Electronics Training Unit, Atlantic (FAETULANT) in turn offered instruction in the use of electronic equipment such as radar and navigational aids (*Naval Aviation News* 1959). In 1956, the Arctic Survival School was established, presenting "a realistic and concentrated course for personnel of units due for a tour in the far north" (*Naval Aviation News* 1959).

By the late 1950s, NASB was fully equipped to play its assigned role in United States and NATO strategy to prevent possible attack by Soviet submarines in the North Atlantic. In the event of conflict, the station's mission would be to secure lines of communication between the European and North American coasts. As such, NASB formed one link in a chain of bases in the Azores, Bermuda, Newfoundland, Iceland, Scotland, and on the east coast of the United States ("Brunswick Naval Air Patrol Squadrons Important Link in NATO Atlantic Plan," Brunswick *Scanner*, May 10, 1957, no page). Through the 1960s, NASB's "home-based" patrol squadrons were deployed to numerous locations around the Atlantic and Caribbean, and to bases in Sicily, Spain, the Azores, Newfoundland, and Iceland. During the "Cuban Quarantine" in late 1962, aircraft from Fleet Air Wing THREE participated in operations conducted from bases at Key West and Guantanamo Bay. Its old Neptune patrol aircraft having been replaced in 1964-1965 with "larger, swifter and more versatile" P3 Orions, Fleet Air Wing THREE was ready for deployment to the Philippines in 1967, providing direct support to attack aircraft carrier operations in the Gulf of Tonkin and performing surveillance operations along the coast of South Vietnam (Anonymous 1971:21).

In 1962, the SERE School, developed out of the earlier Arctic Survival Training School, was established near Rangeley, Maine (NAHC Archives Box 706, *NAS Brunswick History From 30 September 1961, To 30 September 1962*). Initially, the Navy leased a 19,000-acre parcel near Rangeley from the Hudson Paper Company (PHS Vertical File: Brunswick Naval Air Station folder,"Survival Training School at BNAS" *Maine Sunday Telegram*, May 14, 1961).

Within the next year the Navy constructed a two-story barracks and a generator building at the new training facility, and on November 2, 1962, the Navy's FAETULANT Detachment One (FAW-3) officially acquired the SERE School site (PHS Vertical File: Brunswick Naval Air Station folder, "FAW-Opens Escape School at Rangeley," n.d.). With the new school the Navy expanded the mission of the older survival training program, eventually training not only air crewmen but also other military personnel whose duties subjected them to a high risk of capture. Training included cold weather survival, evasion from capture, resistance to interrogation and exploitation, and escape from confinement.

In July 1970, NASB's patrol squadron community was increased by the arrival of VP-44, bringing the number of locally based squadrons to six. The following July, Commander Fleet Air Wings U.S. Atlantic Fleet established headquarters at NASB. At the same time, operational

control of the Brunswick-based squadrons was shifted from COMFAIRWING THREE to COMFAIRWING FIVE (Coletta 1985:64; NASB 1971). In 1969, the Air Force discontinued the SAGE program, and closed its Bangor Air Defense Sector at Topsham. The installation was subsequently taken over by the Navy, chiefly for housing purposes.

Over the past two decades, squadrons at NASB have continued to conduct ASW patrols over the North Atlantic, periodically rotating elements to other naval stations overseas. NASB also provides support to a large number of off-station activities, including Naval Radio Station (T), Cutler; the Naval Security Group Activity, Winter Harbor; and the Naval Survival School, Redington.

Research Design and Survey Methods

Research Design

Archaeological Resources

Archaeological research conducted as part of this cultural resources study consisted of a Phase IA (also referred to as a "Phase 0") investigation of all landholdings at NASB. The goal of this investigation was the development of estimates of the potential for the presence of prehistoric or historic sites in various portions of each NASB facility. These estimates are statements as to the sensitivity of a given area or a type of environmental setting for containing archaeological sites. Archaeological sensitivity is expressed as a simple ordinal scale of low, medium, and high potential. For the two largest landholdings, the investigation sought to produce maps depicting archaeological sensitivity. For the smaller facilities, verbal descriptions have sufficed.

In this study, two models of sensitivity for prehistoric resources have been used, one for the coastal Brunswick-Topsham area (Carlson 1986; Kellogg 1984, 1994; Wilson et al. 1990) and the other for the SERE School in western interior Maine (Baker 1989; Robinson et al. 1991; Sanger 1977; Spiess and Cranmer 1990). Models of historic archaeological resource potential were developed separately for each facility, based upon the specific history of that facility. Historic site sensitivity modeling relied primarily upon historical maps, such as those produced by Beers, Sanford et al. (1871) for the Town of Brunswick in the latter part of the nineteenth century. Maps were used extensively in this investigation because these sources concretely depict the locations of permanent structures, which, barring later disturbance, are likely to be the locations of certain types of historic period archaeological sites.

Archaeological sensitivity modeling involved several steps. First, existing data were reviewed to ascertain whether there were any known archaeological sites within each facility. This review also provided a means to develop information concerning the general patterning of prehistoric and historic archaeological sites in the Brunswick-Topsham area and in the vicinity of Redington Township. (This information is the subject of the preceding chapter.) Based on this review, preliminary expectations were developed concerning the possible locations of archaeological sites at each NASB facility.

Next, these expectations were refined through a review of the land-use history of the NASB facilities. Analysis of land-use history sought to identify the locations and characteristics of past and present buildings, industries, activities, and infrastructure whose construction or operation might have resulted in severe ground disturbances. Analysis of land-use history thus attempted to identify events or activities that could have seriously damaged or destroyed archaeological sites. Also of interest were the locations of activities and facilities that could have modified the landscape through the placement of thick deposits of fill. Such deposits can make it difficult to locate archaeological sites because of the burial beneath blankets of soil, rock, or debris. Examples of ground-disturbing activities typically identified during this step of a Phase IA study are those

indicated by highways, railroads, airfields, large institutional and industrial complexes, dumps, and filled wetlands.

Finally, the background research was complemented by an archaeological field reconnaissance. The reconnaissance sought to complete a visual inspection of the terrain, with the particular goal of improving the understanding of landforms previously interpreted through study of topographic, geological, and soils maps alone. Reconnaissance also aimed to refine information on past and present disturbance processes and to perform an initial examination of areas identified as having high and low archaeological resource potential, to evaluate whether these estimates were acceptable or in need of revision. Given the substantial acreage of NASB, the archaeological reconnaissance was limited to surface inspection; no subsurface testing was conducted as part of this Phase IA archaeological study.

Architectural Resources

Based on historical research, it was anticipated that interpretation and analysis of architectural resources at NASB would derive primarily from two major themes. The first theme is the mission of NASB. Two aspects of the station's mission are considered: the evolution of the NASB mission over time, and how it was, or is, reflected in the built environment of the yard; and the specific events with which particular buildings can be associated. The second theme, "Building the Navy's Bases," looks more specifically at physical characteristics, and considers the importance of architectural resources as manifestations of building types, periods, or methods of construction. The built environment of an air station is largely, although not exclusively, dictated by the requirements of the mission (see preceding chapter). The physical appearance of NASB represents the amalgamation of mission requirements, technologies, building practices, available building materials, and aesthetic sensibilities of particular times, and to some extent, of the particular place.

Within this conceptual framework, the basic objective of the architectural resources component of this study was to identify, interpret, and assess the potential historical significance, in terms of the National Register of Historic Places Criteria, of buildings and structures situated on NASB property. To this end, several questions were posited with respect to the station's existing built environment:

(1) Does the installation contain individual resources that appear to be eligible for listing in the NRHP, or that have already been listed in the NRHP?

(2) Does the installation contain any concentrations of resources that constitute a NRHP-eligible historic district or districts, or that have already been listed as such in the NRHP?

(3) Does the installation contain resources that cannot be fully evaluated at this time, due to their relatively recent construction and/or to the

classified nature of their function? If so, which among them, on the basis of available information, appear to possess qualities of significance warranting further verification in the future?

Methods

Background Research

Existing cultural resource data and historical background information were compiled primarily from documentation in the Public Works Office of NASB. Other repositories and collections consulted include the Navy Department Library and the Naval Aviation Historical Center, both located at the Washington Navy Yard, Washington, D.C.; the Library of Congress, Washington, D.C.; the Pejepscot Historical Society, Brunswick, Maine; the National Archives Regional Repository, Waltham, Massachusetts; the MHPC, Augusta; the Maine State Library, Augusta; and the University of Maine, Orono. The goal of this research effort was to determine the nature and extent of previous cultural resources investigations at NASB or in the vicinity, and to develop contextual frameworks for interpretation and evaluation of prehistoric cultural resources, resources associated with the historic period prior to 1950, and resources associated with activities and developments from 1950 to the present.

Archaeological Resources Investigation

Phase IA field reconnaissance was conducted at the NASB on May 1-4, 1995. The reconnaissance team consisted of two archaeologists with advanced training and extensive experience in the archaeology of the state of Maine. (In addition to the high professional qualifications of both team members, one of them is also included on MHPC's list of researchers qualified to conduct projects with funding administered by that agency.) The team completed overviews of all NASB facilities, devoting approximately two days to the main station, one day to the SERE School, and one day to the off-station properties in the Brunswick-Topsham area.

Reconnaissance consisted of a windshield survey of each facility to obtain information on patterns of topography, vegetation, disturbance, and development. Walkovers of selected portions of the facilities were also conducted. Areas examined included the previously reported locations of prehistoric sites and the locations of selected historic-period structures. For portions of the archaeological reconnaissance at the main station and the SERE School, the archaeological team was accompanied by a Navy serviceman or by a Navy civilian employee. Elsewhere, the archaeological team conducted its work without guides.

In addition to its general reconnaissance of NASB facilities, the archaeological team conducted a walking survey of 2.6 miles of tidal shoreline within the boundaries of the main station. This survey included 2.1 miles of shoreline at the head of Harpswell Cove and the mouth of Mere Brook, and 0.5 miles along the western shore of Buttermilk Cove north of Princes Point Road Bridge. The purpose of this survey was to learn whether shell middens or any other types

of archaeological sites were being exposed by coastal erosion. For the shoreline survey, one of the team members walked the top of the bank above the shore, while the other walked along the beach at the base of the bank. The team dug occasional soil tests to examine stratigraphy and soil development.

The Phase IA archaeological reconnaissance at NASB took place in excellent weather before vegetation had come into leaf. There was no snow cover left on the ground in the Brunswick-Topsham area, and snow was limited to widely scattered patches at high elevations at the SERE School. The shoreline survey began at the time of dead low water and continued until high tide. The rising tide did not impose any serious limitations on access to shoreline areas or visibility of beaches and banks.

Architectural Resources Investigation

Architectural resources field investigations at NASB were conducted in September 1995. During the investigation, virtually all buildings were photographed, and notations were made of building type, materials, condition, exterior integrity, and present use. At the Brunswick Gardens, McKeen Street, and Topsham housing areas, representative samples of the dwelling units were photographed. For security reasons, no photographs were taken of the buildings at the Resistance Training Laboratory at the SERE School at Redington, although most of the buildings at the remainder of that facility were photographed. Supplemental structural and historical information for all buildings and structures on the station was gleaned from drawings and building files at the Public Works Office.

Results of Archaeological Resources Survey

Introduction

The Phase IA archaeological reconnaissance of NASB facilities was intended to gather information on patterns of topography, vegetation, disturbance, and development, and to inspect previously recorded sites and the locations of selected historic structures. Information gathered during the reconnaissance served as complement to and a check on material obtained during the background study. Together, these two sources contributed to development of archaeological sensitivity models for each of the NASB facilities.

As noted, the reconnaissance consisted of a combination of windshield survey and walkovers of selected areas at each facility. Only a few soil cores were examined, and no systematic subsurface survey was undertaken.

Results of the Phase IA archaeological reconnaissance are presented geographically, beginning with the main station, followed by the outlying facilities in the Brunswick-Topsham area, and concluding with the SERE School in Redington.

Main Station

The main station at NASB covers 3,157 acres, including 61 acres constituting the North Clear Zone to the north of Route 24. The property is a north-south tract situated between the tidal, lower reaches of the Androscoggin River and the upper reaches of Maine's Casco Bay (see Figures 2 and 3). The river is situated 1,000 to 1,500 feet north of the northern boundary of the facility. On the southern end of the main station, two small coves give the station approximately 2.5 miles of tidal flat and salt marsh shoreline along Harpswell and Buttermilk coves.

On the basis of the Phase IA reconnaissance, the main station can be divided into four major topographic or environmental zones: the sandy outwash plain, the bedrock ridges, the lower Mere Brook drainage, and the tidal shoreline. The outwash plain comprises approximately four-fifths of the facility, with most of the remainder divided between the bedrock ridges and the lower Mere Brook drainage. Development has taken place throughout the facility, as shown in the depiction of the built environment developed by project architectural historians (Figure 13).

The outwash plain is a sandy, alluvial fan or submarine delta that covers a considerable portion of the Town of Brunswick. Situated primarily south of the Androscoggin River, this landform is also found in southern Topsham to the north of the Androscoggin. The sediments comprising this landform are sandy facies of the Presumpscot Formation, a glaciomarine unit composed predominantly of silt and clay and dating to the end of the Wisconsinan period, about 12,000 to 14,000 years ago (see Description of the Study Area, above). These sediments were deposited during the brief marine transgression that flooded coastal and central Maine as the most

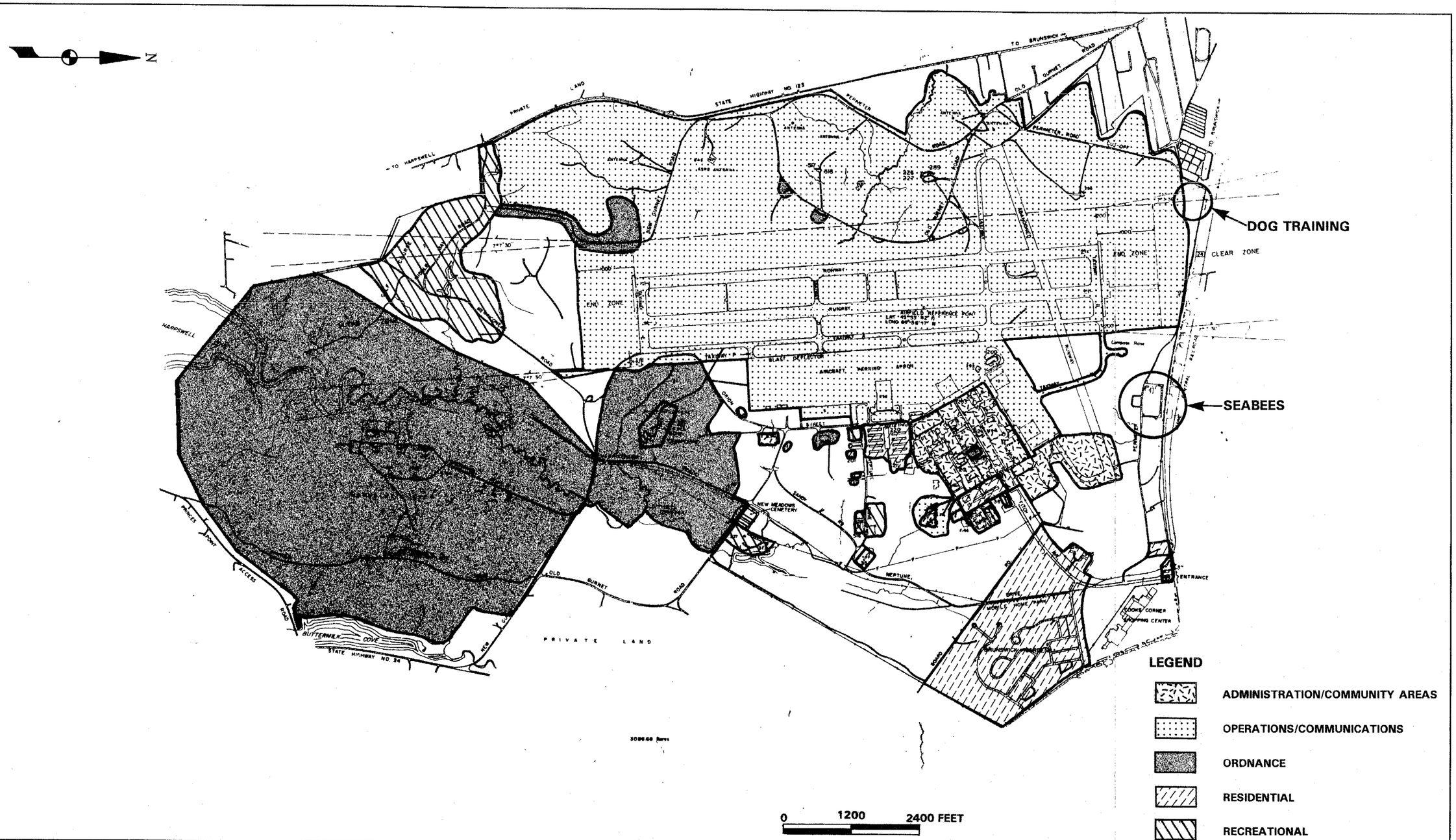


Figure 13: Main Station Built Envrionment, Showing Activity Areas

Source: Existing Conditions Map: (NASB Public Works Drawing No. 2157), May 1983

recent continental ice sheet retreated from the region. Engineering data from bore holes drilled in the early 1950s prior to the construction of the present Runway 1-19 demonstrate that the sandy sediments are of varying thickness and exceed 40 feet in places, particularly toward the northern end of the station (U.S. Navy, Bureau of Yards and Docks 1951). In the vicinity of NASB, the northern end of this landform is marked by an erosional escarpment north of Route 24 (see Figure 3). This escarpment was cut millennia ago by the Androscoggin River. Its southern end grades into Presumpscot Formation silts and clays in the vicinity of the NASB golf course south of Runway 1-19 (NASB 1986:plate V-C-1). Since there is no sharp topographic divide between the sandy and silty clay facies, the topography of the outwash plain can be considered to extend further south, until it encounters the shoreline of Harpswell Cove or the bedrock ridge zone to the east and west.

The outwash plain stands at an average elevation of about 60 feet above mean sea level (amsl), but its surface actually slopes gently from north to south. At the northern end of Runway 1-19, it stands at an elevation of 70 to 75 feet amsl, while at the southern end it stands at 50 to 55 feet amsl. The plain is dissected by numerous low-order intermittent and perennial drainages (see Figure 3). Typically, these drainages are steep-sided, with narrow valley floors usually lying 20 to 25 feet lower than the adjoining plain. Occasionally, stream channels are more deeply incised; for example, the channel of Mere Brook lay as much as 40 feet lower than the surrounding terrain before it was placed in a culvert during the construction of Runway 1-19 (U.S. Navy, Bureau of Yards and Docks 1951). The elevation of the incised valley floors is probably controlled by a combination of factors, including sea level, depth to bedrock, and depth to resistant silt-clay glaciomarine sediments.

Most of the stream courses at NASB, including Mere Brook and its tributaries, follow the overall topographic trend of the coast and flow in a southerly direction, emptying into Buttermilk, Harpswell, or Middle Bay coves. Drainages originating near the northern end of the air station flow in a northerly direction and empty into the lower Androscoggin River.

The outwash plain is the most intensively developed part of the main station. It is the location of Runway 1-19 and the associated aircraft service facilities. The administrative area, communications facilities, residential areas, and the golf course are all located primarily within this zone (see Figure 13). Because of the well-drained nature of the surface soils in the outwash plain, it was also the location of most of the Navy's dumps (Caruthers 1992; NASB 1986:plate V-D-3). In addition, there is an extensive system of underground utilities at the main station, including electrical, communications, fuel, water, sewage, storm water, and steam lines. These utilities are densest in the main administrative-community area in the northeastern part of the station. Plans on file with the Public Works Office show that most of these utilities are located within or adjacent to roads and streets (NASB 1986:plate V-B-16–V-B-19). This intensive development of the outwash plain resulted in extensive ground disturbances. Field evidence of these alterations consisted of surfaces with abrupt, regular artificial contours situated either above or below the surrounding terrain. Observations made in the field concerning the location and extent of ground disturbance tended to be in good agreement with evidence obtained from various Navy-era maps and plans.

In general, the ground surface of the outwash plain is covered by vegetation or by artificial surfaces such as runways, roads, and buildings. Nonetheless, the archaeological reconnaissance included walkovers of several areas within the outwash plain. Areas examined in detail included the northern end of Runway 1-19, portions of Mere Brook on the western side of the facility above the runway culverts, and the edges of several stream valleys. Several localities of possible archaeological interest were identified as a result of these walkovers,and there are certainly additional localities of possible archaeological interest that were not identified during the brief walkovers.

Locality NASB-Archy-1 is a historic period site situated at the northern end of Runway 1-19. A walkover of this area was conducted in an attempt to find Site ME 15-7, which is included in the files of the MHPC. Surface soils are sandy, with a cover of grass. However, there are several sand blows to the north of Perimeter Road. Occasional pieces of broken quartz (a total of three pieces over a distance of 600 feet) were found scattered on the surface of these blow-outs, but none could be positively identified as a prehistoric artifact. There was, however, a thin scatter of historic artifacts in this area covering roughly 600 feet from east to west. There appeared to be two or three clusters of material within the general scatter, but no foundations were apparent. Artifacts noted on the surface included large and small fragments of unembossed (possibly hand-made) brick, flow-blue transfer-printed whiteware and sponge-decorated whiteware, square-cut and round wire nails, kaolin pipe fragments, and one gunflint fragment of light gray (nonlocal) flint. The artifacts observed on the surface appear to date to the middle decades of the nineteenth century. These artifacts may be associated with one of the several dwellings that were located near the northern end of NASB in the nineteenth century (see Figures 5 and 6). The soil profile in the area consisted of a thin light-colored A1-horizon separated from the underlying B2-horizon by a sharp boundary. It was unclear whether the artifacts were in their original context or whether grading for the runway had disturbed archaeological deposits in the area.

Locality NASB-Archy-3 is the Skolfield Cemetery, which, although not depicted on either historical or current USGS maps, has been mapped on Navy base maps (U.S. Navy, Bureau of Yards and Docks 1958). The cemetery consists of two marked graves located in a wooded area to the south of the NASB golf course. The graves are a short distance west of the clearcut right-of-way for the underground Casco Bay aviation fuel pipeline. They are situated in an area measuring about 25x25 feet delimited by four short iron rods. The headstones identify the graves as belonging to John Doylenn[?] (died April 7, 1839, at age 25) and Hiram Skolfield (died October 31, 1851, at age 29). As originally carved, the Doylenn headstone gave the surname as "Doyle." The stone was later altered by the addition of the letters "nn" crudely carved after the surname and the honorific "Mr" [Mister] similarly carved before the name John. Neither the Doylenn family nor the Skolfield family owned property within the present boundaries of NASB in the late 1850s (see Figure 5). However, G.P. and Geo[rge] Skolfield owned three houses along Harpswell Neck Road and a shipyard on Harpswell Cove in the mid-nineteenth century (Baker 1857; Beers, Sanford et al. 1871). The location of the shipyard is now called Skolfield Cove (see Figure 2), which is situated only one mile south of the cemetery. Also, while no Doylenns are shown on either Baker (1857) or Beers, Sanford et al. (1871), there was a house owned by one R. Doyle within the NASB boundaries in 1857 (see Figure 5). This house would have been located south of the intersection of the present Merriconeag and Middle Bay roads, roughly 500 feet west of the

cemetery. Nineteenth-century maps do not depict the cemetery. Its size and the apparent local associations of the two people buried there suggest it was a rarely used neighborhood or perhaps a family plot. It is possible that additional unmarked graves may be present in the vicinity of the two marked ones.

In other areas of the outwash plain, no materials of archaeological interest were found. Only mid- to late twentieth-century artifacts occurred on lightly vegetated surfaces to the west of Runway 1-19 along Mere Brook. (These surfaces also appeared to have been graded.) Reconnaissance of a 600-foot segment of Mere Brook in this vicinity yielded no artifacts along cutbanks of the stream. Elsewhere, inspection of thickly vegetated or developed areas along the edges of Mere Brook and several of its tributary valleys on the east side of the runway were also negative. Such a result, however, cannot be used to rule out the presence of archaeological sites in these areas, since the ground surface was almost entirely obscured by grasses, shrubs, and other plants.

On the southwestern and southeastern sides of the main station, the terrain becomes more broken, as low ridges of bedrock stand above the outwash plain (see Figure 3). These ridges range from roughly 70 to 134 feet amsl on the western side of the station and from roughly 70 to 118 feet amsl on the eastern side. On the whole, the ridges are less intensively developed than the outwash plain. Some communications and ordnance facilities are situated in the ridges on the west, and a schist quarry — later used as a Navy dump — at one time operated there. Shoreward portions of the ridges on the eastern side of the main station are the primary location of the air station's magazines. The majority of this topographic zone, however, presently serves as a buffer between the air station and the surrounding communities. During the Phase IA reconnaissance no walkovers were conducted in this zone, and no sites have been recorded there.

Although most of the intermittent and perennial drainages at NASB have V-shaped valleys with extremely limited floors, the lower reaches of Mere Brook are somewhat broader (see Figure 3). This section of the brook is located in the vicinity of Merriconeag Road. These areas are primarily located within the ordinance section of the facility (see Figure 13), where access is closely controlled. As a result, no walkovers were performed. Much of the bottomland is poorly drained and occupied by wetlands, and the adjoining valley slopes are steep (greater than 15% gradients). However, there may also be low, level spurs measuring as little as a few hundred square feet adjoining the bottomlands. If present, such spurs would be rated as having a high sensitivity for prehistoric sites.

The southern shoreline of NASB measures about 2.6 miles in length, including about 2.1 miles around Harpswell Cove and 0.5 miles along the western shore of Buttermilk Cove. These coves are situated at the heads of Harpswell Sound and Long Reach, which are in turn finger-like embayments of Casco Bay (see Figures 2 and 3). Because of the average tidal amplitude of the region, which is around nine feet, low tide almost entirely drains both coves, exposing extensive mudflats. Fringing the edges of Harpswell Cove within NASB are expanses of salt marsh, and above the cove is the mouth of Mere Brook. The shoreline of Buttermilk Cove within NASB is straighter and steeper than Harpswell Cove, so there is little salt marsh there.

The Phase IA reconnaissance included a walking survey of these NASB shorelines. The banks above the shoreline are wooded in pine and oak in better drained areas and in spruce and alder in poorly drained areas. Along the western shore of Harpswell Cove, banks are composed of glaciomarine silt clay and range in height from 5 to 25 feet above the normal upper limits of the intertidal zone. Shoreline erosion appears to be taking place at a slow rate. It is limited to discontinuous undercutting of banks, resulting in occasional tree throws. On the whole, the banks are heavily vegetated, covered by a mixture of shrubs and trees and a thick humus layer of pine needles and oak leaves. At the time of the survey the visibility of exposed ground was perhaps two percent. In contrast, the silty clay banks of the western shoreline of Harpswell Cove and the shore of Buttermilk Cove consisted almost entirely of exposures of schistose bedrock. Banks ranged from 5 to 15 feet in height and typically were steep. Because of the steep pitch of the bedrock, habitats shifted rapidly from coastal upland forests through a bare rock zone to the intertidal zone. In the low-energy environment characteristic of this cove, erosion rates are probably quite low. The eastern shoreline of Harpswell Cove was intermediate in characteristics between these two shorelines. It consisted of glaciomarine silt clay banks, with frequent exposures of bedrock.

Despite the poor visibility and the low rate of erosion, it seems likely that if prehistoric shell middens of any significant size were present along these shorelines, they would have been discovered during the walking survey. The coarse matrix of the shell midden would likely lead to more rapid erosion of a section of bank, and erosion would produce a scatter of shells and occasional artifacts along the beach. No shell middens were found, and it appears that none are present. The survey could not, however, entirely rule out the potential for small nonmidden prehistoric sites, such as lithic scatters, since no systematic subsurface testing was performed.

Although no prehistoric archaeological sites were found, the survey did locate historic landscape features of possible archaeological interest.

Locality NASB-Archy-2 extends for approximately 2,000 feet along the western shore of Harpswell Cove and possibly for a similar distance along the eastern shore of the cove. This locality consists of scattered remnants of dikes, which were constructed across the mouths of several small embayments and along the sinuous channel near the mouth of Mere Brook. These dikes range in height from one to seven feet above the surrounding salt marsh. The dike segments have artificially straight alignments and lack the sinuosity of most natural shoreline features. Where erosion has exposed dike sections, they appear to be constructed of salt marsh silts and mucks, though no borrow areas or ditches could be located. The artificial character of most dikes on Harpswell Cove was readily apparent, but several linear features located near the upper end of the survey area in the vicinity of Buildings 543 and 544 (magazines) could not be positively identified as artificial features. The positions and cruder characteristics of these raised embankments suggested that they might be thrust features created by marine ice grinding against the banks of the tidal stream in winter.

In addition to identifying the size and plan, the survey found one wooden box culvert in the middle of a low dike in this locality feature. This feature is located approximately on the western shore of the cove about 850 feet northeast of the NASB boundary line; its position can be

more precisely described as 1,030 feet from NASB Boundary Monument 71 on a bearing of 70°30'. The feature was constructed of approximately 1-inch-thick, 14.5-inch-wide planks of wood to form a culvert with a square cross section measuring approximately 11.5 inches (interior dimensions). Two sections of the culvert, measuring 12 and 15 feet in length, respectively, were preserved. The two sections were separated by a gap of 10 feet. A spillway of loose cobbles had been placed below the mouth of the culvert. Combined with the low dike, the culvert apparently served to control the rate of drainage from the salt marsh after each high tide, possibly to counteract the effects of fresh water from a small stream located at the head of the embayment on which the dike and culvert were located. No valve mechanisms were evident, however, so the culvert was apparently a low-maintenance control device.

The dikes are undated and might be of any age from mid-eighteenth century to early twentieth century. They were intended to enhance the production or harvesting of salt hay, a valuable coastal agricultural commodity on the Atlantic coast until the mid-twentieth century. Dikes similar to those at NASB are found along many portions of the New England, Mid-Atlantic, and Southeastern coasts.

Outlying Facilities, Brunswick-Topsham Area

McKeen Street Housing Complex

The McKeen Street complex is situated on the same sandy outwash plain as the greater part of the main station (see Figure 2). The terrain is nearly level and stands at an elevation of about 80 feet amsl. The annex is located at a substantial distance from the Androscoggin River, which is 4,500 feet to the north. One minor drainage crosses the southwestern quadrant of the annex. Within the annex, the course of this unnamed stream has been relocated to an underground culvert. Where it emerges from the culvert near the southern edge of the complex, the stream flows in a narrow channel incised 5 to 10 feet into the outwash plain. It is apparently a seasonal tributary of Mere Brook.

The annex consists of 231 units of Capehart housing densely arranged in a suburban-style development of 70 acres. The housing consists of detached single-family and duplex dwellings located on a winding pattern of streets. Construction of these dwellings, which took place around 1960, involved extensive land modification over substantial portions of the facility. Land modification appears to have included site grading, excavation of foundations, construction of roads, and installation of utilities.

East Brunswick Remote Radio Transmitter Site

The East Brunswick Radio Transmitter site is situated on the same sandy outwash plain as the greater part of the main station (see Figure 2). The terrain is nearly level and stands at an elevation of about 35 feet amsl. It is located approximately 4,000 feet southeast of the Androscoggin River. The facility is no longer operational, and the transmitter towers that once

stood there have been removed. Two poured concrete buildings, which once housed electrical equipment and facility operations, stand stripped and abandoned at the center of the property. The site is a dry heath of bayberry, blueberry, bearberry, and other xerophytic northeastern coastal plants. Numerous paths and tracks cross the heath. Some represent former service roads to the antenna array, while others are the product of trespassing dirt-bikers, who ride and race on the site several times a week. The northwestern and northeastern edges of the property are covered in pine and oak woods. Beyond the northeastern edge of the property and along portions of the southeastern edge, are a series of abandoned gravel pits, now partially flooded by groundwater. Also along the southeastern edge is a powerline corridor.

During the Phase IA reconnaissance, approximately 2.5 miles of paths and tracks were included in a walkover at the facility. Foot and machine traffic have killed the heath plants along the paths, exposing the bare ground below. Surface inspection of a selection of these paths yielded no artifacts of pre-Navy age (1957). Only a very light scatter of modern artifacts was noted, including soda bottles, beer cans, tires, and pieces of automotive rear-lamp reflectors.

Topsham Annex

The Topsham Annex occupies 130 acres about 1.5 miles north of the Androscoggin River (see Figure 2). The terrain is hilly. Like the bedrock ridges of the main station, the terrain of the annex owes its character to the topography of the underlying bedrock. Mount Ararat, the hill that dominates the annex, rises substantially higher than the ridges at the main station, reaching an elevation of 242 feet amsl. Although this elevation marks the highest point at the annex, most areas are considerably lower, ranging from 170 to 110 feet amsl. Overall, the main portion of the station slopes from southeast to northwest. Although of gentler slope and lower elevation than the highest part of the facility, the main section is still underlain by sloping bedrock covered by a thin veneer of till and Presumpscot Formation silts and clays. The annex is situated about one mile northwest of the Topsham portion of the sandy outwash plain that extensively covers Brunswick and underlies much of the main station.

Mount Ararat was formerly the location of several feldspar quarries, which produced raw materials used in radio equipment of the Second World War era. Several quarries can be found easily on the slopes of Mount Ararat, but none extends onto Navy property.

The Topsham Annex was built as an Air Force radar facility in 1956-1957. The tract included a narrow corridor of land that extended from the main part of the facility near the base of the hill to the top of Mount Ararat. Radomes were situated on the crest of the hill, and a radio transmitter building was constructed on a graded pad about halfway down the hill. An all-weather road extended in a straight line from the main portion of the facility to the radomes on top.

The main portion of the facility consists of a cluster of duplex houses located on steeply sloping ground along the facility's western edge, with a set of low buildings of varying size and function in the western half. These two areas are separated by a steep slope and level, graded athletic fields. Housing units consist of detached duplexes located on several curving, suburban-

like streets. Construction of the housing units involved considerable grading and ground disturbance to establish level foundations for the individual buildings and their surrounding yards. Owing to the general slope of the property, construction of the administration and operations buildings to the west also involved modification of the local grade, but present terrain features suggest that ground disturbance was probably less extensive outside the building footprints than is characteristic of the housing area. Several drainage ditches are located in the western part of the facility, and there are also reed and cattail wetlands in several places. These features indicate that the western part of the facility is rather poorly drained.

Outlying Facility, SERE School, Redington, Maine

The SERE School occupies 12,468 acres in Redington Township, Franklin County (see Figure 1). The facility encompasses an approximately six-mile section of an east-west–trending valley. It extends to the nearest mountain crests, situated roughly two miles north and south of the valley floor. These mountain crests approximately demarcate the limits of the Navy's property (see Figure 4). The area is remote. The only developed portions are an abandoned railroad depot-logging settlement and sporting camp known as Redington Village, situated on the floor of the valley, and the public works and training buildings of the SERE School, situated on the northern mountain slopes above the valley.

The valley at the SERE School separates the cluster of peaks around Saddleback Mountain (4,116 feet amsl), four miles to the southwest, from those around Sugarloaf Mountain (4,237 feet amsl), seven miles to the northeast. Elevations on the valley floor range from 1,535 feet amsl at the western boundary of the facility to 1,475 feet amsl at its southern boundary (the easterly end of the valley at the facility). In longitudinal profile, however, the valley floor climbs to a crest elevation of 1,674 feet amsl within the Navy's property. This crest, located about 0.75 miles west of Redington Village, is a drainage divide. Areas to the east of the divide drain into Orbeton Stream, while those to the west drain into Redington Stream. Both of these streams are within the Kennebec River drainage, but the waters of Redington Stream reach the Kennebec via the Dead River, located north of Redington, while those of Orbeton Stream flow directly south-southeast, reaching the Kennebec via the Sandy River.

To the north of the valley floor, the mountain slopes climb to elevations of about 3,100 to 3,700 feet amsl. Named peaks within or adjoining the Navy's property include the Redington Pond Range on the northeast, Potato Nubble on the west, and Poplar Ridge and Saddleback Junior on the south.

The terrain of the SERE School is thus quite rugged. The mountain slopes typically have gradients of between 15 and 30 percent. However, they range from occasional, nearly level benches to steep, almost vertical rock faces. (The location of the SERE School's public works area and resistance training laboratory, situated at an elevation of about 2,450 feet amsl, is one of the more gently sloping portions of the mountain flanks.) The mountain slopes are covered with bouldery till and thin soil. Outcrops of granitic bedrock are also common. There are numerous springs on the slopes, which create broad patches of damp ground. Where such ground is level

or gently sloping, and along relatively gentle pitches of mountain brooks, beaver dams and lodges are common.

In contrast to the steep mountain slopes, much of the valley floor slopes gently. From Redington Pond westward, the floor is generally around 1,500 feet wide; the eastern portion of the valley is much narrower and slopes more steeply. The floor is occupied by streams, wetlands, and the artificially created Redington Pond. Low sandy ridges of glacial outwash material (kames and eskers) are strung along the valley. These ridges are narrow, steep-sided features that rise as much as 60 feet above the floor. A gravel road located on the valley floor marks the former rail bed of the Sandy River & Rangeley Lakes Railroad (the former Phillips & Rangeley Railroad), abandoned in the 1930s.

In addition to making observations on soils, drainage, and topography at the SERE School, the Phase IA reconnaissance recorded two localities of possible archaeological interest. Locality NASB-Archy-4 comprises the archaeological deposits and structural foundations around Redington Village. Today the village consists of five run-down wood frame buildings, but historical maps and photographs indicate that additional buildings once stood in the area. The buildings are in a clearing measuring approximately 150x400 feet. In the woods around the clearing there are several dumps of late nineteenth- and early twentieth-century debris. Materials in these dumps include glass bottles, metal machine parts, and various types of domestic refuse. There are also building foundations and the remains of a small dam, which may have supplied the village with drinking water. Several depressions and rectangular features were noted in the clearing. According to the civilian maintenance supervisor at the SERE School, among other buildings that formerly stood at the village was a hotel, no longer extant (Carl Whitman, personal communication, May 1995). Although these remains are comparatively recent, they may be of archaeological interest because they comprise the only fixed settlement of the area prior to the establishment of the Navy facilities.

Locality NASB-Archy-5 comprises the remains of a dam on the eastern end of Redington Pond. A long section of the dam has been washed away, and an impressive cobble and boulder bar just downstream suggests that the dam may have failed catastrophically. The pond appears to have originally been a marshy stretch, possibly with one or more pools of open water, along Orbeton Stream. The dam was constructed to flood the low-lying stream banks and create a pond, which was used as a storage area for logs sluiced down from the surrounding slopes. From the pond, the logs were mechanically loaded onto railroad cars via a conveyor system of some type (Carl Whitman, personal communication, May 1995). A sloping platform (possibly a sluice or spillway) was located on the northern side of the dam, on the side of the pond distant from the rail line, so it is conceivable that the pond may also have been used to yard logs prior to driving them down Orbeton Stream. The dam appears to have been an earth and boulder structure built on a wooden cribwork foundation. The original height of cribwork, which is preserved to a height of three or four courses, is unknown. It is possible that the cribwork was filled with cobbles and boulders and served as the core of the dam, with ramparts of impermeable silts and clays comprising an outer layer and the exterior facing of the dam. The dam purportedly raised the pond to a level of 21 feet, though the remaining wingwalls of the dam suggest a somewhat lower elevation. The exact age of the dam is unknown, but it probably dates to circa 1880 to 1900.

Results of Architectural Resources Survey

Introduction

NASB today is composed of the main station and several outlying facilities or annexes. The latter include the East Brunswick Remote Radio Transmitter Site, the Topsham Annex, the McKeen Street Housing Complex, and the SERE School. Except for the SERE School, which is located some 90 miles distant, near Rangeley, Maine, all of the outlying facilities are located in and around the Town of Brunswick (see Figure 1).[1] Accordingly, the discussion of architectural resources is dictated by the facts of geographical separation as well as by the historical development of the air station. Therefore, this section first addresses the built environment and architectural resources of the main station, and is followed by discussions of architectural resources associated with the outlying, or off-station, facilities, which were all established after the main station.

The main part of the naval air station covers approximately 3,026 acres, including the North Clear Zone on the north side of Route 24 (see Figure 2). Situated on this entire acreage are 311 buildings and structures relating to the activities of the installation since 1942. The spatial organization of the main station corresponds for the most part to its functional organization. The grouping of its principal activities is related both directly and indirectly to the mission.

The primary mission of NASB is to serve as a land base for squadrons of patrol aircraft engaged in antisubmarine warfare, antisurface-ship warfare, sea search and rescue, mining, and general maritime patrol. The secondary mission of NASB is to serve as a land base for the operational training of personnel in duties relating to any of the above activities, as well as support activities such as aircraft maintenance. In addition to these two missions, other principal activities of NASB relate to the storage, maintenance, and handling of ordnance in support of the patrol mission; to the operation and maintenance of the communications system in support of the patrol mission; and to the administration of the air station as a *base*.

The main activity areas on the air station are administration/community (including infrastructure), operations/communications, ordnance, residential, and recreation (see Figure 13). The operations/communications areas are most closely associated with the patrol mission. No single area of the air station can be identified with the training mission because training occurs across the installation in mission- and nonmission-related activities.

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[1] Rake stations at Small Point and Sabino Hill in Sagadahoc County have been excluded from the scope of work for this project, and although they are technically associated with NASB, they are not addressed in this report.

Built Environment - Spatial Organization

The overall built environment of the main station is characterized by broad, level expanses of concrete or asphalt pavement, and grassy areas among low buildings. Most buildings are one

TABLE 1

NAVAL AIR STATION BRUNSWICK
SUMMARY OF BUILDINGS BY FACILITY*

NAME OF FACILITY	NUMBER OF BUILDINGS
Main Station	311
East Brunswick	2
Topsham Annex	70
McKeen Street	187
SERE School	46
TOTAL	616

*Resource count at date of survey

or two stories high. Only a few are taller, such as the three-story barracks and the hangars and control tower on the flightline. A few trees dot the historical core area and the whole is hemmed eventually by trees or forest, although well away from the operations area. The low buildings and the sparseness of trees are to be expected of an active airfield where actual and navigational obstructions must be kept to a minimum.

The highest density of buildings occurs in the historical core of the station, developed first during World War II and again in the 1950s, in what is roughly the northeast quadrant of the air station (see Figure 13). Buildings relating to operations, base administration, and public works were originally concentrated in this area, which still functions as the administrative nucleus of the entire NASB. The World War II construction was predicated upon the location of two runways built when a municipal airfield was established here circa 1935. The Navy organized its buildings in a square-shaped area immediately southeast of the intersection of the two runways, with streets laid on a grid pattern. Lettered streets (A, B, C, etc.) ran northeast-southwest, and numbered streets ran northwest-southeast (see Figure 12). The lettered streets have since been renamed, but the pattern remains the same.

The Navy may have opted to build on the east side of the existing airstrips because of that side's more even terrain (relative to the west side) and therefore, presumably, a more easily constructed spur line from the Maine Central Railroad. Fuel storage and the supply department were then located along the spur track. After rail service was discontinued in the 1970s, it was no longer necessary to store fuel near the tracks. Within the last two years NASB has moved the

fuel farm to a new location on the abandoned Runway 9-27, north of the former fuel site and farther away from more peopled areas.

The principal traffic artery, Fitch Avenue (formerly Avenue C), extends northeast and then northward from the nucleus of the station to join Bath Road (Route 24), which originally bounded the north side of the property. Via Fitch Avenue, virtually all traffic in and out of the air station funnels through the main gate located at the northeastern corner of the air station, on Bath Road just east of Cooks Corner Shopping Center.

Following the reactivation of the air station in 1951, the Navy acquired new property east, south, and southwest of the original World War II base. Residential development along Fitch Avenue, initiated with the 1943 construction of senior officers' quarters (A and B), was expanded in the mid-1950s and ultimately resulted in the construction of Brunswick Gardens in the eastern corner of the present station. The original development consisted of married enlisted men's quarters, but was expanded again circa 1960 by housing for married officers. Around 1953, the Navy constructed more housing immediately south of the original core of the station in the form of barracks for unmarried personnel (see Figure 13).

West of the core area, and occupying the center of the Navy property, are two 8,000-foot, north-south runways built between 1951 and 1953. A transverse 6,000-foot runway (Runway 9-27), constructed in 1943 but now abandoned, intersects them at the north end. Taxiways join the principal runways in four places, and a taxiway parallels them east of the inboard runway. The taxiways ultimately connect the runways to the aircraft parking apron, an expanse of concrete pavement approximately 1,000 feet wide between the runways and five aircraft hangars. Portions of the parking apron date from 1943, but overall, the taxiways and apron date from the 1950s. In addition to the hangars, the control tower and other assorted operations buildings complete this assemblage, collectively referred to as the flightline (see Figure 13).

The southern portion of the flightline and the administrative nucleus, constructed during the 1950s, are clearly distinguishable from the earlier development by their orientation to the new runways, which are aligned closer to a true north-south direction. Further evidence of this is seen in the street pattern. Orion Street, for example, fronts the flightline and shares the same directional alignment, while Neptune Drive and Avenue F run perpendicular to the flightline and end at Orion Street.

The western section of the main station, west of the runways, is given over to remnants of the World War II ordnance magazines, the present-day ordnance loading pad (built in 1983), various communications facilities dating from the 1950s through the 1980s, and, in the northwest corner, a physical training ground and a police dog training ground, both constructed since the 1950s. The entire area is wooded generally to the limits of the Clear Zone, and strung through with serpentine roads that either were built by the Navy or are historical roads since altered by the Navy.

Southwest of the principal runways lies the station's nine-hole golf course, constructed circa 1955. The course stretches along Middle Bay Road, from Dyer's Gate at the southwest

corner of the Navy property to the weapons area. What appears to be a nineteenth-century mill dam and pond between Middle Bay and Merriconeag roads now form the central water feature of the golf course. This area and much of the current weapons area were acquired between 1951 and 1958, and were intended to function as buffer zones around the ordnance facilities. Throughout the air station, recreation areas have been placed in peripheral locations unused for other, higher-priority activities. Playing fields, a batting cage, and the Enlisted Personnel Club (Nite Flite, Building 516) are located between the administrative and weapons areas, for example. Even the Officers' Club (Orion's Landing, Building 38) is located on the periphery of the core area (see Figure 13).

The weapons area occupies the southernmost section of the main station. It is bounded to the east by Buttermilk Cove, and to the north and west by the New Gurnet and Merriconeag roads. The southern boundary curves from Buttermilk Cove to Harpswell Cove and north toward Merriconeag Road. The magazines are connected by a loop road and located near the center of this bulb-shaped area, while the more actively used part of the weapons area, the mine and torpedo shops, are located just east of the south end of the runways. Except for the open areas immediately surrounding the magazines and the ordnance disposal site (near Princes Point Road), the weapons area is wooded. The built environment here consists largely of earth-covered magazines, the asphalt-covered loop road, and wire security fences placed around the whole area (see Figure 13).

Rounding out the air station, Naval Mobile Construction Battalion 27 (the Seabees) operates from an area on the northern edge of the air station, north of the station nucleus, and east of the runway clear zone. The New England regional administrative and operational headquarters for this reservist unit are located in this section of NASB. The Seabees have little to do with the day-to-day functioning of the air station and are rarely involved in construction projects on the installation.

Built Environment - Transportation

The transportation network on NASB, as discussed above, consists of new roads constructed by the Navy since 1942 combined with portions of the historical roads in existence when the Navy acquired this land, and a spur of the Maine Central Railroad. The overall pattern of roads (and railroad) on the air station resembles the patterns of the surrounding landscape in that the roads are mostly curvilinear and are not oriented toward the cardinal directions. The only area of uniformly straight roadways occurs within the administrative nucleus. Tracing the boundaries of the main station, the Perimeter Road, which conforms to the contours of the property, is alternately curving and straight.

Historical road segments on the air station today include Old Gurnet Road, Merriconeag Road, Middle Bay Road, Princes Point Road, and Board Road. According to general plans drawn in 1942 (on file in the Public Works Office), other historical road segments present when the Navy acquired this property were the Old Bath Road and discontinuous sections of the "Toby Turnpike." Present-day Bath Road (Route 24), as it runs north of the air station, was formerly U.S. Route 1

and was in place when the Navy acquired the airfield. In 1943 the Old Bath Road generally paralleled the new road, meandering across the northern section of the new air station. One of the airfield's circa-1935 runways terminated at the Old Bath Road, but when the Navy developed the property during the course of World War II, this road was obliterated. Similarly, there is now no visible evidence of the Toby Turnpike.

When the Navy extended the old north-south runway in 1943, Old Gurnet Road was detoured around its southern end. In 1951 and 1952, Old Gurnet Road was completely severed by the construction of the present runways; however, fragments of Old Gurnet Road are still in use on either side of the runway clear zone. New Gurnet Road may have been built after the Navy runway interrupted the use of the old road during World War II, but it too was severed by the construction of the present runways. The Navy uses the fragments of New Gurnet Road on either side of the clear zone as part of a network of ordnance roads.

Merriconeag Road generally follows its pre-1943 course through the air station until it reaches the golf course. It formerly continued on in a southwesterly direction, but now terminates as a vehicular throughway at the golf course. Air station traffic on Merriconeag Road now curves to the west and follows Middle Bay Road toward Dyers Gate. Princes Point Road extends south from New Gurnet Road and does not appear to have been altered since it was acquired in the late 1950s, though it is now little used.

Board Road extends southeast from Fitch Avenue and also appears unaltered, except where Route 24 south from Cooks Corner intersects it. Route 24, as it runs along the eastern edge of the air station, probably dates from the early 1950s. Brunswick Gardens was built "along the new Route 24 to Gurnet" in 1954 (PHS Vertical File: Brunswick Naval Air Station folder, "Contracts in View for Navy Housing," n.p., July 16, 1953).

The naval air station gained access to the railroad network via a spur from the Maine Central Railroad line that parallels Bath Road north of the Navy property. A spur along Fitch Avenue was laid from the main line into the supply department area of the station's nucleus in 1943. When the Navy began developing the new weapons area in the mid-to-late 1950s, this spur was forked near Forrestal Drive and extended south into the weapons area, to a loading area well distant from the magazines and shops. Rails on both portions of the spur line were removed circa 1978, except for a section immediately adjacent to the supply department (NASB, Public Works Office data files). The bed of the 1943 spur has since been paved with asphalt and serves as a recreational bike path. The bed of the weapons area track north of Old Gurnet Road has been leveled, and a portion of the alignment recycled into a path used for running or walking.

World War II-Era Resources

Approximately 50 architectural resources over 50 years of age remain on NASB. Except for Quarters D, built in 1925 and acquired with the property, all of these buildings were erected in the period 1942 to 1949. Buildings of this vintage constitute less than half of the total buildings recorded on the main station. Most of the World War II-era buildings are concentrated in the

historical core of the main station, on and around the flightline. Exceptions include the ammunitions magazines located on the west side of the runways and in the weapons area, and a radio transmission building (Building 35) on Neptune Drive. Except for the magazines, all the extant buildings from this period are of wood frame, concrete or concrete block construction, the larger buildings having a concrete or concrete block foundation and wooden interior support posts resting on concrete piers.

Whether built of wood or concrete, the prevailing design among the World War II buildings at NASB is a basic block, either rectangular or square, with a virtually flat roof and overhang. The roofs of the larger structures are so slightly gabled that they initially appear to be flat, and the smaller structures generally have gently pitched shed roofs. Roofs are covered with either asphalt roll roofing or tar and gravel, both of which roof covering types were probably used during the wartime period. The rectangular or square-shaped block form capped by a virtually flat roof and overhang is highly typical of naval base architecture built around the globe during the war (U.S. Navy, Bureau of Yards and Docks 1947). The same block form and roof style, though executed in different materials, can be found on naval installations in the South Pacific as well as in continental North America.

The fact that so many of Brunswick's buildings were built of wood or concrete is probably due to several factors, not least of which was this air station's position as a satellite to the major air station at Quonset Point, Rhode Island. By late 1942, steel was scarce and deemed too precious to be employed in buildings at Brunswick. Moreover, wood and concrete block construction required fewer skilled laborers. Most of the local skilled laborers probably would have worked in the region's shipbuilding and manufacturing centers. Also, naval installations in Maine experienced harsher winter weather than installations in most other parts of the country, and wooden and concrete buildings retain heat better than do metal ones, such as Quonset huts. Although wood was plentiful in Maine, and both lumber and concrete were easily shipped to the installation via the Maine Central Railroad, seasoned lumber was evidently in short supply by the end of 1942, because Hangars 1, 2, and 3 were all built of green lumber and their wooden structural members later would require repair.

In contrast to the presumed accommodation of local climatic conditions suggested by the prevalence of wood and concrete construction, the flat roof style employed by the Navy at Brunswick was a characteristic of the Navy's standard-plan architecture rather than an adaptation to the local environment. This roof type is not an optimal design in Maine, where snow loads, ice dams, and puddling rain can wreak havoc on buildings with pitchless roofs. Water damage caused the roof collapse of the World War II-era gymnasium at NASB in 1978 (James 1995a; Wyman 1995), formerly located on the site of the present P-3 Orion airplane display.

Many of the World War II buildings at NASB received only the barest of exterior siding during the war years. Although the plans for many of the original buildings specify cement-asbestos siding, most actually were clad only in asphalt roll roofing held in place by wood battens. Physical evidence of this can be seen on a number of the extant buildings of the period, as well as in existing photographs (NAHC Archives Box 708; NASB 1946:9-12). Windows originally were double-hung wood sash or multipane steel sash casement.

Changes made to the installation's buildings from the time of their construction to the air station's reactivation in 1951 were probably minimal. Between World War II and 1951, NASB was used on a limited basis by Bowdoin College and the University of Maine Extension for student housing, although it is not clear which buildings were used. For a time, Hangar 1 served as an indoor parking area for Bowdoin College students, and it also functioned as an indoor skating rink in the winter (NAHC Archives Box 708). According to one source, another hangar was used for the cultivation of mushrooms by Bowdoin College (NASB 1952). However, *Naval Aviation News* (NAHC Archives Box 708) states that the mushroom growing took place in the former weapons storage areas at the south end of the airfield, which makes more sense because the microenvironment of the magazines would have been more conducive to mushroom cultivation. In 1949, the Brunswick Flying Service took over the airstrips, one hangar, and the control tower (*Naval Aviation News* 1959:15). The Flying Service operated a flight school out of these buildings until the spring of 1951 (PHS Vertical File: Brunswick Naval Air Station folder), but it is likely that no significant modification of the structures occurred.

The only new construction at NASB between 1946 and 1951 consisted of Buildings 592 and 594, both finished in 1950. Building 592 currently houses the telephone exchange, and evidently has done so since construction. Building 594 is a communications building (discussed below) originally built as part of the Brunswick Air Force Station, a radar facility that operated at NASB from circa 1950 until the mid-1960s.

Beginning in mid-1951, however, the transformation of the air station into a master jet base resulted in a spate of alterations to many of the World War II structures. Buildings were typically enlarged in some fashion or were moved to make room for new buildings. Many buildings received more substantial exterior siding, usually fiberboard or corrugated steel, to replace the original, more temporary asphalt and batten treatments.

Several of the most-used buildings underwent extensive alterations in the 1950s and 1960s, but major renovations to World War II buildings at NASB accelerated and were more widespread during the 1970s and 1980s. These renovations generally included siding reapplication with aluminum, corrugated steel, or vinyl material. Later modifications, especially after 1980, usually involved stucco finishes. Replacement of existing windows, with either aluminum sash or vinyl clad wood windows, was nearly universal across the main station, and many windows were eliminated altogether.

Patrol Mission

Buildings most closely associated with the air station's primary wartime mission, patrol, were the aircraft hangars, control tower, communications buildings, and other, more administrative operations buildings. Of these, only four (Hangars 1, 2, and 3, and radio transmitter Building 35) currently remain at NASB. The hangars are clearly recognizable as a function-specific type of architecture. No other buildings on the air station exhibit the height, roofline, clear interior space, and massive sliding doors at each end that denote an aircraft hangar.

Serving as a shelter for aircraft undergoing repair, Hangars 1, 2, and 3 lie at the eastern edge of the flightline, forming the border between the aircraft parking apron and the administrative center of the base. Hangars 2 and 3 are situated on the north side of the flightline because of operations activity formerly associated with Runway 9-27 (the transverse runway, now abandoned). The focal area of operations is currently on the west side of the flightline, and the north side is relatively unused except for hobbyists and visiting military aircraft.

Completed in late 1942 and early 1943, Hangars 1, 2, and 3 have large triple 8x12-inch columns set on concrete footings which support wooden trusses spanning 120 feet. These trusses are made of top and bottom chords, each with four 4x12-inch beams. The chords are connected by wooden vertical posts and diagonal struts. At their peak the roof trusses measure 13 feet from bottom to top, being only one foot higher than the truss ends, which are 12 feet from bottom to top (NASB 1942-1995: [unnumbered drawing], March 9, 1967). This nearly flat gabled roof reaffirms the typical roof style of NASB buildings from this period as identical in design, materials, and construction.

Early World War II photographs indicate that the hangars were sheathed in asphalt roll roofing and wood battens, and roofed with either asphalt roll roofing or tar and gravel (NAHC Archives Box 708). The hangars' original windows were both large 2/2-pane wood double-hung sash, and fixed two-pane windows. The windows were installed in three continuous bands on each lean-to side of the hangars (NASB 1942-1995: Drawings 207434 and 207435, June 17, 1942; PHS photograph No. 1990.156.1350). Originally, each hangar was approximately 160 feet wide and 200 feet deep, and had a wood frame superstructure. During the 1950s, when NASB was reactivated, the hangars were enlarged with steel to accommodate jet aircraft. Further changes were made in 1971, to prepare the hangars for the arrival of P3B Orions (NAHC Archives Box 708, *The Patroller* June 26, 1971). The majority of these alterations were made to Hangars 1 and 2.

The changes made to Hangar 1 exemplify the most recent trends in building renovations at the station. The current appearance of Hangar 1 bears little resemblance to its historic appearance. The structure has a concrete block foundation four feet in height and is covered with stucco, and it has vertical aluminum-sided walls. It has a variety of 1/1 aluminum sash, and three-pane vertical casement windows. All the interior walls, windows, and doors are replacements of recent manufacture. The only visible remnants of the original construction of Hangar 1 are the wooden frame trusses, which have been reinforced in many places with built-up plywood beams. Similar, though less radical changes have been made to Hangars 2 and 3.

The only other extant World War II-era building with a more or less direct relationship to the patrol mission is Building 35, originally a radio transmitter building, located on Neptune Drive. This tall one-story building is yet another example of the flat-topped rectangular block with overhanging eaves, in this case executed in concrete block. Building 35, while typical of the predominant architectural style of wartime construction at NASB, exhibits a few function-specific characteristics that identify it as a communications facility and that are similar to the Navy's radio communications buildings of the early Cold War period. First, the transmitter building was well removed from the main activity areas of the air station, and therefore well away from electrical

disturbance. Second, the building is tall but contains only one floor level, and is virtually windowless. Third, it is constructed of concrete block, and concrete later would become the preferred material for radio facilities.

Training Mission

Only one of the extant World War II buildings on the air station today, Building 41, was devoted solely to the training mission. Building 41 exhibits the same trends in modifications as the hangars. Designed as the Ground Training and Parachute Loft building, it was originally clad with asphalt paper and battens (PHS photograph No. 1990.156.1048). At some point during the war the building was sided with asbestos shingles (NASB 1946:11). A small amount of fiberboard-composition beveled siding remains on the building, beginning at the concrete block foundation and rising to a height of approximately five feet, above which the remainder of the exterior is covered with recently added plywood siding. The original openings consisted of bands of 6/6-light double-hung wooden windows — typical of classroom buildings — and a pair of six-light over two-panel doors with a large 12-light transom overhead. Currently all windows are aluminum sash, probably installed in the 1970s.

Administration and Support Facilities

The remainder of the extant World War II-period buildings consist of a variety of administrative and support facilities. Nearly all of the buildings follow the same general pattern of development as those discussed thus far, although some were not altered significantly until the 1980s. For example, the main administration building (Building 4) was originally clad in asphalt and batten siding, and had paired 6/6-light double-hung wood sash windows (NASB 1942-1995: Drawing 232760, November 11, 1942; NASB 1946:9). In 1986, Building 4 was remodeled inside and out, and is now sided with stucco. The 6/6 double-hung windows have been replaced with single-pane vertical casements having two-inch aluminum surrounds (NASB 1942-1995: Drawing 2065937, ca. 1986). The building does, however, retain the definitive rectangular block form and flat roofline, *sans* overhanging eaves, of the World War II type. Building 4 houses the current base commander's office and other key administrative offices, such as public relations. The mounted guns and flagpole in front of the main entrance (eastern elevation) were installed by 1945, and signify the continued prominence of Building 4 on the air station.

Supply and storage buildings were all situated adjacent to the station's railroad line in order to facilitate loading and unloading of freight. A small section of the track still exists adjacent to Buildings 12, 13, 15, and 16. These buildings were originally plain concrete block, or block foundation and frame structures with concrete loading ramps on each side parallel to the railroad tracks. Buildings 15 and 16 were originally one-story structures of similar design. Building 12 differed from these in that it had a second-story mezzanine. The roofs of all four storage buildings are characteristically flat gabled, and extend to cover the concrete platforms on the both sides. Various additions and changes consistent with the general patterns of alterations for other World War II-period structures have been performed on all of these buildings.

Although most of the buildings from the World War II period have been greatly modified, a few have survived nearly intact. These are mostly small public works storage buildings. Buildings 73 and 94 are identical in design and materials. They are both square one-story concrete block buildings with concrete shed roofs that have overhangs of about one foot. The northwest elevations of both buildings have what appear to be original steel doors, and the northeast elevation of each has one louvered vent. Building 75 is similar to Buildings 73 and 94, but is larger, with double steel doors on its northwest elevation. Each door has three vertical glass windows. To the left of these doors are a set of steel sash eight-pane double casement windows. The roof's front, or northwest, elevation has an overhang nearly four feet wide. The northeast elevation has a 32-pane steel sash window with central operating casements.

Building 42, the pumphouse, is quite different from other World War II structures at NASB. It is a square one-story, brick building with a concrete shed roof. A double steel entrance door is centered in its northwest elevation. The building is the pumphouse for an earth-covered water reservoir which abuts its northeast elevation.

Among the most intact World War II structures at NASB are several associated with ordnance. Building 52 evidently has been used for the storage of inert materials since its construction in 1943. This simple wood frame gabled building is located across from the flightline (Hangar 5), and it appears to retain integrity of design and materials. Building 52 consists of 6x2 bays on a rectangular plan, with a symmetrical main (western) elevation in which two loading bays provide access to the building's interior from a concrete loading dock. The building appears to be typical of Navy storage buildings built during this period, with its corrugated sheet metal siding and roof, and the small rectangular three-light fixed windows set high in its walls. Building 52 may have been moved slightly from its original location during the reconfiguration of the flightline in the 1950s.

Seven of the 14 earth-covered magazines built at NASB in 1943 are extant today, but only three of these remain on their original locations (Magazines 44, 63, and 64). The remaining four are now located in the weapons area at the main station's south end. All seven magazines are essentially earth-covered Quonset huts on concrete slab foundations, steel versions of the all-concrete "igloo" type of magazine developed in 1928 and adopted by both the Army and the Navy (Goodwin 1994:211).

The semicircular roof on these structures consists of panels of corrugated steel bolted together, and the end walls are of flat sheets of steel bolted in vertical panels. Three sides of each magazine are covered with earth and sod, while the exposed end contains a single central double door entrance. The doors are heavy solid steel affixed to the wall face by thick strap hinges. A line of bolt heads in the exposed end wall reveals the semicircular roof inside. Fifty feet is the standard length of the NASB World War II magazines, and 20 feet the standard width, but Magazine 44 is 25 feet wide. Roof heights are typically seven feet, except for Magazines 44 and 62, which are nine and eight feet high, respectively.

Magazine 44 is situated in the administrative nucleus on Fitch Avenue, north of Building 4. This was a small arms ammunition magazine but it is now virtually unused, serving only to

store miscellaneous supplies for the Weapons Department. Magazines 63 and 64, currently used by the squadrons for storage, are the last of eight high explosives magazines arranged in an arc and connected by Ordnance Road 3 on the west side of the runways. These are identical to Magazine 44 in design and construction, except of course that 44 is wider and taller.

Four of the seven oldest magazines, 59, 60, 62, and 71, have been moved. The first three of these were relocated circa 1952 from the arc arrangement on the west side of the runway. Magazine 71 was originally located on the site of the present Hangar 5, and may have been moved to the weapons area circa 1967 (NASB 1942-1995: Drawing 1030, April 7, 1967). Magazines 59, 60, and 62 were relocated from Ordnance Road 3, probably circa 1952 during the construction of the second north-south runway. All four magazines are relatively intact in terms of design and materials, but less so than those discussed previously. Instead of the full facade of vertical steel panels, the relocated magazines now have timber and plank wing walls on either side of a reduced facade of steel. These alterations probably were made when the structures were relocated. (Magazines 53 through 58 were removed circa 1952 when the second north-south runway was constructed, but were not relocated.)

Cold War-Era Resources

The main station contains over 260 architectural resources built within the last 50 years. Given that this period spans a greater length of time, and that many more buildings were constructed at NASB during the Cold War period than during World War II, this section addresses architectural resources in a chronological as well as a typological fashion. In general, the architectural history of the main station since 1946 can be divided into four periods that correspond to the installation's development: (1) 1946 through 1950; (2) 1951 through 1961; (3) 1962 through 1979; and (4) 1980 to the present.

Although the Cold War is generally understood among historians to have begun with the formation of the National Security Council in 1947 and to have ended with the fall of the Berlin Wall in 1989, this report has employed the term *Cold War* to refer to architectural resources constructed after World War II and up to the present. So few buildings were erected at NASB during the period 1946-1950 that a separate section devoted to the discussion of these resources is unwarranted. Furthermore, regardless of fundamental changes in world politics since 1989, the mission of the NASB remains essentially unchanged.

The first period coincides with the five-year interregnum (1946-1951), discussed in Previous Research - Background Information above, during which time the air station was downgraded to "Naval Air Facility" and leased to local concerns. Other than the telephone exchange (592) and a communications building (Building 594, discussed below) built in 1950, no new buildings were erected during that period. Several original structures, however, were probably razed or dismantled, sold, and moved in 1945 and 1946 as the Navy mothballed the air station (PHS Vertical File; Rohr 1995a).

The second period (1951-1961) of the air station's architectural history began with the reactivation of the air station as a master jet base in the wake of early Cold War developments. Although the air station was not formally reactivated until December 1951, the Navy initiated this phase in the early spring of 1951, and significant changes to the built environment were made in the six months prior to the reactivation ceremony. The next 10 years were marked by continuous expansion, construction, and reconstruction. It was during this period that NASB achieved its current boundaries, most of its off-station facilities, and much of its present-day appearance.

The first stage of reactivation called for an inventory of all property and a return of the installation to its physical condition of 1946 (PHS Vertical File). Neither of these steps involved new construction, although the utilities for most, if not all, of the original buildings were replaced at this time. Construction on a large scale commenced in June 1951, with the reorientation and lengthening of the runways, and the expansion of the aircraft parking apron and network of taxiways.

In spite of the hiatus in activity following World War II, the Navy maintained a continuity of form and style in buildings at NASB from the 1940s through the early 1960s. The same basic block form and the influence of the International Style (discussed below) predominated. The primary difference between World War II construction and that of the early Cold War era lies in the use of more permanent materials. The period 1951-1961 at NASB was marked by a shift away from wood frame buildings and a greater dependence upon concrete block, reinforced concrete, brick, and steel frame construction. Originally, the exterior finishing on the concrete block structures appears to have been paint, and steel structures were covered with corrugated steel. Many of these were re-sided in the 1970s and 1980s with exterior treatments that provided better insulation.

Construction activity on the main station subsided in the early 1960s, and from then until 1979 few new buildings — and none of great importance — were erected. New construction on the installation was supplemental in nature and consisted largely of community service buildings. Among these were the swimming pool (Building 614), a new chapel (Building 585) on the site of the World War II chapel, and a bowling alley (Building 583). More technical structures were an engine test facility (Building 611) and an aircraft parts storage building (Building 617). The Navy also established a surplus, or disposal, yard around Building 584 (now known as the Defense Reutilization and Marketing Office) in 1965.

A few buildings were constructed in the 1970s, most of which were small metal-clad structures associated with the Seabee Reserve center on the north side of the station. The Advanced Undersea Weapons (AUW) shop (Building 539) in the Weapons Area was nearly doubled in size in the late 1960s. In the early 1970s the Weapons Department reorganized and consolidated its ordnance storage facilities, moving World War II-era Magazines 59 and 62 from the west side of the runways to the loop road in the 1950s weapons area. New steel and concrete storage facilities were constructed near the AUW shop at the same time (Magazines 626-628).

A spurt of renovations in the late 1970s heralded a more intensive construction phase during the years from 1980 to the present. Much of the activity of this period can be attributed

to increases in defense spending during the Reagan administration and to the fact that the 30- and 40-year-old facilities of NASB now required some kind of rehabilitation. Major changes largely consisted of the facelifting of older buildings, the construction of new utilities buildings, the relocation of the fuel farm, and the southward extension of the flightline, namely Hangar 5.

As with the World War II buildings, alterations to the Cold War buildings generally involved the replacement of existing windows with either aluminum sash or vinyl-clad wood windows. Other modifications included re-siding with aluminum, corrugated steel, or vinyl. Renovations to the concrete block structures in the 1980s and 1990s typically have included the application of an Exterior Insulating Finish System which usually consisted of an application of a 2-inch polystyrene insulation covered with a 1-inch stucco, pebble-dash, or DRIVIT finish.

New buildings built between 1980 and the present differ markedly in design and construction from those of the 1940s-1960s era, a difference that is more a result of the changes in building methods throughout the American construction industry over the years than changes in the Navy's building needs. Many of the new structures at NASB, whether large or small, are one-story metal-clad shells on a concrete pad, with a gable roof also covered in sheet metal. These may be of single-wall construction (as for simple storage structures) or of insulated double-wall construction (as for workshops and other buildings where people work). The other basic building type of this period consists of a square- or rectangular-shaped concrete block building, usually faced with textured masonry, stucco, or pebble-dash. Low parapet walls, capped with sheet metal copings flush against the wall, often hide the roofs of these buildings.

Fenestration patterns in both basic types vary according to the building's function. Buildings such as the filling station (Building 117) and assorted guardhouses tend to have windows all around. Storage buildings, on the other hand, may have no windows. In general, the post-1980 buildings are characterized by broad expanses of featureless wall surface pierced by few windows. When windows are present, they tend to be small and occur singly or in long rows. The windows themselves vary from fixed single-pane aluminum sash to 1/1-light, single- or double-hung, vinyl sash. Single-pane casement windows are also present. Doorways may contain solid metal doors or glass and aluminum sash doors.

Patrol Mission

Buildings most closely associated with the air station's primary Cold War mission, patrol, are the aircraft hangars, control tower, communications buildings, and administrative operations buildings. Of these, Hangars 1, 2, and 3, and the former radio transmitter Building 35 date from the World War II era and are discussed above.

As with the original three hangars, Hangars 250 and 5 are readily distinguishable from other buildings associated with the patrol mission by their very size and height. Unlike Hangars 1, 2, and 3, however, they are less recognizable as a function-specific type of architecture. Their height, rooflines, and clear interior space are typical of aircraft hangars, but their overall architectural design — except when viewed from the west — conveys little that is clearly indicative

of a hangar. They reflect more the construction methods of the period in which they were built than the characteristics of the particular function they serve.

Building 250, also known as Hangar 4, exemplifies the trend toward the use of steel construction for major structures in the 1950s, as well as the changes in design that came with the 1980s. It is composed of 11 steel trusses set 24 feet apart. The trusses are joined by a web of steel cross bracing. The roof and exterior walls of the structure are covered with corrugated metal siding. The gable ends of the structure have six sliding doors, each having a large expanse of steel sash window panes. The southwest elevation faces the flightline. It consists of a three-story rectangular section containing various offices. This section has a reinforced concrete wall to a height of about nine feet, and steel corrugated siding from nine feet high to the roof. The original fenestration consisted of three continuous bands of steel sash windows. In the 1980s these were replaced with the current windows, a combination of vinyl-clad 1/1-light windows and vertical casements. The third-story windows were covered with insulating panels (NASB 1942-1995: Drawing 2036144, February 17, 1979).

At the time of the construction of the original hangar in 1956, it was planned that there would eventually be three sections to the building (NASB 1942-1995: Drawing 627653, September 7, 1954). The second section, the Avionics Shop, is a maintenance building connected to the hangar by an enclosed hallway with a corrugated metal roof. The Avionics Shop section is constructed of concrete block walls and steel roof rafters.

At the front, or northwest, elevation of Building 250 lies the most recent section of the building, built in 1985. This building, typical of construction at NASB during this period, is a two-story concrete block structure with a flat metal truss roof. The front of the building is faced with textured masonry blocks, and a continuous row of six-light aluminum frame windows illuminates its second story.

Building 200, the control tower and operations building, exhibits the trends typical for concrete block buildings constructed in the 1950s. It is a two-story flat-roofed L-shaped structure with a concrete overhang of approximately three feet. The control tower is located near the western corner of the building at the junction of the two arms of the L. The entire building is faced with stucco, and each story has a continuous band of aluminum sash casement windows. The entrance is in the northeast elevation and consists of a pair of large single-pane glass doors. Recently, all original windows and doors have been replaced, and the entire exterior has been resurfaced with stucco.

Other buildings associated with the patrol mission are communications stations — mainly radar and other radio stations — located on the west side of the runways. Notable among these are two groups of two buildings each, Buildings 226 and 227 (built in 1956), and Buildings 517 and 518 (built in 1958). Buildings 227 and 518 are standby generator buildings serving their respective radio buildings. These two groupings are by necessity located some distance apart, but they share similar characteristics. They are all low one-story buildings, constructed entirely of heavy slab concrete, with flat roofs, few if any windows, and distinctive angled soffits. They, and the buildings of the East Brunswick Remote Radio Transmitter Site (Buildings 523 and 524, see

below), are clearly built from standard plans for radio buildings developed by the Navy in the 1950s. Many round holes located just under the eaves were placed to allow cables from the radio antennas surrounding the building to pass inside to the communications equipment.

Training Mission

The only extant building devoted solely to the training mission is Building 224, built in 1954, which originally served as a training building. It is a rectangular 3x18-bay one-and-one-half-story gabled structure on a concrete foundation and sided in vertical steel sheathing. The southwest gable has a large central overhead door opening now filled in with plywood to accommodate a smaller entrance door. This door is centered between two 6/6 fixed-pane steel frame windows. The windows on the southwest and northeast elevations are 6/3 steel paned windows with operating casement upper sash and fixed lower sash. The northwest elevation contains a large sliding door and one smaller entrance door. Building 224 appears to possess integrity of location and design and, in general, integrity of materials and workmanship.

National Defense and Air Force Detachment

The site currently occupied by COMPAT, the headquarters of Patrol Wing 5, was established circa 1950 as a communications center (Building 594) by the Air Force as part of the National Defense Early Warning System. By 1953 the old World War II radio building, Building 35, had been converted to a radio receiving station and connected to this compound by a road (no longer extant). At the same time, a new radio transmitting building (NASB Building 586, no longer extant) was constructed in the open area between Fitch Avenue and Board Road. The Air Force operated this radar facility from circa 1950 until sometime in the mid-1960s as the Brunswick Air Force Station (Green 1994; Jadlowski 1964).

This compound became the headquarters and operations command center for the Navy's Patrol Wing 5 after the Air Force closed its operations at NASB. Except for Building 594, all of the radar domes and assorted buildings associated with the Air Force were removed. Five buildings currently occupy the site, two of which are relatively new utility buildings (Building 43 and LBA-5). A third building, Building 228, is a one-story, textured concrete block gate house built in 1980.

The key structures in this area are the cojoined buildings 87 and 594. Building 87, the larger of the two, houses the COMPAT Headquarters and was completed in 1988. It is a low semisubterranean two-story building, with a concrete lower story and sheet metal-clad upper story. Building 87 has an unusual L-shaped plan, in which the older Building 594 (the original communications center built in 1950) is attached to Building 87 where the two bent-wing arms meet. Building 594 is a large octagonal tower; like the newer building, it is concrete below and sheet metal-clad above. It has a flat roof and exterior stairs that wrap around the building. The overall integrity of Building 594 has been compromised by the attachment of Building 87 and by

removal of the radome that originally surmounted the tower portion. Building 594 appears to be the only architectural remnant of the Air Force's presence on the main section of NASB.

Administration and Support Facilities

Myriad buildings associated with base administration and the support of the air station's two major missions have been built since 1951. Under this general heading, resources may be grouped into the following subcategories: administration, utilities and infrastructure, security, housing and mess, recreation, and community services (such as child care). Over time the support facilities of the base have become more specialized, paralleling the changes in lifestyle and workforce composition in American society at large. Child care, laundry, tailor, car wash, and similar facilities were not part of the base until the last 20 years. Recreation facilities, too, have become more numerous and varied.

As with the hangars, building types among the above-mentioned subcategories generally adhere to the oft-cited "form follows function," yet what is more striking is that the buildings reflect the period in which they were constructed more than other buildings serving the same or a similar purpose. The resemblance is based upon basic building form, construction materials, and design features such as roof style and fenestration pattern. Most of the administration and support buildings are one-story, though of varying heights, and the block form prevails across periods of construction.

The tallest buildings of the support facilities are found in the Bachelor Enlisted Quarters (BEQ) complex located directly opposite Hangar 250 at the southwest corner of the air station's World War II core. The BEQ complex also is the most intact example of 1950s reinforced concrete construction at NASB. Consisting of eight barracks, Buildings 212-220 were designed to be identical to one another and were built from a single standard plan. Each is a three-story structure of poured reinforced concrete, 240 feet long and 38 feet wide, with a flat concrete roof. Basically rectangular, each building has a central staircase shaft on one side and one at each end. Original windows consisted mainly of sets of four-pane vertical metal sashes, of which the center two sashes were operational. Other windows included both single three- and four-pane metal sash windows. The two buildings that are most visible from Orion Street, Buildings 212 and 216, retain these original windows. Sometime after 1978, all other barracks were refitted with new aluminum sash double-hung and single-pane windows constructed specifically to fit in the existing openings (NASB 1942-1995: Drawing 2034913, December 13, 1978). Interior walls still retain original glazed tiles.

Accompanying the barracks, Building 211 (also known as Neptune Hall) was originally the subsistence building for the complex. The barracks and Building 211 were designed as a functional unit, and were interconnected by enclosed walkways. Building 211 is a complex structure consisting of a core mess hall with various other elements. The core of the building consists of a large banquet hall with a roof supported by large arched laminated wood beams. The original front entrance, at the southeast elevation, is a concrete foyer with a central entrance consisting of six aluminum frame doors with large single glass panes. The concrete steps and

stoop that lead to these doors are blocked by recently planted shrubs. The gable ends of the main hall have a large expanse of windows consisting of five bays, each having nine panes set in a steel sash. The northwest section of Building 211 houses the kitchen facilities and cafeteria serving area. Although it contains a wide variety of materials and styles and appears to consist of a series of additions, public works files indicate that the building was originally planned as it currently exists (NASB 1942-1995: Drawing 530339, June 6, 1952).

The galley (Building 201), officers' club (Orion's Landing, Building 38), and enlisted personnel club (Nite Flite, Building 516) further illustrate the patterns of construction and alteration at NASB. The brick masonry walls, block forms, and flat or shallow-pitched roof are typical of 1940s-1960s architecture. In all three, the original bands of windows have been partially infilled and replaced with metal frame casements within the last ten years.

The housing shortages that plagued the nation's civilian population after World War II found their counterpart in the military establishment as it entered the Cold War period. To address the problem of military family housing, Congress established the Wherry Housing Program in 1949. Sponsored by Senator Kenneth Wherry of Nebraska, the program provided Federal Housing Authority-insured financing of up to 90 percent to private developers, who built housing on government land, and then owned and managed the units that were leased to military families. The FHA established some general standards to regularize the design of townhouses, duplexes, and single-family dwellings. Under the Wherry program, 84,000 units of housing were constructed between 1950 and 1955 (Keane et al. 1997:24).

The Wherry Housing Program was not an unmitigated success, however, due to shoddy construction practices and poor maintenance on the part of developers. As a remedy, Congress passed the Capehart Housing Act in 1955. Although similar to the Wherry program, the Capehart program provided FHA-insured private financing for 100 percent of construction costs, and required that the completed housing be ceded to the various military services, which then administered the mortgages and management of the developments. Under Capehart, housing units (of which 115,000 were built between 1956 and 1962) were larger and better appointed, and at the same time still further standardized (Keane et al. 1997:24-25).

To meet the housing crisis spawned by NASB's great expansion in the 1950s, the Navy contracted the construction of 283 residential buildings for married enlisted men and officers. The first units, built under the Wherry Housing Act in 1954, are collectively known as Brunswick Gardens, and are located on the main station (Figure 14).

Brunswick Gardens consists of 66 single- and multifamily buildings erected during the summer and fall of 1954. Although not laid out on a strictly rectilinear "gridiron" plan, they are regularly spaced, most arranged along the major streets, named Enterprise, Guadalcanal, and Forrestal Drives. All the buildings are one-story prefabricated frame structures on concrete foundations, now clad in vinyl siding. Roof styles are almost entirely gabled, though a few are hipped, and roofs throughout the complex have asphalt shingles and sheet metal-clad interior chimneys. Windows vary from the standard 1/1-light double-hung sash, to a wide 1/1 sash, to a rectangular awning casement type. Each apartment has a front and a rear entrance, and a small

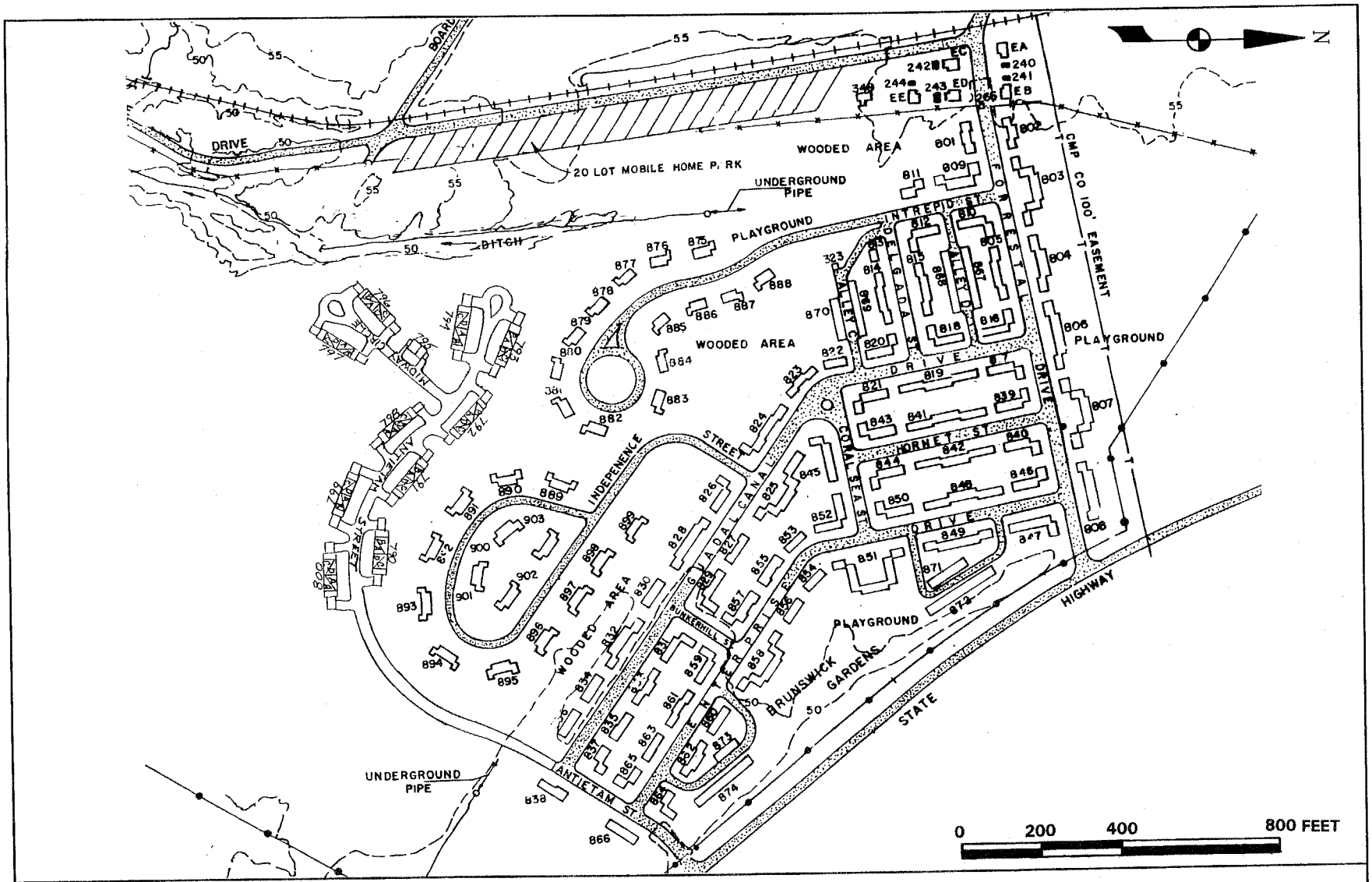

Figure 14: Public Quarters on the Main Station

Source: Existing Conditions Map: (BuDocks Drawing No. 925131), October 1962 (Revised April 1986)

one-story hipped utility or storage room attached at the rear. All the buildings have an eavefront orientation and decorative shutters flank most windows.

Each building is made up of several apartment units, assembled in various combinations and in different colors to relieve the monotonous tendencies of such housing developments. Combinations range from a straight linear alignment of two or more units, through offset L-shapes of different lengths, to a complex arrangement of units staggered in a U-shape with cross-gabled units at each end, like feet. Long one-story community garages (Buildings 867-874) built of concrete block with asphalt-shingled gable roofs are sprinkled throughout the development and also date from 1954.

By 1957, it became clear that additional housing was necessary. The Navy purchased an off-station site and developed what is now called the McKeen Street Housing Complex, under the Capehart Act, between 1958 and 1961 (see below). At the same time and under the same funding source, Quarters 904 and 905 were erected on Fitch Avenue and more officers' quarters were built adjacent to Brunswick Gardens. These units, located on Intrepid and Independence streets, were designed for senior and junior officers, respectively. Although they adjoin Brunswick Gardens, they are visually separated from the older development, and the two streets have slight curves and terminate in loops. Quarters 904 and 905 were completed in 1960 and, unlike most of the houses on Intrepid and Independence streets described below, were not built according to a standard plan.

The Intrepid Street houses are all single-family dwellings: one-story frame structures on concrete foundations with gable roofs and offset attached garages. Fourteen houses (Buildings 875-888) of this type were constructed on Intrepid Street. Eleven of the houses are 3x2 bays, 62 feet long by 48 feet wide. Two other houses are 4x3 bays and 64 feet long, and one other much smaller house is 3x2-bays, only 48 by 29 feet.

These houses bear a striking resemblance to the one-story dwellings in the McKeen Street development (see below). The Intrepid Street buildings are longer and narrower, but they share the same exterior treatments and design features. The houses are clad in vinyl siding, although some have brick veneer beneath the front windows, and are covered with asphalt shingle roofing. Windows are frequently paired, and window types include 1/1 double-hung sash, rectangular awning casements, single-pane "picture" windows flanked by narrow 1/1-light sash windows, and single-pane fixed windows over an awning casement. Entry is gained through a 1x1-bay enclosed porch, all of which appear to have been added recently. The garages are all 1-bay shed-roofed buildings attached to one gable end of the house, each with a same-height addition at the rear. In terms of architectural style, this type clearly falls into the post-World War II "ranch" house phenomenon, with its simple, open plan, absence of ornamentation, horizontal massing, and amount of wall space devoted to windows. Similar to the suburban ranch houses then being constructed on a massive scale in civilian America, the monotonous eavefront orientation of this type was broken by an occasional front cross gable or the application of brick veneer on a portion of the facade.

The Independence Street houses are two-story two-family dwellings of the townhouse variety, identical in design and materials to the two-family dwellings in the McKeen Street

Housing Complex (see below). There are 15 buildings (Buildings 889-903) on Independence Street, all measuring 79 feet long and 40 feet wide. These are of frame construction on a concrete foundation, with vinyl siding, an overhanging second story, and an asphalt-shingled gable roof. This type is 6x2 bays, with an offset flat-roofed garage attached at each gable end. Each building is divided into two 3-bay halves, each with a central entry covered by a one-story 1x1-bay enclosed porch. Windows are 1/1 double-hung metal sash. The overhanging upper story and pseudo-cornice returns on each building reflect the "Early American" renaissance then in vogue.

Quarters E through I and EA through EE, and their attendant garages (235-244), were all constructed with Navy funding, the houses in 1954 and the garages the following year. Quarters E-I are identical, and Quarters EA-EE are identical, but the two types differ from one another. Both types are one-story frame structures on concrete foundations and with corner entrances, but Quarters E-I are eavefront gabled buildings while Quarters EA-EE are more square in shape and have hipped roofs. All the garages are 1-bay frame buildings, but 235-239 have gable roofs and 240-244 have hipped roofs to match their associated houses. Like all the house types discussed thus far (including Quarters 904 and 905), these two types are simple in design and merely reflect architectural themes then prevalent in suburbs throughout the eastern United States.

Construction of new ordnance magazines accompanied the expansion of the air station in the mid- to late 1950s. Six magazines (Magazines 285-290) were completed in 1956, followed by two more (Magazines 543 and 544) in 1958. These share similarities with the World War II-era magazines in that they are also all earth-covered structures with a single exposed end wall and with center-bay double doors of solid steel swinging on large strap hinges. Unlike their World War II counterparts, however, the later magazines are of reinforced concrete construction throughout, with vertical walls and flat ceilings. The exposed end walls are also concrete, with a rounded apex and sloping sides as extended wing walls. Blast deflectors of mounded earth with a concrete abutment face most of the magazines. None of the World War II magazines have blast deflectors. The 1956 magazines are all identical, measuring 51 feet long, 29 feet wide, and 13 feet high. The two 1958 magazines differ from them and from each other in size. Structure 543 is only 44x27 feet, and Structure 544 is 81x27 feet; both are 13 feet high.

Fuse and detonator storage bunkers 548 and 549, located well away from the magazines and loop road, were finished in 1959. The two structures are "beehive" type bunkers, with a room 16x12 feet in size located in the center of an earth-covered mound. The room is built entirely of concrete and is entered through a single steel door. A "tunnel" of sloped concrete walls covered with a corrugated plastic sheet (serving merely as weather protection) provides access to the bunker. Because of this, the mound appears to provide entry from the side rather than the end, as with the magazines. One side of the beehive holds the storage room, and the other side of the mound functions as a blast deflector. None of the magazines or bunkers dating from the 1950s appear to have been altered.

Outlying Facilities

East Brunswick Remote Radio Transmitter Site, Brunswick, Maine

The East Brunswick radio facility is located on a 66-acre tract, one-half mile east of the Old Bath Road. It lies approximately two miles northeast of the main station, and halfway between the Androscoggin and New Meadows rivers. This facility evidently was planned as early as 1954, for the site was surveyed in April of that year. The land was acquired in 1956 (NASB 1942-1995: Drawing RE80, August 5, 1955). The site currently consists of Buildings 523 and 524, both constructed in 1957 and 1958. The buildings are currently vacant and have been for many years (Figure 15).

The site is roughly square in shape, and although the access road is framed by woods, the site is open, relatively flat, and covered with weedy vegetation. A few cedar trees have begun to reclaim the tract. None of the radio towers once arranged around the buildings are standing, although a few concrete footings are visible among the weeds.

The radio facility was located here to avoid interference from the increasing amount of electrical and electronic equipment on the main station, and functioned as a "more powerful transmitter expected to have an all-weather range of some 1,500 miles" (PHS Vertical Files: Brunswick Naval Air Station folder, "U.S. Navy Radio Center to be Built Off Station," March 14, 1957). The Brown Construction Company of Portland, Maine, won the contract to build the facility for a sum of $500,000, and although construction may have been completed in 1957, the facility was not operating until 1958.

The larger of the two buildings, Building 523, housed the radio equipment. It is a tall one-story building with a lower full-length one-story section to the west. The main entrance is centered in the west wall under a flat concrete visor. Cantilevered concrete steps lead up to the double metal doors. The building is constructed mostly of reinforced concrete slabs, but the east, or rear, wall is concrete block, which suggests that the present building may have been constructed in two different episodes. The roof is slightly sloping, with overhanging eaves and a distinctive angled soffit. The north and south walls of the taller section are separated by concrete pilasters into three bays. Each bay contains two rectangular window openings, now infilled with concrete block, set low in the wall. Solid steel double doors and a concrete loading dock are located at the northeast corner. A concrete and brick chimney is located at the northwest corner. At present there are no windows.

The smaller building, Building 524, stands only a few feet north of the radio building. It is a one-story 1x1-bay standby generator building that mirrors the construction and, to a lesser extent, the design of the larger building, with its slab concrete foundation, walls, and ceiling. The slightly sloping roof sports identical angled soffits. Solid steel doors are set in the west wall, and a large louvered metal vent fills most of the east wall. These are the building's only openings. This building is identical to Building 227 on the main station (see above).

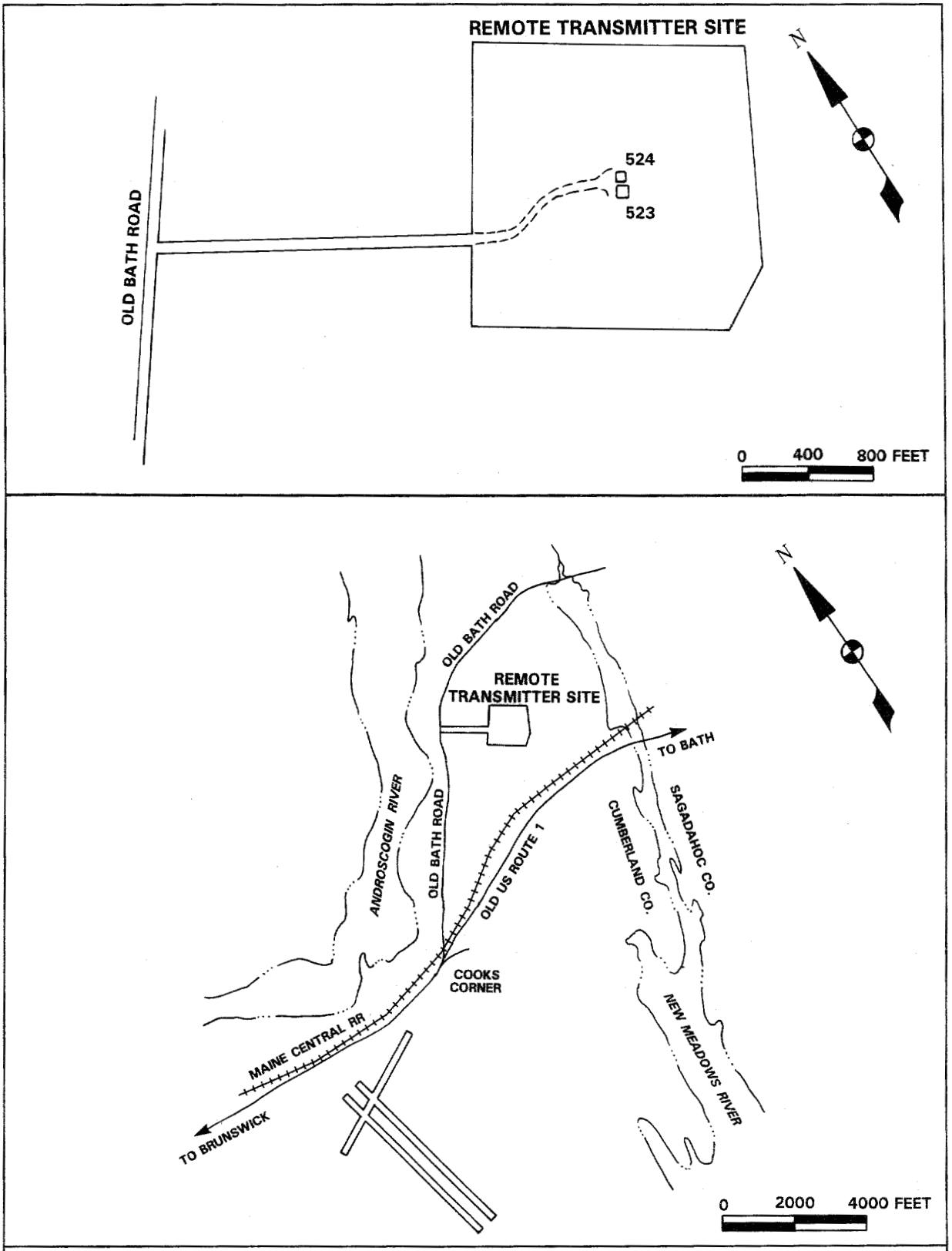

Figure 15: East Brunswick Remote Radio Transmitter Site, Built Environment

Sources: NASB 1986:V-B-12. NASB (Drawing No. RE80), August 5, 1955, From Survey by James W. Sewall Company, Civil Engineers, Old Town, Maine, April 1954

Building 523 is nearly identical to Building 226 on the main station; these buildings and their associated generator buildings (Buildings 524 and 227, respectively) are clearly of a standard plan developed by the Navy in the 1950s. The radio buildings on the main station predate the East Brunswick buildings by a year or so, but all were built in the mid- to late 1950s.

Topsham Annex, Topsham, Maine

As discussed earlier in this report, the Topsham Annex originated as an Air Force station in 1956, and the Navy acquired the 125-acre property circa 1970, when the Air Force terminated its activities here. The annex today consists of 69 buildings and one water tower, of which 51 buildings are dwellings (see Evaluation of Results). The installation is located on the east side of Route 201 in Topsham, and is approximately 4.5 miles away from the front gate of the NASB main station (Figure 16).

The centerpiece of the Air Force's Topsham facility was the SAGE Direction Center, with its power building and cooling towers, all of which were demolished in the 1970s. The Direction Center resembled an enormous concrete blockhouse, with its reinforced concrete frame and reinforced concrete, wholly windowless exterior walls. Within the Center were a pair of computers and an assortment of communications systems for the receipt and transmission of information about incoming, potentially enemy, aircraft. The Center was equipped with its own independent power source and with powerful air conditioners (with which the cooling towers were associated) to counter the great quantities of heat produced by the vacuum-tube computers. This assemblage of structures was carefully secured within a fenced enclosure entered only through a controlled gate.

About 17 support buildings, including barracks and recreational facilities, were intended to accompany the construction of the SAGE Direction Center. The development also included 177 housing units built under the Capehart Housing Act of 1955 (PHS Vertical File: Brunswick Naval Air Station folder, "Navy Plans 277 Capehart Home Units; 177 More Expected at New SAGE Site," November 15, 1956). The housing units consisted of nine single-family dwellings and 42 four-family dwellings (NASB 1942-1995: Topsham Annex General Development Plan, August 5, 1971) to house Air Force personnel and possibly also a few civilians working on the installation.

The Air Force erected most of the buildings at Topsham between 1957 and 1960. Key administrative and operational buildings, barracks, utilities, and the chapel and commissary were all completed by the end of 1958. These were followed the next year by additional communications buildings (Buildings 373 and 374), quarters, and the NCO club (Building 383). Although the contract to build the Capehart housing was awarded in the winter of 1958-1959, to Anthony Grace and Sons, Inc., of Whitestone, New York, the project was not finished until 1961, possibly as a result of labor conflicts (PHS Vertical File: Brunswick Naval Air Station folder, "New York Concern Low Bidder on Housing," n.p., May 7, 1959).

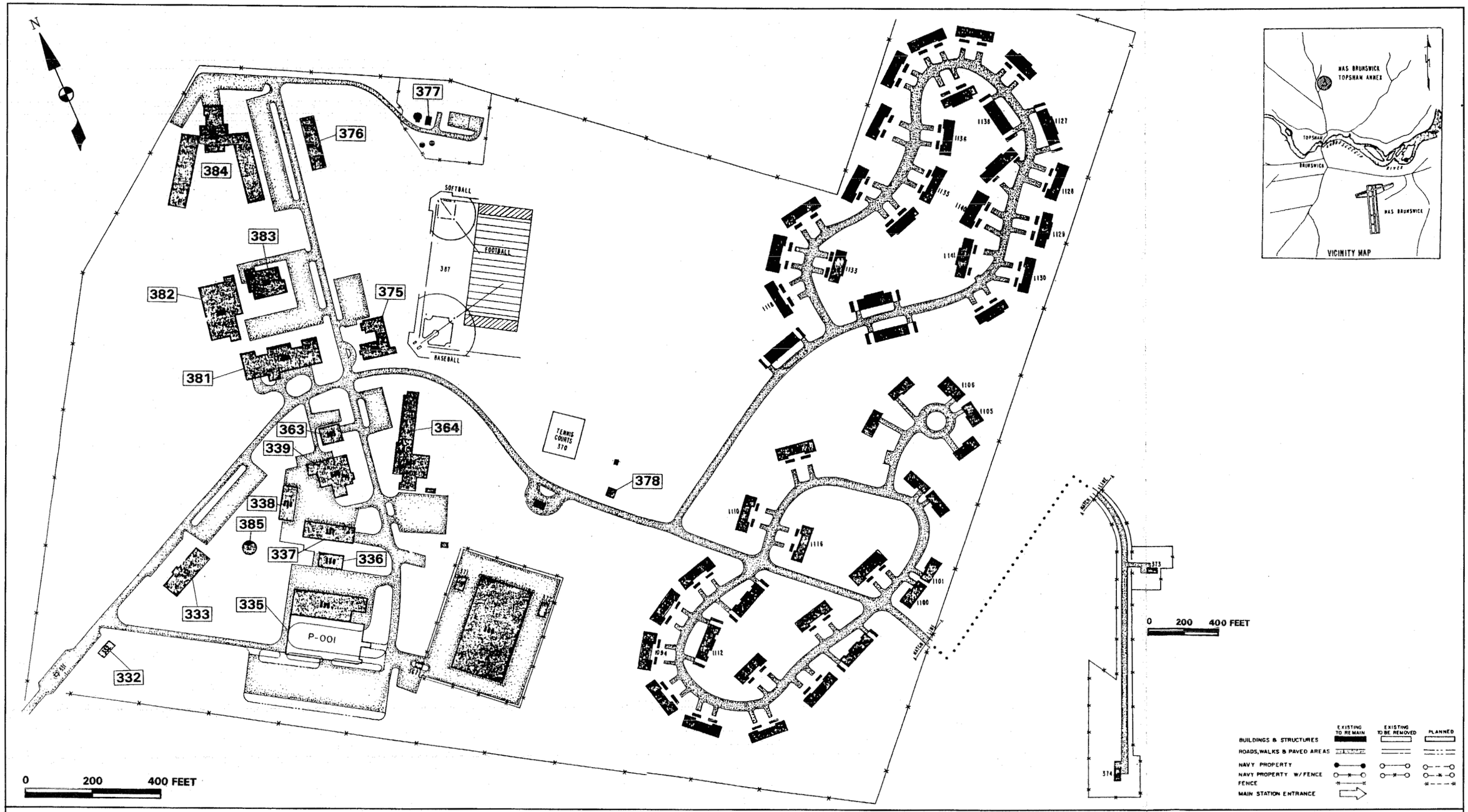

Figure 16: Topsham Annex, Built Environment

Source: Topsham Annex General Development Map, NASB (FEC Drawing No. 1, 388, 526), September 1971

The installation is divided into three basic activity areas, with the single entrance at the western corner of the installation (see Figure 16[2]). The western third of the property consists of administrative and standard support buildings (barracks, public works, recreation) laid out along a street running north-northwest to south-southeast. The eastern third of the property is devoted to housing situated along several loop and circle streets; the general orientation of the housing section is from north-northeast to south-southwest. The two sections are joined by a single road with wide grassy areas on either side. This space contains mainly recreational space — playing fields, tennis courts, and a skating rink in winter — which clearly separates the residential section from the "business" section. South of the residential area, two former radio buildings, 373 and 374, are located on the side and top of a small hill. Both buildings are now used for public works storage.

The architecture of the former Air Force station is characteristic both of the military and of the period in which the installation was developed. Except for two former maintenance shops (Buildings 336 and 338), all the remaining administrative buildings are one- or two-story basically rectangular block forms with flat roofs and overhangs. These are also built of brick, laid in a 5:1 common bond with alternating headers and stretchers in the header row, a typical brick bond on military installations in the eastern United States. Rectangular bays and alcoves occur on several of the buildings, thereby giving them irregular plans, but such features also emphasize the rigid blockiness and horizontal massing of each building. These features are typical of the International Style of architecture, with its emphasis on extreme functionality and utilitarianism, which evidently appealed to all the branches of the armed forces from the 1940s through the 1960s. This building form and construction type remained consistent over the eight-year period of this installation's initial development.

Since the Navy acquired the property, nine buildings, including the Direction Center, have been removed, and Building 386, a water distribution building, has been added. At least one naval patrol squadron has its headquarters here, and the Marine Reserves have taken over the old maintenance area (Buildings 337, 338, and 339), but the installation is currently used primarily for berthing and quartering of Navy personnel. The residential development appears to be completely filled, and Buildings 364 and 376 also house personnel, though Building 364 serves as a motel rather than more permanent assigned quarters. The Army Reserve rents space in the old Administration Building (Building 333), but several other buildings are vacant, used only by Public Works for storage.

The relatively few alterations made to buildings since 1971 seem to have been confined to windows and interior space. Windows in most of the administrative buildings have been replaced, infilled, or boarded up. Windows on Building 384 may be original. Most windows are now fixed-light metal sash, metal casement, or vinyl-clad double-hung sash. The most visible modifications include a large addition to the southern side of the commissary (Building 335) made circa 1971, and, in the housing section, the application of vinyl siding and the replacement of windows within the last 10 to 15 years.

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[2] Although it is no longer current, the 1971 Topsham Annex General Development Plan (NASB 1942-1995) best shows the overall spatial organization of this installation.

As mentioned above, two types of residences were built at Topsham Annex under the Capehart Housing Act. Although funded by the same source, and probably built by the same contractor, the Topsham houses are of a different design than those built for the Navy at McKeen Street in Brunswick. The two types are a single-family house with attached garage, and a four-family townhouse. Both are vernacular two-story frame buildings on concrete foundations, with asphalt-shingled gable roofs and rectangular plans. The four-family dwellings, however, have two double garages in front of each townhouse. These are partially open-sided, and include a parking space and enclosed storage for each family. Both types appear to have been remodeled in the 1980s.

McKeen Street Housing Complex, Brunswick, Maine

The McKeen Street Housing Complex consists of 187 buildings in what resembles a suburban housing tract, in the western portion of the Town of Brunswick (see Table 2 in Evaluation of Results). The development occupies a relatively level site of 70 acres, south of McKeen Street (Figure 17). With the exception of a small Public Works maintenance building (Building 561) that was built in 1940 and was possibly moved to this property in 1961, all the buildings on the tract were built under the Capehart Housing Act of 1955. The NASB Capehart project began as early as November 1956, when the Navy proposed to build additional housing under this act both on the air station and on a to-be-purchased off-station site (PHS Vertical File: Brunswick Naval Air Station folder, "Navy Plans 277 Capehart Home Units; 177 More Expected at New SAGE Site," November 15, 1956).[3] This property may have been acquired as early as 1957, but the first units were not completed until the summer of 1960 (PHS Vertical File: Brunswick Naval Air Station folder,"Navy Housing Units to be Opened Soon," August 12, 1960). The units were intended to, and still do, house junior officers and senior grades of enlisted men, and their families.

Of the postwar housing complexes at NASB, the McKeen Street development is probably the most illustrative of the layout, featuring winding roads and cul-de-sacs, that emerged as the "suburban ideal" in the mid-twentieth century. The winding road was first introduced in American suburbs in the 1850s and came to broad public attention through late nineteenth-century planned communities such as Llewellyn Park in New Jersey, Riverside in Illinois, and Garden City on Long Island (Jackson 1985:76ff). The U.S. military, specifically the Army, incorporated curvilinear roadways in enclaves of officer family housing constructed at numerous bases around the turn of the century. By World War II, the "naturalistic" layout was employed in many of the housing developments hastily constructed under FHA and individual service auspices for military families of all ranks. Housing development subsequently constructed under the Wherry and Capehart programs generally employed curvilinear street patterns as well, even for very small military "suburbs."

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[3] Capehart housing was also planned at this time for the Topsham Air Force Station, but the units were not completed until 1961.

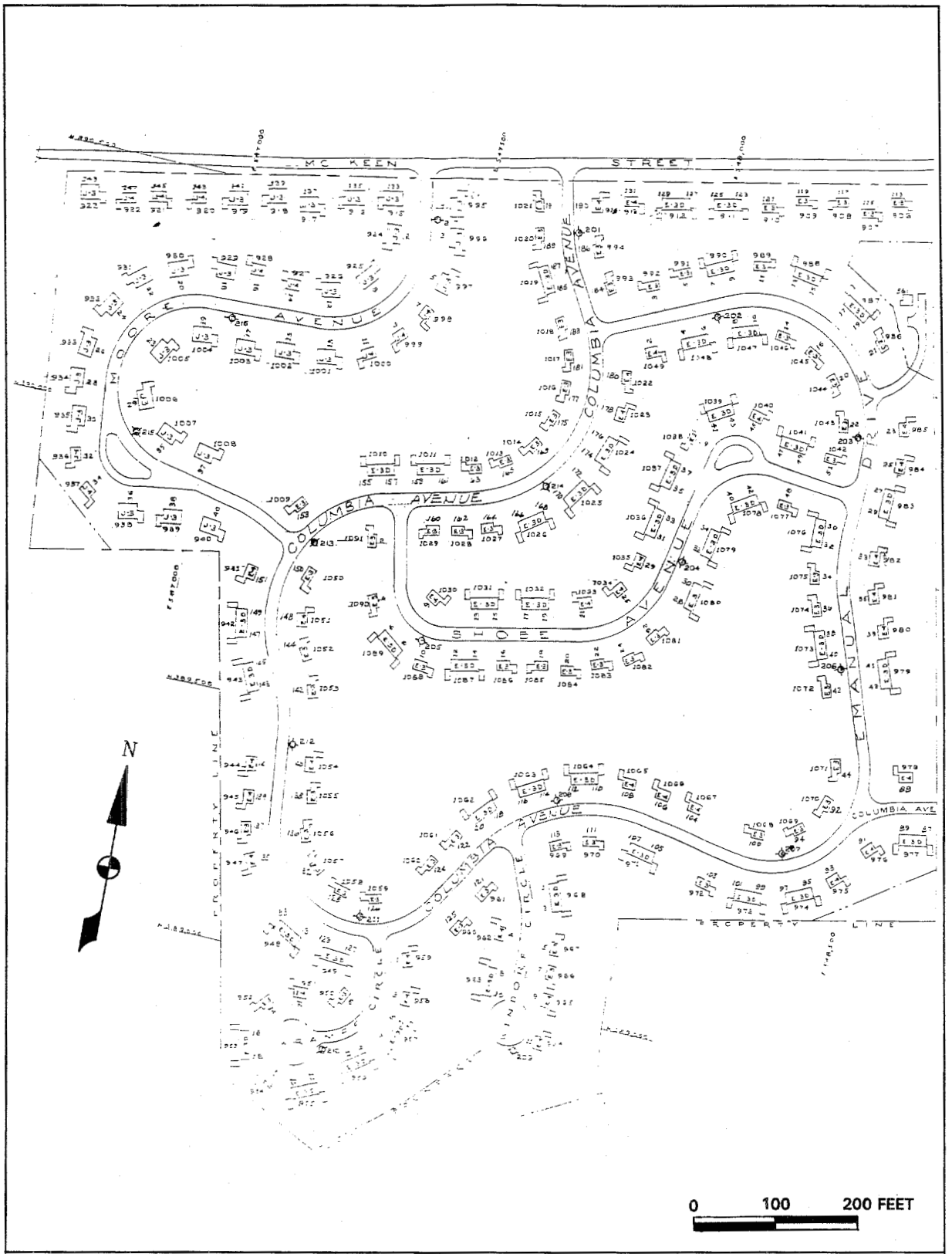


Figure 17: McKeen Street Housing Complex

Source: Capehart Housing Designation, Street & Building Numbers, NASB (NASB Drawing No. 578), December 16, 1959

Three basic house types were constructed in the McKeen Street development, a one-story type and two two-story types. The one-story dwellings are 3x2-bay frame buildings on concrete foundations, with gable roofs and offset attached garages. Thirty houses of this type were erected in the McKeen Street development. All but two measure 52 feet long and 38 feet wide; the remaining two are 48 feet wide. All of these houses were originally built for junior officers, and most are situated along Moore Street. Though of different dimensions, these houses are virtually identical to the one-story houses on Intrepid Street on the main station (see Administration and Support Facilities, above), which were built at the same time and under the same funding source.

The second basic house type is a two-story, single-family dwelling that evidently was built only in the McKeen Street Housing Complex. This type is 3x2-bay frame house with a gable roof and a one-bay offset attached garage at one gable end. Foundations are poured concrete, and all buildings are sheathed in vinyl siding. Each house is eavefront in orientation, with a central entry covered by a gabled 1x1-bay open or enclosed porch. The main roof is gable and clad in asphalt shingles. A metal interior chimney emits waste gases from an oil-burning furnace. In most houses of this type, the second floor slightly overhangs the first floor, and all houses have slight cornice returns. These two details constitute the only decorative features on this house type. Windows are mostly 1/1 double-hung, and those on the facade are paired. A one-story 2x1-bay utility room projects from the rear of each house. Houses of this type come in two sizes in the McKeen Street development. There are 70 buildings measuring 43 feet long and 26 feet wide, and 32 buildings measuring 42 feet long and 38 feet wide.

The third house type in the McKeen Street development is a two-story two-family dwelling similar to the single-family unit described above and identical to the Independence Street dwellings on the main station (see Administration and Support Facilities, above).

SERE School, Redington, Maine

Commonly known as the SERE (Survival, Evasion, Resistance and Escape) School, this facility is located in Redington Township, Franklin County, Maine, approximately 90 miles north-northwest of the Town of Brunswick. It is situated on an irregularly shaped tract of land of about 17,731 acres that occupies most of the southernmost 60 percent of the township (see Figure 1). The SERE School consists of a Multi-Purpose Public Works Area, the Resistance Training Laboratory, seven "checkpoint" areas, and the remains of an old railroad and lumber town known as Redington Village (see Figure 4).

A total of 46 resources are extant on the property, the majority of which were constructed between 1962 and 1970. Specific information on the function of structures within the Resistance Training Laboratory was unavailable due to their classified/secret nature. All of the buildings associated with the SERE School and the former Redington Village are summarized in the table found in the Evaluation of Results.

- *Multi-Purpose Public Works Area*

Fourteen architectural resources consisting of four basic types currently occupy the Multi-Purpose Public Works Area. The majority were constructed between 1970 and 1985. The oldest buildings are of wood frame construction with simple gabled roofs. They are sided with asphalt roll roofing and have wood cornerboards. Windows are generally double-hung wood sash windows, some having vinyl-clad replacements. Alterations to these older buildings have been limited to minor maintenance. Of this type, Building 565, the "Multi-Purpose Building," is the oldest extant structure on the facility, having been erected in 1961. It is also the only two-story building at the SERE School. This building has been used variously for training, general mess, quarters, and storage, and it continues in that capacity to a limited extent today. Other buildings from this period include the general recreation facility (Building 570) and miscellaneous storage and maintenance structures.

The second building type, constructed mostly from the late 1970s through the 1980s, consists of steel frame buildings on concrete slabs, sided with corrugated metal siding. Such buildings are typically used for vehicle shelters and general storage. Among these are Buildings 80 and 89. The most recent building is a single rectangular prefabricated log cabin constructed in the 1980s as part of a "self-help" project for Navy personnel. This unnumbered building is a one-story structure with 1/1 vinyl-clad windows.

In addition to these permanent structures, there are four new (circa 1994) trailers in the Multi-Purpose Public Works Area that are used as quarters, since Building 565 does not provide sufficient housing. Of all the areas that make up the SERE School, the Multi-Purpose Public Works Area demonstrates the least amount of architectural and historical integrity.

- *Resistance Training Laboratory*

The Resistance Training Laboratory contains 13 architectural resources, 10 of which were constructed before 1970 (Figure 18). The oldest buildings, constructed in 1962 and 1963, are among the first structures erected at the SERE School, and they appear to have undergone minimal alteration. These buildings are similar in construction to the earliest structures at the Multi-Purpose Public Works Area, being mostly gabled rectangular structures sided with asphalt roll roofing for siding, and finished outside with wood cornerboards, and window and door surrounds. The most basic structural design in this area is that of the instructor's latrine (LBA-20), which consists of a plywood box about three feet square, with a lean-to roof and no windows. The Resistance Training Laboratory also contains a corrugated shed (Building 82) similar to those in the Multi-Purpose Public Works Area. Personnel undergo isolation training in Building 82.

The most unusual structures in this area are two guard towers, both square wood frames with lean-to roofs with asphalt siding and fixed wood sash windows. Each tower is set high on 4- by 4-inch stilts and is surrounded by a deck with a wooden railing.

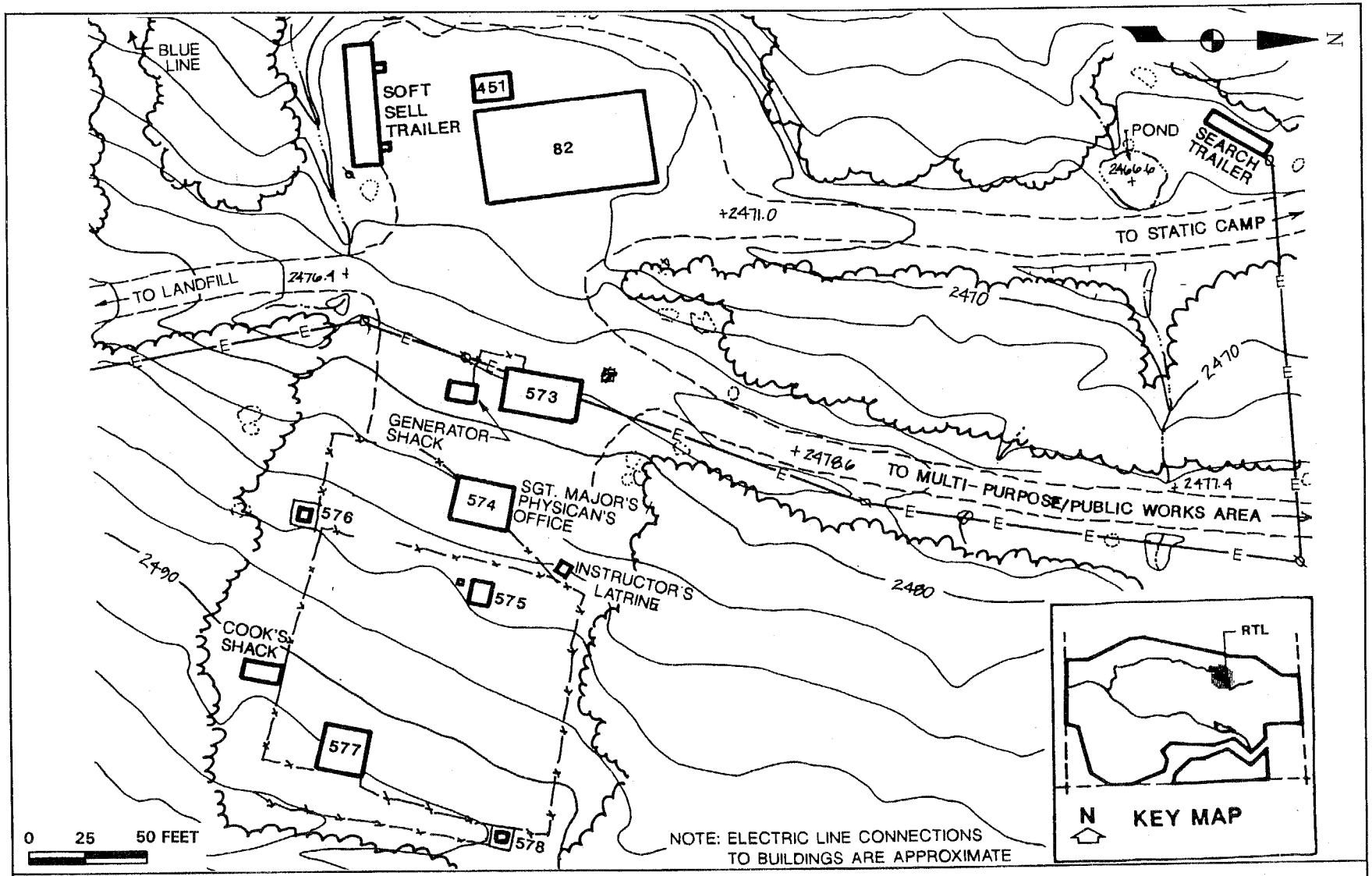


Figure 18: SERE School Resistance Training Laboratory, Built Environment

Source: Baker 1989: Figure 5-10

The "Soft Sell Trailer" is the only structure of its type at the SERE School. Erected in 1965, it is a basic trailer set on concrete blocks and covered with corrugated metal siding. It has metal sash windows which are covered with paint.

- *Other Locations*

The remaining areas directly related to the operation of the SERE School include a variety of "checkpoints" and other training buildings that are used as temporary quarters during training operations. There are seven of these sites: Checkpoint Alpha, Checkpoint Bravo, Checkpoint Charlie, Checkpoint Delta, Checkpoint Oscar, Checkpoint Victory, and the "Capture Village." Accounting for 14 structures at the SERE School, these other locations typically consist of a "checkpoint cabin" and an outhouse. Most of the cabins are basically rectangular structures with gable roofs and asphalt siding, the same as those found elsewhere on the installation, and the outhouses are of the same design as the basic plywood outhouse at the Resistance Training Laboratory.

Two checkpoints have structures that do not fit into these categories. Checkpoint Alpha has a one-story log cabin similar to that located at the Multi-Purpose Public Works Area, and checkpoints Alpha and Oscar both have small Quonset huts, known as "Jamesways." The Jamesway at Checkpoint Alpha consists of a metal frame covered with tent fabric, and the one at Checkpoint Oscar has been covered recently with plywood and asphalt roll roofing.

- *Redington Village*

Five permanent structures and two temporary trailers constitute the Redington Village site within the SERE School. The Air Force owns the trailers, which are essentially metal containers housing electronic equipment. Only the five permanent structures are considered for the purposes of this survey. The permanent structures are all turn-of-the-century wood frame houses which were constructed in association with the Phillips & Rangeley Railroad line. All five houses are aligned toward the northeast, facing the old railroad grade — now an automobile road.

Four of the houses are basically one-story gable-front structures set two feet above the ground on wooden stilts. Of the four, three have cedar shingle siding and asphalt composition roofs, and one is sided and roofed with asphalt shingles. Three have 2/2 double-hung windows, and one has fixed-pane windows. Stove pipes identify heating units in two houses, while the other two have exterior brick chimneys that do not extend to the ground, but are supported by wood timbers braced diagonally against the structure. These four houses have simple linear additions to the rear, and one of the four also has a screened-in front porch addition.

The fifth house differs from the four above in that it is two and one-half stories high, with a pyramidal hip roof. Both the walls and roof are clad in asphalt shingles. The roof features shed dormers centered on both northwest and southeast roof slopes, and a brick interior chimney on the northeast slope. Windows consist mainly of 2/2-light double-hung wood sashes. All five of the structures within Redington Village appear to have been abandoned for several decades.

Evaluation of Results

Archaeological Resources

One of the principal goals of the archaeological component of the cultural resource investigation at NASB is the construction of models of archaeological sensitivity or potential. These sensitivity models can provide a basis for initial consultations between the Navy and the Maine State Historic Preservation Officer concerning the potential effects on archaeological resources by proposed undertakings

Previous sections have provided background environmental and historical information and summarized observations made during reconnaissances of each NASB facility. This section synthesizes these sources of information to create archaeological sensitivity models.

Discussion for each facility begins with a review of previous ground disturbances. This discussion identifies those past activities that either are known to have resulted in extensive and severe ground disturbance or that may be reasonably assumed to have had such an effect. In settings such as those represented by the various NASB facilities, severe ground disturbance is likely to destroy or seriously compromise the integrity of most types of archaeological deposits.

After eliminating areas with severe ground disturbance, potential locations of prehistoric and historic sites are identified. Because the archaeological study was conducted at a Phase IA level, no conclusions can be drawn concerning the significance under the criteria of the NRHP, if any, for archaeological deposits at NASB. Determinations of eligibility for archaeological resources would require subsurface survey and site testing (Phase IB and Phase II investigations), which are beyond the scope of this study.

Main Station

Ground Disturbance

Substantial sections of the main station have been altered through construction of runways and other facilities during the period of Navy occupancy. The most comprehensive sources of information concerning present ground conditions at the main station are various soils maps for the facility (NASB 1986:plate V-C-3;SCS 1987; U.S. Navy, Bureau of Yards and Docks 1966), which have been created through a combination of airphoto interpretation and field survey. Figure 19 is an example. This map shows extensive areas of "manmade" land, created by cutting and filling the original ground surface beneath the active and abandoned runways and beneath the core administrative-residential areas. Other sources show similar patterns of ground disturbance, and these sources are generally in good agreement with one another, as well as with engineering plans and data on file at NASB and with conclusions drawn from surface observations (Caruthers 1992;

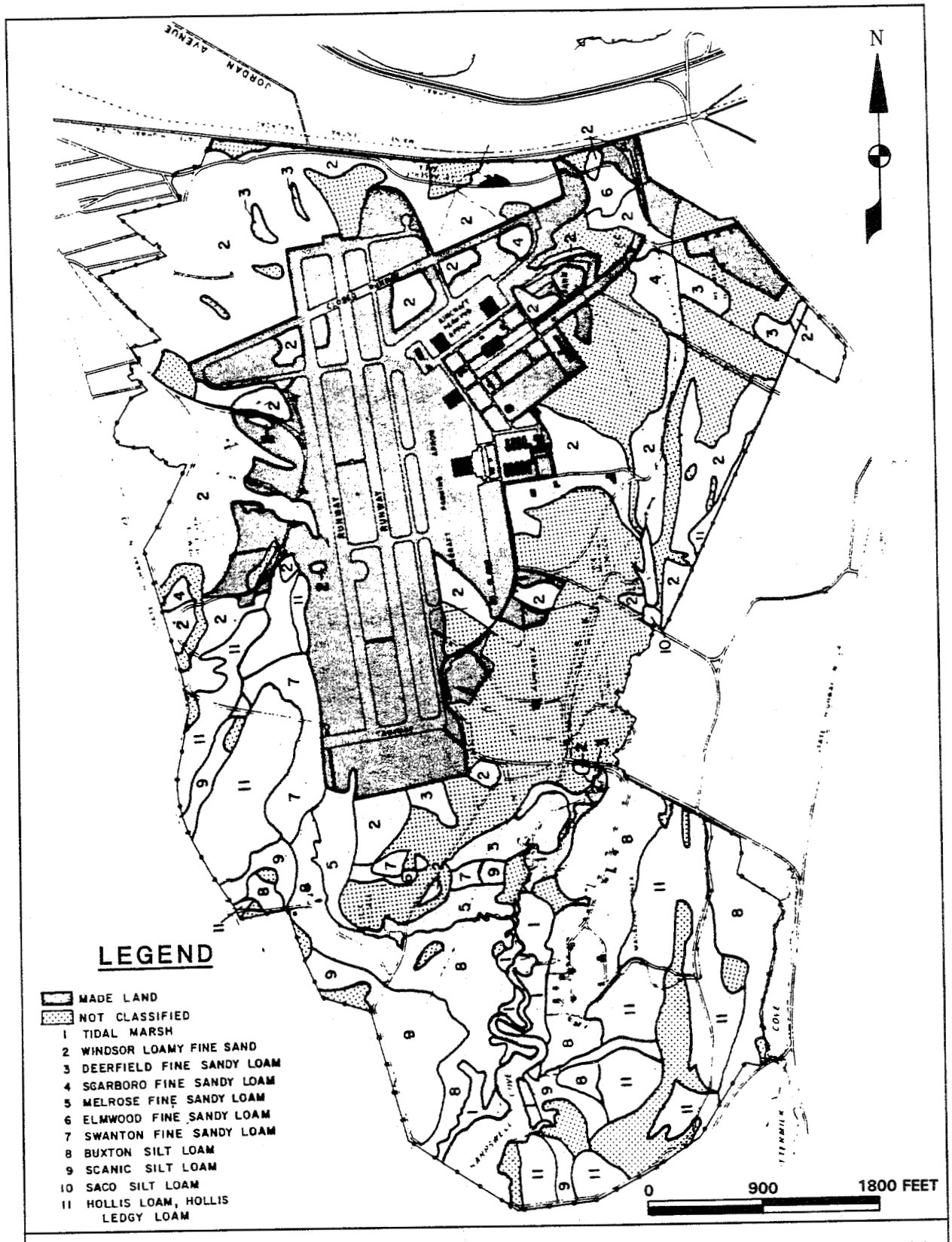


Figure 19: Soils at Main Station

Source: NASB 1986: Plate V-C-3

NASB 1986:plates V-B-7, V-C-1, and V-D-3; U.S. Navy, Bureau of Yards and Docks 1951, 1954, 1958).

On the basis of these data, three disturbance zones have been identified for the main station (Figure 20).

Zone 1 — Limited ground disturbance. Areas where no ground disturbance has been documented or where it is apparently isolated or of limited vertical extent. Archaeological sites found in this zone are likely to possess a satisfactory degree of integrity. Includes undeveloped portions of station and those areas with widely spaced facilities, such as roadways, underground pipelines, and the antenna arrays on the western side of station. Soil alterations resulting from farming during the pre-Navy period are also regarded as limited disturbances.

Zone 2 — Moderate ground disturbance. Areas where ground disturbance is locally severe, but discontinuous. Depending on local conditions, archaeological sites found in this zone are likely to range from those having satisfactory integrity over their entire areas, to those possessing areas of both good and poor integrity, to those that have been severely compromised throughout. Because preservation conditions in this zone are highly variable, local inspection (including subsurface data as needed) is imperative in this zone. Includes portions of the main operations-administration area, some family housing areas, the golf course, and ordinance storage areas.

Zone 3 — Extensive and severe ground disturbance. Areas where continuous or nearly continuous and severe ground disturbance has taken place through excavation, grading, and filling. Preservation of archaeological sites is unlikely. Includes operational and abandoned runways, graded overruns, portions of the main operations/administration area, quarry and borrow areas, dumps, and underground fuel depots.

Areas included in Disturbance Zone 3 are regarded as having low sensitivity for both prehistoric and historic archaeological sites, but additional criteria are necessary to define the potential for Disturbance Zones 1 and 2.

Prehistoric Resource Sensitivity

As noted in the review of existing information, there are no *confirmed* prehistoric archaeological sites recorded in the files of the Maine Historic Preservation Commission for the main station. One prehistoric site, ME 15-7, is reputed to be (or to have been) located at the north

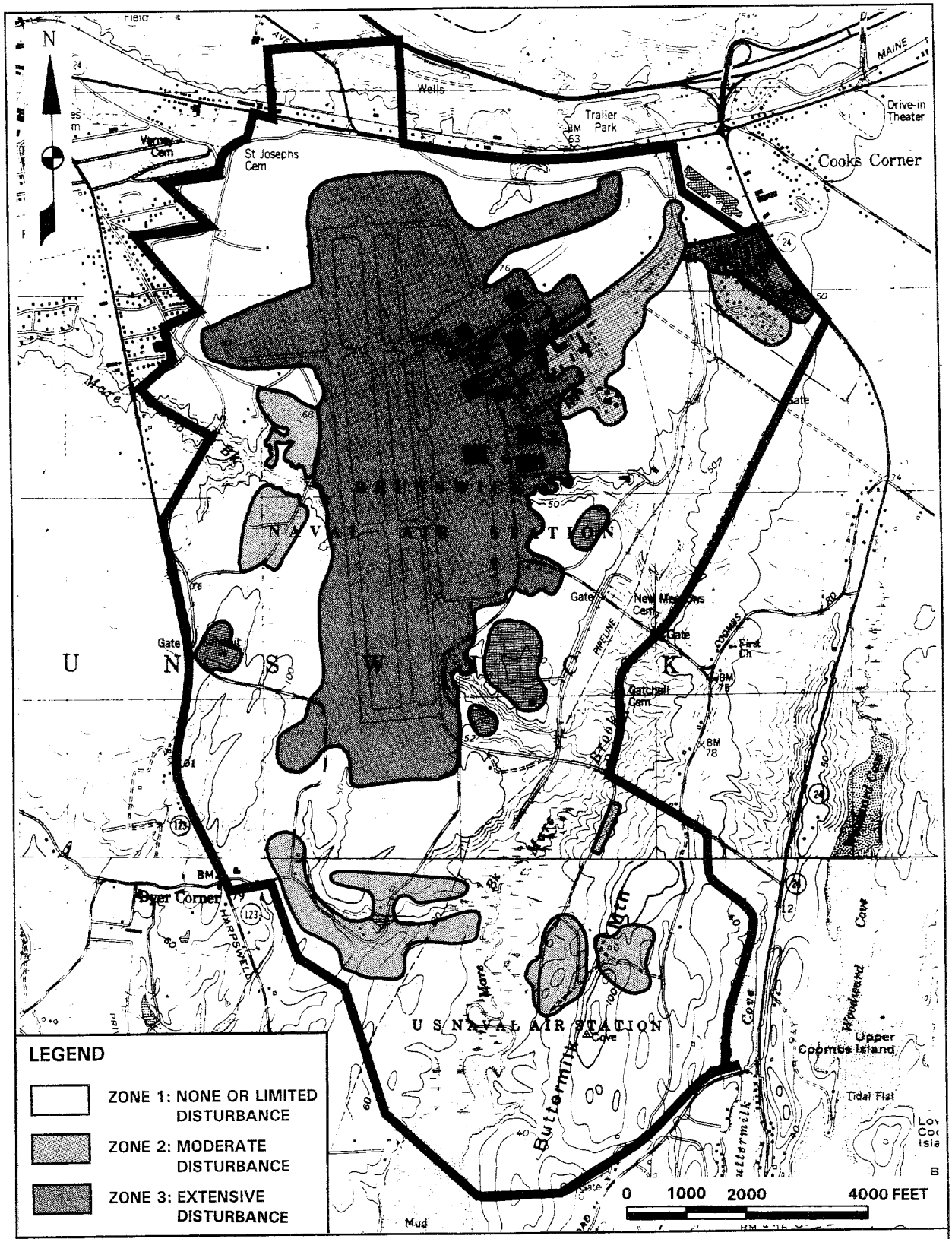


Figure 20: Ground Disturbance at Main Station

Source: USGS 7.5 Minute Maine Quadrangles, Brunswick 1980 and Orrs Island 1957 (Photorevised 1978)

end of Runway 1-19 on the main station. According to information on file at the Maine State Museum, a prehistoric site may also have been located near Mere Brook at a place called Mather Farm (see also Gramly 1980). Sketchy information indicates that this site, if it existed at all, was probably in the area now occupied by Runway 1-19. The present study obtained no additional information concerning either of these purported sites.

Available information thus provides little specific guidance concerning the possible locations of archaeological sites at the main station. Therefore, assessments of sensitivity for prehistoric resources must be based on a generalized model of aboriginal land use. This model takes into consideration proximity to and types of water resources, local relief, soil drainage, and potential travel routes. It is specifically based upon the work of the Topsham Archaeological Project (Wilson et al. 1990) and the Topsham-Brunswick bypass study (Spiess and Cranmer 1989). Models of site distribution in coastal areas (Kellogg 1984, 1994) are also relevant.

The key criteria for rating archaeological sensitivity at the main station and the other NASB facilities in the Brunswick-Topsham area include: (a) known degree of prior ground disturbance, (b) results of prior archaeological study, (c) ground slope, (d) soil drainage, (e) daily maximum distance to navigable water, (f) distance to fresh water sources, (g) distance to significant drainage features, and (h) soil texture. Based on an examination of the terrain of the NASB facilities and a review of other archaeological studies in the Brunswick-Topsham area, these factors appear likely to be the most useful in separating areas with a low potential for prehistoric sites from areas with moderate to high potential. The factors listed above are not intended as a substitute for a comprehensive model of regional prehistoric settlement pattern. For example, position relative to possible travel routes (e.g., Kellogg 1994) appears unlikely to be useful as a screening factor for the NASB Brunswick-Topsham facilities, given their specific locations. Similarly, proximity to potential lithic source areas also does not appear to be a useful screening factor at the main station and nearby facilities because of the type of bedrock in the area and the characteristics of the surficial deposits. The list of factors given above also takes into account information obtained during archaeological reconnaissance at NASB. For example, a shoreline survey indicated that shell middens are probably not present along upper Harpswell or western Buttermilk coves. This result was consistent with other studies of the mid-coastal region of Maine and led to the elimination of factors that might specifically screen for shell midden sites (Kellogg 1994).

The factors can be arranged in a decision tree (Wilson et al. 1990:figure 13), which provides a means of rating the archaeological sensitivity of specific locations at the NASB Brunswick-Topsham facilities (Figure 21). Some brief comments concerning the practical application of the model are appropriate. *Prior disturbance* can be identified using Figure 20 for the main station, through the use of archival engineering plans or other data, or through field investigations. *Previous archaeological studies* for NASB have been reviewed in this report; it is necessary to evaluate the reliability and applicability of the results of those studies when applying the model to a specific site. *Ground slope* should be taken to mean an average or characteristic value over an area of several hundred square feet or more. Ground slope can be determined from topographic maps or from field observations. *Soil drainage* can be obtained from soils maps (NASB 1986:plate V-C-3; SCS 1987) or from field observations. The term *daily maximum distance to navigable water* is intended to distinguish areas adjoining river or main tidal

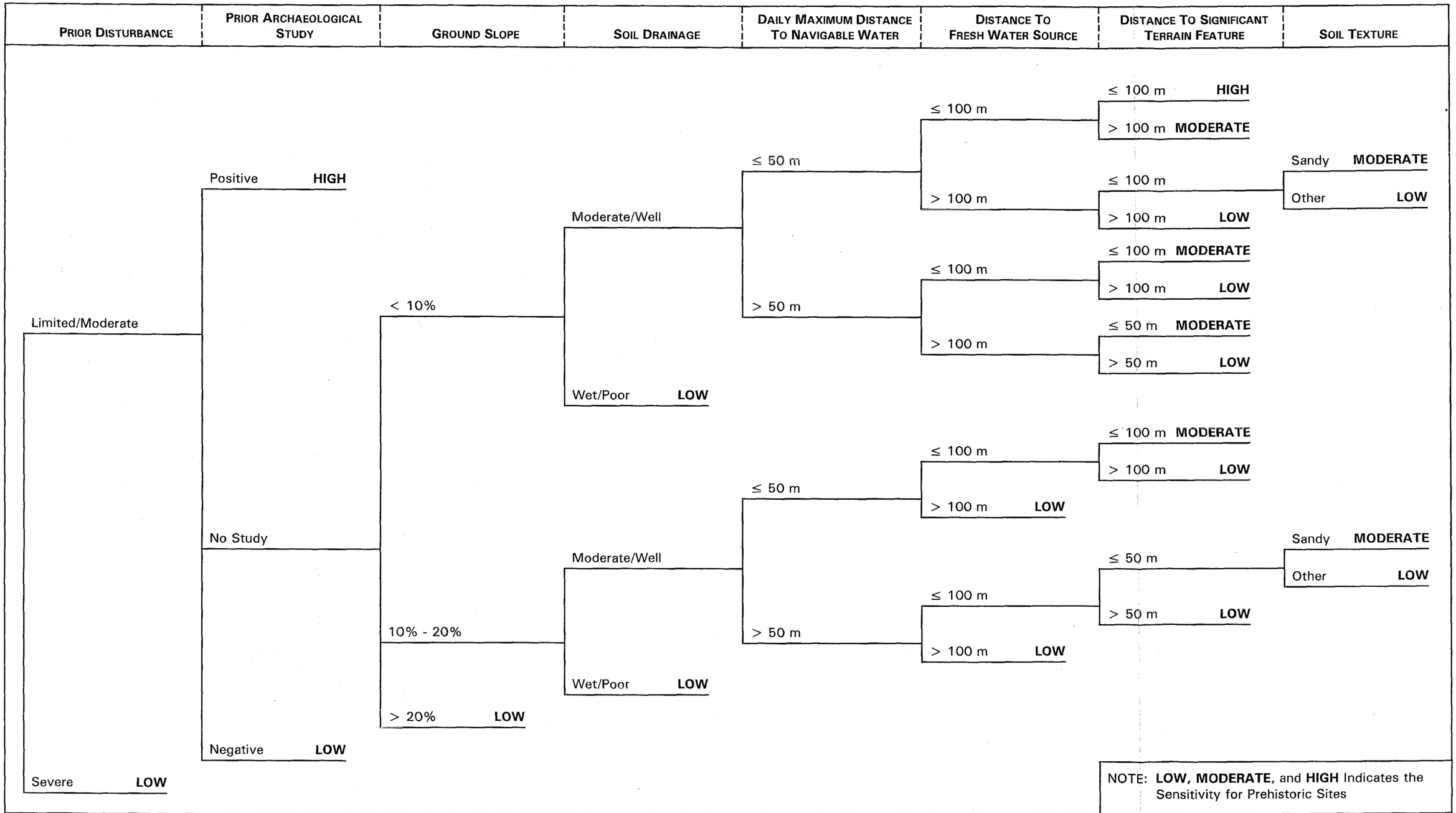


Figure 21: Decision Tree for Prehistoric Archaeological Sensitivity at Brunswick - Topsham Properties of NASB Brunswick

channels from those areas near broad mudflats and salt marshes (Kellogg 1994; Wilson et al. 1990). (It is always a discouraging proposition on the Maine coast to discover that a beach easily reached by boat at high tide is separated from a channel by tens or hundreds of feet of mud at low water.) *Distance to fresh water sources* refers to the proximity to perennial or significant seasonal water sources. *Distance to significant terrain features* refers to the proximity to a variety of active, and in some cases relict, topographic elements. These features include falls and riffles at the head of tide, confluences of streams or rivers, substantial well-demarcated ravines, terraces and benches, isolated elevated spots in wetlands, and localities providing vistas of adjoining terrain. *Soil texture*, a factor used rarely in this model, is intended to separate areas on the outwash plain from those on Presumpscot Formation silt clays or on bedrock.

These factors have been used to generate an overall prehistoric archaeological sensitivity map for the main station (Figure 22). The map is generalized, and it may not show every location with moderate or high sensitivity. Equally, it may overrepresent the sensitivity of certain areas because of locally severe slope or poor drainage. *Site-specific observations at an appropriate scale are always advisable in using the sensitivity model.*

Using the model represented by the decision tree, areas of high prehistoric archaeological sensitivity appear to be restricted to the northern end of the main station. Areas of moderate sensitivity occur along Mere Brook and some of its tributaries. A few areas of moderate sensitivity are located along the shorelines of Harpswell and Buttermilk coves. On the basis of topographic factors, the northern edge of the North Clear Zone, which overlooks the Androscoggin River, should be rated as an area of high archaeological sensitivity; however, previous subsurface archaeological survey in that area concluded that it "does not appear to contain archaeological sites of prehistoric age" (Gramly 1980:7). It has therefore been rated as a low sensitivity area.

The model employed here is not equally sensitive to all types of archaeological resources that could potentially be located at the NASB facilities. It is oriented to the identification of areas that may have been used as habitation sites. Prehistoric Native Americans often used locations with characteristics similar to those favored for habitation sites for other purposes as well; thus, the model is probably reasonably useful for identifying some types of special-purpose procurement and processing stations and possibly for cemetery sites. The model cannot locate every example of archaeological evidence at NASB, however. In addition, it is oriented toward the modern (mid- to late Holocene) topography and environment. Used with care, giving attention to possible differences between late Pleistocene-early Holocene conditions and those of more recent times, the model should be an effective planning tool.

Historic Resource Sensitivity

Analysis of a series of maps dating from the mid-nineteenth to the mid-twentieth centuries shows that over two dozen buildings stood on the present main station property before the Navy acquired it. Among these structures were farms, houses, schools, and at least one mill. Not all of these buildings stood at the same time. Approximately 30 were standing in the 1850s, when

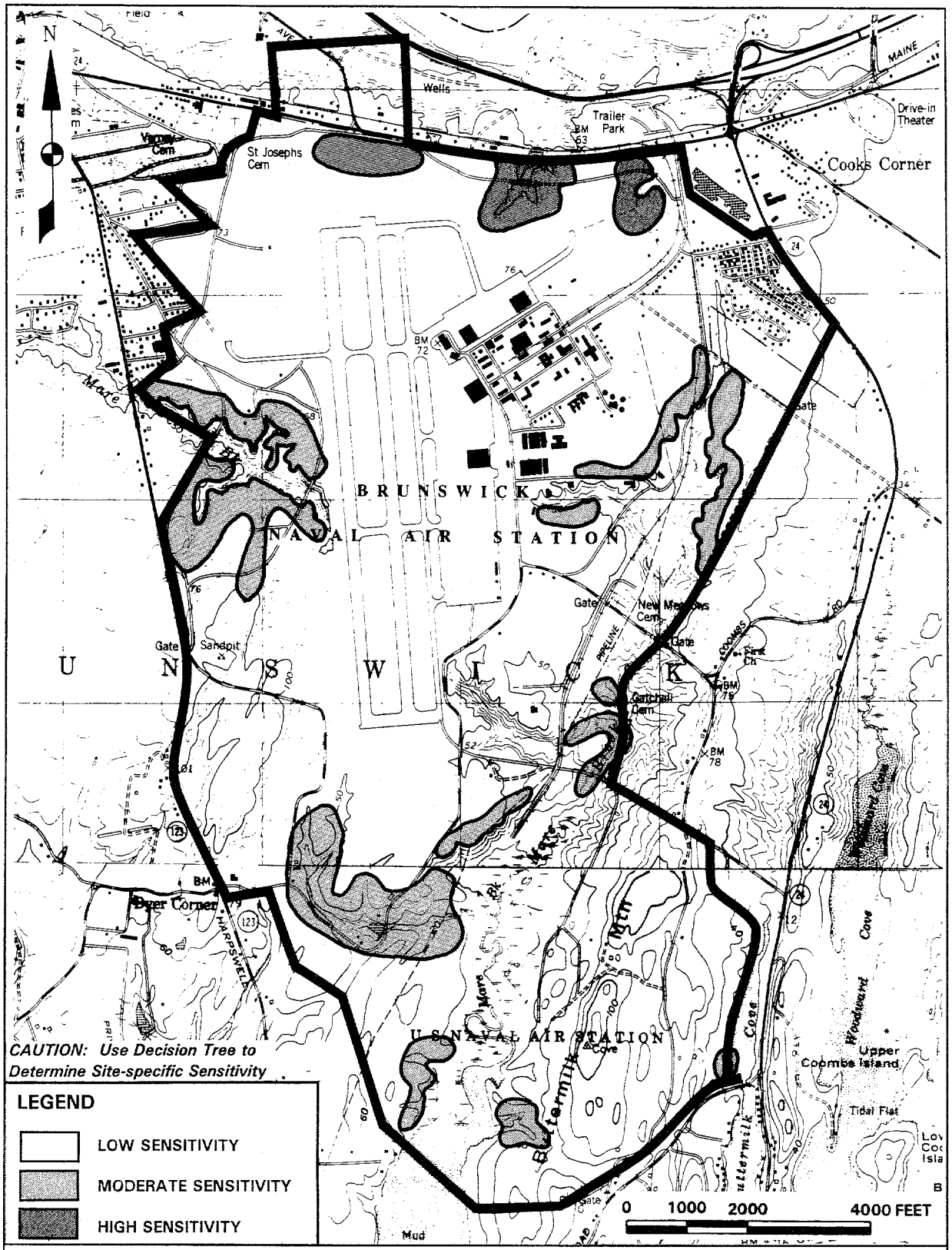


Figure 22: Prehistoric Archaeological Sensitivity at Main Station

Source: USGS 7.5 Minute Maine Quadrangles, Brunswick 1980 and Orrs Island 1957 (Photorevised 1978)

the first detailed map of the area was published (Baker 1857). Several of these structures were demolished or moved out of the area in the final decades of the nineteenth century, and others were erected (Beers, Sanford et al. 1871; USGS 1894). Over two dozen buildings, nearly all houses, were built in the first decades of the twentieth century. These were built primarily in the northwestern part of the air station, as central Brunswick grew and expanded to the west (Maine State Highway Commission 1938b; USGS 1945). With the establishment of the air station in the 1940s, the Navy typically purchased the dwellings and other structures within the boundaries of its facilities, and an existing conditions map for June 30, 1946, lists 23 buildings as "abandoned houses" (see Figure 12). The acquisition process continued with the reactivation and expansion of the station in the 1950s. Eventually, the Navy demolished most of these buildings, and a few were possibly moved off the station by their owners. Today, only one structure dating before 1940 stands on the station. This building is a house, now designated Quarters D.

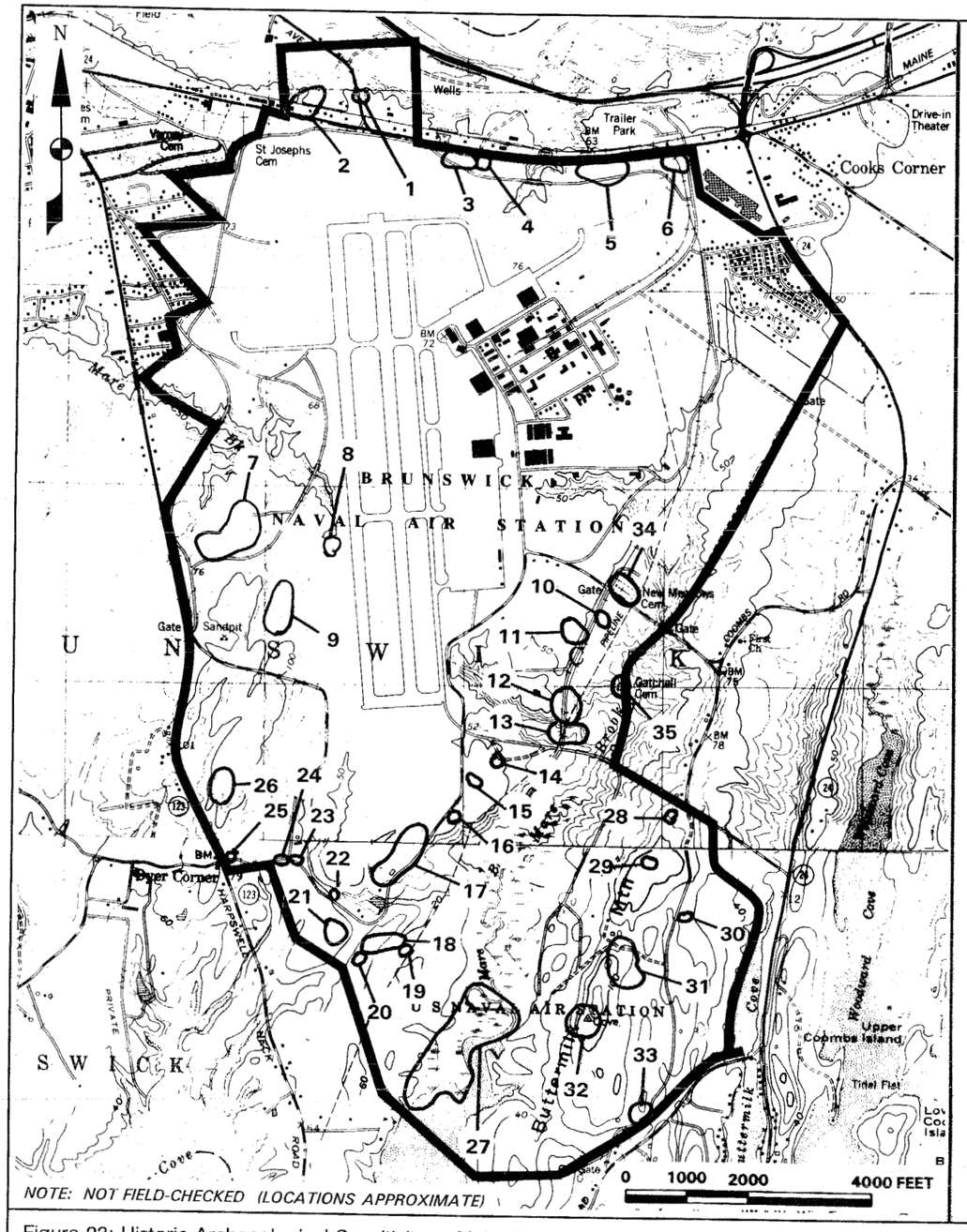
In areas not subsequently disturbed (see Figure 20), historic archaeological deposits should be present near the former locations of these structures. Of the structures that once stood on the main station, those dating to the late nineteenth century or later are likely to be of comparatively little archaeological interest. Archaeological sites situated in the locations of earlier structures, however, could be of interest. These locations are therefore judged to have high sensitivity for historic sites (Figure 23). Further investigation of such sites might demonstrate that some are eligible for the NRHP, but without additional historical research and subsurface investigations, no assessment concerning eligibility is possible.

In addition to showing the locations of historic buildings, Figure 23 also shows the principal area occupied by the salt marsh dikes. Additional information will be required before the significance of these features and their eligibility for the NRHP can be evaluated. The Skolfield, New Meadows, and Gatchell cemeteries are also included on Figure 23. Cemeteries are not generally eligible for the NRHP, unless they meet certain special requirements, such as distinctive design features, or unless it can be demonstrated that, through archaeological excavations, they have the potential to yield important information about the past. Without further investigation, no assessment can be made concerning the potential significance of these cemeteries from an archaeological perspective. On the basis of the presently available information, no evaluation can be made concerning NRHP eligibility of the surface scatter of historic artifacts near Perimeter Road.

Outlying Facilities, Brunswick-Topsham Area

McKeen Street Housing Complex

The complex was constructed around 1960 on land that was previously woodland or farmland. The pattern of structures on the site today and the characteristics of the terrain indicate that discontinuous but locally severe ground disturbance took place during construction. Consequently, the land of the complex can be characterized as a Disturbance Zone 2 area.



NOTE: NOT FIELD-CHECKED (LOCATIONS APPROXIMATE)

KEY

LOCATION NO.	NUMBER OF PROPERTIES	DESCRIPTION		
		BAKER ET AL. (1857)	BEERS ET AL. (1871)	OTHER
1	1	D. Linscott	D. Linscott	
2	2	-----	E. Smith; L.H. Bryant	
3	1	M. House	-----	
4	1	K. Dunning	D. Weaver	} Runway 1-19 Sctter (NASB-Archy-1)
5	2	E. Grover	C. Cooper; E. Grows	
6	2	J. Bennett; S.H. [School House]	Not shown?; School	
7	3?	Unidentified?	O. & P. McManus; B. Getchell; Mrs. Dunning	
8	1	H. Dunning?	-----	
9	2	J. Pollard; Mrs. Pollard	-----	
10	1	D. Purington	L.T. Purinton	
11	1	J. Mariner	O. Marriner	
12	1	F. Getchell	Gatchell	
13	1	G. Mill [Grist Mill]	Wool Carding Shop	
14	1	C. Thompson	C. Thompson	
15	1	J.S. Crowse	J.S. Gross	
16	1	S. Mariner	S. Marriner	
17	3	J. Rogers; T.[?] Given 2nd; G.P. Given	J. Rogers; Mrs. M. Given; G.P. Given	
18	1	R. Doyle	N. Woodward	
19	1	-----	-----	Skolfield Cemetery (NASB-Archy-3)
20	1	G. Woodward	G. Woodward	
21	1	N. Rogers	N. Rogers	
22	1	S.H. [School House]	School	
23	1	F. Given	E. Given	
24	1	Capt W^{m}. Given	W. Given	
25	1	T.S. Dunning	Capt. H. Orr	
26	1	S. Given	-----	
27	1	-----	-----	Salt marsh dikes (NASB-Archy-2)
28	1	J. Wallace	H. Wallace	
29	1	A.H. & W^{m}. Jordon	H. Jordan	
30	1	S.H. [School House]	School	
31	2	S. Ferrin; J. Jordan	S. Ferrin ;J. Jordan	
32	1	W^{m}. Leavitt	A.W.	
33	1	Dresser (outside?)	A. Tarn	
34	1	Cemetery	Cemetery	New Meadows Cemetery
35	1	-----	-----	Gatchell Cemetery

Figure 23: Historic Archaeological Sensitivity at Main Station

The tract is an area of undistinguished terrain located thousands of feet from any significant modern or relict drainage feature. Consequently, classification of the tract using the decision tree model (see Figure 21) identifies it as having low sensitivity for prehistoric archaeological sites.

No structures have been documented for the tract for the nineteenth century (see Figures 5 and 6), and it appears unlikely that any were constructed there in the twentieth century (see Figure 7, cf. USGS 1945). Therefore, the area is regarded as having a low sensitivity for historic archaeological resources.

East Brunswick Remote Radio Transmitter Site

The transmitter buildings and antenna array were constructed in the late 1950s. This construction probably involved relatively isolated disturbances of limited portions of the 66-acre tract. The land comprising this facility can be characterized as a Disturbance Zone 1 area.

The tract is an area of undistinguished terrain located thousands of feet from any significant modern or relict drainage feature. Classification of the tract using the decision tree model (see Figure 21) identifies it as having low sensitivity for prehistoric archaeological sites.

No structures have been documented for the tract for the nineteenth century (see Figures 5 and 6), but it appears that one structure, a building classified as a "dwelling other than farm unit," may have stood within the present property boundaries in the 1930s (see Figure 7). The recent age of this structure and the lack of earlier structures on the tract indicate that it has a low sensitivity for historic archaeological resources.

A surface reconnaissance of this property yielded no prehistoric or pre-mid-twentieth century artifacts. This result supports the evaluation that it has low sensitivity for both prehistoric and historic resources.

Topsham Annex

The annex was developed in the 1950s and 1960s, probably on a mix of farmland, woodland, and quarry property. The pattern of structures on the site today and the characteristics of the terrain surface indicate varying degrees of disturbance in different portions of the facility. The long southern segment on the upper slopes of Mount Ararat and some peripheral areas of the main tract appear to have undergone comparatively limited disturbance. They could be classified as Disturbance Zone 1 areas. The terrain of the western two-thirds of the main facility appears to be one of discontinuous but locally severe ground disturbance. These features indicate a Disturbance Zone 2 area. Construction of the residential area on the steep lower slopes of Mount Ararat in the eastern section of the tract required extensive landform modification, including excavation and grading. This portion of the tract is a Disturbance Zone 3 area.

The property consists of varied, mostly sloping terrain at a considerable distance from any significant drainage features. The tract extends to the crest of Mount Ararat, which provides an excellent vista of the surrounding area. Preservation of archaeological deposits appears unlikely, however, because of the intensive alteration of the crest area for the construction of radomes. There are extensive outcrops of bedrock on the hillslope, but these consist of coarse-grained igneous rocks, unsuitable for prehistoric stone tool manufacture. In the northwestern portion of the main tract there is an area of poorly drained soil, which could have been a wooded wetland in prehistory. There are, however, no terrain features in the vicinity of this possible wetland that would be likely to have attracted prehistoric hunters or gatherers. Analysis of the terrain at the Topsham Annex using the decision tree model thus indicates that the area has a low potential for prehistoric archaeological sites.

During the historic period, there appears to have been at least one dwelling located within the present boundaries of the property (see Figure 8). This property was owned by one G. Howland in 1858 and, according to a period map, was located in the eastern portion of the property (see Figure 8). Additional analysis of USGS quadrangles (USGS 1894, 1945) suggests the Howland and possibly other properties were located in the west-central part of the facility, possibly in the vicinity of Canam Drive and Republic Avenue. Deposits associated with the former Howland property, if extant, could be of archaeological interest. Unfortunately, the available data does not permit a very precise determination of the location of the structures. In addition, the classification of the western two-thirds of the property as a Disturbance Zone 2 area makes it difficult to evaluate the likelihood of preservation of archaeological deposits. Pending the acquisition of additional information, the western half of the Topsham Annex is classified as having a low to moderate potential for historic archaeological resources. The eastern portion of the annex is regarded as having a low potential for such resources.

Outlying Facility, SERE School, Redington, Maine

On the whole, human activities have created few substantial ground disturbances in the rugged, isolated 12,000-acre SERE School tract. Areas of intensive disturbance appear to have been limited to the following areas: the right-of-way for the now-abandoned Sandy River & Rangeley Lakes (ex-Phillips & Rangeley) Railroad; Redington Pond, particularly in the vicinity of the dam; Redington Village; and the present SERE School facilities. The overall effects of logging in the area were probably minor or modest, though there may well have been severe localized disturbances along logging roads, trails, landings, and sluices.

Only limited archaeological research has been conducted in the mountains of western Maine. Even when the wider region of all of northern New England is considered, there are comparatively few studies of montane areas, though there are a few exceptions (Lacy 1994; Robinson et al. 1991). Consequently, there is little specific information on which to base a sensitivity model for prehistoric resources. Statements concerning the prehistoric archaeological sensitivity of the SERE School are thus based on broad generalizations and assumptions concerning the ways prehistoric people could have used the region. Based upon these

generalizations and assumptions, there appear to be few areas within the boundaries of the SERE School that have the potential to contain prehistoric sites.

Mountain slopes comprise the majority of the terrain (see Figure 4). Prehistoric sites in this topographic setting are likely to be very rare and quite widely dispersed. Humans tend to prefer level or gently sloping surfaces for camps and longer-term settlements. Thus, prehistoric Native Americans, if they visited steep mountain slopes at all, would have tended to use these areas for purposes other than residence. These purposes might have included hunting, gathering, and ritualistic activities, such as spirit quests. Many of these activities in mountain slope areas would be of such a transient nature as to leave little material for the archaeological record. And, although there are ravines and narrow stream valleys crossing the mountain slopes, these drainage features for the most part would probably not be particularly favored for prehistoric activities because of their steep sides and high gradients.

These observations indicate that the mountain slopes in the SERE School area have a generally low potential for prehistoric archaeological sites. However, it is possible that prehistoric Native American activities might have left a few archaeological sites in this setting. The most probable settings for sites would be comparatively level benches on the slopes. Depending on elevation, aspect, local resources, and surrounding terrain, these benches might have been used for hunting stands, processing camps, or ritual activities. One such feature, known to SERE School instructors as The Bluffs, is a nearly level bench at the top of a near-vertical rock face on the northern mountain slopes. It provides a superb view of the valley below. There may be other such features within the boundaries of the school. There is little reason to expect sites of other types on the mountain slopes of the SERE School. The igneous bedrock of the school lacks characteristics favoring the development of overhangs or caves, so rockshelters are unlikely. Similarly, there are apparently no outcrops of high-quality lithic materials, so quarry sites are probably absent (Arthur Spiess, MHPC, personal communication, February 1995).

The potential for locating prehistoric sites on the valley floor is somewhat higher than on the mountain slopes, but, overall, few sites should be expected. Prehistoric sites in this topographic setting would probably be small and primarily located on well-drained soils adjacent to ponds, streams, and stream confluences, and wetlands. Sites are likely to reflect task-specific activities, such as hunting, gathering of specific seasonal plant foods, or possibly ritual activities.

Another possible site type is the travel camp. As noted, although the Orbeton and Redington streams are both in the Kennebec drainage system, they flow into different tributaries of the river. The Orbeton flows south into the Sandy River, while the Redington flows north into the Dead River. The Sandy River provides a link between the Kennebec River, Rangeley Lakes, and the Androscoggin River, while the Dead River provides an easy route around the steep and treacherous upper Kennebec River below Moosehead Lake (Cook 1985:45-49). The drainage divide between Orbeton Stream and Redington Stream is located on SERE School lands, and it appears possible that, given the use of light-weight birch bark canoes, the short portage between the two could have been part of an interior canoe route. Such a portage route might have entailed a brief stay within the valley, which might in turn be evidenced by thin archaeological sites.

Despite these possible site types, the archaeological sensitivity of the valley floor is on the whole judged to be low. Restricted areas of moderate to high sensitivity occur in the vicinity of key topographic features, such as well-drained, level to gently sloping, slightly elevated terrain near wetlands and streams. Most such terrain occurs near the esker and kame terrace deposits, located primarily on the northern side of the valley. The sensitivity of such topographic features is judged to be highest when they are situated within approximately 100 meters (300 feet) of a stream or wetland.

In regard to historic archaeological resources, reconnaissance of the Redington Village-Redington Pond area indicates the presence of late nineteenth- to twentieth-century materials. Given the apparent late date of these archaeological deposits, it is questionable whether they would be considered significant under Criterion D of the NRHP. Nonetheless, MHPC tends to regard the earliest historic archaeological evidence of settlement in any region of Maine as potentially significant historic resources (Robert Bradley, MHPC, personal communication, February 1995). From this point of view, there is the possibility that the remains around the village and pond at Redington could be evaluated as significant. Further historical and archaeological investigation or additional consultation with MHPC is probably required to clarify this matter.

Figure 24 is a highly generalized depiction of archaeological resource sensitivity within the SERE School area.

Architectural Resources

NOTE: The draft version of this cultural resources study was submitted to Northern Division, Naval Facilities Engineering Command in January 1996. It was subsequently reviewed by the Maine State Historic Preservation Commission. Results of that review and associated consultation are incorporated into the following discussion.

Main Station - Historic District Potential

The main station of NASB does not possess any assemblage of pre-1946 buildings that meets the definition of a historic district under National Register Criterion C. The core of the main station that was developed during World War II retains the pattern of streets and the basic spatial organization of activities established during that period, but because of the greater number and general scale of the buildings constructed since 1946, the immediate environment of the World War II buildings has a distinctly late twentieth-century character. Furthermore, a majority of the World War II buildings extant in this section of the main station have been altered significantly, diminishing their integrity of design, workmanship, and materials. This study has concluded that pre-1946 buildings in the main station's core area lack both architectural continuity and collective integrity, and thus do not clearly constitute a "distinguishable entity."

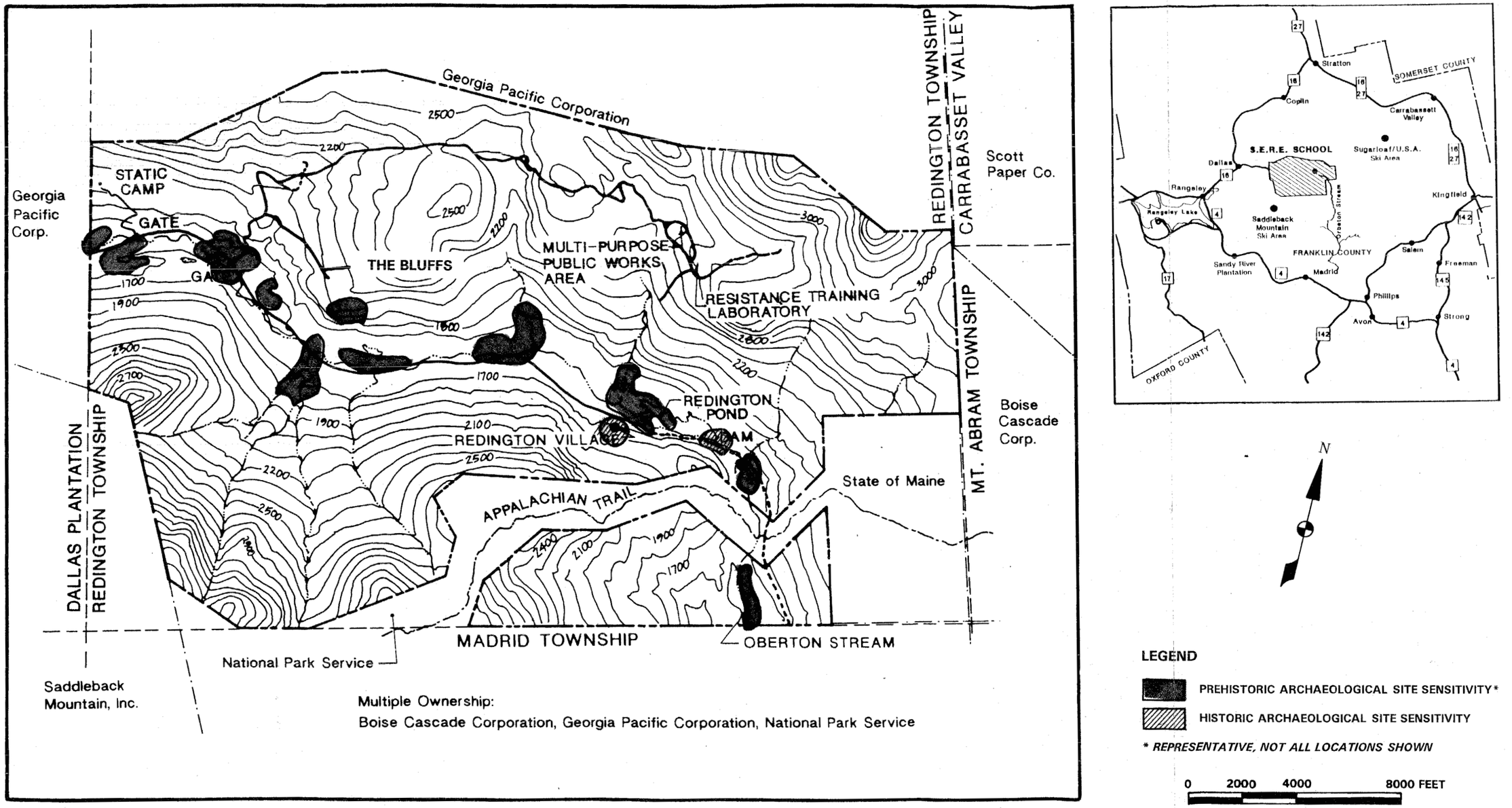


Figure 24: Archaeological Sensitivity at SERE School

However, the main station of NASB does contain one group of buildings erected since 1946 that are clearly united by design and historical development. These resources are Buildings 211-220, the BEQ Barracks, and the attendant Subsistence Building. Constructed in 1954, these buildings are clearly the product of a single design concept, possessing strong unity of design, workmanship, and use of materials, as well as unity of purpose — the housing of naval personnel. These buildings typify the building style used by the Navy during this period. Although they do not demonstrate the exceptional significance necessary to meet National Register Criteria Consideration G governing resources less than 50 years of age, these buildings may meet National Register Criterion C upon reconsideration when they reach the 50-year age threshold.

Main Station - Individual Resources

Approximately 50 individual resources on the main station of NASB date from the period 1943-1949, most of which are not individually eligible for the NRHP. Although many of these resources possess important historical associations with the initial development of NASB, they have been altered to the extent that integrity of design, of workmanship, and of materials, in particular, are absent or are greatly diminished. Buildings 44, 63, and 64, however, meet National Register Criterion C as somewhat unusual, and increasingly rare, examples of World War II naval ordnance magazines constructed of steel. The use of steel appears to have represented a departure from standard Navy practice of the time, for, as noted in *Building the Navy's Bases*, "magazines, of course, were necessarily built of masonry, irrespective of the duration of their probable usefulness" (U.S. Navy, Bureau of Yards and Docks 1947:339). While the precise reasoning behind the selection of steel for these magazines has not been determined from available literature, it is possible that the extreme need for haste in the development of ordnance storage at NASB led planners to choose the quickly and easily assembled steel structures over more slowly erected concrete enclosures. According to NASB personnel, the Navy has replaced most magazines of this type with more durable concrete structures of modern design. Of the 14 earth-covered magazines built at NASB in 1943, half are extant today, but Magazines 44, 63, and 64 are the only ones remaining on their original locations. All three magazines retain integrity of location and setting and demonstrate excellent integrity of design, materials, and workmanship.

Hangars 1, 2, and 3, and also Building 35, are essentially the only resources directly associated with NASB's World War II-era mission remaining on the station. Postwar modifications to the three hangars were undertaken in direct response to NASB's reactivation and refurbishment in the early years of the Cold War. Building 35, a former radio transmitter facility, is largely unaltered, although no longer in use. Consultations between the Navy and the Main State Historic Preservation Officer have led to the finding that all four meet National Register Criterion A for their association with the historical mission of NASB, and Criterion C as examples of mission-related design and construction during World War II and the Cold War.

Outlying Facilities - East Brunswick Remote Radio Transmitter Site

Buildings 523 and 524 were constructed in 1958, and evidently were the only buildings ever built on this now unused site. The many radio antennae that once dotted the rest of the site have been removed. Consultations between the Navy and the Maine State Historic Preservation Officer have led to the finding that these two buildings meet National Register Criterion C and Criteria Consideration G as illustrative of mission-related design and radioactivity-resistant construction that the U.S. military employed for communications facilities in the 1950s.

Outlying Facilities - Topsham Annex

Consultations between the Navy and the Maine State Historic Preservation Officer have led to the finding that Building 373 meets National Register Criterion C and Criteria Consideration G as illustrative of mission-specific design and function associated with the SAGE program run by the Air Force between 1958 and the early 1980s. They are the only mission-related buildings remaining from the SAGE program at Brunswick, as the Direction Center that was the reason for the compound's existence was demolished in the early 1970s. SAGE was a computer-assisted communications system developed in the mid-1950s as part of the National Defense system for air interception of enemy aircraft and missiles (Green 1994). The Topsham station was established and operated by the Air Force from 1957 until circa 1970, when the property was transferred to NASB (Jadlowski 1964; NASB 1942-1995; PHS Vertical File). Although SAGE never proved very effective (Green 1994), the Topsham facility was associated with an important experiment in the early use of computers by the military during the Cold War.

Outlying Facilities - McKeen Street Housing Complex

The McKeen Street Housing Complex exhibits basic characteristics of a historic district but does not demonstrate qualities of exceptional significance as required by National Register Criteria Consideration G, which governs properties less than 50 years of age. Diminished integrity of design, of materials, and of workmanship militate against the complex's ability to exemplify Navy construction under the Capehart Housing Act, despite the importance of the act with respect to military housing in the early Cold War era.

Outlying Facilities - SERE School, Redington, Maine

Due to the classified nature of both Cold War and present-day activities at the SERE School, information pertinent to a full evaluation of the post-1960 resources within its boundaries has not been available for this study. Based on presently available information, the SERE School does not appear to contain buildings or structures of exceptional importance with respect to the Navy's involvement in the Cold War, and thus does not meet National Register Criteria Consideration G governing resources less than 50 years of age.

Existing resources associated with the Resistance Training Laboratory of the SERE School may prove to meet National Register Criteria once they have reached the age of 50 years, as associated with and illustrative of a program of training and preparedness peculiar to the Cold War era. The majority of the resources associated with the Resistance Training Laboratory may be dated to the period between 1961 and 1970, and appear to possess a high level of integrity.

The buildings of Redington Village do not meet National Register Criteria. Although they possess integrity of location, feeling, and generally of design, lack of maintenance has degraded the integrity of materials and workmanship. Because of the loss of the railroad tracks, and any visible reminders of the railroad and logging activities that were the reason for their existence, the remains of this turn-of-the-century village lack integrity of association with these events.

Table 2 presents a summary of NRHP evaluations for the buildings at NASB.

TABLE 2

ARCHITECTURAL RESOURCES INVENTORY
FOR NAVAL AIR STATION BRUNSWICK

BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
Main Station — World War II Buildings and Structures					
1	Aircraft Hangar	1942, 1953, 1971	Maintenance Hangar	Maintenance Hangar	NRE
2	Aircraft Hangar	1942, 1953, 1971	Maintenance Hangar	Maintenance Hangar	NRE
3	Aircraft Hangar	1942,1953, 1971	Maintenance Hangar	Vacant	NRE
4	Administration Building	1942, 1986	Administrative Offices	Administrative Offices	NE-I
6	Electrical Shop	1943, 1992?	Public Works Shop	Public Works Shop	NE-I
8	Public Works Building	1944, 1980	Public Works Shop	Administrative Office	NE-I
9	Housing Office	1943, 1985	Housing Administration and Storage	Housing Administration and Storage	NE-I
12	Supply Building	1945, 1972, 1982	Supply Building	Administrative Office, Rehabilitation Center, Data Processing Center	NE-I
13	Paint-Oil Storage	1944	Paint-Oil Storage	Hazardous Materials Storage	NE-I
15	General Storehouse	1943	Personnel Support Storage	Personnel Support Storage	NE-I
16	Navy Exchange Warehouse	1943, 1966	Navy Exchange Warehouse	Squadron Liaison Office, Navy Exchange Service	NE-I

Key:

NRE = eligible for NRHP
NE-I = not eligible, lacks integrity
NE-S = not eligible, lacks significance
NE-A = does not meet standards for exceptional importance (<50) — requires reevaluation upon reaching 50 years
NE-PR = does not meet standards for exceptional importance (<50) — warrants priority reevaluation upon reaching 50 years

BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
20	Community Facilities	1943	Junior Bachelor Officers' Quarters	Administrative Offices, Post Office	NE-I
22	Brig	1943, 1976	20-Cell Brig	Ordnance Operations Building	NE-I
28	Oxygen Shop	1944	Oxygen Storage	Liquid Nitrogen Facility	NE-I
35	Applied Instruction Building (Medical)	1943	Radio Transmission Building	Applied Instruction Building	NRE
37	Pass Office	1943	Security Office	Administrative Office	NE-I
38	Officers' Mess (Orion's Landing)	1943, 1983	Officers' Mess and Recreational Facilities	Commissioned Officers' Mess	NE-I
41	Police Station	1944	Parachute Shop and Training Building	Police Station	NE-I
42	Pumphouse	1944	Water Distribution	Water Distribution	NE-S
44	Weapons/Ordnance Storage Magazine	1943	Small Arms Ammunitions Storage	Vacant	NRE
48	Carpenter Shop	1943, 1953, 1980	Public Works Shop	Public Works Shop	NE-I
51	Paint Shop	1944	Painting and Related Operations	Painting and Related Operations	NE-I
52	Inert Materials Storage Building	1943	Storage	Storage	NE-S
59	Weapons/Ordnance Storage Magazine, Weapons Area	1943	Weapons/Ordnance Storage	Weapons/Ordnance Storage	NE-I
60	Weapons/Ordnance Storage Magazine, Weapons Area	1943	Weapons/Ordnance Storage	Weapons/Ordnance Storage	NE-I

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
62	Weapons/Ordnance Storage Magazine, Weapons Area	1943	Weapons/Ordnance Storage	Weapons/Ordnance Storage	NE-I
63	Operational Storage Building (Magazine)	1943	Weapons/Ordnance Storage	Squadron Storage	NRE
64	Operational Storage Building (Magazine)	1943	Weapons/Ordnance Storage	Squadron Storage	NRE
69	Ammunition Storage Facility	1943	Ammunition Storage	Ammunition Storage	NE-S
71	Weapons/Ordnance Storage Magazine, Weapons Area	1943	Weapons/Ordnance Storage	Weapons/Ordnance Storage	NE-I
73	Storage Locker	1945	Ready Magazine or Ready Service Locker (RSL)	Storage	NE-S
74	Lumber Shed	1944	Lumber Storage	Public Works Storage	NE-I
75	Paint Shop Storage	1945	Paint Storage	Vacant	NE-S
88	Public Works Storage	1945	Public Works Storage	Public Works Storage	NE-I
93	Public Works Maintenance Storage Building	1943	Public Works Storage	Public Works Storage	NE-I
94	Paint Locker	1945	Ready Magazine or Ready Service Locker (RSL)	Ready Magazine	NE-S
100	Garage, Quarters D	1944	Automobile Garage	Automobile Garage	NE-S
110	Garage, Quarters A and B	1943	Automobile Garage	Automobile Garage	NE-S

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
111	Sewage Pumping Station, Quarters A and B	1943	Sewage Pump House	Sewage Pump House	NE-S
124	Fire Protection Water Tank	1944	Fire Protection Water Tank	Fire Protection Water Tank	NE-S
156	Naval Guns/Administration	1946	Naval Guns	Monument	NE-S
157	Naval Guns/Administration	1946	Naval Guns	Monument	NE-S
T205	Public Works Storage	1945	Public Works Storage	Public Works Storage	NE-I
266	Line Shack	1945	Line Shack	Line Shack	NE-S
280	VHF/UHF Transmitter	1945	VHF/UHF Transmitter	VHF/UHF Transmitter	NE-S
Quarters A	Public Quarters, Senior Officer	1943	Commanding Officer's Quarters	Residence	NE-S
Quarters B	Public Quarters, Senior Officer	1943	Executive Officer's Quarters	Residence	NE-S
Quarters D	Public Quarters, Junior Officer	1925	Medical CO's Quarters	Residence	NE-I
Main Station — Post-World War II Buildings and Structures					
5	Aircraft Maintenance Hangar	1982	Maintenance Hangar	Maintenance Hangar	NE-A
11	Naval Exchange	1981	Naval Exchange	Naval Exchange	NE-A
19	Disposal Storage Building	1981	Storage	Storage	NE-A
21	Child Care Center	1983	Child Care Center	Child Care Center	NE-A
23	Car Wash	1994	Car Wash	Car Wash	NE-A

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
24	Personnel Support Detachment	1982	Community Facilities	Community Facilities	NE-A
25	Gymnasium	1983	Gymnasium	Gymnasium	NE-A
26	Child Care Center	1990	Child Care Center	Child Care Center	NE-A
27	Family Services Center	1982	Family Services Center	Family Services Center	NE-A
29	Auto Hobby Shop	1988	Recreation Shop	Recreation Shop	NE-A
32	Police Operations Building	1981	Police Operations	Police Operations	NE-A
33	Main Gate Sentry House	1954	Gate/Sentry House	Vacant	NE-A
34	Golf Cart Storage	N/A	Golf Cart Storage	Golf Cart Storage	NE-A
36	Heating Plant	1985	Heating Plant	Heating Plant	NE-A
39	Golf Course Maintenance Building	1985	Maintenance Building	Maintenance Building	NE-A
40	Public Works Maintenance Storage	1986	Oil Spill Equipment Storage	Oil Spill Equipment Storage	NE-A
43	Telephone Exchange Building	1988	Telephone Exchange	Telephone Exchange	NE-A
45	Hazardous Waste Storage	1992	Hazardous Waste Storage	Hazardous Waste Storage	NE-A
46	EDC Test Facility	N/A	EDC Test Facility	EDC Test Facility	NE-A
49	Electrical Regulator/ Substation Building	1981	Electrical Substation	Electrical Substation	NE-A
50	Groundwater Treatment Plant	1995	Water Treatment	Water Treatment	NE-A
53	HAZMAT Spill Response	1998	HAZMAT Spill Response	HAZMAT Spill Response	NE-A

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
54	FASCO Applied Instruction Building	1988	Instruction	Instruction	NE-A
56	Scale House	1987	Weighing Facility	Weighing Facility	NE-A
65	Picnic Shelter	1986	Picnic Shelter	Picnic Shelter	NE-A
72	Skating Area Gazebo	1985	Skating Area Gazebo	Skating Area Gazebo	NE-A
76	Ready Service Locker (RSL)	1981	Ready Magazine	Ready Magazine	NE-A
77	Receiving Building, Weapons Area	Ca. 1994	Receiving Building	Receiving Building	NE-A
78	Golf Course Club House	1981	Golf Course Club House	Golf Course Club House	NE-A
79	Hobby Shop Storage	1980	Hobby Shop Storage	Hobby Shop Storage	NE-A
81	Inert Storage Building	1980	Storage	Handling Equipment Storage	NE-A
83	Ordnance Disposal Area (EOD Site)	1981	Ordnance Disposal	Ordnance Disposal	NE-A
85	Toilet Building, Ball Fields and Tennis Courts	1980	Toilet	Toilet	NE-A
86	Aircraft Ground Support Shop	1992	Aircraft Ground Support Shop	Aircraft Ground Support Shop	NE-A
87	Communications Center	1988	Communications Center	Communications Center	NE-A
92	Pump Shelter Glycol	N/A	Pump Shelter Glycol	Pump Shelter Glycol	NE-A
109	Police Dog Kennel	1983	Dog Kennel	Dog Kennel	NE-A
117	Gasoline Filling Station	1984	Gasoline Filling Station	Gasoline Filling Station	NE-A

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118	Filling Station Storage Building	1984	Storage	Storage	NE-A
122	Flag Pole	1988	Flag Pole	Flag Pole	NE-A
126A-G	Maine National Guard Magazine	1983	Weapons/Ordnance Storage	Weapons/Ordnance Storage	NE-A
127	Maine National Guard Magazine	1983	Weapons/Ordnance Storage	Weapons/Ordnance Storage	NE-A
128	Maine National Guard Magazine	1983	Weapons/Ordnance Storage	Weapons/Ordnance Storage	NE-A
150	Aviation, Physiology, Water Survival Training Unit (APTU)	1992	APTU	APTU	NE-A
153	Sand/Gravel Storage Building	1992	Storage	Storage	NE-A
200	Control Tower and Operations Building	1952	Control Tower and Operations Building	Control Tower and Operations Building	NE-A
201	Galley	1953	CPO Club	Galley	NE-A
208	Fuel Farm Transformer Vault	1952	Fuel Farm Transformer Vault	Fuel Farm Transformer Vault	NE-A
209	Weather Service and Meteorological Offices	1954 1968, 1974	NWSED Radar Building	Rigging Shop	NE-A
210	Beacon Tower	1954	Aviation Beacon	Aviation Beacon	NE-A
211	Neptune Hall	1954	BEQ Mess	Vacant	NE-PR
212	BEQ Barracks	1954	BEQ Barracks	Vacant	NE-PR
213	BEQ Barracks	1954	BEQ Barracks	BEQ Barracks	NE-PR
214	BEQ Barracks	1954	BEQ Barracks	BEQ Barracks	NE-PR
215	BEQ Barracks	1954	BEQ Barracks	BEQ Barracks	NE-PR
216	BEQ Barracks	1954	BEQ Barracks	Vacant	NE-PR

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
217	BEQ Barracks	1954	BEQ Barracks	BEQ Barracks	NE-PR
218	BEQ Barracks	1954	BEQ Barracks	BEQ Barracks	NE-PR
219	BEQ Barracks	1954	BEQ Barracks	BEQ Barracks	NE-PR
220	BEQ Barracks	1954	BEQ Barracks	BEQ Barracks	NE-PR
222	Storage	1954	Storage	Storage	NE-A
223	Advanced Undersea Weapons (AUW) Shop	1953	Mine Shop	Mine Shop	NE-A
224	Training Building	1954	Training Building	Thrift Shop and Offices	NE-A
225	Vehicle Maintenance Shop	1953, 1958, 1967	Vehicle Maintenance	Vehicle Maintenance	NE-A
226	[Radar Station]	1956	Electronics Storage	[Radar Station]	NE-PR
227	Standby Generator Building	1956	Electrical Power Generation	Electrical Power Generation	NE-PR
228	Gate/Sentry House	1980	Gate/Sentry House	Gate/Sentry House	NE-A
229	GCA Hardstand	1963	GCA Hardstand	GCA Hardstand	NE-A
230	Electronic Communications Maintenance Building	1956	Transmitter Building, TACAN	Communications Maintenance	NE-A
233	Central Heating Plant	1956, 1983	Heating Plant	Heating Plant	NE-A
234	Generator Building	1956, 1976	Generator Building	Stand-By Generator	NE-A
235	Garage, Quarters E	1955	Automobile Garage	Automobile Garage	NE-A
236	Garage, Quarters F	1955	Automobile Garage	Automobile Garage	NE-A
237	Garage, Quarters G	1955	Automobile Garage	Automobile Garage	NE-A
238	Garage, Quarters H	1955	Automobile Garage	Automobile Garage	NE-A
239	Garage, Quarters I	1955	Automobile Garage	Automobile Garage	NE-A

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
240	Garage, Quarters EA	1955	Automobile Garage	Automobile Garage	NE-A
241	Garage, Quarters EB	1955	Automobile Garage	Automobile Garage	NE-A
242	Garage, Quarters EC	1955	Automobile Garage	Automobile Garage	NE-A
243	Garage, Quarters ED	1955	Automobile Garage	Automobile Garage	NE-A
244	Garage, Quarters EF	1955	Automobile Garage	Automobile Garage	NE-A
245	Electrical Charging Facility for Forklifts, Weapons Area	1956	Operational Storage	Electrical Charging Facility	NE-A
250	Aircraft Maintenance Hangar (Hangar 4)	1956, 1968, 1985	Maintenance Hangar	Maintenance, Photographic Building, Offices, Class Rooms	NE-A
252	Vehicle Maintenance Shop	1957	Vehicle Maintenance	Vehicle Maintenance	NE-A
254	Drafting Tank	1957	Drafting Tank	Drafting Tank	NE-A
255	Golf Course	1955	Golf Course	Golf Course	NE-A
256	Playing Field	1943	Playing Field	Playing Field	NE-A
257	Playing Court	1965	Playing Court	Playing Court	NE-A
264	Electric Substation	1953	Electric Substation	Electric Substation	NE-A
265	Forrestal Sentry Booth	1960	Forrestal Sentry Booth	Forrestal Sentry Booth	NE-A
277	Sewage Pump Station	1953	Sewage Pump Station	Sewage Pump Station	NE-A
282	Compass Rose	1956	Compass Rose	Compass Rose	NE-A

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
285-290	Weapons/Ordnance Magazines (6), Weapons Area	1956	Weapons/Ordnance Storage	Weapons/Ordnance Storage	NE-PR
291	Fuse/Detonator Magazine, Weapons Area	1956	Weapons Storage	Weapons Storage	NE-PR
292	Fire Barn	1957, 1983	Fire/Rescue Station	Fire/Rescue Station	NE-A
293	Theater	1957	Theater	Vacant/Storage	NE-A
294	Supply Facilities	1956	Storage	General Storage	NE-A
295	Water Reservoir Pumping Station	1957	Fire Protection Pumping Station	Fire Protection Pumping Station	NE-A
296	Tactical Air Navigation (TACAN) Building	1956	Radio Facility	Radio Facility	NE-A
297	Batting Cage	1988	Batting Cage	Batting Cage	NE-A
309	Water Pump House	1954	Water Pump House	Water Pump House	NE-A
310	Golf Course Dam	1954	Golf Course Dam	Golf Course Dam	NE-A
323	Brunswick Gardens Storage	1949	Storage	Storage	NE-A
347	Picnic Pond Dam	1954	Picnic Pond Dam	Picnic Pond Dam	NE-A
349	Fund 50-69 EM Housing	1958	Residence	Residence	NE-A
413	Temporary Building, Ordnance Loading Area	Ca. 1975-1985	Temporary Office	Temporary Office	NE-A
415	Temporary Building, Kennel Area	Ca. 1980	Temporary Office	Temporary Office	NE-A
426	Temporary Building	Ca. 1980	Temporary Storage	Temporary Storage	NE-A
437	Temporary Building	Ca. 1980	Temporary Storage	Temporary Storage	NE-A

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
440	Temporary Building, Hangar 5	Ca. 1980	Temporary Office	Temporary Office	NE-A
445	Line Shack	1980	Line Shack	Line Shack	NE-A
446	Avionic Shop Trailer	1991	Temporary Office	Temporary Office	NE-A
447	Line Shack	1980	Line Shack	Line Shack	NE-A
490	Temporary Building	Ca. 1980	Temporary Storage	Temporary Storage	NE-A
496	Temporary Building	Ca. 1980	Temporary Storage	Temporary Storage	NE-A
497	Temporary Building	Ca. 1980	Temporary Storage	Temporary Storage	NE-A
498	Temporary Building	Ca. 1980	Temporary Storage	Temporary Storage	NE-A
499	Temporary Building	Ca. 1980	Temporary Storage	Temporary Storage	NE-A
512	Bachelor Officers' Quarters	1958	Bachelor Officers' Quarters	Bachelor Officers' Quarters	NE-A
516	Enlisted Personnel Club "Nite Flite"	1958	Enlisted Men's Club	Enlisted Personnel Club, Sports Bar	NE-A
517	Radio Receiver Building	1958	Radio Receiver Building	Radio Receiver Building	NE-PR
518	Electrical Generator Building	1958	Electrical Generator Building	Electrical Generator Building	NE-PR
537	Sewage Pumping Station	1953	Sewage Pumping Station	Sewage Pumping Station	NE-A
538	Navy Exchange Service Station	1954, 1975, 1979	Service Station	Service Station	NE-A
539	Weapons Shop, Weapons Area	1958	AUW Shop	AR/UWT Weapons Shop, Ammunition and Explosives Maintenance Shop	NE-A
543	Weapons/Ordnance Storage Magazine, Weapons Area	1958	Weapons/Ordnance Storage	Weapons/Ordnance Storage	NE-A

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
544	Weapons/Ordnance Storage Magazine, Weapons Area	1958	Weapons/Ordnance Storage	Weapons/Ordnance Storage	NE-A
548	Weapons/Ordnance Storage Magazine, Weapons Area	1959	Weapons/Ordnance Storage	Weapons/Ordnance Storage	NE-A
549	Weapons/Ordnance Storage Magazine, Weapons Area	1959	Weapons/Ordnance Storage	Weapons/Ordnance Storage	NE-A
555	Sonobuoy Shop	1959	ASME Storage Building	Maintenance Shop and Storage	NE-A
556	Loading Dock	1948	Loading Dock	Loading Dock	NE-S
557	Small Point Rake Tower	1960	Small Point Rake Tower	Small Point Rake Tower	NE-A
558	Sabino Hill Rake Tower	1960	Sabino Hill Rake Tower	Sabino Hill Rake Tower	NE-A
561	PW Storage - McKeen Street	1960	PW Storage - McKeen Street	PW Storage - McKeen Street	NE-A
562	Transmissometer	1960	Transmissometer	Transmissometer	NE-A
563	Transmissometer	1960	Transmissometer	Transmissometer	NE-A
584	Defense Reutilization and Marketing Office	1965	Warehouse	Disposal Facility/ General Warehouse	NE-A
585	Chapel	1966	Chapel	Chapel	NE-A
592	Telephone Exchange Building	1950, 1968	Telephone Exchange Building	Telephone Exchange Building	NE-A
594	Communications Center	1950	Communications Center	Communications Center	NE-A
600	Transmissometer	1960	Transmissometer	Transmissometer	NE-A
601	Transmissometer	1965	Transmissometer	Transmissometer	NE-A

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
602	Glide Slope Antenna Building	1998	Glide Slope Antenna Building	Glide Slope Antenna Building	NE-A
603	Localizer Antenna	1998	Localizer Antenna	Localizer Antenna	NE-A
613	Picnic Area Toilet	1966	Picnic Area Toilet	Picnic Area Toilet	NE-A
617	Aircraft Spare Parts Storage Building, Hangar 5	1968	Aircraft Maintenance Storage	Aircraft Maintenance Storage	NE-A
626A,B,C	Special Weapons Magazine, Weapons Area	1973	Weapons Storage	Weapons Storage	NE-A
627	AUW Magazine	1973	AUW Magazine	AUW Magazine	NE-A
629-631	Battalion/Squadron Headquarters, Seabees	1974	RSSA Site	Administrative Offices	NE-A
632	Work Shop/Office, Seabees	1974	RSSA Site	Shop, Office	NE-A
633	Operational Storage, Auto Organizational Shop Building	1974	RSSA Site	Storage, Shops	NE-A
634	Operational Storage, Seabees	1974	RSSA Site	Bravo Company Shops, Storage	NE-A
635	Auto Organizational Shop Building, Seabees	1974	RSSA Site	Storage, Shops	NE-A
636	Shop, Seabees	Ca. 1990	Shop	Shop	NE-A
638	Sewage Pump House, Brunswick Gardens	1954	Sewage Pump House	Sewage Pump House	NE-A
639	Operational Training Building	1975	Operational Training Building	Operational Training Building	NE-A

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
640	Public Works Maintenance Storage, Salt/Sand/Gravel	1974	Sand/Gravel Storage	Sand/Gravel Storage	NE-A
642	Alert Force Building, Weapons Area	1978	Rapid Reaction Force Building	Vacant	NE-A
643	Gate/Sentry House, Weapons Area	1978	Gate/Sentry House	Vacant	NE-A
644	P-3C Operational Training Building	1979	P-3C Operational Training Building	P-3C Operational Training Building	NE-A
645	Medical Clinic	1979	Medical Clinic	Medical Clinic	NE-A
646	Air Radar Building (ASR 8)	1979	Radar Station	Radar Station	NE-A
647	Pesticide and Gas Storage Shed	1978	Pesticide and Gas Storage	Pesticide and Gas Storage	NE-A
648	EDC Test Facility	1981	EDC Test Facility	EDC Test Facility	NE-A
649	Ambulance Garage	1979	Ambulance Garage	Ambulance Garage	NE-A
656	Safety Office, Seabees	1992	Fuel Storage Contamination Office	Safety Office	NE-A
657	Miscellaneous Pipe Storage	1992	Storage	Storage	NE-A
658	Shop/Office, Seabees	Ca. 1970	Shop/Office	Shop/Office	NE-A
659	Shop/Office, Seabees	Ca. 1970	Shop/Office	Shop/Office	NE-A
660	Truck Wash	1994	Truck Wash	Truck Wash	NE-A
790-800	Fund 70 Enlisted Housing (11 buildings)	1982	Residences	Residences	NE-A

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
801-866	"Brunswick Gardens" ENC Wherry EM Housing (66 buildings)	1954	Residences	Residences	NE-A
867-874	Garages, "Brunswick Gardens" (8 buildings)	1954	Automobile Garages	Automobile Garages	NE-A
875-880	ENC Capehart FD Officer Housing (6 buildings)	1960	Residences	Residences	NE-A
881-884	ENC Capehart Senior Officer Housing (4 bldgs.)	1960	Residences	Residences	NE-A
885-888	ENC Capehart FD Officer Housing (4 bldgs.)	1960	Residences	Residences	NE-A
889-903	ENC Capehart Junior Officer Housing (15 bldgs.)	1960	Residences	Residences	NE-A
904	Executive Officer's Quarters	1960	Residence	Residence	NE-A
905	Commanding Officer's Quarters	1960	Residence	Residence	NE-A
Quarters E	Fund 50-69 Junior Officer Housing	1954	Residence	Residence	NE-A
Quarters F	Fund 50-69 Junior Officer Housing	1954	Residence	Residence	NE-A
Quarters G	Fund 50-69 Junior Officer Housing	1954	Residence	Residence	NE-A
Quarters H	Fund 50-69 Junior Officer Housing	1954	Residence	Residence	NE-A

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
Quarters I	Fund 50-69 Junior Officer Housing	1954	Residence	Residence	NE-A
Quarters EA	Fund 50-69 EM Housing	1954	Residence	Residence	NE-A
Quarters EB	Fund 50-69 EM Housing	1954	Residence	Residence	NE-A
Quarters EC	Fund 50-69 EM Housing	1954	Residence	Residence	NE-A
Quarters ED	Fund 50-69 EM Housing	1954	Residence	Residence	NE-A
Quarters EE	Fund 50-69 EM Housing	1954	Residence	Residence	NE-A
LBA-0	Trailer Home Site	Ca. 1965-Ca. 1995	Residences	Residences	NE-A
LBA-1	5-bay shed south of Building 634, Seabees Area	Ca. 1965	Storage	Storage	NE-A
LBA-2	Gate/Sentry House, Dyer's Gate	1980s	Gate/Sentry House	Vacant	NE-A
LBA-3	Hobby Shop Storage Building	1980	Storage	Special Services Issuing Office	NE-A
LBA-4	Unnumbered Temporary Building	Ca. 1990	Temporary Storage	Temporary Storage	NE-A
LBA-5	Unnumbered COMPAT Utility Building	Ca. 1990	Unknown	Unknown	NE-A
LBA-6	Unnumbered Temporary Building	Ca. 1980	Temporary Storage	Temporary Storage	NE-A
LBA-7	Unnumbered Temporary Building	Ca. 1980	Temporary Storage	Temporary Storage	NE-A
LBA-8	Unnumbered Trailer	Ca. 1994	Unknown	Unknown	NE-A

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
LBA-9	Frame Building Under Construction	1995	Unknown	Unknown	NE-A
Topsham Annex Buildings and Structures					
332	Administration Office	1964	Office Building	Vacant/Storage	NE-A
333	Flag Headquarters, Army Reserve Office	1958	Administrative Offices	Administrative Offices	NE-A
336	Commissary	1957, 1963	Commissary	Commissary	NE-I
337	Reserve Training Building	1958	Auto Vehicle Shop	Reserve Training	NE-A
338	Reserve Training Building	1963	Ground Equipment Storage	Reserve Training	NE-A
339	Reserve Training Building	1964	Maintenance Shop	Reserve Training	NE-A
363	Fire Station	1962	Fire Station	Fire Station	NE-A
364	Navy Exchange Motel	1958	Temporary Lodging	Temporary Lodging	NE-A
373	Public Works Shop	1959	Radio Transmitter Building	Vacant/Storage	NRE
374	Public Works Shop	1959	Shop, Storage	Vacant/Storage	NE-A
375	Public Works Maintenance Storage	1958	Chapel, Sunday School	Vacant/Storage	NE-A
376	Bachelor Enlisted Quarters	1959	Enlisted/Warrant Officers' Quarters	Bachelor Enlisted Quarters	NE-A
377	Sewage Treatment Plant	1958	Sewage Treatment	Sewage Treatment	NE-A
381	Administrative Office Building	1958	Administrative Offices	Vacant	NE-A

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
382	Gymnasium and Small Arms Range	1958	Gymnasium	Vacant/Gymnasium , Pistol Range	NE-A
383	NCO Club	1959	Administrative Office	NCO Club	NE-A
384	Bachelor Enlisted Quarters	1958	Bachelor Enlisted Quarters	Vacant	NE-A
385	Water Storage Tank	1958	Water Storage	Water Storage	NE-A
386	Water Distribution Building	1986	Water Distribution	Water Distribution	NE-A
1092-1099	ENC Capehart Junior Officer Housing	1961	Residences	Residences	NE-A
1100-1108	ENC Capehart FD Officer Housing	1961	Residences	Residences	NE-A
1109-1116	ENC Capehart Junior Officer Housing	1961	Residences	Residences	NE-A
1117-1142	ENC Capehart EM Housing	1961	Residences	Residences	NE-A
McKeen Street Housing					
561	Public Works Shop Storage	1940	Storage	Storage	NE-S
906-914	ENC Capehart EM Housing	1960	Residences	Residences	NE-A
915-940	ENC Capehart Junior Officer Housing	1960	Residences	Residences	NE-A
941-994	ENC Capehart EM Housing	1960	Residences	Residences	NE-A
995-1008	ENC Capehart Junior Officer Housing	1960	Residences	Residences	NE-A

Key:

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NE-S = not eligible, lacks significance
NE-A = does not meet standards for exceptional importance (<50) — requires reevaluation upon reaching 50 years
NE-PR = does not meet standards for exceptional importance (<50) — warrants priority reevaluation upon reaching 50 years

BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
1009-1091	ENC Capehart EM Housing	1960	Residences	Residences	NE-A
East Brunswick Remote Radio Transmitter Site					
523	Transmitter Building	1958	Radio Transmitting	Vacant	NRE
524	Stand-by Generator Building	1958	Electrical Power Generator	Vacant	NRE
Survival, Evasion, Resistance and Escape (SERE) School					
80	Maintenance Building	1983	Maintenance	Maintenance	NE-A
82	Isolation	1972	Isolation Training	Isolation Training	NE-PR
89	Emergency Vehicle Shelter	1982	Garage	Garage	NE-A
116	Schoolhouse	1983	Instructional Facility	Instructional Facility	NE-A
451	Soft Sell Interrogation	Ca. 1965	Interrogation Training	Interrogation Training	NE-PR
565	Multi-Purpose Building	1961	Mess Hall, Quarters, Storage	Mess Hall, Quarters, Storage	NE-A
567	Generator Building	Ca. 1970	Generator Building	Generator Building	NE-A
568	Storage Building	Ca. 1965	Storage Building	Storage Building	NE-A
569	Sewage Treatment Plant	1963	Sewage Treatment Plant	Sewage Treatment Plant	NE-A
570	Recreation Building "The Outhouse"	Ca. 1962	Recreation Building	Recreation Building	NE-A
571	Storage Building	Ca. 1962	Storage Building	Storage Building	NE-A
573	Hard Sell Interrogation	Ca. 1962	Interrogation Training	Interrogation Training	NE-PR
574	Sergeant Major's and Physician's Office	Ca. 1962	SERE Training	SERE Training	NE-PR

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
575	Outhouse	Ca. 1962	Outhouse	Outhouse	NE-PR
576	Guard Tower	1963	Guard Tower	Guard Tower	NE-PR
577	Bunker	Ca. 1965	SERE Training	SERE Training	NE-PR
578	Guard Tower	1963	Guard Tower	Guard Tower	NE-PR
LBA-10-13	Housing Trailers (4)	Ca. 1994	Housing	Housing	NE-A
LBA-14	Magazine	?	Magazine	Magazine	NE-A
LBA-15	Log Cabin Instruction Building	Ca. 1985	Instruction Building	Instruction Building	NE-A
LBA-16	Cook's Shack	Ca. 1965	SERE Training	SERE Training	NE-PR
LBA-17	Search Trailer	Ca. 1970	SERE Training	SERE Training	NE-PR
LBA-18	Soft Sell Interrogation Trailer	Ca. 1965	Interrogation Training	Interrogation Training	NE-PR
LBA-19	Generator Shack	Ca. 1970	Generator Shack	Generator Shack	NE-PR
LBA-20	Instructor's Latrine	Ca 1962	Outhouse	Outhouse	NE-PR
LBA-21	Jamesway (Quonset Hut)	1970	Troop Housing	Troop Housing, Emergency Building	NE-A
LBA-22	Generator Building	Ca. 1970	Generator Building	Generator Building	NE-A
LBA-23	Outhouse	Ca. 1970	Outhouse	Outhouse	NE-A
LBA-24	Instructor's Cabin	Ca.1963-1970	Movable Temporary Building	Instructor's Cabin	NE-A
LBA-25	Outhouse	Ca. 1963-1970	Outhouse	Outhouse	NE-A
LBA-26	Checkpoint Cabin	Ca. 1963-1970	Movable Temporary Building	Housing and Instruction Cabin	NE-A
LBA-27	Outhouse	Ca. 1963-1970	Outhouse	Outhouse	NE-A

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BUILDING NUMBER	BUILDING NAME	DATE	ORIGINAL FUNCTION	CURRENT FUNCTION	EVALUATION
LBA-28	Checkpoint Cabin	Ca.1963-1970	Movable Temporary Building	Housing and Instruction Cabin	NE-A
LBA-29	Outhouse	Ca. 1963-1970	Outhouse	Outhouse	NE-A
LBA-30	Jamesway (Quonset Hut)	1970	SERE Training	SERE Training	NE-A
LBA-31	Checkpoint Cabin	Ca.1963-1970	Movable Temporary Building	Housing and Instruction Cabin	NE-A
LBA-32	Capture Shack	Ca.1963-1970	Capture Training Facility	Capture Training Facility	NE-A
LBA-33	Checkpoint Cabin	Ca. 1963-1970	Movable Temporary Building	Housing and Instruction Cabin	NE-A
LBA-34	Redington Village House	Ca. 1900	Dwelling	Vacant	NE-I
LBA-35	Redington Village House	Ca. 1900	Dwelling	Vacant	NE-I
LBA-36	Redington Village House	Ca. 1900	Dwelling	Vacant	NE-I
LBA-37	Redington Village House	Ca. 1900	Dwelling	Vacant	NE-I
LBA-38	Redington Village House	Ca. 1900	Dwelling	Vacant	NE-I

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Conclusions

Archaeological Resources

The archaeological portion of this cultural resources survey involved analysis of background materials, field reconnaissance, evaluation of prior ground disturbance, and development of sensitivity models for prehistoric and historic resources at each NASB facility. This information will provide a basis for future consultations between the Navy and the Maine State Historic Preservation Officer concerning proposed undertakings at NASB.

During the archaeological reconnaissance, five previously unrecorded sites were noted on NASB property. All date to the historic period. Three of these sites are located on the main station in Brunswick: (1) a scatter of nineteenth-century artifacts on the north side of Perimeter Road at the north end of Runway 1-19, (2) salt marsh dikes and a wooden box culvert on Harpswell Cove, and (3) the nineteenth-century Skolfield cemetery. The other two sites are situated at the SERE School in Redington: (4) late nineteenth- to early twentieth-century deposits at Redington Village, and (5) the Redington Pond dam. The reconnaissance produced no new information on two purported prehistoric sites on the main station, which are recorded in the files of the MHPC and the MSM (Gramly 1980). There are two additional cemeteries on the main station, the New Meadows and Gatchell cemeteries, which are included on USGS and NASB facility maps but which have not been recorded for the files of the MHPC.

An evaluation of the nature and extent of prior ground disturbance was completed for each facility. Three levels of ground disturbance were defined, reflecting the extent to which past and present land uses could have affected archaeological deposits. Disturbance Zone 1 represents areas with limited ground disturbance; archaeological integrity is satisfactory in this zone. Disturbance Zone 2 represents areas with discontinuous but locally severe disturbance; archaeological integrity is highly variable in this zone. Disturbance Zone 3 represents areas with extensive and severe disturbance; archaeological integrity is poor in this zone.

A sensitivity model was developed to evaluate the potential for prehistoric archaeological sites at the Brunswick-Topsham facilities of NASB. The model uses the destruction zone classification as one of eight factors to evaluate sensitivity. Other factors in the model concern the environmental setting of the parcel and any previous archaeological information on it. A generalized application of the model to the main station identified areas of high archaeological sensitivity along its northern boundary and areas of moderate sensitivity along portions of Mere Brook, its tributaries, and the shorelines of Harpswell and Buttermilk coves. The results of this application have been presented as a prehistoric sensitivity map for the main station (see Figure 22). As noted in the discussion of this map, its scale does not necessarily represent the prehistoric archaeological sensitivity for small parcels of land with accuracy. The sensitivity model, however, has been presented as a decision tree, which will permit a user to check the sensitivity of specific parcels.

Aside from the main station, the other NASB facilities in the Brunswick-Topsham area were rated as having low sensitivity for prehistoric resources.

The sensitivity of each facility for historic archaeological sites was also evaluated. This evaluation sought to identify locations where historic period sites might be located, beyond those few localities recorded during the reconnaissance. The evaluation entailed a review of historical information, focusing on nineteenth- and early twentieth-century maps. The purpose of the review was to establish the probable locations of historic period structures, around which there are likely to be deposits of archaeological interest. Each location was then compared to the disturbance zone classification to evaluate the potential for preservation of archaeological deposits and, hence, the archaeological sensitivity of the location. The analysis identified over two dozen localities on the main air station with high sensitivity for historic archaeological deposits. The western half of the Topsham Annex was also evaluated as having low to moderate historic archaeological sensitivity. Archaeological sensitivity was judged to be low at the two remaining Brunswick-Topsham area facilities.

Owing to the distance separating the SERE School in Redington from the remaining NASB facilities, a separate analysis of disturbance and archaeological sensitivity was completed for that facility. Based on the land use history of the facility, most of its area was rated as having limited prior ground disturbance (Zone 1). Overall, the sensitivity of the property for prehistoric archaeological resources was judged to be low. However, restricted areas of moderate to high potential have been identified in certain topographic-environmental settings. The majority of these settings are located both on the valley floor on well-drained, level, or gently sloping terrain in the vicinity of Redington and Orbeton streams and their tributaries. There may also be benches on mountain slopes with high archaeological sensitivity. High historic archaeological sensitivity has been found to be restricted to the locations of Redington Village and the Redington Pond dam.

Since this study was conducted at a Phase IA reconnaissance level, few conclusions can be drawn concerning the potential significance, in terms of the criteria of the NRHP, of archaeological resources at NASB. Nor can firm judgments be reached concerning the eligibility of the other known localities as archaeological resources, without further investigations to determine their age, integrity, and associations.

Under Section 106 of the National Historic Preservation Act of 1966, as amended, agencies of the federal government, including branches of the armed forces, are required to determine in advance whether an undertaking has the potential to affect significant cultural resources. Agencies are also required to afford the Advisory Council on Historic Preservation the reasonable opportunity to comment on the undertaking. Regulations promulgated by the council as 36 CFR 800 provide the necessary guidance to accomplish the review process. These regulations direct that an agency shall engage in consultations with the State Historic Preservation Officer prior to an undertaking.

Material presented in this report can be used as a basis for accomplishing the initial consultation between the Navy and the Maine State Historic Preservation Officer in regard to archaeological resources at NASB.

The models presented herein can be used by Navy planners to assemble the basic information concerning whether a particular parcel of land is likely to contain archaeological sites. Once the information concerning the archaeological sensitivity of a parcel has been assembled, it can be forwarded to the Maine State Historic Preservation Officer for review and an initial consultation. If the parcel is rated as having a low sensitivity for archaeological sites, then it is likely that further consultation will be unnecessary and the project will be able to proceed as planned. However, if the parcel is rated as having a moderate or high level of sensitivity, then the outcome of the initial consultation could include either: (a) a recommendation that the project be redesigned to avoid affecting the parcel, or (b) a recommendation that further archaeological investigations be conducted, consisting of a subsurface survey to ascertain the actual presence of archaeological sites, possibly followed by further testing to evaluate the significance of the site(s). The materials presented herein are thus intended to provide the basis for the initial step in the process of consultation between the Navy and the Maine State Historic Preservation Officer concerning the possible effects of land-related undertakings at NASB.

Planning for and management of archaeological resources at NASB would be aided by establishment of a file to track new information on archaeological studies at the facility and on substantial new ground disturbances. The ready availability of such information will ensure that evaluations of archaeological sensitivity at NASB will employ the most accurate and up-to-date information in its consultations with the Maine State Historic Preservation Officer.

Architectural Resources

The architectural portion of this cultural resources survey involved inventory and NRHP evaluation of buildings and structures erected prior to 1946 on the main station of NASB, and also those pre-1946 buildings extant on the grounds of the Navy's SERE School at Rangeley. The portions of NASB's built environment constructed after 1946 have been generally described, and the resources found to meet National Register Criteria, or most likely to meet National Register Criteria once they reach 50 years of age, have been identified.

Buildings 44, 63, and 64, earth-covered steel magazines constructed in 1943, possess integrity and meet National Register Criterion C.

As a result of MHPC review of the January 1996 draft of this report and subsequent consultations between the Navy and MHPC, Hangars 1, 2, and 3, and Building 35 (a former radio transmitter building), all constructed during World War II, are considered to meet National Register Criteria A and C. The remaining post-1946 architectural resources at NASB do not meet National Register Criteria, due to lack of demonstrable significance and/or lack of historical integrity.

Consultations between the Navy and MHPC have also led to the finding that Building 373 at the Topsham Annex, and Buildings 523 and 524 at the East Brunswick Remote Radio Transmitter Site, all built in the 1950s and associated with Navy and Air Force Cold War missions, meet Criterion C and Criteria Consideration G.

Architectural resources built since 1950 that do not meet the exceptional significance requirements of Criteria Consideration G, but have the greatest potential for NRHP eligibility once they reach the age of 50 years, are as follows:

Main Station:	Buildings 211-220 (BEQ Barracks and Subsistence Building)
SERE Facility:	Buildings 82, 451, 576, 578, 573, 574, 575, 577, LBA-16, LBA-17, LBA-18, LBA-19, and LBA-20 (Resistance Training Laboratory).

Bibliography and References Cited

Bibliographic Note: Some of the information for the historical context was compiled from extensive newspaper clipping files in the Pejepscot Historical Society, Brunswick, Maine. Most of the articles from the 1940s through the 1960s were clipped and filed without identifying the newspaper in which they were published. Occasionally it is possible to identify the newspaper by references within the article or by typeface, but for the most part the publication name cannot be determined. The dates of the articles appear to be reliable. Where the publication name is missing, sources will be cited by author (if any), and then by repository — for example, the Pejepscot Historical Society [PHS] — and the name of the folder where the article is filed.

Anonymous

n.d. History of U.S. Naval Air Station, Brunswick, Maine. Unpublished typed ms., "Brunswick Naval Air Station" folder, Pejepscot Historical Society, Brunswick, Maine.

1971 Navy Brunswick: Unofficial Guide for 1971. Boone Publications, Inc., Lubbock, Texas. On file in the "Brunswick Naval Air Station" folder, Pejepscot Historical Society, Brunswick, Maine.

Appolonia, S.

1979 *The Gulf of Maine*. Courier of Maine Books, Rockland.

Ashby, Thompson E., and Isabelle P. Congdon

1939 *Chronicle of Brunswick.* Town of Brunswick, Brunswick, Maine.

Baker, Michael, Jr., Inc. [Baker]

1989 *Survival, Evasion, Resistance and Escape School Master Plan, Naval Air Station Brunswick, Maine*. Report prepared by Michael Baker, Jr., Inc., Beaver, Pennsylvania for Northern Division, Naval Facilities Engineering Command, Philadelphia, Pennsylvania.

Baker, Sidney, et al.

1857 *Map of Cumberland Co., Maine.* J. Chace, Jr., Philadelphia, Pennsylvania. On file at the Maine State Library, Augusta.

Balogh, J.C., and G.A. Gordon

1985 *River Terrace Landforms and Soil Morphology at the Hunter Farm Archaeological Site.* Report on file with the Maine Historic Preservation Commission, Augusta.

Bath and Brunswick Chambers of Commerce

1963 *Naval Air Station, Brunswick: A Regional Airport for Southwestern Maine.* Prepared by the Air Transportation Committee, Bath and Brunswick, Maine, Chambers of Commerce (March). On file in the "Airports-Aviation" folder, Pejepscot Historical Society, Brunswick, Maine.

Beck, Christian, and Charles R. Horner
1955 Heavy Concrete for Shielding. *Concrete* (February) pp. 22 and 24.

Beers, F.W., Geo. P. Sanford, et al.
1871 *Atlas of Cumberland Co., Maine.* On file at the Maine State Library, Augusta.

Belcher, W.R.
1989 The Archaeology of the Know Site, East Penobscot Bay, Maine. *Maine Archaeological Society Bulletin* 29(1):33-46.

Belknap, D.F.
1990 Sedimentological Investigations: Cary's Garden Archaeological Site, Topsham, Maine. Appendix to *The Topsham Archaeological Project: Report on the 1988 and 1989 Surveys*, by D.B. Wilson, S.L. Cox, and B.J. Bourque. Report on file with the Maine Historic Preservation Commission, Augusta.

Belknap, D.F., B.G. Anderson, R.S. Anderson, W.A. Anderson, H.W. Borns, Jr., G.L. Jacobson, Jr., J.T. Kelley, R.C. Shipp, D.C. Smith, R. Stuckenrath, Jr., W.B. Thompson, and D.A. Tyler
1987 Late Quaternary Sea-level Changes in Maine. In *Sea Level Fluctuations and Coastal Evolution*, edited by D. Nummedal, O.H. Pilkey, and D.J. Howard, pp. 71-85. Special Publication No. 41. Society of Economic Paleontologists and Mineralogists, Tulsa, Oklahoma.

Belknap, D.F., R.C. Shipp, R. Stuckenrath, Jr., J.T. Kelley, and H.W. Borns, Jr.
1989 Holocene Sea-level Changes in Coastal Maine. In *Neotectonics of Maine: Studies in Seismicity, Crustal Warping, and Sea-level Change*, edited by W. A. Anderson and H.W. Borns, Jr., pp. 85-106. Maine Geological Survey, Augusta.

Bloom, A.L.
1963 Late-Pleistocene Fluctuations of Sea Level and Postglacial Crustal Rebound in Coastal Maine. *American Journal of Science* 261:862-879.

Bonnichsen, R., G.L. Jacobson, Jr., R.B. Davis, and H.W. Borns, Jr.
1985 The Environmental Setting for Human Colonization of Northern New England and Adjacent Canada in Late Pleistocene Time. In *Late Pleistocene History of Northeastern New England and Adjacent Quebec*, edited by H.W. Borns, Jr., P. LaSalle, and W.B. Thompson, pp. 151-159. Special Paper No. 197. Geological Society of America, Boulder, Colorado.

Borns, H.W., Jr.
1985 Changing Models of Deglaciation in Northern New England and Adjacent Canada. In *Late Pleistocene History of Northeastern New England and Adjacent Canada*, edited by H.W. Borns, Jr., P. LaSalle, and W.B. Thompson, pp. 135-138. Special Paper No. 197. Geological Society of America, Boulder, Colorado.

1986 Reconnaissance Surficial Geology of the Stratton (15') Quadrangle, Maine. Open-File No. 86-21 (Map), Maine Geological Survey, Augusta.

Borstel, Christopher L.
1982 *Archaeological Investigations at the Young Site, Alton, Maine.* Occasional Papers in Maine Archaeology 2. Maine Historic Preservation Commission, Augusta.

Boudette, E.L.
1978 *Stratigraphy and Structure of the Kennebago Lake Quadrangle, Central Western Maine.* Unpublished Ph.D. dissertation, Dartmouth College, Hanover, New Hampshire.

1991 Geologic Map of the Kennebago Lake Quadrangle, Franklin County, Maine. (1:62,500 map with 12-page document) U.S. Geological Survey, Washington, D.C.

Bourque, B.J.
1975 Comments on the Late Archaic Population of Central Maine: The View from the Turner Farm. *Arctic Anthropology* 12(2):35-45.

1989 Ethnicity on the Maritime Peninsula, 1600-1759. *Ethnohistory* 36:257-284.

1992 *Phase I Archaeological Survey of the Mid-Coast Hospital Site, Brunswick, Maine.* Report on file with the Maine Historic Preservation Commission, Augusta.

Bourque, B.J., and R.H. Whitehead
1985 Tarrantines and the Introduction of European Trade Goods in the Gulf of Maine. *Ethnohistory* 32(4):327-341.

Bourque, B.J., and D.B. Wilson
1992 *Phase III Archaeological Investigations of the Indian Springs Site, Brunswick, Maine.* Report submitted to DeLuca-Hoffman Associates, Inc, South Portland, Maine. Copy on file with the Maine Historic Preservation Commission, Augusta.

Bright, Charles D. (editor)
1992 *Historical Dictionary of the U.S. Air Force.* Greenwood Press, Westport, Connecticut.

Caldwell, D.W.
1975 *Reconnaissance Surficial Geology of the Phillips (15') Quadrangle, Maine.* Open-File No. 75-13 (Map), Maine Geological Survey, Augusta.

Caldwell, D.W., L.S. Hanson, and W.B. Thompson
1985 Styles of Deglaciation in Central Maine. In *Late Pleistocene History of Northeastern New England and Adjacent Canada*, edited by H.W. Borns, Jr., P. LaSalle, and W.B. Thompson, pp. 45-58. Special Paper No. 197. Geological Society of America, Boulder, Colorado.

Caras, Roger A.
1965 *Wings of Gold: The Story of United States Naval Aviation*. J.B. Lippincott Company, Philadelphia, Pennsylvania.

Carlson, Cathleen C.
1986 *Maritime Catchment Areas: An Analysis of Prehistoric Fishing Strategies in the Boothbay Region of Maine*. Unpublished M.S. thesis, Institute for Quaternary Studies, University of Maine, Orono.

Caruthers, James (Public Works Environmental)
1992 NASB Installation Restoration (IR) Sites. Memorandum to FMED, ROICC, Transportation, Seabee Division Officer via Public Works Officer, November 24. File reference 6280 Ser 18820. On file at Public Works Office, Naval Air Station, Brunswick, Maine.

Chace, J., Jr., Sidney Baker, Jos. Southwick, and Wm. B. Shaw
1858 *Map of Sagadahoc Co., Maine*. J. Chace, Jr., Philadelphia, Pennsylvania. On file at the Maine State Library, Augusta.

Clark, C.E.
1977 *Maine: A Bicentennial History*. W.W. Norton, New York, and the American Association for State and Local History, Nashville, Tennessee.

Cook, D.S.
1985 *Above the Gravel Bar: Indian Canoe Routes of Maine*. Published by the author, Winthrop, Maine.

Coletta, Paolo E. (editor)
1985 *United States Navy and Marine Corps Bases: Domestic*. Greenwood Press, Westport, Connecticut.

Cowie, E.R.
1990 Recent Archaeological Investigations in the Southern Androscoggin River Valley, Maine. *Maine Archaeological Society Bulletin 30(1):1-14*.

Cowie, E.R., and J.B. Petersen
1990 *Archaeological Phase II Survey and testing of the Bonny Eagle Project (FERC No. 2529), Cumberland and York Counties, Maine*. Report submitted to Central Maine Power Company, Augusta.

Cox, S.L.
1988 *Phase I Archaeological Survey of the Sandy Ridge Subdivision, Brunswick, Maine.* Report on file with the Maine Historic Preservation Commission, Augusta.

1989 *Phase I Archaeological Survey of the Labbe Gravel Pit, Brunswick, Maine.* Report on file with the Maine Historic Preservation Commission, Augusta.

1991 Site 95.20 and the Vergennes Phase in Maine. *Archaeology of Eastern North America* 19:135-161.

1992 *The Topsham Archaeological Project: Report on 1991 Investigations of Sites 15.233 and 15-238.* Report on file with the Maine Historic Preservation Commission, Augusta.

1994 *Report on the 1993 Archaeological Investigations at the Rosie-Mugford Site Complex, Topsham, Maine.* Report on file with the Maine Historic Preservation Commission, Augusta.

Cox, S.L., and D.B. Wilson
1991 4500 Years on the Lower Androscoggin: Archaeological Investigations of the Rosie-Mugford Site Complex. *Maine Archaeological Society Bulletin* 31(1):15-40.

Cranmer, L.
1993 The Purinton House: Colonial and Federal Archaeology in Topsham. *Maine Archaeological Society Bulletin* 33(1):1-55.

Cranmer, L., E. Trautman, and A.E. Spiess
1992 *Purinton House Phase III Archaeology Report.* Report on file with the Maine Historic Preservation Commission, Augusta.

Crock, J.G., J.B. Petersen, and R.M. Anderson
1993 Scalloping for Artifacts: A Biface and Plummet from Eastern Blue Hill Bay, Maine. *Archaeology of Eastern North America* 21:179-192.

Cross, John C.
1990 *Craft Specialization During the Late Archaic Period: A Techno-Theoretical Analysis.* Unpublished Ph.D. dissertation, Department of Anthropology, University of Massachusetts, Amherst.

Davis, M.B., R.W. Spear, and L.K. Shane
1980 Holocene Climate of New England. *Quaternary Research* 14:240-250.

Davis, R.B., and G.L. Jacobson, Jr.
1985 Late Glacial and Early Holocene Landscapes in Northern New England and Adjacent Canada. *Quaternary Research* 23:341-368.

Denton, G.H., and T.J. Hughes (editors)
1982 *The Last Great Ice Sheets*. John Wiley and Sons, New York.

Dincauze, D.F.
1972 The Atlantic Phase: A Late Archaic Culture in Massachusetts. *Man in the Northeast* 4:40-61.

1975 The Late Archaic Period in Southern New England. *Arctic Anthropology* 12(2):23-24.

Doyle, R.A., N.D. Hamilton, and J.B. Petersen
1982 Early Woodland Ceramic and Associated Perishable Industries from Southwestern Maine. *Maine Archaeological Society Bulletin* 22(2):4-21.

Ellis, Edward
1983 *A Chronological History of the Rangeley Lakes Region.* Rangeley Lakes Region Historical Society, Rangeley, Maine.

Gajewski, K.
1987 Late Holocene Climate Changes in Eastern North America Estimated from Pollen Data. *Quaternary Research* 29:255-262.

Gajewski, K., A.M. Swain, and G.M. Peterson
1987 Late Holocene Pollen Stratigraphy in Four Northeastern United States Lakes. *Geographie Physique et Quaternaire* 41:377-386.

Goodwin, see R. Christopher Goodwin and Associates, Inc.

Gramly, R.M.
1980 *Archaeological Survey of the Proposed Brunswick Naval Air Station Clear Zone, Brunswick, Maine.* Report on file with the Maine Historic Preservation Commission, Augusta.

1982 *The Vail Site.* Bulletin No. 30. Buffalo Museum of Science, Buffalo, New York.

1984 Kill Sites, Killing Grounds, and Fluted Points at the Vail Site. *Archaeology of Eastern North America* 12:101-121.

1988 *The Adkins Site: A Paleo-Indian Habitation and Associated Stone Structure.* Persimmon Press, Buffalo, New York.

Green, Bill
1994 *The First Line: Air Defense in the Northeast 1952 to 1960.* Wonderhorse Publications, Fairview, Pennsylvania.

Grumet, R. S.
1990 *Historic Contact: Indians and Colonists in Northeastern North America, 1497-1783*. Distribution Draft I, National Historic Landmark Theme Study, National Park Service, Mid-Atlantic Region, Philadelphia.

Hamilton, N.D., J.B. Petersen, and C.A. Thayer
1986 *Archaeological Phase II Testing of ME 14-108 in the Proposed Pejepscot Water Power Project, Androscoggin, Cumberland, and Sagadahoc Counties, Maine.* Report on file with the Maine Historic Preservation Commission, Augusta.

Hamilton, N.D., J.B. Petersen, C.A. Thayer, D.E. Putnam, and P.N. Ewing
1985 *An Archaeological Phase I Survey of the Proposed Pejepscot Water Power Project, Androscoggin, Cumberland, and Sagadahoc Counties, Maine*. Report on file with the Maine Historic Preservation Commission, Augusta.

Hebert, Richard A.
1951 *Modern Maine: Its Historic Background, People and Resources*, vol. 2. Lewis Historical Publishing Company, Inc., New York.

Hedstrom, Gary T.
1987 *Soil Survey of Knox and Lincoln Counties*. U.S. Department of Agriculture, Soil Conservation Service, Washington D.C.

Heflin, Woodford Agee (editor)
1956 *The United States Air Force Dictionary*. Air University Press, Government Printing Office, Washington, D.C.

Hughes, T.J., H.W. Borns, Jr., J.L. Fastook, M.R. Hyland, J.S. Kite, and T.V. Lowell
1985 Models of Glacial Reconstruction and Deglaciation Applied to Maritime Canada and New England. In *Late Pleistocene History of Northeastern New England and Adjacent Quebec*, edited by H.W. Borns, Jr., P. LaSalle, and W.B. Thompson, pp. 139-150. Special Paper No. 197. Geological Society of America, Boulder, Colorado.

Hussey, A.M., II
1981 *Reconnaissance Bedrock Geology of the Bath and Small Point Quadrangles, Maine*. Open-File No. 81-32 (Map), Maine Geological Survey, Augusta.

1985 *The Bedrock Geology of the Bath and Portland 2° Map Sheets, Maine*. Open-File No. 85-87 (Map), Maine Geological Survey, Augusta.

J.H. Stuart & Co.
1895a *Map of Franklin County, Maine.* J.H. Stuart & Co., South Paris, Maine. On file at the Maine State Library, Augusta.

1895b *Map of Sagadahoc County, Maine.* J.H. Stuart & Co., South Paris, Maine. On file at the Maine State Library, Augusta.

Jackson, Kenneth T.
1985 *Crabgrass Frontier: The Suburbanization of the United States.* Oxford University Press, New York and London.

Jadlowski
1964 Master Plan, Topsham Air Force Station, Brunswick, Maine. Prepared for the U.S. Air Force by a Draftsman identified only as "Jadlowski." On file in the Public Works Office, Brunswick Naval Air Station, Brunswick, Maine.

James, John
1995a Public Affairs Officer, NASB. On-site meeting, September, with T.A. Cunning of Louis Berger & Associates, Inc.; Bruce Wyman, Facilities Planner, Brunswick Naval Air Station; and Rob Rohr, Maine Aviation Historical Society member and local historian. Public Works Office, Building 8, Naval Air Station, Brunswick, Maine.

1995b Public Affairs Officer, NASB. Telephone interview with T.A. Cunning of Louis Berger & Associates, Inc., October 24, 1995.

Johnson, D.W.
1925 *The New England-Acadian Shoreline.* Wiley and Sons, New York.

Karr, Ronald Dale
1989 *Lost Railroads of New England* (New England Rail Heritage Series). Branch Line Press, Pepperell, Massachusetts.

Keane, Melissa, Jannell Warren-Findley, Michael Corbett and J. Simon Bruder
1997 *Training Cold Warriors: An Historical Perspective and Consideration of the Built Environment at Lude AFB and the Gila Bend AFAF, 1946-1989.* Dames and Moore, Intermountain Cultural Resource Services Paper No. 39.

Kelley, J.T., S.M. Dickson, D.F. Belknap, and R. Stuckenrath, Jr.
1992 Sea-level Change and Late Quaternary Sediment Accumulation on the Southern Maine Inner Continental Shelf. In *Quaternary Coasts of the United States: Marine and Lacustrine Systems*, edited by C. Fletcher and J.F. Wehmiller, pp. 23-34. Society of Economic Paleontologists and Mineralogists Special Publication No. 48. Tulsa, Oklahoma.

Kellogg, D.C.
1984 *Site Survey and Settlement Pattern Analysis of the Muscongus/St. George Region of the Maine Coast.* Report submitted to the Maine Historic Preservation Commission, Augusta.

1988 Problems in the Use of Sea-level Data for Archaeological Reconstructions. In *Holocene Human Ecology in Northeastern North America*, edited by G.P. Nicholas III, pp. 81-104. Plenum, New York.

1991 *Prehistoric Landscapes, Paleoenvironments, and Archaeology of Western Muscongus Bay, Maine*. Unpublished Ph.D. dissertation, Graduate School, University of Maine, Orono.

1994 Why Did They Choose to Live *Here*? Ceramic Period Settlement in the Boothbay, Maine Region. *Northeast Anthropology* 48:25-60.

Lacy, David M.
1994 Prehistoric Land-Use in the Green Mountains: A View from the National Forest. *Journal of Vermont Archaeology* 1:92-102.

Lowell, T.V.
1984 Nature and Origin of Terraced Landforms in the Vicinity of Merrymeeting Bay, Maine: Hypothesis Development. Appendix to *Promise of the River Terraces*, by A.E. Spiess. Report on file with the Maine Historic Preservation Commission, Augusta.

1990a Geomorphic Development Around the Cary's Garden Site, Topsham, Maine. Appendix to *The Topsham Archaeological Project: Report on the 1988 and 1989 Surveys*, by D.B. Wilson, S.L. Cox, and B.J. Bourque. Report on file with the Maine Historic Preservation Commission, Augusta.

1990b Geology of the Rosie (15.231) and Mungford (15.233) Sites, Topsham, Maine. Appendix to *The Topsham Archaeological Project: Report on the 1988 and 1989 Surveys*, by D.B. Wilson, S.L. Cox, and B.J. Bourque. Report on file with the Maine Historic Preservation Commission, Augusta.

Maine Historical Records Survey Project
1940 *Counties, Cities, Towns, and Plantations of Maine: A Handbook of Incorporations, Dissolutions, and Boundary Changes.* Prepared by the Works Progress Administration. On file at the Maine State Library, Augusta.

Maine State Highway Commission
1938a *General Highway Map, Franklin County, Maine.* Maine State Highway Commission, Augusta, Maine. On file at the Maine State Library, Augusta.

1938b *General Highway Map, Cumberland County, Maine.* Maine State Highway Commission, Augusta, Maine. On file at the Maine State Library, Augusta.

1938c *General Highway Map, Sagadahoc County, Maine.* Maine State Highway Commission, Augusta, Maine. On file at the Maine State Library, Augusta.

Mangan, Jerry
1953 Rapidly Expanding Naval Air Station is a Most Important Factor in Brunswick Economy. Brunswick *Times Record*, July 2, 1953, no page. On file in the "Brunswick Naval Air Station" folder, Pejepscot Historical Society, Brunswick, Maine.

Moorehead, W.K.
1922 *A Report on the Archaeology of Maine*. Andover Press, Andover, Massachusetts.

Morenus, Richard
1957 *Dew Line: Distant Early Warning, the Miracle of America's First Line of Defense*. Rand McNally & Company, New York.

Naval Air Station Brunswick [NASB]
1942-1946 NAS Brunswick, PWO Real Estate Files 1942-1946. Record Group 181, Boxes 29627, 29628. On file at National Archives and Records Administration, Waltham, Massachusetts.

1942-1995 Public Works Drawings and Records (PWD). On file at the Public Works Office, Building 8, NAS Brunswick, Brunswick, Maine.

1943-1952 Brunswick NAS Regulations, 1943-1952. Record Group 181, National Archives and Records Administration, Waltham, Massachusetts.

1944-1946 NAS Brunswick and Satellite Activities, Correspondence - Base/Section Files 1944-1946. On file at National Archives and Records Administration, Waltham, Massachusetts.

1946 *The Gremlin*, Farewell Issue (September 1946). Base magazine published by NAS Brunswick. Original owned by Bruce Wyman, Facilities Planner, Public Works Office, Brunswick Naval Air Station, Brunswick, Maine.

1950-1952 Brunswick NAS General Correspondence 1950-1952 (N26). Record Group 181, National Archives and Records Administration, Waltham, Massachusetts.

1952-1953 Brunswick NAS, General Correspondence 1952 (N26-6)-1953 (A23-1). Record Group 181, National Archives and Records Administration, Waltham, Massachusetts.

1952 'Vacant Hangars, Mushrooms' Recalled: NAS Nears Two Year Mark. The *Sky Anchor* February 9, no page. On file in the "Brunswick Naval Air Station" folder, Pejepscot Historical Society, Brunswick, Maine.

[1959] From Blueberries to 'Neptunes': History and Functioning of the U.S. Naval Air Station, Brunswick, Maine. Typed ms. prepared for publication in *Naval Aviation News* by the Public Information Office, U.S. Naval Air Station, Brunswick. On file in the Naval Aviation History Office, Washington Navy Yard, Washington, D.C.

1969 *U.S. Naval Air Station Brunswick, Maine, Directory and Guide, 1968-1969*. On file in the Naval Aviation History Office, Washington Navy Yard, Washington, D.C.

1971 Navy News Release [Aviation Command Transferred from Norfolk to Brunswick]. Public Affairs Office, U.S. Naval Air Station, Brunswick, Maine (9 July 1972). Copy on file in the "Brunswick Naval Air Station" folder, Pejepscot Historical Society, Brunswick, Maine.

1986 Naval Air Station Brunswick Master Plan. Issued by Naval Air Station Brunswick, Maine.

NAS Brunswick Task Force

1994 NAS Brunswick Task Force 1994 Report to Defense Base Closure and Realignment Commission. Chamber of Commerce, Brunswick, Maine (May 1994). On file in the "Brunswick Naval Air Station" folder, Pejepscot Historical Society, Brunswick, Maine.

Naval Aviation Historical Center Archives [NAHC Archives]

Box 706, "Shore Establishments: Brunswick Fleet Aviation Specialized Operation Training Group, Atlantic Fleet, Detachment Brunswick," "NAS Brunswick History From 30 September 1961, To 30 September 1962," U.S. Navy Department.

Box 708, "Shore Establishments, Brunswick Naval Air Station, 1973- ."

Naval Aviation News

1948 Plan to Expand Jax. *Naval Aviation News* (October 1948), p. 13.

1951 Master Jet Fields Get Funds. *Naval Aviation News* (March 1951), p. 24.

1959 Naval Air Station Down East. *Naval Aviation News* (December 1959), pp. 15-17.

Oldale, R.N.

1985 Rapid Post-glacial Shoreline Changes in the Western Gulf of Maine and the Paleo-Indian Environment. *American Antiquity* 50:145-150.

Osberg, P.H., A.M. Hussey II, and G.M. Boone (editors)

1985 *Bedrock Geological Map of Maine*. Maine Geological Survey, Augusta.

Pejepscot Historical Society [PHS]

various Vertical File: Airports-Aviation folder and Brunswick Naval Air Station folder. Miscellaneous newspaper clippings and unpublished papers. Pejepscot Historical Society, Brunswick, Maine.

various Harry G. Shulman Collection. Photographs taken by the staff photographer of the Brunswick *Times Record* from circa 1940 through circa 1970.

1951 Navy Officials Seek Cooperation of Brunswick Citizens in Planning a New Housing Project. [Brunswick *Record*], June 14, 1951, no page. On file in the "U.S. Navy Housing-Brunswick" folder, Pejepscot Historical Society, Brunswick, Maine.

1955 Brunswick Will Seek to Tax Navy Housing. Newspaper clipping, February 10, 1955, no page. On file in the "U.S. Navy Housing-Brunswick" folder, Pejepscot Historical Society, Brunswick, Maine.

1956 Navy Plans 277 Capehart Home Units; 177 More Expected at New SAGE Site. [Brunswick *Record*] (November 15), no page. On file in the "U.S. Navy Housing-Brunswick" folder, Pejepscot Historical Society, Brunswick, Maine.

Petersen, J.B.

1991 *Archaeological Testing at the Sharrow Site: A Deeply Stratified Early to Late Holocene Cultural Sequence in Central Maine*. Occasional Publications in Maine Archaeology No. 8. Maine Historic Preservation Commission and the Maine Archaeological Society, Augusta.

Petersen, J.B., and N.D. Hamilton

1984 Early Woodland Ceramics and Perishable Fiber Industries of the Northeast: Preliminary Summary and Interpretation. *Annals of the Carnegie Museum* 53:413-445.

Prins, H.E.L., and B.J. Bourque

1987 Norridgewock: Village Translocation on the New England-Acadian Frontier. *Man in the Northeast* 33:137-158.

R. Christopher Goodwin and Associates, Inc. [Goodwin]

1994 Historic Context for Department of Defense Facilities: World War II Permanent Construction (Draft). Prepared by R. Christopher Goodwin and Associates, Inc., Frederick, Maryland. Submitted to U.S. Army Corps of Engineers, Baltimore District, Baltimore, Maryland.

Ritchie, W.

1980 *The Archaeology of New York State*. Second Edition. Harbor Hill Books, Harrison, New York.

Robinson, Brian S., Thomas Buchanan, Ellen R. Cowie, Wetherbee B. Dorshow, and Catherine A. Quinn

1992 *Archaeological Phase I Survey of the Vermont Segment of the Champlain Pipeline Project (FERC Docket No. CP98-646-000): Volume II, Appendices*. Prepared for the Champlain Pipeline Company by the Archaeology Research Center, University of Maine at Farmington.

Robinson, Brian S., Ellen R. Cowie, Thomas R. Buchanan, William C. Crandall, Richard P. Corey, and James B. Petersen

1991 *Archaeological Phase I Survey of the Vermont Segment of the Champlain Pipeline Project (FERC Docket No. CP98-646-000): Volume I* [Report Text]. Prepared for the Champlain Pipeline Company by the Archaeology Research Center, University of Maine at Farmington.

Robinson, B.S., J.B. Petersen, and A.K. Robinson

1992 *Early Holocene Occupation in Northern New England*. Occasional Publications in Maine Archaeology No. 9. Maine Historic Preservation Commission and the Maine Archaeological Society, Augusta, and the Haffenreffer Museum of Anthropology, Brown University, Providence, Rhode Island.

Rohr, Rob

1995a Maine Aviation Historical Society member and local historian. On-site meeting, September, with T.A. Cunning of Louis Berger & Associates, Inc.; Bruce Wyman, Facilities Planner, Brunswick Naval Air Station; and John James, Public Affairs Officer, NAS Brunswick. Public Works Office, Building 8, Naval Air Station, Brunswick, Maine.

1995b Telephone interview with T.A. Cunning of Louis Berger & Associates, Inc., October 2, 1995.

Sanger, D.

1973 *Cow Point: An Archaic Cemetery in New Brunswick*. Archaeological Survey of Canada Paper No. 12 (Mercury Series). National Museum of Man, Ottawa, Canada.

1975 Culture-Change as an Adaptive Process in the Maine-Maritimes Region. *Arctic Anthropology* 12(2):60-75.

1977 *Cultural Resource Management in the Dickey-Lincoln School Reservoir*. Report prepared for the U.S. Army Corps of Engineers by Department of Anthropology, University of Maine at Orono. On file at Folger Library, University of Maine at Orono.

1979 The Ceramic Period in Maine. In *Discovering Maine's Archaeological Heritage*, edited by D. Sanger, pp. 99-115. Maine Historic Preservation Commission, Augusta.

1982 Changing Views of Aboriginal Seasonality and Settlement in the Gulf of Maine. *Canadian Journal of Anthropology* 2(2):195-203.

1988 Maritime Adaptations in the Gulf of Maine. *Archaeology of Eastern North America* 16:81-99.

Sanger, D., and D.C. Kellogg
1989 Prehistoric Archaeology and Evidence of Coastal Subsidence on the Coast of Maine. In *Neotectonics of Maine: Studies in Seismicity, Crustal Warping, and Sea-level Change*, edited by W.A. Anderson and H.W. Borns, Jr., pp. 107-126. Maine Geological Survey, Augusta.

Sanger, D., R.B. Davis, R.G. McKay, and H.W. Borns
1977 The Hirundo Archaeological Project - An Interdisciplinary Approach to Central Maine Prehistory. *Annals of the New York Academy of Sciences* 288:457-471.

Shulman, Harry G.
1962 Brunswick Squadron's Cuban Patrol Hard Duty, but Had Light Moments. Clipping from unidentified newspaper, December 29, 1962. From the "Brunswick Naval Air Station" file, Pejepscot Historical Society, Brunswick, Maine.

Smith, G.W.
1977 *Reconnaissance Surficial Geology of the Bath Quadrangle, Maine.* Open-File No. 77-8 (Map), Maine Geological Survey, Augusta.

1985 Chronology of Late Wisconsinan Deglaciation of Coastal Maine. In *Late Pleistocene History of Northeastern New England and Adjacent Canada*, edited by H.W. Borns, Jr., P. LaSalle, and W.B. Thompson, pp. 29-44. Special Paper No. 197. Geological Society of America, Boulder, Colorado.

Snow, D.R.
1968 *A Summary of Prehistoric Sites in the State of Maine.* Ms., Department of Anthropology, University of Maine, Orono.

1975 The Passadumkeag Sequence. *Arctic Anthropology* 12(2):46-59.

1980 *The Archaeology of New England.* Academic Press, New York.

Soil Conservation Service
1987 *Soil Survey and Interpretations of Selected Lands in Maine for Brunswick Naval Air Station.* Report prepared by U.S. Department of Agriculture, University of Maine, Orono. On file at Public Works Office, Naval Air Station Brunswick.

1989 *Soil Survey and Interpretations of Selected Lands in Maine for Naval SERE School.* Report prepared by U.S. Department of Agriculture, University of Maine, Orono. On file Public Works Office, Naval Air Station Brunswick.

Spiess, A.E.
1980 Introduction to *Indian Antiquities of the Kennebec Valley*, by C.C. Willoughby. Occasional Publications in Maine Archaeology No. 1. Maine Historic Preservation Commission and Maine State Museum, Augusta.

1984 *Promise of the River Terraces: 1983 Kennebec Valley Survey for Prehistoric Sites*. Report on file with the Maine Historic Preservation Commission, Augusta.

1985 Wild Maine and the Rusticating Scientist: A History of (Harvard) Maine Archaeology. *Man in the Northeast* 30:1-29.

1991 *Ceramic Period Study Unit - Short Version*. Draft ms. Maine Historic Preservation Commission, Augusta.

1992 Archaic Period Subsistence in New England and the Atlantic Provinces. *In Early Holocene Occupation in Northern New England*, edited by Brian S. Robinson, James B. Petersen, and Ann S. Robinson, pp. 163-185. Occasional Publications in Maine Archaeology No. 9. Maine Archaeological society, Augusta.

Spiess, A.E., B.J. Bourque, and R.M. Gramly
1983 Early and Middle Archaic Site Distribution in Western Maine. *North American Archaeologist* 4(3):225-244.

Spiess, A.E., and L. Cranmer
1989 *Brunswick-Topsham By-Pass Archaeological Phase I Survey*. Report on file with the Maine Historic Preservation Commission, Augusta.

1990 *Upper Piscatiquis Flood Control Structures Phase IA Archaeological Survey*. Report on file with the Maine Historic Preservation Commission, Augusta.

Spiess, A.E., L. Cranmer, and K. Mathiasson
1990 *Brunswick-Topsham Bypass Phase IB and Phase II Archaeological Studies*. Report on file with the Maine Historic Preservation Commission, Augusta.

Spiess, A.E., and B.D. Spiess
1987 New England Pandemic of 1616-1622: Cause and Archaeological Implication. *Man in the Northeast* 34:71-83.

Spiess, A.E., and D. Wilson
1987 High on a Hill Above the Kennebec: The Shepard Site. *Maine Archaeological Society Bulletin* 27(2):3-15.

Thompson, W.B.
1978 *Surficial Geology Handbook for Coastal Maine*. Maine Coastal Program, Maine State Planning Office, Augusta.

Thompson, W.B., and H.W. Borns, Jr. (editors)
1985 *Surficial Geological Map of Maine*. Maine Geological Survey, Augusta.

Thwaites, R.G. (editor)
1959 *The Jesuit Relations and Allied Documents*. 78 vols. Burrows Brothers, Cleveland, Ohio.

Town of Brunswick
1989 *Brunswick, Maine, 250 Years a Town*. Town of Brunswick, Brunswick, Maine. On file at the Maine State Library, Augusta.

Turnbull, Archibald D., and Clifford L. Lord
1949 *History of United States Naval Aviation*. Yale University Press, New Haven, Connecticut.

United States Geological Survey [USGS]
1894 *Bath, Maine,* 15-Minute Quadrangle. United States Geological Survey, Washington, D.C. On file at the Maine State Library, Augusta.

1932a *Phillips, Maine,* 15-Minute Quadrangle. United States Geological Survey, Washington, D.C. On file at the Maine State Library, Augusta.

1932b *Stratton, Maine,* 15-Minute Quadrangle. United States Geological Survey, Washington, D.C. On file at the Maine State Library, Augusta.

1945 *Bath, Maine,* 15-Minute Quadrangle. United States Geological Survey, Washington, D.C. On file at the Maine State Library, Augusta.

1956 *Stratton, Maine,* 15-Minute Quadrangle. United States Geological Survey, Washington, D.C. On file at the Maine State Library, Augusta.

U.S. Navy, Bureau of Aeronautics
1957 Aviation Shore Establishments, 1911-1945 (U.S. Naval Administrative History of World War II, 58). Historical Section, Deputy Chief of Naval Operations (Air), Washington, D.C.

U.S. Navy, Bureau of Yards and Docks
1947 *Building the Navy's Bases in World War II: History of the Bureau of Yards and Docks and the Civil Engineer Corps, 1940-1946*, 2 vols. Government Printing Office, Washington, D.C.

1951 *U.S. Naval Air Facility, Brunswick, Maine. Runway 1-19 with Taxiways and Aircraft Areas*. Approximately 100 drawings at various scales. In Y&D Drawing No. Series 498,000. On file in the Public Works Office, Brunswick Naval Air Station, Brunswick, Maine.

1954 *U.S. Naval Air Station, Brunswick, Maine: Soil Erosion Control, Second Increment Plan*. Scale 1 inch = 400 feet. Y&D Drawing 661,756. On file in the Public Works Office, Brunswick Naval Air Station, Brunswick, Maine.

1958 *U.S. Naval Air Station, Brunswick -- Maine*. Set of 9 topographic maps on a scale of 1 inch = 200 feet. Y&D Drawing Nos. 2092640, 2097669-2097676. Prepared by U.S. Navy Hydrographic Office, Washington D.C. On file in the Public Works Office, Brunswick Naval Air Station, Brunswick, Maine.

1966 *U.S. Naval Air Station, Brunswick, Maine: Soils Map*. Scale 1 inch = 600 feet (?). Y&D Drawing No. 1,074,366. On file in the Public Works Office, Brunswick Naval Air Station, Brunswick, Maine.

U.S. Navy Training Publications Center, with the Aviation Training Division
1955 *Navy Wings* [NAVPERS 10822-A]. Bureau of Naval Personnel, Government Printing Office, Washington, D.C.

Wheeler, George Augustus, and Henry Warren Wheeler
1974 *History of Brunswick, Topsham and Harpswell, Maine*. Reprint of the 1878 edition. New Hampshire Publishing Company, Somersworth, New Hampshire, and Pejepscot Historical Society, Brunswick, Maine.

Will, R.T., and R.J. Cole-Will
1980 *The Cathance River Archaeological Site Survey*. Report on file with the Maine Historic Preservation Commission, Augusta.

Williams, S.
1991 *Fantastic Archaeology: The Wild Side of North American Prehistory*. University of Pennsylvania, Philadelphia.

Willoughby, C.C.
1935 *Antiquities of the New England Indians*. Peabody Museum of Archaeology and Ethnology, Cambridge, Massachusetts.

1980 *Indian Antiquities of the Kennebec Valley*. Occasional Publications in Maine Archaeology No. 1. Maine Historic Preservation Commission and Maine State Museum, Augusta.

Wilson, D.B.
1990 *Phase I Archaeological Survey of the Michaud Subdivision, Topsham, Maine*. Report on file with the Maine Historic Preservation Commission, Augusta.

1991 *Phase I Archaeological Survey of the Proposed Retail Development in Cook's Corner, Brunswick, Maine*. Report on file with the Maine Historic Preservation Commission, Augusta.

Wilson, D.B., S.L. Cox, and B.J. Bourque
1990 *The Topsham Archaeological Project: Report on the 1988 and 1989 Surveys.* Report on file with the Maine Historic Preservation Commission, Augusta.

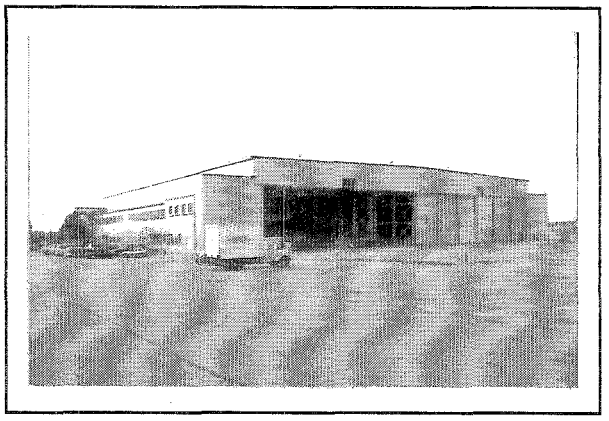
Wilson, D.B., and A.E. Spiess
1990 Study Unit I: Fluted Point Paleoindian. *Bulletin of the Maine Archaeological Society* 30(1):15-31.

Wyman, Bruce
1995 Facilities Planner, Brunswick Naval Air Station. On-site meeting, September, with T.A. Cunning of Louis Berger & Associates, Inc.; John James, Public Affairs Officer, NAS Brunswick; and Rob Rohr, Maine Aviation Historical Society member and local historian. Public Works Office, Building 8, Naval Air Station, Brunswick, Maine.

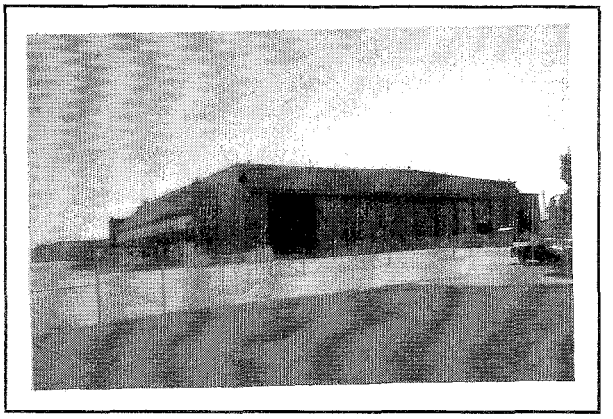
Appendix A

Photographic Inventory of Buildings

MAIN STATION - WORLD WAR II ERA



Building 1 (Aircraft Maintenance Hangar)



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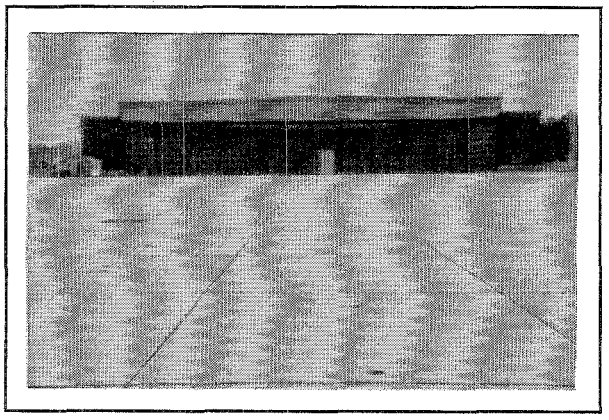

Building 3 (Aircraft Maintenance Hangar)

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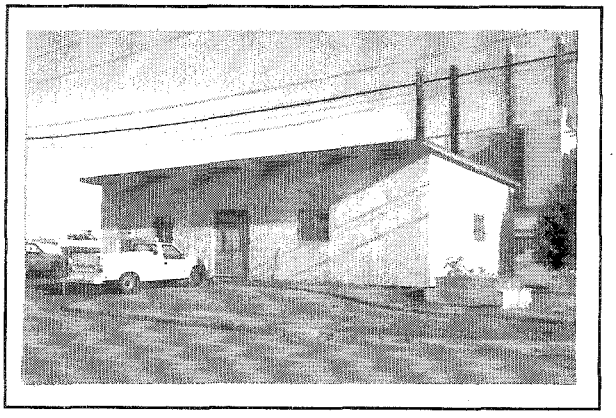
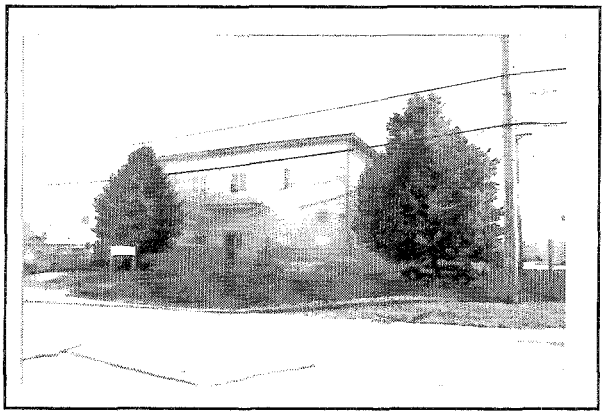
Building 4 (Administration Building)

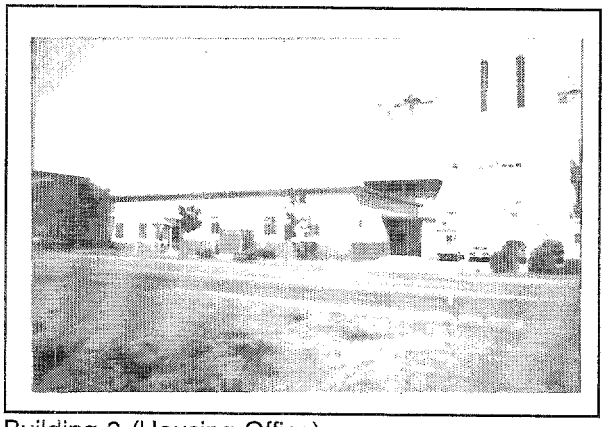


Building 6 (Electrical Shop)

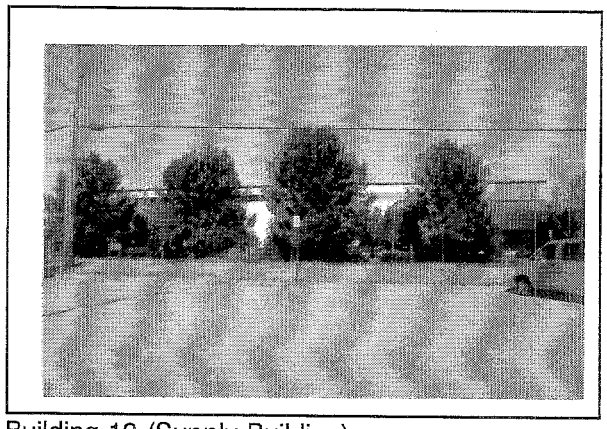


Building 8 (Public Works Building)

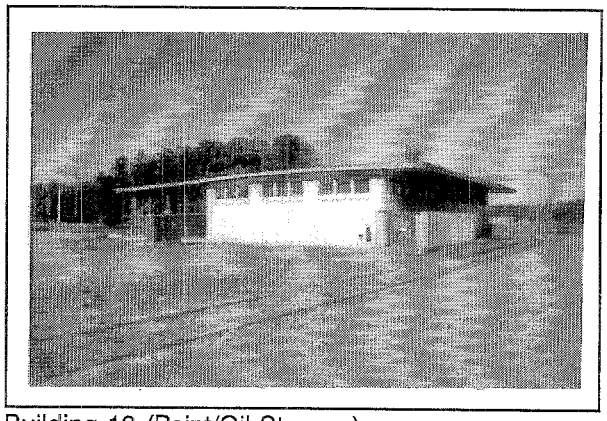
MAIN STATION - WORLD WAR II ERA



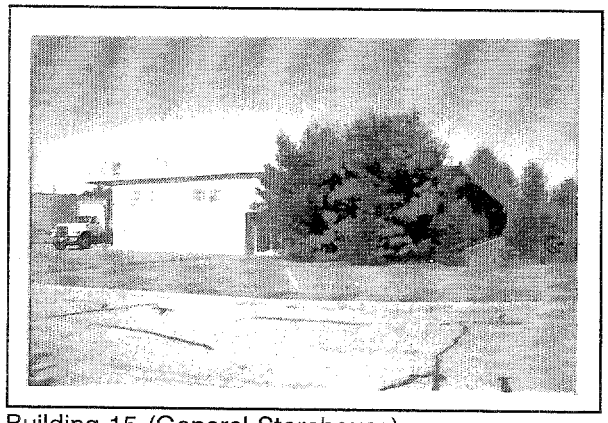
Building 9 (Housing Office)



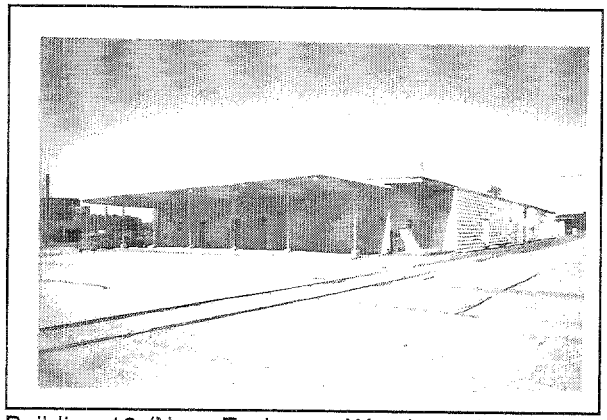
Building 12 (Supply Building)



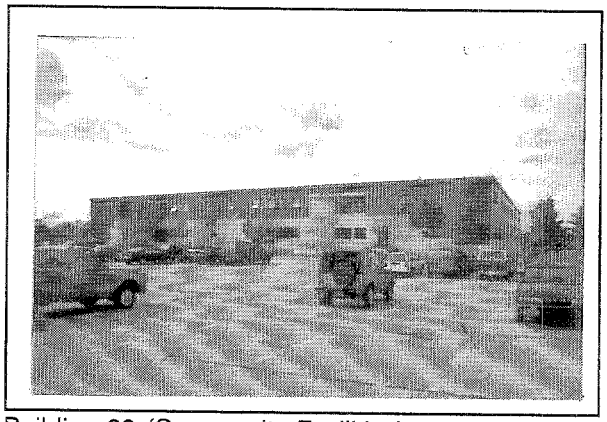
Building 13 (Paint/Oil Storage)



Building 15 (General Storehouse)

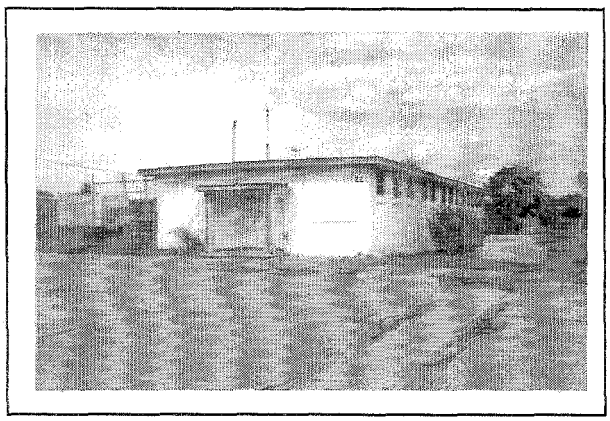


Building 16 (Navy Exchange Warehouse)

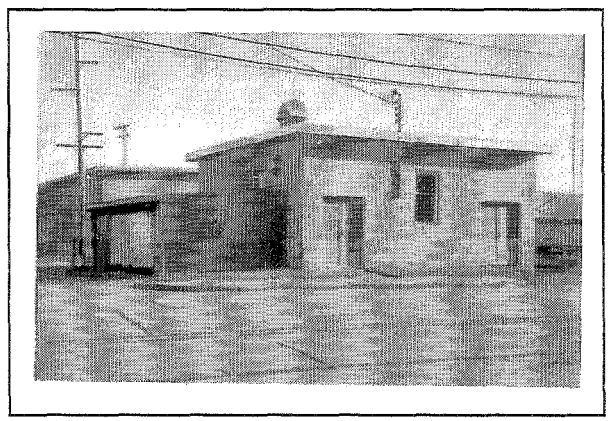


Building 20 (Community Facilities)

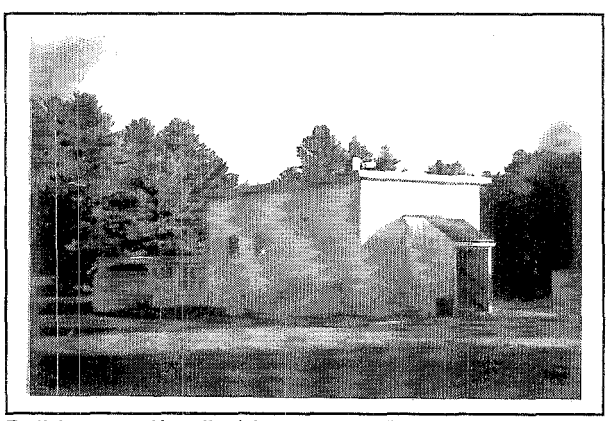
MAIN STATION - WORLD WAR II ERA



Building 22 (Brig)

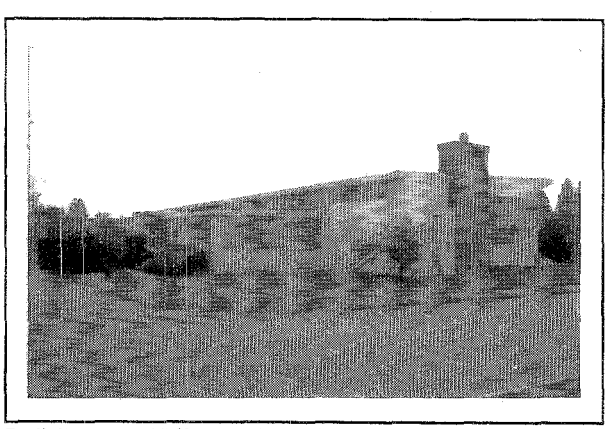


Building 28 (Oxygen Shop)

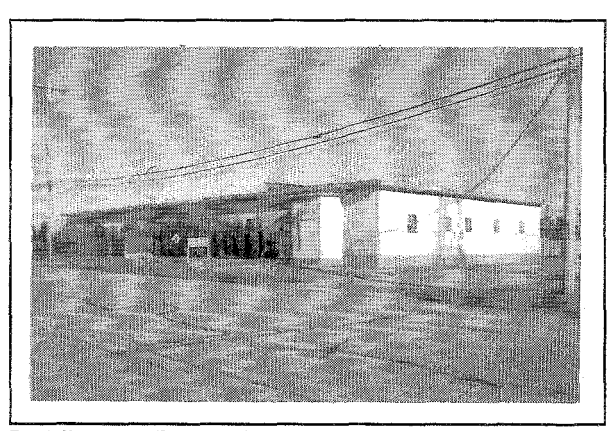


Building 35 (Applied Instruction Building)

Building 37 (Pass Office)

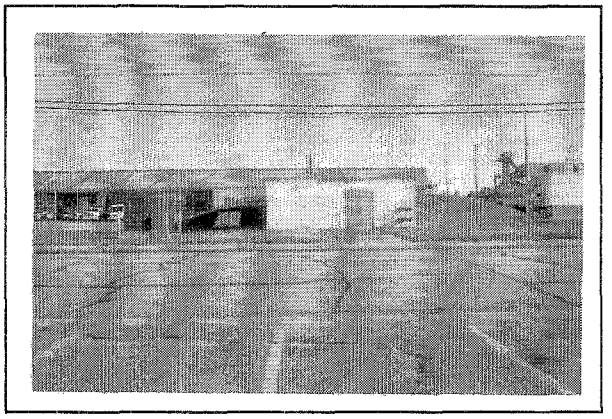


Building 38 (Officer's Mess)

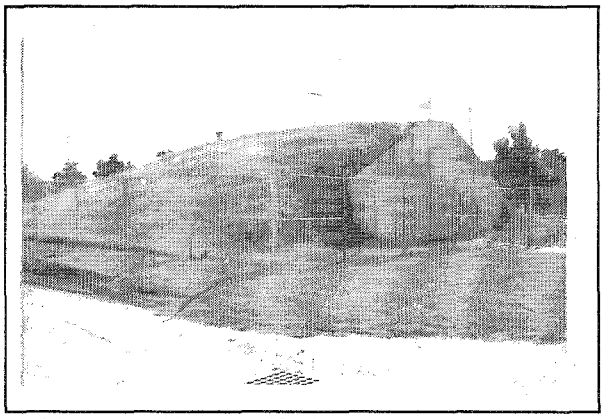


Building 41 (Police Station)

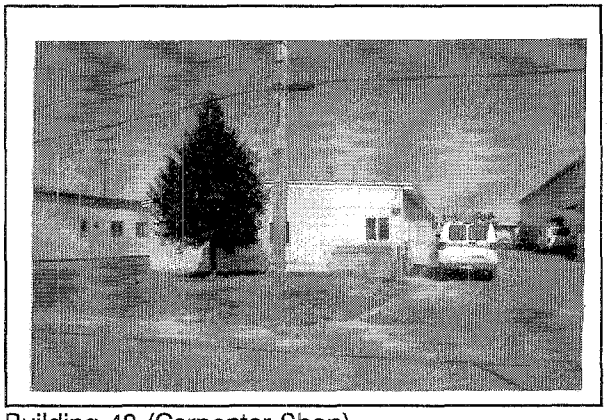
MAIN STATION - WORLD WAR II ERA



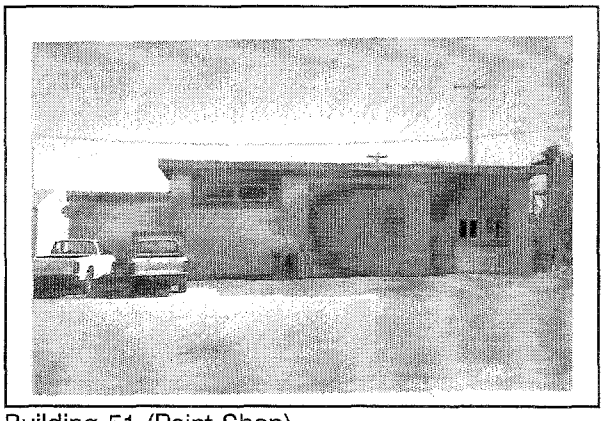
Building 42 (Pumphouse)



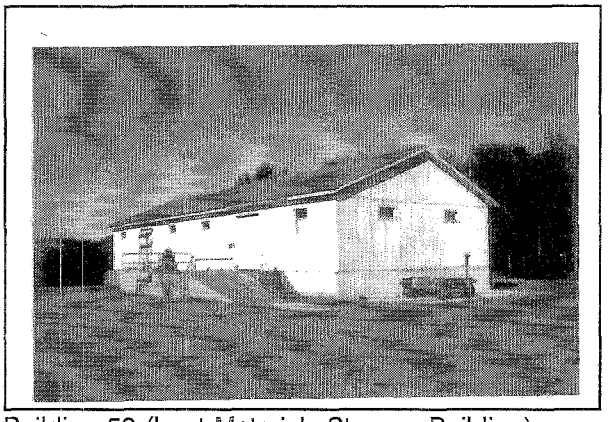
Building 44 (Weapons/Ordnance Storage Magazine)



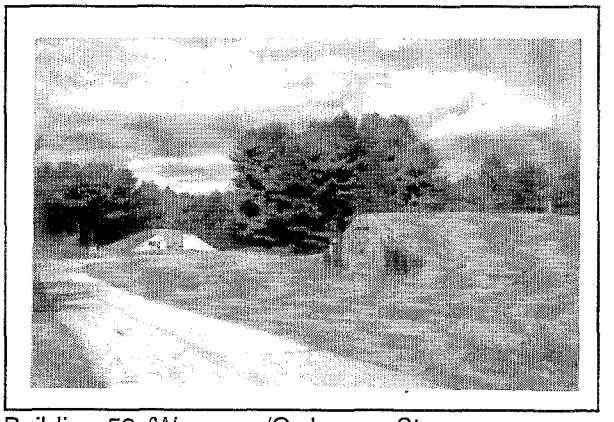
Building 48 (Carpenter Shop)



Building 51 (Paint Shop)

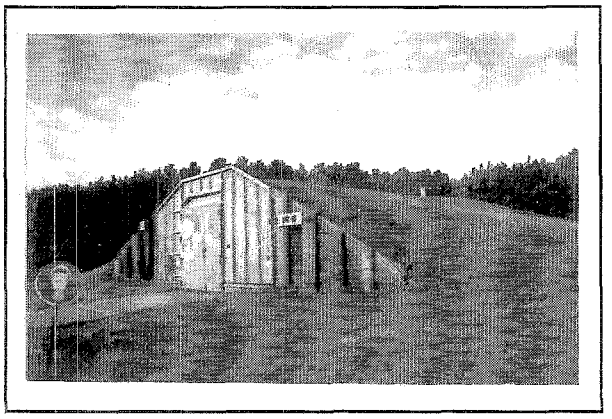


Building 52 (Inert Materials Storage Building)

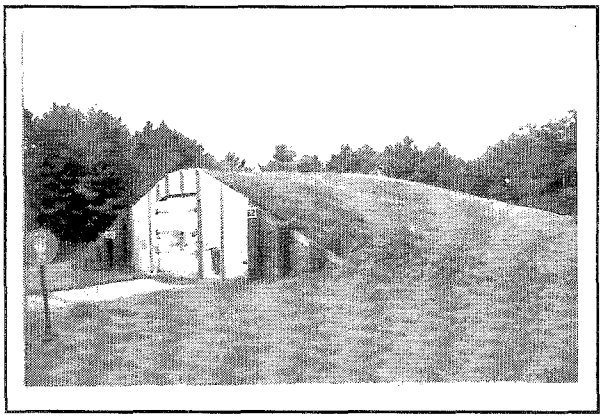


Building 59 (Weapons/Ordnance Storage Magazine)

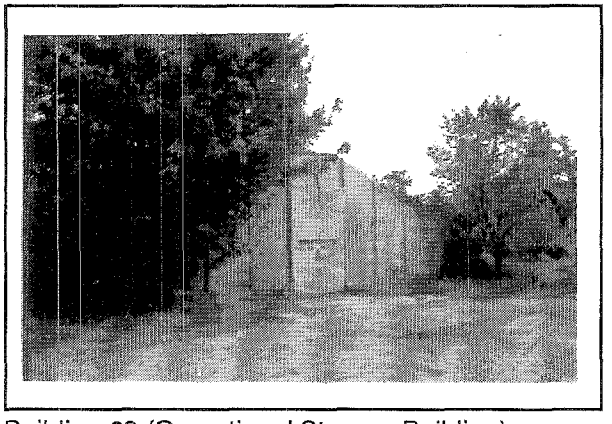
MAIN STATION - WORLD WAR II ERA



Building 60 (Weapons/Ordnance Storage Magazine)

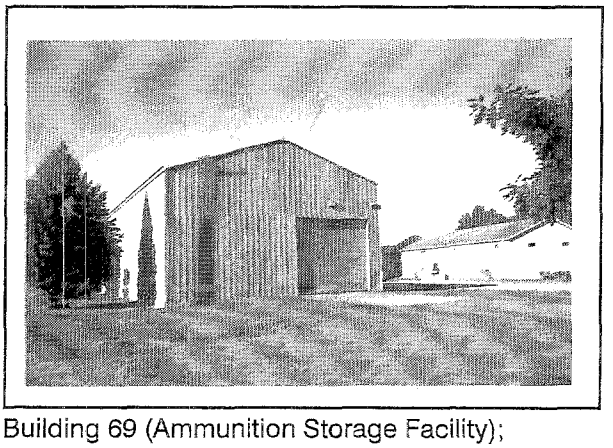


Building 62 (Weapons/Ordnance Storage Magazine)

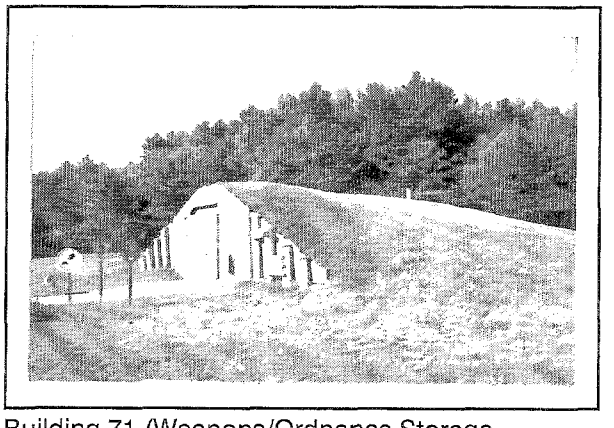


Building 63 (Operational Storage Building)

Building 64 (Operational Storage Building)

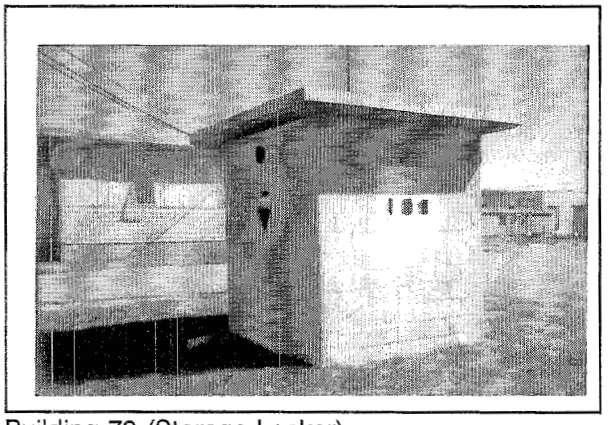


Building 69 (Ammunition Storage Facility); Building 76 at far right

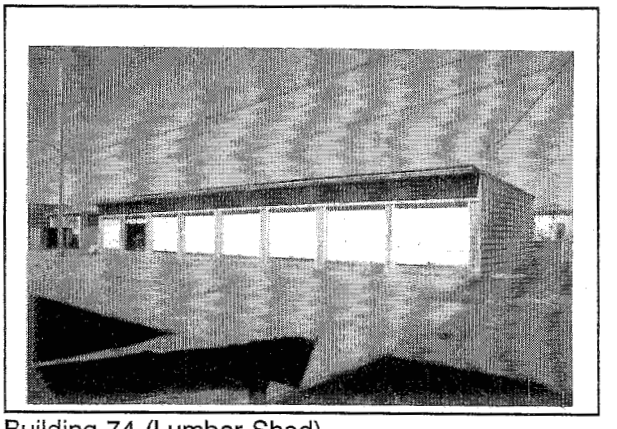


Building 71 (Weapons/Ordnance Storage Magazine)

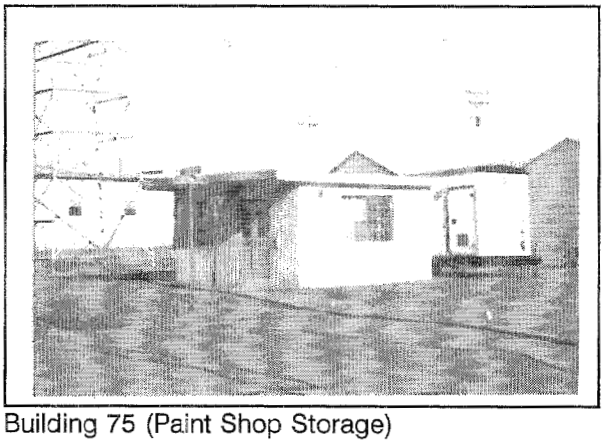
MAIN STATION - WORLD WAR II ERA



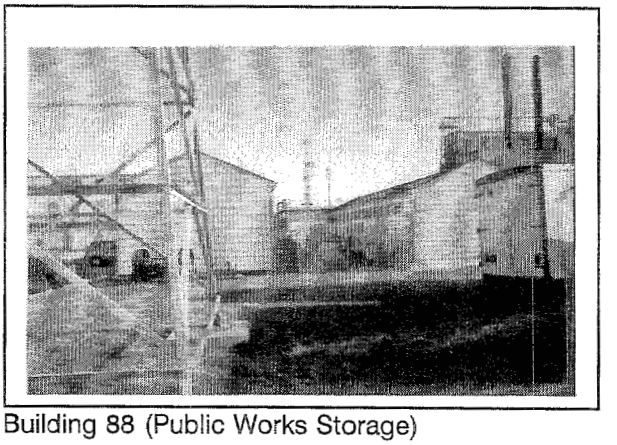
Building 73 (Storage Locker)



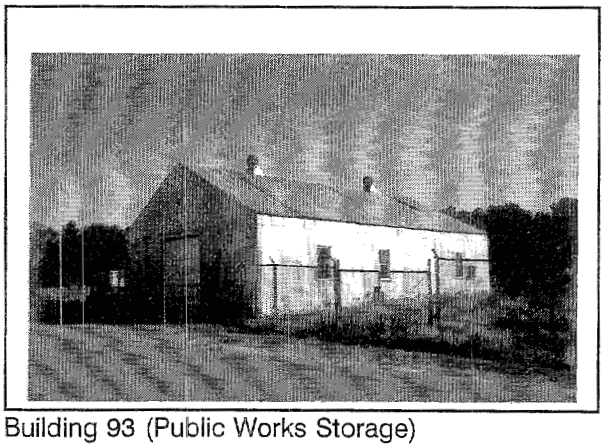
Building 74 (Lumber Shed)



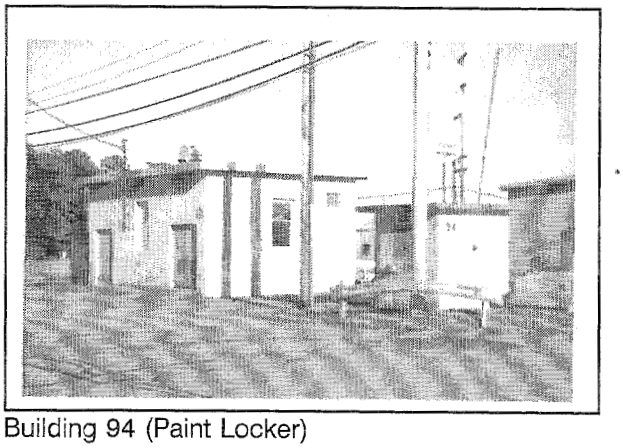
Building 75 (Paint Shop Storage)



Building 88 (Public Works Storage)

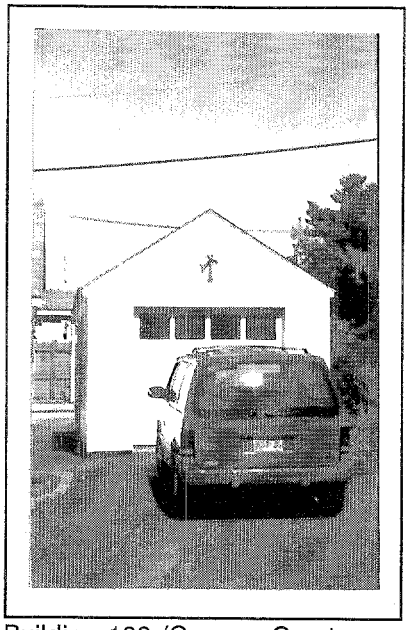


Building 93 (Public Works Storage)

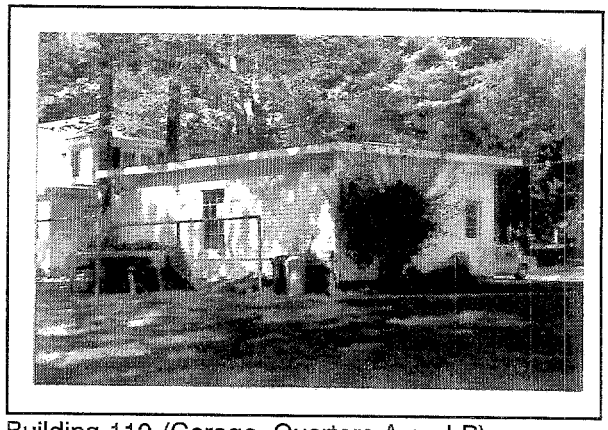


Building 94 (Paint Locker)

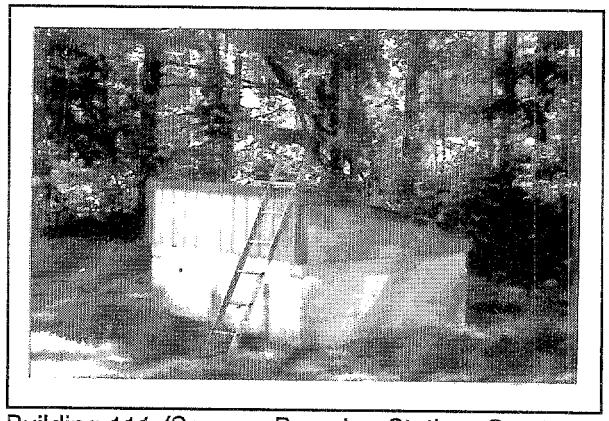
MAIN STATION - WORLD WAR II ERA



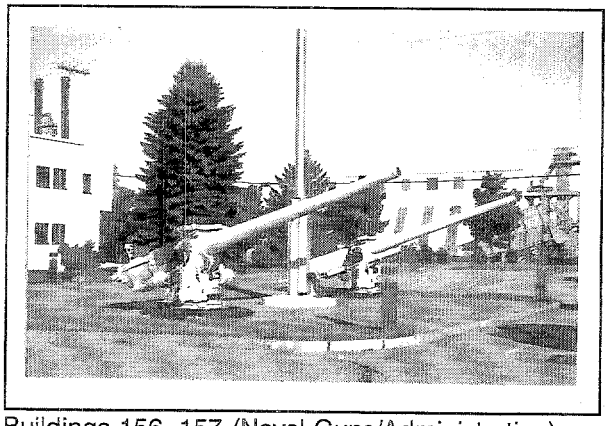
Building 100 (Garage, Quarters D)



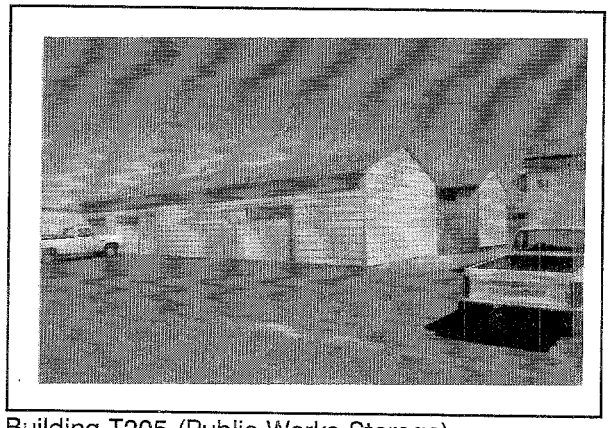
Building 110 (Garage, Quarters A and B)



Building 111 (Sewage Pumping Station, Quarters A and B)

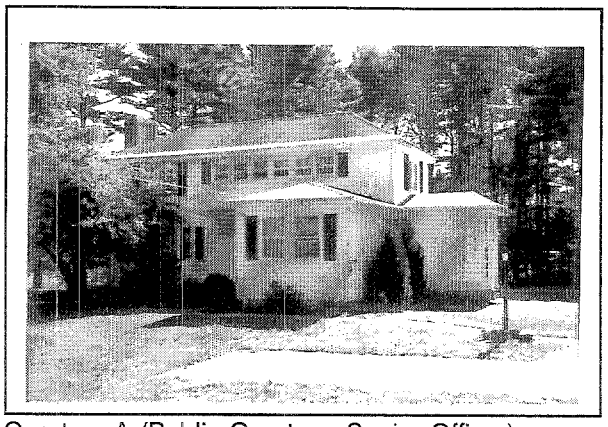


Buildings 156, 157 (Naval Guns/Administration)

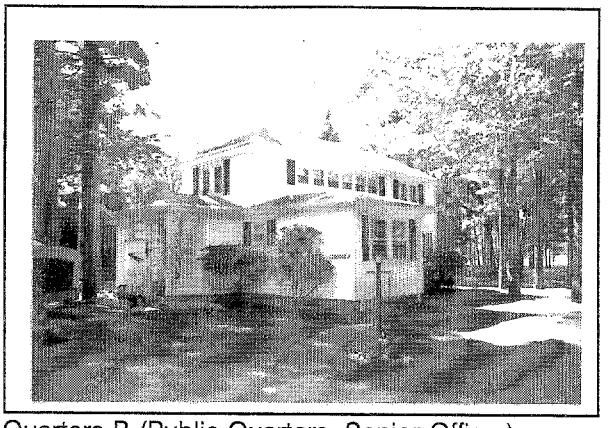


Building T205 (Public Works Storage)

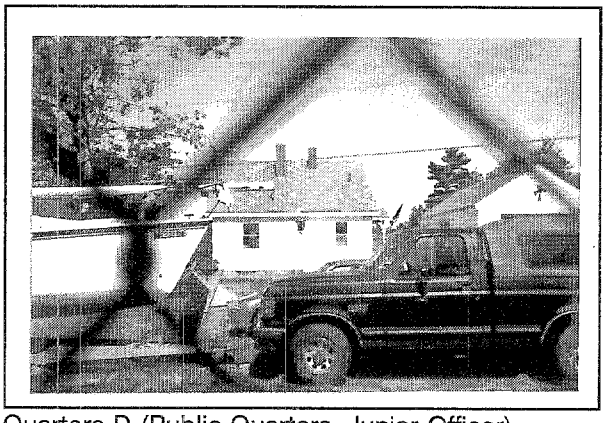
MAIN STATION - WORLD WAR II ERA



Quarters A (Public Quarters, Senior Officer)



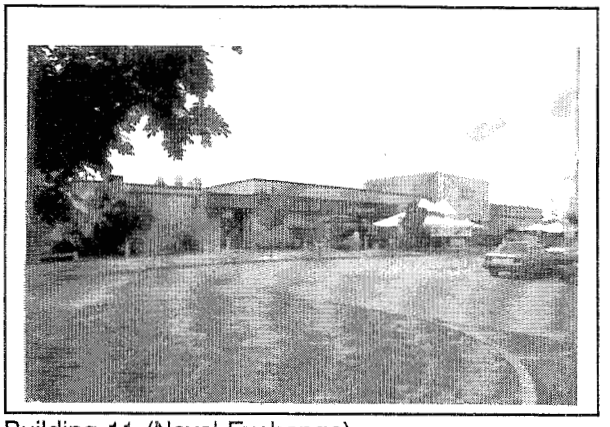
Quarters B (Public Quarters, Senior Officer)



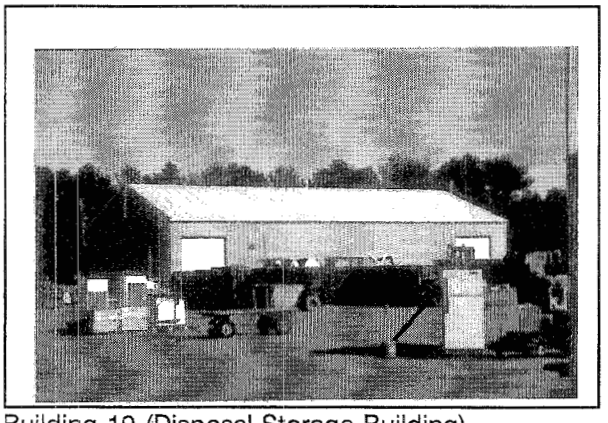
Quarters D (Public Quarters, Junior Officer)

MAIN STATION - POST WORLD WAR II ERA

Building 5 (Aircraft Maintenance Hanger)

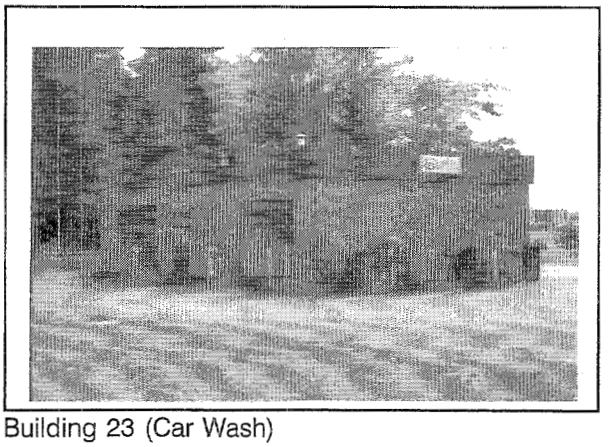


Building 11 (Naval Exchange)

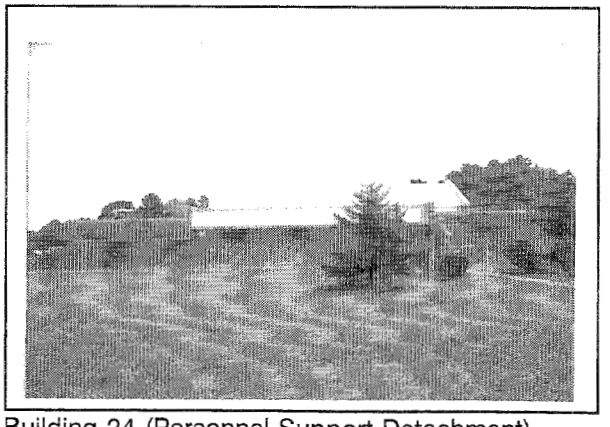


Building 19 (Disposal Storage Building)

Building 21 (Child Care Center)

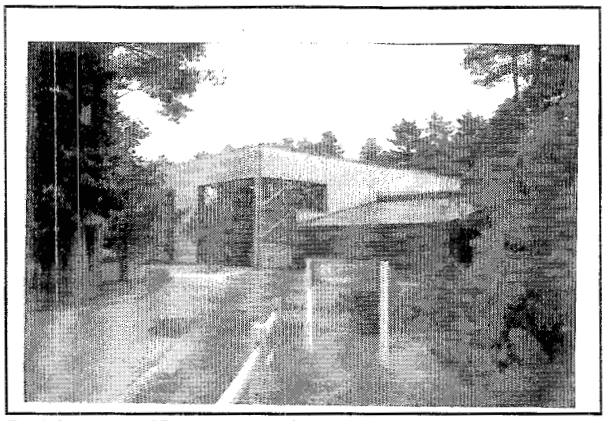


Building 23 (Car Wash)

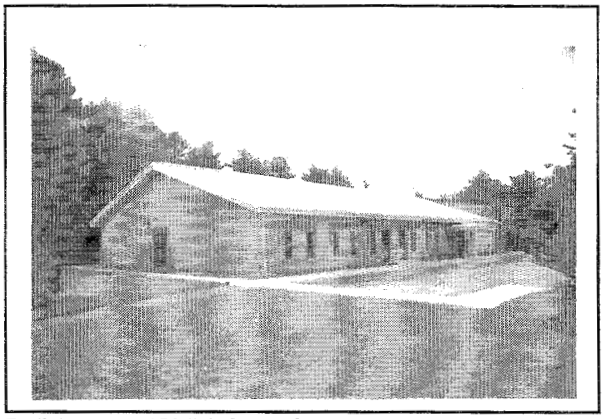


Building 24 (Personnel Support Detachment)

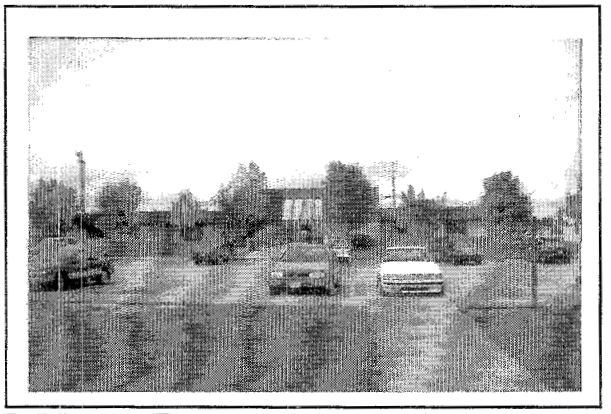
MAIN STATION - POST WORLD WAR II ERA



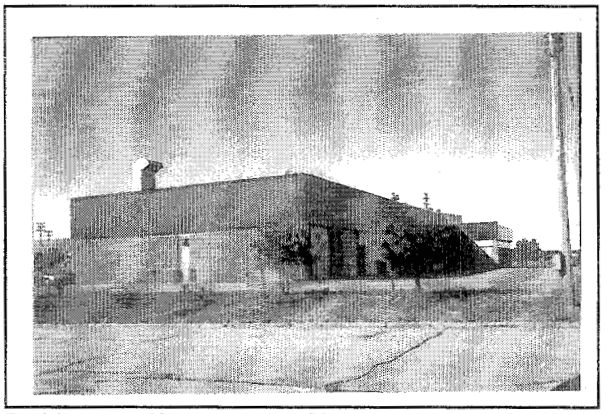
Building 25 (Gymnasium)



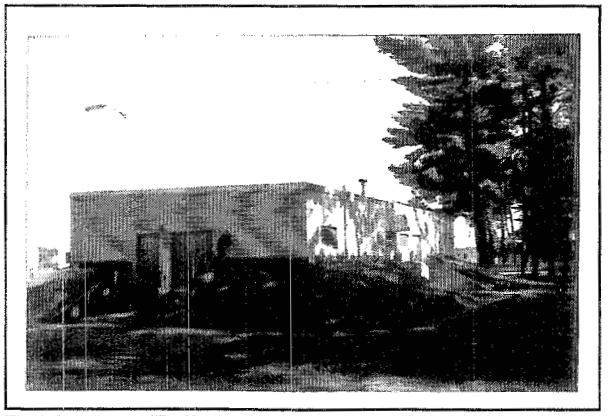
Building 26 (Child Care Center)



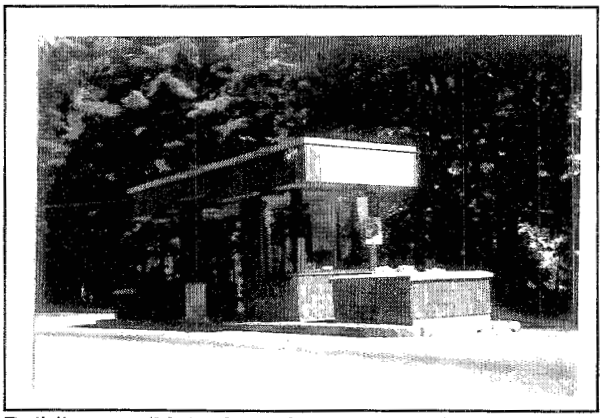
Building 27 (Family Services Center)



Building 29 (Auto Hobby Shop)



Building 32 (Police Operations Building)

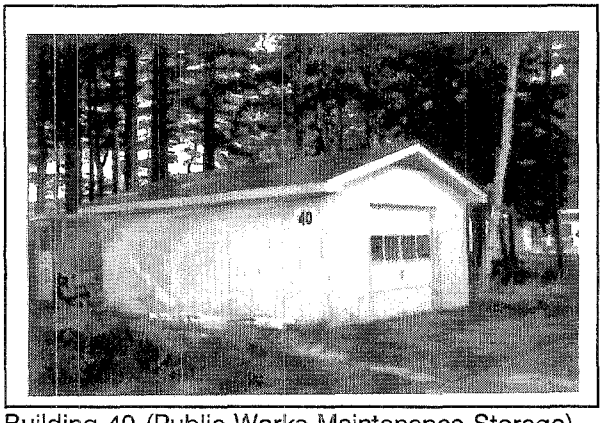


Building 33 (Main Gate Sentry House)

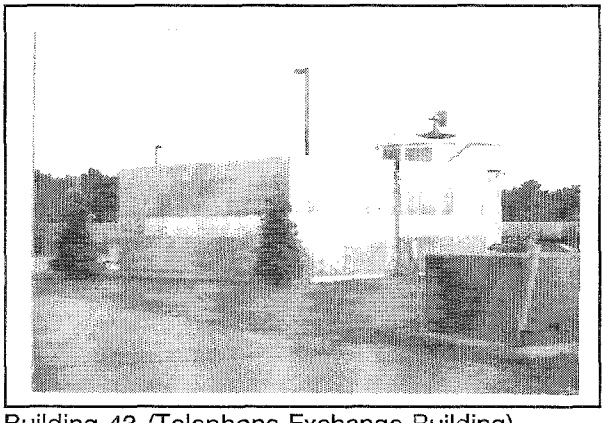
MAIN STATION - POST WORLD WAR II ERA

Building 36 (Heating Plant)

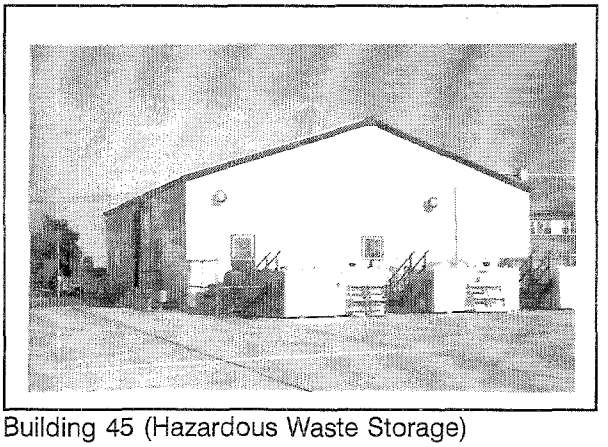
Building 39 (Golf Course Maintenance Building)



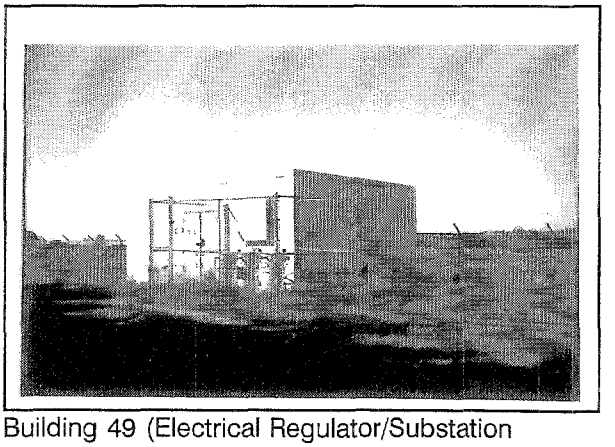
Building 40 (Public Works Maintenance Storage)



Building 43 (Telephone Exchange Building)

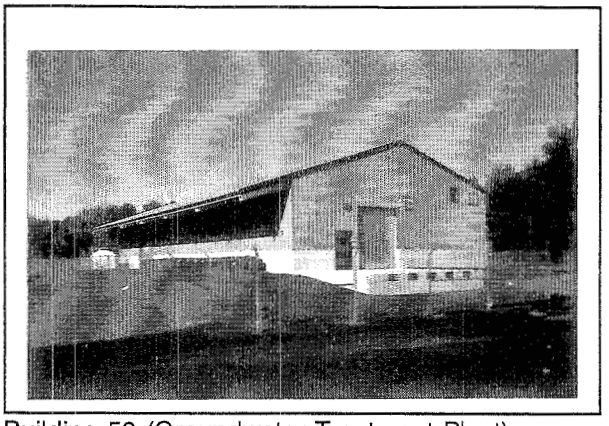


Building 45 (Hazardous Waste Storage)

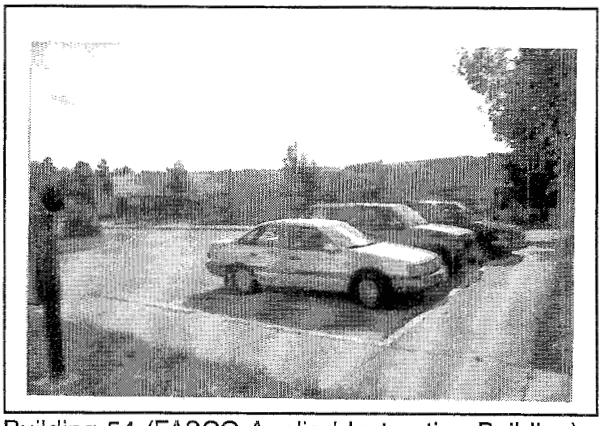


Building 49 (Electrical Regulator/Substation Building)

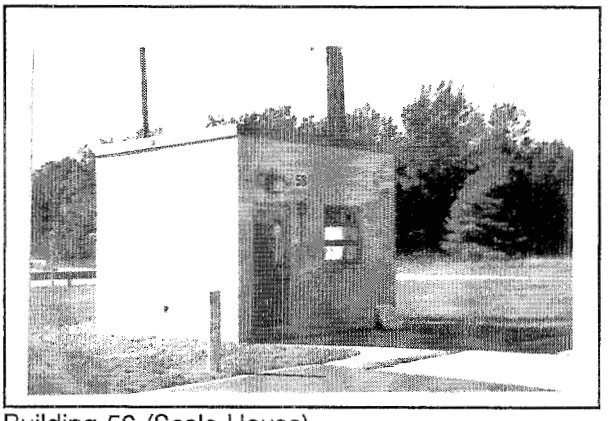
MAIN STATION - POST WORLD WAR II ERA



Building 50 (Groundwater Treatment Plant)



Building 54 (FASCO Applied Instruction Building)

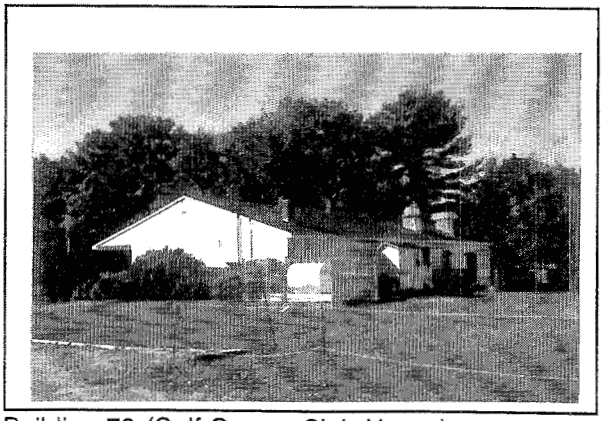


Building 56 (Scale House)

see building 69
Main Station - World War II Era

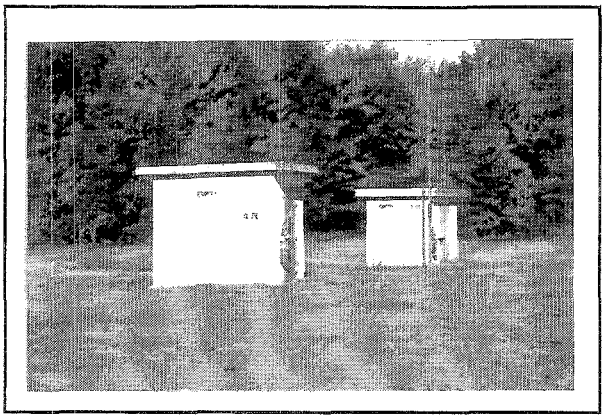
Building 76 (Ready Service Locker)

Building 77 (Receiving Building)

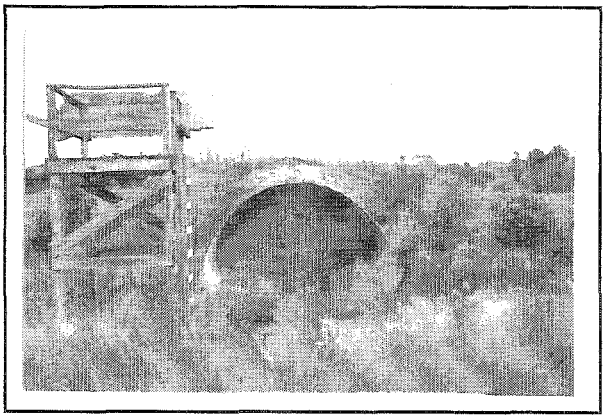


Building 78 (Golf Course Club House)

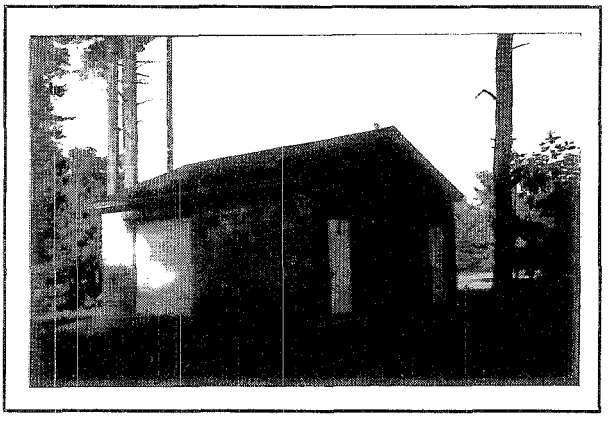
MAIN STATION - POST WORLD WAR II ERA



Building 81 (Inert Storage Building)



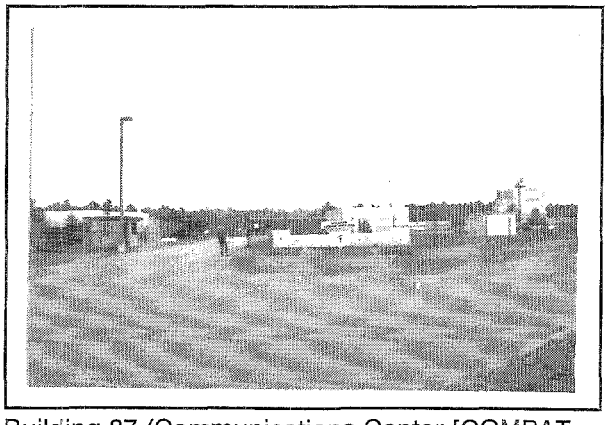
Building 83 (Ordnance Disposal Area)



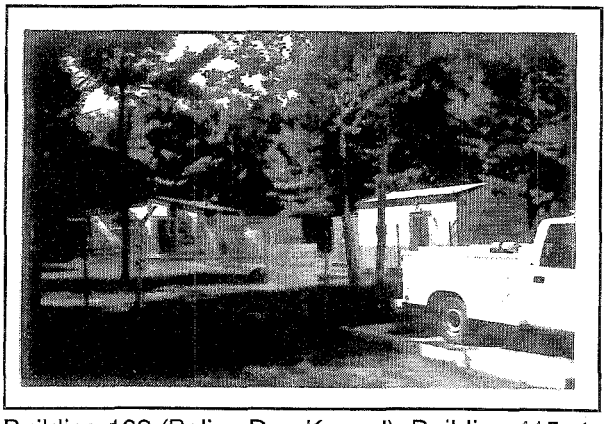
Building 85 (Toilet Building, Ball Fields and Tennis Courts)

No photo

Building 86 (Aircraft Ground Support Shop)

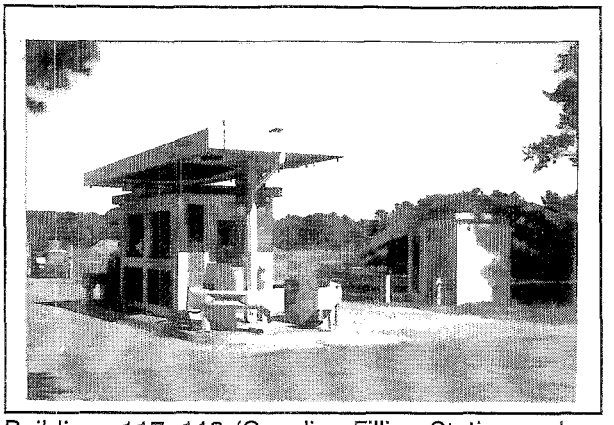


Building 87 (Communications Center [COMPAT Building])

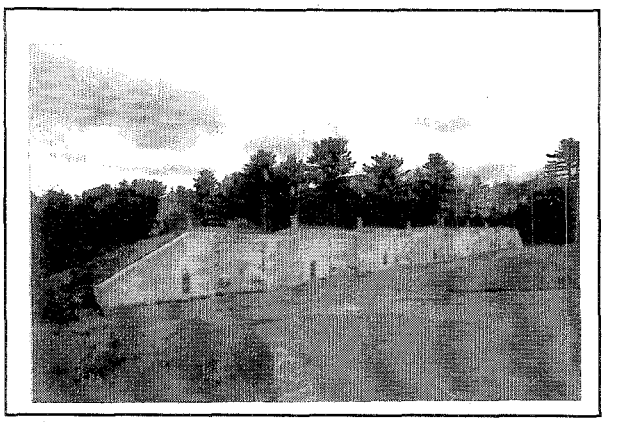


Building 109 (Police Dog Kennel); Building 415 at right

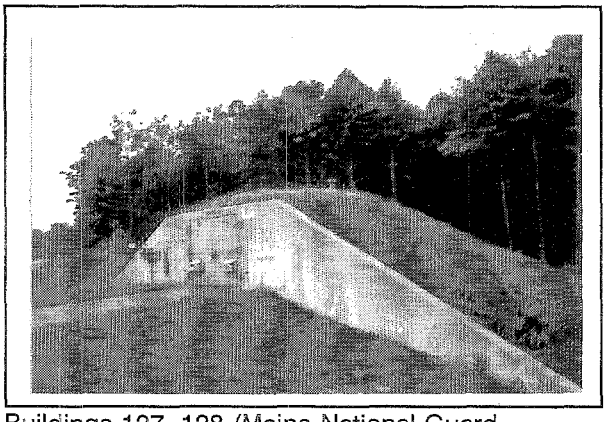
MAIN STATION - POST WORLD WAR II ERA



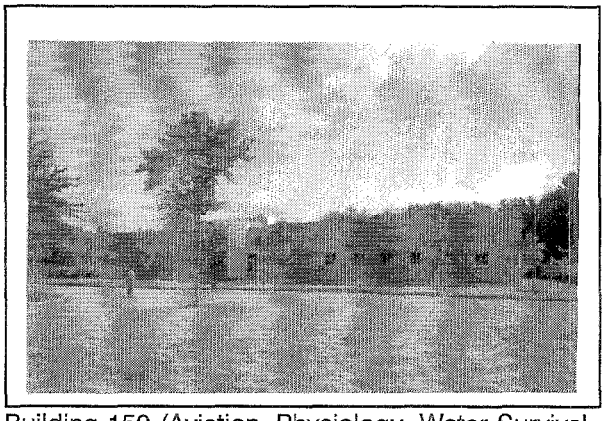
Buildings 117, 118 (Gasoline Filling Station and Storage Building)



Buildings 126A-G (Maine National Guard Magazine)

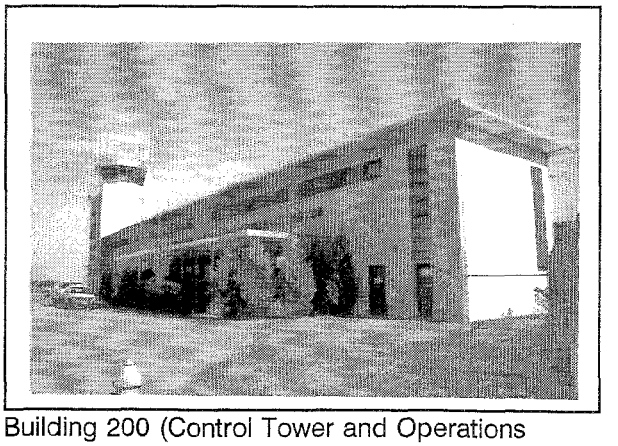


Buildings 127, 128 (Maine National Guard Magazine)



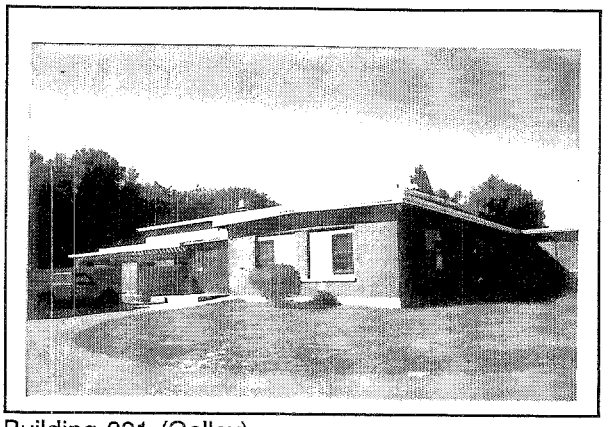
Building 150 (Aviation, Physiology, Water Survival Training Unit)

Building 153 (Sand and Gravel Storage Building)

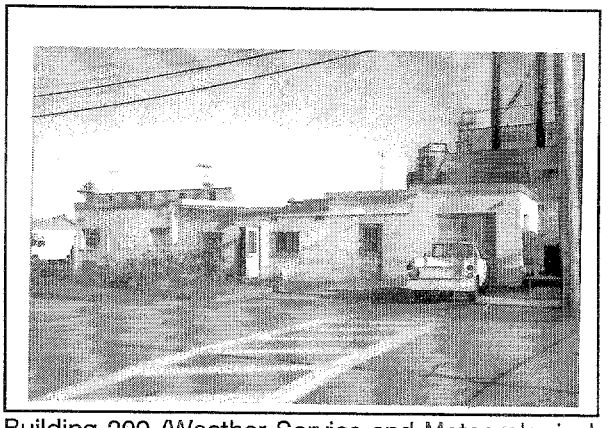


Building 200 (Control Tower and Operations Building)

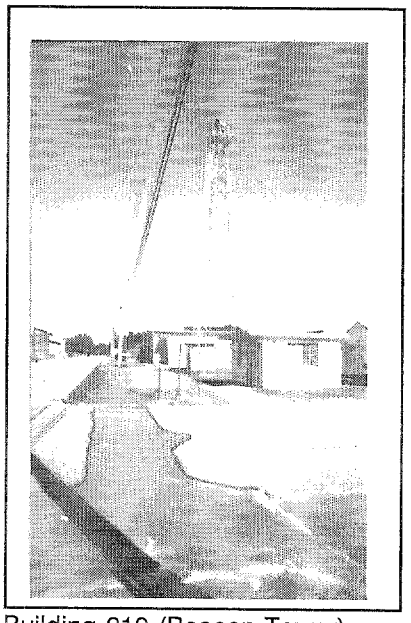
MAIN STATION - POST WORLD WAR II ERA



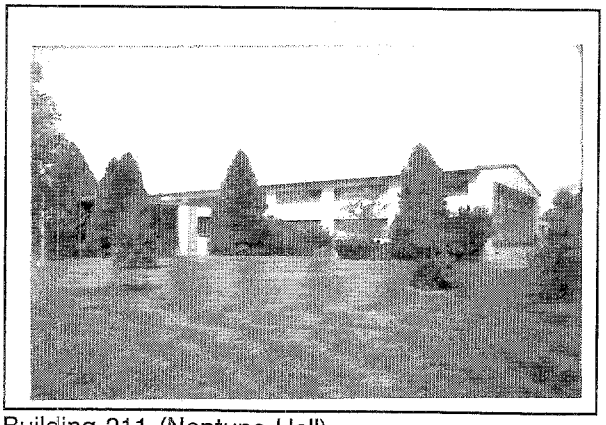
Building 201 (Galley)



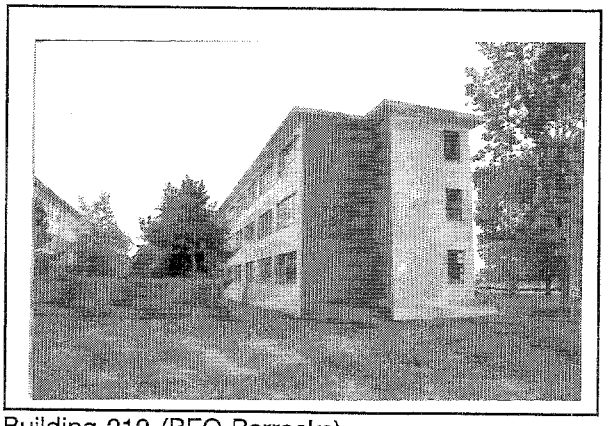
Building 209 (Weather Service and Meteorological Offices)



Building 210 (Beacon Tower)

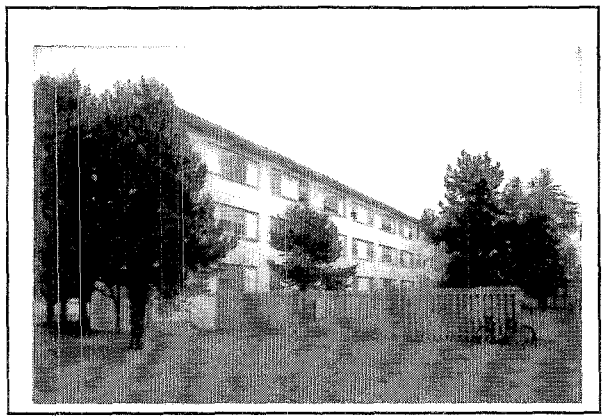


Building 211 (Neptune Hall)

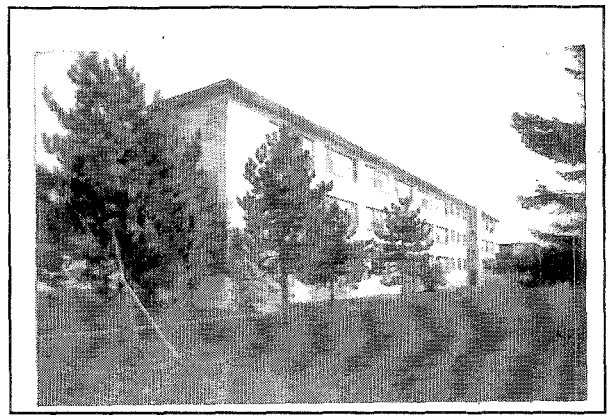


Building 212 (BEQ Barracks)

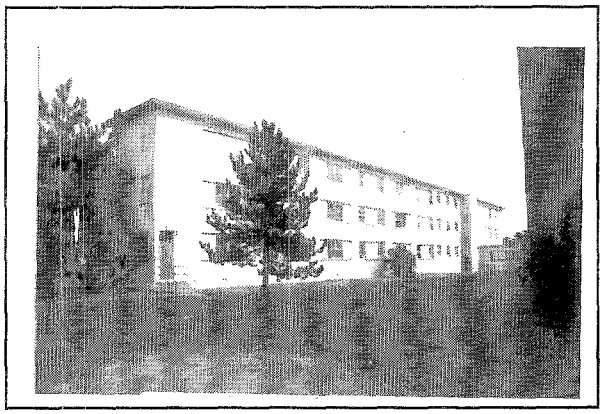
MAIN STATION - POST WORLD WAR II ERA



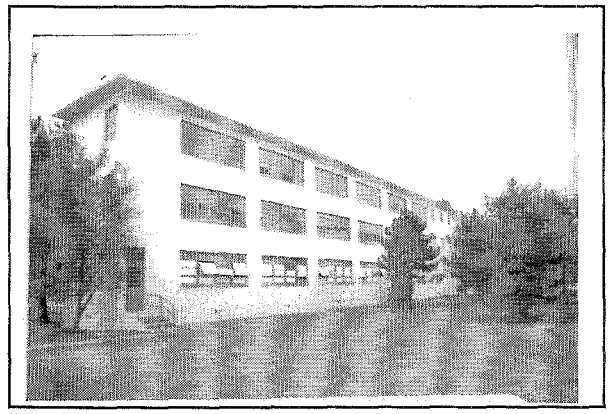
Building 213 (BEQ Barracks)



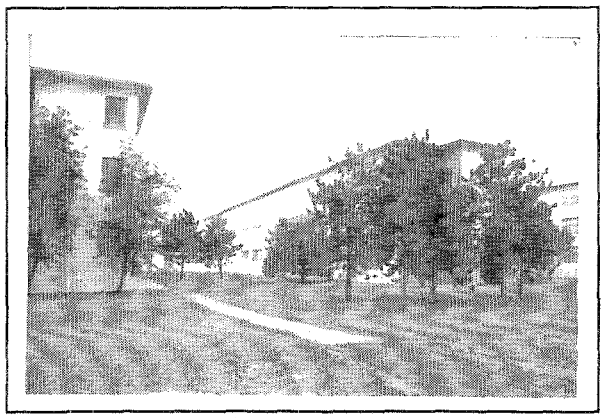
Building 214 (BEQ Barracks)



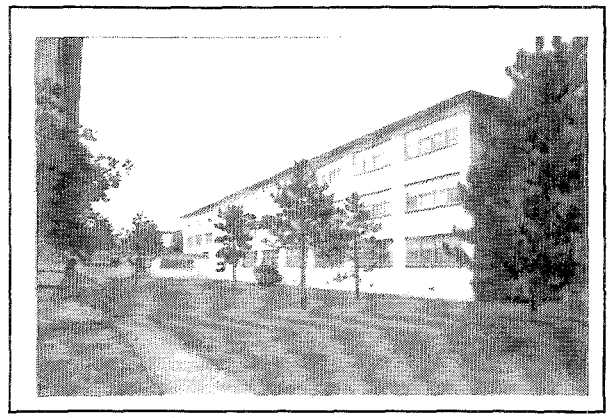
Building 215 (BEQ Barracks)



Building 216 (BEQ Barracks)

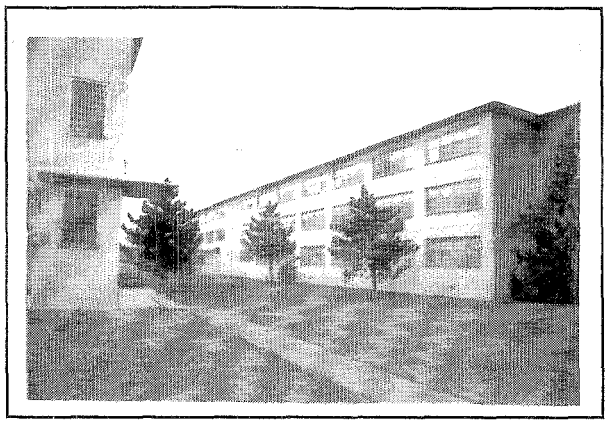


Building 217 (BEQ Barracks)



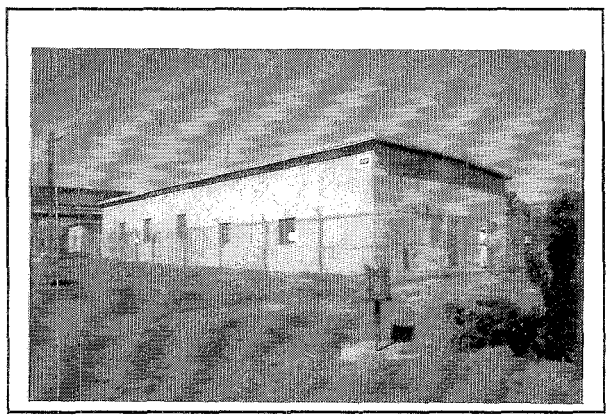
Building 218 (BEQ Barracks)

MAIN STATION - POST WORLD WAR II ERA

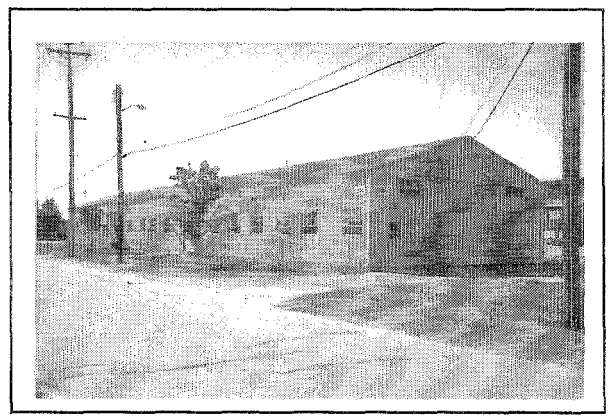


Building 219 (BEQ Barracks)

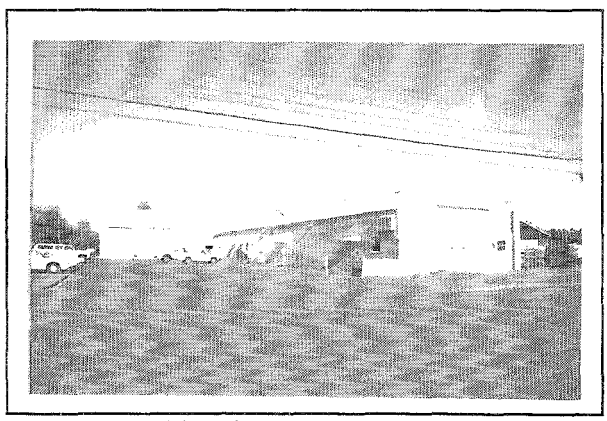
Building 220 (BEQ Barracks)



Building 223 (Advanced Undersea Weapons Shop)



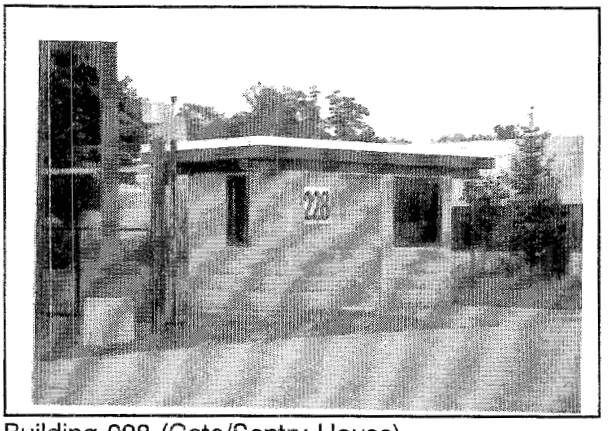
Building 224 (Training Building)



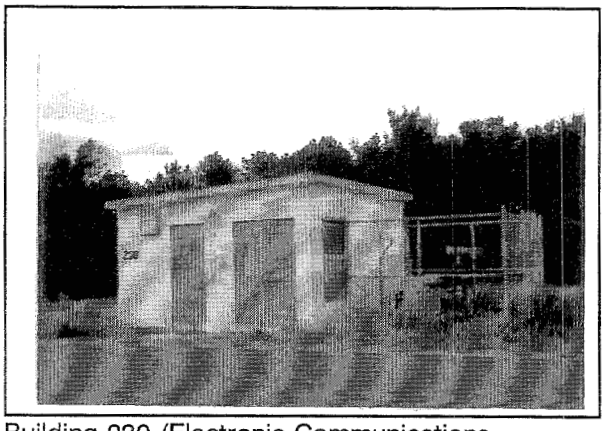
Building 225 (Vehicle Maintenance Shop)

Buildings 226, 227 (Radar Station and Stand-by Generator Building)

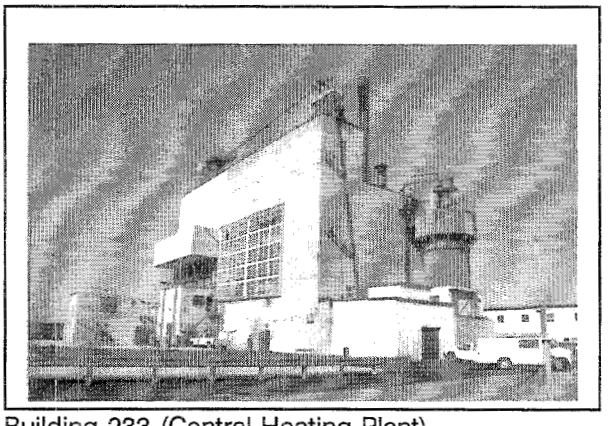
MAIN STATION - POST WORLD WAR II ERA



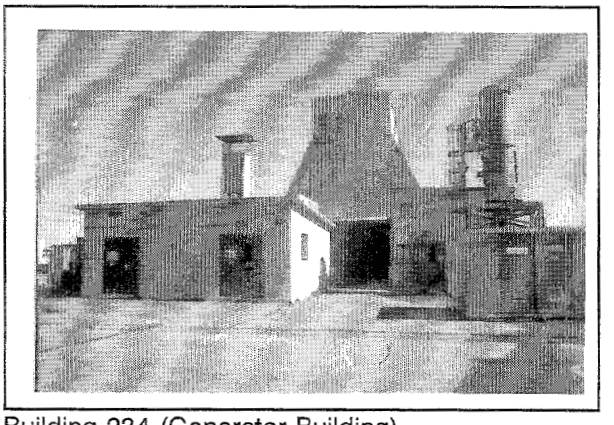
Building 228 (Gate/Sentry House)



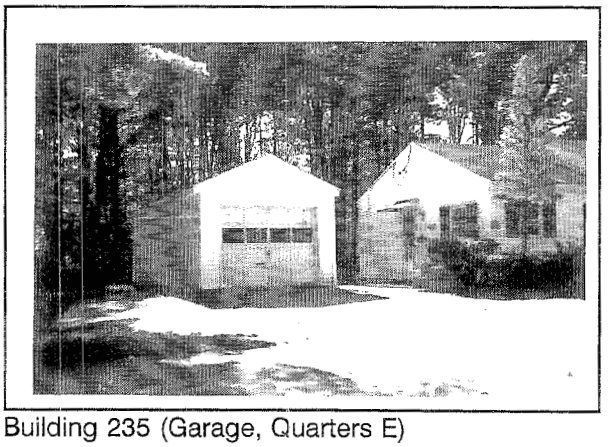
Building 230 (Electronic Communications Maintenance Building)



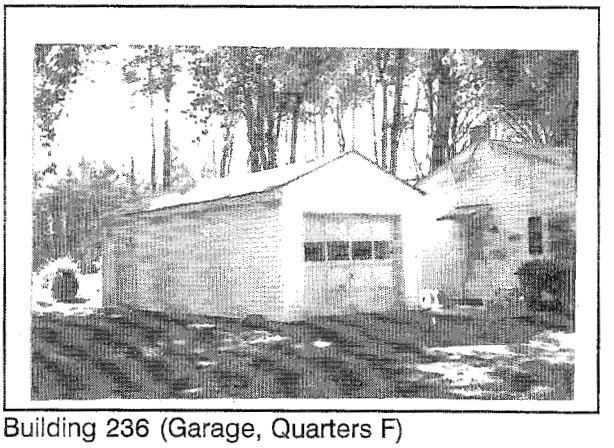
Building 233 (Central Heating Plant)



Building 234 (Generator Building)

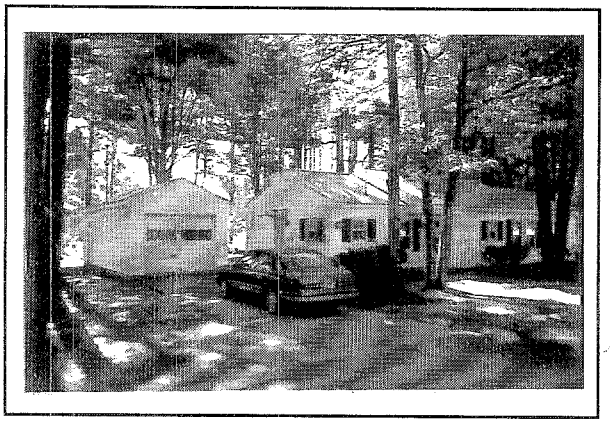


Building 235 (Garage, Quarters E)

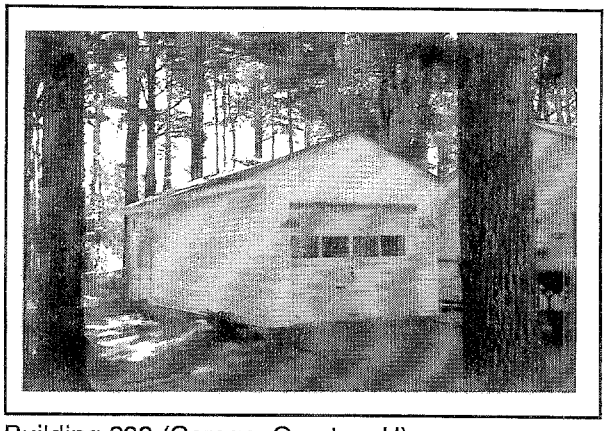


Building 236 (Garage, Quarters F)

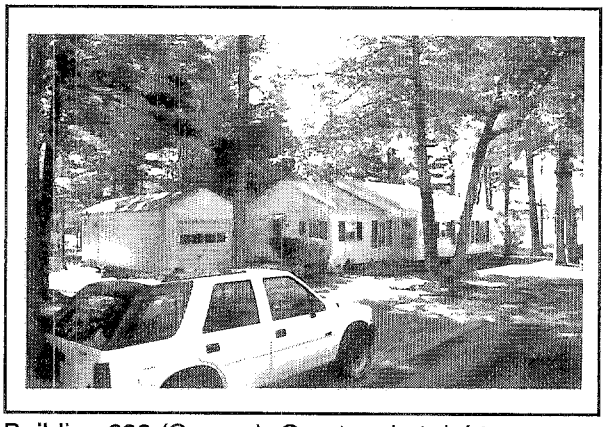
MAIN STATION - POST WORLD WAR II ERA



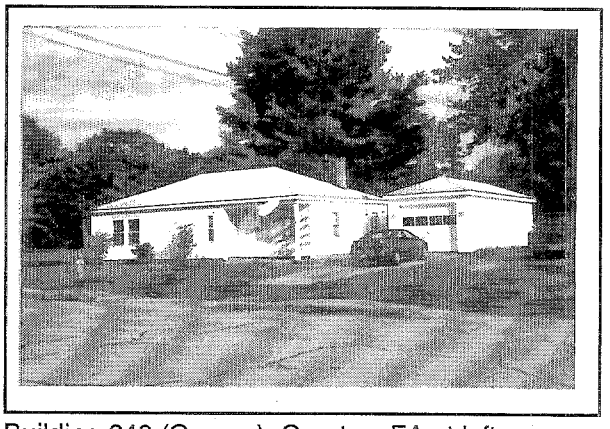
Building 237 (Garage, Quarters G)



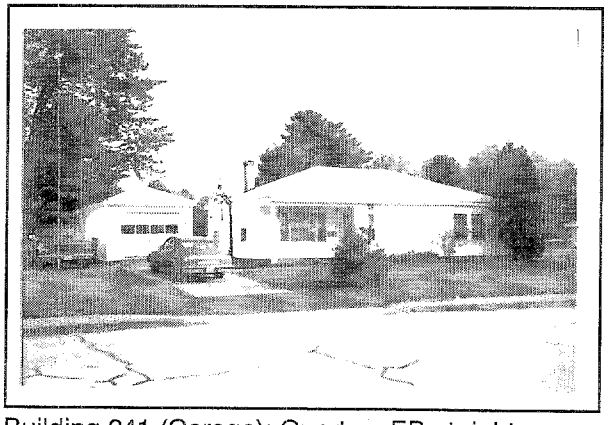
Building 238 (Garage, Quarters H)



Building 239 (Garage); Quarters I at right



Building 240 (Garage); Quarters EA at left



Building 241 (Garage); Quarters EB at right

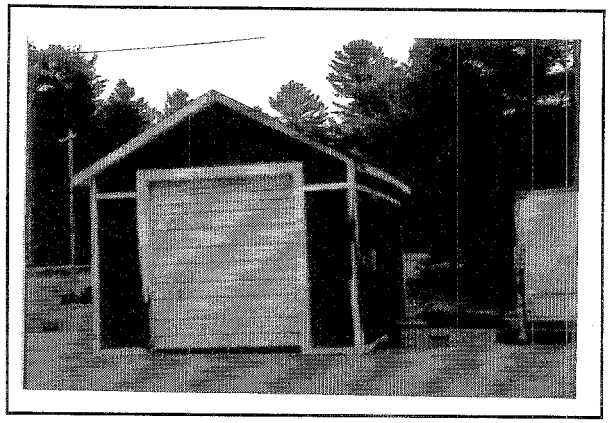
No photo

Building 242 (Garage, Quarters EC)

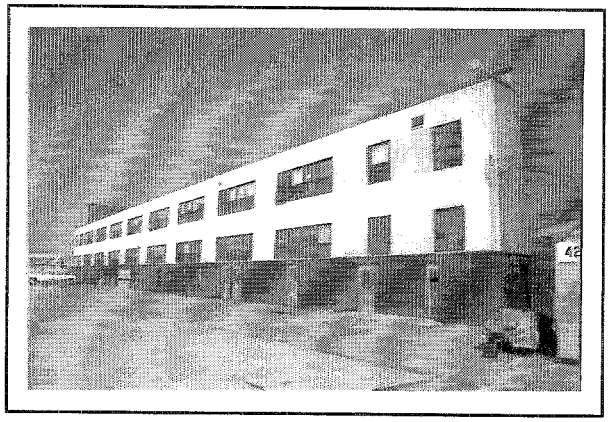
MAIN STATION - POST WORLD WAR II ERA

No photo

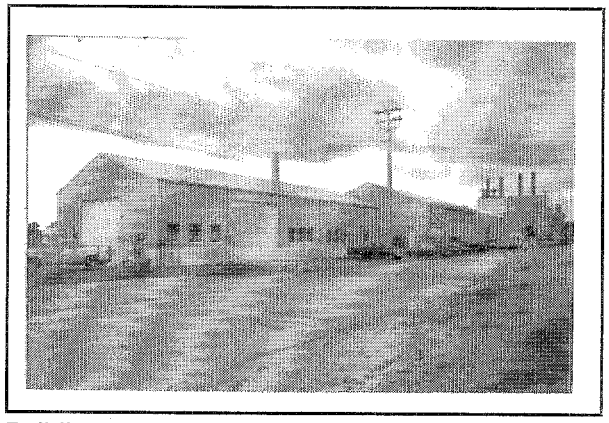
Buildings 243, 244 (Garages, Quarters ED and EE)



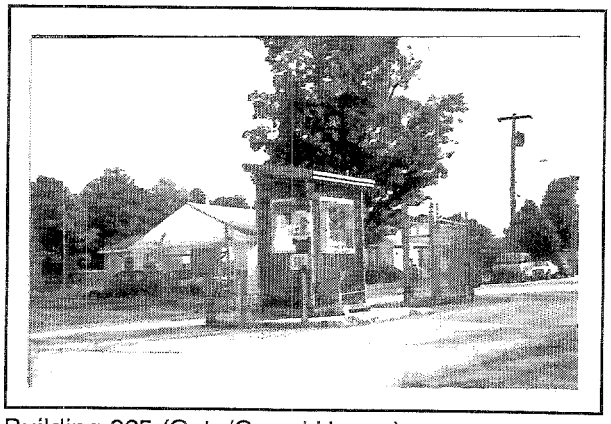
Building 245 (Electrical Charging Facility)



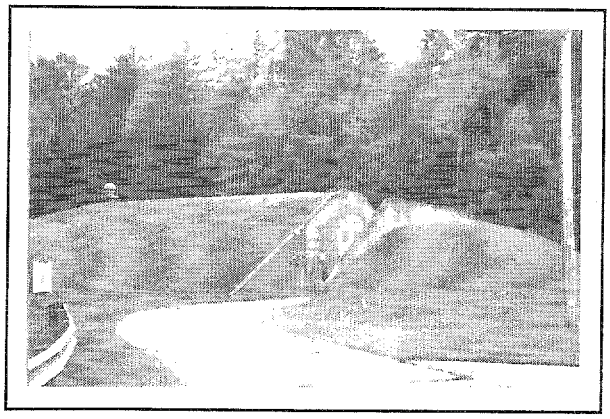
Building 250 (Aircraft Maintenance Hangar [Hangar 4])



Building 252 (Vehicle Maintenance Shop)

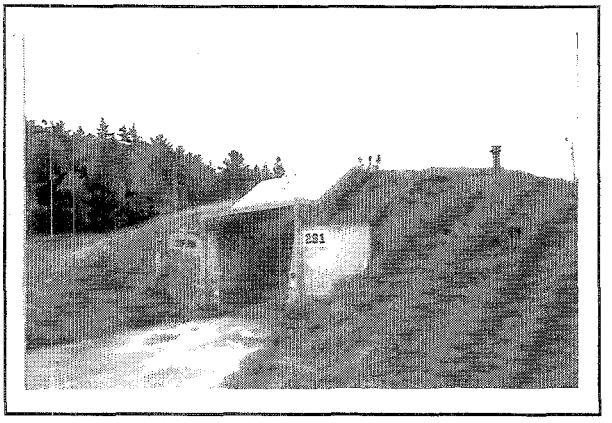


Building 265 (Gate/Guard House)



Buildings 285-290 (Weapons/Ordnance Magazines)

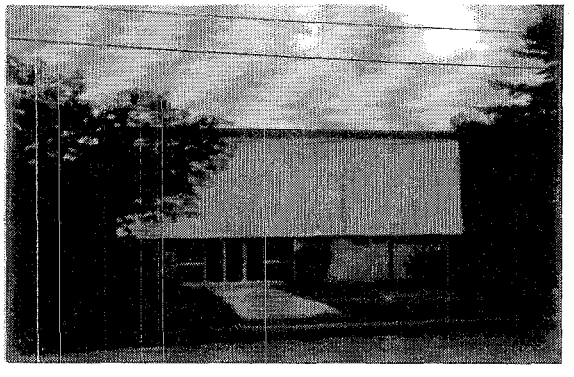
MAIN STATION - POST WORLD WAR II ERA



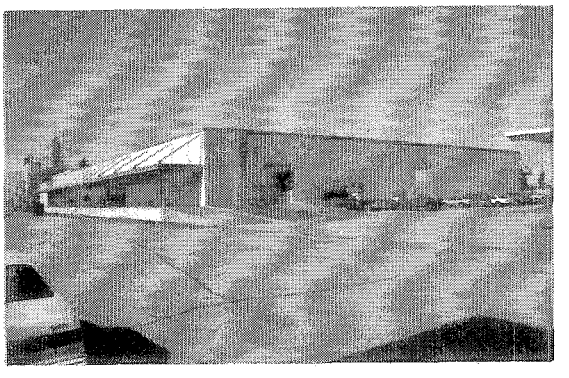
Building 291 (Fuse/Detonator Magazine)

No photo

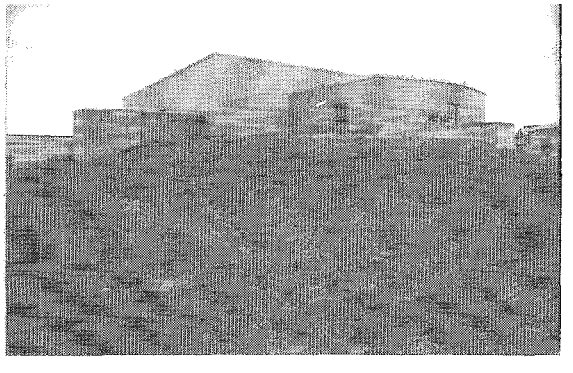
Building 292 (Fire Barn)



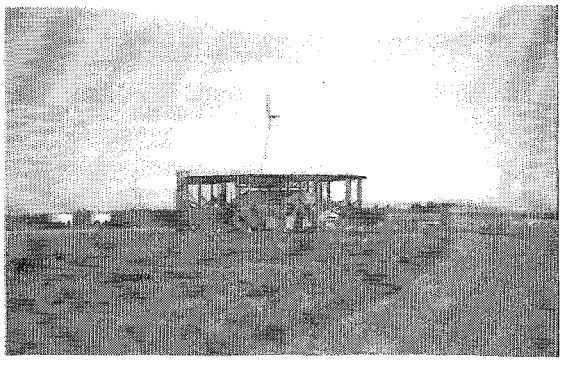
Building 293 (Theater)



Building 294 (Supply Facilities)



Building 295 (Water Reservoir Pumping Station)

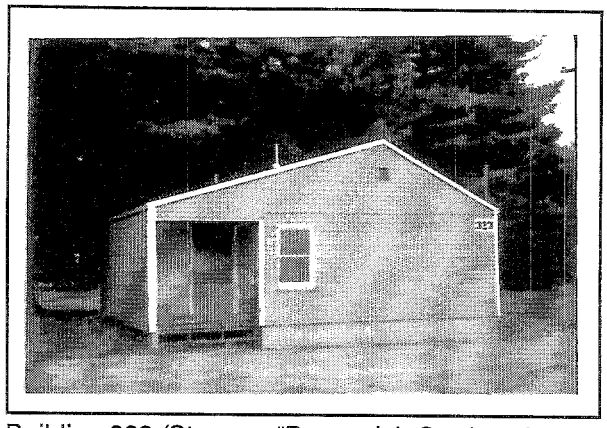


Building 296 (Tactical Air Navigation Building)

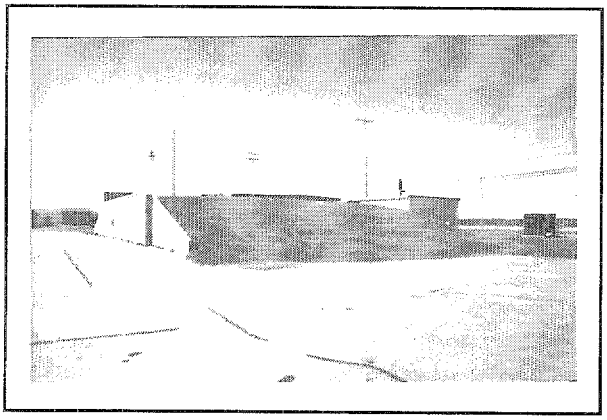
MAIN STATION - POST WORLD WAR II ERA

No photo

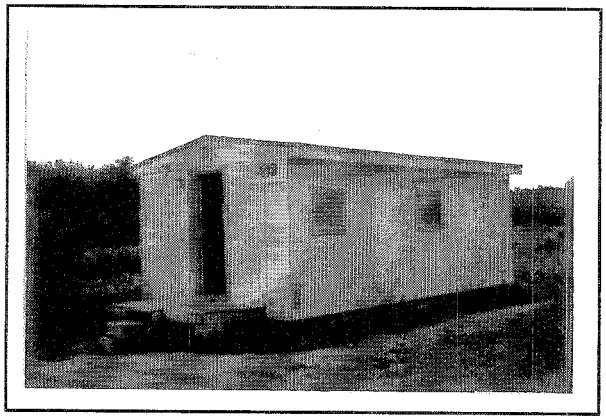
Building 309 (Water Pump House)



Building 323 (Storage, "Brunswick Gardens")



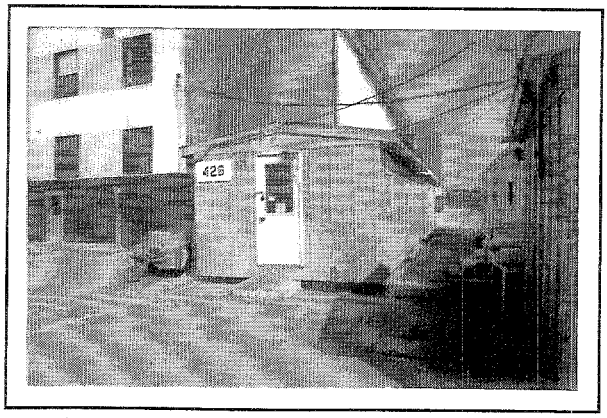
Building 349 (Fund 50-69 EM Housing)



Building 413 (Temporary Building)

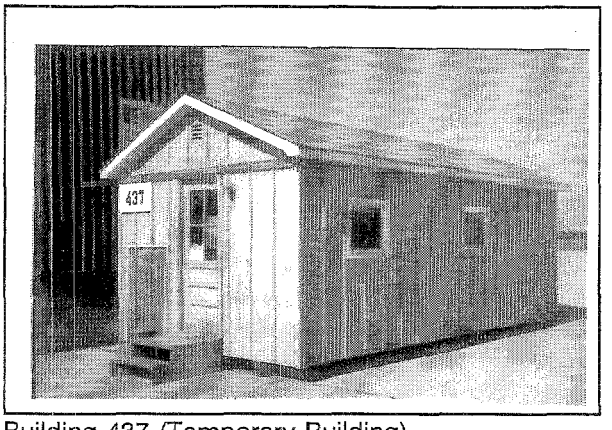
see building 109
Main Station - Post World War II Era

Building 415 (Temporary Building)

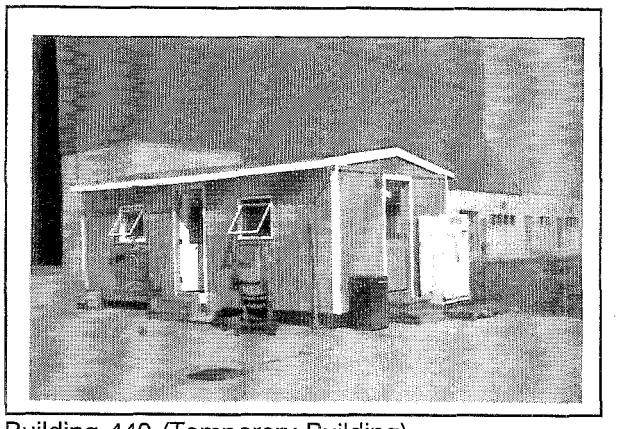


Building 426 (Temporary Building)

MAIN STATION - POST WORLD WAR II ERA

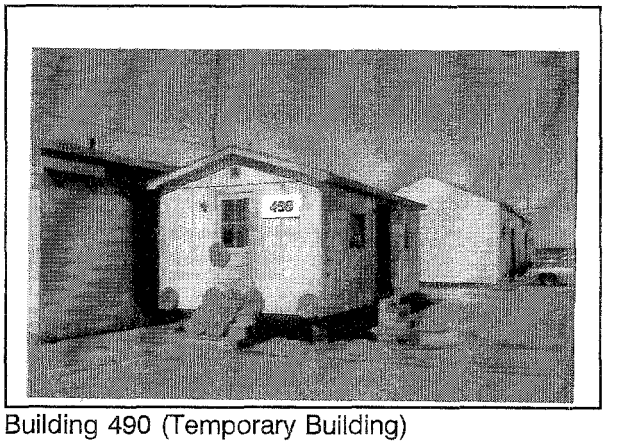


Building 437 (Temporary Building)

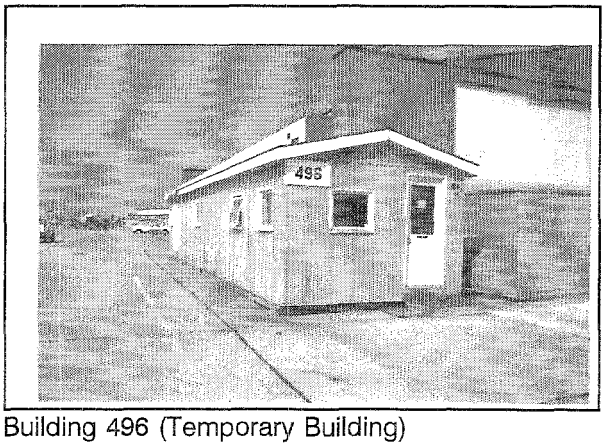


Building 440 (Temporary Building)

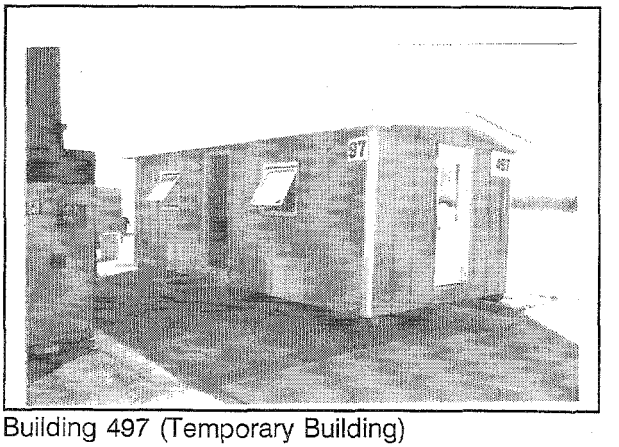
Building 446 (Avionic Shop Trailer)



Building 490 (Temporary Building)

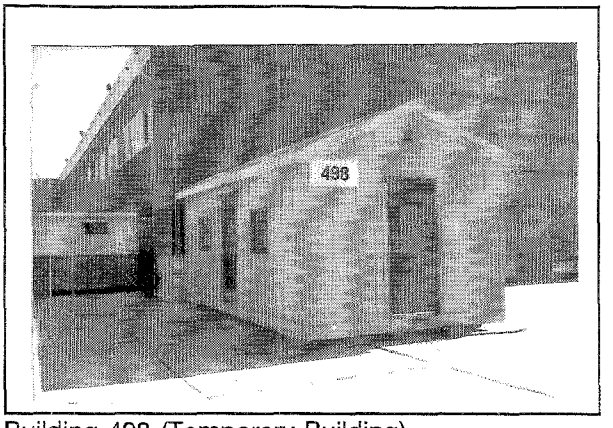


Building 496 (Temporary Building)

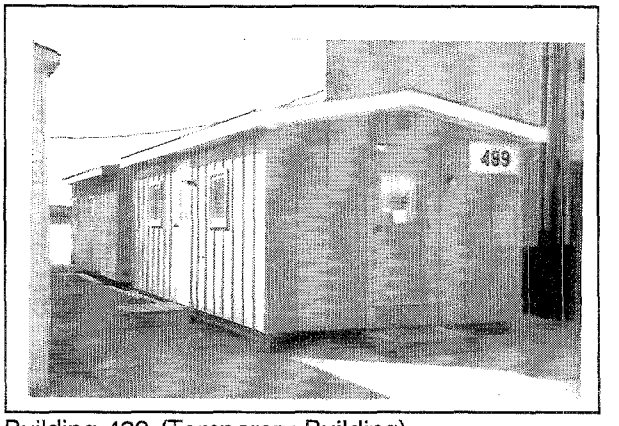


Building 497 (Temporary Building)

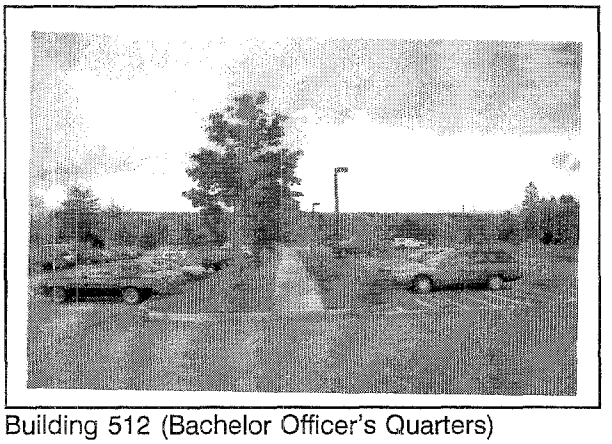
MAIN STATION - POST WORLD WAR II ERA



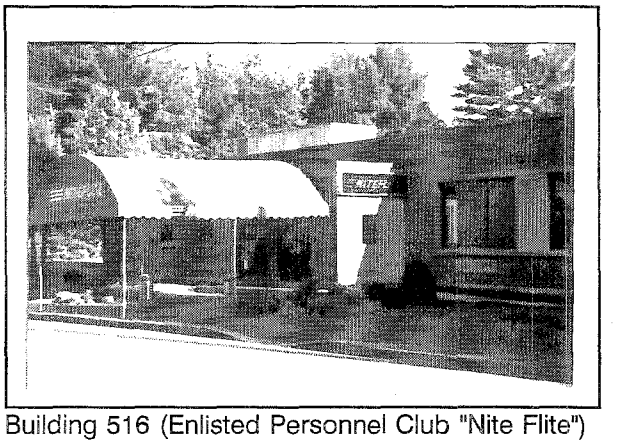
Building 498 (Temporary Building)



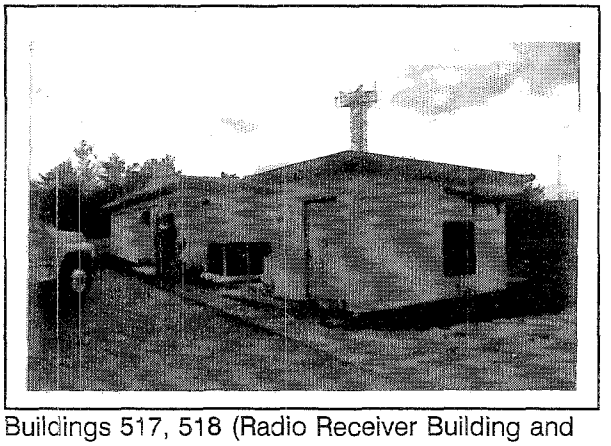
Building 499 (Temporary Building)



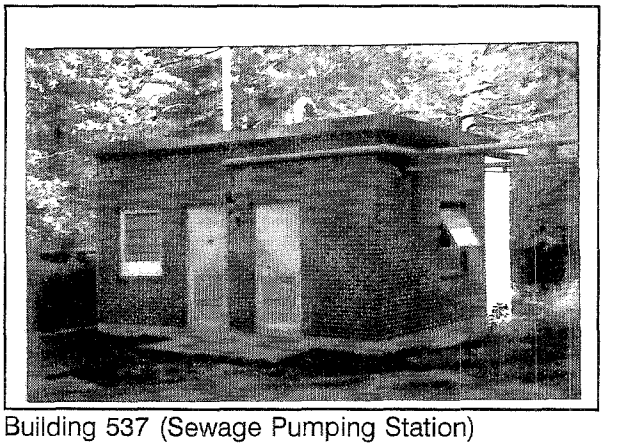
Building 512 (Bachelor Officer's Quarters)



Building 516 (Enlisted Personnel Club "Nite Flite")

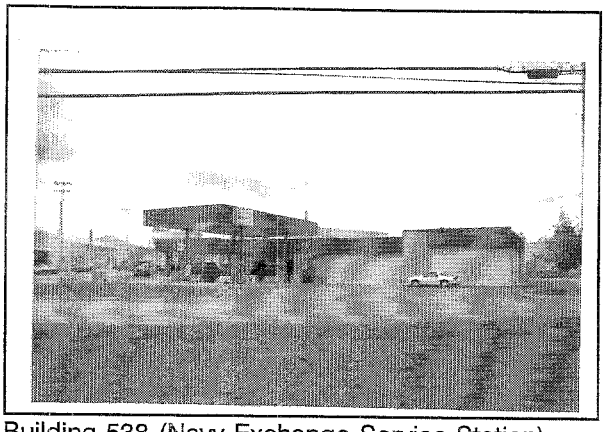


Buildings 517, 518 (Radio Receiver Building and Electrical Generator Building)

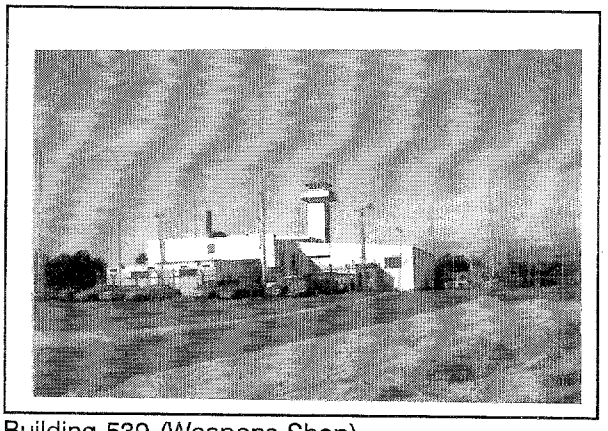


Building 537 (Sewage Pumping Station)

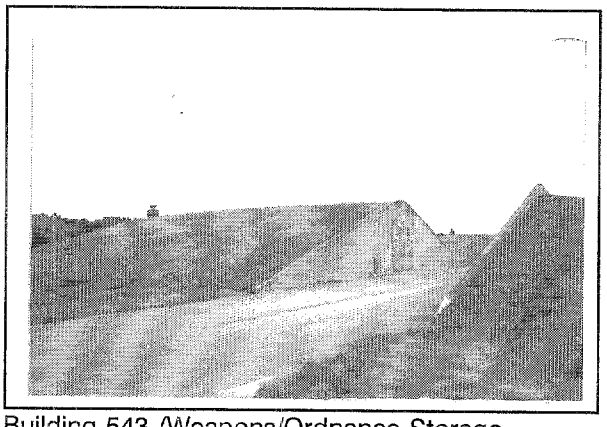
MAIN STATION - POST WORLD WAR II ERA



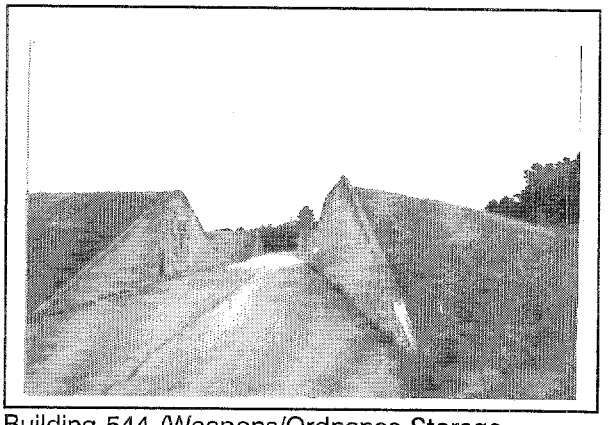
Building 538 (Navy Exchange Service Station)



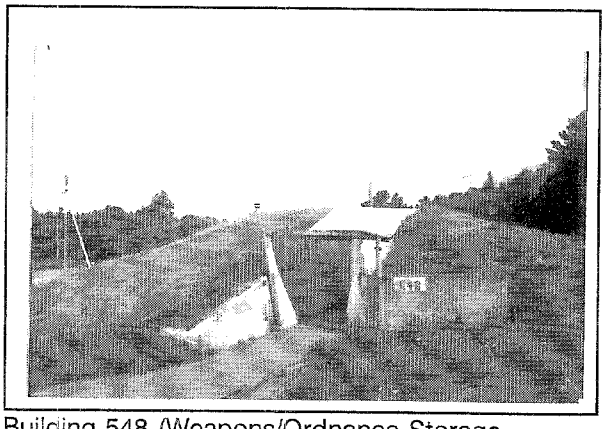
Building 539 (Weapons Shop)



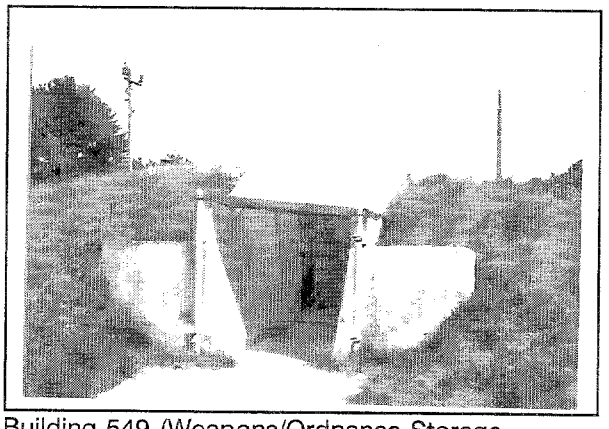
Building 543 (Weapons/Ordnance Storage Magazine)



Building 544 (Weapons/Ordnance Storage Magazine)

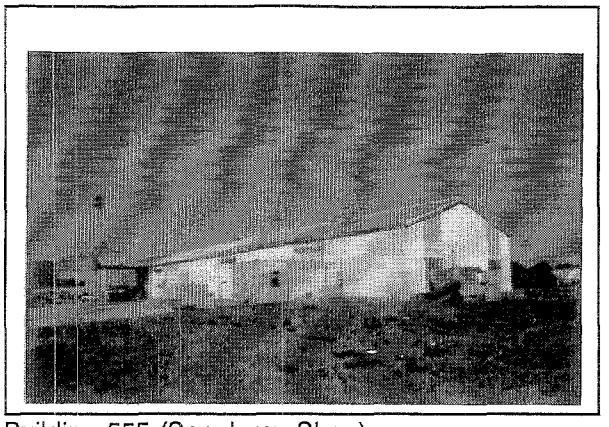


Building 548 (Weapons/Ordnance Storage Magazine)

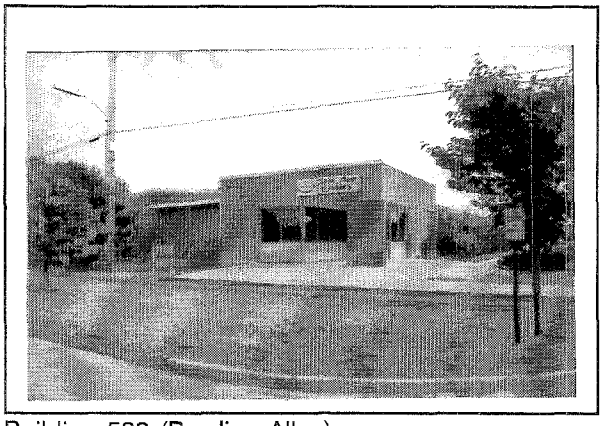


Building 549 (Weapons/Ordnance Storage Magazine)

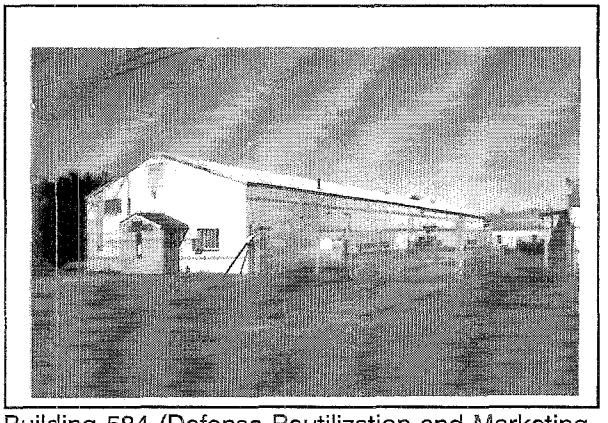
MAIN STATION - POST WORLD WAR II ERA



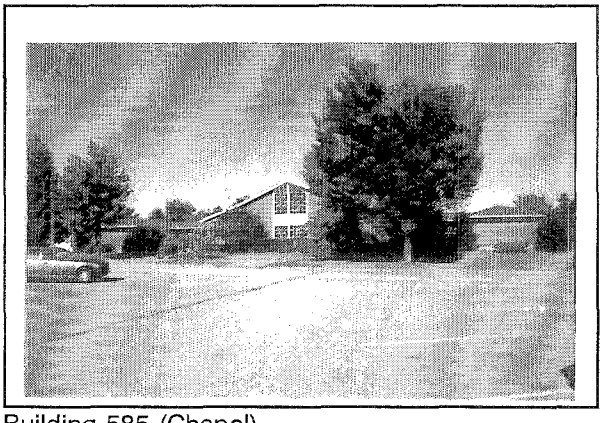
Building 555 (Sonobuoy Shop)



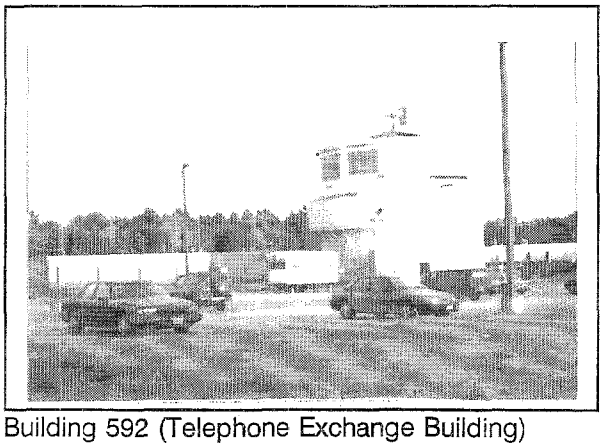
Building 583 (Bowling Alley)



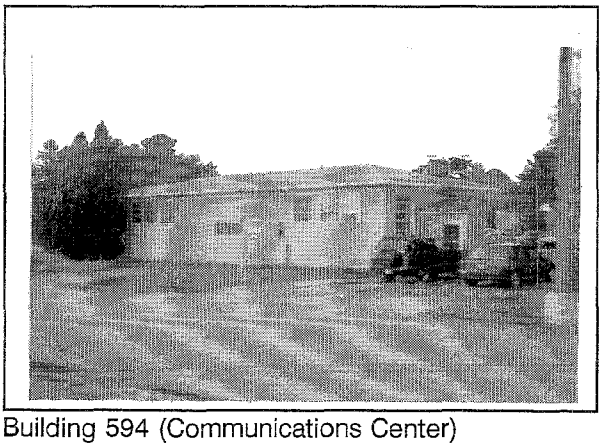
Building 584 (Defense Reutilization and Marketing Office)



Building 585 (Chapel)

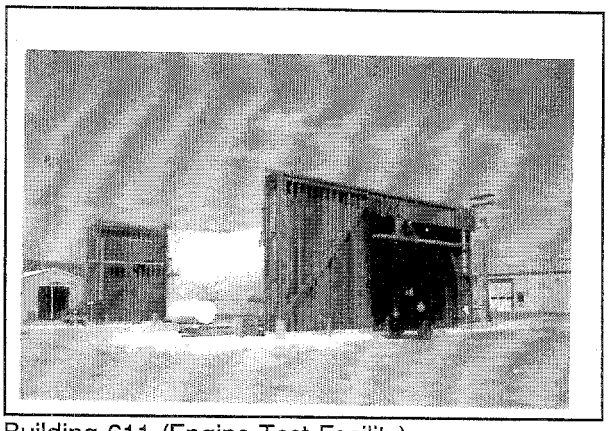


Building 592 (Telephone Exchange Building)

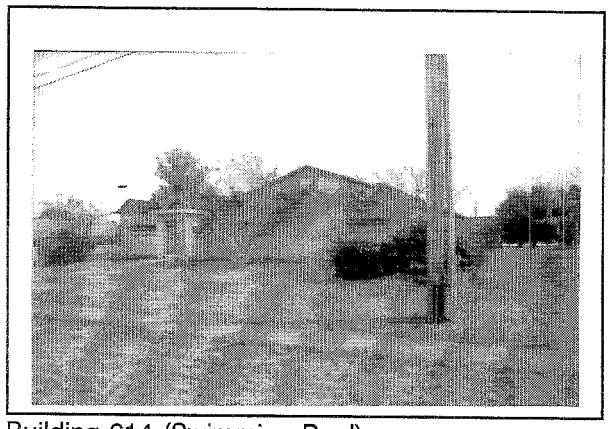


Building 594 (Communications Center)

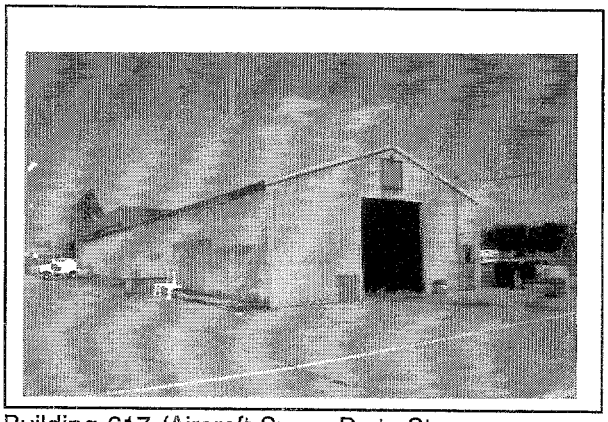
MAIN STATION - POST WORLD WAR II ERA



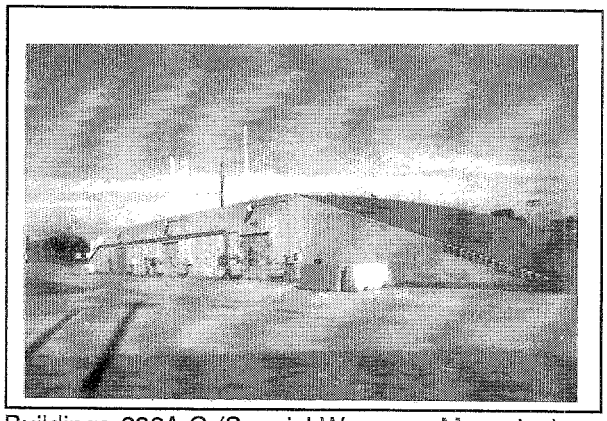
Building 611 (Engine Test Facility)



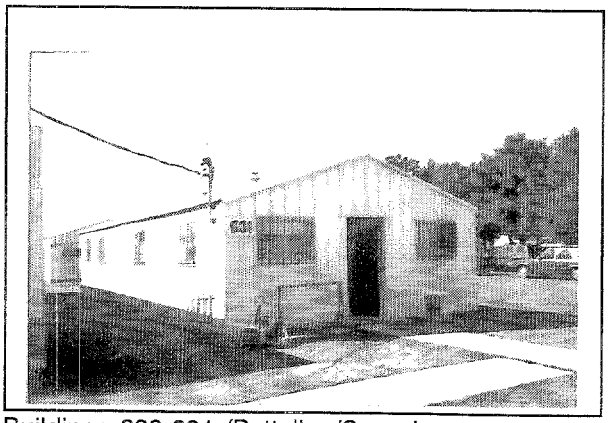
Building 614 (Swimming Pool)



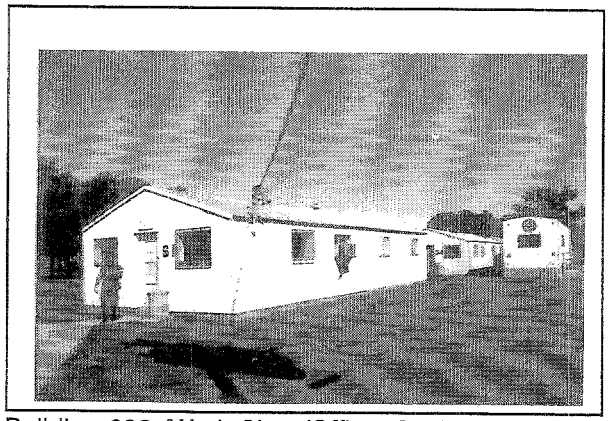
Building 617 (Aircraft Spare Parts Storage Building)



Buildings 626A-C (Special Weapons Magazine)

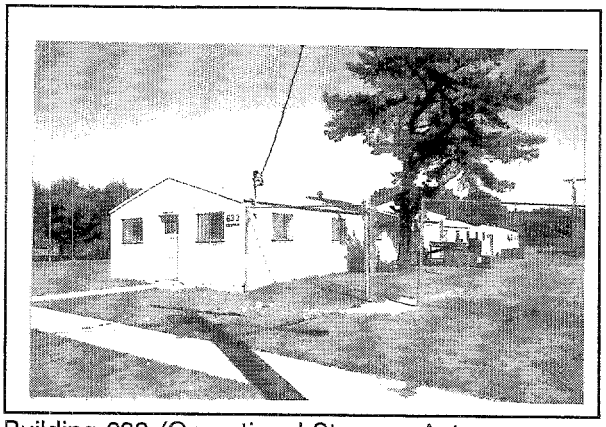


Buildings 629-631 (Battalion/Squadron Headquarters, Seabees)

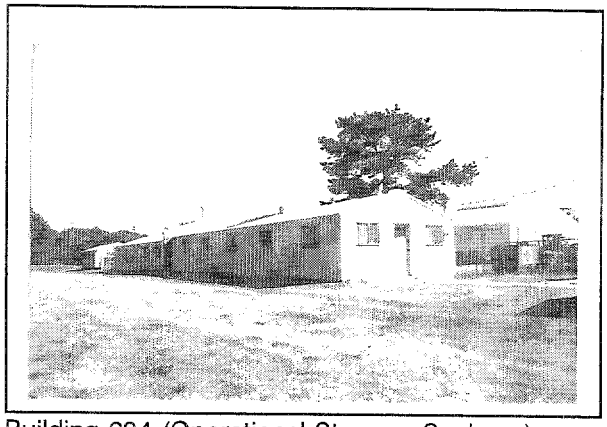


Building 632 (Work Shop/Office, Seabees)

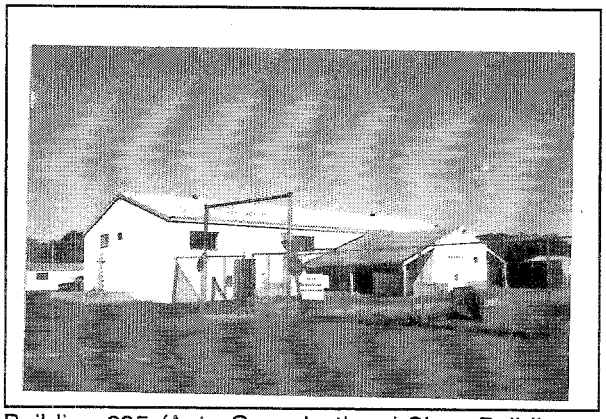
MAIN STATION - POST WORLD WAR II ERA



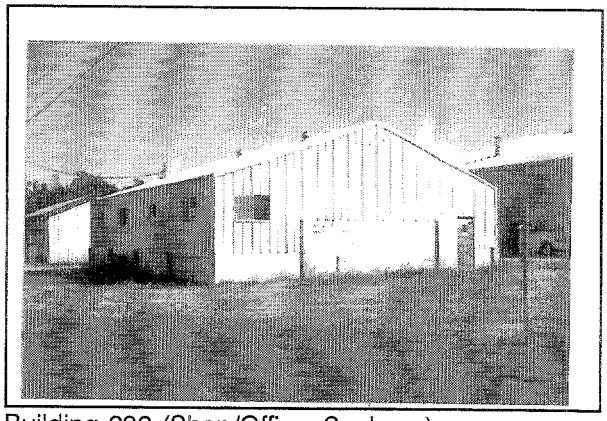
Building 633 (Operational Storage, Auto Organizational Shop Building)



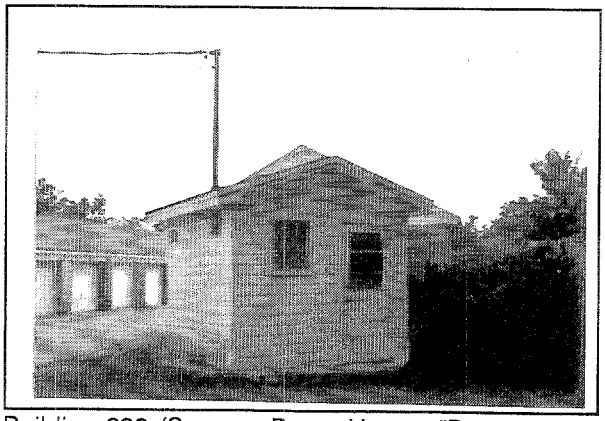
Building 634 (Operational Storage, Seabees)



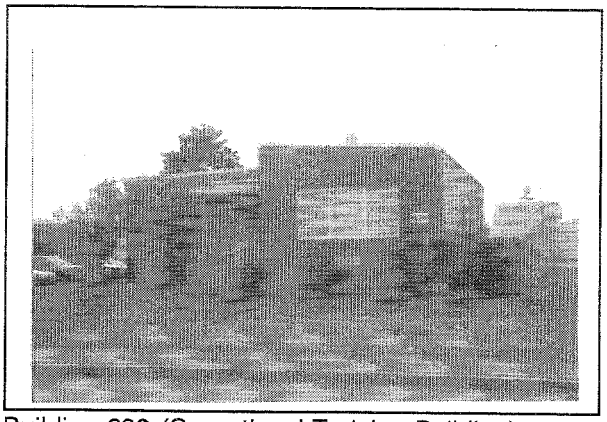
Building 635 (Auto Organizational Shop Building, Seabees)



Building 636 (Shop/Office, Seabees)

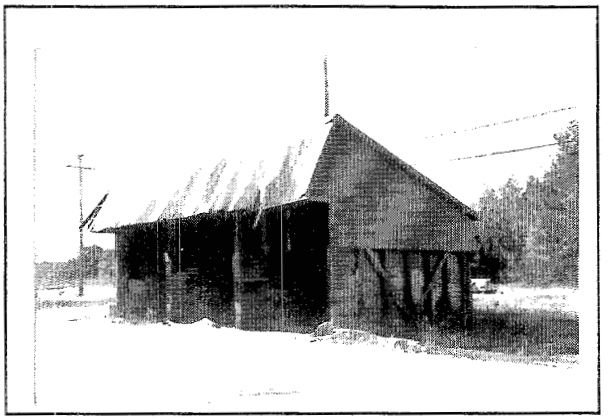


Building 638 (Sewage Pump House, "Brunswick Gardens")

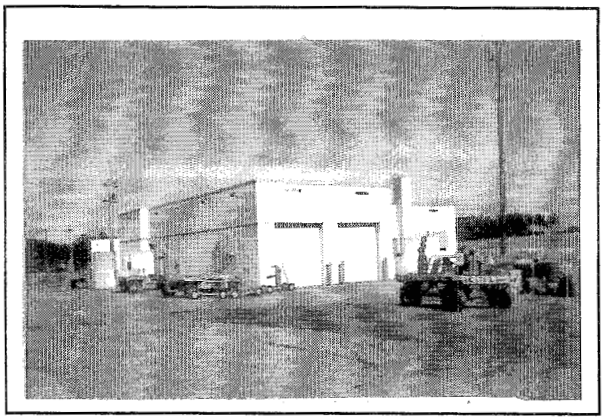


Building 639 (Operational Training Building)

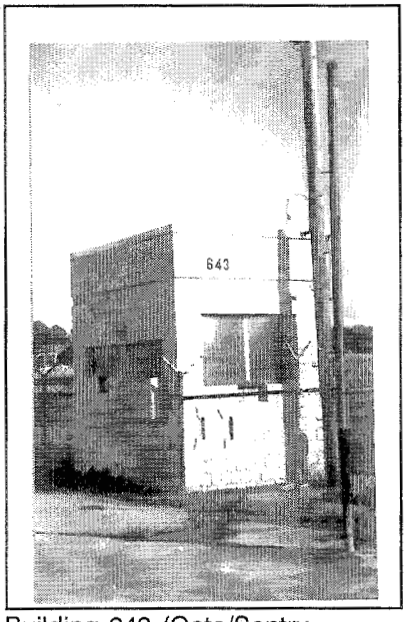
MAIN STATION - POST WORLD WAR II ERA



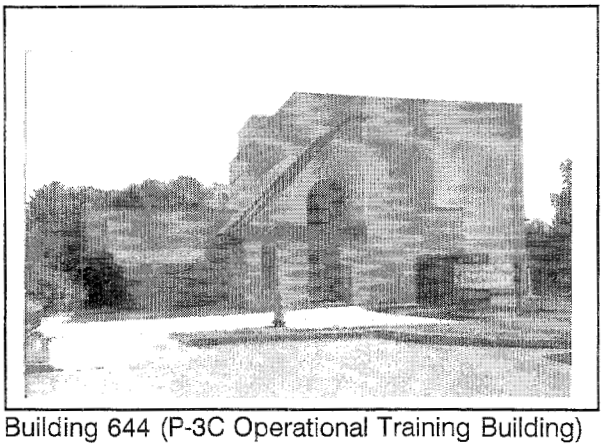
Building 640 (Public Works Maintenance Storage)



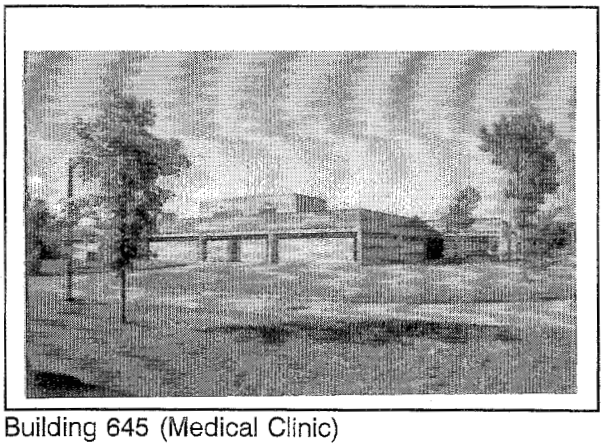
Building 642 (Alert Force Building)



Building 643 (Gate/Sentry House)

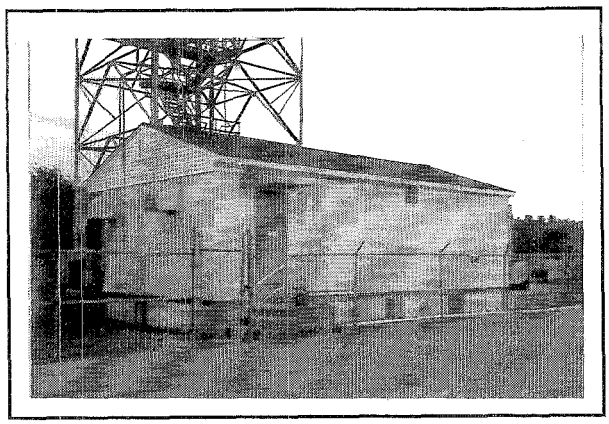


Building 644 (P-3C Operational Training Building)

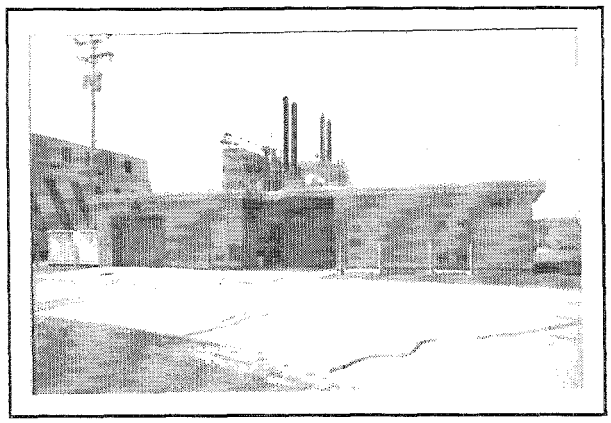


Building 645 (Medical Clinic)

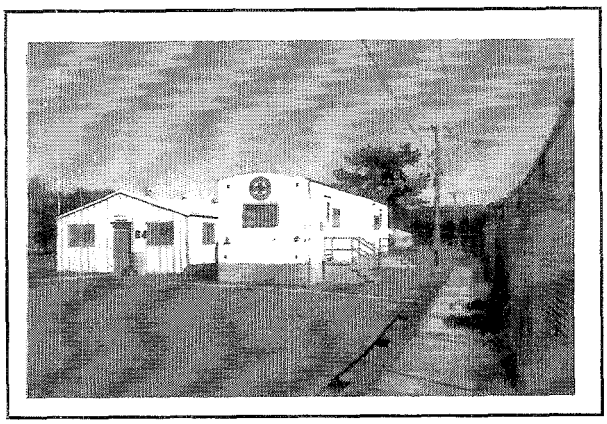
MAIN STATION - POST WORLD WAR II ERA



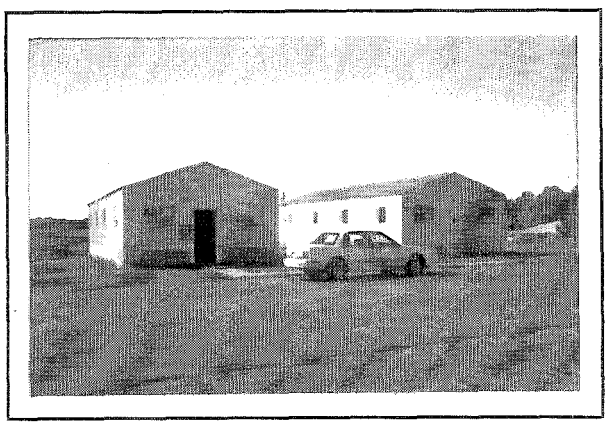
Building 646 (Air Radar Building)



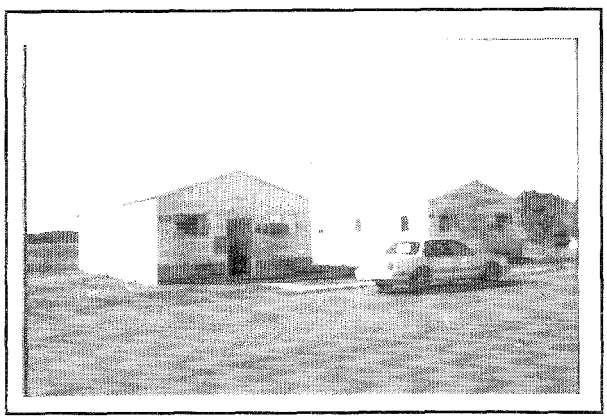
Building 647 (Pesticide and Gas Storage Shed)



Building 656 (Contaminated Fuel Storage)



Building 657 (Miscellaneous Pipe Storage)



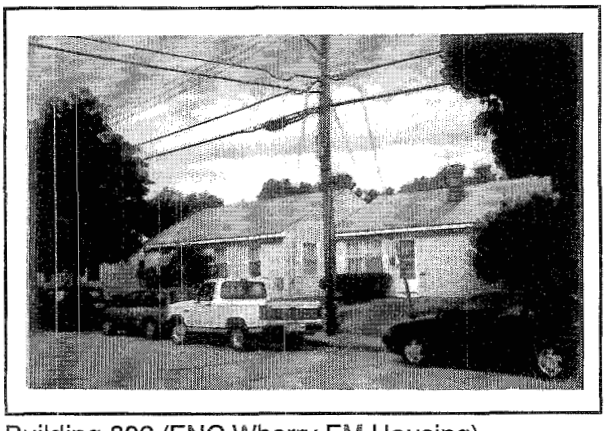
Building 658 (Shop/Office, Seabees)

MAIN STATION - POST WORLD WAR II ERA

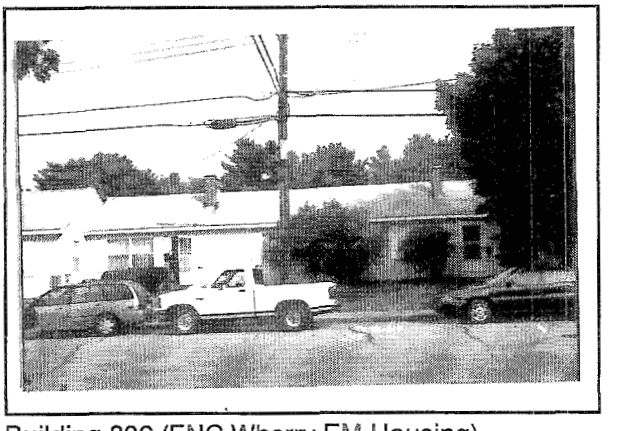
No photo

Buildings 790-800 (Fund 70 Enlisted Housing)

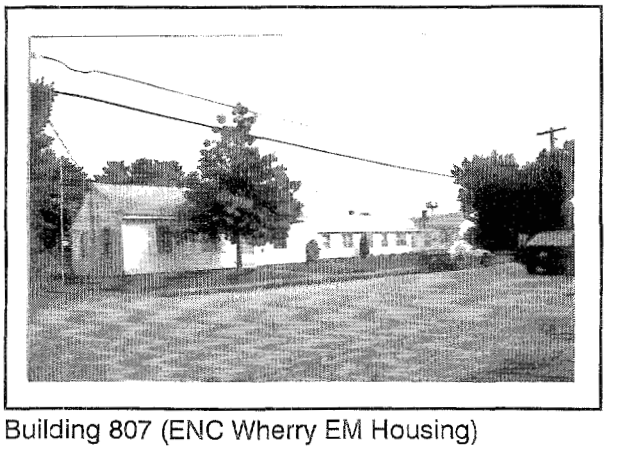
Building 805 (ENC Wherry EM Housing)



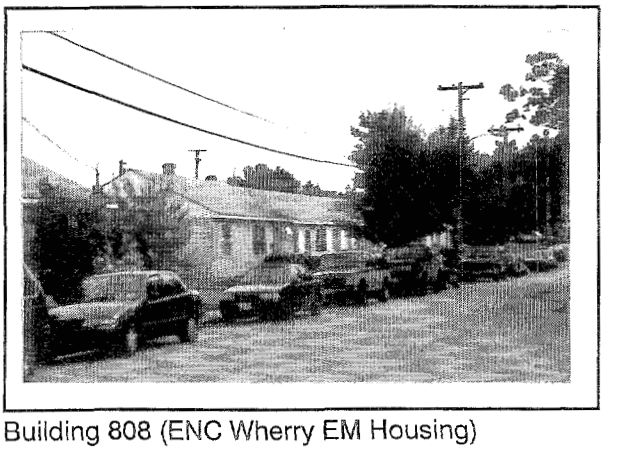
Building 806 (ENC Wherry EM Housing)



Building 806 (ENC Wherry EM Housing)

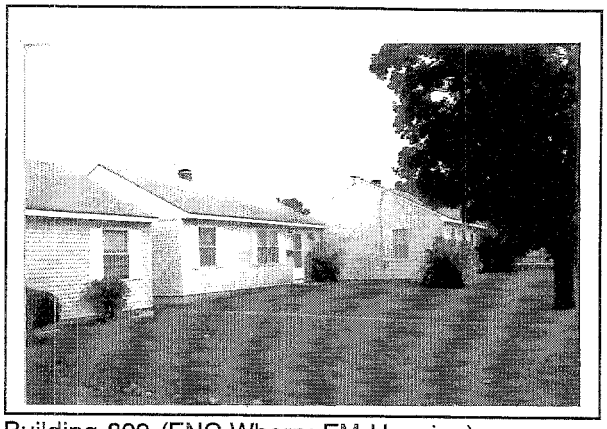


Building 807 (ENC Wherry EM Housing)



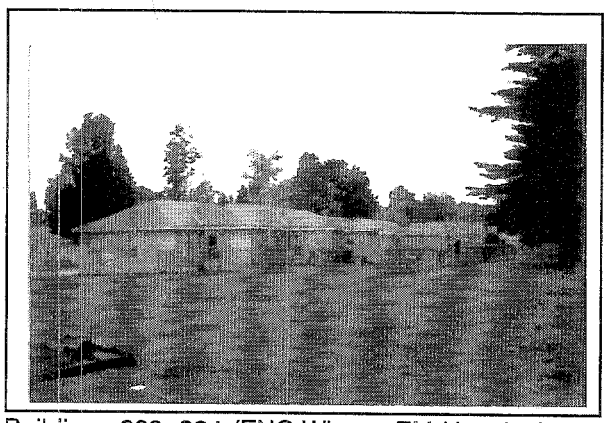
Building 808 (ENC Wherry EM Housing)

MAIN STATION - POST WORLD WAR II ERA

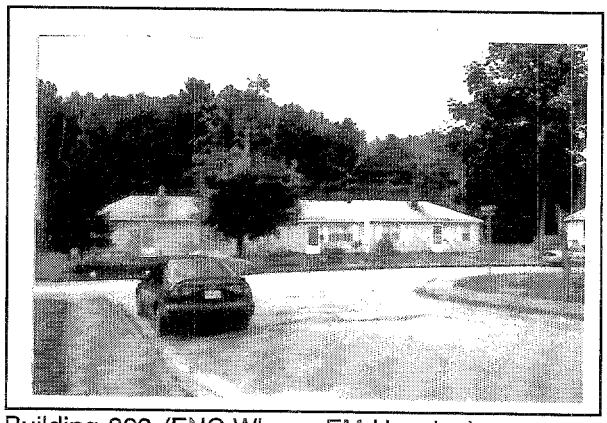


Building 809 (ENC Wherry EM Housing)

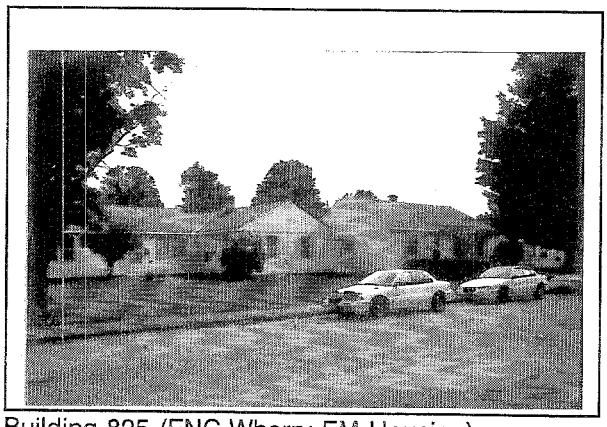
Building 811 (ENC Wherry EM Housing)



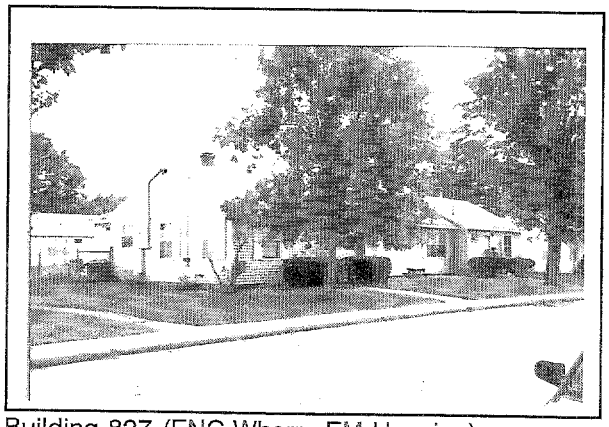
Buildings 823, 824 (ENC Wherry EM Housing)



Building 823 (ENC Wherry EM Housing)

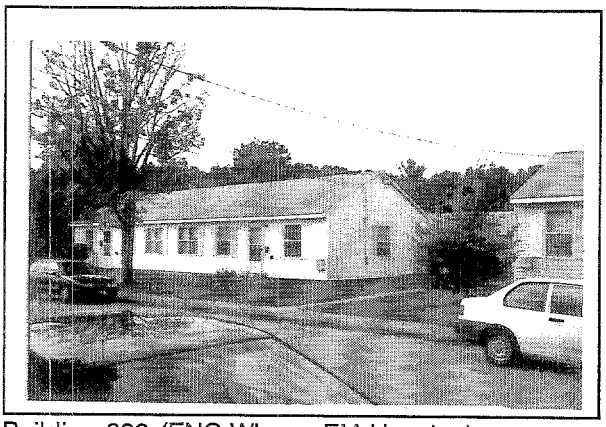


Building 825 (ENC Wherry EM Housing)



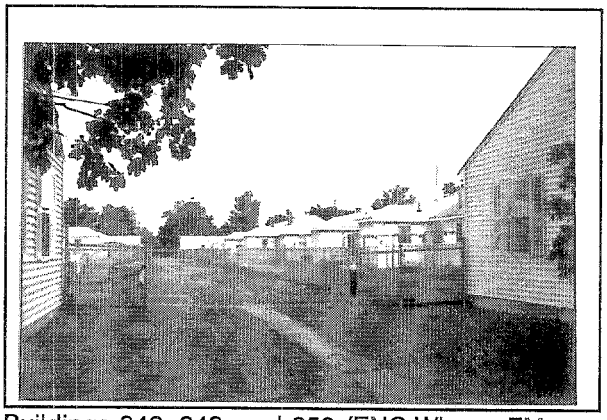
Building 827 (ENC Wherry EM Housing)

MAIN STATION - POST WORLD WAR II ERA

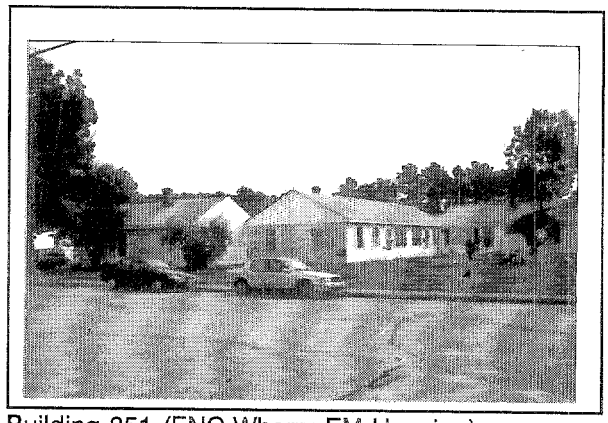


Building 839 (ENC Wherry EM Housing)

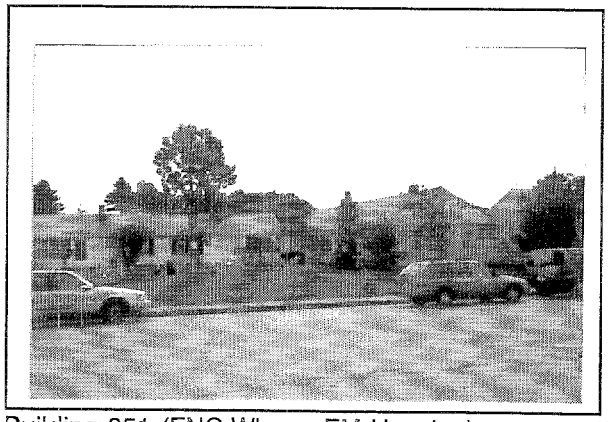
Building 843 (ENC Wherry EM Housing)



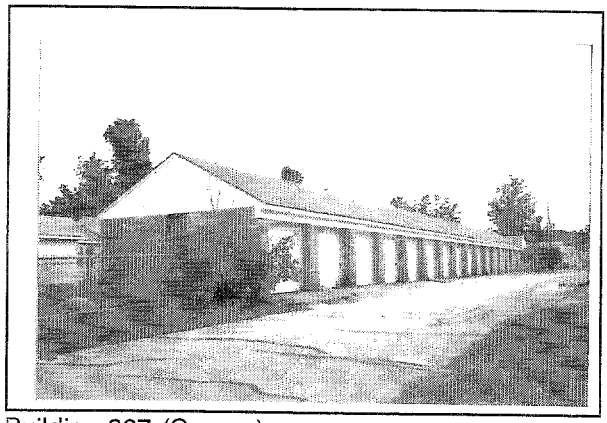
Buildings 846, 848, and 850 (ENC Wherry EM Housing)



Building 851 (ENC Wherry EM Housing)



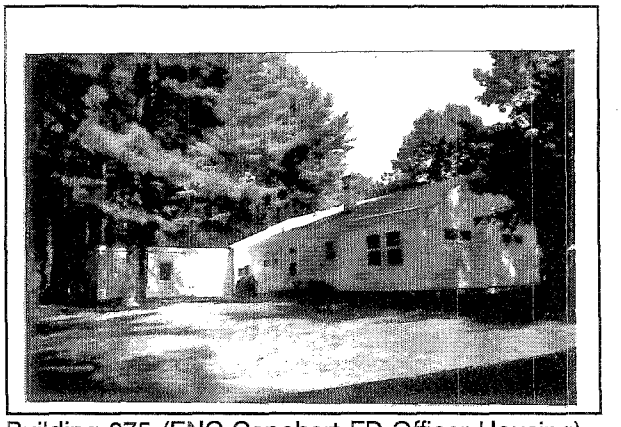
Building 851 (ENC Wherry EM Housing)



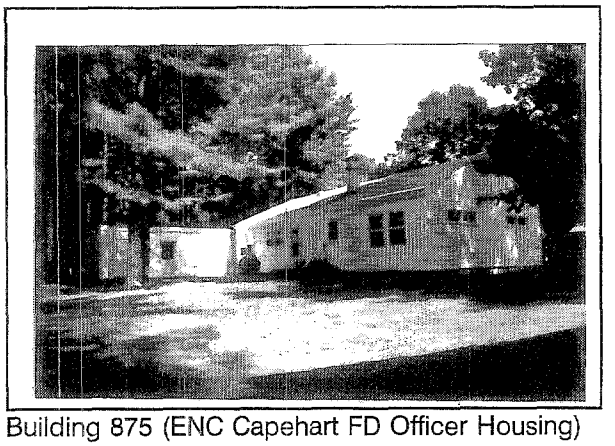
Building 867 (Garage)

MAIN STATION - POST WORLD WAR II ERA

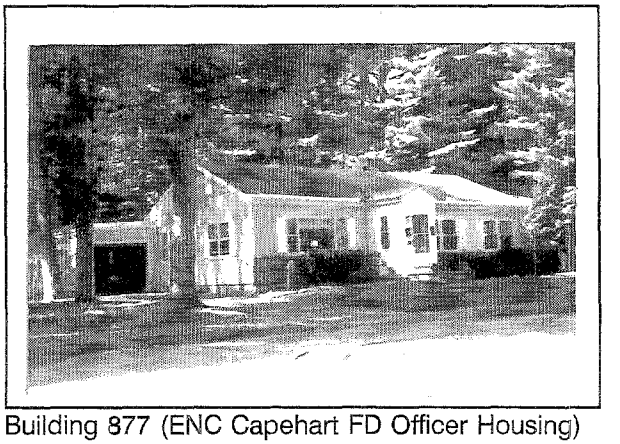
Buildings 867-874 (Garages, "Brunswick Gardens")



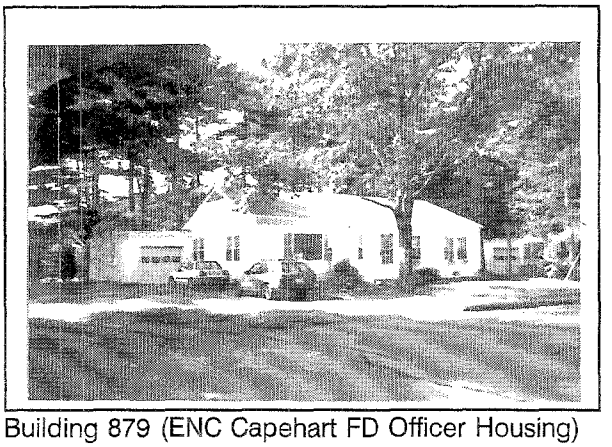
Building 875 (ENC Capehart FD Officer Housing)



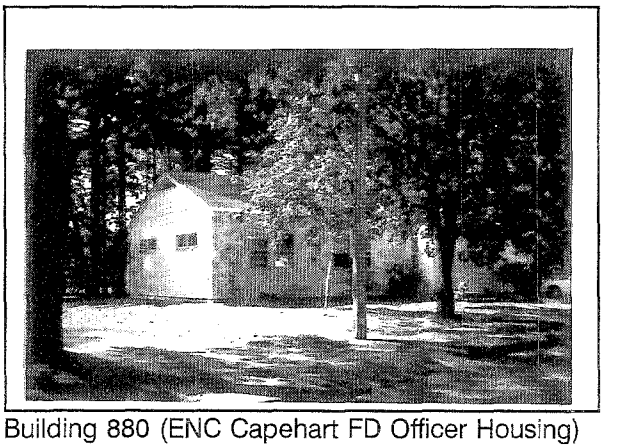
Building 875 (ENC Capehart FD Officer Housing)



Building 877 (ENC Capehart FD Officer Housing)

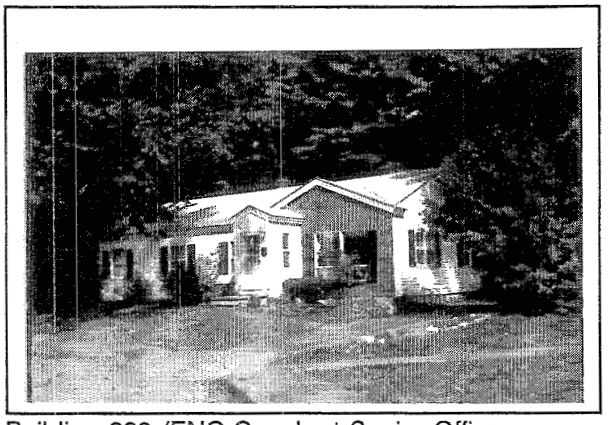


Building 879 (ENC Capehart FD Officer Housing)

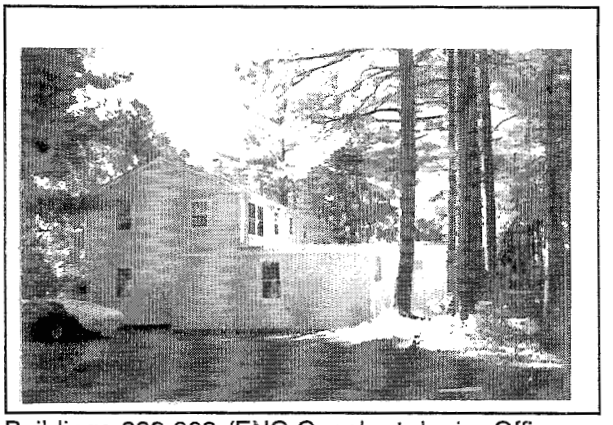


Building 880 (ENC Capehart FD Officer Housing)

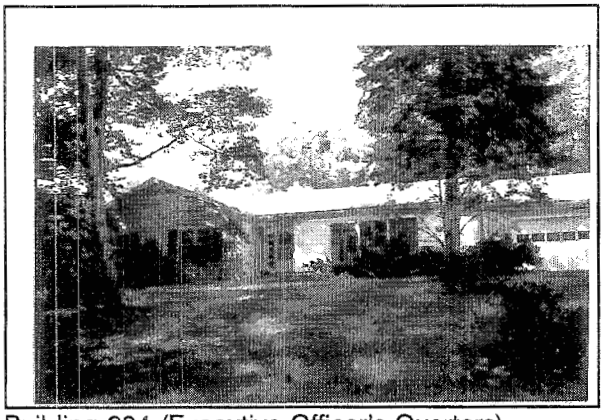
MAIN STATION - POST WORLD WAR II ERA



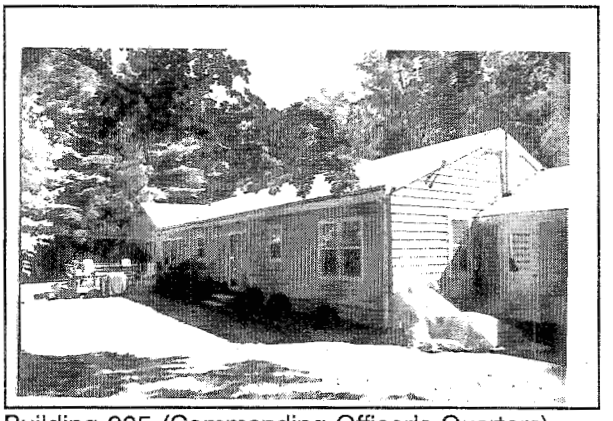
Building 883 (ENC Capehart Senior Officer Housing)



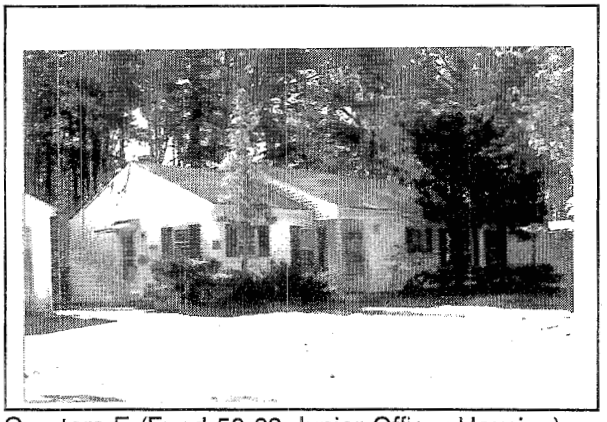
Buildings 889-903 (ENC Capehart Junior Officer Housing)



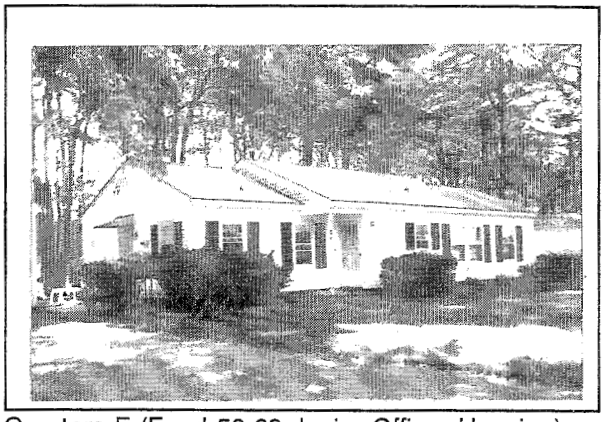
Building 904 (Executive Officer's Quarters)



Building 905 (Commanding Officer's Quarters)

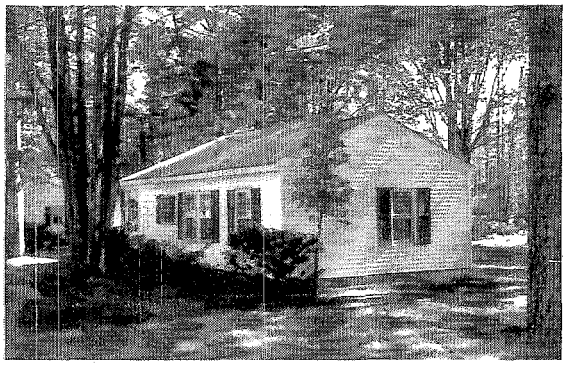


Quarters E (Fund 50-69 Junior Officer Housing)



Quarters F (Fund 50-69 Junior Officer Housing)

MAIN STATION - POST WORLD WAR II ERA



Quarters G (Fund 50-69 Junior Officer Housing)

Quarters H (Fund 50-69 Junior Officer Housing)

see building 239
Main Station - Post World War II Era

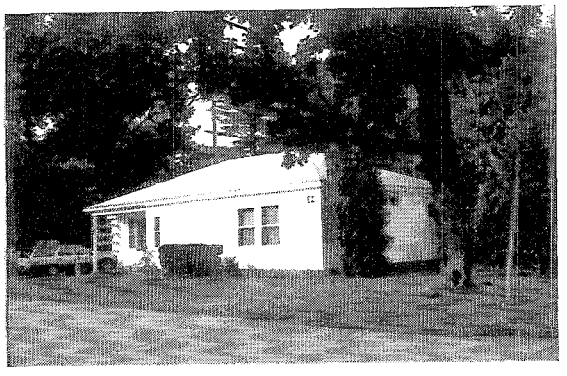
Quarters I (Fund 50-69 Junior Officer Housing)

see building 240
Main Station - Post World War II Era

Quarters EA (Fund 50-69 EM Housing)

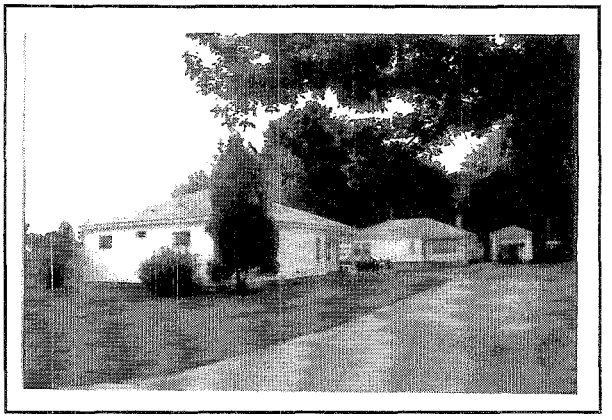
see building 241
Main Station - Post World War II Era

Quarters EB (Fund 50-69 EM Housing)

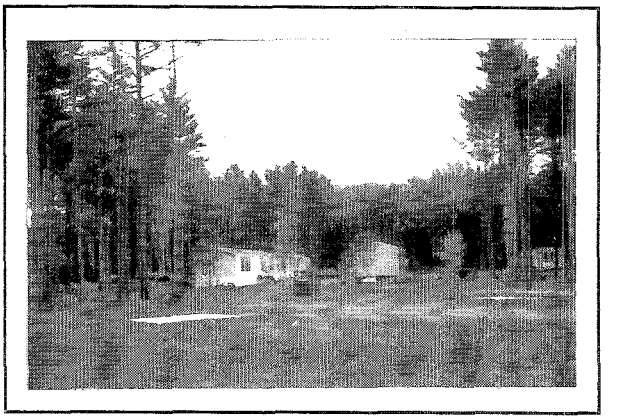


Quarters EC (Fund 50-69 EM Housing)

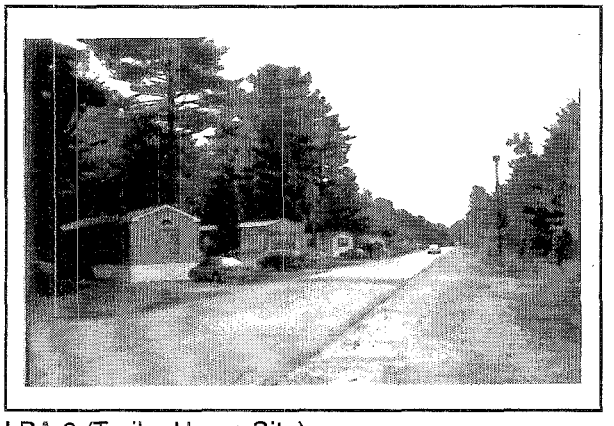
MAIN STATION - POST WORLD WAR II ERA



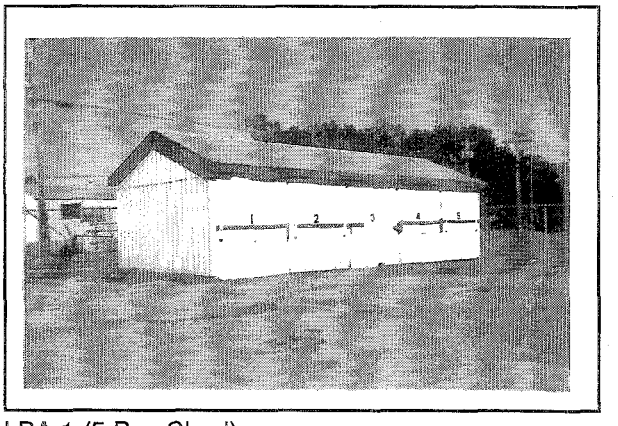
Quarters ED and EE (Fund 50-69 EM Housing)



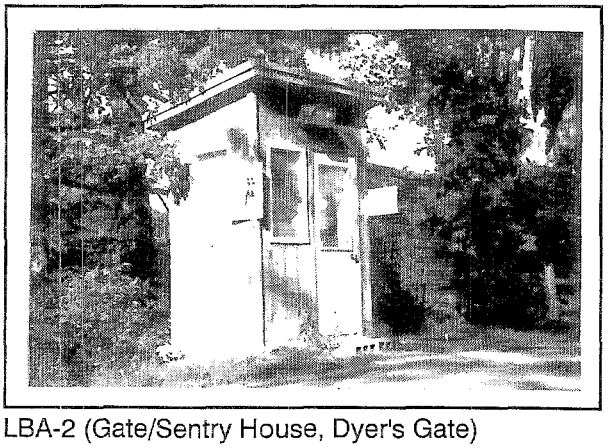
LBA-0 (Trailer Home Site)



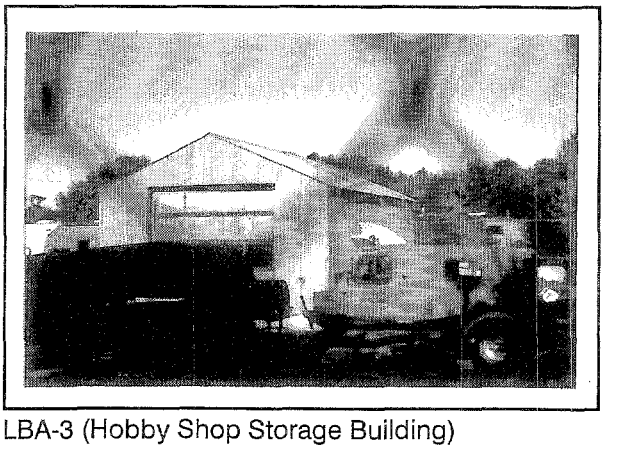
LBA-0 (Trailer Home Site)



LBA-1 (5-Bay Shed)

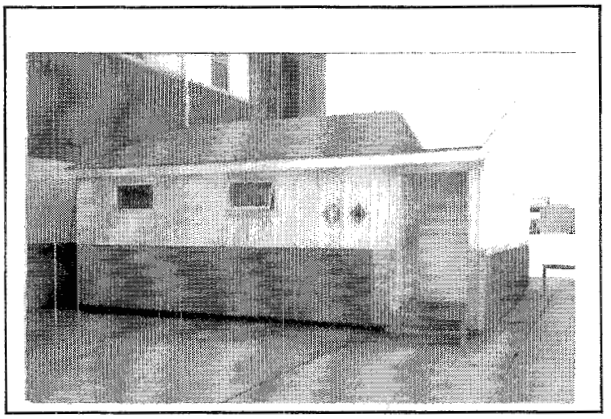


LBA-2 (Gate/Sentry House, Dyer's Gate)

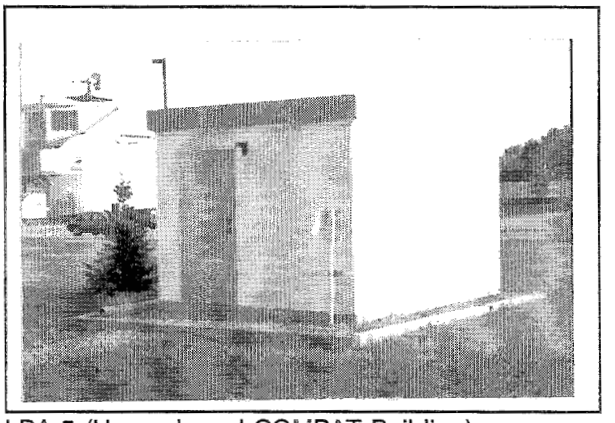


LBA-3 (Hobby Shop Storage Building)

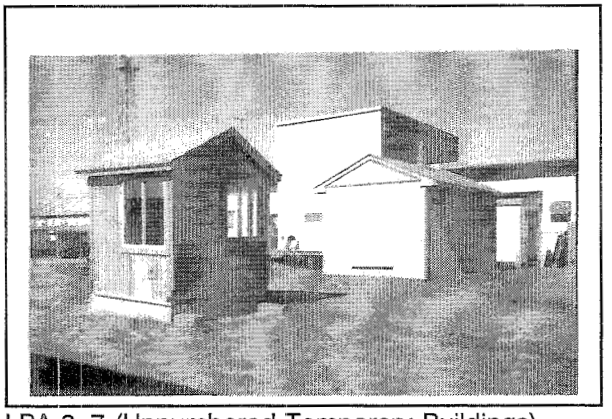
MAIN STATION - POST WORLD WAR II ERA



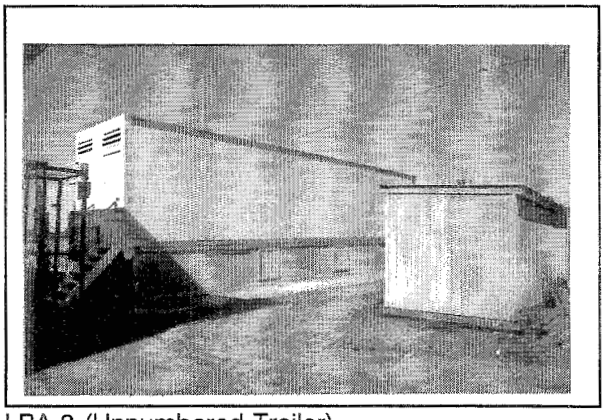
LBA-4 (Unnumbered Temporary Building)



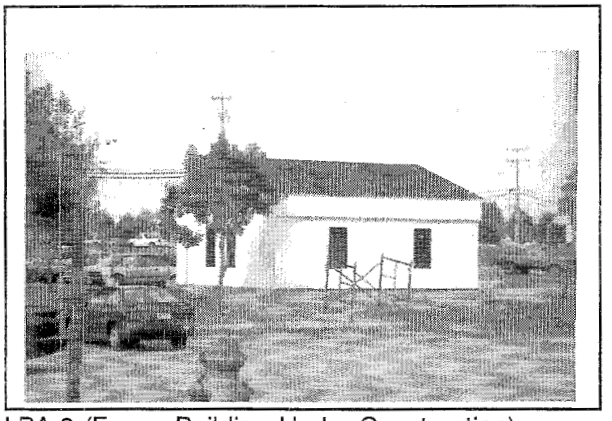
LBA-5 (Unnumbered COMPAT Building)



LBA-6, 7 (Unnumbered Temporary Buildings)

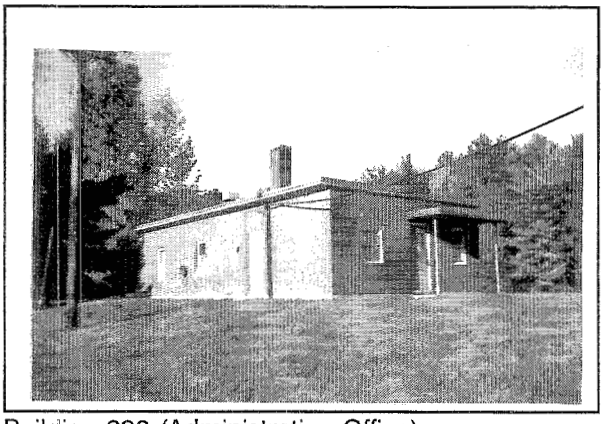


LBA-8 (Unnumbered Trailer)

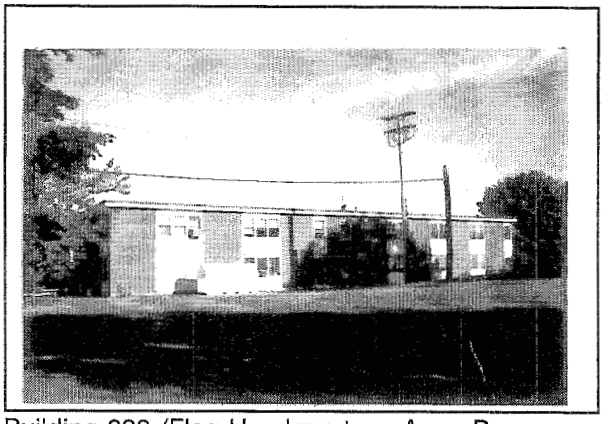


LBA-9 (Frame Building Under Construction)

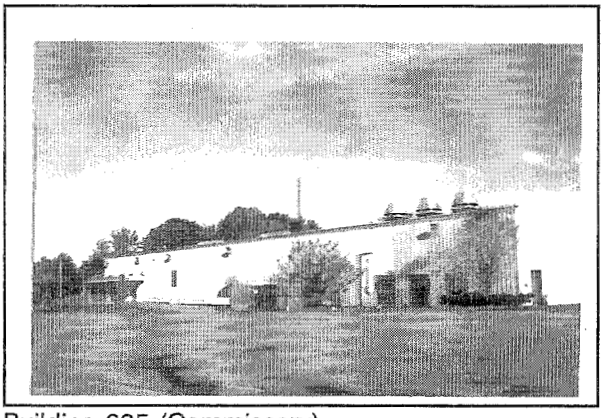
TOPSHAM ANNEX



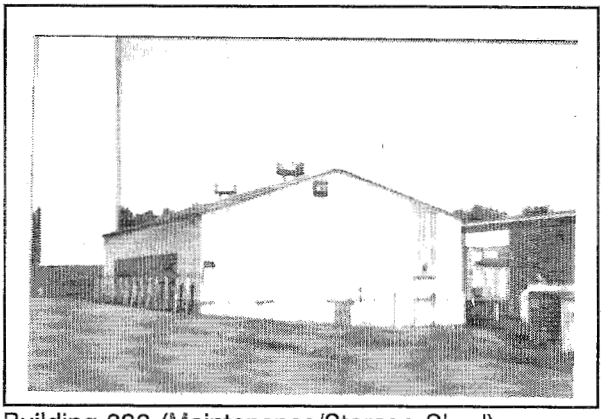
Building 332 (Administration Office)



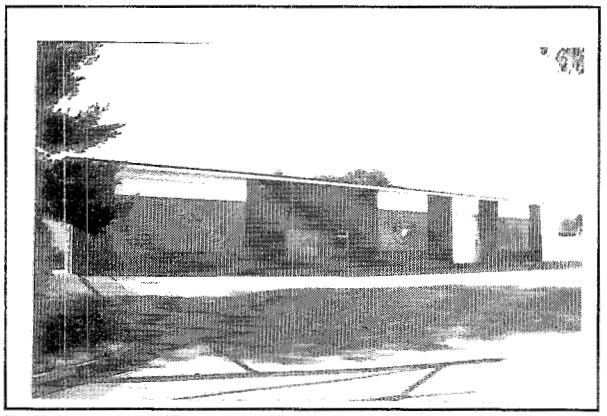
Building 333 (Flag Headquarters, Army Reserve Office)



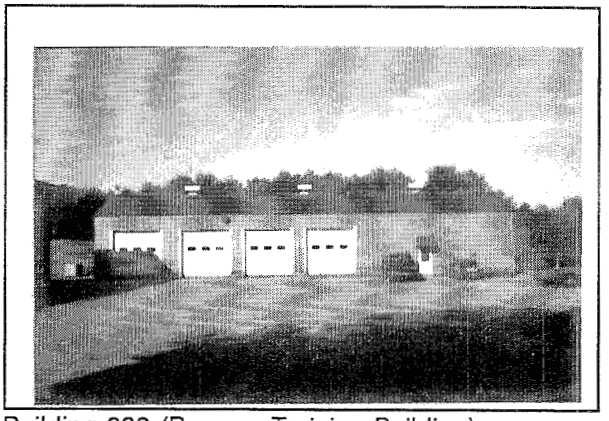
Building 335 (Commissary)



Building 336 (Maintenance/Storage Shed)

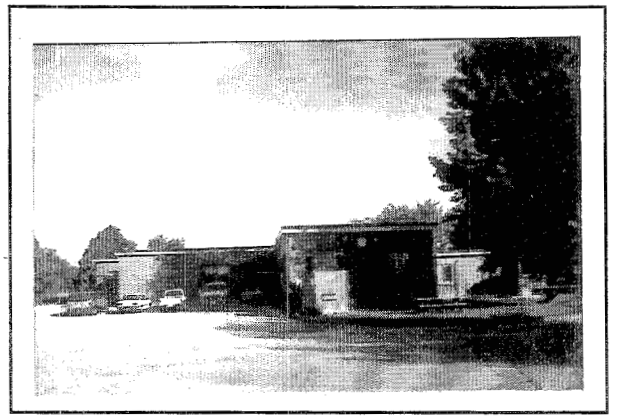


Building 337 (Reserve Training Building)

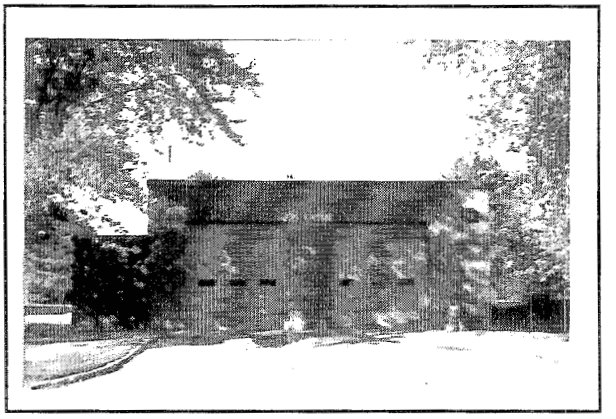


Building 338 (Reserve Training Building)

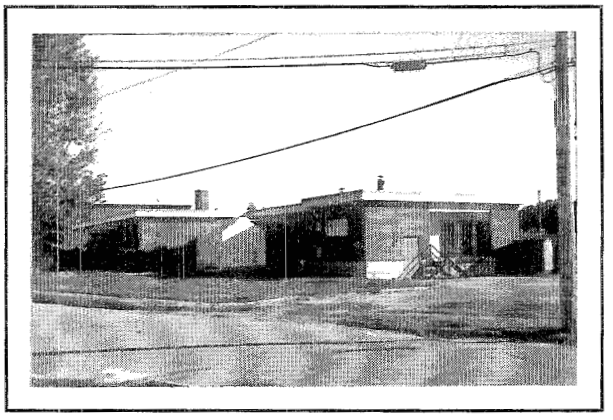
TOPSHAM ANNEX



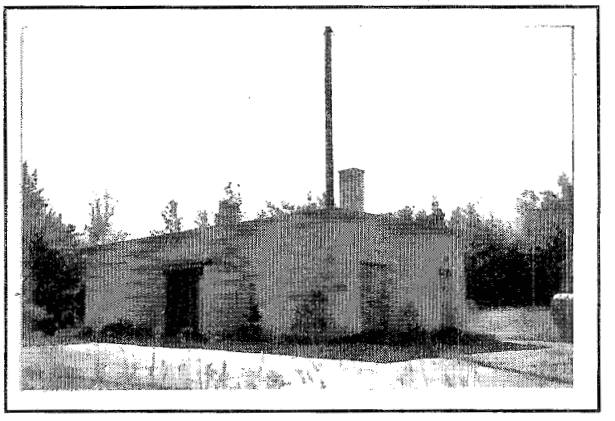
Building 339 (Reserve Training Building)



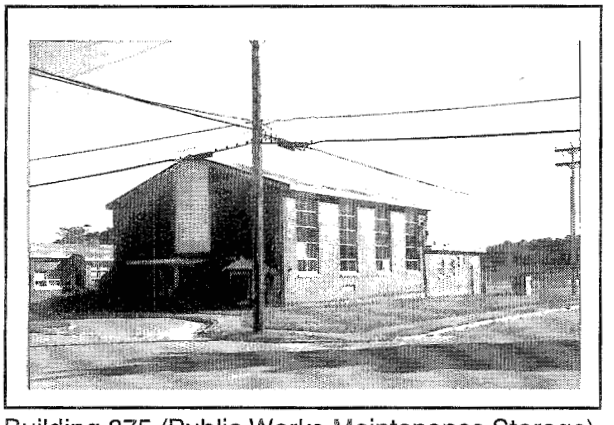
Building 363 (Fire Department)



Building 364 (Navy Exchange Motel)

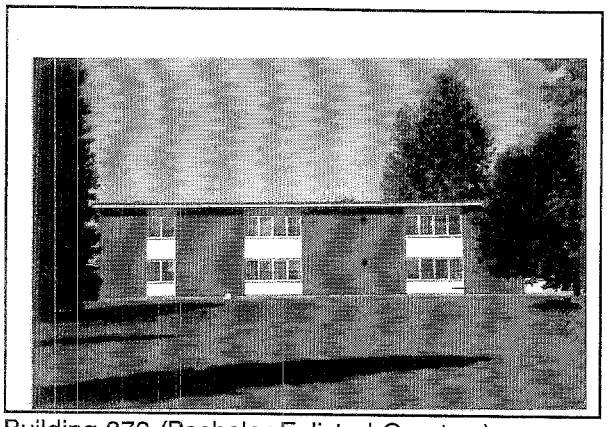


Building 373 (Public Works Shop)

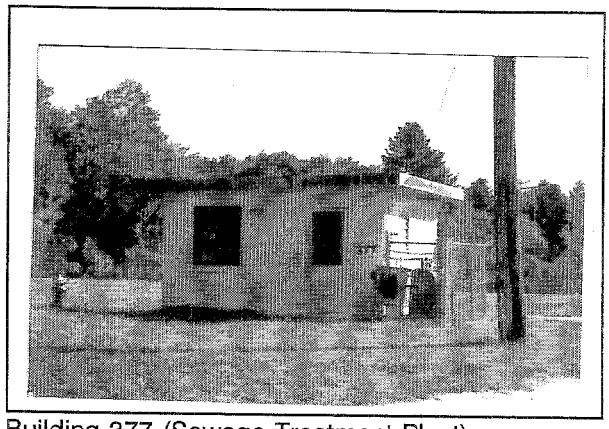


Building 375 (Public Works Maintenance Storage)

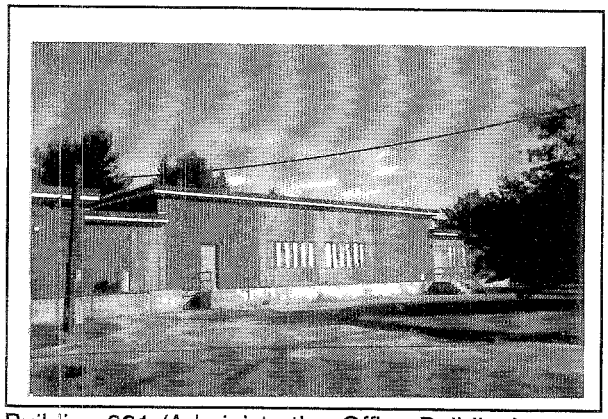
TOPSHAM ANNEX



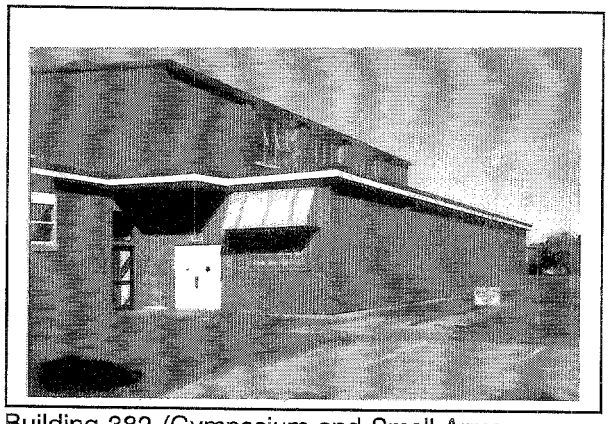
Building 376 (Bachelor Enlisted Quarters)



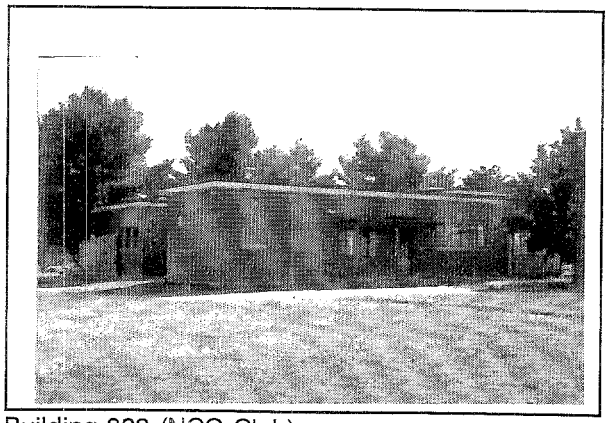
Building 377 (Sewage Treatment Plant)



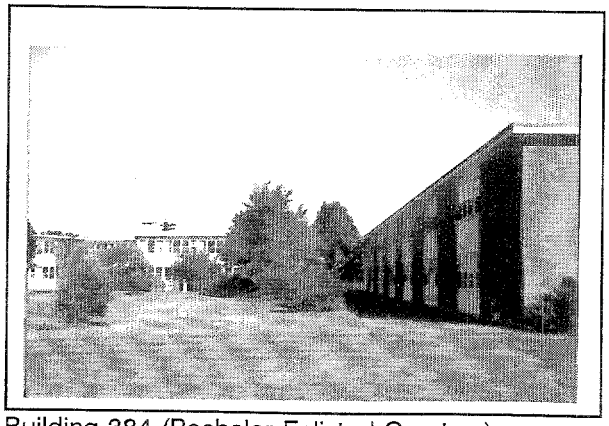
Building 381 (Administrative Office Building)



Building 382 (Gymnasium and Small Arms Range)

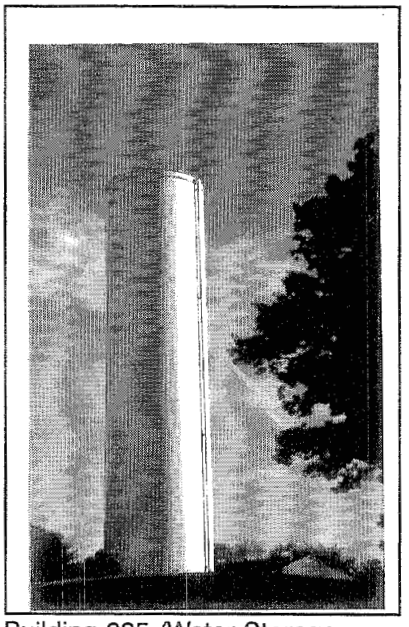


Building 383 (NCO Club)

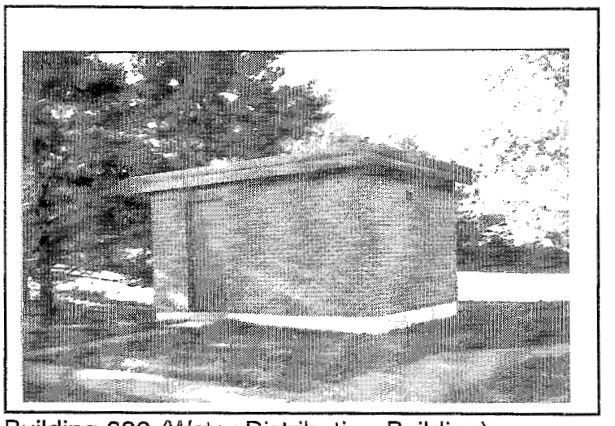


Building 384 (Bachelor Enlisted Quarters)

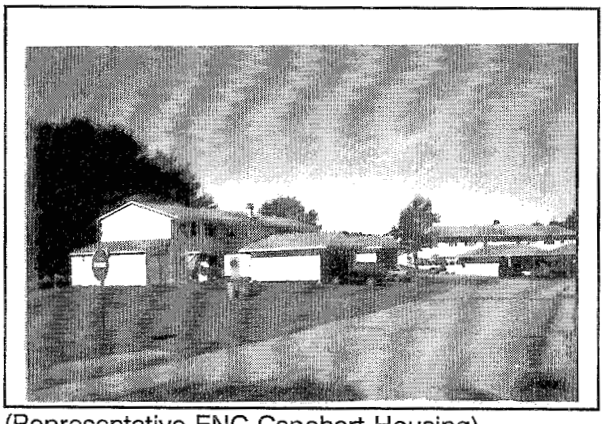
TOPSHAM ANNEX



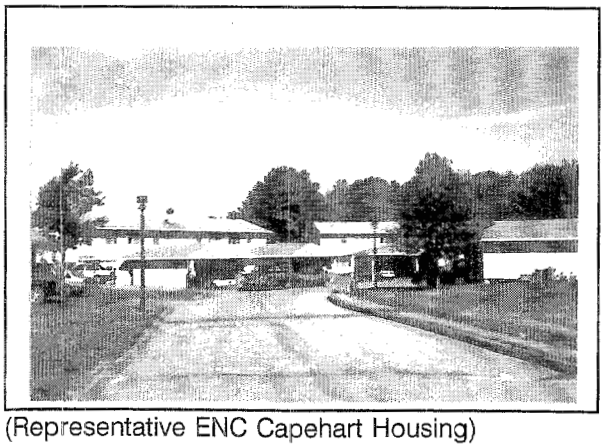
Building 385 (Water Storage Tank)



Building 386 (Water Distribution Building)



(Representative ENC Capehart Housing)



(Representative ENC Capehart Housing)

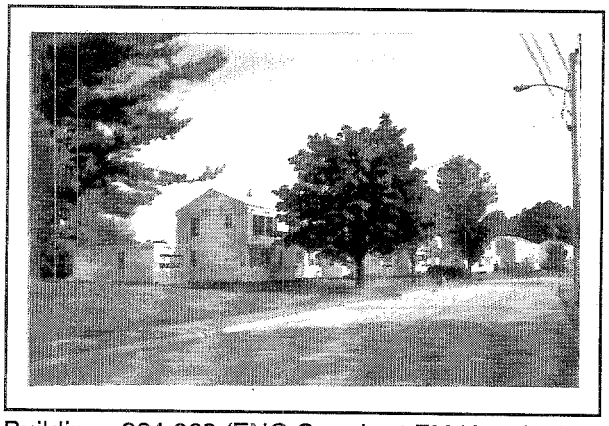
(Representative ENC Capehart Housing)

McKEEN STREET HOUSING

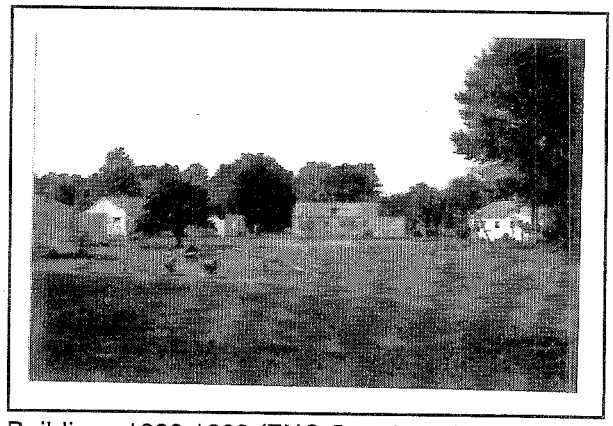
No photo

Building 561 (Public Works Shop Storage)

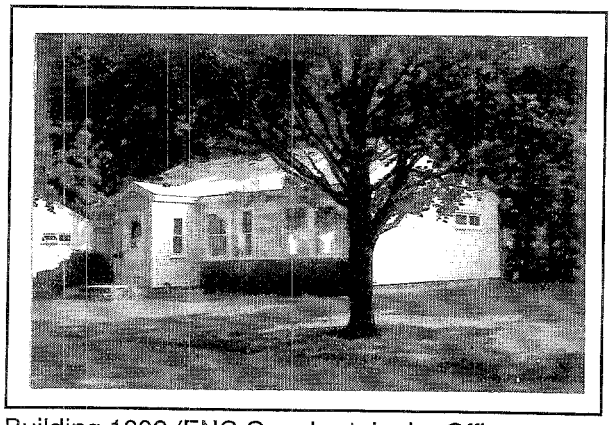
Building 927 (ENC Capehart Junior Officer Housing)



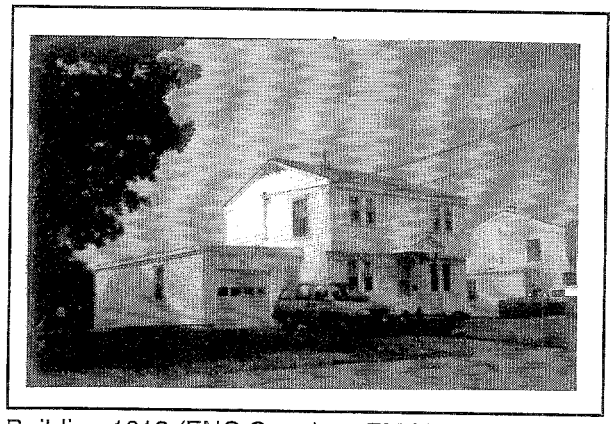
Buildings 964-968 (ENC Capehart EM Housing)



Buildings 1000-1003 (ENC Capehart Junior Officer Housing)



Building 1006 (ENC Capehart Junior Officer Housing)

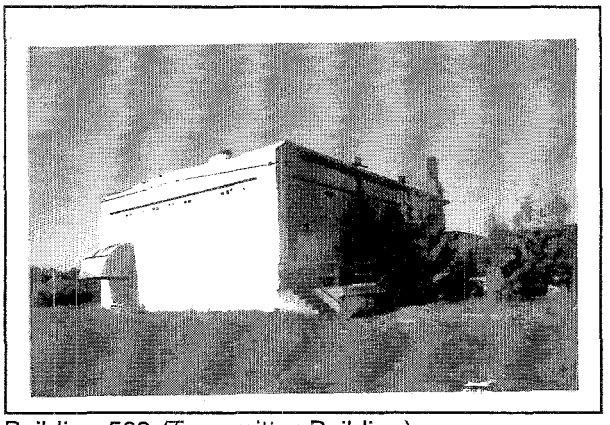


Building 1013 (ENC Capehart EM Housing)

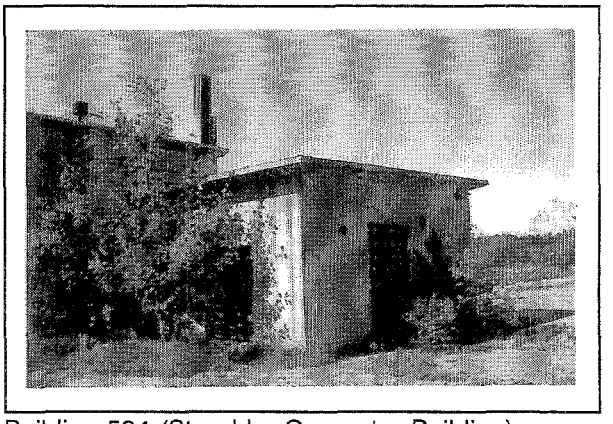
McKEEN STREET HOUSING

Building 1026 (ENC Capehart EM Housing)

EAST BRUNSWICK REMOTE TRANSMITTER SITE

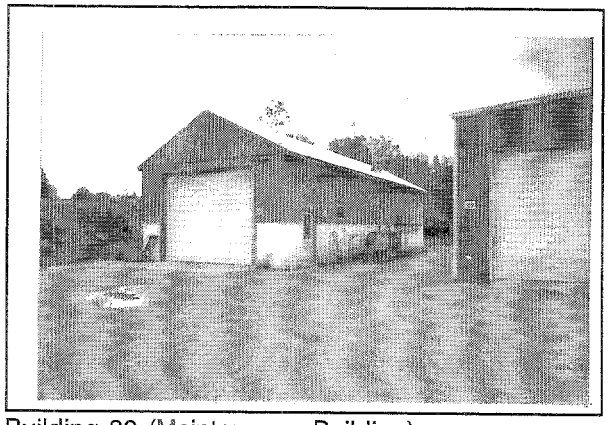


Building 523 (Transmitter Building)



Building 524 (Stand-by Generator Building)

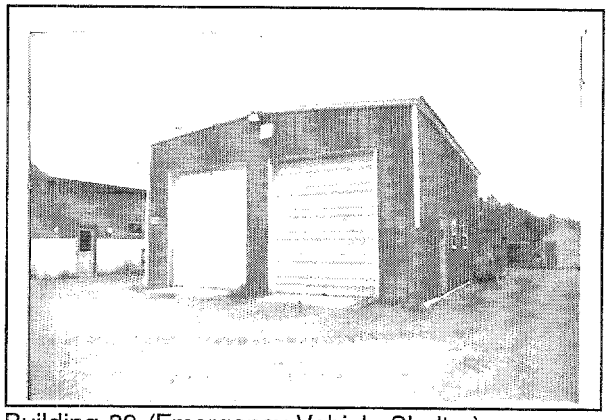
SERE SCHOOL - REDINGTON TOWNSHIP



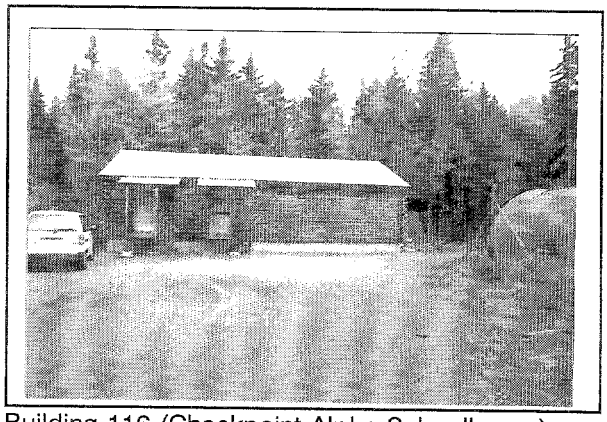
Building 80 (Maintenance Building)

photograph not available

Building 82 (Isolation)



Building 89 (Emergency Vehicle Shelter)



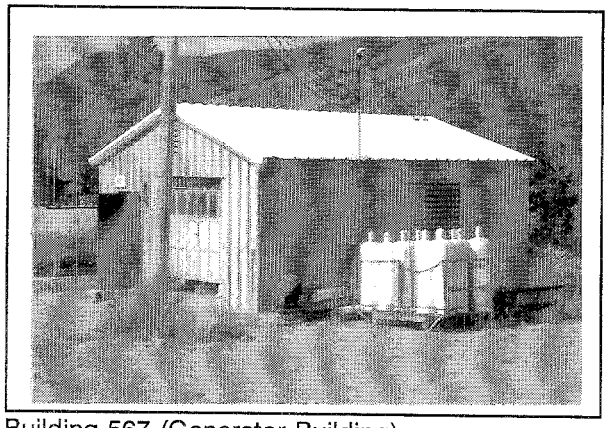
Building 116 (Checkpoint Alpha Schoolhouse)

photograph not available

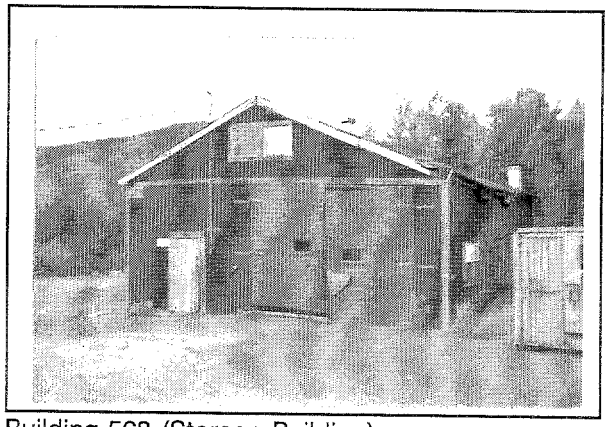
Building 451 (Soft Sell Interrogation)

Building 565 (Multi-Purpose Building)

SERE SCHOOL - REDINGTON TOWNSHIP



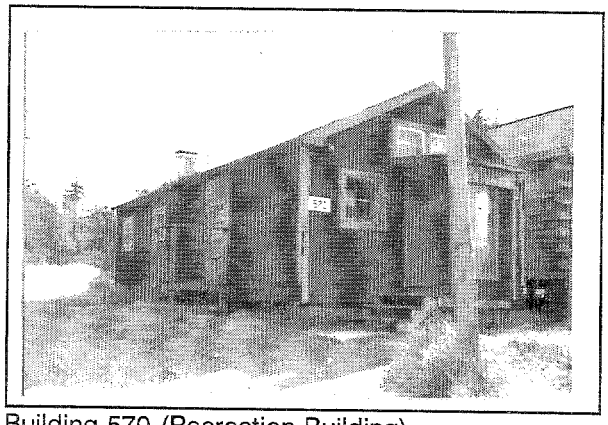
Building 567 (Generator Building)



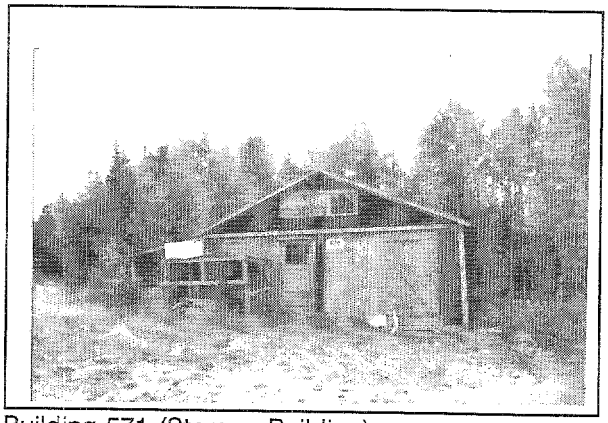
Building 568 (Storage Building)

photograph not available

Building 569 (Sewage Treatment Plant)



Building 570 (Recreation Building)



Building 571 (Storage Building)

photograph not available

Building 573 (Hard Sell Interrogation)

SERE SCHOOL - REDINGTON TOWNSHIP

photograph not available

Building 574 (Sergeant Major's and Physician's Office)

photograph not available

Building 575 (Outhouse)

photograph not available

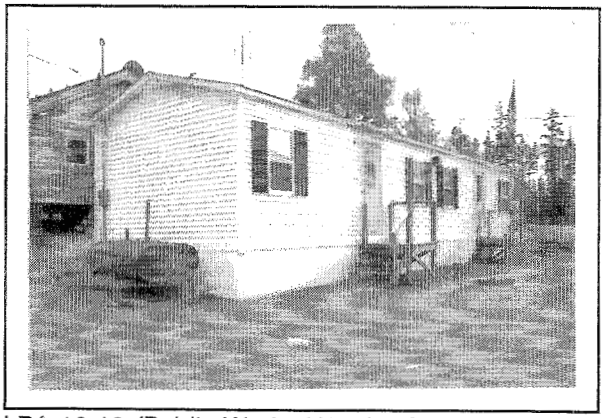
Building 576 (Guard Tower)

photograph not available

Building 577 (Bunker)

photograph not available

Building 578 (Guard Tower)

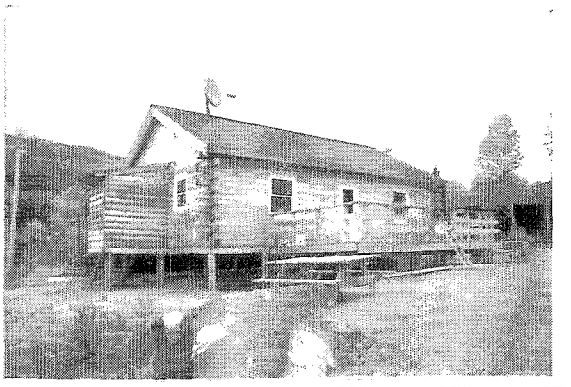


LBA-10-13 (Public Works Housing Trailers)

SERE SCHOOL - REDINGTON TOWNSHIP

photograph not available

LBA-14 (Magazine)



LBA-15 (Log Cabin Instruction Building)

photograph not available

LBA-16 (Cook's Shack)

photograph not available

LBA-17 (Search Trailer)

photograph not available

LBA-18 (Soft Sell Interrogation Trailer)

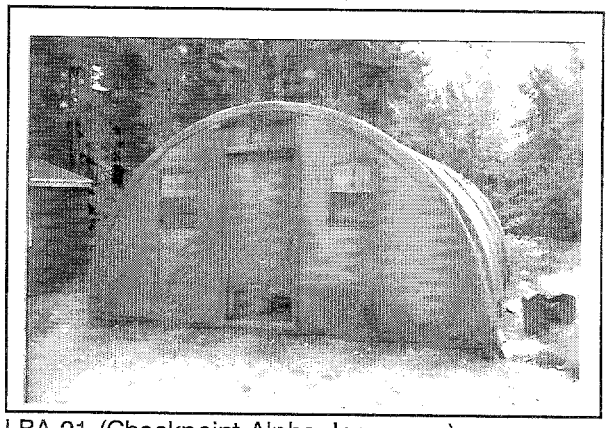
photograph not available

LBA-19 (Generator Shack)

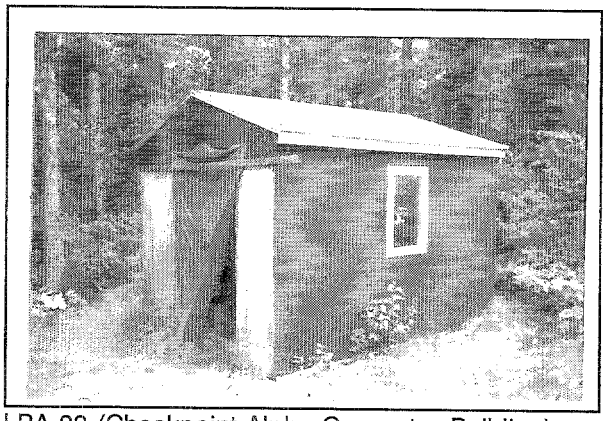
SERE SCHOOL - REDINGTON TOWNSHIP

photograph not available

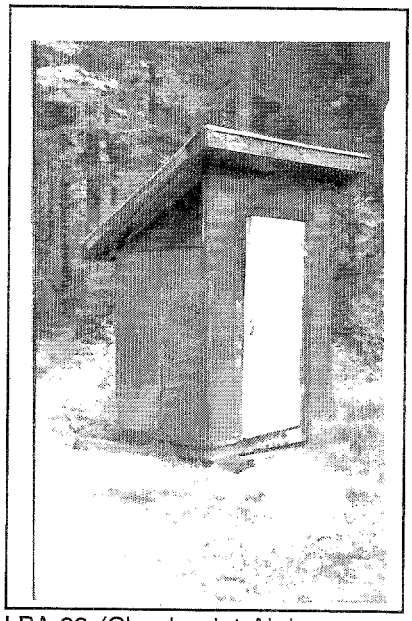
LBA-20 (Instructor's Latrine)



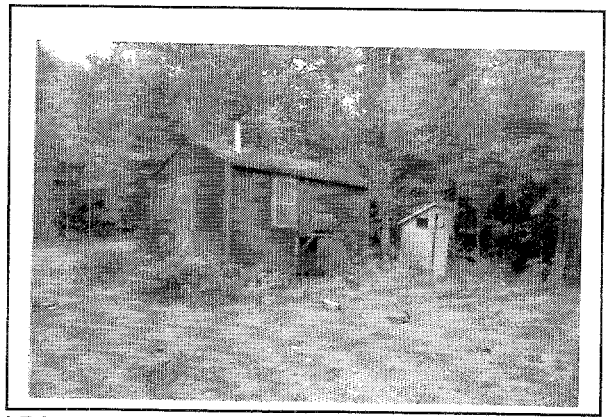
LBA-21 (Checkpoint Alpha Jamesway)



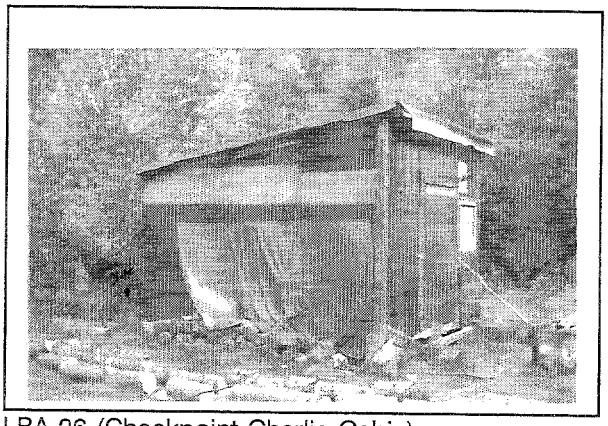
LBA-22 (Checkpoint Alpha Generator Building)



LBA-23 (Checkpoint Alpha Outhouse)

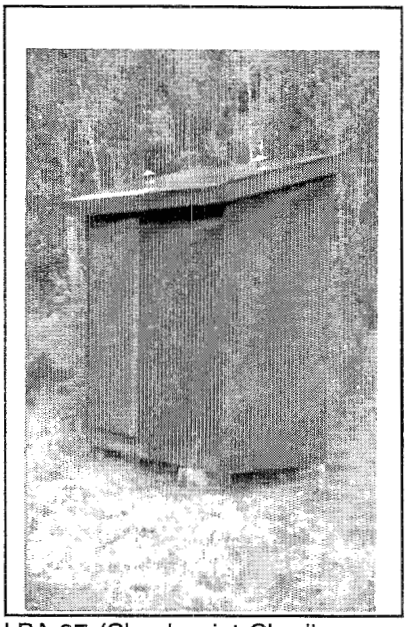


LBA-24, 25 (Checkpoint Bravo, Instructor's Cabin and Outhouse)

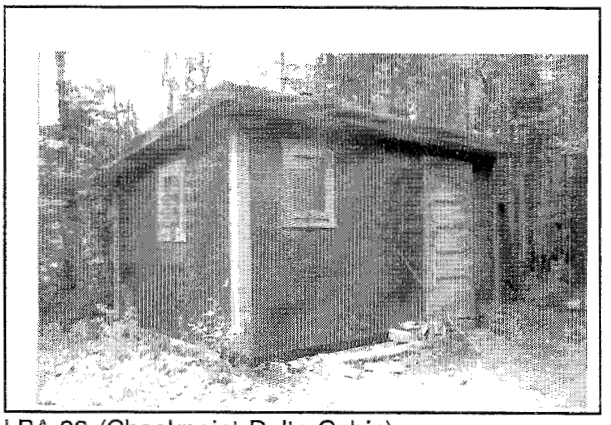


LBA-26 (Checkpoint Charlie Cabin)

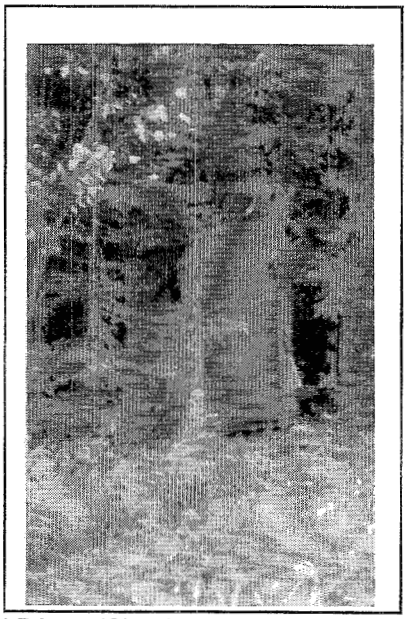
SERE SCHOOL - REDINGTON TOWNSHIP



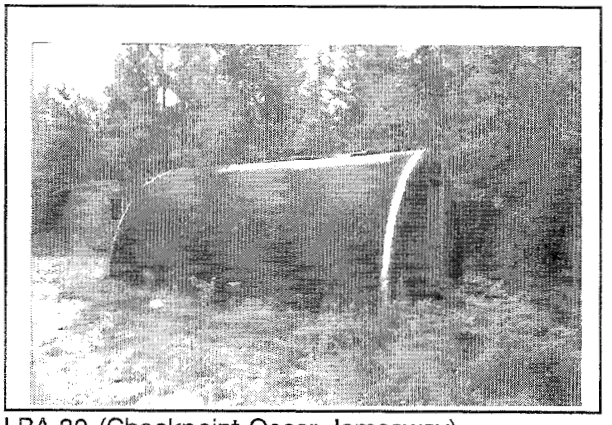
LBA-27 (Checkpoint Charlie Outhouse)



LBA-28 (Checkpoint Delta Cabin)

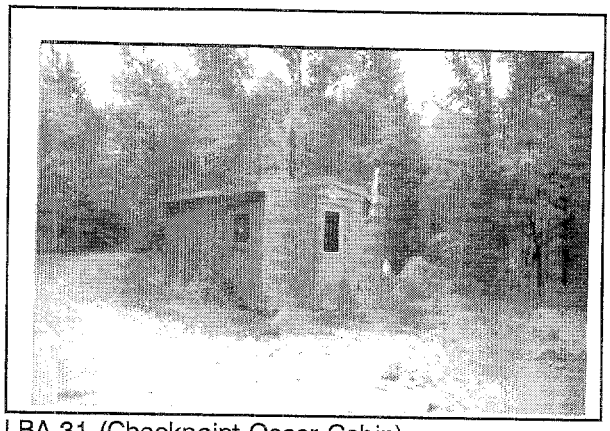


LBA-29 (Checkpoint Delta Outhouse)

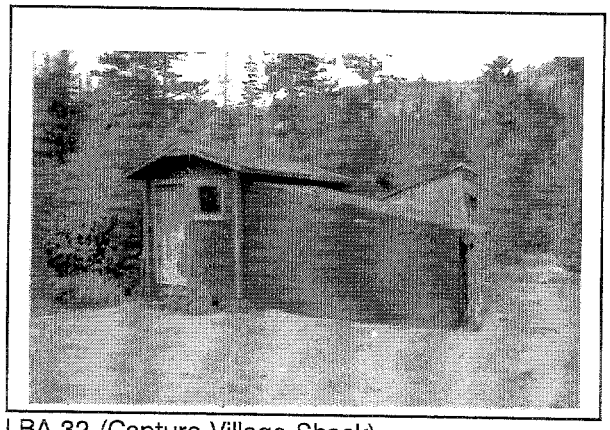


LBA-30 (Checkpoint Oscar Jamesway)

SERE SCHOOL - REDINGTON TOWNSHIP

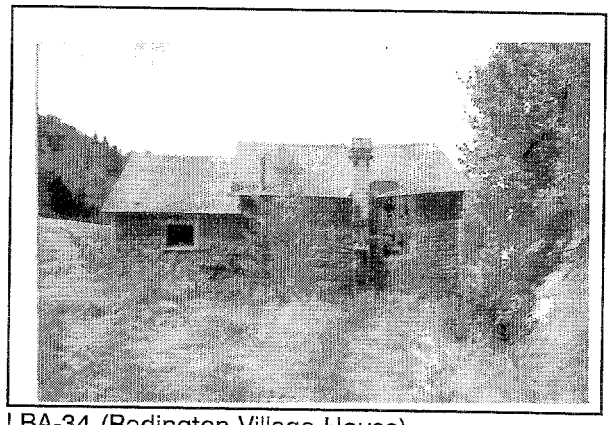


LBA-31 (Checkpoint Oscar Cabin)

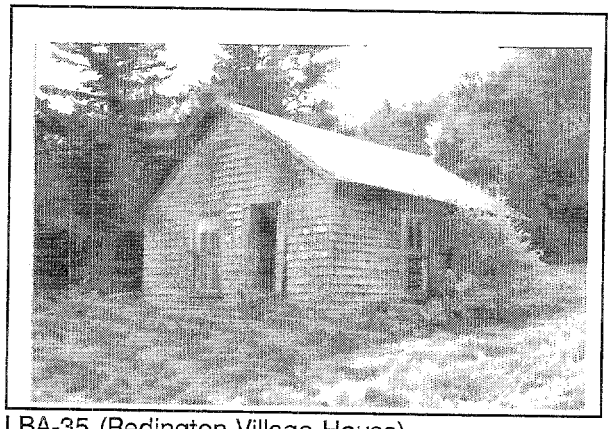


LBA-32 (Capture Village Shack)

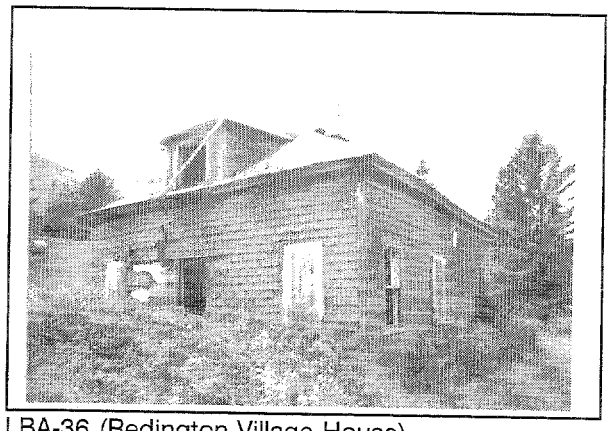
LBA-33 (Checkpoint Victory Cabin)



LBA-34 (Redington Village House)

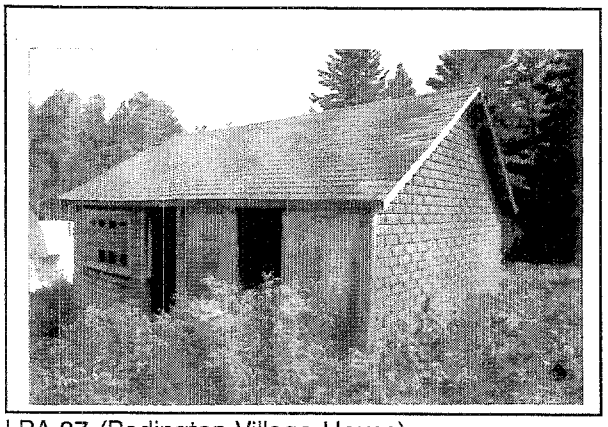


LBA-35 (Redington Village House)

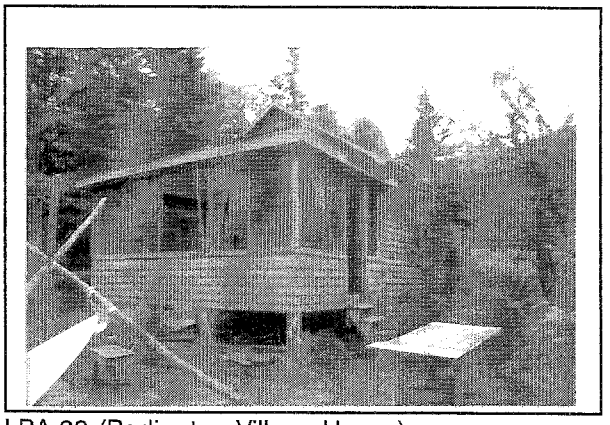


LBA-36 (Redington Village House)

SERE SCHOOL - REDINGTON TOWNSHIP



LBA-37 (Redington Village House)



LBA-38 (Redington Village House)

Appendix B

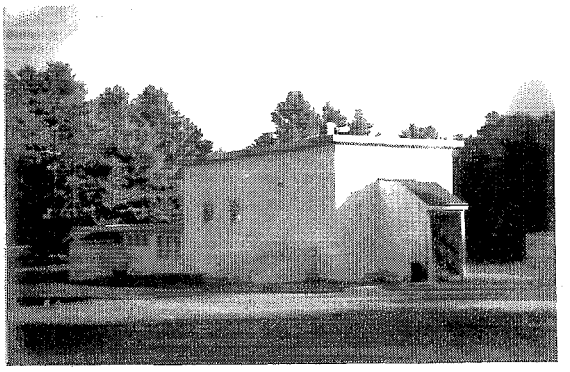
Form Ks

CULTURAL RESOURCE SURVEY FORM-K

Bldg#/Name
Building 35
Radio Transmission Building

Original/Present Use
Radio Communications/
Demolished 1998

Date Constr.
1943



Condition:

- ☐ Excellent
- ☐ Good
- ☐ Fair
- ☐ Deteriorated
- ☐ Ruins
- ☐ Altered
- ☐ Unaltered
- ☐ Original Site
- ☐ Moved

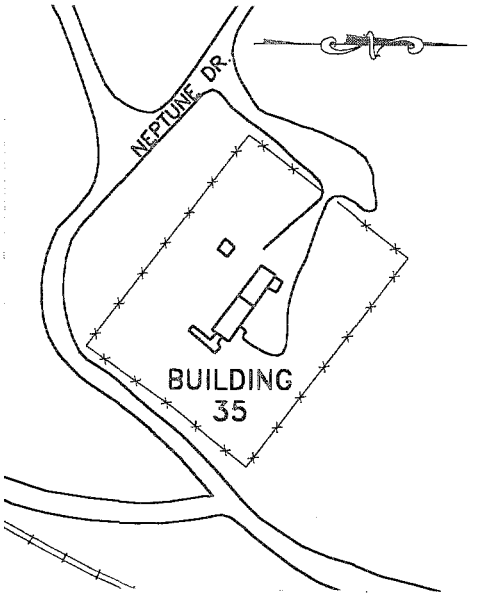
Classification:

- ■ Building
- ☐ Structure
- ☐ Object
- ☐ District
- ☐ Site

Photo Notation/View/Date

Bldg. 35, view from northwest, August 1995

Site Sketch



Primary Bldg Material:

- ■ Masonry
- ☐ Stone
- ☐ Wood/Frame
- ☐ Other _____

Location/Boundary Description
Building 35 was located at the east end of Neptune Drive, south and east of the core of the main station.

Area(s) of Significance:

- ☐ Architecture
- ■ History
- ☐ Culture
- ☐ Archeology
- ☐ Engineering
- ☐ Other _____

Architect/Builder
USNavy Bureau of Yards & Docks

Statement of Significance/Comments:
Building 35 is associated with the World War II mission of NAS Brunswick as a shore defense patrol and training base.

Sources of Information:
Louis Berger & Associates, Inc. Cultural Resources Survey, Naval Air Station Brunswick, Maine (Draft Final 1999). Submitted to Northern Division, Naval Facilities Engineering Command.

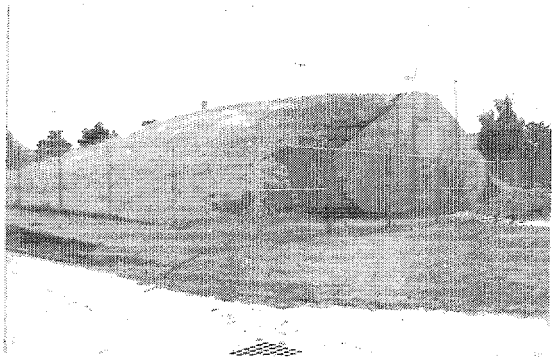
Prepared By:
M. Bowers
Louis Berger & Associates, Inc.
April 1999

Additional Data (Identify all continuations from front)

CULTURAL RESOURCE SURVEY FORM-K

Bldg#/Name

Building 44
Magazine



Original/Present Use

Torpedo Storage /
Ordnance/Weapons Storage

Date Constr.

1943

Condition:

- ☐ Excellent
- ☐ Good
- ■ Fair
- ☐ Deteriorated
- ☐ Ruins
- ☐ Altered
- ■ Unaltered
- ■ Original Site
- ☐ Moved

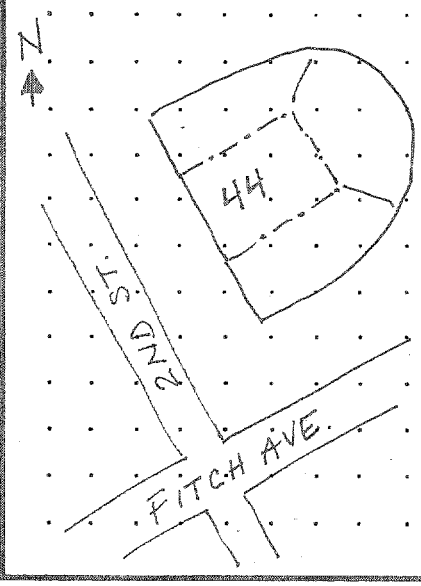
Classification:

- ☐ Building
- ■ Structure
- ☐ Object
- ☐ District
- ☐ Site

Photo Notation/View/Date

West & South Elevations /
Looking Northeast / 9-18-95

Site Sketch



Primary Bldg Material:

- ☐ Masonry
- ☐ Stone
- ☐ Wood/Frame
- ■ Other Steel

Area(s) of Significance:

- ■ Architecture
- ☐ History
- ☐ Culture
- ☐ Archeology
- ☐ Engineering
- ☐ Other

Location/Boundary Description

NAS Brunswick, Brunswick, Maine /
Boundary limited to footprint of building plus 10 feet on each side.

Architect/Builder

U. S. Navy

Statement of Significance/Comments:

Building 44 is one of seven extant World War II weapons and ordnance magazines remaining at NAS Brunswick, and one of only three still on their original locations; the others are buildings 63 and 64. Building 44 is situated in the administrative nucleus of the air station on Fitch Avenue, north of Building 4, and is only magazine located in this area. In 1946 it housed torpedoes, was converted to a storehouse in the 1950s, and later became the disaster control shelter (NASB Public Works drawings); it is now virtually unused, serving only as storage for miscellaneous supplies for the Weapons Department. Building 44 is the largest of the World War II magazines, measuring 25 feet wide, 50 feet long, and 9 feet high. Building 44 meets National Register Criterion C as a somewhat unusual, and increasingly rare, example of World War II naval ordnance magazines constructed of steel. It is essentially an earth-covered Quonset hut on a concrete slab foundation, a steel version of the all-concrete "igloo" type of magazine developed by the navy in 1928 and also adopted by the U.S. Army (Goodwin 1994:211). (Continued on reverse.)

Sources of Information:
See continuation sheet (over)

Prepared By:
T. A. Cunning
Louis Berger & Assoc., Inc.
East Orange, NJ
January, 1996

Date:

Additional Data (Identify all continuations from front)

Statement of Significance/Comments (continued)—

A structural system of bolted, corrugated steel panels with flat, vertical panels at each end, rather than the usual reinforced concrete superstructure appears to depart from standard navy practice of the time. According to *Building the Navy's Bases*, "magazines, of course, were necessarily built of masonry, irrespective of the duration of their probable usefulness" (U.S. Navy 1947:339). The precise reason for the construction of steel magazines has not been determined from available literature, but it is possible that the need for extreme haste in the initial development of NASB led planners to select these easily assembled steel structures over the more slowly-erected concrete igloo type. According to NASB personnel, the navy has elsewhere replaced most of the World War II steel magazines with more durable concrete enclosures of modern design. Building 44 retains integrity of location and setting, and demonstrates excellent integrity of design, materials, and workmanship.

Sources of Information:

Goodwin, R. Christopher, and Associates, Inc.
1994 Historic Context for Department of Defense Facilities: World War II Permanent Construction (Draft). Prepared by R. Christopher Goodwin and Associates, Inc., Frederick, Maryland. Submitted to U.S. Army Corps of Engineers, Baltimore District, Baltimore, Maryland.

Louis Berger and Associates, Inc.
1996 Cultural Resources Survey, U.S. Naval Air Station Brunswick, Maine (Draft). Prepared by the Cultural Resource Group, Louis Berger and Associates, Inc., East Orange, New Jersey, for Smith Environmental Technologies Corporation. Submitted to Northern Division, Naval Facilities Engineering Command, for Naval Air Station Brunswick, Maine (January 1996).

Naval Air Station, Brunswick, Maine
various General Plans and Maps of the Naval Air Station Brunswick, from 1946 through 1983. On file in the Public Works Department, NAS Brunswick, Maine.

U.S. Navy, Bureau of Yards and Docks
1947 *Building the Navy's Bases in World War II: History of the Bureau of Yards and Docks and the Civil Engineer Corps, 1940-1946*, 2 vols. Government Printing Office, Washington, D.C.

CULTURAL RESOURCE SURVEY FORM-K

Bldg#/Name

Building 63
Magazine

Original/Present Use

High Explosives Storage /
Squadron Storage

Date Constr.

1943

Condition:

- ☐ Excellent
- ☐ Good
- ■ Fair
- ☐ Deteriorated
- ☐ Ruins
- ☐ Altered
- ■ Unaltered
- ■ Original Site
- ☐ Moved

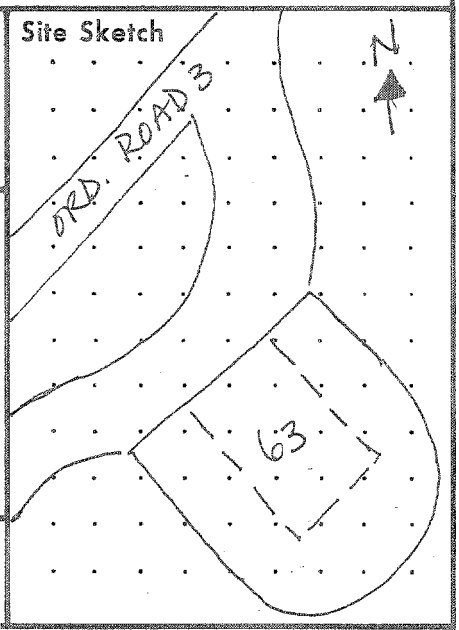
Classification:

- ☐ Building
- ■ Structure
- ☐ Object
- ☐ District
- ☐ Site

Photo Notation/View/Date

West (Front) Elevation /
Looking Southeast / 9-20-95

Site Sketch



Primary Bldg Material:

- ☐ Masonry
- ☐ Stone
- ☐ Wood/Frame
- ■ Other Steel

Location/Boundary Description

NAS Brunswick, Brunswick, Maine /
Boundary limited to footprint of building plus 10 feet on each side.

Area(s) of Significance:

- ■ Architecture
- ☐ History
- ☐ Culture
- ☐ Archeology
- ☐ Engineering
- ☐ Other _____

Architect/Builder

U. S. Navy

Statement of Significance/Comments:

Building 63 is one of seven World War II weapons and ordnance magazines remaining at NAS Brunswick, and one of only three that are still on their original locations; the others are buildings 44 and 64. Buildings 63 and 64 are situated on the west side of the air station, and are the last of a series of eight high explosive magazines arranged in an arc along Ordnance Road 3, west of the flightline; both magazines are currently used for storage by the resident patrol squadrons. Both of these are of standard dimensions, their interior spaces each measuring 20 feet wide, 50 feet long, and 7 feet high. Building 63 meets National Register Criterion C as a somewhat unusual, and increasingly rare, example of World War II naval ordnance magazines constructed of steel. It is essentially an earth-covered Quonset hut on a concrete slab foundation, a steel version of the all-concrete "igloo" type of magazine developed by the navy in 1928 and also adopted by the U.S. Army (Goodwin 1994:211). (Continued on reverse.)

Sources of Information:

See continuation sheet (over)

Prepared By:

T. A. Cunning
Louis Berger & Assoc., Inc.
East Orange, NJ
Date: January, 1996

Additional Data (Identify all continuations from front)

Statement of Significance/Comments (continued)—

A structural system of bolted, corrugated steel panels with flat, vertical panels at each end, rather than the usual reinforced concrete superstructure appears to depart from standard navy practice of the time. According to *Building the Navy's Bases*, "magazines, of course, were necessarily built of masonry, irrespective of the duration of their probable usefulness" (U.S. Navy 1947:339). The precise reason for the construction of steel magazines has not been determined from available literature, but it is possible that the need for extreme haste in the initial development of NASB led planners to select these easily assembled steel structures over the more slowly-erected concrete igloo type. According to NASB personnel, the navy has elsewhere replaced most of the World War II steel magazines with more durable concrete enclosures of modern design. Of the other seven magazines formerly located in the arc arrangement along Ordnance Road 3, buildings 59, 60, and 62, were moved to the present-day Weapons Area circa 1973, and have been altered. Unlike these, Building 63 retains integrity of location and setting, and demonstrates excellent integrity of design, materials, and workmanship.

Sources of Information:

Goodwin, R. Christopher, and Associates, Inc.
1994 Historic Context for Department of Defense Facilities: World War II Permanent Construction (Draft). Prepared by R. Christopher Goodwin and Associates, Inc., Frederick, Maryland. Submitted to U.S. Army Corps of Engineers, Baltimore District, Baltimore, Maryland.

Louis Berger and Associates, Inc.
1996 Cultural Resources Survey, U.S. Naval Air Station Brunswick, Maine (Draft). Prepared by the Cultural Resource Group, Louis Berger and Associates, Inc., East Orange, New Jersey, for Smith Environmental Technologies Corporation. Submitted to Northern Division, Naval Facilities Engineering Command, for Naval Air Station Brunswick, Maine (January 1996).

Naval Air Station Brunswick, Maine
various General Plans and Maps of the Naval Air Station Brunswick, from 1946 through 1983. On file in the Public Works Department, NAS Brunswick, Maine.

U.S. Navy, Bureau of Yards and Docks
1947 *Building the Navy's Bases in World War II: History of the Bureau of Yards and Docks and the Civil Engineer Corps, 1940-1946*, 2 vols. Government Printing Office, Washington, D.C.

CULTURAL RESOURCE SURVEY FORM-K

Bldg#/Name

Building 64
Magazine

Original/Present Use

High Explosives Storage /
Squadron Storage

Date Constr.

1943

Condition:

- ☐ Excellent
- ☐ Good
- ☐ Fair
- ☐ Deteriorated
- ☐ Ruins
- ☐ Altered
- ☐ Unaltered
- ☐ Original Site
- ☐ Moved

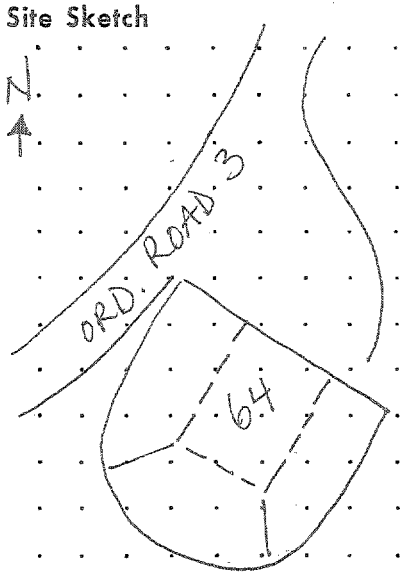
Classification:

- ☐ Building
- ☐ Structure
- ☐ Object
- ☐ District
- ☐ Site

Photo Notation/View/Date

North and West Elevations /
Looking Southwest, Southeast
9-20-95

Site Sketch



Primary Bldg Material:

- ☐ Masonry
- ☐ Stone
- ☐ Wood/Frame
- ☐ Other Steel

Location/Boundary Description

NAS Brunswick, Brunswick, Maine /
Boundary limited to footprint of building plus 10 feet on each side.

Area(s) of Significance:

- ☐ Architecture
- ☐ History
- ☐ Culture
- ☐ Archeology
- ☐ Engineering
- ☐ Other

Architect/Builder

U. S. Navy

Statement of Significance/Comments:

Building 64 is one of seven World War II weapons and ordnance magazines remaining at NAS Brunswick, and one of only three that are still on their original locations; the others are buildings 44 and 63. Buildings 63 and 64 are situated on the west side of the air station, and are the last of a series of eight high explosive magazines arranged in an arc along Ordnance Road 3, west of the flightline; both magazines are currently used for storage by the resident patrol squadrons. Both of these are of standard dimensions, their interior spaces each measuring 20 feet wide, 50 feet long, and 7 feet high. Building 64 meets National Register Criterion C as a somewhat unusual, and increasingly rare, example of World War II naval ordnance magazines constructed of steel. It is essentially an earth-covered Quonset hut on a concrete slab foundation, a steel version of the all-concrete "igloo" type of magazine developed by the navy in 1928 and also adopted by the U.S. Army (Goodwin 1994:211). (Continued on reverse.)

Sources of Information:

See continuation sheet (over)

Prepared By:

T. A. Cunning
Louis Berger & Assoc., Inc.
East Orange, NJ

Date: January, 1996

Additional Data (Identify all continuations from front)

Statement of Significance/Comments (continued)—

A structural system of bolted, corrugated steel panels with flat, vertical panels at each end, rather than the usual reinforced concrete superstructure appears to depart from standard navy practice of the time. According to *Building the Navy's Bases*, "magazines, of course, were necessarily built of masonry, irrespective of the duration of their probable usefulness" (U.S. Navy 1947:339). The precise reason for the construction of steel magazines has not been determined from available literature, but it is possible that the need for extreme haste in the initial development of NASB led planners to select these easily assembled steel structures over the more slowly-erected concrete igloo type. According to NASB personnel, the navy has elsewhere replaced most of the World War II steel magazines with more durable concrete enclosures of modern design. Of the other seven magazines formerly located in the arc arrangement along Ordnance Road 3, buildings 59, 60, and 62, were moved to the present-day Weapons Area circa 1973, and have been altered. Unlike these, Building 64 retains integrity of location and setting, and demonstrates excellent integrity of design, materials, and workmanship.

Sources of Information:

Goodwin, R. Christopher, and Associates, Inc.
1994 Historic Context for Department of Defense Facilities: World War II Permanent Construction (Draft). Prepared by R. Christopher Goodwin and Associates, Inc., Frederick, Maryland. Submitted to U.S. Army Corps of Engineers, Baltimore District, Baltimore, Maryland.

Louis Berger and Associates, Inc.
1996 Cultural Resources Survey, U.S. Naval Air Station Brunswick, Maine (Draft). Prepared by the Cultural Resource Group, Louis Berger and Associates, Inc., East Orange, New Jersey, for Smith Environmental Technologies Corporation. Submitted to Northern Division, Naval Facilities Engineering Command, for Naval Air Station Brunswick, Maine (January 1996).

Naval Air Station Brunswick, Maine
various General Plans and Maps of the Naval Air Station Brunswick, from 1946 through 1983. On file in the Public Works Department, NAS Brunswick, Maine.

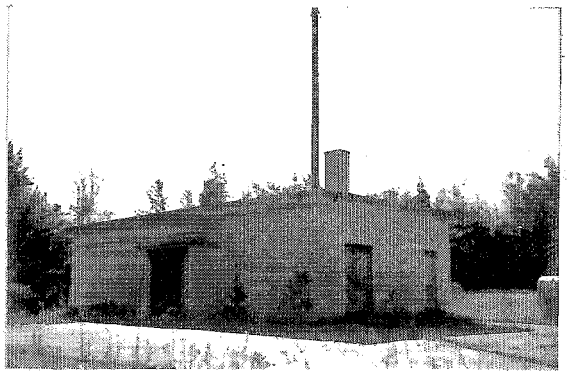
U.S. Navy, Bureau of Yards and Docks
1947 *Building the Navy's Bases in World War II: History of the Bureau of Yards and Docks and the Civil Engineer Corps, 1940-1946*, 2 vols. Government Printing Office, Washington, D.C.

CULTURAL RESOURCE SURVEY FORM-K

Bldg#/Name
Building 373
Receiver Building

Original/Present Use
Radio Communications/
Demolished 1998

Date Constr.
1959



Condition:

- ☐ Excellent
- ☐ Good
- ☐ Fair
- ☐ Deteriorated
- ☐ Ruins
- ☐ Altered
- ☐ Unaltered
- ☐ Original Site
- ☐ Moved

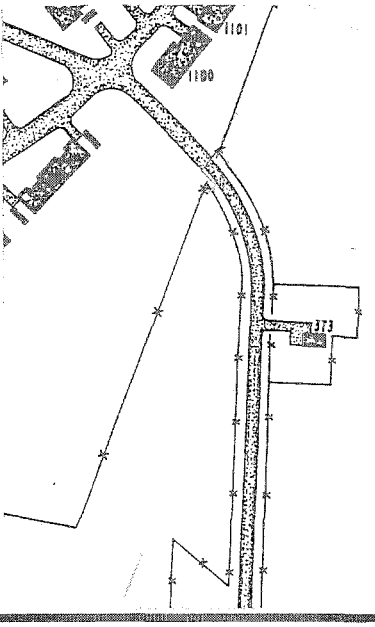
Classification:

- ■ Building
- ☐ Structure
- ☐ Object
- ☐ District
- ☐ Site

Photo Notation/View/Date

Bldg. 373, view from northwest, August 1995

Site Sketch



Primary Bldg Material:

- ■ Masonry
- ☐ Stone
- ☐ Wood/Frame
- ☐ Other _____

Location/Boundary Description
Building 373 was located on Canam Drive in the Topsham Annex of NAS Brunswick, in Topsham, Maine.

Area(s) of Significance:

- ☐ Architecture
- ■ History
- ☐ Culture
- ☐ Archeology
- ☐ Engineering
- ☐ Other _____

Architect/Builder
Alonzo B. Reed, Inc., Boston, Mass.
Alonzo J. Harriman, Inc., Auburn, Maine

Statement of Significance/Comments:
The United States Air Force erected the Receiver Building (Building 373) at Topsham Air Force Station (AFS) in 1959 as a component of a nationwide early warning defense system known as the Semi-Automatic Ground Environment, or SAGE. A computerized defense system that included 23 Direction Centers, three Combat Centers, and one Program Control site located throughout the United States, SAGE incorporated a number of pioneering and innovative computer technologies that later evolved and contributed to the development of personal computers. The Receiver Building participated in SAGE until the Air Force decommissioned the Topsham facility in 1969. It was the last of the mission-related buildings at Topsham.

Sources of Information:
Louis Berger & Associates, Inc. Cultural Resources Survey, Naval Air Station Brunswick, Maine (Draft Final 1999). Submitted to Northern Division, Naval Facilities Engineering Command.

Prepared By:
M. Bowers, S.P. Dixon
Louis Berger & Associates, Inc.
April 1999

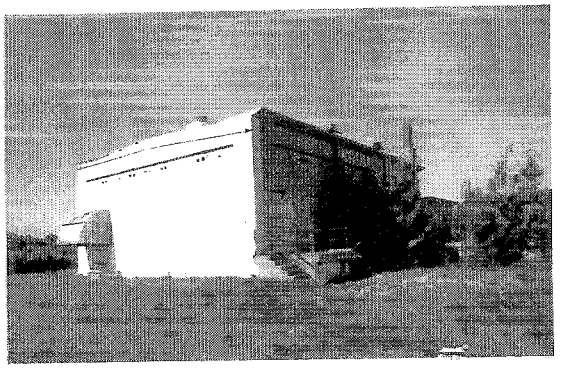
Additional Data (Identify all continuations from front)

CULTURAL RESOURCE SURVEY FORM-K

Bldg#/Name
Building 523
Remote Transmitter Building

Original/Present Use
Radio Communications/
Vacant

Date Constr.
Circa 1959



Condition:

- ☐ Excellent
- ☐ Good
- ☐ Fair
- ■ Deteriorated
- ☐ Ruins
- ■ Altered
- ☐ Unaltered
- ☐ Original Site
- ☐ Moved

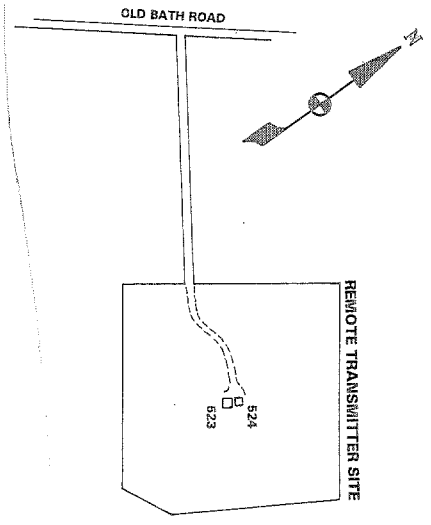
Classification:

- ■ Building
- ☐ Structure
- ☐ Object
- ☐ District
- ☐ Site

Photo Notation/View/Date

Bldg. 523, view from southeast, August 1995

Site Sketch



Primary Bldg Material:

- ■ Masonry
- ☐ Stone
- ☐ Wood/Frame
- ☐ Other _____

concrete

Location/Boundary Description
Building 523 is located at the end of an asphalt lane off Old Bath Road, in Brunswick, Maine

Area(s) of Significance:

- ☐ Architecture
- ■ History
- ☐ Culture
- ☐ Archeology
- ☐ Engineering
- ☐ Other _____

Architect/Builder
Deigert and Yerkes & John H. Graham, Washington, D.C.

Statement of Significance/Comments:
Erected in the late 1950s, the Remote Transmitter Building (Building 523) and its associated Generator Building (Building 524) stand as important physical vestiges of Naval Air Station Brunswick's Cold War-era communications systems and document its contribution to the United States' national defense during the Cold War.

Sources of Information:
Louis Berger & Associates, Inc. Cultural Resources Survey, Naval Air Station Brunswick, Maine (Draft Final 1999). Submitted to Northern Division, Naval Facilities Engineering Command.

Prepared By:
M. Bowers, S.P. Dixon
Louis Berger & Associates, Inc.
April 1999

Additional Data (Identify all continuations from front)

CULTURAL RESOURCE SURVEY FORM-K

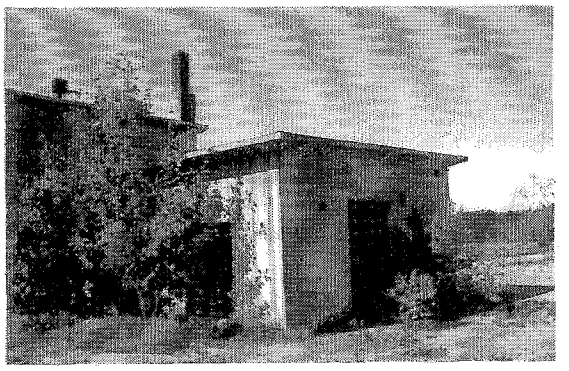
Bldg#/Name
Building 524
Generator Building

Original/Present Use
Radio Communications/
Vacant

Date Constr.
Circa 1959

Condition:

- ☐ Excellent
- ☐ Good
- ☐ Fair
- ■ Deteriorated
- ☐ Ruins
- ■ Altered
- ☐ Unaltered
- ☐ Original Site
- ☐ Moved



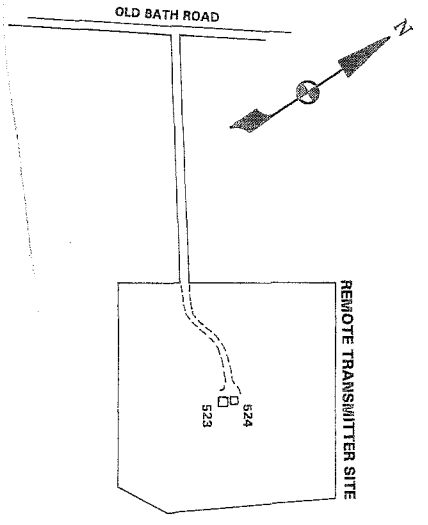
Classification:

- ■ Building
- ☐ Structure
- ☐ Object
- ☐ District
- ☐ Site

Photo Notation/View/Date

Bldg. 524, view from southeast, August 1995

Site Sketch



Primary Bldg Material:

- ☐ Masonry
- ☐ Stone
- ☐ Wood/Frame
- ■ Other _____
  concrete

Location/Boundary Description
Building 524 is located at the end of an asphalt lane off Old Bath Road, in Brunswick, Maine.

Area(s) of Significance:

- ☐ Architecture
- ■ History
- ☐ Culture
- ☐ Archeology
- ☐ Engineering
- ☐ Other _____

Architect/Builder
Deigert and Yerkes & John H. Graham, Washington, D.C.

Statement of Significance/Comments:
Erected in the late 1950s, the Generator Building (Building 524) and the associated Remote Transmitter Building (Building 523) stand as important physical vestiges of Naval Air Station Brunswick's Cold War-era communications systems and document its contribution to the United States' national defense during the Cold War.

Sources of Information:
Louis Berger & Associates, Inc. Cultural Resources Survey, Naval Air Station Brunswick, Maine (Draft Final 1999). Submitted to Northern Division, Naval Facilities Engineering Command.

Prepared By:
M. Bowers, S.P. Dixon
Louis Berger & Associates, Inc.
April 1999

(Continue on Reverse Side if Necessary)

Additional Data (Identify all continuations from front)

CULTURAL RESOURCE SURVEY FORM-K

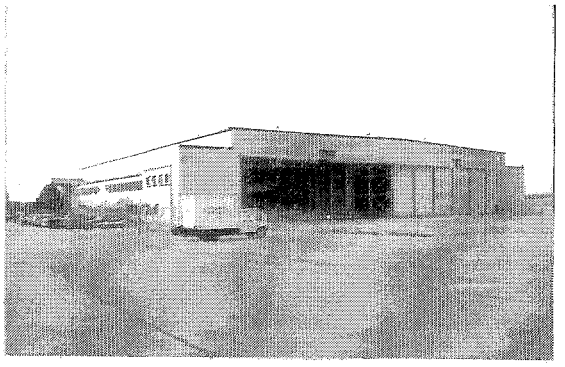
Bldg#/Name
Building 1
Hangar 1

Original/Present Use
Airplane Hangar/
Same

Date Constr.
1942-43

Condition:

- ■ Excellent
- □ Good
- □ Fair
- □ Deteriorated
- □ Ruins
- ■ Altered
- □ Unaltered
- ■ Original Site
- □ Moved



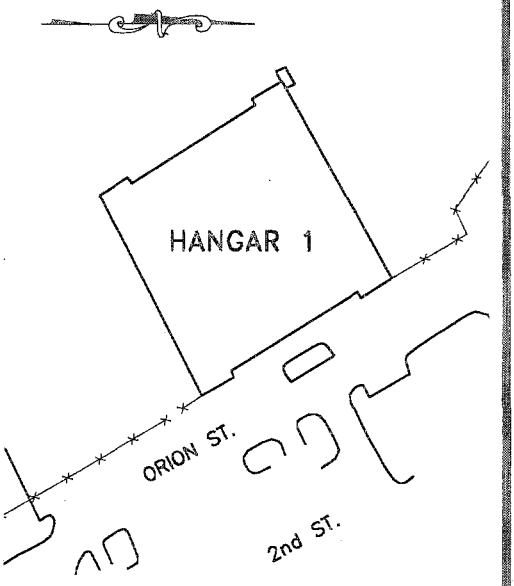
Classification:

- ■ Building
- □ Structure
- □ Object
- □ District
- □ Site

Photo Notation/View/Date

Hangar 1, north and west elevations, August 1995

Site Sketch



Primary Bldg Material:

- □ Masonry
- □ Stone
- ■ Wood/Frame
- □ Other _____

Location/Boundary Description
Hangar 1 is located on Orion Street, opposite Fitch Street, at NAS Brunswick.

Area(s) of Significance:

- □ Architecture
- ■ History
- □ Culture
- □ Archeology
- □ Engineering
- □ Other _____

Architect/Builder
Navy Department, Bureau of Yards and Docks

Statement of Significance/Comments:
Hangar 1 functioned as an aircraft repair facility and contributed to Naval Air Station Brunswick's coastal defense patrol and training missions. Built following the Navy's Bureau of Yards and Docks standard plans for wooden hangars, Hangar 1 was one of three nearly identical buildings constructed at Brunswick during World War II. Significant for its association with Naval Air Station Brunswick's establishment as a coastal defense patrol and air crew training base during World War II, and its role in the North Atlantic defenses during the Cold War, Hangar 1 remains one of the last World War II-era buildings on the base.

Sources of Information:
Louis Berger & Associates, Inc. Cultural Resources Survey, Naval Air Station Brunswick, Maine (Draft Final 1999). Submitted to Northern Division, Naval Facilities Engineering Command.

Prepared By:
M. Bowers, S.P. Dixon
Louis Berger & Associates, Inc.
April 1999

Additional Data (Identify all continuations from front)

CULTURAL RESOURCE SURVEY FORM-K

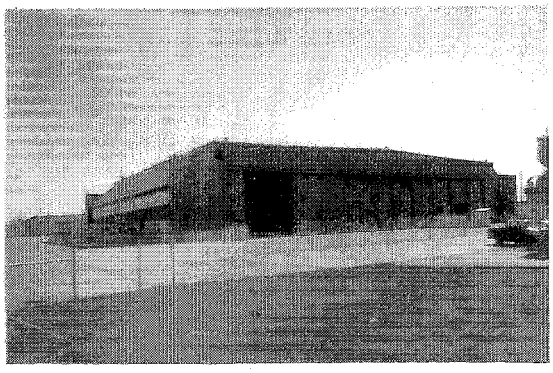
Bldg#/Name
Building 2
Hangar 2

Original/Present Use
Airplane Hangar/
Same

Date Constr.
1942-43

Condition:

- ■ Excellent
- □ Good
- □ Fair
- □ Deteriorated
- □ Ruins
- ■ Altered
- □ Unaltered
- ■ Original Site
- □ Moved



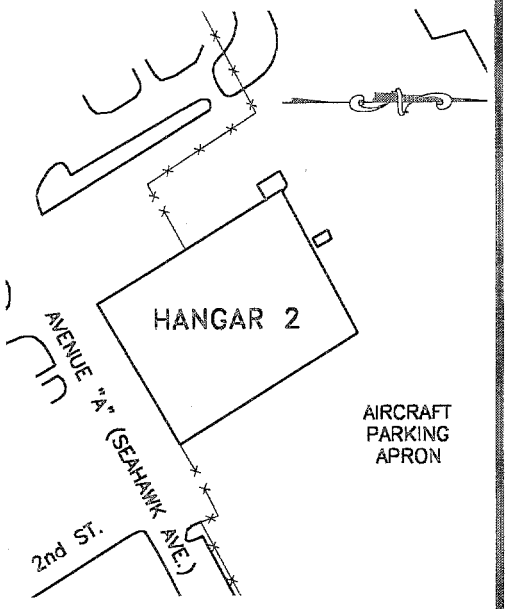
Classification:

- ■ Building
- □ Structure
- □ Object
- □ District
- □ Site

Photo Notation/View/Date

Hangar 2, east and north elevations, August 1995

Site Sketch



Primary Bldg Material:

- □ Masonry
- □ Stone
- ■ Wood/Frame
- □ Other _____

Location/Boundary Description
Hangar 2 is located at the intersection of Orion Street and Seahawk Avenue, at NAS Brunswick.

Area(s) of Significance:

- □ Architecture
- ■ History
- □ Culture
- □ Archeology
- □ Engineering
- □ Other _____

Architect/Builder
Navy Department, Bureau of Yards and Docks

Statement of Significance/Comments:
Hangar 2 functioned as an aircraft repair facility and contributed to Naval Air Station Brunswick's coastal defense patrol and training missions. Built following the Navy's Bureau of Yards and Docks standard plans for wooden hangars, Hangar 2 was one of three nearly identical buildings constructed at Brunswick during World War II. Significant for its association with Naval Air Station Brunswick's establishment as a coastal defense patrol and air crew training base during World War II, and its role in the North Atlantic defenses during the Cold War, Hangar 2 remains one of the last World War II-era buildings on the base.

Sources of Information:
Louis Berger & Associates, Inc. Cultural Resources Survey, Naval Air Station Brunswick, Maine (Draft Final 1999). Submitted to Northern Division, Naval Facilities Engineering Command.

Prepared By:
M. Bowers, S.P. Dixon
Louis Berger & Associates, Inc.
April 1999

(Continue on Reverse Side if Necessary)

Additional Data (Identify all continuations from front)

CULTURAL RESOURCE SURVEY FORM-K

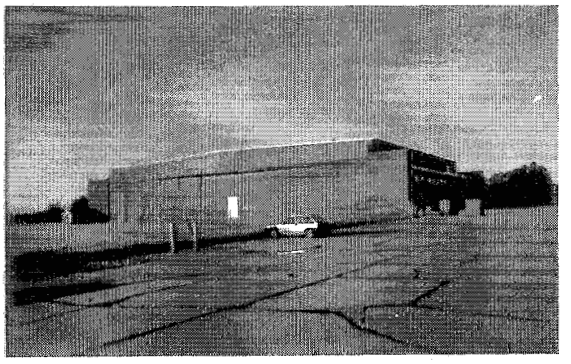
Bldg#/Name
Building 3
Hangar 3

Original/Present Use
Airplane Hangar/
Same

Date Constr.
1942-43

Condition:

- ■ Excellent
- □ Good
- □ Fair
- □ Deteriorated
- □ Ruins
- ■ Altered
- □ Unaltered
- ■ Original Site
- □ Moved



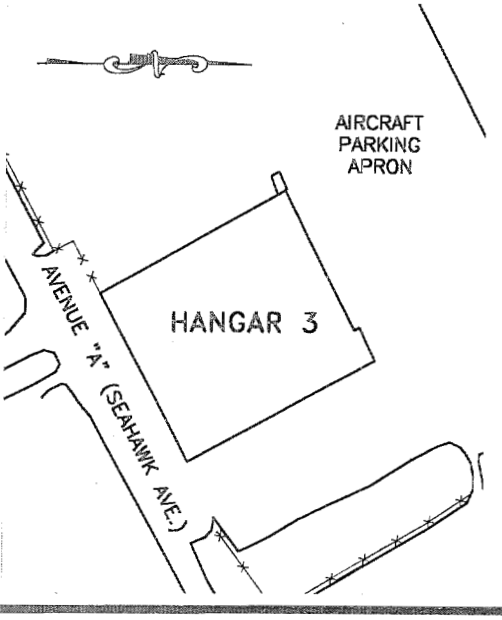
Classification:

- ■ Building
- □ Structure
- □ Object
- □ District
- □ Site

Photo Notation/View/Date

Hangar 3, north elevation,
August 1995

Site Sketch



Primary Bldg Material:

- □ Masonry
- □ Stone
- ■ Wood/Frame
- □ Other _____

Location/Boundary Description
Hangar 3 is located on Seahawk Avenue at NAS Brunswick.

Area(s) of Significance:

- □ Architecture
- ■ History
- □ Culture
- □ Archeology
- □ Engineering
- □ Other _____

Architect/Builder
Navy Department, Bureau of Yards and Docks

Statement of Significance/Comments:
Hangar 3 functioned as an aircraft repair facility and contributed to Naval Air Station Brunswick's coastal defense patrol and training missions. Built following the Navy's Bureau of Yards and Docks standard plans for wooden hangars, Hangar 3 was one of three nearly identical buildings constructed at Brunswick during World War II. Significant for its association with Naval Air Station Brunswick's establishment as a coastal defense patrol and air crew training base during World War II, and its role in the North Atlantic defenses during the Cold War, Hangar 3 remains one of the last World War II-era buildings on the base.

Sources of Information:
Louis Berger & Associates, Inc. Cultural Resources Survey, Naval Air Station Brunswick, Maine (Draft Final 1999). Submitted to Northern Division, Naval Facilities Engineering Command.

Prepared By:
M. Bowers, S.P. Dixon
Louis Berger & Associates, Inc.
April 1999

(Continue on Reverse Side if Necessary)

Additional Data (Identify all continuations from front)

Appendix C

List of Preparers

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Principal Architectural Historian

Consulting Archaeologist:

Douglas Kellogg, Ph.D.
West Grove, Pennsylvania

HRA-0102

- Final (Revision 2) -

ENVIRONMENTAL CONDITION OF PROPERTY REPORT

for the

NAVAL AIR STATION
BRUNSWICK, MAINE

Department of the Navy BRAC Program Management Office
Department of the Navy
Base Realignment and Closure
Program Management Office
1455 Frazee Road, Suite 900
San Diego, California 92108-4310

30 May 2006

- Final (Revision 2) -

ENVIRONMENTAL CONDITION OF PROPERTY REPORT

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Base Realignment and Closure
Program Management Office
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San Diego, California 92108-4310

30 May 2006

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TABLE OF CONTENTS

Section **Page**

TABLE OF CONTENTS ..... **I**
ABBREVIATIONS, ACRONYMS, AND SYMBOLS ..... **V**
EXECUTIVE SUMMARY **1**
1.0 PURPOSE **1**
2.0 BACKGROUND **3**
3.0 PROPERTY DESCRIPTION **5**
4.0 ENVIRONMENTAL CONDITION OVERVIEW – EXISTING ENVIRONMENTAL INFORMATION **7**
4.1 CLASSIFICATION OF ENVIRONMENTAL CONDITIONS 7
4.2 INSTALLATION RESTORATION PROGRAM SITES 8
4.2.1 Site 1 Orion Street Landfill – North 8
4.2.2 Site 2 Orion Street Landfill – South 10
4.2.3 Site 3 Hazardous Waste Burial Area 12
4.2.4 Site 4 Acid/Caustic Pit 12
4.2.5 Site 5 Orion Street Asbestos Disposal Site 14
4.2.6 Site 6 Sandy Road Rubble and Asbestos Disposal Site 14
4.2.7 Site 7 Old Acid/Caustic Pit Site 14
4.2.8 Site 8 Perimeter Road Disposal Site 16
4.2.9 Site 9 Neptune Drive Disposal Site 16
4.2.10 Site 10 Defense Fuel Support Point Casco Bay, Harpswell 19
4.2.11 Site 11 Fire Training Area 20
4.2.12 Site 12 Explosive Ordnance Detonation Training Area 20
4.2.13 Site 13 Defense Reutilization and Marketing Office Area 21
4.2.14 Site 14 Old Dump #3 22
4.2.15 Site 15 Merriconeag Extension Debris Site 22
4.2.16 Site 16 Swampy Road Debris Site 22
4.2.17 Site 17 Former Pesticide Shop (Building 95) 23
4.2.18 Site 18 West Runway Study Area 23
4.2.19 POL 1 Old Navy Fuel Farm 24
4.2.20 POL 2 Navy Exchange Service Station 24
4.3 STORAGE TANKS 26
4.3.1 Underground Storage Tanks 26
4.3.2 Aboveground Storage Tanks 27
4.4 MUNITIONS AND EXPLOSIVES OF CONCERN 27
4.5 HAZARDOUS WASTE 29
4.6 POLYCHLORINATED BIPHENYLS 30
4.7 RADIOLOGICAL MATERIALS 30
4.8 PESTICIDES 30
4.8.1 Past Pesticide Impacts 31
4.8.2 Present Pesticide Use 31
4.9 ASBESTOS 31
4.10 LEAD-BASED PAINT 34
4.11 RADON 36
4.12 AIR QUALITY 36

4.13 WATER QUALITY 37
4.13.1 Drinking Water 37
4.13.2 Groundwater 38
4.13.3 Stormwater 38
4.13.4 Wastewater 39
4.13.5 Surface Water 40
4.13.5.1 Mere Brook/Harpswell Cove Complex 40
4.13.5.2 Buttermilk Cove Watershed 41
4.13.5.3 Androscoggin River 41
4.14 NATURAL RESOURCES 41
4.14.1 Floodplains 41
4.14.2 Wetlands and Aquatic Habitats (Special Aquatic Sites) 42
4.14.3 Coastal Zone Areas 43
4.14.4 Coral Reefs 43
4.14.5 Fisheries 43
4.14.6 Marine Mammals 44
4.14.7 Threatened, Endangered, and Other Sensitive Species 44
4.14.7.1 Grasshopper Sparrow (state endangered) 44
4.14.7.2 Upland Sandpiper (state threatened) 44
4.14.7.3 Clothed Sedge (state endangered) 45
4.14.7.4 Horned Lark 45
4.14.7.5 Vesper Sparrow 46
4.14.8 Geological Hazards 46
4.15 CULTURAL RESOURCES 46
4.15.1 Historical Resources 46
4.15.2 Archaeological Resources 47
4.15.3 Native American Graves Protection and Repatriation Act 49
4.16 SUMMARY OF ENVIRONMENTAL CONDITIONS 49
5.0 CERTIFICATION 51

LIST OF TABLES

Table 4-1. Summary of CERCLA Information
Table 4-2. Underground Storage Tanks at NAS Brunswick
Table 4-3. Existing Aboveground Storage Tanks in NAS Brunswick/Topsham Annex Inventory
Table 4-4. Oil/Water Separators at NAS Brunswick
Table 4-5. Existing Transformer Inventory for NAS Brunswick
Table 4-6. Polychlorinated Biphenyls Disposal History
Table 4-7. Former Transformer Inventory for NAS Brunswick
Table 4-8. 1994 - 2005 Building 647 Pesticides, Insecticides, Herbicides, and Fungicides Use at NAS Brunswick
Table 4-9. 2002 - 2005 Building 39 Pesticides, Insecticides, Herbicides, and Fungicides Used at NAS Brunswick Golf Course
Table 4-10. Pesticide Use at Facilities and Frequency
Table 4-11. Pesticides Approved for Use at NAS Brunswick
Table 4-12. 2004 Pesticides, Insecticides, Herbicides, and Fungicides Used at NAS Brunswick
Table 4-13. Asbestos Inventory
Table 4-14. Asbestos in Base Housing
Table 4-15. Lead-Based Paint in Base Housing
Table 4-16. Radon Screens and Radon Assessment Results
Table 4-17. 2004/2005 Emission Source List (as of October 2005)
Table 4-18. Air Emissions Specified in the Air License
Table 4-19. Total Licensed Annual Emissions
Table 4-20. Actual Annual Air Emissions
Table 4-21. Wetland Types Mapped at NAS Brunswick
Table 4-22. Essential Fish Habitat Designation for Casco Bay
Table 4-23. Rare, Threatened, and Endangered Species at NAS Brunswick

LIST OF FIGURES

Figure 3-1. Site Location Map
Figure 4-1. CERCLA Site Locations
Figure 4-2. Underground Storage Tank Locations
Figure 4-3. Potential MEC Areas
Figure 4-4. Hazardous Waste / RCRA Facilities
Figure 4-5. Asbestos in Base Housing
Figure 4-6. Lead-Based Paint in Base Housing
Figure 4-7. Locations Tested for Radon
Figure 4-8. Air Emission Source Buildings
Figure 4-9. Drinking Water Supply Wells
Figure 4-10. Stormwater Map
Figure 4-11. Wastewater System
Figure 4-12. FEMA Flood Map
Figure 4-13. Wetlands (Planning Level Only)
Figure 4-14. Jurisdictional Wetland and Vernal Pool Delineation

Figure 4-15. State Endangered or Threatened Species or Species Habitat
Figure 4-16. Rare Communities
Figure 4-17. Historical Buildings and Structures
Figure 4-18. Archaeological Sensitive Areas
Figure 4-19. Summary of Environmental Conditions

LIST OF APPENDICES

Appendix A: References
Appendix B: List of Contacts

ABBREVIATIONS, ACRONYMS, AND SYMBOLS

ACM	Asbestos Containing Material
AHERA	Asbestos Hazard Emergency Response Act
AICUZ	Air Installation Compatible Use Zone
ARAR	Applicable or Relevant and Appropriate Requirement
AST	Aboveground Storage Tank
ATSDR	Agency for Toxic Substance and Disease Registry
bbl	barrel
BEQ	Bachelor Enlisted Quarters
BFE	Base Flood Elevations
bgs	below ground surface
BPT	Best Practical Treatment
BRAC	Base Realignment and Closure
BTEX	benzene, toluene, ethylbenzene, and xylene
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFA	Community Environmental Response Facilitation Act
CFR	Code of Federal Regulations
COC	Contaminants of Concern
CPO	Chief Petty Officer
CWA	Clean Water Act
DDE	dichloro-diphenyldichloro-ethylene
DDT	dichloro-diphenyl-trichloroethane
DESC	Defense Energy Support Center
DLA	Defense Logistics Agency
DOD	Department of Defense
DRMO	Defense Reuse and Marketing Office
E1	Subtidal
E2	Intertidal
EA	Environmental Assessment
EBS	Environmental Baseline Survey
ECP	Environmental Condition of Property
EFH	Essential Fish Habitat
EOD	Explosive Ordnance Disposal
ESA	Endangered Species Act
EW	Extraction Well
FEMA	Federal Emergency Management Administration
FFA	Federal Facilities Agreement
FFDCA	Federal Food, Drug, and Cosmetic Act
FIFRA	Federal Insecticide, Fungicide, and Rodenticide
FONSI	Finding of No Significant Impact
ft.	feet/foot
GRO	Gasoline Range Organics
HAP	Hazardous Air Pollutant
HUD	Housing and Urban Development
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
IRP	Installation Restoration Program
JP	jet petroleum
LBP	lead-based paint
LTMP	Long Term Monitoring Plan

LUCIP	Land Use Control Implementation Plan
MBtu/hr	million British thermal units per hour
MCL	Maximum Contaminant Level
ME DEP	Maine Department of Environmental Protection
MEC	Munitions and Explosives of Concern
MEK	methyl ethyl ketone
mg/kg	milligrams per kilograms
MTBE	methy tertiary-butyl ether
MW	Monitoring Well
NAS	Naval Air Station
NAVRAMP	Navy Radon Assessment and Mitigation Program
NEX	Navy Exchange
NFA	No Further Action
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NRHP	National Register of Historic Places
OU	Operable Unit
OWS	Oil/Water Separator
PA	Preliminary Assessment
PACM	Presumed Asbestos Containing Material
PAH	Polycyclic Aromatic Hydrocarbon
PCB	polychlorinated biphenyls
pCi/L	picoCuries per Liter
PMO	Program Management Office
PMP	Pest Management Plan
POL	petroleum, oil, and lubricants
ppb	parts per billion
ppm	parts per million
Pub. L.	Public Law
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan
RACT	Reasonable Available Control Technology
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act
SERE	Survival, Evasion, Resistance, and Escape
SHPO	State Historic Preservation Office
SVOC	Semi-Volatile Organic Compound
SWP3	Stormwater Pollution Prevention Plan
TCE	trichloroethylene
TNT	trinitrotoluene
TPH-DRO	Total Petroleum Hydrocarbons-Diesel Range
TPH-GRO	Total Petroleum Hydrocarbons-Gasoline Range
TSCA	Toxic Substances Control Act
U.S.	United States
U.S.C.	United States Code
USEPA	Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile Organic Compound
XRF	X-Ray Fluoresence

EXECUTIVE SUMMARY

This Environmental Condition of Property (ECP) report for Naval Air Station (NAS) Brunswick, Maine summarizes the natural resources, cultural resources, and environmental conditions of the property as part of Base Realignment and Closure (BRAC) documentation associated with the closure of NAS Brunswick and relocation of aircraft, personnel, equipment, and support to Naval Air Station Jacksonville, Florida. Information was reviewed with installation points of contact to ensure all data are current and accurate. Where information was not available, the sources contacted and reference materials sought were documented.

NAS Brunswick, Maine, originally constructed and occupied in March of 1943, was first commissioned on April 15, 1943, with the primary mission of training British Naval Command (Royal Canadian Air Force) pilots. After the Air Station was deactivated in October 1946, the land and buildings were leased jointly to the University of Maine and Bowdoin College as annexes to ease the over-crowded conditions at both colleges caused by G. I. Bill student influx. When the station facilities were no longer needed, both colleges terminated their leases in 1949 and the Air Station was taken over by the Brunswick Flying Service. At this time, the buildings that had housed men and implements of war were put to uses never included in military design. Following this period of caretaker status, the Air Station was selected by the Navy as a prime center for development. During the development period, the Air Force reached an agreement with the Navy authorizing the construction on the station of an Air Force Control and Warning Facility, as a part of the continental circumferential radar screen. On March 15, 1951, the dormant-air station was recommissioned as a Naval Air Facility with the established mission of supporting three land-plane patrol squadrons and one Fleet Aircraft Service Squadron, and a planned future mission as a master jet air station with the primary mission of anti-submarine warfare.

On July 1, 1971, Commander Patrol Wings United States (U.S.) Atlantic Fleet/Commander Patrol Wing Five established his headquarters at NAS Brunswick. Changes have occurred on the Air Station since 1971 so that at present, three patrol squadrons flying the P3 Orion perform their duties here at NAS Brunswick. In addition, two reserve squadrons are also based at NAS Brunswick along with VPU-1 mission, the Naval Reserve Center, and Air Reserve Center. NAS Brunswick also provides support for the ships at Bath, Maine; the Naval Computer and Telecommunications Area Master Station Atlantic Detachment Cutler, Cutler, Maine; Naval Satellite Operations Center – Detachment Alfa, Prospect Harbor, Maine; the U.S. Naval Survival School at Rangeley, Maine; and the Department of Naval Sciences at the Maine Maritime Academy at Castine, Maine.

NAS Brunswick currently encompasses 2,834 acres (Main Station) in the town of Brunswick, Maine. Additionally, NAS Brunswick property includes approximately 26 acres of land (fee) and 34 acres of easement interest located north of Route 24 (Bath Road), identified as the North Clear Zone, which was acquired for Air Installation Compatible Use Zone (AICUZ) (Zamoski 2006). NAS Brunswick is situated between the Androscoggin River to the north and Casco Bay to the south. The subject of this report includes the information for the Main Station and, when available, includes the off-site locations (i.e., Topsham Annex; East Brunswick Remote Radio Transmitter Site; the McKeen Street Housing Complex; and two non-contiguous rake stations (Small Point and Sabino Point).

A brief summary of ECP findings is provided below by subject area.

- **Classifications of Environmental Conditions**. This ECP Report is not intended to identify uncontaminated property in compliance with the Community Environmental Response Facilitation Act (CERFA) and Department of Defense (DOD) policy. The Navy will comply with its statutory requirement to identify uncontaminated property through additional evaluations and documentation.

  Environmental Baseline Surveys (EBS) were completed in 1996 for Topsham Annex (HRP 1996a) and the East Brunswick Facility (HRP 1996b) and in 2003 for NAS Brunswick housing areas, including the Main Station, Topsham Annex, and McKeen Street (Malcolm Pirnie 2003).

- **Installation Restoration Program Sites.** The Navy has identified 20 Installation Restoration Program (IRP) sites at NAS Brunswick since 1983. On October 19, 1990 the Navy entered into a Federal Facilities Agreement (FFA) with the U.S. Environmental Protection Agency (USEPA) and the Maine Department of Environmental Protection (ME DEP) that established goals and responsibilities among the Navy and the regulatory agencies and set enforceable cleanup schedules for the IRP sites at NAS Brunswick (Navy 2002a). Currently, there are 12 active sites (Sites 1, 2, 3, 4, 7, 9, 11, 12, 13, 17, POL 1, and POL 2) of which ten have a remedy in place and eight inactive sites (Sites 5, 6, 8, 10, 14, 15, 16, and 18) at NAS Brunswick (EA and ECC 2005, Drozd 2006). There are no IRP sites associated with Topsham Annex or McKeen Street housing area.

- **Storage Tanks.** There are 17 underground storage tanks (USTs) at NAS Brunswick Main Station, variously used to store diesel, fuel oils #1 and #2, unleaded fuel, jet fuel, and anti-freeze. All USTs on-site are registered with the ME DEP when installed, in accordance with ME DEP Chapter 691 UST regulations (Joy 2006c). All UST have been removed from the McKeen Street housing area. All UST have been removed or abandoned in place at Topsham Annex.

  There are currently 138 active aboveground storage tanks (ASTs) in use containing gasoline, diesel, #1 and #2 fuel oil, jet petroleum (JP)-8, hydraulic oil, waste oil, cooking grease, waste glycol, ethylene glycol, and lube oil at the Main Station (Rickel 2006b). Two of the ASTs are 845,000-gallon in size containing JP-8 located at the Jet Fuel Storage Installation (JFSI). There are currently seven active ASTs at Topsham Annex (Rickel 2006b). There are no ASTs at the McKeen Street housing area.

  There are 22 oil/water separators (OWSs) on-site that are connected to assorted floor drains and wash racks across the Main Station (Kempf 2005c). Three OWSs drain into the stormwater system, the remainder discharge into the sanitary sewer system (Apraham 2005).

- **Munitions and Explosives of Concern.** Four locations were identified at NAS Brunswick with potential for the presence of munitions and explosives of concern (MEC) as follows: the Former Munitions Bunker West Area, the Machine Gun Bore Sight Range, the Skeet Range, and the training area known as IRP Site 12.

  The Site 12 was used from 1981-2003 for destruction of small quantities of ordnance, pyrotechnics and privately-manufactured explosive devices (Joy 2006c). Soil samples

collected from test pits in 1991 contained elevated concentrations of mercury and nitrate/nitrite.

In addition, a final Preliminary Assessment (PA) was conducted at the Former Munitions Bunker West Area (Malcolm Pirnie 2006a). The PA concluded that while the entire 29-acre Former Munitions Bunker Area is a suspected MEC area because of former training practices in the area, the likelihood of MECs is considered to be extremely low.

The former Machine Gun Bore Sight Range was used during the 1950s to align and test fire aircraft mounted guns. The former Machine Gun Bore Sight Range is not suspected to contain MEC. However, there is the potential for munitions constituents, particularly lead impacts, to be present. Sampling data was not available to estimate the potential for lead.

The former Main Station Skeet Range was used for training military personnel during the 1950s (Malcolm Pirnie 2006a). Based on historical documents, it is believed that only 12-gauge shotguns were used at the site. Lead shot from the expended shot gun ammunition is not considered MEC. However, there is the potential for lead impacts in soil and groundwater. Sampling data for metals and inorganics in groundwater and soil were not available to gauge the potential for munitions constituents.

The Topsham Annex had a Skeet Range which was located in the northern portion of the Navy property line (Malcolm Pirnie 2006b, Malcolm Pirnie 2005). The Skeet Range was used by the Air Force from approximately 1957 to 1970. There is no documentation that the Navy used the range after they assumed control of Topsham post-1970 (Malcolm Pirnie 2005).

There are no known MEC areas at McKeen Street housing area.

- **Hazardous Waste.** NAS Brunswick is classified as a large quantity generator of hazardous waste (generator identification number ME 8170022018) (Mosher 2005a). Hazardous waste is managed in Building 45, where it is stored for less than 90-days. According to Air Station personnel, the station had Resource Conservation and Recovery Act (RCRA) licenses for the operation of sulfuric acid neutralization in two buildings and silver recovery operations in another building. All RCRA operations and licenses have been terminated. There is no hazardous waste storage at Topsham Annex or McKeen Street housing area.
- **Polychlorinated Biphenyls.** All polychlorinated biphenyls (PCB) and PCB-contaminated transformers have been removed from NAS Brunswick since 1995. There is no remaining Navy-owned PCB-containing equipment at NAS Brunswick Main Station, Topsham Annex or McKeen Street housing area.
- **Radiological Materials.** There are no known radiological materials on NAS Brunswick Main Station, Topsham Annex, or McKeen Street housing area (Mosher 2005b).
- **Pesticides.** Prior to 1975, NAS Brunswick disposed of pesticides within the IRP Site 5 the Orion Street Landfill North and South and the Hazardous Waste Burial Area. Sampling events have identified pesticides in soil, groundwater, sediments, surface water, and leachate associated with these sites. Remedial actions have been implemented and long term monitoring continues at the landfill south.

Site 17 is the location of the former Building 95 where pesticides and herbicides were stored and mixed from 1955 to 1985 (ABB 1994). During the operation of the building, pesticides were released over a 1-acre area at the site. Remedial actions have been implemented, the site is still under investigation, and there is currently no ROD in place (EA and ECC 2005).

The Draft Pest Management Plan (PMP) for NAS Brunswick (Navy 2003b) describes the requirements and recommended best practices for all aspects of ongoing pest management for all of NAS Brunswick, including the off-base housing areas. Current pest control operations for the Main Station are based in Building 647 and pest control operations for the Golf Course are based in Building 39.

- **Asbestos.** A 2005 asbestos inventory of 210 buildings at NAS Brunswick indicates that 80 structures contain "identified" asbestos containing material (ACM), 62 buildings contain presumed asbestos containing material (PACM), and 68 buildings either have not been inspected or do not have any visible suspected ACM. Air Station personnel (Sanders 2006) have compiled a list of the locations of buildings that are known to contain ACM or PACM. The inventory does not include housing, housing maintenance building, or bachelor enlisted quarters (BEQ) barracks.

  In 2004, an asbestos survey was conducted for the base housing which included Midway Terrace, Brunswick Gardens Capehart, Station Housing I, Station Housing II, Topsham Annex, and McKeen Street. The surveys were performed as part of the transfer of the housing units to a private developer under the public-private venture program. The surveys were conducted on a representative number of housing units in each area and did not include a walk-through inspection of all the units. It was assumed that un-inspected units of similar age, use, and history would have similar conditions as those identified at inspected units. All housing units surveyed had asbestos detected. The asbestos was in good condition and determined not to be a hazard (Dewberry 2004a-f).

- **Lead-Based Paint.** Military housing areas are inspected for lead paint prior to transfer for public/private venture (Sanders 2005). All painted surfaces are assumed to contain lead unless a negative determination has been made.

  In 2004, a lead-based paint (LBP) inspection/risk assessment was conducted for the base housing which included Brunswick Gardens Capehart, Station Housing I, Station Housing II, Topsham Annex, and McKeen Street. The inspections were performed as part of the transfer of the housing units to a private developer under the public-private venture program. The purpose of the LBP inspection was to determine the presence of LBP and the risk assessment determined the hazard associated with the LBP. The inspections were conducted in the winter; therefore, the soil sampling (part of risk assessment) was not conducted but was scheduled for the spring. No information on any additional LBP sampling was available for inclusion in this report. The inspections were conducted on a representative number of housing units in each area and did not include a walk-through inspection of all the units. It was assumed that un-inspected units of similar age, use, and history would have similar conditions as those identified at inspected units. All the units inspected contained LBP except for the Brunswick Gardens Capehart housing. The lead paint risk assessment identified LBP hazard at 55 of the 100 housing units assessed due to the deteriorated condition of the paint.

- **Radon.** Radon investigations were conducted at NAS Brunswick Main Station, Topsham Annex and McKeen Street housing in 1990 and 1991-1992. The 1990 screening effort monitored radon levels in approximately 10 percent of the housing units, and identified two locations (Units 904-A and EE-A) with radon gas concentrations above the USEPA/Housing and Urban Development (HUD) action level of 4 picoCuries per Liter (pCi/L). The 1991-1992 radon survey involved installation of 335 radon monitors in 175 housing units (including units 904-A and EE-A) for approximately 1 year, and concluded that none of the detectors had radon results above the USEPA guidance.

- **Air Quality.** NAS Brunswick Main Station operates fuel burning equipment, electrical generation equipment, and process equipment (e.g., storage tanks, fuel dispensing facilities, deicing operations, degreasers, painting operations, and jet engine test cells) under a ME DEP air emission license (number A-268-71-AA-R). The license was issued December 7, 2004 and has a term of 5 years (ME DEP 2004). The license was amended once on August 22, 2005 to include new equipment and equipment changes (ME DEP 2005). The air emissions license is for the Main Station only. Topsham Annex and McKeen Street housing area do not require an emission license.

- **Drinking Water.** The domestic water supply for NAS Brunswick Main Station, Topsham Annex, and McKeen Street housing area is obtained from a public source: Brunswick and Topsham Water District (Navy 2003a). However, there are two drinking water wells located on NAS Brunswick Main Station. One of the supply wells is located at the golf course and is classified as a public domestic water supply well (Kempf 2006b). The second well is located at the guardhouse at Dyer's Gate and is classified as a non-public domestic water supply well. Additionally, the northwest corner of NAS Brunswick is located within two Groundwater Aquifer Protection Zones; the majority of the base is located within the secondary protection zone, whereas a smaller portion of the base is located within the primary protection zone (Prosser 2002, Kempf 2006b).

- **Groundwater.** There are two local groundwater aquifers, overburden and bedrock, underlying NAS Brunswick (ATSDR 2005). Depth to groundwater in the overburden aquifer is between 10 feet (ft.) to 80 ft. below ground surface and regional groundwater flow is to the east towards the Gulf of Maine. Localized groundwater flow direction is variable. There are two domestic water wells on the base which are reportedly outside the area of groundwater contamination and compounds have not been detected in these wells at levels of health concern.

  The groundwater at Topsham Annex is assumed to flow west and north west toward the Cathance River (HRP 1996a). There is no information available documenting the direction of groundwater flow at McKeen Street but it likely flows to the north toward the Androscoggin River.

- **Stormwater.** NAS Brunswick operates under a multi-sector stormwater National Pollutant Discharge Elimination System (NPDES) permit approved in 2001. NPDES permits are renewed every 5 years. NAS Brunswick submitted a Notice of Intent (NOI) for permit renewal in October 2005, but has not yet received its new NPDES permit from the ME DEP.

NAS Brunswick Main Station discharges stormwater into storm sewer systems that flow into surface water bodies located on the Air Station. There are currently three OWSs located on the Air Station that drain into the storm sewer system. The Taxiway "G" wash rack effluent passes through an OWS and discharges to a retention pond and ultimately to the Mere Brook Watershed (Kempf 2006b).

Topsham Annex discharge stormwater into stormwater sewer systems that flow into the Cathance River and ultimately into the Androscoggin River. McKeen Street housing area discharges stormwater to the headwaters of the Mere Brook and eventually through the NAS Brunswick proper to Harpswell Cove (Kempf 2006c, Kempf 2006e)

- **Wastewater.** The Brunswick Sewer District provides sanitary sewer service to the majority of the Air Station (KCI 1991). While service is provided by the municipal sewer district, NAS Brunswick owns and maintains all it own facilities including the three pumping stations and associated pipe network (KCI 1991). There are two locations at the southern extent of the runway that service the gate house/vehicle inspection facility and the recycling center that are attached to individual septic systems (Navy 2004).

  There are two sources of industrial wastewater on NAS Brunswick (Kempf 2005b): a dental clinic and a deicing facility. Under Maine State law, all dental clinics are required to have a ME DEP-approved amalgam separator installed in the sanitary sewer discharge. The NAS Brunswick dental clinic has a REBEC 1000 Plus system, which is a state-approved system. The deicing facility on-site has two functions: (1) a deicing pad where all waste deicing fluid is captured and stored in a 90,000-gallon tank prior to disposal off-site; and (2) a wash rack, Taxiway "G", used to rinse salt (from ocean seawater) from aircraft.

  There are seven retention ponds on-site, including Picnic Pond (Apraham 2005, Kempf 2005c, Kempf 2006b). The water treatment ponds are acknowledged, to be contaminated from Navy operations over a period of many years, by NAS Brunswick personnel. The extent and characteristics of the contamination will require further investigation (Joy 2006a).

  The Brunswick Sewer District provides sanitary sewer service to Topsham Annex and McKeen Street housing area (Kempf 2006c, Kempf 2006e).

- **Surface Water.** The main surface water features on and around NAS Brunswick include the Mere Brook/Harpswell Cove complex, Buttermilk Cove, and the Androscoggin River. There is a small pond on the southern end of the Topsham Annex. There is no surface water on the McKeen Street housing area.

- **Floodplains.** According to Federal Emergency Management Agency (FEMA) mapping, three areas of NAS Brunswick would be inundated by 100-year flood events: (1) the western side of NAS Brunswick along Mere Brook; (2) the southern half of the Site from where Mere Brook exits from under the runway down along the salt marsh to Harpswell Cove; and (3) the small area along Buttermilk Cove in the south east corner of NAS Brunswick. Both the Buttermilk Cove and the southern portion of Mere Brook flood areas have Base Flood Elevations (BFEs) determined. The western Mere Brook 100-year flood area does not have a BFE determined.

There are no areas of Topsham Annex or McKeen Street that lie within the 100-year flood boundary.

- **Wetlands and Aquatic Habitats (Special Aquatic Sites).** NAS Brunswick includes approximately 330 acres of non-tidal wetlands. A planning level wetland inventory was completed in 1998 which resulted in the mapping of approximately 443 acres of wetlands, approximately 75 percent of which are non-tidal wetlands. In addition, jurisdictional wetland delineations (wetland boundaries verified and marked in the field) have been conducted for several areas around the base within the past 5 years.

  The Topsham Annex has one area which is a well-developed mixed class emergent-scrub/shrub wetland located in the northeastern portion of the open recreation area dividing the administrative area from the residential area. This wetland is bordered on the western edge by the annexed school district property. The other wetland is located at the southern end of the property below the Exchange parking lot and is mostly open water. (Geo-Marine 2001).

  There are no known wetlands at the McKeen Street housing area.

- **Coastal Zone Areas.** The entire property of NAS Brunswick Main Station, Topsham Annex, and McKeen Street, along with the town of Brunswick and Topsham, lies within the Coastal Zone. The NAS Brunswick adjacent to tidal waters is designated as a coastal protection zone by the town of Brunswick. The Air Station golf course and picnic area lie within the protection zone, but have been assessed as having no impact on the protection zone.
- **Coral Reefs.** Coral reef protection is not applicable to NAS Brunswick Main Station, Topsham Annex, or McKeen Street housing area.
- **Fisheries.** There is no Essential Fish Habitat (EFH) designation determined specifically for NAS Brunswick Main Station, Topsham Annex, or McKeen Street housing area (Moore 2005), although the National Oceanic and Atmospheric Administration (NOAA) has identified EFH within the portion of Casco Bay that includes Harpswell Cove.
- **Marine Mammals.** The Marine Mammal Protection Act is not applicable to NAS Brunswick Main Station, Topsham Annex, or McKeen Street housing area because there are no marine activities that take place at NAS Brunswick (Moore 2005).
- **Threatened, Endangered, and Other Sensitive Species.** No federally listed threatened or endangered species are known to reside on NAS Brunswick Main Station, although three state-recognized threatened or endangered species have been sighted. These species are the grasshopper sparrow (state endangered), the upland sandpiper (state threatened), and the clothed sedge (state endangered). The horned lark and vesper sparrow are two additional species that occur at NAS Brunswick that are not listed as threatened or endangered in Maine, but have the potential to be listed in the future. There are no known threatened or endangered species at Topsham Annex or McKeen Street housing area.
- **Geological Hazards.** Two potential geological hazards at NAS Brunswick include earthquakes and coastal landslides. The earthquake zone for NAS Brunswick has a 10 percent chance in any 50 year period of having an earthquake capable of causing

minor damage. Both Harpswell and Buttermilk coves are classified as either low coastal bluff or non-bluff shoreline, which indicates that the shoreline is not at risk of failing in the form of a landslide. Coastal landslide hazard is not applicable to Topsham Annex or McKeen Street housing area because they are not located adjacent to the ocean.

- **Historical Resources.** A 1995 historical buildings and structures survey conducted for portions of NAS Brunswick identified three sites eligible for listing on the National Register of Historic Places (NRHP): Buildings 44, 63, and 64 (steel magazines), each of which possess integrity and met NRHP Criterion C. Other pre-1946 historical buildings and structures at NAS Brunswick did not meet NRHP criteria, due to a lack of demonstrable significance and/or lack of historical integrity. Post-1946 resources with the greatest potential for NRHP eligibility once they reach the age of 50 years were Building 211(field house/former subsistence buiding) and Buildings 226, 227, 517, and 518 (radio communications buildings) (Kincaid 2006). There are no historical resources on Topsham Annex or McKeen Street housing area.
- **Archaeological Resources.** There are no known archaeological sites at NAS Brunswick. Several areas have been identified as possessing high and moderate sensitivity for prehistoric sites located along the northern boundary, along portions of Mere Brook and its tributaries, and the shorelines of Harpswell and Buttermilk Coves. Three previously unrecorded historic archaeological localities have been noted. Additionally, over two dozen localities were identified as having high sensitivity for historic archaeological deposits. There are no archaeological resources on Topsham Annex or McKeen Street housing area.
- **Native American Graves Protection and Repatriation Act.** Native American graves have not been discovered on NAS Brunswick Main Station, Topsham Annex, or McKeen Street housing area (Moore 2005). A 1995 cultural resource survey did not document any information specific to Native American graves and there is no other documentation available specific to Native American graves at NAS Brunswick. Although documentation does not exist regarding any Native American resources, archaeology, graves or otherwise, the “pre-historic sensitive area” might contain such protected resources. In addition, although Native American Tribes of Maine have not participated in any consultations at NAS Brunswick, they have expressed interest if any such resources are found.

1.0 Purpose

The Navy Base Realignment and Closure (BRAC) Program Management Office (PMO) prepared this Environmental Condition of Property (ECP) report for Naval Air Station (NAS) Brunswick, Maine.

This report used existing information to summarize the natural resources, cultural resources, and environmental conditions of NAS Brunswick property. Information was reviewed with installation personnel to ensure all data are current and accurate. Where information was not available, the sources contacted and reference materials sought were documented.

The purposes of the ECP report are to:

- Provide the BRAC PMO with the information it may use to make disposal decisions regarding the property;
- Provide the public with information relative to the environmental condition of the property;
- Assist the local government in planning for the reuse of BRAC property;
- Assist Federal agencies during the Federal property screening process;
- Provide information for prospective buyers;
- Assist new owners in meeting their obligations under the United States (U.S.) Environmental Protection Agency's (USEPA's) "All Appropriate Inquiry" regulations, at such time as they become final; and
- Assist in determining appropriate responsibilities, asset valuation, liabilities, and liabilities with other parties to a transaction.

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2.0 Background

NAS Brunswick, Maine, originally constructed and occupied in March of 1943, was commissioned on April 15, 1943 with the primary mission of training British Naval Command (Royal Canadian Air Force) pilots. During the war years, the station (originally encompassing 1,487 acres) carried out a secondary mission associated with anti-submarine warfare.

After the Air Station was deactivated in October 1946, the land and buildings were leased jointly to the University of Maine and Bowdoin College as annexes to ease the over-crowded conditions at both colleges caused by an influx of students associated with the G.I. Bill (Servicemen's Readjustment Act of 1944). When the station facilities were no longer needed, both colleges terminated their leases in 1949 and the Air Station was taken over by the Brunswick Flying Service. At this time, housing and warehouse buildings were converted for a variety of non-military uses: Hangar One became a skating rink; Hangar Two and the Operations Tower were used as a civilian flying school; Hangar Three housed automobiles; ammunition magazines were used for mushroom farms; and the northern boundaries of the reservation became shrubbery nurseries (Navy 2005).

The Air Station was later selected by the Navy as a prime center for development. The Air Force reached an agreement with the Navy authorizing the construction on the station of an Air Force Control and Warning Facility, as a part of the continental circumferential radar screen.

On March 15, 1951, the dormant-air station was recommissioned as a Naval Air Facility with the established mission of supporting three land-plane patrol squadrons and one Fleet Aircraft Service Squadron, and a planned future mission as a master jet Air Station with the primary mission of anti-submarine warfare. On July 1, 1971, Commander Patrol Wings U.S. Atlantic Fleet/Commander Patrol Wing Five established his headquarters at NAS Brunswick.

Photograph of NAS Brunswick
(obtained from NAS Brunswick website)

At present, three patrol squadrons flying the P3 Orion perform their duties at NAS Brunswick, and it is the Air Station for two reserve squadrons. In addition, NAS Brunswick supports the VPU-1 mission and the Naval Reserve Center, and Air Reserve Center. NAS Brunswick also provides support for ships at Bath, Maine; the Naval Computer and Telecommunications Area Master Station Atlantic Detachment Cutler, Cutler, Maine; Naval Satellite Operations Center – Detachment Alfa, Prospect Harbor, Maine; the U.S. Naval Survival School at Rangeley, Maine; and the Department of Naval Sciences at the Maine Maritime Academy at Castine, Maine.

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3.0 Property Description

NAS Brunswick currently encompasses 2,834 acres (Main Station) in the town of Brunswick, Maine (**Figure 3-1**). Additionally, NAS Brunswick property includes approximately 26 acres of land (fee) and 34 acres of easement interest located north of Route 24 (Bath Road), identified as the North Clear Zone, which was acquired for Air Installation Compatible Use Zone (AICUZ) (Zamoski 2006).

NAS Brunswick is situated between the Androscoggin River to the north and Casco Bay to the south. The station is primarily located on a gently rolling sandy outwash plain that has been deeply incised by streams. The streams flow either to the north into the lower Androscoggin River, or to the south into the fingering bays of the eastern Casco Bay. The landscape of the Air Station is varied, ranging from pine and oak woodlands in undeveloped portions of the station to densely developed main operation-administration areas and runways (Louis Berger 1999).

There are several remote properties associated with NAS Brunswick, as described below.

- The McKeen Street Housing Complex is situated approximately 3 miles from the Main Station on the west side of central Brunswick (**Figure 3-1**). The housing area occupies 70 acres southwest of the intersection of McKeen Street and Baribeau Drive. The site contains 231 units of Capehart housing in a suburban setting. The terrain at McKeen Street is sandy and nearly level.
- The former East Brunswick Remote Radio Transmitter Site is located between Route 1 and Old Bath Road, approximately 3.2 miles northeast of the Main Station (**Figure 3-1**). This Site is situated on level, sandy terrain. The 66 acre tract is adjoined by gravel pits, farmland, and woods. The property is largely covered in blueberry heath. The transmitter and the antenna array has been dismantled. Buildings 523 and 524 were demolished in 1998.
- The Topsham Annex is situated in the neighboring town of Topsham approximately 4 miles north of the Main Station (**Figure 3-1**). Originally the total area of the Annex was 125 acres, containing 177 units of Capehart housing. Currently the annex consists of 74 acres, as portions of the property were transferred to the Maine Administrative School District in 1999 (approximately 45 acres) and to Central Topsham Associates in 2003 (approximately 7 acres). In addition to housing units and associated recreational facilities, the Annex contains operations and training activities. The Annex was formerly an Air Force radar station, and several abandoned structures from that era are located along a narrow arm of the property that climbs to the top of Mount Ararat. The terrain at the Topsham Annex is hilly, and there is a general slope from southeast to northwest across the property. The area surrounding the Annex is wooded and lightly developed.
- Small Point (Rake Station No. 1) is an approximately 0.23-acre parcel of land located approximately 14 miles southeast of the main station in Phippsburg, Maine. The rake station consists of a building including an observation tower. The rake station is inactive, and was last used by the Navy to observe and evaluate (score) the success of aircraft training missions performed off the coast of Phippsburg, Maine at the Small Point Range. (Kincaid 2006).

- Sabino Point (Rake Station No. 2) is an approximately 0.23-acre parcel of land located approximately 14 miles southeast of the main station in Phippsburg, Maine. The rake station consists of a building including an observation tower. The rake station is inactive, and was last used by the Navy to observe and evaluate (score) the success of aircraft training missions performed off the coast of Phippsburg, Maine at the Small Point Range. (Kincaid 2006).

4.0 Environmental Condition Overview – Existing Environmental Information

As part of ECP report activities, extensive record reviews were conducted, and a meeting at the BRAC PMO Northeast office, an on-site inspection, and personnel interviews were held to document current and historic conditions at NAS Brunswick. The meeting at BRAC PMO Northeast office was conducted on September 26, 2005. The on-site inspection was conducted on October 11, 2005 and a follow-up visit was conducted on April 10, 2006.

The BRAC PMO Northeast office as well as site personnel located at NAS Brunswick provided relevant information for this ECP report. Additionally, available reports of previous environmental investigations at NAS Brunswick were obtained and reviewed. Appendix A presents a list of the documents that were reviewed as part of this effort. The information presented in this report was reviewed with installation personnel to ensure all data are current and accurate. Where information was not available, the sources contacted and reference materials sought were documented.

Interviews were conducted with NAS Brunswick personnel during a site visit and in subsequent telephone conversations and e-mail communications. References are presented in Appendix A. Appendix B presents a list of the people contacted during preparation of the ECP report.

The subject of this report includes the information for the Main Station and, when available, includes the off-site locations (i.e., Topsham Annex, East Brunswick Remote Radio Transmitter Site, and the McKeen Street Housing Complex).

4.1 Classification of Environmental Conditions

The Community Environmental Response Facilitation Act (CERFA) of 1992 (amending the Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA] to add Section 120(h)(4) of CERCLA, 42 United States Code (U.S.C.) Section 9620(h)(4)) requires the identification and documentation of uncontaminated real property controlled by the Department of Defense (DOD) components where DOD plans to make excess property available for reuse pursuant to a base closure law. Uncontaminated property is defined as any "real property on which no hazardous substances and no petroleum products or their derivatives were known to have been released, or disposed of." This includes aviation fuel and motor oil. This ECP Report is not intended to identify uncontaminated property in compliance with CERFA and DOD policy. The Navy will comply with its statutory requirement to identify uncontaminated property through additional evaluations and documentation.

Three Environmental Baseline Surveys (EBSs) have been completed for NAS Brunswick which include the Topsham Annex (HRP 1996a), the East Brunswick Remote Radio Transmitter Facility (HRP 1996b), and the Naval Air Station Brunswick housing areas, including The Main Station, Topsham Annex, and McKeen Street (Malcolm Pirnie 2003).

4.2 Installation Restoration Program Sites

In 1987, NAS Brunswick was placed on the National Priority List (NPL) (USEPA ID# ME8170022018, Site ID# 0101073) (EPA 2005). The NPL is the list of national priorities among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the U.S. and its territories. The NPL is intended primarily to guide the USEPA in determining which sites warrant further investigation. Since 1987, NAS Brunswick source areas have been remediated through cleanup activities including excavation and source removal, installation of a groundwater treatment system, and upgrade of underground storage tanks (USTs) (EPA 2005). These activities were implemented as part of the NAS Brunswick Installation Restoration Program (IRP). The IRP is a DOD program developed in 1975 to investigate and manage environmental impacts on military bases. The IRP adheres to all applicable requirements, including those issued by the USEPA, CERCLA, and the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the Maine Department of Environmental Protection (ME DEP) regulations. On October 19, 1990 the Navy entered into a Federal Facilities Agreement (FFA) with the USEPA and the ME DEP that established goals and responsibilities among the Navy and the regulatory agencies and set enforceable cleanup schedules for the IRP sites at NAS Brunswick (Navy 2002a).

The Navy has identified 20 IRP sites at NAS Brunswick since 1983. Currently, there are 12 active sites (Sites 1, 2, 3, 4, 7, 9, 11, 12, 13, 17, POL 1, and POL 2), of which ten have a remedy in place, and eight inactive sites (Sites 5, 6, 8, 10, 14, 15, 16, and 18) at NAS Brunswick (EA and ECC 2005, Drozd 2006). Presented in the next sections are the details concerning each site including suspected material disposed/released, period of operation, and remedial status. **Figure 4-1** presents the locations of the IRP sites at NAS Brunswick. **Table 4-1** is a summary of the IRP sites.

There are no IRP sites associated with Topsham Annex or McKeen Street housing area.

4.2.1 Site 1 Orion Street Landfill – North

Site 1, also known as Operable Unit (OU) 1, is an inactive landfill located north of the golf course. The site occupies a total of 60 acres, although only 8.5 acres were used as a landfill (Navy 1992). From 1955 to 1975, waste oil, solvents, pesticides, petroleum products, paint, aircraft and automobile parts, domestic waste including food, and various unidentified chemicals were disposed of in this landfill (Navy 1992). Additionally, the landfill may have received pharmaceutical wastes, photography-related chemicals, empty hazardous waste chemical containers, waste oil, filter pack material from oil/water separators, paint cans, herbicide and pesticide containers, solvents, and construction debris (Jordan 1990). Documented disposal occurred in a 700 feet (ft.) long by 100 ft. wide unlined trench with a maximum depth of 20 ft. below ground surface (bgs) (Jordan 1990, Navy 1992). A second trench, oriented parallel to and west of the original trench, was also used for waste disposal (Jordan 1990). The site was also used as a borrow pit before and during its use as a landfill. No specific information was found detailing the location(s) where the site soil was re-used for fill (Jordan 1990).

Based on its proximity to Site 3 (see **Section 4.2.3**), located immediately adjacent to the southwest boundary of Site 1, and the similarity in local subsurface geology, historical use, and hydrologic characteristics remediation of Sites 1 and 3 have been combined (Jordan 1990). Based on field observations, approximately 300,000 cubic yards of wastes are estimated to

have been disposed of at Sites 1 and 3 (EA and ECC 2005). The groundwater from these sites is not currently, nor historically, used for domestic use; most of the Air Station is currently connected to a public water supply administered by the Brunswick-Topsham Water District (EA and ECC 2005, Joy 2006c).

Field investigations conducted between 1988 and 1989 identified environmental releases from the landfill that affected surface and subsurface soil, groundwater, Mere Brook sediments, and surface water. Chemical constituents detected in these media included volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), pesticides, metals, and other inorganic compounds (Navy 1992). Additionally, VOCs, SVOCs, pesticides, and other inorganic compounds have been detected in the leachate generated from the landfills (Navy 1992).

The CERCLA Record of Decision (ROD) for Sites 1 and 3, signed in 1992, details the selected remedial alternative for Sites 1 and 3 which was to cap the landfills and install a slurry wall upgradient of the landfills to divert groundwater away from the landfills (EPA 1994). Contaminated groundwater was addressed with installation of a groundwater extraction and treatment system. A Long Term Monitoring Plan (LTMP) was established to sample up to 8 monitoring wells (MWs) to monitor the effectiveness of the remedial actions.

In the Fall of 1994, two groundwater extraction wells (EWs), EW-6 and EW-7, where installed at Sites 1 and 3 to de-water the landfill. Soil was excavated from Sites 5, 6, and 8 and used as subgrade material for the construction of the low-permeability cap over the landfills, and a slurry wall was installed around the western, northern, and eastern perimeters of the landfill footprint (EA and ECC 2005). In the Spring of 1995, the LTMP and operation of the groundwater treatment system were initiated (EA and ECC 2005). The groundwater treatment system included chemical oxidation, flocculation, ultraviolet/oxidation, and clarification and filtration (EPA 1994, EA and ECC 2005), with extraction wells placed to address the groundwater plume associated with Sites 1 and 3 as well as groundwater impacts attributed to Sites 4, 11, and 13, collectively known as the Eastern Plume (EA and ECC 2005). In 1997 the two extraction wells were deactivated because depths to groundwater had dropped below the maximum depth of the landfill debris (EA and ECC 2005).

As of December 2004, 25 long-term monitoring events had been conducted and demonstrated a decreasing trend in VOC concentrations in groundwater (EA and ECC 2005). Generally, inorganic compounds, including metals, have remained stable or decreased slightly. However, sodium concentrations have reportedly increased (EA and ECC 2005). Concentrations of VOCs and inorganics in surface water, sediment, and seep samples are also decreasing or have stabilized (EA and ECC 2005).

The LTMP and Operation and Maintenance of Sites 1 and 3 are currently under review. According to the Second Five-Year Review Report for NAS Brunswick, approved in September 2005, the following actions are planned:

- Finalize the draft Operation and Maintenance Plan for Sites 1 and 3;
- Establish appropriate standards to compare sediment and sediment seep sample for Long-Term Monitoring Plan data;
- Evaluate Land Use Control Implementation Plan (LUCIP).

- Evaluate institutional control boundaries for the sites, which currently include restricting excavation on or adjacent to the landfill cap or within the landfill stormwater management ditches and retaining basin and establishing groundwater use restrictions;
- Expand bi-annual institutional control checklist to include noting construction activities or ground disturbance within the Weapons Compound Area;
- Update the LTMP to current conditions and finalize the Quality Assurance Project Plan (QAPP);
- Update Applicable or Relevant and Appropriate Requirement (ARAR) tables; and
- Evaluate potential impacts of Sites 1 and 3 to Mere Brook (EA and ECC 2005).

According to the Second Five Year Review, the current remedy for Sites 1 and 3, hydraulic containment with recovery and treatment, is expected to be protective of human health and the environment upon attainment of the clean-up goals as presented in the 1992 CERCLA ROD, which is expected to take 30 years to achieve (EA and ECC 2005). During the period of monitoring, exposure pathways that could result in unacceptable risks are being controlled through institutional controls that restrict soil excavation and the usage of the groundwater. In addition, the site remains within a restrictive area of base limiting access only to authorized personnel. Current monitoring data indicate that the remedy is functioning. In order for the remedy to remain protective in the long-term, institutional controls will need to be refined.

4.2.2 Site 2 Orion Street Landfill – South

Site 2, USEPA designated as OU 7, operated as the primary landfill for the Air Station and received domestic waste, solvents, paint, hydraulic oil, and medical supplies from 1945 to *circa* 1955 (EA and ECC 2005). Actual operation of the landfill was less than 10 years as the Air Station was closed between 1946 and 1951 (Jordan 1990). The site is located south of Site 1, Site 3, and Mere Brook in the vicinity of the southern extent of the main runways within the restricted Weapons Compound Area; therefore, access is limited (Navy 1998a). Solid waste was reportedly incinerated at the site before being buried in a 2 acre former borrow pit, which is currently covered with soil and pine trees (Jordan 1990). The groundwater from the site is not currently, nor historically, used for domestic use (EA and ECC 2005).

In 1988 and 1989, a soil gas survey, a ground penetrating radar survey, and a magnetometer survey were conducted. In addition, soil, groundwater, surface water, and sediment samples were collected. Based on laboratory data, environmental impacts consist of iron and zinc in surface water, iron and PAHs in stream sediments, low levels of mercury in leachate seeping out of the stream bank, and VOCs, metals, inorganics compounds, and dichloro-diphenyl-trichloroethane (DDT) in leachate from the landfill itself (Jordan 1990, EA and ECC 2005).

In 1998, the CERCLA ROD was signed for this site. The remedial alternative is Minimal Action; implementation of the Minimal Action Alternative would include institutional controls (including installing a fence and warning signs around the site), the removal of surface debris, the installation of additional monitoring wells, environmental monitoring (including groundwater, surface water, seep, and sediment sampling), 5-year reviews, and modifications to the selected remedy, if necessary (Navy 1998a). In 1999, the surface debris was removed, the depression

backfilled with clean fill, and a soil cap was installed (EA and ECC 2005). Also, signs and fences were erected around the site to limit human and animal exposures (EA and ECC 2005).

According to the Second Five-Year Review, eight monitoring events have been conducted (EA and ECC 2005). VOCs in groundwater have been below method detection limits since 2000, with the exception of trichloroethylene (TCE) which was detected above the federal maximum contaminant level (MCL) (EA and ECC 2005, Joy 2006c). However, the TCE detections in May 2003 are considered a one-time anomaly as a sampling artifact (Joy 2006b, Joy 2006c). Generally, the inorganic compounds are below federal MCLs and are remaining stable, with the exception of chromium (Joy 2006c). There have been two groundwater MCL exceedances of chromium at this site (i.e., MW-242 in May 2003 and MW-241 in November 2004) (Joy 2006c). The long-term monitoring program continues to evaluate inorganic compound concentrations (Joy 2006b). Only iron has been reported above applicable state and federal cleanup standards in surface water (EA and ECC 2005). All other parameters are below target limits.

According to the Second Five-Year Review Report for NAS Brunswick, approved in September 2005, the following actions are planned:

- Establish project action levels for comparing sediment and leachate sediment sample LTMP data;
- Finalize and issue updated QAPP;
- Investigate the area north of landfill to evaluate inorganic and VOC concentrations in the leachate seeps associated with landfill;
- Gain approval to conduct a second fish tissue sampling event in Mere Brook;
- Evaluate LUCIP;
- Evaluate institutional control boundary for site;
- Continue sampling and reporting results from bedrock well at Dyers Corner gate to regulators;
- Install shallow well points to evaluate elevated turbidity in leachate seep samples; and
- Update monitoring performance standard tables (EA and ECC 2005).

The remedy, Minimal Action, is expected to be protective of human health and the environment upon attainment of the clean-up goals as presented in the 1998 ROD, which is expected to take 30 years to achieve (EA and ECC 2005, Navy 1998a). During this period of monitoring, exposure pathways that could result in unacceptable risks are being controlled through institutional controls that include the maintenance of the existing fence, installation of warning signs to notify site personnel of potential hazards around the perimeter of Site 2 and near leachate seeps along Mere Brook, and restrictions on soil excavation and the usage of groundwater (EA and ECC 2005, Navy 1998a). In order for the remedy to remain protective in the long-term, institutional controls will need to be refined (Joy 2006c).

4.2.3 Site 3 Hazardous Waste Burial Area

Site 3, also known as OU 1, is located immediately adjacent to the southwest boundary of Site 1. Site 3 is 1.5 acres in size and operated from 1960 to 1973. Site 3 reportedly received solvents, pesticides, paint, isopropyl alcohol, and petroleum products for burial (Weston 1983, Navy 1992). Based on its proximity to Site 1 and the similarity in local subsurface geology, historical use, and hydrologic characteristics, the remediation of Site 1 and 3 have been combined (Jordan 1990). A description of the historical and current remedial actions and present status of Site 3 are discussed in **Section 4.2.1**.

4.2.4 Site 4 Acid/Caustic Pit

Site 4 is located off Old Gurnet Road between the intersection of Orion Street and Sandy Road. Site 4 is a former disposal pit that was 4 ft. long, 4 ft. wide, and 3.5 ft. deep and was used from 1969 to 1974 for disposing of acids, solvents, and transformer oils (Weston 1983). The quantities of waste disposed of were not recorded. The former location of the excavated disposal pit is now covered by the eastern portion of the Building 584 (Jordan 1990, Mosher 2006a).

A remedial investigation/feasibility study was completed in 1988 and 1989 which included a soil gas survey, soil boring and well installation, soil sampling, and groundwater sampling for organic and inorganic constituents (Jordan 1990). Lead and TCE were reported in groundwater and halocarbons were reported in soil gas immediately adjacent to Building 584. Soil samples could not be collected in the former pit due to the obstruction of Building 584; therefore, impacts to soil were not defined. The TCE groundwater plume is moving southwest towards Sites 1 and 3 and co-mingling with plumes delineated at the Sites 1 and 3, and Sites 11 and 13 (the Eastern Plume) (Jordan 1990).

In June 1992, an interim CERCLA ROD was finalized regarding the Eastern Plume (EA and ECC 2005). The Eastern Plume is a dissolved-phase plume comprised predominantly of chlorinated VOCs originating from Sites 4, 11, and 13. In July 1992, a remedial design was prepared for a treatment system that would address the groundwater impacts at Sites 1 and 3 and the Eastern Plume. In 1994, risk-based groundwater target levels were developed for the Eastern Plume, a LTMP was established, and five groundwater extraction wells were installed in the vicinity of the plume. The groundwater extraction and treatment system was activated in 1995 (see **Section 4.2.1**).

In a 1998 CERCLA ROD, the selected final remedial action for the site soil was determined to be No Further Action (NFA) because the risk for exposure to soil was below USEPA and ME DEP target levels (Navy 1998b). Constituent concentrations in groundwater associated with the Eastern Plume still exceeded the risk-based target levels; however, the interim remedial action of groundwater extraction and treatment established in 1992 and activated in 1995 is currently addressing the groundwater impacts (EA and ECC 2005). The groundwater treatment system was installed in 1995 included units for chemical oxidation, flocculation, ultraviolet/oxidation, clarification, and filtration. Currently the treated water is discharged to the infiltration gallery adjacent to the treatment plant; previously the treated water was discharged to the Brunswick Sewer District. The 1992 CERCLA ROD also established a long-term monitoring program and five-year review submittal for Sites 1 and 3 and the entire Eastern Plume which includes Sites 4, 11, and 13 (Navy 1998b).

In 2000, the First Five-Year Review Report included an evaluation of the Eastern Plume (EA and ECC 2005). This document included recommendations for modifications to the groundwater extraction and treatment system and the establishment of institutional controls including land use restrictions for the Eastern Plume area. In 2001, the ultraviolet oxidation equipment on the treatment system was removed and replaced with an air stripper with carbon polishing to treat the effluent water. Disposal of treated effluent was changed from discharge to the Brunswick Sewer District to the current on-site infiltration gallery.

According to the Second Five-Year Review Report for NAS Brunswick, approved in September 2005, the following actions are planned for the Eastern Plume:

- Finalize revisions to the LTMP and issue updated and revised LTMP;
- Finalize draft QAPP and issue update QAPP;
- Evaluate LUCIP document for the Eastern Plume;
- Continue assessment of occurrence of 1,4-dioxane in the Eastern Plume;
- Install replacement extraction wells in the Eastern Plume;
- Continue collection of natural attenuation data during monitoring events and assess the effectiveness of natural attenuation within the Eastern Plume;
- Optimize the Long-Term Monitoring Plan;
- Develop appropriate actions if Building 584 is demolished, or if soils are disturbed at Sites 4, 11, and 13;
- Develop/refine institutional control boundary for site;
- Conduct additional investigation for new MW-313;
- Collect additional surface water samples in Mere Brook in the vicinity of MW-313;
- Update ARAR tables; and
- Investigate causes of plume shift (EA and ECC 2005).

The Site 4 ROD states that if Building 584 is removed, the soils would need to be reevaluated (Joy 2006c). The current status of the site at the time this report's submittal is NFA for soil and the groundwater contamination is being addressed by the continued operation of the groundwater remedy for the Eastern Plume (EA and ECC 2005). The remedy, hydraulic containment with recovery and treatment, is expected to be protective of human health and the environment by achieving cleanup goals as presented in the 1998 ROD, which is expected to take between 13 and 71 years (EA and ECC 2005, Navy 1998b). During this period of monitoring, exposure pathways that could result in unacceptable risks are being controlled through institutional controls that restrict soil excavation and the usage of groundwater (EA and ECC 2005). In addition, the site remains within a restricted area of the base limiting access only to authorized personnel. Current monitoring data indicate that the Eastern Plume remedy is protective in the short-term; however, follow-on activities as discussed above are required to ensure that the remedy is protective in the long-term.

According to the Agency for Toxic Substance and Disease Registry (ATSDR) a section of the U.S. Department of Health and Human Services, groundwater in the vicinity of the Eastern Plume is not used for drinking water, nor are there plans in the future for domestic use (ATSDR 2005). The majority of NAS Brunswick and the surrounding residents obtain their drinking water from the Brunswick/Topsham Water District.

4.2.5 Site 5 Orion Street Asbestos Disposal Site

Site 5 is located south of the main runway off Merriconeag Road. In 1979, asbestos-lined pipes from demolished NAS Brunswick buildings were disposed of in two trenches in a 0.25 acre area (EA and ECC 2005). The first trench was 3 ft. wide, 20 ft. long, and 7 ft. deep and contained six 1-inch diameter pipes that were between 4 ft. to 12 ft. long. The second trench is approximately 15 ft. wide, 30 ft. long, and 10 ft. deep and contained eight sections of corrugated pipe containing smaller asbestos pipe.

In 1991, a geophysical survey, surface soil sampling, and a physical inspection of the site were performed (EA and ECC 2005). No asbestos was detected in soil samples; therefore, it was determined that no risk to human health or the environmental existed. A 1993 CERCLA ROD detailed the excavation and transportation of the asbestos containing pipes and construction debris from Sites 5 and 6 to Sites 1 and 3 for use as the subgrade material for a low-permeability cap (Navy 1993a). After excavation and removal activities, confirmatory soil samples were collected and the site was backfilled and seeded to re-establish vegetation (EA and ECC 2005). The Navy recommended NFA to the USEPA for this site in the 1993 ROD because the asbestos-containing material was completely removed and no further impacts are present (EA and ECC 2005).

4.2.6 Site 6 Sandy Road Rubble and Asbestos Disposal Site

Site 6 is located between Building 516 and Sandy Road. Approximately 250 cubic yards of construction debris, including asbestos-lined pipes and aircraft parts, were disposed of from an unknown date until the 1970s (Weston 1983). In 1991, a geophysical survey, surface soil sampling, and a physical inspection of the site were performed (EA and ECC 2005). Similarly to Site 5, asbestos was not detected in soil samples; therefore, it was determined that no risk to human health or the environmental existed (EA and ECC 2005). Based on the 1993 CERCLA ROD, the selected source removal action was to excavate and transport the asbestos-containing pipes and construction debris from Sites 5 and 6 to Sites 1 and 3 for use as the subgrade material for a low-permeability landfill cap (Navy 1993a). Following source excavation and removal, confirmation soil samples were collected and the site was backfilled and seeded to re-establish vegetation (EA and ECC 2005). The Navy recommended NFA to the USEPA for this site in the 1993 ROD because the asbestos-containing material was completely removed and no further impacts are present (EA and ECC 2005).

4.2.7 Site 7 Old Acid/Caustic Pit Site

Site 7, also known as OU 7, is located in the northeast portion of the Air Station, northeast of the fuel farm. It was used from 1952 to 1969 for disposal of battery acid, transformer oil, solvents, and caustic liquids. The precise location of the former acid/caustic pit has not been identified and is unknown, although the footprint of the suspected source area is estimated as 3,800 square feet (Navy 2002a). During the period of pit operation, the site was also used as an

outdoor storage area and equipment lay-down area and a Defense Reuse and Marketing Office Facility (Jordan 1990, EA and ECC 2005).

Field investigation activities performed in 1988 and 1989 included a soil gas survey, ground penetration radar, terrain conductivity, test pits, and soil and groundwater sampling (Jordan 1990). During field investigation activities in 1988, a thin layer of blue-gray crystals were identified at 2 ft. bgs in test pits in the northern portion of the site. The crystals were interpreted as acid-salts, the result of liquid battery acid disposal. Impacts identified at the site included pesticides (especially DDT) and PAHs in soil, and elevated concentrations of metals (particularly cadmium and manganese) in groundwater (Jordan 1990).

In 2000 and 2001, a 51-hour pump test was conducted at the site to assess the volume and extent of the cadmium plume and to determine whether groundwater extraction affected cadmium concentrations. The baseline cadmium concentration was 51 parts per billion (ppb) and after the pump test the cadmium concentration was 41 ppb (versus the federal MCL and the state target limit of 5 ppb) (EA and ECC 2005). Subsequent to the pump test, additional soil sampling activities were conducted to identify the source area. Approximately 400 cubic yards of soil were excavated; however, based on soil sampling results only 140 cubic yards of soil was transported off-site for disposal. The remaining 260 cubic yards were redistributed on-site (EA and ECC 2005).

In 2002, a CERCLA ROD was signed for the site. The selected remedy was institutional controls, including soil and groundwater use restrictions, and long-term monitoring (Navy 2002a). The goals of the long-term monitoring program were to assess variations in the concentrations of cadmium and manganese concentrations in groundwater to (1) determine the effectiveness of natural attenuation; (2) assess whether contamination is migrating off-site; (3) assess variations in groundwater flow patterns; and (4) to monitor the structural integrity of the groundwater monitoring wells (Navy 2002a). The first of biannual groundwater sampling events occurred in the Spring of 2005 (EA and ECC 2005).

According to the Second Five-Year Review Report for NAS Brunswick (EA and ECC 2005), approved in September 2005, the following actions are planned:

- Finalize and issue updated QAPP;
- Install two piezometers and conduct quarterly gauging to assist with location of additional well(s) for the LTMP;
- Revise LTMP to include new groundwater monitoring points;
- Install new groundwater monitoring wells pending completion of the quarterly gauging program and regulatory approval;
- Generate LUCIP;
- Determine where the soil was spread out across the site;
- Evaluate institutional control boundary for site including land use restrictions; and
- Update ARAR tables.

The remedy at Site 7, institutional controls with groundwater monitoring, is expected to be protective of human health and the environment upon attainment of the cleanup goals, as presented in the 2002 CERCLA ROD, which is expected to take up to 10 years to achieve (Navy 2002a, EA and ECC 2005). During this period of monitoring, exposure pathways that could result in unacceptable risks are being controlled through institutional controls, which restrict soil excavation and the usage of the groundwater (EA and ECC 2005). In addition, the site is currently undeveloped. In order for the remedy to remain protective in the long-term, institutional controls will need to be refined.

4.2.8 Site 8 Perimeter Road Disposal Site

The site is located along the northern boundary of NAS Brunswick property and is divided into two areas north and south of Perimeter Road. The site is located between two tributaries of a brook that flows north toward the Androscoggin River (Jordan 1990). Approximately 1,800 ft. to the northwest (upgradient) of Site 8 is the Jordan Avenue well field, a local municipal well field. From 1964 to 1974, Site 8 was used to dispose of construction and demolition debris including concrete, scrap metal, industrial wastes, and asphalt rubble. Additionally, solvents containing TCE, MEK, and toluene were reportedly disposed of at this site. A ravine located to the northeast of the site is also partially filled with landfill debris. Localized groundwater flow at the site is radial to the surrounding surface water bodies (Jordan 1990).

In a 1993 a CERCLA ROD was signed, PAHs in surface and subsurface site soils were determined to be the only constituents that posed a risk to human health and the environment (Navy 1993b). The risk assessment also concluded that Site 8 did not pose any risk to the Jordan Avenue well field (EA and ECC 2005). The construction debris, rubble, and PAH-impacted soils were excavated and transported to Sites 1 and 3 for use a subgrade material for the landfill cap (Navy 1993b). Subsequent to excavation activities, confirmatory soil samples were collected, the excavation backfilled, and the area seeded for re-establishment of vegetation (EA and ECC 2005). The Navy recommended NFA to the USEPA for this site in the 1993 ROD, because the construction debris and the PAH-impacted soil were completely removed and no further impacts were present (EA and ECC 2005).

4.2.9 Site 9 Neptune Drive Disposal Site

Site 9, also known as OU 6, was the first landfill used at the Air Station. Site 9 is located in the vicinity of the former Barracks Buildings 218, 219, 220, and Buildings 201 (former Chief Petty Officer's (CPO) Club, current Galley) and 293 (former transformer storage station, demolished (Jordan 1990, Kincaid 2006). This site is approximately 20 acres in area, although only 5 acres was used for disposal (Jordan 1990, EA and ECC 2005). An incinerator was located in the vicinity of the northern end of Building 220 and was used from 1943 until 1946, after which it was abandoned and Air Station disposal operations were transferred to Site 1 and Site 2 (Jordan 1990, EA and ECC 2005). Reportedly, solid waste was burned in the incinerator and the resulting ash was disposed in the landfill. Additionally, liquid waste and solvents were poured on the ground and burned in the vicinity of Building 201 (Jordan 1990). Approximately 16,000 cubic yards of ash was deposited between two disposal areas: one disposal area was located immediately west of the incinerator; and a second disposal area was located behind Building 201 (Jordan 1990, EA and ECC 2005). According to Air Station construction maps, a 42-inch diameter drain pipe was located adjacent to the second disposal location and extended between Buildings 201 and 293 and discharged to an outfall in the local unnamed stream (EA

and ECC 2005). Prior to the construction of barracks in 1953, the landfill was abandoned and capped with soil and the drain pipe was reportedly excavated and disposed during the barracks construction activities. In 1953, Buildings 218 and 219 were built directly over the former landfill. Additionally, the septic system associated with Building 201 may have been a source of impacts to soil and groundwater. Building 201 is bordered to the north and south by two unnamed streams with flow into Picnic Pond located approximately 2,000 ft. south of the site.

In 1988 and 1989, a soil gas survey, test pits, soil and groundwater sampling were performed (Jordan 1990). Additionally, sediment and surface water sampling were performed in the unnamed streams in Picnic Area Pond. Elevated concentrations of metals, VOCs associated with solvents, and hydrocarbons were detected in groundwater and leachate seeps were reported from the banks into the northern of the two unnamed streams. PAHs were reported in sediment and hydrocarbons in surface water. There are three distinct areas of impacts at Site 9 as follows: (1) the location of the former incinerator and ash disposal, (2) the Building 201 disposal area, and (3) the streams and impoundment ponds adjacent to the site (EA and ECC 2005).

In 1994, an interim CERCLA ROD was signed for the site that recommended natural attenuation and long-term monitoring of groundwater, sediment, and leachate seeps. An investigation to identify the source of vinyl chloride was also required by the interim CERCLA ROD. Between 1995 and 1996, field investigations conducted at the site identified VOC concentrations, including vinyl chloride, in excess of applicable state and federal groundwater standards, although the source area was not identified. A LTMP was established and initiated in 1995 (EA and ECC 2005). In 1999, a final CERCLA ROD was signed which recommended natural attenuation and long-term monitoring and institutional controls (Navy 1999). The barracks have been demolished and the Site 9 ash landfill is planned to be removed in spring/summer 2006 (Joy 2006b).

According to the Second Five-Year Review Report for NAS Brunswick, approved in September 2005, the following actions are planned:

- Finalize revision to the LTMP and issue updated and revised LTMP;
- Finalize draft QAPP and issue QAPP;
- Finalize and issue the LUCIP;
- Finalize draft final direct-push investigation reports for 2003 and 2004;
- Install new monitoring well in southwestern corner of the current institutional control boundary;
- Evaluate institutional boundary for site; and
- Update ARAR tables (EA and ECC 2005).

The remedy at Site 9, monitored natural attenuation with long-term monitoring and institutional controls, is expected to be protective of human health and the environment upon attainment of the cleanup goals as presented in the 1999 CERCLA ROD, which was expected to take 20 years to achieve (Navy 1999, EA and ECC 2005). During this period of monitoring, exposure pathways that could result in unacceptable risks are being controlled through institutional

controls that restrict excavation of soils and the usage of the groundwater (EA and ECC 2005). Current monitoring data indicate that the remedy is functioning as required; however, additional monitoring in the southwestern corner of the site is needed to ensure the remedy is protective in the long term and institutional controls will need to be refined.

According to site personnel, three of the existing or former buildings on the site include Buildings 29, 201, and 212 (Joy 2006c).

Building 29, Auto Hobby Shop – The facility was built in 1986. An oil/water separator and its associated piping were installed at the time of building construction. One area was designated for fiberglass work and/or painting operations. Small quantities of paint and thinner were used in the paint booth in 1991. Painting operations ceased and the paint booth was removed in mid-1992. In the building, there was also a woodworking shop that was converted to a ski rental shop in recent years. A vented, bench welding area in the building is infrequently used. Otherwise, there are several bays for tire changing, brake repairs, etc. The bays have aboveground electric lifts that have hydraulic fluid reservoirs.

A 550-gallon UST intended for waste oil storage was installed on the southern side of the building in 1987 and was removed in January 1994. A site assessment report was generated for this tank removal action. The report dated 18 February 1994 was submitted to the ME DEP by Millett Associates. This report indicates that this tank was reportedly never used and was dry upon removal. During the removal action, there was no evidence of discharge or leaks, and the fiberglass tank and steel piping were found to be in excellent/good condition. The Benzene Equivalent Concentration (BEC) around the perimeter of the tank ranged from 0.7 to 6.7 parts per million (ppm), while the BEC in the tank cradle and anchor area were 2.6 and 2 ppm, respectively. The action level for remediation was 50 ppm.

In 1994, two small ASTs were installed for waste oil storage (near the former UST location) but were then replaced in 1996 by a 500-gallon concrete-vaulted AST, which has a fill sink system inside of the facility to prevent spills during filling operations. This AST also has a spill bucket and double-walled aboveground piping and is located in a paved area.

Prior to 1999, heating requirements were met by the Building 233 Central Stream Plant and steam distribution system. In 1999, a 2,000-gallon fuel oil tank was installed on the eastern side of the building as part of the base-wide Boiler Decentralization and Facility Consolidation project. The tank is double-walled with double-walled piping and is also located in a paved area. Currently, the building's boiler primarily uses natural gas.

Building 201, New Galley – Building 201 initially was used as an enlisted club and later served as an Officer's Club. It was converted to the Galley in the early 1990s. UST records do not indicate that any USTs have been located at this building. Until 1999, heating requirements were met by the Building 233 Central Steam Plant and steam distribution system. The 2,000-gallon, double-walled AST was installed on the eastern side of the building as part of the base-wide Boiler Decentralization and Facility Consolidation project in 1999. Currently, the building's heating system primarily uses natural gas. A 250-gallon cooking grease storage container is located on the eastern side of the building. A self-contained generator/diesel AST (100-gallon) set has just been installed this spring on the northwestern corner of the building.

Building 212, Barrack Building – This barrack building was one of the northern barracks that were demolished during the early 2000s. A self-contained 10kW-emergency generator/25-gallon diesel AST set located at this building was removed in 1998.

4.2.10 Site 10 Defense Fuel Support Point Casco Bay, Harpswell

Site 10 was a contractor-operated site located in Harpswell, Maine approximately 10 miles south of the NAS Brunswick (Helland 2005, Weston 1983, Zamorski 2006). The property holder of Site 10 was the Navy Petroleum Office, Fort Belvoir, VA, and the facility operator was the Defense Logistics Agency/Defense Energy Support Center (DLA/DESC) (Zamorski 2005). The property consisted of 119.32 acres, which were conveyed to the Town of Harpswell by two deeds: (1) 118.5 acres on October 22, 2001; and (2) 0.82 acres on September 14, 2005 (Zamorski 2005). DLA/DESC was responsible for and performed remediation of the property (Zamorski 2005).

The depot began operation in 1956 as a fuel storage and distribution location (Weston 1983). There were a total of 14 aboveground storage tanks (AST) on-site: one 50,000 barrel (bbl) (2,100,000-gallon) containing aviation gasoline; five 50,000 bbl (2,100,000-gallon) containing jet fuel (jet petroleum [JP]-5); and eight 80,000 bbl (3,360,000-gallon) containing JP-5. Fuel was delivered to the NAS Brunswick tank fuel farm by a 10-mile long pipeline constructed of two parallel steel pipes, 6-inches and 8-inches in diameter, located approximately 2.5 ft. bgs. The ASTs were switched from leaded to unleaded fuel between 1963 and 1975. An unknown quantity of leaded fuel was discharged to the ground during a 1963 tank cleaning operation. Additionally, there were a number of spills over the period of operations, and soil surrounding the tanks was reportedly saturated with fuel. The DLA/DESC installed two recovery wells in 1982 from which approximately 5 gallons of fuel were recovered per day (Weston 1983). NFA was recommended because migration off-site was determined to be unlikely (Weston 1983). According to Navy personnel, the site was abandoned and any residual impacts were mitigated by the DLA/DESC and the property was transferred to the Town of Harpswell (Helland 2005).

The remaining property (reported as excess but not yet disposed of) consists of a 30-ft. wide easement and right-of-way improved with two underground pipelines, traversing approximately 10 miles between Defense Fuel Support Point Casco Bay and NAS Brunswick, including a section of pipeline on the NAS Brunswick property, and a 10-ft. wide access easement from Route 123 to the pipeline scraper pit. The steel pipelines (one 8-inch diameter and one 12-inch diameter) were used to transfer JP-5. In 1991, the pipelines were removed from service and subsequently drained and cleaned (Zamorski 2006). In 1997, an EBS of the pipeline and easement between Site 10 and NAS Brunswick was performed by DLA/DESC (Zamorski 2006). The ME DEP has several spill reports on file. All of the reports are associated with the fuel farm area and only one release appears to be associated with the pipeline outside the NAS Brunswick property boundary (GZA 2000). The release occurred 1.7 miles north of the DLA/DESC fenceline as a result of pinhole leak. Approximately 40 feet of pipeline was replaced and impacted soil was excavated and disposed of off-site (GZA 2000). Additionally, a portion of the pipeline within the NAS Brunswick property boundary appears to be underlain by an area of chlorinated solvent-impacted groundwater, part of the Eastern Plume, although no environmental impacts to soil or groundwater have been attributed to this section of the pipeline (GZA 2000). In June 1999, four test pits were excavated at the direction of the ME DEP to assess the condition of the pipeline and the adjacent soil (GZA 2000). No evidence of

petroleum contamination was observed during test pitting activities are subsequent laboratory analysis (GZA 2000).

The Navy has no documentation of a ROD for Site 10 or when extraction activities were terminated or what the current status of this site is. DLA/DESC managed this site (Kincaid 2006).

4.2.11 Site 11 Fire Training Area

Site 11 is located off Old Gurnet Road between Orion Street and Sandy Road. Site 11 is adjacent to and east of Site 4. Firefighting exercises have been conducted at Site 11 from the 1950s until 1990 (Jordan 1990). Combustible liquids, including fuels, waste oils, solvents, and other miscellaneous liquids were used to conduct the training activities. Originally, practice fires were set directly on the grass substrate. In 1987, the test burn site was modified to include a circular concrete liner surrounded by an earthen berm and a 6,000 gallon UST north of the fire pit that contained unburned fuel.

A remedial investigation/feasibility study was completed in 1990 which included a soil gas survey, test pits, soil boring advancement, soil sampling, and groundwater sampling for organic and inorganic compounds (Jordan 1990). In groundwater, 1,1-dichloroethane, 1,2-dichloroethene, trichloroethane, and trichlorothene were reported and chlorinated solvents and fuel-related products including PAHs were detected in site soils (EA and ECC 2005). Based on test pit sampling results, the contaminated soil was estimated to be approximately 50 ft. by 100 ft. area (EA and ECC 2005). In December 1994, buried 55-gallon drums and metallic debris were excavated from the site (Halliburton 1995). In June 1995, the concrete training pad and 6 to 10 ft. of underlying soil were excavated. No waste disposal documentation was identified concerning how and where the soil and concrete debris were disposed (EA and ECC 2005). Trichloroethene was detected at maximum concentrations of 6.5 milligrams per kilogram (mg/kg) in post-excavation soil samples. The excavation was backfilled and seeded. A risk assessment determined that although residual soil and groundwater impacts exist at the site, they pose no excess risk to human health and the environment.

A 1998 CERCLA ROD documents an NFA decision for site soils. Groundwater impacts at the site, attributed to the Eastern Plume (Navy 1998b), contained constituent concentrations exceeding applicable target levels; however, an interim remedial action of groundwater extraction and treatment to address the groundwater impacts was established in 1992 (Navy 1992). A groundwater treatment system installed in 1995 includes units for chemical oxidation, flocculation, air stripper with carbon polishing, clarification, and filtration. Treated water was initially discharged to the Brunswick Sewer District facility but is now reclaimed through an infiltration gallery located on NAS Brunswick property (EA and ECC 2005). The 1998 CERCLA ROD also established a long-term monitoring program and five year review submittal for Sites 1 and 3 and the entire Eastern Plume that includes Sites 4, 11, and 13 (Navy 1998b). A discussion of historical and current remedial actions and present status of the Eastern Plume are included in **Section 4.2.4**.

4.2.12 Site 12 Explosive Ordnance Detonation Training Area

Site 12 Explosive Ordnance Detonation (EOD) Training Area is located in the southwestern portion of the Air Station in a large open area isolated from other NAS activities. The site was

operated from 1981 until 2004 as a training area and facility for destruction of small quantities of ordnance, pyrotechnics, and privately manufactured explosive devices (EA and ECC 2005). The former facility consisted of a 60 ft. by 100 ft. area surrounded by a 5 to 6 ft. high earthen berm. A control bunker is located approximately 100 ft. from the detonation pit. In 1989, two small demolition craters and a dumpster were located within the bermed area. The dumpster was reportedly used for flashing small quantities of explosives and/or propellants such as grenade fuses.

In 1989, three test pits were excavated to depths of 2 to 6 ft. bgs within the bermed area (Jordan 1991). A used solid rocket-fuel booster was recovered from TP-1201 at approximately 2 ft. bgs. Soil samples were collected; however, no monitoring wells were installed. Soil was analyzed for explosives and explosives by-products including 2,4,6-trinitrotoluene (TNT), cyclotrimethylenetrinitraniine, cyclotetramethylenetetranitramine, 2,4-dinitrotoluene, 2,6-diinitrotoluene, and tetyrl (EA and ECC 2005). The soil samples were also analyzed for metals associated with explosives material including cadmium, chromium, mercury, lead, phosphorus, and total nitrogen. Concentrations of mercury (mostly derived from mercury fulminate which is present in fuses and detonators) and nitrate/nitrite (which may be related to burning of explosives materials) were detected in soil above applicable federal and state standards in soil (Jordan 1991). However, no explosives compounds were detected in soil. Exposures to impacts in soil at the site are below levels considered to be a risk to human health.

No remedial actions have been taken at Site 12 and no ROD has been submitted (EA and ECC 2005). The Second Five-Year Report, dated September 2005, recommended further investigation of the soil and groundwater to confirm the 1991 RI/FS findings and determination of whether continued use until 2003 has impacted the site (EA and ECC 2005, Joy 2006c). There is no evidence to indicate that perchlorate was ever a constituent of concern during the 1989 soil sampling activities; therefore, it is unknown if any perchlorate impacts exist. Site 12 requires a supplemental preliminary assessment including research into recent and historic use as EOD range and an ordance safety evaluation and sweep of the site with potential ordnance clearance prior to further investigation under the IRP (Kincaid 2006).

4.2.13 Site 13 Defense Reutilization and Marketing Office Area

Site 13 is located off Gurnet Road, south of Building 584 and Sites 4 and 11. The Defense Reutilization and Marketing Office (DRMO) Area is a paved, fenced area approximately 280 ft. by 300 ft. (EA and ECC 2005). During the early 1970s, three tanks (one 10,000-gallon steel UST and two 5,000-gallon USTs) were installed at the site for storage of waste oil, solvents, and diesel (Jordan 1990, EA and ECC 2005). In 1986, the 10,000-gallon steel diesel UST was removed and replaced with a fiberglass UST that was later removed and replaced with an AST (Jordan 1990, EA and ECC 2005). The other two USTs were removed in 1986 and 1989, but were not replaced. No soil was excavated during the tank removal activities (EA and ECC 2005). No tightness test data for the USTs were encountered during the ECP file review. A site assessment for a 1994 UST removal at the DMRO complex (Site 13) indicated that Benzene Equivalent Concentrations (BECs) during removal were in the 40-parts per million (ppm) range, below the 50 ppm ME DEP trigger level (Joy 2006c).

In 1988 through 1989, site characterization activities were performed at the site including a soil gas survey, test pits, soil borings, and soil and groundwater sampling (Jordan 1990). Pesticides were encountered in surface soil samples, SVOCs were detected in subsurface soils, and VOCs

were reported in groundwater samples (Jordan 1990). No significant risk was identified for the site, based on the rationale that soils are inaccessible (the site is fully paved), and groundwater is not used as a domestic water source (EA and ECC 2005). Additionally, groundwater underlying Site 13 is included in the Eastern Plume which is being treated by a groundwater pump and treat system since 1995 (Navy 1998b). A 1998 CERCLA ROD was signed and documented the NFA decision for soil because site soils are inaccessible, groundwater impacts are being treated by a groundwater treatment system (Navy 1998b). Information on past and present remedial actions and present status of the Eastern Plume are included in **Section 4.2.4**.

4.2.14 Site 14 Old Dump #3

Site 14 was a landfill that most likely operated prior to and during World War II before the Air Station was decommissioned in the late 1940s (EA and ECC 2005). Site 14 is located between Runway I-19 and Taxiways A and D, which were built in 1951. Based on a magnetometer survey conducted across a 6 acre area, no metallic debris remains at the site. No test pits or groundwater or soil sampling were performed. An Environmental Assessment (EA) concluded that the former dump had been excavated when the runways were built and, therefore, NFA was recommended for the site. No documentation of a final ROD was identified for this site, however the site was addressed in a Consensus Statement dated July 18, 2001 recommending NFA for Sites 14, 15, 16, and 18 (EA and ECC 2005).

4.2.15 Site 15 Merriconeag Extension Debris Site

Site 15 is located southeast of the golf course. In 1990, a NAS Brunswick employee reported a soil and concrete rubble dam that had created a 0.75-acre pond on an unnamed stream (EA and ECC 2005). There are no historical records of dumping at this location. In November 1992, a site assessment was performed including a magnetometer survey, test pits, soil, surface water, and sediment sampling. None of the detected constituent concentrations exceeded applicable state or federal standards. Asbestos cement pipe and scrap metal were removed from the test pits and disposed of in 1999. A final magnetometer survey demonstrated that all ferrous-containing debris had been removed and EA recommended NFA at the site No documentation of a final ROD was identified for this site; however, the site was addressed in a Consensus Statement dated July 18, 2001 recommending NFA for Sites 14, 15, 16, and 18 (EA and ECC 2005).

4.2.16 Site 16 Swampy Road Debris Site

Site 16 is located along the western bank of a stream on the golf course (EA and ECC 2005). Although there is no historical record of disposal at this site, an NAS Brunswick employee reported unspecified debris across a 1,700 ft. section of the stream. In November 1992, a magnetometer survey, test pits, and soil, surface water, and sediment sampling were conducted. EA recommended NFA at the site after all the debris was removed, because no samples exceeded applicable standards. A risk assessment was not performed for this site. No documentation of a final ROD was identified for this site, however the site was addressed in a Consensus Statement dated July 18, 2001 recommending NFA for Sites 14, 15, 16, and 18 (EA and ECC 2005).

4.2.17 Site 17 Former Pesticide Shop (Building 95)

Site 17 is located at the corner of Fifth Street and Avenue B. Site 17 is the location of the former Building 95, where pesticides and herbicides were stored and mixed from 1955 to 1985 (ABB 1994). During the operation of the building, pesticides were released over a 1-acre area at the site. In 1990, four soil samples were collected at the site for analysis of pesticides, dichlorodiphenyldichloroethylene (DDE) and DDT were reported at all four sampling locations (EA and ECC 2005). During a second soil sampling event in 1992, herbicides and pesticides, including DDT, were detected in excess of applicable state and federal standards and an area of impacted soil was delineated (ABB 1994). Remedial actions were conducted in 1996, including the demolition of three buildings (Building 95, Building 31, and a storage building) and soil excavation (EA 2003). Soil was excavated to depths of 1 to 7 ft. bgs and a total of 1,260 cubic yards of soil were disposed of at a permitted hazardous waste facility (EA 2003, EA and ECC 2005). A permeable geotextile liner was installed at the bottom of the excavation and the excavation was backfilled with clean fill (ABB 1994, EA 2003). As part of the LTMP for the site, site monitoring wells are sampled semi-annually for pesticides and herbicides as historically 4,4-DDE, 4,4-DDT, endrin, alpha chlordane, gamma chlordane, and heptachlor epoxide have been reported in groundwater (EA 2003, EA and ECC 2005). An additional 45 cubic yards of soil were removed in October 1994 from four areas north of Avenue B. Then in December 1994 an additional five cubic yards of soil was excavated from two areas in the vicinity of the former septic tank and leach bed (EA and ECC 2005). Some residual soil contamination exists at the site and a military dog kennel was constructed north of the site (Joy 2006c). The site is still under investigation and there is currently no ROD in place (EA and ECC 2005).

The Second Five-Year Review Report, dated September 2005, recommended the following actions:

- Generate Consensus Statement
- Excavate and dispose of pesticide contaminated soil that was placed south of Avenue B in 1994
- Finalize Removal Action report
- Conduct sampling to support clean closure of the site
- Develop site-specific boundaries (EA and ECC 2005, Joy 2006c).

4.2.18 Site 18 West Runway Study Area

Site 18 is located in a seep approximately 650 ft. west of Runway I-19 between Mere Brook and Ordnance Road No. 3 (EA and ECC 2005). The seep is in the vicinity of a former ordnance bunker that was dismantled in the mid-1970s. In 1992, a NAS Brunswick employee observed water with a surface sheen leaching out of the hillside along Ordnance Road No. 3. NAS Brunswick has no records of disposal at this location. In 1993, a magnetometer survey, a ground penetrating radar survey, and test pits were conducted. During these field activities soil samples, seep water samples, surface water and sediment samples from Mere Brook were collected and analyzed for VOCs. All concentrations were reported below applicable state and federal standards. During excavation of the test pits, fill material and metallic debris were uncovered and excavated. No documentation of a final ROD was identified for this site,

however the site was addressed in a Consensus Statement dated July 18, 2001 recommending NFA for Sites 14, 15, 16, and 18 (EA and ECC 2005).

4.2.19 POL 1 Old Navy Fuel Farm

Petroleum, Oil, and Lubricants (POL) 1 Old Navy Fuel Farm is located in the northeast corner of the Air Station between Fitch Avenue and Sixth Street (EA 1998). Currently the site consists of two baseball fields, a grassy area, and paved access roads (EA 2005). This site operated from 1943 to 1993 and included nine USTs within two separate petroleum bulk storage tank farms (EA 1998). The older, western tank farm had five USTs as follows: three 100,000-gallon tanks for petroleum sludge, unleaded gasoline, and aviation gasoline; and two 25,000-gal tanks containing ethylene glycol. The eastern tank farm consisted of four 567,000-gal tanks containing JP-5 (Rickel 2006b). In 1993, the site was decommissioned and all USTs and associated piping were removed and the site was backfilled to surface grade.

There are two distinct dissolved phase hydrocarbon plumes at the site, one from each of the tank farms (EA 1998). A soil vapor extraction/air sparging system for remediation of the vadose and the saturated zone was installed in 1996 (EA 2005). Later that year during a pre-start investigation it was discovered that the water table elevation was at or above the level of the lateral soil vapor extraction intake screens, preventing operation of the soil vapor extraction system. Since operation of the soil vapor extraction system was not possible, the Navy obtained approval for ME DEP to install a biosparging system to enhance *in situ* biodegradation of the petroleum impacts. A biosparging system was installed at the site and operated continuously from August 1996 until 1998, with only minor interruptions to make repairs or system adjustments (EA 1998, Joy 2006c). In 1998, the biosparging system was de-activated to allow completion of system modifications of the soil vapor extraction system (EA 2005). The modifications included installation of a dual-phase extraction and separation system which rendered the system operable despite the water table elevation. The soil vapor extraction remediation system operated from March 1999 to July 1999, when the vapor-phase granular activated carbon emission treatment system became saturated. Based on the rapid saturation of the carbon, the Navy concluded that excavation of source area soils and monitored natural attenuation were the most suitable remediation strategy. In September 2000, approximately 15,000 cubic yards of residual source area soils was excavated and disposed of off-site. During the interim period prior to soil excavation, the biosparging system was re-activated.

Historically semi-annual groundwater sampling for VOCs has demonstrated a decreasing trend in benzene, toluene, ethylbenzene, and xylene (BTEX), methyl tertiary-butyl ether (MTBE), total petroleum hydrocarbons-diesel range (TPH-DRO), and total petroleum hydrocarbons-gasoline range (TPH-GRO) concentrations (EA 1998). In the most recent report detailing the findings of the September 2004 groundwater sampling event, there were no reported VOC exceedances of the applicable state cleanup standards evidence of the effectiveness of the natural attenuation alternative (EA 2005). Additionally the report concluded that off-site migration of the hydrocarbon plume was not occurring, due to natural attenuation of constituent concentrations within the onsite plume.

4.2.20 POL 2 Navy Exchange Service Station

The Navy Exchange (NEX) Service Station was built and began storage and distribution in 1957 with two 5,000-gallon single-walled steel gasoline USTs (Navy 2002a). In 1974, the two existing

USTs were removed and replaced with three 10,000-gallon single-walled steel gasoline USTs, which were connected to the fueling islands with 2-inch single-walled steel product line. There is no UST removal or closure report on file for the two 5,000-gallon USTs. One 1,000-gallon fuel oil UST was installed and then reportedly replaced with a 550-gallon AST in 1975. A groundwater recovery system was installed to mitigate gasoline odors in 1984 and operated for one year, with extracted groundwater discharged to the storm sewer system with approval from the ME DEP. The three steel USTs were removed in October 1992 and replaced in 1993 with three 10,000-gallon double-walled steel jacketed fiberglass USTs containing regular, mid-grade, and premium unleaded gasoline. Petroleum product releases appear to have been related to corroded steel product lines that were in use from 1975 through early 1992 (Tetra Tech 2004). In 1995, a Stage II vapor recovery system was installed to minimize release of gasoline vapors to the atmosphere. In October 1996, all three piping sumps were replaced along with fittings and concrete rings due to water leakage (Joy 2006c). At that time, a broken flex protector on one of the secondary containment lines under the dispenser was replaced, and an air test was performed (Joy 2006c). In March 1999, additional upgrades were made to the existing UST system: replacement of the polyvinyl chloride (PVC) interstitial space risers on the three USTs with steel risers repositioning of the existing vent piping and manifold in accordance with ME DEP Chapter 118; installation of new underground 2-inch and 3-inch Ameron fiberglass piping was installed; and re-routing of the vapor recovery line to the regular unleaded UST from the premium unleaded UST.

Facility records indicate that a fuel release occurred in March 1998 which was the result of a leak from the secondary product piping into the piping sump (Rickel 2005). The leak was repaired in August 1998 during installation of a new dispenser sump and piping. NAS Brunswick personnel worked directly with the ME DEP in investigating the leak and in coordinating the repair work (Joy 2006b).

Additional remedial activities include the removal and off-site disposal of 440 tons of petroleum-impacted soil in 1992 (Tetra Tech 2005). A soil vapor extraction/air sparging system operated from 1993 to 2003. While the soil vapor extraction/ air sparging had been effective in removing some of the petroleum hydrocarbons from the subsurface soil, it was not effective in addressing the sorbed-phase mass present in the saturated overburden materials. In 2002 a limited in-situ chemical oxidation pilot test was performed. The application of the in-situ chemical oxidation resulted in the unwanted partial mobilization of sorbed-phase gasoline range organics (GRO). In 2005 a pilot test was performed to assess the effectiveness of a denitrification-based biodegradation process in which a reagent that stimulates the growth of naturally occurring denitrification microbes is applied to subsurface soils through injection into monitoring wells, thereby increasing the rate of biodegradation of petroleum hydrocarbon contamination at the NEX Service Station. Based on groundwater sampling results post-pilot test, there did not appear to be discernible changes in GRO concentrations, however, stimulation of the microbial population growth and increasing the biodegradation processes will require time because the growth of the biological system is non-linear. In the March 2006 Draft Round 2 Summary Report for the Denitrification-Based Biodegradation Pilot Test, it was concluded that there has been some decrease in GRO concentrations (Joy 2006c). This pilot test will be continued in an effort to achieve successful remediation of the remainder of the GRO-contaminated soil (Joy 2006c).

4.3 Storage Tanks

4.3.1 Underground Storage Tanks

Most of the regulations concerning USTs are contained in the 40 Code of Federal Regulations (CFR) Part 280 and 40 CFR Part 281, although codification of the state of Maine program is found in 40 CFR Part 282.69. The State of Maine is approved to administer and enforce an underground storage tank program in lieu of the federal program under Subtitle I of the Resource Conservation and Recovery Act of 1976, as amended, 42 U.S.C. 6991 *et seq*. The State's program, as administered by the ME DEP was approved by USEPA pursuant to 42 U.S.C. 6991c and part of 281 of chapter 282.69. USEPA approved the Maine program on February 18, 1992, and the approval was effective on March 18, 1992.

There are currently 17 USTs in use at NAS Brunswick Main Station (4 UST systems consist of ASTs with underground piping), variously containing diesel, fuel oils #1 and #2, unleaded fuel, jet fuel and propylene glycol and 12 USTs filled with concrete and abandoned in-place at Topsham Annex (Rickel 2006b). All USTs on-site are currently registered with ME DEP and NAS Brunswick personnel notify the ME DEP if any USTs are removed or installed (Rickel 2006b). Records of the status of the tanks compliance and annual inspections per ME DEP regulations are maintained at NAS Brunswick (Rickel 2006a). **Table 4-2** presents the USTs on-site, along with their building location, size, contents, and year of installation. **Figure 4-2** presents the locations of active USTs.

At one time, there were 525 USTs in use on-site. The tanks were removed and either replaced by ASTs or removed with no replacement due to building demolition or natural gas usage (Joy 2006c). Several of the former tanks were discovered to be leaking. **Sections 4.2.10** (Harpswell Fuel Depot), **4.2.13** (DRMO), **4.2.19** (POL 1 Old Navy Fuel Farm), and **4.2.20** (POL 2 Navy Exchange Service Station) describe some specific UST removal, associated soil and groundwater investigations, and remedial actions taken.

Between 1983 and 1995, all heating fuel USTs (fuel oil #2) for housing units were removed from NAS Brunswick. The USTs on-base and at McKeen Street housing units on the following streets were removed and replaced with ASTs: Liberty Cr., Parliament Cr., Congress Cr., Shobe, Emanual, Columbia, Moore, Krampf, Windorf, Independence, McKeen, Bunker Hill, Antietam, Midway Circle, Enterprise, and Intrepid (Joy 2006c). In the early 2000s, some on-base housing structures were demolished and ASTs and USTs removed and replaced with new housing served by natural gas heating (Joy 2006c). The streets where new housing unit construction occurred include: Enterprise, Guadalcanal, Hornet, Coral Sea, Delgada, Intrepid, Bunker Hill, and Forrestal (Rickel 2006b). In addition, all on-base and McKeen Street housing units are served by natural gas and do not have ASTs or USTs (Joy 2006c).

All non-housing heated buildings at Topsham Annex are currently heated with oil stored in ASTs, except one building which is electrically heated (HRP 1996a). Many of the non-housing site buildings were formerly heated by USTs which have been removed (HRP 1996a, Joy 2006c). Twenty-six former USTs were located on the non-housing portions of Topsham Annex and 65 former USTS were located in the housing areas. Twelve of these former USTs in the housing areas were concrete filled and abandoned in place. There are currently no active USTs at Topsham Annex. The ME DEP has records for 15 petroleum releases which occurred at Topsham Annex due to spills or leaks associated with the historic USTs (HRP 1996a).

According to the 1996 Topsham Annex EBS (HRP 1996a), site assessments were conducted for UST removals at Building 1100 and Building 1099. Both tanks were removed along with contaminated soil around the tanks. The EBS also indicated that there was an investigation of petroleum contaminated groundwater inflow into the former lift pit in Building 337. The contaminated water was pumped but later re-filled. The source of the contaminated water had not been determined at the time of the report.

Recently, Tetra Tech EC, Inc. has prepared a work plan to perform soil investigation and/or removal activities at several former UST housing and non-housing locations on Topsham Annex based on 2004 investigation information (Tetra Tech EC 2005). An estimated total of 1,000 tons of petroleum-impacted soil will be removed in Spring 2006 at Buildings 337 (former fire station, auto service center, auto hobby shop, and car wash), 338 (former automotive storage and repair), 1108 (residential housing), 1099 (residential housing), and 1114 (residential housing). Additionally, test pit excavation and soil sampling will be performed at the following five locations: 369 (former operations building/central heating plant); 378 (former housing maintenance shop); 380 (former skeet range); TOP-01 (filled area); and TOP-02 (former oil/water separator [OWS]).

4.3.2 Aboveground Storage Tanks

There are currently 138 active ASTs, 11 inactive ASTs, and four spare ASTs at Brunswick and seven active ASTs at Topsham Annex (Rickel 2006b). The active ASTs contain gasoline, diesel, #1 and #2 fuel oil, JP-8, hydraulic oil, waste oil, cooking grease, waste glycol, ethylene glycol, or lube oil. There are no active ASTs at the McKeen Street housing area. According to site personnel, the NAS Brunswick ASTs are not required to be registered with the MEDEP as per State regulations (Joy 2006a, Rickel 2006a). Additionally, no annual inspections are required for the maintenance of the ASTs per ME DEP regulations; however, all ASTs are inspected annually as per NAS Brunswick Instruction 5090.3C Spill Prevention Control Countermeasures Plan (Rickel 2006a, Rickel 2006b). **Table 4-3** presents the ASTs on-site including their size, locations, and contents. According to base personnel a 60,000-gallon JP-5 spill occurred at the JSFI in 1993 and was cleaned up in coordination with regulatory agencies (Joy 2005b, Joy 2006c).

There are 22 OWSs on-site that are connected to assorted floor drains and wash racks across the base (Kempf 2005c). Three OWS drain into the storm system, the remainder discharge into the sanitary sewer system (Apraham 2005). **Table 4-4** presents the OWS on-site including their size, locations, and discharge point.

According to the 1996 Topsham Annex EBS (HRP 1996a), a fuel oil AST at Building 338 developed a leak in 1996. The tank and surrounding soil were removed and a new AST was installed.

4.4 Munitions and Explosives of Concern

A final Preliminary Assessment (PA) was conducted at the Former Munitions Bunker West Area, the Machine Gun Bore Sight Range, and the Skeet Range (Malcolm Pirnie 2006a). Between 1980 and 2000, U.S. Marines stationed at the installation used the sites sporadically to conduct munitions-related security training. According to available records and personnel interview, the following munitions are known to have been used at the site:

- Grenade, Hand Smoke Red M18 with fuze M201A1.
- Grenade, Hand Smoke Yellow M18 with fuze M201A1.
- Signal Illumination, Ground Green Star Cluster, hand held M125A1.
- Flare, Surface Trip, M49A1.
- Simulator Noise Cartridge Assault Rock Trainer, MK 103 Mod 0.
- Cartridge 7.62 Blank M82 Linked.
- Cartridge 5.56 Blank M20 Linked and Non-Linked.

The PA concluded that while the entire 29-acre Former Munitions Bunker Area is a suspected Munitions and Explosives of Concern (MEC) Area because of former training practices in the area, the likelihood of MECs is considered to be extremely low. After each training exercise, Marines at NAS Brunswick conducted sweeps of the area and removed all munitions debris from the ground surface. Furthermore, a visual survey of the area was conducted in 2003 and no MEC-related surface features (e.g., target areas, entry holes, craters) were identified in the area.

The former Machine Gun Bore Sight Range was used during the 1950s to align and test fire aircraft mounted guns (Malcolm Pirnie 2006a). The following list represents types of munitions suspected to have been used at the range:

- .30 caliber (machine gun ammunition).
- .50 caliber (machine gun ammunition).
- .22 caliber (pistol ammunition).
- .30 caliber (pistol ammunition).
- .38 caliber (pistol ammunition).

The backstop for the range is located in the open grassed area adjacent to woods behind Building 55 and the compass rose area (Mosher 2006a). Building 55 is located on the approximate area of the former range and compass rose area. Approximately 0.5 acres of the former range area is paved over for the parking lot and storage area associated with Building 55. The former Machine Gun Bore Sight Range is not suspected to contain MEC. However, there is the potential for munitions constituents, particularly lead impacts, to be present. Sampling data was not available to estimate the potential for lead.

The former Skeet Range was used for training military personnel during the 1950s (Malcolm Pirnie 2006a). Based on historical documents, it is believed that only 12-gauge shotguns were used at the site. Lead shot from the expended shot gun ammunition is not considered MEC. However, there is the potential for lead impacts in soil and groundwater. Sampling data for metals and inorganics in groundwater and soil was not available to gauge the potential for munitions constituents.

Lead impacts in soil have been associated with the Topsham Annex Skeet Range which is located in the northern portion of the Topsham Annex along the Navy property line (Malcolm Pirnie 2006b, Malcolm Pirnie 2005). The Skeet Range was used by the Air Force from approximately 1957 to 1970; there is no documentation that the Navy used the range after they assumed control of Topsham post-1970 (Malcolm Pirnie 2005). Only 12-gauge shotgun ammunition is documented as being used at the range. No firing records are available concerning the quantity of shotgun ammunition fired at the range. The range is approximately

29 acres of which approximately 27 acres of the Topsham Annex Skeet Range are located outside the Navy property boundary on private property. The firing point is located on the Topsham Annex property and the direction of fire is north, off-site. The Skeet Range has an established surface danger zone of 900 feet from the firing point; therefore, impacts may exist in a 900 foot arc from the firing point (Malcolm Pirnie 2006b). Based on potential shot angle and wind, a reasonable shotfall zone is most likely between 375 to 680 feet. The Topsham Annex Skeet Range and associated shot fall zone are presented on **Figure 4-3**.

The primary constituent of concern identified for the Skeet Range is lead, although antimony, copper, zinc, arsenic from bullets, fragments, and bullet jackets are also considered potential contaminants of concern (Malcolm Pirnie 2005). Three composite surface soil samples were collected in July 2004 from the firing point for lead analysis. The detections of lead in soil were below the ME DEP Risk Assessment Guideline of 375 mg/kg. No soil samples were collected within the shotfall zone, 375 ft. to 680 ft. from the firing point, where impacts are expected to be the greatest.

In November 2005, 33 surface soil samples were collected and field screened for lead using a handheld X-Ray Fluorescence (XRF) unit from within the Topsham Annex Skeet Range on the Navy's property (Malcolm Pirnie 2006). All lead concentrations were recorded below the Remedial Action Guideline of 250 mg/kg. The four highest XRF readings were submitted for laboratory analysis of lead for confirmation. All laboratory detections were also below the Remedial Action Guideline of 250 mg/kg. These samples were outside the most likely shotfall zone and indicated no contamination, as expected (Mosher 2006a).

Additionally CERCLA Site 12 (**Section 4.2.12**) describes the MEC at the EOD area.

Figure 4-3 shows the locations of the three potential MEC areas on the Main Station and one potential MEC area at Topsham Annex. There are no potential MEC areas at the McKeen Street housing area.

4.5 Hazardous Waste

Hazardous Waste is regulated under the Resource Conservation Recovery Act (RCRA).

NAS Brunswick is classified as a large quantity generator of hazardous waste (generator identification code ME 8170022018) (Mosher 2005a). Hazardous Waste is stored in Building 45 for less than 90-days. The NAS Brunswick had licenses for the acid neutralization activities conducted in Building 225 (license number O-26-HN-C-N). The Building 250 photo lab was associated with the removed silver recovery system which was closed in accordance with ME DEP regulations (Joy 2006b). A letter dated November 7, 1995 from the ME DEP acknowledges NAS Brunswick certification of closure of the acid neutralization in Building 225 (license inactivation). The letter from the ME DEP concurred with the Navy's assessment that the license was not required because the operation was never placed in operation. Licenses by Rule, for the acid neutralization in Building 250 and the silver recovery also in Building 250 were terminated by closure of the facility and removal of all residuals pursuant ME DEP rules. Buildings that formerly or currently store hazardous waste are shown in **Figure 4-4.**

There is no hazardous waste storage at Topsham Annex or McKeen Street housing area.

4.6 Polychlorinated Biphenyls

Congress enacted the Toxic Substances Control Act (TSCA, Public Law [Pub. L.] 94-469) in 1976, to become effective January 1, 1977. The act authorizes USEPA to secure information on all new and existing chemical substances and to control any of these substances that could cause an unreasonable risk to public health or the environment. Under earlier laws USEPA had authority to control toxic substances only after damage had occurred. The earlier laws did not require the screening of toxic substances before they entered the marketplace. TSCA closed the gap in the earlier laws by requiring that the health and environmental effects of all new chemicals be reviewed before they are manufactured for commercial purposes. TSCA has four titles, PCBs are regulated under Title I. Title I, Control of Toxic Substances includes provisions for testing chemical substances and mixtures, manufacturing and processing notices, regulating hazardous chemicals substances and mixtures, managing imminent hazards, and reporting and retaining information.

According to a memorandum dated October 23, 1995 from the Site Environmental Specialist to the Fire Chief in the Public Works Department of the Environmental Division office, all PCB-containing equipment and PCB-contaminated transformers were removed from NAS Brunswick by 23 October 1995 (Navy 1995). The last 17 transformers were removed in September 1995 and stored at the Building 45 Hazardous Waste Storage Area prior to removal for disposal in December 1995. **Table 4-5** lists all the existing transformers at NAS Brunswick and off-base areas.

Prior to 1995, approximately 300 transformers containing PCBs had been used at NAS Brunswick. **Table 4-6** summarizes the available data regarding PCB disposal.

Transformers containing PCBs were historically used at several buildings and on utility poles around the site as indicated in **Table 4-7**.

Section 4.2 describes CERCLA investigations completed to date, including those associated with discovery of PCB releases. PCBs were identified as contaminants of concern (COCs) in soil, groundwater, sediments, surface water and leachate for OUs 1 and 2, the Orion Street Landfill North and South and the Hazardous Waste Burial Area. Refer to **Sections 4.2.1, 4.2.2,** and **4.2.3** for details on investigations and remedial actions associated with these sites. In addition, PCB-contaminated soil was removed from Building 335 (Commissary) in Topsham Annex (Joy 2006c).

4.7 Radiological Materials

According to site personnel (Mosher 2005b), there are no known existing or historical radiological materials on NAS Brunswick Main Station, Topsham Annex, or McKeen Street housing area.

4.8 Pesticides

USEPA regulates the use of pesticides under the authority of two federal statutes: the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and the Federal Food, Drug, and Cosmetic Act (FFDCA). The FIFRA provides the basis for regulation, sale, distribution and use of

pesticides in the U.S., whereas the FFDCA authorizes USEPA to set maximum residue levels, or tolerances, for pesticides used in or on foods or animal feed.

Past and present pesticide uses and impacts at NAS Brunswick are described in the following sections. Past pesticide impacts are described in more detail in **Section 4.2**; details of current pesticide use are described in the draft Pest Management Plan (PMP) for all of NAS Brunswick including the Golf Course (Building 39) (Navy 2003b).

4.8.1 Past Pesticide Impacts

Pesticide impacts have been detected in NAS Brunswick soil and groundwater through a series of site investigations. **Section 4.2** describes the CERCLA investigations completed to date, including discovery of pesticide contamination during a 1992 soil sampling event and initiation of remedial measures in 1996. Remedial measures included the demolition of Building 95, Building 31, and a storage building (location unknown), as well as soil excavation (EA 2003) (refer to **Section 4.2.17** for additional detail). Semi-annual groundwater monitoring for parameters including pesticides and herbicides is performed as part of the LTMP (EA 2003). Prior to 1975, pesticides were disposed at the Orion Street Landfill North and South and the Hazardous Waste Burial Area and are identified as COCs in soil, groundwater, sediments, surface water and leachate for OUs 1 and 2. (Refer to **Sections 4.2.1, 4.2.2,** and **4.2.3** for details). A list of historical pesticide use at NAS Brunswick and the Golf Course are presented in **Table 4-8** and **Table 4-9**, respectively.

4.8.2 Present Pesticide Use

The draft PMP for NAS Brunswick for the Main Station, McKeen Street, and Topsham Annex (Navy 2003b) describes the requirements and recommended best practices for all aspects of pesticide management, in accordance with federal laws, and DOD and Navy regulations. The best practices described in the draft PMP for pesticide application are summarized in this section.

Integrated Pest Management (IPM) procedures are presented in detail in Appendix A of the draft PMP (Navy 2003b) for NAS Brunswick. Pesticides historically have been and are currently mixed and stored in Building 647 for the majority of the Main Station and Building 39 for the Golf Course (Joy 2006b). The recommended frequencies for inspection and pesticide use for each building or facility at NAS Brunswick are presented in **Table 4-10**. A summary of the approved pesticides, insecticides, herbicides, and fungicides for use at NAS Brunswick are presented in **Table 4-11**. The actual quantities used for pesticides, insecticides, herbicides, and fungicides at NAS Brunswick (excluding the golf course) for January through December 2004 are summarized in **Table 4-12**.

4.9 Asbestos

Asbestos abatement is regulated under TSCA Title II, Asbestos Hazard Emergency Response, which was added by the Asbestos Hazard Emergency Response Act (AHERA, Pub. L. 99-519), enacted by Congress on October 22, 1986. It authorizes USEPA to amend its TSCA regulations to impose more requirements on asbestos abatement in schools. AHERA provides for the promulgation of federal regulations requiring inspection for asbestos and appropriate response actions in schools and mandates periodic reinspection. In addition, it requires the

USEPA Administrator to determine "the extent of the danger to human health posed by asbestos in public and commercial buildings and the means to respond to any such danger."

According to facility personnel (Sanders 2005), several asbestos surveys have been conducted at NAS Brunswick. In 1989, a total of 73 buildings were surveyed and 68 buildings were determined to have Asbestos Containing Material (ACM) or Presumed Asbestos Containing Material (PACM). A 1999 survey indicated that 93 buildings of the 184 surveyed buildings contained ACM or PACM.

In a 2005 survey, 80 buildings of the 210 surveyed buildings contained ACM or PACM. In addition to the surveys, asbestos has been identified in buildings during renovation or destruction. The current 2005 inventory includes 210 buildings of which 80 buildings contain “identified” ACM, 62 buildings contain PACM, and 68 buildings either have not been inspected or do not have any visible suspected ACM. A comprehensive list of buildings, and subsequently building numbers, that were survey for asbestos and/or contain ACM/PACM was prepared by the Air Station personnel (Sanders 2006) (**Table 4-13**). The 2005 inventory did not include surveys of family housing, housing maintenance building, or bachelor enlisted quarters.

In 2004, an asbestos survey was conducted for the base housing which included Midway Terrace, Brunswick Gardens Capehart, Station Housing I, Station Housing II, Topsham Annex, and McKeen Street. The surveys were performed as part of the transfer of the housing units to a private developer under the public-private venture program. The surveys were conducted on a representative number of housing units in each area and did not include a walk-through inspection of all the units. It was assumed that un-inspected units of similar age, use, and history would have similar conditions as those identified at inspected units. The housing units that were inspected for asbestos are presented on **Figure 4-5** and **Table 4-14**.

Midway Terrace is a multi-family housing community that was constructed in 1982 and has been minimally renovated over the years. The community contains a total of 62 units (Dewberry 2004a). Four units were inspected for ACM which included 20 Antietam Street, 23A Antietam Street, 28B Antietam Street and 5 Midway Circle. ACM was identified in all four units and consisted of 12-inch by 12-inch vinyl floor tile, mastic for the floor tile, vinyl floor sheet, and the white sink coating. The ACM identified was in good condition and was not considered an asbestos hazard (Dewberry 2004a).

Brunswick Gardens Capehart housing was constructed in 1959 and has been renovated several times over the years. The community contains 14 single family units (Dewberry 2004b). One unit was inspected for ACM (19 Intrepid Street). ACM was identified during the inspection in the joint compound throughout the residence. The ACM identified was in good condition and was not considered an asbestos hazard (Dewberry 2004b). Brunswick Gardens Capehart housing community also includes 30 multi-family units. One unit was inspected for ACM (41 Independence Street). ACM was identified during the inspection in the joint compound throughout the residence. The ACM identified was in good condition and was not considered an asbestos hazard (Dewberry 2004b).

Station Quarters Housing was constructed in 1954 and has been renovated several times over the years. The community contains 15 single family units (Dewberry 2004c, Dewberry 2004d). All 15 units were inspected and included Quarters D, Quarters E, Quarters F, Quarters G, Quarters A, Quarters B, Quarters I, Quarters K (904 Fitch Avenue), Quarters K (905 Fitch

Avenue), Quarters EB, Quarters EA, Quarters EC, Quarters EE, and Quarters 349. ACM was detected in all 15 units and consisted of:

- Quarters D - transite board heat shield, roof tar, vinyl flooring;
- Quarters E - joint compound, floor tile, tile mastic, vinyl sheet, and roof tar;
- Quarters F - joint compound, vinyl sheet, and roof tar;
- Quarters G - joint compound and roof tar;
- Quarters H - joint compound, roof tar, vinyl sheet;
- Quarters A - sink coating, exterior silver paint, flashing, tar, and window calk;
- Quarters B - flashing and roof tar;
- Quarters I - floor tile, mastic, joint compound, and roof tar;
- Quarters K (904 Fitch Avenue) - vinyl baseboard, mastic, joint compound, flexible duct connector, mastic behind insulation, roof tar, chimney flashing compound;
- Quarters K (905 Fitch Avenue) - vinyl sheet, floor tile, mastic, joint compound, flexible duct connector, mastic behind insulation, roof tar, chimney flashing compound;
- Quarters EB, EA, and EC - floor tile, mastic, joint compound sink coating, roof tar, flue insulation;
- Quarters EE - floor tile, mastic, joint compound flue insulation, and roof tar; and
- Quarters 349 - the roof tar and chimney flashing compound.

All the ACM identified was in good condition and was not considered an asbestos hazard (Dewberry 2004c and 2004d).

Topsham housing was constructed in 1961 and has been renovated several times over the years. The community contains 9 single family units (Dewberry 2004e). Two units were inspected for ACM which included 220 Congress Circle and 230 Congress Circle. ACM was identified during the inspection in 220 Congress Circle in the joint compound, floor tiles, tile mastic, and pink sink coating. ACM was identified in 230 Congress Circle in the joint compound and pink sink coating. The ACM identified was in good condition and was not considered an asbestos hazard (Dewberry 2004e). Topsham housing community also includes 168 multi-family units. Six units were inspected for ACM which included 208 Congress Circle, 400, 405, 423, 433, and 470 Liberty Circle. ACM was identified during the inspection of all six units in the joint compound and sink coating. In addition, ACM was identified in the carport shed roof in all but 433 Liberty Circle. ACM was also identified in the floor tile and mastic of 208 Congress Circle, 223 and 433 Liberty Circle. All the ACM identified was in good condition and was not considered an asbestos hazard (Dewberry 2004e).

McKeen Street housing was constructed in 1960 and has been renovated several times over the years. The community contains 145 single family units (Dewberry 2004f). Seven units were inspected for ACM which included 138, 142, and 151 Columbia Avenue; 3 and 39 Emanual Drive; and 15 and 22 Moore Avenue. ACM was identified during the inspection in the joint compound in the utility room of all seven units. In addition, ACM was identified in the mastic behind the Styrofoam insulation of 151 Columbia Avenue and the vinyl floor tile of 22 Moore

Avenue. The ACM identified was in good condition and was not considered an asbestos hazard (Dewberry 2004f). McKeen Street housing community also includes 86 multi-family units. Two units were inspected for ACM which included 133 Columbia Avenue and 6 Emanual Drive. ACM was identified during the inspection of both units in the laundry room joint compound. The ACM identified was in good condition and was not considered an asbestos hazard (Dewberry 2004f).

4.10 Lead-Based Paint

Lead is regulated under TSCA Title IV, Lead Exposure Reduction which was added on October 28, 1992 (Pub. L. 102-550). The purpose of this legislation is to reduce environmental lead contamination and prevent adverse health effects as a result of lead exposure, particularly in children. Provisions include identifying lead-based paint hazards, defining levels of lead allowed in various products, including paint and toys, and establishing state programs for the monitoring and abatement of lead exposure levels, including training and certification for lead abatement workers.

According to site personnel (Sanders 2005), industrial areas, office spaces, and remaining facilities are sampled and surveyed prior to any demolition or renovation activities. All painted surfaces are assumed to contain lead unless a negative determination has been made.

In 2004, a lead-based paint (LBP) inspection/risk assessment was conducted for the base housing which included Brunswick Gardens Capehart, Station Housing I, Station Housing II, Topsham Annex, and McKeen Street. The inspections were performed as part of the transfer of the housing units to a private developer under the public-private venture program. The purpose of the LBP inspection was to determine the presence of LBP and the risk assessment determined the hazard associated with the LBP. The inspections were conducted in the winter; therefore, the soil sampling (part of risk assessment) was not conducted but was scheduled for the spring. No information was provided on any additional LBP sampling for inclusion in this report. The inspections were conducted on a representative number of housing units in each area and did not include a walk-through inspection of all the units. It was assumed that un-inspected units of similar age, use, and history would have similar conditions as those identified at inspected units. The housing units that were inspected for lead-based paint are presented in **Figure 4-6** and **Table 4-15**.

Brunswick Gardens Capehart housing was constructed in 1959 and has been renovated several times over the years. The community contains 14 single family units (Dewberry 2004b). One unit was inspected for LBP (19 Intrepid Street). LBP was not detected at the 19 Intrepid Street unit (Dewberry 2004b). The lead-based paint risk assessment was conducted on 11 of the single family units and determined that no hazard existed due to paint conditions or dust wipe samples. Brunswick Gardens Capehart housing community also includes 30 multi-family units. One unit was inspected for LBP (41 Independence Street). LBP was not identified in the 41 Independence Street unit (Dewberry 2004b). The lead-based paint risk assessment was conducted on 20 of the multi-family units and determined that no hazard existed due to paint conditions or dust wipe samples.

Station Quarters Housing was constructed in 1954 and has been renovated several times over the years. The community contains 15 single family units (Dewberry 2004c, Dewberry 2004d). All 15 units were inspected and included Quarters D, Quarters E, Quarters F, Quarters G,

Quarters A, Quarters B, Quarters I, Quarters K (904 Fitch Avenue), Quarters K (905 Fitch Avenue), Quarters EB, Quarters EA, Quarters EC, Quarters EE, and Quarters 349. LBP was detected in all 15 units and consisted of:

- Quarters D - window sash, basement door, porch walls, electrical conduit, garage fascia;
- Quarters E - interior door casing, door jambs, baseboards, exterior doors, casings, and jambs;
- Quarters F - interior door casings and jambs, baseboards, and exterior door casings;
- Quarters G - interior door casings, jambs, and baseboards;
- Quarters H - living room and laundry baseboards, bathroom window apron, kitchen door jamb and casing, exterior electrical conduit;
- Quarters A - interior walls, closet shelves and supports, exterior doors, jambs, casings, window casings and jambs;
- Quarters B - interior walls and baseboards;
- Quarters I - baseboards, door jambs, casings, and exterior pipe;
- Quarters K (904 Fitch Avenue) - garage door, jambs, casings, threshold, and soffit;
- Quarters K (905 Fitch Avenue) - garage siding;
- Quarters EB - exterior door casing, columns, window sills, and soffit;
- Quarters EA - exterior window sills, casings, columns, fascia, porch trim, and laundry room door;
- Quarters EC - kitchen and laundry room walls, exterior door casings, window sills, columns, fascia, and porch trim;
- Quarters EE - kitchen walls, laundry room walls, garage walls, exterior window sills, columns, fascia, and porch trim; and
- Quarters 349 - basement window sashes.

The lead-based paint risk assessment was conducted on each unit and determined that a hazard existed due to deteriorated paint conditions in all the units except Quarters B and Quarters G. No hazards were identified due to dust wipe samples.

Topsham housing was constructed in 1961 and has been renovated several times over the years. The community contains 9 single family units (Dewberry 2004e). Two units were inspected for LBP which included 220 Congress Circle and 230 Congress Circle. LBP was identified during the inspection in 220 and 230 Congress Circle on the door systems, laundry vent and column base. The lead-based paint risk assessment was conducted on three of the single family units and determined that a hazard existed at two of the units due to paint conditions. No hazard was identified due to dust wipe samples. Topsham housing community also includes 168 multi-family units. Six units were inspected for LBP which included 208 Congress Circle, 400, 405, 423, 433, and 470 Liberty Circle. LBP was identified during the inspection of all six units on the utility room ladders, carport fascia system, and carport storage shed doors. The lead-based paint risk assessment was conducted on 24 of the multi-family

units and determined that a hazard existed at each unit due to paint conditions. No hazard was identified due to dust wipe samples.

McKeen Street housing was constructed in 1960 and has been renovated several times over the years. The community contains 145 single family units (Dewberry 2004f). Seven units were inspected for LBP which included 138, 142, and 151 Columbia Avenue; 3 and 39 Emanual Drive; and 15 and 22 Moore Avenue. LBP was identified during the inspection on the exterior crawlspace louver vents, facias, and interior garage doors. The lead-based paint risk assessment was conducted on 18 of the single family units and determined that a hazard existed at ten of the units due to paint conditions. No hazard was identified due to dust wipe samples. McKeen Street housing community also includes 86 multi-family units. Three units were inspected for LBP which included 133 Columbia Avenue, 6 Emanual Drive, and 41 Emanual Drive. LBP was identified during the inspection on the exterior crawlspace louver vents and fascias. The lead-based paint risk assessment was conducted on nine of the multi-family units and determined that a hazard existed at six of the units due to paint conditions. No hazard was identified due to dust wipe samples.

4.11 Radon

Indoor radon concentrations are regulated under TSCA Title III, Indoor Radon Abatement which was added on October 28, 1988 (Pub. L. 100-551). The purpose of this legislation is to assist states in responding to the threat to human health posed by exposure to radon. USEPA is required to publish an updated citizens' guide to radon health risk and to perform studies of the radon levels in schools and radon contamination in federal buildings.

In accordance with the Navy Radon Assessment and Mitigation Program (NAVRAMP) (Navy 1991), a preliminary radon screening was performed in 1990 which consisted of monitoring approximately 10 percent of the housing units of the Main Station, Topsham Annex, and McKeen Street housing area. A total of 184 radon samples were collected from 166 buildings (**Figure 4-7**), 179 samples from housing units and 5 samples from non-housing units. Two samples contained radon concentrations which exceeded the USEPA action level of 4 picoCuries per Liter (pCi/L): a sample from unit 904-A contained 5.1 pCi/L and a sample from unit EE-A contained radon level of 5.3 pCi/L. **Table 4-16** summarizes the detection level for each building.

From approximately May 1991 through May 1992, a radon assessment was conducted in accordance with the NAVRAMP. The radon assessment consisted of the installation of 335 radon monitors in 173 of housing units (including Unit 904-A and Unit EE-A) for a time period of approximately 1 year (Joy 2006c). The results indicate that none of the detectors had radon results above the action level of 4 pCi/L. Based on these results, no mitigation was required (Joy 2006c). **Table 4-16** summarizes the detection level for each building. *(Note: Buildings 801 through 874, although included in the survey, were subsequently demolished and, thus, are not shown in **Figure 4-7**).*

4.12 Air Quality

Air emissions at NAS Brunswick are regulated under the Clean Air Act (CAA). NAS Brunswick operates under ME DEP air emission license number A-268-71-AA-R. The existing air emission license was issued December 7, 2004 and has a term of 5 years (ME DEP 2004). The permit

was amended once on August 22, 2005 to include licensing new equipment and revising maximum capacity of existing equipment (ME DEP 2005). All emission source equipment including fuel burning equipment, electrical generation equipment, and process equipment (i.e., storage tanks, fuel dispensing, deicing operations, degreasers, painting operations, and jet engine test cells) for the NAS Brunswick Main Station, Topsham Annex, and McKeen Street are summarized in **Table 4-17**. The locations of buildings with air emission equipment specified in the air license are indicated on **Figure 4-8**.

Based on the facility-wide fuel limits on licensed fuel burning equipment and electrical generating equipment, as well as limits for VOCs and hazardous air pollutant (HAP) emissions, the facility is licensed under the major source thresholds as a Synthetic Minor. As a Synthetic Minor, NAS Brunswick is not subject to Title V or nitrogen oxides (NO_x)/VOC Reasonable Available Control Technology (RACT) requirements. The Air Station is required to operate under the emission limits for fuel burning equipment, engines, and process equipment as outlined in the license (**Table 4-18**) and must control emissions from each unit to a level considered by the ME DEP to represent Best Practical Treatment (BPT). BPT for existing emissions equipment means the method that controls or reduces emissions to the lowest possible level, considering the existing state of technology; the effectiveness of available alternatives for reducing emissions from the source being considered; and the economic feasibility.

None of the NAS Brunswick fuel burning equipment (i.e., boilers, water heaters, and make-up air) is greater than 10 million British thermal units per hour (MBtu/hr); therefore, they are not subject to the New Source Performance Standards.

The total licensed annual emissions for the facility, based on a 12 month rolling total, are presented in **Table 4-19** and the actual calculated annual emissions from 1995 through 2004 are summarized in **Table 4-20**.

4.13 Water Quality

4.13.1 Drinking Water

The Safe Drinking Water Act (SDWA) of 1974, amended in 1986 and 1996, was passed to protect public health by regulating the nation's pubic drinking water supply and its sources including rivers, lakes, reservoirs, springs, and groundwater drinking wells. NAS Brunswick obtains its domestic water from the Brunswick and Topsham Water District (Navy 2003a), a public utility district. The distribution system consists of 6-inch, 8-inch, and 12-inch lines on the Air Station that are linked to two 12-inch connections located in the northern portion of the Air Station at Bath and Pine Streets (Navy 2003a). In addition, there is one public and one non-public water wells located within NAS Brunswick. The first is a public drinking water well located in the southwest portion of NAS Brunswick is classified as a transient non-community, drilled public water supply (MDWP 2005). This well is used for providing domestic water for the golf course clubhouse and restaurant (Kempf 2005a). The golf course is cross-gradient to the Eastern Plume and is also located along the west bank of the unnamed stream and Site 16 (ATSDR 2005). The Navy has tested the Golf Course well for VOCs, PCBs, herbicides, pesticides, metals, and coliform and no detections were reported above state residential detection levels (ATSDR 2005). The second well is a non-public, serves less than 25 people, located at the guardhouse at Dyer's Gate that serves approximately 10 security staff (Kempf

2005b). Public Water Systems are defined by 40 C.F.R. 414 and Dyer's Gate does not meet the definition of a public water system, whereas the Golf Course Well does meet the criteria (Kempf 2006a). The well is located near, approximately 80 to 100 ft., but outside the institutional control boundary of Site 2 (ATSDR 2005). The Navy has tested this well for VOCs, PCBs, pesticides, and total and dissolved metals, all levels were reported below state residential drinking water levels (ATSDR 2005). Additionally, the northwest corner of NAS Brunswick is located within two Groundwater Aquifer Protection Zones (Prosser 2002). The locations of local drinking water supply wells on and adjacent to NAS Brunswick are presented on **Figure 4-9**.

Topsham Annex and McKeen Street housing area obtain their domestic water from the Brunswick and Topsham Water District (Kempf 2006c, Kempf 2006e), a public utility district. The Navy owns and maintains the underground lines located at the Topsham Annex and McKeen Street housing area (Kempf 2006c, Kempf 2006e).

4.13.2 Groundwater

There are two local groundwater aquifers, overburden and bedrock, underlying NAS Brunswick (ATSDR 2005). Depth to groundwater in the overburden aquifer is between 10 ft. to 80 ft. bgs and the regional groundwater flow direction is to the east towards the Gulf of Maine. Localized groundwater flow is variable and is generally controlled by local topography, subsurface lithology, and proximity to surface water bodies. Bedrock beneath NAS Brunswick only produces limited amounts of groundwater because of a semi-continuous confining layer of clay overlying the bedrock. The primary source of drinking water for NAS Brunswick is from an off-base municipal water supply; however, there are two domestic water wells located on NAS Brunswick, one located at the golf course and one located at the guardhouse at Dyer's Gate. The two domestic water wells are reportedly outside the area of groundwater contamination and compounds have not been detected in these wells at levels of health concern. Impacts to on-site groundwater are discussed in detail in **Section 4.2** IRP Sites.

Groundwater at Topsham Annex is influenced by numerous factors including aquifer type, depth to bedrock, topographic slope, surface water interactions, and groundwater withdrawals. The groundwater is assumed to flow west and north west toward the Cathance River (HRP 1996a).

There is no information available documenting the direction of groundwater flow at McKeen Street but it likely flows to the north toward the Androscoggin River.

4.13.3 Stormwater

The Water Pollution Control Act Amendments of 1972, commonly known as the Clean Water Act (CWA), uses a variety of regulatory and nonregulatory tools to reduce pollutant discharges into waterways and to manage polluted runoff. Under the CWA, a National Pollutant Discharge Elimination System (NPDES) permit is required for facilities discharging stormwater associated with industrial activities. In 1992, NAS Brunswick applied for and received a NPDES permit from USEPA Region 1. In 1995, the USEPA developed a stormwater permitting system called Multi-Sector permitting. Under the new regulations, NAS Brunswick decided to apply for a Multi-Sector Stormwater NPDES permit as an airport using Standard Industrial Classifications. In December 1995, NAS Brunswick issued a Notice of Intent (NOI) to apply for this permit.

NPDES permits are renewed every five years; therefore, NAS Brunswick submitted an NOI in 2000 and the permit was approved in 2001 (Navy 2004).

The most recent NOI was submitted in October 2005; however, the NPDES permit had not been received at the date of this ECP Report. Additionally, as part of the conditions of the NPDES permit, each facility is required to submit a facility-specific Stormwater Pollution Prevention Plan (SWP3) that establishes policy, responsibilities, and procedures for the stormwater pollution program and provides technical guidance on pollution prevention due to stormwater runoff from industrial areas at naval facilities. The most recent SWP3 is dated November 2004 which includes details on Standard Best Management Practices for all industrial activities at NAS Brunswick. The SWP3 also includes Air Station facilities that were selected for site-specific SWP3s based on the quantity of industrial operations conducted or the storage of materials (Navy 2004).

The original stormwater drainage system for the Air Station was part of the sanitary sewer system, however, the two systems were separated in 1954 (KCI 1991). Currently, NAS Brunswick discharges stormwater into storm sewer systems that flow into surface water bodies located on the Air Station (Navy 2004). NAS Brunswick housing stormwater (no industrial stormwater) drains into three major watersheds: approximately 74 percent of the Air Station drains in the Mere Brook-Harpswell Cove Watershed, approximately 13 percent of the Air Station drains in the Androscoggin Watershed, and approximately 13 percent of the Air Station drains in the Buttermilk Cove Watershed (Kempf 2006b, KCI 1991). There are currently 3 OWSs located on the Air Station that are part of the storm sewer system. There are two non-stormwater discharges, one of which originates from the Taxiway "G" wash rack. The effluent passes through an OWS and discharges into a series of retention ponds into the Mere Brook (Kempf 2006b). The stormwater system including storm drains and surface water features are presented on **Figure 4-10**.

Topsham Annex discharge stormwater into stormwater sewer systems that flow into the Cathance River and ultimately into the Androscoggin River. McKeen Street discharges stormwater into the headwaters of the Mere Brook and eventually through NAS Brunswick proper to Harpswell Cove (Kempf 2006c, Kempf 2006e). There are currently 3 discharge points that are part of the Topsham Annex's stormwater sewer system and one discharge point on McKeen Street which are tested quarterly by the Navy (Kempf 2006c, Kempf 2006e). The Navy owns all the stormwater conveyances on Topsham Annex and McKeen Street (Kempf 2006c, Kempf 2006e). The stormwater systems including storm drains and surface water features for Topsham Annex and McKeen Street are presented on **Figure 4-10**.

4.13.4 Wastewater

The Brunswick Sewer District provides sanitary sewer service to the majority of the Air Station (KCI 1991). While service is provided by the municipal sewer district, NAS Brunswick owns and maintains all it own facilities including the four pumping stations and associated pipe network (KCI 1991, Kempf 2006b). Wastewater exits NAS Brunswick through an 18-inch diameter main located at the intersection of Fitch Avenue and Bath Road (Navy 2004). According to base personnel there are 7 separate septic systems that are not connected to the municipal sanitary sewer (Kempf 2006b) There are two locations at the southern extent of the runway that service the gate house/vehicle inspection facility and the recycling center that are attached to individual

septic systems (Navy 2004). The sanitary sewer system for NAS Brunswick is presented in **Figure 4-11**.

The Brunswick Sewer District provides sanitary sewer service to Topsham Annex and McKeen Street housing area (Kempf 2006c, Kempf 2006e). While service is provided by the municipal sewer district, NAS Brunswick owns and maintains all it own facilities at the off-base housing areas. According to base personnel, there are no separate septic systems that are not connected to the municipal sanitary sewer on Topsham Annex or McKeen Street (Kempf 2006c, Kempf 2006e). The sanitary sewer systems for Topsham Annex and McKeen Street are presented in **Figure 4-11**.

There are two sources of industrial wastewater on NAS Brunswick (Kempf 2005b): a dental clinic and a deicing facility. Under Maine State law, all dental clinics are required to have a ME DEP-approved amalgam separator installed in the sanitary sewer discharge. The NAS Brunswick dental clinic has a REBEC 1000 Plus, which is a state-approved system. The deicing facility on-site has two functions: (1) a deicing pad where all waste deicing fluid is captured and stored in a 90,000-gallon tank prior to disposal off-site; and (2) a wash rack used to rinse salt (from ocean seawater) from aircraft. There is no use of soap or other chemicals at the wash rack. The wash rack water passes through an OWS into the stormwater system. This OWS is one of three OWSs that discharge into the storm system.

There are seven retention ponds on-site, including Picnic Pond (**Figure 4-10**) (Apraham 2005, Kempf 2006b). The water treatment ponds are acknowledged to be contaminated from Navy operations over a period of many years. The extent and characteristics of the contamination will require further investigation (Joy 2006a). A July 2002 hydrologic study of Picnic Pond indicated that the Picnic Pond stormwater retention system was effectively retaining stormwater for the purpose of minimizing the impact of stormwater flow downstream, detaining stormwater to affect pollutant removal, and containing significant spills should they occur (Woodard & Curran 2002). The overall effectiveness of the ponds to remove pollutants is evidenced by the buildup of sediment, organics, and heavy metals within the pond system.

4.13.5 Surface Water

The main surface water features on and around NAS Brunswick include the Mere Brook/Harpswell Cove complex and Buttermilk Cove. These surface water features represent "waters of the United States" as defined by 33 CFR 328 and associated guidance. There is no surface water at the McKeen Street housing area and there is one small open water wetland at the southern end of the Topsham Annex.

4.13.5.1 Mere Brook/Harpswell Cove Complex

Most of NAS Brunswick lies within the Mere Brook/Harpswell Cove watershed. Two large branches drain approximately 74 percent of the land area of NAS Brunswick. The main branch (Mere Brook) originates off NAS Brunswick to the west. This branch enters NAS Brunswick on the northwest side and flows in a generally southeastern direction in its natural streambed for approximately 0.621 mile (1 km). It is then routed under the runway complex via an artificial conduit for approximately 0.621 mile (1 km) (Kempf 2006b). The second branch (unnamed) originates on NAS Brunswick in the northeastern section. Two upper arms of this branch have been dammed to form NAS Brunswick recreational pond known as Picnic Pond. Both branches

join up to become the main stream prior to flowing off NAS Brunswick (Kempf 2006b). Numerous small intermittent streams join the flow along the way. The main stream turns and flows back toward the southwest and crosses back onto NAS Brunswick in the Weapons Complex. After passing beneath New Gurnet Road through culverts, Mere Brook becomes tidally influenced. From this point, Mere Brook becomes a wide, tidal stream that discharges into the head of Harpswell Cove in the south-central portion of NAS Brunswick. Harpswell Cove is a tidal estuary with extensive salt marsh and mudflat habitats. The average tidal range in this area is approximately 9.5 ft., though monthly spring tides can exceed 11 ft. (Geo-Marine 2001).

4.13.5.2 Buttermilk Cove Watershed

Only 13 percent of NAS Brunswick lies in the Buttermilk Cove watershed. Buttermilk Cove borders a small stretch of the eastern boundary of NAS Brunswick. The drainage areas of NAS Brunswick that lie in this watershed are primarily the housing units at Brunswick Gardens. Also a tidal estuary, Buttermilk Cove differs from Harpswell Cove in that it is relatively steep-sided, with narrow fringing salt marshes. Along NAS Brunswick boundary, Buttermilk Cove's fringing marshes are rarely greater than 50 ft. in width, and in places there is no fringing marsh at all. In these places, exposed mudflats or rock outcrops abut the forest edge directly (Geo-Marine 2001).

4.13.5.3 Androscoggin River

Thirteen percent of NAS Brunswick drains into the Androscoggin River via an unnamed tributary. The area of NAS Brunswick that lie in this watershed include Hangar 6 and the JFSI.

4.14 Natural Resources

4.14.1 Floodplains

Federal Emergency Management Administration (FEMA) flood maps (USDA 2005) of the Brunswick area (shown in **Figure 4-12**) indicate that there are three areas of NAS Brunswick that would be inundated during a 100-year flood event.

1. On the western side of NAS Brunswick along Mere Brook from where it enters the property until it goes under the runway;
2. In the southern half of the site from where Mere Brook exists from under the runway down along the salt marsh to Harpswell Cove; and
3. A small area along Buttermilk Cove in the south east corner of NAS Brunswick.

Both the Buttermilk Cove and the southern portion of Mere Brook 100-year flood areas have Base Flood Elevations (BFEs) determined. The western Mere Brook 100-year flood area does not have the BFE determined.

There are no areas of Topsham Annex or McKeen Street that lie within the 100-year flood boundary.

4.14.2 Wetlands and Aquatic Habitats (Special Aquatic Sites)

Wetlands are federally regulated under the CWA and by the state under the Maine Natural Resources Protection Act.

NAS Brunswick includes approximately 330 acres of non-tidal wetlands (**Figure 4-13**). A planning level wetland inventory was completed in 1998 (Geo-Marine 2001). This survey resulted in the mapping of approximately 443 acres of wetlands at NAS Brunswick (**Figure 4-13**), approximately 75 percent of which are non-tidal wetlands. This inventory was produced through preliminary photo interpretation followed by ground-truthing of photo interpreted boundaries. No jurisdictional determination was made; therefore, this inventory should be used for general planning purposes only.

Jurisdictional wetland delineations (wetland boundaries verified and marked in the field) have been conducted for several areas around the base within the past 5 years and are shown in **Figure 4-14** (Moore 2005). The jurisdictional wetland delineations actually indicate fewer wetlands than indicated in the planning level inventory.

The wetlands were classified following the Cowardin community classification system. The Cowardin wetland community classification system imposes boundaries on natural ecosystems for the purpose of inventory, evaluation, and management. The Cowardin classification is divided into five major systems: Marine, Estuarine, Riverine, Lacustrine, and Palustrine.

All wetlands identified in the inventory effort belong to the Estuarine or Palustrine systems (**Table 4-21**). Estuarine wetlands include deepwater tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partly obstructed, or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land. The Estuarine system has two subsystems, subtidal (E1) and intertidal (E2). The subtidal subsystem is described as a continuously submerged substrate. The intertidal subsystem refers to substrates that are exposed and flooded by tides and includes their associated splash zones.

Approximately 116 acres of estuarine wetlands were mapped, most of which are located around Harpswell Cove. The remaining estuarine wetlands are located along the portion of NAS Brunswick's boundary that abuts Buttermilk Cove.

Palustrine wetlands include all non-tidal wetlands dominated by trees, shrubs, persistent emergents, mosses, or lichens. The Palustrine system groups vegetated wetlands traditionally called marshes, swamps, bogs, fens, prairies, and ponds. It contains no subsystems, though it is further divided into eight classes.

The remaining 327 acres of wetlands at NAS Brunswick were classified as palustrine wetlands. The majority of NAS Brunswick's palustrine wetlands are associated with the Mere Brook/Harpswell Cove watershed (Geo-Marine 2001).

The Topsham Annex has one area which is a well-developed mixed class emergent-scrub/shrub wetland located in the northeastern portion of the open recreation area dividing the administrative area from the residential area. This wetland is bordered on the western edge by the annexed school district property. The other wetland is located at the southern end of the

property below the Exchange parking lot and is mostly open water (Figure 4-13) (Geo-Marine 2001).

There are no known wetlands at the McKeen Street housing area.

4.14.3 Coastal Zone Areas

Coastal Zone Management for NAS Brunswick is addressed under the state approved plan by the National Oceanic and Atmospheric Administration (NOAA) (Kempf 2006b). The Coastal Zone Management Act regulations and NAS Brunswick personnel evaluate each project on an individual basis to ensure compliance with the Act (Kincaid 2005). The entire property of NAS Brunswick Main Station, Topsham Annex, and McKeen Street, along with the town of Brunswick and Topsham, lies within the Coastal Zone. Coastal Zone Management determinations and multiple EAs have been prepared for specific NAS Brunswick projects potential impacts to coastal resources.

According to the NAS Brunswick Master Plan, there is no currently proposed development that significantly affects the water courses or the marine waterfront areas (Prosser 2002). The Town of Brunswick has zoned a 250-ft. natural resources protection zone around coastal wetlands. The NAS Brunswick golf course and picnic area lie within the protection zone, but according to the master plan, pose no significant impact to wetland areas. In the past some Survival, Evasion, Resistance, and Escape (SERE) school training took place adjacent to the saltwater marsh below the golf course but no negative environmental impact resulted from that activity. The SERE School training has not occurred in this area for several years (Moore 2005).

4.14.4 Coral Reefs

Coral reef protection is not applicable to NAS Brunswick Main Station, Topsham Annex, or McKeen Street housing area.

4.14.5 Fisheries

Essential fish habitat at NAS Brunswick is regulated under the Sustainable Fisheries Act which amended the habitat provisions of the Magnuson-Stevens Act.

Although there is no Essential Fish Habitat (EFH) designation determined specifically for NAS Brunswick Main Station, Topsham Annex, or Mckeen Street housing area (Moore 2005), NOAA has designated EFH areas within the portion of Casco Bay that includes Harpswell Cove (NOAA 2005), and the fish included in this habitat are summarized in **Table 4-22**. Although Buttermilk Cove is not specifically identified in the NOAA EFH, it is located within the area described. The EFH includes any combination of eggs, larvae, juveniles or adults of the following fish: Atlantic salmon *(Salmo salar)*, Atlantic cod *(Gadus morhua)*, pollock *(Pollachius virens)*, whiting *(Merluccius bilinearis)*, red hake *(Urophycis chuss)*, white hake *(Urophycis tenuis)*, winter flounder *(Pleuronectes americanus)*, yellowtail flounder *(Pleuronectes ferruginea)*, windowpane flounder *(Scopthalmus aquosus)*, American plaice *(Hippoglossoides platessoides)*, ocean pout *(Macrozoarces americanus)*, Atlantic halibut *(Hippoglossus hippoglossus)*, Atlantic sea scallop *(Placopecten magellanicus)*, Atlantic sea herring *(Clupea harengus)*, bluefish *(Pomatomus saltatrix)*, Atlantic mackerel *(Scomber scombrus)*, and bluefin tuna *(Thunnus thynnus)*.

4.14.6 Marine Mammals

According to site personnel (Moore 2005), the Marine Mammal Protection Act is not applicable to NAS Brunswick Main Station, Topsham Annex, or McKeen Street housing area because no marine activities take place at NAS Brunswick. The Integrated Natural Resources Management Plan (INRMP) does not include any marine mammals in the discussion of site fauna.

4.14.7 Threatened, Endangered, and Other Sensitive Species

Threatened and endangered species at NAS Brunswick are regulated under the Federal Endangered Species Act and Maine's Endangered Species Act.

An endangered species review was conducted at NAS Brunswick by The Natural Heritage Program and The Nature Conservancy for the Maine Department of Inland Fisheries and Wildlife in 1988. NAS Brunswick has an INRMP (Geo-Marine 2001) which contains a summary of the endangered species on the facility. According to the INRMP, no federally listed threatened or endangered species are known to reside on NAS Brunswick. Consultation with the U.S. Fish and Wildlife Service confirmed that there no known federally listed threatened and endangered species at NAS Brunswick (Moore 2005). However, bald eagles (*Haliaeetus leucocephalus*), regularly visit the area and are seen foraging in habitat along the Androscoggin River and the many estuarine coves in the region. Bald eagles are currently federally listed as a threatened species.

While there are no federally listed endangered or threatened species residing at NAS Brunswick, three state-listed threatened or endangered species are known to be present at NAS Brunswick, as described below. **Table 4-23** depicts all of the species that are known to inhabit or frequent NAS Brunswick that are listed as rare, threatened, or endangered.

The Maine Department of Conservation found no rare botanical features; habitat of rare, threatened, or endangered plant species; or unique or exemplary natural communities in the vicinity of Topsham Annex (Maguire Group 1998).

There are no known threatened or endangered species at Topsham Annex or McKeen Street housing area.

4.14.7.1 Grasshopper Sparrow (state endangered)

The grasshopper sparrow prefers open grassland with an abundance of caespitose grasses, few small shrubs, and no thick litter mat covering the ground. At present it is only known to breed in four locations in Maine. One of those locations is NAS Brunswick, where it regularly breeds in the sandplain grassland habitat (**Figure 4-15**). The population is monitored annually through counts of breeding pairs. The number of pairs breeding on the station has fluctuated considerably from year to year; however, the reasons for the fluctuations are not known.

4.14.7.2 Upland Sandpiper (state threatened)

The upland sandpiper occupies similar habitat (**Figure 4-15**), but areas with more low blueberry shrub cover and scattered patches of open ground. Its distribution in Maine is generally restricted to open lands and barrens in the coastal zone. It is known to breed in approximately

30 locations. The upland sandpiper was previously listed as state rare-indeterminate status, but was officially listed as state threatened in the summer of 1999. The number of pairs breeding at NAS Brunswick is unknown, but likely fluctuates from year to year like the grasshopper sparrow. Its presence or absence is recorded concurrently with the grasshopper sparrow survey.

4.14.7.3 Clothed Sedge (state endangered)

The clothed sedge (*Carex vestita*) was previously state listed as historic (the last record was from 1938). However, this species was rediscovered in the sandplain grassland at NAS Brunswick during vegetation surveys conducted in August 1998 (Geo-Marine 2001). Upon discovery of the population at NAS Brunswick, the state initiated the process of re-listing this species as state endangered. That process was completed in the summer of 1999. Additional surveys conducted in the summer of 1999 identified three more populations at NAS Brunswick (**Figure 4-15**). This plant has recently been discovered in others areas of Brunswick (Moore 2005). At present, these are the only known locations for this species in Maine.

There are two state listed natural communities present at NAS Brunswick, the sandplain grassland community and the pitch pine-heath barren community (**Figure 4-16**). These communities are both ranked as S-1 communities in Maine. An S-1 ranking means that a community type is critically imperiled in Maine because of extreme rarity (five or fewer occurrences, or little remaining acreage). Sandplain grasslands and pitch pine-heath barrens are linked through succession. If a sandplain grassland is not maintained, it will eventually succeed to a pitch pine-heath barren. Fire is believed to have been the historic mechanism for maintenance of sandplain grasslands. In the absence of fire, or if fire is too infrequent, pitch pine and a variety of ericaceous shrubs will invade the sandplain grassland. At NAS Brunswick, the sandplain grassland is largely contained within the Airfield Clear Zone where it has been maintained by mowing rather than fire, but the net result is that the area has remained as grassland. The sandplain grassland at NAS Brunswick is one of only two such occurrences of this community type in the state. Most of NAS Brunswick's sandplain grassland is located within the Airfield Clear Zone Management Unit, and the remainder is located in the northern portion of the West Side Forest Management Unit. The pitch pine-heath barren has developed in an area outside of the clear zone, where mowing is not conducted with any regularity. The pitch pine-heath barren at NAS Brunswick is one of only three occurrences of this community type in Maine. Most of the Station's pitch pine-heath barrens have been observed on the west side of the airfield.

The horned lark and vesper sparrow are two additional species that occur at NAS Brunswick that are not listed as threatened or endangered in Maine, but have the potential to be listed in the future.

4.14.7.4 Horned Lark

The horned lark is listed as state rare-indeterminate status. Indeterminate means that the species may qualify for listing as endangered or threatened, but insufficient data exists to determine its true status. The horned lark prefers sparsely vegetated open grassland with bare gravelly openings. Though probably not as rare as the grasshopper sparrow, it is only known to breed in six locations in Maine.

4.14.7.5 Vesper Sparrow

The vesper sparrow is on the state watchlist. Watchlist species are currently considered secure in Maine, but because it occupies unique habitats that may be lost or altered, the species is monitored to track its status and avert potential problems. Vesper sparrows breed in both open grassland and scrub grasslands. They do exhibit a preference for sites with more scrub pines and ericaceous shrubs than those preferred by the other species, and they prefer areas with greater amounts of litter covering the ground. Vesper sparrows are presently known to breed in more than 50 locations in Maine. **Table 4-23** depicts all of the species that are known to inhabit or frequent NAS Brunswick that are listed as rare, threatened, or endangered.

4.14.8 Geological Hazards

The forces that cause earthquakes in Maine may be related to the ongoing slow westward movement of the North American tectonic plates, and to gradual rebound of the underlying mantle after recent melting of the last great ice sheet. The probability of having a small earthquake in Maine in any year are quite high but the probability of a larger event (causing minor damage to man-made structures) is much less (Maine Geological Survey 2003). To date the largest earthquake in Maine occurred in 1904 and had a maximum intensity of VII (only caused some minor damage to buildings). In a 50 year period, there is only a 10 percent chance of an earthquake occurring with an intensity high enough to cause minor damage anywhere in Maine.

Coastal landslide hazards mapped by the Maine Geological Survey include portions of Harpswell Cove and Buttermilk Cove. Both coves are classified as either low coastal bluff or non-bluff shoreline, which indicates that the shoreline is not at risk of failing in the form of a landslide (Maine Geological Survey 2001).

Coastal landslide hazard is not applicable to Topsham Annex or McKeen Street housing area because they are not located adjacent to the ocean.

See **Section 4.14.1** for information on flood hazards.

4.15 Cultural Resources

Cultural resources at NAS Brunswick are federally regulated under the National Historic Preservation Act, Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act.

4.15.1 Historical Resources

Facility personnel (Moore 2005) indicated that NAS Brunswick does not have an Integrated Cultural Resources Management Plan (ICRMP); however, a Cultural Resources Survey was conducted at the Main Station, the McKeen Street Housing Complex, the former East Brunswick Remote Radio Transmitter Site, the Topsham Annex, and the SERE School in 1995 with the draft final report dated 1999 (Louis Berger 1999). Part of the Cultural Resources Survey included an Architectural Resources Survey. The State Historic Preservation Office (SHPO) reviewed the draft Cultural Resources Survey and their comments were incorporated in to the

final draft report. The findings of the Architectural Resources Survey are summarized below (Louis Berger 1999).

- Pre-1946 resources include Buildings 44, 63, and 64 which are earth-covered steel magazines constructed in 1943, possess integrity and meet National Register of Historic Places (NRHP) Criterion C.

  At the time the survey was conducted, Building 35, a former radio transmitter facility, and Hangars 1, 2, and 3, met NRHP Criterion A, but, with the approval from SHPO, have since been or are scheduled for demolition in accordance with Section 106 of the National Historic Preservation Act .
- The remaining pre-1946 historical buildings and structures at NAS Brunswick do not meet NRHP criteria, due to lack of demonstrable significance and/or lack of historical integrity.
- There are no remaining buildings at Topsham Annex or the remote radio transmitter site that meet the NRHP criteria.
- The post-1946 resources that appeared to have the greatest potential for NRHP eligibility once they reach the age of 50 years were Building 211 (Bachelor Enlisted Quarters [BEQ] barracks), Building 226, 227, 517, and 518 (radio communications buildings).

The locations of the remaining historical buildings and structures are shown in **Figure 4-17**.

EAs have been performed for recent construction projects including the Radar Air Traffic Control Tower Facility (Navy 2003a); Bachelor Enlisted Quarters (Navy 2002b); Aircraft Maintenance Hangar (Navy 2002c); the Transfer and reuse of Access Property at Topsham Annex (Maguire 1998); and the Renovation and Construction of Navy Housing (KCI 1991). Each of the EAs reviewed indicated that the proposed action would have no effect on historical buildings and structures. The SHPO also determined that the proposed construction in each of the EAs would not impact any historic resources. Findings of No Significant Impact (FONSI) for each of the construction projects reiterated the conclusion of the EAs of no effect on the historical buildings and structures (Moore 2006b).

4.15.2 Archaeological Resources

Facility personnel (Moore 2005) indicate that NAS Brunswick does not have an ICRMP; however, several archaeological surveys have been conducted for various areas of NAS Brunswick.

Cultural Resources Survey – April 1999

A Cultural Resources Survey was conducted in 1995 for the Main Station, the McKeen Street Housing Complex, the East Brunswick Remote Radio Transmitter Site, and the Topsham Annex. The Cultural Resources Survey consisted of a Phase IA Archaeological Investigation and an Architectural Resources Survey (consists of background research and field testing). The SHPO reviewed the draft Cultural Resources Survey and their comments were incorporated into the draft final Cultural Resources Survey. The findings of the Phase IA Archaeological Investigation (background research and field testing), as documented in the 1999 draft final report (Louis Berger 1999), are summarized below.

- There are no known prehistoric archaeological sites at NAS Brunswick. The Main Station has areas of high sensitivity for prehistoric sites (contain one or more variables that make them likely locations for evidence of past human activities) located along the northern boundary and areas of moderate sensitivity for prehistoric sites along portions of Mere Brook, its tributaries, and the shoreline of Harpswell and Buttermilk coves. Three historic archaeological localities were noted including the salt marsh dikes, three nineteenth century cemeteries, and multiple nineteenth-century household artifacts.
- The McKeen Street Housing Complex was judged to have a low sensitivity for both prehistoric and historic archaeological sites.
- The East Brunswick Remote Radio Transmitter Site was judged to have a low sensitivity for both prehistoric and historic archaeological sites.
- The Topsham Annex was judged to have a low sensitivity for prehistoric archaeological sites. The western half of the annex is rated as having a moderate sensitivity for historic sites.

The locations of these archaeological sites are shown in **Figure 4-18**. The results of the Architectural Resources Survey are summarized in **Section 4.15.1**.

Phase I Archaeological Survey – October 1999

A archaeological survey was conducted in October 1999 in the area of the proposed family housing projects located in the Brunswick Gardens and Neighborhoods A, B, and D (**Figure 4-18**) (TAMS 1999). The proposed action consisted of the demolition of 224 housing units in the Brunswick Gardens, construction of 224 replacement housing units in the Brunswick Gardens, and the construction of 16 new housing units in the Neighborhoods A, B, and D. The results of the survey concluded the proposed family housing neighborhoods would not affect archaeological resources. The SHPO concurred with the conclusion of the archaeological survey (Moore 2006a).

Phase IB Archaeological Survey – July 2000

A Phase 1B archaeological survey (consists of intensive field survey) was conducted in July 2000 in the area of the proposed Bachelor Enlisted Quarters (**Figure 4-18**) (Louis Berger 2000). The proposed construction of the 20 two-story buildings and infrastructure occupied 15.1 acres near Neptune Drive and Pegasus Street of the Main Station of NAS Brunswick. Although the Cultural Resources Survey identified the area as an archaeologically sensitive area, the result of the Phase 1B survey identified no archaeological properties in the project area. The SHPO concurred with the conclusion of the archaeological survey (Moore 2006a).

EAs were prepared for proposed construction of the Radar Air Traffic Control Tower Facility (Navy 2003a), Bachelor Enlisted Quarters (Navy 2002b), Aircraft Maintenance Hangar (Navy 2002c), the Transfer and reuse of Access Property at Topsham Annex (Maguire 1998), and the Renovation and Construction of Navy Housing (KCI 1991). Each of the EAs reviewed indicated that the proposed action would have no effect on prehistoric or historic archaeological resources. The SHPO also determined that the proposed construction in each of the EAs would not impact any historic resources.

4.15.3 Native American Graves Protection and Repatriation Act

According to facility personnel (Moore 2005), Native American graves have not been discovered on NAS Brunswick Main Station, McKeen Street, or Topsham Annex. The Cultural Resource Survey conducted in 1995 did not contain any information specific to Native American graves and there was no other documentation available specific to Native American graves. Although documentation does not exist regarding any Native American resources, archaeology, graves or otherwise, the "pre-historic sensitive area" (**Figure 4-18**) might contain such protected resources. In addition, although Native American Tribes of Maine (Maliseet, Passamaquoddy, Abenaki, Penobscot, and Micmac) have not participated in any consultations at NAS Brunswick, they have expressed interest if any such resources are found.

4.16 Summary of Environmental Conditions

Environmental conditions at NAS Brunswick consist of the following:

- Presence of lead-based paint and asbestos in buildings at the Main Station, Topsham Annex and McKeen Street housing area.
- Portions of the Main Station site lie within the Buttermilk Cove, Mere Brook, and Harpswell Cove 100-year floodplains.
- Presence of 443 acres of wetlands within the NAS Brunswick Main Station property boundaries and the two wetland areas at Topsham Annex.
- The entire property of NAS Brunswick (Main Station, McKeen Street, and Topsham Annex) lies within an establish Coastal Zone.
- Presence of state-recognized threatened or endangered species, including the grasshopper sparrow, the upland sandpiper, and the clothed sedge.
- Buildings 44, 63, and 64 of the Main Station are eligible for listing on the National Register of Historic Places.
- Several areas of the Main Station have been identified as possessing high and moderate sensitivity for prehistoric sites located along the northern boundary, along portions of Mere Brook and its tributaries, and the shorelines of Harpswell and Buttermilk Coves. Three previously unrecorded historic archaeological localities have been noted. Additionally, over two dozen localities were identified as having high sensitivity for historic archaeological deposits.

Based on the information reviewed, established land use restrictions that need to be considered when NAS Brunswick is transferred to other private and public entities exist associated with several of the IRP sites, including Sites 1, 3, 2, 4, 7, 9, 11 and 13. Common land use constraints include restrictions on soil excavation and the usage of the groundwater. General land use constraints are detailed in **Section 4.2** for each IRP site. Land use constraints may also be developed for other areas, including Site 12, Site 17, Old Fuel Farm, and NEX Gas Station (Joy 2006c). An NAS Brunswick instruction outlines previous contaminated areas to be considered during project planning (Joy 2006c).

The environmental conditions are summarized in **Figure 4-19**.

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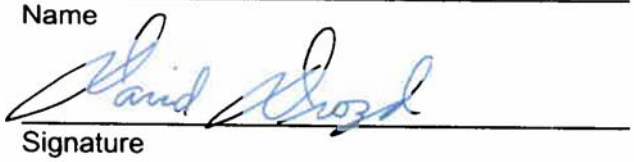
5.0 Certification

I certify that the Environmental Conditions of Property Report for the Naval Air Station, Brunswick, Maine (Revision 2) dated 30 May 2006 and its enclosures were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. The information contained within the Environmental Conditions of Property Report for Naval Air Station, Brunswick, Maine (Revision 2) dated 30 May 2006, and its enclosures is, to the best of my knowledge and belief, true, accurate and complete and accurately reflects the property's condition as of 30 May 2006 based upon my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information.

DAVID DROZD

Name



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TABLES

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Table 4-1. Summary of CERCLA Information

IRP Site ID	IR Site Name	Dates of Operation	Historic Description	Contaminants of Concern	Current Phase of Remedial or Corrective Action
1	Orion Street Landfill – North (Operable Unit 1)	1955 - 1975	Landfill that received waste oil, solvents, pesticides, petroleum products, paint, aircraft and automobile parts, domestic waste including food, and various unidentified chemicals (EPA 1992). May have received pharmaceutical waste, photography-related chemicals, and empty hazardous waste chemical containers, filter pack material from oil/water separators, paint cans, herbicide and pesticide containers, and construction debris (Jordan 1990). Disposal occurred in two unlined trenches (Jordan 1990).	VOCs, SVOCs, PCBs, pesticides, and/or metals in soil, groundwater, sediments, surface water, and leachate (EPA 1992).	ROD finalized in 1992 (EPA 1992). No further action with respect to soil (EPA 1992). De-watering activities have been ceased (EA and ECC 2005). Groundwater impacts are being addressed with a groundwater pump and treat system (ABB 1998). Future actions include evaluation of impacts to Mere Brook surface water and sediment, update LTMP, develop a LUCIP, and update O&M Plan for deactivation of two extraction wells (EA and ECC 2005).
2	Orion Street Landfill – South (Operable Unit 2)	1945 to 1955	Inactive landfill that received domestic waste, solvents, paint, hydraulic oil, and medical supplies (Jordan 1990).	Metals, PAHs, VOCs, TCE, and/or DDT in soil, groundwater, surface water, sediments, and leachate (Jordan 1990, EA and ECC 2005).	ROD finalized in 1998 (Harding Lawson 1998). All surficial debris has been removed and the landfill covered over with soil (EA and ECC 2005). Future remedial actions include development of a LUCIP, investigate the area north of the landfill to evaluate leachate seep impacts, and continuing LTMP (EA and ECC 2005).
3	Hazardous Waste Burial Area (Operable Unit 1)	1960 - 1973	Landfill that reportedly received solvents, pesticides, paint, isopropyl alcohol, and petroleum products (Weston 1983, EPA 1992). Based on its proximity to Site 1 and the similarity in local subsurface geology, historical use, and hydrologic characteristics, the remediation of Site 1 and 3 have been combined (Jordan 1990).	VOCs, SVOCs, PCBs, pesticides, and/or metals in soil, groundwater, sediments, surface water, and leachate (Jordan 1990, EA and ECC 2005).	ROD finalized in 1992 (EPA 1992). Groundwater impacts addressed in conjunction with Site 1. No further action with respect to soil (EPA 1992). Proposed evaluation of impacts to Mere Brook surface water and sediments (EA and ECC 2005).
4	Acid/Caustic Pit	1969 - 1974	Former disposal pit used for disposing of acids, solvents, and transformer oils (Weston 1983).	Lead and TCE in groundwater (Jordan 1990).	ROD finalized in 1998 (ABB 1998). The selected final remedial action for the site was determined to be No Further Action with respect to soil (ABB 1998). The TCE groundwater plume is moving southeast towards Sites 1 and 3 and co-mingling with the Sites 11 and 13 plumes, collectively known as the Eastern Plume (ABB 1998). Groundwater impacts associated with Eastern Plume are being addressed with a groundwater pump and treat system (ABB 1998).
5	Orion Street Asbestos Disposal Site	1979	Asbestos-lined pipes from demolished NAS Brunswick buildings were disposed of in two trenches in a 0.25 acre area (EA and ECC 2005).	No impacts remaining (EA and ECC 2005).	ROD finalized in 1993 (EPA 1993a). Excavated and transported the asbestos containing pipes and construction debris from Sites 5 and 6 to Sites 1 and 3 for use as the subgrade for a low-permeability cap (EPA 1993a). No Further Action required (EPA 1993a).
6	Sandy Road Rubble and Asbestos Disposal Site	Unknown - 1970's	Approximately 250 cubic yards of construction debris, including asbestos-lined pipes and aircraft parts were disposed of at this location (Weston 1983).	No impacts remaining (EA and ECC 2005).	ROD finalized in 1993 (EPA 1993a). Excavated and transported the asbestos containing pipes and construction debris from Sites 5 and 6 to Sites 1 and 3 for use as the subgrade for a low-permeability cap (EPA 1993a). No Further Action required (EPA 1993a).
7	Old Acid/Caustic Pit (Operable Unit 7)	1952 - 1969	Disposal pit for battery acid, transformer oil, solvents, and other caustic liquids (EA 2002).	Pesticides and PAHs in soil and metals in groundwater (Jordan 1990).	ROD finalized in 2002 (EA 2002). Subsequent to a pump test and excavation activities, the selected remedy is institutional controls, including soil and groundwater use restrictions, and long-term groundwater monitoring (EA and ECC 2005).
8	Perimeter Road Disposal Site	1964 - 1974	Used to dispose of construction and demolition debris including concrete, scrap metal, industrial wastes, and asphalt rubble (Jordan 1990). Additionally, solvents containing TCE, MEK, and toluene were reportedly disposed of at this site (Jordan 1990). A ravine located to the northeast of the site is also partially filled with landfill debris (Jordan 1990).	No impacts remaining (EPA 1993a).	ROD finalized in 1993 (EPA 1993a). The construction debris, rubble, and PAH-impacted soils were excavated and transported to Sites 1 and 3 for use a subgrade material for the landfill cap (EPA 1993a). No Further Action required (EPA 1993a).

Table 4-1. Summary of CERCLA Information

IRP Site ID	IR Site Name	Dates of Operation	Historic Description	Contaminants of Concern	Current Phase of Remedial or Corrective Action
9	Neptune Drive Disposal Site (Operable Unit 6)	1943 - 1946	First landfill used at the air station (Jordan 1990). Reportedly solid waste was burned in an incinerator and the resulting ash dumped in the landfill (Jordan 1990, EA and ECC 2005). Additionally, liquid waste and solvents were poured on the ground and burned (Jordan 1990). A 42-inch diameter drain pipe was located adjacent to the dump location and ran between Buildings 201 and 293 to an outfall in the local unnamed stream (EA and ECC 2005). Additionally, the septic system associated with Building 201 may have been a source of impacts to soil and groundwater (EA and ECC 2005).	Metals, hydrocarbons, PAHs, and VOCs in leachate, groundwater, surface water, and sediments (Jordan 1990).	The selected final remedial action for the site includes LTMP, natural attenuation, and institutional controls including land use restrictions (EA and ECC 2005).
10	DFSP Casco Bay Harpswell	1956 - Unknown	Off-site contractor operated fuel depot containing 14 ASTs that store JP-5 and aviation gasoline (Weston 1983).	Hydrocarbons in soil and groundwater (Weston 1983).	The Defense Energy Support Center (DESC) was responsible for and performed remediation on the property including installing two recovery wells were installed in 1982 from which approximately 5 gallons of fuel are recovered per day (Zamorski 2005, Weston 1983). The property consisted of 119.32 acres, which conveyed to the Town of Harpswell by two deeds (Zamorski 2005). Remaining property, reported as excess but not yet disposed of, is a 30-foot wide easement and right-of-way improved with two underground pipelines (Zamorski 2005). The pipelines consist of steel pipelines, which were used to transfer jet fuel (JP-5) (Zamorski 2005). The pipelines were removed from service in 1991 and were drained and cleaned (Zamorski 2005).
11	Fire Training Area	1950's – 1990	Combustible liquids, including fuels, waste oils, solvents, and other miscellaneous liquids, were used to conduct training activities (Jordan 1990). Originally the fires were fought directly on the grass substrate (Jordan 1990). In 1987, a circular concrete liner surrounded by an earthen berm and a 6,000 gallon UST north of the fire pit that contains unburned fuel were installed surrounded by a grass area (Jordan 1990).	Fuel-related compounds including PAHs in soil and VOCs and SVOCs, in groundwater (EA and ECC 2005).	ROD finalized in 1998 (ABB 1998). No Further Action with respect to soil. Groundwater impacts addressed as part of the Eastern Plume (Sites 4, 11, and 13) (ABB 1998).
12	EOD Training Area	1981 - Unknown	Training and destruction of small quantities of ordnance, pyrotechnics, and privately manufactured explosive devices since 1981 (EA and ECC 2005).	Mercury, and nitrate/nitrite in soil (Jordan 1990).	Currently still under active investigation, no ROD established (EA and ECC 2005).
13	Defense Reutilization and Marketing Office Area	1970's - 1980's	Three USTs were in operation for storage of waste oil, solvents, and diesel until the late 1980s (Jordan 1990, EA and ECC 2005). In 1986, the 10,000-gallon steel diesel UST was removed and replaced with a fiberglass UST that was later removed and replaced with an AST (Jordan 1990). The other two USTs were removed in 1986 and 1989 but were not replaced (Jordan 1990).	Pesticides, SVOCs, and VOCs (Jordan 1990).	ROD finalized in 1998 (ABB 1998). No Further Action with respect to soil. Groundwater impacts addressed as part of the Eastern Plume (Sites 4, 11, and 13) (ABB 1998).
14	Old Dump #3	Late 1940's	Landfill that most likely operated prior and during World War II before the air station was decommissioned in the late 1940s (EA and ECC 2005).	No impacts remaining (EA and ECC 2005).	No documentation of a final ROD was identified for this site, however the site was addressed in a Consensus Statement dated July 18, 2001 recommending No Further Action for Sites 14, 15, 16, and 18 (EA and ECC 2005).
15	Merriconeag Extension Debris Site	Unknown	Soil and concrete rubble dam that created a 0.75-acre pond on an unnamed stream. There are no historical records of dumping at this location (EA and ECC 2005).	No impacts remaining (EA and ECC 2005).	No documentation of a final ROD was identified for this site, however the site was addressed in a Consensus Statement dated July 18, 2001 recommending No Further Action for Sites 14, 15, 16, and 18 (EA and ECC 2005).
16	Swampy Road Debris Site	Unknown	Although there is no historical record of disposal at this site, unspecified debris across a 1,700 ft section of the stream was reported (EA and ECC 2005).	No impacts remaining (EA and ECC 2005).	N No documentation of a final ROD was identified for this site, however the site was addressed in a Consensus Statement dated July 18, 2001 recommending No Further Action for Sites 14, 15, 16, and 18 (EA and ECC 2005).
17	Former Pesticide Shop (Building 95)	1955 - 1985	Building used for storage and mixing of pesticides and herbicides (EA and ECC 2005).	Pesticides and herbicides in	Site buildings were demolished and site soils were excavated and disposed of off-site (EA and ECC 2005). Currently monitoring

Table 4-1. Summary of CERCLA Information

IRP Site ID	IR Site Name	Dates of Operation	Historic Description	Contaminants of Concern	Current Phase of Remedial or Corrective Action
				groundwater (EA and ECC 2005).	groundwater impacts (EA and ECC 2005). No ROD in place (EA and ECC 2005).
18	West Runway Study Area	Unknown	Unidentified product seeping out of hillside in vicinity of runway creating a sheen on surface water (EA and ECC 2005).	No impacts remaining (EA and ECC 2005).	No documentation of a final ROD was identified for this site, however the site was addressed in a Consensus Statement dated July 18, 2001 recommending No Further Action for Sites 14, 15, 16, and 18 (EA and ECC 2005).
POL 1	Old Navy Fuel Farm	1943 - 1993	Location of a total of 9 USTs that contained petroleum sludge, unleaded gasoline, aviation gasoline, ethylene gycol, and JP-5 fuel (EA 1998).	BTEX, MTBE, TPH-GRO, TPH-DRO (EA 1998)	Biosparge system operated from August 1996 to December 1998 (EA 2005). Soil Vapor extraction/air sparging operated from March to July 1999. Soil excavation of source areas in September 2000. Remedial alternative is currently monitored natural attenuation.
POL 2	NEX Service Station	1974 - Present	Three 10,000-gallon fiberglass USTs containing regular, mid-grade, and premium unleaded gasoline were installed at the NEX service station in 1974. In October 1992 the USTs were removed and replaced with three 10,000 double-walled steel jacketed USTs.	Unknown if any impacts to environment.	One documented fuel release in March 1998 involving a leak from the secondary product piping into the piping sump. The leak was repaired in August 1998 during installation of a new dispenser sump and piping. Additional remedial activities include the removal and off-site disposal of 440 tons of petroleum-impacted soil in 1992 (Tetra Tech 2005). A soil vapor extraction/air sparging system operated from 1993 to 2003 and in 2002 a limited in-situ chemical oxidation pilot test was performed (Tetra Tech 2005). In 2005 a denitrification-based biodegradation pilot test was performed, the effectiveness of which is still being evaluated (Tetra Tech 2005).

Sources: EA 1998, EA 2005, EA and ECC 2005, Navy 1992, Navy 1993a, Navy 1998a, Navy 1998b, Navy 1999, Navy 2002, Tetra Tech NUS, Inc. 2005, Zamorski 2005

Notes:
BTEX = Benzene, toluene, ethylbenzene, and xylene
DDT = Dichloro-diphenyl-trichloroethane
MEK = Methyl ethyl ketone
MTBE = Methyl tertiary-butyl ether
NEX = Navy Exchange
PAHs = Polycyclic aromatic hydrocarbons
PCBs = Polychlorinated biphenyls
ROD = Record of Decision
SVOCs = Semi Volatile Organic Compounds
TCE = Trichloroethylene
TPH-DRO = Total petroleum hydrocarbons-diesel range
TPH-GRO = Total petroleum hydrocarbons-gasoline range
VOCs = Volatile Organic Compounds

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Table 4-2. Underground Storage Tanks at NAS Brunswick

Building	Location	Size (Gallons)	Contents	Year of Installation
5.0(1)	Hangar 5 Generator	1,000	Diesel	1999
77.0(1)	Weapons Magazine Arsenal	500	Fuel Oil #1	1997
594.0(1)	ASWOC Generator	4,000	Diesel	1996
594.1(1)	ASWOC Generator	4,000	Fuel Oil #1	1999
86.0	GSE (De-Ice)	10,000	Propylene Glycol	1993
86.1	GSE (De-Ice)	10,000	Propylene Glycol	1993
117.5	Fuel Farm	20,000	No-Lead	1990
117.6	Fuel Farm	20,000	No-Lead	1990
117.7	Fuel Farm	10,000	Diesel	1992
211.4	Field House	20,000	Fuel Oil #2	1990
211.5	Field House	20,000	Fuel Oil #2	1990
538.4	NEX Gas Station	10,000	Unleaded Premium	1993
538.5	NEX Gas Station	10,000	Unleaded	1993
538.6	NEX Gas Station	10,000	Unleaded	1993
539.2	WPN (AUW) (Gen)	2,000	Diesel	1990
642.1	WPNS (AUC) (Gen)	1,000	Fuel Oil #2	1992
654.0	JFSI Fuel Farm	3,000	Jet Fuel (Product Recovery Tank)	1992

Sources: Don Rickel, NAS Brunswick, 2005.

Notes:

This table only presents the existing USTs at NAS Brunswick and Topsham Annex. A comprehensive list of all former and existing USTs is available from base personnel.

(1) Aboveground storage tank with underground piping and therefore require registration as underground storage tank.

ASWOC = Anti-Submarine Warfare Operations Center
AUW = Advanced Undersea Weapon
GSE = Ground Support Equipment
NEX = Navy Exchange
WPN = Weapon Procurement

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Table 4-3. Existing Aboveground Storage Tanks in NAS Brunswick/ Topsham Annex Inventory

ASTs at NAS Brunswick				
Building No.	**Location**	**Size (Gallons)**	**Contents**	**Date of Installation**
A5.0	HANGAR 5 SO	500	WASTE OIL	1996
A5.1	HANGAR 5 SO	250	WASTE OIL	1996
A5.2	HANGAR 5 NO	500	WASTE OIL	1996
A5.3	HANGAR 5 NO	500	WASTE OIL	1996
A5.4	HANGAR 5 NO	20000	#1 OIL	1999
A5.5	HANGAR 5 NO	20000	#1 OIL	1999
A5.6	HANGAR 5 EAST	1000	DIESEL	1999
A5.7	HANGAR 5 EAST	100	DIESEL	2005
A6.0	HANGAR SIX (I)	125	HYD OIL	2004
A6.1	HANGAR SIX EAST	250	WASTE OIL	2004
A6.2	HANGAR SIX EAST	500	WASTE OIL	2004
A6.3	HANGAR SIX WEST	500	WASTE OIL	2005
A6.4	HANGAR SIX WEST	250	WASTE OIL	2005
A6.5	HANGAR SIX WEST	500	WASTE OIL	2005
A6.6	HANGAR SIX WEST	250	WASTE OIL	2005
A6.7	HANGAR SIX WEST	250	WASTE OIL	2005
A9.0	VPU-1/OLD HSG OFFICE (I)	275	#1 OIL	1999
A11.0	NEX	3000	#1 OIL	1999
A11.1	NEX	250	COOKING GR	2002
A19.1	PW (SHOPS)	275	#1 OIL	1999
A19.2	PW (SHOPS)	275	#1 OIL	1999
A20.0	N.H. COLL/HRO	3000	#1 OIL	1999
A25.0	GYM	3000	#1 OIL	1995
A27.0	FSC	1000	#1 OIL	1999
A29.3	HOBBY SHOP	500	WASTE OIL	1996
A29.4	H0BBY SHOP	2000	#1 OIL	1999
A35.0	MAIN GATE	100	DIESEL	2004
A36.0	DYERS GATE	100	DIESEL	2004
A37.0	NIS OFFICE (I)	275	#1 OIL	NK
A39.1	GOLF COURSE (I)	275	#1 OIL	NK
A39.2	GOLF COURSE	250	GASOLINE	1995
A39.3	GOLF COURSE	250	DIESEL	1995
A39.4	GOLF COURSE STORAGE	250	WASTE OIL	2001
A45.1	HAZ WASTE STORAGE	1000	WASTE OIL	1996
A45.2	HAZ WASTE STORAGE	1000	WASTE OIL	1996
A45.3	HAZ WASTE STORAGE	500	#1 OIL	1999
A45.4	HAZ WASTE STORAGE	250	WASTE OIL	2001
A50.0	TREATMENT PLANT	2000	#1 OIL	1995
A50.1	TREATMENT PLANT	138	DIESEL	1999
A50.2	TREATMENT PLANT (EA)	100	DIESEL	1998
A54.0	FASO	12000	#1 OIL	1996
A55.0	SECURITY	250	#1 OIL	2006
A57.0	AIRCRAFT BEACON LIGHT	100	DIESEL	2004
A58.0	TACAN	100	DIESEL	2004
A77.0	MAG AREA (V)	500	#1 OIL	1997

Table 4-3. Existing Aboveground Storage Tanks in NAS Brunswick/ Topsham Annex Inventory

ASTs at NAS Brunswick				
Building No.	**Location**	**Size (Gallons)**	**Contents**	**Date of Installation**
A78.0	GOLF COURSE	500	#1 OIL	1995
A81.0	HAZMAT STORAGE	2500	#1 OIL	1999
A86.1	GSE (I)	70	LUBE/HYD	1992
A86.10	GSE	250	WASTE OIL	1996
A86.11	GSE	4000	#1 OIL	1999
A86.12	GSE A/C DEICING FACILITY	90000	PROPYLENE GLYCOL	2001
A86.2	GSE (I)	70	LUBE/HYD	1992
A86.3	GSE (I)	70	LUBE/HYD	1992
A86.4	GSE (I)	70	LUBE/HYD	1992
A86.5	GSE (I)	70	LUBE/HYD	1992
A86.6	GSE (I)	70	LUBE/HYD	1992
A86.7	GSE (I)	70	LUBE/HYD	1992
A86.8	GSE (I)	70	LUBE/HYD	1992
A86.9	GSE	100	DIESEL	1992
A000.1	DOSS REFUELLERS	250	#1 OIL	1996
A153.0	RECYCLING BUILDING	550	#1 OIL	2004
A153.1	RECYCLING BUILDING	550	#1 OIL	2004
A153.3	RECYCLING BUILDING	250	WASTE OIL	2004
A153.4	RECYCLING BUILDING	275	WASTE OIL	2004
A200.0	AIROPS	550	DIESEL	1992
A200.1	AIROPS	3000	#1 OIL	1999
A201.0	NEW GALLEY	250	COOKING GR	NK
A201.3	NEW GALLEY	2000	#1 OIL	1999
A201.4	NEW GALLEY	100	DIESEL	2006
A209.0	RIGGERS SHOP (GEN)	550	DIESEL	1992
A221.0	THRIFT SHOP (I)	275	#1 OIL	1999
A227.0	ANT SITE #1	550	DIESEL	1990
A229.1	GCA HARDSTAND	250	DIESEL	1996
A231.0	NEW CONTROL TOWER	100	HYD OIL	2005
A250.0	AIMD (PWR PLANTS) (I)	250	WASTE OIL	1993
A250.1	BLDG 250 VR-62	250	WASTE OIL	1996
A250.2	BLDG 250 VR-62	250	WASTE OIL	1996
A250.3	BLDG 250	20000	#1 OIL	1999
A250.4	BLDG 250	1000	DIESEL	2002
A250.5	ADMIN ENTRANCE	125	HYD OIL	2001
A292.1	FIRE DEPT (I)	200	DIESEL	1998
A292.2	FIRE DEPT	2000	#1 OIL	1999
A294.0	SUPPLY WAREHOUSE	6000	#1 OIL	1999
A295.0	H2O PUMP HOUSE(I)	275	DIESEL	NK
A295.1	H20 PUMP HOUSE(I)	275	DIESEL	NK
A295.2	H20 PUMP HOUSE(I)	275	DIESEL	NK
A295.3	H20 PUMP HOUSE(I)	275	DIESEL	NK
A295.4	H20 PUMP HOUSE(I)	25	DIESEL	NK

Table 4-3. Existing Aboveground Storage Tanks in NAS Brunswick/ Topsham Annex Inventory

ASTs at NAS Brunswick				
Building No.	**Location**	**Size (Gallons)**	**Contents**	**Date of Installation**
A296.0	VORTAC (ANT) (GEN)	550	DIESEL	1992
A512.1	BOQ	10000	#1 OIL	1998
A516.1	NITEFLITE	6000	#1 OIL	1995
A517.0	BOQ	125	HYD OIL	NK
A518.0	ANT SITE #2	550	DIESEL	1990
A537.0	SEWAGE PUMP HSE	550	DIESEL	1990
A538.0	NEX - SERVICE STATION	550	#1 OIL	1991
A553.1	AIRFIELD SUPPORT BLDG	15000	POTASSIUM ACETATE	2006
A554.0	P-3 SUPPORT FACILITY	100	DIESEL	03
A583.0	BOWLING ALLEY	250	COOKING GR	NK
A583.1	BOWLING ALLEY	2500	#1 OIL	1999
A585.0	CHAPEL	1000	#1 OIL	1999
A590.0	TRANS GARAGE	250	WASTE OIL	1996
A590.1	PW TRANSPORTATION	60	LUBE OIL	2004
A590.2	PW TRANSPORTATION	60	ATF	2004
A590.3	PW TRANSPORTATION	60	WIND WASH	2004
A590.4	PW TRANSPORTATION	60	ANTI-FREEZE	2004
A590.5	PW TRANSPORTATION	60	SOAP	2004
A590.6	PW TRANSPORTATION	60	EMPTY	2004
A590.7	PW TRANSPORTATION	60	DIESEL	2004
A590.8	PW TRANSPORTATION	60	ANTI-FREEZE	2004
A594.0	ASWOC TOWER	4000	DIESEL	1996
A594.1	ASWOC TOWER	4000	#1 OIL	1999
A611.0	TEST CELL - T-56 Engine	1000	JP8	1967
A611.1	TEST CELL	185	WASTE OIL	1994
A611.3	TEST CELL - APU	100	JP8	UNK
A635.1	RNMCB-27 (I)	70	LUBE/HYD	NK
A635.14	RNMCB-27	250	WASTE OIL	1996
A635.2	RNMCB-27 (I)	70	LUBE/HYD	NK
A635.3	RNMCB-27 (I)	70	LUBE/HYD	NK
A635.4	RNMCB-27 (I)	70	LUBE/HYD	NK
A635.5	RNMCB-27 (I)	70	LUBE/HYD	NK
A635.6	RNMCB-27 (I)	70	GLYCOL	NK
A644.1	OP TRAINER (I)	150	HYD OIL	UK
A644.2	OP TRAINER	6000	#1 OIL	1996
A645.0	BRANCH CLINIC	550	DIESEL	1992
A645.1	BRANCH CLINIC	2000	#1 OIL	1999
A646.0	ASR-8 ANT SITE	550	DIESEL	1992
A647.0	PEST CONTROL BLDG (I)	275	#1 OIL	1999
A650.0	FUEL FARM	845000	JP8	1992
A651.0	FUEL FARM	845000	JP8	1992
A654.0	FUEL FARM (I)	250	DIESEL	1992
A658.0	FUEL FARM MAINT (I)	330	#1 OIL	1997

Table 4-3. Existing Aboveground Storage Tanks in NAS Brunswick/ Topsham Annex Inventory

ASTs at NAS Brunswick				
Building No.	**Location**	**Size (Gallons)**	**Contents**	**Date of Installation**
A658.1	FUEL FARM MAINT (I)	330	#1 OIL	1997
A660.0	VEHICLE WASH RACK (I)	500	#1 OIL	1996
A750.0	COMBINED BACHELOR QTR	100	DIESEL	2004
AT1.0	AIRCRAFT ARRESTOR	10	GASOLINE	NK
AT1.1	AIRCRAFT ARRESTOR	300	ETHYLENE GLYCOL	NK
AT2.0	AIRCRAFT ARRESTOR	10	GASOLINE	NK
AT2.1	AIRCRAFT ARRESTOR	300	ETHYLENE GLYCOL	NK

Above Ground Storage Tanks at NAS Brunswick

ASTs at Topsham Annex				
Building No.	**Location**	**Size (Gallons)**	**Contents**	**Date of Installation**
A333.0	ARMY RECRUITERS	2000	#1 OIL	95
A335.0	COMMISSARY	6000	#1 OIL	94
A335.1	COMMISSARY	50	DIESEL	NK
A337.0	MARINES	2000	#1 OIL	95
A338.2	MARINES	500	#1 OIL	96
A339.0	MARINES	2000	#1 OIL	95
A338.3	MARINES	300	#1 OIL	00

Note: This table only presents the existing ASTs at NAS Brunswick and Topsham Annex. A comprehensive list of all former and existing ASTs is available from base personnel.

Source: Rickel 2006c.

Table 4-4. Oil/Water Separators at NAS Brunswick

OWS Number	Location	Type	Discharge Point	Volume (gal.)	Source Description
1	Building 590	Steel Tank	Sanitary	550	Floor Drains
2	Building 553	Steel tank	Sanitary	1000	Floor Drains
3	Hangar 6 - East	Steel tank	Sanitary	1000	Interior Floor Drains
4	Hangar 1, Orion St., Northside	Concrete Manhole	Sanitary	350	Interior Floor Drains
5	Hangar 1, Orion St., Southside	Concrete Manhole	Sanitary	315	Interior Floor Drains
6	Bldg. 250, Orion St.	Fiberglass Chamber with Storage Tank	Sanitary	5000	Interior Floor Drains
7	Hangar 5, Orion St.	Concrete Chamber	Sanitary	5600	Interior Floor Drains
8	Building 611, Test Cell	Concrete Chamber	Sanitary	1000	Interior Floor Drains
9	Bldg. 555, Sonobouy Locker	Steel Box in Floor	Sanitary	150	Floor Drains
10	Hangar 6 - West	Steel Tank	Sanitary	1000	Interior Floor Drains
11	Bldg. 660 Heavy Equipment Washrack	Concrete Chamber	Sanitary	550	Heavy Equipment Washrack
12	Bldg 211, Boiler Room	Steel Box in Floor	Sanitary	270	Floor Drains
13	Bldg 635, Seabee Compound	Concrete Chamber	Sanitary	150	Repair Bay Floor Drains
14	Bldg. 29, Hobby Shop	Steel Box in Floor	Sanitary	225	Repair Bay Floor Drains/Car Wash
15	Bldg 292, Fire Station	Concrete Manhole	Sanitary	400	Repair Bay Floor Drains
16	Bldg. 23, Car Wash	Modified Floor Trench	Sanitary	63	Commercial Car Wash
17	Bldg. 23, Car Wash	Modified Floor Trench	Sanitary	63	Commercial Car Wash
18	JFSI	Steel Tank	Storm	5000	Tank Containment
19	Bldg. 39	Steel Tank	Storm	2000	Fuel/Maintence Area
20	Hangar 4	Concrete Tank	Sanitary	7500	Floor Drains
21	Taxiway “G” Washrack	Concrete Chamber	Storm	12000	Aircraft Rinse Facility
22	Bldg. 86, GSE	Concrete Manhole	Sanitary	675	Floor Drains from Repair Bays

Source: Information provided by Paul Kempf, NAS Brunswick on December 22, 2005.

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Table 4-5. Existing Transformer Inventory for NAS Brunswick

Serial No.	Type	Site	Status	Class	Volume	Location
81A473646	TR	BG	I	NONPCB	60	POLE/B-790 ANTIETAM
81A470826	TR	BG	I	NONPCB	60	POLE/B-792 ANTIETAM
81A471721	TR	BG	I	NONPCB	41	POLE/B-794 ANTIETAM
81A470824	TR	BG	I	NONPCB	60	POLE/B-797 MIDWAY CIR
81A471722	TR	BG	I	NONPCB	41	POLE/B-798 ANTIETAM
81A470825	TR	BG	I	NONPCB	60	POLE/B-800 ANTIETAM
956000417	TR	BG	I	NONPCB	503	PAD/MIDWAY CIRCLE NEAR TO B-797
90NA072-090	TR	BH	I	NONPCB	25	POLE/CAPTAIN`S QTRS
90NA072-010	TR	BH	I	NONPCB	25	POLE/QTRS B (FITCH)
90NA072-076	TR	BH	I	NONPCB	25	POLE/QTRS B (FITCH)
90NA072-020	TR	BH	I	NONPCB	25	POLE/QTRS B (FITCH)
6066279	TR	BH	I	NONPCB	20	POLE/QTRS C (BURNED DOWN)
941132393	TR	BH	I	NONPCB	15	POLE/QTRS D OUTSIDE GATE
921115699	TR	BH	I	NONPCB	33	POLE/QTRS EC (BY HOUSING GATE)
90NA075-003	TR	BH	I	NONPCB	45	POLE/QTRS F (FITCH)
90NA072-055	TR	BH	I	NONPCB	25	POLE/QTRS I (FITCH)
951010567	TR	BH	I	NONPCB	79	PAD/E.NEPTUNE DR/P-3 DR INTERSECT
951009700	TR	BH	I	NONPCB	93	PAD/15 P3 LANE
951009699	TR	BH	I	NONPCB	93	PAD/7 P3 LANE
951009701	TR	BH	I	NONPCB	93	PAD/8 P3 LANE
906004027	TR	NB	I	NONPCB	405	PAD/HGR 1
93295126	SW	NB	I	NONPCB	323	PAD/CORNER FITCH & ORION
906004028	TR	NB	S	NONPCB	405	PAD/SPARE/B19
866004901	TR	NB	I	NONPCB	500	PAD/HGR-3
861060533	SW	NB	I	NONPCB	336	PAD/HANGAR 3
856002083	TR	NB	I	NONPCB	280	PAD/B-4,12,34,585 PARKING LOT
896003752	TR	NB	I	NONPCB	497	PAD/HGR 5
896003283	TR	NB	I	NONPCB	540	PAD/HGR 5 FOR SO.4160 LINE
906004078	TR	NB	S	NONPCB	317	PAD/SPARE/B19
886006357	TR	NB	I	NONPCB	317	PAD/B-9 OLD HOUSING OFFICE/VPU-1

Table 4-5. Existing Transformer Inventory for NAS Brunswick

Serial No.	Type	Site	Status	Class	Volume	Location
866011663	TR	NB	I	NONPCB	250	PAD/B-11 NEX
911057383	TR	NB	I	NONPCB	13	POLE/CORNER BURBANK & RD STREETS
906004296	TR	NB	I	NONPCB	540	PAD/B-512 BOQ
906004077	TR	NB	S	NONPCB	317	PAD/SPARE/B19/B-13 (BLDG TO BE DEMO'D)
N416775YAUA	TR	NB	S	NONPCB	11	POLE/SPARE/B19
876000114	TR	NB	I	NONPCB	310	PAD/20 P.O. + HRO
RT90101860	TR	NB	I	NONPCB	29	POLE/BLDG. 23 CARWASH
906004080	TR	NB	I	NONPCB	497	PAD/B-24 PSD
911034493	TR	NB	I	NONPCB	21	POLE/BURBANK-FRONT OF B-24 (PSD)
886006461	TR	NB	I	NONPCB	317	PAD/B-25 GYM
906007355	TR	NB	I	NONPCB	318	PAD/B-26 NEW CHILD CARE
886006358	TR	NB	I	NONPCB	317	PAD/B-27 FSC
911057388	TR	NB	I	NONPCB	13	POLE/B-28 4TH & AVE A
911057386	TR	NB	I	NONPCB	13	POLE/B-28 4TH & AVE A
911057380	TR	NB	I	NONPCB	13	POLE/B-28 4TH & AVE A
876006112	TR	NB	S	NONPCB	222	PAD/SPARE/B19
906003907	TR	NB	I	NONPCB	317	PAD/B-32 FUEL FARM
81JJ540178	TR	NB	I	NONPCB	51	PAD/B-37-DIS (MAIN GATE)
886003676	TR	NB	S	NONPCB	140	PAD/SPARE/B19
901018286	TR	NB	I	NONPCB	21	POLE/B-40 & B-31 AVE B & 5TH
906003910	TR	NB	I	NONPCB	317	PAD/B-41 SECURITY
906004117	TR	NB	I	NONPCB	394	PAD/B-42 PUMP HOUSE
8-80A	SW	NB	I	NONPCB	2	SOUTH REGULATOR VAULT
8-80B	SW	NB	I	NONPCB	2	SOUTH REGULATOR VAULT
8-80C	SW	NB	I	NONPCB	2	SOUTH REGULATOR VAULT
S425510	SW	NB	I	NONPCB	1.5	WALL/INSIDE BLDG. 49
78A441611	TR	NB	I	NONPCB	60	PAD/B-49 RUNWAY EMERG FEED
78A441610	TR	NB	I	NONPCB	60	PAD/RUNWAY EMERG FEED
78A382893	TR	NB	I	NONPCB	60	PAD/RUNWAY EMERG FEED
956000206	TR	NB	I	NONPCB	370	PAD/BLDG. 50 GW TRT. PLANT

Table 4-5. Existing Transformer Inventory for NAS Brunswick

Serial No.	Type	Site	Status	Class	Volume	Location
UNKNOWN	TR	NB	I	NONPCB	UNKNOWN	POLE/OLD GURNED RD. ACROSS FROM BLDG. 19
81A382191	TR	NB	I	NONPCB	17	POLE/J.F.S.I. - SCALES
921115698	TR	NB	I	NONPCB	33	POLE/B-81 (HAZMAT)
921115697	TR	NB	I	NONPCB	33	POLE/B-81 (HAZMAT)
921115696	TR	NB	I	NONPCB	33	POLE/B-81 (HAZMAT)
916005295	TR	NB	I	NONPCB	405	PAD/B-86 NEW GSE BLDG
866004108	TR	NB	I	NONPCB	450	PAD/B-87 ASWOC
911088267	TR	NB	I	NONPCB	9	POLE/B-109 DOG KENNEL
P689114YWD	TR	NB	I	NONPCB	11	POLE/B-128 (BUNKER) MAG AREA
916005517	TR	NB	I	NONPCB	292	PAD/B-150 NAV AIR RES CTR.
Q022891-YZF	TR	NB	I	NONPCB	43	POLE/B-153 SALT STORAGE SHED (NEW)
92A031270	TR	NB	I	NONPCB	43	POLE/B-153 NEW SALT SHED BLDG
63AH1181	TR	NB	I	NONPCB	UNKNOWN	PAD/BLDG. 153
906005744	TR	NB	I	NONPCB	394	PAD/B-200 AIROPS
1603401593	TR	NB	I	NONPCB	285	PAD/B-201 NEW GALLEY
82348825-8	RE	NB	I	NONPCB	50	FLOOR-INSIDE B-209 NAGE
A39415-5	RE	NB	I	NONPCB	60	FLOOR-INSIDE B-209 NAGE
82348825-16	RE	NB	I	NONPCB	96	FLOOR-INSIDE B-209 NAGE
840734	SW	NB	I	NONPCB	UNKNOWN	PAD/BLDG. 209
846000364	TR	NB	I	NONPCB	180	PAD/B-209 FEEDS B-6 & 48
04080	TR	NB	I	NONPCB	300	PAD/B-209 NAGE
78A391376	TR	NB	I	NONPCB	25	WALL MOUNTED/INSIDE B-209 NAGE
886006571	TR	NB	I	NONPCB	255	PAD/B-211 MWR TRACK
886006416	TR	NB	I	NONPCB	310	PAD/B-212 T0 215 BARRACKS
896003641	TR	NB	I	NONPCB	292	PAD/B-216 TO 220 BARRACKS
906004119	TR	NB	S	NONPCB	310	PAD/SPARE/B19
916002763	TR	NB	I	NONPCB	397	PAD/B-225,252 GARAGE
UNKNOWN	TR	NB	I	NONPCB	UNKNOWN	POLE/BLDG. 225 PARKING LOT ENTRANCE
91A184114	TR	NB	I	NONPCB	17	PAD/B-227 GEN BLDG-TRANS SITE
91A172318	TR	NB	I	NONPCB	17	PAD/B-227 GEN BLDG-TRANS SITE

Table 4-5. Existing Transformer Inventory for NAS Brunswick

Serial No.	Type	Site	Status	Class	Volume	Location
91A184115	TR	NB	I	NONPCB	17	PAD B-227 GEN BLDG-TRANS SITE
860314	SW	NB	I	NONPCB	323	PAD/BLDG. 228
2Q9314375	SW	NB	I	NONPCB	280	PAD/B-229 GCA(RUNWAY-3-WAY OIL SWT)
2Q9314372	SW	NB	I	NONPCB	161	PAD/B-230 (OLD TACAN)4-WAY OIL SWT)
90NA072-057	TR	NB	I	NONPCB	25	PAD/B-230 OLD TACAN BLDG
90NA072-022	TR	NB	I	NONPCB	25	PAD/B-230 OLD TACAN BLDG
90NA072-034	TR	NB	I	NONPCB	25	PAD/B-230 OLD TACAN BLDG
906009620	TR	NB	S	NONPCB	497	PAD/SPARE/B19
90NA072-125	TR	NB	I	NONPCB	25	POLE/B-245 (MAG AREA)
UNKNOWN	TR	NB	I	NONPCB	UNKNOWN	POLE/OLD GURNET & MERRICONEAG
911057385	TR	NB	I	NONPCB	13	POLE/B-250 ORION ST-AIMD PARK LOT
97094-01	TR	NB	I	NONPCB	385	PAD/HGR-250, STREET SIDE, SE CORNER (R-TEMP)
90A341748	TR	NB	I	NONPCB	11	POLE/LIFT STATION - RMCB-27
90A341749	TR	NB	I	NONPCB	11	POLE/LIFT STATION - RMCB-27
90A341747	TR	NB	I	NONPCB	11	POLE/LIFT STATION - RMCB-27
89A031754	TR	NB	I	NONPCB	11	POLE/B286 (BUNKER) MAG AREA
906005657	TR	NB	I	NONPCB	150	PAD/B-292 FIREHOUSE
896003344	TR	NB	I	NONPCB	292	PAD/B-294 SUPPLY
UNKNOWN	TR	NB	I	NONPCB	UNKNOWN	POLE/SEAGATE & 3RD
866011664	TR	NB	I	NONPCB	255	PAD/B-295 PUMP STATION HGR 5
2Q9314281	SW	NB	I	NONPCB	160	PAD/B-296 TACAN (3-WAY OIL SWT)
CM2575533	TR	NB	I	NONPCB	DRY	PAD/B-296 VOR-TACAN
71AD3955	TR	NB	I	NONPCB	20	PAD/GOLF CRS PUMP HOUSE
71AD3953	TR	NB	I	NONPCB	20	PAD/GOLF CRS PUMP HOUSE
71AD2057	TR	NB	I	NONPCB	20	PAD/GOLF CRS PUMP HOUSE
941132392	TR	BH	I	NONPCB	15	POLE/B-349 NEPTUNE DRIVE
82A092074	TR	NB	I	NONPCB	17	PAD/B-413-RED LABEL LOAD AREA
911057381	TR	NB	I	NONPCB	13	POLE/BURBANK & 5TH ST (TENNIS CTS)
Q533529-TRW	TR	NB	I	NONPCB	450	PAD/B-512 BOQ (BEHIND LAUNDRY) ???
891054496	TR	NB	I	NONPCB	20	POLE/B-516 NITEFLIGHT

Table 4-5. Existing Transformer Inventory for NAS Brunswick

Serial No.	Type	Site	Status	Class	Volume	Location
960605-A1	TR	NB	I	NONPCB	305	PAD/BLDG. 516 NITE FLIGHT (R-TEMP)
2Q9314376	SW	NB	I	NONPCB	280	PAD/B-517 RECV SITE (3-WAY OIL SWT)
876000111	TR	NB	I	NONPCB	274	PAD/B-538 NEX GAS STATION
89A030687	TR	NB	I	NONPCB	11	POLE/B-548 (BUNKER) MAG AREA
UNKNOWN	TR	NB	I	NONPCB	UNKNOWN	POLE/BLDG. 555
876000113	TR	NB	I	NONPCB	270	PAD/B-583 BOWLING ALLEY
90NA072-041	TR	NB	S	NONPCB	25	POLE/SPARE/B19
90NA072-114	TR	NB	S	NONPCB	25	POLE/SPARE/B19
90NA072-063	TR	NB	S	NONPCB	25	POLE/SPARE/B19
911057382	TR	NB	I	NONPCB	13	POLE/FITCH AVE-FRONT OF CHAPEL
90NA074-016	TR	NB	I	NONPCB	41	POLE/B-611 (TEST CELL)
90NA074-036	TR	NB	I	NONPCB	41	POLE/B-611 (TEST CELL)
90NA074-041	TR	NB	I	NONPCB	41	POLE/B-611 (TEST CELL)
2454-17	TR	NB	I	NONPCB	17	POLE/B-629, 630, 635 - RMCB-27
2454-19	TR	NB	I	NONPCB	17	POLE/B-629, 630, 635 - RMCB-27
2454-4	TR	NB	I	NONPCB	17	POLE/B-629, 630, 635 - RMCB-27
941132845	TR	NB	I	NONPCB	43	POLE/B-633 RMCB-27
941132918	TR	NB	I	NONPCB	30	POLE/B-636 RMCB-27
860926-A1	TR	NB	I	NONPCB	270	PAD/B-639,54 FASO & DIFAR BLDG
886006512	TR	NB	I	NONPCB	497	PAD/B-644 P-3 TRAINER
886006462	TR	NB	I	NONPCB	397	PAD/B-645 CLINIC
836001563	TR	NB	I	NONPCB	153	PAD/B-646 ASR-8 (INSIDE FENCE)
936001025	TR	NB	I	NONPCB	310	PAD/B-646 ASR-8 (OUTSIDE FENCE)
901018285	TR	NB	I	NONPCB	21	POLE/PEST CONTROL BLDG
901018284	TR	NB	I	NONPCB	21	POLE/PEST CONTROL BLDG
901018283	TR	NB	I	NONPCB	21	POLE/PEST CONTROL BLDG
926000481	TR	NB	I	NONPCB	394	PAD/J.F.S.I. PUMP HOUSE
91A203707	TR	NB	I	NONPCB	17	POLE/B-656 JFSI
941132391	TR	NB	I	NONPCB	15	POLE/B-658 JFSI - MAINTENANCE FACILITY
UNKNOWN	TR	NB	I	NONPCB	UNKNOWN	POLE/BLDG. 660 -WASHRACK

Table 4-5. Existing Transformer Inventory for NAS Brunswick

Serial No.	Type	Site	Status	Class	Volume	Location
UNKNOWN	TR	NB	I	NONPCB	UNKNOWN	POLE/BLDG. 660 -WASHRACK
UNKNOWN	TR	NB	I	NONPCB	UNKNOWN	POLE/BLDG. 660 -WASHRACK
0504262-TYK	TR	NB	I	NONPCB	300	PAD/AIR SPARGING SYSTEM AT OLD FUEL FARM
896003749	TR	NB	S	NONPCB	292	PAD/SPARE/B19/BALLFIELD & TENNIS COURTS
UNKNOWN	TR	NB	I	NONPCB	UNKNOWN	POLE/RD BTN JFST & HGR 3
59E2331	TR	NB	I	NONPCB	8	POLE/CEILINGOMETER-S.END OF RAILHEAD
881175900	TR	NB	I	NONPCB	34	PAD/BASI LITES-RUNWAY-NO.END
65AD4535	TR	NB	I	NONPCB	11	POLE/PICNIC GROUNDS
89A031753	TR	NB	I	NONPCB	11	POLE/RAILHEAD-MAG AREA
2718	RE	NB	I	NONPCB		RECLOSER - NEW SUBSTATION
2719	RE	NB	I	NONPCB		RECLOSER - NEW SUBSTATION
2720	RE	NB	I	NONPCB		RECLOSER - NEW SUBSTATION
4506	RE	NB	I	NONPCB		RECLOSER - NEW SUBSTATION
2Q9112078	SW	NB	I	NONPCB	208	PAD/OIL SWITCH - NEW SUBSTATION
2Q9112103	SW	NB	I	NONPCB	208	PAD/OIL SWITCH - NEW SUBSTATION
86V7027	TR	NB	I	NONPCB	80	PAD/NEW SUBSTATION
896003456	TR	NB	S	NONPCB	292	PAD/SPARE/B19
896003343	TR	NB	I	NONPCB	292	PAD/B53/Moved from B516
906003966	TR	NB	S	NONPCB	317	PAD/SPARE BLDG. 19
961001245	TR	NB	S	NONPCB	81	PAD/SPARE/B19
961001628	TR	NB	S	NONPCB	56	PAD/SPARE B19
111694-10	TR	NB	S	NONPCB	UNKNOWN	POLE/SPARE/B19
90DB347080443	TR	NB	S	NONPCB	156	PAD/SPARE/B19
RT901018648	TR	NB	S	NONPCB	29	POLE/SPARE B19/FUEL FARM
RT901018649	TR	NB	S	NONPCB	29	POLE/SPARE B19/FUEL FARM
86V7026	TR	NB	S	NONPCB	540	PAD/SPARE B-19 (FROM BOQ B512 -BAD AWR)
906003909	TR	NB	S	NONPCB	317	PAD/SPARE/B19
90NA072-024	TR	NB	S	NONPCB	25	POLE/SPARE/B19
91A200805	TR	NB	S	NONPCB	9.4	POLE/SPARE/B19/B245 MAG AREA
91A202534	TR	NB	S	NONPCB	9.2	POLE/SPARE/B19

Table 4-5. Existing Transformer Inventory for NAS Brunswick

Serial No.	Type	Site	Status	Class	Volume	Location
931061601	TR	TP	I	NONPCB	39	POLE/B-200-206,201-207,208-214 (CONGRESS)
931061597	TR	TP	I	NONPCB	39	POLE/B-220,222,224,226,228 (CONGRESS)
931061598	TR	TP	I	NONPCB	39	POLE/B-232,230,234,236,231-225 (CONGRESS)
931061596	TR	TP	I	NONPCB	39	POLE/B-246-252,238-244,241-247,233-239 (CGS)
931061599	TR	TP	I	NONPCB	39	POLE/B-278-284,270-276,262-268,254-260
931061600	TR	TP	I	NONPCB	39	POLE/B-294-300,286-292,263-257,249-255
90DA3470602P3	TR	TP	I	NONPCB	47	POLE/OLD DIS BLDG
90DB3470801U3	TR	TP	I	NONPCB	156	PAD/B-333 VET/ARMY RECRUITERS
N421893YBUA	TR	TP	I	NONPCB	11	POLE/B-335 STREET LIGHTS
860076A-1	TR	TP	I	NONPCB	300	PAD/B-335 COMMISSARY (R-TEMP)
90DB3470803J3	TR	TP	I	NONPCB	156	PAD/B-336 MARINES
90DA3470601P3	TR	TP	I	NONPCB	47	POLE/B-338
90DB3470901U3	TR	TP	I	NONPCB	151	PAD/B-339 MARINES
90DA3470701P3	TR	TP	I	NONPCB	46	POLE/B-363 FIRE STATION
90DB3471001U3	TR	TP	I	NONPCB	153	PAD/B-364 MINI MART/NEX
D40242559P	TR	TP	I	NONPCB	14	POLE/B-376 BARRACKS
D40242359P	TR	TP	I	NONPCB	14	POLE/B-376 BARRACKS
C71942456P	TR	TP	I	NONPCB	14	POLE/B-376 BARRACKS
931075366	TR	TP	I	NONPCB	16	POLE/B-378 PWD MAINTENANCE
90DB3470802U3	TR	TP	I	NONPCB	156	PAD/B-381 CPWL
939000956	TR	TP	I	NONPCB	118	PAD/B-388 NEW PUMP BLDG @ TOWER
931062411	TR	TP	I	NONPCB	65	PAD/B-414-408,406-400 (LIBERTY)
931062417	TR	TP	I	NONPCB	65	PAD/B-407,401,479-473 (LIBERTY)
931062416	TR	TP	I	NONPCB	65	PAD/B-423-417,415-409 (LIBERTY)

Table 4-5. Existing Transformer Inventory for NAS Brunswick

Serial No.	Type	Site	Status	Class	Volume	Location
931062419	TR	TP	I	NONPCB	65	PAD/B-430-424,422-416 (LIBERTY)
941129537	TR	TP	I	NONPCB	65	PAD/B-446-440,438-432 (LIBERTY)
931062410	TR	TP	I	NONPCB	65	PAD/B-439-433,431-425 (LIBERTY)
931062412	TR	TP	I	NONPCB	65	PAD/B-455-449,447-441 (LIBERTY)
931062420	TR	TP	I	NONPCB	65	PAD/B-456-462,454-448 (LIBERTY)
931062418	TR	TP	I	NONPCB	65	PAD/B-471-465,463-457 (LIBERTY)
931062421	TR	TP	I	NONPCB	65	PAD/B-478-472,470-464 (LIBERTY)
931062414	TR	TP	I	NONPCB	65	PAD/B-494-488,486-480 (LIBERTY)
931062413	TR	TP	I	NONPCB	65	PAD/B-510-504,502-496 (LIBERTY)
931062422	TR	TP	I	NONPCB	65	PAD/B-512,518,526-520 (LIBERTY)
96296-2889	TR	TP	I	NONPCB	8	STREET LIGHTS TOPSHAM
951012314	TR	TR	I	NONPCB	79	PAD/NEPTUNE DR/BEHIND TRAILERS
951012313	TR	TR	I	NONPCB	79	PAD/NEPTUNE DR/BEHIND TRAILERS
951012315	TR	TR	I	NONPCB	79	PAD/NEPTUNE DR/BEHIND TRAILERS
951012312	TR	TR	I	NONPCB	79	PAD/NEPTUNE DRIVE/BEHIND TRAILERS
951012311	TR	TR	I	NONPCB	79	PAD/NEPTUNE DR/BEHIND TRAILERS
956000418	TR	TR	I	NONPCB	501	PAD/NEPTUNE/BOARD RD. INTERSECT
6518373	TR	NB	I	NONPCB	14	POLE/B-78 GUARD SHK-BACK GATE - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 802 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 804 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 806 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 846 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 850 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDGS. 852 & 853 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 857 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 861 & 863 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 838 & 866 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 832 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 826 - CMP OWNED

Table 4-5. Existing Transformer Inventory for NAS Brunswick

Serial No.	Type	Site	Status	Class	Volume	Location
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 902 & 903 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 895 & 896 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 892 & 893 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 824 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 869 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 869 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 869 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 815 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 818 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 875 & 876 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 883 & 884 - CMP OWNED
UNKNOWN	TR	BG	I	UNKNOWN	UNKNOWN	POLE/BLDG. 842 - CMP OWNED
D653137-58	TR	NB	S	NONPCB	10	POLE/SPARE B19/B-373 (TOP OF HILL)
D653139-58	TR	NB	S	NONPCB	10	POLE/SPARE B19/B-373 (TOP OF HILL)
D653138-58	TR	NB	S	NONPCB	10	POLE/SPARE B19/B-373 (TOP OF HILL)
9938006287	TR	NB	S	NONPCB	77	PAD/SPARE/B19
916002735	TR	NB	I	NONPCB	324	PAD/B-293/MOVED FROM B-22 (WILL BE SPARE)
896003385	TR	NB	I	NONPCB	292	PAD/B-31 NAVY LODGE/MOVED FROM B-293
896003343	TR	NB	I	NONPCB	292	PAD/B-53/MOVED FROM B-516
2530704492	TR	NB	I	NONPCB	197	PAD/B-584/MOVED FROM B-19 SPARE
87600112	TR	NB	I	NONPCB	270	PAD/B-19/SPARE FROM B-512/B-19
4436914300	TR	NB	S	NONPCB	15	POLE/SPARE/B19
010465-VA1	TR	NB	I	NONPCB	277	PAD/NAV RES CTR.
0126001613	TR	NB	I	NONPCB	473	PAD/GLYCOL WASTE PUMP HOUSE
0126000377	TR	NB	I	NONPCB	357	PAD/MWR REC MALL
4109	RE	NB	I	NONPCB	85	SPARE IN 209
4105	RE	NB	I	NONPCB	85	REPLACED UNIT IN 209
4106	RE	NB	I	NONPCB	85	REPLACED UNIT IN 209
4107	RE	NB	I	NONPCB	85	REPLACED UNIT IN 209
4108	RE	NB	I	NONPCB	85	REPLACED UNIT IN 209

Table 4-5. Existing Transformer Inventory for NAS Brunswick

Serial No.	Type	Site	Status	Class	Volume	Location
4110	RE	NB	I	NONPCB	85	REPLACED UNIT IN 209
0237012948	TR	NB	I	R-TEMP		PAD/BLDG209
CP02266001111	TR	NB	I	NONPCB	501	PAD/BLDG 223
27520	TR	NB	S	DRY	DRY	PAD/SPARE/B19

Source: Mosher 2006b.

Notes:
Location - BG = Brunswick Gardens
BH = Base Housing - individual houses located within controlled area
NB = locations on the main base office and hangars etc.
TP = Topsham
TR = Trailer park located between main base and Brunswick gardens based on information in other columns.

Type - TR = transformer
SW = Switch
RE = Recloser

Status - I = Installed
S = Spare

Table 4-6. Polychlorinated Biphenyls Disposal History

ID Number	Qty	Container	TestPPM	TKVA	KG	Gallons	Location	Date Removed	Date of Storage
B976154 B 213	1	T	880000	225	933	170	NC	881201	881201
B976149 B 211	1	T	190000	500	1646	300	NC	881201	881201
2643-4-4 B201	1	T	180	38	192	35	NN	890331	890331
2643-5-4 B38	1	T	150	50	187	34	NN	890331	890331
2643-5-9 B38	1	T	140	50	187	34	NN	890331	890331
2643-4-3 B201	1	T	170	38	192	35	NN	890331	890331
2643-4-5	1	T	170	38	192	35	NN	890331	890331
2643-5-3 B38	1	T	120	50	187	34	NN	890331	890331
B976155 B 218	1	T	810000	225	928.9	170	NN	891001	891001
NOC675182-56P UNK	1	T	180	50	247	45	NN	891201	891201
NOC675181-56P UNK	1	T	190	50	247	45	NN	891201	891201
NOC671561-56P UNK	1	T	180	50	247	45	NN	891201	891201
12661 B645	1	T	610000	5	43.7	8	NN	891231	891231
12662 B645	1	T	500	5	43.7	8	NN	891231	891231
12663 B645	1	T	800000	5	43.7	8	NN	891231	891231
62M9944 POLE 11.1	1	T	100	10	60.3	11	NN	900501	900501
62M9943 POLE 11.1	1	T	99	10	60.3	11	NN	900501	900501
62M9942 POLE 11.1	1	T	110	10	60.3	11	NN	900501	900501
3179163 B92	1	T	62	25	137	24	NC	900601	900601
2643-6-1 B42	1	T	110	75	289	51	NC	900601	900601
3179165 B92	1	T	51	25	137	24	NC	900601	900601
2643-2-7 HGR 1	1	T	90	25	110	20	NC	900601	900601
3179162 B92	1	T	52	25	137	24	NC	900601	900601
2643-2-22 HGR 1	1	T	84	25	110	20	NC	900601	900601
2643-2-34 HGR 1	1	T	92	25	110	20	NC	900601	900601
2643-2-2 HGR 1	1	T	91	25	110	20	NC	900601	900601
2643-6-2 B42	1	T	120	75	289	51	NC	900601	900601
2643-6-3 B42	1	T	140	75	280	51	NC	900601	900601
3643-4-8 B16	1	T	130	37	192	35	NN	900601	900601
C579159 B41	1	T	200	50	192	35	NN	900601	900601
2643-6-3	1	T	50	75	280	51	NN	900601	900601
2643-2-32 HGR 1	1	T	110	25	110	20	NC	900601	900601
C579146 B41	1	T	220	50	192	35	NN	900601	900601

Table 4-6. Polychlorinated Biphenyls Disposal Inventory

ID Number	Qty	Container	TestPPM	TKVA	KG	Gallons	Location	Date Removed	Date of Storage
C579147 B41	1	T	220	50	192	35	NN	900601	900601
2643-4-2 B16	1	T	120	37	192	35	NN	900601	900601
2643-5-8 B13	1	T	79	50	187	34	NA	900601	900601
2643-5-1 B13	1	T	79	50	187	34	NA	900601	900601
2643-5-7 B13	1	T	77	50	187	34	NA	900601	900601
2643-2-33 HGR 1	1	T	100	25	110	20	NC	900601	900601
2643-4-6 B16	1	T	130	37	192	35	NN	900601	900601
C249033 B208	1	T	94	50	247	45	NC	900701	900701
C674106-56P B294	1	T	180	15	82	15	NA	900701	900701
C674103-56P B294	1	T	170	15	82	15	NA	900701	900701
C580151-56P B294	1	T	160	15	82	15	NA	900701	900701
C323043 B208	1	T	95	50	247	45	NC	900701	900701
C249020 B208	1	T	90	50	247	45	NC	900701	900701
C523432 B292	1	T	100	10	55	10	NC	900901	900901
C520337 B292	1	T	160	10	55	10	NC	900901	900901
C525897 B292	1	T	83	10	55	10	NC	900901	900901
2643-2-1 B293	1	T	85	25	110	20	NN	901001	901001
2643-2-30 B293	1	T	70	25	110	20	NN	901001	901001
C719623-56P POLE 2.1	1	T	330	25	137	25	NN	901001	901001
C719624-56P POLE 2.1	1	T	660	25	137	25	NN	901001	901001
2643-2-5 B293	1	T	120	25	110	20	NN	901001	901001
C719620-56P POLE 13.1	1	T	470	25	137	25	NC	901001	901001
C719619-56P POLE 2.1	1	T	370	25	137	25	NN	901001	901001
C719621-56P POLE 13.1	1	T	450	25	137	25	NC	901001	901001
C719622-56P POLE 13.1	1	T	380	25	137	25	NC	901001	901001
2643-2-14 B293	1	T	130	25	110	20	NN	901001	901001
2643-2-27 B252	1	T	66	25	110	20	NN	901127	901127
2643-2-8 B252	1	T	73	25	110	20	NN	901127	901127
2643-2-21 B252	1	T	60	25	110	20	NN	901127	901127
2643-3-5 RMCB-27	1	T	11000	15	77	14	NN	910617	910617
2643-3-3-? RMCB-27	1	T	1300	15	77	14	NN	910617	910617
6066288 POLE 3A	1	T	71000	10	60	11	NN	910617	910617
539650 B227	1	T	540	25	55	10	NC	910617	910617
539646 B245	1	T	510	10	55	10	NC	910617	910617

Table 4-6. Polychlorinated Biphenyls Disposal History

ID Number	Qty	Container	TestPPM	TKVA	KG	Gallons	Location	Date Removed	Date of Storage
2643-3-4 RMCB-27	1	T	100	15	77	14	NN	910617	910617
539649 B227	1	T	530	25	55	10	NC	910617	910617
NASB 244 S/N? B227	1	T	540	25	137	25	NC	910617	910617
6962929 B631	1	T	580	25	55	10	NN	910617	910617
2643-4 B20	1	T	310	5	60	11	NN	911126	911126
D236666 B25	1	T	62	25	137.4	25	NN	911126	911126
OIL SWITCH #1 C86522-7	1	O	51	0	11	2	NC	911204	911204
OIL SWITCH #2 C86522-7	1	0	68	0	11	2	NC	911204	911204
BALLASTS	25	O	501	0	0	0	IC	911204	911204
59C8860 B10	1	T	86	100	280	51	NN	911204	911204
59C8861 B10	1	T	80	100	280	51	NN	911204	911204
59C12235 B10	1	T	86	100	280	51	NN	911204	911204
BALLASTS	122	O	501	0	0	0	IC	920624	920624
7143516(DOG KENNEL-B-415)	1	T	640	15	68.6	12.5	NN	930310	930310
2643-2-3 B81	1	T	66	50	247	45	NA	930528	930528
BALLASTS		0	501	0	0	0	NC	930528	930528
2643-2-23 B81	1	T	73	50	247	45	NA	930528	930528
2643-2-4 B81	1	T	66	50	247	45	NA	930528	930528
2643-1-7 B584	1	T	92	10	60	11	NN	930617	930617
2643-1-11 B584	1	T	84	15	60	11	NN	930617	930617
CAPACITOR S19247	1	0	501		278	0	NC	930625	930628
2643-7 B-A&B	1	T	230	5	77	14	NN	930818	930818
2643-3 B-A&B	1	T	220	5	77	14	NN	930818	930818
2643-10 B-A&B	1	T	250	5	77	14	NN	930818	930818
B539647 B245	1	T	390	10	60	11	NC	930927	930927
B539648 B245	1	T	420	10	60	11	NC	930927	930927
2643-2-15 B230	1	T	160	25	137	25	NN	931123	931123
2643-2-17 B230	1	T	61	25	137	25	NN	931123	931123
2643-1-5 B517	1	T	120	10	60	11	NC	940824	940824
2643-1-2 B517	1	T	50	10	60	11	NC	940824	940824
2643-5-6 LOTS 8-15	1	T	140	50	247	45	NN	950907	950907
C666213 LOTS 16-20	1	T	350	50	247	45	NN	950907	950907
6879930 B658 SEEBEES	1	T	220	15	60	11	NN	950915	950915
E999218-63P POLE 17 S/BEE	1	T	130	38	225	41	NA	950915	950915

Table 4-6. Polychlorinated Biphenyls Disposal History

ID Number	Qty	Container	TestPPM	TKVA	KG	Gallons	Location	Date Removed	Date of Storage
6954550 B633	1	T	280	50	247	45	NA	950915	950915
6879935 CONSTR TRAILER	1	T	120	10	60	11	NA	950915	950915
D402424-59P POLE 11 B376	1	T	63	15	60	11	NA	950915	950915
C529173 B QTR D	1	T	72	10	60	11	NN	950915	950915
C677880-56P POLE 1/2 B384	1	T	390	100	280	51	NC	950915	950927
C719429-56P POLE 9 B377	1	T	57	15	60	11	NN	950915	950915
C677881-56P POLE 1/2 B384	1	T	390	100	280	51	NC	950915	950915
C677882-56P POLE 1/2 B384	1	T	340	100	280	51	NC	950915	950915
C719419-56P POLE 12.2B382	1	T	75	15	60	11	NN	950915	950915
C719428-56P POLE 12.2B382	1	T	66	15	60	11	NN	950915	950915
C719426-56P POLE 9 B377	1	T	54	15	60	11	NN	950915	950915
C719427-56P POLE 12.2B382	1	T	67	15	60	11	NN	950915	950915
C529171 B349 BR.GARDENS	1	T	60	10	60	11	NA	950915	950915
C686460-56P POLE 4.2	1	T	59	38	225	41	NN	DISPOS	ED OF
BALLASTS	17	O	>500		10723				
BALLASTS	18	O	<5000		67.2			970218	970219
BALLASTS (DRUM)	1	O			93	204			
BALLASTS (DR) TP MARINE	1	O			227				
BALLASTS (DRUM)	2	O			636				
BALLASTS (DRUM)	15	O			4091				
BALLASTS (DRUM)	1	O	4999	15	50			980410	
DUMP TRAILER	1	O			17055			971219	
BULK TRAILER	1	O	>49		25455			980924	
DRUM	1	O	<499		5				
BULK TRAILER	1	O	>49		11773			980406	

Source: Mosher 2006b.

Notes:

T = Transformer
O = Other

Table 4-7. Former Transformer Inventory for NAS Brunswick

Serial No.	Type	Site	Class	Volume	Location
916002735	TR	NB	NONPCB	324	PAD/B-22/PARKING LOT/DEMO IN 98/MOVE TO B293
850323	SW	NB	NONPCB	360	PAD/CORNER ORION & NEPTUNE/REPL W/ SW BOX
C-45209-1-1	TR	NB	NONPCB	460	PAD/B-36 (DEMO IN 98); DISPOSED OF
522	RE	NB	NONPCB	85	SOUTH REGULATOR VAULT
534	RE	NB	NONPCB	85	SOUTH REGULATOR VAULT
PM01244	RE	NB	NONPCB	60	FLOOR-INSIDE B-209 NAGE
9980656	RE	NB	NONPCB	80	FLOOR-INSIDE B-209 NAGE (REM 3/10/99)
A39415-6	RE	NB	NONPCB	60	SPARE/B19
9F2F3CA0	SW	NB	NONPCB	2	WALL MOUNTED OIL SWITCH - B-209
9F2F3CB0	SW	NB	NONPCB	2	WALL MOUNTED OIL SWITCH - B-209
9F2F3C0	SW	NB	NONPCB	2	WALL MOUNTED OIL SWITCH - B-209
846000298	TR	NB	NONPCB	209	PAD/B-209 AIR FLD GEN
A11274	TR	NB	NONPCB	46	PAD/FLOOR-INSIDE B-209 NAGE
896003385	TR	NB	NONPCB	292	PAD/B-293/MOVED TO B-31 NAVY LODGE
PMR536595	TR	NB	NONPCB	115	PAD/NEW, INSIDE BLDG. 209
896003751	TR	NB	NONPCB	497	PAD/OLD; HANGAR 4
B957766	TR	NB	NONPCB	2085	PAD/OLD SUBSTATION
931062415	TR	NB	NONPCB	65	PAD/SPARE BLDG. 19
961031040	TR	NB	NONPCB	65	PAD/SPARE B19
97A020233	TR	NB	NONPCB	9.7	POLE/SPARE B19
2530704492	TR	NB	NONPCB	197	PAD/SPARE B-19/MOVED TO B-584
89C36482	TR	NB	NONPCB	240	PAD/SPARE B-19
92E47682	TR	NB	NONPCB	239	PAD/SPARE B-19
92E47683	TR	NB	NONPCB	142	PAD/SPARE B-294
906003908	TR	NB	NONPCB	317	PAD/SPARE B-294 (FROM B516/FF)
90DB3470804U3	TR	TP	NONPCB	156	PAD/B-375 OLD CHAPEL
941133351	TR	TP	NONPCB	14	POLE/B-377 TOPSHAM SEWER LIFT STAT
941133352	TR	TP	NONPCB	14	POLE/B-377 TOPSHAM SEWER LIFT STAT
941133355	TR	TP	NONPCB	14	POLE/B-377 TOPSHAM SEWER LIFT STAT
941133353	TR	TP	NONPCB	14	POLE/B-382

Table 4-7. Former Transformer Inventory for NAS Brunswick

Serial No.	Type	Site	Class	Volume	Location
D40242059P	TR	TP	NONPCB	20	POLE/B-383 CPWL
D40242259P	TR	TP	NONPCB	20	POLE/B-383 CPWL
D40242159P	TR	TP	NONPCB	20	POLE/B-383 CPWL
2643-5-6	TR	BG	PCBCONTAM	45	POLE/LOTS 8-15 NEPTUNE DRIVE
C666213	TR	BG	PCBCONTAM	45	POLE/LOTS 16-20 NEPTUNE DRIVE
D114424	TR	BG	NONPCB	45	POLE/LOTS 1-7 - TRAILER PARK
59AM4437	TR	BH	NONPCB	21	POLE/QTRS 904 & 905 (ADMIRAL'S)
14H324	TR	BH	NONPCB	45	POLE/BLDGS E,F,G,H- FITCH AVE.
90766A2281	TR	NB	NONPCB	370	PAD/B-50 TREATMENT PLANT
RT901018650	TR	NB	NONPCB	29	PAD/REM FR FUEL FARM
A67075	RE	NB	NONPCB	60	FLOOR-INSIDE B-209 NAGE
911057387	TR	NB	NONPCB	13	POLE/ORION ST
12659	TR	NB	NONPCB	14	POLE/B-225 ON ORION ST
86V7026	TR	NB	NONPCB	540	PAD/SPARE FROM B-512 & FITCH (BOQ)
22058-4	TR	NB	NONPCB	20	POLE/B-270-276
896003343	TR	NB	NONPCB	292	PAD/B-516 NITEFLIGHT/MOVED TO B-53
941133356	TR	NB	NONPCB	13	SPARE/B19
B95766	TR	NB	NONPCB	2085	PAD/ACROSS ORION'S
2643-2-4	TR	NB	PCBCONTAM	45	POLE/B-81 WEAPONS BLDG
2643-2-23	TR	NB	PCBCONTAM	45	POLE/B-81 WEAPONS BLDG
2643-2-3	TR	NB	PCBCONTAM	45	POLE/B-81 WEAPONS BLDG
6879935	TR	NB	PCBCONTAM	11	POLE/FIRE TRAINING PIT
846001669	TR	NB	NONPCB	286	PAD/B_209 LIGHTING VAULT
2643-2-28	TR	NB	NONPCB	17	PAD/B-230 OLD TACAN BLDG
2643-2-17	TR	NB	PCBCONTAM	25	PAD/B-230 OLD TACAN BLDG
2643-2-15	TR	NB	PCBCONTAM	25	PAD/B-230 OLD TACAN BLDG
B539647	TR	NB	PCBCONTAM	11	POLE/B-245 MAG AREA
896003751	TR	NB	NONPCB	497	PAD/B-250 AIMD
906003908	TR	NB	NONPCB	317	PAD/B-294 FROM SUPPLY WAREHOUSE
C529171	TR	NB	PCBCONTAM	11	POLE/B-349 NEPTUNE DRIVE

Table 4-7. Former Transformer Inventory for NAS Brunswick

Serial No.	Type	Site	Class	Volume	Location
87600112	TR	NB	NONPCB	270	PAD/SPARE/FROM B-512/MOVED TO B-19
2643-1-6	TR	NB	NONPCB	10	PAD/B-517 & 518 OLD TACAN BLDG
2643-1-2	TR	NB	PCBCONTAM	11	PAD/B-517 OLD TACAN BLDG
2643-1-5	TR	NB	PCBCONTAM	11	PAD/B-517 OLD TACAN BLDG
NO28120YASA	TR	NB	NONPCB	14	POLE/B-555 AREA LTG-SONOBUOY LCKR
2643-1-8	TR	NB	NONPCB	11	POLE/B-584 DRMO
2643-1-7	TR	NB	PCBCONTAM	11	POLE/B-584 DRMO
2643-1-11	TR	NB	PCBCONTAM	11	POLE/B-584 DRMO
G567256-66Y	TR	NB	NONPCB	35	POLE/B-611, 617 TEST CELL AREA
G567255-66Y	TR	NB	NONPCB	35	POLE/B-611, 617 TEST CELL AREA
G567254-66Y	TR	NB	NONPCB	35	POLE/B-611, 617 TEST CELL AREA
6954550	TR	NB	PCBCONTAM	45	POLE/B-633 RMCB-27
E999218-63P	TR	NB	PCBCONTAM	41	POLE/RMCB-27 ACROSS STREET
6879930	TR	NB	PCBCONTAM	11	POLE/B-658 RMCB-27
76C195089	TR	NB	UNKNOWN	UNKNOWN	PAD/CMP OWNED/NOW OURS-B646(INSIDE)
C529173	TR	NB	PCBCONTAM	11	POLE/QTRS D OUTSIDE GATE
2643-10	TR	NB	PCBCONTAM	14	POLE/B-A & B FITCH AVE
2643-7	TR	NB	PCBCONTAM	14	POLE/B-A & B FITCH AVE
2643-3	TR	NB	PCBCONTAM	14	POLE/B-A & B FITCH AVE
6615868	TR	BH	NONPCB	13	POLE/QTRS I - FITCH AVE
B539648	TR	NB	PCBCONTAM	11	POLE/MAG AREA
22058-1	TR	TP	NONPCB	24	POLE/B-200-206 (CONGRESS)
MISSING PLATE	TR	TP	NONPCB	24	POLE/B-222 (CONGRESS)
22057-2	TR	TP	NONPCB	24	POLE/B-234 (CONGRESS)
22058-6	TR	TP	NONPCB	20	POLE/B-246-252 (PARLIAMENT)
89A290701	TR	TP	NONPCB	60	POLE/B-286-290 (PARLIAMENT)
D402424-59P	TR	TP	PCBCONTAM	11	POLE/B-376 TOPSHAM SMALL BARRACKS
C719426-56P	TR	TP	PCBCONTAM	11	POLE/B-377 TOPSHAM SEW. PUMP STAT
C719429-56P	TR	TP	PCBCONTAM	11	POLE/B-377 TOPSHAM SEW. PUMP STAT
22900	TR	TP	NONPCB	16	POLE/B-378 (MAINT BLDG)

Table 4-7. Former Transformer Inventory for NAS Brunswick

Serial No.	Type	Site	Class	Volume	Location
C719419-56P	TR	TP	PCBCONTAM	11	POLE/B-382 TOPSHAM GYM
C719427-56P	TR	TP	PCBCONTAM	11	POLE/B-382 TOPSHAM GYM
C719428-56P	TR	TP	PCBCONTAM	11	POLE/B-382 TOPSHAM GYM
C677881-56P	TR	TP	PCBCONTAM	51	POLE/B-384 TOPSHAM LARGE BARRACKS
C677880-56P	TR	TP	PCBCONTAM	51	POLE/B-384 TOPSHAM LARGE BARRACKS
C677882-56P	TR	TP	PCBCONTAM	51	POLE/B-384 TOPSHAM LARGE BARRACKS
22063-2	TR	TP	NONPCB	20	POLE/B-400-406 (LIBERTY)
22063-3	TR	TP	NONPCB	20	POLE/B-416-422 (LIBERTY)
22063-1	TR	TP	NONPCB	20	POLE/B-432-438 (LIBERTY)
22063-5	TR	TP	NONPCB	20	POLE/B-440-446 (LIBERTY)
22063-4	TR	TP	NONPCB	20	POLE/B-472-476 (LIBERTY)
89A290702	TR	TP	NONPCB	60	POLE/B-480-486 (LIBERTY)
62058-2	TR	TP	NONPCB	20	POLE/B-504-510 (LIBERTY)
1269	SW	TP	NONPCB	409	POLE/FIELD ACROSS B335/BURNED/DISP
3832		NB	NONPCB		
3831		NB	NONPCB		
3830		NB	NONPCB		
931062418	TR	NB	NONPCB		SPARE/B19
000514-A1	TR	NB	NONPCB		SPARE/B294
PM01246	RE	NB	NONPCB	60	FLOOR-INSIDE B-209 NAGE

Source: Mosher 2006b.

Notes:
Location - BG = Brunswick Gardens
BH = Base Housing - individual houses located within controlled area
NB = locations on the main base office and hangars etc.
TP = Topsham

Type - TR = transformer
SW = Switch
RE = Recloser

Table 4-8. 1994 - 2005 Building 647 Pesticides, Insecticides, Herbicides, and Fungicides Used at NAS Brunswick

Material	State
Arsenal	emulsion
Assault	bait
Baygon	emulsion
Brodifacoum (Weatherblokxt)	bait
Combat	bait
Diazinon	emulsion
Dursban	aerosol
Dursban	emulsion
Ficam	emulsion/wettable powder
Ficam	bait
Gentrol	aerosol
Gentrol	emulsion
Hornet-Spray (can)	aerosol
Maxforce	bait
Perma-Dust	aerosol
Pyrethrin	aerosol
Roundup	emulsion
Sevin	dust
Spectracide	aerosol
Avert	bait
Tempo WP	wettable powder
Precor	emulsion
Biopath	bait
Safrotin	emulsion
Gencor	aerosol
Kicker	emulsion
Fipronil	bait
Ortho wasp	aerosol
Talstar	emulsion

Notes: Table includes Building 647 pesticide usage for the majority of NAS Brunswick, this table does not include Building 39 pesticide usage for the Golf Course.

Source: Lisa Joy, NAS Brunswick. Air Emission Data Tables. Air Emission Inventory (January 1, 1994 to December 31, 2004) Pesticide Usage Emission Calculation/ Summary. May 16, 2006.

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Table 4-9. 2002 - 2005 Building 39 Pesticides, Insecticides, Herbicides, and Fungicides Used at NAS Brunswick Golf Course

Material	Location/Purpose	Date	Amount Used
Ficam W (Bendiocarb)	Inside (Ants)	02/07/02	0.4 Dry Ounces
Pentachloronitrobenzene (PCNB)	Outside (Snow Mold Treatment)	01/06/05	385 Pounds
Pentachloronitrobenzene (PCNB)	Outside (Snow Mold Treatment)	12/12/05	385 Pounds

Notes: Table includes Building 39 pesticide usage for the Golf Course, this table does not include Building 647 pesticide usage for the majority of NAS Brunswick.

Source: Kempf 2006d.

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Table 4-10. Pesticide Use at Facilities and Frequency

Pesticide	Building/Facility	Recommended Frequency	Recommended Pesticide Dispersal Method
Ants	Food storage, preparation, and service areas	Monthly	Indoors: Bait stations and gel bait are primary chemical control tool used. Liquid pesticides used in emergency situations only. Outdoor, Perimeter: Perimeter liquid treatments could be performed for ants that nest outside and forage inside, also granular baits or residual sprays.
	Barracks	Every 6 months	
	Housing	Change of occupancy	
	Galleys/clubs	Monthly	
	All other buildings	On call	
Cockroaches	Food handling areas (Galley, Niteflight, Boomers)	Monthly	Cockroach bait stations and gel formulations containing fipronil or hydramethylnon are primary control method. Liquid sprays or dusts are restricted to spot treatments only. Liquid applications normally tank mixed with an insect growth regulator.
	Family housing	Change of occupancy and trouble calls	
	Barracks	Every 6 months	
	All other buildings	Trouble call	
Spiders, Fleas, & Misc. Arthropods	All buildings	As needed	Outdoor, Perimeter: Pesticides (which are not phytotoxic) applied in a band up to 20' wide around the structure and up the foundation wall to a height of 3" or more). All windows are closed during application and all ventilation inlets are shut or systems turned off. Wettable powders, granular, or waterproof dust formulations are generally good choices for exterior treatments
Birds	Hangars (primarily pigeons)	Monthly, year round	Poisons not normally used for bird management. Repellents that are sticky or give birds a "hot foot" reaction may be used in limited areas.
	All other buildings at airfield	Trouble calls, year round	
	All other buildings	Trouble calls, year round	
Rodents	Food handling establishments	Monthly	Only toxic mouse baits in parafinized bait blocks that can be secured with a rod or hook to a tamper resistant bait station should be used. Poison baits will only be secured in distinctly marked, tamper resistant bait stations, generally inaccessible to children, pets, or non-target wildlife. Poison bait not to be placed in areas where food is served or in vending machine areas, coffee messes or other like areas. Moldy or otherwise unacceptable or spilled baits shall be removed and disposed of. Treated burrows sealed immediately after treatment. Reopened burrows retreated and resealed until all rodent activity ceases.
	Barracks spaces	Every 6 months	
	All other buildings	Trouble calls	

Table 4-10. Pesticide Use at Facilities and Frequency

Pesticide	Building/Facility	Recommended Frequency	Recommended Pesticide Dispersal Method
Bees, Wasps, & Hornets	All areas	Emergency trouble calls	Small solitary stinging arthropod nests controlled/knocked down as soon as they are reported. Large, well established aerial or ground nesting hornets controlled in the early morning or in the late evening when temperatures are cooler, most individuals are in the nest, and the hive is least active. "Jet" style wasp freeze sprays may be used when appropriate for quick knockdown of individuals in a small nest. Dust formulations used for larger nests in the ground, building voids, or aerial nests. Ultra Low Volume (ULV) foggers may be useful in providing a quick knockdown of adults. Nests then be removed or treated with a pesticide if necessary.
Mosquitoes	Adult mosquito light traps	May - October	Adult Mosquitoes: ULV pesticide applications are primary response to verified mosquito problems. ULV applications not performed when wind is in excess of 15 mph or during rain. Larval Mosquitoes: Larval mosquito management performed at common breeding sites near transient water such as lowland stagnant pools, building roof tops, stored tires, and rain gutters.
	Larval survey sites	May - October	
Vertebrates	Outdoor areas	Visual inspections Customer complaints Reports from Security	Capture and release Capture and disposal Shooting Food Source reduction (sanitation) Food source removal (cover trash cans/dumpsters) Education Habitat management
Ornamental Plantings Pests	High value trees	Monthly during growing season	Method of dispersal shall be as appropriate for the pest species and site involved.
	Shrubbery and ornamentals	Monthly during growing season	
	Undeveloped or natural areas at all sites	Customer complaints	
Golf Course Maintenance	Greens/tees/fairways	Daily	All pesticide applications on NAS Golf Course performed by certified pesticide applicators. Use of insecticides and herbicides based on surveys.
	Pink snow mold	Winter (Oct-April)	
	Gray snow mold	Winter (Oct-April)	
	Leaf spot	Mid May (preventative spray)	
	Brown patch	June - Sept	
	Dollar spot	June - Sept	
Utility Pole Maintenance	All wooden utility poles	Every 10 - 15 years	Pesticides used to protect/treat utility poles supplied by the contractor. Authorized pesticides are those proposed for use by the contractor and approved by the Activity Contracting Officer. Contractor supplied pesticides shall never be stored on NASB controlled property
Feral Dogs & Cats	Station wide	Quarterly	Physical Methods

Source: NAS Brunswick Pest Management Plan, Appendix A, May 2003.

Table 4-11. Pesticides Approved for Use at NAS Brunswick

Pesticide Use		Pest	Comments
Chemical	**Trade Name**	**Type**	**(Specific Uses)**
Bendiocarb	Ficam Ficam Wasp and Hornet Spray	Ants Spiders, Fleas, & Misc. Arthropods Bees, Wasps, & Hornets	
Boric Acid	Boric Acid Dust Perma Dust Whitmire 249	Ants Cockroaches Spiders, etc.	
Fipronil	Maxforce Ant Bait Stations Maxforce Roach Control	Ants Cockroaches	
Pyrethrins	PT-565 PT-565 XLO	Ants, Spiders, Fleas, & Misc. Arthropods Cockroaches	
Cyfluthrin	Tempo 20WP Tempo	Ants Cockroaches Spiders, Fleas, & Misc. Arthropods	
Abamectin	Avert PT310	Cockroaches	
Hydramethylnon	Maxforce Ant Bait Stations Siege Siege Gel Combat Bait Stations Max Force Gel Bait	Ant Cockroaches Cockroaches Cockroaches Cockroaches	
Hydroprene	Gentrol IGR Gentrol EC IGR Gentrol Point Source	Cockroaches Cockroaches Cockroaches	
Allethrin	Allethrin	Spiders, Fleas, & Misc. Arthropods	
Carbaryl	Sevin 80S Various, including Sevin and Apicide	Spiders, Fleas, & Misc. Arthropods Bees, Wasps, & Hornets	
Deltamethrin	Delta Dust/ Delta Guard Delta Dust	Spiders, Fleas, & Misc. Arthropods Bees, Wasps, & Hornets	
Fenoxycarb	Torus	Spiders, Fleas, & Misc. Arthropods	
Methomyl	Golden Malrin Fly Bait	Spiders, Fleas, & Misc. Arthropods	
Methoprene	Precor 5E	Spiders, Fleas, & Misc. Arthropods	

Table 4-11. Pesticides Approved for Use at NAS Brunswick

Pesticide Use		Pest	Comments
Chemical	**Trade Name**	**Type**	**(Specific Uses)**
Methoprene/ Permethrin	Precor Fogger Plus	Spiders, Fleas, & Misc. Arthropods	
Permethrin	Flee	Spiders, Fleas, & Misc. Arthropods	
Propetamphos	Safrotin	Spiders, Fleas, & Misc. Arthropods	
Propoxur	Baygon	Spiders, Fleas, & Misc. Arthropods	
Silica Aerogel	Dri-Die	Spiders, Fleas, & Misc. Arthropods	
Silica Gel and Pyrethrins	Drione	Spiders, Fleas, & Misc. Arthropods	
Bromadioline	Maki	Rodents	
Bromethalin	Vengeance	Rodents	
Bromodialone		Rodents	
Chlorophacinone	Rozol Tracking Powder	Rodents	
Cholecalciferol	Quintox	Rodents	
Diphacinone		Rodents	
Hydroxycoumarin	Maki	Rodents	
	Pival	Rodents	
Zinc Phosphide	ZP Rodent Bait ZP Tracking Powder	Rodents Rodents	
Allethrin, phenothrin	WaspFreeze PT-515	Bees, Wasps, & Hornets	
Pyrethrum (synthetic)	Biomist	Mosquitoes	Adult
Resmethrin	Scourge Vectrin	Mosquitoes Mosquitoes	Adult Adult
Methoprene	Altosid	Mosquitoes	Larvae
Isostearate alcohol	Arosurf MSF	Mosquitoes	Larvae
Bacillus thuringiensis var. isrealensis	Bactimos Briquettes	Mosquitoes	Larvae
Bacillus sphaericus	VectoLex CG	Mosquitoes	Larvae
FUNGICIDES			
Thiophanate ethyl	3336 WP	Golf Course Operations	Pink snow mold, grey snow mold, brown patch
Chlorothalonil	Daconil	Golf Course Operations	Brown patch, dollar spot, leafspot
Dimethyl	Baylaton	Golf Course Operations	Brown patch, dollar spot
Tetramethyl thiram disulfide	Spotrete 75 wdg	Golf Course Operations	Pink snow mold, grey snow mold

Table 4-11. Pesticides Approved for Use at NAS Brunswick

Pesticide Use		Pest	Comments
Chemical	**Trade Name**	**Type**	**(Specific Uses)**
Cloroneb	Teremec SP	Golf Course Operations	Pythium
Propamocarb hydrochloride	Banol	Golf Course Operations	Pythium
Dimethyl	Scotts Fungicide VII with fertilizer	Golf Course Operations	Leafspot, brown patch
Dimethyl	Scotts Fungicide VIII	Golf Course Operations	Leafspot
Terrachlor	Scotts Fungicide II	Golf Course Operations	Pink snow mold, grey snow mold
INSECTICIDES			
Imidacioprid	Merit	Golf Course Operations	
Bendiocarb	Turcan	Golf Course Operations	
Phosphorothiac acid	Scotts Insecticide III	Golf Course Operations	
HERBICIDES			
mcpp, 2-4 D, dicamba	Mec Amine D	Golf Course Operations	Broadleaf weeds
Glyphosate	Roundup	Golf Course Operations	All vegetation

Source: NAS Brunswick Pest Management Plan, Appendix A, May 2003.

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Table 4-12. 2004 Pesticides, Insecticides, Herbicides, and Fungicides Used at NAS Brunswick

Material	State	One Year Use
Arsenal	emulsion	3.00 gal/year
Brodifacoum(Weatherblokxt)	bait	0.00 lb/year
Diazinon	emulsion	1.05 gal/year
Dursban	aerosol	0.00 gal/year
Ficam	emulsion/wettable powder	0.00 gal/year
Ficam	bait	51.75 lb/year
Gentrol	emulsion	3.33 gal/year
Perma-Dust	aerosol	0.00 lb/year
Pyrethrin	aerosol	0.58 gal/year
Pyrethrin	aerosol	0.04 gal/year
Pyrethrin	aerosol	4.38 gal/year
Pyrethrin	aerosol	0.00 gal/year
Roundup	emulsion	46.00 gal/year
Spectracide	aerosol	0.00 gal/year
Safrotin	emulsion	0.00 gal/year
Gencor	aerosol	0.00 gal/year
Kicker	emulsion	5.09 gal/year
Fipronil	bait	1.43 lb/year
Ortho wasp	aerosol	2.93 gal/year
Talstar	emulsion	1.13 gal/year

Note: This table only includes Pesticides, Insecticides, Herbicides, and Fungicides usage associated with Building 647.

Source: Lisa Joy, NAS Brunswick. Air Emission Data Tables. Air Emission Inventory (January1, 2004 to December 31, 2004) Pesticide Usage Emission Calculation/ Summary. October 11, 2005. (Joy 2005c)

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Table 4-13. Asbestos Inventory

Building Number	Building Owner	Facility	Year Constructed	ACM or PACM
1	CPRW-5	HANGAR	1942	To be demolished in 2006/Surveyed-no known ACM remaining
5	CPRW-5	HANGAR	1982	Window Caulking
6	CPRW-5	HANGAR	2005	None (new construction in 2005)
9	HOUSING	HOUSING OFFICE	1943	VFT and Mastic
10	ENVIRONMENTAL	OIL SPILL EQUIPMENT STORAGE	2004	None (new construction in 2005)
11	NAVY EXCHANGE	NAVY EXCHANGE COMPLEX	1981	Transite ext., floor mastic, sink coating, floor tile
19	PUBLIC WORKS	CARPENTRY SHOP	1981	No known ACM
20	ADMIN	NH COLL/EMBRY/NAVY COLL	1943	Transite, VFT, Mastic, Soil
21	MWR	CHILD CARE CENTER	1983	VFT and Mastic, Sink Coating
6	CPRW-5	HANGAR	2005	None (new construction in 2005)
23	MWR	CAR WASH	1994	No known ACM
24	PERSONNEL SUP DET	PERSONNEL SUPPORT DET.	1982	VFT, Mastic, Sheet Vinyl,
25	MWR	INDOOR FITNESS CENTER	1983	Mastic, VFT PACM
26	MWR	CHILD CARE CENTER	1990	No known ACM
27	FAMILY SERVICES	FAMILY SERVICES CENTER	1984	Transite ext., roof tar, sink coating
29	MWR	AUTO HOBBY SHOP	1986	VFT, mastic
30	FSC	FSC STORAGE	1995	No known ACM
31	NEX	NAVY LODGE	1999	No known ACM
32	SUPPLY	POL BUILDING	1981	Vinyl Sheet, Sink Coating
33	SECURITY	SENTRY HOUSE/FRONT GATE	1954	Mastic
35	SECURITY	MAIN GATE SENTRY		New construction 2004 / Former #35 Storage Bldg Demolished
36	SECURITY	DYERS GATE SENTRY		No known ACM / Former #36 was Wood Chip Bldg Demolished
37	NAVAL INVEST SVC	NCIS	1943	VFT, Mastic, Sheet Vinyl, Transite Board
38	SECURITY	PASS AND I.D. OFFICE		None (New construction 2004)/Former #38 Orions Landing O'Club
39	MWR	GOLF COURSE MAINT BLDG	1985	PACM Roofing
41	SECURITY	SECURITY	1944	VFT, Mastic, Transite Board, Straight Piping, Pipe Joints
42	PUBLIC WORKS	PUMP HOUSE (WATER)	1944	PACM Roofing
43	PUBLIC WORKS	TELEPHONE EXCHANGE BUILDING	1989	No Known ACM
44	PUBLIC WORKS	MAGAZINE (VACANT)	1943	PACM Caulk/Tar
45	PUBLIC WORKS	HAZ WASTE TRANSFER FACILITY	1992	No Known ACM
46	SECURITY	SECURITY INSPECTION OFFICE		None (new construction 2004)
47	MWR	BALLFIELD STORAGE	1999	No Known ACM
49	PUBLIC WORKS	REGULATOR SUBSTATION	1981	Roofing Material
50	PUBLIC WORKS	WATER TREATMENT PLANT		No Known ACM
51	PUBLIC WORKS	HAZARDOUS WASTE FACILITY	2004	None (new construction 2004)

Table 4-13. Asbestos Inventory

Building Number	Building Owner	Facility	Year Constructed	ACM or PACM
53	PUBLIC WORKS	PW ADMIN BUILDING	1998	No Known ACM
54	FASO	APPLIED INST BUILDING	1987	No Known ACM
55	SECURITY	SECURITY	1999	None (new construction 2005)
57	AIR OPS	NEW BEACON		None (new construction 2005)
58	AIR OPS	NEW TACAN		None (new construction 2005)
59	WEAPONS	HE MAGAZINE	1943	Caulk/Sealant
60	WEAPONS	HE MAGAZINE	1943	Caulk/Sealant
62	WEAPONS	AMMO STORAGE FACILITY	1943	Caulk/Sealant
63	CPRW-5	STORAGE (OLD MAG)	1943	Caulk/Sealant
64	CPRW-5	STORAGE (OLD MAG)	1943	Caulk/Sealant
65	MWR	PICNIC SHELTER	1986	No Known ACM
71	WEAPONS	MAGAZINE	1943	Sealant
77	WEAPONS	WEAPONS BUILDUP SHOP	1991	No Known ACM
78	MWR	GOLF CLUB HOUSE	1981	Tar at Roof Vents
79	MWR	HOBBY SHOP STORAGE	1980	No Known ACM
81	SUPPLY	INERT STORAGE	1980	No Known ACM
83	EOD	ORDNANCE DISPOSAL AREA	1981	Demolished in 2004 (No Known ACM)
85	MWR	STORAGE	1980	PACM Roofing Tar
86	AIMD	GSE MAINTENANCE	1991	No Known ACM
87	CPRW-5	TSC	1987	No Known ACM
100	HOUSING/PWD	GARAGE, QTRS D	1944	N/A
101		SECURITY		None (new construction 2005)
102		SMALL ARMS RANGE		None (new construction 2004)
103		DOG KENNEL		None (new construction 2004)
109	SECURITY	KENNEL	1983	Demolished in 2004
110	HOUSING/PWD	GARAGE, GTRS A&B	1943	N/A
111	PUBLIC WORKS	SEWAGE PUMP HOUSE	1943	No Known ACM
117	SUPPLY	FILLING STATION		No Known ACM
118	SUPPLY	FILLING STATION STORAGE	1984	No Known ACM
124	SUPPLY	STOR TANK-GROUND LEVEL	1944	No Known ACM
125	WEAPONS	GUARD TOWER	1983	No Known ACM
126	WEAPONS	NATIONAL GUARD MAGAZINE	1984	No Known ACM
127	WEAPONS	NATIONAL GUARD MAGAZINE	1984	No Known ACM
128	WEAPONS	NATIONAL GUARD MAGAZINE	1943	No Known ACM
145	WEAPONS	BARRICADED SIDING	1943	No Known ACM
146	PUBLIC WORKS	WATER MAIN ENT SHELTER	1987	No Known ACM

Table 4-13. Asbestos Inventory

Building Number	Building Owner	Facility	Year Constructed	ACM or PACM
147	PUBLIC WORKS	WATER MAIN ENT SHELTER	1987	No Known ACM
150	NAVAL AIR RESERVE	NAVAL AIR RESERVE CENTER	1992	No Known ACM
151	NAVAL SURF RESERVE	NAVAL SURFACE RESERVE CENTER	2002	No Known ACM
153	PUBLIC WORKS	SAND/SALT SHED	1992	No Known ACM
162	HOUSING/PWD	PUBLIC QTRS, SINGLE	1954	N/A
163	HOUSING/PWD	PUBLIC QTRS, SINGLE	1954	N/A
182	HOUSING/PWD	GARAGE	1954	N/A
183	HOUSING/PWD	GARAGE	1954	N/A
200	AIR OPS	OPERATIONS BUILDING	1954	Transite, VFT, Mastic
201	SUPPLY	GALLEY/NEPTUNE HALL	1953	Pipe Insulation in Basement
209	PUBLIC WORKS	ELECTRIC DISTRIBUTION	1954	VFT, Mastic
210	AIR OPS	BEACON TOWER	1954	Demolished in 2005
211	MWR	PHYSICAL FITNESS FACILITY	1954	Boiler room-Tank Insulation, Straight Pipe, Pipe Fittings
221	PUBLIC WORKS	THRIFT SHOP	1999	No Known ACM
222		BEQ MAINTENANCE STORAGE	1954	Demolished in 2005
223	PUBLIC WORKS	NATEC	1953	No Known ACM
225	PUBLIC WORKS	TRANSPORTATION GARAGE	1953	Roof Alumination
226	ADMIN	SEA CADETS BUILDING	2001	No Known ACM
227	PUBLIC WORKS	GENERATOR BUILDING	1956	Transite Board
228	CPRW-5/COMM	GUARD HOUSE	1980	No Known ACM
229	AIR OPS	GCA HARDSTAND	1963	N/A
230	AIR OPS	OLD TACAN TRANSMITTER BLDG	1956	PACM Roofing, Tile, Mastic
231	AIR OPS	AIR TRAFFIC CONTROL TOWER		None (New construction 2004)
235	HOUSING/PWD	GARAGE, QTRS E	1955	N/A
236	HOUSING/PWD	GARAGE, QTRS F	1955	N/A
237	HOUSING/PWD	GARAGE. QTRS G	1955	N/A
238	HOUSING/PWD	GARAGE, QTRS H	1955	N/A
239	HOUSING/PWD	GARAGE. QTRS I	1955	N/A
240	HOUSING/PWD	GARAGE, QTRS EA	1955	N/A
241	HOUSING/PWD	GARAGE, QTRS EB	1955	N/A
242	HOUSING/PWD	GARAGE, QTRS EC	1955	N/A
243	HOUSING/PWD	GARAGE, QTRS ED	1955	N/A
244	HOUSING/PWD	GARAGE, QTRS EE	1955	N/A
245	WEAPONS	VEHICLE STORAGE	1956	PACM Roofing
250	AIMD/CPRW-5	HANGARS/SHOPS/OFFICE	1956	Straight Piping, Transite Board, Tile, Mastic
251	AIMD	DE-ICE/RINSE PUMPHOUSE	2002	No Known ACM

Table 4-13. Asbestos Inventory

Building Number	Building Owner	Facility	Year Constructed	ACM or PACM
252	PUBLIC WORKS	TRANSPORTATION	1957	Demolished in 2005
256	MWR	PLAYING FIELD	1943	N/A
257	MWR	PLAYING COURTS	1965	N/A
265	SECURITY	FORRESTAL SENTRY BOOTH	1960	No Known ACM
277	PUBLIC WORKS	SEWAGE PUMP STATION	1953	N/A
280	AIR OPS	VHF/UHF TRANSMITTER	1945	Transite, Pipe Joint
282	AIR OPS	COMPASS ROSE	1956	N/A
285	WEAPONS	HIGH EXPLOSIVE MAGAZINE	1956	Caulk/Sealant PACM
286	WEAPONS	HIGH EXPLOSIVE MAGAZINE	1956	Caulk/Sealant PACM
287	WEAPONS	HIGH EXPLOSIVE MAGAZINE	1956	Caulk/Sealant PACM
288	WEAPONS	HIGH EXPLOSIVE MAGAZINE	1956	Caulk/Sealant PACM
289	WEAPONS	HIGH EXPLOSIVE MAGAZINE	1956	Caulk/Sealant PACM
290	WEAPONS	HIGH EXPLOSIVE MAGAZINE	1956	Caulk/Sealant PACM
291	WEAPONS	FUSE & DET MAGAZINE	1956	Caulk/Sealant PACM
292	AIR OPS	FIRE/ RESCUE STATION	1957	Renovated '98 No Known ACM
294	SUPPLY	WAREHOUSE	1956	VFT, Mastic, Pipe Joints, Straight Piping
295	PUBLIC WORKS	WATER PUMP HOUSE	1957	N/A
296	AIR OPS	VORTAC	1956	Demolished
309	MWR	PUMPHOUSE/ IRRIGATION	1954	Window Caulking, PACM Roofing
310	PUBLIC WORKS	DAM (GOLF COURSE)	1955	N/A
311	PW	OIL SPILL CONTROL WEIR	1994	N/A
323	PUBLIC WORKS	BRUNS GAR STOR/SHOP	1949	PACM Roofing
332	DIS	ADMIN SPACES	1964	VFT, Mastic, PACM Roofing
333	ARMY/NAVY RESERVES	ADMIN SPACES	1964	VFT, Mastic, Transite Board
335	PUBLIC WORKS	COMMISSARY STORE - N60672	1957	VFT, Mastic, Transite Board, Joint Compound
336	PUBLIC WORKS	COMMISSARY STORAGE - N60672	1963	Window Glazing
337	PUBLIC WORKS	MARINE RESERVES BUILDING	1964	VFT, Mastic, Plaster, Pipe Joint Insulation
338	PUBLIC WORKS	MARINE RESERVES BUILDING	1964	VFT, Mastic
339	PUBLIC WORKS	MARINE RESERVES BUILDING	1964	VFT, Mastic, Pipe Joint Insulation
347	PUBLIC WORKS	DAM (PICNIC AREA)	1954	N/A
349	HOUSING/PWD	FUND 50-69 EM (SINGLE)	1958	N/A
363	AIR OPS	FIRE STATION	1964	VFT, Mastic
370	MWR	PLAYING COURT	1964	N/A
374		VACANT	1959	Unknown
378	PUBLIC WORKS	SHOP	1964	No Known ACM
385	PUBLIC WORKS	WATER STORAGE TANK	1958	N/A

Table 4-13. Asbestos Inventory

Building Number	Building Owner	Facility	Year Constructed	ACM or PACM
386	PUBLIC WORKS	WATER METER PIT SHELTER	1987	No Known ACM
413	CPW-5	SHELTER	1980	VFT, Mastic
415	PUBLIC WORKS	STORAGE	1984	Roofing, VFT, Mastic
426	CPW-5	LINE SHACK	1980	Roofing, VFT, Mastic
436	CPW-5	LINE SHACK	1980	Roofing, VFT, Mastic
437	CPW-5	LINE SHACK	1980	Roofing, VFT, Mastic
440	CPW-5	LINE SHACK	1980	Roofing, VFT, Mastic
445	CPW-5	LINE SHACK	1980	Roofing, VFT, Mastic
477	CPW-5	LINE SHACK	1980	Roofing, VFT, Mastic
496	CPW-5	LINE SHACK	1980	Roofing, VFT, Mastic
498	CPW-5	LINE SHACK	1980	Roofing, VFT, Mastic
499	CPW-5	LINE SHACK	1980	Roofing, VFT, Mastic
512	SUPPLY	BOQ	1958	No Known ACM-Renovated
516	MWR	EM CLUB/NITEFLITE	1958	Straight Pipe Insulation, Tile, Mastic, Pipe Joint Insulation
517	AIR OPS	RECEIVER BUILDING	1958	VFT, Mastic, Transite Board, Pipe Joint and Straight Pipe Insulation
518	PUBLIC WORKS	GENERATOR BUILDING	1954	Gasket Material
524	PUBLIC WORKS	GENERATOR BUILDING	1958	Unknown
537	PUBLIC WORKS	SEWAGE PUMP HOUSE	1958	Straight Pipe and Joint Insulation, PACM Roofing
538	NAVY EXCHANGE	SERVICE STATION (N66249)	1957	VFT, Mastic, Straight Pipe and Joint Insulation
539	WEAPONS	EXPL ADMIN/ARMORY	1958	VFT, Mastic, Pipe Fittings, Breeching Insulation, Flex Duct, Putty
543	WEAPONS	HIGH EXPLOSIVE MAGAZINE	1958	PACM Tar
544	WEAPONS	HIGH EXPLOSIVE MAGAZINE	1958	PACM Tar
548	WEAPONS	FUSE & DET MAGAZINE	1959	No Known ACM
549	WEAPONS	FUSE & DET MAGAZINE	1959	No Known ACM
553		ASB	2004	None (New construction in 2004)
554	CPRW5	P3 SUPPORT FACILITY	2002	No Known ACM
555	CPRW-5/AIMD	SONOBUOY LKR/STORAGE	1959	Window Glazing
557	WEAPONS	SM POINT RAKE TOWER	1960	No Known ACM
558	WEAPONS	SABINO HILL RAKE TOWER	1960	No Known ACM-Roof and Tile Abated
561	PUBLIC WORKS	PUBLIC WORKS STORAGE	1960	N/A McKeen ST Housing
562		TRANSMISSOMETER TOWER	1960	N/A
563		TRANSMISSOMETER TOWER	1960	N/A
569	PUBLIC WORKS	SEWAGE TREATMENT PLANT	1963	N/A
572	FASO	GENERATOR PLANT	1963	N/A
574	FASO	POW TRAINING BUILDING	1961	N/A
576	FASO	GUARD TOWER	1963	N/A

Table 4-13. Asbestos Inventory

Building Number	Building Owner	Facility	Year Constructed	ACM or PACM
578	FASO	GUARD TOWER	1963	N/A
583	MWR	BOWLING CENTER REC MALL	1965	No Known ACM - Renovated
584	PUBLIC WORKS	PW SHOPS	1965	Behind Walls in Old Section on Studs (sm amt spray-on insulation)
585	CHAPLAIN	CHAPEL	1965	VFT, Mastic, Transite, Acoustical Tile, Window Glazing, Door Caulk
587	MWR	BBQ PIT AND SHELTER	1985	N/A
590	PUBLIC WORKS	TRANSPORTATION	2004	None (new construction in 2004)
592	ARMY	VETERINARIAN	1950	Transite Board, VFT, Mastic, Joint Compound
594	PUBLIC WORKS	RADAR TOWER/MECH @ ASWOC	1950	No Known ACM
600	AIR OPS	TRANSMISSOMETER TOWER	1965	N/A
601	AIR OPS	TRANSMISSOMETER TOWER	1965	N/A
602	AIR OPS	GLIDE SLOPE ANTENNA BUILDING	1998	N/A
603	AIR OPS	LOCALIZER ANTENNA BUILDING	1998	N/A
611	AIMD	ENGINE TEST CELL	1967	Transite Board
613	MWR	PICNIC AREA TOILET	1966	No Known ACM
618	CPRW-5	FLAG POLE	1954	N/A
626	WEAPONS	HE MAGAZINE	1973	Window Glazing
627	WEAPONS	AUW MAGAZINE	1973	Window Glazing
628		NMCB-27		Unknown
629		NMCB-27	1974	VFT, Mastic, Aluminum Coating Roofing, Caulk/Sealant
630		NMCB-27	1974	VFT, Mastic, Aluminum Coating Roofing, Caulk/Sealant
631		NMCB-27	1974	VFT, Mastic, Aluminum Coating Roofing, Caulk/Sealant
632	TRAINER	NMCB-27		NEW 05/06
633		NMCB-27	1974	VFT, Mastic, Aluminum Coating Roofing, Caulk/Sealant
634		NMCB-27	1974	VFT, Mastic, Aluminum Coating Roofing, Caulk/Sealant
635		NMCB-27	1974	VFT, Mastic, Aluminum Coating Roofing, Caulk/Sealant
636		NMCB-27		Unknown
637		NMCB-27		Unknown
638	PUBLIC WORKS	SEWAGE PUMPING STATION	1954	N/A
639		OPERATIONAL TRAINING BLDG	1975	VFT, Mastic, Paper Insulation Lights, Roofing
640	PUBLIC WORKS	SALT/SAND SHED	1974	No Known ACM
642	WEAPONS	REACTION FORCE FACILITY	1978	VFT, Mastic, Flex Duct Connector,
643	WEAPONS	AUW COMP SENTRY BOOTH	1978	No Known ACM
644	CPRW-5	OPERATIONAL TRAINER BLDG	1979	VFT, Mastic, Tar Wrap on Fittings
645	BRANCH CLINIC	MEDICAL/ DENTAL CLINIC	1979	VFT, Mastic, Sheet Vinyl
646	AIR OPS	ASR-8 BUILDING	1979	PACM Roofing, Tile, Mastic
647	PUBLIC WORKS	PEST CONTROL/ GAS STORAGE	1978	PACM VFT, Mastic

Table 4-13. Asbestos Inventory

Building Number	Building Owner	Facility	Year Constructed	ACM or PACM
648	AIMD	EDC TEST FACILITY	1981	VFT, Mastic
649	BRANCH CLINIC	AMBULANCE GARAGE	1979	Mastic associated with VFT
650	SUPPLY	JP-5 TANK 20000 BBLS	1991	N/A
651	SUPPLY	JP-5 TANK 20000 BBLS	1991	N/A
652	SUPPLY	JP8 TRUCK LOADING RACK	1992	No Known ACM
653	SUPPLY	FUEL FARM FOAM HOUSE	1992	No Known ACM
654	SUPPLY	JP5 PUMPHOUSE	1992	No Known ACM
655	SUPPLY	JP5 TRUCK OFFLOAD RACK	1992	No Known ACM
656	SUPPLY	JP5 SLOP TANK (472BBLS)	1992	N/A
657	SUPPLY	RESERVE TRAINING BLDG	1992	No Known ACM
658	SUPPLY	FUEL FARM POL TEST FACILITY	1998	No Known ACM
659		NMCB-27		Unknown
660	SUPPLY	TRUCK WASH	1998	No Known ACM
661		NMCB-27		Unknown
730	HOUSING	BEQ	2002	No Known ACM
731	HOUSING	BEQ	2002	No Known ACM
732	HOUSING	BEQ	2002	No Known ACM
733	HOUSING	BEQ	2002	No Known ACM
734	HOUSING	BEQ	2002	No Known ACM
735	HOUSING	BEQ	2002	No Known ACM
736	HOUSING	BEQ	2002	No Known ACM
737	HOUSING	BEQ	2002	No Known ACM
738	HOUSING	BEQ	2002	No Known ACM
739	HOUSING	BEQ	2002	No Known ACM
740	HOUSING	BEQ	2002	No Known ACM
741	HOUSING	BEQ	2002	No Known ACM
742	HOUSING	BEQ	2002	No Known ACM
743	HOUSING	BEQ	2002	No Known ACM
744	HOUSING	BEQ	2002	No Known ACM
745	HOUSING	BEQ	2002	No Known ACM
746	HOUSING	BEQ	2002	No Known ACM
747	HOUSING	BEQ	2002	No Known ACM
748	HOUSING	BEQ	2002	No Known ACM
749	HOUSING	BEQ	2002	No Known ACM
750		TRANSIENT Q	2004	No Known ACM
751		SCHOOL AGE CARE		

Table 4-13. Asbestos Inventory

Building Number	Building Owner	Facility	Year Constructed	ACM or PACM
790	HOUSING	MIDWAY TERRACE	1982	See table 4-11
791	HOUSING	MIDWAY TERRACE	1982	See table 4-11
792	HOUSING	MIDWAY TERRACE	1982	See table 4-11
793	HOUSING	MIDWAY TERRACE	1982	See table 4-11
794	HOUSING	MIDWAY TERRACE	1982	See table 4-11
795	HOUSING	MIDWAY TERRACE	1982	See table 4-11
796	HOUSING	MIDWAY TERRACE	1982	See table 4-11
797	HOUSING	MIDWAY TERRACE	1982	See table 4-11
798	HOUSING	MIDWAY TERRACE	1982	See table 4-11
799	HOUSING	MIDWAY TERRACE	1982	See table 4-11
800	HOUSING	MIDWAY TERRACE	1982	See table 4-11
875-903	HOUSING	PUBLIC QUARTERS (Brunswick Gardens)	1960	See table 4-11
904-905	HOUSING	MEMQ (Station Quarters)	1954	N/A
906-1091	HOUSING	PUBLIC QUARTERS (McKeen St)	1960	See table 4-11
1092-1142	HOUSING	CAPEHART (Topsham)	1961	See table 4-11
1143	HOUSING	PUB QTRS CAPT	1943	N/A
1144	HOUSING	MOQ	1943	N/A
1145	HOUSING	PUBLIC QUARTERS	1925	N/A
1146	HOUSING	MOQ	1954	N/A
1147-1151	HOUSING	MEMQ (Station Quarters)	1954	See table 4-11
1152-1155	HOUSING	MOQ	1954	N/A
1156		STORAGE YARD	1965	N/A
1157-1199				N/A
1170		COMMUNITY CENTER MCKEEN ST.		N/A
1200-1222	HOUSING	DUPLEX/QUADPLEX	2001	N/A
1223-1265				N/A

Sources: Sanders 2005

ACM = Asbestos containing material
PACM = Presumed asbestos containing material
N/A = Not Available
VFT = Vinyl floor tile

Table 4-14. Asbestos in Base Housing

Number of Units	Year Constructed	Number of Units Inspected	Units with Asbestos Detected	Asbestos Containing Material	Condition
Midway Terrace					
62	1982	4	20 Antietam St 23A Antietam St 28B Antietam St 5 Midway Cir	12” x 12” floor tile, mastic, vinyl sheet, white sink coating 12” x 12” floor tile, mastic, vinyl sheet 12” x 12” floor tile, mastic, white sink coating 12” x 12” floor tile, mastic, vinyl sheet, white sink coating	Good Good Good Good
Brunswick Gardens Capehart – Single-Family					
14	1959	1	19 Intrepid St	joint compound, 12” x 12” floor tile	Good
Brunswick Gardens Capehart – Multi-Family					
30	1959	1	41 Independence St	joint compound, 12” x 12” floor tile	Good
Quarters D					
1	1954	1	146 Bath Rd	transite board heat shield, roof tar, vinyl flooring	Good
Quarters E					
1	1954	1	101 Fitch Ave	joint compound, 12” x 12” floor tile, mastic, vinyl sheet, roof tar	Good
Quarters F					
1	1954	1	103 Fitch Ave	joint compound, vinyl sheet, roof tar	Good
Quarters G					
1	1954	1	105 Fitch Ave	joint compound, roof tar	Good
Quarters H					
1	1954	1	107 Fitch Ave	joint compound, roof tar, vinyl sheet	Good
Quarters A					
1	1954	1	109 Fitch Ave	white sink coating, exterior silver paint, flashing, tar, window calk	Good
Quarters B					
1	1954	1	111 Fitch Ave	flashing, tar	
Quarters I					
1	1954	1	113 Fitch Ave	12” x 12” floor tile, mastic, joint compound, roof tar	Good

Table 4-14. Asbestos in Base Housing

Number of Units	Year Constructed	Number of Units Inspected	Units with Asbestos Detected	Asbestos Containing Material	Condition
Quarters K					
1	1954	1	904 Fitch Ave	black vinyl baseboard, mastic, joint compound, flexible duct connector, mastic behind insulation, roof tar, chimney flashing compound	Good
Quarters K					
1	1954	1	905 Fitch Ave	vinyl sheet, 12” x 12” floor tile, mastic, joint compound, flexible duct connector, mastic behind insulation, roof tar, chimney flashing compound	Good
Quarters EB					
1	1954	1	60 Forrestal Dr	vinyl floor tile, mastic, joint compound, pin sink coating, roof tar, flue insulation	Good
Quarters EA					
1	1954	1	62 Forrestal Dr	12” x 12” floor tile, mastic, joint compound, white sink coating, flue insulation, roof tar	Good
Quarters EC					
1	1954	1	63 Forrestal Dr	12” x 12” floor tile, mastic joint compound, pink sink coating flue insulation, roof tar	Good
Quarters EE					
1	1954	1	65 Forrestal Dr	12” x 12” floor tile, mastic, joint compound, flue insulation, roof tar	Good
Quarters 349					
1	1954	1	349 Neptune St	roof tar, chimney flashing compound	
Topsham – single-family					
9	1961	2	220 Congress Cir 230 Congress Cir	joint compound, floor tile, mastic, pink sink coating joint compound, pink sink coating	Good Good

Table 4-14. Asbestos in Base Housing

Number of Units	Year Constructed	Number of Units Inspected	Units with Asbestos Detected	Asbestos Containing Material	Condition
Topsham – multi-family					
168	1961	6	208 Congress Cir	joint compound, floor tile, mastic, pink sink coating, carport shed roof	Good
			400 Liberty Cir	joint compound, pink sink coating, carport shed roof	Good
			405 Liberty Cir	joint compound, pink sink coating, carport shed roof	Good
			423 Liberty Cir	joint compound, floor tile, mastic, pink sink coating, carport shed roof	Good
			433 Liberty Cir	joint compound, floor tile, mastic, pink sink coating	Good
			470 Liberty Cir	joint compound, pink sink coating, carport shed roof	Good
McKeen – single-family					
145	1960	7	138 Columbia Ave	utility room joint compound	Good
			142 Columbia Ave	utility room joint compound	Good
			151 Columbia Ave	utility room joint compound , mastic behind Styrofoam insulation	Good
			3 Emanual Dr	utility room joint compound	Good
			39 Emanual Dr	utility room joint compound	Good
			15 Moore Ave	utility room joint compound	Good
			22 Moore Ave	utility room joint compound, 12” x 12” floor tile	Good
McKeen – multi-family					
86	1960	2	133 Columbia Ave	laundry room joint compound	Good
			6 Emanual Dr	laundry room joint compound	Good

Sources: Dewberry 2004a
Dewberry 2004b
Dewberry 2004c
Dewberry 2004d
Dewberry 2004e
Dewberry 2004f

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Table 4-15. Lead-Based Paint in Base Housing

Number of Units	Year Constructed	Number of Units Assessed	Units with Lead Based Paint Detected	Lead Based Paint Areas
Brunswick Gardens Capehart – Single-Family				
14	1959	1	none	none
Brunswick Gardens Capehart – Multi-Family				
30	1959	1	none	none
Quarters D				
1	1954	1	146 Bath Rd	window sash, basement door, porch walls, electrical conduit, garage fascia
Quarters E				
1	1954	1	101 Fitch Ave	interior door casing; and jambs, baseboards, exterior doors; casing; and jamb
Quarters F				
1	1954	1	103 Fitch Ave	interior door casing and jambs, baseboards, exterior door casings
Quarters G				
1	1954	1	105 Fitch Ave	interior door casing and jambs, baseboards
Quarters H				
1	1954	1	107 Fitch Ave	living room and laundry baseboards, bathroom window apron, kitchen door jamb, kitchen door casing, and exterior electrical conduit
Quarters A				
1	1954	1	109 Fitch Ave	interior walls, closet shelves, and closet shelf supports, exterior doors, jambs, casings, widow casings and sashes
Quarters B				
1	1954	1	111 Fitch Ave	living room, dining room, and hallway walls, baseboards in living room, dining room, and bedrooms
Quarters I				
1	1954	1	113 Fitch Ave	laundry room and foyer baseboards, living room and dining room door jambs and casings, and on en exterior pipe
Quarters K				
1	1954	1	904 Fitch Ave	garage doors, jambs casings, thresholds, and soffit

Table 4-15. Lead-Based Paint in Base Housing

Number of Units	Year Constructed	Number of Units Assessed	Units with Lead Based Paint Detected	Lead Based Paint Areas
Quarters K				
1	1954	1	905 Fitch Ave	garage siding
Quarters EB				
1	1954	1	60 Forrestal Dr	exterior door casing, columns, window sills, and soffit
Quarters EA				
1	1954	1	62 Forrestal Dr	exterior window sills, casings, columns, fascia, porch trim, laundry room door
Quarters EC				
1	1954	1	63 Forrestal Dr	kitchen and laundry room walls, exterior door casings, window sills, columns, walls and porch trim.
Quarters EE				
1	1954	1	65 Forrestal Dr	kitchen walls, laundry room walls, garage walls, exterior window sills, columns, fascia and porch trim.
Quarters 349				
1	1954	1	349 Neptune St	basement window sashes
Topsham – single-family				
9	1961	2	220 Congress 230 Congress	exterior door systems, laundry vent, and column base exterior door systems, laundry vent, and column base
Topsham – multi-family				
168	1961	6	208 Congress 400 Liberty 405 Liberty 423 Liberty 433 Liberty 470 Liberty	utility room ladder, carport fascia system and carport storage shed door utility room ladder, carport fascia system and carport storage shed door utility room ladder, carport fascia system and carport storage shed door utility room ladder, carport fascia system and carport storage shed door utility room ladder, carport fascia system and carport storage shed door utility room ladder, carport fascia system and carport storage shed door

Table 4-15. Lead-Based Paint in Base Housing

Number of Units	Year Constructed	Number of Units Assessed	Units with Lead Based Paint Detected	Lead Based Paint Areas
McKeen – single-family				
145	1960	7	138 Columbia Ave	exterior crawlspace louver vents, fascia, and interior garage doors
			142 Columbia Ave	exterior crawlspace louver vents, fascia, and interior garage doors
			151 Columbia Ave	exterior crawlspace louver vents, fascia, and interior garage doors
			3 Emanual Dr	exterior crawlspace louver vents, fascia, and interior garage doors
			39 Emanual Dr	exterior crawlspace louver vents, fascia, and interior garage doors
			15 Moore Ave	exterior crawlspace louver vents, fascia, and interior garage doors
			22 Moore Ave	exterior crawlspace louver vents, fascia, and interior garage doors
McKeen – multi-family				
86	1960	3	133 Columbia Ave	exterior crawlspace louver vents, fascia
			6 Emanual Dr	exterior crawlspace louver vents, fascia
			41 Emanual Dr	exterior crawlspace louver vents, fascia

Sources: Dewberry 2004b
Dewberry 2004c
Dewberry 2004d
Dewberry 2004e
Dewberry 2004f

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Table 4-16. Radon Screens and Radon Assessment Results

Building	Radon Concentration (pCi/L)	Building	Radon Concentration (pCi/L)	Building	Radon Concentration (pCi/L)
1990 Radon Screening Results					
1015A	<0.5	1131A	<0.5	800B	0.8
1019A	<0.5	1133A	0.6	800C	1.3
1025A	<0.5	1134A	0.5	801A	2.3
1028A	<0.5	1134A	<0.5	802A	0.9
1032A	<0.5	1136A	<0.5	804A	1.6
1034A	<0.5	1137A	<0.5	807A	1.0
1041A	<0.5	1138A	<0.5	809A	1.8
1042A	<0.5	1140A	0.7	809A	1.3
1052A	<0.5	1141A	0.8	810A	1.1
1052A	<0.5	162A	3.2	812A	1.1
1059A	<0.5	163A	1.4	813A	1.5
1064A	0.6	349A	1.4	813A	1.4
1067A	0.5	790B	0.8	815A	3.1
1075A	0.5	790C	0.8	818A	1.1
1076A	0.5	791A	<0.5	820A	2.1
1088A	<0.5	791B	1.3	821A	1.1
1093A	0.8	791B	1.2	822A	1.8
1094A	0.5	791C	0.6	824A	2.8
1096A	0.7	792B	0.9	828A	1.1
1097A	0.7	792C	1.0	830A	1.2
1099A	0.9	792C	1.0	831A	1.0
1100A	0.7	793A	0.6	833A	1.3
1103A	1.2	793B	1.3	836A	1.1
1105A	0.6	793C	1.7	838A	1.2
1105A	0.8	794A	0.6	841A	2.2
1108A	0.9	794B	0.8	844A	1.1
1109A	<0.5	794C	1.7	844A	1.5
1110A	0.6	795A	1.3	846A	1.1
1111A	<0.5	795B	<0.5	850A	1.3
1112A	<0.5	796A	<0.5	854A	0.9
1113A	<0.5	796B	1.5	856A	1.2
1115A	<0.5	796C	1.3	858A	1.0
1116A	0.5	797A	<0.5	861A	1.9
1117A	0.6	797B	0.5	863A	0.7
1117A	0.9	798A	<0.5	875A	1.0
1119A	0.5	798B	0.8	876A	0.5
1123A	0.6	798C	1.0	877A	0.8
1124A	<0.5	798C	0.8	878A	0.8
1125A	0.7	799A	0.9	879A	0.7
1127A	1.0	799B	0.6	880A	0.9
1128A	<0.5	799C	0.9	881A	0.8
882A	<0.5	974A	0.5		
883A	0.7	976A	0.8		
884A	0.7	981A	0.5		

Table 4-16. Radon Screens and Radon Assessment Results

Building	Radon Concentration (pCi/L)	Building	Radon Concentration (pCi/L)	Building	Radon Concentration (pCi/L)
1990 Radon Screening Results (continued)					
885A	0.7	986A	<0.5		
886A	0.5	993A	<0.5		
887A	0.5	A-A	1.8		
888A	0.9	D-A	1.2		
888A	1.2	E-A	1.4		
889A	<0.5	EA-A	1.9		
890A	0.7	EC-A	2.5		
890B	<0.5	ED-A	2.0		
890B	<0.5	EE-A	5.3		
891A	<0.5	F-A	1.3		
892A	<0.5	G-A	2.5		
893A	<0.5	G-A	2.4		
894A	<0.5	H-A	1.0		
895A	<0.5	Reception	0.6		
896A	<0.5	Reception	0.7		
896B	<0.5	Recreation	0.9		
897A	<0.5	Room 132	0.9		
898A	0.6	Room 132	<0.5		
899A	<0.5				
899A	0.7				
900A	<0.5				
901A	0.6				
901B	<0.5				
902A	0.5				
903A	<0.5				
903B	<0.5				
904A	5.1				
905A	0.8				
907A	0.7				
914A	<0.5				
943A	<0.5				
944A	<0.5				
953A	<0.5				
957A	<0.5				
957A	<0.5				
964A	0.5				
964A	<0.5				
1991-92 Radon Assessment					
162	1.6	793F	1.3	802B	0.5
349	0.6	794A	1.0	802B	0.5
827	0.7	794B	0.3	802B	0.7
827	1.3	794C	0.8	803C	1.1
875	0.1	794D	1.1	803C	1.3

Table 4-16. Radon Screens and Radon Assessment Results

Building	Radon Concentration (pCi/L)	Building	Radon Concentration (pCi/L)	Building	Radon Concentration (pCi/L)
1991-92 Radon Assessment (continued)					
875	0.5	794E	0.2	804D	0.8
877	0.6	794F	0.6	804D	1.0
878	0.5	795A	0.9	807A	1.1
879	0.1	795B	0.2	807A	1.2
880	0.4	796A	0.4	807A	0.8
881	0.3	796C	0.7	807A	1.1
882	0.1	796D	1.2	807D	1.1
882	0.3	796E	0.2	807D	1.2
886	0.5	796F	0.3	807D	0.5
886	0.2	797A	0.5	807D	1.6
887	0.2	797B	0.2	807E	1.2
887	0.5	797C	0.3	807E	0.8
790A	0.5	797E	0.4	807E	0.6
790B	0.1	797F	0.9	807E	1.1
790C	0.2	798A	0.8	808A	0.4
790D	0.2	798B	0.4	808A	0.7
790E	0.6	798C	0.4	808A	0.9
790F	0.5	798D	0.5	808A	0.7
791B	0.5	798E	0.1	808A	0.4
791C	0.4	798F	0.4	808A	0.5
791D	0.9	799A	0.4	808A	0.7
791E	0.7	799B	0.5	808A	0.5
791F	0.3	799C	0.4	808A	0.9
792A	0.9	799D	0.1	808A	0.9
792B	0.4	799E	0.5	808C	0.9
792C	0.8	799F	0.6	808C	0.6
792D	1.6	800A	0.6	808C	1.1
792E	0.1	800B	0.3	808C	0.9
792F	1.2	800C	0.3	808C	0.7
792F	1.3	800D	0.2	808C	0.4
793A	0.5	800E	0.1	808C	0.5
793B	0.4	800F	0.3	821A	1.0
793C	0.2	801A	0.5	821A	1.1
793D	0.6	801A	0.8	821A	0.9
793F	0.3	801A	0.6	821A	0.8
821A	0.9	846A	0.1	849E	0.8
821A	0.8	846A	1.4	851A	0.3
823C	0.8	846A	1.0	851A	0.7
823C	0.8	846A	0.7	851A	0.3
824A	0.9	846A	0.8	851B	0.6
824A	1.1	846A	0.4	851B	0.7
824B	1.2	846C	0.7	851B	1.1
824B	0.8	846C	1.0	851B	1.2
824C	2.0	846C	0.4	851D	0.7

Table 4-16. Radon Screens and Radon Assessment Results

Building	Radon Concentration (pCi/L)	Building	Radon Concentration (pCi/L)	Building	Radon Concentration (pCi/L)
1991-92 Radon Assessment (continued)					
824C	0.8	846C	0.8	851E	0.5
831A	0.7	846C	1.0	851E	1.1
831A	1.1	846C	0.7	851F	1.3
831A	0.6	846C	0.4	851F	1.0
831A	1.0	846C	0.8	851G	0.9
831A	0.5	846C	0.5	851G	0.6
831A	0.5	846C	0.8	851H	0.6
831A	1.1	848C	1.6	851H	0.8
831A	0.3	848C	0.8	851H	1.5
831D	0.7	848C	1.1	852C	0.9
831D	1.3	848C	1.4	852C	0.8
833A	1.0	848C	0.8	852C	1.3
835A	0.5	848C	1.2	852D	0.6
835B	1.1	848E	0.9	852D	1.1
835B	1.0	848E	0.9	852D	2.1
836A	0.7	848E	0.6	853A	0.8
836B	0.8	848E	0.9	853A	0.7
837B	0.6	848F	0.6	853A	1.1
839A	1.4	848F	1.2	853B	0.9
839A	1.4	848F	1.0	853B	0.7
842A	0.7	849A	0.6	853B	2.0
842A	0.8	849A	0.4	854A	0.5
842A	1.2	849A	0.4	854A	0.6
842A	0.5	849A	1.1	854B	0.8
842A	1.3	849A	1.0	854B	0.7
845A	0.6	849A	0.6	854B	0.5
845A	0.9	849D	0.7	854B	1.0
845A	0.8	849D	0.6	855A	0.8
845A	0.6	849D	1.2	855A	0.4
845A	0.6	849E	0.6	855A	1.4
845A	1.0	849E	0.7	855B	0.5
845A	0.6	849E	0.5	855B	0.7
855B	1.0	862A	0.7	E	1.5
856A	0.9	862A	0.7	EA	1.4
856A	1.0	862B	0.6	EA	1.6
856A	0.8	863A	0.8	EB	1.1
857B	0.8	863A	0.6	EC	1.4
857B	0.6	863B	0.5	ED	1.3
857C	0.5	863B	0.7	EE	1.1
857C	0.4	865B	0.7	G	0.4
857C	1.1	865B	0.6	H	1.2
858A	0.7	889A	0.2	I	1.4
858A	1.2	889B	0.2	B	0.5
858B	0.5	889B	0.2	D	0.8

Table 4-16. Radon Screens and Radon Assessment Results

Building	Radon Concentration (pCi/L)	Building	Radon Concentration (pCi/L)	Building	Radon Concentration (pCi/L)
1991-92 Radon Assessment (continued)					
858B	0.6	890A	0.2		
858B	0.9	890B	0.2		
858C	0.7	891B	0.1		
858D	0.6	892A	0.1		
858E	0.6	892B	0.1		
858E	0.5	893A	0.1		
858F	0.8	893B	0.1		
859A	0.7	894B	0.1		
859A	0.8	895A	0.1		
859A	0.9	895A	0.6		
859A	0.9	895B	0.2		
859A	1.2	895B	0.3		
859A	0.7	896B	0.1		
859A	0.7	896B	0.3		
859A	0.5	897A	0.2		
859B	0.8	897A	0.7		
859B	0.5	898A	0.3		
859B	1.0	898B	0.4		
859C	0.4	899A	0.2		
859C	0.7	899B	0.3		
859C	1.1	900A	0.2		
860A	0.7	900B	0.1		
861A	0.2	901A	0.2		
861A	1.2	901B	0.3		
861A	1.1	902B	0.2		
861A	0.7	902B	0.6		
861B	0.4	903A	0.3		
861B	0.8	903B	0.2		

Source: NAS Brunswick Radon Assessment Table 12-Dec-97

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Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
I	A1.2	1	HANGAR 1 NO	Above Ground Storage Tank	WASTE OIL	250	gallons				Appendix B Chapter 140 B. 11.
I	A1.3	1	HANGAR 1 NO	Above Ground Storage Tank	WASTE OIL	250	gallons				Appendix B Chapter 140 B. 11.
I	A1.4	1	HANGAR 1 NO	Above Ground Storage Tank	#1 OIL	15,000	gallons				
I	A1.0	1	HANGAR 1 SO	Above Ground Storage Tank	WASTE OIL	500	gallons				Appendix B Chapter 140 B. 11.
I	A1.1	1	HANGAR 1 SO	Above Ground Storage Tank	WASTE OIL	500	gallons				Appendix B Chapter 140 B. 11.
		1	Hangar 1	Boiler	Natural Gas/Fuel Oil			5,500,000	BTU/hr		Appendix B Chapter 140 B. 6.
		1	Hangar 1	Boiler	Natural Gas/Fuel Oil			5,500,000	BTU/hr		Appendix B Chapter 140 B. 6.
		1	Hangar 1	Boiler	Natural Gas/Fuel Oil			5,500,000	BTU/hr		Appendix B Chapter 140 B. 6.
O	VP92	1	Hangar 1N	Degreaser	PD-680 Type 2	1.90	ft^2			Cold Cleaning Degreaser	Appendix B Chapter 140 B. 1. & B. 2.
I	VP92	1	Hangar 1N	Degreaser						Pressure Washer	Appendix B Chapter 140 B. 1. & B. 2.
R	A3.0	3	HANGAR 3	Above Ground Storage Tank	WASTE OIL	250	gallons			Building Demolished in 04/05	Appendix B Chapter 140 B. 11.
R	A3.1	3	HANGAR 3	Above Ground Storage Tank	WASTE OIL	250	gallons			Building Demolished in 04/05	Appendix B Chapter 140 B. 11.
R	A3.2	3	HANGAR 3	Above Ground Storage Tank	#1 OIL	15,000	gallons			Building Demolished in 04/05	
R		3	Hangar 3	Boiler	Natural Gas/Fuel Oil			5,250,000	BTU/hr	Building Demolished in 04/05	Appendix B Chapter 140 B. 6.
R		3	Hangar 3	Boiler	Natural Gas/Fuel Oil			5,250,000	BTU/hr	Building Demolished in 04/05	Appendix B Chapter 140 B. 6.
R		3	Hangar 3	Boiler	Natural Gas/Fuel Oil			5,250,000	BTU/hr	Building Demolished in 04/05	Appendix B Chapter 140 B. 6.
I	A5.6	5	HANGAR 5 EAST (GEN)	Above Ground Storage Tank	DIESEL	1,000	gallons				Appendix B Chapter 140 B. 11.
I	A5.2	5	HANGAR 5 NO	Above Ground Storage Tank	WASTE OIL	500	gallons				Appendix B Chapter 140 B. 11.
I	A5.3	5	HANGAR 5 NO	Above Ground Storage Tank	WASTE OIL	500	gallons				Appendix B Chapter 140 B. 11.
I	A5.4	5	HANGAR 5 NO	Above Ground Storage Tank	#1 OIL	20,000	gallons				
I	A5.5	5	HANGAR 5 NO	Above Ground Storage Tank	#1 OIL	20,000	gallons				
I	A5.0	5	HANGAR 5 SO	Above Ground Storage Tank	WASTE OIL	500	gallons				Appendix B Chapter 140 B. 11.
I	A5.1	5	HANGAR 5 SO	Above Ground Storage Tank	WASTE OIL	500	gallons				Appendix B Chapter 140 B. 11.
		5	Hangar 5	Boiler	Natural Gas/Fuel Oil			5,000,000	BTU/hr		Appendix B Chapter 140 B. 6.
		5	Hangar 5	Boiler	Natural Gas/Fuel Oil			5,000,000	BTU/hr		Appendix B Chapter 140 B. 6.
		5	Hangar 5	Boiler	Natural Gas/Fuel Oil			5,000,000	BTU/hr		Appendix B Chapter 140 B. 6.
		5	Hangar 5	Boiler	Natural Gas/Fuel Oil			5,000,000	BTU/hr		Appendix B Chapter 140 B. 6.
		5	Hangar 5	Boiler	Fuel Oil/Diesel			1,000,000	BTU/hr	PVI Pressure Vessel; Hot Water	Appendix B Chapter 140 B. 6.
		5	Hangar 5	Boiler	Fuel Oil			623,000	BTU/hr	Hot Water	Appendix B Chapter 140 B. 6.
		5	Hangar 5	Boiler	Waste Oil			425,000	BTU/hr	425 MMBTU/hr Output; Waste Oil	Appendix B Chapter 140 B. 6.
R	3	5	Hangar 5	Emergency Generator	Diesel	115	kW	529,325	BTU/hr	Removed in Aug 04 (Cummins 83)	Appendix B Chapter 140 B. 5.
I	58	5	Hangar 5	Emergency Generator	Diesel	300	kW				Appendix B Chapter 140 B. 5.
		6	Hangar 6	Boiler	Natural Gas			3,010,000	BTU/hr		Appendix B Chapter 140 B. 6.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
		6	Hangar 6	Boiler	Natural Gas			3,010,000	BTU/hr		Appendix B Chapter 140 B. 6.
		6	Hangar 6	Boiler	Natural Gas			3,010,000	BTU/hr		Appendix B Chapter 140 B. 6.
		6	Hangar 6	Boiler	Natural Gas			540,000	BTU/hr	Water Heater	Appendix B Chapter 140 B. 6.
		6	Hangar 6	Boiler	Natural Gas			540,000	BTU/hr	Water Heater	Appendix B Chapter 140 B. 6.
O		6	Hangar 6 VPU-1	Edge Sander/Mill Drill						DUSTVENT, Inc w/ 55-gal drum	Appendix B Chapter 140 A. 58 & 15.
	53	6	Hangar 6	Emergency Generator	Natural Gas	230	kW				
I		6	Hangar 6	Fuel Tank Exhaust Fans	Exhaust					3 Tank Exhaust Fans 2000 CFM ea	
I		6	Hangar 6	Heaters	Natural Gas					48 72-MBH Radiant Heaters	
		6	Hangar 6	Make-up Air Unit	Natural Gas			10,000,000	BTU/hr	MAU 1	
		6	Hangar 6	Make-up Air Unit	Natural Gas			10,000,000	BTU/hr	MAU 2	
		6	Hangar 6	Make-up Air Unit	Natural Gas			2,062,500	BTU/hr	MAU 3	
		6	Hangar 6	Make-up Air Unit	Natural Gas			2,062,500	BTU/hr	MAU 4	
I		6	Hangar 6	Make-up Air Unit	Natural Gas			411,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		6	Hangar 6 VPU-1	Paint Booth	Aerosol Paints					1250 CFM Exhaust; Global	
O		6	Hangar 6 VP-26	Paint Booth	Paints					1250 CFM Exhaust; Global	
I		6	Hangar 6 T-LINE	Degreaser	Water					Mit-M-Corp GC02 Spray Washer	Appendix B Chapter 140 B. 1. & B. 2.
E	Rangeley	8	Rangeley	Boiler	Kerosene	81	tBTU			A128006	Appendix B Chapter 140 B. 6.
I	A9.0	9	VPU-1 OVERFLOW (I)	Above Ground Storage Tank	#2 OIL	275	gallons				Appendix B Chapter 140 B. 11.
I		9	HGR 1 Occupants	Boiler	OIL			150,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	A11.0	11	NEX	Above Ground Storage Tank	#1 OIL	3,000	gallons				Appendix B Chapter 140 B. 12.
I	A11.1	11	NEX	Above Ground Storage Tank	COOKING GR	250	gallons				Appendix B Chapter 140 B. 11.
I		11	NEX RETAIL COMPLEX	Boiler	Natural Gas/Fuel Oil			808,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		11	NEX RETAIL COMPLEX	Boiler	Natural Gas/Fuel Oil			808,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		11	NEX RETAIL COMPLEX	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 A. 16. & 17.
I	A19.1	19	CARPENTER SHOP	Above Ground Storage Tank	#2 OIL	275	gallons				Appendix B Chapter 140 B. 11.
I	A19.2	19	CARPENTER SHOP	Above Ground Storage Tank	#2 OIL	275	gallons				Appendix B Chapter 140 B. 11.
I	A19.3	19	CARPENTER SHOP	Above Ground Storage Tank	WASTE OIL	275	gallons				Appendix B Chapter 140 B. 11.
I		19	CARPENTER SHOP	Boiler	Natural Gas			200,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		19	CARPENTER SHOP	Boiler	Natural Gas			200,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		19	CARPENTER SHOP	Boiler	Kerosene			145,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		19	CARPENTER SHOP	Boiler	Natural Gas			250,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		19	CARPENTER SHOP	Boiler	Kerosene			145,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		19	CARPENTER SHOP	Emergency Generator (portable)	DIESEL	5	kW			Portable Master MGH 5000CI	Appendix B Chapter 140 B. 5.
I		19	PW HUT	Emergency Generators (portable)	DIESEL	5	kW			6 Portable 3-12 kW	Appendix B Chapter 140 B. 5.
E		19	CARPENTER SHOP	Fugitives	Miscellaneous Paints					Incl. Paint Sprayer; Facility Maint.	Appendix B Chapter 140 A. 12.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
I		19	CARPENTER SHOP	Portable Heater	Propane			100,000	BTU/hr	Reddy Pro 100 portable heater	Appendix B Chapter 140 B. 6.
I		19	PW HUT	Portable Heaters	Propane			100,000	BTU/hr	2 Reddy Pro 100 portable heaters	Appendix B Chapter 140 B. 6.
E		19	CARPENTER SHOP	Woodshop w/Cyclone	Wood					5 saws, 4 grinders, planar, sander	Appendix B Chapter 140 A. 58.
I	A20.0	20	COMMUNITY FACILITIES	Above Ground Storage Tank	#1 OIL	3,000	gallons				Appendix B Chapter 140 B. 12.
I		20	COMMUNITY FACILITIES	Boiler	Natural Gas/Fuel Oil			646,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		20	COMMUNITY FACILITIES	Boiler	Natural Gas/Fuel Oil			646,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		21	DAYCARE CTR	Boiler	Natural Gas			240,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		21	DAYCARE CTR	Boiler	Natural Gas			240,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		23	CARWASH	Boiler	Natural Gas			286,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		24	PSD	Boiler	Natural Gas			241,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		24	PSD	Boiler	Natural Gas			241,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	A25.0	25	FITNESS CENTER	Above Ground Storage Tank	#1 OIL	3,000	gallons				Appendix B Chapter 140 B. 12.
I		25	FITNESS CENTER	Boiler	Natural Gas/Fuel Oil			808,000	BTU/hr		Appendix B Chapter 140 B. 6.
		25	FITNESS CENTER	Boiler	Natural Gas			1,200,000	BTU/hr	PVI Industries; Water Heater	Appendix B Chapter 140 B. 6.
I		25	FITNESS CENTER	Boiler	Natural Gas/Fuel Oil			808,000	BTU/hr		Appendix B Chapter 140 B. 6.
E		25	FITNESS CENTER	Fugitives	Miscellaneous Materials					paint locker---fugitive emissions	Appendix B Chapter 140 A. 16. & 17.
I		26	DAY CARE CENTER	Boiler	Natural Gas			241,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		26	DAY CARE CENTER	Boiler	Natural Gas			241,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		26	DAY CARE CENTER	Boiler	Natural Gas			46,000	BTU/hr	Gas Water Heater	Appendix B Chapter 140 B. 6.
I	A27.0	27	FSC	Above Ground Storage Tank	#1 OIL	1,000	gallons				Appendix B Chapter 140 B. 11.
I		27	FAMILY SERVICE CENTER	Boiler	Natural Gas/Fuel Oil			483,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	A29.4	29	Auto Hobby Shop	Above Ground Storage Tank	#1 OIL	2,000	gallons				Appendix B Chapter 140 B. 12.
I	A29.3	29	Auto Hobby Shop	Above Ground Storage Tank	WASTE OIL	500	gallons				Appendix B Chapter 140 B. 11.
I		29	Auto Hobby Shop	Antifreeze Drum Rack	Glycol Antifreeze	110	gallons			Two 55-gal Drums on Rack	Appendix B Chapter 140 B. 1. & B. 2.
E		29	Auto Hobby Shop	Antifreeze Recycler	Glycol Antifreeze						Appendix B Chapter 140 B. 1. & B. 2.
E		29	Auto Hobby Shop	Autoshop	Exhaust	9	Bays				Appendix B Chapter 140 A. 22.
E		29	Auto Hobby Shop	Blast Booth						Glove Box	Appendix B Chapter 140 A. 58.
I		29	Auto Hobby Shop	Boiler	Natural Gas/Fuel Oil			808,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		29	Auto Hobby Shop	Degreaser	Nat-50 Nat Orange	2.50	ft^2			Brake Washer	Appendix B Chapter 140 B. 1. & B. 2.
I		29	Auto Hobby Shop	Degreaser	Nat-50 Nat Orange/Antifoam	30.00	ft^2			Jet Washer	Appendix B Chapter 140 B. 1. & B. 2.
E		29	Auto Hobby Shop	Fugitives	Miscellaneous						Appendix B Chapter 140 A. 22.
E		29	Auto Hobby Shop	Parts Grinder/Drill/Hand Tools						Includes Saws, Battery Chargers	Appendix B Chapter 140 A. 58 & 15.
E		29	Auto Hobby Shop	Ski Tuning Machine	Polal Chip	1.50	ft^2			Ski Smoothing; Fontaine Model 1404	Appendix B Chapter 140 B. 1. & B. 2.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
					Coolant&Rust Inhibitor						
E		29	Auto Hobby Shop	Smoothing Machine	Polal Chip Coolant&Rust Inhibitor	1.50	ft^2			Snowboards; Self-contained	Appendix B Chapter 140 B. 1. & B. 2.
I		29	Auto Hobby Shop	Welding Activities	Welding Rods					Mild Steel; MIG FP200	
I		31	NAVY LODGE	Boiler	Natural Gas			190,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		31	NAVY LODGE	Boiler	Natural Gas			190,000	BTU/hr		Appendix B Chapter 140 B. 6.
O	A32.1	32	SUPPLY - FF BLDG	Above Ground Storage Tank	#1 OIL	250	gallons				Appendix B Chapter 140 B. 11.
I		32	FUEL FARM	Boiler	Kerosene			90,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	A34.0	34	DYER'S GATE	Above Ground Storage Tank	DIESEL	100	gallons			Installed in 04	Appendix B Chapter 140 B. 11.
I		36	Dyer's Gate	Heaters	Natural Gas					Six 45.9 MHU Output Infrared	Appendix B Chapter 140 B. 6.
I	A37.0	37	NIS OFFICE (I)	Above Ground Storage Tank	#2 OIL	275	gallons				Appendix B Chapter 140 B. 11.
I		37	NIS	Boiler	Kerosene			123,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		38	Main Gate - Pass & ID	Furnace	Natural Gas			40,000	BTU/hr	Two 40 MHU Output Furnaces	Appendix B Chapter 140 B. 6.
I		38	Main Gate - Pass & ID	Furnace	Natural Gas				BTU/hr	Two 40-MHU Output Furnaces	Appendix B Chapter 140 B. 6.
I	A39.2	39	Golf Course Maintenance	Above Ground Storage Tank	GASOLINE	250	gallons				Appendix B Chapter 140 B. 11.
I	A39.3	39	GOLF COURSE	Above Ground Storage Tank	DIESEL	250	gallons				Appendix B Chapter 140 B. 11.
I	A39.1	39	GOLF COURSE (I)	Above Ground Storage Tank	#1 OIL	275	gallons				Appendix B Chapter 140 B. 11.
I	A39.5	39	Golf Course Maintenance	Above Ground Storage Tank	WASTE OIL	250	gallons				Appendix B Chapter 140 B. 11.
I		39	Golf Course Maintenance	Boiler	Kerosene			120,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		39	Golf Course Maintenance	Degreaser	Empty	3.5	gallons			Bench Top; Not in Use	Appendix B Chapter 140 B. 1. & B. 2.
I		39	Golf Course Maintenance	Fuel Dispensing	Gasoline						
I		39	Golf Course Maintenance	Fuel Dispensing	Diesel						
E		39	Golf Course Maintenance	Fugitives	Miscellaneous Materials					Includes Pesticides, Oils	Appendix B Chapter 140 A. 22.
E		39	Golf Course Maintenance	Parts Grinder/Blade Sharpeners						w/ Battery Chargers, Compressors	Appendix B Chapter 140 A. 15.
I	A41.1	41	MOBILE FIRING RANGE	Above Ground Storage Tank	DIESEL	60	gallons				Appendix B Chapter 140 B. 11.
I	A41.2	41	SECURITY (I)	Above Ground Storage Tank	#2 OIL	275	gallons				Appendix B Chapter 140 B. 11.
I	A41.3	41	SECURITY (I)	Above Ground Storage Tank	#2 OIL	275	gallons				Appendix B Chapter 140 B. 11.
I	A41.0	41	SECURITY (I) (GEN)	Above Ground Storage Tank	DIESEL	275	gallons				Appendix B Chapter 140 B. 11.
		41	SECURITY	Boiler	Kerosene			950,000	BTU/hr	1.11 MMBH; replaced nozzle in 00	Appendix B Chapter 140 B. 6.
I	33	41	SECURITY (I)	Emergency Generator	Diesel	45	kW	153,675	BTU/hr	Caterpillar - 1992	Appendix B Chapter 140 B. 5.
O		41	SECURITY	Mobile Firing Range for Handguns/Rifles	Green Bullets					98.5% HEPA Filter Removed	Appendix B Chapter 140 B. 1. & B. 2.
E		43	PW Fire Alarm	Fugitives	Miscellaneous Materials					Facility Maint; Includes soldering iron	Appendix B Chapter 140 A. 12.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
I	A45.4	45	HAZ WASTE FACILITY	Above Ground Storage Tank	WASTE OIL	250	gallons				Appendix B Chapter 140 B. 11.
I	A45.1	45	HAZ WASTE STORAGE	Above Ground Storage Tank	WASTE OIL	1,000	gallons				Appendix B Chapter 140 B. 11.
I	A45.2	45	HAZ WASTE STORAGE	Above Ground Storage Tank	WASTE OIL	1,000	gallons				Appendix B Chapter 140 B. 11.
I	A45.3	45	HAZ WASTE STORAGE	Above Ground Storage Tank	#1 OIL	500	gallons				Appendix B Chapter 140 B. 11.
I		45	HAZWASTE Storage	Boiler	Kerosene			156,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	A50.0	50	TREATMENT PLANT	Above Ground Storage Tank	#1 OIL	2,000	gallons				Appendix B Chapter 140 B. 12.
I	A50.2	50	TREATMENT PLANT (EA)	Above Ground Storage Tank	DIESEL	100	gallons				Appendix B Chapter 140 B. 11.
I	A50.1	50	TREATMENT PLANT (GEN)	Above Ground Storage Tank	DIESEL	138	gallons				Appendix B Chapter 140 B. 11.
S		50	Groundwater Treatment Plant	Air Stripping Fugitives	Miscellaneous					Groundwater Treatment Plant	
I		50	Groundwater Treatment Plant	Boiler	Kerosene			275,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	43	50	Groundwater Treatment Plant	Emergency Generator	Diesel	10.5	kW	35,858	BTU/hr	Lister-Petter - 1998	Appendix B Chapter 140 B. 5.
O		50	Groundwater Treatment Plant	Groundwater Treatment Plant	Metal Sludge					Landfill/Groundwater Contamination	Appendix B Chapter 140 B. 22.
I		50	Groundwater Treatment Plant	Miscellaneous	Miscellaneous						
I		51	New HAZWASTE Bldg	Boiler	Natural Gas			154,000	BTU/hr	New Bldg in 04/05; Also 2 66-MBH	Appendix B Chapter 140 B. 6.
I		53	PUBLIC WORKS	Boiler	Natural Gas			250,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		53	PUBLIC WORKS	Boiler	Natural Gas			250,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		54	FASO	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I	A54.0	54	FASO	Above Ground Storage Tank	#2 OIL	12,000	gallons				
		54	FASO	Boiler	Natural Gas/Fuel Oil			2,200,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		55	New Security	Boiler	Natural Gas			125,000	BTU/hr	Building Renovated in 04/05	Appendix B Chapter 140 B. 6.
I		55	New Security	Boiler	Natural Gas			125,000	BTU/hr	Building Renovated in 04/05	Appendix B Chapter 140 B. 6.
I		55	New Security	Boiler	Natural Gas			125,000	BTU/hr	Building Renovated in 04/05	Appendix B Chapter 140 B. 6.
I		55	New Security	Boiler	Natural Gas			125,000	BTU/hr	Building Renovated in 04/05	Appendix B Chapter 140 B. 6.
I		57	Beacon	Above Ground Storage Tank	DIESEL	100	gallons			Size Unknown; Generator	Appendix B Chapter 140 B. 11.
I		57	Beacon	Emergency Generator	Diesel	13	kW			Olympian	Appendix B Chapter 140 B. 5.
I	A58.0	58	TACAN	Above Ground Storage Tank	DIESEL	300	gallons			Generator	Appendix B Chapter 140 B. 11.
I		58	TACAN	Emergency Generator	Diesel	40	kW				Appendix B Chapter 140 B. 5.
I		58	TACAN	Heaters	Electric				BTU/hr	2 14.5-MBH HVAC & 2 26.5-MBH	Appendix B Chapter 140 B. 6.
I	A77.0	77	MAG AREA (V)	Above Ground Storage Tank	#2 OIL	500	gallons				Appendix B Chapter 140 B. 11.
I		77	WEAPONS BUILDUP SHOP	Boiler	Kerosene			275,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	A78.0	78	GOLF COURSE	Above Ground Storage Tank	#1 OIL	500	gallons				Appendix B Chapter 140 B. 11.
I		78	GOLF CLUB HOUSE	Boiler	Kerosene			140,000	BTU/hr		Appendix B Chapter 140 B. 6.
E	A80.4	80	GARAGE	Above Ground Storage Tank	#1 OIL	500	gallons				Appendix B Chapter 140 B. 11.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
E	A80.2	80	GARAGE (INSIDE)	Above Ground Storage Tank	LUBE OIL	55	gallons				Appendix B Chapter 140 B. 11.
E	A80.3	80	MAIN GEN BLDG (INSIDE)	Above Ground Storage Tank	LUBE OIL	55	gallons				Appendix B Chapter 140 B. 11.
E	7836821	80	Rangeley	Boiler	Kerosene						Appendix B Chapter 140 B. 6.
I	A81.0	81	HAZMAT STORAGE	Above Ground Storage Tank	#1 OIL	2,500	gallons				Appendix B Chapter 140 B. 12.
I		81	HAZMAT	Boiler	Natural Gas/Fuel Oil			644,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		81	HAZMAT	Boiler	Natural Gas/Fuel Oil			644,000	BTU/hr		Appendix B Chapter 140 B. 6.
E	A82.0	82	CPD-BLOCKHOUSE	Above Ground Storage Tank	#1 OIL	1,000	gallons				Appendix B Chapter 140 B. 11.
E	Rangeley	82	Rangeley	Boiler	Kerosene					7921-5P2	Appendix B Chapter 140 B. 6.
I		86	GSE	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I	A86.10	86	GSE	Above Ground Storage Tank	WASTE OIL	250	gallons				Appendix B Chapter 140 B. 11.
I	A86.11	86	GSE	Above Ground Storage Tank	#1 OIL	4,000	gallons				Appendix B Chapter 140 B. 12.
E	A86.8	86	GSE	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
I	A86.9	86	GSE (GEN)	Above Ground Storage Tank	DIESEL	100	gallons				Appendix B Chapter 140 B. 11.
E	A86.1	86	GSE (I)	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
E	A86.2	86	GSE (I)	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
E	A86.1	86	GSE (I)	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
E	A86.2	86	GSE (I)	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
E	A86.3	86	GSE (I)	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
E	A86.4	86	GSE (I)	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
E	A86.5	86	GSE (I)	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
E	A86.6	86	GSE (I)	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
E	A86.7	86	GSE (I)	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
I		86	GSE (I)	Above Ground Storage Tank	Antifreeze	70	gallons			On Drum Rack	Appendix B Chapter 140 B. 11.
I	A86.12	86	GSE A/C DEICING FACILITY	Above Ground Storage Tank	WASTE GLYCOL	90,000	gallons				
E		86	GSE	Antifreeze Recycler	Antifreeze					DMI 5514	Appendix B Chapter 140 A. 22.
E		86	GSE	Autoshop	Exhaust	2	Bays				Appendix B Chapter 140 A. 22.
E		86	W/C 900	Blast Booth (large)	Aluminum Oxide					Hoffman Collection System	Appendix B Chapter 140 A. 58.
E		86	W/C 900 Zero Mfr	Blast Booth (small)	Steel Oxide					Drum Collection	Appendix B Chapter 140 A. 58.
		86	GSE	Boiler	Natural Gas/Fuel Oil			3,000,000	BTU/hr		Appendix B Chapter 140 B. 6.
		86	GSE	Boiler	Natural Gas/Fuel Oil			3,000,000	BTU/hr		Appendix B Chapter 140 B. 6.
		86	GSE	Boiler	Natural Gas/Fuel Oil			3,000,000	BTU/hr		Appendix B Chapter 140 B. 6.
E		86	GSE	CFC Recovery/Recycling Units (2)	CFC-22						Appendix B Chapter 140 A. 22.
I	900	86	GSE	Degreaser	Water Only	1.00	ft^2			Ultrasonic Cleaner	Appendix B Chapter 140 B. 1. & B. 2.
I	900	86	GSE	Degreaser	T-N-T 300-361	3.61	ft^2			Brake Washer	Appendix B Chapter 140 B. 1. & B. 2.
I	900	86	GSE	Degreaser	Nat-50 Nat Orange/Antifoam	30.00	ft^2			Jet Washer	Appendix B Chapter 140 B. 1. & B. 2.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
I	900	86	GSE	Degreaser	Water/MA-102	N/A	ft^2			Steam Washer	Appendix B Chapter 140 B. 1. & B. 2.
I	900	86	GSE	Degreaser	EP-921	N/A	ft^2			Spray Gun Washer	Appendix B Chapter 140 B. 1. & B. 2.
I		86	Ground Support Equipment	Deicing Operations - Aircraft	Propylene Glycol						Appendix B Chapter 140 B. 1.
I	31	86	GSE	Emergency Generator	Diesel	80	kW	273,200	BTU/hr	ONAN Cummins - 1993	Appendix B Chapter 140 B. 5.
		86	W/C 900 Binks	Paint Booth	Epoxy Paints					With Filtering System	
I		86	GSE (DEICE)	Under Ground Storage Tank	Propylene Glycol	10,000	gal				Appendix B Chapter 140 B. 12.
I		86	GSE (DEICE)	Under Ground Storage Tank	Propylene Glycol	10,000	gal				Appendix B Chapter 140 B. 12.
I		86	GSE	Welding Activities	Welding Rods						
I		87	ASWOC	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I		87	MOCC	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I	A973639129	87	MAFT	Emergency Generator	Diesel	8	kW	27,320	BTU/hr	Generator in MAFT	Appendix B Chapter 140 B. 5.
I	83530293	87	MOCC	Emergency Generator	Diesel	5	kW	17,075	BTU/hr	Portable/5kW Coleman Powermate	Appendix B Chapter 140 B. 5.
I	3131	87	MOCC	Emergency Generator	Diesel	20	kW	68,300	BTU/hr	Portable/20kW HATZ	Appendix B Chapter 140 B. 5.
I	3142	87	MOCC	Emergency Generator	Diesel	20	kW	68,300	BTU/hr	Portable/20kW HATZ	Appendix B Chapter 140 B. 5.
I	E860822584	87	MOCC	Emergency Generator	Diesel	12	kW	40,980	BTU/hr	Portable/12kW ONAN	Appendix B Chapter 140 B. 5.
I	L900360445	87	MOCC	Emergency Generator	Diesel	12	kW	40,980	BTU/hr	Portable/12kW ONAN	Appendix B Chapter 140 B. 5.
E	A89.3	89	FIREHOUSE	Above Ground Storage Tank	#1 OIL	250	gallons				Appendix B Chapter 140 B. 11.
E	A89.4	89	FIREHOUSE (BEHIND)	Above Ground Storage Tank	DIESEL	250	gallons				Appendix B Chapter 140 B. 11.
E	Rangeley	89	Rangeley	Boiler	Kerosene	185	tBTU			#1508050293	Appendix B Chapter 140 B. 6.
I		102	Small Arms Range	Boiler	Natural Gas			100,000	BTU/hr	Ouput; Also 2 31-MBH HVAC	Appendix B Chapter 140 B. 6.
I		102	Small Arms Range	Make-up Air Unit	Natural Gas		mBTU	1,500,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		102	Small Arms Range	Small Arms Range	Lead Bullets					99.97% HEPA Filtering; Oct 04 Op	Appendix B Chapter 140 B. 1. & B. 2.
I		103	New Dog Kennel	Boiler	Natural Gas			60,000	BTU/hr	Also 2 HVAC (37.8 &18.4 MHU)	Appendix B Chapter 140 B. 6.
I		103	New Dog Kennel	Make-up Air Unit	Natural Gas			125,000	BTU/hr		Appendix B Chapter 140 B. 6.
O	A109.0	109	KENNEL	Above Ground Storage Tank	#1 OIL	500	gallons				Appendix B Chapter 140 B. 11.
I		109	DOG KENNEL	Boiler	OIL			77,000	BTU/hr		Appendix B Chapter 140 B. 6.
E	Rangeley	116	Rangeley	Boiler	Kerosene	175	tBTU			96141039	Appendix B Chapter 140 B. 6.
I		117	Military Gas Station	Fuel Dispensing	Gasoline					Stage I and II VRS	
I		117	Military Gas Station	Fuel Dispensing	Gasoline					Stage I and II VRS	
I		117	Military Gas Station	Fuel Dispensing	Diesel						
I		117	Military Gas Station	Under Ground Storage Tank	Unleaded Gasoline	20,000	gal				Appendix B Chapter 140 B. 1. & B. 2.
I		117	Military Gas Station	Under Ground Storage Tank	Unleaded Gasoline	20,000	gal				Appendix B Chapter 140 B. 1. & B. 2.
I		117	Military Gas Station	Under Ground Storage Tank	Diesel	10,000	gal				Appendix B Chapter 140 B. 12.
I		150	NAGE/NAR/Legal	Boiler	Natural Gas/Fuel Oil			529,000	BTU/hr		Appendix B Chapter 140 B. 6.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
I		151	Naval Reserve Center	Boiler	Natural Gas			203,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		151	Naval Reserve Center	Boiler	Natural Gas			324,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		151	Naval Reserve Center	Boiler	Natural Gas			96,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		151	Naval Reserve Center	Boiler	Natural Gas			203,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		151	Naval Reserve Center	Boiler	Natural Gas			203,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		151	Naval Reserve Center	Boiler	Natural Gas			203,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	A153.0	153	RECYCLING BLDG (I)	Above Ground Storage Tank	#2 OIL	550	gallons				Appendix B Chapter 140 B. 11.
I	A153.1	153	RECYCLING BLDG (I)	Above Ground Storage Tank	#2 OIL	550	gallons				Appendix B Chapter 140 B. 11.
I	A153.2	153	RECYCLING BLDG (I)	Above Ground Storage Tank	WASTE OIL	250	gallons			Work Bench AST	Appendix B Chapter 140 B. 11.
I		153	RECYCLING	Boiler	Kerosene			145,000	BTU/hr	Building Renovated in 04	Appendix B Chapter 140 B. 6.
I		153	RECYCLING	Boiler	Kerosene			145,000	BTU/hr	Building Renovated in 04	Appendix B Chapter 140 B. 6.
I		153	RECYCLING	Furnace	Waste Oil				BTU/hr	Bldg Renov in 04; EnergyLogic 340	Appendix B Chapter 140 B. 6.
I	A200.0	200	AIROPS (GEN)	Above Ground Storage Tank	DIESEL	550	gallons				Appendix B Chapter 140 B. 11.
I	A200.1	200	AIROPS	Above Ground Storage Tank	#1 OIL	3,000	gallons				Appendix B Chapter 140 B. 12.
I		200	CONTROL TOWER	Boiler	Natural Gas/Fuel Oil			646,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		200	CONTROL TOWER	Boiler	Natural Gas/Fuel Oil			646,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	4	200	CONTROL TOWER	Emergency Generator	Diesel	230	kW	785,450	BTU/hr	Mitsubishi - 1999	Appendix B Chapter 140 B. 5.
I		200	Air Operations	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I	A201.0	201	NEPTUNE HALL	Above Ground Storage Tank	COOKING GR	250	gallons				Appendix B Chapter 140 B. 11.
I	A201.3	201	NEPTUNE HALL	Above Ground Storage Tank	#1 OIL	2,000	gallons				Appendix B Chapter 140 B. 12.
I		201	NEPTUNE HALL	Boiler	Natural Gas			450,000	BTU/hr	Water Heater	Appendix B Chapter 140 B. 6.
I		201	NEPTUNE HALL	Boiler	Fuel Oil			450,000	BTU/hr	Water Heater; Basement	Appendix B Chapter 140 B. 6.
I		201	NEPTUNE HALL	Boiler	Natural Gas/Fuel Oil			808,000	BTU/hr	Boiler Output	Appendix B Chapter 140 B. 6.
I		201	NEPTUNE HALL	Boiler	Natural Gas/Fuel Oil			808,000	BTU/hr	Boiler Output	Appendix B Chapter 140 B. 6.
I	A209.0	209	RIGGERS SHOP (GEN)	Above Ground Storage Tank	DIESEL	550	gallons				Appendix B Chapter 140 B. 11.
I	A635.14	209	RNMCB-27	Above Ground Storage Tank	WASTE OIL	250	gallons				Appendix B Chapter 140 B. 11.
I	49	209	RIGGERS SHOP (GEN)	Emergency Generator	Diesel	400	kW	1,366,000	BTU/hr	Cummins - 2001	Appendix B Chapter 140 B. 5.
		211	FITNESS TRACK	Boiler	Natural Gas/Fuel Oil			5,500,000	BTU/hr	Cleaver Brooks	Appendix B Chapter 140 B. 6.
		211	FITNESS TRACK	Boiler	Natural Gas/Fuel Oil			5,500,000	BTU/hr	Cleaver Brooks	Appendix B Chapter 140 B. 6.
		211	FITNESS TRACK	Boiler	Natural Gas/Fuel Oil			6,200,000	BTU/hr	York Shipley	Appendix B Chapter 140 B. 6.
I		211	FITNESS TRACK/HOUSING	Boiler	Natural Gas/Fuel Oil			562,000	BTU/hr	Removed from B225 in 04	Appendix B Chapter 140 B. 6.
I		211	FITNESS TRACK	Boiler	Natural Gas/Fuel Oil			562,000	BTU/hr	Removed from B225 in 04	Appendix B Chapter 140 B. 6.
I		211	FITNESS TRACK	Boiler	Natural Gas/Fuel			562,000	BTU/hr	Removed from B225 in 04	Appendix B Chapter 140 B. 6.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
					Oil						
E		211	FITNESS TRACK	Fugitives	Miscellaneous Materials					Small Paint Locker	Appendix B Chapter 140 B. 1. & B. 2.
I		211	FITNESS TRACK	Under Ground Storage Tank	No. 2 Fuel Oil	20,000	gal				Appendix B Chapter 140 B. 1. & B. 2.
I		211	FITNESS TRACK	Under Ground Storage Tank	No. 2 Fuel Oil	20,000	gal				Appendix B Chapter 140 B. 1. & B. 2.
I	A221.0	221	THRIFT SHOP (I)	Above Ground Storage Tank	#2 OIL	275	gallons				Appendix B Chapter 140 B. 11.
I		221	THRIFT SHOP	Boiler	Kerosene			80,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		223	NMCI	Boiler	Natural Gas			136,000	BTU/hr		Appendix B Chapter 140 B. 6.
E	A225.1	225	TRANS GARAGE (I)	Above Ground Storage Tank	LUBE OIL	275	gallons				Appendix B Chapter 140 B. 11.
E	A225.2	225	TRANS GARAGE (I)	Above Ground Storage Tank	LUBE OIL	55	gallons			To Be Demo	Appendix B Chapter 140 B. 11.
E	A225.4	225	TRANS GARAGE (I)	Above Ground Storage Tank	LUBE OIL	55	gallons			To Be Demo	Appendix B Chapter 140 B. 11.
R	A225.5	225	TRANS GARAGE	Above Ground Storage Tank	WASTE OIL	250	gallons			Moved To Bldg 225	Appendix B Chapter 140 B. 11.
I	A225.6	225	TRANS GARAGE	Above Ground Storage Tank	#1 OIL	3,000	gallons				Appendix B Chapter 140 B. 12.
E		225	PW Transportation Shop	Autoshop - Cars	Exhaust	6	Bays			To Be Demo	Appendix B Chapter 140 A. 22.
R		225	PW Transportation Shop	Boiler	Natural Gas			562,000	BTU/hr	Removed in 04	Appendix B Chapter 140 B. 6.
R		225	PW Transportation Shop	Boiler	Natural Gas			562,000	BTU/hr	Removed in 04	Appendix B Chapter 140 B. 6.
R		225	PW Transportation Shop	Boiler	Natural Gas			562,000	BTU/hr	Removed in 04	Appendix B Chapter 140 B. 6.
O		225	PW Transportation Shop	Degreaser	Reflect	N/A				Pressure Washer; To Be Removed	Appendix B Chapter 140 B. 1. & B. 2.
O		225	PW Transportation Shop	Degreaser	T-N-T 300-361	3.61	ft^2			To Be Removed	Appendix B Chapter 140 B. 1. & B. 2.
O		225	PW Transportation Shop	Degreaser	Nat-50 Nat Orange/Antifoam	30.00	ft^2			Jet Washer; To Be Demo	Appendix B Chapter 140 B. 1. & B. 2.
I		226	SEA-CADET	Boiler	Natural Gas			164,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	A227.0	227	ANT SITE #1 (GEN)	Above Ground Storage Tank	DIESEL	550	gallons				Appendix B Chapter 140 B. 11.
I	12	227	ANT SITE #1 (GEN)	Emergency Generator	Diesel	50	kW	170,750	BTU/hr	Generac - 1999	Appendix B Chapter 140 B. 5.
I	A229.1	229	GCA HARDSTAND (GEN)	Above Ground Storage Tank	DIESEL	250	gallons				Appendix B Chapter 140 B. 11.
I	13	229	GCA HARDSTAND (GEN)	Emergency Generator	Diesel	50	kW	170,750	BTU/hr	Generac - 1999	Appendix B Chapter 140 B. 5.
I		231	New Control Tower	Air Handling Units	Natural Gas				BTU/hr	5 <265-MHU Heat; 2 379-MBH Cool	Appendix B Chapter 140 B. 6.
I		231	New Control Tower	Boiler	Natural Gas			483,000	BTU/hr	Net; Burnham Cast Iron; 300-606 MBH	Appendix B Chapter 140 B. 6.
I		231	New Control Tower	Boiler	Natural Gas			483,000	BTU/hr	Net; Burnham Cast Iron; 300-606 MBH	Appendix B Chapter 140 B. 6.
I		231	New Control Tower	Water Heater	Natural Gas			150,000	BTU/hr	ULTRA FORCE, 100 gal	Appendix B Chapter 140 B. 6.
I	57	231	CONTROL TOWER	Emergency Generator	Natural Gas	350	kW			AGE01089	Appendix B Chapter 140 B. 5.
I		231	New Control Tower	Heaters	Natural Gas				BTU/hr	5 <17.6-MHU Unit Heaters	Appendix B Chapter 140 B. 6.
		250	AIMD	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
E		250	W/C 60A	2 Oven Units (small)						Alliance w/ Vent; SUN-DEL Forced	Appendix B Chapter 140 A. 96.
I	A250.0	250	AIMD (PWR PLANTS) (I)	Above Ground Storage Tank	WASTE OIL	250	gallons				Appendix B Chapter 140 B. 11.
I	A250.2	250	BLDG 250	Above Ground Storage Tank	WASTE OIL	250	gallons				Appendix B Chapter 140 B. 11.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
I	A250.3	250	BLDG 250	Above Ground Storage Tank	#1 OIL	20,000	gallons				
I	A250.4	250	BLDG 250 (GEN)	Above Ground Storage Tank	DIESEL	1,000	gallons				Appendix B Chapter 140 B. 11.
E		250	W/C 620	Battery Locker	Lead Acid						Appendix B Chapter 140 A. 71.
E		250	W/C 520 Empire	Blast Booth	Aluminum Oxide					With Collection System	Appendix B Chapter 140 A. 58.
E		250	W/C 710 Zero Mfg.	Blast Booth	Aluminum Oxide					With Collection System	Appendix B Chapter 140 A. 58.
E		250	W/C 60A Zero Mfg.	Blast Booth (large)	Plasti-Grit Type V					With Collection System	Appendix B Chapter 140 A. 58.
E		250	W/C 60A SS White Tech.	Blast Booth (small)	Sodium Bicarbonate					With Collection System	Appendix B Chapter 140 A. 58.
		250	BUILDING 250	Boiler	Natural Gas/Fuel Oil			6,000,000	BTU/hr		Appendix B Chapter 140 B. 6.
		250	BUILDING 250	Boiler	Natural Gas/Fuel Oil			6,000,000	BTU/hr		Appendix B Chapter 140 B. 6.
		250	BUILDING 250	Boiler	Natural Gas/Fuel Oil			6,000,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		250	QUARTERDECK	Boiler	Natural Gas			80,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		250	ROOF B-250	Boiler	Natural Gas			203,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		250	ROOF B-250	Boiler	Natural Gas			203,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		250	ROOF B-250	Boiler	Natural Gas			203,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		250	ROOF B-250	Boiler	Natural Gas			284,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	411	250	AIMD	Degreaser	Electron	6.00	ft^2			Cold Cleaning Degreaser	Appendix B Chapter 140 B. 1. & B. 2.
I	414 CER	250	AIMD	Degreaser	Electron	6.00	ft^2			Cold Cleaning Degreaser	Appendix B Chapter 140 B. 1. & B. 2.
I	414 RGB	250	AIMD	Degreaser	Breakthrough	16.00	ft^2			Cold Cleaning Degreaser	Appendix B Chapter 140 B. 1. & B. 2.
I	414 RGB	250	AIMD	Degreaser	Nat-50 Nat Orange/Antifoam	30.00	ft^2			Jet Washer	Appendix B Chapter 140 B. 1. & B. 2.
I	430	250	AIMD	Degreaser	Electron	16.00	ft^2			Cold Cleaning Degreaser	Appendix B Chapter 140 B. 1. & B. 2.
I	430	250	AIMD	Degreaser	Envirosolv Crx/Water	2.56	ft^2			Ultrasonic Cleaner	Appendix B Chapter 140 B. 1. & B. 2.
I	51B	250	AIMD	Degreaser	EP-921	N/A	ft^2			Spray Gun Washer	Appendix B Chapter 140 B. 1. & B. 2.
I	51E	250	AIMD	Degreaser	Electron	6.00	ft^2			Cold Cleaning Degreaser	Appendix B Chapter 140 B. 1. & B. 2.
I	51E	250	AIMD	Degreaser	Nat-50 Nat Orange/Antifoam	30.00	ft^2			Jet Washer	Appendix B Chapter 140 B. 1. & B. 2.
I	51E	250	AIMD	Degreaser	Electron	6.00	ft^2			Cold Cleaning Degreaser	Appendix B Chapter 140 B. 1. & B. 2.
I	60A	250	AIMD	Degreaser	Non-Ionic GP (Detergent)	2.08	ft^2			Aqua Ultrasonic Cleaner	Appendix B Chapter 140 B. 1. & B. 2.
I	60A	250	AIMD	Degreaser	Isopropyl Alcohol	0.63	ft^2			Ultrasonic Cleaner	Appendix B Chapter 140 B. 1. & B. 2.
I	60A	250	AIMD	Degreaser	Arma-Sol/Water	N/A	ft^2			Spray Washer	Appendix B Chapter 140 B. 1. & B. 2.
I	60A	250	AIMD	Degreaser	Arma-Sol/Water	N/A	ft^2			Spray Washer	Appendix B Chapter 140 B. 1. & B. 2.
I	60A	250	AIMD	Degreaser	Non-Ionic GP (Detergent)	N/A	ft^2			Spray Washer Booth	Appendix B Chapter 140 B. 1. & B. 2.
I	62B	250	AIMD	Degreaser	Isopropyl Alcohol	0.31	ft^2			Ultrasonic Cleaner	Appendix B Chapter 140 B. 1. & B. 2.
I	62D	250	AIMD	Degreaser	Isopropyl Alcohol	0.31	ft^2			Ultrasonic Cleaner	Appendix B Chapter 140 B. 1. & B. 2.
I	800	250	AIMD	Degreaser	OCC-RTU	1.00	ft^2			Ultrasonic Cleaner	Appendix B Chapter 140 B. 1. & B. 2.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
I	800	250	AIMD	Degreaser	OCC-RTU	1.00	ft^2			Ultrasonic Cleaner	Appendix B Chapter 140 B. 1. & B. 2.
I	47	250	BUILDING 250	Emergency Generator	Diesel	900	kW	3,073,500	BTU/hr	Caterpillar - 1984	Appendix B Chapter 140 B. 5.
E		250	W/C 62B	Etching System (small)	Solder					With 2 Heating Units	Appendix B Chapter 140 A. 66.
E		250	MWR	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 A. 16. & 17.
O		250	W/C 800 Getz Manu.	Halon Recovery System	Halon 1301					No Longer Filling A/C Bottles	
E		250	W/C 520	Hydraulic Test Shop	MIL-H-46170					4 to 5 hours per day	Appendix B Chapter 140 A. 70.
E		250	W/C 51D	Machine Shop	Lubricants/Oils					Drill/Sander	Appendix B Chapter 140 A. 15.
		250	BUILDING 250	Make-up Air Unit	Natural Gas			2,750,000	BTU/hr		Appendix B Chapter 140 B. 6.
E		250	W/C 51A	Metal Fabrication Oven Unit						ACCUTHERM Heat Treat Furnace	Appendix B Chapter 140 A. 96.
E		250	W/C 51A	Metal Fabrication Shop						Drills, saws	Appendix B Chapter 140 A. 15.
O		250	W/C 51A	Oven Unit						To Be Installed; ThermCraft	Appendix B Chapter 140 A. 96.
I		250	W/C 51 Binks	Paint Booth	Paints					Walk-In With Filtering System	
I		250	W/C 51B	Paint Booth	Aerosol Paints/Fiberglass					DenRay Down Draft Table/Filter	
I		250	W/C 60A Binks	Paint Booth	Aerosol Paints					Bench With Filtering System	
E		250	W/C 530 Magna Flux	Parts Inspection	MI-Glow 800						Appendix B Chapter 140 A. 70.
E		250	W/C 530 Zyglo	Parts Inspection	FP95 Penetrant						Appendix B Chapter 140 A. 70.
E		250	W/C 430 ACL Tech.	Propeller Shop	MIL-H-6083	75	gallons				Appendix B Chapter 140 A. 70.
E		250	W/C 51A	Tire Rim Oven Unit						Tire Rim Curing Oven	Appendix B Chapter 140 A. 96.
I		250	AIMD	Welding Activities	Welding Rods					welding/grinding shop w/c 51c	
I		250	W/C 51C	Welding/Grinding Shop	Welding Rods					Arc, Make, Acetylene, Grinding	
I		251	A/C Rinse Facility	Boiler	Natural Gas/Fuel Oil			45,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	A252.2	252	TRANS GARAGE	Above Ground Storage Tank	WASTE OIL	250	gallons				Appendix B Chapter 140 B. 11.
I	A252.1	252	TRANS GARAGE (I)	Above Ground Storage Tank	DIESEL	55	gallons				Appendix B Chapter 140 B. 11.
E		252	PW Transportation Shop	Autoshop - Trucks	Exhaust	6	Bays			To Be Demo	Appendix B Chapter 140 A. 22.
I		252	PW Transportation Shop	Degreaser	Reflect	N/A				Pressure Washer	Appendix B Chapter 140 B. 1. & B. 2.
I	A292.2	292	FIRE DEPT	Above Ground Storage Tank	#1 OIL	2,000	gallons				Appendix B Chapter 140 B. 12.
I	A292.1	292	FIRE DEPT (I) (GEN)	Above Ground Storage Tank	DIESEL	200	gallons				Appendix B Chapter 140 B. 11.
E		292	Fire Department	Autoshop - Trucks	Exhaust	6	Bays				Appendix B Chapter 140 A. 22.
I		292	Fire Department	Boiler	Natural Gas/Fuel Oil			646,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		292	Fire Department	Boiler	Natural Gas/Fuel Oil			646,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	42	292	FIREHOUSE	Emergency Generator	Diesel	125	kW	426,875	BTU/hr	ONAN Cummins - 1998	Appendix B Chapter 140 B. 5.
E		292	Fire Department	Flightline Fire Extinguishing	Halon						Appendix B Chapter 140 A. 57.
E		292	Fire Department	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 A. 16.
E		292	Fire Department	Parts Grinder							Appendix B Chapter 140 A. 15.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
I	A294.0	294	SUPPLY WAREHOUSE	Above Ground Storage Tank	#1 OIL	6,000	gallons				Appendix B Chapter 140 B. 12.
I	A611.1	294	TEST CELL	Above Ground Storage Tank	WASTE OIL	185	gallons				Appendix B Chapter 140 B. 11.
I		294	SUPPLY WAREHOUSE	Boiler	Natural Gas/Fuel Oil			136,000	BTU/hr	Water Heater	Appendix B Chapter 140 B. 6.
I		294	SUPPLY WAREHOUSE	Boiler	Natural Gas/Fuel Oil			500,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		294	SUPPLY WAREHOUSE	Boiler	Natural Gas/Fuel Oil			750,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		294	SUPPLY WAREHOUSE	Boiler	Natural Gas/Fuel Oil			500,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		294	SUPPLY WAREHOUSE	Boiler	Natural Gas/Fuel Oil			750,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	A295.0	295	H2O PUMP HOUSE(I)(GEN)	Above Ground Storage Tank	DIESEL	275	gallons				Appendix B Chapter 140 B. 11.
I	A295.1	295	H2O PUMP HOUSE(I)(GEN)	Above Ground Storage Tank	DIESEL	275	gallons				Appendix B Chapter 140 B. 11.
I	A295.2	295	H2O PUMP HOUSE(I)(GEN)	Above Ground Storage Tank	DIESEL	275	gallons				Appendix B Chapter 140 B. 11.
I	A295.3	295	H2O PUMP HOUSE(I)(GEN)	Above Ground Storage Tank	DIESEL	275	gallons				Appendix B Chapter 140 B. 11.
I	A295.4	295	H2O PUMP HOUSE(I)(GEN)	Above Ground Storage Tank	DIESEL	25	gallons				Appendix B Chapter 140 B. 11.
I	17	295	H2O PUMP HOUSE(I)(GEN)	Emergency Generator	Diesel	15	kW	51,225	BTU/hr	Kohler - 1986	Appendix B Chapter 140 B. 5.
I	18-1	295	H2O PUMP HOUSE(I)(GEN)	Emergency Generator	Diesel	287	kW	980,105	BTU/hr	Fire Pump - Caterpillar - 1978	Appendix B Chapter 140 B. 5.
I	18-2	295	H2O PUMP HOUSE(I)(GEN)	Emergency Generator	Diesel	287	kW	980,105	BTU/hr	Fire Pump - Caterpillar - 1978	Appendix B Chapter 140 B. 5.
I	18-3	295	H2O PUMP HOUSE(I)(GEN)	Emergency Generator	Diesel	287	kW	980,105	BTU/hr	Fire Pump - Caterpillar - 1978	Appendix B Chapter 140 B. 5.
I	18-4	295	H2O PUMP HOUSE(I)(GEN)	Emergency Generator	Diesel	287	kW	980,105	BTU/hr	Fire Pump - Caterpillar - 1978	Appendix B Chapter 140 B. 5.
I	A296.0	296	VORTAC (ANT) (GEN)	Above Ground Storage Tank	DIESEL	550	gallons				Appendix B Chapter 140 B. 11.
I	19	296	VORTAC (ANT) (GEN)	Emergency Generator	Diesel	30	kW	102,450	BTU/hr	John Deere - 1978	Appendix B Chapter 140 B. 5.
E	A323.1	323	ALLEY C - MAINT SHED	Above Ground Storage Tank	#1 OIL	250	gallons				Appendix B Chapter 140 B. 11.
E		323	HOUSING MAINT	Boiler	Kerosene			106,000	BTU/hr		Appendix B Chapter 140 B. 6.
E	A333.0	333	ARMY RECRUITERS	Above Ground Storage Tank	#1 OIL	2,000	gallons				Appendix B Chapter 140 B. 12.
E		333	ADMIN BLDG - Topsham	Boiler	Kerosene			713,000	BTU/hr		Appendix B Chapter 140 B. 6.
E	A335.0	335	COMMISSARY	Above Ground Storage Tank	#1 OIL	6,000	gallons				Appendix B Chapter 140 B. 12.
E	A335.1	335	COMMISSARY (GEN)	Above Ground Storage Tank	DIESEL	50	gallons				Appendix B Chapter 140 B. 11.
E		335	COMMISSARY	Boiler	Kerosene			1,427,000	BTU/hr		Appendix B Chapter 140 B. 6.
E	21	335	Commissary - Topsham	Emergency Generator	Diesel	12	kW			MWM	Appendix B Chapter 140 B. 5.
E	A337.0	337	MARINES	Above Ground Storage Tank	#1 OIL	2,000	gallons				Appendix B Chapter 140 B. 12.
E		337	MARINE RESERVES	Boiler	Kerosene			575,000	BTU/hr		Appendix B Chapter 140 B. 6.
E		337	Topsham	Degreaser	Arma-Sol/Water	U/K				Cold Clean Degreaser; Not Installed	Appendix B Chapter 140 B. 1. & B. 2.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
E	A338.2	338	MARINES	Above Ground Storage Tank	#1 OIL	500	gallons				Appendix B Chapter 140 B. 11.
E	A338.3	338	MARINES	Above Ground Storage Tank	#1 OIL	300	gallons				Appendix B Chapter 140 B. 11.
E		338	MARINE RESERVES	Boiler	Kerosene			400,000	BTU/hr		Appendix B Chapter 140 B. 6.
E		338	MARINE RESERVES	Boiler	Kerosene			125,000	BTU/hr		Appendix B Chapter 140 B. 6.
E		338	Topsham	Degreaser	Parts Solv HF	6	ft^2			Cold Cleaning Degreaser	Appendix B Chapter 140 B. 1. & B. 2.
E	A339.0	339	MARINES	Above Ground Storage Tank	#1 OIL	2,000	gallons				Appendix B Chapter 140 B. 12.
E		339	MARINE RESERVES	Boiler	Kerosene			404,000	BTU/hr		Appendix B Chapter 140 B. 6.
E	A363.1	363	FIRE DEPT (GEN)	Above Ground Storage Tank	DIESEL	25	gallons				Appendix B Chapter 140 B. 11.
E	A363.0	363	FIRE HOUSE	Above Ground Storage Tank	#1 OIL	2,000	gallons				Appendix B Chapter 140 B. 12.
E		363	FIRE STATION - TOPSHAM	Boiler	Kerosene			370,000	BTU/hr		Appendix B Chapter 140 B. 6.
E	41	363	Topsham Firehouse	Emergency Generator	Diesel	15	kW			MWM Kohler - 1987	Appendix B Chapter 140 B. 5.
E	A377.1	377	PUMP STAT-TOPS (GEN)	Above Ground Storage Tank	DIESEL	250	gallons				Appendix B Chapter 140 B. 11.
E	Rangeley	412	Rangeley	Boiler	Kerosene					950320	Appendix B Chapter 140 B. 6.
I	A512.1	512	BOQ	Above Ground Storage Tank	#1 OIL	10,000	gallons				Appendix B Chapter 140 B. 12.
I		512	BOQ	Boiler	Natural Gas/Fuel Oil			1,246,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		512	BOQ	Boiler	Natural Gas/Fuel Oil			1,246,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		512	BOQ	Boiler	Natural Gas/Fuel Oil			1,246,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	A516.0	516	NITEFLITE	Above Ground Storage Tank	COOKING GR	250	gallons				Appendix B Chapter 140 B. 11.
I	A516.1	516	NITEFLITE	Above Ground Storage Tank	#1 OIL	6,000	gallons				Appendix B Chapter 140 B. 12.
I		516	NITE FLITE	Boiler	Natural Gas/Fuel Oil			1,941,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	A518.0	518	ANT SITE #2 (GEN)	Above Ground Storage Tank	DIESEL	550	gallons				Appendix B Chapter 140 B. 11.
I	34	518	ANT SITE #2 (GEN)	Emergency Generator	Diesel	40	kW	136,600	BTU/hr	Power Guard - 1992	Appendix B Chapter 140 B. 5.
I	A537.0	537	SEWAGE PUMP HSE(GEN)	Above Ground Storage Tank	DIESEL	550	gallons				Appendix B Chapter 140 B. 11.
I	46	537	Theater Lift Station	Emergency Generator	Diesel	80	kW	273,200	BTU/hr	Cummins - 2000	Appendix B Chapter 140 B. 5.
I	A538.0	538	NEX - SERVICE STATION	Above Ground Storage Tank	#1 OIL	550	gallons				Appendix B Chapter 140 B. 11.
O		538	NEX Gas Station	Air Sparging/SVE	VOCs					Carbon Adsorption System	Appendix B Chapter 140 B. 1. & B. 2.
I		538	NEX COUNTRY STORE	Boiler	Kerosene			280,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		538	NEX GAS STATION	Boiler	Kerosene			196,000	BTU/hr	Hot Water Heater	Appendix B Chapter 140 B. 6.
I		538	NEX Gas Station	Fuel Dispensing	Gasoline					Unleaded Gasoline	
I		538	NEX Gas Station	Fuel Dispensing	Gasoline					Pl. Unleaded Gasoline	
I		538	NEX Gas Station	Fuel Dispensing	Gasoline					Pr. Unleaded Gasoline	
E		538	NEX Vending	Fugitives	Miscellaneous Materials					18 Vending Machines; Misc Mat'ls	Appendix B Chapter 140 A. 12.
E		538	NEX GAS STATION	Under Ground Storage Tank	Unleaded Gasoline	10,000	gal				Appendix B Chapter 140 B. 12.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
E		538	NEX GAS STATION	Under Ground Storage Tank	Pl. Unleaded Gasoline	10,000	gal				Appendix B Chapter 140 B. 12.
E		538	NEX GAS STATION	Under Ground Storage Tank	Pr. Unleaded Gasoline	10,000	gal				Appendix B Chapter 140 B. 12.
I		539	Weapons	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I		539	AUW SHOP	Boiler	Kerosene			916,500	BTU/hr		Appendix B Chapter 140 B. 6.
I	25	539	AUW SHOP	Emergency Generator	Diesel	50	kW	170,750	BTU/hr	Allis Chalmers - 1970	Appendix B Chapter 140 B. 5.
I		539	WPNS (AUW)	Under Ground Storage Tank	No. 2 Fuel Oil	2,000	gal				Appendix B Chapter 140 B. 12.
I		553	PW Transportation ASB	Degreaser	Reflect	N/A				Spray Washer	Appendix B Chapter 140 B. 1. & B. 2.
I		553	PW Transportation ASB	Deicing Operations - Runway	Na Formate/K Acetate						Appendix B Chapter 140 B. 1.
I		553	PW Transportation ASB	Heaters	Natural Gas					4 <60-kW & 1 <25-kW Heaters	Appendix B Chapter 140 B. 6.
E		553	PW Transportation ASB	Miscellaneous	Exhaust					autoshop- snow removal eqpt	
I		554	P-3 SUPPORT FACILITY	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I	A554.0	554	P-3 SUPPORT FACILITY (GEN)	Above Ground Storage Tank	DIESEL	100	gallons				Appendix B Chapter 140 B. 11.
E		554	P-3 SUPPORT FACILITY	ASTs (mobile)	#1 OIL	100	gallons			2 Mobile A/C Carts; 11 gal Solest	Appendix B Chapter 140 B. 11.
I		554	P3 Support Facility	Boiler	Natural Gas			252,000	BTU/hr		
I		554	P3 Support Facility	Boiler	Natural Gas			252,000	BTU/hr		
I	48	554	P-3 SUPPORT FACILITY	Emergency Generator	Diesel	160	kW	426,875	BTU/hr	John Deere - 2002	Appendix B Chapter 140 B. 5.
I		555	FIRE DEPT STORAGE	Boiler	Natural Gas			250,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		555	SONOBUOY LOCKER	Boiler	Natural Gas			250,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		555	SONOBUOY LOCKER	Boiler	Natural Gas			365,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		555	FIRE DEPT STORAGE	Emergency Generator (portable)	DIESEL	3.5	kW			1/C Series Pow'r Gard	Appendix B Chapter 140 B. 5.
E		561	MAINT MCKEEN ST	Boiler	Kerosene			94,000	BTU/hr		Appendix B Chapter 140 B. 6.
E	A565.0	565	MULTI-PURPOSE BLDG	Above Ground Storage Tank	#1 OIL	2,000	gallons				Appendix B Chapter 140 B. 12.
E	Rangeley	566	Rangeley	Boiler	Kerosene					64145254	Appendix B Chapter 140 B. 6.
E	Rangeley	566	Rangeley	Boiler	Kerosene					64145265	Appendix B Chapter 140 B. 6.
E	Rangeley	566	Rangeley	Boiler	Kerosene					64330397	Appendix B Chapter 140 B. 6.
E	A567.0	567	MAIN GEN BLDG (GEN)	Above Ground Storage Tank	#1 OIL	2,000	gallons				Appendix B Chapter 140 B. 12.
E	A567.1	567	MAIN GEN BLDG (GEN)	Above Ground Storage Tank	#1 OIL	2,000	gallons				Appendix B Chapter 140 B. 12.
E	Rangeley	567	Rangeley	Boiler	Kerosene					AL333648	Appendix B Chapter 140 B. 6.
E	A570.1	570	OUTHOUSE (OLD)	Above Ground Storage Tank	#1 OIL	250	gallons				Appendix B Chapter 140 B. 11.
E		570	Rangeley	Boiler	Kerosene						Appendix B Chapter 140 B. 6.
E	A573.1	573	CPD-MAJORS OFFICE	Above Ground Storage Tank	#1 OIL	250	gallons			To Be Demo	Appendix B Chapter 140 B. 11.
E	Rangeley	573	Rangeley	Boiler	Kerosene					870374; To Be Demo	Appendix B Chapter 140 B. 6.
E	A574.1	574	CPD-SM BLOCKHOUSE	Above Ground Storage Tank	#1 OIL	250	gallons				Appendix B Chapter 140 B. 11.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
E	Rangeley	574	Rangeley	Boiler	Kerosene					951000265	Appendix B Chapter 140 B. 6.
I	A583.0	583	BOWLING ALLEY	Above Ground Storage Tank	COOKING GR	250	gallons				Appendix B Chapter 140 B. 11.
I	A583.1	583	BOWLING ALLEY	Above Ground Storage Tank	#1 OIL	2,500	gallons				Appendix B Chapter 140 B. 12.
E		583	BOWLING ALLEY	Bench Grinder/Ball Conditioner							Appendix B Chapter 140 A. 16.
I		583	BOWLING ALLEY	Boiler	Natural Gas/Fuel Oil			801,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		583	BOWLING ALLEY	Boiler	Natural Gas/Fuel Oil			801,000	BTU/hr		Appendix B Chapter 140 B. 6.
E		583	BOWLING ALLEY	Bowling Ball Mill/Drill System						Century 80 Hz Baldor Motor	Appendix B Chapter 140 A. 16.
I		583	BOWLING ALLEY	Degreaser	Water/Pin Cleaner	3.00	gallons			1 cap cleaner/3 gal water; Spin Clean II; pin cleaning every 6 mos	Appendix B Chapter 140 B. 1. & B. 2.
E		583	BOWLING ALLEY	Fugitives	Miscellaneous Materials					Includes Lane Stripper	Appendix B Chapter 140 A. 16.
I		584	PUBLIC WORKS	Boiler	Natural Gas			246,000	BTU/hr		Appendix B Chapter 140 B. 6.
E		584	PUBLIC WORKS	Freon Distribution/Storage	Freon					ODS Recovery Units & Cylinders	Appendix B Chapter 140 A. 9.
E		584	PUBLIC WORKS	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 A. 16.
E		584	PUBLIC WORKS	Parts Grinder/Drill/Hand Tools						Incl. Paint Sprayer/Metal Machines	Appendix B Chapter 140 A. 58 & 15.
E		584	PUBLIC WORKS	Sand Blaster	Sand Garnet						Appendix B Chapter 140 A. 58.
I	A585.0	585	CHAPEL	Above Ground Storage Tank	#1 OIL	1,000	gallons				Appendix B Chapter 140 B. 11.
I		585	CHAPEL	Boiler	Natural Gas/Fuel Oil			483,000	BTU/hr		Appendix B Chapter 140 B. 6.
E		590	PW Transportation Shop	Above Ground Storage Tank	WASTE OIL	250	gallons			Moved to Bldg 590 from Bldg 225	Appendix B Chapter 140 B. 11.
E		590	PW Transportation Shop (I)	Above Ground Storage Tanks	LUBE OIL	55	gallons			8 ASTs on Rack	Appendix B Chapter 140 B. 11.
I		590	PW Transportation	Boiler	Natural Gas						
I	PWT	590	PW Transportation Shop	Degreaser	Reflect	N/A				Pressure Washer	Appendix B Chapter 140 B. 1. & B. 2.
I		590	PW Transportation Shop	Degreaser	Nat-50 Nat Orange/Antifoam	14.00	ft^2			Jet Washer	Appendix B Chapter 140 B. 1. & B. 2.
I		590	PW Transportation Shop	Degreaser						Jet Washer	Appendix B Chapter 140 B. 1. & B. 2.
E		590	PW Transportation Shop	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
E		590	PW Transportation Shop	Fugitives	Deicing Materials					Sodium Formate; K Acetate; Urea	Appendix B Chapter 140 B. 1. & B. 2.
E		590	PW Transportation Shop	Miscellaneous	Exhaust					autoshop; 4 hoses	
E		590	PW Transportation Shop	Parts Grinder/Drill/Hand Tools						Includes Rim Clamp/Battery Charger	Appendix B Chapter 140 A. 58 & 15.
I		590	PW Transportation Shop	Welding Activities	Welding Rods						
I		592	VET CLINIC	Boiler	Kerosene			70,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	A594.1	594	ASWOC TOWER	Above Ground Storage Tank	#1 OIL	4,000	gallons				Appendix B Chapter 140 B. 12.
I	A594.0	594	ASWOC TOWER (GEN)	Above Ground Storage Tank	DIESEL	4,000	gallons				Appendix B Chapter 140 B. 12.
I		594	ASWOC MECH BLDGS	Boiler	Natural Gas/Fuel Oil			1,500,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		594	ASWOC MECH BLDGS	Boiler	Natural Gas/Fuel Oil			1,500,000	BTU/hr		Appendix B Chapter 140 B. 6.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
I	27	594	ASWOC MECH BLDG	Emergency Generator	Diesel	230	kW	785,450	BTU/hr	Cummins - 1981	Appendix B Chapter 140 B. 5.
I	26	594	ASWOC MECH BLDG	Emergency Generator	Diesel	300	kW	1,024,500	BTU/hr	Cummins - 1984	Appendix B Chapter 140 B. 5.
I	A611.0	611	TEST CELL - LARGE	Above Ground Storage Tank	JP8	1,000	gallons				Appendix B Chapter 140 B. 11.
I	A611.3	611	TEST CELL - SMALL	Above Ground Storage Tank	JP8	100	gallons				Appendix B Chapter 140 B. 11.
I		611	Small Test Cell (APU)	APU	Exhaust						
I		611	ENGINE TEST CELL	Boiler	Natural Gas/Fuel Oil			175,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		611	ENGINE TEST CELL	Boiler	Natural Gas/Fuel Oil			175,000	BTU/hr		Appendix B Chapter 140 B. 6.
I	450	611	AIMD	Degreaser	Water Only	n/a	ft^2			Steam Washer	Appendix B Chapter 140 B. 1. & B. 2.
I		611	Large Test Cell (T-56)	Engine Test Cell	JP-8						
I		611	Small Test Cell (APU)	Engine Test Cell	JP-8						
I		611	Large Test Cell (T-56)	P-3 & C-130 Engines	Exhaust						
E	A612.0	612	RG TREATMENT PLANT	Above Ground Storage Tank	#1 OIL	260	gallons				Appendix B Chapter 140 B. 11.
E	Rangeley	612	Rangeley	Boiler	Kerosene					AN174M32	Appendix B Chapter 140 B. 6.
I		634	NMCB 27	Boiler	Natural Gas						Appendix B Chapter 140 B. 6.
E	A635.1	635	RNMCB-27 (I)	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
I	A635.12	635	RNMCB-27 (I)	Above Ground Storage Tank	DIESEL	25	gallons				Appendix B Chapter 140 B. 11.
I	A635.13	635	RNMCB-27 (I)	Above Ground Storage Tank	DIESEL	30	gallons				Appendix B Chapter 140 B. 11.
I	A635.14	635	RNMCB-27 (I)	Above Ground Storage Tank	WASTE OIL	250	gallons				Appendix B Chapter 140 B. 11.
E	A635.2	635	RNMCB-27 (I)	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
E	A635.3	635	RNMCB-27 (I)	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
E	A635.4	635	RNMCB-27 (I)	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
E	A635.5	635	RNMCB-27 (I)	Above Ground Storage Tank	LUBE/HYD	70	gallons				Appendix B Chapter 140 B. 11.
E	A635.6	635	RNMCB-27 (I)	Above Ground Storage Tank	Antifreeze	70	gallons				Appendix B Chapter 140 B. 11.
E		635	NMCB 27	Autoshop - Trucks	Exhaust	5	Bays				Appendix B Chapter 140 A. 22.
I		635	NMCB 27	Boiler	Natural Gas						Appendix B Chapter 140 B. 6.
I		635	NMCB 27	Degreaser	Breakthrough	6.11	ft^2			Cold Cleaning Degreaser	Appendix B Chapter 140 B. 1. & B. 2.
E		635	NMCB 27	Degreaser	Water	N/A				Pressure Washer	Appendix B Chapter 140 B. 1. & B. 2.
I		635	NMCB 27	Emergency Generator	Diesel	15	kW			1987 John Hollingsworth MEP-004A	Appendix B Chapter 140 B. 5.
I		635	NMCB 27	Emergency Generator	Diesel	30	kW			1980 S/N KZO 1065	Appendix B Chapter 140 B. 5.
I		635	NMCB 27	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
E		635	NMCB 27	Grinder/Drill Press/Hand Tools							Appendix B Chapter 140 B. 15.
I		635	NMCB 27	Welding Operations	Welding Rods					AC Stick Welder/DC Arc Welding, etc	
I		635	NMCB 27	Blast Booth						With Collection System	Appendix B Chapter 140 A. 58.
E	A638.1	638	ALLEY C (GEN)	Above Ground Storage Tank	DIESEL	250	gallons				Appendix B Chapter 140 B. 11.
I		642	WEAPONS	Boiler	Kerosene			275,000	BTU/hr		Appendix B Chapter 140 B. 6.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
I	731	642	AIMD	Degreaser	Electron	6.00	ft^2			Cold Cleaning Degreaser	Appendix B Chapter 140 B. 1. & B. 2.
I	28	642	Weapons	Emergency Generator	Diesel	45	kW	153,675	BTU/hr	ONAN - 1978	Appendix B Chapter 140 B. 5.
I		642	WPNS (AUC)	Under Ground Storage Tank	No. 2 Fuel Oil	1,000	gal				Appendix B Chapter 140 B. 11.
I	A644.2	644	OP TRAINER	Above Ground Storage Tank	#2 OIL	6,000	gallons				Appendix B Chapter 140 B. 12.
E	A644.1	644	OP TRAINER (I)	Above Ground Storage Tank	HYD OIL	150	gallons				Appendix B Chapter 140 B. 11.
I		644	TRAINER	Boiler	Natural Gas/Fuel Oil			668,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		644	TRAINER	Boiler	Natural Gas/Fuel Oil			668,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		644	Simulator	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I	A645.1	645	BRANCH CLINIC	Above Ground Storage Tank	#1 OIL	2,000	gallons				Appendix B Chapter 140 B. 12.
I	A645.0	645	BRANCH CLINIC (GEN)	Above Ground Storage Tank	DIESEL	550	gallons				Appendix B Chapter 140 B. 11.
I		645	MEDICAL	Boiler	Natural Gas			46,000	BTU/hr	Hot Water Heater	Appendix B Chapter 140 B. 6.
I		645	MEDICAL	Boiler	Natural Gas/Fuel Oil			1,700,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		645	Dental	Degreaser	Water/SCGP Ultrasonic Cleaner	1.5	ft^2			Cold Cleaning Degreaser	Appendix B Chapter 140 B. 1. & B. 2.
I		645	Medical	Degreaser	Water	N/A				Pressure Washer	Appendix B Chapter 140 B. 1. & B. 2.
I	29	645	MEDICAL	Emergency Generator	Diesel	275	kW	939,125	BTU/hr	Detroit - 1978	Appendix B Chapter 140 B. 5.
I	A646.0	646	ASR-8 ANT SITE (GEN)	Above Ground Storage Tank	DIESEL	550	gallons				Appendix B Chapter 140 B. 11.
I	30	646	ASR-8 ANT SITE (GEN)	Emergency Generator	Diesel	100	kW	341,500	BTU/hr	Caterpillar - 1988	Appendix B Chapter 140 B. 5.
I	A647.0	647	PEST CONTROL BLDG (I)	Above Ground Storage Tank	#2 OIL	275	gallons				Appendix B Chapter 140 B. 11.
I		647	PEST CONTROL	Boiler	Kerosene			119,000	BTU/hr	Hot Water Heater	Appendix B Chapter 140 B. 6.
I		647	PEST CONTROL	Degreaser	Water	N/A				Dayton Spray Washer 3Z829E	Appendix B Chapter 140 B. 1. & B. 2.
	A650.0	650	JFSI	Above Ground Storage Tank	JP8	845,000	gallons				
	A651.0	651	JFSI	Above Ground Storage Tank	JP8	845,000	gallons				
I		652	JFSI	Fuel Dispensing/Transfer to A/C	JP-8					Operation in 1995	
I	A654.0	654	JFSI (GEN)(I)	Above Ground Storage Tank	DIESEL	250	gallons				Appendix B Chapter 140 B. 11.
I	32	654	JFSI (GEN)(I)	Emergency Generator	Diesel	125	kW	426,875	BTU/hr	Gererac - 1993	Appendix B Chapter 140 B. 5.
I		654	J.F.S.I. FUEL FARM	Under Ground Storage Tank	JP-8	3,000	gallons			Product Recovery Tank	Appendix B Chapter 140 B. 12.
I	A658.0	658	FUEL FARM (I)	Above Ground Storage Tank	#2 OIL	330	gallons				Appendix B Chapter 140 B. 11.
I	A658.1	658	FUEL FARM (I)	Above Ground Storage Tank	#2 OIL	330	gallons				Appendix B Chapter 140 B. 11.
I		658	FUEL FARM MAINT.	Boiler	Kerosene			325,000	BTU/hr	Hot Water Heater	Appendix B Chapter 140 B. 6.
I		658	FUEL FARM MAINT.	Boiler	Kerosene			325,000	BTU/hr		Appendix B Chapter 140 B. 6.
O		658	FUEL FARM MAINT.	Degreaser	Water	N/A				Pressure Washer	Appendix B Chapter 140 B. 1. & B. 2.
E		658	FUEL FARM MAINT.	Parts Grinder/Drill Press						0.5 HP Grinder/Drill Press	Appendix B Chapter 140 A. 15.
I	A660.0	660	VEHICLE WASH RACK (I)	Above Ground Storage Tank	#1 OIL	500	gallons				Appendix B Chapter 140 B. 11.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
I		660	HEAVY EQPT WASHRACK	Boiler	Kerosene			275,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		730	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		730	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		731	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		731	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		732	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		732	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		733	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		733	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		734	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		734	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		735	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		735	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		736	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		736	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		737	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		737	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		737	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		738	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		738	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		739	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		739	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		740	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		740	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		741	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		741	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		742	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		742	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		743	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		743	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		744	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		744	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		745	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		745	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		746	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		746	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		747	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
I		747	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		748	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		748	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		749	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
I		749	New BEQ	Boiler	Natural Gas			87,000	BTU/hr		Appendix B Chapter 140 B. 6.
		750	BEQ Visitors' Quarters	Boiler	Natural Gas			1,825,000	BTU/hr	Water Heater	
		750	BEQ Visitors' Quarters	Boiler	Natural Gas			1,825,000	BTU/hr	Water Heater	
		750	BEQ Visitors' Quarters	Emergency Generator	Natural Gas	35	kW			Pump Motors	Appendix B Chapter 140 B. 5.
I		750	BEQ Visitors' Quarters	Make-up Air Unit	Natural Gas			1,200,000	BTU/hr		Appendix B Chapter 140 B. 6.
		750	BEQ Visitors' Quarters	Degreaser	Water					Porter Cable PCH2600C Spray Washer	Appendix B Chapter 140 B. 1. & B. 2.
I		1226	Main Gate Search Tent	Boiler	Natural Gas			40,000	BTU/hr		Appendix B Chapter 140 B. 6.
E	A4025.0	4025	GREAT POND REC HALL	Above Ground Storage Tank	#1 OIL	275	gallons				Appendix B Chapter 140 B. 11.
E	A4025.1	4025	GREAT POND REC HALL	Above Ground Storage Tank	#1 OIL	275	gallons				Appendix B Chapter 140 B. 11.
E		4025	GREAT POND REC HALL	Boiler	#1 OIL						Appendix B Chapter 140 B. 6.
E	A4031.0	4031	GREAT POND GUEST COTT	Above Ground Storage Tank	#1 OIL	275	gallons				Appendix B Chapter 140 B. 11.
E		4031	GREAT POND GUEST COTT	Boiler	#1 OIL						Appendix B Chapter 140 B. 6.
E	A4033.0	4033	GREAT POND CARETAKER	Above Ground Storage Tank	#1 OIL	275	gallons				Appendix B Chapter 140 B. 11.
E		4033	GREAT POND CARETAKER	Boiler	#1 OIL						Appendix B Chapter 140 B. 6.
E	A4040.0	4040	GREAT POND	Above Ground Storage Tank	DIESEL	1,000	gallons				Appendix B Chapter 140 B. 11.
E	A4040.1	4040	GREAT POND	Above Ground Storage Tank	GASOLINE	1,000	gallons				Appendix B Chapter 140 B. 11.
E			SGTMAJ Facility	Above Ground Storage Tank	#1 OIL	300	gallons			To Be Installed	Appendix B Chapter 140 B. 11.
E			Soft Cell	Above Ground Storage Tank	#1 OIL	300	gallons			To Be Installed; Soft Cell Relocation	Appendix B Chapter 140 B. 11.
I	AT1.0	AT1.0	AIRCRAFT ARRESTOR	Above Ground Storage Tank	GASOLINE	10	gallons				Appendix B Chapter 140 B. 11.
I	AT1.1	AT1.1	AIRCRAFT ARRESTOR	Above Ground Storage Tank	ETHYLENE GLYCOL	300	gallons				Appendix B Chapter 140 B. 11.
I	AT2.0	AT2.0	AIRCRAFT ARRESTOR	Above Ground Storage Tank	GASOLINE	10	gallons				Appendix B Chapter 140 B. 11.
I	AT2.1	AT2.1	AIRCRAFT ARRESTOR	Above Ground Storage Tank	ETHYLENE GLYCOL	300	gallons				Appendix B Chapter 140 B. 11.
E		BALLFIELD	Ballfield Maintenance	Bench Grinder/Hand Tools							Appendix B Chapter 140 A. 15.
E		BALLFIELD	Ballfield Maintenance	Fugitives	Miscelleous Materials					Includes Line Marking	Appendix B Chapter 140 A. 17.
E		CABINS	GREAT POND CABINS	Boiler	PROPANE					5 Cabins Each w/ Furnaces	Appendix B Chapter 140 B. 6.
I	56	Gate	DYER'S GATE	Emergency Generator	Diesel	125	kW			Cummins - 2003	Appendix B Chapter 140 B. 5.
I	55	Gate	MAIN GATE	Emergency Generator	Diesel	75	kW				Appendix B Chapter 140 B. 5.
I		HGR	VP-26	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
I		HGR	VPU-1 & NSGD	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I		HGR	T-Line	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I		HGR	VP-8	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I		HGR	NAESU	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I		HGR	VP-10	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I		HGR	VP-92	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I		HGR	VPU-1	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
I		HGR	VR-62	Fugitives	Miscellaneous Materials						Appendix B Chapter 140 B. 1. & B. 2.
E		Housing	Fitch Ave	Boiler	Natural Gas					Residential Boilers; PPV in 04	Appendix B Chapter 140 B. 6.
E		Housing	McKeen St.	Boiler	Natural Gas					Residential Boilers; PPV in 04	Appendix B Chapter 140 B. 6.
E		Housing	Quarters	Boiler	Natural Gas					Residential Boilers; PPV in 04	Appendix B Chapter 140 B. 6.
E		Housing	Topsham Annex	Boiler	Natural Gas					Residential Boilers; PPV in 04	Appendix B Chapter 140 B. 6.
E		Housing	Topsham Annex Maint Shop	Boiler	Natural Gas					Residential Boilers; PPV in 04	Appendix B Chapter 140 B. 6.
E		Housing	Woodland Acres	Boiler	Natural Gas					Residential Boilers; PPV in 04	Appendix B Chapter 140 B. 6.
E		Housing	Mariner Landing	Boiler (Furnace)	Natural Gas					Residential Boilers; PPV in 04	Appendix B Chapter 140 B. 6.
E		Housing	Midway Terrace	Boiler (Furnace)	Natural Gas					Residential Boilers; PPV in 04	Appendix B Chapter 140 B. 6.
I		LANDFILL	Weapons Compound	Capped Landfill Gas Venting	Off-Gases					CERCLA Sites 1 & 3	Appendix B Chapter 140 B. 1. & B. 2.
I		MAFT	Mobile Aircraft Fire Training	Ignition for Unit	Propane						Appendix B Chapter 140 B. 6.
I	A000.1	MAYTAG	MAYTAG - REFUELLERS	Above Ground Storage Tank	#1 OIL	250	gallons				Appendix B Chapter 140 B. 11.
I		MAYTAG	MAYTAG - REFUELLERS	Boiler	#1 OIL			250,000	BTU/hr	Trailer Bldg 56	Appendix B Chapter 140 B. 6.
O	20	PW	PW Spare	Emergency Generator	Diesel	23.5	kW	80,253	BTU/hr	Cummins - 1998	Appendix B Chapter 140 B. 5.
O	10	PW	PW Spare	Emergency Generator	Diesel	10	kW	34,150	BTU/hr		Appendix B Chapter 140 B. 5.
O	37	PW	PW Spare	Emergency Generator	Diesel	30	kW			Libby-White - 1976	Appendix B Chapter 140 B. 5.
O	44	PW	PW Spare	Emergency Generator	Diesel	60	kW	204,900	BTU/hr	Allis Chalmers - 1986	Appendix B Chapter 140 B. 5.
O	50	PW	Portable	Emergency Generator	Diesel	320	kW	1,092,800	BTU/hr	Caterpillar 3406 - 1998	Appendix B Chapter 140 B. 5.
O	51	PW	Portable	Emergency Generator	Diesel	228	kW	778,620	BTU/hr	Caterpillar 3406 - 1998	Appendix B Chapter 140 B. 5.
O	52	PW	PW Spare	Emergency Generator	Diesel	200	kW				Appendix B Chapter 140 B. 5.
E	AR1.1	Rangeley	CPD-TRLR OPP B-82	Above Ground Storage Tank	#1 OIL	250	gallons				Appendix B Chapter 140 B. 11.
E	AR10.1	Rangeley	SEARCH	Above Ground Storage Tank	#1 OIL	250	gallons				Appendix B Chapter 140 B. 11.
E	AR2.1	Rangeley	ALPHA SITE-SM (GEN) BLDG	Above Ground Storage Tank	#1 OIL	250	gallons				Appendix B Chapter 140 B. 11.
E	AR2.2	Rangeley	ALPHA SITE-LOG CABIN	Above Ground Storage Tank	#1 OIL	250	gallons				Appendix B Chapter 140 B. 11.

Table 4-17. 2004/2005 Emission Source List (as of October 2005)

Status	NASB #	Building #	Location Description	Source Type	Fuel/Material	Size		Capacity		Comments	Regulatory Citation (E & I Sources)
E	AR9.1	Rangeley	OUTHOUSE (NEW)(I)	Above Ground Storage Tank	#1 OIL	275	gallons				Appendix B Chapter 140 B. 11.
E	Rangeley	Rangeley	SGTMAJ Facility	Boiler	#1 OIL			70,000	BTU/hr	To Be Installed	Appendix B Chapter 140 B. 6.
E	Rangeley	Rangeley	Rangeley	Degreaser	Eversolv 143	6.00	ft^2			Cold Cleaning Degreaser	Appendix B Chapter 140 B. 1. & B. 2.
E	2	Rangeley	PW Spare	Emergency Generator	Diesel	15	kW	51,225	BTU/hr	Kohler - 1986 (To RG in Aug 04)	Appendix B Chapter 140 B. 5.
E	35	Rangeley	Rangeley	Emergency Generator	Diesel	10	kW			Libby-Welding - 1987	Appendix B Chapter 140 B. 5.
E	567	Rangeley	Rangeley	Emergency Generator	Diesel		kW				Appendix B Chapter 140 B. 5.
E	116	Rangeley	Rangeley	Emergency Generator	Diesel		kW				Appendix B Chapter 140 B. 5.
E	Rangeley	Rangeley	Rangeley	Emergency Generator	Natural gas		kW			Portable	Appendix B Chapter 140 B. 5.
E	Rangeley	Rangeley	Rangeley	Emergency Generator	Natural gas		kW			Portable	Appendix B Chapter 140 B. 5.
E		Rangeley	RG REPEATER ANTENNA	Emergency Generator	Propane	8.5	kW			w/ 100 gal propane tank; To Be Inst	Appendix B Chapter 140 B. 5.
I		Runway	AIRCRAFT ARRESTOR	Emergency Generator	Gasoline	49.2	kW			ethylene glycol used	
I		Runway	AIRCRAFT ARRESTOR	Emergency Generator	Gasoline	49.2	kW			ethylene glycol used	

Notes:
An updated Emission Source List is available at NAS Brunswick for 2005.
Data Source = Lisa Joy NAS Brunswick, Air Emission Data Tables, 2004/2005 Master Source List. October 11, 2005 (Joy 2005d)
E = Categorically Exempt Source as indicated in Appendix B, Section A, Chapter 140 or Exempt per ME DEP Approval (All Sources at Rangeley)
I = Insignificant Source as indicated in Appendix B, Section B, Chapter 140
O = Source Out of Service
R = Source Has Been Removed

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Table 4-18. Air Emissions Specified in the Air License

FUEL BURNING EQUIPMENT			
Equipment	**Maximum Capacity (MMBtu/hr)**	**Maximum Firing Rate**	**Fuel Type, % sulfur**
Hangar 1			
Boiler #1	5.50	39.3 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Boiler #2	5.50	39.3 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Boiler #3	5.50	39.3 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Hangar 5			
Boiler #1	5.0	35.7 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Boiler #2	5.0	35.7 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Boiler #3	5.0	35.7 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Boiler #4	5.0	35.7 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Water Heater	1.0	7.1 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Hangar 6			
Boiler #1	3.0	2,920 scf/hr	natural gas, negligible
Boiler #1	3.0	2,920 scf/hr	natural gas, negligible
Boiler #1	3.0	2,920 scf/hr	natural gas, negligible
Make-up #1	10.0	9,709 scf/hr	natural gas, negligible
Make-up #2	10.0	9,709 scf/hr	natural gas, negligible
Make-up #3	2.06	2,000 scf/hr	natural gas, negligible
Make-up #4	2.06	2,000 scf/hr	natural gas, negligible
Building 25			
Water Heater	1.2	1,165 scf/hr	natural gas, negligible
Building 86			
Boiler #1	3.0	21.4 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Boiler #2	3.0	21.4 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Boiler #3	3.0	21.4 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Building 102			
Make-up #1	1.5	1,460 scf/hr	natural gas, negligible
Building 211			
Boiler #3	5.5	39.3 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Boiler #4	6.2	44.3 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Boiler #5	6.2	44.3 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Building 250			
Boiler #1	6.0	42.9 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Boiler #2	6.0	42.9 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Boiler #3	6.0	42.9 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Make-up #1	2.75	2,670 scf/hr	natural gas, negligible
Building 512			
Boiler #1	1.25	8.9 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Boiler #2	1.25	8.9 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Boiler #3	1.25	8.9 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Building 516			
Boiler #1	1.94	13.6 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Building 54			
Boiler #1	2.2	15.7 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%

Table 4-18. Air Emissions Specified in the Air License

FUEL BURNING EQUIPMENT			
Equipment	**Maximum Capacity (MMBtu/hr)**	**Maximum Firing Rate**	**Fuel Type, % sulfur**
Building 594			
Boiler #1	1.5	10.7 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Boiler #2	1.5	10.7 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Building 645			
Boiler #1	1.7	12.1 gal/hr	#2 fuel oil / #1 fuel oil / natural gas, 0.50%
Building 750			
Water heater #1	1.8	1,770 scf/hr	natural gas, negligible
Water heater #2	1.8	1,770 scf/hr	natural gas, negligible
Make-up #1	1.2	1,165 scf/hr	natural gas, negligible

ELECTRICAL GENERATION EQUIPMENT				
Equipment	**Power Output (kW)**	**Maximum Capacity (MMBtu/hr)**	**Firing Rate (gal/hr)**	**Fuel Type, % sulfur**
Building 200				
Engine #4	230	2.2	16.4	Diesel, 0.05%
Building 295				
Engine #18-1	287	2.8	20.4	Diesel, 0.05%
Engine #18-2	287	2. 8	20.4	Diesel, 0.05%
Engine #18-3	287	2. 8	20.4	Diesel, 0.05%
Engine #18-4	287	2. 8	20.4	Diesel, 0.05%
Building 594				
Engine #26	300	2.9	21.4	Diesel, 0.05%
Engine #27	230	2.2	16.4	Diesel, 0.05%
Building 645				
Engine #29	275	2.7	19.6	Diesel, 0.05%
Building 646				
Engine #30	100	1.0	7.2	Diesel, 0.05%
Building 86				
Engine #31	80	0.8	5.7	Diesel, 0.05%
Building 654				
Engine #32	125	1.2	8.9	Diesel, 0.05%
Building 292				
Engine #42	125	1.2	8.9	Diesel, 0.05%
Spare				
Engine #44	60	0.6	4.3	Diesel, 0.05%
Engine #50	320	3.1	22.8	Diesel, 0.05%
Engine #51	228	2.2	16.2	Diesel, 0.05%
Engine #52	200	2.0	14.2	Diesel, 0.05%
Building 537				
Engine #46	80	0.8	5.7	Diesel, 0.05%

Table 4-18. Air Emissions Specified in the Air License

ELECTRICAL GENERATION EQUIPMENT				
Equipment	**Power Output (kW)**	**Maximum Capacity (MMBtu/hr)**	**Firing Rate (gal/hr)**	**Fuel Type, % sulfur**
Building 250 Engine #47	900	8.8	64.1	Diesel, 0.05%
Building 554 Engine #48	160	1.6	11.4	Diesel, 0.05%
Building 209 Engine #49	400	3.9	28.5	Diesel, 0.05%
Hangar 6 Engine #53	230	2.7	2,574 scf/hr	natural gas, negligible
Main Gate Engine #55	75	0.8	5.8	Diesel, 0.05%
Dyer's Gate Engine #56	100	1.0	7.2	Diesel, 0.05%
Building 231 Engine #57	350	4.9	4,760 scf/hr	natural gas, negligible
Hangar 5 Engine #58	300	2.9	21.4	Diesel, 0.05%
Building 201 Engine #59	230	2.2	16.4	Diesel, 0.05%

Process Equipment	
Equipment	**Location**
Storage Tanks	Buildings 650, 651 and various other locations
Fuel Dispensing	Buildings 117, 538, 39
Deicing Operations	Aircraft and runway
Degreasers	Various
Painting Operations	Buildings 86, 250, and Hangar 6
Jet Engine Test Cells	Building 611

Source: MEDEP Air Emission License for NAS Brunswick

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Table 4-19. Total Licensed Annual Emissions

	PM	PM_{10}	SO_2	NO_x	CO	VOC	HAP
Fuel Burning	21.0	21.0	88.1	61.3	14.4	0.9	-
Diesel Engines	0.3	0.3	0.1	9.1	2.0	0.7	-
Engine #53	0.1	0.1	-	1.5	2.5	0.2	-
Engine #57	0.1	0.1	-	2.7	4.6	0.4	-
Process Emissions	-	-	-	-	-	45.8	9.9
Total TPY	**21.5**	**21.5**	**88.2**	**74.6**	**23.5**	**48.0**	**9.9**

Source: MEDEP Air Emission License for NAS Brunswick

Notes:
*Based on a 12 month rolling total.
PM = Particulate Matter
PM_{10} = Particulate Matter > 10 microns
SO_2 = Sulfur Dioxide
NO_x = Nitrogen Oxides
VOC = Volatile Organic Compounds
CO = Carbon Monoxide
HAP = Hazardous Air Pollutant
TPY = Tons Per Year

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Table 4-20. Actual Annual Air Emissions

Year	SO_2	NO_x	CO	PM_{10}	VOC	TSP/PM	HAPs	Lead
1995	69.81	48.85	6.32	13.97	16.38	14.11	2.73	1.09E-02
1996	70.6	49.92	6.41	13.93	18.87	14.08	1.27	1.45E-02
1997	68.02	49.27	6.4	13.77	20.68	13.93	3	3.65E-03
1998	60.89	45.16	6.33	12.05	21.93	12.22	2.74	3.00E-03
1999	56.95	42.79	5.63	11.19	18.94	11.34	2.28	2.23E-02
2000	47.62	33.76	6.37	8.35	21.13	8.55	1.35	8.47E-04
2001	38.69	28.84	6.49	6.67	22.16	6.79	1.50	4.40E-04
2002	2.99	16.92	11.06	1.38	19.38	0.79	0.78	8.58E-05
2003	6.77	19.57	14.37	2.43	17.91	1.74	0.76	1.60E-04
2004	3.33	19.80	14.40	3.33	19.23	3.33	1.13	9.25E-05
Licensed Thresholds	*88.2*	*71.9*	*18.8*	*21.4*	*48.0*	*21.4*	*9.9*	*9.9*

Source: Lisa Joy, NAS Brunswick, Air Emission Data Tables. Air Emission Inventory 1995 through 2004 Activity-Wide Emissions Summary. October 11, 2005. (Joy 2005e)

Notes:
An updated Annual Air Emissions list is available at NAS Brunswick for 2005.
TSP/PM =Total Suspend Particle/Particulate Matter
PM_{10} = Particulate Matter > 10 microns
SO_2 = Sulfur Dioxide
NO_x = Nitrogen Oxides
VOC = Volatile Organic Compounds
CO = Carbon Monoxide
HAP = Hazardous Air Pollutant

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Table 4-21. Wetland Types Mapped at NAS Brunswick

Community Type	Description	Acreage	Percent of Total
E2EM1	Estuarine intertidal persistent emergents	81.38	2.59
E2US	Estuarine intertidal unconsolidated shore	35.02	1.11
PUB	Palustrine unconsolidated bottom	16.52	0.53
PEM1	Palustrine persistent emergents	47.25	1.50
PSS1	Palustrine scrub shrub, broad-leaved deciduous	54.57	1.73
PSS1/4	Palustrine scrub shrub, mixed broad-leaved deciduous and needle-leaved evergreen	4.02	0.13
PFO1	Palustrine forested, broad-leaved deciduous	41.74	1.33
PFO1/4	Palustrine forested, mixed broad-leaved deciduous and needle-leaved evergreen	102.38	3.3
PFO4	Palustrine forested, needle-leaved evergreen	49.15	1.56
PFO4/1	Palustrine forested, mixed needle-leaved evergreen and broad-leaved deciduous	11.33	0.36
Upland	All remaining land area	2702.53	85.91
TOTAL		**3145.89**	**100.00**

Source: Geo-Marine 2001

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Table 4-22. Essential Fish Habitat Designation for Casco Bay

Species	Eggs	Larvae	Juveniles	Adults
Atlantic salmon *(Salmo salar)*			X	X
Atlantic cod *(Gadus morhua)*	X	X	X	X
pollock *(Pollachius virens)*		X	X	
whiting *(Merluccius bilinearis)*			X	X
red hake *(Urophycis chuss)*			X	X
white hake *(Urophycis tenuis)*			X	X
winter flounder *(Pleuronectes americanus)*	X	X	X	X
yellowtail flounder *(Pleuronectes ferruginea)*	X	X		
windowpane flounder *(Scopthalmus aquosus)*	X	X	X	X
American plaice *(Hippoglossoides platessoides)*	X	X	X	X
ocean pout *(Macrozoarces americanus)*	X	X	X	X
Atlantic halibut *(Hippoglossus hippoglossus)*	X	X	X	X
Atlantic sea scallop *(Placopecten magellanicus)*	X	X	X	X
Atlantic sea herring *(Clupea harengus)*		X	X	X
bluefish *(Pomatomus saltatrix)*			X	X
Atlantic mackerel *(Scomber scombrus)*			X	X
bluefin tuna *(Thunnus thynnus)*				X

Source: NOAA

Note:
NOAA Essential Fish Habitat Designation for waters within Casco Bay (boundary coordinates N 44° 00.0' E 69° 50.0' S 43° 50.0' W 70° 00.0')

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Table 4-23. Rare, Threatened, and Endangered Species at NAS Brunswick

Common Name	Scientific Name	Type of Population	Listing Status
BIRDS			
Bald Eagle	Haliaeetus leucocephalus	Non-breeding migrant	FT
Grasshopper Sparrow	Ammodramus savannarum	Breeding migrant	SE
Upland Sandpiper	Bartramia longicauda	Breeding migrant	ST
Horned Lark	Eremophila alpestris	Breeding migrant	SR
Vesper Sparrow	Pooecetes gramineus	Breeding migrant	SW
PLANTS			
Clothed Sedge	Carex vestita	Resident	SE

Source: Geo-Marine 2001

Notes:
FT = federal threatened
SE = state endangered
ST = state threatened
SR = state rare
SW = state watch list

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FIGURES

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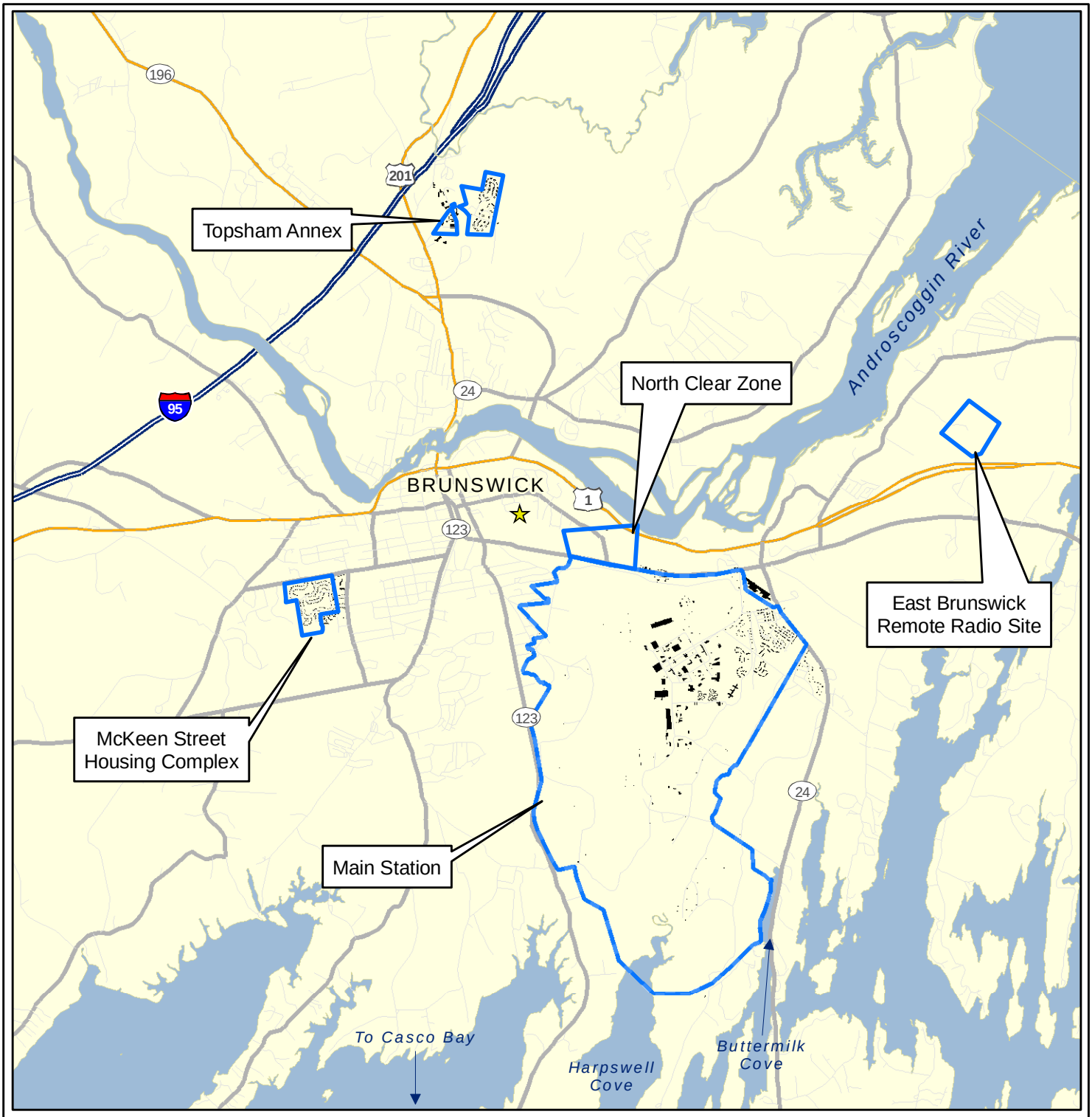
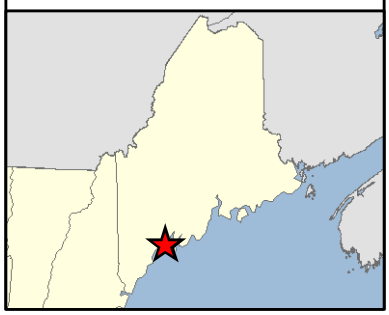


LEGEND

- NAS Brunswick Boundary
- Limited Access
- Highway
- Major Road
- Local Road
- Cities

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS

0 2,000 4,000 Feet

0 500 1,000 Meters

Naval Air Station
Brunswick, ME

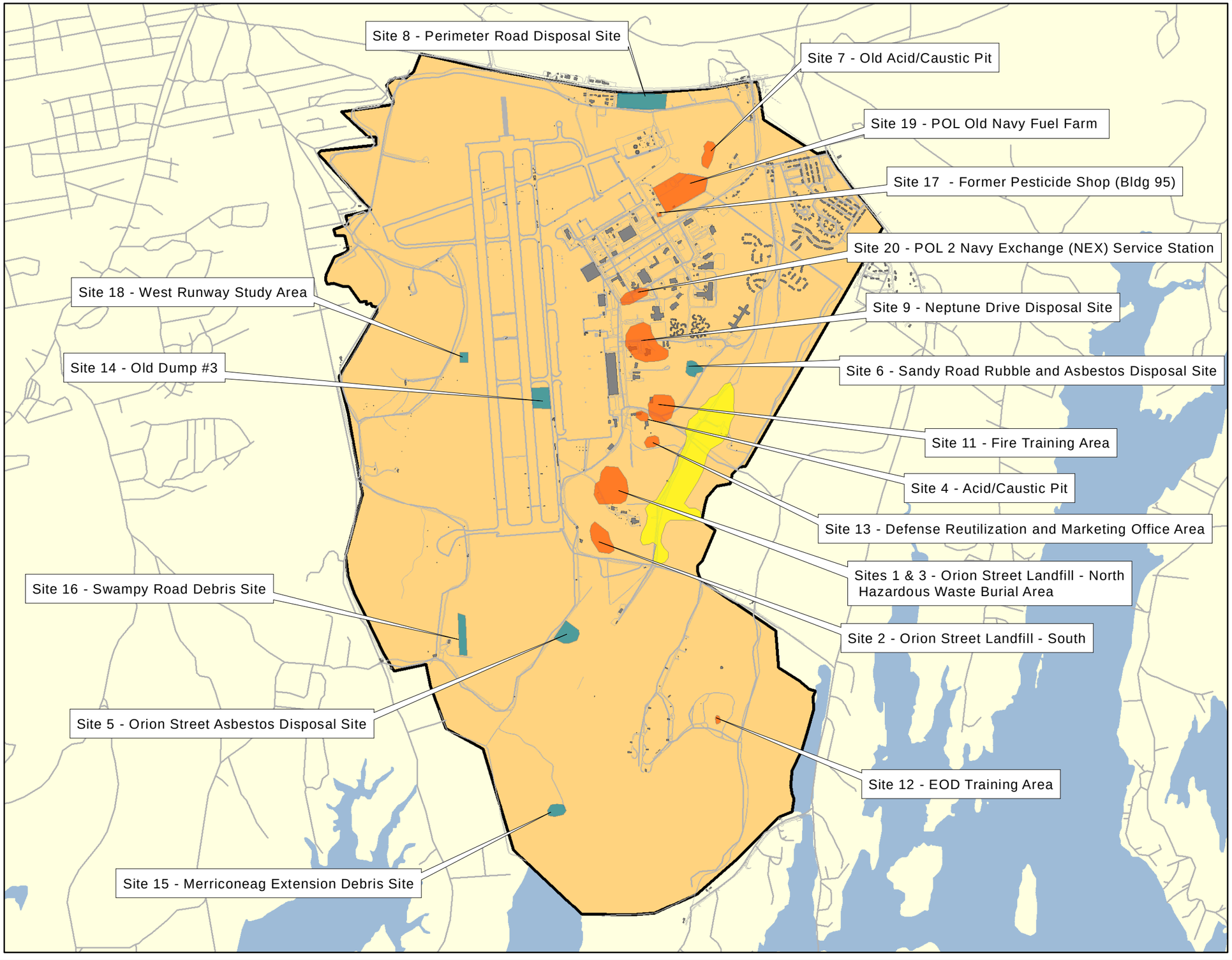
N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

SITE LOCATION MAP

FIGURE
3-1

H:/NAS_Brunswick_ME/Task1/MXD/Fig3-1.mxd
H:/NAS_Brunswick_ME/Task1/Export/Fig3-1.pdf
February 22, 2006 DWN: RLO CHKD: JR



TITLE

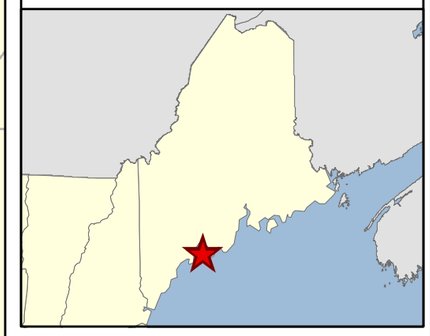
CERCLA SITE LOCATIONS

Naval Air Station
Brunswick, ME

LEGEND

- Active IRP Boundary
- Closed IRP Boundary
- Eastern Plume
- Roads
- Buildings
- NAS Brunswick Boundary

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, EA and ECC 2005

0 1,000 2,000 Feet

0 250 500 Meters

N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE

4-1

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-1.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-1.pdf April 25, 2006 DWN: RLO ABF CHD: JR

JFSI Fuel Farm (1 UST)

Fuel Farm (3 UST's)

GSE De-Ice (2 UST's)

NEX Gas Station (3 UST's)

ASWOC Generator (2 UST's)

Hanger 5 Generator (1 UST)

Field House (2 UST's)

WPNS (AUC) (Gen) (1 UST)

WPN (AUW) (Gen) (1 UST)

Weapons Arsenal (1 UST)

TITLE

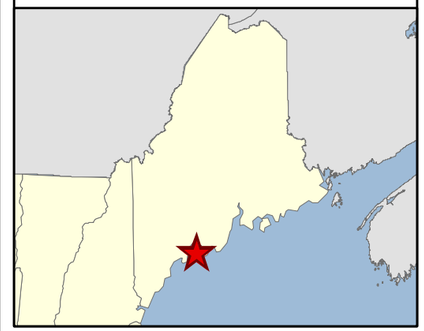
UNDERGROUND STORAGE TANK LOCATIONS

Naval Air Station
Brunswick, ME

LEGEND

- Underground Storage Tank
- Base Roads
- NAS Brunswick Boundary

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, Rickel 2006

0 1,000 2,000 Feet

0 250 500 Meters

N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-2

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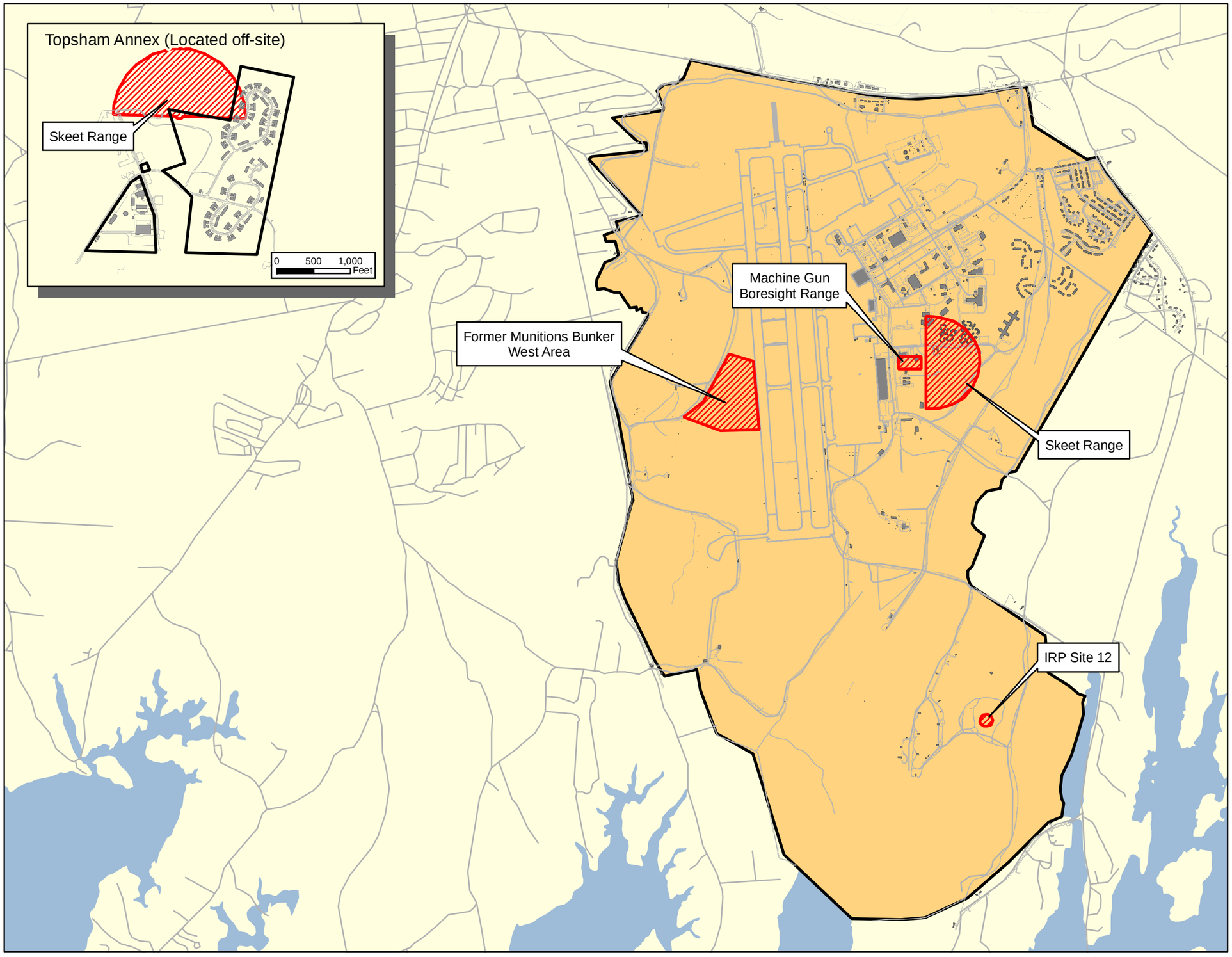

TITLE

POTENTIAL MEC AREAS

Naval Air Station
Brunswick, ME

LEGEND

- Munitions and Explosives of Concern Areas (Former)
- Buildings
- Roads
- NAS Brunswick Boundary

SITE LOCATION MAP

NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, Malcolm Pirnie 2006a

0 1,000 2,000 Feet
0 250 500 Meters

N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-3

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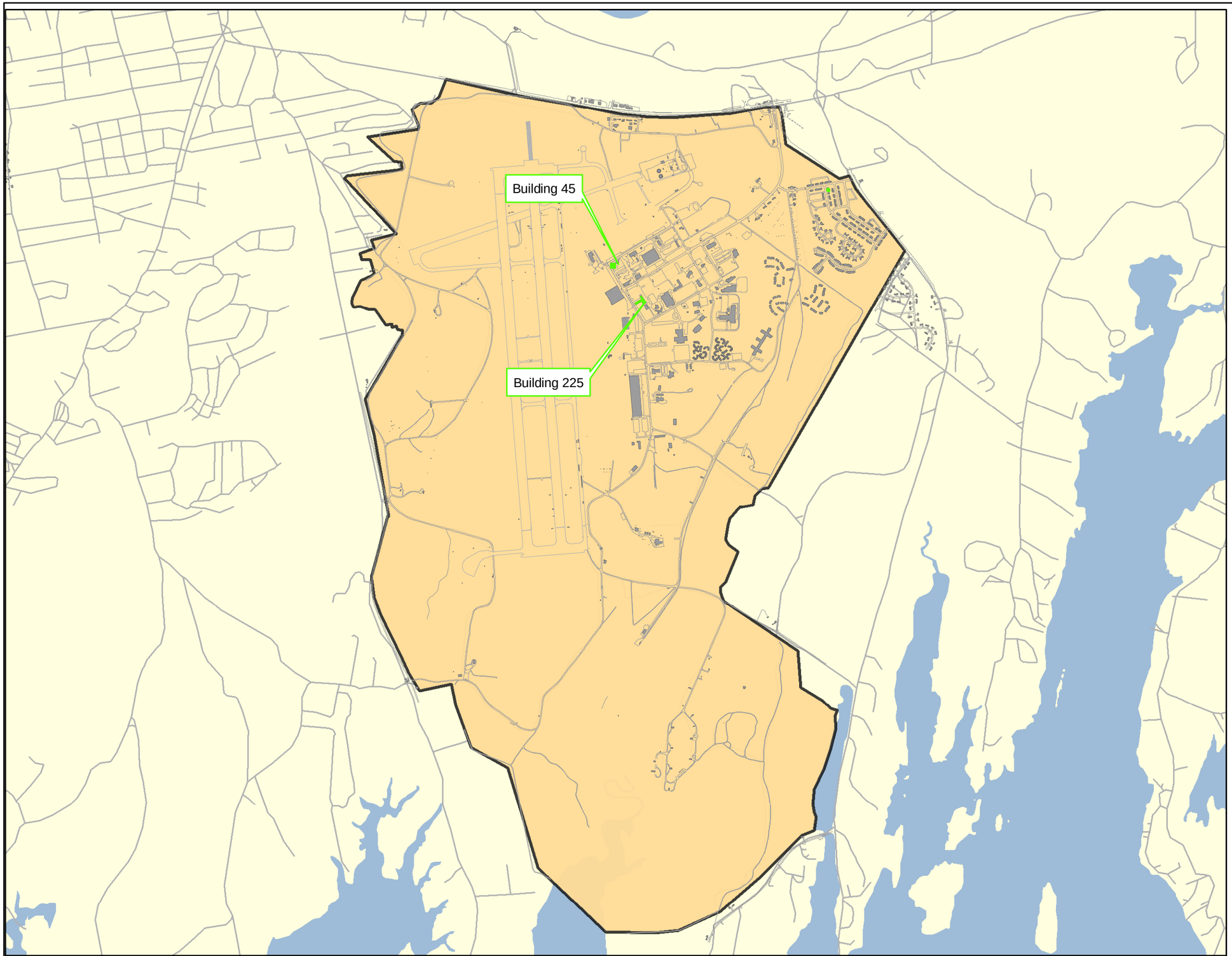


TITLE

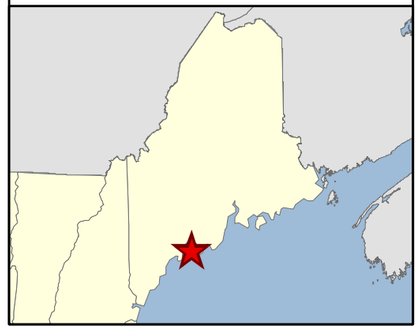
HAZARDOUS WASTE / RCRA FACILITIES

Naval Air Station
Brunswick, ME

LEGEND

- Hazardous Waste Storage or Former RCRA Facilities
- Roads
- NAS Brunswick Boundary

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, Malcolm Pirnie 2006b

0 1,000 2,000 Feet

0 250 500 Meters

N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-4

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-4.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-4.pdf April 25, 2006 DWN: RLO ABF CHD: JR

Topsham Annex (Located off-site)

0 250 500 Feet

McKeen Street Housing Complex (Located off-site)

0 250 500 Feet

Capehart Brunswick Gardens

0 150 300 Feet

Station Quarters

0 150 300 Feet

Midway Terrace

0 150 300 Feet

TITLE

ASBESTOS IN BASE HOUSING

Naval Air Station
Brunswick, ME

LEGEND

- Asbestos in Base Housing
- Roads
- Buildings
- NAS Brunswick Boundary

SITE LOCATION MAP

NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, Dewberry 2004a-f

0 1,000 2,000 Feet

0 250 500 Meters

N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE

4-5

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-7.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-7.pdf April 26, 2006 DWN: RLO JBB CHD: JR

Topsham Annex (Located off-site)

0 250 500 Feet

McKeen Street Housing Complex (Located off-site)

0 250 500 Feet

Station Quarters

0 150 300 Feet

TITLE

LEAD-BASED PAINT IN BASE HOUSING

Naval Air Station
Brunswick, ME

LEGEND

- Lead-Based Paint in Base Housing
- Roads
- Buildings
- NAS Brunswick Boundary

SITE LOCATION MAP

NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, Dewberry 2004b-f

0 1,000 2,000 Feet

0 250 500 Meters

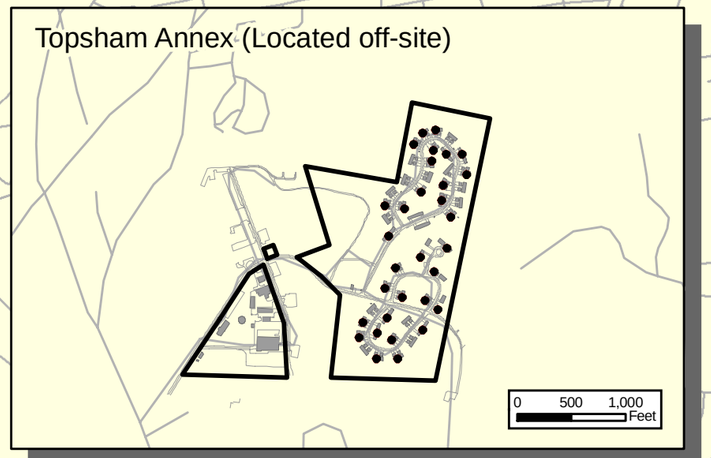
N

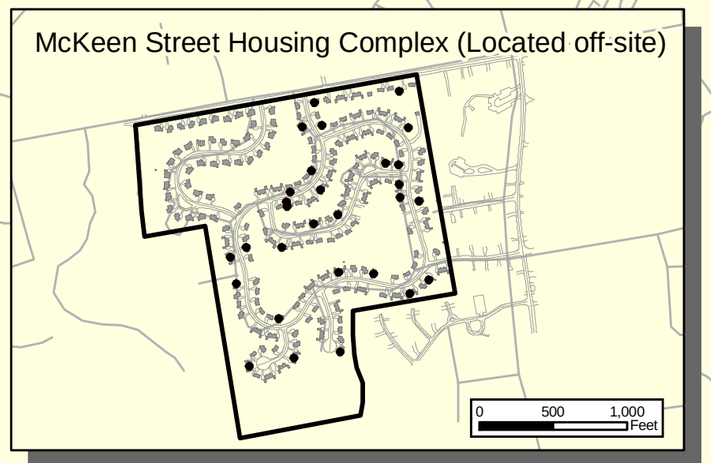
U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE

4-6

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-6_Lead.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-6_Lead.pdf April 26, 2006 DWN: RLO JBB CHD: JR





TITLE

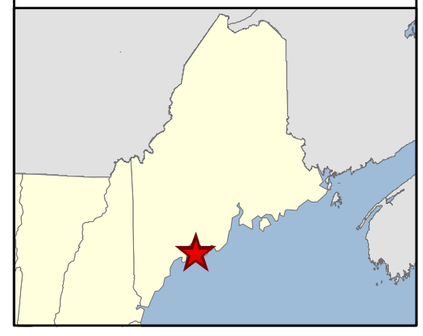
LOCATIONS TESTED FOR RADON

Naval Air Station
Brunswick, ME

LEGEND

- Buildings Tested for Radon
- Roads
- Buildings
- NAS Brunswick Boundary

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, Navy 1991

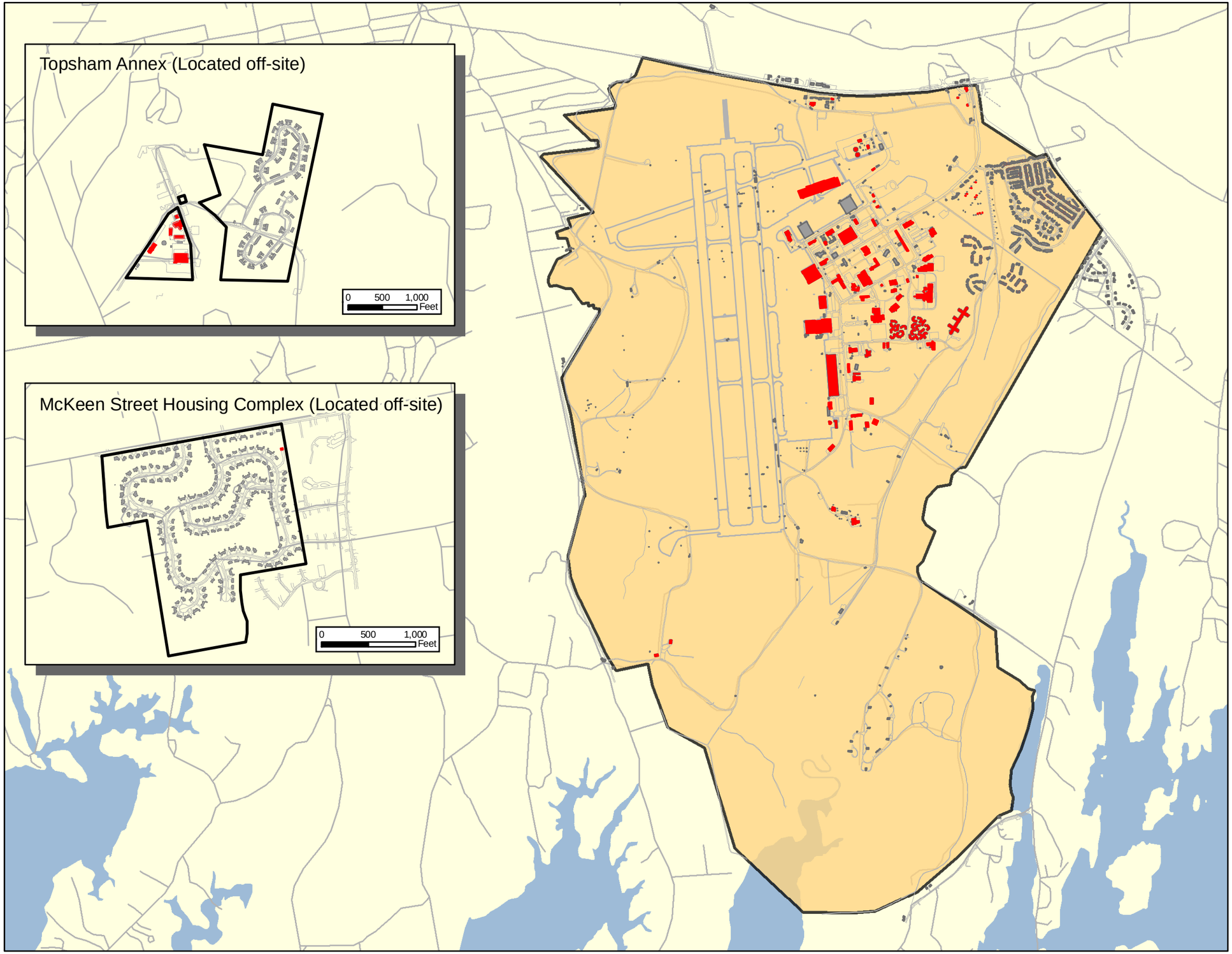
0 1,000 2,000 Feet
0 250 500 Meters

N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-7

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-7.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-7.pdf April 25, 2006 DWN: RLO ABF CHD: JR



TITLE

AIR EMISSION SOURCE BUILDINGS

Naval Air Station
Brunswick, ME

LEGEND

- Buildings with Air Emission Sources
- Roads
- Buildings
- NAS Brunswick Boundary

SITE LOCATION MAP

NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, Joy 2005d

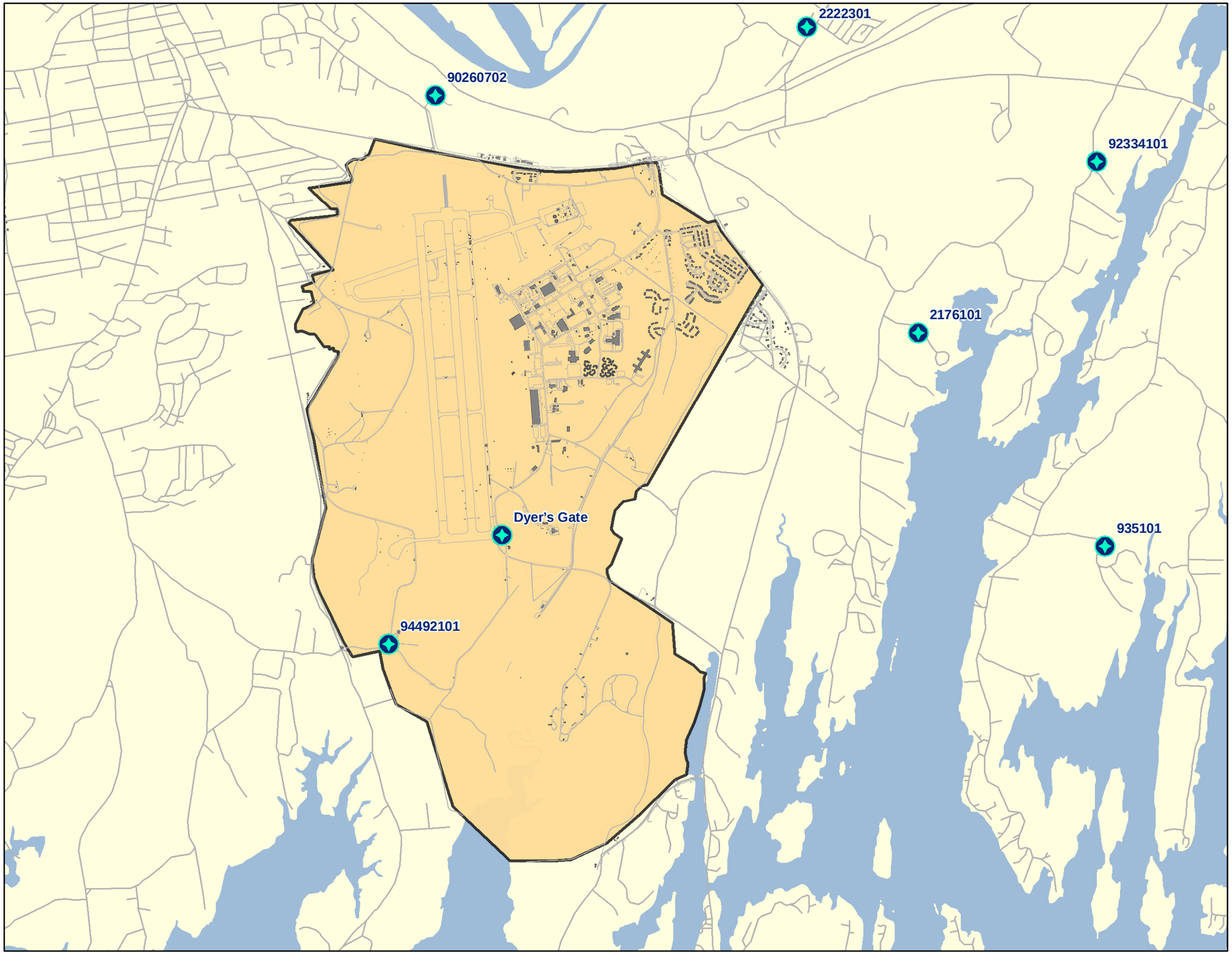
0 1,000 2,000 Feet
0 250 500 Meters

N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-8

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-8.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-8.pdf April 25, 2006 DWN: RLO ABF CHD: JR



TITLE

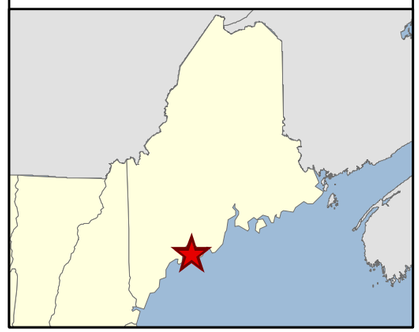
DRINKING WATER SUPPLY WELLS

Naval Air Station
Brunswick, ME

LEGEND

- Drinking Water Supply Wells
- Base Roads
- NAS Brunswick Boundary

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, ATSDR 2005
Water Supply Wells - Maine Office of GIS

0 1,000 2,000 Feet

0 250 500 Meters

N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-9

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-9.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-9.pdf April 25, 2006 DWN: RLO ABF CHD: JR

Topsham Annex (Located off-site)

0 500 1,000 Feet

McKeen Street Housing Complex (Located off-site)

0 500 1,000 Feet

Mare Brook

Picnic Pond

Mere Brook

TITLE

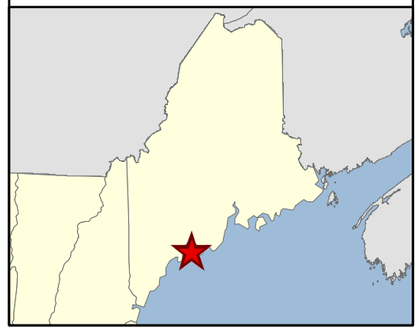
STORMWATER MAP

Naval Air Station
Brunswick, ME

LEGEND

- Storm Culvert
- Catch Basins
- Oil Water Separator
- Manholes
- Stormwater Lines
- Streams
- Roads
- Water Bodies
- Buildings
- NAS Brunswick Boundary

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, KCI 1991, Navy 2004
Streams, Ponds - State of Maine, Office of GIS

0 1,000 2,000 Feet

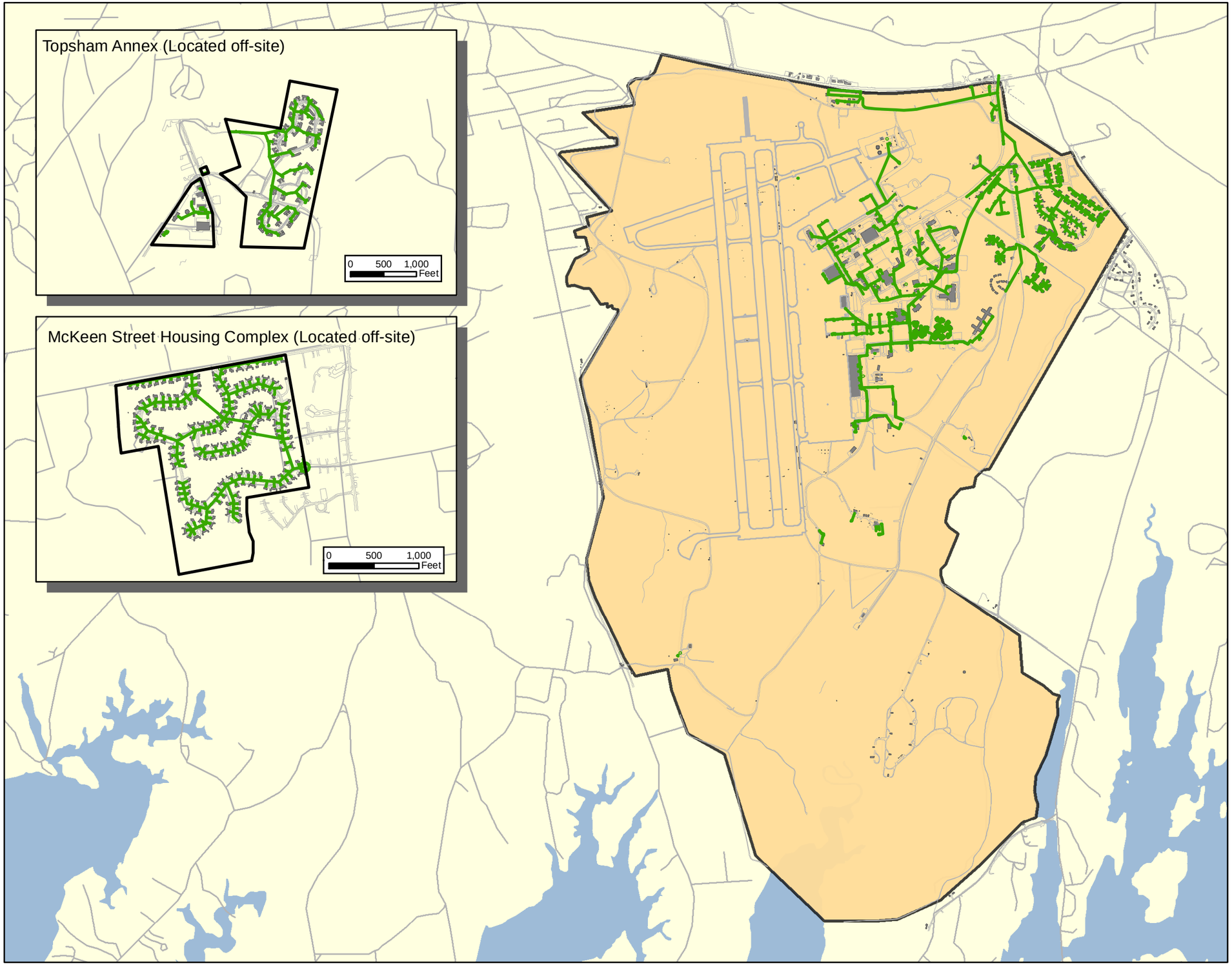
0 250 500 Meters

N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-10

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-10.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-10.pdf April 25, 2006 DWN: RLO ABF CHD: JR



TITLE

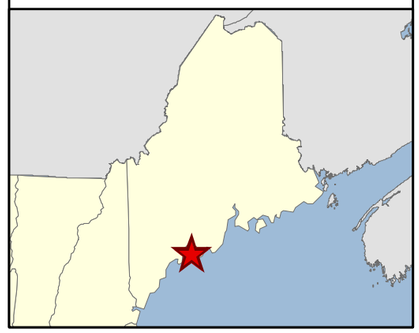
WASTEWATER SYSTEM

Naval Air Station
Brunswick, ME

LEGEND

- Wastewater Lines
- Base Roads
- Buildings
- NAS Brunswick Boundary

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, KCI 1991, Kempf 2006b

0 1,000 2,000 Feet

0 250 500 Meters

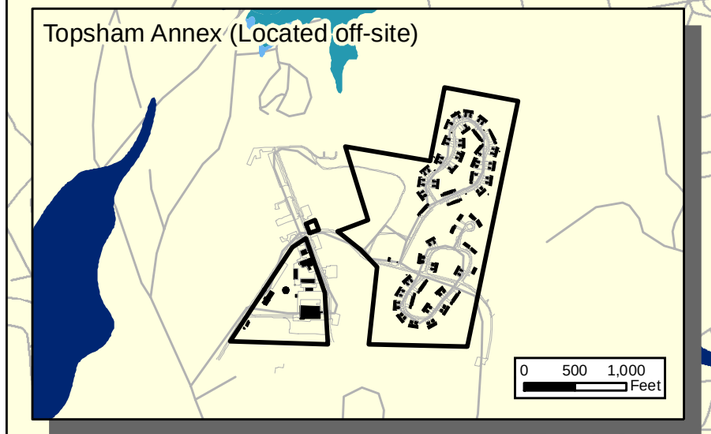
N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE

4-11

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-11.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-11.pdf April 25, 2006 DWN: RLO ABF CHD: JR



TITLE

FEMA FLOOD MAP

Naval Air Station
Brunswick, ME

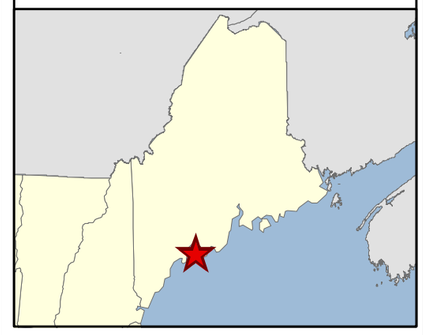
LEGEND

FEMA Q3 Zones

- Area inundated by 100-year flooding, for which no BFEs have been determined
- An area inundated by 100-year flooding, for which BFEs have been determined
- An area inundated by 100-year flooding with velocity hazard (wave action); BFEs have been determined
- Undescribed
- Roads
- Buildings
- NAS Brunswick Boundary

BFE - Base Flood Elevation

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS
FEMA - Q3 Flood Data,

0 1,000 2,000
Feet

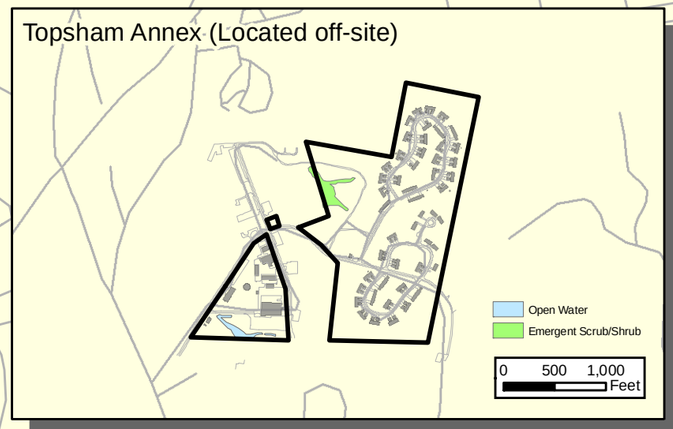
0 250 500
Meters

N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-12

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-12.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-12.pdf April 25, 2006 DWN: RLO ABF JBB CHD: JR



TITLE

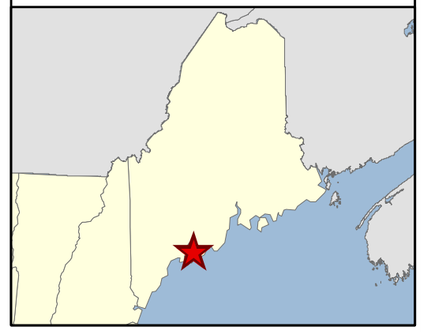
WETLANDS (PLANNING LEVEL ONLY)

Naval Air Station
Brunswick, ME

LEGEND

- Estuarine intertidal emergent persistent; E2EM1
- Estuarine intertidal unconsolidated shore; E2US
- Palustrine emergent persistent
- Palustrine forested broad-leaved deciduous
- Palustrine forested broad-leaved deciduous/needle-leaved evergreen
- Palustrine forested needle-leaved evergreen
- Palustrine forested needle-leaved evergreen/broad-leaved deciduous
- Palustrine scrub-shrub broad-leaved deciduous
- Palustrine scrub-shrub needle-leaved evergreen
- Palustrine unconsolidated bottom
- Roads
- Buildings
- NAS Brunswick Boundary

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, Geo-Marine 2001

0 1,000 2,000 Feet
0 250 500 Meters

N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-13

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-13.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-13.pdf April 26, 2006 DWN: RLO ABF CHD: JR

TITLE

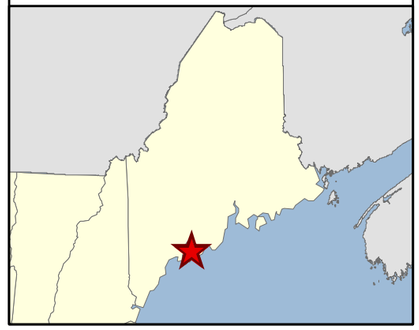
JURISDICTIONAL WETLAND AND VERNAL POOL DELINEATION

Naval Air Station
Brunswick, ME

LEGEND

- Survey Area
- Vernal Pools
- Delineated Wetlands
- Roads
- Buildings
- NAS Brunswick Boundary

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, Moore 2005

0 1,000 2,000 Feet

0 250 500 Meters

N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-14

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-14.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-14.pdf April 26, 2006 DWN: RLO ABF CHD: JR

TITLE

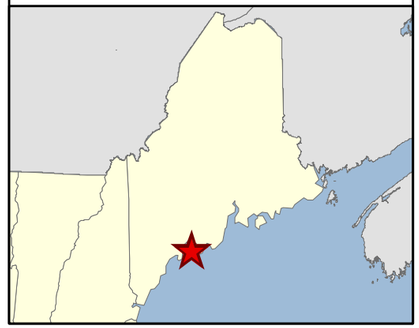
STATE ENDANGERED OR THREATENED SPECIES AND SPECIES HABITAT

Naval Air Station
Brunswick, ME

LEGEND

- Grasshopper Sparrow Habitat
- Horned Lark Habitat
- Upland Sandpiper Habitat
- Vesper Sparrow Habitat
- Carex Locations
- Base Roads
- NAS Brunswick Boundary

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: Natural Heritage Program, Geo-Marine 2001, Moore 2005

0 1,000 2,000 Feet

0 250 500 Meters

N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-15

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-15.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-15.pdf April 26, 2006 DWN: RLO ABF CHD: JR

TITLE

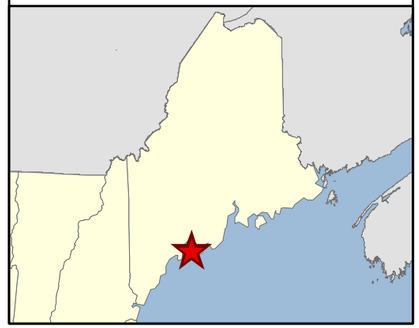
RARE COMMUNITIES

Naval Air Station
Brunswick, ME

LEGEND

- Pitch Pine - Heath Barren
- Natural Sandplain Grasslands
- Base Roads
- NAS Brunswick Boundary

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: Natural Heritage Program, Geo-Marine 2001, Moore 2005

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0 250 500 Meters

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U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-16

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-16.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-16.pdf April 26, 2006 DWN: RLO ABF CHD: JR

Bldg 44

Bldg 227

Bldg 211

Bldg 517 and 518

Bldg 63

Bldg 64

Bldg 226

TITLE

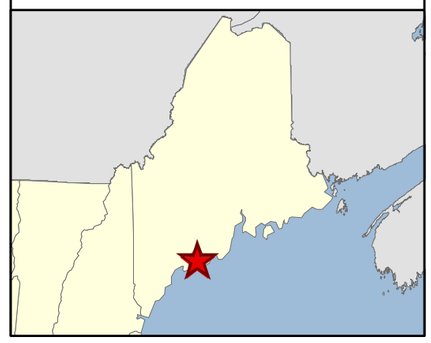
HISTORICAL BUILDINGS AND STRUCTURES

Naval Air Station
Brunswick, ME

LEGEND

- Meet National Register Criterion C
- Potential for National Register
- Phase I Archaeological Areas
- Roads
- Buildings
- NAS Brunswick Boundary

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, Louis Berger 1999, Williams 2005

0 1,000 2,000 Feet

0 250 500 Meters

N

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-17

H:\NAS_Brunswick_ME\Task1\MXD\Fig4-17.mxd H:\NAS_Brunswick_ME\Task1\Export\Fig4-17.pdf April 26, 2006 DWN: RLO ABF AP CHD: JR

TITLE

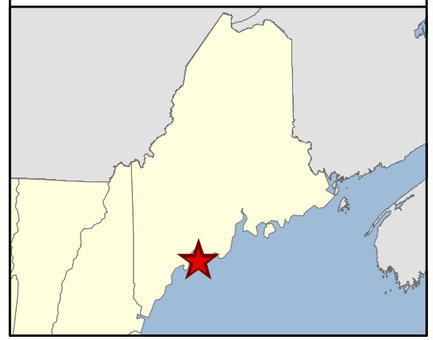
ARCHAEOLOGICAL SENSITIVE AREAS

Naval Air Station
Brunswick, ME

LEGEND

- Phase I Archaeological Survey Areas
- Archaeological Sensitive Areas
- Roads
- NAS Brunswick Boundary

SITE LOCATION MAP



NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, Louis Berger 1999, TAMS 1999, Louis Berger 2000

0 1,000 2,000 Feet

0 250 500 Meters

U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-18

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Topsham Annex (Located off-site)

0 500 1,000 Feet

McKeen Street Housing Complex (Located off-site)

0 500 1,000 Feet

TITLE

SUMMARY OF ENVIRONMENTAL CONDITIONS

Naval Air Station
Brunswick, ME

LEGEND

- Carex
- Archaeological Areas
- Sensitive Species
- Rare Communities
- Wetlands
- Jurisdisdictional Wetlands
- Eastern Plume
- Active IRP Boundary
- Closed IRP Boundary
- Asbestos in Base Housing
- Lead-Based Paint in Base Housing
- Buildings
- Roads
- NAS Brunswick Boundary

FEMA Flood Zones

- Area inundated by 100-year flooding, for which no Base Flood Elevations have been determined
- Area inundated by 100-year flooding, for which Base Flood Elevations have been determined

SITE LOCATION MAP

NOTES & SOURCES

Coordinate System: NAD 83, UTM Zone 19
Data Sources: NAS Brunswick GIS, Fema - Q3 Flood Data, Natural Heritage Program, State of Maine- Office of GIS, EA and ECC 2005, Rickel 2006, Malcolm Pirnie 2006a-b, Navy 1991 & 2004, Joy 2005d, ATSDR 2005, KCI 1991, Kempf 2006, GeoMarine 2001, Moore 2005, Louis Berger 1999 & 2000, Williams 2005, TAMS 1999

0 1,000 2,000 Feet

0 250 500 Meters

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U.S. NAVAL AIR STATION BRUNSWICK MAINE

FIGURE
4-19

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APPENDIX A

References

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APPENDIX A
References

ABB 1994. Final Long Term Monitoring Plan, Building 95, Sites 1 and 3 and Eastern Plume, Naval Air Station Brunswick, Maine, Installation Restoration Program. August 1994.

Apraham 2005. Information on Retention Ponds from Navy Comments. Greg Apraham of the Naval Air Station Brunswick, Environmental Department. 17 November 2005.

ATSDR 2005. U.S. Department for Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, Public Health Assessment for Naval Air Station Brunswick, Brunswick, Cumberland County, Maine, EPA Facility ID: ME8170022018. 16 May 2005.

Dewberry 2004a. Draft Asbestos Survey for Residential Property Transfer, Midway Terrace, Dewberry & Davis Inc. May 2004.

Dewberry 2004b. Draft Lead-Based Paint Inspection/Risk Assessment and Asbestos Survey for Residential Property Transfer, B.G. Capehart, Dewberry & Davis Inc. May 2004.

Dewberry 2004c. Draft Lead-Based Paint Inspection/Risk Assessment and Asbestos Survey for Residential Property Transfer, Station Housing I, Dewberry & Davis Inc. May 2004.

Dewberry 2004d. Draft Lead-Based Paint Inspection/Risk Assessment and Asbestos Survey for Residential Property Transfer, Station Housing II, Dewberry & Davis Inc. May 2004.

Dewberry 2004e. Draft Lead-Based Paint Inspection/Risk Assessment and Asbestos Survey for Residential Property Transfer, Topsham, Dewberry & Davis Inc. May 2004.

Dewberry 2004f. Draft Lead-Based Paint Inspection/Risk Assessment and Asbestos Survey for Residential Property Transfer, McKeen, Dewberry & Davis Inc. May 2004.

Drozd 2006. Comments in e-mail communication from D. Drozd on the *FINAL (Revision 1) Environmental Condition of Property Report, Naval Air Station, Brunswick, Maine* dated 04 May 2006. 11 May 2006.

EA 1998. Summary Report, Biosparging System Operations at Old Navy Fuel Farm, July-December 1997, Naval Air Station, Brunswick, Maine. Engineering, Science, and Technology. February 1998.

EA 2002. Table 1: Timeline of NEX Service Station Petroleum Bulk Storage Operational History, Associated Environmental Investigations, and Remedial Actions from Environmental Site Evaluation Summary Report. EA Engineering, Science, and Technology. November 2002.

EA 2003. Annual Report – Building 95 for Monitoring Events 13 and 14, Naval Air Station, Brunswick, Maine. Engineering, Science, and Technology. January 2003.

EA 2005. Final Groundwater Monitoring Report for the September 2004 Sampling Event, Old Navy Fuel Farm, Naval Air Station, Brunswick, Maine. June 2005.

EA and ECC 2005. Second Five-Year Review Report for Naval Air Station, Brunswick, Maine. Engineering, Science, and Technology and Environmental Chemical Corporation. September 2005.

EPA 1994. Explanation of Significant Differences at Sites 1 and 3, Naval Air Station, Brunswick, Main. Environmental Protection Agency. September 1994.

EPA 2005. U.S. Environmental Protection Agency, Waste Site Cleanup & Reuse in New England, NPL Site Status Information. http://www.epa.gov/superfund/sites/query/queryhtm/nplfin.htm#Maine. 28 October 2005.

Geo-Marine 2001. Integrated Natural Resources Management Plan. Naval Air Station Brunswick, Brunswick, Maine. Geo-Marine, Inc. November 2001.

GZA 1997. Environmental Baseline Survey, Defense Fuel Support Point - Casco Bay Terminal, Casco Bay-to Brunswick Naval Air Station Pipeline, South Harpswell, Maine. GZA GeoEnvironmental, Inc., Portland, Maine. November 1997.

GZA 2000. Results of Supplemental Evaluation of Pipeline Conditions, Response to DEP Comments, Defense Fuel Support Point – Casco Bay to Brunswick Naval Air Station Pipeline EBS, South Harpswell, Maine. GZA GeoEnvironmental, Inc. Portland, Maine, 15 August 2000.

Halliburton 1995. Drum Investigation Summary Report, Revision 1, Site 11 – Fire Training Area (FTA) Naval Air Station, Brunswick, Maine, Installation Restoration Program. Halliburton NUS Corporation. August 1995.

Helland 2005. Information on Site 10, Harpswell Fuel Depot from Brian Helland of the Naval Air Station Brunswick. 31 October 2005.

HRP 1996a. Environmental Baseline Survey Topsham Annex. Naval Air Station Brunswick. Topsham, Maine. HRP Associates, Inc. November 1996.

HRP 1996b. Environmental Baseline Survey of East Brunswick Facility. Naval Air Station Brunswick, Brunswick, Maine. HRP Associates, Inc. 12 November 1996.

Jordan 1990. Remedial Investigation/Feasibility Study Program, Naval Air Station Brunswick, Draft Final Phase I Feasibility Study, Development and Screening of Alternatives, Naval Air Station Brunswick, Brunswick, Maine. E.C. Jordan. August 1990.

Jordan 1991. Draft Final Supplemental Feasibility Study Sites 5, 6, and 12, Naval Air Station Brunswick, Installation Restoration Program. E.C. Jordan. July 1991.

Joy 2005a. Information on Air Permit from Lisa Joy of the Naval Air Station Brunswick. Environmental Department. 11 October 2005.

Joy 2005b. Information on 60,000-gallon spill at the JSFI in 1993, provided as a comment to report from Lisa Joy of the Naval Air Station Brunswick, Environmental Department. 17 November 2005.

Joy 2005c. NAS Brunswick. Air Emission Data Tables. Air Emission Inventory (January1, 2004 to December 31, 2004) Pesticide Usage Emission Calculation/ Summary. 11 October 2005.

Joy 2005d. NAS Brunswick, Air Emission Data Tables, 2004/2005 Master Source List. 11 October 2005.

Joy 2005e. NAS Brunswick, Air Emission Data Tables. Air Emission Inventory 1995 through 2004 Activity-Wide Emissions Summary. 11 October 2005.

Joy 2006a. Information on Retention Ponds and USTs from Lisa Joy of the Naval Air Station Brunswick Environmental Department in an E-mail Communication. 10 February 2006.

Joy 2006b. Miscellaneous Information from Lisa Joy of the Naval Air Station Brunswick Environmental Department in an E-mail Communication to Dawn Kincaid. April 2006.

Joy 2006c. Comments in e-mail communication from Lisa Joy of the Naval Air Station Brunswick Environmental Department to Dawn Kincaid on the *FINAL (Revision 1) Environmental Condition of Property Report, Naval Air Station, Brunswick, Maine* dated 04 May 2006. 11 May 2006.

Joy 2006d. Lisa Joy, NAS Brunswick. Air Emission Data Tables. Air Emission Inventory (January 1, 1994 to December 31, 2005) Pesticide Usage Emission Calculation/ Summary. May 16, 2006.

KCI 1991. Environmental Assessment, Renovations and Construction of Navy Family Housing. Naval Air Station Brunswick, Maine. KCI Technologies, Inc. July 1991.

Kempf 2005a. Information on Water Supply Wells from Paul Kempf of the Naval Air Station Brunswick. 02 November 2005.

Kempf 2005b. Information on Dyer's Gate Water Supply Well and Response to Additional Questions for NAS Brunswick ECP from Paul Kempf of the Naval Air Station Brunswick. 21 December 2005.

Kempf 2005c. Navy Comments to Report from Paul Kempf of the Naval Air Station Brunswick. 17 November 2005.

Kempf 2006a. Information on Groundwater Wells from Paul Kempf of the Naval Air Station Brunswick Environmental Department in a Lisa Joy E-mail Communication. 10 February 2006.

Kempf 2006b. Information on Water Supply Wells, Stormwater, and Picnic Pond from Paul Kempf of the Naval Air Station Brunswick. 10 April 2006.

Kempf 2006c. Information on Topsham Annex Drinking Water, Stormwater, and Wastewater from Paul Kempf of the Naval Air Station Brunswick Environmental Department in a Telephone Communication. 17 May 2006.

Kempf 2006d. Information on Building 39 (Golf Course) Pesticide Usage from Paul Kempf of the Naval Air Station Brunswick in an E-mail Communication to Dawn Kincaid. 19 May 2006.

Kempf 2006e. Information on McKeen Street Housing Area Drinking Water, Stormwater, and Wastewater from Paul Kempf of the Naval Air Station Brunswick Environmental Department in an E-mail Communication. 18 May 2006.

Kincaid 2005. Information on Coastal Zone Management from Dawn Kincaid, BRAC Environmental Coordinator, BRAC Project Management Office Northeast. 25 October 2005.

Kincaid 2006. Comments in E-mail Communication from Dawn Kincaid on the *FINAL (Revision 1) Environmental Condition of Property Report, Naval Air Station, Brunswick, Maine* dated 04 May 2006. 11 May 2006.

Louis Berger 1999. Draft Final Cultural Resources Survey. U.S. Naval Air Station Brunswick, ME. Louis Berger & Associates, Inc. for BCM Engineers, Inc. April1999.

Louis Berger 2000. Phase IB Archaeological Survey, Proposed Bachelor Enlisted Quarters. U.S. Naval Air Station Brunswick Cumberland County, Maine. Louis Berger Group, Inc. for Maquire Group, Inc. July 2000.

Maine Geological Survey 2001. Maine Geological Survey. Coastal Landslide Hazard. http://www.state.me.us/doc/nrimc/mgs/pubs/online/landslides/landslide-orrs-island.pdf. 2001.

Maine Geological Survey 2003. Department of Conservation. Maine Geological Survey. Earthquakes in Maine. http://www.state.me.us/doc/nrimc/mgs/pubs/online/quakes/quakes 11 x17.pdf. 2003.

ME DEP 2004. Departmental Findings of Fact and Order Air Emissions License. Naval Air Station Brunswick, Cumberland County, Brunswick, Maine. State of Maine Department of Environmental Protection. December 2004.

ME DEP 2005. Departmental Findings of Fact and Order Air Emissions License, Amendment #1. Naval Air Station Brunswick, Cumberland County, Brunswick, Maine. State of Maine Department of Environmental Protection. August 2005.

Malcolm Pirnie 2003. Final Environmental Baseline Survey. Naval Air Station Brunswick. Brunswick, Maine. Malcolm Pirnie, Inc. September 2003.

Malcolm Pirnie 2005. Final Preliminary Assessment, Naval Air Station Brunswick, Topsham Annex, Maine. Malcolm Pirnie, Inc. September 2005.

Malcolm Pirnie 2006a. Preliminary Assessment Former Munitions Bunker West Area. Naval Air Station Brunswick, Maine. Malcolm Pirnie, Inc. July 2003.

Malcolm Pirnie 2006b. Lead Soil Sampling Results, Liberty Circle Housing Area, Former Skeet Range, Naval Air Station Brunswick, Topsham Annex, Maine. Malcolm Pirnie, Inc. February 2006.

Maguire 1998. Environmental Assessment, Transfer and Reuse of Excess Property at Topsham Annex. Naval Air Station Brunswick, ME. Maguire Group, Inc. November 1998.

MDWP 2005. Public Water Supply Sources. Maine Drinking Water Program. http://www.main.gov/dhhs/eng/water/CountyMap.htm. 27 October 2005.

Moore 2005. Information on Cultural and Natural Resources from Kari Moore of the Naval Air Station Brunswick. Environmental Department - Cultural Resources. 11 October 2005.

Moore 2006a. Information on Phase I Archaeological Surveys from Kari Moore of the Naval Air Station Brunswick. Environmental Department - Cultural Resources. 04 January 2006.

Moore 2006b. Information on Finding of No Significant Impact on the construction projects from Kari Moore of the Naval Air Station Brunswick. Environmental Department - Cultural Resources. 05 January 2006.

Mosher 2005a. Information on Hazardous Waster from Dale Mosher of the Naval Air Station Brunswick. Environmental Department - Waste. 20 October 2005.

Mosher 2005b. Information on Radiological Materials from Dale Mosher of the Naval Air Station Brunswick. Environmental Department - Waste. 26 October 2005.

Mosher 2006a. Comments in E-mail Communication from Dale Mosher to Dawn Kincaid on the *FINAL (Revision 1) Environmental Condition of Property Report, Naval Air Station, Brunswick, Maine* dated 04 May 2006. 11 May 2006.

Mosher 2006b. Information on Former and Existing Transformers and Polychlorinated Biphenyls Disposal History from Dale Mosher of the Naval Air Station Brunswick. Environmental Department - Waste. 18 May 2006.

NAS Brunswick GIS. Electronic computer-aided design (CAD) files of NAS Brunswick provided by NAS Brunswick personnel, as modified by real estate maps provided by S. Zamorski, May 2005.

NAS Brunswick PCB Records 2005. Serial numbers, manifests, NAS Brunswick inspection records, and chemical data were recorded based on documentation obtained from NAS Brunswick PCB files during the October 11, 2005 Site Visit. 11 October 2005.

Navy 1991. Navy Radon Assessment and Mitigation Program Screening Results Letter. Naval Air Station Brunswick. January 1991.

Navy 1992. Record of Decision for a Remedial Action at Sites 1 and 3, Naval Air Station Brunswick, Brunswick, Maine. Environmental Protection Agency. June 1992.

Navy 1993a. Record of Decision for a Remedial Action at Sites 5 and 6, Naval Air Station Brunswick, Brunswick, Maine. Environmental Protection Agency. August 1993.

Navy 1993b. Record of Decision for a Remedial Action at Site 8, Naval Air Station Brunswick, Brunswick, Maine. Environmental Protection Agency. August 1993.

Navy 1995. PCB/PCB Contaminated Transformer Notification. Letter from Public Works Department to Fire Chief. Naval Air Station Brunswick. October 1995.

Navy 1998a. Final Record of Decision for Site 2 at Naval Air Station Brunswick, Brunswick, Maine. September 1998.

Navy 1998b. Record of Decision for No Further Action at Sites 4, 11, and 13 and a Remedial Action for the Eastern Plume, Naval Air Station Brunswick, Brunswick, Maine. February 1998.

Navy 1999. Record of Decision for Site 9, Naval Air Station, Brunswick, Maine. Engineering, Science, and Technology. September 1999.

Navy 2002a. Record of Decision for Site 7, Naval Air Station, Brunswick, Maine. Engineering, Science, and Technology. September 2002.

Navy 2002b. Environmental Assessment, Bachelor Enlisted Quarters MILCON Project P-182. Naval Air Station Brunswick, ME. May 2002.

Navy 2002c. Environmental Assessment, Aircraft Maintenance Hangar. Naval Air Station Brunswick, ME. May 2002.

Navy 2003a. Environmental Assessment, Radar Air Traffic Control Tower Facility MILCON Project P-190, Naval Air Station Brunswick, ME. August 2003.

Navy 2003b. Draft Pesticide Management Plan. Naval Air Station Brunswick, Maine. May 2003.

Navy 2004. NAS Brunswick Instruction 5090.6B Stormwater Pollution Prevention Plan (SWP3). Naval Air Station Brunswick, Brunswick, Maine. Department of the Navy. 11 November 2004.

Navy 2005. Naval Air Station Brunswick, Maine. *History of the U.S. Naval Air Station Brunswick, ME*. October 4, 2005. http://nasb.navy.mil/nasb_history.htm . 24 October 2005).

NOAA 2005. Summary of Essential Fish Habitat Designation. North East Regional Office of the National Oceanic and Atmospheric Administration. http://www.nero.nooa.gov/hcd/states4/gulf_of_Maine_western_part/43307010.html. 25 October 2005.

Prosser 2002. Master Plan for Naval Air Station Brunswick, Brunswick, Maine. Prosser Hallock, February 2002.

Rickel 2005. Information on the Navy Exchange Service Station from Donald J. Rickel of the Naval Air Station Brunswick. 25 October 2005.

Rickel 2006a. Information on the Status of USTs and ASTs from Donald J. Rickel of the Naval Air Station Brunswick. 10 April 2006.

Rickel 2006b. Information on the Status of USTs and ASTs from Donald J. Rickel of the Naval Air Station Brunswick in an E-mail Communication. 10 May 2006.

Sanders 2005. Information on Asbestos and Lead Paint from Carla Sanders of the Naval Air Station Brunswick. Public Works Department. 20 October 2005.

Sanders 2006. Inventory of Asbestos in non-housing buildings from Carla Sanders of the Naval Air Station Brunswick. Public Works Department. May 2006.

Summit 2002. Phase II Environmental Site Assessment of Topsham Annex Parcel 2 Topsham, Maine. Summit Environmental Consultants, Inc. August 2002.

TAMS 1999. Phase 1 Archaeological Survey, Family Housing Projects MILCONs H-380 and H-535. Naval Air Station Brunswick, Maine. TAMS Consultants, Inc. October, 1999.

Tetra Tech EC 2005. Draft Work Plan for UST Remediation Topsham Annex, Naval Air Station Brunswick, Maine. Tetra Tech EC, Inc. 22 November 2005.

Tetra Tech NUS, Inc. 2005. Round 1 Summary for Denitrification-Based Biodegradation Pilot Test, Navy Exchange Service Station, Naval Air Station, Brunswick, Maine. July 2005.

Tetra Tech 2004. Workplan for Denitrification-Based Biodegradation Pilot Test, Navy Exchange Service Station, Naval Air Station, Brunswick, Maine. Tetra Tech NUS, Inc. November 2004.

USDA 2005. FEMA Q3 Flood Data. U.S. Department of Agriculture. http://datagateway.nrcs.usda.gov/. 23 October 2005.

Weston 1983. Initial Assessment Study, Naval Air Station, Brunswick, Maine. Roy F. Weston. June 1983.

Williams 2005. Information on Building Numbers from Tony Williams of the Naval Air Station Brunswick. Planning Department. 26 October 2005.

Woodard & Curran 2002. Hydrologic Study of the Picnic Pond Stormwater Retention System, Mare Brook Watershed, Naval Air Station Brunswick, Brunswick, Maine. Woodard &Curran. 31 July 2002.

Zamorski 2005. Stephanie Zamorski Comments to NAS Brunswick ECP Report concerning Site 10. 17 November 2005.

Zamorski 2006. Comments in E-mail Communication from Stephanie Zamorski to Dawn Kincaid on the *FINAL (Revision 1) Environmental Condition of Property Report, Naval Air Station, Brunswick, Maine* dated 04 May 2006. 11 May 2006.

APPENDIX B

List of Contacts

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APPENDIX B
List of Contacts

Navy ECP Contacts				
Contact Name (Last, First)	**Title/Position**	**Location**	**Telephone Number**	**E-mail Address**
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Kincaid, Dawn	BRAC Environmental Coordinator	BRAC PMO Northeast	215-897-4915	dawn.kincaid@navy.mil
Lewandowski, Bob	BRAC Environmental Coordinator	BRAC PMO Northeast	215-897-4908	Robert.f.lewandowski@navy.mil
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Mosher, Dale	Solid Waste	NAS Brunswick	207-921-1719	dale.mosher@navy.mil
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Rickel, Don	UST/AST	NAS Brunswick		Donald.rickel@navy.mil
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Gorman, Erin	Brunswick ECP Project Team Member	Westford, MA	978-692-9090 ext. 396	erin.gorman@amec.com

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Click Here to Return to Main Index

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NAS BRUNSWICK
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TECHNICAL MEETING
NAS BRUNSWICK, MAINE
MARCH 17, 1994

ATTENDEES:

Name	Organization	Phone
Lt. John Edwards	NASB	
John Bond, CWO4	NASB	
Jack Dunleavy	Northern Division	
Fred Evans	Northern Division	
Carolyn Lepage	BACSE Contractor	
Bob Lim	USEPA	
Marianne Hubert	MEDEP	
Troy Smith	MEDEP	
Nancy Beardsley	MEDEP	
Bob McGirr	ABB-ES	
Beverly Cadigan	ABB-ES	
Thomas Hillman	ABB-ES	
Jeff Brandow	ABB-ES	

MEETING DATE: March 17, 1994, 1:00 P.M.

MEETING LOCATION: NAS Brunswick

The meeting was opened by Fred Evans, the Navy Northern Division Project Manager for NAS Brunswick. The agenda items were:

Site 11 Removal Action status
Construction update
West Runway SI Report
Well purging and sampling techniques.

Site 11 Removal Action:

Fred Evans gave an update on the Time Critical Removal Action proposed for Site 11 (the Former Fire Training Area). The Navy is waiting to receive the proposal for the work plan from the Navy CLEAN contractor. (Note: the Navy has since received the work plan proposal on March 21, 1994.) The work plan will be written and submitted to the Navy and the TRC members for review, after which the contractor will be able to cost the actual removal action. It is

anticipated that the removal will occur in two distinct phases: 1) excavate, sample, overpack, and store drums on-site; and 2) remove the drums off-base and dispose.

Nancy Beardsley, MEDEP, asked what the next deliverable for review would be for Site 11. Jack Dunleavy, Navy Northern Division, said that the drum removal work plan would go through regulatory review. Nancy Beardsley reiterated the MEDEP's concern over the underground storage tank (UST) at this site. It was noted that the Navy is evaluating inclusion of the tank removal and/or tank pumping as part of the removal action. Fred Evans proposed that a meeting be held to discuss the work plan and elicit regulatory input; approximately one month later the work plan should be ready for TRC review.

In response to an earlier request from MEDEP, Bob McGirr, ABB Environmental Services, Inc. (ABB-ES) gave Nancy Beardsley a copy of all of the raw laboratory data from the three drum samples generated during the test-pitting exercises in September, 1993. The terminology "draft laboratory results", which MEDEP had also asked about in their comment later, was explained by Bob McGirr. Remaining MEDEP comments on the January version of the Site 11 Technical Memo, which was considered final, will be addressed in the Removal Action Work Plan.

Building 95 Construction Project:

Lt. John Edwards, the Navy Resident Office in Charge of Construction (ROICC) for the NAS Brunswick, passed out the March 16, 1994 summary of preliminary results from the confirmatory sampling at Building 95 and a map indicating the sampling locations at the site. The removal contractor has removed the volume of soil that was contracted. However, he noted that some of the sample results in the soil surrounding the excavation were above the action levels and Preliminary Remediation Goals (PRGs) (specifically, 10,000 ppb for pyrethrins and 500 or 135000 ppb for DDT, depending on depth). Not all of the data from the last sampling round is back from the lab; however, the excavation required by the contract has been completed and the debris has been cleaned up. The contractor has demobed and is awaiting direction from the Navy.

Fred Evans stated that the Navy is looking at the results. They recognize the need to address the action levels for DDT, and they did not expect the levels of pyrethrins that were detected. Troy Smith, MEDEP, asked when the rest of the data would be available. Lt. Edwards said it would be ready by the beginning of the next week.

Bob McGirr explained that since this is not CLP data it cannot be validated as such, but it is going through a QA/QC process at ABB-ES. Jeff Brandow, ABB-ES, said that the lab is looking at adequate recoveries and hold times, but will not evaluate the blanks. Fred Evans stated that this is final data. Lt. Edwards

explained how to determine sample depths, especially for those taken from the sidewalls.

Fred Evans said that the Navy is in the process of determining the extent of additional excavation necessary at this Site, and asked for responses from the TRC as to possible courses of action. Lt. Edwards stated that while the Navy wants to remove enough soil to reach the action levels, the disposal cost of nearly $2000 per cubic yard made additional soil removal extremely expensive.

Troy Smith agreed that this was a decision point, and Nancy Beardsley asked what the Navy needed from the MEDEP. Jeff Brandow mentioned that pyrethrins were only found at 0-2' depth during the initial investigation, and if they are found deeper, then action levels will have for soils greater than 2' deep will have to be established. Fred Evans stated that if DDT is found under the road, then the Navy would need input from the TRC to decide if the action levels should continue to be based on ecological risk, despite the fact that the road essentially prohibits most ecological exposures, if they should be based on human health risk, or if some other scenario is appropriate.

Lt. Edwards stated that he is very pleased with Tri-state Design, the contractor involved at Building 95. He also mentioned that no radiation was detected above background, and that no concentrations were detected above the action limits during the air monitoring.

A brief discussion was held about the remedial construction at Sites 1 & 3,5,6,8 and the Eastern Plume. Rust Remedial Services, Inc., the contractor for this work, should mobilize on site by the end of March. Fred Evans stated that once the contractor mobilizes, contact with RUST will be through Lt. John Edwards' office.

An updated submittal register arrived the beginning of the week of March 14 and was recently distributed to the USEPA, the MEDEP, and ABB-ES. This register shows what has been submitted, is under review, has been approved, or is expected to be submitted. Nancy Beardsley commented that the review times were too short. Lt. Edwards stated that the short review period (25 days) is necessary to ensure that the contractor completes the work within the contract period. Carolyn Lepage, BACSE consultant, asked that the BACSE get copies of the submittal registers. Fred Evans said that he thought copies were sent to the TRC members, and that he would check with Jim Caruthers. Carolyn asked to get a copy from Lt. Edwards after the meeting. Lt. Edwards added that no construction meetings have been scheduled yet, and that the next one would probably be for Building 95. (Following the meeting, a copy of the submittal register was provided for the BACSE group.)

Click H r to Return to Main Index

West Runway Study Area:

This agenda item concerned responses to regulatory comments on the West Runway Study Area SI Report. Fred Evans asked for regulatory positions on the Navy responses to their comments which had been recently submitted in writing. Bob Lim, USEPA, stated that the USEPA did not have any concerns. Nancy Beardsley said that the MEDEP agrees that the Navy does not have to do any additional sampling. She indicated that the MEDEP would probably do confirmatory sampling of seeps in May, but that they are comfortable with the work the Navy has done and that the responses to comments were acceptable.

Troy Smith indicated that another round of seep samples could close this issues concerning this Study Area. Carolyn Lepage suggested she would like to see another round of samples to compare with the ones from May 1992, and that maybe the Navy should do this sampling. Nancy Beardsley said that the MEDEP has money set aside for confirmatory sampling, and that they are comfortable with what the Navy has done. Carolyn was concerned about responsibility for the study area if the MEDEP found something in the confirmatory samples. Nancy stated that the ultimate responsibility is the Navy's, but that the MEDEP did not want progress on the site to be put on hold. She stated that the Navy could go forward with the next step. Bob Lim confirmed that the next step would be a No-Further-Action Decision Document (NFADD).

Fred Evans indicated that the Navy would be preparing two NFADDs, one for the Swampy Road and Merriconeag Extension Debris Sites and one for the West Runway Study Area. Because both USEPA and MEDEP were in agreement that the Navy responses addressed their concerns at the West Runway site, Bob McGirr asked if the SI could be issued as a final document. Nancy Beardsley agreed and said that there was no need to issue a draft final prior to the final. Bob McGirr added that the radiation survey still had to be done once the snow was gone and the ground was dry. He suggested that the Navy wait to produce the final document to include the radiation survey results. Fred Evans pointed out that to do this the USEPA and the MEDEP would have to agree to extend the delivery date for the final SI. It was suggested that the Navy could ask for an extension. However, because the Study Area is not under the FFA and the SI is not a primary document, the minutes from this meeting can serve to document agreement by everyone present that a draft final document would not need to be produced, and that the final SI will be issued after completion of the radiation survey and incorporation of the Navy responses to TRC comments on the draft document. The consensus seemed to be that a formal request for extension is not required. Bob also stated that dosimeter readings for people at the Study Area during the SI investigation were normal.

Click Here to Return to Main Index

Well Purging and Sampling Procedures:

The next agenda item was well purging and sampling methods. This discussion was in response to MEDEP comments on Site 9, recommending the use of a low flow technique for sampling instead of the traditional purging and sampling techniques using bailers. Newer methodologies have been tested that use low-flow purging and sampling techniques, dedicated equipment, etc. One new technique was the subject of an article in the January 1994 issue of Groundwater Magazine.

Bob McGirr asked if the MEDEP had a specific reference or SOP concerning the low flow technique they were recommending. Troy Smith responded that MEDEP is aware of guidance specific to some programs, but they have no single procedure that is to be followed at all sites. He said they would like to determine a purge volume at a low flow rate based on parameters that would be monitored during the purge. These parameters would include turbidity (not to exceed five NTUs), dissolved oxygen, and water level. Troy commented that usually this low flow rate would be less than one liter per minute. Bob McGirr noted that the article in *Groundwater* cited a purge volume equal to one half of the well volume as typically enough for chemical parameters to stabilize.

Jack Dunleavy asked how dissolved oxygen would be measured. Troy Smith recommended the use of an in-line DO meter, but said that turbidity could not be measured in line. Jeff Brandow asked if the MEDEP has used this technique. Troy said no, but that it is being used by contractors, mostly at landfill sites. It probably would not be used at gasoline sites, but could be used at fuel oil sites because PAHs vary with turbidity. Bob McGirr noted that dedicated equipment would be expensive. Troy suggested using a peristaltic pump with dedicated tubing. He cited a paper by Cynthia Hall (USEPA) comparing the use of open-end bailers, discrete-zone samplers, ready-flow pumps, bladder pumps, and peristaltic pumps in sampling for VOCs. He also mentioned that the use of the low flow technique is being evaluated at Loring Air Force Base, as well as at four or five other landfill sites in Maine. Bob McGirr asked for copies of the procedures established for the other landfill sites.

Jack Dunleavy raised the issue of data incomparability, and the possibility that different concentrations may reflect the technique more than actual changes. An apparent decrease in water quality, for example, might result from better sampling techniques and not real groundwater deterioration. Troy Smith agreed and said this would have to be communicated to the public. He noted that concentrations of metals may actually decrease due to less turbidity in the sample. The Navy noted the importance of establishing acceptable techniques as soon as possible, especially because long-term monitoring programs are expected to begin in the not-too-distant future, and it is critical that techniques not be changed during the course of these monitoring programs.

Click Here to Return to Main Index

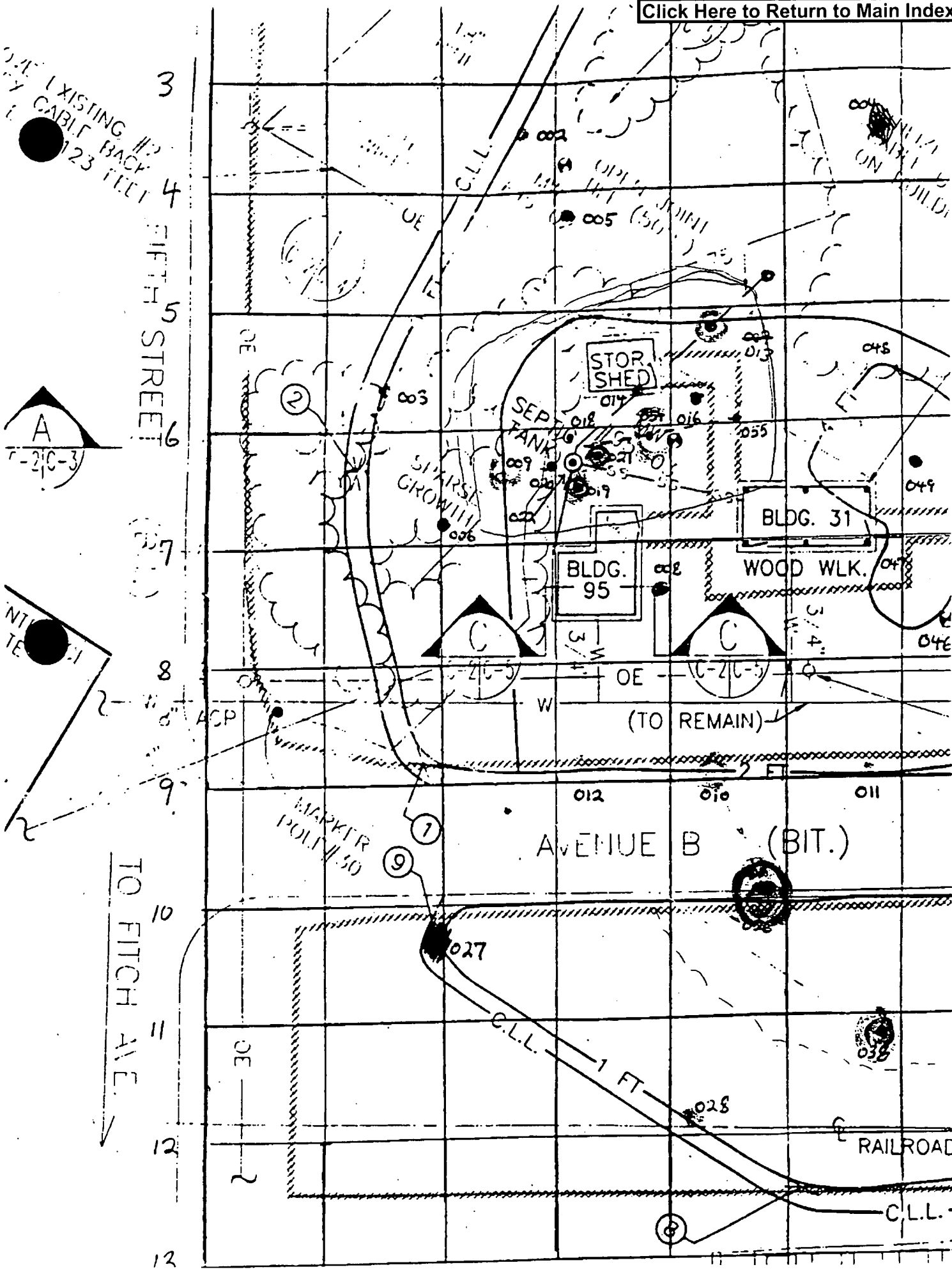
Site 9, Neptune Drive Disposal Site:

The Navy noted that ABB-ES is currently proposing the level of effort necessary to generate a work plan for source area investigations and a long term monitoring plan for groundwater investigations at Site 9. Nancy Beardsley stated that the MEDEP wants the Interim Groundwater ROD for Site 9 to contain language that addresses the need for additional source area work. She noted that similar language was contained in a ROD for a Navy site in Rhode Island and provided a copy of the ROD for Navy review.

Building 95, Sites 1 and 3, and Eastern Plume Long Term Monitoring Plan:

The Navy has received USEPA and MEDEP comments on the LTMP, and wants to schedule a conference call in order to first discuss the comments before addressing them in a response letter. As an example, the specific well purging and sampling technique to be used is one issue that needs to be resolved before the LTMP can be finalized. Bob Lim and Troy Smith stated that they would provide information on to well sampling techniques that their agencies would find acceptable.

Click Here to Return to Main Index



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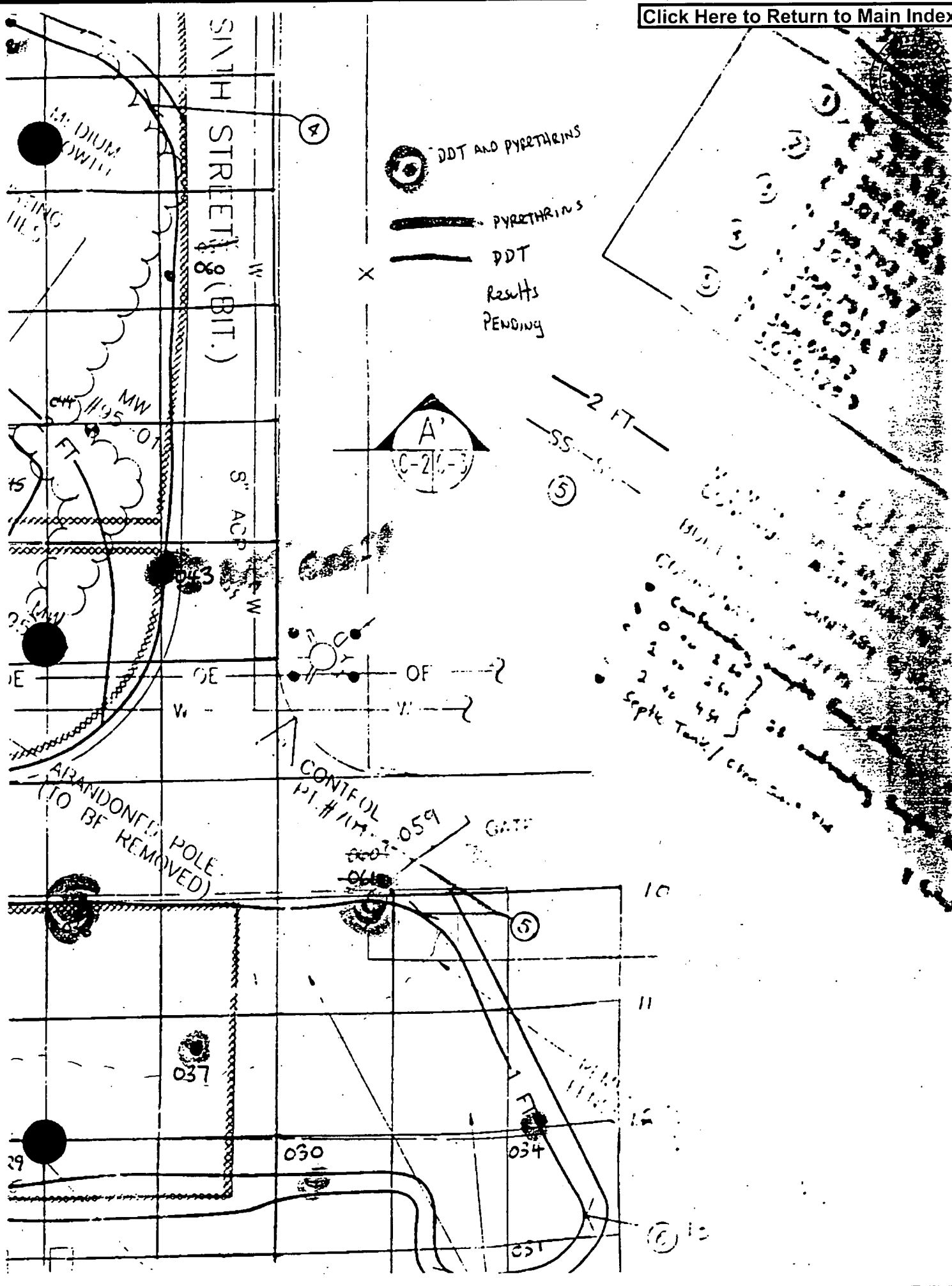

Click Here to Return to Main Index

SAMPLING RESULTS SUMMARY 24 MAR 94

LOCATION		DDT	DDD	DDE	PYRETHRINS	COMMENTS
BN001		7.2	4.4	12	19E	
BN002		58	3.7	7.2	196	
BN002DL (DILUTED)		44	5.3	5	N/A	
BN003		12	3.5	3.5	96	
BN004		3.5	3.5	3.5	<20	
BN007 = (field dupl 004)		3.4	3.4	3.4	<20	
BN004MS		32	3.5	3.5	317	
BN004MSD		25	3.5	3.5	333	
BN005		17	3.4	3.4	1500	
BN006		31	3.9	15	211	
BN008		41000	7000	500	1850	
BN008DL		80000	5000	9600	N/A	
BN009		210	63	90	2790	
?BN009DL	***	970	70	80	N/A	DDT HIT
BN009MS		230	96	120	2790	
BN009MSD		240	210	140	3146	
BN010	***	3100	580	290	854	DDT HIT
BN010DL	***	6900	620	290	N/A	DDT HIT
BN011		140	18	14	173	
BN011DL		270	50	19	N/A	
BN012		170	45	55	183	
BN012DL		410	33	36	N/A	
BN013		370	120	140	139	
BN013DL	***	1400	96	120	N/A	DDT HIT
BN014		100	12	2.1	<20	
BN014DL		110	17	8.1	N/A	
BN015D = (field dupl. 014)		140	23	2.4	<20	
BN015D-DL		160	22	12	N/A	
BN016		18000	5600	670	2410	
BN016DL		83000	10000	7200	N/A	
BN017 RINSATE		0.1	0.1	0.1	5.7	
BN018		61	2.1	3.9	<20	
BN023D =		190	?	3.9	<20	

Click Here to Return to Main Index

SAMPLING RESULTS SUMMARY 24 MAR 94

LOCATION (field dupl. 018)		DDT	DDD	DDE	PYRETHRINS	COMMENTS
BN018MS		150	5.7	2	264	
BN018MSD		97	3.8	3.8	295	
BN019	***	94000	38000	12000	51540	PYR. HIT
BN019DL	***	310000	20000	39000	N/A	DDT HIT
BN020		150	5	1.3	1640	
BN020DL		44	7.8	3.8	N/A	
BN021	***	350000	31000	4500	10450	BOTH HIT
BN021DL	***	730000	79000	79000	N/A	DDT HIT
BN022		37000	2700	420	5885	
BN022DL		120000	8600	8600	N/A	
BN024 RINSATE		0.1	0.1	0.1	6	
BN025	***				39725	PYR. HIT
BN025MS					286	LOCATION=
BN025MSD					292	SLUDGE
BN026	***	51000	1200	3500	18200	BOTH HIT
BN026DL	***	34000	5400	2800	N/A	DDT HIT
BN027		190	5.8	60	4900	
BN027DL		130	30	48	N/A	
BN028	***	170	8.7	19	23925	PYR. HIT
BN028DL		210	11	15	N/A	
BN029		45	7.7	15	6470	
BN030	***	200	27	67	15650	PYR. HIT
BN030DL		450	44	68	N/A	
BN031		310	26	60	2548	
BN031DL		260	21	44	N/A	
BN032 RINSATE						
BN033 RINSATE						
BN034	***	190	16	70	29105	PYR. HIT
BN034DL		350	32	78	N/A	
BN035-OMIT #		N/A	N/A	N/A	N/A	
BN036	***	300	220	4.2	12510	PYR. HIT
BN036DL	***	3300	380	480	N/A	DDT HIT

Click Here to Return to Main Index

SAMPLING RESULTS SUMMARY

24 MAR 94

LOCATION		DDT	DDD	DDE	PYRETHRINS	COMMENTS
BN037	***	190	15	44	45900	PYR. HIT
BN037DL		490	40	46	N/A	
BN041 = (MS of 037)		210	32	51	9696	
BN042 = (MSD of 037)	***	180	40	32	1?060	PYR. HIT
BN038	***	260	150	100	55000	PYR. HIT
BN038DL	***	3600	350	280	N/A	DDT HIT
BN039 = (field dupl. 038)	***	280	230	110	45770	PYR. HIT
BN039DL	***	6000	580	490	N/A	DDT HIT
BN040 RINSATE		0.1	0.1	0.1	9.6	
BN043	***	6300	750	800	1222	DDT HIT
BN043DL	***	10000	940	9000	N/A	DDT HIT
BN044		190	14	58	1120	
BN044DL		270	12	52	N/A	
BN045		220	14	100	<20	
BN045DL		360	19	130	N/A	
BN046		11	36	3.1	1485	
BN047		240	33	63	<20	
BN047DL		540	31	54	N/A	
BN048		340	180	100	<20	
BN048DL		4500	360	360	N/A	
BN049		230	17	65	228	
BN049DL		420	23	58	N/A	
BN050 = (field dupl. 049)		70	3	48	1080	
BN050DL		78	8	54	N/A	
BN051 RINSATE		0.098	0.098	0.098	13.7	
BN052 RINSATE						
BN053 RINSATE						
BN054		39000	37000	2400	695	
BN054DL	***	900000	93000	81000	N/A	DDT HIT
BN056 = (field dupl. 054)	***	310000	100000	3500	3645	DDT HIT
BN056DL	***	730000	85000	84000	N/A	DDT HIT
BN057 = MS/MSD of 054 =						

Click Here to Return to Main Index

SAMPLING RESULTS SUMMARY 24 MAR 94

LOCATION		DDT	DDD	DDE	PYRETHRINS	COMMENTS
BN055MS		390	3.8	3.8	N/A	
BN055MSD		400	3.8	130	N/A	
SEE EXPLANATION AT END						
BN055		11000	2000	470	525	
BN055DL		32000	2400	620	N/A	
BN058		290	53	7.8	216	
BN058DL	***	740	48	86	N/A	DDT HIT
BN059	***	270	49	110	15100	PYR. HIT
BN059DL	***	880	53	170	N/A	DDT HIT
BN061 = (field dupl. 059)		300	88	120	2300	
BN061DL	***	1400	120	280	N/A	DDT HIT
BN060		8.3	3.8	3.8	1339	
BN062 RINSATE		0.1	0.1	0.1	12.9	
BN101 RINSATE		0.15	0.15	0.15		
PBLKCB		0.1	0.1	0.1		
PBLKCA		0.1	0.1	0.1		
PBLKBA		3.3	3.3	3.3		
PBLKAE		0.1	0.1	0.1		
PBLKAF		3.3	3.3	3.3		
PBLKAB		3.3	3.3	3.3		
PBLKAC		3.3	3.3	3.3		
PBLKME		3.3	3.3	3.3		
PBLKMC		0.1	0.1	0.1		
PBLKHD		0.1	0.1	0.1		
PBLKHC		0.1	0.1	0.1		
PBLK1A		3.3	3.2	3.3		
PBLKJA		3.3	3.3	3.3		

**Sample was given number 057 at site.
It was intended to be a matrix spike and MS duplicate of 054.
Lab renumbered it as 055MS and 055MSD because they processed it right after sample number 054.

HRA-0114

NA116(WLD:PS)
A12-1

U. S. NAVAL AIR STATION
BRUNSWICK, MAINE

RECEIVED S-C FILES
Room 2055
27 MAY 1946
ROUTE TO:
File No. (SC) A12-1/NA116
Doc. No. 1 2
Copy No. 1 of 2
Reg. No. 13546

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23 May 1946

To: Chief of Naval Operations.
Attn: Aviation History Unit (OP-519B)

Subj: Supplement to the History of NAS Brunswick, forwarding of.

Ref: (a) Avia.Cir.Ltr. #71-46, Op-519-HMD, Ser. 102-P-519, dtd 30 April 1946.

1. The Supplement to the History of NAS Brunswick and the auxiliary stations for the period 1 January to 1 April 1946 is forwarded herewith.

2. In accordance with reference (a) the History for the period 2 September to 31 December 1945 is now being compiled and will be forwarded when completed.

W. L. DAWSON
Comdr., USN
Acting Commanding Officer

DOWNGRADED AT 3 YEAR INTERVALS:
DECLASSIFIED AFTER 12 YEARS
DOD DIR 5200.10

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SUPPLEMENT TO THE HISTORY

of the

NAVAL AIR STATION, BRUNSWICK, MAINE

and the

NAVAL AUXILIARY AIR STATIONS AT

SANFORD, MAINE

NEWINGTON, MAINE

ROCKLAND, MAINE

CASCO BAY, MAINE

BAR HARBOR, MAINE

and the

NAVAL OUTLYING LEASED FIELDS AT

AUGUSTA, MAINE

and

PORTSMOUTH, NEW HAMPSHIRE

for the period of

1 JANUARY to 1 APRIL 1940

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PART I

NAVAL AIR STATION, BRUNSWICK, MAINE

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U. S. NAVAL AIR STATION, BRUNSWICK, MAINE

The year of 1946 began very quietly with just whistles, horns, and air raid sirens disturbing the silence. Captain Joe Taylor, USN, was in command, and Lt. Comdr. T. P. Anderson, USN, was Executive Officer. On 21 March, Commander William I. Dawson, USN, was welcomed on board to assume the duties of Executive Officer. Lt. Comdr. Anderson was detached in order to report for duty involving flying as Assistant Superintendent of Aviation Training at Pensacola, Florida. Commander Dawson calls Brighton, Florida, his home. Before assuming duties here, he was Executive Officer of the USS GILBERT ISLANDS CVE-107.

On the 4th of January, VF-42 and VT-42 departed for San Diego, California, upon completing their flight schedules. This outfit was based here for only two months. Lt. Col. W. N. Davis, USMC, conducted a security guard survey of this station on 5 January. On the 8th of this month, the base returned to normalcy, when the last leave group of the holiday period returned. The first "All Hands" Inspection of Ship's Company personnel was held Saturday morning, 12 January. Hereafter, this will be a monthly inspection.

Captain Denham, Captain Lockhart, and Commander Crowley landed at NAS Brunswick on 24 January to inspect the Aerology Department. Captain Baer, Public Works Inspection Officer of the FIRST Naval District, came aboard on the 30th to inspect the base, its facilities and future plans.

The morale of the station has been greatly helped this month by a considerable increase in recreational activities. A station band was organized to play at station dances and at community functions. The members are not rated musicians, but come from all activities on the station. Ice skating parties have been held at the skating rink behind the Officers' Club. Music and refreshments have been provided. Intra-station basketball and bowling league competition has been organized and keen interest has developed in both sports. A hocky team has been formed to play in local matches. The station basketball team has had a very good season and a strong following.

During January, weather conditions were average, the mean monthly temperature being 18.4°F. This cold weather did not hamper activities. The seventeen inches of snowfall were quickly removed from runways and streets by crews who used last year's experience to worthwhile advantage. Contact conditions were 81.4%. Only 361.1 plane hours and 484.0 pilot hours were logged this month since there were no assigned training groups aboard. No accidents marred Brunswick's string of safe months.

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The March of Dimes Infantile Paralysis Fund Drive under the direction of Chaplain Ricker, netted $215.51. Boxes for collections were placed around the base and Chaplain Ricker spoke before the motion picture show, encouraging contributions.

With the arrival of the advance unit of Carrier Air Group CVG-17 on 5 February, activities in all departments on the station increased considerably. The first unit was composed of 17 officers and 67 enlisted men. When the migration of CVG-17 from Fallon, Nevada, was completed, 126 officers and 80 enlisted men were the total complement. Commander W. F. Bringle, USN, is the Commanding Officer of this group, which is composed of VB, VT, VF, AND VBF. NAMTD(F6F) #608 departed on 1 February for Memphis, Tennessee, upon completion of its instruction program. NAMTO VC-8 Ammunition Training Detachment replaced this outfit. The purpose of thie unit is to instruct personnel of CASU-26 in ordnance equipment.

February was a month of rough weather. Nearly all of the 22 inches of snow fell within a week, bogging down all activities until the base could dig itself out. Rain and fog helped considerably in alleviating this condition. The mean temperature for the month was 18.8°F. Contact conditions were high for this month - 86.8%, but due to the condition of the runways only 534.6 plane hours and 696.4 pilot hours were logged.

On the 18th an F4U-4 #82115 of VF-17 caught fire on the North apron while being run up. The droppable belly tank exploded when collected gas, due to overpriming, caught fire. No personnel were injured and the plane was only slightly damaged. There were no other air accidents again for this month.

Rear Admiral Rose, USCG, landed on the deck on the 19th and the 21st for brief unofficial visits.

The Navy Relief Society Fund Drive received contributions amounting to $182.53.

March saw Spring come aboard. Mild clear weather prevailed. On the 29th the mercury reached 82°F, the highest in the country on that day. The average temperature for the month was 39.8°. No snow fell this month and only 1.39" of rain came to cool off the base. This slight rain caused a drought condition to set in. Long periods of high winds caused considerable sand to be blown about, necessitating quick preventive measures against soil erosion. Flying conditions for this month were excellent, contact 88.8% of the time. This weather brought a decided increase in air activities. 2697.8 plane hours and 2853.7 pilot hours were logged.

On 12 March NAMTA #853 F4U-4 arrived with seven enlisted men as complement to replace NAMTO VC-8 Ammunition Training Detachment. The

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purpose of this unit is to give ground training instructions on the F4U-4 to CASU-26 personnel and CVG-17 pilots. The FAETU-Last Fleet Air Electrical Training Unit arrived on board on the 22nd with 10 officers and 14 enlisted men as complement. This group worked with CVG-17 pilots on Radar problems.

There were many slight accidents during March as we expected, due to the increase in air activity. Fortunately no major injuries were sustained. On March 5th an SNJ-5 caught fire while being warmed up. Slight engine damage resulted. On the 13th a TBM #86234, while being taxied on the north apron, collided in a freak accident with the Bay City Crane. The wing of the ship was heavily damaged. The next day an F4U-4 #81861, piloted by Lt.(jg) C. Wright of VF-17- overshot the runway on landing. Lt.(jg) Wright received a fracture of the left Ulna. The wing and landing gear of the ship were heavily damaged. While being taxied on runway #21 on the 20th, F4U-4 #82158 landing gear collapsed, piercing the left wing and damaging the landing gear. As happens once in a while, a target sleeve being towed by an F4U-4 tore down some telephone lines and knocked over a pole on the Bath road.

Many distinguished guests were entertained on board this month of March. Rear Admiral Henderson, USN, from ComFAir, Quonset Point, R. I., arrived on the 12th unexpectedly. He conducted a surprise personnel and material inspection of CVG-17 and CASU-26. Rear Admiral Anderson, MC, USN, Medical Officer of the FIRST Naval District, came aboard on the 19th to inspect the Dispensary personnel and to discuss future plans. On the 21st of March, Commodore Seitz, USN, ComNABLND arrived to inspect the NAAS Casco Bay for postwar plans.

The Red Cross Drive under the direction of Miss Sally Sortwell, Field Assistant, received $714.64 from the station and fleet personnel, and civilian employees.

At Captain's Inspection on the 16th of March, the following men were presented medals by Captain Joe Taylor: Lt. Edwin C. Ensley, USN, received Gold Stars in lieu of second and third Air Medals. Lt.(jg) S. N. Ferguson, USN, received the Distinguished Flying Cross and the third Air Medal. Lt.(jg) Burton Smith, USN, received the Distinguished Flying Cross.

On 10 March, Major Warga, USMCR, reported aboard to assume the duties of Commanding Officer of the Marine Detachment. His home town is Beach Haven, N. J. He will replace Major Grace, USMCR, on 1 April, who is being discharged.

Demobilization of personnel continued during this three month period, but at an ever decreasing rate. The personnel problem did not slacken in any respects.

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The following is a tabulation of Officers, Enlisted men and Waves sent to Separation Centers for Discharge:

	Officers	Enlisted	Waves
January	9	42	10
February	7	37	5
March	3	36	8

During this period there were 14 enlistments and reenlistments in the Regular Navy among enlisted men. There were 18 requests from officers for transfer to the Regulars. The problem of personnel to fill the places left vacant by discharges is the biggest headache of transferring from war to peace conditions. Civilian allowances are not broad enough to fill the vacancies. Replacements have been slow coming in and reliefs for officers hard to find.

Supply as a whole has had a sharp reduction in rated enlisted personnel and a recent reduction in force has cut down on civilians. Disposition of surplus material from the base and the facilities that have been closed or transferred back to the municipalities, has increased the work considerably. Storage space for this material is very limited and alterations in storehouses (such as Building #11) have been made in an attempt to alleviate this condition. Frequent change in the disposition of material instructions have created confusion in some departments. At the present time, there are eight (8) carloads of SO3C parts with no place or instructions for disposition. There is a shortage of clothing in Small Stores and Coal Stocks are hard to keep full.

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Units aboard during the period of 1 January and 31 March 1946:

CASU-26	Arrived - 21 December 1945. Still based at Brunswick. Commanding Officer - Commander Parker.
N.A.M.T. (A)#608 Hellcat F6F	Arrived - 18 December 1945. Departure 1 February 1946. Commanding Officer - Lt. Comdr. Johnstone.
MRITU #2	Arrived - 1 December 1945. Still based at Brunswick. Commanding Officer - Lt. Chapman.
VT-42	Arrived - 5 November 1945. Departure 4 January 1946. Commanding Officer - Lt. Comdr. Johnston.
VF-42	Arrived - 5 November 1945. Departure 4 January 1946. Commanding Officer - Comdr. Bridgers.
CVG-17	Arrived - 13 November 1945. Still based at Brunswick. Commanding Officer - Comdr. W. F. Bringle.
NAMTO VC-8 Ammo Training	Arrived - 1 February 1946. Departure 12 March 1946.
NAMTA #853 (F4U-4)	Arrived 12 March 1946. Still Based at Brunswick.
F.A.E.T.U.-Lant	Arrived - 22 March 1946. Still based at Brunswick.

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Summary of personnel on board at Brunswick and Facilities:

1 January 1946

Ship's Company	(Enlisted)	425	
Ship's Company	(Officers)	66	
Marines	(Enlisted)	125	
Marines	(Officers)	5	
Fleet Unit	(Enlisted)	1331	(Best available information,---
Fleet Unit	(Officers)	52	Excluding VF-42 and VT-42.)

31 March 1946

Ship's Company	(Enlisted)	383
Ship's Company	(Officers)	74
Marines	(Enlisted)	56
Marines	(Officers)	7
Fleet Unit	(Enlisted)	1032
Fleet Unit	(Officers)	188

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PART II

U. S. NAVAL AUXILIARY AIR STATIONS

SANFORD, MAINE
LEWISTON, MAINE
ROCKLAND, MAINE
CASCO BAY, MAINE
BAR HARBOR, MAINE

and

NAVAL OUTLYING LEASED FIELDS

AUGUSTA, MAINE
PORTSMOUTH, N. H.

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FACILITIES

Activities at all Facilities have been next to nil during this three months period.

NAAS CASCO BAY. The transfer of five of the 63' Aircraft Rescue Boats to the U. S. Coast Guard was begun when the C-36252 was delivered to Portsmouth on 9 January. Two days later the C-26596, C-26597, and the C-36253 were transferred to the Officer-in-Charge of the Coast Guard's South Portland base. On 1 February the C-26581 was delivered to the South Portland base completing the transfer of the boats.

Shortly after 0100 on 24 January 1946, fire broke out in the seaplane hangar and completely destroyed the building and its contents before being brought under control. The fire also damaged the Officer-in-Charge quarters considerably and spread to neighboring civilian cottages, destroying one and damaging two others. A Board of Investigation consisting of Comdr. Daniel McIssacs of Marthas Vineyard, senior member, Comdr. Peter H. Walton of Brunswick, Lt. Francis McCormick of Charlestown, with Lt. Comdr. John H. Carmichael of Brunswick as Recorder, was ordered by ComNABlND, and convened at Naval Air Station, Brunswick, on the 28th of January to fully investigate the cause, guilt, and extent of the fire. This Board convened for one month. Findings were that the cause of the fire could not be determined and that the blame could not be placed.

Several visits were made to this base to ascertain the future status. Officer personnel aboard was reduced to the Officer-in-Charge, Lt.(jg) G. G. Strickland, one crash boat skipper, and a Public Works officer serving on temporary duty; there are about 9 enlisted men stationed there at present.

NAAS BAR HARBOR. On a surplus status since 1 December, this Facility had little to do. Ens. R. A. Learned was Officer-in-Charge until 31 January when Lt.(jg) R. W. Mudge relieved him. Seven enlisted men were stationed there to act as a guard detail.

NAAS ROCKLAND. This base was placed on surplus status on 1 December 1945. Lt. J. C. Huber Officer-in-Charge with a seven man guard detail. On 1 February Ens. Learned relieved Lt. Huber.

NAAS SANFORD. Lt.(jg) R. D. Smith was Officer-in-Charge with a nine man guard detail stationed there to patrol this base which is on surplus status. No changes have been made at this base during this three month period.

CONFIDENTIAL

FACILITIES:
(Continued)

NAAS LEWISTON. Ens. A. C. Pierce was Officer-in-Charge of nine enlisted men detailed for guard duty at this base when it went on a surplus status. Under Lease #R-33671, executed 21 November 1945, all facilities at this base were placed in custody of the twin-cities, Lewiston-Auburn, at 1600 on 7 February 1946. All Naval personnel withdrawn.

NOLF PORTSMOUTH. During the month of March this outlying base was returned to the city of Portsmouth under the same arrangement that NOLF Augusta was returned to civilian status.

DECLASSIFIED

CONFIDENTIAL

Historical officer
(2)

NA(124)/A12-1/(16)lee
Serial: 0183

End-1 on CO, NAS, Brunswick, conf ltr NA116(HGP:er)A12-1 of 11 June 45.

14 JUN DECLASSIFIED
CONFIDENTIAL

MES

To: Chief of Naval Operations, History Unit Op-33-J-6
Office of Editorial Research.
Via: Commandant, FIRST Naval District.

Subj: Supplement to History of the NAS, Brunswick, Maine; NAAB, Sanford, Lewiston-Auburn, Rockland, Casco Bay, Bar Harbor and Navy Outlying Leased Fields at Augusta, Maine and Portsmouth, N. H. - forwarding of.

1. Forwarded.

By direction of the Commander, NAB, FIRST ND:

C. McK. LYNCH, Jr.

cc:
Brunswick

RECEIVED S-C FILES
03 ROUND 2055
Unit 10 20 JUN 1945
File No. (00) A12-1/NA
Ser. No. ---
Copy No. 1 of 1
Tag No. 269087

DECLASSIFIED - OPNAV INST 5500.30
BY [illegible] DATE 14 APR 1960

I-13-15

HRA-0121

U. S. NAVAL AIR STATION
BRUNSWICK, MAINE

(13)

IN REPLY REFER TO
NA202/CEP:cn
006:5750
Serial: 1

28 AUG 1959

From: Commanding Officer, U. S. Naval Air Station, Brunswick, Maine
To: Chief of Naval Operations (Op-09B9)

Subj: Command History; report on

Ref: (a) OPNAVINST 5750.9 of 5 May 1959
(b) COMONEINST 5750.2 of 3 Aug 1959

Encl: (1) Report of Command History

1. As directed by references (a) and (b), enclosure (1) is forwarded.

F. R. MORE

The U. S. Naval Air Station, Brunswick, Maine, originally constructed and occupied in March of 1943, was first commissioned on April 15, 1943, with the primary mission of training British Naval Command (Royal Canadian Air Force) pilots. The station, encompassing 1,487 acres, was built on a plot of land which had been willed to the needy people of Brunswick as a public domain for the sole purpose of picking blueberries. It is located two miles east of the town of Brunswick, south of U. S. Route One.

Operating under the motto "Built for Business" the air station carried out a secondary mission during the war years, that of anti-submarine warfare, which its squadrons performed with 'round the clock efficiency.

The first U. S. squadron to arrive at NAS, Brunswick, was a heavier than air Scouting Squadron (VS1D1), under the command of Lieutenant John G. Shelley, Wellesley, Maine. When they began operations, there was only a half mile of runway, no hangars or operations tower. The ready room the pilots utilized was also incomplete and the men used packing boxes for seats and a pot-bellied stove to warm the hut. It became better known as the "family room" when the mens' wives began to make frequent appearances to see the aviators off on missions.

At the height of its war-time operations, the air station was supporting three auxiliary landing fields; one at Sanford, one at Lewiston, and one at Rockland, Maine.

When the Royal Canadian Air Force crews arrived in 1943, construction was still underway on the runways and various other parts of the station. Soft tar lined the edges of the runways. As the RAF planes neared the air station, they performed a nonchalant style of flight that is still talked about by the old-timers of the area. After they were contacted near Portsmouth, New Hampshire, they were warned of the soft tar on the runways and instructed to land in single formation using the center of the landing area. As the Canadians soared over the field, they seemed determined to smash the control tower as they made low altitude passes. However, they pulled up at the last instant and barrel-rolled over the tower. Lieutenant Shelley was in the tower at the time and stated that if he had had a rock, he could have tossed it into the cockpits of the Canadian planes.

After performing numerous acrobatics in the air, they resumed formation and started to land, three planes abreast. As the first planes touched down, the two on the tip of the formation hit the soft tar and toppled nose-first, skidding 200 feet on their backs. Fortunately, neither of the pilots were injured except for minor scratches.

Enclosure (1)

Lieutenant Commander Allingham was the Commanding Officer of the first Royal Canadian Air Force Squadron to be given training et the air station. For the assistance rendered to the Canadian pilots, NAS, Brunswick, was presented a plaque by the Royal Navy "in recognition for the training of British Naval Pilots during ths periods 1943 through 1945."

After the air station was deactivated in October 1946, the land and buildings were leased jointly to the University of Maine and Bowdoin College as annaxes to ease the over-crowded conditions at both colleges caused by G.I. Bill etudent influx. When the station facilities were no longer needed, both colleges terminated their leases in 1949 and the base was taken over by the Brunswick Flying Service. At this time, the buildinga that had housed men and implements of war were put to usee never included in military design. Hangar One wae a skating rink; hangar two and the operations tower was a civilian flying school; hangar three housed automobiles; ammunition magazines were mushroom farms; and, shrub nursery graced the northern boundary of the reservation. Any resemblance to a Naval Air Station was purely coincidental.

Following this period of caretaker status, the air station was selectad by the Navy as a prime center for development. During the development period, the Air Force reached an agreement with the Navy authorizing the construction on the station of an Air Force Control and Warning Facility, as a part of the continental circumferential radar screen. This Air Force unit is now designated the 654th Rader Squadron.

On March 15, 1951, the national ensign was again hoisted to the peak of the flag pole, recommissioning the dormant base as a Naval Air Facility with the established mission of supporting thrse land-plana patrol squadrons and one Fleet Aircraft Service Squadron, and a planned future mission as a master jet base.

The Navy, in December of 1950, requested $35,000,000 from Congress to be used for this master jet project. Such a base required dual 8,000 foot runways and two outlying fields, one for gunnery and one for carrier practice landings. In June of 1951, the Secretary of Dafense submitted a request to Congress for approximately $20,000,000 for the station. This money was to be used for additional barracks, officers' quarters, and enlisted mens' club, control tower, storage, and communication buildings, new galleys and mess facility, to make it a permanent installation.

During the reactivation period in the spring of 1951, there were only a handful of men on the base. Today, the working population has sprouted to several thousands, including the personnel of six patrol squadrons, a Fleet Aircraft Service Squadron, a USAF radar aquadron, plus hundreds of Navy and civilian personnel in the stations departments. Reserve Navy air units bring many more men to the central Maine station during the summer months for annual cruises. The squadrons at NAS, Brunswick, fly the P2V "Neptune" patrol bomber, but the station is now designed to accommodate jet aircraft.

Enclosure (1)

Since the base was reactivated, several new permanent-type facilities have been erected to replace the World War Two "temporary" buildings. New facilities include a modern operations tower, capable of handling all the complex flights of a jet air field. The air station also has three-deck barracks which can house over two thousand men and a mess hall which can feed five thousand men per meal. In addition to these facilities, a new enlisted mens' club, Navy Exchange, and Bachelor Officer's Quarters have been constructed.

During the early reactivation days, drinking water was at a premium with the only source coming from a local spring water company once a week. Within the first three months, fence repair, and other contractor improvements began to restore the station to useability. On December 1, 1951 the air facility was officially changed to the designation of Naval Air Station. The various departments geared to normal operations in anticipation of incoming squadrons.

The air station has progressed from its first activation mission of training Canadian pilots to the present important mission of support to the fleet. To comply with this high standard mission, the squadrons stationed at NAS, Brunswick, deploy to various parts of the world, usually the Mediterranean or Northern portion of the globe. They have demonstrated in past fleet manuvers their high caliber of efficiency maintained by these deployments.

During the Lebanon crises in the fall of 1958, Brunswick based squadrons of Fleet Air Wing Three, under the command of Captain George P. Koch, provided anti-submarine protection for the Sixth Fleet then operating in the Mediterranean.

Special training is provided for air crews of FAW-3 by two units at NAS, Brunswick. The Artic Survival Training School with LTJG Leroy Scharpen as Officer in Charge, trains air crew members deploying to the Artic in north country survival. The survival school was established at Navy Brunswick September 6, 1956.

The NAMTD unit was organized on April 16, 1954, at Navy Brunswick, to provide technical training in the field for aviation officers and enlisted men of operating aviation units in the operation, maintenance and repair of the type aircraft and associated equipment utilized by Navy Brunswick based squadrons.

Aside from the aforementioned mission, the air station has another function, that of emergency masting of airships. The nearest mooring station for blimps is located in South Weymouth, Massachusetts, and on several occasions the airships from that station have arrived at Brunswick to "check-out" the mooring crews. The first airship to be moored at NAS, Brunswick, was during World War Two.

Naval Air Station, Brunswick, flag headquarters is located in Boston, Massachusetts, in the First Naval District.

-usn-

Enclosure (1)

Chronological Order of Commanding Officers of NAS, Brunswick, Maine

April 1943	-	August 1944	Commander J. C. Alderman, USN
August 1944	-	August 1945	Commander E. M. Ellis, USN
August 1945	-	October 1946	Captain Joe Taylor, USN
October 1946	-	November 1946	Commander W. L. Dawson, USN
November 1946	-	July 1947	Lieutenant Commander H. G. Pollard,USNR

Deactivated July 1947 - March 1951

March 1951	-	August 1952	Commander F. L. Palmer, USN
August 1952	-	June 1955	Captain Glennon G. Price, USN
June 1955	-	December 1955	Commander Gerald H. Duffy, USN
December 1955	-	January 1958	Captain Joseph T. Yavorsky, USN
January 1958	-	February 1958	Commander Donald W. Bowman, USN
February 1958	-		Captain Frank R. More, USN

Enclosure (1)

Biography of Captain Frank R. More, Commanding Officer of
U. S. Naval Air Station, Brunswick, Maine

Captain Frank R. More, USN, was born in Milton, Pa., in 1915. He was graduated from the Pennsylvania Military Preparatory School in Chester, Pa., in 1933, where he received flight training commencing in 1929. He attended Bucknell University in Lewisburg, Pa., for three years prior to entering training as a Naval aviator in June 1936.

Captain More received his wings and a commission as Ensign following graduation from Pensacola Naval Air Training Command, Florida, in September 1937. His first tour of overseas duty began in 1937 when he was assigned in Patrol Squadrons 10 and 25 in Honolulu, T. H. He served with these squadrons three years returning to the United States in 1940 for duty with the Naval Air Reserve Base, Glenview, Ill.

The Captain served as Overhaul and Repair Officer at Glenview until May 1942 when he was assigned to duty with Patrol Bombing Squadron 53 of the Atlantic Fleet then engaged in anti-submarine warfare operations.

In September 1943, Captain More was transferred to the Pacific Fleet for duty as Commanding Officer of Patrol Bombing Squadron 62, and then returned to the United States for assignment as Executive Officer of the Naval Air Station, Banana River, Fla.

Captain More was selected to attend the U. S. Naval General Line School at Newport, R. I., in June 1946. He was graduated a year later and was again assigned to sea duty as Executive Officer aboard the USS Timmalier which was then operating out of Trinidad, B.W.I.

Assigned to the Office of the Chief of Naval Operations in Washington, D.C., in November 1948, Captain More served a three-year tour of duty under the Deputy Chief of Naval Operations for Air as Head of the Programs, Complements and Logistics Branch of the Aircraft Logistics Division and later as Head of the Divisions Future Control, War Programs and Special Studies Section.

This was followed by a tour of duty, first as Air Transportation Officer and later as Chief of Staff on the Staff of the Commander of the Fleet Logistics Wing Atlantic at Patuxent River, Md., where he served until August 1953.

From August 1953 until July 1955, the Captain was Executive Officer of the Naval Air Station, Sanford, Fla. He was then selected for attendance at the Naval War College, Newport, R. I., where he was graduated in June 1956.

Enclosure (1)

Reporting for duty on the joint staff of the Commander in Chief Caribbean, in the Canal Zone in July 1956, Captain More served as Chief of Plans in the Office of the Assistant Chief of Staff J-3 until his assignment as Commanding Officer of the Naval Air Station, Brunswick, Maine, in February 1958.

In addition to holding the Air Medal for his wartime action in both the Atlantic and Pacific combat areas and several inter-theater commendations, Captain More has among his decorations the American Defense Medal with a star, the American and Pacific Theater Medals and the Victory and National Defense Service Medals.

Captain and Mrs. More, the former Hazel Schilling of Sunbury, Pa., have three children: Ritchie, 20; Tom, 17; and Lani, 12. Ritchie, who attends Elon College, is a Lance Corporal in the Marine Corps Reserve, and Tom, who attends Severn School, is an airman in the Naval Reserve.

-usn-

Enclosure (1)

HRA-0124

5720
Ser 11200/ 387
1 MAR 1985

From: Commanding Officer, Naval Air Station, Brunswick, ME
To: Chief of Naval Operations (OP-05D2)

Subj: FORWARDING OF COMMAND HISTORY (OPNAV REPORT 5705-1)

Ref: (a) OPNAV Instruction 5750.12C

Encl: (1) Commanding Officers and Dates of Command
(2) 1984 Chronological List of Events
(3) Command History of Naval Air Station, Brunswick, ME
(4) Installation Excellence Award Submission Package
(5) Roster of NAS Brunswick Officers

1. In accordance with reference (a), enclosures (1) through (5) are submitted for calendar year 1984.

F. J. MASCIANGELO
Acting

Copy to:
Director of Naval History (OP-09BH)
COMNAVAIRLANT

COMMANDING OFFICERS AND DATES OF COMMAND

Commander J. C. ALDERMAN, USN	15 Apr 1943 - Aug 1944
Commander E. M. ELLIS, USN	Aug 1944 - Aug 1945
Captain Joe TAYLOR, USN	Aug 1945 - Oct 1946
Commander W. L. DAWSON, USN	Oct 1946 - Nov 1946
Lieutenant Commander H. G. POLLARD, Jr., USNR	Nov 1946 - Jul 1947

NASB INACTIVATED

Commander F. L. PALMER, Jr., USN	15 Mar 1951 - 2 Aug 1952
Captain G. G. PRICE, USN	2 Aug 1952 - 7 Jun 1955
Commander G. H. DUFFY, USN	7 Jun 1955 - 9 Dec 1955
Captain J. T. YAVORSKY, USN	9 Dec 1955 - 10 Jan 1958
Commander D. W. BOWMAN, USN	10 Jan 1958 - 6 Feb 1958
Captain F. R. MORE, USN	6 Feb 1958 - 11 Sep 1959
Captain N. T. THATCHER, USN	11 Sep 1959 - 29 Jun 1961
Captain H. L. TALLMAN, USN	29 Jun 1961 - 14 Jul 1961
Captain W. L. PACK, USN	14 Jul 1961 - 25 Jun 1963
Captain E. J. KNOCHE, USN	25 Jun 1963 - 21 Jul 1965
Captain D. R. RAINS, USN	21 Jul 1965 - 14 Jun 1967
Captain C. L. WYMAN, USN	14 Jun 1967 - 1 Aug 1969
Captain J. D. COLLINS, USN	1 Aug 1969 - 10 Sep 1971
Captain R. D. SNYDER, Jr., USN	10 Sep 1971 - 30 Apr 1974
Captain R. L. LATTA, USN	30 Apr 1974 - 18 Jun 1976
Captain G. D. BARKER, USN	18 Jun 1976 - 25 Aug 1978
Captain B. T. HACKER, USN	25 Aug 1978 - 8 Aug 1980
Captain N. E. KOEHLER, III, USN	8 Aug 1980 - 25 Sep 1981
Captain W. L. RICE, USN	25 Sep 1981 - 18 Aug 1983
Captain M. L. MIDTVEDT, USN	18 Aug 1983 - Present

Enclosure (1) to CO NASB ltr
Ser 307 of 1 MAR 1985

1984 CHRONOLOGICAL LIST OF EVENTS

13 January - Memory of Dr. Martin Luther King, Jr., honored by a special chapel service NAS Brunswick.

February - NAS Brunswick observed the 58th anniversary of "Black History Week" with activities and newspaper coverage.

2 February - National Prayer Breakfast celebrated at Neptune Hall, The Reverend Dale Morell, Pastor, Maine Street Baptist Church was the guest speaker.

13 February - Reserve Master Augment Unit at NAS Brunswick received first P3-C II update aircraft.

4-10 March - "Women's History Week" observed.

28 April - Ceremony was held commemorating the establishment of the newest Naval Reserve Unit at NAS Brunswick.

5 May - 1984 Annual Military/Community Spring Ball was held at NAS Brunswick's Neptune Hall.

5 May - NAS Brunswick observed "Asian/Pacific American Heritage Week".

16 May - NAS Brunswick wins CONNAVAIRLANT Innkeeper Award, for best-managed BOQ in the force.

17 May - RADM Paul J. Mulloy, Director of the U.S. Navy's Human Resources Management Department, was guest speaker at grand opening of the NAS Brunswick Family Service Center.

19 May - NAS Brunswick observed and celebrated "Armed Forces Day".

25 May - NAS Brunswick Officers' Club wins SECNAV's "Best Mess" award.

27 May - A special "Service of Commemoration" was held in the NAS Brunswick Memorial/Friendship Gardens.

June - Major reconstruction project, designed to improve the security and appearance of the front gate area began.

10 June - American Red Cross presented award to NAS Brunswick.

20 June - Secretary of the Navy, John Lehman, visited NAS Brunswick as part of his active duty training.

2 July - NAS Brunswick passes 24th year mark of accident free flying.

Enclosure (2) to CO NASB ltr
Ser 387 of 1 MAR 1985

COMMAND HISTORY OF NAS BRUNSWICK, MAINE

1984

MISSION STATEMENT:

Naval Air Station, Brunswick's mission is to provide facilities, services and material support to the six Brunswick-based antisubmarine warfare (ASW) patrol squadrons that fly the P-3 Orion aircraft and deploy to various sites throughout the world. In addition, NAS Brunswick supports various ships of the U.S. Atlantic Fleet that are undergoing construction and repair at Bath and Portland, Maine and to over 70 other activities.

Specific activities and accomplishments of the year are summarized by department (in alphabetical order):

The personnel of this command were recognized for their outstanding professionalism when the command was selected to be the Commander Naval Air Force, U.S. Atlantic Fleet nominee for the annual Commander-in-Chief's Installation Excellence Award for 1984. The submission package in itself is significant documentation of the history of 1984 and is therefore included as enclosure (4).

Enclosure (3) to CO NASB ltr
Ser 387 of 1 MAR 1985

14 July - Canadian CNO, Vice Admiral James C. Wood, visited.

20 July - NAS Brunswick observed "POW/MIA Day".

2 August - A civilian Piper Cherokee crashed aboard NAS Brunswick.

18-19 August - Air show at NAS Brunswick.

9-15 September - "National Hispanic Heritage Week" observed.

3 October - NAS Brunswick celebrated a "Kickoff Breakfast" for the 1984 Bath-Brunswick Area Combined Federal Campaign.

6 October - Navy Ball at NAS Brunswick's Neptune Hall.

22-28 October - "Energy Awareness Week 1984" observed.

5-8 November - Air station Nuclear Technical Proficiency Inspection.

10 November - NAS Brunswick Marines celebrated 209th birthday of the U.S. Marine Corps.

12-16 November - NAS Brunswick observed a "Base Appreciation and Mission Awareness Week", sponsored by COMPATWING FIVE.

15 November - Tragic Fire in Navy housing at Topsham Annex killed three dependent children.

16 November - E. C. Jordan Company began drilling to determine soil and groundwater contamination at NAS Brunswick's land fills.

27 November - Congressmen Thomas E. Petri and Rod Chandler visited.

December - NAS Brunswick selected by COMNAVAIRLANT as their nominee for Commander-in-Chief's Installation Excellence Award from a field of nine air stations.

9-15 December - "National Drunk and Drugged Driving Awareness Week" observed.

ADMINISTRATION DEPARTMENT

The Administration Department consisted of seven divisions: Command Security managed classified files; Administrative Services Division, comprised of Manpower Distribution, Official Mail control room, Library, Word Processing Center, and Central Files/Duplicating; Berthing Division with BOQ and BEQ branches; First Lieutenant's Division with the Discipline, Quarterdeck and Honor Guard branches; Human Resources Office with the Command Career Counselor and training; the Public Affairs Section; and the Security Division.

COMMAND SECURITY--Conducted training on information security for the entire station on two separate occasions. Performed background investigations and assigned security clearances for military and civilian personnel. Processed 37 secret and 729 confidential incoming documents and 31 confidential outgoing documents.

ADMINISTRATIVE SERVICES DIVISION

a. Official Mail control room moved into new facilities this year while they supported an average of 30 shore activities monthly. Average number of address cards processed monthly was 75; average number of pieces of correspondence readdressed monthly was 1200; average number of locator cards maintained 420 and average number of pieces of unclassified mail sorted monthly was 175,057.

b. Station Library moved into renovated spaces this summer and opened for business on 6 August. The Library provided book circulation, records, tapes, language VCR's, films, projectors, a typewriter for in-library use, current and back-dated periodicals, a reference section, and a children's section. This year 3,383 registered users were responsible for a circulation of 11,490 books, periodicals, films, etc. The total number of books on hand was 14,852.

c. Manpower Distribution processed 973 sets of temporary additional duty orders, established the new leave accounting system and acted as liaison for 6 major reserve commands performing weekend and two-week active duty between 30 April and 9 September. 29 officer reservists and 174 enlisted reservists were processed.

d. Central Files/Duplicating researched new systems for files and publications storage considering both microfiche and computer disks. The Duplicating section produced over 1.5 million copies.

FIRST LIEUTENANT DIVISION-- Handled 181 transient and 112 disciplinary personnel. The Honor Guard attended 47 events: 30 funerals, 17 parades/memorials. An honors boatswain's mate and a bugler were added to the Honor Guard. Renovated the discipline barracks to an open bay configuration and retiled the deck. Assisted station departments to move to newly constructed or temporary spaces on three separate occasions. Renewed all standing orders on the quarterdeck and provided quarterly training for all station watchstanders.

BERTHING DIVISION-- The Bachelor Officers' Quarters won the COMNAVAIRLANT 1984 Innkeeper Award for Excellence in quarters management. The Bachelor Enlisted Quarters was first runner up in the large BEQ category. The BOQ redecorated the lobby area and renovated six transient visiting officers' suites to include wall to wall carpeting, fabric wall covering, new furnishings and built in wall units for TV, refrigerator and coffeemaking equipment. The NMPC Management and Assistance Team (MAIT) inspected the berthing division and were impressed with the operation. Only minor discrepancies were found, most of which were corrected before the team left the area. The Marine Barracks (former berthing spaces diverted for Marine use) were found by their IG to be overcrowded. Both short term solutions and long term new construction are under investigation.

HUMAN RESOURCES OFFICE-- Conducted ongoing sponsor program assignments, base indoctrination training and monthly petty officer indoctrination classes. A major revision of HRO instructions was undertaken and by year's end HRO was ready to implement the new Navy-Wide Command Managed Equal Opportunity (CMEO) Program. Career Counselor reported end of FY-84 net retention statistic of 68% first term, 83% second term and 64% for career personnel.

PUBLIC AFFAIRS OFFICE-- Contract bids and negotiations resulted in the signing of a 21 month contract for publishing the base newspaper (THE PATROLLER) on 29 November. This was the first contract with the civilian publisher in ten years. 56 base tours were conducted for diverse groups including potential recruits, senior citizens, local school children and foreign military personnel. At year's end the new Chief of Naval Information Internal News program "NAVY VIDEO NEWS" was placed on local cable television for access by area naval personnel (active duty and retired) and dependents.

SECURITY DIVISION-- A new base-wide security badge system was implemented to enhance the anti-terrorist posture. Work continued with a Contingency Force Team to assist security personnel in the event of civil or terrorist disturbances. Week long assist visits were conducted by COMNAVAIRLANT physical security and law enforcement inspectors in July and November. Major drills this year included the NTPI and a highly successful "hostage" exercise involving the NIS Hostage Assist Team and key station personnel. A total of 556 criminal and accident investigations were completed.

NOTE: At year's end the security division was redesignated as an independent department.

AIRCRAFT INTERMEDIATE MAINTENANCE DEPARTMENT

In 1984, AIMD Brunswick continued to develop innovative repair procedures, expanding capabilities and improving AIRWING readiness both locally and at multiple deployed sites. Effective use of manpower and material to repair aircraft components resulted in a sustained Ready-for-Issue (RFI) rate in excess of 70%. Projects in work for several years came to fruition that promise vast improvements in production and efficiency for CY 85. As always, the team of men and women of AIMD continued to set the pace in support of aircraft readiness and fulfilled their motto of "We keep' em flyin".

Departmental accomplishments by division:

ADMINISTRATION

a. Established advanced liaison with Reserve units and provided one-on-one customer service and extensive training to over 300 active duty Reservists.

b. Hosted advanced "shirtsleeve" pre-cruise training meetings for 212 Reservists who will participate in two weeks active duty drill during FY 85.

c. Coordinated Mobile Maintenance Facility (MMF) long range planning with NAS Jacksonville, AIMSO, CNAL, CPW-5 and CPW-11.

d. Accepted interim training control for MMF personnel.

e. Tasked by NASB to assist with physical security, man sentry post 24 hours a day, 365 days a year. Average expenditure is approximately 4.2 manyears annually.

f. Improved departmental corrosion control program/documentation by 60% over CY 83.

g. Completed on-site CINCLANT, COMNAVAIRLANT and COMPATWINGSLANT manpower reviews. Updated manpower documents and submitted projected requirements for FY 85/86/87.

h. Developed T1000 computer link for Individual Component Repair List (ICRL) with ASO. (Provides immediate capability updates and real-time information).

i. New avionics facility: Airframes, Power Plants, Production/Material Control and Supply Support became fully operational. This facility was designed by NAVFAC and AIMD personnel in a concerted effort to provide the most efficient component repair capability for the PATWING community.

j. Recorded personnel and training info on ATSS computer and provided automated (real-time) updates to all division officers on demand.

k. Realigned billet sequence codes and NEC's to ensure full spectrum coverage of administrative/maintenance tasks.

l. Completed the following formal training (outside of AIMD):

(1) On Base - 650 personnel attended over 14,000 hours of a myriad of technical, professional and career/leadership training.

(2) Off Base - 112 personnel attended over 5,000 hours of specialized training.

QUALITY ASSURANCE

a. Successfully completed two major AIMD inspections, two minor AIMD inspections and monthly NAVOSH inspections by station Safety Department.

b. Completed annual Maintenance Instruction review/update in accordance with OPNAVINST 4790.2C.

MATERIAL CONTROL

a. Developed an organic computer program to manage AFH funds for OMD, Supply Pre-Ex, Supply AWP, as well as AIMD's own account.

b. Improved accountability of all pre-positioned coded support equipment by 85%.

c. Processed approximately 10,200 shop requisitions and more than 10,000 line items from SERVMART requisitions.

d. Reduced priority 03 outstanding requisition count average from 37 in CY 83 to 9 in CY 84.

e. Completely revised the tool control instruction/program and implemented effective procedures aimed at increasing safety and reducing component turnaround time related to missing tools. New tool containers were also designed.

ORGANIZATIONAL MAINTENANCE

a. Completed 75% of construction by Public Works for helicopter support facility.

b. Relocated Paraloft to OMD spaces with full time Parachute Rigger.

c. Maintained the following readiness statistics on the station UH-1N helicopter:

(1) FMC - 95.5%

(2) MC - 96.7%

(3) PMC - 99.2%

d. Provided transient line services to 1150 aircraft.

POWER PLANTS

a. Inducted 14 QECA's and issued 15 to squadrons.

b. Removed and replaced eight power sections and nine reduction gearbox assemblies.

c. Completed CER on 21 power sections, 13 reduction gearbox assemblies, and 28 turbine assemblies. In addition, 161 engine Dynafocal Mounts were overhauled and made RFI.

d. Processed a total of 51 GTCP95-2 APU's, of which 15 were complete buildup and 8 were made RFI through the CER program. These were zero units beyond the capability of maintenance. Each unit was dynamically tested.

e. Processed 45 propellers (with four assemblies BCM), 71 propeller controls, 35 valve housing assemblies (with four BCM), and 101 dome assemblies (with one BCM).

f. Tested a total of 57 T56 engines. 38 were for acceptance of work performed in the various work centers and 36 were for preservation purposes.

g. Established a component "clean room" utilizing two degreaser machines, one fresh water washdown tank and a separate area designed to facilitate cleaning of engine QEC's and propeller assemblies.

h. Established an EDC repair work center, which included outfitting a work space, assigning and training of key personnel and acquiring tooling.

i. Certified as CER for GTCP95-2 APU's.

j. Hosted T56, GTCP95-2, and Aircycle FIAT Conferences for P-3 community/related aircraft users.

AIRFRAMES

a. Implemented an aggressive departmental Preventative Maintenance System (PMS) Program.

b. Improved divisional RFI rate by 10% for CY 84.

c. Provided more than 800 hours of training to Naval Reservists.

d. Researched and developed "I" level repair capability for P-3 pressure plate for main brake. Resulted in annual savings of $22K and improved aircraft readiness.

e. Developed capability to clean P-3 heat exchangers.

AVIONICS

a. Hosted ASW-31 Autopilot Maintenance Training Review.

b. Increased AN/ACQ-5 data link readiness through innovative use of "hot mock-up" bench in Work Center 690.

c. Supported COMPATWING FIVE Avionics Improvement Program by performing transmission line sweeps on 54 aircraft systems aboard NASB.

d. Maintained 90% availability on TS3519 harpoon missile test set, in support of CPW-5 squadron harpoon readiness.

e. Submitted 41 F-1 expansions for calibration, resulting in an increase of capabilities by 18%.

f. Designed homemade test sets and expanded capabilities for the following electrical equipment: P-3C refrigerators, Barber Coleman/Wesson air conditioning valves, prop deicers, start control valves, TD valves, autopilot warning flasher, ladder actuators, axial radial fans, transformer rectifiers, engine driven compressor valves, and windshield washer pumps.

g. Completed ECP-10 MOD in the AAM-60 IRDS test facility, providing enhanced troubleshooting capabilities on the AN/AAS-36 IRDS system.

h. Improved construction techniques on the PRT-5 battery packs by acquiring a spot welder which improved the critical procedure of connecting "D" cell batteries together.

i. Increased AN/USM449 (ATE) repair capabilities on the AN/ASN-33, AN/APN-187, and AN/ASQ-81 systems through acquisition of new test programs.

SUPPORT EQUIPMENT

a. Activated maintenance facility for aircraft deicer unit.

b. Opened a corrosion control facility that included improved indoor wash, blast and paint areas.

c. Trained 2065 students, including 400 reservists, to operate SE.

d. Maintained a 92% RFI equipment rate.

AIR OPERATIONS DEPARTMENT

ACCOMPLISHMENTS

a. Both station aircraft, the UC-12B and the UH-1N (Bureau numbers 161307 and 158764 respectively), have participated in numerous SAR/MEDIVAC evolutions, both military and civilian, in addition to meeting 90% of their tasking.

b. The Station NATOPS Program for both platforms was evaluated as excellent by COMNAVAIRLANT for the past three years.

c. Ground Electronics Division installed a digital weather-vision closed circuit TV system, Parkhill communication system, and improved the F.M. communications network for airfield support activities.

d. Air Traffic Control: New RATCF/DAIR equipment operational; negotiations ongoing with FAA to expand approach control area to include Augusta and Waterville.

e. Increased emphasis on government air transportation utilization resulted in significant monetary savings for transportation in relation to command training requirements and official conferences.

UC-12B UTILIZATION-CY 1984

AIRCRAFT UTILIZATION:

104 tasked logistics support missions for a total of 537.2 hours.
80 pilot/aircrew training flights for a total of 162.3 hours.
04 maintenance check flights for a total of 5.9 hours.
02 MEDIVAC flights for a total of 5.1 hours.
02 ferry flights for a total of 13.5 hours.

NOTE: Aircraft underwent a 2 month scheduled maintenance program during September and October in Jackson, Mississippi.

UH-1N UTILIZATION-CY 1984

AIRCRAFT UTILIZATION:

11 SAR/MEDIVAC missions for a total of 38.8 hours.
38 logistic support missions for a total of 99.6 hours.
118 pilot/aircrew training flights for a total of 207.2 hours.
11 maintenance check flights for a total of 8.8 hours.

AIR TRAFFIC CONTROL FACILITY

Training and operations included:

Feb - 4 controllers to RATCF DAIR managers workshop.

June - Participated in USAF Global Shield exercise.

1 controller to Facility Management and TERPS school.

July - 1 controller to Facility Management and TERPS school.

Aug - 4 controllers to service "B" indoc.

Sept - 1 controller to Faacility Management and TERPS school.

1 controller to RATCF school.

Oct - 1 controller to Airspace Management school.

Nov - 2 personnel to the New England Airspace Review conference.

Division officers attended the Air Traffic Control Facility Officers conference.

NOTE: Continued coordination with the FAA concerning the assumption of additional airspace responsibilities to include Augusta and Waterville airports.

AIRCRAFT OPERATIONS (TRAFFIC COUNT) for 1984:

Total IFR - 27533
Total VFR - 40592
Total OPS - 68125

GROUND ELECTRONICS MAINTENANCE DIVISION

GEMD installations and activity included:

a. A locally purchased weathervision closed curcuit TV system in Building 200.

b. Squadron security/weapons movement FM communications network in all squadron, MAU, and special projects spaces.

c. Building 523 (old HF transmitter site) turned over to Public Works.

d. Second 100 pair cable between Building 200 and Building 523.

e. Second video and control cable between Building 200 and the AN/FPN-63 site.

Additional improvements by outside contractors:

a. Installed a computerized AN/TPX 42(V)10 RATCF/DAIR system.

b. Installed a geographical plot display in the AUW compound tower.

c. Installed a new emergency generator and fuel tank at the AN/FPN-63 site.

d. Installed a Parkhill communications system in Building 200.

FIRE DIVISION

Responses:

Crash & rescue	297
Structural	320
Total	617

Total fire loss (government property) $12,178.00

The Fire Division had one major fire with the loss of three lives on 15 November in Navy housing at the Topsham Annex.

In 1984 the Fire Division hired its first female firefighter (trainee) and received a new 1984 1000GPM structural pumper which was put into service in December.

Major training evolutions that were executed with the mutual aid communities and local area communities include the burning of the Pine Spring Bottling Co. (north end of the runway), tanker shuttle training at West Bath for constant water supply, and hot fuel fires at the EOD pit for the city of Lewiston.

At the request of the local communities, the NASB Fire Division responded to two mutual aid calls for assistance. Along with surrounding communities the Fire Division helped the town of Brunswick in suppressing a major conflagration at Washburn Lumber Inc.. Cooperation between community fire departments and the NASB Fire Division was outstanding.

CHAPEL

Chaplains present during 1984:

CAPT Robert M. Elder, CHC, USN, Episcopal
CAPT Gene D. Landry, CHC, USN, American Baptist Churches
CDR David O. Travers, CHC, USN, Roman Catholic
LT Albert L. Hill, CHC, USNR, Southern Baptist
LT Gary D. Heinke, CHC, USNR, Baptist General Conference
LCDR Thomas P. McGrath, CHC, USNR-R, Roman Catholic - TAD Drills 4 and 5 August 1984
LTjg John Wagner, TSP, USNR-R, Open Bible Standard Church - ACDUTRA 15 May thru 20 June 1984

OFFICIAL VISITORS:

RADM Neil M. Stevenson, CHC, USN, Chief of Chaplains
CAPT Edmond B. Fergusen, CHC, USN, COMNAVAIRLANT Force Chaplain

SPECIAL MINISTRIES BY VISITING REPRESENTATIVES:

LTjg David Bruce, CHC, USNR - Guest preacher at Protestant Worship Service.
Reverend Nathaniel Perry - Guest speaker for the Dr. Martin Luther King, Jr. Memorial Service.
Mr. Paul R. Dunn and Dr. Dobson - Guest speakers at Protestant Worship Service.
CAPT William Hunter, CHC, USN (Ret) - Guest preacher at Protestant Worship Service.
Reverend Lynne Josselyn - Guest speaker for the World Day of Prayer Service.
Reverend Arnold Hoçan, S. J., LTjg Robert M. Mock, USNR-R and Reverend Herbert Cleary, S. J. concelebrated Masses with Chaplain Travers.
Dr. David E. Garland - Conducted Bible Study on Parables of Jesus and also guest speaker at Protestant Worship Service.
Reverend Arnold Hogan, S. J. - Seminar on Moral Development.

CHAPEL CENTER ACTIVITIES:

Memorial Service for Dr. Martin Luther King, Jr., was held on 13 January 1984. The Reverend Nathaniel Perry of the Green Memorial A. M. E. Zion Church in Portland, Maine was the guest speaker. A reception was held in the Fellowship Hall sponsored by NWCA #163 Brunswick for the approximately 175 who attended.

Chaplain Elder conducted a funeral service for Charles Sullivan, USA (Ret) at the Veterans Memorial Cemetery in Augusta, Maine.

The National Prayer Breakfast was held on 2 February 1984 in Neptune Hall. Chaplains Hill and Travers participated. Approximately 250 attended.

The four Chaplains Memorial Service conducted by the Department of Maine American Veterans of World War II, Korea and Vietnam was held during the 1030 Protestant Service on 5 February 1984.

The Catholic congregation visited the Brunswick Convalescent Center and provided entertainment and refreshments on 12 February 1984.

The Catholic Youth Group held a skating party on 12 February 1984.

A Marriage Preparation Workshop was held in Fellowship Hall on 21 February 1984.

Senior Chief McGann gave a lecture to the Catholic Youth Group in Fellowship Hall on the use of drugs on 26 February 1984.

A "World Day of Prayer" service sponsored by the Brunswick Area Church Council was held in the Chapel on 2 March 1984. Reverend Lynne Josselyn, District Superintendent of the Southern Maine District, United Methodist Church and President of the Maine Council of Churches was the guest speaker. Refreshments were served in the Fellowship Hall following the service.

RADM Neil M. Stevenson, CHC, USN, Chief of Chaplains, spoke at all services on Sunday 4 March 1984.

Chaplain Travers celebrated Ash Wednesday Masses and distribution of Ashes on 7 March 1984.

Chaplain Elder conducted the Protestant Ash Wednesday Service and imposition of Ashes at 1730 on 7 March 1984.

Chaplain Travers conducted the funeral service at Brackett Funeral Home for CPO Lionel C. Banda, USN (Ret) with interment at the Maine Veterans Cemetery, Augusta, Maine.

Chaplain Elder went on a CACO call with Senior Chief Andrew to Presque Isle, Maine for SN Kurt Lewin, USN.

Chaplain Travers celebrated the Funeral Mass of the Angels for Joel P. Gorrell, infant son of Charles E. & Maureen (Sullivan) Gorrell in the chapel on 4 April 1984.

Chaplain Wagner conducted the funeral for Thomas Williams, USCG (Ret) at Blais Funeral Home, Westbrook, Maine on 6 April 1984.

Chaplain Elder participated in the Change of Command for the USS CONOLLY in Portland, Maine on 7 April 1984.

Chaplain Travers spoke at the Spouse Information Class in the new Family Service Center on 10 April 1984.

Chaplain Hill participated in the Stand Up Ceremony for the Master Augment Unit on 28 April 1984.

Dr. David E. Garland, Associate Professor of New Testament, Southern Seminary, Louisville, Kentucky conducted a Bible Study on the Parables of Jesus on 27, 28 and 29 April 1984.

Chaplain Travers and Captain White, USMC went on a CACO call to Portland, Maine for PFC Andrew A. Giguere, USMC.

Reverend Arnold Hogan, S. J. conducted a seminar on Moral Development in the Fellowship Hall for 15 Senior Officers of NAS Brunswick on 9 May 1984.

Chaplain Wagner conducted the funeral for Harold Therkeldsen in Portland, Maine.

Catholic Confirmation was held on 10 May 1984. Bishop Francis X. Roque, D.D. from the Military Ordinariate confirmed 37. Chaplain Travers and priests from the local parishes concelebrated Mass with the Bishop. Refreshments were served in the Fellowship Hall immediately following the service.

Chaplain Travers celebrated the Funeral Mess for PFC Andrew A. Giguere, USMC in Portland, Maine.

Chaplain Travers held First Communion for 12 children on 13 May 1984. A breakfast was held at Neptune Hall following the Mass.

Carnations were distributed to all mothers at the 0900 and 1200 Masses on Mothers' Day, 13 May 1984.

Chaplain Travers participated in the Grand Opening Ceremonies of the new Family Service Center on 17 May 1984.

Chaplain Travers participated in the Navy Relief Awards Luncheon and Graduation for the Navy Relief Course on 18 May 1984.

The Annual Memorial & Friendship Garden Commemorative Service was held on 27 May 1984. CAPT Charles L. Wyman, USN (Ret) was the guest speaker. Refreshments were held in the Fellowship Hall following the service. Approximately 120 attended. Chaplains Landry, Travers and Hill participated in the service.

Chaplain Wagner said the prayers at the Brunswick Memorial Day Parade on 28 May 1984.

Chaplain Travers celebrated Mass at the picnic area with an outdoor picnic and games following on 3 June 1984.

Chaplain Travers accompanied Lieutenant Jones on a CACO call for HM3 David Lionel Deschanes, USN in North Leeds, Maine on 8 June 1984.

Chaplain Hill conducted the Funeral Service for CAPT John Bachulus, MC, USN (Ret) at Bowdoin College Chapel, Brunswick, Maine on 9 June 1984.

Chaplain Travers concelebrated the Funeral Mass for Jennifer Carroll at St. John's in Brunswick, Maine on 4 July 1984.

Chaplain Travers celebrated the Masses and covered the calls at St. John's in Brunswick, Maine on 30, 31 July and 1, 2, and 3 August 1984 while the Marist Priests were away on retreat.

Chaplain Travers accompanied CDR Nolan, LCDR Mori, LT Anderson and the Command Master Chief of VP-11 on a CACO call for AE3 Dennis Jon Cooper, USN. Chaplain Travers concelebrated the Funeral Mass at St. John's Church in Brunswick, Maine on 7 August 1984.

Chaplain Travers concelebrated the 1st Anniversary Mass for Mrs. Marilyn Rehfield at St. John's Church in Brunswick, Maine on 7 August 1984.

Chaplain Travers conducted the Memorial Service for AE3 Dennis Cooper, USN of VP-11 in the base chapel on 8 August 1984.

Chaplain Landry conducted the Funeral Service at Lindquist Funeral Home, Yarmouth, Maine for MSC Vernon Rasch, USN (Ret) with burial in Cumberland, Maine on 8 August 1984.

Chaplain Travers accompanied CAPT Tarpey of the Marine Barracks on a CACO call for Sgt. William Fowler who was injured in a car accident.

A Vacation Bible School was held 20 thru 24 August 1984 which 74 children attended.

Chaplain Landry conducted the Memorial Service for Mrs. Betty Lou Hampton on 27 August 1984.

Chaplain Landry participated in the VP-26 Change of Command on 7 September 1984.

Chaplains Travers and Hill participated in the VP-8 Change of Command on 21 September 1984.

Chaplain Hill participated in the NWCA #163 Installation of Officers ceremony on 28 September 1984.

Chaplain Landry participated in the VP-44 Change of Command on 5 October 1984.

Chaplain Landry attended the Funeral Mass for CAPT Anthony L. Gendron, USN (Ret) at Saint Peter & Paul Church in Lewiston, Maine on 13 October 1984.

Chaplain Hill conducted a Memorial Service for Mrs. Gwen Turgeon in the chapel on 13 October 1984.

The Annual USMC Memorial Service was held 9 November 1984. Chaplains Travers, Hill and Heinke participated.

Chaplain Travers conducted the Funeral Service for CAPT Roger Erdman, USCG (Ret) in the chapel with interment at the VA Cemetery in Augusta, Maine.

Chaplains Landry and Travers conducted the Memorial Service for Paul Burbank on 10 November 1984. Chaplain Landry conducted the Committal Service at Riverside Cemetery the same day.

Chaplain Landry was the guest speaker at the Annual Ecumenical Thanksgiving Service at St. John's Church, Brunswick on 18 November 1984.

Chaplain Travers conducted the Memorial Service for Brandon Joseph Redman, Tiffany Jean Redman and Jonathan Jean Redman in the chapel on 19 November 1984.

A Chaplain Corps Birthday Dinner was held at the Officers' Club on 26 November 1984. CAPT George W. Evans, Jr., CHC, USN was the guest speaker.

Chaplain Travers gave the Invocation & Benediction for the Commissioning of the USS TAYLOR (DDG-50) in Bath on 1 December 1984.

Christmas Masses were held at 1700 and midnight on Christmas Eve and 0900 and 1200 on Christmas Day - Chaplain Travers celebrated the Masses.

A Protestant Service of Carols and Candles was held on Christmas Eve in the chapel.

Cookies were distributed to those on duty on Christmas Eve by members of the chapel congregations.

Nine Thanksgiving food baskets were distributed at Thanksgiving and six baskets at Christmas.

Pot Luck Suppers were held by the Protestant and Catholic congregations throughout the year on a periodic basis.

OUTREACH PROGRAMS - PROJECTS WERE:

Military Ordinariate
Church World Service
American Bible Society
Prison Fellowship
Regional Memorial Hospital Chaplaincy
Sweetser Children's Home
Navigators
USO Headquarters
Brunswick Soup Kitchen
Bath/Brunswick Hospice
Pine Tree Society
Bath/Brunswick Mental Health
Hiefer Projects, International
Christian Children's Fund, Inc.
Big Brothers/Big Sisters, Brunswick Chapter
Teen Challenge
Radio Bible Class
Dr. Dobson's Radio Hour
MAP International
Tom Skinner Associates
Chief of Chaplain's Fund
Ronald McDonald House of Maine
Trinity Retreat
Chisholm House
Saco Valley Rehabilitation Agency
Lifeline
Chaplain Capodanno Scholarship Fund
Food for the Hungry

COMPTROLLER DEPARTMENT

Comptroller authorized manpower as of 31 December 1984 was:

	CODE	MILITARY	CIVILIAN
Comptroller	10000	1	
Deputy Comptroller	10A00		1
Budget Performance Division	10100		3
Program Management Division	10200		8
Internal Review Division	10300		3
IDAFMS Accounting Division	10400		8
ADP Systems Division	10500		12
Administrative Services Division	10600		2
TOTAL		1	37

The Command Funding for FY 83 and FY 84 was:

FY 83	FY 84
20,152,500	20,520,400

Command military and civilian authorization levels during FY 84 were:

	1 OCT 81	1 OCT 84
Military		
Enlisted	509	514
Officer	48	49
Civilian	343	333

Command Civilian Incentive Award Program for FY 84 was:

NUMBER OF AWARDS	VALUE OF AWARDS
60	38,653

FAMILY SERVICE CENTER DEPARTMENT

The Family Service Center Department is comprised of three divisions; Human Services, Relocation Assistance and Operations which provided the following services:

Educational
Outreach and Life enrichment programs
Marriage/Family Counseling
Career Counseling
Information and Referral service
Volunteer Coordination

In addition, the FSC provided support to:

American Red Cross
Navy Relief
Navy Wives Club of America
Ombudsman Council
Retired Affairs

The FSC Department maintained a library of both film video tape and OSDP literature for training and education in Family Advocacy, Pre-deployment, post-deployment and VP community information.

AWARDS:

a. Navy Wives Club of America, Brunswick #163 was awarded the Mary Palozzi Patriotism Award.

Significant Functions or Events in 1984:

a. Family Service Center Grand Opening in new facility on 17 May 1984.

b. Annual Retired Personnel Seminar on 22 September 1984.

c. Liaison accomplished with all USN/USMC/USCG sites in Maine to enlighten them on objectives and services of FSC.

d. FSC participated in "Discover Us Festival" in the town of Brunswick in September 1984.

e. Director elected to Board of Directors, Bath-Brunswick Mental Health and Parkview Memorial Hospital, representing USN/FSC.

f. Budgeting and Financial Management Seminar, conducted by Mrs. Angela Marquette, Navy Relief Budget Counselor, Groton, Connecticut on 24-25 October 1984.

g. Semi-annual Family Service Center Awards Luncheon on 7 November 1984.

Noteworthy Achievements:

Development of:

a. FSC Babysitting Training and Referral Program.

b. Spouse Information Seminars, (first in several years).

c. Pre-deployment, Deployment, Post-deployment Assistance Programs and Booklets.

d. Comprehensive Information and Referral system.

e. Three tiered financial education programs:

(1) Basic Budget Management
(2) Supervisory
(3) Financial Management and Advanced Financial Management Seminars.

f. Established Relocation and Assistance and Lending Locker services.

g. Family Advocacy Program.

h. Electronic automation (computerization) of various programs and listings.

Personnel Utilizing FSC Services:

Counseling Services/Case Load:

NAVY			OTHER THAN NAVY	TOTAL	# OF SESSIONS
Active	Dependent	Retired			
91	39	1	4	135	315

Community Educational Services:

BRIEF/CLASS/WORKSHOP	SESSIONS	ATTENDEES
Pre-deployment	7	210
Ombudsman	5	95
Financial	6	205
Newcomer	9	170
Command/Staff Briefs	29	2,047
Support Groups	2	79
Non-rated Information Course	1	25

BRIEF/CLASS/WORKSHOP (continued)	SESSIONS	ATTENDEES
Career Information Benefits Course	1	30
Champus Awareness	1	16
Red Cross Certification	1	2
Retired Affairs	1	325

Inquiries:

TELEPHONE CONTACT		IN PERSON	
Crisis Intervention	54	Provided requested information	102
Consultation (3rd party)	112	Referred to military service/resource	50
Information	207	Referred to community service/resource	25
Referral	51	Written requests received	5
Family Advocacy	37		

RELOCATION ASSISTANCE:

Welcome Aboard Packets

Individual	96
Command	1,322
Hospitality Kits	475
Information about other bases	73

LEGAL OFFICE

The Base Legal Office is a consolidated group of three different legal commands composed of a total of six officer attorneys and five enlisted and one civilian paralegal personnel. The office was responsible for court-martial processing, administrative discharges, claims investigation and adjudication and command legal advice. Whether a client needed a simple will or power of attorney or assistance with a more complex legal problem, the NAS Legal Office provided prompt and friendly service. This year the office helped over 2,500 people with their legal assistance problems.

MORALE, WELFARE AND RECREATION (MWR) DEPARTMENT

Organization - Nine Divisions

O'Club	Package Store	Child Care Center
CPO Club	Recreation Services	Common Support Services Office
EM Club	MWR Promotions	MWR Admin - Personnel Support

Personnel	Clubs	RecSvcs	Child Care	Promos	CPS	CSSO	Admin/Personnel
Active Duty Mil. Assd.	4	8					
F/T NAF	13	17	3	3	2	5	1
P/T Int. NAF	79	23	11		2	1	
GS	1		1	1			1

Total: 176

FISCAL REVIEW (FY 84)	INCOME	EXPENSE	PROFIT
Recreation Services	$641,913	$613,498	$28,415
COM	427,284	402,012	25,272
CPO	228,832	223,551	5,281
EM	597,000	574,800	22,170
CPS*	775,002	770,358	4,644

*Dividend - NASB $41,124 (37.5%), NMPC $62,747 (50%), CINCLANTFLT $15,686 (12.5%)

Significant Events:

Commissioned Officers' Mess (COM) established a new full time position of Program Coordinator.

New 24' X 48' addition to COM opened to expand services, new oak dance floor installed and new sound proof partitions installed.

CPO Club managed by active duty Chief achieved self-sufficiency in its first full year of operation after conversion from SPC Club back to CPO Club. CPO Club galley underwent complete rehab. A catering program was established to increase revenue.

Child Care Center established station Child Care Center Advisory Board in November.

First Early Childhood Preschool Christmas Program established in December.

Child Care Center employee, Karen Shufeldt, selected as Civilian Employee of the Quarter at NASB.

All full time and part time Child Care Center employees were trained in CPR in October.

Recreation Services had its 1st Annual 8-Mile Perimeter Road race open to the public.

Bowling Lanes self-help project completed including new carpet, counter, furniture and increased seating.

NASB Golf Course expanded service to patrons by purchasing four new golf carts.

Design work began on new Hobby Shop Garage/Gear Issue building - Total cost $940,000.

Funding requested and approved to improve NASB Gym facility expanding weight room and improvement in locker rooms.

Partial rehab of Topsham Gym completed to improve fleet support for the ships at Bath.

Additional exercise equipment provided to both NASB Gym and Topsham Gym.

Swimming Pool rehab incomplete - Tentative plan is to replace the facility.

New sound system was purchased for the Base Theater.

Participation in intramural sports at an all time record. Increase from last year in excess of 10%.

Monthly "Customer Service" training implemented for all new MWR employees.

Recreation Reach-Out now using portable information centers scheduled weekly at squadron hangars.

MWR Promotions coordinated NASB personnel participation in Donkey Basketball to benefit charity and Special Olympics.

MWR created mascot, "Mainerd the Moose", as unofficial mascot greeter for NASB.

All clubs initiated Designated Driver Program to promote responsible consumption of alcoholic beverages.

Project Recreation Reach-Out won NMPC Best Navy Shore Recreation Award - won $5,000.

MWR Promotions won two awards from NMPC for programs and promotional campaign.

Recreation Services Athletic Director, Bob Laberge, was recognized by NMPC for his contribution to the Intramural Sports Program.

MWR Director and Promotions Director received awards from NMPC for their significant contributions to Navy Recreation.

MWR Promotions began monthly windshield tour of MWR facilities complete with free lunch at EM Club for all new military assigned to NASB.

Recreation Reach-Out expanded to include ships through special funding from CINCLANTFLT to promote fleet support.

Enlisted Club initiated programmed trivia contest in back bar giving free use of recreation facilities as prizes.

EM Club installed a mini-golf course next to the club as alcohol free alternative.

EM Club hosted "Battle of the Bands" all day concert outside on Recreation Services ballfield.

Entertainment provided at EM Club included at least two live bands each month.

NAVY EXCHANGE DEPARTMENT

General Information

1984 was the third year that the NAS Brunswick Exchange operated under the Field Support Office in Davisville, R.I.

Retail sales for the Navy Exchange during calendar year 1984, were $7,441,889 (up 3.7% from 1983).

Service sales for the Navy Exchange were $2,170,460 (down 8.4% from 1983).
Total profits for the Navy Exchange were $72,652 (up $51,300 from 1993).

Noteworthy Achievements during 1984:

Continued to support the branch exchanges where direct support was not possible by the Field Support Office in Davisville, R. I.

Responded to the specific and unique geographical needs of the Maine patron by scheduling special events such as truckload tackle sales, truckload meat sales and special demonstrations.

Continued to provide barber service on a flexible schedule when required by a large group of patrons to meet inspections/change of command events.

Improved communication to Exchange patrons by promulgating information through articles and advertisements in the station newspaper, Plans of the Day of the station and squadrons, initiating a Navy Exchange customer mailing list, and rain check customer satisfaction system.

Opened a new convenience store in one of the local government housing areas, which has provided a much improved service to authorized patrons. This was accomplished with no service interruption from the old store to the new one.

Held down local Navy Exchange expenses, and controlled mark-down dollars with the result being the most profitable year since becoming a dependent exchange incorporated under the field support office concept.

Provided food service support to over 100,000 guests during the 1984 Blue Angels Air Show.

Generated plans to open a Rent-all/Laundromat/Game Room with the objective of increasing sales and providing improved customer service.

Obtained a $120,000 increase in the military payday change fund in order to improve check cashing services and increased the regular change fund 65% in order to provide a more efficient personal check cashing service.

Implemented an Employee of the Quarter and Employee of the Year Program to compliment the existing Employee of the Month program. Distributed 69 letters of appreciation to employees for exceptional performance.

Has continued to provide individualized Retail and Food Service support to home based P-3 squadrons, adjusting hours of operation to meet their needs.

The aggressive collection of bad checks has resulted in a 400% decrease in the number of checks written off.

Opened a new Navy Exchange Ice Cream Shop and increased sales 300% in the square footage previously occupied as a bake shop.

Incorporated numerous minor improvements in existing service such as the addition of a salad bar in the cafeteria, shoe repair and VCR tape retail in Personalized Services, and cable TV in the Navy Lodge.

Converted the Service Station employees from full-time to part-time, eliminating payroll and increasing the bottom line net profit.

Provided increased support to the Morale, Welfare, and Recreation Program by substantially increasing profits and continuing product sponsorship of sports tournaments.

Continued emphasis on Navy Exchange service personnel providing responsive, polite, courteous assistance.

Inventory

The results of the January annual inventory were 1.0% improved over the prior years 1.14%.

Other. The Navy Exchange processed $23,000.00 returned checks (insufficient funds), during the year.

PUBLIC WORKS DEPARTMENT

In calendar year 1984 approximately $6 million of construction was completed. Significant projects completed or initiated follow:

CONSTRUCTION OF PEST CONTROL SHOP

This project was awarded to Keeley Construction Company, Inc. on 6 November for $155,000.00. The Pest Control Shop is a one story concrete masonry unit structure constructed on grade. It will be tied onto an existing structure to provide an additional 1,200 square feet of floor area. The project is expected to be completed on 29 May 1985.

REPAIR OF ROADS - MCKEEN STREET HOUSING

This project was awarded to H. C. Crocker and Sons of Brunswick on 17 May for $448,671.00. The work includes the repair of existing streets and sidewalks, the installation of new granite curbing, and hot bituminous overlay of all streets and sidewalks. The scheduled contract completion date is 27 May 1985.

REPAIRS & ALTERATIONS TO BUILDINGS 381 & 383

This project was awarded to H. E. Callahan Construction Company of Auburn, Maine for $865,000.00 on 24 October. The work includes the demolition and removal of existing partitions and the complete construction of new office and computer area partitions. Total repairs and alterations also include all plumbing, heating, ventilation and electrical systems. The scheduled contract completion date is 4 September 1985.

DEMOLITION OF BUILDING 369, DIRECTIONS CENTER/OPERATIONS BUILDING

This project was awarded to Wyman & Simpson, Inc. of Augusta, Maine on 13 November for $403,700.00. Complete demolition of the former Air Force Directions Center and appurtenant structures are included under this project. Completion is scheduled for 25 July 1985.

REHABILITATION OF BUILDING 1, ADMINISTRATION BUILDING

This project was awarded to D. L. Poulin Co. of Brunswick, Maine on 14 November for $814,300.00. This is a complete mid-life rehabilitation of the station administration building. Completion is scheduled for 29 November 1985.

NAVOSH DEFICIENCY ABATEMENT PROGRAM - INSTALLATION OF SMOKE DETECTORS

This $109,432.00 contract was awarded to Mid Maine Electric, Inc. of Litchfield, Maine on 8 November. The work includes the installation of new fire alarm and smoke detector systems for buildings 212, 216, 217, 218 and 512 on station and buildings 376 and 384 at the Topsham Annex. The scheduled completion date is 18 November 1985.

REPAIRS & IMPROVEMENTS TO BUILDING 9, THE HOUSING OFFICE

This contract was awarded to The Diaz Corporation of Jay, Maine on 12 September for $198,700.00. The work, including new office spaces, new heating system, new electrical system and new vinyl siding, is being completed in four different stages which allows the housing personnel to continue working in the building during the construction. The scheduled completion is 26 March 1985.

REPAIR TRAINING BUILDING 339 AT THE TOPSHAM ANNEX

This project was awarded to D. L. Poulin, Inc. of Brunswick, Maine on 25 September for $110,800.00. The work shall consist of mainly energy conservation improvements, specifically, a new insulated and fully adhered rubber roof, and new insulated windows and doors. The work is scheduled to be completed by 24 June 1985.

REPAIRS & ALTERATIONS TO THE ARMORY, BUILDING 223

This project was done by Davis & Hanscom of Steep Falls, Maine. The interior remodeling done boasts a combination of office spaces with the armory workshop and new hardened armory room. In addition, completely new exterior siding, roof, heating system and electrical system was constructed. The building was occupied by mid July 1984.

REPLACE OIL TANKS - TOPSHAM HOUSING

This job, completed in June by South China Plumbing & Heating, replaced old, leaky fuel oil tanks with new fiberglass tanks at 48 housing units at the Topsham Annex.

REPAIR OF PAVEMENTS AT BRUNSWICK GARDENS

This job was awarded to H. C. Crooker & Sons of Brunswick on 16 September 1983 for $402,445.00. Although the major items of work are the street overlay, sidewalk construction and landscaping, the job boasts the use of a repair fabric for pavement cracks in lieu of the time consuming and expensive cut out and patch. Time will show it's effectiveness.

MAINTENANCE & REPAIR CASCO BAY

This contract was awarded to A. P. Whitaker & Sons, Inc. for $1,397,000.00 and includes the painting of the fuel tanks, fuel farm buildings, installation of a pier crane and new catwalks, a peving overlay of the fuel farm roads, installation of oil water separator and FS II storage tank, as well as valve replacements and pipeline repairs. Completion is expected in October 1985.

CATHODIC PROTECTION AT DFSP CASCO BAY

This contract was awarded to Mid Maine Electric, Inc. for $253,000.00. This contract includes the installation of an impressed current cathodic protection system for all fuel tanks and pipelines. Completion is expected in September 1985.

REPAIR TAXIWAY "A"

This contract was awarded to H. C. Crooker & Sons for $693,200.00 and includes repairing cracks in Taxiway "A", a complete asphalt overlay, and concrete slab replacement. Completion is expected in November 1985.

EXIT ACCESS HANGAR 1

This project was awarded to Keeley Construction Company, Inc. for $185,000.00 and includes the construction of new fire rated stairwells and new fire wall separating the hangar deck from the office spaces and miscellaneous architectural improvements. Completion is expected in September 1985.

UPGRADE ELECTRICAL UTILITIES TO 35 KV

This contract was awarded to Enterprise Electric for $180,900.00 and includes the installation of new 60' poles and 35 KV conductors, a loop feed transfer switch, a 300 KVA transformer and new bulding service feeds along Fitch Avenue. Completion is expected in June 1985.

REROOF HANGAR 3 LEAN TO

This contract was awarded to Shostak Construction for $140,300 and includes removal of the existing lean to and the installation of new roof trusses and a prefabricated sloped metal roof and roof insulation. Completion is expected in July 1985.

REPAIRS & ALTERATIONS TO BUILDING 250 SUPPLY SUPPORT CENTER

This contract was awarded to Nowak Construction for $682,800.00 and includes the construction of a 7,200 square foot mezzanine floor, the construction of new heating, ventilating, lighting and fire alarm systems. Completion was accomplished in September.

REPAIR STATION SECURITY FENCING

This contract was awarded to Lafayette and Sheldon, Inc. for $256,400.00 and included the repair of existing station security fence and the installation of a 7' chain link fence around the airfield perimeter. Completion was accomplished on 30 November 1984.

REPAIR STORM DRAINS

This contract was awarded to Maine Rental & Supply for $611,800.00 and included the replacement of parking apron storm drains and catch basins, as well as the cleaning of all storm drain lines, sealing all drain line joints. Completion was accomplished on 30 November 1984.

RELOCATE PHOTO LAB

This contract was awarded to Nowak Construction for $557,500 and included the demolition of existing spaces in Building 250, construction of new Photo Lab office spaces, dark rooms and laboratories. Completion was accomplished in May.

35 KV CIRCUIT EXTENSION

This contract was awarded to Enterprise Electric for $122,700.00 and included the installation of new 60' poles, 35 KV conductors, a loop feed transfer switch, two 300 KVA and a 75 KVA transformer, and new building service feeds along Avenue "A". Completion was accomplished in October.

CLEAR ZONE

Fee acquisition was contemplated for 12 parcels. Ten parcels have been acquired and negotiations are on-going for the remaining 2. Restrictive easement was contemplated for 6 parcels. None have been acquired to date. Completion is expected in 1985.

HAZARDOUS WASTE

Concern over possible contamination resulting from past disposal practices at NASB prompted the station to request inclusion in the Navy Assessment and Central of Installation Pollutants (NACIP) Program in the spring of 1981. An actual investigation under the authority of this program was performed by Roy F. Weston, Inc. of Philadelphia, Pennsylvania in November 1982 and identified nine sites located within the station boundaries of which seven were recommended for confirmation study. E. C. Jordan Co. of Portland, Maine began the verification phase of the confirmation study in October of 1984 to determine if suspected contamination did exist. The preliminary findings as of February 1985 are that two of the sites require a characterization study due to the presence of volatile organics, four of the sites require additional sampling and testing to determine if any further study is required and one site requires no further work due to the lack of any measurable levels of contamination. It is expected the additional work will be concluded by the fall of 1985 and that strategies to perform remedial action will follow if determined to be necessary based on the findings.

SAFETY

The Command Safety Office was reorganized to fall within the scope and intent of existing instructions. That reorganization eliminated the Command Safety Office concept as well as the Command Safety Officer position per se. The functions of the Command Safety Office are now within two distinct areas. These areas of responsibility became the Navy Occupational Safety and Health (NAVOSH) and Aviation Safety Offices. Both of these offices and the individuals in charge report directly to the Commanding Officer as staff assistants.

One of the high points during the year was the successful completion of the COMNAVAIRLANT NAVOSH Compliance Inspection. Additional crucial involvement of Occupational Safety and Health (OSH) staff personnel included:

a. Specialized departmental safety training
b. Asbestos control
c. Respiratory protection
d. Hearing protection
e. Approval of future construction projects with regard to safety features and numerous additional programs that ensured each NASB employee or visitor had a safe environment in which to work or conduct business.

The safety involvement in numerous traffic safety areas proved to be of great benefit to all NASB personnel once again. Activities included:

a. Two major holiday drive safe presentations (one was presented in August and one in December); biweekly motorcycle safety courses; pre-winter motor vehicle skid control training (the only course of this kind in the Navy); station participation in a national program to increase the awareness of the "drunk/drugged" driver on the nation's highways and two major airfield FOD walkdowns were conducted (the first major FOD walkdown took place in April and the second in October). By year's end the wearing of seatbelts by all occupants of motor vehicles was mandatory.

On July 1, 1984, NAS Brunswick completed it's 24th accident-free flying year and at the close of CY 84 had flown 37,711 accident-free hours. The amassing of those accident free hours took place in numerous aircraft types that include: C-1A's, H-34's, UH-1N's and the C-12.

SUPPLY DEPARTMENT

CDR Duane R. Velte relieved CDR Rene A. Smith as Supply Officer on 24 August 1984. 1984 was a very successful year for the Supply Department. While there were numerous inspections (7 in 10 months), all results were favorable. New innovations enabled Supply to meet the ever growing demands placed upon it with excellent results. Accomplishments by Division follow:

Control Division

Installation of a new Defense Logistics Agency remote terminal. This allows item managers to query the supply system for 9 cog material and receive a real time response. The result is improved support for station customers.

The purchase branch obtained excellent grades from the bi-annual Contracting Maintenance Review performed by the Navy Regional Contracting Center in Philadelphia. This was accomplished despite a 160% turnover in personnel since the last review.

Implementation of new Carcass Tracking procedures. The ability to monitor the flow of repairable material will greatly reduce losses and is preparing the department for the advent of Aviation Depot Level Repairables which will arrive in early 1985.

Eliminated the Navy Stock Fund management of provisioning; transferring this operation to the Galley. This will allow for improved labor use in managing aviation stock.

Material Division

Successful implementation of the Warehouse Most Efficient Organization. This government retained contract operation was streamlined for improved storage/shipping facility management. The government's bid (awarded in 1983) was over $340,000 less that its closest competitor.

The fuel farm improved its physical security plan by the addition of perimeter fencing and electronic gate operations. A new gas station was opened which allows a smoother flow of customer vehicles.

The Automotive Pre-expended bin operation contracted a single "super" Blanket Purchase Agreement which has reduced the down time of fleet vehicles by over 40% in less than 3 months.

Food Service Division

The Galley successfully reviewed, corrected, and completed all discrepancies identified by the Navy Inspector General in its operation and management. With this effort came the grade of Outstanding by the COMNAVAIRLANT Supply Management Inspection team.

Converted to end-use method of provisions procurement which enabled the Galley to provide a more efficient means of ordering, receiving and issuing of store. The net result will be seen in more enhanced menus, reduced spoilage, and higher customer satisfaction.

Aviation Supply Support Division

The ASSD moved into a completely renovated building during 1984. The design of the spaces allowed for enhanced material flow, better operations management, and a consolidated and more efficient use of available space. A logistics plan is being developed which will move certain high usage material to the vicinity of the new ASSD warehouse space.

Specific aviation support accomplishments realized include:

a. An average of less than 1 off-station AKO per month for the year.

b. Wing improved mission readiness of over 83%; well above the established goals.

c. An increase in material inductions from 1200 to 1800 per month into the AIMD with an RFI rate in excess of 73%.

d. An average cannibalization rate (per 100 hrs) of less than 10.

Planning/Administrative and Customer Service Division

Implementation of a new Customer Service Council designed to create a smooth interface between Supply and tenant activities.

Completion of the development of a comprehensive Customer Service Manual designed to assist users seeking access to the supply system.

Reorganizing and steamlining the department into more basic functional branches.

TELECOMMUNICATIONS DEPARTMENT

The Communications Department was redesignated the Telecommunications Department.

The Telecommunications Services Division, Telecommunications Maintenance Division and Telecommunications Management and Contracts Division were established.

Due to divestiture of AT&T, numerous changes were necessary in the Telephone Division and are outlined under Telecommunications Management & Contracts Division.

An Emergency Communications Response Team was established to provide rapid response short-term communications at a remote site.

Communications support for a CNO Special Project was provided.

Operations Division

Assigned a quality assurance traffic checker after normal duty hours.

Received authority from CINCLANTFLT to waive the requirement to maintain accountability for secret messages within the message processing center.

The message traffic totals increased to 265,020 -- an increase of 8% above 1983.

Antisubmarine Warfare Operations Support Division

Assumed responsibilities as Broadcast Keying Station for the Western Atlantic Patrol Squadron Broadcast (WSVP) serving the Brunswick, Jacksonville and Bermuda ASW sectors.

Gained secure high frequency voice capability as a result of Parkhill installation.

Maintenance Division

"Parkhill" high frequency secure voice installed in the communications console.

Link 11 monitor and Integrity Test Set (LIMITS) were installed in the Operational Control Center with patching through ASWCOMM.

CODEX 9600 modems for antisubmarine Warfare Command and Control Center System (ASWCCCS) were replaced by LSI 9600.

Cutler/Brunswick circuit connectivity upgraded with new "T" carrier transmitting system.

Reserve Training

The Telecommunications Department provided 3,780 hours of training time for six reserve units.

Management and Contracts Division

The divestiture of AT&T was executed effective 31 December 1984. The many changes in organization and operational procedures necessitated a drastic change in the Telecommunications Department. A Telecommunications Management and Contracts Division was established with a new position as director for Management and Administration of telephone services.

The division was divided into three branches: Administration, Financial/Budget Execution Cost and Telephone Operations Branches. Changes in billing procedures and new accounting requirements resulted in the establishment of positions for a budget assistant and a billing/accounts clerk.

A position was established for a Communications Specialist, as yet unfilled. The person selected will serve as the assistant to the director for Management and Administration.

Plans were completed for a new telephone building with a projected completion date of February 1986.

A Communication Posture Survey was completed to establish the need for a new state-of-the-art telephone system.

WEAPONS DEPARTMENT

Aviation Ordnance Division

Provided Weapons Support Equipment for 4 Squadron Nuclear Technical Proficiency Inspections.

Prepared and provided 320 mines/bombs in support of 4 Mine Readiness Certification Inspections (MRCI) and 4 MRCI Technical Assistance Visits (MRCI TAV). Additionally, supplied 10 units of Weapons Support Equipment (Aero 51 Trailers) per MRCI/MRCI TAV.

Provided Weapons Support Equipment and ordnance for 10 COMPATWING FIVE Vulnerability Periods.

Trained and qualified 1,377 personnel in Small Arms Training between January and September 1984.

Completed 511 Ordnance transactions. Approximately 700 tons of ordnance was either received or expended.

Prepared and made ready 12 AGM 84 Missiles in support of contingency operations in the Caribbean, 30 November.

Successfully completed five major Command Inspections:

a. Ammunition Hazard Review Board (AMHAZ) 4 May.

b. Arms, Ammunition, and Explosives Security Inspection (AA&E) 19-20 June.

c. COMNAVAIRLANT Force Security Inspection 9-13 July.

d. Completed audit of all ammunition stowed aboard NASB (zero discrepancies) 23-25 October.

e. Department of Defense Explosive Safety Board (DDESB) 30 October.

MAUW Division

Provided weapons support for 4 Squadron NTPI's.

Issued and received/transferred 719 ordnance items, resulting in approximately 100 tons of ordnance moved.

Provided weapons support for 10 COMPATWING FIVE vulnerability periods.

Provided 64 MK 46 Torpedoes and 52 BDU's in support of COMPATWING FIVE operations/training.

Successfully completed five inspections/inventories:

a. 2 Stockpile Inventory Reports (SIR) 31 March and 30 September.

b. Torpedo Readiness Assistance Team (TRAT) Inspection 27-31 August.

c. Conducted 4 RADCON Surveys 17 & 19 September and 4 & 22 October.

d. Nuclear Technical Proficiency Inspection (NTPI) 6-8 November.

e. Conducted Annual Nose and Fin Inspection as required per unit.

Provided 1 QUAST Weapon to COMPATWING FIVE 30 September.

Performed 112 maintenance actions on stockpile and associated equipment.

ROSTER OF NAS OFFICERS

Captain Harold L. NIDTVEDT	Commanding Officer
Captain Gene D. LANDRY	Senior Chaplain
Commander Donald F. RAHN	Executive Officer
Commander Frederick J. MASCIANGELO	Family Service Center Officer
Commander Lloyd K. JONES	Public Works Officer
Commander Duane R. VELTE	Supply Officer
Commander David D. TRAVERS	Catholic Chaplain
Commander Dwayne H. NELSON	Air Operations Officer
Commander James N. SVEC	AIMD Officer
Commander Leonard F. PRESCOTT	Executive Assistant
Lieutenant Commander John M. MCGIVAREN	Administrative Officer
Lieutenant Commander Peter A. O'BRIEN	CAAC Director
Lieutenant Commander Bruce D. KINCAID	Comptroller
Lieutenant Commander Frederick M. FOX	Command Safety Officer
Lieutenant Commander Clay A. GOEHRING	Asst. OPS Officer
Lieutenant Commander Ronnie L. RODEFFER	AIMD Production Control Officer
Lieutenant Commander James A. ADAMSON	Security Officer
Lieutenant Commander Gary G. GEILENFELDT	NEX Officer
Lieutenant Commander David A. JONES	Asst. Public Works Officer
Lieutenant Edward M. BOYD	Asst. AIMD Officer
Lieutenant Jacquelyn M. Y. ARROWOOD	Asst. ADMIN Officer
Lieutenant Kenneth G. RIGOULOT	NATOPS/SAR Officer
Lieutenant James C. KERNER	Supply Equip Division Officer
Lieutenant Walter HANSTEIN	Legal Officer
Lieutenant John C. FLOYD	Food Service Officer
Lieutenant Gary D. HEINKE	Protestant Chaplain
Lieutenant Richard T. KUSMIERZ	AIMD AV/ARM Division Officer
Lieutenant William F. MURRAY	Aviation Supply Support Officer
Lieutenant Robert A. BEACH	Branch COMSY Store Officer
Lieutenant Robert L. CLARK	CEMD Officer
Lieutenant Kennieth L. LOWERY	AIMD Power Plants Division Officer
Lieutenant Larry F. VANDESSEL	Shop Engineer
Lieutenant William C. COLE	Weapons Officer
Lieutenant James M SPEARY	Supply Customer SVC Officer
Lieutenant Stephen W. JORDON	CMD Division Officer
Lieutenant Arno C. JUSTMAN	ADMIN Services Division Officer
Lieutenant Eddie B. POTTER	AIMD MAT CONT Officer
Lieutenant (junior grade) David K. SCHATTNER	Transportation Officer

Enclosure (5) to CO NASB ltr
Ser 387 of 1 March 1985

Chief Warrant Officer (4)	Thomas C. MURPHY	Special Projects Officer (TELECOMM)
Chief Warrant Officer (1)	Samuel M. WHITAKER	Asst. TELECOMM Officer
Chief Warrant Officer (3)	Charles R. PRIEST	ATC Officer
Chief Warrant Officer (3)	Thomas W. SKOBLICKI	Asst. AV/ARM Officer
Chief Warrant Officer (3)	Michael D'ORIO	Asst. Security Officer
Chief Warrant Officer (2)	Richard D. CHATEAUNEUF	Airframes/Aviators Equipment Division Officer

HRA-0128

1966

NAVY BRUNSWICK: A BRIEF HISTORY

U.S. NAVAL AIR STATION BRUNSWICK, MAINE

The U.S. Naval Air Station, Brunswick, Maine was commissioned on April 15, 1943. Originally conceived as a base for in-shore and off-shore patrol squadrons, its mission during World War II was shifted to the training of Royal Canadian Air Force pilots of the British Naval Command.

The station's wartime efforts were plagued by shortages of men, buildings and operating areas. In spite of these handicaps, over 25 British squadrons received their training, and antisubmarine warfare missions were flown 24 hours a day. Satellite landing fields at Sanford, Rockland and Auburn, Maine were supported by the station at the peak of its operations.

In 1947 the air station was deactivated. Four years later, in 1951, it was recommissioned and assigned a primary mission of antisubmarine warfare. The Air Force's 654th Radar Squadron moved in to man the Control and Warning Facility as part of the continental circumferential radar screen. Buildings were erected at a whirlwind pace to accommodate the men and patrol planes of Fleet Air Wing THREE which took up residence at Navy Brunswick after recommissioning.

Today more than 3,000 Navymen and civilians work in support of antisubmarine warfare. The five squadrons of Fleet Air Wing THREE comprise the largest assemblage of patrol aircraft on the east coast. Flying the long-range SP-2H "Neptune," and the P3A and P3B "Orion," the squadrons canvass the North Atlantic in search of enemy subs. They regularly deploy from their home at Navy Brunswick to such points as Sicily, Cuba, Spain, Iceland, and Newfoundland, teaming up with America's NATO forces.

Navy Brunswick also lends its support for Fleet Air Wing THREE's secondary missions: Aerial minelaying, low-level bombing, rocketry, logistics assignments, and air search and rescue operations.

One million dollar renovations to two World War II hangars were recently completed to house two squadrons' P3A "Orions," which replaced the Neptunes in 1966. Orions are larger, more versatile, and can deliver with pinpoint accuracy the most powerful ASW weapons in existence. The Orion can get to its destination faster, stay longer, and return sooner.

Transitioning from the reciprocating engine Neptune to the turbo-prop Orion involves some nine months of intensive training, both at Navy schools and aircraft factories. Pilots, crew members and air station maintenance men are receiving training in all flight, repair and ASW aspects of the Orion. The Naval Air Station's Supply System has been realigned to provide the necessary support to Fleet Air Wing THREE upon the arrival of the P3B.

1966

Construction aboard the Naval Air Station has been steady since its recommissioning. An estimated $1,262,700 has been earmarked for NAS building projects completed or underway in 1966. A $320,000 chapel center has recently been completed. A centerline runway lighting system is being installed. An eight-lane bowling alley, plus modernization of the station cafeteria and an addition to the hobby shop were completed in the spring of 1966. Planned construction for 1967 includes a new one hundred-foot long swimming pool, with a collapsible dome for year-round swimming activities. The air station now covers 3,298 acres of land, and is located two miles east of the town of Brunswick.

Navy Brunswick plays a key role in weather forecasting. In 1961 a 100-foot weather radar tower was erected. This tower, topped by a large white dome which houses the radar gear, is part of a coastal network set up to detect and track approaching hurricanes. Its "eyes" sweep a 150-mile radius.

Aside from the patrol squadrons, the Naval Air Station supports the U.S. Naval Security Group Activity, Winter Harbor; the U.S. Air Force Installation (SAGE) at Topsham; the U.S. Naval Radio Station (T) Cutler, East Machias; the U.S. Navy Escape and Evasion Facility, Rangeley; the U.S. Navy Sonobuoy Test Facility, Bristol; and the 4626th Air Force Support Squadron at the air station.

Navy Brunswick falls under the operational control of Commander Naval Air Forces, Atlantic Fleet, at Norfolk, Virginia. Its immediate superior is Commander Fleet Air Quonset, based at Quonset Point, Rhode Island.

December 1966

NAVY NEWS RELEASE

SERVICE INFORMATION OFFICE

U. S. NAVAL AIR STATION BRUNSWICK, MAINE

TELEPHONE: 725-5561 EXT. 349/457

Brunswick
Maine

FOR IMMEDIATE RELEASE
23RD ANNIVERSARY OF NASB

RELEASE #43-66
14 April 1966

Friday, April 15, marks the 23rd anniversary of the commissioning of Naval Air Station Brunswick (NASB) as a Naval facility.

The station's primmary mission at the beginning was the training of the Royal Canadian Air Force pilots of the British Naval Command.

During World War II, the station pilots as well as those of the Royal Air Force used the station as a base from which they carried out anti-submarine warfare.

In 1946, the station was deactivated and leased to Bowdin College and the University of Maine to help relieve the over crowded conditions of those going to school on the GI Bill.

In 1949 the station was reverted to caretaker status. Hanger One became a skating rink, Hanger Two and the Operations Tower (all temporary buildings) a civilian flying school, and Hanger Three housed automibiles. Ammunion magazines were converted into mushroom farms, and the northern boundary became a shrub nursery.

On March 15th, 1951, the station was recommissioned as a Naval Air Facility. Included in the new construction were dual 8,000-foot runways, and new facilities to replace the World War II temporary structures.

- MORE -

Also in the project was a modern operations tower capable of handling all flights of a full scale Naval Air Station; nine three-deck concrete barracks with a capacity of over 2,000 men; a modern mess hall; a new hanger; an Enlisted Men's Club, a theater, a Commissary Store, a Bachelor Officers' Quarters and a Crash-Rescue fire facility. Since then a new station bowling alley and a new station chapel has also been completed, and the runways and hangers have been enlarged to handle the newer aircraft now flown.

In the spring of 1951 there were only a handful of men on the base. Today there are over 2,000 military personnel, including the personnel of five patrol squadrons which compose Fleet Air Wing Three, plus over 350 civilian personnel working in the station departments.

Today P3A and P3B Orions, the latest and the best in ASW equipment are being flown by local squadrons. The mission has changed, but as NASB nears QUARTER a ~~greater~~ century of service to its country, its determination has not. Built for business, the motto 23 years ago is still the motto today.

1966

U. S. NAVAL AIR STATION

BRUNSWICK, MAINE 04011

IN REPLY REFER TO
PA:JLW:jw
5720
28 March 1967

From: Commanding Officer, U.S. Naval Air Station, Brunswick, Maine 04011
To : Chief of Naval Operations (OP-05A5G), Department of the Navy, Washington, D.C. 20350

Subj: Command History (OPNAV Report 5750-1)

Ref : (a) OPNAV INSTRUCTION 5750.12

Encl: (1) Command history of U.S. Naval Air Station, Brunswick, Maine

1. In accordance with reference (a), enclosure (1) is submitted.

JoAnn L. Winer
JOANN L. WINER
By direction

Encl. (1)

Copy to:
Chief of Naval Operations (OP-09B9)

Key 13719
4/5/67

I. Chronology of Events

2 February -- Mrs. William P. Orrall receives first 1,000 - hour volunteer service pin from the Brunswick chapter of Navy Relief.

3 March -- All Officers' Wives Club presents a check for $1303 to local charities.

1 April -- Harold J. Robicheau, EO1, USN, receives the Navy Commendation Medal.

18 April -- Sixty-three enlisted men and women are promoted.

21 May -- Armed Forces Day Open House (ANNEX A)

22 May -- Dedication of station chapel (ANNEX B)

3 June -- Major Gerald J. Slack, CO, Marine Barracks, NASB, receives Bronze Star with Combat "V" and Navy Commendation Medal with Combat "V". (ANNEX C)

28 June -- Navy and Marine Corps wives receive diplomas from a Navy Relief training course.

8 July -- Commander Robert A. Ouellette, USNR-R, is appointed Maine State Chairman for the Fiftieth Anniversary of the Naval Air Reserve. (ANNEX D)

28 July -- Captain Edward F. Riley, XO, Marine Barracks, NASB, receives Bronze Star with Combat "V". (ANNEX C)

20 August -- President Lyndon B. Johnson arrives at NASB. (ANNEX E)

10-11 Sep -- Navy Brunswick Open House (ANNEX F)

19 Oct -- Governor John H. Reed proclaims 27 October as Navy Day in the State of Maine. (ANNEX G)

4-10 Nov -- Detachment of Seabees at Rangeley, Maine, for area reconstruction. (ANNEX H)

2 Dec -- United Fund Charity drive ends at NASB. (ANNEX I)

2 Dec -- ATN2 Patrick L. Gardner receives the Air Medal; CM1 Donald R. Kubesh receives SECNAV Commendation Award.

12 Dec -- Inspection team from ESSA arrives to inspect the Navy Fuel Farm at Harpswell, Maine.

II. Basic Narrative

(A) Mrs. William P. Orrall, wife of AX1 Wm. P. Orrall of VP-23, received the first 1,000-hour volunteer service pin from the Brunswick chapter of Navy Relief. Mrs. Orrall helped reorganize the NASB Thrift Shop when she arrived here in 1960. She manages the shop with a staff of 10 volunteer workers.

(B)The check for $1303 represents the proceeds from the All Officers' Wives Club Christmas bazaar. The money was allocated to the Pineland Hospital and Training Center, Bath-Brunswick Mental Health Association, Ricker School, Bath Military and Naval Children's Home, NASB library, and NASB nursery.

(C) Harold J. Robicheau, EO1, USN, was presented the Navy Commendation Medal and a citation signed by SECNAV Paul H. Nitze for meritorious achievement accomplished while serving with Operation Deep Freeze in 1965. The citation reads in part: The medal is awarded

> "for meritorious service as Petty Officer in charge of grounds maintenance, McMurdo Station, Antarctica, from March through August 1965, and as Petty Officer in charge of a nine-man field party which reactivated Hallett Station, Antarctica, in September, 1965."

In order to do this work, Robicheau and his field party had to cope with "obstacles of sub-zero weather and complete isolation." While working at the station, they also constructed a runway on the ice of Edisto Inlet in record time.

The citation furhter states: "Through his ready acceptance of the heavy responsibility for the lives of his men under hazardous conditions, and his competent accomplishment of the task assigned, Robicheau contributed directly to the timely commencement of Operation Deep Freeze 66. His leadership, initiative and resourcefulness were in keeping with the highest traditions of the U.S. Naval Service."

(D) As a result of the August and February fleet-wide examinations, 63 men and women were promoted. This is the largest number to have been promoted at one time at NASB.

(E) Armed Forces Day was observed at NASB with an Open House from 1300-1800. Planning for the program was begun in March by the following service representatives:

Navy(LCDR Olin J. Shuler, Fleet Air Wing THREE
(
(ENS JoAnn L. Winer, Naval Air Station

Marine Corps -- Sgt. Maj. Robert V. Flowers, Marine Barracks, NASB

Air Force -- Lt. James A. Houghtaling, Topsham Air Force Station

Army -- Major Radcliffe G. Mitchell, Bowdoin College ROTC staff

The time schedule for the Open House was as follows:

1300 - Diving team demonstration (EOD personnel)

1400 - Parachute jumps by Army Special Forces personnel

1430 - Diving demonstration

1500 - Fire Fighting demonstration

1530 - Diving demonstration

1600 - Parachute jumps

1700 - Diving demonstration

All of the static displays were positioned in Hangar 4. They included exhibits by the land and sea survival school, Red Cross, Medical Department, Civil Air Patrol, Marine field bunker with weapons, foreign weapons, Army tank, ROTC display, P3 NEPTUNE and P3 ORION.

Throughout the week (16-22 May) there were daily reveille and retreat ceremonies on the Brunswick mall, with Air Force, Navy, and Marine Corps participation. Bath and Brunswick radio stations carried special programs on the armed forces, ranging from spot announcements to interviews. The Marines had a window display of 1775-1966 uniforms in a Brunswick clothing store during the week.

Estimates of the crowd ranged from 5,000 to 8,000 personnel. (ANNEX A)

(F) Dedication of the station chapel took place on 22 May. Details of the ceremony are included in "Activites of the Chaplain", page 38. (See ANNEX B for photos)

(G) Major Gerald J. Slack, Commanding Officer, Marine Barracks, NASB, was awarded the Bronze Star Medal with Combat "V" and the Navy Commendation Medal with Combat "V". He served with Headquarters Battery, Third Battalion, Twelfth Marines, from 15 May 1965 5o 28 February 1966. Major Slack was the first Vietnam veteran to be decorated at the Naval Air Station. (See ANNEX C for a copy of the citation accompanying the Bronze Star Medal)

(H) Thirty Navy and Marine Corps wives received diplomas for having completed a Navy Relief training course, which was conducted

by Miss Evelyn Higgins, Field Representative. The intensive two-week course is given in this area every two years for Navy and Marine Corps wives. It included information concerning pensions, benefits, health services available to Navy families, aid for dependents' education, etc. The volunteers were acquainted with the rates and ranks of the Navy, pay scales, and budgeting. The techniques of interviewing, recording, and planning the Society's work were stressed. Upon completion of the course, the wives volunteered as receptionists, interviewers, Thrift Shop workers, and layette committee women. The size and work load of the local group had increased, requiring more personnel.

(I) On 8 July CDR Robert A. Ouellette, USNR-R, General Safety Officer at NASB, was appointed Maine State Chairman for the 50th. anniversary of the Naval Air Reserve.

CDR Ouellette was a Naval aviator during World War II and returned to civilian life in 1945. He has maintained his affiliation with the Navy in various ready squadrons at Squantum and South Wey-Mouth, Massachusetts.

He has been General Safety Officer at NASB for the past six years. (See ANNEX D)

(J) On 28 July Captain Edward F. Riley, XO, Marine Barracks, NASB, was awarded the Bronze Star Medal for meritorious service in Vietnam in 1965. (See ANNEX C for a copy of the citation accompanying the Bronze Star Medal)

(K) On 20 August, President and Mrs. Johnson and their daughter Lynda landed at NASB in Air Force One, the Presidential plane, for a "non-political, non-partisan" visit to Maine. Approximately 5,000 people were on hand to greet the family.

The air station was opened to the public at 1400, and no traffic was allowed to move for 10 minutes before the President's arrival and for 10 minutes after his departure. Approximately 200 sailors and Marines were on duty as security guards, positioned at all street corners and intersections, and on the roofs of buildings. A helicopter hovered overhead while the President was aboard the station. (See ANNEX E for photo and news clippings)

(L) Approximately 30,000 people (10,000 Saturday, 20,000 Sunday) were aboard NASB 10-11 September to view the static displays and aerial demonstrations. On hand to perform were the Blue Angels, Flying Professor, Golden Knights, U.S. Naval Base Boston Band, and the Colonial Fife and Drum Corps Team. There was also a P-3B ORION from NASB and a Canadian ARGUS aircraft from the Canadian Maritime Headquarters, Halifax, Nova Socita, for visitors to tour.

Mr. Lawrence Eldridge, AP, Portland, Me., and Mr. John Mickles, WCSH-TV, Portland, were the two media representatives who flew with the Blue Angels' Public Affairs Officer on the demonstration flight in the TF-9J Cougar. (See ANNEX F)

(M) Governor John H. Reed signed a proclamation naming 27 October "Navy Day" in Maine. (See ANNEX G)

(N) (See page 21 and ANNEX H)

(O) The United Fund Charity Drive at NASB ended on 2 December. Fleet Air Wing THREE Units and the Naval Air Station pledged $7419.90, which included the $1500 proceeds from the Navy Charity Ball. Navy Brunswick's contribution to the area United Fund pushed the town over its goal by approximately $5000. (See ANNEX I)

(P) In conjunction with the Captain's Personnel Inspection on 2 December, an award ceremony was held, during which ATN2 Patrick L. Gardner received the Air Medal. The citation read in part, "For meritorious achievement in aerial flight as an Aircrewman...during twenty missions in support of combat operations in Southeast Asia against the insurgent Communist Guerrilla forces...ATN2 Gardner contributed materially to the success of United States efforts...His courage and devotion to duty in the face of hazardous flying conditions were in keeping with the highest traditions of the United States Naval Service."

At the same ceremony, CM1 Donald R. Kubesh was presented the SECNAV Commendation Award. It was in recognition of the outstanding performance by CM1 Kubesh in the execution of his duties as a member of the maintenance section of Alpha Company of U.S. Naval Construction Battalion Four during its deployment to Chu Lai, RVN.

(Q) A seven-man inspection team from ESSA inspected the Navy Fuel Farm at Harpswell, Maine, on 12 December, as a possible site for a multi-mission dollar oceanographic institute to be developed with

federal funds. The 56-acre site is located on the west side of the outer tip of Harpswell peninsula. This is one of 100 sites in competition for the institute. No results or recommendations have yet been received from the study group.

III. Command Organization and Relations

A. Commanding Officers and dates of command

1. CDR J.C. Alderman, USN	15 April 1943 - August 1944
2. CDR E.M. Ellis, USN	August 1944 - August 1945
3. CAPT Joe Taylor, USN	August 1945 - October 1946
4. CDR W. L. Dawson, USN	October 1946 - November 1946
5. LCDR H.G. Pollard, Jr., USNR	November 1946 - July 1947
(DEACTIVATED 1947 - 1951)	
6. CDR F.L. Palmer, Jr., USN	15 March 1951 - 2 August 1952
7. CAPT G.G. Price, USN	2 August 1952 - 7 June 1955
8. CDR G.H. Duffy, USN	7 June 1955 - 9 December 1955
9. CAPT J.T. Yavorsky, USN	9 December 1955 - 10 Jan 1958
10. CDR D.W. Bowman, USN	10 January 1958 - 6 Feb 1958
11. CAPT F.R. More, USN	6 February 1958 - 11 Sep 1959
12. CAPT M.T. Hatcher, USN	11 September 1959 - 29 June 1961
13. CAPT H.L. Tallman, USN	29 June 1961 - 14 July 1961
14. CAPT W.L. Pack, USN	14 July 1961 - 25 June 1963
15. CAPT E.J. Knoche, USN	25 June 1963 - 21 July 1965
16. CAPT D.C. Rains, USN	21 July 1965 -

B. Location of headquarters -- Naval Air Station Brunswick is located two miles east of the town of Brunswick, Maine, on Route 24.

C. Mission of Command -- The mission of Naval Air Station Brunswick is to maintain and operate facilities and provide services and material to support operations of aviation activities and units of the Operating Forces of the Navy and other activities and units, as designated by the Chief of Naval Operations.

D. Composition of Command -- Naval Air Station Brunswick is comprised of the following departments:

1. Administration
2. Aircraft Maintenance
3. Air Operations
4. Communication
5. Comptroller
6. Dental
7. Industrial Relations
8. Medical
9. Public Works
10. Security
11. Supply
12. Weapons

The Staff offices are:

1. Legal
2. Chaplain
3. General Safety
4. Aviation Safety
5. Public Affairs

IV. Special Topics

A. Operational statistics -- calendar year 1966

1. Total hours flown by NASB aircraft: 2056
2. Average hours flown per month: 168

3. Average number of flights per month: 76

B. Total number of flight operations handled during 1966, including all fleet units and transients: 53237

V. Station Departments and Staff Offices

A. Aircraft Maintenance Department

1. Division Improvements

a. Aircraft Maintenance Office -- Improvement in supervision has been realized through utilizing 3-M documentation. Positive control of the department repair capability has been realized through the establishment of the Component Repair Review Board which analyzes each month's production to assure that the maximum production is maintained within the available man-hours, equipment, and facilities. By using this positive control system, production has risen from 4,184 items processed in January 1966 to 9,124 items processed in October 1966. Statistics show that during the year, 94.85% of all items processed were placed in an RFI status by AMD.

b. Maintenance Control Division -- During 1966 the Division placed the 3-M maintenance system into effect throughout the Department. This system has been the key to the increased production capability throughout the year.

c. Quality Control Division -- Through individual item screening of all items returned to DOP, the per cent of items returned has remained less than 6%.

d. Material Control Division -- During 1966 Material Control was integrated with the Supply Support Group. This centralization

gave a better utilization of available man-hours which are critical in the AK rating. The AMD Material Support is tied in with all squadron material offices by telewriter, which allows for response within minutes of the demand. All deliveries are with radio-controlled vehicles, which allow for immediate direction of deliveries to those areas requiring timely assistance.

e. Administrative Division -- Even though the AMD has had a reduction of allowance during 1966, by concentrated training efforts, the production capability of the department has not been compromised. During 1966, 18,922 man-hours of professional training and 15,012 man-hours of military training were conducted.

f. Analysis Division -- The 3-M maintenance system has been completely implemented during 1966. In reporting, the errors in field have averaged at 0.28%, and the average error in cards has been at 4.5% -- both of which are within the limits set by the 3-M documentation system.

g. Power Plants Division -- During 1966, the Division has realized a complete repair capability for T-56-14 Engines and GTC-95-2 compressors. The division is still retaining its capability of complete repair for the J-34-36 jet for the P-2 aircraft. By maintaining completely built-up QEC's for J-34-36, T-56-14, GTC-95-2 and R3350-32W, the squadrons can change a J-34 in two hours, a T-56 in four hours, a GTC-95 in four hours, and an R3350 in eight hours.

(1) The Division at present has under construction the first T-56 turbo-prop test cell in the Navy. This facility should be completed and operating by 1 April 1967, which will give Brunswick an all-weather engine rework capability.

h. Airframes Division -- The division has increased its support capability during 1966 by the addition of: a heat-treating oven, an X-ray exposure room, a teflon hose swedging machine, a rivet spinner for overhauling P-2/P-3 brake assemblies, a power hacksaw with hydraulic feed, a set of Gilmore platform scales by which all aircraft aboard are weighed annually, a P-3 hydraulic test bench which gives a complete range of repair to all P-3 hydraulic components, and a spot welding machine.

(1) The tire shop was relocated to an area adjacent to the exterior of the complex, giving an additional 2,000 square feet of needed area inside for a heavy structural repair area.

i. Avionics Division -- The division has increased its capability to support P-3 aircraft from 20% to 94% during 1966, by installing the following test capabilities: inertial navigation, automatic pilot, airspeed computer, AQA-5, AQH-1, OTPI, ECM, MAD (ASQ-10), radar (APS-80) and tactical display system (ASA-16), Communications and Navigation Systems including APN-153, ASA-50, ASA-47, AYK-2, ARN-52, APN-141, ARC-94, ARC-51, ARC-101, and ARM-83. In fact, all but one or two Avionics items on the P-3 are repairable by this division. During 1966, the division was granted permission to overhaul and "zero time" the generator used in P-3 aircraft. Also, the division attained the MC-2 compass calibration unit and all

locally-based aircraft have their compasses calibrated by AMD. Recently, the division received a linear actuator tester, which gives the division a capability to rework and test all electrical-mechanical actuators on the supported aircraft.

j. Ordnance Equipment Division -- This division was established during 1966 and currently has the capability to repair the majority of the ordnance items on the P-2/P-3 aircraft.

k. Aviators Equipment Division -- This division has increased its capabilities to support the P-3 aircraft in 1966, by locally designing and manufacturing a new flow bench for testing MD-1 and MD-2 oxygen regulators, by modifying the 565 oxygen test stand to check and test oxygen regulators through installing a remote mounted suction manometer, by installing a liquid nitrogen plant to convert liquid nitrogen plant to gas and pump nitrogen to refill supply nitrogen cylinders.

l. Ground Support Division -- The Ground Support Equipment training was improved by stabilization of the instructor staff. The aircraft washing and de-icing capability was improved by the addition of a Flight Line Maintenance Master. Inside winter aircraft washing facilities were installed by the local manufacture of two dollies to accommodate the Randall aircraft washing machines. The working facilities of the Ground Support Division was improved by moving the repair facility to a vacated Public Works building which has ten vehicle repair stalls; this gives the Ground Support Division 2,700 square feet more maintenance area.

2. Component Repair Production -- During 1966 there were 80,420 items processed by the AMD, of which 76,278 were returned to an RFI status. This means that less than 6% of the total items inducted are returned to the DOP. Also, AMD Brunswick has averaged 16% above the CNAL production average for items repaired during 1966.

B. WEAPONS FOR OFFICIAL USE ONLY

1. Primarily the Weapons Department provided ordnance support to the five patrol squadrons of Fleet Air Wing THREE during 1966. Support was also extended to two Reserve patrol squadrons during a two-week cruise at NASB.

2. Explosive Ordnance Disposal Division

a. In addition to providing in-house services, this division also responded to numerous requests by the surrounding community officials. On occasion the EOD team has assisted with the lobster project conducted by the U.S. Department of the Interior, Bureau of Commercial Fisheries, at Boothbay Harbor. All locations noted herein are within the State of Maine or its off-shore waters.

22 January -- removed an MK6 depth charge - Orr's Island

16 April -- removed dynamite sticks - Durham

24 April -- diving for body (recovered) - Rumford

23 May -- search for probable water/sand fill bomb (not recovered)- Boothbay Harbor

28 June -- three-day ordnance disposal operation at Seal Island preparatory to leasing real estate to civilian firm

30 August -- destroyed off-shore day beacon (Roaring Bull) as

requested by U.S. Coast Guard - Rockland

18 September - diving for body (not recovered) in Kennebec River-Augusta

21 November -- recovered "chaff" material - Day's Ferry

28 November -- recovered aircraft antenna weight - Freeport

3 December -- MK 64 underwater Sound signal (SUS) recovered from woods - Brunswick

3. Advanced Underseas Weapons Division

6-8 April -- conducted operational suitability test (OST) with MK 57 weapon. Participation consisted of off-loading utilizing on-board handling equipment.

8-21 June -- modified AUW Mobile Assembly Team (MAT) deployed to pre-determined deployment site.

Officer-in-charge	CWO3 R.J. Youngdahl
	TMC R. Jones
	GMT1 D.E. DeShazo
	GMT1 N.E. Ivers
	GMT1 R.L. Cooper
	GMT2 F.R. Estes
	GMT2 L. Rivera
COMNAVAIRLANT Rep.	LT R.R. Swanson

18 July -- MK 44 torpedo surveillance test conducted by Naval Underwater Research and Evaluation Station, Newport. Evolution was complete disassembly of twelve torpedoes and associated exploders. There were no difficulties encountered. Conclusion: Technical information available to this command was out of date. Current informa-

tion was acquired from the surveillance team to correct deficiencies.

28-30 September -- Technical Standardization Inspection conducted by Field Command Defense Atomic Support Agency. Results: Satisfactory (only satisfactory or unsatisfactory given)

24-28 October -- Torpedo exercise with Fleet Air Wing THREE squadrons. 29 MK 44 MOD 1 torpedoes air launched. All recovered.

26 October -- Launched first COMNAVAIRLANT operational MK 46 MOD 0 torpedo. Preparation for firing was observed by representatives from:

ASW Project Manager,Washington, D.C.
Naval Ordnance Test Station, Pasadena
Naval Underseas Research and Evaluation Station, Newport
Ship's Parts Control Center, Mechanicsburg

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C. STATION DEVELOPMENTS ** PUBLIC WORKS DEPARTMENT

(ANNEX J contains project figures for 1966)

Several projects undertaken by the Public Works Department during 1966 are expanded more fully below.

1. In August the NASB Seabees built a new foundation for a storage barn at the golf course. They then moved a portion of the north wing of Building 7 (unused storage space(to the golf course. It was reconstructed and wired, and an overhead door was installed. The old storage barn was demolished.

2. Rangeley Re-development Project -- "road damage, fire pond

damage, and emergency repair actions -- Survival, Evasion, Resistance and Escape (SERE) training facility"

a. An unusually heavy fainfall, approximately five inches, during the last week in October, caused extensive damage to the access road and fire pond secondary water supply at the SERE Training Facility located at Rangeley, Maine. A detachment of Seabees, under the direction of a Civil Engineer Corps Officer (ENS Arthur Turley), was organized, equipped, and departed Naval Air Station Brunswick, within six hours notification to make emergency repairs to the damaged facilities.

b. Summary

(1) Eight Seabees and one Civil Engineer Corps Officer performed emergency repair work at the SERE Facility.

(2) The detachment reported aboard the SERE Facility at 2300, 4 November and remained until 1000, 10 November.

(3) The emergency repairs required 380 man-hours of work.

(4) Equipment utilization required 204 equipment.hours.

c. The emergency repairs consisted of:

(1) building an emergency bridge with a span of 30 feet

(2) replacing one 30-foot culvert

(3) repairing five 30-foot culverts

(4) rebuilding the fire pond dam

(5) hauling 1500 cubic yards of gravel fill

(6) grading approximately eight miles of road

(See ANNEX H for photos)

3. Snow Removal -- There are 16 Seabees assigned snow removal duties at NASB. Due to the large turnover of Seabees during 1966, most had had no previous training in snow removal. In September a program was initiated which included the following:

a. handling proficiency training conducted on portions of closed runway. Traffic cones were used to simulate runway lights.

b. road-grader techniques -- sand used to simulate snow. Training was also accomplished during the golf course project described in 3(a) above.

c. classroom training conducted -- two hour sessions twice a week for eight weeks

d. snow removal equipment available:

(1) two runway jet brooms for sweeping runway centerline lighting

(2) three rollover plows with wing plows and sanding attachments

(3) three one-way plows

(4) four rotary snow blowers

(5) four road graders

(6) two jeep plows

(7) one dump truck with sanding attachment

(8) two front-end scoop loaders

(9) one TD-24 bulldozer

e. Total snow accumulation -- 81.1 inches

Total snow plowed -- 3,486,600 cubic yards

Cost per cubic yard -- $0.0196

D. COMMUNICATION -- VOLUME OF TRAFFIC AND SPECIAL PROJECTS

1. Traffic volume (messages and data cards) -- 418,000 sent and received

2. Traffic volume (telephone calls handled by PBX operators)-- 639,000 incoming, outgoing, and internal

3. AUTODIN MODE V Terminal was installed and replaced the 82B1 Teletype System in December 1966

E. SUPPLY DEPARTMENT

The Supply Department is a reporting primary stock point for material within the aviation supply system. Logistic support is provided for five VP squadrons, Fleet Air Wing THREE, and the Naval Air Station. Approximately 26,000 line items are stocked, of which about 10,000 are in aviation and 5,000 in avionics. The remainder covers general material categories. Total value of the inventory approximates $20,000,000.

For the past 15 years, supply issues have been processed on a manual post-posting basis. It is believed that this system provides the best service to the Fleet customer. No change from post-posting is anticipated, even though mechanization may overtake current manual methods.

Analysis of inventory reveals a stable picture, both in number of line items and money value, even though, for the first time in

recent history, primary support is now rendered for two aircraft types, SP-2 and P-3B.

During 1966, particular attention was given to close financial inventory management planning in order to obtain the best distribution of Navy Stock Fund monies among the various cognizances of general materials managed by Fleet Material Support Office, Mechanicsburg, granted under Navy Stock Fund Budget Project 28. An objective of two and one-half months stock on hand has been essentially met while providing a net issue effectiveness of 80%. This accomplishment permitted flexibility in funding which will allow an easy transition to the revised Navy Stock Fund management program due in July of 1967. The Navy Stock Fund costs collected, provide a sound basis for future budgeting under the Resource Management System.

Local purchase in support of stockage and immediate demand satisfaction has increased, both in general material and aviation items. The aviation program manager has devoted increased effort to location of market sources for aviation and avionics spares. Fleet operational readiness has been enhanced as a result of this expanded program.

Changes in supply systems imposed by higher authority have proved a challenge. The 3-M Program, Support Center (Supply), was established and operated in an extremely satisfactory manner. Delivery response time has generally been within the prescribed time frames for high priorities. Pre-expended bins and a rotatable pool are operating effectively in support of the 3-M Program.

The proper recording and reporting of "K" condition code relating to repairable material undergoing rework in the Aircraft Maintenance Department has been implemented, making realistic statistical costing of aviation reparables possible. Reporting to the ASO of individual transactions has been expanded from approximately 75% to full coverage at a considerable increase in workload.

The changing technology of the times has challenged the versatility and ingenuity of management. The Supply Department handles the same number of line items, makes approximately the same number of issues, operates essentially the same number of storage and issue locations as in the past, but now, in addition, must provide increasing amounts of statistical information to higher logistic authority.

1966 has placed most field Fleet support activities in a dilemma. A field activity that was formerly conservatively staffed and fitted with equipment to render service to the Fleet now finds itself progressively more inadequate under the steadily escalating load of the statistical programs. Addition of new personnel and facilities is not necessarily the answer. Future funding concepts (RMS) measure production related to operating overhead. The activity that adds people to accomplish the statistical programs is in a less favorable position when its ratio of overhead to production is measured.

In the area of services, the Subsistence Building, Neptune Hall, has been re-fitted with a new dishwasher and pot and pan scullery. These facilities provide improved service and sanitation.

The experimental use of contract messmen has proved entirely practical and will be continued. The quality of labor available in the area is the primary reason for the success of this program.

The disposal operation occupied a new 40 x 80 butler-type warehouse with adjacent fenced and paved scrapyard in which to work, display, and segregate material delivered for various disposition actions. This facility will enhance the ability of the station to function as an effective link in the DOD PD Program.

Household goods service is provided to the State of Maine, except York County. Accounts serviced average approximately 305 per quarter with motor van and contractor tonnage running about 260,000 pounds per month and about 300 accounts in commercial storage.

The former Navy fuel facility at Long Island, Portland, Maine, was declared excess and accepted by GSA for disposal on 29 December 1966. Removal of NASB usable plant property will continue into 1967 before final disposition by GSA of the fuel facility.

F. GENERAL SAFETY

1. Casualties -- There were three casualties involving NASB personnel during 1966.

a. On 2 January, Private First Class Peter P. Kapise 2010258/0311 USMC was shot in the abdomen by a .222 rifle at his brother's home in Freeport, Maine. He died on the morning of 3 January. The death was caused by hemorrhage from a lacerated liver, right kidney, and mesentric vessels.

The approved findings of opinions were that PFC Kapise's intention was only to inflict a wound, due to his choice of his brother's smallest caliber rifle and the area in which the wound was located. The investigating officer's opinion was that PFC Kapise's death was not caused by the intent, fault, negligence, or inefficiency of any other person or persons in the Naval Service. It was caused by gross negligence on his part.

b. On 29 March, ADR3 George H. Green, 547 15 07, USN, of Gadsden, Alabama, was killed in his private vehicle on the Interstate 95 bypass, $\frac{1}{4}$ mile from the intersection of Route 1 in Brunswick.

ADR3 Green, in attempting to round a sharp curve on an expressway exit ramp, lost control of his automobile and drove hearly head-on into a telephone pole on the left shoulder of the road. Death was caused by a fracture of the skull.

c. On 3 December, EO1 Richard L. Benson, 853 22 12, USN, of Rock Island, Illinois, lost control of his car on Interstate Route 95, one and one-half miles east of the West Bath turnoff. The car left the road, turned over, and was completely demolished. EO1 Benson was taken to Chelsea Naval Hospital, Mass., in critical condition. He died on 18 December of ascending spinal cord neurosis caused by fracture dislocation of the cervical spine C-6 C-7. The findings are that the accident was not caused by EO1 Benson's own misconduct. The passenger, YN1 Donald T. Collins, 461 64 06, USN, was slightly injured and returned to work two days later.

2. Accidents -- In 1966 there were 35 accidents involving government vehicles, amounting to $5,016.00 total damage (gov't. and POV).

a. Total time lost through accidents:

Civilian - 8 civilians involved in accidents

652 days lost

50 First Aid cases

(856,032 man-hours worked)

Military - 28 military involved in accidents

6,260 days lost

347 First Aid cases

(5,986,712 man-hours worked)

3. Awards -- During the year there were three 13-year safe driving awards presented to heavy equipment drivers, and one 14-year safe driving award presented to a truck driver.

G. EDUCATION AND TRAINING STATISTICS

1. Total GED tests conducted -- 420

2. Equivalency tests passed -- 28

3. Number of personnel taking undergraduate or graduate courses at the University of Maine and receiving tuition aid -- 24

4. a. NTC's ordered -- 861

b. NTC's completed -- 471

(See ANNEX K for reenlistment rates)

H. LEGAL STATISTICS

1. NJP's -- 90

2. Special Courts-Martial -- 28

3. Summary Courts-Martial -- 15

4. Line of Duty Investigations -- 16

5. Other Type Investigations -- 2

6. Administrative Discharge Boards -- 10

7. Legal Assistance -- 110

I. PERSONNEL -- MANNING LEVEL

The authorized enlisted allowance for Naval Air Station Brunswick on 31 December 1966 was 553. This figure reflects a decrease of 64 billets from the 31 December 1965 allowance of 617. Decreases in allowance resulted from replacement of military messmen with civilian contract personnel (15 billets deleted), deletion of the Meteorology Division (11 billets deleted), and CIVSUB I (Civilian substitution), which resulted in the loss of 38 enlisted billets.

The overall manning level has been adequate to enable the command to carry out its mission, although there has been a deterioration in the experienced supervision level due to undermanning in the E-7 (CPO) category. The allowance reductions as a result of CIVSUB I have shown adverse effects in the shortage of non-rated men available for watchstanding and routine housekeeping duties. Further cuts projected for FY 1968 will generate critical problems in this area.

J. MEDICAL DEPARTMENT

1. The Medical Department provides outpatient care for military personnel, dependents, and all other authorized personnel. Inpatient care (hospitalization) is restricted to adult males in authorized categories. A few dependents and all other patients who require hospitalization are referred to or transferred to the U.S. Naval Hospital, Portsmouth, N.H. (75 miles), or the U.S. Naval Hospital, Chelsea, Mass. (130 miles)

2. Statistics

a. Bed capacity -- 31 (usually 10-11 in use at any one time)

b. Ambulances -- 4 - manned by Public Works personnel

c. Volunteers -- 3 classes (30 Grey Ladies) of Red Cross volunteers have been trained

d. Personnel

(1) Officer allowance -- 5 MC officers, 2NC officers, 1 MSC officer. Three FAW-3 flight surgeons on TAD orders to the department.

(2) Enlisted allowance -- 25 hospital corps personnel -- 4 of these billets are for WAVES

e. Workload statistics -- The Medical Department provides care and treatment for a total of 11,882 personnel as follows:

Navy.....2,015	Air Force.....655
Marine Corps.....84	Dependents.....5,247
Army.....73	Other (Retired, USCG, RCAF, Civil Service)...3,825

3. Services -- The Medical Department performed the following services during 1966:

a. 420 inpatient admissions (33 of these were subsequently transferred to one of the naval hospitals for treatment)

b. 111 referrals for admission (referred directly to one of the naval hospitals for further treatment)

c. 688 nonavailability statements issued (Medicare)

d. 36,271 outpatient visits (dependent and military)

e. 853 flight physicals

f. 1,584 other complete physicals (annual, Peace Corps, Service Academy, Civil Service, etc.)

g. 15,411 immunizations

h. 43,098 prescriptions

i. 507 electrocardiograms

j. 804 refractions

k. 38,931 laboratory tests

l. 10,344 X-rays

m. 8,924 limited services

K. DENTAL DEPARTMENT

1. New dental unit and chair installed

2. Conversion from old-type aspirator to modern oral-evacuator system

3. Conversion from old-type hot water sterilizers to modern dry-heat sterilizers

4. 20 July -- Visit of RADM E.C. Roffetto, Inspector General, Dental Corps, who recommended purchase of a cavitron, a device to aid in preventive and periodontal dentistry.

L. ACTIVITIES OF THE CHAPLAIN

1. Chaplains' Reporting aboard

a. 9 January -- CDR William M. Hunter reported aboard as Senior Chaplain, relieving Chaplain Jorgen Vaage, who retired from the Navy.

b. 2 July -- LCDR John J. Glynn reported aboard as Catholic Chaplain, relieving Father Norman A. Ricard, who is now serving in Vietnam.

c. 27 September -- LT Richard E. MacCullagh reported aboard, relieving Chaplain Albert J. Otto, who is now serving aboard the USS SARATOGA.

2. Formal inspections:

a. 24 July -- Inspector General's representative, CAPT R. Schwyhart, CHC, USN

b. 12 September -- District Chaplain, CAPT R. Cahill, CHC, USN

c. 10 October -- COMFAIRQUONSET ADMIN Inspection, CAPT T.D. Parham, CHC, USN

3. Informal visits

a. 5 March -- District Chaplain, CAPT J.M. Klechner, CHC, USN

b. 20 June -- Fleet Chaplain, Atlantic Fleet, CAPT George A. Wright, CHC, USN

4. Dedication of the station chapel took place on 22 May at 1500. Over 400 people attended the dedication with a reception following the ceremony in the Fellowship Room of the Chapel. (See ANNEX B)

5. Notes concerning the Youth of the Chapel Program

a. A daily Vacation Bible School was held from 15-26 August. There were 125 children enrolled in the program, conducted by Chaplain and Mrs. A.J. Otto, volunteer teachers, and helpers.

b. The young people of the youth fellowship sponsor a teenage girl in Taiwan, sending a regular financial contribution to her each month.

6. Statistical report

a. Baptisms	95
b. Weddings	25
c. Funerals	4
d. Sunday School	6106
e. Bible Classes	685
f. Confirmations	16
g. Youth Fellowship Meetings	170
h. Hospital Calls	1443
i. Brig Calls	484
j. Professional Counseling	1422
k. Films shown Attended	108 3315
l. Moral Leadership Sessions Attended	11 1910
m. Radio Presentations	12

n. Red Cross Cases	24		
o. Navy Relief Cases			
Financial	233		
Service	107		
p. Volunteer Training Course for 3 weeks beginning 1 June-			
Attended	28		
q. Attended Services	16,275	)	
Communed	3,857	)	NASB
r. Attended Services	863	)	
Communed	162	)	NAVSECGRPACTY, Winter Harbor, Me.

M. MARINE BARRACKS, NAS BRUNSWICK

1. Commanding Officer and Staff

a. 1 Jan - 19 May	R.D. Newsom	Maj	Commanding Officer
b. 20 May - 30 Jun	G.J. Slack	Maj	Commanding Officer
c. 1 Jan - 16 May	P.G. Scharf	Capt	Executive Officer
d. 17 May - 30 Jun	P.S. Jones	1Lt.	Guard O/Exec. Off.
e. 1 Jan - 8 Apr	B.L. Linkonis	Capt	Guard Officer
f. 9 Apr - 13 May	H.G. Oldland	GySgt	Guard Chief/Guard Off.
g. 14 May - 30 Jun	P.S. Jones	1Lt.	Guard Officer
h. 1 Jan - 30 Jun	R.V. Flowers	SgtMaj	Bks 1st Sgt
i. 1 Jan - 30 Jun	H.G. Oldland	GySgt	Guard Chief
j. 1 Jan - 30 Jun	L.I. Smith	GySgt	Admin Chief
k. 1 Jan - 4 Jan	E.J. Ouellette	Cpl	Supply Chief
l. 5 Jan - 30 Jun	H.J. St. Denis	SSgt	Supply Chief
m. 1 Jul - 31 Dec	G.J. Slack	Maj	Commanding Officer
n. 1 Jul - 9 Jul	P.S. Jones	1 Lt.	Guard O/Exec. Off.
o. 10 Jul - 31 Dec	E.F. Riley	Capt	Executive Officer

p. 11 Jul - 31 Dec	P.S. Jones	1Lt./Capt	Guard Officer
q. 1 Jul - 17 Aug	R.V. Flowers	SgtMaj	Bks 1st Sgt
r. 18 Aug - 31 Dec	W.E. Nash	1st Sgt	Bks 1st Sgt
s. 1 Jul - 8 Aug	H.G. Oldland	GySgt/1stSgt	Guard Chief
t. 16 Dec - 31 Dec	R.J. Elsmore	SSgt	Guard Chief
u. 1 Jul - 31 Dec	L.I. Smith	GySgt	Admin Chief
v. 1 Jul - 30 Sep	H.J. St. Denis	SSgt	Supply Chief
w. 10 Oct - 31 Dec	R.G. Sivik	Sgt	Supply Chief

2. Average monthly strength (including officers and enlisted: (T/O) is three officers, 84 enlisted)

a. Jan -- 90.9%
b. Feb -- 87.3%
c. Mar -- 83.3%
d. Apr -- 80.6%
e. May -- 82.4%
f. Jun -- 81.7%
g. Jul -- 91.6%
h. Aug -- 89.4%
i. Sep -- 84.4%
j. Oct -- 72.6%
k. Nov -- 75.0%
l. Dec -- 82.1%

3. Modifications to facilities

a. During June 1966 barracks personnel completely painted the interior bulkheads and ceilings of both topside and bottomside offices, storage, and recreational areas. Also in June, the improve ment program begun in December 1965 was completed. The following renovations/modifications were accomplished:

(1) Heating and electrical systems were overhauled.

(2) Topside and bottomside squadbay decks were retiled.

(3) Acoustical tile was installed in topside squadbay and head ceilings.

(4) Topside and bottomside squadbays and their respective heads were painted.

(5) New treads were put on ladder ways.

(6) New exterior ladder was constructed on west wing.

(7) New faucets were installed in the heads.

4. Personnel

a. On 28 September the barracks "Marine of the Month" program was modified to "Marine of the Quarter." It was felt that the award would take on additional meaning and provide added incentive if made less frequently. The awards were presented to Lance Corporals F.W. Bridges and I.F. Harlow for the third and fourth quarters, respectively.

b. Staff Sergeant Harold J. St. Denis, former barracks Supply Chief, was promoted to Second Lieutenant on 30 September and transferred to Force Troops, FMF Atlantic, Camp Lejeune, N.C.

c. Six Meritorious Masts were awarded during 1966.

d. Ten Good Conduct medals, first awards, and one second award were presented to members of the command during 1966.

5. Special Projects

a. From 16-22 May (Armed Forces Week) a barracks Color Detail raised and lowered the colors on the mall in Brunswick. A window display of 1775-1966 uniforms was positioned in a Brunswick clothing store.

b. On 21 May, in conjunction with Armed Forces Day Open House at NASB, the Marine Barracks established a static display of period uniforms, field equipment, and standard weapons. Sergeant Major R.V. Flowers jumped wind dummy from a CH-19 helicopter with Army Special Forces.

c. On 28 May the Marine Barracks provided a color detail for a Memorial Day parade in Rockland, Maine.

d. From 22-26 August the Marine Barracks held interior guard school for the NAS Supplementary Security Force. Subjects included general and special orders, physical training weapons, familiarization firing, communications procedures, and challenge and search.

e. The Marine Barracks rendered honors and provided security augmentation in conjunction with President Johnson's arrival on 10 September.

ANNEXES

A -- Armed Forces Day

B -- Dedication of Station chapel

C -- Bronze Star medals - Major G.J. Slack, Captain E.F. Riley

D -- CDR Robert A. Ouellette, USNR-R

E -- Presidential visit

F -- NASB Open House

G -- Navy Day

H -- Rangeley Re-development project

I -- United Fund

J -- Public Works figures

K -- Reenlistment rates

L -- Officers and Enlisted Personnel Rosters

M -- Brief Station history

N -- Photos of CO and XO

O -- Directory and Guide

A 2E4

Activities Planned for Armed Forces Day Open House

1. Fleet Air Wing THREE

   a. Trailer

   b. Movies

   c. Decorate Hangar

   d. Music

   e. Coordinate Publicity

      (1) Newspapers

      (2) Radio

      (3) Flyer to schools (Handout at Gate)

   f. Overall Coordination

2. MAG Brunswick

   a. H16 Static Display

   b. Pilots and Helicopter for drop of Special Forces parachutists.

   c. Supply Department Exhibit

   d. Medical Department Exhibit

   e. AMD - Aircraft engine displays - Parachute Packing Demonstration.

   f. Diving by EOD Team

   g. Fire Fighting Demonstration by Station Fire Department

3. FAETU - Land Survival Exhibit

4. VP-26 - P-3 Orion with associated ordnance display.

5. VP-23 - P-2 Neptune with associated ordnance display.

6. VP-11 - Sea Survival Exhibit

7. VP-21 - Arrange for refreshments (soft drinks and sandwiches). Help with Hangar set-up. Signs for heads.

8. Air Force - Publicity - T33 Exhibit. Possible simulated A-Bomb drop coordinated with T33 and EOD personnel.

9. Army - Tank Exhibit. Vietnamese Weapons Exhibit. ROTC Exhibit. Parachute Jumps. Rappelling.

10. Marines - Field Bunker with weapons. Fire blank ammunition. Marine Uniform Exhibit. Movie.

11. Red Cross - Exhibit.

12. Civil Air Patrol - Exhibit.

13. Lockheed Aircraft - Exhibit.

14. Navy, Air Force and Marines each plan a window display downtown. Also each service will conduct Reveille and Retreat at the Mall as follows:

Navy	18, 21, 22	0800
Marines	16, 19, 22	AND
Air Force	17, 20, 22	2000

Girl Scouts and Boy Scouts will participate in the Retreat Ceremony at 2000.

HRA-0133

A- for 1971

DEPARTMENT OF THE NAVY

NAVAL AIR STATION

BRUNSWICK, MAINE 04011

IN REPLY REFER TO
00C:DK:sc
5720
1 March 1972
Serial 357

From: Commanding Officer, Naval Air Station, Brunswick, Maine
To: Chief of Naval Operations (OP-05D2), Department of the Navy, Washington, D. C. 20350

Subj: Command History (OPNAV Report 5750-1)

Ref: (a) OPNAV INSTRUCTION 5750.12B

Encl: (1) Command history of Naval Air Station, Brunswick, Maine.

1. In accordance with reference (a), enclosure (1) is submitted.

D. E. Korn

D. E. KORN
By direction

Copy to:
Director of Naval History (OP-09B9)
COMNAVAIRLANT

Commanding Officer's and Dates of Command

Commander J. C. ALDERMAN, USN	Apr 15, 1943 - Aug 1944
Commander E. M. ELLIS, USN	Aug 1944 - Aug 1945
Captain Joe TAYLOR, USN	Aug 1945 - Oct 1946
Commander W. L. DAWSON, USN	Oct 1946 - Nov 1946
Lieutenant Commander H. G. POLLARD, JR., USNR	Nov 1946 - Jul 1947
Inactivated	
Commander F. L. PALMER, Jr., USN	Mar 15, 1951 - Aug 2, 1952
Captain G. G. PRICE, USN	Aug 2, 1952 - Jun 7, 1955
Commander G. H. DUFFY, USN	Jun 7, 1955 - Dec 9, 1955
Captain J. T. YAVORSKY, USN	Dec 9, 1955 - Jan 10, 1958
Commander D. W. BOWMAN, USN	Jan 10, 1958 - Feb 6, 1958
Captain R. R. MORE, USN	Feb 6, 1958 - Sept 11, 1959
Captain M. T. THATCHER, USN	Sept 11, 1959 - Jun 29, 1961
Captain H. L. TALLMAN, USN	Jun 29, 1961 - Jul 14, 1961
Captain W. L. PACK, USN	Jul 14, 1961 - Jun 25, 1963
Captain E. J. KNOCHE, USN	Jun 25, 1963 - Jul 21, 1965
Captain D. C. RAINS, USN	Jul 21, 1965 - Jun 14, 1967
Captain C. L. WYMAN, USN	Jun 14, 1967 - Aug 1, 1969
Captain J. D. COLLINS, USN	Aug 1, 1969 - Sept 10, 1971
Captain R. D. SNYDER, JR, USN	Sept 10, 1971 -

ROSTER OF NAS OFFICERS DEC 1971

Captain Roy D. SNYDER, JR.	Commanding Officer
Commander John F. STONE	Executive Officer
Captain R. W. BELOW	Chaplain
Lieutenant Commander J. R. MCNAMARA	Chaplain
Lieutenant Commander R. A. BAXTER	Chaplain
Lieutenant W. T. CRANFILL	Legal Officer
Lieutenant W. G. WORTHINGTON	Legal Officer
Lieutenant Commander G. VILLEMAIRE	Security Officer
Lieutenant J. E. KIOSKI	Barracks Officer
Lieutenant Commander J. D. JESSEN	Aviation Safety Officer/Asst Air Operations Officer
Commander W. J. LOCKE	Administrative Officer
Lieutenant (junior grade) J. L. STEWART	Education Officer
CWO2 J. L. HAHN	Military Personnel Officer
Lieutenant Commander L. S. HOFFER	Off/Mess Treasurer
Lieutenant (junior grade) S. J. MCANALLEN	RPS Officer
Captain E. V. HEDBLOM	Senior Medical Officer
Lieutenant J. A. SUAREZ	Surgeon
Lieutenant D. C. SULLIVAN	Clinical Officer
Lieutenant Commander R. M. HASSAN	Clinican Officer
Lieutenant E. C. SCHMIDT	Clinican Officer
Lieutenant D. W. SCHALL	Programmed Patient Care Project Officer
Lieutenant A. E. PIATT	Medical Admin Officer
Lieutenant Commander W. L. STEINKUHLER	Nurse
Captain John R. SHEPPARD	Senior Dental Officer
Captain A. F. REID	Ass't. Dental Officer
Lieutenant M. J. DULLEA	Ass't. Dental Officer
Lieutenant Commander H. G. SAWYER	Ass't. Dental Officer
Lieutenant M. L. DAVIS	Ass't. Dental Officer
Commander A. J. RUBIN	Air Operations Officer
Lieutenant J. C. KANES	GCA Officer
Lieutenant S. GARLAND	GCA Controller
Warrant Officer TWO J. T. ENGLISH	Ground Electronics Officer
Lieutenant William C. DONAHUE	Air Ops Maintenance
Commander A. G. ALEXANDER	Weapons Officer
Commander Lane KISPERT	Supply Officer
Lieutenant Commander Robert G. LEBEL	Ass't. Supply/Staff Officer
CWO2 S. E. MICHELSEN	Food Services Officer
Lieutenant (junior grade) J. E. ANDERSON	Weapons Systems Support Officer
Lieutenant R. A. FAR	Material/Fuel Div. Officer
Lieutenant Commander R. W. RANKIN	Comptroller
Commander J. B. PITMAN, Jr.	Public Works Officer
Lieutenant T. A. COONEY	Ass't. Public Works Officer
Ensign J. M. MARKOW	Shops Engineer
Commander R. Y. COPPESS	A/C Inter. Maintenance Officer.

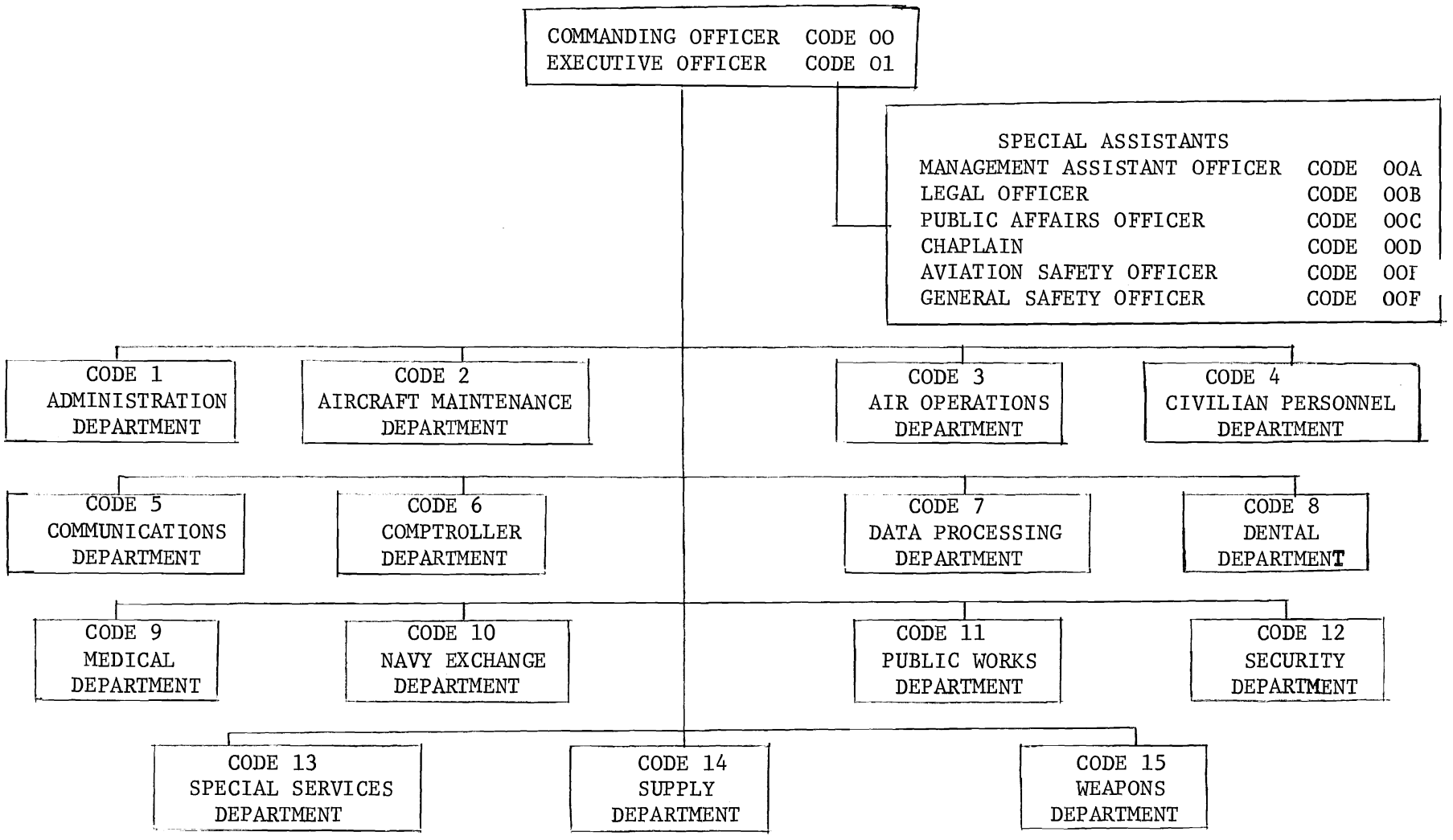
Lieutenant K. SCHILDKNECHT	Quality Control Officer
Lieutenant K. SZEZEPANSKI	Maint/Material Control
Lieutenant Commander W. W. SEEKELL	Avionics Division Officer
Lieutenant N. P. MICKELSON	Ass't. Maint/Material Control/ Ground Support Equipment
Lieutenant D. D. BEUCHLER	Ass't. Admin Officer
Lieutenant (junior grade) E. E. KORN	Public Affairs Officer
Lieutenant (junior grade) M. L. ALBERS	Photo/Flight Support
Lieutenant T. A. COONEY	Ass't. Public Works
Lieutenant (junior grade) T. A. COMEAU	Power Plants Officer/Airframes Officer
Lieutenant (junior grade) H. W. BARKER	AUW Det./MAT
CWO2 R. G. MULLINEX	Ass't O in C, AUW Det.
CWO2 C. S. PETTIGREW	O in C, NWSED
Lieutenant Commander A. R. LEDUC	O in C, Commissary Store
Lieutenant J. A. VUYOSEVICH	O in C, Navy Exchange
CWO2 J. R. FAULK	O in C, EOD Detachment
Lieutenant (junior grade) Betty S. MOORE	Ass't. Public Affairs Officer
Lieutenant (junior grade) E. M. GARCIA	Ass't. Special Services Officer
Commander H. N. REMSEN	Plans Officer

ANNUAL CHRONOLOGY

26 Jan	Bunyan Webb - Affiliate Artist guitarist made first of several visits to NASB.
1 Feb	Navy Steel Band arrived aboard NASB to perform for local high schools and military community.
5 Feb	NASB held its annual Prayer Breakfast aboard the station in Neptune Hall.
12 Feb	Spectacular skydiving exhibition was made above NASB for promotion of new Skydiving Club. Jump was made by PR1 Raymond Smith at 8,500 feet.
15 Feb	Announcement of the comming of RADM Mayo A. Hadden to Brunswick area on June 30, 1971. VP-8 also will be accompanying RADM Hadden to NASB.
22 Feb	Marine Barracks held the organizational meeting of the Marine Corps League.
23 Feb	NASB will host luncheon for realtors, investors and contractors interested in housing problems facing military personnel comming into Brunswick area.
29 Mar	NASB Dispensary was the site for a seminar on Medical Care Delivery. LCDR Charles Morrison will describe a new computerized system of patient medical care.
2 Apr	Chief Richard W. Gray was presented the Maine General Aviation Safety Award from the Department of Transportation of the Federal Aviation Administration by Governor Curtis of the State of Maine.
10 May	NASB was the host of the First Soul Luncheon within the First Naval District.
12 May	A contract in the amount of $46,244.85 was awarded to Devco, Inc. of Brunswick for construction of pool enclosure for the NASB swimming pool.
28 May	All hands personnel inspection.
7 Jun	ADJC Richard W. Gray received total beneficial suggestion of $1520.00

15 Jun	Passamaquoddy Indian children to stay with NASB family for approximately 2 weeks.
6 Jul	Skid Control School instruction for NASB personnel.
9 Jul	NASB Open House
22 Jul	Bunyan Webb returns for third visit to local community and NASB.
4 Aug	Admiral Ralph Cousins to visit COMFAIRWINGSLANT
30 Aug	RADM Mayo Hadden participates in General Knox Memorial Day Celebration.
10 Sep	NASB Change of Command. Captain J. D. Collins is relieved by Captain R. D. Snyder, Jr.
15 Oct	First Navy Wives Information School Held.
10 Dec	EOD Team receives award from town of Brunswick
21 Dec	First release was made regarding Operation Snowy Beach
29 Dec	VADM Vincent P. DePoix arrived aboard to start planned exercise Snowy Beach.

Command Organization - Naval Air Station, Brunswick, Maine



AWARDS

At a personnel inspection on 12 February 1971, Captain John D. Collins, Commanding Officer presented three awards. Hospital Corpsman First Class Bruce O. Butters received the Navy Achievement Medal; LT. Robert A. Far, Supply Corps, Navy Commendation Medal; and LTJG David R. Blair, Civil Engineer Corps, Navy Commendation Medal.

On 26 March 1971, Mr. Carl Goodridge, The Federal Aviation Agency Representative aboard the station was presented a pin in recognization of 30 years of service.

Maine Governor Kenneth Curtis presented the State of Maine General Aviation Safety Award from the Department of Transportation, FAA to Chief Petty Officer Richard W. Gray, Aircraft Maintenance Department. This was held in the Governors office on 1 April 1971.

During an all hands personnel inspection held 28 May 71, Captain Collins presented 8 awards. LT Niles P. Mickelson and AG1 Ashley C. Badger, Meritorious Unit Commendation; ADCS Patrick Ahearn, Navy Commendation Medal; YN2 Margaret Baker and GMG2 Paul Mathews, Navy Achievement Medal; a Certificate of Award was presented to CPO Richard W. Gray. Two Good Conduct Medals were awarded to ET1 Thomas Beaty and AE1 John Mohr, Jr. AE1 Mohr also received the Meritorious Unit Commendation Medal.

ADJC Richard W. Gray received one of the largest Benneficial Suggestion awards ever granted to a Navy man. $1520.00 was awarded to him on 7 June for a suggestion concerning the procedures for leak testing and repair of engine driven compressors aboard the Lockheed P-3 "Orion" aircraft.

Mr. Robert Ouellette, NAS Brunswick's General Safety Officer was awarded a safety plaque at the Memorial Day Drive-safe Program held at the NAS theatre.

LCDR Charles C. Morrison, Medical Corps, was presented a Letter of Recognition from the Surgeon General of the Navy by Captain Collins on 25 June. The award was for developing and introducing an entirely new approach to several of the important subsystems of health care delivery including use of paramedical personnel, streamlined processing of out-patients and application of computerization in recording vital medical data.

August 11, 1971, Major Charles H. Ciuba, Commanding Officer, Marine Barracks, awarded the Vietnamese Military Merit Medal and Vietnamese Gallantry Cross with Palm (posthumously) to Mrs. Lois W. Avery of Bath, Maine, mother of the late Lance Corporal James L. Avery.

1 September 1971, a ceremony was held in which several awards were presented by Captain Collins. CDR James B. Pitman Jr., Meritorious Service Medal; LCDR Richard L. Higgins (retired), Navy Achievement Medal; CWO2 Melvin E. Underwood, Navy Unit Commendation Medal; AE1 Leo R. Laine, RM1 James R. Halpen and ADJ1 Andrew Sitterly received the Navy Unit Commendation Medal.

Awards (continued)

The Navy Unit Commendation Medal also went to AWC Howard L. Barrett; AMH1 Herbert L. Oxton and AT2 Kenneth F. Wilder. Receiving the Meritorious Unit Commendation Medal were RMCS Thomas E. Belvin, AT1 Donald W. Violet, AG1 Robert A. Boland, AT3 David E. Stewart and EO3 John E. Olson. A letter of commendation was awarded to Airman Aviation Structural Mechanics Mate James Kotowski. Good Conduct Medals were awarded to ET2 Frank N. Hewes, ADJ2 Walter J. Solina, AMS2 Wayne T. Nighbert, AT2 Gary M. Andrews, ABH2 Charles F. Collins, RM2 George C. Robertson and SK2 Robert H. Kylor.

COMPTROLLER DEPARTMENT . . . .

During the past year the Comptroller Department has continued to operate with a reduced civilian personnel allowance. The existing internal review, accounting, resources management, and budget report deadlines have been met in most cases. Increased baseloading of COMFAIRWINGSLANT and one additional Patrol Squadron in July 1971, coupled with the increased fuel oil costs and civilian salaries, has placed a serious financial burden on the station's operating and maintenance funds. However, it is felt that the station budget programs have been very well planned and controlled in order to obtain the maximum utilization of every available dollar and with the minimum effect on the station's ability to carry out its' assigned mission and tasks.

FUNDS AUTHORIZED

a. Station O&MN	FY-71	*FY-72
Station Operations	$ 2,278.3	$ 2,245.6
NavFac Functions	1,633.5	1,759.4
Maint. Real Property	735.9	585.0
Disposal	62.0	65.0
TOTAL	$ 4,709.7	$ 4,655.5
b. Other Funds		
Housing	860.7	852.8
Aviation Fleet Maintenance	1,547.1	1,505.4
Aircraft Operations	31.8	29.0
Other Reimbursables	274.4	150.0
TOTAL	$ 2,914.0	$ 2,537.2

c. Fund Deficiencies (Known at present time)

Station O&MN

a. Civilian Graded Pay Raise	$ 63.0
b. Net Separation Costs	10.5
c. Snowy Beach Operation	6.3
d. Increased Cost of Messman Contract	5.0
TOTAL DEFICIENCY . . .	$ 84.8

*Planned to date

d. Other Highlights

(1) Plant Account Value

Class I - Land	$ 578.0
Class II - Structures	49,372.2
Class III - Equipment	9,704.3
Class IV - Production Equip.	294.5
TOTAL -	$ 59,949.0

Comptroller Department (Continued)

(2)	Value of Stock		
	Naval Stock Fund		$ 6,033.7
	Appropriation Purchase Acct.		18,125.3
	TOTAL STOCK		$ 24,159.0
(3)	Active Military Pay Records		
	Officers	$ 546	
	Enlisted	2,485	
	TOTAL		$ 3,031
(4)	Active Civilian Payroll		437
(5)	Active Interservice Support		
	HOST/TENANT Agreements		15
(6)	Monthly Average of Travel Claims Processed		800

CHAPEL . . . .

Chaplains present during year 1971:

Commander R. W. Moser, CHC, USN, Presbyterian, detached 4 July 1971.
Commander F. E. Slejzer, CHC, USN, Roman Catholic, detached 9 August 1971.
Captain R. W. Below, CHC, USN, Baptist, reported aboard on 3 August 1971.
Lieutenant Commander R. A. Baxter, CHC, USN, Baptist, reported aboard on 21 August 1970.
Lieutenant Commander J. R. McNamara, CHC, USN, Roman Catholic, reported aboard on 4 August 1971.
Lieutenant Commander J. R. Burbank, CHC, USNR-R, (Bristol, Vermont), Baptist, Active Duty 28 March - 8 April 1971.
Lieutenant S. G. Johnson, CHC, USNR-R (Sudbury, Massachusetts), Methodist, Active Duty 26 July - 9 August 1971.

Official Visitors

Bishop William J. Moran, D.D., Military Ordinariate, New York (October 1971.)

Reverend Quentin Lockwood, Associate Secretary Church Extension Dept., Home Mission Board, SBC, Atlanta, Georgia.

Reverend Elmer Sizemore, Director Baptist General Association of New England, Boston, Massachusetts.

Bishop Edward C. O'Leary, Auxiliary Bishop of Portland, Maine

Special Ministries by Visiting Representatives

Navy Relief Training Session conducted by Miss Francine Stonesifer, Field Representative, Navy Relief Society.

Christian Science Minister to the Armed Forces made regularly scheduled visits.

Parish Mission Renewal (4-6 April) (Roman Catholic Congregation) by Paulist Fathers.

Specialized Training

Lieutenant Commander Roy A. Baxter was a participant in a four week Marriage Counseling Training Program at Marriage Council of Philadelphia, University of Pennsylvania in January 1971.

Chapel (Continued)

Special Events

Parish Appreciation Dinner at New Meadows Inn
Parish Mission Renewal (4-6 April)
Religious Emphasis Day (7 April)
First Holy Communion, 30 communicants (15 May)
Executive Secretary, Navy Relief Society, attended East Coast Seminar at Quonset Point, Rhode Island (14-16 June).
Roman Catholic Parish Picnic.
Civilian Laymen's Sunday
Memorial Garden Visitation Day, 30 May, open to public.
Daily Vacation Bible School, August - 2 weeks.
Pulpit Exchange with local clergy.
Began Group Counseling for Detention Facility Confinees.
Observed Race Relations Sunday featuring recognition of the Black contribution to religious life in America.
Captain Ralph W. Below served as Facilitator for Navy Chaplain Corps Grid Session for Northeastern area of United States at Portsmouth, New Hampshire.
Ecumenical Thanksgiving Service at St. John's Roman Catholic Church.

GENERAL SAFETY OFFICER . . . .

Events. During calendar year 1971, the General Safety Officer conducted three major holiday Drivesafe Programs at the Station Theatre. Prior to Memorial Day weekend, 800 military and civilian personnel heard Jim Montrell of the Maine Highway Safety Committee and Steve Locke, Assistant Deputy of State, Motor Vehicle Division discuss abuse of alcohol by drivers and the upcoming program to identify, remove and rehabilitate drinking drivers in Cumberland County. Dr. Robert Hassan, station medical officer, spoke to 825 personnel prior to the start of the Labor Day weekend. He discussed driving safety from the medical viewpoint. Displaying a drag racing vehicle which they use, John Rines and Dick Knight discussed the similarities and differences of racing and highway driving. Almost 800 personnel appeared to accept the remarks that the place for speed and derring-do was on the race track not on the highway, even during the upcoming Christmas leave period.

On April 10, the Safety Officer and the License Examiner showed films, tested eyesight and reaction time at the Sanford Safety-Rama. The Skid School was reactivated on 1 May by training the 41 basic and advanced students of the University of Maine Driver Education classes. On the 16th of August, 50 members of the Westbrook Rescue Unit received skid control training. During October, 24 State Police Cadets and 48 Air Force recruiters from Maine, New Hampshire and Vermont were given Skid Control instruction. On 15 November, Skid Control training was secured for the winter season - 382 military and dependent personnel had been trained in Skid Control.

During the year, the General Safety Officer held six Insturctor Development courses, training 62 personnel to teach the eight hour Defensive Driving Cours. 37 Defensive Driving Courses were held for 630 military personnel.

The Safety Officer spoke to 39 Lisbon Falls bus drivers on driving safety and to the Bath Rotary Club on "Winter Driving". Arrangements were made to have Mr. Lloyd Drinkwater, president of the Maine Safety Council and Civilian Defense Director for Hancock County give a "Home Safety" presentation and demonstration at the August Commanding Officer's Luncheon. In October, Mr. Ouellette, General Safety Officer was elected to the office of East Coast Vice President of the Navy Field Safety Association.

Accidents. During 1971, Navy Brunswick military personnel were involved in 46 private vehicle accidents. There were two fatalities, six personnel were hospitalized for over 24 hours and 21 received first aid treatment. There were 19 accidents involving government motor vehicles with a total damage of $4,530.00. No injuries were sustained in these accidents.

There were no disabling injuries to either military or civilian personnel during the year. Although 39 military personnel and 36 civilians received minor injuries.

AIRCRAFT INTERMEDIATE MAINTENANCE DEPARTMENT

During calendar year 1971, the Aircraft Intermediate Maintenance Department continued to increase its capabilities and the output of repaired components. The additional workload resulting from the transfer to NAS Brunswick of Patrol Squadron EIGHT is evidenced by the fact that a total of 24,836 items were processed this year, an increase of 6,606 items over Calendar Year 1970; of the items processed, 19,097 were returned RFI.

Numerous changes in divisional structures and capabilities were effected during the past year as indicated below:

a. Maintenance/Material Control Division. The Maintenance Control and Production Control work centers have been physically separated, and the relocation of the latter to spaces adjoining the Supply Support Center has facilitated the induction of com- and the flow of associated paperwork. The Material Control Branch has begun to convert its annual equipage inventory to automatic data processing, thereby providing for more efficient management of material assets.

b. Airframes Division. The Hydraulic Shop has acquired all but a few of the items necessary for repair and test capabilities for P-3 boost packages.

c. Aviators Equipment Division. A facility has been constructed housing two new 500 gallon liquid nitrogen storage tanks, thereby doubling the old nitrogen storage capacity, and resulting in increased reliability of service to supported activities. Turnaround time for the servicing of P-3 portable CO_2 fire extinguishers has been substantially reduced by training division personnel to use the hydrostatic test equipment of the Fire Department.

d. Avionics Division. The capabilities of the Electric Shop were expanded with the installation of a MA-3 Electrical Component Test Console. This console has increased repair capability for P-3 generators, inverters, and associated components. Repair and test capabilities for P-3 air conditioning valves and controllers and for empennage de-ice thermal relay sensors have been added, together with repair and Freon servicing capabilities for the P-3 refrigerator. The loss of the Platform Functional Test Set, ASM-154, has reduced the ability to check the ASN-42 Inertial Navigation System.

e. Power Plants Division. The Engine and Propeller Shops were physically reorganized to provide more efficient assembly line procedures. A Component Repair work center has been reestablished and has proven effective in reducing component down time. With the installation of a Valve Housing Test Stand, GS-5460, the division's capabilities have been expanded to include the check, test, and repair of propeller valve housings. Production of RFI engines in extremely cold weather conditions had been increased by the install ation of two portable heaters in the Engine Test Cell.

AIRCRAFT INTERMEDIATE MAINTENANCE DEPARTMENT (Continued)

f. Ground Support Equipment Division. The division received 92 pieces of new ground support equipment. New garage doors and lighting fixtures were installed in Building #7.

OPERATIONS MAINTENANCE DIVISION . . . .

OMD (Operations Maintenance Division) had a large turnover of aircraft during 1971. A C-117, US-2A and two HU-34Js were transferred. NAS Brunswick gained one US-2B and two UH-1Ns. A second P3B was obtained for use by VAST.

Flight operations for calendar 1971 were increased substantially due to the increase of squadrons homeported at NAS Brunswick and the expansion of positive control. Comparative figures are listed below:

	1971	1970	% Increase	Positive Control Increase
IFR	15,879	6,328	152	187
VFR	35,707	27,920	29	39
TOTAL	51,586	34,248	51	68
Radar Approach	6,191	4,793	29	16

The Ground Electronics Maintenance Division (GEMD) was affected greatly by the arrival of COMFAIRWINGSLANT. The requirements for the new Communications Center resulted in a doubling of communications equipment plus the associated maintenance. GEMD helped install the DSTE (AUTODIN) aboard NASB during the year. A communications pony loop was installed between NASB and the Topsham Annex for COMFAIRWINGS-LANT. In 1971 GEMD installed a pilot to forcaster weather circuit (METRO). A UHF transmitter-receiver was installed at the FASOTRAGRULANT's Rangeley Mountains Camp. An Automatic Secure Voice Communication, which is a worldwide network, was installed.

The NASB Photo Lab was upgraded from a Class D photo lab to a Class Special photo lab to cover the more sophisticated requirements for the P3 camera systems.

The Fire Department made 508 total responses in 1971, 390 of which were crash and rescue calls on the airfield. The arresting gear was manned and hit 11 times. The Fire Department obtained two MB1 crash trucks.

CIVILIAN PERSONNEL DEPARTMENT . . . .

This department provided civilian personnel services for approximately 700 civilian employees assigned to:

Naval Air Station, Brunswick, Maine
Commissary Store, Naval Air Station, Brunswick, Maine
U. S. Naval Radio Station (T) Cutler, Eash Machias, Maine
U. S. Naval Security Group Activity, Winter Harbor, Maine
FASOTRAGRULANT, Detachment Brunswick, NAS Brunswick, Maine
Supervisor of Shipbuilding Conversion and Repair, Bath, Maine
COMFAIRWINGSLANT, NAS Brunswick Annex, Topsham, Maine

Civilian Manpower at Naval Air Station, Brunswick, Maine

CEILING	ON BOARD
31 December 1971 -- 422	31 December 1971 -- 379

C ivilian Personnel Department Staffing - On Board 31 December 1971 - 8

In consonance with the move of CFAWL from NAS Norfolk, Virginia to NAS Brunswick, a Common Servicing Agreement was formalized to provide civilian personnel services to CFAWL.

As the Department of Defense Centralized Referral System registration point, this activity registered four employees in 1971 for the serviced activity, Naval Radio Station Cutler.

As the Maine registration and processing point for the Navy Overseas and Return Placement Staff, this department registered ten and processed five employees for overseas employment and Availability/Placement Inquiries during calendar year 1971.

During the year, three placements were effected from the Re-employment Priority List and six employees demoted by reduction-in-force were re-promoted. The Naval Air Station, Brunswick administered two Re-employment Priority Lists for Area Displaced Employees - one for SAGE Air Force Base which terminated September 1971 and one for Navy which will terminate in June 1972.

One Counsellor and twenty-four Summer Aids were hired under the 1971 Federal Summer Employment Program for Youth. Evaluation of the Aids' interests, skills and vocational/educational plans resulted in placement in related occupational area, i.e., Dental Aide, Clerk-Typist, Recreation Aide. Distribution of work areas are defined as one-third clerical, one-third semi-technical, and one-third manual assignments.

Thirty-two Merit Promotion Announcements utilizing Job Element Examining methods were published. Twenty-five promotions were effected. The Commanding Officer's Equal Employment Policy and Affirmative Action Plan were reaffirmed and published in April 1971.

The training program, limited to mandatory training requirements, included a comprehensive supervisory course presented by a specialist from the Regional Office of Civilian Manpower Management Boston, in January 1971 and at the Naval Radio Station, Cutler held in September 1971. Additional training sessions covered performance rating training for supervisors, labor-management relations training for supervisors and union officials, and Orientation and Supervisory training for the Youth Summer Employment Program. Emphasis was placed on home study courses and the Command sponsored participation in continuing education courses offered by the University of Maine and New Hampshire College.

A Stay in School placement was effected and is continuing. The feasibility of effecting college work study placements utilizing students enrolled in data processing and secretarial courses was examined.

This department planned and conducted a full scale wage survey for the Portland, Maine wage area under the Coordinated Federal Wage System in May 1971.

New Civil Service Commission Position Classification and Job Grading standards received during the year included Job Grading Standards for Supervisor - WS and a reviwed Position Classification Standard for the Fire Protection and Prevention Series, GS-081. These two standards covered an unusually large number of the total positions serviced and created a significant workload during the year.

During the calendar year 1971, twenty-five beneficial suggestions from civilian and military personnel were submitted. Thirty-five 20 year service awards and four 30 year service awards were presented. Other awards granted included twenty-three Sustained Superior Performance and twenty-eight Quality Salary Increases.

A Civilian Personnel Newsletter was re-established and eighteen issues were published and promulgated during the year. In addition, numerous Civilian Personnel articles were initiated for publication in the station newspaper, the Patroller.

The negotiated Agreement between NAS and NAGE, Local 1-77 was renegotiated in August for the fourth time since the union was recognized in 1963.

COMMUNICATIONS DEPARTMENT . . . .

On 30 June 1971, the DSTE electronic installation at Building 596 was dedicated, and on 1 July 1971 accepted.

On 1 July 1971, the Communications Department moved into its new Communications spaces in Building 596 and assumed the additional communications responsibilities for COMFAIRWINGSLANT, COMFAIRBRUNSWICK, COMASWGRUBRUNSWICK, COMFAIRWING FIVE (formerly COMFAIRWING THREE) and PATRON EIGHT. In conjunction with the above, the Air-to-Ground room was expanded to include additional circuits with aircraft, and three special ASW Group Commanders circuits consisting of two voice and one covered TTY, activated 2 July and 23 July 1971, respectively.

Other changes during the month of July included the activation of a Narrow Band AUTOSEVOCOM terminal and a special high precedence Electronic Courier Circuit with COMFAIRWINGSLANT.

DENTAL DEPARTMENT . . . .

Due to a substantial increase in funding, the Dental Department was able to greatly increase the quanity and quality of all dental services provided. The addition of one temporary Dental Hygienist increased the capabilities of our preventive dentistry program 100%, not only for active duty and retired personnel but also the dependent childrens stannous fluoride program. The Bureau of Medicine and Surgery's five year modernization program for equipment was completed bringing new found capabilities to the NASB Dental Department. The total procedures for the year 1971 were 32,314; a total of 4,578 restorations were accomplished; the prosthetic laboratory completed 364 full and partial dentures; and the preventive dentistry program treated 3,395 patients.

Personnel on board the Dental Department consists of five Dental Officers providing all phases of dentistry; seven enlisted Dental Technicians; two Dental Hygienists; and during the summer a member of the Youth Summer Aid Program.

MEDICAL DEPARTMENT: . . . .

Dispensary Medical Services

The Medical Department has provided outpatient care for active and retired military personnel, their dependents, civil service and all other authorized personnel in the Brunswick and adjacent areas. Inpatient care (hospitalization) has been restricted to adult males in authorized categories for up to seventy-two hours. As a dispensary, all in-patient care expected to be longer than seventy-two hours is referred to the Naval Hospital, Portsmouth, N. H. (75 miles) or the Naval Hospital, Chelsea, Mass. (130 miles).

Programmed Patient Care Clinic

A new concept and research project for Medical Care Delivery was funded by BUMED for fiscal year 1971 at the Naval Dispensary, Brunswick, Maine. This system encompasses the use of a centralized computer history transmitted by the patient to the Meditech Corporation in Cambridge, Massachusetts. This information is then compiled from a computer readout by para-medical personnel with other laboratory and x-ray examinations into a data base. A problem oriented medical record is derived by the doctor, from this data base, a patient problem list, and subsequent progress information. This system is a subject of study by Navy medicine whose ultimate objective is to utilize para-medical personnel and computers in an effort to provide more organized and pre-collected data to conserve the physician's time, to allow him to see more patients and to provide better and more complete care.

This fiscal year, this program is being expanded to the outpatient department. A computer terminal is being placed in each doctor's office and the laboratory. All patient data will be dictated and placed into computer storage and each doctor will have the capability in his office of instant recall on the computer on identifying the patient by social security number.

Department Statistics

Bed Capacity - 10
Ambulances - 4
Personnel: Officer allowance - 6 Medical Corps Officer, 1 Nurse Corps Officer and 1 Medical Service Corps Officer.
Five Flight Surgeons on TAD orders to the department
Civilian personnel - 8 graded; 1 ungraded
Enlisted allowance - 29 Hospital Corps personnel and ten Hospital Corps personnel on TAD orders to the department.

Workload Statistics

The Medical Department provided care and treatment for an average of 10,466 personnel during calendar 1971 as follows:

Navy	2,425	Air Force	10
Marine Corps	100	Dependents	7,463
Army	9	Others (retired, USCG, RCAF, Civil Service)	459

Medical Department (Continued)

Services the Medical Department performed during 1971:

160	referrals for admission (referred directly to one of the Naval Hospitals for further treatment)
40	admissions to sick list
502	nonavailability statements issued (CHAMPUS)
39,942	outpatient visits (dependent and military)
834	flight physicals
1,732	other complete physicals (annual, Peace Corps, Service Academy, Civil Service, etc.)
10,892	immunizations
45,592	prescriptions
985	refractions
36,374	laboratory tests
9,826	x-rays

PUBLIC WORKS DEPARTMENT . . . .

The efforts of the department during the past year have been concentrated on providing facilities for "Cluster Bear" and opening up facilities at the Annex at Topsham for use by the Commander, Fleet Air Wings Atlantic/COMFAIR Brunswick. The Administration Building was opened by 1 July 1971 and other facilities, such as the Heating Plant and Steam Distribution System by 1 November 1971. Several buildings had steam and water connected by 30 December 1971. The property was officially turned over to the Navy during the year.

The Naval Air Station completed $447,000 worth of projects by contract. More important projects completed were as follows:

Swimming Pool Enclosure
Installation of Runway Distance Markers
Country Store Patio
Installation of Emergency Generator at SERE School
Sandblasting Walkways in Barracks
Rehabilitation of Chiefs' Barracks
Painting of Fuel Tanks at Harpswell
Completion of Exterior Painting of Capehart Housing

SPECIAL SERVICES . . . .

Events - Routine events conducted during the 1971 year were:

Intramural Basketball - 15 teams participating
Basketball Tourmanemt - 12 teams participating
Intramural Softball - 16 teams participating
Intramural Bowling - 20 teams participating
Intramural Football - 14 teams participating

Each of these teams represents approximately 15 individuals, making a total of approximately 1200 intramural participants for the year 1971. There were 533 participants in the ski program for the year 1971. This represents a decrease of 37 over the previous year.

Varsity Teams:

Touch Football - NASB placed 2nd in the First Naval District
Softball - NASB captured the 1st Naval District and North-Atlantic Regionals and went to the All Navy
Basketball - NASB took 2nd place in the 1st Naval District
Skiing - NASB took 2nd place in the First Naval District Tournament

Special Events: During 1971, Special Services again hosted the First Naval District Ski Tournament. The number of participating bases this year was five.

New Facilities: During this period, Special Services received a permanent structure over the swimming pool. In December of 1971, Special Services took over the responsibility of the NAS Nursery. Preparation to open up the new Gym at the Topsham Annex is underway.

The recreation area at Pleasant Pond, which was acquired three years ago, was highly successful and utilized by approximately 8,000 people during the summer. This includes picnics and fisherman as well as over-night guests.

Youth Opportunity Programs: The following facilities were made available to the yough of the area:

Gym
Picnic Area
Ball Fields
Library
Gear Issue Locker

NOTE: Swimming Pool top was still under construction so the pool was not utilized until December.

Special Services (Continued)

The following is a statistical report which indicates the number of personnel using each facility for 1971:

Gym	11,779
Theater	40,205
Gear Locker	13,351
Bowling Lanes	36,951
Library	11,996
Ceramics	3,218
Leathercraft	29
Electronics	1,917
Hobby Shop	11,193
Golf	8,541
Boats & Motors	1,432
Luggage	78
Campers	555
Slot Car	1,629
Billiard	4,450
Skeet Range	591
Pleasant Pond	8,418
Swimming Pool	1,111
TOTAL	157,444

SUPPLY DEPARTMENT . . . .

Logistic support is provided by the Supply Department to six VP Squadrons, Fleet Air Wings Atlantic, Fleet Air Wing FIVE and other designated commands, both on and off station. The Supply Department is a Primary Stock Point for material carried in the Aviation Supply System, and a secondary stock point or consumer for other cognizance material. During 1971, approximately 13,250 items were carried including 7,040 aviation items and 1,722 avionic items. The remaining items carried represent a wide range of miscellaneous material categories. The total value of inventory carried by the department as of 31 December was more than $24,000,000.

The Supply Officer during 1971 was Commander Lane A. Kispert. Lt. CDR Robert F. Lebel was Assistant Supply Officer, with additional duties as Control Division Officer and Staff Services Officer. Lt. Robert Far was Material and Fuels Officer, and Lt. John Anderson was Weapons System Support Officer for the entire year. CWO/2 Sverre E. Michelsen relieved Lt. Edward George as Food Services Officer in October.

In January the General Mess Advisory Board was established with membership consisting of personnel subsisting in the General Mess for the purpose of advising management specifically on what the patrons of the galley desire and what improvements could be made in the galley from the patrons viewpoint. This board has presented several very effective suggestions which have been implemented.

On March 7, 1971, Mr. Reginald Barter was promoted from Stock Control Branch Supervisor to Supply Systems Analyst in the Planning Branch to fill the position vacated by Michael Bohunicky in December of 1970.

Preparations during 1971 for the arrival of VP-8 and Headquarters, Fleet Air Wings Atlantic and their actual arrival on the Station increased the workload of the department by approximately 12 1/2 to 20% over that experienced in 1970. Throughout the year, pre-deployment conferences were held with Supply, fleet material and maintenance personnel of squadrons scheduled for overseas deployment. The resultant coordination of the personnel involved in these meetings rendered the actual deployments successful from an operational point of view.

In February, the Presidential Prayer Breakfast was held in Neptune Hall for civilian and military personnel of the station, as well as honored guests from the civilian community. Lt. George and the galley were commended for a job well done.

Much emphasis was placed on ecology and preservation of natural resources during 1971. The Supply Department made a preliminary list of equipment needed on hand at both fuel areas in case of a fuel spill.

A complete file was set up with all pertinent information on ecology and a comprehensive NASB Instruction was written to cover action necessary under prevailing regulations in the event of an accident. An advisory visit was received in July from Dr. Bernard Skulte, Environmental Engineer, 1st and 3rd Naval District; Wallace E. Stickney, Sanitary Engineer, Federal Activities Coordinator, Boston; and Jack Conlon, Oil and Hazardous Material Group. With representatives of the Public Works and Supply Department they toured Harpswell and the on-station fuel farmes and made a comprehensive report covering assessment of our needs. The recommendations of Dr. Skulte were accepted and have been approved and placed in the Federal Budget in the amount of approximately $80,000 worth of equipment in skimmer system, boom, and sorbents to be purchased in 1972 and 1973.

For the Maine National Guard Encampment in June 1971, the Supply Department gave support in the form of rations furnished for 1200 to 1500 men.

The Logistics Management Institute Study, which the Stock Control Branch at NASB has conducted covering stock levels, replenishment, excess reports, the establishment of planned requirements and reorder points, is completed insofar as the original purpose of the study. Although the Navy has not yet adopted the system, it has proven out well at the air station with increased efficiency in management of 9 Cog material. Emphasis is now being placed on repairables with this new study to be completed by June of 1972.

On August 25, a visit was received from representatives of CINCLANTFLEET on the Management Resources System, discussing use of cost reports, basis for our reporting, money management and other pertinent areas.

The Casco Bay Fuel Depot at Harpswell Neck, Maine was looked at by General Services Administration with a view to selling or leasing. Although there was interest in buying this property, sale was precluded by its present use as a depot storing fuel for the Defense Department. Portions of the fuel farm are presently being considered for use by special services as a recreation area, in addition to its usage as a depot.

MILITARY PERSONNEL DEPARTMENT . . . .

Although the authorized enlisted allowance on 31 December 1971 was at a new high of 563, this figure includes 15 billets which are already programmed for deletion in July 1972. These expected reductions are not planned as a result of command action but because of forced reductions decreased by higher echilons, to further reduce spending. The summer and fall months of 1971 provided some relief in greater numbers of non-rated personnel available for compartment cleaning and other similar tasks but as the year drew to a close the numbers of E-3 and E-2 personnel reporting for duty again declined to almost zero.

"If we must err, it should be in favor of people and not hardware" became the byword of the office as more emphasis was given to customer satisfaction. Continuing efforts were directed towards more prompt and complete service to the personnel while at the same time identifying and "weeding out" the non-producers. Over thirty personnel were discharged during the year for unsuitability and unfitness because of psychological or disciplinary problems.

On 19 October 1971 Master Chief Boatswain's Mate Xavier J. Dietrich was appointed as the Senior Enlisted Advisor to the Commanding Officer. Following this appointment, the Commanding Officer held a series of meetings with all station personnel advising them of present and future planning programs and listening to their suggestions and complaints.

EDUCATION AND TRAINING OFFICER . . . .

The Naval Air Station Brunswick Education Office concluded the year 1971 with a total of 164 High School General Educational Development Examinations, 109 College Leval Examinations (CCT) and 16 State Equivalent Certificates, 66 USAFI Courses ordered with 28 End of Course (EOC) Examinations administered, 22 requests for Tuition Aid approved, 454 Navy Rating Training Courses ordered with 248 completed, 211 E4/E5 Military Leadership Examinations administered. This resulted in 184 passing and 30 failures. There were 28 pay grade E3 Advancement examinations administered resulting in 21 passing and 7 failures, 120 pay grade E4 through E9 advancement examinations, 124 officer/enlisted training courses ordered and 3 other tests administered. In 1971, there were 2 Warrant Officer applicants selected, 8 applications submitted for the Warrant Officer Program, 1 for the Naval Reserve Officer Program, 7 applications submitted for the ADCOP Program, 1 selection for the Navy Enlisted Nursing Program, and 3 applications for the NESEP Program. There were 640 E/4-E/9 Navywide examinations given for 1971. 46 Vet Admin Elig. Certificates approved.

Night school programs with the University of Maine, New Hampshire College, and Morse High School continued through 1971.

The General Military Training instruction was rewritten to give greater freedom to each division to meet their own particular needs. General military training periods will be used this coming year by Chief Henry, CFAW-5 Drug Abuse Representative, to talk with the division personnel in small "rap" sessions. Groundwork was laid the latter part of 1971 to establish a reading and comprehension improvement course on base. Several people expressed their need for such a course the latter part of 1971. The classes would begin in Jan 72. LTJG John Hallquist finished his tour at NAS Brunswick and was transferred to UR-21 Barbers Pt., Hawaii in Sept 71. LTJG James L. Stewart assumed the responsibilities as the Education and Training Officer at this time. R. E. Byrnes, YN1, and S. McCown, PN1, are the experienced education petty officers with assistance from S. Casad, PNSN.

WEAPONS DEPARTMENT . . . .

The Naval Station was given a Navy Technical Proficiency Inspection on 30 March 1971 and a grade of 95 (Outstanding) was assigned.

The Fireing of AGM 12B guided missles by localy based Patrol Squadrons commenced June 17. A total of 105 were fired from June until November.

The relocation of two (2) magazines from the old magazine area east of the runways to the new magazine area south of the runways was commenced with the laying of the foundations. The move will be completed in the summer of 1972.

LCDR H. J. Grace was retired from the Naval Service on 1 July and was relieved of his duties as Department Head by Lt. M. Kastler, the QUW Officer.

Naval Air Station Brunswick Public Works Department, completed installation of a proto-type otto fueling ventilation system in August. The system was designed by the TM's and engineers from the Navy environmental health center, Cincinnati.

On 23 August, CDR. A. G. Alexander assumed the duties of Weapons Officer.

The Ordnance Division commenced construction of a indoor pistol range in a vacant building located at the NAS Brunswick annex, Topsham, Maine, construction started in November and expected completion in March 1972.

LTJG H. W. Barker relieved LT. M. Kastler as AUW Officer on 19 November 1971.

The Explosive Ordnance Disposal Detachment conducted 52 operations off station and 12 operations on station as follows:

Off Station: Responded to 36 calls to safe, pick up and dispose or ordnance. Conducted 11 Bomb familiarization sessions for the FBI, State Police, local police and fire departments, plus 7 miscel operations.

On Station: Conducted 5 disposal operations demilatraizing 1000 lbs or ordnance.

The miscellaneous operations included the explosively destroying of whale carcuss that had washed ashore, explosively constructing a water hole at the Brunswick Commons, the recovery of a drowning victim and the recovery of a murder weapon, utilizing a MK9 ordnance locator for the local police department.

Weapons Department (Continued)

The ordnance division issued 217 tons or ordnance in support of localy based squadrons, ships at Bath Iron Works and Vocaline Air Sea Technology during 1971. 212 tons or ordnance was received.

Training shapes, including the MK 57 and all mines, were issued 239 times in support of Fleet Air Wing THREE and five loading drills.

The Small Point Minning Range was manned 53 days in support of East Coast patrol squadrons and VP-60 from Grossi illi Naval Reserve Air Station.

The station armory provided temporary storage for small arms belonging to ships at Bath Iron Works and local area Naval Reserve Training Units.

AUW Division hosted a Torpedo Readiness assistance team 13 to 17 September 1971, no major discrepancies were noted.

Issued 50 MK 46 exercise torpedoes and 2 war shop torpedoes to locally supported squadrons.

HRA-0136

DEPARTMENT OF THE NAVY

NAVAL AIR STATION

BRUNSWICK, MAINE 04011

IN REPLY REFER TO
11A00:SAH:dmc
5720
Ser 472
6 March 1975

From: Commanding Officer, Naval Air Station, Brunswick, Maine 04011
To: Chief of Naval Operations (OP-05D2)

Subj: Command History (OPNAV Report 5750-1); forwarding of

Ref: (a) OPNAV Instruction 5750.12B

Encl: (1) Command History of Naval Air Station, Brunswick, Maine

1. In accordance with reference (a), enclosure (1) is submitted.

SUELLEN A. HUDSON
By direction

Copy to:
Director of Naval History (OP-09B9)
COMNAVAIRLANT

COMMANDING OFFICERS AND DATES OF COMMAND

Commander J. C. ALDERMAN, USN	15 Apr 1943 - Aug 1944
Commander E. M. ELLIS, USN	Aug 1944 - Aug 1945
Captain Joe TAYLOR, USN	Aug 1945 - Oct 1946
Commander W. L. DAWSON, USN	Oct 1946 - Nov 1946
Lieutenant Commander H. G. POLLARD, JR, USNR	Nov 1946 - Jul 1947

NASB INACTIVATED

Commander F. L. PALMER, JR., USN	15 Mar 1951 - 2 Aug 1952
Captain G. G. PRICE, USN	2 Aug 1952 - 7 Jun 1955
Commander G. H. DUFFY, USN	7 Jun 1955 - 9 Dec 1955
Captain J. T. YAVORSKY, USN	9 Dec 1955 -10 Jan 1958
Commander D. W. BOWMAN, USN	10 Jan 1958 - 6 Feb 1958
Captain R. R. MORE, USN	6 Feb 1958 -11 Sep 1959
Captain M. T. THATCHER, USN	11 Sep 1959 -29 Jun 1961
Captain H. L. TALLMAN, USN	29 Jun 1961 -14 Jul 1961
Captain W. L. PACK, USN	14 Jul 1961 -25 Jun 1963
Captain E. J. KNOCHE, USN	25 Jun 1963 -21 Jul 1965
Captain D. C. RAINS, USN	21 Jul 1965 -14 Jun 1967
Captain C. L. WYMAN, USN	14 Jun 1967 - 1 Aug 1969
Captain J. D. COLLINS, USN	1 Aug 1969 -10 Sep 1971
Captain R. D. SNYDER, JR., USN	10 Sep 1971 -30 Apr 1974
Captain R. L. LATTA, USN	30 Apr 1974 - Present

ROSTER OF NAS OFFICERS DEC 1974

Captain Robert L. LATTA	Commanding Officer
Captain John F. CARR	Senior Chaplain
Captain David T. FENNER, Jr.	Senior Dental Officer
Commander Arnold J. RUBIN	Executive Officer
Commander Adam G. ALEXANDER	Weapons Officer
Commander Stephen G. BOYETT	Administrative Officer
Commander Charles F. CLARK, Jr.	Resources Management Officer
Commander Walter T. MEYERS	Supply Officer
Commander Charles R. SAMUELSON	Air Operations Officer
Commander Donald J. MCKISSOCK	Personnel Support Officer
Commander Carlisle F. COOK, Jr.	Public Works Officer
Commander Robert J. GRASMUCK	AIMD Officer
Lieutenant Commander Thomas W. FAIR	AIMD
Lieutenant Commander Ronald W. RANKIN	Comptroller
Lieutenant Commander David P. SCHUSTER	Chaplain
Lieutenant Commander Thomas J. CHIDER	Air Safety Officer
Lieutenant Commander Robert E. ERICSON	Security Officer
Lieutenant Commander Carl W. FLICK	Chaplain
Lieutenant Commander Ervin E. RICE	Ground Electronics Officer
Lieutenant Commander Gerald W. CARTER	Asst. Supply Officer
Lieutenant Commander Andrew S. HIGBEE	Maint. Mat. Control Officer
Lieutenant Commander Michael W. PARKER	Asst. Dental Officer
Lieutenant Commander James A. FREYER	Legal Officer
Lieutenant Loyal R. UPDEGROVE	Asst. Public Works Officer
Lieutenant Raymond A. SYLVESTRE	ATC Officer
Lieutenant James L. ECONOMOU	CAAC Officer
Lieutenant Eugene M. PINKELMANN	Legal Officer
Lieutenant Donald W. BISHOP, Jr.	Dental Officer
Lieutenant David N. TAFT	Dental Officer
Lieutenant Edward N. CORMIER	Food Services Officer
Lieutenant (junior grade) Merrill A. DALTON	AUW Officer
Lieutenant (junior grade) Paul J. LYNCH	Airframes Officer
Lieutenant (junior grade) Allen P. NESBITT III	Ground Support Equip. Officer
Lieutenant (junior grade) Suellen A. HUDSON	Public Affairs Officer
Lieutenant (junior grade) Martin W. JOHNSEN	Power Plants Officer
Ensign Thomas R. POMORSKI	Airframes
Ensign Michael L. HOESLY	CMS Custodian
Chief Warrant Officer (3) William J. HOWARD	Asst. ATC Officer
Chief Warrant Officer (2) Edward M. GUNDERSEN	Supply Support Officer
Chief Warrant Officer (2) James R. FULLER	Personnel Officer
Chief Warrant Officer (2) Raymond E. MURPHY	Asst. AUW Officer

ANNUAL CHRONOLOGY

23 Jan	Navy Brunswick Toastmasters Club 2156 installed new officers.
9 Feb	Officers' Wives' Club sponsored Casino Royale to raise funds for charity.
15 Feb	Mrs. Geralinde Rickel was chosen to represent NASB in the Military Wife of the Year contest.
19 Feb	BEQ three million dollar renovation entered its final stage.
21 Mar	Brunswick Naval Air Station basketball team secured First Naval District and North Atlantic Regional Championships.
28 Mar	Navy Brunswick personnel participated in 1974 Crusade Capers held to raise money for Maine Division of the American Cancer Society.
15 Apr	AAU Swim Program was started at NASB.
30 Apr	Captain Roy D. Snyder, Jr., was selected for Rear Admiral and reassigned as Commander Patrol Wings Atlantic.
30 Apr	Captain Robert L. Latta relieved Captain Roy D. Snyder as Commanding Officer of the Naval Air Station, Brunswick.
16 Jun	The Navy Show Band East presented a variety show complete with comedy, song, and dance.
9 Jul	Naval Air Station federal employees received pay hikes.
22 Jul	Naval Air Station, Brunswick hosted COMONE District Slow Pitch Softball Tournament.
3-4 Aug	The Blue Angels performed for 54,000 people at the BNAS Charity Air Show.
7 Aug	The Naval Air Station, Brunswick hosted the final Brunswick Jimmy Fund softball game which helped raise money for cancer research for children.
12 Aug	Brunswick Naval Air Station hosted the annual Charity Ball in Neptune Hall, the enlisted galley; approximately 500 people enjoyed the evening's festivities.
30 Oct	The Security Department of the Brunswick Naval Air Station staged a disaster drill in conjunction with local hospital, fire department and police officials to test the reaction of area emergency services in handling victims of disasters.

Oct	Construction began on a 5 million dollar Tactical Support Center.
3 Dec	Rear Admiral Roy D. Snyder, Jr., COMPATWINGSLANT, and Captain Robert L. Latta, Commanding Officer, NASB, presented Combined Federal Campaign checks totaling $56,972 to representatives of the Brunswick Area United Fund, National Health Agencies, and International Service Agencies.
28 Dec	The Air Station hosted a party for college students, both civilians and dependents, home for the holidays.

AIRCRAFT INTERMEDIATE MAINTENANCE DEPARTMENT. . .

During calendar year 1974, the Aircraft Intermediate Maintenance Department had a decrease in its output of Ready-for Issue (RFI) components. Total items processed during the calendar year were 23,276 of which 16,962 were returned to RFI for a repair percentage of 72.90 which represents a decrease of 4.46% or 4,214 items from last year.

Numerous changes in divisional structures and capabilities were affected during the past year as indicated below:

Maintenance/Material Control Division

The Material Control Division functions, Individual Material Readiness List (IMRL) and Plant Account Control were relocated to provide consolidation and improved accountability procedures. The Aeronautical Material Screening Unit spaces were expanded and rearranged to provide a more controlled flow of inducted components. The division has been active in improving the habitability of work spaces through the self-help program. The Individual Component Repair Listing (ICRL) was continually being updated to provide a master listing of components processed and the associated repair capability of the department.

Power Plants Division

The Power Plants Division adopted the Personnel Qualification Standards (PQS) system of training. This system will greatly enhance the organization, management, and quality of training in the division. Work Center 410 has been organized into a two-crew concept which will improve maintenance accountability and control. The division has tasked one individual with repair parts accountability and status checking in an effort to enhance visibility of repair parts problems and to speed their solution.

Airframes Division

The Airframes Division established a complete repair program and work center for P-3 aircrew seats. By doing so, great cost savings and reduction in seat repair time were realized, thus providing better support to the P-3 community. The acquisition of better equipment and talent in the Airframes Machine Shop has greatly increased this work center's capabilities. Considerable work was done to improve the division's material condition and appearance.

AIRCRAFT INTERMEDIATE MAINTENANCE DEPARTMENT. . .

Avionics Division

The Avionics Division processed some 16,000 items of which approximately 77.5% were made ready for issue. The division office has been relocated within the Electronics spaces, providing better administrative control. Training is now accomplished at the division level to provide more general training thus permitting the work centers to conduct increased professional on-the-job training. Insulated rubber floor tile has been installed in the Electronics space, increasing the safety factor and making it more habitable. We now have the capability of effecting micro-miniature component repair. The Electrical Branch now maintains the KS-89 camera system. With the advent of the Maintenance Information Automatic Retrieval System, the Electronics Branch assumed the maintenance responsibilities for all reader printers at NASB.

Aviator's Equipment Division

Through the use of self-help funds, the Aviator's Equipment Division enclosed the parachute packing tables in order to increase storage space for equipment and materials and to improve the shop's appearance. Self-help funds were also utilized to install a removable false ceiling in the parachute drying room which doubles as the oxygen regulator shop. Thus, when not drying parachutes, the ceiling provides much needed heat conservation and dust control.

Ground Support Equipment

During the past year the Ground Support Division has increased the reliability of Ground Support Equipment through improved maintenance procedures, and with the squadrons made more aware of the importance of proper daily preflights, the down discrepancies have decreased tremendously. A new work center, (Preventative Maintenance Branch) was also established to restrain minor discrepancies and keep them from becoming major problems. Also, through the self-help effort, the lounge areas and recreation room, topside in building #7, have been rehabilitated and the old furniture replaced. During the past year in GSE Supply, a better system of controlling the issue and ordering of replacement parts has been established, and the parts bin has been moved into a new area.

Precision Measuring Equipment Division

Local calibration increased by 171 electronic items over last year, about 9% due to a change in IMRL allotments and increased support needs. In May 1974 NAVAIRLANT and NAVAIRSYSCOMREPLANT released to NAS Brunswick a group of standards from the closed calibration facility in Mechanicsburg, Pa. These standards have also contributed to the increased in-house capability in electronic items. A decrease of 26% in the torque and pressure area, from 2381 items to 1739 items, was realized through changes in METROLOGY requirements. This shift, however, has a negligible effect on manhours used in calibration. NAVAIRSYSCOMREPLANT replaced the old Sweeny Torque Tester with the new Consolidated Devices Inc. Torque Tester, a faster, more accurate standard. NAVAIRSYSCOMREPLANT also sent a 652A Test Oscillator increasing capabality in the A2 Phase of calibration and repair due to its higher usable frequency range. The repair capability in the radio and radar frequency ranges has been significantly widened with the addition of a series of signal generators (IMRL gains). These generators will upgrade the support of the radar altimeter and navigation systems test equipment, such as the AN/APN-141 test bench and the AN/APS-80 test sets. Work Center 672 has gained the capability of calibrating all the synchrophaser test equipment and is presently building the capability to do watt-meters locally to better support systems such as the AN/ARC-94. The skill level of the division dropped during the year with the loss of three calibration specialists (NEC AT-6622) and two test equipment repair technicians (NEC AT-6621). One trained replacement was received in February 1974 to offset these losses (NEC ET-1598). Presently, he is transferring to the Fleet Reserve in June 1975. An on-the-job retraining program of local assets of manpower is in process to bring up the skill level. It is anticipated that as the skill level increases more utilization of the MECHANICSBURG STANDARDS can be made and thus increase the inhouse capability of the NAS Brunswick PME Laboratory even more.

AIR OPERATIONS. . .

Operations Maintenance Division

The Operations Maintenance Division supported a wide variety of civilian, U. S. Military and Foreign Military aircraft, which included: French P-2V's, Norwegian P3B's, Canadian 107's, and German Atlantic aircraft. The Naval Air Station's C1A aircraft, UH-1N helicopters and aircrews flew support missions for the U. S. Navy's Parachute Team and the U. S. Marine Corps' demonstration during the annual Charity Air Show. The Operations Maintenance Division supported the Navy's long range recruiting program by giving tours and/or flight demonstrations to 37 groups and organizations. Search and Rescue pilots and aircrews flew 13 Search, Rescue and Medical evacuation missions during the year.

Photo Lab

During September and October 1974 the Photo Lab went through a complete rehabilitation and face lifting. The studio is now divided into a portrait section and a copy section making it possible to accomplish both copy and portrait photography simultaneously. A lowered ceiling, improved lighting and new work benches were installed. Also the plumbing system received a complete overhaul which improved the water flow and temperature control. These changes now allow full use of all available space, provide improved efficiency and ensure faster service. The number of work units increased by 8,880, from 71,961 units in 1973 to 80,841 units in 1974.

Air Traffic Control Facility

During 1974, because of the deprived rating program, manning levels of air controlmen dropped to a critically low point. Bureau approval was sought to drop the unfilled OS (deprived rating) billets from the ATC allowance from 30 to 41 AC's. By the end of the year BUPERS had increased the manning of the Air Traffic Control Facility to 100%.

Naval Air Station, Brunswick Tower

During calendar year 1974, a tower improvement program was completed. The NAS Brunswick Tower received a complete face lift including repairs to the roof, new carpeting, interior painting, and installation of glare reducing shades. Air traffic operations increased over 1973 by more than 3000 overall even though Navy and Marine Corps operations decreased by more than 1000. Radar approach totals show a significant decrease due to extended periods of radar outage. The following is a complete traffic comparison between calendar year 1973 and 1974:

AIR OPERATIONS. . .

	1973	1974
Navy/Marine Corps IFR	16,712	14,301
Navy/Marine Corps VFR	22,752	24,298
Total	39,464	38,599
Other Military IFR	800	937
Other Military VFR	363	449
Total	1,163	1,386
Civil Air Carrier IFR	82	958
Civil Air Carrier VFR	0	0
Total	82	958
Civil General Aviation IFR	5,924	7,220
Civil General Aviation VFR	3,482	5,545
Total	9,406	12,765
Combined Total IFR	23,518	23,416
Combined Total VFR	26,597	30,292
Total Overall	50,115	53,708
Combined Total Radar Approaches	4,956	3,565

Fire Division

The Fire Division had a total of 44 civilian employees and 9 military personnel assigned during calendar year 1974. Total responses for the year were 578, which break down into 400 crash and rescue responses for emergency landings, arresting gear, engine turn-ups and standbys, 160 structural responses at the Naval Air Station and 18 at the Topsham Annex. The airfield was closed for 33 hours and 53 minutes while the men and equipment were on structural responses. Indoctrination programs for local area Fire Departments were conducted for the towns of Lisbon and West Rockport and for the York County Firemen's Association which represents 40 towns.

AVIATION SAFETY. . .

On 31 December 1974, the Naval Air Station, Brunswick completed 14 1/2 years of accident free operations amassing a total of 27,728 flight hours.

An innovation introduced this year for both fleet and NAS use in the event of an aircraft mishap is a "Crash Cart" located in Hangar Two for the purpose of providing a readily available, easily transportable accident investigator's kit.

During this year, three first tour pilots qualified as helicopter aircraft commander, one pilot qualified as a C-1A aircraft commander, and one enlisted man qualified as a helicopter search and rescue aircrewman.

CAREER COUNSELOR. . .

During calendar year 1974, the Command Career Counselor interviewed and assisted hundreds of men and women stationed at NAS Brunswick. These interviews consisted of apprising individuals of their rights and benefits as veterans, and of Navy programs and benefits as compared to civilian career fields.

The Career Counselor made himself available to act as liaison between rating detailers in Washington, D.C. and the men and women of Navy Brunswick, resulting in hundreds of phone calls to assist the individual in obtaining a duty assignment of choice, enhancing his/her naval career.

The Career Counselor gave several speeches to the Navy Wives' School on retirement benefits; approximately 16 hours of instruction were given in this capacity. He also gave several presentations on naval programs such as the proposed non-disability retirement for the active duty personnel and the new survivor's benefit plan for retired military personnel. Over 200 hours were spent in lecturing both active duty and retired personnel in other areas, including the 1974 Retirees Seminar.

The Career Counselor is also the Career Management School Co-ordinator and instructor. The Career Management School is a 5 day course of instruction on naval programs and benefits, to aid middle management personnel in better communications within their divisions. Many unaccountable hours are devoted in the areas of preparing and updating information used in the curriculum in addition to the instructing phase.

CHAPLAIN. . .

Chaplains Present During Year 1974

Captain Ralph W. BELOW, CHC, USN, Southern Baptist, (Retired) 31 May 1974.

Captain John F. CARR, CHC, USN, Roman Catholic, reported aboard 9 Sep 1974.

Commander John R. MCNAMARA, CHC, USN, detached 9 Sep 1974.

Lieutenant Commander D. P. SCHUSTER, CHC, USN, United Presbyterian, reported aboard 25 Sep 1972.

Lieutenant Commander Carl W. FLICK, Southern Baptist, CHC, USN, reported aboard 2 August 1974.

Commander Frederic A. PEASE, CHC, USNR-R, United Church of Christ, ACDUTRA beginning 7 Mar 1974 for two weeks.

Lieutenant Commander William McCONNELL, CHC, USNR-R, Roman Catholic, ACDUTRA beginning 22 Jul 1974 for two weeks.

Official Visitors

Bishop Peter Gerety, DD, Bishop of Portland, Maine 30 Mar 1974.

Captain George POULSON, CHC, USN, District Chaplain, 1ND.

Captain Donald DILLARD, CHC, USN, ADMAT Inspector, COMNAVAIRLANT, Fleet Chaplain.

Special Ministries by Visiting Representatives

Christian Science Minister to the Armed Forces held regular monthly scheduled hours for counseling.

Latter-Day-Saints Church School sessions held on regular weekly basis.

Parish Mission Renewal (1-3 April) by Reverend Emil Gaudette, St. John's Church, Brunswick.

Rabbi David Berent, Congregation Beth Jacob Synagogue, Lewiston, Maine.

CHAPLAIN. . .

Training Activities

Lieutenant Commander David P. SCHUSTER, CHC, USN, attended Marriage Counseling Course, University of Pennsylvania in Philadelphia from 7-31 January 1974.

Captain Ralph W. BELOW, CHC, USN, attended a 3-day lecture at Bangor Seminary by Dr. Carl Marney from 28-30 January 1974. Chaplain BELOW also attended a 4-day workshop at New Hyde Park, Long Island on Sexual Disfunctions from 4-7 February 1974.

Mrs. Georgie M. Skolfield attended Advanced EEO Course in Boston, Mass. from 10-13 March 1974.

Chapel Center Activities

National Prayer Breakfast - 31 January 1974. RADM Harold G. RICH, USN, was guest speaker. 400 attended.

Chaplain (CDR) Lawrence KEEFE, guest celebrant 2 and 3 February 1974. (Roman Catholic)

Catholic Parish held a Valentine Party for Senior Citizens and other patients at the Brunswick Nursing Home. They also had a summer party and a Christmas Party for the same nursing home patients.

Pot luck suppers, picnics, skating parties, and swimming parties were held during the year for the youth and members of both the Catholic and Protestant communities.

VP-10 Memorial Dedication Service was held. A stone and plaque were dedicated to the men who died in the plane crash.

A Protestant discussion group was started during Lent. Interest generated resulted in extension of group after the Lenten Season.

Roman Catholic parish held Stations of the Cross each Wednesday night and Saturday morning during Lent.

Good Friday Protestant and Roman Catholic Services for military and civilian personnel were held.

Protestant Confirmation classes for youth 9-16 years were held. Confirmation was held on Maundy Thursday Communion Service.

CHAPLAIN. . .

Chapel Center Activities (continued)

Roman Catholic Confirmation with Bishop Peter Gerety, D.D. presiding was held on 30 March. A banquet followed at the EM Club.

Roman Catholic First Communion Dinner was held on 4 May 1974 at the Navy Exchange Cafeteria.

An Indian Mass for CCD children and parents was held 8 May 1974.

16 June 1974 - VP-10 rededication service - 66 attended.

9-13 September 1974 - CCD Teacher's Training Course, conducted by Chief and Mrs. James NACKE.

Chaplain SCHUSTER conducted "Edge of Adventure" discussion group for 12 weeks beginning in October.

Held Marine Corps 199th Anniversary Memorial Service.

Special Protestant and Catholic Thanksgiving Services were held in the Chapel.

Outreach Projects were:

Christian Children's Fund
One Great Hour of Sharing
American Bible Society
Military Naval Children's Home
Brunswick Area Church Council
Bath-Brunswick Mental Health Assoc.
Christian Schools, Inc.
Missions
Right to Life
Youth Development Center
Passamaquoddy Indians
Leprosy Foundation
St. James Society for Disadvantaged Children
Bishop's Catholic Relief Society

Pulpit exchange took place with local clergy in which all three chaplains participated.

CIVILIAN PERSONNEL DEPARTMENT. . .

This department provided civilian personnel services for approximately 633 civilian employees assigned to:

NAVAL AIR STATION, BRUNSWICK, MAINE
COMMISSARY STORE COMPLEX, NAVAL AIR STATION, BRUNSWICK, MAINE
NAVAL RADIO STATION (T) CUTLER, EAST MACHIAS, MAINE
NAVAL SECURITY GROUP ACTIVITY, WINTER HARBOR, MAINE
FASOTRAGRULANT DETACHMENT BRUNSWICK, MAINE
SUPERVISOR OF SHIPBUILDING, CONVERSION AND REPAIR, BATH, MAINE
COMPATWINGSLANT, NAS BRUNSWICK ANNEX, TOPSHAM, MAINE
COMPATWING FIVE, NAS BRUNSWICK, MAINE
BUMED BRANCH DISPENSARY, NAS BRUNSWICK, MAINE
DEFENSE PROPERTY DISPOSAL OFFICE, BRUNSWICK, MAINE

Civilian Manpower at Naval Air Station, Brunswick, Maine:

ON BOARD (31 December 1974) - 376

367 Permanent
9 Temporary

The Civilian Personnel Department lost one clerical billet in October. Taking into consideration the geographic area serviced by this department, the number of employees serviced, the increased resources that must be devoted to command and higher authority high interest programs, for example, training, EEO, Upward Mobility, and NAS Wage System, the permanent staffing level is inadequate to provide a quality total Civilian Manpower Management Program. It is considered that the department was able to provide fast and accurate service during peak work periods (April-August) because of the additional clerical capability.

All department personnel moved to renovated and larger spaces in August providing much improved working conditions for all.

Eighty-five Merit Promotion Announcements (64 in 1973) were issued for the Naval Air Station and serviced activities. During 1974, 365 requests for personnel actions were processed. (A decrease of 112 as compared with 1973). However, of the 365 requests, 207 were initiated during a 5-month period - April through August. Fifty-seven temporary employees were hired during the year.

In compliance with the Affirmative Action Plan under the Equal Employment Opportunity Program, one Upward Mobility position was filled. In September, assignment of DEEOO duties were transferred from the Head of the Employment Division to Mr. H. William Peavey, Data Processing Division Officer, Resources Management Department.

CIVILAIN PERSONNEL DEPARTMENT. . .

Special employment programs in effect during the year included:

Two stay-in-school appointments were effected through Lisbon High School: one clerk typist in Supply (GS-2) and one telephone operator (GS-2) in Communications.

Twenty-four Neighborhood Youth Corps youths from the Concentrated Employment Program, Portland and Lincoln/Sagadahoc Counties were employed during the summer with minimum wages paid by the Department of Labor.

Sixteen summer aids (disadvantaged youths) and one counselor were employed during the summer school vacation period. Four others were hired for the Commissary Store.

Twenty veterans were employed for summer work.

Under the DOD Program for Stability of Civilian Employment, one employee was placed from the Stopper List in a position aboard NASB.

Other significant employment efforts included 108 requests for certification of eligible job applications from the Civil Service Commission, Augusta Area Office; reduction in force at the Naval Security Group Activity, Winter Harbor, Maine involving 6 persons; registration of one employee for overseas employment; nine availability/placement inquiries for overseas employment. A new workload was added by a Civil Service Commission requirement to complete an Employee Service Statement for each separatee. This necessitates a complete review of the Official Personnel Folder and a record of all federal services.

The Training Committee met in April and October and coordinated departmental training requirements. Three training plans were submitted for approval, each being adjusted downward in cost in order to meet the funds allocated to the program. A total of 301 individuals were enrolled in training opportunities during 1974. A decrease of 130 from 1973.

The Wage and Classification Division conducted a wage change Federal Wage System survey in the Portland, Maine wage area. This resulted in a July increase for wage grade employees of 6.7% for nonsupervisory and 6.1% for supervisory employees. Plans for a 1975 full-scale survey began in November with the appointment by the DOD Wage Fixing Authority of Mr. Close, Head Wage and Classification Division, as chairman of the Local Wage Survey Committee.

Due to continuing heavy wage and classification workload and the scheduled implementation early in FY 76 of a new factor evaluation plan

for white-collar positions by the Civil Service Commission, a reorganization was implemented to provide more personnel resources in wage and classification. A personnel technician is being trained to analyze, evaluate and recommend classification actions as well as to accomplish other routine day-to-day tasks adding about one-half man year to this function. During the year, 382 classification actions were processed.

During 1974, 36 beneficial suggestions from civilian and military personnel were submitted. Civilian employees received a total of $345.00 cash awards for 5 adapted suggestions and military personnel received a total of $180.00 for 4 adapted suggestions. Fifteen civilian employees received 20-year service award pins and one employee received a 40-year service award. Other awards granted included 18 Sustained Superior Performance, 18 Quality Salary Increases and 8 Special Act/Service Awards which were granted to summer aid employees.

Twenty-five issues of the Civilian Personnel Newsletter were published and circulated during the year, and 77 civilian employee news articles were initiated and published in the Patroller, the station newspaper.

There were 14 civilian employee retirements in 1974 - five optional, three disability and six discontinued service.

In October of 1974, the Commanding Officer held the first Communications Breakfast Meeting at this activity. The purpose of the meeting was to promote good communications between all categories of personnel employed at the Naval Air Station, Brunswick. The Commanding Officer solicited and answered questions from about 30 persons in attendance and it was deemed to be highly successful.

COMMUNICATIONS. . .

On 1 July 1974, the Communications Department missions and tasks were changed to reflect the addition of Commander Patrol Wing Five communications organizational, personnel and operational responsibilities. The NAS Communications Officer was assigned additional duty to CPW-5 for coordination and management of this function.

DENTAL. . .

The dental department has greatly improved its capabilities this past year due largely to the Shore Establishment Realignment. Surplus equipment in excess of fifty thousand dollars has replaced some of the older equipment and more of this equipment will be added in the coming year to further increase capabilities. The Realignment also transferred the function of a dental repair equipment specialist to this command; his presence reduces the down time of equipment to the point where it is almost non-existent. Also his expertise in the use of equipment and selection of new equipment is most valuable.

The total procedures for the year 1974 were 39,413; a total of 5,287 restorations were accomplished; the prosthetic laboratory completed 408 appliances; and the preventive dental disease program provided 2,239 cleanings and 2,611 fluoride applications. Patient visits totaled 10,308 for the year. The total procedures represent an increase of 33% over 1973; the patient visits, an increase of 11%, the significance being the increased effectiveness per patient visit. The most significant feature of the year was that in spite of 1100 more patient visits, the number of teeth extracted decreased 30%. This would indicate an overall improvement in dental health and the effectiveness of the preventive dentistry program.

Dental department personnel include four dental officers providing all phases of dentistry; eleven dental technicians, one civilian dental hygienist, and one dental equipment repairman.

EDUCATIONAL SERVICES. . .

The Education Office was located in room 104 by the post office and moved to the spaces vacated by Civilian Personnel Office. Later, the Education Office moved to the spaces adjacent to the Personnel Office.

The Educational Services Office started with only one classroom which was located by the post office. Due to relocation, two additional classrooms were acquired.

In March 1974 one of the first Navy Campus for Achievement sites in the Atlantic Region was established. It was staffed with one Navy Campus for Achievement Advisor and in December was additionally staffed with a GS-3 secretary.

Courses from University of Maine were introduced at NASB in September 1974 with an enrollment of 26 students.

In December 1974, the administration of DANTES Testing Programs was transferred from Educational Services Officer to the Navy Campus for Achievement Advisor.

The Navy Campus for Achievement advisor had personal contact counseling with over 450 naval personnel and over 220 telephone contacts from April through December 1974.

University of Maine proposed courses increased from two to four classes with an enrollment increase from 26 to over 60 as of late December 1974.

New Hampshire College has increased from four classes to six classes per term.

GENERAL SAFETY. . .

Events

During calendar year 1974, the General Safety office conducted three major Drivesafe Programs at the station theatre.

On 23 and 24 May 1974, the staff of the Alcohol Safety Action Program presented four sessions to a total of 340 military personnel.

On 1 August 1974, the Safety Manager was appointed military representative on Highway Safety Committee.

On 8 August 1974, Duane Carter, former Indiannapolis 500 driver, presented the Champion Spark Plug's "Driving with a Champion" program to 250 personnel.

From April through October, 62 military personnel successfully completed the activity's Motorcycle Safety Course.

During October and November, in 17 sessions, 78 military and dependent personnel were trained in Skid Control.

On 5 November, 25 members of the 1974 class of Maine State Police Cadets were trained in skid control, explosive ordnance disposal, aircraft accident handling and helicopter assistance.

On 11 and 12 December 1974, 230 military personnel heard two members of the Maine Highway Safety Committee discuss winter driving hazards and advise on accident prevention measures.

Thirty-seven prospective hunters completed the Hunter Safety course.

A member of the Maine AAA presented the Naval Air Station, Brunswick a plaque for outstanding achievement in pedestrian safety during 1973.

Accidents

During 1974, Navy Brunswick personnel were involved in 28 private motor vehicle accidents. Although no one was fatally injured, seven personnel sustained lost-time injuries and 13 received first aid treatment. There were 13 reportable accidents involving damage to government property with a total damage cost of $10,033.00.

Four civilian employees lost time from work from job-related injuries, 28 military personnel sustained injuries requiring first aid treatment, and one military man died from carbon monoxide poisoning.

LEGAL. . .

During calendar year 1974, the NASB Legal Office personally assisted 4670 individual clients, a 35% increase over 1973 and a 102% increase over 1972. Assistance consisted of legal advice, phone calls and letters in behalf of clients, and the preparation of legal documents. Assistance concerned such matters as: wills, trusts, divorce, separation, support, adoption, immigration, importation, state and federal tax, consumer problems, landlords/ tenant problems, commercial transactions, real estate transactions, loans, contracts, motor vehicle licenses and registration, auto accidents, suits, powers of attorney, notarized statements, questions of domicile and residence, military benefits, insurance, and civilian criminal matters. Assistance was rendered to active duty personnel, dependents, retired members and dependents of retired members. Two Naval Reserve lawyers continued to perform weekly drills by giving legal advice on Saturday mornings and Thursday evenings.

In the area of administrative law, the Judge Advocates assigned, supervised, and reviewed many investigations for this command, COMPATWING FIVE and COMPATWINGSLANT, most concerning line of duty/ misconduct determinations or claims under the Federal Tort Claims Act. They acted as final adjudicators for 259 claims filed under the Military Personnel and Civilian Employees' Claims Act, a 31% increase over 1973. Local adjudicating authority was increased from $500 to $1000 per claim. There was also counseling given regarding administrative discharges and several agreements to waive discharge board in exchange for general discharge were executed. Five administrative discharge boards were held, a 150% increase over 1973; two were convened by Patrol Squadron TEN, one by Naval Air Station, Brunswick and two by Marine Barracks. Two boards resulted ultimately in undersirable discharges, one in general discharge, and two in retention. In addition, COMPATWINGSLANT approved 7 undersirable discharges, in lieu of trial by Court-Martial, at the request of accused.

In the area of criminal law, practice expanded into the civilian forum under Maine Supreme Court Rule 61, which allows military judge advocates to represent E-4s and below in Maine courts in misdemeanor cases. Two cases were handled under this rule. Ninety-one cases were processed for Captain's Mast, a 16% increase over 1973. Occasionally NASB, Marine and Squadron personnel facing summary courts or mast came to the Legal Office for advice. Fifteen summary Courts-Martial were reviewed by LCDR J. A. FREYER for the supervisory authority, Commander Patrol Wings, U.S. Atlantic Fleet, a 150% increase over 1973. Of the fifteen, eight courts were convened by Patrol Squadron FORTY-FOUR; three courts were convened by Marine Barracks; two courts were convened by Naval Air Station, Bermuda; two courts were convened by Naval Air Station, Jacksonville; and two courts were convened by Naval Air Station, Argentia. There were eleven (11) Special Courts-Martial and two (2) General Courts-Martial. One General Court-Martial was the first ever

convened by COMPATWINGSLANT. COMFIVE convened the other General Court-Martial, which was the first ever conducted at this command. Four additional Special Courts-Martial were pending at the end of 1974. The symbol (*) after each charge tried at the below listed Courts-Martial indicates a finding of guilty of that specific charge.

GENERAL COURTS-MARTIAL

Name: AT2 Robert J. MEDEIROS
Date: 1 July 1974
Convening Authority: COMFIVE
Offenses charged: Article 92 (three specifications): selling one-half pound of marijuana (*); possession of one and one-half pounds of marijuana (*); possession of cocaine (*).
Sentence adjudged: Confinement at hard labor for nine months; forfeiture of $150.00 per month for nine months; reduction to pay grade E-3; bad conduct discharge.

Name: AT3 Vernon C. FOSTER
Date: 29 August 1974
Convening Authority: COMPATWINGSLANT
Offenses charged: Article 86: unauthorized absence (*); Article 92 (two specifications): possession of 21 pounds and fourteen and three-quarter ounces of marijuana (*); introduction aboard a naval aircraft of 21 pounds and fourteen and three-quarter ounces of marijuana (*); Article 134: exporting 21 pounds and fourteen and three-quarter ounces of marijuana (*); Article 86: failure to go to appointed place of duty (*).
Sentence adjudged: Reduction to pay grade E-1; confinement at hard labor for 2 years; forfeiture of all pay and allowances; bad conduct discharge.

SPECIAL COURTS-MARTIAL

Name: AEAR Michael F. McMahon
Date: 19 March 1974
Convening Authority: VP-44
Offenses charged: Article 92 (six specifications): violation of restriction orders (*); Article 121: larceny of slide projector (withdrawn in accordance with pre-trial agreement); Article 86 (two specifications): unauthorized absence (*).
Sentence adjudged: Confinement at hard labor for two months; forfeiture of $100.00 per month for two months.

SPECIAL COURTS-MARTIAL (continued)

Name: ADJAN Joseph W. SCANLAN
Date: 25 March 1974
Convening Authority: VP-23
Offenses charged: Article 86 (two specifications): unauthorized absence (*); Article 90: willful disobedience of order of commissioned officer (withdrawn in accordance with pre-trial agreement); Article 95: escape from custody (withdrawn in accordance with pre-trial agreement); Article 112: drunk on duty (*); Article 86: failure to go to appointed place of duty (*); Article 92: violation of restriction orders (*).
Sentence adjudged: Confinement at hard labor for 45 days; forfeiture of $100.00 per month for two months.

Name: PVT Zor A. WEEKLY
Date: 7 June 1974
Convening Aughority: Marine Barracks
Offenses charged: Article 92 (three specifications): wrongful use, possession and introduction of marijuana (* possession and introduction).
Sentence adjudged: Confinement at hard labor for two months; forfeiture of $200.00 per month for two months.

Name: ATAN Gary L. HANCOCK
Date: 26 June 1974
Convening Authority: VP-44
Offense charged: Article 86: unauthorized absence (*).
Sentence adjudged: Hard labor without confinement for two months; forfeiture of $175.00 per month for two months; reduction to pay grade E-2.

Name: SN Ronald E. DESILVA
Date: 13 August 1974
Convening Authority: NAS Brunswick
Offenses charged: Article 86 (four specifications): unauthorized absence (*).
Sentence adjudged: Confinement at hard labor for two months; forfeiture of $216.00 per month for two months; reduction to pay grade E-1.

SPECIAL COURT-MARTIAL (continued)

Name: PFC Glen A. POMERLEAU
Date: 14 August 1974
Convening Authority: Marine Barracks
Offense charged: Article 92: derelict in the performance of duties (*); Article 113: sleeping on post (*).
Sentence adjudged: Hard Labor without confinement for sixty days; forfeiture of $50.00 per month; reduction to pay grade E-1.

Name: ADJAN Kenneth E. KRAFT
Date: 14 August 1974
Convening Authority: VP-26
Offenses charged: Article 86 (two specifications): failure to go to appointed place of duty (*); Article 91: willful disobedience of lawful order of superior petty officer (dismissed on motion); Article 92: failure to obey lawful order of superior petty officer (dismissed on motion); Article 86: going from appointed place of duty (*); Article 134: out of uniform (*).
Sentence adjudged: Confinement at hard labor for two months; forfeiture of $121.10 per month for four months; reduction to pay grade E-2.

Name: LCPL Mitchell W. CHAPMAN
Date: 9 October 1974
Convening Authority: Marine Barracks
Offenses charged: Article 92: derelict in performance of duties (*); Article 113: sleeping on watch (*).
Sentence adjudged: Hard labor without confinement for ninety days; forfeiture of $50.00 per month for three months; reduction to pay grade E-3.

Name: AR William A. BIRTWELL
Date: 10 October 1974
Convening authority: VP-44
Offenses charged: Article 91 (two specifications): disrespect in deportment toward superior petty officer (*): Article 92: derelict in the performance of duties; Article 128: assault; Article 86 (two specifications): going from appointed place of duty (* one specification).
Sentence adjudged: Confinement at hard labor for two months; forfeiture of $200.00 per month for two months.

SPECIAL COURT-MARTIAL (continued)

Name: PFC August M. HENDERSON
Date: 11 October 1974
Convening Authority: Marine Barracks
Offenses charged: Article 92: willfully derelict in performance of duties (* lesser offense of negligently derelict); Article 107: false official statement.
Sentence adjudged: Forfeiture of $75.00 per month for two months; reduction to pay grade E-2.

Name: ATAA Dennis J. CHIANESE
Date: 11 November 1974
Convening Authority: VP-44
Offenses charged: Article 91 (two specifications): disrespect in language toward superior petty officer (*); Article 95: resisting apprehension (*); Article 116: breach of the peace (* lesser included offense of disorderly conduct); Article 128: (two specifications): assault (*); Article 134: out of uniform (*).
Sentence adjudged: Confinement at hard labor for two months; forfeiture of $175.00 per month for two months; reduction to pay grade E-1.

There were frequent instances of legal advice to all commands, in all areas of the law, and assistance was rendered on special projects. Talks were given to clubs and organizations, both on and off the station.

Facilities improved immensely during 1974. Through a self-help project, all spaces were paneled and carpeted. New waiting room furniture was acquired. A courtroom was constructed complete with judge's bench, witness stand, and jury box. Due to command support, OJAG interest, and the disestablishment of NAS Quonset Point, the law library tripled in size, with the addition of United States Reports, Federal Reporter (Second Series), Federal Supplement, Modern Federal Practice Digest, Corpus Juris Secondum and other materials, providing the legal office with the finest law library in the local community and perhaps in the entire Atlantic Fleet. Central funding of field law libraries by the Office of the Judge Advocate General was initiated and will insure that all legal materials are kept up to date.

In July 1974, LT E. M. PINKELMANN, JR., assumed additional duty as Staff Judge Advocate for Commander Patrol Wing FIVE.

MASTER CHIEF PETTY OFFICER OF THE COMMAND (MCPOC). . .

During the period January 1974 to January 1975, the following events concerning this billet occured that were of significant value to the operation of the Naval Air Station, Brunswick, Maine.

The year marked the retirement of AUCM Albert T. JOHNSON (MCPOC) on the completion of 30 years plus of outstanding naval service on September 1st. The Master Chief was relieved by PHCM Dave CHILDS.

Events

Social:

Hosted visits of CINCLANT and AIRLANT MCPOC's.
Hosted a NASB and Tenant Commands CPO Social highlighted by the iniation of CAPT HANSON, PATWINGSLANT Chief of Staff, designating him an honary CPO.
Accompanied Sailor of the Month to dinners.

Meetings presided or chaired:

Navy Wives OMBUDSMAN meetings
COMPATWINGSLANT MCPOC meetings
Weekly department head meetings
Human Relations meetings
Advisory member on drug abuse
Station recreation meetings
Indoctrination presentations
Sailor of the Month Selection Board

Military:

Attended retirement ceremonies
Lead inspection parties at personnal inspections
Attended Commanding Officer's Mast cases
Headed up annual station clean-up party

MILITARY PERSONNEL. . .

In June 1974 the Brunswick Naval Air Station Personnel Office took over the administrative control of COMPATWINGSLANT/COMPATWING FIVE service records, bringing to a total of 641 enlisted service records maintained by this office.

ORGANIZATIONAL CHANGES. . .

The Recreational Facilities Department was deleted and replaced by the Personnel Support Department with Recreational Services as a division under Personnel Services.

The Fuels Division of the Supply Department was changed from a division to a branch in the Material Division.

The Public Works Department established a Maintenance Control Division with an Emergency Service Branch, which eliminated the Maintenance Branch from the Housing Division.

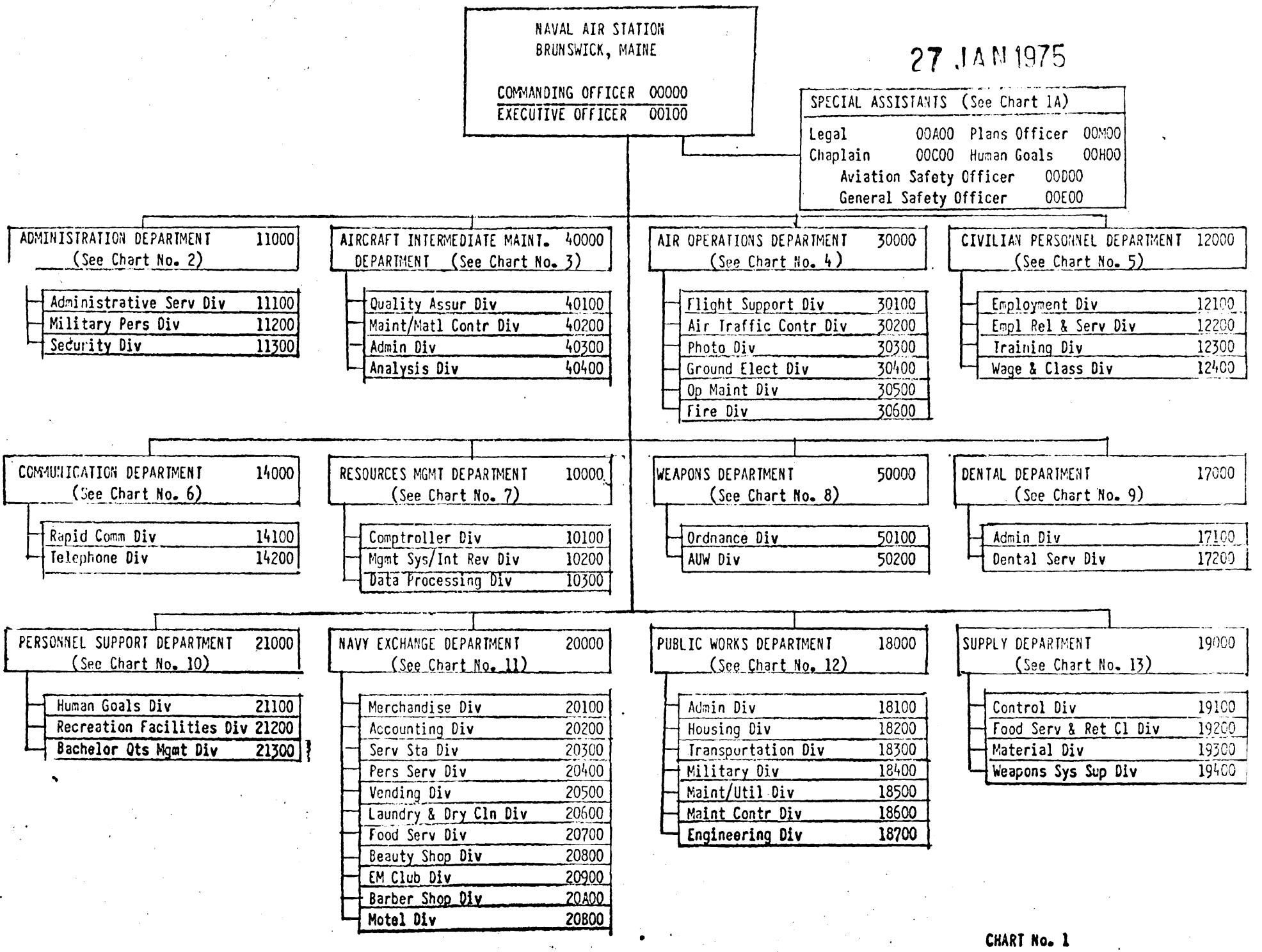

NAVAL AIR STATION
BRUNSWICK, MAINE
COMMANDING OFFICER 00000
EXECUTIVE OFFICER 00100
27 JAN 1975
SPECIAL ASSISTANTS (See Chart 1A)
Legal 00A00
Plans Officer 00M00
Chaplain 00C00
Human Goals 00H00
Aviation Safety Officer 00D00
General Safety Officer 00E00
ADMINISTRATION DEPARTMENT 11000
(See Chart No. 2)
Administrative Serv Div 11100
Military Pers Div 11200
Security Div 11300
AIRCRAFT INTERMEDIATE MAINT. DEPARTMENT 40000
(See Chart No. 3)
Quality Assur Div 40100
Maint/Matl Contr Div 40200
Admin Div 40300
Analysis Div 40400
AIR OPERATIONS DEPARTMENT 30000
(See Chart No. 4)
Flight Support Div 30100
Air Traffic Contr Div 30200
Photo Div 30300
Ground Elect Div 30400
Op Maint Div 30500
Fire Div 30600
CIVILIAN PERSONNEL DEPARTMENT 12000
(See Chart No. 5)
Employment Div 12100
Empl Rel & Serv Div 12200
Training Div 12300
Wage & Class Div 12400
COMMUNICATION DEPARTMENT 14000
(See Chart No. 6)
Rapid Comm Div 14100
Telephone Div 14200
RESOURCES MGMT DEPARTMENT 10000
(See Chart No. 7)
Comptroller Div 10100
Mgmt Sys/Int Rev Div 10200
Data Processing Div 10300
WEAPONS DEPARTMENT 50000
(See Chart No. 8)
Ordnance Div 50100
AUW Div 50200
DENTAL DEPARTMENT 17000
(See Chart No. 9)
Admin Div 17100
Dental Serv Div 17200
PERSONNEL SUPPORT DEPARTMENT 21000
(See Chart No. 10)
Human Goals Div 21100
Recreation Facilities Div 21200
Bachelor Qts Mgmt Div 21300
NAVY EXCHANGE DEPARTMENT 20000
(See Chart No. 11)
Merchandise Div 20100
Accounting Div 20200
Serv Sta Div 20300
Pers Serv Div 20400
Vending Div 20500
Laundry & Dry Cln Div 20600
Food Serv Div 20700
Beauty Shop Div 20800
EM Club Div 20900
Barber Shop Div 20A00
Motel Div 20B00
PUBLIC WORKS DEPARTMENT 18000
(See Chart No. 12)
Admin Div 18100
Housing Div 18200
Transportation Div 18300
Military Div 18400
Maint/Util Div 18500
Maint Contr Div 18600
Engineering Div 18700
SUPPLY DEPARTMENT 19000
(See Chart No. 13)
Control Div 19100
Food Serv & Ret Cl Div 19200
Material Div 19300
Weapons Sys Sup Div 19400

CHART No. 1

27 JAN 47

PERSONNEL SUPPORT DEPARTMENT 21000

PROVIDES PERSONNEL SUPPORT TO STATION AND TENANT ACTIVITIES; RESPONSIBLE FOR OPERATION AND MAINTENANCE OF COMMISSIONED OFFICERS' MESS (OPEN) & CLOSED), CHIEF PETTY OFFICERS' MESS (OPEN), CONSOLIDATED PACKAGE STORE AND BACHELOR ENLISTED QUARTERS; PLANS, COORDINATES AND ADMINISTERS THE RECREATION PROGRAM FOR MILITARY PERSONNEL AND THEIR DEPENDENTS; CONSOLIDATES THE HUMAN GOALS PROGRAM ENCOMPASSING EQUAL OPPORTUNITIES, DRUG AND ALCOHOL EDUCATION AND A COUSELING CENTER. COORDINATES WITH THE CAREER COUNSELOR AND MASTER CHIEF PETTY OFFICER OF THE COMMAND AS APPROPRIATE IN THE PERFORMANCE OF THEIR DUTIES.

CAREER COUNSELOR

PROVIDES COUNSEL AND ASSISTANCE FOR PERSONNEL IN MATTERS OF CAREER ORIENTATION.

MASTER CHIEF PETTY OFFICER OF THE COMMAND

PROVIDES PERSONAL ASSISTANCE TO PERSONNEL ON ALL SUBJECTS AND ACTS AS DIRECT LIAISON BETWEEN THE COMMANDING OFFICER AND STATION ENLISTED PERSONNEL.

HUMAN GOALS DIVISION 21100

RESPONSIBLE FOR DEVELOPING AN OVERALL PROGRAM DESIGNED TO CARRY OUT THE NAVY HUMAN GOALS PLAN AS OUTLINED IN CURRENT DIRECTIVES.

RECREATION FACILITIES DIVISION 21200

RESPONSIBLE FOR OPERATION AND MAINTENANCE OF THE OFFICERS MESS (O), CHIEF PETTY OFFICERS' MESS (O), AND RECREATION SERVICES WITH EFFECTIVE PROGRAMS FOR OFF DUTY PERSONNEL AND THEIR DEPENDENTS, AND FOR THE PROPER OPERATION AND MAINTENANCE OF A CONSOLIDATED PACKAGE STORE WITH REGARD TO QUANTITY AND QUALITY OF SERVICE GIVEN AND PROPER UTILIZATION OF PROFITS. ASSISTS AND ADVISES THE COMMANDING OFFICER IN PLANNING AND OPERATION OF THESE NON-APPROPRIATED FUND ACTIVITIES, INCLUDING DETAILED MANAGEMENT AND FINANCIAL DATA COLLECTION; ESTABLISHMENT, COORDINATION & MAINTENANCE OF AN INTEGRATED FINANACIAL MANAGEMENT SYSTEM WITH THE ABILITY TO PROVIDE MANAGEMENT WITH ESSENTIAL ANALYTICAL DATA.

BACHELOR QTRS MANAGEMENT DIVISION 21300

OPERATES THE COM(C) FACILITIES FOR OFFICERS AND BEQ FACILITIES FOR ENLISTED PERSONNEL.

27 JAN 14

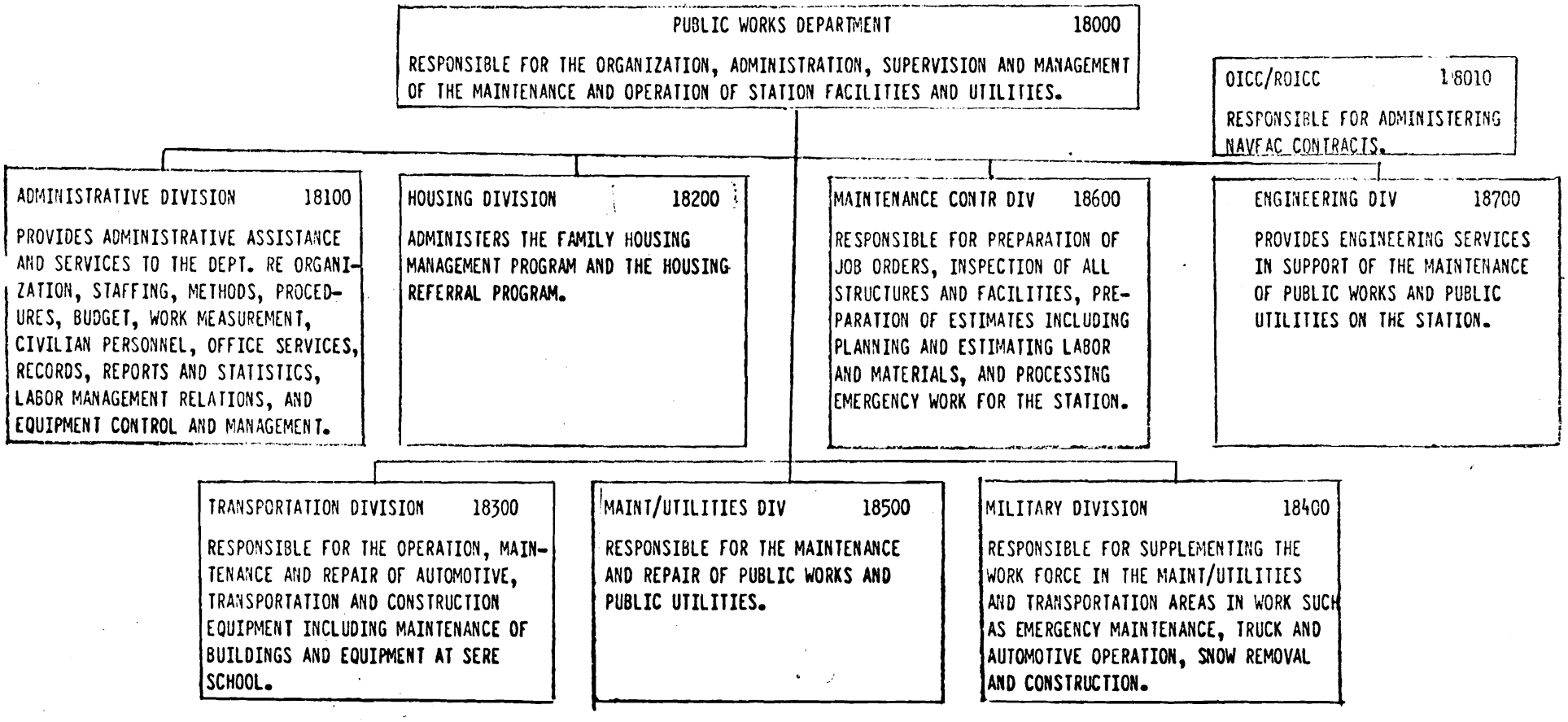


CHART No. 12

MATERIAL DIVISION 19300

RECEIVES, STORES AND ISSUES MATERIAL. PROVIDES PERSONAL PROPERTY, TRAFFIC SERVICES AND FUEL SUPPLIES AND SERVICES.

STORAGE BRANCH 19310

ISSUES MATERIAL TO ALL FLEET AND STATION ACTIVITIES. RECEIVES AND INSPECTS ALL SUPPLIES COMING INTO STOCK; PERFORMS SPOT REVIEWS; MAINTAINS PROPER STORAGE AND CARE OF ITEMS. PERIODIC INSPECTIONS PERFORMED TO DETERMINE CONDITION OF PRESERVATION, PACKAGING AND SUITABILITY OF ISSUE. MANAGES FLIGHT AND SPECIAL CLOTHING FOR THE SUPPORT OF PATWING5 AND STATION PERSONNEL.

TRAFFIC BRANCH 19320

RECEIVES, INSPECTS OR COORDINATES INSPECTION OF ALL INCOMING MATERIAL; PRESERVES AND PACKS SUPPLIES FOR SHIPMENT/STORAGE; ARRANGES FOR TRANSPORTATION AND DELIVERY OF MATERIAL INCLUDING CONTACT WITH AND SERVICING BY COMMERCIAL CARRIERS. PROVIDES PREPARATION, MOVEMENT AND STORAGE OF PERSONAL PROPERTY.

PERSONAL PROPERTY SECTION 19321

ARRANGES FOR PACKING, UNPACKING, STORING & TRANSPORTING OF PERSONAL PROPERTY FOR AUTHORIZED PERSONNEL; ACCOMPLISHES BILLS OF LADING COVERING PERSONAL PROPERTY; MAINTAINS NECESSARY RECORDS.

RECEIVING SECTION 19322

RECEIVES AND CHECKS INCOMING MATERIAL; SEGREGATES AND FORWARDS MATERIAL TO PROPER DESTINATION; ACCOMPLISHES INCOMING BILLS OF LADING, CORRESPONDENCE AND REPORTS COVERING INCOMING MATERIAL LOST AND DAMAGED IN TRANSIT.

PACKING & SHIPPING SECTION 19323

ARRANGES FOR SHIPMENT AND DELIVERY OF MATERIAL TO CARRIERS; PREPARES BILLS OF LADING, INSTITUTES TRACERS ON SHIPMENTS WHEN NECESSARY, PRESERVES, PACKAGES, PACKS & MARKS MATERIAL AS REQUIRED FOR DOMESTIC & OVERSEAS SHIPMENT OR STORAGE.

FUEL BRANCH 19330

CONDUCTS INTEGRATED FUEL SUPPLY OPERATIONS FOR JP-5, AVGAS, MOGAS AND LUBE OIL INCLUDING RECEIPT, STORAGE, ACCOUNTABILITY, ISSUE AND QUALITY CONTROL.

WHOLESALE SECTION 19331

PROVIDES STORAGE, RECEIPT, ISSUE QUALITY CONTROL AND TRAINING OF PERSONNEL IN BULK FUEL OPERATIONS.

RETAIL SECTION 19332

PROVIDES STORAGE, ISSUE AND RECEIPT OF PETROLEUM PRODUCTS AS A READY ISSUE OUTLET. SUPERVISES PERFORMANCE OF CIVILIAN CONTRACTOR PERFORMING AIRCRAFT REFUELING.

CHART No. 130

PERSONNEL SUPPORT DEPARTMENT. . .

The Personnel Support Department was inaugurated in 1974 in order to directly focus, on a departmental level, greater emphasis, guidance and control over "people oriented" programs. The department assumed control of those activities concerning recreation (including service clubs), habitability and the human goals program which encompasses equal opportunities, drug and alcohol education and maintenance of a counseling center.

The Bachelor Enlisted Quarters underwent the most drastic change during the year. Mid-July commenced operation of the first of four barracks renovations from cubicle/open bay configurations into two and three man rooms governed by hotel/motel management philosophy. These rooms represent a multi-million dollar effort to upgrade berthing conditions for bachelor shipmates. The tastefully decorated rooms with comfortable beds and modern furniture afford a degree of comfortable privacy cherished by the occupants. A private bath in each room greatly accentuates this feeling. Additional MilCon requests have been submitted to complete other comparable buildings to similar configuration. The inauguration of a centralized front desk has greatly enhanced occupancy control and centralization of services which can be provided. The berthing of conversion crew members of the USS MAHAN (DLG-11) presented many problems and sorely tested management skills but a concentrated, co-ordinated effort overcame these obstacles and afforded many opportunities to exhibit inter-departmental cooperation and unity towards goal completion.

The Counseling and Assistance Center's year was highlighted by the grand opening of new spaces by RADM SNYDER, COMPATWINGSLANT, and CAPT LATTA, Commanding Officer, NAS BRUNSWICK. Staffed with one officer and three enlisted petty officers, the center provided counseling or referral service to upwards of fifty people, the vast majority of which were successfully completed and returned to parent command. In addition, over one hundred "drop-ins" were assisted and over one hundred "hot line" telephone calls were handled. Numerous briefings were conducted for tenant and supported activities and consultations and presentations were made to civilian community councils involved in drug and alcohol education. The Human Goals branch conducted 45 Upward Seminars for 700 people and 5 Executive Seminars for 100 people from the Air Station and tenant activities. The facilitators have also assisted in seminars at Naval Security Group, Winter Harbor, Maine; Naval Radio Station, Cutler, Maine; and activities in the Norfolk area. Numerous instances of support in personnel or material in race relations areas were also accomplished in the local area.

PERSONNEL SUPPORT DEPARTMENT. . .

The Recreation Services Division had in operation 14 facilities serving over 10,000 patrons per month. Highlights of the recreation program included a $40,000 addition to the Hobby Shop garage which increased the number of automotive repair stalls to ten and enlarged the woodworking area. An outdoor wading pool and patio area was added to the swimming pool which gives the facility a new scope in its summer program and allows patrons an outdoor environment in which to enjoy leisure time activities. The First Naval District's Tournaments for slow-pitch softball and touch football were hosted by this station. In the area of entertainment two major events were sponsored which were very well attended. The first was a lively concert by the "Up With People" organization which is a group of thirty young people who have performed internationally and provide entertainment with youthful zeal. The second event was a presentation by the Manhattan Savoyards and the Portland Symphony Orchestra of Gilbert and Sullivan's classic operatta "H.M.S. Pinafore." Marked improvement and renewed interest was exhibited in the golf, skiing and community garden programs.

The Commissioned Officers' Mess (OPEN) continued its support of the active and retired officer community of the local area. In addition to hosting numerous squadron and tenant activity parties and receptions, the Mess catered to a number of charity fund raising activities sponsored by the Officers' Wives' Club. Included were fashion shows, antique carnivals and the extremely successful Reno Night. The Officer and Chief Petty Officer OPEN Messes have both had rewarding years and continue to be an important part of the NAS Brunswick social life.

PUBLIC WORKS DEPARTMENT. . .

The following construction projects were completed by contract during the year:

Rehabilitation of 5 barracks, 212, 217, 218, 219 and 220.
Construction of new Commissary Store at the Navy Annex at Topsham.
Counseling and Assistance Center, Bldg. #12.

Major contracts awarded during the year were as follows:

Parking Apron Repairs
Tactical Support Center Addition
Heating Plant Repairs
Mere Brook Culvert Repairs
Service Station Addition

Several maintenance contracts were awarded and completed during the year. Most notable of these were:

Step replacement in housing
Repair of garage roofs in housing
Replacement of door stoop in Topsham housing
Hobby Shop addition
Repairs to Perimeter Road
Remodeling of Bldg. #4
Resurfacing of roads in housing areas
Replacement of roofs, Bldg. 214 and 216

Reorganization of the Public Works Department was put into effect in the late fall changing internal areas as follows:

Establishing a Maintenance Control Division
Establishing an Emergency Service Branch in the Maintenance Division thereby eliminating the Maintenance Branch from the Housing Division

A larger-than-authorized Seabee personnel force was allowed for snow removal purposes. This allowed for better snow removal services during the winter months.

Sufficient barracks furniture for approximately 790 men was picked up from the closing of Quonset Point Naval Air Station and utilized in the rehabilitated barracks, CPO Quarters and Barracks 384 in Topsham. This afforded a large savings to the Air Station. Also, several thousands of dollars worth of office furniture and equipment were obtained from the same facility for use at NAS Brunswick.

PUBLIC WORKS DEPARTMENT . . .

This year saw a change of Public Works Officer and Assistant Public Works Officer. CDR COOK relieved CDR PITMAN as Public Works Officer and LCDR UPDEGROVE relieved LT SMITH as Assistant Public Works Officer.

1974 also saw the hiring of two professional engineers in the Engineering Division which will give better depth and knowledge in the preparation of specifications for the large quantity of contracts to be awarded for proper maintenance of facilities aboard this activity.

RESOURCES MANAGEMENT DEPARTMENT. . .

Organization

The Resources Management Department did not change during calendar year 1974.

Funding

Command optimism at the prospects of significant funding increases in Maintenance of Real Property (MRP) were overshadowed by unexpected shortages in Base Operations (other than MRP) funding. An additional $578K, received on 22 November, did much to alleviate this problem despite the fact that nearly one half of the year had passed.

As a result of this additional funding, the command has the best opportunity to resolve many long standing deficiencies in several years. Values of Plant Property accounts and current funding summaries are as follows:

PLANT PROPERTY

	1 JANUARY 1974	1 JANUARY 1975
Class I (Land)	584,673	584,673
Class II (Bldgs & Facil)	63,390,174	63,930,814
Class III & IV	7,515,834	12,219,238
TOTAL	71,490,681	76,734,725

FY-1975

	CIVILIAN LABOR	OTHER	TOTAL
Direct	4,172.0	3,092.0	7,264.0
Reimb:			
Housing	350.0	547.2	897.2
Other	34.0	841.8	875.8
Total	384.0	1,389.0	1,773.0
Airc Oper	-0-	54.0	54.0
AFM	-0-	2,073.0	2,073.0
VAST - RDT&E	-0-	200.0	200.0
TOTAL	4,556.0	6,808.0	11,364.0

RESOURCES MANAGEMENT DEPARTMENT. . .

FY-1974

	CIVILIAN LABOR	OTHER	TOTAL
Direct	3,580.0	1,754.0	5,334.0
Reimb:			
Housing	350.0	587.2	937.2
Other	20.0	263.6	283.6
Total	370.0	850.8	1,220.8
Airc Oper	-0-	40.0	40.0
AFM	-0-	1,788.0	1,788.0
VAST - RDT&E	-0-	200.0	200.0
TOTAL	3,950.0	4,632.8	8,582.8

Department Personnel

Departmental manning increased by one civilian and four military DK's during the year.

	CIVILIAN PERSONNEL	MILITARY PERSONNEL
Comptroller Div	25	10
Mgt Systems	3	0
Data Processing Div	13	0
TOTAL	41	10

SUPPLY. . .

In July 1974, the Supply Department was tasked to support one additional minesweeper, the U.S.S. INFLICT. This vessel operates with the U.S.S. AFFRAY out of Portland, Maine.

In November 1974, the Supply Department was tasked to feed the enlisted personnel from the U.S.S. MAHAN while the vessel was undergoing repairs at the Bath Iron Works Corporation.

During CY-74, the Supply Department obtained $55,000.00 worth of material free from the excess/surplus programs. Such items as tile, linoleum, hand trucks, oil, envelopes, power hacksaw, strapping, boxes (packing) and acoustical tile were obtained.

The refurbishing of the Supply Support Center's spaces continued during CY-74 with much success, thanks to the self-help program.

The number of repairable aeronautical components awaiting parts (AWP) has decreased from a daily average of 380, calendar year 1973, to a daily average of 270, calendar year 1974. This fact is considered to be the greatest contributing factor to the reduced NORS rate and the increased operational readiness posture for NASB-based aircraft.

In December 1974, the Purchasing Branch of the Supply Department was given a Procurement Authority Review which was very comprehensive and beneficial to the Department. The results of this review will decide our procurement authority--$2,500.00 or $10,000.00 early Calendar year 1975.

The galley, Neptune Hall, was the runner-up in the 1st Naval District's NEY Award Competition FY-75. The command was granted special recognition for the outstanding improvement since the FY-74 evaluation from COMONE.

A "Win the NEY Award Program" was developed in August 1974 and is expected to render many results. The program includes material to be procured, equipment to be repaired, and projects to be accomplished prior to November 1975. The Resources Management Office ($$$) and the Public Works Office ($$$ and labor) are providing their expertise to the program and all looks great for FY-76 NEY competition.

SUPPLY. . .

In September 1974, Supply's new walk-in ServMart opened. It is located in Building #294 (opposite old Commissary), has an additional 30,000 square feet of floor space as compared to the old "Speedy Mart" and is self-service. It carries over 450 items ready for purchase and is open from 8 a.m. until 11:30 a.m. Monday through Friday.

In support of Mine Laying Operations conducted by COMPATWING FIVE in Oct 1974, the Ordnance Division supplied the equipment and personnel required to assist MOMAG DET Charleston, South Carolina to assemble and deliver mines to the patrol squadrons.

Firing of AGM12B (BULLPUP) missiles by locally based squadrons commenced in January 1974 and concluded in September 1974. A total of 43 were fired.

The removal and relocation of all explosive ordnance from the south magazine area was completed in July 1974. A total of 75 tons was relocated.

The NAS Small Arms Piston Range provided training and instruction for the local high school shooting programs and qualifications for various government agencys.

The Atlantic Fleet Rifle Championship Matches were held in June 1974. A team supplied and supported by the Weapons Department was entered. One entrant, AO3 S. LARMON, attached as Armory Petty Officer, captured 1st Bronze Medal and was selected to complete in the All Navy Rifle Championship Matches, winning 1st Gold Medal.

In addition to capturing the 1st Gold Medal and 1st Bronze Medal, AO3 S. LARMON went on to capture a Bronze Medal in the Interservice competition and a Silver Medal in the National Championship Competition.

AUW Division

AUW received a completion inspection (CI) of Magazine Project P-038 by NAVORDSYSCOM on 26-27 February 1974. A grade of Satisfactory was assigned.

The Naval Air Station received a NTPI during 1-3 May 1974 with a grade of "Outstanding" assigned.

The AUW Shop was visited by a NAVORD Torpedo Readiness Assistance Team the week of 8-19 July 1974. No major discrepancies were noted.

The AUW Division prepared and issued one (1) MK46 Mod 0 Warshot Torpedo and forty-nine (49) MK46 Mod 1 Exercise Torpedoes in support of COMPATWINGSLANT.

Ordnance Division

The Ordnance Division issued 120 tons of ordnance in support of COMPATWING FIVE, ships at Bath Iron Works and vocaline air sea technology during 1974. A total of 110 tons of ordnance was received.

The Small Point/Sabino Mining Range was manned from 1 April to 1 December 1974 in support of locally based patrol squadrons.

The station armory provided temporary storage for small arms belonging to ships at Bath Iron Works special service and transient personnel.

Explosive Ordnance Disposal Detachment

The Explosive Ordnance Disposal Detachment received an Operational Readiness Inspection during 1-3 October 1974 and received a grade of Satisfactory.

A total of fifty-five (55) operations were conducted off station to pick up, render safe and dispose of ordnance.

Twenty (20) bomb familiarization lectures were conducted for the local police department, fire department, state police and alcohol, tobacco and fire arms departments.

Three off-station diving operations were conducted in the clearance of wreckage from piers.

Ten (10) disaster preparedness lectures were presented to members of NASB Disaster Preparedness Teams.

Fifteen (15) disposal operations were conducted at NASB Demolition Range for a total of 700 lbs.

HRA-0146

* * *

G E N E R A L S A F E T Y R U L E S

SECTION NO. 9

SAFE HANDLING OF RADIOACTIVE LUMINOUS COMPOUND

* * *

January, 1942.

(A)

I. INTRODUCTION

1. The precautions contained in this order largely embody substances from the National Bureau of Standards Handbook H27 "Safe Handling of Radioactive Luminous Compound", issued by the U. S. Department of Commerce, and shall be rigidly adhered to in order to protect all personnel engaged in the operation and servicing of naval equipment against injury due to radium poisoning.

II. GENERAL CONSIDERATIONS

1. RADIOACTIVE LUMINOUS COMPOUND.--The material known as radioactive luminous compound or "luminous material" or "radium paint" is a mixture of phosphorescent zinc sulfide and radium, mesothorium, or other similar radioactive substance. It is usually packed in small glass bottles holding 1 gram of the compound. It is used to make markings that are visible in total darkness by virtue of the light emitted by the zinc sulfide under bombardment from the radium. This compound is mixed with an adhesive to form a "paint" just before its actual application.

2. HAZARDS IN HANDLING RADIOACTIVE LUMINOUS COMPOUND.--It is well known that serious injury and even death may result from injudicious handling of this compound. The known hazards may be classified in the order of their importance as follows:

(a) Ingestion or inhalation of solid radioactive luminous compound.--The most serious injuries in the past have resulted when the compound was taken directly into the body through the mouth or by inhalation. Experience during the last 15 years has shown that when due precautions are taken to prevent the compound entering the mouth or lungs of the worker no detectable injury has resulted.

This can be understood when it is borne in mind that the radium in the compound is responsible for the injuries produced by the ingestion or inhalation of the compound and that the maximum destructive effects are produced after the radioactive material has been deposited in the bones. Therefore, the radium must first find its way into the blood stream, which can only occur in appreciable quantity through the mouth and lungs. A small fraction of each amount of radium taken into the body is deposited in cumulative amounts in the bones. In this way, over a period of years, a dangerous amount of radium may be accumulated in the skeleton as the result of a small daily absorption.

Even after a dangerous amount of radium has been accumulated in the skeleton, the effects are slow in becoming evident. It is now known that when deposits of radium are large the damage is chiefly to the skeleton, followed by damage to the white and red blood corpuscles, resulting in a leucopenia or

anemia or both. This has happened with deposits of from 12 to 100 micrograms of radium. Such large deposits should never occur if the instructions of this handbook are followed. An unfortunate feature of this situation is that the radium which has once been deposited in the bones remains there almost indefinitely and cannot be removed readily by medical treatment. Consequently, once this condition has been established there is little chance of restoring a normal condition in time to prevent serious effects. When small amounts of radium are deposited in the bones over a long period of time the chief effect is on the bone-forming cells, producing destructive and crippling bone conditions which may progress and become malignant, resulting in bone sarcoma.

It is therefore essential to avoid all ingestion or inhalation of radioactive luminous compound and to test workers periodically for exhaled radon in the breath. By this test, small deposits of radium can be detected long before clinical symptoms have appeared.

It is desired that any worker who shows a deposit of more than 0.1 microgram of radium, as revealed by the expired air test, change his occupation immediately and be treated by decalcification therapy, or any other modality which may have been developed for the purpose.

(b) Inhalation of radon liberated from compound into the air.--The continued inhalation of radon or thoron may produce carcinoma of the lungs and may also be a contributing factor in the anemia resulting from radium poisoning. The radon concentration in the atmosphere of workrooms shall not exceed 10^{-10} curie per liter, according to present knowledge.

(c) Exposure of whole body to gamma radiation from compound.--The whole-body exposure of the worker to gamma radiation shall not exceed 0.1 roentgen per working day. This general exposure to gamma radiation has been found to be safe, as far as any bodily injury is concerned.

In connection with the three types of hazards enumerated above, it is important to bear in mind that the tolerances have been determined under conditions where only one hazard was present. In the dial-painting industry all three hazards exist together, and this may reduce the tolerance on each. Insufficient information is available at present to determine to what extent this may occur. It is therefore important to keep well below the tolerances stated, to insure safety.

3. PRINCIPLES UNDERLYING PROTECTIVE MEASURES.--From the foregoing discussion of the general nature of radium poisoning resulting from the improper handling of radioactive luminous compound, it is clear that the fundamental purpose of protective measures is to prevent the ingestion or inhalation of the compound during its manipulation. However, this

seemingly simple requirement must be rigidly and continuously adhered to by all workers. Furthermore, working conditions must be arranged to provide a generally safe environment for the workers and to encourage their cooperation in carrying out rules intended to preclude any known possibility of injury. It is now known that this end may be achieved without reducing the output of the worker or interfering seriously with a normal working procedure. The situation may be summed up by stating that in the main the essential requirement is neat and orderly "housekeeping" which, under proper supervision, results in better working conditions, increased productivity, and safety for the individual worker.

All workrooms or places usually inhabited by workers shall be equipped with such ventilation as will reduce the radon content to a concentration not exceeding 10^{-10} curie per liter. Cleanliness with respect to the use of the compound will also help in removing possible sources of radon. Special attention shall be given to means for preventing the spilling of compound, especially in the dry form. If accidental spilling does occur, all traces of spilled compounds shall be cleaned up immediately with wiping papers which shall be disposed in the covered containers provided with paper bag liners.

The gamma-ray exposure can be controlled by permitting only small amounts of compound, either before or after application, to be present in the workrooms and by storing the compound in a lead-lined cabinet of a minimum thickness of one-half inch at as great a distance from the workers as possible.

So far as possible where radioactive luminous compound is applied it shall have a permanent protective cover of glass. If this is impracticable, such as in the case of engraved radio dial markings, depressed dot markings on radio knobs and switches, the material shall be painted over with shellac or covered with a colorless plastic. Applications of this kind which are not protected by a glass cover shall be confined strictly to those which are essential to the safe operation of the naval craft or equipment. The protective coatings, whether glass or paint, shall be maintained intact at all times in order properly to protect personnel engaged in the operation as well as servicing of the equipment.

The application of radioactive luminous compound is restricted to the establishments specifically authorized by the Navy Department to do this work.

4. HAZARDS IN HANDLING LARGE STOCKS OF RADIOACTIVE LUMINOUS COMPOUND.--Whenever luminous compound is manufactured or stored in large quantities there is a possibility of general exposure to gamma radiation in excess of the tolerance dose. Special precautions shall be employed to protect workers engaged in this work.

III. PERSONNEL

1. SELECTION AND INSTRUCTION OF PERSONNEL.--The handling and application of radioactive luminous compound requires great care and special training to secure satisfactory results. For this reason alone, personnel must be selected with care. From the point of view of reducing hazards, it is also important that only workers who are naturally neat and careful should be employed. Continued carelessness or untidiness in handling material during the preliminary training period shall be reason for non-employment in these operations. A rigid physical examination shall be made of all prospective workers. No applicant who is not in good health or who has shown a history of such diseases as anemia or

tuberculosis shall be considered suitable for this work. Only persons with 20/20 visual acuity, either with or without glasses, and the ability to read Jager No. 2 print, with or without glasses, shall be employed in the application of radioactive luminous compound. No person under 18 years of age shall be employed in any room in which radioactive luminous compound is used or handled.

Before any person hereafter employed is permitted to use or handle radioactive luminous compound, such person shall be given preliminary training and instruction which shall include practice in the handling and use of substances, the use of tools, the use and care of protective clothing and equipment, and the application of rules for personal hygiene. Preliminary practice shall be with substances that do not contain radioactive ingredients. He shall be informed in detail of all known dangers involved. He shall be instructed regarding rules and regulations which have been set up for his protection and he shall be directed to observe them in all details. It is desired that those engaged in handling radioactive luminous compound familiarize themselves with the instructions of this handbook.

The personnel employed in the application of radioactive luminous compound shall be not in excess of the number authorized by the Navy Department for the establishment concerned.

2. EFFECTS OF RADIUM POISONING.--Since radium taken into the human body is partly retained and stored mainly in the bones the effects are chiefly injury to the bones. Characteristic results of radium poisoning are bone necrosis and osteogenic sarcoma. Accompanying these effects is a general lowering of vitality, so that resistance to ordinary diseases is lower. All of these conditions appear only after dangerous amounts of radium have been stored in the bones over a period of years. Therefore, there are no definite clinical symptons which can be relied upon to guard against possible injury.

3. PHYSICAL EXAMINATIONS.

(a) A thorough medical and dental examination shall be made of each individual before employment and at least twice each year thereafter. The individual shall also be examined upon termination of employment.

(b) An examination for evidence of radioactivity shall be given each applicant and form a part of the periodic physical examinations as indicated above. This radioactive test shall consist in, or include, a measurement of the radon content of the expired air taken 12 hours or more after working with radioactive luminous compound. No one shall be engaged as a dial painter who shows more than 0.1 microgram of deposited radium, as revealed by the expired air test. This corresponds to 1 micro-microcurie of radon per liter of expired air. If after employment, an operator shows this amount of radon per liter of exhaled air, a complete investigation shall be made at once to determine the cause. It requires several hours for the radon inhaled in the workroom to become dissipated. If radon is present in the breath after the worker has been away from the workroom for at least 12 hours, it is most likely due to radium deposited in the body. If investigation reveals that the concentration of radon in the exhaled air is equal to or greater than the amount stated above and is found to arise from radium deposited in the body, the operator shall change his occupation at once.

(c) Blood Counts.--It is important that a complete blood count be made by a qualified laboratory technician before any individual begins work involving the handling of radioactive luminous compound. No one shall be employed in this

work who shows pertinent abnormalities in the blood count. The first blood count is valuable to the Medical Officer as a reference index for subsequent blood counts.

Although blood counts cannot be relied upon to indicate the initial stages of radium poisoning, they shall be made a part of the regular physical examination of all workers. More attention must be given to the trend of successive counts on the same individual than to absolute values. For proper interpretation, all counts should be made by the same laboratory technician and under the same conditions. Any pertinent ab normality, particularly leucopenia, relative lymphocytosis, or beginning anemia, which is persistent or increasing should be reason for careful investigation and possible change of occupation of the individual concerned.

4. PERSONAL CLEANLINESS.--Radioactive luminous compound must be treated as any other poisonous substance. Therefore, the worker must develop habits of extreme personal cleanliness in the workroom. The compound must not be spilled or scattered, and it must not come in contact with the hands or clothing to any appreciable extent. At the end of the working period, the hands shall be carefully washed with the solvent for the particular adhesive used. This shall be done in such a way as to remove all traces of compound. When mixed with adhesive the compound is not readily removed by soap and water. No edibles of any kind, including chewing gum, candy, or beverages, shall be brought into the workroom, nor shall they be touched before removing all traces of compound from the hands. A convenient method of inspection to determine whether the hands and clothing are free of compound consists in viewing them in a darkroom by means of a suitable ultraviolet lamp. The worker shall perform this inspection regularly under supervision, whenever leaving the workroom, and shall remove all radioactive substance by means of solvent and tissue. Adequate precautions shall be taken against exposure to excessive intensity of ultraviolet light. The "Argon Glow Lamp" or its equivalent, which may be readily procured from commercial sources in the 2½ watt, 105-125 volt, S-14, bulb size with medium screw base, is a convenient source of ultraviolet light for portable equipment, since it will operate on 60 cycle a.c. current without transformer or other special equipment.

5. NEATNESS IN THE WORKROOM.--The skill required for application of luminous compound demands neat and orderly methods of procedure. Therefore a skillful worker shall be expected to keep all utensils and equipment in a neat and clean condition at all times. Compound shall not be permitted to accumulate, and all utensils shall be left clean at the end of each working period.

6. TIPPING OF BRUSHES.--In some cases very fine markings are coated with radioactive paint, requiring a fine tip on the brush. This should be achieved by the selection of a proper size and shape of brush and by manipulation of the brush in the container for the mixed paint. At no time shall the brush be pointed by the lips or fingers. It is essential that the adhesives contain solvents or a substance which are distasteful to prevent the habit of pointing brushes between the lips. Experience has shown that the latter practice has been largely responsible for many of the fatalities which have occurred in the past.

7. SUPERVISION OF PERSONNEL.--Dial painters and others engaged in handling luminous compound shall be under constant and competent supervision to make sure that all recommended practices are strictly followed. It shall be the supervisor's duty to inspect utensils and equipment for neatness and cleanliness, and to examine the worker's hands at the end of working periods and after washing. This should be done under an ultraviolet lamp to see that all compound has been removed.

Rules regarding bringing food, candy, chewing gum, or beverages into the workroom shall be strictly enforced. The Medical Officer shall inspect, daily, rest rooms and lunchrooms (if available on the premises) to make certain that cleanliness is maintained and that no articles contaminated with radioactive luminous compound find their way into these rooms.

IV. WORKROOMS AND EQUIPMENT

1. GENERAL WORKING CONDITIONS.--The application and handling of radioactive luminous compound require workrooms physically separated from other working areas and equipment specially designed for the purpose. No work shall be undertaken in these rooms other than that strictly concerned with the application of the radioactive luminous compound. There shall be ample space (at least 12 square feet and 250 cubic feet of air space) for each worker. Overcrowding may readily leed to unsafe conditions. Natural daylight shall be used to the fullest extent for illumination and supplemented by artificial light when necessary.

2. FLOORS.--The floors shall have smooth, continuous surfaces, insofar as possible, and shall be of or shall have a surface of water repellant material, such as painted concrete or linoleum. Wood floors, with inevitable cracks, are prohibited. Only in this way can radioactive luminous compound which has been accidently spilled be prevented from accumulating in the floors to an extent where it may present a hazard. Floors shall be cleaned daily by wet mopping to remove dust without distributing it over the room. No dry sweeping shall be permitted in rooms where radioactive luminous compound is handled.

3. WALLS, CEILING, AND WOODWORK.--Walls, ceiling, and woodwork should be well painted with a semigloss paint which may be washed occasionally to remove accumulation of dust.

4. ILLUMINATION.--Artificial illumination shall be used to supplement natural daylight in order to provide a minimum of 50 foot candles of diffused light on the working plane.

5. VENTILATION.--General forced ventilation shall be provided for all workrooms and dark rooms, so that the radon content of the air does not exceed 10^{-10} curie per liter at any place at any time. The weighing, compounding, and bottling of luminous compound shall always be done under appropriately designed hoods with suction ventilation to the outside air. Operators exposed to dust from radioactive luminous compound engaged in weighing, compounding, and bottling of luminous compound shall wear respirators of the "supplied-air" type, Navy Half Mask Type A (BuShips Specification INT 37M3)(Stock Number 37M310). All ventilating fans shall be arranged so that they may be speeded up to three times their normal revolutions per minute for 20 minutes before and after each working period to remove dust and radon which may have accumulated in the ducts and in the air of workrooms. Care must be exercised in providing sufficient air intakes so that the room ventilating fan will not create a back pressure on the painting hood suction fan.

6. DARK ROOMS.--Ventilated dark rooms for inspecting finished work shall be kept clean and free from scattered radioactive luminous compound. Painted objects shall be inspected in small lots. A monthly inspection with an ultraviolet lamp shall be made for the presence of possible accumulation of compound. Ventilation of dark rooms shall meet the requirements specified in preceding paragraph.

7. CONTAINERS FOR MIXED PAINT.--Suitable containers shall be provided for mixing the radioactive luminous compound with the adhesive. They shall be of convenient form and have a capacity just large enough so that the contents of a 1-gram bottle of compound can be mixed without danger of spilling the compound. These containers shall have a broad base in order that they may not be easily upset, and they shall be heavy enough so that the compound and adhesive can be mixed without holding the container by hand. The form of the container shall provide convenient means for pointing the brush and removing excess paint before removing the brush from the container. The inner surface shall be smooth, glazed, and have no sharp corners, to allow ready cleaning. All containers of radioactive luminous compound shall be covered at all times, whether full or empty, except while in actual use.

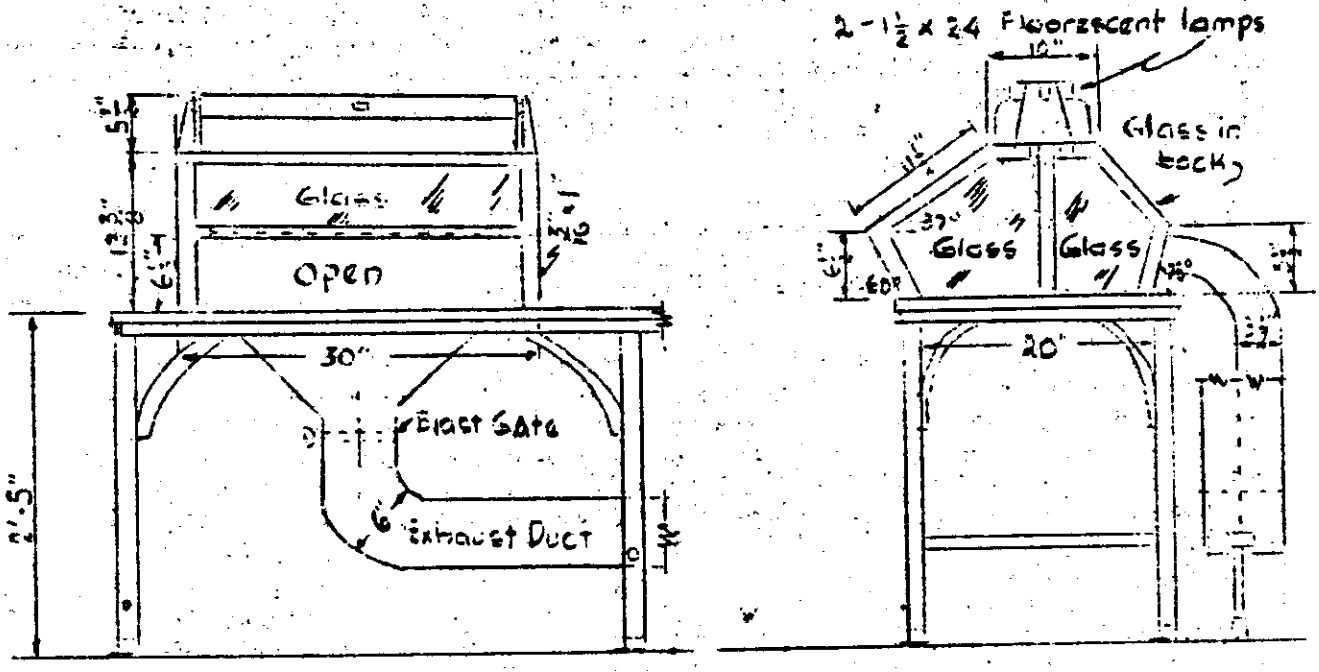
8. METHOD OF APPLICATION.--Best results are obtained when brushes of suitable shape and size are used for applying the luminous paint. Any dry method of application, such as dusting luminous powder on applied adhesive, is prohibited.

9. BRUSHES, STYLUSES, AND STIRRING RODS.--A convenient rack shall be provided for brushes, styluses, stirring rods and other implements not in use so that they will not be placed on the table top, causing the bristle portion of the brush, tip of the styluses, etc. to come in contact with anything about the work table. Solvents in a suitable container and small wiping papers for cleaning these implements shall be provided. These wiping papers shall be used only once and shall then be placed in covered containers provided with a paper bag liner. The containers for discarded wipers shall be removed at least once each day. The contents permanently disposed of, outside the workrooms, by burning or returning to the manufacturer of radioactive luminous compound for reclaiming the radium. Under no circumstances are the hands to be brought into contact with the waste being disposed. A suitable notice to this effect should be placed directly on the waste can for the information of the individuals removing the waste for disposal. Cloth is not suitable for wiping and pointing brushes and shall not be used.

10. TABLES.--The tables used for dial painting, weighing, and other manipulations of radioactive luminous compound shall have a glazed porcelain surface or other smooth, continuous surface impervious to moisture and solvents used with the adhesive. There shall be no cracks, crevices, or sharp corners in which compound may accumulate. If provided with drawers, no radioactive luminous compound shall be stored in these drawers, and no edibles of any kind placed in them. The drawers should be small to permit easy inspection, which should be made each week.

11. HOODS.--Each work table shall be provided with individual mechanical exhaust ventilation. This removes radon and dust from radioactive luminous compound at the source and also serves to increase the general ventilation of the workroom. This local ventilation at the work table should be similar in design to the sketch shown in figure No. 1. The design of such hood installations should be such as to provide an air movement of not less than 100 linear feet per minute at the face of the opening of the hood. The installation of such arrangements as described does not in itself insure safety. This air movement may require modification so that the concentration of radon in the air of the workroom does not exceed 10^{-10} curie per liter at any place at any time.

12. DIAL PAINTER'S EQUIPMENT.--On each individual painting table there shall be provided a porcelain or glass crucible and suitable holder for mixing compound with adhesive; a glass mixing rod; a glass bottle or crucible of solvent for washing brushes and wiping any spilled particles of compound; wiping papers; the necessary brushes and suitable racks for holding them when not in use; and any other tools or devices designed specifically to facilitate the work. No



NOTE: Glass shall be of 1/4" plate glass, commercial grade.

Recommended Operation: Provide a <u>minimum</u> air movement of 100 linear feet per minute at the face of the hood opening.

RADIUM DIAL PAINTING HOOD
Recommended Design

Figure No. 1

objects of any kind extraneous to the work shall be permitted on the work table.

13. DRYING CABINETS.--If painted work is to remain in the workrooms, cabinets for drying completed work shall be connected with a suction exhaust system to the outside air. This is to prevent the accumulation in the workroom of radon and of vapors from the drying adhesive. These vapors are unpleasant and under certain conditions may be toxic. Finished work shall be removed to drying cabinets promptly so that it does not accumulate near the painting table. The ventilating system is to be so designed that there will be a uniform air movement of approximately 100 linear feet per minute at the face of the cabinet when the doors are opened.

14. REPAIR AND REPAINTING OF LUMINOUS ARTICLES.--Applied radioactive luminous compound is frequently removed preparatory to repainting. To avoid dust, luminous compound shall be removed by scraping under liquid. The liquid bath may be water or an organic solvent. Rubber gloves must be worn when engaged in this process. This worn-out compound contains practically all of the original radium and is just as dangerous to handle as the fresh compound. The liquid scraping bath must be emptied and the pan thoroughly cleaned with wiping papers daily. The liquid of the scraping bath should be emptied directly into the sewage system or deposited in a hole in the earth. Dry scraping must be done under a hood of the same design as the painting hood but provided with an independent exhaust ventilating system which will be capable of producing an air movement of not less than 200 linear feet per minute at the face of the hood opening. The discharged point of the exhaust duct for the scraping hood shall be at least 6 feet above the roof line of the building. The operator shall wear a respirator of the "supplied air" type, Navy Half Mask Type A (BuShips Specification INT 37M3) (Stock Number 37M310). Containers, gloves, and other equipment used for the removal or reclamation of applied radioactive material shall be maintained in a clean condition and free of radioactive material when not in use.

15. DISPOSAL OF EMPTY BOTTLES.--The 1-gram bottles in which the radioactive luminous compound is furnished to the dial painter shall be disposed of in a manner to preclude any possibility of harm to workers or other persons from the small amounts of compound which remain in the containers. If the bottles are to be returned to the manufacturer, they shall never be permitted to accumulate, and if they are to be destroyed, this shall be done under supervision to insure that this destruction is complete and is carried out at a spot remote from human habitation.

16. STORAGE OF RADIOACTIVE LUMINOUS MATERIAL.--Radioactive luminous compound shall be stored in a cabinet located at a sufficient distance from workers so that the gamma-ray exposure for any worker does not exceed 0.1 roentgen per day. This cabinet shall be lined with lead at least 1/2 inch in thickness. All stock of radioactive luminous compound shall be stored in this cabinet and shall be issued to the operators one gram at a time.

17. CLOTHING AND DRESSING ROOMS.--Workers shall be provided with a dressing room where they may change from street clothes into working clothes. Each worker shall be provided with a minimum of two smocks so that one may be laundered each week by the Naval activity. These are for use during working hours and shall not be worn during meal or rest periods or carried away from the plant by the workers. These smocks shall be left in the dressing room at the end of each day. Before soiled clothes are sent to the laundry they shall be examined under an ultraviolet light and radioactive substance shall be removed. Convenient facilities for washing, including solvent and hot water, shall be provided in the dressing room, and supervisors shall insist that the operators scrub their hands thoroughly at the

end of each working period. Workers shall be provided with individual towels and soap. No working equipment of any kind shall be placed or stored in the dressing room.

18. DRINKING FOUNTAINS.--Exclusively of the bubble type, shall be provided in every room in which employees are engaged in the application of radioactive luminous compound. Drinking cups or glasses shall not be used.

V. INSPECTION FOR HAZARDS

1. SUPERVISION.--In every dial-painting plant or shop there shall be a well-trained supervisor whose duties and responsibilities include the inspection of personnel and equipment for possible hazards and the enforcement of safe practices.

2. INSPECTION OF PERSONNEL.--Every person who handles or uses radioactive luminous compound shall perform the inspection under supervision as prescribed in paragraph III 4 and V 2 under a suitable ultraviolet lamp in a dark room adjoining the wash room before lunch and upon termination of work each day. Deposits of such compound thus found shall be removed with solvent and cleansing tissue. Following this inspection and cleaning every person shall wash with soap and warm water and return immediately for re-inspection under the ultraviolet lamp. Such inspection and washing shall be repeated until all radioactive substance has been removed.

3. INSPECTION OF SHOP.--All rooms, furniture, cabinets, trays, racks, oven and wash room fixtures shall be inspected with an ultraviolet light at least once each month and all deposits of radioactive luminous substances thus found shall be removed.

4. INSPECTION FOR GAMMA-RAY EXPOSURE.--To determine the general gamma-ray exposure at points habitually occupied by workers a properly designed ionization or counter device shall be used, by a competent person. Such an instrument shall be sensitive enough and properly calibrated to measure gamma-ray intensities of the order of 0.1 roentgen per day. The exposure shall never exceed the rate of 0.1 roentgen per working day for any operator. In large shops where amounts of radioactive compound handled may vary rapidly, an automatic warning device which gives a visible and audible warning when the safe limit is reached, is helpful in controlling the gamma-ray exposure. The instrument should be tested and calibrated at least once every 6 months, to insure proper operation. In no case, however, should complete reliance be placed on any automatic device for the protection of workers.

5. INSPECTION FOR RADIOACTIVE CONTAMINATION.--The radon content of the air in various workrooms of a dial-painting plant will give a general indication of the amount of contamination present. Test samples of air, taken by filling an evacuated glass bulb of about 1-liter volume and provided with glass stopcocks, shall be analyzed by a competent person as conditions may indicate, such as accidental spillage of compound. If such tests reveal a radon content greater than 10^{-10} curie per liter, a detailed inspection of the plant by means of a suitable Geiger-Muller counter, or other appropriate device, shall be made to locate the source of contamination. Floors, drying racks, work tables, and ventilation ducts shall be given particular attention. Any accumulation of radioactive material thus revealed shall be removed at once.

VI. REPORTS

1. Reports of the above measurements of radon or gamma-ray exposure shall be forwarded to the Assistant Secretary of the Navy (Shore Establishments Division) and to the Chief of the Bureau of Medicine and Surgery together with reports of any steps taken to restore the working space to a safe condition.

2. The results of the physical examinations of persons engaged in this work shall be forwarded to the Chief of the Bureau of Medicine and Surgery for information, study, and correlation with information from other industries engaged in the use of radioactive material.

VII. TRANSPORTATION

The shipment of radioactive luminous compound is restricted by common carrier because of the radium content. Postal regulations prohibit the shipment of radioactive material through the mails. Express companies will ship the compound when packaged and labeled in accordance with their regulations. Persons who desire to ship this compound are advised to consult the local representative of the express company regarding regulations imposed by the company for such shipments.

NAVY DEPARTMENT

WASHINGTON

SOSED-7-RW
NN/P3-1(410224)

23 February, 1942

From: The Secretary of the Navy.

To: Commandants and Commanding Officers, Shore Establishments.

Subject: Industrial Health Program — Duties of Medical Officers for Industrial Hygiene.

Reference:- (a) SecNav.'s ltr. SOSED-0-EJ-2/20 NN/P3-1(410224), dated 24 February, 1941.

1. Information is available that certain Commandants, Production Managers, and Senior Medical Officers have regarded the program set forth in reference (a) as unprofitable. In order that the Nation's Industrial health may be conserved, it shall be made a workable program.

2. In some instances the services of the Medical Officer for Industrial Hygiene have not been properly utilized. Reference is to the fact that this Officer, especially trained, has in some instances been used simply as an additional member of the dispensary staff, to the total or partial exclusion of his functions in the field of Industrial Hygiene. Inadequacy of medical personnel cannot be considered to justify this practice. Industrial Hygiene functions as listed below shall constitute the first and primary duty of the Medical Officer for Industrial Hygiene, and other duties, if any, in the Yard or Station Medical Department shall be wholly secondary.

3. The functions of the Medical Officer for Industrial Hygiene, and those of the Safety Officer are separate, though closely correlated. The former includes the study of the natural health hazards of occupational activities, the conduct of the necessary technical surveys to determine potential or existing exposures, and the laboratory analyses to evaluate these exposures. These observations and recommendations should be made available to the Safety Officer who is responsible for the application of the necessary corrective measures.

4. In summary, the suggested functions of the Medical Officer for Industrial Hygiene are;

(a) To study the occupational health problem.

(b) To determine the toxicological data in terms of their effect on workers.

(c) To conduct surveys of potential health hazards in specific activities and processes.

(B)

59684

SOSED-7-RW
NN/P3-1(410224)

Subject: Industrial Health Program — Duties of Medical Officers for Industrial Hygiene.

(d) To collect samples in the field pertaining to occupational health exposures.

(e) To make laboratory analyses both on samples taken in the field and on any material submitted with reference to the causation of occupational disease.

(f) To prepare reports of findings, recommendations and conclusions evaluating the hazard of occupational health conditions.

/S/ FRANK KNOX

Department Distribution:

IV, V, VI(a)(b)(c)(d)(e)(i), VII(d)(e)(f), VIII(g), IX(b) and X(c)

HRA-0147

PWO

Revised 1 January 1966

BUILDING & STRUCTURE LIST

NO.	LOCATION	RESPONSIBILITY	USE
1	26-M	CFAD/Public Works *	Hangar
2	28-M	CFAD/Public Works *	Hangar
3	29-M	CFAD/AF/OPS/PW *	Hangar
4	27-N	Administration	Station Administration Bldg.
6	28-M	Public Works	General Services
7	27-N	Public Works/AMD	C.B.'s & Ground Support Equip.
8	27-M	Public Works	Shop and Offices
9	27-M	Public Works	Housing Office & Warehouse
10	26-N	Public Works/Security/AMD	Shops and Storage
12	27-N	Supply	Storage and Offices
13	29-0	Supply	Storage, Paint and Oil
14	28-P	Supply	Storage, Cold & Dry Stores
15	28-0	Navy Exchange	Navy Exchange
16	28-0	Commissary Store	Commissary Store
17	26-N	CFAD/IRO/AMD	ARC/Credit Union/Survival,Shop Training
18	27-0	Administration	C.P.O. Barracks
19	26-0	Marin Barracks	Barracks
20	27-0	Admin/Brunswick School	Nursery/Public School/Sunday School/ Hobby Shop
22	27-P	Security	Brig
23	28-P	Administration/Navy Exchang	Gymnasium/Navy Exchange Cafeteria/Country Store
26	28-P	Administration	Steward's Barracks
28	29-0	A/C Maintenance	Oxygen Shop
29	26-N	Public Works	Snow Removal Central
30	26-P	Medical/Dental	Station Hospital/Dental Clinic
32	27-R	Public Works	Vacant
33	34-S	Marine Barracks	Sentry Booth, Main Entrance
34	28-0	Navy Exchange	N.X. Office
35	24-S	A/C Maintenance	M.A.D. Building
37	34-S	Security	Pass Office & Shore Patrol
38	28-Q	Administration	Officers' Club
41	28-N	FAETULANT Det 1	Training Bldg.
42	28-N	Public Works	Pump House, Emergency Water
44	27-N	Weapons	Magazine
45	26-0	Aircraft Maintenance Dept	Storage
48	28-M	Public Works	Carpenter Shop
50	28-0	Supply	Pump House, Oil
51	28-M	Public Works	Paint Shop
52	23-0	Weapons	Storage, Inert
55	12-N	Weapons	E.O.D. Shelter

Enclosure (1)

NO.	LOCATION	RESPONSIBILITY	USE
58	27-H	Weapons	Magazine
59	20-0	Public Works	Storage
60	21-0	Public Works	Storage
61	24-H	Weapons	Magazine
62	23-G	Weapons	Magazine
63	22-G	Weapons	Magazine
64	21-F	Weapons	Magazine
69	22-0	Weapons	Magazine
71	20-P	Administration	Storage, Special Services
73	28-M	Weapons	Pyrotechnics Locker
74	28-N	Supply	Lumber Shed
75	28-M	Public Works	Paint Storage
88	28-M	Public Works	Storage
89	29-N	Air Operations	Storage
91	29-0	Security	Storage, Foam, for Gas Farm
92	29-P	Supply	Shelter, AvGas Pumps
93	21-0	Public Works	Storage
94	29-N	Weapons	Storage, Pyrotechnics
95	29-P	Public Works	Storage, Insecticide
96	25-0	A/C Maintenance	Storage, A/C Material
97	26-0	Marine Barracks	Storage, Fleet
100	34-R	Public Works	Garage, Quarters "D"
101	29-P	Supply	Gasoline Tank, 100,000 gals
102	29-P	Supply	Gasoline Tank, 100,000 gals
103	29-P	Supply	Gasoline Tank, 100,000 gals
104	30-P	Supply	Gasoline Tank, 25,000 gals
105	30-P	Supply	Gasoline Tank, 25,000 gals
106	30-P	Supply	Pump House, Gasoline
107	30-P	Supply	Truck Dock, Gasoline
110	30-S	Public Works	Garage, Quarters "A" & "B"
111	30-S	Public Works	Pump House, Sewage
122	27-N	Marine Barracks	Flagpole
124	28-N	Public Works	Water Tank, 250,000 gals. for fire
125	28-0	Supply	Avlube Tank, 10,000 gals
127	27-M	Supply	Gasoline Tank, 3,000 gals
128	27-N	Supply	Gasoline Tank, 3,000 gals
135	27-P	Administration	Basketball
136	29-Q	Administration	Athletic Field
139	22-0	Marines	Pistol Range
145	12-N	Weapons	Railroad Dock
146	26-P	Administration	Athletic Field
148	22-P	Administration	Skeet House - Low
149	23-P	Administration	Skeet Operator House - Middle

Enclosure (3)

NO.	LOCATION	RESPONSIBILITY	USE
150	23-P	Administration	Skeet House - High
156	27-N	Administration	Gun Emplacement, Ornamental - South
157	27-N	Administration	Gun Emplacement, Ornamental - North
200	28-L	Air Operations	Operations Building
201	23-0	Administration	CPO Club
202	30-Q	Supply	AvGas Tank, 13,500 bbls
203	30-Q	Supply	Jet Fuel Tank, 13,500 bbls
204	30-Q	Supply	AvGas Tank, 13,500 bbls
205	30-Q	Supply	Jet Fuel Tank, 13,500 bbls
206	30-P	Supply	Truck Dock & Separator House
207	30-Q	Supply	Fuel Pump House
208	30-Q	Public Works	Transformer Vault, Gas Farm
209	28-M	Public Works	Transformer Vault, Runway Lighting
210	28-M	Air Operations	Beacon Tower
211	25-P	Supply	Subsistence Bldg. (Neptune Hall)
212	25-0	Administration	Barracks
213	25-0	Administration	Barracks
214	25-0	Administration	Barracks
215	25-0	Administration	Barracks
216	24-N	Administration	Barracks
217	24-0	Administration	Barracks
218	24-0	Administration	Barracks
219	24-0	Administration	Barracks
220	24-0	Administration	Barracks
222	24-0	Administration	Storage
223	29-0	Weapons	Armory and EOD Spaces
224	29-0	FAETULANT Det 1	Training Building
225	26-N	Public Works	Vehicle Maintenance Shop
226	25-E	Air Operations	Storage - Electronics
227	25-E	Public Works	Generator Building
229	24-I	Air Operations	GCA Hardstand
230	27-F	Air Operations	Transmitter Building, TACAN
231	24-N	A/C Maintenance	Battery Shop
232	26-P	Public Works	Emergency Generator Building
233	27-M	Public Works	Central Heating Plant
234	27-N	Public Works	Emergency Generator Building
235	31-T	Public Works	Garage, Quarters "E"
236	31-S	Public Works	Garage, Quarters "F"
237	30-S	Public Works	Garage, Quarters "G"
238	30-S	Public Works	Garage, Quarters "H"

NO.	LOCATION	RESPONSIBILITY	USE
239	30-R	Public Works	Garage, Quarters "I"
240	31-T	Public Works	Garage, Quarters "EA"
241	31-T	Public Works	Garage, Quarters "EB"
242	21-T	Public Works	Garage, Quarters "EC"
243	31-T	Public Works	Garage, Quarters "ED"
244	30-T	Public Works	Garage, Quarters "EE"
245	10-P	Weapons	Vehicle Storage
246	27-F	Air Operations	Antenna Tower, TACAN
250	24-M	A/C Maintenance/FAW-3/ Communications	Hangar/CFAW Hdqtrs/OpCon
251	29-Q	Supply	Flagpole, Fuel Farm
252	26-P	Administration	Hobby Shop
254	28-L	Security	Pump Test Pit
255	9-J	Administration	Golf Course
257	20-R	Administration	Picnic Storage
260	16-M	Public Works	Inactive
261	16-M	Public Works	Inactive
262	31-R	Supply	Shelter (Salvage Dump)
264	29-P	Public Works	Electrical Substation
265	31-T	Marine Barracks	Sentry Booth, Forrestal Gate
266	28-L	CFAD/Public Works *	Line Shack, Hangar 2
267	30-0	Supply	Gas Farm Office
274	26-0	Navy Exchange	Gasoline Tank, 5,000 gal. east
275	26-0	Navy Exchange	Gasoline Tank, 5,000 gal. west
277	33-N	Public Works	Sewage Pump Sta. (inactive)
279	31-T	Public Works	Shelter, Bus Waiting
280	26-E	Air Operations	Transmitter Building
281	26-E	Air Operations	Antenna System, VHF/UHF
282	32-L	Air Operations	Compass Rose
283	26-M	Weapons	Pyrotechnics Locker
284	23-N	Weapons	Pyrotechnics Locker
285	7-P	Weapons	Magazine
286	8-P	Weapons	Magazine
287	9-P	Weapons	Magazine
288	8-P	Weapons	Magazine
289	8-P	Weapons	Magazine
290	7-0	Weapons	Magazine
291	11-Q	Weapons	Magazine
292	27-L	Security	Crash Facility & Fire Station
293	23-P	Administration	Theater
294	28-N	Supply	Storage & Material Div. Office
295	26-0	Public Works	Water Reservoir & Pump House
296	31-F	Air Operations	Transmitter Bldg. VOR
305	10-G	Administration	Clubhouse, Golf Course
306	11-G	Administration	Shed, Golf Course

NO.	LOCATION	RESPONSIBILITY	USE
308	9-H	Public Works	Pump House, Water
309	8-J	Public Works	Pump House, Water
310	9-J	Public Works	Dam (Golf Course)
316	14-M	Weapons	Rocket Assembly Shop
323	30-U	Public Works	Garage, Storage
347	19-S	Public Works	Dam, Picnic Area
349	30-T	Public Works	Public Quarters
399	34-M	Public Works	Vacant
400	34-M	Public Works	Laundry
407, 408, 409	Redington	Faetulant Det 1	Training
411	17-L	Public Works	Shelter, Dump Attendant
452	29-0	Faetualnt Det 1	Maintenance Shop
510	29-P	Supply	Gas Tank, 4,000 gal. west
511	29-P	Supply	Kerosene Tank, 4,000 gal. east
512	28-Q	Administration	Bachelor Officers' Quarters
513	26-M	CFAD	Inflammable Storage Cage, Hgr 1
514	28-M	CFAD	Inflammable Storage Cage, Hgr 2
515	29-N	CFAD	Inflammable Storage Cage, Hgr 3
516	23-R	Navy Exchange	E. M. Club
517	22-E	Air Operations	Receiver Building
518	22-E	Public Works	Generator Building
519	21-E	Air Operations	2.5 - 7.5 M.C. Antenna Tower
520	22-E	Air Operations	4 - 12 M.C. Antenna Tower
521	22-E	Air Operations	6 - 18 M.C. Antenna Tower
522	23-E	Air Operations	7 - 21 M.C. Antenna Tower
523	Off Station	Air Operations	Transmitter Building
524	"	Public Works	Generator Building
525	"	Air Operations	Microwave Tower
526	"	Air Operations	2 - 6 M.C. Antenna Tower
527	"	Air Operations	6 - 18 M.C. Antenna Tower
528	"	Air Operations	7 - 21 M.C. Antenna Tower
529	"	Air Operations	2.5 - 7.5. M.C. Antenna Tower
530	"	Air Operations	6 - 18 M.C. Antenna Tower
531	"	Air Operations	3 - 9 M.C. Antenna Tower
532	"	Air Operations	4 - 12 M.C. Antenna Tower
533	"	Air Operations	3 - 9 M.C. Antenna Tower
534	"	Air Operations	5 - 15 M.C. Antenna Tower
535	"	Air Operations	4 - 12 M.C. Antenna Tower
536	"	Air Operations	3 - 9 M.C. Antenna Tower
537	23-P	Public Works	Sewage Pump House
538	26-0	Navy Exchange	Service Station
539	16-0	Weapons	AUW Shop
540	17-0	Marine Barracks	Sentry House, AUW Shop
541	7-0	Marine Barracks	Sentry House, AUW Storage
542	7-0	Public Works	Generator Building

NO.	LOCATION	RESPONSIBILITY	USE
543	7-0	Weapons	AUW Magazine
544	7-0	Weapons	AUW Magazine
545	Off Station	Air Operations	YA-2 Localizer
546	"	Air Operations	4 - 12 M. C. Antenna Tower
547	"	Air Operations	4 - 12 M. C. Antenna Tower
548	10-Q	Weapons	Fuse & Detonator Magazine
549	11-Q	Weapons	Fuse & Detonator Magazine
550	Off Station	Public Works	Sewage Control House & Digestor
551	"	Public Works	Primary Subsiding Basin
552	"	Public Works	Chlorine Contact Basin
553	"	Public Works	Sludge Drying Bed - South
554	"	Public Works	Sludge Drying Bed - North
555	24-N	A/C Maintenance	Ground Support Equipment
556	27-N	Supply	Loading Dock
557	Off Station	Weapons	Rake Tower, Small Point
558	"	Weapons	Rake Tower, Sabino Hill
559	28-0	Supply	Used Avlube Tank, North
560	28-0	Supply	Used Avlube Tank, South
561	Off Station	Public Works	McKeen Capehart Storage
562	19-L	Air Operations	Transmissometer Rec. Tower
563	18-L	Air Operations	Transmissometer Trans. Tower
564	28-M	Air Operations	Radar Tower
565	Redington	Faetulant Det 1	Multi-purpose building
566	"	Faetulant Det 1	Storage
567	"	Public Works	Generator Building
568	"	Public Works	Maintenance Building
569	"	Public Works	Sewage Treatment Plant
570	"	Faetulant Det 1	Classroom
571	"	Public Works	Fire Station
572	"	Public Works	Generator Building
573	"	Faetulant Det 1	Guard House
574	"	Faetulant Det 1	Interrogation Hut
575	"	Faetulant Det 1	Latrine
576	"	Faetulant Det 1	Guard Tower
577	"	Faetulant Det 1	Bunker Hut
578	"	Faetulant Det 1	Guard Tower
579	20-S	Administration	Picnic Shelter
580	28-Q	Administration	Waves Barracks
581	Off Station	Air Operations	Conical Monopole Antenna
582	"	Air Operations	Concial Monopole Antenna
583	28-P	Administration	Bowling Alley
584	21-N	Supply	Disposal Building
585	27-0	Chaplain	Chapel
586	29-R	Administration	Ham Shack, former AF-4

NO.	LOCATION	RESPONSIBILITY	USE
587	28-Q	Navy Exchange	Storage, Former SF 14
588	28-Q	Public Works	Former AF 16
589	28-Q	Air Operations	Mobile Radio Maint. former AF-11
590	26-P	Public Works	Storage, Former AF 5
591	26-P	Public Works	Former AF 10
592	25-Q	AMD	Storage, Former AF 15
593	25-Q	Public Works	Storage, Former AF-12
594	25-Q	Public Works	Former AF-R2
595	25-Q	Public Works	Former AF R8
596	26-Q	Public Works	Former AF 1
597	26-Q	Public Works	Former AF 2
598	26-Q	AMD	Storage, Former AF-3
599	26-Q	AMD	Former AF -R6
600	31-K	Air Operations	Transmissometer Rec. Tower
601	31-K	Air Operations	Transmissometer Trans. Tower
801 thru 866	30-W	Public Works	Public Quarters, Wherry
867 thru 874	30-W	Public Works	Garages, Wherry
875 thru 903	29-V	Public Works	Public Quarters, Capehart
904	31-R	Public Works	Public Quarters, Capehart
905	31-S	Public Works	Public Quarters, Capehart
906 thru 1091	Off Station	Public Works	
A	30-S	Public Works	Public Quarters, Officer
B	30-S	Public Works	Public Quarters, Officer
C	34-Q	Public Works	Public Quarters, Officer
D	34-R	Public Works	Public Quarters, Officer
E	31-T	Public Works	Public Quarters, Officer
F	30-T	Public Works	Public Quarters, Officer
G	30-S	Public Works	Public Quarters, Officer
H	30-S	Public Works	Public Quarters, Officer
I	30-R	Public Works	Public Quarters, Officer
EA	31-T	Public Works	Public Quarters, Enlisted
EB	31-T	Public Works	Public Quarters, Enlisted
EC	31-T	Public Works	Public Quarters, Enlisted
ED	31-T	Public Works	Public Quarters, Enlisted
EE	30-T	Public Works	Public Quarters, Enlisted
T-201	26-0	Disaster Control Officer	Disaster Control Storage
T-202	26-0	Public Works	Storage

Enclosure (1)

602 WEAPONS TRANSHIPMENT OFFICE

NO.	LOCATION	RESPONSIBILITY	USE
T-204	20-P	Public Works	Storage
T-205	28-M	Public Works	Storage
T-207	24-S	Marine Barracks	Storage
T-208	24-S	Public Works	Storage
T-209	29-N	Supply	Storage
T-210	29-N	Supply	Storage
T-212	27-G	Supply	Storage use for Refuelding Contractor
T-214	21-0	Marines	Pistol Range Storage
T-221	26-M	CFAD/Public Works*	Line Shack, Hangar 1
T-222	29-N	Air Force	Line Shack
T-227	22-P	Administration	Skeet Clubhouse
T-229	29-Q	Public Works	Shed, RR Tools

*Indicates Public Works responsibility when not occupied by a squadron.

BUILDING & STRUCTURE LIST
Casco Bay Fuel Farm (Harpswell)

NO.	LOCATION	RESPONSIBILITY	USE
1	2-G	Supply	Admin Bldg. & Fire Station
2	I-G	Public Works	Maintenance Shop
3	I-G	Supply	Storage Building
4	I-G	Public Works	Utility Garage
5	3-D	Public Works	Standby Generator House
6	3-F	Supply	Gasoline Separator Building
7	8-B	Public Works	Water Treatment Plant & Pumphouse
8	8-B	Public Works	Public Quarters
9	8-B	Public Works	Public Quarters
10	8-B	Security	Gate House & Guard Office
11	9-B	Public Works	Well House & Well No. 1
12	7-B	Public Works	Well House & Well No. 2
13	2-J	Supply	Checker Bldg. - Pier
14	2-J	Supply	Fueling Pier & Causeway
15	2-H	Supply	Small Boat Dock
16	8-B	Public Works	Elevated Water Tank & Heater Rm.
20	5-G	Public Works	Storage
26	I-F	Supply	Pump House No. 1
27	3-E	Supply	Pump House No. 2
28	3-D	Supply	Booster Pump House
29	2-J	Supply	Salt Water Pump House
30	2-H	Supply	Stripper Pump Pit
31	1-F	Supply	Valve House No. 1
32	3-E	Supply	Valve House No. 2
33	KEY	Supply	Scraper Pit (Underground)
34	3-D	Supply	Valve Pit "A"
35	3-F	Supply	2 Truck Loading Racks (1 Roof)
36	8-B	Public Works	Garage
37	8-B	Public Works	Garage
T-1	2-F	Supply	Fuel Tank
T-2	1-F	Supply	Fuel Tank
T-3	2-E	Supply	Fuel Tank
T-4	2-E	Supply	Fuel Tank
T-5	3-E	Supply	Fuel Tank
T-6	2-E	Supply	Fuel Tank
T-7	4-D	Supply	Fuel Tank
T-8	4-C	Supply	Fuel Tank
T-9	5-C	Supply	Fuel Tank
T-10	5-C	Supply	Fuel Tank
T-11	6-C	Supply	Fuel Tank
T-12	6-C	Supply	Fuel Tank
T-13	7-C	Supply	Fuel Tank
T-14	8-B	Public Works	Fuel Tank

Enclosure (1)

ALPHABETICAL LISTING OF BUILDINGS AND NUMBERS

A	NO.
Administration Building	4
AIMD	250
AIMD A/C Material Storage	96
AIMD-AMSE Storage Bldg.	617
AIMD Battery Shop	231
AIMD Ground Support Equip.	555
AIMD-M.A.D. Bldg.	35
AIMD Nitrogen Shop	28
AIMD T-56 Eng. Test Fac.	611
Air Operations Bldg.	200
AMSE Storage (AIMD)	617
nna 2.5-10 MHZ	619
6-24 MHZ	620
2.5-10 MHZ	621
" 2.8 MHZ	622
" 4.5-18 MHZ	623
Antenna, Conical Monopole	581
" " "	582
Antenna System, VHF/UHF	281
Antenna Tower, TACAN	246
Antenna Tower 4-12 MHZ	546
" " 4-12 MHZ	547
" " 2.5-7.5 MHZ	519
" " 4-12 MHZ	520
" " 6-18 MHZ	521
" " 7-21 MHZ	522
" " 2-6 MHZ	526
" " 6-18 MHZ	527
" " 7-21 MHZ	528
" " 2.5-7.5 MHZ	529
" " 6-18 MHZ	530
" " 3-9 MHZ	531
" " 4-12 MHZ	532
" " 3-9 MHZ	533
" " 5-15 MHZ	534
" " 4-12 MHZ	535
" " 3-9 MHZ	536
Armory	223
AUW Shop	539
AVGAS Pumps, Shelter	92
AVGAS Tank	202
" "	204
AVLUBE Tank, N. (Used)	559
AVLUBE Tank, S. (Used)	560

B	NO.
Bachelor Officer's Quarters	512
Bank	4
Barber Shop	23
Barracks	213
"	214
"	215
"	216
"	217
"	218
"	219
"	220
Barracks, Marine	212
Battery Shop (AIMD)	231
Beacon Tower	210
Beauty Shop	23
Bachelor Enlisted Quarters (BEQ)	213
"	214
"	215
"	216
"	217
"	218
"	219
"	220
Bomb Trailer Storage (Weapons)	97
Bowling Alley	583
Bunker Hut - Redington (FASO)	577

C	
CAAC	12
Cafeteria	23
Capehart Storage, McKeen	561
Carpenter Shop	48
Central Heating Plant	233
Chapel	585
Civilian Personnel	18
Classified Materials Disintegrator	598
Classroom, FASO (Redington)	570
Clubhouse	305
Communications Center	596
Compass Rose	282
Conical Monopole Antenna	581
" " "	582
Convenience Store (NAVEX)	16

C (continued)

	NO.
Country Store	23
CPO Club	201
CPW-5 Offices	250
Crash Facility	292
Credit Union	18

D

Dam (Golf Course)	310
Dam, Picnic Area	347
Data Processing	12
Defense Intelligence Serv Off	580
Dental Clinic	30
Detonator & Fuse Magazine	291
" " "	548
" " "	549
DIFAR (Faso)	639
Disaster Preparedness	612
" "	T-201
Disbursing Office	12
Disintegrator, Classified Mat	598
Dispensary	30
Disposal Building	584
Dock, Loading (Supply)	556
Dock, Railroad (Weapons)	145
Dock, Truck (Gas) (Supply)	107

E

Electric Shop	6
Electrical Substation	264
EM Club	516
Emergency Generator Bldg.	232
" " "	234
Emergency Water	42
EOD Spaces	223

F

FASO Classroom (Redington)	570
FASO, Maintenance Shop	423
" " "	452
FASO Multi-Purpose Bldg.(Red.)	565
FASO Storage (Redington)	566
FASO Training Bldg.	41
" " "	224
" " "(Redington)	409
" " "(Redington)	411
Filling Station (Supply)	91
Fire Station	292
Fire Station - Redington	571
Flagpole	122
Flagpole - CPW-5	618
Flagpole - Fuel Farm	251
Fuel Pump House	207
Fuel Storage Tanks	615
Fuel Tank, Jet	203
Fuel Tank, Jet	205
Fuse & Detonator Magazine	291
" " "	548
" " "	549

G

Garage Qtrs "D"	100
" " "A" & "B"	110
" " "E"	235
" " "F"	236
" " "G"	237
" " "H"	238
" " "I"	239
" " "EA"	240
" " "EB"	241
" " "EC"	242
" " "ED"	243
" " "EE"	244
Garages, Wherry	867 thru 874
Gas Farm Office (Supply)	267
Gasoline Tank	101
" "	102
" "	103
" "	104
" "	105
" "	127
" "	128
" "	510
GCA Hardstand	229
Generator Building	227
" "	518
" "	524
" "	542
Generator Building (Redington)	567
" " "	572
Golf Course	305
Golf Course Dam	310
Golf Course Storage	306

NO.

G (continued)

Ground Support Equip. (AIMD) 7
" " " " 555
Guardhouse - Redington (FASO) 573
Guard Tower - Redington 576
" " " 578
Gun Emplacement, Ornamental S - 156
" " " N - 157
Gym 23

H

Hangar 1
" 2
" 3
" 250
Hobby Shop 20
Hobby Shop 252
Housing Office & Warehouse 9

I

Inactive (PW) 599
Inert Storage (Weapons) 52
" " " 55
" " " 316
Insecticides Storage (PW) 95
Interrogation Hut (FASO) Red. 574

J

Jamesway Shelter-Red. Large 624
" " " Small 625
Jet Fuel Tank (Supply) 203
" " " " 205

L

Latrine - Redington (FASO) 575
Legal 18
Library 20
Line Shack, Hangar 2 (Air Ops) 266
Line Shack (CPW-5) 603
" " " 604
" " " Hgr. 1 637
" " " Hgr. 1 T-221
" " " T-222
Loading Dock (Supply) 556
Lumber Shed (PW) 74

NO.

M

M.A.D. Bldg. (AIMD) 35
Magazine (Weapons) 59
" " 60
" " 62
" " 69
" " 71
" " 285
" " 286
" " 287
" " 288
" " 289
" " 290
" " 543
" " 544
Magazine (Fuse & Detonator) 291
" " " 548
" " " 549
Magazine, Special Weapons 626
" " " 627
" " " 628
Main Entrance 33
Maintenance Bldg. Redington 568
Maintenance Shop, FASO 423
" " " 452
Maintenance Trailer (FASO) 636
Marine Barracks 212
Marine Barracks - Vacant 541
Material Div. Off's & Stg-Supply 294
McKeen Capehart Storage 561
Mess Hall (Neptune Hall) 211
Microwave Tower 525
Mobile Radio Maint. (Air Ops) 589
Motel 26

N

NAVEX Cafeteria 23
" Convenience Store 16
" Motel 26
" Office 34
" Retail Store 15
Navy Wives Club 588
Neptune Hall (Subsistence Bldg.) 211
Nitrogen Shop 28
Nursery 20

O

	NO.
Operations Bldg. (Air Ops)	200
Officers's Club	38

P

Package Store	22
Paint Shop	51
Pass Office	37
Personnel Support	20
Picnic Area	347
Picnic Shelter	579
Pistol Range	139
Pistol Range Storage	T-214
Playing Courts	605-610
Pool, Swimming	614
Post Office	4
Public Quarters, Capehart	875-903
" " "	904
" " "	905
" " "	906-1091
Public Quarters, Enlisted	EA
" " "	EB
" " "	EC
" " "	ED
" " "	EE
Public Quarters, Officer	A
" " "	B
" " "	D
" " "	E
" " "	F
" " "	G
" " "	H
" " "	I
Public Quarters, Wherry	866
Public Quarters	349
Public Works Shop & Offices	8
Public Works Shops & Storage	10
Public Works Storage	17
" " "	75
" " "	88
" " "	93
" " "	T-202
" " "	T-205
Pump House	42
Pump House, Gasoline	106
Pump House, Oil	50
Pump House, Sewage	111
Pump House & Water Reservoir	295
Pump House, Water	309
Pump Test Pit	254
PW Shop, Storage	323
PW Storage, Insecticide	95
Pyrotechnics Locker	73
" "	283
" "	284
" Storage	94

R

Radar Bldg, (NOAA), Transformer Vault, R/W Lighting	209
Radar Tower (NOAA)	564
Railroad Dock (Weapons)	145
Rake Tower, Sabino Hill	558
Rake Tower, Small Point	557
Receiver Bldg. (Air Ops)	517
Reserve Battalion Hdqtrs.	635
Reservoir, Water & Pump House	295
Retail Store (NAVEX)	15

S

Sabino Hill Rake Tower	558
Security	37
Sentry Booth	33
Sentry Booth, Forrestal Gate	265
Sentry House, AUW Shop	540
Service Station (NAVEX)	538
Sewage Pump House	537
Sewage Pump House,Bruns. Gardens	638
Sewage Pump Station (Inactive)	277
Sewage Treatment Plant-Redington	569
Shelter, AVGAS Pumps	92
Shelter, Bus Waiting	279
Shelter, Jamesway - Large	624
" " - Small	625
Shore Patrol	37
Small Arms Magazine (Weapons)	44
Small Point Rake Tower	557
Sonobuoy Storage (CPW-5)	602
Special Weapons Magazine	626
" " "	627
" " "	628
Station Theater	293
Storage, A/C Material (AIMD)	96
Storage (Air Ops)	89
Storage (Communications)	593 & 595
Storage (CPW-5/PW)	45
Storage, Dry Stores (NAVEX)	14

S (Continued)

Shed, RR Tools (PW) T-229
Storage - Electronics 226
Storage, FASO (Redington) 566
Storage, Golf Course 306
Storage, Inert (Weapons) 52
" " " 55
" " " 316
Storage, Insecticides (PW) 95
Storage (NAVEX) 16
" " 287
" " T-209
" " T-210
Storage, Paint & Oil (Supply) 13
Storage (Personnel Support) 222
Storage (PW) 17
" " 75
" " 88
" " 93
" " T-202
" " T-205
Storage, PW Shop 323
" " " 590
Storage, Pyrotechnics (CPW-5) 94
Storage Use for Refueling Contractor (Supply) T-212
Storage (RMCB-27) 58
" " 60
" " 63
" " 64
Storage (Security) 591
Storage (Supply) T-209
Storage, Vehicle (Weapons) 245
Subsistence Bldg. (Mess Hall) 211
Supply 12
Supply Pump House, Oil 50
Swimming Pool 614

T

TACAN, Transmitter Bldg. 230
Tactical Support Center (TSC) 596
Tailor Shop 23
Telephone Exchange 592
Tennis Courts (Playing Courts) 605 thru 610
T-56 Engine Test Facility 611
Theater 293
Toilets/Picnic Area 613
Tower (see Antenna)
Tower, Microwave 525
Training Bldg. (FASO) 41
" " " 224
" " "(Redington) 409
" " "(Redington) 411
Transformer Vault, Gas Farm 208
Transformer Vault, NOAA Radar Bldg., R/W Lighting 209
Transmissometer Rec Tower(AirOps) 562
" " " " 600
Transmissometer Trans Tower 563
" " " 601
Transmitter Bldg. (Air Ops) 280
" " " 523
Transmitter Bldg., TACAN 230
Transmitter Bldg. VOR 296
Truck Dock, Gasoline 107
Truck Dock & Seperator House 206

UV

Vacant (Public Works) 586
" " " 594
Vacant (Marine Barracks) 541
Vehicle Maintenance Shop 225
Vehicle Storage (Weapons) 245

W

Water Reservoir & Pump House 295
Water Tank, 250,000 gal. for fire 124
Weapons Bomb Trailer Storage 97
Weapons Inert Storage 52
" " " 55
" " " 316
Weapons Magazine 59
" " 60
" " 62
" " 69
" " 71
" " 285
" " 286
" " 287
" " 288
" " 289
" " 290
" " 543
" " 544
Weapons Magazine (Fuse & Detonator) 291
Weapons Small Arms Magazine 44

TOPSHAM ANNEX - ALPHABETICAL LISTING OF BUILDINGS

Auto Maint. Shop	337
Auto Storage Shed	336
BEQ	376
BEQ	384
CAPEHART HOUSING	1092-1142
Community Center	375
Cooling Tower (East) (Unused)	371
Cooling Tower (West) (Unused)	372
Court, Recreational	370
CPO BEQ	364
Commissary	335
Direction Center Sentry (Vacant)	367
Direction Center - Storage	369
Fire Station	363
Flag Pole	334
Gas Station	368
Gym/Small Arms Range	382
HQ, COMPATWINGSLANT	333
Maintenance Shop	338
Maintenance Shop	339
Maintenance Shop	373
Maintenance Shop	374
NCO Club (Vacant)	383
NX & Comm. Store Offices	381
Pumphouse	378
Pump Station	366
Sewage Facility Bldg.	377
Shed, Sup & Equip Base (Vac.)	365
Traffic Check House (Vacant)	331
Vacant	332
Warehouse, Cold Storage and Commissary	335
Water Storage Tank	385

NASB Facilities List

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
	RAILROAD DOCK	1959	27N	249	SY
	TRANSHIPMENT AREA	1957		10666	SY
	ROADS BITUMINOUS	1943		145212	SY
	PARKING AREAS BIT	1943		332054	SY
	PARKING AREA/OTHER/	1943		15391	SY
	ROADS/OTHER/	1943		147390	SY
	STATION NAME SIGN	1953	34S		
	RUNWAY LIGHTING	1943			
	FUEL DISTRIBUTION SYSTEM	1953	30Q		
	SECURITY FENCE	1969		105605	LF
	AIRCRAFT ARRESTING GEAR	1958			
	A/C PARKING APRONS	1951		471189	SY
	TAXIWAYS	1953		128813	SY
	ROADS BITUMINOUS	1954		80326	SY
	SIDEWALKS BITUMINOUS	1954		6083	SY
	STORM SEWER	1954		8807	LF
	FIREFIGHTING PRACTICE PAD	1960	21P		
	A/C ACCESS APRON	1951		9867	SY
	R/W END REFERENCE LIGHTS	1964			
	PAPI	1964			
	CENTERLINE LIGHTING	1965			
	TAXIWAY LIGHTING	1953			
	CLEAR ZONE (P-069)			23	AC
	AICUZ J. & L. DAVIS PAR.#2			0.22	AC
				5.59	AC
				23.46	AC
	DEED FRM V & M THIBODEAU			0.2	AC
				1.5	AC
				1.13	AC
				40.95	AC
				4.34	AC
	STORM SEWER	1952		74677	LF
				6.54	AC
				0.05	AC
				8.63	AC
				521.65	AC
	N/A			2594.15	AC
	RUNWAY OUTBOARD DUAL	1953	NA	177778	SY
	RUNWAY INBOARD DUAL	1953	NA	177778	SY
	OPEN STORAGE	1943		7310	SY
		1973			
	SIDEWALKS	1943		11611	SY
	TAXIWAYS	1953		57008	SY
				7.37	AC
		1952			
		1952			
	PERIMETER/SECURITY LIGHTING	1973	N17	715	LF
		1952			
		1954			
	SANITARY SEWER	1954		13490	LF
	COMMUNICATION LINES	1959			
	AIR RAID ALARM SYSTEM	1957	27M		

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
	FIRE ALARM SYSTEM	1957			
		1943			
	COMPRESSED AIR LINES	1953	28M		
		1954			
		1952			
	APPROACH LIGHTING	1981			
	NORTH C/L APPROACH LTNG	1967	33-I		
	R/W DISTANCE MARKERS	1971			
	VOR/TACAN CK SG	1970			
	SANITARY SEWER	1943		34950	LF
	PLAYGROUND	1973	30T		
	SEWAGE PUMPING STATION	1958	23P		
	HOT SPOT	1983	15F	10666	SY
	VEHICLE PARKING SURFACE	2005	P32	416	SY
				48.36	AC
	LINE VEHICLE PARKING	1957		5888	SY
	PLAYGROUND	1973	30W		
1	HANGAR	1942	26M	107376	SF
5	MAINTENANCE HANGAR	1982	23Q	163454	SF
6	MAINTENANCE HANGAR	2005	30N	166335	SF
9	ADMINISTRATIVE SPACE (VACANT)	1943	27M	8723	SF
10	OIL SPILL EQUIPMENT STORAGE	2004	30O		SF
11	NAVY EXCHANGE RETAIL COMPLEX	1981	260	52381	SF
19	PUBLIC WORKS SHOPS	1981	21O	6000	SF
20	COMMUNITY FACILITIES	1943	27O	25871	SF
21	CHILD CARE CENTER	1983	25P	4975	SF
23	CAR WASH	1994	26P	1335	SF
24	PERSONNEL SUPPORT DET BLDG	1982	26P	10000	SF
25	INDOOR FITNESS CNTR	1983	25P	16658	SF
26	CHILD CARE CENTER	1990	25P	6496	SF
27	FAMILY SERVICES CENTER	1984	26-O	7862	SF
28	OXYGEN SHOP (VACANT)	1944	27P	784	SF
29	AUTO HOBBY SHOP	1988	23O	12000	SF
30	FSC STORAGE	1995	26D	512	SY
31	NAVY LODGE	1999	27O	15054	SF
32	RECREATION PAVILLION	1981	30-Q	1500	SF
33	SENTRYHOUSE/FRONT GATE	1954	34S	106	SF
35	SENTRY HOUSE/FRONT GATE	2004	32T		
36	DYERS GATE SENTRY HOUSE	2004	16L		
37	NCIS	1943	34S	2320	SF
38	PASS & ID OFFICE	2004	33S		
39	GOLF COURSE MAINT BLDG	1985	10G	2800	SF
41	POLICE/SECURITY STATION (VACANT)	1944	29N	10526	SF
42	PUMPHOUSE	1944	28N	660	SF
43	TELEPHONE EXCHANGE BLDG	1988	026Q	1156	SF
44	INERT ORDNANCE STORAGE	1943	27N	1258	SF
45	HAZ WASTE TRANSFER FACILITY	1992	27L	3000	SF
46	SECURITY INSPECTION OFFICE	2004	15M		
47	BALLFIELD STORAGE	1999	29P	400	SF
49	REGULATOR/SUBSTATION BLDG	1981	L15	315	SF
50	GROUND WATER EXTRACTION & TREATMENT FACILITY	1995	21O	6500	SF
51	HAZARDOUS WASTE FACILITY	2005	22O	5000	SF
53	PUBLIC WORKS SHOP	1996	21O	10000	SF
54	APPLIED INSTR. BUILDING	1988	28R	30000	SF

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA
55	POLICE/SECURITY STATION	2005	22O	11000 SF
57	BEACON TOWER	2005	21O	
58	TACAN	2005	10R	
59	HE MAGAZINE	1943	9P	1010 SF
60	INERT ORDNANCE STORAGE	1943	Q19	1010 SF
62	AMMO STORAGE FACILITY	1943	9P	1010 SF
63	STORAGE FACILITY	1943	22G	1010 SF
64	STORAGE FACILITY	1943	21F	1010 SF
65	PICNIC SHELTER (QTY 5)	1986	21S	3380 SF
71	AMMO MAGAZINE	1943	20N	1010 SF
77	WEAPONS BUILD-UP FACILITY	1993	12O	4000 SF
78	GOLF CLUBHOUSE	1981	10G	3040 SF
79	HOBBY SHOP STORAGE	1980	23N	540 SF
81	CHRIMP FACILITY	1980	N22	7000 SF
83	ORDNANCE DISPOSAL SITE(18 AC	1981	R8	
86	GSE MAINT. SHOP	1992	25N	31980 SF
87	ASWOC/TSC	1988	26R	52513 SF
102	INDOOR SMALL ARMS RANGE	2004	28O	4975 SF
103	MILITARY WORKING DOG KENNEL	2004	29O	1600 SF
104	MECH SEC BARRIERS (DYERS GATE)	2004	16L	80 SF
109	DOG KENNEL (VACANT)	1983	34S	529 SF
111	SEWAGE PUMP HOUSE	1943	30S	64 SF
117	FILLING STATION	1984	30P	124 SF
118	FILLING STATION STORAGE	1984	30P	42 SF
122	FLAG POLE /ADMIN/	1953	27N	
124	STOR TANK-GROUND LEVEL	1944	28N	3721 SY
125	GUARD TOWER	1983	160	256 SF
126	NATL GUARD MAGAZINE	1983	09P	2040 SF
127	NATL. GUARD MAGAZINE	1983	09P	264 SF
128	NATL GUARD MAGAZINE	1983	09P	266 SF
145	LOADING PLATFORM	1943	12N	826 SY
146	WATERMAIN ENTRANCE SHELTER	1987	34E	230 SF
147	WATER METER PIT SHELTER	1987	33L	240 SF
150	NAVAL AIR RESERVE CENTER	1992	29R	13196 SF
151	NAVAL SURFACE RESERVE CENTER	2002	29Q	24480 SF
153	RECYCLING CENTER	1992	16K	7800 SF
156	MONUMENT	1943	270	
157	MONUMENT	1943	270	
200	OPERATIONS-CONTROL TOWER BLD	1954	28L	22409 SF
201	GALLEY/NEPTUNE HALL	1953	23O	9425 SF
209	ELECTRIC DISTRBN BLD/SHLTR	1954	28M	2283 SF
211	PHYSICAL FITNESS FACILITY	1954	25P	50984 SF
221	THRIFT SHOP	1999	23P	600 SF
222	BEQ MAINT STORAGE	1954	24O	706 SF
223	NMCI	1953	29O	4284 SF
225	AUTOMOTIVE EQUIP REPAIR SHOP	1953	26N	15020 SF
226	SEA CADETS BUILDING	2001	24P	2560 SF
227	GENERATOR BUILDING	1956	25E	160 SF
228	SENTRYHOUSE/CW5	1980	26Q	96 SF
229	GCA TURNTABLE	1963	24I	1428 SY
231	AIR TRAFFIC CONTROL TOWER	2005	28E	15661 SF
245	PAVEMENT & GRND EQUIP SHED	1956	9P	229 SF
250	MAINTENANCE HANGAR	1956	24M	184400 SF
251	DE-ICE/RINSE PUMPHOUSE	2002	23N	114 SY

FAC NO	FACILITY NAME	YEAR BUILT	MAP GRID	AREA	
252	AUTO EQUIP REPR SHP	1957	26N	5100	SF
254	DRAFTING TANK	1957	28L	0.01	AC
255	GOLF COURSE & DRIVING RANGE	1955	8H		
256	ATHLETIC FIELD	1943	28Q	175000	SY
257	PLAYING COURTS	1965	27P		
265	SENTRYHOUSE/FORRESTAL RD/HSG	1960	31T	31	SF
277	SEWAGE PUMPING STATION	1953	34N		
280	TRANSMITTER BLDG VHF/UHF	1956	26E	974	SF
282	COMPASS ROSE	1956	32L	1257	SY
285	AMMO STORAGE FACILITY	1956	7P	1493	SF
286	AMMO STORAGE FACILITY	1956	8P	1493	SF
287	AMMO STORAGE FACILITY	1956	8P	1493	SF
288	AMMO STORAGE FACILITY	1956	7P	1493	SF
289	AMMO STORAGE FACILITY	1956	8P	1493	SF
290	HIGH EXPLOSIVE MAGAZINE	1956	6O	1493	SF
291	HE MAGAZINE	1956	11Q	192	SF
292	FIRE/RESCUE FACILITY	1957	27L	10665	SF
294	WAREHOUSE	1956	28N	64530	SF
295	WATER RESERVOIR PUMP HOUSE	1957	26-0		
296	VORTAC	1956	31F	408	SF
309	PUMPHOUSE/IRRIGATION	1954	8J	180	SF
310	DAM	1955	8J		
311	OIL SPILL CONTROL WEIR	1994	32O		
323	STORAGE BLDG	1949	30U	440	SF
347	DAM (PICNIC POND)	1954	19S		
512	BOQ	1958	28Q	61882	SF
516	NITEFLIGHT	1958	23R	14983	SF
517	RECEIVER BUILDING	1958	22E	1106	SF
518	GENERATOR BUILDING	1958	22E	176	SF
537	SEWAGE PUMP HOUSE	1958	23P	597	SF
538	NX SERVICE STATION	1957	26O	5292	SF
539	EXPL ADMIN/ARMORY	1958	16O	10311	SF
543	HIGH EXPLOSIVES MAGAZINE	1958	7O	1232	SF
544	HIGH EXPLOSIVE MAGAZINE	1958	7O	2252	SF
548	HIGH EXPLOSIVE MAGAZINE	1959	10Q	192	SF
549	HIGH EXPLOSIVE MAGAZINE	1959	11Q	192	SF
553	AIRFIELD SUPPORT BUILDING	2004	24N	15888	SF
554	P3 SUPPORT FACILITY	2002	21N	10000	SF
555	SONOBOUY / VEHICLE STORAGE	1959	24N	6400	SF
562	TRANSMISSOMETER TOWER	1960	19L		
563	TRANSMISSOMETER TOWER	1960	18L		
583	BOWLING CENTER/REC MALL	1965	27P	19380	SF
584	PW SHOPS	1965	21O	7200	SF
585	CHAPEL	1965	27O	13610	SF
590	TRANSPORTATION MAINTENANCE BUILDING	2004	20O	8000	SF
592	VET CLINIC	1950	26Q	1621	SF
594	RADAR TOWER/MECH @ ASWOC	1950	26Q	900	SF
600	TRANSMISSOMETER TOWER	1965	30K		
601	ASOS TOWER	1965	29K		
602	GLIDE SLOPE ANTENNA BUILDING	1997	18L	94	SF
603	LOCALIZER ANTENNA SHELTER	1997	34J	94	SF
611	T-56 ENGINE TEST FACILITY	1967	20N	2484	SF
613	PICNIC AREA TOILET	1966	24Q	150	SF
618	FLAG POLE 1 FAW-3	1954	24N		

PARTIAL LIST

NASB Facility Disposals

FAC NC	FACILITY NAME	MAP GR	AREA	YEAR DISPO	SITE REUSE
2	HANGAR	28M	65954 SF	1999	ACFT PARKING APR
3	HANGAR	29M		2005	NONE
4	ADMINISTRATIVE BUILDING (COMMAND HQ)	27N	17509 SF	2000	VACANT
6	PUBLIC WORKS GENERAL SERVICES	28M	1973 SF	2000	VACANT
7	PUBLIC WORKS/AMD	27N		XXXX	
8	PUBLIC WORKS SHOPS AND OFFICES	27M	18428 SF	2000	VACANT
10	PUBLIC WORKS SHOPS AND STORAGE	26N		XXXX	
12	SUPPLY STORAGE AND OFFICES	27N	27792 SF	2000	VACANT
13	SUPPLY PAINT AND OIL STORAGE	29O	6049 SF	1998	
14	SUPPLY COLD AND DRY STORAGE	28P		XXXX	
15	NAVY EXCHANGE	28O	11898 SF	1998	VACANT
16	COMMISSARY	28O	12131 SF	1998	VACANT
17	CFAD/IRO/AMD	26N		XXXX	
18	CPO BARRACKS	27O		XXXX	
19	MARINE BARRACKS	27O		XXXX	
22	BRIG	27P	2687 SF	1998	
23	GYM/NAVY EXCHANGE/CAFETERIA/COUNTRY ST	28P		XXXX	
26	STEWARDS' BARRACKS	28P		XXXX	
29	PUBLIC WORKS SNOW REMOVAL CENTRAL	26N		XXXX	
30	STATION HOSPITAL/DENTAL CLINIC	26P		XXXX	
35	A/C MAINTENANCE	24S	2704 SF	1998	
36			8640 SF	1998	
38	OFFICERS' CLUB	28Q	19612 SF	1998	BLDG 151
45	AMD STORAGE	26O		XXXX	
48	PUBLIC WORKS CARPENTER SHOP	28M	3260 SF	2000	
50	SUPPLY OIL PUMP HOUSE	28O		XXXX	
51	PUBLIC WORKS PAINT SHOP	28M	1870 SF	2000	VACANT
55	E.O.D. SHELTER	12N		XXXX	
73	WEAPONS PYROTECHNICS LOCKER	28M	64 SF	2000	
74	SUPPLY LUMBER STORAGE SHED	28N	3072 SF	2000	
75	PUBLIC WORKS PAINT STORAGE	28M	332 SF	2000	
88	PUBLIC WORKS STORAGE	28M	1462 SF	2000	
93	PUBLIC WORKS STORAGE	21O	2400 SF	1998	
94	WEAPONS PYROTECHNICS STORAGE		64 SF	2000	
212	BARRACKS	25O	22174 SF	2003	VACANT
213	BARRACKS	25O	22174 SF	2003	VACANT
214	BARRACKS	25O	22174 SF	2003	VACANT
215	BARRACKS	25O	22174 SF	2003	VACANT
216	BARRACKS	24N	22174 SF	2003	VACANT
217	BARRACKS	24O	22174 SF	2004	VACANT
218	BARRACKS	24O	22174 SF	2004	VACANT

FAC NC	FACILITY NAME	MAP GR	AREA	YEAR DISPO	SITE REUSE
219	BARRACKS	24O	22174 SF	2004	VACANT
220	BARRACKS	24O	22174 SF	2004	VACANT
222	BARRACKS STORAGE	24O			VACANT
224	TRAINING BUILDING	29O	4000 SF	1999	
233	PUBLIC WORKS CENTRAL HEATING PLANT	27M	24048 SF	2001	VACANT
234	PUBLIC WORKS EMERGENCY GENERATOR BUIL		768 SF	1998	VACANT
293	THEATER	23P	8803 SF	1997	BLDGS 221 AND 226
821	FAMILY HOUSING		2498 SF	2002	MARINER LANDING
822	FAMILY HOUSING		1604 SF	2002	MARINER LANDING
823	FAMILY HOUSING		2406 SF	2002	MARINER LANDING
824	FAMILY HOUSING		3810 SF	2002	MARINER LANDING
825	FAMILY HOUSING		5360 SF	2002	MARINER LANDING
826	FAMILY HOUSING		2206 SF	2002	MARINER LANDING
827	FAMILY HOUSING		1990 SF	2002	MARINER LANDING
828	FAMILY HOUSING		4036 SF	2002	MARINER LANDING
829	FAMILY HOUSING		2692 SF	2002	MARINER LANDING
830	FAMILY HOUSING		2066 SF	2002	MARINER LANDING
831	FAMILY HOUSING		2371 SF	2002	MARINER LANDING
832	FAMILY HOUSING		3780 SF	2002	MARINER LANDING
833	FAMILY HOUSING		2571 SF	2002	MARINER LANDING
834	FAMILY HOUSING		2066 SF	2002	MARINER LANDING
835	FAMILY HOUSING		2043 SF	2002	MARINER LANDING
836	FAMILY HOUSING		2066 SF	2002	MARINER LANDING
837	FAMILY HOUSING		2043 SF	2002	MARINER LANDING
838	FAMILY HOUSING		2043 SF	2002	MARINER LANDING
839	FAMILY HOUSING		2498 SF	2002	MARINER LANDING
840	FAMILY HOUSING		2498 SF	2002	MARINER LANDING
841	FAMILY HOUSING		5104 SF	2002	MARINER LANDING
842	FAMILY HOUSING		5104 SF	2002	MARINER LANDING
1157			1474 SF	2000	

HRA-0148

DEPARTMENT OF THE NAVY
NAVAL ELECTRONIC SYSTEMS COMMAND
WASHINGTON, D.C. 20360

NAVELEX INST 5100.2
ELEX 0516
1 July 1968

NAVELEX INSTRUCTION 5100.2

Ch-1 25 Sep 68

From: Commander, Naval Electronic Systems Command
To: Distribution List

Subj: Radioluminescent Materials; Control Of

Ref: (a) NAVELEX INSTRUCTION 5100.1
(b) Radiation Health Protection Manual NAVMED P-5055

Encl: (1) "Work Area Procedures For Control of Radioactive Contamination From Radioluminescent Material" dated 14 June 1968

1. Purpose. The purpose of this instruction is to establish policy on the control of contamination from radioluminescent materials and on related decontamination and disposal procedures.

2. Cancellation. BUSHIPS INSTRUCTION 5100.16 of 24 April 1963 (NOTAL) is hereby cancelled.

3. Background. Spaces in Instrument Repair Shops and other areas where instruments containing radioluminescent material are repaired may become radioactively contaminated from the radioluminescent material. Reference (a) provides general guidelines to all ships and stations for the safe handling of radioluminescent materials and requires that such instruments be worked on only by activities qualified in accordance with this instruction. Items likely to contain radioluminescent material include clocks, compasses, depth-gauges, wrist-watches, alidades, and other instruments or dial-faces intended for use in darkness.

4. Action. Commands having repair facilities working, or likely to work, on radioluminescent materials shall designate specific areas for such work, requiring that the procedures of enclosure (1) be followed in those areas. When this is accomplished, the Command's Radiological Safety Officer, designated in accordance with Section 1-5(16) of reference (b) shall certify to NAVELEX (Naval Electronic Systems Command) ELEX-0516 that the facility is qualified to work on radioluminescent materials. This certification shall include:

a. A brief description of the work area.

b. Types and quantities of radiac on hand in the work area.

c. Physical and organizational location of the work area.

d. Name(s) of person(s) in charge of the work area.

H. C. MASON
Vice Commander

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FB37	Degaussing Station PAC
FKA6A5	Naval Applied Science Laboratory
FKA6A6	Underwater Sound Laboratory
FKA6A7	NRDL
FKA6B3	Mine Defense Laboratory
FKL	All

WORK AREA PROCEDURES FOR CONTROL OF RADIOACTIVE CONTAMINATION FROM RADIOLUMINESCENT MATERIAL

1. Specific areas and persons shall be designated for the repair of items containing radioluminescent material. When the facility so designated is qualified in accordance with NAVELEXINST 5100.2 it shall be so posted.

2. The work area shall be monitored daily for surface contamination for as long as items containing radioluminescent material are being worked on. At other times, it shall be monitored weekly wherever radioluminescent material is stored. Items containing radioluminescent material shall be monitored for contamination upon receipt and again upon release from the work area. Monitoring shall cover: All exposed surfaces of the spaces and all equipment therein; and drawers and shelves containing radioluminescent materials. The following criteria shall be met for any material or equipment to be considered non-radioactive or for any space in the work area to be considered an uncontrolled space:

   a. The highest radiation level shall not exceed one tenth of one milliroentgen per hour (mr/hr) above background as determined by an open-window beta-gamma radiacmeter (AN/PDR-27 series or other instrument of equivalent sensitivity) held approximately one inch from the surface being surveyed.

   b. The loose radioactive surface contamination shall not exceed 450 micromicrocuries beta-gamma activity above background when measured on a dry filter paper wiped over one hundred square centimeters of the surface being surveyed or over the total surface if less than one hundred square centimeters (see NAVMED P-5055 1-5(8) as revised). The measurement shall be made on beta-gamma counting equipment required for making wipe test measurements and performed by personnel specifically authorized to do so. If this capability does not exist at the activity where the swipes are taken, the swipes shall be transported in leak-proof plastic bags, marked as radioactive, to an activity possessing suitable equipment (e.g., Radiac Repair Facility).

   c. Alpha radioactivity shall be undetectable, using an AN/PDR-56 series alpha radiacmeter, or instrument of equivalent sensitivity, either by direct alpha radiation measurement of the surfaces being surveyed or by alpha measurement of the dry filter paper used for the measurement in 2.b above.

3. If any surface in the work area exceeds the limits specified above, the affected space should be designated as a controlled contamination area. Access to the area should immediately be controlled to allow

only personnel in anti-contamination clothing to enter. If the area must be controlled for more than several hours, barriers should be erected and if practical the space should be locked when unoccupied. Signs should be posted conspicuously and should state the access restrictions, anti-contamination clothing requirements for access, level of loose surface contamination, radiation dose rate, and type of radiation.

4. Any item containing radioluminescent material which does not meet the criteria in paragraph 2 above shall be marked with the standard radiation symbol and the words "Caution-Radioactive Material."

5. The following safety precautions in addition to those outlined in NAVELEX INSTRUCTION 5100.1 shall be followed in the handling of radioluminescent material:

a. Protection of Personnel. When handling components bearing radioactive material, wear gloves to prevent contamination of the hands. Provide each worker with washable work clothing (as distinguished from ordinary street clothing) while actively engaged in the repair and handling of radioluminescent parts. Provide masks or respirators for workers if there is likelihood of radioactivity dusting or otherwise becoming airborne. Workers should wash hands after handling radioactive material.

b. Covering of Surfaces. Avoid the use of wooden work benches, wooden drawers, and wooden shelves which are difficult to decontaminate. Components should be dismantled and disassembled over a piece of disposable absorbent paper. The components should be monitored after the radioactive parts are removed. Should the body of the component be contaminated and not reusable it should be placed in a plastic bag, marked radioactive and transferred to the nearest naval supply activity for ultimate disposal in accordance with NAVSUP INSTRUCTION 4510.27 of 3 January 1968. After use the absorbent paper should be similarly bagged and disposed of; other potentially contaminated surfaces should be cleaned.

c. After all radioactive material and surfaces have been bagged, covered, or cleaned so as to prevent further spread of contamination, requirements for gloves and other anti-contamination clothing may be lifted. Contaminated gloves and anti-contamination clothing shall be collected in plastic bags for subsequent laundry or for disposal.

6. Decontamination. The need for decontamination may be minimized by covering surfaces and equipment or by taping the handles of tools prior to use and removing the contaminated covering or tape after use. During decontamination, precautions should be taken to limit the spread of surface contamination such as by taking care not to splash

solutions. Emphasis should be on taking up the contamination rather than on washing it down. Gummed tape may be used to lift contamination from surfaces. If large variations in surface contamination levels exist on a surface, cleaning generally is done from less contaminated toward more contaminated areas. Ventilation may be required to minimize the contamination breathed by personnel performing decontamination, although ventilation may have to be secured or filtered in some cases to limit the spread of contamination to other areas. Decontamination shall be in accordance with the following:

a. Wounds. Radioactively contaminated wounds of any kind shall be decontaminated under the direction of medical personnel. Medical attention should be obtained promptly if wounds are contaminated to avoid having the radioactive material absorbed into the body.

b. Skin. Skin should be decontaminated using soap and water. Scrub brushes should not normally be used since it is relatively easy to abrade the skin and thus work contamination into the skin. Washing should be repeated several times, monitoring after each washing. If these procedures are not sufficient, further decontamination should be performed under the direction of medical personnel. Spot cleaning to remove local hot spots should be done before showering to avoid spread of contamination over the entire body.

c. Clothing. Contaminated personal clothing and anti-contamination clothing shall be decontaminated or disposed of. Activities not equipped with radioactive clothing laundry facilities should store contaminated clothing and masks in plastic bags and have it laundered by activities possessing such facilities. If necessary, activities not equipped with a decontamination laundry may use normal laundry facilities for clothing and masks contaminated to a level less than 0.1 mrem per hour. Laundry water need not be monitored before discharge under these special circumstances since it would not exceed discharge limits at these low levels of contamination. The possibility of contaminating laundry machines is slight in this case, but washing machines should be washed out before subsequent use on uncontaminated laundry. This washing may be performed by running the machine through a washing cycle with no clothes inside. The machine should be checked for contamination before re-use on uncontaminated laundry by analyzing swipes from inside the machine.

d. Decontamination of surfaces and equipment. Work benches, compartment surfaces, tools and equipment can usually be decontaminated by ordinary cleaning methods. In general any procedures which will remove the surface dirt will remove surface contamination.

In all cases where liquid is used in decontamination care should be taken to avoid spreading radioactivity. Washing with soapless detergent in water is generally an effective decontamination method. If contamination levels are not specifically reduced, use of solvents, strong chemicals, and mechanical removal of some of the surface may be necessary. If contamination levels are low, wiping with a cloth may provide sufficient decontamination. Organic solvents may be used for machinery with greasy or oily surfaces. Acid is only used when it will not damage the equipment. On paint or covered surfaces, if washing will not remove the contamination, the paint or covering may need to be removed to effect decontamination.

7. Disposal of radioluminescent items and wastes shall be in accordance with NAVELEX INSTRUCTION 5100.1

HRA-0149

Electron Tubes

A wide variety of electron tubes have used radioactive material: voltage regulators, spark-gap tubes, voltage sensitive switching tubes, glow lamps, etc. In general, such tubes consist of a glass envelope, a fill gas, a radioactive source, an anode and an unheated (cold) cathode.

The various radioactive sources that have been used in these devices include H-3, C-14, Co-60, Ni-63, Kr-85, Cs-137, Pm-147, Pb-210, Ra-226, and Th-232. If H-3 or Kr-85 is used, it is typically mixed with the fill gas. The purpose of the radioactive source is to ionize the fill gas so that the application of a high voltage across the tube results in an instantaneous current. In the absence of such a source, the initiation of the current would some random event (e.g., light, cosmic ray, background gamma ray) to ionize the gas. The radioactive source therefore speeds up the operation of the tube and ensures that the tube output is steady and not subject to random fluctuations.

In the photo to the right, the tube with the hand-painted red trefoil is a Western Electric 346B tube that contains radium. The solid black tube is a Western Electric 346C tube that contains Kr-85. The tubes are painted to eliminate the random ionizing events in the tube gas that would occur if light got inside. This produces a steadier tube performance.

Transmit-Receive Tubes. Their first use seems to have been in the early 1940s when they began to be used as transmit-receive (TR) tubes in radar systems. Their purpose was to disconnect the receiver from the antenna during transmission. In other words, they acted as a switch. Anti transmit-receive disconnect the transmitter from the antenna during reception. These tubes generally employed Co-60, Ra-226 or H-3.

Voltage Regulator Tubes. These tubes act as a protection against sudden changes (transients) in high voltage. Solid state equipment is particularly susceptible to these transients when it is operating off of AC

lines. These types of tubes have usually contained less than 1 uCi of Cs-137, Ni-63, Kr-85, or Pb-210. Most of the voltage regulators and surge arrestors manufactured today are small ceramic cylinders with a thin deposit of Ni-63 on one electrode.

Indicator Lamps. These devices have provided light in many different types of electronic devices including cloths washers and dryers, stereos, coffeemakers, and pinball machines. They are often about 25 mm long and 2.5 mm in diameter. Typical activities would be about 20 uCi of H-3, or 0.2 uCi of Kr-85. NUREG-1775 indicated that several hundred million were produced during the 1970s.

Glow Lamps or Spark Gap Tubes. According to NCRP No. 95, these devices have been used as starters for compact fluorescent lamps, and in electric blanket thermostats and other specialty products. The report (1987) claimed that the annual production of these devices was in the millions. The sources generally consisted of 1 to 9 uCi of Co-60, Ni-63, Kr-85, Pm-147, or Th-232. Today, most fluorescent lamp starters use about 5 pCi of Th-232 coated on the inside of a glass tube. The starter is actually a switch that applies the high voltage to the fluorescent lamp after that latter has been given time to warm up. This preheating of the lamp improves its ability to conduct.

NUREG-1717 provided the following NRC data regarding the annual distribution of electron tubes containing byproduct material during the period of 1970 to 1986.

Radionuclide	Tubes per Year	uCi per Tube
H-3	8.3×10^6	39
Co-60	3.2×10^4	0.29
Ni-63	7.4×10^4	1.0
Kr-85	7.4×10^7	0.28
Cs-137	1.7×10^4	1.0
Pm-147	2.1×10^6	5.6

Dose Estimates

1. Routine Use.

NUREG-1717 estimated the doses to an occupant in a home from five electron tubes that contained either, H-3, Co-60, Kr-85, Cs-137, or Pm-147. It was assumed that for a given nuclide, each of the five tubes contained the activity presented in the previous table. For the calculations, it was assumed that the occupant spent 6,000 hours per year in the home. It was also assumed that the average distance to one tube was 1 meter, the average distance to two tubes was 3 meters and the average distance to the remaining two tubes was 6 meters. The dose was due to the emission of gamma rays and bremsstrahlung. In the case of tritium, the dose was due to airborne tritium - a leakage rate from the tubes of 2.5 ppm per hour was assumed.

Radionuclide	uCi per Tube	Effective Dose Equivalent
H-3	39	<0.001 mrem/year
Co-60	0.29	2 mrem/year
Kr-85	0.28	0.004 mrem/year
Cs-137	1.0	2 mrem/year
Pm-147	5.6	<0.001 mrem/year

NUREG-1717 also calculated the dose to an individual exposed to a single tube in a work environment. In this scenario, the individual was 1 meter away from the tube for 2,000 hours per year. In the case of a tritium containing tube, it was assumed that the equilibrium concentration in the air due to leakage was 4.9 pCi/m^3. The resulting effective dose equivalents when the tube contained the maximum activity allowed by the exemptions were as follows:

Radionuclide	uCi per Tube	Effective Dose Equivalent
H-3	150	5 mrem/year
Co-60	0.29	2 mrem/year
Kr-85	0.28	0.1 mrem/year
Cs-137	1.0	2 mrem/year
Pm-147	5.6	0.001 mrem/year

2. Accidents and Misuse

NUREG-1717 estimated the doses due to a variety of non-routine situations (e.g., carrying a tube in a pocket, residential fires and warehouse fires), but the largest dose by far was due to the crushing of a microwave receiver protector tube containing the maximum activity of tritium permitted by the exemption (150 mCi). The potential dose to an individual crushing such a tube was estimated at 1000 mrem (1 rem).

Pertinent Regulations

30.15 Certain items containing byproduct material.

(a) Except for persons who apply byproduct material to, or persons who incorporate

byproduct material into, the following products, or persons who initially transfer for sale or distribution the following products containing byproduct material, any person is exempt from the requirements for a license set forth in section 81 of the Act and from the regulations in parts 20 and 30 through 36 and 39 of this chapter to the extent that such person receives, possesses, uses, transfers, owns, or acquires the following products:

. . . . .

(8) Electron tubes: *Provided,* That each tube does not contain more than one of the following specified quantities of byproduct material:

(i) 150 millicuries of tritium per microwave receiver protector tube or 10 millicuries of tritium per any other electron tube;

(ii) 1 microcurie of cobalt-60;

(iii) 5 microcuries of nickel-63;

(iv) 30 microcuries of krypton-85;

(v) 5 microcuries of cesium-137;

(vi) 30 microcuries of promethium-147;

And provided further, That the levels of radiation from each electron tube containing byproduct material do not exceed 1 millirad per hour at 1 centimeter from any surface when measured through 7 milligrams per square centimeter of absorber.

For purposes of this paragraph ''electron tubes'' include spark gap tubes, power tubes, gas tubes including glow lamps, receiving tubes, microwave tubes, indicator tubes, pickup tubes, radiation detection tubes, and any other completely sealed tube that is designed to conduct or control electrical currents.

References

NCRP. Radiation Exposure of the U.S. Population from Consumer Products and Miscellaneous Sources. NCRP Report No. 95; 1987.

Nuclear Regulatory Commission. Systematic Radiological Assessment of Exemptions for Source and Byproduct Materials. NUREG 1717. June 2001.

Radioactive Consumer Products **Museum Directory**

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HRA-0152

Military Compass (1981)

This U.S. Army compass employs a tritium-containing radioluminescent compound. The latter, encased in glass, is positioned at the 12 o'clock mark on the glass cover, at the tip of the needle (1 o'clock in the photo to the right) and beneath the W and E markings.

It was manufactured by Stocker and Yale Inc, of Beverly Massachusetts. The Model designation, SandY 183, is derived from the company name.

As can be seen in the photo above left, it originally contained 120 millicuries of tritium.

Radioluminescent Items **Museum Directory**

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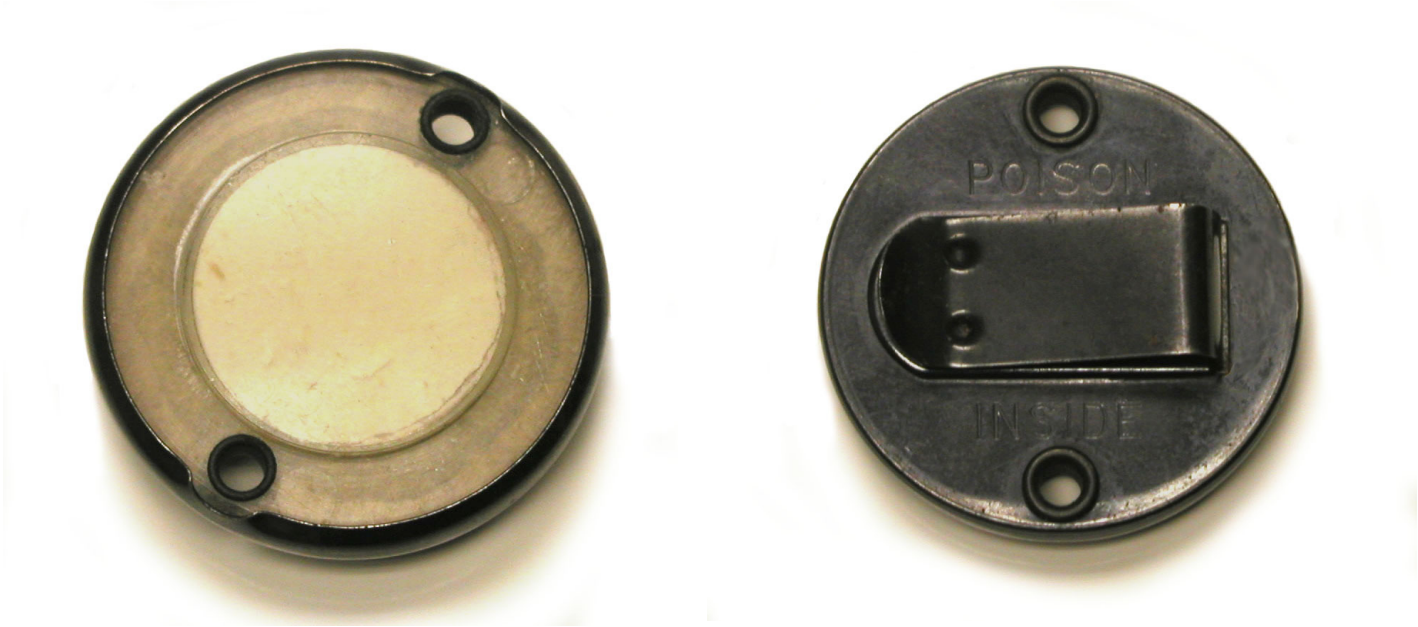
HRA-0154

Radioluminescent Personnel Markers (1950s)



Various types of radioluminescent disks have been used by the armed forces to provide low level light sources for use at night. The type shown above, known as a personnel marker, could be clipped to a belt or helmet so as to enable sailors (or soldiers) operating under darkened conditions to identify each other's positions. This example contains approximately 7 uCi of Ra-226 and has a 1.5 inch outer diameter. It probably dates from the 1950s. There is no indication that it contains radioactive material, only that there is "Poison Inside" (radioactive material was classified during the 1940s as a poison for the purpose of transportation, see **Transportation Labels**). As best as I can determine, the military has been using such radioluminescent markers since the 1930s.

The three major categories of military markers:

1. Personnel markers. Primarily employed by the navy. Used to identify the positions of personnel. Each marker had a clip on the back. The luminous area was usually one inch in diameter.

2. Deck markers. Primarily employed by the navy. These did not have a clip. They were usually attached to the deck of a ship via two screws. The luminous area was typically one inch in diameter. The protective plastic cover was thicker than that of the personnel markers.

The amount of Ra-226 in the personnel and deck markers ranged from 5 to 15 microcuries (uCi). Three brightness designations were employed: 15 M, 25 M and 30 M. Increasing the Ra-226 activity, increased the light output.

3. Bridge markers. Primarily used by the army to mark the position of bridge entrances and vehicles. The luminous area was usually one and three quarter inches in diameter. They were attached via a threaded bolt projecting from the back of the marker. Ra-226 activities were on the order of 20 uCi. A larger size and higher activity was needed because the army needed their markers to be visible at greater distances than those required by the navy. An authoritative source has told me that one marker would often be clipped on each side of the entrance to a bridge so that drivers operating at night without lights would not miss the bridge and drive into the water, ditch or whatever. During the Korean War, the North Koreans sometimes moved one of the markers so that the allied vehicles would miss the bridges and crash.

Other radioluminescent marking devices have been employed by the military, e.g., the plastic "ropes" with a clip on each used by the navy.

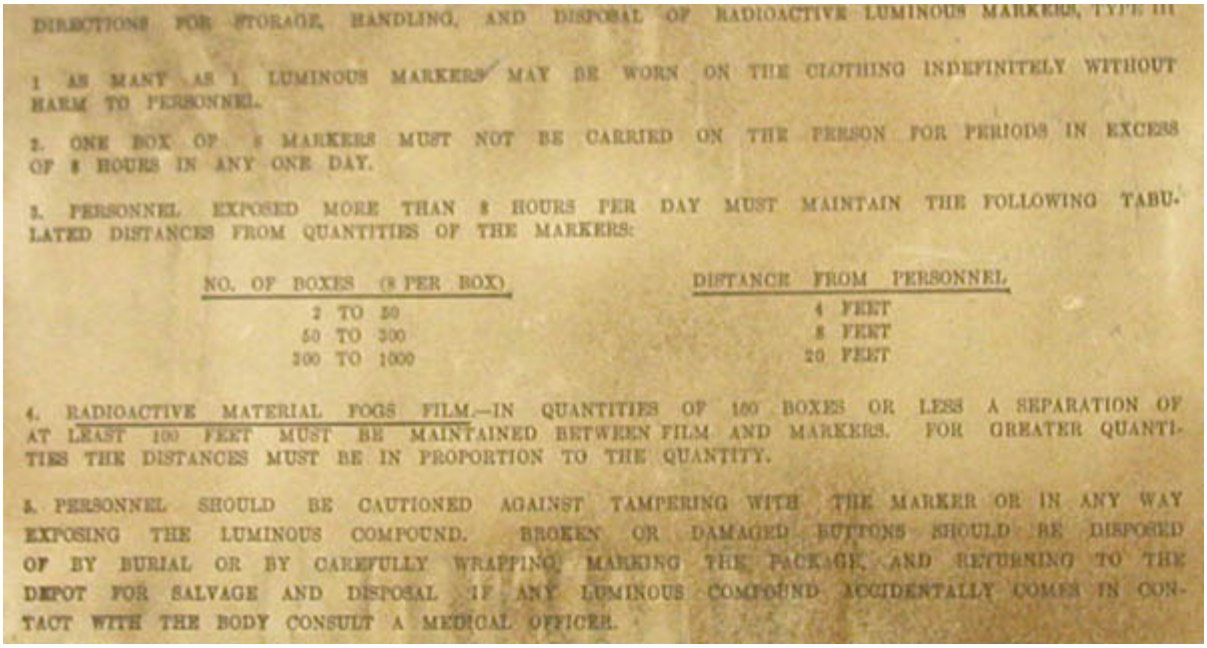
Until 1950 or so, the only radioactive material used in these markers was Ra-226. During the early 1950s, markers began to be produced using Sr-90 instead of Ra-226. By the late 1960s, manufacturers had stopped

employing radium. Strontium had three major advantages over radium: a greater variety of luminescent colors were possible with strontium than radium, the gradual decrease in luminous intensity was minimal because strontium's beta particles did less damage to the zinc sulfide crystals that radium's alpha particles, and the photon (bremsstrahlung) emissions from strontium were less of a safety concern than the gamma rays from radium.

Because a beta particle will not produce as much light as an alpha particle, Sr-90 activities were substantially higher than the activities in radium containing markers: 0.2 to 1 mCi per marker!

The photos below show the front and back of a Sr-90 containing deck marker produced in 1956 by U.S. Radium Corporation (ca. 1.75" outer diameter.

The markers were stored in the type of container shown in the following photographs. This lead-lined box (ca. 7.5" x 4" x 1.5") was made by the U.S. Radium Corporation. The text on the lid indicates that it was used by the Army Corps of Engineers to contain "Luminous Markers, Radioactive, Type III." The container's interior is divided into four compartments, each of which could be used to hold up to two markers.



DIRECTIONS FOR STORAGE, HANDLING, AND DISPOSAL OF RADIOACTIVE LUMINOUS MARKERS, TYPE III

1. AS MANY AS 1 LUMINOUS MARKERS MAY BE WORN ON THE CLOTHING INDEFINITELY WITHOUT HARM TO PERSONNEL.

2. ONE BOX OF 8 MARKERS MUST NOT BE CARRIED ON THE PERSON FOR PERIODS IN EXCESS OF 8 HOURS IN ANY ONE DAY.

3. PERSONNEL EXPOSED MORE THAN 8 HOURS PER DAY MUST MAINTAIN THE FOLLOWING TABULATED DISTANCES FROM QUANTITIES OF THE MARKERS:

NO. OF BOXES (8 PER BOX)	DISTANCE FROM PERSONNEL
2 TO 50	4 FEET
50 TO 300	8 FEET
300 TO 1000	20 FEET

4. RADIOACTIVE MATERIAL FOGS FILM.—IN QUANTITIES OF 100 BOXES OR LESS A SEPARATION OF AT LEAST 100 FEET MUST BE MAINTAINED BETWEEN FILM AND MARKERS. FOR GREATER QUANTITIES THE DISTANCES MUST BE IN PROPORTION TO THE QUANTITY.

5. PERSONNEL SHOULD BE CAUTIONED AGAINST TAMPERING WITH THE MARKER OR IN ANY WAY EXPOSING THE LUMINOUS COMPOUND. BROKEN OR DAMAGED BUTTONS SHOULD BE DISPOSED OF BY BURIAL OR BY CAREFULLY WRAPPING, MARKING THE PACKAGE, AND RETURNING TO THE DEPOT FOR SALVAGE AND DISPOSAL. IF ANY LUMINOUS COMPOUND ACCIDENTALLY COMES IN CONTACT WITH THE BODY CONSULT A MEDICAL OFFICER.

The following diagram shows the construction of a strontium-containing deck marker and personnel marker (ca. 1955).

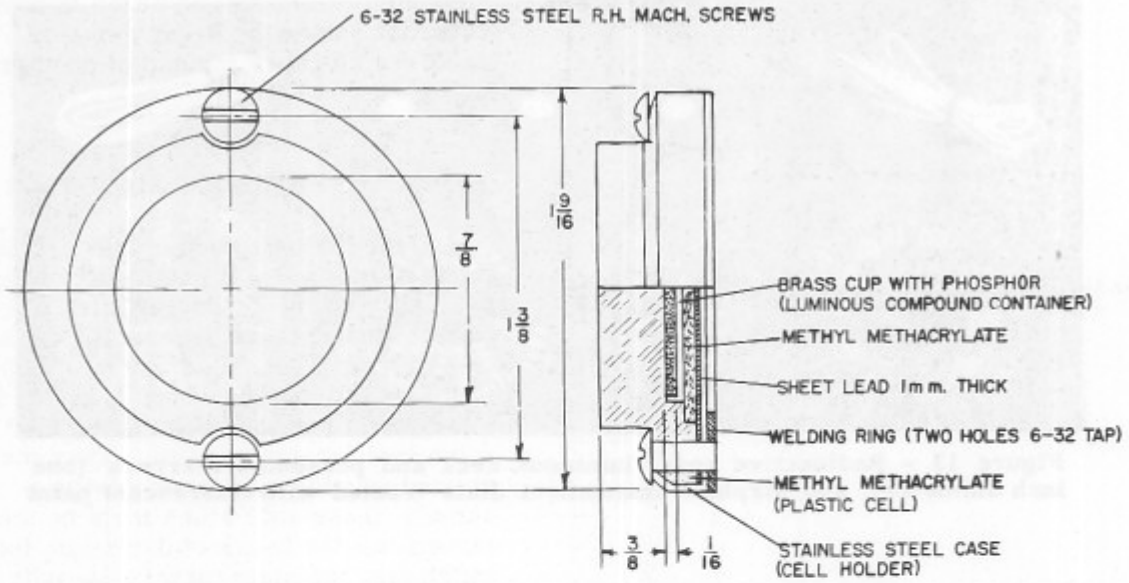


Figure 11 - Diagram of a radioactive self-luminous deck marker

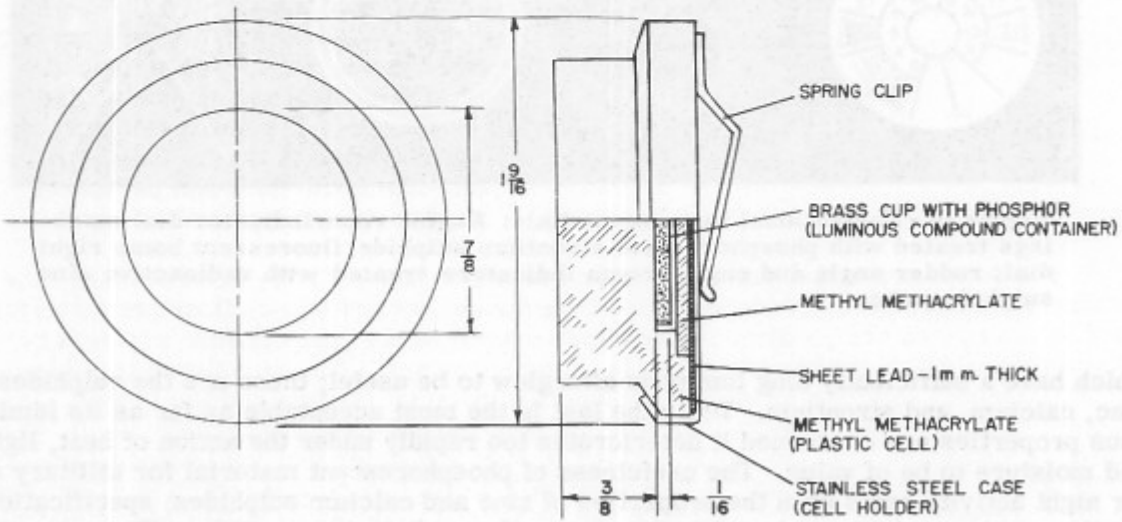


Figure 12 - Diagram of a radioactive self-luminous personnel marker

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U.S. DEPARTMENT OF THE NAVY

NAVAL AIR STATION, BRUNSWICK

BRUNSWICK, MAINE

DRAFT FINAL
RI REPORT

VOLUME 1

RI/FS PROGRAM

CONTRACT : N62472-84-C-1108

E. C. JORDAN PROJECT NO. 4607-41

AUGUST 1990

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DRAFT FINAL REMEDIAL INVESTIGATION REPORT
RI/FS PROGRAM
NAVAL AIR STATION BRUNSWICK

Prepared for:

U.S. DEPARTMENT OF THE NAVY
CONTRACT N62472-84-C-1108

Prepared by:

E.C. JORDAN CO.
PORTLAND, MAINE
Job No. 4607-41

AUGUST 1990

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DRAFT FINAL REMEDIAL INVESTIGATION REPORT
NAS BRUNSWICK

TABLE OF CONTENTS

Section	Title	Page No.
	EXECUTIVE SUMMARY.	ES-1
1.0	INTRODUCTION	1-1
	1.1 PURPOSE AND SCOPE	1-1
	1.2 SUMMARY OF PREVIOUS INVESTIGATIONS.	1-3
	1.3 SUMMARY OF RI/FS SITE INVESTIGATIONS	1-4
	1.4 REPORT ORGANIZATION	1-5
2.0	SITE BACKGROUND.	2-1
	2.1 PHYSIOGRAPHY AND CLIMATE.	2-1
	2.2 LAND USE AND BIOTIC COMMUNITIES	2-1
	2.3 HISTORY AND OPERATIONS.	2-3
	2.3.1 Base History	2-3
	2.3.1.1 Site Selection and Initial Command.	2-3
	2.3.1.2 World War II Construction.	2-3
	2.3.1.3 Station Use - 1947 to 1951	2-3
	2.3.1.4 Post-1951 Activity	2-4
	2.3.1.5 Developments in the 1960s.	2-4
	2.3.1.6 Recent Activities.	2-4
	2.3.2 Base Operations.	2-4
	2.3.2.1 Salt Storage	2-5
	2.3.2.2 Fire Training Activities	2-5
	2.3.3 Waste Disposal Practices	2-5
	2.3.3.1 Liquid Waste Processing.	2-5
	2.3.3.2 Solid Waste.	2-9
	2.3.3.3 Hazardous Wastes	2-9
3.0	APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS. . . .	3-1
	3.1 DEFINITION OF ARARS	3-1
	3.2 APPROACH TO ARARS IDENTIFICATION.	3-2
4.0	FIELD PROGRAM DESCRIPTIONS AND RATIONALE	4-1
	4.1 AIR MONITORING.	4-1
	4.2 SOIL GAS SURVEYS.	4-1
	4.3 GEOPHYSICAL INVESTIGATIONS.	4-4
	4.4 TEST PITS	4-5
	4.5 SOIL BORINGS AND SAMPLING	4-5

Click Here to Return to Main Index

TABLE OF CONTENTS
(continued)

Section	Title	Page No.
	4.6 GAS CHROMATOGRAPH AND PHOTOIONIZATION METER FIELD SCREENING	4-6
	4.7 MONITORING WELL INSTALLATION	4-7
	4.8 SURFACE SOIL SAMPLING	4-8
	4.9 SURFACE WATER, SEEP, AND SEDIMENT SAMPLING	4-9
	4.10 GROUNDWATER SAMPLING	4-9
	4.11 HORIZONTAL AND VERTICAL ELEVATION SURVEY	4-15
	4.12 IN SITU AQUIFER HYDRAULIC CONDUCTIVITY TESTS	4-16
	4.13 LABORATORY ANALYTICAL PROGRAM	4-20
	4.13.1 Laboratory Quality Assurance/Quality Control	4-27
	4.13.2 Validation of Analytical Data	4-27
	4.13.2.1 Data Presentation	4-27
	4.13.2.2 Data Qualifiers	4-29
	4.13.3 Sample Identification System	4-29
5.0	NAVAL AIR STATION BRUNSWICK HYDROLOGY AND GEOLOGY	5-1
	5.1 REGIONAL HYDROLOGY	5-1
	5.1.1 Base-wide Hydrology	5-4
	5.1.2 Base-wide Hydraulic Gradients and Water Table Maps	5-8
	5.2 REGIONAL GEOLOGY	5-9
	5.2.1 Geology of the Unconsolidated Sediments	5-9
	5.2.2 Bedrock Geology	5-11
	5.3 BASE-WIDE GEOCHEMISTRY	5-12
	5.3.1 Base-wide Inorganics: Soils	5-12
	5.3.2 Base-wide Inorganics: Surface Water	5-15
	5.3.3 Base-wide Inorganics: Groundwater	5-15
	5.3.4 Base-wide Organics: Sediments at Background Surface Water Locations	5-17
	5.3.5 Data Evaluation	5-17
6.0	ORION STREET LANDFILL NORTH (SITE 1) AND HAZARDOUS WASTE BURIAL AREA (SITE 3)	6-1
	6.1 SITE DESCRIPTION AND HISTORY: SITES 1 AND 3	6-1
	6.2 TECHNICAL APPROACH: SITES 1 AND 3	6-3
	6.3 GEOLOGY: SITES 1 AND 3	6-6

Click Here to Return to Main Index

TABLE OF CONTENTS
(continued)

Section		Title	Page No.
	6.4	HYDROGEOLOGY: SITES 1 AND 3.	6-11
		6.4.1 Overview: Sites 1 and 3	6-11
		6.4.2 Saturated Thickness and Top of Clay: Sites 1 and 3.	6-16
		6.4.3 Hydraulic Gradients: Sites 1 and 3.	6-19
		6.4.4 Hydraulic Conductivities: Sites 1 and 3 . . .	6-22
		6.4.5 Groundwater Discharge and Seepage Velocities	6-25
	6.5	NATURE AND EXTENT OF CONTAMINATION: SITES 1 AND 3. .	6-26
		6.5.1 Soil Gas Survey: Sites 1 and 3.	6-26
		6.5.2 Geophysical Surveys: Sites 1 and 3.	6-26
		6.5.2.1 Ground-penetrating Radar	6-33
		6.5.2.2 Magnetometer Survey.	6-33
		6.5.2.3 Seismic Refraction Survey.	6-35
		6.5.3 Test Pits: Sites 1 and 3.	6-38
		6.5.4 Subsurface Soils: Sites 1 and 3	6-41
		6.5.5 Groundwater: Sites 1 and 3.	6-43
		6.5.6 Surface Water and Sediments: Sites 1 and 3. .	6-46
		6.5.7 Seeps, Sediment, and Surface Soils: Sites 1 and 3.	6-51
	6.6	SUMMARY AND EXTENT OF CONTAMINATION: SITES 1 AND 3	6-52
	6.7	CONTAMINANT FATE AND TRANSPORT: SITES 1 AND 3. . . .	6-59
7.0		ORION STREET LANDFILL (SOUTH): SITE 2	7-1
	7.1	SITE DESCRIPTION AND HISTORY: SITE 2	7-1
	7.2	TECHNICAL APPROACH: SITE 2	7-1
	7.3	GEOLOGY: SITE 2.	7-1
	7.4	HYDROGEOLOGY: SITE 2	7-3
	7.5	NATURE AND EXTENT OF CONTAMINATION: SITE 2	7-3
		7.5.1 Soil Gas Survey: Site 2	7-3
		7.5.2 Geophysical Survey: Site 2.	7-4
		7.5.2.1 Ground-penetrating Radar Survey. . .	7-4
		7.5.2.2 Magnetometer Survey.	7-4
		7.5.3 Subsurface Soils: Site 2.	7-4
		7.5.4 Groundwater: Site 2	7-6
		7.5.5 Surface Water and Sediment: Site 2.	7-6
		7.5.6 Seeps, Sediment, and Surface Soils: Site 2 . .	7-8
	7.6	SUMMARY OF EXTENT OF CONTAMINATION: SITE 2	7-9
	7.7	CONTAMINANT FATE AND TRANSPORT: SITE 2	7-11

Click Here to Return to Main Index

TABLE OF CONTENTS
(continued)

Section	Title	Page No.
8.0	ACID/CAUSTIC PIT: SITE 4.	8-1
	8.1 DESCRIPTION AND HISTORY: SITE 4.	8-1
	8.2 TECHNICAL APPROACH: SITE 4	8-1
	8.3 GEOLOGY: SITE 4	8-1
	8.4 HYDROGEOLOGY: SITE 4	8-6
	8.5 NATURE AND EXTENT OF CONTAMINATION: SITE 4	8-6
	8.5.1 Soil Gas Survey: Site 4	8-6
	8.5.2 Soil Borings: Site 4.	8-11
	8.5.3 Groundwater: Site 4	8-11
	8.6 SUMMARY OF EXTENT OF CONTAMINATION: SITE 4	8-15
	8.7 CONTAMINANT FATE AND TRANSPORT: SITE 4	8-15
9.0	OLD ACID/CAUSTIC PIT: SITE 7.	9-1
	9.1 DESCRIPTION AND HISTORY: SITE 7.	9-1
	9.2 TECHNICAL APPROACH: SITE 7	9-1
	9.3 GEOLOGY: SITE 7.	9-4
	9.4 HYDROGEOLOGY: SITE 7	9-4
	9.5 NATURE AND EXTENT OF CONTAMINATION: SITE 7	9-7
	9.5.1 Soil Gas Survey: Site 7	9-7
	9.5.2 Geophysical Surveys: Site 7	9-7
	9.5.2.1 Ground-penetrating Radar Survey. . .	9-7
	9.5.2.2 Terrain Conductivity Survey.	9-7
	9.5.3 Test Pits: Site 7	9-13
	9.5.4 Soil Borings: Site 7.	9-16
	9.5.5 Groundwater: Site 7	9-16
	9.6 SUMMARY OF EXTENT OF CONTAMINATION: SITE 7	9-20
	9.7 CONTAMINANT FATE AND TRANSPORT: SITE 7	9-20
10.0	PERIMETER ROAD DISPOSAL SITE: SITE 8.	10-1
	10.1 DESCRIPTION AND HISTORY: SITE 8.	10-1
	10.2 TECHNICAL APPROACH: SITE 8	10-1
	10.3 GEOLOGY: SITE 8.	10-9
	10.4 HYDROGEOLOGY: SITE 8	10-12
	10.5 NATURE AND EXTENT OF CONTAMINATION: SITE 8	10-14
	10.5.1 Soil Gas Survey: Site 8	10-14

Click Here to Return to Main Index

TABLE OF CONTENTS
(continued)

Section	Title	Page No.
	10.5.2 Geophysical Surveys: Site 8	10-14
	10.5.2.1 Magnetometer Survey	10-14
	10.5.2.2 Seismic Refraction Survey	10-17
	10.5.3 Test Pits: Site 8	10-17
	10.5.4 Subsurface Soils: Site 8	10-20
	10.5.5 Groundwater: Site 8	10-22
	10.5.6 Surface Water and Sediments: Site 8	10-24
	10.5.7 Seeps and Sediments: Site 8	10-27
	10.6 SUMMARY OF EXTENT OF CONTAMINATION: SITE 8	10-28
	10.7 CONTAMINANT FATE AND TRANSPORT: SITE 8	10-34
11.0	NEPTUNE ROAD DISPOSAL SITE: SITE 9	11-1
	11.1 DESCRIPTION AND HISTORY: SITE 9	11-1
	11.2 TECHNICAL APPROACH: SITE 9	11-1
	11.3 GEOLOGY: SITE 9	11-4
	11.4 HYDROGEOLOGY: SITE 9	11-6
	11.5 NATURE AND EXTENT OF CONTAMINATION: SITE 9	11-6
	11.5.1 Soil Gas Survey: Site 9	11-8
	11.5.2 Test Pits: Site 9	11-8
	11.5.3 Surface and Subsurface Soils: Site 9	11-14
	11.5.4 Groundwater: Site 9	11-14
	11.5.5 Surface Water and Sediments: Site 9	11-17
	11.5.6 Seeps and Sediments: Site 9	11-21
	11.6 SUMMARY OF EXTENT OF CONTAMINATION: SITE 9	11-21
	11.7 CONTAMINANT FATE AND TRANSPORT: SITE 9	11-24
12.0	FIRE TRAINING AREA: SITE 11	12-1
	12.1 DESCRIPTION AND HISTORY: SITE 11	12-1
	12.2 TECHNICAL APPROACH: SITE 11	12-1
	12.3 GEOLOGY: SITE 11	12-3
	12.4 HYDROGEOLOGY: SITE 11	12-3
	12.5 NATURE AND EXTENT OF CONTAMINATION: SITE 11	12-4
	12.5.1 Soil Gas Survey: Site 11	12-4
	12.5.2 Subsurface Soils: Site 11	12-4
	12.5.3 Groundwater: Site 11	12-5
	12.6 SUMMARY OF EXTENT OF CONTAMINATION: SITE 11	12-5
	12.7 CONTAMINANT FATE AND TRANSPORT	12-6

Click Here to Return to Main Index

TABLE OF CONTENTS
(continued)

Section	Title	Page No.
13.0	DEFENSE REUTILIZATION AND MARKETING OFFICE AREA: SITE 13.	13-1
	13.1 DESCRIPTION AND HISTORY: SITE 13	13-1
	13.2 TECHNICAL APPROACH: SITE 13.	13-1
	13.3 GEOLOGY: SITE 13	13-3
	13.4 HYDROGEOLOGY: SITE 13.	13-4
	13.5 NATURE AND EXTENT OF CONTAMINATION: SITE 13.	13-4
	13.5.1 Soil Gas Survey: Site 13.	13-4
	13.5.2 Test Pits: Site 13.	13-5
	13.5.3 Soil Borings: Site 13	13-6
	13.5.4 Groundwater: Site 13.	13-8
	13.6 SUMMARY OF EXTENT OF CONTAMINATION: SITE 13.	13-10
	13.7 CONTAMINANT FATE AND TRANSPORT.	13-12
14.0	REMEDIAL INVESTIGATION SUMMARY AND CONCLUSIONS	14-1
	14.1 SITES 1 AND 3	14-1
	14.2 SITE 2.	14-2
	14.3 SITE 4.	14-2
	14.4 SITE 7.	14-2
	14.5 SITE 8.	14-2
	14.6 SITE 9.	14-3
	14.7 SITE 11	14-3
	14.8 SITE 13	14-4
	14.9 DATA GAPS	14-4
	14.9.1 Data Gaps: Sites 1 and 3.	14-4
	14.9.2 Data Gaps: Site 8	14-4
	14.9.3 Data Gaps: Site 9	14-5
	14.9.4 Data Gaps: Site 11.	14-5
	14.9.5 Data Gaps: Site 13.	14-5
15.0	BASELINE PULBIC HEALTH AND ENVIRONMENTAL RISK ASSESSMENT .	15-1
	15.1 PUBLIC HEALTH RISK ASSESSMENT	15-1
	15.1.1 Exposure Assessment	15-2
	15.1.2 Toxicity Assessment	15-6
	15.1.3 Public Health Risk Characterization	15-7
	15.1.3.1 Summary of the Baseline Public Health Risk Assessment: Sites 1 and 3 . . .	15-8
	15.1.3.2 Summary of Baseline Public Heath Risk Assessment: Site 2	15-9
	15.1.3.3 Summary of Public Health Risk Assessment: Sites 4, 11, and 13 . . .	15-9

Click Here to Return to Main Index

TABLE OF CONTENTS
(continued)

Section	Title	Page No.
	15.1.3.4 Summary of Public Health Risk Assessment: Site 7	15-10
	15.1.3.5 Summary of Public Health Risk Assessment: Site 8	15-10
	15.1.3.6 Summary of Public Health Risk Assessment: Site 9	15-11
	15.1.3.7 Summary of Public Health Risk Assessment: Picnic Area Pond	15-12
	15.1.3.8 Summary of Risk Characterization	15-12
15.2	ECOLOGICAL RISK ASSESSMENT	15-12
	15.2.1 Ecological Exposure Assessment	15-13
	15.2.2 Ecological Toxicity Assessment	15-13
	15.2.3 Ecological Risk Characterization	15-14
	15.2.3.1 Summary of Ecological Risk Assessment Mere Brook/Beaver Marsh	15-14
	15.2.3.2 Summary of Ecological Risk Assessment: Sites 4 and 13	15-15
	15.2.3.3 Summary of Ecological Risk Assessment: Site 7	15-15
	15.2.3.4 Summary of Ecological Risk Assessment: Site 8	15-15
	15.2.3.5 Summary of Ecological Risk Assessment: Site 9	15-15
15.3	SUMMARY OF PUBLIC HEALTH AND ECOLOGICAL RISK ASSESSMENT	15-16

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

REFERENCES

Click Here to Return to Main Index

TABLE OF CONTENTS
(Continued)

APPENDICES

VOLUME 2

APPENDIX A - ACTION-SPECIFIC ARARS FOR POTENTIAL REMEDIAL ACTIONS
APPENDIX B - FIELD BORING LOGS
APPENDIX C - TEST PIT RECORDS
APPENDIX D - SOIL GAS SURVEY DATA
APPENDIX E - GRAIN SIZE ANALYSES
APPENDIX F - MONITORING WELL DETAILS
APPENDIX G - FIELD PARAMETERS: pH AND SPECIFIC CONDUCTIVITY
APPENDIX H - GROUND SURVEY DATA
APPENDIX I - PERMEABILITY TEST DATA
APPENDIX J - SUMMARY TABLES OF LABORATORY ANALYTICAL DATA, INCLUDING TENTATIVELY IDENTIFIED COMPOUNDS (TICS)

VOLUME 3

APPENDIX K - APPENDIX TABLES OF LABORATORY ANALYTICAL DATA
APPENDIX L - GROUNDWATER CONTAMINANT SUMMARY MAPS (ROUNDS I, II, III, IV)
APPENDIX M - SURFACE WATER, SEDIMENT, AND LEACHATE CONTAMINANT SUMMARY MAPS (ROUNDS I, II, III, IV)
APPENDIX N - SOIL CONTAMINANT SUMMARY MAPS (ROUNDS I AND IV)
APPENDIX O - PIPER DIAGRAMS
APPENDIX P - WATER LEVEL SUMMARY TABLE

VOLUME 4

APPENDIX Q - RISK ASSESSMENT

Click Here to Return to Main Index

DRAFT FINAL REMEDIAL INVESTIGATION REPORT
NAS BRUNSWICK

LIST OF FIGURES

Figure	Title	Page No.
1-1	SITE LOCATION MAP.	1-2
2-1	SANITARY SEWER SYSTEM.	2-7
2-2	STORM DRAINAGE MAP	2-8
2-3	1946 SITE MAP OF NAS BRUNSWICK WITH SOME PRESENT CONDITIONS OVERLAIN.	2-10
5-1	BASE BOUNDARY AND SURFACE WATER DRAINAGE DIVIDE MAP . . .	5-2
5-2	BASEWIDE SURFACE DRAINAGE MAP.	5-3
5-3	INTERPRETIVE BASEWIDE WATER TABLE CONTOUR MAP.	5-7
6-1	SITE LOCATION MAP - SITES 1, 2, AND 3.	6-2
6-2	EXPLORATION LOCATIONS AND INTERPRETIVE WATER TABLE CONTOUR MAP - SITES 1, 2, 3, 4, 9, 11, AND 13.	*
6-3	GEOLOGIC PROFILE A-A' - SITES 1, 2, AND 3.	6-7
6-4	GEOLOGIC PROFILE B-B' - SITES 1, 2, AND 3.	6-8
6-5	GEOLOGIC PROFILE C-C' - SITE 1	6-9
6-6	SEISMIC REFRACTION PROFILES - LINES 1 AND 2 - SITES 1, 2, AND 3.	6-10
6-7	TOP OF CLAY CONTOUR MAP - SITES 1, 2, AND 3.	6-12
6-8	TEST PIT LOCATION MAP - SITES 1 AND 3.	6-13
6-9	WATER TABLE CONTOUR MAP - SITES 1, 2, AND 3.	6-15
6-10	DEEP GROUNDWATER CONTOUR MAP - SITE 1.	6-17
6-11	SATURATED THICKNESS ISOPACH MAP - SITES 1, 2, AND 3. . . .	6-18
6-12	CONCEPTUAL FLOW NET FN1-FN1' - SITES 1 AND 2	6-20
6-13	CONCEPTUAL FLOW NET FN2-FN2' - SITE 1.	6-21

* This figure is contained in an envelope in the back of this report.

Click Here to Return to Main Index

LIST OF FIGURES
(continued)

Figure	Title	Page No.
6-14	TRACER SOIL GAS EXPLORATION LOCATIONS - SITES 1, 2, AND 3	6-27
6-15	HYDRO GEO CHEM SOIL GAS EXPLORATION LOCATIONS - SITES 1, 11, AND 13	6-28
6-16	GEOPHYSICAL SURVEY RESULTS AND SOIL GAS SURVEY HYDROCARBONS (ug/L) - SITES 1, 2, AND 3	6-29
6-17	HYDRO GEO CHEM SOIL GAS SURVEY TOTAL HYDROCARBONS (μg/L)	6-30
6-18	TRACER SOIL GAS SURVEY HALOCARBONS (μg/L x 1000)	6-31
6-19	HYDRO GEO CHEM SOIL GAS SURVEY TOTAL HALOCARBONS (μg/L x 1000)	6-32
6-20	GEOPHYSICAL SURVEY LOCATIONS - SITES 1, 2, AND 3	6-34
6-21	VERTICAL MAGNETIC GRADIENT CONTOURS - SITE 3	6-36
6-22	SEISMIC REFRACTION PROFILE - LINE 10 - SITES 1, 2, AND 3	6-37
6-23	TEST PIT SOIL CONTAMINANT DISTRIBUTION MAP - SITES 1 AND 3	6-39
6-24	TEST BORING SOIL CONTAMINANT DISTRIBUTION MAP - SITES 1, 2, AND 3	6-42
6-25	GROUNDWATER CONTAMINANT DISTRIBUTION MAP - SITES 1, 2, AND 3	6-44
6-26	SURFACE WATER SEDIMENT AND LEACHATE SAMPLING POINTS - SITES 1, 2, AND 3	6-47
6-27	SURFACE WATER, LEACHATE, AND SURFACE SOIL CONTAMINANT DISTRIBUTION MAP - SITES 1, 2, AND 3	6-48
6-28	CONTAMINANT DISTRIBUTION MAP - SITES 1, 2, 3, AND 9	6-49
6-29	ENVIRONMENTAL CONTAMINATION AND MIGRATION PATHS - SITES 1, 2, AND 3	6-53
6-30	INORGANICS IN MERE BROOK SURFACE WATER	6-55

Click Here to Return to Main Index

LIST OF FIGURES
(continued)

Figure	Title	Page No.
6-31	CHLORIDE - BICARBONATE DISTRIBUTION - SITES 1 AND 3. . . .	6-58
6-32	CONCENTRATION OF DETECTED VHOS IN THE EASTERN PLUME. . . .	6-60
6-33	VHO AND CHLORIDE/BICARBONATE CONTAMINATION IN THE EASTERN PLUME.	6-61
6-34	TOTAL VOC CONTOURS AND REGULATORY EXCEEDANCE MAP - SITES 1, 2, 3, 4, 9, 11, AND 13.	*
7-1	VERTICAL MAGNETIC GRADIENT CONTOURS - SITE 2	7-5
7-2	VARIATIONS IN INORGANIC CONCENTRATIONS IN LT-202 - SITE 2.	7-10
8-1	SITE LOCATION MAP - SITES 4, 11, AND 13.	8-2
8-2	GEOLOGIC PROFILE D-D' - SITES 4 AND 13	8-4
8-3	GEOLOGIC PROFILE F-F' - SITES 4, 11, AND 13.	8-5
8-4	WATER TABLE CONTOUR MAP - SITES 4, 11, AND 13.	8-7
8-5	TRACER SOIL GAS EXPLORATION LOCATIONS - SITES 4 AND 13 . .	8-8
8-6	SOIL GAS SURVEY HALOCARBONS (μg/L x 1000) SITE 4	8-9
8-7	SOIL GAS SURVEY HYDROCARBONS (μg/L SITE 4.	8-10
8-8	SOIL CONTAMINANT DISTRIBUTION MAP - SITES 4, 11, AND 13. .	8-12
8-9	GROUNDWATER CONTAMINANT DISTRIBUTION MAP - SITES 4, 11, AND 13	8-14
8-10	ENVIRONMENTAL CONTAMINATION AND MIGRATION PATHS - SITES 4, 11, AND 13.	8-16
9-1	SITE LOCATION MAP - SITE 7	9-2
9-2	GEOLOGIC PROFILE G-G' - SITE 7	9-5
9-3	SHALLOW GROUNDWATER CONTOUR MAP - SITE 7	9-6

* This figure is contained in an envelope in the back of this report.

Click Here to Return to Main Index

LIST OF FIGURES
(continued)

Figure	Title	Page No.
9-4	SOIL GAS LOCATION MAP - SITE 7	9-8
9-5	SOIL GAS SURVEY HALOCARBONS (μg/L x 1000) - SITE 7	9-9
9-6	SOIL GAS SURVEY HYDROCARBONS (μg/L X 1000) - SITE 7	9-10
9-7	GEOPHYSICAL SURVEY LOCATIONS - SITE 7	9-11
9-8	GEOPHYSICAL SURVEY RESULTS - SITE 7	9-12
9-9	TEST PIT LOCATION MAP - SITE 7	9-14
9-10	SOIL CONTAMINANT DISTRIBUTION MAP - SITE 7	9-15
9-11	GROUNDWATER CONTAMINANT DISTRIBUTION MAP - SITE 7	9-17
9-12	ENVIRONMENTAL CONTAMINATION AND MIGRATION PATH - SITE 7	9-18
9-13	MCL, MCLG, MEG EXCEEDANCE MAP - SITE 7	9-21
10-1	SITE LOCATION MAP - SITE 8	10-2
10-2	SOIL BORING, MONITORING WELL, AND GEOLOGIC PROFILE LOCATION MAP - SITE 8	10-3
10-3	SOIL GAS LOCATION MAP - SITE 8	10-5
10-4	SURFACE WATER, SEDIMENT, AND LEACHATE SAMPLING LOCATIONS - SITE 8	10-7
10-5	TEST PIT LOCATION MAP - SITE 8	10-8
10-6	GEOPHYSICAL SURVEY LOCATIONS - SITE 8	10-10
10-7	GEOLOGIC PROFILES H-H' AND J-J' - SITE 8	10-11
10-8	WATER TABLE CONTOUR MAP - SITE 8	10-13
10-9	SOIL GAS SURVEY HALOCARBONS (μg/L x 1000) - SITE 8	10-15
10-10	SOIL GAS SURVEY HYDROCARBONS (μg/L) - SITE 8	10-16

Click Here to Return to Main Index

LIST OF FIGURES
(continued)

Figure	Title	Page No.
10-11	VERTICAL MAGNETIC GRADIENT CONTOURS - SITE 8	10-28
10-12	SOIL CONTAMINANT DISTRIBUTION MAP - SITE 8	10-19
10-13	GROUNDWATER CONTAMINANT DISTRIBUTION MAP - SITE 8	10-23
10-14	SURFACE WATER, LEACHATE, AND SEDIMENT CONTAMINANT DISTRIBUTION MAP - SITE 8	10-25
10-15	ENVIRONMENTAL CONTAMINATION AND MIGRATION PATHS - SITE 8	10-29
10-16	PIPER DIAGRAM: SURFACE WATER - SITE 8	10-31
10-17	SAMPLING ROUND VARIATION, INORGANICS SW-007 - SITE 8	10-33
10-18	MCL, MCLG, MEG EXCEEDANCE MAP - SITE 8	10-35
11-1	SITE LOCATION MAP - SITE 9	11-2
11-2	GEOLOGIC PROFILES K-K' AND L-L' - SITE 9	11-5
11-3	WATER TABLE CONTOUR MAP - SITE 9	11-7
11-4	SOIL GAS LOCATION MAP - SITE 9	11-9
11-5	SOIL GAS SURVEY HALOCARBONS (μg/L x 1000) - SITE 9	11-10
11-6	SOIL GAS SURVEY HYDROCARBONS (μg/L) - SITE 9	11-11
11-7	SOIL CONTAMINANT DISTRIBUTION MAP - SITE 9	11-12
11-8	GROUNDWATER CONTAMINANT DISTRIBUTION MAP - SITE 9	11-15
11-9	SAMPLING ROUND VOC VARIATION, MW-904 - SITE 9	11-16
11-10	SURFACE WATER, SEDIMENT, AND LEACHATE SAMPLING LOCATIONS - SITE 9	11-18
11-11	SURFACE WATER, LEACHATE, AND SEDIMENT CONTAMINANT DISTRIBUTION MAP - SITE 9	11-19

Click Here to Return to Main Index

LIST OF FIGURES
(continued)

Figure	Title	Page No.
11-12	ENVIRONMENTAL CONTAMINATION AND MIGRATION PATH - SITE 9. .	11-22
13-1	SAMPLING ROUND VHO VARIATION GZA-3 - SITE 13	13-9

Click Here to Return to Main Index

DRAFT FINAL REMEDIAL INVESTIGATION REPORT
NAS BRUNSWICK

LIST OF TABLES

Table	Title	Page No.
3-1	PRELIMINARY CHEMICAL-SPECIFIC ARARS, CRITERIA, ADVISORIES, AND GUIDANCE	3-3
3-2	CHECKLIST OF SITE FEATURES	3-6
3-3	POTENTIAL LOCATION-SPECIFIC ARARS, CRITERIA, ADVISORIES, AND GUIDANCE	3-7
3-4	POTENTIAL ACTION-SPECIFIC ARARS.	3-12
4-1	AIR MONITORING DATA.	4-2
4-2	SAMPLING MATRIX.	4-10
4-3	IN-SITU HYDRAULIC CONDUCTIVITIES	4-17
4-4	COMPARATIVE TABLE OF HYDRAULIC CONDUCTIVIY BY GEOLOGIC FORMATION AND DRILLING METHOD.	4-21
4-5	TCL LABORATORY ANALYTICAL METHOD	4-23
4-6	TARGET COMPOUND LIST DETECTION LIMITS	4-24
4-7	GENERAL WATER QUALITY ANALYTICAL METHODS	4-26
4-8	MISCELLANEOUS LABORATORY ANALYTICAL METHODS.	4-28
4-9	DEFINITION OF DATA QUALIFIERS.	4-30
4-10	LIST OF SAMPLE TYPE CODES.	4-34
5-1	WELLSCREEN ELEVATIONS AND WELLS USED TO DELINEATE WATER TABLE CONDITIONS	5-5
5-2	STRATIGRAPHIC COLUMN OF NAS BRUNSWICK GEOLOGIC UNITS	5-10
5-3	BACKGROUND INORGANICS IN SANDS	5-13
5-4	BACKGROUND INORGANICS IN CLAYS	5-14
5-5	BACKGROUND INORGANICS IN SURFACE WATER	5-16
5-6	BACKGROUND INORGANICS IN GROUNDWATER	5-18

Click Here to Return to Main Index

LIST OF TABLES
(continued)

Table	Title	Page No.
5-7	TOTAL PAHS IN BACKGROUND STREAM SEDIMENTS.	5-19
6-1	RI PROGRAM SUMMARY: SITES 1 AND 3	6-4
6-2	HYDRAULIC CONDUCTIVITIES OF GEOLOGIC STRATA - SITES 1 AND 3	6-24
6-3	SUSPECT CONTAMINANTS: SITES 1 AND 3	6-40
6-4	CHLORIDE AND BICARBONATE RESULTS: LANDFILL AREA AND EASTERN PLUME.	6-57
7-1	RI PROGRAM SUMMARY: SITE 2.	7-2
7-2	SUSPECT CONTAMINANTS: SITE 2.	7-7
8-1	RI PROGRAM SUMMARY: SITE 4.	8-3
8-2	SUSPECT CONTAMINANTS: SITE 4.	8-13
9-1	RI PROGRAM SUMMARY: SITE 7.	9-3
9-2	SUSPECT CONTAMINANTS: SITE 7.	9-19
10-1	RI PROGRAM SUMMARY: SITE 8.	10-4
10-2	SUSPECT CONTAMINANTS: SITE 8	10-21
11-1	RI PROGRAM SUMMARY: SITE 9.	11-3
11-2	SUSPECT CONTAMINANTS: SITE 9.	11-13
12-1	RI PROGRAM SUMMARY: SITE 11	12-2
13-1	RI PROGRAM SUMMARY: SITE 13	13-2
13-2	SUSPECT CONTAMINANTS: SITE 13	13-7
15-1	EXPOSURE PATHWAYS ASSESSED FOR BASELINE RISK ASSESSMENT. .	15-4

Click Here to Return to Main Index

EXECUTIVE SUMMARY

The Naval Air Station (NAS) Brunswick is located on the coast of Casco Bay in the Town of Brunswick, Maine, 27 miles northeast of Portland. The Air Station is an active facility, one of two on the East Coast supporting the U.S. Department of the Navy's antisubmarine warfare (ASW) operations in the Atlantic and Mediterranean. The primary mission of the base is to operate and maintain six squadrons of P-3 Orion ASW aircraft. The Air Station first became active in the 1940s during World War II, and underwent major expansion in the 1950s.

An Initial Assessment Study (IAS) (or records search) was completed for NAS Brunswick by R.F. Weston, Inc., and a report submitted to the Navy in June 1983 (R.F. Weston, Inc., 1983). The IAS contained detailed information on hazardous material usage, historical operations, and waste disposal practices at NAS Brunswick. Ten sites were identified in the IAS and ranked according to potential hazard based on the assembled information. Based on this ranking and evaluation, seven sites were recommended for Site Inspection (SI) field studies.
In 1984, at the request of the U.S. Environmental Protection Agency (USEPA), NUS Corporation (NUS) dispatched a Field Investigation Team to NAS Brunswick to perform a limited SI at Sites 1, 2, and 3. NUS's limited sampling and analysis of soil, sediment, and surface water indicated pesticides and volatile organic compounds (VOCs) at several sampling locations. Based on this preliminary data, the Navy contracted E.C. Jordan Co. (Jordan) to continue Installation Restoration (IR) Program investigations.

In September 1984, the Navy contracted Jordan to perform a Pollution Abatement Confirmation (PAC) Study for the following seven (of the 10) sites identified in the IAS report:

Pollution Abatement Confirmation Study Sites

Site 1	Orion Street Landfill - North
Site 2	Orion Street Landfill - South
Site 3	Hazardous Waste Burial Area
Site 4	Acid/Caustic Pit
Site 7	Old Acid/Caustic Pit
Site 8	Perimeter Road Disposal Site
Site 9	Neptune Drive Disposal Site

The scope of work and findings of the PAC Study were submitted in a report to the Navy in June 1985 (E.C. Jordan Co., 1985).

In 1987, NAS Brunswick was placed on the National Priorities List (NPL), and the Navy commenced a complete Remedial Investigation/ Feasibility Study (RI/FS) for the seven sites previously listed. As part of the RI/FS program, a standing Technical Review Committee (TRC) was formed and meets regularly to discuss the progress of the project. The TRC is composed of Navy personnel from the Northern Division of the Naval Facilities Engineering Command and NAS Brunswick, in addition to personnel from Jordan, the Town of Brunswick, the

Click Here to Return to Main Index

Brunswick-Topsham Water District, USEPA, and the Maine Department of Environmental Protection (MEDEP).

In 1988, the Navy delivered RI/FS documents to the TRC and executed a Phase I RI field program to obtain data on the seven sites for a Preliminary Risk Assessment (RA) (E.C. Jordan Co., 1989a), a Screening of Remedial Alternatives document (E.C. Jordan Co., 1989b), and a Round I Data Package (E.C. Jordan Co., 1989c). Based on information obtained during the Phase I RI, and to address RA and FS data needs, the Navy submitted an Additional Sampling Program work plan to the TRC. Before beginning the 1989 Additional Sampling Program, two more rounds of groundwater, surface water, sediment, and leachate sampling were conducted in December 1988 and April 1989 and Data Packages II and III were issued by the Navy (E.C. Jordan Co., 1989d, 1989e). Completion of the 1989 Additional Sampling Program at nine sites was followed by Data Package IV in January 1990 (E.C. Jordan Co., 1990).

This RI report focuses on data acquired in the 1988 and 1989 field investigation programs and the four associated rounds of analytical sampling. This report also contains information from and discussion of the PAC Study and the IAS, and Section 15.0 summarizes the Baseline Public Health and Ecological Risk Assessment conducted as part of NAS Brunswick investigations. The Public Health Risk Assessment includes an analysis of exposures due to current land use activities. At the request of EPA Region I, exposure scenarios were developed assuming future residential land use although the base is expected to be in existence for the foreseeable future.

RI activities included soil gas surveys, geophysical investigations, soil borings, monitoring well installations, test pit excavations, in situ aquifer permeability testing, and an extensive laboratory analytical program involving samples of soils, groundwater, surface water, sediment and leachate seeps.

The following subsections briefly summarize each site's historical usage, past disposal practices, and detected contamination.

Sites 1 and 3 -- Orion Street Landfill (North)

Site 1, the Orion Street Landfill (North), was the primary landfill at the base from approximately 1955 to 1975. The Weapons Compound was also constructed in the 1950s and operated adjacent to the Site 1 landfill. This compound was expanded westward in the mid-1970s covering a small portion of the southwest edge of the landfill area. The landfill covers approximately 8.5 acres and contains two known trenches of refuse, each roughly 700 feet long, 100 feet wide, and 20 feet deep. Site 3, the Hazardous Waste Burial Area, is contiguous with Site 1 and occupies approximately 0.5 acre. Both sites border Mere Brook. Hazardous materials reportedly disposed of at Sites 1 and 3 included paints, solvents, pesticides, and petroleum products (e.g., fuels and oils).

Groundwater contamination from the landfill consists primarily of chlorinated solvents, BTEX (i.e., benzene, toluene, ethylbenzene, and xylenes), and inorganics. With the exception of one well (MW-234), chlorinated solvents detected in groundwater from the Sites 1 and 3 landfills totalled less than

200 micrograms per liter (µg/L). Total BTEX compounds have ranged from non-detects to a maximum of 1100 µg/L in MW-202A at the southern end of the Site 1 trenches. Inorganics detected in groundwater include arsenic, chromium, cyanide, iron, lead, mercury, nickel, sodium, and zinc. Inorganics have also been detected in Mere Brook adjacent to both sites, due to contaminated groundwater from the two sites discharging to Mere Brook. No pesticides, polychlorinated biphenyls (PCBs), or VOCs have been detected in surface waters or sediments adjacent to Sites 1 and 3.

In addition to the landfill plume, a second plume apparently originating from Sites 4, 11, and 13 (the eastern plume), passes beneath the eastern end of Site 1. Eastern plume contamination consists of several chlorinated VOCs with maximum detected levels totalling 835 µg/L (monitoring well MW-225A).

Soil contamination detected in test boring soil samples was negligible. Pesticides detected in 52 test pit soil samples at Sites 1 and 3 totalled less than 50 micrograms per kilogram (µg/kg) per sample, with the exception of 2,120 µg/kg of five pesticides in one sample from TP-101. PCBs were detected in eight out of 52 test pit soil samples with all concentrations being less than 1 part per million. Essentially, no VOCs were detected in test pit soils, although a variety of semivolatile organic compounds (SVOCs) were detected. A group of SVOCs, polynuclear aromatic hydrocarbons (PAHs), were detected up to 23,770 µg/kg in one test pit soil sample.

Leachate seeps adjacent to Sites 1 and 3, with the exception of LT-302, contain trace levels of VOCs, SVOCs, and pesticides, but no PCBs. LT-302 has contained up to 1,300 µg/L total chlorinated solvents and trace levels of BTEX. All leachate samples have contained elevated levels of inorganics. These same inorganic contaminants have been detected only at trace levels in comprehensive downstream surface water and sediment sampling programs. Several VOCs and inorganics are present in leachate-associated sediments; however, only mercury was considered to present an ecological risk. The source of mercury within the landfills has not been identified.

PAHs are ubiquitous in Mere Brook sediments adjacent to Sites 1 and 3, as well as upgradient background stream sampling locations and base-wide. PAHs are components of coal and hydrocarbon fuels that survive combustion processes. Historical and current use of coal and fuels at NAS Brunswick accounts for the widespread presence of PAHs in soils and particularly sediments across the base.
Based on the limited access to this highly secured area (i.e., Sites 1 and 3), current direct contact exposure to soils, sediments and/or surface water by human receptors was not considered likely. Limited exposure is associated with minimal public health risks. On-base personnel, working in this area, are also considered to have limited exposure to contaminated media. Land-use activities and training exercises do not require contact with soils, surface water and/or leachate. In addition, proper work clothing and/or uniforms worn by this population effectively limits potential exposure.

At USEPA's request, a worker exposure scenario was evaluated for direct contact and of soil at Sites 1 and 3. The estimated risks were below the

Click Here to Return to Main Index

USEPA carcinogenic risk range of 10^{-4} to 10^{-6} and noncarcinogenic risk of a Hazard Index (HI) of 1.0.

Future residential exposure scenarios were also evaluated for direct contact to contaminants in surface soils, surface water, sediments, leachate, and leachate sediments. These scenarios were based on conservative assumptions. Carcinogenic risks for exposure to PAH compounds were estimated at $5x5^{-5}$. All other carcinogenic risk estimates were below the USEPA target range of 10^{-6} to 10^{-4} and all noncarcinogenic risks were below a HI of 1.0.

Baseline carcinogenic risks in excess of 10^{-5} and noncarcinogenic HIs greater than 1.0 were associated with exposure to certain individual contaminants detected in the groundwater beneath Sites 1 and 3. Currently, there is no exposure to the groundwater; however, should the contaminant plume migrate off-base towards domestic wells and/or the area is developed for residential land use, unacceptable public health risks would be incurred from this route of exposure.

An ecological risk evaluation for this area concluded that exposure to mercury in soils and sediments associated with the leachate seeps may have long-term impacts on populations of terrestrial organisms in this area. Exposure to all other contaminants detected in soils and sediments was below levels considered to present an ecological risk.

Site 2 -- Orion Street Landfill (South)

The Site 2 landfill, with an on-site incinerator, reportedly was the primary base landfill from 1945 to 1955. The landfill occupies approximately two acres, and currently is covered with a dense stand of pine.

Groundwater contamination detected in monitoring wells downgradient of the landfill is limited to low levels of inorganics. Leachate seeps containing elevated levels of inorganics, and trace levels of pesticides break out on the embankment north of the landfill next to Mere Brook, with mercury the primary contaminant of concern. Sampling Round IV in 1989 detected mercury in a new seep location, LT-203, suggesting that leachate migrates further north and west of Site 2 than previously understood. The source of mercury within the landfill has not been identified. Negligible soil contamination has been detected in soil boring samples.

Based on the restricted access to this site, current direct contact exposure to contaminated sediment, soils, and/or surface water is not considered unlikely. In addition, contaminant concentrations in surface soils based on a lifetime future residential exposure scenario were below levels considered to present a public health risk. Future exposures to contaminants in leachate surface water do not pose significant carcinogenic or noncarcinogenic risks.

There are no public health risks associated with exposure to contaminants detected in the groundwater beneath Site 2. Contaminant concentrations in wells located around and downgradient of this site were below federal and state regulatory levels. In addition, there are no current uses of, or exposure to, this resource.

Click Here to Return to Main Index

The ecological RA evaluated potential impacts from exposure to DDT (i.e., dichlorodiphenyltrichlorethane), arsenic, lead, chromium, cadmium, mercury, and nickel. Based on a food chain exposure model, minimal risks to wildlife were predicted. The levels of mercury detected at Site 2 were lower than detected at Sites 1 and 3. In addition, the area potentially impacted by mercury contamination is smaller at Site 2 than at Sites 1 and 3. The potential for contaminant exposure is therefore much less because site terrestrial organisms would be receiving a small fraction of their total food and/or water intake from this area. Continued environmental monitoring in this area is recommended to ensure that levels of mercury do not increase to concentrations associated with ecological risks.

Site 4 -- Acid/Caustic Disposal Pit

Site 4 is located beneath the eastern end of Building 584, the active Defense Reutilization and Marketing Office (DRMO). The Acid/Caustic Disposal Pit was a small hole in the ground into which liquid wastes were disposed of from approximately 1969 to 1974. Wastes reportedly included transformer oils, petroleum products, paints, and solvents. No soil contamination has been detected in borings near the former pit, and only low levels of trichloroethylene (i.e., 6 to 23 $\mu g/L$) have been detected in groundwater immediately downgradient of the pit, which is no longer a significant source of contamination. Liquid wastes historically introduced into the pit have probably migrated to the south-southeast, constituting some portion of the eastern plume detected beneath the eastern end of Site 1.

Exposure to contaminants at Site 4 is expected to be negligible under current land use. The pit is covered by Building 584 and much of the surrounding area is paved. Exposure to residual soil contamination could be incurred by workers during future excavation beneath the building. However, there are no plans for such activities at this site. Therefore, soil contamination at Site 4 is not considered to present a risk to humans or terrestrial organisms in this area.
Quantitative risk estimates developed for future residential land use scenario at Site 4 are well below the USEPA target range, 10^{-4} to 10^{-6} for carcinogens and an HI of 1.0 for noncarcinogenics. Contaminant concentrations in groundwater beneath Site 4 exceed state and federal guidelines and standards. Although there is no exposure to this resource under current land-use conditions, unacceptable human health risks would be incurred if this area were to be developed for residential land use and or the contaminated groundwater migrates off base.

Site 7 -- Old Acid/Caustic Pit

Site 7, the location of a liquid waste disposal pit active from 1952 to 1969, was used prior to Site 4. Site 7 is currently an open field occupying approximately 1.4 acres. Location of the former pit was identified with geophysics (terrain conductivity and ground-penetrating radar) and extensive test pitting.

Click Here to Return to Main Index

Soil contamination detected in surface and shallow soil samples from test pits and test borings at the site consists of PAHs, pesticides, and several inorganics. Total PAHs ranged from non-detects to a maximum of 21,500 µg/kg in TP-709. Detected pesticides included DDT, dichlorodiphenyldichloroethylene (DDE) and dichlorodiphenyldichloroethane (DDD). With two exceptions, all pesticide detects were less than 100 µg/kg per sample. The exceptions reported in two test pit soil samples contained DDE at 160 µg/kg and DDT at 180 and 340 µg/kg. Total pesticides in individual samples ranged from non-detects to a maximum of 417 µg/kg. Inorganic contamination in soil samples included slightly elevated levels of arsenic, chromium, lead, zinc, and one detect of mercury at 0.48 mg/kg. Groundwater contamination consists of slightly elevated levels of several inorganics not constituting an environmental risk.

No public health risks are associated with exposure to contaminants detected in surface soils or groundwater at Site 7. The baseline risk assessment evaluated risks associated with repetitive direct contact and incidental ingestion exposure incurred by young children who may trespass and/or play in this area. The concentration of PAHs, DDT, and other contaminants identified in soils and groundwater were below levels considered to pose a public health risk. Risk estimates, based on a future residential exposure scenario, were also below levels considered to present a public health risk.

No environmental risks are associated with the contaminants detected in surface soils or groundwater at Site 7. Because there are no streams or wetland areas associated with this site, environmental risks were estimated for terrestrial organisms. Levels of PAHs and DDT in soils from this area were below levels considered to pose an environmental risk.

Site 8 -- Perimeter Road Disposal Site

Site 8 was a disposal area reportedly used from 1964 to 1974. The actual disposal area occupies approximately 0.6 acre. The site is bordered by small tributaries to the Androscoggin River (1,800 feet to the north) and is located 2,000 feet south-southeast of the Town of Brunswick's Jordan Avenue Wellfield, a municipal drinking water supply.

Groundwater impacted by the small disposal area at Site 8 is believed to discharge rapidly to surface tributaries immediately to the north and northeast of the disposal area. Groundwater remains shallow due to stratified transition zone sediments and very low permeability clay underlying the entire site. Based on assembled hydrogeologic and stratigraphic data, it is unlikely that contaminated groundwater from Site 8 passes beneath the local tributaries towards the Jordan Avenue Wellfield.

Groundwater contamination beneath Site 8 is limited to inorganics including arsenic (12 µg/L) in one well; cyanide (maximum 38 µg/L) in two wells; cadmium (maximum 12.6 µg/L) in two wells; chromium (maximum 50 µg/L in two wells); lead (maximum 117 µg/L in two wells); mercury (maximum 1.5 µg/L in two wells); and sodium (maximum 67,000 µg/L detected in all 8 wells).

Click Here to Return to Main Index

Soil contamination detected in Site 8 test borings and test pits included PAHs at ground surface (up to 52,640 µg/kg), and pesticides to 6 feet (a maximum of 76 µg/kg DDT), all in the immediate disposal area. Slightly elevated levels of arsenic, chromium, and lead were also detected in soils in the immediate disposal area.

Downgradient leachate seeps and leachate-associated sediments have elevated levels of inorganics including arsenic, chromium, cyanide, lead, sodium, and zinc. Total PAHs in leachate-related sediments range from non-detects to a maximum of 32,800 µg/kg, and PCBs were detected in one sample at 440 µg/kg. Surface water samples downgradient of the site have contained elevated levels of sodium (up to 60,000 µg/L) and cyanide (up to 128 µg/L). Sodium and cyanide have also been detected in upgradient surface water to 360,000 and 21 µg/L, respectively. The sodium and cyanide are both attributed to a nearby upgradient salt storage pile. The cyanide is related to the presence of sodium ferrocyanide, which is used as a salt de-caking agent. Cyanide has been detected at 2 milligrams per kilogram (mg/kg) in recent analyses of salt from the salt pile. In addition, storm drainage plans indicate that drains near the salt pile direct surface runoff to the tributaries in the Site 8 area. Stream sediments have contained total PAHs ranging from non-detects to 80,200 µg/kg. Trace pesticides also have been detected upgradient of the site at one location.

The public health RA performed a quantitative analysis for children regularly exposed to contaminants at Site 8 via direct contact with surface soil, surface water, sediment, leachate, and leachate sediment under current land-use activities. Carcinogenic risks were below the USEPA target range of 10^{-6} to 10^{-4} for current exposure to leachate, and within the target range for surface soil and sediments. The carcinogenic risks were attributed almost entirely to PAHs.

The carcinogenic risk based on future residential land use was estimated at 2×10^{-4}. This risk value is in excess of USEPA target range and is attributed to PAH contamination in soils at Site 8.

Lead concentrations in groundwater around Site 8 exceed the Maximum Contaminant Level (MCL). Because lead concentrations in excess of the MCL were also detected upgradient of Site 8, it is not clear where the source for this contaminant is. However, groundwater in this area is not being used for potable purposes; therefore, there are no current risks to public health. Groundwater flow from Site 8 is not believed to be towards the Jordan Avenue Wellfield; therefore, contaminants detected around Site 8 are not expected to impact these production wells. However, additional data will be collected to further support this assumption and, based on these analyses, this route of exposure will be reanalyzed as necessary.

Based on the ecological risk assessment, the elevated concentrations of iron, DDT, and phenanthrene (a PAH) in sediment pose a significant threat to aquatic communities in this area. It also was determined that terrestrial wildlife are unlikely to be affected by site-related contamination.

Click Here to Return to Main Index

Site 9 -- Neptune Drive Disposal Site

Site 9 consists of a former incinerator and "dump" located beneath the existing Barracks, and a possible solvent burning or disposal area near Building 201. This site reportedly was active from 1943 to 1952.

Groundwater contamination downgradient of the former dump is limited to inorganics detected above background levels, including arsenic (86 µg/L), chromium (1,040 µg/L), cyanide (26 µg/L), lead (376 µg/L), mercury (0.23 µg/L), sodium (82,500 µg/L) and zinc (2,090 µg/L). Groundwater southeast of Building 201 has vinyl chloride (27 µg/L), 1,1-dichloroethane (12 µg/L), and 1,2-dichloroethane (36 µg/L). No pesticides, PCBs, or semivolatiles have been detected in Site 9 groundwater.

High levels of PAHs (up to 383,100 µg/kg) have been detected in sediments along the primary (southern) tributary at Site 9, and up to 9,500 µg/kg in the northern tributary. The PAHs are attributable primarily to usage of fuels in the aircraft and operations area. Sediments along the southern tributary also detected other semivolatile compounds, and lead (up to 173 mg/kg) was detected in sediments of both tributaries. VOCs also have been detected in sediments at Site 9 although these data are questionable. The Navy is studying the impact of the aircraft operations area to the Site 9 tributaries (NASB Sampling Plan for Stormwater Runoff and Sanitary Wastewater, May 9, 1990; ERM-New England, Inc.).

Surface water at Site 9 has reported low levels of benzene (6 µg/L to 8 µg/L), toluene (13 µg/L to 18 µg/L), ethylbenzene (36 µg/L), and xylenes (34 µg/L to 74 µg/L), occasional semivolatiles, and slightly elevated levels of inorganics. The BTEX compounds in surface water are believed to be related to the aircraft and operating area and will be studied under the stormwater and sanitary wastewater program (ERM-New England, May 1990). Surface waters at Site 9 do not reflect any impact of inorganics or VOCs due to groundwater discharge. One leachate sample at Site 9 has contained trace levels of pesticides and elevated arsenic (237 µg/L), chromium (40.3 µg/L), lead (1,210 µg/L), sodium (35,300 µg/L) and zinc (1,930 µg/L). The leachate sediment reported up to 133 µg/kg total pesticides (DDD and DDE), and lead (74.3 mg/kg).

Soil contamination detected in individual surface soil, test boring, and test pit samples have included total PAHs from non-detect to 29,090 µg/kg, pesticides from non-detect to 870 µg/kg, trace VOCs, and occasional detects of chromium and lead less than 50 mg/kg.

Exposure scenarios were developed for direct contact and incidental ingestion of surface soil, sediment, and surface water under baseline and future land-use conditions. In addition, risks associated with future potential exposure to groundwater were developed. Because of the recreational land use in this area, there is greater potential for contact and ingestion of potentially contaminated media. The contaminants of concern in soil and sediments at this site are PAH compounds as the incremental carcinogenic risk associated with exposure to these compounds exceed 10^{-5}. Two VOCs detected in

Click Here to Return to Main Index

the groundwater (i.e., vinyl chloride and 1,1-dichloroethane) are associated with potential public health risks if the shallow groundwater is ingested.

The ecological RA concluded that potential deleterious impacts are associated with PAH and pesticide contamination in Site 9 stream sediments. These results were corroborated by an analysis of benthic samples collected at NAS Brunswick, which indicated that the macroinvertebrate community in this area was severely impaired relative to a background location. However, there is little indication that terrestrial organisms would be negatively affected by the environmental contamination associated with this site.

Site 11 - Fire Training Area

Preliminary subsurface investigations were completed at the Fire Training Area (FTA) in 1989. The FTA reportedly has been active since the 1950s, and probably since World War II. Various fuels, oils, and miscellaneous solvents have been used for multiple annual "burns" during this 40- to 50-year period. Fire training exercises continue regularly at the base at the present time and are anticipated to continue in the foreseeable future. These contaminants have percolated into the unsaturated soils and leached downward to the groundwater table, forming a plume of contaminated groundwater. Information on downgradient concentrations, direction, movement, and extent of this plume is currently limited. Additional information will be gathered during the Post-Screening Work Plan investigation program in the summer and fall of 1990.

Soil contamination at the FTA consists primarily of VOCs. Total VOCs in one sample approached 11,000 µg/kg. All other samples contained less that 100 µg/kg total VOCs.

Groundwater contamination related to the FTA is also primarily VOCs. Total VOCs detected in four wells at the FTA range from 137 to 821 µg/L, including chlorinated solvents and BTEX compounds.

No quantitative public health RA was performed for Site 11 at this time due to the preliminary nature of the site investigations. Significant risks to terrestrial wildlife were not indicated in an ecological assessment for Site 11.

Site 13 -- Defense Reutilization and Marketing Office Area

Site 13 was added to the IR Program after completion of 1988 RI field investigations. Contamination at the DRMO, apparently unrelated to Site 4 (the former Acid/Caustic Disposal Pit), led to the identification and naming of a separate site consisting of the DRMO facility. Site 13 soil contaminants include low levels of pesticides (21 µg/kg DDT) in surface soil south of the fenced compound, and scattered VOC detects of toluene and acetone up to 3,900 µg/kg. Groundwater contamination consists of elevated levels of chlorinated VOCs (up to 785 µg/L) and trace levels of BTEX (fuel-related) compounds (up to 16 µg/L). Groundwater contamination appears to have resulted from leaking underground storage tanks (USTs) used for waste solvents and fuels. Two former waste-liquid USTs were removed within the past several years. A plume from the leaking tank(s) is migrating south-southeast toward the eastern end of Site 1. The plume detected beneath the eastern end of Site 1 appears to be

Click Here to Return to Main Index

partially sourced at Site 13. Sites 4 and 11 are also believed to contribute to the eastern plume beneath Site 1.

A quantitative public health RA was not performed for current exposures to soils at Site 13. This was based on the limited access to the site and limited potential for this type of exposure. Construction workers could be exposed to soil contamination during construction activities; however, there are no definitive plans for this area. Future exposure to soils at Site 13 through direct contact and/or incidental ingestion indicate carcinogenic risks due to the only contaminant of concern, DDT, are within the USEPA target range. The ecological assessment concluded that soil contamination at Site 13 poses no significant risk to terrestrial organisms.

Summary of Comparison of Groundwater Data to Regulatory Standards

Groundwater contamination is of potential concern to off-site residents southeast of NAS Brunswick sites who use drilled and dug wells for their potable water supply. Two distinct plumes are of potential concern from the public health perspective. These are the landfill plume (generated by Sites 1 and 3) and the eastern plume (derived from Sites 4, 11, and 13). The landfill plume does not appear to extend sufficiently far to the southeast to impact off-base domestic wells. The eastern extent of the eastern plume remains to be quantified, although it is also unlikely that this plume impacts residential wells southeast of the base. Although it is believed that no population is currently ingesting groundwater originating at any of the NAS Brunswick sites, there are concentrations of contaminants in these two groundwater plumes that exceed federal and/or State of Maine drinking water standards. Additional studies are planned to gain a more complete understanding of the two plumes (Jordan, 1990).

Click Here to Return to Main Index

Click Here to Return to Main Index

1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

The Naval Air Station (NAS) located in Brunswick, Maine, is an active facility participating in the U.S. Department of the Navy's Installation Restoration (IR) Program (Figure 1-1). The IR Program was established to identify contamination at Navy and Marine Corps facilities resulting from past operations, and to institute corrective remedial measures as necessary.

Based on a records search and preliminary field investigation data obtained in the early 1980s, and in accordance with the National Contingency Plan (NCP), the U.S. Environmental Protection Agency (USEPA) placed NAS Brunswick on the National Priorities List (NPL) in 1987. In accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the 1986 Superfund Amendments and Reauthorization Act (SARA), work at NAS Brunswick is following the "USEPA Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA" (USEPA, 1988c). USEPA Region I and the Maine Department of Environmental Protection (MEDEP) provided and continue to provide review and guidance in all phases of the Remedial Investigation/ Feasibility Study (RI/FS) process.

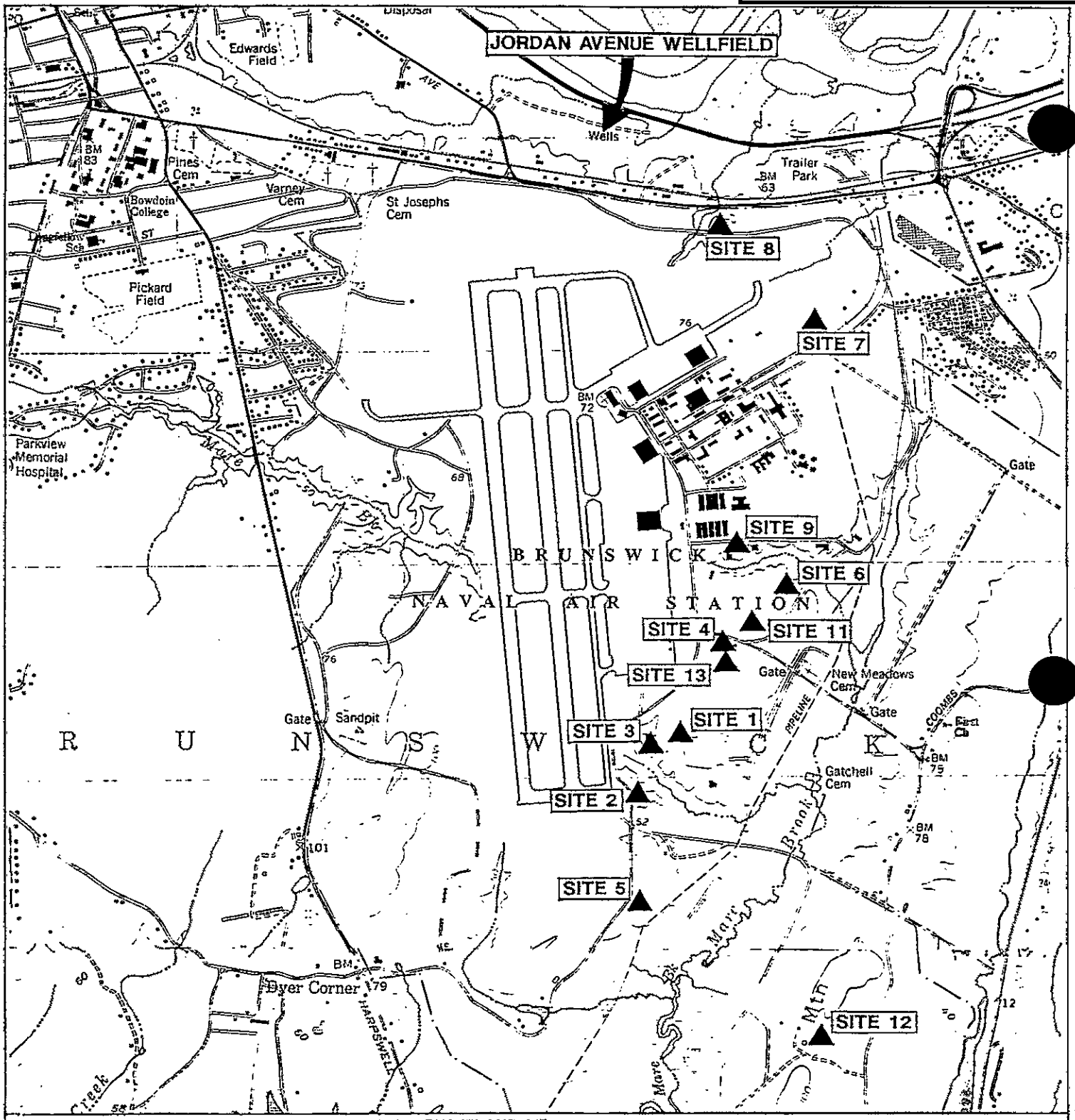
The IR and RI/FS programs have been undertaken to provide data to assess the nature and distribution of contamination in soil, groundwater, surface water, sediment, and air at specific NAS Brunswick sites. The RI findings formed the technical basis for the preliminary and final risk assessments (RAs) and FSs at each site.

An RA assesses public health and environmental risks associated with documented site contamination, and determines target clean-up levels for the FS. The FS identifies and screens feasible remedial alternatives to mitigate existing site conditions and meet the criteria identified in the NCP for the selection of a remedy. Feasible remedial alternatives, evaluated for each site, provide information to select a remedy.

The scope of work required to fulfill objectives of the RI/FS program consists of the following tasks:

- project planning, including preparation of Work Plans, Health and Safety Plans (HASPs), a Quality Assurance Project Plan (QAPP), and Community Relations Plan (CRP)
- field investigations including site reconnaissance, geophysical surveys, soil gas surveys, test pitting, soil borings and sampling, monitoring well installation, surface water and sediment sampling, groundwater sampling, and survey of exploration locations and elevations
- laboratory analyses and data validation

Click Here to Return to Main Index



SOURCE: U.S.G.S. QUADRANGLES, BRUNSWICK, AND ORRS ISLAND, ME., 1984, 1978. 7.5 MINUTE SERIES.

QUADRANGLE LOCATION

N

SCALE IN FEET

0 2,000 4,000

E.C. JORDAN CO. CONSULTING ENGINEERS	SITE LOCATION MAP
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
	4607-41 FIGURE 1-1

Click Here to Return to Main Index

- o data evaluation
- o risk assessment, including public health and baseline ecological risk assessments
- o remedial alternatives screening
- o remedial alternatives evaluation
- o preparation of RI (including RA) and FS reports
- o presentations at Technical Review Committee (TRC) meetings

1.2 SUMMARY OF PREVIOUS INVESTIGATIONS

The following paragraphs are an overview of investigations preceding NPL designation.

An Initial Assessment Study (IAS) (or records search) was completed for NAS Brunswick by R.F. Weston, Inc. (Weston), and a report submitted to the Navy in June 1983 (R.F. Weston, Inc., 1983). The IAS contained detailed background information on hazardous material usage at NAS Brunswick, historical operations, and waste disposal practices. Ten sites were identified in the IAS and ranked according to potential hazard based on assembled information. On the basis of this ranking and evaluation, seven sites were recommended for Site Inspection (SI) field studies.

At the request of USEPA in 1984, NUS Corporation (NUS) dispatched a Field Investigation Team (FIT) to NAS Brunswick to perform a limited SI at Sites 1, 2, and 3. Limited sampling and analysis of soil, sediment, and surface water indicated pesticides and volatile organic compounds (VOCs) at several sampling locations. Based on this preliminary data, the Navy contracted Jordan to continue IR Program investigations.

In September 1984, Jordan was contracted by the Navy to perform a Pollution Abatement Confirmation (PAC) Study for the following seven (of the 10) sites identified in the IAS report:

Pollution Abatement Confirmation Study Sites

Site 1	Orion Street Landfill - North
Site 2	Orion Street Landfill - South
Site 3	Hazardous Waste Burial Area
Site 4	Acid/Caustic Pit
Site 7	Old Acid/Caustic Pit

Click Here to Return to Main Index

Site 8 Perimeter Road Disposal Site

Site 9 Neptune Drive Disposal Site

The scope of work and findings of the PAC Study were submitted in a report to the Navy in June 1985 (E.C. Jordan Co., 1985).

1.3 SUMMARY OF RI/FS SITE INVESTIGATIONS

In 1987, NAS Brunswick was placed on the NPL, and the Navy contracted Jordan to conduct a complete RI/FS for the seven sites previously listed. An RI/FS Work Plan was developed in response to the Navy's Statement of Work (SOW) (E.C. Jordan Co., 1988). A Phase I RI field program was conducted from July through September 1988. This program consisted of geophysical investigations, test pitting, test borings, installation of monitoring wells, surveying, and aquifer permeability testing. Laboratory analyses were performed on samples of soils, sediments, surface water, groundwater, and leachate obtained from Sites 1, 2, 3, 4, 7, 8, and 9. Groundwater, surface water, sediment, and leachate sampling was performed in three seasonal rounds following the 1988 field program, in September and December of 1988, and April 1989. Three data packages were issued containing the 1988 RI field investigation program and validated laboratory analytical data from the three sampling rounds (E.C. Jordan Co., 1989a, 1989b, and 1989c).

In February 1989, Jordan issued a Preliminary Risk Assessment based on data obtained during the PAC Study and the Phase I RI (E.C. Jordan Co., 1989d). Concurrently, Jordan issued a Phase I FS Preliminary Development of Remedial Alternatives document (E.C. Jordan Co., 1989e). At this time, the Navy added five sites to the IR Program at NAS Brunswick. Two were identified in the IAS, but not incorporated in the RI/FS program: Site 5, the Orion Street Asbestos Disposal Site; and Site 6, the Sandy Road Rubble and Asbestos Disposal Site. In addition, three new sites were added to the IR Program: Site 11, the Fire Training Area (FTA); Site 12, the Explosive Ordnance (EOD) Training Area; and Site 13, the Defense Reutilization and Marketing Office (DRMO) area south of Site 4. As a result, 12 sites are currently part of the NAS Brunswick IR Program (see Figure 1-1). Site 10 (i.e., Harpswell Fuel Depot), originally identified in the IAS, is no longer under the jurisdiction of NAS Brunswick and is not included in the NAS Brunswick IR Program.

During the spring and summer of 1989, the Navy developed and finalized an Additional Sampling Plan as a continuation of the Phase I RI (E.C. Jordan Co., 1989f). This field program, conducted during August through October 1989, consisted of geophysical surveys, soil gas surveys, test pitting, test borings, soil sampling, installation of monitoring wells, aquifer permeability testing, surveying, and an extensive laboratory analytical program. Laboratory analyses were conducted on samples of soils, sediments, surface water, groundwater and leachate obtained from Sites 1, 2, 3, 4, 7, 8, 9, 11, and 13. In January 1990, a fourth data package was issued by the Navy summarizing the 1989 RI, including Round 4 laboratory analytical data on groundwater, surface water, sediment, leachate, and surface soil sampling (E.C. Jordan Co., 1990). Sites 5, 6, and 12 remain part of the IR Program at

Click Here to Return to Main Index

NAS Brunswick. Because these sites were added to the RI/FS after the process was underway, explorations at these sites will be addressed in the Post-Screening Work Plan.

1.4 REPORT ORGANIZATION

This RI report is divided into 15 sections encompassing NAS Brunswick's history and environmental setting, through presentation of site-specific contaminant data and risk assessments. Section 1.0 contains introductory information. Section 2.0 contains background information on site topography, climate, flora and fauna, and a brief history of base operations. Section 3.0 discusses Applicable or Relevant and Appropriate Requirements (ARARs). The RI field programs and techniques and the laboratory analytical program are discussed in Section 4.0. Regional and base-wide hydrology and geology are summarized in Section 5.0. Site-specific discussions are contained in Sections 6.0 through 13.0, including site descriptions, history, geology, hydrogeology, technical approach of the RI, summaries of investigations, discussion of analytical data, extent of contamination, and qualitative discussions of site-specific contaminant fate and transport. Section 14.0 contains the RI Conclusions and Summary. Section 15.0 presents the Public Health and Ecological Risk Assessments.

During the RI program in 1988 and 1989, four sampling rounds were completed and the Navy issued four technical Data Packages of information obtained during the field investigations, sampling, and analytical programs. Data Packages I, II, III, and IV all contain Summary Tables of laboratory analytical data and contaminant summary maps. Contaminant summary maps graphically illustrate patterns of contamination with organic and inorganic data in data boxes on individual site figures. Data Packages I and IV, issued after the 1988 and 1989 field programs, include field boring logs, test pit records, soil gas data, geophysical data, grain-size analytical data, monitoring well details, ground survey information, and hydraulic conductivity data, in addition to summary tables of laboratory analytical data and contaminant summary maps. Data contained in the four Data Packages are included in the appendices to this report.

Click Here to Return to Main Index

Click Here to Return to Main Index

2.0 SITE BACKGROUND

2.1 PHYSIOGRAPHY AND CLIMATE

NAS Brunswick is located 27 miles northeast of Portland, Maine (see Figure 1-1). Undisturbed topography of the base is characterized by low, undulating hills with deeply incised brooks. Ground surface elevations at the Air Station range from Mean Sea Level (MSL) in lowland drainage areas and Harpswell Cove estuary, to over 110 feet MSL west and southeast of the southern end of the runways. West of the runways, a northeast-trending ridge with a maximum elevation of approximately 120 feet occurs near Dyer Corner. A longer ridge, Buttermilk Mountain, lies southeast of the runways; the elevation is similar to that of the Dyer Corner ridge. Topography in the developed areas of the base has been modified by construction, with ground surface elevations generally ranging from 50 to 75 feet MSL.

The southern edge of the NAS borders coves and estuaries of the Gulf of Maine/Atlantic Ocean, influencing the climate at NAS Brunswick. Mean annual precipitation for Brunswick is 42.4 inches and the mean annual temperature is 45.0 degrees Fahrenheit. Extremes in temperatures are moderated by the ocean. The mean monthly low temperature is 21.8 degrees in January, and the mean monthly high temperature is 68.1 degrees in July. Prevailing wind direction is from the south, except during winter months when the predominant wind direction is from the north. Winter precipitation is frequently in the form of rain or wet snow; ice storms occur occasionally. The mean seasonal snowfall at Brunswick is 80 inches.

2.2 LAND USE AND BIOTIC COMMUNITIES

NAS Brunswick is located on 3,094 acres of land composed of unconsolidated glaciomarine sediments. Forested areas (approximately 48 percent), grasslands (approximately 28 percent), and paved areas (approximately 12 percent) comprise most (i.e., 88 percent) of the base property. Paved areas are primarily flight ramps and runways. The remaining 12 percent of the base includes the operations area (approximately 5 percent) and miscellaneous shrubland, marsh, and open water.

The operations area (138 acres) lies east of the two parallel runways and consists of numerous office buildings, a steam plant, fuel farm, barracks, recreational facilities, base housing, hangars, repair shops, and other facilities to support NAS Brunswick aircraft. Details are provided in the IAS (R.F. Weston, Inc., 1983).

Existing land-use patterns within the vicinity of the Air Station result from the expanding population centers of Brunswick and Topsham. The Air Station stimulated growth in the vicinity; area population increased 50 percent between 1950 and 1960 when the base was reactivated. The current community comprises families who have lived in the area for generations, military families from almost every state, and the Bowdoin College community.

Residential development in Brunswick originally occurred near the central business district. This area is still the most densely populated, with more than 10 dwellings per acre. Property uses vary from historic neighborhoods to isolated areas of low-income housing. During recent years, residential land use has grown, mostly in outlying areas. Numerous single-family housing developments in the lower to upper middle-income range have been constructed west and south of Brunswick's downtown area. Growth also occurred in the vicinity of Cook's Corner because of the availability of public utilities, commercial services, and accessibility to the Air Station and the City of Bath. Residential density is lower along the coves and coast where zoning restrictions limit each dwelling to a minimum of one acre. Many dwellings in the Harpswell area, especially along the coast, are seasonal homes.

Until recently, the use of mobile homes has been permitted by exception to current zoning. Mobile home parks are located on the fringes of the community, and numerous individual mobile homes are scattered throughout the vicinity.

Three types of commercial development exist in the local land-use pattern: the original downtown area in Brunswick, highway commercial, and a regional shopping center. Brunswick's central business district has lost much of its trade to outlying commercial growth. Strip commercial development has occurred along Bath Road parallel to the northern boundary of the Air Station and also along Pleasant Street west of Brunswick. The development of Cook's Corner Shopping Center, located northeast of the base, is due in part to the Air Station's physical separation from the Town of Brunswick and recent suburban and rural residential growth in the vicinity.

NAS Brunswick accounts for a major semipublic land use in the vicinity. It has strongly influenced Brunswick's expansion by providing a buffer to the east and southeast. Bowdoin College constitutes another major semipublic land use in the area. Centrally located in Brunswick's urban district, the college also owns significant parcels of land in the rural and suburban areas of Brunswick, such as Bowdoin Pines.

The towns of Brunswick and Topsham own significant tracts of land immediately north of the Air Station on both sides of the Androscoggin River. Expansion of this area from Coffin Pond upstream to the head of Merrymeeting Bay to provide recreation and conservation areas has been considered.

Other public and semipublic land uses include medical and educational facilities southwest of Brunswick. With developable open space and proximity to services, this vicinity remains a potential growth area.

Zoning ordinances in effect for Brunswick and Topsham regulate uses of land; height, bulk, and use of buildings; and population density in various districts. The Brunswick zoning ordinance allows only low-density residential development next to the southwestern, southern, and eastern boundaries of the Air Station. Floodplain and flight zone regulations included in the Brunswick zoning ordinance take precedence over all uses permitted as a matter of right or by exception. The airport flight zone regulation prohibits construction of

public assembly places or any building designed to accommodate more than 50 persons per acre. It also includes a building height limit of 35 feet, or two and one-half stories.

The State of Maine requires Brunswick and Topsham to implement shoreland zoning regulations. These govern areas within 250 feet of lakes, ponds, rivers, and saltwater bodies, and provide guidelines for uses, lot size, frontage, setback from water, and percentage of lot coverage.

Biotic communities vary substantially across the base, including fresh- and saltwater habitats, wetlands, grasslands, upland hilly areas, and forestland. Plant and animal communities occupying these diverse habitats are discussed in detail in the Ecological Risk Assessment (see Subsection 15.2), the Preliminary Risk Assessment (E.C. Jordan Co., 1989d), and in the Draft Long Range Fish & Wildlife Management Plan (FY 1987-1991) prepared by the Northern Division of Naval Facilities Engineering Command.

2.3 HISTORY AND OPERATIONS

The following subsections describe the history and operations of NAS Brunswick.

2.3.1 Base History

The base history of NAS Brunswick is discussed in the following subsections.

2.3.1.1 Site Selection and Initial Command. Brunswick was selected as a northeastern outpost for antisubmarine patrols because of two runways (originally constructed by the Work Projects Administration) that existed in a location conducive to expansion. Most of the land not taken up by the runways was covered by blueberry fields. The land and runways were purchased from the Town of Brunswick, and construction began on October 15, 1942. The Air Station was commissioned on April 15, 1943, as a base for inshore and offshore patrol squadrons.

2.3.1.2 World War II Construction. Because of the war emergency, construction proceeded rapidly. The first building, the Operations Building, was in use by January 1943. By April 1943, the Administration Building and several other buildings were completed; Hangar 1 was finished before June 1943; and Hangar 2 constructed by August 1943. During the winter of 1943-1944, the following buildings were completed: A&R Hangar, Officer's Mess and recreation space, parachute loft, ground training department, and railroad spur. In June 1944, a new taxiway was started and existing personnel facilities enlarged.

2.3.1.3 Station Use -- 1947 to 1951. After World War II, NAS Brunswick was demobilized in the fall of 1946. From 1947 to 1951, NAS Brunswick was leased to various nonmilitary tenants. From 1947 to 1949, Air Station facilities were leased by the University of Maine and Bowdoin College for student housing and classrooms. Both institutions terminated these leases in 1949. The Brunswick Flying Service then took over the Air Station. Hangar 1 became a skating rink; Hangar 2 and the operations tower were part of a civilian flying

Click Here to Return to Main Index

school; Hangar 3 was used for automobile servicing; ammunition magazines were used for growing mushrooms; and a shrub nursery was operated on the northern boundary.

2.3.1.4 Post-1951 Activity. In December 1950, the Navy requested $35 million from Congress for a master jet project at the Air Station. This allocation included construction of dual 8,000-foot runways and two outlying fields. Approximately $20 million was requested by the Secretary of Defense for additional barracks, a control tower, and other construction required to make a permanent installation. The Air Station was recommissioned on March 15, 1951, as an antisubmarine NAS with the mission of supporting three land-based patrol squadrons, one Fleet Aircraft Service, and an anticipated future as a master jet base. On December 1, 1951, the facility was officially designated as an NAS.

During the 1950s, the Air Station underwent a period of expansion and attendant construction. In 1952, rehabilitative construction was completed on roads, existing buildings, and utilities; in addition, tanks and valve pits for the fuel farm were completed. Approximately 125 officers and 1,000 enlisted personnel were added to the Air Station's staff. During the same year, a fuel pier was constructed at Harpswell Neck.

All the existing bachelor housing and most of the on-station family housing were built between 1954 and 1958. Outlying areas at the Air Station were developed in the mid-1950s. Included in this development were the ordnance magazine area south of the runways, and communications and navigational aids west of the runways. In all, 222 structures and buildings were constructed during the 1950s.

2.3.1.5 Developments in the 1960s. The major change at the Air Station during the 1960s was the expansion of Hangars 1 and 3 in anticipation of the replacement of P2-V Neptunes with P-3 Orion aircraft. A number of facilities to support aircraft operations were constructed. Thirty-one family housing units, a chapel, and recreational facilities also were added.

2.3.1.6 Recent Activities. In 1973, three large magazines were installed within the Weapons Compound. The expansion of the compound area at this time encroached on the southwestern corner of the covered landfill. There are no underground structures at the compound anticipated to influence groundwater movement in this area. In 1974, the Reserve Naval Mobile Construction Battalion was added, and seven semi-permanent buildings constructed as Reserve training facilities. The most recent change at the Air Station was addition of a seven-bay hangar, completed in 1984, with six bays for aircraft maintenance and a seventh bay for corrosion control.

2.3.2 Base Operations

All aspects of base operations are discussed in detail in the IAS (R.F. Weston, Inc., 1983). The only major industrial operations at NAS Brunswick are those related to aircraft servicing and maintenance. The Public Works Department is responsible for construction, operation, and maintenance

of most Air Station facilities. Other Public Works operations include the Electrical Shop in charge of utilities, the Paint Shop responsible for building maintenance, the Metal Trade Shop in charge of welding and fabrication, Carpentry Shop, Boiler House for winter heat, Public Works Garage, Pest Control Shop, and Transportation Vehicle Maintenance. Other base operations include a Medical/Dental Clinic, Photography Laboratory, and Ordnance Operations. Hazardous materials used and wastes generated by each of these shops are detailed in the IAS along with discussions of historical disposal practices. These wastes are handled and disposed of in accordance with the Resource Conservation and Recovery Act (RCRA).

2.3.2.1 Salt Storage. Salt is currently stored in the open on the eastern end of the abandoned Runway 9-27, located between Sites 7 and 8. Salt reportedly has been stored in the open at this location for approximately 35 years. Runoff from this paved area is northward toward Site 8 and into tributaries of the Androscoggin River. The Navy is in the process of designing a storage building to contain the salt.

2.3.2.2 Fire Training Activities. Fire training activities have been conducted at the FTA for 40 to 50 years. Prior to a 1987 upgrade, no recovery system for unburned fuels existed at the site and residues were permitted to infiltrate into soils. The FTA remains active with several monthly burns; this usage is projected to continue. The fire pit is currently concrete-lined with a new fuel recovery system and underground storage tank (UST). The only surface spillage occurring at the present time is intermittent splash-over during fire extinguishing activities.

2.3.3 Waste Disposal Practices

This subsection outlines the waste disposal practices that occurred at NAS Brunswick.

2.3.3.1 Liquid Waste Processing. The NAS does not have an industrial operation generating an industrial wastewater stream. Small amounts of industrial-type wastes are generated as off-specification and waste chemicals and solvents. In the past, these wastes were disposed of in Air Station landfills, down drains, poured directly onto the ground, or transferred to the DRMO. Currently, these wastes are transferred to the DRMO for disposal or resale.

Brunswick Wastewater Treatment Plant. The Air Station discharges its sanitary wastes to the Brunswick Wastewater Treatment Plant. This facility provides primary treatment with a design capacity of 2.5-million gallons per day. The Town of Brunswick has a partially combined storm and sanitary system, which results in seasonal excess flow. In January 1983, the average flow was 1.6 million gallons per day; during the (normally wet) month of April 1982, the average flow was 3.7 million gallons per day. The town has made some recent progress in eliminating part of the stormwater system, and plans have been made to increase plant capacity and treatment capability to accommodate stormwater flows when segregation of flows cannot be achieved.

Click Here to Return to Main Index

Permit Limitations. The treatment plan discharge permit requires 50 percent suspended solids removal and 35 percent biological oxygen demand (BOD) removal. These are typical operational parameters for a primary municipal treatment plant. This facility does not monitor for chlorinated hydrocarbons, toxic, or hazardous wastes. Therefore, there is no method of determining whether compounds toxic to biological organisms have been discharged to the sewer system.

Brunswick Naval Air Station Sanitary Sewer. The base-wide sanitary sewers consist of a gravity system that collects wastes from the operations area (Figure 2-1). The system collection point is a pumphouse adjacent to the movie theater, Building 293. The wastes are then pumped off base through a force main. The approximate location of this force main is indicated in Figure 2-1. The Air Station sanitary sewer system has had significant infiltration/inflow of groundwater. Since 1971 (and probably earlier), sewage flows at the Air Station have exceeded potable water use. In April 1980, a formal request was made for funding a project including television inspection, sealing, and repair of the sewer lines. The line inspection has never been performed; however, the Air Station is progressively replacing sections of the system that experience heavy flows.

As of this writing, a "Sampling Plan for Stormwater Runoff and Sanitary Wastewater" has been prepared by ERM-New England, Inc., dated May 9, 1990. This program will evaluate surface water and sediment quality across the Air Station to assess environmental impacts related to base operations.

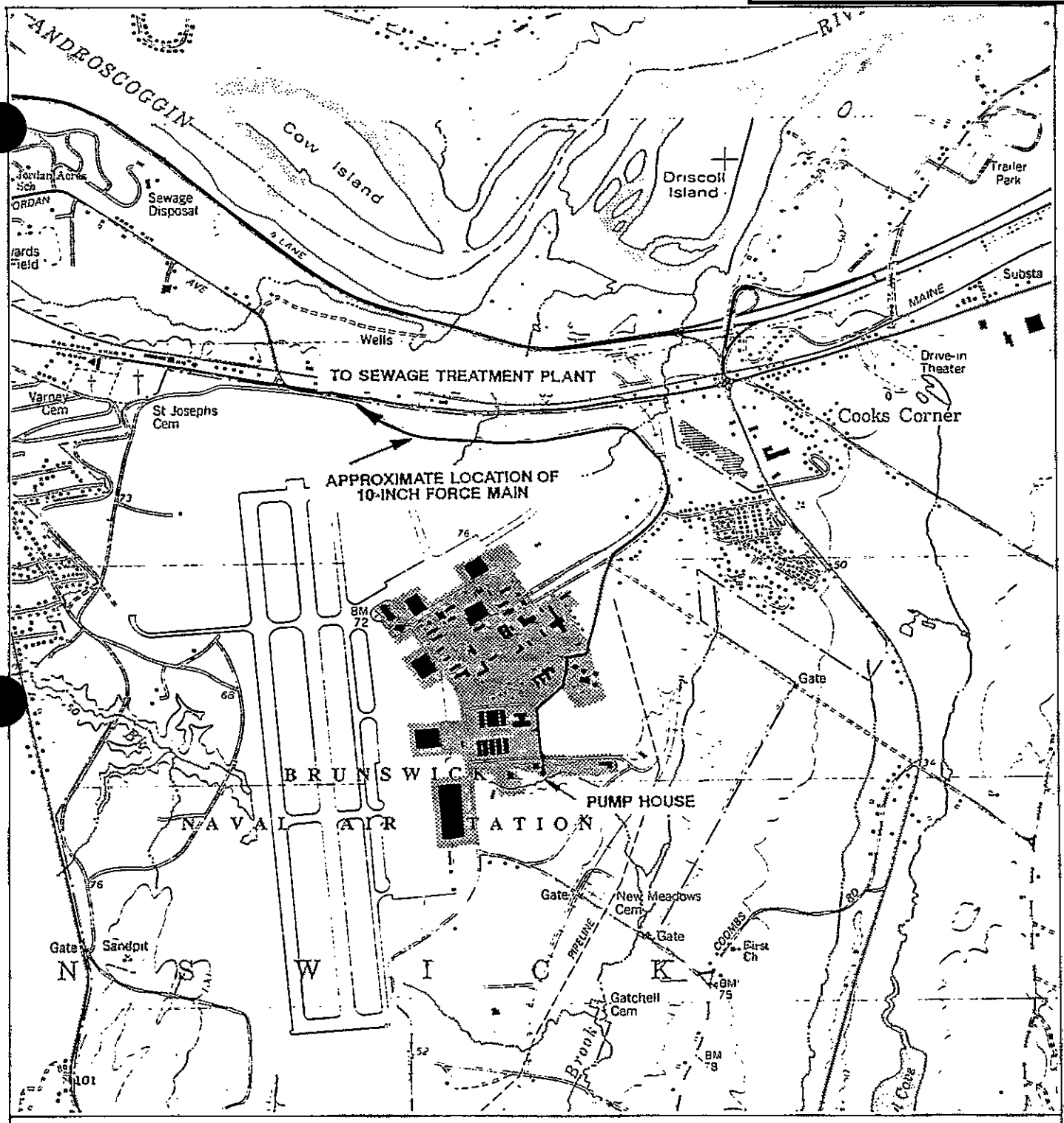
Storm Sewer. The Air Station storm drainage system consists of a network of open drainage ditches and storm drains surrounding and underlying the developed portions of the base. The overall storm drainage system is shown in Figure 2-2. Discharge points (to surface water bodies) are indicated in this figure for individual areas of the Air Station. The stormwater characterization study by ERM-New England, Inc., will assess surface water quality base-wide.

Two oil/water separators are installed in the storm drains for the fuel storage depot near Site 7. Storm drainage from this area discharges to a brook flowing into the northeastern lobe of Picnic Area Pond, east of New Meadows Cemetery. National Pollutant Discharge Elimination System (NPDES) permits are established for this discharge and the effluent is monitored by an independent laboratory and MEDEP.

Storm drainage for the entire operations area at NAS Brunswick, with the exception of the runways, islands, and taxiways, discharges to the southeast in the unnamed tributary bordering Site 9. This tributary enters the northwestern lobe of Picnic Area Pond.

The runways, taxiways, and islands discharge to Mere Brook beaver marsh as it passes beneath the runways. Only outlying taxiways, north of the operations area, drain to the north into tributaries of the Androscoggin River.

Click Here to Return to Main Index

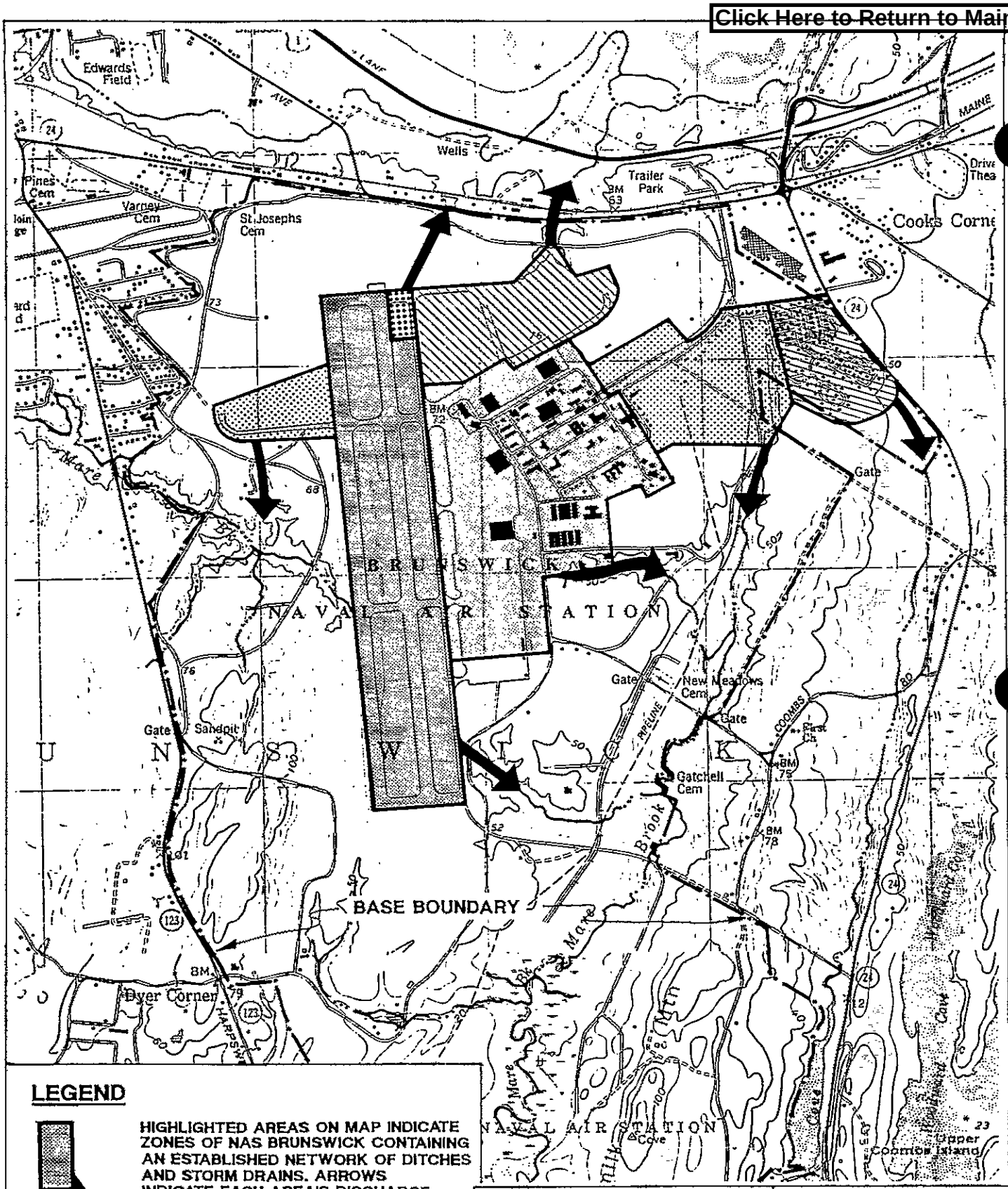


LEGEND

HIGHLIGHTED AREA INDICATES PORTIONS OF NAS BRUNSWICK SERVICED BY THE SANITARYSEWER SYSTEM

E.C. JORDAN CO. CONSULTING ENGINEERS	SANITARY SEWER SYSTEM
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
4607-41	FIGURE 2-1

Click Here to Return to Main Index



LEGEND

HIGHLIGHTED AREAS ON MAP INDICATE ZONES OF NAS BRUNSWICK CONTAINING AN ESTABLISHED NETWORK OF DITCHES AND STORM DRAINS. ARROWS INDICATE EACH AREA'S DISCHARGE POINT TO A SURFACE WATER BODY.

SCALE IN FEET

0 2000 4000

E.C. JORDAN CO.
CONSULTING ENGINEERS

STORM DRAINAGE MAP

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41 FIGURE 2-2

Click Here to Return to Main Index

2.3.3.2 Solid Waste. The Air Station generates approximately 5 tons of solid waste per day. Trash, refuse, and garbage are disposed of in dumpsters located throughout the facility. These dumpsters are removed by a private contractor for disposal at the Brunswick Municipal Landfill.

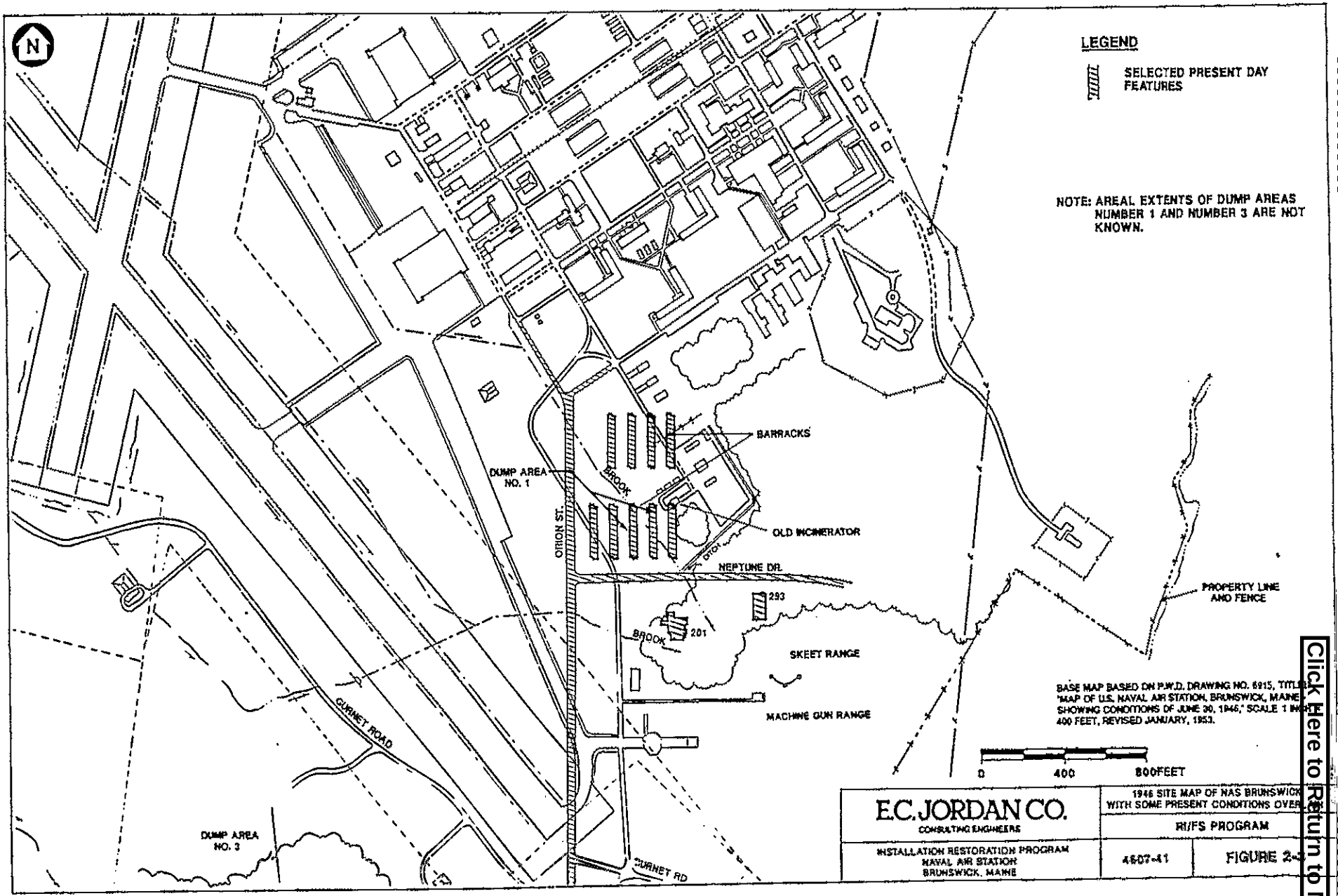
Since 1975, solid waste from NAS Brunswick has been disposed of at Town of Brunswick landfills. In 1976, under a military construction project, $100,000 was provided to Brunswick as the Air Station's contribution to the capital cost of a new or upgraded landfill facility. In 1984, the Gorham Road landfill began operation (accepting NAS Brunswick solid waste) and is reportedly in compliance with the State of Maine's solid waste disposal regulations.

Numerous sites were used as landfills at NAS Brunswick from the early 1940s through 1975. The two earliest known landfill ("dump") areas at NAS Brunswick are indicated on a 1946 site map (Figure 2-3). "Dump Area No. 1" (currently Site 9) was located at the site of existing barracks Buildings 216 through 220, with an incinerator located at the current northern end of Building 220. Site 9 reportedly was active in the mid-1940s and early 1950s. Although the base was closed to military activities from 1946 to 1951, the temporary tenants could have used the dump during this period. "Dump No. 3," unreported in the IAS, is shown located adjacent to Runway 1-19 on the 1946 map. No record of operation for this landfill has been reported, although Runway 1-19 was constructed in 1953, ending any potential disposal activities in this area. "Dump No. 3" has not been investigated to date, but will be addressed in future investigations by the Navy. "Dump No. 3" appears to be upgradient of Sites 1 and 3 by approximately 2,200 feet. Insufficient information is available at this time to draw any conclusions about potential impacts to the Site 1 and 3 areas.

Subsequently, probably only in the early 1950s, Site 2 was used as the base landfill, reportedly with an incinerator. An old foundation at Site 2 is cited as the incinerator location.

Reportedly, Site 2 was closed in 1955. Site 1 was active from 1955 through 1975. Site 3, contiguous with Site 1, reportedly was active from 1960 through 1973. As the main base landfill, Site 1 received a wide variety of liquid and solid wastes. Site 3 reportedly received only liquid wastes including alcohol, DANC (a noncorrosive decontaminating agent composed primarily of tetrachloroethane), paints, and solvents.

2.3.3.3 Hazardous Wastes. The DRMO, located in Building 594, is currently a tenant of the Air Station. The DRMO finds buyers or disposal contractors for hazardous materials transferred to its custody. These materials include waste oils, solvents, and hydraulic fluids, as well as surplus materials such as paints, solvents, alcohols, and acids.



Click Here to Return to Main Index

Click Here to Return to Main Index

Click Here to Return to Main Index

3.0 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

The CERCLA of 1980, as amended by the SARA, requires that response actions attain ARARs. Therefore, ARARs are identified and considered during the RI/FS process.

ARARs are federal and state public health and environmental requirements and guidelines used to (1) evaluate the appropriate extent of site cleanup, (2) define and formulate remedial action alternatives, and (3) govern implementation and operation of the selected action. After reviewing the sites and associated contamination at NAS Brunswick, Jordan personnel compiled a preliminary list of ARARs to serve as a basis for development, screening, and detailed analyses of alternatives during the FS process, as well as selection of preferred alternatives.

3.1 DEFINITION OF ARARS

To properly consider ARARs and to clarify the function of ARARs in the RI/FS and remedial response processes, the NCP defines two ARAR components: (1) applicable requirements, and (2) relevant and appropriate requirements. These definitions, revised to incorporate applicable portions of SARA, are discussed in the following paragraphs.

Applicable requirements are clean-up standards, standards of control, or other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law, that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site. An example of an applicable requirement is the use of Maximum Contaminant Levels (MCLs) for a site where groundwater contamination enters a public water supply.

Relevant and appropriate requirements are clean-up standards, standards of control, or other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law, that (while not legally applicable to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site) address problems or situations sufficiently similar to those encountered at the CERCLA site that use of them is well-suited to the particular site. The term "relevant" is included so requirements initially screened out as nonapplicable (because of jurisdictional restrictions) can be reconsidered. If a requirement is determined relevant and appropriate, it is applied in the same manner as an applicable regulation. For example, MCLs would be relevant and appropriate requirements at a site where groundwater contamination could affect a potential (rather than an actual) drinking water source. Relevant and appropriate requirements should be given the same weight for consideration as applicable requirements.

Other requirements to be considered (TBCs) are federal and state nonpromulgated advisories or guidelines that are not legally binding and do not have the status of potential ARARs. However, if there are no specific

Click Here to Return to Main Index

ARARs for a chemical or site condition, or if existing ARARs are not deemed sufficiently protective, then guidance or advisory criteria should be identified and used to ensure public health and environmental protection.

3.2 APPROACH TO ARARS IDENTIFICATION

Under the description of ARARs set forth in the NCP and SARA, state and federal environmental requirements must be considered that are (1) location-specific (i.e., pertain to existing site features), (2) chemical-specific (i.e., govern the level or extent of site remediation), and (3) action-specific (i.e., pertain to proposed site remedies and govern implementation of the selected site remedy).

Chemical-specific ARARs are usually health- or risk-based standards limiting the concentration of a chemical found in or discharged to the environment. They govern the extent of site remediation by providing either actual clean-up levels, or the basis for calculating such levels. For example, groundwater standards may provide necessary clean-up goals for sites with contaminated groundwater at NAS Brunswick. Chemical-specific ARARs for the site may also be used to indicate acceptable levels of discharge in determining treatment and disposal requirements, and to assess the effectiveness of future remedial alternatives. Table 3-1 provides a list and synopsis of potential chemical-specific ARARs.

Location-specific ARARs govern natural site features (e.g., wetlands, flood-plains, and sensitive ecosystems) and manmade features (e.g., existing land-fills, disposal areas, and places of historical or archeological significance). These ARARs generally place restrictions on concentrations of hazardous substances or the conduct of activities solely based on the site's particular characteristics or location. Table 3-2 summarizes the existing features at each site location. Table 3-3 provides a list and synopses of potential location-specific standards by location, environmental statute, and regulation.

Action-specific ARARs are usually technology- or activity-based limitations controlling actions at hazardous waste sites. As remedial alternatives are developed, action-specific ARARs (pertaining to proposed site remedies) provide a basis for assessing feasibility and effectiveness.

Components of possible remedial actions and the associated ARARs are listed in Appendix A. Synopses of the potential ARARs are in Table 3-4. During screening and detailed analysis, remedial alternatives will be evaluated for compliance with the specific standards of each ARAR.

TABLE
PRELIMINARY CHEMICAL-SPECIFIC ARARS, [illegible]RIA, ADVISORIES, AND GUIDANCE

REMEDIAL INVESTIGATION
NAS BRUNSWICK

MEDIA	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE RI/FS
Groundwater/Surface Water				
Federal Regulatory Requirements	SDWA - MCLs (40 CFR 141.11 - 141.16)	Relevant and Appropriate	Maximum contaminant levels (MCLs) have been promulgated for several common organic and inorganic contaminants. These levels regulate the concentration of contaminants in public drinking water supplies, but may also be considered relevant and appropriate for groundwater aquifers used for drinking water.	When the risks to human health due to consumption of groundwater were assessed, concentrations of contaminants of concern were compared to their MCLs.
	SDWA - MCLGs (40 CFR 141.50 - 141.51)	Relevant and Appropriate	MCLGs are health-based criteria that are to be considered for drinking water sources as a result of SARA. These goals are available for several organic and inorganic contaminants.	The new National Contingency Plan (1990) states that non-zero MCLGs are to be used as goals.
Federal Regulatory Requirements	RCRA - Subpart F Groundwater Protection Standards, ACLs (40 CFR 264.94)	Relevant and Appropriate	These are one of three possible standards (aside from MCLs and background concentrations) available under Subpart F for setting a clean-up level for remediating groundwater contamination from a RCRA facility.	These requirements may be relevant and appropriate if certain conditions relating to transport and exposure are met. Procedures for developing alternate concentration limits are outlined in RCRA Subpart F, Section 264.94.
	Federal Ambient Water Quality Criteria (AWQC)	Relevant and Appropriate	Federal AWQC are health-based criteria developed for 95 carcinogenic and noncarcinogenic compounds. AWQC for the protection of public health provide levels for exposure both from drinking the water and consuming aquatic organisms, and from consuming fish alone. Remedial actions involving contaminated surface water or groundwater must consider the uses of the water and the circumstances of the release or threatened release; this determines the relevance and appropriateness.	This requirement will be complied with when determining clean-up levels or potential discharge limits.
	USEPA Risk Reference Doses (RfDs)	To Be Considered	RfDs are considered the levels unlikely to cause significant adverse health effects associated with a threshold mechanism of action in human exposure for a lifetime.	USEPA RfDs are used to characterize risks due to noncarcinogens in various media.
	USEPA Carcinogen Assessment Group Carcinogenic Potency Factors (CPFs)	To Be Considered	Carcinogenic effects present the most up-to-date information on cancer risk potency derived from USEPA's CAG.	USEPA CPFs are used to compute the individual incremental cancer risk resulting from exposure to certain compounds.

Click Here to Return to Main Index

TABLE 3-1
(continued)
PRELIMINARY CHEMICAL-SPECIFIC ARARS, CRITERIA, ADVISORIES, AND GUIDANCE

REMEDIAL INVESTIGATION
NAS BRUNSWICK

MEDIA	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE RI/FS
Groundwater/Surface Water (continued)				
State Regulatory Requirements	Maine Standards for Classification of Minor Drainages (38 MRSA, Chapter 3, Section 468)	Applicable	Mere Brook is classified as a Class B water under the state water quality standards.	Remedial actions should not result in the degradation of water quality classification.
	Maine Standards for Classification of Groundwater (38 MRSA, Chapter 3, Section 470)	Applicable	Groundwater is classified as GW-A under the Maine standards.	Remedial actions should not result in the degradation of groundwater classification.
	Maine Drinking Water Rules (22 MRSA, Section 2611 Code of Maine Regulations and Rules [CRM] 10-144A, Chapter 231, Section 7)	Relevant and Appropriate	Maine MEGs have been promulgated for several contaminants. When state levels are more stringent than federal levels and they have been legally and consistently applied, the state levels may be used.	Primary drinking water standards will be used to set clean-up levels.
	Maine Regulations Relating to Water Quality Criteria for Toxic Pollutants (MEDEP Regulations, Chapter 584)	Applicable	This rule limits the concentrations of certain materials allowed in Maine waters to prevent the occurrence of pollutants in toxic amounts as required by state and federal law. Except if naturally occurring, ambient levels of toxic pollutants shall not exceed the Clean Water Act AWQC. Where AWQC do not exist, the Board of Environmental Protection shall adopt site-specific numerical criteria.	These standards will be attained when determining clean-up levels or potential discharge limits.
State Guidance	Maine Rules Relating to Testing of Private Water Systems for Potentially Hazardous Contaminants (CMR 10-144A, Chapter 233, Appendix C)	Relevant and Appropriate	MEGs and action levels exist for numerous inorganic and organic compounds. When state levels are more stringent than federal levels, state levels will be used.	When clean-up levels are determined for the Brunswick site, the more stringent standards will be used.

Click Here to Return to Main Index

TABLE
(contin
PRELIMINARY CHEMICAL-SPECIFIC ARARS, CRITERIA, ADVISORIES, AND GUIDANCE

REMEDIAL INVESTIGATION
NAS BRUNSWICK

MEDIA	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE RI/FS
Air				
State Guidance	Protection and Improvement of Air (38 M.R.S.A. Chapter 4, Section 583-H	Relevant and Appropriate	The Metropolitan Portland Air Quality Region is Class II. Additionally this provision establishes the authority to designate non-attainment areas.	Remedial actions should not result in the degradation of air quality classification.
	Protection and Improvement of Air (38 M.R.S.A. Chapter 4 Section 590; MEDEP Regs, Chapter 104	Relevant and Appropriate	Establishes limitations on the amount of particulate matter allowed to be emitted from several categories and sizes of incinerators, as well as a limitation on the capacity of emissions from all incinerators.	These limits will be addressed if an on-site incinerator is proposed.
	Maine Ambient Air Quality Standards (38 M.R.S.A. Chapter 4, Section 590	Relevant and Appropriate	Establishes requirements for licenses for air emissions. Discharges above 10 lbs/hr or 100 lbs/day of VOCs require a license.	These requirements will be addressed of discharge limites are exceeded.
	Maine Growth Offset Regulations (38 M.R.S.A. Chapter 4, Section 590; MEDEP Regs, Chapter 113)	Relevant and Appropriate	These apply to new licenses in non-attainment areas. They require Reasonably Available Control Technology (RACT) or better for the base case emission, and offset reductions from other facilities.	These regulations will be addressed if a new license is required.
	Protection and Improvement of Air (38 M.R.S.A. Chapter 4, Section 590; MEDEP Regs, Chapter 114)	To be Considered	The Metropolitan Portland Region is a non-attainment area for ozone.	
	Protection and Improvement of Air (38 M.R.S.A. Chapter 4, Section 597)	To be Considered	Establishes procedures for municipalities to establish emission standards more stringent than state standards.	

NOTES:

ACL = Alternate Concentration Limit
AWQC = Ambient Water Quality Criteria
CAG = Carcinogen Assessment Group
CMR = Code of Maine Rules
CPF = Carcinogenic Potency Factor
MCL = Maximum Contaminant Level
MCLG = Maximum Contaminant Level Goal
MEG = Maximum Exposure Guideline
MEDEP = Maine Department of Environmental Protection
RCRA = Resource Conservation and Recovery Act
RfD = Reference Dose
SDWA = Safe Drinking Water Act
USEPA = U.S. Environmental Protection Agency

Click Here to Return to Main Index

TABLE 3-2
CHECKLIST OF SITE FEATURES

NAS BRUNSWICK
BRUNSWICK, MAINE

SITE	WETLANDS/ STREAMS	FLOODPLAIN	GROUNDWATER	SURFACE WATER	ANIMAL SPECIES REGULATED	ANIMAL SPECIES OF CONCERN	CRITICAL AREAS/ RARE PLANTS
Site 1	X		X	X[1]			
Site 2	X		X	X[1]			
Site 3	X		X	X[1]			
Site 4			X				
Site 7			X				
Site 8	X		X	X[1]	X[2]	X[3]	X[4]
Site 9	X		X				
Site 11			X				
Site 13			X				
Downstream:	X	X	X[5]	X			

NOTES:

[1] Beaver ponds are located downstream of Sites 1, 2, and 3 and upstream of Site 8.
[2] The Grasshopper Sparrow, a state endangered species, is located a half mile west of Site 8.
[3] The Horned Lark and Upland Sandpiper, species in Maine's Indeterminate Category, are found west of Site 8 adjacent to the runway.
[4] The sandplain grassland and rare pitch pine heath barren, considered rare habitats, occur a half mile west of Site 8 at the end of the runway.
[5] Private drinking water wells are located southeast of the sites, downgradient from Sites 1,2,3, and north of Site 8.

Click Here to Return to Main Index

TABLE

POTENTIAL LOCATION-SPECIFIC ARARS, CRITERIA, ADVISORIES, AND GUIDANCE

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

MEDIA	REQUIREMENT	STATUS	REQUIREMENTS SYNOPSIS	CONSIDERATION IN THE RI/FS
Wetlands				
Federal Regulatory Requirements	CWA Section 404	Applicable	Section 404 of the CWA regulates the discharge of dredged or fill material into U.S. waters, including wetlands. The purpose of Section 404 is to ensure that proposed discharges are evaluated with respect to impact on the aquatic ecosystem. Discharge of fill material generally includes, without limitation, placement of fill necessary for construction and site development fills (e.g., dams, dikes, and levees), fill associated with the creation of ponds, and any other work involving fill material discharge. If a remedial alternative involves dredged or fill material discharge to a wetland, a permit must be obtained from the U.S. Army Corps of Engineers. Procedures for a permit are contained in 33 CFR Part 323.	During the identification, screening, and evaluation of alternatives, the effects on wetlands are evaluated and the appropriate permits will be obtained.
	Guidelines for Specification of Disposal Sites for Dredged or Fill Materials (40 CFR 230)	Applicable	These guidelines maintain that no dredged or fill material discharge will be permitted if there is a practicable alternative with less impact to the aquatic ecosystem. Discharge will also not be permitted unless steps are taken to minimize potential adverse impacts, or if it will cause or contribute to significant degradation of U.S. waters.	If a remedial alternative involves discharging dredged or fill material to a wetland, potential short- or long-term effects must be determined, based on various physical, chemical, and biological parameters. Effects on human use characteristics such as aesthetics and recreation also need to be addressed.
	Fish and Wildlife Coordination Act (16 U.S.C. 661)	Applicable	This act requires that any federal agency proposing to modify a body of water must consult with the U.S. Fish and Wildlife Services, National Marine Fisheries Services, and other related state agencies.	The appropriate agencies will be notified prior to modifying any wetlands.
	NEPA (42 U.S.C. 4321; 40 CFR Part 6)	Applicable	Sets forth USEPA policy for carrying out the provisions of the Wetlands Executive Order (EO 11990).	This requirement will be considered during the development of alternatives.
	Wetlands Executive Order (EO 11990)	Applicable	Under this order, federal agencies are required to minimize the destruction, loss, or degradation of wetlands, and preserve and enhance natural and beneficial values of wetlands.	During the FS process, the identification and evaluation of alternatives will include an evaluation of each alternative's impact on wetlands.

Click Here to Return to Main Index

TABLE 3-3
(continued)
POTENTIAL LOCATION-SPECIFIC ARARS, CRITERIA, ADVISORIES, AND GUIDANCE

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

SITE FEATURE	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE RI/FS
State Regulatory Requirements	Maine Natural Resources Protection Act (38 MRSA, Section 480-A through S)	Applicable	A permit application must be submitted and approved by the Maine Bureau of Land Quality Control and the activity standards met at Section 480-D when conducting activities adjacent to any freshwater wetland greater than 10 acres or with an associated stream, brook, or pond or adjacent to a coastal wetland.	Remedial activities regulated under this act must meet activity standards and be approved by the Maine Bureau of Land Quality Control.
	Maine Hazardous Waste Management Rules, (MEDEP Regulations, Chapters 800-802, 850, 851, 853-857)	Applicable	These correspond to RCRA hazardous waste requirements and outline the criteria for the construction, operation, and maintenance of a new facility or increase in an existing facility for the generation, transportation, storage, treatment, or disposal of hazardous waste. Specifically, no portion of the site may be located within a wetland.	These rules will be addressed if the construction of an on-site treatment facility is proposed that would handle hazardous waste.
Floodplains				
Federal Regulatory Requirements	RCRA - Location Standards (40 CFR 264.18)	Relevant and Appropriate	A facility located in a 100-year floodplain must be designed, constructed, operated, and maintained to prevent washout of any hazardous wastes by a 100-year flood.	The impact of hazardous constituents on the affected surface waters must be considered during remedial actions.
	NEPA (42 U.S.C. 4321; 40 CFR Part 6)	Applicable	This requirement sets forth the policy and guidance for carrying out the provisions of the Floodplain Executive Order (EO 11988).	NEPA will be considered during the development of alternatives.
	Floodplains Executive Order (EO 11988)	Applicable	This order requires federal agencies to minimize potential harm to or within floodplains and to avoid the long- and short-term adverse impacts associated with the occupancy and modification of floodplains.	The requirements of this Executive Order will be considered during the identification, screening, and evaluation of alternatives. If no practical alternative exists, potential harm must be minimized and action taken to restore the natural and beneficial values of
State Regulatory Requirements	Maine Natural Resources Protection Act (38 MRSA, Section 480)	Applicable	A permit must be obtained and the activity standards complied with when conducting a regulated activity on land adjacent to a floodplain. Activities should not unreasonably cause or increase flooding of the alteration area or adjacent properties.	Remedial activities regulated under this act must meet activity standards and be approved by the Maine Bureau of Land Quality Control.

Click Here to Return to Main Index

TABLE
(continued)
POTENTIAL LOCATION-SPECIFIC ARARS, CRITERIA, ADVISORIES, AND GUIDANCE

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

SITE FEATURE	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE RI/FS
	Maine Hazardous Waste Management Rules (MEDEP Regulations, Chapters 800-802, 850, 851, 853-857)	Applicable	These rules correspond to RCRA hazardous waste requirements and outline the criteria for the construction, operation, and maintenance of a new facility or increase in an existing facility for the generation, transportation, storage, treatment, or disposal of hazardous waste. Specifically, no portion of the site may be within 300 feet of any 100-year floodplain.	The Maine Rules will be addressed if the construction of a treatment facility is proposed that would handle hazardous waste.
Mare Brook				
State Regulatory Requirements	Maine Standards for Classification of Minor Drainages (38 MRSA, Chapter 3, Section 468)	Applicable	Mare Brook is classified as a Class B water under the state water quality standards. Class B waters are defined as suitable for drinking water (after treatment), fishing, recreation in and on the water, and as habitat for fish and other aquatic life.	Remedial actions should not result in the degradation of water quality classification.
	Maine Natural Resources Protection Act (38 MRSA, Section 480-A through S)	Applicable	A permit application must be submitted and approved by the Maine Bureau of Land Quality Control and the activity standards set at Section 480-D when conducting activities adjacent to any freshwater wetland greater than 10 acres or with an associated stream, brook, or pond.	Remedial activities regulated under this act must meet activity standards developed by the Maine Bureau of Land Quality Control.
	Maine Water Pollution Control Law: Solid Waste Disposal Areas; Location (38 MRSA, Chapter 3, Article 2, Section 421)	Applicable	No boundary of any public or private solid waste disposal area shall lie closer than 300 feet to any classified body of surface water; also known as the Three-Hundred-Foot Law.	During the development of alternatives, effects on the surface waters will be evaluated.
Air				
State Guidance	Protection and Improvement of Air (38 M.R.S.A., Chapter 4, Section 583)	To be Considered	NASB is located in the Metropolitan Portland Air Quality Region	
	Protection and Improvement of Air (38 M.R.S.A., Chapter 4, Section 583-B	Relevant and Appropriate	The Metropolitan Portland Air Quality Program is Class II. Additionally, this provision establishes the authority to designate non-attainment areas	Remedial actions should not result in the degradation of air quality classification.

Click Here to Return to Main Index

TABLE 3-3

(continued)
POTENTIAL LOCATION-SPECIFIC ARARS, CRITERIA, ADVISORIES, AND GUIDANCE

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

SITE FEATURE	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE RI/FS
	Maine Growth Offset Regulations (38 M.R.S.A. Chapter 4, Section 590; MEDEP Regs, Chapter 113)	Relevant and Appropriate	These apply to new licenses in non-attainment areas. They require Reasonably Available Control Technology (RACT) or better for the base case emission, and offset reductions from other facilities	These regulations will be addressed if a new license is required.
	Protection and Improvement of Air (38 M.R.S.A. Chapter 4, Section 590; MEDEP Regs, Chapter 114)	To be Considered	The Metropolitan Portland Region is a non-attainment areas for ozone.	
	Protection and Improvement of Air (38 M.R.S.A. Chapter 4, Section 597)	To be Considered	Establishes procedure for municipalities to establish emission standards more stringent than state standards	
Groundwater				
State Regulatory Requirements	Maine Standards for Classification of Groundwater (38 MRSA, Chapter 3, Section 470)	Applicable	Groundwater is classified under the Maine standards. All groundwater shall be classified as not less than Class GW-A.	Remedial actions should not result in the degradation of groundwater classification.
Other Natural Resources				
Federal Regulatory Requirements	RCRA Facility Location Regulations	Relevant and Appropriate	A new hazardous waste treatment, storage, or disposal facility is prohibited within 61 meters (200 feet) of a fault displaced in Holocene time. A new facility must be designed to withstand flood washout. Non-containerized or bulk liquid hazardous waste may not be placed in a salt down formation, underground mine, or cave.	Remedial alternatives specifying the development of on- or off-site hazardous waste treatment, storage, or disposal facilities must comply with the RCRA facility location standards.
	Maine Site Location of Development Law and Regulations (38 MRSA Sections 481-490; MEDEP Regs, Chapters 371-377)	Applicable	This act and regulations govern the drilling for natural resources and includes hazardous activities that consume, generate, or handle hazardous wastes and oil. A permit must be submitted and approved by the Maine Bureau of Land Quality Control prior to the commencement of any such activity. Activities cannot adversely affect existing uses, scenic character, or natural resources in the municipality or neighboring municipality.	Remedial alternatives will be developed to consider this law and regulations.

Click Here to Return to Main Index

TABLE
(continued)
POTENTIAL LOCATION-SPECIFIC ARARS, CRITERIA, ADVISORIES, AND GUIDANCE

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

SITE FEATURE	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE RI/FS
Other Natural Resources (Continued)	Maine Solid Waste Management Rules: Landfill Disposal Facilities (38 MRSA, Section 1301 et seq.; MEDEP Regs, Chapters 400-406	Applicable	Waste shall be placed a minimum of 5 feet above the seasonal high water table and 15 feet above the bedrock (proposed as of March 31, 1988) according to this requirement. Also, the closing requirements for landfills are outlined.	These requirements will be considered during the development of alternatives.
	Town Shoreland Zoning Ordinances and State Minimum Guidelines	Relevant and Appropriate	These minimum guidelines and town ordinances apply to activities proposed within 200 feet of a high-water mark of a stream or other body of water.	These guidelines will be considered during the development of remedial alternatives.
	Maine Inland Fisheries and Wildlife Laws and Regulations (12 MRSA Chapter 713, Section 7751)	Applicable	The State of Maine has authority to research, list, and protect any species deemed endangered or threatened. These species are listed as either endangered or threatened in the state regulations. The Maine Department of Inland Fisheries and Wildlife has also developed the following administrative categories for species not considered endangered or threatened but considered important for research and further evaluation: Maine Watch List, Special Concern List, and Indeterminate Category. The Bureau determines appropriate use(s) of various habitats on a case-by-case basis.	The Maine Department of Inland Fisheries and Wildlife must be advised of any proposed activities that may potentially impact an endangered species.
	Maine Critical Areas Program and Maine Natural Heritage Program	To be Considered	These state programs issue policies and regulations governing special habitats or communities.	Where such special areas exist, these state programs will become involved in the project and/or permit review process.
	Maine Critical Areas Act (5 MRSA 3310 through 3316)	To be Considered	This nonregulatory legislation allows Maine agencies such as the Critical Areas Program and the Natural Heritage Program to identify, research, and protect critical areas and endangered or threatened plants.	Where such special areas exist, these state programs will become involved in the project and/or permit review process.

NOTES:

CFR = Code of Federal Regulations
CWA = Clean Water Act
MEDEP = Maine Department of Environmental Protection
NEPA = National Environmental Policy Act
RCRA = Resource Conservation and Recovery Act
USEPA = U.S. Environmental Protection Agency

Click Here to Return to Main Index

TABLE 3-4

POTENTIAL ACTION-SPECIFIC ARARS

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

REQUIREMENT	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE RI/FS
Federal Requirements		
RCRA - General Facility Standards (40 CFR 264.10 - 264.18)	General facility requirements outline general waste analysis, security measures, inspections, and training requirements.	Any facilities will be constructed, fenced, posted, and operated in accordance with this requirement. All workers will be properly trained.
RCRA - Preparedness and Prevention (40 CFR 264.30 - 264.37)	This regulation outlines requirements for safety equipment and spill-control requirements for hazardous waste facilities. Part of the regulation includes a requirement that facilities be designed, maintained, constructed, and operated to minimize the possibility of an unplanned release that could threaten public health or the environment.	Safety and communication equipment will be installed at the site; local authorities will be familiarized with site operations.
RCRA - Contingency Plan and Emergency Procedures (40 CFR 264.50 - 264.56)	This regulation outlines the requirements for emergency procedures to be used following explosions, fires, etc.	Plans will be developed and implemented during site work including installation of monitoring wells, and implementation of site remedies. Copies of the plans will be kept on-site.
RCRA - Releases from Solid Waste Management Units (40 CFR 264.90 - 264.109)	This regulation details requirements for a groundwater monitoring program to be installed at the site.	During preparation of the post-closure plan, the location and depth of monitoring wells must be evaluated for use in this monitoring program. Corrective action program must be undertaken to address groundwater contamination above drinking water standards.
RCRA - Closure and Post-closure (40 CFR 264.110 - 264.120)	This regulation details the general requirements for closure and post-closure of hazardous waste facilities, including the installation of a groundwater monitoring program.	Those parts of the regulation concerned with long-term monitoring and maintenance of the site will be considered during remedial design.
RCRA - Surface Impoundments (40 CFR 264.220 - 264.249)	This regulation establishes the design, construction, operation, monitoring, inspection, and contingency plans for a RCRA surface impoundment, as well as closure and post-closure options. If all hazardous wastes cannot be removed or decontaminated, the surface impoundment must be capped and receive post-closure care. It also provides three closure options for CERCLA sites: clean closure, containment closure, and alternate closure.	To comply with clean closure, the owner must remove or decontaminate all waste. To comply with containment closure, the owner must eliminate free liquid, stabilize remaining waste, and cover impoundment with a cover that complies with the regulation. Cover integrity must be maintained, groundwater system monitored, and runoff controlled. To comply with alternate closure, all pathways of exposure to contaminants must be eliminated and long-term monitoring provided.

Click Here to Return to Main Index

TABL[redacted]4
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POTENTIAL ACTION-SPECIFIC ARARS

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

REQUIREMENT	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE RI/FS
RCRA - Waste Piles (40 CFR 264.250 - 264.269)	This regulation details procedures, operating requirements, and closure and post-closure options for waste piles. If removal or decontamination of all contaminated subsoils is not possible, closure and post-closure requirements for landfills must be attained.	According to RCRA, waste piles used for treatment or storage of non-containerized accumulation of solid, non-flowing hazardous waste may comply with either the waste pile or landfill requirements. The temporary storage of solid waste on-site, therefore, must comply with one or the other subpart.
RCRA - Landfills (40 CFR 264.300 - 264.339)	This regulation details the design, operation, monitoring, inspection, recordkeeping, closure, and permit requirements for a RCRA landfill. Two liners must be installed to prevent groundwater contamination. A leachate collection system must be placed above and between the liner systems.	Disposal of contaminated materials from NAS Brunswick must be to a facility that complies with all relevent and appropriate RCRA landfill regulations, including closure and post-closure.
RCRA - Incinerators (40 CFR 264.340 - 264.599)	This regulation specifies the performance standards, operating requirements, monitoring, inspection, and closure guidelines of any incinerator burning hazardous waste.	On-site thermal treatment must comply with the appropriate requirements specified in this subpart of RCRA.
RCRA Regulations for Land Treatment (40 CFR 264.270-283)	These regulations specify the proper operation, monitoring, and closure for RCRA land treatment systems. Land treatment must continue through closure and post-closure to assure that degradation of hazardous constituents continues.	These requirements will be incorporated into alternatives proposing on-site land treatment.
RCRA - Miscellaneous Units (40 CFR 264.600 - 264.999)	These standards are applicable to miscellaneous units not previously defined under existing RCRA regulations for treatment, storage, and disposal units.	Units not previously defined under RCRA must comply with these requirements.
RCRA Regulations on LDRs (40 CFR 268)	Land disposal of RCRA hazardous wastes is restricted without specified treatment. It must be determined that the waste, beyond a reasonable doubt, meets the definition of one of the specified restricted wastes and the remedial action must constitute "placement" in order for the land disposal restrictions to be considered applicable. For each hazardous waste, the LDRs specify either a treatment technology or a concentration level, the waste must be treated with disposal in a RCRA Subtitle C permitted facility.	If it is determined that hazardous materials located at NAS Brunswick are considered wastes subject to the LDRs, the hazardous materials will be handled and treated in compliance with these regulations.
OSHA - General Industry Standards (29 CFR Part 1910)	These regulations specify the 8-hour time-weighted average concentration for various organic compounds. Training requirements for workers at hazardous waste operations are specified in 29 CFR 1910.120.	Proper respiratory equipment will be worn if it is impossible to maintain the work atmosphere below the concentrations. Workers

Click Here to Return to Main Index

TABLE 3-4
(continued)
POTENTIAL ACTION-SPECIFIC ARARS

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

REQUIREMENT	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE RI/FS
		performing remedial activities would be required to have completed specific training requirements.
OSHA - Safety and Health Standards (29 CFR Part 1926)	This regulation specifies the type of safety equipment and procedures to be followed during site remediation.	All appropriate safety equipment will be on-site. In addition, safety procedures would be followed during on-site activities.
OSHA - Recordkeeping, Reporting, and Related Regulations (29 CFR 1904)	This regulation outlines the recordkeeping and reporting requirements for an employer under OSHA.	These requirements apply to all site contractors and subcontractors, and must be followed during all site work.
CWA - NPDES Regulations (40 CFR Parts 122, 125)	This requirement implements the NPDES program that specifies the applicable effluent standards, monitoring requirements monitoring requirements, and standard and special conditions for direct discharge.	Both on- and off-site discharges from CERCLA sites to surface waters are required to meet the substantive CWA NPDES requirements, including discharge limitations, monitoring requirements, and best management practices.
CWA - Pretreatment Standards for POTW Discharge (40 CFR Part 403)	This regulation specifies pretreatment standards for discharges to a POTW.	If treated groundwater is discharged to a POTW, the POTW must have an approved pretreatment program. The treated groundwater must be in compliance with the approved program. Prior to discharging, a report must be submitted containing identifying information, list of approved permits, description of operations, flow measurement of pollutants, certification by a qualified professional, and a compliance schedule.
CWA - Permits for Dredged and Fill Material (Section 404)	This regulation outlines requirements for discharges of dredged or fill material. Under this requirement, no activity that impacts a wetland shall be permitted if a practicable alternative with less impact on the wetland is available. If there is no other practicable alternative, impacts must be mitigated.	During the identification, screening, and evaluation of alternatives, the effects on wetlands must be evaluated.
CAA - National Ambient Air Quality Standards (40 CFR Part 50)	This regulation specifies maximum annual arithmetic mean and maximum 24-hour concentrations for particulate matter.	Fugitive dust emissions from site excavation activities will be maintained below the 24-hour maximum of 150 ug/m^3 and the annual arithmetic mean of 50 ug/m^3 by dust suppressants, if necessary.
DOT Rules for Transportation of Hazardous Materials (49 CFR Parts 107, 171.1-172.558)	This regulation outlines procedures for the packaging, labeling, manifesting, and transporting of hazardous materials.	Contaminated materials will be packaged, manifested, and transported to a licensed off-site disposal facility in compliance with these regulations.

Click Here to Return to Main Index

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POTENTIAL ACTION-SPECIFIC ARARS

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

REQUIREMENT	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE RI/FS
CWA - Regulations on Disposal Site Determinations Under the CWA (40 CFR 231)	These regulations apply to all existing, proposed, or potential disposal sites for discharges of dredged or fill material into U.S. waters, which include wetlands.	The dredged or fill material should not be discharged unless it can be demonstrated that such a discharge will not have an unacceptable impact on the wetlands.
U.S. Army Corps of Engineers Permit Program Regulations (33 CFR 320-330)	These regulations prescribe the statutory authorities, and general and special policies and procedures applicable to the review of applications for DA permits for controlling certain permits for controlling certain activities in U.S. waters; this includes discharge of dredged or fill material.	Dredging and filling of the wetlands must be shown to cause minimal adverse impacts, a less environmentally damaging alternative does not exist, and the project is in the overall public interest to obtain a DA permit.
State Requirements		
Maine Rules to Control the Subsurface Discharge of Pollutants Well Injection (MEDEP Regulations, Chapter 543)	This regulation prohibits the injection of hazardous waste into or above water-bearing formations via a new Class IV well. The subsurface discharge into or through a Class IV well that would cause or allow the movement of fluid into an underground source of drinking water that may result in a violation of any Maine Primary Drinking Water Standard, or which may otherwise adversely affect public health, is prohibited.	The groundwater must be treated to a target clean-up level less than or equal to the by Maine MEGs to be recharged to the aquifer.
MEDEP, Bureau of Water Quality Control, Policy Number 10, "The Discharge of Hazardous Substances to Groundwaters of the State"	The Board will deny applications for waste discharge licenses for the discharge to groundwaters of substances designated by the Board to be hazardous when such substances are present in concentrations exceeding groundwater levels which occur naturally in the area. Exemption may be granted if the groundwater is treated to reduce the concentrations of pollutants discharged to below the level considered safe for drinking water.	At least the minimum level of groundwater treatment would be required to provide adequate protection or if no other means of disposal is feasible.
Maine Hazardous Waste Management Rules (MEDEP Regulations, Chapters 800-802, 850, 851, 853-857)	The rules provide a comprehensive program for handling, storage, and recordkeeping at hazardous waste facilities. They supplement the RCRA regulations.	Because these requirements supplement RCRA hazardous waste regulations, they must also be considered.
Maine Ambient Air Quality Standards (MEDEP Regulations, Chapter 110)	This regulation establishes ambient air quality standards that are maximum levels for a particulate matter permitted in the ambient air.	During excavation and construction activities, the 24-hour maximum particulate concentration must be maintained below 150 ug/m^3 and the annual geometric mean of the 24-hour concentrations should not exceed 60 ug/m^3. Dust suppressants may be necessary.

Click Here to Return to Main Index

TABLE 3-4
(continued)
POTENTIAL ACTION-SPECIFIC ARARS

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

REQUIREMENT	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE RI/FS
Maine Incinerator Particulate Emission Standard (MEDEP Regulations, Chapter 104)	Establishes a limitation on the amount of particulate matter allowed to be emitted from each of several categories and sizes of incinerators, and a limitation on the capacity of emissions from all incinerators.	The thermal treatment technology must comply with the applicable emission standard.
Maine Air Quality Control Regulations (MEDEP Regulations, Chapter 115)	These regulations specify (1) who must obtain an air emissions license, (2) the information the applicant must submit, and (3) the standards and criteria with which the applicant must comply. An exemption for air emissions licenses is provided for general process sources or equipment where emissions are less than 100 pounds per day (without control equipment), unless the source is subject to the Hazardous Air Pollutants pursuant to 38 MRSA Section 585-B.	For alternatives that involve air emissions, determination of whether a permit is required will be made.
Maine-Protection and Improvement of Air (38 M.R.S.A. Chapter 4, Section 583-B)	The Metropolitan Portland Air Quality Region is Class II. Additionally, this provision establishes the authority to designate non-attainment areas.	Remedial actions should not result in the degradation of air quality classification
Protection and Improvement of Air (38 M.R.S.A. Chapter 4, Section 590)	This section provides the state with the authority to require the licensing of activities having an impact on ambient air quality standards.	
Maine Ambient Air Quality Standards (38 M.R.S.A. Chapter 4, Section 590; MEDEP Regs, Chapter 108)	Establishes requirements for licenses for air emissions. Discharges above 10 lbs/hr or 100 lbs/day of VOCs require a license.	These requirements will be addressed if discharge limits are exceeded.
Maine Growth Offset Regulations (38 M.R.S.A. Chapter 4, Section 590; MEDEP Regs, Chapter 113)	These apply to new licenses in non-attainment areas. They require Reasonably Available Control Technology (RACT) or better for the base case emission, and offset reductions from other facilities.	These regulations will be addressed if a new license is required.
Protection and Improvement of Air (38 M.R.S.A. Chapter 4, Section 590; MEDEP Regs, Chapter 114)	The Metropolitan Portland Region is a non-attainment area for ozone.	
Protection and Improvement of Air (38 M.R.S.A., Chapter 4, Section 597)	Establishes procedures for municipalities to establish emission standards more stringent than state standards.	
Maine Water Pollution Control Law: Conditions of Licenses (38 MRSA, Chapter 3, Article 2, Section 414-A)	Regulates the discharge of any pollutants. Specifies that the discharge, either by itself or in combination with other discharges, will not lower the quality of any classified body of water below such classification. The discharge will be subject to effluent limitations that require application of the best practicable treatment.	The effluent water from on-site activities should receive the best practicable treatment before discharge.

Click Here to Return to Main Index

TABL[redacted]4
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POTENTIAL ACTION-SPECIFIC ARARS

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

REQUIREMENT	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE RI/FS
Maine Water Pollution Control Law: Certain Deposits and Discharges Prohibited (38 MRSA, Chapter 3, Article 2, Section 420)	No person, firm, corporation, or other legal entity shall place, deposit, discharge, or spill mercury or toxic or hazardous substances, either directly or indirectly, into the inland ground or surface waters, tidal waters, on the ice, or on the banks thereof, so that the same may flow or be washed into such waters, or in such manner that the drainage therefrom may flow into such waters.	Best Management Practices will be used when handling wastes.

NOTES:

CAA = Clean Air Act
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
CWA = Clean Water Act
DA = Department of the Army
DOT = Department of Transportation (U.S.)
LDRs = Land Disposal Restrictions
MCL = Maximum Contaminant Level
MEDEP = Maine Department of Environmental Protection
NPDES = National Pollutant Discharge Elimination System
OSHA = Occupational Safety and Health Administration
POTW = publicly owned treatment works
RCRA = Resource Conservation and Recovery Act
ug/m^3 = micrograms per cubic meter

Click Here to Return to Main Index

Click Here to Return to Main Index

Click Here to Return to Main Index

4.0 FIELD PROGRAM DESCRIPTIONS AND RATIONALE

This section discusses field and laboratory procedures included in the RI/FS program. Subsections 4.1 through 4.12 discuss specific aspects of the field program, and Subection 4.13 summarizes the laboratory analytical program.

4.1 AIR MONITORING

During the 1988 and 1989 RI field seasons, Jordan used photoionization (PI) meter data and gas chromatograph (GC) air blank data to monitor personnel exposure and assess whether a more sophisticated VOC air-monitoring program was warranted. Based on completed RI contamination assessments, VOCs are the only contaminants at the RI/FS sites that realistically could pose any inhalation hazard. Concentrations of dichlorodiphenyltrichloroethane (DDT) and polynuclear aromatic hydrocarbons (PAHs) in surface soils are below 150 micrograms per kilogram (µg/kg) and 20 milligrams per kilogram (mg/kg), respectively, and do not present an inhalation hazard. Based on GC air blank data, ambient VOC levels recorded base-wide during the RI field investigation programs were negligible (Table 4-1). PI meter readings (sensitive to VOCs) of ambient air were checked routinely throughout the drilling and test pitting programs. Also routinely taken were PI meter readings of split-spoon samples collected during the drilling program. These readings are incorporated in the boring and test pit logs in Appendices B and C. Background PI meter values indicated in Appendices B and C correspond to zero variation from daily calibration values.

For the 1988 and 1989 field programs, soil gas samples were collected from various locations across the base. During both soil gas surveys, air blank samples were collected daily and analyzed in the field using portable GCs equipped with electron capture and flame ionization detectors; samples were screened for halogenated VOCs and hydrocarbons. Air blanks were collected at regular intervals, but not at specific predetermined locations, for quality assurance (QA). Instrument and method detection limits for subcontractors Tracer Research Corporation (Tracer) and Hydro Geo Chem, Inc. (HGC), are in Appendix D. These air blanks provided information on background levels of contaminants in the air at sites investigated during the soil gas surveys (see Table 4-1). Results of this screening are in Appendix D as part of the soil gas survey data, as well as in Table 4-1. Levels of airborne contaminants based on PI and GC data, in conjunction with relatively low levels of VOC contamination detected in soils and groundwater across the base, indicate no health hazard and no need for a more extensive air monitoring program at NAS Brunswick.

4.2 SOIL GAS SURVEYS

Soil gas surveys were conducted at numerous site locations. These surveys evaluated the distribution of total hydrocarbons, and selected aromatic compounds and chlorinated hydrocarbons in the vadose zone (i.e., above groundwater level). The surveys helped locate hot spots (potential source

TABLE 4-1

AIR MONITORING DATA (1988 FIELD SEARCH)
RI/FS PROGRAM
NAS BRUNSWICK

LOCATION	DATE	F-113	CHCL3	TCA	TCE	PCE	BENZENE	TOLUENE	XYLENES	TOTAL HYDROCARBONS
Site 4	6-20-88	<0.0005	<0.0007	<0.0002	<0.0006	0.005	<0.04	<0.04	<0.04	<0.04
Site 4	6-21-88	<0.0003	<0.0004	0.01	<0.0004	0.0009	<0.04	<0.04	<0.04	<0.04
Site 8	6-23-88	<0.0007	<0.001	0.002	<0.0009	0.0006	<0.04	<0.04	<0.05	<0.04
Site 1	6-24-88	<0.00003	<0.0005	<0.0001	<0.0004	<0.00008	<0.04	<0.04	<0.05	<0.04
Site 1	6-24-88	<0.007	<0.001	<0.0004	<0.0009	<0.002	<0.04	<0.04	<0.05	<0.05
Site 1	6-25-88	<0.0009	<0.002	<0.02	<0.001	<0.002	<0.04	<0.04	<0.06	<0.04
Site 1	6-25-88	<0.0009	<0.002	<0.02	<0.001	<0.002	<0.04	<0.04	<0.06	<0.04
Site 1	6-26-88	<0.0008	<0.0009	<0.002	<0.0009	<0.002	<0.04	<0.05	<0.05	<0.04
Site 1	6-26-88	<0.0008	<0.0009	<0.001	<0.0009	0.001	<0.04	<0.05	<0.05	<0.04
Site 3	6-27-88	<0.0004	<0.0007	0.002	<0.0005	<0.0001	<0.04	<0.04	<0.05	<0.04
Site 3	6-27-88	<0.0004	<0.0007	<0.001	<0.0005	<0.0001	<0.04	<0.04	<0.05	<0.04
Site 3	6-27-88	<0.0008	<0.001	0.006	<0.001	0.0005	<0.05	<0.05	<0.06	<0.05
Site 2	6-28-88	<0.0008	<0.001	0.002	<0.001	0.0005	<0.05	<0.05	<0.06	<0.05
Site 4	6-29-88	<0.0008	<0.001	0.001	<0.001	<0.0002	<0.05	<0.05	<0.06	<0.05
Site 3	6-29-88	<0.0008	<0.001	0.0008	<0.001	<0.0002	<0.05	<0.05	<0.06	<0.05
Site 4	6-30-88	<0.0008	<0.001	0.001	<0.0009	0.0004	<0.05	<0.05	<0.06	<0.05
Site 1	6-30-88	<0.0008	<0.001	0.001	<0.0009	0.0004	<0.05	<0.05	<0.06	<0.05
Site 2	7-01-88	<0.0009	<0.001	0.0006	<0.001	<0.0002	<0.04	<0.04	<0.05	<0.04
Site 2	7-01-88	<0.0009	<0.001	0.001	<0.001	<0.0002	<0.04	<0.04	<0.05	<0.04

NOTES:

1. See soil gas maps for air monitoring locations
2. All values µg/L
3. Data collected during soil gas program

Click Here to Return to Main Index

TABLE 4-1
(CONTINUED)

AIR MONITORING (1989 FIELD SEARCH)
RI/FS PROGRAM
NAS BRUNSWICK

LOCATION	DATE	THC	BENZENE	TOLUENE	ETHYL-BENZENE	m & p XYLENES	o-XYLENE	VINYL CHLORIDE	1,1 DCE	1,2-trans DCE	1,1-CIS DCE	1,1,1-TCA	TCE	PCE
Site 11	08-07-89	3.59	0.01	0.02	0.01	0.02	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Site 11	08-08-89	1.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Site 11	08-09-89	0.54	0.01	0.0	0.07	0.02	0.24	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Site 13	08-10-89	0.51	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Site 13	08-11-89	0.39	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Site 13	08-16-89	1.84	0.03	0.08	0.02	0.09	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Site 13	08-17-89	0.64	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Site 13	08-18-89	0.61	0.01	0.02	<0.01	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Site 1	08-18-89	2.34	0.08	0.10	0.02	0.07	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Site 13	08-19-89	0.58	<0.01	0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Site 13	08-20-89	1.31	<0.01	0.08	0.01	0.05	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Site 13	08-21-89	0.66	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

Click Here to Return to Main Index

Click Here to Return to Main Index

areas) and this information was used to optimize placement of soil borings, monitoring well locations, and test pits.

During the 1988 field program, soil gas was analyzed at 236 locations by Tracer Research Corporation, of Tucson, Arizona. These data were collected at Sites 1, 2, 3, 4, 7, 8, and 9. In 1989, 175 soil gas samples were analyzed by Hydro Geo Chem, Inc., of Tucson, Arizona, at Sites 1, 3, 11, and 13.

Soil gas was sampled by driving a 1-inch, hollow steel probe into unsaturated soil (i.e., the vadose zone) to a designated depth, generally 5 feet below ground surface (bgs). Probe depth depended on site-specific factors, including soil type, density, and depth to groundwater. Once the probe was in place, flexible tubing was attached. The probe was then pulled back 1 to 2 inches and the tubing connected to a suction pump. The pump pulled a sample of soil gas through the probe. The sample was extracted from the tubing with a gas-tight syringe before reaching the pump, and then injected into a GC to determine the presence of selected target VOCs. Target compounds were benzene, toluene, xylenes, trichloroethylene (TCE), 1,1,1-trichloroethane (TCA), and tetrachloroethylene (PCE). Other compounds were also identified at specific locations.

Data plotting and assessment of each sample run were performed immediately in the field to maximize effective determination of the areal extent of contaminated soils. Results of the soil gas survey, in Appendix D, are discussed site-by-site in Sections 6.0 through 13.0. Isoconcentration plots of the data are not considered technically reliable by Jordan and were not prepared. The data were used in the field as an initial screening tool to identify hot spots for potential further investigation, and to modify locations of test pits, soil borings, and monitoring wells.

4.3 GEOPHYSICAL INVESTIGATIONS

Geophysical survey techniques were used at NAS Brunswick during the 1988 and 1989 field seasons to assess depths to bedrock, assess the areal extent of disposal at several landfills, and locate the disposal pit at Site 7. In 1988, geophysical investigations at Sites 1, 2, 3, 7, and 8 used the following remote survey techniques:

- ground-penetrating radar (GPR) (Sites 1, 2, 3, and 7) identified areas of refuse disposal
- magnetometer/gradiometer (Sites 1, 2, 3, and 8), in conjunction with GPR, identified the limits of refuse disposal areas
- seismic refraction (Sites 1 and 2) determined depth to bedrock along linear alignments
- terrain conductivity (electromagnetic induction) (Site 7) located the acid/caustic disposal pit reported at this site

Click Here to Return to Main Index

During the 1989 field investigation, geophysics were limited to a seismic refraction survey conducted southeast of Site 1 to assess the depth to bedrock.
Purposes of the geophysical studies were to better define subsurface geologic and hydrogeologic conditions, to identify potential sources of contamination for investigation by direct techniques, and to obtain subsurface information in some landfill areas where no direct investigations were planned. GPR and magnetometer techniques also assessed subsurface conditions before installation of test pits, soil borings, and monitoring wells, and assisted in optimizing sampling locations.

Site-specific geophysical techniques and rationale are discussed more fully in site-specific subsections in Sections 6.0 through 13.0.

4.4 TEST PITS

Test pits were excavated by backhoe at several sites to examine subsurface soils, assess horizontal and vertical distribution of shallow soil contamination, and evaluate the nature of landfill wastes, thereby providing data for developing volume estimates for FS remedial alternatives. During the 1988 field season, 15 test pits were excavated at Sites 1, 3, 4, 7, and 9. In 1989, 52 test pits were excavated at Sites 1, 3, 7, 8, and 13. Test pit records are in Appendix C; excavation locations are indicated on site-specific exploration location figures.
During the test pit program, the backhoe bucket was steam-cleaned between test pits to prevent cross-contamination. Test pit soils and stratigraphy were logged by Jordan field geologists. Soil samples were collected in Series 300, 4-ounce glass jars for laboratory analysis. Selected soil samples were submitted for analysis based on PI meter readings, visual evidence of contamination, and field GC screening data. Some samples were collected by compositing. These were collected by one of two methods. If the test pit was safe to enter, composited samples were collected at different locations from the face of the pit using stainless steel spatulas. If the pit was not safe to enter, the samples were composited by taking representative scoops from within the excavated soil in the backhoe bucket. VOC samples were never composited; they were collected individually from one location, either on the test pit face or from soil in the backhoe bucket. Detailed field logs of the test pits were completed before backfilling.

4.5 SOIL BORINGS AND SAMPLING

Soil borings and sampling performed at NAS Brunswick documented geologic stratigraphy, assessed the extent of soil contamination, and enabled the installation of monitoring wells. Twenty-one borings were completed during the PAC Study field program in 1984; 30 borings were drilled in 1988; and 41 borings were drilled in 1989. Borings were observed and logged by Jordan geologists and soil scientists. The rationale for explorations at each site is described more fully in the individual site subsections in Sections 6.0 through 13.0. Subsurface exploration procedures are described in the following paragraphs.

Click Here to Return to Main Index

Test boring exploration methods used at NAS Brunswick included drilling with 4.25- or 6-inch inside diameter (ID) hollow-stem augers. With augers, drill cuttings were carried upward toward the ground surface by the auger flights, and little (if any) water was required as a drilling fluid. In deep borings or locations where the hollow-stem auger method was not successful because of running sand or problems with clay deposits, 4-inch ID flush casing was used for drilling and the casing washed out with base potable water between samples. Drilling water samples were collected and analyzed for the same elements and compounds being investigated base-wide.

At shallow-deep paired monitoring well locations, soil sampling was only conducted in the deeper boring. Subsurface soils were either sampled at 5-foot intervals or continuously, depending on depth, proximity to source contamination, difficulties encountered during drilling, regulatory requests, and anticipated data needs. Generally, near-source borings were sampled continuously.

Soil samples were obtained by driving 1 and 3/8-inch ID split-spoon samplers with a 140-pound hammer dropped 30 inches. Blow counts were recorded and samples obtained for geologic logging, grain-size analysis, and laboratory chemical analysis, depending on site-specific data needs. Split-spoon soil samples were screened initially in the field using a PI meter, and subsequently screened with an on-site GC. Based on results of screening and visual observations, soil samples were selected for laboratory analysis.

Selected soil samples, generally from the well-screen intervals, also were submitted for grain-size distribution analyses. In 1988, these samples were sent to Jordan's soil testing laboratory for sieve analysis. In 1989, grain-size analyses were performed by Empire Soils Investigations, Inc., of Middleport, New York. The results of these tests are in Appendix E.

4.6 GAS CHROMATOGRAPH AND PHOTOIONIZATION METER FIELD SCREENING

The purpose of GC field screening of soil and groundwater samples was to assess VOC contamination in these media. Field GC data, in conjunction with PI meter screening, were used to select soil samples for laboratory analysis and to assist in placing well screens in contaminated strata. The most contaminated samples were routinely selected for laboratory analysis based on PI meter readings and GC screening. Selection of the most contaminated sample develops a worst case scenario for the site.

During 1989 RI field screening at NAS Brunswick, two GC methods were employed for soil and groundwater analyses: (1) purge-and-trap, and (2) headspace. The purge-and-trap process analyzed groundwater samples collected by a HydroPunch Sampler. The HydroPunch Sampler is a specialty tool designed to sample groundwater at selected depths during advancement of a borehole. During the purge-and-trap analytical process, helium was bubbled through the water sample at ambient temperature, and volatile components transferred from the aqueous phase to the gas phase. The gas stream was then passed through a sorbent column where the volatile components were adsorbed. After purging was

Click Here to Return to Main Index

completed, the sorbent column was flash-desorbed onto a gas chromatographic column for separation, identification, and quantitation.

For GC screening of soil samples, the headspace technique was used during the 1988 and 1989 RIs. Soil samples from split-spoon sampling were collected in 40 milliliter (ml) glass vials. Samples were shaken before analysis and the headspace allowed to equilibrate. One hundred microliters (μL) of headspace vapor was then withdrawn through the septum cap and injected directly into the heated GC columns where volatile components were separated, identified, and quantitated.

Prior to GC screening, all soil samples were screened in the field with a PI meter as soon as the split-spoon sampler was opened. This preliminary screening was done to identify highly contaminated samples (to alert GC operators), to assist in well screen placement decisions, and to monitor the health and safety of field personnel. PI meter screening data is recorded in field boring and test pit logs. Both GC methods (i.e., headspace and purge-and-trap) screened samples for volatile chlorinated organics with the aid of an electron capture detector (ECD), and for volatile aromatic compounds with the aid of a flame ionization detector (FID). GC data have been retained in Jordan's project files.

4.7 MONITORING WELL INSTALLATION

Groundwater monitoring wells were installed in 29 of the 30 completed boreholes in 1988, and in 40 of 41 boreholes completed in 1989. Well screen placements were predicated on geologic conditions encountered in the field in conjunction with PI meter and GC data, and site-specific data needs. Placement of well screens in selected downgradient monitoring wells at Sites 1 and 13 during the 1989 field program was aided further by sampling and screening of groundwater during drilling. Groundwater samples, generally collected at 10-foot intervals, were extracted using a HydroPunch Sampler and screened using purge-and-trap techniques with a field GC. The HydroPunch was driven into undisturbed strata, similar to a split-spoon sampler, and a sampling port was exposed by retracting the unit, permitting 0.5-liter groundwater samples to be collected. Well screens were then placed at depths with the highest GC readings.

Monitoring wells were constructed of 2-inch ID, flush-jointed Schedule 40 polyvinyl chloride (PVC), with 5- or 10-foot lengths of .01-inch slotted PVC well screen. Well construction specifics are in the monitoring well details (see Appendix F). The annulus around each screen was backfilled with silica sand to a minimum of 2 feet above the top of the screen. Typically, a 2- to 3-foot bentonite pellet seal was installed above the sandpack. Then a bentonite/cement grout or straight bentonite grout slurry seal (i.e., Volclay) was tremied into place above the bentonite pellet seal to the surface to eliminate the vertical conduit created by the drilling process. During the 1988 field program, a bentonite/cement grout was tremied directly above a thick sandpack in deeper monitoring wells where bentonite pellets had the potential to bridge inside the casing during installation (usually greater that 60 feet). This same procedure was used in the 1989 field program for the

Click Here to Return to Main Index

deeper borings, but instead of using a bentonite/cement grout, wells were backfilled with a straight bentonite grout slurry (i.e., Volclay). In some shallow borings, with less than 10 feet above the bentonite pellet seal to ground surface, drill cuttings or clean silica sand was used as backfill. See Appendix F for individual monitoring well details.

Monitoring wells were developed using an airlift method. With this technique, compressed air (after being cleansed by a hydrocarbon filter) is introduced into the well through a small tube in the base of an eductor pipe lowered to the base of the well. The air displaces water in the eductor pipe, causing more water to flow into the eductor pipe and be discharged at the surface. Typically, the airlift system consists of two small-diameter tubes: one is an air line attached to an air compressor; and the other larger tube (eductor pipe) acts as the water discharge. The air tube is attached to the eductor pipe and terminates inside facing upward within the eductor pipe.

Wells were pumped by this method for at least an hour, or until the water was clear and free of silts. Wells were also periodically surged by shutting off the air supply, allowing water in the eductor pipe to quickly reenter the formation.

MW-1301 was the only well from which development water was drummed due to elevated PI meter readings.

Wells were completed with protective steel casings cemented into the ground and equipped with locking covers. Monitoring wells MW-404, MW-405, MW-408, MW-1103, and MW-1301 were the only wells installed with flush-mount protective casings; other wells have aboveground protective steel casings. Wells were marked for identification in the field.

4.8 SURFACE SOIL SAMPLING

During the 1989 field program, surface soil samples were collected for laboratory analysis at Sites 1, 3, 7, 8, 9, and 13. At Sites 1 and 3, surface soil samples were collected at two seep locations (i.e., LT-201 and LT-302) to quantify the potential for ecological receptor uptake of contaminants in the vicinity of contaminated leachate seeps. On an approximate 10-foot radius from LT-302 and LT-201, three surface soil samples from each seep location were collected and analyzed for semivolatile organic compounds (SVOCs), pesticides, and inorganics. Also at Site 1, surface soil samples were collected at 16 test pit locations and analyzed for USEPA's Target Compound List (TCL) organics and inorganics. Surface soil samples were collected at Sites 7 and 8 from 12 and six test pit locations, respectively, and were analyzed for USEPA's TCL organics and inorganics. At Site 9, three surface soil samples (i.e., SS-901 to SS-903) were collected to address surface exposure RA scenarios in the vicinity of the outdoor picnic area (south of Building 201). These soils were analyzed for USEPA's TCL organics and inorganics. At Site 13, six surface soil samples were collected from test pit locations. Surface soil samples were obtained from zero to 6 inches in depth; sampling locations are shown on the exploration location map for each site.

Click Here to Return to Main Index

4.9 SURFACE WATER, SEEP, AND SEDIMENT SAMPLING

The purpose of the surface water and seep sampling program was to assess the impact of Sites 1, 2, 3, 8, and 9 on the water quality of nearby streams, and to evaluate whether these impacts pose a potential threat to human health or the environment. At Sites 1, 2, 3, and 9, the sampling program for Mere Brook beaver marsh, Merriconeag Stream, and Harpswell Cove was an expansion of the PAC Study sampling plan. Additional sampling locations were established at these sites to assess the impact of groundwater discharge on Mere Brook beaver marsh, Merriconeag Stream, Picnic Area Pond, and the tributaries bordering Site 9. Sediment samples were collected at all surface water and seep sampling locations for laboratory analysis. Surface water, sediment, and leachate seep sampling was also conducted at Site 8 to assess the impact of the Site 8 disposal area on tributaries to the Androscoggin River. Table 4-2 shows the sampling program for all sampling locations in each of the four rounds. Site-specific sampling rationale are discussed in Sections 6.0 through 13.0.

4.10 GROUNDWATER SAMPLING

Approximately two weeks after completion and development of monitoring wells in the 1988 field program, groundwater samples were collected for laboratory chemical analysis (in September 1988). These were collected from 28 new and 20 existing wells on base (MW-202B was not sampled due to lack of sufficient water). This initial data set was incorporated into the Round I Data Package (E.C. Jordan Co., 1989a). Two additional rounds of sampling and analyses of these wells were completed in December 1988 and April 1989 with data incorporated into the Round II and Round III Data Packages, respectively (E.C. Jordan Co., 1989b and 1989c). Round II analyses were similar to Round I; laboratory analyses for groundwater included TCL organic and inorganic parameters. Based on analytical results of the first two rounds, the Round III sampling schedule was modified. In general, only wells that showed an inconsistent record of contamination in the first two rounds were resampled, and only for the parameters in question. Also, two existing wells at Site 13, drilled for an earlier geotechnical investigation (i.e., GZA-1 and GZA-3), were sampled.

For Round IV sampling, 37 wells installed during the 1989 Additional Sampling Program were sampled. Also, in response to a regulatory agency request, the two base golf course water supply wells were sampled. All wells were analyzed for VOCs, SVOCs, polychlorinated biphenyls (PCBs), pesticides, and inorganics. Selected previously installed wells were also sampled and analyzed for selected parameters to confirm data from Rounds I, II, and III, and to provide continuity with Round IV data.

Groundwater monitoring well samples scheduled for analysis of inorganic parameters were filtered. Filtered samples were collected after the initial 100 ml $\pm$ of filtrate was discarded. The subsequent filtrate, after passing through a 0.45-micrometer (μm) membrane filter, was collected as a filtered sample.

TABLE 4-2
SAMPLING MATRIX
ROUNDS 1 THROUGH 4

REMEDIAL INVESTIGATION
NAS BRUNSWICK

MONITORING WELLS SITE NO.	STATION NO.	VOC ROUND 1	VOC ROUND 2	VOC ROUND 3	VOC ROUND 4	SVOC ROUND 1	SVOC ROUND 2	SVOC ROUND 3	SVOC ROUND 4	INORGANICS ROUND 1	INORGANICS ROUND 2	INORGANICS ROUND 3	INORGANICS ROUND 4	PEST/PCB ROUND 1	PEST/PCB ROUND 2	PEST/PCB ROUND 3	PEST/PCB ROUND 4	GWQ ROUND 1	GWQ ROUND 2	GWQ ROUND 3	GWQ ROUND 4	CARB/ BICARB ROUND 2	CARB/ BICARB ROUND 4	TKN/TP COD/BOD ROUND 4	SULFATE/ CHLORIDE ROUND 4	TOC ROUND 2	TOC ROUND 4
1,2,3	MW-101	X	X	X		X	X			X	X	X		X	X							X				X	
1,2,3	MW-102	X	X	X		X	X			X	X	X		X	X							X				X	
1,2,3	MW-103	X	X			X	X			X	X			X	X							X				X	
1,2,3	MW-104	X	X			X	X			X	X			X	X							X			X	X	
1,2,3	MW-105A	X	X	X		X	X			X	X	X		X	X							X			X	X	
1,2,3	MW-105B	X	X	X		X	X			X	X	X		X	X							X			X	X	
1,2,3	MW-106	X	X	X	X	X	X			X	X	X	X	X	X							X			X	X	
1,2,3	MW-201	X	X			X	X			X	X			X	X							X			X	X	
1,2,3	MW-202A	X	X	X	X	X	X	X		X	X	X	X	X	X							X			X	X	
1,2,3	MW-202B																										
1,2,3	MW-203	X	X		X	X	X			X	X		X	X	X							X			X	X	
1,2,3	MW-204	X	X			X	X			X	X			X	X							X			X	X	
1,2,3	MW-205	X	X	X	X	X	X			X	X	X	X	X	X							X		X	X	X	
1,2,3	MW-206A	X	X	X		X	X			X	X			X	X							X			X	X	
1,2,3	MW-206B	X	X	X		X	X			X	X	X		X	X							X			X	X	
1,2,3	MW-207A	X	X	X		X	X			X	X			X	X	X						X			X	X	
1,2,3	MW-207B	X	X	X		X	X			X	X	X		X	X							X			X	X	
1,2,3	MW-208	X	X	X		X	X			X	X	X		X	X							X			X	X	
1,2,3	MW-209	X	X			X	X			X	X			X	X							X				X	
1,2,3	MW-210A	X	X	X		X	X			X	X	X		X	X							X				X	
1,2,3	MW-210B	X	X	X		X	X			X	X	X		X	X							X		X		X	
1,2,3	MW-211A	X	X	X		X	X			X	X	X		X	X							X				X	
1,2,3	MW-211B	X	X			X	X			X	X			X	X							X				X	
1,2,3	MW-212	X	X			X	X			X	X			X	X							X				X	
1,2,3	MW-213	X	X	X		X	X			X	X	X		X	X							X			X	X	
1,2,3	MW-214				X				X				X				X						X		X		
1,2,3	MW-215				X				X				X				X						X		X		
1,2,3	MW-216A				X				X				X				X						X		X		
1,2,3	MW-216B				X				X				X				X						X		X		
1,2,3	MW-217A				X				X				X				X						X		X		
1,2,3	MW-217B				X				X				X				X						X		X		
1,2,3	MW-218				X				X				X				X						X		X		
1,2,3	MW-219				X				X				X				X						X	X	X		
1,2,3	MW-220				X				X				X				X						X		X		
1,2,3	MW-222				X				X				X				X						X		X		
1,2,3	MW-223				X				X				X				X						X		X		
1,2,3	MW-224				X				X				X				X						X		X		
1,2,3	MW-225A				X				X				X				X						X		X		
1,2,3	MW-225B				X				X				X				X						X		X		
1,2,3	MW-229A				X				X				X				X						X		X		
1,2,3	MW-229B				X				X				X	**			X						X		X		
1,2,3	MW-230A				X				X				X				X						X		X		
1,2,3	MW-230B				X				X				X				X						X		X		
1,2,3	MW-231A				X				X				X				X						X		X		
1,2,3	MW-231B				X				X				X				X						X		X		

Click Here to Return to Main Index

TABLE 4-2
SAMPLING MATRIX
ROUNDS 1 THROUGH 4
(CONTINUED)

REMEDIAL INVESTIGATION
NAS BRUNSWICK

		VOC			SVOC			INORGANICS				PEST/PCB				GWQ					CARB/ BICARB	TKN/TP COD/BOD	SULFATE/ CHLORIDE	TOC	
		ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 2	ROUND 4	ROUND 4	ROUND 4	ROUND 2	ROUND 4
1,2,3	MW-232A				X				X				X				X						X	X	X		
1,2,3	MW-232B				X				X				X				X						X		X		
1,2,3	MW-233				X				X				X	**			X						X		X		
1,2,3	MW-234				X				X				X				X						X		X		
4	MW-401	X	X		X	X	X			X	X		X		X	X						X			X	
4	MW-402	X	X		X	X	X			X	X		X		X	X						X			X	
4	MW-403	X	X	X	X	X	X			X	X	X	X		X	X						X			X	
4	MW-404	X	X		X	X	X			X	X		X		X	X						X			X	
4	MW-405	X	X	X	X	X	X			X	X	X	X		X	X						X			X	
4	MW-406	X	X		X	X	X			X	X		X		X	X						X			X	
4	MW-407	X	X	X	X	X	X			X	X	X	X	**	X	X						X			X	
4	MW-408				X				X				X				X							X	X		
7	MW-701	X	X	X		X	X			X	X	X			X	X						X			X	
7	MW-702	X	X			X	X			X	X				X	X						X			X	
7	MW-703	X	X			X	X			X	X				X	X						X			X	
7	MW-704	X	X			X	X			X	X				X	X						X			X	
7	MW-705	X	X			X	X			X	X				X	X						X			X	
7	MW-706	X	X			X	X			X	X				X	X						X			X	
8	MW-801	X	X	X		X	X			X	X	X	X	**	X				X			X			X	
8	MW-802	X	X			X	X			X	X		X		X				X			X			X	
8	MW-803	X	X	X		X	X			X	X	X	X		X				X			X			X	
8	MW-804	X	X	X		X	X			X	X	X	X		X				X			X			X	
8	MW-807	X	X	X		X	X			X	X	X	X	**	X				X			X			X	
8	MW-808	X	X			X	X			X	X		X		X				X			X			X	
8	MW-810				X				X				X				X				X		X	X	X		
8	MW-811				X				X				X				X				X		X	X	X		
8	OW-812																										
8	OW-813																										
8	OW-814																										
9	MW-901	X	X		X	X	X			X	X		X		X							X			X	
9	MW-902	X	X		X	X	X			X	X		X		X							X			X	
9	MW-903	X	X		X	X	X			X	X		X		X							X			X	
9	MW-904	X	X	X	X	X	X			X	X	X	X		X							X			X	
9	MW-905	X	X	X	X	X	X			X	X	X	X	**	X							X			X	
9	MW-906				X				X				X				X						X				
9	MW-907				X				X				X				X						X				
9	MW-908				X				X				X				X						X				
11	MW-1101				X				X				X				X						X				
11	MW-1102				X				X				X				X						X				
11	MW-1103				X				X				X				X						X				
11	MW-1104				X				X				X				X						X	X			
13	MW-1301				X				X				X				X						X				
13	MW-1302				X				X				X				X						X				
13	MW-1303				X				X				X				X						X				
13	GZA-1			X	X			X	X			X	X			X	X						X				

Click Here to Return to Main Index

TABLE 4-2
SAMPLING MATRIX
ROUNDS 1 THROUGH 4
(CONTINUED)

REMEDIAL INVESTIGATION
NAS BRUNSWICK

			VOC				SVOC				INORGANICS				PEST/PCB				GWQ				CARB/ BICARB		TKN/TP COD/BOD	SULFATE/ CHLORIDE	TOC	
			ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 2	ROUND 4	ROUND 4	ROUND 4	ROUND 2	ROUND 4
	13	GZA-3			X	X			X	X			X	X			X	X						X				
	OTHER	GOLF-1				X				X				X				X										
	OTHER	GOLF-2				X				X				X				X										
	SURFACE WATER/SEDIMENTS																											
	SITE NO.	STATION NO.																										
*	1,2,3	SW/SD-002	X	X		X	X	X		X	X	X		X	X	X		B										X
*	1,2,3	SW/SD-003	X	X		X	X	X	X	B	X	X	X	X	X	X		B										X
*	1,2,3	SW/SD-004	X	X		X	X	X		B	X	X		X	X	X		B										X
*	1,2,3	SW/SD-113	X	X	X	X	X	X		B	X	X	X	X	X	X		B										
*	1,2,3	SW/SD-114	X	X		X	X	X		B	X	X	X	X	X	X		B										
*	1,2,3	SW/SD-115	X	X	X	X	X	X	X	B	X	X		X	X	X		B										X
*	1,2,3	SW/SD-316	X	X		X	X	X		B	X	X		X	X	X		B										X
*	1,2,3	SW/SD-317	X	X		X	X	X		B	X	X	X	X	X	X		B										X
*	1,2,3	SW/SD-118	X	X		X	X	X	X	B	X	X	X	X	X	X		B										
*	1,2,3	SW/SD-119	X	X		X	X	X		B	X	X	X	X	X	X		B										
*	1,2,3	SW/SD-120				X				B				X				B										X
*	1,2,3	SW/SD-121				X				B				X				B										X
*	1,2,3	SW/SD-122				X				B				X				B										X
*	1,2,3	SW/SD-123				X				B				X				B										X
*	1,2,3	SW/SD-124				X				B				X				B										X
	1,2,3	SW/SD-125A				X								X														
	1,2,3	SW/SD-125B				X																						
	1,2,3	SW/SD-126				X				X				X				X										
	1,2,3	SW/SD-127				X				X				X				X										
	1,2,3	SW/SD-128				X				X				X				X										
	1,2,3	SW/SD-129				X				X				X				X										
*	1,2,3	SW/SD-315				X				B				X				B										X
*	1,2,3	SW/SD-319				X				B				X				B										X
	1,2,3	SS-118	B	B			B	B			B	B	B		B	B												
	1,2,3	SW/SD-BK-1		X	X			X	X			X	X			X	X											
	1,2,3	SW/SD-BK-2		X	X			X	X			X	X			X	X											
	B	SW/SD-006	X	X			X	X			X	X			X	B			A	A								
	B	SW/SD-007	X	X			X	X			X	X	X		X	B			A	A								
	B	SW/SD-008	X	X			X	X		X	X	X	X		X	B		B	A	A								X
	B	SW/SD-009	X	X			X	X	X		X	X	X		X	B			A	A								
	B	SW/SD-817	X	X			X	X	X		X	X	X		X	B			A	A								
	B	SW/SD-818	X	X			X	X	X	X	X	X	X		X	B			A	A								X
	B	SW/SD-819	X	X			X	X			X	X			X	B			A	A								
	B	SW/SD-820	X	X			X	X			X	X			X	B	X		A	A								
	B	SW/SD-821	X	X			X	X			X	X			X	B			A	A								
	B	SW/SD-822								X																		X

Click Here to Return to Main Index

TABLE 4-2
SAMPLING MATRIX
ROUNDS 1 THROUGH 4
(CONTINUED)

REMEDIAL INVESTIGATION
NAS BRUNSWICK

		VOC				SVOC				INORGANICS			PEST/PCB				GWQ				CARB/ BICARB		TKN/TP COD/SOD	SULFATE/ CHLORIDE	TOC	
		ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 2	ROUND 4	ROUND 4	ROUND 4	ROUND 2	ROUND 4
8	SW/SD-923								X																		X
8	SW/SD-924								X																		X
9	SW/SD-010	X	X		X	X	X		X	X	X		X	X	S	X											X
9	SW/SD-011	X	X	X	X	X	X	X	X	X	X		X	X	S												X
9	SW/SD-012	X	X		X	X	X		X	X	X		X	X	S												X
9	SW/SD-915	X	X	X	X	X	X	X	X	X	X		X	A	S												X
9	SW/SD-916	X	X	X	X	X	X	X	X	X	X		X	A	S												X
9	SW/SD-917	X		X		X				X		X		X													
9	SW/SD-918	X	X			X	X			X	X	X		X	S												
9	SW/SD-919				X				X				X														X
9	SW/SD-920				X				X				X														X
9	SW/SD-921				X				X				X														X
9	SW/SD-922				X				X				X														X
9	SW/SD-923				X				X				X														X
9	SW/SD-924				X				X				X														X
9	SW/SD-925				X				X				X														X
9	SW/SD-926				X				X				X														X
9	SW/SD-927				X				X				X														X
SEEPS (LEACHATE AND SEDIMENT)																											
SITE NO.	STATION NO.																										
1,2,3	LT-201	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										X
1,2,3	LT-202	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										X
1,2,3	LT-203				X				X				X				X										
1,2,3	LT-301	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										X
1,2,3	LT-302	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										X
1,2,3	LT-303	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										X
1,2,3	LT-304	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										X
1,2,3	LT-305	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X										
1,2,3	LT-306				X				X				X				X										
1,2,3	LT-307				X				X				X				X										
8	LT-801	X		X	X	X		X	X	X		X	X	X		X	X	X									
8	LT-802	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X									
8	LT-803	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X									
9	LT-901			X	X			X	X			X	X			X	X										
9	FLOC								X				X														

Click Here to Return to Main Index

TABLE 4-2
SAMPLING MATRIX
ROUNDS 1 THROUGH 4

REMEDIAL INVESTIGATION
NAS BRUNSWICK

NOTES:
ALL VOCS, SVOCS, INORGANICS, AND PEST/PCBS ANALYZED FOR TARGET COMPOUND LIST
GWQ-GENERAL WATER QUALITY; ANALYSES PERFORMED ONLY ON SITE 8 SURFACE WATER, GROUNDWATER, AND LEACHATE
CARB-CARBONATE
BICARB-BICARBONATE
TKN-TOTAL KJELDAHL NITROGEN
TP-TOTAL PHOSPHATE
BOD-BIOLOGICAL OXYGEN DEMAND
COD-CHEMICAL OXYGEN DEMAND
TOC-TOTAL ORGANIC CARBON
BOTH GOLF COURSE WELLS AND ALL SITE 8 SURFACE WATER AND GROUNDWATER VOC SAMPLES WERE ANALYZED USING METHOD 524.1 OR 524.2
*-DURING ROUND 4, THE SURFACE WATERS AT THESE LOCATIONS WERE ANALYZED FOR VOCS AND INORGANICS ONLY
TOC IN ROUND IV ANALYZED ON SEDIMENTS ONLY
SS-11S ANALYZED FOR SEDIMENTS ONLY
AT ALL SW/SED AND LT SAMPLE LOCATIONS, BOTH WATER AND SEDIMENT SAMPLES WERE COLLECTED EXCEPT:
A= ONLY WATER SAMPLES WERE COLLECTED
S= ONLY SEDIMENT SAMPLES WERE COLLECTED
ROUND 1 DATA GATHERED DURING THE PERIOD JULY THROUGH SEPTEMBER 1988.
ROUND 2 DATA GATHERED IN DECEMBER 1988.
ROUND 3 DATA GATHERED IN APRIL 1989.
ROUND 4 DATA GATHERED DURING THE PERIOD AUGUST THROUGH OCTOBER 1989.
** - INORGANIC SAMPLES NOT FILTERED

Click Here to Return to Main Index

Click Here to Return to Main Index

To assess the cleaning procedures of the filtration apparatus, the potential for cross-contamination, and the potential contribution to the sample from the filter itself, a filtration blank was collected for approximately every 15 samples filtered. The filtration blank was prepared by passing clean water through a freshly cleaned filtration apparatus, then preserving the sample (if required) for the analysis planned. This sample may also be prepared by filtration of the sampler blank aliquot scheduled for inorganic analysis.

Several monitoring wells were sampled unfiltered due to high turbidity of groundwater within the wells. Those wells are identified in Table 4-2.

Groundwater and Surface Water Field Parameters. During each sampling event, groundwater and surface water samples were analyzed in the field for temperature, pH, and specific conductivity (see Appendix G). Temperature data vary widely across the base, depending on depth of the groundwater table and ambient air temperatures (i.e., seasonal influences). The greatest temperature fluctuations are obviously those of shallow groundwater and surface water.

In response to natural environments and site-related contamination, specific conductivity data and pH vary substantially across the base. Specific conductivity and pH values sometimes fluctuated dramatically between sampling rounds. These two parameters should be used with caution as general indicators of potential contamination.

Most pH readings ranged from the high 5s to low 7s. Notable exceptions were elevated pH readings consistently recorded in MW-210A and MW-211A at Site 1. Both wells were grouted into bedrock with a cement-bentonite grout in 1988. It is likely that high pHs in these two bedrock wells are a function of the bedrock aquifer. A general pattern observed at Site 1 is an increase in pH with depth, which is attributable to the natural buffering action of soils and groundwater on landfill leachate and precipitation. Monitoring well MW-905 had a high pH in Round II sampling (i.e., 11.0), but had an average pH of 8.3 $\pm$ 0.31 in sampling Rounds I, II, and IV. MW-905 is screened in clay and the 8.3 value is consistent with wells screened in clay in silt-rich zones.

Specific conductivities vary greatly across the base, ranging from less than 100 to more than 2,000 micromhos per centimeter (umhos/cm). Specific conductivities are strongly influenced (elevated) in areas affected by landfill leachate and grout, for example, in MW-210A and MW-211A. Background values of specific conductivity at NAS Brunswick generally appear to be less than 100 umhos/cm.

4.11 HORIZONTAL AND VERTICAL ELEVATION SURVEY

The location and elevation of new monitoring wells, test pits, and surface water sampling points were surveyed by Jordan to the nearest 0.05 foot horizontally and 0.01 foot vertically, tied into the Maine State Grid, and referenced to MSL. Locations of monitoring wells, test pits, and surface water and sediment sampling points were plotted on base maps provided by the Navy and modified by Jordan. Ground survey data are in Appendix H.

Click Here to Return to Main Index

4.12 IN SITU AQUIFER HYDRAULIC CONDUCTIVITY TESTS

In situ aquifer hydraulic conductivity (K) testing has been performed during each work phase at NAS Brunswick to obtain general information on aquifer properties. It is important to recognize that in situ tests assess aquifer properties in the immediate vicinity of the well and are influenced by local variations in stratigraphy, well installation methods, and well development. These data have been used to develop an understanding of bulk aquifer properties, including variations with depth and between formations.

Initially, 16 monitoring wells were field-tested in December 1984, as part of the PAC Study. In September 1988, as part of the Phase I RI, 27 new monitoring wells were tested and results reported in the Round I Data Package (E.C. Jordan Co., 1989a). Three wells, MW-202B, MW-105A, and MW-207A, have not been tested. MW-202B has historically been almost dry and MW-105A and MW-207A typically flow above ground surface. In August 1989, as part of the Additional Sampling Program, 40 new monitoring wells were tested for in situ hydraulic conductivity. These data are presented in Table 4-3.

To assess the hydraulic conductivity of the clay stratum, a stationary-piston tube sampler was used to obtain two undisturbed clay samples from Site 8, and one clay sample from Site 1. Constant-head triaxial permeability tests were conducted on these three samples measuring vertical hydraulic conductivities for the clay stratum. These data are also included in Table 4-3 and Appendix I.

Field methods differed in the three rounds of hydraulic conductivity testing. Falling-head tests were performed in the 1984 PAC Study by adding water to the wells and manually measuring the falling head over time. At wells MW-106, MW-901, and MW-903, water levels reportedly recovered to static conditions too quickly for accurate manual measurements. Based on successful manual measurements yielding a calculated K value of 2.9×10^{-3} centimeters per second (cm/sec) in MW-104, hydraulic conductivity for materials encountered in MW-106, MW-901, and MW-903 are interpreted to exceed 2.9×10^{-3} cm/sec.

For the 1988 RI and the 1989 Additional Sampling Program, Jordan field personnel used In Situ Hermit Data Loggers with pressure transducers to electronically record well recoveries during rising- and falling-head well tests. The 1988 field tests used air pressure to depress groundwater in the wells to a point above the top of the slotted well screens. In the case of shallow well screens where air potentially could have been forced into the formation during water table depression, a solid slug was used to displace water in the well. During the 1989 field program, a slug was used exclusively for displacing groundwater in the wells, with water levels electronically recorded after rapid removal or lowering of the slug. In the 1988 and 1989 testing programs, at least two tests were performed per well (with the exception of MW-233) to increase data reliability. In some wells, if the first two test values differed dramatically, a third and occasionally fourth test was run to obtain more reliable data. Values reported in Table 4-3 are the arithmetic

Click Here to Return to Main Index

Table 4–3
In–Situ Hydraulic Conductivities

Remedial Investigation
NAS Brunswick

MONITORING WELL	YEAR TESTED	DRILLING METHOD (2)	TEST PARAMETERS		HYDRAULIC CONDUCTIVITY (1)	
			TYPE	STRATA(3)	cm/s	ft/day
MW–101	1984	C	Falling Head–In Situ	Sand and Transition (2)	6.20 x 10–5	0.18
MW–102	1984	C	Falling Head–In Situ	Transition and Clay	4.00 x 10–5	0.11
MW–103	1984	C	Falling Head–In Situ	Sand and Transition	7.80 x 10–5	0.22
MW–104	1984	C	Falling Head–In Situ	Sand	2.90 x 10–3	8.22
MW–105B	1984	C	Falling Head–In Situ	Sand and Transition	5.20 x 10–4	1.47
MW–106	—	C	SEE NOTE (4)	Sand	>2.9 x 10–3	>8.22
MW–201	1988	A	Rising Head–In Situ	Sand	1.73 x 10–2	49.05
MW–202	1988	A	Rising Head–In Situ	Sand and Transition	7.27 X 10–4	2.06
MW–203	1988	A	Rising Head–In Situ	Sand and Transition	2.00 X 10–2	56.70
MW–204	1988	A	Rising Head–In Situ	Sand	1.23 X 10–2	34.87
MW–205	1988	A	Rising Head–In Situ	Transition	6.57 X 10–4	1.86
MW–206A	1988	A	Rising Head–In Situ	Sand	1.45 X 10–3	4.11
MW–206B	1988	A	Rising Head–In Situ	Sand	8.28 X 10–3	23.47
MW–207B	1988	A	Rising Head–In Situ	Sand	4.78 X 10–4	1.36
MW–208	1988	A	Rising Head–In Situ	Transition	8.60 X 10–5	0.24
MW–209	1988	A	Rising Head–In Situ	Sand	9.08 X 10–3	25.74
MW–210A	1988	A	Rising Head–In Situ	Bedrock	9.59 X 10–5	0.27
MW–210B	1988	A	Rising Head–In Situ	Sand	2.58 X 10–3	7.31
MW–211A	1988	A	Rising Head–In Situ	Bedrock	4.18 X 10–5	0.12
MW–211B	1988	A	Rising Head–In Situ	Sand	2.14 X 10–4	0.61
MW–212	1988	A	Rising Head–In Situ	Sand and Transition	9.48 X 10–5	0.27
MW–213	1988	A	Rising Head–In Situ	Transition	4.32 X 10–4	1.22
MW–214	1989	A	Rising Head–In Situ	Sand	8.2 X 10–4	2.32
MW–215	1989	A	Rising Head–In Situ	Transition	9.7 X 10–5	0.27
MW–216A	1989	A	Rising Head–In Situ	Sand and Transition	1.2 X 10–4	0.34
MW–216B	1989	A	Rising Head–In Situ	Fill and Sand	3.3 X 10–3	9.36
MW–217A	1989	A	Rising+Falling Head–In Situ	Sand and Transition	3.9 X 10–5	0.11
MW–217B	1989	A	Rising Head–In Situ	Sand (and Fill)	4.2 X 10–5	0.12
MW–218	1989	A	Rising+Falling Head–In Situ	Transition	2.1 X 10–6	0.01
MW–219	1989	A	Rising+Falling Head–In Situ	Sand	5.5 X 10–4	1.56
MW–220	1989	A	Rising Head–In Situ	Sand	3.7 X 10–4	1.05
MW–222	1989	A	Rising Head–In Situ	Sand	4.5 X 10–3	12.76
MW–223	1989	A	Rising Head–In Situ	Sand	2.4 X 10–3	6.80
MW–224	1989	A	Rising Head–In Situ	Sand	3.7 X 10–3	10.49
MW–225A	1989	C	Rising Head–In Situ	Sand	1.3 X 10–3	3.69
MW–225B	1989	A	Rising Head–In Situ	Sand	4.5 X 10–3	12.76

Click Here to Return to Main Index

Table 4-3
In-Situ Hydraulic Conductivities

Remedial Investigation
NAS Brunswick

MONITORING WELL	YEAR TESTED	DRILLING METHOD (2)	TEST PARAMETERS		HYDRAULIC CONDUCTIVITY (1)	
			TYPE	STRATA(3)	cm/s	ft/day
MW-229A	1989	C	Rising Head-In Situ	Transition	3.2 X 10-4	0.91
MW-229B	1989	A	Rising Head-In Situ	Sand	6.4 X 10-5	0.18
MW-230A	1989	C	Rising Head-In Situ	Transition	4.7 X 10-5	0.13
MW-230B	1989	A	Rising Head-In Situ	Transition	5.8 X 10-5	0.16
MW-231A	1989	A	Rising Head-In Situ	Transition	2.7 X 10-4	0.77
MW-231B	1989	A	Rising Head-In Situ	Transition	5.9 X 10-5	0.17
MW-232A	1989	A	Rising+Falling Head-In Situ	Sand and Transition	6.7 X 10-5	0.19
MW-232B	1989	A	Rising Head-In Situ	Fill and Sand	7.4 X 10-4	2.10
MW-233	1989	A	Rising+Falling Head-In Situ	Transition	4.0 X 10-8	0.0001
MW-234	1989	A	Rising Head-In Situ	Fill (and Sand)	3.3 X 10-4	0.94
MW-401	1984	C	Falling Head-In Situ	Transition	9.80 X 10-5	0.28
MW-402	1984	C	Falling Head-In Situ	Sand (and Transition)	7.70 X 10-4	2.18
MW-403	1984	C	Falling Head-In Situ	Transition	5.20 X 10-4	1.47
MW-404	1988	A	Rising Head-In Situ	Sand and Transition	7.38 X 10-4	2.09
MW-405	1988	A	Rising Head-In Situ	Sand	5.13 X 10-3	14.54
MW-406	1988	A	Rising Head-In Situ	Sand	2.51 X 10-4	0.71
MW-407	1988	A	Rising Head-In Situ	Transition	1.30 X 10-4	0.37
MW-408	1989	A	Rising Head-In Situ	Sand	1.9 X 10-3	5.39
MW-701	1984	C	Falling Head-In Situ	Sand, Clay, and Till	3.50 X 10-4	0.99
MW-702	1984	C	Falling Head-In Situ	Sand and Transition	7.60 X 10-4	2.15
MW-703	1984	C	Falling Head-In Situ	Sand and Transition	6.00 X 10-4	1.70
MW-704	1988	A	Rising Head-In Situ	Sand	5.9 X 10-3	16.73
MW-705	1988	A	Rising Head-In Situ	Sand (and clay)	6.00 X 10-3	17.01
MW-706	1988	A	Rising Head-In Situ	Sand	1.06 X 10-3	3.01
MW-801	1984	C	Falling Head-In Situ	Sand and Transition	1.40 X 10-4	0.40
MW-802	1984	C	Falling Head-In Situ	Sand and Transition	1.20 X 10-4	0.34
MW-803	1984	C	Falling Head-In Situ	Transition and Clay	2.20 X 10-4	0.62
MW-804	1984	C	Falling Head-In Situ	Sand, Transition, and Clay	1.10 X 10-5	0.03
MW-807	1988	A	Rising Head-In Situ	Transition	2.37 X 10-4	0.67
MW-808	1988	A	Rising Head-In Situ	Transition	7.05 X 10-5	0.20
MW-808 (19-21 FT)	1988	A	Constant Head-Lab	Clay	1.80 X 10-7	0.00051
MW-808 (24-26 FT)	1988	A	Constant Head-Lab	Clay	4.80 X 10-8	0.00014
MW-810	1989	A	Rising Head-In Situ	Transition and Fill	1.3 X 10-2	36.86
MW-811	1989	C	Rising+Falling Head-In Situ	Transition and Clay	2.4 X 10-6	0.007
OW-812	1989	A	Rising+Falling Head-In Situ	Transition	1.8 X 10-6	0.005
OW-813	1989		Rising Head-In Situ	Sand	3.0 X 10-4	0.85
OW-814	1989		Rising+Falling Head-In Situ	Sand and Transition	4.9 X 10-6	0.01

Click Here to Return to Main Index

Table 4-3
In-Situ Hydraulic Conductivities

Remedial Investigation
NAS Brunswick

MONITORING WELL	YEAR TESTED	DRILLING METHOD (2)	TEST PARAMETERS		HYDRAULIC CONDUCTIVITY (1)	
			TYPE	STRATA(3)	cm/s	ft/day
MW-901	----	C	SEE NOTE (4)	Sand	2.9 X 10-3	>8.22
MW-902	----	C	SEE NOTE (4)	Sand	2.9 X 10-3	>8.22
MW-903	1984	C	Falling Head-In Situ	Sand	5.60 X 10-4	1.59
MW-904	1988	A	Rising Head-In Situ	Sand	4.81 X 10-4	1.36
MW-905	1988	A	Rising Head-In Situ	Clay and Transition	3.07 X 10-6	0.009
MW-906	1989	A	Rising Head-In Situ	Sand	2.5 X 10-4	0.71
MW-907	1989	A	Rising Head-In Situ	Sand	2.0 X 10-4	0.57
MW-908	1989	A	Rising Head-In Situ	Sand	3.6 X 10-4	1.02
MW-1101	1989	A	Rising Head-In Situ	Sand	2.4 X 10-3	6.80
MW-1102	1989	A	Rising Head-In Situ	Sand	2.9 X 10-3	8.22
MW-1103	1989	A	Rising Head-In Situ	Sand	1.2 X 10-3	3.40
MW-1104	1989	A	Rising Head-In Situ	Sand	1.5 X 10-3	4.25
MW-1301	1989	A	Rising Head-In Situ	Sand	1.1 X 10-3	3.12
MW-1302	1989	A	Rising Head-In Situ	Sand	8.0 X 10-4	2.27
MW-1303	1989	A	Rising Head-In Situ	Sand	8.4 X 10-4	2.38

NOTES:

(1) Each hydraulic conductivity value presented is an arithmetic mean of multiple tests conducted at each well. All test values are included on graphic plots in Appendix I.

(2) C = well installed with casing
A = well installed with augers

(3) The sand stratum is present at ground surface basewide and consists primarily of fine sand. Underlying the sand unit is a transition zone consisting of stratified clay, silt and fine sand. The Presumpscot Formation clay underlies the transition zone. This typical stratigraphic profile is discussed in more detail in Section 5.2, Regional Geology.

(4) No permeability tests were performed on MW-106, MW-901, and MW-902. Recovery was too rapid for accurate hand measurement. Based on a successfully hand-measured 2.9 x 10-3 well, MW-106, MW-901, and MW-902 are assumed to have permeabilities of 2.9 x 10-3 or greater. Subsequent testing has relied on electronic recording of water level recoveries.

Click Here to Return to Main Index

means of test results for individual wells. Multiple test values are contained in Appendix I.

The Hvorslev method was used to calculate hydraulic conductivities from field test data (Hvorslev, 1951). Computer-generated plots of the 1989 field tests are contained in Appendix I. The order of magnitude of hydraulic conductivities calculated for specific wells are indicated on the geologic cross-sections of each site in the site-specific subsections (Sections 6.0 through 13.0) of this report.

To reiterate, hydraulic conductivity data was assessed with consideration given to local variability in stratigraphy, and drilling and well development practices. The data were used to develop a general picture of aquifer properties. Local variability may indicate drilling methods or stratigraphy, and should not obscure general trends or patterns of conductivity with depth and between formations (e.g., sand and transition). Base-wide hydraulic conductivity values are contained in Table 4-3.

To assess variability in hydraulic conductivities in different strata and because of drilling methods, Table 4-4 was also developed to compare conductivities in wells installed with casing and augers. Conductivities also have been subdivided by geologic formation to statistically compare conductivities in wells installed by augers and casing in the sand stratum, in the transition zone, and in wells that overlap the sand/transition zone boundary. Wells screened in clay, till, fill, or bedrock were not statistically evaluated due to limited data.

Thirty-eight wells are installed in the sand stratum at sites across NAS Brunswick. Six of these wells were installed with casing, the remaining 32 with augers. The geometric mean of the hydraulic conductivities are almost identical (i.e., 1.93×10^{-3} for casing and 1.35×10^{-3} for augers) for the two drilling methods in the sand stratum. This is expected due to the trace quantities of silt in the sand stratum that could be smeared with augers and thereby reduce conductivities.

Based on the similarity of conductivity data from wells in the transition zone with wells straddling the sand/transition zone interface, these data are discussed together. The geometric mean of conductivities recorded in the transition zone and sand/transition zone is 8.04×10^{-5} with augers and 2.18×10^{-4} with casing (2.7 times greater in wells installed with augers). This difference (substantially less than one order of magnitude) in hydraulic conductivities is probably attributable to smearing of silts and clays by augers in transition zone and sand/transition zone wells. This comparison was made with data from 12 cased borings and 19 auger borings (see Table 4-4).

4.13 LABORATORY ANALYTICAL PROGRAM

The laboratory analytical program at NAS Brunswick identified and quantified contaminants and the general characteristics of soils, sediments, surface water, groundwater, and leachate across the base. Samples were submitted for analysis to USEPA-approved laboratories in the Contract Laboratory Program

Click Here to Return to Main Index

TABLE 4-4
COMPARATIVE TABLE OF HYDRAULIC CONDUCTIVITY
BY GEOLOGIC FORMATION AND DRILLING METHOD

REMEDIAL INVESTIGATION - NAS BRUNSWICK

HYDRAULIC CONDUCTIVITIES IN WELLS INSTALLED WITH AUGERS (1988 & 1989) FT/DAY			
WELL ID	I SAND	II SAND/TRANS.	III TRANS.
MW-201	49.05		
MW-202		2.06	
MW-203		56.7(1)	
MW-204	34.87		
MW-205			1.86
MW-206A	4.11		
MW-206B	23.47		
MW-207B	1.36		
MW-208			0.24
MW-209	25.74		
MW-210B	7.31		
MW-211B	0.61		
MW-212		0.27	
MW-213			1.22
MW-214	2.32		
MW-215			0.27
MW-216A		0.34	
MW-217A		0.11	
MW-218			0.01
MW-219	1.56		
MW-220	1.05		
MW-222	12.76		
MW-223	6.8		
MW-224	10.49		
MW-225B	12.76		
MW-229B	0.18		
MW-230B			0.16
MW-231A			0.77
MW-231B			0.17
MW-232A		0.19	
MW-233			0.0001(1)
MW-404		2.09	
MW-405	14.54		
MW-406	0.71		
MW-407			0.37
MW-408	5.39		
MW-704	16.73		
MW-706	3.01		
MW-807			0.67
MW-808			0.2
OW-812			0.005
OW-814		0.01	
MW-904	1.36		
MW-906	0.71		
MW-907	0.57		
MW-908	1.02		
MW-1101	6.8		
MW-1102	8.22		
MW-1103	3.4		

(continued from first column)

HYDRAULIC CONDUCTIVITIES IN WELLS INSTALLED WITH AUGERS (1988 & 1989) FT/DAY			
WELL ID	I SAND	II SAND/TRANS.	III TRANS.
MW-1104	4.25		
MW-1301	3.12		
MW-1302	2.27		
MW-1303	2.38		
No. of Wells	32	7	12
Geometric Mean ft/day:	3.82	0.26	0.21
cm/sec:	1.35 x 10-3	9.2 x 10-5	7.43 x 10-5
	combined II & III:	.23 ft/day 8.04 x 10-5 cm/sec	

HYDRAULIC CONDUCTIVITIES IN WELLS INSTALLED WITH CASING (1984 & 1989) FT/DAY			
WELL ID	I SAND	II SAND/TRANS.	III TRANS.
MW-101		0.18	
MW-103		0.22	
MW-104	8.22		
MW-105B		1.47	
MW-106	>8.22		
MW-225A	3.69		
MW-229A			0.91
MW-230A			0.13
MW-401			0.28
MW-402		2.18	
MW-403			1.47
MW-702		2.15	
MW-703		1.7	
MW-801		0.4	
MW-802		0.34	
MW-901	>8.22		
MW-902	>8.22		
MW-903	1.59		
No. of Wells	6	8	4
Geometric Mean ft/day:	5.47	0.71	0.47
cm/sec:	1.93 x 10-3	2.5 x 10-4	1.66 x 10-4
	combined II & III	.62 ft/day 2.18 x 10-4 cm/sec	

(1)NOT INCLUDED IN DATA ASSESSMENT.

(CLP). CLP laboratories are required to perform chemical analyses using specific analytical procedures; each laboratory also is required to perform rigorous QA/Quality Control (QA/QC) procedures to ensure that precise, accurate, and reproducible data are obtained from laboratory analyses. Laboratory QA/QC procedures are discussed in Subsection 4.13.1. Following completion of laboratory analyses, data validation was performed by Jordan personnel according to specific data review procedures required and developed by USEPA. The data validation process is discussed Subsection 4.13.2.

To date, the RI analytical program consists of four rounds of data gathering, each presented in a Data Package (E.C. Jordan Co., 1989a, 1989b, 1989c, and 1990). A sampling matrix table summarizes the analyses performed, media sampled, and sampling locations in each sampling round (see Table 4-2). Round I consists of (1) soil data obtained during the 1988 Phase I RI drilling and test pitting programs, and (2) surface water, sediment, leachate, and groundwater data obtained after completion of the Phase I RI drilling program in 1988. Round II data consists of analyses of surface water, groundwater, sediment, and leachate obtained at sites in December 1988. Round III (in April 1989) was a limited version of Round II, designed primarily as a confirmatory round to resolve questions and conflicts in data from Rounds I and II. Round IV (from August through September 1989) consists of soil data obtained during the 1989 drilling and test pitting programs; and surface water, sediment, leachate, surface soils, and groundwater obtained after completion of the 1989 drilling program. Each Data Package was issued approximately 12 weeks after sample collection.

Round I analytical services were performed by Jordan (in Portland, Maine) and Environmental Monitoring and Services, Inc. (EMSI) of Camarillo, California. Due to problems, including CLP hold time exceedance and laboratory contamination in Round I data, analytical services for Rounds II, III, and IV were provided by CompuChem Laboratories, Inc., Research Triangle Park, North Carolina.

Water and soil analytical samples (except groundwater and surface water samples from Site 8) have been analyzed for USEPA's TCL organics and inorganics using CLP methods (see Table 4-5). Table 4-6 lists TCL organics and inorganics and detection limits. Because of the proximity of the Jordan Avenue Wellfield to Site 8, USEPA requested that Site 8 groundwater and surface water samples be analyzed for VOCs using Drinking Water Analytical Methods 524.1 or 524.2. In addition, analyses for a variety of General Water Quality (GWQ) parameters were conducted for surface water and groundwater at Site 8. The GWQ parameters and analytical procedures are listed in Table 4-7. TCL organics include VOCs, SVOCs, PCBs, and pesticides. Inorganic compounds include metals and cyanide.

Other types of laboratory analyses were performed to evaluate overall environmental conditions affecting the fate and transport of contaminants, and the screening and design of remedial alternatives. Groundwater samples were analyzed for carbonate, bicarbonate, sulfate, chloride, chemical oxygen demand (COD), and BOD. Carbonate, bicarbonate, sulfate, and chloride analyses were performed to characterize anion concentrations in groundwater. These anions

Click Here to Return to Main Index

TABLE 4-5
TCL LABORATORY ANALYTICAL PROCEDURES

NAS BRUNSWICK
RI/FS PROGRAM

MEDIA	PARAMETER	METHOD	REFERENCE
Soils	TCL VOCs	Purge and Trap/ GC/MS	CLP-COP
	TCL Pesticides and PCBs	GC	CLP-COP
	TCL Elements	AAS/PES	CLP-CIP
	Cyanide	Colorimetric	CLP-CIP
	TCL SVOCs	GC/MS	CLP-COP
Surface Water/ Groundwater	TCL VOCs	GC/MS	CLP-COP
	VOCs (Site 8)	GC/MS	USEPA Method 524.2
	TCL SVOCs	GC/MS	CLP-COP
	TCL Pesticides and PCBs	GC	CLP-COP
	TCL Elements	AAS/PES	CLP-CIP
	Cyanide	Colorimetric	CLP-CIP
	pH (field)	Potentiometric	USEPA Method 150.1
	Specific Conductance (field)	Conductance	USEPA Method 120.1

NOTES:

GC/MS - Gas Chromatography/Mass Spectrometry
CLP-COP - Contract Laboratory Program - Caucus Organic Protocol, Control #288
CLP-CIP - Contract Laboratory Program - Caucus Inorganic Protocol, Control #787
AAS - Atomic Absorption Spectroscopy
PES - Plasma Emission Spectroscopy
TCL - Target Compound List
SVOC - Semivolatile Organic Compound
VOC - Volatile Organic Compound
USEPA Method - "Methods for the Chemical Analysis of Water and Wastes"; USEPA 600/4-79-028, March 1983.
USEPA Method 524.2 - Volatile Organic Compounds in Water by Purge and Trap Capillary Column GC/MS; August 1986.

1-90-16t
4

Click Here to Return to Main Index

TABLE 4-6
TARGET COMPOUND LIST DETECTION LIMITS

NAS BRUNSWICK, BRUNSWICK, MAINE

All TCL Compounds and Detection Limits as of May 2, 1990

Parm No.	Volatile Organic Analytes TCL Parameter Name	CRQL (water) ug/L	CRQL (soil) ug/kg
100	Chloromethane	10	10
101	Bromomethane	10	10
102	Vinyl Chloride	10	10
103	Chloroethane	10	10
104	Methylene Chloride	5	5
105	Acetone	10	10
106	Carbon Disulfide	5	5
107	1,1-Dichloroethene	5	5
108	1,1-Dichloroethane	5	5
109	1,2-Dichloroethene (total)	5	5
110	Chloroform	5	5
111	1,2-Dichloroethane	5	5
112	2-Butanone	10	10
113	1,1,1-Trichloroethane	5	5
114	Carbon Tetrachloride	5	5
115	Vinyl Acetate	10	10
116	Bromodichloromethane	5	5
117	1,2-Dichloropropane	5	5
118	cis-1,3-Dichloropropene	5	5
119	Trichloroethene	5	5
120	Dibromochloromethane	5	5
121	1,1,2-Trichloroethane	5	5
122	Benzene	5	5
123	trans-1,3-Dichloropropene	5	5
124	Bromoform	5	5
125	4-Methyl-2-Pentanone	10	10
126	2-Hexanone	10	10
127	Tetrachloroethene	5	5
128	1,1,2,2-Tetrachloroethane	5	5
129	Toluene	5	5
130	Chlorobenzene	5	5
131	Ethylbenzene	5	5
132	Styrene	5	5
133	Total Xylenes	5	5

Parm No.	Pesticide/PCB	CRQL (water) ug/L	CRQL (soil) ug/kg
300	alpha-BHC	0.05	8
301	beta-BHC	0.05	8
302	delta-BHC	0.05	8
303	gamma-BHC (Lindane)	0.05	8
304	Heptachlor	0.05	8
305	Aldrin	0.05	8
306	Heptachlor Epoxide	0.05	8
307	Endosulfan I	0.05	8
308	Dieldrin	0.1	16
309	4,4'-DDE	0.1	16
310	Endrin	0.1	16
311	Endosulfan II	0.1	16
312	4,4'-DDD	0.1	16
313	Endrin Aldehyde	0.1	16
314	Endosulfan Sulfate	0.1	16
315	4,4'-DDT	0.1	16
316	Methoxychlor	0.5	80
317	Endrin Ketone	0.1	16
318	alpha-Chlordane	0.5	80
319	gamma-Chlordane	0.5	80
320	Toxaphene	1	160
321	Aroclor-1016	0.5	80
322	Aroclor-1221	0.5	80
323	Aroclor-1232	0.5	80
324	Aroclor-1242	0.5	80
325	Aroclor-1248	0.5	80
326	Aroclor-1254	1	160
327	Aroclor-1260	1	160

Parm No.	Semivolatile Organic Analytes TCL Parameter Name	CRQL (water) ug/L	CRQL (soil) ug/kg
200	Phenol	10	330
201	bis(2-Chloroethyl)ether	10	330
202	2-Chlorophenol	10	330
203	1,3-Dichlorobenzene	10	330
204	1,4-Dichlorobenzene	10	330
205	Benzyl Alcohol	10	330
206	1,2-Dichlorobenzene	10	330
207	2-Methylphenol	10	330
208	bis(2-Chloroisopropyl)ether	10	330
209	4-Methylphenol	10	330
210	N-Nitroso-di-n-propylamine	10	330
211	Hexachloroethane	10	330
212	Nitrobenzene	10	330
213	Isophorone	10	330
214	2-Nitrophenol	10	330
215	2,4-Dimethylphenol	10	330
216	Benzoic Acid	50	1600
217	bis(2-Chloroethoxy)methane	10	330
218	2,4-Dichlorophenol	10	330
219	1,2,4-Trichlorobenzene	10	330
220	Naphthalene	10	330
221	4-Chloroaniline	10	330
222	Hexachlorobutadiene	10	330
223	4-Chloro-3-Methylphenol	10	330
224	2-Methylnaphthalene	10	330
225	Hexachlorocyclopentadiene	10	330
226	2,4,6-Trichlorophenol	10	330
227	2,4,5-Trichlorophenol	50	1600
228	2-Chloronaphthalene	10	330
229	2-Nitroaniline	50	1600
230	Dimethylphthalate	10	330
231	Acenaphthylene	10	330
232	2,6-Dinitrotoluene	10	330
233	3-Nitroaniline	50	1600
234	Acenaphthene	10	330
235	2,4-Dinitrophenol	50	1600
236	4-Nitrophenol	50	1600
237	Dibenzofuran	10	330
238	2,4-Dinitrotoluene	10	330
239	Diethylphthalate	10	330
240	4-Chlorophenyl-phenylether	10	330
241	Fluorene	10	330
242	4-Nitroaniline	50	1600
243	4,6-Dinitro-2-methylphenol	50	1600
244	N-Nitrosodiphenylamine	10	330
245	4-Bromophenyl-phenylether	10	330
246	Hexachlorobenzene	10	330
247	Pentachlorophenol	50	1600
248	Phenanthrene	10	330
249	Anthracene	10	330
250	Di-n-butylphthalate	10	330
251	Fluoranthene	10	330
252	Pyrene	10	330
253	Butylbenzylphthalate	10	330
254	3,3'-Dichlorobenzidine	20	660
255	Benzo(a)Anthracene	10	330
256	Chrysene	10	330
257	bis(2-Ethylhexyl)phthalate	10	330
258	Di-n-octylphthalate	10	330
259	Benzo(b)Fluoranthene	10	330
260	Benzo(k)Fluoranthene	10	330
261	Benzo(a)Pyrene	10	330
262	Indeno(1,2,3-cd)Pyrene	10	330
263	Dibenz(a,h)Anthracene	10	330
264	Benzo(g,h,i)perylene	10	330

Click Here to Return to Main Index

TABLE 4-6
TARGET COMPOUND LIST DETECTION LIMITS
(CONTINUED)

NAS BRUNSWICK, BRUNSWICK, MAINE

All TCL Compounds and Detection Limits as of May 2, 1990

Parm No.	Metal & Inorganic Analytes TCL Parameter Name	CRQL (water) ug/L	CRQL (soil) mg/kg
400	Aluminum	200	40
401	Antimony	60	12
402	Arsenic	10	2
403	Barium	200	40
404	Beryllium	5	1
405	Cadmium	5	1
406	Calcium	5000	1000
407	Chromium	10	2
408	Cobalt	50	10
409	Copper	25	5
410	Iron	100	20
411	Lead	3	0.6
412	Magnesium	5000	1000
413	Manganese	15	
414	Mercury	0.2	8
415	Nickel	40	0.1
416	Potassium	5000	8
417	Selenium	5	1000
418	Silver	10	1
419	Sodium	5000	2
420	Thallium	10	1000
421	Vanadium	50	2
422	Zinc	20	10
423	Cyanide	10	4
			1

Click Here to Return to Main Index

TABLE 4-8

MISCELLANEOUS LABORATORY ANALYTICAL METHODS

REMEDIAL INVESTIGATION
NAS BRUNSWICK

MEDIA	PARAMETER	METHOD	REFERENCE
Soils/Sediment	Phosphorus	Colorimetric	USEPA 365.4
	Nitrite	Colorimetric	USEPA 353.2
	Nitrate	Colorimetric	USEPA 353.2
	Total Organic Carbon	Combustion	29-3.3.2/29-2.3[1]
Surface Water/ Groundwater	Carbonate	Titrimetric	USEPA 310.1
	Bicarbonate	Titrimetric	USEPA 310.1
	Biological Oxygen Demand	Probe	USEPA 405.1
	Chemical Oxygen Demand	Titrimetric	USEPA 410.2
	Phosphorus	Colorimetric	USEPA 365.4
	Total Kjeldahl Nitrogen	Colorimetric	USEPA 351.2

NOTES:

[1] Source: "Methods of Soil Analysis"; Part 2, 2nd edition; American Society of Agronomy; 1982.

HPLC = High pressure liquid chromatography

USATHAMA = U.S. Army Toxic and Hazardous Materials Agency

1-90-16t
6

Click Here to Return to Main Index

- Summary Tables. Summary Tables include only positive, validated analytical results for use in the RI/FS. Summary Tables include data evaluation qualifiers that may modify, but not eliminate, data utility (e.g., increased detection limits due to method blank contamination and laboratory estimated values). Summary Tables are in Appendix J. Data evaluation qualifiers are described in Subsection 4.13.2.2.

- Appendix Tables. Appendix Tables present data as reported by the laboratory with associated laboratory qualifiers. Qualifiers are letter symbols referencing specific footnotes for data reporting. Appendix Tables are in Appendix K.

4.13.2.2 Data Qualifiers. Data qualifiers are added to data by the CLP laboratory as part of the data reporting and QA/QC protocol, and by Jordan during the data validation process. Laboratory-imposed data qualifiers in the data packages received from the laboratory are consistent with criteria outlined in the current USEPA CLP "Statement of Work for Organic Analysis" (USEPA, 1988a), and the "Statement of Work for Inorganic Analysis" (USEPA, 1989e). Definitions of these qualifiers are as follows:

J - Indicates an estimated value. This flag is used when estimating a concentration for Tentatively Identified Compounds (TICs) or when mass spectral data indicate the presence of a compound meeting identification criteria, but the detected concentration is less than the Contract Required Detection Limit (CRDL).

U - Indicates the parameter was analyzed for, but not detected at the concentration value preceding the qualifier.

B - Indicates the analyte was detected in the associated laboratory method blank as well as in the sample.

[] - Quantitative results are less than the CRDL, but greater than the instrument detection limit.

Jordan's data validation group applies qualifiers to data in the Appendix Tables to correct for laboratory blank contamination and to qualify values resulting from noncompliant QA/QC (USEPA, 1988d). These qualifiers are consistent with the "Functional Guidelines for Evaluating Organic Analysis," (USEPA, 1988d) and the "Functional Guidelines for Evaluating Inorganic Analysis" (USEPA, 1989a). Definitions of these qualifiers are in Table 4-9.

4.13.3 Sample Identification System

Samples collected for laboratory analysis during the field investigation were labeled with computer-generated labels. These labels displayed a 14-digit sample identification code, identifying the site location, sample type, horizontal and vertical locators, event number, and a modifier. In addition to sample label generation, the Integral Site Information System (ISIS), a data base system designed by Jordan, was used for sample numbering, tracking, and data manipulation.

Click Here to Return to Main Index

TABLE 4-9
DEFINITION OF DATA QUALIFIERS

REMEDIAL INVESTIGATION
NAS BRUNSWICK

Organic Data Qualifiers

J - Indicates an estimated concentration because result is either below the contract required detection limit (CRDL) or quality control (QC) criteria were not met.

JJ - Validation qualifier for concentrations below the CRDL.

U - Indicates that compound was analyzed for but not detected.

UJ - Indicates that quantitation level was estimated because QC criteria were not met.

B - Indicates analyte was detected in both the sample and the associated laboratory method blank.

E - Indicates that the analyte concentration exceeded the calibration range of the gas chromatography/mass spectrometry and that a re-analysis of a diluted sample is required.

D - Indicates that sample concentration was obtained by dilution to bring result within calibration range.

R - Indicates that data are unusable because QC criteria were not met.

X - Laboratory-defined qualifier used to provide additional information not covered by the other qualifiers.

Inorganic Data Qualifiers

E - The reported concentration is estimated because of the presence of an interference.

J - Indicates an estimated concentration because QC criteria were not met.

R - Indicates that data are unusable because QC criteria were not met.

M - Duplicate precision criteria were not met.

N - Spiked sample recovery not within control limits.

S - The reported concentration was determined by the method of standard additions.

W - Post-digestion spike for furnace atomic adsorption analysis is outside control limits.

1-90-16t
2

Click Here to Return to Main Index

TABLE 4-9
(continued)
DEFINITION OF DATA QUALIFIERS

REMEDIAL INVESTIGATION
NAS BRUNSWICK

[] - Concentration reported is below CRDL.

* - Duplicate analysis not within control limits.

+ - Correlation coefficient for the method of standard additions was less than 0.995.

Other Notations

NR - Analysis not requested.

NA - Analysis requested but not performed.

- - Compound analyzed for but not detected.

Click Here to Return to Main Index

The sample identification system consists of 14 alphanumeric characters in four information groups. Undesignated portions of the sample identification use an "X."

INFORMATION GROUP ITEM	DIGITS
Site and Sample Type	1, 2, 3, 4
Horizontal and Vertical Locators	5, 6, 7, 8, 9, 10
Sampling Event Number	11, 12
Modifier (e.g., duplicate, reanalysis)	13, 14

The following are examples of sample identification numbers:

BSMW1303XX04DX: a Brunswick (BS) groundwater sample obtained from MW-1303; Round IV sampling episode (04); duplicate sample (D)

07TP711X0401XX: a Site 7 (07) soil sample from test pit TP-711; sample collected at 4 feet (04); single sample collected (01)

BSQTXX2XXX04XX: Brunswick trip blank sample (BSQT); second one collected (2); Round IV sampling episode (04)

This sample identification systems was modified from sampling round to sampling round.

For all Round I samples submitted for analysis, the following identification system applies:

01GW101XXX01XX – a groundwater sample obtained from Site 1 (01); from MW-101 (GW101); Round I sampling episode (01)

01SB001XXX01XX – sampler blank obtained (the first one in a series) collected during Round I sampling episode

01TB001XXX01XX – a trip blank (TB); first one collected (01); Round I sampling episode (01)

03SW002XXX01XX – a surface water sample from Site 3 (03SW); collected at Station 002; Round I sampling episode

MW01201022 – a soil sample collected at Site 1 (MW01); from boring 201; at two feet (02); duplicate sample (2)

TP03101031 – a test pit soil sample collected at Site 3 (TP03); from test pit 101; at 3 feet (03)

For all Round II samples submitted for analysis, the following identification system applies:

01GW101XXX02DX – groundwater sample collected at Site 1 from MW-101 (01GW101); Round II sample episode, duplicate sample (02DX)

03SW002XXX02XX
03SD002XXX02XX – Surface water and sediment sample collected at Site 3 from Station 002 (03SW/SD002); Round II sampling episode

01SWBK1XXX02XX – surface water sample collected at Site 1, from background location Number 1

02LT201XXX02XX – leachate sample collected at Site 2 from leachate location 201 (02LT201); Round II sampling episode

Rounds III and IV sample identification system is the same as for Round II. Additional modifiers are:

BS	–	Brunswick
BSQT	–	Brunswick Trip Blank
QS	–	Sampler Blank
BSQS	–	Brunswick Sampler Blank
BSMWQS	–	Brunswick Sampler Blank

Sample type codes are summarized in Table 4-10.

Click Here to Return to Main Index

TABLE 4-10
LIST OF SAMPLE TYPE CODES

RI/FS PROGRAM
NAS BRUNSWICK

TYPE CODE	SAMPLE TYPE DESCRIPTION
Type codes used at NAS Brunswick are as follows:	
BS	Brunswick NAS
SB	soil sample obtained from a soil boring
MW	soil sample obtained during a monitoring well installation
GW	groundwater sample obtained from a monitoring well
TP	soil sample obtained from a test pit
SS	surface soil sample; generally refers to samples obtained with hand tools in the shallow environment (i.e., zero to 2 feet)
HA	hand auger soil sample
SW	surface water sample (also used for drilling or source water sample during drilling programs)
SD	sediment sample
LT	leachate sample
TB	trip blank
QT	trip blank
SB	sampler blank
QS	sampler blank
FB	filtration blank
DI	deionized water sample
SOURCEWATER	public water supply (used for decontamination procedures and drilling)
GZA	groundwater sample obtained from wells GZA-1 and GZA-3
GOLF	drinking water sample obtained from golf course clubhouse water supply
SW-BK	background surface water sample obtained from Mere Brook upgradient (northwest) of the runways

Click Here to Return to Main Index

Click Here to Return to Main Index

5.0 NAVAL AIR STATION BRUNSWICK: HYDROLOGY, GEOLOGY, AND GEOCHEMISTRY

5.1 REGIONAL HYDROLOGY

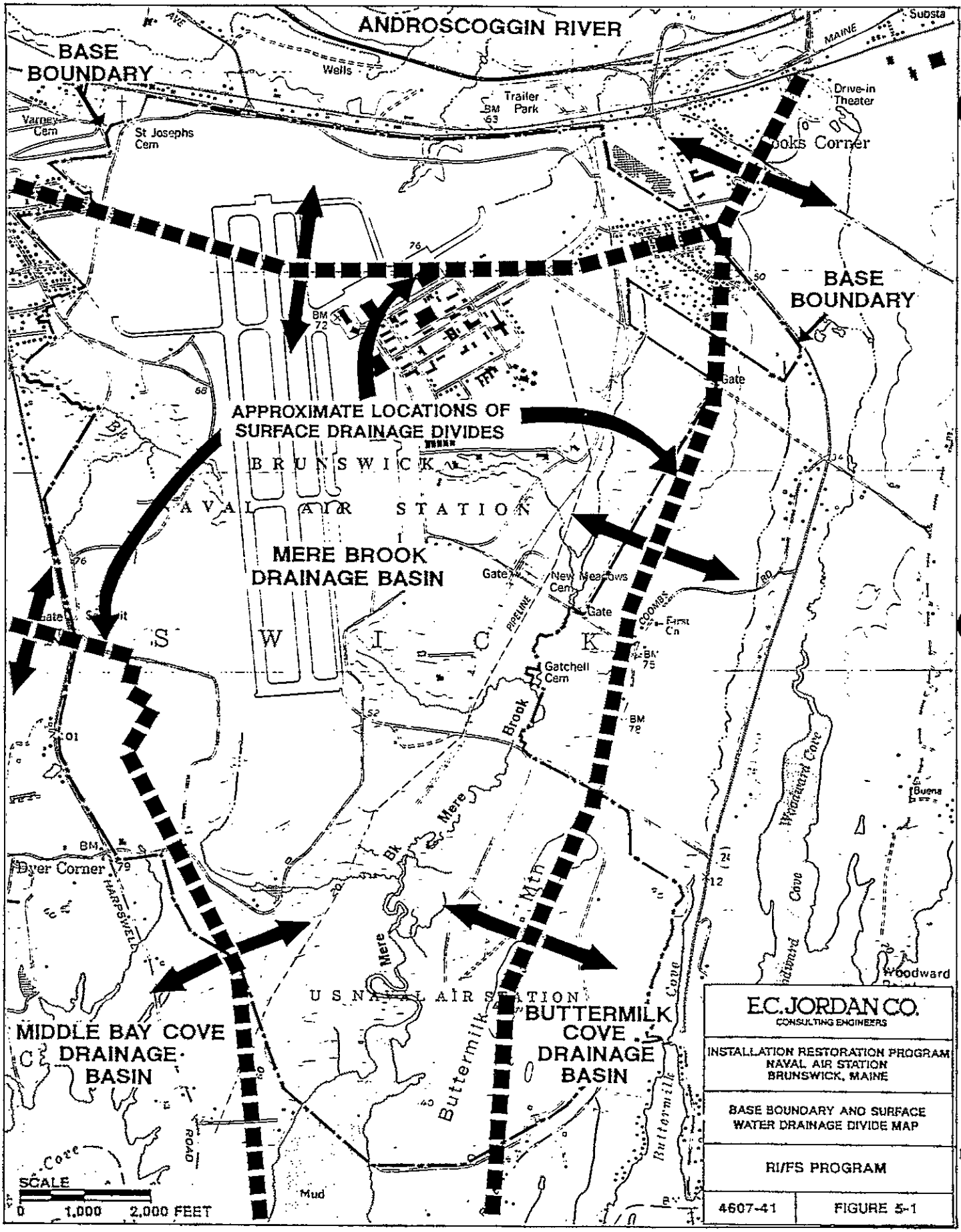
Surface water from NAS Brunswick ultimately flows to fresh- and saltwater wetlands or to the Androscoggin River. Groundwater is the municipal water supply in the area, and also supplies residences not connected to public water. Because of the developed nature of NAS Brunswick operations and housing areas, much natural precipitation runoff is directed to the storm sewer system discussed Subection 2.3.3.1 and shown in Figure 2-2.

The Air Station is located within four major drainage basins: the Androscoggin River, Mere Brook beaver marsh, Middle Bay Cove, and Buttermilk Cove. The approximate boundaries of these basins, as assessed by Jordan and reported in the IAS, are shown in Figure 5-1. Approximately 75 percent of the Air Station is in the Mere Brook beaver marsh-Harpswell Cove watershed. Mere Brook beaver marsh enters the Air Station along the northwestern boundary and flows in its natural streambed for approximately 0.5 mile, before being routed under the runways in manmade conduits approximately 0.5-mile long (Figure 5-2). Mere Brook beaver marsh then is joined by a number of other small streams, including Merriconeag Stream, and empties into Harpswell Cove at the southern end of the base. The upstream channel of Mere Brook beaver marsh is relatively narrow and deeply incised for most of its length. In its lower reaches, Mere Brook beaver marsh is tidal and its channel is wide and bordered by extensive tidal flats (see Figure 5-1).

Portions of NAS Brunswick are located in the lower Androscoggin River Basin. The Androscoggin River is the major surface water body in the Brunswick area, and one of three major rivers emptying into the Atlantic Ocean on the Maine coast. The Androscoggin flows east along the northern boundary of Brunswick forming the boundary between Cumberland and Sagadahoc counties. At its closest point, the Androscoggin is approximately 2,000 feet from the northern boundary of the air station. Approximately 15 to 20 percent of the facility is in the Androscoggin watershed. That portion of the Androscoggin adjacent to the base is tidal.

The Middle Bay Cove watershed includes about 5 percent of the Air Station. Middle Bay Cove is separated from Harpswell Cove by a northeast-trending ridge. The remainder of the base, approximately 5 to 10 percent of Air Station area, is in the Buttermilk Cove watershed.

Flood hazard maps by the Federal Emergency Management Agency (FEMA) for the Town of Brunswick indicate 100-year flooding at the Air Station is confined to the Mere Brook beaver marsh Channel. Streams near the facility generally have steep, high banks that are not likely to overflow. Tidal wetlands and areas covered by alluvial silts at the southern end of Mere Brook beaver marsh and the base are flood prone. None of the NAS Brunswick RI/FS sites are anticipated to be inundated by 100-year floods, although channels bordering Sites 1, 2, 3, 8 and 9 will be scoured by increased flows.


ANDROSCOGGIN RIVER
BASE BOUNDARY
BASE BOUNDARY
APPROXIMATE LOCATIONS OF SURFACE DRAINAGE DIVIDES
MERE BROOK DRAINAGE BASIN
MIDDLE BAY COVE DRAINAGE BASIN
BUTTERMILK COVE DRAINAGE BASIN
BRUNSWICK NAVAL AIR STATION
U.S. NAVAL AIR STATION
Wells
Trailer Park
Drive-in Theater
Brooks Corner
St Josephs Cem
Varney Cem
New Meadows Cem
Gatchell Cem
Dyer Corner
Woodward
Buena
Mere Brook
Buttermilk Cove
Mud
SCALE
0 1,000 2,000 FEET
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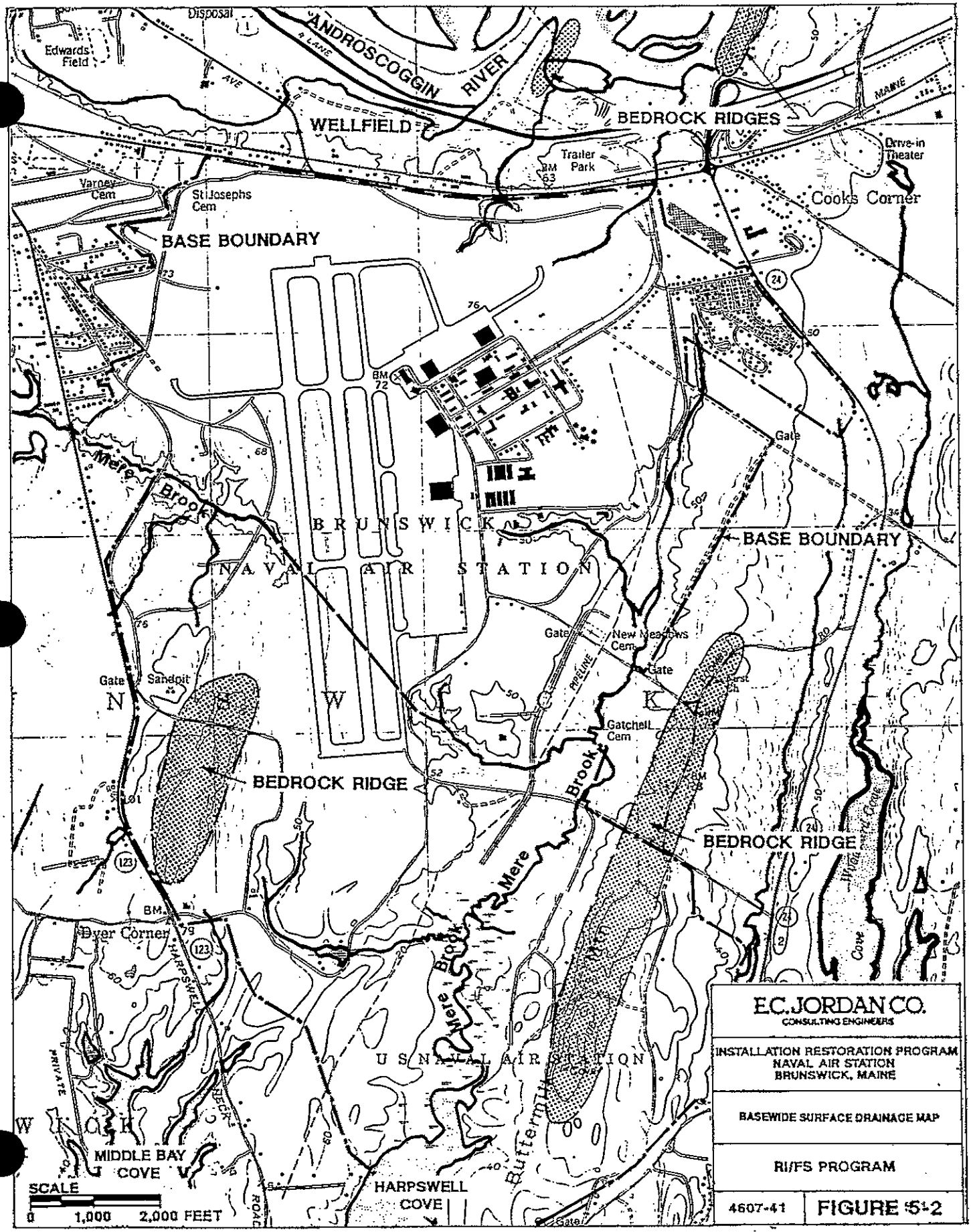
BASE BOUNDARY AND SURFACE WATER DRAINAGE DIVIDE MAP
RI/FS PROGRAM
4607-41
FIGURE 5-1

Click Here to Return to Main Index



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BRUNSWICK, MAINE

BASEWIDE SURFACE DRAINAGE MAP

RI/FS PROGRAM

4607-41 | FIGURE 5-2

Click Here to Return to Main Index

Surface water runoff and groundwater movement in the southern half of the base are constrained by bedrock upland areas east and west of the runways (see Figure 5-2). Numerous bedrock outcrops are apparent along Coombs Road and Old Gurnet Road, east of Gatchell Cemetery and Mere Brook beaver marsh. These two bedrock ridges act as surface water and groundwater divides. Based on field observations and geophysical data on bedrock behavior, surface water runoff, and groundwater in shallow overburden and bedrock are anticipated to be westward from the crest of the Buttermilk Mountain ridge toward Mere Brook beaver marsh. A similar, but shorter, ridge west of the southern end of the runways also constrains surface runoff and groundwater movement by acting as a local divide.

5.1.1 Base-wide Hydrology

Groundwater movement in the unconfined aquifer at NAS Brunswick has been assessed with potentiometric (water level) data available from numerous monitoring wells in the vicinity of the RI/FS sites (Table 5-1). Groundwater movement base-wide is interpolated between known points and supported with surface water elevation data from surveyed surface water sampling locations, primarily along Mere Brook beaver marsh and its tributaries. Mere Brook beaver marsh flows year round with base-flow provided by groundwater discharge. Surface water levels were obtained when surface water and stream sediment sampling locations were surveyed. These elevation data have been used as approximate indicators of groundwater elevations adjacent to streams base-wide. Groundwater elevations are also inferred from surface water tributaries bordering Site 8 at the northern end of the base. Figure 5-3 was developed to provide this overview of base-wide groundwater movement.

Soil stratigraphy encountered across the base consists of fine sand overlying stratified deposits of silty sand, silt, clay, and till over bedrock. The upper layers of fine sand are the coarsest and most silt-free of the stratified deposits, and consequently have the highest hydraulic conductivities. Underlying the upper sand deposits is a transitional zone of stratified fine sand, silty fine sand, silt, and silty clay. This zone has measured K values often one to two orders of magnitude lower than the upper sand deposit due to the finer nature of the materials (see Table 4-4). Vertical hydraulic conductivity in the transition zone is anticipated to be at least an order of magnitude less than horizontal, due to the stratified nature of this layer and the presence of finer materials (i.e., silt and clay).

Lower hydraulic conductivities in the transition zone are due to the presence of silty fine sand, silt, and silty clay strata. Sand strata in the transition zone (typically ranging from inches to several feet in thickness) have horizontal Ks in the 10^{-3} cm/sec range; however, the numerous 10^{-4} and 10^{-5} cm/sec Ks in the transition zone are indicative of silt and clay-rich strata (see Table 4-4). Sand layers in the transition zone presumably have horizontal Ks in the 10^{-3} cm/sec range, and provide preferential paths for groundwater and contaminant movement. However, the vertical movement of groundwater, even in the sand layers, will be reduced by interbedded 10^{-4} and 10^{-5} cm/sec strata. The vertical aquifer conductivity in the transition zone is thereby reduced to that of the low conductivity layers (i.e., 10^{-4} to 10^{-5}

Click Here to Return to Main Index

TABLE 5-1
WELL SCREEN ELEVATIONS AND WELLS
USED TO DELINEATE WATER TABLE CONDITIONS

REMEDIAL INVESTIGATION NAS BRUNSWICK

WELL	GROUNDWATER ELEV. (10/24/89 FT.MSL)	TOP OF SCREEN ELEV. (FT. MSL)	DISTANCE FROM TOP OF SCREEN TO WATER WATER TABLE (FT)	WELLS USED TO DELINEATE WATER TABLE CONDITIONS
MW-101	44.8	22.7	22.1	X
MW-102	22.9	18.1	4.8	X
MW-103	34.3	37.2	-2.9	X
MW-104	20.6	10.1	10.5	X
MW-105A	23.4	-13.1	36.5	
MW-105B	16.3	12.1	4.2	X
MW-106	31.5	23.7	7.8	X
MW-201	45.5	37.7	7.8	X
MW-202A	35.1	31.6	3.5	
MW-202B	35.9	40.4	-4.5	X
MW-203	22.4	20.4	2.0	X
MW-204	21.3	23.6	-2.3	X
MW-205	24.3	-18.2	42.5	
MW-206A	27.2	-21.4	48.6	
MW-206B	25.7	25.5	0.2	X
MW-207A	FLOWING	-41.4	N/A	
MW-207B	17.1	16.1	1.0	X
MW-208	31.8	-43.6	75.4	
MW-209	32.3	27.1	5.2	X
MW-210A	34.2	-51.7	85.9	
MW-210B	29.1	20.8	8.3	X
MW-211A	41.0	-74.7	115.7	
MW-211B	46.9	38.8	8.1	X
MW-212	38.8	37.1	1.7	X
MW-213	20.5	7.4	13.1	X
MW-214	42.7	31.9	10.8	X
MW-215	40.5	32.1	8.4	X
MW-216A	44.0	33.7	10.3	
MW-216B	39.7	42.2	-2.5	X
MW-217A	40.4	24.0	16.4	
MW-217B	41.8	38.2	3.6	X
MW-218	20.7	6.0	14.7	
MW-219	23.0	-9.8	32.8	
MW-220	29.0	9.7	19.7	
MW-222	33.0	23.1	9.9	X
MW-223	31.9	21.1	10.8	X
MW-224	33.8	20.7	13.1	X
MW-225A	30.0	-21.0	51.0	
MW-225B	28.6	14.3	14.3	X
MW-229A	19.5	-21.4	40.9	
MW-229B	17.1	10.3	6.8	X
MW-230A	22.5	-36.3	58.8	
MW-230B	18.4	-15.4	33.8	X
MW-231A	24.9	-7.5	32.4	
MW-231B	22.2	17.2	5.0	X
MW-232A	42.6	25.1	17.5	
MW-232B	43.6	43.1	0.5	X
MW-233	41.0	-6.9	47.9	

Click Here to Return to Main Index

TABLE 5-1
WELL SCREEN ELEVATIONS AND WELLS
USED TO DELINEATE WATER TABLE CONDITIONS
(CONTINUED)

REMEDIAL INVESTIGATION NAS BRUNSWICK

WELL	GROUNDWATER ELEV. (10/24/89 FT.MSL)	TOP OF SCREEN ELEV. (FT. MSL)	DISTANCE FROM TOP OF SCREEN TO WATER WATER TABLE (FT)	WELLS USED TO DELINEATE WATER TABLE CONDITIONS
MW-234	45.3	41.9	3.4	X
MW-401	48.2	18.2	30.0	X
MW-402	48.5	41.7	6.8	X
MW-403	48.7	42.4	6.3	X
MW-404	48.9	25.7	23.2	X
MW-405	49.2	38.6	10.6	X
MW-406	47.4	19.8	27.6	X
MW-407	47.3	13.8	33.5	X
MW-408	49.3	49.4	-0.1	X
MW-701	59.8	65.6	-5.8	
MW-702	69.4	68.1	1.3	X
MW-703	69.6	68.4	1.2	X
MW-704	69.3	69.4	-0.1	X
MW-705	69.4	66.8	2.6	X
MW-706	67.5	67.2	0.3	X
MW-801	38.3	37.7	0.6	X
MW-802	30.0	24.1	5.9	X
MW-803	27.2	24.2	3.0	X
MW-804	61.9	63.0	-1.1	X
MW-807	57.2	56.0	1.2	X
MW-808	28.9	26.0	2.9	X
MW-810	46.8	46.6	0.2	X
MW-811	36.6	30.9	5.7	X
OW-812	28.4	3.4	25.0	X
OW-813	30.8	24.8	6.0	X
OW-814	30.3	13.0	17.3	X
MW-901	46.1	24.5	21.6	X
MW-902	46.2	40.5	5.7	X
MW-903	43.7	35.5	8.2	X
MW-904	40.2	39.7	0.5	X
MW-905	42.6	24.6	18.0	X
MW-906	41.4	35.6	5.8	X
MW-907	40.9	43.5	-2.6	X
MW-908	41.4	43.3	-1.9	X
MW-1101	48.3	50.5	-2.2	X
MW-1102	48.0	50.7	-2.7	X
MW-1103	48.0	49.9	-1.9	X
MW-1104	46.9	42.6	4.3	X
MW-1301	48.4	52.5	-4.1	X
MW-1302	46.0	49.6	-3.6	X
MW-1303	46.8	39.6	7.2	X
GZA-1	47.3	49.7	-2.4	X
GZA-3	N/A	50.0	N/A	

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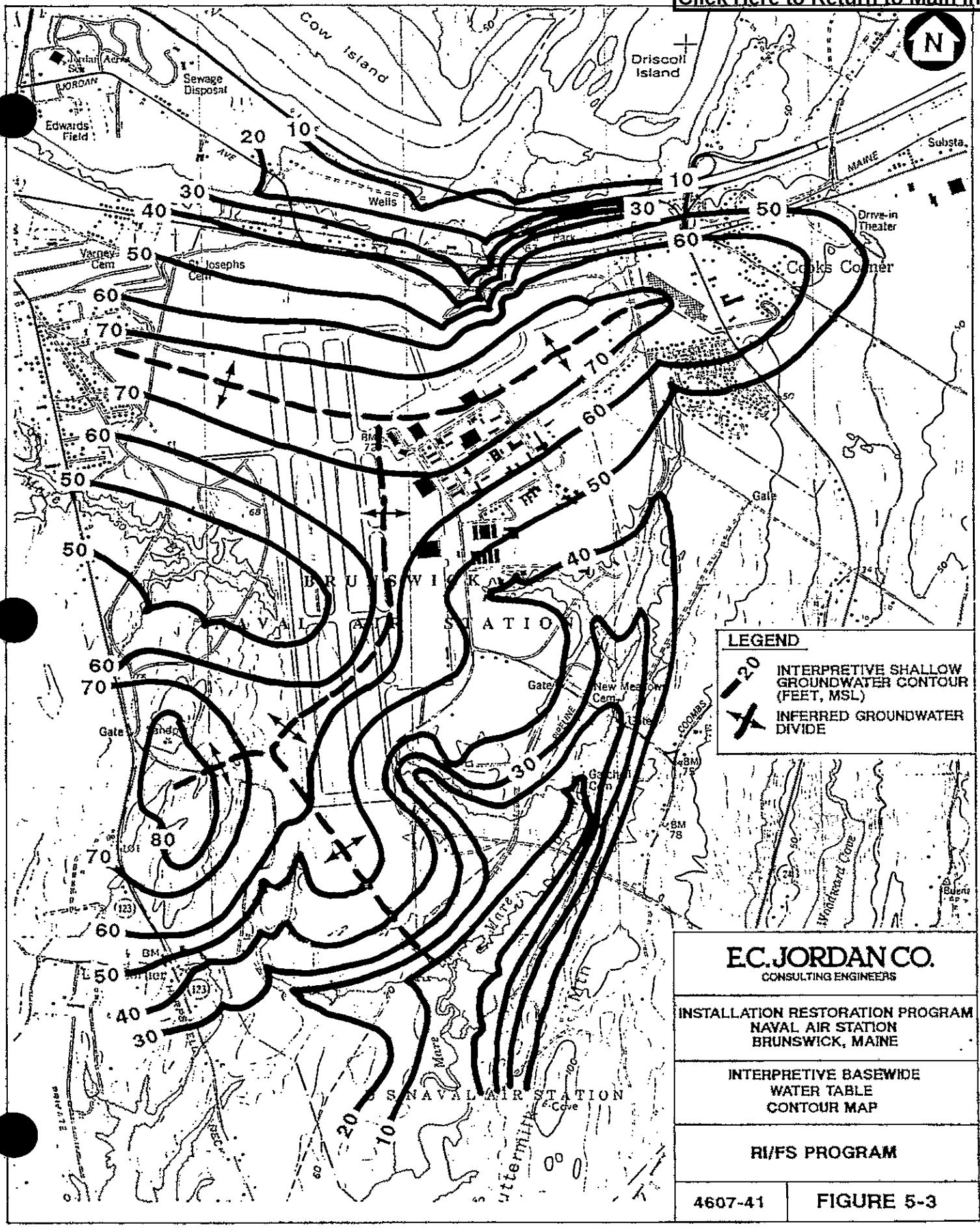

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BRUNSWICK, MAINE

INTERPRETIVE BASEWIDE
WATER TABLE
CONTOUR MAP

RI/FS PROGRAM

4607-41 | FIGURE 5-3

Click Here to Return to Main Index

cm/sec). Site stratigraphy is discussed in greater detail in Subection 5.2, Regional Geology.

Underlying the transition zone, a deposit of silty clay (typically 20 to 60 feet thick) was encountered at all sites except Site 7. This low permeability, silty clay deposit forms the bottom of the unconfined overburden aquifer base-wide. Laboratory K values for the clay, obtained from Sites 1 and 8, ranged from 10^{-7} to 10^{-8} cm/sec and are assumed to be typical base-wide. Presumpscot clay conductivities in Maine are commonly in the 10^{-6} to 10^{-7} cm/sec range (Thompson, 1987).

In general, aquifer K in the sand decreases with depth. The bulk conductivity of the transition zone is lower than the upper sands, although individual layers of sand in the transition zone will have horizontal conductivities equal to the shallow sands (i.e., 10^{-3} cm/sec). Lateral continuity of transition zone sand layers is anticipated to be highly variable, with some contributing to significant movement of water, while others may have no significant impact.

In situ aquifer permeability tests exhibit a wide range of values indicative of stratigraphic variation base-wide. The range of conductivity values are due primarily to variations in the silt and clay content of the formations (Driscoll, 1986). In stratified formations, such as the transition zone at NAS Brunswick, borehole-smearing effects may artificially reduce K test values. However, the K data from 85 monitoring wells assessed by Jordan provide consistent patterns of conductivities from site to site, in individual formations, and with variations in depth (see Table 4-4). Multiple tests were performed at almost all wells providing consistent and reproducible data. In addition, a statistical assessment of drilling methodology influences on K values indicates negligible variation in K data resulting from wells installed by augers or casing (see subsection 4.12 and Table 4-4). The overall consistency of K data for specific stratigraphic units using various field test techniques in 1984, 1988, and 1989 also indicated good correlation between test methods.

5.1.2 Base-wide Hydraulic Gradients and Water Table Maps

Groundwater contours and gradients generally are a subtle reflection of surface topography at the base. Water level data used to calculate and prepare site-specific water table maps are included in Table 5-1. Of 71 wells used to prepare site-specific water table maps, only nine wells are screened in excess of 15 feet below the water table. Of these nine wells, one is associated with Site 1 (MW-230B). The data from MW-230B has been used only because of a lack of shallower data in this area. Four other wells (of the nine) are associated with the Site 4/13 area. Based on data from all 13 wells at Sites 4 and 13, there is good agreement between the shallower and deeper wells as to the direction of groundwater movement. Of the remaining four wells, one is at Site 9 and three are at Site 8.

A distinct feature of groundwater hydraulic gradients and surface topography at NAS Brunswick is the marked steepening close to brooks and streams. Steep

hydraulic gradients coincide with deeply incised stream channels across the base.

Calculated groundwater gradients within 500 feet of stream channels at Sites 1, 2, 3, 8, and 9 range from approximately .01 to .10 feet per foot, with gradients most commonly .03 to .06 (3 to 6 feet per hundred). Gentler gradients beneath flat areas of the base (away from surface water discharge channels) range from approximately .005 to .015 feet per foot with an average of approximately .008 (less than one foot per hundred).

5.2 REGIONAL GEOLOGY

This subsection describes regional geology at NAS Brunswick. Table 5-2 shows a stratigraphic column for the NAS Brunswick area. The individual unit thicknesses on a regional scale presumably exhibit a similar variability as on the base.

5.2.1 Geology of the Unconsolidated Sediments

Unconsolidated sediments or overburden in the vicinity of NAS Brunswick have been mapped as the Presumpscot Formation, which accumulated on the ocean floor during the late glacial marine submergence of lowland areas in southern Maine. These sediments were deposited over variable thicknesses of till or bedrock. Relatively flat to slightly sloping topography in which Holocene (modern) streams have carved steep-walled stream gullies is typical of areas underlain by this formation.

The Presumpscot Formation is composed of stratified, water-laid clay, silt, sand, and minor amounts of gravel (Thompson, 1987). The highly variable stratigraphy reflects of facies changes created by glacial recession and sea level changes. Formation clay has a gray to dark bluish-gray color and its thickness varies greatly over short distances, depending on the terrain and surface relief on which it was deposited. The formation's sediments range from massive to very well-stratified. Contact with underlying till at the base of the formation (seen at Sites 1 and 8) is generally sharp, but may occasionally be gradational (Thompson, 1987). Where observed at NAS Brunswick, the till/Presumpscot contact is sharp (i.e., Sites 1 and 8).

Large areas of sand deposits may overlie the Presumpscot Formation. This contact could also be abrupt or gradational, generally exhibiting a coarsening upward sequence. In the Brunswick area, extensive deposits of sand "appear to have been deposited by the Androscoggin River as it shifted laterally and began to develop its postglacial course" (Thompson, 1987). Many authorities consider these upper coarser sediments part of the Presumpscot Formation, while others tend to divide them into a separate unit.

Regardless of stratigraphic nomenclature, for the purposes of this report, Jordan differentiates the upper outwash sands from the underlying, finer, stratified transition zone. The sands are composed of brown and tan, fine, loose sands, with traces of medium sand and silt. Shallow clean (low silt

Click Here to Return to Main Index

5.3 BASE-WIDE GEOCHEMISTRY

Soils, groundwater, surface water, and sediments at NAS Brunswick have background concentrations of inorganics. These background concentrations are described and discussed in the following subsections, and are referred to in the site-specific contamination assessments.

To provide inorganic chemical background levels, two surface water sampling sites were identified as background locations, and samples from them were analyzed for TCL organics and inorganics. Results of these background surface water/surface sediment (SW/SD) locations are described in this subsection.

A discussion of procedures used to evaluate laboratory data, understand potential laboratory contamination, and evaluate sampling data is also provided in this subsection.

5.3.1 Base-wide Inorganics: Soils

Two basic soil types exist at NAS Brunswick. A sandy, glacial outwash soil, existing at the surface, occurs locally to depths of nearly 100 feet. The second major soil type is a clay that typically lies below the sands and has thicknesses of as much as 58 feet (see Subsection 5.2). The sand unit is composed primarily of fine to medium quartz sands with a trace silt component. Clay at NAS Brunswick is not a true clay in the mineralogical sense, but a rock flour derived from glacial processes (Thompson, 1987). The Presumpscot Formation is a mixture of clay minerals, fine sand, silt, and clay-sized fraction derived from glacially abraded bedrock. In addition, a combination of sand and clay soils occurs and is referred to as transition zone sediment. Geochemistry of the transition zone sediment reflects a combination of sand and clays.

To characterize background inorganic distribution at NAS Brunswick, samples were chosen from areas believed not to have been affected by the various sites. To understand the two end-member components, samples from sand- and clay-rich zones (i.e., the sand stratum and the clay) were selected and averaged. The results for sands and clays are shown in Tables 5-3 and 5-4. Also shown in Table 5-4 are natural background concentrations of metals in soils in the eastern United States. These background concentrations demonstrate the range in concentration for each metal, and show that the NAS Brunswick average values fall within the average soil values for the eastern United States.

Concentrations of TCL inorganics in the sand are relatively low. The only TCL inorganics present are aluminum (6,8870 mg/kg), iron (7,947 mg/kg), and manganese (143 mg/kg). Chromium (4 mg/kg) and zinc (12 mg/kg) occur at much lower levels. In the sands, these elements probably occur in the silty material between sand grains, and the concentration is a function of the amount of silty material present.

In contrast to sands where few inorganics are found, the clays contain more inorganics at higher concentrations. Inorganics in the clays are

TABLE 5-3
BACKGROUND INORGANICS IN SANDS

REMEDIAL INVESTIGATION
NAS BRUNSWICK

Monitoring Well	Al	Cr	Fe	Pb	Mn	Mg	Zn	As
MW-908	8,580	---	12,100	---	172	---	72.2	---
	5,300	---	8,570	---	174	---	---	---
MW-705	6,400	12	8,400	---	130	---	---	---
MW-808	8,800	15	16,000	---	300	---	---	---
MW-211A	7,700	---	6,900	---	110	---	---	---
	6,400	---	10,000	---	140	---	---	---
	10,000-300,000 (1,2,4)	1-1,000 (1,2,3,4)	7,000-550,000 (1)	2-300 (1,2,3,4)	12-7,000 (1,2)	600-6,000 (1,2,5)	5-2,900 (1,2,4,5)	0.1-73 (1,2,4)
NAS BRUNSWICK AVERAGE	6887	4	7947	---	143	---	12	---

NOTES:

(1) Concentrations in milligrams per kilogram (mg/kg). Averages are calculated using zero for values below detection.
(2) --- below detection
(3) All other TCL inorganics are below detection in background sand samples.

REFERENCES:
1. Dragun, J. 1988
2. Linsay, W.L. 1979
3. Brooks, R.R. 1977
4. Shacklette, H.T. and Boerngen, J.C. 1984

Click Here to Return to Main Index

TABLE 5-4
BACKGROUND INORGANICS IN CLAYS

REMEDIAL INVESTIGATION
NAS BRUNSWICK

Monitoring Well	Al	Cr	Fe	Pb	Mn	Mg	Zn	As
MW-208	27,000	48	47,000	11	780	9,900	94	24
	32,000	56	54,000	14	820	12,000	110	21
MW-207	28,000	43	48,000	16	690	12,000	88	---
MW-705	22,000	43	53,000	---	1,000	10,000	88	34
MW-805	9,900	21	16,000	---	320	---	41	---
MW-808	33,000	55	55,000	15	950	12,000	97	---
MW-905	16,000	36	3,300	9.4	460	8,200	72	---
	5,000	46	9,100	15	670	12,000	86	28
MW-212	15,000	33	22,000	---	290	---	82	---
EASTERN US	10,000-300,000 (1,2,4)	1-1,000 (1,2,3,4)	7,000-550,000 (1)	2-300 (1,2,3,4)	12-7,000 (1,2)	600-6,000 (1,2,4)	5-2,900 (1,2,3,4)	0.1-73 (1,2,4)
NAS BRUNSWICK AVERAGE	20,878	42	34,156	9	664	8,456	84	12

NOTES:

(1) Concentrations in milligrams per kilogram (mg/kg). Averages are calculated using zero for values below detection.
(2) --- below detection
(3) All other TCL inorganics are below detection in background clay samples.

REFERENCES:

1. Dragun, J. 1988
2. Linsay, W.L. 1979
3. Brooks, R.R. 1977
4. Shacklette, H.T. and Boerngen, J.C. 1984

Click Here to Return to Main Index

characterized by aluminum (20,878 mg/kg), iron (34,156 mg/kg), magnesium (8,456 mg/kg), and manganese (664 mg/kg). A much larger array of trace elements also occurs, including chromium (42 mg/kg), lead (9 mg/kg), zinc (84 mg/kg), and arsenic (12 mg/kg). Higher concentrations of inorganics in the clays is a function of the composition of clay minerals and rock flour comprising the clay.

Of particular interest in the clays is the presence of low levels of arsenic, lead, and zinc. These metals are present in the natural clays from several sites at NAS Brunswick, and probably are related to the rock flour component of the clay. As previously stated, the rock flour component of the clay is derived from glacial scouring of bedrock, which ground the rock into clay-sized particles. Chemical characteristics of the bedrock will be inherent in the clay. Rock cores of bedrock beneath the clay were taken and logged (see Appendix B), and the logs note the presence of pyrite, a sulfide mineral. Arsenic is a common constituent in pyrite (Mason and Berry, 1968). Lead and zinc probably are related to the occurrence of iron-titanium oxides (i.e., ilmenite and hematite) commonly present in the bedrock; lead and zinc are typically present in these minerals (Mason and Berry, 1968). Low levels of chromium are more likely related to mica and clay minerals (i.e., illite and vermiculite) that commonly carry chromium as a trace element (Deer, Howie, and Zussman, 1966).

5.3.2 Base-wide Inorganics: Surface Water

Two background surface water sampling locations were established in Mere Brook beaver marsh, upgradient of Sites 1, 2, and 3. Locations of the background samples are indicated in a site-specific surface water and sediment sampling location map in Section 6.0. Analytical data are in Appendix J. To characterize inorganic distribution in surface waters at NAS Brunswick, concentrations of inorganics at the two background locations were averaged. The background locations were sampled during Rounds I and II; all reported compounds had consistent values during the two sampling rounds, except sodium. Sodium concentration was approximately three times greater during Round II in both samples. High sodium values probably reflect the use of road salt. Round II occurred during December, and Route 123 is just upgradient from SW-BK1. Sodium values from Round II sampling are not included in the averages.

Averages from the two sampling rounds for the two background surface waters are listed in Table 5-5. Detected compounds include aluminum (113 micrograms per liter [ug/L]), calcium (6,500 ug/L), iron (186 ug/L), magnesium (90 ug/L), manganese (85 ug/L), and sodium (10,950 ug/L). These values are within normal ranges for these metals in surface waters in the northeast.

5.3.3 Base-wide Inorganics: Groundwater

To characterize background inorganic groundwater concentrations at NAS Brunswick, several upgradient monitoring wells were identified, and concentrations of inorganics reported in the wells were averaged. Monitoring wells used to develop these averages include MW-101, MW-401, MW-703, MW-201,

TABLE 5-5
BACKGROUND INORGANICS IN SURFACE WATER

REMEDIAL INVESTIGATION
NAS BRUNSWICK

urface Water/Sediment Montioring Station	Al	Ca	Fe	Mg	Na	Mn
BK1	106.5	6,495	197.5	99.5	11,800	100
BK2	119	6,505	174.5	80.8	10,100	70
AVERAGE	113	6,500	186	90.2	10,950	85

NOTES:

(1) Concentrations in micrograms per liter (µg/L). Averages are calculated using zero for values below detection.

(2) All other TCL inorganics are below detection in background surface water.

Click Here to Return to Main Index

MW-209, MW-207B, and MW-403. Results of the averages are in Table 5-6. Detected compounds include calcium (1,527 µg/L), iron (59 µg/L), manganese (1.3 µg/L), magnesium (45 µg/L), sodium (1,769 µg/L), zinc (8 µg/L), and lead (2.4 µg/L). Concentrations for calcium, iron, magnesium, and sodium represent minimum values due to detection limits. Averages for bicarbonate (10.7 mg/L), carbonate (zero mg/L), chloride (5.2 mg/L), and sulfate (11 mg/L) are also listed in Table 5-6. When these NAS Brunswick average values are compared to those from average Androscoggin Basin groundwater (outwash deposits), they demonstrate that NAS Brunswick averages are consistent with literature values (Prescott, 1967).

5.3.4 Base-wide Organics: Sediments at Background Surface Water Locations

Results of the two sampling rounds for sediments at the two background SW/SD locations (i.e., SW-BK1 and SW-BK2) demonstrate that, in addition to typical distribution of inorganics, organic compounds are present. Observed compounds are PAHs, which occur at both background locations and were detected in both sampling rounds. Averages for the two sampling rounds for each location are listed in Table 5-7, with higher concentrations at SW-BK2 probably due to its proximity to the runways or the organic carbon content of the sediment at these two locations.

Concentrations of observed PAHs at background locations are typical of base-wide distribution of PAHs in sediments. The background PAH concentrations are also consistent with PAHs in a semi-urban environment (K.W. Brown and Associates, 1983). These compounds are ubiquitous in all drainages, and are commonly found in surface and shallow soils. The source of this PAH distribution is related primarily to use of fuels at the Air Station and the proximity of sites to highways (see Subsections 6.6, 7.6, 10.6, and 11.6 for a discussion of the fate and transport of PAHs).

5.3.5 Data Evaluation

Data collected during Rounds I through IV have been reviewed and validated relative to laboratory and field quality control criteria in accordance with USEPA-specified guidelines (see discussion in Subection 4.13). Validation guidelines specify a systematic procedure for evaluating analytical data, including holding times, blank results, surrogate results, matrix spike results, instrument tuning, calibration, compound identification, and method performance. Following validation, data are presented in Summary Tables (see Appendix J) with appropriate data qualifiers.

In addition, Summary Tables have been evaluated with respect to reproducibility among sampling rounds, laboratory or sampling contaminants, frequency of detection, and QC sample results. Based on this evaluation, certain specific analytes were determined to be sampling, laboratory, or instrument method artifacts; these analytes are most likely not site-related contaminants. Decisions to exclude these analytes from the list of site contaminants were based on the following criteria:

TABLE 5-6
BACKGROUND INORGANICS IN GROUNDWATER

REMEDIAL INVESTIGATION
NAS BRUNSWICK

Monitoring Well	ug/L								mg/L			
	Ca	Fe	Mn	Mg	K	Na	Zn	Pb	Bicarb	Carb	Cl	Sulfate
MW-201	4,820	---	9	---	---	9,000	31	---	8.3	---	5.2	11
MW-101	5,860	---	---	39	---	1,373	7	---	47	---	NA	NA
MW-209	---	---	---	---	---	---	---	---	---	---	NA	NA
MW-207B	---	111	---	57	---	2,013	7.3	---	8.1	---	NA	NA
MW-403	---	---	---	---	---	---	4.5	5.6	4.1	---	NA	NA
MW-401	---	296	---	220	---	---	---	---	3.3	---	NA	NA
MW-703	---	---	---	---	---	---	---	---	6.8	---	NA	NA
AVERAGE	1527	59	1.3	45	---	1769	8.0	2.4	10.7	---	5.2	11
AVERAGE ANDROSCOGGIN BASIN GROUNDWATER (OUTWASH DEPOSITS) (Prescott, 1967)	3,900	165	30	1,180	---	2,900	N/A	N/A	12.7	---	4	2.2

NOTES:

(1) Concentrations of inorganic elements in micrograms per liter (ug/L). Averages are calculated using zero for values below detection limits.

(2) Concentrations of biocarbonate, carbonate, chloride and sufate are in milligrams per liter (mg/L).

(3) --- below detection

(4) N/A – Not Analyzed

(5) All other TCL Inorganics are below detection in background groundwater samples.

Click Here to Return to Main Index

TABLE 5-7
TOTAL PAHS IN BACKGROUND STREAM SEDIMENTS

REMEDIAL INVESTIGATION
NAS BRUNSWICK

Surface Water/Sediment Monitoring Station	Total PAHs
BK1	1,750
BK2	21,870

NOTES: Concentrations in micrograms per kilogram (µg/kg). BK1 and BK2 are located upstream of Sites 1 and 3

Click Here to Return to Main Index

- Analytes that exhibited sporadic detection either between locations or over time.

- Analytes reported in a particular sample but not in its associated field duplicate.

- Analytes considered by USEPA to be common laboratory contaminants (i.e., methylene chloride, acetone, toluene, 2-butanone, and phthalate esters) (USEPA, 1988c).

In addition, recent studies conducted by Jordan indicate the potential for 2-butanone contamination at low concentrations (Jordan, 1990b). In these studies, low levels of 2-butanone were found to be from the use of methyl hydrate as a decontamination fluid. Laboratory analyses of methyl hydrate, an industrial grade solvent mixture of 90 percent ethanol and 10 percent methanol, has indicated that this solvent contains up to approximately 3 percent 2-butanone (Jordan, 1990b). Jordan's evaluation of sampling protocols, decontamination procedures, and laboratory data has determined that occurrences of 2-butanone are often in conjunction with a measurable ethanol concentration in field samples. Therefore, sporadic 2-butanone detection are attributable to sample contamination by methyl hydrate. Based on the results of the 2-butanone studies, methyl hydrate will no longer be used in decontamination procedures. Detergent washes will be used instead.

A number of VOC and SVOC compounds were detected in soil and water laboratory method blanks. These data are summarized in Appendix J. The presence of these compounds in laboratory method blanks raises the detection limit by a factor of 10 for these compounds. The specific compounds and method blank detections are discussed in the Nature and Extent of Contamination subsections for each site.

Several soil samples and blanks analyzed by the medium-level volatile method (Round I only) were reported with mg/kg levels of common volatile laboratory contaminants. While these values appear high, they may represent artificially elevated values based on an effective dilution factor of 125. Multiplying this factor increases the reported low-level blank contamination by two orders of magnitude. Because sample results were consistent with method blank results and were not observed in subsequent sampling rounds, these medium-level values may not represent actual site contamination.

Compounds not believed to represent actual site conditions, based on the preceding criteria, are discussed in the site-specific contamination assessments and highlighted in site-specific suspect contaminant tables.

Click Here to Return to Main Index

Click Here to Return to Main Index

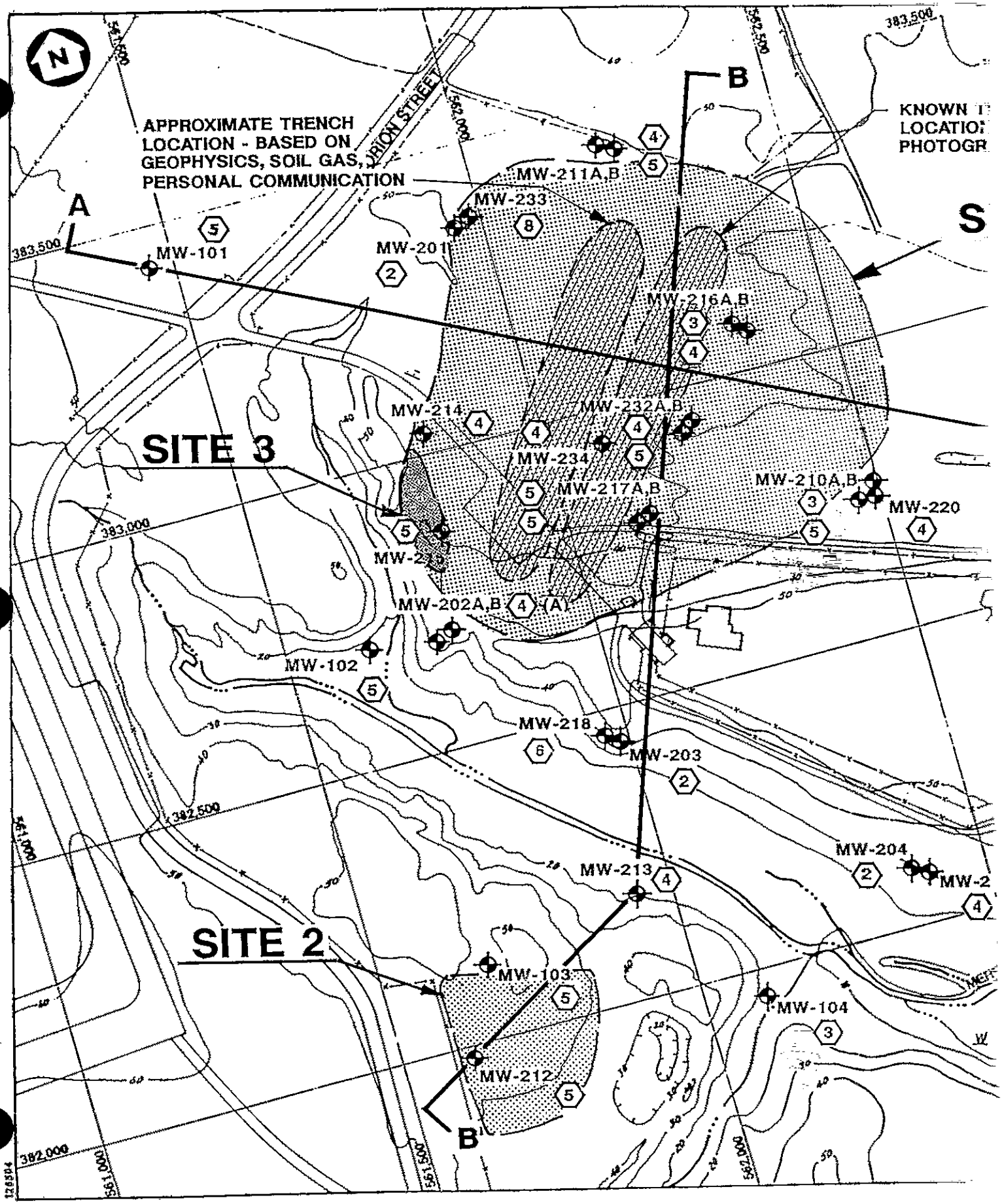
6.0 ORION STREET LANDFILL NORTH (SITE 1) AND HAZARDOUS WASTE BURIAL AREA (SITE 3)

6.1 SITE DESCRIPTION AND HISTORY: SITES 1 AND 3

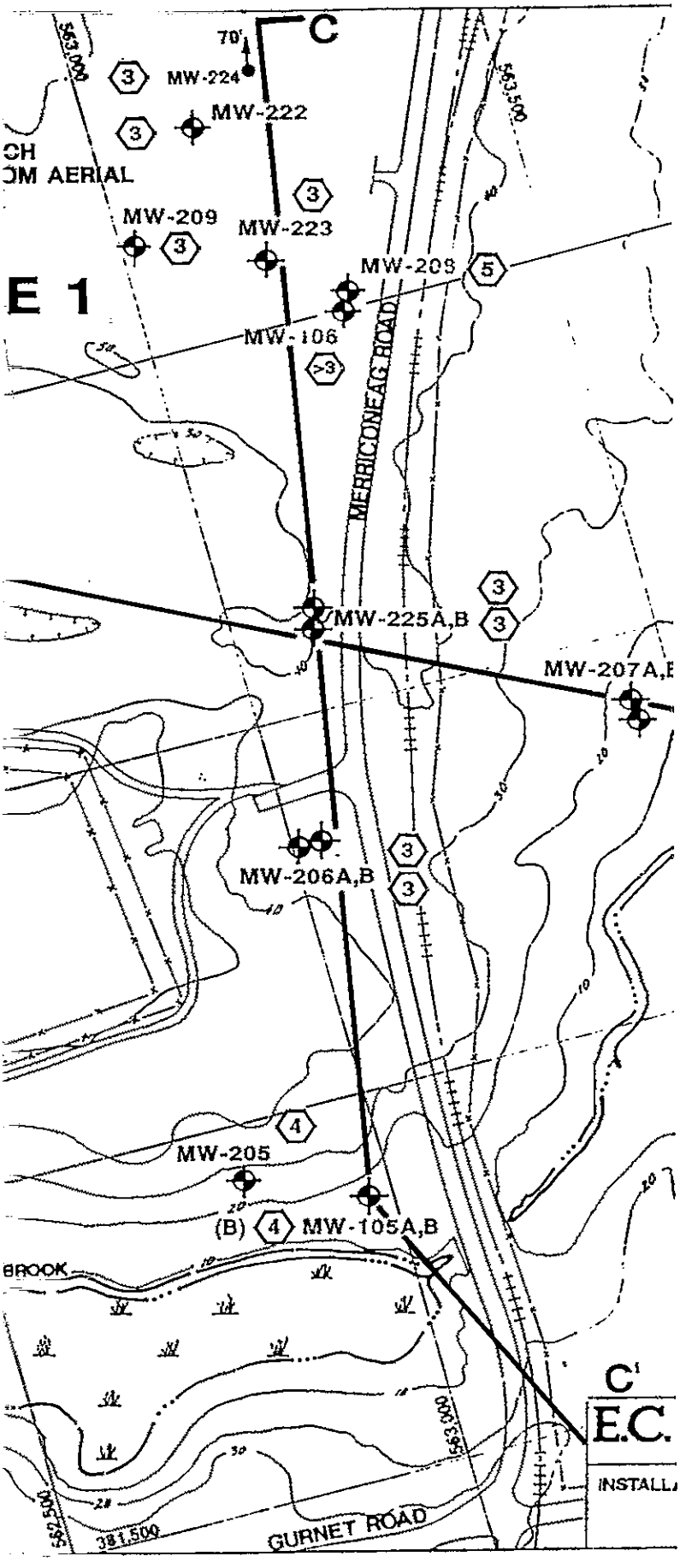
The general area of Site 1 covers more than 60 acres, although the specific area of documented refuse disposal is much smaller, approximately 8.5 acres. Site 3, contiguous to Site 1, occupies an area of approximately 0.5 acres (Figure 6-1). Site 1's 8.5-acre disposal area is currently an open, slightly rolling, grass-covered field bordered to the north, west, and east by woodlands, and to the south by the Weapons Compound and steep embankments bordering Mere Brook beaver marsh. Sites 1 and 3 are located in a restricted (munitions) area near the center of the Air Station. The Weapons Compound, constructed next to the landfill in the 1950s, was substantially enlarged in the 1970s to its current configuration. The northwestern corner of the Weapons Compound was constructed over a portion of the Site 1 landfill as indicated in Figure 6-1. Wastes reportedly disposed of at Sites 1 and 3 included solvents, pesticides, petroleum products, as well as other industrial and domestic refuse. The following paragraphs summarize information compiled in the IAS.

Site 1 was active from approximately 1955 to 1975, with the site used as a borrow pit to some extent before or during this period. The IAS reported disposal to have been conducted in shallow trenches dug about 100 yards long and 25 yards wide. However, one 1960s' aerial photograph of the base shows a single, open trench at Site 1 approximately 700 feet long and 100 feet wide. Base personnel report a second, nearly parallel trench was also filled with refuse (see Figure 6-1). Silt and clayey soils were encountered in some trenches; water was also reported at least seasonally in the bottom of the trenches. A USEPA aerial photograph of the site taken in 1966 reveals water that may have been groundwater or perched runoff in the bottom of the eastern trench. The western trench of the pair was a natural drainage ditch (emptying into Mere Brook beaver marsh) that reportedly was enlarged prior to landfilling.

In 1981, the Navy's Shore Activity Disposal Site Fact Form listed the following wastes disposed of at Site 1: garbage, refuse, food wastes, waste oil, solvents, paint wastes, aircraft and automobile parts, and unknown chemicals; quantities of wastes were listed as "unknown." From IAS interviews with NAS Brunswick personnel employed during the period the site was operative, it was determined that any Air Station-generated waste could have gone into the landfill, at least occasionally. Specific wastes that were mentioned include: pharmaceutical wastes, outdated photographic chemicals, empty hazardous chemical containers, waste oils, filter packing from oil/water separators, paint cans, pesticide and herbicide containers, degreasers, and rubble. According to the interviews, it was common for DRMO materials to be disposed of in the landfill. Because of the 20-year period involved and the lack of records regarding disposal, it is not possible to accurately determine the quantity of hazardous materials in the landfill. However, it apparently was common practice for most wastes to be put into the nearest bowser or dumpster. Therefore, a conservative assumption would be that any materials in


APPROXIMATE TRENCH LOCATION - BASED ON GEOPHYSICS, SOIL GAS, PERSONAL COMMUNICATION
UNION STREET
KNOWN
LOCATIO
PHOTOGR
A
B
S
SITE 3
SITE 2
MW-101
MW-201
MW-233
MW-211A,B
MW-216A,B
MW-214
MW-232A,B
MW-234
MW-217A,B
MW-210A,B
MW-220
MW-202A,B
MW-102
MW-218
MW-203
MW-204
MW-213
MW-103
MW-104
MW-212
383,500
383,000
382,500
382,000
562,000
561,500
561,000

Click Here to Return to Main Index



Click Here to Return to Main Index

use at the Air Station during these years could potentially be found in Site 1.

Site 3, the Hazardous Waste Burial Area, is next to Site 1 to the southwest. This site was reported to have been in operation from about 1960 through 1973. Wastes disposed of at this site included solvents, paints, isopropyl alcohol, and DANC, a noncorrosive decontaminating agent composed primarily of tetrachloroethane. The site currently consists of a small knoll covered with grass and a pine grove.

Lowland areas along Mere Brook beaver marsh are heavily wooded. The slopes along portions of the brook are typically very steep in areas next to the landfill. Leachate seeps have been consistently observed at the base of slopes adjacent to Site 3, as well as south of Site 1.

6.2 TECHNICAL APPROACH: SITES 1 AND 3

The technical approach of RI field investigation programs for Sites 1 and 3 is summarized in this section (Table 6-1). Soil gas surveying was the first investigative technique used at Sites 1 and 3 in 1988 and 1989. Soil gas surveying was used to assess distribution of VOCs in the vadose zone at both sites. The purpose of this survey was to assist in mapping the limits of areas of disposal; to look for hot spots of contamination; and to help position test pits, soil borings, and monitoring wells.

In 1988, a 115-point soil gas survey focused on the documented Site 1 and 3 disposal areas north and west of the Weapons Compound. Because of groundwater contamination detected in MW-106 and MW-208, concern also developed about potential disposal or releases in the woodland area extending north to Site 13 (the DRMO area). Therefore, the 1989 soil gas survey focused on this woodland area north and east of the Weapons Compound, between Sites 1 and 13. Soil gas surveying effectively delineated Site 1 landfill disposal areas, and detected no evidence of disposal of solvents or hydrocarbons in the woodland between Sites 1 and 13. Soil gas data are discussed in Subsection 6.5.1.

To further delineate refuse disposal areas at Sites 1 and 3, complementary magnetometer and GPR surveys were performed in 1988 in the areas north and west of the compound. Based on these data, in conjunction with soil gas data, test pits were excavated during the 1988 and 1989 RI programs to evaluate the types of refuse in the disposal areas, confirm areal extent, and obtain information on refuse thicknesses.

In 1988, 16 test borings with monitoring wells were installed across the two sites to assess the distribution of contaminants being released from the disposal area, and to develop a more detailed understanding of general groundwater movement. Monitoring wells installed in 1988 at Sites 1 and 3 were 200-series wells ranging from MW-201 through MW-211A,B (see Figure 6-1). The 1988 field program and subsequent three rounds of water levels and sampling indicated groundwater mounding in the vicinity of Site 1 trenches, with contaminants generally concentrated at the southern end of the trenches

Click Here to Return to Main Index

TABLE 6-1
RI PROGRAM SUMMARY - SITES 1 AND 3

REMEDIAL INVESTIGATION
NAS BRUNSWICK

1988 FIELD PROGRAM

- 115-point soil gas survey
- Magnetometer survey
- Ground-penetrating radar survey
- Seismic refraction profiling
- Three test pits
- 16 test borings with monitoring wells
- In situ aquifer permeability testing
- Sampling of soils, groundwater, surface water, sediment, and leachate seeps

1989 FIELD PROGRAM

- 23 soil gas points
- Seismic refraction profiling
- 20 test pits
- 24 test borings with monitoring wells
- In situ aquifer permeability testing
- Sampling of soils, groundwater, surface water, sediment, and leachate seeps

1-90-16t
7

and beneath the eastern end of Site 1 in the vicinity of MW-208, MW-106, MW-206A and B, and MW-105 A and B.

The 1989 drilling program was designed to confirm the 1988 observations; provide detailed near-source information on contaminants emanating from the central and northern portions of the trenches; and determine the source(s) of contamination under the eastern end of Site 1. To do this, six well pairs and eight single wells were installed adjacent to the trenches, south of Mere Brook beaver marsh and Site 1, and along the eastern and northeastern end of Site 1 to assess the source(s) of contamination detected in these areas. The 200-series monitoring wells installed in 1989 were numbered MW-214 through MW-231A, B (see Figures 6-1 and 6-2; Figure 6-2 is located in an envelope in the back of this report).

In both RI field programs, soil samples from the test borings were GC and PI meter screened to detect VOCs. This information was used to select samples for laboratory analysis; and to assist in placing well screens in potentially contaminated strata. During the 1989 drilling program, multiple groundwater samples were collected in selected boreholes during the drilling process (with a HydroPunch Sampler) and GC screened (see Subsections 4.6 and 4.7 for details of HydroPunch sampling and GC screening). These data were used for plume detection and to assist in the vertical placement of well screens. Well screens were intentionally placed at depths where the greatest VOC contamination was detected.

In situ aquifer permeability tests were performed in monitoring wells installed in 1988 and 1989. Aquifer hydraulic conductivities were used to calculate estimated groundwater velocities, and the subsequent fate and transport of contaminants by groundwater (i.e., advection). Transport of contaminants is also a function of the propensity of the contaminant to partition from groundwater to soil. Thus, groundwater velocities represent the maximum contaminant velocity, and actual contaminant velocities will be less than groundwater velocity.

Seismic refraction surveys performed during the 1988 and 1989 field programs developed information on depth to bedrock. Knowledge of bedrock surface elevation at Sites 1 and 3 provided information on the combined thickness of the clay and till layers beneath the site. In addition, knowledge of the bedrock surface helped develop an understanding of regional groundwater movement, especially regarding potential residential and ecological receptors south and east of Sites 1, 11, and 13 (see Subsections 5.1 and 6.4.1).

The 1988 RI field program was followed by a September sampling program that included groundwater from new and existing wells, surface water, sediment, and leachate seeps. Three months later, in December 1988, a second sampling round was conducted. In Round II, existing wells, surface water, sediment, and leachate seep locations were sampled again to confirm Round I data and evaluate possible seasonal fluctuations. In Round III (April 1989), a reduced number of locations were resampled to confirm selected data, assess areas of concern, and resolve data variations between Rounds I and II.

Click Here to Return to Main Index

Following the 1989 field program, a fourth sampling round was conducted (during August and September 1989), including new and existing wells, surface water and sediment locations, and leachate seeps. Analytical parameters, media, and sampling locations are summarized for all rounds in a sampling matrix table (see Table 4-2).

6.3 GEOLOGY: SITES 1 AND 3

Geologic profiles A-A', B-B', and C-C' show the stratigraphy based on test borings drilled at Sites 1 and 3 (Figures 6-3, 6-4, and 6-5). The profiles are constructed with a 5:1 vertical exaggeration for clarity. Profile locations along the exploration locations are shown in Figure 6-1.

In general, Site 1 geology consists of sands over stratified silts and clays underlain by a thin till and a moderately sloping bedrock surface. The total observed thickness of the overburden varies from 40 to 150 feet. The thickest areas are beneath the eastern portion of the site. Depth to rock in this area is inferred from Seismic Line 1, which indicates a nearly level bedrock surface in this eastern area 150 feet bgs (Figure 6-6). Overlying sediments are thinnest west of Site 1 where Mere Brook beaver marsh exits the manmade conduits beneath the runway. This is indicated by Seismic Line 2, where the bedrock surface is only 30 feet bgs (see Figure 6-6). Seismic line locations are indicated in Figure 6-2. The seismic refraction surveys are discussed in detail in Subsection 6.5.2.3.

Thickness of the upper sands varies considerably across Site 1. Near the trench area, MW-216 encountered 15 feet of sand below 12 feet of landfill. The thinnest sand was recorded in MW-207, where only 7 feet of clean sands overlie a thick transition zone. These thicknesses contrast with 85 feet of sand encountered in MW-208 and MW-225A; this facies change occurs over a horizontal distance of only 400 feet.

Below the sands and above the clay is a transition zone with an average thickness of 10 to 15 feet across much of Site 1, although this zone thickens substantially to the east and southeast. Thicknesses of this stratum are as much as 70 feet in MW-207A, MW-229A, and MW-230A (see Figures 6-3 and 6-5). Additional information on the stratigraphy east and northeast of Sites 1 and 3 is known from three "test holes": C5, C6, and C7. These borings reportedly were drilled for the Navy at an unspecified time in the past and were unknown to the project team during the field investigation program. Locations for these borings are shown on Figure 6-2. Wells were not installed in these borings. The logs of these borings (included in Appendix B), though not detailed in their information, reflect stratigraphy similar to that of MW-207A (i.e., a thin upper sand over a thick, stratified, transition sequence of clays and fine sand overlying clay). Increased clay and silt encountered in MW-207A and C5 acts as a hydraulic barrier reducing groundwater flow to the east and southeast of Sites 1, 11, and 13.

Marine clay was confirmed by many borings. In MW-210A, 20 feet of clay was penetrated, and in MW-211A, 58 feet. The upper surface of the clay, to an extent, mimics the bedrock surface (see Figures 6-3, 6-4, and 6-5). Figure 6-3 indicates the known and inferred bedrock surface as well as the clay surface

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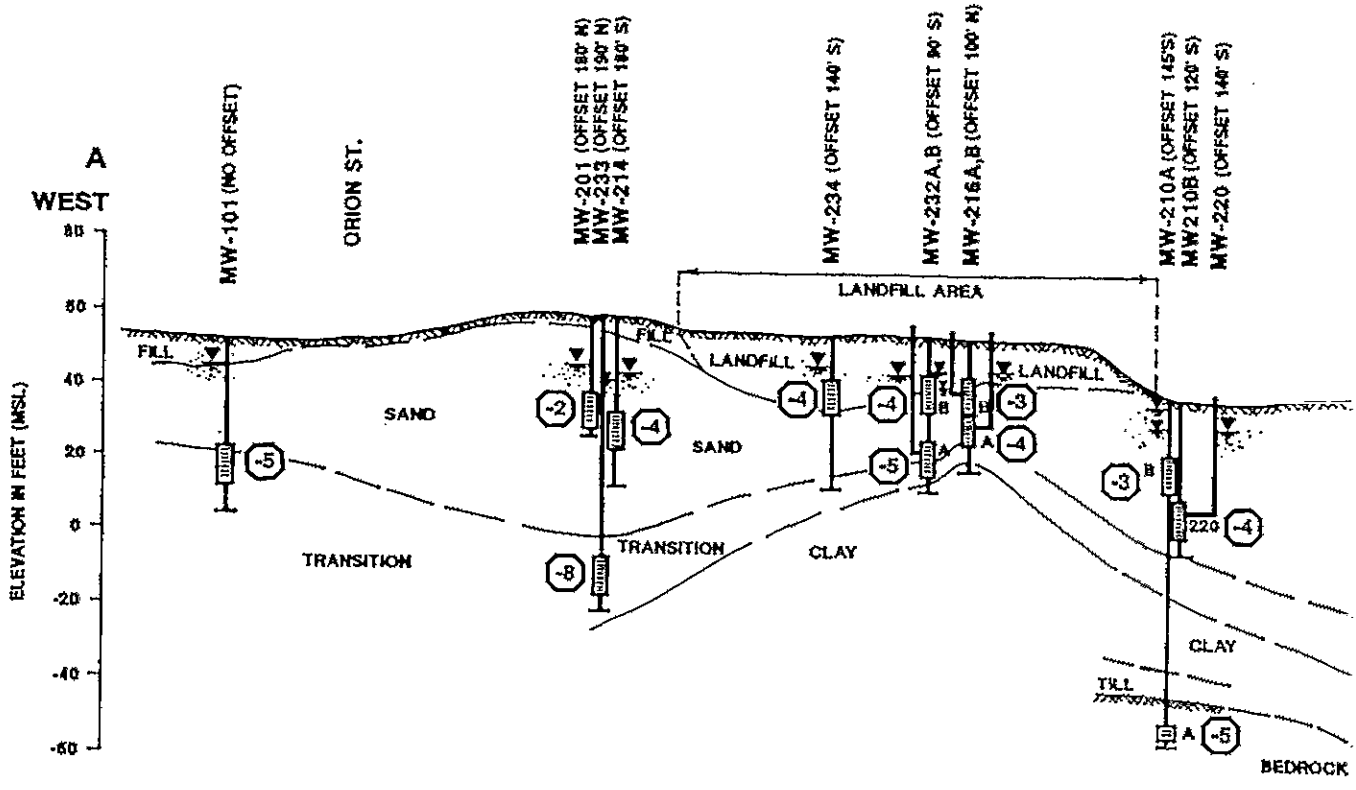
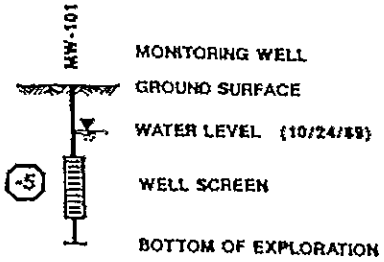


GEOLOGIC PROFILE A-A'

LEGEND



VERTICAL EXAGGERATION = 5:1

0 200 400FEET

NOTES:

PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE EXPLORATIONS. ACTUAL CONDITIONS BETWEEN EXPLORATIONS MAY VARY FROM THOSE SHOWN.

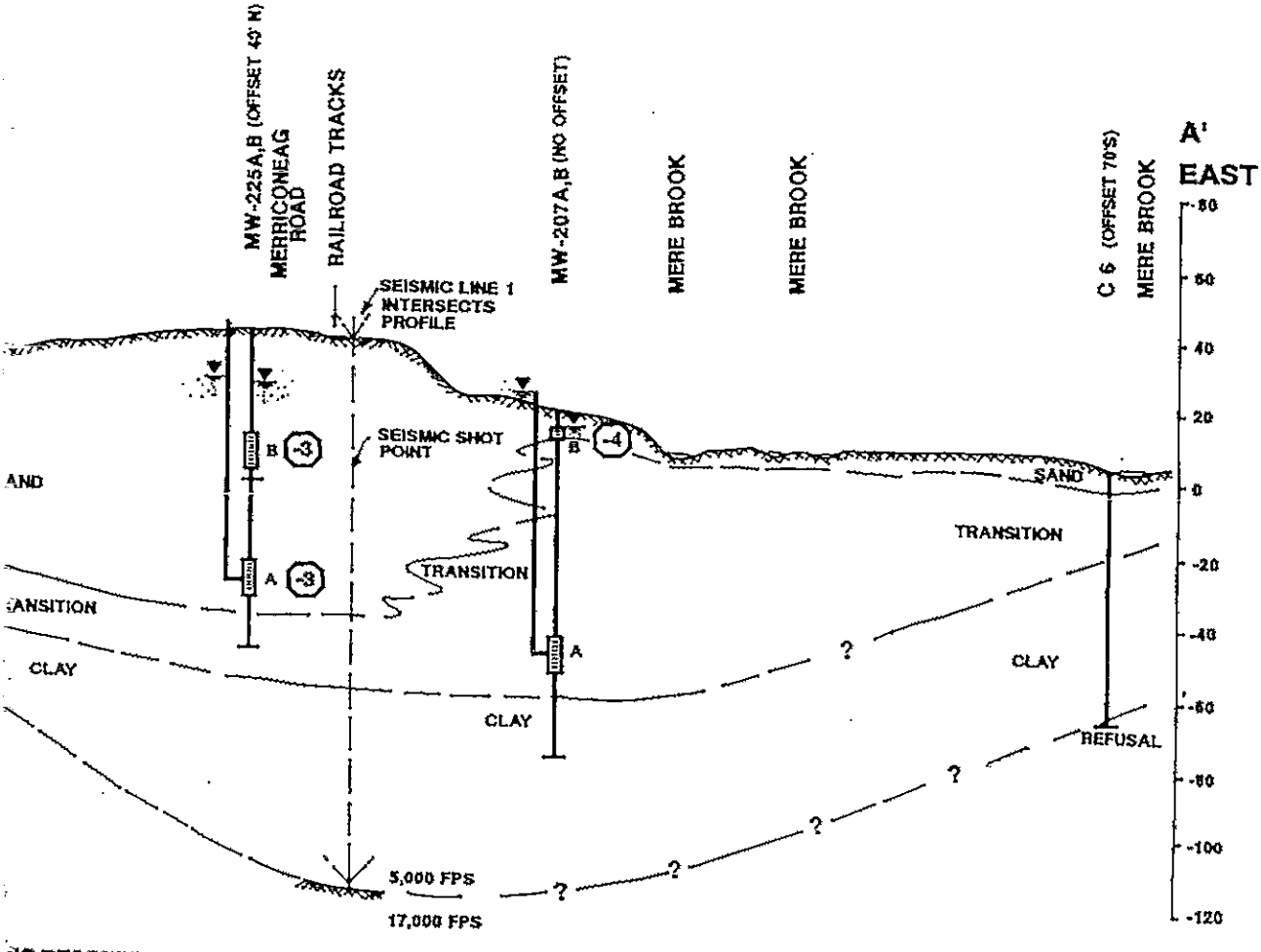
(-5) ABSOLUTE VALUE OF ORDER OF MAGNITUDE OF HYDRAULIC CONDUCTIVITY IN CENTIMETERS / SECOND (i.e., 10^{-5}cm/sec.).

LOCATION OF PROFILE SHOWN ON FIGURE 6-1

SEISMIC WAVE VELOCITIES GIVEN IN FEET PER SECOND (FPS)

GEC
SAND
TRAN
CLAY

Click Here to Return to Main Index



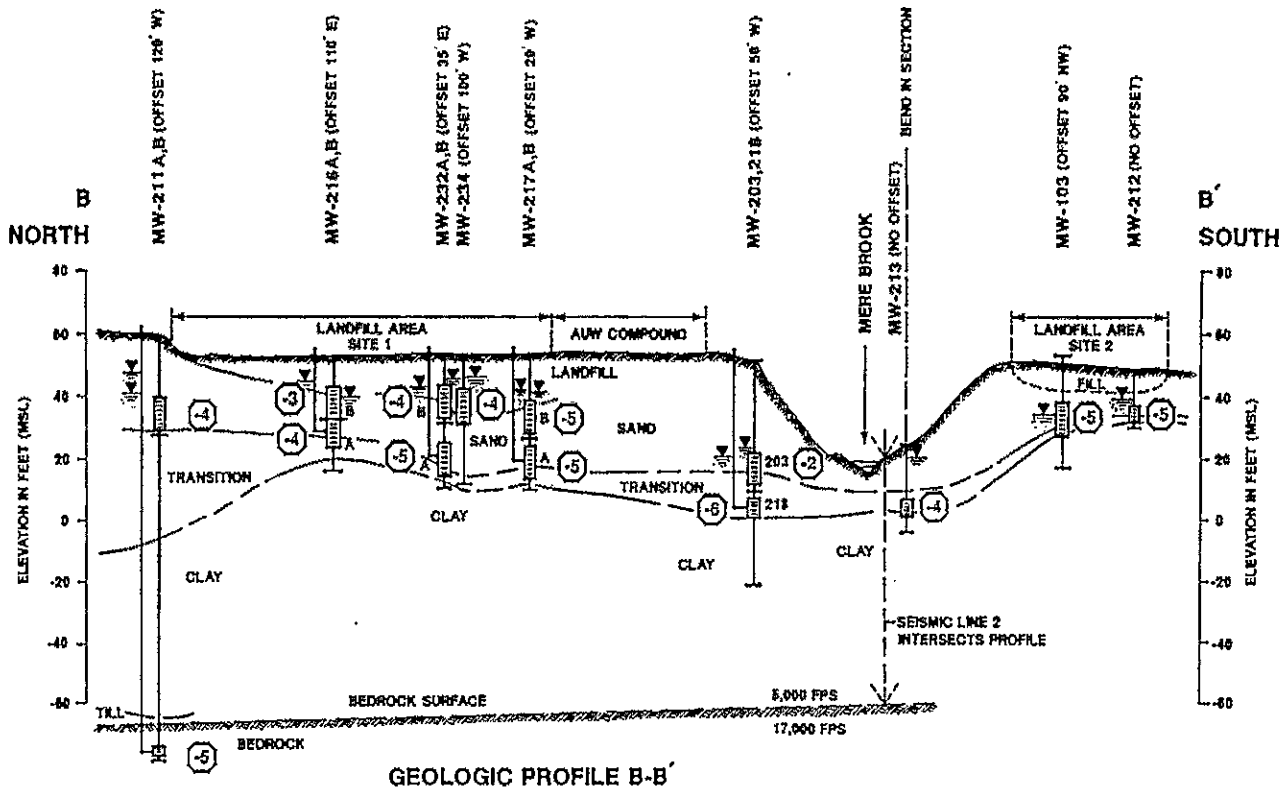
IC DESCRIPTIONS:

N TO LIGHT BROWN FINE SAND, TRACE TO LITTLE MEDIUM SAND, AGE SILT, POORLY GRADED, LOOSE TO MEDIUM DENSE, DRY TO TURATED, SLIGHTLY STRATIFIED WITH DEPTH.

N - BROWN TO GRAY FINE SAND AND SILTY, FINE SAND, TRACE CLAY, STRATIFIED WITH SILT AND CLAY LENSES, POORLY GRADED, NON TO SLIGHTLY PLASTIC, SOFT IN PLACES, SATURATED.

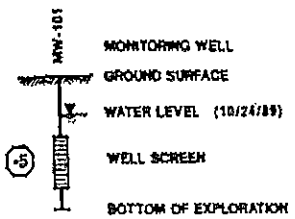
Y, SILTY CLAY TO CLAYEY SILT (ROCK FLOUR), MEDIUM TO H PLASTICITY, VERY SOFT, SATURATED.

E.C. JORDAN CO. CONSULTING ENGINEERS	GEOLOGIC PROFILE A-A' SITES 1,2,3	
	RI/FS PROGRAM	
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	4607-41	FIGURE 6-3



GEOLOGIC PROFILE B-B'

LEGEND



NOTES:

PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE EXPLORATIONS. ACTUAL CONDITIONS BETWEEN EXPLORATIONS MAY VARY FROM THOSE SHOWN.

(4) ABSOLUTE VALUE OF ORDER OF MAGNITUDE OF HYDRAULIC CONDUCTIVITY IN CENTIMETERS / SECOND (i.e., 10^{-4} cm/sec.)

LOCATION OF PROFILE SHOWN ON FIGURE 6-1

SEISMIC WAVE VELOCITIES GIVEN IN FEET PER SECOND (FPS)

GEOLOGIC DESCRIPTIONS:

SAND - TAN TO LIGHT BROWN FINE SAND, TRACE TO LITTLE MEDIUM SAND, TRACE SILT, POORLY GRADED, LOOSE TO MEDIUM DENSE, DRY TO SATURATED, SLIGHTLY STRATIFIED WITH DEPTH.

TRANSITION - BROWN TO GRAY FINE SAND AND SILTY, FINE SAND, TRACE CLAY, STRATIFIED WITH SILT AND CLAY LENSES, POORLY GRADED, NON TO SLIGHTLY PLASTIC, SOFT IN PLACES, SATURATED.

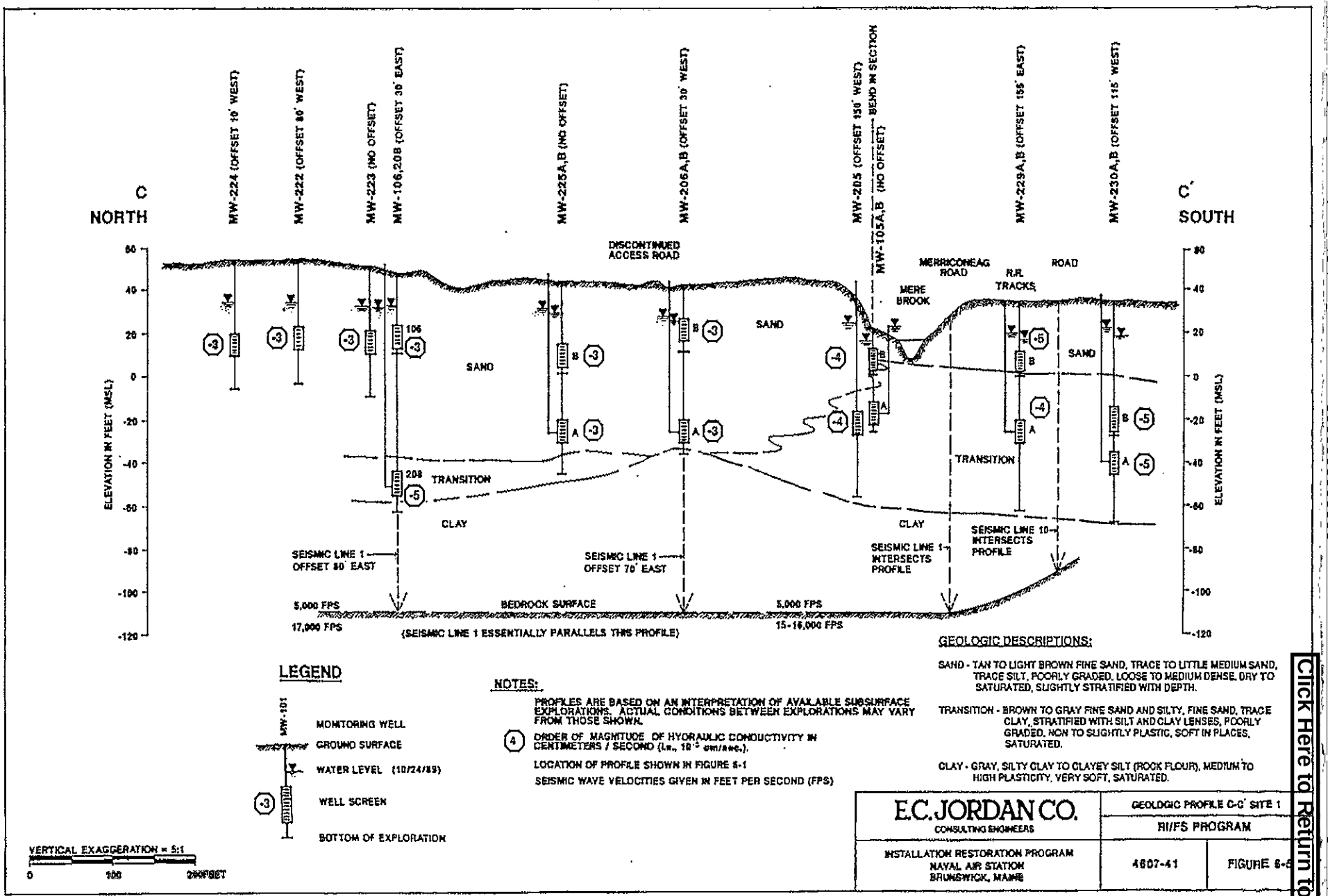
CLAY - GRAY, SILTY CLAY TO CLAYEY SILT (ROCK FLOUR), MEDIUM TO HIGH PLASTICITY, VERY SOFT, SATURATED.

VERTICAL EXAGGERATION = 5:1

0 200 400FEET

E.C. JORDAN CO. CONSULTING ENGINEERS	GEOLOGIC PROFILE B-B' SITES 1,2
	RI/FS PROGRAM
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	4607-41 FIGURE 6

Click Here to Return to Main Index



LEGEND

MW-101 MONITORING WELL

GROUND SURFACE

WATER LEVEL (10/24/89)

-3 WELL SCREEN

BOTTOM OF EXPLORATION

VERTICAL EXAGGERATION = 5:1

0 100 200FEET

NOTES:

PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE EXPLORATIONS. ACTUAL CONDITIONS BETWEEN EXPLORATIONS MAY VARY FROM THOSE SHOWN.

(4) ORDER OF MAGNITUDE OF HYDRAULIC CONDUCTIVITY IN CENTIMETERS / SECOND (i.e., 10^{-4} cm/sec.).

LOCATION OF PROFILE SHOWN IN FIGURE 5-1

SEISMIC WAVE VELOCITIES GIVEN IN FEET PER SECOND (FPS)

GEOLOGIC DESCRIPTIONS:

SAND - TAN TO LIGHT BROWN FINE SAND, TRACE TO LITTLE MEDIUM SAND, TRACE SILT, POORLY GRADED, LOOSE TO MEDIUM DENSE, DRY TO SATURATED, SLIGHTLY STRATIFIED WITH DEPTH.

TRANSITION - BROWN TO GRAY FINE SAND AND SILTY, FINE SAND, TRACE CLAY, STRATIFIED WITH SILT AND CLAY LENSES, POORLY GRADED, NON TO SLIGHTLY PLASTIC, SOFT IN PLACES, SATURATED.

CLAY - GRAY, SILTY CLAY TO CLAYEY SILT (ROCK FLOUR), MEDIUM TO HIGH PLASTICITY, VERY SOFT, SATURATED.

E.C. JORDAN CO. CONSULTING ENGINEERS	GEOLOGIC PROFILE C-C' SITE 1
	RI/FS PROGRAM
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	4607-41 FIGURE 5-5

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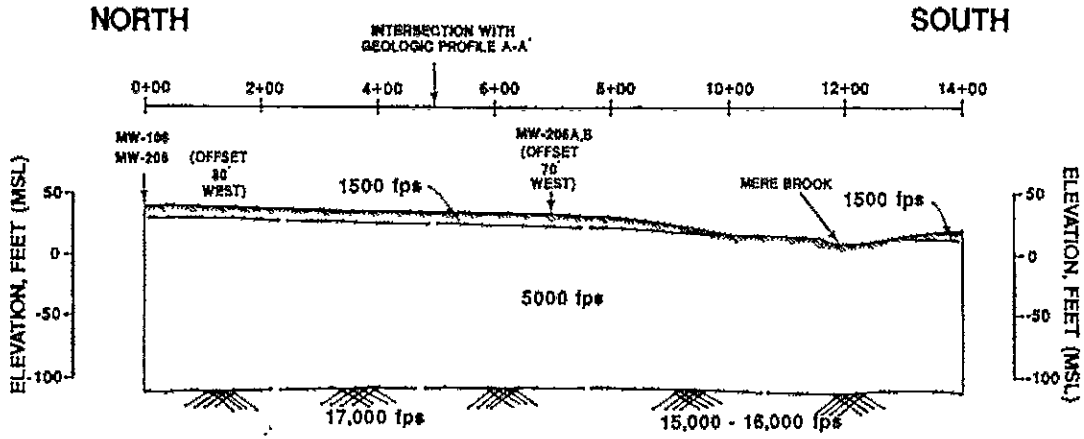
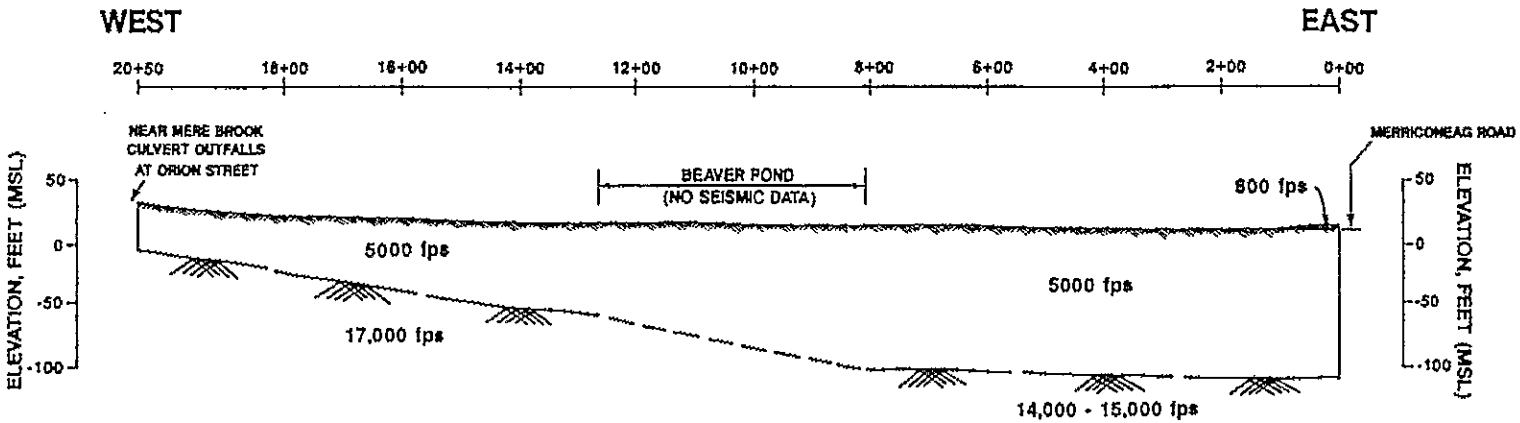


SEISMIC LINE 1 (SITE 1)

SEISMIC SURVEY PARAMETERS

SEISMIC LINE NO.	SPREAD NO.	LO STA	HI STA	LENGTH	NO. OF SHOTS	SHOT POINT SEPARATION	GEOPHONE SEPARATION
1	1	0	800	800	5	200	40
	2	800	1400	600	4	200	40
2	1	0	800	400	5	200	40
	2	1250	2050	800	5	200	40

Note: low and high seismic stations, spread lengths, separation between shot points, and geophone separations are in feet.



SEISMIC LINE 2 (SITES 2 & 3)

SCALE

0 200 400 FEET

VERTICAL EXAGGERATION 1:2

NOTE:
PROFILE LOCATIONS SHOWN ON FIGURE 5-2.

E.C. JORDAN CO. CONSULTING ENGINEERS	SEISMIC REFRACTION PROFILES LINES 1 AND 2 SITES 1, 2, & 3
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
	4607-41 FIGURE 5-6

Click Here to Return to Main Index

Click Here to Return to Main Index

dipping to the east. In Figure 6-5, the clay surface maintains a nearly level profile, similar to the north-south bedrock surface determined by Seismic Line 1. Figure 6-4 also shows the same general relationship of the clay surface to the top of bedrock. Figure 6-7 is a contour map of the top of clay beneath Sites 1, 2, and 3.

Two holes were advanced through the clay, penetrating a thin layer of till, and then into bedrock where rock cores were obtained. MW-210A and MW-211A cored 12 and 10 feet, respectively, into a metamorphosed schist. Based on the quality of the recovered core, at least the upper 10 to 12 feet of bedrock is moderately to extremely fractured. The 6.5-foot till layer encountered in MW-210A consisted of a dense, silty, coarse-to-fine sand. Virtually no till was encountered in MW-211A.

The exploration program at Sites 1 and 3 included excavation of 25 test pits. Test pits TP-101 to TP-103 were excavated in 1988, and TP-104 through TP-124 were excavated during the 1989 field season. Test pit logs are included in Appendix C. Figure 6-8 is a Test Pit Location Map for Sites 1 and 3. Test pits excavated at Sites 1 and 3 encountered landfill materials or disturbed soils. TP-123 encountered only 1 foot of disturbed soil over natural soils. The deepest test pit, TP-121, encountered fill and trash throughout its entire depth of 16 feet. TP-121 is one of nine test pits in the central portion of Site 1 that terminated in trash or fill. This area includes TP-105 to TP-121 (going west to east) and TP-110 to TP-118 (north to south). Shallow or perched groundwater was encountered between 6.5 and 10 feet bgs in this same area. The groundwater high could possibly define a mounded area which could give rise to some northward groundwater movement.

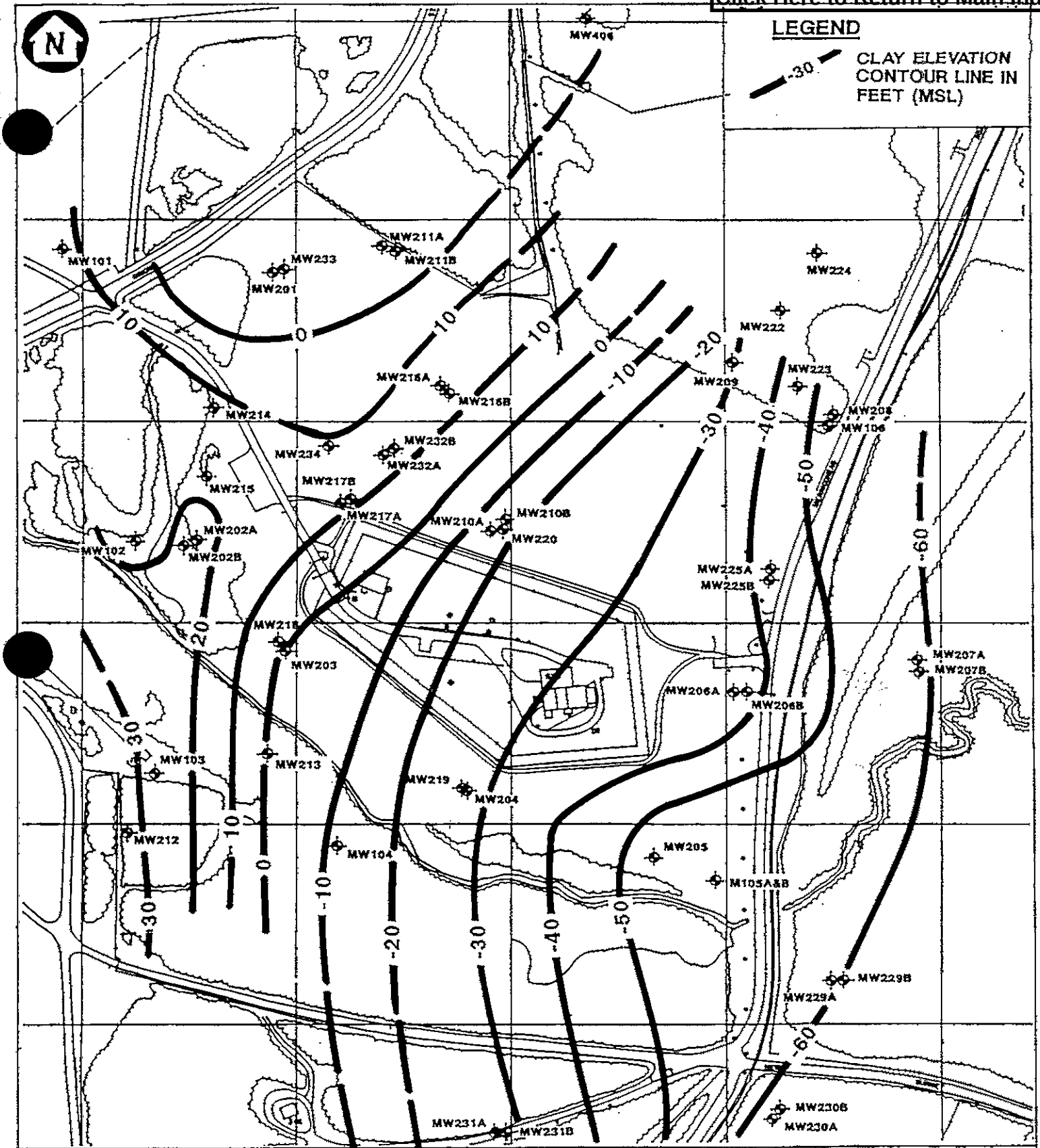
6.4 HYDROGEOLOGY: SITES 1 AND 3

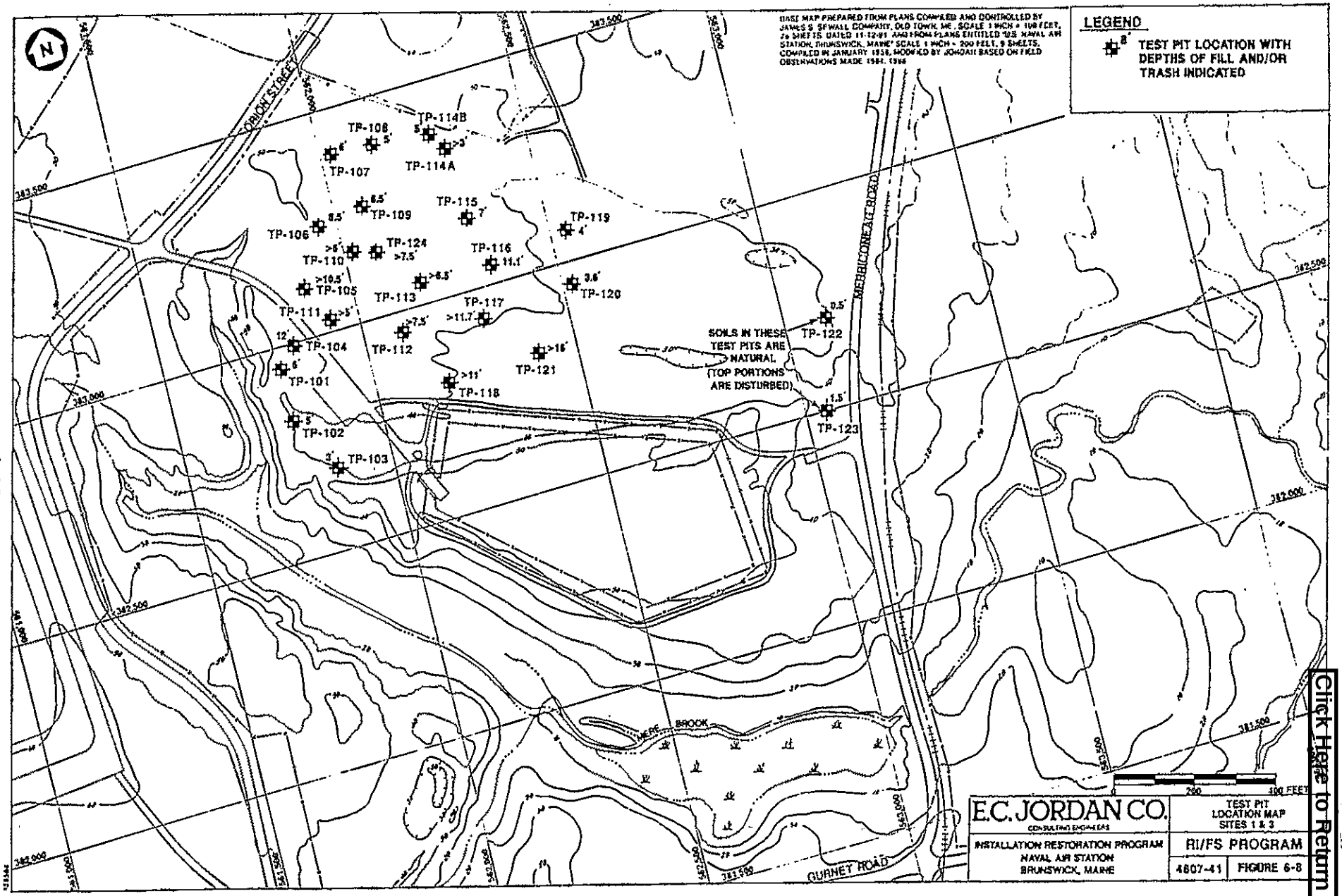
6.4.1 Overview: Sites 1 and 3

Hydrogeology of Sites 1 and 3 has been assessed with stratigraphic information, hydraulic conductivity data, and water levels obtained from 44 test borings and monitoring wells at the two sites. Hydraulic conductivity and water level data are contained in Table 4-3, Figure 6-1, and Appendix P. Based on field observations and water table elevations, Mere Brook beaver marsh, Merriconeag Stream, and their respective tributaries are surface expressions of groundwater.

Important features influencing local groundwater movement beneath Sites 1 and 3 are: Mere Brook beaver marsh and its tributaries; topography of the low conductivity clay defining the bottom of the unconfined aquifer; complex, stratified, transition zone deposits encountered to the southeast and east of Site 1; a bedrock trough filled with relatively high conductivity sands (i.e., 10^{-3} cm/sec) beneath the eastern end of Site 1; and a bedrock ridge (Buttermilk Mountain) located east of Mere Brook beaver marsh and underlying Coombs Road and Old Gurnet Road (see Figure 5-2).

Mere Brook beaver marsh flows eastward across the southern edge of Sites 1 and 3, acting as a groundwater discharge area. A minor tributary of Mere Brook beaver marsh bordering Site 3 to the west influences groundwater movement in


N
LEGEND
-30 CLAY ELEVATION CONTOUR LINE IN FEET (MSL)
MW101
MW233
MW291
MW211A
MW211B
MW406
MW224
MW222
MW223
MW209
MW208
MW106
MW214
MW216A
MW216B
MW234
MW232B
MW232A
MW215
MW217B
MW217A
MW210A
MW210B
MW220
MW102
MW202A
MW202B
MW218
MW203
MW225A
MW225B
MW207A
MW207B
MW206A
MW206B
MW103
MW213
MW219
MW204
MW212
MW104
MW205
M105A&B
MW229B
MW229A
MW231A
MW231B
MW230B
MW230A
10
0
-10
-20
-30
-40
-50
-60
SCALE IN FEET
0
200
400
ECJORDANCO
CONSULTING ENGINEERS
TOP OF CLAY CONTOUR MAP
SITES 1, 2, & 3
INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE
RI/FS PROGRAM
4807-36
FIGURE 6-7



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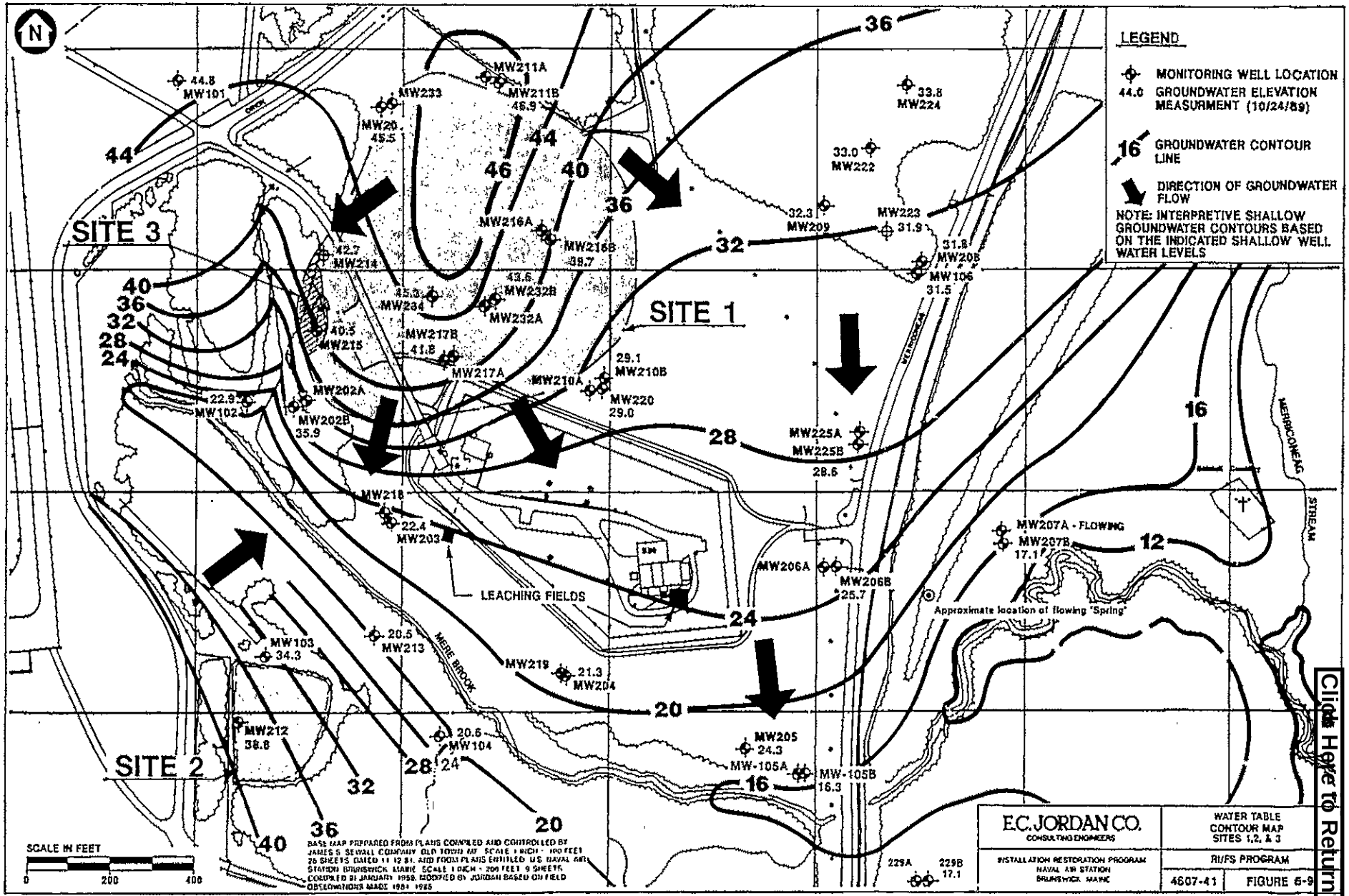
this area and has its confluence with Mere Brook beaver marsh near MW-102. A larger tributary, Merriconeag Stream, flows south from Picnic Area Pond and has its confluence with Mere Brook beaver marsh just south of Gatchell Cemetery. South of this confluence, Mere Brook beaver marsh flows south into Harpswell Cove, a tidal estuary. Shallow groundwater beneath Sites 1 and 3 discharges to Mere Brook beaver marsh based on vertical gradients observed in the vicinity of the brook, and the lack of shallow confining layers. Deeper, semi-confined groundwater in the transitional strata beneath the eastern end of Site 1 passes beneath Mere Brook beaver marsh to discharge to Mere Brook beaver marsh further downstream, or to the Harpswell Cove estuary. For purposes of discussion in this report, "shallow" groundwater beneath Site 1 refers generally to groundwater less than 30 to 40 feet below the water table. "Deep" groundwater present beneath the eastern end of Site 1 (due to greater aquifer thicknesses) refers to groundwater in excess of 30 to 40 feet below the water table. This differentiation between shallow and deep groundwater has been developed for discussion purposes only. Both shallow and deep groundwater at Site 1 are components of the unconfined aquifer, although deeper groundwater in transition zone strata is semi-confined by silt and clay strata. Shallow groundwater contours or water table maps (i.e., for groundwater less than 30 to 40 feet below the water table) were developed for Sites 1 and 3 based on groundwater elevations measured in 32 shallow overburden wells across both sites (Figure 6-9). Shallow groundwater contours at both sites strongly reflect the topographic influence of the deeply incised channels of Mere Brook beaver marsh and its tributaries. One unusual feature at Site 1 is the groundwater high coinciding with the location of the Site 1 disposal area. The high also coincides with the shallowest clay encountered beneath Site 1 and the disposal trenches.

Deep groundwater movement beneath Mere Brook beaver marsh at the eastern end of Site 1 is inferred from regional movement and water level data in four deep monitoring wells. Regional and base-wide groundwater movement is generally southward, discharging to the bays and coves of the Gulf of Maine. The unconfined aquifer has substantial saturated thickness in the vicinity of MW-105A,B, with highly stratified transition zone deposits at this location and to the south and east. Vertical hydraulic conductivities in the deeper transition zone strata are low with silt and clay layers reducing deep groundwater discharge to Mere Brook beaver marsh in this area. Low levels of VOC contamination were detected in MW-229A south of Mere Brook beaver marsh, in addition to several inorganics detected above background levels (see Subsection 6.5.5), indicating contaminated groundwater has migrated beneath Mere Brook beaver marsh to the south. Additional investigations are scheduled as part of the Post-Screening Work Plan program to address the issues of deep groundwater movement and underflow beneath Mere Brook beaver marsh to the south. This is also discussed in greater detail in subsection 6.6, with regard to fate and transport of contaminants.

A bedrock low is present beneath the eastern end of Site 1 (near MW-105) under thick deposits of high-conductivity sands. Bedrock rises to the west (MW-210A) and east (outcrops along Coombs and Old Gurnet roads) of this low (see Figures 5-2 and 6-3). The natural hydraulic head (undisturbed by domestic well pumping) in the bedrock under Coombs and Old Gurnet roads is assumed to be greater than the hydraulic heads in overburden and bedrock underlying Site



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1. The elevation of bedrock along Old Gurnet Road is substantially above the elevation of Site 1 and presumably provides a driving head from the high ground beneath Old Gurnet Road towards Mere Brook beaver marsh. Groundwater movement in shallow bedrock from the Coombs Road/Old Gurnet Road area is expected to be westward toward Site 1, Mere Brook beaver marsh, and Merriconeag Stream. Deeper groundwater movement in bedrock beneath Coombs and Old Gurnet roads (i.e., below sea level) probably becomes more southerly as regional movement towards the Gulf of Maine predominates. The impact of domestic well pumping on bedrock and overburden groundwater movement will be investigated as part of the Post-Screening Work Plan program in the Coombs/Old Gurnet Road area.

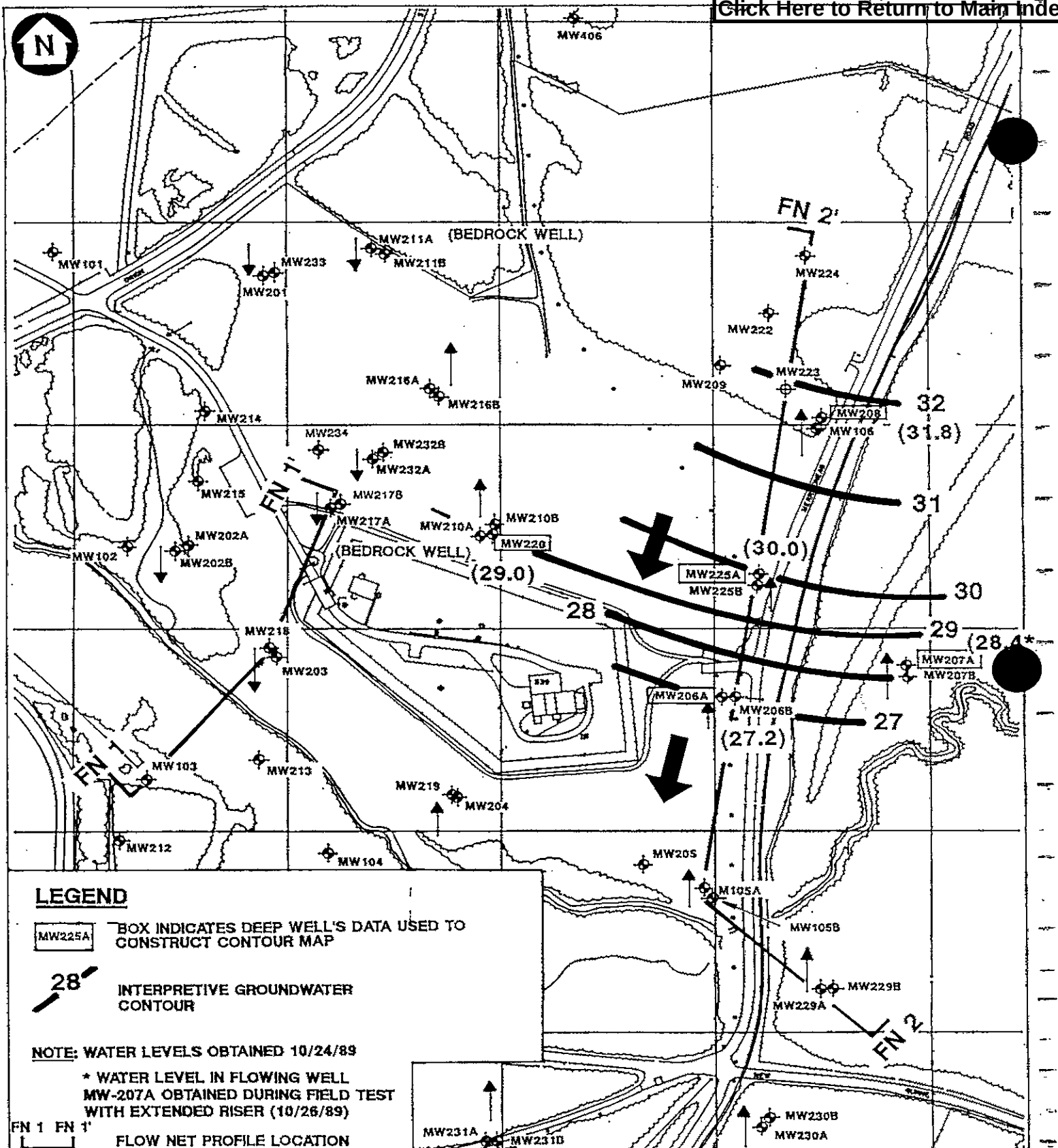
Deeper groundwater (i.e., groundwater greater than 30 to 40 feet below the water table) is present in the thickest portion of the aquifer beneath the eastern end of Site 1, where aquifer saturated thicknesses range from 60 to 90 feet. Deeper groundwater in the sand and transition zone has been contoured under the eastern end of Site 1 based on limited water level data from deep wells MW-208, MW-225A, MW-206A, and MW-207A (Figure 6-10). Deep groundwater movement in this area is generally southerly, similar to shallow groundwater movement. There is no aquitard separating the shallow and deep flow regimes in this area. Transition zone soils to the east in MW-207A are silt and clay-rich, constraining groundwater movement to the east in this area. Vertical gradients beneath the eastern end of Site 1 are discussed in Subsection 6.4.3 and gradients are indicated for well clusters in Figure 6-10.

Groundwater contamination detected in the unconfined sands and semi-confined transition zone strata is not believed to have penetrated the clay stratum beneath Site 1. The recorded thickness of the clay stratum (i.e., 20 to 60 feet) combined with its low hydraulic conductivity (i.e., 10^{-7} cm/sec) indicates groundwater contamination should not be entering the bedrock beneath Sites 1 and 3. There is insufficient data to contour bedrock piezometric heads; only two bedrock wells (i.e., MW-210A and MW-211A) have been installed beneath the clay at Site 1.

6.4.2 Saturated Thicknesses and Top of Clay: Sites 1 and 3

Saturated aquifer thicknesses at Sites 1 and 3 were calculated based on recorded groundwater elevations minus the elevation of the top of clay. Calculated saturated thicknesses include the sand layer and underlying transition zone strata (Figure 6-11). With one exception at the southern end of the disposal trenches, high level seeps are absent in the embankments bordering Mere Brook beaver marsh adjacent to Sites 1 and 3. This indicates a shallow, local retarding layer is present in the vicinity of the southern end of the trenches. The retarding layers of the transition zone are generally deeper near the trenches, reducing the presence of high-level seeps. Clay beneath Sites 1 and 3 is closest to the surface beneath the landfill trenches northwest of the Weapons Compound. To the east, elevation of the top of clay drops markedly, with a corresponding increase in saturated thickness of the unconfined aquifer (see Figure 6-7).

The maximum top-of-clay elevations recorded at Sites 1 and 3 are 22.6 feet MSL in MW-202B, and 19.5 feet MSL in MW-216A. Top of clay elevation progressively



LEGEND

MW225A — BOX INDICATES DEEP WELL'S DATA USED TO CONSTRUCT CONTOUR MAP

28 — INTERPRETIVE GROUNDWATER CONTOUR

NOTE: WATER LEVELS OBTAINED 10/24/89

* WATER LEVEL IN FLOWING WELL MW-207A OBTAINED DURING FIELD TEST WITH EXTENDED RISER (10/26/89)

FN 1 FN 1' — FLOW NET PROFILE LOCATION

(27.2) — OBSERVED DEEP WELL WATER LEVEL (FEET, MSL)

ARROW INDICATES DIRECTION OF VERTICAL HYDRAULIC GRADIENT AT WELL CLUSTER LOCATION. MONITORING WELLS MW-210A AND MW-211A ARE IN BEDROCK

0 200 400 FEET

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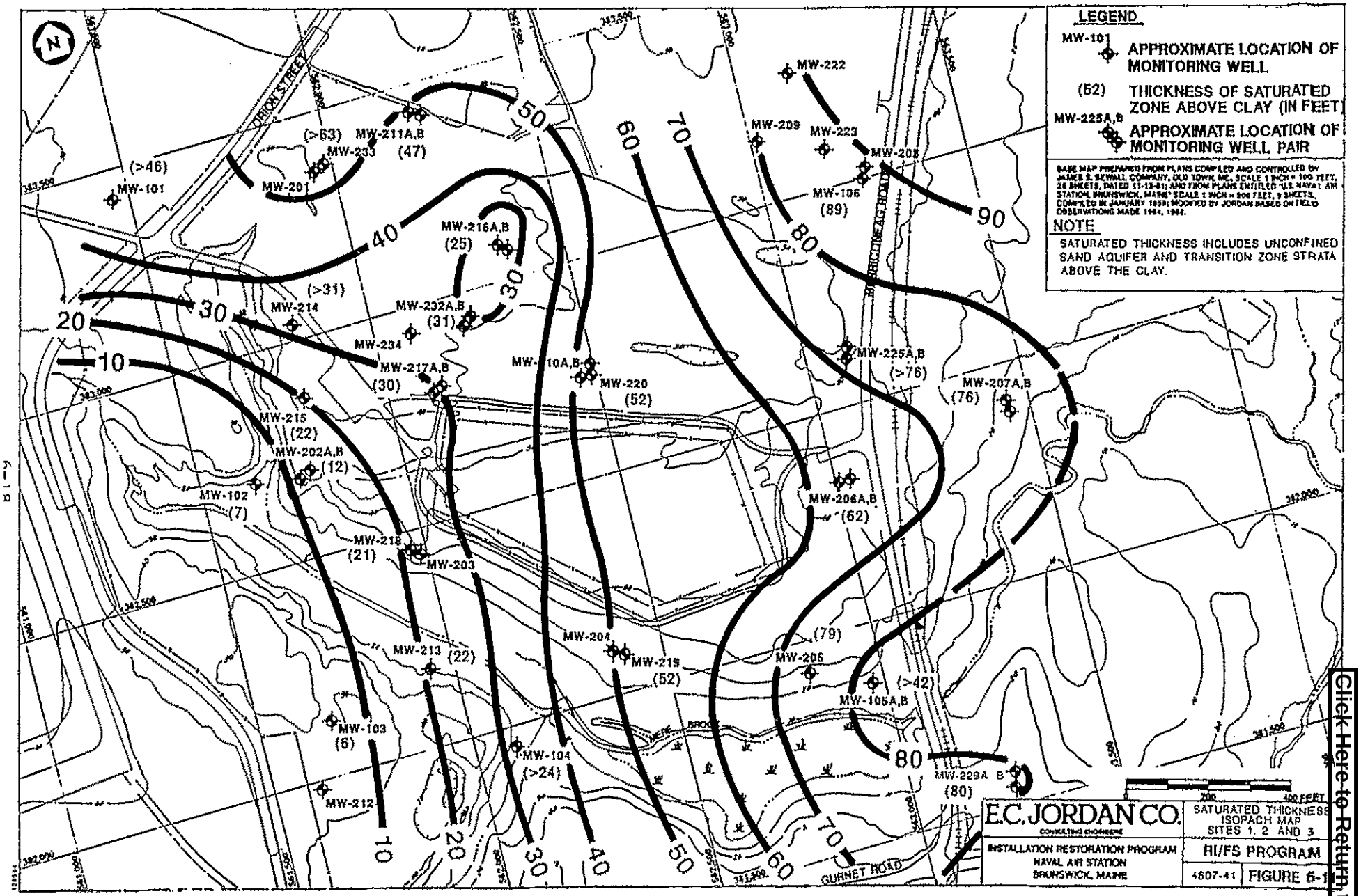
CONSULTING ENGINEERS

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

DEEP GROUNDWATER CONTOUR MAP
SITE 1

RI/FS PROGRAM

4607-41 | FIGURE 6-10



6-18

Click Here to Return to Main Index

Click Here to Return to Main Index

decreases 80 feet across Site 1 to the east, with the lowest recorded elevations (approximately -60 feet MSL) in the easternmost borings, MW-207A and MW-229A (see Figure 6-7).

Saturated thickness of the unconfined aquifer (including transitional strata) above the clay is at a minimum in MW-102 (7 feet), MW-202B (12 feet), MW-215 (22 feet), and MW-216A and B (25 feet). To the northwest in MW-201, saturated thickness is greater than 63 feet. To the southeast, saturated thickness increases to 76 and 89 feet in MW-207A and MW-208, respectively, and to more than 90 feet in MW-230A. Saturated thickness varies with seasonal fluctuations in the groundwater table.

6.4.3 Hydraulic Gradients: Sites 1 and 3

Horizontal and vertical hydraulic gradients, based on recorded groundwater elevations, vary substantially across Sites 1 and 3. Steep gradients are consistently present in the vicinity of Mere Brook beaver marsh and its tributaries. Horizontal gradients within roughly 500 feet of Mere Brook beaver marsh and its tributaries generally range from .03 to .06 feet/foot, with an average close to .05 feet/foot. Two exceptions close to the brook are MW-105 and MW-204, where sands with higher hydraulic conductivity and greater saturated thickness result in gradients of 0.01 to 0.02 feet/foot. Relatively large gradients of 0.04 to 0.05 feet/foot also exist in the area near the western end of the Weapons Compound and north of the compound next to the landfill trenches. These gradients are attributed to shallow clay at this location decreasing the saturated thickness and transmissivity of the aquifer. Increased gradients apparently have developed to offset decreased saturated thickness of the aquifer, thereby increasing seepage rates in this portion of the aquifer, maintaining the volumetric flow rate through the site.

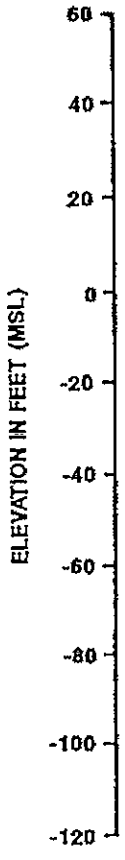
In contrast, calculated horizontal gradients are significantly lower near the eastern end of the Weapons Compound and northward to MW-224. Gradients across this area range from approximately .008 to 0.009 feet/foot. These lower gradients are a function of the relatively high hydraulic conductivity sand (i.e., 10^{-3} cm/sec), and increased saturated thickness.

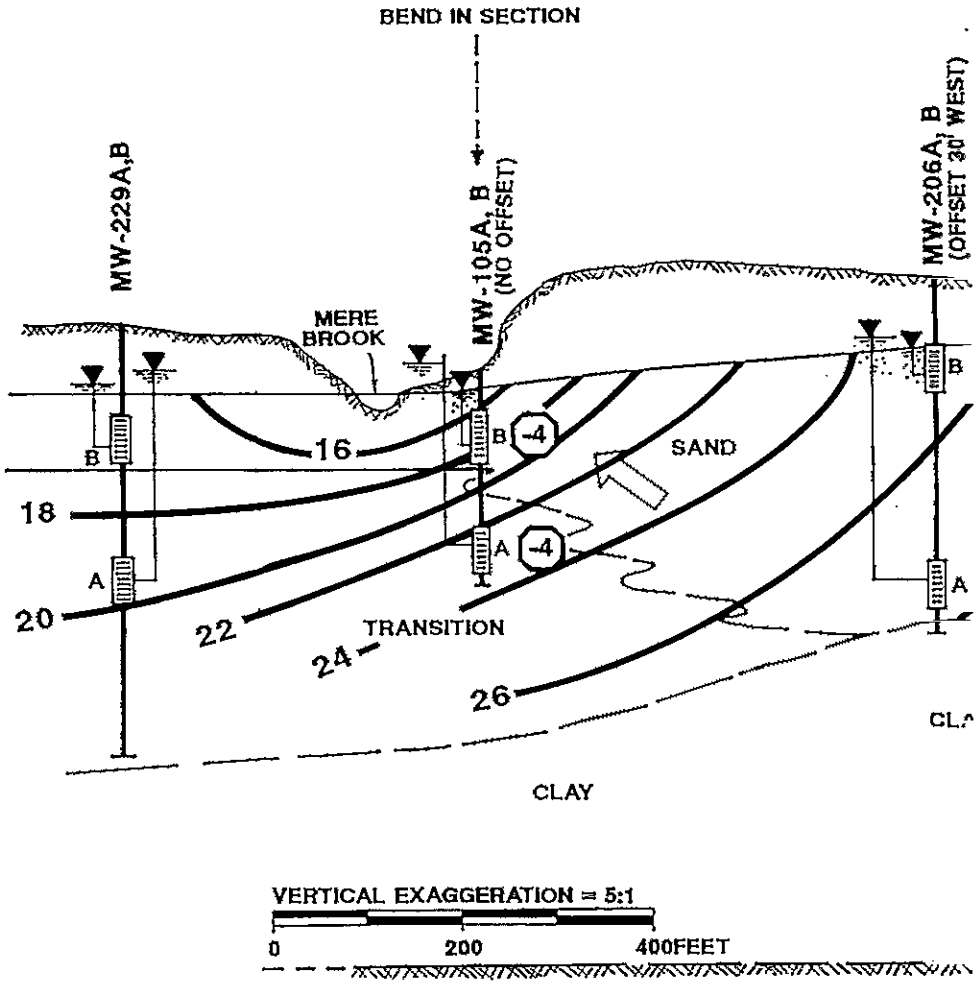
To help evaluate horizontal and vertical groundwater movement in the trench disposal area vicinity, and beneath the eastern end of Site 1, groundwater flow nets were developed based on piezometric levels in wells along interpreted groundwater flowpaths (i.e., perpendicular to groundwater contour lines). Figure 6-10 indicates the two flow net locations. Flow net FN1-FN1' is oriented north-south from the Site 1 trenches to Mere Brook beaver marsh (Figure 6-12). Downward hydraulic gradients are observed in the vicinity of the landfill trenches as indicated in FN1-FN'.

A second flow net, FN2-FN2', was prepared for the deep sand trough lying north-south under the eastern end of Site 1 (Figure 6-13). This trough represents the greatest aquifer thickness (with consistently high hydraulic conductivities) encountered anywhere on the base to date. This trough is significant because it is the apparent conduit for a plume of contaminants moving south from Sites 4 and 13, and possibly Site 11. As indicated by flow net FN2-FN2', upward gradients are present from MW-208/MW-106 to MW-105A,B.

Click Here to Return to Main Index

FN2 SOUTH

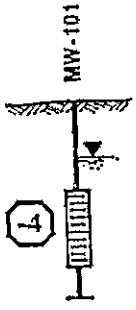




WATER LEVEL DATA (10/24/89)

WELL NO.	WATER ELEVATION (MSL)
MW-105A	23.4
MW-105B	16.3
MW-106	31.5
MW-206A	27.2
MW-206B	25.7
MW-208	31.8
MW-222	33.0
MW-223	31.9
MW-224	33.8
MW-225A	30.0
MW-225B	28.6

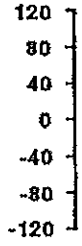
LEGEND

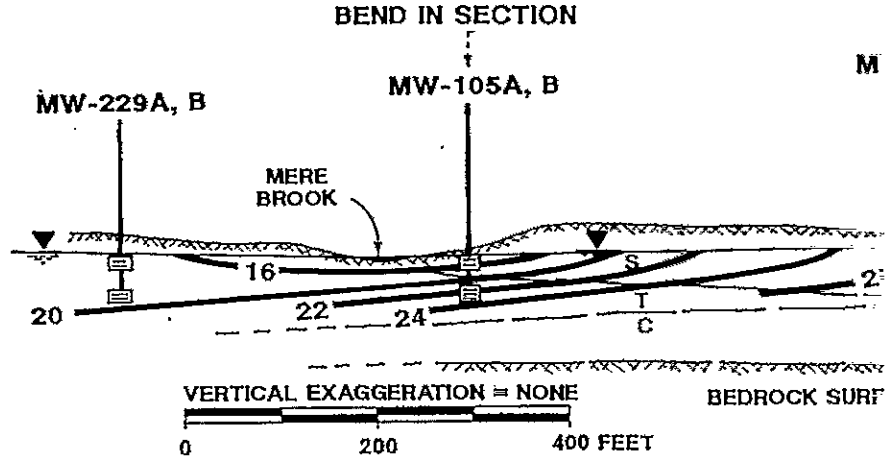


MONITORING WELL
GROUND SURFACE
WATER LEVEL (10/24/89)
WELL SCREEN
BOTTOM OF EXPLORATION

S	SAND
T	TRANSITION ZONE
C	CLAY
B	BEDROCK

FN 2 SOUTH



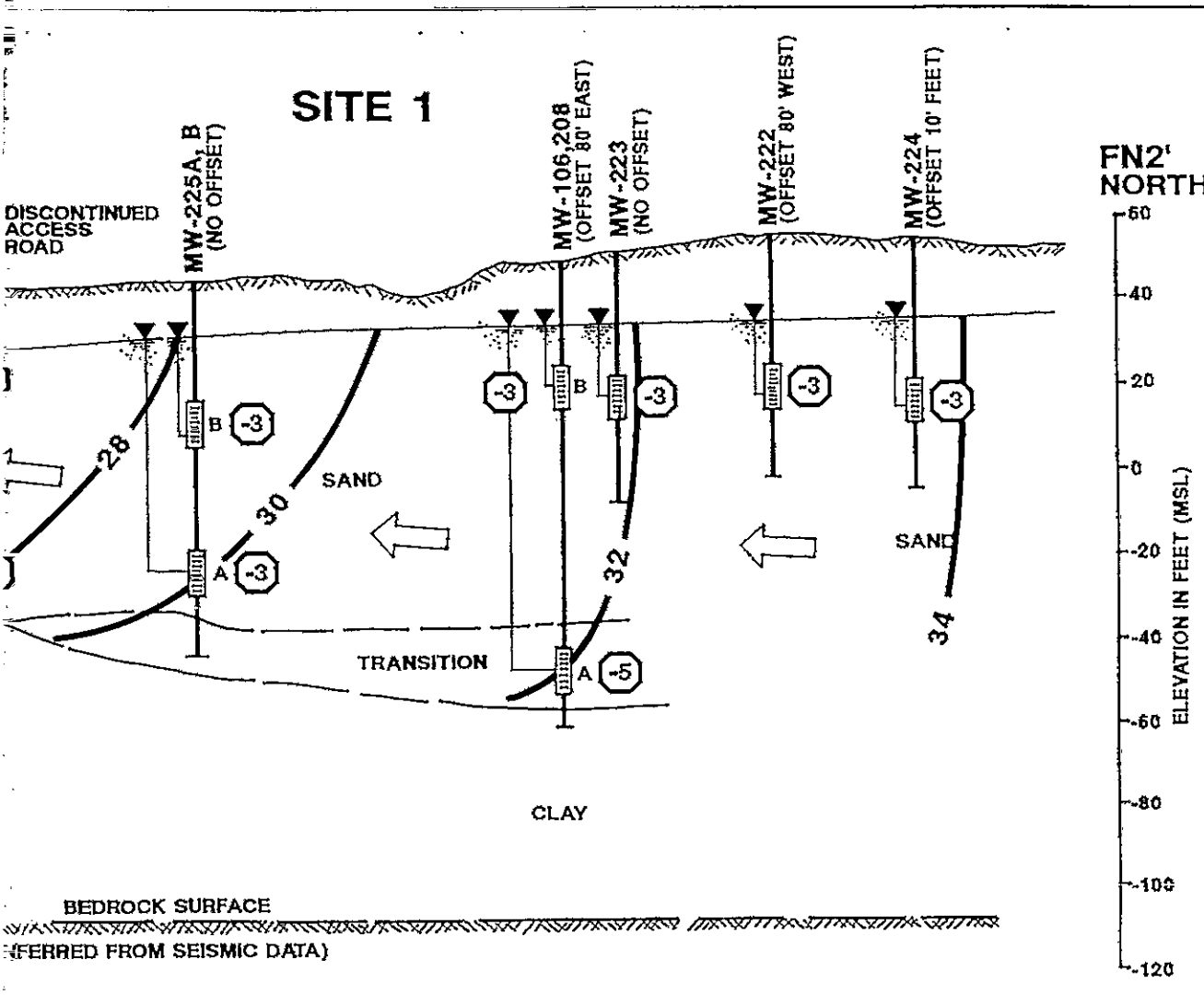


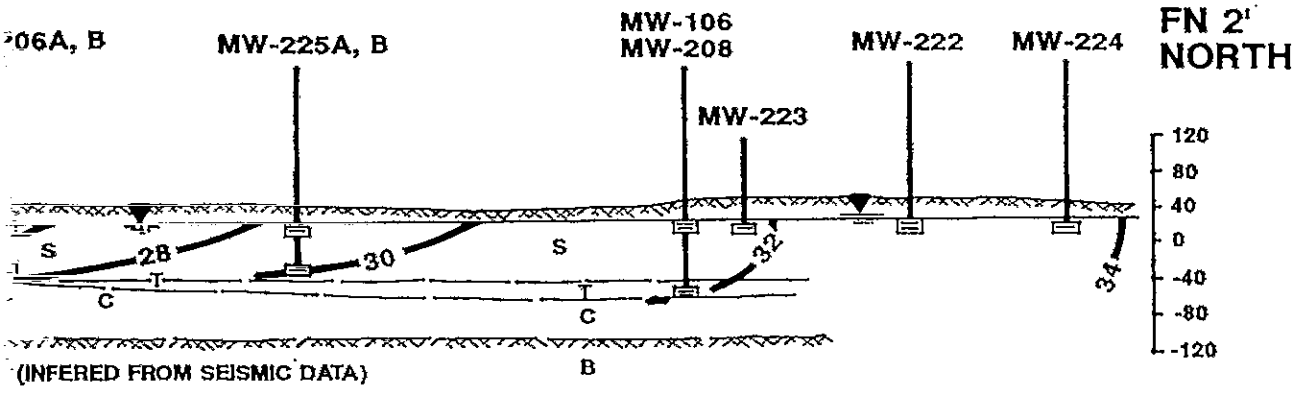
NOTES

PROFILES ARE BASED ON AN INTERPRETATION OF AVAIL EXPLORATIONS. ACTUAL CONDITIONS BETWEEN EXPL FROM THOSE SHOWN.

-3 ORDER OF MAGNITUDE OF HYDRAULIC CONDUCTIVITY CENTIMETERS / SECOND (i.e., 10^{-3} cm/sec.).

Click Here to Return to Main Index

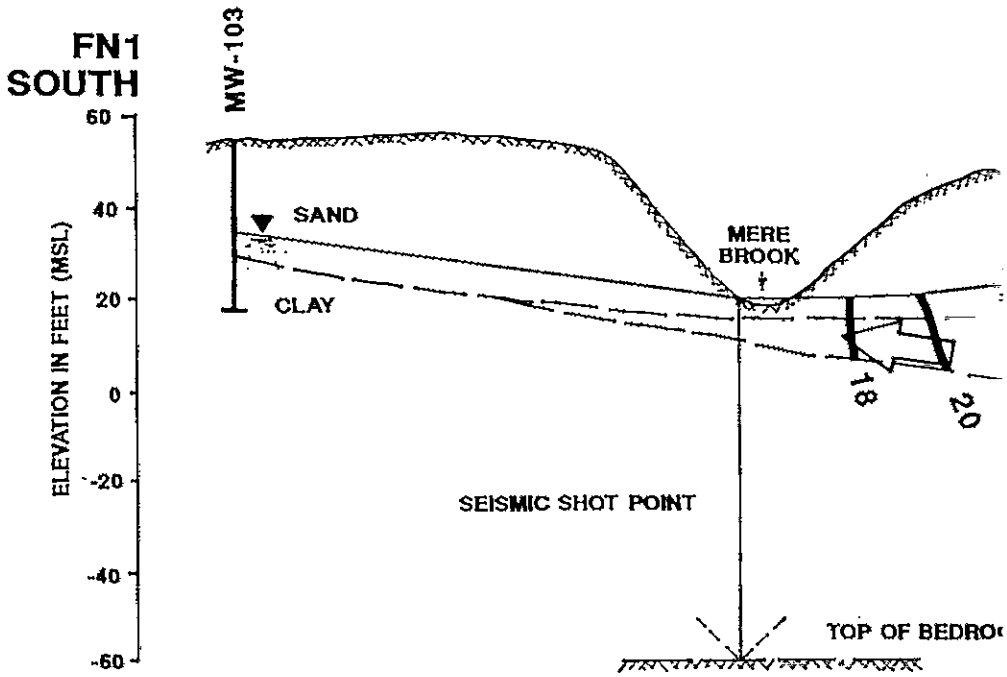




LE SUBSURFACE
TIONS MAY VARY

E.C. JORDAN CO. CONSULTING ENGINEERS	CONCEPTUAL FLOW NET FN2 - FN2' SITE 1	
	RI/FS PROGRAM	
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	4607-41	FIGURE 6-13

SITE 2



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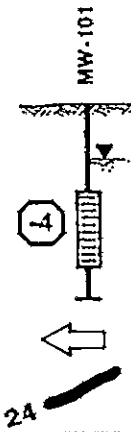


MONITORING WELL

GROUND SURFACE

WATER LEVEL (10/24/89)

WELL SCREEN

BOTTOM OF EXPLORATION

GROUNDWATER FLOW DIRECTION

CONCEPTUAL EQUIPOTENTIAL LINE

VERTICAL EXAGGERATION = 5:1

0 200 400 FEET

NOTES

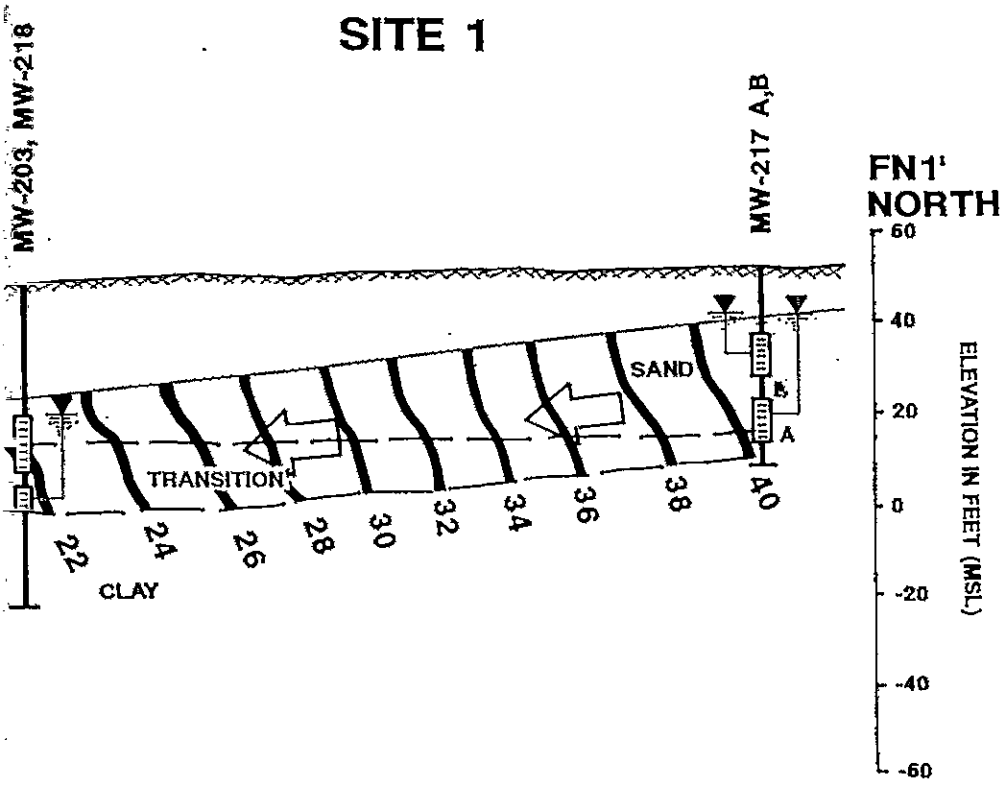
PROFILES A
EXPLORATI
FROM THOS

-3 ORDER OF
CENTIMETE

LOCATION

Click Here to Return to Main Index

SITE 1



WATER LEVEL DATA
(10/24/89)

WELL NO.	WATER ELEVATION (MSL)
MW-103	34.3
MW-203	22.4
MW-217A	40.4
MW-217B	41.8
MW-218	20.7

ASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE
= ACTUAL CONDITIONS BETWEEN EXPLORATIONS MAY VARY
OWN.

NITUDE OF HYDRAULIC CONDUCTIVITY IN
SECOND (i.e., 10^{-3} cm/sec.).

ROFILE SHOWN IN FIGURE 6-10.

E.C. JORDAN CO. CONSULTING ENGINEERS	CONCEPTUAL FLOW NET FN1-FN1' SITES 1 AND 2	
	RI/FS PROGRAM	
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	4607-41	FIGURE 6-12

Mere Brook beaver marsh is a discharge area for groundwater with upward vertical gradients increasing substantially close to the brook.

The highly stratified transition zone increases abruptly in thickness in proximity to Mere Brook beaver marsh with vertical Ks assumed to be one to two orders of magnitude less than horizontal Ks. The contact between the sand and the transition zone is gradational, with the presence of clay seams generally used to indicate the bottom of the sand. The decrease in Ks will also be gradual with depth. As deep groundwater in the trough approaches the brook, it enters these stratified sediments, and, as it cannot readily discharge vertically upward to the brook, a portion passes beneath the brook and discharges ultimately to Mere Brook beaver marsh further downstream, or to the Harpswell Cove estuary. Additional information on underflow in the transition zone will be obtained in the Post-Screening Work Plan investigation program.

The confining effects of the transition zone's stratification are observed most clearly in MW-207A, MW-105A, and, apparently, in a flowing "spring" located approximately halfway between these two wells (see Figures 6-2 and 6-9). For example, in MW-105A and B, with well screens separated by only 15 feet vertically, a 7.1-foot difference in head between the two wells was recorded in October 1989. The water level in MW-105A (the deep well of the pair) has been consistently recorded above ground surface since well installation.

The same phenomenon was reported in MW-207A. MW-207A has consistently been observed to flow above ground surface. Shortly after installation, the water level stabilized approximately 6.8 feet above ground surface in a field test. The separation of well screens A and B is approximately 55 feet vertically with a head difference of approximately 11 feet, based on the field test and water levels recorded in MW-207B.

The flowing "spring" encountered by field personnel in 1988 is adjacent to an abandoned water supply well, and is believed indicative of the transition zone's confining strata (see Figure 6-9). The spring bubbles constantly, creating sand boils indicating significant flow and pressure relief. The abandoned water supply well consists of a 24-inch metal casing, some piping, and the remains of a shed located approximately 10 feet from the "spring." Subsurface information in the vicinity of the spring is provided by MW-207A and Navy test hole C7. Both indicate a thick sequence of transition zone sediments at depth. Although the depth of the abandoned water supply is unknown, artesian flow occurs at MW-207A. The proximity of the spring to the abandoned well suggests that it may be related to it, with the abandoned well providing a conduit for the release of deep, confined groundwater as observed at MW-207A.

6.4.4 Hydraulic Conductivities: Sites 1 and 3

In situ hydraulic conductivities were measured in 42 of the 44 wells in the Sites 1 and 3 area. These field-test values are summarized in Table 4-3; field methods are discussed in Subsection 4.12.

Click Here to Return to Main Index

Hydraulic conductivities measured in wells at Sites 1 and 3 range from 3.9×10^{-5} to 2.0×10^{-2} cm/sec, with the exceptions of one 10^{-6} value (at MW-218) and one 10^{-8} value (at MW-223). The geometric mean of overburden conductivities at Sites 1 and 3 (excluding MW-218 and MW-233) is 7.2×10^{-4} cm/sec. Using the geometric mean K, an effective porosity of 0.25, and gradients ranging from 0.008 to 0.05, bulk aquifer seepage velocities range from 24 feet/year to 149 feet/year. In actuality, there will be variability of K locally within the aquifer, and groundwater will travel more rapidly than calculated average velocities in certain layers or pathways of greater than average hydraulic conductivity.

Hydraulic conductivity values also have been separated by formation for Sites 1 and 3. The K values are compared in Table 6-2 for wells installed in the sand and for wells installed in the transition zone (including wells at the sand/transition zone interface). The geometric mean of the K for 18 wells installed in the sand is 1.81×10^{-3} cm/sec. The mean K for 15 wells installed in the transition zone (and at the sand/transition zone interface) is 1.04×10^{-4}.

To help visualize hydraulic conductivity patterns across the site, the hydraulic conductivity order of magnitude (i.e., log K) in cm/sec is indicated for each well in the geologic profiles for Sites 1 and 3 (see Figures 6-3, 6-4, and 6-5). In addition, the areal distribution of K values is indicated in Figure 6-1. The following patterns emerge:

- Horizontal hydraulic conductivities generally decrease with depth, with the sand stratum often having conductivities at least one order of magnitude greater than the underlying transitional strata.
- Hydraulic conductivities of wells screened at the sand/transition zone interface are comparable to those screened wholly in the transition zone.
- Sand hydraulic conductivities are most commonly 10^{-3} cm/sec with a geometric mean of 1.81×10^{-3}.
- Transition zone strata horizontal hydraulic conductivities most commonly range from 10^{-4} to 10^{-6} cm/sec with a geometric mean of 1.04×10^{-4} cm/sec.
- High horizontal hydraulic conductivities (10^{-3} cm/sec) are consistently seen in a large area near the eastern end of the Weapons Compound (near MW-206A and B) and north to MW-224.
- Based on available geologic data, the area with the highest overall conductivities (from MW-224 south to MW-206A and B) is a sand trough bounded to the east and south by transition zone strata with conductivities one and two orders of magnitude lower than the sand.

Click Here to Return to Main Index

TABLE 6-2
HYDRAULIC CONDUCTIVITIES OF GEOLOGIC STRATA - SITES 1 AND 3

REMEDIAL INVESTIGATION
NAS BRUNSWICK

WELL ID	SAND	TRANSITION ZONE & SAND/TRANSITION ZONE
	(ft/day)	(ft/day)
MW-101		0.18
MW-105B		1.47
MW-106	>8.22	
MW-201	49.05	
MW-202		2.06
MW-204	34.87	
MW-205		1.86
MW-206A	4.11	
MW-206B	23.47	
MW-207B	1.36	
MW-208		0.24
MW-209	25.74	
MW-210B	7.31	
MW-211B	0.61	
MW-214	2.32	
MW-215		0.27
MW-216A		0.34
MW-217A		0.11
MW-218		0.01
MW-219	1.56	
MW-220	1.05	
MW-222	12.76	
MW-223	6.8	
MW-224	10.49	
MW-225A	3.69	
MW-225B	12.76	
MW-229A		0.91
MW-229B	0.18	
MW-230A		0.13
MW-230B		0.16
MW-231A		0.77
MW-231B		0.17
MW-232A		0.19
NUMBER OF WELLS	18	15
GEOMETRIC MEAN	5.14 ft/day	0.29 ft/day
	1.81 x 10-3 CM/SEC	1.04 x 10-4 CM/SEC

Click Here to Return to Main Index

6.4.5 Groundwater Discharge and Seepage Velocities

Groundwater flow from beneath the disposal area at Site 1 is to the west, south, and east (see Figure 6-9). Contaminants moving south and west from Sites 1 and 3 remain shallow and discharge to Mere Brook beaver marsh across the southern boundary of the site. Contaminants moving east and southeast from the Site 1 trenches also are expected to discharge mainly to Mere Brook beaver marsh, with a lesser component passing beneath the brook to the south.

Based on thin aquifer saturated thicknesses west and south of the trench disposal area (i.e., 7 to 21 feet), relatively shallow and low K clay limiting downward groundwater movement, and the proximity of refuse and the trenches to Mere Brook beaver marsh (1,000 feet from the most remote point), it is anticipated that groundwater moving south and west from the trench area discharges entirely to Mere Brook beaver marsh. Underlying clay is expected to limit or preclude downward vertical movement of groundwater in this area due to its very low hydraulic conductivity. Shallow clay and northward moving groundwater beneath Site 2 also must act as a hydrodynamic barrier to groundwater attempting to pass southward under Mere Brook beaver marsh south of the disposal area. Investigations to be completed in the Post-Screening Work Plan program are designed to quantify groundwater discharge to Mere Brook beaver marsh in this area.

Based on a mean K of 7.2×10^{-4} cm/sec, an effective porosity of 0.25, and an average gradient across the trench area of 0.03, the travel time for Site 1 and Site 3 leachate moving (at 89 feet/year) to the south (and west) could range from less than one year (southern end of trenches) to nearly 10 years (from the northern end of the trenches) before discharging to Mere Brook beaver marsh.

There is also a substantial component of groundwater flow to the east away from the trench disposal area at Site 1. These easterly flow paths to Mere Brook beaver marsh are much longer because of the sweeping arc to the east, southeast, and finally south before discharge at the brook. The longest flow path from the northern end of the trenches to Mere Brook beaver marsh near MW-205 is roughly 1,700 feet long. With an average gradient of 0.02 across this area, a mean K of 7.2×10^{-4} cm/sec, and an effective porosity of 0.25, the seepage velocity would be 60 feet/year. Maximum travel time at this rate from the trenches to Mere Brook beaver marsh near MW-205 could be 25 to 30 years. If the bulk aquifer K is greater than field tests indicate, and longitudinal dispersion is factored in to estimate first arrival times, then travel times from the northern end of the disposal trenches to Mere Brook beaver marsh near MW-205 could be reduced 50 percent. Upward gradients observed across most of the area east and southeast of the trenches suggest that groundwater following this path discharges largely to Mere Brook beaver marsh, with a lesser component passing beneath Mere Brook beaver marsh (in the vicinity of MW-205) entrained in transition zone strata. Groundwater moving beneath Mere Brook beaver marsh to the south as underflow is anticipated to discharge to Mere Brook beaver marsh further downstream or to Harpswell Cove (see Figure 6-2). Quantification of groundwater discharge to Mere Brook beaver marsh bordering

Site 1 will be performed as part of the Post-Screening Work Plan investigation program.

6.5 NATURE AND EXTENT OF CONTAMINATION: SITES 1 AND 3

This subsection describes the results of the field studies and sampling at Sites 1 and 3.

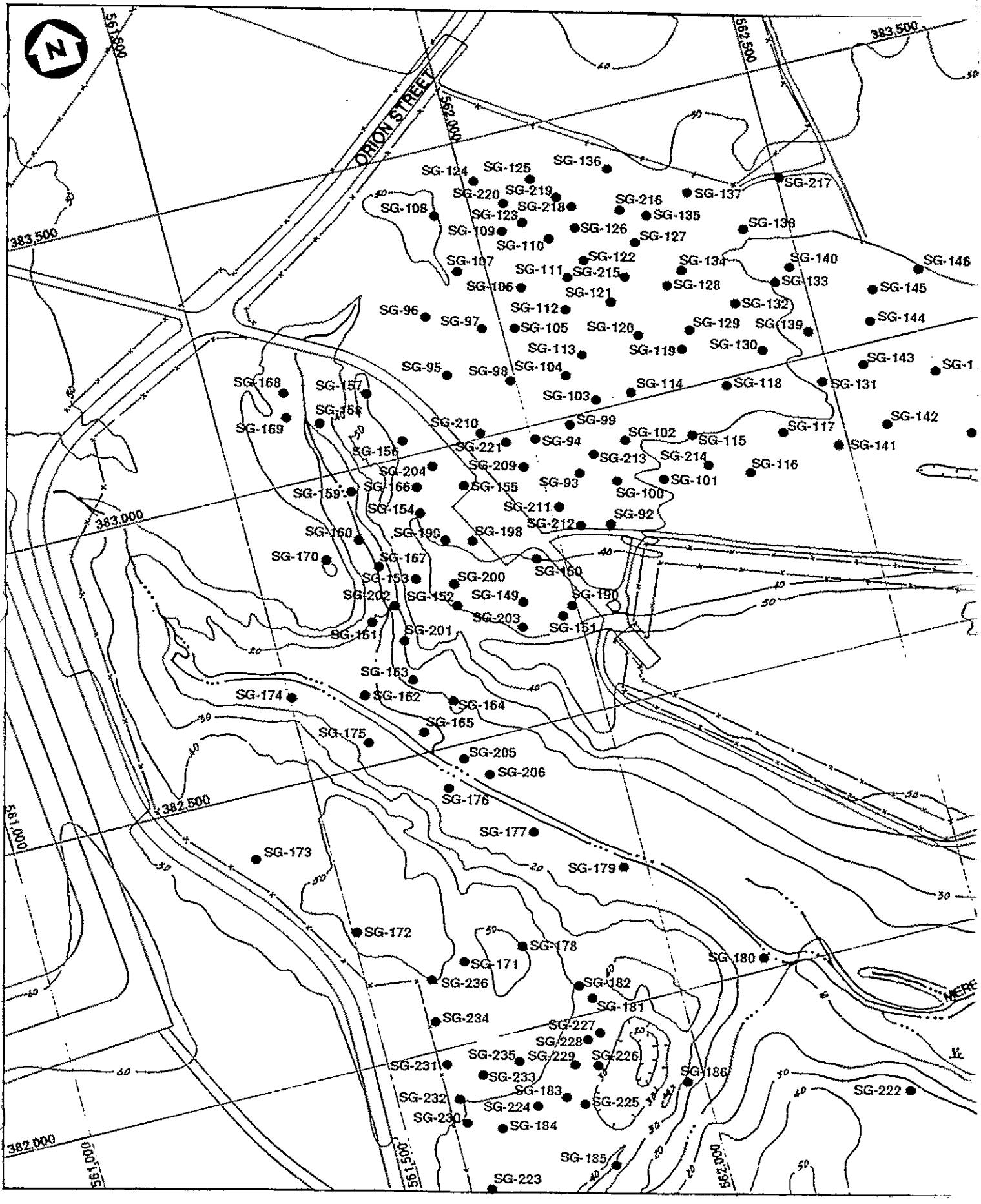
6.5.1 Soil Gas Survey: Sites 1 and 3

Soil gas surveys were conducted at Sites 1 and 3 in June 1988 and August 1989. The surveys were done by Tracer (June 1988) and HGC (August 1989). The Tracer study included analysis for the compounds Freon-113 (F-113), chloroform ($CHCl_3$), TCE, TCA, PCE, benzene, toluene, xylene, and total petroleum hydrocarbons (THC). The HGC study monitored the compounds 1,1-dichloroethene (1,1-DCE), 1,2-dichloroethene (1,2-DCE), TCE, TCA, PCE, vinyl chloride (VC), benzene, ethylbenzene, toluene, xylenes, and THC. In areas where the two soil gas studies overlap, the Tracer and HGC data are comparable, with detected compounds and concentrations relatively consistent. One hundred thirty-nine soil gas points were installed at Sites 1 and 3. The Tracer soil gas study included 112 total points (i.e., SG81-SG170, SG198-SG206, and SG209-SG221), and the HGC program had 27 points (i.e., SG108-SG117, SG128-SG132, SG169-SG173, and SG151-SG157). Locations of the soil gas points are shown in Figures 6-14 (Tracer Study) and 6-15 (HGC Study). Soil gas data are shown in Figures 6-16 through 6-19 and are included in Appendix D.

Distribution of soil gas points covers the whole area north of the Weapons Compound, and the region west and south of the compound parking area. Both volatile halogenated organics (VHOs) and hydrocarbons are detected; concentrations range from non-detect, to values in excess of 68 µg/L (VHOs) and 1,200 µg/L (THC). High levels of VHOs and THC occur in the same general vicinity, the area of Site 1 northwest of the Weapons Compound in the vicinity of the two landfill trenches. Soil gas concentrations generally decrease away from this area, and non-detect values occur east of the toe of the landfill. Soil gas results are not contoured due to the non-point source distribution of the data. THC values from the 1988 Sites 1 and 3 soil gas study are shown in Figure 6-16, with Site 1 trench locations indicated for reference. High THC soil gas points occur both within the trenches and somewhat outside the trenches, but geophysical data include this area outside the trenches in the limits of refuse distribution (see Subsection 6.5.2). The agreement between the soil gas and geophysical studies indicates a large area of disturbed soils and refuse disposal exterior to the trenches.

6.5.2 Geophysical Surveys: Sites 1 and 3

Geophysical surveys were conducted at Sites 1 and 3 during both the 1988 and 1989 field programs. The purpose of the geophysical studies was to more accurately define subsurface geologic and hydrogeologic conditions, to identify potential sources of contamination for investigation by direct techniques, and to obtain subsurface information in some areas where no direct investigations were planned.


ORION STREET
SG-124
SG-125
SG-136
SG-220
SG-219
SG-216
SG-137
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SG-108
SG-123
SG-218
SG-135
SG-109
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382,500
382,000
561,000
561,500
562,000
562,500

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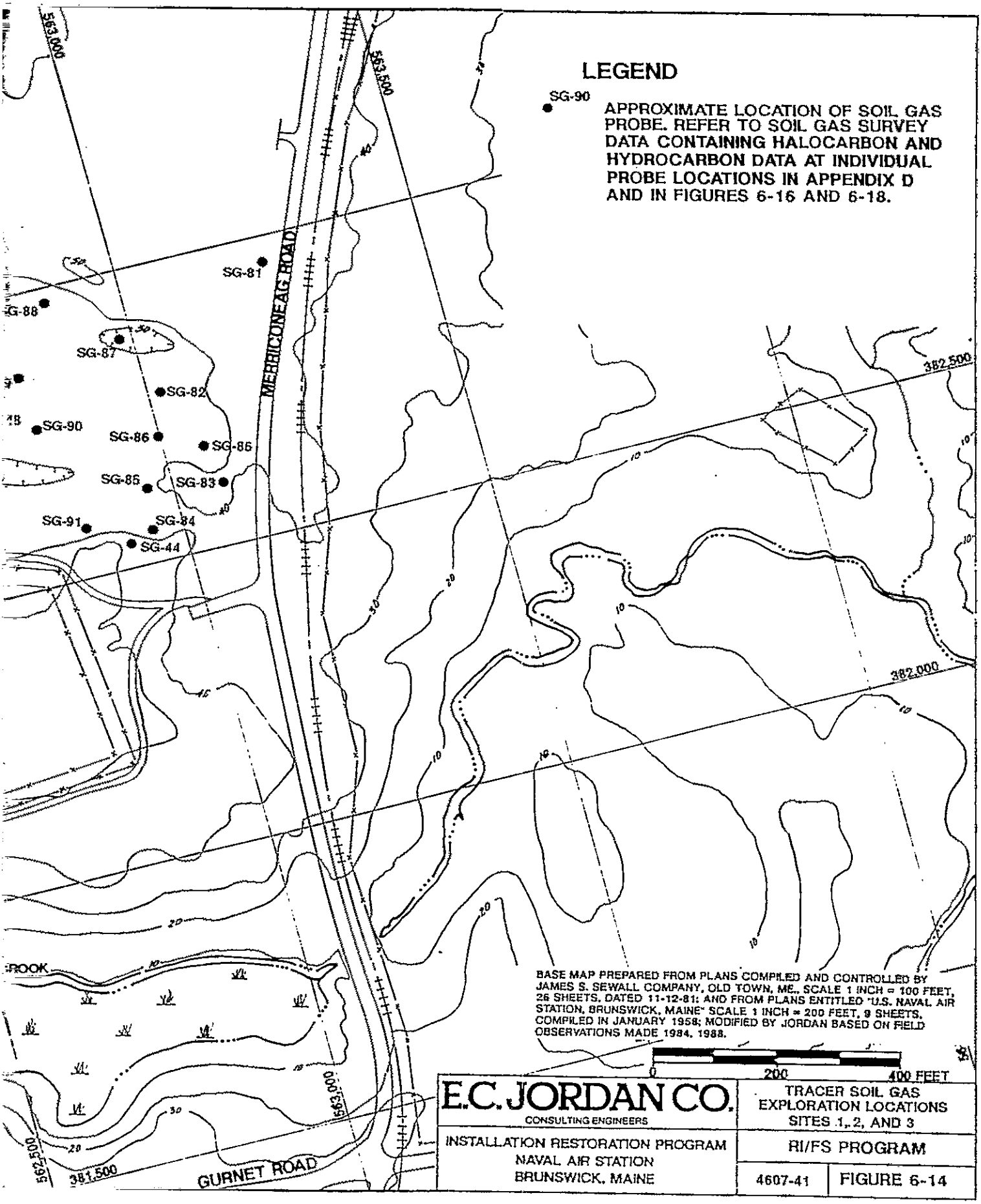

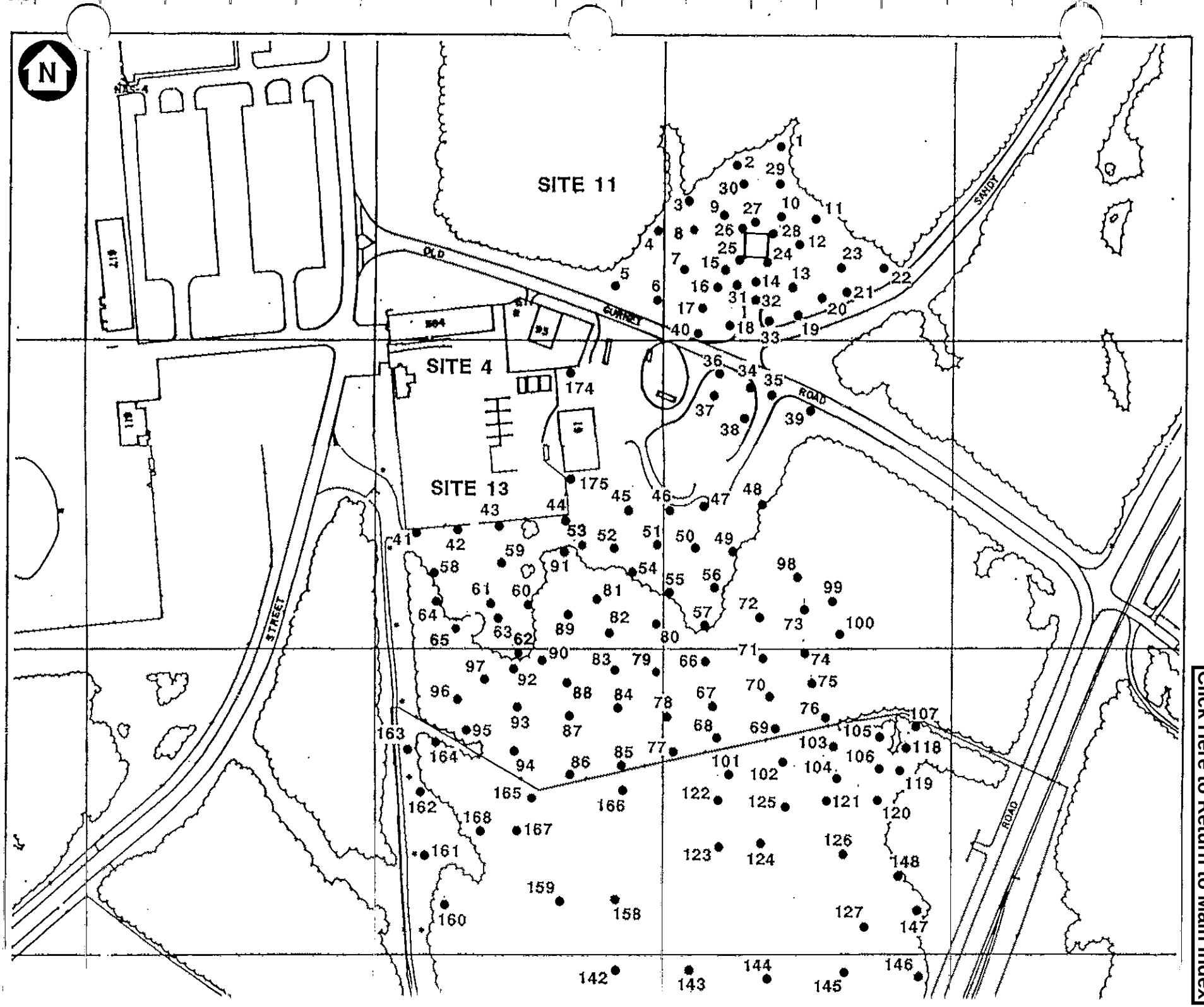

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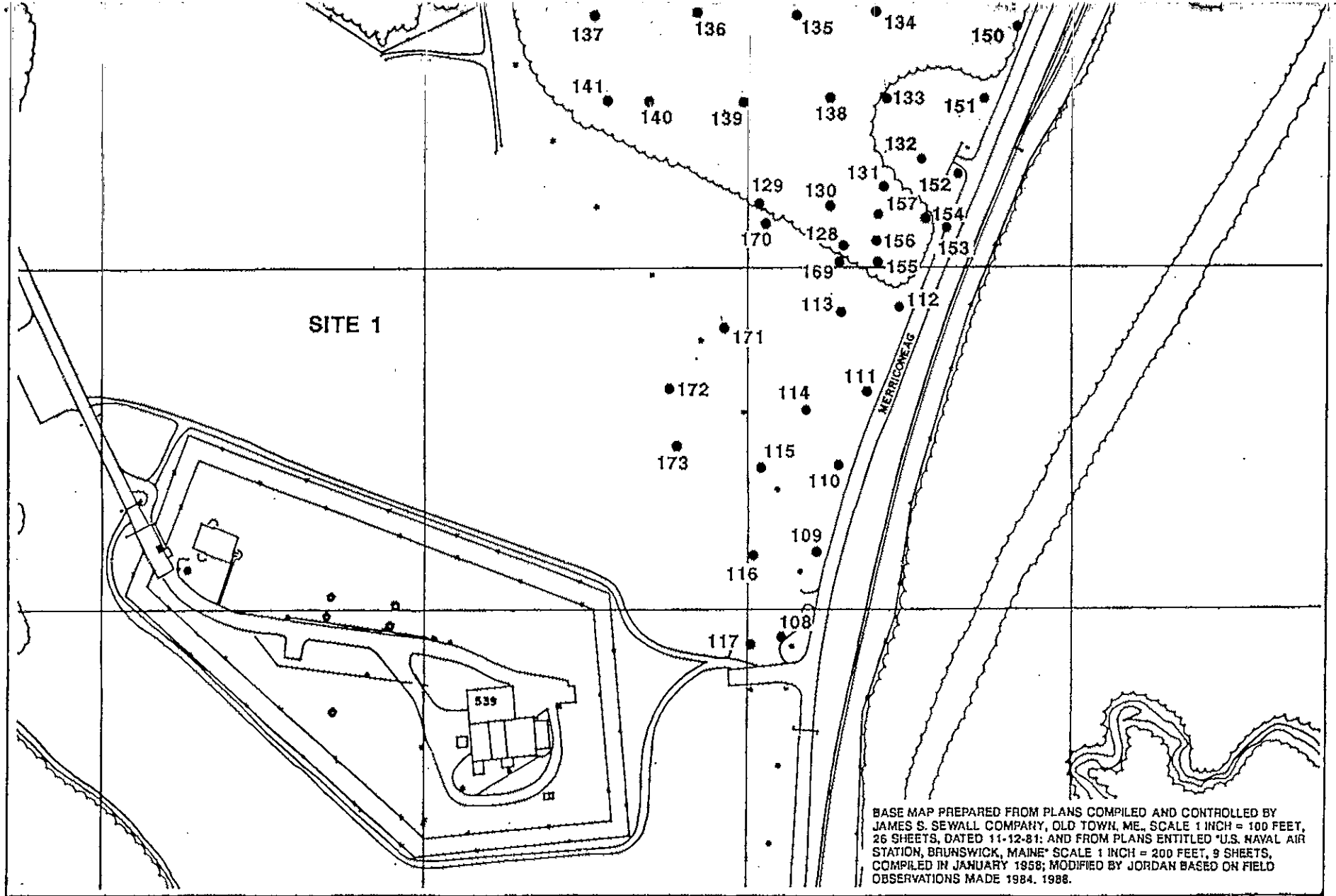

BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME., SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 9 SHEETS, COMPILED IN JANUARY 1958; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1988.

LEGEND

86 ● NUMBER AND APPROXIMATE LOCATION OF SOIL GAS PROBE

SCALE IN FEET

0 200 400

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HYDRO GEO CHEM SOIL GAS EXPLORATION LOCATIONS SITES 1, 11, AND 13

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41

FIGURE 6-15

Click Here to Return to Main Index

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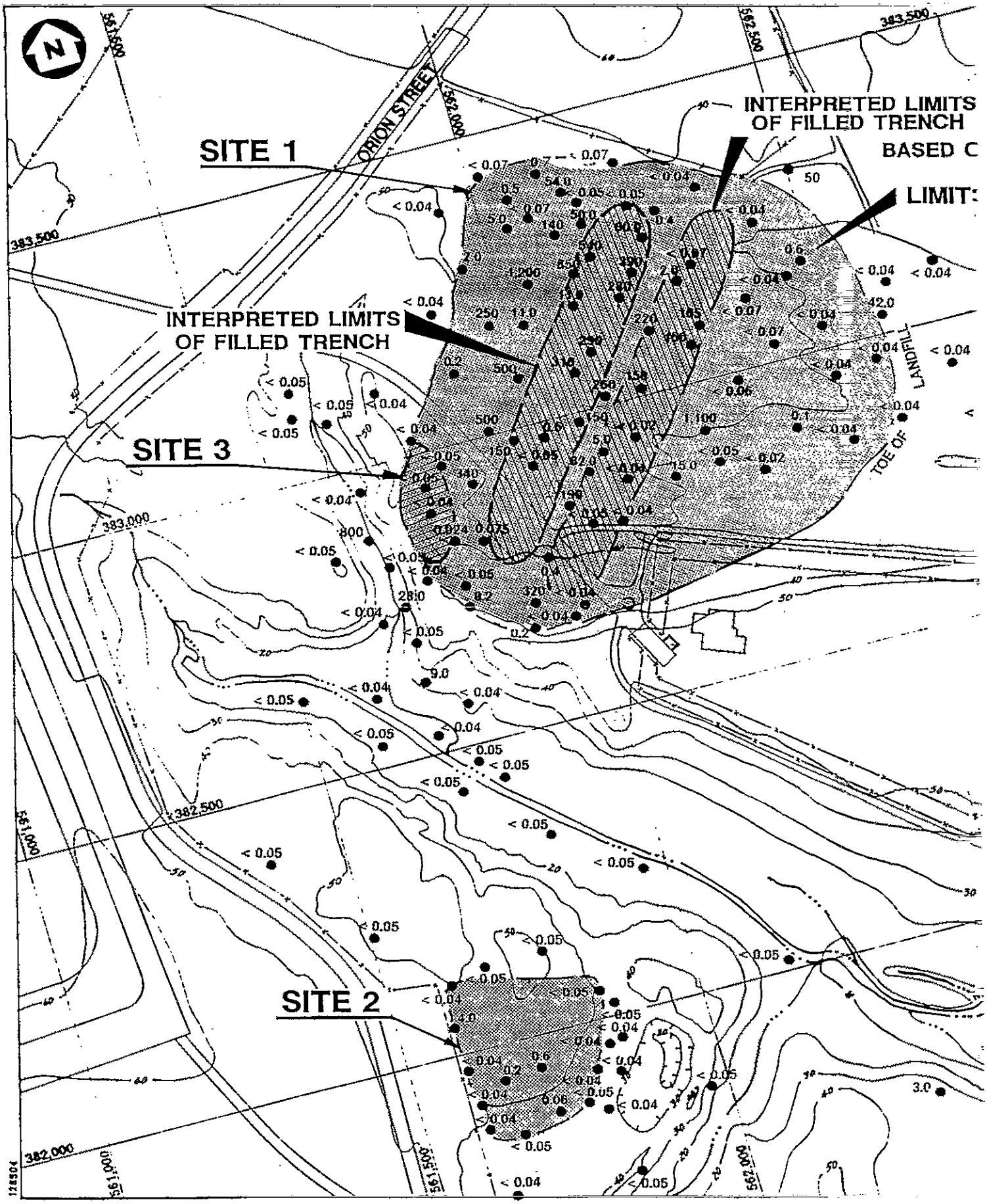

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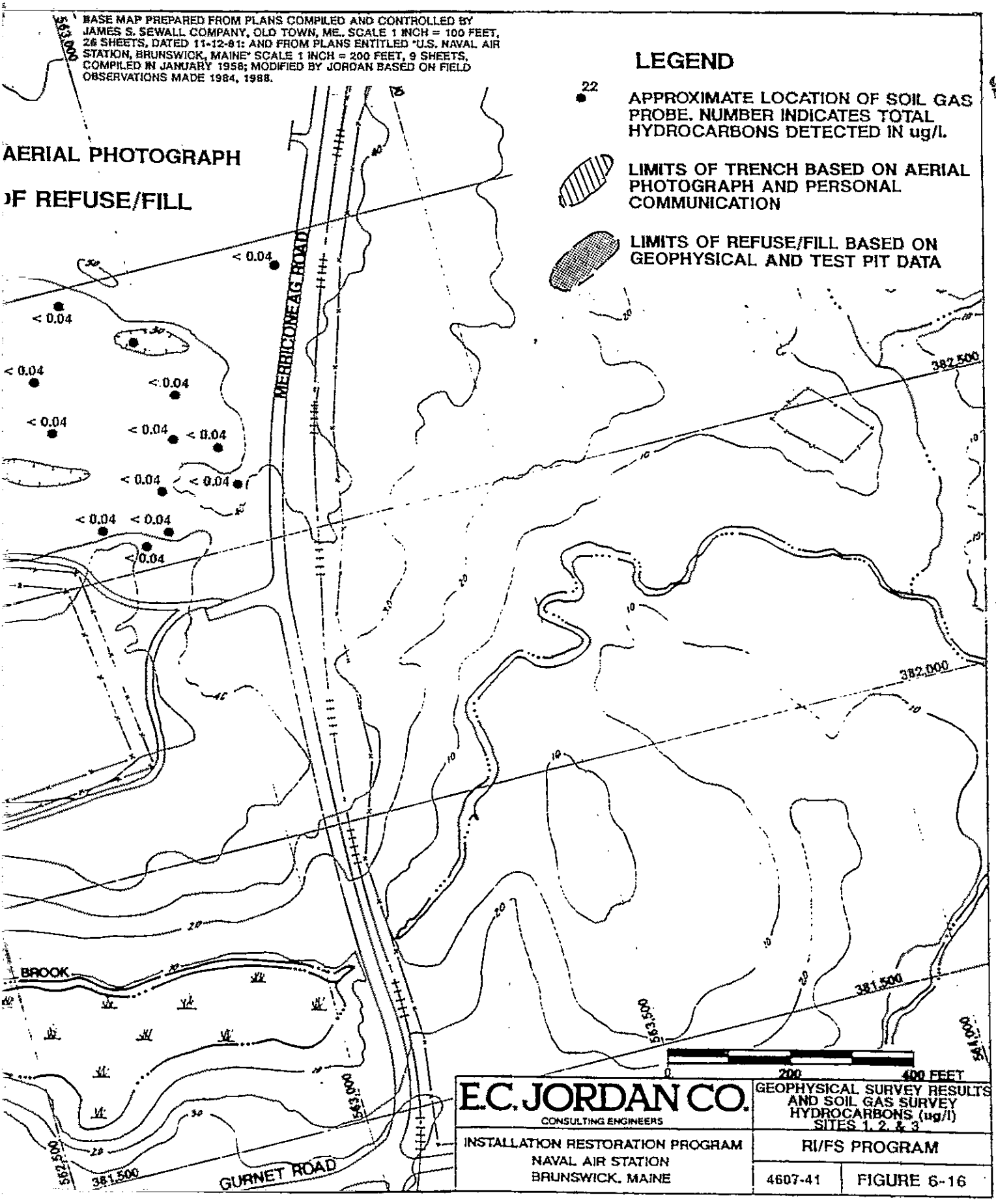

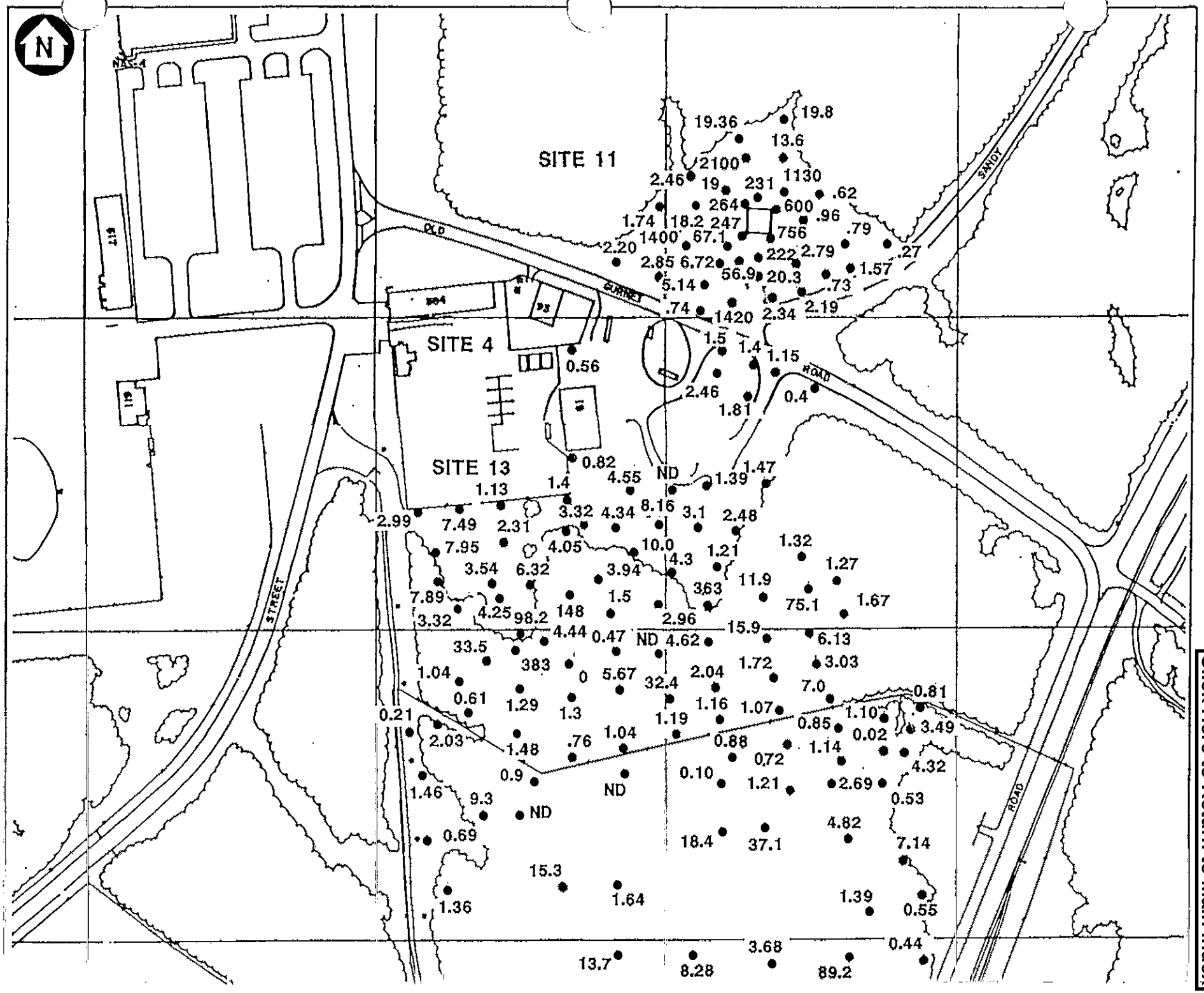

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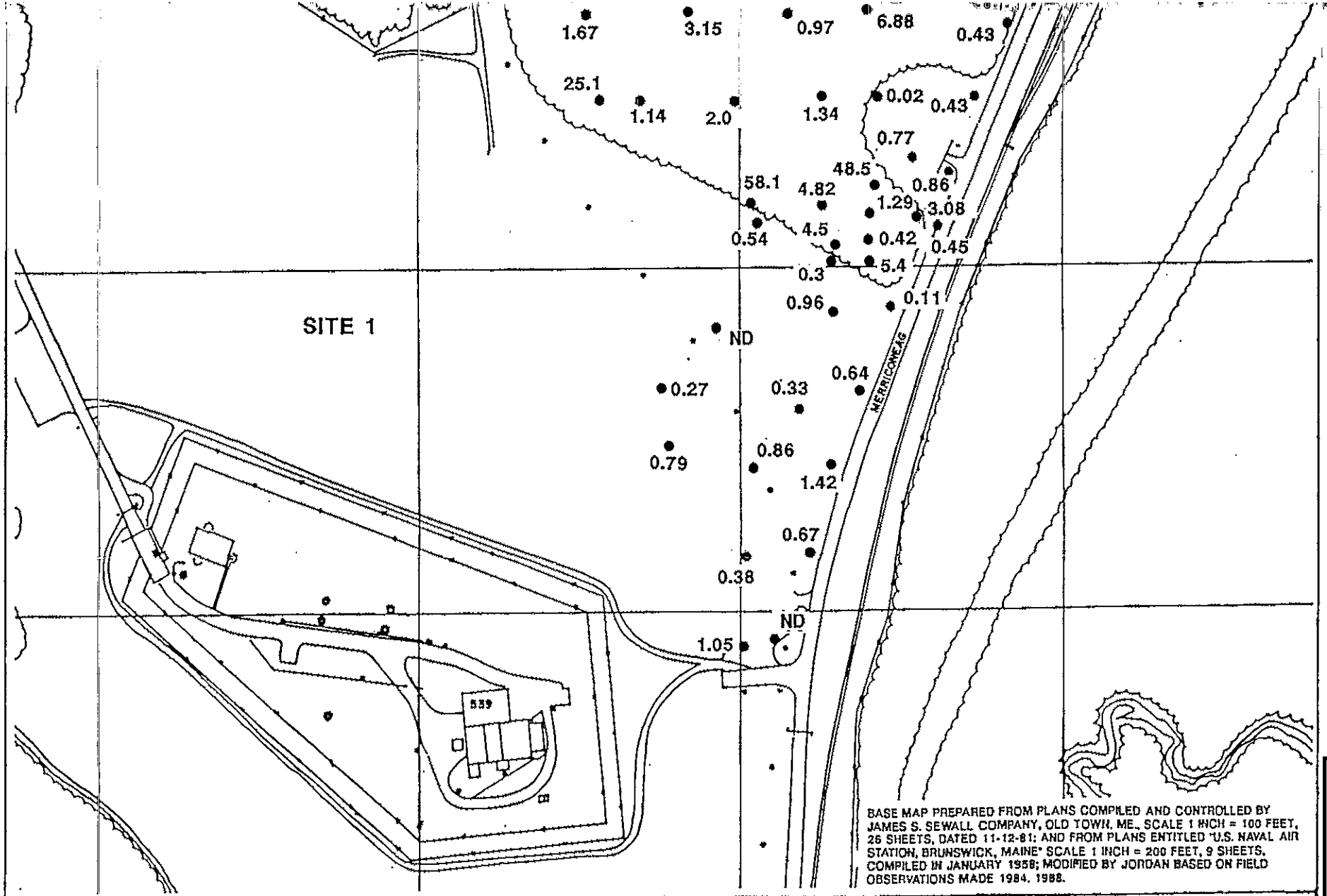

BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME., SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 9 SHEETS, COMPILED IN JANUARY 1958; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1988.

LEGEND

1.42 ● APPROXIMATE LOCATION OF SOIL GAS PROBE. NUMBER INDICATES TOTAL HYDROCARBONS DETECTED IN ug/l.

ND NOT DETECTED

SCALE IN FEET

0 200 400

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CONSULTING ENGINEERS

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

HYDRO GEO CHEM SOIL GAS SURVEY
TOTAL HYDROCARBONS (ug/l)

RI/FS PROGRAM

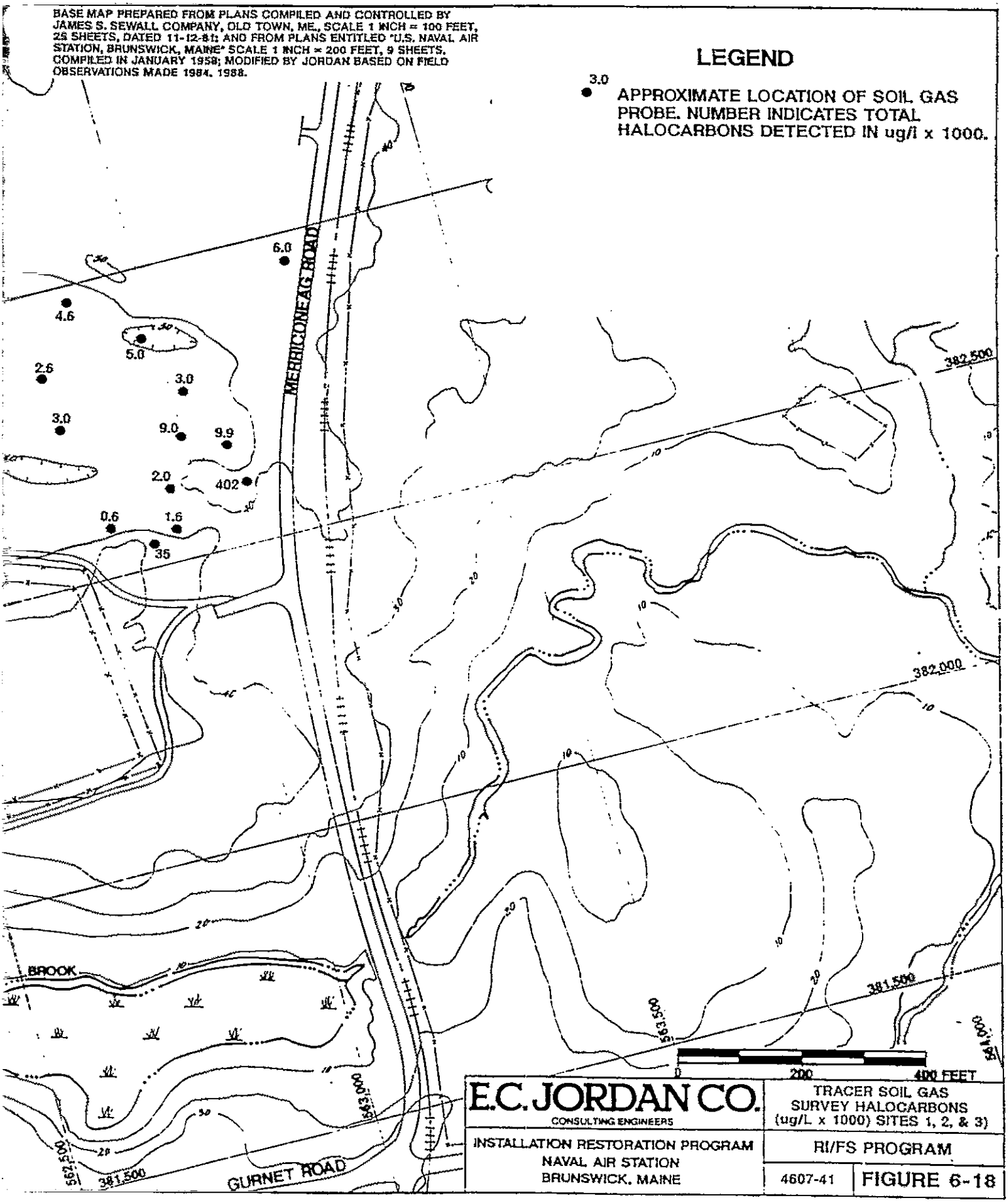
4607-41

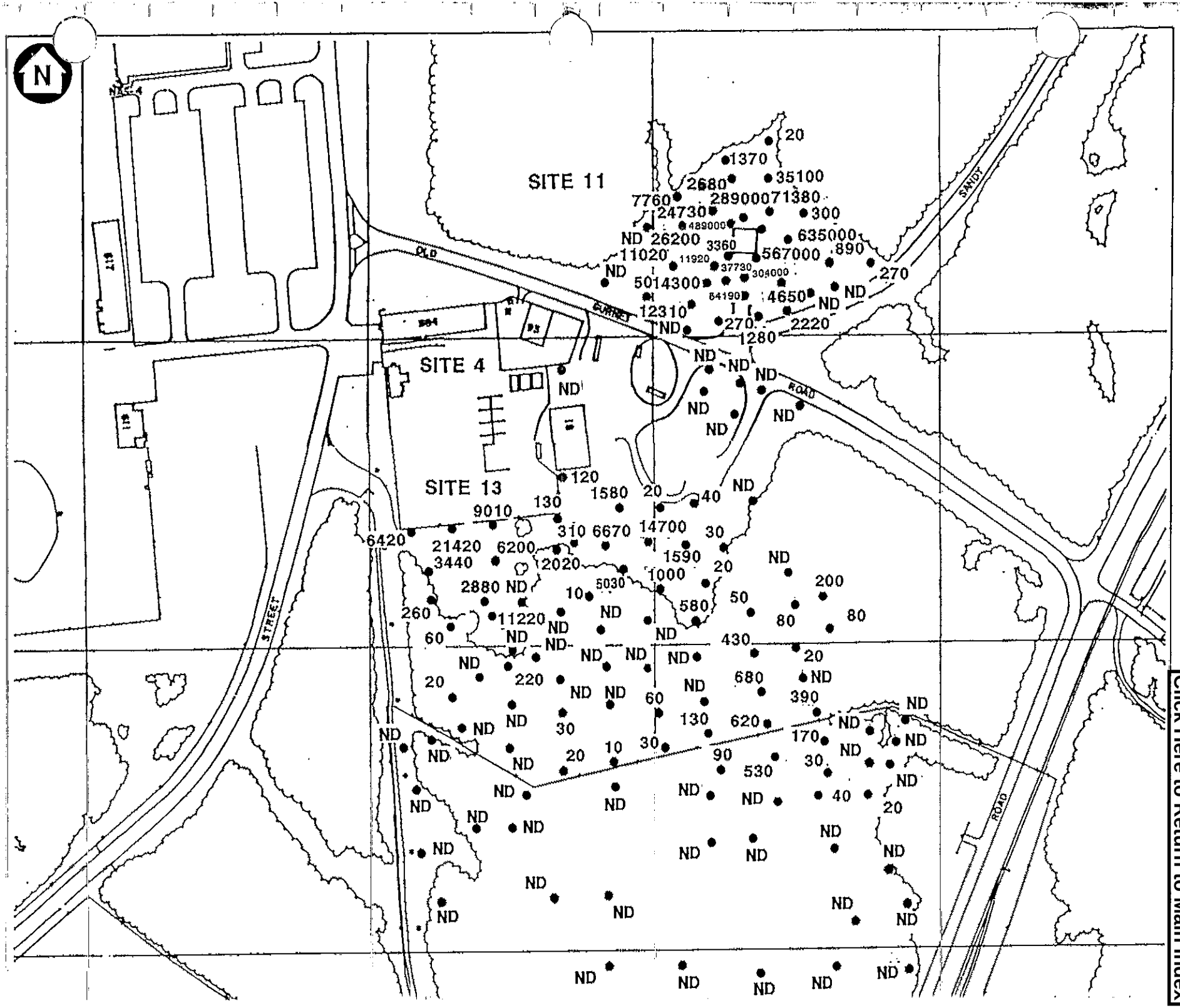
FIGURE 6-17

Click Here to Return to Main Index

Click Here to Return to Main Index

Click Here to Return to Main Index





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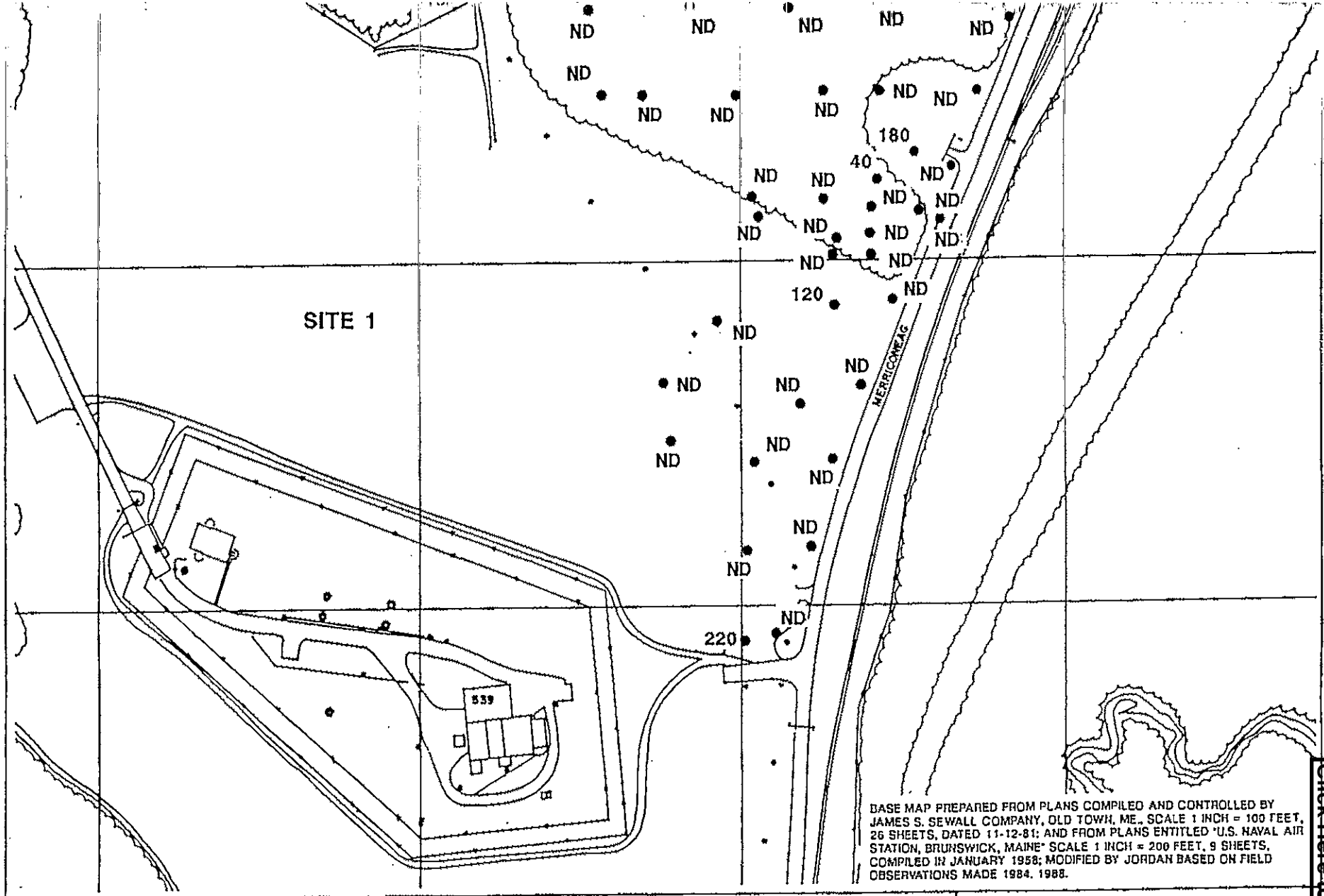

BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME., SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 9 SHEETS, COMPILED IN JANUARY 1958; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1988.

LEGEND

130 ● APPROXIMATE LOCATION OF SOIL GAS PROBE. NUMBER INDICATES TO TOTAL HALOCARBONS DETECTED IN ug/l x1000

ND NOT DETECTED

SCALE IN FEET

0 200 400

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INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

HYDRO GEO CHEM SOIL
GAS SURVEY
TOTAL HALOCARBONS (ug/l x1000)

RI/FS PROGRAM

4607-41

FIGURE 6-19

Click Here to Return to Main Index

Click Here to Return to Main Index

During the 1988 field program, the following survey techniques were used: GPR, magnetometer, and seismic refraction. The 1989 field program only used seismic refraction.

6.5.2.1 Ground-penetrating Radar. A GPR survey was conducted in the Site 1 and Site 3 areas on June 30, July 1, July 12, and July 13, 1988. A GSSI SIR System III was used to delineate the former landfill in conjunction with magnetometer data.

At Site 1, the survey consisted of more than 3.5 miles of profiling along a surveyed grid (Figure 6-20). A 50-foot grid of GPR data was acquired in the northern two-thirds of Site 1. Additional, less closely spaced GPR measurements were made in the southern one-third of Site 1. Primary targets of these measurements were trench boundaries and shallow refuse. The GPR system employed a 500 megahertz (MHz) antenna tuned to penetrate to a depth of approximately 10 to 15 feet.

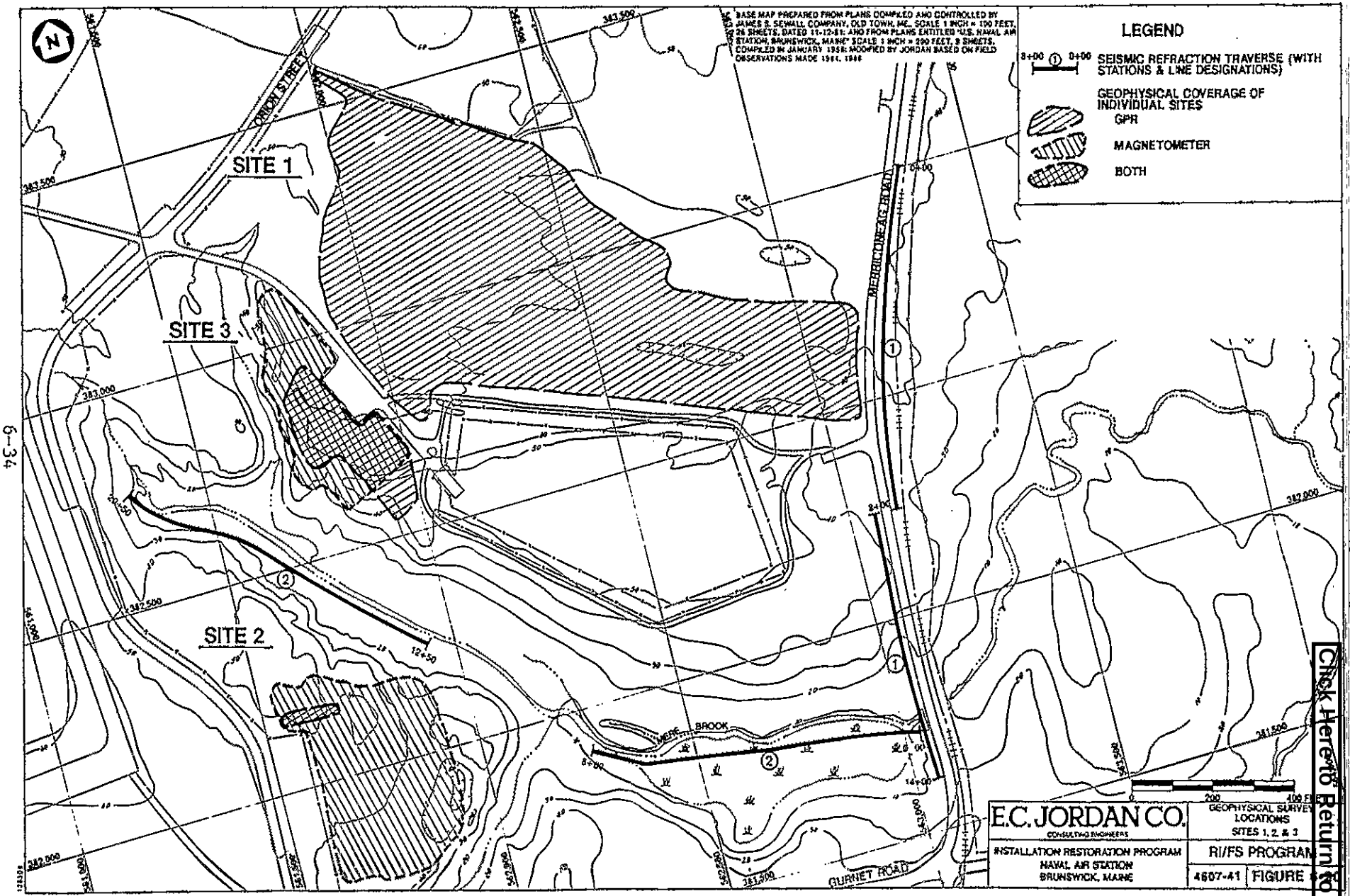
Results of the survey at Site 1 provided a clear definition of the limits of the refuse and a better understanding of how materials were disposed. Figure 6-16 depicts the lateral limits of the refuse as interpreted from GPR data (note that Site 3 is included in this figure because of its proximity to Site 1). Figure 6-16 also delineates the outline of two major disposal trenches. The area surrounding the trenches also appears to have been covered by a thin (i.e., 2 to 4 feet) lift of additional refuse. This theory is consistent with a topographic break-in-slope shown in Figure 6-16.

At Site 3, the GPR survey consisted of approximately 0.4 mile of profiling along a survey grid established on 60-foot centers by the field party (see Figure 6-20). GPR traverses were made along north-south lines separated by 20 feet. Again, the primary targets of these measurements were trench boundaries and shallow refuse, and the GPR system employed a 500 MHz antenna tuned to penetrate to a depth of approximately 10 to 15 feet. Results of the GPR survey at Site 3 are included in Figure 6-16, along with Site 1 results.

6.5.2.2 Magnetometer Survey. A magnetometer survey was conducted at Sites 1 and 3 on June 22 and 23, 1988. An EDA Omni Plus (proton precession total field) magnetometer with gradiometer was used for this work.

The purpose of the magnetic measurements at Site 1 in the 1988 field program was to determine whether locations for the planned on-site monitoring wells and test pits were located in areas of concern to personnel involved with the explorations. The survey consisted of establishing a 120 by 120-foot grid for each of nine explorations, with the exploration location at the center of each grid. Magnetic and vertical gradient measurements were taken every 20 feet within the grid. Four hundred and sixty-seven magnetic measurements were taken in the Site 1 area. Two proposed exploration locations were relocated based on the observed magnetic field values.

The purpose of the magnetometer survey at Site 3 was to determine the boundaries of the disposal area and to ascertain whether potential sources of contamination exist (as might be indicated by large concentrations of buried ferrous materials). The survey used the same survey grid pattern as Site 1.



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Magnetic and vertical gradient measurements were taken every 20 feet within the grid; 186 measurements were taken. Survey results are presented as a vertical (magnetic) gradient contour map (Figure 6-21). The buried trenches, which extend under the Weapons Compound's entrance road, are clearly discernible on the magnetic contours. Two of the magnetic anomalies can be explained by ferrous metallic objects (a sign and a fence), and are so noted in Figure 6-21.

6.5.2.3 Seismic Refraction Survey. A seismic refraction survey was conducted along the eastern and southwestern boundaries of Site 1 on July 5 and 6, 1988 (Seismic Lines 1 and 2). A second survey was conducted during the 1989 field program (Seismic Line 10) on August 15 and 16, 1989.

For the 1988 survey, a Geometrics ES-2415F Signal Enhancement Seismograph was used. The purpose of the seismic survey was to assess the depth to bedrock. During 1988, 2,930 lineal feet of profiling was completed. Locations of the seismic refraction traverses are shown in Figures 6-2 and 6-20.

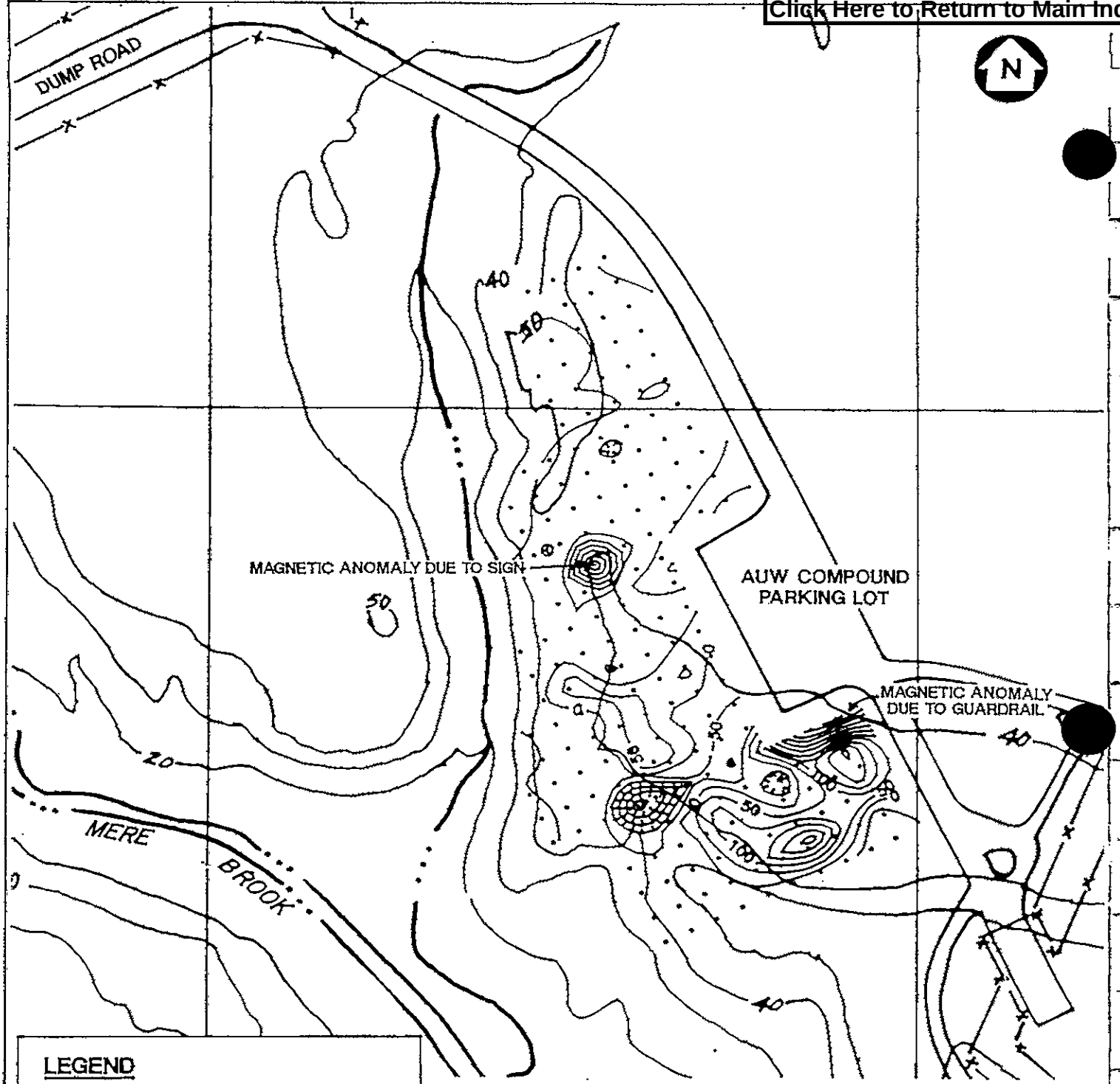
The results of seismic refraction traverses completed along the southern and eastern perimeter of Sites 1 and 3 are in Figure 6-6. Seismic profiles for Lines 1 and 2 show three distinct seismic layers; the deepest is the bedrock surface with wave velocities of 14,000 to 17,000 feet per second. Depth to bedrock varies from only 30 feet bgs surface at the western end of Line 2, to 150 feet at the eastern end of Line 1.

The intermediate layer (with a seismic velocity value of approximately 5,000 feet per second) is the saturated zone and represents unconsolidated glacial deposits; the velocity value of these sediments is equal to the velocity of sound waves in water. The shallowest layer (which is not present for a portion of Seismic Line 1 and most of Line 2 due to a very shallow groundwater table) represents the vadose (unsaturated) zone and has a seismic velocity value of approximately 1,500 feet per second.

There was no indication of dense till overlying the bedrock surface (as would be indicated by another layer with a seismic velocity value of 6,000 to 8,000 feet per second). However, a thin layer of dense till might be present but not be detectable during a seismic survey.

As part of the 1989 field program, a seismic refraction survey was conducted southeast of the Weapons Compound on August 15 and 16, 1989, using the same instrument described in this subsection. The purpose of the 1989 seismic survey was to delineate the eastern flank of a bedrock trough located beneath the eastern end of Site 1. The information was used to assess regional groundwater movement in this area (see discussion in Subsection 6.4.1). A total of 2,400 lineal feet of profiling was completed in 1989. The location of this seismic refraction traverse (Seismic Line 10) is indicated in Figure 6-2. Again, the seismic profile shows three distinct layers, the deepest of which is the bedrock surface (15,000 to 18,000 feet per second). Depth to bedrock varies from only 1 or 2 feet at the eastern end of Line 10, to as much as 140 feet at the western end of Seismic Line 10 (Figure 6-22). The elevations represented in Figure 6-22 are estimated and are not surveyed.

Click Here to Return to Main Index



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VERTICAL MAGNETIC GRADIENT CONTOURS
SITE 3

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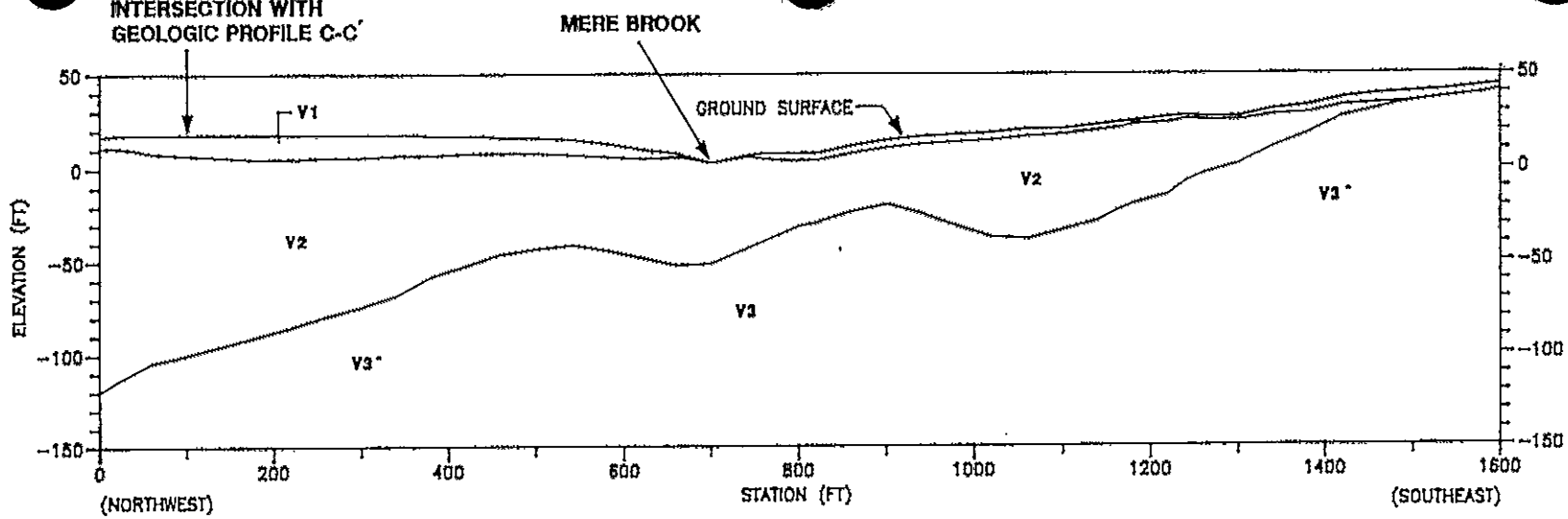
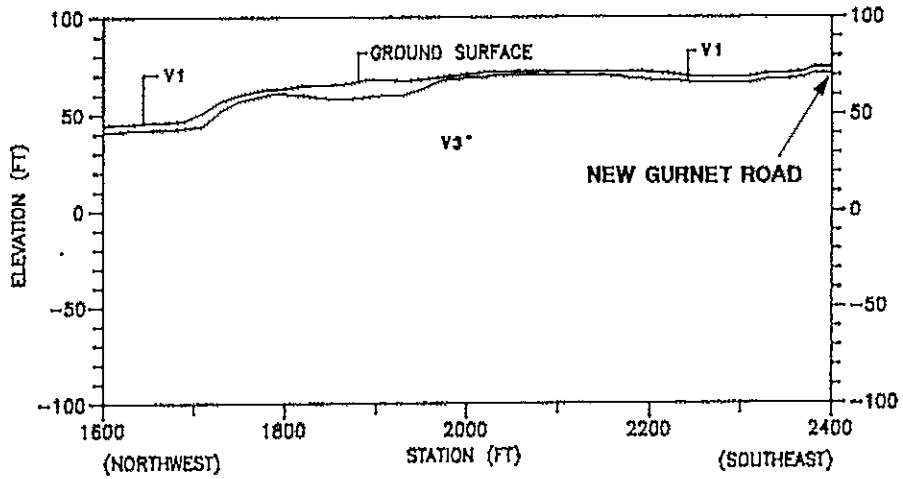
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41 | FIGURE 6-21





LEGEND
V1 = 1,200 to 1,500 fps. Loose, unconsolidated (unsaturated) overburden.
V2 = 4,800 to 5,200 fps. Saturated, unconsolidated overburden.
V3 = 15,000 to 18,000 fps. Bedrock. Higher values may indicate relatively more competent zones; lower values may indicate weathered and/or fractured zones.

NOTES:
(1) Ground surface is estimated from field observations and available topographic maps.
(2) Seismic velocity values are in feet per second.
(3) Dashed lines indicate some uncertainty in the interpretation of seismic data.
(4) Vertical exaggeration is 2:1.
(5) Profile location shown on Figure 6-2.

SEISMIC SURVEY PARAMETERS

SEISMIC LINE NO.	SEISMIC SPREAD NO.	LO STA	HI STA	LENGTH	NO. OF SHOTS	SHOT POINT SEPARATION	GEOPHONE SEPARATION
10	1	0	800	800	5	200	40
	2	800	1600	800	5	200	40
	3	1600	2000	400	5	100	20
	4	2000	2400	400	5	100	20

Note: low and high seismic stations, spread lengths, separation between shot points, and geophone separations are in feet.

E.C. JORDAN CO. CONSULTING ENGINEERS	SEISMIC REFRACTION PROFILE-LINE 10 SITES 1, 2, AND 3
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
	4607-41 FIGURE 6-22

Click Here to Return to Main Index

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Also, the water level information shown is approximate and is not as accurate as monitoring well water level data.

The intermediate layer has a seismic velocity value of approximately 5,000 feet per second and represents the saturated zone of unconsolidated glacial deposits. The intermediate layer is not present along the eastern end of Seismic Line 10. The shallowest layer represents the unsaturated, or vadose zone and has a seismic velocity value of approximately 1,200 feet per second. There is no indication of the presence of dense till immediately overlying the bedrock surface. However, a thin layer of dense till is not normally detectable during a seismic survey.

6.5.3 Test Pits: Sites 1 and 3

Twenty-four test pits were excavated at Sites 1 and 3 during the 1988 and 1989 RI/FS field programs. Three test pits were excavated during the 1988 program by John Mathes and Associates, of Columbia, Illinois (Mathes), and 21 test pits were excavated during the 1989 field season by UXB, of Washington, DC. (UXB). As many as four analytical samples were collected from each test pit. Of these, two or three samples (based on field GC screening) were analyzed for TCL organic and inorganic compounds. Test pit locations are shown in Figure 6-8, analytical data are in Appendices J and K, and a summary map of the distribution of analytical data is shown in Figure 6-23. Data presented in Figure 6-23 represent an interpretive summary of environmental contamination in test pit soils. The summary map does not include background inorganic data, results indicative of laboratory contamination, or results not supported by repetitive sampling. Nineteen test pits were located in the area of disturbed soils and high soil gas identified in the geophysical and soil gas studies, and two test pits were excavated northeast of the Weapons Compound (TP-122 and TP-123).

Detected VOCs, found in several test pit soil samples, included acetone (1 to 29 µg/kg), 2-butanone (12 to 29 µg/kg), 2-hexanone (87 µg/kg), PCE (6 µg/kg) and xylenes (33 to 36 µg/kg). VOC concentrations were low, were found only in several test pits, and duplicate analyses for samples where acetone and xylenes were reported did not detect these compounds. Volatile method blank summary tables (Appendix J) for Rounds I and IV (when test pit samples were taken) indicate that all these VOCs were observed in method blanks. Based on the low concentrations, the potential for laboratory or sampling contamination, and the duplicate discrepancies, it is believed these VOCs do not represent actual site conditions (Table 6-3).

Various SVOCs were detected in Site 1 test pits. PAHs were found in eight Site 1 test pits (i.e., TP-107, TP-108, TP-109, TP-115, TP-117, TP-118, and TP-121, TP-122), at concentrations ranging from 650 µg/kg to 23,770 µg/kg. PAHs were found in surface samples to depths of 11 feet in test pits throughout the area of disturbed soils identified in the geophysical surveys. Other SVOCs detected in Site 1 test pits include bis(2-ethylhexyl)phthalate (480 to 1,700 µg/kg), naphthalene (810 µg/kg), 1,4-dichlorobenzene (950 to 1,100 µg/kg), and 2-methylnaphthalene (480 µg/kg). These compounds have a

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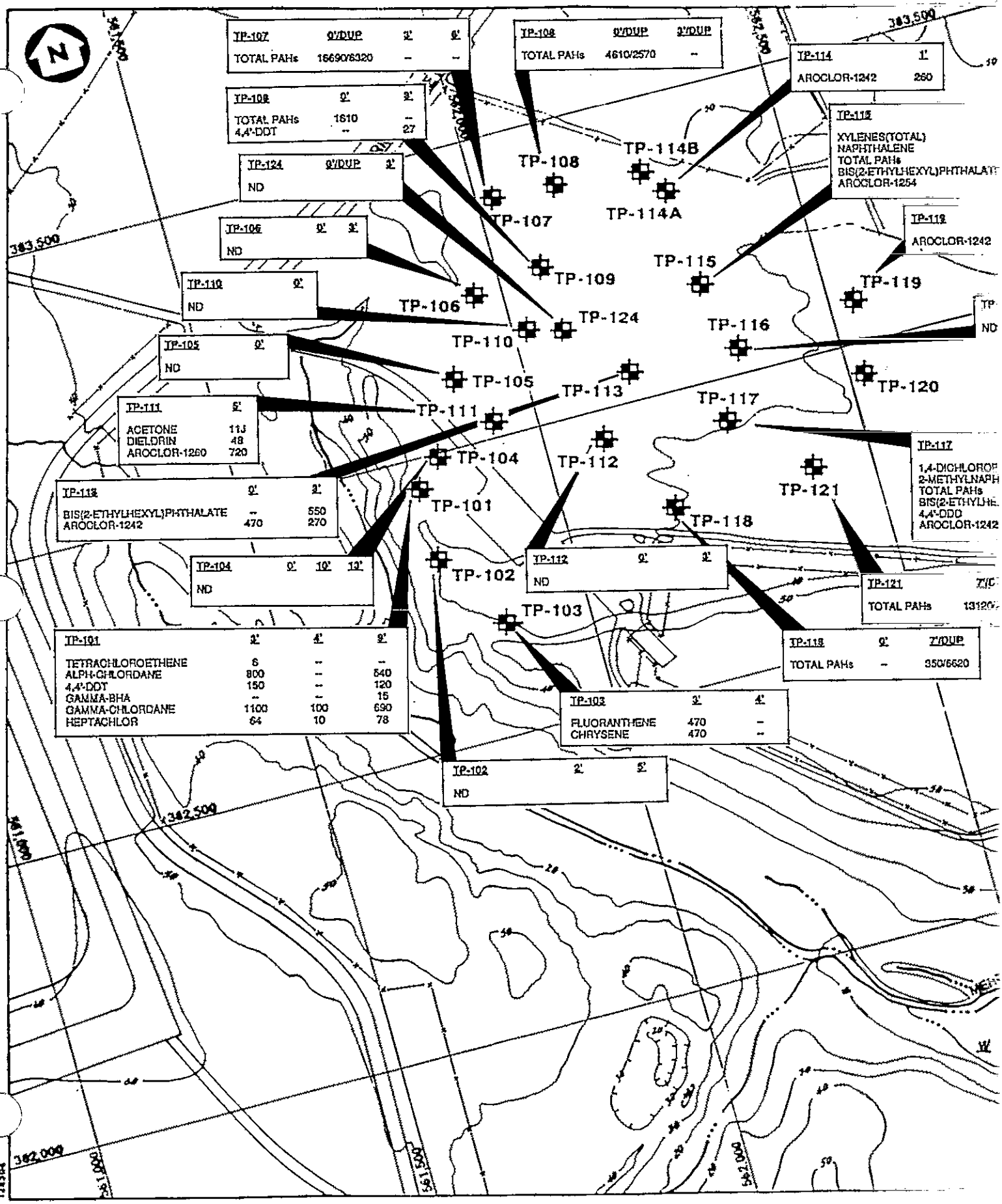

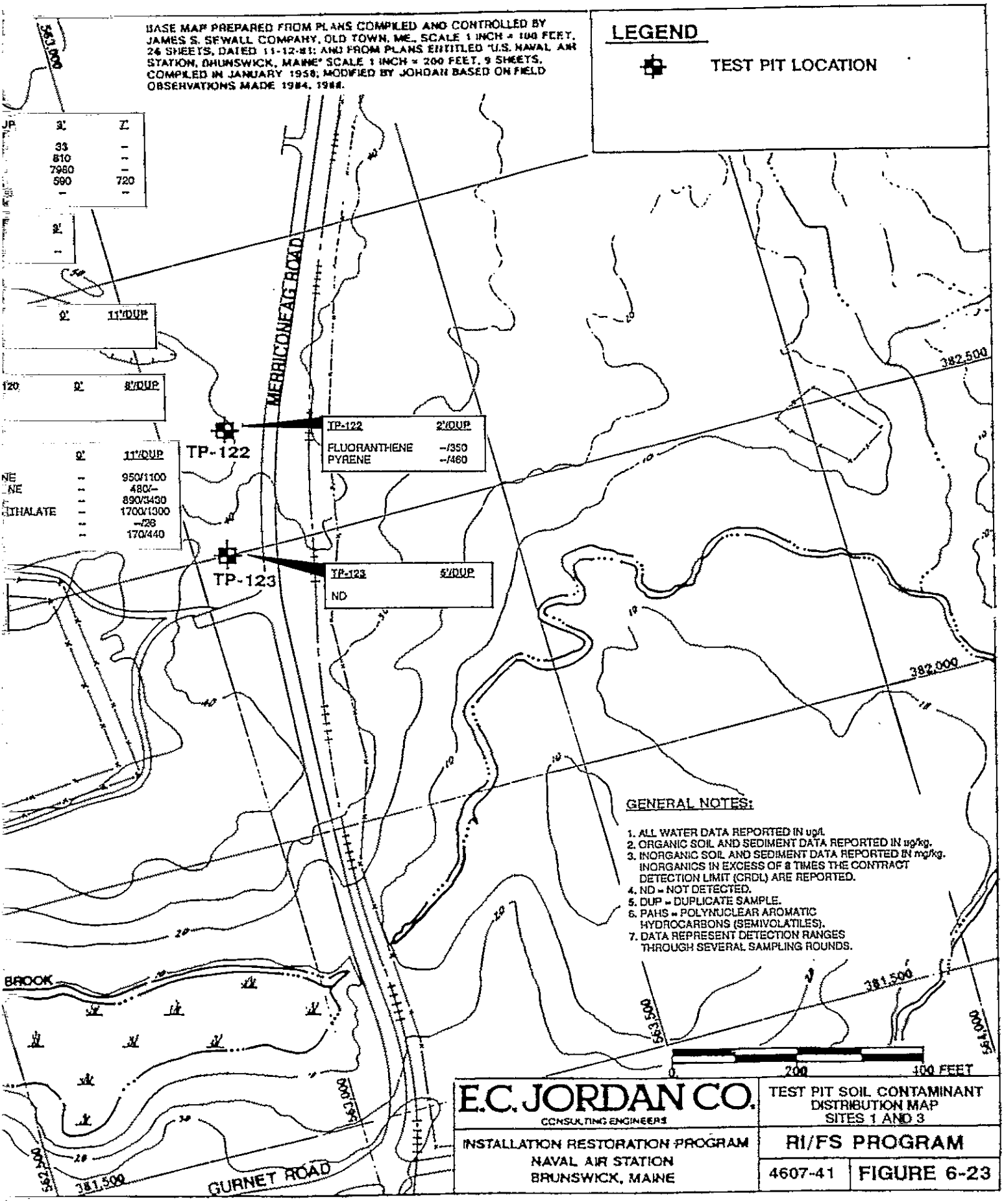
BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME., SCALE 1 INCH = 100 FEET, 24 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 9 SHEETS, COMPILED IN JANUARY 1958; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1988.
LEGEND
TEST PIT LOCATION
MERRICONEAG ROAD
TP-122
TP-122 2'/DUP
FLUORANTHENE -/350
PYRENE -/460
TP-123
TP-123 5'/DUP
ND
2' 11'/DUP
2' 8'/DUP
2' 11'/DUP
950/1100
480/--
890/3430
1700/1300
--/28
170/440
GENERAL NOTES:
1. ALL WATER DATA REPORTED IN ug/l.
2. ORGANIC SOIL AND SEDIMENT DATA REPORTED IN ug/kg.
3. INORGANIC SOIL AND SEDIMENT DATA REPORTED IN mg/kg. INORGANICS IN EXCESS OF 3 TIMES THE CONTRACT DETECTION LIMIT (CRDL) ARE REPORTED.
4. ND = NOT DETECTED.
5. DUP = DUPLICATE SAMPLE.
6. PAHS = POLYNUCLEAR AROMATIC HYDROCARBONS (SEMIVOLATILES).
7. DATA REPRESENT DETECTION RANGES THROUGH SEVERAL SAMPLING ROUNDS.
382,500
382,000
381,500
563,500
564,000
562,500
563,000
0
200
400 FEET
BROOK
GURNET ROAD
E.C. JORDAN CO.
CONSULTING ENGINEERS
TEST PIT SOIL CONTAMINANT DISTRIBUTION MAP SITES 1 AND 3
INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE
RI/FS PROGRAM
4607-41
FIGURE 6-23

TABLE 6-3
SUSPECT CONTAMINANTS: SITES 1 AND 3

REMEDIAL INVESTIGATION
NAS BRUNSWICK

COMPOUND	CONCENTRATION	MEDIA	CRITERIA
2-Butanone	12-3,200 µg/kg (20-170 µg/L)	Soils/groundwater	Common contaminant/medium level analysis/ method blank
Hexanone	87 µg/kg	Soils	Common contaminant/sporadic detection/ method blank
Xylenes	33-36 µg/kg	Soils	Duplicate/method blank
Acetone	1-46 µg/kg (166-48 µg/L)	Soils	Duplicate/sporadic detection/method blank
Methylene Chloride	4,100-17,000 µg/kg	Soils	Medium level analysis/sporadic detection/ method blank/common contaminant
Toluene	9,900-18,000 µg/kg	Soils	Common contaminant/medium level analysis/ method blank
Bis(2-ethylhexyl)phthalate	450-4,600 ppb (10-12 µg/L)	Soils/groundwater	Method blank/sporadic detection

NOTES:

µg/kg = micrograms per kilogram
µg/L = micrograms per liter

Click Here to Return to Main Index

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much smaller areal distribution than the PAHs and are concentrated around the eastern portion of the area of disturbed soils.

Pesticides were found in three Site 1 test pits, and one Site 3 test pit. Reported compounds include dieldrin (48 µg/kg), DDT (27 to 150 µg/kg), dichlorodiphenyldichloroethane (DDD) (28 µg/kg), alpha-chlordane (540 to 800 µg/kg), gammabenzene hexachloride (BHC) (15 µg/kg), gamma-chlordane (100 to 1,100 µg/kg), and heptachlor (10 to 78 µg/kg). The highest concentrations and greatest number of pesticide compounds were found in TP-101, where alpha-chlordane, DDT, gamma-BHC, gamma-chlordane, and heptachlor were detected. As a partial confirmation of laboratory data, a 5-gallon can of chlordane was unearthed in TP-101.

PCBs were detected in six Site 1 test pits (i.e., TP-111, TP-113, TP-117, TP-119, TP-115, and TP-114). Three PCB compounds were reported: Aroclor-1242 (170 to 470 µg/kg), Aroclor-1254 (630 µg/kg), and Aroclor-1260 (720 µg/kg). PCBs were found in surface samples and to depths of 11 feet.

TCL inorganics reported in Sites 1 and 3 test pits typically include aluminum (3,870 to 9,340 mg/kg), iron (5,230 to 14,100 mg/kg), lead (3 to 72 mg/kg), manganese (56 to 256 mg/kg), magnesium (1,030 to 3,010 mg/kg) and zinc (21 to 159 mg/kg). These element concentrations are within the range identified for background soils (see Tables 5-3 and 5-4).

6.5.4 Subsurface Soils: Sites 1 and 3

Twenty-seven soil borings were drilled, and 62 soil samples analyzed as part of the RI/FS program at Sites 1 and 3. Fourteen soil borings were completed and 31 analytical soil samples taken during the 1988 field season; 13 soil borings were completed and 31 analytical soil samples were taken in the 1989 field season. Soil samples were analyzed for TCL organics and inorganic compounds; analytical data are in Appendices J and K. A map summarizing the soil analytical data is Figure 6-24. The summary map does not include background inorganic data, results indicative of laboratory contamination, or results not supported by site-wide sampling.

Several VOCs were reported in Sites 1 and 3 soil borings. Detected compounds include acetone (18 to 46 µg/kg), toluene (9 to 1,800 µg/kg), vinyl chloride (16 µg/kg), 2-butanone (12 to 3,200 µg/kg), methylene chloride (4,100 to 17,000 µg/kg), 1,2-DCE (27 µg/kg), and 1,1-dichloroethane (DCA) (7 µg/kg). Compounds believed to be related to laboratory contamination include acetone, toluene, 2-butanone, and methylene chloride. These compounds were all detected in low-level and/or medium level laboratory method blanks during sampling Rounds I and IV (see Appendix J). The high levels reported for several compounds are from Round I data and are also supported by medium level method blank data in Appendix J. Many of these compounds were detected at low concentrations, and acetone was not detected in both the sample and duplicate analysis. Compounds not believed to characterize environmental contamination at Sites 1 and 3 are listed in Table 6-3.

The only SVOC detected in Sites 1 and 3 soil borings was bis(2-ethylhexyl)phthalate, which was found in MW-202B (4,600 µg/kg), MW-201 (1,300

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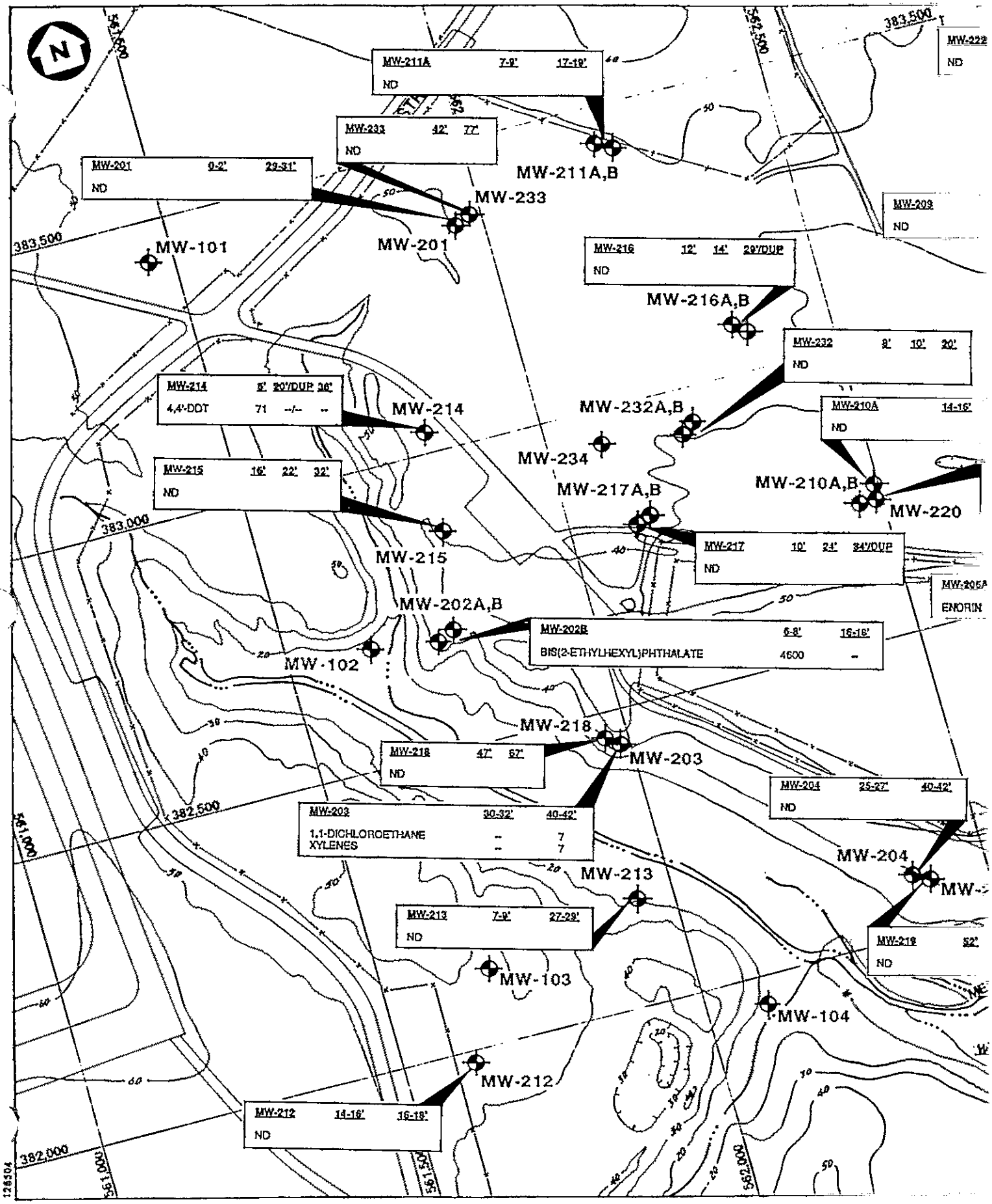

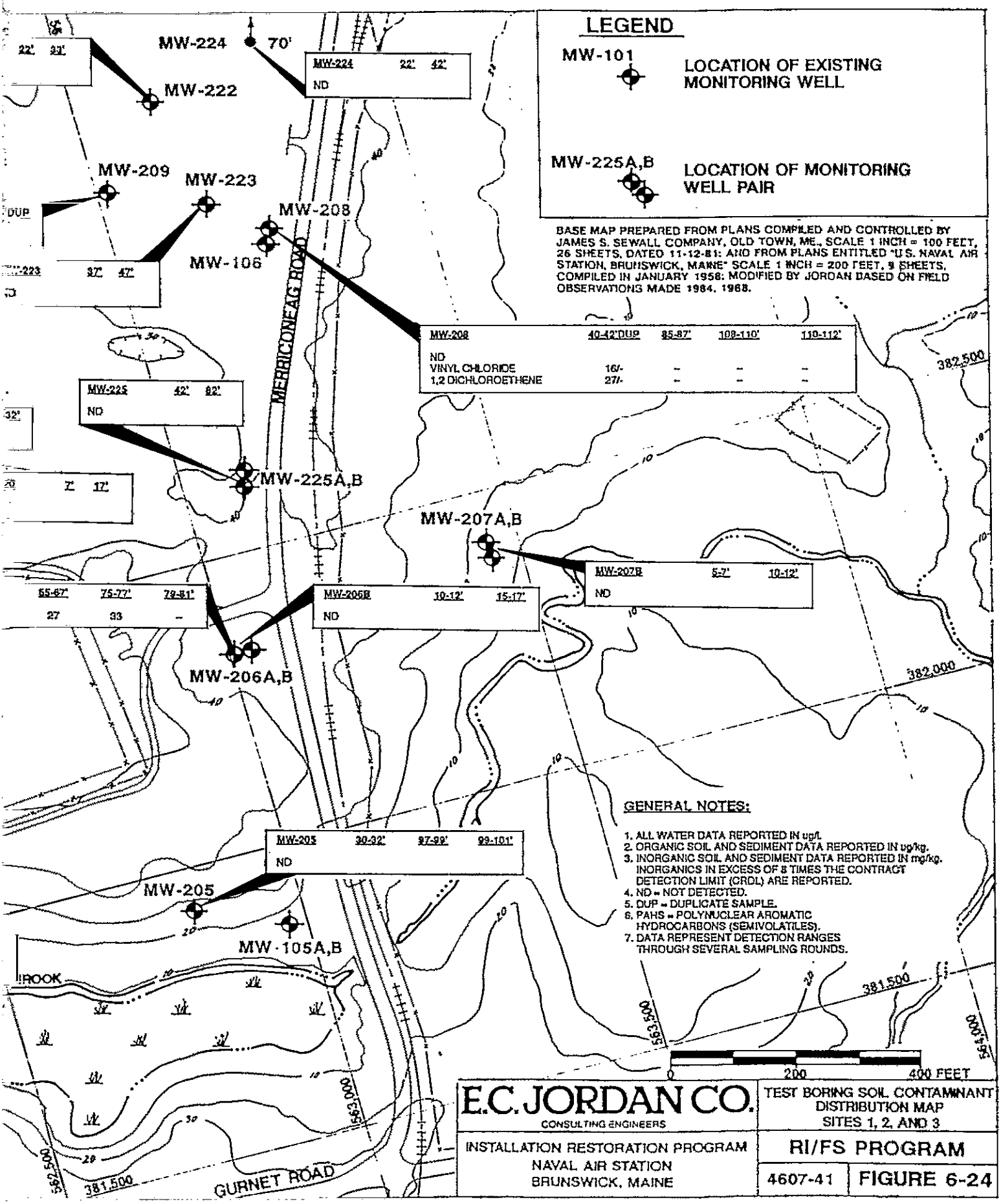

E.C. JORDAN CO.
CONSULTING ENGINEERS

TEST BORING SOIL CONTAMINANT DISTRIBUTION MAP
SITES 1, 2, AND 3

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41 FIGURE 6-24

Click Here to Return to Main Index

to 2,200 µg/kg) and MW-206A (450 to 720 µg/kg). Bis(2-ethylhexyl)phthalate, a common laboratory contaminant, was only detected in soil boring data from the 1988 field season and was reported in Round I laboratory method blanks (Appendix J). Method blanks from Round I data also report bis(2-ethylhexyl)phthalate. This suggests that bis(2-ethylhexyl)phthalate is related to laboratory contamination.

Pesticides were found in one Site 3 soil boring (i.e., MW-214), and one Site 1 soil boring (i.e., MW-206A). DDT was reported in MW-214 (71 µg/kg), and endrin was detected in MW-206A (27 µg/kg). DDT was found 6 feet deep in the vicinity of TP-101, where several pesticides including DDT were found. In contrast, the endrin found in MW-206A occurs at a depth of 67 feet, and no other pesticides are reported in the area. The location of MW-206A is approximately 800 feet east of the landfill area, and due to the low mobility of endrin, it is not believed to characterize site conditions.

TCL inorganics were found in all soil borings, but typically were restricted to aluminum, iron, magnesium, and manganese, with concentrations of these elements consistent with background levels (see Tables 5-3 and 5-4). The elements chromium, lead, arsenic, and zinc were reported in several cases, but these inorganics were typically found in soil samples from clay-rich soils. Concentrations were low, and consistent with background concentrations observed in clays (see Table 5-4 and Subsection 5.3.1).

6.5.5 Groundwater: Sites 1 and 3

Thirty-six monitoring wells were installed and sampled at Sites 1 and 3 during the RI/FS program during the 1988 (16 wells) and 1989 (20 wells) field seasons. Five other monitoring wells were installed previously during the PAC study. Locations of monitoring wells are shown in Figure 6-1. The wells were sampled during Rounds I, II, III, and IV for TCL organics, TCL inorganics, carbonate, bicarbonate, sulfate, chloride, TP, TKN, COD, BOD, and TOC . All wells were not sampled during all four sampling rounds and a detailed sampling history is given in Table 4-2. Groundwater data are in Appendix J, and a map summarizing interpreted groundwater contamination is shown in Figure 6-25. Groundwater data maps for all previous sampling rounds are in Appendix L.

VOC groundwater contamination is observed in a number of Sites 1 and 3 monitoring wells. VOCs were found in two general areas; each area has a different set of VOCs associated with it. Monitoring wells in the general vicinity of the Sites 1 and 3 landfill (i.e., MW-202A, MW-214, MW-216A,B, MW-217A,B, MW-232A,B, MW-210B, and MW-234) are characterized by VHOs and hydrocarbons (VC, 12 to 180 µg/L; 1,1-DCA, 6 to 38 µg/L; 1,2-DCE, 7 to 60 µg/L; methylene chloride, 460 µg/L; benzene, 6 to 7 µg/L; ethylbenzene, 83 to 200 µg/L; chlorobenzene, 16 to 32 µg/L; toluene, 12 to 230 µg/L; and xylenes, 37 to 660 µg/L). A second collection of VOCs was observed in monitoring wells east of the Site 1 and 3 landfills (i.e., MW-106, MW-208, MW-225A,B, MW-206A,B, MW-205, and MW-229A). This contamination comprises an eastern plume and is characterized by VHOs (PCE 7 to 24 µg/L; TCE 33 to 240 µg/L; TCA 21 to 530; 1,1-DCE 6 to 12 µg/L; 1,2-DCE 6 to 31 µg/L) and lacks the benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds.

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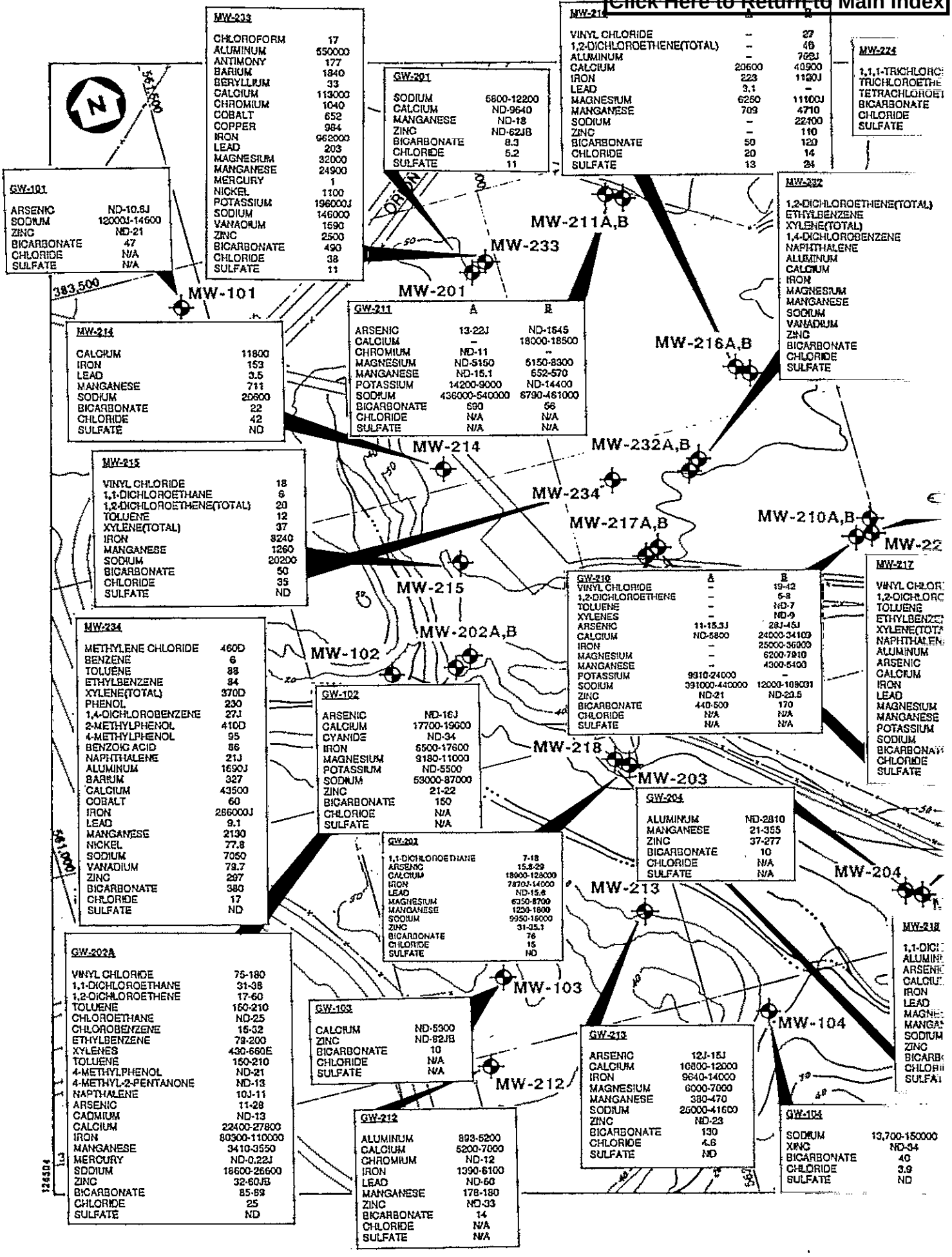

MW-233

CHLOROFORM	17
ALUMINUM	550000
ANTIMONY	177
BARIUM	1840
BERYLLIUM	33
CALCIUM	113000
CHROMIUM	1040
COBALT	652
COPPER	984
IRON	962000
LEAD	203
MAGNESIUM	32000
MANGANESE	24900
MERCURY	1
NICKEL	1100
POTASSIUM	196000J
SODIUM	146000
VANADIUM	1690
ZINC	2500
BICARBONATE	490
CHLORIDE	38
SULFATE	11

GW-201

SODIUM	5800-12200
CALCIUM	ND-9640
MANGANESE	ND-18
ZINC	ND-62JB
BICARBONATE	8.3
CHLORIDE	5.2
SULFATE	11

MW-211

	A	B
VINYL CHLORIDE	–	27
1,2-DICHLOROETHENE(TOTAL)	–	49
ALUMINUM	–	792J
CALCIUM	20500	40900
IRON	223	1130J
LEAD	3.1	–
MAGNESIUM	6250	11100J
MANGANESE	709	4710
SODIUM	–	22400
ZINC	–	110
BICARBONATE	50	120
CHLORIDE	20	14
SULFATE	13	24

MW-224

1,1,1-TRICHLORO
TRICHLOROETHE
TETRACHLOROET
BICARBONATE
CHLORIDE
SULFATE

MW-232

1,2-DICHLOROETHENE(TOTAL)
ETHYLBENZENE
XYLENE(TOTAL)
1,4-DICHLOROBENZENE
NAPHTHALENE
ALUMINUM
CALCIUM
IRON
MAGNESIUM
MANGANESE
SODIUM
VANADIUM
ZINC
BICARBONATE
CHLORIDE
SULFATE

GW-101

ARSENIC	ND-10.6J
SODIUM	12000J-14600
ZINC	ND-21
BICARBONATE	47
CHLORIDE	N/A
SULFATE	N/A

GW-211

	A	B
ARSENIC	13-22J	ND-1645
CALCIUM	–	18000-18500
CHROMIUM	ND-11	–
MAGNESIUM	ND-5150	5150-8300
MANGANESE	ND-15.1	552-570
POTASSIUM	14200-9000	ND-14400
SODIUM	436000-540000	6790-461000
BICARBONATE	590	56
CHLORIDE	N/A	N/A
SULFATE	N/A	N/A

MW-214

CALCIUM	11800
IRON	153
LEAD	3.5
MANGANESE	711
SODIUM	20600
BICARBONATE	22
CHLORIDE	42
SULFATE	ND

MW-215

VINYL CHLORIDE	18
1,1-DICHLOROETHANE	6
1,2-DICHLOROETHENE(TOTAL)	20
TOLUENE	12
XYLENE(TOTAL)	37
IRON	8240
MANGANESE	1260
SODIUM	20200
BICARBONATE	50
CHLORIDE	35
SULFATE	ND

GW-210

	A	B
VINYL CHLORIDE	–	19-42
1,2-DICHLOROETHENE	–	5-8
TOLUENE	–	ND-7
XYLENES	–	ND-9
ARSENIC	11-15.3J	28J-45J
CALCIUM	ND-5800	24000-34100
IRON	–	25000-36000
MAGNESIUM	–	6200-7910
MANGANESE	–	4300-5400
POTASSIUM	9310-24000	–
SODIUM	391000-440000	12000-108001
ZINC	ND-21	ND-20.5
BICARBONATE	440-500	170
CHLORIDE	N/A	N/A
SULFATE	N/A	N/A

MW-217

VINYL CHLOR
1,2-DICHLORO
TOLUENE
ETHYLBENZE
XYLENE(TOT
NAPHTHALEN
ALUMINUM
ARSENIC
CALCIUM
IRON
LEAD
MAGNESIUM
MANGANESE
POTASSIUM
SODIUM
BICARBONAT
CHLORIDE
SULFATE

MW-234

METHYLENE CHLORIDE	460D
BENZENE	6
TOLUENE	88
ETHYLBENZENE	84
XYLENE(TOTAL)	370D
PHENOL	230
1,4-DICHLOROBENZENE	27J
2-METHYLPHENOL	410D
4-METHYLPHENOL	95
BENZOIC ACID	86
NAPHTHALENE	21J
ALUMINUM	1690J
BARIUM	327
CALCIUM	43500
COBALT	60
IRON	286000J
LEAD	9.1
MANGANESE	2130
NICKEL	77.8
SODIUM	7050
VANADIUM	79.7
ZINC	297
BICARBONATE	380
CHLORIDE	17
SULFATE	ND

GW-102

ARSENIC	ND-16J
CALCIUM	17700-19600
CYANIDE	ND-34
IRON	6500-17600
MAGNESIUM	9180-11000
POTASSIUM	ND-5500
SODIUM	53000-87000
ZINC	21-22
BICARBONATE	150
CHLORIDE	N/A
SULFATE	N/A

GW-204

ALUMINUM	ND-2810
MANGANESE	21-355
ZINC	37-277
BICARBONATE	10
CHLORIDE	N/A
SULFATE	N/A

GW-203

1,1-DICHLOROETHANE	7-18
ARSENIC	15.8-22
CALCIUM	18900-128000
IRON	7870J-14000
LEAD	ND-15.8
MAGNESIUM	6350-8700
MANGANESE	1250-1800
SODIUM	9950-16000
ZINC	31-35.1
BICARBONATE	76
CHLORIDE	15
SULFATE	ND

GW-202A

VINYL CHLORIDE	75-180
1,1-DICHLOROETHANE	31-38
1,2-DICHLOROETHENE	17-60
TOLUENE	150-210
CHLOROETHANE	ND-25
CHLOROBENZENE	15-32
ETHYLBENZENE	79-200
XYLENES	430-660E
TOLUENE	150-210
4-METHYLPHENOL	ND-21
4-METHYL-2-PENTANONE	ND-13
NAPHTHALENE	10J-11
ARSENIC	11-28
CADMIUM	ND-13
CALCIUM	22400-27600
IRON	80300-110000
MANGANESE	3410-3550
MERCURY	ND-0.22J
SODIUM	18600-26600
ZINC	32-60JB
BICARBONATE	85-89
CHLORIDE	25
SULFATE	ND

GW-103

CALCIUM	ND-5300
ZINC	ND-62JB
BICARBONATE	10
CHLORIDE	N/A
SULFATE	N/A

GW-213

ARSENIC	12J-15J
CALCIUM	16800-12000
IRON	9640-14000
MAGNESIUM	6000-7000
MANGANESE	380-470
SODIUM	25000-41600
ZINC	ND-23
BICARBONATE	130
CHLORIDE	4.6
SULFATE	ND

GW-212

ALUMINUM	893-5200
CALCIUM	5200-7000
CHROMIUM	ND-12
IRON	1390-6100
LEAD	ND-60
MANGANESE	178-180
ZINC	ND-33
BICARBONATE	14
CHLORIDE	N/A
SULFATE	N/A

GW-104

SODIUM	13,700-150000
XINC	ND-34
BICARBONATE	40
CHLORIDE	3.9
SULFATE	ND

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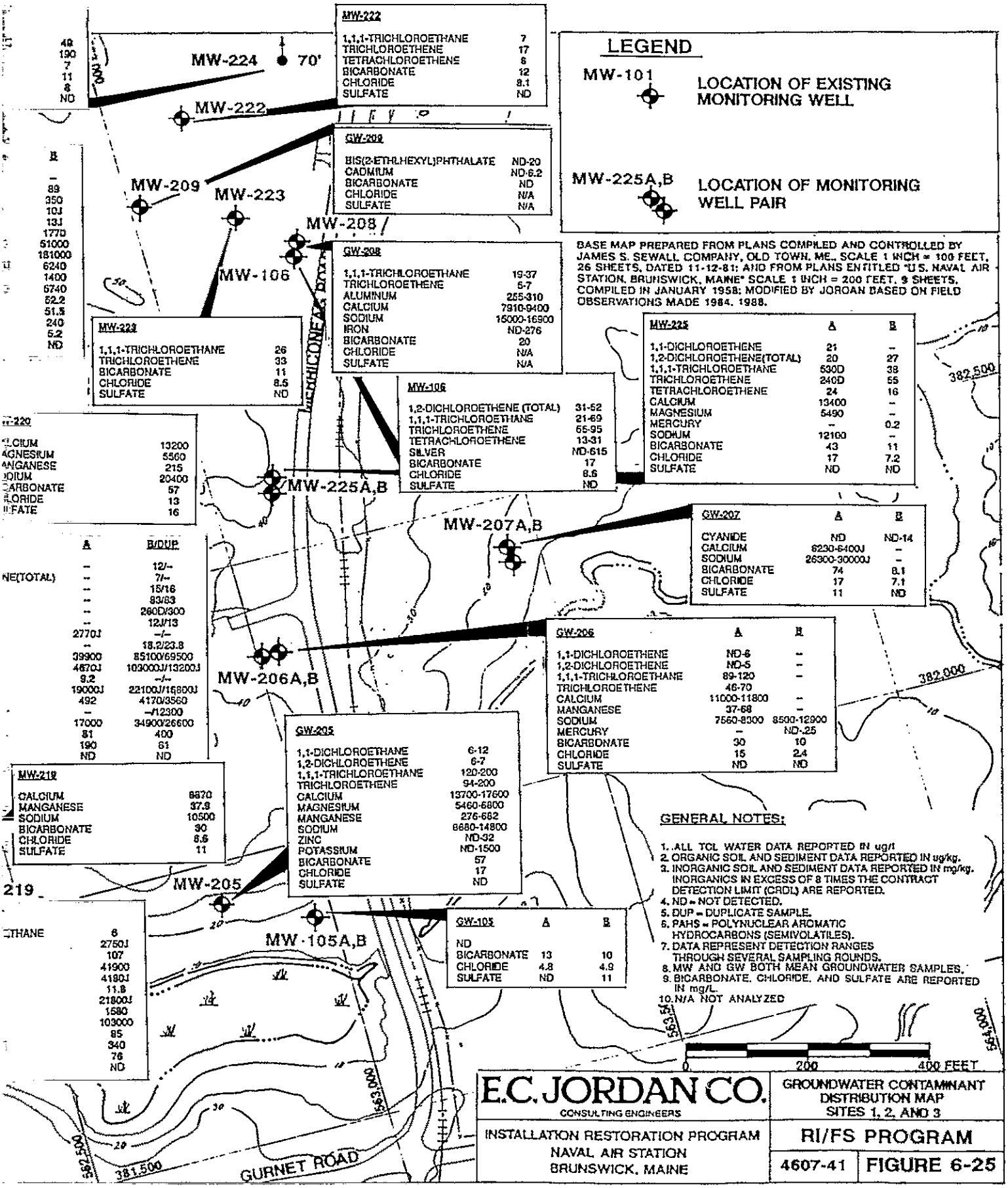

LEGEND

MW-101 — LOCATION OF EXISTING MONITORING WELL

MW-225A,B — LOCATION OF MONITORING WELL PAIR

BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME., SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 9 SHEETS, COMPILED IN JANUARY 1958; MODIFIED BY JOROAN BASED ON FIELD OBSERVATIONS MADE 1984, 1988.

MW-222

1,1,1-TRICHLOROETHANE	7
TRICHLOROETHENE	17
TETRACHLOROETHENE	8
BICARBONATE	12
CHLORIDE	8.1
SULFATE	ND

GW-209

BIS(2-ETHLHEXYL)PHTHALATE	ND-20
CADMIUM	ND-6.2
BICARBONATE	ND
CHLORIDE	N/A
SULFATE	N/A

GW-208

1,1,1-TRICHLOROETHANE	19-37
TRICHLOROETHENE	5-7
ALUMINUM	255-310
CALCIUM	7910-9400
SODIUM	15000-16900
IRON	ND-276
BICARBONATE	20
CHLORIDE	N/A
SULFATE	N/A

MW-223

1,1,1-TRICHLOROETHANE	26
TRICHLOROETHENE	33
BICARBONATE	11
CHLORIDE	8.5
SULFATE	ND

MW-106

1,2-DICHLOROETHENE (TOTAL)	31-52
1,1,1-TRICHLOROETHANE	21-69
TRICHLOROETHENE	55-95
TETRACHLOROETHENE	13-31
SILVER	ND-615
BICARBONATE	17
CHLORIDE	8.6
SULFATE	ND

MW-225

	A	B
1,1-DICHLOROETHENE	21	–
1,2-DICHLOROETHENE(TOTAL)	20	27
1,1,1-TRICHLOROETHANE	530D	38
TRICHLOROETHENE	240D	55
TETRACHLOROETHENE	24	16
CALCIUM	13400	–
MAGNESIUM	5490	–
MERCURY	–	0.2
SODIUM	12100	–
BICARBONATE	43	11
CHLORIDE	17	7.2
SULFATE	ND	ND

GW-207

	A	B
CYANIDE	ND	ND-14
CALCIUM	6230-6400J	–
SODIUM	26300-30000J	–
BICARBONATE	74	8.1
CHLORIDE	17	7.1
SULFATE	11	ND

GW-206

	A	B
1,1-DICHLOROETHENE	ND-6	–
1,2-DICHLOROETHENE	ND-5	–
1,1,1-TRICHLOROETHANE	89-120	–
TRICHLOROETHENE	46-70	
CALCIUM	11000-11800	–
MANGANESE	37-68	–
SODIUM	7560-8300	8500-12900
MERCURY	–	ND-.25
BICARBONATE	30	10
CHLORIDE	15	2.4
SULFATE	ND	ND

GW-205

1,1-DICHLOROETHANE	6-12
1,2-DICHLOROETHENE	6-7
1,1,1-TRICHLOROETHANE	120-200
TRICHLOROETHENE	94-200
CALCIUM	13700-17600
MAGNESIUM	5460-6800
MANGANESE	276-682
SODIUM	8680-14800
ZINC	ND-32
POTASSIUM	ND-1500
BICARBONATE	57
CHLORIDE	17
SULFATE	ND

GW-105

	A	B
ND		
BICARBONATE	13	10
CHLORIDE	4.8	4.9
SULFATE	ND	11

MW-219

CALCIUM	6870
MANGANESE	37.9
SODIUM	10500
BICARBONATE	30
CHLORIDE	8.6
SULFATE	11

GENERAL NOTES:

1. ALL TCL WATER DATA REPORTED IN ug/l
2. ORGANIC SOIL AND SEDIMENT DATA REPORTED IN ug/kg.
3. INORGANIC SOIL AND SEDIMENT DATA REPORTED IN mg/kg. INORGANICS IN EXCESS OF 8 TIMES THE CONTRACT DETECTION LIMIT (CRDL) ARE REPORTED.
4. ND = NOT DETECTED.
5. DUP = DUPLICATE SAMPLE.
6. PAHS = POLYNUCLEAR AROMATIC HYDROCARBONS (SEMIVOLATILES).
7. DATA REPRESENT DETECTION RANGES THROUGH SEVERAL SAMPLING ROUNDS.
8. MW AND GW BOTH MEAN GROUNDWATER SAMPLES.
9. BICARBONATE, CHLORIDE, AND SULFATE ARE REPORTED IN mg/L.
10. N/A NOT ANALYZED

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GROUNDWATER CONTAMINANT DISTRIBUTION MAP
SITES 1, 2, AND 3

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41 | FIGURE 6-25

Sites 1 and 3 monitoring wells with high concentrations of VOCs are located in the southern portion of the landfill area (i.e., MW-202A, MW-217B, and MW-234), with the highest concentrations detected in MW-202A and MW-234. VOCs detected in MW-234 and MW-202A have some of the same compounds (i.e., toluene, xylenes, and ethylbenzene); however, differences in the compounds present in these two monitoring wells is characteristic of the chemical distribution of VOCs in monitoring wells in the landfill area. This suggests a nonhomogeneous distribution of source material in the landfill area. Lower concentrations of VOCs are observed in MW-203 and MW-218, both downgradient of the landfill area. 1,1-DCA, which is found in the landfill area, is detected in both downgradient monitoring wells (6 to 18 µg/L).

VOCs detected in the eastern plume beneath Merriconeag Road lack the BTEX compounds that characterize the landfill area. VHOs in the eastern plume are dominated by TCE and 1,1,1-TCA, and not the VC, 1,1-DCA, and 1,2-DCE typical of the landfill area. Concentrations of VHOs are also greater in the eastern plume, which further distinguishes it from the landfill area plume.

SVOCs detected in several monitoring wells in the landfill area (i.e., MW-202A, MW-234, MW-217B, and MW-232) include naphthalene (12 to 21 µg/L); 1,4-dichlorobenzene (10 to 27 µg/L); phenol (230 µg/L); 2-methylphenol (410 µg/L); 4-methylphenol (95 µg/L); and benzoic acid (86 µg/L). Similar to the VOCs, monitoring wells with the highest levels of SVOCs occur in the southern portion of the landfill area; MW-234 has both the greatest number of compounds and the highest concentrations. Bis(2-ethylhexyl)phthalate (12 µg/L) is reported in MW-219 and occurs at concentrations up to 48 µg/L in laboratory method blanks from Round IV (Appendix J). This compound is not reported in monitoring wells associated with the landfill area, and no other VOCs or SVOCs are reported in MW-219. The common occurrence of bis(2-ethylhexyl)phthalate as a laboratory contaminant and the occurrence of bis(2-ethylhexyl)phalate in laboratory method blanks for Round IV data (see Appendix J) suggests that this compound is related to laboratory contamination. See discussion in Subsection 5.3.5 and Table 6-3.

Pesticides and PCBs are not reported in Sites 1 and 3 groundwater, but several TCL inorganic compounds in the landfill area have high concentrations. In the landfill area, aluminum (792 to 2,750 µg/L); calcium (13,000 to 69,000 µg/L); iron (1,000 to 104,000 µg/L); magnesium (1,000 to 22,000 µg/L); manganese (500 to 3,500 µg/L); and sodium (5,700 to 35,000 µg/L) all have concentrations exceeding background values (see Table 5-6). Several other TCL inorganics are also detected in the Sites 1 and 3 landfill area, including arsenic (15 to 107 µg/L), zinc (35 to 297 µg/L), and vanadium (52 to 80 µg/L). Concentrations of TCL inorganics vary within the landfill area, as do the actual compounds detected.

TCL inorganics are also reported in monitoring wells associated with the eastern plume, and several monitoring wells in this eastern area of Site 1 have TCL inorganics exceeding background values (see Table 5-4). These eastern Site 1 wells include MW-225A, MW206A, MW-205, and MW-230B. Inorganic compounds with concentrations exceeding background values include calcium (10,000 to 17,600 µg/L), magnesium (5,400 to 6,100 µg/L), and sodium (8,600 to 12,100 µg/L). Other monitoring wells in this eastern area (i.e., MW-106, MW-

Click Here to Return to Main Index

208, MW-225B, and MW-206B) have TCL inorganic concentrations consistent with background values (see Table 5-6). Silver is detected in MW-106 (615 µg/L) and cadmium is found in MW-209 (6.2 µg/L). Both compounds were detected once, and due to the sporadic occurrence are not believed to characterize inorganic groundwater contamination. Two Site 1 and 3 monitoring wells have very high levels of TCL inorganics (i.e., MW-233 and MW-229B). Samples from these monitoring wells were not filtered during sampling due to the presence of excess silty material (see Table 4-2), and the high inorganic values reflect the influence of entrained silts and clay material.

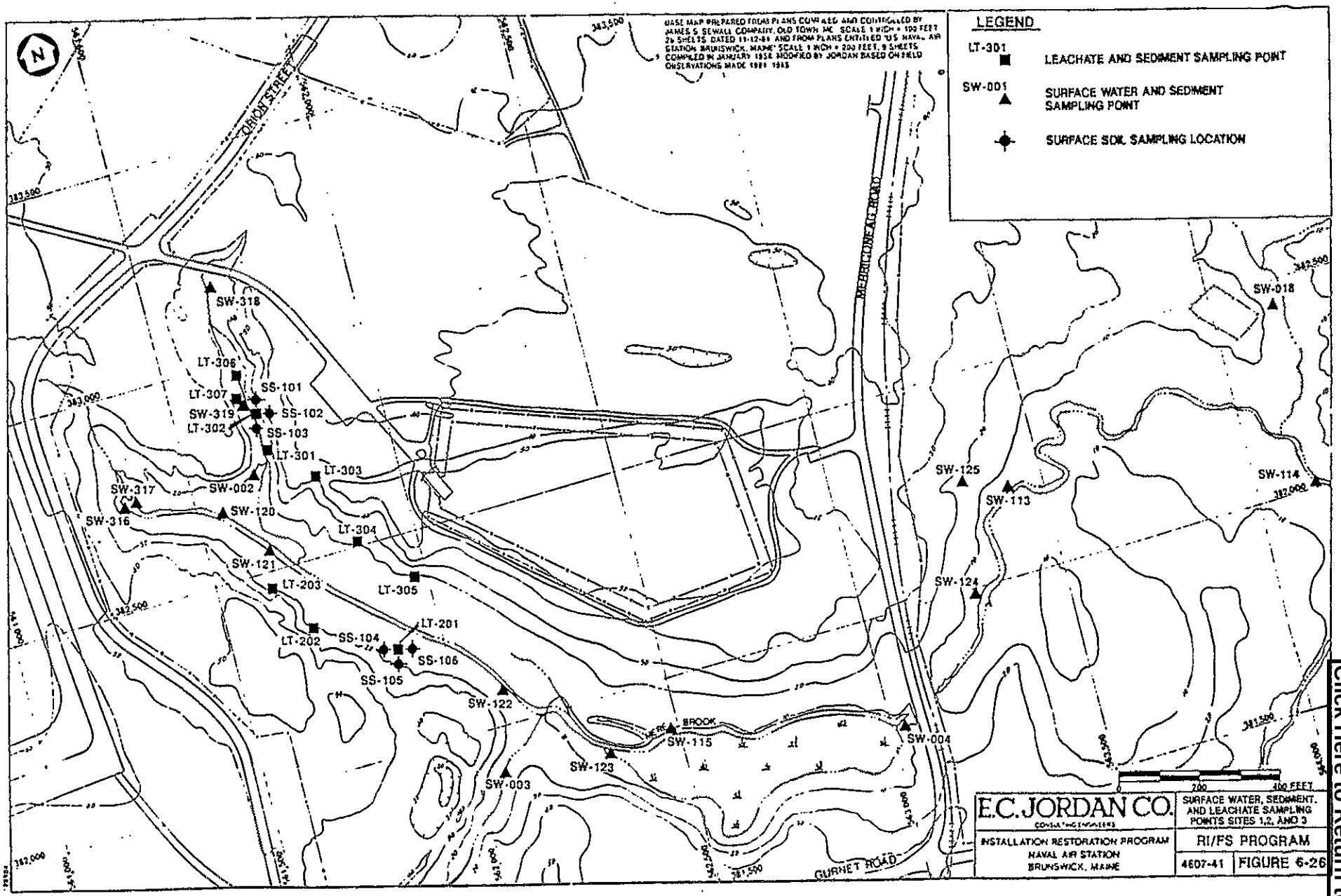
Other inorganic compounds analyzed in Sites 1 and 3 monitoring wells include carbonate, bicarbonate, sulfate, and chloride. Carbonate was not detected in Sites 1 and 3 monitoring wells. Bicarbonate, chloride, and sulfate were detected in Sites 1 and 3 monitoring wells, with concentrations ranging from 8 to 490 mg/L (bicarbonate), 5 to 190 mg/L (chloride), and 10 to 24 mg/L (sulfate). The highest values for these parameters were observed in monitoring wells in the landfill area, and wells in the landfill area with high VOC and SVOC concentrations also had high bicarbonate and chloride values. Sulfate was detected only in a few monitoring wells (i.e., MW-216A,B MW-220, and MW-219), and typically was absent in monitoring wells in both the landfill area and eastern plume. Elevated bicarbonate (30 to 57 mg/L) and chloride (8 to 17 mg/L) levels were also observed in several monitoring wells in the eastern plume area (i.e., MW-225A, MW-206A, MW-205, and MW-229A, and MW-230B) (see Table 5-6). These wells, with elevated bicarbonate and chloride, are the same monitoring wells with high calcium, iron, magnesium, and sodium discussed previously. Other monitoring wells in the eastern area of Site 1 have background levels of chloride and bicarbonate.

Only two downgradient Site 1 monitoring wells (i.e., MW-205 and MW-219) were sampled and analyzed for COD, BOD, TP, and TKN; the four parameters were not detected in these two wells. The absence of these parameters indicates that nutrient levels are low in groundwater, and downgradient migration of organic material is minimal.

6.5.6 Surface Water and Sediments: Sites 1 and 3

Twenty-two surface water and sediment sampling points have been sampled at Sites 1 and 3 (Figures 6-2 and 6-26). Surface water and sediments were analyzed for TCL organics and inorganics; the sampling history is in Table 4-2. Sampling points were located upgradient of Sites 1 and 3 at the culvert outfall (i.e., SW-316 and SW-317), along Mere Brook beaver marsh and its tributary adjacent to Site 3, and downgradient of the confluence of Mere Brook beaver marsh and Merriconeag Stream extending into the tidal estuary of Harpswell Cove (see Figures 6-26 and 6-28). Analytical data are in Appendix J, and summary maps indicating interpreted environmental contamination are shown in Figures 6-27 and 6-28. Analytical data maps for sampling Rounds I through IV are in Appendix M.

VOCs were detected in surface water samples from locations SW-125A and SW-113. Low levels of TCE (5 to 7 µg/L) and TCA (7 to 13 µg/L) were detected in SW-113 during Rounds I, II, and III. In Round IV sampling, higher levels of TCE (29 to 31 µg/L) and TCA (27 to 30 µg/L) were found in SW-125A. SW-125A is located



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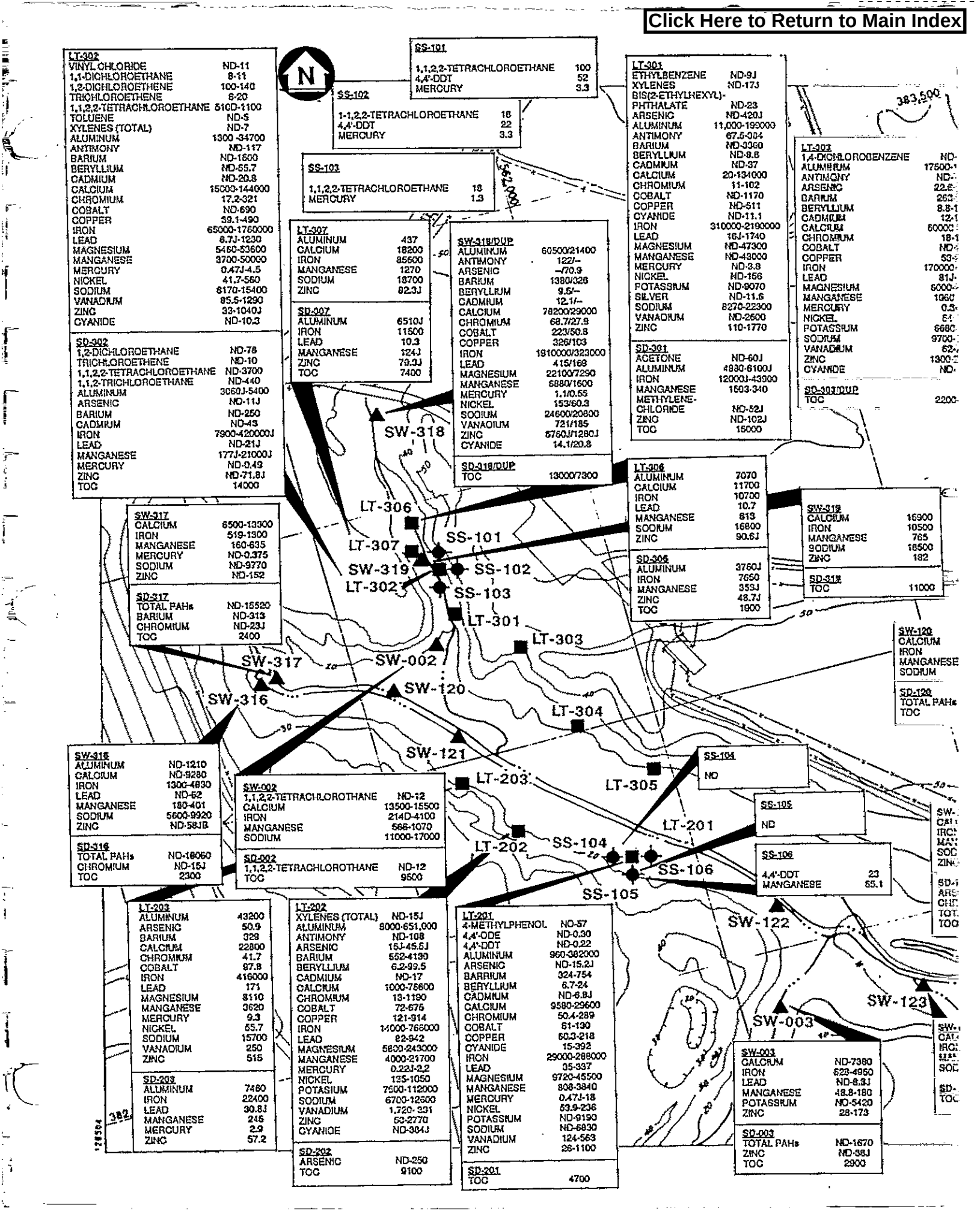

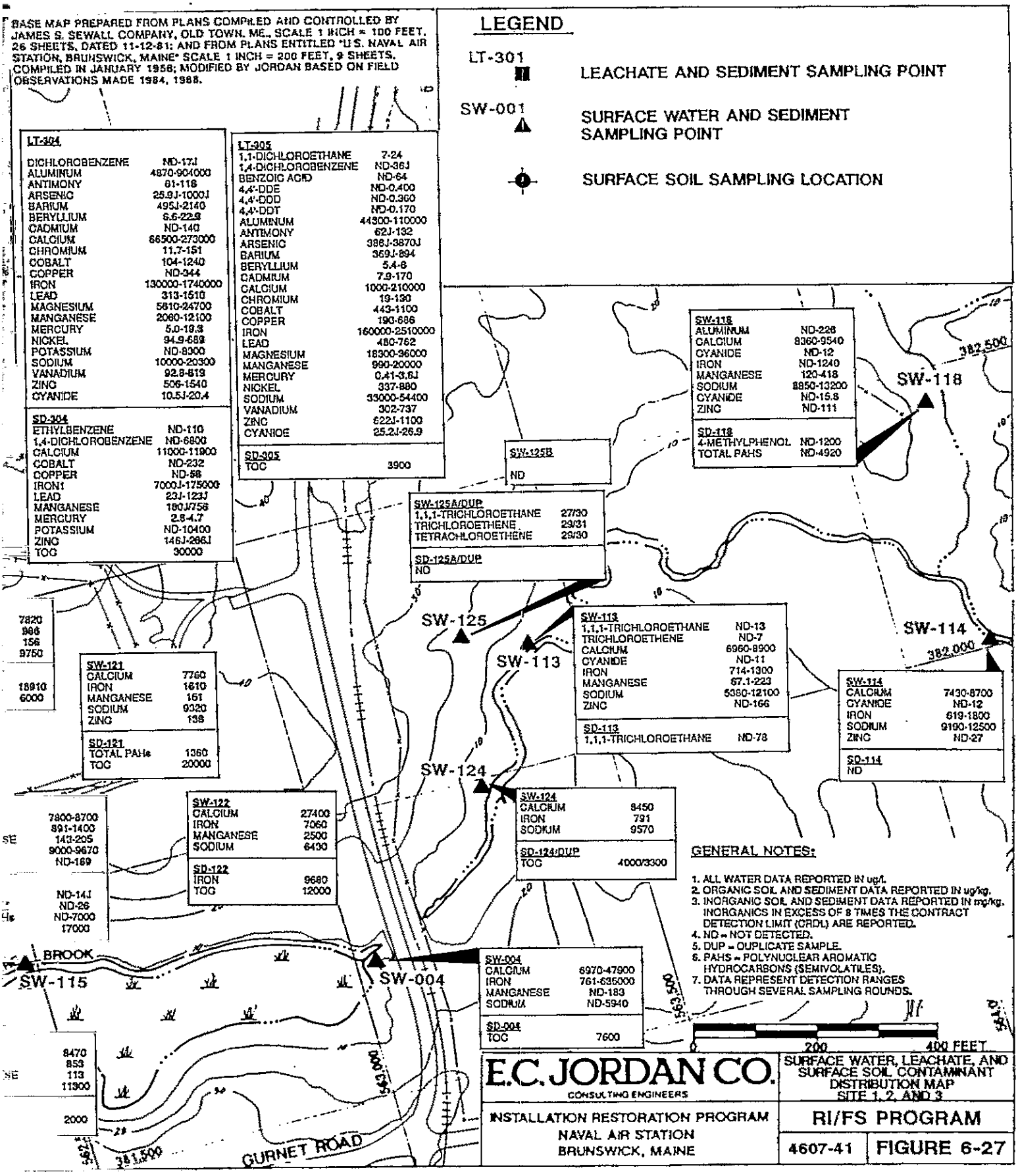
BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME., SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 9 SHEETS, COMPILED IN JANUARY 1956; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1988.
LEGEND
LT-301
LEACHATE AND SEDIMENT SAMPLING POINT
SW-001
SURFACE WATER AND SEDIMENT SAMPLING POINT
SURFACE SOIL SAMPLING LOCATION
LT-304
DICHLOROBENZENE ND-17J
ALUMINUM 4870-904000
ANTIMONY 61-118
ARSENIC 25.9J-1000J
BARIUM 495J-2140
BERYLLIUM 6.6-22.9
CADMIUM ND-140
CALCIUM 66500-273000
CHROMIUM 11.7-151
COBALT 104-1240
COPPER ND-344
IRON 130000-1740000
LEAD 313-1510
MAGNESIUM 5810-24700
MANGANESE 2060-12100
MERCURY 5.0-19.3
NICKEL 94.9-689
POTASSIUM ND-8300
SODIUM 10000-20300
VANADIUM 92.8-813
ZINC 506-1540
CYANIDE 10.5J-20.4
SD-304
ETHYLBENZENE ND-110
1,4-DICHLOROBENZENE ND-6800
CALCIUM 11000-11900
COBALT ND-232
COPPER ND-56
IRON1 7000J-175000
LEAD 23J-123J
MANGANESE 180J/758
MERCURY 2.8-4.7
POTASSIUM ND-10400
ZINC 146J-286J
TOC 30000
LT-305
1,1-DICHLOROETHANE 7-24
1,4-DICHLOROBENZENE ND-36J
BENZOIC ACID ND-64
4,4'-DDE ND-0.400
4,4'-DDD ND-0.360
4,4'-DDT ND-0.170
ALUMINUM 44300-110000
ANTIMONY 62J-132
ARSENIC 386J-3870J
BARIUM 369J-894
BERYLLIUM 5.4-6
CADMIUM 7.9-170
CALCIUM 1000-210000
CHROMIUM 19-130
COBALT 443-1100
COPPER 190-686
IRON 160000-2510000
LEAD 480-762
MAGNESIUM 18300-36000
MANGANESE 990-20000
MERCURY 0.41-3.6J
NICKEL 337-880
SODIUM 33000-54400
VANADIUM 302-737
ZINC 622J-1100
CYANIDE 25.2J-26.9
SD-305
TOC 3900
SW-125B
ND
SW-125A/DUP
1,1,1-TRICHLOROETHANE 27/30
TRICHLOROETHENE 29/31
TETRACHLOROETHENE 29/30
SD-125A/DUP
ND
SW-118
ALUMINUM ND-226
CALCIUM 8360-9540
CYANIDE ND-12
IRON ND-1240
MANGANESE 120-418
SODIUM 8850-13200
CYANIDE ND-15.8
ZINC ND-111
SD-118
4-METHYLPHENOL ND-1200
TOTAL PAHS ND-4920
SW-113
1,1,1-TRICHLOROETHANE ND-13
TRICHLOROETHENE ND-7
CALCIUM 6960-8900
CYANIDE ND-11
IRON 714-1300
MANGANESE 67.1-223
SODIUM 5380-12100
ZINC ND-166
SD-113
1,1,1-TRICHLOROETHANE ND-78
SW-114
CALCIUM 7430-8700
CYANIDE ND-12
IRON 619-1800
SODIUM 9190-12500
ZINC ND-27
SD-114
ND
SW-121
CALCIUM 7760
IRON 1610
MANGANESE 151
SODIUM 9320
ZINC 138
SD-121
TOTAL PAHs 1360
TOC 20000
SW-122
CALCIUM 27400
IRON 7060
MANGANESE 2500
SODIUM 6490
SD-122
IRON 9680
TOG 12000
SW-124
CALCIUM 8450
IRON 791
SODIUM 9570
SD-124/DUP
TOC 4000/3300
SW-004
CALCIUM 6970-47900
IRON 761-635000
MANGANESE ND-183
SODIUM ND-5940
SD-004
TOC 7600
7820
986
156
9750
18910
6000
7800-8700
891-1400
143-205
9000-9670
ND-169
ND-14J
ND-26
ND-7000
17000
8470
853
113
11900
2000
SW-125
SW-113
SW-114
SW-124
SW-118
SW-115
SW-004
BROOK
GURNET ROAD
382,500
381,500
643,500
644,000
GENERAL NOTES:
1. ALL WATER DATA REPORTED IN ug/l.
2. ORGANIC SOIL AND SEDIMENT DATA REPORTED IN ug/kg.
3. INORGANIC SOIL AND SEDIMENT DATA REPORTED IN mg/kg. INORGANICS IN EXCESS OF 8 TIMES THE CONTRACT DETECTION LIMIT (CRDL) ARE REPORTED.
4. ND = NOT DETECTED.
5. DUP = DUPLICATE SAMPLE.
6. PAHS = POLYNUCLEAR AROMATIC HYDROCARBONS (SEMIVOLATILES).
7. DATA REPRESENT DETECTION RANGES THROUGH SEVERAL SAMPLING ROUNDS.
0
200
400 FEET
E.C. JORDAN CO.
CONSULTING ENGINEERS
SURFACE WATER, LEACHATE, AND SURFACE SOIL CONTAMINANT DISTRIBUTION MAP SITE 1, 2, AND 3
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RI/FS PROGRAM
4607-41
FIGURE 6-27

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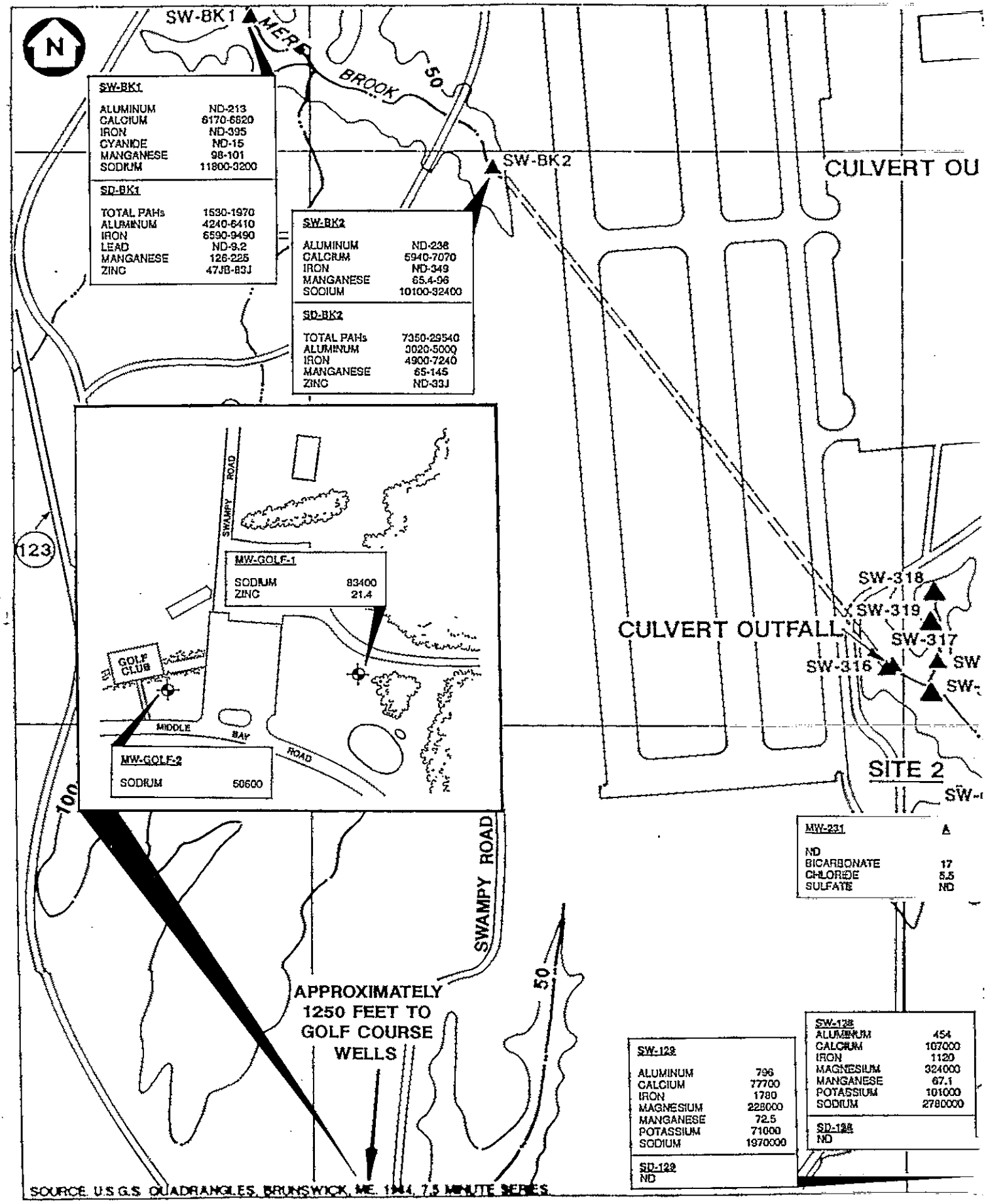

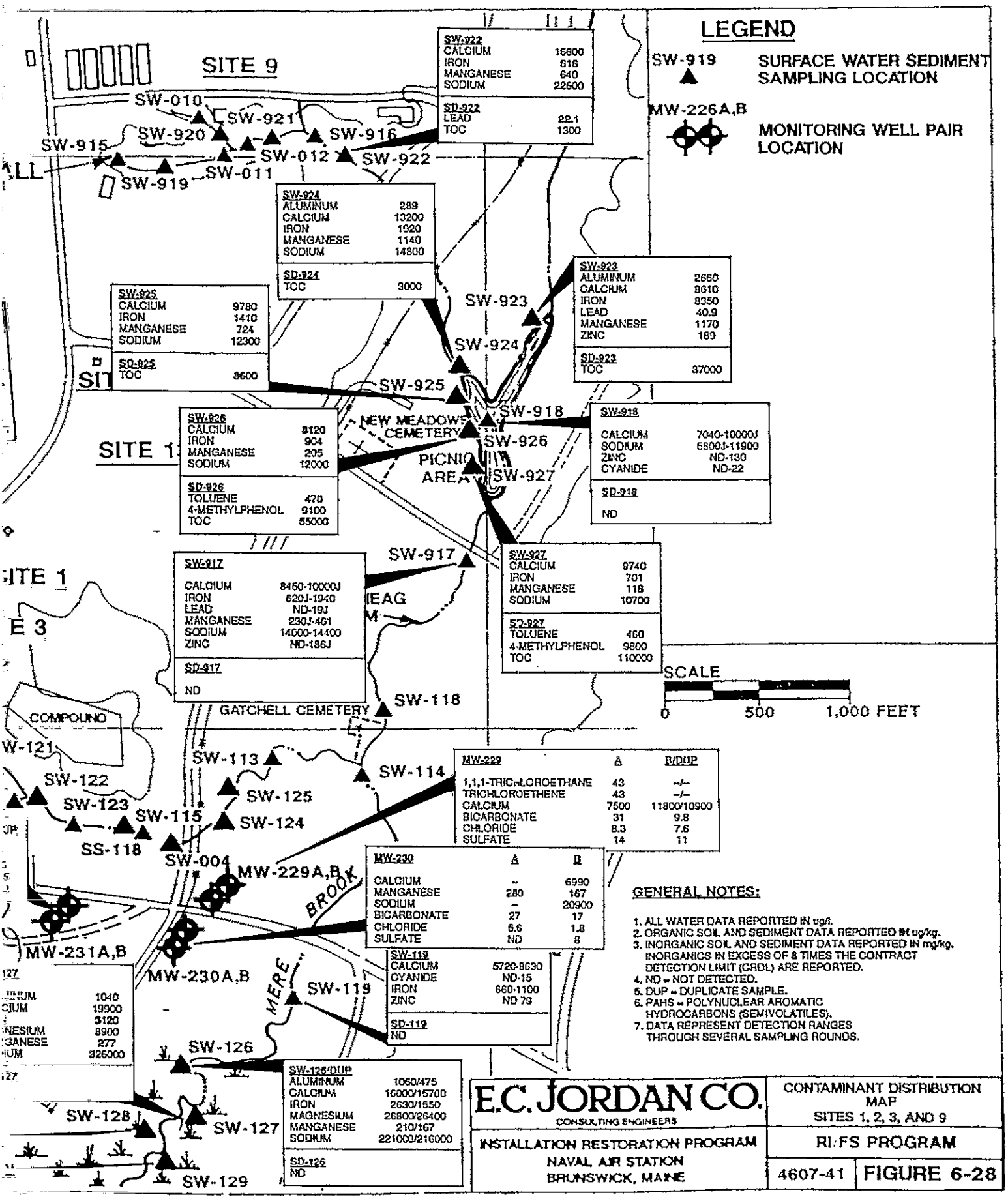
LEGEND
SW-919 SURFACE WATER SEDIMENT SAMPLING LOCATION
MW-226A,B MONITORING WELL PAIR LOCATION
SITE 9
SITE 1
SITE 3
SW-922
CALCIUM 16600
IRON 616
MANGANESE 640
SODIUM 22600
SD-922
LEAD 22.1
TOC 1300
SW-924
ALUMINUM 289
CALCIUM 13200
IRON 1920
MANGANESE 1140
SODIUM 14800
SD-924
TOC 3000
SW-923
ALUMINUM 2660
CALCIUM 8610
IRON 8350
LEAD 40.9
MANGANESE 1170
ZINC 189
SD-923
TOC 37000
SW-925
CALCIUM 9780
IRON 1410
MANGANESE 724
SODIUM 12300
SD-925
TOC 8600
SW-926
CALCIUM 8120
IRON 904
MANGANESE 205
SODIUM 12000
SD-926
TOLUENE 470
4-METHYLPHENOL 9100
TOC 55000
SW-918
CALCIUM 7040-10000J
SODIUM 5800J-11900
ZINC ND-130
CYANIDE ND-22
SD-918
ND
SW-917
CALCIUM 8450-10000J
IRON 620J-1940
LEAD ND-19J
MANGANESE 230J-461
SODIUM 14000-14400
ZINC ND-186J
SD-917
ND
SW-927
CALCIUM 9740
IRON 701
MANGANESE 118
SODIUM 10700
SD-927
TOLUENE 460
4-METHYLPHENOL 9800
TOC 110000
SW-010
SW-9211
SW-920
SW-916
SW-915
SW-012
SW-922
SW-011
SW-919
SW-923
SW-924
SW-925
SW-918
NEW MEADOWS CEMETERY
SW-926
PICNIC AREA
SW-927
SW-917
SW-118
GATCHELL CEMETERY
COMPOUND
SW-113
SW-114
SW-122
SW-125
SW-123
SW-115
SW-124
SS-118
SW-004
MW-229A,B
BROOK
MW-231A,B
MW-230A,B
MERE
SW-119
SW-126
SW-128
SW-127
SW-129
SCALE
0 500 1,000 FEET
MW-229 A B/DUP
1,1,1-TRICHLOROETHANE 43 -/-
TRICHLOROETHENE 43 -/-
CALCIUM 7500 11800/10900
BICARBONATE 31 9.8
CHLORIDE 8.3 7.6
SULFATE 14 11
MW-230 A B
CALCIUM -- 6990
MANGANESE 280 167
SODIUM -- 20900
BICARBONATE 27 17
CHLORIDE 5.6 1.8
SULFATE ND 8
SW-119
CALCIUM 5720-9630
CYANIDE ND-15
IRON 660-1100
ZINC ND-79
SD-119
ND
SW-126/DUP
ALUMINUM 1060/475
CALCIUM 16000/15700
IRON 2630/1550
MAGNESIUM 26800/26400
MANGANESE 210/167
SODIUM 221000/216000
SD-126
ND
GENERAL NOTES:
1. ALL WATER DATA REPORTED IN ug/l.
2. ORGANIC SOIL AND SEDIMENT DATA REPORTED IN ug/kg.
3. INORGANIC SOIL AND SEDIMENT DATA REPORTED IN mg/kg. INORGANICS IN EXCESS OF 5 TIMES THE CONTRACT DETECTION LIMIT (CRDL) ARE REPORTED.
4. ND = NOT DETECTED.
5. DUP = DUPLICATE SAMPLE.
6. PAHS = POLYNUCLEAR AROMATIC HYDROCARBONS (SEMIVOLATILES).
7. DATA REPRESENT DETECTION RANGES THROUGH SEVERAL SAMPLING ROUNDS.
E.C. JORDAN CO.
CONSULTING ENGINEERS
CONTAMINANT DISTRIBUTION MAP
SITES 1, 2, 3, AND 9
INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE
RI/FS PROGRAM
4607-41
FIGURE 6-28

next to a spring that is a small tributary of Mere Brook beaver marsh. This tributary joins Mere Brook beaver marsh just upgradient of SW-113 (see Figure 6-27). VOCs were not indicated in any sediments at the SW/SD locations, except for sporadic detection of 2-butanone, methylene chloride, and acetone. Methylene chloride and acetone are common laboratory contaminants and both were detected in method blanks from all sampling rounds (Table 6-3). Detections of 2-butanone is believed to be related to decontamination procedures.

SVOCs were not detected in any Site 1 or 3 surface water locations, but PAHs and bis(2-ethylhexyl)phthalate were found in several sediments. The highest concentrations of these compounds were found at SD-316 and SD-317. In SD-316, 18,060 µg/kg (PAHs) and 2,900 µg/kg (bis[2-ethylhexyl]phthalate) were detected. In SD-317, 15,520 µg/kg (PAHs) and 2,300 µg/kg (bis[2ethylhexyl]phthalate) were reported. These two compounds were found in several other sediment samples downgradient of SD-316 and SW-317, but concentrations decrease downgradient along Mere Brook beaver marsh. PAHs are not found in Mere Brook beaver marsh sediments downgradient of the beaver pond area, which is a significant area of deposition (see Figure 6-27). PAHs (2,000 to 3,700 µg/kg) were also detected at SD-118, located in Merriconeag Stream just upgradient of the confluence with Mere Brook beaver marsh.

Pesticides and PCBs were not detected in surface water or sediments at Sites 1 and 3, but SVOC TICs were reported in downgradient sediments at SD-126, SD-127, SD-128, and SD-129. TCL inorganics are high in a number of Site 1 and 3 surface waters. Elevated concentrations of calcium (7,380 to 27,400 µg/L), iron (974 to 10,500 µg/L), manganese (200 to 2,500 µg/L), and sodium (6,400 to 18,500 µg/L) occur in SW-316, SW-317, SW-319, SW-002, SW-120, SW-121, SW-122, SW-123, SW-115, and SW-004 (see Figure 6-27). Cyanide (11 to 15 µg/L), zinc, and lead were detected sporadically in several surface waters at low levels. TCL inorganics in sediments are typically within the normal range for soils (see Tables 5-3 and 5-4). Sediments are typically a mixture of sand and silty material.

Two surface water locations had very high concentrations of TCL inorganics reported in Round IV sampling (i.e., SW-318 and SW-004). In addition, the four surface water locations in the tidal estuary area (i.e., SW-126, SW-127, SW-128, and SW-129) also had elevated concentrations of inorganics. In Rounds I, II, and III, levels detected in SW-004 were consistent with other levels observed in this general section of Mere Brook beaver marsh. The high values detected in SW-004 in Round IV are believed to have been influenced by entrained sediment. The Field Data Sheet (sampling report) for SW-004 (Round IV) reported only 2 inches of water present; the low water level made sampling surface water difficult. The field data sheet for SW-318 described a stagnant, organic-rich sampling area. Both the field description and chemical composition of SW-318 appear to describe a seep location. Because saltwater contains levels of inorganics much higher than freshwater, elevated inorganics in the four surface water locations in the tidal estuary is consistent with saltwater impact in a tidal area.

Click Here to Return to Main Index

6.5.7 Seeps, Sediment, and Surface Soils: Sites 1 and 3

Seven seep locations were sampled for TCL organic and inorganic compounds at Site 1 and 3 (i.e., LT-301, LT-302, LT-303, LT-304, LT-305, LT-306, and LT-307). Seeps LT-301 through LT-305 were sampled during Rounds I, II, III, and IV, and LT-306 and LT-307 were sampled during Round IV. The seeps are located along the tributary to Mere Brook beaver marsh adjacent to Site 3, and along Mere Brook beaver marsh downgradient of the confluence of the tributary (see Figure 6-26). Sediments at leachate sampling points were typically a mixture of sand and silty material, and had iron staining associated with them. Three surface soil samples taken in the area next to LT-302 were analyzed for TCL organics and inorganics. Surface soil samples were taken to characterize the impact of leachate on surface soils. Because contamination from Site 1 and 3 seeps are similar, the results from LT-302 are interpreted to represent all Site 1 and 3 seep locations. Analytical results are in Appendix J, and a summary of analytical data is shown in Figure 6-27. Analytical data maps for all four sampling rounds are in Appendices M and N.

VOCs detected in LT-302 include VC (11 µg/L); 1,1-DCE (8 to 11 µg/L); 1,1-DCA (100 to 140 µg/L); TCE (6 to 20 µg/L); and 1,1,2,2 tetrachloroethane (510 to 1,100 µg/L); while 1,1-DCA (7 to 24 µg/L) was reported in LT-305.

VOCs also were reported in sediment samples from LT-302; detected compounds include 1,1-DCA (34 to 78 µg/kg); TCE (10 µg/kg); 1,1,2-TCA (440 µg/kg); and 1,1,2,2-tetrachloroethane (210 to 3,700 µg/kg). Ethylbenzene was found in SD-304 (110 µg/kg). Sporadic detection of acetone and methylene chloride reported at low levels in several sediments are believed to be related to laboratory contamination as these compounds were always present in method blanks (see Appendix J) (Subsection 5.3.5 concerning suspect compounds).

SVOCs were reported in two seeps; detected compounds were 1,4-dichlorobenzene (12 to 36 µg/L) and benzoic acid (64 µg/L). 1,4-Dichlorobenzene was found at LT-304 and LT-305, and benzoic acid was reported at LT-305. SVOCs in seep sediments were only reported at SD-304, where 4,000 to 6,800 µg/kg of 1,4-dichlorobenzene were found.

Pesticides were detected only in Round I sampling of LT-305. DDT (0.17 µg/L), dichlorodiphenyldichloroethylene (DDE) (0.40 µg/L), and DDD (0.36 µg/L) were the compounds reported. PCBs were not observed in leachate or sediment from Site 1 and 3 seep locations, and pesticides were not detected in seep sediment samples.

TCL inorganics were found at elevated levels in all seven leachate samples. High levels of aluminum (400 to 119,000 µg/L); calcium (15,000 to 273,000 µg/L); magnesium (1,900 to 36,000 µg/L); and iron (11,500 to 2,510,000 µg/L) were typically found, and the elements arsenic (27 to 590 µg/L); chromium (11 to 151 µg/L); copper (39 to 686 µg/L); cobalt (57 to 1,240 µg/L); mercury (0.3 to 19.3 µg/L); vanadium (62 to 2,600 µg/L); and zinc (33 to 24,800 µg/L) were commonly detected. Cyanide (10 to 27 µg/L) was also found in several seeps (i.e., LT-301, LT-303, LT-304, and LT-305), but was not consistently detected in all sampling rounds. Mercury was found in leachate from five of the seven seeps in all sampling rounds; concentrations ranged from 0.3 (LT-303) to 19.3 µg/L (LT-304). Sediments at seep locations typically have concentrations of TCL inorganics consistent with background values for sands and clays (see

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Tables 5-3 and 5-4). Seep sediments are typically a mixture of sand and silty soils. Compounds detected include aluminium (3,700 to 6,160 mg/kg), iron (7,730 to 43,900 mg/kg), manganese (80 to 756 mg/kg), magnesuim (1,5200 to 2700 mg/kg), and zinc (26 to 123 mg/kg).

TOC was sampled at all seven seep locations and values ranged from 1,900 mg/kg to 39,000 mg/kg. The highest TOC values (39,000 mg/kg) occurred at LT-304, while the lowest TOC concentrations (1,800 mg/kg) were reported at LT-306.

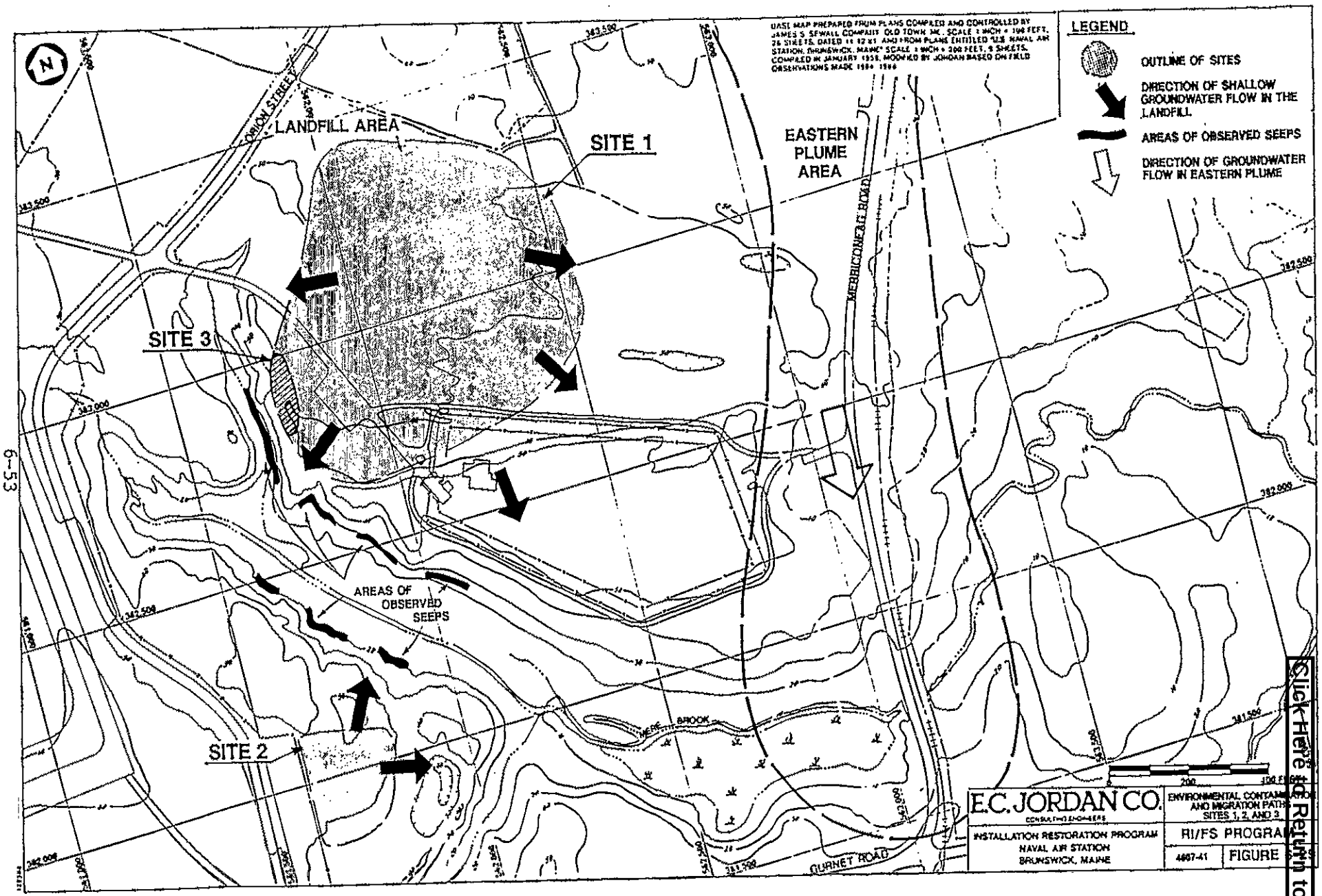
Three surface soils were sampled in a 10-foot radius adjacent to LT-302 (i.e., SS-101, SS-102, and SS-103). The only reported VOC was 1,1,2,2-tetrachloroethane, in all three surface soils (18 to 100 µg/kg). DDT was reported in SS-101 (52 µg/kg) and SS-102 (22 µg/kg), but was not found in SS-103. PCBs were not detected in the surface soil samples, and most TCL inorganics were in the normal range. Exceptions to normal levels of inorganics were mercury and lead. Mercury was found in all three samples, and concentrations varied from 1.3 to 3.3 mg/kg. Lead was also higher than background with concentrations ranging from 23 to 75 mg/kg.

6.6 SUMMARY OF EXTENT OF CONTAMINATION: SITES 1 AND 3

Environmental contamination was observed in several media at Sites 1 and 3 including soils, groundwater, leachate/sediment, and surface water/sediment (Figure 6-29). Landfill area soils have PAH, pesticide, PCB, and VOC contamination. Groundwater is contaminated with VOCs (VHOs and BTEX); leachate has high levels of inorganics and lower concentrations of VOCs and SVOCs; surface water contains elevated levels of inorganics.

The source area for most Site 1 and 3 contamination is the landfill area north and west of the Weapons Compound. Results of the geophysics and soil gas studies demonstrated very good agreement in interpreting the area of disturbed soils and refuse disposal (see Figure 6-16). Elevated soil gas results correlated well with the area of disturbed soils identified in the geophysical studies and in defining the landfill area limits. Similarly, test pitting efforts in the area demonstrated the presence of fill and trash throughout. Test pitting and soil boring data also show the landfill was approximately 20 feet thick in the trench area, and thinned to the east. Finally, groundwater contamination is present throughout the landfill area, and many detected compounds were also observed in the soil gas study. Distribution of landfill area contamination is not uniform, and there appears to be no distinct source area. The highest levels of pesticides were observed in soils in the Site 3 area; while these wastes appear to have been concentrated in this area, pesticides were also detected in numerous test pits in the landfill area. PAHs reported in test pit soils also occur throughout the landfill area and do not define a discrete source area. In groundwater, multiple compounds were detected at a range of concentrations indicating a variable distribution within the landfill area.

Leachate seeps are located in several areas downgradient of the landfill area (see Figure 6-29). The seeps contains VOCs, inorganics, and in one case,



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pesticides. The compounds detected in leachate and sediment are consistent with those found in the landfill area groundwater.

Shallow groundwater in the landfill area is characterized by a plume of dechlorinated VHOs, BTEX compounds, and inorganic compounds. Although BTEX compounds are detected in shallow groundwater in the landfill area, light nonaqueous phase liquids (LNAPLS) are not observed. The absence of LNAPLS is supported by the relatively low concentrations of BTEX compounds, the absence of such contamination in any soil borings, and the lack of LNAPLs in monitoring wells that are screened across the water table (i.e., MW-216B and MW-232B). If LNAPLs were present, significantly higher concentrations of BTEX compounds would be observed in Site 1 and 3 monitoring wells. Environmental contamination in surface water is affected by this shallow groundwater plume and leachate derived from the landfill area (see Figure 6-29). Hydrogeologic interpretations indicate that a portion of the groundwater in the Sites 1 and 3 landfill area discharges directly to Mere Brook beaver marsh (see Figure 6-9).

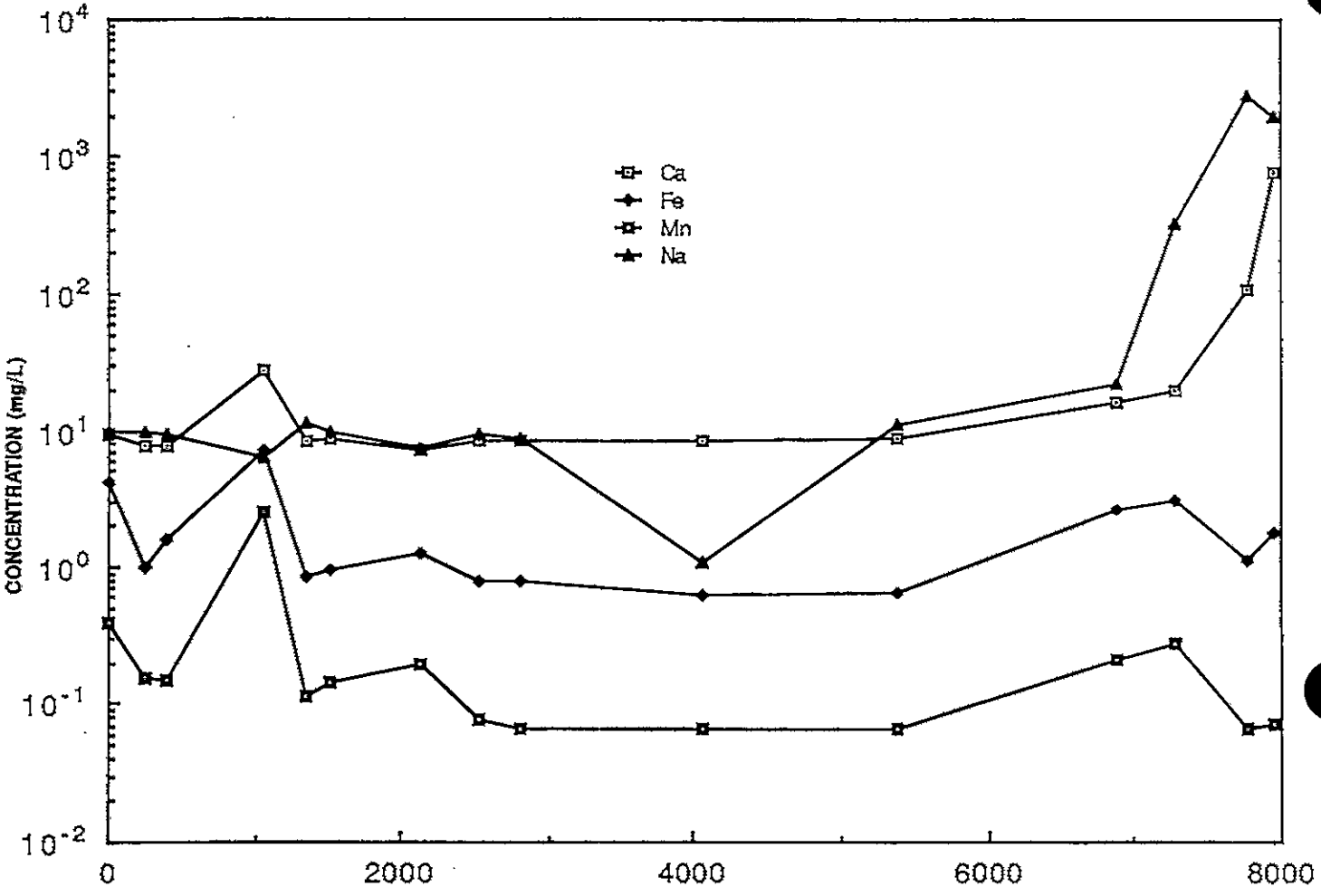
Groundwater downgradient of the Sites 1 and 3 landfill area reflects migration of groundwater contamination observed in the landfill area. MW-203 and MW-218 are downgradient of the landfill area, and 1,1-DCA is detected in both wells. VOCs, including VC and 1,2-DCE, are also reported in MW-210B. All three monitoring wells and MW-220 and MW-219, also downgradient of the landfill area, have elevated levels of inorganics, reflecting leachate migration in the shallow groundwater plume from the landfill area (see Figure 6-1). MW-220 and MW-219 lack the VOCs, suggesting that these compounds are either diluted and/or sorbed to soils, decreasing concentrations below detection. Elevated concentrations of TCL inorganics observed in Mere Brook beaver marsh reflect this discharge process (Figure 6-30).

The discharge of shallow groundwater to Mere Brook beaver marsh is further emphasized in Figure 6-30 where concentrations of sodium, calcium, iron, and manganese are plotted for surface waters in Mere Brook beaver marsh. Results for SW-316 are nearly identical to those for SW-317, and are not included in Figure 6-30. The data in Figure 6-30 are from Round IV and demonstrate a sharp increase in these metals at SW-122. The area of SW-122, between SW-121 and SW-123 (see Figure 6-26), is in the region of Mere Brook beaver marsh directly downgradient of the landfill area, and the increased levels of inorganics reflect the effects of discharge of shallow groundwater to this section of Mere Brook beaver marsh. Groundwater discharge from Site 2 also may contribute to the elevated inorganics at SW-122.

The data in Figure 6-30 also indicate several other general characteristics of inorganics in Mere Brook beaver marsh. Initial concentrations of inorganics in surface water at SW-317 (upstream of Sites 1 and 3) demonstrate levels higher than those immediately downgradient. A second observation is that inorganic levels gradually decrease downstream as sampling locations became further removed from the Sites 1 and 3 source area. A final observation is an increase in sodium and calcium concentrations in surface water in the estuary area (SW-126 through SW-129). Increased sodium and calcium levels in the downstream samples are well above those characteristic of the source area (SW-122), and not believed to be related to contaminated groundwater discharge.

Click Here to Return to Main Index

INORGANICS IN MERE BROOK



NOTE: DATA IS FROM ROUND 4 SAMPLING EPISODE

E.C. JORDAN CO. CONSULTING ENGINEERS	INORGANICS IN MERE BROOK SURFACE WATER
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
	4607-41 FIGURE 6-30

The high sodium and calcium levels are in the downstream samples are interpreted to be related to a saline, intertidal environment.

VOCs observed in groundwater in the landfill area are not detected in Mere Brook beaver marsh; this absence is probably a function of dilution and dispersion that occurs with the mixing of groundwater and surface water. Leachate derived from the Sites 1 and 3 area has also affected surface waters (see Figure 6-27), although mercury is not detected in surface water, and lead concentrations are not high.

Two distinct areas of groundwater contamination also have been identified at Sites 1 and 3. Shallow groundwater in the landfill area is characterized by a VOC plume with VHOs (i.e., VC, DCE, DCA), BTEX compounds, and inorganics. A second area of groundwater contamination to the east of the landfill area has a different set of VHOs (i.e., TCE, TCA, and PCE) and lacks BTEX compounds; however, several deeper wells display inorganics exceeding background values. This eastern plume is observed in the Site 1 area as far north as MW-208 and MW-106 (see Figure 6-25). Based on shallow and deep groundwater flow patterns, VOC contamination in MW-106 and MW-208 cannot originate in the landfill area (see Figures 6-9 and 6-10). This is consistent with the different set of detected compounds characterizing this eastern plume. A similar set of compounds occurs in groundwater detected in MW-222, MW-223, and MW-224, which are located several hundred feet north of MW-208 and MW-106. Groundwater flow maps show these three northern wells are upgradient to the contamination in the eastern area of Site 1. These observations indicate this eastern plume is part of the groundwater plume originating in the area of Sites 4, 13, and 11 (see Subsections 13.5 and 13.6). The absence of BTEX compounds in the eastern plume is probably related to the low levels (i.e., 16 to 200 $\mu g/L$), reported in the potential source areas and the higher degree of soil partitioning associated with BTEX relative to VHO compounds.

In addition to VHOs observed in the eastern plume, TCL inorganics, chloride, and bicarbonate are also elevated in several monitoring wells (i.e., MW-225A, MW-206A, MW-205, MW-229A, and MW-230B), but occur at background levels in the other wells associated with the eastern plume (i.e., MW-106, MW-222, MW-223, MW-224, MW-206B, and MW-225B). Monitoring wells affected by inorganics are located from MW-225A to the south, and elevated inorganics are only observed in deeper wells (see Figures 6-5 and 6-25). This suggests that due to infiltration, shallow inorganic contamination originating in the landfill area becomes deeper downgradient of the landfill area. Where this deeper, downgradient inorganic contamination intersects the eastern plume, deep downgradient monitoring wells within the eastern plume are impacted with inorganic contamination.

Inorganic data for monitoring wells in both the landfill area and eastern plume display some scatter, and do not indicate any clear mixing behavior for source and downgradient monitoring wells (see Piper Diagrams in Appendix O). The data represented in the piper diagram were not collected in one sampling event and as such are not appropriate for quantitative modeling. The diagram does, however, demonstrate some general relationships. Anion distribution in both the landfill area and eastern plume is dominated by bicarbonate and chloride, with little sulfate present. To illustrate the distinction between monitoring wells in the eastern plume and the landfill area chloride and bicarbonate concentrations are shown in Table 6-4 and are plotted in Figure 6-31. Figure 6-31 also enlarges the region of lower concentrations of

Click Here to Return to Main Index

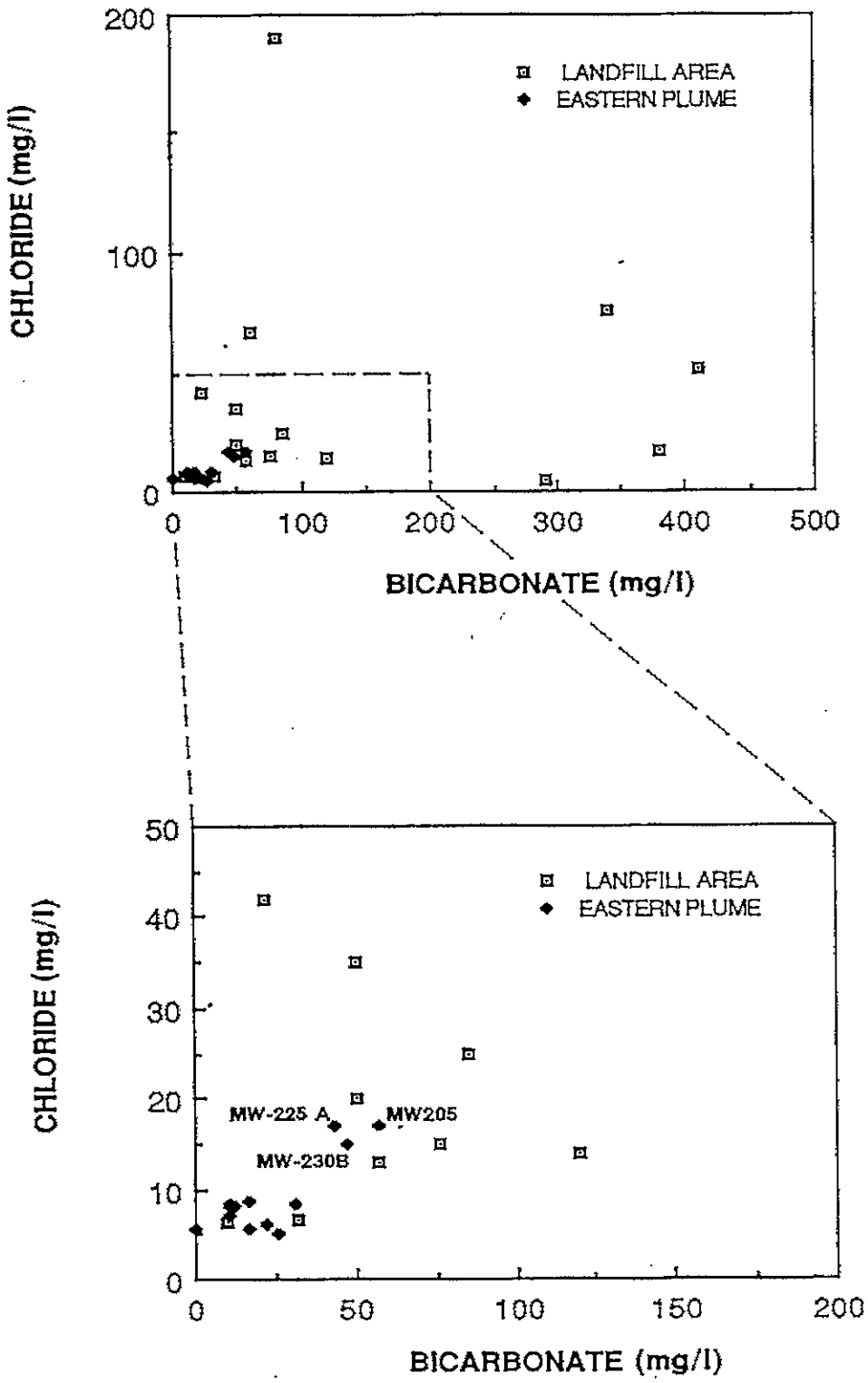
TABLE 6–4

CHLORIDE AND BICARBONATE RESULTS:
LANDFILL AREA AND EASTERN PLUME

RI/FS PROGRAM
NAS BRUNSWICK

WELL ID	BICARB	CHLORIDE
202 A	85	25
203	76	15
204	10	6.3
214	22	42
215	50	35
216 A	50	20
216 B	120	14
217 A	81	190
217 B	410	52
218	340	76
219	32	6.6
220	57	13
232 A	61	67
232 B	290	5.2
234	380	17
106	17	8.6
205	57	17
222	12	8.1
223	11	8.5
224	11	8
225 A	43	17
225 B	11	7.2
229 A	31	8.3
229 B	22	6.2
230 A	0	5.6
230 B	47	15
231 A	17	5.5
231 B	26	5

NOTE: Data present in mg/L.



E.C. JORDAN CO. CONSULTING ENGINEERS	CHLORIDE-BICARBONATE DISTRIBUTION SITES 1 AND 3
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK MAINE	RI/FS PROGRAM
	4607-41 FIGURE 6-31

bicarbonate (0 to 200 mg/L), and chloride (0 to 50 mg/L), and shows the deep monitoring wells south of MW-225A (i.e., MW-205 and MW-230B) have chloride and bicarbonate values consistent with those in the landfill area. Chloride data are not available for MW-206A, but bicarbonate data (30 mg/L) are consistent with the elevated values in the deeper wells. Groundwater flow in this region supports the potential impact of groundwater contamination from a source in the landfill area in the area of the eastern plume. Shallower wells south of MW-225A are not affected by the bicarbonate and chloride contamination because this inorganic contamination, sourced in the landfill area, has moved into the deeper portions of the aquifer by the time it travels the 1,000 feet from the landfill area to the eastern plume area.

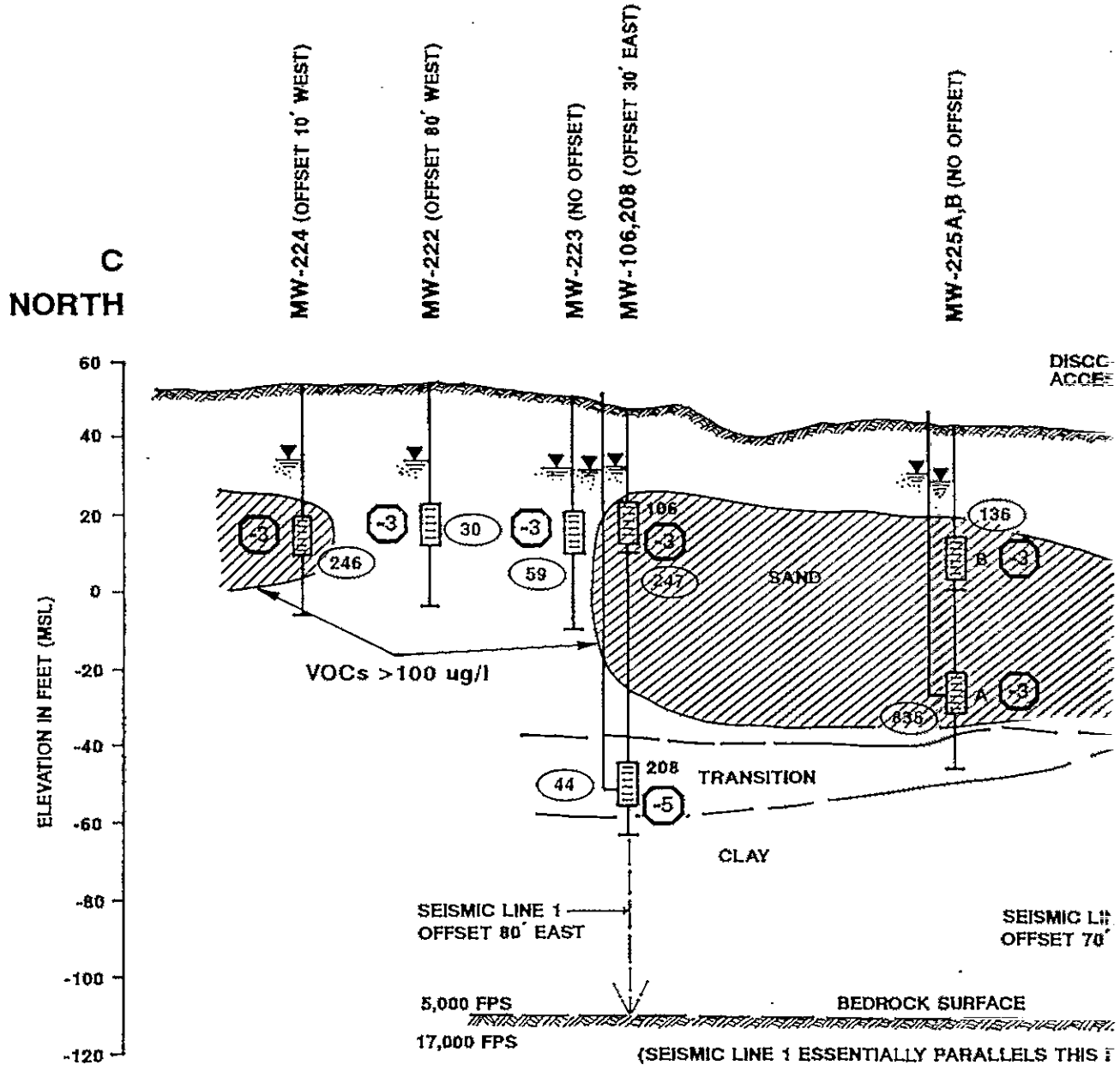
Some inorganic contamination is observed in deep groundwater (MW-208) north of MW-225A, but the contamination lacks the inorganic anions characteristic of the landfill area. Elevated levels of calcium (7.9 to 9.4 mg/L), Sodium (15 to 16.9 mg/L) and aluminum (0.2 to 0.31 mg/L) are observed in MW-208, but bicarbonate levels are at the background level (20 mg/L, no chloride data available). In shallow monitoring wells north of MW-225A (MW-106, MW-222, MW-223, MW-209, and MW-224) elevated inorganics (both contain and anion) are not observed. These data suggest that a source for the elevated metals may occur north of MW-208. A possible candidate is the Acid/Caustic Pit.

Therefore, deeper monitoring wells south of MW-225A carry both an anion inorganic and VHO contaminant signature that can be followed to the south. VHO concentrations decrease to the south from MW-225A; the southernmost monitoring well with VHO contamination is MW-229A (Figure 6-32). The next monitoring well to the south from MW-229A in the direction of the eastern plume is MW-230B. MW-230B lacks VHOs, but carries the anion inorganic signature identified in wells to the north. The relationship between chloride/bicarbonate and VHO contamination is shown in Figure 6-33 (see also Figure 6-31). These data suggest that the leading edge of VHO contamination in the eastern plume occurs somewhere between MW-229A and MW-230B. MW-230B is comparable to MW-229A because the well is screened in the depth interval where the eastern plume is observed to the north. MW-230A is screened at an even greater depth.

Contamination associated with the eastern groundwater plume also appears related to the flowing spring associated with SW-125A (see Figures 6-2 and 6-9). This spring is next to an old well installation, and it is believed that the old well installation provides a conduit for deep, confined groundwater to reach the surface (see subsection 6.4.4). The flowing spring appears to discharge deep groundwater that is part of the contaminated eastern plume. Both TCE and TCA, which characterize the eastern plume, are found in SW-125A.

6.7 CONTAMINANT FATE AND TRANSPORT: SITES 1 AND 3

Environmental contamination was observed in several media at Sites 1 and 3, including soils, groundwater, leachate/sediment, and surface water/sediment. Landfill area soils have PAH, pesticide, and PCB environmental contamination. Groundwater is contaminated with VOCs (i.e., VHOs and BTEX) and inorganics. Leachate has high levels of inorganics, and lower concentrations of VOCs and SVOCs; surface water has elevated concentrations of inorganics. High



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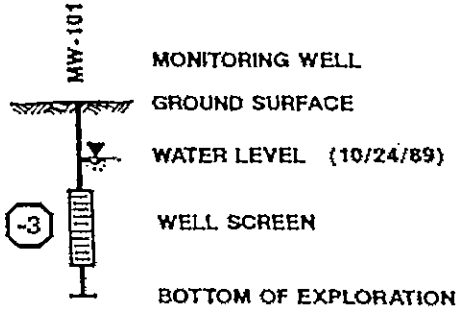

NOTES:

PROFILES ARE BASE
EXPLORATIONS. ACT
FROM THOSE SHOWN

4 ORDER OF MAGNITUD
CENTIMETERS / SEC

LOCATION OF PROFILE

SEISMIC WAVE VELOC

59 TOTAL VOC's IN ug/L.
NUMBER IS HIGHEST R

VERTICAL EXAGGERATION = 5:1

0 100 200FEET

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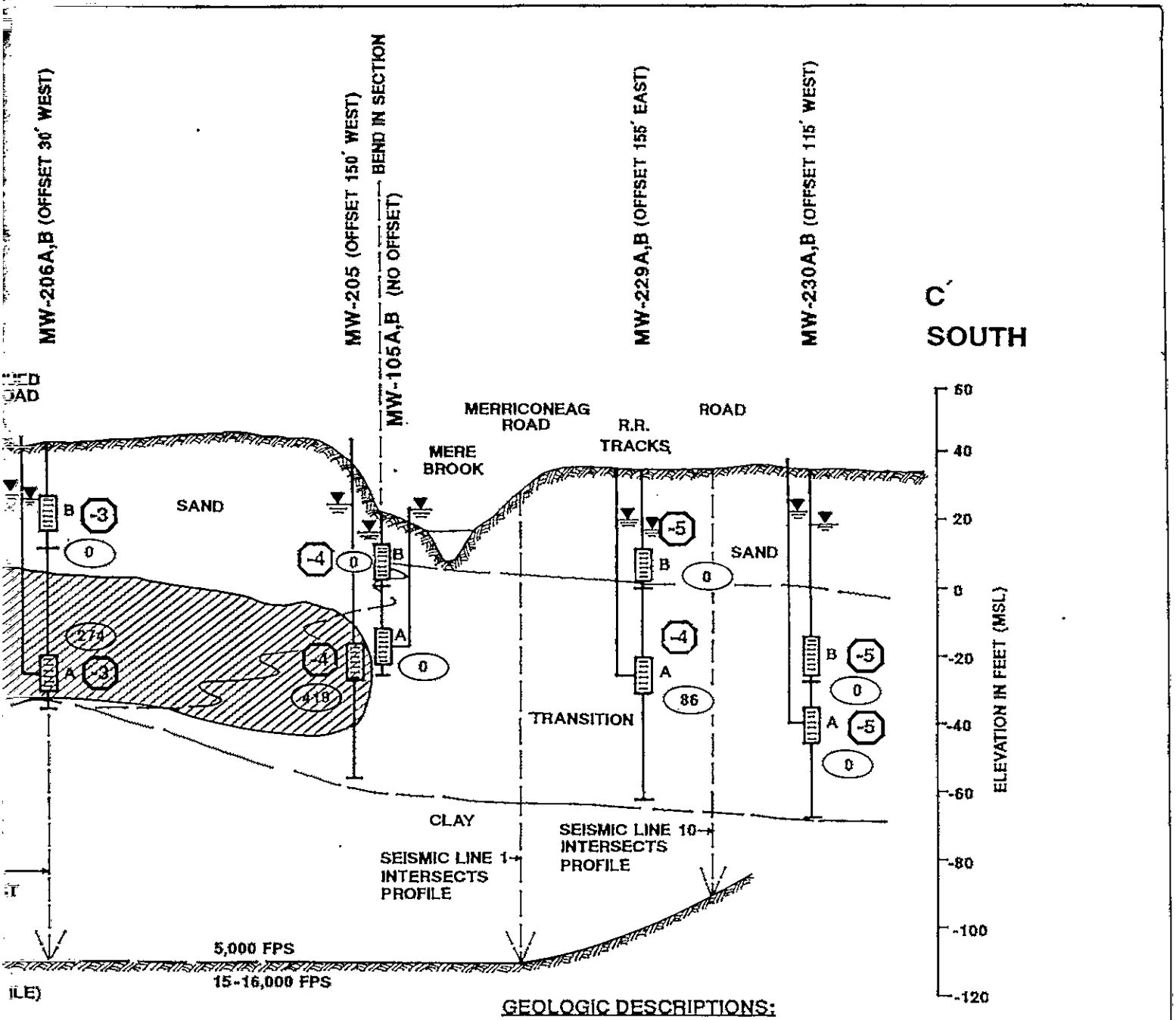


GEOLOGIC DESCRIPTIONS:

SAND - TAN TO LIGHT BROWN FINE SAND, TRACE TO LITTLE MEDIUM SAND, TRACE SILT, POORLY GRADED, LOOSE TO MEDIUM DENSE, DRY TO SATURATED, SLIGHTLY STRATIFIED WITH DEPTH.

TRANSITION - BROWN TO GRAY FINE SAND AND SILTY, FINE SAND, TRACE CLAY, STRATIFIED WITH SILT AND CLAY LENSES, POORLY GRADED, NON TO SLIGHTLY PLASTIC, SOFT IN PLACES, SATURATED.

CLAY - GRAY, SILTY CLAY TO CLAYEY SILT (ROCK FLOUR), MEDIUM TO HIGH PLASTICITY, VERY SOFT, SATURATED.

AN INTERPRETATION OF AVAILABLE SUBSURFACE CONDITIONS BETWEEN EXPLORATIONS MAY VARY

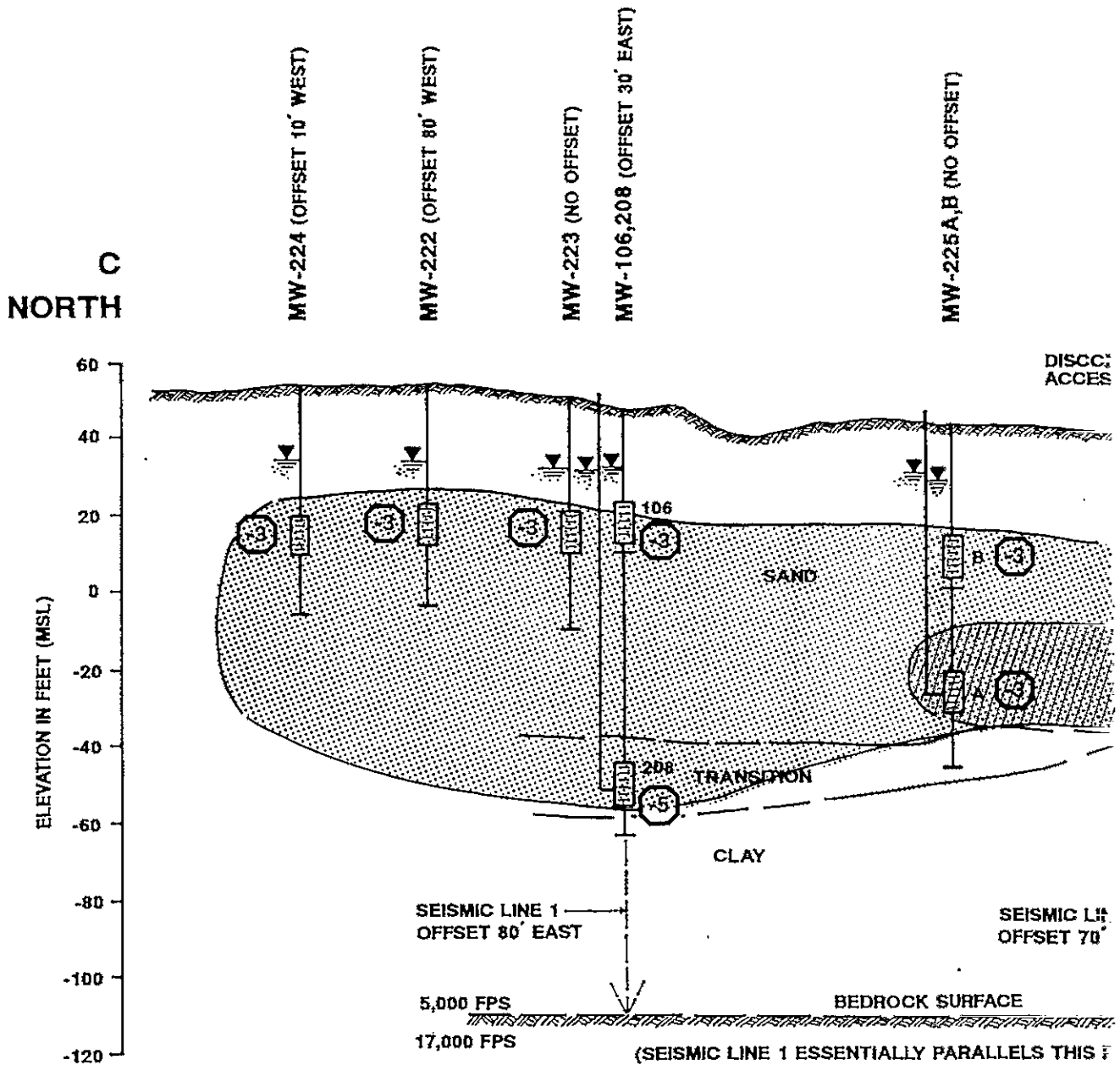
HYDRAULIC CONDUCTIVITY IN (i.e., 10^{-2} cm/sec.).

OWN IN FIGURE 6-1

S GIVEN IN FEET PER SECOND (FPS)

WELLS SAMPLED MORE THAN ONCE, RDED VALUE.

E.C. JORDAN CO. CONSULTING ENGINEERS	CONCENTRATION OF DETECTED VHO'S IN THE EASTERN PLUME RI/FS PROGRAM	
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	4607-41	FIGURE 6-32



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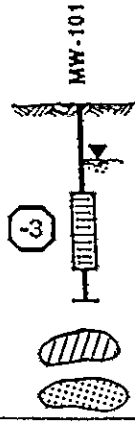

MONITORING WELL

GROUND SURFACE

WATER LEVEL (10/24/89)

WELL SCREEN

BOTTOM OF EXPLORATION

REGION OF ELEVATED CHLORIDE AND BICARBONATE

REGION OF VHO CONTAMINATION

NOTES:

PROFILES ARE BASED
EXPLORATIONS. ACT
FROM THOSE SHOWN

4 ORDER OF MAGNITUD
CENTIMETERS / SECC

LOCATION OF PROFILE

SEISMIC WAVE VELOC

NO CONTAMINATION C

VERTICAL EXAGGERATION = 5:1

0 100 200FEET

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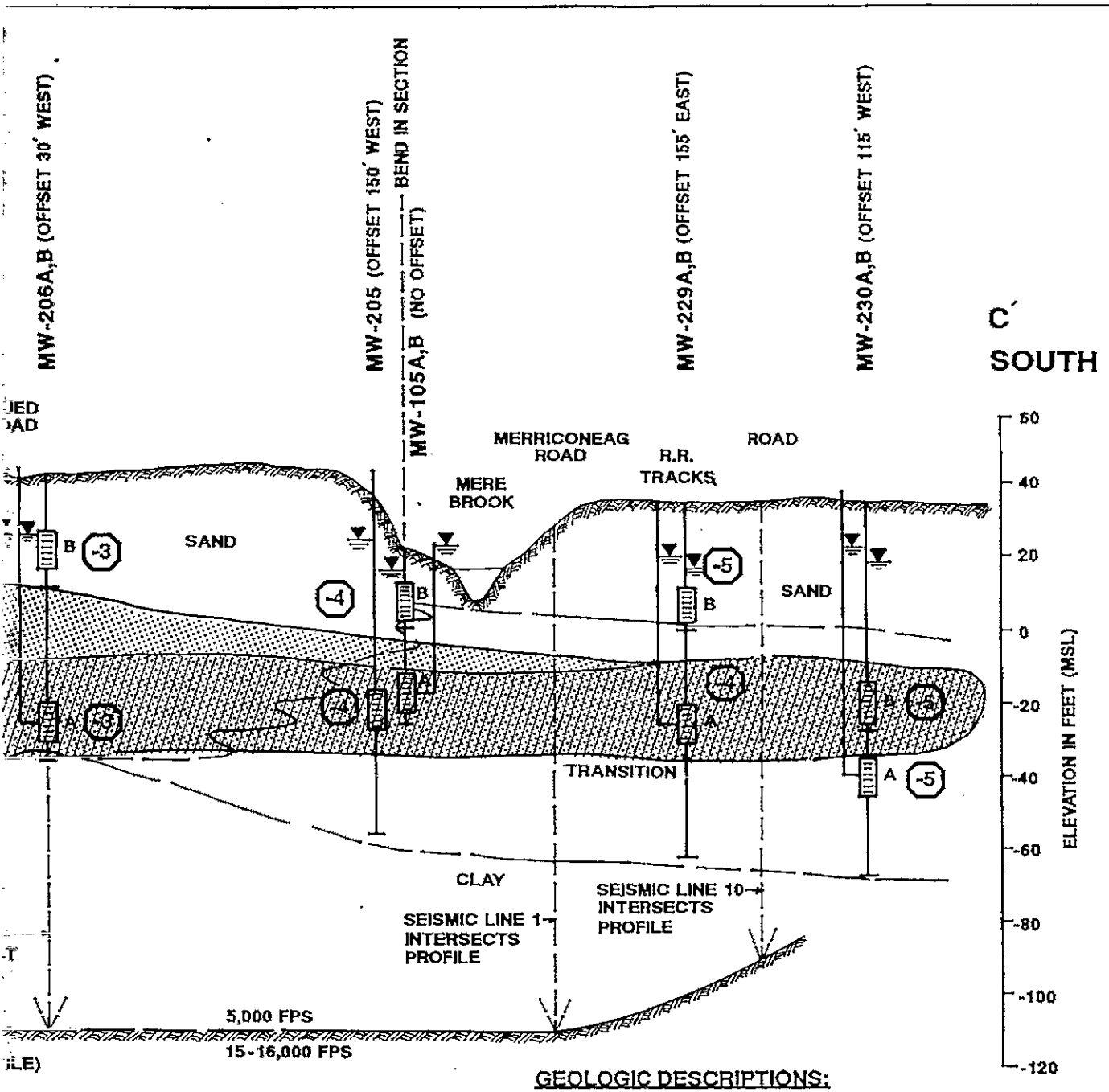

AN INTERPRETATION OF AVAILABLE SUBSURFACE CONDITIONS BETWEEN EXPLORATIONS MAY VARY

HYDRAULIC CONDUCTIVITY IN
i.e., 10^{-3} cm/sec.).
WN IN FIGURE 6-1
S GIVEN IN FEET PER SECOND (FPS)
RVED IN MW-105A

GEOLOGIC DESCRIPTIONS:

SAND - TAN TO LIGHT BROWN FINE SAND, TRACE TO LITTLE MEDIUM SAND, TRACE SILT, POORLY GRADED, LOOSE TO MEDIUM DENSE, DRY TO SATURATED, SLIGHTLY STRATIFIED WITH DEPTH.

TRANSITION - BROWN TO GRAY FINE SAND AND SILTY, FINE SAND, TRACE CLAY, STRATIFIED WITH SILT AND CLAY LENSES, POORLY GRADED, NON TO SLIGHTLY PLASTIC, SOFT IN PLACES, SATURATED.

CLAY - GRAY, SILTY CLAY TO CLAYEY SILT (ROCK FLOUR), MEDIUM TO HIGH PLASTICITY, VERY SOFT, SATURATED.

E.C. JORDAN CO. CONSULTING ENGINEERS	VHO AND CHLORIDE/BICARBONATE CONTAMINATION IN THE EASTERN PLUME RI/FS PROGRAM	
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	4607-41	FIGURE 6-33

concentrations of most inorganics are found in Sites 1 and 3 leachate, with iron, magnesium and calcium having the highest concentrations.

PAHs are relatively stable in the soil environment due to high sorption properties (high octanol-water partition coefficient [KOW]). Therefore, PAH mobility is limited in the soil environment (Edwards, 1983). PAHs also typically have low solubility in water, further limiting PAH transport properties (Neff, 1979). The ultimate fate of PAHs in the landfill area of Sites 1 and 3 soils is probably sorption to sediments, followed by slow biodegradation (Edwards, 1983).

DDT also has a strong propensity to adhere to soils, and sorption is the dominant fate of DDT in soils (Kenager and Goring, 1978). Therefore, similar to PAHs, DDT in landfill area soils will sorb to soils and ultimately biodegrade. Two major processes direct the degradation of DDT. First, aerobic degradation results in the formation of DDE; second, anaerobic degradation typically results in the formation of DDD (Johnsen, 1976). DDT and its metabolites have low water solubility, which minimizes migration in the environment (Weil et al., 1973). DDE and DDT also will sorb to soils, which minimizes their mobility in the environment.

Solubility of iron in water is mainly a function of oxidation state and pH. In reducing environments or at low pH, the solubility of iron increases, and the soluble iron species is the ferrous ion, Fe^{2+}. With increasing pH or oxidation, Fe^{2+} oxidizes to the ferric ion, Fe^{3+}, which has low solubility, and Fe^{3+} oxides are precipitated (Garrels, 1960). Divalent iron also can form organic complexes that increase iron solubility. The seeps at Sites 1 and 3 have low pH values (5.3 to 6.4), which act to enhance iron solubility (and other inorganics as well), giving rise to high iron and inorganic concentrations. As iron-rich leachate enters the surface environment, dilution increases pH, which, combined with oxidation, results in precipitation of trivalent iron oxides. The ultimate fate of iron in leachate is probably stabilization as trivalent iron oxides in sediments.

The environmental fate of mercury is complex because several species and processes can occur. Mercury can occur in three oxidation states: elemental mercury, the mercurous ion, Hg^{1+}, and the mercuric ion, Hg^{2+}. Under moderately oxidizing conditions, with pH above 5, the predominant mercury species will be elemental mercury (Holm and Cox, 1974). Solubility of elemental mercury is a function of temperature, and ranges from 19 to 81 $\mu g/L$ in the temperature range of 5 to 30 degrees Celsius (Sanemasa, 1975). Mercury is strongly partitioned into sediments, especially those with organic matter, and sediments act as a sink for mercury unless bacteria biotransform mercury into methylated species (Ramamoorthy and Rust, 1976). Two methylated species exist, methyl mercury and dimethyl mercury. The dimethyl species has very low solubility, and is not important in the environment. With the biotransformation into methyl mercury, mercury can be released from sediments into the aquatic environment and be relatively mobile (Holm and Cox, 1974).

Mercury in Sites 1 and 3 leachate is probably stabilized as elemental mercury, as concentrations (0.3 to 17 $\mu g/L$) are consistent with mercury solubility. Mercury is strongly partitioned into leachate sediments, and the ultimate fate is probably sorption in this media. The presence of organic material will enhance mercury stability in sediments and seep sediments with high TOC have the highest mercury levels (i.e., LT-304 and LT-302). Methylation is not

Click Here to Return to Main Index

believed to be a significant process because of the high levels of mercury reported in leachate sediments and surface soils, relative to the levels of mercury reported in the leachate (Holm and Cox, 1974). If methyllation were an important process, leachate sediments would not have the observed mercury levels. Mercury is not observed in surface waters due to the effects of dilution, and the low mercury concentrations (0.3 to 17 µg/L), and the lack of methylation.

Inorganics dissolved in groundwater will remain in solution until solubility is reached, and the solubility of these inorganics is a function of the nature of the dissolved species. Inorganics typically do not sorb strongly to soils, and concentration in groundwater downgradient of the source area will be determined by dilution and dispersion.

Concentrations of dissolved inorganics in Sites 1 and 3 shallow groundwater are well below solubility limits. The dissolved inorganics in shallow groundwater flowing from the landfill area will migrate with groundwater and discharge to Mere Brook beaver marsh, giving rise to observed concentrations above background in Mere Brook beaver marsh south of the landfill area (see Figure 6-27). Groundwater flowing in a more southeast direction from the landfill area that does not discharge to Mere Brook beaver marsh will ultimately interact with the eastern plume. Some inorganics originating in the landfill area (i.e., iron, sodium, calcium, chloride, and bicarbonate) are observed in deep groundwater in the southern portion of the eastern plume, but dechlorinated VHOs (i.e., VC and 1,1-DCA) and BTEX compounds are not detected. Lack of these VHOs is probably due to low initial concentration and further dilution via soil partitioning and mixing upgradient of the eastern plume.

In soil-groundwater systems, VHOs are initially partitioned to soils. VHOs are transported from soil to groundwater via percolation of rainwater, and eventually are degraded to DCAs, DCEs, chloroethane, and VC via anaerobic reductive dechlorination (Corapcioglo and Hossain, 1987). VHOs partitioned onto soils will remain a source of contamination until the concentration is diminished below that predicted by the equilibrium Koc. If the soils are in an anaerobic environmental, dechlorination may occur, but in an aerobic environmental, little dechlorination will occur (Vogel and McCarty, 1985). The presence of these degradation products (i.e., VC, 1,2-DCE, and 1,1-DCA) and the absence of non-dechlorinated solvents in the Sites 1 and 3 landfill area groundwater suggests that anaerobic conditions exist, and reductive dechlorination reactions have occurred (Vogel and McCarty, 1985). Anaerobic environments occur in groundwater systems when organic material is introduced to the aquifer; these environments commonly occur in landfills or dumps. Decomposition of the organic material uses available oxygen in the aquifer, giving rise to anaerobic conditions.

The ultimate fate of VHOs in the shallow groundwater flowing south from the landfill area flowing south from the landfill area at Sites 1 and 3 is discharge to Mere Brook beaver marsh. The distribution of total VOCs and regulatory exceedance in the landfill area is shown in Figure 6-34. Before discharging to Mere Brook beaver marsh, concentrations decrease because of dilution, dispersion, and partitioning onto soils. Upon discharge to Mere Brook beaver marsh, remaining VHOs are volatilized to the atmosphere, as these compounds have relatively high vapor pressures. VHOs are not observed in the discharge area of Mere Brook beaver marsh, supporting this scenario. VHOs flowing southeast from the landfill area may ultimately join the eastern plume

although they are not detected (i.e., 1,1-DCA and VC). Lack of these VHOs is probably due to low initial concentration and further dilution via soil partitioning and mixing upgradient of the eastern plume.

BTEX are volatile organics with relatively high water solubilities and vapor pressures. These properties make them prone to leaching, and surface water and groundwater transport. BTEX have low octanol/water partition coefficients reflecting a relatively high solubility and hydrophyllic nature, and relatively low soil/sediment adsorption coefficients that enhance mobility in surface water (Kenager and Goring, 1978). In addition to dilution and dispersion, BTEX concentrations will decrease due to biodegradation in aerobic and anaerobic environments; however, biodegradation is slower in anaerobic environments because hydrocarbons occur in a highly reduced state (Tabak et al., 1981).

The presence of BTEX, dechlorination of VHOs, and high iron concentrations all are consistent with a reducing environment. The ultimate fate of BTEX is similar to that for VHOs: eventual discharge to Mere Brook beaver marsh with subsequent volatilization.

VHOs are also reported in the eastern plume along Merriconeag Road. Total VOC and regulatory exceedance in the eastern plume is shown in Figure 6-34. This eastern plume originates in the area of Sites 4, 11, and 13. Based on hydrogeologic and flow net analysis, shallow contaminants in this plume may discharge to Mere Brook beaver marsh in the MW-205 area, with deeper portions of the plume confined in the transition zone strata passing beneath Mere Brook beaver marsh. VHOs are predominantly TCE, and TCA, with low levels of PCE, 1,2-DCE, and 1,1-DCE. VHO contamination observed in the Sites 4, 11, and 13 area includes TCE (6 to 130 µg/L), TCA (12 to 450 µg/L), and 1,2-DCE (8 to 770 µg/L), and high levels of 1,2-DCE (770 µg/L) occur at Site 13. The current high levels of 1,2-DCE reported at Site 13 are not observed downgradient (i.e., at MW-222, MW-223, and MW-224), or in the eastern area of Site 1, suggesting that 1,2-DCE-rich groundwater contamination has not reached this downgradient area. Low levels of 1,1-DCE and 1,2-DCE in the eastern plume are consistent with small amounts of reductive dechlorination of TCE (Vogel and McCarty, 1985).

As discussed in Subsection 6.6, the southern extent of VHOs in the eastern plume occurs south of Mere Brook beaver marsh, and north of MW-230B. Hydrogeologic data obtained to date indicates the Sites 4, 11, and 13 plume is approaching and beginning to pass beneath Mere Brook beaver marsh at this time. Based on Ks ranging from 7.9×10^{-4} cm/sec (geometric mean) to 1.4×10^{-3} cm/sec (bulk aquifer calculation), an average gradient of .01, and an effective porosity of .25, initial seepage velocity calculations from Sites 4, 11, and 13 to Mere Brook beaver marsh range from 32 feet per year to 58 feet per year. This yields estimated travel times ranging from 41 to 84 years from Sites 4, 11, and 13 to Mere Brook beaver marsh. However, the Sites 4, 11, and 13 area reportedly began operations in 1969, giving a plume originating at these two sites a maximum of 20 years to reach Mere Brook beaver marsh.

Minor modification of assumptions affecting seepage velocities can dramatically reduce the travel times to Mere Brook beaver marsh. By using the geometric mean of 11 of the highest Ks along the actual plume path (3.4×10^{-3} cm/sec), with the same gradient (0.01), and effective porosity (0.25), seepage velocity is recalculated to 141 feet per year. At this rate, the

Click Here to Return to Main Index

plume could travel 2,400 feet from Site 13 to Mere Brook beaver marsh (near MW-205) in approximately 17 years. Further, these calculations do not include substantial decreases in travel times attributable to longitudinal dispersion. However, with limited data available south of Mere Brook beaver marsh, ambiguities about disposal operations in the Sites 4 and 13 area, and the range of in situ Ks, the southernmost extent of this plume remains indeterminate at this time. However, it is reasonable to expect the Sites 4, 11, and 13 plume to have reached Mere Brook beaver marsh at Site 1, and the southern extent of the plume will be evaluated in upcoming field investigations.

Concentrations in MW-229A, the most southerly location where VHOs have been detected, have decreased from upgradient values. This decrease is a function of dilution, dispersion, and partitioning processes. Groundwater flow calculations predict that groundwater sources in the Sites 4, 11, and 13 area could reach Mere Brook beaver marsh in 17 years or less, and location of the contaminant plume in the vicinity of Mere Brook beaver marsh is consistent with groundwater flow calculations. A mechanism for retarding contaminant velocities is partitioning of contaminants to soils, which is a function of the organic carbon content of soils. Clean sands have been observed downgradient of Sites 4, 11, and 13, consistent with minimal retardation. The lack of significant 1,2-DCE concentrations in the downgradient area of the eastern plume suggests that recent 1,2-DCE contamination originating in the Site 13 area (Round IV) has not arrived in this downgradient area, and that the source of the downgradient plume is either Site 4 or 11.

Click Here to Return to Main Index

Click Here to Return to Main Index

7.0 ORION STREET LANDFILL (SOUTH): SITE 2

7.1 SITE DESCRIPTION AND HISTORY: SITE 2

Site 2, the Orion Street Landfill - South, reportedly was used as the primary base landfill from 1945 to 1955. The site is located south of Mere Brook beaver marsh, opposite Sites 1 and 3 (see Figures 6-1 and 6-2). The actual period of operation was less than 10 years because the Air Station was closed from 1946 to 1951, although the site was used by nonmilitary tenants (see Subsection 2.3). Solid waste reportedly was incinerated at the site, and incinerator foundations are still present near MW-103. The actual waste disposal area covers approximately 2 acres, partially filling a former borrow pit. A substantial quantity of miscellaneous refuse is exposed along the eastern face of the landfill, otherwise the landfill has been covered with soil and supports a dense stand of pine trees. Wastes reportedly disposed of at Site 2 included paints, solvents, oils, toluene, methyl ethyl ketone (MEK), and medical supplies. Actual quantities of hazardous material disposed of at Site 2 are unknown. If an incinerator did operate at the site, a substantial component of disposed material at the site must be ash.

7.2 TECHNICAL APPROACH: SITE 2

The two RI field investigation programs, techniques, and rationale for Site 2 are summarized in this section (Table 7-1). The 1988 RI began with a soil gas survey to evaluate VOC contamination in the vadose zone; to assist in delineating the landfill's boundaries; and to identify hot spots for further exploration or evaluation. A magnetometer survey across the site area also was performed to establish landfill boundaries. A seismic refraction profile was obtained along the northern edge of the site (bordering Mere Brook beaver marsh), providing data on depth to bedrock and overburden thickness. Two soil borings with monitoring wells were installed (one upgradient and one downgradient) to evaluate stratigraphy, groundwater movement, and to obtain groundwater quality samples. Surface water and sediment samples were collected along Mere Brook beaver marsh in addition to leachate seep samples on the brook embankment to evaluate groundwater and leachate discharges to the brook.

Based on limited contamination detected in the 1988 RI and subsequent sampling Rounds II and III, the 1989 field program was reduced to Round IV sampling of new and existing surface water and sediment locations, and leachate seeps along Mere Brook beaver marsh north of the site.

7.3 GEOLOGY: SITE 2

Four borings (i.e., MW-103, MW-104, MW-212, and MW-213) were drilled at Site 2. Figure 6-1 shows the location of these borings and Figure 6-4 shows the stratigraphic profile of the site. Overburden geology at Site 2 is similar to Sites 1 and 3 to the north but with differences in thickness. Upper sands range in thickness from 14 to 21 feet. MW-213 encountered 11 feet of transition zone, the other three borings substantially less. MW-104, which

Click Here to Return to Main Index

TABLE 7-1
RI PROGRAM SUMMARY - SITE 2

REMEDIAL INVESTIGATION
NAS BRUNSWICK

1988 FIELD PROGRAM

- 31 point soil gas survey
- Two test borings with monitoring wells
- In situ aquifer permeability tests
- Magnetometer survey
- Seismic refraction profiling
- Sampling of soils, groundwater, surface water, sediment, and leachate seeps

1989 FIELD PROGRAM

- Sampling of surface water, sediment, and leachate seeps

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Click Here to Return to Main Index

terminated at 22 feet, was the only boring that did not penetrate into clay. The clay surface in this area is at the shallowest depth below ground in the Sites 1, 2, and 3 area and dip fairly steeply to the east. This may partially explain the presence of a large (50-by-100-foot) natural slope failure or slump observed along Mere Brook beaver marsh between LT-202 and LT-203.

7.4 HYDROGEOLOGY: SITE 2

Site 2 hydrogeology was assessed based on subsurface exploration data from four monitoring wells. Groundwater contours were constructed from water levels in these monitoring wells, in conjunction with surface water elevation data from adjacent Mere Brook beaver marsh (see Figure 6-9). Groundwater movement above shallow clay at Site 2 is northeastward, discharging to Mere Brook beaver marsh.

The site is underlain by stratified sand overlying the transition zone and relatively shallow clay defining the bottom of the unconfined aquifer. Saturated aquifer thicknesses above the clay range from only 6 to 8 feet in MW-212 and MW-103, to more than 24 feet in MW-104 (see Figure 6-11). Elevation of the clay surface decreases substantially to the east, and the aquifer thickens (see Figure 6-7). In situ-determined hydraulic conductivities also increase progressively to the east, ranging from 7.8×10^{-5} cm/sec in MW-103 to 2.9×10^{-3} cm/sec in MW-104 (see Table 4-2). Conductivities increase as coarser sands thicken and the finer transitional strata decrease in elevation below the well screens.

Hydraulic gradients across the site range from approximately 0.04 to 0.05 feet/foot northeast toward Mere Brook beaver marsh and toward a tiny tributary adjacent to MW-104 (see Figure 6-9). Travel time calculations have been based on a hydraulic gradient of 0.05, an effective porosity of 0.25, and a range of K from 2.9×10^{-3} to 7.8×10^{-5} cm/sec. Using these data, calculated groundwater seepage velocities could range from 16 to 600 feet per year. Using the geometric mean of the K values (i.e., 3.02×10^{-4} cm/sec), the groundwater movement rate across the entire site would be approximately 63 feet per year. With the most remote portion of the landfill approximately 500 feet from Mere Brook beaver marsh, groundwater should traverse Site 2 in eight years or less. With a history of operation from 1945 to 1955, leachate from the most remote portions of this landfill could have reached Mere Brook beaver marsh by the mid-1960s.

7.5 NATURE AND EXTENT OF CONTAMINATION: SITE 2

This subsection describes the results from field sampling and geophysical studies at Site 2.

7.5.1 Soil Gas Survey: Site 2

A soil gas survey, conducted at Site 2 in June 1988 by Tracer, included analyses for the compounds F-113, $CHCl_3$, TCE, TCA, PCE, benzene, toluene, xylene, and THC. Thirty-one soil gas points (i.e., SG171-SG186 and SG222-

Click Here to Return to Main Index

SG236) were established at Site 2. The locations of the 31 soil gas points are shown in Figure 6-14, and soil gas data are shown in Figures 6-16 and 6-18. Soil gas values for most Site 2 samples exhibited non-detect levels. Low THC levels were detected in three soil gas locations, including SG222 (3 µg/L), SG233 (0.2 µg/L), and SG234 (4 µg/L). Low levels of benzene (0.6 µg/L), toluene (0.3 µg/L), and TCE (0.2 µg/L) were also detected at SG234. These Site 2 soil gas concentrations are low, and do not indicate the presence of significant subsurface VOC contamination.

7.5.2 Geophysical Survey: Site 2

As part of the 1988 field program, GPR and magnetometer surveys were conducted at Site 2 on June 24, 27, and 29, 1988. The purpose of the surveys was to determine landfill boundaries at the site and ascertain the presence of any buried drums (as might be indicated by large concentrations of buried ferrous materials).

7.5.2.1 Ground-penetrating Radar Survey. A limited GPR survey, using a GSSI SIR System III, was conducted to correlate with magnetometer data. The original intent was to conduct the survey over the landfill itself, but instead it was limited to two 140-foot-long traverses restricted to the northern portion of Site 2 (see Figure 6-20). This survey was limited to short traverses in the vicinity of the former incinerator foundations because of thick tree cover over much of the site. Because of the small amount of data gathered during this particular survey technique, the results do not give useful information, and therefore are not presented.

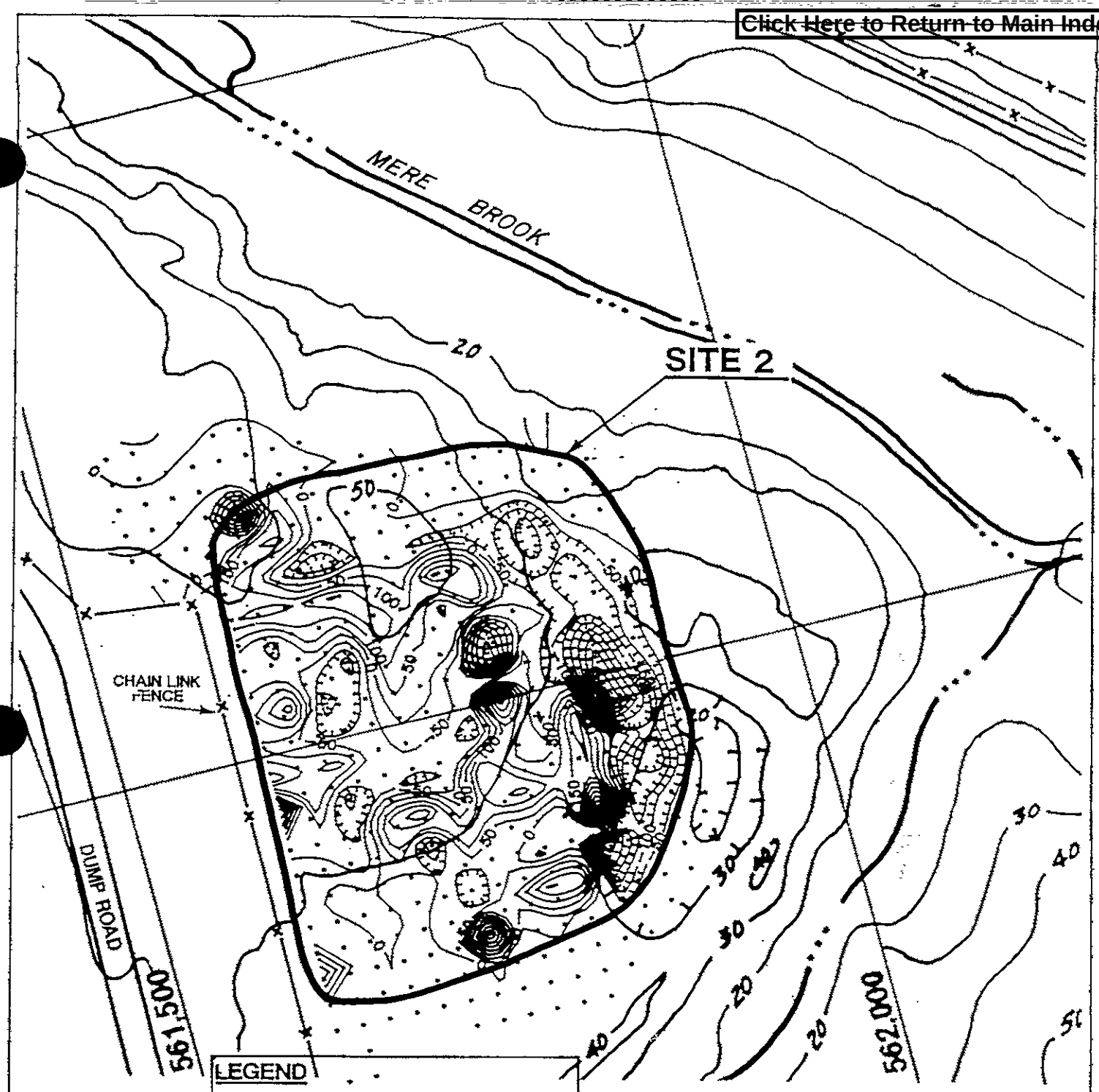
7.5.2.2 Magnetometer Survey. A magnetometer survey at Site 2 was conducted using an EDA Omni Plus (proton precession total field) magnetometer. The survey was conducted on a 60-by-60-foot survey grid including the densely forested areas. Magnetic and vertical gradient measurements were taken every 20 feet within the grid, for a total of 373 data points.

Results of the magnetometer survey are presented as a vertical (magnetic) gradient contour map (Figure 7-1). Some of the significant anomalies can be explained by high concentrations of ferrous metallic debris along the landfill fringes. Debris includes partially buried steel drums, cans, office furniture, and domestic waste. The sources for three significant magnetic anomalies were not visible, and these were selected for further investigation with soil gas surveys. Several soil gas samples were taken in the vicinity of these magnetic anomalies; results were negative, indicating that observed magnetic anomalies were not significant sources of VOC contamination in the vadose zone.

7.5.3 Subsurface Soils: Site 2

The RI/FS program at Site 2 included two test borings (i.e., MW-212 and MW-213) and four analytical soil samples. Analytical soil samples were analyzed for TCL organic and inorganic compounds. Two other soil borings (i.e., MW-103 and MW-104) were installed at Site 2 during the PAC Study. Locations of all Site 2 soil borings are shown in Figure 6-1. Analytical data for MW-212 and

Click Here to Return to Main Index



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VERTICAL MAGNETIC GRADIENT CONTOURS
SITE 2

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RI/FS PROGRAM

4607-41 | FIGURE 7-1

Click Here to Return to Main Index

MW-213 soil samples are contained in Appendices J and K. Figure 6-24 summarizes interpreted environmental contamination in Site 2 soils.

TCL organic compounds were not detected in Site 2 soil borings, and reported TCL inorganic compounds are consistent with background values (see Tables 5-3 and 5-4). Arsenic (13 to 14 mg/kg) and chromium (19 to 33 mg/kg) are reported in soil samples from both MW-212 and MW-213. These concentrations are low, and samples were taken from clay-rich zones where arsenic and chromium are typically found at low concentrations (see Subsection 5.3.1 and Table 5-4).

7.5.4 Groundwater: Site 2

Groundwater was sampled from four Site 2 monitoring wells (i.e., MW-103, MW-104, MW-212, and MW-213) during Rounds I and II, and analyzed for TCL organic and inorganic compounds, TOC, carbonate, and bicarbonate (see Table 4-1). Analytical data are reported in Appendix J. A summary of groundwater contamination is shown in Figure 6-25. Two monitoring wells (i.e., MW-103 and MW-104) were installed as part of the PAC Study and the other two wells were a component of the 1988 RI/FS program (i.e., MW-212 and MW-213).

The only VOC detected during Site 2 groundwater sampling was acetone, detected in MW-103 (40 µg/L) and MW-213 (17 µg/L). Acetone concentrations are low, and occur in both upgradient (i.e., MW-103) and downgradient (i.e., MW-213) monitoring wells. For these reasons, and the fact that acetone (found in water laboratory method blanks from all sampling rounds) is a common laboratory contaminant, acetone is believed to represent laboratory contamination (see Subsection 5.3.5 and Table 7-2).

TCL SVOCs, PCBs, and pesticides were not detected in Site 2 groundwater. TCL inorganic compounds have concentrations in the normal range in MW-103 and MW-212 (see Table 5-6); however, somewhat elevated concentrations of inorganics are reported in MW-104 and MW-213. The exception to this relationship is lead, detected in Round II in both MW-103 (180 µg/L) and MW-212 (60 µg/L), but not reported in Round I. Lead also was not detected in MW-103 in the PAC Study.

Elevated levels of inorganics are found in MW-213 and MW-104. Sodium is high in both monitoring wells, with 13,700 to 15,000 µg/L in MW-104, and 26,000 to 41,600 µg/L in MW-213. Calcium (10,800 to 12,000 µg/L), iron (9,600 to 14,000 µg/L), magnesium (6,400 to 7,000 µg/L), arsenic (12 to 15 µg/L), and manganese (380 to 470 µg/L) have concentrations exceeding background levels in MW-213. Low concentrations of TOC are reported in all four monitoring wells (1.4 to 2.2 mg/L), and carbonate is not detected in any of the Site 2 monitoring wells. Similar to the inorganic data, bicarbonate concentration is high in downgradient wells MW-213 (130 mg/L) and MW-104 (40 mg/L), but low in upgradient wells MW-103 (10 mg/L) and MW-212 (14 mg/L).

7.5.5 Surface Water and Sediment: Site 2

One surface water and sediment sampling point (SW/SD-003) is located in the Site 2 area along the tributary to Mere Brook beaver marsh, east of Site 2

TABLE 7-2
SUSPECT CONTAMINANTS: SITE 2

REMEDIAL INVESTIGATION
NAS BRUNSWICK

COMPOUND	CONCENTRATION	MEDIA	CRITERIA
Acetone	17–40 µg/L	Groundwater/leachate	Common contaminant/sporadic detection/ laboratory blank
Toluene	20 µg/L	Leachate	Common contaminant/sporadic detection/ laboratory blank
Xylenes	15 µg/L	Leachate	Common contaminant/sporadic detection/ laboratory blank

NOTE:

µg/L = micrograms per liter

Click Here to Return to Main Index

Click Here to Return to Main Index

(see Figure 6-26). SW/SD-003 was sampled during Rounds I, II, and III (see Table 4-1 for detailed sampling history). Surface water and sediments were analyzed for TCL organic and inorganic compounds, and results of analytical data are in Appendices J and K. An analytical data map summarizing SW/SD results is Figure 6-27. TCL VOCs, PCBs, and pesticides were not detected in surface water or sediments at SW-003. SVOCs were detected in SD-003 in Rounds II and III; detected compounds include several PAHs. Total PAH concentration ranges from 1,630 to 1,670 µg/kg. TCL inorganics were detected in both sediment and surface water, but concentrations are consistent with background levels in surface water from SW-BK1 and SW-BK2 and soils from base-wide locations (see Tables 5-3, 5-4, 5-5, and Appendix J).

7.5.6 Seeps, Sediment, and Surface Soils: Site 2

Three seep and sediment locations were identified and sampled at Site 2 (i.e., LT-201, LT-202, and LT-203). In addition to leachate and sediment samples, three surface soil samples were taken next to LT-201 (i.e., SS-104, SS-105, and SS-106). Seep locations LT-201 and LT-202 were sampled during all four sampling rounds, and LT-203 and three surface soil samples were sampled during Round IV. Seep, sediment, and surface soil samples were analyzed for TCL organic and inorganic compounds and TOC. Analytical data tables and maps are in Appendices J and K, respectively. Figure 6-27 summarizes Site 2 LT/SD data.

VOCs detected in Site 2 leachate samples include acetone (28 µg/L), toluene (20 µg/L), and xylenes (15 µg/L). Acetone was reported in LT-201 during Round I, but was not found in subsequent sampling rounds. Similarly, toluene and xylenes were reported in Round II sampling of LT-201 and Round I sampling of LT-202, respectively, but were not detected in other rounds. These compounds were also found in laboratory method blanks. Low concentrations, sporadic detection, and the presence in laboratory blanks of these three VOCs suggests that they are related to laboratory contamination (see Subsection 5.3.5 and Table 7-2). VOCs were not detected in seep sediments during the four sampling rounds.

SVOCs and PCBs were not reported in Site 2 leachate or sediment samples, but pesticides were found in leachate from LT-201. Low levels of DDT were found in leachate LT-201 during sampling Rounds I (0.10 µg/L) and III (0.22 µg/L), and DDE (0.3 µg/L) was reported during Round III. Pesticides were not reported in sediment from LT-201 (SD-201).

TCL inorganics were found at elevated levels in all three leachate samples. High levels of aluminum (43,200 to 651,000 µg/L); calcium (9,500 to 78,800 µg/L); magnesium (5,800 to 45,500 µg/L); and iron (29,000 to 766,000 µg/L) were typically found, and the elements arsenic (15 to 51 µg/L); chromium (13 to 1,190 µg/L); copper (60 to 914 µg/L); cobalt (61 to 675 µg/L); mercury (0.22 to 18 µg/L); vanadium (124 to 1,720 µg/L); and zinc (26 to 2,770 µg/L) were commonly detected. Mercury was found in leachate from all three seeps in all sampling rounds; concentrations ranged from 0.22 (LT-202) to 18 µg/L (LT-201).

Click Here to Return to Main Index

Results from LT-202 are in Figure 7-2, where leachate concentration is plotted versus time. The data show that for most inorganics, Round III results from LT-202 are approximately an order of magnitude higher than those reported during other sampling rounds. High values in concentration ranges for chromium, copper, cobalt, vanadium, and zinc occurred in Round III sampling of LT-202. It is not clear why higher inorganic levels were observed during Round III sampling. Other Site 2 seeps sampled at the same time did not have high Round III values. Based on inorganic levels in the other seeps, more representative values are given by the other three sampling rounds.

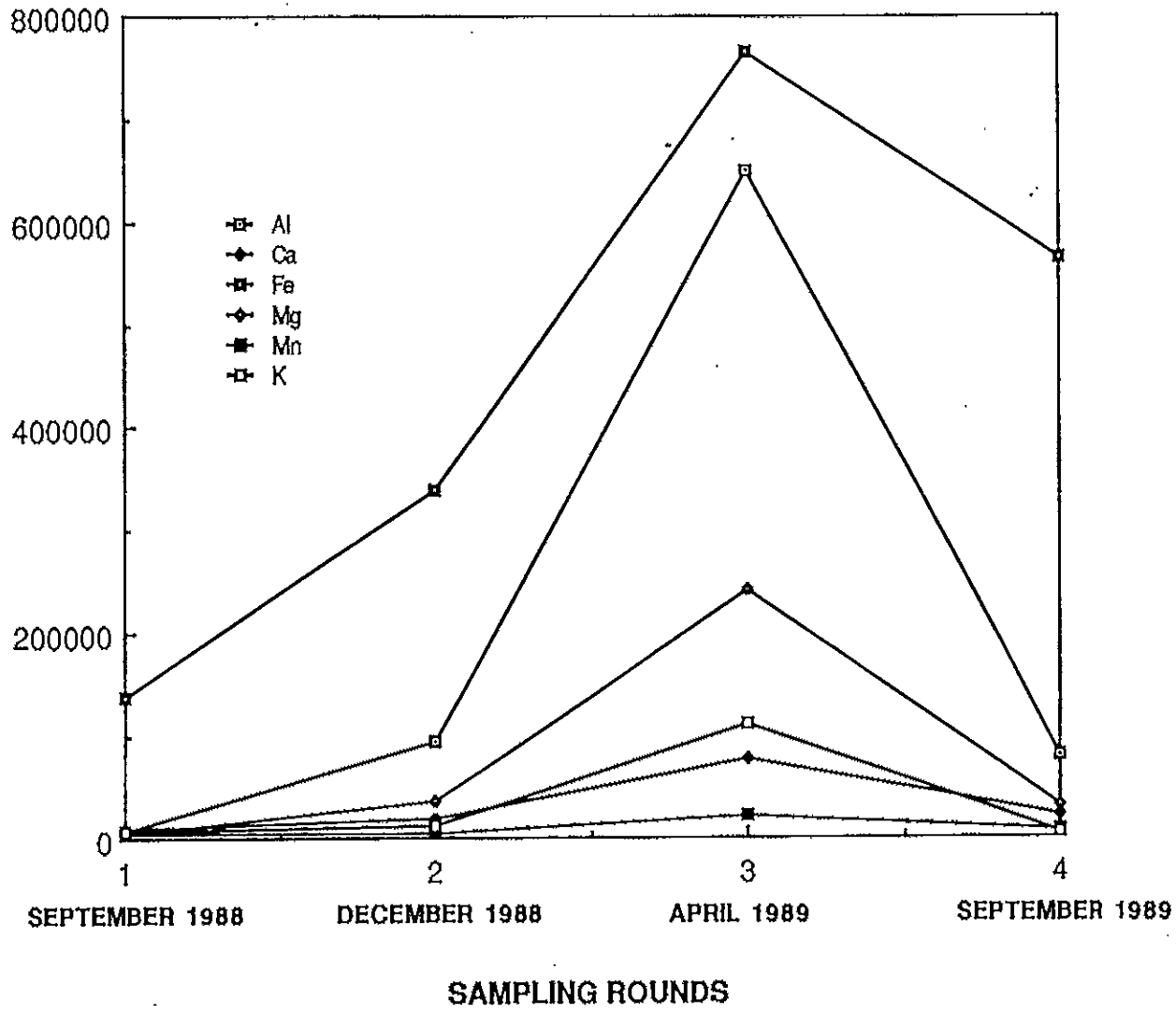
TCL inorganics in Site 2 seep sediment samples include aluminum, arsenic, chromium, copper, iron, lead, magnesium, manganese, potassium, vanadium, and zinc. Concentrations for all these elements exceed background soil levels (see Tables 5-3 and 5-4), and reflect the similar set of elements occurring in leachate.

Three surface soil samples were taken adjacent to LT-201 to evaluate the impact of seeps in nearby soils. VOCs and SVOCs were not detected in any of the samples. The only organic compound reported was DDT, which was detected in SS-106 (23 µg/kg). This is consistent with leachate data for LT-201, where low levels of DDT were detected in Rounds I and III. Reported inorganics include aluminum (6,620 to 7,390 mg/kg); chromium (5.6 to 9.4 mg/kg); iron (7,460 to 8,350 mg/kg); lead (6.9 to 19.9 mg/kg); magnesium (1,480 to 1,840 mg/kg); manganese (65 to 98 mg/kg); mercury (0.18 to 0.65 mg/kg); vanadium (16 to 20 mg/kg); and zinc (22 to 25 mg/kg).

TOC data were collected at SD-201 and SD-202. Concentrations were relatively low in both sediments, with 4,700 mg/kg and 9,100 mg/kg detected in SD-201 and SD-202, respectively.

7.6 SUMMARY OF EXTENT OF CONTAMINATION: SITE 2

Environmental contamination at Site 2 is observed in leachate and sediment associated with seeps, groundwater, and in stream sediments. Figure 6-29 indicates areas of contamination identified at Site 2, and shows shallow groundwater flow directions of the inorganic plume. Contamination consists of principally inorganic compounds, with minor amounts of pesticide and PAHs. An incinerator reportedly operated at Site 2; its operation would have developed significant amounts of ash, which apparently was included in the landfill. Dioxins were not investigated in Site 2 environmental media, because the incinerator operated during the early 1950s, prior to the incorporation of plastics in the wastestream. Buried ash will contribute to inorganic contamination in groundwater and leachate downgradient of the landfill. Elevated inorganic concentrations are observed in MW-213 and MW-104; both monitoring wells are downgradient of the site (see Figure 6-25). Elevated inorganics were not observed in MW-103 and MW-212 upgradient of the landfill, and do not appear affected by it. The shallow inorganic plume discharges to Mere Brook beaver marsh, and the elevated inorganics in Mere Brook beaver marsh reflect the discharge process (see Subsection 6.6).



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VARIATIONS IN INORGANIC CONCENTRATIONS IN LT-202 SITE 2

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4607-41 URE 7-

Click Here to Return to Main Index

Click Here to Return to Main Index

The highest levels of contamination observed at Site 2 occur in the leachate seeps. A wide variety of inorganics are reported in leachate and associated sediment, and concentrations are high relative to background values for surface water and soils. Low levels of DDT are observed in LT-201 and the surface soils adjacent to LT-201, and mercury was detected in all Site 2 leachate and sediment samples.

Data from LT/SD-203 indicates that the area impacted by Site 2 is larger than originally understood. This seep location is further west along Mere Brook beaver marsh (see Figures 6-26 and 6-29), indicating that inorganics in LT-203 travel northwest of the Site 2 landfill.

These data could indicate a larger source area for Site 2, further northwest than initially understood. However, several observations do not support this potential. The magnetometer survey clearly indicates an end to the Site 2 area, as magnetic anomalies die out on the northwestern end of the site. Historic aerial photographs also are consistent with the interpreted limits of Site 2 (USEPA, 1987), and the chemical signature of LT-203 is identical to the other Site 2 seeps. The search for the presence of seeps further northwest of Site 2 is probably related to large slump structures upgradient of LT-203, between LT-203 and Site 2. This might give rise to the migration of leachate further to the northwest.

PAHs are found in SD-003, with levels of 1,600 parts per billion (ppb) reported. PAHs possibly could result from buried ash, but the level of contamination is consistent with PAH concentrations reported for background surface water/sediment locations (i.e., SW-BK1 and SW-BK2) in Mere Brook beaver marsh west of the runways (see Subsection 5.3.4).

7.7 CONTAMINANT FATE AND TRANSPORT: SITE 2

Environmental contamination at Site 2 consists of inorganics and low levels of DDT in leachate, low levels of mercury in seeps, inorganics in groundwater, and PAHs in stream sediment. Most inorganics have high concentrations in Site 2 leachate, with iron and mercury having the highest concentrations relative to background values.

Solubility of iron is mainly a function of oxidation and pH. In reducing environments or at low pH, solubility of iron increases, and the soluble iron species is Fe^{2+}. With increasing pH or oxidation, Fe^{2+} oxidizes to Fe^{3+}, which has low solubility, and Fe^{3+} oxides are precipitated. Divalent iron can form organic complexes that also increase iron solubility (Garrels, 1960). The seeps at Site 2 have low pH values (i.e., 5.4 to 6), which act to enhance solubility, giving rise to the high iron concentrations. As iron-rich leachate enters the surface environment, dilution increases pH, and, combined with oxidation, trivalent iron oxides are precipitated. The ultimate fate of iron in the seeps is probably stabilization as trivalent iron oxides in sediments.

The environmental fate of mercury in the seeps is complex, as several species and processes can occur. Mercury can occur in three oxidation states,

including elemental mercury, Hg^{+}, and Hg^{2+}. Under moderately oxidizing conditions with pH above 5, the predominant mercury species will be elemental mercury (Holm and Cox, 1974). Water solubility of elemental mercury is a function of temperature, and ranges from 19 to 81 µg/L in the temperature range of 5 to 30 degrees Celsius (Sanemasa, 1975). Mercury is strongly partitioned into sediment, especially those with organic matter, and sediment will act as a sink for mercury unless bacteria biotransform mercury into methylated species (Ramamoorthy and Rust, 1976). Two methylated species exist, methyl mercury and dimethyl mercury. The dimethyl species has very low solubility, and is not important in the environment. With biotransformation into methyl mercury, mercury can be released from sediment into the aquatic environment. Once in the aquatic environment, methyl mercury can volatilize into the atmosphere (Holm and Cox, 1974).

Mercury at Site 2 leachate is probably stabilized as elemental mercury; concentrations are consistent with mercury solubility. The mercury is stabilized in leachate sediments, and its ultimate fate is probably in this medium. Methylation is not believed to be a significant process, due to the relatively high levels of mercury reported in leachate sediments (i.e., LT-203). Organisms living in the seep sediments could potentially by impacted by mercury.

DDT also has a strong propensity to adhere to soils, and sorption is the dominant fate of DDT in soil and surface water (Kenaga and Goring, 1978). Therefore, DDT will sorb to soil and ultimately biodegrade. Two major processes direct degradation of DDT. First, aerobic degradation results in the formation of DDE; and second, anaerobic degradation typically results in the formation of DDD (Johnsen, 1976). DDT and its metabolites have low water solubility, which minimizes migration in the environment (Weil and Quentin, 1973). Consequently, the ultimate fate of DDT in Site 2 leachate will be stabilization in sediments, with degradation to DDE and/or DDD, and slower biodegradation to other simpler degradation products. Organisms living in sediments could potentially be impacted by DDT and its metabolites that are stabilized in the sediments.

PAHs are relatively stable in the soil environment, due to high sorption properties. The ultimate fate of PAHs in stream sediment probably is sorption to sediment, followed by slow biodegradation (Edwards, 1983). PAHs typically have low solubility in water, further limiting PAH transport properties (Neft, 1979). Once PAHs are deposited in sediment, physical forces such as local turbulence and currents will affect the distribution and downstream migration of PAHs.

The fate of the shallow groundwater inorganic plume at Site 2 is discharge to Mere Brook beaver marsh. Inorganics dissolved in groundwater will remain in solution until solubility is reached; solubility of these inorganics is a function of the nature of the dissolved species (Garrels, 1960). Inorganics typically do not sorb strongly to soil, and concentration in groundwater downgradient of the source area will be determined by dispersion. Concentrations of dissolved inorganics in Site 2 shallow groundwater are well

Click Here to Return to Main Index

below solubility limits, permitting dissolved inorganics to migrate with groundwater and discharge to Mere Brook beaver marsh.

Hydrogeologic calculations predict that inorganics in groundwater reached Mere Brook beaver marsh by the mid-1960s at the latest. The presence of leachate at the seep locations and the elevated level of inorganics in the downgradient monitoring wells (i.e., MW-213 and MW-104) are consistent with this scenario.

Click Here to Return to Main Index

Click Here to Return to Main Index

8.0 ACID/CAUSTIC PIT: SITE 4

8.1 DESCRIPTION AND HISTORY: SITE 4

Site 4, the Acid/Caustic Pit, reportedly consisted of a small, open pit used for liquid wastes disposal. The site is currently covered by the eastern end of Building 584 at the active DRMO facility (Figure 8-1). Conflicting reports exist concerning dates of operation, although the disposal pit does appear to have been used actively during part of the 1960s through 1974 or 1975. Wastes reportedly disposed of in the pit included transformer oil, battery acid, caustics, TCE and other solvents, and paint thinners. Reportedly, quantities were substantial, but this cannot be confirmed.

8.2 TECHNICAL APPROACH: SITE 4

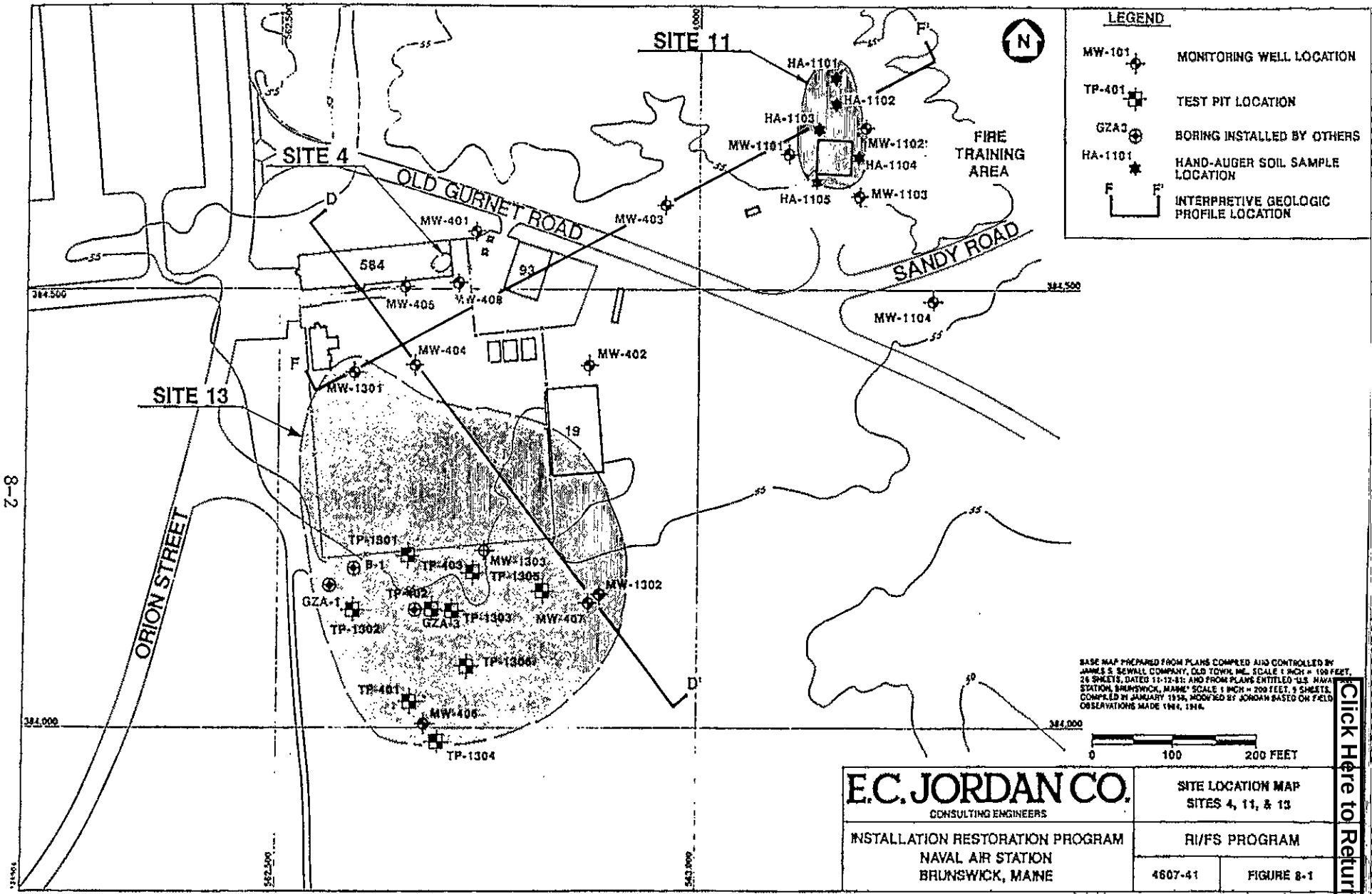
The technical approach and rationale of investigations at Site 4 are described in this subsection. Table 8-1 summarizes 1988 and 1989 field programs at the site. Data from the PAC Study was limited; however, groundwater movement was thought to be southeasterly. This, coupled with the fact that the exact location of the Acid/Caustic Pit is uncertain, led to additional explorations in the 1988 field program. The purpose of this work included accurate determination of groundwater flow direction, assessment of groundwater quality for TCL organics and inorganics downgradient from the reported pit location, and to more closely locate and characterize the source. The program included a soil gas survey, installation of two monitoring wells, collection of soil and groundwater samples, and aquifer permeability tests. Also, a review of historic information and aerial photographs and discussions with base personnel were conducted to help determine the site location.

Based on a review of available photographs and results of the soil gas survey, the two borings (i.e., MW-404 and MW-405) were placed near and downgradient from the source. Although high levels of halocarbons were detected locally in the vadose zone near Building 584 during the 1988 soil gas survey, laboratory analyses of soil and groundwater detected only traces of VOC contamination, presumably residual contamination from the period when the disposal pit was active.

In the 1989 field season, one additional monitoring well, MW-408, was located by the southeastern corner of Building 584 to characterize groundwater immediately downgradient of the former pit (see Figure 8-1). This completed a line of monitoring wells, including MW-405 and MW-401, adjacent to the former pit. Monitoring wells MW-402, MW-403, and MW-404, farther away from the building, provided information on contamination downgradient from the Acid/Caustic Pit.

8.3 GEOLOGY: SITE 4

Six borings were drilled in the area defined as Site 4. Geologic profiles D-D' and F-F' show a stratigraphic section of this area (Figures 8-2 and 8-3). The



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SITE LOCATION MAP
SITES 4, 11, & 13

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41 | FIGURE 8-1

8-2

Click Here to Return to Main Index

Click Here to Return to Main Index

TABLE 8-1
RI PROGRAM SUMMARY - SITE 4

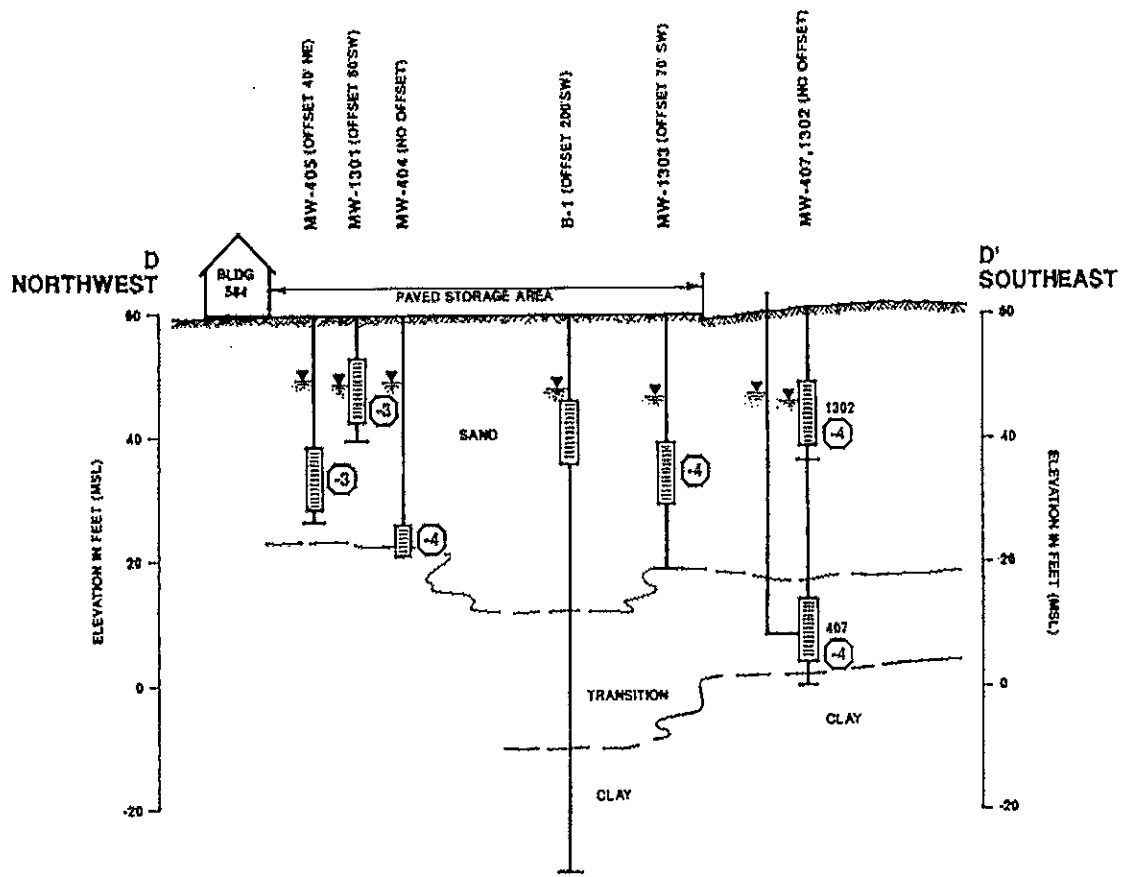
REMEDIAL INVESTIGATION
NAS BRUNSWICK

1988 FIELD PROGRAM

- o 19 soil gas points
- o Two test borings with monitoring wells
- o In situ aquifer permeability testing
- o Sampling of soil and groundwater for laboratory analysis

1989 FIELD PROGRAM

- o One test boring with monitoring well
- o In situ aquifer permeability testing
- o Groundwater sampling for laboratory analysis
- o Surface soil sampling to evaluate public health exposure



GEOLOGIC PROFILE D-D'

LEGEND

MW-101 MONITORING WELL

GROUND SURFACE

WATER LEVEL (10/24/89)

-3 WELL SCREEN

BOTTOM OF EXPLORATION

NOTES: PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE EXPLORATIONS. ACTUAL CONDITIONS BETWEEN EXPLORATIONS MAY VARY FROM THOSE SHOWN.

-3 ORDER OF MAGNITUDE OF HYDRAULIC CONDUCTIVITY IN CENTIMETERS/SECOND (i.e., 10^{-3} cm/sec.).

LOCATION OF PROFILE SHOWN IN FIGURE 8-1

GEOLOGIC DESCRIPTIONS:

SAND - TAN TO LIGHT BROWN FINE SAND, TRACE TO LITTLE MEDIUM SAND, TRACE SILT, POORLY GRADED, LOOSE TO MEDIUM DENSE, DRY TO SATURATED, SLIGHTLY STRATIFIED WITH DEPTH.

TRANSITION - BROWN TO GRAY FINE SAND AND SILTY, FINE SAND, TRACE CLAY, STRATIFIED WITH SILT AND CLAY LENSES, POORLY GRADED, NON TO SLIGHTLY PLASTIC, SOFT IN PLACES, SATURATED.

CLAY - GRAY, SILTY CLAY TO CLAYEY SILT (ROCK FLOUR), MEDIUM TO HIGH PLASTICITY, VERY SOFT, SATURATED.

VERTICAL EXAGGERATION = 5:1

0 100 200FEET

E.C. JORDAN CO. CONSULTING ENGINEERS	GEOLOGIC PROFILE D-D' SITES 4 & 13	
	RI/FS PROGRAM	
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	4607-41	FIGURE 8-2

8-4

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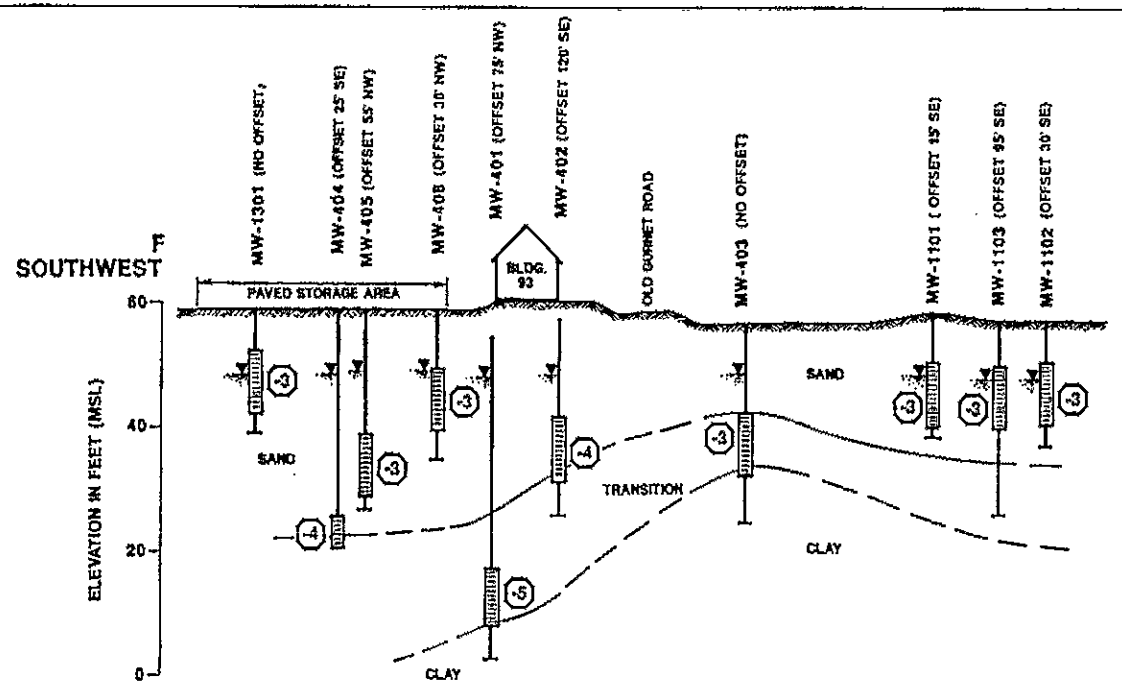


GEOLOGIC PROFILE F-F'

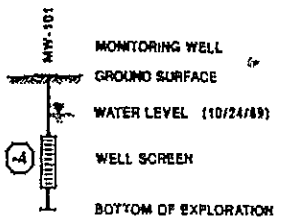
GEOLOGIC DESCRIPTIONS:

SAND - TAN TO LIGHT BROWN FINE SAND, TRACE TO LITTLE MEDIUM SAND, TRACE SILT, POORLY GRADED, LOOSE TO MEDIUM DENSE, DRY TO SATURATED, SLIGHTLY STRATIFIED WITH DEPTH.

TRANSITION - BROWN TO GRAY FINE SAND AND SILTY, FINE SAND, TRACE CLAY, STRATIFIED WITH SILT AND CLAY LENSES, POORLY GRADED, NON TO SLIGHTLY PLASTIC, SOFT IN PLACES, SATURATED.

CLAY - GRAY, SILTY CLAY TO CLAYEY SILT (ROCK FLOUR), MEDIUM TO HIGH PLASTICITY, VERY SOFT, SATURATED.

LEGEND



NOTES:

PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE EXPLORATIONS. ACTUAL CONDITIONS BETWEEN EXPLORATIONS MAY VARY FROM THOSE SHOWN.

(-4) ORDER OF MAGNITUDE OF HYDRAULIC CONDUCTIVITY IN CENTIMETERS / SECOND (i.e., 10^{-4} cm/sec.).

LOCATION OF PROFILE SHOWN IN FIGURE 8-1

VERTICAL EXAGGERATION 5:1

0 100 200 FEET

E.C. JORDAN CO. CONSULTING ENGINEERS	GEOLOGIC PROFILE F-F' SITES 4, 11, 13	
	RI/FS PROGRAM	
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	4607-41	FIGURE 8-3

Click Here to Return to Main Index

Click Here to Return to Main Index

profiles show upper sands varying in thickness from 14 to 36 feet. Two deeper borings, MW-401 and MW-403, advanced into marine clay, show a transition zone thickness of 9 and 18 feet, respectively. A moderate rise in the upper surface of the marine clay is seen at MW-403. The clay surface slopes down to the east and west from this local high.

8.4 HYDROGEOLOGY: SITE 4

Site 4 hydrogeology was assessed with 14 monitoring wells, including three wells associated with Site 13 immediately to the south. A water table contour map was constructed based on water levels in the shallower monitoring wells at the site (Figure 8-4). Shallow groundwater movement beneath Site 4 is to the south-southeast, toward the eastern end of Site 1. Site 4 is presumed to be a former source that contributed historically to the eastern plume now traversing Site 1. Liquid wastes disposed of in the pit were introduced as slugs of mixed contaminants that have since migrated away and constitute a portion of the eastern plume. Site stratigraphy consists of sand over transitional strata over clay at moderate depths (approximately 60 to 70 feet). The clay defines the bottom of the shallow, unconfined aquifer.

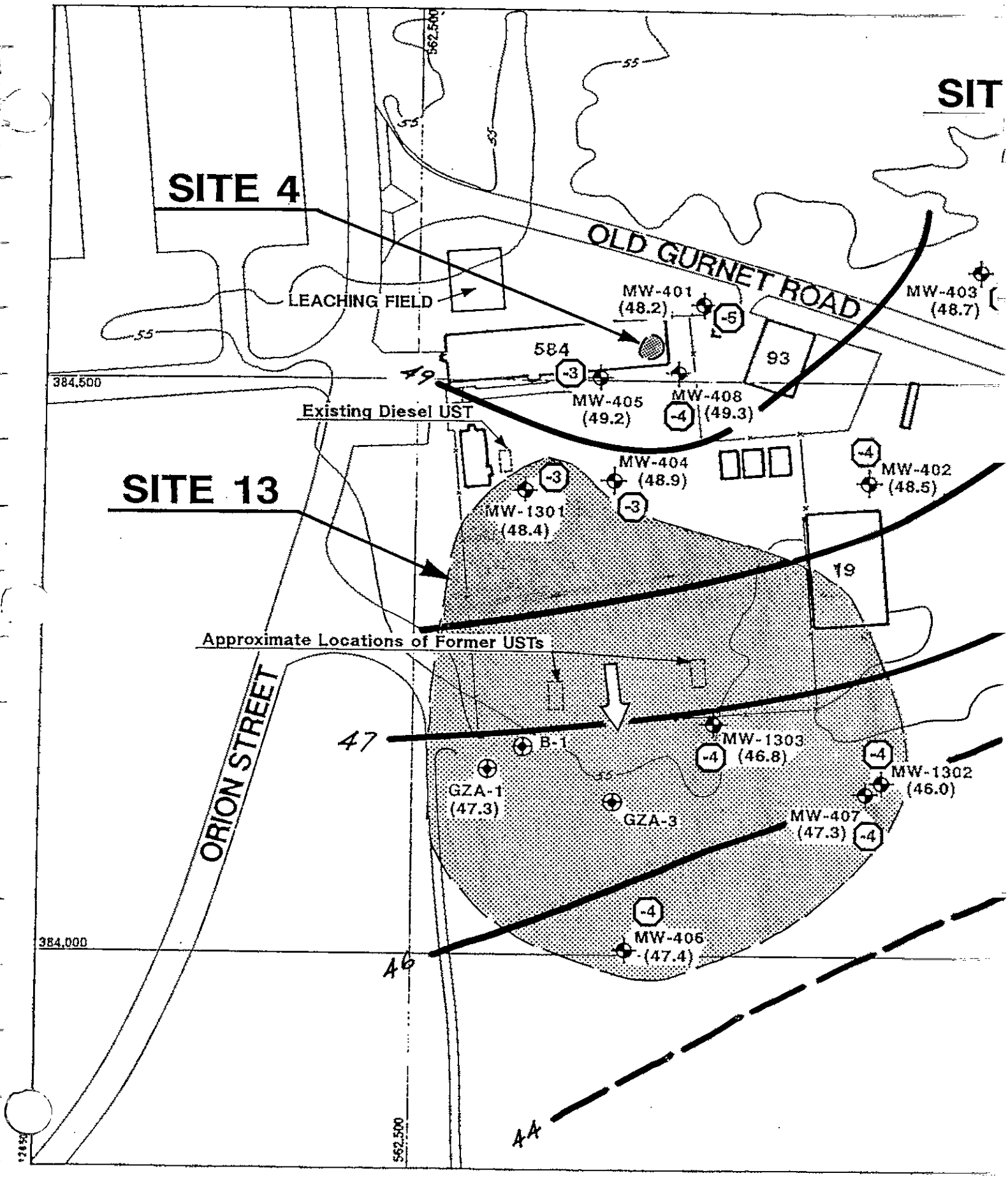
In situ hydraulic conductivities at Sites 4 and 13 range from 9.8×10^{-5} to 5.13×10^{-3} cm/sec (see Table 4-3 and Figures 8-2, 8-3, and 8-4). The geometric mean of hydraulic conductivities obtained in 11 wells from Sites 4 and 13 is 6.4×10^{-4} cm/sec. Hydraulic gradients across the two sites are relatively low, ranging from approximately 0.008 to 0.009 feet/foot in the direction of groundwater movement, which is south-southeast towards Mere Brook beaver marsh and the eastern end of Site 1 (see Figure 6-2). With gradients of 0.008 and 0.009, an effective porosity of 0.25, and the minimum and maximum calculated, groundwater seepage velocity beneath Site 4 could range from 3 feet per year to 191 feet per year. As groundwater moves south of Sites 4 and 13, the gradient increases slightly and Ks increase substantially. Groundwater flow in this area is presumed to be close to horizontal.

8.5 NATURE AND EXTENT OF CONTAMINATION: SITE 4

This subsection contains the results of field studies and environmental sampling at Site 4.

8.5.1 Soil Gas Survey: Site 4

A soil gas survey was conducted at Site 4 during June 1988. The survey, done by Tracer, included analyses for the compounds F-113, $CHCl_3$, TCE, TCA, PCE, benzene, toluene, xylene, and THC. Nineteen soil gas points (i.e., SG-1 through SG-15, SG-187, SG-188, SG-207, and SG-208) were established at Site 4. Locations of the 19 soil gas points are shown in Figure 8-5 and results of the survey are shown in Figures 8-6 and 8-7. Soil gas data are also included in Appendix D. Hydrocarbons were detected only at SG-15; detected compounds included xylenes (5 μg/L), benzene (220 μg/L), toluene (990 μg/L), and THC (3200 μg/L). Halocarbons were detected at four soil gas locations including SG-11, SG-12, SG-13, and SG-14. The compounds Freon-113 (F-113) and TCA were detected at all four soil gas locations with a range in concentrations from 2 μg/L (SG-14) to 420 μg/L


SIT
SITE 4
OLD GURNET ROAD
LEACHING FIELD
MW-401
(48.2)
-5
MW-403
(48.7)
584
93
-3
49
384,500
MW-405
(49.2)
MW-408
(49.3)
-4
Existing Diesel UST
SITE 13
MW-404
(48.9)
-3
-4
MW-402
(48.5)
MW-1301
(48.4)
-3
19
Approximate Locations of Former USTs
ORION STREET
47
B-1
MW-1303
(46.8)
-4
-4
MW-1302
(46.0)
GZA-1
(47.3)
GZA-3
MW-407
(47.3)
-4
-4
MW-406
(47.4)
384,000
46
AA
562,500
124,500

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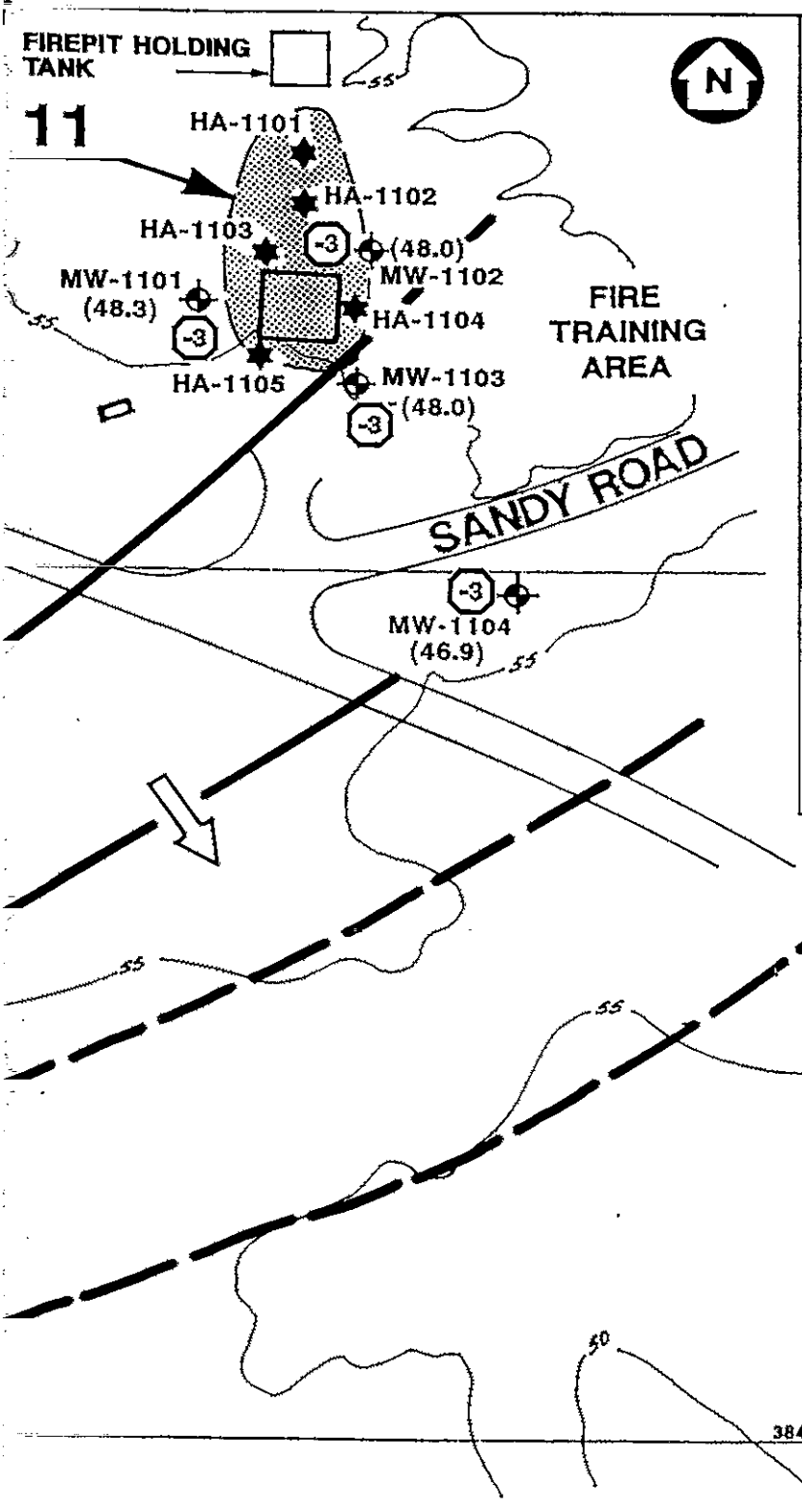

LEGEND

- MW-101 — EXISTING MONITORING WELL LOCATION
- GZA3 — BORING INSTALLED BY OTHERS
- HA-1101 — HAND AUGER SOIL SAMPLE LOCATION
- 46 — APPROXIMATE GROUNDWATER SURFACE CONTOUR
- (46.1) — MEASURED WATER ELEVATION 10/24/89 (FT. MSL)
- INFERRED DIRECTION OF GROUNDWATER MOVEMENT
- -4 — ORDER OF MAGNITUDE OF HYDRAULIC CONDUCTIVITY IN CENTIMETERS / SECOND (i.e., 10^{-4} cm/sec.).
- EXTENT OF SITE

BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME., SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 9 SHEETS, COMPILED IN JANUARY 1958; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1988.

384,000

0 100 200 FEET

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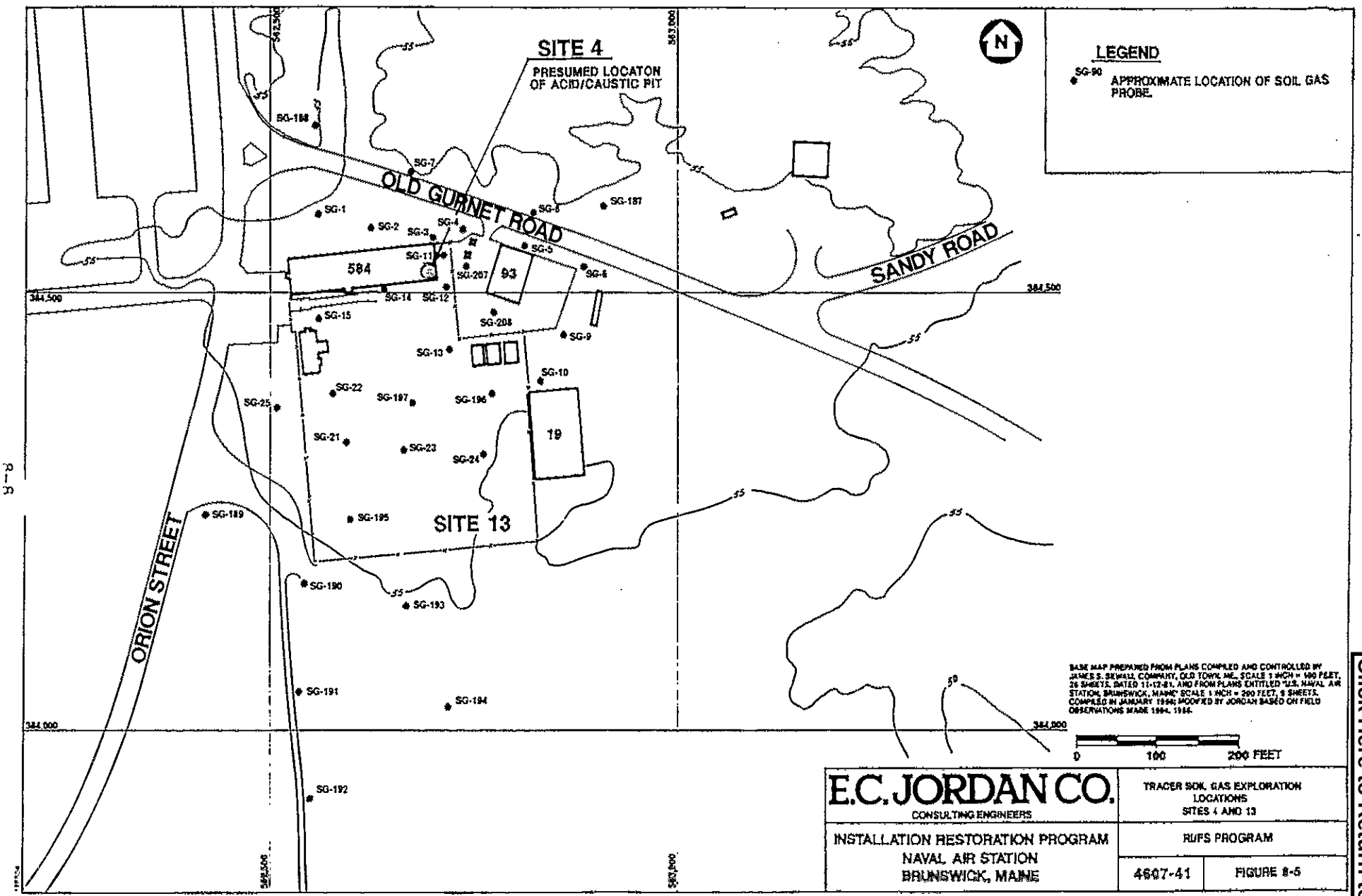
WATER TABLE CONTOUR MAP
SITES 4, 11, & 13

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41 | FIGURE 8-4



BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME., SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81, AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 5 SHEETS, COMPILED IN JANUARY 1984; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1984.

E.C. JORDAN CO. CONSULTING ENGINEERS	TRACER SOIL GAS EXPLORATION LOCATIONS SITES 4 AND 13
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
	4607-41 FIGURE 8-5

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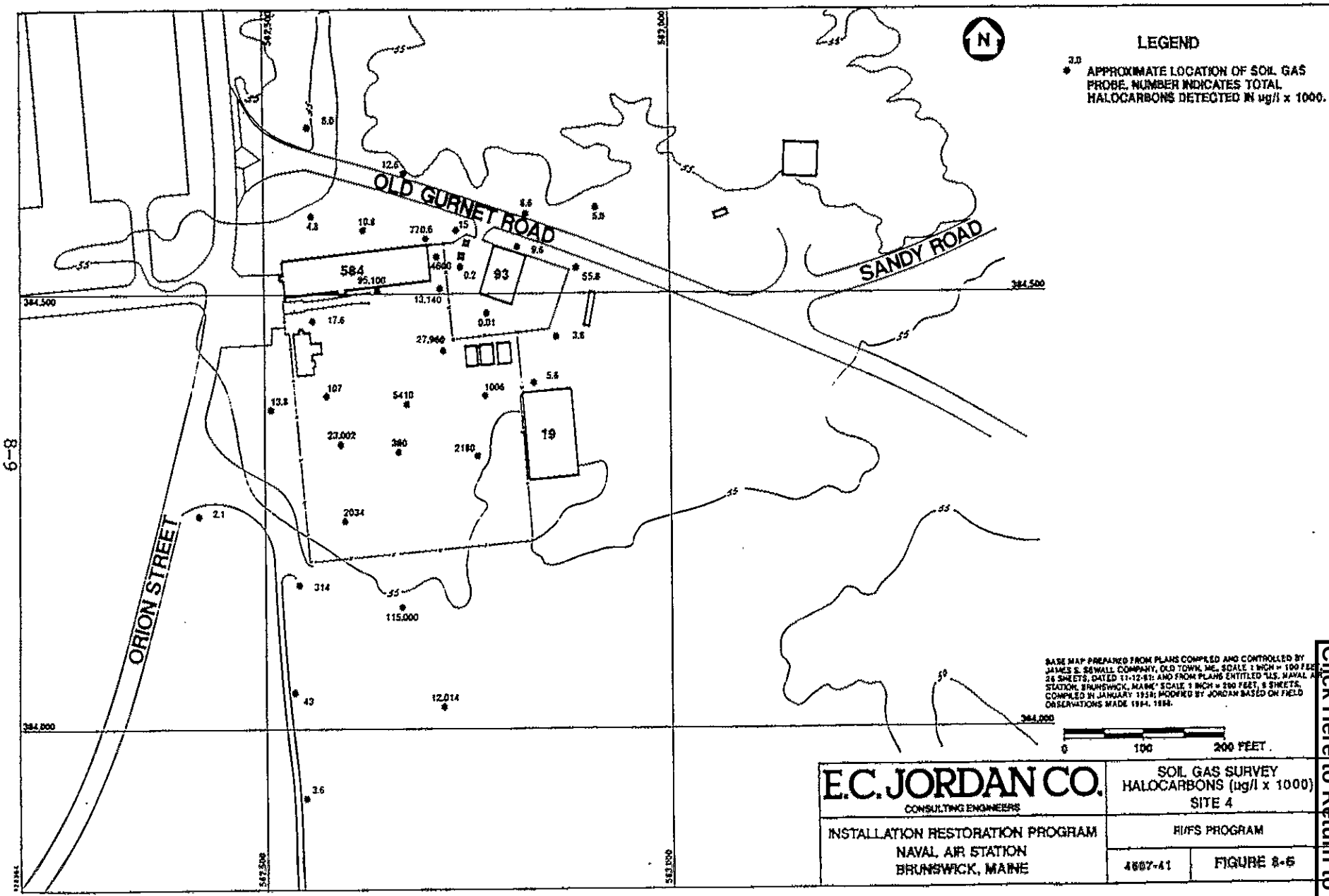

BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME., SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 5 SHEETS, COMPILED IN JANUARY 1958; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1985.

E.C. JORDAN CO. CONSULTING ENGINEERS	SOIL GAS SURVEY HALOCARBONS (ug/l x 1000) SITE 4
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
	4607-41 FIGURE 8-6

Click Here to Return to Main Index

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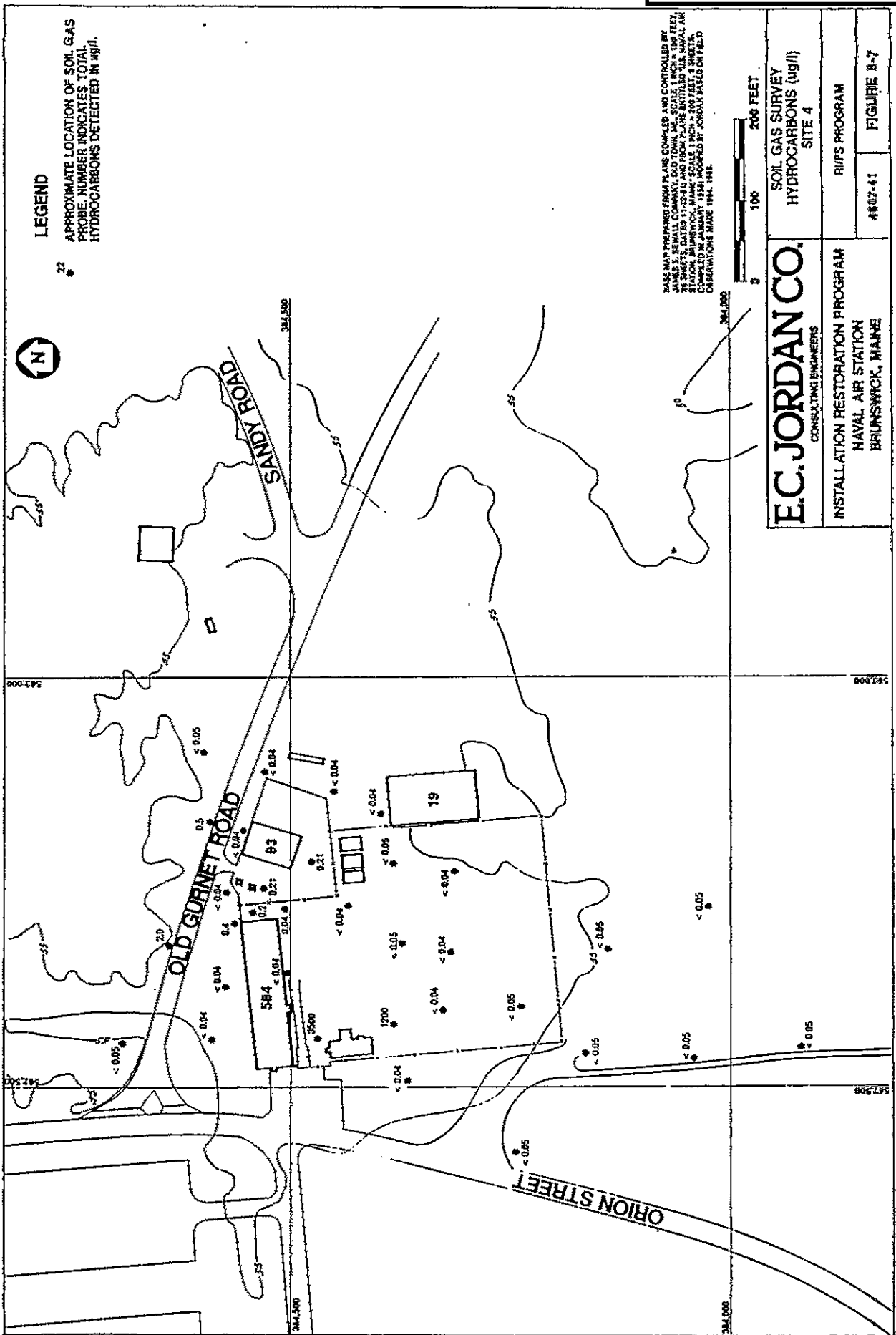

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(SG-12) for F-113, and 1 µg/L (SG-14) to 27 µg/L (SG-13) for TCA. TCE was detected only at SG-14 (94 µg/L); PCE values were less than 0.4 µg/L in all four locations.

8.5.2 Soil Borings: Site 4

Seven analytical soil samples were taken from three soil borings (i.e., MW-404, MW-405, and MW-408) during the RI/FS field program. Soil borings MW-404 (three analytical samples) and MW-405 (two analytical samples) were installed and sampled during the 1988 field season, and MW-408 (two analytical samples) was installed and sampled during the 1989 field season. Soil samples were analyzed for TCL organic and inorganic compounds (soil analytical results are in Appendices J and K). Subsection 4.5 describes how soil samples were chosen for analysis. Environmental contamination in Site 4 soils is summarized in Figure 8-8. The hold times of organic analytical soil samples obtained in 1988 from MW-404 were exceeded before analysis; so MW-404 was resampled during the 1989 field season. TCL organic compounds detected in Site 4 soils include 2-butanone (16 to 19 µg/kg) (from MW-404 and MW-405), bis(2-ethylhexyl)phthalate (480 µg/kg) (from MW-404), and di-n-butylphthalate (780 µg/kg) (from MW-404). All three compounds were reported in soil laboratory method blanks from Round I and Round IV sampling (see Appendix J). Based on the presence of these compounds in the laboratory blanks, these three common laboratory contaminants are not believed to represent actual site conditions (see Table 8-2 and Subsection 5.3.5).
TCL inorganics detected in Site 4 soil samples include aluminum, iron, and manganese; concentrations of these elements are consistent with background values (see Table 5-3).

8.5.3 Groundwater: Site 4

Six monitoring wells were installed at Site 4. Three monitoring wells were part of the PAC study (i.e., MW-401, MW-402, and MW-403); the other three monitoring wells were developed during the RI/FS program (i.e., MW-404, MW-405, and MW-408). Site 4 monitoring wells were sampled during Rounds I,II,III, and IV of the RI/FS program for TCL organic and inorganic compounds (see Table 4-2 for detailed sampling information). VOCs detected during the various sampling rounds included 2-butanone, acetone, and TCE. TCE was detected only in MW-405 during Rounds III and IV at concentrations of 6 and 23 µg/L, respectively. The compounds 2-butanone and acetone, common laboratory contaminants, were not detected in all rounds sampled, so they are not believed to represent actual site conditions (see Table 8-2 and Subsection 5.3.5). Acetone was reported in low level groundwater laboratory method blanks from all four sampling rounds and is believed to be a laboratory contaminant. The 2-butanone detection is believed to be related to equipment decontamination procedures (see Subsection 5.3.5). SVOC, PCB, and pesticide compounds were not detected in Site 4 groundwater during any RI/FS sampling rounds. Groundwater analytical data are summarized in Figure 8-9.

Inorganic TCL compounds detected in Site 4 groundwater include iron (0.16 to 0.29 milligrams per liter [mg/L]), calcium (zero to 5.22 mg/L), manganese (0.025 to 0.033 mg/L), sodium (6.3 to 23.8 mg/L), and zinc (0.027 to 0.043 mg/L). Concentrations are relatively low, and are only slightly above background levels

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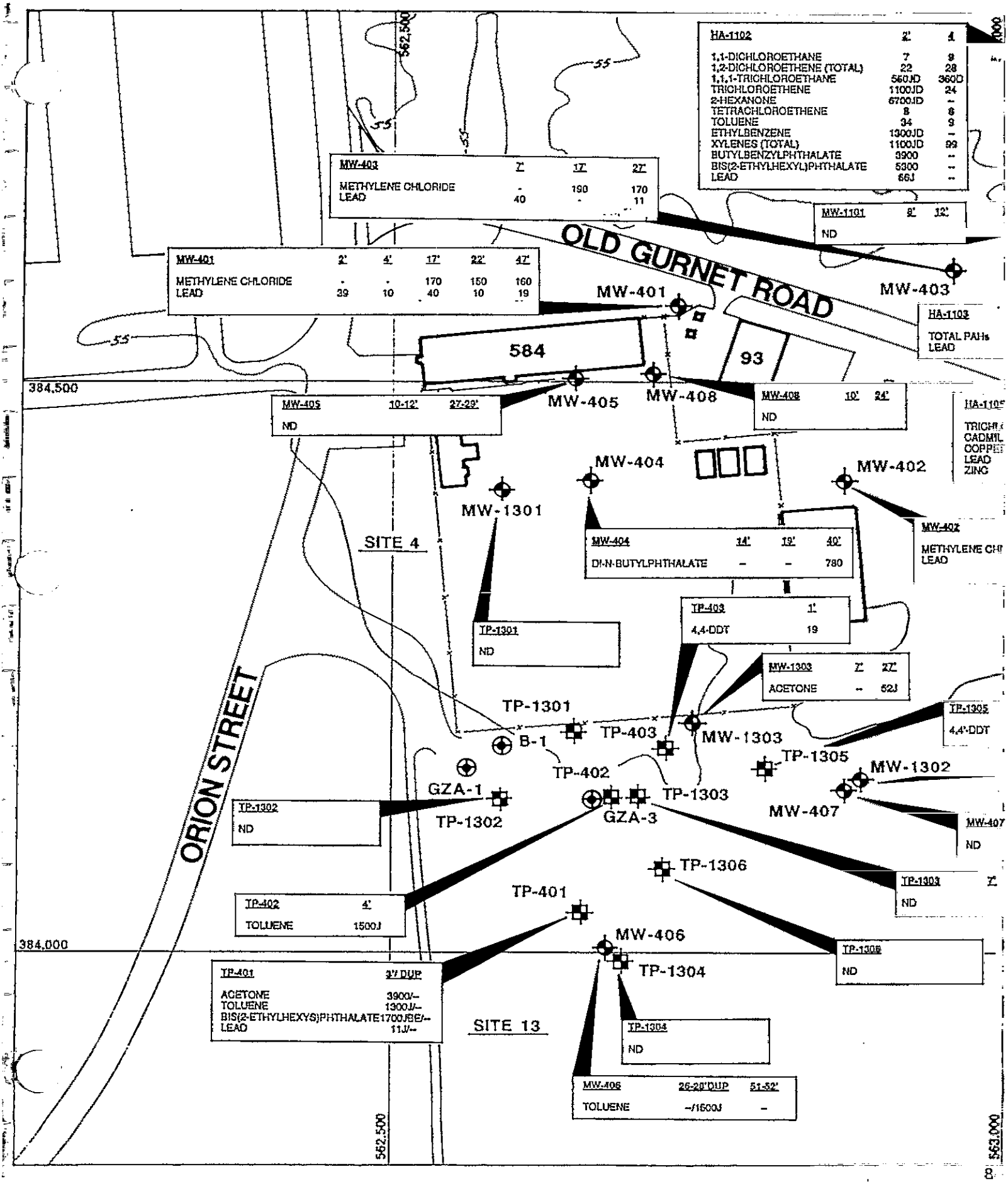

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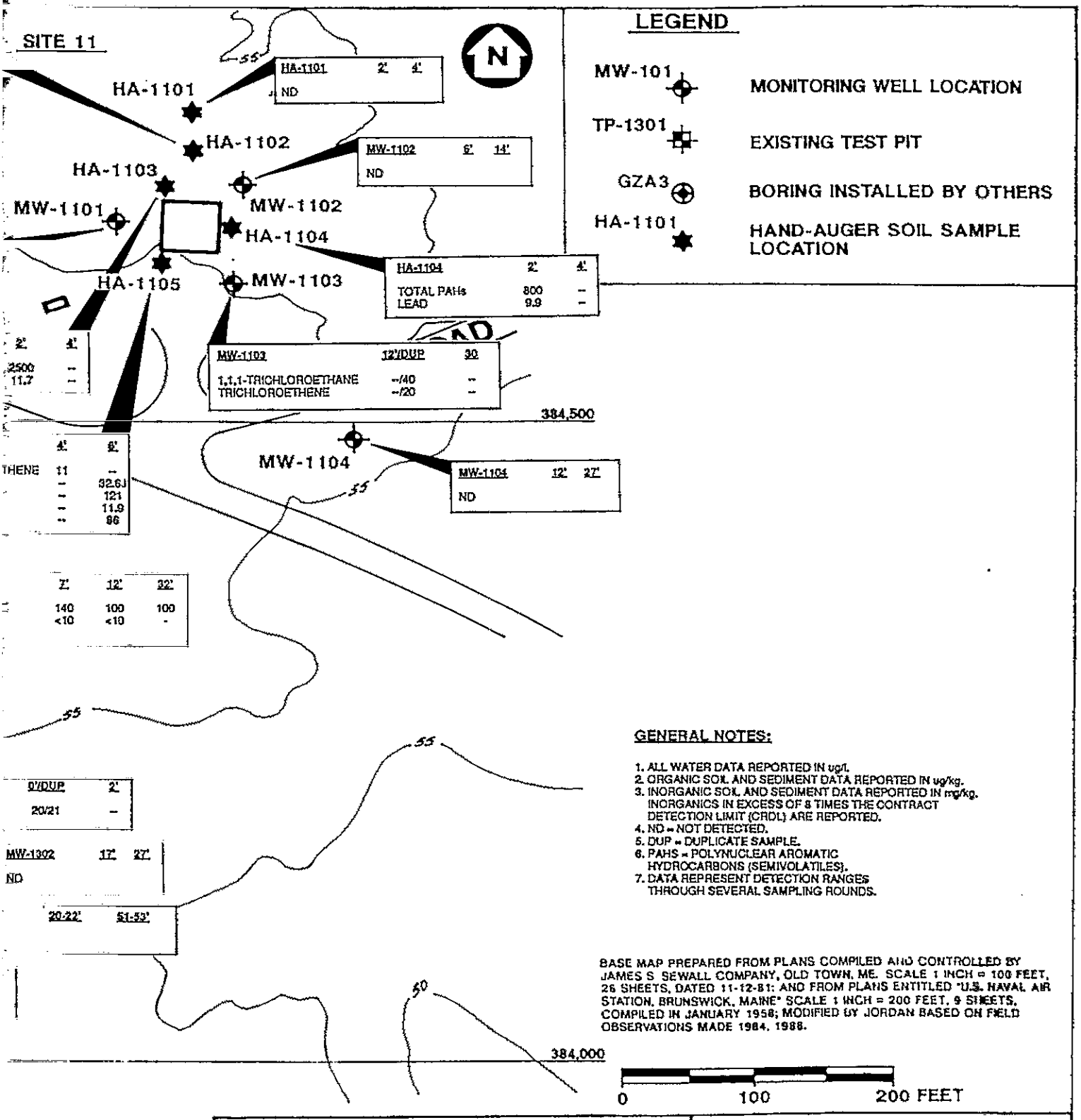

GENERAL NOTES:

1. ALL WATER DATA REPORTED IN ug/l.
2. ORGANIC SOIL AND SEDIMENT DATA REPORTED IN ug/kg.
3. INORGANIC SOIL AND SEDIMENT DATA REPORTED IN mg/kg. INORGANICS IN EXCESS OF 5 TIMES THE CONTRACT DETECTION LIMIT (CRDL) ARE REPORTED.
4. ND = NOT DETECTED.
5. DUP = DUPLICATE SAMPLE.
6. PAHS = POLYNUCLEAR AROMATIC HYDROCARBONS (SEMIVOLATILES).
7. DATA REPRESENT DETECTION RANGES THROUGH SEVERAL SAMPLING ROUNDS.

BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME. SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 9 SHEETS, COMPILED IN JANUARY 1958; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1988.

0 100 200 FEET

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SOIL CONTAMINANT DISTRIBUTION MAP
SITES 4, 11, AND 13

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41

FIGURE 8-8

TABLE 8-2
SUSPECT CONTAMINANTS: SITE 4

REMEDIAL INVESTIGATION
NAS BRUNSWICK

COMPOUND	CONCENTRATION	MEDIA	CRITERIA
2-Butanone	16-19 µg/kg (19-180 µg/L)	Soils/groundwater	Common contaminant/sporadic detection/ laboratory blanks
Bis(2-ethylhexyl)phthalate	480 µg/kg	Soils	Common contaminant/sporadic detection/ laboratory blanks
Di-n-butylphthalate	780 µg/kg	Soils	Common contaminant/sporadic detection/ laboratory blanks
Acetone	12 µg/L	Groundwater	Common contaminant/sporadic detection/ laboratory blanks
Methylene Chloride	6 µg/L	Groundwater	Common contaminant/sporadic detection/ laboratory blanks

NOTE:

µg/kg = micrograms per kilogram

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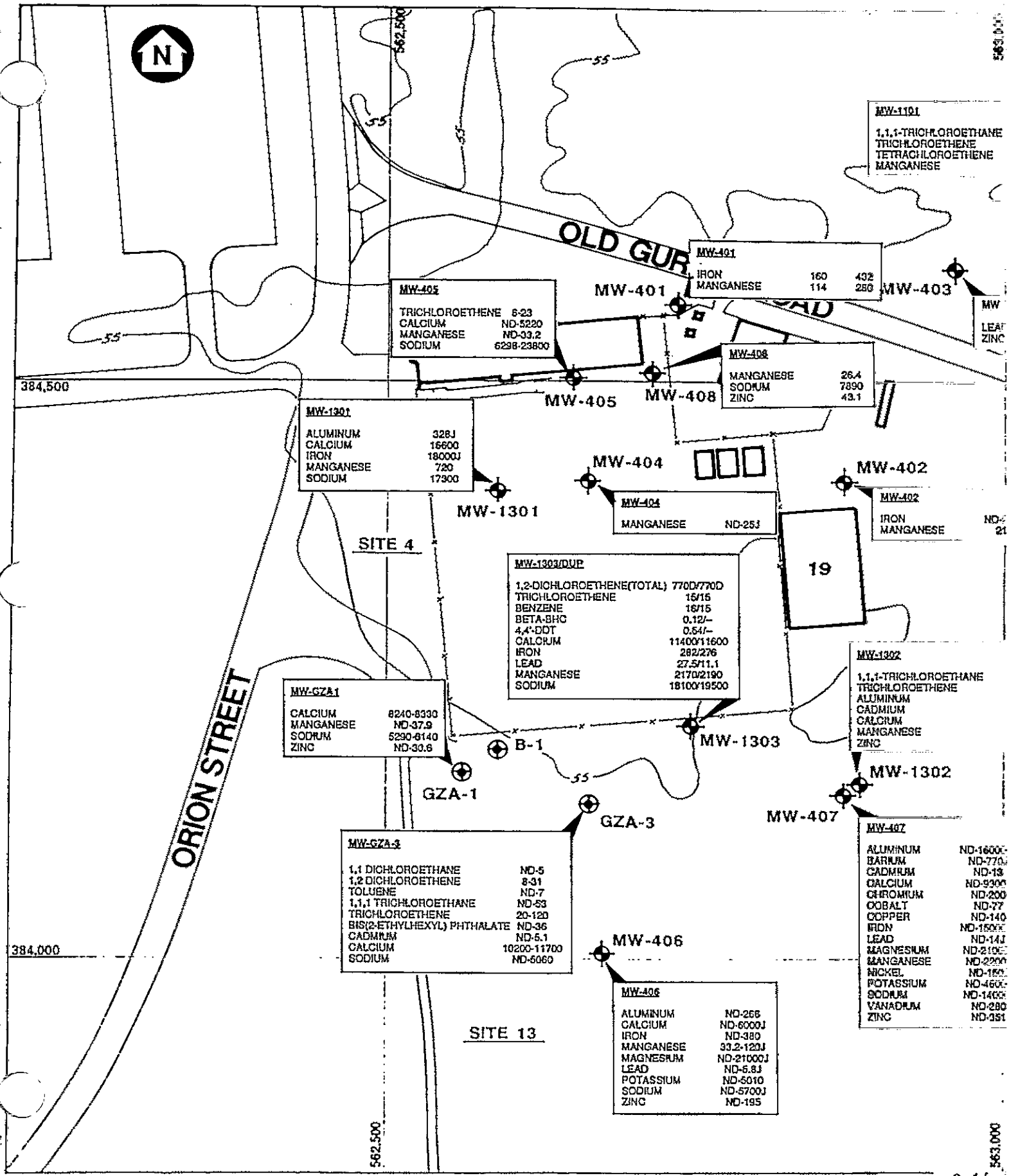

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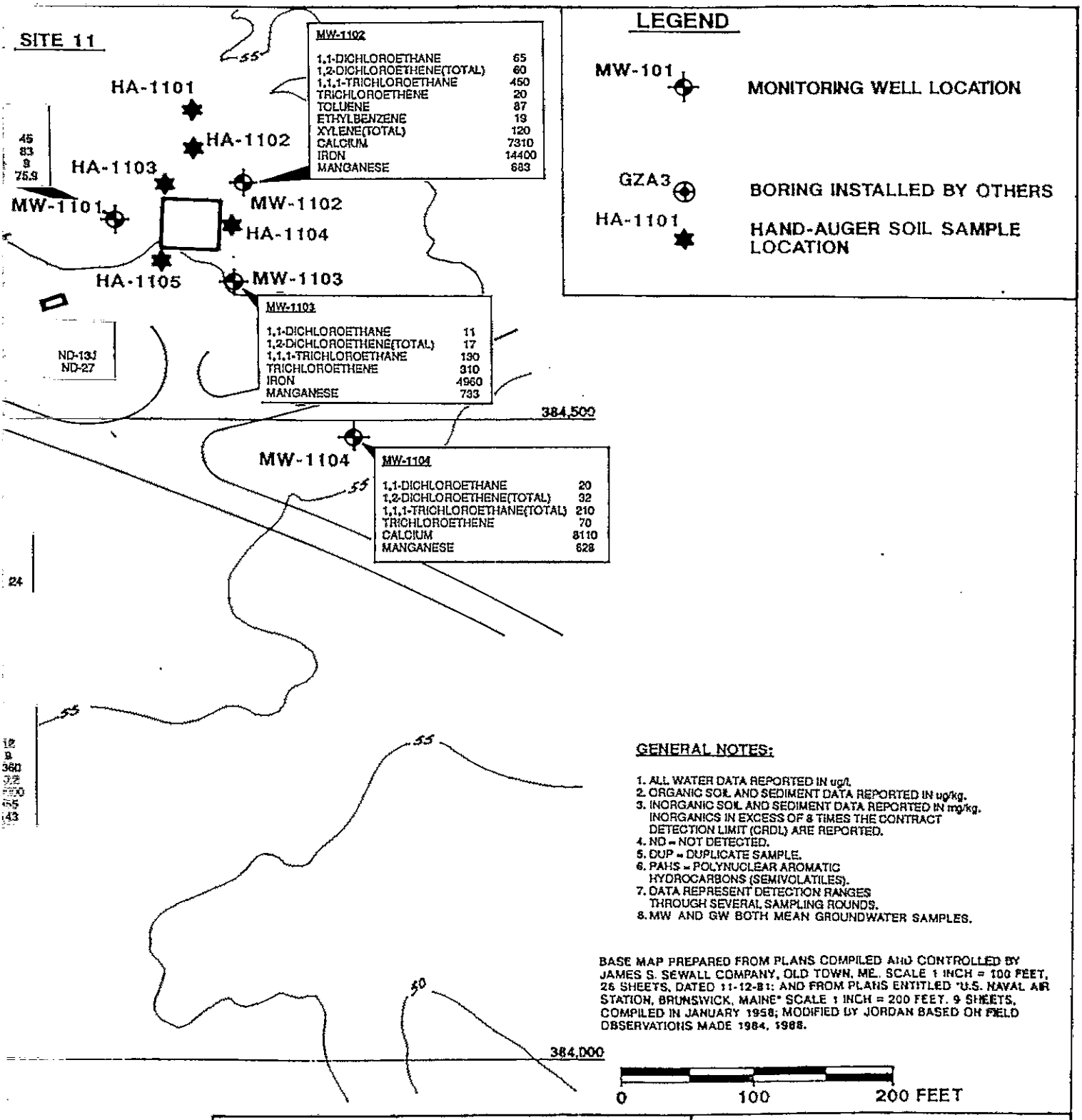

GENERAL NOTES:

1. ALL WATER DATA REPORTED IN ug/l.
2. ORGANIC SOIL AND SEDIMENT DATA REPORTED IN ug/kg.
3. INORGANIC SOIL AND SEDIMENT DATA REPORTED IN mg/kg. INORGANICS IN EXCESS OF 3 TIMES THE CONTRACT DETECTION LIMIT (CRDL) ARE REPORTED.
4. ND = NOT DETECTED.
5. DUP = DUPLICATE SAMPLE.
6. PAHS = POLYNUCLEAR AROMATIC HYDROCARBONS (SEMIVOLATILES).
7. DATA REPRESENT DETECTION RANGES THROUGH SEVERAL SAMPLING ROUNDS.
8. MW AND GW BOTH MEAN GROUNDWATER SAMPLES.

BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME. SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET. 9 SHEETS, COMPILED IN JANUARY 1956; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1988.

0 100 200 FEET

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GROUNDWATER CONTAMINANT DISTRIBUTION MAP
SITES 4, 11, AND 13

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41

FIGURE 8-9

Click Here to Return to Main Index

(see Table 5-6). Lead, however, was detected in MW-403 during sampling Rounds I and IV, ranging in concentration from 7.4 to 13 µg/L.

TOC, carbonate, and bicarbonate were also analyzed in Site 4 monitoring wells. TOC values were low, ranging from below detection (i.e., in MW-402, MW-404, and MW-405) to 1.7 mg/L (in MW-403). Carbonate was below detection in all samples, and bicarbonate concentrations varied from 4.1 mg/L (in MW-403) to 33 mg/L (in MW-401).

8.6 SUMMARY OF EXTENT OF CONTAMINATION: SITE 4

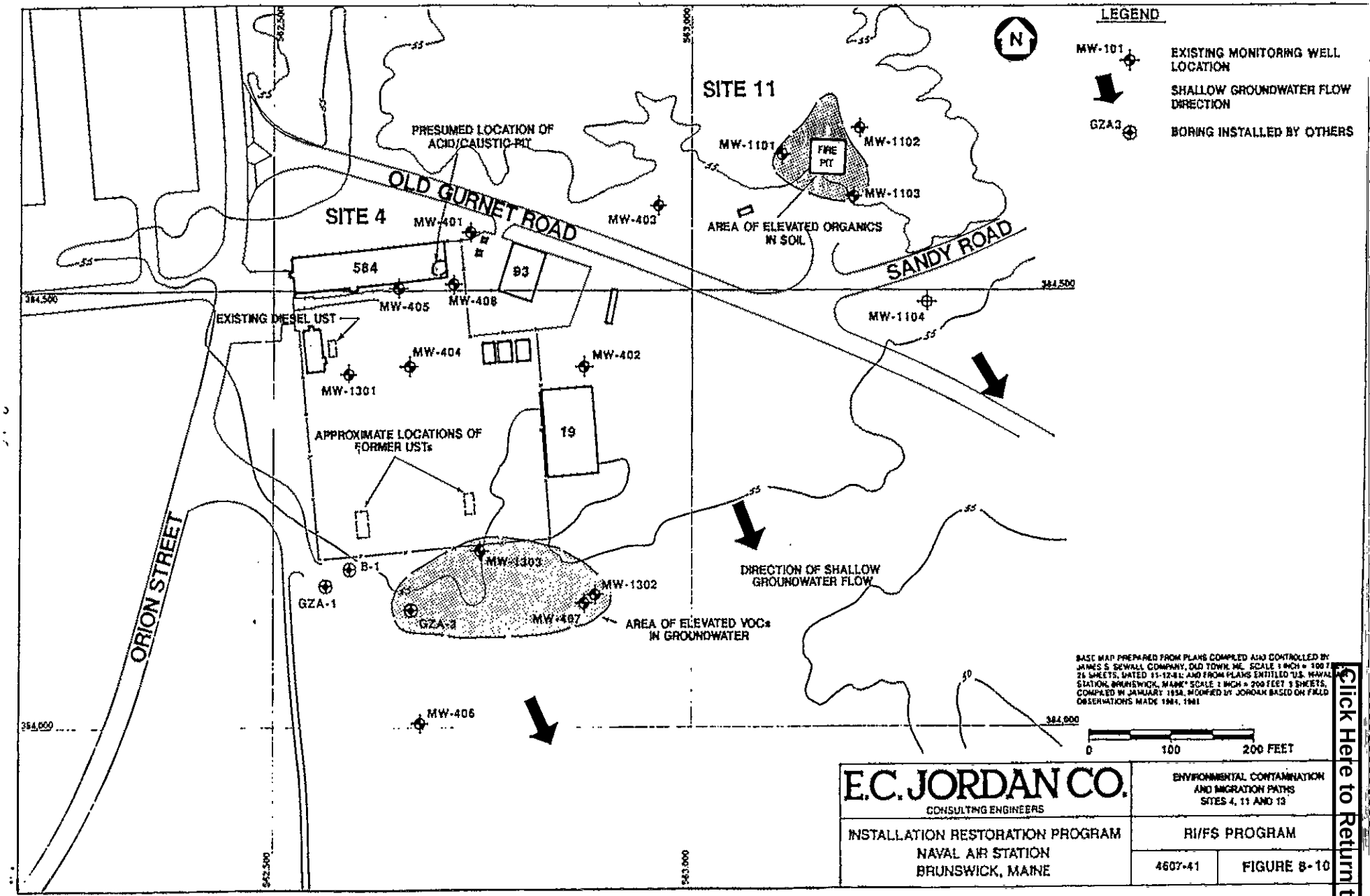
The source for potential Site 4 contamination reportedly was an Acid/Caustic Disposal Pit currently located under the eastern portion of Building 584. Figure 8-4 shows the location of the Acid/Caustic Pit and the direction of groundwater flow. Figure 8-10 shows the environmental contamination and migration paths for Sites 4, 11, and 13. Halocarbon soil gas values were high in locations near Building 584, but below detection in all other samples. Similarly, VOC contamination in groundwater is restricted to low concentrations of TCE (6 to 23 µg/L) in MW-405, which also is adjacent to Building 584. TCE in MW-405 concentrations does exceed the MCL as shown in Figure 6-34. Groundwater TCE results in MW-405 are consistent with soil gas data, because SG-14 has 94 µg/L TCE and is located in the same area as MW-405. Site 4 subsurface soils did not have contamination associated with them, but subsurface soils were not sampled directly in the source area (i.e., Acid/Caustic Pit). Lack of soil contamination next to the source area and low levels of observed groundwater contamination immediately downgradient indicates the source area is no longer seriously contaminated.

Hydrocarbons were detected only in SG-15. SG-15 is located near a diesel fuel UST (see Figure 8-5), which is probably the source of this contamination. The UST is associated with Site 13 (DRMO Area), and is discussed in Section 13.0.

Low values of lead (8 to 13 µg/L) were detected in groundwater from MW-403 during sampling Rounds I and IV, but lead was not detected during Rounds II and III or during the PAC Study. MW-403 is upgradient of the Acid/Caustic Pit location, and should not be associated with contamination from this source. The low values of lead reported and the sporadic occurrence of lead detections may be related to low-level precision, which is difficult to obtain using Graphite Furnace Atomic Absorption (GFAA) due to inherent instrument noise.

8.7 CONTAMINANT FATE AND TRANSPORT: SITE 4

Environmental contamination at Site 4 consists of low concentrations of TCE in groundwater. In soil-groundwater systems, VHOs are transported from soil to groundwater via percolation of rainwater, and can degrade to chloroethane and VC via anaerobic reductive dechlorination (Vogel and McCarty, 1985). The lack of VC and dechlorinated compounds suggests that reductive dechlorination is not the fate of TCE at Site 4. TCE will migrate downgradient with groundwater and concentrations will decrease via dilution processes and partitioning onto the soil. Soils in the Site 4 vicinity are clean sands, which minimize adsorption.



BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME. SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET 5 SHEETS, COMPILED IN JANUARY 1954, MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1985

E.C. JORDAN CO. CONSULTING ENGINEERS	ENVIRONMENTAL CONTAMINATION AND MIGRATION PATHS SITES 4, 11 AND 13
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
	4607-41 FIGURE 8-10

Click Here to Return to Main Index

Click Here to Return to Main Index

The TCE in groundwater is moving to the southeast, becoming part of the eastern plume beneath Site 1.

Click Here to Return to Main Index

Click Here to Return to Main Index

9.0 OLD ACID/CAUSTIC PIT: SITE 7

9.1 DESCRIPTION AND HISTORY: SITE 7

Site 7 is located in the northern portion of the base, west of the main entrance road (Fitch Avenue) and northeast of the fuel farm (Figure 9-1). The site is a relatively flat, open clearing surrounded by woods on three sides; the south side abuts the fuel farm. Site 7 was the Old Acid/Caustic Pit reportedly used from 1952 to 1969 for liquid wastes disposal. Wastes reportedly included transformer oil, battery acid, caustics, solvents, and other miscellaneous liquids. Based on aerial photographs, the site was also used as an outdoor storage and equipment lay-down area during this period. The site is generally sandy at ground surface with evident partially buried demolition debris.

9.2 TECHNICAL APPROACH: SITE 7

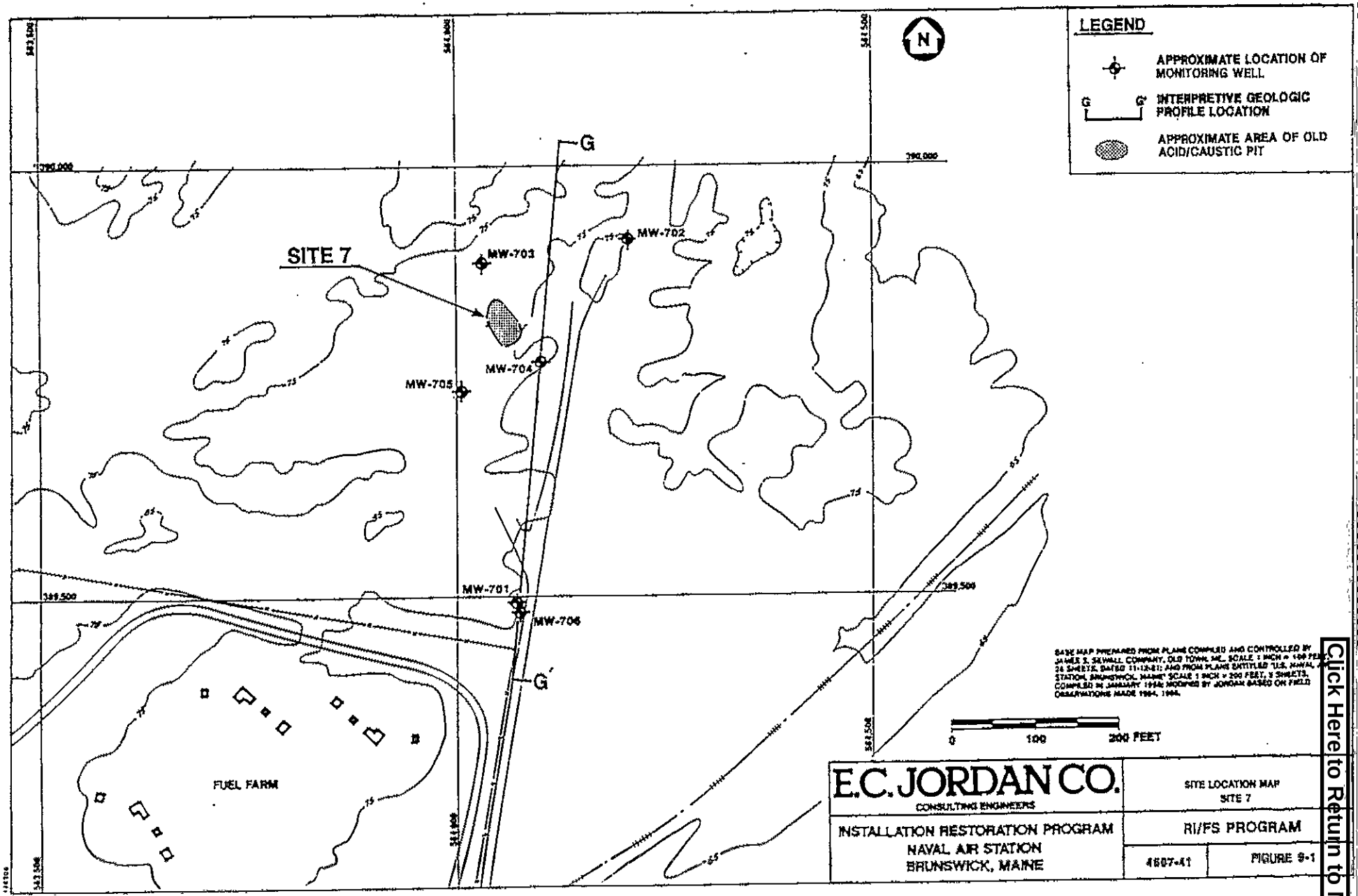
The technical approach and rationale for RI programs at Site 7 are discussed in this subsection. For the 1988 RI field program, Site 7 exploration activities were designed to better determine groundwater flow direction, locate the former disposal pit, and monitor groundwater quality for the presence of TCL organics and inorganics downgradient from the disposal pit. To meet these objectives, the 1988 exploration program included soil gas sampling, terrain conductivity and GPR surveys, installation of three monitoring wells, collection of soil and groundwater samples, and aquifer permeability testing.

Initially, a soil gas survey of 20 points was conducted. Survey results did not show any elevated readings of VOCs. This was followed by a GPR and terrain conductivity survey that identified an apparent trench in the northwestern portion of Site 7, an anomaly identified in the PAC study.

Following the geophysical survey, seven test pits were excavated. A thin stratum of blue-gray crystals was observed in two test pits (i.e., TP-702 and TP-704) in the northern portion of the site. These crystals are believed to result from liquid battery acid disposal, as reported in the IAS.

Finally, three monitoring wells were installed at the site, in addition to three existing wells installed during the PAC study. All six monitoring wells were analyzed for TCL organics and inorganics.

For the 1989 field program, 12 test pits were excavated to confirm the location of the disposal pit, and assess the areal and vertical distribution of soil contamination indicated in the soil organic vapor (SOV) survey. Soil data from test pits and test borings in the 1988 RI detected several VOCs, DDT, DDE, and generally low levels of inorganics. The 12 new test pits provided RA data for surface soil exposure and contaminated soil volumes for FS remedial alternative screening. Table 9-1 summarizes field activities conducted during the two RI programs.



BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME., SCALE 1 INCH = 100 FEET, 24 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 3 SHEETS, COMPILED IN JANUARY 1984; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1985.

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SITE LOCATION MAP
SITE 7

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41 | FIGURE 9-1

Click Here to Return to Main Index

Click Here to Return to Main Index

TABLE 9-1
RI PROGRAM SUMMARY - SITE 7

REMEDIAL INVESTIGATION
NAS BRUNSWICK

1988 FIELD PROGRAM

- 20 soil gas points
- Ground-penetrating radar and terrain conductivity surveys
- Seven test pits
- Three test borings with monitoring wells
- Soil and groundwater sampling
- In situ aquifer permeability testing

1989 FIELD PROGRAM

- Thirteen test pits
- Sampling of soils

Click Here to Return to Main Index

9.3 GEOLOGY: SITE 7

Understanding of site geology is based on three soil borings drilled in the PAC Study, three drilled in 1988, seven test pits excavated in 1988, and 13 test pits dug in 1989. Geologic profile G-G' is based on soils data obtained from the borings (Figure 9-2).

This site has shallow unconsolidated deposits with depths to bedrock (inferred from refusal depths) ranging from 20.6 to 11.7 feet (from MW-701 and MW-702, respectively). Of the six borings drilled at Site 7, four (i.e., MW-701, MW-704, MW-705, MW-706) did not show a transitional zone between the upper sands and clays, and MW-702 does not have a clay zone above the inferred rock surface. Shallow bedrock is also present beneath the tank farm southwest of Site 7, based on a review of boring logs for that site.

Test pits show the Site 7 area has 1.5 to 5 feet of fill over natural soils. Groundwater in several test pits was encountered approximately 6 feet bgs. In test pits TP-702 and TP-704, a blue substance, suspected to be acid-salts, was encountered at 2 feet. This is in an area identified by GPR as a trench. The GPR survey also reported a silty layer in the southern half of Site 7, 2 to 5 feet deep. TP-706 encountered till between 3 and 6 feet, and TP-707 penetrated a desiccated clay fill between 2 and 5 feet.

9.4 HYDROGEOLOGY: SITE 7

The hydrogeologic understanding of Site 7 is based on data from the six overburden monitoring wells. Groundwater contours were constructed based on water levels recorded in five of these monitoring wells (excluding MW-701) (Figure 9-3). Shallow groundwater movement beneath Site 7 is to the south-southeast. Hydraulic conductivities based on in situ field tests range from 3.5×10^{-4} to 6.0×10^{-3} cm/sec, with a geometric mean of 1.35×10^{-3} cm/sec (see Table 4-3 and Figures 9-2 and 9-3). Horizontal gradients calculated from water level data recorded across the site ranged from 0.007 to 0.009 feet/foot. Flow direction is essentially from north to south. With a mean hydraulic conductivity of 1.35×10^{-3} cm/sec, a gradient of 0.009 feet/foot, and an estimated effective porosity of 0.25, seepage velocity for horizontal groundwater movement is 50 feet per year.

An unusual feature of Site 7 hydrogeology is the substantial head difference between MW-701 and MW-706. These two wells are both relatively shallow, with the screened zones overlapping slightly. MW-701 is set deeper than MW-706 and penetrates the clay touching underlying till. Head differences between these two wells have consistently ranged from 7.7 to 8.3 feet (lower in MW-701). These two wells have been purged, sampled, and remeasured repeatedly, and recorded water levels appear representative of head differences at this location. The substantially lower head in MW-701 (the deeper well) apparently reflects the head in the till underlying the clay. MW-706 does not penetrate the clay stratum, and consequently measures the water level in overlying sand. The groundwater contour map depicts the potentiometric surface in the unconfined sand overlying the transition zone and clay, and therefore does not include water level data from MW-701.

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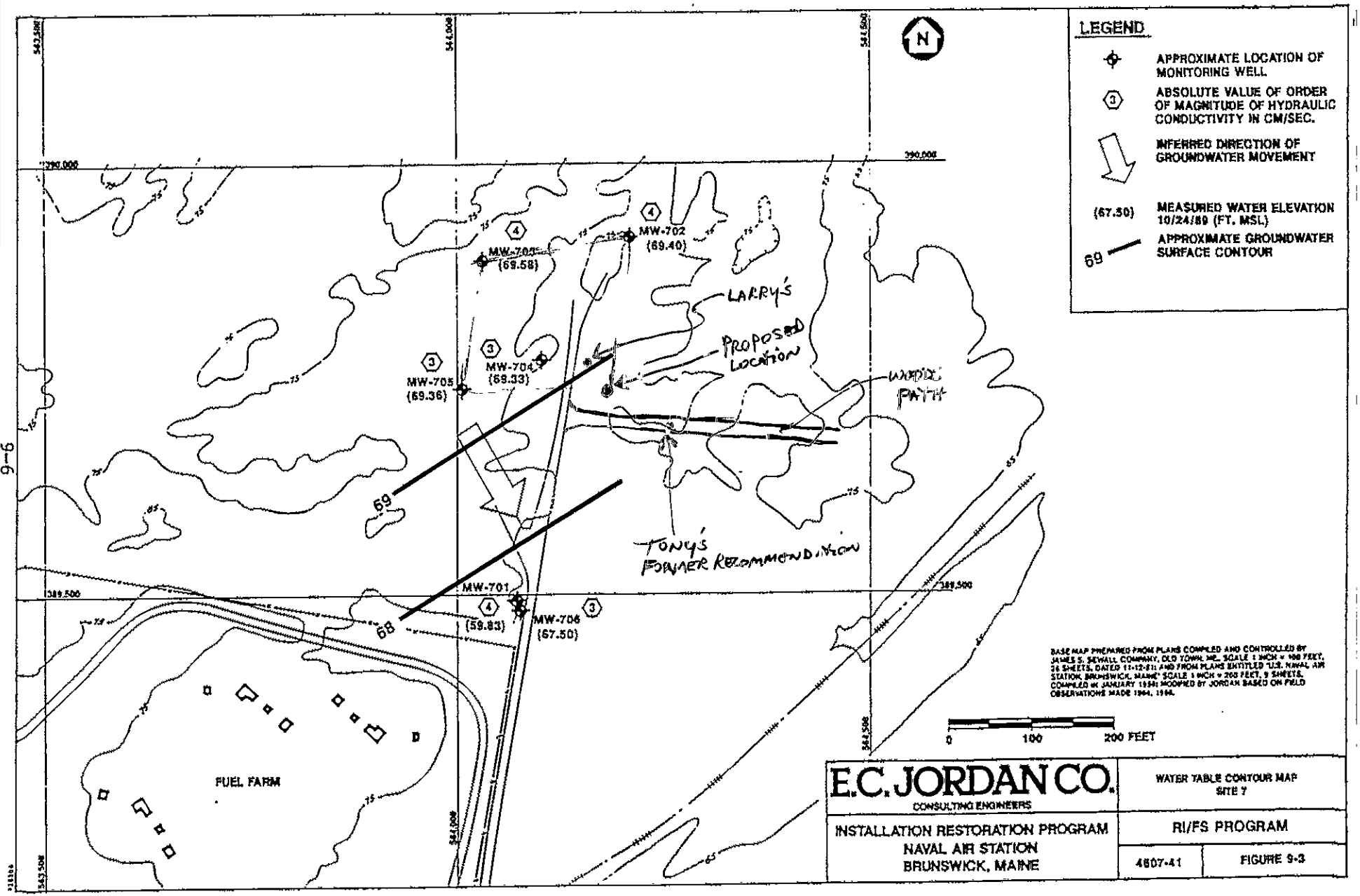

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INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

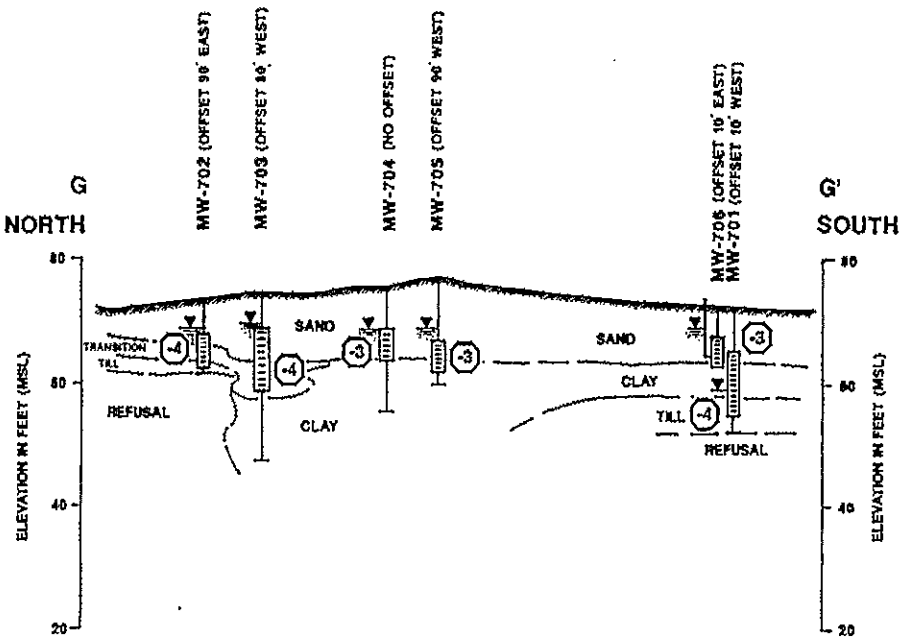
WATER TABLE CONTOUR MAP
SITE 7

RI/FS PROGRAM

4607-41 | FIGURE 9-3

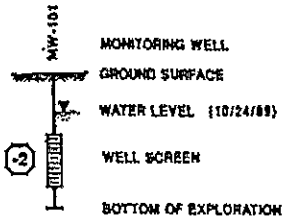
9-6

Click Here to Return to Main Index



GEOLOGIC PROFILE G-G'

LEGEND



NOTES:

PROFILES ARE BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE EXPLORATIONS. ACTUAL CONDITIONS BETWEEN EXPLORATIONS MAY VARY FROM THOSE SHOWN.

-2 ORDER OF MAGNITUDE OF HYDRAULIC CONDUCTIVITY IN CENTIMETERS / SECOND (i.e., 10^{-2} cm/sec.).

LOCATION OF PROFILE SHOWN IN FIGURE 9-1

GEOLOGIC DESCRIPTIONS:

SAND - TAN TO LIGHT BROWN FINE SAND, TRACE TO LITTLE MEDIUM SAND, TRACE SILT, POORLY GRADED, LOOSE TO MEDIUM DENSE, DRY TO SATURATED, SLIGHTLY STRATIFIED WITH DEPTH.

TRANSITION - BROWN TO GRAY FINE SAND AND SILTY, FINE SAND, TRACE CLAY, STRATIFIED WITH SILT AND CLAY LENSES, POORLY GRADED, NON TO SLIGHTLY PLASTIC, SOFT IN PLACES, SATURATED.

CLAY - GRAY, SILTY CLAY TO CLAYEY SILT (ROCK FLOUR), MEDIUM TO HIGH PLASTICITY, VERY SOFT, SATURATED.

TILL - BROWN AND MOTTLED GRAY, GRAVELLY, CLAYEY, SILTY FINE SAND TO MEDIUM SAND, DENSE TO VERY DENSE.

VERTICAL EXAGGERATION = 5:1

0 200 400FEET

E.C. JORDAN CO. CONSULTING ENGINEERS	GEOLOGIC PROFILE G-G' SITE 7	
	RI/FS PROGRAM	
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	4607-41	FIGURE 9-2

Click Here to Return to Main Index

9.5 NATURE AND EXTENT OF CONTAMINATION: SITE 7

This subsection discusses the nature and extent of contamination at Site 7.

9.5.1 Soil Gas Survey: Site 7

A soil gas survey was conducted at Site 7 in June 1988. The survey was done by Tracer and included analyses for the compounds F-113, $CHCL_3$, TCE, TCA, PCE, benzene, toluene, xylene, and THC. Twenty soil gas points (i.e., SG-41 through SG-60) were analyzed at Site 7. Locations of the soil gas points are shown in Figure 9-4 and the soil gas data are shown in Figures 9-5 and 9-6. Halocarbons were not detected at Site 7, but low levels of hydrocarbons were found in several locations. THC exceeding 1 µg/L was detected in SG-41, SG-45, SG-50, SG-51, and SG-52, with a high of 14 µg/L in SG-52. These levels are not high, but indicate the presence of subsurface hydrocarbon contamination.

9.5.2 Geophysical Surveys: Site 7

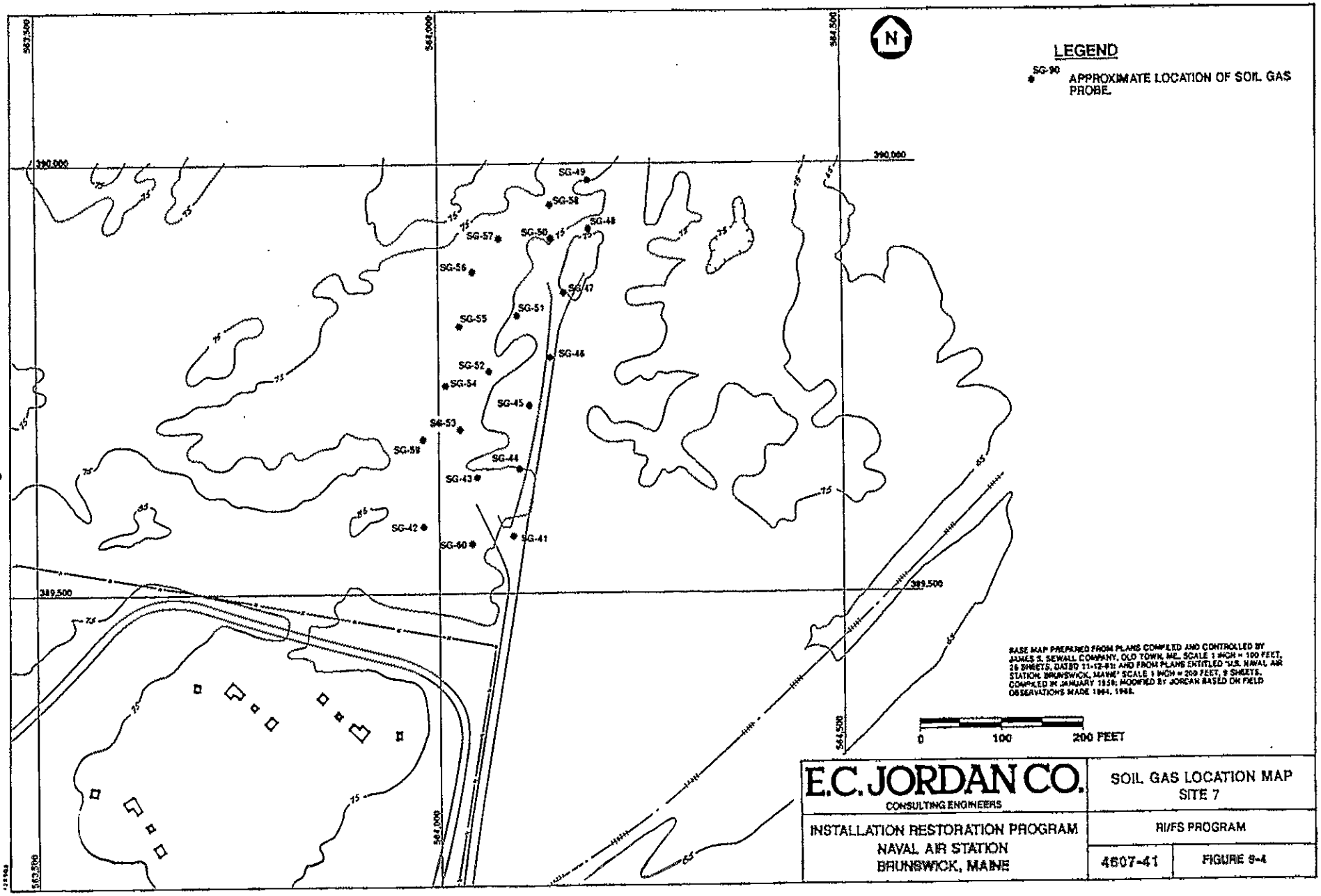
As part of the on-site exploration effort, geophysical surveys, including GPR and terrain conductivity techniques, were performed during the 1988 field program.

9.5.2.1 Ground-penetrating Radar Survey. On June 29 and 30, 1988, a GPR survey, using equipment described previously in this report, was conducted on-site with the purpose of locating the Old Acid/Caustic Pit. The survey consisted of approximately 0.8 mile of profiling along a grid established on 50-foot centers (Figure 9-7). A 12.5-foot grid of GPR measurements was taken. As primary targets of these measurements were trench boundaries and shallow refuse, the GPR system employed a 500 MHz antenna tuned to penetrate to a depth of approximately 10 to 15 feet.

Survey results are presented in Figure 9-8. The only persistent anomaly is a trench mapped in the northwestern corner of the site. There appears to be a shallow silty layer in the southern half of the site at a depth of 2 to 5 feet.

9.5.2.2 Terrain Conductivity Survey. A terrain conductivity (TC) survey using a Geonics EM-31 Terrain Conductivity Meter was performed at Site 7 on July 13, 1988. The survey used the grid referenced in Subsection 9.5.2.1, with measurements taken every 12.5 feet within the grid (see Figure 9-8). Survey results are shown as contours, with four anomalies apparent from the data.

Anomaly A, a conductivity high, is broad in extent and may be due to elevated conductivities associated with the Old Acid/Caustic Pit. Anomalies B-1 and B-2 lie within a north-south trending zone of low positive and negative conductivity values. The source of this zone is unknown, but is assumed to be



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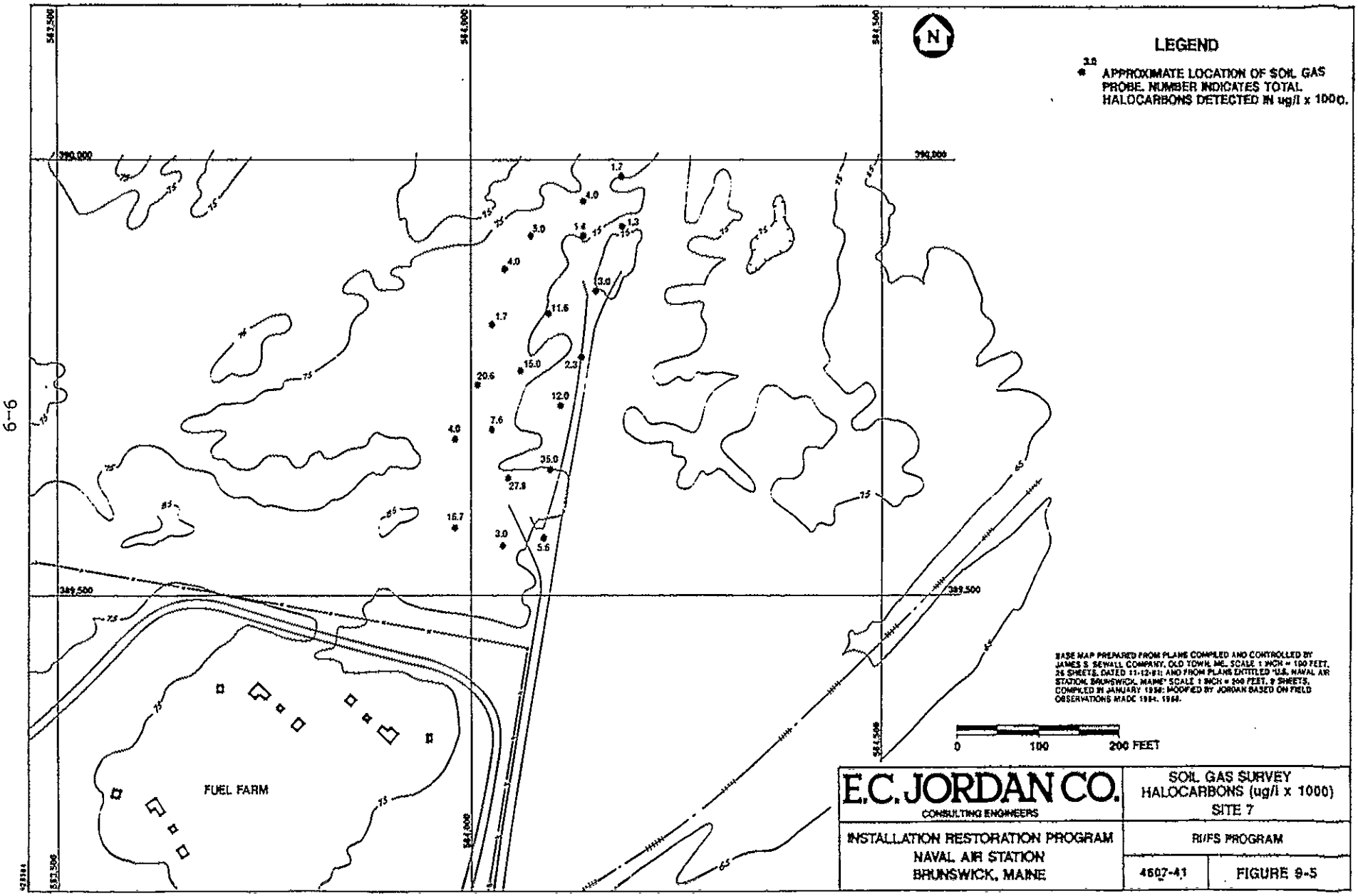

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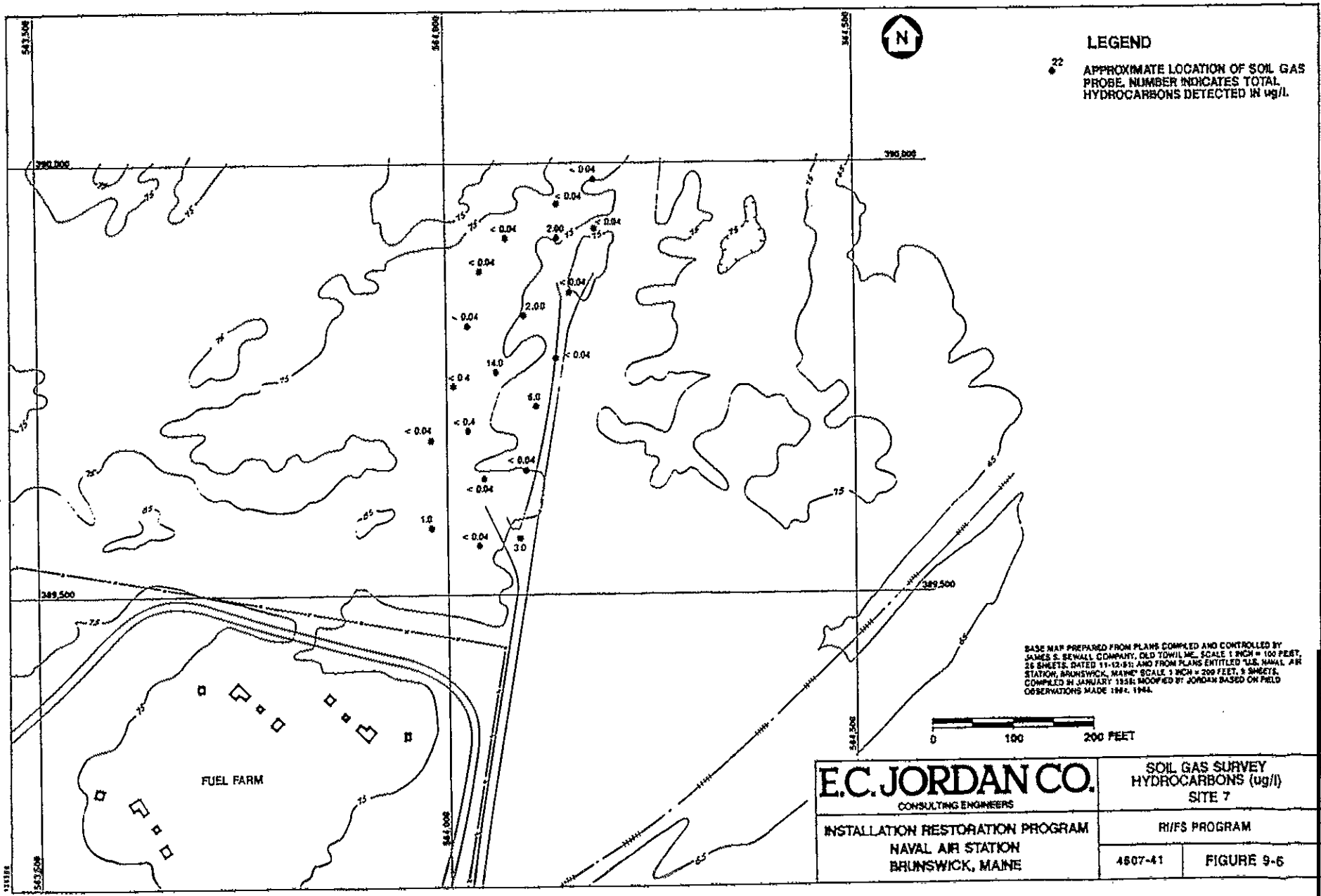

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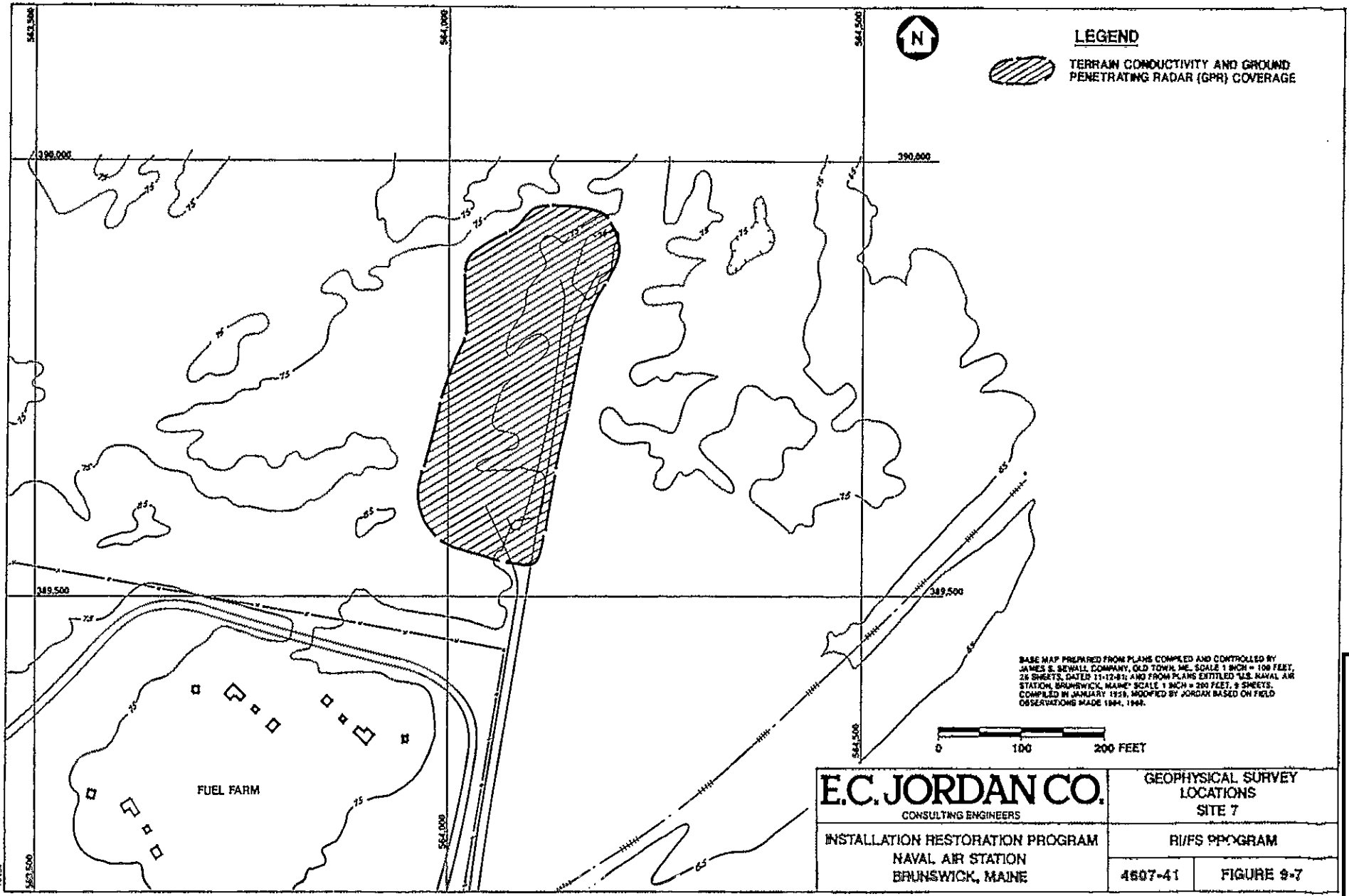

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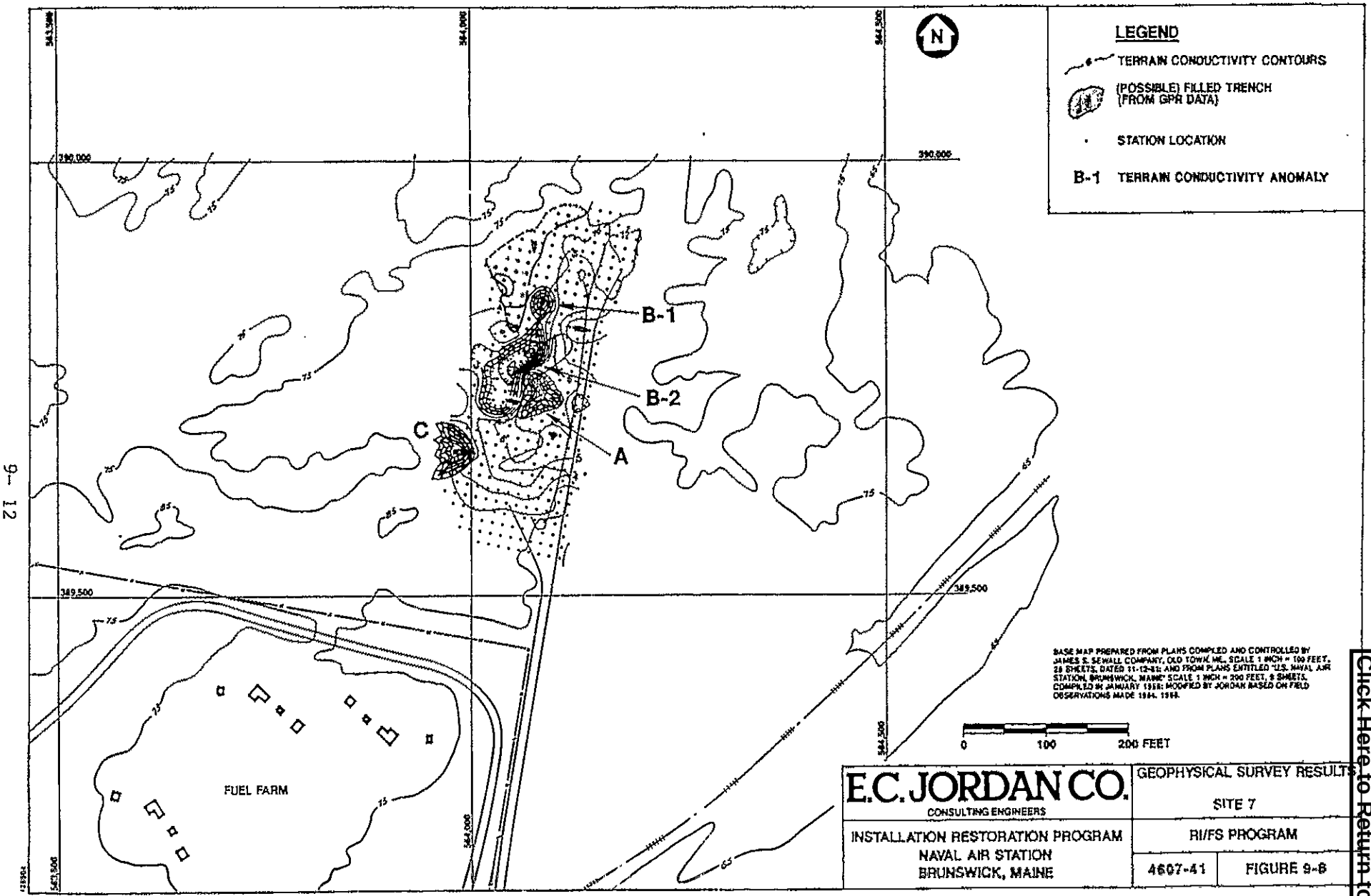

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due to past disposal activities in this area. The instrument behaved erratically in this area, indicating the presence of high-conductivity gradients and manmade interference. Anomaly C is located in an area where various metallic objects have been disposed of. A brief magnetometer walkover verified the presence of buried ferrous materials here, and some metallic objects are visible at the surface. There does not appear to be any relationship between the GPR anomaly and the TC anomalies (see Figure 9-8).

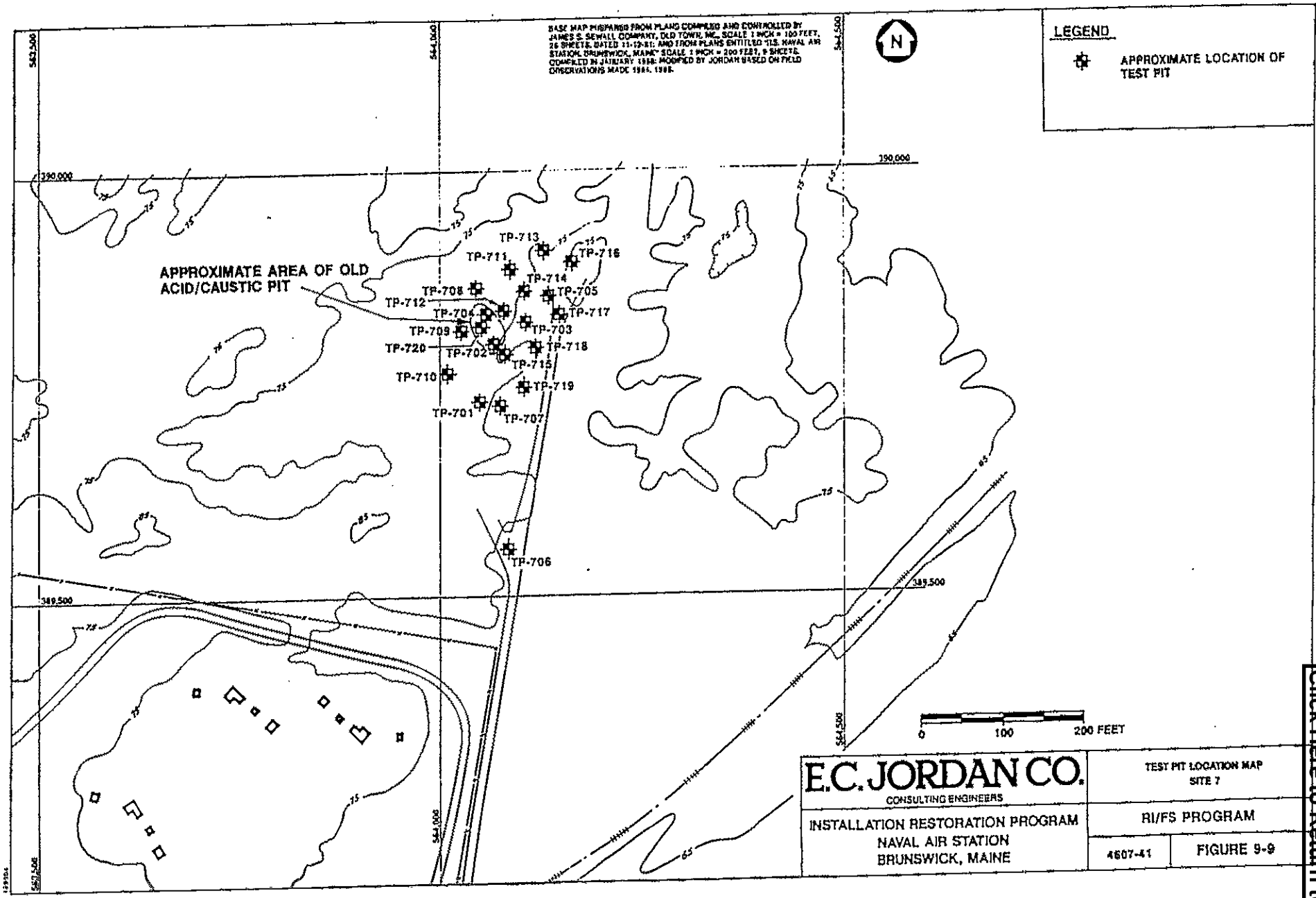
9.5.3 Test Pits: Site 7

Nineteen test pits were excavated at Site 7 during the 1988 (i.e., TP-701 through 707) and 1989 (i.e., TP-708 through 719) field seasons. The 19 test pits were laid out in an approximate 75-foot grid and included the areas where elevated THC values were recorded during the SOV survey. Seven test pits were excavated in August 1988 by the drilling subcontractor; the remaining 12 test pits were completed in August and September of 1989. Test pits were excavated to depths as low as 7.5 feet. Excavations were terminated in natural, in situ soils. Two to three analytical samples were taken from each test pit, and analyzed for TCL organic and inorganic compounds. Test pit locations are shown in Figure 9-9 and analytical soil data are in Appendix J. A summary of analytical soil data is in Figure 9-10.

Environmental contamination in Site 7 test pits is limited to SVOCs and pesticides. The VOC toluene was detected in several test pits from the 1988 program (i.e., TP-701, TP-702, TP-703, and TP-705). The absence of toluene in subsequent test pit samples, the presence of toluene in low- and medium-level laboratory method blanks, and the problems with medium-level analysis (see Subsection 5.3.5) suggest that toluene is an artifact in Site 7 test pit samples.

The concentration of inorganic compounds is consistent with background values (see Tables 5-3 and 5-4). Various SVOCs and pesticides (i.e., DDT, DDD, and DDE) were detected in Site 7 test pit soil samples. Test pits where SVOCs, specifically PAHs, were detected include TP-709, 710, 711, 713, 714, 715, 716, 717, and 719. PAH contamination was found in surface and subsurface samples down to two feet deep, with ranges in concentration from 350 to 20,000 µg/kg total PAHs. Similar to the PAH contaminant distribution, the pesticides were found in the top 2 feet of soil, with contamination detected in test pits TP-709, 710, 711, 712, 714, 716, 717, 718, and 719, with a range in total concentration from 25 to 420 µg/kg.

In addition to the grid of test pits, efforts to locate the Old Acid/Caustic Pit were undertaken. As discussed in Subsection 9.5.2, terrain conductivity data indicated an anomaly in the northwestern portion of Site 7. During the 1988 field season, acid salts were observed in the northern portion of TP-702 and the southern portion of TP-704. The acid salts consist of blue crystals that occur at approximately 2 feet bgs. They are typically associated with metallic objects. Analytical data from TP-702 do not indicate elevated levels for inorganic compounds. These two test pits (i.e., TP-702 and TP-704) are in the general area of the TC anomalies identified during geophysical studies. The area between TP-702 and TP-704 was further excavated during the 1989 field



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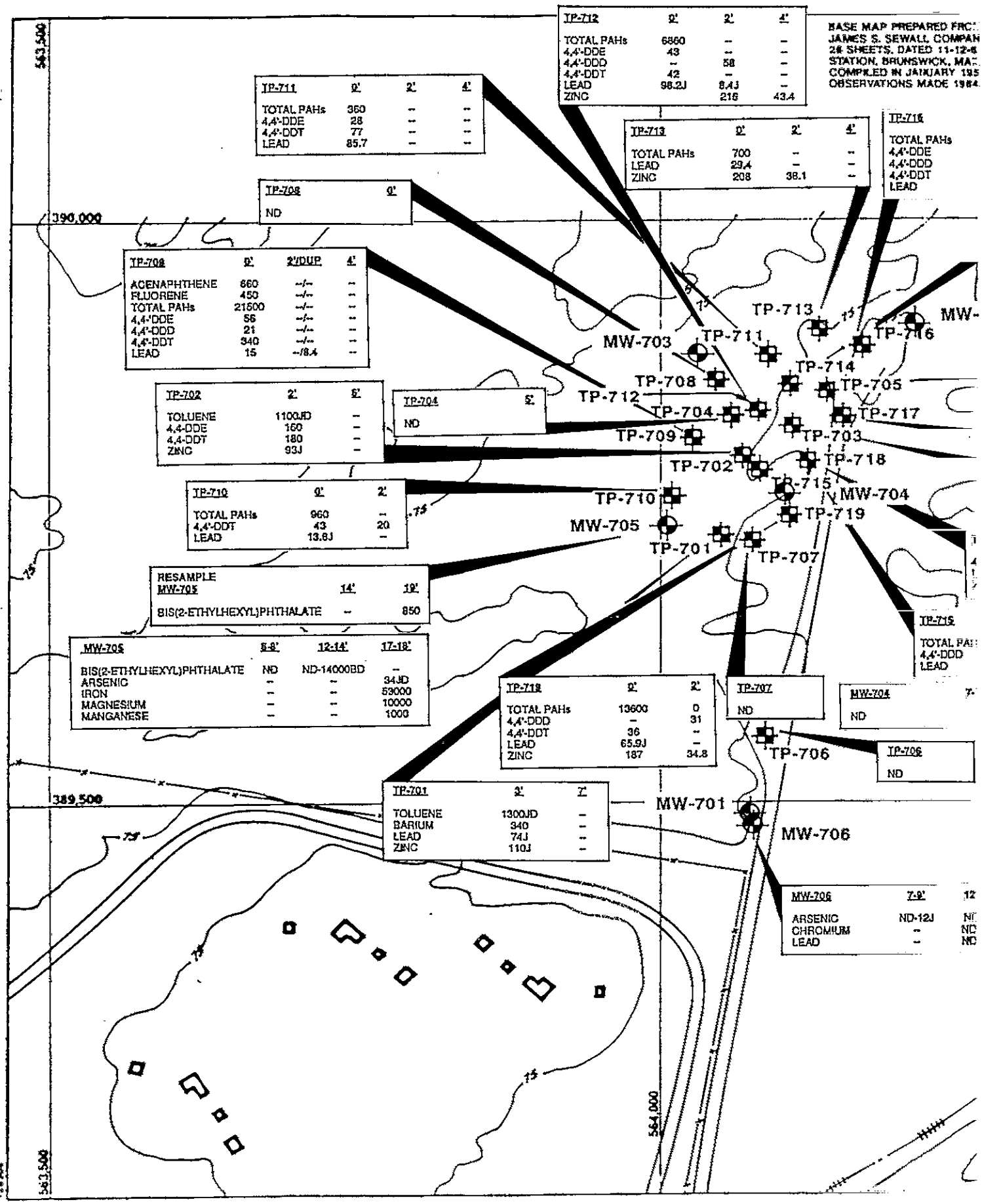
TP-712 0' 2' 4'
TOTAL PAHs 6860 – –
4,4'-DDE 43 – –
4,4'-DDD – 58 –
4,4'-DDT 42 – –
LEAD 98.2J 8.4J –
ZINC 215 43.4
BASE MAP PREPARED FRO
JAMES S. SEWALL COMPAN
26 SHEETS, DATED 11-12-8
STATION, BRUNSWICK, MA
COMPILED IN JANUARY 195
OBSERVATIONS MADE 1984
TP-711 0' 2' 4'
TOTAL PAHs 360 – –
4,4'-DDE 28 – –
4,4'-DDT 77 – –
LEAD 85.7 – –
TP-713 0' 2' 4'
TOTAL PAHs 700 – –
LEAD 29.4 – –
ZINC 208 38.1 –
TP-716
TOTAL PAHs
4,4'-DDE
4,4'-DDD
4,4'-DDT
LEAD
TP-708 0'
ND
390,000
TP-708 0' 2'/DUP 4'
ACENAPHTHENE 660 –/– –
FLUORENE 450 –/– –
TOTAL PAHs 21500 –/– –
4,4'-DDE 56 –/– –
4,4'-DDD 21 –/– –
4,4'-DDT 340 –/– –
LEAD 15 –/8.4 –
TP-702 2' 5'
TOLUENE 1100JD –
4,4-DDE 160 –
4,4-DDT 180 –
ZINC 93J –
TP-704 5'
ND
TP-710 0' 2'
TOTAL PAHs 960 –
4,4'-DDT 43 20
LEAD 13.8J –
RESAMPLE
MW-705 14' 19'
BIS(2-ETHYLHEXYL)PHTHALATE – 850
MW-705 5-9' 12-14' 17-18'
BIS(2-ETHYLHEXYL)PHTHALATE ND ND-14000BD –
ARSENIC – – 34.9D
IRON – – 53000
MAGNESIUM – – 10000
MANGANESE – – 1000
TP-718 0' 2'
TOTAL PAHs 13600 D
4,4'-DDD – 31
4,4'-DDT 36 –
LEAD 65.9J –
ZINC 187 34.8
TP-707
ND
MW-704
ND
TP-706
TP-706
ND
389,500
TP-701 2' 7'
TOLUENE 1300JD –
BARIUM 340 –
LEAD 74J –
ZINC 110J –
MW-706 7-9' 12
ARSENIC ND-12J NI
CHROMIUM – ND
LEAD – ND
MW-703
TP-711
TP-713
TP-716
MW-
TP-714
TP-708
TP-705
TP-712
TP-704
TP-717
TP-709
TP-703
TP-702
TP-718
TP-715
MW-704
TP-710
TP-719
MW-705
TP-701
TP-707
TP-715
TOTAL PA
4,4'-DDD
LEAD
TP-706
MW-701
MW-706
563,500
564,000

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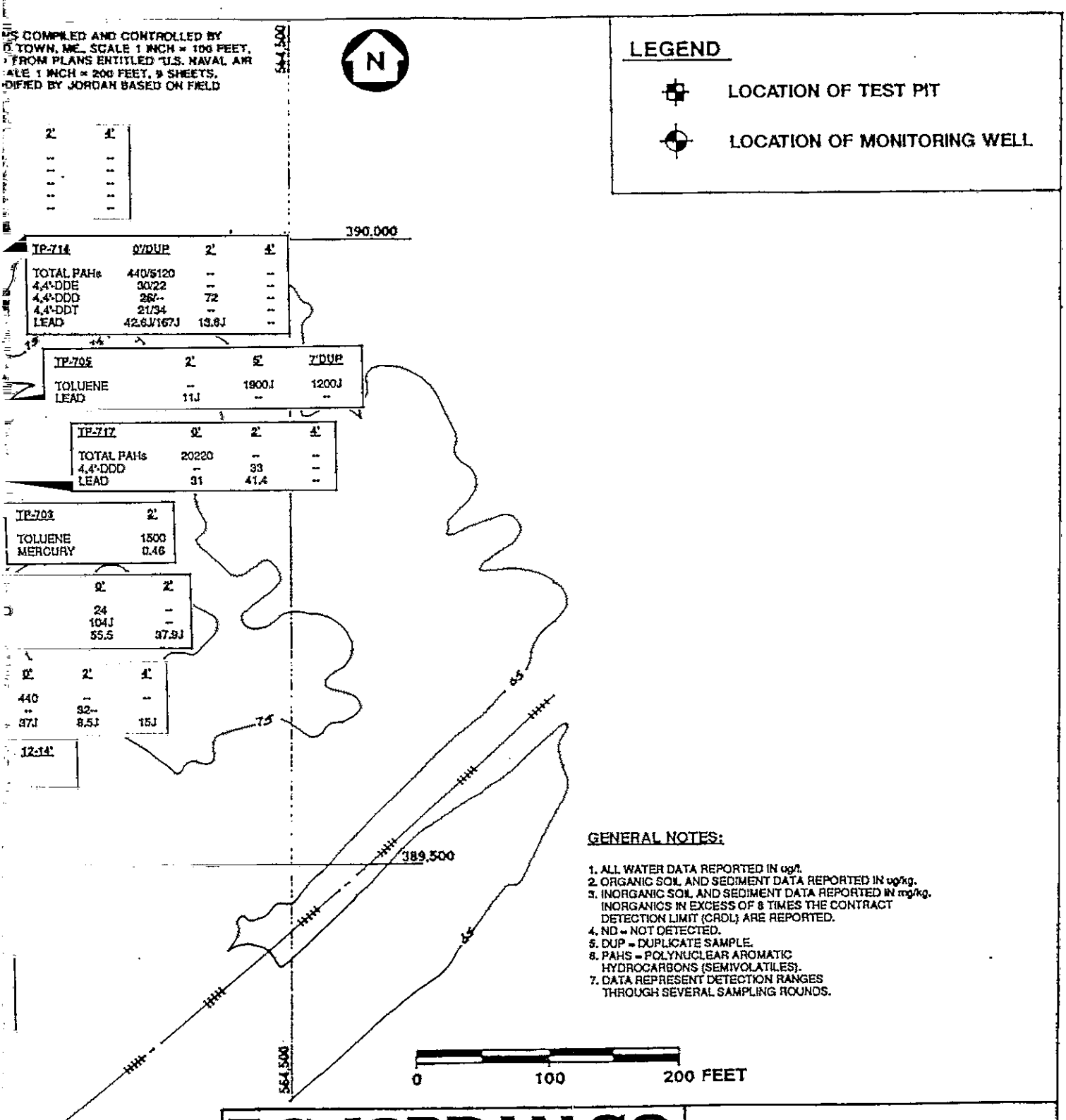

GENERAL NOTES:

1. ALL WATER DATA REPORTED IN ug/l.
2. ORGANIC SOIL AND SEDIMENT DATA REPORTED IN ug/kg.
3. INORGANIC SOIL AND SEDIMENT DATA REPORTED IN mg/kg. INORGANICS IN EXCESS OF 8 TIMES THE CONTRACT DETECTION LIMIT (CRDL) ARE REPORTED.
4. ND = NOT DETECTED.
5. DUP = DUPLICATE SAMPLE.
6. PAHS = POLYNUCLEAR AROMATIC HYDROCARBONS (SEMIVOLATILES).
7. DATA REPRESENT DETECTION RANGES THROUGH SEVERAL SAMPLING ROUNDS.

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SOIL CONTAMINANT DISTRIBUTION MAP
SITE 7

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41

FIGURE 9-10

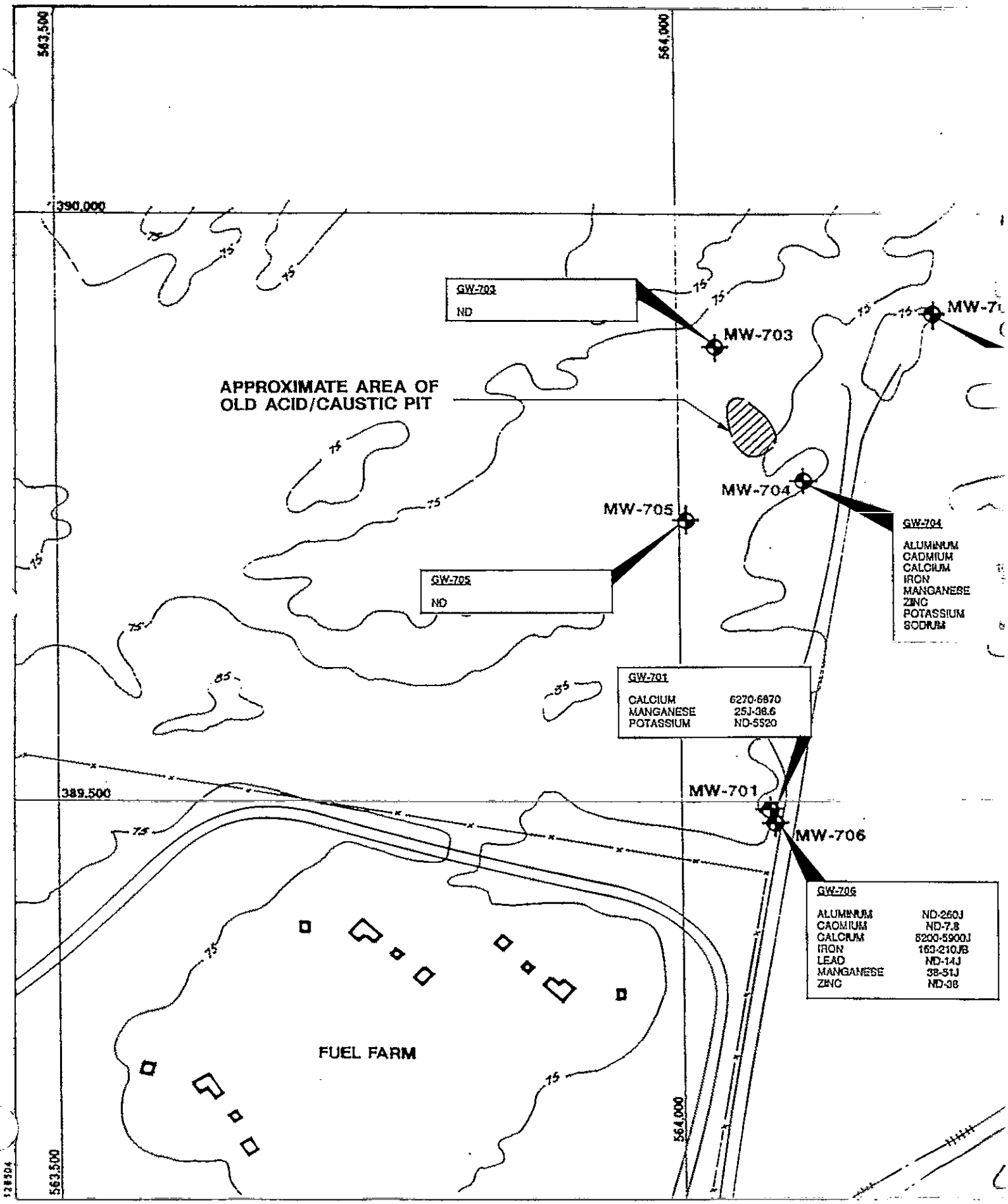
season to determine the areal distribution of the acid salts (see Figure 9-9). This area with acid salts present in subsurface soils is believed to be the location of the Old Acid/Caustic Pit. This Old Acid/Caustic Pit location is also near the GPR anomaly. The location of TP-704 is along the southeastern edge of the GPR anomaly, and the acid salt crystals occur in the southern portion of TP-704. The distribution of the crystals is to the south and east of 704, including TP-720 and TP-702. This area south and east of TP-704 is associated with the TC anomaly. The GPR anomaly does not appear to be related to the acid salt crystals and typically has fill material in the upper portions of the subsurface as indicated in TP-711. The presence of the fill material is consistent with the GPR anomaly.

9.5.4 Soil Borings: Site 7

Six soil borings were completed at Site 7. Three soil borings (i.e., MW-701, 702, and 703) were part of the PAC Study; the other three were installed during the 1988 field season. As part of the RI/FS program, seven soil samples were analyzed for TCL organic and inorganic compounds. Hold times for organic compounds were exceeded for analytical soil samples from two of the 1988 soil borings (i.e., MW-705 and MW-706); these were resampled during the 1989 field season. Analytical results and data maps from the 1988 and 1989 soil sampling are in Appendices J and K. Soil contamination is summarized in Figure 9-10, which demonstrates that subsurface soil contamination does not occur at Site 7.

9.5.5 Groundwater: Site 7

Six monitoring wells were installed at Site 7; locations are shown in Figure 9-11. Three monitoring wells were installed as part of the PAC Study (i.e., MWs-701, 702, and 703); the other three monitoring wells (i.e., MWs-704, 705, and 706) were established during the 1988 field season. As part of the RI/FS program, the six monitoring wells were sampled during sampling Rounds I and II for TCL organic and inorganic compounds. MW-701 was also sampled during Round III for TCL VOCs and inorganic compounds (see Table 4-2). Results from the sampling rounds are in Appendices J and K. An interpretive summary of groundwater contamination is shown in Figure 9-12, which shows that TCL organic compounds are not believed to occur in groundwater at Site 7. The VOC, 2-butanone, was detected in MW-701 (440 µg/L) during Round I, but was not detected in MW-701 during Rounds II or III. Bis(2-ethylhexyl)phthalate was reported in MW-701 in Rounds I (63 µg/L) and II (11 µg/L). Because 2-butanone and bis(2-ethylhexyl)phthalate are common artifacts and were present in laboratory method blanks during Rounds I and II, they are not believed to represent actual site-related contamination (see Table 9-2 and Subsection 5.3.5).


563,500
564,000
390,000
389,500
563,500
564,000
75
85
GW-703
ND
MW-703
MW-704
MW-705
MW-701
MW-706
APPROXIMATE AREA OF
OLD ACID/CAUSTIC PIT
GW-704
ALUMINUM
CADMIUM
CALCIUM
IRON
MANGANESE
ZINC
POTASSIUM
SODIUM
GW-705
ND
GW-701
CALCIUM 6270-6870
MANGANESE 25J-36.6
POTASSIUM ND-5520
GW-706
ALUMINUM ND-260J
CADMIUM ND-7.8
CALCIUM 5200-5900J
IRON 163-210JB
LEAD ND-14J
MANGANESE 38-51J
ZINC ND-38
FUEL FARM

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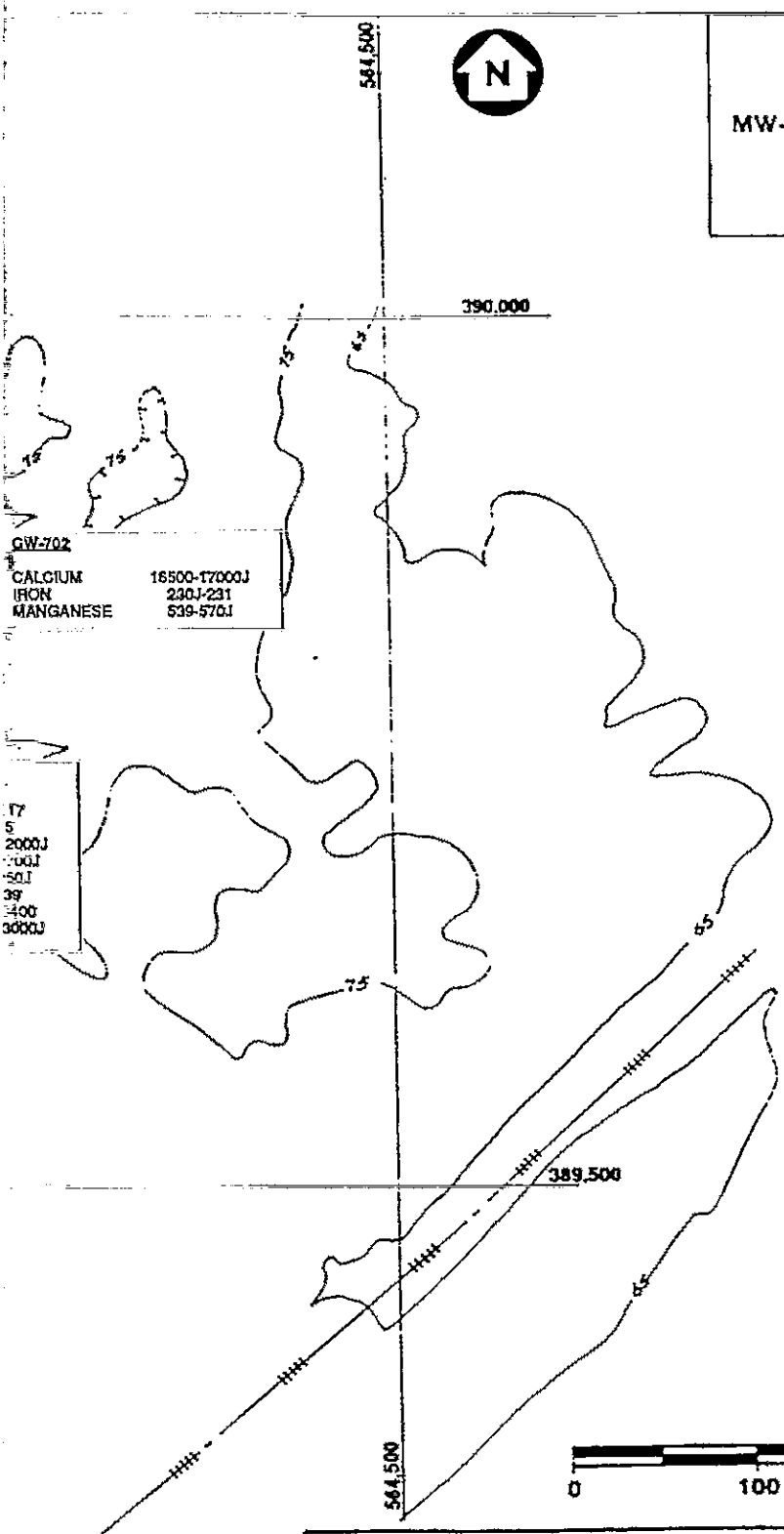

LEGEND

MW-101 ⌖ LOCATION OF MONITORING WELL

GENERAL NOTES:

1. ALL WATER DATA REPORTED IN ug/L.
2. ORGANIC SOIL AND SEDIMENT DATA REPORTED IN ug/kg.
3. INORGANIC SOIL AND SEDIMENT DATA REPORTED IN mg/kg. INORGANICS IN EXCESS OF 8 TIMES THE CONTRACT DETECTION LIMIT (CRDL) ARE REPORTED.
4. ND = NOT DETECTED.
5. DUP = DUPLICATE SAMPLE.
6. PAHS = POLYNUCLEAR AROMATIC HYDROCARBONS (SEMIVOLATILES).
7. DATA REPRESENT DETECTION RANGES THROUGH SEVERAL SAMPLING ROUNDS.

BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME., SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 9 SHEETS, COMPILED IN JANUARY 1958; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1988.

0 100 200 FEET

E.C. JORDAN CO.
CONSULTING ENGINEERS

GROUNDWATER CONTAMINANT DISTRIBUTION MAP
SITE 7

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41

FIGURE 9-11

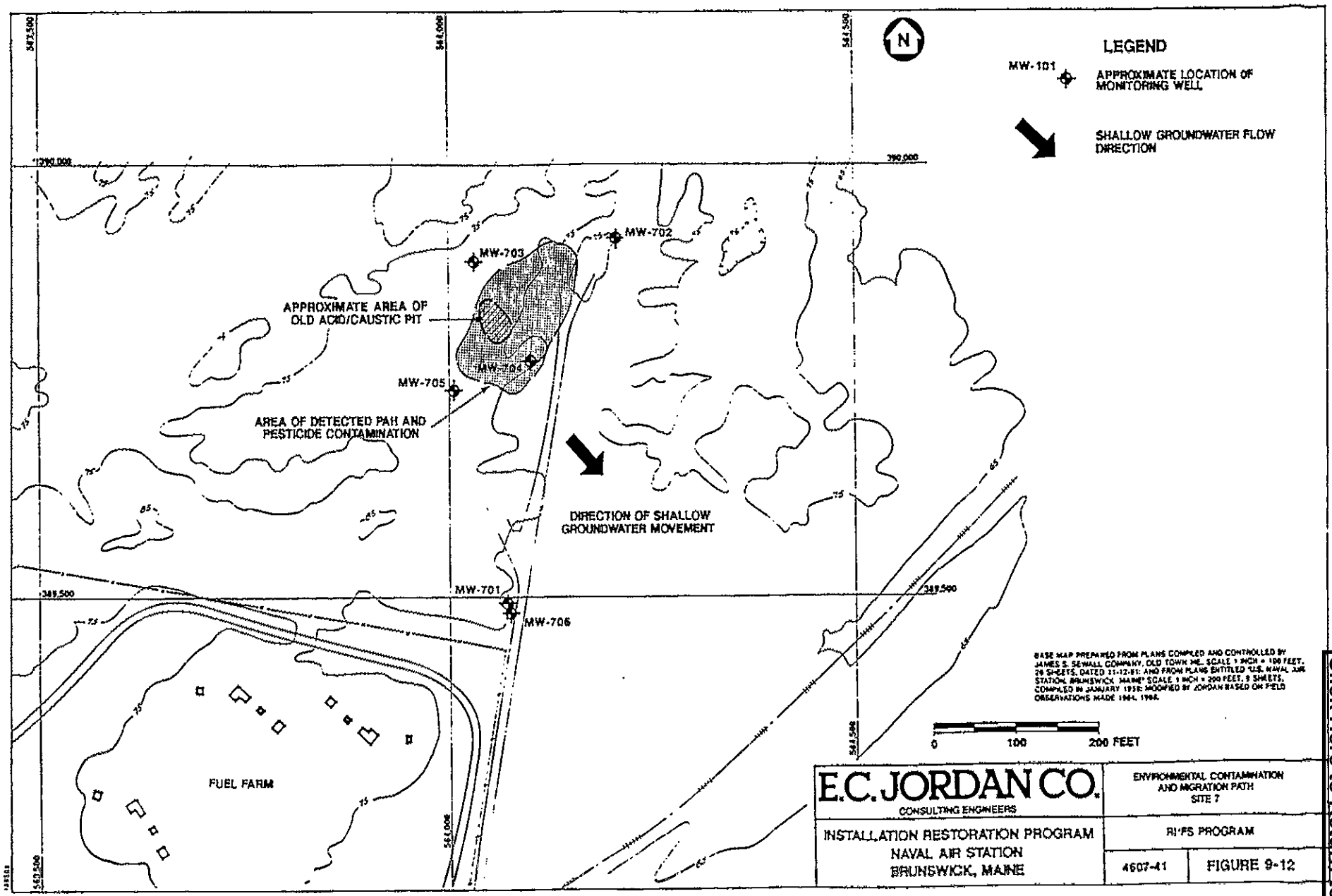

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TABLE 9-2
SUSPECT CONTAMINANTS: SITE 7

REMEDIAL INVESTIGATION
NAS BRUNSWICK

COMPOUND	CONCENTRATION	MEDIA	CRITERIA
2-Butanone	440 µg/L	Groundwater	Common contaminant/sporadic detection/ laboratory blanks
Bis(2-ethylhexyl)phthalate	11-63 µg/L	Groundwater	Common contaminant/sporadic detection/ laboratory blanks
Toluene	1100-1900 µg/kg	Soils	Common contaminant/sporadic detection/ laboratory blanks

NOTES:

µg/kg = micrograms per kilogram
µg/L = micrograms per liter

Click Here to Return to Main Index

Click Here to Return to Main Index

The results for TCL inorganic compounds in Site 7 groundwater are generally consistent with background values for these parameters (see Table 5-4). However, groundwater in MW-704 has elevated levels of iron, manganese, and potassium, in addition to cadmium (8 to 15 µg/L) and sodium (5,750 to 13,000 µg/L). Similarly, bis(2-ethylehexyl)phthalate was detected at low concentrations (11 to 63 µg/L) in MW-701, but was not reported at other Site 7 monitoring wells.

All six Site 7 monitoring wells were analyzed for carbonate, bicarbonate, and TOC. Data from sampling conducted during Round II are shown in Appendices J and K. A summary of these data is in Figure 9-11. Carbonate was not detected in any of the samples; bicarbonate varied from 7.6 to 69 mg/L. TOC results for Site 7 monitoring wells ranged from 1.9 to 20 mg/L. Similar to the Site 7 inorganic groundwater data, the highest bicarbonate and TOC results occurred in MW-704.

9.6 SUMMARY OF EXTENT OF CONTAMINATION: SITE 7

Contamination detected during the RI/FS program at Site 7 is confined to surface and shallow soils (PAHs and pesticides) and groundwater (inorganic compounds) (Figure 9-12). These results are consistent with findings of the PAC study. The observed distribution of contamination in surface and shallow soils is consistent with the historical use of the Site 7 area. In addition to the Old Acid Disposal Pit, Site 7 was the site of the original DRMO facility. Historical aerial photographs show the site used as a lay-down area for various equipment and supplies. Handling and storage of materials potentially gave rise to isolated spills and leaks of fuels and oils.

Distribution of THC (as indicated in the soil gas results), and the surface and shallow soil distribution of PAHs (associated with weathering of petroleum fuels and oils; PAHs are typically tightly bound to soils in the presence of organic matter) are consistent with this lay-down area/recycling-yard scenario. Pesticides detected in shallow Site 7 soils are related to the use of DDT and/or to DDT handling practices in the old DRMO facility.

Groundwater contamination at Site 7 consists only of elevated metals, bicarbonate, and TOC in MW-704. The MCL for cadmium is exceeded by several µg/L in MW-704 and MW-706 (Figure 9-13). Groundwater contours for Site 7 indicate that shallow groundwater flows to the southeast (see Figures 9-3 and 9-12). The southeast groundwater flow direction at Site 7 demonstrates that MW-704 is downgradient of the interpreted location of the Old Acid/Caustic Pit. The relationship between the elevated metals, bicarbonate, and TOC in groundwater directly downgradient of the inferred pit location further confirms the location of the Old Acid/Caustic Pit.

9.7 CONTAMINANT FATE AND TRANSPORT: SITE 7

Environmental contamination at Site 7 includes low levels of PAHs and DDT in surface and shallow soils, and inorganic compounds in groundwater. PAHs are

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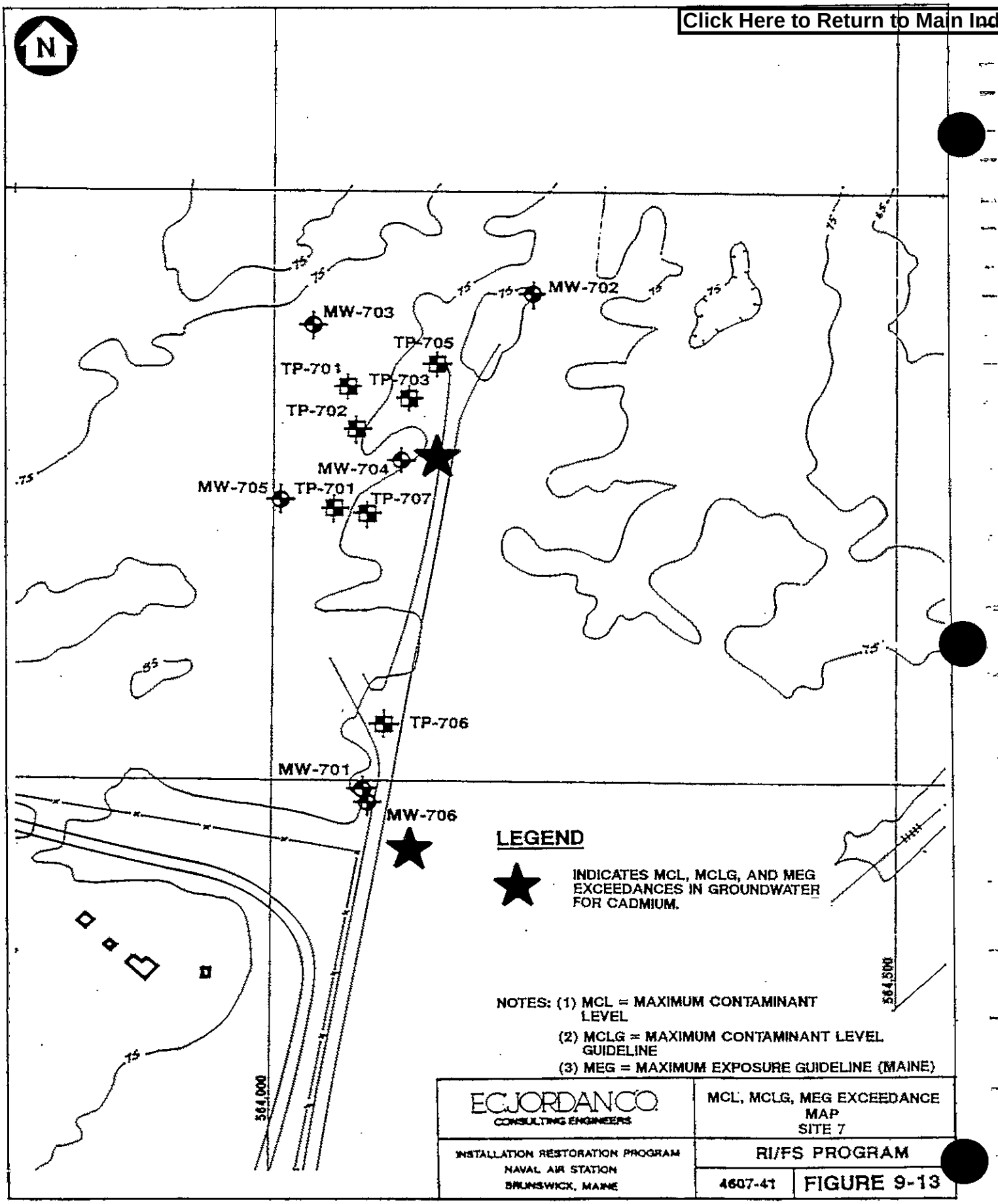

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relatively stable in the soil environment due to high sorption properties. The ultimate fate of PAHs in soils at Site 7 probably is sorption to sediments, followed by slow biodegradation (Edwards, 1983). Therefore, PAH mobility is limited in the soil environment. PAHs also typically have low solubility in water, further limiting potential transport to groundwater via leaching (Neft, 1979).

DDT also has a strong propensity to adhere to soils, and sorption is the dominant fate of DDT in soils (Kenaga and Goring, 1978). Therefore, like PAHs, DDT will sorb to soils and ultimately biodegrade. Two major processes direct the degradation of DDT. First, aerobic degradation results in formation of DDE; and second, anaerobic degradation typically results in formation of DDD (Johnsen, 1976). DDT and its metabolites have low water solubility, which acts to minimize migration in the environment (Weil et al., 1973).

Inorganics dissolved in groundwater will remain in solution until solubility is reached, and the solubility of these inorganics is a function of the nature of the dissolved species (Garrels, 1960). Concentration of dissolved inorganics in Site 7 groundwater is well below solubility limits, and the dissolved inorganics therefore migrate with groundwater. Typically inorganics do not strongly sorb to soil, and groundwater concentrations will be determined by dilution as inorganics migrate and disperse in the groundwater.

Click Here to Return to Main Index

Click Here to Return to Main Index

10.0 PERIMETER ROAD DISPOSAL SITE: SITE 8

10.1 DESCRIPTION AND HISTORY: SITE 8

Site 8 is located on the northern boundary of NAS Brunswick between an abandoned runway and State Route 24 (Figure 10-1). The site is divided into two areas located north and south of Perimeter Road. North of Perimeter Road, the site is a flat open area with steep, wooded embankments down to streams. South of Perimeter Road, the site is open to the east, and covered with young pine trees to the west. The steep-sided brooks are bordered with mixed hardwood and softwood trees. The site reportedly was used from 1964 to 1974 for disposal of construction and demolition debris including scrap metal, concrete, asphalt rubble, and industrial wastes. Disposal of hazardous materials reported in the IAS may also have included more than 1,000 pounds of solvents (i.e., TCE, MEK, and toluene); however, these amounts cannot be confirmed.

The site is located between two tributaries of a brook flowing north toward the Androscoggin River approximately 1,800 feet to the north. The documented refuse disposal area is now known to comprise only a fraction of the area investigated as Site 8 (Figure 10-2). The natural ravine bordering the disposal area to the northeast was partially filled with refuse.

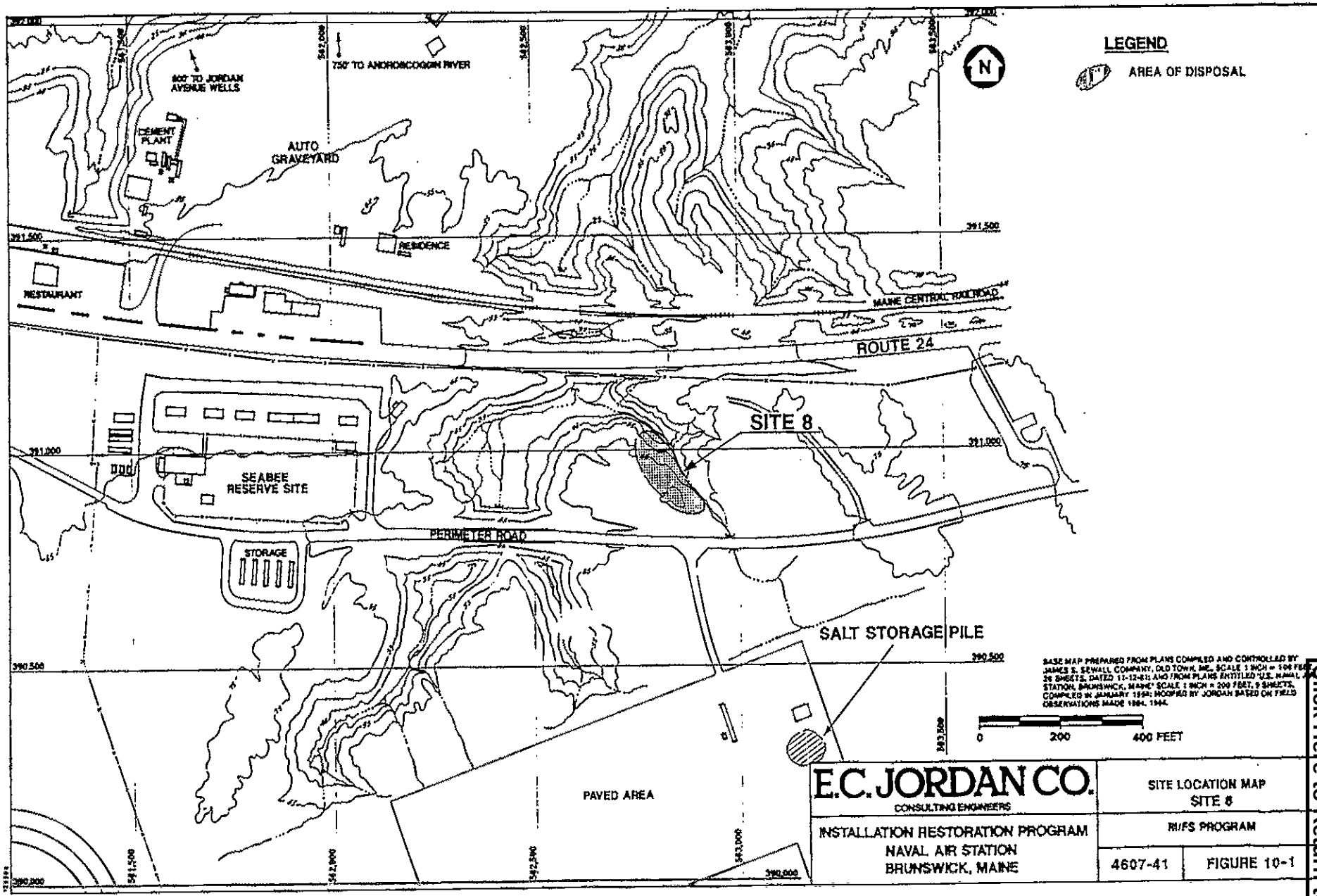
10.2 TECHNICAL APPROACH: SITE 8

Exploration activities conducted at Site 8 for the PAC Study included drilling four borings and installing wells in each boring. Collection of groundwater samples from these wells and surface water samples from four locations was also conducted. Shallow groundwater analyses detected lead and chromium.

RI field work for 1988 was designed to assess the areal distribution of wastes deposited at the site, monitor groundwater downgradient of the site, assess the significance of chemicals detected in the groundwater, and determine the impact of this site on surface water and sediment quality. The 1988 and 1989 field programs are summarized in Table 10-1.

To help identify potential areas of VOC contamination, 20 soil gas points were analyzed, both north and south of Perimeter Road (Figure 10-3). Additionally, a magnetometer survey was performed to help assess areal limits of wastes deposited at the site, and a seismic refraction survey was conducted to determine depth to bedrock to help characterize subsurface geology and hydrogeology.

To characterize on-site subsurface conditions, four borings, three at the base of the embankment (i.e., B-805, B-808, and MW-808) and one near the landfill (MW-807), were drilled in the 1988 program (see Figure 10-2). In two borings, MW-807 and MW-808, monitoring wells were installed to gather water quality data and assess groundwater movement. Due to the proximity of the Jordan Avenue Wellfield, VOC analyses on groundwater and surface water samples were



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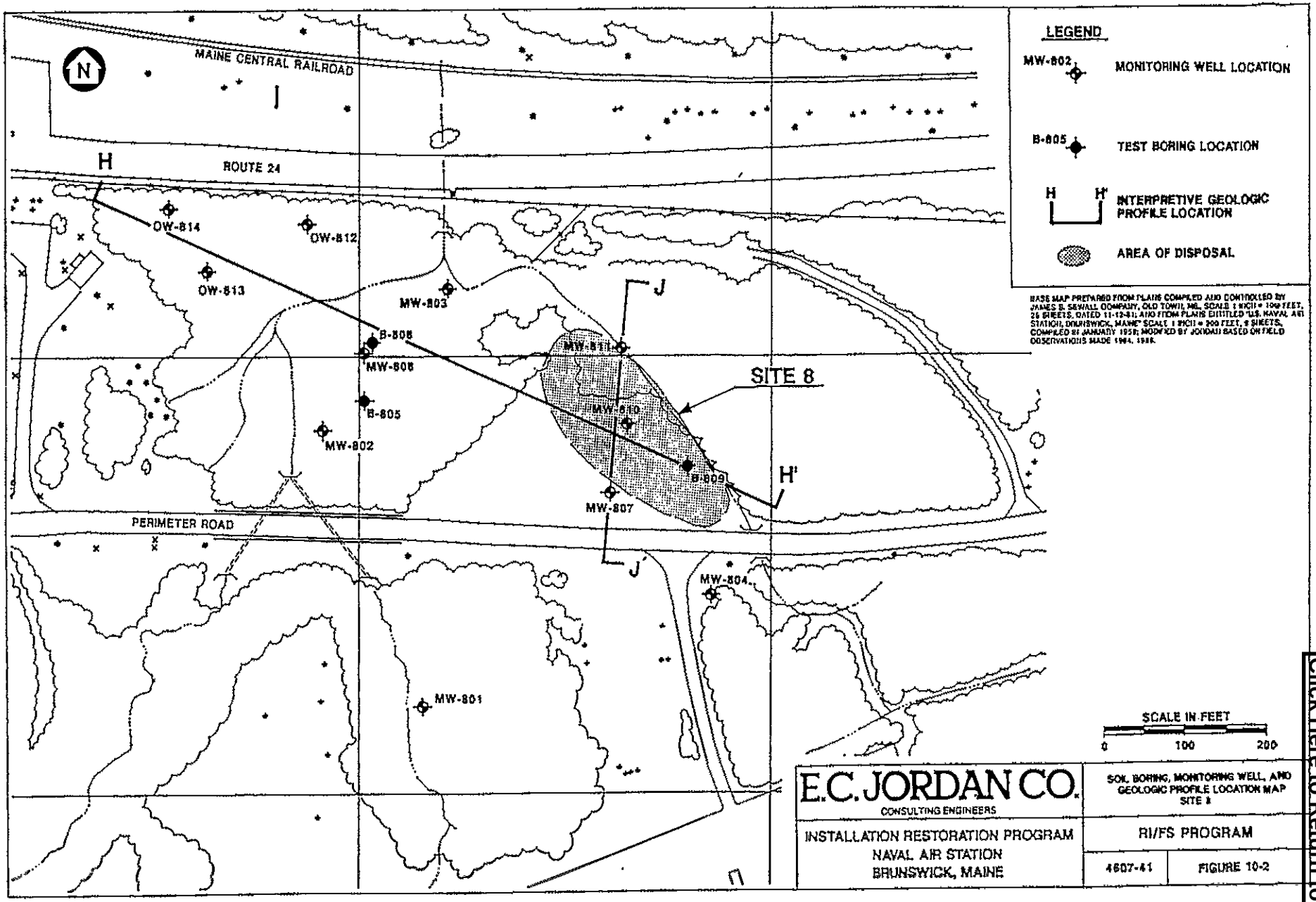


Click Here to Return to Main Index

Click Here to Return to Main Index

TABLE 10-1
RI PROGRAM SUMMARY - SITE 8

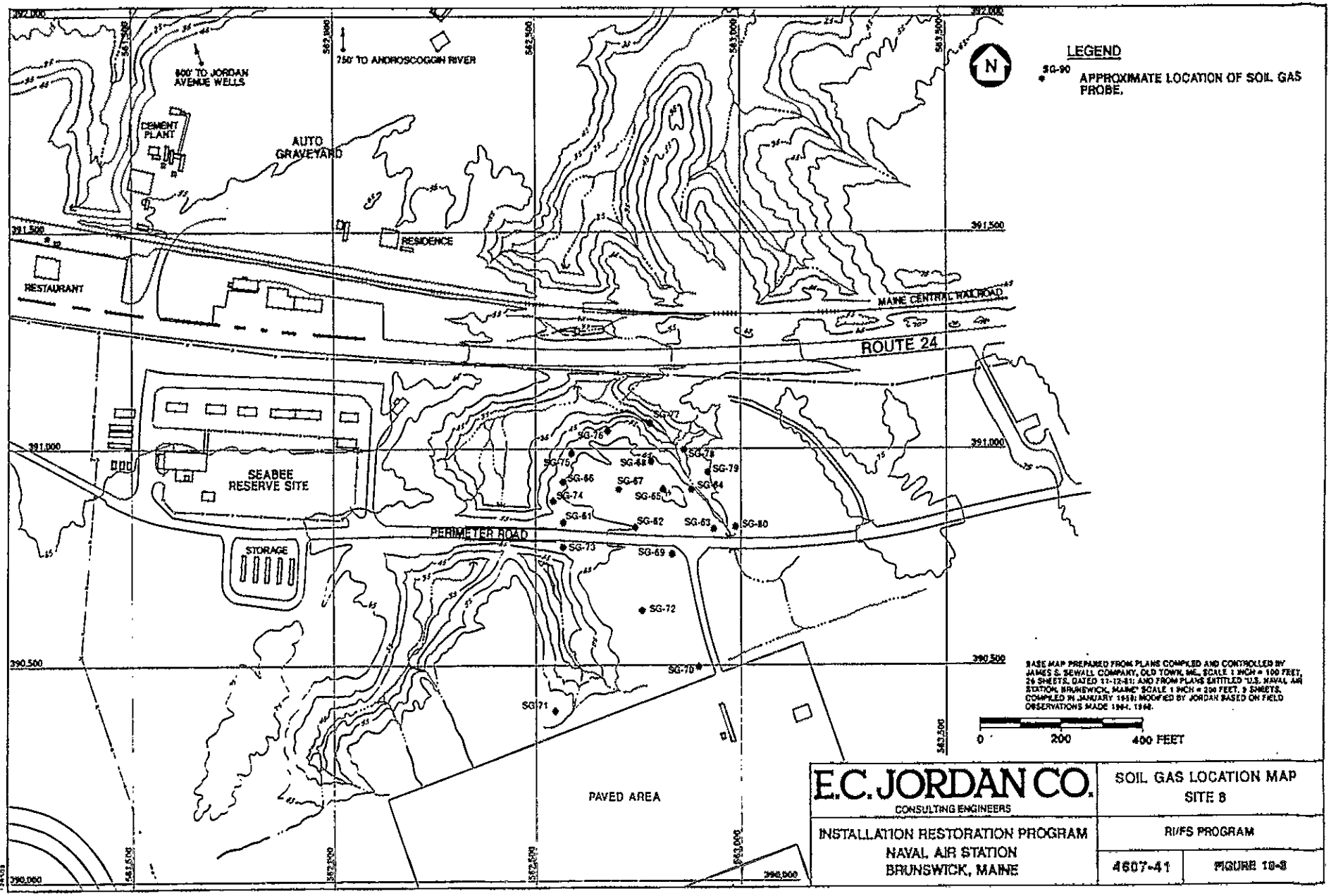
REMEDIAL INVESTIGATION
NAS BRUNSWICK

1988 FIELD PROGRAM

- 20 soil gas survey points
- Magnetometer survey
- Seismic refraction survey
- Four test borings
- Three monitoring wells installed
- Sampling of soils, groundwater, surface water, sediment, and leachate seeps
- In situ aquifer permeability tests

1989 FIELD PROGRAM

- 10 test pits
- Six borings
- Two monitoring wells and three observation wells
- Sampling of soils, groundwater, surface water, sediment, and leachate seeps
- In situ aquifer permeability testing



Click Here to Return to Main Index

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performed to compare them to Drinking Water Quality Standards and Ambient Water Quality Criteria (AWCQ), respectively.

To further assess the impact the site may have on surface water quality in bordering streams, surface water and sediment samples were collected from nine locations. These included the four original sampling locations in the PAC Study plus five new locations (Figure 10-4). Sediment samples were collected at all surface water sampling locations. Analytical parameters for sediments included TCL organics and inorganics. Surface water was analyzed for TCL organics and inorganics and general water quality parameters (see Table 4-2).

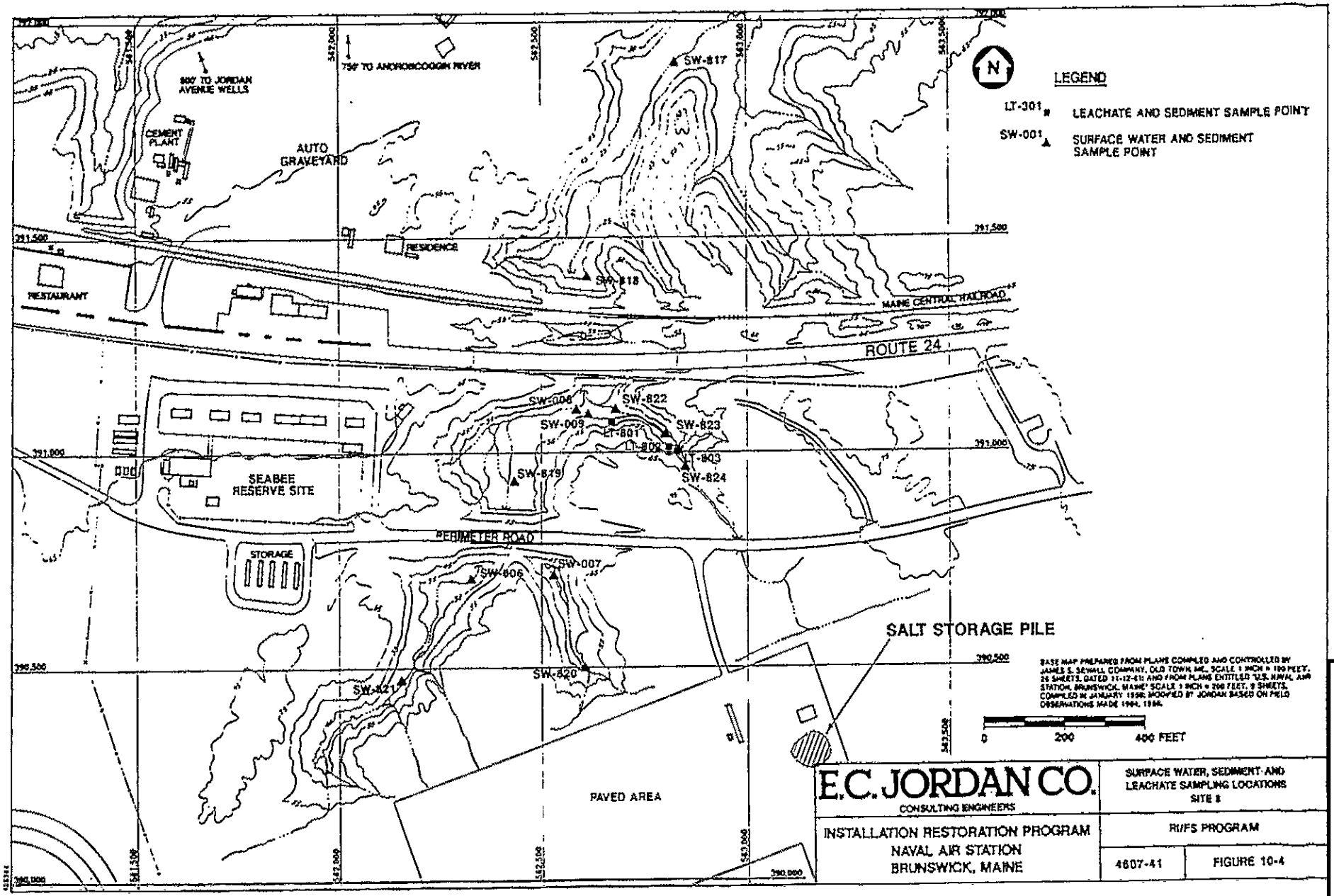
To investigate the impact of the site on surface water quality, three leachate seeps were also identified and sampled (see Figure 10-4). Leachate and sediment samples were collected from each location and analyzed for TCL organics and inorganics, and general water quality parameters (leachate only).

In the 1989 field program, exploration focused on confirming the areal extent of disposed materials; characterizing groundwater quality in the northeastern area of the site; and confirming that no other significant areas of disposal were located at Site 8. The sampling program was designed to support ongoing RA and FS efforts.

To definitely evaluate the areal extent of solid wastes disposed of at Site 8, and to collect soil samples for laboratory analysis, 10 test pits were excavated on the northern and southern sides of Perimeter Road (Figure 10-5). A surface soil sample was collected from each of the six test pits on the northern side of Perimeter Road to provide data for surface exposure risk calculations. Nine subsurface soil samples also were collected for analysis from test pits north of Perimeter Road. Because natural soils were encountered in the test pits south of Perimeter Road, only one analytical sample was taken from each test pit. Results of these analyses are discussed in Subsection 10.5.3.

To further define the effects that the site may have on surface water quality, five surface water and sediment samples were collected from locations shown in Figure 10-4. These samples include three new locations (i.e., SW-822 through SW-824) and two existing locations (i.e., SW-008 and SW-818). These samples were analyzed for TCL SVOCs and TOC. SVOCs were detected in previous sampling rounds; TOC sediment analysis is used to develop environmental target levels. Results of these sample analyses are discussed in Subsection 10.5.6.

Local, shallow groundwater movement specifically beneath Site 8 moves radially toward streams bordering the site. To assess shallow groundwater movement northwest of the site, and to gain an understanding of the overburden stratigraphy in this area, three borings (i.e., OW-812, OW-813, and OW-814) northwest of Site 8, south of Route 24, and east of the Seabee Reserve site were completed in 1989 (see Figures 10-1 and 10-2). Observation wells were installed in these borings. Soil samples from these off-site borings were not collected for laboratory analysis.



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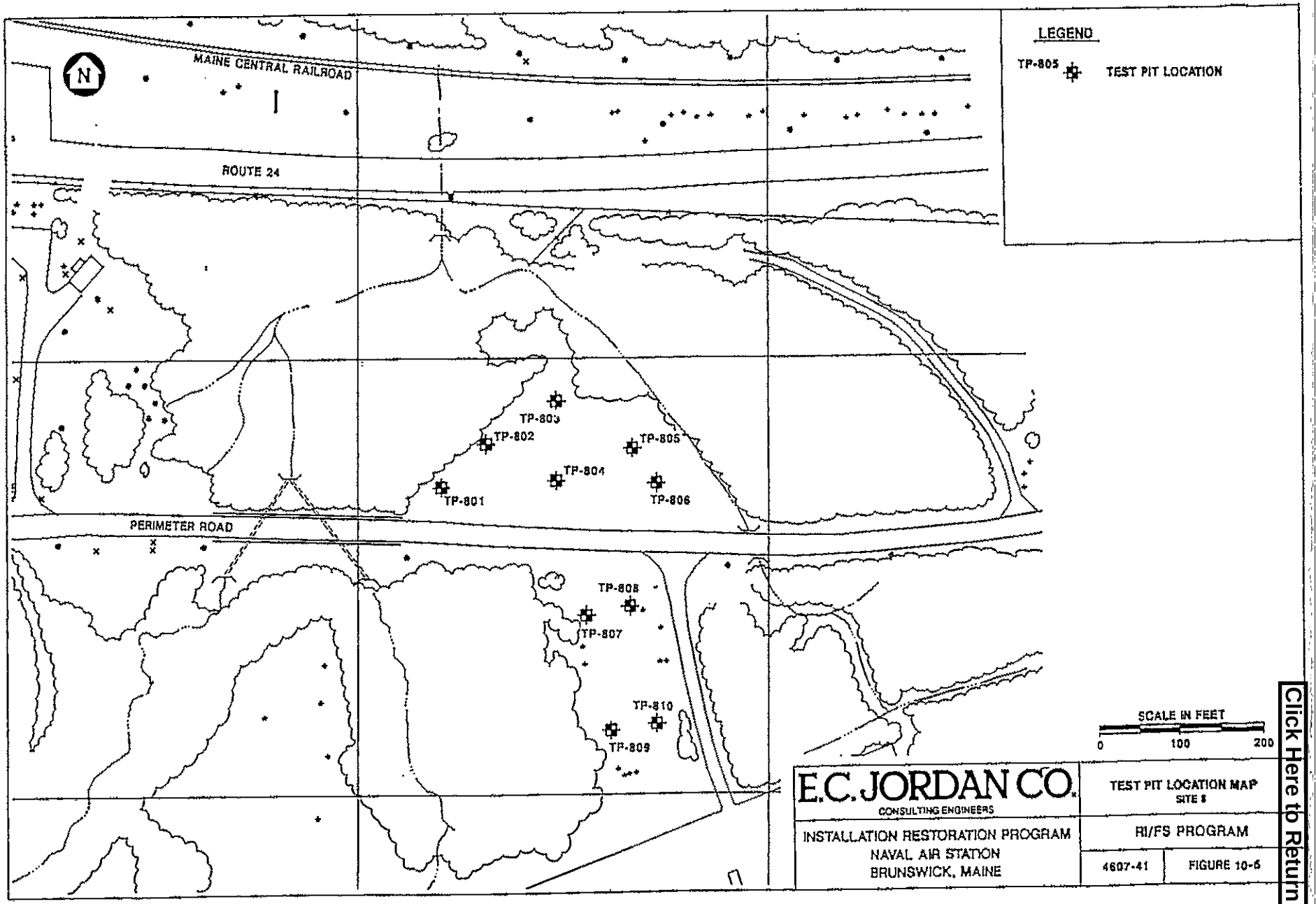


Click Here to Return to Main Index

Along the northeastern portion of the site (the area that appears to have received landfill materials), three additional borings were completed in 1989 (i.e., B-809, MW-810, and MW-811). These borings were sampled continuously and terminated after penetrating 4 feet of glaciomarine clay or 15 feet below the water table, whichever was shallower. Soil samples collected from these borings were analyzed for TCL organics and inorganics. Results of these samples are discussed in Subsection 10.5. Monitoring wells were installed in two borings (i.e., MW-810 and MW-811) to evaluate shallow groundwater movement and provide source water quality data. Because shallow clay was encountered above the water table in B-809, a well was not installed. In situ permeability tests were performed on these monitoring wells.

Groundwater samples from the new wells were analyzed in Round IV for TCL organics and inorganics, general water quality parameters, carbonate, and bicarbonate. COD, BOD, TKN, and TP were analyzed for in MW-810 and MW-811 to support FS alternatives development. Based on results from previous sampling rounds, the six other existing wells were analyzed for TCL inorganics. Subsection 10.5 discusses the analytical program.

The three existing leachate seeps at Site 8 were resampled in Round IV and analyzed for TCL organics and inorganics. These analyses provide data to support the RA and FS.

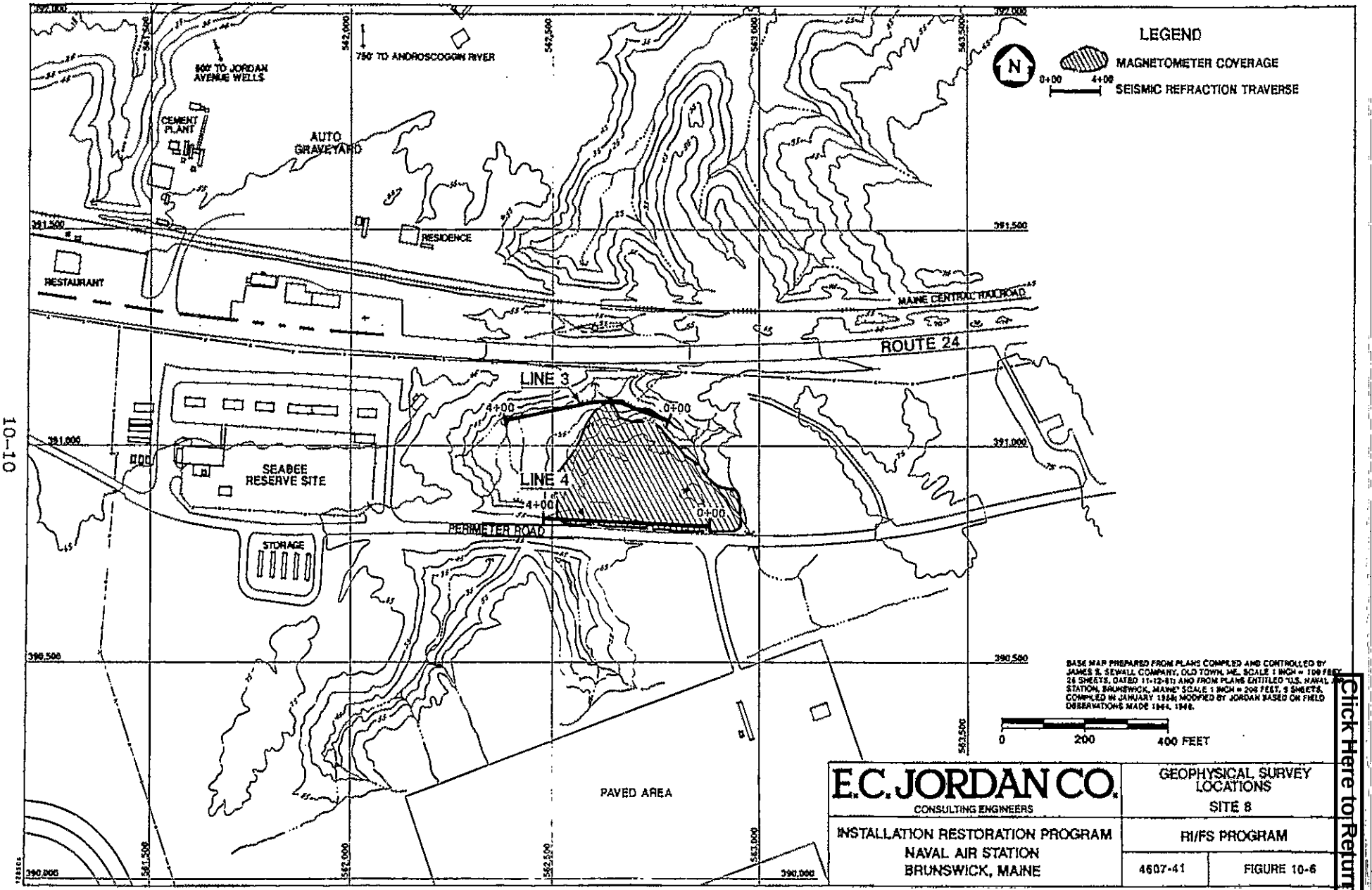
10.3 GEOLOGY: SITE 8

Most of Site 8 is a level area bordered on the east, north, and west by deeply incised streams. These streams have a confluence at the northern end of the site; the resulting stream exits the base and flows north to the Androscoggin River.

Of the 14 borings drilled at Site 8, only B-804 encountered what is interpreted to be bedrock. Refusal in B-804 was at an elevation 48.2 feet MSL. Seismic Line 3 (Figure 10-6) indicates the top of bedrock at an elevation of 30 feet MSL, at a location less than 100 feet northwest of B-804 (E.C. Jordan Co., 1988). Seismic data also indicates that the top of the bedrock drops to an elevation of -50 feet MSL, 400 feet to the west.

Geologic profiles H-H' and J-J' (Figure 10-7) depict stratigraphy at the site. Upper sands range in thickness from zero feet in MW-801, MW-810, and B-809, to 55 feet in OW-814 to the northwest. Both B-809 and MW-810 were drilled through the landfill portion of the site. In B-810, the fill extends 28.5 feet bgs, and B-809 encountered more than 14 feet of fill material. Throughout the site, the upper surface of marine clay slopes to the north and west.

During the 1989 field season, 10 test pits were excavated on the northern and southern sides of Perimeter Road (see Figure 10-5). Test pits south of the road, and test pits TP-801, TP-802, and TP-804 north of the road, encountered natural soils. In TP-803 and TP-806, fill thicknesses of 2.5 and 5 feet were found. TP-805 did not reach natural soils at a bottom depth of 10 feet.



BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME., SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 9 SHEETS, COMPILED IN JANUARY 1958; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1985.

E.C. JORDAN CO. CONSULTING ENGINEERS	GEOPHYSICAL SURVEY LOCATIONS SITE 8
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
	4607-41 FIGURE 10-6

Click Here to Return to Main Index

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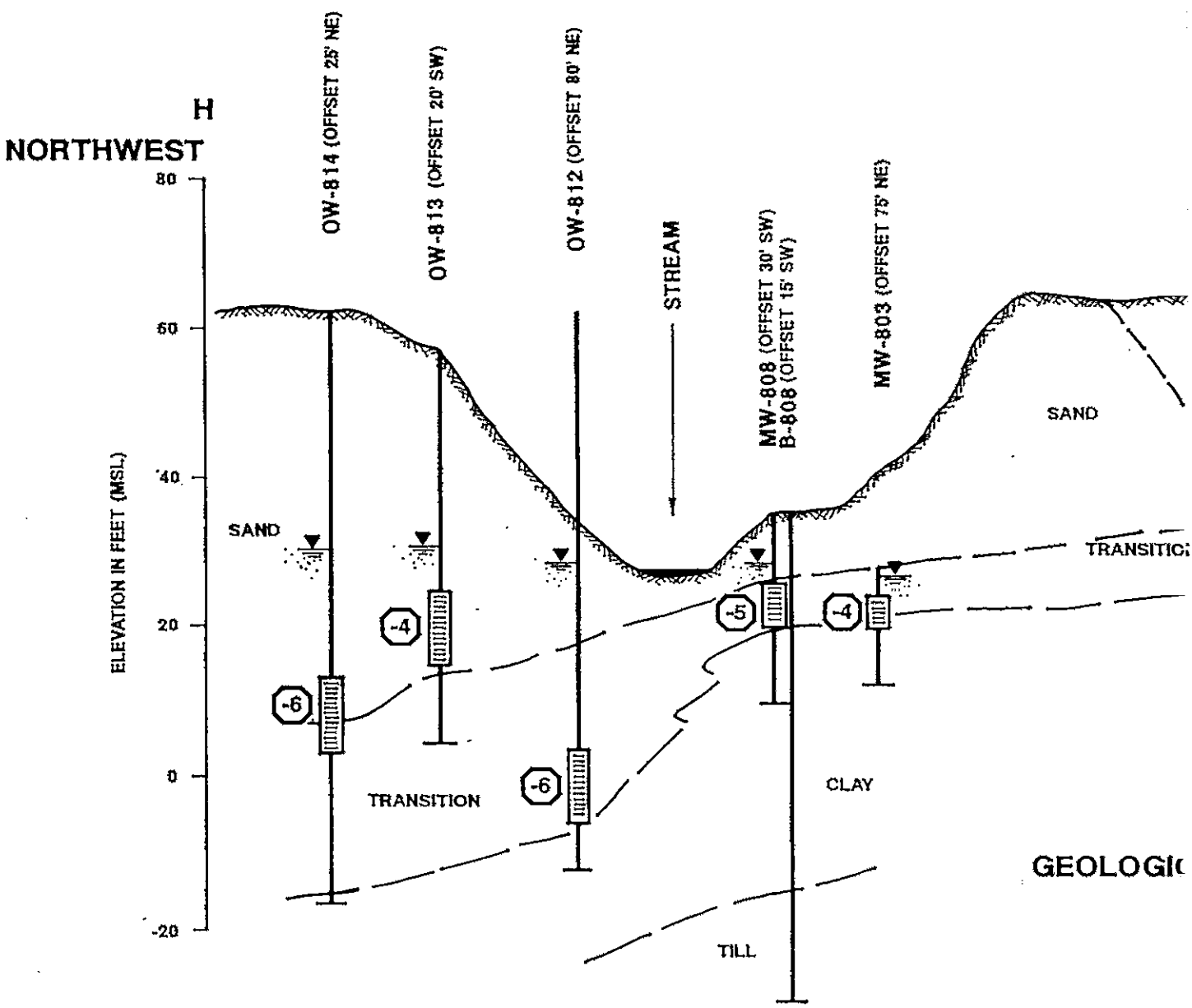


LEGEND

MW-101 — MONITORING WELL

GROUND SURFACE

WATER LEVEL (10/24/89)

-6 — WELL SCREEN

BOTTOM OF EXPLORATION

VERTICAL EXAGGERATION = 5:1

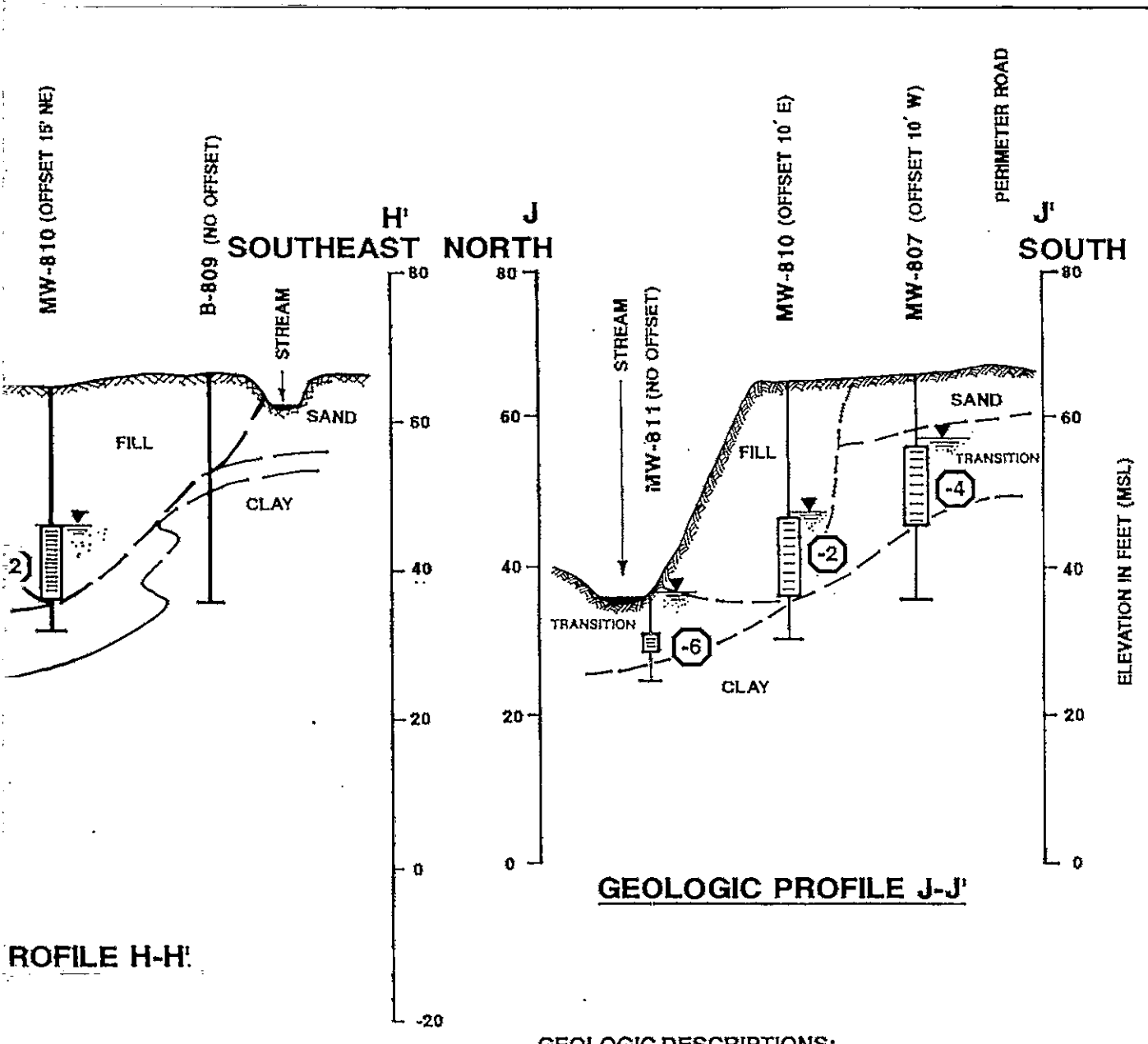
0 100 200FEET

NOTES:

PROFILES ARE BASED ON AN INTERPR
EXPLORATIONS. ACTUAL CONDITION
FROM THOSE SHOWN.

-6 ORDER OF MAGNITUDE OF HYDRAULIC
CENTIMETERS / SECOND (i.e., 10^{-6} cm/

LOCATION OF PROFILE SHOWN IN FIGUR



GEOLOGIC PROFILE J-J'

ROFILE H-H'

TION OF AVAILABLE SUBSURFACE
TWEEN EXPLORATIONS MAY VARY

DUCTIVITY IN
).

-2

GEOLOGIC DESCRIPTIONS:

SAND - TAN TO LIGHT BROWN FINE SAND, TRACE TO LITTLE MEDIUM SAND, TRACE SILT, POORLY GRADED, LOOSE TO MEDIUM DENSE, DRY TO SATURATED, SLIGHTLY STRATIFIED WITH DEPTH.

TRANSITION - BROWN TO GRAY FINE SAND AND SILTY, FINE SAND, TRACE CLAY, STRATIFIED WITH SILT AND CLAY LENSES, POORLY GRADED, NON TO SLIGHTLY PLASTIC, SOFT IN PLACES, SATURATED.

CLAY - GRAY, SILTY CLAY TO CLAYEY SILT (ROCK FLOUR), MEDIUM TO HIGH PLASTICITY, VERY SOFT, SATURATED.

E.C. JORDAN CO. CONSULTING ENGINEERS	GEOLOGIC PROFILES H-H' & J-J' SITE 8	
	RI/FS PROGRAM	
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	4607-41	FIGURE 10-7

-11

Click Here to Return to Main Index

10.4 HYDROGEOLOGY: SITE 8

Site 8 has been of special interest because of the location of the Jordan Avenue Wellfield approximately 1,800 feet to the northwest. A primary goal of the subsurface investigation program was to assess the possibility of a hydraulic connection between Site 8 and this municipal wellfield. Based on available geologic, hydrogeologic, and chemical data, contaminated Site 8 groundwater should not affect the municipal wellfield. The hydrogeologic understanding of Site 8 is currently based on stratigraphic information and water level data obtained from three borings, three observation wells, and eight groundwater monitoring wells.

Shallow groundwater movement in the Site 8 area is controlled primarily by surface water drainages and the clay stratum underlying the sand and transition zone deposits. Shallow groundwater movement in the sand, transition zone, and fill beneath Site 8 is toward the tributaries with saturated thicknesses (above the clay) ranging from approximately 6 to 19 feet (Figure 10-7 and 10-8). The stratified transition zone also inhibits downward migration of contaminated groundwater and the clay provides a bottom to the unconfined sand and transition zone aquifer. Due to the low hydraulic conductivity of the clay layer, this strata acts as an aquitard and restricts communication of groundwater between the strata above and below the clay. Shallow groundwater above the clay that is impacted by Site 8 is anticipated to move horizontally towards and discharge to the surface tributaries bordering the site.

Laboratory triaxial permeability tests were performed on two samples of the clay from MW-808. Vertical K values from these two tests were 1.8×10^{-7} and 4.8×10^{-8} cm/sec. This general range of Ks for the clay stratum is assumed to be typical across the base. Presumpscot Formation clays typically have Ks ranging from 10^{-6} to 10^{-7} cm/sec. This extremely low conductivity clay layer is expected to stop migration of contaminants downward to underlying till and bedrock. The clay layer penetrated in B-808 was approximately 40 feet thick.

Hydraulic conductivities determined from in situ tests range from an atypical 1.3×10^{-2} cm/sec in MW-810, apparently in fill underlying the refuse, to 1.8×10^{-6} cm/sec in OW-812 (transition zone strata). Excluding MW-810, Site 8 hydraulic conductivities range from 3.0×10^{-4} to 1.8×10^{-6} cm/sec (see Figures 10-7 and 10-8). The geometric mean of 10 in situ hydraulic conductivities (excluding MW-810) is 3.6×10^{-5} cm/sec. Hydraulic gradients across the site from southeast to northwest range from approximately 0.02 to 0.13 feet/foot. Based on an average gradient across the site from MW-804 to MW-803 of 0.08, a mean K of 3.6×10^{-5} cm/sec, and an estimated porosity of 0.25, seepage velocity across the site is approximately 12 feet per year.

Groundwater movement directly beneath the actual disposal area is locally northward and northeastward, discharging quickly to the adjacent ravine (see Figure 10-8). The steepest gradients at the site (0.13) occur between MW-807, MW-810, MW-811 (all in the immediate vicinity of the refuse) and the adjacent ravine. The greatest Site 8 in situ K (1.3×10^{-2}) also was recorded in fill underlying the refuse (MW-810). Based on these data, calculated

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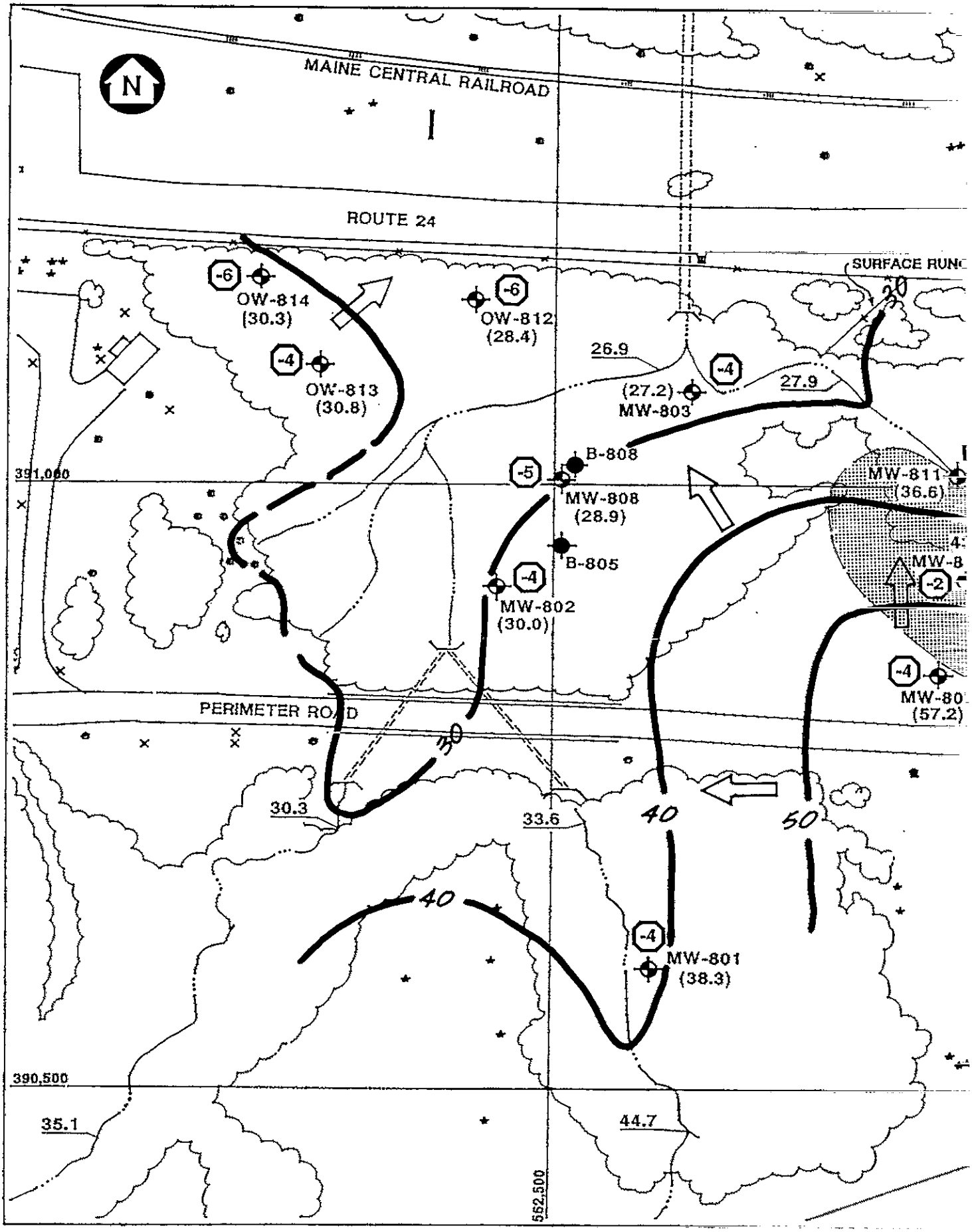

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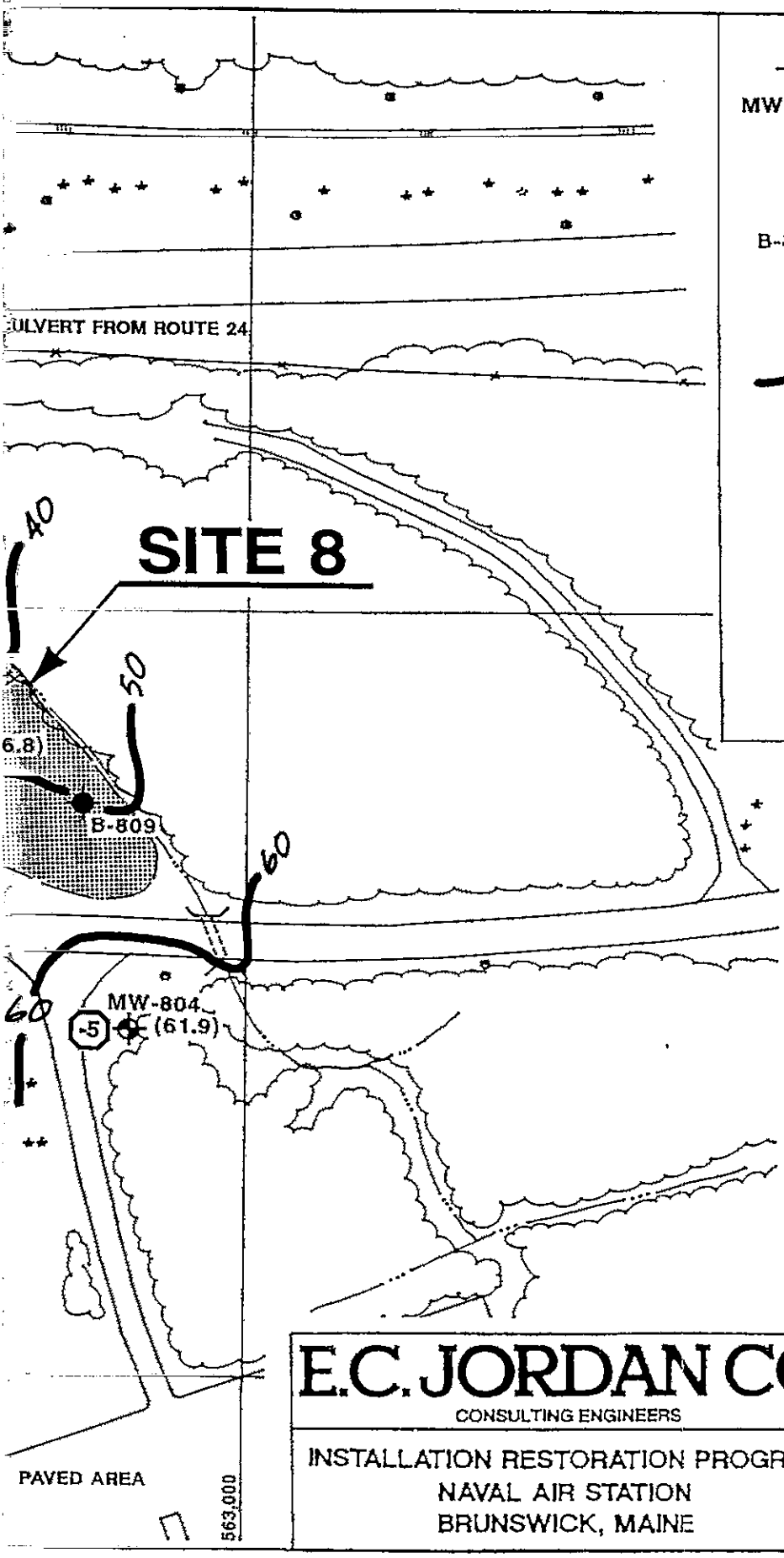

LEGEND

MW-802 — MONITORING WELL LOCATION

B-805 — TEST BORING LOCATION

40 — GROUNDWATER CONTOUR (FEET, MSL)

INFERRED DIRECTION OF GROUNDWATER FLOW

-2 — ORDER OF MAGNITUDE OF HYDRAULIC CONDUCTIVITY IN CENTIMETERS / SECOND (i.e. 10^{-2}cm/sec.)

(61.9) — MEASURED WATER LEVEL 10/24/89

44.7 — ELEVATION OF SURFACE WATER SAMPLING LOCATION

AREA OF DISPOSAL

SCALE IN FEET

0 100 200

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CONSULTING ENGINEERS

WATER TABLE CONTOUR MAP
SITE 8

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41 | FIGURE 10-8

seepage velocity for the immediate vicinity of the refuse is 19 feet per day; consequently, infiltration through the refuse disposal area discharges to the adjacent ravine in a matter of days. This conclusion is based on groundwater contours for the site, high hydraulic conductivities in the vicinity of the refuse, the underlying low conductivity clay layer, and the steep hydraulic gradient adjacent to the northeast tributary. Groundwater in other portions of the overall Site 8 area, although movement may be locally northwestward and westward, is not impacted by refuse leachate. Groundwater monitoring wells have been installed and sampled around the entire northern perimeter of Site 8 to assess groundwater quality and movement across the entire site area. Groundwater contaminated by refuse leachate discharges locally to the ravine (to the north and northeast), and does not appear to be connected hydraulically beneath the tributaries to the Jordan Avenue Wellfield.

Three groundwater observation wells (i.e., OW-812, -813, and -814) were installed during the 1989 field program to assess shallow groundwater movement northwest of Site 8. Based on water level data obtained from these three wells in October 1989, groundwater movement in this area is northeastward, with a component of movement toward the Site 8 tributary. The recorded hydraulic heads in OW-812, OW-813, and OW-814, with higher elevations than the tributary water elevations, indicate discharge from these wells toward the stream. This is further evidence that groundwater beneath Site 8 does not pass northwestward beneath the tributaries toward the Jordan Avenue Wellfield.

10.5 NATURE AND EXTENT OF CONTAMINATION: SITE 8

This subsection describes the results of environmental sampling as well as geophysical data at Site 8.

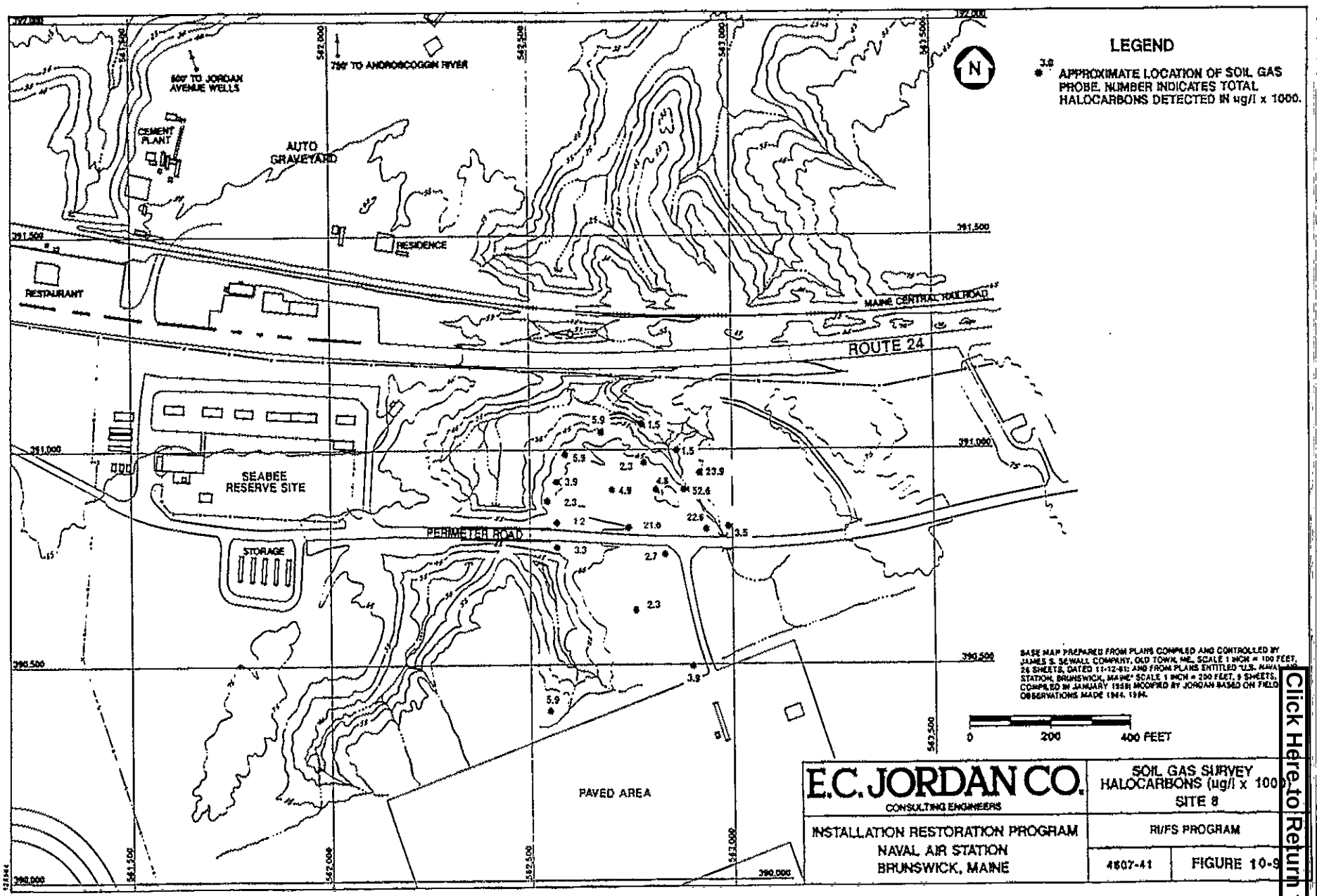
10.5.1 Soil Gas Survey: Site 8

A soil gas survey was conducted by Tracer at Site 8 in June 1988. The survey included analysis for the compounds F-113, chloroform, TCE, TCA, PCE, benzene, toluene, xylene, and THC. Twenty soil gas points (i.e., SG61 through SG80) were made at Site 8. Locations of the 20 soil gas points are shown in Figure 10-3; soil gas data are shown in Figures 10-9 and 10-10 and are also included in Appendix D. Soil gas values for all Site 8 samples exhibited non-detect levels.

10.5.2 Geophysical Surveys: Site 8

During the 1988 field program, a magnetometer and a seismic refraction survey were conducted at Site 8.

10.5.2.1 Magnetometer Survey. A magnetometer survey was conducted at Site 8 on June 21, 1988, using an EDA Omni Plus magnetometer with gradiometer. The purpose of the magnetic measurements was to determine the lateral limits of wastes deposited at the site and to ascertain whether there are potential sources of contamination (as might be indicated by large concentrations of buried ferrous materials). Magnetic and vertical gradient measurements were



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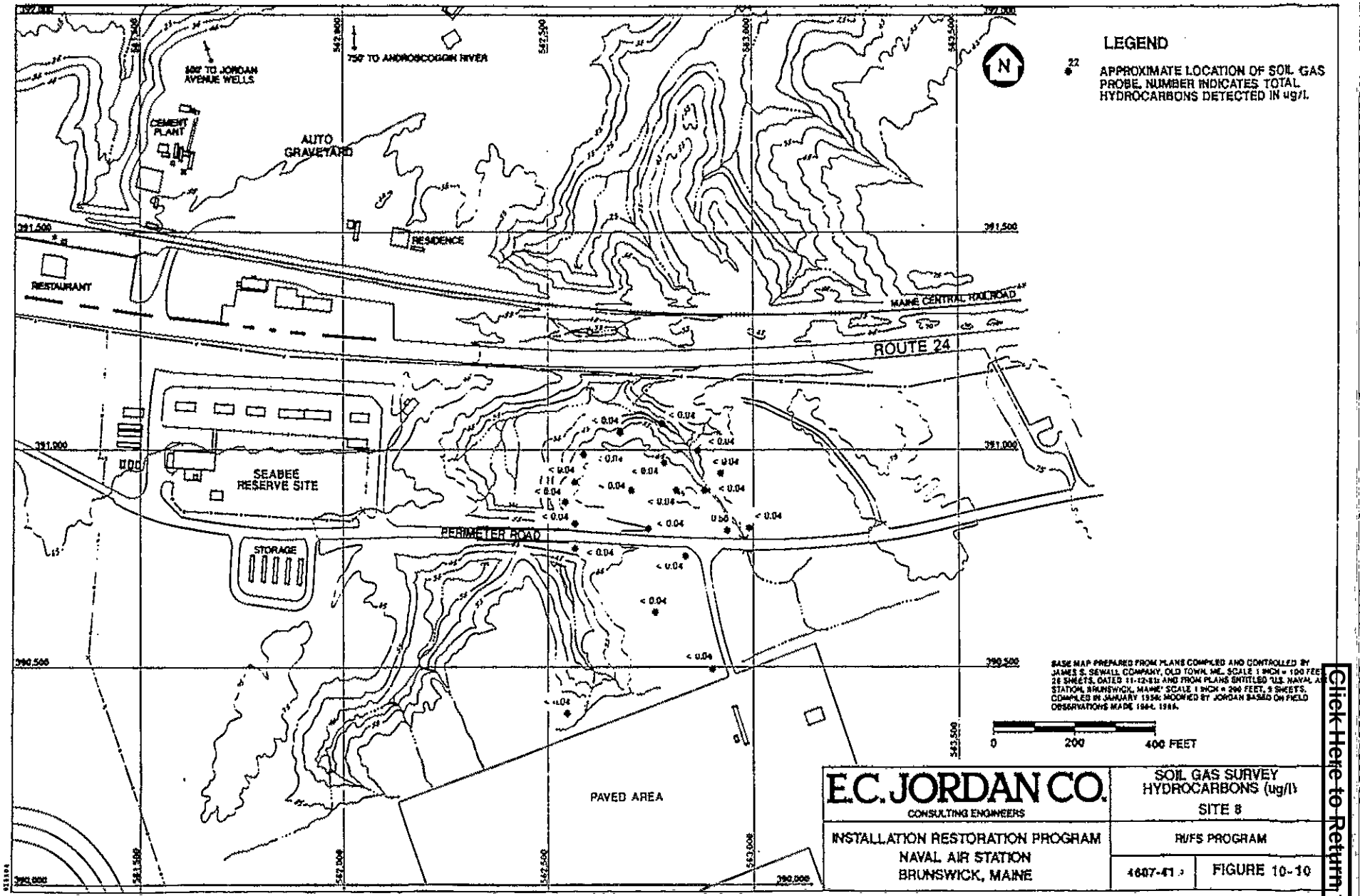

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taken every 20 feet within a grid established on 50-foot centers (Figure 10-11).

Survey results are illustrated in Figure 10-11. Three magnetic anomalies are shown on the figure. Anomaly A is caused by a steel guardrail in the southwestern corner of the survey area. Anomalies B and C are located on portions of the site where concrete rubble (with steel reinforcing rods) was observed at the surface. Other than these features, there do not appear to be significant magnetic anomalies at Site 8 (e.g., steel drums or tanks).

10.5.2.2 Seismic Refraction Survey. A limited seismic refraction survey was conducted along Perimeter Road and the unnamed brook flowing across the northern end of the site on July 11, 1988 (see Figure 10-6). A 24-channel Geometrics ES-2415F Signal Enhancement Seismograph was used for this work. The purpose of the seismic survey was to assess the depth to bedrock to further characterize site geology and hydrogeology. Eight hundred lineal feet of profiling was completed during this work.

The seismic survey produced largely ambiguous data. Data acquired along Perimeter Road (a 400-foot seismic traverse) were adversely affected by the presence of low-velocity road fill materials and were not reliable for an accurate interpretation of subsurface conditions. Data along the unnamed brook were also not believed reliable because of topographic irregularities encountered during the survey. Data from these traverses are not presented in this report.

10.5.3 Test Pits: Site 8

Ten test pits were excavated at Site 8. Six of the test pits (i.e., TP-801 through TP-806) were situated on the northern side of Perimeter Road, and four test pits (i.e., TP-807 through TP-810) were located south of Perimeter Road (see Figure 10-5). Two analytical soil samples were taken from each test pit, and a surface soil sample was also included for the six test pits on the northern side of Perimeter Road. Surface and subsurface soil samples were analyzed for TCL organic and inorganic compounds. Analytical data are in Appendices J and K.

Figure 10-12 summarizes contamination in Site 8 test pits. Four test pits were located south of Perimeter Road to evaluate the potential for disposal having occurred in this area; excavations encountered natural soils in all cases. TCL organic compounds were not detected in these four test pits. TCL inorganic compounds in soil samples from these four test pits exhibited background concentrations (see Tables 5-3 and 5-4).

Explorations were not performed to the northeast of the small tributary for several reasons. The site history assembled in the IAS did not document any disposal in this area, nor did USEPA aerial photographs of the site indicate disposal activities. Likewise, there is no existing visual evidence of disposal either at the groundwater surface or on the embankments to the northeast. The extent of disposal confirmed at Site 8 during the RI coincides with both the IAS history and aerial photographs of the site.

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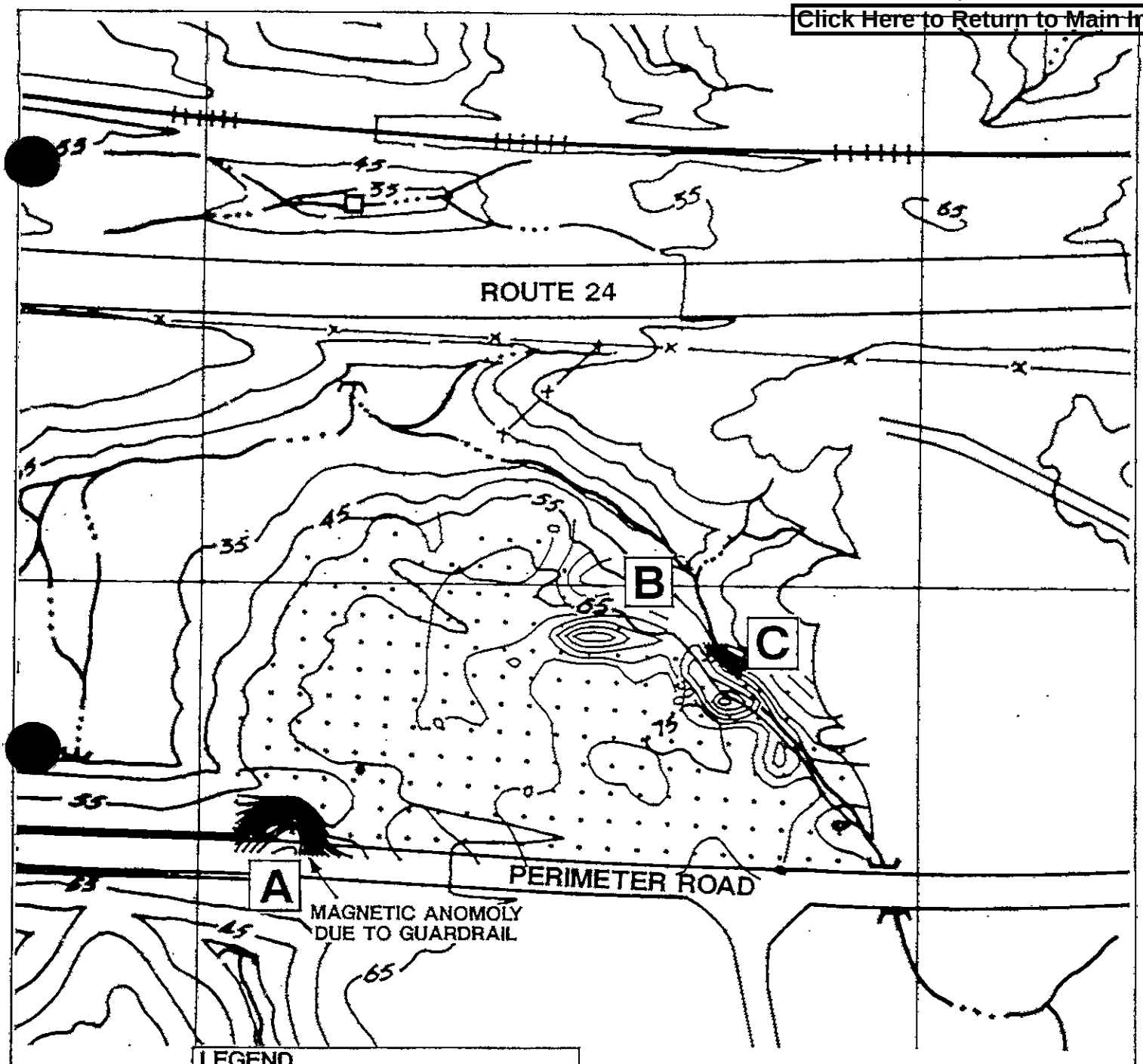
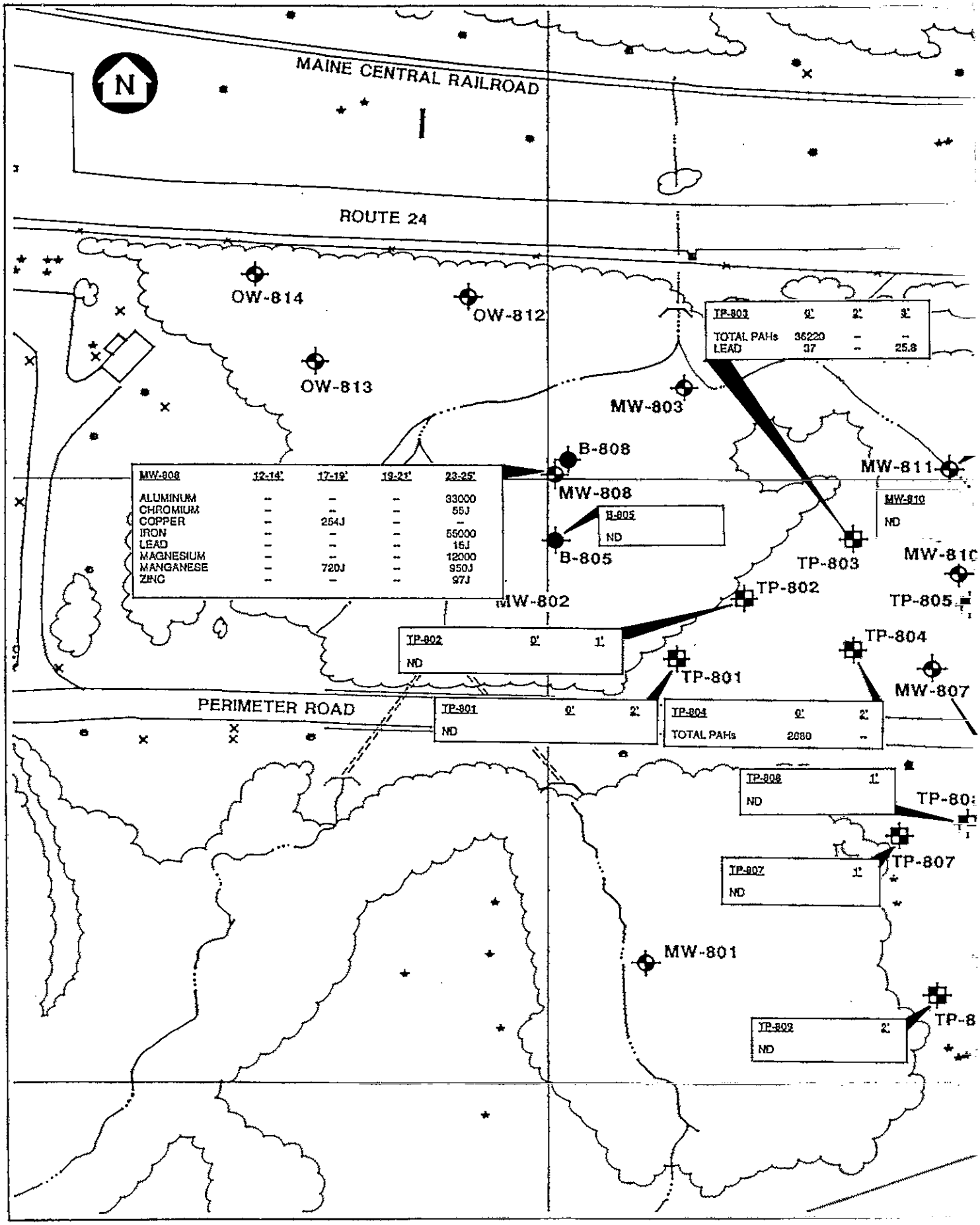


E.C. JORDAN CO. CONSULTING ENGINEERS	VERTICAL MAGNETIC GRADIENT CONTOURS SITE 8
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
	4607-41 | FIGURE 10-11


N
MAINE CENTRAL RAILROAD
ROUTE 24
PERIMETER ROAD
OW-814
OW-812
OW-813
MW-803
B-808
MW-808
B-805
MW-811
MW-810
TP-803
MW-802
TP-802
TP-805
TP-804
TP-801
MW-807
TP-807
MW-801
TP-803 0' 2' 3'
TOTAL PAHs 36220 -- --
LEAD 37 -- 25.8
MW-808 12-14' 17-19' 19-21' 23-25'
ALUMINUM -- -- -- 33000
CHROMIUM -- -- -- 55J
COPPER -- 254J -- --
IRON -- -- -- 55000
LEAD -- -- -- 15J
MAGNESIUM -- -- -- 12000
MANGANESE -- 720J -- 950J
ZINC -- -- -- 97J
B-805 ND
MW-810 ND
TP-802 0' 1' ND
TP-801 0' 2' ND
TP-804 0' 2' TOTAL PAHs 2080 --
TP-806 1' ND
TP-807 1' ND
TP-809 2' ND

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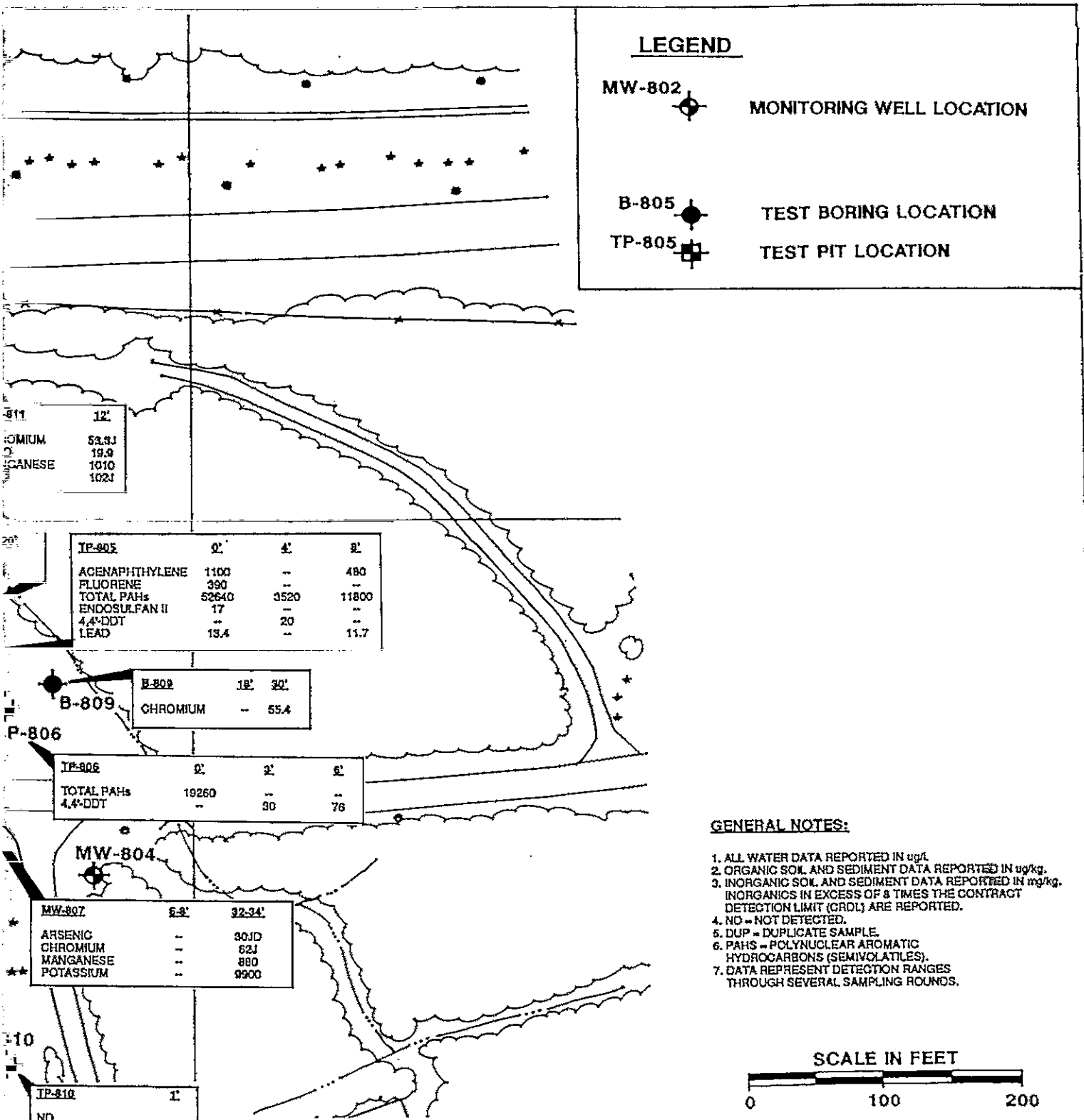

GENERAL NOTES:

1. ALL WATER DATA REPORTED IN ug/L
2. ORGANIC SOIL AND SEDIMENT DATA REPORTED IN ug/kg.
3. INORGANIC SOIL AND SEDIMENT DATA REPORTED IN mg/kg. INORGANICS IN EXCESS OF 8 TIMES THE CONTRACT DETECTION LIMIT (CRDL) ARE REPORTED.
4. ND = NOT DETECTED.
5. DUP = DUPLICATE SAMPLE.
6. PAHS = POLYNUCLEAR AROMATIC HYDROCARBONS (SEMIVOLATILES).
7. DATA REPRESENT DETECTION RANGES THROUGH SEVERAL SAMPLING ROUNDS.

SCALE IN FEET

0 100 200

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CONSULTING ENGINEERS

SOIL CONTAMINANT DISTRIBUTION MAP
SITE 8

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41

FIGURE 10-12

Click Here to Return to Main Index

Six test pits (i.e., TP-801, TP-802, TP-803, TP-804, TP-805, and TP-806) were established on the northern side of Perimeter Road. Two test pits in the western portion of this area (i.e., TP-801 and TP-802) encountered natural soils from surface to bottom (see Figure 10-5 and Appendix C). Similarly, analytical soil samples in TP-801 and TP-802 did not detect environmental contamination. The other four test pits, located in the eastern portion of this area, did detect environmental contamination. VOCs were found in only one soil sample. Acetone (15 µg/kg) was detected in the 3-foot soil sample in TP-806. The acetone concentration is low and acetone was reported in Round IV laboratory blanks. Because acetone is detected in only one soil sample and is a common laboratory contaminant, its presence is not believed to represent actual site conditions (see Table 10-2 and Subsection 5.3.5).

PAHs were detected in all four test pits where environmental contamination was found. PAHs were the only SVOCs detected, and concentration varies from 2,680 µg/kg (in TP-804) to 52,640 µg/kg (in TP-805). In all but TP-805, PAHs were found in surface soil samples. In TP-805, PAHs were found to depths of 8 feet, although PAH concentration decreases with sampling depth.

Pesticides were found in two Site 8 test pits (i.e., TP-805 and TP-806). DDT was found in TP-806 in two of the analytical soil samples: 330 µg/kg DDT was detected at 3 feet, and 76 µg/kg DDT was found in the 6-foot analytical soil sample. Both DDT and endosulfan II were reported in TP-805. Seventeen µg/kg endosulfan II was detected in the surface soil sample, and 20 µg/kg DDT was found at a depth of 4 feet.

TCL inorganic compounds typically had concentrations consistent with background levels (see Tables 5-3 and 5-4), but lead and/or chromium were detected in three of the four eastern test pits north of Perimeter Road (i.e., TP-803, TP-805, and TP-806). Lead was found in all three test pits, varying in concentration from 10 mg/kg (in TP-806) to 37 mg/kg (in TP-803). Chromium was found in TP-3 and TP-805, ranging in concentration from 16 mg/kg to 24 mg/kg.

10.5.4 Subsurface Soils: Site 8

The RI/FS program at Site 8 included six test borings and 13 analytical soil samples. Three test borings were installed in the 1988 field season (i.e., B-805, B-808, and MW-807), and three were completed during the 1989 field program (i.e., B-809, MW-810, and MW-811). Locations of the soil borings are shown in Figure 10-2; analytical data are in Appendices J and K. Site 8 soil contamination is summarized in Figure 10-12.

VOCs were detected only in B-808, and 2-butanone was the only VOC detected. The 2-butanone concentration ranged from 17 to 56 µg/kg, and was found in soil samples from depth intervals of 12 to 14, 19 to 21, and 23 to 25 feet. The detected levels are low, and 2-butanone was detected in laboratory method blanks from Round I sampling. Because of the common occurrence of 2-butanone as a laboratory artifact, its presence is not believed to represent actual site conditions (see Table 10-2 and Subection 5.3.5).

TABLE 10-2
SUSPECT CONTAMINANTS: SITE 8

REMEDIAL INVESTIGATION
NAS BRUNSWICK

COMPOUND	CONCENTRATION	MEDIA	CRITERIA
Acetone	15 µg/kg (23-80 µg/L)	Soils/surface water	Common contaminant/sporadic detection/ laboratory blanks
2-Butanone	17-220 µg/kg (29 µg/L)	Sediment/soils/groundwater	Common contaminant/sporadic detection/ laboratory blanks
Styrene	0.6 µg/L	Groundwater	Sporadic detection
Bis(2-ethylhexyl)phthalate	24 µg/L (5,900-17,000 µg/kg)	Groundwater/sediment	Sporadic detection/common contaminant/ laboratory blanks
Methylene Chloride	110-2,300 µg/kg	Sediment	Sporadic detection/laboratory blanks
Acetone	75 µg/L	Sediment/leachate	Sporadic detection/laboratory blanks
Chloroform	11-62 µg/kg	Sediment/leachate	Sporadic detection
TCA	59 µg/kg	Sediment	Sporadic detection/laboratory blanks

NOTES:

µg/L = micrograms per liter
µg/kg = micrograms per kilogram

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SVOCs, pesticides, and PCBs were not reported in analytical soil samples from Site 8 soil borings, but SVOC TICs were reported in soils from B-809 (see Appendix J). Detected inorganic TCL compounds are typically in the normal range for background soil at NAS Brunswick (see Tables 5-3 and 5-4).

10.5.5 Groundwater: Site 8

Groundwater from Site 8 monitoring wells was sampled during Rounds I, II, III, and IV. Compounds analyzed for include TCL organics, TCL inorganics, general water quality parameters, TOC, carbonate, and bicarbonate (see Table 4-2 for sampling chronology and compounds analyzed). Observation wells (OW-812, OW-813, and OW-814) were not sampled. Analytical data are in Appendices J and K; Figure 10-13 summarizes Site 8 groundwater contamination.

VOCs were detected in two Site 8 monitoring wells (i.e., MW-804 and MW-810). Low levels of styrene (0.60 µg/L) were reported in MW-804 during Round III sampling, and 2-butanone (29 µg/L) was detected in Round IV sampling of MW-810. MW-804 was sampled four times; styrene was detected in only one sampling episode. The low concentration and sporadic detection suggest that styrene does not represent actual site conditions. The monitoring well is upgradient of the Site 8 landfill, and styrene was not found in any other sampling locations at NAS Brunswick. As discussed in Subsection 5.3.5, low levels of 2-butanone are believed to result from sampling procedures, and not to represent actual site conditions (see Table 10-2).

Pesticides and PCBs were not found in any Site 8 monitoring well and SVOCs were reported in only MW-808, where 24 µg/L bis(2-ethylhexyl)phthalate was detected in sampling Round I. Because this SVOC compound is a common laboratory contaminant, and was found in Round I laboratory method blanks, it is believed that bis(2-ethylhexyl)phthalate does not represent actual site conditions.

TCL inorganic compounds are typically within the normal range, except for sodium, calcium, iron, and cyanide in several monitoring wells, and sporadic detection of cadmium (7.2 µg/L), cobalt (25.4 µg/L), zinc (47 to 547 µg/L), and lead (6.2 µg/L) in MW-807. Low levels of cadmium were also detected in MW-808 (ND to 9.4 µg/L) and MW-803 (ND to 12.6 µg/L). High levels of sodium were observed in MW-801 (6,700 to 28,000 µg/L), MW-802 (27,500 to 29,600 µg/L), MW-804 (21,100 to 29,000 µg/L), MW-807 (62,200 to 78,600 µg/L), MW-810 (39,200 µg/L), and MW-811 (50,800 µg/L). Elevated calcium concentrations were reported in MW-804 (28,600 to 67,000 µg/L), MW-810 (36,400 µg/L), and MW-811 (69,100 µg/L). High iron concentrations are apparent at MW-810 and MW-811, where 251,000 and 220,000 µg/L were reported, respectively.

Cyanide was also detected in several monitoring wells, including MW-803 (38 µg/L), MW-804 (11 to 24 µg/L), and MW-807 (21.5 µg/L). The cyanide found in MW-803 was only detected in the duplicate analysis from Round II. Cyanide reported in MW-804 and MW-807 is restricted to Rounds II and III and, where duplicates were taken, cyanide was detected in both analyses.

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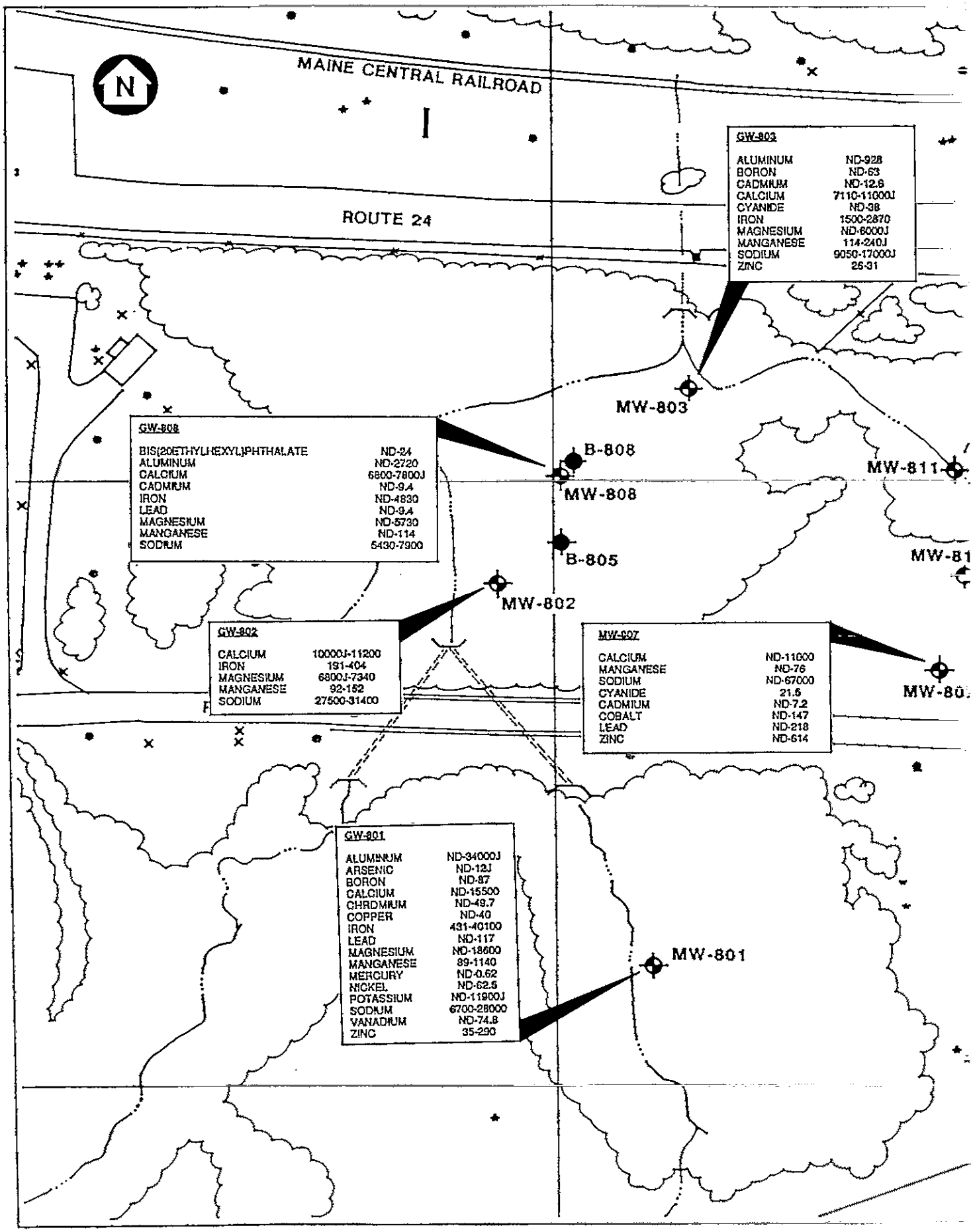

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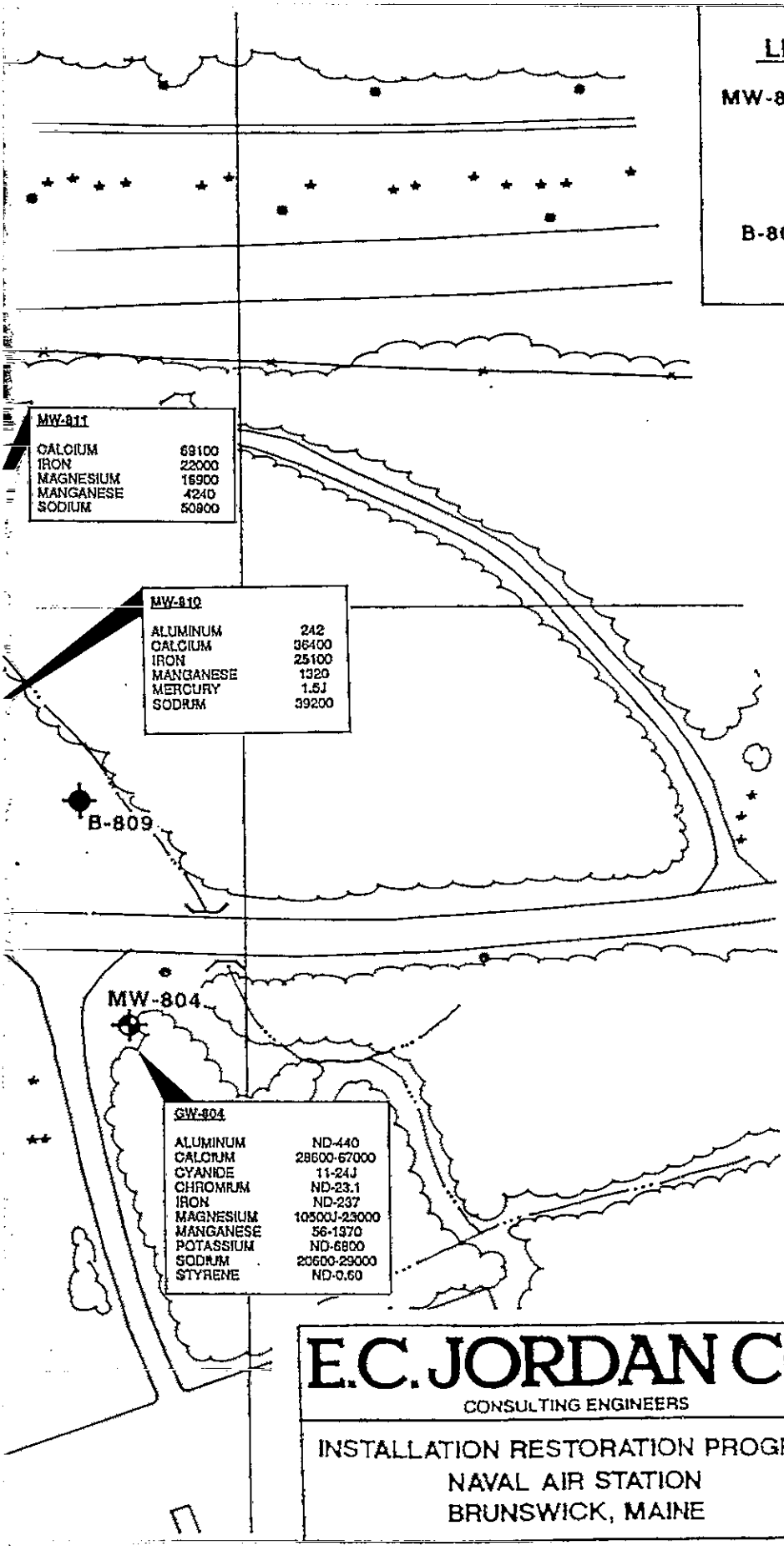

GENERAL NOTES:

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2. ORGANIC SOIL AND SEDIMENT DATA REPORTED IN ug/kg.
3. INORGANIC SOIL AND SEDIMENT DATA REPORTED IN mg/kg. INORGANICS IN EXCESS OF 5 TIMES THE CONTRACT DETECTION LIMIT (CRDL) ARE REPORTED.
4. ND = NOT DETECTED.
5. DUP = DUPLICATE SAMPLE.
6. PAHS = POLYNUCLEAR AROMATIC HYDROCARBONS (SEMIVOLATILES).
7. DATA REPRESENT DETECTION RANGES THROUGH SEVERAL SAMPLING ROUNDS.
8. MW AND GW BOTH MEAN GROUNDWATER SAMPLES.

SCALE IN FEET

0 100 200

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GROUNDWATER CONTAMINANT DISTRIBUTION MAP
SITE 8

INSTALLATION RESTORATION PROGRAM
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RI/FS PROGRAM

4607-41

FIGURE 10-13

Cadmium, lead, and zinc were detected during Round II, and cobalt and zinc were reported during Round IV in MW-807. These metals were not detected in the other sampling rounds, and the variability between sampling rounds indicates sporadic detection that is consistent with the low values for these metals.

General water quality parameters, TOC, carbonate, and bicarbonate were also analyzed in Site 8 monitoring wells. General water quality compounds analyzed included total coliform bacteria, hexavalent chromium, chloride, sulfate, filterable residue, nitrate/nitrite, total sulfide, total recoverable phenolics, and methylene blue active substances (MBAs). Most general water quality parameters exhibited non-detect values, and where detected, had low concentrations. General water quality parameters with elevated concentrations included total coliform bacteria, chloride, filterable residue, and hexavalent chromium. Total coliforms ranged in counts from non-detect values (in MW-802, MW-804, and MW-808) to those too numerous to count (TNC) (in MW-807). Chloride and filterable residue were detected at several monitoring wells. Chloride concentrations exceeding background levels occur at MW-804 (32 to 37 mg/L), MW-807 (140 mg/L), MW-810 (62 mg/L), and MW-811 (69 mg/L). Filterable residue is high in all Site 8 monitoring wells, with values ranging from 110 mg/L to 310 mg/L. Hexavalent chromium was only detected in MW-811, at a concentration of 0.953 mg/L.

Bicarbonate and carbonate were analyzed for at all Site 8 monitoring wells; carbonate was not detected at any monitoring well. Bicarbonate values ranged from background values to 270 mg/L. Background values were recorded at MW-801 and MW-807. High bicarbonate concentrations were observed at MW-802 (88 to 120 mg/L), MW-803 (56 mg/L), MW-804 (120 to 140 mg/L), MW-810 (120 mg/L), and MW-811 (270 mg/L).

10.5.6 Surface Water and Sediments: Site 8

Twelve surface water and sediment sampling locations were established at Site 8. Four sampling points are situated in drainages on the southern side of Perimeter Road (i.e., SW-006, SW-007, SW-820, and SW-821); two are located off base, north of Route 24 (i.e., SW-817 and SW-818); and six are situated in streams north of Perimeter Road (i.e., SW-008, SW-009, SW-819, SW-822, SW-823, and SW-824). Site 8 surface water and sediment samples were analyzed for TCL organics, TCL inorganics, and general water quality parameters (see Table 4-2 for sampling chronology and compounds analyzed). Analytical data is in Appendices J and K; Figure 10-14 summarizes contamination in Site 8 SW/SD data.

VOCs were detected only in surface water at SW-821 (Round II), where 23 µg/L of acetone was reported. Acetone was also found in SD-009 (Round I), where 80 µg/L was detected. Acetone was reported in laboratory method blanks for water in both Rounds I and II. The low concentration, its common occurrence as a laboratory contaminant, sporadic observation, and lack of detection at other Site 8 locations suggests acetone is not representative of actual site conditions. Low levels of VOCs were also reported in two sediment samples.

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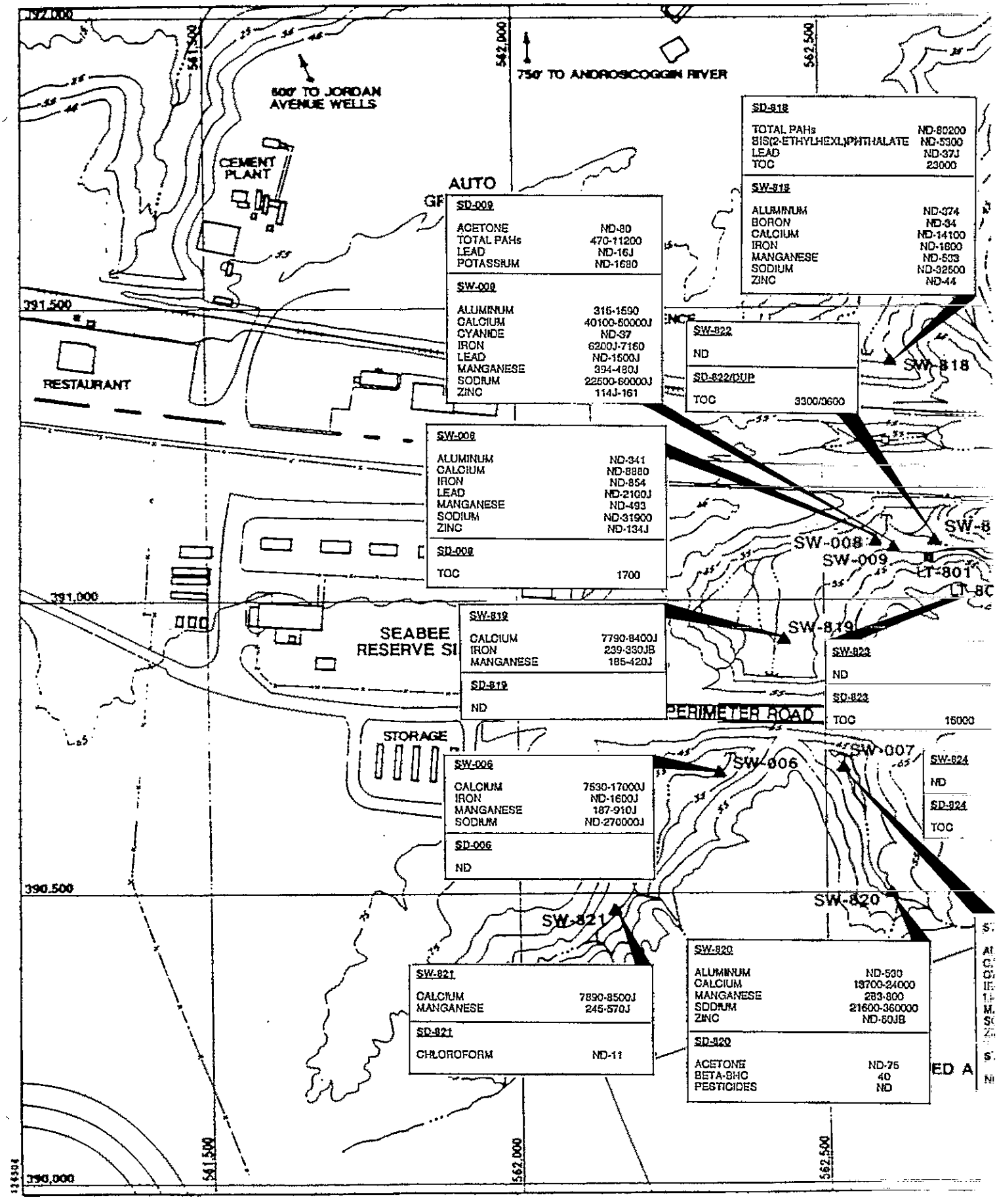

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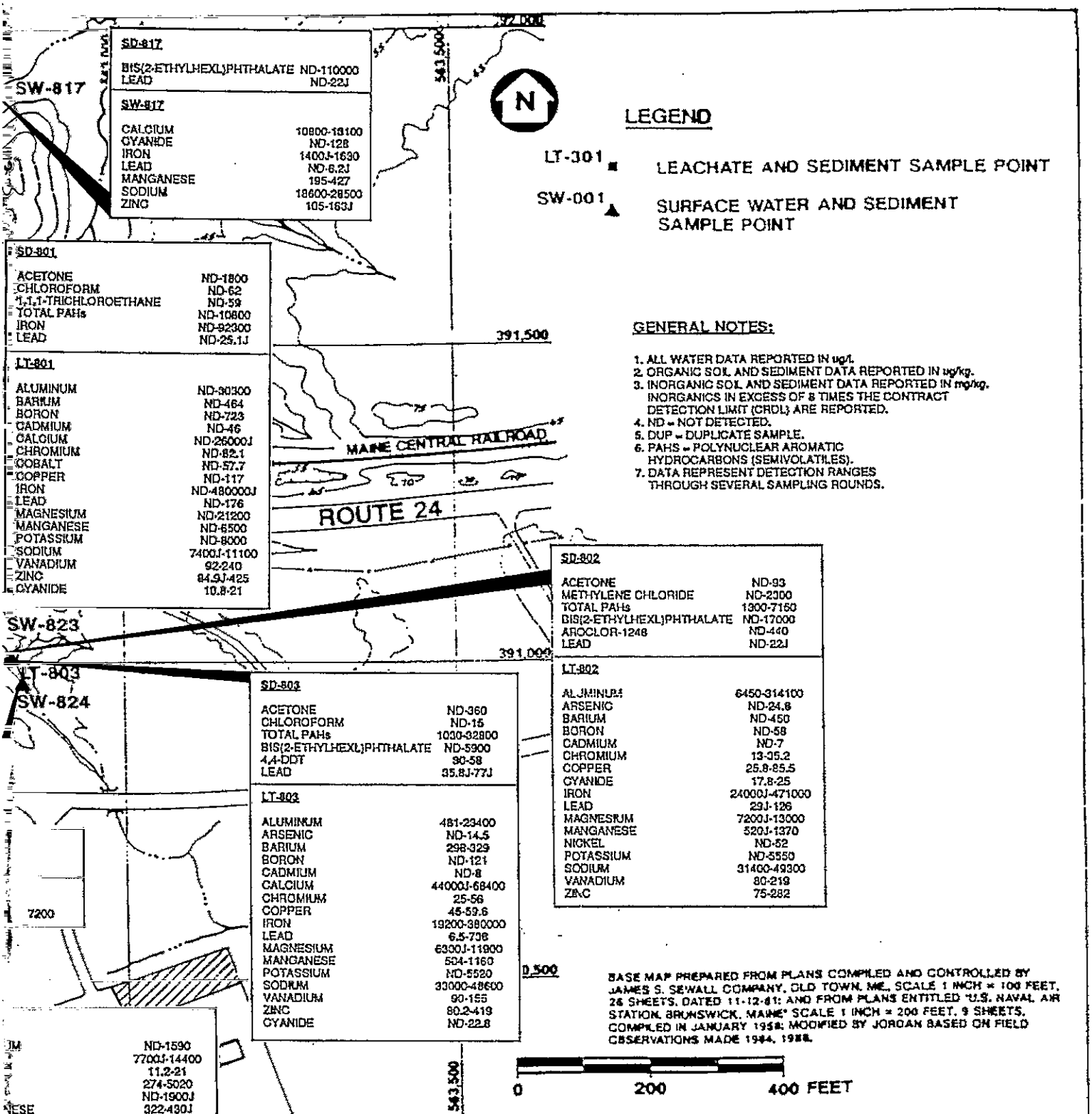

SD-817

BIS(2-ETHYLHEXL)PHTHALATE	ND-110000
LEAD	ND-22J

SW-817

CALCIUM	10800-18100
CYANIDE	ND-128
IRON	1400J-1630
LEAD	ND-6.2J
MANGANESE	195-427
SODIUM	18600-28500
ZINC	105-163J

SD-801

ACETONE	ND-1800
CHLOROFORM	ND-62
1,1,1-TRICHLOROETHANE	ND-59
TOTAL PAHs	ND-10800
IRON	ND-92300
LEAD	ND-25.1J

LT-801

ALUMINUM	ND-30300
BARIUM	ND-464
BORON	ND-723
CADMIUM	ND-46
CALCIUM	ND-26000J
CHROMIUM	ND-82.1
COBALT	ND-57.7
COPPER	ND-117
IRON	ND-480000J
LEAD	ND-176
MAGNESIUM	ND-21200
MANGANESE	ND-6500
POTASSIUM	ND-8000
SODIUM	7400J-11100
VANADIUM	92-240
ZINC	84.9J-425
CYANIDE	10.8-21

SD-802

ACETONE	ND-93
METHYLENE CHLORIDE	ND-2300
TOTAL PAHs	1300-7150
BIS(2-ETHYLHEXL)PHTHALATE	ND-17000
AROCLOR-1248	ND-440
LEAD	ND-22J

LT-802

ALUMINUM	6450-314100
ARSENIC	ND-24.8
BARIUM	ND-450
BORON	ND-58
CADMIUM	ND-7
CHROMIUM	13-35.2
COPPER	25.8-85.5
CYANIDE	17.8-25
IRON	24000J-471000
LEAD	29J-126
MAGNESIUM	7200J-13000
MANGANESE	520J-1370
NICKEL	ND-52
POTASSIUM	ND-5550
SODIUM	31400-49300
VANADIUM	80-219
ZINC	75-282

SD-803

ACETONE	ND-360
CHLOROFORM	ND-15
TOTAL PAHs	1030-32800
BIS(2-ETHYLHEXL)PHTHALATE	ND-5900
4,4-DDT	30-58
LEAD	35.8J-77J

LT-803

ALUMINUM	481-23400
ARSENIC	ND-14.5
BARIUM	298-329
BORON	ND-121
CADMIUM	ND-8
CALCIUM	44000J-68400
CHROMIUM	25-56
COPPER	45-59.6
IRON	19200-380000
LEAD	6.5-736
MAGNESIUM	6300J-11900
MANGANESE	504-1160
POTASSIUM	ND-5520
SODIUM	33000-48600
VANADIUM	90-155
ZINC	80.2-419
CYANIDE	ND-22.8

JM	ND-1590
	7700J-14400
	11.2-21
	274-5020
	ND-1900J
ESE	322-430J
	ND-171000
	70.6J-70.9J

LEGEND

LT-301 ■ LEACHATE AND SEDIMENT SAMPLE POINT

SW-001 ▲ SURFACE WATER AND SEDIMENT SAMPLE POINT

GENERAL NOTES:

1. ALL WATER DATA REPORTED IN ug/l.
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3. INORGANIC SOIL AND SEDIMENT DATA REPORTED IN mg/kg. INORGANICS IN EXCESS OF 8 TIMES THE CONTRACT DETECTION LIMIT (CRDL) ARE REPORTED.
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5. DUP = DUPLICATE SAMPLE.
6. PAHS = POLYNUCLEAR AROMATIC HYDROCARBONS (SEMIVOLATILES).
7. DATA REPRESENT DETECTION RANGES THROUGH SEVERAL SAMPLING ROUNDS.

BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME., SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81; AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 9 SHEETS, COMPILED IN JANUARY 1958; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1988.

E.C. JORDAN CO.
CONSULTING ENGINEERS

SURFACE WATER, LEACHATE, AND SEDIMENT CONTAMINANT DISTRIBUTION MAP
SITE 8

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

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FIGURE 10-14

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Methylene chloride (110 µg/L) and acetone (75 µg/L) were found in SD-820, and chloroform (11 µg/L) was detected in SD-821. All three compounds were detected in laboratory method blanks during the appropriate sampling round. Like acetone, methylene chloride and chloroform are also common laboratory contaminants, and results from SD-820 and SD-821 are not believed to represent actual site conditions (see Table 10-2 and subsection 5.3.5). Although solvents were reported to have been disposed at Site 8, all sampling locations where VOCs were detected, except SW-009, are upgradient of the source area. This observation and the presence of these VOCs in laboratory method blanks is consistent with the laboratory contamination scenario.

SVOCs, pesticides, and PCBs were not detected in Site 8 surface water; however, PAHs were found in sediment sample SD-009 (10,000 µg/kg) and beta-BHC was detected in sediment sample SD-820 (40 µg/kg). PAHs (approximately 84,000 µg/kg) also were reported in Round I sampling of SD-818, but were not observed during Rounds II, III, or IV. The high levels of PAHs observed in SD-818 from Round I appear to be associated with localized historic accumulation. Although no direct observations have been made, this accumulation may have been removed during a storm event subsequent to Round I sampling; it apparently has not yet reaccumulated.

NAS Brunswick surface waters and sediment typically have concentrations of TCL inorganic compounds in the normal range (see Tables 5-3, 5-4, and 5-5). Exceptions to normal inorganic concentrations include sodium, which has elevated levels at several surface water locations (i.e., SW-006, SW-007, and SW-820); cyanide, detected at SW-007 (11 to 21 µg/L), SW-009 (37 µg/L), and SW-817 (128 µg/L); and zinc (detected at SW-007, SW-009, SW-817, SW-818, and SW-820). Sodium concentrations in surface water locations range from normal levels of 10,000 to 20,000 µg/L to 360,000 µg/L. The high sodium levels are typically associated with Rounds II and III (conducted in December 1988 and April 1989), and probably result from road salting (see Subsection 10.6). Cyanide concentrations vary from non-detect to 128 µg/L, and detection is also limited to Rounds II and III.

Zinc concentrations in Site 8 surface waters range from 11 µg/L to 163 µg/L. The highest concentrations occur in SW-817, which is located off base, north of Route 24. Zinc is also detected off base at SW-818 (22-44 µg/L). SW-818 is upgradient of SW-817 (see Figure 10-14), but has significantly lower concentrations.

General water quality compounds (see Subsection 10.5.5) have also been analyzed for in Site 8 surface waters. Most parameters had low to non-detect values, including hexavalent chromium, which was not detected at any surface water location. Similar to groundwater, total coliform, chloride, and filterable residue levels are high at several surface water locations. Total coliform samples were collected during Rounds I and II, and a significant variability in detected levels was observed at SW-006, SW-007, SW-008, SW-009, SW-817, and SW-820. High levels of total coliforms are reported in Round I (September 1988), with low to non-detect values in Round II (December 1988).

Chloride concentrations in SW-006, SW-007, and SW-820 are also high, with some variability in concentration in the two sampling rounds. SW-006 had 420 mg/L of chloride reported in Round I, but only 6.5 mg/L in Round II. Surface water at SW-007 had 10 mg/L in Round I, and 240 mg/L in Round II. Chloride concentrations are high in both sampling rounds at SW-820, with 510 and 360 mg/L reported in Rounds I and II, respectively.

Filterable residue (total suspended solids) values exceeding 100 mg/L are reported at all surface water locations except SW-819. Variable levels of filterable residue also occurred during the two sampling rounds. Filterable residue is high during Round I and low during Round II at SW-006 (720 to 64 mg/L), and SW-820 (970 to 160 mg/L). In contrast, values are low in Round I, but high in Round II at SW-007 (63 to 460 mg/L) and SW-821 (66 to 100 mg/L).

TOC was measured in sediment at four surface water locations including SW-818, SW-822, SW-823, and SW-824. TOC concentrations ranged from 3,300 to 23,000 mg/kg. Highest levels were reported in SD-818; lowest values occurred in SW-822.

10.5.7 Seeps and Sediments: Site 8

Leachate and sediment from three seep locations (i.e., LT-801, LT-802, and LT-803) were sampled at Site 8. The three seeps were sampled during all four sampling rounds, and analyzed for TCL organic and inorganic compounds (see Appendices J and K). A summary of Site 8 seep and sediment contamination is in Figure 10-14. Seeps at Site 8 occur along the northeastern drainage. VOCs detected in Site 8 leachate and sediment during the four sampling rounds include acetone (leachate and sediment), methylene chloride (sediment), chloroform (sediment), 2-butanone (sediment), and TCA (sediment). Acetone was found in LT-801 (39 µg/L, Round III) and LT-802 (10 µg/L, Round II). No other VOCs were detected in leachate from Site 8 seeps. Sediment samples from seep locations also detected VOCs. Acetone (330 to 1,800 µg/kg), chloroform (62 µg/kg), 2-butanone (220 µg/kg), and TCA (59 µg/kg) were detected in SD-801. Methylene chloride (2,300 µg/kg) and acetone (93 µg/kg) were reported in SD-802. Acetone (360 µg/kg) and chloroform (14 µg/kg) were found in SD-803. Of the VOCs detected, all but chloroform were detected in laboratory method blanks in the sampling round of interest. The only VOC detected in more than one of the four sampling rounds was acetone at SD-801, which was found in Rounds I, II, and III, and also reported in soil method blanks for Rounds I, II, and III. Similarly, during Round II, acetone was detected in LT-801 and Round II laboratory method water blanks (see Appendix J). Low levels of the other compounds (i.e., methylene chloride, TCA, 2-butanone, and chloroform) measured in sediments from Site 8 seeps, accompanied with sporadic detection and method blank detections, suggest these compounds do not reflect actual site conditions (see Table 10-2).

SVOCs were not detected in leachate from Site 8 seeps, but PAHs were reported in all three associated sediments. PAHs were lowest in SD-801 (10,800 µg/kg), and were only detected in Round I data. PAHs were reported in all three sampling rounds at SD-802 (1,400 to 7,150 µg/kg) and SD-803 (1,030 to 32,800 µg/kg). Bis(2-ethylhexyl)phthalate was also found at SD-802 (17,000 µg/kg)

and SD-803 (5,900 µg/kg). This compound was only reported from Round I sampling, and its presence is not believed to represent actual site conditions.

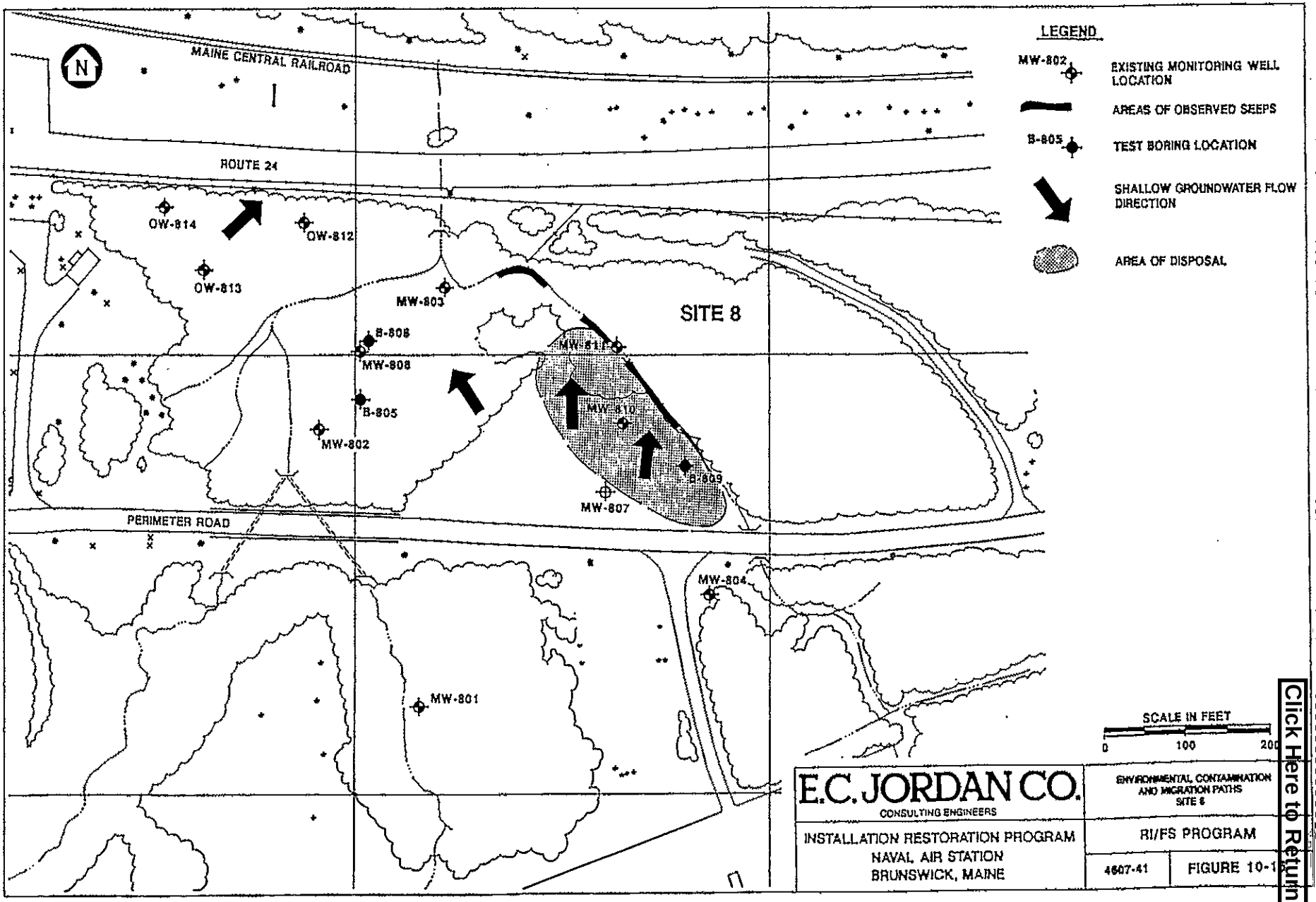
PCBs and pesticides were not reported in Site 8 leachate samples, but were found in sediment SD-802 and SD-803. The PCB Aroclor-1248 (440 µg/kg) was detected in Round II sampling of SD-802, and endosulfan II (30 to 58 µg/kg) was reported in Rounds I, II, and III at SD-803.

Inorganic TCL compounds were detected at all three Site 8 seep locations. Concentrations of TCL inorganics are elevated in leachate, and consistently higher than background surface water and groundwater values (see Tables 5-5 and 5-6). Lead values are also high (72 to 399 µg/L). Cyanide (10 to 25 µg/L), zinc (75 to 428 µg/L), and vanadium (75 to 240 µg/L) were found in all three leachate samples. The elevated concentration of metals is consistent with the low pH values (5.5 to 6.4) reported for these leachate samples (see Appendices J and K), as metal solubility is a strong function of pH (Garrels, 1960).

Site 8 sediment samples at seep locations also have higher concentrations of inorganic compounds. Aluminum, calcium, magnesium, and manganese all have values consistent with background concentrations, but iron concentrations are high. High iron values are probably due to precipitation of iron oxides from leachate. Low concentrations of arsenic (3 to 6 mg/kg) were found in sediments in all three seep locations, but arsenic was not detected during all sampling rounds. Lead (3 to 77 mg/kg) and chromium (5 to 82 mg/kg) were found in all sediment samples and were detected in all sampling rounds, but at relatively low concentrations. Lead and chromium concentrations are consistent with clay-rich sediment (see Table 5-4) that characterize Site 8 (see also Subsection 10.6). Other detected TCL compounds include copper, cobalt, vanadium, and zinc. These compounds were not found at all seep sampling locations, nor were they detected in all sampling rounds, and concentrations are typically in the normal range for clay soil samples (see Table 5-4).

10.6 SUMMARY OF EXTENT OF CONTAMINATION: SITE 8

Environmental contamination at Site 8 was observed in surface and subsurface soil, surface water, sediments, seeps, and groundwater (Figure 10-15). PAHs and DDT are restricted to surface and shallow soils and sediment associated with leachate and surface water. Inorganic environmental contamination is observed in surface water, leachate, and groundwater. The IAS indicated that rubble, debris, and trash were disposed of at Site 8 (R.F. Weston, Inc., 1983). The IAS also suggested that a minimum of 1,000 pounds of solvent (i.e., TCE, toluene, and 2-butanone) was disposed of at Site 8. Of these compounds, only 2-butanone was reported and the sporadic detection is consistent with laboratory or sampling contamination (see Subsection 5.3.5). The presence of these other VOC compounds has not been confirmed at Site 8, indicating that either only small amounts were disposed of or the materials have been flushed or volatized out with time. The Site 8 disposal area



Click Here to Return to Main Index

overlapped the Site 1 landfill in years of operation, and the solvents may have been disposed of at Site 1 instead of Site 8. These solvents have been found at Site 1, supporting this hypothesis.

Field programs carried out at Site 8 also identified the portion of the site impacted by disposal practices. The magnetometer survey identified the presence of buried ferrous material along the northeastern area of the site. In contrast, natural soils were observed on the southern side of Perimeter Road, and in the western portion of Site 8 north of Perimeter Road. The disposal area is restricted to the northeastern corner of the site, north of Perimeter Road where debris was pushed into a natural ravine (see Figures 10-2 and 10-11).

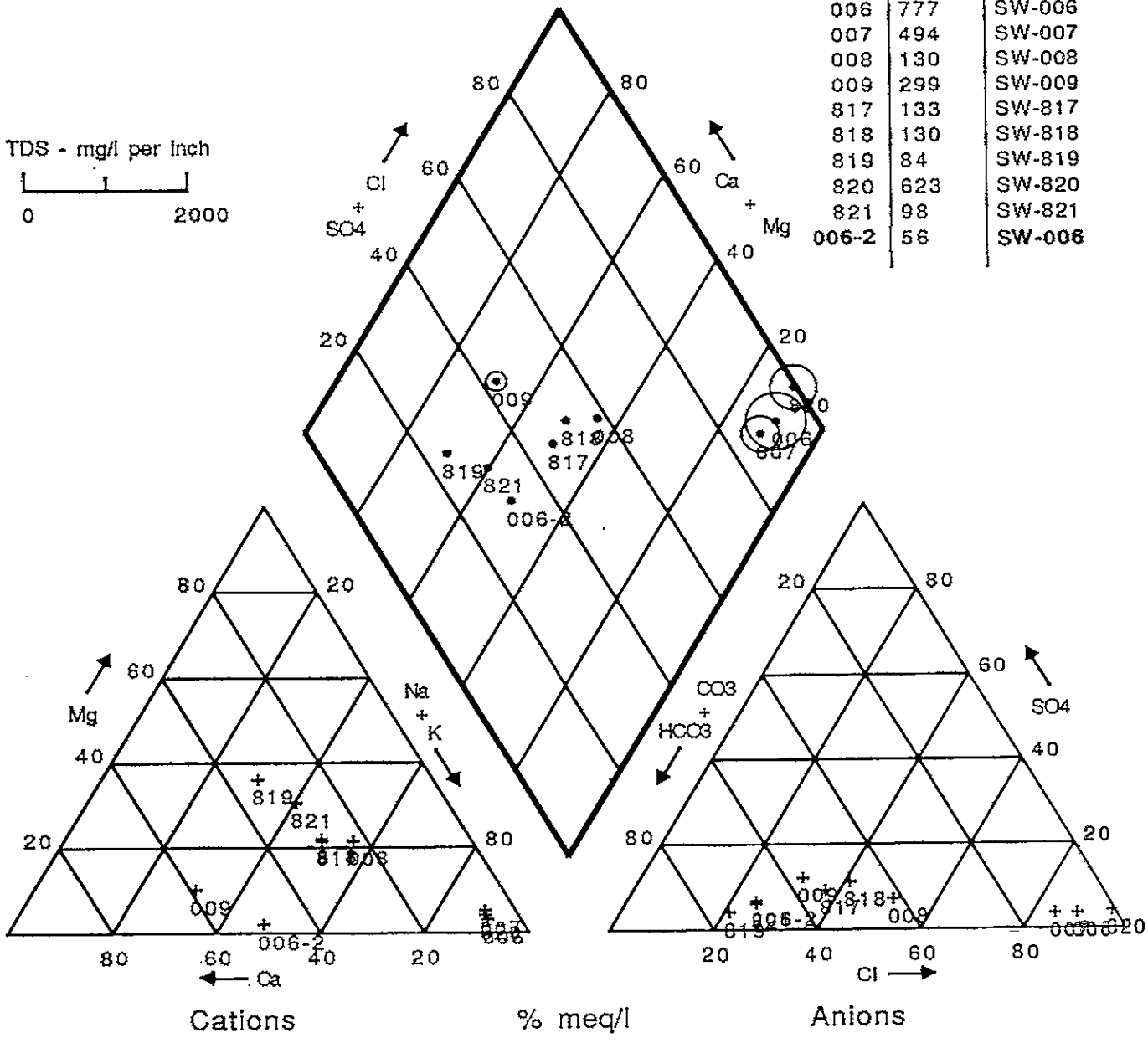
Analytical soil data are also consistent with this disposal area location. PAHs and DDT are found in subsurface soil samples from test pits in the disposal area (i.e., TP-803, TP-804, TP-805, and TP-806). Environmental contamination was present only in these four test pits located in the northeastern area of Site 8, and PAH concentration in soils from these four test pits increased as the disposal area was approached from the west. Similarly, DDT was detected only in test pits next to the disposal area (see Figure 10-12).

In addition to the test pits, PAHs are also found in sediments associated with leachate (i.e., SD-801, SD-802, and SD-803), just below the disposal area and at SD-009 further downgradient from the source. PAH concentrations in SD-802 and SD-803 are high; lower levels are seen in SD-801, which is further from the source than the other two leachate/sediment samples (see Figure 10-14). Consequently, PAHs in the leachate sediments are probably related to the Site 8 source area. SVOCs and PAHs were also reported as TICs in the eastern stream tributary (i.e., SD-822, 823, and 824) (see Appendices J and K). The highest levels of PAHs in sediments from SW/SD occurs in SD-818, which is located off base, north of Route 24. The high levels of TOC at SD-818 are also consistent with high PAHs, as PAHs are tightly bound to TOC-rich soils (see Subsection 10.7). High PAH levels in this area north and west of the disposal area (i.e., in SD-818 and SD-009) may be related to contamination associated with Route 24. This portion of the highway lies in a low area, which captures a large area of highway runoff, and is a source of PAH contamination. Several catch basins collect runoff from the highway and direct it into the tributary bordering Site 8. Both SD-009 and SD-818 are downstream of this discharge from the highway, and are impacted by it.

Environmental contamination in Site 8 surface water includes a number of inorganic compounds. The restriction of the Site 8 disposal site to the area northeast of Perimeter Road makes many Site 8 SW/SD locations upgradient of the disposal area. These upgradient locations include SW-006, SW-007, SW-819, SW-820, SW-821. Of these five upgradient SW/SD locations, three (i.e., SW-006, SW-007, and SW-820) have high values of chloride and sodium. These relationships are illustrated in Figure 10-16, where anion and cation data for Site 8 surface water are plotted. Figure 10-16, a Piper diagram, demonstrates that three of the surface waters group together in the chloride- and sodium-rich, or saline, region of the diagram. As discussed, these SW/SD locations

Click Here to Return to Main Index

No.	TDS	Well Name
006	777	SW-006
007	494	SW-007
008	130	SW-008
009	299	SW-009
817	133	SW-817
818	130	SW-818
819	84	SW-819
820	623	SW-820
821	98	SW-821
006-2	56	SW-006



E.C. JORDAN CO. CONSULTING ENGINEERS	PIPER DIAGRAM: SURFACE WATER SITE 8
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
	4607-41 FIGURE 10-16

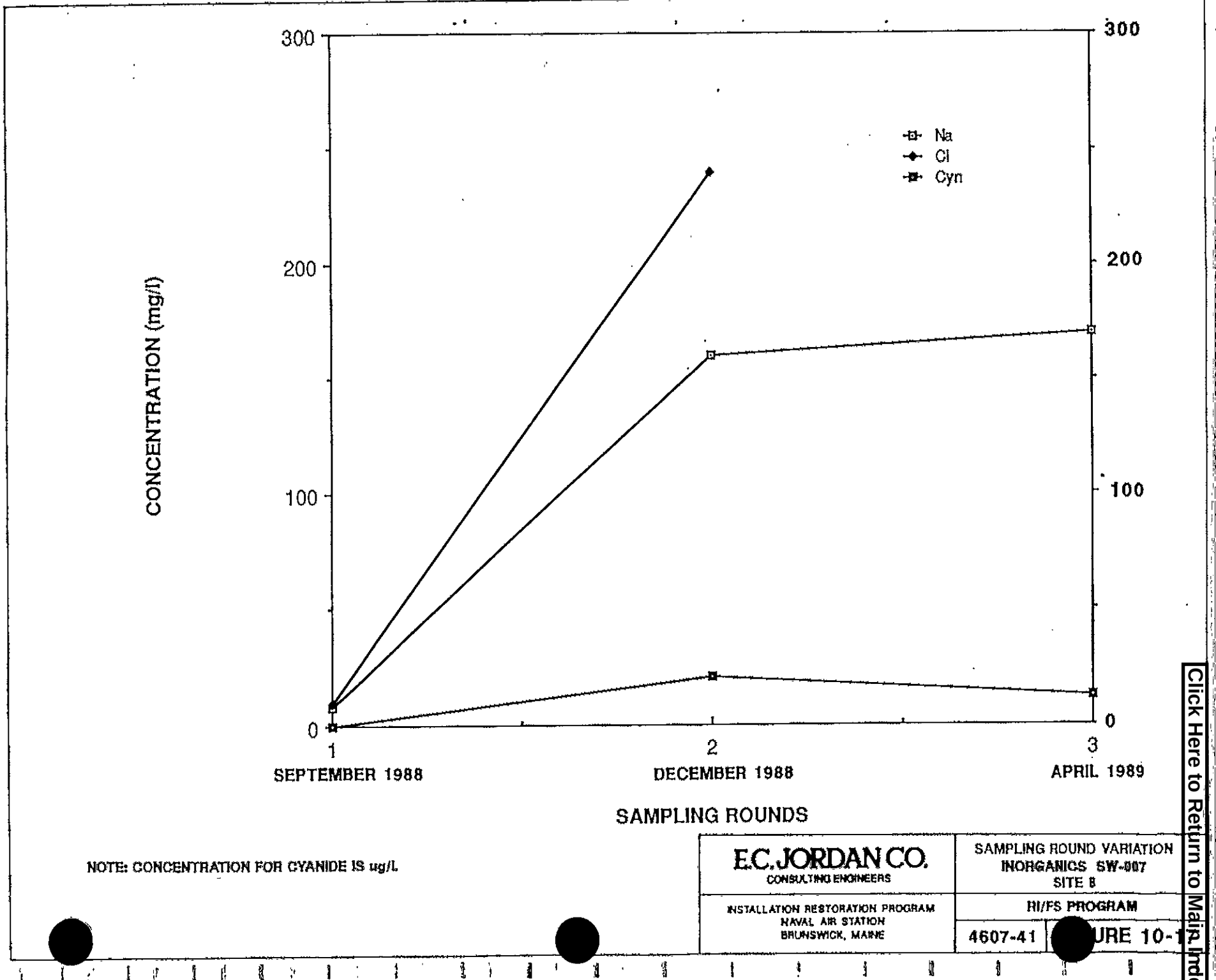
are upgradient of the disposal area, and are not impacted by it. Sodium and chloride in these surface waters suggest a salt source. A salt pile is located on the old runway (paved area) south of Site 8, and upgradient of the drainage(s) affected by the high sodium and chloride concentrations (see Figure 10-1). Surface runoff in the salt pile area is collected in a drain that focuses runoff into the drainage where SW-007 and SW-820 are located (see Section 2.3.2.1 and Figure 2-2).

The salt pile is also believed to be the source of the cyanide reported at Site 8. A recent study in Maine documents the use of sodium ferrocyanide as a de-caking agent in salt, linking it to cyanide contamination near salt storage piles (Olson and Ohno, 1989). NAS Brunswick has recently analyzed the salt from the salt pile for cyanide concentration. The results demonstrate 2 to 3 mg/kg cyanide present in the salt, consistent with the Olson and Ohno study. The association of sodium/chloride/cyanide is present at SW-007, and concentrations of these inorganics increased during winter and spring relative to early fall sampling (Figure 10-17). Cyanide concentrations in Figure 10-17 are shown in µg/L. Chloride was only sampled during Rounds I and II, and SW-007 was not sampled during Round IV. The association of these compounds, and the relationship between concentration and time strongly indicates that salt and cyanide at Site 8 are linked to this upgradient source.

Levels of zinc are also high in several surface water locations at Site 8, including locations both upgradient and downgradient of Site 8. Zinc levels in sediments at these surface water locations also exhibit elevated concentrations; less than those characteristic of clay soils (Table 5-4), but at levels in excess of sands (Table 5-3). Field reconnaissance in Site 8 tributaries indicated that the streams, in many cases, have scoured down to silt-rich soils characteristic of transition zone soils. This is especially the case in the northeast tributary (Figure 10-7). These data suggest the relatively high background zinc concentrations in stream sediments may contribute to elevated zinc concentrations in surface waters at Site 8. This is consistent with the occurrence of elevated zinc concentrations at both upgradient and downgradient surface water locations.

Zinc concentrations in Site 8 leachate are also elevated. Average concentrations of zinc in Site 8 leachate range from 166 to 228 µg/L. This value is slightly higher than values in surface water (ND-163), but sediments associated with leachate have zinc concentrations consistent with sediments in surface water locations. Average zinc concentrations in leachate sediment range from 27 to 43 mg/kg, values intermediate to zinc in background clay and sand soils (see Tables 5-3 and 5-4). As in surface water, natural zinc concentrations in sediment may contribute to the zinc in leachate, and the higher zinc values in Site 8 leachate may simply reflect the greater zinc solubility in the low pH of leachate water.

Total coliform is reported in Site 8 surface waters, and concentrations decreased significantly in Round II (December 1988) relative to Round I (September 1988). Total coliform was not analyzed in surface water during Rounds III and IV. Round I values are high, but the decrease in Round II is probably related to decreased temperatures during Round II. Total coliform



NOTE: CONCENTRATION FOR CYANIDE IS ug/L

E.C. JORDAN CO. CONSULTING ENGINEERS	SAMPLING ROUND VARIATION INORGANICS SW-007 SITE 8
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
4607-41	URE 10-1

Click Here to Return to Main Index

results are not related to the disposal area, as high values are observed in surface water both upgradient and downgradient from the source. Coliform levels in groundwater are also high both upgradient and downgradient from the disposal area, further emphasizing an alternative source for this contamination. A potential source for total coliform is a sewer line that runs along Perimeter Road (see Subsection 2.3.3.1). The sewer line is upgradient of Site 8 and could contribute to this contamination.

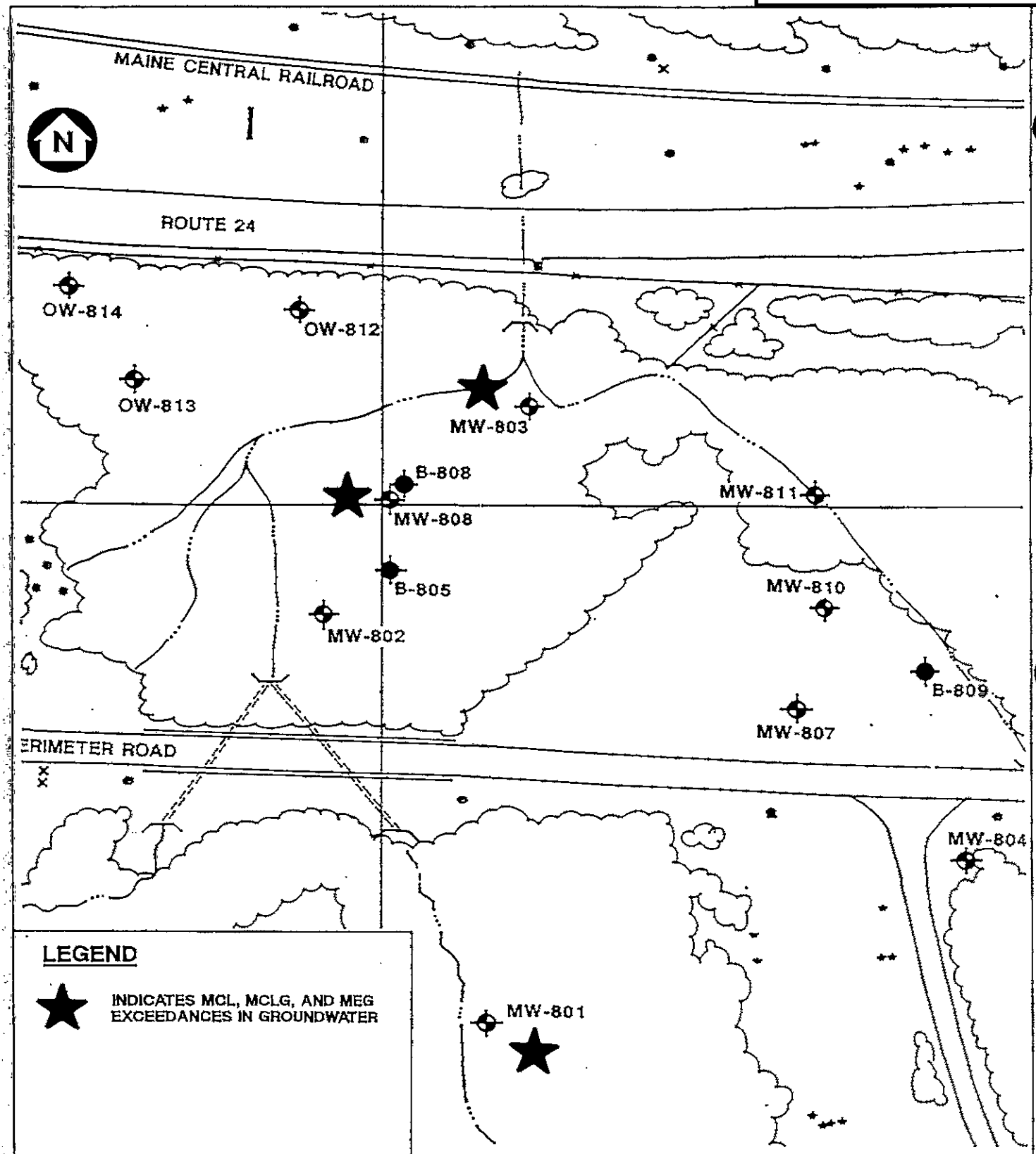
Groundwater at Site 8 has elevated levels for several other inorganic compounds, and the association of sodium/chloride/cyanide in surface waters is also observed in MW-807. This monitoring well is located next to Perimeter Road, and cyanide was detected in sampling Rounds II and III, suggesting that winter salting may affect water quality. MW-807 is also downgradient from the salt storage pile. Salt use or storage probably affects groundwater across the site, as sodium levels are high both upgradient and downgradient of the disposal area.

Site 8 monitoring wells with the highest levels of inorganic contamination are MW-810 and MW-811, installed in and just downgradient of the disposal area, respectively. High levels of contamination are consistent with predicted groundwater flow (see Figures 10-8 and 10-13). Monitoring wells west and northwest of the actual waste disposal area (i.e., MW-803 and MW-808) do not appear significantly impacted, as inorganic compound concentrations are not high. MCLs for cadmium are exceeded by several $\mu g/L$ in MW-803 and MW-808 (Figure 10-18). Lead exceeds the MCL in MW-801 which is upgradient from the source area. In all three cases, the contaminant was only detected in one sampling round. These observations also support the interpreted groundwater flow, which predicts flow to the north and east beneath the wastes. The actual wastes are confined to the northeastern corner of the overall Site 8 area where the groundwater movement is locally northeast toward the tributary. (See Subsection 10.4 for additional discussion.)

Chromium analyses from MW-811 have given mixed results. Total chromium was analyzed as part of the TCL inorganic analytical program, and hexavalent chromium was analyzed as part of the general drinking water parameters. The results from the total chromium analysis indicated that chromium was not present. The hexavalent chromium analysis, however, reported 0.953 mg/L of hexavalent chromium. In light of these contrasting results, laboratory data were reevaluated and no sources of error were found. The analytical laboratories were also consulted regarding this problem, and no apparent analytical errors were indicated. To understand this problem, MW-811 will be resampled.

10.7 CONTAMINANT FATE AND TRANSPORT: SITE 8

Environmental contamination at Site 8 includes PAHs and DDT in surface and shallow soils, PAHs in surface water sediments and leachate sediments, and inorganics in groundwater. PAHs are relatively immobile in the soil environment due to their high sorption properties (Edwards, 1983). The ultimate fate of PAHs in soils is sorption to sediments, followed by slow


MAINE CENTRAL RAILROAD
N
ROUTE 24
OW-814
OW-812
OW-813
MW-803
B-808
MW-808
MW-811
B-805
MW-810
MW-802
B-809
MW-807
ERIMETER ROAD
MW-804
MW-801
LEGEND
INDICATES MCL, MCLG, AND MEG EXCEEDANCES IN GROUNDWATER
NOTES: (1) MCL = MAXIMUM CONTAMINANT LEVEL
(2) MCLG = MAXIMUM CONTAMINANT LEVEL GUIDELINE
(3) MEG = MAXIMUM EXPOSURE GUIDLINE (MAINE)
EC JORDAN CO.
CONSULTING ENGINEERS
INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE
MCL, MCLG, MEG EXCEEDANCE MAP
SITE 8
RI/FS PROGRAM
4607-41
FIGURE 10-18

Click Here to Return to Main Index

biodegradation. PAHs also typically have low solubility in water, further limiting PAH transport properties, and enhancing partitioning to sediments.

DDT also has a strong propensity to adhere to soils, and sorption is the dominant fate of DDT in soils (Kenaga and Goring, 1978). Therefore, like PAHs, DDT will sorb to soils, and ultimately biodegrade. Two major processes direct the degradation of DDT. First, aerobic degradation results in the formation of DDE; and second, anaerobic degradation typically results in the formation of DDD (Johnsen, 1976). DDT at Site 8 occurs in shallow, sandy soils that would favor aerobic conditions. DDT and its metabolites have similar properties, including low water solubility and sorption to soils. These properties act to minimize migration of DDT and its metabolities in the environment (Weil et al., 1973).

The behavior of PAHs in surface water is similar to that in soils. Due to low solubilities and high octanol-water partition coefficients, PAHs strongly partition into particulate and dissolved organic matter (Neff, 1979). Thus, PAHs in surface waters accumulate in sediment depositional areas, and ultimately biodegrade. Once PAHs are deposited in sediments, physical forces such as local turbulence and currents affect the distribution of PAHs and downgradient migration.

Inorganics dissolved in groundwater, surface water, or leachate will remain in solution until solubility is reached, and the solubility of these inorganics is a function of the nature of the dissolved species (Garrels, 1960). The concentration of dissolved inorganics in Site 8 groundwater, surface water, and leachate is well below solubility limits, and the dissolved inorganics will migrate with groundwater, surface water, or leachate. Inorganics typically do not sorb strongly to soils, and concentration in the various media will be determined by dilution as inorganics migrate and disperse in the media.

Inorganics in groundwater are the only contaminants detected at Site 8 that could potentially reach the Jordan Avenue Wellfield, based on solubility and mobility in groundwater. Water from the Jordan Avenue Wellfield has been analyzed for TCL organic and inorganic compounds. No TCL compounds have been detected except for background levels of inorganics. These data are included in Appendix J. The Jordan Avenue Wellfield is screened in shallow unconfined sands typically seen across NAS Brunswick and at Site 8. A preliminary hydrogeologic evaluation on the Jordan Avenue Wellfield (E.C. Jordan Co., 1986), indicates the estimated cone of depression of the wellfield after 10 days of continuous pumping would extend approximately 250 feet away from the wellfield to the south and intercept the river to the north. Current operation of the Jordan Avenue Wellfield is only five days a week, 7 hours per day, at a rate of 950 gallons per minute. Based on active usage, the cone of depression at the Jordan Avenue Wellfield is not anticipated to be beyond 250 feet south of the wellfield. The secondary recharge zone for the Jordan Avenue Wellfield covers a much larger area possibly extending to the northwest side of the Site 8 tributary (E.C. Jordan, 1986).

Click Here to Return to Main Index

One off-base private well north of Site 8 has been sampled and analyzed by the Maine Department of Environmental Protection. The well is located at an automobile junkyard property northwest of Site 8 and contaminants identified in Site 8 groundwater were not observed in this well.

Click Here to Return to Main Index

Click Here to Return to Main Index

11.0 NEPTUNE ROAD DISPOSAL SITE: SITE 9

11.1 DESCRIPTION AND HISTORY: SITE 9

The IAS reported Site 9 to be in the vicinity of Barracks Buildings 218, 219, and 220, with a second area near Buildings 201 and 293 on the southern side of Neptune Drive. The depicted extent of the landfill indicated in Figure 11-1 is an estimate. Historical and exploration data are not available to help indicate the actual limits of this disposal area. There are conflicts in the reported dates of usage of Site 9 as the base landfill, although it was apparently used intermittently in the 1940s and 1950s (along with Site 2), before the use of Site 1.

An incinerator, located at the northern end of existing Barracks Building 220, was used before the Air Station's closing in 1946 (see Figure 2-3). Its later use is uncertain. While the incinerator was operative, solid wastes reportedly were burned and the ash placed in the dump; solvents and other liquids were burned on the ground. At least some direct disposal of solid waste took place during the 1950s, although the quantity of waste is unknown. Wastes disposed of at the site reportedly included solvents, paint sludges, and possibly wastes from the Metal Shop for several years.

Despite the history of Site 9, no landfilled materials were encountered in any test pits or borings completed during the PAC Study or the RI. In addition, it is doubtful that the Marine Barracks buildings would have been constructed on landfill materials. At the least, landfilled materials encountered in foundation excavations would have been removed to provide adequate bearing capacity. A small quantity of miscellaneous refuse (including tires and an engine block) was observed on the stream embankment behind (south of) the movie theater, Building 293.

During the RI program, surface water and sediment samples in streams bordering Site 9 were analyzed to assess contaminant contributions from groundwater discharge, and those of storm sewer runoff from the hangar and operations areas. Substantial contributions of PAHs to the streams bordering Site 9 are directly attributable to base operations, including vehicular traffic, aircraft exhaust, and aircraft maintenance and use of fuels. A stormwater runoff characterization study is currently being prepared by ERM - New England, Inc., to assess the impacts of base operations across the Air Station.

11.2 TECHNICAL APPROACH: SITE 9

The RI field program, techniques, and rationale for Site 9 are summarized in the following paragraphs, and Table 11-1. As discussed in the preceding subsection, Site 9 was reportedly the site of a base landfill and incinerator. During the PAC Study and RI program, landfill materials were not encountered in investigated areas and only limited groundwater contamination was detected. During the initial Site 9 RI investigations, a secondary issue arose

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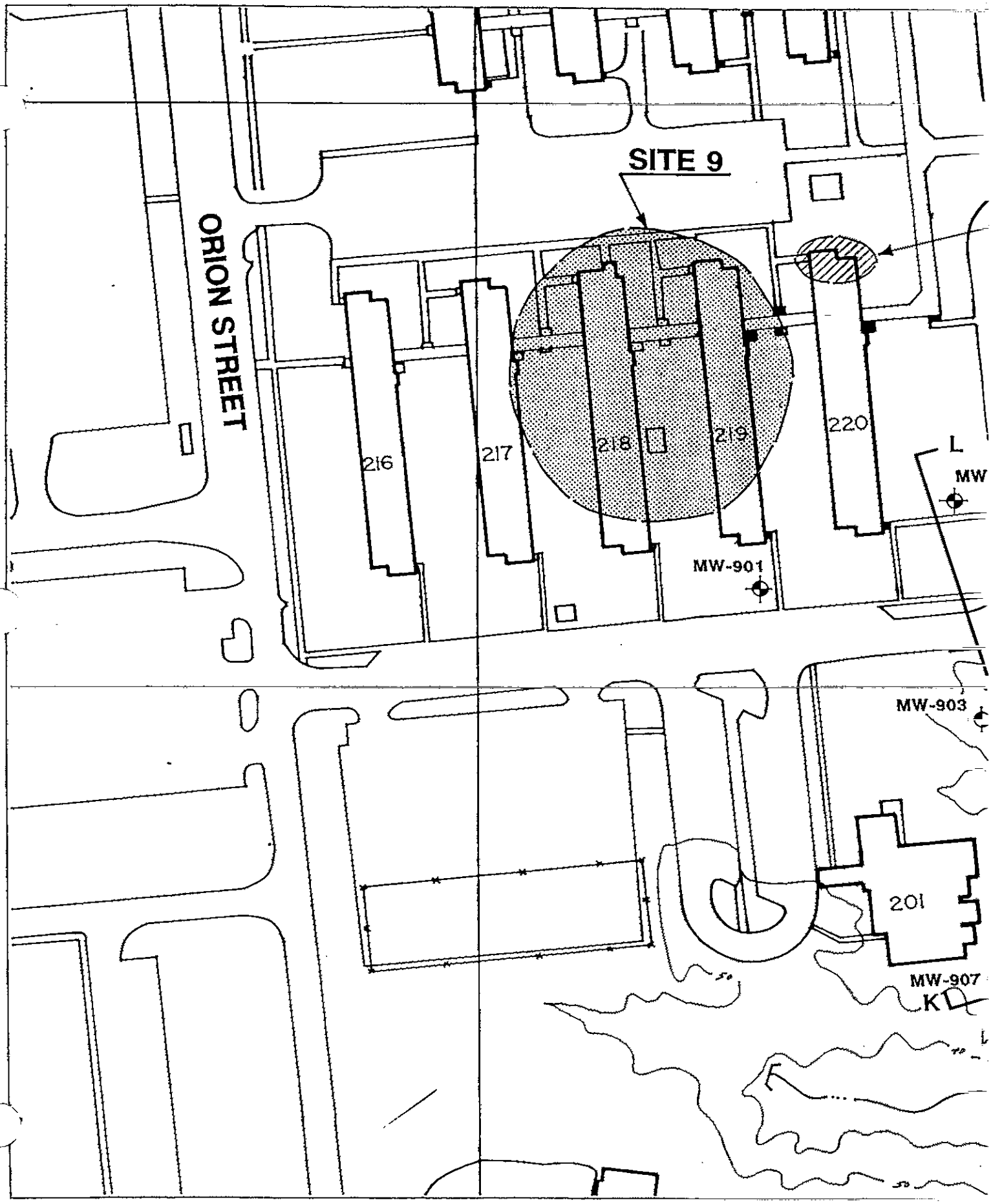

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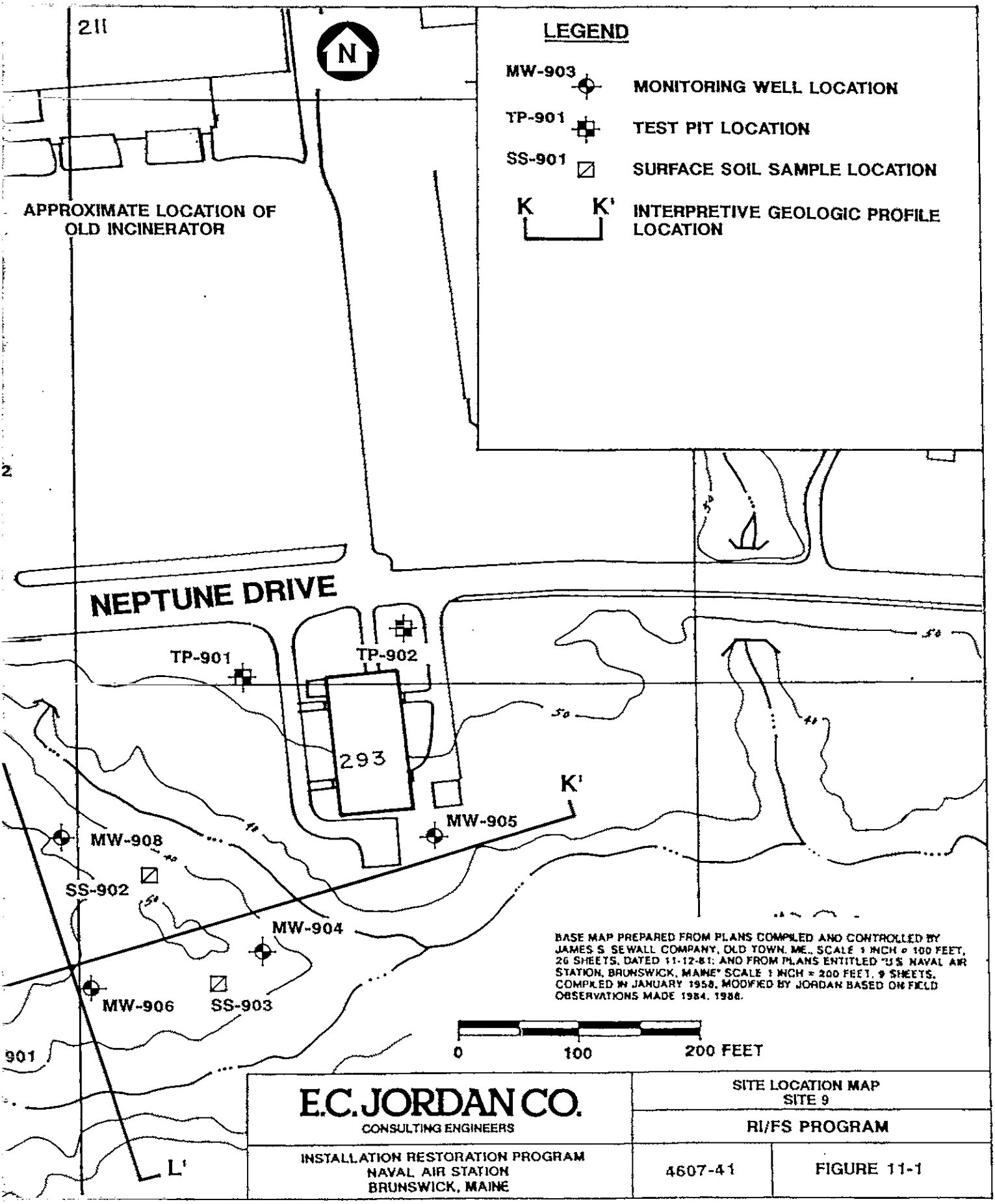


E.C. JORDAN CO. CONSULTING ENGINEERS	SITE LOCATION MAP SITE 9 RI/FS PROGRAM
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	4607-41 / FIGURE 11-1

Click Here to Return to Main Index

TABLE 11-1
RI PROGRAM SUMMARY - SITE 9

REMEDIAL INVESTIGATION
NAS BRUNSWICK

1988 FIELD PROGRAM

- 20 point soil gas survey
- Two test pits
- Two test borings with monitoring wells
- In situ aquifer permeability testing
- Groundwater, surface water, and sediment sampling

1989 FIELD PROGRAM

- Three test borings with monitoring wells
- In situ aquifer permeability tests
- Analysis of surface soils adjacent to Building 293
- Leachate seep analysis adjacent to MW-903
- Stream floc analysis
- Groundwater, surface water and sediment sampling along streams and in Picnic Area Pond

Click Here to Return to Main Index

concerning the cause of a prolific red floc observed in the stream bordering the southern edge of the site, particularly near the culvert outfall from beneath Orion Street.

In the 1988 RI, 20 soil gas points were sampled to assess potential VOC sources across the reported site area. Based on limited detections, two test pits were excavated in front of Building 293, and one test boring/monitoring well was relocated behind Building 293. In addition, one monitoring well was installed east of Building 201 to evaluate groundwater discharging to the stream at this location. In situ aquifer permeability tests were performed in all wells installed in 1988 and 1989 to assess aquifer characteristics.

Groundwater, surface water, and sediment were sampled subsequently in Rounds I, II, and III to evaluate contamination in these media. Based on VOCs detected in the groundwater in MW-904, and SVOCs detected in stream sediments, the 1989 RI added three more borings with wells between Building 201 and MW-904, and expanded the number of surface water and sediment sampling points adjacent to the site, downstream, and in Picnic Area Pond. Surface soil samples were also analyzed to evaluate public health exposure in the small picnic area behind (south of) Building 201. Also, the red floc in the Site 9 stream was analyzed.

11.3 GEOLOGY: SITE 9

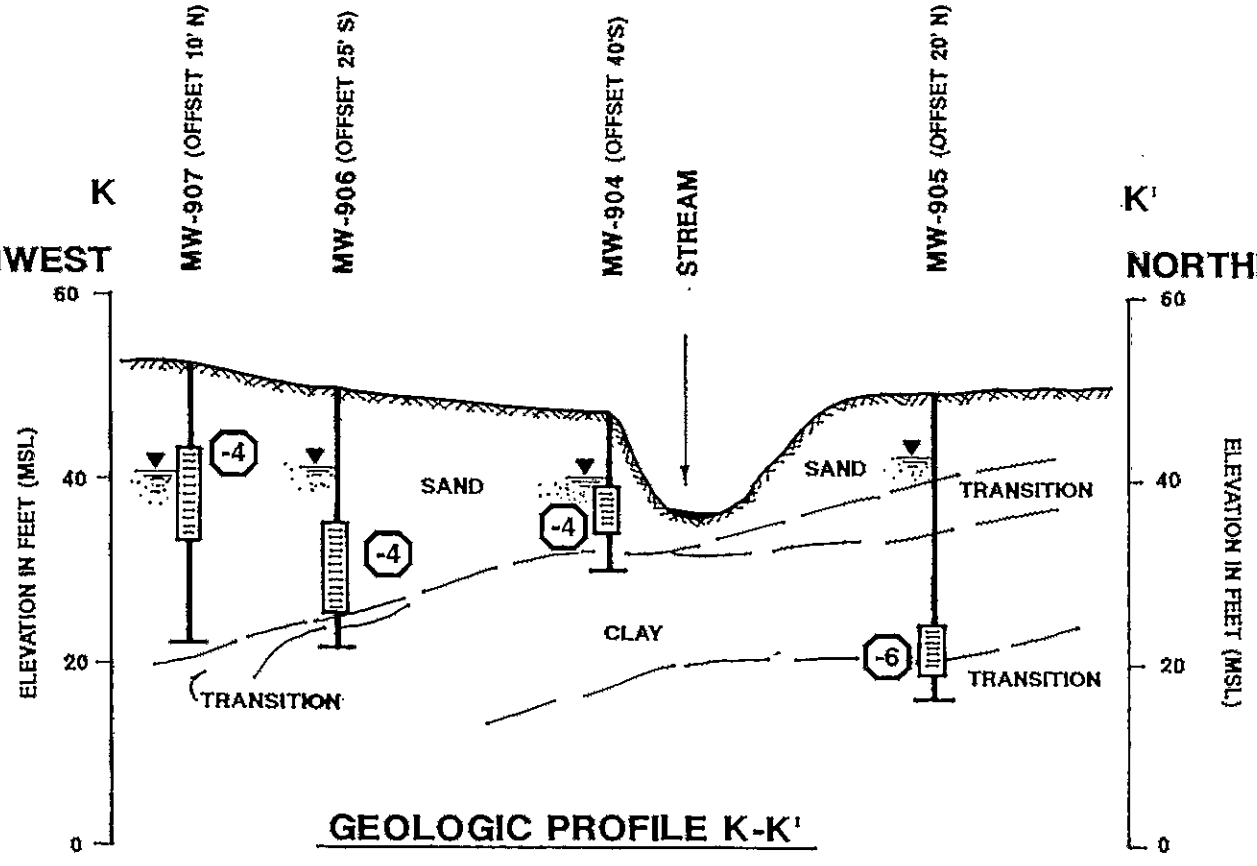
The depths of the eight borings drilled at Site 9 range from 17 feet in MW-904 to 42 feet in MW-901. Geologic profiles K-K' and L-L' depict the stratigraphy at this site (Figure 11-2). In general, upper sands decrease in thickness to the east and south, especially near the brook flowing along the southern border of the site. Thicknesses of the sands range from a minimum of 9 feet at MW-905 to a maximum of 35 feet in MW-901.

A transition zone was not always encountered in the borings at this site. Some borings were completed entirely within the upper sands (i.e., MW-902, MW-907, and MW-908), and MW-904 encountered clay directly underlying the sand. Transition zone soils were observed in MW-903, MW-905, and MW-906.

Marine clay was shallower to the east, with the top of clay elevation at 35 feet MSL in MW-905, as compared to 23 feet MSL in MW-906 to the west. One unusual aspect of site stratigraphy was the bottom 4 feet of boring MW-905. An alternating clay/till-like sequence was penetrated below a 15-foot thick clay layer. This is the only on-base boring recording this type of stratigraphy.

Two test pits were excavated at this site during the 1988 field season. Both pits encountered natural soils under a thin topsoil layer.

Click Here to Return to Main Index



GEOLOGIC PROFILE K-K'

LEGEND

MONITORING WELL

GROUND SURFACE

WATER LEVEL (10/24/89)

WELL SCREEN

BOTTOM OF EXPLORATION

VERTICAL EXAGGERATION = 5:1

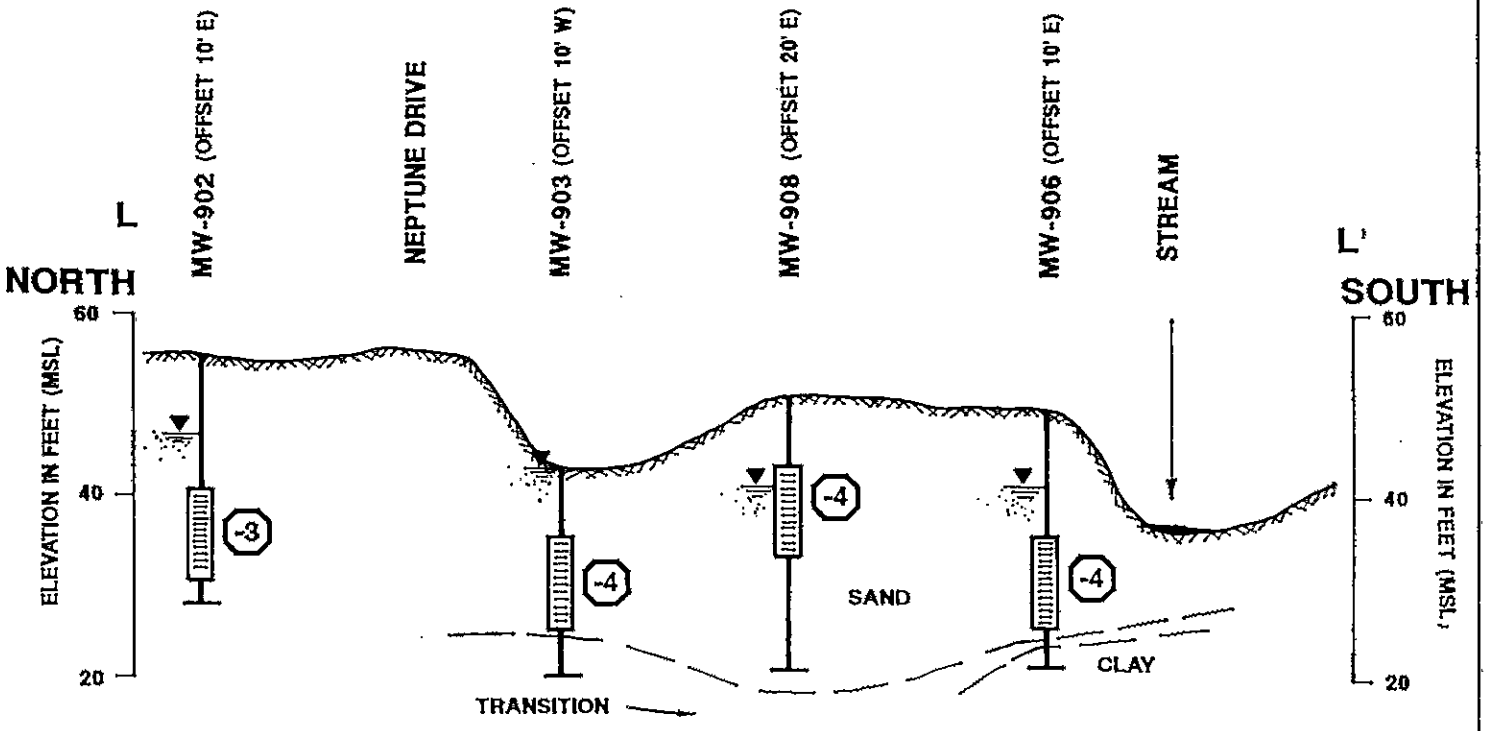
0 100 200FEET

NOTES:

PROFILES
EXPLORAT
FROM THO

-4 ORDER OF
CENTIMETE

LOCATION



GEOLOGIC PROFILE L-L'

OGIC DESCRIPTIONS:

AN TO LIGHT BROWN FINE SAND, TRACE TO LITTLE MEDIUM SAND, TRACE SILT, POORLY GRADED, LOOSE TO MEDIUM DENSE, DRY TO SATURATED, SLIGHTLY STRATIFIED WITH DEPTH.

ION - BROWN TO GRAY FINE SAND AND SILTY, FINE SAND, TRACE CLAY, STRATIFIED WITH SILT AND CLAY LENSES, POORLY GRADED, NON TO SLIGHTLY PLASTIC, SOFT IN PLACES, SATURATED.

RAY, SILTY CLAY TO CLAYEY SILT (ROCK FLOUR), MEDIUM TO HIGH PLASTICITY, VERY SOFT, SATURATED.

BASED ON AN INTERPRETATION OF AVAILABLE SUBSURFACE ACTUAL CONDITIONS BETWEEN EXPLORATIONS MAY VARY HOWN.

NITUDE OF HYDRAULIC CONDUCTIVITY IN / SECOND (i.e., 10^{-4} cm/sec.).

ROFILE SHOWN IN FIGURE 11-1

E.C. JORDAN CO. CONSULTING ENGINEERS	GEOLOGIC PROFILES K-K' & L-L' SITE 9	
	RI/FS PROGRAM	
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	4607-41	FIGURE 11-2

Click Here to Return to Main Index

11.4 HYDROGEOLOGY: SITE 9

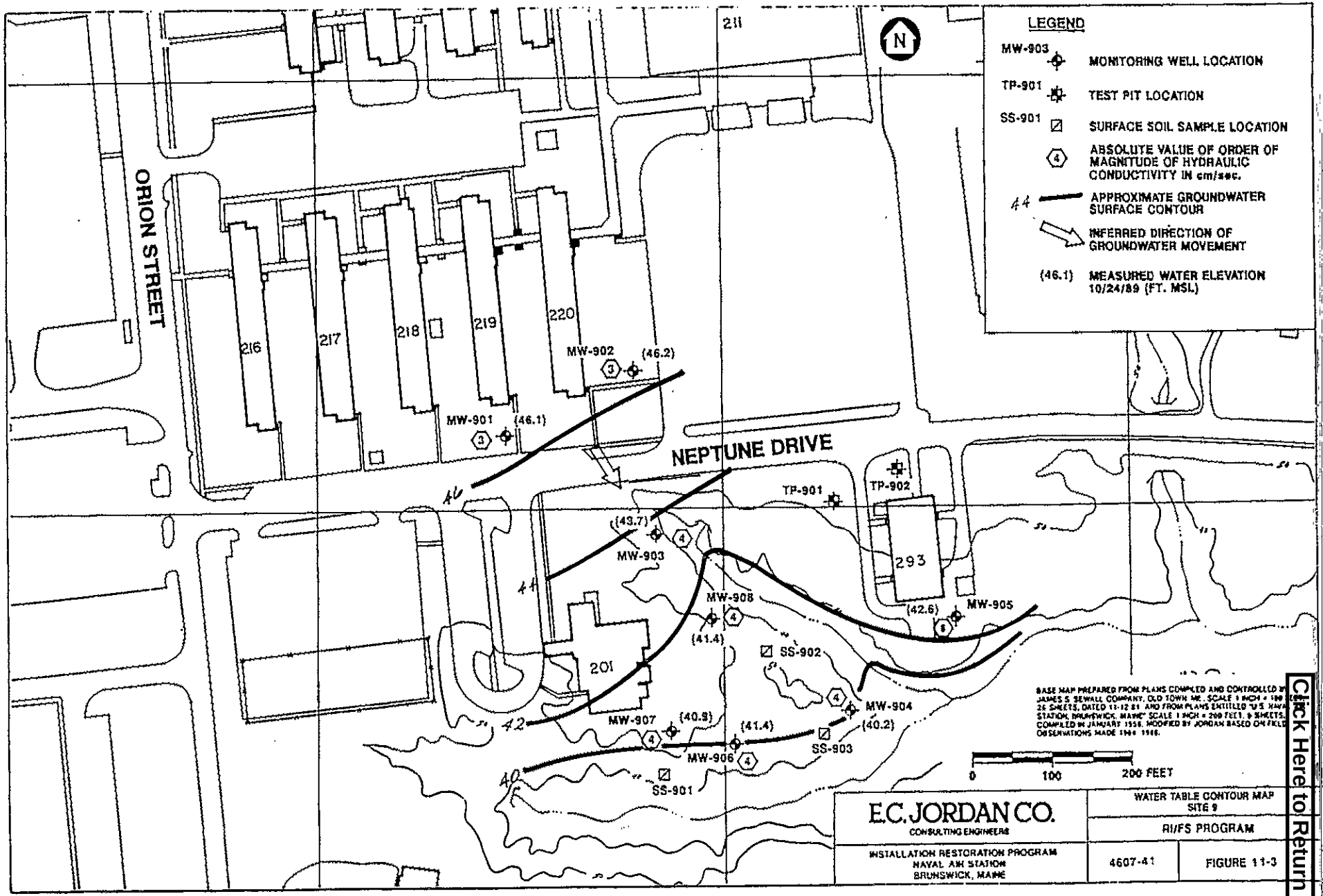
Site 9 hydrogeology was assessed based on subsurface exploration data from the eight monitoring wells. Groundwater contours were constructed based on water levels in the monitoring wells, in conjunction with approximate surface water elevation data from the stream bordering the site (Figure 11-3). Site 9 groundwater contamination is anticipated to remain shallow with discharge to the southern stream and its northern tributary (adjacent to MW-903). Hydraulic conductivities were determined in all eight monitoring wells using in situ tests, with Ks ranging from 3.07×10^{-6} cm/sec in the clay (in MW-905) to greater than 2.9×10^{-3} cm/sec in the sand (in MW-901 and MW-902) (see Table 4-3). Hydraulic conductivities decrease progressively across the site from northwest to southeast (see Figures 11-2 and 11-3). Highest conductivities were observed in MW-901 and MW-902, approximately 2.9×10^{-3} cm/sec; the lowest in MW-905 (3.1×10^{-6} cm/sec). The MW-905 well screen is set in silty clay that accounts for the low conductivity. The geometric mean of the Ks reported in the other seven wells is 6.3×10^{-4} cm/sec.

Hydraulic gradients across the site range from approximately 0.01 to 0.07 feet/foot. Steepest gradients are next to the streams, specifically between MW-905 and the stream. With the range of hydraulic gradients recorded at the site, seepage velocities several hundred feet away from the stream will be roughly 30 feet per year, and close to the stream as much as 190 feet per year. Assuming an intermediate gradient of 0.04 for the overall site, an effective porosity of 0.25, and a mean K of 6.3×10^{-4} cm/sec, seepage velocity at Site 9 is 104 feet per year. With site operations ending in approximately 1960, the existing monitoring well network should be effectively detecting groundwater contaminants from the former landfill, and the surface water and sediment sampling program should indicate equilibrium rates of groundwater contaminant discharge to the stream.

It is not known whether the stream acts as a fully effective discharge line for contaminants detected north of the stream. However, available data and field observations indicate it is at least a partial collector. Field observations of leachate discharge (i.e., iron oxide-stained sediments) next to MW-903 indicates groundwater discharge at this location. In addition, observed piezometric levels in MW-903 are normally several feet above the adjacent leachate discharge area, indicating a substantial upward gradient at this location. Based on gradients seen at other NAS Brunswick sites with similar geology, groundwater flow far away from the stream is anticipated to be close to horizontal, with discharging gradients closer to the stream. The stratified transition zone and underlying low conductivity clay at this site must constrain downward groundwater movement as it does base-wide.

11.5 NATURE AND EXTENT OF CONTAMINATION: SITE 9

This subsection describes the results from environmental sampling of Site 9.



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11.5.1 Soil Gas Survey: Site 9

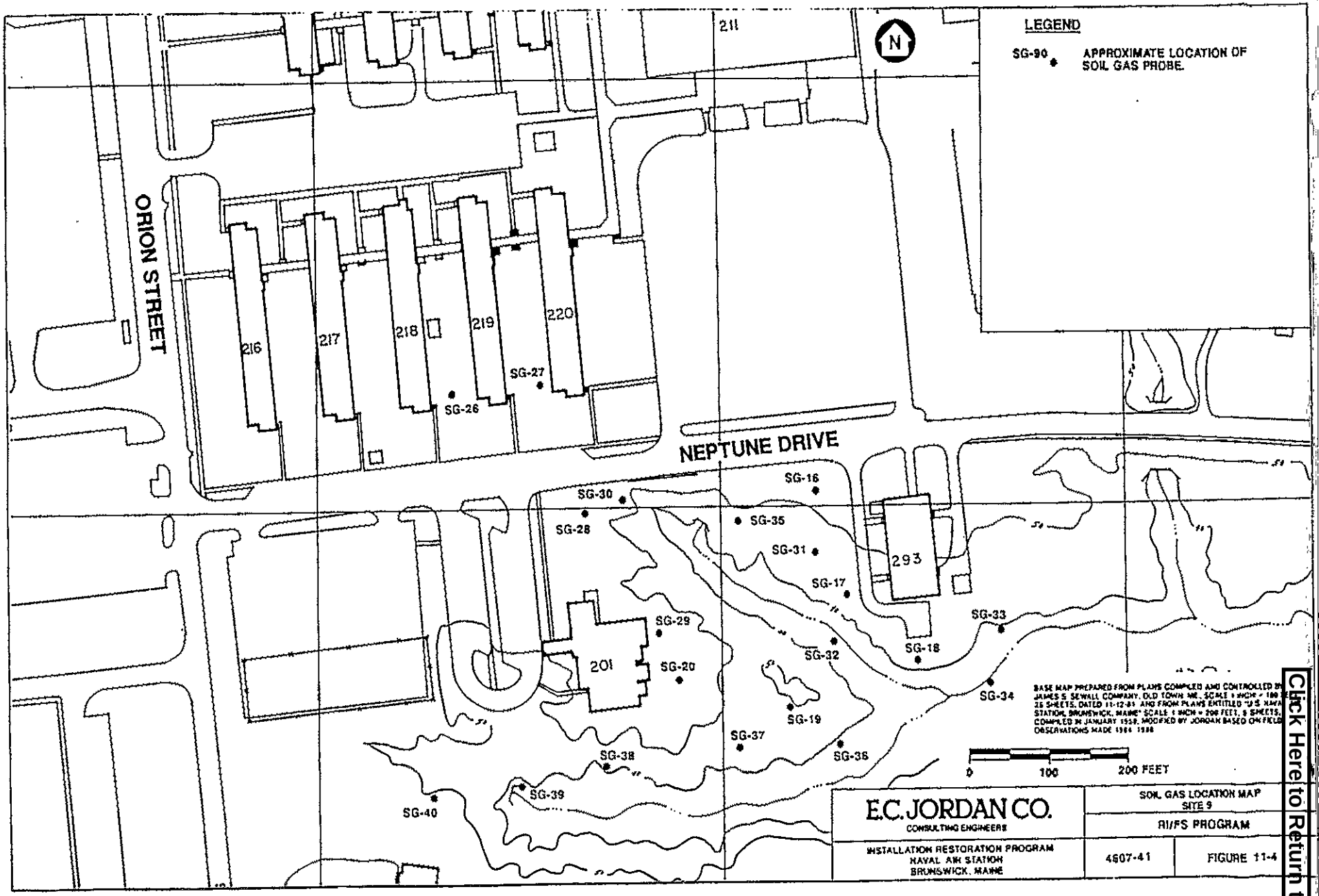
A soil gas survey was conducted by Tracer at Site 9 in June 1988. The survey included analyses for the compounds F-113, chloroform, TCE, TCA, PCE, benzene, toluene, xylene, and THC. Twenty soil gas points (i.e., SG-16 through SG-20 and SG-26 through SG-40) were established at Site 9. Location of the 20 soil gas points is shown in Figure 11-4 and the soil gas results are shown in Figure 11-5 and 11-6. Soil gas data are also included in Appendix D.

Soil gas values at most locations exhibited non-detect levels, with only a few locations having concentrations above detection. Soil gas points with concentrations above detection include SG-16 and SG-33. Soil gas point SG-16 reported THC at 4 µg/L and TCE at 0.2 µg/L, while SG-33 had TCA at 0.2 µg/L, F-113 at 0.4 µg/L, and chloroform at 0.4 µg/L. In both samples, the low detected values do not indicate significant levels of contamination.

11.5.2 Test Pits: Site 9

Two test pits were excavated at Site 9 to evaluate the potential location of the Site 9 landfill adjacent to Building 293. Test pit analytical data are in Appendices J and K, and a summary of Site 9 test pit contamination is shown in Figure 11-7. Test pit logs are in Appendix B. In TP-901, natural silts and sands were encountered to depths of 9 feet, where the groundwater table was intercepted. Similarly, TP-902 intersected the water table at approximately 8 feet, where natural silty clay was encountered. The two test pits did not encounter any landfill materials. Two soil samples were taken from each test pit and analyzed for TCL organic and inorganic compounds. TCL organic compounds were detected only in TP-901, and included the VOCs methylene chloride (16,000 µg/kg), toluene (1,100 µg/kg), and 2-butanone (2,500 to 4,500 µg/kg). The results are from medium-level analysis, and medium-level laboratory soil method blanks also detected some compounds. The soil sample from 9 feet in TP-901 was a duplicate. Methylene chloride and 2-butanone were detected only in the duplicate sample, not the original. Similarly, 2-butanone was detected in the blank (1,600 to 3,108 µg/kg) associated with both analytical samples from TP-901. Toluene was detected only in the 1-foot sample from TP-901, and was not measured in any other soil samples from Site 9. Because these three VOCs are common laboratory contaminants, and QC (blanks and duplicates) indicate sampling or analytical difficulties, it is believed they do not represent actual site conditions (see Table 11-2 and Subsection 5.3.5).

Inorganic compounds detected in TP-901 and TP-902 include aluminum, iron, lead, magnesium, manganese, chromium, and zinc. Concentrations of these metals are low consistent with background values (see Appendix L), and are not indicative of environmental contamination. Arsenic (16 mg/kg) was detected in TP-902 at a depth of 8 feet. The sample is from a clay-rich layer, and arsenic is commonly observed to occur at low levels in analytical samples of silt and clay at NAS Brunswick (see Table 5-4).



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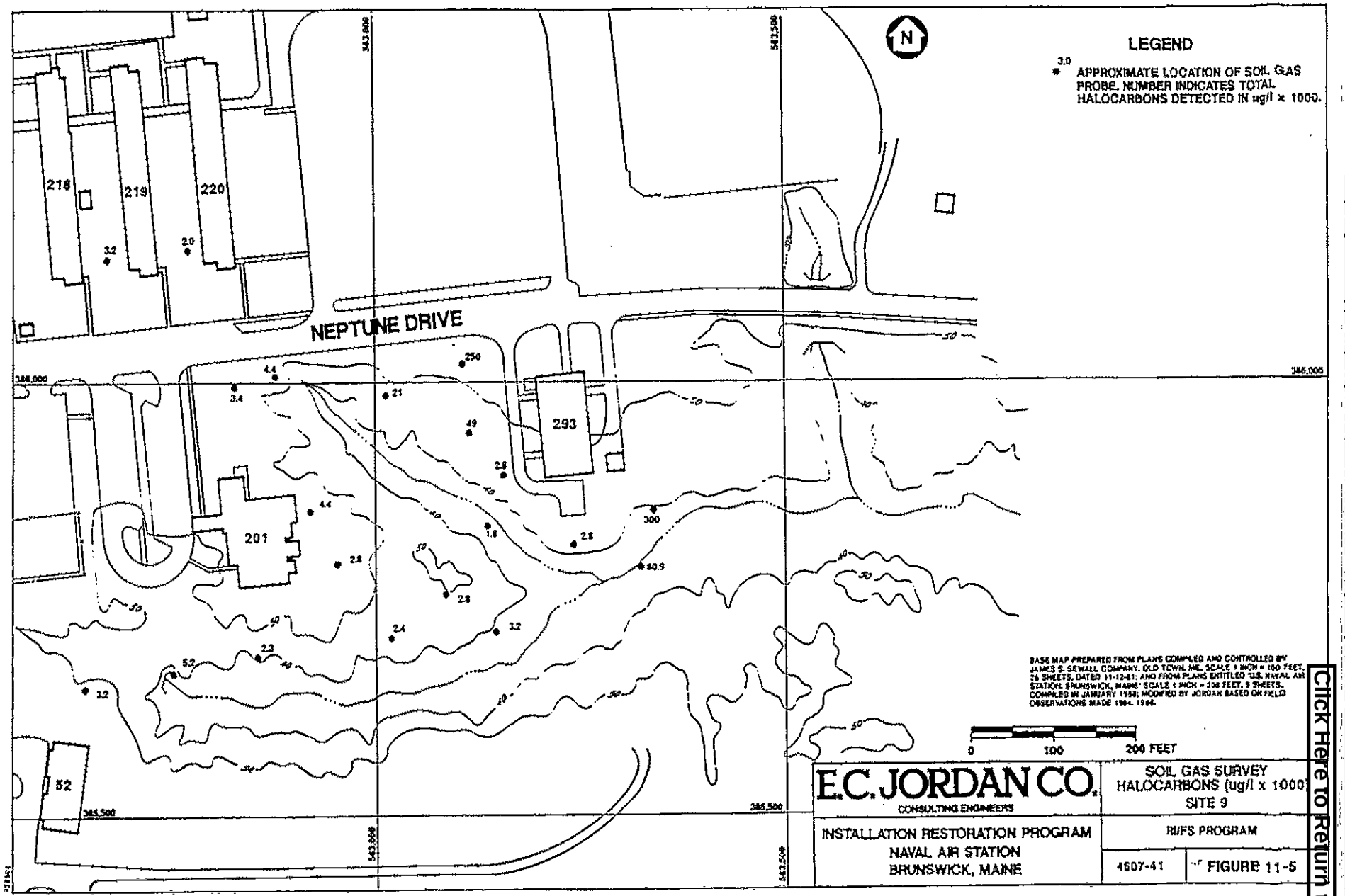

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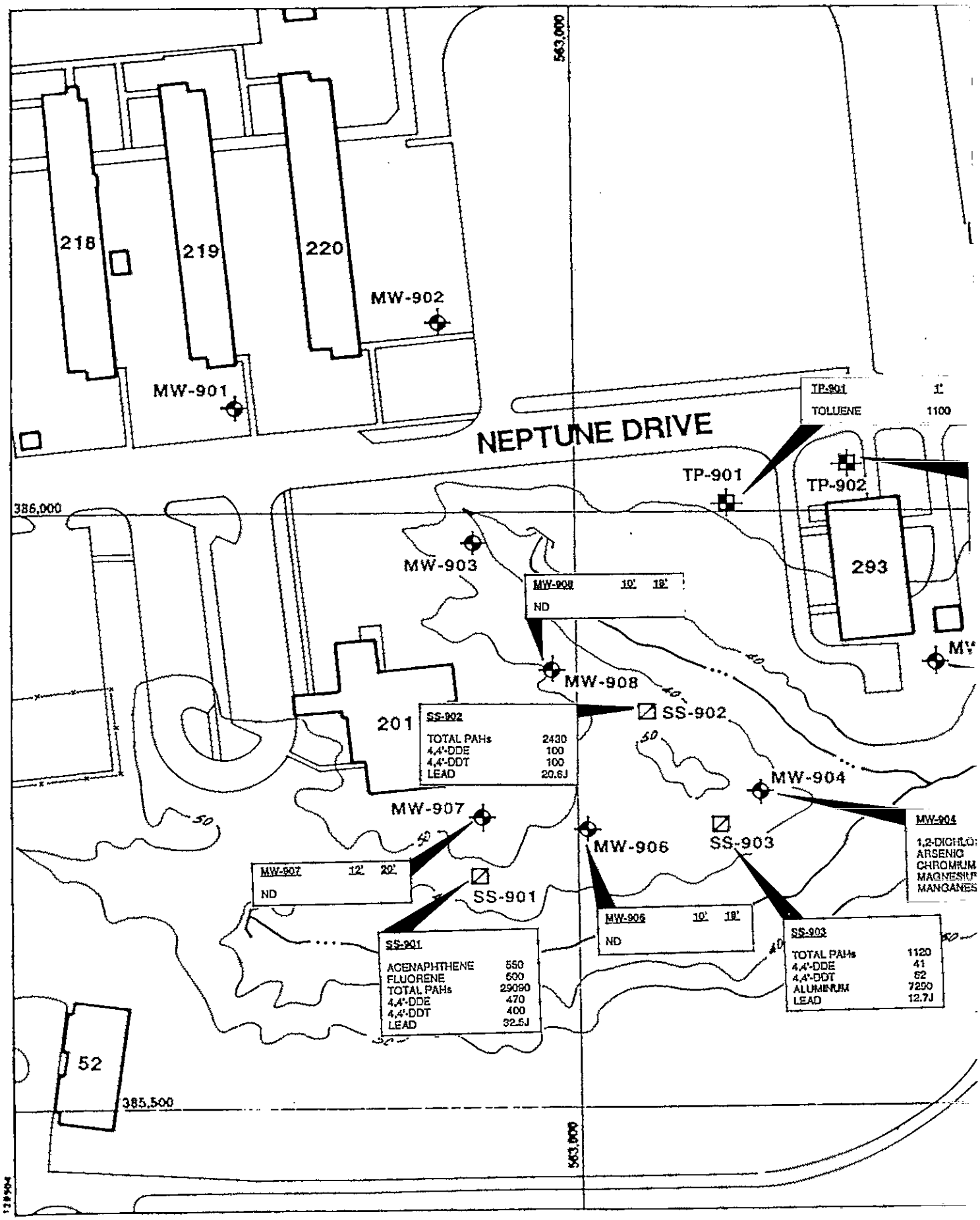

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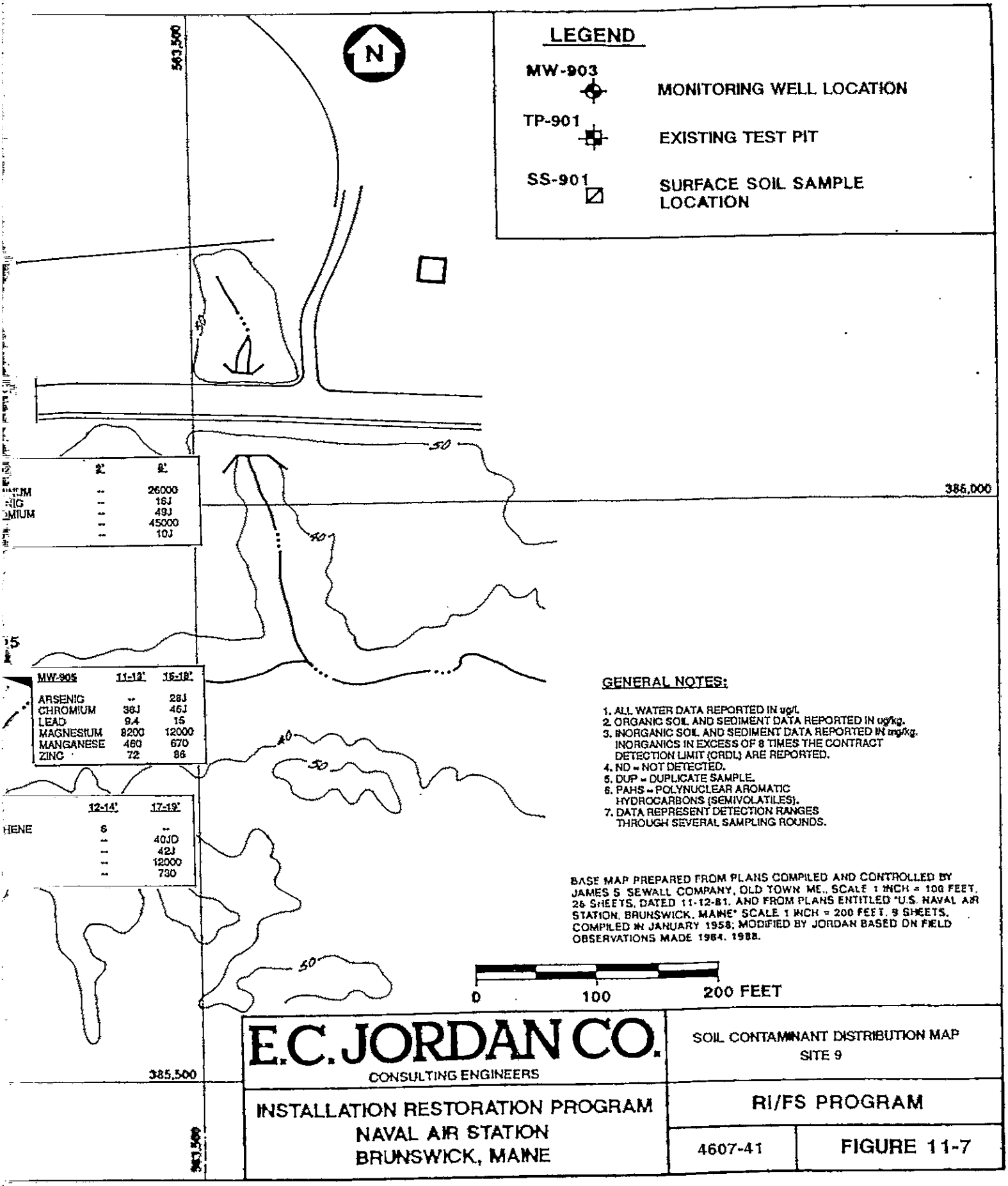

GENERAL NOTES:

1. ALL WATER DATA REPORTED IN ug/L
2. ORGANIC SOIL AND SEDIMENT DATA REPORTED IN ug/kg.
3. INORGANIC SOIL AND SEDIMENT DATA REPORTED IN mg/kg. INORGANICS IN EXCESS OF 8 TIMES THE CONTRACT DETECTION LIMIT (CRDL) ARE REPORTED.
4. ND = NOT DETECTED.
5. DUP = DUPLICATE SAMPLE.
6. PAHS = POLYNUCLEAR AROMATIC HYDROCARBONS (SEMIVOLATILES).
7. DATA REPRESENT DETECTION RANGES THROUGH SEVERAL SAMPLING ROUNDS.

BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S SEWALL COMPANY, OLD TOWN ME., SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81, AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET, 9 SHEETS, COMPILED IN JANUARY 1958; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1988.

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SOIL CONTAMINANT DISTRIBUTION MAP
SITE 9

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41

FIGURE 11-7

TABLE 11-2
SUSPECT CONTAMINANTS: SITE 9

REMEDIAL INVESTIGATION
NAS BRUNSWICK

COMPOUND	CONCENTRATION	MEDIA	CRITERIA
Methylene Chloride	1,000-1,600 µg/kg (9 µg/L)	Soils/surface water	Duplicate/sporadic detection/common contaminant/ laboratory blank
Toluene	880-1,100 µg/kg	Soils/sediment	Sporadic detection/common contaminant/ laboratory blank
2-Butanone	2,500-4,500 µg/kg	Soils/sediment	Duplicate/sporadic detection/common contaminant/ laboratory blank
Bis(2-ethyhexyl)phthalate	10-12 µg/l	Groundwater	Sporadic detection/common contaminant/ laboratory blank
Acetone	22 µg/L (75-2400 µg/kg)	Surface water/sediment	Sporadic detection/common contaminant/medium level analysis laboratory blank
Chloroform	1,100 µg/kg	Sediment	Sporadic detection/medium level analysis

NOTES:

µg/L = micrograms per liter
µg/kg = micrograms per kilogram

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Click Here to Return to Main Index

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11.5.3 Surface and Subsurface Soils: Site 9

Thirteen surface and subsurface soil samples were analyzed for TCL organic and inorganic compounds at Site 9. Ten soil samples were taken in five Site 9 soil borings (i.e., MW-904, 905, 906, 907, and 908) installed during the RI/FS program. Based on visual inspection and GC data, two samples were taken from each boring. Sampling depths ranged from 10 to 20 feet bgs. Three surface soil samples were also taken at Site 9. Locations of soil borings and surface sampling sites are shown in Figure 11-1, and analytical data for surface and subsurface soil samples are in Appendices J and K. Figure 11-7 summarizes contaminant distribution in Site 9 surface and subsurface soils. TCL organic compounds detected in subsurface soils include DCE and 2-butanone. DCE was reported in MW-904 at a depth of 14 feet at a concentration of 6 µg/kg, and 2-butanone was detected at 10 feet in MW-906 at a concentration of 33 µg/kg. 2-Butanone was detected in Round IV laboratory blanks and is not believed to characterize Site 9 soils.

Inorganic compounds detected in subsurface soils include aluminum (5,840 to 8,580 mg/kg), iron (8,570 to 12,100 mg/kg), magnesium (2,350 to 3,740 mg/kg), manganese (172 to 243 mg/kg), lead (2.7 to 3.3 mg/kg), chromium (9.6 to 14.8 mg/kg) and zinc (32 to 73 mg/kg). The concentration of these inorganic compounds typically increases in analytical samples from silty and clay-rich strata, relative to samples from outwash sands. Arsenic was detected in MW-904 (4 to 40 mg/kg) and MW-905 (28 mg/kg) in analytical samples of clay material (see Subsection 5.3.1 and Table 5-4).

Three surface soil locations (i.e., SS-901, SS-902, and SS-903) were identified and sampled during the 1989 field season (see Figure 11-7). DDT, DDE, and PAHs were the only organic compounds detected, and were present in all three surface soil samples. Concentrations of DDT and DDE, respectively, varied from 41 and 62 µg/kg in SS-903 to 400 and 470 µg/kg in SS-901. PAH levels varied from 1,120 µg/kg in SS-903 to more than 30,000 µg/kg in SS-901. Inorganic compounds detected in surface soils included aluminum, iron, lead, and manganese. Concentrations for these inorganic compounds are low, and reflect background values (see Tables 5-3 and 5-4).

11.5.4 Groundwater: Site 9

Groundwater from Site 9 monitoring wells was sampled during Rounds I, II, III, and IV (see Table 4-2 for sampling chronology and compounds analyzed). Compounds analyzed during the RI/FS program included TCL organic and inorganics, TOC, carbonate, and bicarbonate. Groundwater data is included in Appendices J and K; Figure 11-8 summarizes Site 9 groundwater contamination. TCL VOCs were detected during all sampling rounds in MW-904 and included several dechlorinated VHOs. VC (12 to 27 µg/L), and 1,2-DCE (6 µg/L) were detected during Rounds I and II, but were not detected during Rounds III and IV. 1,1-DCA was detected during all four sampling rounds, with concentrations ranging from 5 to 12 µg/L. The varied concentration of dechlorinated VHOs with time in MW-904 is shown in Figure 11-9. Monitoring wells installed during the 1989 field season also detected dechlorinated VHOs. VC (18 µg/L) was present in MW-907, and 1,2-DCE (36 µg/L) was detected in MW-906. The data

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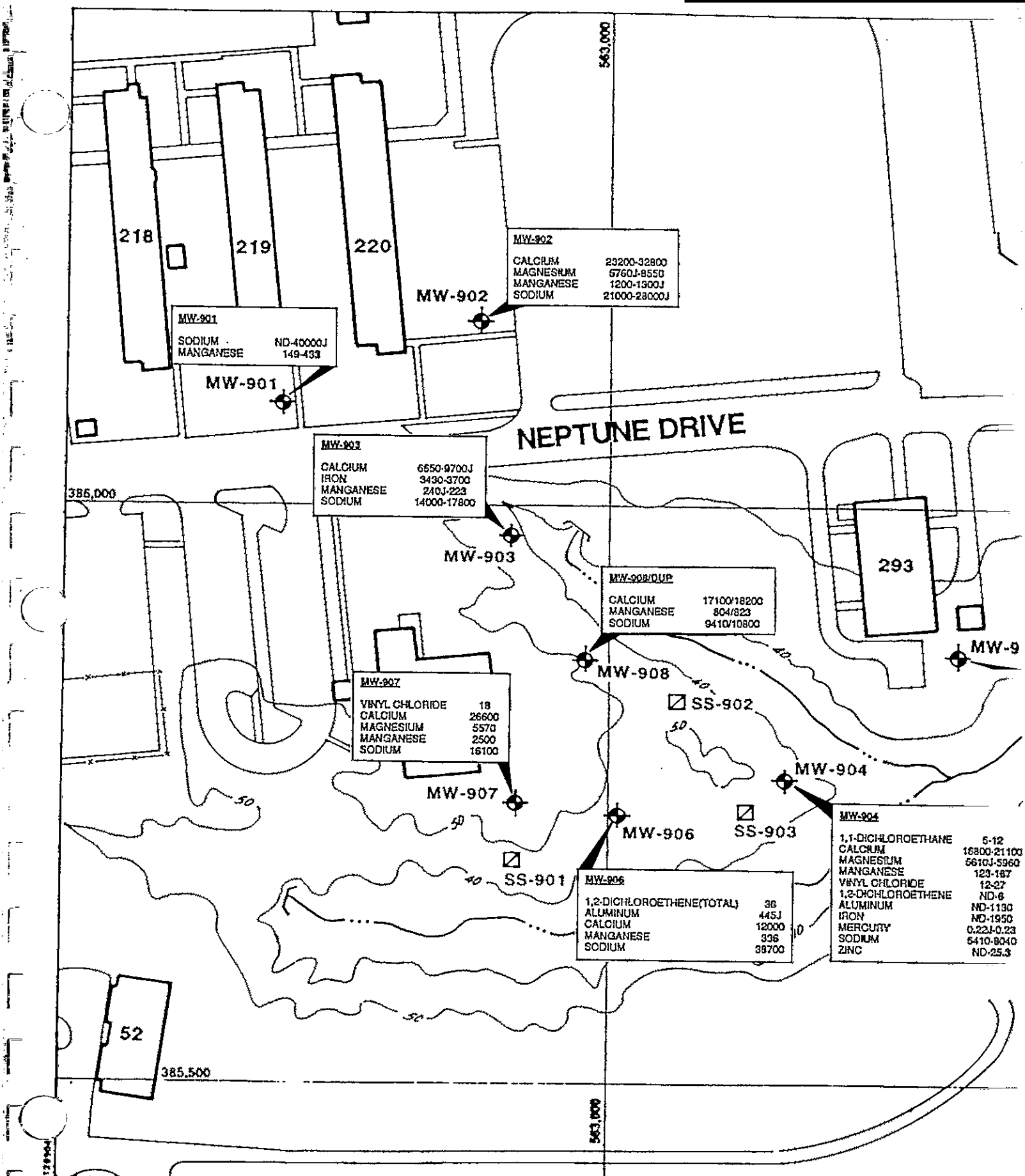

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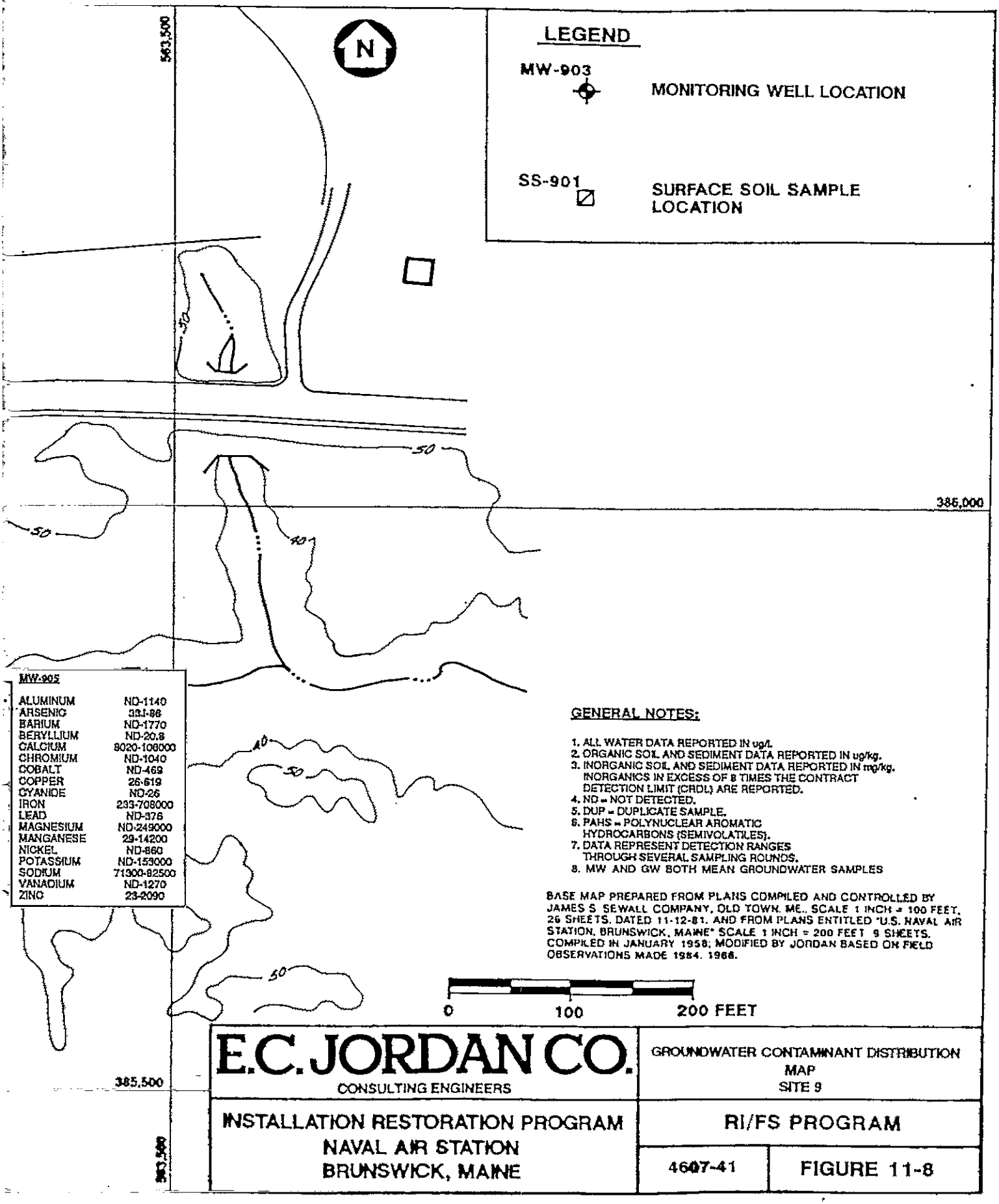

MW-905

ALUMINUM	ND-1140
ARSENIC	33.1-86
BARIUM	ND-1770
BERYLLIUM	ND-20.8
CALCIUM	8020-106000
CHROMIUM	ND-1040
COBALT	ND-469
COPPER	26-619
CYANIDE	ND-26
IRON	233-708000
LEAD	ND-376
MAGNESIUM	ND-249000
MANGANESE	29-14200
NICKEL	ND-860
POTASSIUM	ND-153000
SODIUM	71300-82500
VANADIUM	ND-1270
ZINC	23-2090

GENERAL NOTES:

1. ALL WATER DATA REPORTED IN ug/l.
2. ORGANIC SOIL AND SEDIMENT DATA REPORTED IN ug/kg.
3. INORGANIC SOIL AND SEDIMENT DATA REPORTED IN mg/kg. INORGANICS IN EXCESS OF 8 TIMES THE CONTRACT DETECTION LIMIT (CRDL) ARE REPORTED.
4. ND = NOT DETECTED.
5. DUP = DUPLICATE SAMPLE.
6. PAHS = POLYNUCLEAR AROMATIC HYDROCARBONS (SEMIVOLATILES).
7. DATA REPRESENT DETECTION RANGES THROUGH SEVERAL SAMPLING ROUNDS.
8. MW AND GW BOTH MEAN GROUNDWATER SAMPLES

BASE MAP PREPARED FROM PLANS COMPILED AND CONTROLLED BY JAMES S. SEWALL COMPANY, OLD TOWN, ME., SCALE 1 INCH = 100 FEET, 26 SHEETS, DATED 11-12-81, AND FROM PLANS ENTITLED "U.S. NAVAL AIR STATION, BRUNSWICK, MAINE" SCALE 1 INCH = 200 FEET 9 SHEETS, COMPILED IN JANUARY 1958; MODIFIED BY JORDAN BASED ON FIELD OBSERVATIONS MADE 1984, 1988.

0 100 200 FEET

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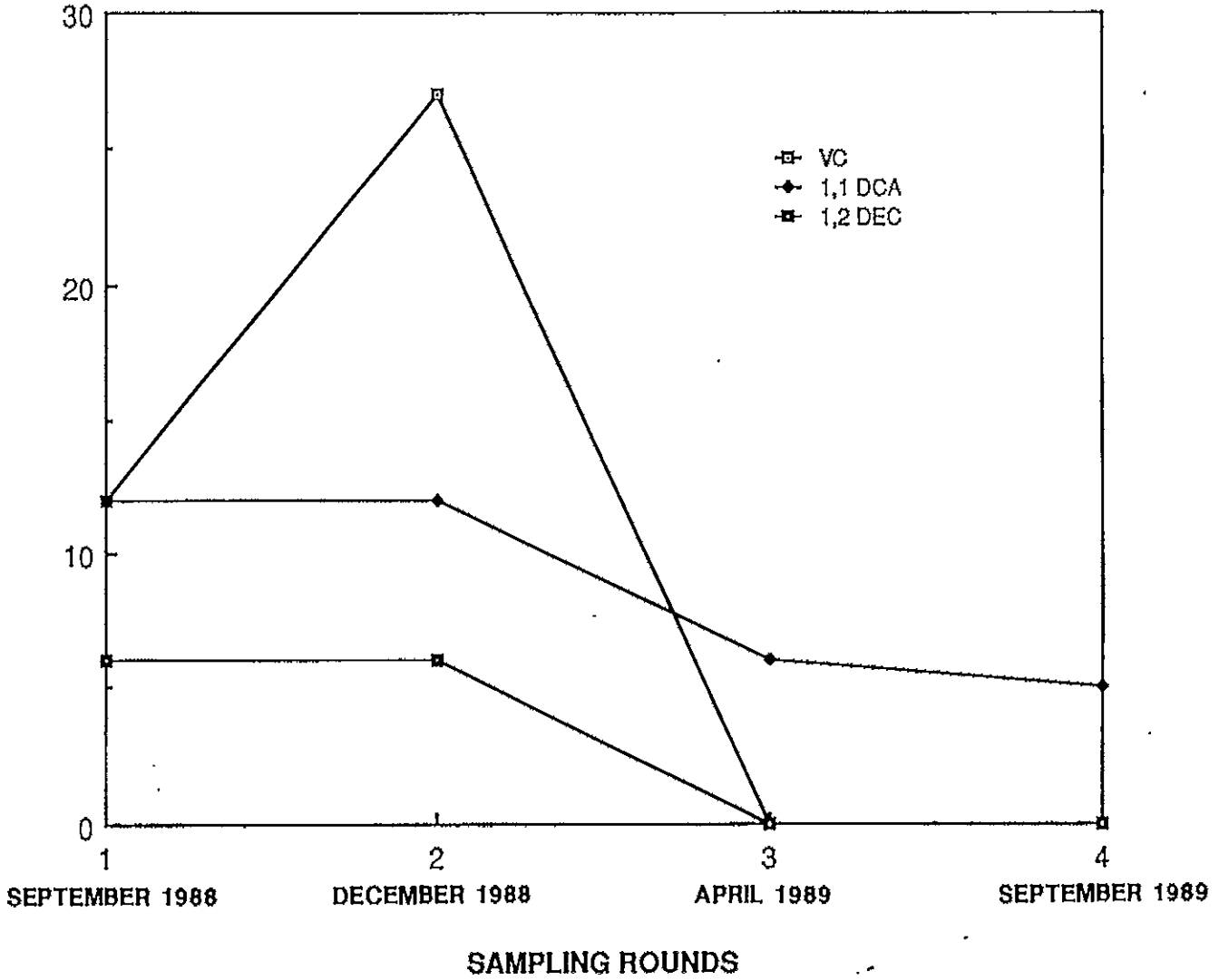
GROUNDWATER CONTAMINANT DISTRIBUTION MAP
SITE 9

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41

FIGURE 11-8



E.C. JORDAN CO. CONSULTING ENGINEERS	SAMPLING ROUND VOC VARIATION MW-904 SITE 9
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
	4607-41 FIGURE 11-9

Click Here to Return to Main Index

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shown in Figure 11-9 demonstrate that, through time, several dechlorinated VHOs have been detected at MW-904, consistent with dechlorinated VHOs detected at MW-906 and MW-907. The only other organic TCL compound detected at Site 9 was the SVOC, bis(2-ethylhexyl)phthalate (10 to 12 µg/L) detected in MW-905 during Rounds I and II. Concentrations of bis(2-ethylhexyl)phthalate were just above detection, the compound was only observed in MW-905, and the SVOC was reported in Round I laboratory method blanks (Appendix J). Because bis(2-ethylhexyl) phthalate is a common laboratory contaminant and concentrations are low, it is not believed to represent actual site conditions (see Table 11-2 and Subsection 5.3.5).

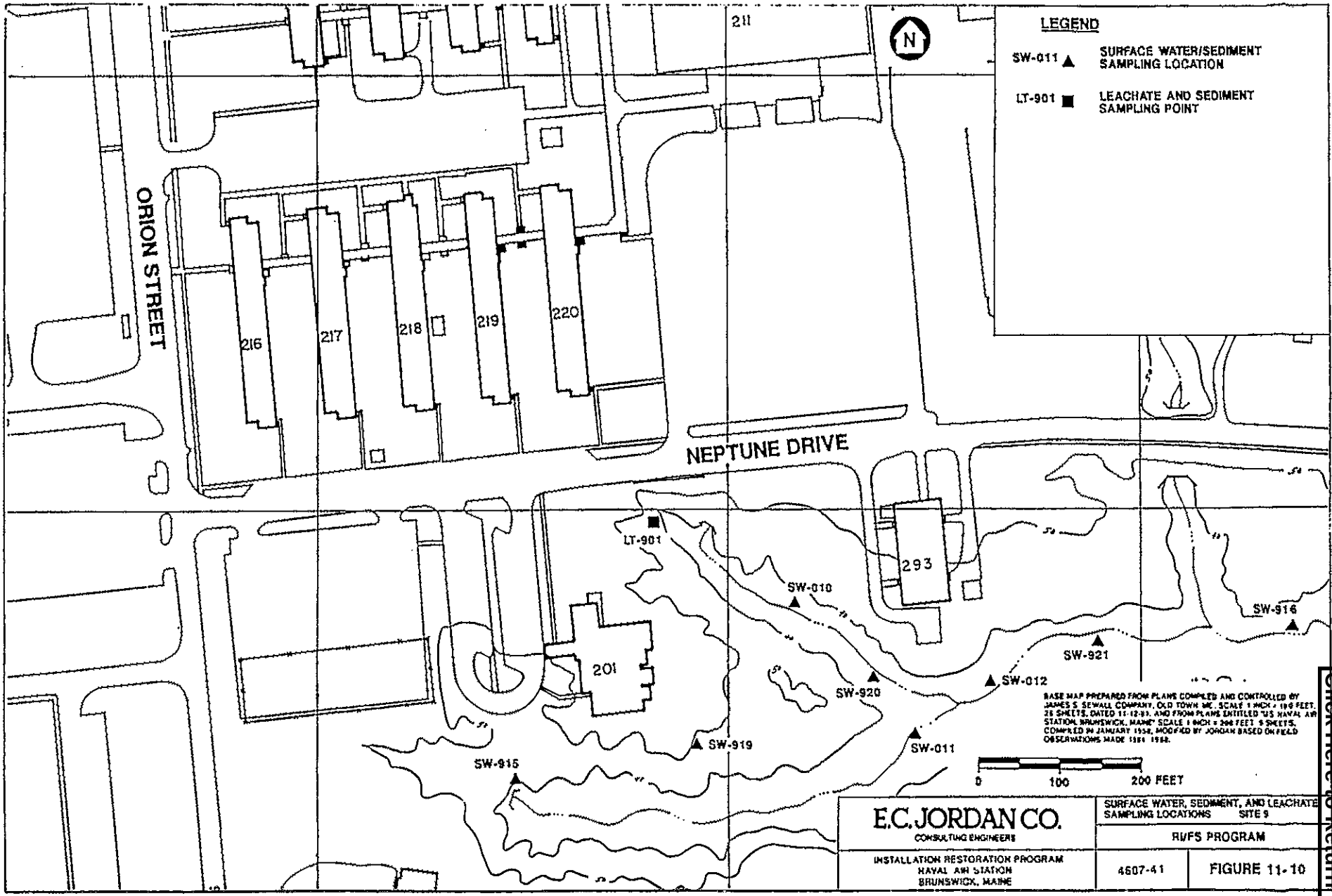
Most TCL inorganic compounds in Site 9 groundwater have values in the normal range, except for the elements sodium, calcium, iron, and magnesium. Mercury was detected in MW-904 during Rounds I and II, but was not observed during Rounds III and IV. Mercury concentrations were close to the detection limit (i.e., 0.22 to 0.23 µg/L), and the sporadic occurrence suggests that only very low levels of mercury occur. TOC values were low, ranging from 1.6 to 9.2 mg/L, and carbonate was not detected in any Site 9 monitoring well. Bicarbonate concentrations were high at all Site 9 monitoring wells except MW-902, which had 12 mg/L, consistent with background levels (see Table 5-6). Other Site 9 wells have bicarbonate concentrations ranging from 31 to 200 mg/L.

TCL inorganics are much higher for Round IV in MW-905 than reported in previous sampling rounds, and the high range of inorganics shown in Figure 11-8 for MW-905 is from Round IV. Previous groundwater samples were filtered; Round IV data were unfiltered. An unfiltered sample was analyzed from MW-905 due to high levels of silt and clay in the well. Unfiltered results do not represent concentrations dissolved in groundwater. Inorganic results from Rounds I, II, and IV for MW-905 are shown in Appendix L.

11.5.5 Surface Water and Sediments: Site 9

Sixteen SW/SD locations were sampled at Site 9. Sampling locations were established in the Site 9 vicinity, and at points in depositional areas downstream of Site 9 in Picnic Area Pond. Nine sampling sites were in the streams adjacent to Site 9, and seven points were located at Picnic Area Pond and downstream at the pond (see Figures 11-10 and 6-2). Surface water and sediments were analyzed for TCL organics and inorganics; sampling history is summarized in Table 4-2. Analytical data are in Appendices J and K; a summary of contamination in Site 9 surface water and sediment is shown in Figure 11-11.

VOCs have been found at several Site 9 SW/SD locations including SW-011, SW-915, and SW-917. Methylene chloride (9 µg/L) and acetone (22 µg/L) were found at SW-917 during Round I sampling. These compounds were not detected in subsequent sampling, and were reported in laboratory method blanks (Appendix J). As common laboratory contaminants, they are not believed to represent actual site conditions (see Table 11-2). Fuel-related VOCs were found at SW-915 and SW-011 during Rounds I and III. Detected compounds include benzene (6 to 18 µg/L), toluene (12 to 22 µg/L), ethylbenzene (36 µg/L), and xylenes



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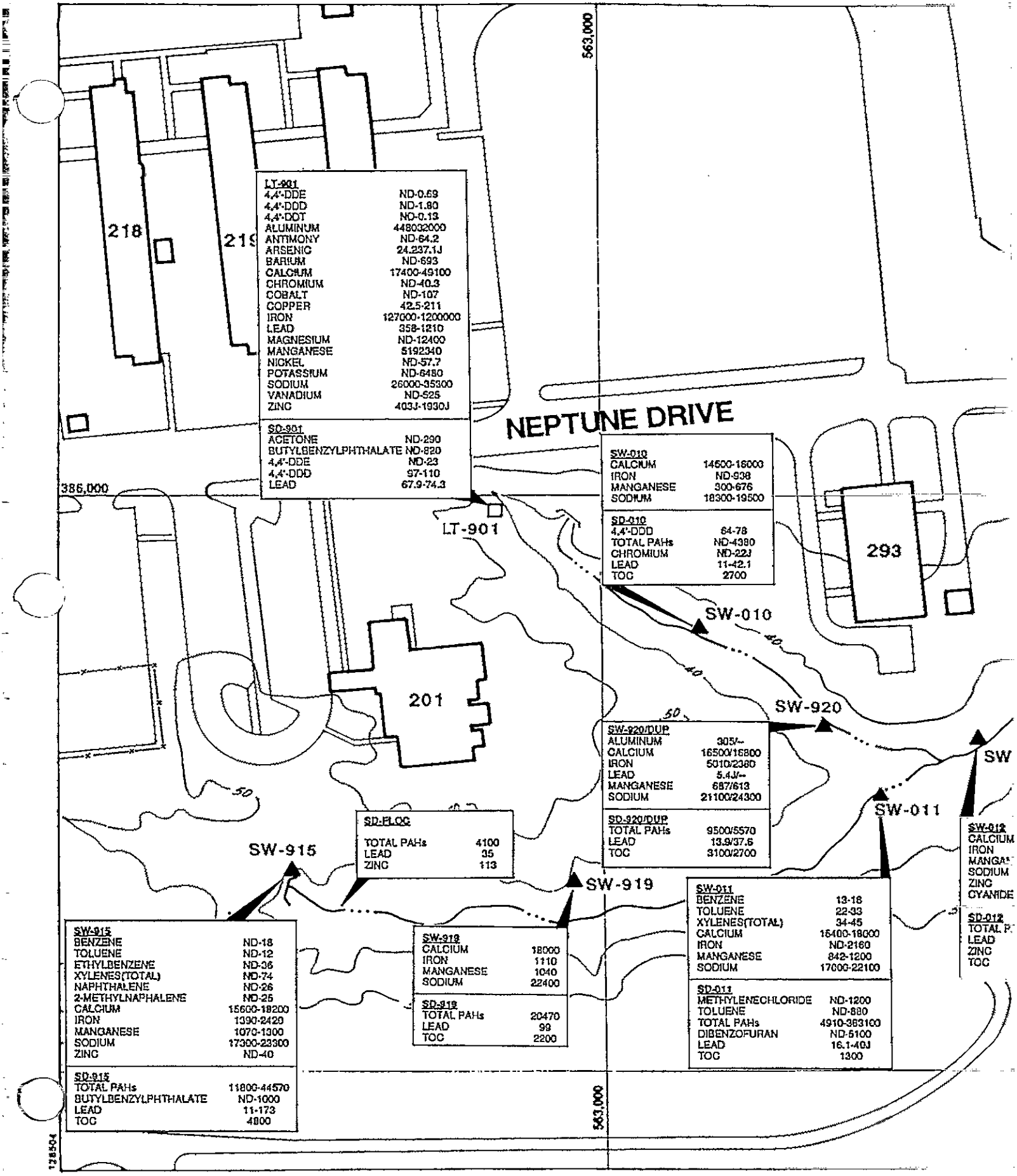

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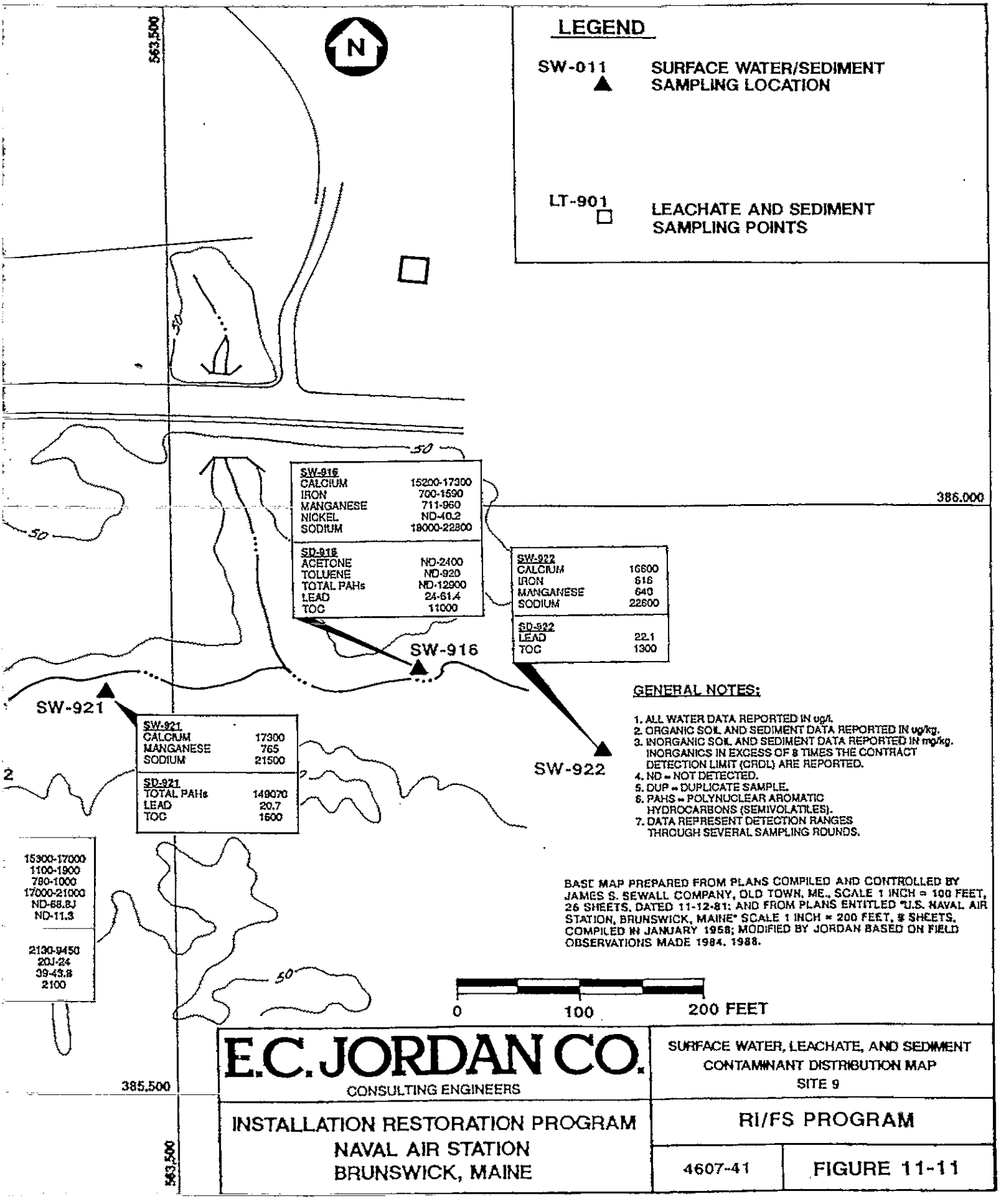

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SURFACE WATER, LEACHATE, AND SEDIMENT CONTAMINANT DISTRIBUTION MAP
SITE 9

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BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41

FIGURE 11-11

(34 to 74 µg/L). The Navy is addressing the presence of fuel-related VOCs with a stormwater runoff characterization study.

VOCs were also detected in Site 9 sediments. Methylene chloride, acetone, chloroform, and toluene were detected at high levels in several sediments only in Round I (i.e., with elevated laboratory detection limits). All compounds but chloroform were reported in Round I medium-level laboratory method blanks. Reported VOC values are just above detection for medium-level soil analysis. Samples from subsequent rounds were analyzed by the low-level soil method. These compounds were detected only in Round I sampling, and as common laboratory contaminants, they are not believed to represent actual site conditions (see QA discussions in Appendices J and K, Subsection 5.3.5 and Table 11-2). VOCs were detected in sediment samples from Picnic Area Pond. Toluene was reported in SD-926 (470 µg/kg) and in SD-927 (460 µg/kg).

SVOCs were found in one surface water location (i.e., SW-915): naphthalene (26 µg/L) and 2-methylnaphthalene (25 µg/L) were reported in Round III sampling. Although these two compounds were not detected in other sampling rounds, benzene, toluene, and xylenes were also reported at SW-915 during Round III sampling (see Appendix K).

SVOCs were found in most sediment samples in most sampling rounds from streams in the Site 9 vicinity. Total PAHs were reported in SD-010 (4,380 µg/kg), SD-011 (2,610 to 49,100 µg/kg), SD-012 (2,130 to 9,450 µg/kg), SD-915 (11,900 to 44,570 µg/kg), SD-916 (6,090 to 12,900 µg/kg), SD-919 (20,470 µg/kg), SD-920 (9,500 µg/kg), and SD-921 (149,570 µg/kg). PAHs were also found in a floc deposit (4,100 µg/kg) near the Orion Street culvert outfall of the primary (southern) drainage (see Figure 11-11). Other SVOCs detected in sediment samples from the two streams in the Site 9 area include bis(2-ethylhexyl)phthalate and butylbenzylphthalate. These two compounds were detected in several locations, but were not detected in all sampling rounds.

TCL pesticides and PCBs were not detected in surface water or sediments from Site 9 sampling locations, and TCL inorganics in surface water locations in the Site 9 vicinity are typically greater than background values (see Figure 11-11 and Table 5-5). Calcium (14,500 to 18,200 µg/L), iron (938 to 5,010 µg/L), magnesium (300 to 1,300 µg/L), and sodium (17,300 to 24,300 µg/L) all exceed typical background values and are consistent with high inorganic levels observed in groundwater. Concentrations of TCL inorganics in surface water in Picnic Area Pond have values more consistent with background levels except for sporadic detection of cyanide (19 to 22 µg/L in SW-918). Similarly, concentrations of TCL inorganics in sediment samples from Site 9 also have values consistent with background levels in sand and clay soils (see Tables 5-3 and 5-4).

TOC was measured in sediments at Site 9 surface water locations. Detected at all locations, TOC concentrations in the Site 9 vicinity ranged from 1,300 mg/kg to 11,000 mg/kg. TOC concentrations are higher in Picnic Area Pond with values ranging from 3,000 to 55,000 mg/kg. The higher values in the Picnic Area Pond are probably related to the depositional environment of the pond.

Click Here to Return to Main Index

11.5.6 Seeps and Sediments: Site 9

One seep location was identified and sampled at Site 9 (i.e., LT-901). The Site 9 seep is located at the head of the northern drainage adjacent to MW-903 (see Figures 11-11 and 11-12), and was sampled during Rounds III and IV of the RI/FS program. TCL organics and inorganics were analyzed, and the data is in Appendices J and K. A summary of seep and sediment contamination is shown in Figure 11-11. VOCs and SVOCs were not detected in leachate, but butylbenzylphthalate was reported in Round IV sediment results (820 µg/kg). Butylbenzylphthalate was not observed in Round III sediment samples, suggesting this compound does not represent actual site conditions. Further sampling is required to confirm this hypothesis.

Pesticides were detected in both leachate and sediment from LT-901. DDT (0.13 µg/L), DDD (1.80 µg/L), and DDE (0.69 µg/L) were reported in the leachate, and DDD (97 µg/kg) was found in the sediment.

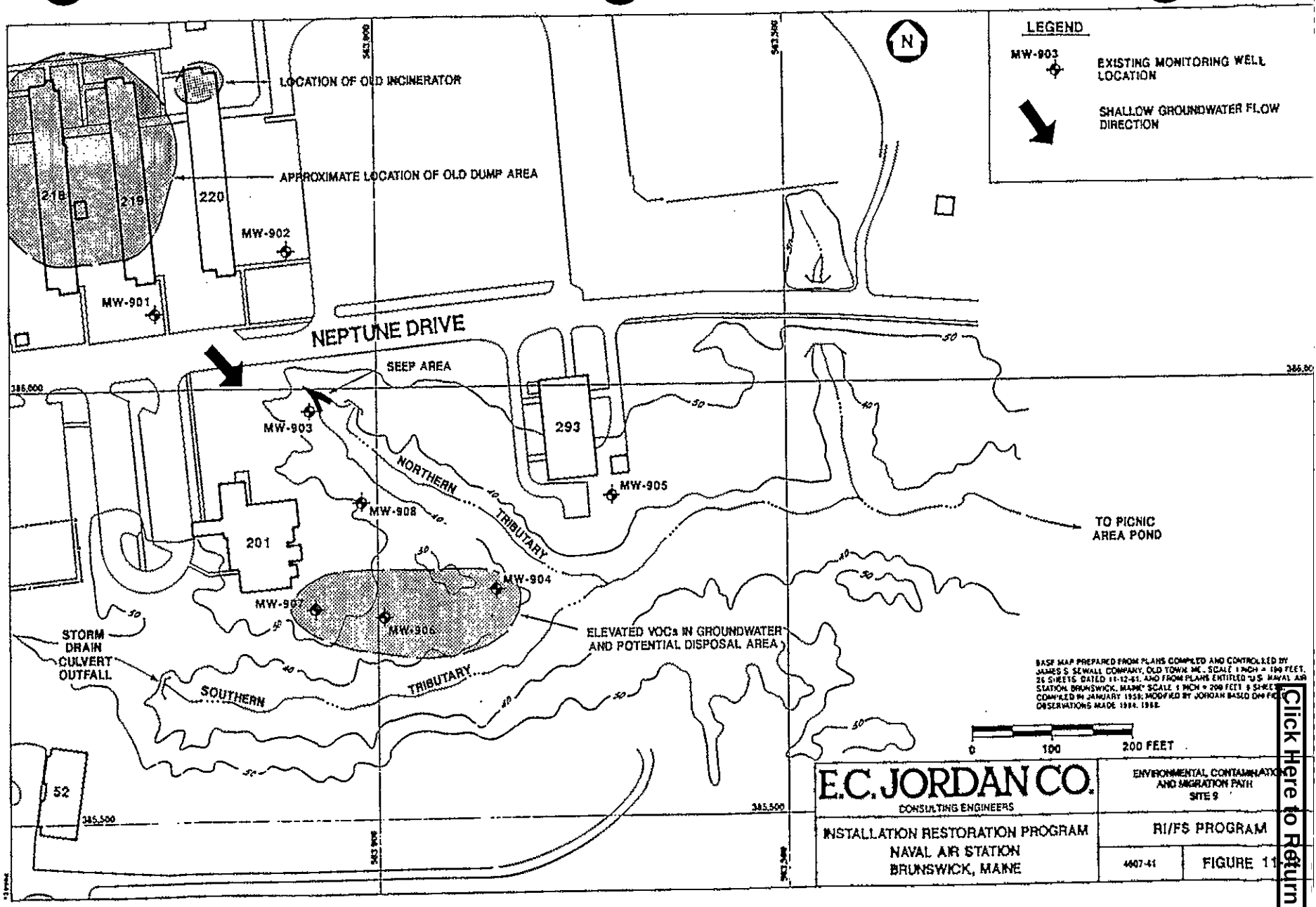
TCL inorganics in LT-901 have high values, and arsenic was detected in both Rounds III and IV (24 to 37 µg/L). Elevated concentrations of lead (358 to 1,210 µg/L), aluminum (4,480 to 32,000 µg/L), and iron (127,000 to 1,200,000 µg/L) were observed, and the trace elements barium (693 µg/L), chromium (40 µg/L), cobalt (107 µg/L), and copper (211 µg/L) were detected.

11.6 SUMMARY OF EXTENT OF CONTAMINATION: SITE 9

Environmental contamination is found in several media at Site 9, including surface water and sediments, leachate and sediment, surface soils, and groundwater. Environmental contamination found at Site 9 is consistent with historical information, which indicates that an incinerator and two disposal areas were located there. The incinerator location is shown on a 1946 base map, indicating it was under the present northern end of Building 220 (see Figures 2-3 and 11-1). A dump area was located west of the incinerator, and the IAS reported a second disposal area behind Building 201.

Elevated levels of metals (i.e., sodium, calcium, iron, and magnesium) are found in groundwater and surface water at Site 9. These probably are related to ash from the incinerator in the vicinity of the Barracks. All Site 9 monitoring wells are downgradient from this source (Figure 11-12). The seep location (i.e., LT-901) is also downgradient from the former dump, and the high levels of inorganics found in the leachate undoubtedly result from the dump. The northern tributary at Site 9 appears to be the original channel of a brook that crossed the old dump and was backfilled to accommodate construction of the barracks (see Figure 2-3).

VHO compounds are found in MW-904, MW-906, and MW-907, but are absent in all other Site 9 monitoring wells. Site 9 monitoring wells exceeding regulatory guidelines are shown in Figure 6-34, along with the interpreted area of VOC-contaminated groundwater. The IAS reports the burning of solvents on the ground surface at Site 9, and VHOs were found in wells behind Building 201, suggesting this may have been the solvent burning/disposal area (see Figure 11-12). The location of the burning area near Building 201 is further



Click Here to Return to Main Index

Click Here to Return to Main Index

supported by a disturbed area in historic aerial photographs, and by the levels of PAHs detected in surface soils (i.e., SS-901, SS-902, and SS-903), although nearby picnic area fireplaces may contribute to PAH levels in this area.

Sediments sampled from the two tributaries adjacent to Site 9 have high levels of PAHs and moderate TOC concentrations, and analyses of surface water from SW-915 and SW-011 detected benzene, toluene, and xylenes (BTX) compounds and fuel-related TICs (see Appendix J). The VOCs in SW-915 and SW-011 have been detected only during sampling Rounds I and III. VOCs were not detected in the southern drainage during Round IV, and SW-919 (located between SW-915 and SW-011) has only been sampled during Round IV. SW-915 and SW-011 are located in the southern stream adjacent to Site 9, and this tributary receives water from a storm drain culvert (see Figures 11-10 and 11-12). The source of water in the culvert is from the operations and hangar areas, and the presence of BTX compounds in SW-915 and SW-011 indicates the southern stream is primarily affected by this drainage. Naphthalene and 2-methylnaphthalene, fuel-related compounds similar to BTX, are also found in SW-915, and are consistent with this scenario. Similarly, PAH levels are much higher in the southern drainage relative to the northern drainage, and BTX and SVOCs are not observed in surface water samples from the northern drainage. A tributary to the stream east of Site 9, between SW-921 and SW-916 (see Figure 11-11), does not appear to contribute contamination to the stream, as analytical data for both sampling locations are very similar.

The Picnic Area Pond receives drainage from the Site 9 tributaries, and contamination (i.e., toluene and 4-methylphenol) reported in sediment samples in this depositional area presumably results from base drainage flowing into the pond. VOCs and SVOCs were reported in the TICs for surface water and sediments in the Picnic Pond Area, supporting the base drainage scenario (see Figure 6-28).

The Picnic Area Pond also receives drainage from the northeast, and SW-923 is sited downgradient from this tributary. Inorganics in SW-923 are elevated, but the values appear to reflect entrainment of sediment during sampling. The field data sheet for SW-923 indicated less than 2 inches of water present at the sampling location and the aluminum concentration (2,660 µg/L) is consistent with sediment inclusion.

Cyanide was detected at low levels (19 to 22 µg/L) in Rounds II and III in Picnic Area Pond (SW-918). Cyanide also was reported in Merriconeag Stream (SW-118) and in Mere Brook beaver marsh (SW-114), downstream of the confluence with Merriconeag Stream (Figure 6-2). These cyanide levels are low (12 µg/L) and are only reported during Round II. In addition, sampling locations between SW-118 and SW-918 (i.e., SW-917, SW-927, and SW-926) do not detect cyanide in any sampling rounds. These data suggest that cyanide does not characterize the Picnic Area Pond. Cyanide concentrations occur at levels typically associated with the salt/cyanide distribution at Site 8. Possible sources for cyanide include the tributary upgradient of SW-923 that receives runoff from the northeastern area of the base, and Old Gurnet Road, south of

Click Here to Return to Main Index

Picnic Area Pond. Both areas do receive salt and are potential sources for low-level cyanide contamination.

There are three distinct areas of contamination at Site 9: (1) the area adjacent to Buildings 218, 219, and 220, where the incinerator and former dump were located, (2) the area around Building 201 where VHOs were detected, and (3) the streams adjacent to Site 9.

11.7 CONTAMINANT FATE AND TRANSPORT: SITE 9

Environmental contamination at Site 9 includes PAHs, DDT, and DDE in surface soils; PAHs in surface water sediments; low levels of BTX in surface water; low levels of DDT, DDD, and DDE in leachate, and DDD in seep sediment; low levels of VHOs in groundwater; and inorganics in groundwater. PAHs are relatively immobile in the soil environment due to their high sorption properties, and the ultimate fate of PAHs in soils is sorption to sediments, followed by slow biodegradation (Edwards, 1983). PAHs also typically have low solubility in water, further limiting PAH transport properties, such as resistance to being leached from soil into groundwater (Neft, 1979).

DDT also has a strong propensity to adhere to soils, and sorption is the dominant fate of DDT in soils and surface waters (Kenaga and Goring, 1978). Therefore, like PAHs, DDT will sorb to soils and ultimately biodegrade. Two major processes direct the degradation of DDT. First, aerobic degradation results in formation of DDE; and second, anaerobic degradation typically results in formation of DDD (Johnsen, 1976). DDT and its metabolites have low water solubility, which acts to minimize migration in the environment (Weil et al., 1973). DDT accumulating in sediments could potentially impact organisms living in this media.

The behavior of PAHs in surface water sediments is similar to that in soils. Due to low solubilities and high octanol-water partition coefficients, PAHs strongly partition into particulate and dissolved organic matter (Neff, 1979). PAHs in surface waters are accumulated in sediment depositional areas, and ultimately biodegraded. Once PAHs have been deposited in sediments, physical forces such as local turbulence and currents affect PAH distribution and control further downstream migration.

BTX are volatile organics with relatively high water solubilities and vapor pressures. These properties make them prone to leaching and surface water and groundwater transport. BTX have low octanol/water partition coefficients reflecting a relatively high solubility and hydrophilic nature, and relatively low soil/sediment adsorption coefficients that enhance BTX mobility in surface water (Kenega and Goring, 1978). In addition to dilution and dispersion, BTX concentrations will decrease due to biodegradation in aerobic and anaerobic environments (Tabak et al., 1981).

In soil-groundwater systems, chlorinated ethanes (e.g., TCA) and ethenes (e.g., TCE) are transported from soil to groundwater via leaching due to percolation of rainwater, and are eventually degraded to DCAs, DCEs,

Click Here to Return to Main Index

chloroethane, and VC via anaerobic reductive dechlorination (Vogel and McCarty, 1985; Corapcioglo and Hossain, 1987). The presence of these dechlorination products (i.e., VC, 1,2-DCE, and 1,1-DCA) suggests that anaerobic conditions existed, and reductive dechlorination reactions occurred. Anaerobic environments occur in groundwater systems when organic material is introduced to the aquifer, and commonly occur in landfills or dumps.

Site 9 groundwater is believed to discharge to the adjacent streams, and VHOs dissolved in groundwater volatilizes when groundwater reaches the surface. VHOs have relatively high vapor pressures, and rapidly partition into the atmosphere. Air blanks taken at Site 9 do not indicate VOC contamination; however, groundwater concentrations are so low that due to mixing and dispersion processes, non-detect air levels would be expected.

Inorganics dissolved in groundwater will remain in solution until solubility is reached, and the water solubility of these inorganics is a function of the nature of the dissolved species (Garrels, 1960). Concentration of dissolved inorganics in Site 9 groundwater is well below solubility limits, and the dissolved inorganics will migrate with groundwater. Inorganics typically do not strongly sorb to soils, and concentration in groundwater will be determined by dilution as inorganics migrate and disperse in the groundwater.

Click Here to Return to Main Index

Click Here to Return to Main Index

12.0 FIRE TRAINING AREA: SITE 11

12.1 DESCRIPTION AND HISTORY: SITE 11

Site 11, FTA, has been actively used since the 1950s when the Air Station was recommissioned and underwent a major expansion period. The FTA is currently used accordance to a regular monthly schedule and usage will continue in the future. A 1959 aerial photograph of the base shows a large blackened area at the FTA's current location (see Figure 8-1). The site contains a circular concrete liner (installed in 1987) surrounded by an open grassy area. Fire-fighting exercises at the FTA introduced various combustible materials into soils at the site, including waste oils, fuels, solvents, and other miscellaneous liquids. Reportedly, the only measures taken before 1987 to control infiltration was to saturate the ground surface with water (prior to a burn) to float the combustible product mixtures. The number of annual burns reportedly has varied over the years, as has the mixture of combustible liquids in use. In 1987, the FTA was upgraded with the installation of a concrete liner and berms, and a 6,000-gallon UST installed north of the pit to contain unburned fuels (see Figure 8-4). The newly installed UST has not been tested to date.

12.2 TECHNICAL APPROACH: SITE 11

Before the 1989 RI field program, no exploration activities were carried out at the FTA. To characterize subsurface conditions at the FTA, and to identify potential contamination at the site, preliminary explorations were conducted during the 1989 field program (Table 12-1). These included a soil gas survey, installation of four monitoring wells, collection of soil and groundwater samples, and aquifer permeability testing.

To screen the area for VOCs and to optimize soil sampling and monitoring well locations, a 40-point soil gas survey was conducted on an approximately 50-foot grid (see Figure 6-15). This survey detected elevated levels of solvents and fuel-related compounds in soil gas around and north of the fire pit. Results of the soil gas survey are in Appendix D.

Based in part on the soil gas survey, five hand-auger borings were completed to collect samples at Site 11 (see Figure 8-1). Based on visual inspection and PI meter readings, two samples from each boring were submitted for laboratory analyses for TCL organics and inorganics. Results of these analyses are in Appendices J and K. In addition to characterizing the presence of contamination, data from these samples were used for RA and FS screening of alternatives.

The soil gas survey indicated elevated VOC levels in soil gas in the area immediately surrounding the fire pit, supporting locations of three borings adjacent to the FTA. A fourth boring/monitoring well (i.e., MW-1104), located southeast of the FTA, was placed according to preliminary groundwater gradients surveyed in the first three monitoring wells (see Figure 8-4). The three borings located next to the FTA were sampled continuously to provide a

Click Here to Return to Main Index

TABLE 12-1
RI PROGRAM SUMMARY - SITE 11

REMEDIAL INVESTIGATION
NAS BRUNSWICK

1988 FIELD PROGRAM

- 40 soil gas points
- Five hand auger borings
- Four test borings with monitoring wells
- Sampling of soils and groundwater
- In situ aquifer permeability testing

Click Here to Return to Main Index

detailed understanding of the shallow stratigraphy in the area. MW-1104, located downgradient, was sampled at 5-foot intervals. Two soil samples from each of the four borings were collected and analyzed for TCL organics and inorganics. Groundwater samples were collected and analyzed for TCL organics and inorganics from the four new wells. Results of these analyses are in Appendices J and K, and the data is discussed in Subsection 12.5.3. Aquifer permeability testing also was performed in all four Site 11 wells.

12.3 GEOLOGY: SITE 11

Four borings were drilled at Site 11. MW-1103 and MW-1104 encountered the transition zone underlying the sands; none of the four borings touched the clay layer assumed to underlie the transition zone. The clay layer is assumed to underlie the transition zone based on soil boring information from 200 feet west of Site 11 (i.e., MW-403). Based on these borings, the top of the transition zone is at a uniform depth in this area. Geologic profile F-F' (see Figure 8-3) shows that upper sands have a thickness of about 29 feet.

Five hand-auger borings were conducted at this site (see Figure 8-1). Based on information from these borings, there generally is 2 feet of fill surrounding the bermed fire pit area. Three hand-auger locations (i.e., HA-1103, HA-1104, and HA-1105) encountered 2 feet of fill above a 6-inch, hard, black, bituminous-like layer. This layer apparently was the original burn surface and the overlying fill was presumably placed during upgrade of the FTA in 1987.

12.4 HYDROGEOLOGY: SITE 11

Site 11 hydrogeology was assessed initially with four shallow monitoring wells installed during the 1989 RI. Water table contours were inferred from water levels recorded in these four wells (see Figure 8-4). Based on preliminary data, shallow groundwater movement appears to be to the east or southeast. Sufficient data are currently unavailable downgradient of the FTA, and contamination may actually be moving in a more southerly direction, contributing to the eastern plume.

The site consists of sand over transition zone strata. Clay was not encountered in MW-1103 or MW-1104 (both completed to 32 feet), the deepest borings at this site. In situ hydraulic conductivities ranged from 1.2×10^{-3} to 2.9×10^{-3} cm/sec (see Table 4-3 and Figures 8-3 and 8-4). The geometric mean of hydraulic conductivities at Site 11 is 1.9×10^{-3} cm/sec. The horizontal hydraulic gradient from the site to Picnic Area Pond averages approximately 0.015 feet/foot. Assuming an effective porosity of 0.25, the observed range of conductivities, and a gradient of 0.015, groundwater seepage velocities could vary from 75 to 180 feet per year. Shallow groundwater movement, based only on October 1989 water levels, appears due east or southeast towards Picnic Area Pond and Merriconeag Stream. Using the geometric mean of the Ks, an average gradient of 0.015, and an estimated effective porosity of 0.25, seepage velocity from the site to the pond would be 118 feet per year. Based on a travel distance of 1,500 feet, contaminants could be expected to reach the pond within 13 years. Assuming conductivities

Click Here to Return to Main Index

are equal to or slightly greater than field tests indicate, and taking longitudinal dispersion into account, contaminants could have reached the pond or Merriconeag Stream in less than eight years. The downgradient extent and location of the FTA plume remains to be quantified.

12.5 NATURE AND EXTENT OF CONTAMINATION: SITE 11

This subsection discusses the results from environmental sampling at Site 11.

12.5.1 Soil Gas Survey: Site 11

A soil gas survey was conducted by HGC at Site 11 in August 1989. The survey included analysis for 1,1-DCE, 1,2-DCE, TCE, TCA, PCE, VC, BTEX, and THC. Forty soil gas points (i.e., SG-1 through SG-40) were established at Site 11. Locations of the 40 soil gas points are shown in Figure 6-15; soil gas data is in Appendix D. The soil gas survey at Site 11 detected both hydrocarbon and VHO compounds. THC ranged in concentration from non-detect values to concentrations exceeding 2,000 µg/L. BTEX compounds were detected only when THC values exceeded 1,000 µg/L. Soil gas locations with detected BTEX exceeding 1 µg/L in soil gas included SG-2, SG-7, SG-10, SG-18, and SG-30. VHOs detected include 1,1-DCE, 1,2-DCE, TCA, TCE, and PCE. VC was not detected in any Site 11 soil gas location, and total VHOs measured at Site 11 ranged from non-detect values to concentrations exceeding 630 µg/L. When VHOs were detected, TCA and TCE always had the highest concentrations, followed typically by 1,2-DCE, 1,1-DCE, and PCE. Soil gas values greater than 10 µg/L are considered reliable indicators of subsurface contamination. Site 11 soil gas locations with total VHOs exceeding 10 µg/L included SG-7, SG-9, SG-10, SG-14, SG-15, SG-16, SG-17, SG-24, SG-25, SG-26, SG-27, SG-28, SG-29, SG-31, and SG-32.

12.5.2 Subsurface Soils: Site 11

Eighteen subsurface soil samples were analyzed for TCL organic and inorganic compounds at Site 11. Eight soil samples were collected from the four Site 11 monitoring well soil borings with two samples taken from each boring. Sampling depths ranged from 6 to 30 feet bgs. Ten hand-auger soil samples were also collected from five locations; two samples were taken from each location, and sampling depths ranged from 2 to 6 feet. Analytical data for subsurface soil samples are in Appendices J and K; a summary of subsurface soil contamination is presented in Figure 8-8.

TCL organic compounds in soils from the borings were detected only in MW-1103. Detected inorganic compounds have concentrations consistent with background values (see Table 5-3). TCL organic compounds found in MW-1103 are TCA (40 µg/kg) and TCE (20 µg/kg), which were detected in the duplicate for the 12-foot sample associated with MW-1103, but not in the original. The absence of TCE and TCA in the MW-1103 sample is probably related to the volatility of these compounds in the sands.

TCL organic compounds were detected in all hand-auger soil samples except HA-1101. Typically, the shallowest samples had more detected compounds at higher concentrations. VOCs were detected in HA-1102 and HA-1105, with more compounds and higher concentrations than in HA-1102. TCE (11 µg/kg) was the only VOC detected in HA-1105; compounds detected in HA-1102 included 1,1-DCA (7 to 9 µg/kg), 1,2-DCE (22-28 µg/kg), 2-butanone (140 µg/kg), TCA (360 to 560 µg/kg), TCE (11 to 1,100 µg/kg), PCE (6 to 8 µg/kg), 2-hexanone (6,700 µg/kg), toluene (9 to 34 µg/kg), ethylbenzene (1,300 µg/kg), and xylenes (99 to 1,100 µg/kg). SVOCs included PAHs in HA-1103 (2,500 µg/kg) and HA-1104 (800 µg/kg), and butylbenzyphthalate (3,900 µg/kg) and bis(2-ethylhexyl)phthalate (5,300 µg/kg) in HA-1102. Inorganic compounds detected in the hand-auger samples have concentrations similar to those found in the Site 11 soil borings, and represent background values.

12.5.3 Groundwater: Site 11

Groundwater from Site 11 monitoring wells was sampled during Round IV and analyzed for TCL organic and inorganic compounds. Groundwater analytical data are in Appendices J and K. A summary of Site 11 groundwater data is in Figure 8-9. TCL VOCs were detected in all four Site 11 monitoring wells, including both hydrocarbon and VHO varieties. TCA and TCE were detected in the four monitoring wells, with TCA concentrations ranging from 45 µg/L (in MW-1101) to 450 µg/L (in MW-1102), and TCE concentrations from 20 µg/L (in MW-1102) to 310 µg/L (in MW-1103). The VHOs 1,1-DCA and 1,2-DCE were found in MW-1102, MW-1103, and MW-1104. Concentration of these dechlorinated compounds was typically lower than that for TCE and TCA. PCE was found only in MW-1101 (9 µg/L). Hydrocarbon VOCs were only detected in MW-1103, and include toluene (87 µg/L), ethylbenzene (19 µg/L), and xylenes (120 µg/L). SVOCs, pesticides, and PCBs were not detected in groundwater from Site 11 monitoring wells. Inorganic compounds detected in Site 11 groundwater include calcium (7,310 to 8,110 µg/L), iron (4,960 to 14,400 µg/L), and manganese (76 to 733 µg/L).

12.6 SUMMARY OF EXTENT OF CONTAMINATION: SITE 11

Environmental contamination was found in soils and groundwater at Site 11. The site was contaminated during fire training exercises, and detected VOCs are consistent with that practice. Figure 8-10 shows the area of contaminated soils, and the flow direction of shallow groundwater. The PAC Study documents the use of waste liquids generated in the hangars for fire training exercises. Waste liquids identified in the PAC Study include fuels, oils, and degreasing solvents.

The soil gas survey indicated the presence of various VHO and hydrocarbon compounds in the subsurface; the highest concentrations of these compounds were found adjacent to the fire training pit. The same set of VOCs detected by the soil gas survey also were found in Site 11 subsurface soils and groundwater. The highest level of soil contamination was found in shallow soils, and detected compounds include chlorinated solvents and fuel-related compounds. The high concentration of environmental contamination in the shallow soils is consistent with a surface source, as would be expected with

Click Here to Return to Main Index

fire training practices. PAHs also were detected in shallow soils in the source area in several hand-auger samples. These compounds are typically the result of incomplete combustion of hydrocarbon fuels, and again are consistent with site history.

Groundwater at Site 11 is also contaminated with VHO and hydrocarbon VOCs. PAHs were not detected in groundwater. Shallow groundwater flow in the Site 1 vicinity is to the southeast, with MW-1102 and MW-1103 just downgradient of the FTA pit (see Figure 8-4). Both downgradient wells have high levels of VHO contamination, with the highest values occurring in MW-1102. Monitoring wells with concentrations exceeding MCLs are shown in Figure 6-34. MW-1102 also has fuel-related VOCs, and is directly downgradient of HA-1102 where the highest levels of subsurface soil contamination were found. MW-1101, slightly upgradient of the FTA pit, still has significant levels of detected VHO compounds. These data are consistent with groundwater contamination as the result of percolation of rainwater through contaminated shallow soils, leaching VOC contamination, and ultimate carrying of contamination to the groundwater surface.

Groundwater contamination has migrated downgradient from the FTA source area. MW-1104 is approximately 200 feet downgradient from the FTA pit, and groundwater here contained 1,1-DCA, 1,2-DCE, TCA, and TCE. MW-1104 may not be directly in the downgradient flow path from Site 11, based on preliminary water level data, and may not represent the highest value for contamination migrating from the FTA. Groundwater potentially impacted by the FTA is shown in Figure 6-34.

12.7 CONTAMINANT FATE AND TRANSPORT: SITE 11

Environmental contamination at Site 11 includes VHOs and BTEX in soils and groundwater, and PAHs in surface soils. In soil-groundwater systems, VHOs are transported from soil to groundwater via percolation of rainwater, and can degrade to DCAs, DCEs, chloroethane, and VC via anaerobic reductive dechlorination (Vogel and McCarty, 1985; Corapcioglo and Hossain, 1989). VHOs in Site 11 groundwater are predominantly TCA and TCE, with minor amounts of 1,1-DCA and 1,2-DCE. The predominance of the tri-chlorinated compounds (i.e., TCE and TCA) suggests that reductive dechlorination is not a major process in Site 11 groundwater, and indicates that a relatively oxidizing environment exists. VHOs will migrate downgradient with groundwater and the concentrations will decrease via dilution processes and partitioning into the soil. Soils in the Site 11 vicinity are clean (low silt content) sands, which will minimize adsorption.

BTEX are volatile organics with relatively high water solubilities and vapor pressures. These properties make them prone to leaching and transport via groundwater. BTEX have low octanol/water partition coefficients reflecting a relatively high solubility and hydrophilic nature, and relatively low soil/sediment adsorption coefficients that enhance BTEX mobility (Kenaga and Goring, 1978). In addition to dilution and dispersion, BTEX concentrations

Click Here to Return to Main Index

will potentially biodegrade in aerobic (and anaerobic) environments, such as indicated at Site 11 (Tabak et al, 1981).

PAHs are relatively immobile in the soil environment due to high sorption properties. The ultimate fate of PAHs in soils is sorption to sediments followed by slow biodegradation (Neff, 1983). PAHs also typically have low solubility in water, further limiting their transport in groundwater.

Click Here to Return to Main Index

Click Here to Return to Main Index

13.0 DEFENSE REUTILIZATION AND MARKETING OFFICE AREA: SITE 13

13.1 DESCRIPTION AND HISTORY: SITE 13

Investigations began in the vicinity of the existing DRMO facility due to the presence of the former Acid/Caustic Pit (Site 4), now located beneath Building 584. During the PAC Study and the 1988 RI investigations, it became apparent that Site 4 was no longer a significant contaminant source in this area; however, VOC contamination was detected further south of the pit area. Previous underground storage of waste liquids, possible surface spills or disposal in the DRMO yard or south of the yard, or residual downgradient Site 4 contamination currently appear to be the source(s) of eastern plume contamination detected south of the DRMO yard down to Mere Brook at Site 1. This hypothesis led to designating the DRMO yard as Site 13 for the 1989 RI. RI data appear to confirm former USTs at Site 13 as sources. The IAS reported three USTs at the DRMO for storage of waste oils, fuels, and solvents. Two such tanks were reported by NAS Brunswick and both were removed within the past several years. Current information suggests the tanks were used from the early 1970s until their removal in 1986 (western tank) and 1989 (eastern tank). The USTS were 10,000-gallon metal tanks and no testing information is available. A third UST is actively used for diesel fuel at the DRMO, and is now thought to be the third tank discussed in the IAS (see Figure 8-4). This diesel tank is a fiberglass UST that replaced an old metal UST in 1986. Testing data are not available.

The DRMO storage yard is a paved, fenced enclosure, approximately 280 by 300 feet. Buildings 584, 93, and 19 abut the enclosure on the north, northeast, and east, respectively. Orion Street borders the yard to the west. To the east is an open graded field. To the south is a small clearing regularly used as a storage and equipment lay-down area. South of the clearing is a wooded area extending approximately 800 feet south to the northern end of Site 1. Topography is flat across the Site 13 area.

13.2 TECHNICAL APPROACH: SITE 13

During the 1988 RI, information was gathered indicating that sources other than the Acid/Caustic Pit (Site 4) might exist in the DRMO area. Based on soil gas surveys and analytical soil and groundwater data, the cleared area immediately south of the paved DRMO storage yard was considered the site of past spills, wastes disposal, or underground storage. For these reasons, an entirely new site designation, Site 13, was given to this area. This site encompasses areas in which monitoring wells and test pits were placed initially for Site 4 during the 1988 field program. The numbers of these explorations remain the same, but the data base has been assigned to Site 13 (see Figure 8-1 and Table 13-1).

Chlorinated solvents originally were detected in two shallow groundwater wells (i.e., GZA-1 and GZA-3) installed and sampled in 1986 in this area under the supervision of Goldberg-Zoino Associates (GZA) (see Figure 8-1). Other

Click Here to Return to Main Index

TABLE 13-1
RI PROGRAM SUMMARY - SITE 13

REMEDIAL INVESTIGATION
NAS BRUNSWICK

1988 FIELD PROGRAM

- 14 soil gas points
- Three test pits
- Four borings with monitoring wells
- Sampling of soil and groundwater
- In situ aquifer permeability tests

1989 FIELD PROGRAM

- Approximately 20 soil gas points
- Six test pits
- Three test borings with monitoring wells
- Sampling of soil and groundwater
- In situ aquifer permeability tests

compounds of concern in this area included pesticides and several VOCs detected in test pit soil samples in 1988.

To evaluate the USTs (past and present), identify other potential sources of contamination, and support the FS and RA, the 1989 field program included a second soil gas survey, three more test borings with monitoring wells, six shallow test pits, collection of soil and groundwater samples, and in situ aquifer permeability tests on the newly installed wells.

A 20-point soil gas survey was conducted during the 1989 field program, supplementing a 14-point soil gas survey performed in 1988. The 1989 soil gas survey assisted the final placement of two wells downgradient from the DRMO yard (i.e., MW-1302 and MW-1303) (see Figures 8-1 and 8-5).

In the 1988 field program, only two downgradient monitoring wells were initially planned for Site 4 (i.e., MW-404 and MW-405). Because of the possible halocarbon plume, two downgradient wells (i.e., MW-406 and MW-407) were added to the program. However, groundwater from these wells contained no VOC contamination, in contrast to the shallower GZA wells. For this reason, MW-1302 and MW-1303, installed during the 1989 field program, were shallow wells. These two wells, in conjunction with GZA-1 and GZA-3, form an inner tier of monitoring wells for shallow plume detection and groundwater flow directions. The third 1989 well, MW-1301, was located immediately downgradient of an existing diesel fuel UST, and was screened across the water table. Two soil samples were analyzed from each monitoring well boring for TCL organics and inorganics. In situ permeability tests also were conducted in each of the newly installed wells.

Test pits were not originally planned for the Site 4/Site 13 area in the 1988 field program. But because of unexpected soil gas results, three test pits, TP-401, TP-402, and TP-403, were excavated for source detection in the area south of the paved DRMO storage area (currently Site 13). Based on the detection of pesticides and the potential source of chlorinated solvents in the area, the 1989 field program included excavation of six test pits (TP-1301 through TP-1306) (see Figure 8-1). Samples collected from these test pits were analyzed for pesticides and VOCs.

13.3 GEOLOGY: SITE 13

Within the area designated Site 13, nine borings were drilled and nine test pits excavated. Geological Profile D-D' shows the stratigraphy encountered in these borings (see Figure 8-2).

A fairly consistent thickness of upper sands extends approximately 45 feet bgs throughout the area. Below the underlying transition zone, marine clay was encountered in B-1 at 69 feet, and in MW-407 at 59 feet. The upper surface of marine clay slopes down toward the west and south beneath the DRMO facility.

Of nine test pits excavated within the site area, TP-1304 and TP-1305 encountered natural soils. One to 4 feet of fill was penetrated in the

Click Here to Return to Main Index

remaining seven test pits. In TP-1301, two coal layers were encountered within the 4-foot fill layer, and are probably related to the fill material.

13.4 HYDROGEOLOGY: SITE 13

Hydrogeology in the Site 13 area was assessed based on Site 4 wells and wells specifically installed to evaluate Site 13. Groundwater contours for Sites 4 and 13 are in Figure 8-4. Shallow groundwater movement beneath Site 13 is to the south-southeast toward the eastern end of Site 1. Contamination from Site 13 is presumed to be a source of the eastern plume, although linkage between the two sites has not been documented with intermediate wells.

Stratigraphy at Site 13 consists of sand over transitional strata over clay, which was encountered 60 to 70 feet bgs in MW-407 and B-1, respectively. In situ hydraulic conductivities obtained from 11 wells in this area ranged from 9.8×10^{-5} to 5.1×10^{-3} cm/sec, with a geometric mean of 6.4×10^{-4} cm/sec (see Table 4-3 and Figures 8-2, 8-3, and 8-4). Based on the mean hydraulic conductivity, an effective porosity of 0.25, and a gradient of 0.009, groundwater seepage velocity for Site 13 would be 24 feet per year. Based on the highest conductivity value, the same gradient of 0.009, and the same effective porosity of 0.25, groundwater seepage velocity could be 191 feet per year. The nearest potential groundwater discharge area in Mere Brook is 1,800 to 2,000 feet southeast of the site. Based on this distance, a range of travel times from nine to 83 years is estimated. Taking into account longitudinal dispersion, increased gradients near the discharge area, minimal retardation, and conductivities equal to or slightly greater than field values, travel times to Mere Brook are realistically expected to be in the range of 10 to 20 years. The eastern plume, originating in part at Site 13, appears to discharge partially to Mere Brook at Site 1, while the deepest portion of the eastern plume passes beneath Mere Brook. Additional discussion of the eastern plume is in Subsections 6.4.1, 6.6, and 6.7

13.5 NATURE AND EXTENT OF CONTAMINATION: SITE 13

This subsection describes the results of environmental sampling at Site 13.

13.5.1 Soil Gas Survey: Site 13

Soil gas surveys were conducted at Site 13 in June 1988 (by Tracer) and August 1989 (by HGC). The Tracer study included analyses for F-113, $CHCl_3$, TCE, TCA, PCE, benzene, toluene, xylenes, and THC. The HGC study monitored 1,1-DCE, 1,2-DCE, TCE, TCA, PCE, VC, BETX, and THC. In areas where the two soil gas studies overlap, the Tracer and HGC data are compatible, with similar detected compounds and concentrations (see Appendix D). A total of 122 soil gas points were established during the two soil gas programs at Site 13. Fifteen soil gas locations were analyzed during the 1988 Tracer study (i.e., SG10, SG21 through 25, and SG189 through SG197), and 107 soil gas points were established during the 1989 HGC study (i.e., SG41 through SG107, SG118 through SG127, SG133 through SG150, SG158 through SG168, and SG175). Locations of the 122 soil gas points are shown in Figure 6-15, and the soil gas data is in

Click Here to Return to Main Index

Appendix D. As shown in Figure 6-15, soil gas points are located in the Site 13 vicinity and in the area south and east of Site 13. Soil gas points in the Site 13 vicinity were established to evaluate potential sources of contamination in the DRMO area. Soil gas data taken south and east of Site 13 were developed to address other potential sources of groundwater contamination observed downgradient of Site 13 (see Subsection 13.5.4).

Soil gas points in the Site 13 area detected both hydrocarbon and VHO contamination. Hydrocarbon concentrations exceeding 100 µg/L were detected only at SG22 and SG92, where 1,200 µg/L and 383 µg/L THC were reported, respectively. In addition to THCs, benzene (80 µg/L), toluene (280 µg/L), and xylenes (4 µg/L) were detected at SG22. Low levels of THC (1 to 10 µg/L) were detected at most soil gas locations in the Site 13 area, except SG62 and SG97, where 98.2 µg/L and 33.5 µg/L THC were measured, respectively.

VHO compounds were reported in several soil gas locations in the Site 13 vicinity. The highest concentrations of VHOs were found (in the Tracer program) at SG193, where TCE (66 µg/L), TCA (46 µg/L), PCE (3 µg/L), and F-113 (280 µg/L) were detected. TCE (20 µg/L) and PCE (3 µg/L) were found at soil gas point SG21, and TCA was detected at SG194 (12 µg/L), SG195 (2 µg/L), SG196 (1 µg/L), SG197 (5 µg/L), SG52 (6.64 µg/L), and SG63 (10.41 µg/L). The compounds 1,1-DCE and TCA were detected in several soil gas locations (in the HGC program) including SG41, SG43, SG59, and SG61. Concentrations of 1,1-DCE and TCA were relatively low in these samples, ranging from 1.85 µg/L (in SG61) to 6.32 µg/L (in SG42), and 0.85 µg/L (in SG61) to 4.78 µg/L (in SG43), respectively. Somewhat higher concentrations were observed in SG42, where 1,1-DCE (6.32 µg/L), TCA (12.9 µg/L), and TCE (1.18 µg/L) were measured. Finally, PCE was detected at SG54 (5.03 µg/L), and 1,1-DCE was found at SG58 (2.68 µg/L).

Soil gas data from the region south and east of Site 13 differ from data in the Site 13 area. VHO compounds were not detected, and significant levels of hydrocarbons were seen only in a few locations. Most of these soil gas locations detected THC in the 1 to 10 µg/L range, but several soil gas points had moderate concentrations of THCs ranging from 10 to 100 µg/L. Soil gas locations with moderate levels of THCs include (HGC) SG73, SG78, SG123, SG124, and SG145.

13.5.2 Test Pits: Site 13

Nine test pits were excavated at Site 13 during the 1988 (i.e., TP-401 to TP-403) and 1989 (i.e., TP-1301 to TP-1306) field seasons. The three 1988 test pits were excavated by Mathes, and the remaining six test pits were excavated by UXB in August and September of 1989. Test pits were excavated to depths of 5 feet, and two to three analytical samples were taken from each test pit. Test pit locations were based on the results of the soil gas surveys. A surface soil sample was taken from the locations of the six test pits installed during the 1989 field season. Soil samples were analyzed for TCL organic and inorganic compounds from the three 1988 test pits, and for TCL VOCs, pesticides, and PCBs from the six 1989 test pits. Test pit locations are shown in Figure 8-1, and analytical soil data are in Appendices J and K. A summary of Site 13 test pit data is in Figure 8-8.

Several TCL VOCs were detected in the three test pits installed in 1988. Observed compounds include methylene chloride, acetone, 2-butanone, and toluene. The four VOCs were reported in both low- and medium-level laboratory method blanks (Appendix J). These compounds are common laboratory contaminants, and are not believed to represent actual site conditions (Table 13-2). This interpretation is consistent with the 1989 test pit analytical data in which no VOCs were detected.

The only SVOC in the three 1988 test pits was bis(2-ethlyhexyl)phthalate, detected in TP-401 at 3 feet and TP-402 at 2 feet. The concentration of bis(2-ethylhexyl)phthalate ranged from 17,000 µg/kg (in TP-401) to 44,000 µg/kg (in TP-402). The analytical sample from TP-401 was duplicated, and bis(2-ethylhexyl)phthalate was not detected in the duplicate analysis. Similarly, bis(2-ethylhexyl)phthalate was found in the laboratory blank associated with TP-401. Soil laboratory method blank concentrations for bis(2-ethylhexyl)phthalate for Round I data ranged from 63 to 1,600 µg/kg. Because bis(2-ethylhexyl)phthalate is a common laboratory contaminant, and was not found in other Site 13 soil samples, it is not believed to represent actual site conditions (see Table 13-2).

DDT was the only pesticide found in Site 13 test pits, and it was detected in the 1-foot sample from TP-403 (19 µg/kg) and in the surface sample of TP-1305 (20 µg/kg). Concentrations of TCL inorganic compounds are in the normal range for soils in the NAS Brunswick area (see Tables 5-3 and 5-4).

13.5.3 Soil Borings: Site 13

Eight soil borings were installed at Site 13. Five borings were located in the Site 13 vicinity (i.e., MW-1301, MW-1302, MW-1303, MW-406, and MW-407), and three borings were sited southeast of Site 13 (i.e., MW-222, MW-223, and MW-224). Two soil borings (i.e., MW-406 and MW-407) were part of the 1988 field season; the other six soil borings were installed during the 1989 field season. As part of the RI/FS program, 16 soil samples were analyzed for TCL organic and inorganic compounds. Analytical results from the 1988 and 1989 soil sampling are in Appendices J and K; a summary of Site 13 soil boring data is in Figure 8-8. VOCs were detected in two soil borings. Methylene chloride (13,000 µg/kg) and toluene (1,500 µg/kg) were found in the 28-foot sample from MW-406, and acetone was detected in both soil samples from MW-1303 (29 and 52 µg/kg). Methylene chloride and toluene were detected in Round I soil laboratory method blanks in both low-level and medium-level analyses (see Appendix J). Acetone was detected in Round IV soil laboratory method blanks for low-level analysis. VOCs in MW-406 were detected only in the duplicate sample, and all three VOCs are common laboratory contaminants. For these reasons, it is believed they do not represent actual site conditions.

The SVOCs naphthalene (960 µg/kg) and 2-methylnaphthalene (2,800 µg/kg) were found in the 10-foot sample from MW-1301. SVOCs were not found in any other Site 13 soil borings. Pesticides and PCBs were also not reported in analytical soil samples from Site 13 soil borings. Concentrations of reported inorganic compounds are in the normal range for NAS Brunswick soils (see Tables 5-3 and 5-4).

TABLE 13-2
SUSPECT CONTAMINANTS: SITE 13

REMEDIAL INVESTIGATION
NAS BRUNSWICK

COMPOUND	CONCENTRATION	MEDIA	CRITERIA
Methylene chloride	13,000-14,000 µg/kg (6 µg/L)	Soils/groundwater	Duplicate/sporadic detection/common contaminant/ laboratory blank
Toluene	1,500 µg/lg	Soils	Sporadic detection/laboratory blank
2-Butanone	19-31 µg/kg (99 µg/L)	Soils/groundwater	Sporadic detection/duplicate/laboratory blank
Acetone	29-52 µg/kg	Soils/groundwater	Sporadic detection/laboratory blank
Bis(2-ethylhexyl)phthalate	17,000-44,000 µg/kg (36-340 µg/L	Soils/groundwater	Duplicate/sporadic detection/blank/laboratory blank
DDT	0.54 µg/L	Groundwater	Duplicate
Beta-BHC	0.12 µg/L	Groundwater	Duplicate

NOTES:

µg/L = micrograms per liter
ppb = parts per billion

Click Here to Return to Main Index

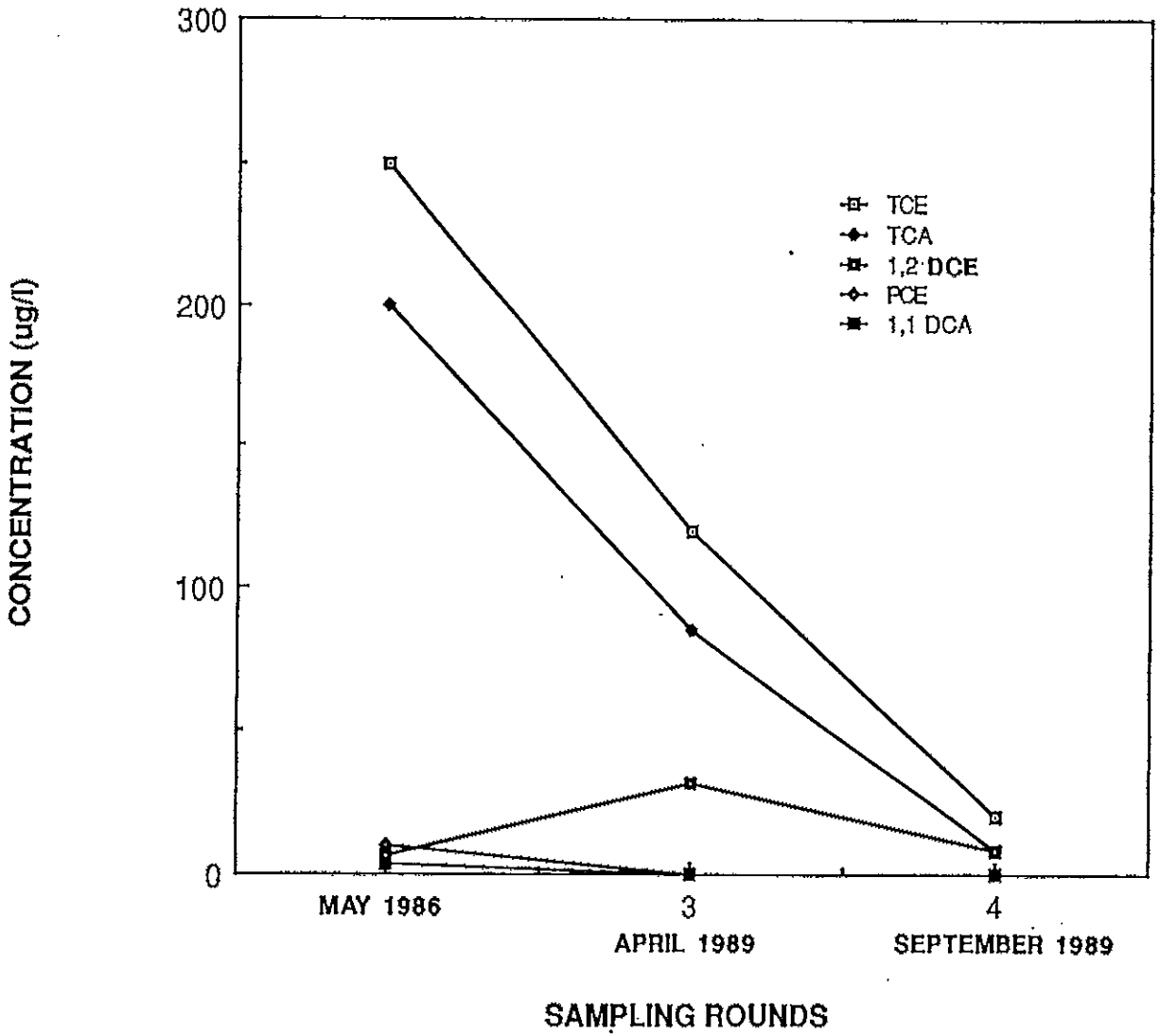
13.5.4 Groundwater: Site 13

Eight monitoring wells were installed at Site 13 and to the southeast of Site 13 during the RI/FS program; locations of these wells are shown in Figure 8-1. Two monitoring wells were installed during the 1988 field season (i.e., MW-406 and MW-407); the other six monitoring wells (i.e., MW-1301, MW-1302, MW-1303, MW-222, MW-223, and MW-224) were established during the 1989 field season. Two other monitoring wells also were included in the RI/FS program; these were installed by GZA, and are referred to as GZA-1 and GZA-3 (see Figure 8-1). As part of the RI/FS program, the 10 Site 13 monitoring wells were sampled and analyzed for TCL organic and inorganic compounds, carbonate, bicarbonate, chloride, and sulfate. Site 13 groundwater data are in Appendices J and K; a summary of Site 13 groundwater data is in Figure 8-9. The specific sampling history is in Table 4-2. The GZA wells were sampled and analyzed for priority pollutants in 1986, and have been sampled for TCL organic and inorganic compounds during Rounds III and IV of the RI/FS program (see Table 4-2). GZA-3 was sampled initially during Round IV groundwater sampling. Initial results from Round IV demonstrated a lack of VOC contamination. Based on previous results indicating the presence of VHOs, a second sampling of GZA-3 was undertaken in early December 1989. Of the 10 monitoring wells associated with Site 13, seven are in the area adjacent to the DRMO (i.e., MW-1301, MW-1302, MW-1303, MW-406, MW-407, GZA-1, and GZA-3), and three monitoring wells are southeast of the Site 13 area (i.e., MW-222, MW-223, and MW-224). Monitoring wells southeast of Site 13 were established to develop a more complete understanding of groundwater contamination detected in MW-106 and MW-208.

VOCs were detected at several Site 13 monitoring wells in the DRMO area. VHO compounds were observed at MW-1302 (i.e., TCE and TCA), MW-1303 (i.e., 1,2-DCE and TCE), and GZA-3 (i.e., 1,1-DCA, 1,2-DCE, TCA, PCE, and TCE). Hydrocarbon VOCs were detected at MW-1303 (benzene, 16 μg/L) and MW-1301 (methylene chloride, 6 μg/L). Methylene chloride was reported in Round IV laboratory method blanks and is believed to be related to laboratory contamination. The compound 2-butanone was detected in MW-407 during Round III, and in MW-406 and MW-1303 during sampling Round IV. However, the absence of this compound during the previous sampling of MW-406 and MW-407, the lack of 2-butanone in the duplicate for MW-1303, and the association of 2-butanone as a laboratory contaminant suggest that 2-butanone is not indicative of site conditions in these monitoring wells (see Table 13-2).

The highest level of VHOs in the DRMO area was found in MW-1303, where 770 μg/L 1,2-DCE and 15 μg/L TCE were detected. VHOs were also found in GZA-3 during sampling Rounds III and IV. Previous data for GZA-3 found similar VHO compounds (GZA, 1986); however, concentrations were higher than those measured in Rounds III and IV (see Appendices J and K). Variation in VHO concentration with time for GZA-3 is shown in Figure 13-1; the total VHO concentration decreases from a high in 1986 of 470 μg/L to 41 μg/L in Round IV.

The only SVOC detected in Site 13 groundwater near the DRMO is bis(2-ethylhexyl)phthalate, which was found in the 1986 GZA data (340 μg/L), Round IV analysis of GZA-3 (36 μg/L), and the duplicate analysis of MW-1303. Low-level water laboratory method blanks also detected bis(2-ethylhexyl)phthalate.



E.C. JORDAN CO. CONSULTING ENGINEERS	SAMPLING ROUND VHO VARIATION GZA-3 SITE 13
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
4607-41	FIGURE 13-1

Click Here to Return to Main Index

Click Here to Return to Main Index

Because bis(2-ethylhexyl)phthalate was not consistently detected in GZA-3, was found in laboratory blanks and was found only in the MW-1303 duplicate, bis(2-ethylhexyl)phthalate is not believed to represent actual site conditions (see Table 13-2).

Pesticides were analyzed for in all Site 13 monitoring wells, but were detected only in MW-1303 at very low concentrations. DDT (0.54 µg/L) and beta-BHC (0.12 µg/L) were found in the groundwater sample from MW-1303, but were not detected in the duplicate analysis for MW-1303. Because these pesticide concentrations were very low, and detected in the duplicate analysis, it is believed they do not represent actual Site 13 conditions.

The results for TCL inorganic compounds in Site 13 groundwater adjacent to the DRMO are generally consistent with background values for these parameters (see Table 5-6).

Carbonate and bicarbonate were analyzed for in the seven monitoring wells adjacent to the DRMO, and TOC was analyzed for in MW-406 and MW-407. The sampling was accomplished during Rounds II and IV, and the data is in Appendices J and K. Carbonate was not detected in any of the samples; bicarbonate varied from 10 to 73 mg/L. TOC results for MW-406 and MW-407 were 1.2 mg/L and non-detect, respectively.

Groundwater contamination was found in the three monitoring wells southeast of Site 13. Contamination was restricted to VHO compounds, and these detected compounds include TCA, TCE, and PCE. The compound 2-butanone was detected in all three monitoring wells at concentrations ranging from 22 to 49 µg/L. As discussed in previous subsections, occasional detection of 2-butanone is not believed to represent actual site conditions (see Table 13-2). The highest levels of VHO contamination occur in MW-224, where 190 µg/L of TCE, 49 µg/L of TCA, and 7 µg/L PCE are reported. These three VHO compounds are also found in MW-222, with 17 µg/L TCE, 7 µg/L TCA, and 6 µg/L PCE detected. Only TCE (33 µg/L) and TCA (26 µg/L) were reported in MW-223. The SVOC compound bis(2-ethylhexyl)phthalate was also detected in MW-223, but the concentration was low, and based on previous discussions, it is not believed to represent actual site conditions.

TCL inorganic compounds (i.e., calcium and manganese) were detected in the three monitoring wells at background level concentrations (see Table 5-6). Other inorganic compounds analyzed in MW-222, MW-223, and MW-224 include carbonate, bicarbonate, chloride, and sulfate. Concentrations of these compounds were low, and also represent background values (see Table 5-6).

13.6 SUMMARY OF EXTENT OF CONTAMINATION: SITE 13

Site 13 environmental contamination detected during the RI/FS program is observed in shallow soils (pesticides), subsurface soils (SVOCs), and groundwater (VOCs) (see Figure 8-10). DDT was detected in several surface and shallow soil samples from Site 13 test pits. DDT concentrations are

relatively low, and probably are related to historic surface applications of DDT in that area.

SVOCs (i.e., naphthalene and 2-methylnaphthalene) were found in the 10-foot soil sample from MW-1301. This contamination is believed to be related to an old metal diesel fuel UST which was removed in 1988 and replaced with a fiberglass UST. The potential presence of subsurface contamination in this area of Site 13 was indicated initially during the 1988 soil gas study. The Tracer soil gas study at Site 13 had a large THC detection in this area (at SG-22), and in the Site 4 soil gas study; SG-15 (adjacent to Site 13, see Figure 8-5) also had a high THC concentration. The UST lies between these two soil gas points (see Figure 8-4), and MW-1301 was installed to evaluate this potential. Although fuel-related TCL contamination was not detected in groundwater from MW-1301, naphthalene and 2-methylnaphthalene detected in the associated soil sample are fuel-related compounds. Fuel-related TICs were also detected in soils and groundwater from MW-1301 (see Appendix J), and field PI meter readings were high during monitoring well installation, consistent with the presence of subsurface fuel-related contamination.

Site 13 groundwater contamination detected in the area adjacent to the DRMO was limited to VOCs, which are found in MW-1303, MW-1302, and GZA-3. Groundwater flow in the Site 13 area is to the southeast, and these three monitoring wells are downgradient of two old UST locations (see Figure 8-4). These USTs were used to store waste liquids resulting from aircraft maintenance (R.F. Weston, Inc., 1983). Compounds stored in the USTs included waste fuels, oils, and degreasing solvents (R.F. Weston, Inc., 1983). The UST on the western side of Site 13, removed in 1986, was located directly upgradient of GZA-3. The UST on the eastern side of the DRMO, removed in October 1989, was directly upgradient of MW-1303. MW-1302 is also downgradient of the western UST, but unlike MW-1303, it is not in the direct flow path. VOCs have been detected in the three monitoring wells, with the highest concentrations in MW-1303 and GZA-3. Site 13 monitoring wells exceeding regulatory guidelines are shown in Figure 6-34. As shown in Figure 13-1, VHO contamination in GZA-3 has decreased with time. Since the western UST, upgradient of GZA-3, was removed in the late 1980s, the potential contaminant source has been absent for several years, and VHO contamination has predictably diminished. The first two sampling data for GZA-3 occurred in the spring, and the significant decrease in VOC contamination cannot be simply related to seasonal variation. The current levels of VHO contamination observed in GZA-3 are probably related to residual contamination of soils that surrounded the former UST.

Groundwater contamination in MW-1303 is also consistent with waste fuels and solvents stored in the USTs. VOC contamination in MW-1303 is high with 795 µg/L total VHOs (1,2-DCE and TCE) and 16 µg/L benzene. These VOCs are degreasing (TCE and 1,2-DCE) and fuel-related (benzene) compounds. MW-1303 is approximately 30 feet southeast of the eastern UST, and directly in its groundwater flow path. These data strongly suggest that contamination in MW-1303 is related to the eastern UST, where waste liquids were stored.

Contamination observed in MW-1302 is also potentially related to the eastern UST; however, TCA was detected in MW-1302, but was absent in MW-1303. Another possible source for VHOs in MW-1302 is the Site 4 Acid/Caustic Pit. MW-1302 is downgradient from this source, and TCE was detected in the monitoring well adjacent to the Acid/Caustic Pit (i.e., MW-405). However, TCA was not found in MW-405, and MW-1302 is approximately 400 feet downgradient of this source. TCE levels adjacent to the Acid/Caustic Pit are low (i.e., 6 to 23 µg/L), and 400 feet of downgradient flow would be expected to dilute TCE levels below those detected in MW-1302. A final possibility is that TCA contamination in MW-1302 is related to a surface release(s) of solvents. The soil gas study did detect TCA at SG52, which is close to MW-1302. The nearby surface source scenario for the presence of TCA is also likely because of the shallow depth of MW-1302, which is screened across the water table, 12 feet bgs (see Figure 8-2). Low levels of TCE contamination in MW-1302 most likely are related to the eastern UST, and TCA probably results from small surface spills.

VHO groundwater contamination is also observed in the three monitoring wells (i.e., MW-222, MW-223, and MW-224) southeast of Site 13. The source of this contamination is not completely defined; groundwater flow north of these three monitoring wells is not well characterized (see Figure 6-2). The interpretive base-wide groundwater flow shown in Figure 5-3 is consistent with Site 13 as the source for this VHO contamination, and detected compounds in these three monitoring wells (i.e., TCE, TCA, and PCE) are reported at Site 13. Groundwater contamination could also originate at the FTA (Site 11). The set of compounds found at the FTA is very similar to those detected in the three monitoring wells southeast of Site 13, and the FTA is upgradient of this southeastern area. Shallow groundwater flow, strictly interpreted in Figure 6-2, indicates that contamination originating at Site 11 would not likely affect these three wells. However, the lack of data defining interactions between shallow and deeper groundwater (which moves more directly south) between these monitoring wells and Sites 11 and 13 does not preclude this possibility.

Contaminant data do not allow for discrimination between Sites 11 and 13 as a potential source. Waste liquids stored in the Site 13 USTs were also used in the FTA (R.F. Weston, Inc., 1983). Thus, contamination originating at either Sites 11 or 13 would give rise to the same general chemical signature. VHO contamination associated with these three wells is also found downgradient of this area, and is discussed in more detail in Subsection 6.6. The distributions of VOCs in the Site 11 and 13 area and south of these sites is shown in Figure 6-34.

13.7 CONTAMINANT FATE AND TRANSPORT: SITE 13

Environmental contamination at Site 13 includes low levels of DDT in surface soils, VHOs and benzene in groundwater, and naphthalene and 2-methylnaphthalene in subsurface soils.

DDT has a strong propensity to adhere to soils, and sorption is the dominant fate of DDT in soils (Kenaga and Goring, 1978). Therefore, DDT will sorb to

Click Here to Return to Main Index

soils and ultimately biodegrade. Two major processes direct the degradation of DDT. First, aerobic degradation results in the formation of DDE; and second, anaerobic degradation typically results in the formation of DDD (Johnsen, 1976). DDT and metabolites have low water solubility (Weil et al., 1973). This minimizes migration in the environment, because there is little tendency for DDT and metabolites to migrate far in aqueous media.

In soil-groundwater systems, chlorinated ethanes (e.g., TCA) and chlorinated ethenes (e.g., TCE) are transported from soil to groundwater via leaching and percolation of rainwater, and can degrade to DCAs, DCEs, chloroethane, and VC via anaerobic reductive dechlorination (Vogel and McCarty, 1985; Corapcioglo and Hossain, 1989). VHOs in Site 13 groundwater are predominantly TCA, TCE, 1,1-DCA, and 1,2-DCE. Large amounts of 1,2-DCE occur, but VC is not observed. The dechlorinated VHO, 1,2-DCE, is not a primary solvent compound, and the presence of 1,2-DCE may be related to reductive dechlorination of TCE at the source area. Hydrocarbon contamination increases the potential for anaerobic conditions in the soil adjacent to the source area. This may result in the degradation of VHOs at the source and the detection of 1,2-DCE immediately downgradient. VHOs will migrate downgradient with groundwater and concentrations will decrease via dispersion processes and partitioning into the soil. Soils in the Site 13 vicinity are clean sands, which minimize partitioning into the soil matrix.

The fate of naphthalene and 2-methylnaphthalene is similar to that of BTEX compounds. Naphthalene and 2-methylnaphthalene are somewhat volatile organics with relatively high water solubilities and vapor pressures. These properties make them prone to leaching and surface water and groundwater transport. Naphthalene and 2-methylnaphthalene have low octanol/water partition coefficients reflecting a relatively high solubility and hydrophilic nature, and relatively low soil/sediment adsorption coefficients that enhance mobility in surface water (Kenaga and Goring, 1978). When ultimately discharged to the surface water environment, such as might occur downgradient at Mere Brook, volatilization to the atmosphere will further reduce environmental contamination of naphthalene and 2-methylnaphthalene. In addition to dilution and dispersion, naphthalene is degraded by microbes and is subsequently readily metabolized by multicellular organisms (Tabak et al., 1981). Biodegradation is probably the ultimate fate of naphthalene and 2-methylnaphthalene.

Click Here to Return to Main Index

Click Here to Return to Main Index

14.0 REMEDIAL INVESTIGATION SUMMARY AND CONCLUSIONS

This section contains the summary and conclusions for each of the NAS Brunswick RI/FS sites, and identifies data gaps at Sites 1 and 3, 8, 9, 11, and 13. Conclusions and data gaps are drawn from the information presented in the preceding sections.

14.1 SITES 1 AND 3

- A large area of disturbed soil and refuse disposal has been identified (the landfill area). Two approximately 700x100x20-foot disposal trenches have been identified. Low levels of PAH, pesticide/and PCB contamination occur in surface and shallow soils. No point sources have been identified in the landfill area, and contamination is observed throughout the entire landfill area. This areal extent for disposal areas at Sites 1 and 3 covers approximately 11 acres. Using an average depth of between 15 to 20 feet, the combined refuse volume for Sites 1 and 3 is approximately 300,00 cy.

- Leachate seeps with high levels of inorganics break out downgradient of the landfill area, and contribute to inorganic contamination in surface waters and surrounding soils and sediments. Mercury is the primary contaminant of concern.

- Contamination originating in the landfill area has contributed to VOC and inorganic contamination in groundwater. VOCs include both VHO and BTEX compounds, and inorganics include chloride, bicarbonate, and various TCL metals. Most of the contaminated, shallow groundwater originating in the landfill area discharges to Mere Brook beaver marsh. A limited volume of groundwater impacted by the landfill appears to pass beneath Mere Brook beaver marsh at the eastern end of Site 1. Groundwater passing beneath Mere Brook beaver marsh is anticipated to discharge to Mere Brook beaver marsh further downstream or to the Harpswell Cove estuary.

- Contamination of surface water is limited to inorganics, and is related to discharge of shallow groundwater from the landfill area.

- A second plume of contaminated groundwater (i.e., the eastern plume) passes beneath the eastern end of Site 1. Groundwater contamination is predominantly VHOs, but has some different compounds than observed in the landfill area. Inorganics believed to originate in the landfill area contribute only to the southern portion of this eastern plume. The sources for VOC contamination in the eastern plume are believed to be Sites 4, 13, and 11. The plume has been detected to date just south of Mere Brook beaver marsh in only one of the site's six southernmost wells, MW-229A.

Click Here to Return to Main Index

14.2 SITE 2

- Seeps with high levels of inorganics break out downgradient of the landfill area and contribute to inorganic contamination in surface waters and surrounding soils and sediments. Mercury is the primary contaminant of concern.

- Both monitoring wells downgradient of the landfill have inorganic concentrations above background levels.

- Mercury detected in LT-203 in Round IV indicates that Site 2 contamination has migrated farther north and west than previously understood.

14.3 SITE 4

- Low levels of TCE are found in groundwater downgradient of the former Acid/Caustic Pit.

- The exact location of the Acid/Caustic Pit has not been identified beneath the eastern end of Building 584.

14.4 SITE 7

- Low levels of PAHs and DDT are found in surface and shallow soils.

- The location of the Old Acid/Caustic Pit has been identified between TP-702 and TP-704.

- Inorganics in groundwater downgradient of the Old Acid/Caustic Pit have concentrations exceeding background values.

14.5 SITE 8

- The Site 8 disposal area is limited to the northeastern margin of the site, north of Perimeter Road.

- Low level PAH and pesticide contamination occurs in surface and shallow soils.

- Seeps downgradient of the disposal area have elevated levels of inorganics, and sediments associated with the seeps have PAH concentrations consistent with elevated values detected in sediment samples in all on-base surface water bodies as discussed in Subsection 5.3.4.

- PAHs are found in sediment samples downgradient of the disposal area. Elevated levels of PAHs are partially attributable to the proximity of Route 24, and the consistent, elevated base-wide

Click Here to Return to Main Index

distribution detected in all surface water bodies sampled in the RI/FS.

- Groundwater flow from Site 8 is not believed to impact the Jordan Avenue Wellfield.

- Cyanide detected in surface waters and groundwater at Site 8 apparently is derived from sodium ferrocyanide sourced in an upgradient salt storage pile. Relocation and covering of the salt pile is currently being planned by the Navy.

14.6 SITE 9

- The location of the former incinerator was confirmed. The area of the former landfill has also been identified although no explorations have been conducted to delineate the actual areal extent. A potential area of solvent disposal has been tentatively identified southeast of Building 201.

- Groundwater downgradient of the incinerator has inorganic concentrations above background levels. Groundwater southeast of Building 201 has levels of VC and 1,1-DCA in excess of the MCL, and low levels of 1,2-DCE. This VHO groundwater contamination is believed to be related to the dump or a solvent disposal area adjacent to Building 201.

- High levels of PAHs occur in sediments along the southern drainage adjacent to Site 9. Elevated PAH concentrations also occur in surface soils. This contamination is unrelated to Site 9. The source is base-wide storm drainage from the hangar and runway areas, and base operations (e.g., plane washing and fueling). This source is being assessed by the Navy in a stormwater runoff characterization study.

14.7 SITE 11

- VOC and PAH contamination was detected in shallow soils. VOCs detected include VHO and BTEX compounds.

- Groundwater in the Site 11 area has elevated levels of VOC contamination, and detected compounds include VHOs and BTEX.

- Groundwater contamination is believed to derive from contaminated soils, introduced into the groundwater via percolating rainwater.

- Groundwater VOC contamination has migrated away from the FTA source area off-site (i.e., MW-1104), but the extent of contaminant migration is currently unknown.

Click Here to Return to Main Index

- Low levels of pesticides are found in surface soils. The source of this contamination is thought to be related to historic use of pesticides. Low levels of naphthalene and 2-methylnaphthalene are found in shallow soils adjacent to a diesel UST (the UST is currently fiberglass and has recently been replaced).

- Groundwater contaminated with VOCs occurs in the Site 13 vicinity, and the contamination includes both VHOs and BTEX compounds. Most Groundwater contamination is believed to be related to two USTs that were used to store waste fuels and solvents. The two USTs have been removed, and VOC concentrations in groundwater have decreased. Some fuel-related groundwater contamination may be related to an old diesel UST that has been replaced with a fiberglass UST.

- Groundwater VHO contamination is also observed downgradient of Site 13. The source of this downgradient groundwater contamination is believed to be Sites 4, 13, and 11. This VHO contamination flows south, downgradient of Site 13, through the eastern portion of Site 1 (eastern plume). The eastern plume is believed to extend just south of Mere Brook beaver marsh.

14.9 DATA GAPS

Data gaps have been identified at several of the NAS Brunswick RI/FS sites. These data gaps are discussed in the following subsections.

14.9.1 Data Gaps: Sites 1 and 3

The eastern edge and southern extent of the eastern plume, detected beneath Site 1, need to be assessed in light of potential downgradient receptors. To estimate the volumes of contaminated groundwater (in the eastern plume) being discharged to and passing beneath Mere Brook beaver marsh, accurate stream-flow measurements need to be performed at several locations upstream and downstream of Sites 1 and 3. More hydrogeologic studies of the eastern plume are necessary to provide enough information to evaluate pump and treat alternatives. Measurements to evaluate the risk of VOC volatilization at the flowing spring are necessary.

14.9.2 Data Gaps: Site 8

To assess groundwater quality and potential contaminated groundwater movement beneath the tributary bordering the site to the northwest, groundwater samples from observation wells OW-812, OW-813, and OW-814 need to be analyzed for TCL and GWQ parameters. The conflicting chromium results from MW-811 require resampling of the monitoring well and reanalyzing for total chromium and hexavalent chromium.

Click Here to Return to Main Index

14.9.3 Data Gaps: Site 9

The RI/FS studies at Site 9 identified the location of the incinerator and the former dump beneath the barracks (see Figure 2-3). The locations are based on historic maps and results from test borings. Investigations also suggested a potential location for a solvent burning or disposal area near Building 201. The presence of partially dechlorinated VHO solvents in the groundwater adjacent to Building 201 strongly suggests the presence of a second disposal area that would support a subsurface anaerobic environment. Groundwater samples should be taken north and west of the area of groundwater VOC contamination and field-screened for VOC contamination. To augment the understanding of this potential dump area, a test pit program is also warranted. The test pits and groundwater screening would help define the extent of the dump area, and characterize the potential contamination.

14.9.4 Data Gaps: Site 11

Groundwater contamination identified at and downgradient of Site 11 consists of high levels of VHO and BTEX compounds. Groundwater flow and potential migration of the VOC contamination is poorly understood, and data to address these questions is required. Monitoring wells downgradient of Site 11 will address these needs and also allow determination of the source of contamination observed downgradient of Sites 11 and 13. The potential for deep groundwater contamination in the Site 11 source area also needs to be assessed, as only shallow monitoring wells have been installed to date. An upgradient or background monitoring well is needed along with a series of well points or piezometers throughout the area to define groundwater movement away from the site.

Other data gaps are related to potential receptors of groundwater contamination originating at Site 11. Monitoring wells south and east of Site 11, including east of Merriconeag Stream, will address this question.

14.9.5 Data Gaps: Site 13

The source of the contamination downgradient of Site 13 is not fully documented, and information concerning the linkage of the contamination observed at Site 13 to the downgradient eastern plume is needed. Monitoring wells to be established in the area between the downgradient region and Site 13 will address this data gap. These wells should be located in conjunction with those downgradient of Site 11 to maximize the understanding of groundwater flow and contaminant distribution.

Click Here to Return to Main Index

Click Here to Return to Main Index

15.0 BASELINE PUBLIC HEALTH AND ENVIRONMENTAL RISK ASSESSMENT

The Baseline Public Health and Ecological Risk Assessment document was developed to determine potential risks to public health and the environment from contamination detected at NAS Brunswick. The RA was conducted as part of the RI efforts for this site. All results and conclusions presented herein are based on the four rounds of sampling data and site characteristics described in previous sections of this RI. This section is an executive summary of the Baseline Risk Assessment Appendix Q. This chapter contains two major site sections: a summary of the Public Health Risk Assessment and the Ecological Risk Assessment. Each subsection summarizes the potential exposure to, toxicity of, and risks associated with contaminants detected at each of the nine sites identified and discussed in the RI. A discussion of the extent of contamination and selection of contaminants of concern at each site is described in detail in Appendix Q.

15.1 PUBLIC HEALTH RISK ASSESSMENT

The Baseline Public Health Risk assessment was developed to characterize potential risks to public health associated with exposure to chemicals detected at NAS Brunswick. This RA was conducted in accordance with USEPA Guidance (USEPA, 1986, 1988b, and 1989d and USEPA Region 1, 1989).

The first component of the public health RA was to summarize the magnitude and distribution of contamination in each medium for each of the nine sites (i.e., Sites 1, 2, 3, 4, 7, 8, 9, 11, and 13) and to select contaminants of concern. These contaminants were selected to provide a representative set of all compounds detected at NAS Brunswick to be evaluated in the RA. Contaminants of concern were selected based on the inherent toxicity, measured concentration, distribution and frequency of detection, and chemical and physical parameters affecting the mobility and persistence of each contaminant. The selection process is discussed in detail in Appendix Q.

The second component of the RA described the potential toxicity of each contaminant of concern. Toxicological information, obtained from scientific literature, and dose-response data including health-based criteria and federal and state standard and guideline values, were identified for each contaminant and summarized. The dose-response information (specifically reference doses (RfDs) and carcinogenic potency factors [CPFs]) is used to quantitatively evaluate potential risks associated with contaminant exposure. Federal or state standards that are not dose-response values were used to assess risk qualitatively.

The third component of the baseline RA identified populations that may be at greatest risk to contaminant exposure at NAS Brunswick. Exposure scenarios were developed separately for current and future land use to estimate the potential contaminant dose incurred through each of the principal pathways of exposure (e.g., dermal contact and/or ingestion of contaminated media). At

Click Here to Return to Main Index

the request of USEPA Region 1, the assumed future land use was residential, and lifetime exposures were evaluated for all the media at each site at NAS Brunswick.

The final component of the RA included a quantitative evaluation of potential risks associated with the assumed exposure conditions. Both carcinogenic and noncarcinogenic risk evaluations were conducted. The major components of the baseline RA, discussed in greater detail in Appendix Q, are summarized in the following subsection.

15.1.1 Exposure Assessment

The exposure assessment describes the general characteristics of the human populations, particularly sensitive subpopulations, in the vicinity of NAS Brunswick, and describes activities that could result in contaminant exposure at each of the nine sites at NAS Brunswick.

NAS Brunswick is located in the Town of Brunswick, and is adjacent to the Town of Topsham, Maine. The combined population of these towns is approximately 23,000 (1980 U.S. Census). The age and sex distribution in this area is comparable to similar-size residential towns in the United States, and at any time is likely to consist of a mix of adults, including the elderly, women of child-bearing age, pregnant women, and children and infants.

The population working at and/or residing within NAS Brunswick is distinct in age distribution from that outside the base limits. This is a result of the unique land use of the site as a naval facility. More than 4,000 Navy and civilian personnel support the operation of NAS Brunswick, with most of the population being adults. However, NAS Brunswick provides base housing for families, and approximately 425 children currently reside on or adjacent to the NAS Brunswick property.

Of the persons residing and/or working on-site, the population currently considered to be at greatest risk from contaminant exposure was based on characteristics associated with a higher probability of developing adverse health effects. Higher risk may result from either an inherent susceptibility to contaminant exposure or exposure situations unique to a particular subpopulation.

At NAS Brunswick, children were considered to be a high-risk population for both reasons. Because children are growing and developing, they exhibit certain differences from adults in terms of physiological development, capability of coping with physiological stress, and relative metabolism of contaminants. Therefore, an equivalent dose of a harmful material will have a greater effect on a child than on an adult. Also, children engage in more activities than adults that could result in contaminant exposure. While base personnel may access the nine sites more frequently than children, they are likely to limit their exposure to contaminated media (i.e. soils and sediments). In addition, base personnel are dressed in uniform or work clothes (e.g., pants, shirt, and shoes), further limiting contaminant

Click Here to Return to Main Index

exposure. For these reasons, children were selected to model potential exposure to contaminants at NAS Brunswick under current land use conditions.

Because actual exposures at NAS Brunswick are not known, hypothetical exposure scenarios were developed for current use activities. These were based on land use and accessibility at each site and assumed reasonable frequency and duration of exposure. Exposure was assessed only if it was likely that children could actually come in contact with contaminated media.

At USEPA Region 1's request, future exposure scenarios were evaluated assuming residential land use. Exposure parameters, including duration and frequency, were USEPA-recommended values (USEPA, 1989d; USEPA Region 1, 1989).

Of the nine sites evaluated in this RI, three are located within a highly secured area of the base where access is controlled: Sites 1, 2, and 3. Because children cannot access this area, direct contact exposure to soils, sediments, and/or surface water is not considered likely; therefore, it is not evaluated in the current scenarios in this RA. Land use activities in these areas, by base personnel, are not likely to result in exposure to surface soils or sediments.

Current exposure to contaminated soils at Sites 4, 11, and 13 is also considered unlikely. Current land use in these areas is not conducive to play activities. Sites 4 and 13 are located adjacent to the DRMO and Site 11 is currently used as an FTA. Base security patrols these areas to prevent unauthorized access, effectively reducing the potential for long-term repetitive exposure. In addition, these three sites are not located near any recreational areas and are more distant from base housing than other sites.

Exposures to workers associated with either current or future construction or maintenance activities are not considered likely scenarios at NAS Brunswick because excavation at the nine sites has been prohibited without specific approval of the NAS Brunswick Public Works Officer or Environmental Engineer. Although major construction could occur at select sites in the future, there is not enough information at this time to adequately quantify exposure to contaminants during such activity.

At USEPA's request, worst-case worker exposure scenarios were developed for maintenance or minor construction activities at Sites 1 and 3. Direct contact and incidental ingestion of soils were assumed to represent the most realistic and most potentially harmful exposure pathways. The results of the worker evaluation are reported under current land-use scenarios for Sites 1 and 3. Risks to workers due to these pathways can be minimized during construction or maintenance activities by following Occupational Safety and Health Administration (OSHA) regulations and taking preventive steps to mitigate exposure.

The exposure pathways quantitatively evaluated in this RA are summarized in Table 15-1. Quantitative scenarios representing current uses of the base were developed only for exposure pathways associated with children playing at Sites 7, 8, 9, and the Picnic Area Pond, and workers at Sites 1 and 3.

Click Here to Return to Main Index

TABLE 15-1
EXPOSURE PATHWAYS ASSESSED
FOR BASELINE RISK ASSESSMENT

NAS BRUNSWICK
RI/FS PROGRAM

Environmental Medium	Point of Exposure	Route of Exposure	Exposed Population	Status
Soil	On-site at sites 7, 8, & 9	Dermal Absorption & Incidental Ingestion	Children	Current
Groundwater *	Off-site from sites 1, 3, 4, 11, & 13	Ingestion	Children & Adults	Hypothetical
Surface Water	On-site at sites 8, 9, & picnic area	Dermal Absorption & Incidental Ingestion	Children	Current
Sediment	On-site at sites 8, 9, & picnic area	Dermal Absorption & Incidental Ingestion	Children	Current
Leachate	On-site at sites 8, 9	Dermal Absorption & Incidental Ingestion	Children	Current
Leachate Sediment	On-site at sites 8, 9	Dermal Absorption & Incidental Ingestion	Children	Current

* Groundwater data is summarized for comparison to MCLs in the absence of off-site groundwater data.

Click Here to Return to Main Index

TABLE 15-1
EXPOSURE PATHWAYS ASSESSED
FOR BASELINE RISK ASSESSMENT
(CONTINUED)

NAS BRUNSWICK
RI/FS PROGRAM

Environmental Medium	Point of Exposure	Route of Exposure	Exposed Population	Status
Soil	On-site at sites 1, 2, 3, 4, 7, 8, & 9	Dermal Absorption & Incidental Ingestion	Lifetime Resident & Child*	Future
Groundwater**	Off-site from sites 1, 3, 4, 8, 11, & 13	Ingestion	Children & Adults	Future
Surface Water	On-site at sites 1, 3, 8, 9, & picnic area	Dermal Absorption & Incidental Ingestion	Children	Future
Sediment	On-site at sites 1, 3, 8, 9, & picnic area	Dermal Absorption & Incidental Ingestion	Children	Future
Leachate	On-site at sites 1, 2, 3, 8, 9	Dermal Absorption & Incidental Ingestion	Children	Future
Leachate Sediment	On-site at sites 1, 2, 3, 8, 9	Dermal Absorption & Incidental Ingestion	Children	Future

* Child exposure scenerio was performed for contaminants with acute toxicity to children, e.g., lead.

** Groundwater data is summarized for comparison to MCLs in the absence of off-site groundwater data.

Click Here to Return to Main Index

Limited exposure at Sites 1, 2, 3, 4, 11, and 13 is expected under current use conditions, and a quantitative evaluation is not warranted. Future residential scenarios were assessed for all sites at NAS Brunswick and presented at the end of the baseline RA.

Exposure scenarios for Site 9 and the Picnic Area Pond were developed for young children (through age six) via direct contact and incidental ingestion exposure to site-related contaminants.

These two sites are the only areas where young children are assumed to have access to and/or play. However, exposure by older children (ages seven to 12) to contaminants at Sites 7, 8, 9, and the Picnic Area Pond were evaluated since this age group is more mobile than younger children and likely to trespass and/or access all areas.

In addition to on-site exposures (e.g., direct contact with soils), there is the potential for future exposure by off-site receptors through ingestion of contaminated groundwater. Two distinct groundwater plumes have been identified at NAS Brunswick, neither of which is believed to impact any private water supplies at this time. These are the landfill plume, located beneath Sites 1 and 3, and the eastern plume, located downgradient of Sites 4, 11, and 13.

The concentration of chemicals detected in groundwater wells sampled during the RI do not represent potential exposure concentrations for current scenarios, as there currently are no uses of this resource for domestic or potable purposes. However, there is a potential for these plumes to migrate off base and potentially impact the future use of this resource. Because contaminant concentrations at off-base receptor locations cannot be determined at this time, it is not possible to estimate future potential exposure through this route of exposure. However, to provide some indication of potential risk, contaminant concentrations detected in the groundwater plume were compared to the MCLs, Maximum Contaminant Level Goals (MCLGs), and Maximum Exposure Guidelines (MEGs). The MCL specifies the maximum permissible level of a contaminant in water that is used as a public water supply. MCLs are enforceable regulatory requirements that USEPA considers as ARARs. MCLGs are nonenforceable health-based goals established at levels considered protective of public health. Comparison to MCLGs is required under the NCP (FR55(46)8666, 1990). The State of Maine Department of Human Services Environmental Toxicology Program has published a list of MEGs, which are nonenforceable health-based guidelines for drinking water.

Although groundwater beneath Sites 7, 8, and 9 is not believed to migrate off base toward potential receptors, contaminant concentrations in these areas were also compared to drinking water standards and guidelines.

15.1.2 Toxicity Assessment

This subsection identifies pertinent standards and health-based criteria values for contaminants of concern developed by state and federal regulatory agencies to provide protection to public health. These values are compared to

estimated exposure-dose levels to evaluate potential risk. A more detailed discussion of the toxicity of contaminants of concern and associated standards and criteria values are in Appendix Q.

15.1.3 Public Health Risk Characterization

Estimated body dose-levels for each contaminant were compared to the appropriate dose-response criterion or standard to characterize risks to potentially exposed individuals at NAS Brunswick.

Current on-site routes of exposure evaluated for NAS Brunswick include dermal contact and incidental ingestion of soils, surface water, sediment, leachate, and leachate sediment at Sites 7, 8, 9, and the Picnic Area Pond. Current exposure scenarios were developed for young children (through age six) and older children (age seven through 12) based on land use, accessibility, and potential recreational activities at these sites. The potential for current adult nonworker exposure at any of the sites was not considered to be significant. Worker exposure assessed for Sites 1 and 3 was considered to represent a reasonable scenario.

Exposure to contaminants under a future residential scenario was evaluated at the request of USEPA Region I, although the likelihood is that the Air Station will remain in existence for the foreseeable future. Scenarios for future residents assume a lifetime exposure due to dermal contact and incidental ingestion of soils, surface water, sediment, leachate, and leachate sediment.

For current and future exposure scenarios, both carcinogenic and noncarcinogenic risks were calculated. Carcinogenic risk estimates were determined by multiplying the body-dose level for each carcinogen by its USEPA CPF. The resultant value is a unitless number defined as the incremental probability that an individual will develop cancer from exposure to site-related chemicals. These probabilities appear in scientific notation in this report and can be defined as follows: A 2×10^{-6} excess risk level implies that an individual's incremental probability of manifesting cancer over a lifetime from the specified exposure to site-related contaminants is 2 in 1 million. USEPA uses a target risk range of 10^{-4} to 10^{-6} carcinogenic risks to evaluate the need for remedial actions at Superfund sites.

Noncarcinogenic risk estimates were determined by dividing body-dose levels for each noncarcinogen by a relevant health-based standard or criterion. The ratio of the exposure dose to the standard or criteria value is referred to as the Hazard Index (HI). Generally, if the HI is less than or equal to 1.0, the predicted body-dose level is anticipated to be without lifetime risks to humans. This is because the HI assumes there is a threshold level of exposure below which it is unlikely for even sensitive populations to experience adverse health effects.

The HI can be interpreted as follows: a value of 0.25 implies that a person is receiving an estimated average daily exposure dose equal to 25 percent of the acceptable intake of the chemical. Unlike incremental cancer risk

Click Here to Return to Main Index

estimates, HI values are not statistical probabilities. If the HI is greater than 1.0, the predicted body-dose level could potentially result in adverse health effects. However, this is by no means a certainty, because many of the standard and criterion values (e.g., RfDs) used to derive the HI can have associated uncertainties of at least an order of magnitude. The significance of an HI greater than 1.0 should be evaluated on a case-by-case basis.

Public health risk estimates due to current or future land uses are summarized below for each site. A more detailed discussion of potential risk at each site is in Appendix Q.

15.1.3.1 Summary of the Baseline Public Health Risk Assessment: Sites 1 and 3. Based on limited access to this area, direct contact exposure to soils, sediment, and/or surface water under current conditions is not considered likely. Limited contact with these media by on-base personnel is considered likely; however, the clothing worn by on-base personnel and land use in this area will effectively limit actual exposure.

Possible current worker exposures at Sites 1 and 3 were assessed assuming incidental ingestion the occurence of and dermal contact to soils. Under this condition, estimated excess cancer risks range from $2x10^{-7}$ to $4x10^{-6}$. These are below or within the USEPA target range.

Public health risks associated with contaminant exposure at Sites 1 and 3 result from future potential exposure to contaminated groundwater. Contaminant levels detected in the monitoring wells located within and immediately downgradient of the landfill area exceed state guidelines and federal regulations for contaminant concentrations in drinking water. Although the Navy can prevent both current and future potential exposure to groundwater beneath the site through the use of institutional controls, public health risks associated with this rate of exposure were considered. These controls would include deed restrictions to the land should the Air Station be closed and accessed. Although groundwater beneath the site is not currently being used for potable purposes, there is a potential for the landfill plume to migrate off base beneath Sites 1 and 3 and potentially impact downgradient domestic wells. Because the groundwater is believed to discharge into Mere Brook beaver marsh, future potential exposure to contaminants through the ingestion of groundwater may not be significant.

Potential future public health risks are associated with exposure to and ingestion of groundwater contaminated with: arsenic, vinyl chloride, methylene chloride, 1,1-DCA, 1,2-DCA, chromium, lead, and nickel. Methods to reduce these risks will be addressed in the FS.

Future residential exposures were assumed to occur due to direct contact with surface soils, surface water, sediments, leachate, or leachate sediments. The estimates for carcinogenic and noncarcinogenic risks are not unacceptable; therefore, no adverse health impacts due to future residential use are considered likely.

Click Here to Return to Main Index

The highest carcinogenic risks for any future residential exposure scenarios were estimated as being due to direct contact with surface soils. Incidental ingestion of or dermal contact with surface soils over a lifetime yield a carcinogenic risk estimate of at most $5x10^{-5}$, due essentially to PAH contamination.

15.1.3.2 Summary of Baseline Public Health Risk Assessment: Site 2. Based on the restricted access to this site, direct contact exposure to contaminated sediment, soils, and/or surface water is not considered likely. In addition, contaminant concentrations in surface soils are below levels considered to present a public health risk.

There are no public health risks associated with exposure to contaminants detected in groundwater beneath Site 2. Contaminant concentrations in wells located around and downgradient of this site are below federal and state regulations. In addition, there are no current uses of, or exposure to, this resource. Therefore, no remedial actions are warranted at this site.

Lifetime residential exposure to contaminants in soils at Site 2 results in carcinogenic risks well below the USEPA target risk range. Noncarcinogenic risks are insignificant.

Future exposure of young children, with contaminants in leachate seeps at Site 2 under the assumption of residential land use, do no incur significant carcinogenic or noncarcinogenic risks.

15.1.3.3 Summary of Public Health Risk Assessment: Sites 4, 11, and 13. Direct contact exposure by off-base personnel to soils at Sites 4, 11, and 13 is not considered likely based on land use in these areas. On-base personnel were considered to have limited contaminant exposure based on both the clothing worn by personnel and the land use of these areas (e.g. people would be appropriately dressed during fire fighting activities at the FTA).

A public health risk was identified for future potential exposure to contaminated groundwater. Although groundwater beneath the site is not currently being used for potable purposes, there is a potential for contaminant migration and/or future use of this resource by off-base receptors. As stated, the Navy can prevent present and future exposure to groundwater by on-base receptors through the use of institutional controls. Additional data will be collected as part of the Post Screening Work Plan to determine the potential for contaminant impact in domestic wells located along Coombs and Old Gurnet roads. Based on these data, the route of exposure will be reevaluated as necessary.

Potential risks were evaluated based on contaminant concentrations detected in the source area (i.e., wells adjacent to Sites 4, 11, and 13) and downgradient of the source in the eastern plume (i.e., wells located on the eastern end of Site 1). Contaminant levels detected in groundwater from both areas exceed state guidelines and federal regulations for contaminant concentrations in drinking water.

Click Here to Return to Main Index

Based on groundwater contamination found at Sites 4, 11, and 13, exposure to the following compounds was found to present a potential public health risk: tetrachloroethylene, TCE, 1,1-DCA, benzene, 1,2-DCE, 1,1,1-TCA, lead, and cadmium. Methods to reduce these risks will be addressed in the FS.

Lifetime exposures to contaminants in surface soils at Sites 4 and 13 indicate that no unacceptable carcinogenic or noncarcinogenic risks would be incurred under conditions of incidental ingestion or dermal contact. The carcinogenic risk estimates are at most $4x10^{-9}$, which is a value well below the USEPA target range. Hazard indices are negligible for the noncarcinogens.

15.1.3.4 Summary of Public Health Risk Assessment: Site 7. The only current route of exposure to contaminants at Site 7 is direct contact by older children to surface soils. Estimated incremental carcinogenic risks range from $1x10^{-6}$ to $6x10^{-6}$ under the most-probable and realistic worst-case exposure conditions. This risk can essentially be attributed to the presence of carcinogenic PAHs found in surface soil at Site 7. These values are within the lower end of the USEPA target risk range. HI values for noncarcinogens were calculated to be from 0.03 to 0.08 for the soil exposure pathway. Thus, no noncarcinogenic risk is predicted.

Cadmium concentrations detected in groundwater downgradient of this site exceed MCL and MEG levels. However, there currently is no exposure to this resource and little potential for contaminant migration off base. Future potential exposure to elevated levels of cadmium is not considered significant.

Under the assumption that future land use will be residential, the lifetime exposures to surface soil through incidental ingestion or dermal contact present no carcinogenic or noncarcinogenic risks outside USEPA target levels.

At Site 7, a young child's subchronic exposure to 105 parts per million (ppm) of lead in surface soil is associated with an HI of 1.2, which is judged not high enough to cause concern.

15.1.3.5 Summary of Public Health Risk Assessment: Site 8. Under current land use conditions, older children were assumed to play at Site 8 would come in direct contact with the surface soil, surface water, and leachate seeps. Risk estimates associated with these exposure routes are in Appendix Q and summarized here. Carcinogenic risks estimated for current exposure to leachate from seeps are below the USEPA target range; therefore, this route of exposure is not considered to present a public health risk. All other incremental lifetime carcinogenic risks estimated for exposure at this site fall within the target range and are summarized in the following paragraphs. Noncarcinogenic risks estimated by the HI are all less than 1.0 by an order of magnitude. Therefore, no noncarcinogenic health effects are of concern at this site.

The highest risk estimates are associated with direct contact exposure to surface soil. The carcinogenic risk estimates range from $7x10^{-6}$ to $2x10^{-5}$, attributable almost entirely to carcinogenic PAHs. These risks are associated

Click Here to Return to Main Index

with repetitive exposure to surface soils over a 10 year duration. Risks associated with direct contact exposure to leachate sediment are also due to carcinogenic PAHs and range from $1x10^{-6}$ to $7x10^{-6}$. Methods to reduce these risks will be addressed in the FS.

Lead concentrations in groundwater around Site 8 exceed the MCL, and aluminum and sodium concentrations exceeded their respective MEGs. Because lead concentrations exceeding the MCL were also detected upgradient of Site 8, it is not clear where the source for this contaminant is. However, groundwater in this area is not being used for potable purposes; therefore, there are no current risks to public health. Groundwater flow from Site 8 is not believed to be toward the Jordan Avenue Wellfield, and therefore contaminants detected around Site 8 are not expected to impact these production wells. However, additional data will be collected to further support this assumption and, based on these analyses, this route of exposure will be reanalyzed as necessary.

Under the assumption of future residential land use, there could be contact with contaminants in surface soils at Site 8 through incidental ingestion or dermal contact. Lifetime exposures to contaminants in the soils is associated with carcinogenic risks ranging from $9x10^{-5}$ to $2x10^{-4}$. Therefore, for the realistic worst case, the risk estimate is above the USEPA target risk range, but only by a factor of two. Considering that this assumes lifetime exposure to the maximum concentration of PAHs, it is highly unlikely that this level of risk would in fact be incurred; more likely, the level of risk would be within the target range. Noncarcinogens do not pose a threat to public health under the assumptions of future residential land use of Site 8.

Exposures to contaminants in surface water sediments, leachate, and leachate sediments could occur under the future residential condition. These exposures would be equivalent to those incurred under current land-use conditions as summarized previously.

15.1.3.6 Summary of Public Health Risk Assessment: Site 9. Exposure of both young and older children through direct contact with and/or incidental ingestion of surface soils, surface water, sediment, leachate, or leachate sediment was evaluated at Site 9 to represent current scenarios. The estimated incremental lifetime carcinogenic risks are in Appendix Q and summarized here. Risks due to current exposure via surface water or leachate seeps and leachate-associated sediment are all below the USEPA target range; and therefore, they are not considered to present a public health risk. Carcinogenic risks associated with exposure to surface soil, predicted to be higher for older children than for young children, ranged from $2x10^{-5}$ to $4x10^{-5}$. These risks are primarily due to carcinogenic PAHs. Methods to reduce these risks will be addressed in the FS.

Under current land use, carcinogenic risks associated with exposure to stream sediment at Site 9 are above the USEPA target range. These risks are due entirely to exposure to carcinogenic PAHs in sediment. The maximum carcinogenic risk is estimated to be $3x10^{-4}$. Methods to reduce these risks will be addressed in the FS.

Click Here to Return to Main Index

Noncarcinogenic risk estimates calculated for exposure of children to contaminants in any of the media at Site 9 are all less than 1.0 by an order of magnitude.

Concentrations of mercury, arsenic, vinyl chloride, and 1,1-DCA were detected in groundwater beneath Site 9. As stated, this resource is not currently used for domestic or potable purposes. In addition, because the groundwater beneath this area is expected to discharge into the drainage streams, future potential exposure via ingestion of contaminated groundwater is not considered significant.

Future residential exposure to surface soils at Site 9 could occur through incidental ingestion or dermal contact. Carcinogenic risks are, at most, $9x10^{-5}$ which falls within the USEPA target range. This risk is attributed to PAHs. Noncarcinogens in soils at Site 9 are not at levels to cause concern.

Exposure to future residents via surface water, sediments, leachate, and leachate sediments are the same as those presented as occuring under current land-use conditions and are presented above.

15.1.3.7 Summary of Public Health Risk Assessment: Picnic Area Pond. Concurrent exposure to contaminants in surface water and sediment were evaluated for the Picnic Area Pond. No carcinogenic compounds were evaluated in the surface water and only arsenic was evaluated for direct contact exposure to sediment. Risks for older children were slightly higher than for younger children. Risk estimates based on exposure to arsenic for older children range from $3x10^{-7}$ to $2x10^{-6}$, and fall within the lower end of the USEPA target range. Noncarcinogenic risks are below 1.0 by an order of magnitude for the relevant exposure scenarios.

15.1.3.8 Summary of Risk Characterization. The previous subsections describe the risk characterization for direct contact exposure to contaminants at Sites 7, 8, 9, and the Picnic Area Pond via surface soils, surface water, sediment, and leachate and future potential risks associated with off-site migration of contaminated groundwater.

Quantitative risk estimates were generated for exposure to both carcinogenic and noncarcinogenic compounds are presented in Appendix Q. Based on these results, remedial response objectives and remedial actions will be developed for each site to reduce contaminant concentrations to levels considered protective of public health. This effort will be the focus of the FS.

15.2 ECOLOGICAL RISK ASSESSMENT

The potential for deleterious impacts associated with exposure to site-related contamination by environmental receptors (i.e., plants, invertebrates, and wildlife) was evaluated in the ecological RA. The Baseline Environmental Risk Assessment is detailed in Appendix Q and summarized in this subsection. This RA was conducted in accordance with USEPA Guidance (USEPA, 1989b).

Click Here to Return to Main Index

The various types of ecological habitat at NAS Brunswick are described in the Biological Characterization, along with the environmental receptors associated with these habitats. In addition, particularly sensitive areas and species of special concern are discussed.

A rare pitch pine heath barren is located west of the runway, and four species of birds on the State of Maine Threatened and Endangered Species List are documented as breeding at NAS Brunswick. These species were given special consideration when identifying potential receptors, and during the evaluation of risk.

Indicator contaminants for the ecological RA were chosen in a manner similar to that described for the public health RA. However, because the toxicity of contaminants to human and environmental receptors may be dissimilar, different contaminants of concern were selected in this evaluation. The goal of the selection process is to develop a subset of chemicals presenting the greatest potential for posing deleterious impacts on ecological receptors. Contaminants of concern were chosen for surface water, sediment, leachate, and surface soil media.

15.2.1 Ecological Exposure Assessment

This subsection describes actual or potential exposure pathways, characterizes potentially exposed environmental receptors, and discusses the magnitude of exposure. These results, along with information summarized in the Ecological Toxicity Assessment, were used to develop the risk estimates discussed in the Ecological Risk Characterization.

Most biota occurring at NAS Brunswick could be exposed to surface water or sediment contamination in the streams running adjacent to the various sites, either directly or by consuming prey that have been contaminated. Water consumption from seep areas is the most significant exposure route for leachate contamination, and consumption of contaminated prey is deemed the most significant route of exposure to contamination in surface soil.

Expected exposure levels in the different media were developed separately. Exposure levels for surface water were assumed to be equivalent to the summarized analytical data; for sediment, the carbon-normalized analytical data were used. Exposure levels in leachate were calculated using ingestion information for the two typical receptor organisms evaluated. For surface soil, a terrestrial food-web analysis was used to calculate dietary exposure levels for various potential receptor species. The receptor organisms modeled were chosen to represent different consumer levels in a typical food web.

15.2.2 Ecological Toxicity Assessment

The Toxicity Assessment summarizes toxicological data available for the compounds selected as contaminants of concern, and presents the relationship between the concentration to which an organism or population is exposed and the likelihood of adverse environmental effects. Considered toxicological

Click Here to Return to Main Index

effects include both acute and chronic toxic effects on aquatic biota and terrestrial wildlife. These results were compared with potential exposure levels to develop risk estimates.

Toxicological data for exposure to contaminants in surface water and sediment were used to develop AWQC and Interim Sediment Quality Criteria (SQC), respectively. To evaluate risk associated with drinking leachate water or consumption of contaminated prey items (in the terrestrial food-web analysis), oral LD (lethal dose at which 50 percent of test organisms die) and chronic effects data for the modeled receptor organisms were summarized from the literature.

15.2.3 Ecological Risk Characterization

Information regarding expected exposure levels for environmental receptors in each medium, combined with the appropriate criteria and concentration-response toxicity data (described in Appendix Q) forms the basis for risk characterization.

To substantiate the theoretical risk predictions developed in this subsection, data on macroinvertebrate communities, collected during the October 1988 biological sampling program, were evaluated using the USEPA Rapid Bioassessment Protocol.

The following discussion provides a site-specific evaluation of risk associated with environmental contamination from each site considered during the RA process.

15.2.3.1 Summary of Ecological Risk Assessment: Mere Brook beaver marsh/Beaver Marsh. Sites 1, 2, and 3 border the Mere Brook beaver marsh/Beaver Marsh Area. The ecological RA focused on the potential impacts of contaminant concentrations detected in this area.

Iron and zinc in surface water, and phenanthrene and iron in sediment were chosen as contaminants of concern for this area. These contaminants are found at elevated levels throughout NAS Brunswick, including upgradient locations. However, exceedances of criteria were minimal, indicating minimal risk to potentially exposed aquatic receptors. Several VOCs, DDT, and arsenic, cadmium, chromium, lead, mercury, and nickel were selected as contaminants of concern in the seeps associated with Sites 1 and 3. Based on the assumptions of the drinking water model, little risk is expected for this exposure pathway. For Site 2, DDT and the same group of metals were chosen as contaminants of concern, and again, potential risks associated with wildlife drinking from these seeps were determined to be minimal.

Contaminants selected for soils (e.g., adjacent to leachate seeps) at Sites 1 and 3 included eight PAHs, DDT, and mercury. The potential risks from PAHs were not evaluated in the terrestrial food-web model, due to the lack of information regarding the potential for this class of compounds to bioaccumulate. For DDT and mercury, a comparison of expected exposure levels with toxicological data suggests that only mercury levels in the soil may be

sufficient to represent some long-term impact on populations of terrestrial organisms in this area. Methods to reduce these risks will be addressed in the FS.

15.2.3.2 Summary of Ecological Risk Assessment: Sites 4 and 13. Only DDT in soil was chosen as a contaminant of concern for this area, and levels of this pesticide appear to pose no significant risk to terrestrial wildlife that may use the area.

15.2.3.3 Summary of Ecological Risk Assessment: Site 7. Eight PAHs, DDT, and cadmium were chosen as contaminants of concern for this site. As mentioned, potential risks associated with PAH contamination could not be evaluated due to the lack of bioaccumulation data necessary for the food-web analysis. However, available evidence suggests that neither these compounds nor cadmium (which also could not be evaluated) are likely to negatively impact terrestrial populations at NAS Brunswick. Bioaccumulation of DDT through the food web was shown to represent little risk to terrestrial organisms foraging at Site 7.

15.2.3.4 Summary of Ecological Risk Assessment: Site 8. Iron in surface water, and phenanthrene, DDT, Aroclor 1248, and iron in sediment were chosen as the compounds most representative of site-related contamination at Site 8. Elevated concentrations of iron, DDT, and phenanthrene appear to pose a significant potential to impact aquatic communities in this area. The Rapid Bioassessment Analysis indicated that macroinvertebrate communities associated with Site 8 are moderately impaired.

However, terrestrial wildlife is unlikely to be affected by site-related contamination. There is virtually no indication that contaminants in the leachate (i.e., arsenic, cadmium, chromium, lead, and nickel) would negatively impact wildlife that might consume water from these seeps. Similarly, the analysis of terrestrial food-web bioaccumulation of soil contaminants suggests little potential impact on wildlife.

15.2.3.5 Summary of Ecological Risk Assessment: Site 9. Contaminants of concern for surface water at Site 9 include iron, lead, and mercury. Six PAH compounds and DDD were chosen for sediment. Potential deleterious impacts associated with PAH and DDD contamination in sediment at this site are projected to be severe. These results are corroborated by an analysis of benthic samples using the Rapid Bioassessment Protocol, which suggests that the macroinvertebrate community in this area is severely impaired relative to a reference control location.

DDT and arsenic, chromium, lead, and nickel were chosen as Contaminants of Conern for leachate at this site. Minimal risks to terrestrial organisms drinking from the seep area are postulated. With regard to soil contamination, DDT level detected at this site do not appear to pose significant risks to terrestrial wildlife.

Click Here to Return to Main Index

Migration Potential of Site-related Contaminants

The RA found little evidence that site-related contaminants are migrating into downstream areas at levels preventing an elevated risk to ecological receptors. Risks were evaluated in the Picnic Area Pond, at downstream locations on the Merriconeag Stream, and at Harpswell Cove. In general, aquatic organisms are at minimal risk to the levels of inorganic and/or PAH compounds detected in these samples.

Potential Impact of Site-related Contaminants on Threatened or Endangered Avifauna

The populations of four bird species on the State of Maine Threatened or Endangered Species List do not appear to be at substantial risk due to site-related contamination at NAS Brunswick. This conclusion is based on results of the terrestrial food-web analysis for soil contamination, as well as information on the foraging behavior of these species, which suggest they are unlikely to be exposed to contamination.

15.3 SUMMARY OF PUBLIC HEALTH AND ECOLOGICAL RISK ASSESSMENT

Remedial action objectives and general response actions will be developed based on the results of the baseline RA, and will focus on methods to reduce contaminant concentrations in various media to levels protective of public health and/or the environment. Sites considered to present a public health risk include: Sites 1 and 3 (the landfill plume), and Sites 4, 11, and 13 (the eastern plume), for groundwater contamination; and Sites 8 and 9 for soil and sediment contamination. Sites and/or areas considered to present an ecological risk include Sites 1 and 3 (Mere Brook beaver marsh/Beaver Marsh Area), and Sites 8 and 9 for leachate and/or sediment contamination. Methods to reduce these risks will be the focus of the FS.

Click Here to Return to Main Index

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

AA	Atomic Absorption
ARARs	Applicable or Relevant and Appropriate Requirements
ASW	antisubmarine warfare
AWQC	Ambient Water Quality Criteria
BDAT	Best Demonstrated Available Technologies
BEHP	bis(2-ethylhexyl)phthalate
bgs	below ground surface
BHC	benzene hexachloride
BOD	biological oxygen demand
BTEX	benzene, toluene, ethylbenzene, and xylene
BTX	benzene, toluene, and xylenes
CAG	Carcinogen Assessment Group
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CPF	Carcinogenic Potency Factor
CIIT	Chemical Industry Institute of Toxicology
CIP	Caucus Inorganics Protocol
CLP	Contract Laboratory Program
cm/sec	centimeters per second
CNS	central nervous system
COC	contaminants of concern
COD	chemical oxygen demand
COP	Caucus Organics Protocol
CPF	cancer potency factor
CRDL	Contract Required Detection Limit
CRP	Community Relations Plan
DCA	dichloroethane
DCE	dichloroethylene
DCM	methylene chloride
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyl-trichloroethane
DQO	Data Quality Objective
DRMO	Defense Reutilization and Marketing Office
ECD	electron capture detector
EMSI	Environmental Monitoring and Services, Inc.
EOD	Explosive Ordance Dump
EP	Extraction Procedure
FE	iron
F-113	Freon-113
FEMA	Federal Emergency Management Agency
FID	flame ionization detector
FIT	Field Investigation Team
FS	Feasibility Study
FTA	Fire Training Area

Click Here to Return to Main Index

GLOSSARY OF ACRONYMS AND ABBREVIATIONS
(continued)

g	grams
GC	gas chromatograph
GC/MS	gas chromatograph/mass spectrometry
GI	gastrointestinal
GPR	ground-penetrating radar
GWQ	General Water Quality
GZA	Goldber-Zoino Associates
HASP	Health and Safety Plan
HCN	hydrogen cyanide
HGC	Hydro Geo Chem
HI	Hazard Index
IARC	International Agency for Research on Cancer
IAS	Initial Assessment Study
ICP	Inductively Coupled Plasma
ID	inside diameter
IR	Installation Restoration
IRIS	Integrated Risk Information System
ISIS	Integrated Site Information System
K	hydraulic conductivity
KCN	potassium cyanide
KOW	octanol-water partition coefficient
LELs	lowest effect levels
LNAPLS	light nonaqueous phase liquids
MBAs	Methylene Blue Active Substances
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MDL	Method Detection Limit
MEGs	Maximum Exposure Guidelines
MEK	methyl ethyl ketone
MEDEP	Maine Department of Environmental Protection
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MHz	megahertz
ml	milliliter
MSL	Mean Sea Level
NAS	Naval Air Station
NCI	National Cancer Institute
NCP	National Contingency Plan
ND	non-detects
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NTP	National Toxicology Program
NUS	NUS Corporation
OSHA	Occupational Safety and Health Administration

Click Here to Return to Main Index

GLOSSARY OF ACRONYMS AND ABBREVIATIONS
(continued)

PAC	Pollution Abatement Confirmation
PAH	polynuclear aromatic hydrocarbon
PbP	blood lead
PCB	polychlorinated biphenyls
PCE	tetrachloroethylene
PI	photoionization
ppb	parts per billion
ppm	parts per million
PVC	polyvinal chloride
QA	quality assurance
QAPP	Quality Assurance Project Plan
QAPPA	Quality Assurance Project Plan Addendum
QA	quality control
RA	risk assessment
RAF	relative adsorption factor
RAS	Routine Analytical Services
RBP	Rapid Bioassessment Protocol
RCRA	Resource Conservation and Recovery Act
RfDs	reference doses
RI	Remedial Investigation
SARA	Superfund Amendments and Reauthorization Act
SCS	Soil Conservation Service
SFC	Sodium Ferrocyanide
SI	Site Inspection
SOW	Statement of Work
SQC	Sediment Quality Criteria
SVOC	semivolatile organic compound
SW/SD	surface water/surface sediment
TBC	To Be Considered
TC	terrain conductivity
TCA	trichloroethane
TCE	trichloroethylene
TCL	Target Compound List
TIC	Tentatively Identified Compounds
TKN	total Kjeldahl nitrogen
TNC	too numerous to count
TNT	trinitrotoluene
TOC	total organic carbon
TRC	Technical Review Committee
TP	total phosphorous
µL	microliters
µmhos/cm	micromhos per centimeter
µg/kg	microgram per kilogram
µg/L	microgram per liter
USEPA	U.S. Environmental Protection Agency

Click Here to Return to Main Index

GLOSSARY OF ACRONYMS AND ABBREVIATIONS
(continued)

USGS	U.S. Geological Survey
USF&WS	U.S. Fish and Wildlife Service
UST	underground storage tank
VC	vinyl chloride
VHO	volatile halogenated organic
VOC	volatile organic compound
WPA	Works Project Administration

Click Here to Return to Main Index

REFERENCES

Brooks, R.R., 1977. "Pollution through Trace Elements"; In Environmental Chemistry (J. O'M. Brooks, ed.); Plenum Press;, New York, New York.

Corapcioglo, M.Y., and Hossain, M.A., 1987. "Biotransformation of Trichloroethane (TCA) in Groundwater Contamination"; In Proceedings of Third IAHS Symposium; IAHS Pub. No. 185; Baltimore, Maryland.

Deer, W.A., R.A. Howie, and J. Zussman, 1966. An Introduction to the Rock-Forming Minerals; Louguaraus, Green and Co., Ltd., London, England.

Dragun, J., 1988. The Soil Chemistry of Hazardous Materials; Hazardous Materials Control Research Institute; Silver Spring, Maryland.

E.C. Jordan Co., 1985. "Pollution Abatement Confirmation Study, Step 1A-Verification"; Portland, Maine; June 1985.

E.C. Jordan Co., 1986. "Hydrogeologic Evaluations for Designation of Aquifer Protection Zones"; Prepared for the Brunswick-Topsham Water District; Portland, Maine; January 1985.

E.C. Jordan Co., 1988. "Remedial Investigation/Feasibility Study Work Plan"; Portland, Maine; April 1988.

E.C. Jordan Co., 1989a. "Remedial Investigation/Feasibility Study, Round I Data Package"; Portland, Maine; January 1989.

E.C. Jordan Co., 1989b. "Remedial Investigation/Feasibility Study, Round II Data Package"; Portland, Maine; March 1989.

E.C. Jordan Co., 1989c. "Remedial Investigation/Feasibility Study, Round III Data Package"; Portland, Maine July 1989.

E.C. Jordan Co., 1989d. "Preliminary Risk Assessment"; Portland, Maine; February 1989.

E.C. Jordan Co., 1989e. "Phase I Feasibility Study, Preliminary Development of Alternatives"; Portland, Maine; February 1989.

E.C. Jordan Co., 1989f. "Additional Sampling Plan, RI/FS Program"; Portland, Maine; August 1989.

E.C. Jordan Co., 1990a. "Remedial Investigation/Feasibility Study, Round IV Data Package"; Portland, Maine; January 1990.

E.C. Jordan Co., 1990b. "Evaluation of Methyl Ethyl Ketone in Groundwater Samples: Suffolk County Air National Guard, SUffolk County Airport; Westhampton Beach, New York"; Draft Report prepared for National Guard Bureau, Andrews Air Force Base, Maryland; Portland, Maine; March 1990.

Click Here to Return to Main Index

Edwards, N.T., 1983. "Polycyclic Aromatic Hydrocarbons (PAHs) in the Terrestrial Environment - a Review"; Journal of Environmental Quality; Volume 12; pp. 472, 1979.

Garrels, R.M., 1960. "Mineral Equilibria at Low Temperature and Pressure"; Harph and Brothers Publishers; New York, New York.

Goldberg-Zoino & Associates, Inc., 1986. "Conforming Storage Facility, DPDO Brunswick Naval AIr Station"; Newton Upper Falls, Massachusetts; June 1986.

Holm, H.W. and Cox, M.F., 1974. "Mercury in Aquatic Systems: Methylation, Oxidation-Reduction, and Bioaccumulation"; U.S. Environmental Protection Agency; USEPA 660/3-74-021; Washington, DC; 38 p.

Hvorslev, J.M., 1951. In Foundation Engineering Handbook, edited by H.F. Winterkorn and Hsai-Yang Fang; Van Nostrand Reinhold Company, 1975.

Johnsen, R.E., 1976. "DDT Metabolism in Microbial Systems"; Residue Review; No. 61; 1-28.

Kenaga, E.E., and Goring, C.A.I., 1978. "Relationship between Water Solubility, Soil Sorbtion, Octanol-Water Partitioning, and Bioconcentration of Chemicals in Biota"; American Society of Testing Material; Third Aquatic Toxicity Symposium; New Orleans, Louisiana; p. 63.

K.W. Brown and Associates, Inc., 1983. "Background Levels of Polynuclear Aromatic Hydrocarbons"; Prepared for Melvin Simon and Associations, Inc.; Indianapolis, Indiana.

Lindsey, W.C., 1979. Chemical Equilibria in Soils; John Wiley and Sons; New York, New York.

Mason, B., and Berry, L.G., 1968. Elements of Mineralogy; W.H. Freeman and Company; San Francisco, California.

Neft, J.M., 1979. "Polycyclic Aromatic Hydrocarbons in the Aquatic Environment"; Applied Science Publishers; London, England.

Olson and Ohno, 1989. "Determination of Free Cyanide Levels in Surface and Ground Waters Affected by Highway Salt Storage Facilities in Maine"; Maine Department of Transportation; Department of Plant and Soil Sciences, University of Maine; Orono, Maine.

Prescott, G.C., 1967. "Lower Androscoggin River Basin Area"; Maine Basic-Data Report No. 3; Groundwater Series.

R.F. Weston, Inc., 1983. "Initial Assessment Study of Naval Air Station Brunswick, Maine"; Westchester, Pennsylvania; June 1983.

Ramamoorthy, S., and Rust, B.R., 1976. "Mercury Sorption and Desorption Characteristics of some Ottowa River Sediments"; Canadian Journal of Earth Science; Vol. 13; pp. 530-536.

Click Here to Return to Main Index

Sanemasa, I., 1975. "The Solubility of Elemental Mercury Vapor in Water"; Bulletin of Chemical Society of Japan; No. 48; pp. 1795-1798.

Shacklette, H.T., and Boerngen, J.C., 1984. "Element Concentrations in Soils and other Surface Materials in Conterminous United States"; U.S. Geological Survey Professional Paper 1270; U.S. Government Printing Office, Washington, DC.

Tabak, H.H., Quave, S.A., Mashni, C.I., and Barth, E.F., 1981. "Biodegradability Studies with Organic Priority Pollutant Compounds"; Journal of the Water Pollution Control Federation; Vol. 57, No. 10; pp. 1503-1518.

Thompson, Woodrow B., 1987. "Presumscot Formation In Southwestern Maine"; presented at the Presumscot Formation Symposium, University of Maine; March 1987.

U.S. Environmental Protection Agency (USEPA), 1986. "Superfund Public Health Evaluation Manual"; USEPA Office of Emergency and Remedial Response; USEPA 540/1-86/060; Washington, DC.

U. S. Environmental Protection Agency (USEPA), 1988a. "USEPA Contract Laboratory Program Statement of Work for Organics Analysis. Multi-Media, Multi-Concentration"; SOW No. 288; February 1988.

U.S. Environmental Protection Agency (USEPA), 1988b. "Superfund Exposure Assessment Manual"; USEPA Office of Remedial Response; USEPA 540/1-88/001; Washington, DC; April 1988.

U.S. Environmental Protection Agency (USEPA), 1988c. "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA (Draft)"; USEPA Office of Emergency and Remedial Response, EPA 540/6-89/004; Washington, DC; October 1988.

U.S. Environmental Protection Agency (USEPA), 1988d. "Region I Laboratory Data Validation: Functional Guidelines for Evaluating Organics Analyses"; prepared for the USEPA Hazardous Site Evaluation Division; February 1988; modified November 1988.

U.S. Environmental Protection Agency (USEPA), 1989a. "Region I Laboratory Data Validation: Functional Guidelines for Evaluating Inorganics Analyses"; prepared for the USEPA Hazardous Site Evaluation Division; EPA 68-01-7443; June 1988; modified February 1989.

U.S. Environmental Protection Agency (USEPA), 1989d. "Risk Assessment Guidance for Superfund: Human Health Evaluation Manual, Part A (External Review Draft)"; Office of Solid Waste and Emergency Response; 9285.701A; Washington, DC; July 1989.

U. S. Environmental Protection Agency (USEPA), 1989b. "Risk Assessment Guidance for Superfund Volume II: Environmental Evaluation Manual (Interim Final)"; USEPA Office of Emergency and Remedial Response; EPA 540/1-89/001; Washington, DC; March 1989.

Click Here to Return to Main Index

S. Environmental Protection Agency (USEPA), 1989c. "Supplemental Risk Assessment Guidance for the Superfund Program"; Prepared by the USEPA Region 1 Risk Assessment Work Group; EPA 901/5-89-001; June 1989.

U.S. Environmental Protection Agency (USEPA), 1989e. "USEPA Contract Laboratory Program Statement of Work for Inorganics Analysis. Multi-Media, Multi-Concentration"; SOW No. 788; revised August 1989.

U.S. Environmental Protection Agency (USEPA), 1987. "Site Analysis Brunswick Naval Air Station, Brunswick, Maine, Volume 2;" Aerial Photographs; April 1987.

Vogel, T.M., and McCarty, P.L., 1985. "Biotransformation of Tetrachloroethane to Trichloroethene, Dichloroethene, Vinyl Chloride, and Carbon Dioxide under Methanogenic Conditions"; Applied and Environmental Microbiology; Vol. 49; pp. 1080-1083.

Weil, L., Dune, G., and Quentin, K.E., 1973. "Solubility in Water of Insecticide Chlorinated Hydrocarbons and Polychlorinated Biphenyls in View of Water Pollution; Z. Wasser Abwasser Forsch; Vol. 7, No. 6, pp. 169-175.

Click Here to Return to Main Index

Click Here to Return to Main Index

Click Here to Return to Main Index

U.S. DEPARTMENT OF THE NAVY

NAVAL AIR STATION, BRUNSWICK

BRUNSWICK, MAINE

DRAFT FINAL RI REPORT

VOLUME 2 APPENDICES A - J

RI/FS PROGRAM

CONTRACT : N62472-84-C-1108

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Click Here to Return to Main Index

APPENDICES

APPENDIX A - ACTION-SPECIFIC ARARS FOR POTENTIAL REMEDIAL ACTIONS
APPENDIX B - FIELD BORING LOGS
APPENDIX C - TEST PIT RECORDS
APPENDIX D - SOIL GAS SURVEY DATA
APPENDIX E - GRAIN SIZE ANALYSES
APPENDIX F - MONITORING WELL DETAILS
APPENDIX G - FIELD PARAMETERS: pH AND SPECIFIC CONDUCTIVITY
APPENDIX H - GROUND SURVEY DATA
APPENDIX I - CONSTANT-HEAD PERMEABILITY TEST DATA
APPENDIX J - SUMMARY TABLES OF LABORATORY ANALYTICAL DATA, INCLUDING TENTATIVELY IDENTIFIED COMPOUNDS (TICS)

Click Here to Return to Main Index

APPENDIX A
ACTION-SPECIFIC ARARS FOR POTENTIAL REMEDIAL ACTIONS

NAS BRUNSWICK
BRUNSWICK, MAINE

Click Here to Return to Main Index

APPENDIX A
ACTION-SPECIFIC ARARS FOR POTENTIAL REMEDIAL ACTIONS

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

ACTION	REQUIREMENT/CITATION	STATUS
Air-stripping	Maine Air Quality Control Regulations: Emission License Regulations, MEDEP Regulations, Chapters 108, 115	Applicable
Capping	RCRA - Subpart G - Closure and Post-closure (40 CFR Parts 264.110-264.120)	Relevant and Appropriate
	RCRA - Subpart K - Surface Impoundments (40 CFR Parts 264.220-264.249)	Relevant and Appropriate
	RCRA - Subpart L - Waste Piles (20 CFR Parts 264.250-264.269)	Relevant and Appropriate
	RCRA - Subpart N - Landfills (40 CFR Parts 264.300-264.339)	Relevant and Appropriate
	Maine Hazardous Waste Management Rules, MEDEP Regulations, Chapters 800-802, 850, 851, 853-857	Relevant and Appropriate
	Maine Solid Waste Management Rules, MEDEP Regulations, Chapters 400-405	Relevant and Appropriate
Closure	RCRA - Subpart G - Closure and Post-closure (40 CFR Parts 264.110-264.120)	Relevant and Appropriate
	RCRA - Subpart K - Surface Impoundments (40 CFR Part 264.228)	Relevant and Appropriate
	RCRA - Subpart L - Waste Piles (40 CFR Part 264.258)	Relevant and Appropriate
	RCRA - Subpart N - Landfills (40 CFR Part 264.310)	Relevant and Appropriate
	RCRA - Subpart M - Land Treatment (40 CFR Parts 264.270-264.283)	Relevant and Appropriate
	Maine Hazardous Waste Management Rules, MEDEP Regulations, Chapters 800-802, 850, 851, 853-857	Relevant and Appropriate
	Maine Solid Waste Management Rules, MEDEP Regulations, Chapters 400-405)	Relevant and Appropriate

Click Here to Return to Main Index

APPENDIX A
(continued)
ACTION-SPECIFIC ARARS FOR POTENTIAL REMEDIAL ACTIONS

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

ACTION	REQUIREMENT/CITATION	STATUS
Construction of New Landfill On-site	RCRA - Subpart N - Landfills (40 CFR Parts 264.300-264.339)	Applicable
	RCRA - Subpart F - Releases from Solid Waste Management Units (40 CFR Parts 264.90-264.101)	Relevant and Appropriate
	Maine Hazardous Waste Management Rules, MEDEP Regulations, Chapters 800-802, 850, 851, 853-857	Applicable
	Maine Solid Waste Management Rules, MEDEP Regulations, Chapters 400-405	Applicable
	Maine Natural Resources Protection Act (38 MRSA Section 480)	Relevant and Appropriate
	Maine Water Pollution Control Law (38 MRSA, Chapter 3, Sections 414-A, 420, 421, 464-470)	Relevant and Appropriate
	Maine Site Location of Development Law (38 MRSA, Chapter 3 Sections 481 et seq., Chapters 371-377)	Relevant and Appropriate
Construction of a New Surface Impoundment	RCRA - Subpart K - Surface Impoundments (40 CFR Parts 264.220-264.249)	Applicable
	RCRA - Subpart F - Releases from Solid Waste Management Units (40 CFR Parts 264.90-264.101)	Relevant and Appropriate
Dike Stabilization	RCRA - Subpart K - Surface Impoundments (40 CFR Parts 264.220-264.249)	Applicable
Discharge of Treatment System Effluent	CWA - National Pollutant Discharge Elimination System (40 CFR Parts 122, 125)	Applicable
	Maine Water Pollution Control Law (38 MRSA, Chapter 3, Sections 414-A, 464-470)	Applicable
	Maine Rules to Control the Subsurface Discharge of Pollutants by Well Injection (MEDEP Regulations, Chapter 543)	Relevant and Appropriate

Click Here to Return to Main Index

APPENDIX A
(continued)
ACTION-SPECIFIC ARARS FOR POTENTIAL REMEDIAL ACTIONS

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

ACTION	REQUIREMENT/CITATION	STATUS
Discharge of Dredge and Fill Material to Waters of the U.S.	CWA - Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR Part 230)	Applicable
	CWA - Regulations on Disposal Site Determinations Under the Water Act (40 CFR Part 231)	Relevant and Appropriate
	Maine Natural Resources Protection Act (38 MRSA, Section 480)	Relevant and Appropriate
	Maine Water Pollution Control Law (38 MRSA, Chapter 3, Sections 420, 421, 464-470)	Relevant and Appropriate
Excavation	RCRA - Subpart D - Land Disposal Restrictions - Land Ban (40 CFR Part 268)	Relevant and Appropriate
	RCRA (see Closure)	Relevant and Appropriate
	CAA - National Primary and Secondary Ambient Air Quality Standards for Particulate Matter (40 CFR Parts 50.6-50.7)	Applicable
	Maine Ambient Air Quality Standards (MEDEP Regulations, Chapter 110)	Relevant and Appropriate
	Protection of Archeological Resources (32 CFR Parts 229, 229.4; 43 CFR Parts 7, 7.4)	Relevant and Appropriate
	Maine Natural Resources Protection Act (38 MRSA, Section 480)	Relevant and Appropriate
General Employee Operations	OSHA - General Industry Standards (29 CFR Part 1910)	Applicable
	OSHA - Safety and Health Standards for Federal Service Contracts (29 CFR Part 1926)	Applicable
	OSHA - Recordkeeping, Reporting, and Related Regulations (29 CFR Part 1904)	Applicable

Click Here to Return to Main Index

APPENDIX A
(continued)
ACTION-SPECIFIC ARARS FOR POTENTIAL REMEDIAL ACTIONS

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

ACTION	REQUIREMENT/CITATION	STATUS
General Facility Standards and Operations	RCRA - Subpart B - General Facility Standards (40 CFR Parts 264.10-264.18)	Relevant and Appropriate
	RCRA - Subpart C - Preparedness and Prevention (40 CFR Parts 264.30-264.37)	Relevant and Appropriate
	RCRA - Subpart D - Contingency Plan and Emergency Procedures (40 CFR Parts 264.50-264.56)	Relevant and Appropriate
	RCRA - Subpart E - Manifest System, Recordkeeping, and Reporting (40 CFR Parts 264.70-264.77)	Relevant and Appropriate
Handling of PCB-Contaminated Materials	TSCA - Markings of PCBs and PCB Items (40 CFR Parts 761.40-761.45)	Applicable
	TSCA - Storage and Disposal (40 CFR Parts 761.60-761.79)	Applicable
	TSCA - Records and Reports (40 CFR Parts 761.180-761.185; 40 CFR Parts 129.105, 750)	Applicable
Handling of Pesticide-contaminated Materials	FIFRA - Regulations for the Acceptance of Certain Pesticides and Recommended Procedures for the Disposal and Storage of Pesticides and Pesticide Containers (40 CFR Part 165)	Applicable
Incineration	RCRA - Subpart O - Incinerators (40 CFR Parts 264.340-264.351)	Applicable
	TSCA - Subpart D - Storage and Disposal (40 CFR Parts 761.60-761.79)	Relevant and Appropriate
	Maine Incinerator Particulate Emission Standard (MEDEP Regulations, Chapter 104)	Applicable
	Maine Air Quality Control Regulations: Emission License Regulations, MEDEP Regulations, Chapter 115	Applicable

Click Here to Return to Main Index

APPENDIX A
(continued)
ACTION-SPECIFIC ARARS FOR POTENTIAL REMEDIAL ACTIONS

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

ACTION	REQUIREMENT/CITATION	STATUS
Land Treatment	RCRA - Subpart M - Land Treatment (40 CFR Parts 264.270-264.283)	Relevant and Appropriate
	Maine Rules for the Land Application of Sludge and Residuals (38 MRSA, Chapter 567)	Applicable
Modification of a Natural Resource	CWA - Natural Resource Damage Assessment (43 CFR Part III)	Applicable
	Maine Natural Resources Protection Act (38 MRSA, Section 480)	Relevant and Appropriate
	Maine Water Pollution Control Law (38 MRSA, Chapter 3, Sections 414A, 420, 464 - 470)	Relevant and Appropriate
Modification of a Water Body	Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.)	Relevant and Appropriate
	Maine Natural Resources Protection Act (38 MRSA, Section 480)	Relevant and Appropriate
	Maine Water Pollution Control Law (38 MRSA, Chapter 3, Sections 414-A, 420, 464-470)	Relevant and Appropriate
Modification of a Wetland or Floodplain	NEPA - Regulations on Implementation of NEPA Procedures (40 CFR Part 6; Appendix A) Protection of Wetlands (EO 11990) Floodplain Management (EO 11988)	Applicable
	Maine Natural Resources Protection Act (38 MRSA, Section 480)	Relevant and Appropriate
	Maine Water Pollution Control Law (38 MRSA, Chapter 3, Sections 414-A, 420, 464-470)	Relevant and Appropriate
Operation and Management	RCRA - Subpart N - Landfills (40 CFR Part 264.310)	Relevant and Appropriate
	Maine Solid Waste Management Rules MEDEP Regulations, Chapters 400-405)	Relevant and Appropriate
	Maine Hazardous Waste Management Rules, MEDEP Regulations, Chapters 800-802, 850, 851, 853-857)	Relevant and Appropriate

Click Here to Return to Main Index

APPENDIX A
(continued)
ACTION-SPECIFIC ARARS FOR POTENTIAL REMEDIAL ACTIONS

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

ACTION	REQUIREMENT/CITATION	STATUS
Placement of Liquid Waste in a Landfill	RCRA - Subpart N - Landfills (40 CFR Part 264.314)	Applicable
Placement of Waste in a Land Disposal Unit	Subpart D - Land Disposal Restrictions - Land Ban (40 CFR Part 268)	Applicable
Surface Water Control	RCRA - Subpart L - Waste Piles (40 CFR Part 264.251)	Relevant and Appropriate
	RCRA - Subpart M - Land Treatment (40 CFR Part 264.273)	Relevant and Appropriate
	RCRA - Subpart N - Landfills (40 CFR Part 264.301)	Relevant and Appropriate
Tank Storage (On-site)	FWPCA - Oil Pollution Control (40 CFR Part 112)	Relevant and Appropriate
	RCRA - Subpart J - Tank Systems (40 CFR Parts 264.190-264.199)	Relevant and Appropriate
	RCRA - Underground Storage Tanks (40 CFR Part 280)	Relevant and Appropriate
	RCRA - Subpart D - Land Disposal Restrictions - Land Ban (40 CFR Part 268)	Relevant and Appropriate
	Maine Underground Oil Storage Tank Law and Regulations (38 MRSA, Section 561 et seq., and MEDEP Regulations, Chapter 691)	Relevant and Appropriate
	Maine Oil Prevention and Pollution Control Regulations (MEDEP Regulations, Chapter 600)	Relevant and Appropriate
Transportation of Hazardous Materials	DOT - Rules for the Transportation of Hazardous Materials (49 CFR Parts 107, 171.1-172.558)	Applicable
	RCRA - Subpart E - Manifest System, Recordkeeping, and Reporting (40 CFR Parts 264.70-264.77)	Applicable

Click Here to Return to Main Index

APPENDIX A
(continued)
ACTION-SPECIFIC ARARS FOR POTENTIAL REMEDIAL ACTIONS

NAS BRUNSWICK
PHASE I FEASIBILITY STUDY

ACTION	REQUIREMENT/CITATION	STATUS
Treatment (In a Unit)	RCRA - Subpart J - Tank Systems (40 CFR Parts 264.190-264.199)	Relevant and Appropriate
	RCRA - Subpart K - Surface Impoundments (40 CFR Parts 264.220-264.231)	Relevant and Appropriate
	RCRA - Subpart L - Waste Piles (40 CFR Parts 264.250-264.259)	Relevant and Appropriate
	RCRA - Subpart M - Land Treatment (40 CFR Parts 264.270-264.283)	Relevant and Appropriate
	RCRA - Subpart O - Incinerators (40 CFR Parts 264.300-264.317)	Relevant and Appropriate
	RCRA - Subpart X - Miscellaneous Units (40 CFR Part 264.600)	Relevant and Appropriate

NOTES:

MEDEP - Maine Department of Environmental Protection
RCRA - Resource Conservation and Recovery Act
CWA - Clean Water Act
CAA - Clean Air Act
OSHA - Occupational Safety and Health Administration
TSCA - Toxic Substances Control Act
FIFRA - Federal Insecticide, Fungicides, and Rodenticide Act
NEPA - National Environmental Policy Act
FWPCA - Federal Water Pollution Control Act
DOT - Department of Transportation (U.S.)

Click Here to Return to Main Index

Click Here to Return to Main Index

APPENDIX B
FIELD BORING LOGS

NAS BRUNSWICK
BRUNSWICK, MAINE

Click Here to Return to Main Index

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW1-201
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 2
Contractor MATHES	Driller Mathes	Date started 7/17/88	Completed 7/18/88
Method HSA	Casing size 4.25"	HNU 11.7 (10.2)	Protect'n level D
Ground el.	Soil drilled 31'	▽ Below grnd 14.5	Total depth 31'
Logged by BKB	Ch'd by DLN	Date 9/26/88	TIP BKGD = -2.6 to -3.3

Sample No.	Depth in feet	Blows per 6 inches	Pen/Rec	Description	HNU ~~in~~ Spoon	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2'	1/3/3/5	2'/1.6'	mottled dark brown and black m-f SAND with some root matter and wood debris. Loose, damp - FILL -	-2.8	bkgd = -2.7 (See sample S-8)		
S-2	4-6'	15/17/16/10	2'/1.5	tan fine SAND, poorly graded, loose, damp, OUTWASH	-3.3	bkgd = -3.3	SP	
S-3	9-11'	2/4/6/7	2'/1.6	tan, f-m SAND poorly Graded, alternating beds of fine or med. gr dominated sand. loose, damp. some iron staining OUTWASH	-2.2 ← TIP readings 'highest' in 1cm thick iron stained zone at 0.6' in spoon. -2.8(S)	bkgd = -2.1	SP	
S-4	14-16'	1/1/3/3	2'/1.9	tan fine SAND trace med sand, micaceous. poorly graded WET. loose, some iron staining throughout. OUTWASH	-3.1 -3.3(S)	saturated with H2O possible perched H2O Analytical sample 7/17/88 bkgd = -3.3	SP	
S-5	19-21	4/6/5/4	2/1.8	dark tan f-m SAND w/ trace fine gravel and tr. roots. faintly stratified; poorly graded; WET. loose, some iron staining OUTWASH	-4.0	some sand blow-in due to perched H2O bkgd = -4.0	SP	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-201
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 2 of 2
Contractor MATHES	Driller mathes	Date started 7/17/88	Completed 7/18/88
Method HSA	Casing size 4.25"	HNU 11.7 (10.2)	Protect'n level D
Ground el.	Soil drilled 31'	▽ Below grnd 14.5'	Total depth 31'
Logged by BKB	Ch'd by DBG	Date 9/26/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU ~~Jar~~ Spoon	Comments on advance of boring	Lithologic symbol	Well data
S-6	24-26'	6/5/4/6	2/1.5	dark tan, fine SAND with some medium sand and mica flakes. trace root matter. poorly (well) graded. No stratification. loose, wet. OUTWASH 5m	4.0	bkgd = 4.0	SP	
S-7	29-31'	2/4/5/4	2/1.9	dark tan, fine SAND with tr. medium sand and mica. poorly graded loose, wet, OUTWASH 5m	~3.9	bkgd = ~3.9 ANALYTICAL SAMPLE 7/18/88	SP	
						BOTTOM OF BORING AT 31.0 FT		
S-8* resampled (extra spoon)	0-2'	1/3/6/8	2/1.9	Dark brown and black m-f SAND with roots and wood. Dense, dry-damp. poorly graded. TOPSOIL +FILL	12.6 +3.7(6)	bkgd = ~3.3 ANALYTICAL SAMPLE		

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG

Boring no: MW-20Z B

Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 2
Contractor MATHES	Driller J. Breeding	Date started 7/18/88	Completed 7/19/88
Method HSA	Casing size 4.25	HNU 11.7, (10.2)	Protect'n level D
Ground el. TBD	Soil drilled 37'	∑ Below grnd	Total depth 37'
Logged by J. Urquhart	Ch'd by DEG	Date 9/26/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU spoon / HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2'	1/1/2/2	2.0/1.1	Brown TOPSOIL and organics Brown tan m SAND mod. grading, loose dry -FILL-	-2.8/-2.6			
S-2	2-4'	3/3/3/2	2.0/1.3	Orange Tan m SAND little f sand. mod grading, loose, dry -OUTWASH- SW	-2.5/-2.3		SW	
S-3	4-6'	5/2/2/3	2.0/1.1	Similar to S-2 -OUTWASH- SW	+5.5/+6.7		SW	
S-4	6-8'	2/2/4/4	2.0/1.2	Similar to S-3 -OUTWASH- SW	+0.1/1.3	Oil sheen present in decon water	SW	
S-5	8-10'	2/3/4/2	2.0/1.2	Tan stratified f SAND and SILT, poor grading, loose, slightly loose moist, mica flakes, hematite staining SM	+8.0/9.1		SM	
S-6	10-12'	3/3/4/3	2.0/1.6	Similar to S-5 -OUTWASH- SM	+3.1/4.0		SM	
S-7	12-14'	3/3/3/5	2.0/1.5	Similar to S-6 Very moist, Extensive rust staining SM	+6.4/7.8		SM	
S-8	14-16'	3/4/3/4	2.0/1.6	0'-.6' Similar to S-7 .6'-1.6' Grey SILT and f SAND ML mod grading, loose, wet	+7.1/7.3	▼ ~16'	SM/ML	
S-9	16-18'	3/2/2/4	2.0/1.5	Grey SILT, little f SAND, firm, poor grading, wet ML	+5.0/5.7	bit Tip = -3.3	SM/ML	
S-10	18-20'	4/5/6/4	2.0/1.7	Grey brown stratified SILT and f SAND, poor grading, loose wet, mica flakes SM	+1.0		SM	
S-11	20-22'	3/2/4/5	2.0/2.0	Similar to S-10 - OUTWASH- SM	-2.6	▼21.3	SM	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-202 B
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 2 of 2
Contractor MATHES	Driller J Breeding	Date started 7/18/88	Completed 7/19/88
Method HSA	Casing size 4.25"	HNU 11.7/10.2	Protect'n level D
Ground el. TBD	Soil drilled 37'	▽ Below grnd	Total depth 37'
Logged by J Urquhart	Ch'd by DBG	Date 9/26/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU Span / HNU Jar	Comments on advance of boring (-2.9 background)	Lithologic symbol	Well data
S-12	22-24'	2/3/3/4	2.0/2.0	Similar S-10 - OUTWASH - SM	-2.1	▼ 21.3	SM	
S-13	24-26'	2/2/3/2	2.0/2.0	Similar to S-10 Trace CLAY ML	-2.8	CHANGE TO GLACIOMARINE AT APPROX 25 FT.	ML	
S-14	26-28'	2/1/2/3	2.0/2.0	Similar to S-10 Little CLAY, slightly plastic ML-CL	-2.2	- GLACIOMARINE -	ML/CL	
S-15	28-30'	4/3/4/5	2.0/2.0	Gr. Silty CLAY, soft, slightly plastic CL	-2.5	▼ 25.9 ▼ 26.3 - GLACIOMARINE -	CL	
S-16	35-37'	weight of rods	2.0/2.0	Blue grey stratified CLAY Little silt. Mod graded, very soft Slightly plastic, wet, - GLACIO/MARINE - CL	-2.9	▼ 34.5	CL	
				BOB at 37.0'		▼ - NOTE: These readings were taken during drilling MW-202 A drilled w/out sampling		

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-203
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 2
Contractor MATHES	Driller Mathes	Date started 7/17/88	Completed 7/17/88
Method HSA	Casing size 4.25"	HNU 11.7/(10.2)	Protect'n level D
Ground el.	Soil drilled 42'	▽ Below grnd 28'	Total depth 42'
Logged by BKB/TL	Ch'd by DBG	Date 7/17/88	TIP background = -4.1 to -3.6

Sample No.	Depth in feet	Blows per 6 inches	Pen/Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2'	1/2/1/2	2'/1.9	reddish brown fine SAND, some roots at 0-2". No stratification. Loose, damp. Poorly graded. SP – TOPSOIL –	Bkgd.		SP	
S-2	5-7'	2/3/4/3	2'/1.4'	Tan grey SAND, fine grained with med. sand laminations. trace mica. Loose, damp. Poorly graded – OUTWASH –	Bkgd.		SP	
S-3	10-12'	4/4/4/4	2'/1.6	Tan fine SAND, trace med. sand, Poorly graded, faintly stratified. trace mica, trace Fe-staining Loose, Damp. – OUTWASH – SP	-2.6 Slight TIP fluctuations.		SP	
S-4	15-17'	4/4/5/6	2'/1.7'	Tannish grey SAND, fine grained, poorly graded massive, loose, damp. – OUTWASH –	-1.4(J) -2.3	} bkgd -3.9	SP	
S-5	20-22'	3/4/8/7	2'/1.7'	Tan grey SAND fine grained, poorly graded. loose, Damp – OUTWASH –	-3.0(J) -2.6	} bkgd -4.0	SP	
S-6	25-27'	4/5/5/6	2'/1.8'	Tan grey SAND fine grained, poorly graded. faint stratification. loose, damp. trace iron staining. – OUTWASH –	-3.3(J) -1.9	} bkgd -4.1 ANALYTICAL SAMPLE Water hit ~30'	SP	

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(J) indicates headspace from jar. B-5

Click Here to Return to Main Index

FIELD BORING LOG				Boring no: MW-203
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK			Page 2 of 2
Contractor MATHES	Driller Mathes	Date started 7/17/88		Completed 7/17/88
Method HSA	Casing size 4.25"	HNU 11.7/10.2		Protect'n level D
Ground el.	Soil drilled 42'	▽ Below grnd 28'		Total depth 42'
Logged by BKB/TL	Ch'd by DBG	Date 7/17/88		TIP Bkgd -4.1 to -3.6

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-7	30-32'	2/3/5/6	2'/1.9	Grey fine SAND. Trace m. sand and coarse mica flakes. Trace iron staining throughout sample loose, wet. NON-plastic – OUTWASH – SP	-3.4(j) -3.5	Bkgd -3.6 Sample below H2O Table.	SP	
S-8	35-37'	1/2/4/4	2'/1.5	0-0.8', grey green SAND, trace silt, sand fine, poorly graded. compact, wet. SP – Sharp contact – 0.8-1.5' green sandy SILT, 10% fine sand, compact, slightly plastic. Wet. – OUTWASH – ML	-3.8(j) -3.9	Bkgd -3.9 Change at 36'	SP ML	
S-9	40-42'	1/2/3/5	2'/1.8'	0-0.4' clayey sandy SILT. 0.4-1.8 green and reddish brown SILT. faintly stratified, plastic, dense, wet. Some iron staining. trace mica in coarser beds. ML – OUTWASH –	-3.9 -3.8(j)	ANALYTICAL SAMPLE Bkgd TIP = -4.0	ML	
				Bottom of Boring at 42.0 ft				

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(j) indicates headspace from jar

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-704
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 2
Contractor MATHES	Driller J. Breeding	Date started 7/16/88	Completed 7/17/88
Method H.S.A.	Casing size 4.25 I.D.	HNU 11.7/(10.2)	Protect'n level D
Ground el.	Soil drilled 42'	▽ Below grnd	Total depth 42'
Logged by T. LONGLEY	Ch'd by DBG	Date 9/28/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2	2-2-2-3	2.0/1.0	Bright yellow to orange fine SAND, over tan f. sand, V. well sorted, dry, loose to very loose - OUTWASH - SP	0ppm		SP	
S-2	5-7	7-10-10-9	2.0/2.0	Tan v.f. SAND & interbedded silt lenses, very well sorted in these lenses, loose to mod. dense, dry; common Fe staining - OUTWASH - SP/ML	0		SP/ML	
S-3	10-12	4-7-6-5	2.0/1.5	Tan v. well sorted fine SAND in thin laminations alternating w/ red stained laminations, dry, very well sorted, - OUTWASH - SP	0		SP	
S-4	15-17	2-2-4-3	2.0/1.5	As in S-3	0		SP	
S-5	20-22	5-8-10-10	2.0/2.0	As in S-3	0		SP	
S-6	25-27	4-6-5-4	2.0/2.0	Brown & Rusty laminations of f-m SAND, few sandy silt laminations, v. well sorted, non-plastic, saturated - OUTWASH - SP/SM	0		SP/SM	
S-7	30-32	4-6-9-9	2.0/1.0	Rusty brown fine SAND, well sorted, loose, saturated - OUTWASH - SP	0		SP	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-204
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 2 of 2
Contractor MATHES	Driller J. Breeding	Date started 7/16/88	Completed 7/17/88
Method H.S.A.	Casing size 4.25 ID	HNU 11.7/10.2	Protect'n level D
Ground el.	Soil drilled 42'	▽ Below grnd	Total depth 42'
Logged by T. Longley	Ch'd by DBG	Date 9/28/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen/Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-8	35-37	3-6-9-11	2.0/1.1	As in S-7	0		SP	
S-9	40-42	3-4-5-5	2.0/1.2	As in S-7	0		SP	
						B.O.B. @ 42'		

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG				Boring no: MW 205
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK			Page 1 of 4
Contractor MATHES	Driller J Breeding	Date started 7/14		Completed 8-3-88
Method HSA	Casing size 4.25	HNU 11.7/10.2		Protect'n level D
Ground el. TBD	Soil drilled 101'	▽ Below grnd		Total depth 101'
Logged by J. Urquhart	Ch'd by DBG	Date 9/28/88		

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU Jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2'	3/5/6/9	2.0/1.9	Brown organics Tan f SAND, poorly graded, loose, dry (outwash)			SP	
S-2	5-6' 6-6.5'	5/5/6/7	2.0/1.5	Grey Brown SILT with some f sand strata. slighty plastic, mast Tan fmSAND, mod graded, loose, dry (outwash) SW			ML SW	
S-3	10-11.3 11.3-11.5'	3/4/6/6	2.0/1.3	Tan f-m SAND, mica flakes, mod grade loose moist. Stratified silt and sand, hematite staining - OUTWASH - SW			SW	
S-4	15-17	6/6/7/8	2.0/1.9	Tan SAND stratified f and m sand, well graded loose, moist. Hematite staining SW			SW	
S-5	20-22'	3/6/6/9	2.0/1.7	Similar to S-4 Brown silt strata SW			SW	
S-6	25-27	4/5/6/8	2.0/1.6	Similar to S-5 Wet - outwash - SW			SW	
S-7	30-30.5 30.5-32.0	2/3/3/4	2.0/2.0	Brown f-m SAND well graded, mica flakes, loose wet SW Grey SILT with f sand Strata, slightly plastic, loose, wet, hematite staining HL		Analytical	SW HL	
S-8	35-37	2/6/7/7	2.0/1.4	Brown f-m SAND mod graded, mica flakes, loose wet hematite staining Brown silt strata loose wet, non plastic SW			SW HL	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG				Boring no: MW205
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK			Page 2 of 4
Contractor MATHES	Driller J Breeding	Date started	7/14/88	Completed 8/3/88
Method HSA	Casing size 4.25	HNU 11.7 (10.2)		Protect'n level D
Ground el. TBD	Soil drilled 101'	▽ Below grnd		Total depth 101'
Logged by J Urquhart	Ch'd by DBG	Date 9/28/88		

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-9	40-42	4/5/10/11	2.0/1.3	Br. Stratified fm SAND and little silt. Poor grading, loose sand medium dense silt, wet SP			SP	
S-10	45-47	3/4/4/4	2.0/1.5	Br fm SAND with silt strata. Mica flakes, mod grade, loose, wet SP			SP/ML	
S-11	50-51 51-51.8 51.8-52	4/4/5/7	2.0/2.0	Br m SAND fining with depth, loose, wet Stratified f SAND and SILT loose, wet. Blue grey silty clay slightly plastic, wet SP			SP SM SC	
S-12	55-57	3/6/8/8	2.0/1.3	Br. Grey silty fine SAND, loose, wet hematite staining SM		Auger advancement slows down periodically	SM	
S-13	60-62	WOR/2/3/9	2.0/1.5	Grey SILT and little f SAND (strata) Slightly plastic does not roll well wet, loose, Fe stain SM		Weight of rods pushed spoon 4"	ML	
S-14	65-67	5/11/12/12	2.0/0.5	Tan silty f SAND mod dense, wet faint laminations SM			SM	
S-15	70-72	8/10/13/15	2.0/2.0	Br Grey fm SAND tr silt mod grade loose wet SM			SW	
S-16	75-77	3/11/9/14	2.0/2.0	Similar to S-15 little silt SP			SM	
S-17	80-82 80.6 80.6-82	WOR/4/11	1.0/1.0	Similar to S-16 SP Blue grey SILT and fine SAND, loose, wet poor grading SM		Weight of rods pushed spoon 11" into borehole	SM	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-205
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 3 of 4
Contractor MATHES	Driller J. BREEDING	Date started 7/14/88	Completed 8/3/88
Method H.S.A.	Casing size 4.25" ID	HNU 11.7 (10.2)	Protect'n level D
Ground el.	Soil drilled 101'	▽ Below grnd	Total depth 101'
Logged by J. URQUHART	Ch'd by DBG	Date 9/28/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen/Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-18	85-86	3-3-6-12	2.0/1.9	Brown fine SAND, well graded, Loose, wet, SW over Blue-gray SILT & Fine SAND, Mod. graded, Med. dense, Slightly plastic, wet - OUTWASH - SM			SW SM	
S-19	90-92	8-7-21-21	2.0/2.0	Simiar to S-18. Brown SAND? Gray SILT ML - outwash -			SM	
S-20	95-97	4-3-1-12	2.0/0.0	no recovery		Boring grouted to the surface on 7/15/88. Boring MW-205 began again 8/2/88. Augers advanced w/out sampling to 95' bgs.		
S-21	95-97	5-8-5-7	2.0/1.6	0-0.4' orange tan fine SAND, poorly graded, wet, Loose; 0.4'-1.6 alternating layers of gray fine SAND and blue-gray SILT w/ Trace CLAY. SILT is plastic, Firm, SAND is Loose, wet. OUTWASH/MARINE SILT TRANSITION - GLACIOMARINE -	-2.1	First sample taken in redrilled MW-205 @ 95-97 ft on 8/2/88 Bkgd -1.9	SP ML	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-205
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 4 of 4
Contractor MATHES	Driller J. Breeding	Date started 7/14/88	Completed 8/3/88
Method HSA	Casing size 4.25"	HNU 11.7 (10.2)	Protect'n level D
Ground el.	Soil drilled 101'	▽ Below grnd 63.8	Total depth 101'
Logged by JO/BkB	Ch'd by DBG	Date 9/28/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-22	97-99'	1/3/3/3	2.0/1.4	Blue grey & clayey SILT, plastic, wet, firm, soft & by trace fine sand with silt at 0-0.3' in spoon. MARINE SILT and CLAY	-5.4	Bkgd = -5.4 Analytical taken. — GLACIOMARINE —	ML/CL	
S-23	99-101	5/2/3/4	2.0/2.0	Blue grey silty CLAY, plastic, wet, firm. Faintly stratified with traces fine sand. MARINE CLAY — GLACIOMARINE —	-5.4	Bkgd = -5.4 Analytical taken.	CL	
				BOB 101'				

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-206A
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 2
Contractor MATHES	Driller J. BEEDING	Date started 8/12/88	Completed 8·13·88
Method AUGER	Casing size 4¼" I.D.	HNU 11.7/10.2	Protect'n level D
Ground el. TBD	Soil drilled 79'	▽ Below grnd 10FT	Total depth 79'
Logged by G. DAUGAS	Ch'd by DBG	Date 9/28/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU Jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	30-32	7-8-8-9	2.0 / 1.0	BROWN FINE TO MED SAND, WET, LOOSE -OUTWASH-	-3.0	For log of soils from 0-32' at this location, see log of MW-206B	SW	
S-2	35-37	2-4-4-5	2.0 / 1.5"	SAME AS S-1 -OUTWASH-	-3.0		SW	
S-3	40-42	5-6-9-9	2.0 / 1.8	BROWN FINE SAND TRACE SILT WET, LOOSE -OUTWASH-	-3.0		SP	
S-4	45-47	2-2-4-5	2.0 / 1.9	SAME AS S-3 -OUTWASH-	-3.0		SP	
S-5	50-52	1-7-9-13	2.0 / 1.8	SAME AS S-3 SOME OXIDE STAINED SAND LENSES.	-3.0		SP	
S-6	55-57	3-5-6-9	2.0 / 1.0	Gray BROWN FINE SAND SOME SILT SOFT WET -OUTWASH	-3.0		SM	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW 206A
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 2 of 2
Contractor MATHES	Driller T. BREEDING	Date started 8/12/88	Completed 8/13/88
Method AUGER	Casing size 4½" I.D	HNU 11.7/10.2	Protect'n level D
Ground el. TBD	Soil drilled 79'	▽ Below grnd 10 FT	Total depth 79'
Logged by G. DAUKAS	Ch'd by DBG	Date 9/28/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-7	60-62	1-2-6-8	2.0/1.5	BROWN FINE SAND TRACE SILT LOOSE, WET -OUTWASH-	-3.0		SP	
S-8	65-67	4-5-8-7	2.0/1.5	BROWN FINE SAND TRACE SILT WITH ORANGE FINE SAND ≈0.2' THICK - BETWEEN 2 2mm THICK SILT LENSES -OUTWASH-	-3.0		SP	
S-9	70-72	7-13-13-16	2.0/2.0	BROWN FINE SAND WET, LOOSE -OUTWASH-	-3.0		SP	
S-10	75-77	1-7-3-5	2.0/1.5	BLUE GRAY SILTY CLAY FIRM, WET -GLACIOMARINE-		COLLECTED ANALYTICAL SAMPLE	CH	
S-11	77-79	WH/15"-3-6	2.0/2.0	SAME AS S10 -GLACIOMARINE-	-3.0	COLLECTED ANALYTICAL SAMPLE	CH	
				Bottom of Boring @ 79 Ft.				

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW206B
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 1
Contractor MATHES	Driller K. SCHAFFER	Date started 7.29.88	Completed 7.30.88
Method AUGER	Casing size 4¼" I.D.	HNU 11.2 (10.2)	Protect'n level D
Ground el. TBD	Soil drilled 30 FT	▽ Below grnd 10 FT	Total depth 30 FT
Logged by G. DAVKAS	Ch'd by DBG	Date 9/29/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen / Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2	2-2-2-1	2.0 / 1.6	BROWN FINE SAND TRACE SILT, LOOSE DRY -OUTWASH-	BKG		SP	
S-2	5-7	4-6-8-12	2.0 / 1.6	LIGHT BROWN FINE SAND, LOOSE, MOIST -OUTWASH-	BKG		SP	
S-3	10-12	4-4-5-10	2.0 / 1.6	BROWN FINE SAND LITTLE SILT, TRACE CLAY. WET, SOFT -OUTWASH-	1.2	WATER TABLE COLLECTED ANALYTICAL SAMPLE	SM SC	
S-4	15-17	4-4-5-7	2.0 / 2.0	SAME AS S-3	5.0	COLLECTED ANALYTICAL SAMPLE	SM SC	
S-5	20-22	2-4-8-9	2.0 / 2.0	SAME AS S-3	3.0		SM SC	
S-6	25-27	WR/18"-1	2.0 / 2.0	BROWN MEDIUM TO FINE SAND TRACE SILT LOOSE. WET	2.0	DRILLED TO 30 FT, BLOWING SANDS IN AUGER DID NOT COLLECT S-7, 30-32'	SW	
						BOB @ 32'		

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-207B
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 1
Contractor MATHES	Driller K. SCHAFFER	Date started 7.31.88	Completed 7.31.88
Method AUGER	Casing size 4¼" I.D.	HNU 11.7 (10.2)	Protect'n level D
Ground el.	Soil drilled 12'	▽ Below grnd 5FT	Total depth 12'
Logged by G. DAUKAS	Ch'd by DBG	Date 9/29/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen / Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2	1-1-1-1	2.0 / 1.5	ORANGE-BROWN FINE SAND, TRACE SILT, LOOSE, DRY - OUTWASH -	-2.0		SP	
S-2	5-7	4-7-7-5	2.0 / 2.0	LIGHT BROWN FINE SAND, TRACE SILT GRADING TO LIGHT BROWN TO GRAY SANDY SILT FIRM, WET - OUTWASH -	-2.0	WATER TABLE COLLECTED ANALYTICAL	SM	
S-3	10-12	1-1-1-1	2.0 / 2.0	BLUE-GREY SILTY CLAY - GLACIOMARINE -	-2.0	COLLECTED ANALYTICAL SAMPLE	CH	
				BOTTOM OF BORING AT 12 FT				

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-209
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page / of /
Contractor MATHES	Driller C. HEBEL	Date started 7.20.88	Completed 7.20.88
Method AUGER	Casing size 4½ "I.D	HNU 11.7/10.2	Protect'n level D
Ground el. TBD	Soil drilled 37 FT	▽ Below grnd 20 FT	Total depth 37 FT
Logged by G. DAdams	Ch'd by DBG	Date 9/29/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen / Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2	1-1-3-2	2.0 / 1.8	0-0.9 BLACK FINE TO MEDIUM SAND LITTLE SILT, ORGANIC 0.9-1.8 BROWN FINE SAND TRACE SILT, LOOSE, DRY - OUTWASH -	-2.8 / -2.6		SW	
S-2	5-7	2-5-12-17	2.0 / 1.8	0-0.8 - BROWN FINE SAND LITTLE SILT 0.8-1.8 LIGHT BROWN FINE SAND TRACE SILT, LOOSE, DRY - OUTWASH -	-2.8 / -0.8		SM / SP	
S-3	10-12	2-4-4-6	2.0 / 1.8	LIGHT BROWN FINE SAND, LOOSE DRY - OUTWASH -	-1.1 / 0.7		SP	
S-4	15-17	4-9-11-10	2.0 / 2.0	SAME AS S-3, OXIDE STAINED VARVES - OUTWASH -	-1.2 / -0.9		SP	
S-5	20-22	4-5-6-7	2.0 / 1.8	LIGHT BROWN FINE SAND, TRACE SILT, WET, LOOSE - OUTWASH -	-2.9 / —	HIT WATER COLLECTED ANALYTICAL SAMPLE, COMPOSITED WITH S-6 FOR DUPLICATE	SP	
S-6	22-24	1-3-5-4	2.0 / 2.0	SAME AS S-5 - OUTWASH -	-2.8 / —	COLLECTED ANALYTICAL SAMPLE. COMPOSITED WITH S-5 FOR DUPLICATE	SP	
S-7	25-27	2-1-1-2	2.0 / 2.0	SAME AS S-5 - OUTWASH -	-3.0 / -1.8	HIT RUNNING SAND @ 3FT IN AUGERS	SP	
S-8	30-32	1-2-5-7	2.0 / 2.0	SAME AS S-5 - OUTWASH -	-3.0 / —	COLLECTED ANALYTICAL SAMPLE RUNNING SAND	SP	
S-9	35-37	2-2-3-5	2.0 / 2.0	SAME AS S-5 - OUTWASH -	-3.0 / -2.5	END OF BORING	SP	
				Bob at 37'				

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG				Boring no: MW210A
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK			Page 1 of 3
Contractor MATHES	Driller J. Breeding	Date started 7/30		Completed 8/1/88
Method HSA	Casing size 4.25"	HNU 11.7/10.2		Protect'n level D
Ground el. TBD	Soil drilled 79.5	▽ Below grnd		Total depth 91.5'
Logged by JV/BKB	Ch'd by DBG	Date 9/29/88		

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU	Comments on advance of boring (Bkrd Pl – 2.6)	Lithologic symbol	Well data
S-1	0-2	1/2/3/4	2.0/1.4	Topsoil and Organics Brown f-m SAND mod graded, very loose, dry. Cky rip up clast. – OUTWASH – SW	-2.4		SW	
S-2	5-7'	3/4/4/3	2.0/1.3	Brown f SAND, some m SAND, mod graded loose, slight Fe staining, moist OUTWASH SW	-2.6	Analytical	SW	
S-3	10-12'	8/15/14/16	2.0/1.5	Grey brown f SAND little m SAND, poor grading, slightly dense, wet – OUTWASH – SP	-2.9	Analytical duplicate 10-14'	SP	
S-4	12-14'	4/6/5/5	2.0/1.6	Similar to S-3 mica flakes SP	-2.4	Analytical duplicate	SP	
S-5	15-17'	2/4/5/4	2.0/2.0	0-1.5 Similar to S-4 SP 1.5-1.6 Grey SILT strata ML 1.6-2.0 Tan f SAND poor grading loose, wet mica flakes SP – OUTWASH – SP	-2.1		ML SP	
S-6	20-22	4/4/5/8	2.0/2.0	Grey f. SAND, little m SAND mod graded loose, wet, biotite flakes – OUTWASH – SW			SW	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG				Boring no: MW 210A
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK			Page 2 of 3
Contractor MATHES	Driller J. Breeding	Date started 7/30/88		Completed 8/1/88
Method HSA	Casing size 4.25"	HNU 11.7/10.2		Protect'n level D
Ground el. TBD	Soil drilled 79.5	▽ Below grnd		Total depth 91.5'
Logged by JU BKB	Ch'd by DBG	Date 9/29/88		

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU /or	Comments on advance of boring	Lithologic symbol	Well data
						bkrd PI = -3.4		
S-7	25-27	5/4/6/9	2.0/2.0	0-1.7 Similar to S-6 1.7-2.0 Dark grey f SAND similar to S-6 Shoe contains Fe staining (extensive) — OUTWASH —	-3.3 SW	Analytical	SW SP	
S-8	30-32	3/7/8/12	2.0/1.8	Grey f SAND, trace silt, poor grading, loose to slightly dense wet Mica flakes OUTWASH	-3.1 SP		SP	
S-9	35-37	3/6/4/10	2.0/2.0	Similar to S-8 Extensive Fe staining Some silt SP	-3.2		SM	
S-10	40-42	4/5/3/7	2.0/2.0	0-1.0 Grey tan f SAND trace silt, poor grading, loose wet SP 1.0-1.4 Stratified f SAND and SILT SP/ML — OUTWASH — 1.4-2.0 Clayey SILT Green Grey, slightly plastic, soft, wet — GLACIOMARINE — ML	-3.3	Change to Glaciomarine @ approximately 41.4 Ft.	SP SM ML	
S-11	45-47	WOR/1.5'/2	2.0/1.8	Grey Clayey SILT plastic, soft, wet - GLACIOMARINE - ML	-3.1		ML	
S-12	50-52	WOH	2.0/1.9	Similar to S-11 ML	-3.0	Analytical	ML	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW 210A
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 3 of 3
Contractor MATHES	Driller J Breeding	Date started 7/30/88	Completed 8/1/88
Method HSA	Casing size 4.25"	HNU 11.7/10.2	Protect'n level D
Ground el. TBD	Soil drilled 74.5	▽ Below grnd	Total depth 91.5
Logged by JU	Ch'd by	Date	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU ppm	Comments on advance of boring	Lithologic symbol	Well data
S-13	55-57'	WOH / 1 (1.5')	2.0 / 2.0	Grey CLAY, soft to slightly firm, plastic, stratified black laminations (<1mm) throughout Spoon. (organic carbon?) CL — GLACIOMARINE —	-3.0	Augers advanced w/o sampling 57-73' 73' - rough augering at clay-till interface	CL	
S-14	75-77	Spoon 100 refusal .4'	0.4' / 0.2'	Silty m-c SAND trace f SAND, (well graded) very dense, wet. Angular qtz fragments, mica BASAL TILL	-3.1	Top of till at 73.0 ft.	SM	
						Auger refusal 74.5' Bedrock cored 74.5 to 91.5' See Visual Identification of Rock Cores for bedrock log		

E.C. JORDAN

Click Here to Return to Main Index

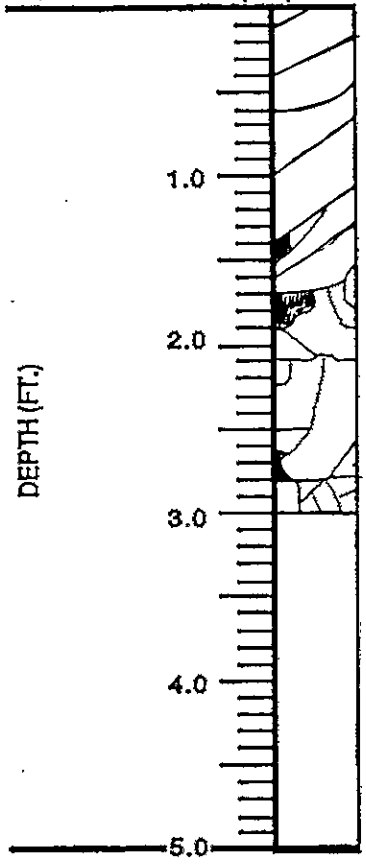
VISUAL IDENTIFICATION
ROCK CORES
NAVAL AIR STATION, BRUNSWICK

SHEET 1 OF 4

JOB NO. 4607-09	BY BKB	DATE 7/31/88	CHK'D BY DBG
BORING NO. MW-210A	SAMPLE R1	CORE DIA. (IN.) 2½"	DEPTH (FT.) 79.5-83.0
CORE LENGTH (FT.) 3.5	CORE RECOVERY (FT.) 3.0	RQD 23.8 %	ROCK QUALITY

Run # 1

CORE RECOVERY (FT.)



0.3 FT. CORE RECOVERY

ROCK DESCRIPTION AND IDENTIFICATION

Biotite muscovite chlorite schist. some garnet, qtz/plag. Natural fractures parallel schistocity (bedding), and cross bedding. Some fractures not open. Trace Pyrite. Fracture faces surface slightly weathered.

% Recov.

TOTAL 3.0 FT.

85.7 (%)

% RQD

TOTAL 0.83 FT.

23.8 (%)

E.C. JORDAN

Click Here to Return to Main Index

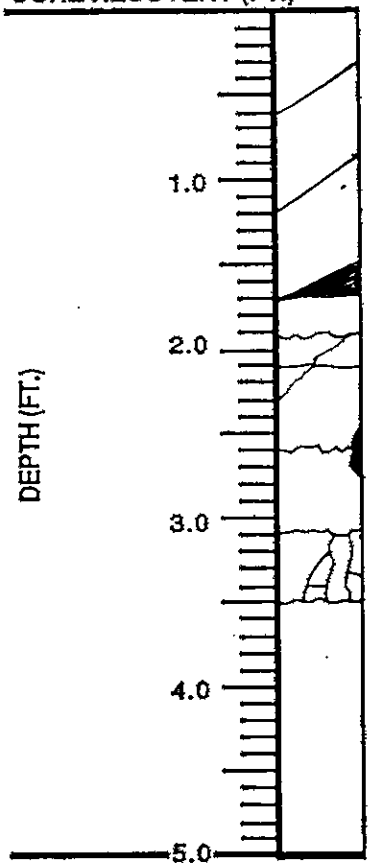
VISUAL IDENTIFICATION
ROCK CORES
NAVAL AIR STATION, BRUNSWICK

JOB NO. 4607-09	BY BKB	DATE 8/1/88	CHK'D BY DBG
BORING NO. MW-210A	SAMPLE R-2	CORE DIA. (IN.) 2½"	DEPTH (FT.) 83-86.5

CORE LENGTH (FT.) 3.5	CORE RECOVERY (FT.) 3.5	RQD 51.2 %	ROCK QUALITY

Run # 2

CORE RECOVERY (FT.)



% Recov

TOTAL 3.5 FT.

100 (%)

0.3 FT. CORE RECOVERY

% RQD

TOTAL 1.8 FT.

51.2 (%)

ROCK DESCRIPTION AND IDENTIFICATION

Biotite chlorite muscovite schist. tr. garnet. Abundant natural and mechanical fractures. Well developed schistocity. Some Qtz. Plag.

E.C. JORDAN

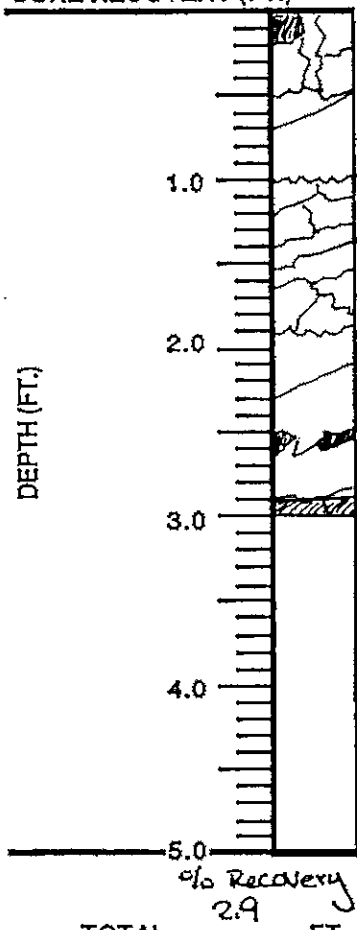
Click Here to Return to Main Index

VISUAL IDENTIFICATION
ROCK CORES
NAVAL AIR STATION, BRUNSWICK

SHEET 3 OF 4

JOB NO. 4607-09	BY BKB	DATE 8/1/88	CHK'D BY DBG
BORING NO. MW-210A	SAMPLE R-3	CORE DIA. (IN.) 2½"	DEPTH (FT.) 86.5 - 89.5
CORE LENGTH (FT.) 3.0	CORE RECOVERY (FT.) 2.9	RQD 26.4 %	ROCK QUALITY

Run # 3



% Recovery 2.9

TOTAL 2.9 FT.

96.7 (%)

0.3 FT. CORE RECOVERY

TOTAL 0.8 FT.

26.4 (%)

ROCK DESCRIPTION AND IDENTIFICATION

Med. grained chlorite biotite muscovite schist, tr. garnet. Abundant natural and mechanical fractures.

coarse quartz with med. chlorite and fine biotite.

highly fractured med. grained quartz chlorite muscovite schist with distorted chlorite rich seams. abundant, irregular mechanical and natural fractures. Chlorite rich zones crumbly.

E.C. JORDAN

Click Here to Return to Main Index

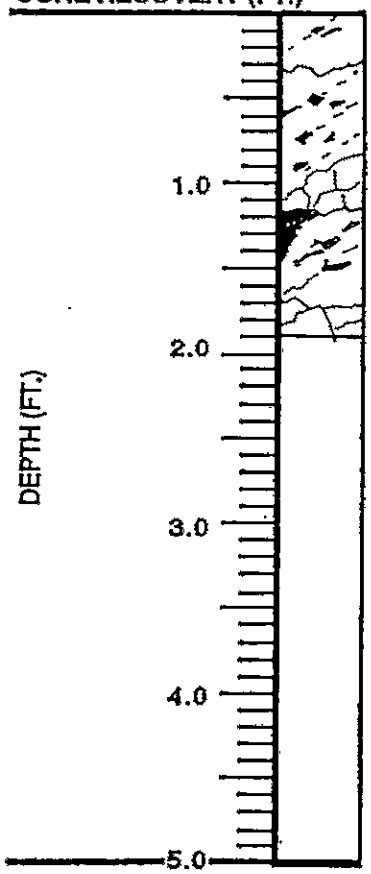
VISUAL IDENTIFICATION
ROCK CORES
NAVAL AIR STATION, BRUNSWICK

SHEET 4 OF 4

JOB NO. 4607-09	BY BKB	DATE 7/31/88	CHK'D BY DBG
BORING NO. MW-210A	SAMPLE R-4	CORE DIA. (IN.) 2½	DEPTH (FT.) 89.5-91.5
CORE LENGTH (FT.) 2.0	CORE RECOVERY (FT.) 1.7	RQD 37.5 %	ROCK QUALITY

Run # 4

CORE RECOVERY (FT.)



% Recov.

TOTAL 1.7 FT.

85.2 (%)

0.3 FT. CORE RECOVERY

% RQD

TOTAL 0.75 FT.

37.5 (%)

ROCK DESCRIPTION AND IDENTIFICATION

Fine to medium grained chlorite biotite quartz muscovite schist. Some solution holes or possible gauges along core. Minor irregular quartz and calcite in fractures. Abundant natural and mechanical fractures. Chlorite rich seams.

Bottom of Boring at 91.5 Ft.

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW 210 B
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 1
Contractor MATHES	Driller K. Schaffer	Date started 7.30.88	Completed 7.30.88
Method AUGERS	Casing size 4¼" ID	HNU 11.7 (10.2)	Protect'n level D
Ground el.	Soil drilled 25 FT	▽ Below grnd	Total depth 25FT
Logged by G. DAKAS	Ch'd by DBG	Date 9/29/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen / Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	20-22'	1-3-3-4	2.0 / 2.0	LIGHT BROWN FINE SAND, TRACE SILT, WET, LOOSE - OUTWASH -			SP	
						END OF BORING 25' SEE MW 210A BORING LOG FOR COMPLETE LOG INFORMATION		

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG				Boring no: MW 21A
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK			Page 1 of 3
Contractor MATHES	Driller J. Breeding	Date started 7/26/88		Completed 7/29/88
Method HSA	Casing size 4.25"	HNU 11.7/10.2		Protect'n level D
Ground el. TBD	Soil drilled 125.3'	▽ Below grnd 17.1		Total depth 135.3
Logged by BKB/JU	Ch'd by DBG	Date 9/29/88		

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU ppm	PI background = -3.6 Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2'	1/4/4/3	2.0/1.4	Brown TOPSOIL and organics, loose, dry, black staining	-1.2	Analytical		
S-2	5-7'	7/8/7/9	2.0/1.2	Brown f-m SAND mod graded, sl. dense; dry Black staining angular rock fragments wood fragments - OUTWASH - SW	-2.2	Analytical Augered through a cobble	SW	
S-3	10-12'	7/13/14/15	2.0/1.5	Tan m SAND, some f sand, well graded sl. dense, moist, mica and fspr chips - OUTWASH - SW	-3.1		SW	
S-4	15-17'	1/3/4/4	2.0/2.0	Tan f SAND, little m sand, mod grading loose wet mica chips hematite staining - OUTWASH - SW	-3.6	Analytical Augers @ 20' ▼ 17.1	SW	
S-5	20-22	2/4/5/7	2.0/2.0	Similar to S-4 trace m sand, some silt. SM	-3.6		SM	
S-6	25-27	3/5/4/3	2.0/1.2	0-0.8 Similar to S-5 .8-1.2 Grey f SAND some silt, trace clay, poor grading, loose wet - OUTWASH - SM	-3.5		SM	
S-7	30-32	3/5/9/13	2.0/1.2	Grey stratified f SAND and SILT, mod graded loose to sl. dense, wet f sand is very stained Fe - OUTWASH - SP-ML	-3.4	Adding water to b-hole to control running sand	SP ML	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG				Boring no: AW 211A
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK			Page 2 of 3
Contractor MATHES	Driller J Breeding	Date started 7/26/88		Completed 7/29/88
Method HSA	Casing size 4.25"	HNU 11.7/10.2		Protect'n level D
Ground el. TBD	Soil drilled 125.3	▽ Below grnd 17.1		Total depth 135.3
Logged by BKB JU	Ch'd by DBG	Date 9/29/88		

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU ppm	Comments on advance of boring	Lithologic symbol	Well data
S-8	35-37'	3/6/8/10	2.0/2.0	Similar to S-7 Tan sediments, faint strata. – OUTWASH –	-3.8		SP ML	
S-9	40-42	1/3/8/9	2.0/2.0	Similar to S-8 – OUTWASH –	-3.9		SP ML	
S-10	45-47	2/2/6/5	2.0/2.0	0-1.6 Similar to S-9 Sharp contact, may be blow in. 1.6-2.0 Grey SILT and f sand, mod grading, loose, wet. – OUTWASH –	-4.0	adding water to b-hole to control running sand	SM	
S-11	50-52	3/5/7/6	2.0/1.6	0-.6 Grey SILT and f SAND. .6-1.6 Clayey SILT mod grading, loose, wet – GLACIOMARINE –	-4.0		SM ML	
S-12	55-57'	2/3/4/6	2.0/1.4	0-1.3 Grey f SAND with little silt Poor grading, wet. 1.3-1.4' Clayey SILT tr f SAND loose, wet – GLACIOMARINE –	-3.9 -3.9		SM ML	
S-13	60-62	5/4/4/3	2.0/2.0	Grey clayey SILT and f SAND, mod graded, loose wet – GLACIOMARINE –			ML	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG				Boring no: MW-211A
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK			Page 3 of 3
Contractor MATHES	Driller J Bready	Date started 7/26/88		Completed 7/29/88
Method HSA	Casing size 4.25"	HNU 11.7/10.2		Protect'n level D
Ground el. TBD	Soil drilled 125.3	▽ Below grnd 17.1		Total depth 135.3
Logged by BKB/MA	Ch'd by DBG	Date 9/29/88		

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU jar/spoon	Comments on advance of boring	Lithologic symbol	Well data
S-14	65-67'	weight rod-6" weight hammer 6" 2 blows, 1,2	2.0/1.7	Grey CLAY, soft, plastic, wet GLACIOMARINE CL	bkgd			
S-15	70-72	2/WH/1/WH	2.0/1.9	Grey Stratified Silty CLAY, soft, plastic, wet. Less plastic in more silty lenses. GLACIOMARINE CL	bkgd	Tip Bkgd: -4.6		
S-16	75-77	weight of rods	2.0/2.0	Grey Silty CLAY. soft, plastic, wet. Faint black mottles GLACIOMARINE CL	Bkgd	All possible blown-in clay		
S-17	80-82	weight of rods	2.0/2.0	Grey Silty CLAY soft, plastic, wet Faint black mottles GLACIOMARINE CL	Bkgd.	All possible blown in CLAY. 15+ feet clay in augers		
S-18	85-87	weight of rods.	2.0/2.0'	Grey Silty CLAY soft, plastic, wet GLACIOMARINE CL	Bkgd	TIP bkgd = -4.9 All possible blown in CLAY. Drillers attempted to wash out CLAY with water. (unsuccessful)		
	↓			↓		Thus: ↓ Advanced Augers without sampling to 125' bgs		
S-19	125-125.3	100 blows for 3"	3"/3"	mud, rock fragments and whole clam fossil in spoon tip. Spoon blocked with large mica schist fragment and gravelly rock flour GLACIOMARINE/till BC	NA (rain)	Auger, spoon refusal on rock. No field QC or reference sample obtained.		

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Click Here to Return to Main Index

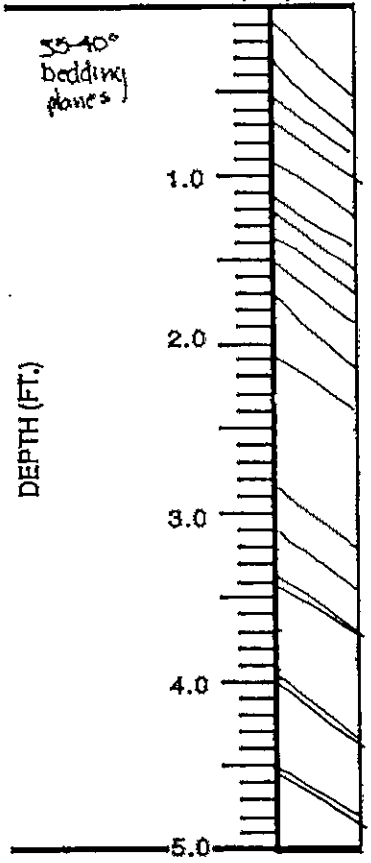
VISUAL IDENTIFICATION
ROCK CORES
NAVAL AIR STATION, BRUNSWICK

SHEET 1 OF 3

JOB NO. 4607-09	BY JU	DATE 7/29/88	CHK'D BY DBG
BORING NO. MW 211A	SAMPLE R1	CORE DIA. (IN.) 2.5" HX4"	DEPTH (FT.) 125.3-132.3

CORE LENGTH (FT.) 7.0	CORE RECOVERY (FT.) 6.4'	RQD 65% %	ROCK QUALITY

Run # 1



TOTAL 6.4 FT.

91.4 (%)

0.3 FT. CORE RECOVERY

Mechanical fractures

natural 2.1 to 2.8

natural

3.4 to 4.0

RQD

TOTAL 4.1/64 FT.

.65% (%)

ROCK DESCRIPTION AND IDENTIFICATION

No observed weathering

Biotite muscovite chlorite garnet schist Some qtz and plag. Most fractures mechanical. Pyrite on fracture faces.

Quartz biotite garnet schist. Mica rich beds. Few natural kinked bedding.

E.C. JORDAN

Click Here to Return to Main Index

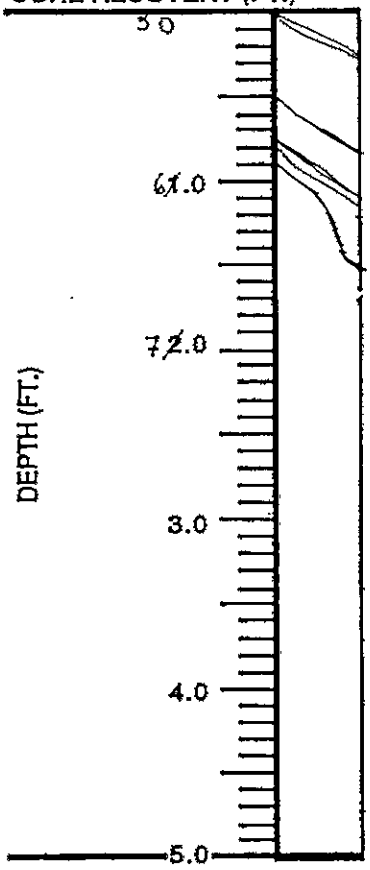
VISUAL IDENTIFICATION
ROCK CORES
NAVAL AIR STATION, BRUNSWICK

JOB NO. 4607-09	BY JU BKB	DATE 7/29/88	CHK'D BY DBG
BORING NO. 21A	SAMPLE R1 (cont'd)	CORE DIA. (IN.) 2.5"	DEPTH (FT.) 127.5-132.5

CORE LENGTH (FT.) 7.0	CORE RECOVERY (FT.) 6.4	RQD 65 %	ROCK QUALITY

Run # 1 (continued)

CORE RECOVERY (FT.)



TOTAL 6.4 FT.

91.4 (%)

0.3 FT. CORE RECOVERY

5.0 to 5.3

TOTAL 4.1/6.4 FT.

65% (%)

ROCK DESCRIPTION AND IDENTIFICATION

Biotite muscovite chlorite garnet schist
Trace pyrite. Some qtz plag.
Mechanical fractures.

(Run 1 continued)

E.C. JORDAN

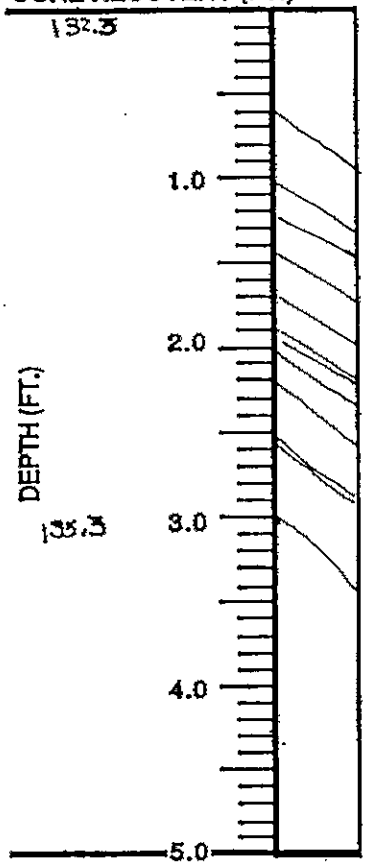
Click Here to Return to Main Index

VISUAL IDENTIFICATION
ROCK CORES
NAVAL AIR STATION, BRUNSWICK

SHEET 3 OF 3

JOB NO. 4607-09	BY JU BKB	DATE 7/29/88	CHK'D BY DBG
BORING NO. MW112A	SAMPLE RZ	CORE DIA. (IN.) 2.5" 4" HX C.	DEPTH (FT.) 132.3 - 135.3
CORE LENGTH (FT.) 3.0	CORE RECOVERY (FT.) 3.0	RQD 70 %	ROCK QUALITY

Run # 2



TOTAL 3.0 FT.

100 (%)

0.3 FT. CORE RECOVERY	ROCK DESCRIPTION AND IDENTIFICATION
0 to 0.6	Biotite muscovite qtz garnet schist green chlorite observed on weathered faces.
.6 to 1.1	" Similar to above "
2.2 to 2.5	" Similar to above "
2.6 to 3.0	" Similar to above Mica + garnet rich seams "

RQD

TOTAL 2.1/3.0 FT.

70% (%)

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-211B
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 1
Contractor MATHES	Driller K. Schaffer	Date started 7.28.88	Completed 7.28.88
Method AUGER	Casing size 4 1/4" I.D.	HNU 11.7 (10.2)	Protect'n level D
Ground el.	Soil drilled 30FT	▽ Below grnd	Total depth 30FT
Logged by G. DAVIS	Ch'd by DBG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen / Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	25-27	WR-9-14-12	2.0 / 2.1	BROWN FINE SAND LITTLE SILT, SOFT, WET		COLLECTED ANALYTICAL SAMPLE	SP	
				Bottom of Boring @ 30.0 Ft.		SEE MW 211A FOR COMPLETE BORING LOG INFORMATION		

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-212
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 1
Contractor MATHES	Driller C. HEBEL	Date started 7.19.88	Completed 7.19.88
Method AUGERS	Casing size 4¼" I.D.	HNU 11.7 (10.2)	Protect'n level D
Ground el.	Soil drilled 16 FT	▽ Below grnd 10FT	Total depth 16 FT
Logged by G. DAUKAS	Ch'd by DBG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen. / Rec	Description	HNU SPOON / HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2'	1-2-12-12	2.0 / 1.2	0-1.0 LIGHT BROWN FINE SAND AND SILT. ORGANIC DRY LOOSE 1.0-2.2 BLACK MEDIUM TO FINE SAND TRACE SILT DRY LOOSE - FILL -	-1.2		SW	
S-2	5-7'	1-2-1-3	2.0 / 1.0	BROWN-BLACK FINE TO MEDIUM SAND TRACE SILT WOOD CHIPS, DRY LOOSE - FILL -	-2.4		SW	
S-3	10-12'	5-16-16-12	2.0 / 0.7	0-0.4 BLACK-BROWN FINE TO MEDIUM SAND TRACE SILT WET LOOSE 0.4-0.7 GRAY FINE SILTY SAND, LOOSE WET - OUTWASH -	1.0	HIT WATER COLLECTED ANALYTICAL SAMPLE	SW / SM	
S-4	12-14'	5-6-4-3	2.0 / 1.5	BROWN SILTY SAND TRACE SILT, WET - OUTWASH -	3.2		SM	
S-5	14-16'	2-3-2-3	2.0 / 2.0	BROWN-GREY CLAYEY SILT LITTLE FINE SAND TRACE CLAY. LOOSE WET - OUTWASH -	-4.0	COLLECTED ANALYTICAL SAMPLE	SM / ML	
S-6	16-18'	1-2-1-1	2.0 / 2.0	BLUE GRAY CLAY - GLACIOMARINE -	1.6		CH	
				BOTTOM OF BORING AT 18 FT.				

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-213
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of
Contractor MATHES	Driller C. HEBEL	Date started 7.19 88	Completed 7.20-88
Method AUGER	Casing size 4 1/4" I.D.	HNU 11.7 (10.2)	Protect'n level D
Ground el.	Soil drilled 29	▽ Below grnd 5 FT	Total depth 29'
Logged by G. DAOLAS	Ch'd by DBG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2	1-2-1-3	2.0 / 1.8	BROWN FINE SAND TRACE SILT. LOOSE, MOIST - OUTWASH -	2.0		SP	
S-2	5-7	2-5-8-8	2.0 / 1.8	LIGHT BROWN FINE SAND TRACE SILT, LOOSE WET - OUTWASH -	2.0	HIT WATER COLLECTED ANALYTICAL SAMPLE STARTED CONTINUOUS SAMPLING	SP	
S-3	7-9	1-2-2-4	2.0 / 2.0	SAME AS S-2	0.0		SP	
S-4	9-11	2-3-4-5	2.0 / 2.0	SAME AS S-2	-1.4		SP	
S-5	11-13	1-3-3-5	2.0 / 2.0	SAME AS S-2	-1.5		SP	
S-6	13-15	WH-1-2-1	2.0 / 2.0	0-1.8 SAME AS S-2 1.8-2.0 GRAY SANDY SILT, OXIDE STAINING JUST ABOVE SILT - OUTWASH -	-1.5		SP / SM	
S-7	15-17	3-3 5-4	2.0 / 1.5	GRAY SILTY SAND TRACE CLAY LOOSE WET - OUTWASH	-1.1		SM	
S-8	17-19	1-1-1-1	2.0 / 1.5	SAME AS S-7	-1.8		SM	
S-9	19-21	WH-1-1	2.0 / 1.5	SAME AS S-7	-1.5		SM	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-213
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 2 of 2
Contractor MATHES	Driller C. HEBEL	Date started 7.19.88	Completed 7.20.88
Method AUGER	Casing size 4½" I.D	HNU 11.7/10.2	Protect'n level D
Ground el.	Soil drilled 27FT	▽ Below grnd 5FT	Total depth 29FT
Logged by G. DAVIAS	Ch'd by	Date	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-10	25-27	WH-2-1-3	2.0 2.0	BLUE GRAY SANDY CLAY LOOSE, WET -GLACIOMARINE-		COLLECTED ANALYTKAL SAMPLE	SC	
S-11	27-29	WR→	2.0 2.0	BLUE GRAY CLAY -GLACIOMARINE-			CH	
				BOTTOM OF BORING AT 29 FT.				

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-404
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 1
Contractor MATHES	Driller C. HEBEL	Date started 7.21.88	Completed 7.21.88
Method AUGER	Casing size 4¼" ID	HNU 11.7 (10.2) DLG -0.9	Protect'n level D
Ground el.	Soil drilled 38'	▽ Below grnd 10FT	Total depth 38'
Logged by G. DAUKAS	Ch'd by DBG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen / Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2'	3-6-6-5	2.0 / 1.0	0-0.5 BLACK SANDY GRAVEL -FILL-	-0.3	POUNDED JUST BELOW ASPHALT	GW	
S-2	5-7'	2-4-5-8	2.0 / 1.0	LIGHT BROWN FINE SAND, LOOSE DRY - OUTWASH -	-0.7		SP	
S-3	10-12'	2-3-5-5	2.0 / 1.6	BROWN FINE SAND TRACE SILT OXIDE STAINING LOOSE WET - OUTWASH -	-0.3	HIT WATER COLLECTED ANALYTICAL SAMPLE	SP	
S-4	15-17'	1-1-2-2	2.0 / 2.0	BROWN FINE SAND TRACE SILT, OXIDE VARVING LOOSE WET - OUTWASH -	-0.8	COLLECTED ANALYTICAL SAMPLE	SP	
S-5	20-22'	WH-WH-1-1	2.0 / 2.0	SAME AS S-4 NO VARVING - OUTWASH -	-1.0		SP	
S-6	25-27'	1-2-1-2	2.0 / 2.0	SAME AS S-4	+1.1		SP	
S-7	30-32'	8-11-13-12	2.0 / 2.0	BROWN FINE SAND, LITTLE SILT WET LOOSE - OUTWASH -	-0.8		SP	
S-8	35-37'	6-8-10-13	2.0 / 2.0	0-1.0 - SAME AS S-7 1.0-1.8 BROWN SILTY SAND TRACE CLAY	-1.3	COLLECTED ANALYTICAL SAMPLE Augers advanced to 38' after sampling	SP SM ML	
				Bottom of Boring at 38 FT.				
	* WH =	weight of	rods	plus hammer				

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW 405
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 2
Contractor MATHES	Driller J Breeding	Date started 8/1/88	Completed 8/2/88
Method HSA	Casing size 4.25"	HNU 11.7/10.2	Protect'n level D
Ground el.	Soil drilled 32'	▽ Below grnd 8.5	Total depth 32'
Logged by JU BFB	Ch'd by DBG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU jar	bkrd -4.4 Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2'	5/8/9/11	2.0/1.2	0-0.2 Blacktop .2-.3 Concrete .3-.5 Black coal fill .5-1.2 Orange fm med graded, slightly dense, dry.	-5.0	Fill Material	SW	
S-2	2-4'	5/8/6/6	2.0/1.3	Tan orange f m SAND mod graded, loose dry, concrete,	-4.8	Fill Material	SW	
S-3	4-6'	2/4/7/10	2.0/1.7	Tan f SAND, trace m sand, poorly graded loose, dry nematite staining — OUTWASH —	-5.1	Analytical	SP	
S-4	6-8	4/7/8/8	2.0/1.4	Similar to S-3 extensive thick nematite staing mica flakes -OUTWASH-	-5.3		SP	
S-5	8-10'	3/6/5/5	2.0	Similar to S-4 some m SAND mod graded, wet -OUTWASH-	-5.1	Analytical ▽ 8.5' = 8/2/88	SW	
S-6	10-12'	2/3/4/4	2.0/1.1	Alternating bands of tan to orange tan f-med. SAND, loose, wet. at 10', bright orange staining. - OUTWASH-	-4.2	Tip bkgd = -5.4	SP	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW 405
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 2 of 2
Contractor MATHES	Driller 4.25"	Date started 8/1/88	Completed 8/2/88
Method HSA	Casing size J Bradley	HNU 11.7/10.2	Protect'n level D
Ground el.	Soil drilled 32	▽ Below grnd 8.5	Total depth 32
Logged by JV BKB	Ch'd by DBG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU ppm	Comments on advance of boring (bkgd = 5.1)	Lithologic symbol	Well data
S-7	12-14'	5/3/2/6	2.0/1.8	Tan f SAND Stratified with silt. Poor grading loose, wet OUTWASH	-5.2	Analytical	SM	
S-8	15-17	5/1/1/2	2.0/1.7	Similar to S-5 OUTWASH	-5.3		SM	
S-9	20-22	1/2/3/4	2.0/2.0	Tan grey f SAND poor grading, loose wet OUTWASH	-5.4		SP	
S-10	25-27	3/3/4/4	2.0/2.0	0-1.4 Similar to S-9 1.4-2.0 Stratified SILT and f SAND, loose, poor grading, wet OUTWASH	-5.1	Analytical	SP SM	
S-11	30-32	1/4/5/7	2.0/1.4	Stratified f. SAND, orange Tan, and SILT, grey. loose, moderately graded, wet. Iron staining Similar to S-10 OUTWASH	-2.4	Analytical TIP bkgd = -2.4	SM	
						BOB 32'		

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-416
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 2
Contractor MATHES	Driller J. BREEDING	Date started 8/14/88	Completed 8/14/88
Method AUGER	Casing size 4¼" I.D.	HNU 11.7 10.2	Protect'n level D
Ground el.	Soil drilled 56'	▽ Below grnd 12 FT	Total depth 56'
Logged by G. DAVIAS	Ch'd by DSG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen/Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2	1-1-2-3	2.0/0.1	BLACK FINE SAND dry very DENSE - FILL -	-3.0		SP	
S-2	4-6	4-8-7-10	2.0/2.0	LIGHT BROWN FINE SAND DRY, LOOSE - OUTWASH -	-3.0		SP	
S-3	9-11	3-3-5-6	2.0/1.5	SAME AS S-2	-3.0		SP	
S-4	14-16	2-6-7-5	2.0/2.0	0-1.6 BROWN FINE SAND. OXIDE STAINING 1.6-2.0 BROWN SILTY SAND, OXIDE STAINING SOFT, WET	-3.0	COLLECTED ANALYTICAL SAMPLE	SP/SM	
S-5	19-21	2-4-4-6	2.0/1.8	BROWN FINE SAND TRACE SILT SOME OXIDE STAINING SOFT - WET - OUTWASH -	-3.0		SP	
S-6	24-26	3-2-2-3	2.0/1.8	SAME AS S-5	-3.0	COLLECTED ANALYTICAL DUPLICATE WITH S-7	SP	
S-7	24-26	3-3-6-12	2.0/1.5	SAME AS S-5	-3.0	COLLECTED ANALYTICAL DUPLICATE WITH S-6	SP	
S-8	29-31	3-2-6-10	2.0/1.0	BROWN FINE SAND LITTLE SILT SOFT, WET - OUTWASH -	-3.0		SP/SM	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-406
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 2 of 2
Contractor MATHES	Driller J. BREEDING	Date started 8/14/88	Completed 8/14/88
Method AUGER	Casing size 4½" ID	HNU 11.7/10.2	Protect'n level D
Ground el.	Soil drilled 56'	▽ Below grnd 12 FT	Total depth 56'
Logged by G. DOUGLAS	Ch'd by DSG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-9	34-36	3-2-6-10	2.0 / 1.0	BROWN FINE SAND LITTLE SILT, SOFT, WET - OUTWASH -	-3.0		SP SM	
S-10	39-41	4-9-10-14	2.0 / 1.0	SAME AS S-9	-3.0		SP SM	
S-11	44-46	2-6-9-11	2.0 / 2.0	SAME AS S-9	-3.0		SP SM	
S-12	49-51	2-1-6-9	2.0 / 1.0	0-0.1 BROWN FINE SAND LITTLE SILT 0.1-1.0 GRAY SILTY CLAY WITH SILTY SAND SEAMS - GLACIOMARINE -	-3.0	COLLECTED ANALYTICAL SAMPLE	SP SM / SM CL	
S-13	54-56	4-5-6-7	2.0 / 1.0	GRAY SILTY SAND TRACE CLAY WET - SOFT - GLACIOMARINE -	-3.0	COLLECTED ANALYTICAL SAMPLE	SC SM CL	
				BOTTOM OF BORING AT 56 FT.				

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-407
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 2
Contractor MATHES	Driller J. BRESSOMES	Date started 8/14/88	Completed 8/15/88
Method AUGER	Casing size 4¼" I.D.	HNU 11.7 (10.2)	Protect'n level D
Ground el.	Soil drilled 61 FT	▽ Below grnd 14 FT	Total depth 61 FT
Logged by G. DAUKAS	Ch'd by DBG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen / Rec	Description	HNU AIR / HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2	3-2-4-5	2.0 / 1.5	0-1.4 LIGHT BROWN FINE SAND DENSE, DRY - FILL -	-3.0		SP	
S-2	4-6	3-3-4-5	2.0 / 2.0	LIGHT BROWN FINE SAND DRY, LOOSE - OUTWASH -	-3.0		SP	
S-3	9-11	6-9-9-11	2.0 / 1.8	0-1.0 SAME AS S-2 1.0-1.4 GREEN-BROWN SILT TRACE CLAY 1.4-1.8 SAME AS S-2 DRY - OUTWASH -	-3.0		SP ML	
S-4	14-16	4-5-6-5	2.0 / 1.5	BROWN FINE SAND WET SOFT - OUTWASH -	-3.0	1 of 3 SAMPLES FOR MS/MSD WATER TABLE	SP	
S-5	16-18	3-3-4-5	2.0 / 2.0	SAME AS S-4 SOME OXIDE STAINING	-3.8	2 of 3 SAMPLES FOR MS/MSD	SP	
S-6	18-20	4-5-5-7	2.0 / 2.0	SAME AS S-4	-3.0	3 of 3 SAMPLES FOR MS/MSD	SP	
S-7	19-21	4-7-6-8	2.0 / 2.0	SAME AS S-5	-3.0		SP	
S-8	24-26	2-6-7-6	2.0 / 1.5	SAME AS S-5	-3.0		SP	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG

Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Boring no: MW-407
Contractor MATHES	Driller J. BREEDING	Date started 8/14/88	Page 2 of 2
Method AUGER	Casing size 4 1/4" I.D.	HNU 11.7/10.2	Completed 8/15/88
Ground el.	Soil drilled 61'	▽ Below grnd 14	Protect'n level D
Logged by G. DAOKAS	Ch'd by DBC	Date 9/30/88	Total depth 61'

Sample No.	Depth in feet	Blows per 6 inches	Pen / Rec	Description	HNU AIR / HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-9	29-31	2-3-5-7	2.0 / 2.0	SAME AS S-5	-3.0		SP	
S-10	34-36	2-5-4-5	2.0 / 1.8	ORANGE-BROWN FINE SAND TRACE SILT OXIDE STAINING WET, SOFT -OUTWASH-	-3.0		SP	
S-11	39-41	3-4-4-6	2.0 / 1.5	SAME AS S-10	-3.0		SP	
S-12	44-46	3-6-7-7	2.0 / 1.0	0-0.5' GREEN BROWN SANDY SILT LITTLE CLAY 0.5'-1.0' GREEN BROWN SILTY SAND WET, LOOSE -OUTWASH-	-3.0		SM SC	
S-13	49-51	4-3-5-8	2.0 / 2.0	GRAY SANDY SILT TRACE CLAY LOOSE, WET -OUTWASH-	-3.0		SM SC	
S-14	54-56	2-2-33	2.0 / 2.0	GRAY SILTY FINE SAND LOOSE, WET -OUTWASH-	-3.0	COLLECTED ANALYTICAL SAMPLE	SM	
S-15	59-61	WH/24"	2.0 / 2.0	BLUE GRAY SILTY CLAY WET -GLACIOMARINE- BOTTOM OF BORING	-3.0 AT	COLLECTED ANALYTICAL SAMPLE 61.0 FT.	CH	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG

Boring no: MW-704

Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 1
Contractor MATHES	Driller J. Breeding	Date started 7/19/88	Completed 7/19/88
Method HSA	Casing size 4¼" ID	HNU 11.7/10.2	Protect'n level D
Ground el.	Soil drilled 22'	▽ Below grnd	Total depth 22'
Logged by J. Urquhart	Ch'd by DBG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen/Rec	Description	HNU Spoon / HNU jar	Comments on advance of boring (Bkgd = 2.7)	Lithologic symbol	Well data
S-1	0-2'	1/1/2/4	2/0.4	Brown TOPSOIL and organics, loose moist.	-1.1	Spoon plugged by gravel. Poor recovery		
S-2	5-7'	3/5/5/7	2/1.3	Brown m SAND some f SAND. Poor grading, loose, moist OUTWASH - SP	-2.7		SP	
S-3	10-12'	6/7/2/3	2/1.2	0-0.5' Blue grey mf SAND trace silt poor grading loose wet 0.5'-1.2' Bl grey silty CLAY mod plastic, firm, wet	-1.4	Change to glaciomarine at 10.5 Ft ▼ 13'	SP CL	
S-4	15-17'	3/4/5/6	2/1.8	Blue grey silty CLAY plastic, firm, wet, faint stratification, few dark brown stained fractures - GLACIOMARINE -	-2.7		CH	
S-5	20-22'	Weight of rods/2	2.0/2.0	Blue grey CLAY plastic soft wet - GLACIOMARINE - CH	-2.6		CH	
				BOB 22'				

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-705
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 1
Contractor MATHES	Driller C. HEBEL	Date started 7-18-88	Completed 7-18-88
Method AUGER	Casing size 4¼" I.D.	HNU 11.7/10.2	Protect'n level D
Ground el.	Soil drilled 17'	▽ Below grnd 9'	Total depth 17'
Logged by G. DAVIAS	Ch'd by DBG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen / Rec	Description	HNU Spoon / HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2	2-5-8-9	2.0 / 1.5	0-0.2 ORGANIC BROWN TOP SOIL 0.2-1.5 - BROWN FINE SAND, LOOSE MOIST	-3.3 / 1.6		SP	
S-2	5-7'	9-12-13-14	2.0 / 1.6	TAN MEDIUM TO FINE SAND, TRACE SILT, MOIST -OUTWASH -	-3.6 / 8.0		SP	
S-3	10-12'	2-2-2-3	2.6 / 1.1	SAME AS S-2 - OUTWASH -	-3.4	WATER AT 9.0' COLLECTED ANALYTICAL SAMPLE	SP	
S-4	15-17'	4-8-11-13	2.0 / 1.5	BLUE GRAY CLAY, STIFF WET - GLACIOMARINE -	-3.0 / 18.0	COLLECTED ANALYTICAL SAMPLE	CH	
				BOTTOM OF BORING AT 17.0 FT				

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG				Boring no: MW 706
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK			Page 1 of 1
Contractor MATHES	Driller J Breeding	Date started 7/20/88		Completed 7/20/88
Method HSA	Casing size 4.25"	HNU 11.7/10.2		Protect'n level D
Ground el. TBD	Soil drilled 12'	▽ Below grnd		Total depth 12'
Logged by JUrquhart	Ch'd by DBG	Date 9/30/88		

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU Spoon HNU jar	Bkrd = -3.2 Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2'	1/2/2/3	2.0/0.9	Brown TOPSOIL and organics, loose dry, wood chips	-3.3	▼ ~4'		
S-2	5-7'	5/7/2/9	2.0/1.5	Tan fm SAND trace silt, slightly dense, mod graded wet, faint stratification. SW - OUTWASH -	-3.1	Analytical	SW	
S-3	10-12'	5/7/7/6	2.0/2.0	Green Gray clay with little silt, firm, wet. - GLACIOMARINE - CL	-3.2	Analytical	CL	
				12' BOB				

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: B-805
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 2
Contractor MATHES	Driller C. HESSEL	Date started 7-15-88	Completed 7-17-88
Method AUGER/CORE	Casing size 4¼" ID	HNU 11.7/(0.2)	Protect'n level D
Ground el.	Soil drilled 66.8'	▽ Below grnd 10'	Total depth 66.8'
Logged by G. DAUKAS	Ch'd by DBG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen/Rec	Description	HNU Spoon / HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2	1-2-1-2	2.0/2.0	LIGHT BROWN FINE SAND, TRACE SILT, LOOSE, DRY -OUTWASH-	BKG		SP	
S-2	5-7	2-5-5-6	2.0/2.0	0-1.9' TAN FINE SAND, TRACE SILT LOOSE, DRY 1.9-2.0' RED-BROWN FINE SAND, TRACE SILT, LOOSE, DRY -OUTWASH-	-1.2		SP	
S-3	10-12	2-2-3-5	2.0/2.0	LIGHT BROWN FINE SAND, TRACE SILT WITH 1mm THICK RED-BROWN SAND LENSES LOOSE, WET -OUTWASH-	-2.0	COLLECTED IN WATER TABLE. COLLECTED ANALYTICAL SAMPLE	SP	
S-4	15-17	1-2-5-5	2.0/2.0	0-1.5' GRAY-BROWN SANDY SILT, TRACE CLAY, COHESIVE, WET 1.5-2.0 GRAY-BROWN SILTY SAND, LITTLE CLAY LOOSE. WET. -GLACIOMARINE-	BKG	ANALYTICAL SAMPLE	SM	
S-5	20-22	WOR-1	2.0/2.0	BLUE GRAY CLAY, WET, LOOSE, VERY SOFT -GLACIOMARINE-	BKG		CH	
S-6	25-27	WOR	2.0/2.0	SAME AS S-5 -GLACIOMARINE-	BKG		CH	
S-7	30-32	WOR	2.0/2.0	SAME AS S-5 -GLACIOMARINE-	BKG		CH	
S-8	35-37	WOR	2.0/2.0	SAME AS S-5 -GLACIOMARINE-	BKG		CH	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: B-805
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 2 of 2
Contractor MATHES	Driller C. MCREEL	Date started 7-15-88	Completed 7-17-88
Method AUGER/CORE	Casing size 4¼" ID	HNU 11.7/10.2	Protect'n level D
Ground el.	Soil drilled 66.8'	▽ Below grnd 10'	Total depth 66.8'
Logged by G. DAKAS	Ch'd by DBG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU SPOON / HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-9	40-42	WOR	2.0 / 2.0	SAME AS S-5 -GLACIOMARINE-	BKG		CH	
S-10	45-47	WOR	2.0 / 2.0	SAME AS S-5 -GLACIOMARINE-	BKG		CH	
S-11	50-52	WOR	2.0 / 2.0	SAME AS S-5 -GLACIOMARINE-	BKG		CH	
S-12	55-56.5	WOR-50/4"	1.5 / 1.5	SAME AS S-5 WITH WEATHERED MICA-SCHIST IN SPOON TIP -GLACIOMARINE-	BKG	Split spoon refusal on top of till at 56.5 Ft.	CH	
S-13	60-62	22-80-97-70	2.0 / 1.0	Grey sandy GRAVEL, trace silt, clay -TILL-	BKG	Top of till at 56.5' Broke through boulder, augered to 60' and sampled. Then auger refusal at 61.8'. Cored to 66.8', apparently in till. Augered to 67.0', using tricone as plug. Difficulty removing rods, 10' of blow-in, unable to wash out fully. Decision to abandon boring - no well. Grout to ground surface.	GM GC	
				BOTTOM OF BORING AT 67.0 FT				

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-807
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 2
Contractor MATHES	Driller C. HEBEL	Date started 7.14.88	Completed 7.15.88
Method AUGER	Casing size 4½" ID	HNU 11.7 (10.2)	Protect'n level D
Ground el.	Soil drilled 32'	▽ Below grnd	Total depth 32'
Logged by G. DAUKAS	Ch'd by DBG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen / Rec	Description	HNU Spoon / HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2'	7-12-10-8	2.0 / 1.5	0-0.8' BROWN FINE SAND AND SILT, TRACE COARSE SAND AND GRAVEL LOOSE, DRY 0.8-1.5 BROWN-ORANGE FINE SAND TRACE SILT, LOOSE, DRY -OUTWASH-	BKG		SM SP	
S-2	2-4'	5-5-4-4	2.0 / 2.0	0-1.8 ORANGE-BROWN FINE SAND, TRACE SILT LOOSE, DRY 1.8-2.0 BLACK FINE SAND, TRACE SILT COHESIVE, DRY -OUTWASH-	3.1		SP	
S-3	4-6'	1-1-1-2	2.0 / 2.0	0-0.5 BLACK FINE TAR SUBSTANCE 0.5-2.0 RED-BROWN FINE SAND, TRACE SILT, LOOSE, MOIST -OUTWASH-	7.5	COLLECTED ANALYTHAL SAMPLE	SP	
S-4	6-8'	1-1-3-5	2.0 / 2.0	RED BROWN FINE SAND, TRACE SILT, GRADING TO BROWN GRAY CLAYEY SILT, COHESIVE, BRITTLE, MOIST -GLACIOMARINE-	3.0		SP ML	
S-5	8-10'	2-3-4-6		GREY BROWN SILT AND CLAY COHESIVE, BRITTLE MOIST -GLACIOMARINE-	1.7		ML	
S-6	10-12'	3-3-5-5		SAME AS S-5 -GLACIOMARINE-	4.5		ML	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-807
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 2 of 2
Contractor MATHES	Driller C. HEBEL	Date started 7.14.88	Completed 7.15.88
Method AUGER	Casing size 7½" ID	HNU 11.7/(10.2)	Protect'n level D
Ground el.	Soil drilled 32 FT	∑ Below grnd	Total depth 32 FT
Logged by G. DAOLAS	Ch'd by DBG	Date 9/30/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-7	12-14'	2-2-4-6	2.0 / 2.0	SAME AS S-5 - GLACIOMARINE -	4.5		ML	
S-8	14-16'	2-4-5-6	2.0 / 2.0	SAME AS S-5 - GLACIOMARINE -	3.0		ML	
S-9	16-18'	3-3-4-5	2.0 / 2.0	0-1.7 SAME AS S-5 1.7-2.0 BROWN CLAYEY SILT SOME FINE SAND, LOOSE MOIST. - GLACIOMARINE -	2.5		ML SC	
S-10	18-20'	2-2-3-3	2.0 / 2.0	0-1.5 GREY-BROWN SILTY CLAY, COHESIVE, MOIST 1.5-2.0 BLUE-GREY CLAY - GLACIOMARINE -	1.5		CL-CH	
S-11	25-27'	WOR-1-1	2.0 / 2.0	BLUE GREY CLAY WET, LOOSE - GLACIOMARINE -	1.0		CH	
S-12	30-32'	WOR	2.0 / 2.0	BLUE GREY CLAY WET, LOOSE - GLACIOMARINE -	1.0	END OF BORING COLLECTED ANALYTICAL SAMPLE	CH	
				BOTTOM OF BORING AT 32.0 FT		WHEN AUGERS WERE PULLED, WATER WAS OBSERVED RUNNING INTO BOREHOLE AT 13.5 FT.		

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW 80B
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 1
Contractor MATHES	Driller L. SHAFFER	Date started 8.3.88	Completed 8.3.88
Method AUGER	Casing size 4½" I.D.	HNU 11.7/10.2	Protect'n level D
Ground el. TBD	Soil drilled 26'	▽ Below grnd	Total depth 26'
Logged by G. DAWKAS	Ch'd by DBG	Date 10/3/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen / Rec	Description	HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	10-12'	1-5-3-4	2.0 / 2.0	LIGHT BROWN SILT LITTLE SAND, TRACE CLAY. WITH SANDY SILT SEAMS 0.2' THICK @ 1.0' and 2.0' WET, SOFT – GLACIOMARINE –		COLLECTED ANALYTICAL SAMPLE See log of B-80B for additional data at this location.	SM ML	
S-2	15-17'	3-3-1-1	2.0 / 2.0	0-1.5' LIGHT BROWN SANDY SILT FIRM, WET 1.5-2.0 Gray Brown SILTY SAND & SOFT, WET – GLACIOMARINE –		COLLECTED ANALYTICAL SAMPLE	SM ML	
S-3	17-19'	WR-1-2-1	2.0 / 2.0	BLUE GRAY SILTY CLAY WITH SANDY SILT SEAMS @ 1.1' ± 0.3' THICK – GLACIOMARINE –		COLLECTED ANALYTICAL SAMPLE	ML CH	
Tube	19-21.5'	PUSH		– GLACIOMARINE –		PUSHED SHELBY TUBE 100% RECOVERY	CH	
S-4	22-24'	WOR	2.0 / 2.0	BLUE GRAY SILTY CLAY WET, LOOSE – GLACIOMARINE –			CH	
Tube	24-26'	PUSH		– GLACIOMARINE –		PUSHED SHELBY TUBE 100% RECOVERY	CH	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: B-808
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 2
Contractor MATHES	Driller K. SCHAFFER	Date started 7.26.88	Completed
Method AUGER	Casing size 6 1/4" I.D.	HNU 11.7 (10.2)	Protect'n level D
Ground el. TBD	Soil drilled 65'	▽ Below grnd 5 FT	Total depth 65'
Logged by G. DAUKAS	Ch'd by DSG	Date 10/3/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen / Rec	Description	HNU AIR / HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2	1/2"-2-1	2.0 / 1.0	LIGHT BROWN FINE SAND, TRACE SILT LOOSE, DRY - OUTWASH -	0.4	See log of HW-808 for additional data at this location	SW	
S-2	5-7	4-4-5-7	2.0 / 1.8	SAME AS S-1 WET - OUTWASH -	-1.0	WATER TABLE	SW	
S-3	10-12	3-4-4-6	2.0 / 2.0	GRAY-BROWN SILTY CLAY WET COHESIVE - GLACIOMARINE -	-1.0		CL	
S-4	15-17	3-4-3-2	2.0 / 2.0	0-1 SAME AS S-3 1-2 BLUE GRAY SILTY CLAY, WET, SOFT - GLACIOMARINE -	2.0		CL / CH	
S-5	20-22	1-2-2-1	2.0 / 2.0	BLUE GRAY SILTY CLAY, SOFT, WET - GLACIOMARINE -	2.0		CH	
S-6	25-27	W.H.	2.0 / 2.0	SAME AS S-5 - GLACIOMARINE -	0.0	TWO TUBES ATTEMPTED AT 30', NO RECOVERY. CLAY FLOWING IN AUGERS WILL DRILL UNTIL NEW FORMATION IS ENCOUNTERED.	CH	
S-7	55-57	25-25-34-36	2.0 / 1.0	BROWN-GREY ... COARSE SAND SOME GRAVEL, LITTLE SILT. WET, FIRM. - TILL -	-1.1	CHANGE AT 50 FT NOTED DURING DRILLING	GP	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG				Boring no: B-808
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK			Page 2 of 2
Contractor MATHES	Driller K. SCHAFFER	Date started 7-26-88		Completed
Method AUGER	Casing size 4¼" I.D.	HNU 11.7 10.2		Protect'n level D
Ground el. TBD	Soil drilled 65'	▽ Below grnd 5 FT		Total depth 65'
Logged by	Ch'd by DBG	Date 10/3/88		

Sample No.	Depth in feet	Blows per 6 inches	Pen / Rec	Description	HNU NR / HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-7	60-62	8-5-34-37	2.0 / 2.0	SAME AS S-7 -TILL-	7.1	AUGERED TO 65 FT TRIED TO CORE, HOLE WOULD NOT STAY OPEN. ABADONED HOLE.	GP	
				BOTTOM OF BORING AT 65 FT.				

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG			Boring no: MW-904
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK		Page 1 of 1
Contractor MATHES	Driller C. HEBEL	Date started 7.18.88	Completed 7.18.88
Method AUGER	Casing size 4 1/4" I.D	HNU 11.7 (10.2)	Protect'n level D
Ground el.	Soil drilled 17 FT	▽ Below grnd 10 FT	Total depth 17 FT
Logged by G. DAUKAS	Ch'd by DBG	Date 10/3/88	

Sample No.	Depth in feet	Blows per 6 inches	Pen/Rec	Description	HNU Spoon / HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2'	2-3-5-4	2.0 / 1.6	0-0.5 BROWN FINE TO MEDIUM SAND SOME SILT ORGANIC 0.5-1.6 LIGHT BROWN FINE SAND TRACE SILT, LOOSE DRY -OUTWASH-	2.0		SP	
S-2	5-7	3-2-4-4	2.0 / 1.3	LIGHT BROWN FINE SAND, TRACE SILT, LITTLE OXIDE STAINING, LOOSE DRY -OUTWASH-	0.4		SP	
S-3	10-12	3-4-5-5	2.0 / 1.4	SAME AS S-2 WET -OUTWASH-	8.0	WATER AT 10 FT COLLECTED ANALYTICAL SAMPLE	SP	
S-4	15-17	WOR	2.0 / 2.0	BLUE GRAY CLAY -GLACIOMARINE-	2.0	COLLECTED ANALYTICAL SAMPLE END OF BORING	CH	
				BOTTOM OF BORING AT 17 FT				

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG				Boring no: HW 905
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK			Page 1 of 2
Contractor MATHES	Driller J. Breeding	Date started 7/20/88		Completed 7/20/88
Method HSA	Casing size 4.25"	HNU 11.7/10.2		Protect'n level D
Ground el. TBD	Soil drilled 33'	▽ Below grnd 27.6		Total depth 33'
Logged by J Urquhart	Ch'd by DBG	Date 10/3/88		

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU Spoon HNU jar	-3.5 bkrd Comments on advance of boring	Lithologic symbol	Well data
S-1	0-2'	1/2/3/3	2.0 / 1.4	0-.6 Brown TOPSOIL and Organics .6-1.0 Tan f SAND trace m sand. 1.0-1.4 Orange f SAND Layer of Black charcoal Mod graded, loose dry - Fill -	-3.2			
S-2	2-4'	6/5/6/7	2.0 / 1.9	orange grading to tan f SAND, trace m SAND, mod graded, slightly dense, moist, mica flakes SW - DUTCH -	-3.1	Analytical	SW	
S-3	9-11'	6/7/7/9	2.0 / 2.0	0-0.2 Orange br. Silty f SAND, loose moist .2-2.0 Greenish Grey Silty CLAY, slightly plastic, firm, moist - GLACIO MARINE CL	-0.7 -3.5	Analytical	SM CL	
S-4	14-16'	weight of hammer	2.0 / 1.5	Blue grey CLAY trace silt, plastic, very soft, moist little mottling CH	+0.7	Analytical dry	CH	
S-5	19-21'	weight of rods	2.0 / 2.0	Similar to S-4 CH	-3.5		CH	
S-6	24-26'	weight of rods	2.0 / 2.0	Blue grey CLAY trace silt, plastic, very soft, moist. little black mottling - GLACIO MARINE - CH	-3.5		CH	

E.C. JORDAN

Click Here to Return to Main Index

FIELD BORING LOG				Boring no: MW-905
Project no. 4607-09	Project name NAVAL AIR STATION, BRUNSWICK			Page 2 of 2
Contractor MATHES	Driller J Breeding	Date started 7/20/88		Completed 7/20/88
Method HSA	Casing size 4.25"	HNU 11.7/10.2		Protect'n level D
Ground el. TBD	Soil drilled 33'	▽ Below grnd 27.6		Total depth 33'
Logged by J.U., BLB	Ch'd by DBG	Date 10/3/88		

Sample No.	Depth in feet	Blows per 6 inches	Pen Rec	Description	HNU Spoon / HNU jar	Comments on advance of boring	Lithologic symbol	Well data
S-7	29-31'	2/7/4/2	2.0 / 1.9	0-0.5', blue grey CLAY, trace silt, plastic, soft, wet, MARINE CLAY CL 0.5-1.0 fine-coarse SAND with little gravel, subangular, loose, well graded. wet. TILL* SP-ML 1.0-1.5, Blue grey CLAY, similar to above. MARINE CLAY 1.5-2.0 Blue grey fine coarse SAND with little gravel, well graded, wet. subangular particles. TILL* SP-ML	-3.5	bkgd = -3.5 NOTE Blow COUNTS INCREASED FROM S-6 ▼ 27.6' (probably not equilibrated) - GLACIOMARINE - * Till-like layers probably outwash strata	CH SW CH SW	
S-8	31-33'	weight of rods	2.0 / 1.9	Similar to S-6 - GLACIOMARINE CL	-3.4	Analytical	CH	
				BOB @ 33'				

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK	**Boring no:** MW 214
Client: US. DEPARTMENT OF THE NAVY	**Project no:** 4607-30
Contractor: NEW ENGLAND BORING CONTRs. — **Date started:** 9-11-89	**Completed:** 9-12-89
Method: HSA — **Casing size:** 6 5/8" — **PID:** 10.2 eV	**Protect'n level:** D
Ground el: 59.9 — **Soil drilled:** 48' — **Rock drilled:** NA	**Total Depth:** 48'
Logged by: NSG — **Ch'd by:** TL — **Date:** 10-5-89	**▽ Below grnd:** 18
	Page 1 **of** 1

Depth (ft)	PID ambient air	Sample no. and type	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD %	Well data	Elevation (ft)
0	BKg	S-1	1.4		11.5	TAN F SAND LAMINATED, LOOSE, PR GRADED [illegible] DRY	SP	1 4 7 9		
		S-2	2.0		BKG	TAN F. SAND, [illegible], PR GRADED DRY	SP	9 10 14 10		
5		S-3	1.?		BKG	TAN F SAND, [illegible] LAMINATIONS, [illegible] PR GRADED DRY	SP	3 6 7 8		
		S-4	1.8		BKG	TAN F SAND LAMINATED TR SILT [illegible] PR GRADED DRY	SP	5 5 10 [illegible]		
		S-5	1.5		BKG	SAME AS S-4	SP	4 6 7 10		
10		S-6	1.5		BKG	SAME AS S-4 WITH BROWN LAMINAE [illegible]	SP	7 8 11 9		
		S-7	1.6		BKG	TAN F SAND, SOME [illegible] SILT LAMINAE, FE STAINED LAMINATIONS, PR GRADED, MED LOOSE DRY	SP	22 22 17 14		
15		S-8	1.8		BKG	TAN F. SAND TR SILT, SILT & FE STAINED LAMINATIONS PR GRADED LOOSE DRY	SP	4 4 4 5		
		S-9	2.0		BKG	TAN GREY F SAND, TR SILT, FE STAINED LAMINATIONS PR GRADED LOOSE WET	SP	4 3 4 5		
		S-10	1.4		BKG	SAME AS S-9	SP	2 3 3 4		
20		S-11	1.7		BKG	SAME AS S-9	SP	2 3 4 4		
		S-12	2.0		BKG	SAME AS S-9	SP	3 3 4 6		
25		S-13	2.0		BKG	TAN GREY F. SAND TR SILT, FE STAINED LAMINATIONS SILT LAMINATIONS PR GRADED, LOOSE WET	SP	2 2 3 4		
		S-14	1.8		BKG	TAN GREY F SAND TR SILT ORANGE FE STAINED LAMINATES LOOSE, PR GRADED WET	SP	2 3 4 5		
30		S-15	2.0		BKG	SAME AS S-14	SP	2 2 4 5		
		S-16	2.0		BKG	SAME AS S-14	SP	4 5 7 8		
		S-17	1.7		BKG	SAME AS S-14	SP	4 4 5 7		
35		S-18	1.2		BKG	SAME AS S-14	SP	4 4 5 8		
		S-19	1.5		BKG	SAME AS S-14	SP	5 6 6 8		
		S-20	2.?		BKG	LT BROWN F. SAND FE STAINED LAMINATIONS INTERBEDDED W/ GREY CLAYEY SILT LENSES, LOOSE [illegible] WET	SM	8 9 9 12		
40		S-21	2.0		BKG	SAME AS S-20	SM	5 5 6 8		
		S-22	2.0		BKG	SAME AS S-20	SM	5 5 7 8	[illegible] CAVE	
45		S-23	2.0		BKG	SAME AS S-20	SM	5 6 6 6		
		S-24	2.0		BKG	INTERBEDDED BROWN & GREY F SAND GREY SILT LAMINATIONS, PR GRADED, LOOSE WET	SM	6 7 5 5		
						EOB 48				
50										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW - 215
Client: US. DEPARTMENT OF THE NAVY			Project no: 4807-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 9/12/89	Completed: 9/12/89
Method: HSA	Casing size: 6 5/8	PID: 10.6	Protect'n level: D
Ground el: 58.1'	Soil drilled: 46'	Rock drilled: NA	Total Depth: 46'
Logged by: J Urquhart	Ch'd by: TL	Date: 10-5-89	▽ Below grnd: 21.1'
			Page 1 of 3

Tip Bkrd = -10.6

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
0	BKG	S-1	1.5/2.0		-11	Tan m sand, trace f sand. Poorly graded, very loose, dry, organic matter	SP	2/4/6		
2		S-2	0.9		-10.6	Tan to light Brown m sand, little f sand Poorly graded, loose, dry	SP	6/6/8/9		
4		S-3	1.7		-11.2	Tan m sand stratified with Brown m sand, poorly graded, loose, dry. Thin stratification Tip Bkrd = -6.9	SP	7/8/6/11		
6		S-4	2.0		-12.4	0-1.6 Tan m sand, poor gr, loose dry.	SP	10/4/9/9		
8		S-5	1.9		-7.0	1.6-2.0 Orange fm sand, some silt. Mod gr., loose, dry. Silt is compact		11/13/14/15		
10		S-6	1.2		-7.2	Brown fm sand, mod gr, Mod dense, dry Stratified.	SP	14/18/19/22		
12		S-7	1.5		-6.4	Similar to S-5, slightly moist	SP			
14		S-8	2.0		-6.6	Similar to S-6 damp	SP	15/16/17/23		
16		S-9	2.0		-6.6	0-1.0 Brown f sandy silt. Silt is Grey. Poor grading, Mod dense, moist Very stratified, Fe staining.	SP	14/18/21/26		
18		S-10	2.0		-6.8	1.0-2.0 Br m sand, poor gr, mod dense, moist stratified				
20						Olive br f. sandy silt, Gr clayey silt lamina Poor gr, dense, moist, grading to Brown silty f sand. Slightly stratified.	ML	10/10/11/16		
						Grey f sand grading to dive brown f sandy silt with clayey silt laminae. Mod gr. Soft, moist. F sand heavily Fe stained Prominant laminations in olive br silt	ML	3/3/4/4		

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 215
Client: US. DEPARTMENT OF THE NAVY			Project no: 4807-31
Contractor: NEW ENGLAND BORING CONTR.		Date started: 9/12/89	Completed: 9/12/89
Method: HSA	Casing size: 6 5/8	PID: 10.6	Protect'n level: D
Ground el: 58.1'	Soil drilled: 46'	Rock drilled: NA	Total Depth: 46'
Logged by: JH	Ch'd by: TL	Date: 10-5-89	▽ Below grnd: 21.1'
			Page 2 of 3

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
20	DKG	S-11	2.0/2.0		-3.1	Grey silty f sand grading to Orange stratified f sand and silt laminae mod gr. Loose, moist. Stratified Tip bkrd = -3.1	SM	2/2/2/2		
22		S-12	2.0/2.0		-3.0	Grey silty f sand, Poor gr, loose, moist	SP	3/4/4/6		
24		S-13	1.4/2.0		-3.1	Similar to S-12. Few silt laminae wet	SP	2/3/3/4		
26		S-14	2.0/2.0		-3.1	Olive br silty f sand, poor gr, loose, wet. Stratified	SP	6/5/4/6		
28		S-15	2.0/2.0		-2.7	Similar to S-14 Grey silt laminae Fe staining	SP	5/5/5/6		
30		S-16	2.0/2.0		-2.9	Similar to S-15. Sand strata are Fe stained, Silt strata are .4' thick at 31'	SP/SM	4/5/5/7		
32		S-17	2.0/2.0		-2.9	Similar to S-16 Several grey clayey silt lenses. Soft to firm	ML	5/5/6/7		
34		S-18	2.0/2.0		-3.0	Similar to S-17. Several Grey clay lenses, soft to firm	ML	4/6/6/5		
36		S19	2.0/2.0		-3.0	Similar to S-18. F sand strata is heavily Fe stained. Several clayey silt lenses.	ML	5/5/6/6		
38		S-20	2.0/2.0		-4.4	Olive grey silty clay. Poor gr. Soft, wet. Silt stratified.		2/2/4/4		
40										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 215
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 4/12/89	Completed: 4/12/84
Method: HSA	Casing size: 6 5/8	PID: 10.6	Protect'n level: D
Ground el: 58.1'	Soil drilled: 46'	Rock drilled: NA	Total Depth: 46
Logged by: JV	Ch'd by: TL	Date: 10-5-89	▽ Below grnd: 21.1
			Page 3 of 3

Trip bkrd = -4.6

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
40	BKG	S-21	20/20		N/A	Blue grey clay, poor gr, soft, wet, mod plastic. Glaciomarine	CL	2/2/2/3		
42		S-22	20/20		N/A	Similar to S-21 Trip bkrd = -4.6	CL	2/2/4/4		
44		S-23	20/20		-4.1	Similar to S-22	CL	2/3/4/4		
46						BOB 46'				

*U = Thin wall tube S = Split spoon R = Rock

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Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-216A
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/28/89	Completed: 8/30/89
Method: HSA	Casing size: 6 5/8"	PID: 10.2 eV	Protect'n level: D
Ground el: 52.2'	Soil drilled: 37'	Rock drilled: NA	Total Depth: 37'
Logged by: M. WOODRUFF	Ch'd by: T.L.	Date: 10-5-89	▽ Below grnd: 12'
			Page 1 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
		S-1	1.3		BKG	SILTY BROWN SAND, SOME ORGANICS, TRACE GRAVEL, TRACE ASPHALT	SM	4 5 7 8		
		S-2	1.2		-1.6	SILTY SANDY CLAY WITH MOTTLING BROWN FINE SILTY SAND TAN FINE SAND	CL SM SP	4 5 7 11		
5		S-3	1.2		11.7	V FINE - FINE TAN SAND, SOME MOTTLING	SP	3 6 6 7		
		S-4	1.2		9.3	BROWN FINE SILTY SAND V. FINE - FINE TAN SAND	SM SP	7 10 10 11		
		S-5	1.6		BKG	BROWN - GREY FINE SAND	SP	2 2 3 3		
10		S-6	1.5		BKG	BROWN - GREY FINE SAND, MOIST	SP	4 5 6 7		
		S-7	1.7		BKG	BROWN - GREY FINE SAND, SILTY, MUCH OXIDATION, WET	SM	2 3 3 3		
15	BKG	S-8	1.8		BKG	BROWN SILTY SAND, TRACE CLAY OXIDIZED	SP	1 2 2 2		
		S-9	1.6		BKG	BROWN SILTY SAND, TRACE CLAY, OXIDIZED	SM	2 3 3 6		
		S-10	.8		BKG	BROWN SILTY SAND, TRACE CLAY, OXIDIZED	SM	10 7 8		
20		S-11	1.1		BKG	BROWN FINE SILTY SAND, SOME SILTY CLAY, OXIDATION	SM	3 3 4 5		
		S-12	.9		-.9	LIGHT BROWN FINE SAND GREY FINE SAND, SOME SILT	SP	3 3 5 6		
25										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWI[illegible]			Boring no: MW-216A
Client: US. DEPARTMENT OF THE NAVY			Project no: 4807-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 9/22/89	Completed: 9/30/89
Method: HSA	Casing size: 6 5/8"	PID: 10.2 eV	Protect'n level: D
Ground el: 52.7'	Soil drilled: 37'	Rock drilled: NA	Total Depth: 37'
Logged by: M. WOODRUFF	Ch'd by: TL	Date: 10-5-89	▽ Below grnd: 12'
			Page 2 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
	BKG	S-13		.6		BKG	LAYERED BROWN FINE SAND AND GREY SILTY SANDS	SP	6 9 6 9		
		S-14		1.9		BKG	GREY SILTY CLAY LIGHT BROWN FINE SAND	CL SP	5 3 3 4		
30		S-15		1.9		BKG	GREY FINE SILTY SAND GREY PLASTIC CLAY TAN POORLY GRADED FINE SILTY SAND TAN - GREY SILTY CLAY, SOFT GREY CLAY	SM CH SM CL CH	1 0 1 0		
		S-16		1.4		BKG	GREY CLAY AND GREY SILTY SAND	SM	1 2 2 3		
		S-17		1.6		BKG	GREY CLAY, SOFT, PLASTIC	CH	1 0 1 0		
35		S-18		2.0		BKG	SAME AS ABOVE	CH	WEIGHT OF RODS		
40											

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-216 B
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/30/89	Completed: 8/30/89
Method: HSA	Casing size: 6 5/8"	PID: 102 eV	Protect'n level: D
Ground el: 52.2'	Soil drilled: 20'	Rock drilled: NA	Total Depth: 20'
Logged by: M. WOODRUFF	Ch'd by: TL	Date: 10-5-89	▽ Below grnd: 12'
			Page 1 of 1

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
5							SEE MW-216A				
10'	BKG	NA	NA	NA		NA		NA			
15'		NA	NA	NA		15					
20'						NA		1			

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 217A
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 9-14-89	Completed: 9-18-89
Method: HSA	Casing size: 6 5/8"	PID: 10.2 eV	Protect'n level: D
Ground el: 53'	Soil drilled: 44'	Rock drilled: NA	Total Depth: 44'
Logged by: NSG	Ch'd by: TL	Date: 10-5-89	▽ Below grnd: 9'
			Page 1 of 1

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
0											
		S-1		1.4		BKGD	TAN F SAND, TR. SILT LOOSE, DRY GRADES VERY DRY	SP	2 5 8 11		
		S-2		1.8		BKGD	SAME AS ABOVE	SP	12 9 8 10		
6		S-3		1.8		BKGD	SAME AS ABOVE	SP	1 3 4 5		
		S-4		2.0		BKGD	TAN F SAND GRADING TO GREY F SAND W DARK BROWN ORGANICS BUD 2.2" THICK LOOSE, GRADING MOIST	SP	9 9 11 12		
		S-5		1.7		BKGD	GREY F SAND, TR SILT TR GRAVEL LOOSE, WET	SP	12 17 16 11		
10		S-6		2.0		BKGD	GREY F SAND TR SILT, SILT LAMINATIONS, TR GRAVEL LOOSE WET	SP	5 4 5 4		
		S-7		2.0		BKGD	SAME AS S-6	SP	4 5 6 10		
15		S-8					NO SAMPLE TAKEN				
		S-9		1.0		BKGD	GREY F SAND, CLAYEY SILT LENSE, TR GRAVEL, LOOSE WET	SP	3 4 11 13		
		S-10		2.0		BKGD	GREY F SAND, SOME SILT, FE STAINED LAMINATION, SILT LAMINATION TR GRAVEL LOOSE WET	SM	4 11 12 18		
20		S-11		1.2		BKGD	SAME AS S-10	SP	6 9 10 13		
		S-12		1.5		BKGD	GREY F SAND INTERBEDDED WITH FE STAINED LAMINATED SILTY SANDS, LOOSE TR GRAVEL WET	SP	8 11 14 15		
25		S-13		0.8		BKGD	SAME AS S-12	SP	3 4 4 8		
		S-14		2.0		BKGD	SAME AS S-12	SP	6 8 8 9		
		S-15		1.5		BKGD	SAME AS S-12	SP	8 10 8 6		
30		S-16		1.6		BKGD	BROWN F SAND, FE STAINED LAMINATIONS, SILT LAMINATIONS TR GRAVEL MOD. LOOSE WET	SP	11 12 11 20		
		S-17		1.8		BKGD	BROWN F SAND, ABUNDANT FE STAINED LAMINATIONS WITH CLAYEY SILT TR GRAVEL LOOSE WET	SP	15 19 32 21		
35		S-18		1.0		BKGD	GREY F SAND, TR SILT, FE STAINED LAMINATIONS, SILT LAMINATIONS, TR GRAVEL LOOSE WET	SP	2 2 2 3		
		S-19		1.6		BKGD	TOP: GREY FE STAINED LAMINATED SAND, BOTTOM: GREY CLAYEY SILT LENSE IN GREY F SAND	SM/CL	2 3 3 5		
		S-20		1.9		BKGD	GREY F SAND GRADING TO SILTY SAND TO CLAY, TR GRAVEL, LOOSE, WET		4 6 8 11		
40		S-21		2.0		BKGD	GREY CLAY, WITH ONE 2" LENS OF GREY F SAND TR GRAVEL, LOOSE, WET	CL	4 7 7 5		
		S-22					GREY CLAY, LOOSE, TR GRAVEL WET	CL	2 4 6 6		
45							BOH 44'				
50											

*U = Thin wall tube S = Split spoon R = Rock

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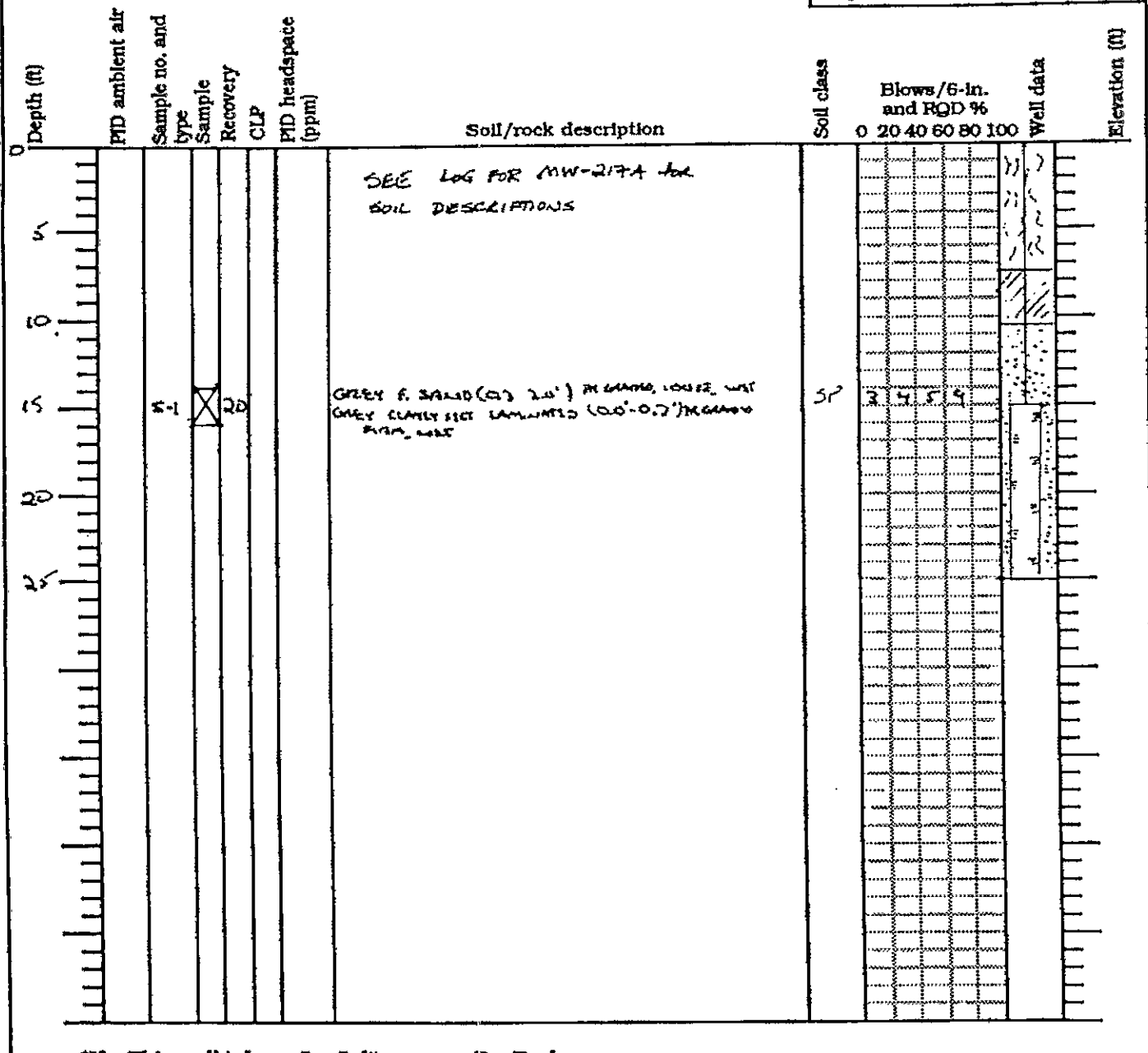
Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			**Boring no:** MW 217B
Client: US. DEPARTMENT OF THE NAVY			**Project no:** 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		**Date started:** 9-18-89	**Completed:** 9-18-89
Method: HSA	**Casing size:** 6 3/4	**PID:** 10.2 eV	**Protect'n level:** D
Ground el: 53.2'	**Soil drilled:** 25'	**Rock drilled:** NA	**Total Depth:** 25'
Logged by: NSG	**Ch'd by:** TL	**Date:** 10-5-89	▽ **Below grnd:** 9'
			Page 1 **of** 1



*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 218
Client: US. DEPARTMENT OF THE NAVY			Project no: 4807-31
Contractor: NEW ENGLAND BORING CONTRS.		Date started: 8-16-89	Completed: 8-16-89
Method: HSA/CASING	Casing size: 6"/4"	PID: # 7	Protect'n level: D
Ground el: 51	Soil drilled: 72'	Rock drilled: NA	Total Depth: 72'
Logged by: NG JU	Ch'd by: TL	Date: 10-5-87	Below grnd: 44
			Page 1 of 1

HP BACKGROUND READING = ~4.6

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
0							AUGERED TO 45' NO SAMPLES				
45		S-1	X	2		BKG	0-0.8 GREY SILTY F. SAND	ML	7/20		
							0.8-2.0 GREY SILT, SOME CLAY, LITTLE F SAND POOR GRADING LOOSE WET				
50							change unclear				
55		S-2	X	2.3		BKG	DARK GREY CLAY, POOR GRADING SOFT TO FIRM, WET	CL	22/20		
60											
65		S-3	X	2		BKG	DARK GREY CLAY, POOR GRADING SOFT WET TO SOFT DRILLS AT 65'	CL	2/2/3/3		
70		S-4	X	2		BKG	DARK GREY CLAY, POOR GRADING SOFT WET BLACK ORGANIC SMEARS	OL	2/2/2/3		
							ROCK 70				

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			**Boring no:** MW 219
Client: US. DEPARTMENT OF THE NAVY			**Project no:** 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		**Date started:** 8-17-89	**Completed:** 8-22-89
Method: HSA / CASING	**Casing size:** 6⅝"/4"	**PID:** #7 10.6 eV	**Protect'n level:** D
Ground el: 48.6'	**Soil drilled:** 82'	**Rock drilled:** NA	**Total Depth:** 82'
Logged by: MSG, JJ DAB	**Ch'd by:** TL	**Date:** 10-11-89	▽ **Below grnd:** 29'
			Page: 1 **of** 1

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
0											
	Bkg						AUGERED TO 45' NO SAMPLES				
45'		S-1		1.2		BKGD	BROWN F-M SAND, TR SILT, TR COARSE MICA FLAKES MED. DENSE SATURATED WET	SP	5 9 9 15		
50		S-2		1.5		BKGD	BROWN, F-M SAND, LITTLE-SOME SILT, FINE LAMINATED OR IRON STAINING IN SILTY LAYER (1.0'-1.2') BOTTOM 6" SAND/SILT (1.2'-1.5')	SM	10 16 19 23		
55		S-3		1.5		BKGD	BROWN SILTY F. SAND, TR MED SAND, TR MICA EXTENSIVE FINE LAMINATIONS WITH ALTERNATING LAMINAE Fe STAINING LOOSE-FIRM, PR GRADED WET	SM	4 3 4 4		
60		S-4		1.7		BKGD	BROWN SILTY F. SAND TR. M. SAND, TR COARSE MICA FLAKES, IRREGULAR Fe STAINING NO STRATIFICATIONS, LOOSE PR GRADED WET	SM	2 3 3 6		
65		S-5		1.3		BKGD	BROWN SILTY SAND, TR MED, TR MICA COARSE FAINTLY LAMINATED Fe STAINING LOOSE PR GRADED WET	SM	4 5 6 11		
70		S-6		1.7		BKGD	BROWN SILTY FINE SAND, INTERBEDDED WITH GREY SILT Fe STAINING IN SAND, LOOSE-FIRM, PR GRADED WET	SM	9 15 19 20		
75		S-7		1.1		BKGD	GREY SILTY V.F. SAND, SILT LAMINA, Fe STAINING IN V.F SAND, POOR GRADED WET	SM	4 6 16 30		
80		S-8		1.4		BKGD	GREY SILTY CLAY, SOFT, POOR GRADING WET GLACIOMARINE CLAY		5 6 6 6	CAVE OR BACKFILL	
							BOB 82'				

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-220
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/22/89	Completed: 8/23/89
Method: HSA	Casing size: 6 5/8 I.D.	PID: 10.6 eV	Protect'n level: d
Ground el: 36.5'	Soil drilled: 42'	Rock drilled: NA	Total Depth: 42 Ft
Logged by: BKB, NSG	Ch'd by: TL	Date: 10-11-89	▽ Below grnd: 7.8' bgs 8/24/89
			Page 1 of 1

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
5		S-1		1.6/2.0		Bkgd	tan f-med. SAND, wood fragments, some silt. V. loose, moist. Poorly graded	Sp	1/0/1/0	VOLCLAY GROUT	
10		S-2		1.0/2.0		Bkgd	Grey fine SAND, some silt, micaceous, wet. some Fe-staining. Poorly graded	Sp	7/7/11/9		
							HP-1 obtained 14.5-16.0' bgs				
15		S-3		1.5/2.0		Bkgd	light grey fine sand. some silt. tr. iron staining. wet.	Sp	1/1/1/3		
20		S-4		2.0/2.0		Bkgd	alternating color bands of brown and grey brown fine sand, wet. tr. iron staining	Sp	1/1/3/5		
							HP-2 obtained 23.5-25' bgs				
25		S-5		1.5/2.0		Bkgd	brown grey fine sand with some silt. loose, wet	Sp	3/5/5/6		
30		S-6		1.1/2.0		Bkgd	grey fine SAND w/ some silt, micaceous, wet, poorly graded	Sp	2/3/3/3		
							HP-3 obtained 34.5-36' bgs				
35		S-7		1.3/2.0		Bkgd	grey fine-med SAND, some silt, red Fe-staining at spoon tip	Sp	4/6/4/7		
							(change to clay approx 40' bgs)				
40		S-8		2.0/2.0		Bkgd	Blue-grey silty clay, massive, damp	ML	2/3/4/4	Natural Cave	
45							BOB = 42' bgs				

*U = Thin wall tube S = Split spoon R = Rock HP = Hydro Punch

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-222
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTR.		Date started: 9/7/89	Completed: 9/8/89
Method: HSA	Casing size: 6 5/8	PID: 10.2 eV	Protect'n level: D
Ground el: 54.1'	Soil drilled: 57'	Rock drilled: NA	Total Depth: 57'
Logged by: MJN	Ch'd by: TL	Date: 10-11-89	▽ Below grnd:
			Page 1 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
5	BKGD	S-2	1.1		BKGD	TAN FINE SAND, SOME Fe STAINING	SP	1 2 4 6		
10		S-3	1.4		BKGD	TAN FINE SAND, FAINT LAMINATIONS Fe STAINING	SP	2 2 2 4		
15		S-4	1.0		BKGD	TAN FINE SAND, FAINT LAMINATIONS Fe STAINING	SP	3 4 4 5		
20		S-5	1.5		BKGD	TAN FINE SAND, FAINT LAMINATIONS Fe STAINING, WET	SP	2 3 3 5		
25		S-6	2.0		BKGD	TAN FINE SAND, FAINT LAMINATIONS Fe STAINING, WET	SP	2 3 4 6		
30		S-7	1.1		BKGD	TAN FINE SAND, WET	SP	2 2 3 5		
35		S-8	1.4		BKGD	TAN FINE SAND, TRACE SILT ~~WITH~~ GREY SILTY SAND, Fe LAMINATION @ ~ 36.5'	SP	3 5 7 11		
40		S-9	1.5		BKGD	TAN FINE SAND, TRACE SILT	SP	2 2 4 7		
45		S-10	.9		BKGD	TAN FINE SAND, TRACE SILT, FAINT LAMINATIONS	SP	2 3 3 3		
50										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-22
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRS.		Date started: 9/7/89	Completed: 9/8/89
Method: HSA	Casing size: 6 5/8	PID: 10.2 eV	Protect'n level: D
Ground el: 54.1'	Soil drilled: 57'	Rock drilled: NA	Total Depth: 57'
Logged by: MJW	Ch'd by: TL	Date: 10-11-89	▽ Below grnd:
			Page 2 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
55	← BKGD →	S-11	X	1.3		BKGD	TAN FINE SAND	SP	5 10 12 13		
		S-12	X	1.2		BKGD	TAN FINE SAND, FAINT LAMINATIONS AND FE STAINING AT ~ 56.2	SP	3 4 5 5		
60											

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 223
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607- 31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 9-7-89	Completed: 9-8-89
Method: HSA	Casing size: 6 5/8	PID: 10.4	Protect'n level: D
Ground el: 51.1'	Soil drilled: 57	Rock drilled: NA	Total Depth: 57
Logged by: L. Federico	Ch'd by: TL	Date: 10-11-89	▽ Below grnd:
			Page: 1 of 3

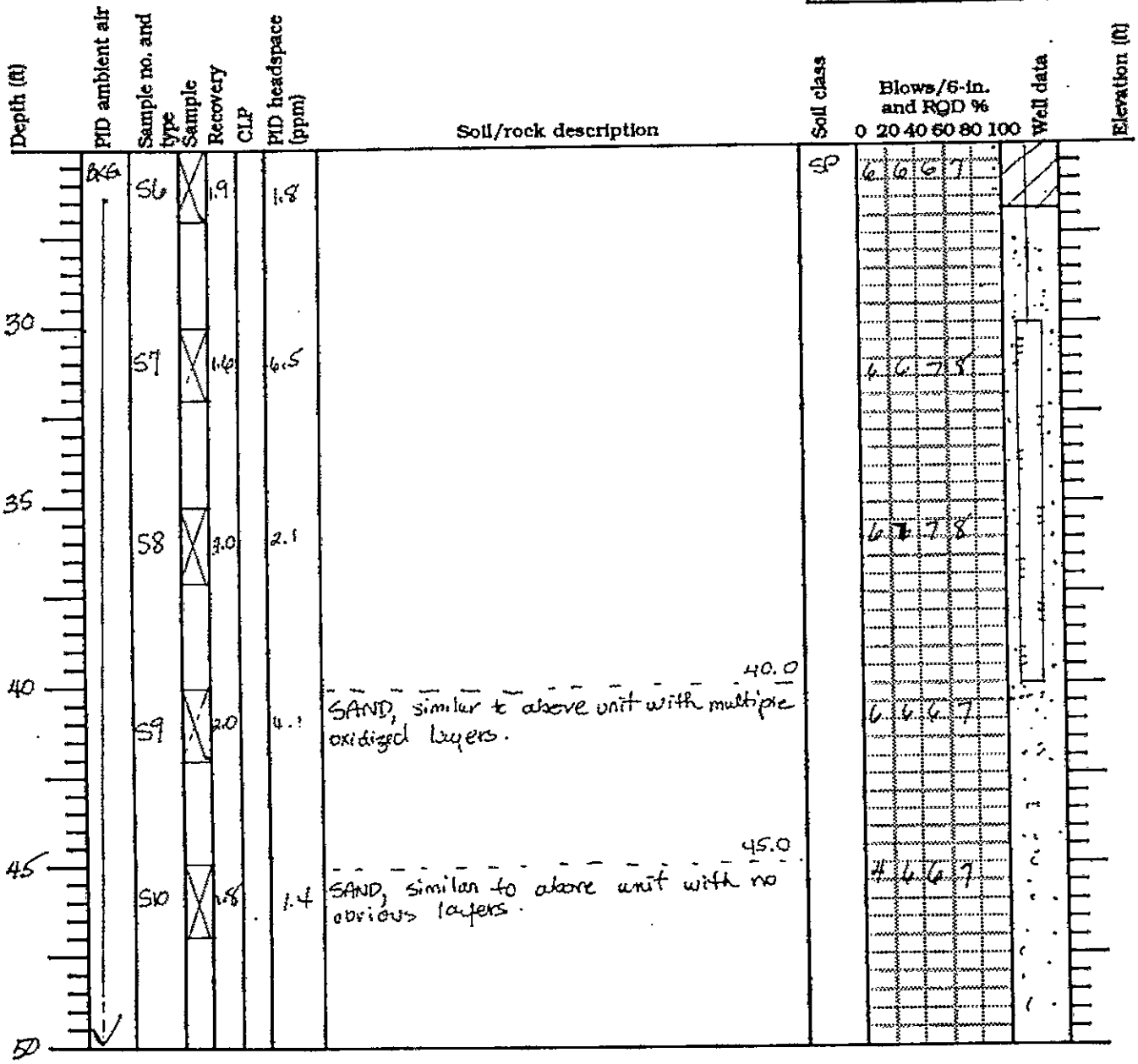
Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
0	EXES	S1	1.4		20.4	SAND, tannish brown medium to fine with trace coarse to medium sand. Loose and dry.	SP	1 2 2 3		
5		S2	1.6		1	5.0 SAND, tannish brown silty medium to fine with trace coarse to medium sand. Loose and dry. to moist Crude stratification with occassional MOTTLES		2 4 4 6		
10		S3	1.9		0.2			5 5 5 6		
15		S4	1.7		1.0	15.0 SAND, similar to above unit with less defined stratification and saturation in part of the sample		3 3 3 4		
20		S5	1.9		0.3	20.0 SAND, olive brown, medium to fine sand with clay-silt layer and moderate stratification. Completely saturated		4 5 5 6		
25										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 273
Client: US. DEPARTMENT OF THE NAVY			Project no: 4807-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 9-7-89	Completed: 9-8-89
Method: HSA	Casing size: 6 5/8	PID: 10.6	Protect'n level: D
Ground el: 51.1	Soil drilled: 57	Rock drilled: NA	Total Depth: 57
Logged by: L. Federico	Ch'd by: JL	Date: 10-11-89	▽ Below grnd:
			Page 2 of 3



*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 223
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRS.		Date started: 9-7-89	Completed: 9-8-89
Method: HSA	Casing size: 6 5/8	PID: 10.6	Protect'n level: D
Ground el: 51.1'	Soil drilled: 57	Rock drilled: NA	Total Depth: 57
Logged by: L. Federico	Ch'd by: TL	Date: 10-11-89	▽ Below grnd:
			Page 3 of 3

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
55	BKG	S11	1.2		0.4		SP	6 6 8 9		
		S12	1.7		1.3	SAND, same as 46 - 42' unit.		6 6 7 8		
							55.0			
							57.0			

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-224
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 9-6-89	Completed: 9-7-89
Method: HSA	Casing size: 6 5/8	PID: 10.6	Protect'n level: D
Ground el: 54.7'	Soil drilled: 60.5	Rock drilled: NA	Total Depth: 60.5
Logged by: CDL / LAF	Ch'd by: TL	Date: 10-11-89	▽ Below grnd:
			Page 1 of 3

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
0	Bkg	S-1	1.2		133	Forest Duff SAND, tan brown to gray brown with l. silt to trace silt. Crudely to moderately strat. fied, part. cularly in occurance with fine sandy silt layers, often oxidized in the saturated zone	SP	1 2 3 5		
5		S-2	1.8		1.9			6 6 7 9		
10		S-3	1.6	Y	—			4 4 6 9		
15		S-4	1.7		.7			4 4 4 6		
19.5						SAND, olive brown to gray brown with l. silt to trace silt. Crudely to moderately strat. fied, part. cularly in occurance with fine sandy silt layers, often oxidized.				
20		S-5	1.8	Y	—			2 3 3 4		
25										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-224
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRS.		Date started: 9-6-89	Completed: 9-7-89
Method: HSA	Casing size: 6 5/8	PID: 10.6	Protect'n level: D
Ground el: 54.7'	Soil drilled: 60.5	Rock drilled: NA	Total Depth: 60.5
Logged by: CPL/LAF	Ch'd by: TL	Date: 10-11-89	▽ Below grnd:
			Page 2 of 3

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
	Bkg	S-6	1.2		11.5	SAND, olive brown to gray brown with little to trace s.lt. Crudely to moderately stratified, particulary in occurance with fine sandy s.lt layer, often oxidized.	SP	3 4 4 6		
30		S-7	1.5		13.1			3 4 4 5		
35		S-8	.9		4.2			3 4 4 6		
40		S-9	1.3		1.1			6 6 7 7		
45		S-10	1.5		2.0			9 9 9 12		
50										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-224
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 9-6-89	Completed: 9-7-89
Method: HSA	Casing size: 6 5/8	PID: 10.6	Protect'n level: D
Ground el: 54.7'	Soil drilled: 60.5	Rock drilled: NA	Total Depth: 60.5
Logged by: CPL/LAF	Ch'd by: TL	Date: 10-11-89	▽ Below grnd:
			Page 3 of 3

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
55	BKG	S-11		12		3.3		SP	6 8 15 21		
		S-12		13		.6			8 10 D N		
60							Bottom of Boring = 60.5 Ft B.G.S				
65											
70											
75											

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK

Client: US. DEPARTMENT OF THE NAVY			**Boring no:** MW 225A
Contractor: NEW ENGLAND BORING CONTRs.		**Date started:** 8-23-89	**Project no:** 4607-31
Method: CASING	**Casing size:** 4"	**PID:** 10.6 EV	**Completed:** 8-28-89
Ground el: 43'	**Soil drilled:** 89	**Rock drilled:** NA	**Protect'n level:** D
Logged by: NSG, BKB	**Ch'd by:** TL	**Date:** 10-11-89	**Total Depth:** 89
			▽ **Below grnd:** 21'
			Page 1 **of** 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
0										
		S-1	1.5/20		BKGD	BROWN F SAND, TRACE ORGANICS, TR SILT LOOSE DRY	SP	1 3 4 5		
5		S-2	1.6/20		11.1	TAN F SAND, FE STAINED, INTERBEDDED SILT LAYERS, LOOSE TAN (0-0.6') DAMP BECOMES DRY.	SM	4 5 6 7		
10		S-3	1.8/20		80 E	BROWN F SAND, TR SILT, FE STAINED LAMINATIONS, GREY SILT LENSE 0.6-3' DAMP	SM	3 5 4 8		
15		S-4	1.8/20		18	BROWN F. SAND, TR SILT, FE STAINED LAMINATIONS GREY SILT LENSE (3.5'-4')	SM	1 3 7 7		
20		S-5	1.5/20		2.2	BROWN F. SAND, TR ORGANIC (BLACK MATERIAL), TR SILT, FE STAINING, INTERBEDDED WITH GREY SILT LENSES, LOOSE FOR GRADED WET	SM	1 1 1 3		
25		S-6	1.5/20		1.2	BROWN SILTY F SAND, FE STAINING, GREY SILT LENSES, LOOSE, TR ORGANICS, WET	SM	1 1 1 3		
30		S-7	1.5/1.5		BKGD	BROWN-GREY SILT ORGANIC INTO BROWN F SAND, FIRM, WET	SM	2 4 15 15/6"		
35		S-8	0.4/0.4		BKGD	GREY-BROWN SILTY V.F. SAND, FIRM, WET	SM	68 10/5"		
40		S-9	1.8/20		BKGD	BROWN-TAN F. SAND, TR SILT, FE STAINED LAMINATIONS	SM	21 36 70 100/6"		
45		S-10	1.5/20		BKGD	BROWN F SAND, TR SILT, FE STAINED, INTERBEDDED WITH GREY F SILTY SAND M. FIRM, WET, TR ORGANICS	SM	8 19 20 24		
50										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 225A
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8-23-89	Completed: 8-28-89
Method: CASING	Casing size: 4"	PID: 10.6 EV	Protect'n level: D
Ground el: 43'	Soil drilled: 89	Rock drilled: NA	Total Depth: 89'
Logged by: MSG. RKB	Ch'd by: TL	Date: 10-11-89	▽ Below grnd: 21'
			Page: 2 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
50		S-11	13/20		BKGD	BROWN F SAND, SOME SILT, RHYTHMIC GREY SILT LAMINATES (APPROX 2mm THICK, EVERY 2") MED DENSITY, PR GRADED, WET	SM	5 31 49 36		
55										
60		S-12	1.9/20		NA	BROWN F. SAND SOME SILT, Fe STAINING GRADES TOWARD GREEN FM, PR GRADED, MED DENSE WET	SM	15 32 55 87		
65		S-13	2.0/2.0		NA	BROWN GREY F SILTY SAND, SOME Fe STAINING	SM	26 46 53 50		
70		S-14	1.6/2.0		NA	GREY F. SILTY SAND, Fe STAINED AT BOTTOM OF SPLIT SPOON PR GRADED MED DENSE WET	SM	24 24 24 NC		
75		S-15	1.4/2.0		NA	TAN GREY F. SILTY SAND, Fe STAINING, THIN LAMINATION OF GREY SILT (1mm) PR GRADED MED DENSE, WET	SM	18 25 27 20		
80		S-16	1.3/2.0		NA	GREY F. SILTY SAND GRADING TO GREY CLAY AND SILT PR GRADED MED DENSE, WET	SM	50/5" 50/5" 31 46		
		S-17	1.6/2.0		NA	GREY SILTY SAND INTERBEDDED WITH BLUE-GREY SILTY CLAY, PR GRADED, MED DENSE, WET	SC	11 19 21 15		
85		S-18	2.0/2.0		NA	GREY V F. SILTY SAND INTERBEDDED WITH GREY CLAY SILT TO F. SAND, PR GRADED, MED DENSE, WET	SM	11 20 100/6"		
		S-19	2.0/2.0		NA	GREY VF SILTY SAND, SOME CLAY GRADING TO F. SAND BOTTOM OF SPOON IS TAN PR GRADED, MED DENSE, WET	SC	5 7 27 30		
90						BOR 89' EQUIPMENT BREAK DOWN PREVENTED FURTHER DRILLING IN THIS boring. SET WELL AT HIGHEST GC SCREENED AREA.				

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 225B
Client: US. DEPARTMENT OF THE NAVY			Project no: 4807-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8-28-89	Completed: 8-29-89
Method: HSA	Casing size:	PID:	Protect'n level:
Ground el: 43.3'	Soil drilled: 42'	Rock drilled: NA	Total Depth: 42'
Logged by: PSG	Ch'd by:	Date:	▽ Below grnd: 14'
			Page 1 of 1

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
0											
5							SEE LOG OF MW-225A for SOIL DESCRIPTIONS				
10											
15							AUGERED TO 40' - NO SAMPLES				
20											
25											
30											
35											
40		S-1	X	1.2			BROWN F. SAND, TR SILT, Fe STAINED CONCRETIONS, TR GRAVEL. 100% WET		6 9 11 19		
45											

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-229A
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607 31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8-30-89	Completed: 9-5-89
Method: HSA / Driven Wash	Casing size: 6⅝ / 4"Ø	PID: 10.6	Protect'n level: D
Ground el: 30.6'	Soil drilled: 94.0	Rock drilled: NA	Total Depth: 94.0
Logged by: C. Lyons	Ch'd by: TL	Date: 10-11-89	▽ Below grnd:
			Page 1 of 4

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
0	BKg	S-1	1.7		438	Forest Duff SAND, tannish brown silty medium to fine with trace coarse to medium sand. Slightly mottled and crudi stratification. Loose and dry	SP	1 1 2 3		
5		S-2	2.0		6.5			4 6 6 6		
10		S-3	1.4		85.5			2 3 3 4		
15		S-4	1.8		3.5	16.0 SAND, olive brown to gray brown silty medium to fine with trace coarse to medium sand. Crudely stratified, with occasional oxidized layers. (Saturated version of the above unit.)	SP	4 3 3 4		
20										
25										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-229A
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8-30-89	Completed: 9-5-89
Method: HSA/Drive&Wash	Casing size: 6 5/8/4-0	PID: 10.6	Protect'n level: D
Ground el: 30.6'	Soil drilled: 94.0	Rock drilled: NA	Total Depth: 94.0
Logged by: C. Lyons	Ch'd by: TC	Date: 10-11-89	▽ Below grnd:
			Page: 2 of 4

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
30	Bkg	S-6	1.2		Bkg	SAND, olive brown to gray brown, silty medium to fine with trace coarse to medium sand. Crudely stratified, with occas oxidized layers	SP	2 2 2 2		
		S-7	2.0			SILT, gray, fine sand with clay, varying to clayey silts or silty clays layers. Crude to moderate stratification. Stiff, wet. Fines are poorly to moderately plastic	SM	2 2 2 2		
35		S-8	2.0					2 2 2 2		
40		S-9	1.5					4 6 6 7		
45										
50										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-229A
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRS.		Date started: 8-30-89	Completed: 9-5-89
Method: HSA/Drive & Wash	Casing size: 6 5/8/4"	PID: 10.6	Protect'n level: D
Ground el: 30.6'	Soil drilled: 94.0	Rock drilled: NA	Total Depth: 94.0
Logged by: C. Lyons	Ch'd by: TL	Date: 10-11-89	▽ Below grnd:
			Page 3 of 4

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
55	Bkg	S-10			Bkg	SILT, gray, Fine sand with clay, varying to clayey silts and silty clay layers (crude to moderate stratification) stiff, wet. Fines are poorly to moderately plastic.	SM	4 6 6 7		
60		S-11						6 7 10 13		
65										
70		S-12						10 11 12 14		
75										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			**Boring no:** MW-229A
Client: US. DEPARTMENT OF THE NAVY			**Project no:** 4607- 31
Contractor: NEW ENGLAND BORING CONTRs.		**Date started:** 8-30-89	**Completed:** 9-5-89
Method: HSA/Diedwash	**Casing size:** 6⅝/4"Ø	**PID:** 10.6	**Protect'n level:** D
Ground el: 30.6'	**Soil drilled:** 94.0	**Rock drilled:** NA	**Total Depth:** 94.0
Logged by: C. Lyons	**Ch'd by:** TL	**Date:** 10-11-89	**Below grnd:**
			Page 4 **of** 4

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
80	BKg	S-13			BKg	SILT, gray, fine sand with clay, varying to clay s.lts or silty clay layers Crude to moderate stratification. Stiff, wet. Fines are poorly to moderately plastic.	SM	5 6 7 7		
		S-14						6 6 7 8		
85		S-15						2 3 4 6		
90		S-16						2 3 5 6		
		S-17				CLAY, gray, w. th silt and little to trace fine sand and occasional fine sandy s. lt layer. Plastic Fines, wet.	CL	4 5 5 6		
95						Bottom of Boring = 94.0' BGS.				
100										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-229B
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 9-5-89	Completed: 9-5-89
Method: 4¼A	Casing size: 6¼ ID	PID: 10.6 EV	Protect'n level: D
Ground el: 30.3'	Soil drilled: 30	Rock drilled: NA	Total Depth: 30
Logged by: CPL	Ch'd by: TL	Date: 10-11-89	▽ Below grnd:
			Page 1 of 1

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
0	BKG					SEE LOG OF MW-229A for SOIL DESCRIPTION	SP	N/A		
5										
10										
15										
20										
25										
30						B.O.B @ 30'				

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 230A
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-3#
Contractor: NEW ENGLAND BORING CONTR.		Date started: 8-30-89	Completed: 9-5-89
Method: H SA/CASING	Casing size: 4"	PID: 10.2 ppm	Protect'n level: D
Ground el: 33.7'	Soil drilled: 102	Rock drilled: NA	Total Depth: 102
Logged by: NSG	Ch'd by: TL	Date: 10-11-89	▽ Below grnd: 14'
			Page 1 of 3

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
0	BKG	S-1	1.8		BKGD	BROWN F SAND, LOOSE, DRY GRADING DRY	SP	2 2 5 7		
5		S-2	1.4		BKGD	BROWN F. SAND, TR ORGANICS, GRADING TO TAN F SAND LOOSE, DRY GRADED, DRY	SP	2 4 3 6		
10		S-3	1.6		BKGD	BROWN, & BROWN, AND TAN F SAND INTERBEDDED ORGANIC SILT AT 1.2'-1.3' LOOSE, DRY GRADED, DAMP	SP	2 2 2 4		
15		S-4	1.5		BKGD	TAN F. SAND, FAINTLY LAMINATED, LOOSE DRY GRADED, WET	SP	2 3 3 4		
20		S-5	1.4		BKGD	TAN F SAND, TR M. SAND TR SILT FE STAINED SLIGHT LAMINATIONS, LOOSE DRY GRADED WET	SP	3 4 5 6		
25		S-6	R.0		BKGD	BROWN F SAND, TR SILT, TR ORG. GRADING TO TAN. GRADING TO GREY, LOOSE, DRY GRADED WET	SP	3 4 5 6		
30		S-7	2.0		BKGD	BROWN F SAND, SOME SILT, TR ORG, FAINTLY LAMINATED, SILT LENSES, GREY F SAND IN TR LOOSE, DRY GRADED WET	SP	3 4 6 8		
35		S-8	2.0		BKGD	BROWN VF SILTY SAND GRADING TO CLAYEY & WET SILT. GREY FINE SAND IN TIP, LOOSE, MED. GRADED, WET	SP	3 2 3 4		
40		S-9	2.0		BKGD	0.0-0.7 BROWN F SAND, SOME SILT, LAMINATED 0.7-2.0 GREY F SAND TR SILT, INTERBEDDED SILT LAYERS, LOOSE, DRY GRADED WET	SP	2 2 3 5		
45		S-10	2.0		BKGD	GREY F SILTY SAND, LOOSE, DRY GRADED WET	SP	2 1 1 1		
50										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 230 A
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRS.		Date started: 8-30-89	Completed: 9-5-89
Method: HSA/CASING	Casing size: 4"	PID: 10.2 eV	Protect'n level: D
Ground el: 33.7'	Soil drilled: 102	Rock drilled: NA	Total Depth: 102
Logged by: NSG	Ch'd by: TL	Date: 10-11-89	▽ Below grnd: 14'
			Page 2 of 3

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
55		S-11	1.6		BKG	TAN F SAND, LOOSE, TR GRAVEL, WET	SP	10 11 14 16		
60		S-12	0.9		BKGD	GREY F SAND, TR CLAY (BLACK) V LOOSE, TR GRAVEL WET	SP	4 4 8 9		
65		S-13	1.3		BKGD	GREY F. SAND GRADING TO SILTY SAND CLAY IN TIP, FAINTLY LAMINATED, LOOSE TR GRAVEL WET	SP	7 11 14 15		
70		S-14	0.4		BKGD	GREY F SAND, TR SILT, LOOSE, TR GRAVEL WET	SP	3 16 14 15		
75		S-15	2.0		BKGD	GREY-TAN F. SAND, TR MED SAND, LOOSE, TR GRAVEL, WET	SP	13 15 18 19		
80		S-16	0.7		BKGD	GREY F. SAND, SOME SILT, LOOSE, TR GRAVEL WET	SP	3 5 8 9		
85		S-17	1.0		BKGD	GREY F SAND SOME SILT TR CLAY, TR GRAVEL LOOSE WET	SP	3 3 4 5		
90		S-18	1.6		BKGD	GREY F SILTY SAND, ORGANIC (BLACK) LAMINATION NEAR TIP, LOOSE, TR GRAVEL WET	SP	2 5 6 11		
95		S-19	1.8		BKGD	GREY SILTY F SAND, TR CLAY GRADING TO GREY F SAND ORGANIC LAMINAE, LOOSE TR GRAVEL, WET	SP	4 3 3 3		
100										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 230 A
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8 30-89	Completed: 9-5-89
Method: HSA / CASING	Casing size: 4"	PID: 10.2 eV	Protect'n level: D
Ground el: 33.7'	Soil drilled: 102	Rock drilled: NA	Total Depth: 102
Logged by: MJG	Ch'd by: TL	Date: 10-11-89	▽ Below grnd: 14'
			Page 3 of 3

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CIP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
	BKG	S-20	X	1.5		BKG	WELL F. SAND GRADING TO CLAY, LOOSE TO COMPACT, WET	SC	4 3 2 2		
							Bottom of Exploration at 102.0 Ft.				

*U = Thin wall tube S = Split spoon R = Rock

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Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-230B
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 9-6-89	Completed: 9-6-89
Method: HSA	Casing size: 6 5/8" ID	PID: 10.6 EV	Protect'n level: D
Ground el: 33.6'	Soil drilled: 60	Rock drilled: NA	Total Depth: 60
Logged by: NG	Ch'd by: TL	Date: 10-11-89	▽ Below grnd:
			Page 1 of 1

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
10						SEE LOG FOR MW-230A for SOIL DESCRIPTION				
20										
30										
40										
50										
60										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

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NAVAL AIR STATION, BRUNSWICK			Boring no: MW231A
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTR.		Date started: 9.13.89	Completed: 9-14-89
Method: HSA	Casing size: 6"ø	PID: # 4	Protect'n level: D
Ground el: 42.5'	Soil drilled: 72'	Rock drilled: NA	Total Depth: 72'
Logged by: LAF / JY	Ch'd by: JL	Date: 10-11-89	▽ Below grnd:
			Page 1 of 3

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
	Bkg	S1	0.2		Bkg	Brown fi-m SAND, little gravel, poorly graded, loose, dry. Cobble struck in sample TIP = BKG = 18.5	SP	8 10 18 20		
5		S2	1.1		Bkg			10 8 8 7		
10		S3	2.0		Bkg	Brown fi-m SAND, poorly graded, loose, dry.	SP	3 4 4 5		
15		S4	1.4		Bkg	Brown fi-m SAND, poorly graded, loose, dry. Few oxidized sandy laminae, brown silty sandy laminae, medium dense.	SP	4 6 5 7		
20		S5	1.6		Bkg	Olive-brown fi SAND, trace silt, and sandy silt stratification. Poorly graded, compact, wet. Sand is oxidized. Silt lenses 0.6' and 0.5' thick with thin sand laminae in silt lenses.	SP/SM	3 5 4 4		

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK

Boring no: 231A

Client: US. DEPARTMENT OF THE NAVY — Project no: 4807-31

Contractor: NEW ENGLAND BORING CONTRs. — Date started: 9-13-89 — Completed: 9-14-89

Method: HSA — Casing size: 6 5/8 — PID: * 6 — Protect'n level: D

Ground el: 42.5' — Soil drilled: 72' — Rock drilled: NA — Total Depth: 72'

Logged by: LAF / JU — Chkd by: TL — Date: 10-11-89 — ▽ Below grnd: 20'

Page 2 of 3

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CIP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
25	Bkg	S6	3.0		Bkg	Olive br fi-m SAND silty sand w/ trace clay. moderately graded, loose, wet. Oxidized silty sandy laminae. Silt lenses range from 0.4 – .01'	SP	5 5 6 6		
30		S7	2.0		Bkg	Olive br SILTY-SAND w/ little clay moderately graded, loose, wet. Tarnish orange and oxidized sand. Sand strata is 0.04'; decreasing sand gage and strata thickness.	SM	3 4 4 6		
35		S8	1.5		Bkg			3 3 4 5		
40		S9	2.0		Bkg	Olive br fi-m SAND, poorly graded, medium-dense, wet. Olive br silty sand stratification w/ trace clay 0.9'. Few oxidized laminae.	SP	14 16 15 17		
45		S10	1.1		Bkg	Olive br silty fi SAND. Poorly graded, loose, wet. Silt laminae 0.01' TIP = Bkg = -2.1 (recalibrated w/ span gas)	SP/SM	7 9 10 12		

*U = Thin wall tube S = Split spoon R = Rock

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Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK				**Boring no:** 231A	
Client: US. DEPARTMENT OF THE NAVY				**Project no:** 4807-31	
Contractor: NEW ENGLAND BORING CONTR's.			**Date started:** 9.13 89	**Completed:** 9.14 89	
Method: HSA	**Casing size:** 6 5/8		**PID:** # 6	**Protect'n level:** D	
Ground el: 42.5'	**Soil drilled:** 72'		**Rock drilled:** NA	**Total Depth:** 72'	
Logged by: LAF/JU	**Ch'd by:** TL		**Date:** 10-11-89	**Below grnd:** 20'	
				Page: 3 of 3	

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
50	Bkg	S11	1.3		Bkg	Olive br m SAND. Poorly graded, medium dense, wet. Oxidized sand laminae, 0.02' marine blue clay, 0.1'	SP	10 15 31 23		
55		S12	1.09		Bkg	Olive br silty fi SAND. Poorly graded, loose-med dense, wet. Stratified, faintly oxidized.	SP/SM	10 9 10 14		
60		S13	1.3		Bkg	Blue-grey silty fi SAND grading to clayey silt. Poorly graded, firm, wet.	SP/SM	6 8 8 12		
65		S14	2.0		Bkg	Blue-greg SILTY-CLAY. Poorly graded, sl. plastic, soft, wet. Silty fi sand strata 0.3' thick. Black graphite smears.	ML	2 2 2 3	Natural soils	
70		S15	2.0		Bkg	Blue-grey CLAY Poorly graded, sl. plastic, soft, wet. Black graphite smears.	ML	1 2 2 3		

*U = Thin wall tube S = Split spoon R = Rock

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Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-231B
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started:	Completed: 9-19-89
Method: HSA	Casing size: 6 5/8"	PID: 10.6 EV	Protect'n level: D
Ground el: 42.2'	Soil drilled: 36'	Rock drilled: NA	Total Depth: 36'
Logged by: LF	Ch'd by: TL	Date: 10-11-89	▽ Below grnd:
			Page 1 of 1

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
5						SEE MW-231A FOR SOIL DESCRIPTION	SP			
10										
15										
20										
25										
30										
35						B.O.B. @ 36'				
40										

*U = Thin wall tube S = Split spoon R = Rock

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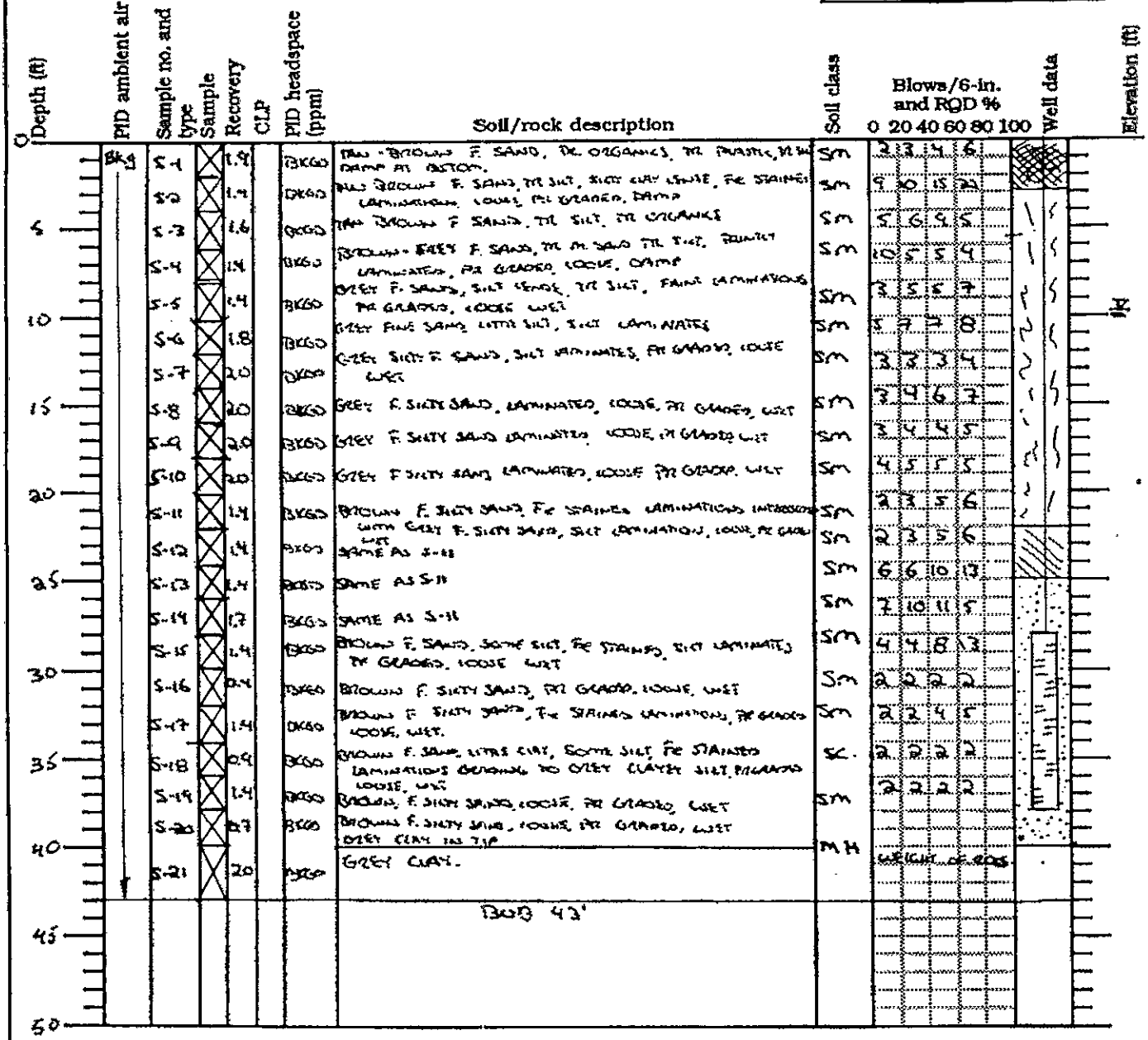
NAVAL AIR STATION, BRUNSWICK			Boring no: MW 232A
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8-29-85	Completed: 8-30-85
Method: HSA	Casing size: 6 5/8"	PID: 10.6 EV	Protect'n level: D
Ground el: 53.1'	Soil drilled: 43	Rock drilled: NA	Total Depth: 43'
Logged by: NSG	Ch'd by: TL	Date: 10-11-89	Below grnd: 10
			Page 1 of 1



*U = Thin wall tube S = Split spoon R = Rock

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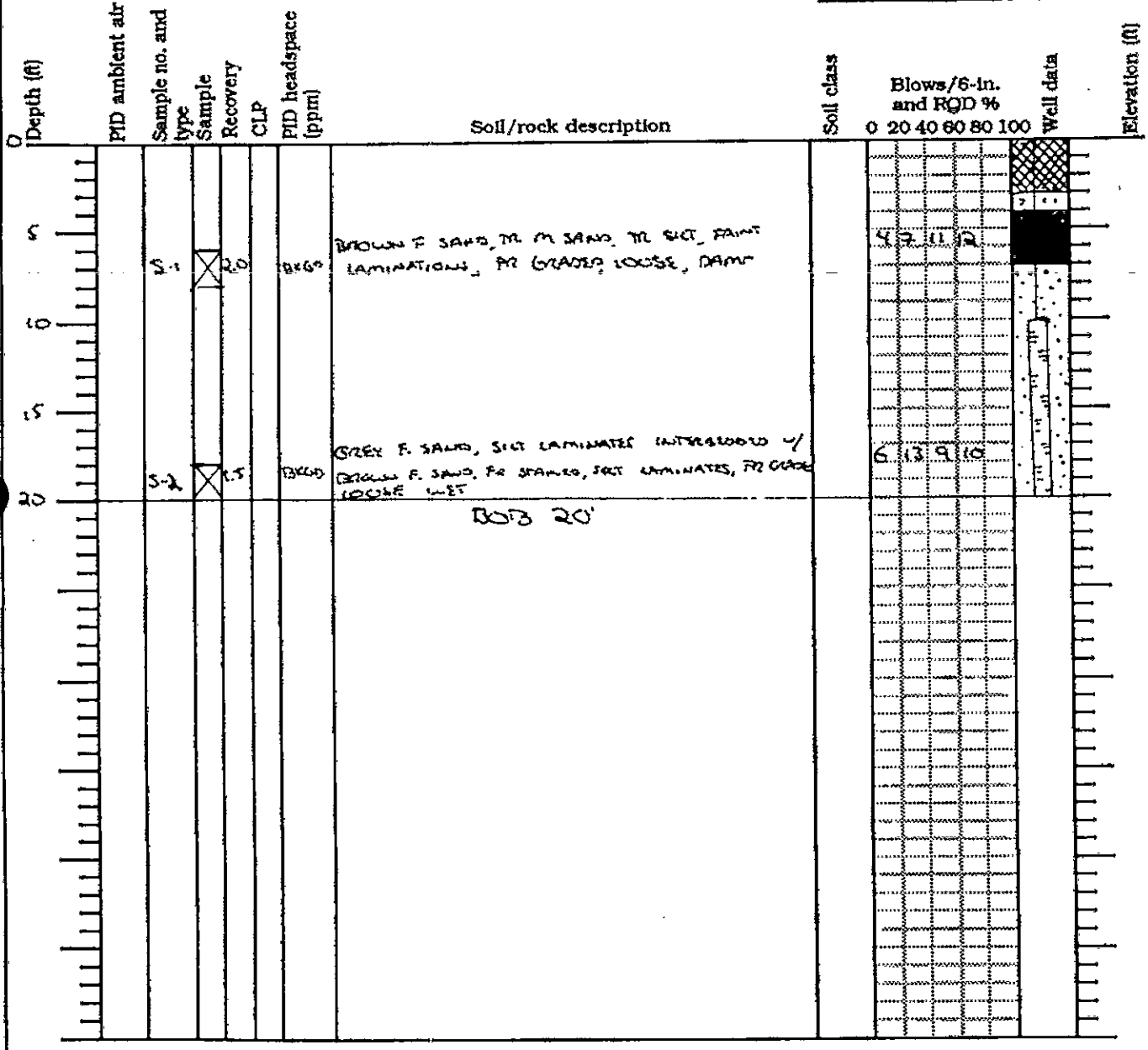
Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 232 B
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8-30-89	Completed: 8-30-89
Method: HSA	Casing size: 6¼"	PID: 10.6 EV	Protect'n level: D
Ground el: 53.1'	Soil drilled: 20'	Rock drilled: NA	Total Depth: 20'
Logged by: JDG	Ch'd by: TL	Date: 10-11-89	▽ Below grnd: 10'
			Page 1 of 1



*U = Thin wall tube S = Split spoon R = Rock

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Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-233
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-30
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/24/89	Completed: 9/25/89
Method: HSA	Casing size: 6 5/8"	PID: 10.6	Protect'n level: D
Ground el: 58.1'	Soil drilled: 50'	Rock drilled: NA	Total Depth: 80'
Logged by: E. SHEPHARD	Ch'd by: TL	Date: 10-11-89	▽ Below grnd:
			Page: 1 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	Spoon PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
	BACKGROUND	S-1	1.6		BKG	* FOR 0-30' SEE LOG FOR MW 201 LIGHT BROWN, FINE SAND, WET	SP	1 0 1 1		
35		S-2	2.0			LIGHT BROWN, FINE SAND, WET TRACE ORGANICS	SP	1 0 1 1		
40		S-3	2.0			LIGHT BROWN, FINE SAND, WET TRACE ORGANICS	SP	1 1 2 2		
45		S-4	1.8			LIGHT BROWN, FINE SAND, WET	SP	2 2 3 4		
50		S-5	2.0			LIGHT BROWN, FINE SAND, TRACE SILT WET	SP	1 1 2 2		
55										

*U = Thin wall tube S = Split spoon R = Rock

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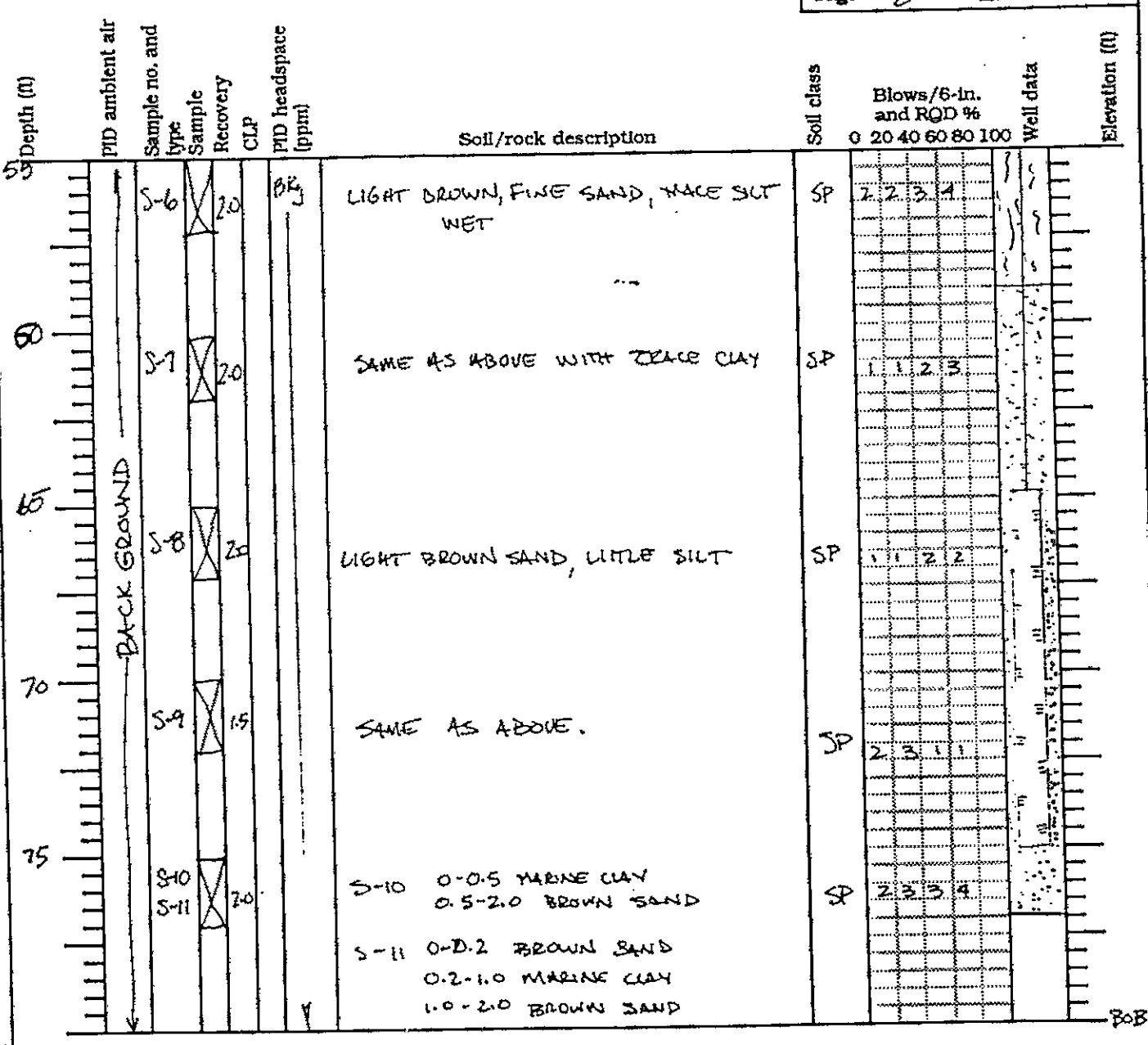
Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-233
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/24/89	Completed: 8/25/89
Method: HSA	Casing size: 6 5/8"	PID:	Protect'n level: D
Ground el: 58.1'	Soil drilled: 50'	Rock drilled: NA	Total Depth: 80'
Logged by: E. SHEPHARD	Ch'd by: TL	Date: 10-16-89	▽ Below grnd:
			Page 2 of 2



*U = Thin wall tube S = Split spoon R = Rock

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Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 234
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 9-20-89	Completed: 9-21-89
Method: HSA	Casing size: 6 5/8" ID	PID: 10.2 eV	Protect'n level: C DERMAL
Ground el: 52.9'	Soil drilled: 42	Rock drilled: NA	Total Depth: 42
Logged by: MSG	Ch'd by: TL	Date: 10-16-89	▽ Below grnd: 9'
			Page 1 of 1

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
0										
5										
10		S-1	0.4		NA	GREY F. SAND AND GARBAGE, STRONG ODOR		1 3 6 3		
		S-2	0.8		NA	SAME AS S-1, WET		3 5 9 11		
		S-3	0.4		NA	SAME AS S-1 — Fill —		6 4 7 9		
15		S-4	0.7		NA	GREY F SAND, SOME GARBAGE		4 4 4 4		
		S-5	0.2		NA	SAME AS S-4		6 3 3 5		
		S-6	1.1		NA	GREY F SAND LITTLE GARBAGE, WET		2 2 4 3		
20		S-7	0.9		NA	GREY F SAND INTERBEDDED WITH THIN SAND LAMINATED F SAND, TR SILT, LOOSE, NO ODOR WET		2 4 5 6		
25		S-8	0.8		NA	SAME AS S-7		2 5 6 9		
30		S-9	0.9		NA	BROWN F SAND, FE STAINED, LAMINATED TR SILT, LOOSE NO ODOR, WET		5 9 12 17	MW-CAVE	
35		S-10	0.9		NA	SAME AS S-9		7 16 23 26		
40		S-11	1.2		NA	GREY SILTY CLAY, TR F SAND INTERBEDDED WITH GREY F. SAND, LOOSE, NO ODOR WET		4 3 2 1		
						BOB 42'				
45										
50										

*U = Thin wall tube S = Split spoon R = Rock

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Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 408
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-34
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 9 12 89	Completed: 9 12 89
Method: HSA	Casing size:	PID: 10.2 cV	Protect'n level: D
Ground el: 58.4'	Soil drilled: 24	Rock drilled: NA	Total Depth: 24
Logged by: NSG	Ch'd by: TL	Date: 10-10-89	▽ Below grnd: 9
			Page 1 of 1

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
0	BKG	S-1		1.4		BKGD	TOP: BROWN F SAND W/ GRAVEL, BOTTOM 7IN: F SAND LOOSE, DK GRAY DRY	SP	8 5 6 DRY		
		S-2		0.0		BKGD	BRN F SAND W/ GRAVEL, MOIST DRY	SP	21 13 6 4		
5		S-3		1.5		BKGD	TAN F SAND SOME LAMINATIONS, DK GRAVEL LOOSE DRY	SP	3 8 10 12		
		S-4		1.6		BKGD	SAME AS S-3	SP	9 6 3 6		
		S-5		2.0		BKGD	GREY F SAND W/ STAINED LAMINATIONS W/ SILT LOOSE DRY GRAVEL MAT	SP	3 2 1 2		
10		S-6		2.0		BKGD	GREY F SAND W/ STAINED LAMINATIONS W/ SILT LOOSE DRY GRAVEL MAT	SP	3 3 4 3		
		S-7		2.0		BKGD	SAME AS S-6	SP	5 7 7 6		
15		S-8		2.0		BKGD	SAME AS S-6	SP	5 7 7 6		
		S-9		2.0		BKGD	SAME AS S-6	SP	4 5 5 8		
		S-10		2.0		BKGD	SAME AS S-6	SP	3 4 7 8		
20		S-11		2.0		BKGD	SAME AS S-6	SP	6 11 14 13		
		S-12		2.0		BKGD	SAME AS S-6	SP	7 13 14 12		
25							BOT 24'				

*U = Thin wall tube S = Split spoon R = Rock

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Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: Boring 809
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/30/89	Completed: 8/31/89
Method: HSA	Casing size: NA	PID: 10.6 EV	Protect'n level: D
Ground el: 66.1'	Soil drilled: 30'	Rock drilled: NA	Total Depth: 30
Logged by: SJS	Ch'd by: TL	Date: 10-16-89	▽ Below grnd: NA
			Page 1 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
0										
	.3.3	S-1	2.0/1.2		Bkgd	Brown, gravelly sand, well graded, loose, dry. (F 11)	GW	5 8 6 7	No well Installed	
2	-2.0	S-2	2.0/2.5		Bkgd	Brown, fine sand poorly graded trace coarse, little fine to coarse gravel, loose, dry. (F 11)	SP	5 5 5 5		
4	-2.2	S-3	2.0/0.5		Bkgd	Dark brown, fine sand, poorly graded, trace med s.m, trace silt, very loose to loose, moist. (F 11)	SP	5 5 3 4		
6	-3.2	S-4	2.0/0.5		7.0	Dark brown, fine sand poorly graded small clumps of black clay?, very loose, moist. (F 11)	SP	4 3 2 2		
8	-3.1	S-5	2.0/0.9		12.0	Black, silty sand, poorly graded, fine 10.0 - 10.6 Brown to rust silty sand, poorly graded, fine, trace coarse, trace fine gravel, very loose, oily sheen, moist. (F 11)	SM	2 2 4 5		
10	-2.0	S-6	2.0/0.3		29.0	Brown—Rust silty sand, poorly graded little mica, loose, appears oily moist. (F.11).	SM	4 7 8 2		
12	-1.2	S-7	2.0/2.5		3.2	Brown-Black, silty sand, poorly graded, pieces of particle board and concrete, very loose, moist. (F.11)	SM	2 2 2 3		
14	-1.1	S-8	2.0/2.0		Bkgd	Black, silty sand, poorly graded, loose trace concrete, very moist. 16.0-16.5. Gray silty clay, plastic dense, very stiff, hard, little fractures, moist, trace organics.	SM/OH	3 4 5 8		
16	-0.2	S-9	0.4/0.3		Bkgd	Gray-green, silty clay, plastic, dense, very stiff, moist, trace organics.	OH	wt. of spoon		
18	-0.4	S-10	2.0/2.0		Bkgd	As above with oxidation in clay.	OH	3 4 5 7		
20										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: B 809
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8130189	Completed: 8131189
Method: HSA	Casing size: NA	PID: 10.6 EV	Protect'n level: D
Ground el: 66.1'	Soil drilled: 30'	Rock drilled: NA	Total Depth: 30'
Logged by: SJS	Ch'd by:	Date:	▽ Below grnd: NA
			Page 2 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
20										
	-2.2	S 11	0.4 / 5.3		Bkgd	Gray-Green, Clay, plastic, dense, very stiff, moist to wet.	OH	2 13 14 14		
22	-2.2	S 12	2.0 / 2.0		Bkgd	As above ...	OH	2 2 2 3		
24	-2.1	S 13	2.0 / 2.0		Bkgd	As above 24.0-24.2, Gray, clay, plastic, soft, moist.	OH	2 2 2 2		
26	-2.2	S 14	2.0 / 2.0		Bkgd	As above	OH	2 2 2 3		
28	-1.1	S 15	2.0 / 2.0		Bkgd	As above	OH	2 2 1 2	No well Installed	
30						Bottom of Boring 30'				

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-810
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-30
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/31/89	Completed: 9/1/89
Method: HSA	Casing size: NA	PID: 10.6 EV	Protect'n level: D
Ground el: 64.6'	Soil drilled: 34'	Rock drilled: NA	Total Depth: 34'
Logged by: SJS	Ch'd by: TL	Date: 10-16-89	▽ Below grnd: 19'
			Page 1 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
0	2.0	S-1	2.0/0.8		Bkgd	Brown – black, silty sand, poorly graded, fine, trace med to coarse, loose, little organics, dry. (F.11)	SM	4 3 3 4	Volclay Grout	
2	2.1	S-2	2.0/1.0		9.2	Brown, silty sand, poorly graded, little dark brown layering, loose, trace asphalt, moist. (F.11)	SM	3 4 3 2		
4	2.2	S-3	2.0/0.9		11.2	As above	SM	3 3 3 4		
6	1.0	S-4	2.0/1.2		10.2	Brown, silty sand, poorly graded, some asphalt, moist. (F.11)	SM	8 12 12 14		
8	1.1	S-5	2.0/1.2		Bkgd	Brown – black gravelly silty, sand, poorly graded fine sand, trace coarse, oily sheen, medium dense, some asphalt, moist. (F.11)	SM	8 23 29 27		
10	1	S-6	2.0/0.3		—	As above		9 16 7 4		
12	1.2	S-7	2.0/0.8		10.5	Brown – Black silty sand, poorly graded, trace med to coarse medium dense, trace gravel trace concrete, moist (F.11)	SM	29 10 21 12		
14	.2	S-8	2.0/0.8		Bkgd	Gray, sand, poorly graded, fine to to medium some brown weathered rock, (F.11)	SP	15 18 4 1		
16	2.1	S-9	2.0/0.6		Bkgd	Brown, gray, tan, silty sand, poorly graded, alternating colored layers, very loose, trace wood, moist. (F.11)	SM	8 5 2 2		
18	2.0	S-10	2.0/2.0		Bkgd	Brown – black, silty sand, poorly graded fine, black layering appears to be organic, soft, organic odor, wet. (Original soil horizon)	SM	1 1 1 1		
20										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-810
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-30
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/31/89	Completed: 9/1/89
Method: HSA	Casing size: NA	PID: 10.6 ppm	Protect'n level: D
Ground el: 64.6'	Soil drilled: 34'	Rock drilled: NA	Total Depth: 34'
Logged by: SJS	Ch'd by: TL	Date: 10-16-89	▽ Below grnd: 19'
			Page 2 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
20										
	1.8	S-11	2.0/1.8		Bkgd	Brown-black silty sand, poorly graded, fine, black layers of organic material, organic odor, soft, wet.	SM	1 1 1 1		
22										
	1.1	S-12	2.0/1.2		Bkgd	As above 22.0-22.8. Black silty clay, dense, stiff, dry, some weathered rock, wet.	SM/OH	4 8 8 8		
24										
	1.4	S-13	2.0/0.6		Bkgd	Weathered Rock 24.0-24.5. Brown silty sand, poorly graded, fine to coarse, wet.	SM	24 5 7 16		
26										
	1.0	S-14	2.0/0.6		Bkgd	Weathered rock (Mica Schist)		39 11 3 1		
28										
	1.0	S-15	2.0/1.2		Bkgd	Brown, sand, poorly graded, fine, loose, very micaceous, wet, 28.0-28.4. Gray-green, silty Clay, slightly plastic, hard, dense, stiff, some oxidation, moist.	SM/OH	3 8 11 17		
30										
	1.0	S-16	2.0/1.0		Bkgd	Gray, silty clay, plastic, dense, moist.	CH	9 11 13 A		
32										
	1.2	S-17	2.0/1.5		Bkgd	As above	CH	7 10 10 13		
34						Bottom of Boring (Spoon)				

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			**Boring no:** MW-811
Client: US. DEPARTMENT OF THE NAVY			**Project no:** 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		**Date started:** 9/13/89	**Completed:** 9/13/89
Method: CASING	**Casing size:** 4"	**PID:** 10.2eV	**Protect'n level:** D
Ground el: 36.9'	**Soil drilled:** 12'	**Rock drilled:** NA	**Total Depth:** 12'
Logged by: MJN	**Ch'd by:** TL	**Date:** 10-16-89	**Below grnd:** 0'
			Page: 1 of 1

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
5	BKG	S-1		0.0		BKG	NO RECOVERY	—	WOR		
		S-2		0.9		BKG	BROWN BLACK FINE SILTY SAND, ORGANICS, WET	SM/OL	5 2 1 1		
		S-3		0.5		BKG	BROWN-BLACK FINE SILTY SAND, ORGANICS WET	SM/OL	4 2 1 2		
		S-4		0.0		BKG	NO RECOVERY	—	2 1 1 4		
10		S-5		1.0		BKG	GREEN-GRAY SILTY CLAY, DENSE	CL	2 3 4 5		
		S-6		2.0		BKG	GREEN-GRAY SILTY CLAY, DENSE	CL	8 5 5 3		
							B.C.B. 12'				
15											

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: ON-812
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRS.		Date started: 8/23/89	Completed: 8/24/89
Method: HSA	Casing size: 6.25"	PID: S.P 10.6 eV	Protect'n level: D
Ground el: 62.4'	Soil drilled: 75'	Rock drilled: NA	Total Depth: 75'
Logged by: LCHEARLEY	Ch'd by: TL	Date: 10-16-89	▽ Below grnd: 34.0'
			Page 1 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
0	0.0	S-1	1.1		2.0	0.0-2.2 BROWN FINE SAND WITH DUFF	SP	2 2 2 3		
5	0.0	S-2	2.0			2.2-7.0 LT GRY BROWN FINE SAND, POORLY SORTED, NON PLASTIC; VERY LOOSE TO LOOSE, DRY; NON-STRATIFIED, OUTWASH		3 3 4 7		
10	0.0	S-3	1.8			LT BROWN FINE SAND, LITTLE SILT, LOOSE; DRY-DAMP, NON-STRAT. OUTWASH				
15	0.0	S-4	1.5		0.6	VERY SLIGHT STRATIFICATION, SOME ORANGE-BR MOTTLING	SP	2 3 4 6		
20	0.0	S-5	2.0		0.1	LIGHT BROWN TO TAN MEDIUM FINE SAND, FAIRLY WELL SORTED, LOOSE, DAMP; NON-STRATIFIED OUTWASH W/ CASE OUT	SP	2 4 4 4		
25	0.0	S-6	1.5		0.0			4 6 10 10		
30	0.0	S-7	2.0		0.0	SOME ORANGE MOTTLES		9 9 6 7		
35	0.0	S-8	2.0		0.1	▽ 34' BROWN MEDIUM TO FINE SAND; POORLY GRADED; LOOSE, MOIST TO SATURATED; NON-STRATIFIED, OUTWASH. SOME LT BROWN TO DK ORANGE MOTTLED LAYERS	SP	5 4 4 6		
40		S-9			0.0			3 3 4 6		
		S-10			0.0			4 4 6 5		
		S-11			0.0			4 4 4 6		
45		S-12			0.0	OCC. GRAY SANDY SILT LAYERS 0.05 TO 0.3' THICK, SATURATED	SP-SM	9 10 10 12		
		S-13			0.0			10 14 16 19		
50		S-14			0.0	AT 49-50', 1.0' THICK BROWN F SANDY SILT LAYER	SM	10 10 12 11		
								12 10 14 14		

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK

Client: US. DEPARTMENT OF THE NAVY			**Boring no:** OW-312
Contractor: NEW ENGLAND BORING CONTRs.		**Date started:** 8/23/89	**Project no:** 4607-30
Method: HSA	**Casing size:** 6.25"	**PID:**	**Completed:** 8/24/89
Ground el: 62.4'	**Soil drilled:** 75'	**Rock drilled:** NA	**Protect'n level:** D
Logged by: Leibsey	**Ch'd by:** T.L.	**Date:** 10-16-89	**Total Depth:** 75'
			Below grnd: 34'
			Page 2 **of** 2

Depth (ft)	PID ambient air	Sample no. and type	Recovery	CLP	PID headspace (ppm)	Soil class	Blows/6-in. and RQD %	Elevation (ft)
50	0.0	S-15	2.0		0.0	SP TO SM	14 17 19 23	
		S-16			0.1		14 8 28 31	
		S-17	2.0		0.0			
55		S-18	2.0		0.0		12 13 20 25	55
		S-19	2.0		0.0		4 5 5 6	
60		S-20	1.8		0.0		6 7 5 6	60
		S-21	.3		0.0		3 4 3 2	
		S-22	0.4		0.0	SP-CL	2 2 3 2	
65		S-23	0.5		0.0		20 28 30 36	65
		S-24	1.8				9 12 18 7	
70		S-25	0.4		0.0		2 3 4 4	70
		S-26	1.0		0.0	CL	3 3 6 6	
75		S-27	1.5		0.0		3 3 4 4	

Soil/rock description

LT BROWN TO TAN MEDIUM TO FINE SAND INTERBEDDED BR-GRAY FINE SANDY SILT; MEDIUM DENSE; SATURATED; RED TO BROWN MOTTLING IN COARSER LAYERS; STRAT. OUTWASH

SEE 0.5 TO 1.0 LAYERS OF [illegible] PLASTIC, CLAY, GRAY SILT, LITTLE FINE SAND

- COLOR CHANGE @ 58' TO GRAY FINE SAND

DK GRAY FINE SANDY SILT, SOFT, MOD. PLASTIC AND MED [illegible] CLAY; INTERBEDDED WITH DK GRAY MEDIUM TO FINE SAND, TRACE SILT; [illegible] GRADED, DENSE; SATURATED OUTWASH / MARINE CLAY/SILT

DK. GRAY CLAY, TRACE SILT; MOD. PLASTIC; [illegible], SOFT SATURATED; MARINE CLAY

Well data: CAVE IN

BOTTOM OF BORING AT 75.0'
TERMINATED IN MARINE CLAY

SAMPLES S-1 THROUGH S-24
SENT FOR GC ANALYSIS

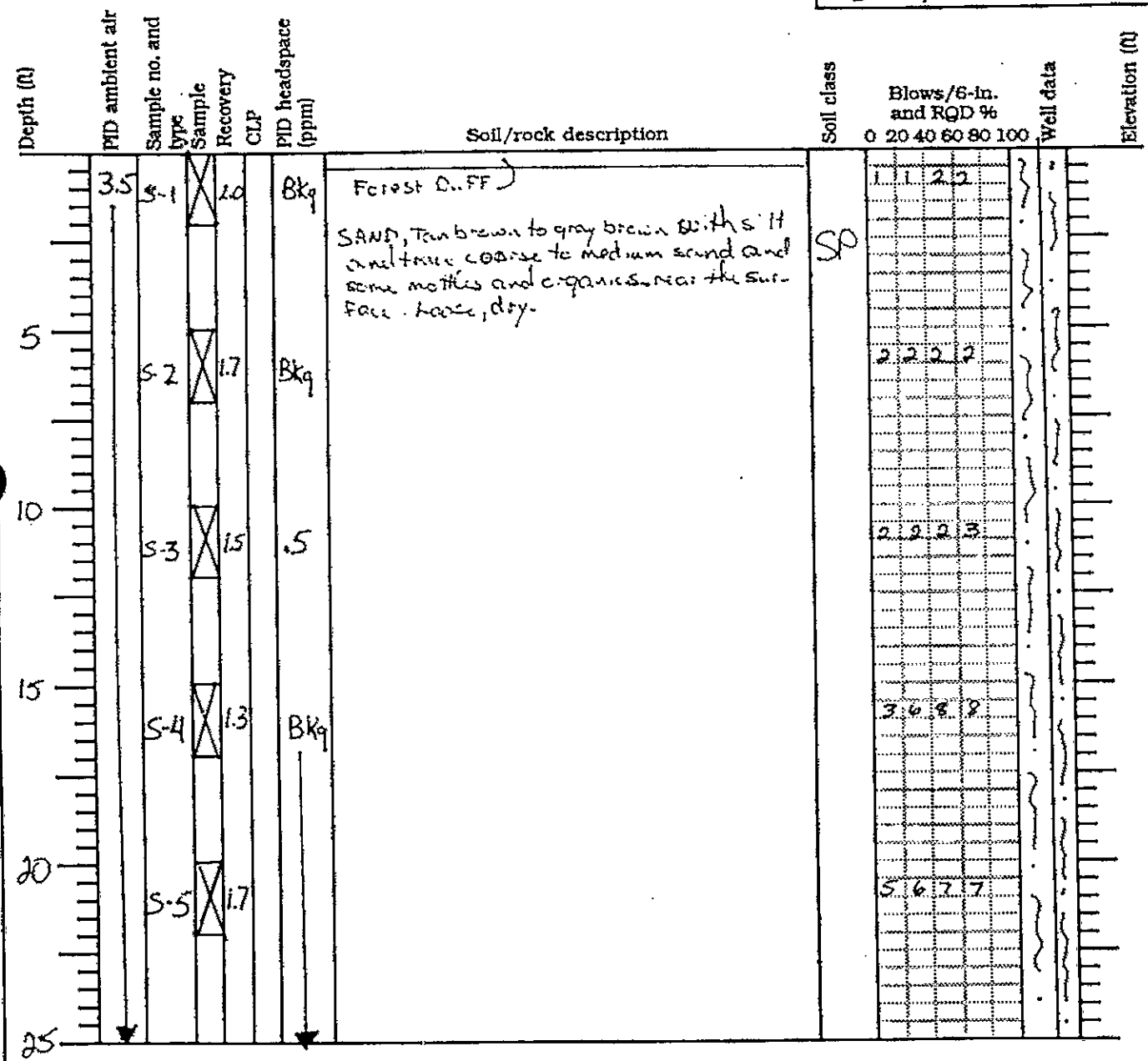
INSTALLED 2.0" ID PVC WELL; 10' 0.01" SLOT SCREEN; #2 SANDPACK; 2' BENTONITE PELLET SEAL; BACKFILL [illegible] TO 3' DEPTH; 7' PROTECTIVE CASING W/ 3' CEMENT GROUT

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			**Boring no:** OW-813
Client: US. DEPARTMENT OF THE NAVY			**Project no:** 4607-81
Contractor: NEW ENGLAND BORING CONTRs.		**Date started:** 8-29-89	**Completed:**
Method: H.S.A.	**Casing size:** 6 5/8	**PID:** 10.6	**Protect'n level:** D
Ground el: 57.3'	**Soil drilled:** 53.0	**Rock drilled:** NA	**Total Depth:** 53.0
Logged by: C. Lyons	**Ch'd by:** T.L.	**Date:** 10-16-89	▽ **Below grnd:**
			Page 1 **of** 3



*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: OW-813
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTR:.		Date started: 8-29-89	Completed: 8-29-89
Method: HSA	Casing size: 6 5/8	PID: 10.6	Protect'n level: D
Ground el: 57.3'	Soil drilled: 53.0	Rock drilled: NA	Total Depth: 53.0
Logged by: C. Lyons	Ch'd by: JT	Date: 10-16-89	▽ Below grnd:
			Page 2 of 3

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
30	3.5	S-6	2.0		BKg	26.0		10 12 6 6		
		S-7	2.0			SAND, olive brown w. th s. lt and trace coarse to medium sand. Occasional oxidized sandy layers w. th clayey s. lt layers with depth. Wet, semi-dense. (Saturated portion of above soils)	SP	4 6 6 6		
		S-8	1.8					6 6 7 8		
		S-9	2.0					7 7 7 9		
35		S-10	2.0					6 6 7 7		
		S-11	2.0					5 7 7 8		
		S-12	1.8					6 6 7 8		
40		S-13				42.9		8 8 8 9		
		S-14				CLAY/SILT, gray, with little to trace Fine sand. Fine sand semi-plastic to plastic. Sem.-stiff to stiff. Wet.	CL	8 9 8 10		
		S-15						7 9 10 10		
45		S-16						6 6 7 8		
		S-17						7 7 6 8		
50								2 2 2 2		

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: OW-813
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-3-1
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8-29-89	Completed: 8-29-89
Method: HSA	Casing size: 6 5/8	PID: 10.6	Protect'n level: D
Ground el: 57.3'	Soil drilled: 53.0	Rock drilled: NA	Total Depth: 53.0
Logged by: C. Lyons	Ch'd by: T.C.	Date: 10-16-89	▽ Below grnd:
			Page 3 of 3

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
	3.5	S-18		0.7		Bkg	CLAY / SILT, gray, with little to trace fine sand. Plastic fines. wet	CL	2 2 2 2		
	3.5	S-19		2.0		Bkg					
							Bottom of Boring = 53.0				
55											
60											
65											
70											
75											

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: OW-814
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 9-24-89	Completed: 8-29-89
Method: H.S.A.	Casing size: 6 5/8"	PID: 10.6 eV	Protect'n level: D
Ground el: 62'	Soil drilled: 79	Rock drilled: NA	Total Depth: 79'
Logged by: L. Hussey / C. Lyons	Ch'd by: T.L.	Date: 10-16-89	▽ Below grnd:
			Page 1 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
0	Bkg	S-1	1.8		Bkg.	FOREST DUFF for 1½'		2 2 3 4		
5		S-2	1.0			SAND, tan brown to gray brown with LITTLE TO SOME SILT AND TRACE COARSE SAND, LOOSE AND DRY W/ ORGANIC MAT'L. NEAR SURFACE.	SP	4 4 5 6		
10		S-3	0.7					4 6 6 7		
15		S-4	0.3					5 7 7 8		
20		S-5	0.7					6 6 7 9		
25		S-6	1.1			SAND, TAN brown to GRAY brown; MEDIUM TO FINE WITH SOME SILT AND TRACE COARSE SAND; LOOSE & DRY	SP	6 7 12 14		
30		S-7	0.8					12 13 18 21		
35		S-8	0.5			SAND, TAN brown to OLIVE brown, MEDIUM TO FINE WITH SILT, WET, SOMEWHAT DENSE (SATURATED COMPONENT OF SANDS ABOVE)	SP	5 6 11 11		
		S-9	1.0					6 12 14 17		
40		S-10	1.0					11 14 20 21		
		S-11	1.3					16 17 23 25		
		S-12	2.0					3 3 5 8		
45		S-13	2.0					14 18 20 22		
		S-14	1.8					14 15 17 20		
50		S-15	1.9					10 12 14 17		

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: OW-814
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8-24-89	Completed: 8-29-89
Method: H.S.A.	Casing size: 6¾"	PID: 10.6 EV	Protect'n level: D
Ground el: 67'	Soil drilled: 79	Rock drilled: NA	Total Depth: 79'
Logged by: L. HEALEY / C. LYONS	Ch'd by: T.L.	Date: 10-16-89	▽ Below grnd:
			Page 2 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
55	BKg	S-15		1.1		BKg	SAND, olive brown, medium to fine w/ silt. Wet, semi-dense		10 14 20 26		
		S-16		2.0					3 6 6 6		
		S-17		1.2					10 11 1 8		
		S-18		1.5					8 12 13 15		
60		S-19		2.0					6 6 6 6		
		S-20		2.0					3 4 4 7		
		S-21		2.1					3 3 4 5		
		S-22		2.0					12 12 20 21		
65		S-23		1.0					4 11 16 23		
		S-24		1.0					10 10 11 15		
70		S-25		1.0					6 6 7 8		
		S-26		2.0					4 5 5 4		
		S-27		2.0					2 2 3 4		
75		S-28		2.0					2 2 2 2		
		S-29		2.0							
							54.5				
							CLAY/SILT, gray w/ some to little fine sand. Fines are slightly to moderately plastic, semi-stiff to stiff, wet				
							CLAY - GRAY, PLASTIC, SOFT	CH			
80							B.O.B @ 79'				
85											
90											
95											
100											

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-906
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTR.		Date started: 8/21/89	Completed: 8/22/89
Method: HSA	Casing size: 6 5/8"	PID: 10.2 eV	Protect'n level: D
Ground el: 49.6'	Soil drilled: 28'	Rock drilled: NA	Total Depth: 28'
Logged by: L. Hoyt	Ch'd by: TL	Date: 10.16.89	▽ Below grnd: ÷ 9'
			Page 1 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
5	BACKGROUND	S-1	1.2		Bkd	Brown, fine to med sand, dry, loose	SP	2 2 3 3		
		S-2	1.5		Bkd	Tan, poorly graded, silty sand, dry		2 2 2 3		
		S-3	1.5		Bkd	same as above with some rust mottling		2 3 4 4		
		S-4	2.0		0.4	same as above		4 4 3 4		
10		S-5	1.9	✓	0.1	Light brown, fine to med sand, poorly graded, wet some rust mottling		3 3 4 4		
		S-6	2.0		0.2	same as above	SP	3 3 3 3		
		S-7	1.5		0.7	same as above		1 2 2 3		
15		S-8	1.7	✓	Bkd	same as above		1 1 2 3		
		S-9	1.7		Bkd	same as above		4 1 2 3		
		S-10	1.6		Bkd			2 2 3 4		
20		S-11	2.0		Bkd	light brown, fine to med sand, tr. silt, some rust mottling, wet	SP	2 2 3 4		
		S-12	2.0		Bkd			1 1 1 1		
25		S-13	2.0	✓	Bkd					

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-906
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/21/89	Completed: 8/22/89
Method: HSA	Casing size: 6 5/8"	PID: 10.2	Protect'n level: D
Ground el: 49.6'	Soil drilled: 28'	Rock drilled: NA	Total Depth: 28'
Logged by: L. Hoyt	Ch'd by: T.L.	Date: 10-16-89	▽ Below grnd: = 9'
			Page 2 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
25		S-14	1.3		BKG	Grayish brown silt and fine sand, tr clay at 25.5', wet	ML			
						Blue Gray clay, wet	CH			
30						BOB - 28'				

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-907
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/17/89	Completed: 8/18/89
Method: AUGER	Casing size: 6 5/8" ID	PID: 10.2	Protect'n level: D
Ground el: 52.5'	Soil drilled: 30'	Rock drilled: NA	Total Depth: 30'
Logged by: G. Davis	Ch'd by: TL	Date: 10-17-89	▽ Below grnd: 12.0'
			Page 1 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
	1.0	S-1	1.8		1.0	0.0-1.6 Dark brown fine sand trace silt 1.6-1.8 Light brown fine sand trace silt Loose, Dry — OUTWASH —	SP	4 5 7 9		
20	1.0	S-2	1.8		1.0	0.0-0.4 Gray fine sand trace silt 0.4-1.5 light brown fine sand trace silt 1.5-1.8 brown fine sand trace silt oxide varving Loose, Dry — OUTWASH —	SP	3 3 6 7		
40	1.0	S-3	1.8		1.0	0.0-0.2 brown fine sand trace silt 0.2-0.5 gray fine sand little silt blade varving 0.5-1.4 Orange fine sand trace silt 1.4-1.8 light brown fine sand trace silt Collected analytical sample 1415 — OUTWASH —	SP	4 5 5 5		
6.0	1.0	S-4	1.5		1.0	Light gray fine sand trace silt Dry. Loose — OUTWASH —	SP	4 4 4 5		
8.0	1.0	S-5	1.5		3.0	Same as sample S-4 with oxide varves — OUTWASH —	SP	2 3 3 3		
10.0	1.0	S-6	1.5		10.0	Same as sample S-5 collected analytical sample 1430 — OUTWASH —	SP	4 4 4 5		
12.0	1.0	S-7	1.5		1.0	Light gray fine sand trace silt Loose, wet, oxide stains Collected analytical sample 1500 — OUTWASH —	SP	1 2 2 3		
14.0	1.0	S-8	1.5		1.0	Light gray fine sand trace silt wet, loose — OUTWASH —	SP	1 2 2 2		
16.0	1.0	S-9	1.5		1.0	Same as sample S-7 — OUTWASH —	SP	2 2 3 4		
18.0	1.0	S-10	1.5		1.0	Light brown fine sand little silt wet, loose collected Analytical Sample 1514 — OUTWASH —	SP	2 2 3 4		
20.0										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-907
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/17/87	Completed: 8/18/89
Method: AUGER	Casing size: 6 5/8" ID	PID: 10.2	Protect'n level: D
Ground el: 52.5'	Soil drilled: 30'	Rock drilled: NA	Total Depth: 30'
Logged by: G. DAVIAS	Ch'd by: TL	Date: 10-17-89	▽ Below grnd: 12.0'
			Page 2 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
22.0	1.0	S-11	1.8		1.0	Same as sample S-10 — OUTWASH —	SP	2 2 3 3		
24.0	1.0	S-12	1.2		1.0	Same as sample S-10 — OUTWASH —	SP	1 1 2 4		
26.0	1.0	S-13	1.8		1.0	Same as sample S-10 — OUTWASH —	SP	1 0 1 0		
28.0	1.0	S-14	1.8		1.0	0-1.6 Same as sample S-10 1.6-1.8 brown fine sand little silt trace clay — OUTWASH —	SP	2 2 2 3		
30.0	1.0	S-15	1.8		1.0	Same as sample S-10 Collected analytical Sample 1650 — OUTWASH —	SP	2 3 2 2		
						END OF BORING				

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-908
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/18/89	Completed: 8/18/89
Method: AUGER	Casing size: 4 1/4" ID	PID: 10.2	Protect'n level: D
Ground el: 50.8'	Soil drilled: 30'	Rock drilled: NA	Total Depth: 30'
Logged by: G. Dawkes	Ch'd by: TL	Date: 10-17-89	▽ Below grnd: 9.0'
			Page 1 of 2

RECIRCLED on 10-4-89
TO REPLACE DAMAGED WELL

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
2.5	1.0	S-1	1.8		2.0	Brown fine sand trace silt very loose, Dry — OUTWASH —	SP	1 2 5 6		
4.0	1.1	S-2	1.6		1.8	Light brown fine sand trace silt very loose, Dry — OUTWASH —	SP	5 5 5 5		
6.0	1.0	S-3	1.8		1.0	Same as Sample S-2 Collected analytical sample 0915 — OUTWASH —	SP	2 3 3 3		
8.0	1.0	S-4	1.9		1.5	Same as Sample S-2 with oxide stains — OUTWASH —	SP	2 2 2 2		
10.0	1.0	S-5	1.8		1.0	Same as sample S-4 wet, Loose Collected analytical Sample — OUTWASH —	SP	2 2 3 3		
12.0	1.0	S-6	1.8		1.0	Same as sample S-4 — OUTWASH —	SP	2 2 3 3		
14.0	1.0	S-7	1.8		1.0	Brown fine Sand trace silt wet, Loose — OUTWASH —	SP	1 2 3 3		
16.0	1.0	S-8	1.0		1.0	Same as sample S-7 — OUTWASH —	SP	1 2 2 2		
18.0	1.0	S-9	1.8		1.0	Same as Sample S-7 Collected Analytical Sample 1010 — OUTWASH —	SP	2 2 2 3		
20.0	1.0	S-10	1.5		1.0	Same as sample S-7 — OUTWASH —	SP	2 2 3 3		

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-908
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/18/89	Completed: 8/18/89
Method: AUGER	Casing size: 6 5/8" I.D.	PID: 10.2	Protect'n level: D
Ground el: 50.8'	Soil drilled: 30'	Rock drilled: NA	Total Depth: 30'
Logged by: G. Doukas	Ch'd by:	Date:	▽ Below grnd: 9.0'
			Page 2 of 2

REDRILLED ON 10-4-89
TO REPLACE WELL

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
22.0	1.0	S-11	1.8		1.8	Same as Sample S-7 —OUTWASH—	SP	2 2 3 4		
24.0						No SAMPLE				
	1.0	S-12	1.8		1.0	Same as sample S-7 — OUTWASH	SP	2 2 3 3		
26.0										
	1.0	S-13	1.8		1.0	Same as Sample S-7 —OUTWASH—	SP	2 2 3 4		
28.0										
	1.0	S-14	1.8		1.0	Same as Sample S-7 Collected analytical Sample 1100 — OUTWASH —	SP	2 2 3 3		
30.0						END OF BORING				

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 1101
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/16/89	Completed: 8/16/89
Method: AUGER	Casing size: 6⅝" ID	PID: 10.6	Protect'n level: D
Ground el: 58.5'	Soil drilled: 18'	Rock drilled: NA	Total Depth: 20'
Logged by: G. DAUKAS	Ch'd by: T.L.	Date: 10-17-89	▽ Below grnd: 9'
			Page 1 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
0	1.0	S-1	1.8		8.0	0.0-0.5 Brown fine to medium sand 0.5-0.8 Gray fine to medium sand 0.8-1.0 Black fine to medium sand 1.0-1.5 Brown fine to medium sand Dry, very loose — FILL —	SP	3 3 4 5	S S S S	
2.0	1.0	S-2	1.6		8.0	0.0-0.5 Brown/orange fine to medium sand Dry, very loose 0.5-1.6 Light brown fine sand trace silt Dry, very loose — OUTWASH —	SP	5 6 6 5		
4.0	1.0	S-3	1.8		2.0	Light brown sand trace silt Dry, Loose — OUTWASH —	SP	2 2 3 4		
6.0	1.0	S-4	1.8		6.0	SAME AS S-3 — OUTWASH — COLLECTED ANALYTICAL SAMPLE 0905	SP	3 4 4 4		
8.0	1.0	S-5	1.8		4.2	0.0-0.1 Black fine sand trace silt Dry firm 0.1-1.0 Light brown sand trace silt Dry Loose 1.0-1.8 Gray/light brown fine sand trace silt Wet, Firm COLLECTED ANALYTICAL SAMPLE 0925		2 3 3 3		
10.0										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main.Index

NAVAL AIR STATION, BRUNSWICK			**Boring no:** MW-110 I
Client: US. DEPARTMENT OF THE NAVY			**Project no:** 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		**Date started:** 8/16/89	**Completed:** 8/16/89
Method: AUGER	**Casing size:** 6 5/8" I.D.	**PID:** 10.2	**Protect'n level:** D
Ground el: 58.5'	**Soil drilled:** 18	**Rock drilled:** NA	**Total Depth:** 20.0'
Logged by: G. Daukas	**Ch'd by:** TL	**Date:** 10-17-89	▽ **Below grnd:** 9.0'
			Page: 2 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
	0.0	S-6	18"		0.0	Brown fine sand trace silt, Firm, wet - OUTWASH -	SP	2 3 3 3		
12.0										
	0.0	S-7	1.8		0.5	Same as sample S-6 - OUTWASH -	SP	1 1 1 1		
14.0										
	0.0	S-8	1.8		0.0	Same as sample S-6 - OUTWASH -	SP	1 2 3 2		
16.0										
	0.0	S-9	1.8		0.0	Same as sample S-6 - OUTWASH -	SP	6 7 8 8		
18.0										
	0.0	S-10	1.8		0.0	Same as sample S-6 - OUTWASH -	SP	2 2 3 6		
20.0						END OF BORING				

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK				Boring no: MW-1102
Client: US. DEPARTMENT OF THE NAVY				Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.			Date started: 8/16/89	Completed: 8/16/89
Method: AUGER	Casing size: 6 5/8		PID: 10.2	Protect'n level: D
Ground el: 57.7'	Soil drilled: 18.0'		Rock drilled: NA	Total Depth: 20.0'
Logged by: G. DAUKAS	Ch'd by: T.C.		Date: 10-17-89	▽ Below grnd: 7.5'
				Page: 1 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
						0-0.5 Light brown Fine sand trace Silt Dry, very loose				
	0.0	S-1	1.5		10.0	0.5-1.5 Black Orange fine Sand trace Silt, oxidized metal Dry Firm — FILL —	SP	5 4 5 3		
2.0						0-1.0 Orange brown Fine Sand trace Silt.				
	0.0	S-2	2.0		4.0	1.0-2.0 Light brown fine sand trace Silt. Dry, Loose — OUTWASH —	SP	3 3 3 3		
4.0						Light brown fine Sand trace Silt Dry, loose	SP	1 1 1 3		
	0.0	S-3	1.8		8.0	COLLECTED ANALYTICAL SAMPLE 1346 — OUTWASH —				
6.0						0.0-1.0 Brown fine Sand trace Silt, moist, Loose				
	0.0	S-4	1.8		1.0	1.0-1.8 Gray fine Sand trace silt, Loose, wet COLLECTED ANALYTICAL SAMPLE 1355 — OUT WASH —	SP	2 2 3 4		
8.0						Gray-brown fine Sand trace Silt. Firm, wet — OUTWASH —	SP	2 2 2 3		
	0.0	S-5	1.0		1.0					
10										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			**Boring no:** MW 1102
Client: US. DEPARTMENT OF THE NAVY			**Project no:** 4607-31
Contractor: NEW ENGLAND BORING CONTRS.		**Date started:** 8/16/89	**Completed:** 8/16/89
Method: AUGER	**Casing size:** 6 5/8 ID	**PID:** 10.2	**Protect'n level:** D
Ground el: 57.7'	**Soil drilled:** 18.0'	**Rock drilled:** NA	**Total Depth:** 20.0'
Logged by: G. DAOLAS	**Ch'd by:** JL	**Date:** 10-17-89	▽ **Below grnd:**
			Page 2 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
		S-6	0.0	1.5	1.0	Grey black fine sand trace silt - Firm, wet — OUTWASH —	SP	1 1 2 2		
12.0		S-7	0.0	1.5	6.0	Same as sample S-6 — OUTWASH —	SP	3 3 5 5		
14.0		S-8	0.0	1.8		Same as sample S-6 — OUTWASH —	SP	2 2 3 5		
16.0		S-9	0.0	1.9	1.0	Same as sample S-6 — OUTWASH —	SP	4 5 4 4		
18.0		S-10	0.0	1.8	1.0	Same as sample S-6 COLLECTED ANALYTICAL SAMPLE 1445 — OUTWASH — END OF BORING	SP	4 5 5 6		
20.0										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			**Boring no:** MW 1103
Client: US. DEPARTMENT OF THE NAVY			**Project no:** 4607-3-1
Contractor: NEW ENGLAND BORING CONTRS.		**Date started:** 8/16/87	**Completed:** 8/17/87
Method: AUGER	**Casing size:** 6 5/8" OD	**PID:** 10.2	**Protect'n level:** D
Ground el: 57.9'	**Soil drilled:** 30.0'	**Rock drilled:** NA	**Total Depth:** 32.0'
Logged by: G. Dawley	**Ch'd by:** TL	**Date:** 10-17-87	▽ **Below grnd:** 9.6'
			Page 1 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
	1.0	S-1	1.7		1.0	Light brown fine sand trace silt with 0.2' dark brown alternating layers of fine sand trace silt. Dry, Loose — FILL —	SP	3 3 4 5		
2.0	1.0	S-2	1.3		1.0	Light brown fine sand trace silt, trace gravel Loose, dry — OUTWASH —	SP	6 8 7 8		
4.0	1.0	S-3	1.8		1.0	Same as Sample S-2, Collected analytical Sample 1742	SP	3 3 4 5		
6.0	1.0	S-4	1.8		1.0	0.0-1.0 Same as sample S-2 1.0-1.8 light brown fine sand little silt with orange brown fine sand little silt varves moist Firm — OUTWASH —	SP	4 5 5 6		
8.0	1.0	S-5	1.8			Gray brown fine sand trace silt wet, loose Collected analytical sample, composite with S-6 For duplicate 1800 — OUTWASH —	SP	1 2 2 3		
10.0	1.0	S-6	1.5		1.0	Same as Sample S-5, Analytical sample composite with S-5 for duplicate 1800 — OUTWASH —	SP	1 1 2 2		
12.0	1.0	S-7	1.5		1.0	Same as sample S-5 — OUTWASH —	SP	1 1 1 1		
14.0	1.0	S-8	1.5		1.0	Same as sample S-5 — OUTWASH —	SP	3 5 5 6		
16.0	1.0	S-9	1.5		1.0	Gray fine sand trace silt wet, loose — OUTWASH —	SP	2 2 3 5		
18	1.0	S-10	1.5		1.0	Same as Sample S-9 — OUTWASH —	SP	4 4 5 6		
20										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: AW-1103
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/16/89	Completed: 8/17/89
Method: AUGER	Casing size: 6 5/8 I.D.	PID: 10.2	Protect'n level: D
Ground el: 57.9'	Soil drilled: 30.0'	Rock drilled: NA	Total Depth: 32'
Logged by: G. Daukas	Ch'd by: TL	Date: 10-17-89	▽ Below grnd: 9.6'
			Page: 2 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
	1.0	S-11	1.6		1.0	Same as Sample S-9 — OUTWASH —	SP	4 5 6 6		
22.0	1.0	S-12	1.8		1.0	0.0-1.6 same as sample S-9 1.6-1.8 Gray brown silt little clay wet Firm — OUTWASH —	SP/SM	3 4 5 5		
24.0	1.0	S-13	2.0		1.0	0.0-0.3 brown fine sand trace silt 0.3-0.8 brown gray silt little clay trace sand 0.8-2.0 brown fine sand trace silt — OUTWASH —	SP	3 4 5 5		
26.0	1.0	S-14	0.8		1.0	0.0-0.5 Brown fine sand trace silt 0.5-0.8 Brown gray silt little clay trace fine Sand. wet. firm -OUTWASH —	SP/SM	1 1 1 3		
28.0	1.0	S-15	1.0		1.0	Brown gray silt little clay little fine Sand, wet, Firm. Collected analytical Sample 0940 — OUTWASH —	SM	2 1 1 2		
30.0	1.0	S-16	1.0		1.0	0.0-0.5 brown fine sand little silt 0.5-1.0 Gray silt little clay wet, Firm — OUTWASH —	SP/SM	1 1 1 2		
32.0						END OF BORING				

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW - 1104
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/23/89	Completed: 8/24/89
Method: HSA	Casing size: 6 5/8"	PID: 10.2 eV	Protect'n level: D
Ground el: 57.6'	Soil drilled: 32'	Rock drilled: NA	Total Depth: 32'
Logged by: L. Hoyt	Ch'd by: TL	Date: 10-17-89	▽ Below grnd: ≈ 10.5'
			Page 1 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	Spoon PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
0	BACKGROUND	S-1	1.5		BACKGROUND	Brown, fine to coarse sand, little gravel, dry loose	SW	2 3 4 5		
5		S-2	1.4			Tan, fine sand, dry, loose	SP	2 3 4 5		
10		S-3	1.2	✓		Grayish tan, fine to med sand, wet	SP	1 1 2 2		
15		S-4	1.2			Light brown, fine sand, wet	SP	2 3 4 8		
20		S-5	1.6			Same as above	SP	3 4 5 5		
25										

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-1104
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/23/89	Completed: 8/24/89
Method: HSA	Casing size: 6 5/8"	PID: 102 ppm V	Protect'n level: D
Ground el: 57.6'	Soil drilled: 32'	Rock drilled: NA	Total Depth: 32'
Logged by: L. Hoyt	Ch'd by: TL	Date: 10-17-89	▽ Below grnd: = 10.5'
			Page 2 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
30		S-6	2.0	✓	← BACKGROUND	Light brown, fine sand, bottom 0.5' of spoon-light brown silty clay, wet	SP/ML	1 0 1 0	NATURAL CAVE	
		S-7	1.8			Light brown, fine sand, wet	SP	4 4 3 5		
						BOB = 32'				

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW 1301
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 9-14-89	Completed: 9-14-89
Method: HSA	Casing size:	PID: 10.2 eV	Protect'n level: D/C Rec.
Ground el: 59'	Soil drilled:	Rock drilled: NA	Total Depth: 20'
Logged by: NSG	Ch'd by: TL	Date: 10-17-89	▽ Below grnd: 8.5'
			Page: 1 of 1

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
0	BKG	S-1		1.4		BKGD	TOP: [illegible] SAND, FF COARSE TO COARSE GRAVEL [illegible] F SAND ORGANIC SILT. M GRAVEL, [illegible] DRY	SP	2 6 5 10		
		S-2		1.4		BKGD	BROWN F SAND TO COARSE, M MED SOME ORGANICS LOOSE, M GRAVEL, LOOSE DRY	SP	11 14 21 30		
5		S-3		1.8		15	BROWN F SAND SOME ORGANICS, LAMINATED PEAT LAYER 4" HYDROCARBON (HC) ODOR M GRAVEL, LOOSE, DRY	SP	4 4 5 4		
		S-4		0.9		350	BROWN F SAND, SOME ORGANICS, M ~~PEAT~~ HC ODOR LOOSE M GRAVEL MOIST	SP	2 28 28 17		
	400	S-5		1.6		400	GRAY F SAND SOME HC ODOR, MED LOOSE M GRAVEL DRY	SP	16 14 10 13		
10	200	S-6		1.8		200	GRAY F SAND, M SILT, FF STRONG LAMINATIONS LOOSE M GRAVEL WET	SP	2 8 10 12		
	50	S-7		2.0		50	SAME AS S-6	SP	10 15 12 21		
15	BKG	S-8		1.9		BKGD	SAME AS S-6	SP	5 6 9 13		
		S-9		2.0		BKGD	SAME AS S-6	SP	10 11 12 9		
20		S-10		2.0		BKGD	SAME AS S-6	SP	4 6 8 8		
							BOB 20'				

*U = Thin wall tube S = Split spoon R = Rock

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NAVAL AIR STATION, BRUNSWICK			Boring no: MW-1302
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/22/89	Completed: 8/22/89
Method: HSA	Casing size: 6 5/8"	PID: 10.2 eV	Protect'n level: D
Ground el: 61.6'	Soil drilled: 25'	Rock drilled: NA	Total Depth: 25'
Logged by: M. WOODRUFF	Ch'd by: TL	Date: 10-17-89	▽ Below grnd: ≐ 14'
			Page: 1 of 1

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP	PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
	BACKGROUND	S-1	X	1.2		BKD	LT. BROWN FINE SAND, DRY, LOOSE, TRACE SILT	SP	2 4 6 12		
5		S 2	X	1.5		BKD	5'-6' LT. BROWN FINE SAND, DRY, LOOSE TRACE SILT	SP	3 3 3 5		
							-6.2' STIFF SILTY SAND, DRY	SP			
							6.5' TAN FINE-MED. SAND, DRY, LOOSE	SP			
10		S-3	X	1.2		BKD	TAN FINE-MED. SAND, DRY, LOOSE	SP	2 2 3 4		
15		S 4	X	1.1		BKD	TAN FINE-MED. SAND, WET RUST MOTTLING AT ~ 15'	SP	1 1 1 1		
20		S-5	X	1.8		BKD	TAN FINE-MED. SAND, WET, TRACE SILT	SP	2 2 4 6		
25		S-6	X	1.6		BKD	TAN FINE-MED. SANT, WET, TRACE SILT	SP	2 4 4 6		

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-1303
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/23/89	Completed: 8/23/89
Method: HSA	Casing size: 6 5/8"	PID: 10.2 eV	Protect'n level: D
Ground el: 59.6'	Soil drilled: 40'	Rock drilled: NA	Total Depth: 40'
Logged by: L. Hoyt	Ch'd by: TL	Date: 10-17-89	▽ Below grnd: = 11
			Page 1 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample Recovery	CLP spoon PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % 0 20 40 60 80 100	Well data	Elevation (ft)
	BACKGROUND	S-1	1.4	BACKGROUND	0-0.3 Dark brown fine sand, some organics, dry, loose 0.3-1.4 Light brown, fine sand, dry, loose	SP	2 2 3 3		
5		S-2	1.3		Tan, fine sand, dry, loose	SP	2 2 3 5		
10		S-3	1.8		Tan, fine sand, some rust mottling, moist to wet	SP	2 2 3 2		
15		S-4	1.5		same as above	SP	1 1 2 3		
20		S-5	2.0		Light brown, fine sand, wet	SP	2 4 5 7		
25									

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

NAVAL AIR STATION, BRUNSWICK			Boring no: MW-130B
Client: US. DEPARTMENT OF THE NAVY			Project no: 4607-31
Contractor: NEW ENGLAND BORING CONTRs.		Date started: 8/23/89	Completed: 8/23/89
Method: HSA	Casing size: 6 5/8"	PID: 10.2 eV	Protect'n level: D
Ground el: 57.6'	Soil drilled: 40'	Rock drilled: NA	Total Depth: 40'
Logged by: L. Hoyt	Ch'd by: TL	Date: 10-17-89	▽ Below grnd: ≐ 11'
			Page 2 of 2

Depth (ft)	PID ambient air	Sample no. and type	Sample	Recovery	CLP "3" SPOON PID headspace (ppm)	Soil/rock description	Soil class	Blows/6-in. and RQD % (0 20 40 60 80 100)	Well data	Elevation (ft)
	BACKGROUND	S-6		1.5	BACKGROUND	Light brown, fine sand, some rust discolorization, wet	SP	2 3 4 5	BACKFILL	
30		S-7		1.6		same as above	SP	1 1 2 2		
35		S-8		1.8		Same as above	SP	2 3 5 7		
40		S-9				Same as above with (2) 1/2" blue gray clay lenses, tr silt	SP/ML	4 5 6 7		
						BOB = 42'				

*U = Thin wall tube S = Split spoon R = Rock

E.C. JORDAN

Click Here to Return to Main Index

	Thickness	Depth
CUMBERLAND COUNTY		
C 1. Alt. about 40 ft. Log of test hole drilled for Brunswick and Topsham Water Dist.		
Marine deposits:		
Clay	140	140
Bedrock	36	176
C 2. Alt. about 90 ft. Log of test hole drilled for Brunswick and Topsham Water Dist.		
Outwash:		
Topsoil	1	1
Brown sand	19	20
Gravel and clay (boss iron test)	10	30
Gray sand and marl	46	76
Marine deposits:		
Blue clay	98	174
Blue clay and fine sand	18	192
C 3. Alt. about 60 ft. Log of test hole for Brunswick and Topsham Water Dist.		
Outwash:		
Topsoil	1	1
Brown sand	29	30
Quicksand	43	73
Marine deposits:		
Blue clay	58	131
Early stratified drift:		
Blue sand	11	144
Coarse sand	8	152
Bedrock at		152
C 4. Alt. about 30 ft. Log of test hole for Brunswick and Topsham Water Dist.		
Outwash:		
Topsoil	1	1
Gray brown sand	34	35
Marine deposits:		
Blue clay	25	60
Till:		
Shaly, 1/2-inch granite	1	61
Bedrock	1	62
C 5. Alt. about 30 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Peat	2	2
Outwash:		
Fine, gray sand	6	8
Marine deposits:		
Clay	24	32
Fine, gray sand	2	34
Fine, gray sand, some gravel	10	44
Clay, some fine, gray sand	38	84
Till:		
Gravel	1	85
Bedrock at		85
C 6. Alt. about 30 ft. Log of test hole for U. S. Navy.		
Outwash:		
Fine, gray sand and clay	8	8
Marine deposits:		
Clay	18	26
Fine, gray sand, some clay	7	33
Clay	44	77
Bedrock at		77
C 7. Alt. about 15 ft. Log of test hole for U. S. Navy.		
Outwash:		
Fine, gray sand, some clay	14	14
Marine deposits:		
Clay, some fine, gray sand	81	95
Bedrock at		95
C 8. Alt. about 20 ft. Log of test hole for U. S. Navy.		
Swamp deposits:		
Peat	4.3	4.3
Outwash:		
Fine, brown sand	9.7	14
Fine, gray sand, some clay	64	78
Fine, brown sand	7	85
Fine, gray sand, some clay	21.3	106.3
Bedrock at		106.3
C 9. Alt. about 20 ft. Log of test hole for U. S. Navy.		
Outwash:		
Fine, brown sand, some clay	10	10
Fine, gray sand, some clay	11	21
Fine, gray-brown sand, some clay	45	66
Fine, brown sand	14	80
Fine, gray sand	5	85
Marine deposits:		
Clay at		85

	Thickness	Depth
CUMBERLAND COUNTY—Continued		
C 10. Alt. about 25 ft. Log of test hole for U. S. Navy.		
Outwash:		
Fine, brown sand, some clay	21	21
Fine, brown sand	11	32
Fine, gray sand, some clay	10	42
Fine, brown sand, some clay	10	52
Fine, gray sand, some clay	11	63
Fine, brown sand, some clay pebbles	42	105
Bedrock at		105
C 11. Alt. about 40 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	44	44
Bedrock at		44
C 12. Alt. about 60 ft. Log of test hole for U. S. Navy.		
Outwash:		
Fine, brown sand	10	10
Boulder sand and gravel	8	18
Marine deposits:		
Clay, some fine, gray sand	17	35
Clay	24	44
Bedrock at		44
C 13. Alt. about 46 ft. Log of test hole for U. S. Navy.		
Outwash:		
Topsoil	4	4
Fine, gray sand, some clay	12	16
Fine, gray sand, some gravel	5	21
Clay, some fine sand	7	28
Fine, brown sand	10	38
Fine, gray sand, some clay	42	80
Fine, gray sand, some gravel	16	96
Bedrock at		96
C 14. Alt. about 46 ft. Log of test hole for U. S. Navy.		
Outwash:		
Fine, brown sand, some clay	21	21
Fine, gray sand, some clay	6	27
Medium to fine, brown sand	5	32
Medium to fine, gray sand, some clay	5	37
Medium to fine, brown sand	6	43
Fine, gray sand, some clay	5	48
Marine deposits:		
Clay	39	87
Fine, gray sand, some clay	2	89
Bedrock at		89
C 15. Alt. about 40 ft. Log of test hole for U. S. Navy.		
Outwash:		
Medium, brown sand	10	10
Fine, brown sand, some clay	21	31
Fine, brown sand	42	73
Fine, gray sand, some clay	23	96
Bedrock at		96
C 16. Alt. about 190 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	14	14
Till:		
Fine sand, some gravel and clay	2	16
Bedrock at		16
C 17. Alt. about 190 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	11	11
Bedrock at		11
C 18. Alt. about 180 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	13	13
Bedrock at		13
C 19. Alt. about 180 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	13	13
Fine sand	1	14
Bedrock at		14
C 20. Alt. about 180 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	12	12
Fine sand and clay	10	22
Bedrock at		22
C 21. Alt. about 120 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	5	5
Bedrock at		5

	Thickness	Depth
CUMBERLAND COUNTY—Continued		
C 22. Alt. about 120 ft. Log of test hole for U. S. Navy.		
Marine deposits:		
Clay	18	18
Bedrock at		18
C 23. Alt. about 20 ft. Log of test hole for Brunswick and Topsham Water Dist.		
Alluvium:		
Black muck	3	3
Fine, brown sand	7	10
Medium, gray sand	5	15
Outwash (?):		
Coarse, gray sand	5	20
Medium, gray sand	5	25
Marine deposits (?):		
Silt, clay	5	30
C 24. Alt. about 140 ft. Log of test hole for Brunswick and Topsham Water Dist.		
Marine deposits:		
Clay	46	46
Silt	17	63
C 25. Alt. about 100 ft. Log of test hole for Brunswick and Topsham Water Dist.		
Marine deposits:		
Blue clay	48	48
Early stratified drift or Low-constant deposits:		
Fine, gray sand	24	72
Brown sand	13	85
C 26. Alt. 120 ft. Log of well drilled for Brunswick and Topsham Water Dist.		
Outwash:		
Dirty sand	18	18
Marine deposits:		
Blue clay	23	33
Early stratified drift or Low-constant deposits:		
Dirty, fine sand	13	50
Clean, coarse sand	10	60
Dirty, fine sand	10	70
Dirty, coarse sand	3	73
Dirty, gravel and sand	15	88
Clean sand and gravel	14	102
Bedrock at		102
C 27. Alt. about 180 ft. Log of test hole for Brunswick and Topsham Water Dist.		
Marine deposits:		
Fine clay	16	16
Blue silt	38	54
Fine clay and sand	18	72
Bedrock at		72
C 28. Alt. about 36 ft. Log of well drilled for Brunswick and Topsham Water Dist.		
Marine deposits:		
Blue clay	23	23
Sandy clay	9	34
Early stratified drift:		
Dirty sand	14	48
Small boulders	10	58
Coarse sand and gravel	18	76
Bedrock at		76
C 29. Alt. about 30 ft. Log of well drilled for Brunswick and Topsham Water Dist.		
Alluvium:		
Brown silt	10	10
Grey silt	12	22
Coarse, brown gravel	4	26
Marine deposits:		
Blue clay	14	40
Early stratified drift:		
Fine, gray sand	33	73
Medium gravel	13	86
Coarse gravel	22	108
Bedrock at		108

APPENDIX B LOGS OF WELLS AND TEST BORINGS IN THE VICINITY OF NASB

INITIAL ASSESSMENT STUDY NAVAL AIR STATION BRUNSWICK

Click Here to Return to Main Index

APPENDIX C
TEST PIT RECORDS

NAS BRUNSWICK
BRUNSWICK, MAINE

Click Here to Return to Main Index

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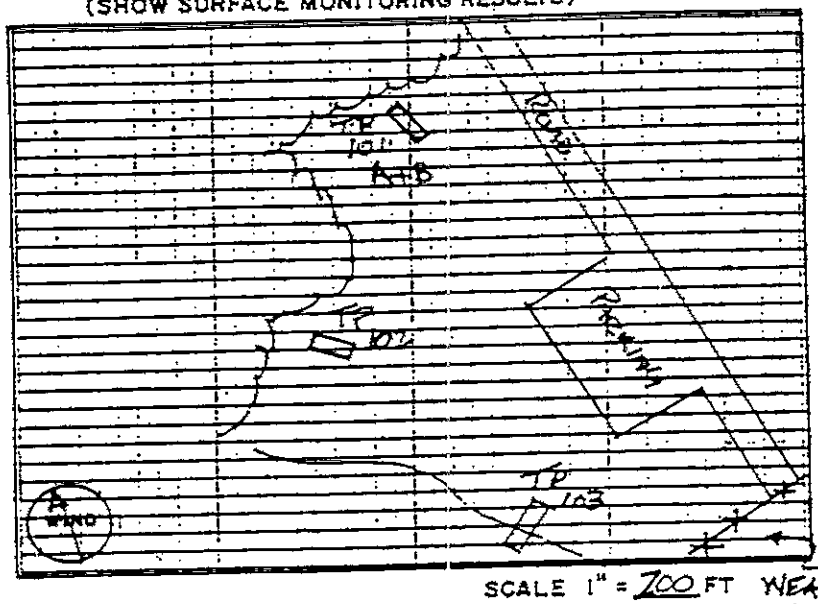
TEST PIT RECORD

SITE BNAS TP-101, 102, 103

TEST PIT TP-101 DATE 8/3/88 TIME ST. 0700 END 0930

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



CREW MEMBERS
1. KASPER
2. BRETON
3. GOTO
4.
5.
6.

MONITOR EQUIPMENT

PI METER	(Y)	N
EXPLOSIVE GAS	Y	N
AVAIL. OXYGEN	Y	N
OVA	Y	N

OTHER RAD Meter

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES A+B

TP-101, 5 Gal CAN CHLORDANE INSECTIDE UNCOVER f.11, WATER NOT ENCOUNTERED, BOP 9', TIP 20 ppm

TP-102, TIP Reading Background throughout Pit, BOP 9.5'

TP-102, (2) Dummy BOMBS UNCOVERED, (1) WET CELL BATTERY, TIP READING BACKGROUND throughout, BOP 5'

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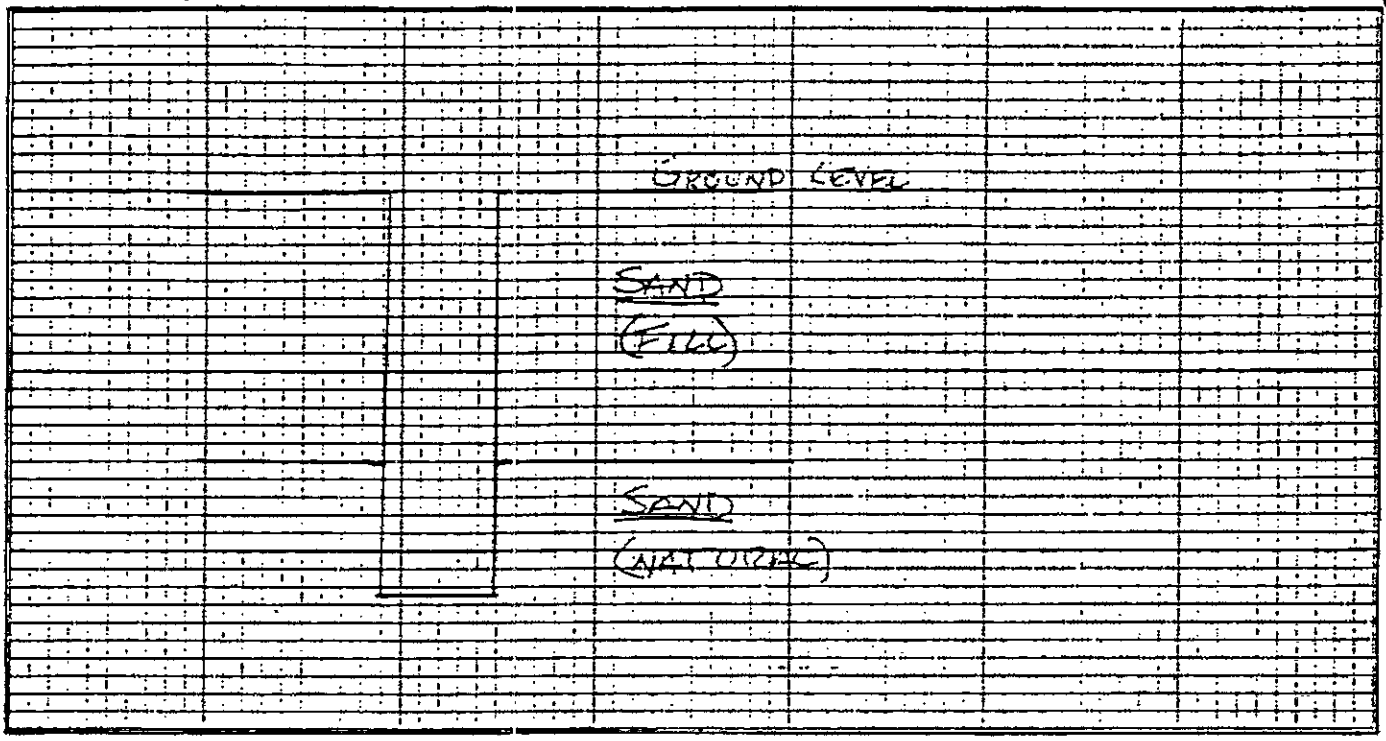
TEST PIT RECORD
PROFILE ALONG TEST PIT- 101

SITE BNAS

DEPTH (FT) 9' SCALE 1" = 4' FT



NOTES:

0-6' SAND, TAN, P. GRADED MED to Fine, TR CRS SAND Loose, Moist, w/ Root Hairs Near surface (FILL)

6'-9' SAND, BROWN, P. GRADED MED to Fine, TR. FINE GRAVEL. ROUNDED, LOOSE, DAMP, (NATURAL)

Full, intact 5-gallon can marked chlordane excavated at 5 Ft.

SAMPLES OBTAINED

NO.	DEPTH (FT)	SAMPLE I.D.	PI READING
S-1	2.5'		EG
S-2	9'		24 ppm
S-3	9'	DUP #1	20 ppm
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. 11-13
ATTACHMENTS

SIGNATURE

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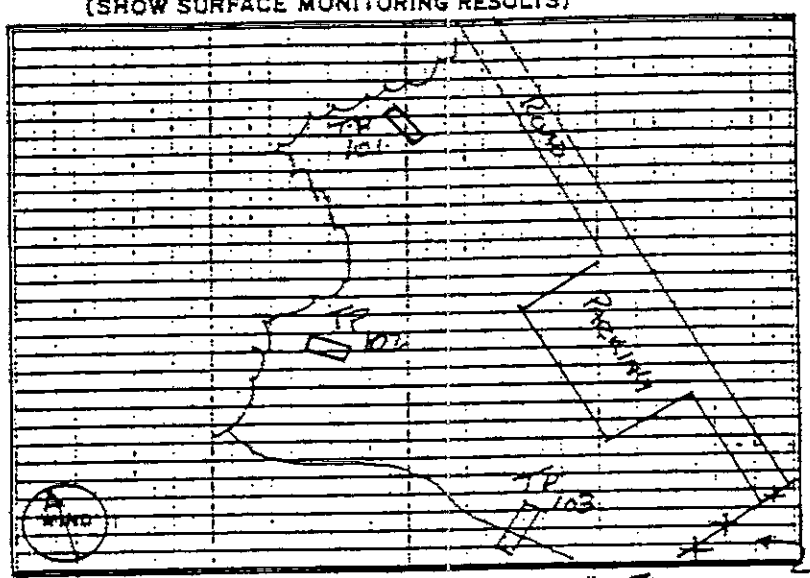
TEST PIT RECORD

SITE BNAS TP-101, 102, 103

TEST PIT TP-101 DATE 8/2/88 TIME ST. 0700 END 0930

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT WEAPON STORAGE

CREW MEMBERS
1. KASPER
2. BRETON
3. GOTO
4.
5.
6.

MONITOR EQUIPMENT

PI METER	(Y)	N
EXPLOSIVE GAS	Y	N
AVAIL. OXYGEN	Y	N
OVA	Y	N
OTHER RAD Meter		

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES

TP-101, 5 GAL CAN CHLORDANE INSECTIDE UNCOVER FT, WATER NOT ENCOUNTERED, BOP 9', TIP 20 ppm

TP-102, TID Reading BACK GROUND throughout Pit, BOP 9.5'

TP-103, (2) Dummy BOMBS UNCOVERED, (1) WET CELL BATTERY, TID READING BACK GROUND throughout, BOP 5'

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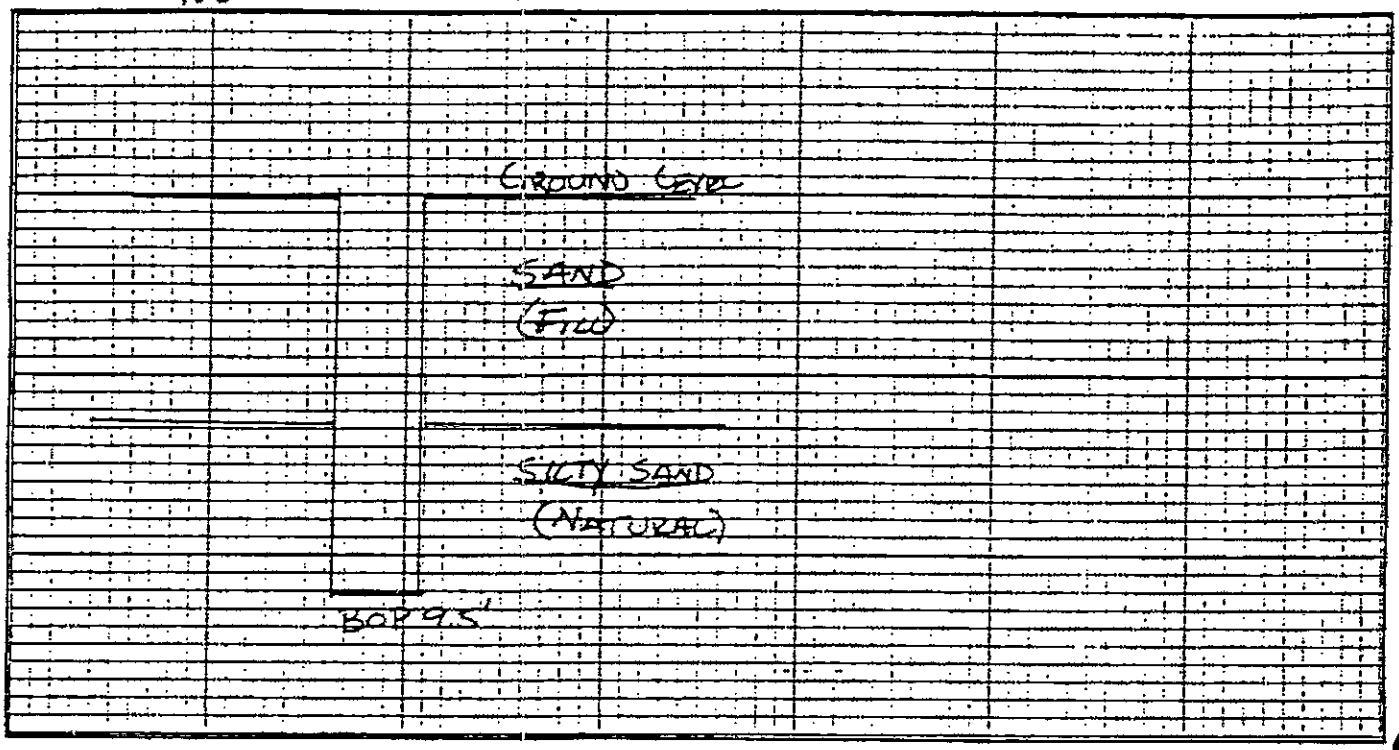
TEST PIT RECORD
PROFILE ALONG TEST PIT- 102

SITE BNAS

DEPTH (FT) 9.5' SCALE 1" = 4 FT



NOTES:

0-5' SAND, Light Brown, P.GRADED, V. FINE to FINE, LOOSE, MOIST, BLACK NON-CONTINUOUS LAYERS 0.10' THICK, SAND & ORGANIC SILT (FILL)

5-9.5' SILTY SAND, BROWN/BLACK, W GRADED, MED to FINE W/ ROOT & WOOD, POSSIBLE OLD BOG (NATURAL)

SAMPLES OBTAINED

NO.	DEPTH (FT)	SAMPLE I.D.	P I READING
S-1	2'		BG
S-2	5'		BG
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. 14-15

ATTACHMENTS

SIGNATURE

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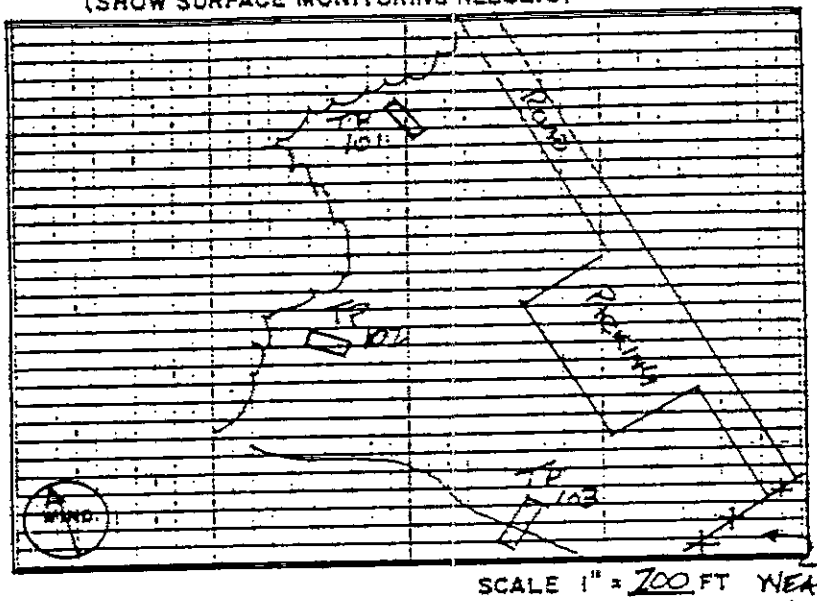
TEST PIT RECORD

SITE BNAS TP-101, 102, 103

TEST PIT TP-101 DATE 8/2/88 TIME ST. 0700 END 0930

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



CREW MEMBERS
1. KASPER
2. BRETON
3. GOTO
4.
5.
6.

MONITOR EQUIPMENT

PI METER	(Y)	N
EXPLOSIVE GAS	Y	N
AVAIL. OXYGEN	Y	N
OVA	Y	N
OTHER RAD Meter		

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES

TP-101, 5 GAL CAN CHLORDANE INSECTIDE UNCOVER F.11, WATER NOT ENCOUNTERED, BOP 9', TIP 20 ppm

TP-102, TIP READING BACK GROUND THROUGHOUT P.T, BOP 9.5'

TP-102, (2) DUMMY BOMBS UNCOVERED, (1) WET CELL BATTERY, TIP READING BACK GROUND throughout, BOP 5'

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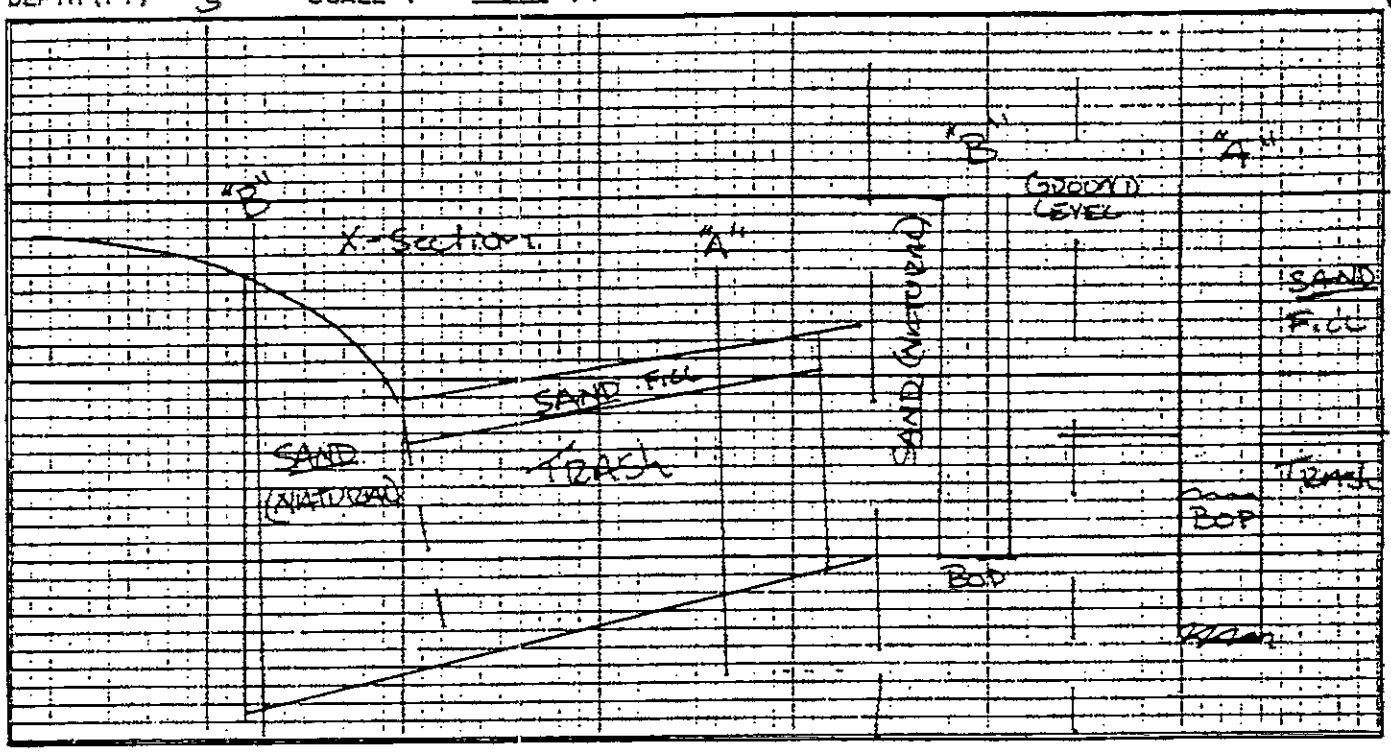
TEST PIT RECORD
PROFILE ALONG TEST PIT- 103

SITE BNAS

DEPTH (FT) 5' SCALE 1" = 2 FT



NOTES:

"A"

0-2.5' SAND, Light Brown P. Graded, Med to Fine, Loose, Moist Tr. Round Gravel (Fill) w/ Asphalt, Steel, Concrete

2.5'-3.0' Trash, Dummy Bombs Wet Cell Battery, steel, Glass, Plastic

"B"

0-5' SAND, Red/Brown, P. Graded, Med to Fine, Loose Moist, Varved, Color Change Brown to Gray @ 4' (Natural)

SAMPLES OBTAINED

NO.	DEPTH (FT)	SAMPLE I.D.	PI READING
S-1	2.5'		BG
S-2	4'		BG
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. 16-17

ATTACHMENTS

Karl Kepner
SIGNATURE

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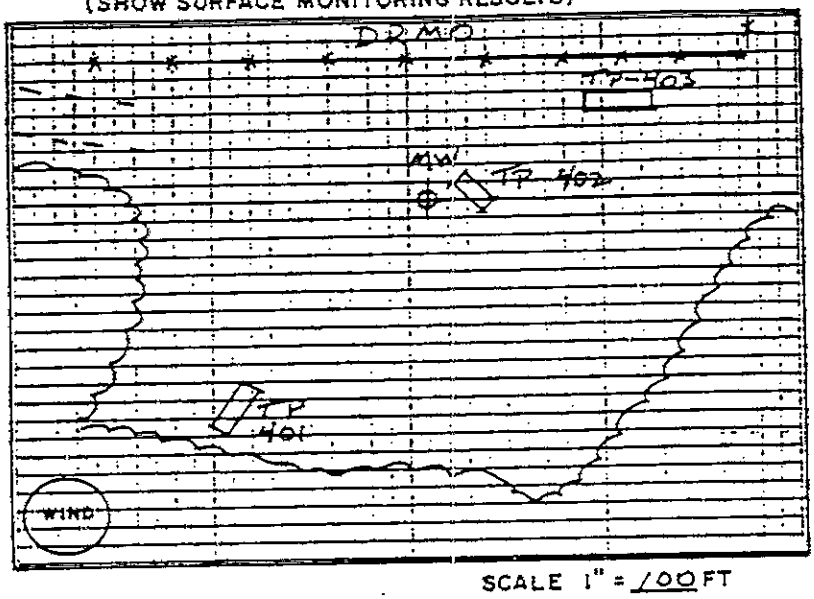
TEST PIT RECORD

SITE BNAS

TEST PIT 401 DATE 8/12 TIME ST. 1345 END 1440

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 100 FT

CREW MEMBERS
1. KASPER (ECJ)
2. BUTLER (ECJ)
3. GOTO (MATHES)
4.
5.
6.

MONITOR EQUIPMENT

PI METER	(Y)	N
EXPLOSIVE GAS	(Y)	N
AVAIL. OXYGEN	Y	N
OVA	Y	N

OTHER _____

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES

TP-401, BOP 7', NO WATER, 0-3' SAND (FILL), 3'-3.2' SILT (NATURAL), 3.2'-7' SAND (NATURAL)
TIP @ 57.8 ppm @ 3', BG for the rest of PIT

TP-402, BOP 10.5, NO WATER, 0-4' SAND, 4'-4.5' (FILL) SILTY SAND (NATURAL), 4.5'-10.5' SAND (NATURAL)
TIP BG THROUGHOUT

TP-403, BOP 7', NO WATER, 0-1' SILTY SAND (FILL), 1'-6.5' SAND (NATURAL), 6.5'-7' SILTY SAND (NATURAL)
TIP BG THROUGHOUT

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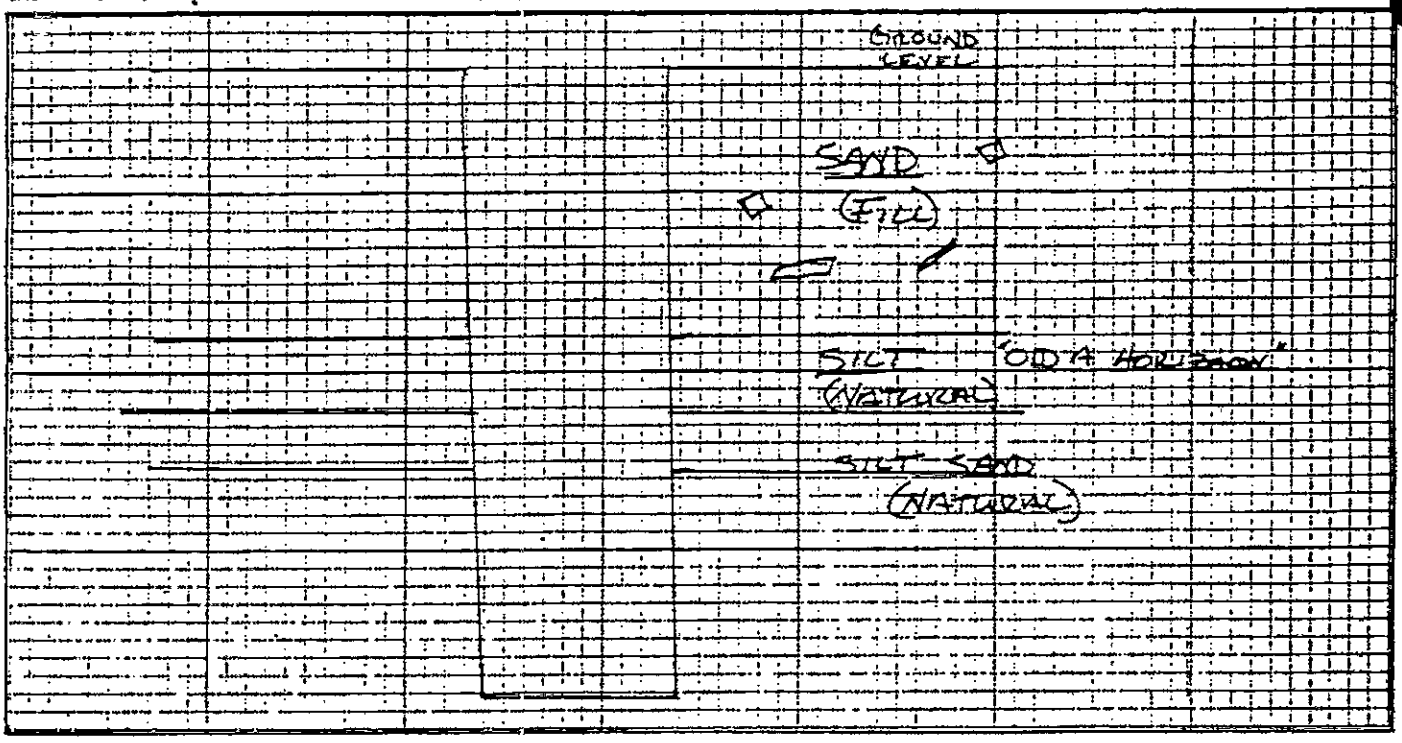
TEST PIT RECORD
PROFILE ALONG TEST PIT- 401

SITE ~~4~~ BNAS SITE 4

DEPTH (FT) 7' SCALE 1" = 2 FT



NOTES:

0-3' SAND, GRAY, P. GRADED, MED TO FINE, LOOSE, MOIST W/ CONSTRUCTION DEBRIS (FILL)

3-3.5' SILT, BROWN, LOW PLASTIC, LOOSE, MOIST, ORGANIC SILT, "OLD A HORIZON" W/ ROOT HAIRS (NATURAL)

3.5'-7' SILTY SAND, TAN, P. GRADED, MED TO FINE, LOOSE, MOIST, MOTTLED ORANGE, SOME FINE LAMINATIONS (NATURAL)

SAMPLES OBTAINED

NO.	DEPTH (FT)	INIT. SER. NO.	HD. SP. VOA PPM
S-1	3'	DUP	60 ppm
S-2	7'		BG
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. 39-41

ATTACHMENTS _____

Karl Hoyn
SIGNATURE

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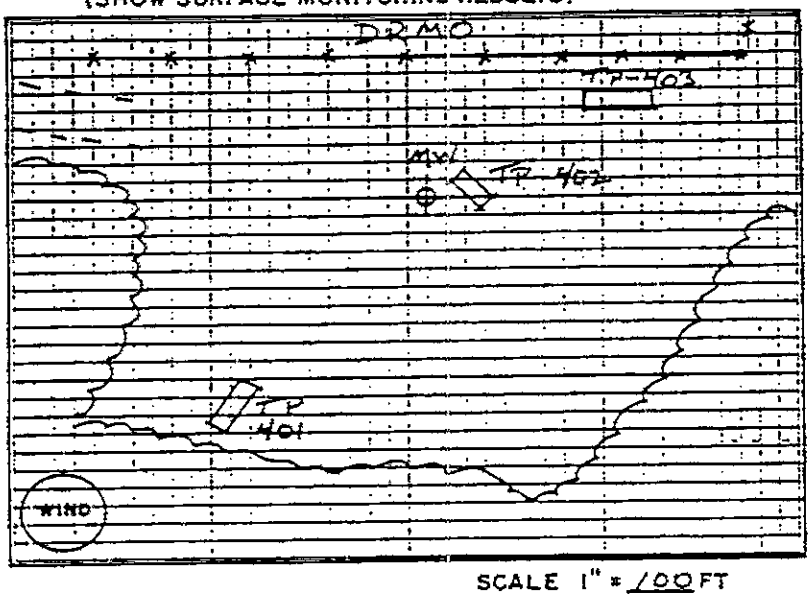
TEST PIT RECORD

SITE BNAS

TEST PIT 402 DATE 8/12 TIME ST. 1445 END 1515

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 100 FT

CREW MEMBERS
1. KASPER (ECJ)
2. BUTLER (ECJ)
3. GOTO (MATHES)
4.
5.
6.

MONITOR EQUIPMENT

PI METER	Y	N
EXPLOSIVE GAS	Y	N
AVAIL. OXYGEN	Y	N
OVA	Y	N

OTHER _____

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES

TP-401, BOP 7', NO WATER, 0-3' SAND (FILL), 3'-3.2' SILT (NATURAL), 3.2'-7' SAND (NATURAL)
TIP @ 57.8 ppm @ 3', BG for the rest of PIT

TP-402, BOP 10.5, NO WATER, 0-4' SAND, 4'-4.5' (FILL) SILTY SAND (NATURAL), 4.5'-10.5' SAND (NATURAL)
TIP BG throughout

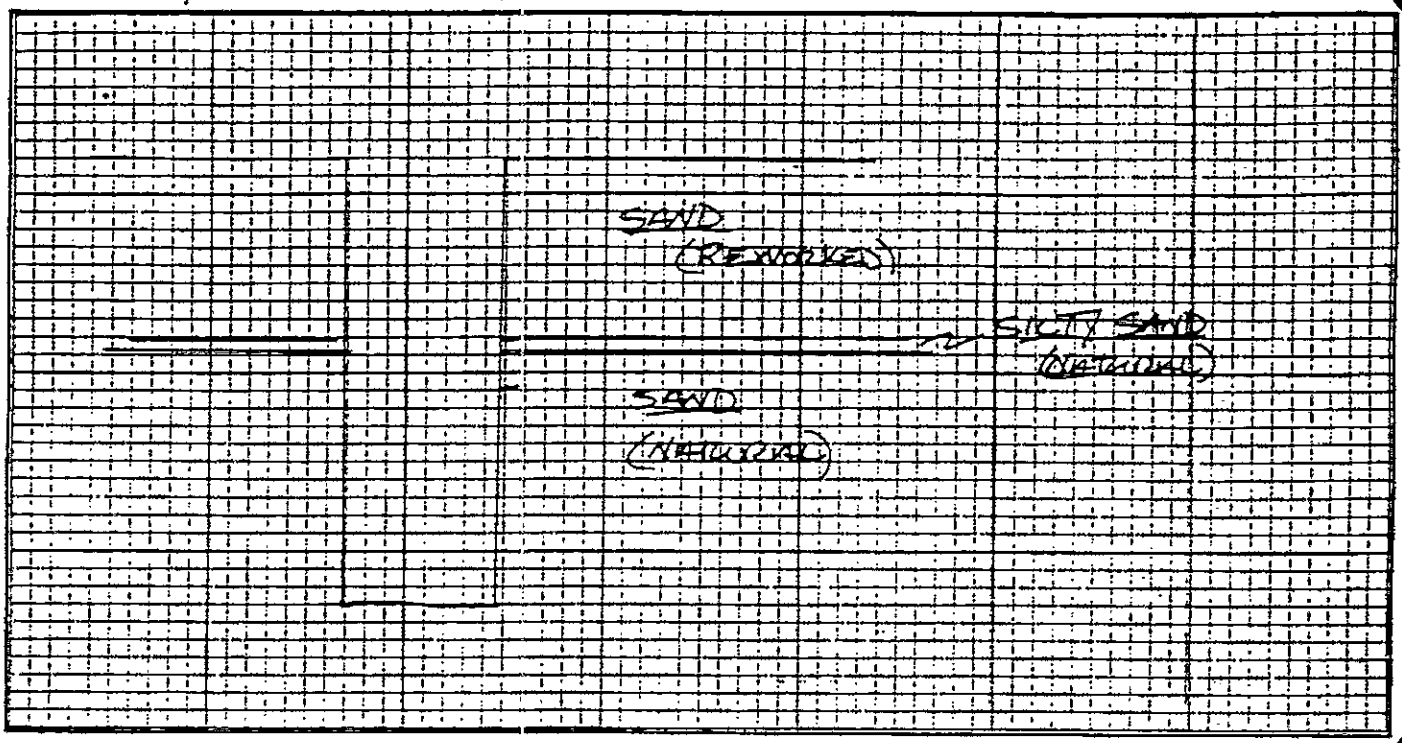
TP-403, BOP 7', NO WATER, 0-1' SILTY SAND (FILL), 1'-6.5' SAND (NATURAL), 6.5'-7' SILTY SAND (NATURAL)
TIP BG Throughout

Click Here to Return to Main Index

TEST PIT RECORD
PROFILE ALONG TEST PIT- 402

SITE BNAS SITE 4 2 OF 2

DEPTH (FT) 10' SCALE 1" = 4' FT



NOTES:

0-4' SAND, RED/TAN, P. GRADED MED to FINE, TR SILT, LOOSE, MOIST, (Reworked possible upper 2')

4'-4.5' SILTY SAND, GRAY/GREEN, FINE SAND, Tr. SOME MED SAND, DRY, LOW PLASTIC (NATURAL)

4.5'-10.5' SAND, GRAY, P. GRADED, MED to FINE, TR CRS SAND, NO SILT LOOSE, DAMP, STRATIFIED SANDS, (NATURAL)

SAMPLES OBTAINED

NO.	DEPTH (FT)	INIT. SER. NO.	HD. SP. VOA PPM
S-1	4.5		BG
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. 42-43

ATTACHMENTS

Karl Rogers
SIGNATURE

EC JORDAN CO

Click Here to Return to Main Index

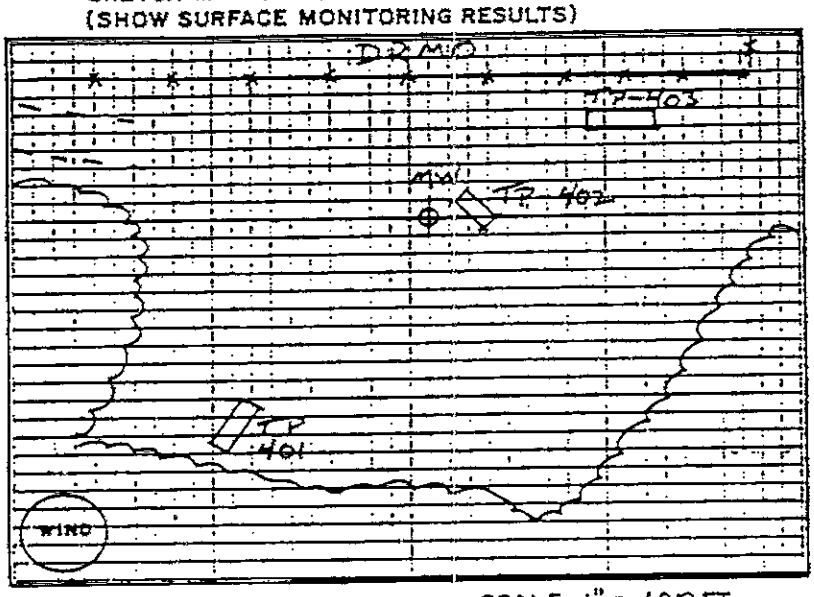
TEST PIT RECORD

SITE BNAS

TEST PIT 403 DATE 8/12 TIME ST. ~~1445~~ 1525 END 1600

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 100 FT

CREW MEMBERS
1. KASPER (ECJ)
2. BUTLER (ECJ)
3. GOTO (MATHES)
4.
5.
6.

MONITOR EQUIPMENT

PI METER	(Y)	N
EXPLOSIVE GAS	(Y)	N
AVAIL. OXYGEN	Y	N
OVA	Y	N

OTHER _____

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES

TP-401, BOP 7', NO WATER, 0-3' SAND (FILL), 3'-3.2' SILT (NATURAL), 3.2'-7' SAND (NATURAL)
TIP ~~B~~ 57.8 ppm @ 3', BG for the rest of PIT

TP-402, BOP 10.5, NO WATER, 0-4' SAND, 4'-4.5' (FILL) SILTY SAND (NATURAL), 4.5'-10.5' SAND (NATURAL)
TIP BG THROUGHOUT

TP-403, BOP 7', NO WATER, 0-1' SILTY SAND (FILL), 1'-6.5' SAND (NATURAL), 6.5'-7' SILTY SAND (NATURAL)
TIP BG THROUGHOUT

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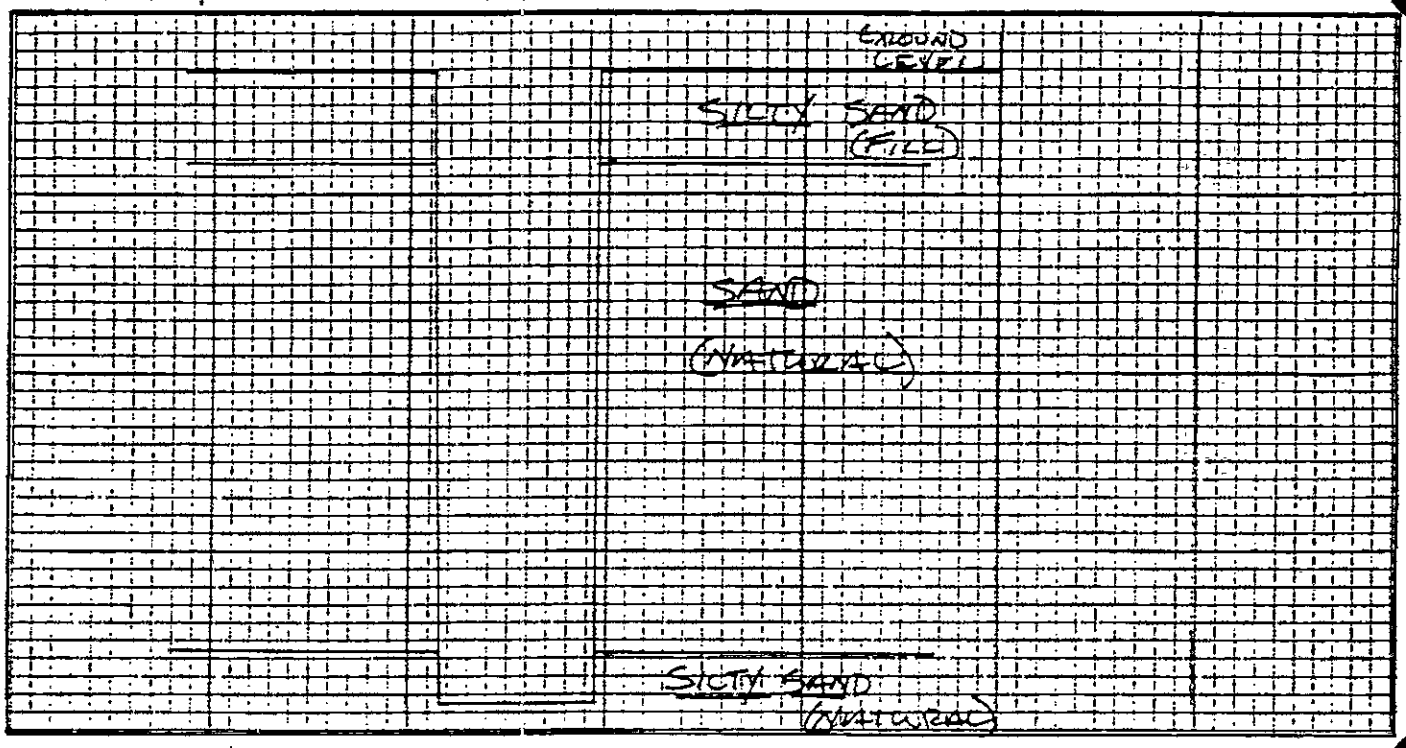
TEST PIT RECORD
PROFILE ALONG TEST PIT- 403

SITE SITE 3 BNAS

DEPTH (FT) 7' SCALE 1" = 2 FT



NOTES:

0-1' SILTY SAND, BLACK/BROWN ORGANIC SILT, MED TO FINE SAND, LOOSE, MOIST, (F.C.) W/ SOLVENT ODOR

1'-6.5' SAND RED/TAN, P. GRADED, MED TO FINE, LOOSE, DAMP, (NATURAL)

6.5'-7' SILTY SAND, GREEN FINE TO MED SAND, LOW PLASTIC, MOD DENSE, DAMP (NATURAL)

SAMPLES OBTAINED

NO.	DEPTH (FT)	INIT. SER. NO.	HD. SP. VOA PPM
S-1	0.5'		B6 (HEAD SPACE 15 PPM)
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. 44-45

ATTACHMENTS

Karl Kaye
SIGNATURE

EC JORDAN CO

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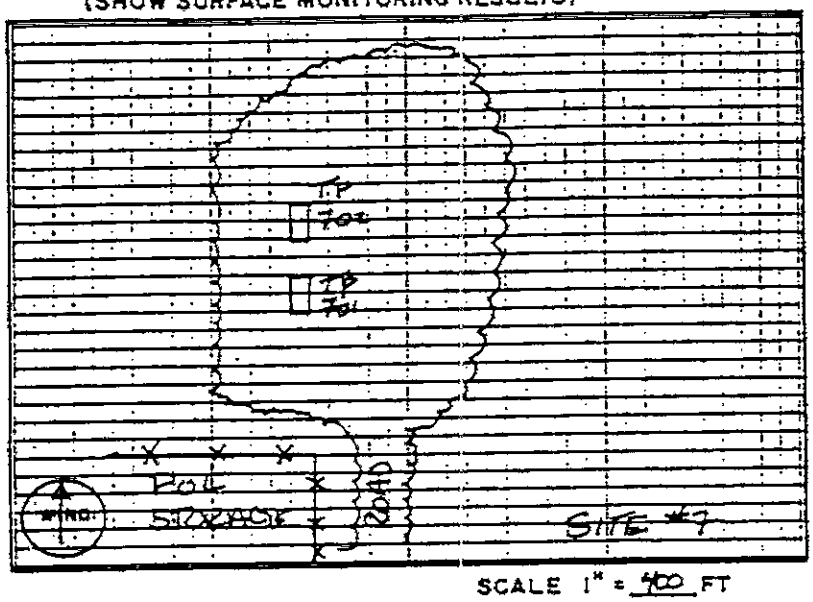
TEST PIT RECORD

SITE BNAS TP-701, 702

TEST PIT _____ DATE 8/2/88 TIME ST. _____ END _____

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 400 FT

CREW MEMBERS
1. KASPER (EC J)
2. BRETON (MORRISON)
3. GOTO (MATHES)
4.
5.
6.

MONITOR EQUIPMENT

PI METER	(Y)	N
EXPLOSIVE GAS	Y	N
AVAIL. OXYGEN	Y	N
OVA	Y	N

OTHER RAD METER

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES

TP-701, BOP 7', I 7', TRASH (FILL) 0-2.5'
3'-7' SAND NATURAL

TP-702, BOP 5.5', I 5.5', (FILL) 0-2',
(NATURAL) SAND 2-5.5'.

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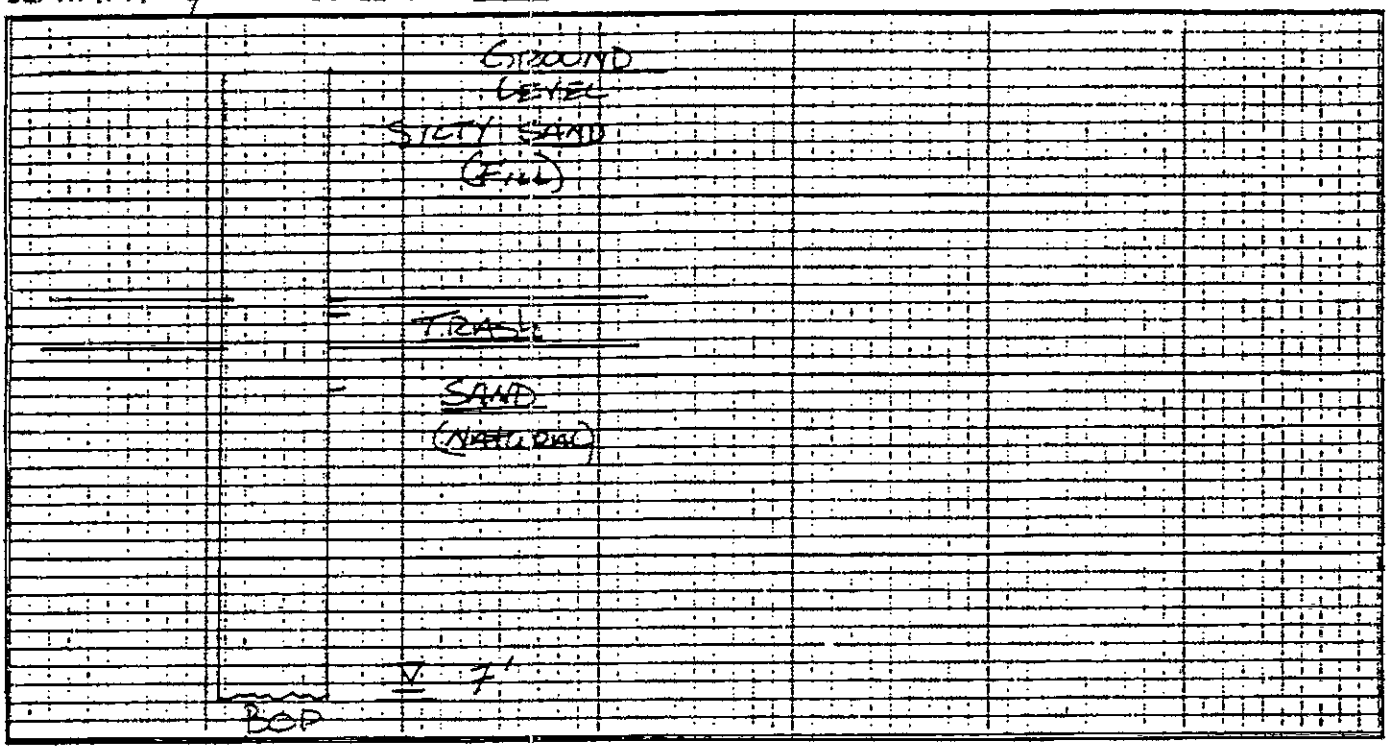
TEST PIT RECORD
PROFILE ALONG TEST PIT- TP1

SITE BNAS

DEPTH (FT) 7' SCALE 1" = 2 FT



NOTES:

0-2.5' SILTY SAND, DARK BROWN P. GRADED, FINE TO MED, ANGULAR FRAGMENTS of DENSE GRAY SILTY SAND, MOIST, LOOSE (FILL) COLOR CHANGE BROWN to BLACK @ 2.5'

2.5'-3.0' TRASH, W/ASH, SMALL steel objects, GLASS

3.0'-7.0' SAND, RED TO TAN, P. GRADED, V. FINE TO MED SAND, LOOSE, MOIST, FINING UPWARD (NATURAL)

SAMPLES OBTAINED

NO.	DEPTH (FT)	SAMPLE I.D.	PI READING
S-1	3'		BG
S-2	7'		BG
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. 6-7

ATTACHMENTS

Karl Hoyn
SIGNATURE

E.C. JORDAN CO.

Click Here to Return to Main Index

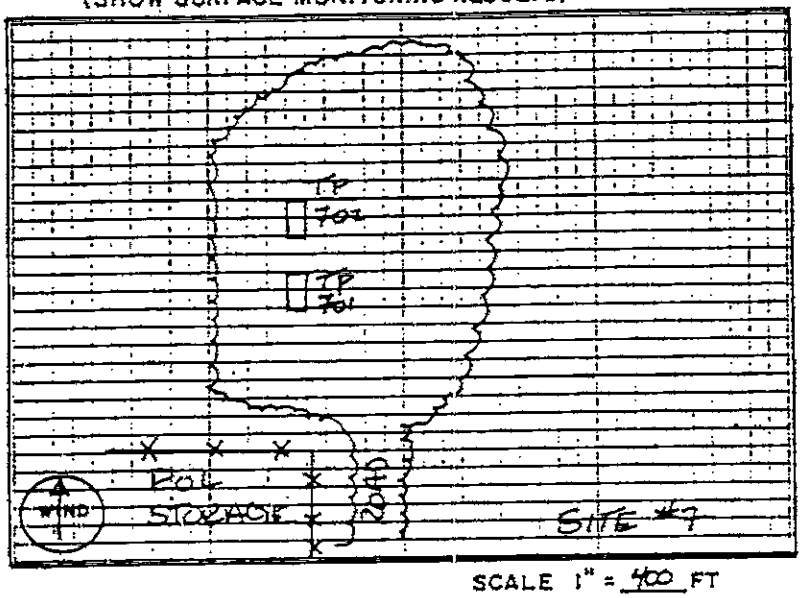
TEST PIT RECORD

SITE BNAS TP-701, 702

TEST PIT _____ DATE 8/2/88 TIME ST. _____ END _____

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 400 FT

CREW MEMBERS
1. KASPER (EC J)
2. BRETON (MORRISON)
3. GOTO (MATHES)
4.
5.
6.

MONITOR EQUIPMENT

PI METER	(Y)	N
EXPLOSIVE GAS	Y	N
AVAIL. OXYGEN	Y	N
OVA	Y	N

OTHER RAD METER

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES

TP-701, BOP 7', I 7', TRASH (FILL) 0-2.5'
3'-7' SAND NATURAL

TP-702, BOP 5.5', I 5.5', (FILL) 0-2',
(NATURAL) SAND 2-5.5'. Encountered blue crystals (possible
acid salts) at 2.0 ft.

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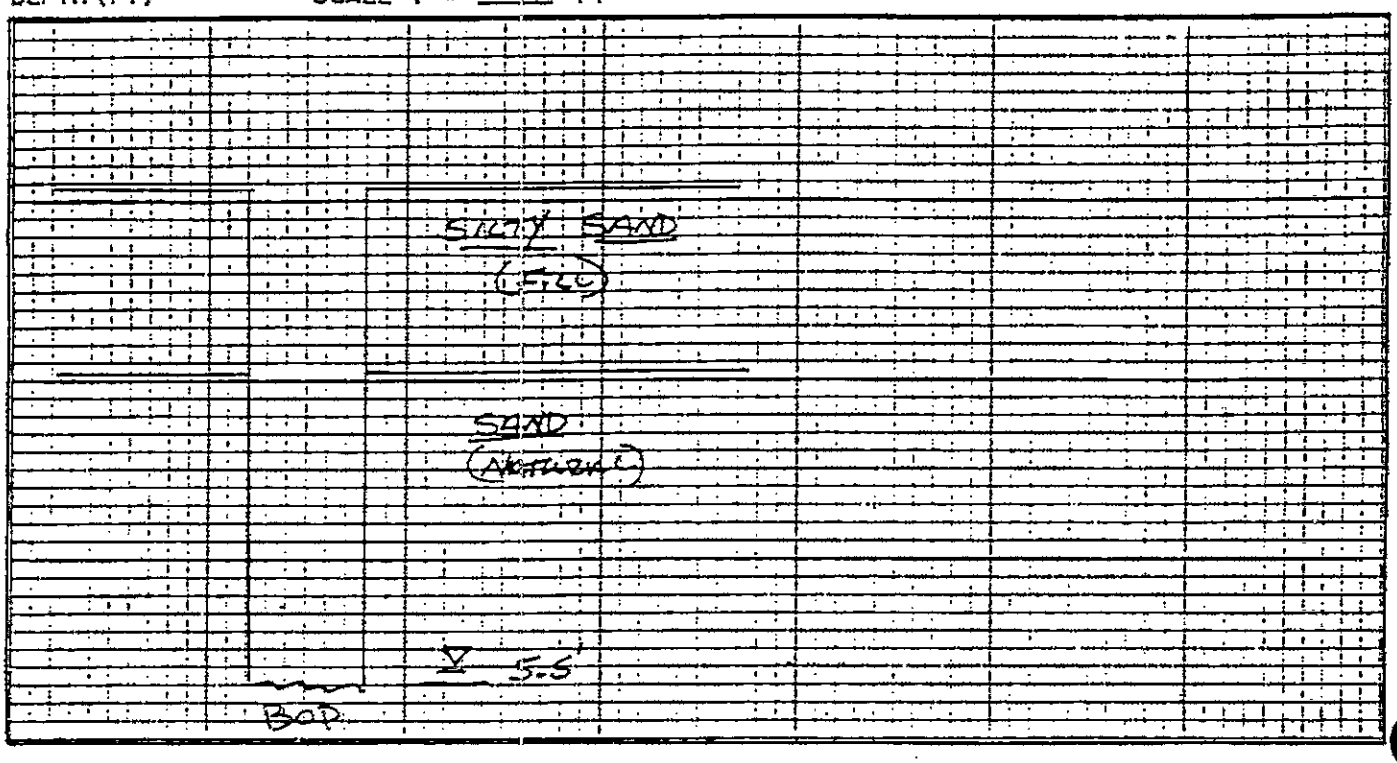
TEST PIT RECORD
PROFILE ALONG TEST PIT- 702

SITE BNAS

DEPTH (FT) SCALE 1" = 2 FT



NOTES:

0-2' SILTY SAND, BLACK, GRADED, FINE TO MED SAND, ORGANIC SILT, LOOSE, MOIST W/ ROOT HAIRS (FILL) SOME TRASH

2-5.5' SAND, RED TO TAN, P. GRADED, FINE TO MED SAND, LOOSE, MOIST, (NATURAL)

* NOTE: SAMPLED BLUE CRYSTALS @ 2', MAYBE BATTERY SALTS

SAMPLES OBTAINED

NO.	DEPTH (FT)	SAMPLE I.D.	PI READING
S-1	2		BG
S-2	5.5'		BG
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. 8-9
ATTACHMENTS

Karl Kopp
SIGNATURE

EC JORDAN CO

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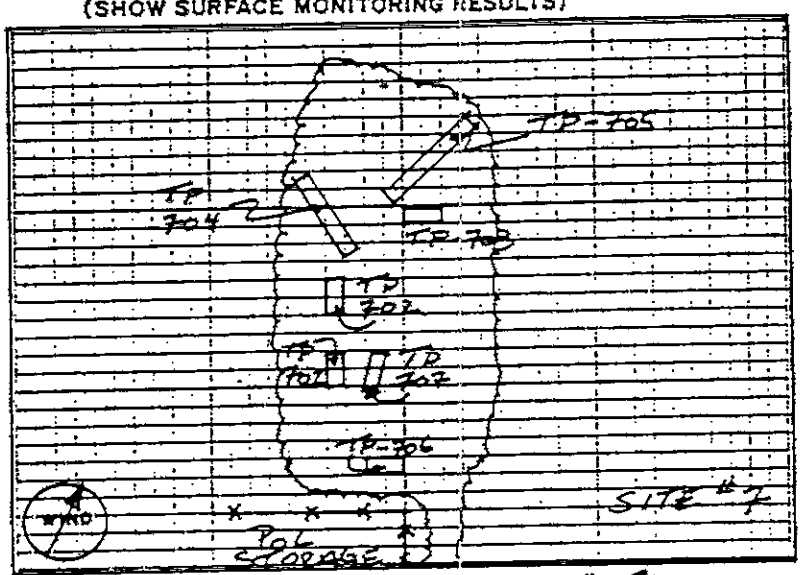
TEST PIT RECORD

SITE BNAS

TEST PIT 703 DATE 8/12 TIME ST. 0800 END 0830

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 100 FT

CREW MEMBERS

1. KAISER (ECJ)
2. BUTLER (ECJ)
3. GOTO (MATHES)
4.
5.
6.

MONITOR EQUIPMENT

PI METER	(Y)	N
EXPLOSIVE GAS	(Y)	N
AVAIL. OXYGEN	Y	N
OVA	Y	N
OTHER		

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES

TP-703 BOP 7.5', ▽ 6.5'
0-4.5' SILTY SAND (FILL), 4.5-7.5' SAND (NATURAL)
26 ppm T.P READING off PILE

TP-704, BOP 5', ▽ 5', 0-1.5' SILTY SAND,
1.5'-5' SAND (NATURAL), TIP BG throughout

TP-705, BOP 5.5', ▽ 5', 0-4' SILTY SAND (FILL)
4'-5.5' SAND (NATURAL), TIP 5ppm

TP-706, BOP 6', NO WATER, 0-3' SILTY SAND (FILL)
3'-6' GRAVELLY SAND (NATURAL), TIP BG

TP-707, BOP 7', NO WATER, 0-2' SILTY SAND, 2'-5' SILT,
5'-7' SAND, TIP BG

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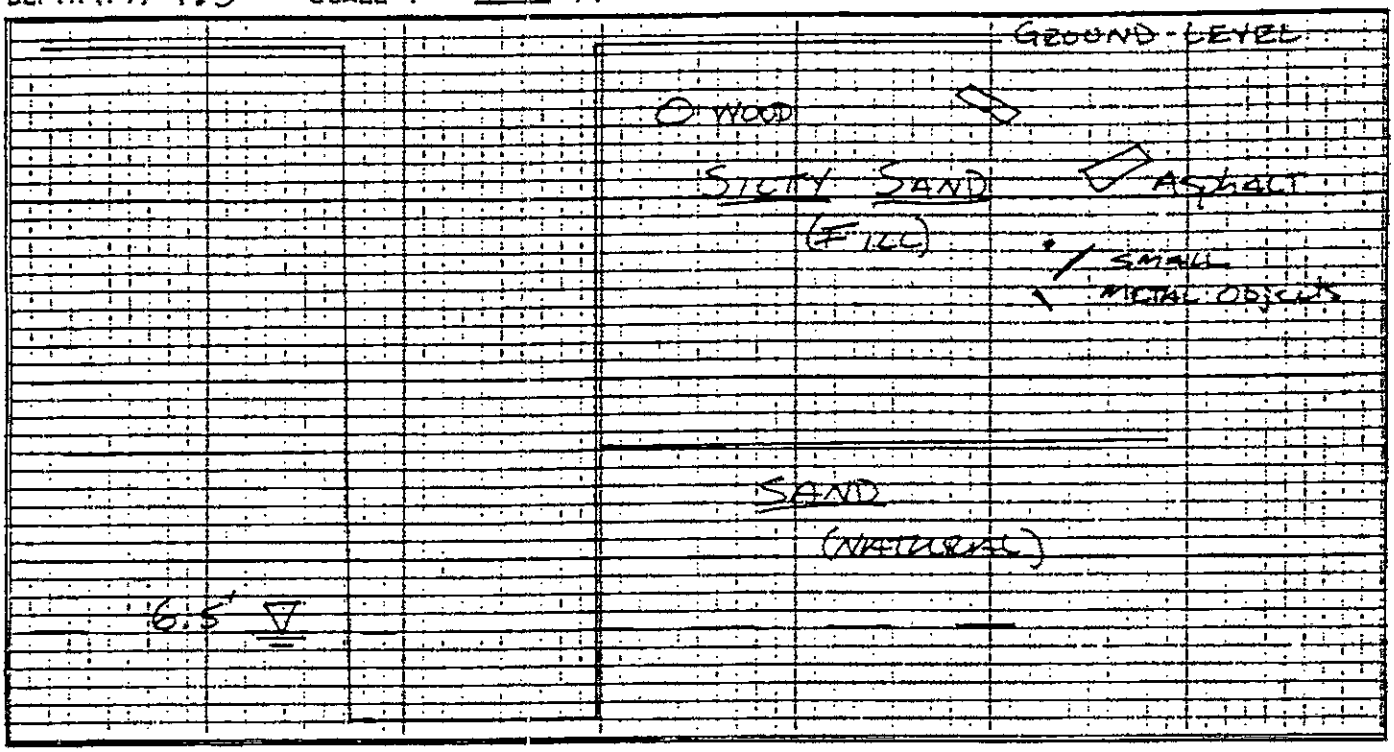
TEST PIT RECORD
PROFILE ALONG TEST PIT-TP-703

SITE BNAS SITE 7

DEPTH (FT) 7.5' SCALE 1" = 2 FT



NOTES:

0-4.5' SILTY SAND, BLACK/BROWN, MED TO FINE, P GRADED LOOSE, DAMP, SLIGHT OIL & GREASE ODER, TIP 3ppm

4.5'-7.0' SAND, GRAY/RED P. GRADED, MED TO FINE, LOOSE MOIST/SATURATED, TIP 1ppm (NATURAL)

SAMPLES OBTAINED

NO.	DEPTH (FT)	SAMPLE I.D.	PI READING
S-1	1.5'	MS/MSD	26ppm
S-2	7'		BG
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. 25-27

ATTACHMENTS

Kurt Hoppe

SIGNATURE

EC JORDAN CO

Click Here to Return to Main Index

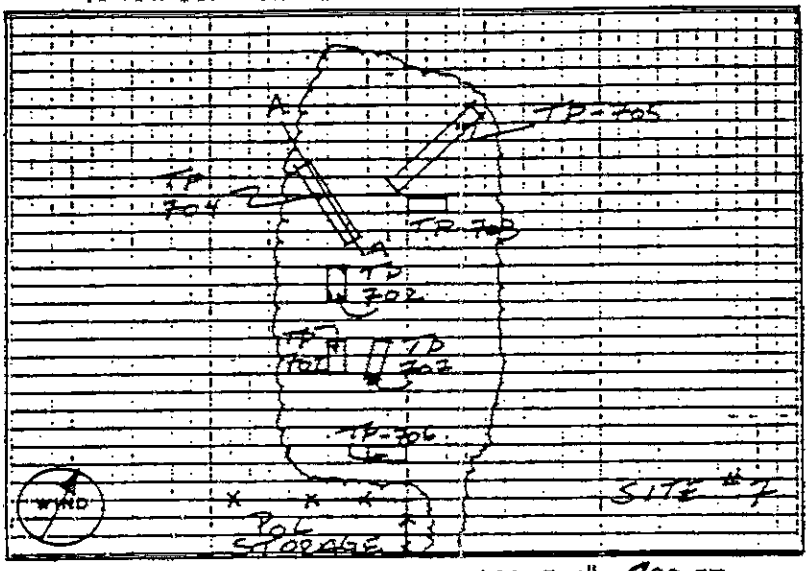
TEST PIT RECORD

SITE BNAS

TEST PIT 704 DATE 8/12 TIME ST. 0845 END 0930

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 100 FT

CREW MEMBERS
1. KASPER (ECJ)
2. BUTLER (ECJ)
3. GOTO (MATHES)
4.
5.
6.

MONITOR EQUIPMENT

PI METER	(Y)	N
EXPLOSIVE GAS	(Y)	N
AVAIL. OXYGEN	Y	N
OVA	Y	N

OTHER _____

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES

TP-703 BOP 7.5', ▽ 6.5'
0-4.5' SILTY SAND (FILL), 4.5-7.5' SAND (NATURAL)
26 ppm TIP READING off PILE

TP-704, BOP 5', ▽ 5', 0-1.5' SILTY SAND,
1.5'-5' SAND (NATURAL), TIP BG throughout.
Blue crystals (possible acid salts) encountered at 2.5 ft.

TP-705, BOP 5.5', ▽ 5', 0-4' SILTY SAND (FILL)
4'-5.5' SAND (NATURAL), TIP 5ppm

TP-706, BOP 6', NO WATER, 0-3' SILTY SAND (FILL)
3'-6' GRAVELLY SAND (NATURAL), TIP BG

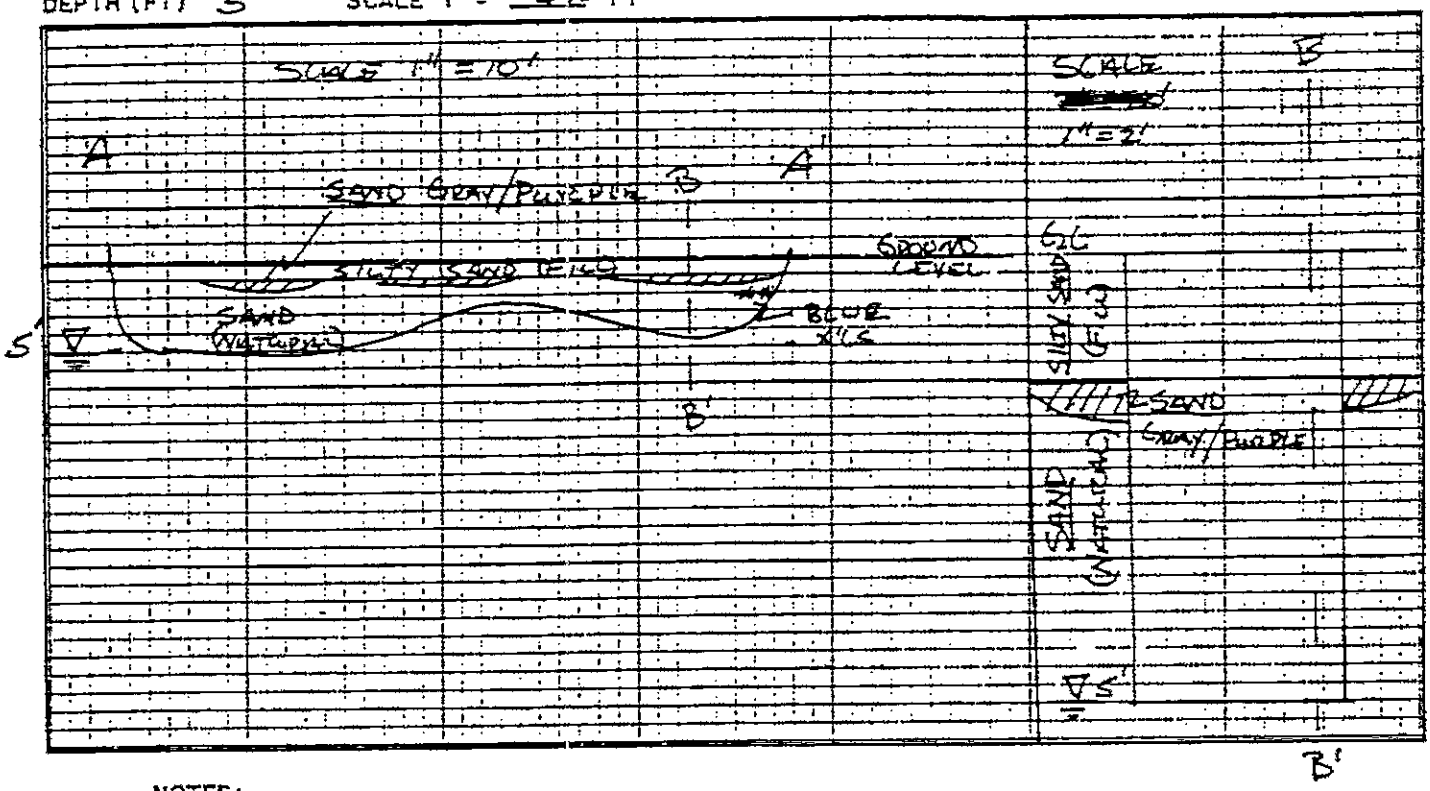
TP-707, BOP 7', NO WATER, 0-2' SILTY SAND, 2'-5' SILT,
5'-7' SAND, TIP BG

ECJORDANCO

TEST PIT RECORD
PROFILE ALONG TEST PIT- 704

SITE BNAS SITE 7

DEPTH (FT) 5 SCALE 1" = 10 FT



NOTES:

0 - 1.5' SILTY SAND, BROWN P. GRADED, MED TO FINE, LOOSE, ORGANIC SILT, ROOT HAIRS, (FILL)

1.5' - 5' SAND, RED/GRAY P. GRADED, MED TO FINE, LOOSE, MOIST/SATURATED (NATURAL)

* NOTE: S-1 @ 5' sampled GRAY/PURPLE SAND LENS

* NOTE: Blue crystals (possible acid salts) encountered at 2.5'.

SAMPLES OBTAINED

NO.	DEPTH (FT)	SAMPLE I.D.	PI READING
S-1	1.5'		2 ppm
S-2	5'		BG
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. 28-31

ATTACHMENTS

SIGNATURE

EC JORDAN CO

Click Here to Return to Main Index

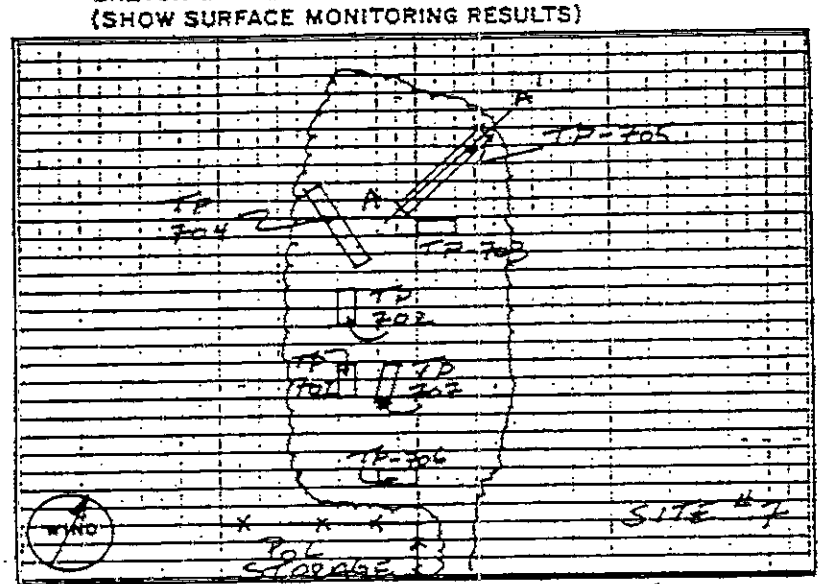
TEST PIT RECORD

SITE BNAS

TEST PIT 705 DATE 8/12 TIME ST. 0940 END 1130

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT

CREW MEMBERS

1. KASPER (ECJ)
2. BUTLER (ECJ)
3. GOTO (MATHES)
4.
5.
6.

MONITOR EQUIPMENT

PI METER	(Y)	N
EXPLOSIVE GAS	(Y)	N
AVAIL. OXYGEN	Y	N
OVA	Y	N

OTHER _____

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES

TP-703 BOP 7.5', ▽ 6.5'
0-4.5' SILTY SAND (FILL), 4.5-7.5' SAND (NATURAL)
26 ppm TIP READING off PILE

TP-704, BOP 5', ▽ 5', 0-1.5' SILTY SAND,
1.5'-5' SAND (NATURAL), TIP BG throughout

TP-705, BOP 5.5', ▽ 5', 0-4' SILTY SAND (FILL)
4'-5.5' SAND (NATURAL), TIP 5 ppm

TP-706, BOP 6', NO WATER, 0-3' SILTY SAND (FILL)
3'-6' GRAVELLY SAND (NATURAL), TIP BG

TP-707, BOP 7', NO WATER, 0-2' SILTY SAND, 2'-5' SILT,
5'-7' SAND, TIP BG

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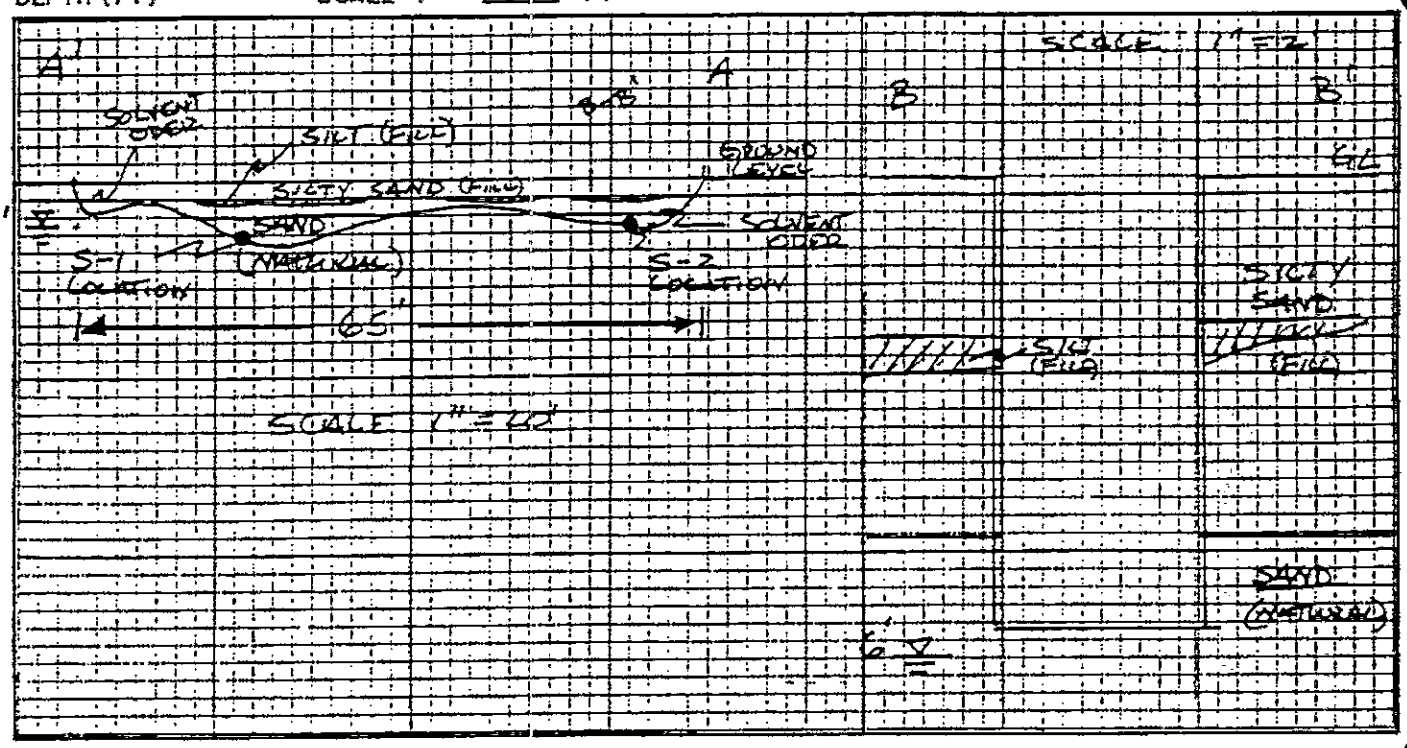
TEST PIT RECORD
PROFILE ALONG TEST PIT- 705

SITE BNAS SITE 7

DEPTH (FT) SCALE 1" = 20' FT



NOTES:

0-4' SILTY SAND, DARK BROWN P. GRADED, MED TO FINE, LOOSE, DAMP; PIECES of WOOD, CONCRETE, STEEL (FILL) LENS of SILT GREEN/GRAY (FILL)

4'-5.5' SAND, GRAY, P GRADED, MED TO FINE, LOOSE MOIST/SATURATED, (NATURAL)

*NOTE: S-1 SAMPLED GREEN/GRAY SILT

SAMPLES OBTAINED

NO.	DEPTH (FT)	INIT. SER. NO.	HD. SP. VOA PPM
S-1	2'		5ppm
S-2	7'	DUP	BG
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. 32-35
ATTACHMENTS

Karl Kuyn
SIGNATURE

E.C.JORDAN CO.

Click Here to Return to Main Index

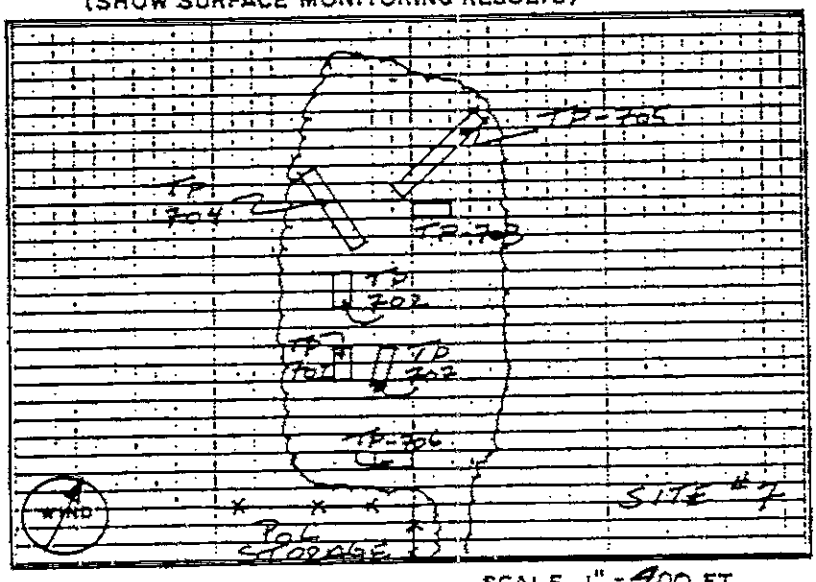
TEST PIT RECORD

SITE BNAS

TEST PIT 706 DATE 8/12 TIME ST. 1130 END 1210

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 100 FT

CREW MEMBERS
1. KASER (ECJ)
2. BUTLER (ECJ)
3. GOTO (MATHES)
4.
5.
6.

MONITOR EQUIPMENT

PI METER	(Y)	N
EXPLOSIVE GAS	(Y)	N
AVAIL. OXYGEN	Y	N
OVA	Y	N

OTHER _____

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES

TP-703 BOP 7.5', ▽ 6.5'
0-4.5' SILTY SAND (FILL), 4.5-7.5' SAND (NATURAL)
26 ppm TIP READING off PILE

TP-704, BOP 5', ▽ 5', 0-1.5' SILTY SAND,
1.5'-5' SAND (NATURAL), TIP BG throughout

TP-705, BOP 5.5', ▽ 5', 0-4' SILTY SAND (FILL)
4'-5.5' SAND (NATURAL), TIP 5ppm

TP-706, BOP 6', NO WATER, 0-3' SILTY SAND (FILL)
3'-6' GRAVELLY SAND (NATURAL), TIP BG

TP-707, BOP 7', NO WATER, 0-2' SILTY SAND, 2'-5' SILT,
5'-7' SAND, TIP BG

E.C. JORDAN CO.

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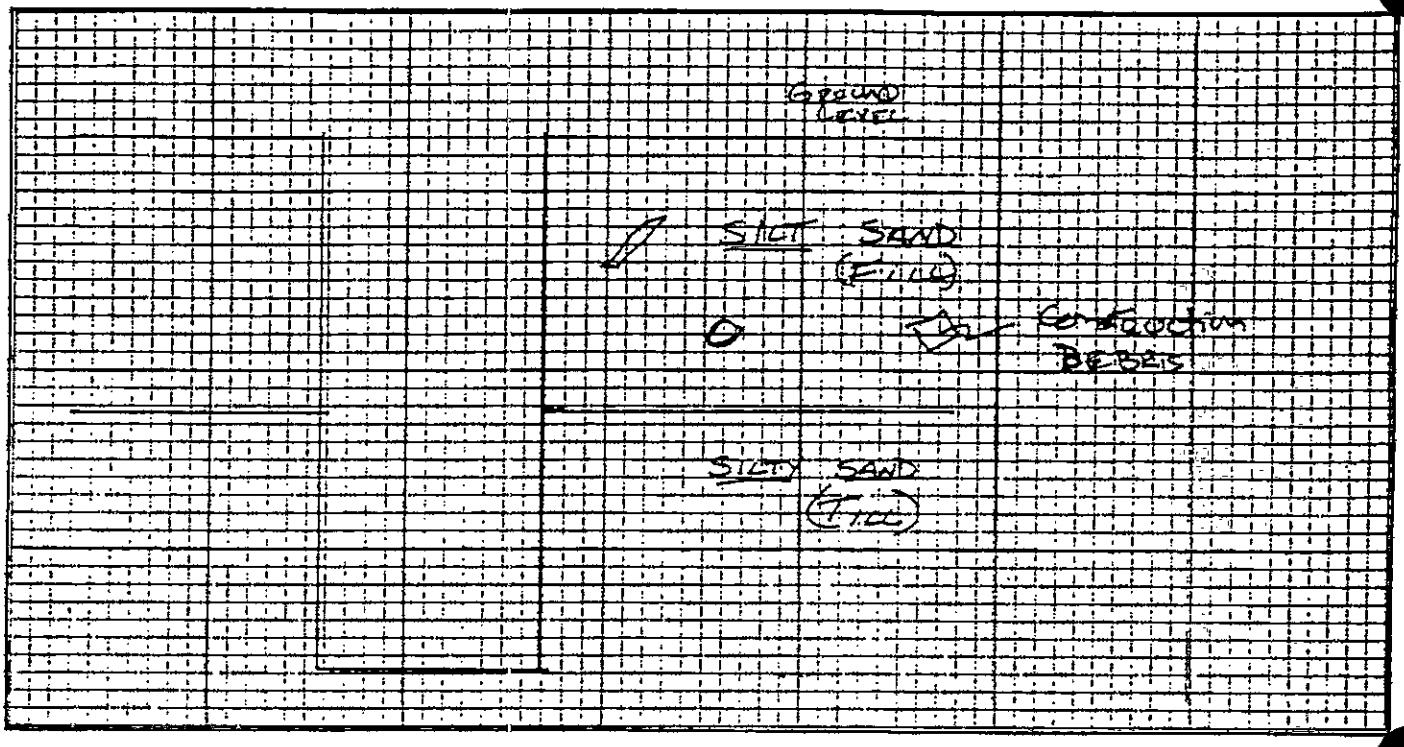
TEST PIT RECORD
PROFILE ALONG TEST PIT- 706

SITE BNAS

DEPTH (FT) 6' SCALE 1" = 2 FT



NOTES:

0-3' SILTY SAND, BROWN P. GRADED, ORGANIC SILT MED TO FINE, CONTRUCTION DEBRIS, LOOSE, MOIST (FILL)

3'-6' SILTSAND, GRAY/RED, W. GRADED, WELL ROUNDED GRAVEL TO COBBLES, V. FINE TO CRS SAND, LOOSE, MOIST MOTTLED @ 4' (RED). (TILL)

SAMPLES OBTAINED

NO.	DEPTH (FT)	INIT. SER. NO.	HD. SP. VOA PPM
S-1	1'		86
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. 36 - 39
ATTACHMENTS

Karl Boyer
SIGNATURE

EC JORDAN CO

Click Here to Return to Main Index

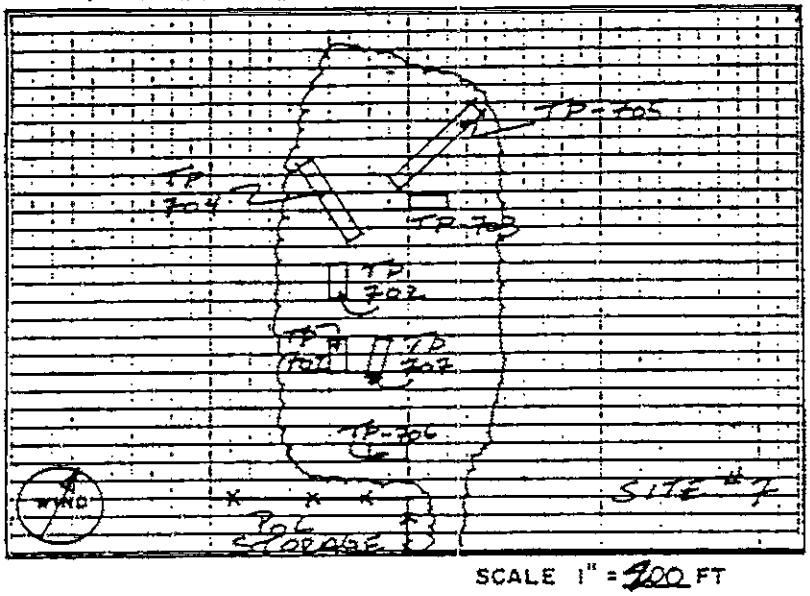
TEST PIT RECORD

SITE BNAS

TEST PIT 707 DATE 8/12 TIME ST. 1645 END 1700

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 100 FT

CREW MEMBERS
1. KASER (ECJ)
2. BUTLER (ECJ)
3. GOTO (MATHES)
4.
5.
6.

MONITOR EQUIPMENT

PI METER	(Y)	N
EXPLOSIVE GAS	(Y)	N
AVAIL. OXYGEN	Y	N
OVA	Y	N

OTHER _____

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES

TP-703 BOP 7.5', ▽ 6.5'
0-4.5' SILTY SAND (FILL), 4.5-7.5' SAND (NATURAL)
26 ppm T.IP READING OFF PILE

TP-704, BOP 5', ▽ 5', 0-1.5' SILTY SAND,
1.5'-5' SAND (NATURAL), TIP BG THROUGHOUT

TP-705, BOP 5.5', ▽ 5', 0-4' SILTY SAND (FILL)
4'-5.5' SAND (NATURAL), TIP 5ppm

TP-706, BOP 6', NO WATER, 0-3' SILTY SAND (FILL)
3'-6' GRAVELLY SAND (NATURAL), TIP BG

TP-707, BOP 7', NO WATER, 0-2' SILTY SAND, 2'-5' SILT,
5'-7' SAND, TIP BG

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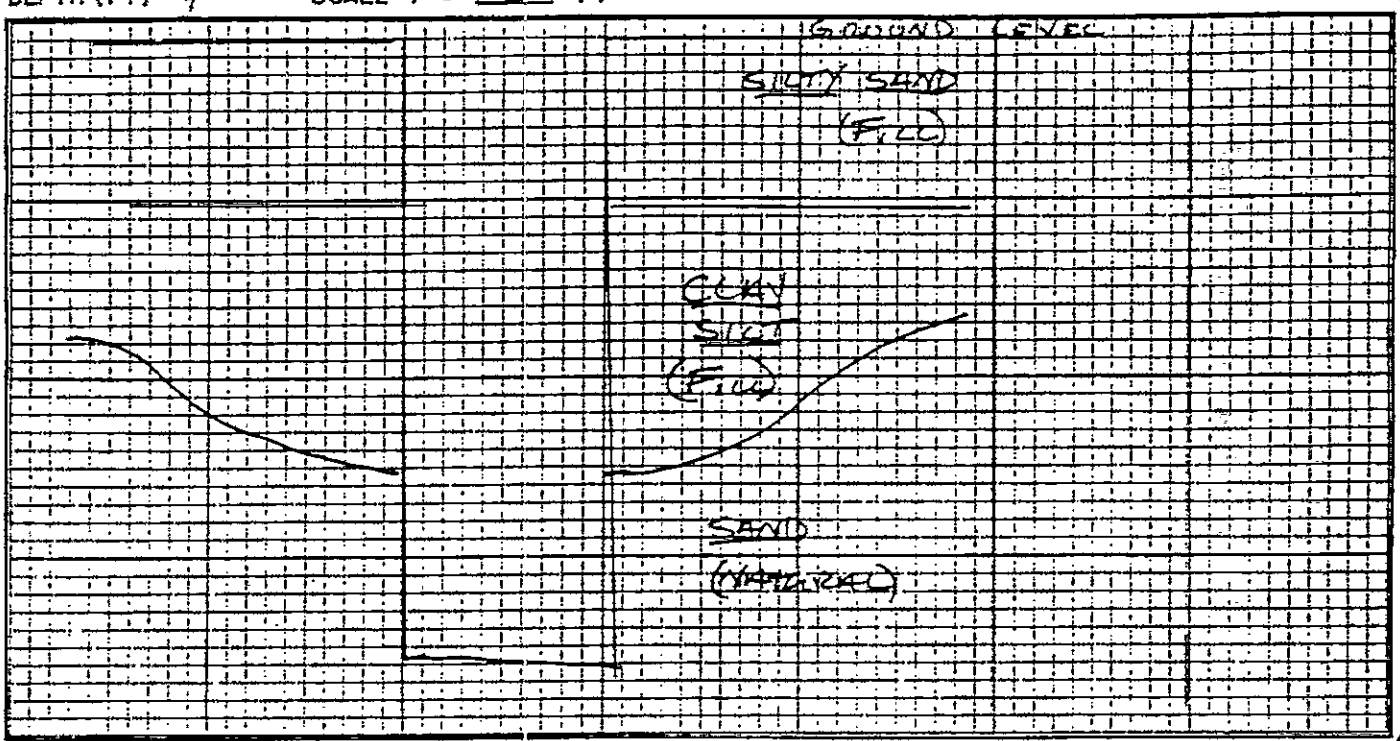
TEST PIT RECORD
PROFILE ALONG TEST PIT- 707

SITE BNAS SITE 7

DEPTH (FT) 7' SCALE 1" = 2 FT



NOTES:

0-2' SILTY SAND, BROWN P. GRADED, MED TO FINE, TO GRAVEL, LOOSE, DAMP W/ WOOD DEBRIS

2'-5' CLAY SILT, BLUE, MOD PLASTIC, DRY, FRIABLE, FRACTURED, (FILL)

5'-7' SAND, TAN, P. GRADED WELL SORTED, MED TO FINE, MOIST/SATURATED, LOOSE

SAMPLES OBTAINED

NO.	DEPTH (FT)	INIT. SER. NO.	HD. SP. VOA PPM
S-1	7'		B6
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. 46-47
ATTACHMENTS

Hal Hogan
SIGNATURE

EC JORDAN CO

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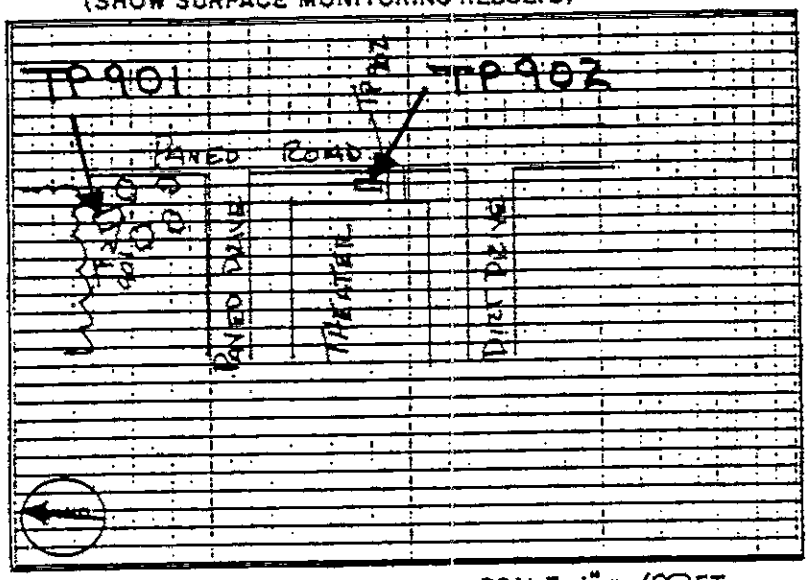
TEST PIT RECORD

SITE BNAS TP-901, 902

TEST PIT _____ DATE 8/3/88 TIME ST. _____ END _____

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 100 FT

CREW MEMBERS
1. KASPER (EC5)
2. BRETON (MORRISON)
3. GOTO (MATRIX)
4.
5.
6.

MONITOR EQUIPMENT

PI METER	(Y)	N
EXPLOSIVE GAS	Y	N
AVAIL. OXYGEN	Y	N
OVA	Y	N
OTHER RAD METER		

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES

TP-901 0-9.5' NATURAL SAND, BOP 9.5', ▽ 9'
10ppm TIP Reading @ 0.5', BG Throughout Rest of Pit

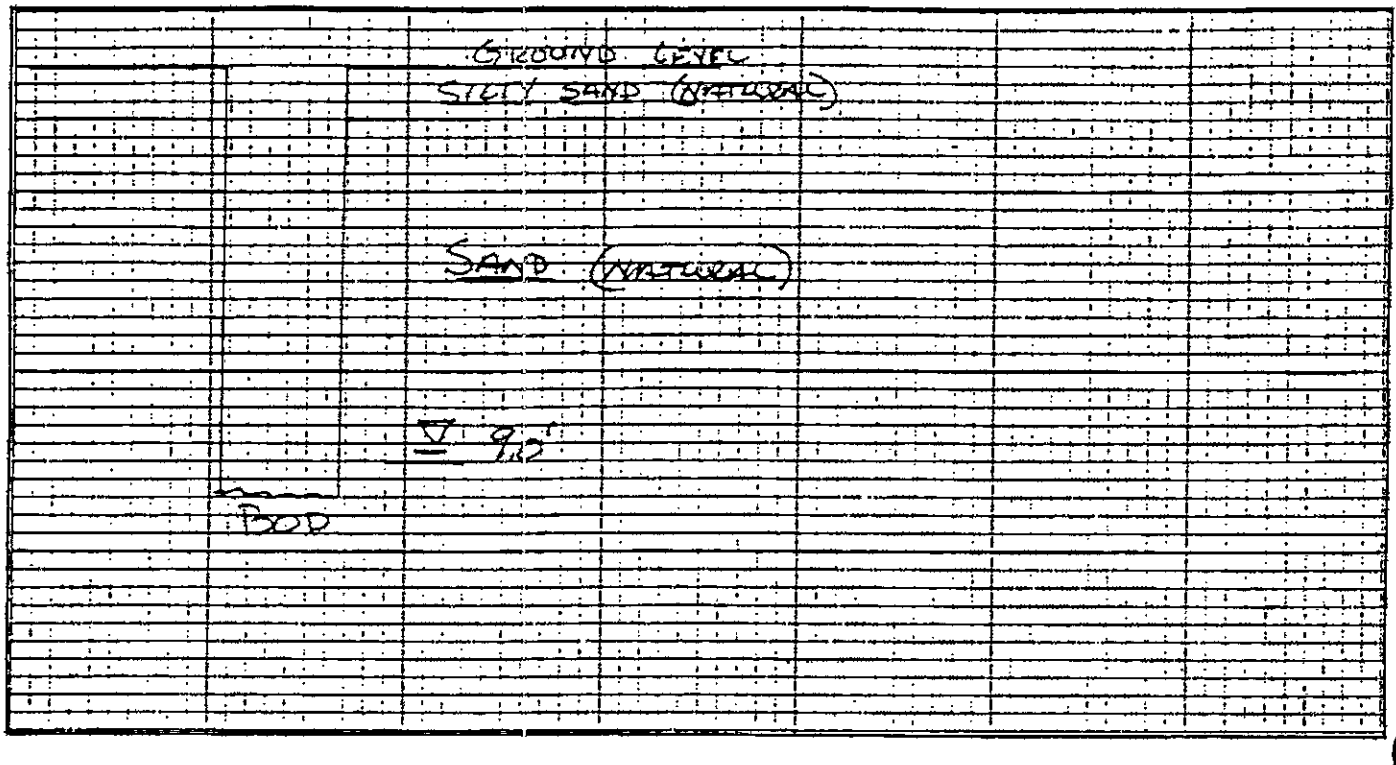
TP-902 0-3' (FILL), 3'-9.5' NATURAL, BOP 9.5'
▽ 8'

EC JORDAN CO

TEST PIT RECORD
PROFILE ALONG TEST PIT- 901

SITE BNAS

DEPTH (FT) 9.5' SCALE 1" = 4 FT



NOTES:

0-1' SILTY SAND, BLACK TO RED W, GRADED, LOOSE, MOIST

MED TO FINE SAND, ORGANIC SILT

1-9.5' SAND, GRAY, P GRADED MED TO FINE, TR SILT, TR FLAKES OF MICA, RED/GRAY MOTTLE @ WATER SURFACE LOOSE, MOIST/SATURATED

SAMPLES OBTAINED

NO.	DEPTH (FT)	SAMPLE I.D.	PI READING
S-1	0.5'		10ppm
S-2	9.5'		BG
S-3	9.5'	DUP #2	BG
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. 20-21

ATTACHMENTS

SIGNATURE

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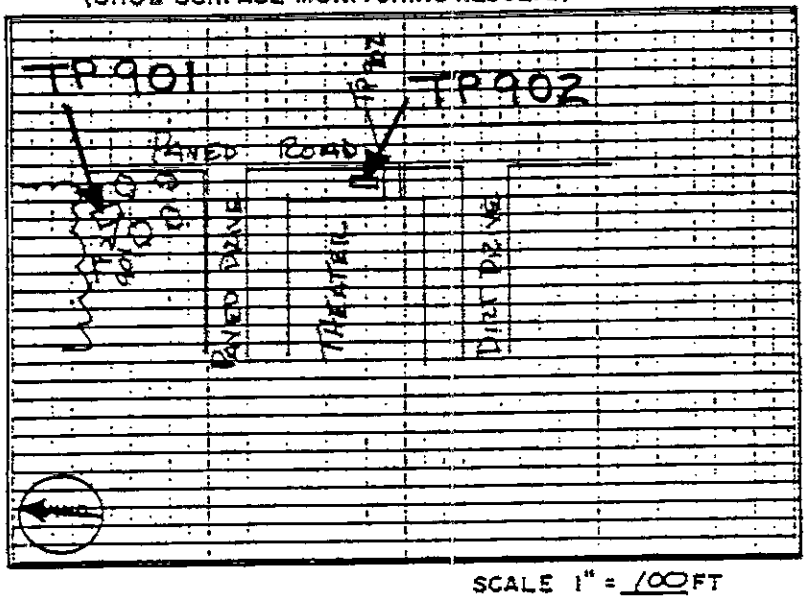
TEST PIT RECORD

SITE BNAS TP-901, 902

TEST PIT _____ DATE 8/3/88 TIME ST. _____ END _____

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 100 FT

CREW MEMBERS
1. KASPER (ECS)
2. BRETON (NORTHERN)
3. GOTO (NORTHERN)
4.
5.
6.

MONITOR EQUIPMENT

PI METER	(Y)	N
EXPLOSIVE GAS	Y	N
AVAIL. OXYGEN	Y	N
OVA	Y	N

OTHER BAD METER

PHOTOGRAPHS, ROLL _____
EXPOSURE _____

NOTES

TP-901 0-9.5' NATURAL SAND, BOP 9.5', V 9'
10ppm TIP Reading @ 0.5', BG Throughout Rest of Pit

TP-902 0-3' (FILL), 3'-9.5' NATURAL, BOP 9.5'
V 8'

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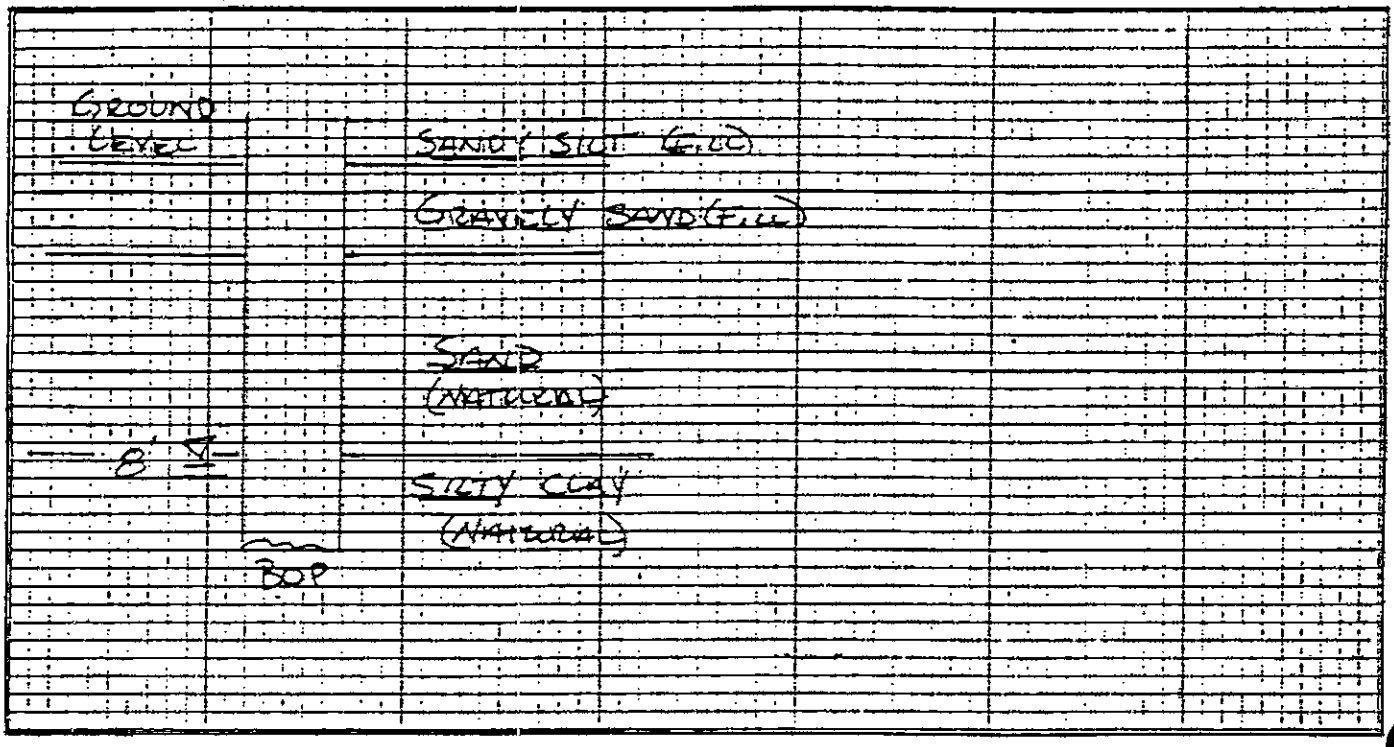
TEST PIT RECORD
PROFILE ALONG TEST PIT- 902

SITE BAAS

DEPTH (FT) 9.5' SCALE 1" = 4' FT



NOTES:

0-1' SANDY SILT, BLACK/BROWN (LOW PLASTIC, MED TO FINE SAND, LOOSE, MOIST (F.LL)

1-3' GRAVELLY SAND, TAN, W GRADED, FINE SAND TO CRS COBBLES, MOIST, LOOSE (F.LL)

3-9.5' SAND, RED TO TAN, P. GRADED, MED TO FINE, TR CRS SAND, TR FINES MICA, MOD DENSE, MOIST TO SATURATED (NATURAL)

7.5'-9.5' SILTY CLAY, GRAY, MOD PLASTIC, FRAGMENTAR, SATURATED

SAMPLES OBTAINED

NO.	DEPTH (FT)	SAMPLE I.D.	PI READING
S-1	2.5'		BG
S-2	7.5'		BG
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: FIELD BOOK, PG. _____
ATTACHMENTS _____

Karl Hoge
SIGNATURE

EC JORDAN CO.

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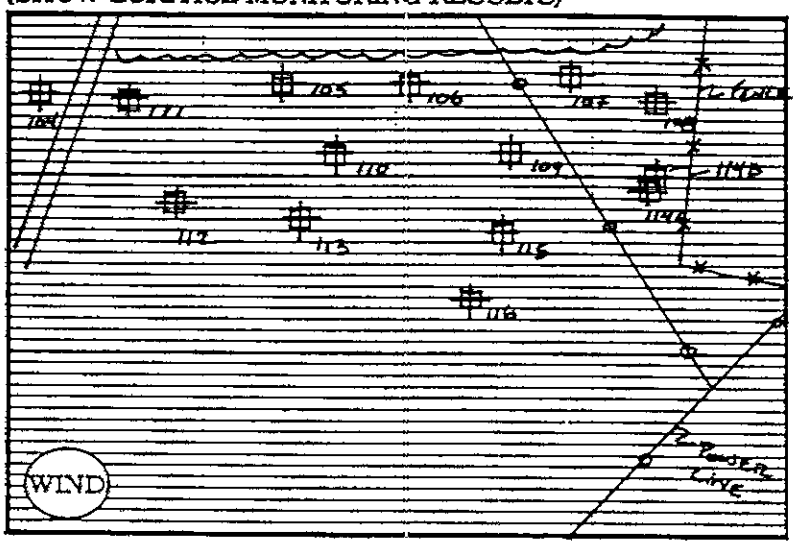
TEST PIT RECORD

SITE 1
TEST PIT TP-104 DATE 9/1/89 TIME 1330 END 1500
COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N
Other		

Photographs. Roll _____

Exposure _____

NOTES:

BOP 13.5'

0'-12' FILL (SAND LITTLE TO NO FINES)

12'-13.5' NATURAL IN PLACE SOILS

NO WATER

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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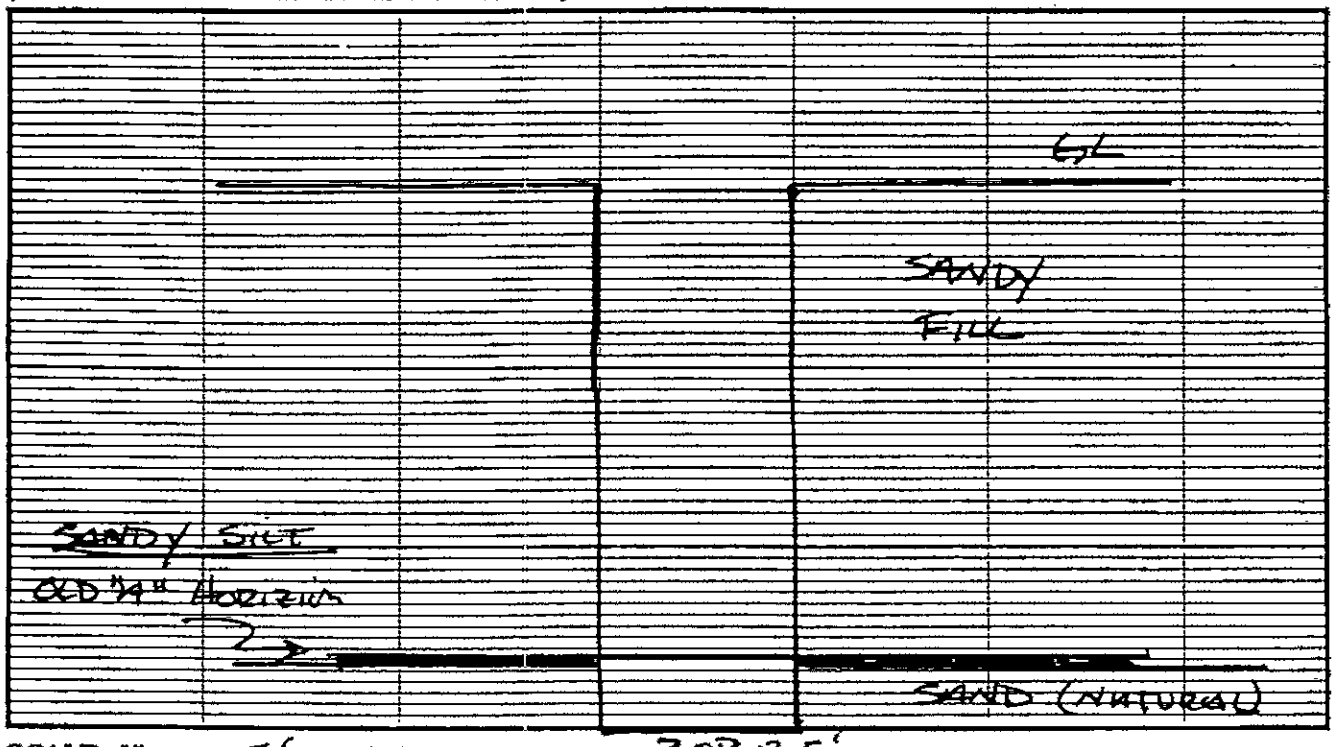
TEST PIT RECORD

Profile Along Test Pit- 104

SITE I

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 5' FT.
DEPTH (FT.)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0-3',	OITP104	X000 XX
S-2	10',	OITP104	X100 XX
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

TP
BKG

NOTES:

0 - 12 SANDY FILL, BROWN MED to FINE, LOOSE, DRY to MOIST W/ DEPTH, LITTLE to NO FINES, RETRIEVED PIECE of CONCRETE @ 11'

12 - 13.5 SAND, GRAY, MED to FINE, W/ ORANGE MOTTLES, WET, MOD. DENSE W/ (NATURAL SOILS IN PLACE) W/ BLACK ORGANIC SILT LAYER OLD "A" HORIZON @ 12'

REFERENCE: Field Book, Pg. 50-51

Attachments

SIGNATURE: Karl Krasper

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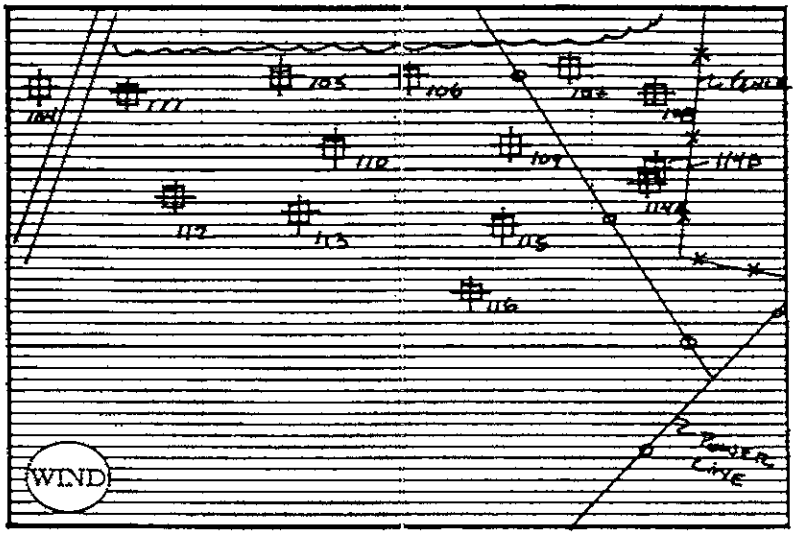
TEST PIT RECORD

SITE 1
TEST PIT TP 105 DATE 8/3/89 TIME 1630 END 1715
COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

CREW MEMBERS:
1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll _____

Exposure 1

NOTES: BOP 10.5'
SANDY FILL 0'-10.5'
NO WATER

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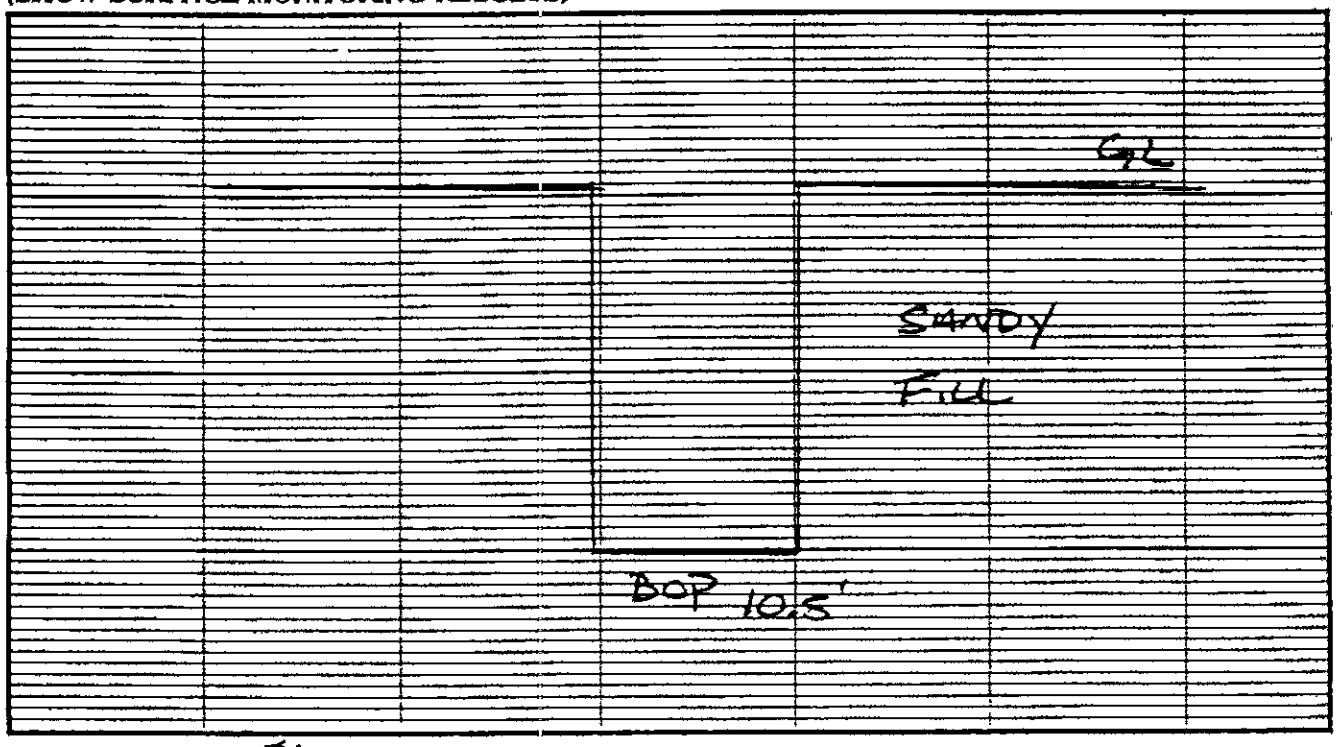
TEST PIT RECORD

Profile Along Test Pit- TP 105

SITE Site I

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 5' FT.
DEPTH (FT.)

NOTES:
0 -10.5' SANDY FILL, BROWN, MED. to FINE, DRY to MOIST NO TRASH, UPPER 5' DARK BANDED UNITS SIMULAR to TP 107

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0'-3', 0	TP105	X030 1XX
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 46

Attachments

SIGNATURE: Karl Knaspe

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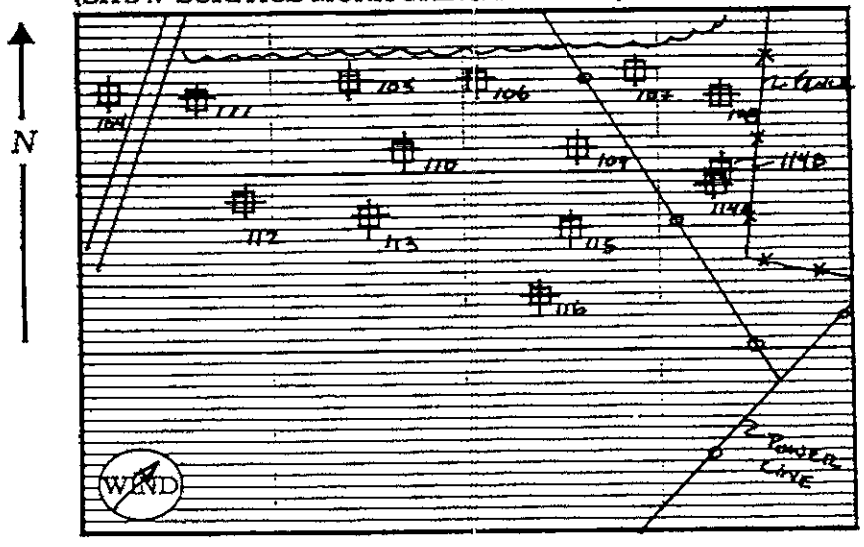
TEST PIT RECORD

SITE 1

TEST PIT 106 DATE 8/30/89 TIME 1520 END 1545

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure 1

NOTES:

BOP 9.5'

FILL 0 - 6.5'

NATURAL SOILS IN PLACE 6.5' - 9.5'

NO TRASH

NO WATER

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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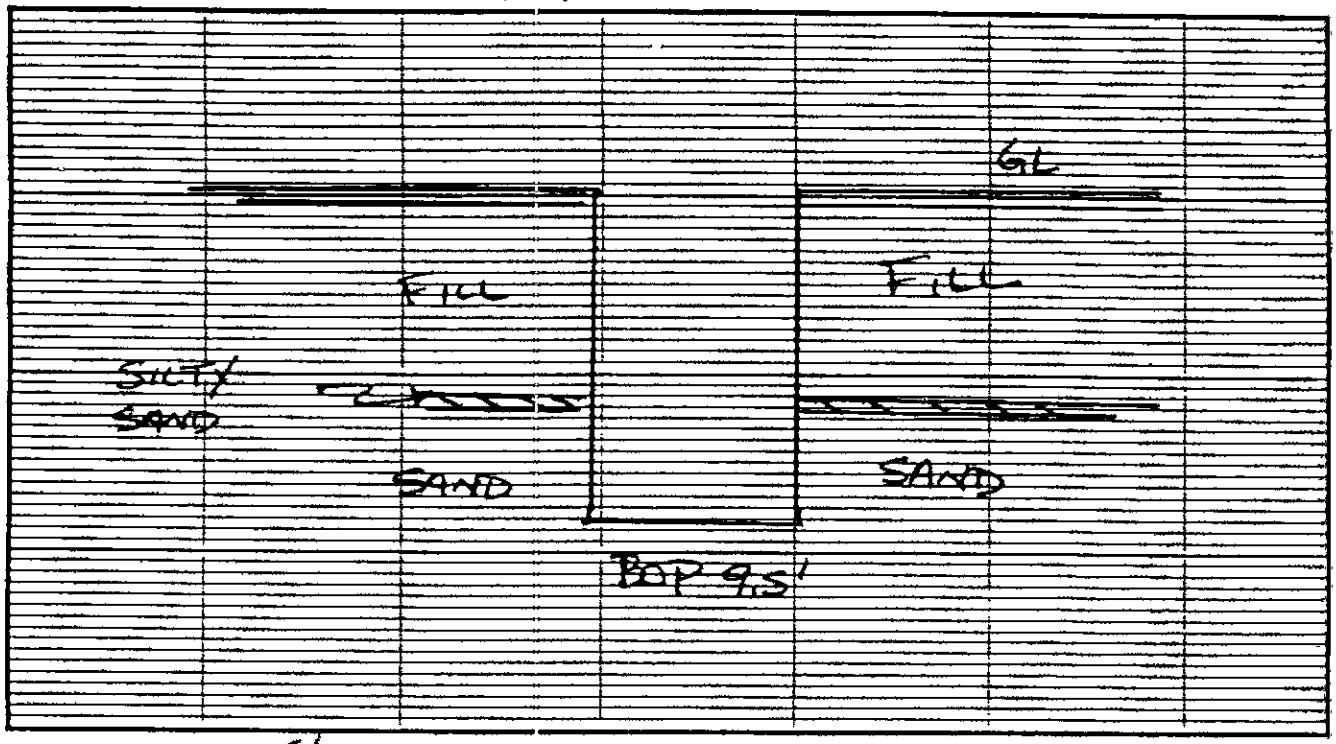
TEST PIT RECORD

Profile Along Test Pit- TP 106

SITE 1

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 5' FT.
DEPTH (FT.)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0'-3'	01TP106X	000XX	BKG
S-2	3'-6'	01TP106X	030XX	BKG
S-3				
S-4				
S-5				
S-6				
S-7				
S-8				

NOTES:

0-6.5' FILL, SAND, TAN MED to FINE, MOD DENSE, MOIST w/ BLACK / BROWN discontinous STRINGERS, LITTLE to NO TRASH

6.5'-7.0' SAND/ SILT, BLACK w/ ORGANIC SILT, ROOTS, ROOTLETS MED SAND, MOD DENSE, MOIST (OLD "A" HORIZION)

7.0-9.5' SAND RED to GRAY w/ DEPTH, MED to FINE SAND, LOOSE, MOIST (NATURAL SOILS in PLACE)

REFERENCE: Field Book, Pg. 34-35

Attachments

SIGNATURE: Karl Kasper

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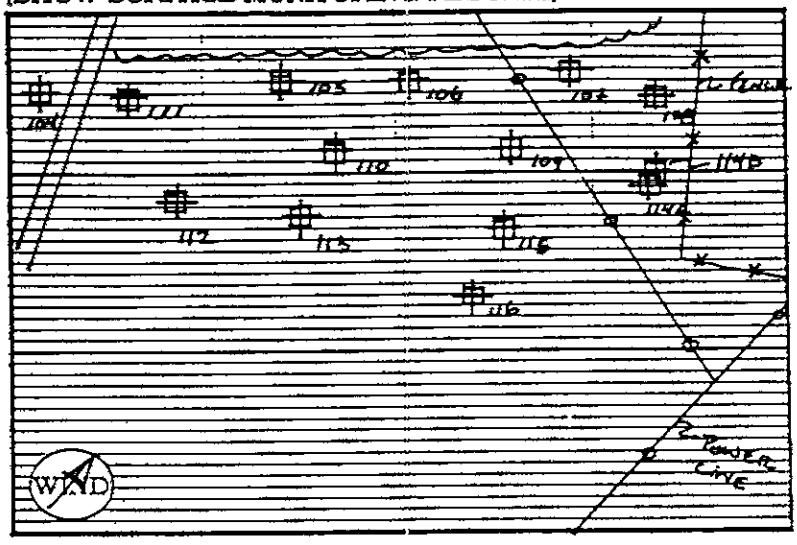
TEST PIT RECORD

SITE 1
TEST PIT TP 107 DATE 8/30/89 TIME 1200 END 1245
COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure 1

NOTES:

BOP 9'

Fill 0-6' w/ Black stained soils

Natural soils in place 6'-9'

NO WATER

E.C. JORDAN

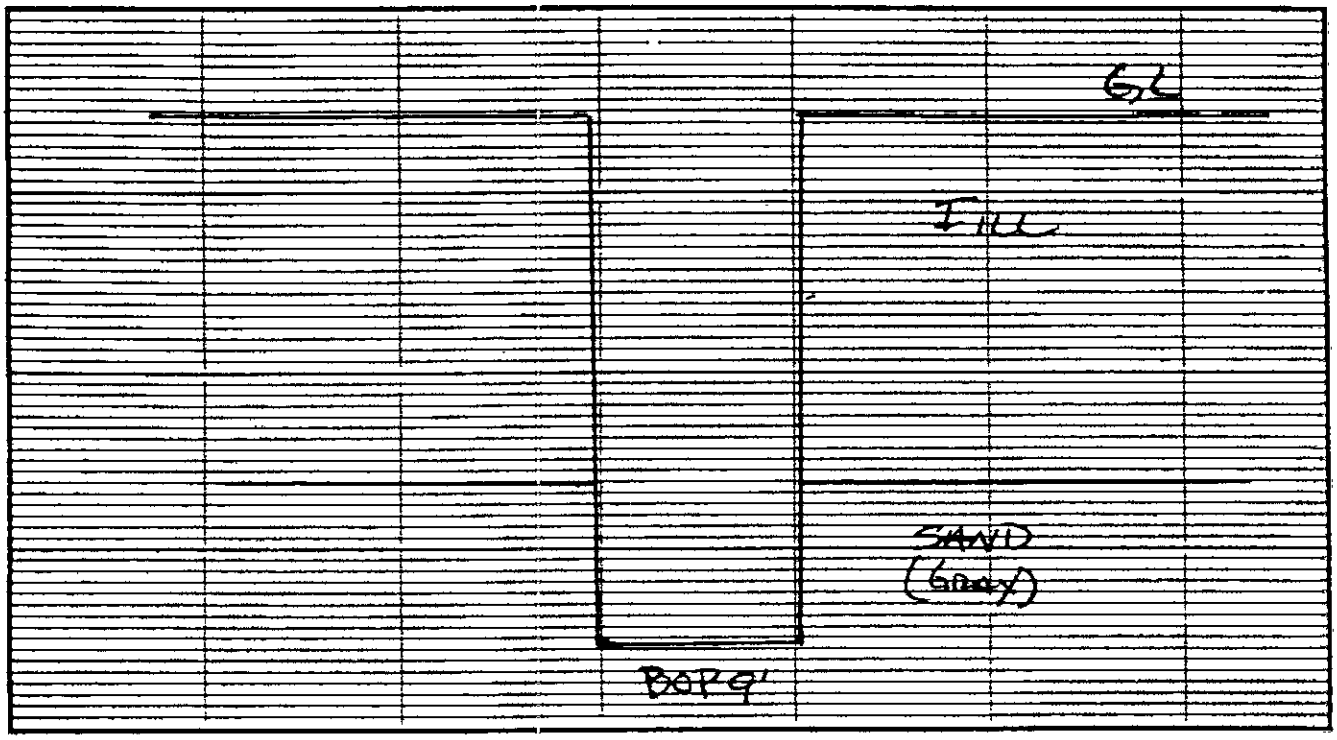
4807-20 GEOT. FORMS DISK

TEST PIT RECORD

Profile Along Test Pit- TP 107

SITE Site I

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3' FT.
DEPTH (FT.)

NOTES:

0'-6' Fill, Brown/Black Banded, Med Sand, w/ Roots Very Little Trash, Few Pieces of metal.

6'-9' SAND, Gray, Med Sand w/ some Fine, Mod Dense Wet, w/ Black Laminations (Natural Soils)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0'-3'	01TP107X000XX		BKG
S-2	DUP	01TP107X000XD		BKG
S-3	3'-6'	01TP107X030XX		BKG
S-4	6'-9'	01TP107X060XX		BKG
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. 28, 29

Attachments

SIGNATURE: [signature]

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4607-20 GEOT. FORMS DISK

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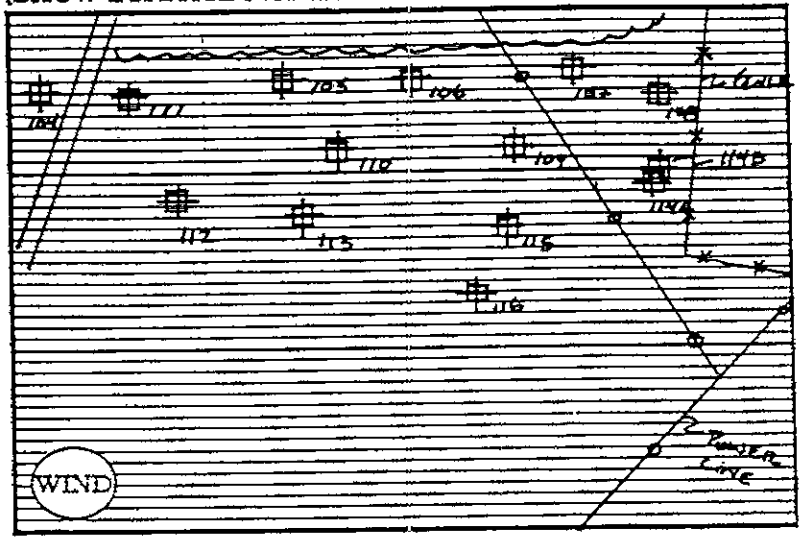
TEST PIT RECORD

SITE 1

TEST PIT TP 108 DATE 8/30/89 TIME 1320 END 1350

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll _____

Exposure 1

NOTES:

BOP 7'

FILL 0-5'

NATURAL SOILS IN PLACE 5'-7'

NO WATER

E.C. JORDAN

4807-20 GEOT. FORMS DISK

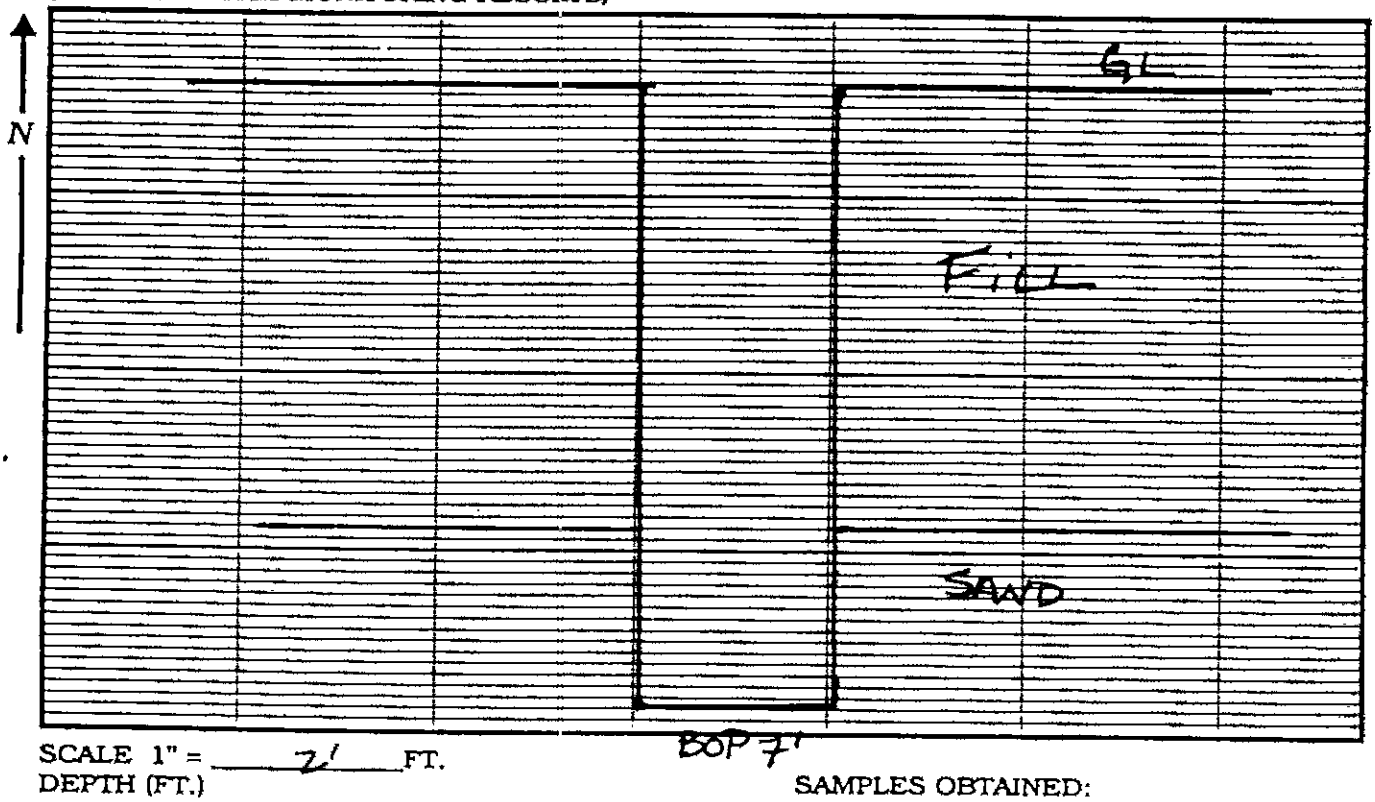
Click Here to Return to Main Index

TEST PIT RECORD

Profile Along Test Pit- TP 108

SITE I

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2' FT.
DEPTH (FT.)

NOTES:

0'-5' FILL, SILTY SAND, BLACK/BROWN, W/ ROOTS and WOODS

5'-7' SAND, GRAY, MED to FINE, MOD DENSE, MOIST, W/ ORANGE MOTTLES (NATURAL SOILS)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0'-3'	01TP108X	000 XX
S-2	DUP	01TP108X	000 XD
S-3	3'-6'	01TP108X	030 XX
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg.

Attachments

SIGNATURE: Karl Kayser

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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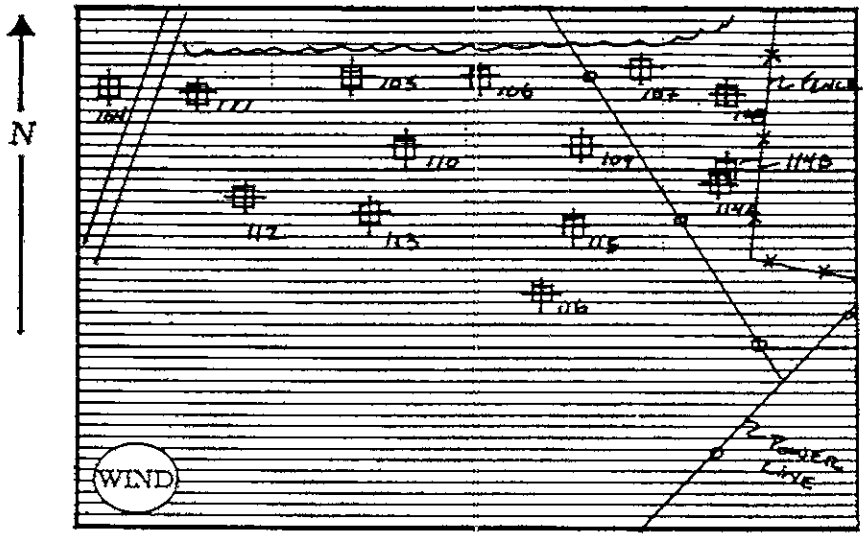
TEST PIT RECORD

SITE 1
TEST PIT TP 109 DATE 8/30/89 TIME 1430 END 1515
COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

CREW MEMBERS:
1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll _____

Exposure 1

NOTES:

BOP 9'

PIT DUG @ EDGE of LANDFILL

NO WATER

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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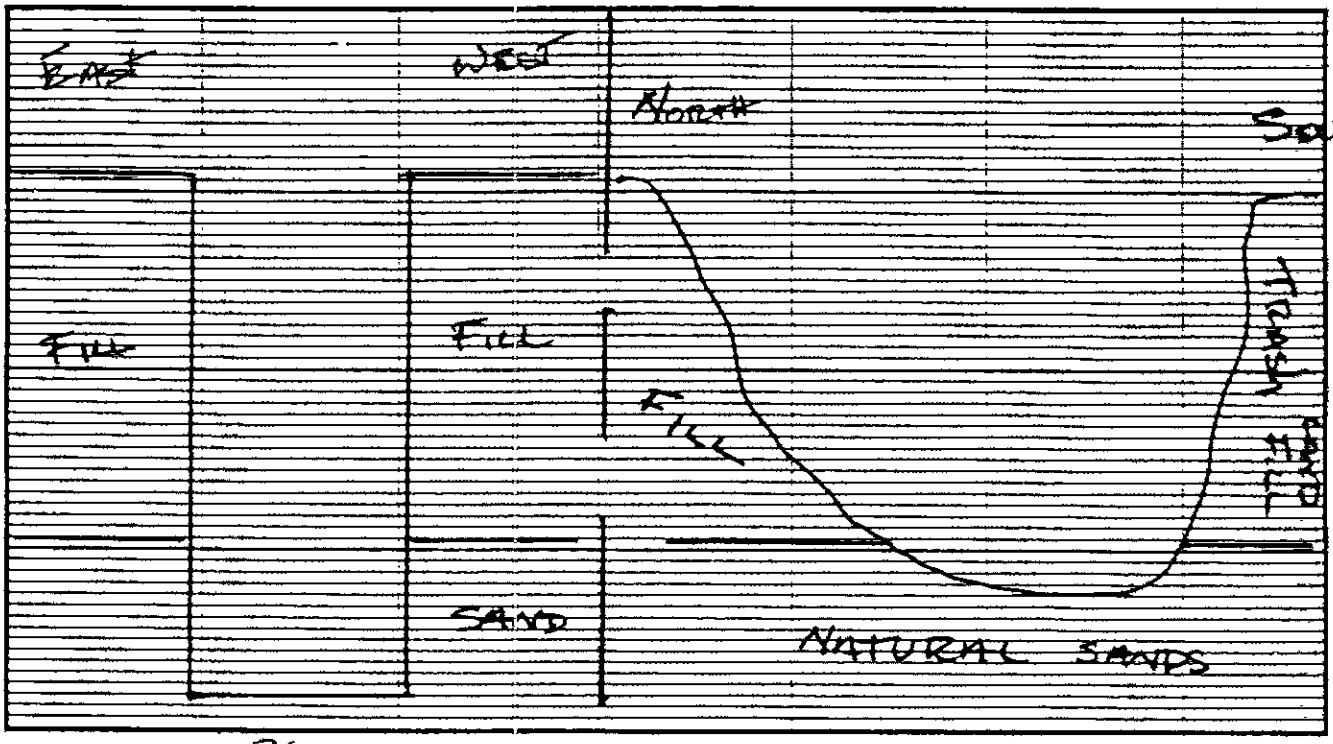
TEST PIT RECORD

Profile Along Test Pit- TP 109

SITE 1

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3' FT.
DEPTH (FT.)

NOTES:
0'-6.5' FILL, SILTY SAND, LOOSE MOIST, DARK BROWN, W/ GLASS, METAL, WIRE

6.5'-9' SAND, GRAY MED TO FINE, MOD DENSE, WET, W/ LAMINATIONS.

PIT DUG AT LANDFILL EDGE

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0'-3'	01TP109X000XX	TIP 1 PPM
S-2	3'-6'	01TP109X030XX	BKG
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 32, 33

Attachments

SIGNATURE: K L Kogan

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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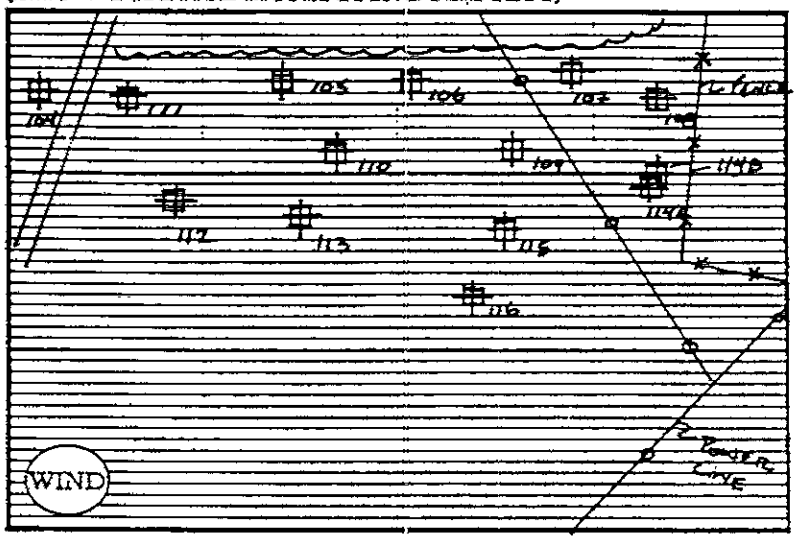
TEST PIT RECORD

SITE 1
TEST PIT TP 110 DATE 8/30/89 TIME 1630 END 1715
COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

CREW MEMBERS:
1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____
Exposure 1

NOTES:

BOP 6'
0-3' SANDY FILL
3'-6' TRASH
NO WATER

E.C. JORDAN

4607-2# GEOT. FORMS DISK

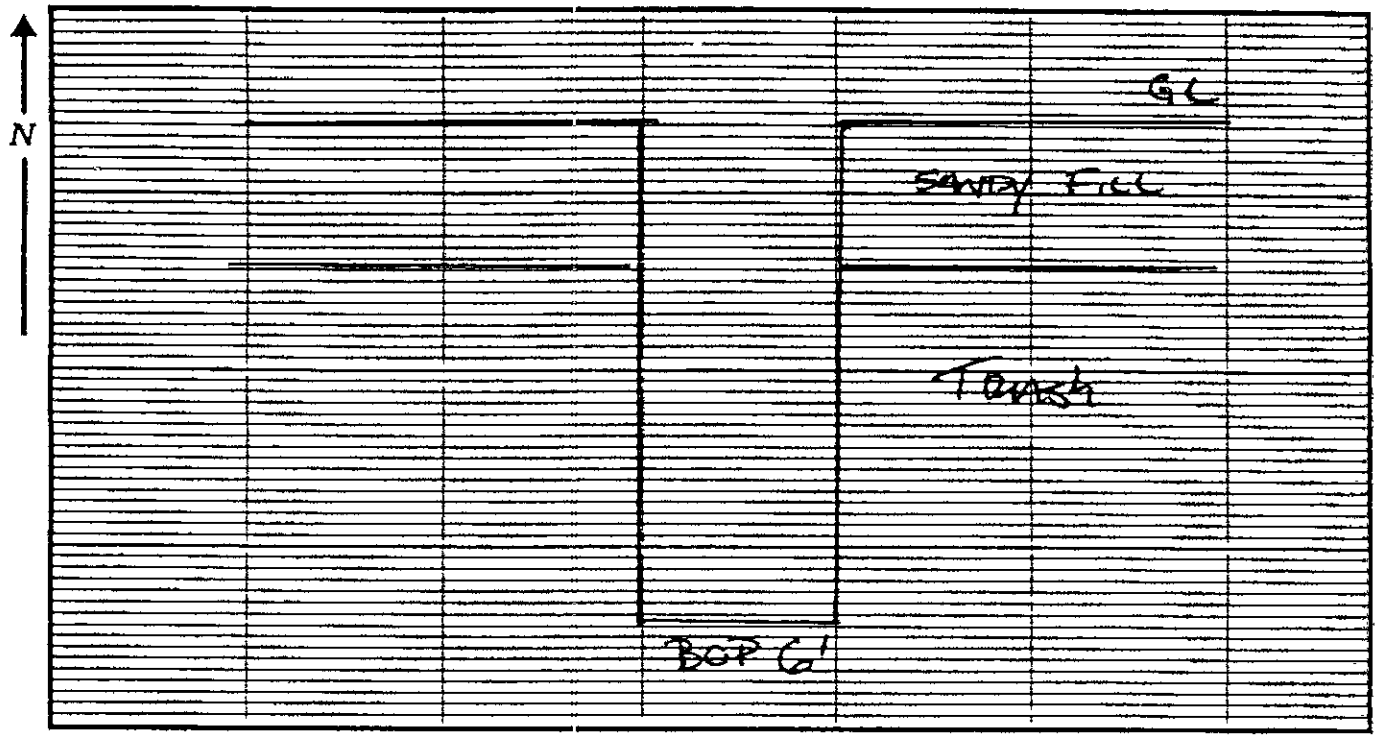
Click Here to Return to Main Index

TEST PIT RECORD

Profile Along Test Pit- TP 110

SITE 1

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2 FT.
DEPTH (FT.)

NOTES:
0-2' SANDY FILL

2'-6' TRASH (LANDFILL)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0'-3'	01TP110	XOOOXX	BKG
S-2				
S-3				
S-4				
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. 36-37

Attachments

SIGNATURE: Karl Kaya

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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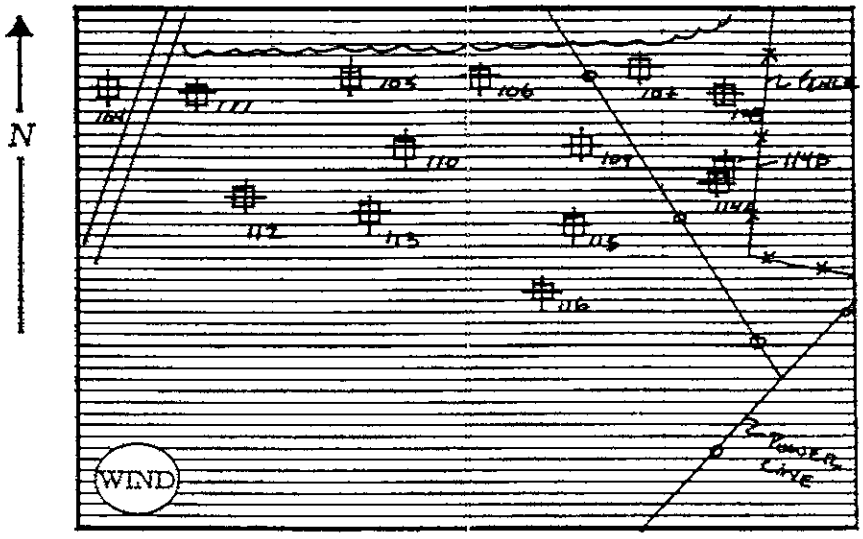
TEST PIT RECORD

SITE 1
TEST PIT TP111 DATE 8/31/89 TIME 1550 END 1615
COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

CREW MEMBERS:
1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6. VAILLANCOURT

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll _____

Exposure 1

NOTES:
BOP 5'
SANDY FILL 0'-4'
TRASH 4'-5'
NO WATER

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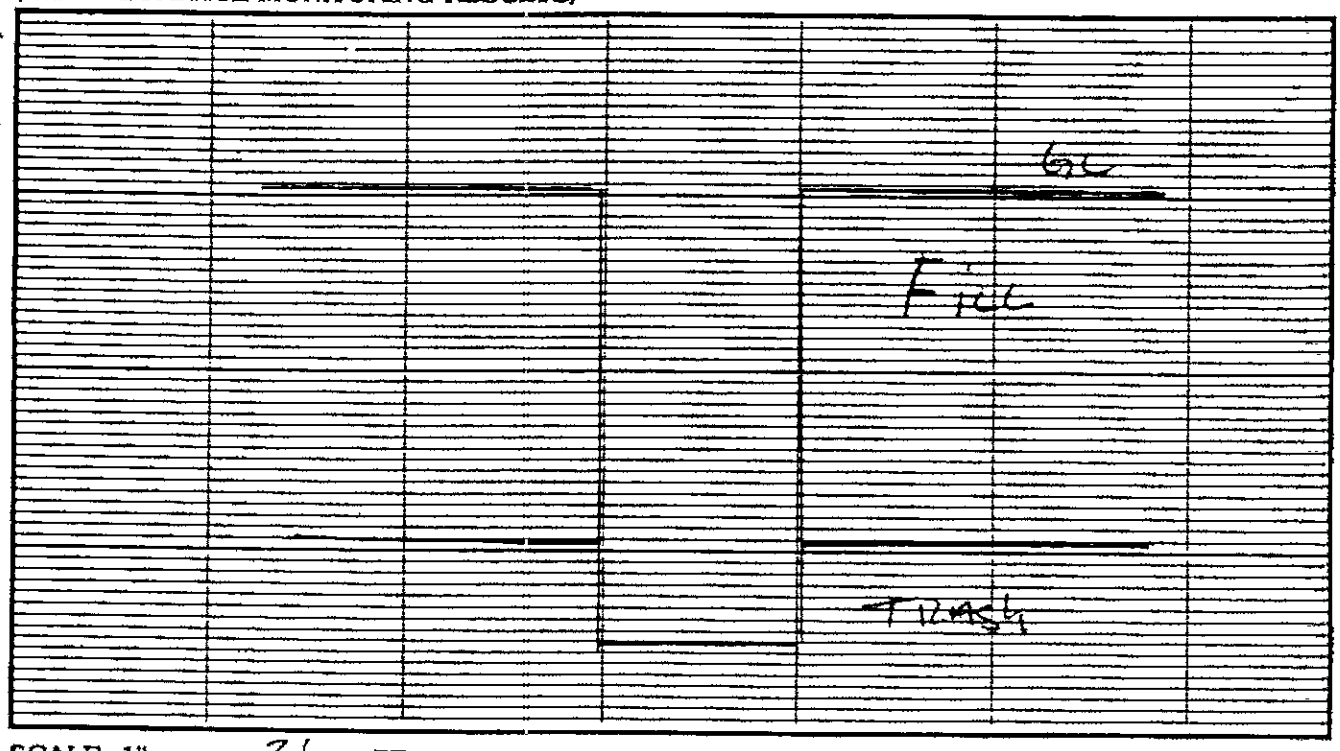
TEST PIT RECORD

Profile Along Test Pit- TP-111

SITE I

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2' FT.
DEPTH (FT.)

NOTES:

0-4' FILL w/ BROWN SAND
NO TRASH

4'-5' TRASH w/ SAND

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	5', #01TP111X0501XX		BLG
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 45

Attachments

SIGNATURE: Kraig Knapp

E.C. JORDAN

4407-20 GEOT. FORMS DISK

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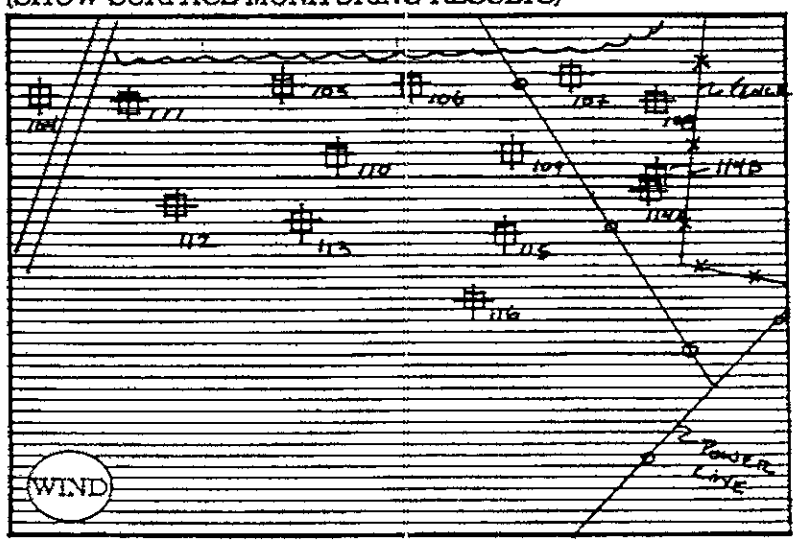
TEST PIT RECORD

SITE 1
TEST PIT TP 112 DATE 8/31/89 TIME 1045 END 1245
COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

CREW MEMBERS:
1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6. VANLAANCOURT

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll _____

Exposure 1

NOTES:
PIT DUG @ LEVEL C
BOP 7.5'
0 - 7.5' TRASH
V 7'

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4607-20 GEOT. FORMS DISK

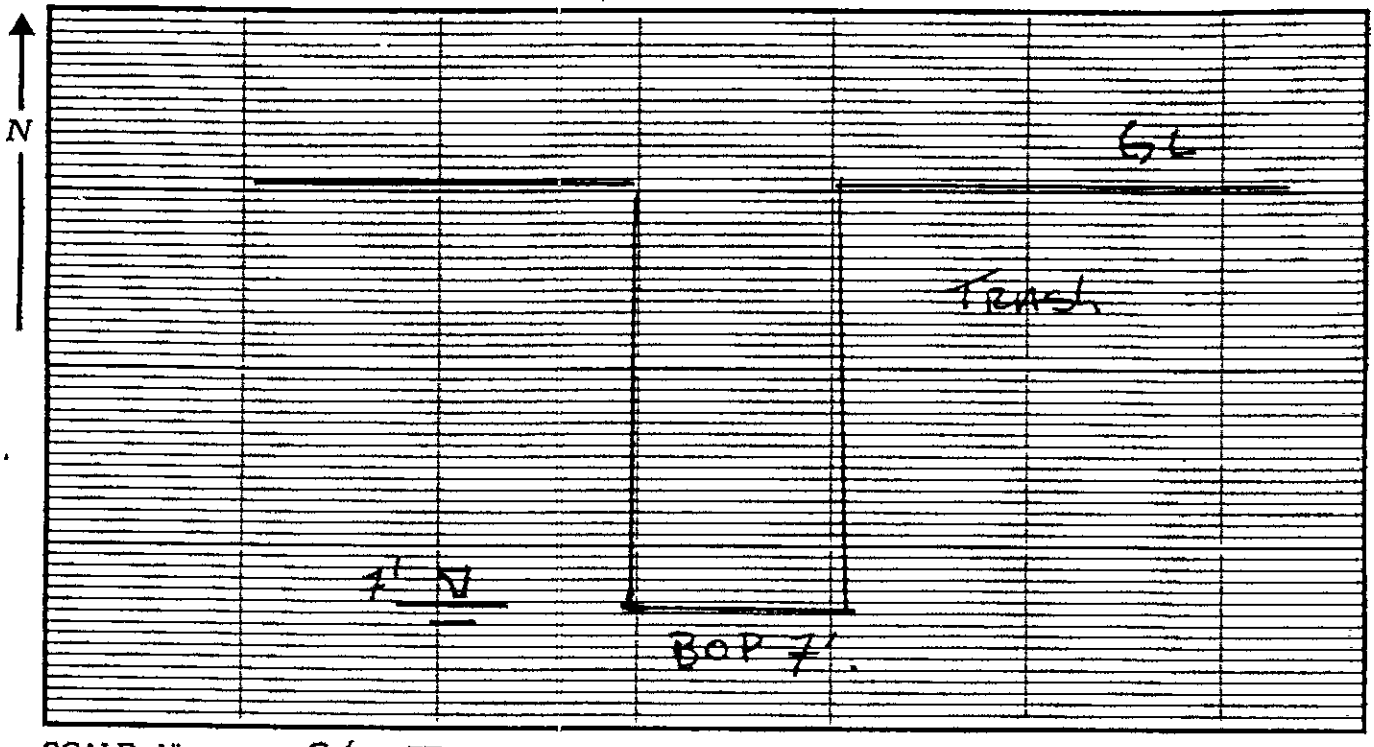
Click Here to Return to Main Index

TEST PIT RECORD

Profile Along Test Pit- TP 112

SITE I

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3' FT.
DEPTH (FT.)

NOTES:

0'-7' TRASH w/ FILL
(HEAD SPACE ON JAR w/ H_2O SPIKED to 90ppm

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0'-3', *O1TP112X00C1XX		3ppm
S-2	3'-6' *O1TP112X030IXX		3ppm
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 41

Attachments

SIGNATURE: Karl Kopp

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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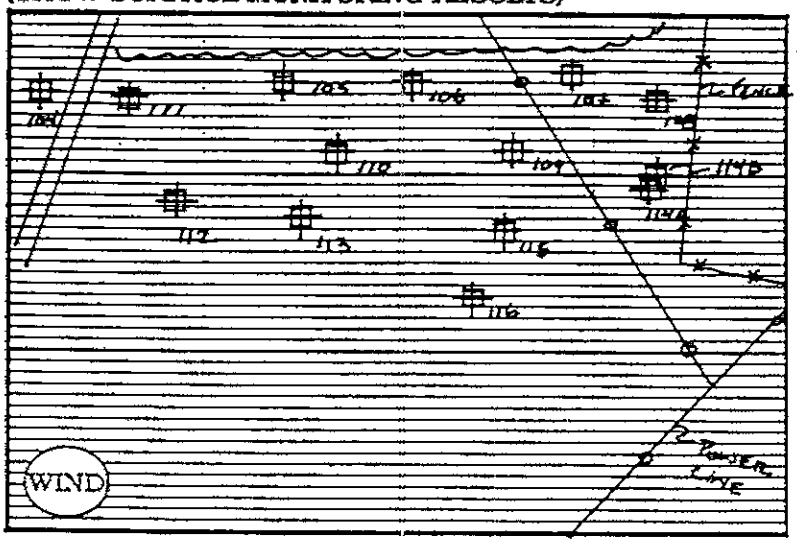
TEST PIT RECORD

SITE 1

TEST PIT TP 113 DATE 8/3/89 TIME 1045 END 1200

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6. VAILLANCOURT

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll _____

Exposure 1

NOTES:

PIT DUG @ LEVEL C

BOP 6.5'

TRASH 0-6.5'

I @ 6.5'

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4807-20 GEOT. FORMS DISK

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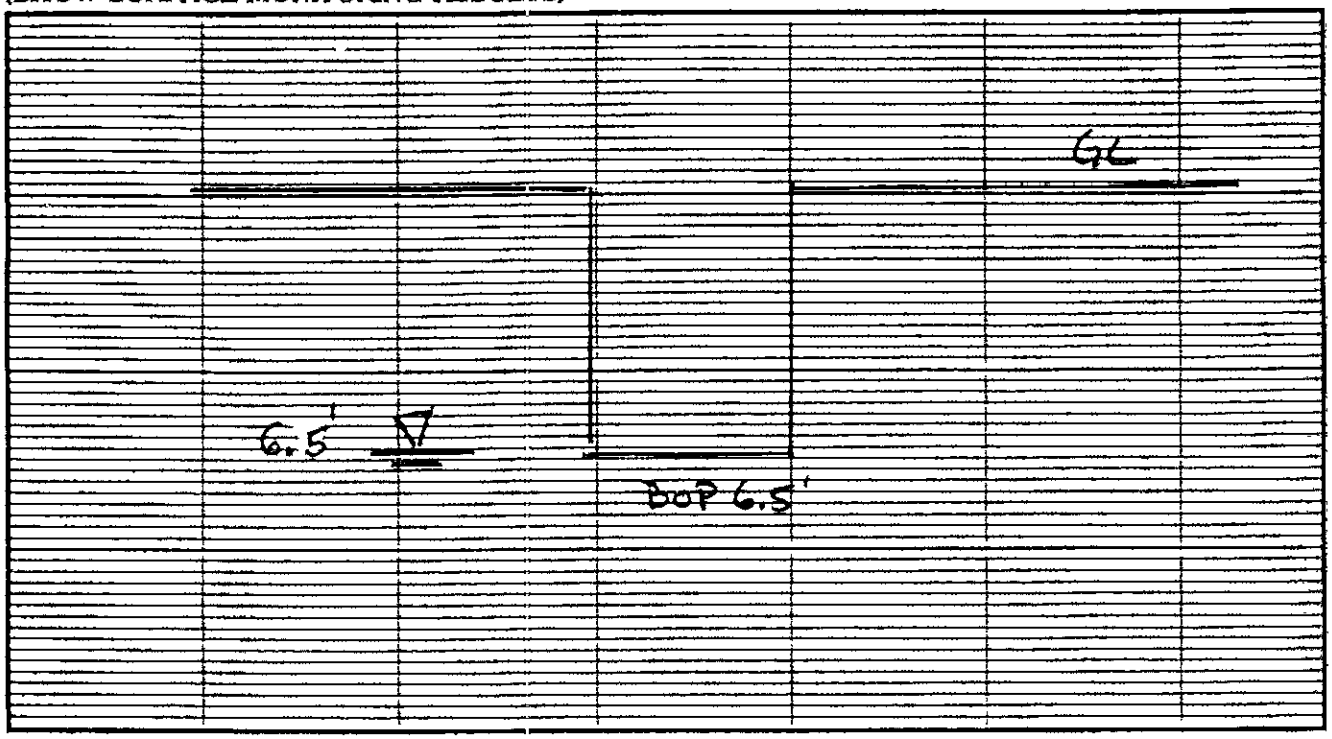
TEST PIT RECORD

Profile Along Test Pit- TP-113

SITE I

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 5' FT.
DEPTH (FT.)

NOTES:
0-6.5 Trash w/ sandy fill

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0'-3'	01TP113X0001XX		BKG
S-2	3'-6'	02TP113X0301XX		3ppm
S-3				
S-4				
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. 40

Attachments

SIGNATURE: Karl Krasgen

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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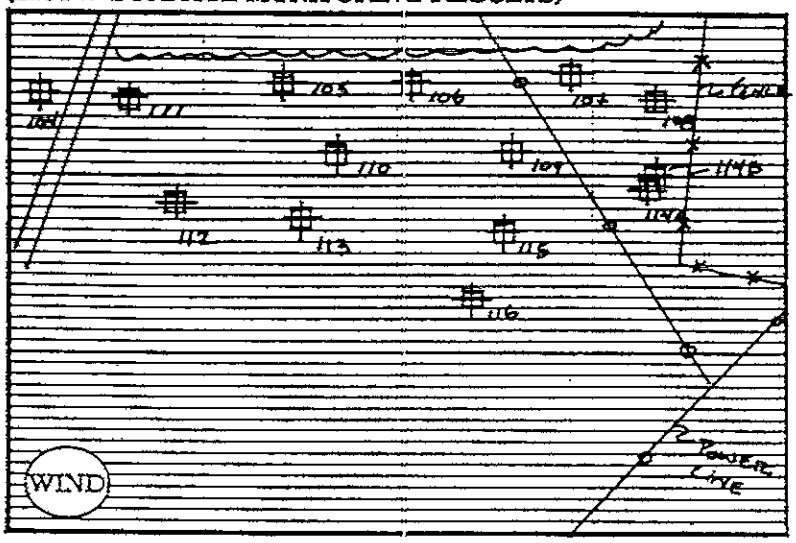
TEST PIT RECORD

SITE 1
TEST PIT TP 114A DATE 8/31/89 TIME 1430 END 1500
COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

CREW MEMBERS:
1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6. VAILLANCOURT

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll _____

Exposure 1

NOTES:
BOP 3'
TRASH 0-3'
NO WATER

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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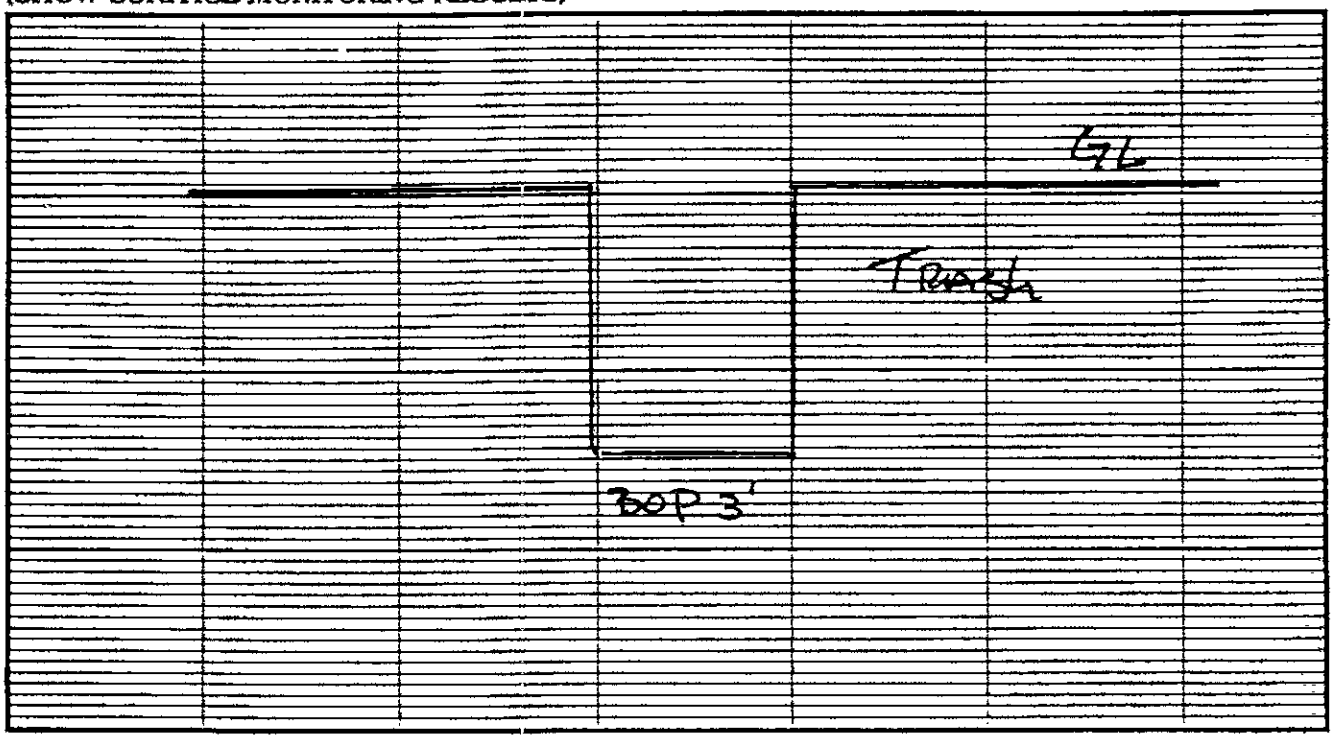
TEST PIT RECORD

Profile Along Test Pit- TP 114A

SITE 1

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3' FT.
DEPTH (FT.)

NOTES:

0-3' Trench, w/ SAND

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	1', #01TP114X0101XX		5ppm
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 43

Attachments

SIGNATURE: Karl Knapen

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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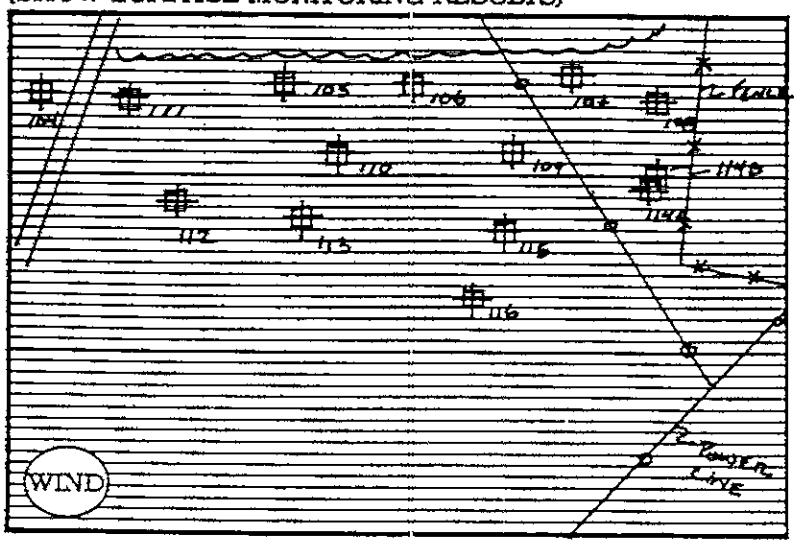
TEST PIT RECORD

SITE 1

TEST PIT TP 114B DATE 8/31 TIME 1515 END 1530

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6. VAILLANCOURT

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure 1

NOTES: BOP - 7'

0-5' SANDY FILL w/ Black Staining

5'-7' NATURAL IN PLACE SOILS.

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4607-20 GEOT. FORMS DISK

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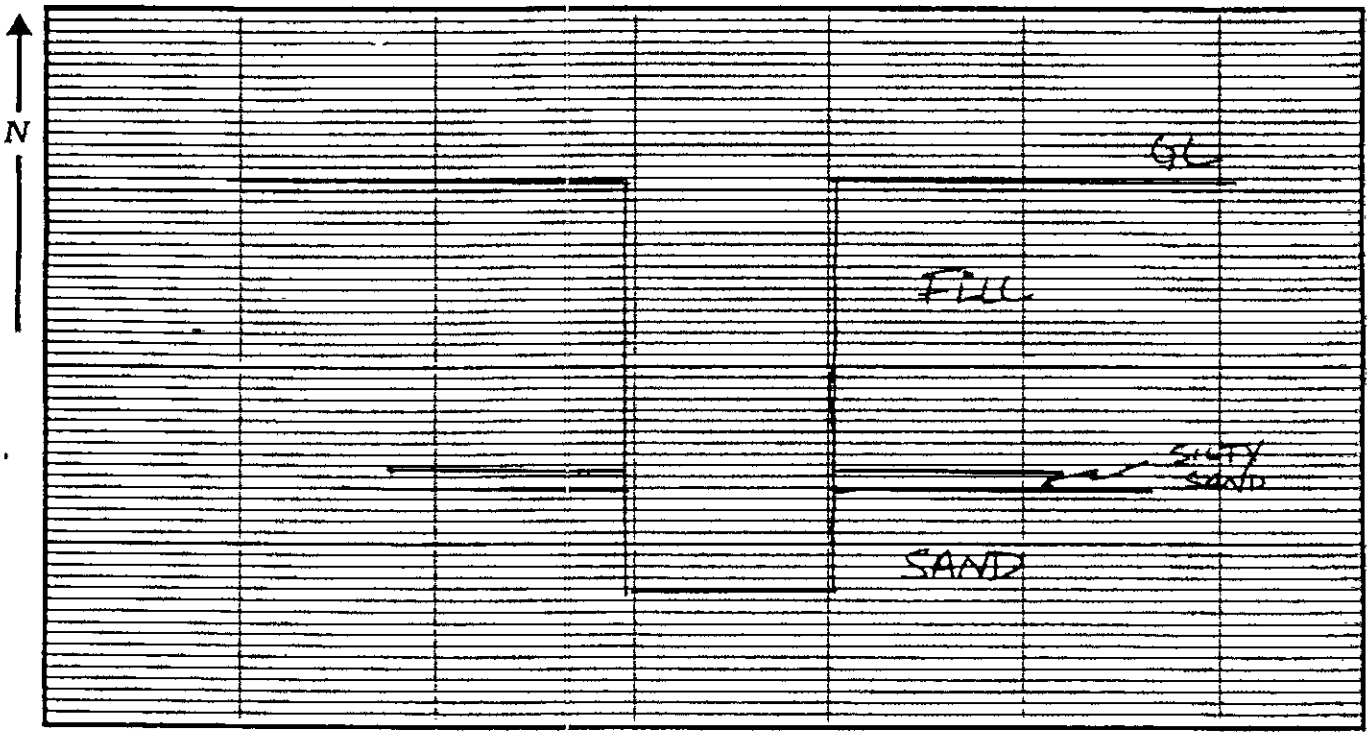
TEST PIT RECORD

Profile Along Test Pit- TP 114B

SITE 1

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3' FT.
DEPTH (FT.)

NOTES:

0-5' FILL, W/ BROWN/BLACK SAND, BANDING SIMILAR TO TP 108.

5'-5.5' SILTY SAND, W/ BLACK ORGANIC SILT W/ ROOT HAIRS OLD "A" HORIZION.

5.5'-7' SAND, GRAY, MED TO FINE, LOOSE MOIST. (NATURAL SOILS IN PLACE)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1			
S-2	NO Samples		TAKEN
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 44

Attachments

SIGNATURE: Karl Krispin

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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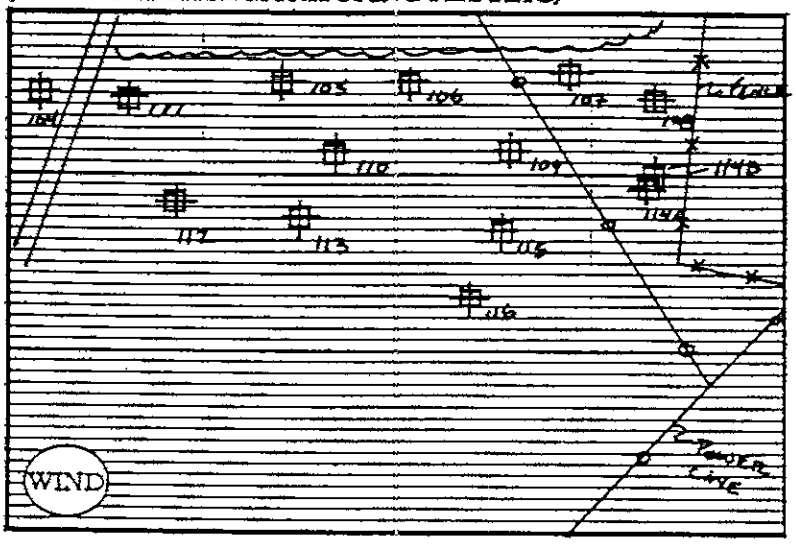
TEST PIT RECORD

SITE 1

TEST PIT TP-115 DATE 8/31/89 TIME 0800 END 1000

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

NOTES: BOP 10'
PIT DUG @ LEVEL C
SILTY SAND COVER. 0-3'
3'-7' TRASH
7'-10' NATURAL IN PLACE SOILS
NO WATER

CREW MEMBERS:
1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6. VAILLANCOURT

MONITOR EQUIPMENT:

PI Meter	Ⓨ	N
Explosive Gas	Ⓨ	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll _____

Exposure _____

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4607-20 GEOT. FORMS DISK

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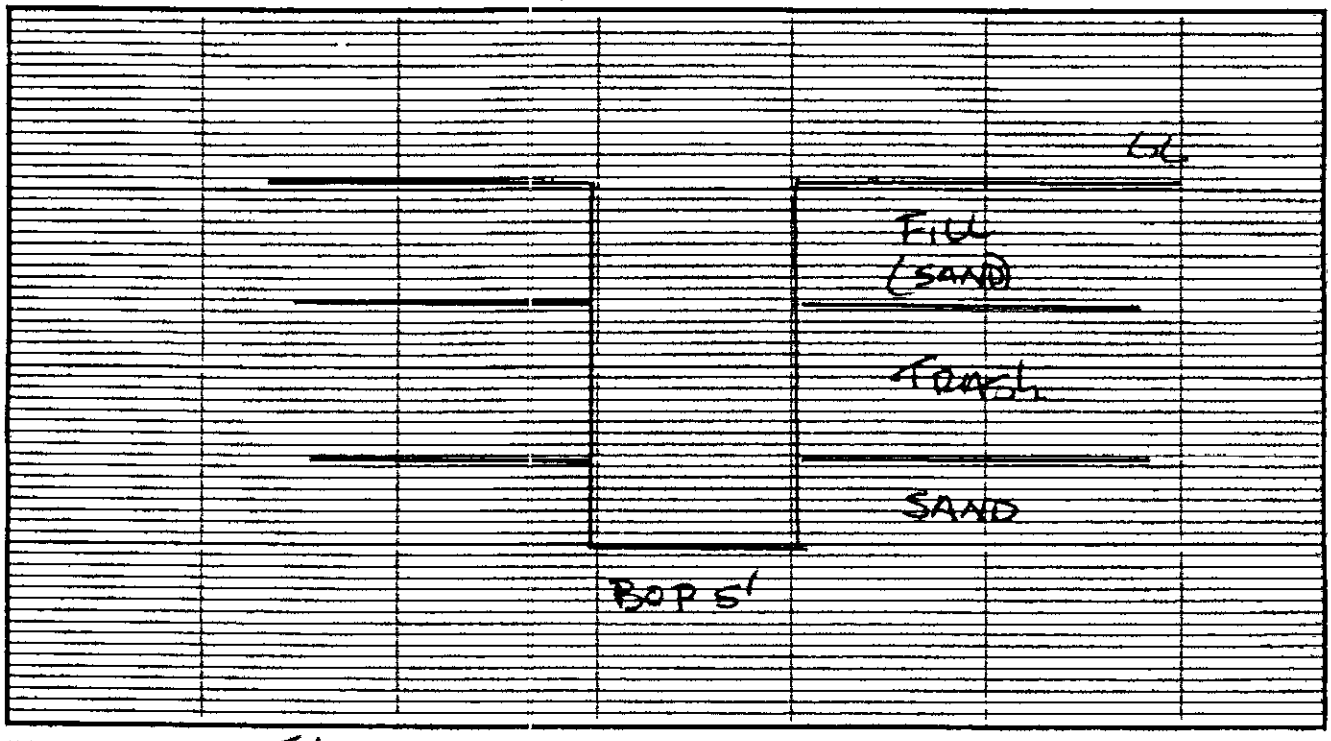
TEST PIT RECORD

Profile Along Test Pit- TP 115

SITE 1

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 5' FT.
DEPTH (FT.)

NOTES:

0'-3' SILTY SAND, BROWN, FILL, NO TRASH. DRY.

3'-7' TRASH W/ SANDY FILL CANS, WOOD, WIRE, RUBBER, PLASTIC

7'-10' SAND GRAY, MED TO FINE, LOOSE, SATURATED. (NATURAL)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	TIP
S-1	0-3'	01TP115X0001XX		BKG
S-2	3'-6'	01TP115X0301XX		3 ppm
S-3	7'-10'	01TP115X0701XX		8 ppm
S-4				
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. 38 - 39

Attachments

SIGNATURE: Karl Kayser

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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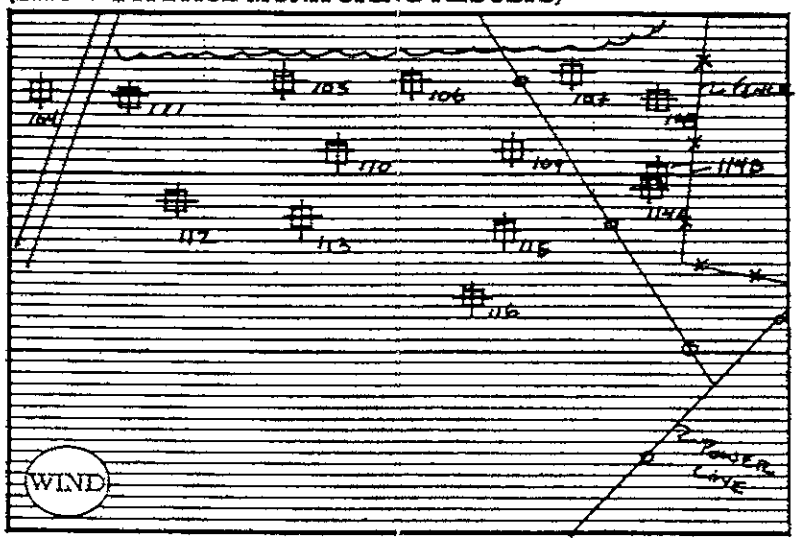
TEST PIT RECORD

SITE 1
TEST PIT TP-116 DATE 9/1/89 TIME 1000 END 1050
COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

CREW MEMBERS:
1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure _____

NOTES:
BOP 3'

CUT TELEPHONE CABLE TO WEAPON STORAGE AREA.

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4607-20 GEOT. FORMS DISK

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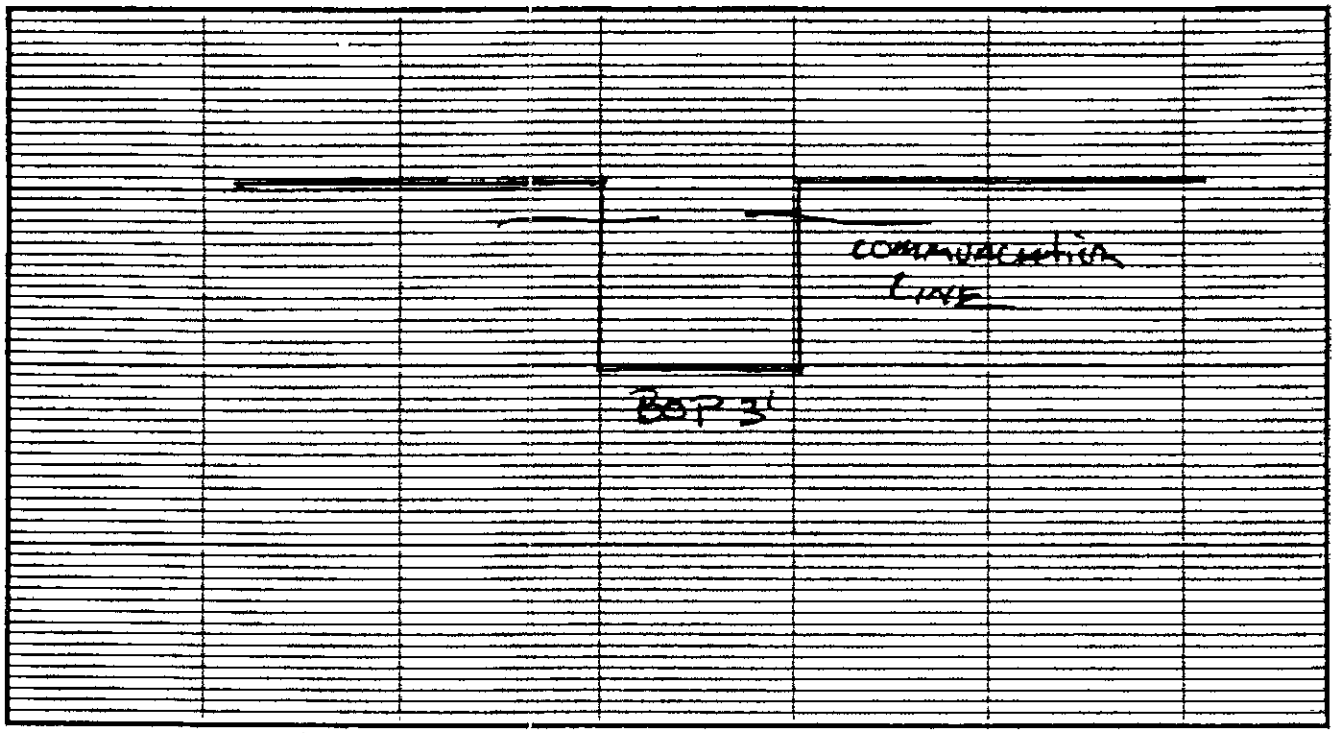
TEST PIT RECORD

Profile Along Test Pit- 116

SITE 1

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3' FT.
DEPTH (FT.)

NOTES:
0-3', SANDY FILL

Note cut Weapon storage Communication Line, therefore stopped Pit @ 3'

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0-3', 01TP116	0001XX	BKG
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 49

Attachments

SIGNATURE: Karl Kayn

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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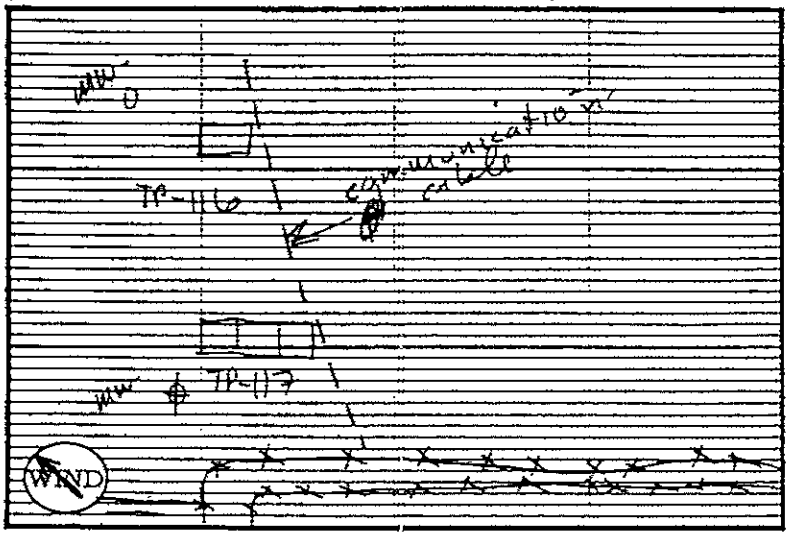
TEST PIT RECORD

SITE #1 Weapons Storage Area

TEST PIT TP-116 DATE 9-6-89 TIME 1115 END 1420

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.

NOTES: located just west of original TP-116 where comm cable was cut 3-4' of fill over garbage + soil fill. Garbage ≈ 4-11'

CREW MEMBERS:

1. RYAN
2. RAWCLIFFE
3. LE
4. LOMBARDO
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure _____

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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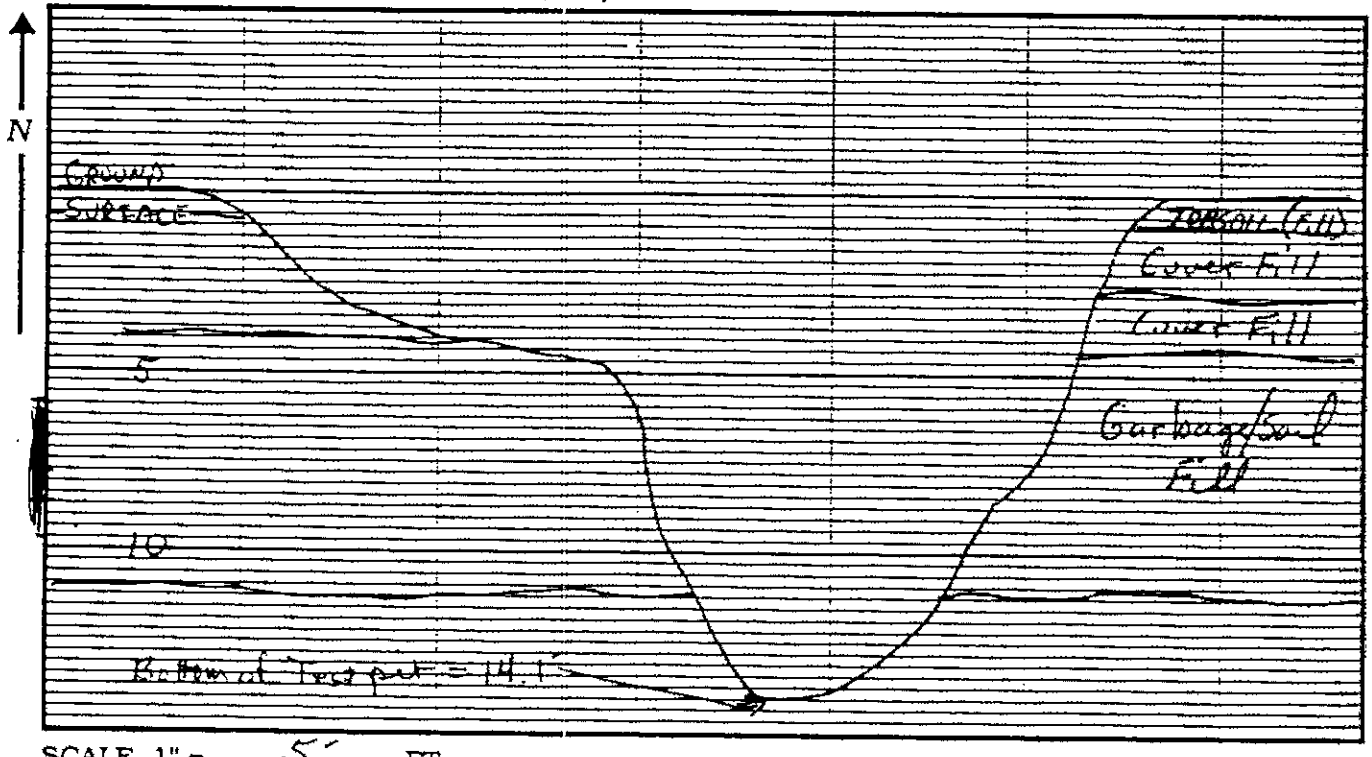
TEST PIT RECORD

Profile Along Test Pit- 116

SITE #1 Weapons Storage Area

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 5' FT.
DEPTH (FT.)

NOTES: 0-0.8 bright grayish brown slightly silty fine to coarse sand w/gravel Roots etc (Topsoil Fill) Gray. (Fill)

0.8-2.5 Brown medium sand with some fine gravel and traces of coarse sand. Moist, (Fill)

2.5-4.5' Gray medium sand with some fine sand and traces of coarse sand. Moist w/some pieces of trash.

4.5-11.1 Dark brown to gray to olive gray fine to medium sand with traces of coarse sand mixed with garbage Newspaper, metal, strips, Some papers date 1967

11.1-14.1 Gray fine medium sand with some silt. Moist, uniform. Appears to be natural soil.

14.1 Bottom of Test Pit.

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1			
S-2	13.0'	01TP116S13012xx	
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

High TIP reading 1.0 ppm

REFERENCE: Field Book. Pg. BVAS Test Pitting 1984 pg 74

Attachments

SIGNATURE: Jerry Rauschli

E.C. JORDAN

4607-20 GEOT! FORMS DISK

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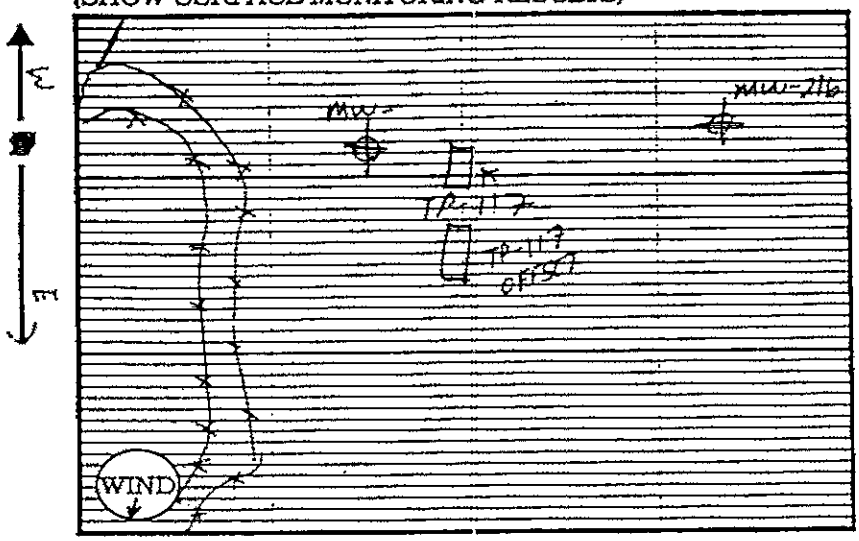
TEST PIT RECORD

SITE Site #1

TEST PIT TP-117 DATE 9-6-89 TIME 0750 END 1115

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.

CREW MEMBERS:

1. RYAN
2. RAUCHLFFE
3. LE
4. Booker
5. hombardo
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll ✓

Exposure 2/1

NOTES: located in field near secure weapons area. Hit some trash in top 1.0'. Upgraded to level C as per H+S. plan. Uncovered Sewerpipe (?) ≈ 30" diam at a depth of ≈ 36". Covered up pit moved over B-117 offset. Excavated ≈ 12 L of trash hit TIP readings up to 15ppm.

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4607-20 GEOT. FORMS DISK

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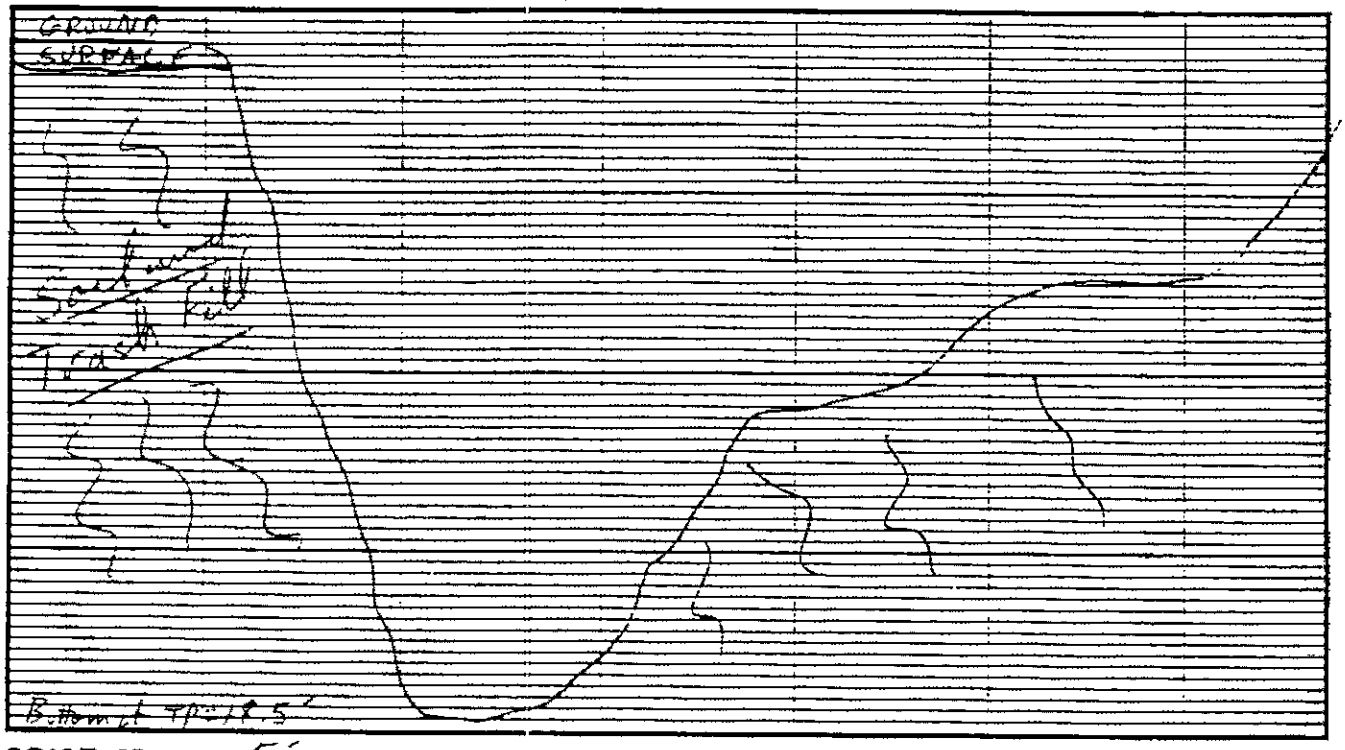
TEST PIT RECORD

Profile Along Test Pit- 117

SITE #1

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 5' FT.
DEPTH (FT.)

NOTES: 0-0.3 Brown f-m sand w roots Topsoil (Fill)
0.3-1.0 Brown f-m sand, moist, no apparent structure contains pieces of metal trash bits of wood wire etc. (Fill)
1.0-3.0 Brown fine-med. sand. Moist, no apparent structure. (Fill) (Stopped test pit)

offset

0-11.7' Dark brown fine to medium sand w/trace of silt, mixed with demolition debris and garbage. Some very dark stained soils. No groundwater encountered. (Fill)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0-3.0 (comp)	01TP117030IXX		TIP BKG.
~~S-2~~	~~TP-117 offset~~			
~~S-3~~			0-4.0	TIP 10.0 ppm TIP 10-15 ppm from brown soils 3 ppm in p
~~S-4~~				
~~S-5~~			4-6.0	
~~S-6~~				
~~S-7~~				
~~S-8~~				
S-2	6-12' (comp)	01TP117120IXX		
		01TP117120IXD		

REFERENCE: Field Book, Pg. BYAS Test Pitting 89 pg 71,7

Attachments

SIGNATURE: Jerry Rawcliffe

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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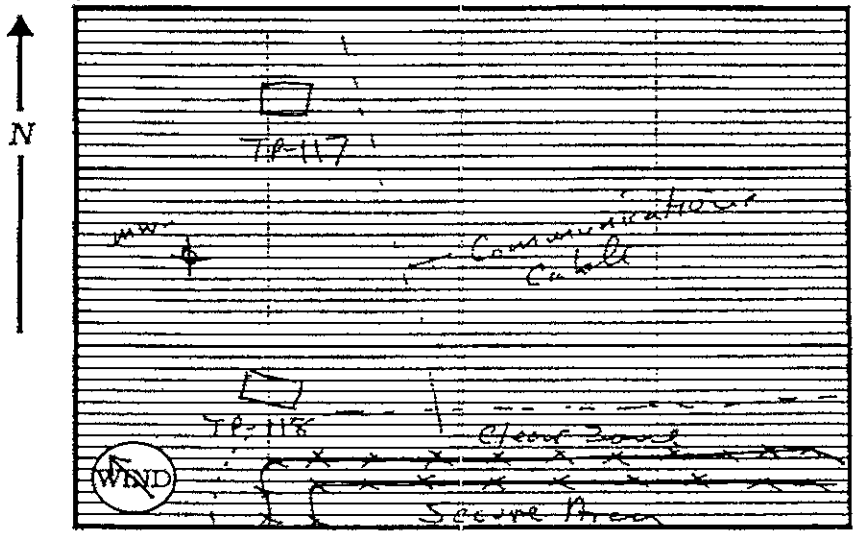
TEST PIT RECORD

SITE #1 Weapons Storage Area
TEST PIT TP-118 DATE 9-6-89 TIME 1430 END 1510
COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.

NOTES: located ≈ 50' from corner of fence of secure area just outside of clear zone. GW encountered at 10.1'. Bedrock encountered 4-11'.

CREW MEMBERS:
1. RYAN
2. RAWCLIFFE
3. LE
4. LOMBARDO
5. BOORER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll ✓

Exposure ✓ (?)

E.C. JORDAN

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TEST PIT RECORD

Profile Along Test Pit- TP-118

SITE #1 Weapons Storage Area

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)

SCALE 1" = 5 FT.
DEPTH (FT.) 11.0'

NOTES: 0-1.8 light brown to brown fine to medium sand with some coarse sand, cobbles, silt and an occasional boulder. Dry poorly sorted. (Fill)

1.8-4.5 Brown to olive brown medium sand with some f sand and a trace of c sand. Some garbage mixed in. Moist (Fill)

4.5-11.0 Olive to olive brown medium sand with traces of fine and coarse sand. Some garbage mixed in with soil. GW encountered at ≈ 10.1'

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0 - 1.0	801TP118X0001XX3	
S-2	6 - 7.0	801TP118X0001XX2 801TP118X0201XX	
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. DVAS Testing 1989 Pg 74

Attachments

SIGNATURE: Jerry Rawcliffe

E.C. JORDAN

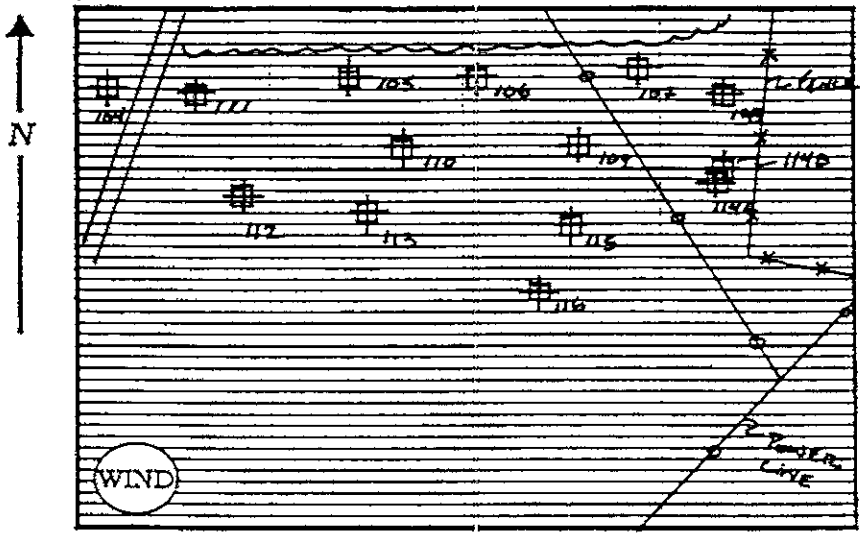
4607-20 GEOT. FORMS DISK

Click Here to Return to Main Index

TEST PIT RECORD

SITE 1
TEST PIT TP 119 DATE 9/1/89 TIME 1520 END 1630
COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

NOTES: BOP 10'

SANDY FILL 0'-4'

NATURAL SOIL IN PLACE 4'-10'

NO WATER

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure 1

E.C. JORDAN

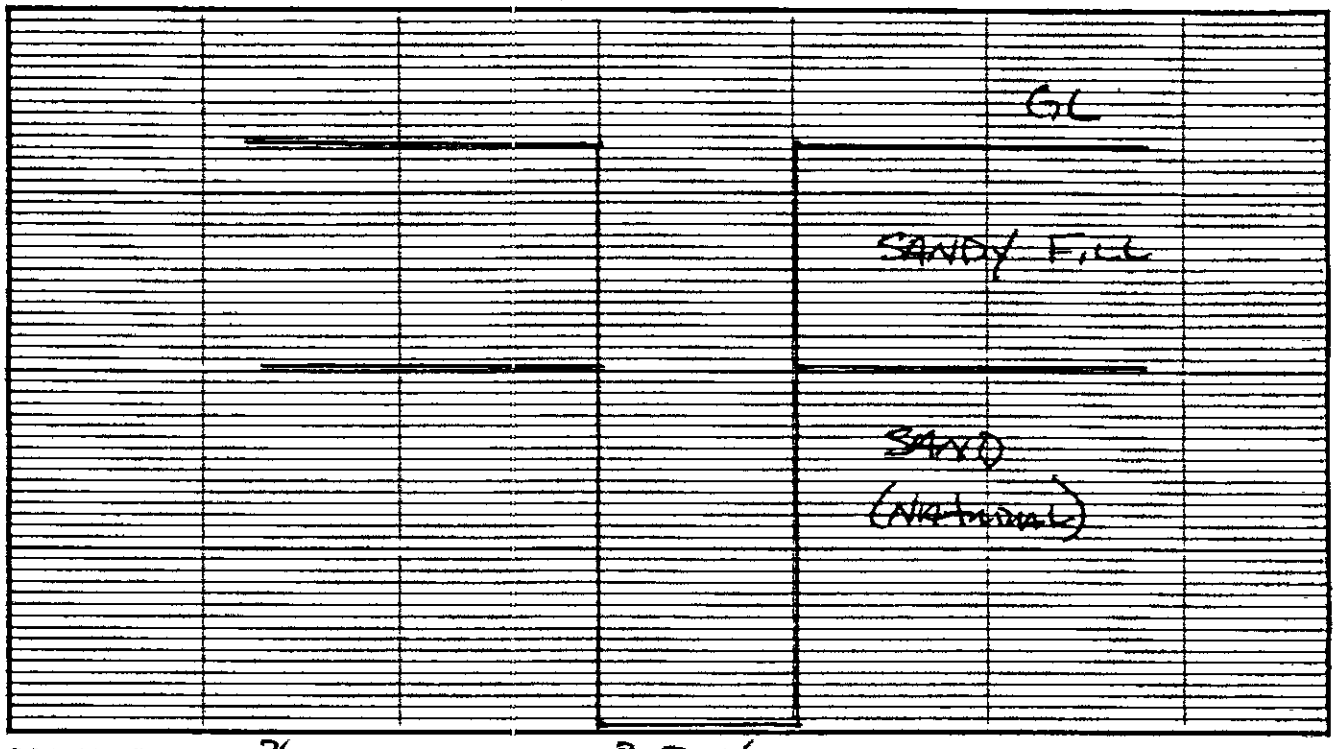
4607-20 GEOT. FORMS DISK

TEST PIT RECORD

Profile Along Test Pit- 119

SITE 1

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3' FT.
DEPTH (FT.)

NOTES:

0-4' SANDY FILL, W/ some wood, ~~rock~~, plastic, mostly SAND. (EDGE of LANDFILL

4'-10' SAND, GRAY, MED to Fine, WET, W/ orange mottles, (Natural soils in place)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0-3', 01TP119X	0001XX		TIP
S-2	4'-10', 01TP119X	0301XX		BKG
S-3				BKG
S-4				
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. 52-53

Attachments

SIGNATURE: Karl Kasper

E.C. JORDAN

4607-20 GEOT. FORMS DISK

Click Here to Return to Main Index

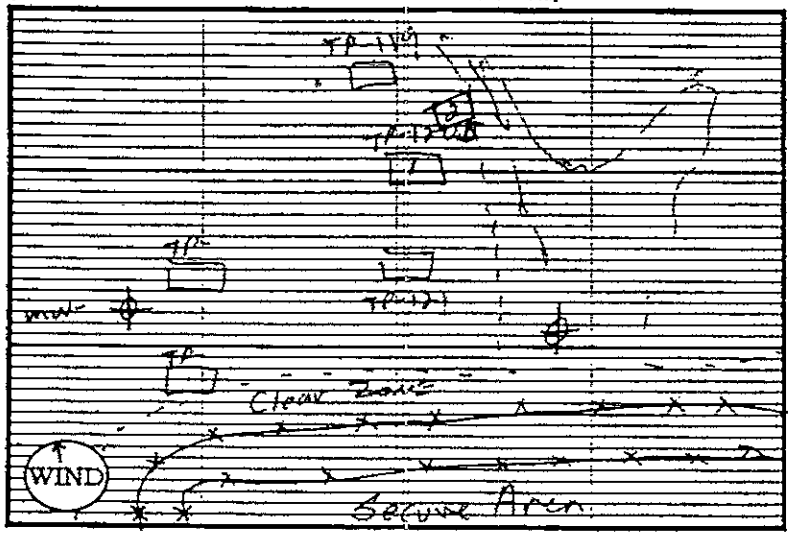
TEST PIT RECORD

SITE #1 Weapons Storage Area

TEST PIT TP-120 DATE 9-7-89 TIME 0750 END 0930

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.

CREW MEMBERS:

1. RYAN
2. RAWCLIFFE
3. LE
4. LOMBARDO
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other Draeger tube

Photographs, Roll ✓

Exposure Inst.

NOTES: Located in middle of field on the edge of what appears to be a filled area overlooking low area. Started test pit excavated to ≈ 7.0' TP reading of up to 20 ppm as well as Draeger Tube for Vinyl Chloride with reading of 0.5 ppm. ~~Grid~~ to Moved test pit over to try a cleaner area. Weather is foggy, overcast, cool 60°, mostly calm. Decomed backhoe before redigging test pit.

Used 50' dry thru ≈ 4.0' of trash + soil fill before reaching undisturbed soil.

E.C. JORDAN

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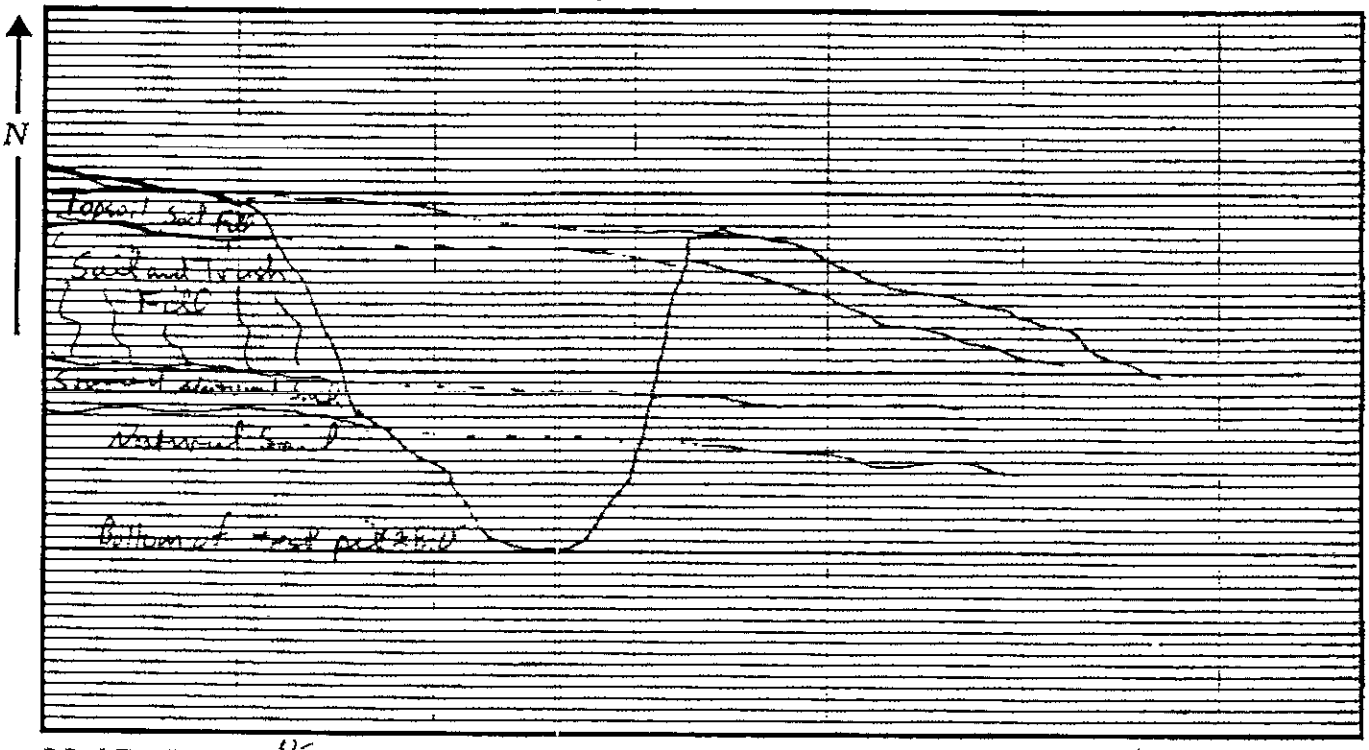
TEST PIT RECORD

Profile Along Test Pit- TP-120

SITE #1 Weapons Storage Area

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 4' FT.
DEPTH (FT.) 8.0

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0.0 - 8.0	01TP120X060IXX 01TP120X060IXD	TIP < 3.0 ppm
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

NOTES: 0-4.0 Brown f-m sand w/trace of coarse sand mixed with some trash (small crushed drums beer cans, bottles etc.) (Fill) Wet and no odors.
4.0-7.0 Olive grey olive brown f-m sand with trace of coarse sand mixed with trash (Fill) Wet Moist, TIP reading up to 20 ppm on soil. Moved over 50'

0-0.6 light brown fine-med. sand w/ a trace of coarse sand and silt. Root zone (Topsoil Fill) ~~0.6-3.6 Brown~~ mixed with trash such as old tubes rope

0.6-3.6 Brown f-m sand w/ trace of coarse sand and silt mixed w/ trash. (Fill)

3.6-4.6 light olive grey med. sand with layers of light reddish staining. Stained natural undisturbed soil

4.6-8.0 light olive grey to lite olive brown medium sand with trace of fine sand. Moist. Natural undisturbed soil. well graded.

REFERENCE: Field Book, Pg. BNAS Testpitting 1989 pg 76

Attachments

SIGNATURE: Jerry Kuralko

E.C. JORDAN

4607-20 GEOT. FORMS DISK

Click Here to Return to Main Index

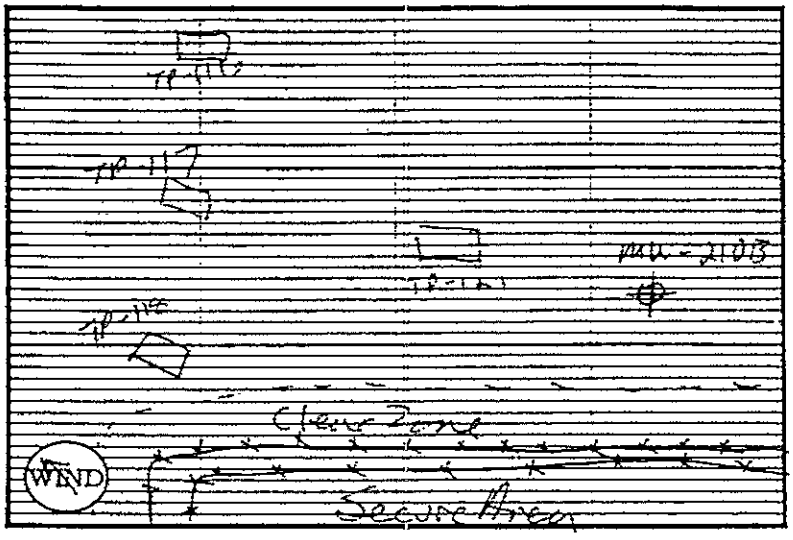
TEST PIT RECORD

SITE #1 Weapons Storage Area

TEST PIT TP-121 DATE 9-6-89 TIME 1515 END 1750

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.

NOTES: located in field N of secure area just uphill from MW-210B. Excavated to about 16.0' did not reach natural (undisturbed) soil or encounter GW.

CREW MEMBERS:

1. RYAN
2. RAWCLIFFE
3. LE
4. LOMBARDO
5. BROOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll ✓

Exposure _____

E.C. JORDAN

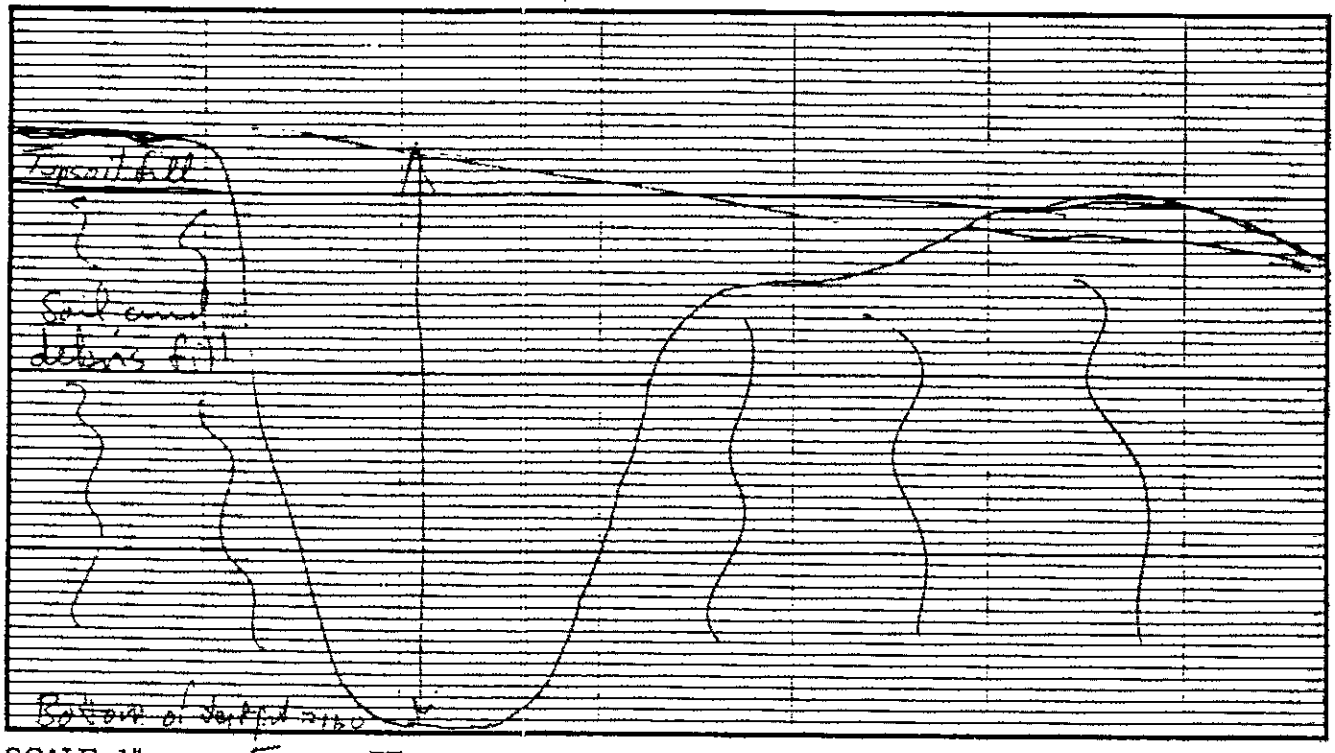
4607-20 GEOT. FORMS DISK

TEST PIT RECORD

Profile Along Test Pit- TP-121

SITE #1 Weapons Storage Area.

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 5 FT.
DEPTH (FT.) 16.0

NOTES: 0-0.5 Brown slightly silty fine-med sand with a trace of coarse sand, has ed roots Topsoil fill.
0.5 - 15.0 Brown to olive brown f-c sand with some silt and a trace of gravel and cobbles. Some demolition debris type trash mixed in. TIP reading background.

15-16.0 Gray medium sand with some fines. Wood debris mixed in with sand. Fill.

16.0 Bottom of test pit. Sides caving

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	6-7.0	601TP121X02 01XX	
~~S-2~~		601TP121X0701XD	
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. was misspelling 1967, p 75

Attachments

SIGNATURE: Jerry Rauschkolb

E.C. JORDAN

4607-20 GEOT. FORMS DISK

Click Here to Return to Main Index

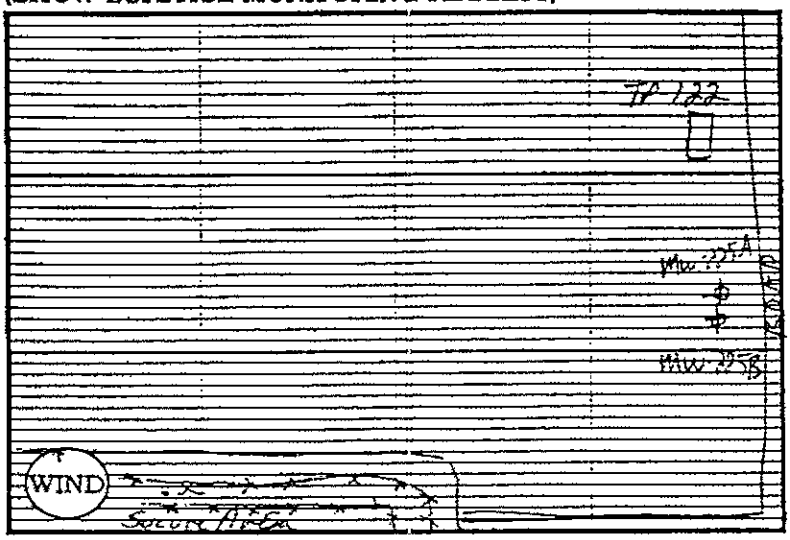
TEST PIT RECORD

SITE #1 Weapons Storage Area

TEST PIT TP-122 DATE 9-7-89 TIME 1010 END 1100

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.

NOTES: Located new road just NW. No visible contamination no odors. Appears to be all undisturbed soil except pass. top 0.5' of topsoil.

CREW MEMBERS:

1. RYAN
2. RAWCLIFFE
3. LE
4. LUMBARDO
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll V

Exposure 1, 2

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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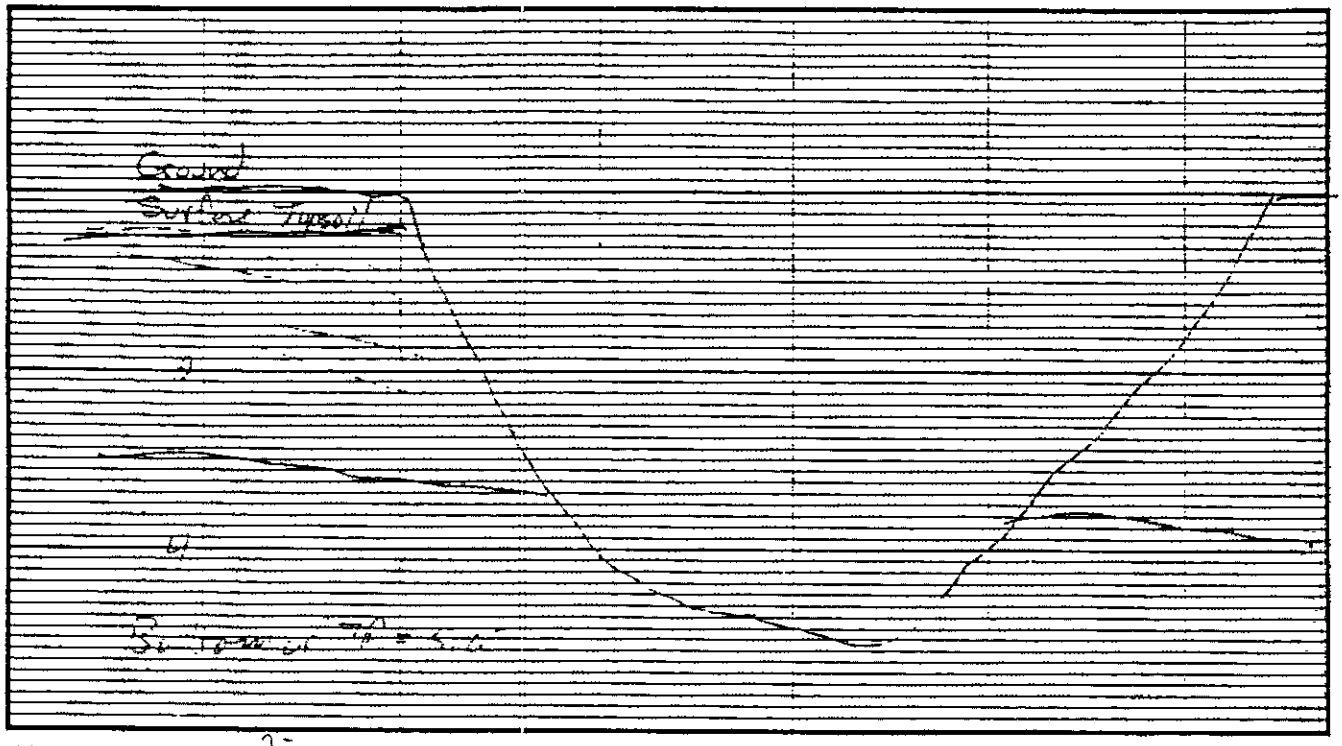
TEST PIT RECORD

Profile Along Test Pit- TP-122

SITE #1 Weapons Storage Area

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2' FT.
DEPTH (FT.) 5.0

NOTES: 0-0.6 Brown to light brown fine to medium sand w/roots. Moist.

0.6-3.5 Lt brown to light brown stratified fine to medium sand with traces of coarse sand and gravel. Damp, poorly sorted.

3.5-5.0 light brown medium sand w/some fine sand and a trace of coarse sand and gravel. Some stratification.

5.0 Bottom of test pit.

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0 - 3.0'	(017P123XU3 01 x x 017P123XU3 01 x D)	
~~S-2~~			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book. Pg. RWAS Test Pitting 1984 pg 76

Attachments

SIGNATURE: [signature]

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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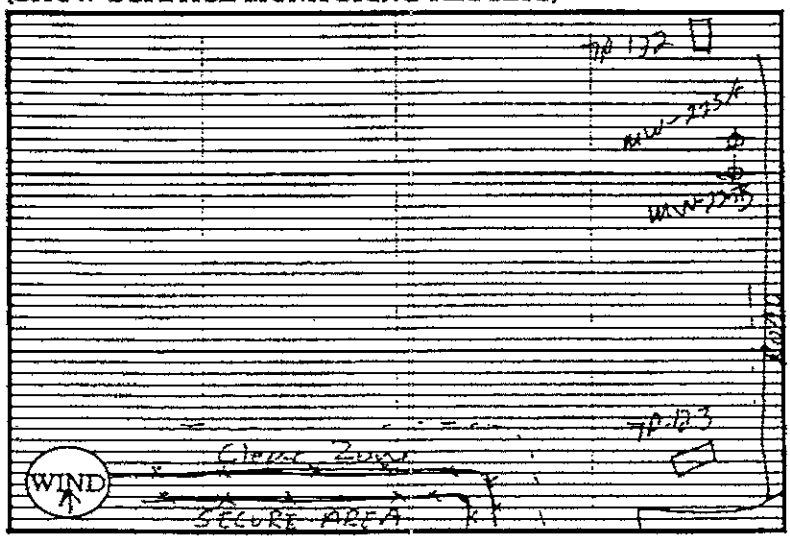
TEST PIT RECORD

SITE #1 Weapons Storage Area

TEST PIT TP-123 DATE 9-7-89 TIME 1100 END 1145

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.

NOTES: located in open area. Approx 1½ feet of fill covers what appears to be old topsoil No visable contamination no odors.

CREW MEMBERS:

1. RYAN
2. RAWCLIFFE
3. LE
4. LOMBARDO
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll N

Exposure _____

E.C. JORDAN

4607-20 GEOT. FORMS DISK

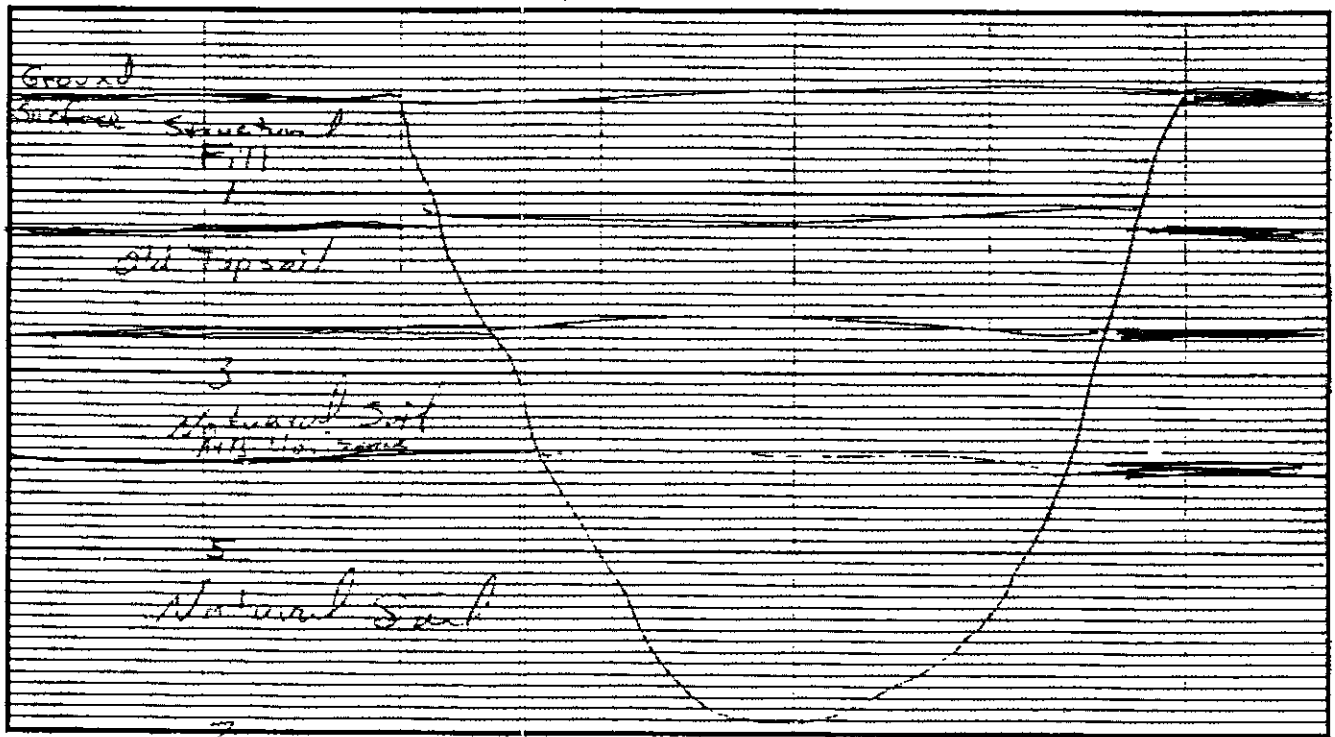
Click Here to Return to Main Index

TEST PIT RECORD

Profile Along Test Pit- 123

SITE #1 Weapons Storage Area

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2 FT.
DEPTH (FT.) 7.0

NOTES: 0-1.5 Brown to d. brown f-med sand with some ~~silt~~ course sand and gravel with a trace of silt. Comp. (F.I.P)

1.5-2.5 Dark brown f-m sand with a trace of silt. Some roots. Comp to moist. ~~Poss~~ Probable ~~old~~ former topsoil horizon.

2.5-3.0 Reddish brown fine to med sand with a trace of silt.

3.0-3.1 layer of dark brown peaty material ~~has all topsoil surface~~ - old timing.

3.1-3.8 light reddish brown f-m sand w/a trace of silt. Natural soil

3.8-7.0 light brown medium sand w/some fine sand and a trace of course sand.

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	3-5.0	01TP123X0501XX		TP
~~S-2~~		01TP123X0501XD		BKG.
S-3				
S-4				
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. RVAAS Test Pits 1987 pg 77

Attachments

SIGNATURE: Jerry Rourke

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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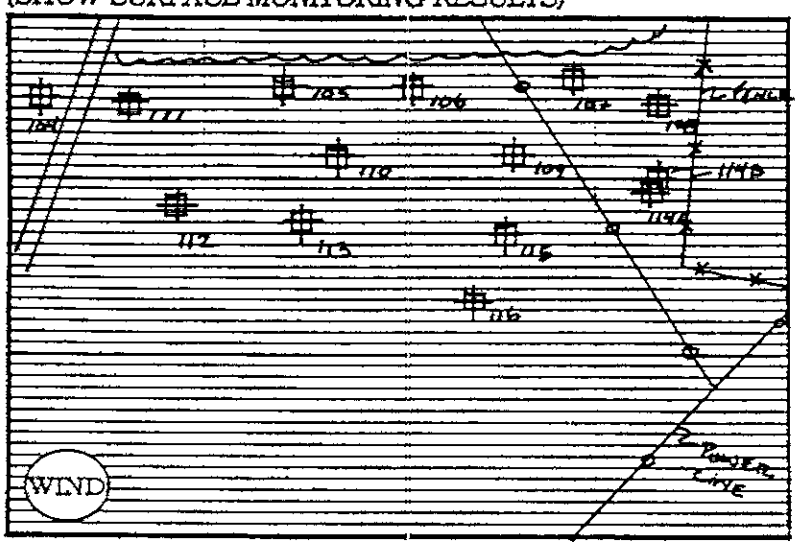
TEST PIT RECORD

SITE 1
TEST PIT TP 124 DATE 9/1/89 TIME 0730 END 0915
COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200 FT.

CREW MEMBERS:
1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll _____

Exposure 1

NOTES:
DUG PIT @ LEVEL C
BOP 7.5'
SANDY FILL 0-3'
TRASH 3' - 7.5'
V 7.5'

E.C. JORDAN

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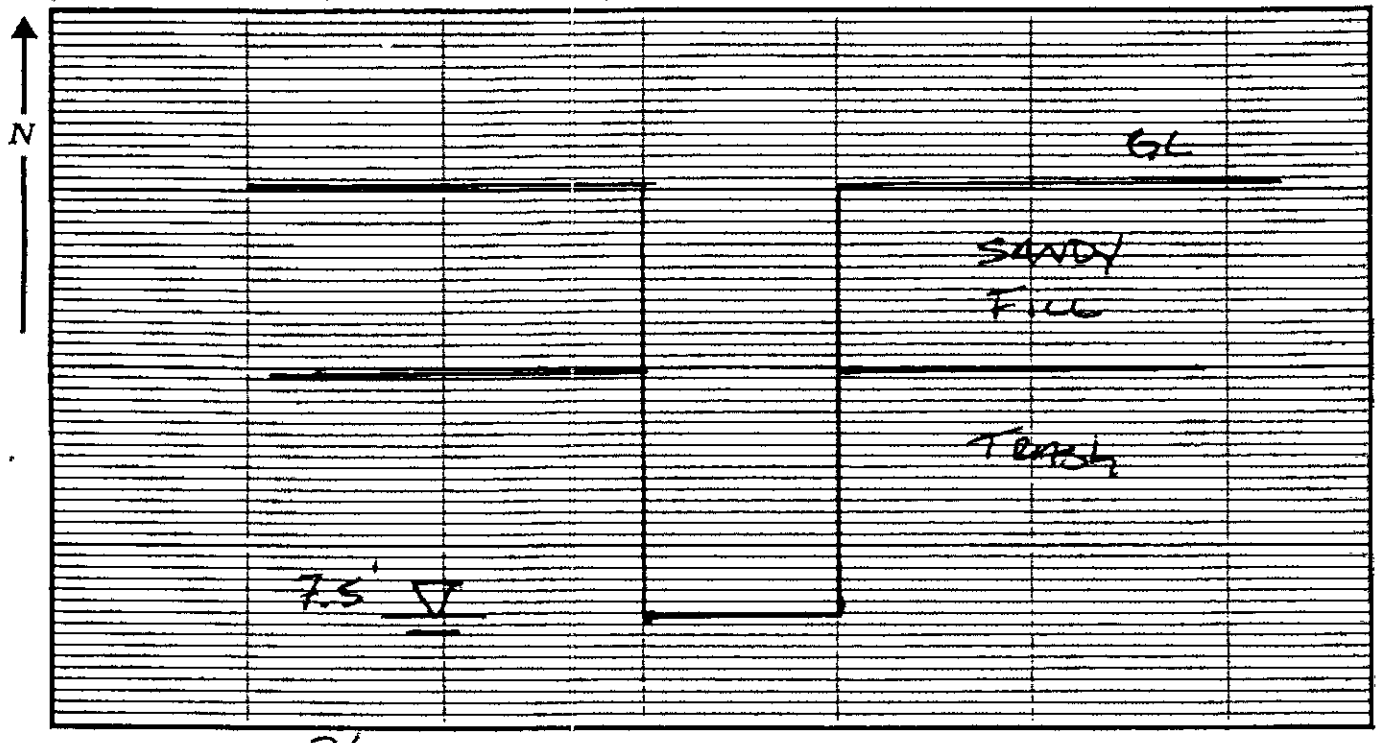
TEST PIT RECORD

Profile Along Test Pit- 124

SITE I

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3' FT.
DEPTH (FT.)

NOTES:
0-3' SANDY FILL, BROWN, MED to FINE, w/ some TRASH, MOIST
3'-7.5' TRASH

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0-3',	01TP124X0001XX	
S-2	DUP,	01TP124X0001XD	
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 47-48

Attachments

SIGNATURE: Karl Kayan

E.C. JORDAN

4807-20 GEOT. FORMS DISK

Click Here to Return to Main Index

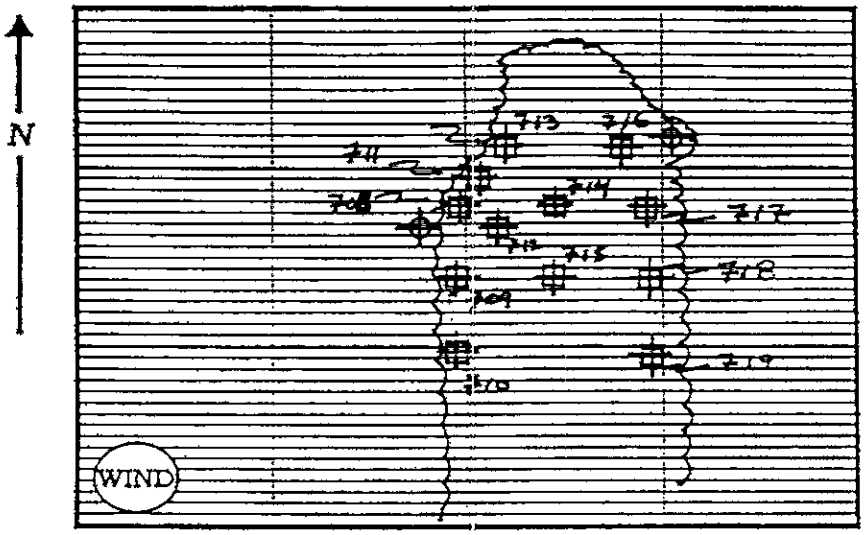
TEST PIT RECORD

SITE 7

TEST PIT TP-708 DATE 9/2/89 TIME 0900 END 0930

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200' FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll _____

Exposure _____

NOTES: BOP 4'

0-4' NATURAL IN PLACE SOILS

NO WATER

E.C. JORDAN

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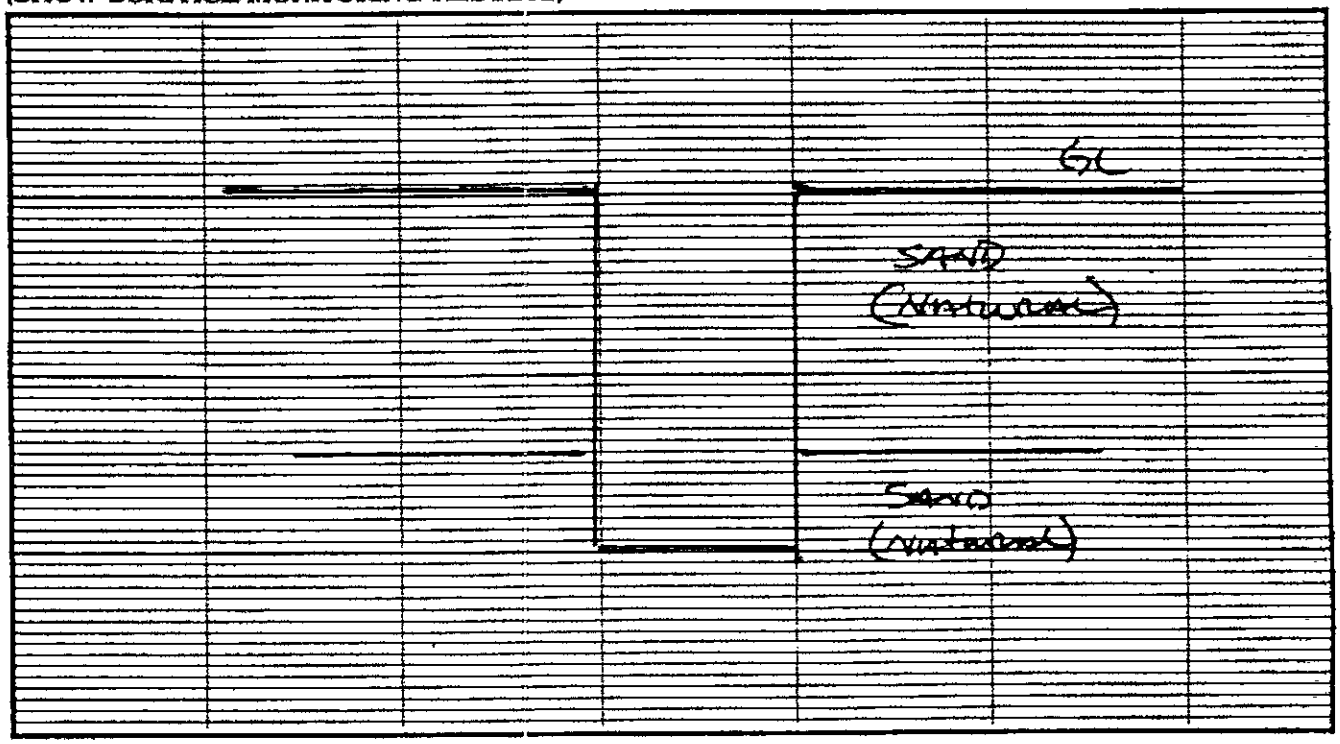
TEST PIT RECORD

Profile Along Test Pit- 708

SITE 7

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2' FT.
DEPTH (FT.)

NOTES:

0-0.2' SANDY SILT, Black, MED SANDY ORGANIC SILT, Root Grains, (Natural)

0.2'-3 SAND, Brown, MED to Fine, w/ some SILT, Dry, Loose (Natural)

3'-4' SAND, Gray, MED to Fine, MOD Dense, Moist (Natural)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0-3'	07TP708	X000 1XX
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

TIP BKG

REFERENCE: Field Book, Pg. 56

Attachments

SIGNATURE: Karl Kayser

E.C. JORDAN

4807-20 GEOT. FORMS DISK

Click Here to Return to Main Index

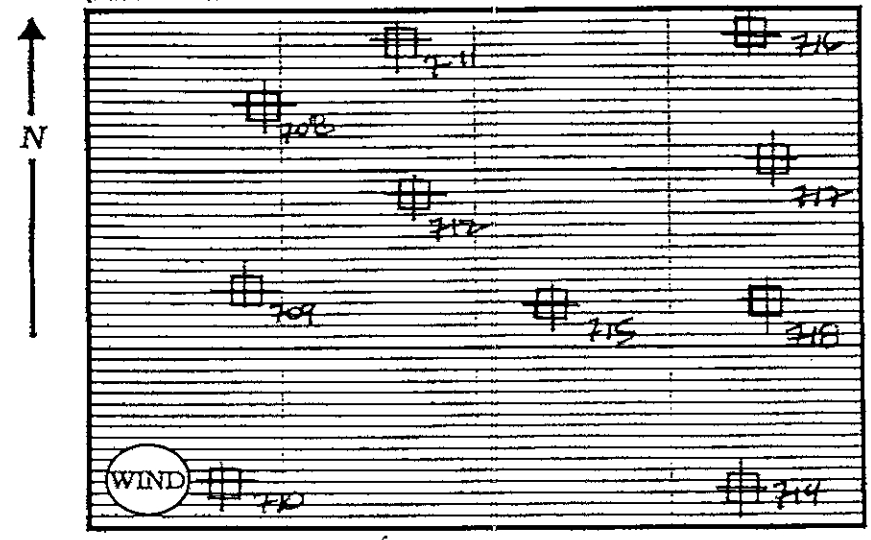
TEST PIT RECORD

SITE 7

TEST PIT TP 709 DATE 8/30/09 TIME 0730 END 0850

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 50' FT.

CREW MEMBERS:

1. E. RYAN CE-E
2. K. KNISPEL CE-E
3. K. Lombardo UBX
4. QUAN LE UBX
5. Jim Booker UBX
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	(Y)	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure _____

NOTES:

BOP - 6.5'

WATER LEVEL 6.5'

0 - 3' FILL

3 - 6.5' SAND (NATURAL IN PLACE SOILS)

E.C. JORDAN

4607-20.GEOT. FORMS DISK

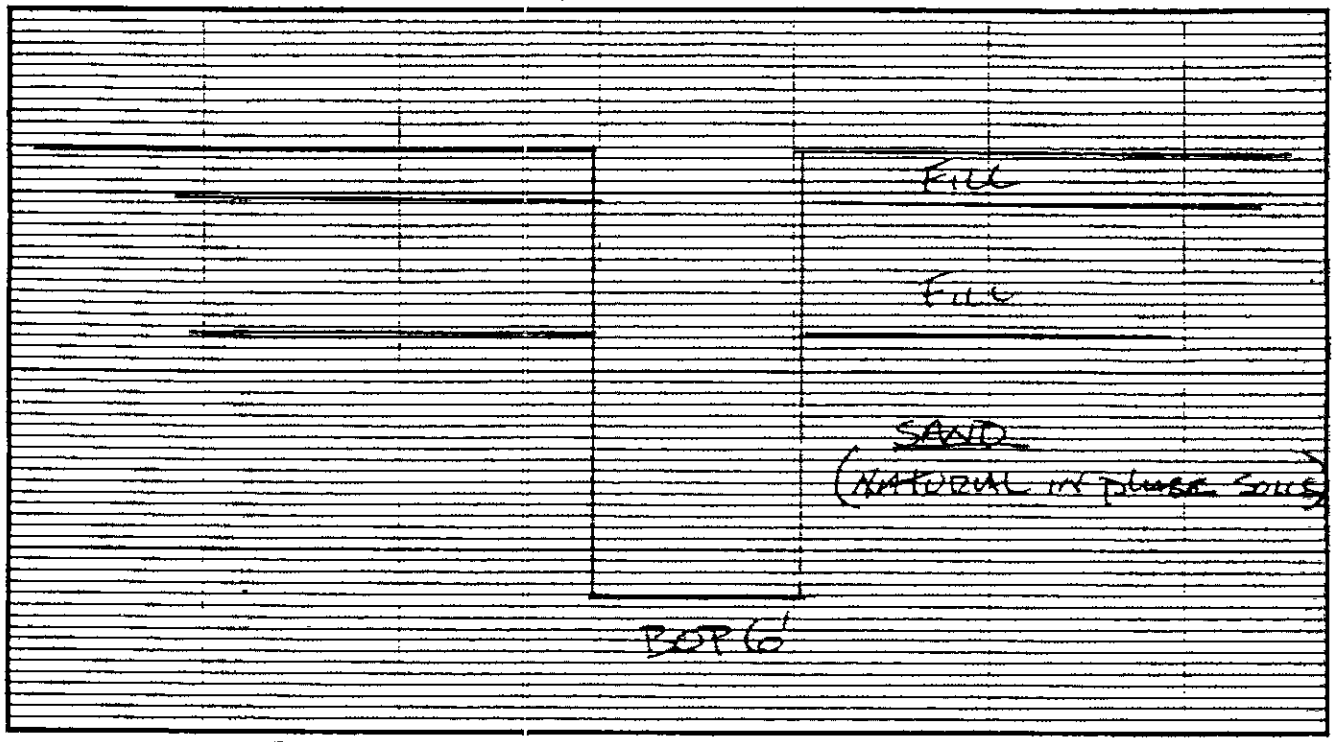
Click Here to Return to Main Index

TEST PIT RECORD

Profile Along Test Pit- 709

SITE 7

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2 FT.
DEPTH (FT.)

NOTES:

0-1' FILL, BROWN, SILTY SAND, W/ METAL/PLASTIC/WIRE

1'-5' FILL, BLACK/STAINED SOILS, SILTY/SAND.

3'-6.5' SAND, RED to GRAY W/ DEBRIS, MED to FINE, MOD DENSE, MOIST/SATURATED.

@ 6.5'

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0-0.5'	07TP	709XXXXXX	BKG
S-2	2'-4'	07TP	709X020XX	BKG
S-3	4'-6'	07TP	709X040XX	BKG
S-4				
S-5	2'-4'	07TP	707X020XD	DUP
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. 26-27

Attachments

SIGNATURE: Kl Kopp

E.C. JORDAN

4607-20 GEOT. FORMS DISK

Click Here to Return to Main Index

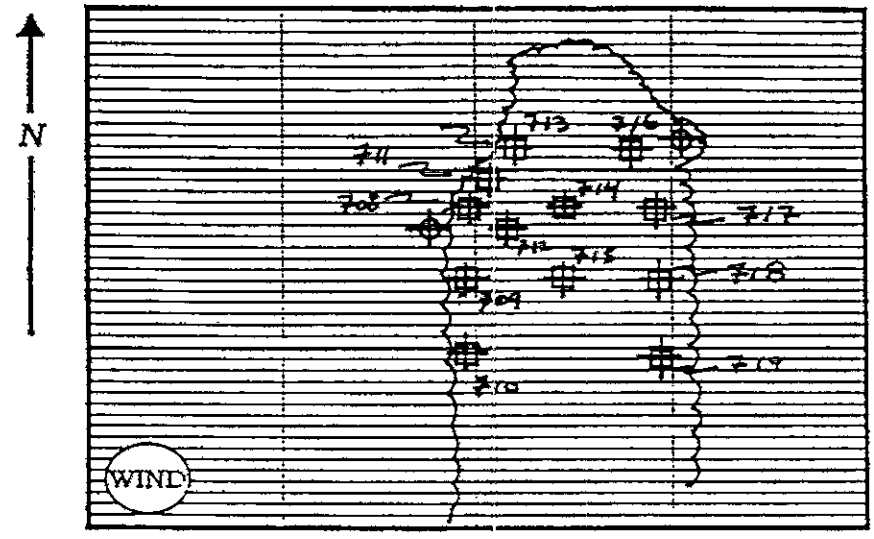
TEST PIT RECORD

SITE 7

TEST PIT TP-710 DATE 9/2/89 TIME 1430 END 1445

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200' FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure _____

NOTES:

BOP 4'

0-1' FILL

1'-1.5' SANDY SILT

1.5'-4' SAND

NO WATER.

E.C. JORDAN

4407-29 GEOT. FORMS DISK

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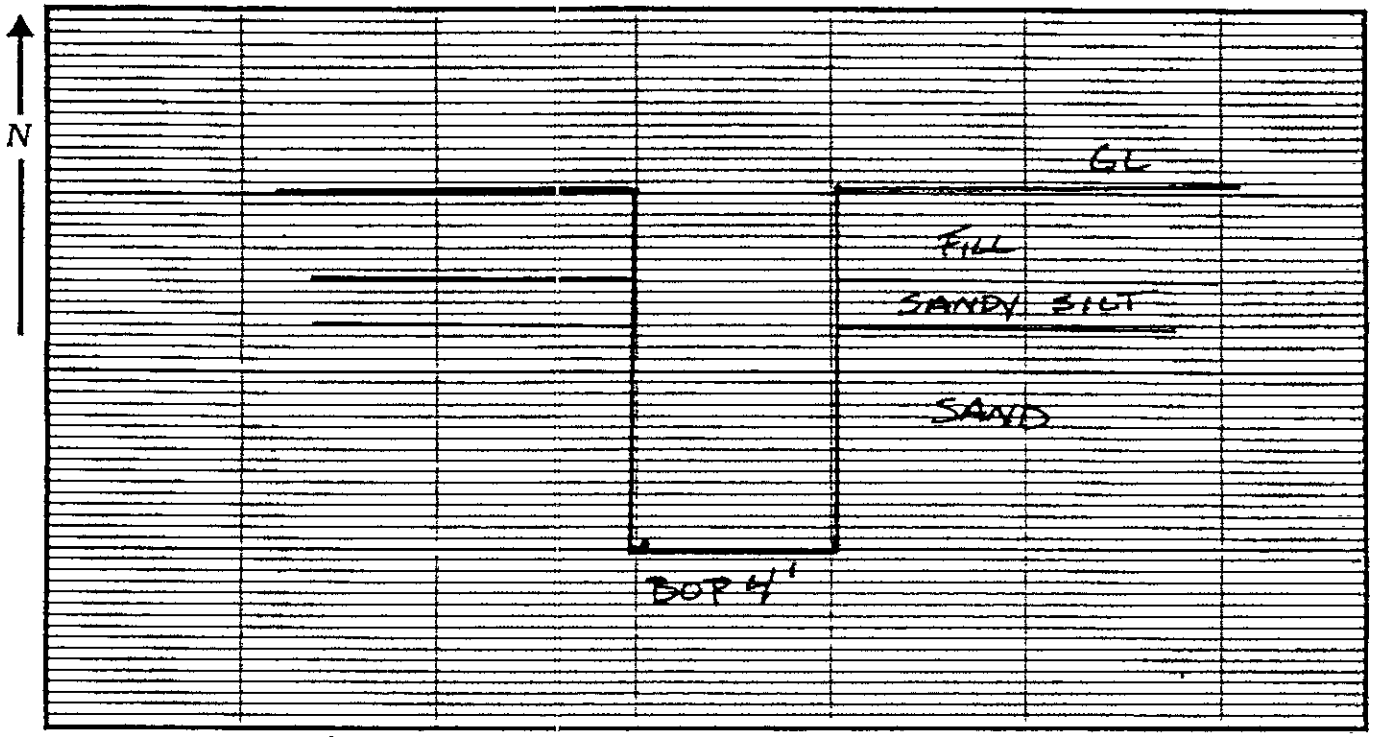
TEST PIT RECORD

Profile Along Test Pit- TP - 710

SITE 7

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2' FT.
DEPTH (FT.)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0-2'	07TP710X0001XX		BKG
S-2	2'-4'	07TP710X0201XX		BKG
S-3				
S-4				
S-5				
S-6				
S-7				
S-8				

NOTES:

0-1' SANDY SILT, BROWN (FILL) W/ MED SAND, WOOD debris, NO TRASH

1'-1.5' SANDY SILT, BROWN/BLACK MED SAND, W/ ROOT HAIRS, OLD "A" HORIZION (NATURAL SOILS)

1.5'-4' SAND, RED, P. GRADED FINE SAND W/ SOME MED, LOOSE DRY, (NATURAL SOILS).

REFERENCE: Field Book, Pg. 64-65

Attachments

SIGNATURE: Karl Krasper

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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TEST PIT RECORD

SITE 7

TEST PIT TP 711 DATE 8/29/89 TIME 1545 END 1600

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)

SCALE 1" = 200' FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure 1

NOTES:

BOP 6'

0'-1.5' FILL

1.5-6' NATURAL IN PLACE SOILS

T.P. @ 6'

E.C. JORDAN

4407-20 GEOT. FORMS DISK

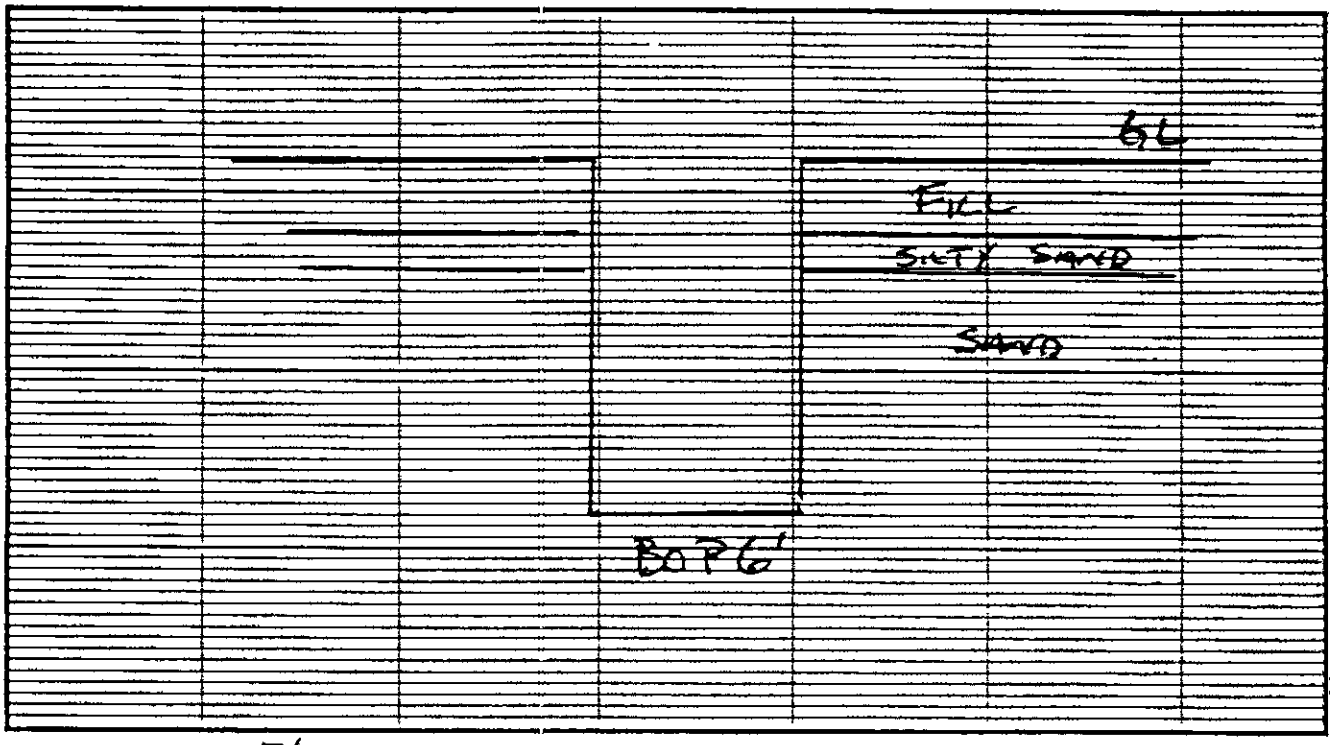
Click Here to Return to Main Index

TEST PIT RECORD

Profile Along Test Pit- TP 711

SITE 7

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3' FT.
DEPTH (FT.)

NOTES:

0-0.5' FILL, SILTY SAND BROWN, W/ METAL & CONCRETE.

0.5-2' SILTY SAND, BROWN/BLACK MED SAND W/ ORGANIC SILT OLD "A" HORIZION

2'-6' SAND, TAN TO GRAY W/ DEPTH, MED TO FINE SAND, MOD DENSE, MOIST, W/ ORANGE MOTTLES. (NATURAL)

SATURATED @ 6'

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0-0.5	07TP711	0000X
S-2	2'-4'	07TP711	0020XX
S-3	4'-6'	07TP711	0040XX
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 22-23

Attachments

SIGNATURE: E.C. JORDAN

4407-20 GEOT. FORMS DISK

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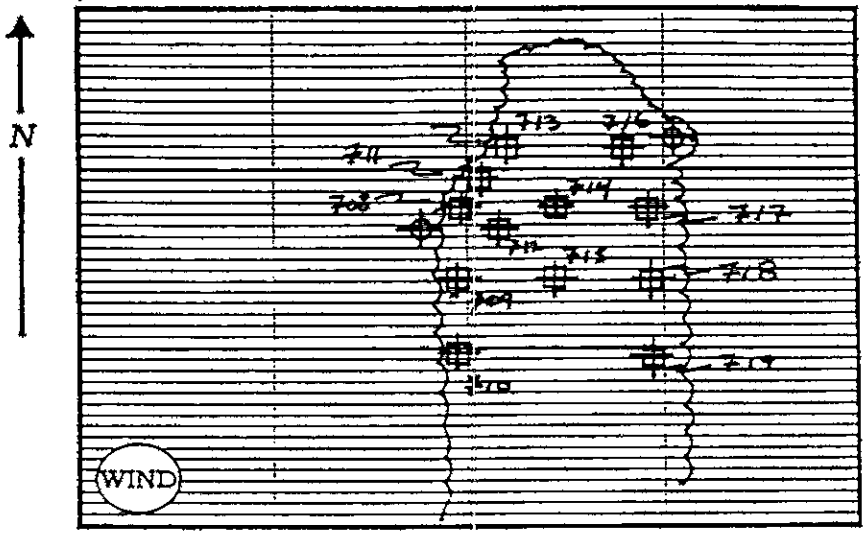
TEST PIT RECORD

SITE 7

TEST PIT TP 712 DATE 9/2/89 TIME 1100 END 1145

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200' FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure _____

NOTES:

BOP 6'

0 - 2.0' FILL W/ BLACK STAINED SOILS

2' - 6' NATURAL IN PLACE SOILS.

NO WATER

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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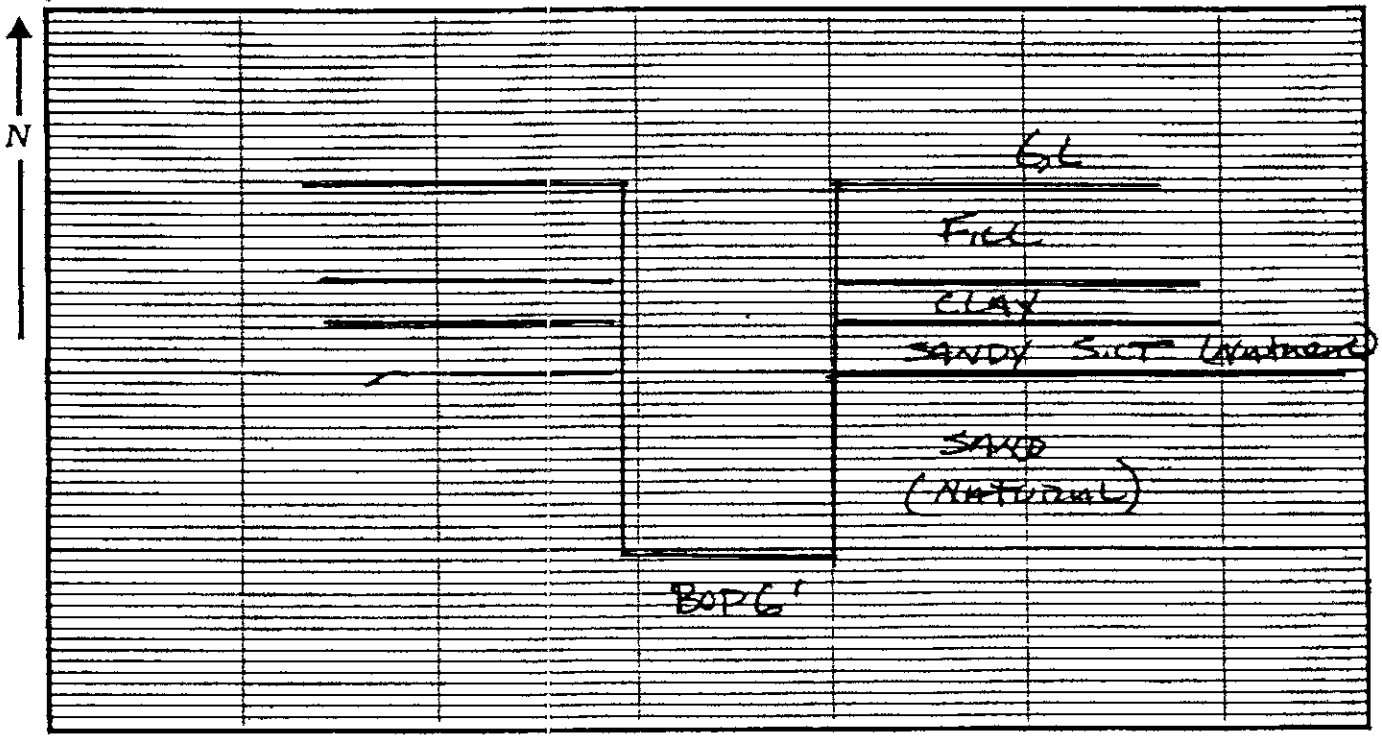
TEST PIT RECORD

Profile Along Test Pit- 712

SITE 7

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3' FT.
DEPTH (FT.)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0-2', 07TP712		1000 1XX	BKG
S-2	2-4', 07TP712		X 020 1XX	3ppm
S-3	4'-6', 07TP712		X 040 1XX	BKG
S-4				
S-5				
S-6				
S-7				
S-8				

TIP

NOTES:

0-1.5' FILL SANDY SILT, BROWN
@ 1.5' BLACK STAINED SOILS, ODOR LIKE GREASE/LUBRICANT w/ SMALL METAL OBJECTS

1.5'-2.0' FILL CLAY, GRAY

2.0'-3.0 SANDY SILT, BROWN/BLACK w/ ORGANIC SILTS, w/ ROOT HAIRS OLD "A" HORIZON.

3.0-6.0' SAND, GRAY, MED to FINE, LOOSE, MOIST, w/ ORANGE MOTTLES

REFERENCE: Field Book, Pg. 59-60

Attachments

SIGNATURE: Karl Krasper

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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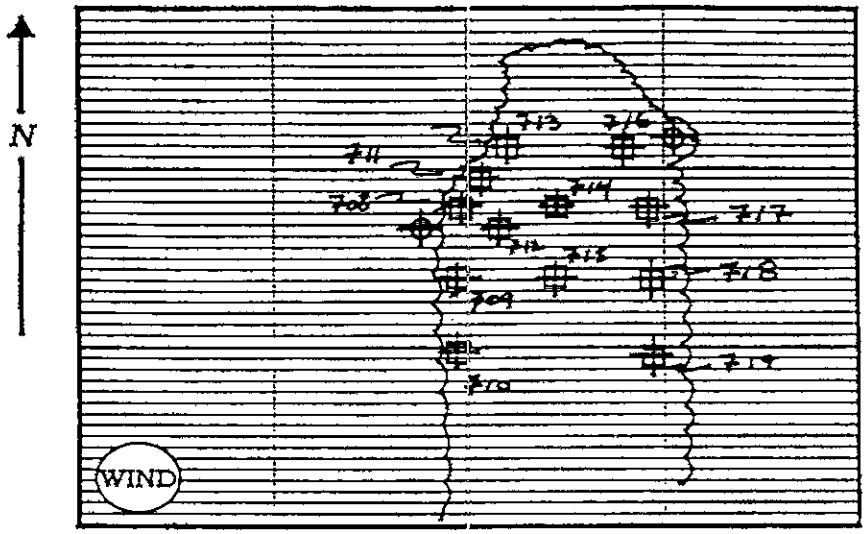
TEST PIT RECORD

SITE 7

TEST PIT TP-713 DATE 8/29/89 TIME 1400 END 1440

COORDINATES GRID ELEMENT

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200' FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other

Photographs. Roll

Exposure

NOTES:

BOP 6'

0-3' FILL

3-6' NATURAL IN PLACE SOILS.

NO WATER

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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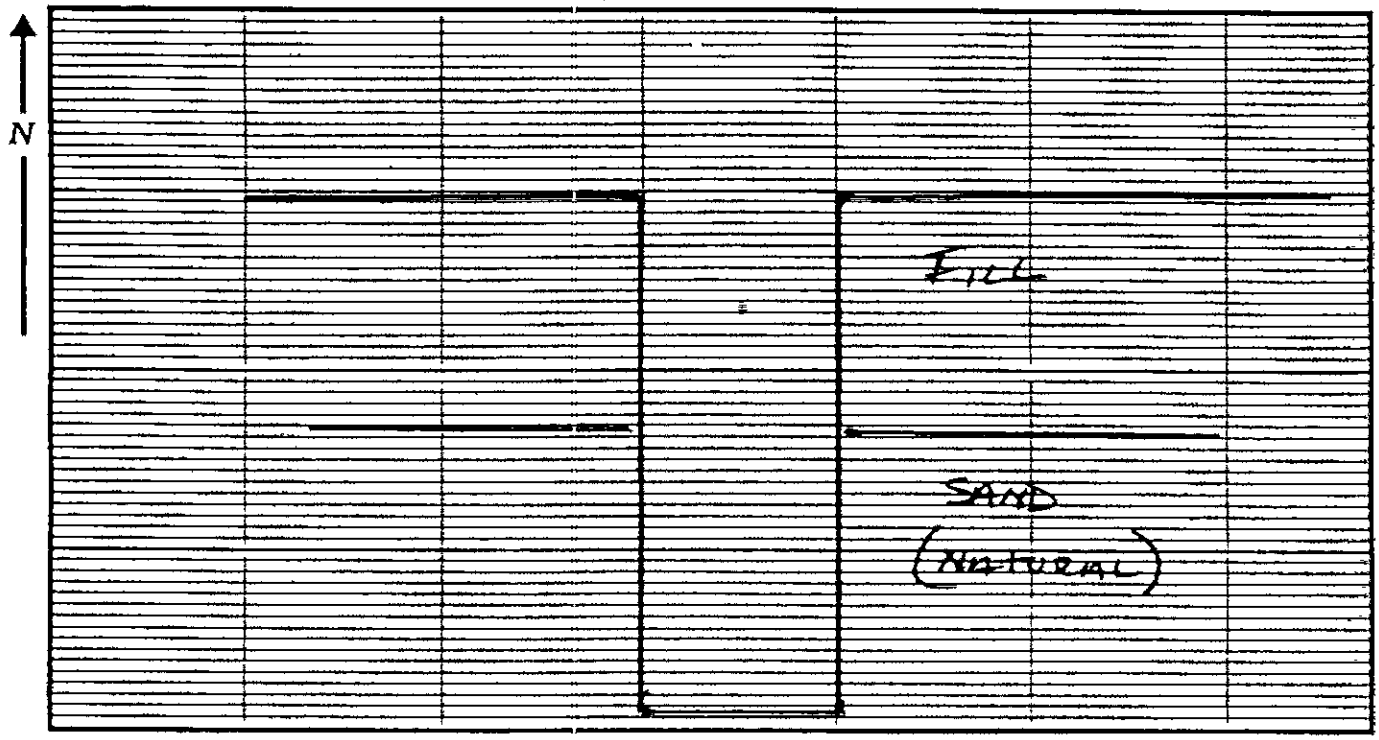
TEST PIT RECORD

Profile Along Test Pit- 713

SITE Site 7

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2 FT.
DEPTH (FT.)

NOTES:
0'-3' FILL SILTY SAND, BROWN, MED SAND, w/ Root Hairs DRY, w/ LARGE Pieces of Concrete, wood, Plywood.

3'-6' SAND, TAN, MED to FINE moist to WET, w/ ORANGE mottles, (Natural Soils)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0-0.5'	07TP713X000XXX		BKG
S-2	2'-4'	07TP713X020XXX		BKG
S-3	4'-6'	07TP713X040XX		BKG
S-4				
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. 18-19

Attachments

SIGNATURE:

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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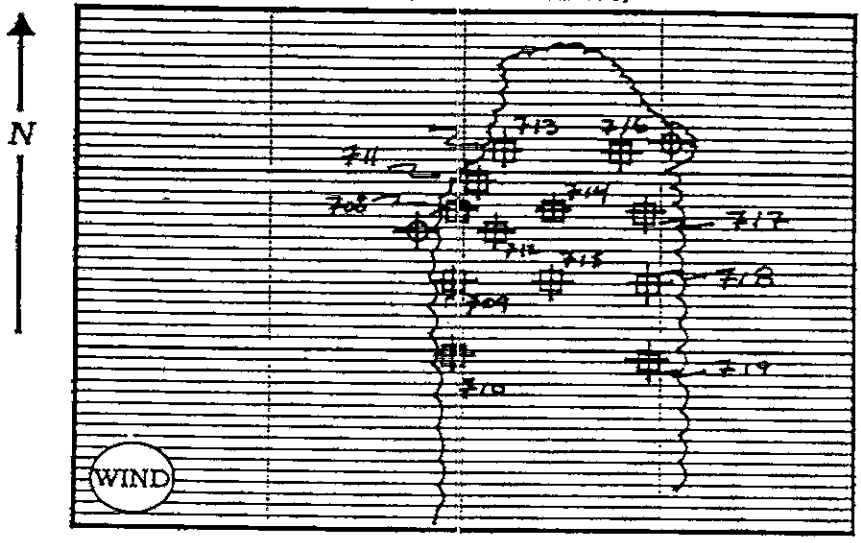
TEST PIT RECORD

SITE 7.

TEST PIT TP-714 DATE 9/2 TIME 1000 END 1020

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200' FT.

NOTES: BOP 6'

0-2.5' FILL w/ BLACK STAINED SOILS

2.5'-6' NATURAL IN PLACE SOILS

NO WATER

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photograph Roll _____

Exposure _____

E.C. JORDAN

4407-20 GEOT. FORMS DISK

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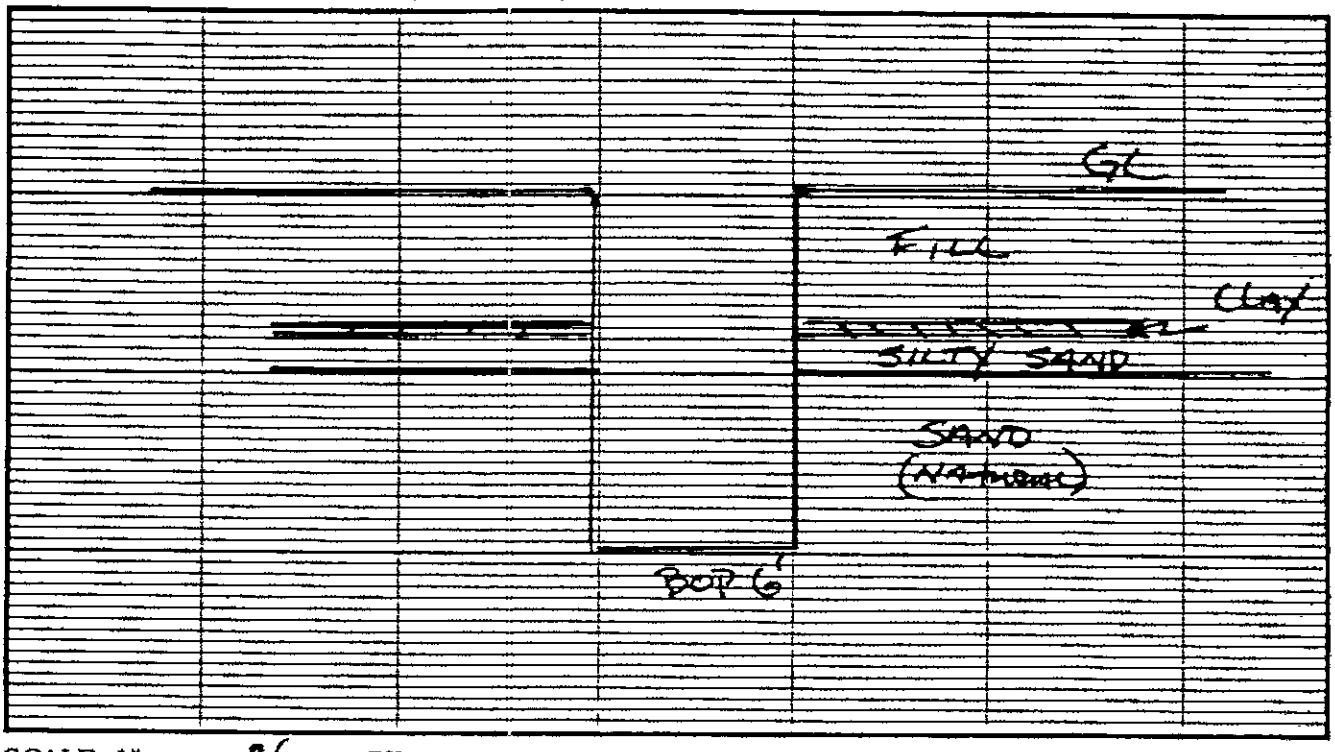
TEST PIT RECORD

Profile Along Test Pit- 714

SITE 7

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3' FT.
DEPTH (FT.)

NOTES:
0-2' FILL, SAND/ w/
0.2' LAYER OF black
STAINED SOIL @ 1'
TIP 13 ppm NO TRUCK
2'-2.5' CLAY/ FILL, GRAY/
2.5-3' SILTY/ SAND, Black/BROWN
w/ ROOT HAIRS, "A" HORIZON
(NATURAL)
3-6 SAND, GRAY/, MED TO FINE
P. GRADED, moist to SATURATED
w/ ORANGE mottles
(NATURAL IN PLACE
SOILS)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0-2', 07TP714X0001XX			TIP
S-2	DUP, 07TP714X0001XD			BKG
S-3	2-4', 07TP714X0201XX			BKG
S-4	4-6', 07TP714X0401XX			BKG
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. 57-58

Attachments

SIGNATURE: Karl Kaspar

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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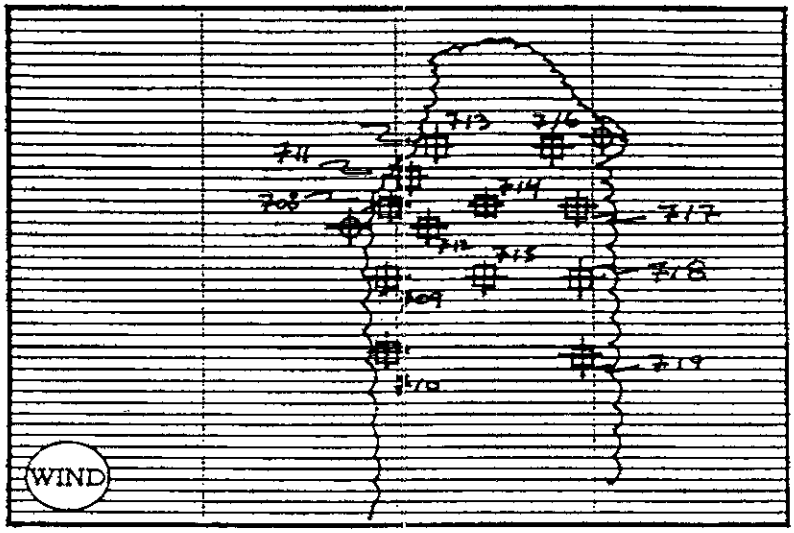
TEST PIT RECORD

SITE 7

TEST PIT TP - 715 DATE 9/2/89 TIME 0830 END 0850

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200' FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure _____

NOTES:

BOP 6'

0-4' FILL

4'-6' NATURAL IN PLACE SOILS

E.C. JORDAN

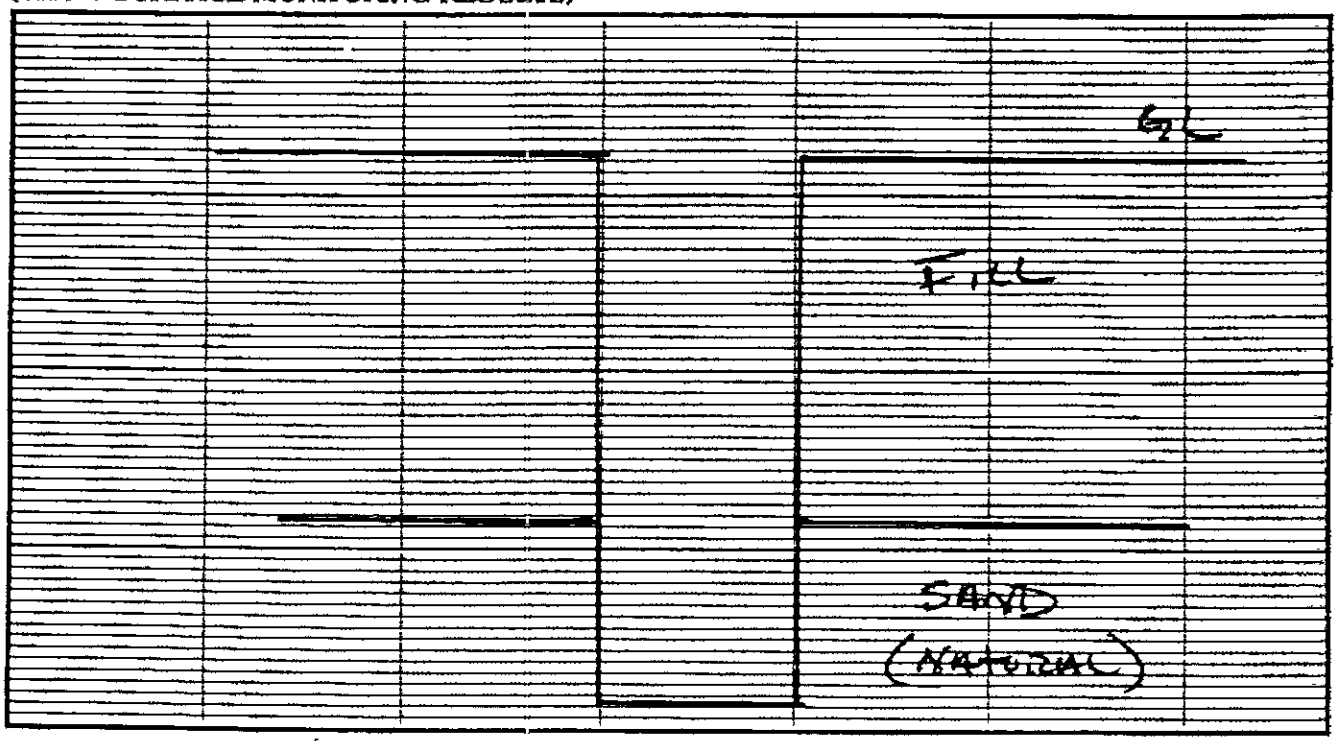
4807-20 GEOT. FORMS DISK

TEST PIT RECORD

Profile Along Test Pit- 715

SITE 7

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2' FT.
DEPTH (FT.)

NOTES:
0-4' FILL, BROWN, SILTY SAND, WOOD, BLACK LAYER @ 1' MOD DENSE, APPEARS TO BE STAINED.
4'-6' SAND, GRAY, MED to FINE WET, (NATURAL SURFACE) W/ ORANGE MOTTLES.

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD, SP, VOA PPM	
S-1	0-2'	07TP715X0001XX		BKG
S-2	2'-4'	07TP715X0201XX		BKG
S-3	4'-6'	07TP715X0401XX		BKG
S-4	DUP,	07TP715X0001XX		BKG
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. 54-55

Attachments

SIGNATURE: Karl Krasper

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4807-20 GEOT. FORMS DISK

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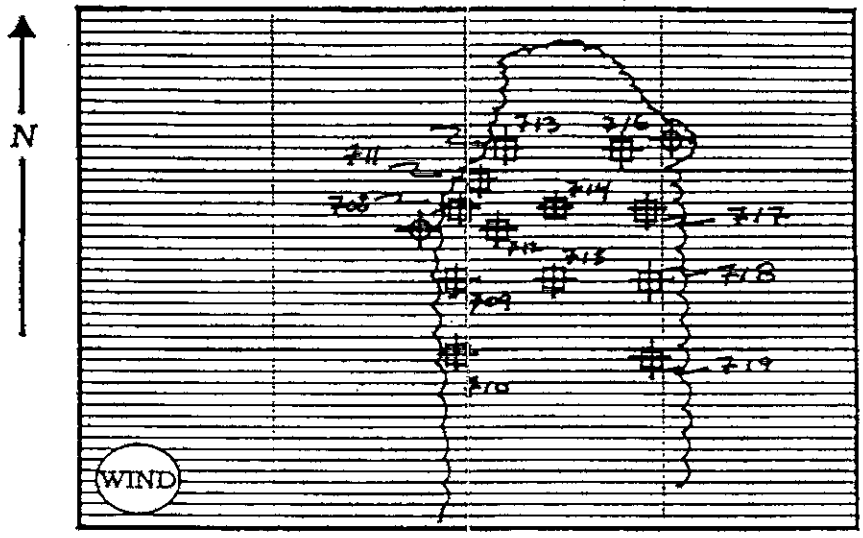
TEST PIT RECORD

SITE 7

TEST PIT TP-716 DATE 8/29/89 TIME 1500 END 1530

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200' FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure _____

NOTES:

BOP 6'

0-2.5' Fill

2.5'-6' Natural in place soils

I @ 6'

E.C. JORDAN

4407-20 GEOT. FORMS DISK

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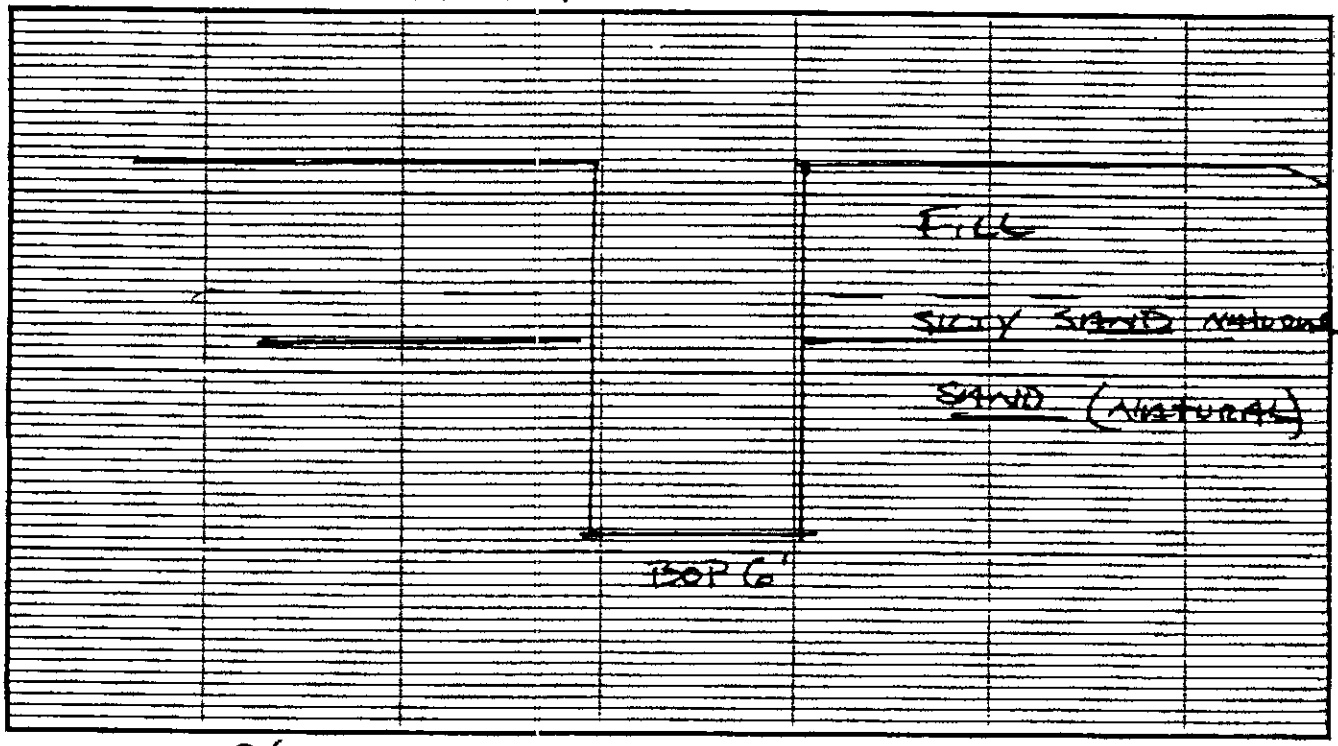
TEST PIT RECORD

Profile Along Test Pit- TP 716

SITE 7

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3' FT.
DEPTH (FT.)

NOTES:

0 – 2.5' FILL, SILTY SAND, DARK BROWN, MED TO FINE SAND, W/ ORGANIC SILT, SMALL PIECES OF CEMENT, MOIST.

2.5' – 3' SILTY SAND, BROWN, MED TO FINE, W/ ORGANIC SILT, MOIST NATURAL "A" HORIZION

3' – 6' SAND TAN TO GRAY W/ DEPTH, MED TO FINE, W/ ORANGE MOTTLES

SATURATED @ 6'

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0-0.5'	07TP716X000XX		BKG
S-2	2'-4'	07TP716X020XX		BKG
S-3	4-6'	07TP716X040XX		BKG
S-4				
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. 20 – 21

Attachments

SIGNATURE: Karl Kazyn

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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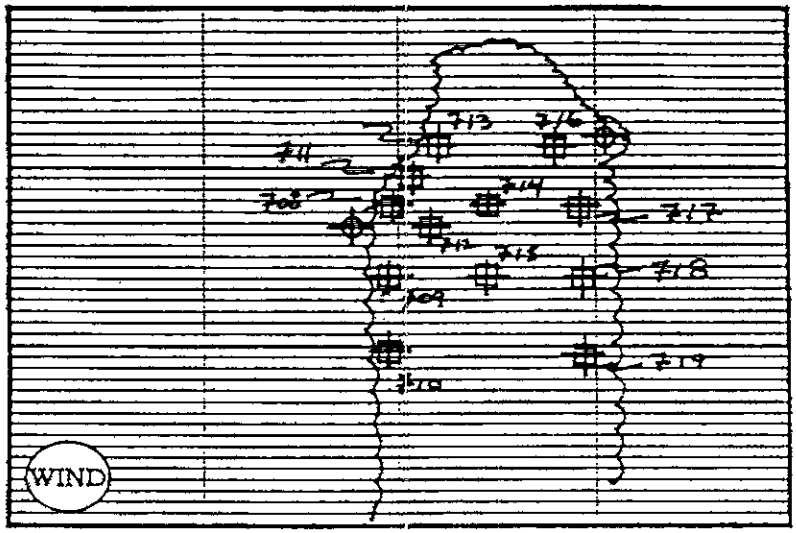
TEST PIT RECORD

SITE 7

TEST PIT TP-717 DATE 8/29/89 TIME 1615 END 1700

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200' FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Ⓨ	N
Explosive Gas	Ⓨ	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll _____

Exposure _____

NOTES:

BOP 6'

0'-4' FILL

4'-6' NATURAL IN PLACE SOILS

E.C. JORDAN

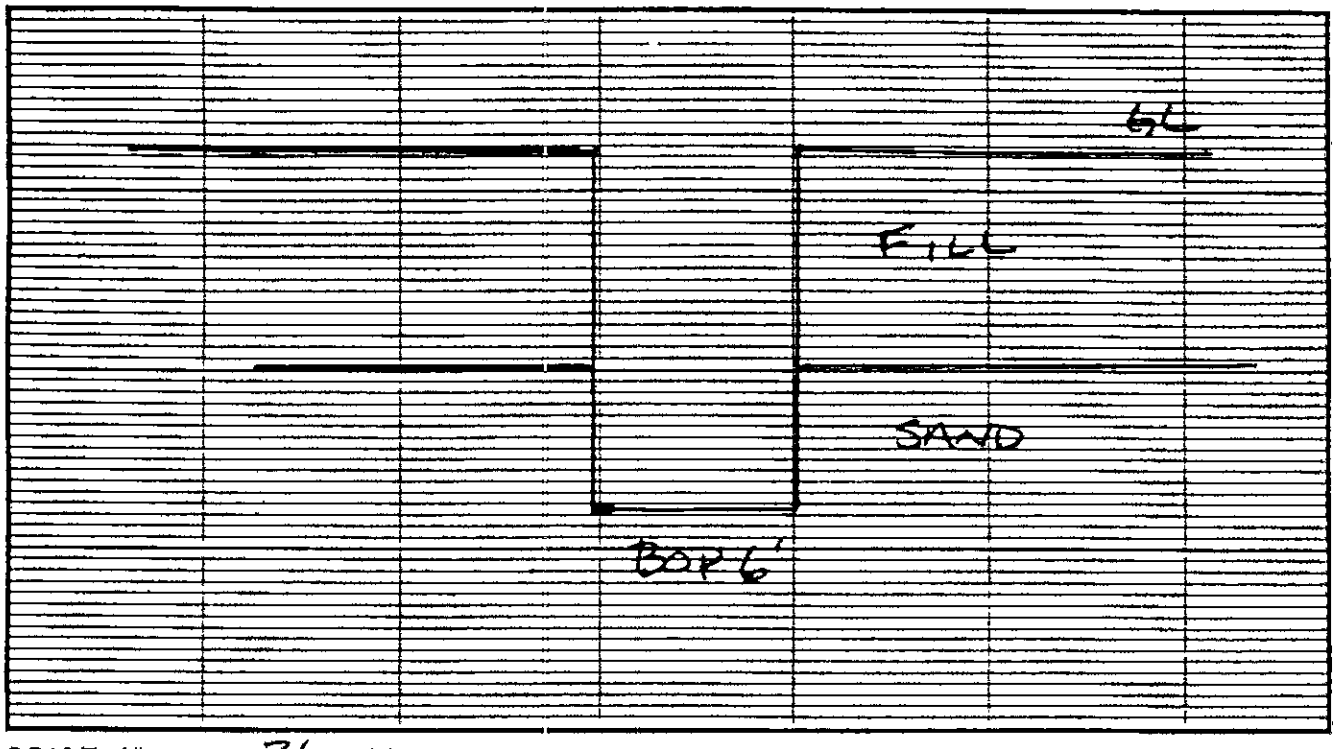
4607-28 GEOT. FORMS DISK

TEST PIT RECORD

Profile Along Test Pit- TP 717

SITE 7

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3' FT.
DEPTH (FT.)

NOTES:

0-4' FILL SILTY SAND, BLACK/BROWN, W/ PIECES OF METAL, CONCRETE and WIRE @ 3' BLACK STAINED SOIL W/ UNIDENTIFIED ODOR (Sampled)

4'-6' SAND, TAN/GRAY MED TO FINE, WET, MOD DENSE, W/ ORANGE MOTTLES (NATURAL SOILS).

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0-0.5'	07TP717X000XX		BKG
S-2	2'-4'	07TP717X020XX		BKG
S-3	4'-6'	07TP717X040XX		BKG
S-4				
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. 24-25

Attachments

SIGNATURE: Karl Kaye

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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TEST PIT RECORD

SITE 7

TEST PIT TP-718 DATE 9/2/89 TIME 1250 END 1316

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)

SCALE 1" = 200' FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure _____

NOTES:

BOP 4'

0'-2' FILL W/ BLACK STAINED SOILS

2'-4' SAND (NATURAL SOIL IN PLACE)

NO WATER

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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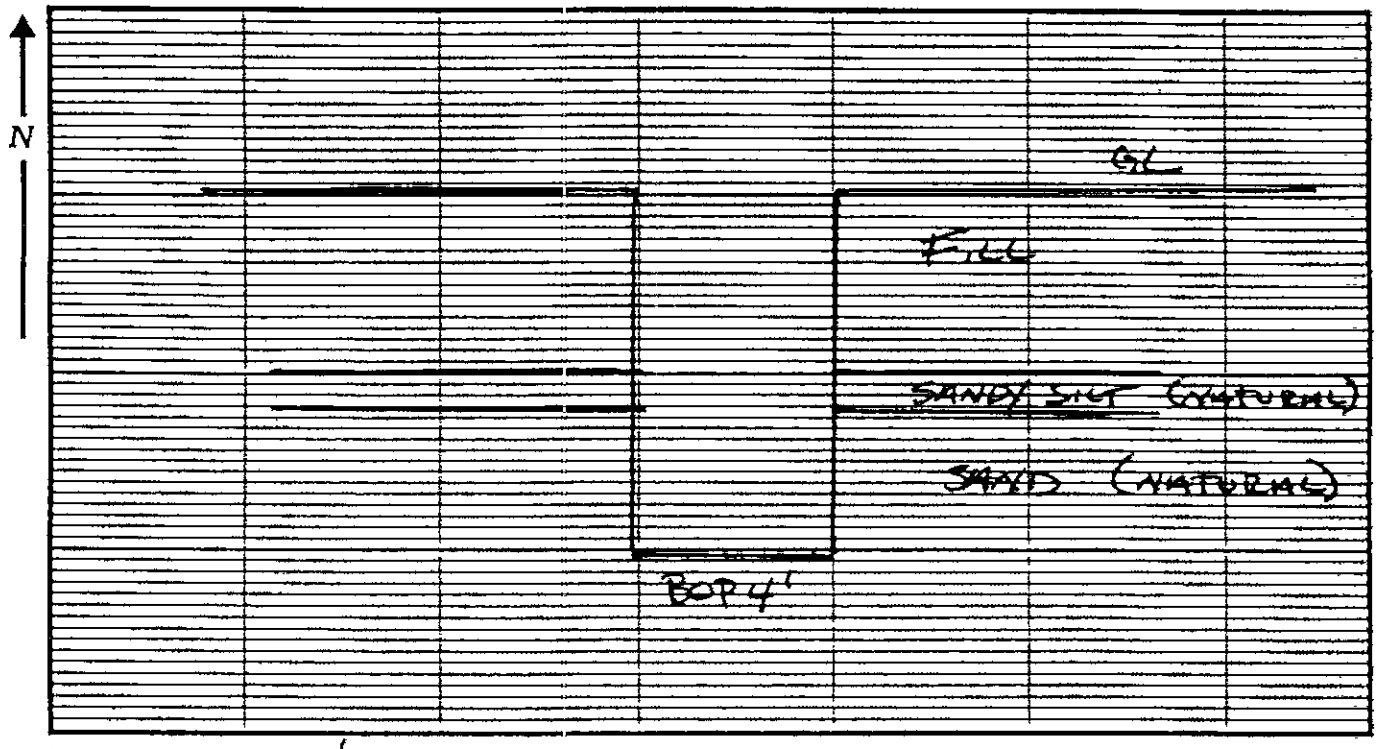
TEST PIT RECORD

Profile Along Test Pit- 718

SITE 7

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2' FT.
DEPTH (FT.)

NOTES:

0-2' FILL, SANDY, BROWN, W/SILT, W/ LARGE CONCRETE PIECES, ODOR SIMILAR TO 712 & 714.

2-2.5 SANDY SILT, BLACK, MED SAND, W/ ORGANIC SILT, LOOSE DRY, OLD "A" HORIZION

2.5'-4' SAND, GRAY, MED TO FINE, P.GRADED, W/ CONTAMINATION, MOIST LOOSE (NATURAL)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0-2', 07TP718		XOOOXXX	TIP
S-2	2'-4', 07TP718		XOZOXXX	BKG
S-3				BKG
S-4				
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. 61

Attachments

SIGNATURE: KARL KNOSPE

E.C. JORDAN

4407-20 GEOT. FORMS DISK

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TEST PIT RECORD

SITE 7

TEST PIT TP - 719 DATE 9/2/89 TIME 1345 END 1400

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)

SCALE 1" = 200' FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure _____

NOTES:

BOP 4'

0-3' FILL w/ BLACK STAINED SOILS

3-4' SAND (NATURAL IN PLACE SOILS)

NO WATER

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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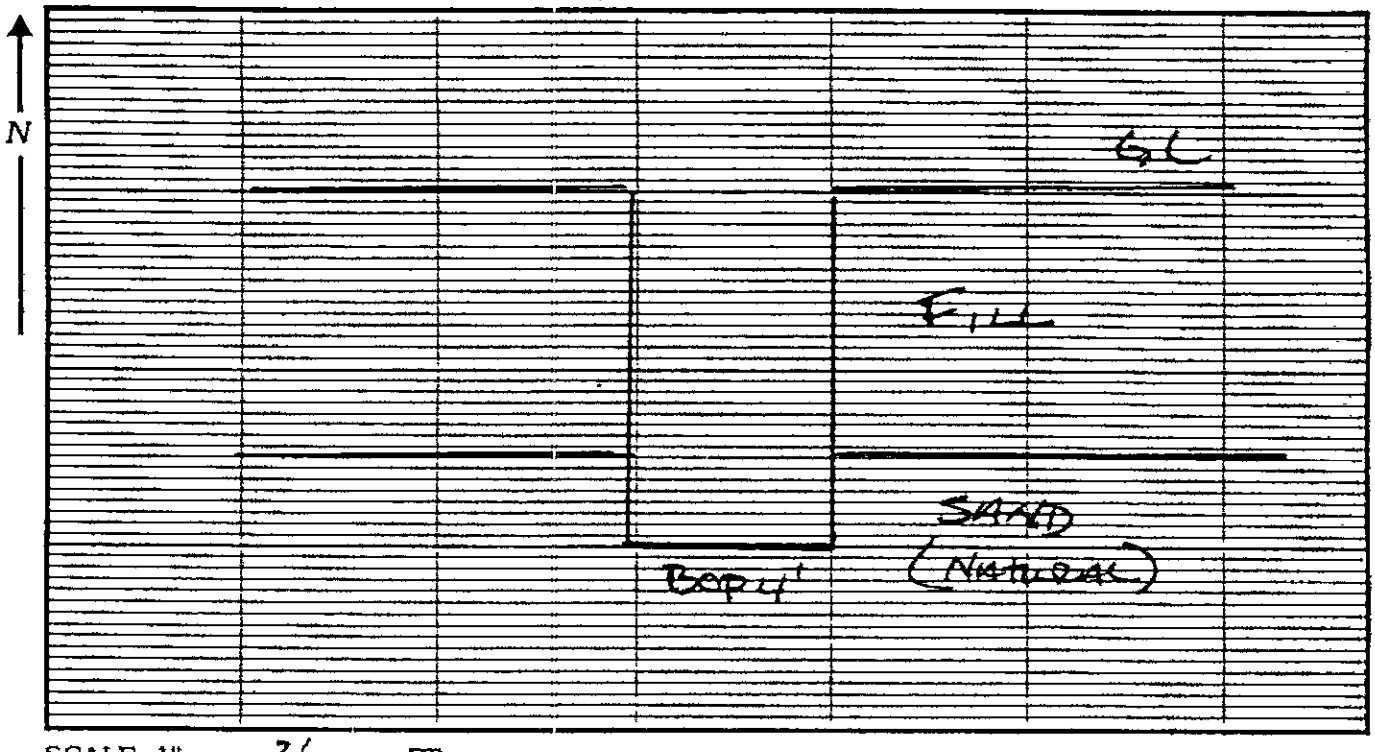
TEST PIT RECORD

Profile Along Test Pit- 719 7

SITE

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2' FT.
DEPTH (FT.)

NOTES:

0-3' FILL, BROWN, SANDY SILT w/ Large pieces of Concrete, BROWN ORGANIC SILT, ODOR of GREASE as before, w/ metal & wood debris

3-4' SAND, GRAY, P. GRADED MEDIUM FINE, w/ ORANGE mottles (NATURAL) moist, Loose

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0-2'	07TP719X000	XX	TIP BKG
S-2	2'-4'	07TP719X020	XX	BKG
S-3				
S-4				
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. 62-63

Attachments

SIGNATURE: Karl Krasper

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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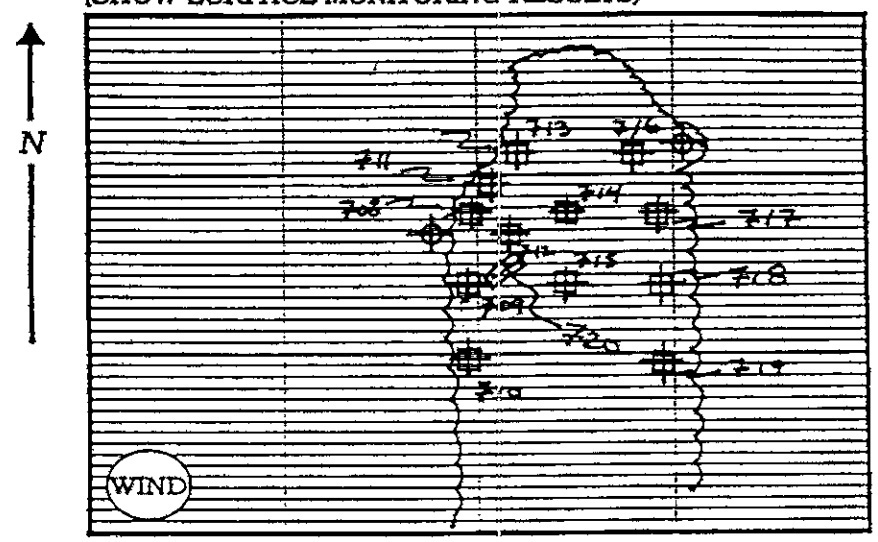
TEST PIT RECORD

SITE 7

TEST PIT TP-720 DATE 9/2/89 TIME 1545 END 1610

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 200' FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure 2

NOTES:

BOP - 4'

0 - 2.5' FILL W/ BLUE XC'S.

2.5' - 4' NATURAL IN PLACE SOILS

NO WATER

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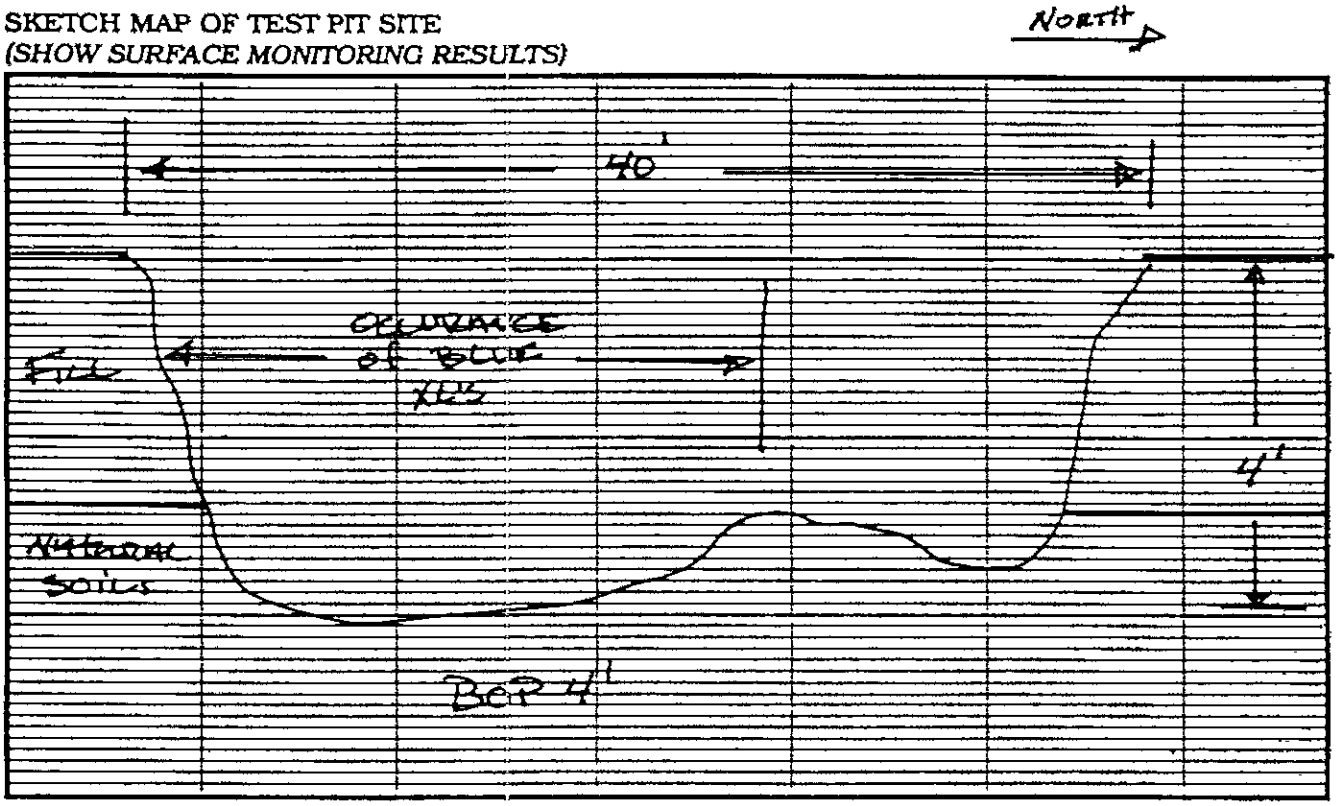
TEST PIT RECORD

Profile Along Test Pit- TP -720

SITE 7

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2' FT.
DEPTH (FT.)

NOTES:

0-2.5' FILL, BROWN, SANDY SILT, w/ METAL (BLUE XL's ASSOCIATED w/ METAL objects ONLY) & wood debris.

2.5'-3' SILTY SAND, BROWN w. GRAVEL, MED SAND, ORGANIC SILT, w/ Root Hairs, Loose, MOIST OLD "A" HORIZON (NATURAL)

3'-4' SAND, RED, P. GRADED MED to FINE, LOOSE, DRY (NATURAL)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	1' ≠ 07TP720X0001XX		BKG
S-2	(BLUE XL's)		
S-3			
S-4	(SAMPLE NOT SUBMITTED for ANALYSIS)		
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 67

Attachments

SIGNATURE: Kristl Krispin

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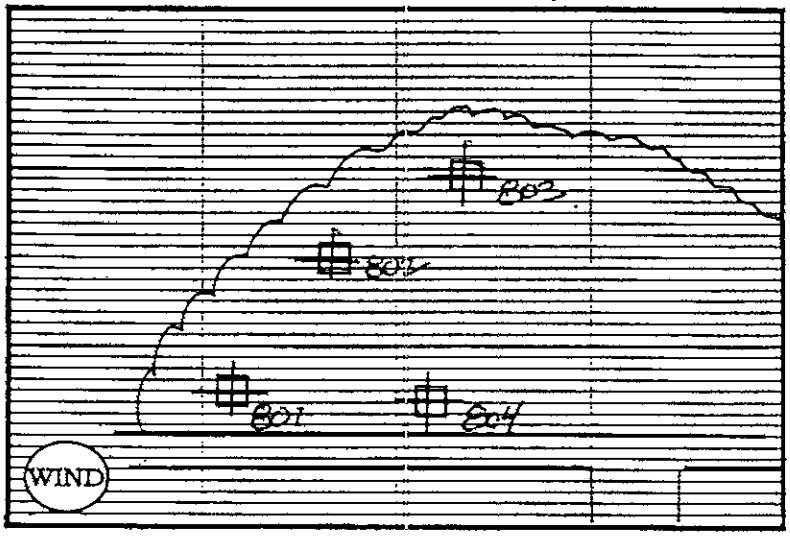
TEST PIT RECORD

SITE Site 8
TEST PIT TP-801 DATE 8/29/89 TIME 0915 END 0940
COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 100 FT.

NOTES:

BOP - 4'

0-4' SAND (NATURAL IN PLACE SOILS)

CREW MEMBERS:

1. E. Ryan CE-E
2. K. Kasper CE-E
3. K. Lombardo UBY
4. Quan Le UBY
5. Jim Booker UBY
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll _____

Exposure _____

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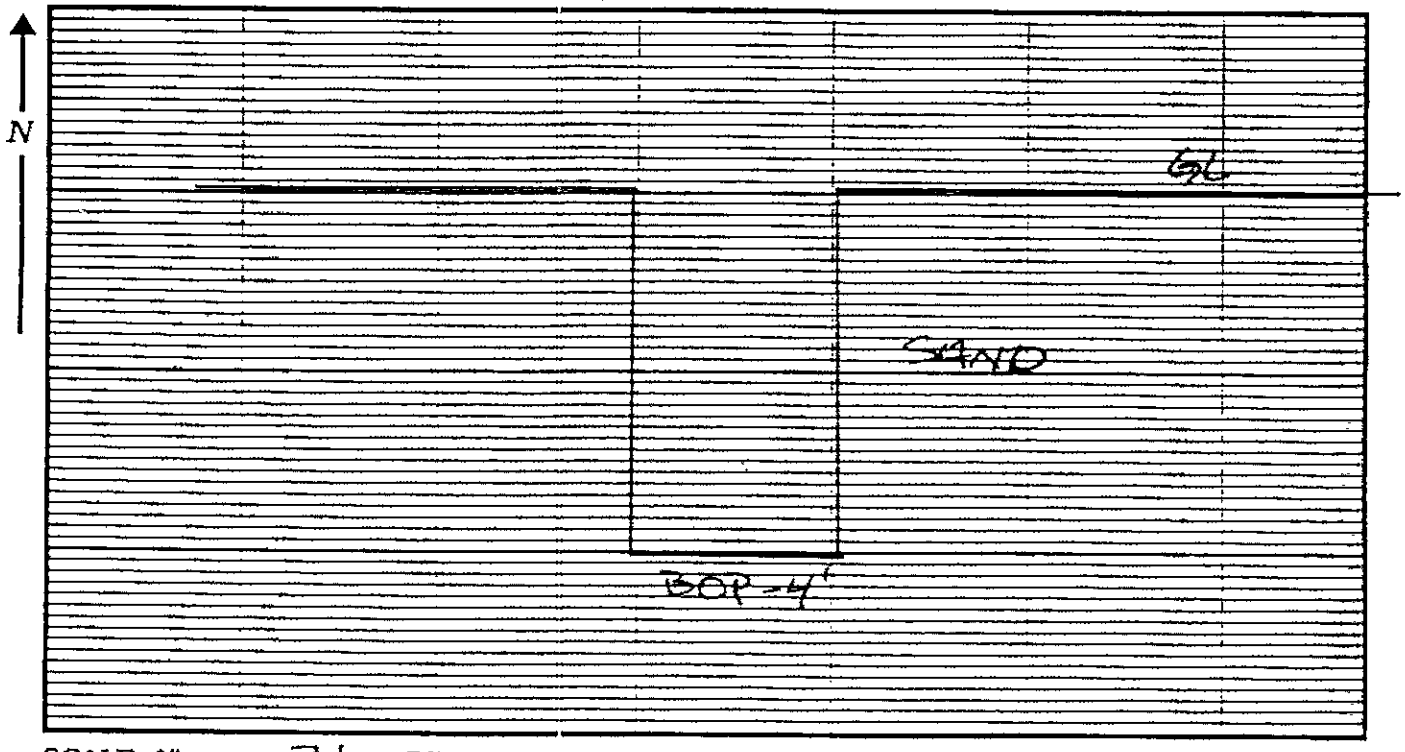
Click Here to Return to Main Index

TEST PIT RECORD

Profile Along Test Pit- _____

SITE _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2' FT.
DEPTH (FT.)

NOTES:

0-4' SAND, TAN, MED to Fine, w/ Horizontal Laminations, Loose, moist, some discontinuous Silt Layers (Black),

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0'	OBTPB01N00D1KY	BKG
S-2	1'	OBTPB01X01D1XX	BKG
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 11

Attachments _____

SIGNATURE: Kel Kuyer

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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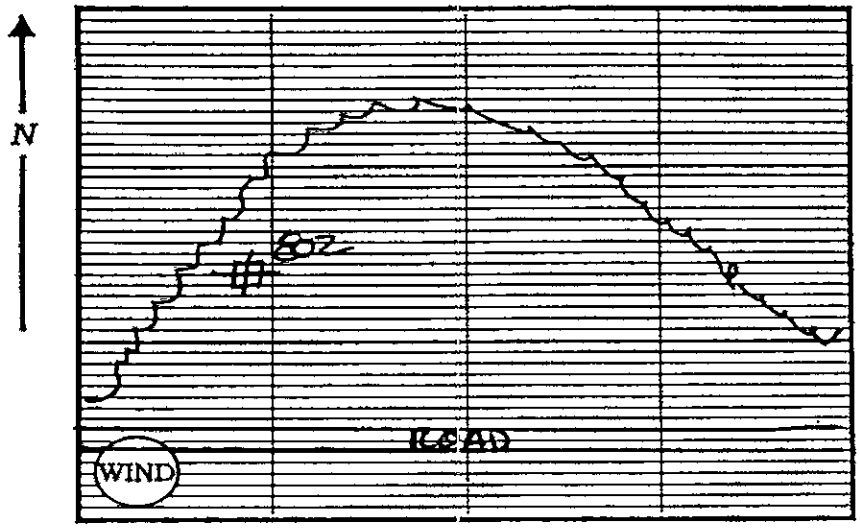
TEST PIT RECORD

SITE Site #8

TEST PIT 802 DATE 8/29 TIME 0900 END 0910

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 100' FT.

NOTES: TEST PIT DUG IN OLD LAND FILL AREA.

Appears to be all Natural in place soils.

CREW MEMBERS:

1. Knapper
2. Ryan
3. Lombardo
4. LE
5. Booker
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure _____

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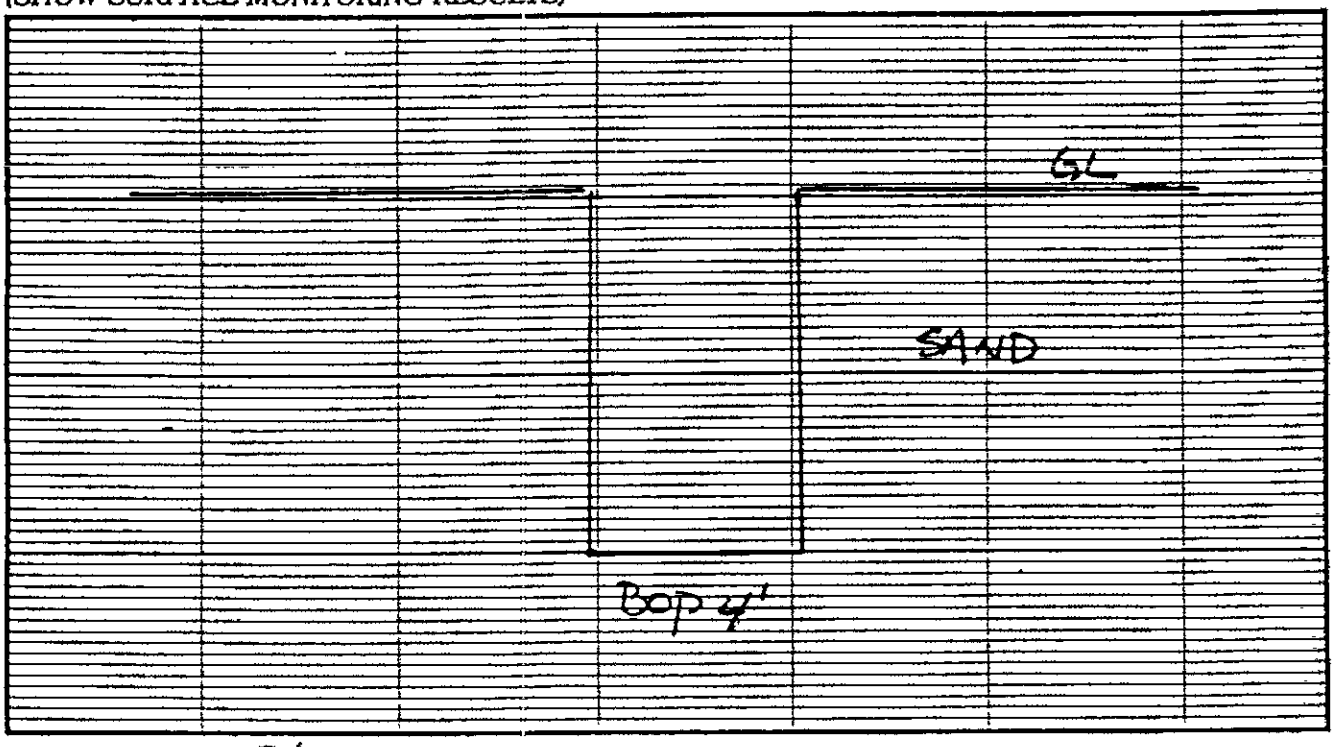
Click Here to Return to Main Index

TEST PIT RECORD

Profile Along Test Pit- 802 #8

SITE _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2' FT.
DEPTH (FT.)

NOTES:
0-4' SAND, TAN, MED TO FINE GOOSE, MOIST, HORIZONTAL CONFIGURATIONS. (NATURAL SOILS IN PLACE)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0'	08TP802	XOOOXX	BKG
S-2	1'	08TP802	XO10XX	BKG
S-3				
S-4				
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book, Pg. 10-11

Attachments _____

SIGNATURE: _____

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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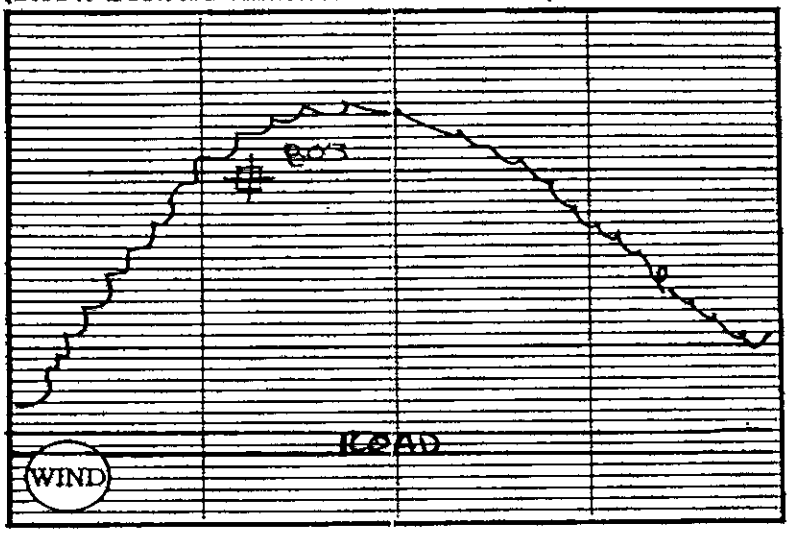
TEST PIT RECORD

SITE Site 8

TEST PIT 803 DATE 8/29 TIME 0730 END 0800

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 100' FT.

CREW MEMBERS:

1. Knapper
2. Ryan
3. Combardo
4. LE
5. Booker
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll 1 2

Exposure _____

NOTES: TEST PIT DUG IN OLD DEBRIS LAND FILL.

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4407-20 GEOT. FORMS DISK

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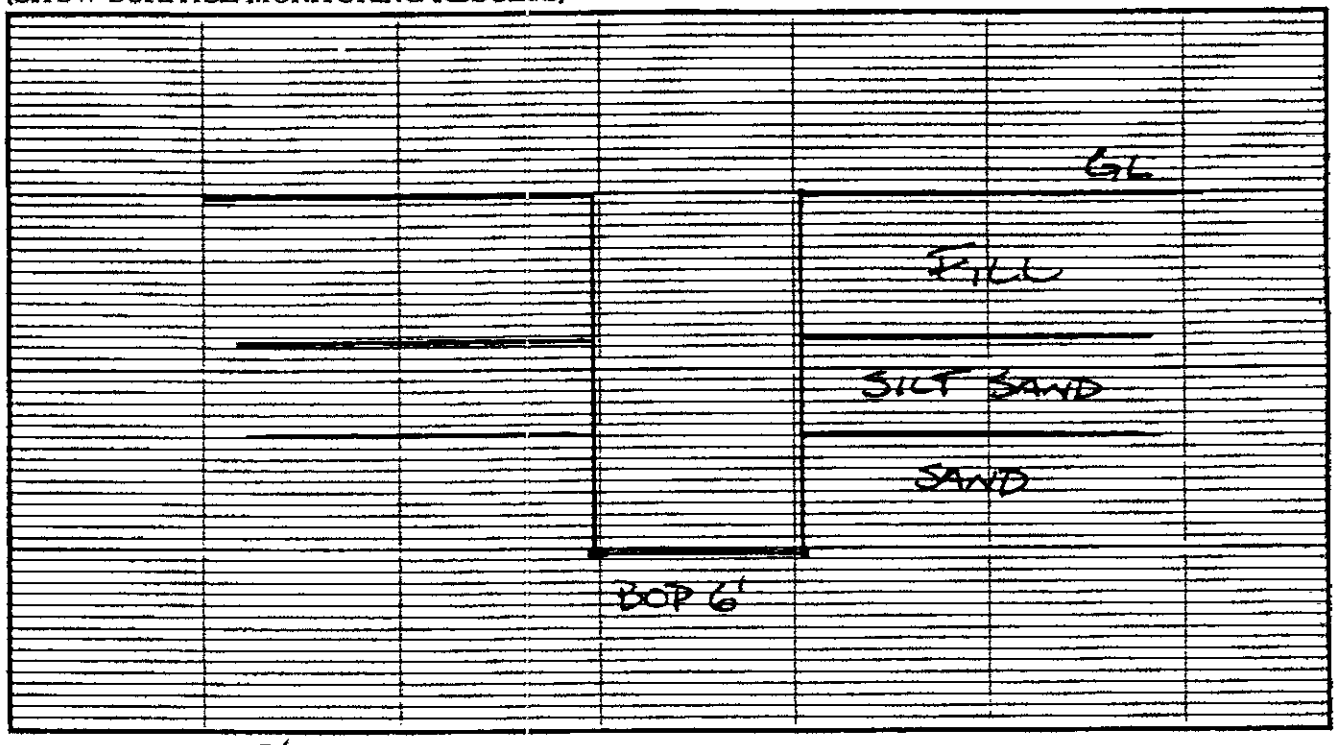
TEST PIT RECORD

Profile Along Test Pit- 803

SITE 8

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3' FT.
DEPTH (FT.)

NOTES:

0'-2.5' SANDY FILL, MED SAND BROWN, MED TO FINE, W/ ORGANIC SILT, [redacted] W/ CONCRETE & REBAR

2.5'-4' SILTY SAND, DARK BROWN, MED TO FINE W/ ORGANIC SILT, OLD "A" HORIZION. (NATURAL)

4'-6' SAND, RED/GRAY, MED SAND W/ SOME FINE, LOOSE MOIST (NATURAL SOILS)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0'	08TP803	X0001XX
S-2	2'	08TP803	X0201XX
S-3	3'	08TP803	X0301XX
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 7-8

Attachments

SIGNATURE: Karl Hoppa

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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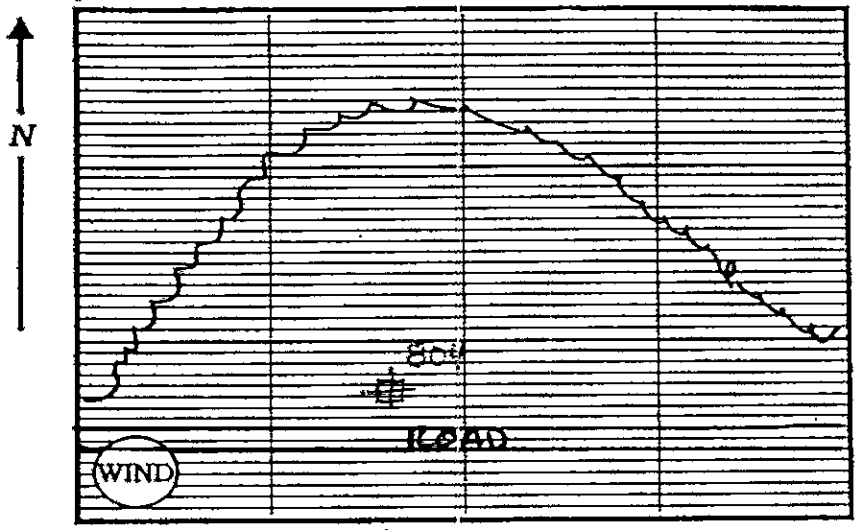
TEST PIT RECORD

SITE Site #804

TEST PIT 804 DATE 8/29/89 TIME 0830 END 0850

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 100' FT.

CREW MEMBERS:

1. Knapper
2. Ryan
3. Lombardo
4. LE
5. Booker
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll 1

Exposure _____

NOTES: TEST PIT DUG IN OLD LAND FILL SITE.

ONLY THIN SURFACE CONTAMINATION NATURAL SOIL IN PLACE BELOW SURFACE

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4807-20 GEOT. FORMS DISK

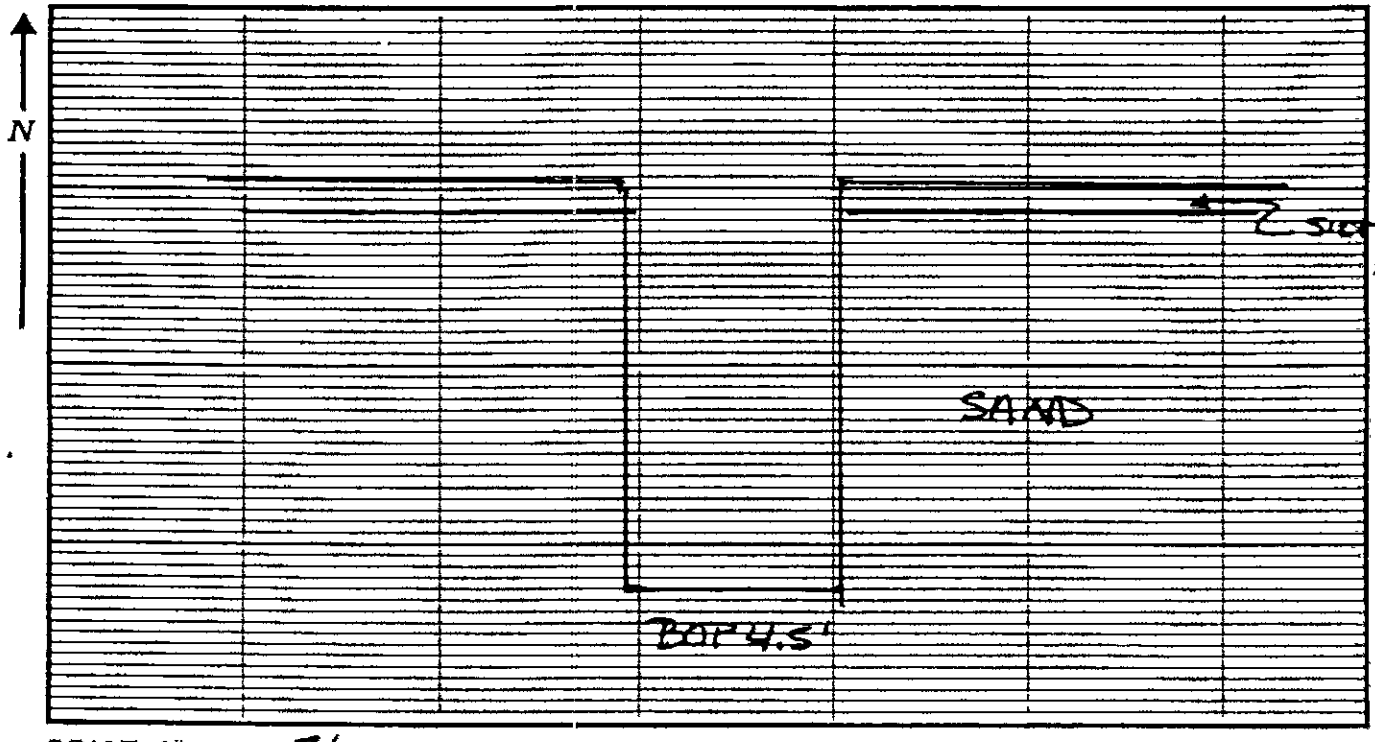
Click Here to Return to Main Index

TEST PIT RECORD

Profile Along Test Pit- TP 804

SITE 8

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2' FT.
DEPTH (FT.)

NOTES:

0'-0.5' SILTY SAND, DARK BROWN, MED to FINE, W/ ORGANIC SILT, "A" HORIZION, (NATURAL SURFACE SOILS)

0.5'-4.5' SAND, TAN, MED to FINE, LOOSE, MOIST W/ HORIZONTAL LAMINIATIONS. (NATURAL SOILS)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0' 08TP804	K0001	XX
S-2	2' 08TP804	X0201	XX
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 8-9

Attachments

SIGNATURE: Karl Kayser

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4607-20 GEOT. FORMS DISK

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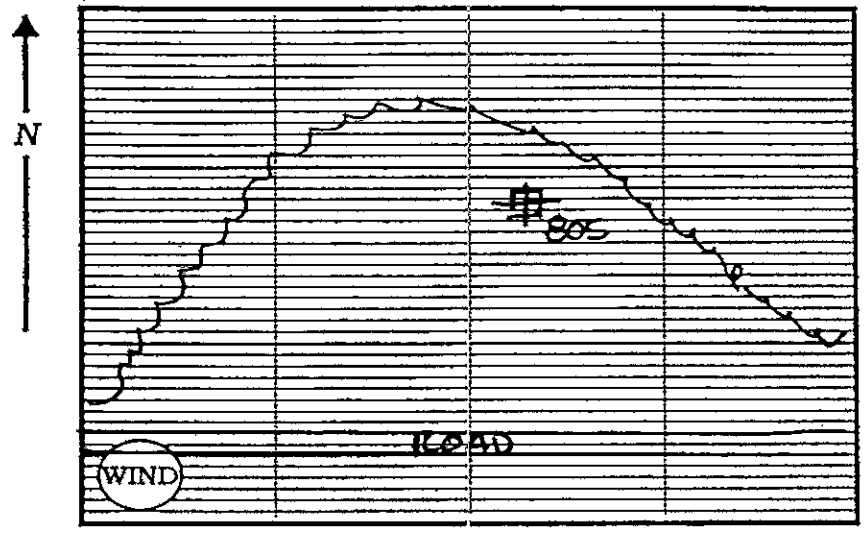
TEST PIT RECORD

SITE Site #8

TEST PIT 805 DATE 8/28/89 TIME 3:00 END 5:00

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.

CREW MEMBERS:

1. Krasper
2. Ryan
3. Lombardo
4. LE
5. Booker
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure _____

NOTES: Test Pits dug w/in old Landfill.

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4607-20 GEOT. FORMS DISK

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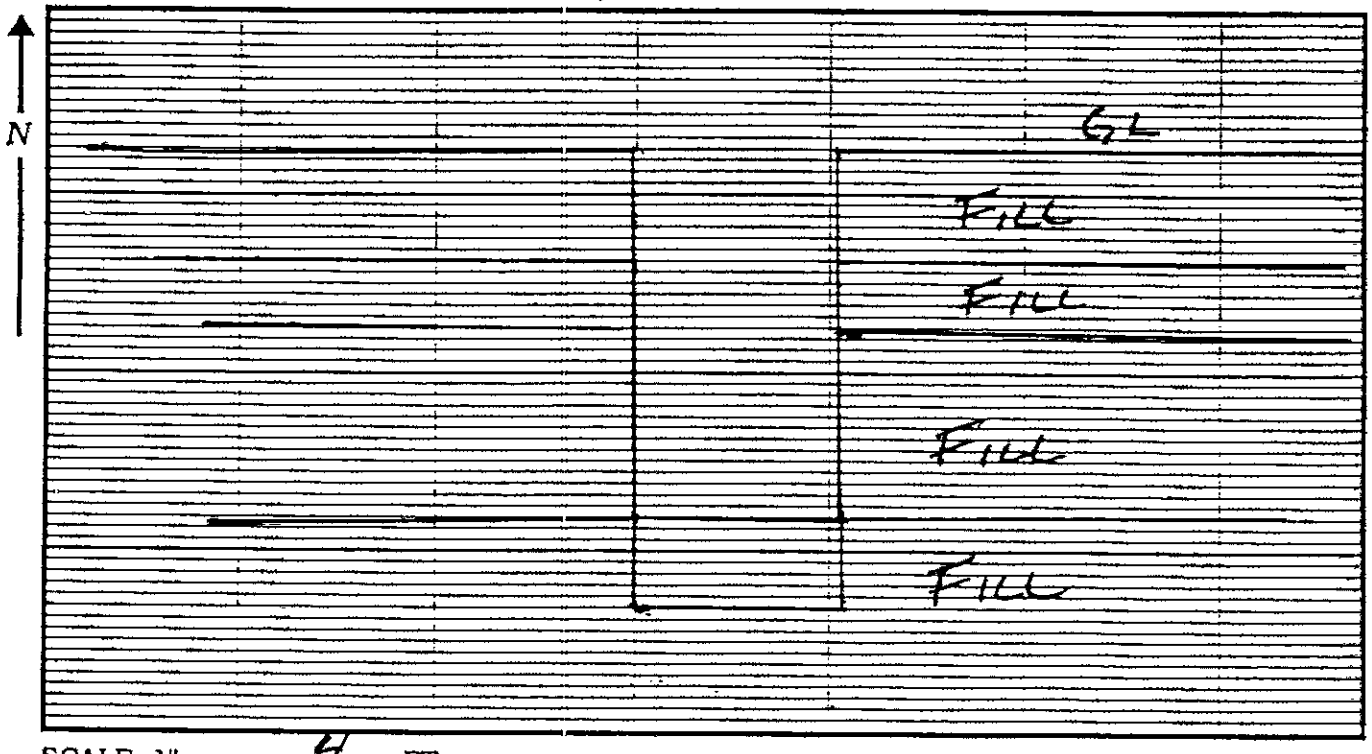
TEST PIT RECORD

Profile Along Test Pit- TP-805

SITE SITE #8

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 4 FT.
DEPTH (FT.)

NOTES:

0-2.5' FILL, D BROWN, SANDY MED to FINE, W/ORGANIC SILT W/ CEMENT FRAG.

2.5'-4' FILL, LIGHT BROWN, SAND MED to FINE, VERY LITTLE SILT, W/ ASPHALT

4'-8' FILL, DARK BROWN, SAND MED to FINE, W/ ORGANIC SILT W/ SMALL PIECES of ASPHALT

8'-10' FILL, BLACK, BURNED ASH, W/ WOOD, METAL SAND.

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0', 08TP805X001XX, BKG		
S-2	4', 08TP805X004IXX, BKG		
S-3	8', 08TP805X008IXX, BKG		
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 4,5

Attachments

SIGNATURE: Phil Kapp

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4607-20 GEOT. FORMS DISK

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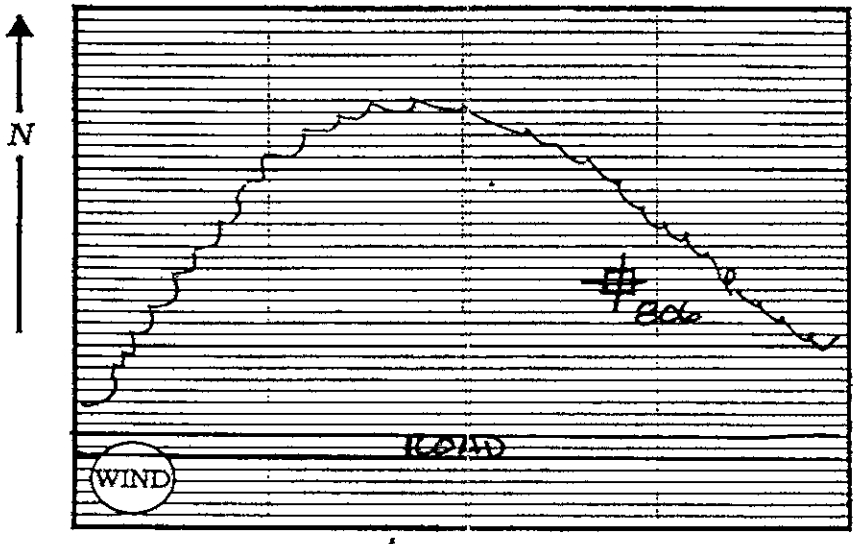
TEST PIT RECORD

SITE Site #8
TEST PIT 806 DATE 8/28/89 TIME 1200 END 3:00
COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 100' FT.

CREW MEMBERS:
1. Knapper
2. Ryan
3. Lombardo
4. LE
5. Booker
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs. Roll 7

Exposure _____

NOTES: TP DUG W/IN OD LANDFILL

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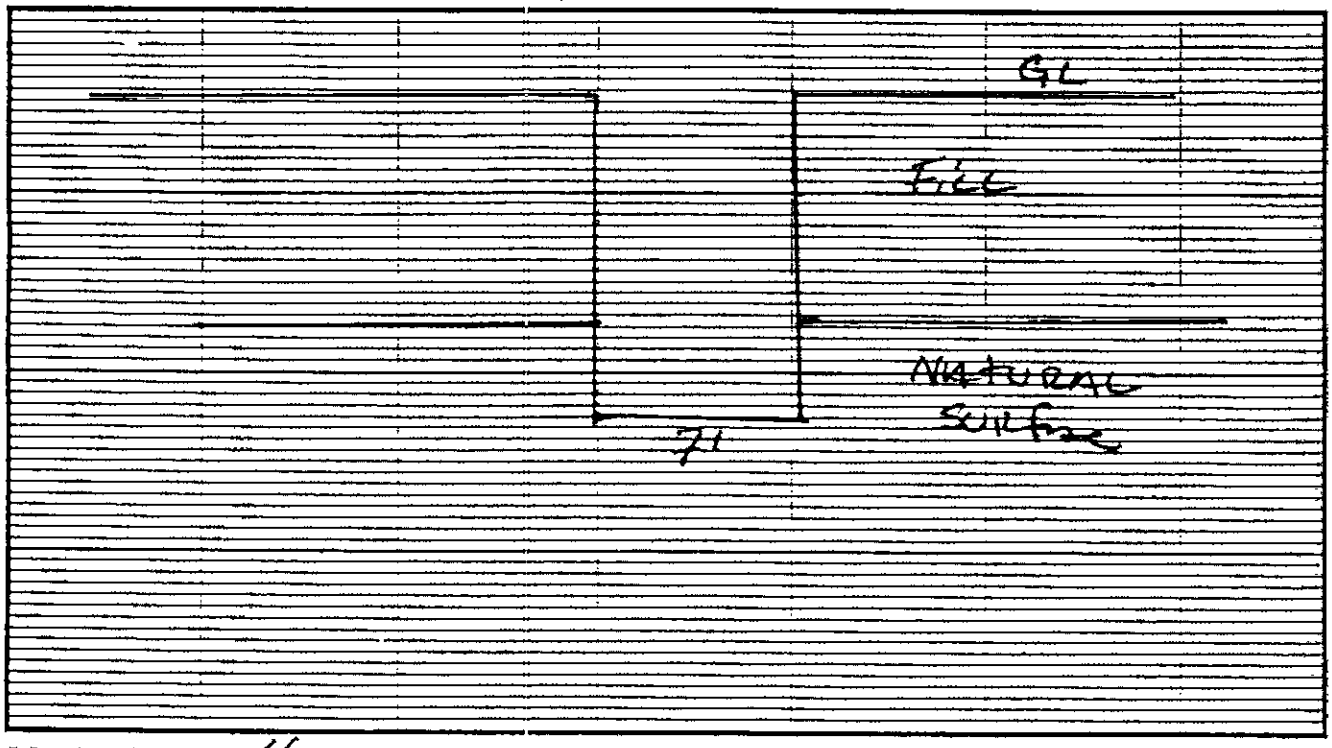
TEST PIT RECORD

Profile Along Test Pit- 806

SITE #8

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 4 FT.
DEPTH (FT.)

NOTES:

0-5' FILL, BROWN SAND MED TO FINE, DRY, LOOSE, W/ BROKEN ASPHALT TIP BKG

5-7' SILTY SAND, DARK BROWN, FINE SAND, SOME MED, TR CBS, LOOSE W/ ROOT HAIRS. (NATURAL) TIP BKG

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0', 08TP806X008IXX BKG		
S-2	3.5', 08TP806X003IXX BKG		
S-3	6.0, 08TP806X006IXX BKG		
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 2-3

Attachments

SIGNATURE: [signature]

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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TP 807

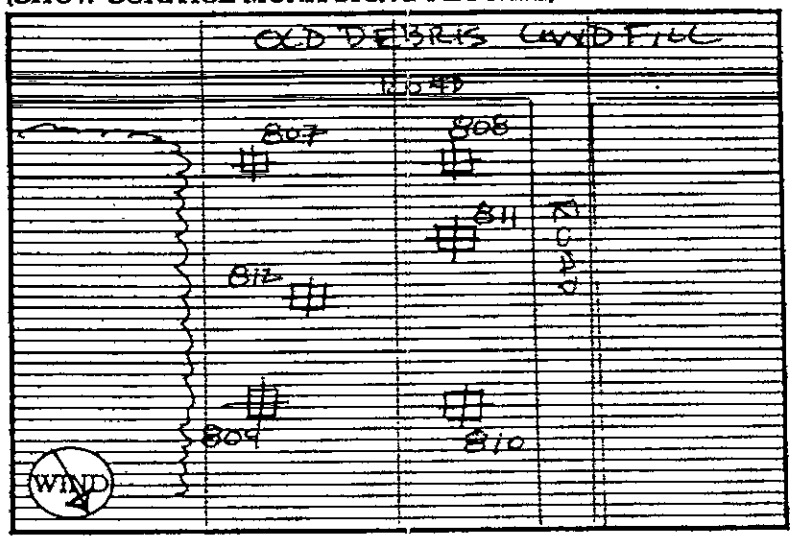
TEST PIT RECORD

SITE #8

TEST PIT 807/808/809/810/811/812 DATE 8/29/89 TIME 1000 END 1200

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 50 FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll YES

Exposure _____

NOTES:

TEST PITS 807, 808, 809, 810, 811 & 812, dug ACROSS ROAD from "OLD" DEBRIS LAND FILL. (SITE #8)

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4607-20 GEOT. FORMS DISK

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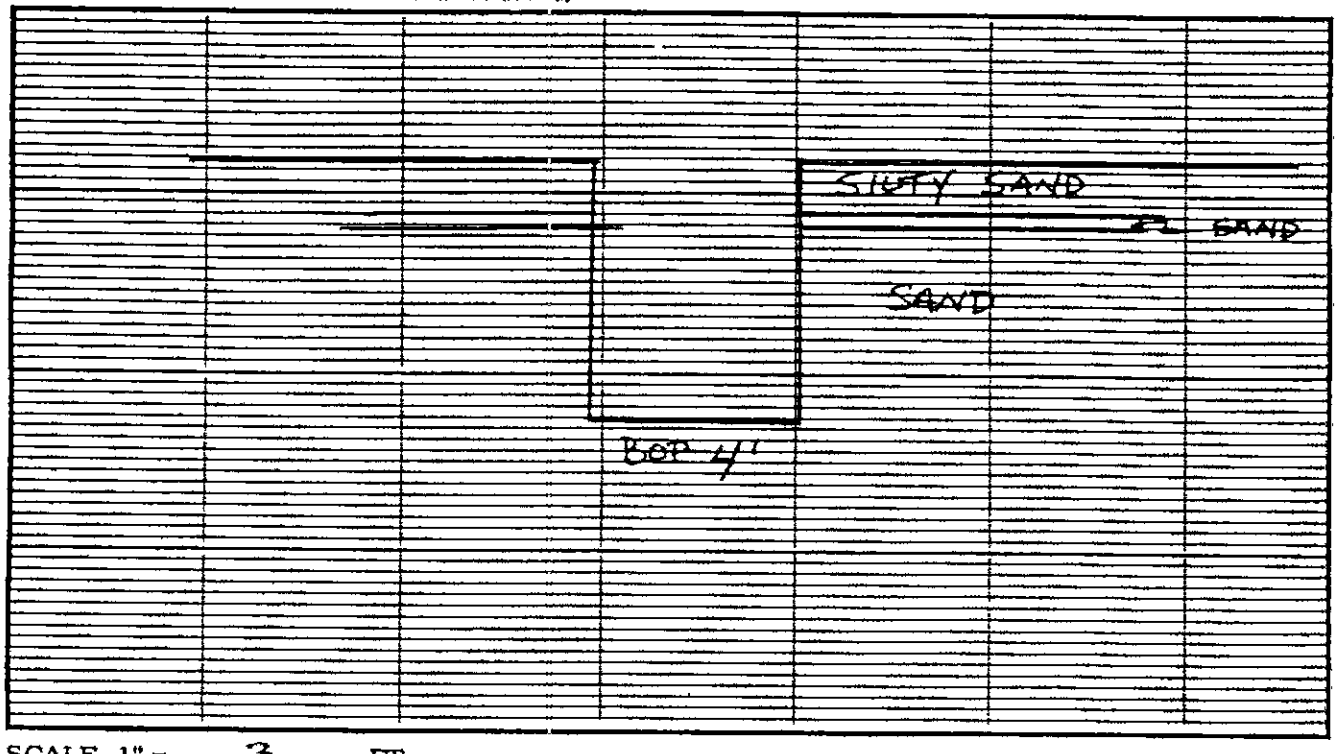
TEST PIT RECORD

Profile Along Test Pit TP - 807

SITE #8

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 3 FT.
DEPTH (FT.)

NOTES:

0-1' SILTY SAND, BLACK/BROWN, MED SAND, W/ ORGANIC SILT LOOSE, MOIST, "A" HORIZION

1'-1.2' SAND, GRAY, MED TO FINE, LOOSE, LEACHED ZONE.

1.2'-4' SAND TAN, MED TO FINE MOD DENSE, MOIST, W/ HORIZONTAL LAMINATION. (NATURAL SOILS IN PLACE)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	1'	08TP807X01	01XX BKG
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 12

Attachments

SIGNATURE: KARL KASPER

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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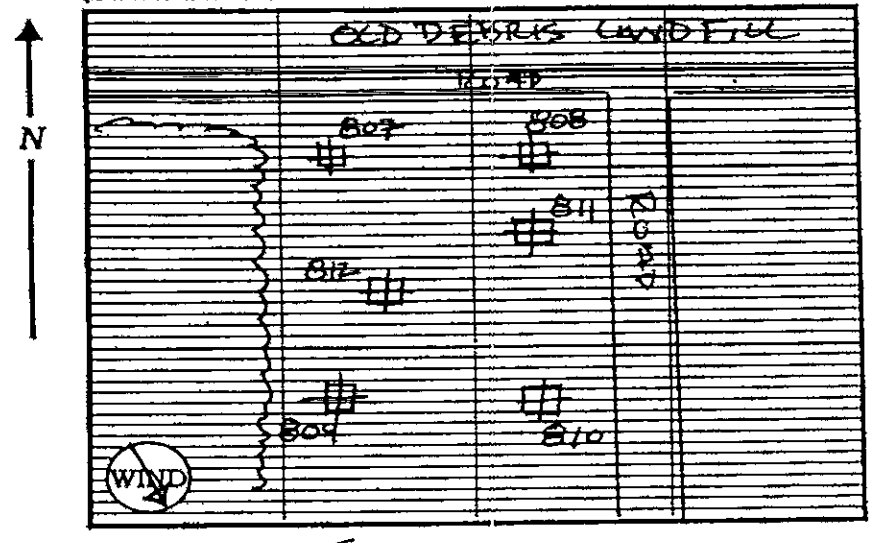
TEST PIT RECORD

SITE #8

TEST PIT 807/808/809/810/811/812 DATE 8/29/89 TIME 1000 END 1200

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 50 FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll YES

Exposure _____

NOTES:

TEST PITS 807, 808, 809, 810, 811, 812, dug across road from "OLD" DEBRIS LAND FILL. (SITE #8)

E.C. JORDAN

4807-20 GEOT. FORMS DISK

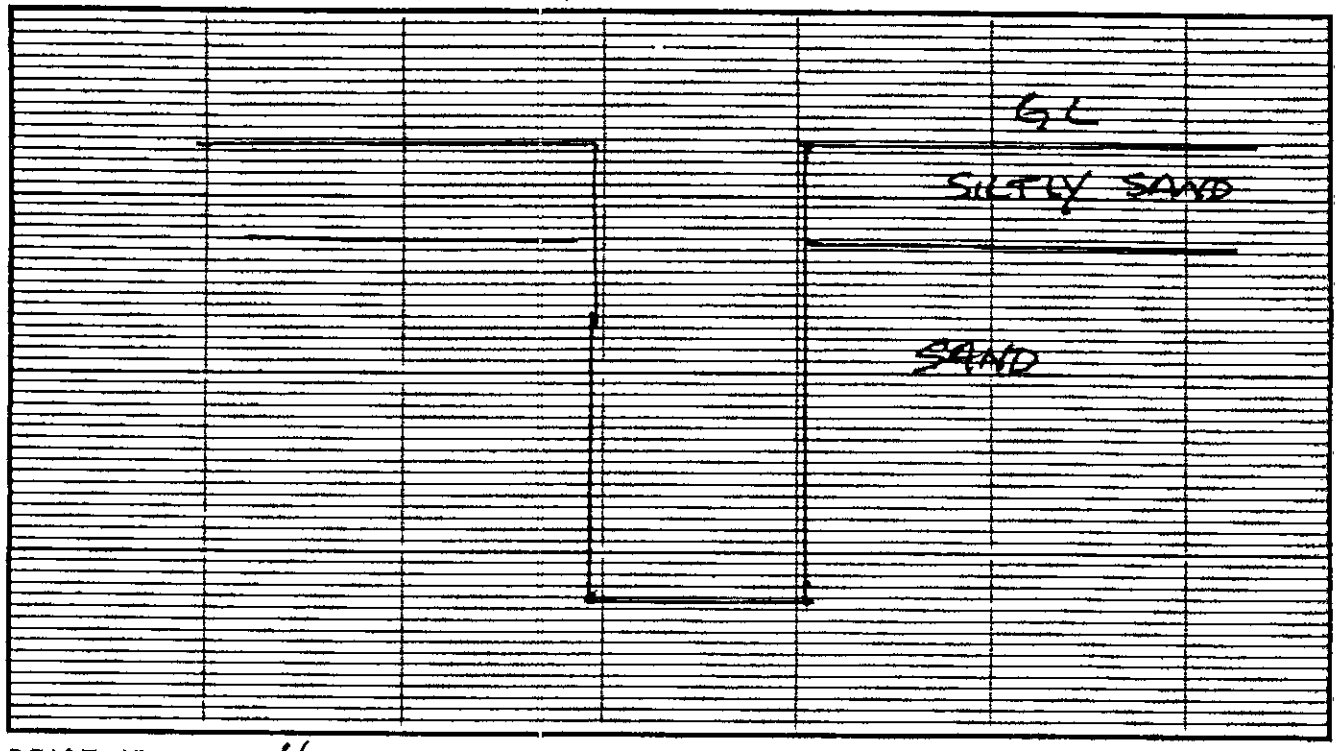
Click Here to Return to Main Index

TEST PIT RECORD

Profile Along Test Pit- 808

SITE SITE 8

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 1' FT.
DEPTH (FT.)

NOTES:

0'-0.8' SILTY SAND

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	1' #08TPB08X0101XX		BKG
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 13

Attachments

SIGNATURE:

E.C. JORDAN

4607-20 GEOT. FORMS DISK

Click Here to Return to Main Index

TP 809

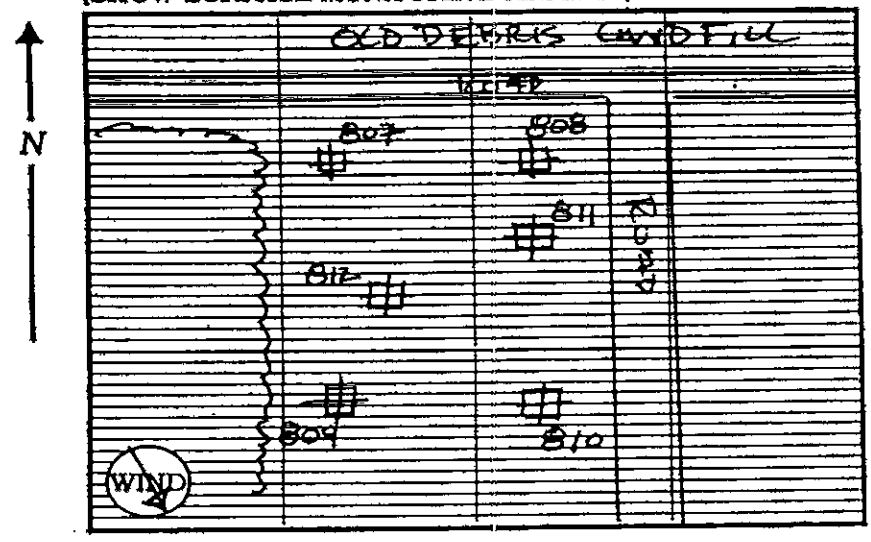
TEST PIT RECORD

SITE #8

TEST PIT 807/808/809/810/811/812 DATE 8/29/89 TIME 1000 END 1200

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 50 FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll YES

Exposure _____

NOTES:

TEST PITS 807, 808, 809, 810, 811 & 812, dug across road from "OLD" debris LAND FILL. (site #8)

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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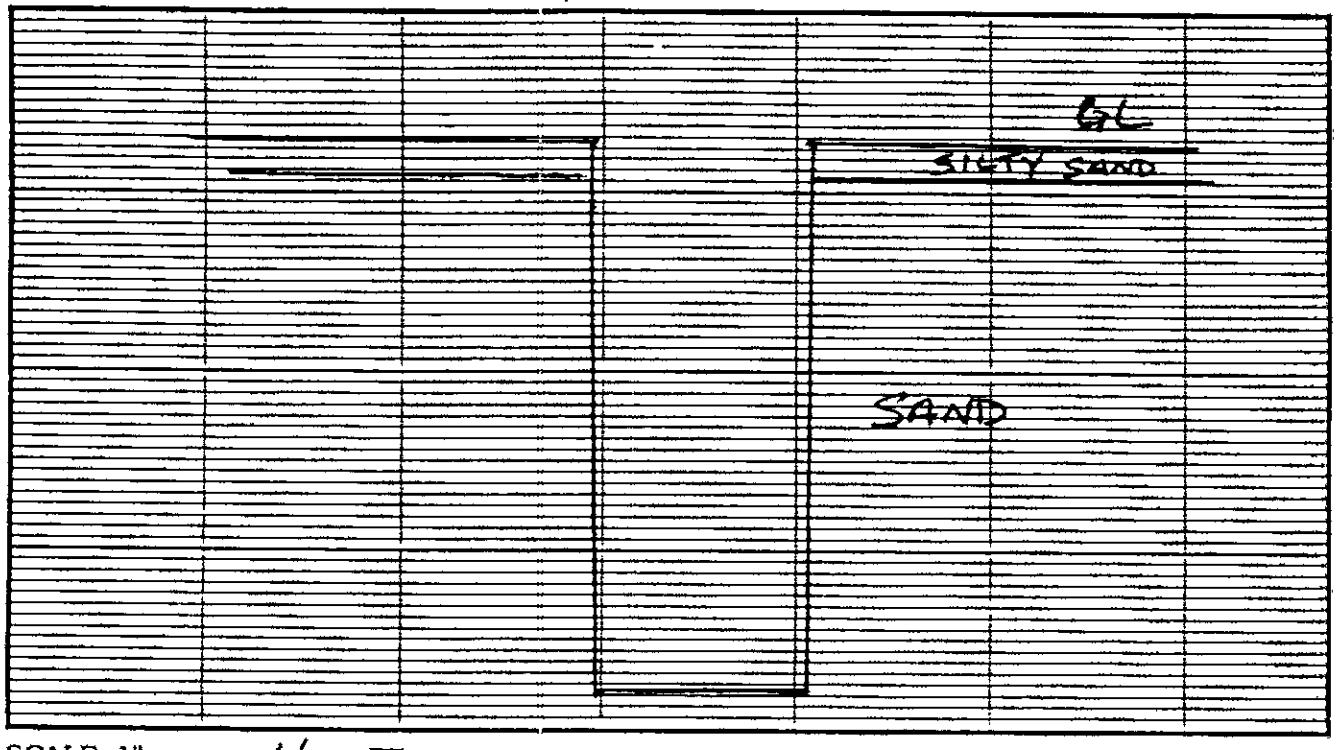
TEST PIT RECORD

Profile Along Test Pit- TP 809

SITE #8

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 1' FT.
DEPTH (FT.)

NOTES:

0-0.3' SILTY SAND, Black/Brown MED SAND, & ORGANIC SILT LOOSE, DRY, (NATURAL "A" HORIZON)

0.3'-3' SAND, TAN, MED TO FINE GRAINED, MOD DENSE, MOIST, MASSIVE (NATURAL)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	1'	OBTP809X010\XX	
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. _____

Attachments _____

SIGNATURE: Karl Kryn

E.C. JORDAN

4407-20 GEOT. FORMS DISK

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TP-810

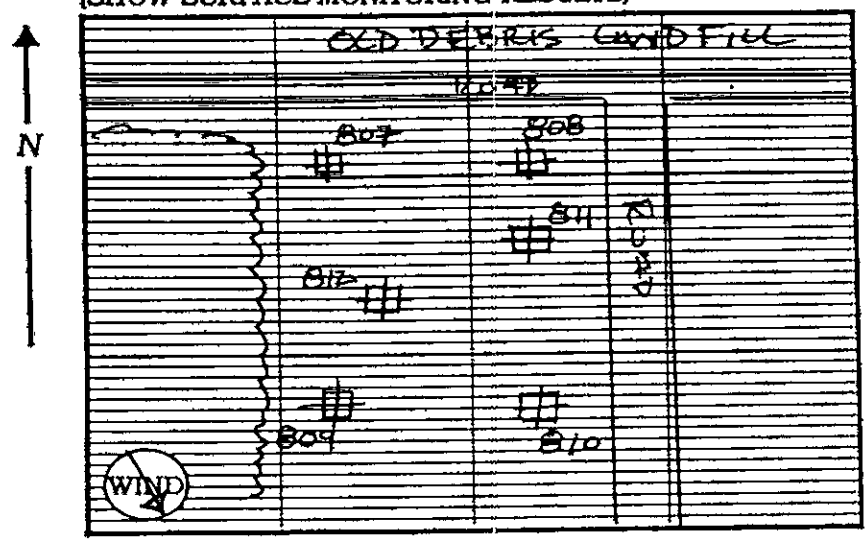
TEST PIT RECORD

SITE #8

TEST PIT 807/808/809/810/811/812 DATE 8/29/89 TIME 1000 END 1200

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 50 FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Ⓨ	N
Explosive Gas	Ⓨ	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll YES

Exposure _____

NOTES:

TEST PITS 807, 808, 809, 810, 811, 812, dug ACROSS ROAD from "OLD" DEBRIS LAND FILL. (SITE #8)

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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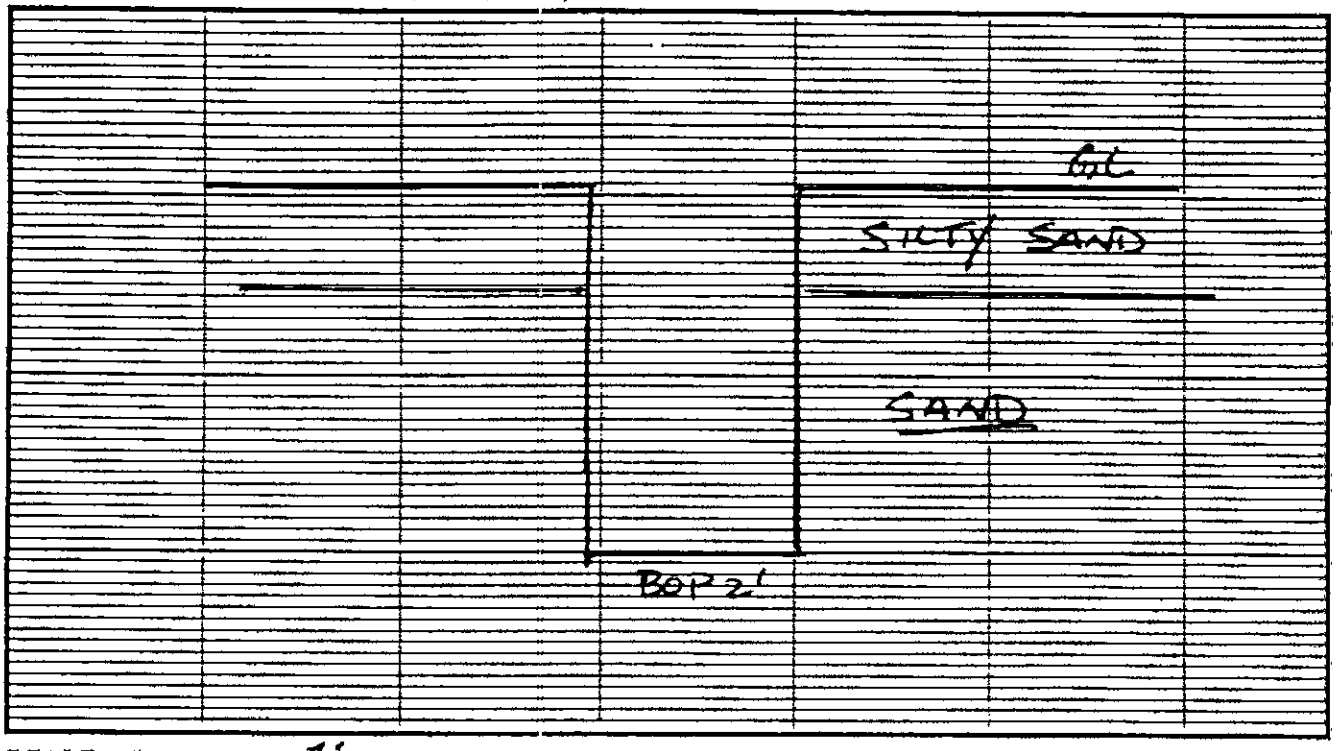
TEST PIT RECORD

Profile Along Test Pit- TP-810

SITE 48

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 1' FT.
DEPTH (FT.)

NOTES:

0-0.5' SILTY SAND BLACK/BROWN MED SAND, W/ SOME ORGANIC SILT, (LOOSE) MOIST (NATURAL SOILS IN PLACE)

0.5'-2' SAND, TAN, MED to FINE MOD DENSE, MOIST, W/ ORANGE MOTTLING, W/ HORIZONTAL LAMINATIONS (NATURAL SOILS IN PLACE)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	1'	OBTP810XC101XX	BKR
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. _____

Attachments _____

SIGNATURE: Karl Hagen

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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TP 811

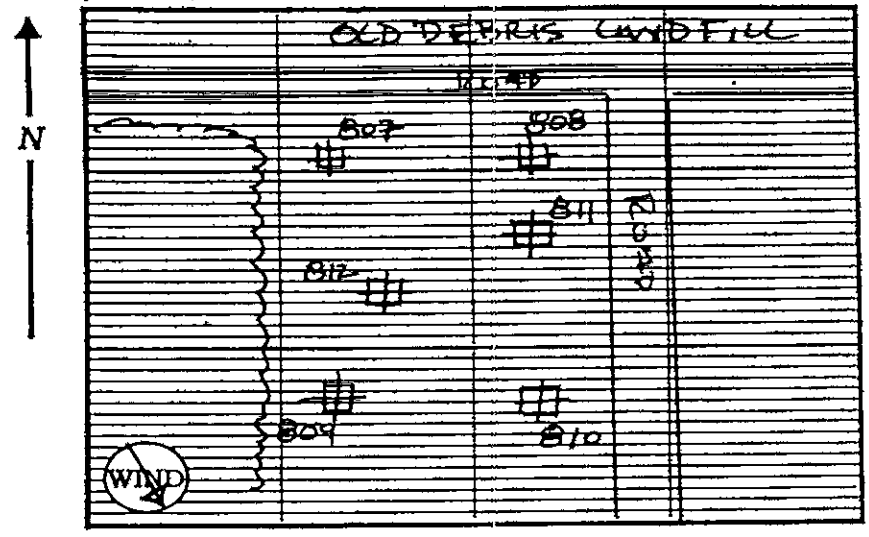
TEST PIT RECORD

SITE # 8

TEST PIT 807/808/809/810/811/812 DATE 8/29/89 TIME 1000 END 1200

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 50 FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll YES

Exposure _____

NOTES:

TEST PITS 807, 808, 809, 810, 811, 812, dug across road from "OLD" DEBRIS LAND FILL. (SITE #8)

E.C. JORDAN

4607-20 GEOT. FORMS DISK

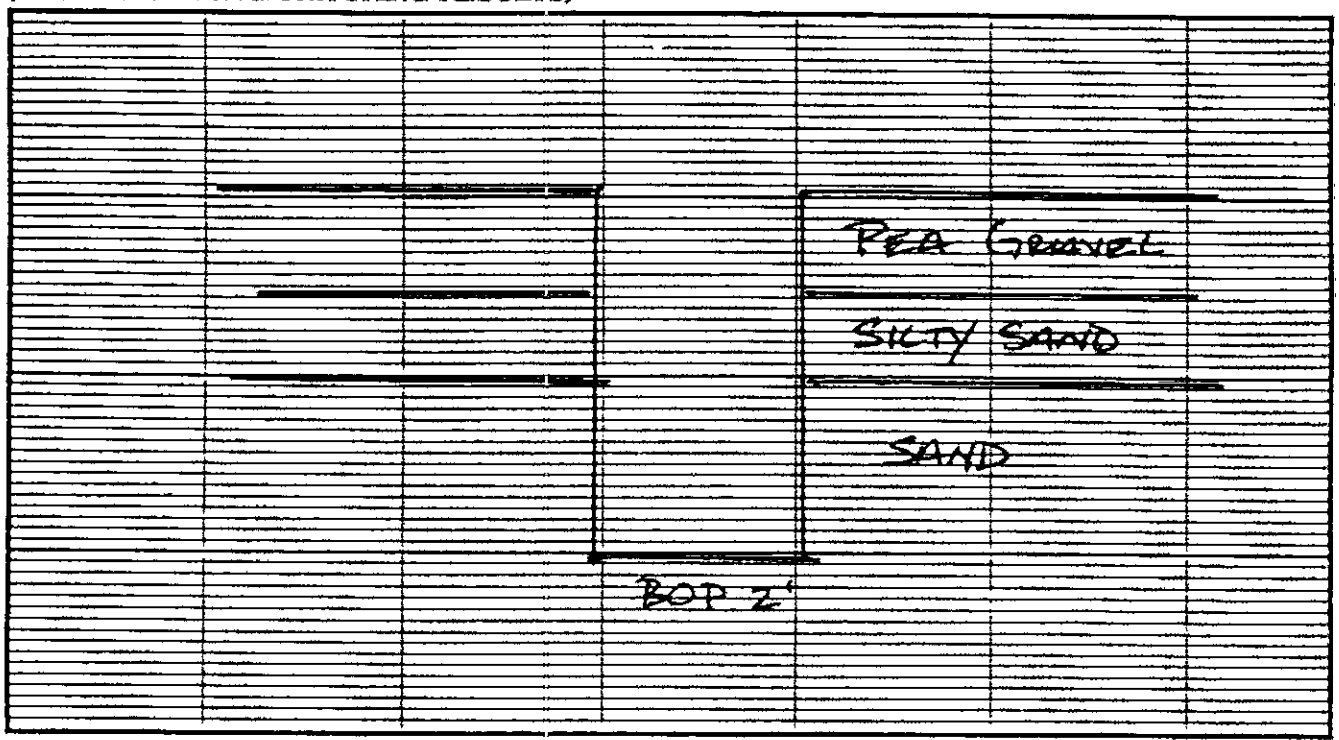
Click Here to Return to Main Index

TEST PIT RECORD

Profile Along Test Pit- TP 811

SITE #8

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 1' FT.
DEPTH (FT.)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	NO SAMPLE TAKEN		
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

NOTES:

0-0.5' PEA GRAVEL

0.5'-1' SILTY SAND Black/Brown "A" HORIZON, MED SAND w/ ORGANIC SILT,

1-2' SAND, TAN, MED TO FINE, MOD DENSE, MASSIVE

NATURAL SOILS IN PLACE

REFERENCE: Field Book, Pg. _____

Attachments _____

SIGNATURE: Karl Kopp

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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TP 812

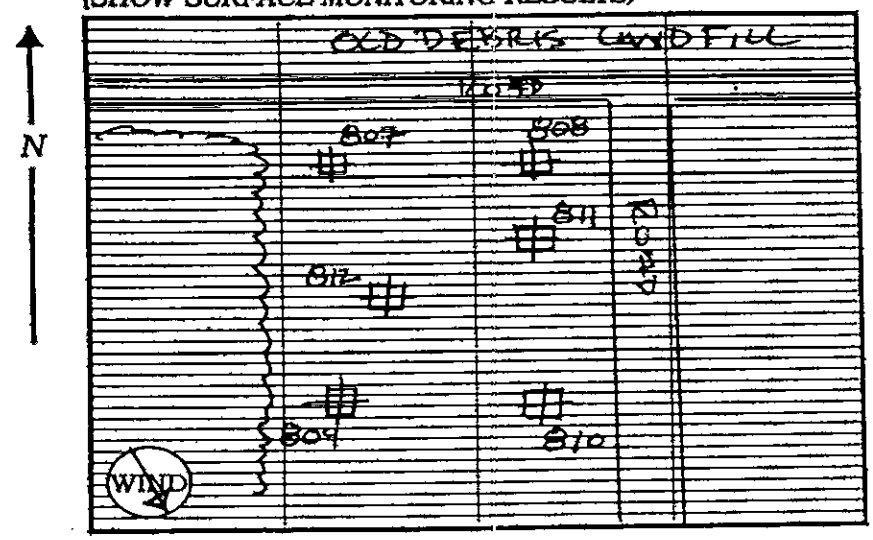
TEST PIT RECORD

SITE #8

TEST PIT 807/808/809/810/811/812 DATE 8/29/89 TIME 1000 END 1200

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 50 FT.

CREW MEMBERS:

1. KASPER
2. RYAN
3. LOMBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	Y	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll YES

Exposure _____

NOTES:

TEST PITS 807, 808, 809, 810, 811, 812, dug across road from "OLD" debris LANDFILL. (SITE #8)

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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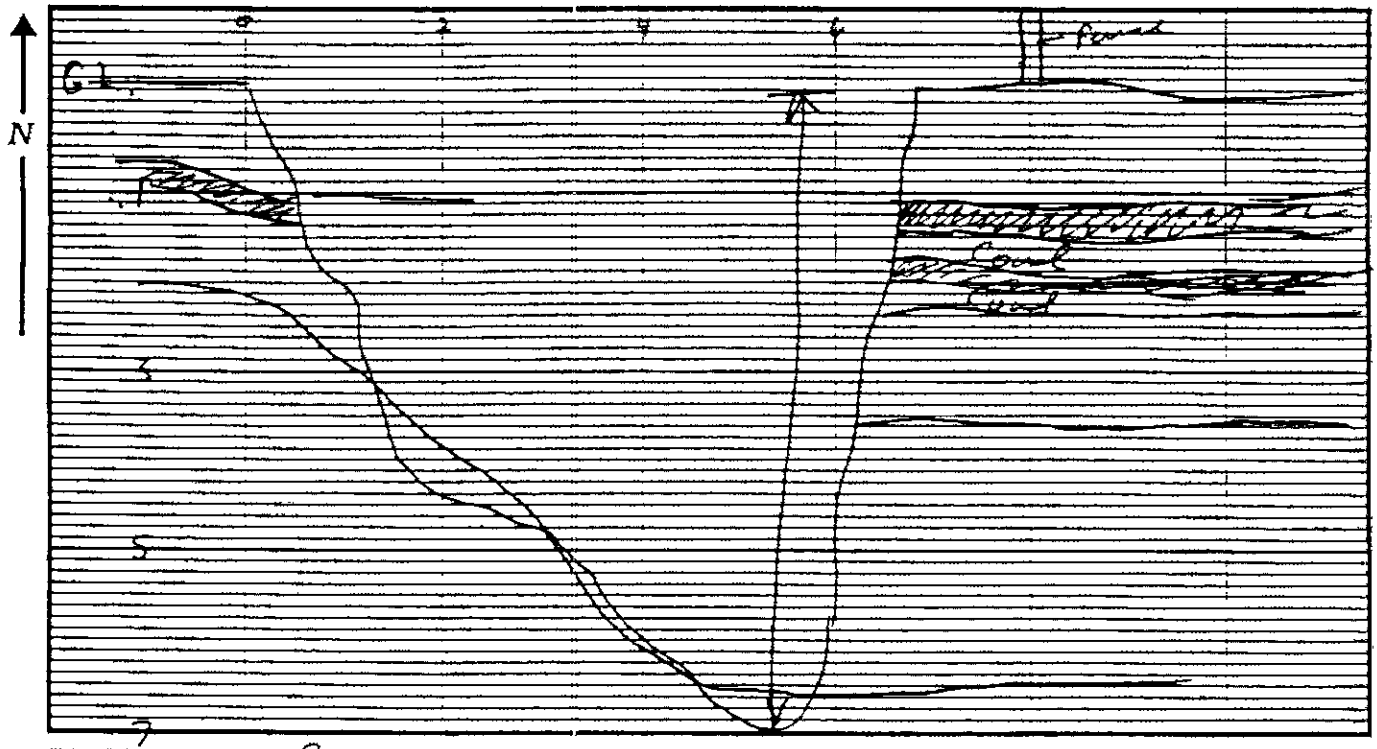
TEST PIT RECORD

Profile Along Test Pit- 1301

SITE 13

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2 FT.
DEPTH (FT.) 7.0'

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0-1.0	137PX01X01 01XX	TIP BKG.
S-2	2-4.0	137PX01X04 01XX	
S-3	4-6.0	137PX01X06 01XX	
S-4			
S-5			
S-6			
S-7			
S-8			

NOTES:

0-1.2 Brown-lite brown slightly silty f-m sand w/some c sand and trace gravel. (Fill)

1.2-1.8 Brown f-m sand w/some coarse sand. (Fill)

1.8-2.2 Black coal dust. (Fill)
2.2-2.4 Reddish brown (Orange) med sand.
2.4-2.6 Black coal dust. (Fill)
2.6-3.8 lite reddish brown f-m sand. (Fill)

3.8-6.0 Brown to slightly reddish brown f-m sand. (Natural soil?)
6.0-7.0 lite brown to light olive fine-med fine sand Natural Soil

7.0 Bottom of test pit. No G.W. encountered

REFERENCE: Field Book, Pg. 70

Attachments

SIGNATURE: Jerry Randolph
E.C. JORDAN

4607-20 GEOT. FORMS DISK

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BNAS

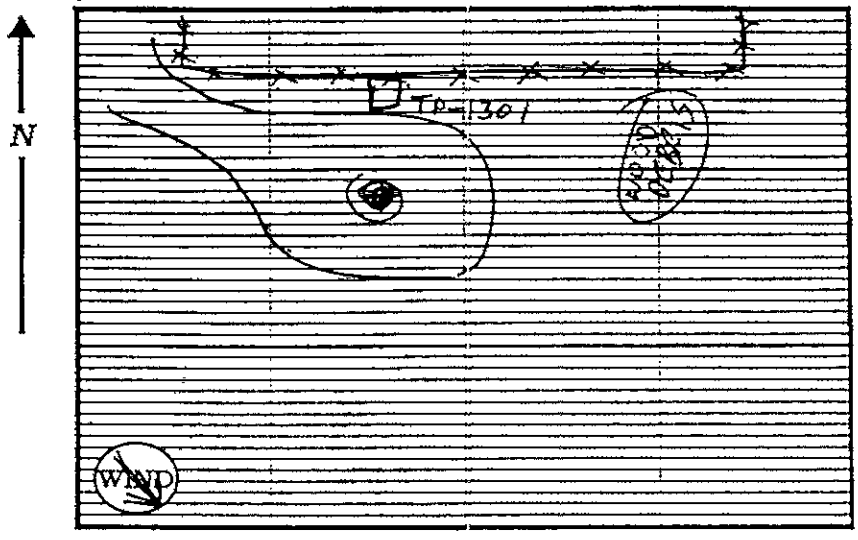
TEST PIT RECORD

SITE 13

TEST PIT 1301 DATE 9-5-89 TIME 1250 END 1340

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.

CREW MEMBERS:

1. RYAN
2. RAWCLIFFE
3. LE
4. Booker
5. LOMBARDO
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll ✓

Exposure 18?

NOTES: TP-1301 is located right next to fence line near gate. Some coal + coal dust encountered near edge of excavation, where old waste oil tanks were removed.

E.C. JORDAN

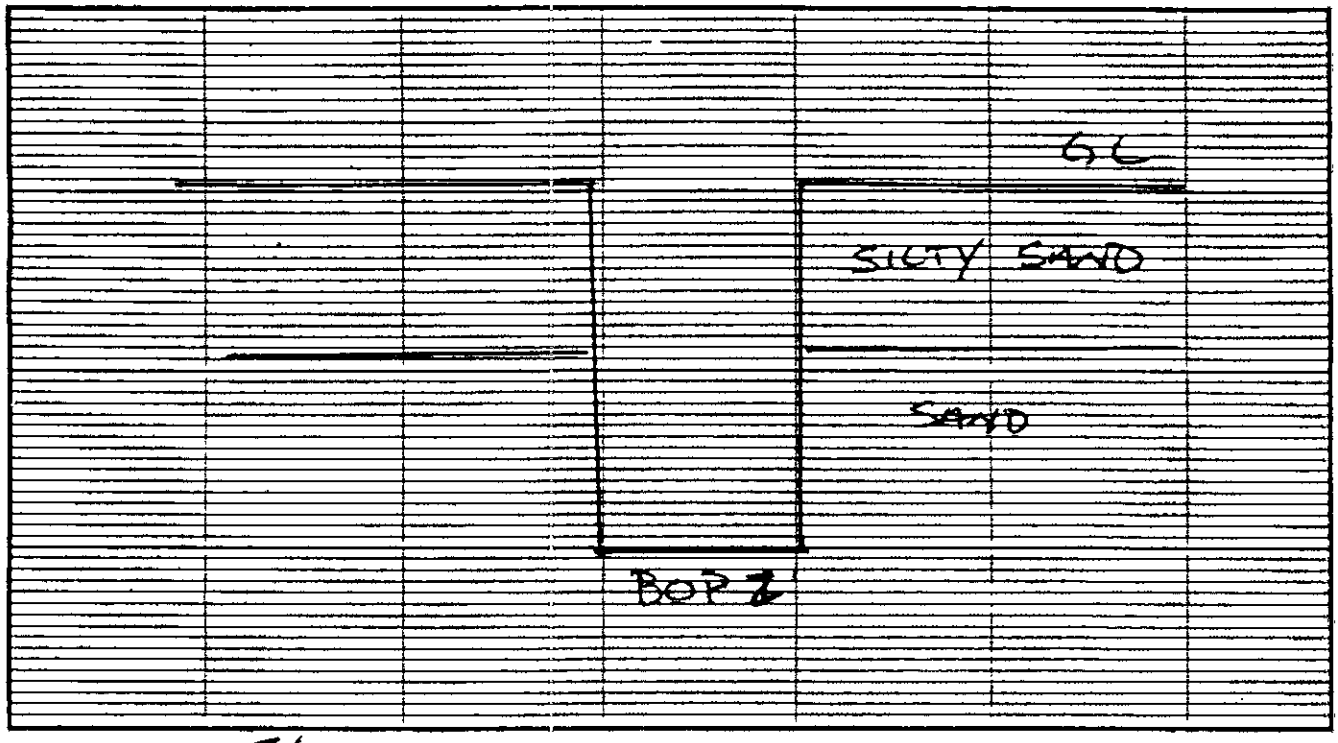
4607-20 GEOT. FORMS DISK

TEST PIT RECORD

Profile Along Test Pit- TP 812

SITE E

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2' FT.
DEPTH (FT.)

NOTES:

0-0.8' SILTY SAND, Black/Brown MED SAND, w/ ORGANIC SILT & ROOT HAIRS, LOOSE, MOIST.

0.8'-2' SAND, TAN, MED to FINE, MOD DENSE, Some HORIZONTAL LAMINATIONS, MOIST.
(NATURAL SOILS IN PLACE)

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	NO SAMPLES		TAKEN
S-2			
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. _____

Attachments _____

SIGNATURE: K L Kaya

B.C. JORDAN

4807-20 GEOT. FORMS DISK

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BNAS

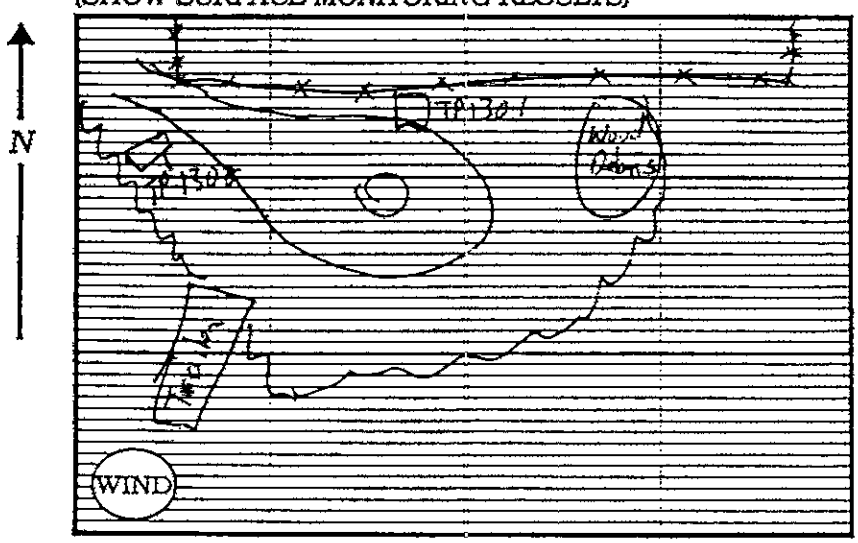
TEST PIT RECORD

SITE BMOC 13

TEST PIT 1302 DATE 9-5-89 TIME 1340 END 1430

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.

NOTES: located on edge of dirt turnaround and edge of wetline near stub of metal + PVC culverts. Up to 3.0' of fill material, some iron staining, no odors or visible contamination

CREW MEMBERS:

1. RYAN
2. RAWCLIFFE
3. LE
4. LOMBARDO
5. BROOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll ✓

Exposure 14?

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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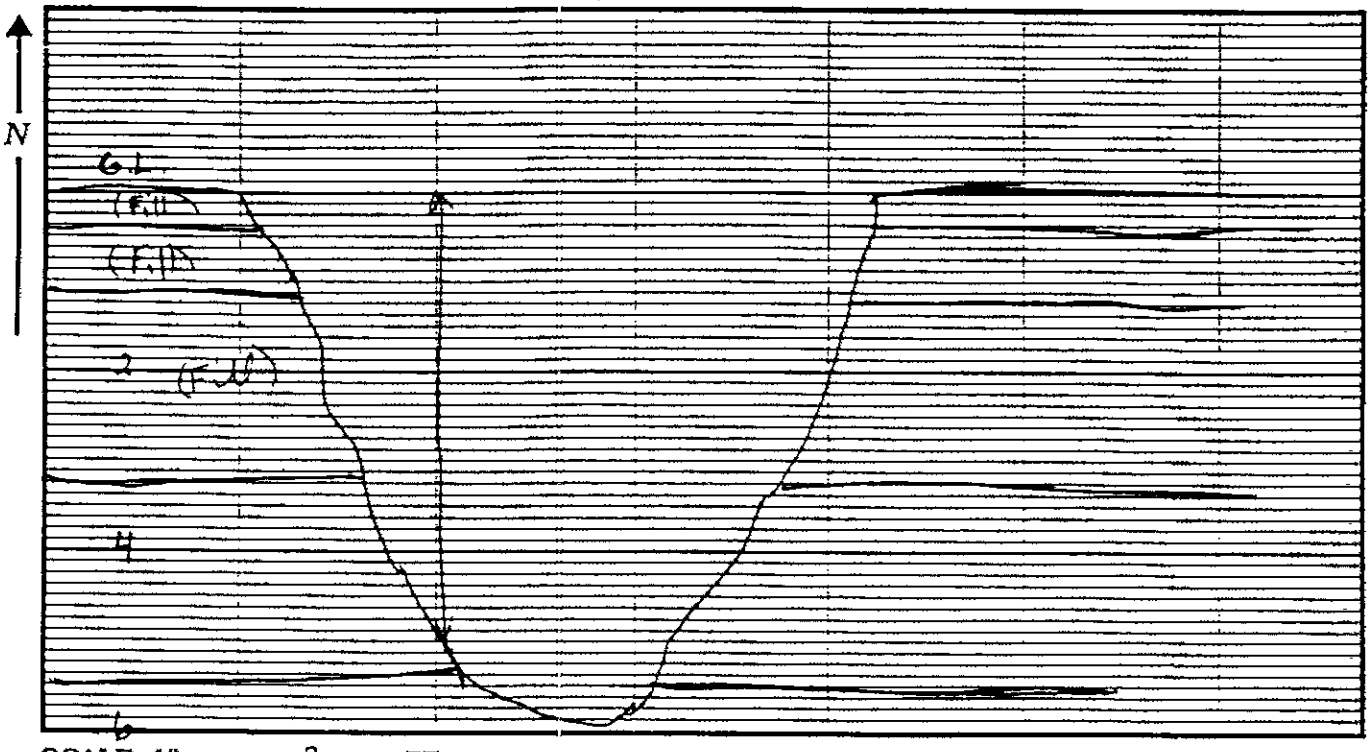
TEST PIT RECORD

Profile Along Test Pit- 1302

SITE Owos #13

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2 FT.
DEPTH (FT.)

NOTES: 0-0.5 - light brown f-med sand w/ trace of coarse sand and gravel. (Fill)
0.5-1.1 light reddish brown med sand. (Fill)
1.1-3.2 Brown to slightly reddish brown medium sand. (Fill)
3.2-5.5 light olive brown silty f-med sand trace of mottling. Firm, damp.
5.5-6.0 light brown to light olive brown medium sand.
6.0' Bottom of Test pit. No GW encountered

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0-1.0	13TP02X001XX	
S-2	2.4.0	13TP02X004XX	
S-3	4.0-6.0	13TP02X006XX	
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. ~~20~~ BVAS Test Pits 1489, 70

Attachments

SIGNATURE: Jerry Rawcliffe

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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BNAS

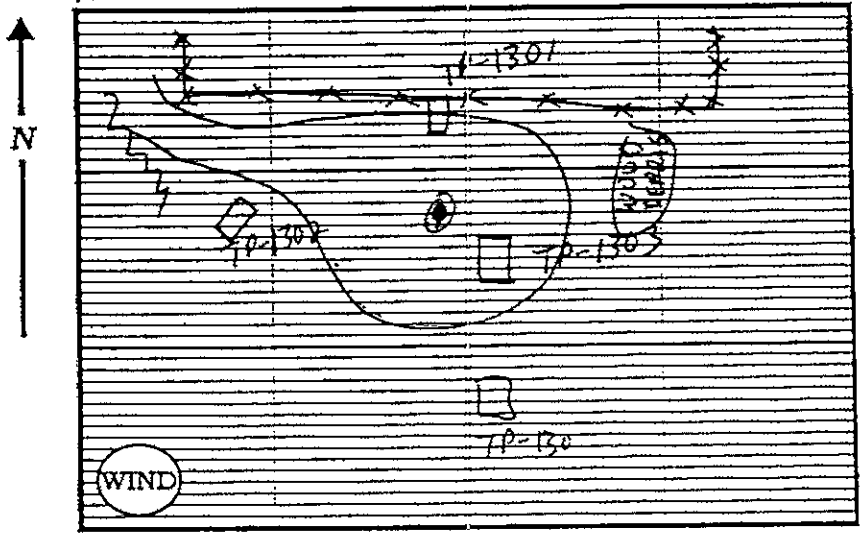
TEST PIT RECORD

SITE DMOC 13

TEST PIT 1303 DATE 9-5-89 TIME 1430 END 1450 1500

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.

NOTES: located near well in middle of dirt turnaround. Through some RH. Strong petroleum odor from soils. No GW. encountered. No readings with tip above background.

Calm sunny 60's.

CREW MEMBERS:

1. RYAN
2. RAWCLIFFE
3. LOMBARDO
4. LE
5. BROOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll ✓

Exposure 20?

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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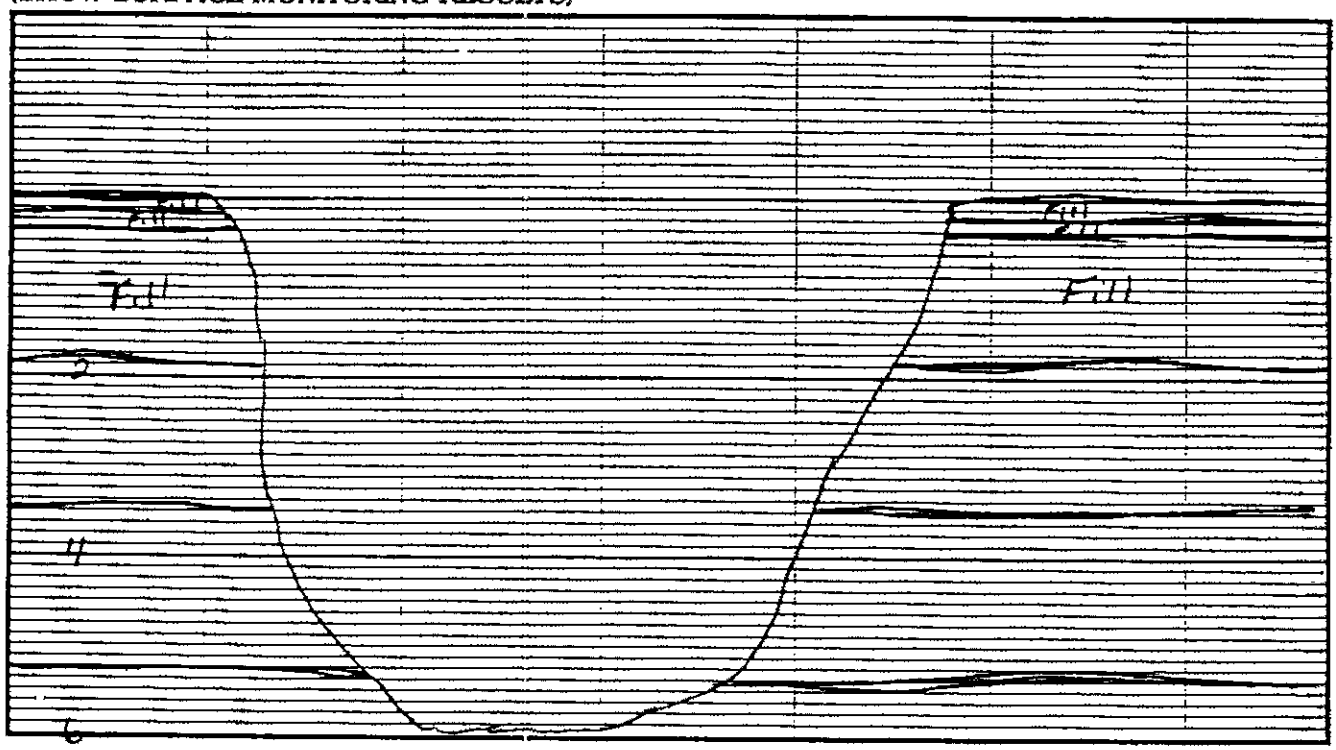
TEST PIT RECORD

Profile Along Test Pit- 1303

SITE DMOC #13

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.
DEPTH (FT.)

NOTES: 0-0.3 higher gravy to light brown f-m sand with trace of silt and coarse sand. (Fill)
0.3-0.5 Black to d. brown f med sand w/ some fine sand. (Fill)
0.5-1.8 Reddish brown to light reddish brown medium sand with a trace of fine sand. Fill.

1.8-3.6 Olive brown to gray brown medium sand w/some fine sand and a trace of silt. Damp.

3.6-5.3 Olive to olive gray f-med sand with some silt. Moist

5.3-6.0 Gray & silty fine sand w/some medium sand. Moist.

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM	
S-1	0-1.0	137P03X0001XX		TIP BKG.
S-2	2-4.0	137P03X0401XX		
S-3	4.0-6.0	137P03X0401XX		
S-4				
S-5				
S-6				
S-7				
S-8				

REFERENCE: Field Book. Pg. BNL Test Pitting 1989 page 71.

Attachments _____

SIGNATURE: Jerry Rawdzilla

E.C. JORDAN

4607-20 GEOT. FORMS CISK

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BNAS

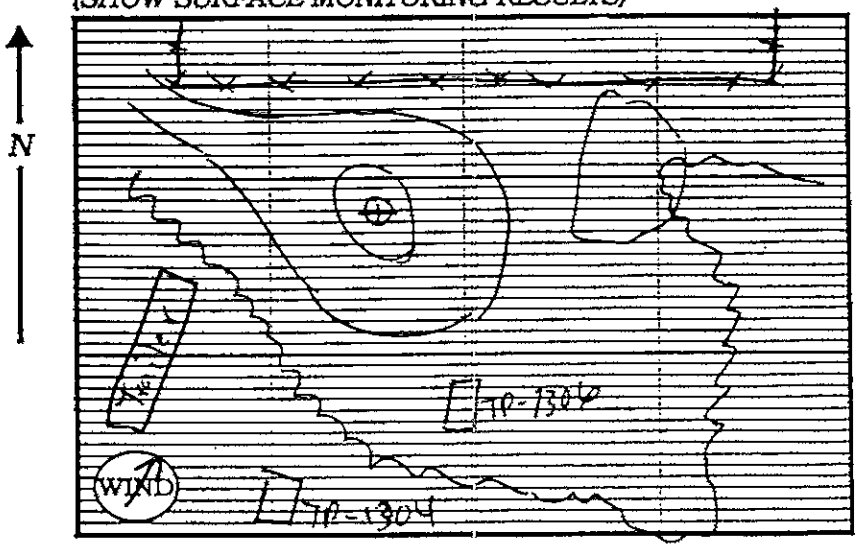
TEST PIT RECORD

SITE #13

TEST PIT 1304 DATE 9-5-89 TIME 0950 END 1010

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = ~ FT.

NOTES: In wooded area behind trailer at foot of 18" diam pine. Looks like virgin soil. Small bulldozed pile of debris near pit. Appears to be all natural soil no visable contamination or odors.

CREW MEMBERS:

1. RYAN
2. RAWCLIFFE
3. LOBARDO
4. LE
5. BOOKER
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	Y	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll ✓

Exposure 16?

E.C. JORDAN

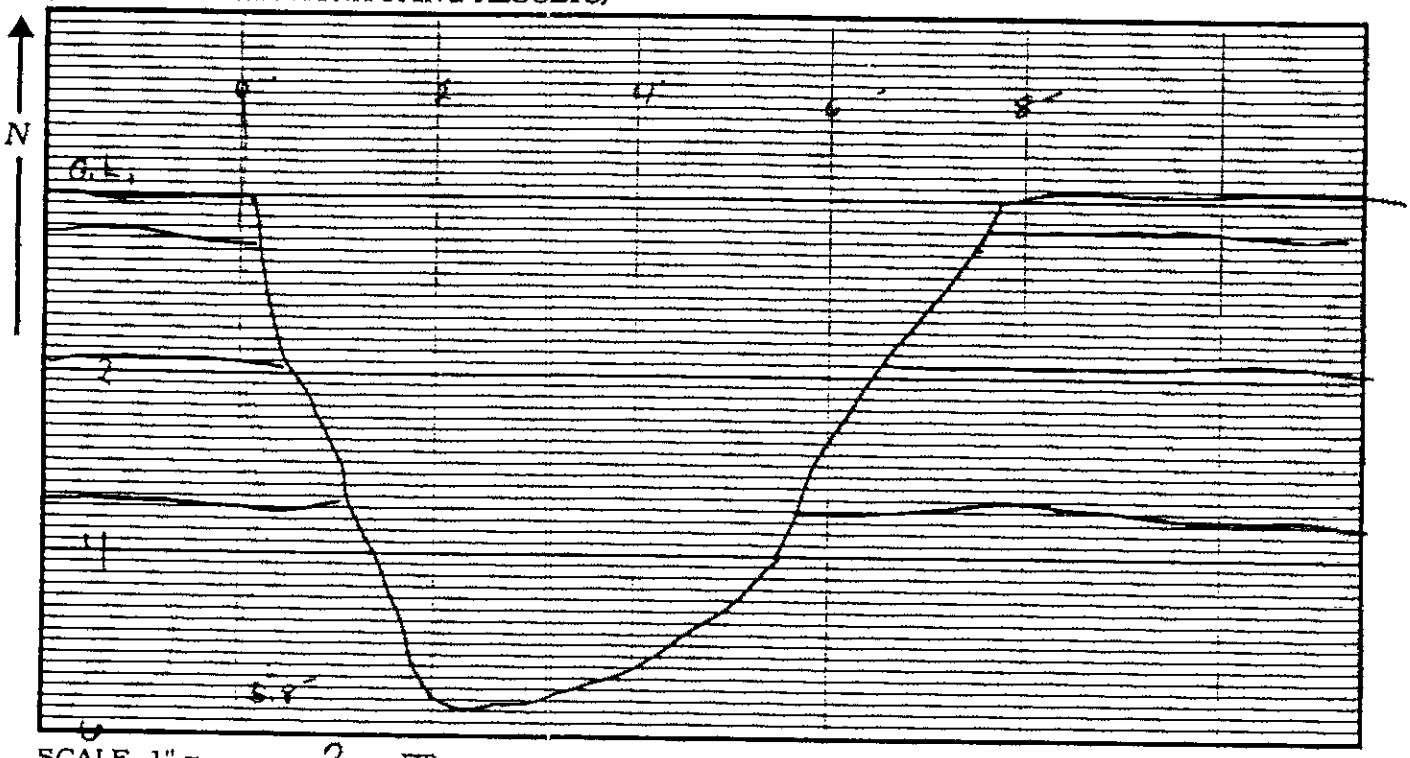
4607-20 GEOT. FORMS DISK

TEST PIT RECORD

Profile Along Test Pit- 1304

SITE 13

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2 FT.
DEPTH (FT.) 5.8'

NOTES: 0 - 0.5 Dk. brown silty organic debris, leaves pine needles etc. Natural Soil.
0.5 - 1.8 light reddish brown silty f. sand w/some med sand. Dry, loose.
1.8 - 3.4 light brown silty fine sand w/trace of medium sand. Dry, firm to dense. Roots extend as far as 3.0'
3.4 - 5.8 light brown to gray silty fine sand. Poss slight mottling. Dry, firm to dense.
5.8 Bottom of test pit.

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0 - 1.0	13TP01	4x001xx
S-2	2 - 4.0	13TP04x021xx	
S-3			
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 69

Attachments

SIGNATURE: Jerry Rauch

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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BNAS

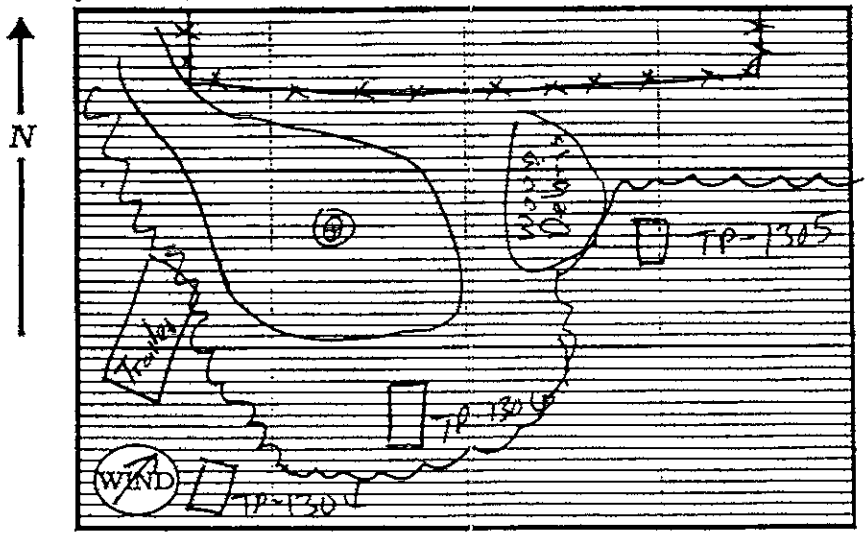
TEST PIT RECORD

SITE #13

TEST PIT 1305 DATE 9-5-84 TIME 1030 END 11:00

COORDINATES _____ GRID ELEMENT _____

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.

NOTES: On edge of woods behind pile of wood debris. Some metal in test pit area just under surface. No visible contamination No odors

CREW MEMBERS:

1. RYAN
2. RAWCLIFFE
3. LE
4. BOOKER
5. LOMBARDO
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	Y	N
OVA	Y	N

Other _____

Photographs, Roll _____

Exposure _____

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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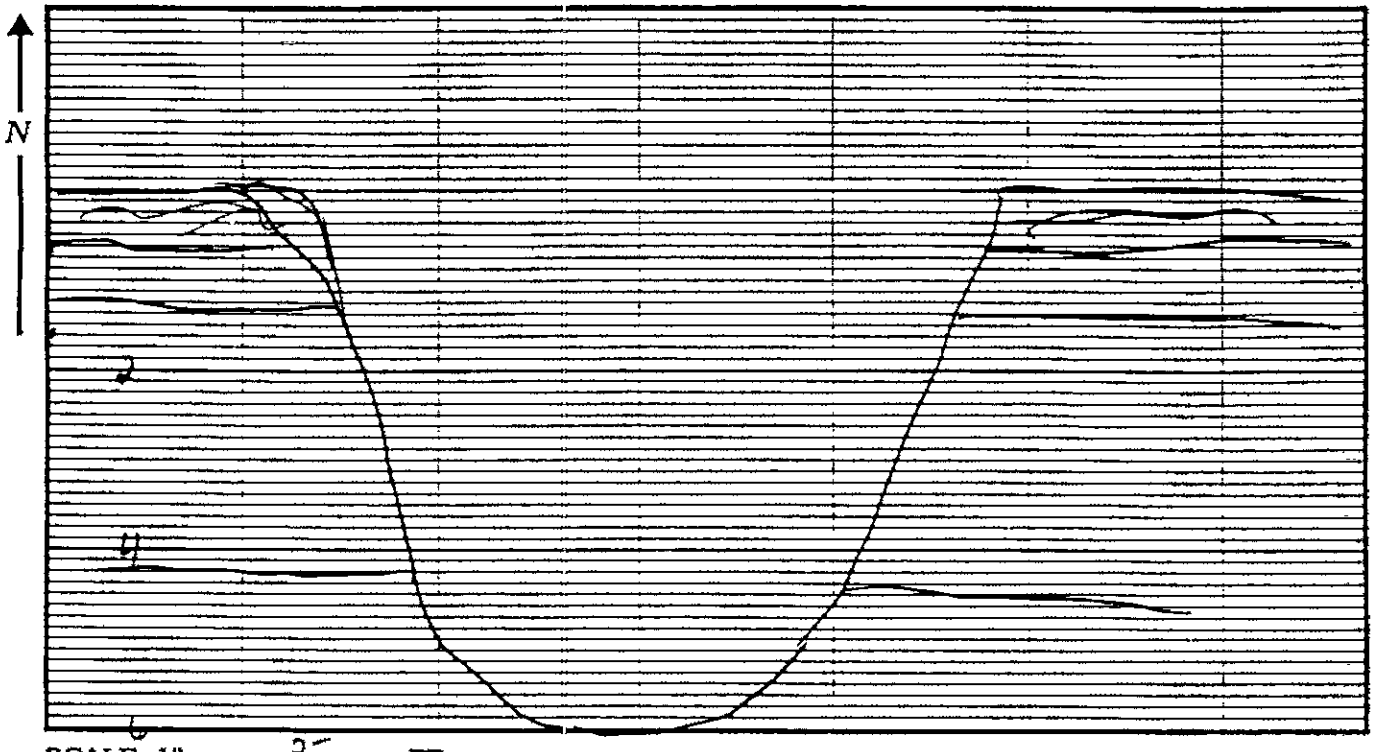
TEST PIT RECORD

Profile Along Test Pit- 1305

SITE 13

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = 2' FT.
DEPTH (FT.) 6.0'

NOTES:

0-0.7 D. brown f-m sand w/silt mixed with organic debris. Dry loose Natural soils no fill.

0.7-1.3 Brown-light brown fine-med sand and silt. Many roots. loose

1.3-4.2 lite brown to light olive brown fine-medium sand and silt. Dry loose

4.2-6.0 light olive to olive gray f-med sand and silt. Dry firm.

6.0 Bottom of test pit.

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0-1.0	13TP05X001XX	BKG
S-2		13TP05X001XD	
[redacted]	2-4.0	13TP05X002001XX	BKG
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 69-[redacted]70

Attachments

SIGNATURE: Jerry Rumbaugh

E.C. JORDAN

4807-20 GEOT. FORMS DISK

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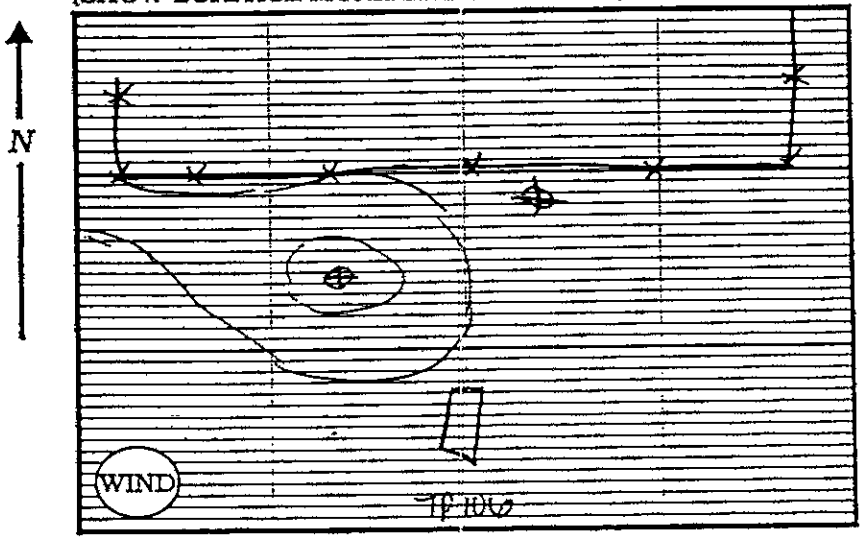
BNAS

TEST PIT RECORD

SITE #13
TEST PIT 1306 DATE 9-5-89 TIME 08:45 END 0930
COORDINATES GRID ELEMENT

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.

CREW MEMBERS:
1. Ryan
2. RAWCLIFFE
3. LE
4. BOOKER
5. LOMBARDO
6.

MONITOR EQUIPMENT:

PI Meter	(Y)	N
Explosive Gas	(Y)	N
Avail. Oxygen	(Y)	N
OVA	Y	N

Other

Photographs, Roll ✓

Exposure 15 ?

NOTES: Open area some weeds, ~~bad old~~ fuel oil tanks nearby. Very little fill (1.1') Soil becomes finer with depth. No readings w/PI meter

Calm, mostly sunny 60's

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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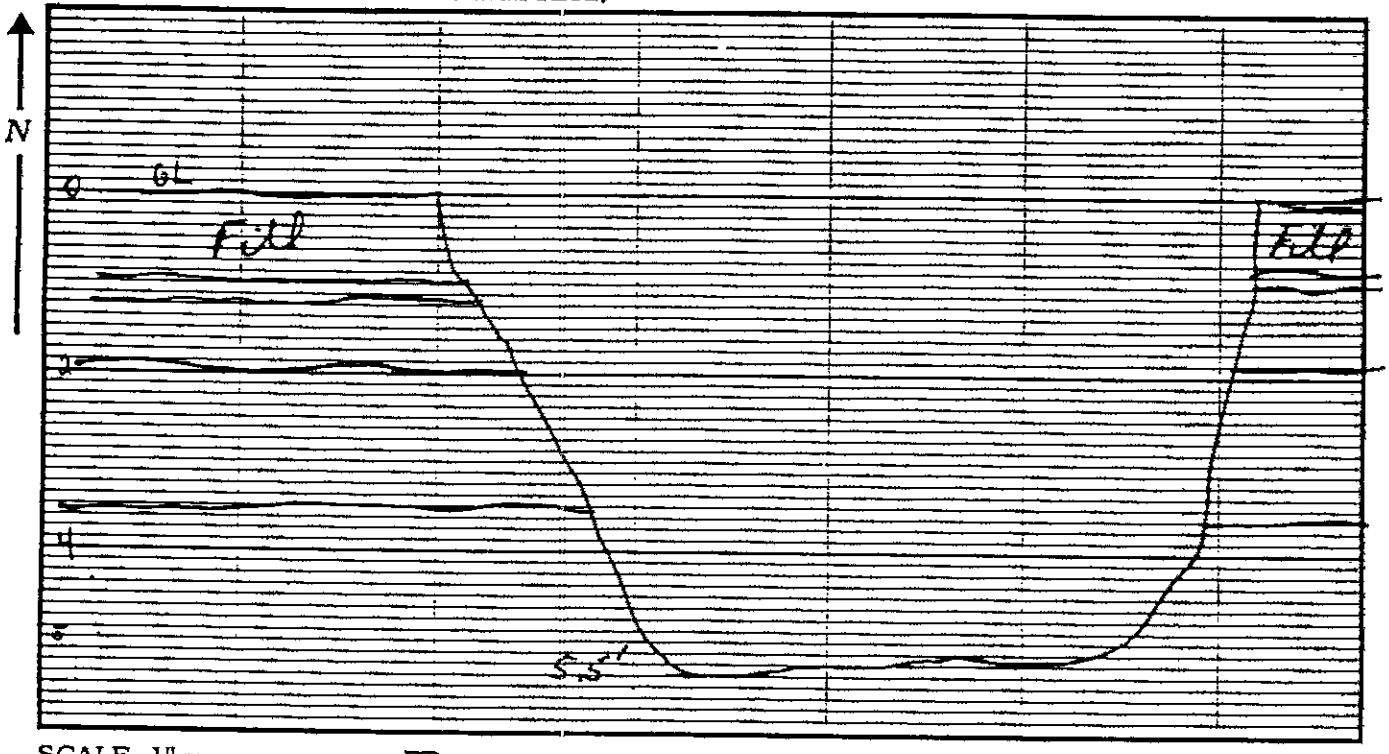
TEST PIT RECORD

Profile Along Test Pit- 1306

SITE #13

SKETCH MAP OF TEST PIT SITE
(SHOW SURFACE MONITORING RESULTS)



SCALE 1" = _____ FT.
DEPTH (FT.) 5.5'

NOTES: 0-1.0' bright brown medium sand w/some f+c sand and a trace of silt. Moist. No gw seepage (Fill)

1.1-1.5 D. brown f-m sand w/some silt. lots of old roots. Old topsoil/surface

1.5-1.9 Reddish brown to orange, med sand w/trace of fine sand. Natural Soil

1.9-3.6 Brown to light brown fine-med sand. Natural soil Some roots

3.6-5.5 Olive gray silty f-m sand Natural Soil Slight odor of petroleum

5.5 Bottom of Test Pit

SAMPLES OBTAINED:

No.	Depth (Ft.)	Int. Ser. No.	HD. SP. VOA PPM
S-1	0-1.0	13TP01X0001XX	
S-2	2.5-3.5	13TP01X0201XX	
S-3	5.0-6.0	13TP01X0401XX	
S-4			
S-5			
S-6			
S-7			
S-8			

REFERENCE: Field Book, Pg. 68

Attachments _____

SIGNATURE: Jerry Rawls

E.C. JORDAN

4607-20 GEOT. FORMS DISK

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APPENDIX D
SOIL GAS SURVEY DATA

NAS BRUNSWICK
BRUNSWICK, MAINE

Click Here to Return to Main Index

E.C. JORDAN/BRUNSWICK NAVAL AIR STATION/BRUNSWICK, MAINE

Sample	Depth	Date	F113 (ug/l)	CHCl3 (ug/l)	TCA (ug/l)	TCE (ug/l)	PCE (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Xylenes (ug/l)	Total Hydroc. (ug/l)
SG-218	5'	06/30	<0.0008	<0.001	<0.0004	<0.0009	0.1	<0.05	<0.05	<0.06	<0.05
SG-219	3'	06/30	<0.0008	<0.001	0.005	0.05	0.02	<18	5	2	54
SG-220	5'	06/30	<0.0008	<0.001	0.0008	<0.0009	<0.0002	<0.5	<0.5	<0.6	<0.5
SG-221	5'	06/30	<0.003	<0.004	0.04	0.8	0.8	<9	56	<0.6	150
Air		06/30	<0.0008	<0.001	0.001	<0.0009	0.0004	<0.05	<0.05	<0.06	<0.05
Air		07/01	<0.0009	<0.001	0.0006	<0.001	<0.0002	<0.04	<0.04	<0.05	<0.04
SG-222	2.5'	07/01	<0.0009	<0.001	<0.0004	<0.001	0.0007	<0.04	<0.04	<0.05	3
SG-223	3.5'	07/01	<0.0009	<0.001	<0.0004	<0.001	0.0007	<0.04	<0.04	<0.05	<0.04
SG-224	2'	07/01	<0.0009	<0.001	<0.0004	<0.001	0.004	<0.04	<0.04	<0.05	0.06
SG-225	5'	07/01	<0.0009	<0.001	0.0006	<0.001	0.0005	<0.04	<0.04	<0.05	<0.04
SG-226	3'	07/01	<0.0009	<0.001	0.001	<0.001	0.0005	<0.04	<0.04	<0.05	<0.04
SG-227	4'	07/01	<0.0009	<0.001	0.0008	<0.001	<0.0002	<0.04	<0.04	<0.05	<0.04
SG-228	3'	07/01	<0.0009	<0.001	0.0008	<0.001	0.0005	<0.04	<0.04	<0.05	<0.04
SG-229	4'	07/01	<0.0009	<0.001	0.0008	<0.001	0.001	<0.04	<0.04	<0.05	<0.04
SG-230	4.5'	07/01	<0.0009	0.002	0.002	<0.001	0.0007	<0.4	<0.4	<0.05	<0.04
SG-231	5'	07/01	<0.0009	<0.001	0.02	0.04	0.02	<0.04	<0.04	<0.05	<0.04
SG-232	4'	07/01	<0.0009	<0.001	0.0008	<0.001	0.006	<0.4	<0.4	<0.05	<0.04
SG-233	2'	07/01	<0.0009	<0.001	0.005	<0.001	0.01	<0.04	<0.04	<0.05	0.2
SG-234	5'	07/01	<0.0009	<0.001	0.04	0.2	0.06	0.6	0.3	<0.05	4
SG-235	4'	07/01	<0.0009	<0.001	0.006	0.02	0.04	<0.04	<0.04	<0.05	0.6
SG-236	5'	07/01	<0.0009	<0.001	0.004	<0.001	0.03	<0.04	<0.04	<0.05	<0.04
Air		07/01	<0.0009	<0.001	0.001	<0.001	<0.0002	<0.04	<0.04	<0.05	<0.04

Tracer Research Corporation

Notations:
I interference with adjacent peaks
NR not analyzed

Analyzed by J. Tangeman

Checked by R. Rosenthal

Proofed by L. Laplante

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E.C. JORDAN/BRUNSWICK NAVAL AIR STATION/BRUNSWICK, MAINE

Sample	Depth	Date	F113 (ug/l)	CHCl3 (ug/l)	TCA (ug/l)	TCE (ug/l)	PCE (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Xylenes (ug/l)	Total Hydroc. (ug/l)
Air		06/29	<0.0009	<0.001	0.001	<0.001	<0.0002	<0.05	<0.05	<0.06	<0.05
SG-187	5'	06/29	<0.0009	<0.001	0.002	<0.001	0.001	<0.05	<0.05	<0.06	<0.05
SG-188	5'	06/29	<0.0009	<0.001	0.004	<0.001	0.001	<0.05	<0.05	<0.06	<0.05
SG-189	5'	06/29	<0.0008	<0.001	<0.0004	<0.001	0.0007	<0.05	<0.05	<0.06	<0.05
SG-190	5'	06/29	12	<0.004	0.3	<0.004	0.01	<0.05	<0.05	<0.06	<0.05
SG-191	5'	06/29	3	<0.002	0.04	<0.002	0.001	<0.05	<0.05	<0.06	<0.05
SG-192	5'	06/29	0.7	<0.001	0.002	<0.001	0.0006	<0.05	<0.05	<0.06	<0.05
SG-193	5'	06/29	280	<0.09	46	66	3	<0.05	<0.05	<0.06	<0.05
SG-194	5'	06/29	0.8	<0.004	12	<0.004	0.01	<0.05	<0.05	<0.06	<0.05
SG-195	5'	06/29	7	<0.004	2	<0.004	0.03	<0.05	<0.05	<0.06	<0.05
SG-196	5'	06/29	0.8	<0.001	1	<0.001	0.005	<0.05	<0.05	<0.06	<0.05
SG-197	5'	06/29	0.8	<0.004	5	0.4	0.01	<0.05	<0.05	<0.06	<0.05
SG-198	5'	06/29	<0.0008	<0.001	0.01	0.4	0.04	<2	22	2	75
SG-199	5'	06/29	<0.0008	<0.001	0.008	0.007	0.008	10	6	<0.6	24
SG-200	5'	06/29	<0.009	<0.004	0.02	0.02	1	<0.05	<0.05	<0.06	<0.05
SG-201	5'	06/29	<0.0008	<0.001	0.002	<0.001	0.003	<0.05	<0.05	<0.06	<0.05
SG-202	4'	06/29	<0.0008	<0.001	0.02	0.04	0.06	<0.5	4	<0.6	28
SG-203	5'	06/29	0.4	0.02	0.01	<0.001	0.04	<0.2	<0.3	<0.3	<0.2
SG-204	4.5'	06/29	<0.0008	<0.001	0.002	<0.001	0.6	<0.05	<0.05	<0.06	<0.05
SG-205	5'	06/29	<0.0008	<0.001	0.002	<0.001	<0.0002	<0.05	<0.05	<0.06	<0.05
SG-206	1'	06/29	<0.0008	0.02	0.002	<0.001	0.002	<0.05	<0.05	<0.06	<0.05
Air		06/29	<0.0008	<0.001	0.0008	<0.001	<0.0002	<0.05	<0.05	<0.06	<0.05
SG-207	5'	06/30	8	<0.004	0.2	<0.004	<0.0009	<0.05	<0.05	<0.06	<0.05
Air		06/30	<0.0008	<0.001	0.001	<0.0009	0.0004	<0.05	<0.05	<0.06	<0.05
SG-208	5'	06/30	0.9	<0.001	0.01	<0.0009	0.003	<0.05	<0.05	<0.06	<0.05
SG-209	5'	06/30	<0.0008	0.08	<0.0004	<0.0009	0.2	<0.05	<0.05	<0.06	<0.05
SG-210	5'	06/30	0.4	0.1	0.02	2	0.7	130	170	<1	500
SG-211	5'	06/30	<0.002	0.006	0.08	0.8	0.2	19	60	2	190
SG-212	5'	06/30	<0.0008	<0.001	0.001	0.03	0.2	<0.05	<0.05	<0.06	<0.05
SG-213	5'	06/30	<0.002	0.08	0.05	0.1	1	0.9	4	<0.06	5
SG-214	5'	06/30	0.4	<0.002	0.1	0.01	0.3	<0.05	<0.05	<0.06	<0.05
SG-215	3'	06/30	<0.0008	<0.001	0.004	0.08	0.02	91	87	10	390
SG-216	5'	06/30	<0.0008	<0.001	0.001	<0.0009	0.0007	<0.05	<0.05	<0.06	<0.05
SG-217	4'	06/30	<0.0008	<0.001	0.001	<0.0009	0.001	<0.05	<0.05	<0.06	<0.05

Tracer Research Corporation

Notations:
I interference with adjacent peaks
NA not analyzed

Analyzed by J. Tangeman

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Proofed by L. Laplandes

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E.C. JORDAN/BRUNSWICK NAVAL AIR STATION/BRUNSWICK, MAINE

Sample	Depth	Date	F113 (ug/l)	CHCl3 (ug/l)	TCA (ug/l)	TCE (ug/l)	PCE (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Xylenes (ug/l)	Total Hydrocs. (ug/l)
SG-153	5'	06/27	0.06	<0.003	0.04	<0.002	0.00	<0.04	<0.04	<0.05	<0.04
SG-154	5'	06/27	<0.002	0.009	4	3	2	<0.04	<0.04	<0.05	<0.04
SG-155	5'	06/27	0.4	<0.003	0.02	0.2	0.2	<16	107	98	940
SG-156	5'	06/27	<0.0004	<0.0007	0.002	<0.0005	0.001	<0.04	<0.04	<0.05	<0.04
SG-157	4'	06/27	<0.0004	<0.0007	0.001	<0.0005	0.001	<0.04	<0.04	<0.05	<0.04
SG-158	5'	06/27	<0.0004	<0.0007	0.006	<0.0005	0.0006	<0.04	<0.04	<0.05	<0.04
SG-159	5'	06/27	0.05	0.01	0.01	0.002	0.01	<0.04	<0.04	<0.05	1
SG-160	3'	06/27	0.1	0.09	0.06	0.1	0.06	<0.04	<0.04	<0.05	0.8
SG-161	5'	06/27	<0.0004	<0.0007	0.02	<0.0005	0.001	<0.04	<0.04	<0.05	<0.04
SG-162	3'	06/27	<0.0004	0.07	0.01	0.002	0.002	<0.04	<0.04	<0.05	<0.04
SG-163	3'	06/27	<0.0004	0.04	0.008	<0.0005	0.0009	<0.04	0.8	0.9	9
SG-164	5'	06/27	<0.0004	<0.0007	0.008	<0.0005	0.0007	<0.04	<0.04	<0.05	<0.04
SG-165	5'	06/27	<0.0004	0.04	0.006	<0.0005	0.0007	<0.04	<0.04	<0.05	<0.04
Air		06/27	<0.0004	<0.0007	0.001	<0.0005	<0.0001	<0.04	<0.04	<0.05	<0.04
Air		06/27	<0.0008	<0.001	0.006	<0.001	0.0005	<0.05	<0.05	<0.06	<0.05
SG-166	4'	06/28	<0.0008	<0.001	0.008	<0.001	0.006	<0.05	<0.05	<0.06	<0.05
SG-167	5'	06/28	<0.0008	<0.001	0.2	0.5	0.09	<0.05	<0.05	<0.06	<0.05
SG-168	1'	06/28	<0.0008	<0.001	0.004	<0.001	0.001	<0.05	<0.05	<0.06	<0.05
SG-169	4'	06/28	<0.0008	<0.001	0.005	<0.001	0.0007	<0.05	<0.05	<0.06	<0.05
SG-170	5'	06/28	<0.0008	<0.001	0.005	<0.001	0.0007	<0.05	<0.005	<0.06	<0.05
SG-171	5'	06/28	<0.0008	<0.001	<0.0004	<0.001	<0.0002	<0.05	<0.05	<0.06	<0.05
SG-172	5'	06/28	<0.0008	<0.001	<0.0004	<0.001	<0.0002	<0.05	<0.05	<0.06	<0.05
SG-173	3'	06/28	<0.0008	<0.001	0.001	<0.001	0.0007	<0.05	<0.05	<0.06	<0.05
SG-174	5'	06/28	<0.0008	<0.001	0.001	<0.001	<0.0002	<0.05	<0.05	<0.06	<0.05
SG-175	5'	06/28	<0.0008	<0.001	0.0008	<0.001	<0.0002	<0.05	<0.05	<0.06	<0.05
SG-176	5'	06/28	<0.0008	<0.001	<0.0004	<0.001	<0.0002	<0.05	<0.05	<0.06	<0.05
SG-177	4'	06/28	<0.0008	<0.001	0.001	<0.001	<0.0002	<0.05	<0.05	<0.06	<0.05
SG-178	5'	06/28	<0.0008	<0.001	<0.0004	<0.001	0.002	<0.05	<0.05	<0.06	<0.05
SG-179	5'	06/28	<0.0008	<0.001	0.002	<0.001	<0.0002	<0.05	<0.05	<0.06	<0.05
SG-180	5'	06/28	<0.0008	0.003	0.002	<0.001	0.0005	<0.05	<0.05	<0.06	<0.05
SG-181	5'	06/28	<0.0008	0.008	0.002	<0.001	0.0007	<0.05	<0.05	<0.06	<0.05
SG-182	5'	06/28	<0.0008	<0.001	0.002	<0.001	0.0005	<0.05	<0.05	<0.06	<0.05
SG-183	4'	06/28	<0.0008	<0.001	0.002	<0.001	0.0005	<0.05	<0.05	<0.06	<0.05
SG-184	5'	06/28	<0.0008	<0.001	0.002	<0.001	0.002	<0.05	<0.05	<0.06	<0.05
SG-185	1.5'	06/28	<0.0008	<0.001	<0.0004	<0.001	<0.0002	<0.05	<0.05	<0.06	<0.05
SG-186	3.5'	06/28	<0.0008	<0.001	0.002	<0.001	0.0007	<0.05	<0.05	<0.06	<0.05
Air		06/28	<0.0008	<0.001	0.002	<0.001	0.0005	<0.05	<0.05	<0.06	<0.05

Notations:
I interference with adjacent peaks
NA not analyzed

Analyzed by J. Tangeman

Checked by R. Rosenthal

Proofed by L. Laplander

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E.C. JORDAN/BRUNSWICK NAVAL AIR STATION/BRUNSWICK, MAINE

Sample	Depth	Date	F113 (ug/l)	CHCl3 (ug/l)	TCA (ug/l)	TCE (ug/l)	PCE (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Xylenes (ug/l)	Total Hydroc. (ug/l)
SG-123	2.5'	06/25	<0.0009	<0.002	0.008	<0.001	<0.0002	<0.07	<0.08	<0.1	<0.07
SG-124	3.5'	06/25	<0.002	<0.004	<0.008	<0.002	<0.0005	<0.07	<0.08	<0.1	<0.07
SG-125	4'	06/25	<0.0009	<0.002	0.001	<0.001	<0.002	<0.04	0.7	<0.06	0.7
SG-126	2.5'	06/25	<0.001	<0.002	<0.008	<0.002	0.003	2	16	<0.6	50
SG-127	4.5'	06/25	<0.001	<0.002	0.01	0.05	0.004	15	50	<0.6	80
SG-128	3.5'	06/25	<0.002	<0.004	0.06	<0.002	0.01	<0.06	1	<0.09	2
Air		06/25	<0.0009	<0.002	0.02	<0.001	<0.002	<0.04	<0.04	<0.06	<0.04
Air		06/26	<0.0008	<0.0009	0.002	<0.0009	<0.002	<0.04	<0.05	<0.05	<0.04
SG-129	5'	06/26	0.09	<0.004	0.08	0.6	0.09	<0.8	15	<1	105
SG-130	5'	06/26	0.4	<0.004	0.04	<0.004	0.07	<0.07	<0.08	<0.09	<0.07
SG-131	5'	06/26	<0.003	<0.004	0.004	<0.004	0.2	<0.04	<0.05	<0.05	<0.04
SG-132	5'	06/26	0.08	<0.004	0.004	0.01	0.4	<0.07	<0.08	<0.09	<0.07
SG-133	4.5'	06/26	0.002	<0.004	0.002	<0.004	0.02	<0.04	<0.05	<0.05	<0.04
SG-134	5'	06/26	<0.009	<0.004	0.02	0.2	2	<0.07	<0.08	<0.09	<0.07
SG-135	3'	06/26	<0.003	<0.004	0.002	<0.004	0.005	<0.07	<0.08	<0.08	0.4
SG-136	5'	06/26	<0.002	<0.002	0.004	<0.002	0.04	<0.07	<0.08	<0.09	<0.07
SG-137	5'	06/26	<0.002	<0.002	0.004	<0.002	0.006	<0.08	<0.09	<0.1	<0.08
SG-138	5'	06/26	<0.002	<0.002	0.006	<0.002	0.06	<0.08	<0.09	<0.1	<0.07
SG-139	5'	06/26	<0.0008	<0.0009	0.002	<0.0009	0.0006	<0.04	<0.05	<0.05	<0.04
SG-140	5'	06/26	<0.0008	<0.0009	0.002	<0.0009	0.001	<0.04	<0.05	<0.05	0.6
SG-141	5'	06/26	<0.0008	<0.0009	0.002	<0.0009	0.003	<0.04	<0.05	<0.05	<0.04
SG-142	5'	06/26	<0.0008	<0.0009	0.002	<0.0009	0.004	<0.04	<0.05	<0.05	<0.04
SG-143	5'	06/26	<0.0008	<0.0009	0.002	0.01	0.002	<0.04	<0.05	<0.05	<0.04
SG-144	2'	06/26	<0.0008	<0.0009	0.003	0.01	0.002	9	8	2	42
SG-145	5'	06/26	<0.0008	<0.0009	0.002	<0.0009	0.001	<0.04	<0.05	<0.05	<0.04
SG-146	5'	06/26	<0.0008	<0.0009	0.01	<0.0009	0.002	<0.04	<0.05	<0.05	<0.04
SG-147	5'	06/26	<0.0008	<0.0009	0.0006	<0.0009	0.0008	<0.04	<0.05	<0.05	<0.04
SG-148	4'	06/26	<0.0008	<0.0009	0.001	<0.0009	0.002	<0.04	<0.05	<0.05	<0.04
Air		06/26	<0.0008	<0.0009	0.001	<0.0009	0.001	<0.04	<0.05	<0.05	<0.04
Air		06/27	<0.0004	<0.0007	0.002	<0.0005	<0.0001	<0.04	<0.04	<0.05	<0.04
SG-149	5'	06/27	8	<0.003	0.4	1	0.8	75	190	<1	320
SG-150	5'	06/27	<0.003	<0.005	0.2	0.4	2	68	140	<1	400
SG-151	5'	06/27	<0.009	<0.005	0.2	0.1	0.06	<0.04	<0.04	<0.05	<0.04
SG-152	5'	06/27	0.07	<0.003	0.01	0.004	0.06	<0.2	<0.2	<0.2	<0.2

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Notations:
I Interferance with adjacent peaks
NA not analyzed

Analyzed by R. Rosenthal

Checked by J. Tangeman

Proofed by L. Kaplaxdis

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E.C. JORDAN/BRUNSWICK NAVAL AIR STATION/BRUNSWICK, MAINE

Sample	Depth	Date	F113 (ug/l)	CHCl3 (ug/l)	TCM (ug/l)	TCE (ug/l)	PCE (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Xylenes (ug/l)	Total Hydrocar. (ug/l)
Air		06/24	<0.00009	<0.0005	<0.0001	<0.0004	<0.00008	<0.04	<0.04	<0.05	<0.04
SG-92	5'	06/24	<0.009	<0.004	<0.001	0.009	0.05	<0.04	<0.04	<0.05	<0.04
SG-93	5'	06/24	<0.001	<0.002	0.001	0.01	0.003	46	26	<0.05	82
SG-94	3'	06/24	<0.0001	<0.002	0.003	0.008	0.04	<0.2	<0.2	<0.3	0.6
SG-95	5'	06/24	<0.0001	<0.002	0.01	<0.001	0.008	<0.09	<0.09	<0.1	0.2
SG-96	5'	06/24	<0.0001	<0.002	0.004	<0.001	<0.0003	<0.04	<0.04	<0.04	<0.04
SG-97	5'	06/24	<0.0007	<0.001	0.04	0.1	0.002	80	38	<0.5	240
SG-98	5'	06/24	<0.007	<0.001	0.3	0.2	0.1	40	190	31	500
SG-99	5'	06/24	<0.001	<0.002	0.01	0.5	0.05	48	66	<0.5	150
SG-100	5'	06/24	<0.001	<0.001	<0.0001	0.02	0.05	<0.2	<0.9	<0.2	<0.2
SG-101	5'	06/24	1	<0.001	<0.0005	0.02	0.2	<0.1	<0.1	<0.1	16
SG-102	5'	06/24	<0.009	<0.004	0.004	0.06	0.04	<0.1	<0.1	<0.1	<0.1
SG-103	5'	06/24	<0.009	<0.004	0.02	0.02	0.01	<16	74	28	260
SG-104	5'	06/24	<0.009	<0.004	0.06	0.06	0.01	<16	<0.9	<1	310
SG-105	5'	06/24	<0.009	<0.004	<0.001	0.01	0.02	<0.8	9	<0.1	11
SG-106	5'	06/24	<0.006	<0.009	9	8	5	56	710	28	1,200
SG-107	5'	06/24	<0.006	<0.009	<0.002	<0.007	<0.009	<0.8	<0.9	<1	<0.8
SG-108	5'	06/24	<0.007	<0.001	<0.0004	<0.0009	<0.0002	<0.08	<0.09	<0.1	<0.08
Air		06/24	<0.007	<0.001	<0.0004	<0.0009	<0.002	<0.04	<0.04	<0.05	<0.05
Air		06/25	<0.0009	<0.002	0.02	<0.001	<0.002	<0.04	<0.04	<0.06	<0.04
SG-109	2'	06/25	<0.002	<0.004	0.002	<0.002	<0.0005	0.2	0.4	<0.09	5
SG-110	5'	06/25	<0.002	<0.004	0.04	0.08	0.1	6	14	<0.6	140
SG-111	5'	06/25	0.08	<0.008	0.05	0.08	0.04	30	100	<1	850
SG-112	5'	06/25	<0.002	<0.004	0.1	0.2	0.002	<0.09	<0.1	<0.3	11
SG-113	5'	06/25	<0.002	<0.004	0.04	0.2	0.01	<??	180	<0.6	290
SG-114	5'	06/25	0.2	<0.004	0.08	0.02	0.002	8	50	<0.6	150
SG-115	5'	06/25	6	<7	62	4	1	8	980	<0.6	1,100
SG-116	5'	06/25	<0.002	<0.004	0.008	<0.002	0.01	<0.2	<0.2	<0.3	<0.2
SG-117	5'	06/25	<0.0007	<0.002	0.004	0.002	0.02	<0.1	<0.1	<0.1	<0.1
SG-118	5'	06/25	2	<0.002	9	0.6	0.4	<0.06	<0.07	<0.09	<0.06
SG-119	5'	06/25	<0.004	<0.008	0.02	0.02	0.004	<54	<84	<0.6	150
SG-120	4.5'	06/25	<0.004	<0.008	0.1	1	0.005	<??	190	<0.6	230
SG-121	5'	06/25	<0.004	<0.008	0.01	0.2	0.9	78	150	<1	200
SG-122	4'	06/25	<0.004	<0.008	0.02	0.06	<0.0009	11	134	<1	540

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Notations:
I interference with adjacent peaks
NA not analyzed

Analyzed by R. Rosenthal

Checked by J. Tangeman

Proofed by L. Kaplanski

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Sample	Depth	Date	F113 (ug/l)	CHCl3 (ug/l)	TCA (ug/l)	TCE (ug/l)	PCE (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Xylenes (ug/l)	Total Hydroc. (ug/l)
SG-66	5'	06/23	<0.0007	0.09	0.002	<0.0009	0.001	<0.04	<0.04	<0.05	<0.04
SG-67	5'	06/23	<0.0007	<0.001	0.002	<0.0009	0.002	<0.04	<0.04	<0.05	<0.04
SG-68	5'	06/23	<0.0007	<0.001	0.0008	<0.0009	0.0006	<0.04	<0.04	<0.05	<0.04
SG-69	5'	06/23	<0.0007	<0.001	<0.0002	<0.0009	0.0004	<0.04	<0.04	<0.05	<0.04
Air		06/23	<0.0007	<0.001	0.002	<0.0009	0.0006	<0.04	<0.04	<0.05	<0.04
SG-70	5'	06/23	<0.0007	<0.001	0.001	<0.0009	0.002	<0.04	<0.04	<0.05	<0.04
SG-71	5'	06/23	<0.0007	<0.001	0.004	<0.0009	0.001	<0.04	<0.04	<0.05	<0.04
SG-72	5'	06/23	<0.0007	<0.001	0.001	<0.0009	0.0004	<0.04	<0.04	<0.05	<0.04
SG-73	5'	06/23	<0.0007	<0.001	<0.0004	<0.0009	0.002	<0.04	<0.04	<0.05	<0.04
SG-74	5'	06/23	<0.0007	<0.001	<0.0004	<0.0009	0.001	<0.04	<0.04	<0.05	<0.04
SG-75	5'	06/23	<0.0007	0.09	0.004	<0.0009	0.001	<0.04	<0.04	<0.05	<0.04
SG-76	5'	06/23	<0.0007	0.04	0.004	<0.0009	0.001	<0.04	<0.04	<0.05	<0.04
SG-77	5'	06/23	<0.0007	<0.001	<0.0004	<0.0009	<0.0002	<0.04	<0.04	<0.05	<0.04
SG-78	5'	06/23	<0.0007	<0.001	<0.0004	<0.0009	<0.0002	<0.04	<0.04	<0.05	<0.04
SG-79	5'	06/23	<0.0007	0.02	0.009	<0.0009	0.02	<0.04	<0.04	<0.05	<0.04
SG-80	5'	06/23	<0.0007	<0.001	0.002	<0.0009	0.0006	<0.04	<0.04	<0.05	<0.04
SG-81	4'	06/23	<0.0007	<0.001	0.004	<0.0009	0.002	<0.04	<0.04	<0.05	<0.04
SG-82	5'	06/23	<0.0007	<0.001	0.002	<0.0009	0.001	<0.04	<0.04	<0.05	<0.04
SG-83	5'	06/23	<0.0007	<0.001	0.002	<0.0009	0.4	<0.04	<0.04	<0.05	<0.04
SG-84	4.5'	06/23	<0.0007	<0.001	0.001	<0.0009	0.0006	<0.04	<0.04	<0.05	<0.04
SG-85	5'	06/23	<0.0007	<0.001	0.001	<0.0009	0.001	<0.04	<0.04	<0.05	<0.04
SG-86	5'	06/23	<0.0007	<0.001	0.008	<0.0009	0.001	<0.04	<0.04	<0.05	<0.04
SG-87	5'	06/23	<0.0007	<0.001	0.004	<0.0009	0.001	<0.04	<0.04	<0.05	<0.04
SG-88	5'	06/23	<0.0007	<0.001	0.004	<0.0009	0.0006	<0.04	<0.04	<0.05	<0.04
SG-89	5'	06/23	<0.0007	<0.001	0.002	<0.0009	0.0006	<0.04	<0.04	<0.05	<0.04
SG-90	5'	06/23	<0.0007	<0.001	0.002	<0.0009	0.001	<0.04	<0.04	<0.05	<0.04
SG-91	5'	06/23	<0.0007	<0.001	<0.0004	<0.0009	0.0006	<0.04	<0.04	<0.05	<0.04

Notations:
I interference with adjacent peaks
NA not analyzed

Analyzed by J. Tangeman

Checked by R. Rosenthal

Proofed by L. Laplante

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Sample	Depth	Date	F113 (ug/l)	CHCl3 (ug/l)	TCA (ug/l)	[illegible]	PCE (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Xylenes (ug/l)	Total Hydrocarbons (ug/l)
SG-33	2'	06/21	0.4	0.4	0.2	0.06	0.04	<0.04	<0.04	<0.04	<0.04
SG-34	5'	06/21	<0.0004	<0.0006	0.01	0.06	0.0009	<0.04	<0.04	<0.04	<0.04
SG-35	5'	06/21	<0.0004	0.003	0.002	0.01	0.009	<0.04	<0.04	<0.04	<0.04
SG-36	4.5'	06/21	<0.0003	0.008	0.002	<0.0004	0.0008	<0.04	<0.04	<0.04	<0.04
SG-37	5'	06/21	<0.0004	<0.0006	0.001	<0.0004	0.001	<0.04	<0.04	<0.04	<0.04
SG-38	5'	06/21	<0.0003	<0.0004	0.001	<0.0004	0.0009	<0.04	<0.04	<0.04	<0.04
SG-39	5'	06/21	<0.0004	<0.0006	0.002	<0.0004	0.004	<0.04	<0.04	<0.04	<0.04
SG-40	5'	06/21	<0.0004	<0.0006	0.0008	<0.0004	0.002	<0.04	<0.04	<0.04	<0.04
SG-41	2'	06/22	<0.0006	0.001	0.004	<0.0006	0.001	0.5	0.6	<0.04	3
SG-42	4'	06/22	<0.0006	<0.0007	0.01	0.006	0.0007	0.08	0.2	<0.04	1
SG-43	2'	06/22	<0.0006	0.004	0.02	0.007	0.008	<0.04	<0.04	<0.04	<0.04
SG-44	2'	06/22	<0.0006	<0.0007	0.002	0.003	0.03	<0.04	<0.04	<0.04	<0.04
SG-45	2'	06/22	<0.0006	<0.0007	0.002	0.008	0.002	1	1	<0.04	6
SG-46	3'	06/22	<0.0006	0.001	0.002	<0.0006	0.0009	<0.04	<0.04	<0.04	<0.04
SG-47	3'	06/22	<0.0006	<0.0007	0.002	<0.0006	0.001	<0.04	<0.04	<0.04	<0.04
SG-48	3'	06/22	<0.0006	<0.0007	0.0009	<0.0006	0.0004	<0.08	<0.04	<0.04	<0.04
SG-49	3'	06/22	<0.0006	<0.0007	0.001	<0.0006	0.0007	<0.04	<0.04	<0.04	<0.04
SG-50	2.5'	06/22	<0.0006	<0.0007	0.0006	0.06	0.0008	<0.4	2	<0.04	2
SG-51	2'	06/22	<0.0006	<0.0007	0.006	0.008	0.003	<0.8	<0.8	<0.04	2
SG-52	1.5'	06/22	<0.0006	0.002	0.01	0.002	0.003	<0.8	<0.8	<0.09	14
SG-53	3'	06/22	<0.0006	<0.0007	0.0006	0.009	0.004	<0.8	<0.8	<0.4	<0.4
SG-54	3.5'	06/22	<0.0006	<0.0007	0.0006	0.01	0.01	<0.4	<0.4	<0.4	<0.4
SG-55	4'	06/22	<0.0006	<0.0007	0.0007	<0.0006	0.001	<0.04	<0.04	<0.04	<0.04
SG-56	2'	06/22	<0.0006	<0.0007	0.003	<0.0006	0.001	<0.04	<0.04	<0.04	<0.04
SG-57	2.5'	06/22	<0.0006	<0.0007	0.003	<0.0006	0.002	<0.04	<0.04	<0.04	<0.04
SG-58	3.5'	06/22	<0.0006	<0.0007	0.003	<0.0006	0.001	<0.04	<0.04	<0.04	<0.04
SG-59	3'	06/22	<0.0006	<0.0007	0.002	<0.0006	0.002	<0.04	<0.04	<0.04	<0.04
SG-60	3'	06/22	<0.0006	<0.0007	0.002	<0.0006	0.001	<0.04	<0.04	<0.04	<0.04
SG-61	5'	06/22	<0.0006	<0.0007	<0.0002	<0.0006	0.0004	<0.04	<0.04	<0.04	<0.04
SG-62	5'	06/22	<0.0006	<0.0007	0.02	<0.0006	0.001	<0.04	<0.04	<0.04	<0.04
SG-63	5'	06/22	<0.0006	<0.0007	0.002	<0.0006	0.02	0.1	<0.04	<0.04	0.5
SG-64	5'	06/22	<0.0006	<0.0007	0.002	<0.0006	0.06	<0.04	<0.04	<0.04	<0.04
SG-65	2'	06/22	<0.0006	<0.0007	0.002	0.002	0.0008	0.3	0.4	<0.04	3

Notations:
I interference with adjacent peaks
NA not analyzed

Analyzed by J. Tangelman

Checked by R. Rosenthal

Proofed by L. Laplandis

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E.C. JORDAN/BRUNSWICK NAVAL AIR STATION/BRUNSWICK, MAINE

Sample	Depth	Date	F-113 (ug/l)	CHCl3 (ug/l)	TCA (ug/l)	TCE (ug/l)	PCE (ug/l)	Benzene (ug/l)	Toluene (ug/l)	Xylenes (ug/l)	Total Hydroc. (ug/l)
S6-01	6'	06/20	<0.0005	<0.0007	<0.0002	<0.0006	0.004	<0.04	<0.04	<0.04	<0.04
S6-02	5'	06/20	<0.0005	<0.0007	<0.0002	<0.0006	0.01	<0.04	<0.04	<0.04	<0.04
S6-03	5'	06/20	4	<0.0007	0.07	<0.0006	0.7	<0.04	<0.04	<0.04	0.4
S6-04	3'	06/20	0.4	<0.0007	0.002	0.006	0.006	<0.04	<0.04	<0.04	<0.04
S6-05	5'	06/20	0.5	<0.0007	0.003	<0.0006	0.006	<0.04	<0.04	<0.04	<0.04
S6-06	5'	06/20	<0.0005	<0.0007	0.05	<0.0006	0.005	<0.04	<0.04	<0.04	<0.04
Air		06/20	<0.0005	<0.0007	<0.0002	<0.0006	0.005	<0.04	<0.04	<0.04	<0.04
S6-07	5'	06/20	<0.0005	<0.0007	<0.0002	<0.0006	0.01	<0.04	<0.04	<0.04	2
S6-08	5'	06/20	0.3	<0.0007	0.002	<0.0006	0.006	<0.04	<0.04	<0.04	0.5
S6-09	5'	06/20	<0.0005	<0.0007	0.001	<0.0006	0.002	<0.04	<0.04	<0.04	<0.04
S6-10	5'	06/20	<0.0005	<0.0007	0.003	<0.0006	0.002	<0.04	<0.04	<0.04	<0.04
S6-11	5'	06/20	78	<0.007	4	0.4	0.2	<0.04	<0.04	<0.04	0.2
S6-12	5'	06/20	420	<0.07	19	<0.06	0.08	<0.04	<0.04	<0.04	<0.04
S6-13	5'	06/20	4	<0.07	27	<0.06	0.4	<0.04	<0.04	<0.04	<0.04
S6-14	5'	06/20	2	0.4	1	94	0.1	<0.04	<0.04	<0.04	<0.04
S6-15	5'	06/20	<0.0005	<0.0007	0.01	<0.0006	0.007	220	990	5	9200
S6-16	5'	06/20	<0.0005	<0.0007	0.09	0.2	0.02	0.4	1	<0.04	4
S6-17	5'	06/20	<0.0005	<0.0007	<0.0002	<0.0006	0.002	<0.04	<0.04	<0.04	<0.04
S6-18	5'	06/20	<0.0005	<0.0007	<0.0002	<0.0006	0.002	<0.04	<0.04	<0.04	0.2
S6-19	5'	06/20	<0.0005	<0.0007	<0.0002	<0.0006	0.002	<0.04	<0.04	<0.04	<0.04
S6-20	5'	06/20	<0.0005	<0.0007	<0.0002	<0.0006	0.002	<0.04	<0.04	<0.04	<0.04
S6-21	5'	06/21	0.08	0.06	0.002	20	3	<0.04	<0.04	<0.04	<0.04
S6-22	5'	06/21	0.09	<0.0004	0.006	0.1	0.001	80	280	4	1200
Air		06/21	<0.0003	<0.0004	0.01	<0.0004	0.0009	<0.04	<0.04	<0.04	<0.04
S6-23	5'	06/21	0.4	<0.0004	0.3	0.02	0.06	<0.04	<0.04	<0.04	<0.04
S6-24	4'	06/21	0.6	<0.002	2	0.08	0.1	<0.04	<0.04	<0.04	<0.04
S6-25	5'	06/21	<0.0003	<0.0004	0.0008	0.003	0.02	<0.04	<0.04	<0.04	<0.04
S6-26	5'	06/21	<0.0003	<0.0004	0.002	<0.0004	0.0008	<0.04	<0.04	<0.04	<0.04
S6-27	5'	06/21	<0.0003	<0.0004	0.0007	<0.0004	0.0009	<0.04	<0.04	<0.04	<0.04
S6-28	5'	06/21	<0.0003	<0.0004	0.002	<0.0004	0.001	<0.04	<0.04	<0.04	<0.04
S6-29	5'	06/21	<0.0003	<0.0004	0.002	<0.0004	0.002	<0.04	<0.04	<0.04	<0.04
S6-30	2.5'	06/21	<0.0003	<0.0004	0.002	<0.0004	0.002	<0.04	<0.04	<0.04	<0.04
S6-31	2'	06/21	<0.0003	0.3	0.006	0.04	0.008	<0.04	<0.04	<0.04	<0.04
S6-32	5'	06/21	<0.0003	<0.0004	0.0006	<0.0004	0.0008	<0.04	<0.04	<0.04	<0.04

Notations:
I interference with adjacent peaks
NA not analyzed

Analyzed by J. Tangeman

Checked by R. Rosenthal

Reviewed by [signature]

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Table 1
SUMMARY OF SOIL GAS RESULTS
BRUNSWICK NAVAL AIR STATION, BRUNSWICK, ME.
(CONC'S REPORTED IN uG/l)

SAMPLE LOCATION	THC	BENZENE	TOLUENE	ETHYL BENZENE	m & p XYLENES	o-XYLENE	VINYL CHLORIDE
FB07AUG89	3.59	0.01	0.02	0.01	0.02	0.01	<0.01
FB08AUG89	1.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
FB09AUG2	0.54	0.01	0.0	0.07	0.02	0.24	<0.01
FB09AUG89	0.51	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
FB10AUG	0.39	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
FB11AUG89	1.84	0.03	0.08	0.02	0.09	0.03	<0.01
FB16AUG89	0.64	<0.01	0.01	<0.01	0.01	<0.01	<0.01
FB17AUG89	0.61	0.01	0.02	<0.01	0.01	0.01	<0.01
FB18AUG89	2.34	0.08	0.10	0.02	0.07	0.02	<0.01
FB19AUG89	0.58	<0.01	0.01	<0.01	0.01	<0.01	<0.01
FB20AUG	1.31	<0.01	0.08	0.01	0.05	0.02	<0.01
FB21AUG	0.66	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
SG001	19.8	0.46	<0.01	0.24	0.05	0.05	<0.01
SG002A	1827	0.01	1.85	19.2	8.09	15.4	<0.01
SG002B	1936	0.02	3.81	11.4	7.22	6.91	<0.01
SG003	2.46	<0.01	<0.01	0.05	0.02	<0.01	<0.01
SG004	1.74	<0.01	0.01	<0.01	0.01	0.01	<0.01
SG005	2.20	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
SG006	2.85	0.01	0.02	0.02	0.07	0.03	<0.01
SG007	1400	0.08	1.08	6.29	3.39	4.73	<0.01
SG008A	10.8	0.01	0.10	0.01	0.06	0.01	<0.01
SG008B	18.2	0.01	<0.01	0.01	0.03	0.01	<0.01
SG009A	14.4	0.01	0.01	0.01	0.04	0.01	<0.01
SG009B	19.0	0.01	0.04	0.01	0.04	0.02	<0.01
SG010	1130	0.09	1.22	2.59	5.67	8.78	<0.01
SG011	0.62	<0.01	<0.01	<0.01	0.01	0.06	<0.01
SG012	0.96	<0.01	0.01	<0.01	0.01	<0.01	<0.01
SG013	2.79	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG014	222	<0.01	0.06	0.01	0.04	0.01	<0.01
SG014AR	116	0.03	0.01	0.03	0.01	0.01	<0.01
SG015	67.1	<0.01	0.03	0.01	0.06	0.01	<0.01
SG016	6.72	<0.01	<0.01	<0.01	<0.01	0.01	<0.01
SG017A	4.37	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
SG017B	5.14	<0.01	0.02	0.01	<0.01	0.01	<0.01
SG018	1420	10.3	6.50	10.9	34.3	12.0	<0.01
SG019	2.19	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
SG020	0.73	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG021	1.57	0.01	0.05	0.01	0.05	0.02	<0.01
SG022	0.27	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG023	0.79	<0.01	0.03	0.01	0.03	<0.01	<0.01
SG024	756	0.08	0.03	0.02	0.08	0.04	<0.01
SG025	247	0.01	0.04	0.02	<0.01	<0.01	<0.01
SG026	364	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01

HYDRO GEO CHEM, INC.
SOIL GAS SURVEY
29 AUGUST 1989
E. C. JORDAN COMPANY

Click Here to Return to Main Index

Table 1
SUMMARY OF SOIL GAS RESULTS
BRUNSWICK NAVAL AIR STATION, BRUNSWICK, ME
(CONC'S REPORTED IN uG/l)

SAMPLE LOCATION	THC	BENZENE	TOLUENE	ETHYL BENZENE	m & p XYLENES	o-XYLENE	VINYL CHLORIDE
SG027	231	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG028	600	0.04	<0.01	<0.01	<0.01	<0.01	<0.01
SG029A	ND	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG029B	13.6	0.01	0.01	0.01	0.04	0.02	<0.01
SG030	2100	3.70	18.7	19.8	51.3	45.5	<0.01
SG031	56.9	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG032	20.3	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
SG033A	ND	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG033B	2.34	0.10	0.37	0.02	0.07	0.02	<0.01
SG034	1.01	<0.01	<0.01	0.01	0.01	<0.01	<0.01
SG035	1.15	<0.01	0.01	0.01	0.04	0.01	<0.01
SG035A	1.39	<0.01	<0.01	0.01	0.01	0.03	<0.01
SG036	1.50	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG037	2.46	<0.01	0.06	0.02	0.05	0.02	<0.01
SG038	1.81	0.02	0.04	0.01	0.03	0.04	<0.01
SG039A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG039B	0.40	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG040	0.74	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG041	2.99	<0.01	0.01	<0.01	0.01	0.01	<0.01
SG042	7.49	0.11	0.29	<0.01	0.10	0.02	<0.01
SG043	1.13	<0.01	<0.01	0.01	0.08	0.01	<0.01
SG044	1.40	0.01	0.01	0.01	0.11	0.02	<0.01
SG045A	3.20	<0.01	0.01	0.01	0.21	0.01	<0.01
SG045B	4.55	<0.01	0.02	<0.01	0.03	0.03	<0.01
SG046	<0.01	<0.01	0.01	0.02	0.14	0.02	<0.01
SG047	1.39	<0.01	0.01	<0.01	0.01	<0.01	<0.01
SG048	1.47	<0.01	0.01	<0.01	0.01	0.01	<0.01
SG049	2.48	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
SG050A	2.48	<0.01	0.01	<0.01	0.01	0.01	<0.01
SG050B	3.10	0.02	0.15	0.03	0.04	<0.01	<0.01
SG051	8.16	<0.01	0.01	<0.01	0.01	<0.01	<0.01
SG052	4.34	<0.01	0.01	0.01	0.01	0.02	<0.01
SG053	3.32	<0.01	0.08	<0.01	0.01	0.01	<0.01
SG054	10.0	<0.01	0.01	0.15	0.05	0.01	<0.01
SG055	4.30	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG056	1.21	<0.01	0.01	0.01	<0.01	<0.01	<0.01
SG057	3.63	<0.01	0.02	0.02	<0.01	<0.01	<0.01
SG058	7.94	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG059	2.31	0.07	<0.01	0.04	0.02	<0.01	<0.01
SG060A	6.31	<0.01	0.07	0.02	<0.01	<0.01	<0.01
SG060B	6.32	<0.01	0.01	0.02	<0.01	<0.01	<0.01

HYDRO GEO CHEM, INC.
SOIL GAS SURVEY
29 AUGUST 1989
E. C. JORDAN COMPANY

Click Here to Return to Main Index

Table 1 (continued)
SUMMARY OF SOIL GAS RESULTS
BRUNSWICK NAVAL AIR STATION , BRUNSWICK, ME
(CONC'S REPORTED IN uG/l)

SAMPLE LOCATION	THC	BENZENE	TOLUENE	ETHYL BENZENE	m & p XYLENES	o-XYLENE	VINYL CHLORIDE
SG061	3.54	<0.01	0.02	<0.01	0.01	0.02	<0.01
SG062	98.2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG063	4.25	<0.01	0.01	<0.01	<0.01	0.10	<0.01
SG064	7.89	0.01	0.01	0.01	0.02	0.01	<0.01
SG065	3.32	<0.01	0.01	<0.01	0.02	0.01	<0.01
SG066	4.62	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG067	2.04	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG068	1.16	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
SG069	1.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG070A	1.72	<0.01	0.01	<0.01	0.02	<0.01	<0.01
SG070B	1.58	<0.01	0.01	0.31	0.27	0.01	<0.01
SG071	15.9	<0.01	0.01	<0.01	0.19	<0.01	<0.01
SG072	11.9	<0.01	<0.01	<0.01	0.05	<0.01	<0.01
SG073	75.1	0.01	<0.01	0.04	0.01	0.01	<0.01
SG074	6.13	0.10	0.03	0.06	0.24	0.08	<0.01
SG075	3.03	<0.01	0.01	<0.01	0.02	0.01	<0.01
SG076	7.00	0.01	<0.01	0.01	0.03	0.01	<0.01
SG077	1.19	<0.01	0.01	<0.01	0.01	<0.01	<0.01
SG078	32.4	<0.01	0.01	<0.01	0.02	<0.01	<0.01
SG079	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	<0.01
SG080	2.96	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG081A	0.16	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG081B	3.94	<0.01	0.01	0.03	<0.01	0.01	<0.01
SG082	1.50	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG083	0.47	0.01	0.11	<0.01	0.03	0.01	<0.01
SG084	5.67	0.04	0.33	0.06	0.21	0.08	<0.01
SG085	1.04	<0.01	0.01	<0.01	0.01	<0.01	<0.01
SG086	0.76	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG087	1.30	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG088	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG089	0.48	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG090	4.44	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG091	4.05	<0.01	0.02	0.02	0.02	0.01	<0.01
SG092	383	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
SG093	1.29	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG094	1.48	<0.01	0.20	<0.01	<0.01	0.01	<0.01
SG095	0.61	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG096	1.04	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG097	33.5	<0.01	<0.01	<0.01	0.03	0.05	<0.01
SG098	1.32	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG099	1.27	<0.01	0.19	0.01	0.02	0.01	<0.01
SG100	1.67	<0.01	0.02	<0.01	0.01	<0.01	<0.01
G101A	0.88	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG101B	0.25	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10

HYDRO GEO CHEM, INC.
SOIL GAS SURVEY
29 AUGUST 1989
E. C. JORDAN COMPANY

Click Here to Return to Main Index

Table 1 (continued)
SUMMARY OF SOIL GAS RESULTS
BRUNSWICK NAVAL AIR STATION, BRUNSWICK, ME
(CONC'S REPORTED IN uG/l)

SAMPLE LOCATION	THC	BENZENE	TOLUENE	ETHYL BENZENE	m & p XYLENES	o-XYLENE	VINYL CHLORIDE
SG102	0.72	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG103	0.85	0.01	<0.01	<0.01	0.02	0.01	<0.01
SG104	1.14	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG105	1.10	<0.01	<0.01	<0.01	<0.01	<0.01	<0.10
SG106	0.02	<0.01	<0.01	0.01	<0.01	0.01	<0.01
SG107	0.81	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG108	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG109	0.67	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG110	1.42	<0.01	0.01	<0.01	0.01	<0.01	<0.01
SG111	0.64	<0.01	<0.01	0.01	0.01	<0.01	<0.01
SG112	0.11	<0.01	<0.01	0.01	<0.01	0.01	<0.01
SG113	0.96	<0.01	0.01	<0.01	0.01	<0.01	<0.01
SG114	0.33	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG115	0.86	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG116	0.38	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG117A	1.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG117B	1.05	<0.01	0.01	<0.01	0.01	<0.01	<0.01
SG118	3.49	<0.01	<0.01	<0.01	0.02	<0.01	<0.01
SG119	4.32	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG120	0.53	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG121	2.69	<0.01	<0.01	<0.01	0.02	0.02	<0.01
SG122	0.10	0.02	0.03	<0.01	<0.01	<0.01	<0.01
SG123	18.4	<0.01	0.02	<0.01	0.02	0.05	<0.01
SG124	37.1	<0.01	0.01	<0.01	0.01	<0.01	<0.01
SG125	1.21	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG126	4.82	<0.01	0.01	<0.01	<0.01	0.01	<0.01
SG127A	0.49	<0.01	0.02	<0.01	<0.01	<0.01	<0.10
SG127B	1.39	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG128	4.50	<0.01	0.08	0.01	0.05	0.03	<0.01
SG129	58.1	<0.01	0.01	<0.01	0.05	0.07	<0.01
SG130	4.82	<0.01	0.01	0.07	0.01	0.04	<0.01
SG131	48.5	0.01	0.01	<0.01	0.03	0.01	<0.01
SG132	0.77	<0.01	<0.01	<0.01	0.04	<0.01	<0.01
SG133	0.02	<0.01	<0.01	<0.01	<0.01	0.02	<0.01
SG134	6.88	<0.01	<0.01	0.01	0.01	<0.01	<0.01
SG135	0.97	<0.01	<0.01	<0.01	0.01	0.03	<0.01
SG136	3.15	<0.01	<0.01	<0.01	0.02	0.01	<0.01
SG137A	1.67	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG137B	1.62	<0.01	<0.01	0.01	0.02	0.01	<0.01
SG138	1.34	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG139	2.00	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG140	1.14	<0.01	0.08	<0.01	<0.01	<0.01	<0.01
SG141	25.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG142	13.7	<0.01	0.03	<0.01	0.08	<0.01	<0.01

HYDRO GEO CHEM, INC.
SOIL GAS SURVEY
29 AUGUST 1989
E. C. JORDAN COMPANY

Click Here to Return to Main Index

Table 1 (continued)
SUMMARY OF SOIL GAS RESULTS
BRUNSWICK NAVAL AIR STATION, BRUNSWICK, ME
(CONC'S REPORTED IN uG/l)

SAMPLE LOCATION	THC	BENZENE	TOLUENE	ETHYL BENZENE	m & p XYLENES	o-XYLENE	VINYL CHLORIDE
SG143	8.28	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG144A	3.17	<0.01	<0.01	<0.01	0.03	0.01	<0.01
SG144B	3.68	<0.01	<0.01	0.01	0.02	0.01	<0.01
SG145	89.2	<0.01	0.01	0.02	<0.01	<0.01	<0.01
SG146	0.44	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG147	0.55	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG148	7.14	<0.01	0.01	<0.01	0.01	<0.01	<0.01
SG149	5.66	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG150	0.43	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG151	0.43	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG152	0.86	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG153	0.45	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG154	3.08	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG155A	5.41	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG155B	5.03	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG156	0.42	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG157	1.29	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
SG158	1.64	<0.01	<0.01	<0.01	0.01	<0.01	<0.01
SG159	15.3	<0.01	0.02	0.01	<0.01	<0.01	<0.01
SG160	1.36	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
SG161	0.69	<0.01	<0.01	0.02	<0.01	<0.01	<0.01
SG162	1.46	<0.01	0.01	0.01	<0.01	<0.01	<0.01
SG163	0.21	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG164	2.03	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
SG165	0.90	0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG166	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG167	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG168A	9.30	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG168B	9.00	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG169	0.30	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG170	0.54	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG171	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG172	0.27	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG173	0.79	<0.10	0.01	0.01	0.05	0.02	<0.01
SG174	0.56	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SG175	0.82	<0.01	0.03	0.02	0.07	0.03	<0.01

SG - soil gas sample

FB - field blank

ND - no data, not qualifible

HYDRO GEO CHEM, INC.
SOIL GAS SURVEY
29 AUGUST 1989
E. C. JORDAN COMPANY

Click Here to Return to Main Index

Table 2
SUMMARY OF PRELIMINARY SOIL GAS RESULTS
BRUNSWICK NAVAL AIR STATION
(ug/l)

SAMPLE LOCATION	1,1 DCE	1,2trans DCE	1,2 cis DCE	1,1,1 TCA	TCE	PCE	COMMENTS
FB07AUG89	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
FB08AUG89	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
FB09AUG2	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
FB09AUG89	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
FB10AUG	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
FB11AUG89	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
FB16AUG89	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
FB17AUG89	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
FB18AUG89	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
FB19AUG89	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
FB20AUG	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
FB21AUG	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG001	<0.01	<0.01	<0.01	0.02	<0.01	<0.01	
SG002A	1.36	<0.01	<0.01	0.04	<0.01	<0.01	FUEL
SG002B	1.12	<0.01	<0.01	0.07	<0.01	<0.01	FUEL
SG003	<0.01	<0.01	<0.01	0.07	7.37	0.32	
SG004	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG005	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG006	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	
SG007	<0.01	<0.01	<0.01	5.09	<0.01	5.93	FUEL PID OFFSCALE
SG008A	<0.01	<0.01	<0.01	19.2	2.49	4.51	
SG008B	<0.01	<0.01	<0.01	14.2	2.06	1.40	
SG009A	0.72	<0.01	<0.01	18.7	<0.01	0.11	
SG009B	5.99	<0.01	<0.01	18.6	0.02	0.21	INT STD
SG010	3.62	0.05	3.80	54.5	8.83	0.58	FUEL
SG011	<0.01	<0.01	<0.01	0.30	<0.01	<0.01	
SG012	<0.01	<0.01	<0.01	0.89	<0.01	<0.01	
SG013	<0.01	<0.01	<0.01	3.43	1.22	<0.01	
SG014	1.68	0.07	2.13	193	106	1.13	
SG014AR	0.84	<0.01	1.23	174	80.0	0.84	REPEAT SAMPLING OF SG14
SG015	<0.01	0.02	0.04	91.1	26.0	2.05	
SG016	<0.01	<0.01	0.48	13.2	0.62	<0.01	
SG017A	<0.01	<0.01	<0.01	11.4	<0.01	<0.01	
SG017B	<0.01	<0.01	<0.01	12.3	<0.01	0.01	
SG018	<0.01	<0.01	<0.01	0.27	<0.01	<0.01	FUEL
SG019	<0.01	<0.01	<0.01	2.11	0.11	<0.01	
SG020	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG021	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG022	<0.01	<0.01	<0.01	0.27	<0.01	<0.01	
SG023	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG024	18.9	1.81	18.5	367	159	2.03	

HYDRO GEO CHEM, INC.
SOIL GAS SURVEY
29 AUGUST 1989
E. C. JORDAN COMPANY

Click Here to Return to Main Index

Table 2 (continued)
SUMMARY OF PRELIMINARY SOIL GAS RESULTS
BRUNSWICK NAVAL AIR STATION
(ug/l)

SAMPLE LOCATION	1,1 DCE	1,2trans DCE	1,2 cis DCE	1,1,1 TCA	TCE	PCE	COMMENTS
SG025	<0.01	0.26	0.28	251	83.9	0.71	
SG026	13.0	0.64	45.2	321	108	1.00	
SG027	1.98	<0.01	11.7	267	8.00	0.18	
SG028	30.4	<0.01	15.3	450	131	7.28	
SG029A	0.60	<0.01	0.50	34.0	<0.01	<0.01	ND= NO DATA
SG029B	0.06	<0.01	<0.01	23.2	<0.01	0.02	
SG030	<0.01	<0.01	<0.01	2.68	<0.01	<0.01	FUEL
SG031	0.09	<0.01	<0.01	33.5	20.1	0.50	
SG032	0.04	<0.01	<0.01	22.8	14.8	0.09	
SG033A	<0.01	<0.01	<0.01	1.17	<0.01	<0.01	
SG033B	<0.01	<0.01	<0.01	1.28	<0.01	<0.01	
SG034	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG035	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG035A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG036	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG037	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG038	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG039A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG039B	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG040	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG041	5.42	<0.01	<0.01	0.86	0.03	0.11	
SG042	6.32	<0.01	<0.01	12.9	1.18	1.02	
SG043	4.23	<0.01	<0.01	4.78	<0.01	<0.01	
SG044	<0.01	<0.01	<0.01	0.10	<0.01	0.03	
SG045A	0.02	<0.01	<0.01	1.07	<0.01	0.48	
SG045B	0.03	<0.01	<0.01	1.07	<0.01	0.481	
SG046	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	
SG047	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	
SG048	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG049	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	
SG050A	<0.01	<0.01	<0.01	<0.01	<0.01	1.27	
SG050B	<0.01	<0.01	<0.01	<0.01	<0.01	1.59	
SG051	<0.01	<0.01	<0.01	<0.01	<0.01	14.7	
SG052	0.03	<0.01	<0.01	6.64	<0.01	0.01	
SG053	<0.01	<0.01	<0.01	0.02	<0.01	0.29	
SG054	<0.01	<0.01	<0.01	<0.01	<0.01	5.03	
SG055	<0.01	<0.01	<0.01	<0.01	<0.01	9.99	
SG056	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	
SG057	<0.01	<0.01	<0.01	<0.01	<0.01	0.58	
SG058	2.68	<0.01	<0.01	0.52	0.19	0.05	
SG059	3.70	<0.01	<0.01	2.29	<0.01	0.21	
SG060A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG060B	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	

HYDRO GEO CHEM, INC.
SOIL GAS SURVEY
29 AUGUST 1989
E. C. JORDAN COMPANY

Click Here to Return to Main Index

Table 2 (continued)
SUMMARY OF PRELIMINARY SOIL GAS RESULTS
BRUNSWICK NAVAL AIR STATION
(ug/l)

SAMPLE LOCATION	1,1 DCE	1,2trans DCE	1,2 cis DCE	1,1,1 TCA	TCE	PCE	COMMENTS
SG061	1.85	<0.01	<0.01	0.85	0.16	0.02	
SG062	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	SUB-STITUTED BENZENES
SG063	0.79	<0.01	<0.01	10.41	<0.01	0.02	
SG064	0.03	<0.01	<0.01	0.19	0.02	0.02	
SG065	<0.01	<0.01	<0.01	0.06	<0.01	<0.01	PEAKS AT 1.9& 3.8 HECD
SG066	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	PEAKS LATE ON PID
SG067	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG068	0.04	<0.01	<0.01	<0.01	<0.01	0.09	
SG069	0.07	<0.01	<0.01	0.15	0.11	0.29	
SG070A	0.02	<0.01	<0.01	0.02	<0.01	0.64	
SG070B	<0.01	<0.01	<0.01	<0.01	<0.01	0.34	
SG071	0.01	<0.01	<0.01	<0.01	<0.01	0.42	
SG072	<0.01	<0.01	<0.01	<0.01	<0.01	0.05	
SG073	<0.01	<0.01	<0.01	0.03	<0.01	0.05	LATE PEAKS ON PID
SG074	<0.01	<0.01	<0.01	0.01	<0.01	0.01	
SG075	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG076	<0.01	<0.01	<0.01	0.04	0.05	0.30	
SG077	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	
SG078	0.02	<0.01	<0.01	<0.01	<0.01	0.04	
SG079	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG080	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG081A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG081B	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	
SG082	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG083	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG084	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG085	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	
SG086	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	
SG087	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	
SG088	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG089	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG090	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG091	<0.01	<0.01	<0.01	<0.01	<0.01	2.02	PEAKS LATE ON PID
SG092	0.22	<0.01	<0.01	0.04	<0.01	<0.01	
SG093	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	

HYDRO GEO CHEM, INC.
SOIL GAS SURVEY
29 AUGUST 1989
E. C. JORDAN COMPANY

Click Here to Return to Main Index

Table 2 (continued)
SUMMARY OF PRELIMINARY SOIL GAS RESULTS
BRUNSWICK NAVAL AIR STATION

SAMPLE LOCATION	1,1 DCE	1,2trans DCE	1,2 cis DCE	1,1,1 TCA	TCE	PCE	COMMENTS
SG094	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG095	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG096	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	
SG097	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	LATE PEAKS ON PID ONLY
SG098	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG099	<0.01	<0.01	<0.01	0.19	<0.01	0.01	
SG100	<0.01	<0.01	<0.01	0.04	<0.01	0.04	
SG101A	<0.01	<0.01	<0.01	<0.01	<0.01	0.09	
SG101B	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG102	<0.01	<0.01	<0.01	0.22	0.12	0.19	
SG103	<0.01	<0.01	<0.01	0.03	0.02	0.12	
SG104	<0.01	<0.01	<0.01	<0.01	<0.01	0.03	
SG105	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG106	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG107	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG108	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG109	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG110	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG111	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG112	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG113	<0.01	<0.01	<0.01	0.12	<0.01	<0.01	
SG114	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG115	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG116	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG117A	<0.01	<0.01	<0.01	<0.01	<0.01	0.21	
SG117B	<0.01	<0.01	<0.01	<0.01	<0.01	0.22	
SG118	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	PEAKS LATE ON PID
SG119	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG120	<0.01	<0.01	<0.01	<0.01	<0.01	0.02	
SG121	<0.01	<0.01	<0.01	<0.01	<0.01	0.04	
SG122	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG123	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	LARGE PEAKS LATE ON PID
SG124	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG125	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG126	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG127A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	

HYDRO GEO CHEM, INC.
SOIL GAS SURVEY
29 AUGUST 1989
E. C. JORDAN COMPANY

Click Here to Return to Main Index

Table 2 (continued)
SUMMARY OF PRELIMINARY SOIL GAS RESULTS
BRUNSWICK NAVAL AIR STATION

SAMPLE LOCATION	1,1 DCE	1,2trans DCE	1,2 cis DCE	1,1,1 TCA	TCE	PCE	COMMENTS
SG127B	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG128	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	PEAKS LATE ON PID
SG129	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	PEAKS LATE ON PID
SG130	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG131	<0.01	<0.01	<0.01	0.04	<0.01	<0.01	
SG132	<0.01	<0.01	<0.01	<0.01	<0.01	0.18	
SG133	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG134	<0.01	<0.01	<0.01	<0.0	<0.01	<0.01	
SG135	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	PEAKS LATE ON PID
SG136	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG137A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG137B	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG138	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	PEAKS LATE ON PID ONLY
SG139	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG140	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG141	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG142	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	LATE PEAKS PID
SG143	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	PEAKS ON PID
SG144A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG144B	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	PEAKS ON PID
SG145	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	PEAKS LATE PID ONLY
SG146	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG147	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	SMALL PEAKS LATE ON PID
SG148	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG149	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG150	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	

HYDRO GEO CHEM, INC.
SOIL GAS SURVEY
29 AUGUST 1989
E. C. JORDAN COMPANY

Click Here to Return to Main Index

Table 2 (continued)
SUMMARY OF PRELIMINARY SOIL GAS RESULTS
BRUNSWICK NAVAL AIR STATION
(ug/l)

SAMPLE LOCATION	1,1 DCE	1,2trans DCE	1,2 cis DCE	1,1,1 TCA	TCE	PCE	COMMENTS
SG151	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG152	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG153	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG154	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	PID ONLY PEAKS
SG155A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG155B	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG156	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG157	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG158	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG159	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	PEAKS LATE ON PID
SG160	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG161	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG162	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG163	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG164	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG165	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG166	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG167	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG168A	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG168B	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG169	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG170	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG171	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG172	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG173	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG174	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
SG175	<0.01	<0.01	<0.01	0.12	<0.01	<0.01	

SG - soil gas sample

FB - field blank

ND - no data, not qualifible

HYDRO GEO CHEM, INC.
SOIL GAS SURVEY
29 AUGUST 1989
E. C. JORDAN COMPANY

Click Here to Return to Main Index

APPENDIX E
GRAIN SIZE ANALYSES

NAS BRUNSWICK
BRUNSWICK, MAINE

Click Here to Return to Main Index

EMPIRE
SOILS INVESTIGATIONS INC

GEOTECHNICAL TESTING REPORT

NAVAL AIR STATION
BRUNSWICK, MAINE

For:

C-E Environmental, Inc.
Portland, Maine

Project No. G020.002

November, 1989

Click Here to Return to Main Index

EMPIRE
SOILS INVESTIGATIONS INC.

November 29, 1989

Mr. Thomas Longley
C-E ENVIRONMENTAL, INC.
261 Commercial Street
Portland, ME 04112

Reference: Geotechnical Testing, Contaminated Samples
Naval Air Station, Brunswick, Maine
Purchase Order No. 9-02-309

Dear Mr. Longley:

Transmitted herewith are two (2) copies of the Geotechnical Testing Report for work performed on contaminated soil samples from the subject project.

A total of 36 grain size distribution tests were performed in accordance with ASTM Designation D 422.

Should you have any questions regarding the test results, or in case we may be of further service, please do not hesitate to call the undersigned.

Respectfully submitted,

EMPIRE SOILS INVESTIGATIONS, INC.

Jorgen F. Christiansen

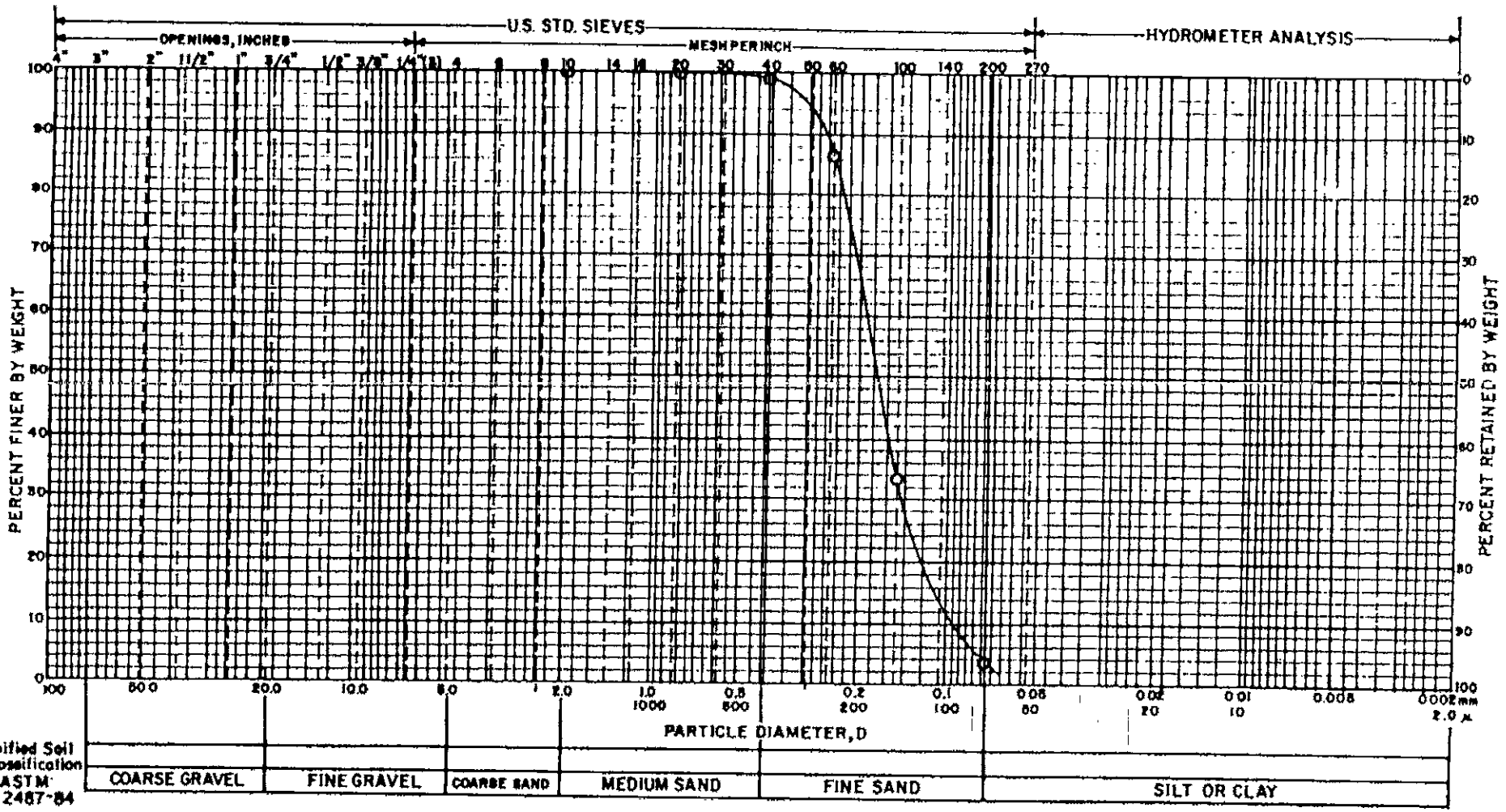
Jorgen F. Christiansen, P.E.
Director, Geotechnical Testing

JFC:trs
Enclosure

longley.jfc

140 TELEGRAPH ROAD, P.O. BOX 297, MIDDLEPORT, NEW YORK 14105 716-735-3502

PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-214	32.0-34.0

☐ Insufficient Sample Size per ASTM D 422

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
BRUNSWICK, MAINE

DR. BY: JB	CK'D. JFC	DATE: Nov. '89	PROJ. NO. G020.002

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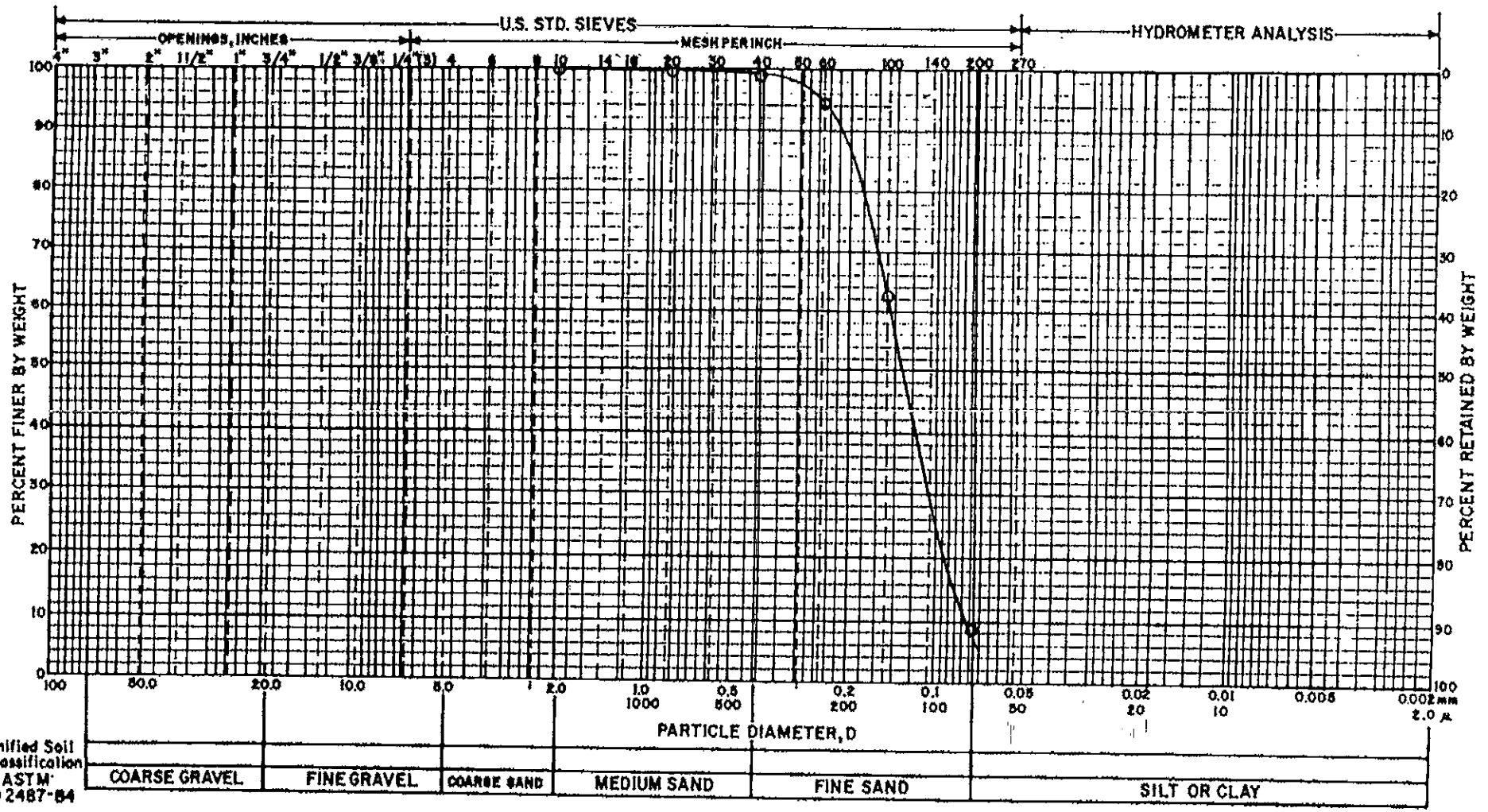

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-215	26.0-28.0

☐ Insufficient Sample Size per ASTM D 422

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
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E-4

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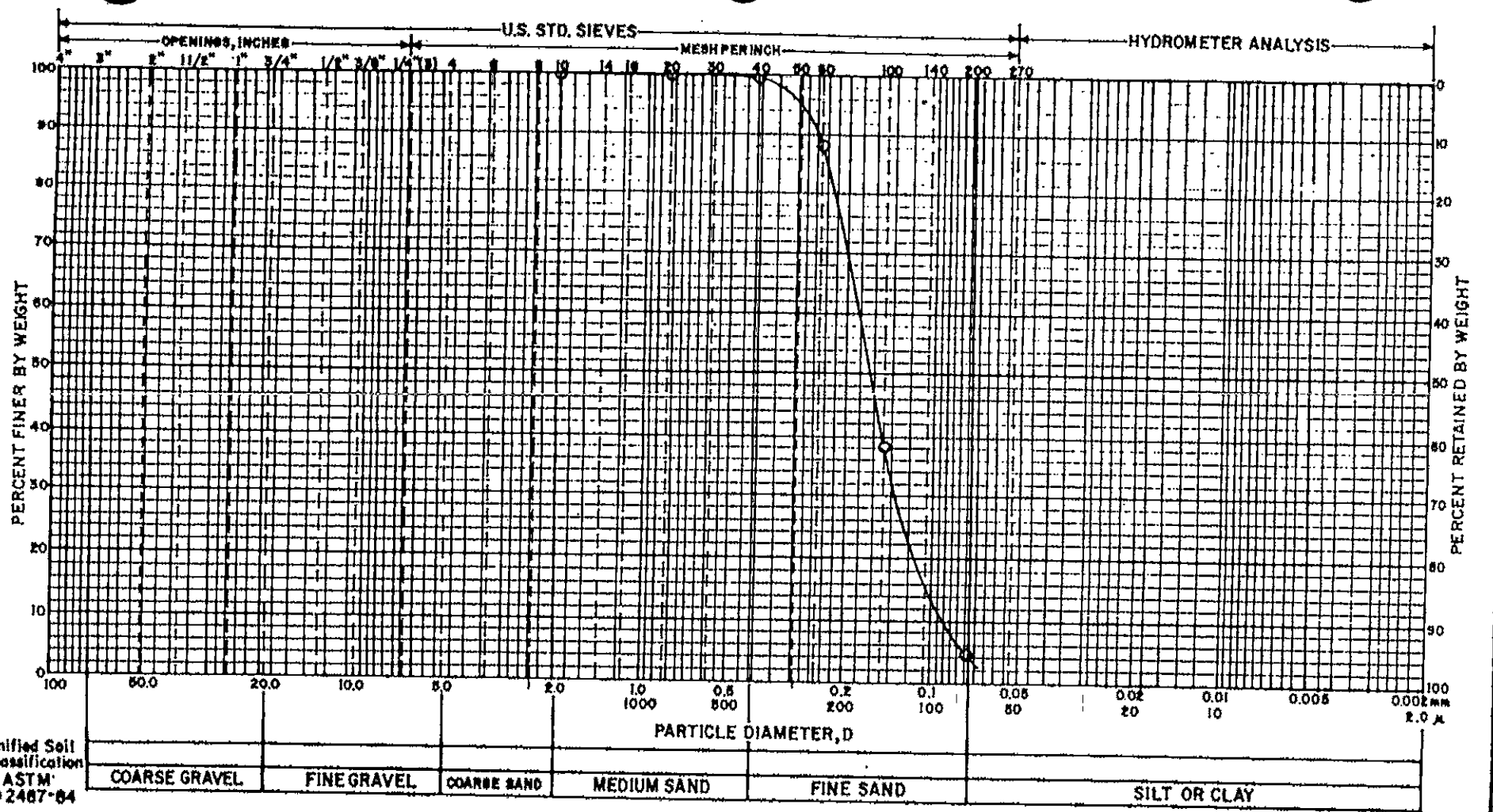

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-216A	22.0-24.0

☐ **Insufficient Sample Size per ASTM D 422**

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
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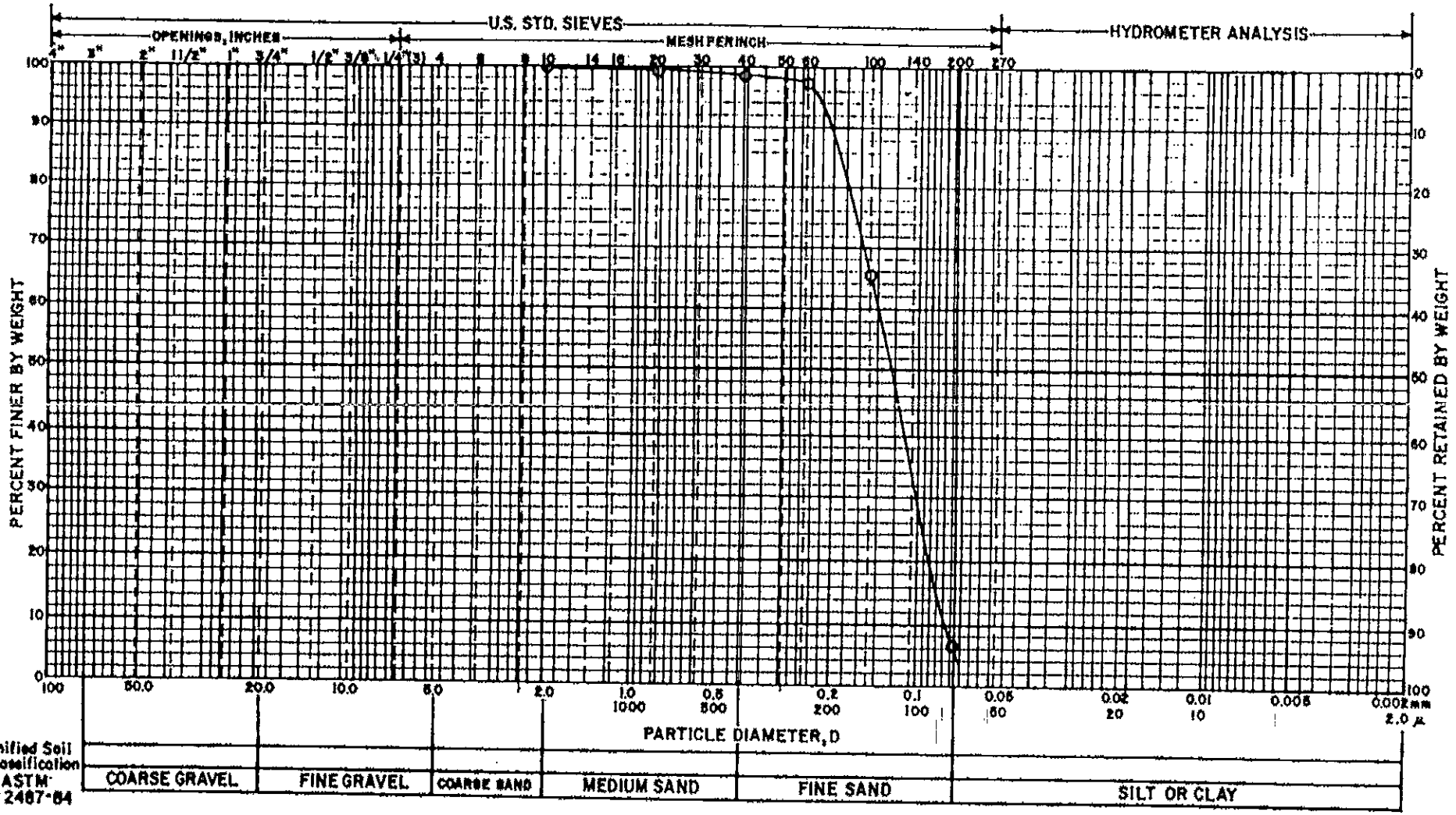

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-216B	12.0-14.0

☐ Insufficient Sample Size per ASTM D 422

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
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E-6

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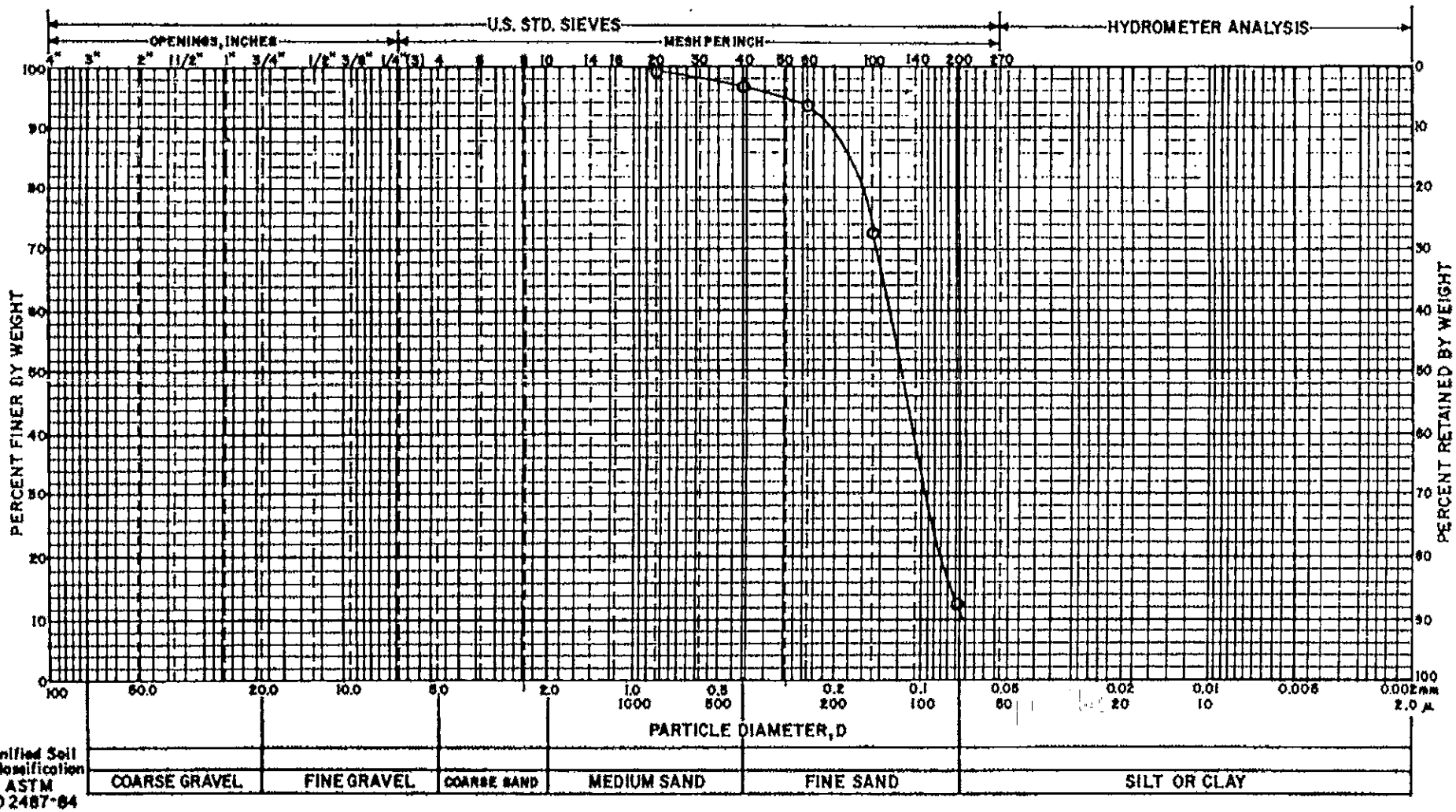

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-217A	30.0-32.0

☐ **Insufficient Sample Size per ASTM D 422**

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
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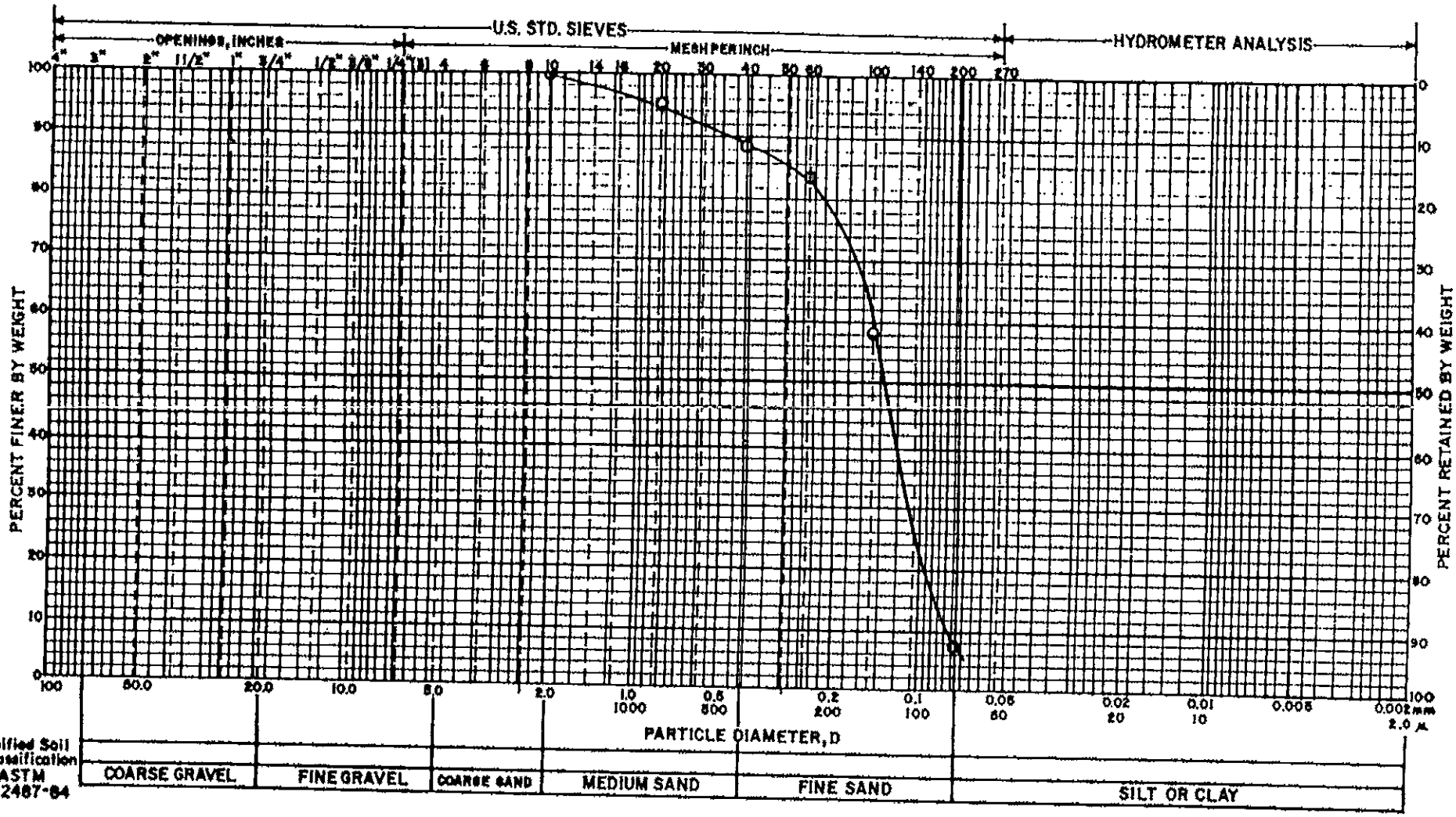

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-217B	14.0-16.0

☐ **Insufficient Sample Size per ASTM D 422**

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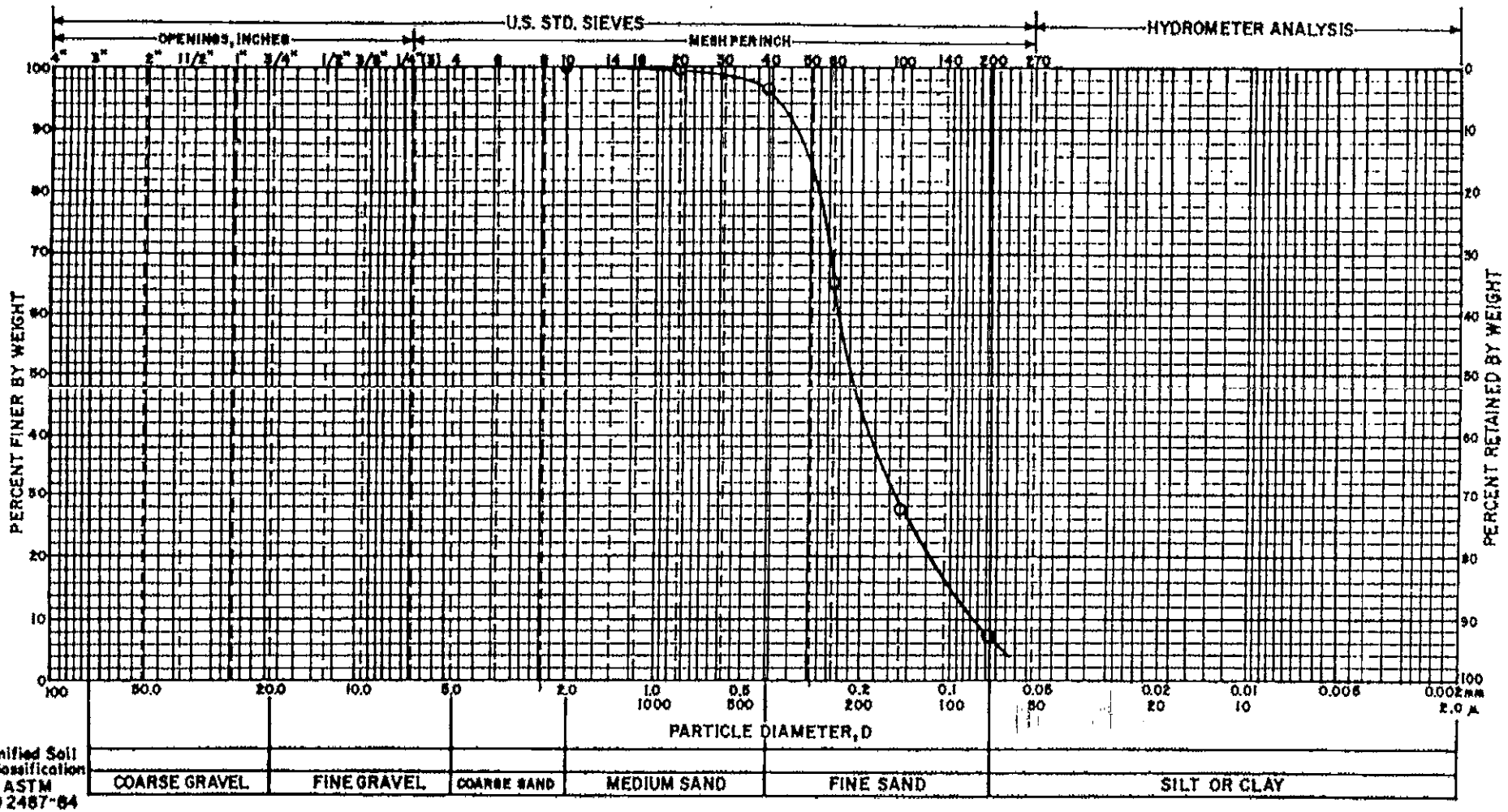

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-219	65.0-67.0

☐ **Insufficient Sample Size per ASTM D 422**

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PARTICLE SIZE ANALYSIS

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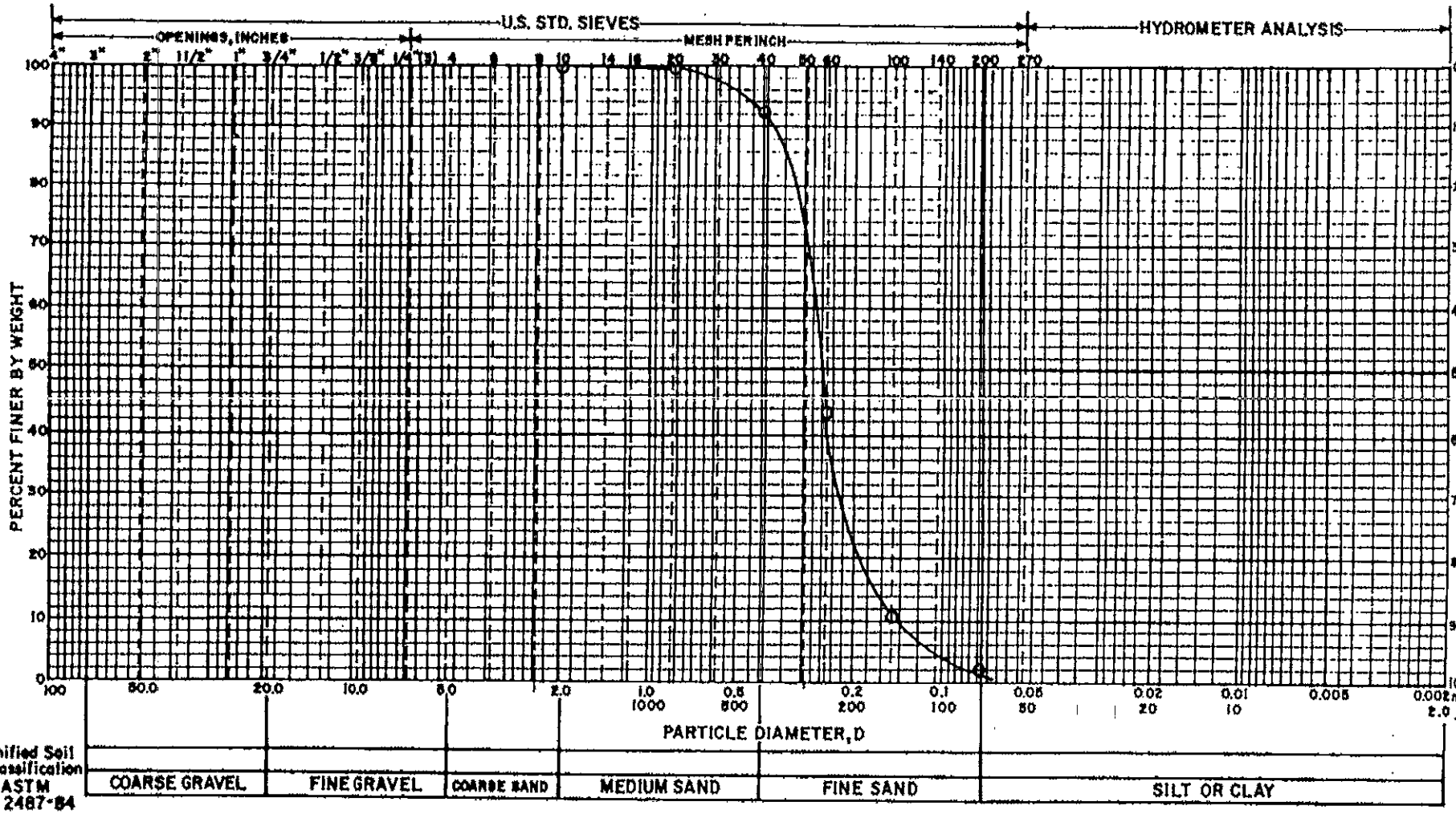

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-222	30.0-32.0

☐ Insufficient Sample Size per ASTM D 422

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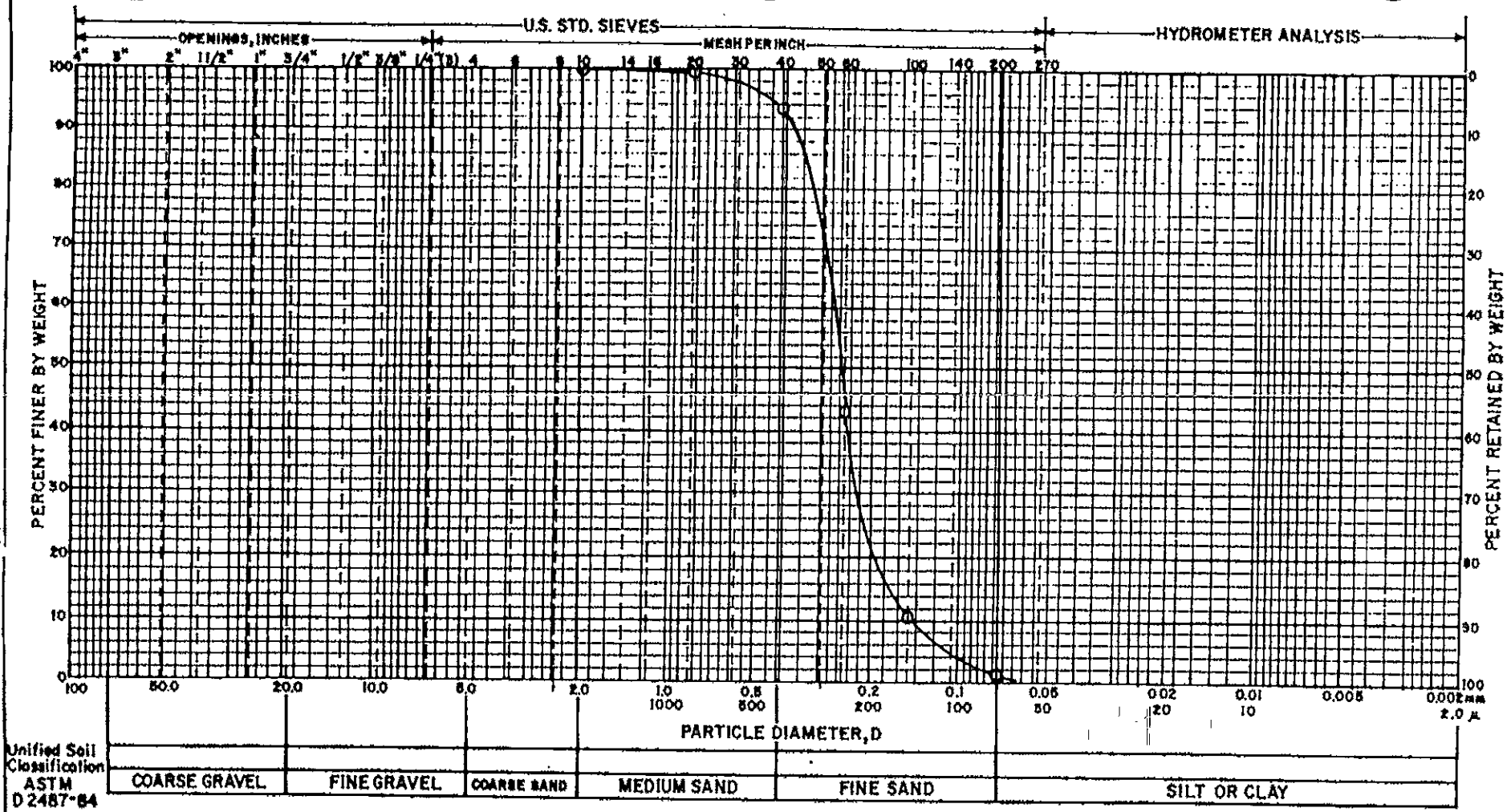

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-223	35.0-37.0

☐ **Insufficient Sample Size per ASTM D 422**

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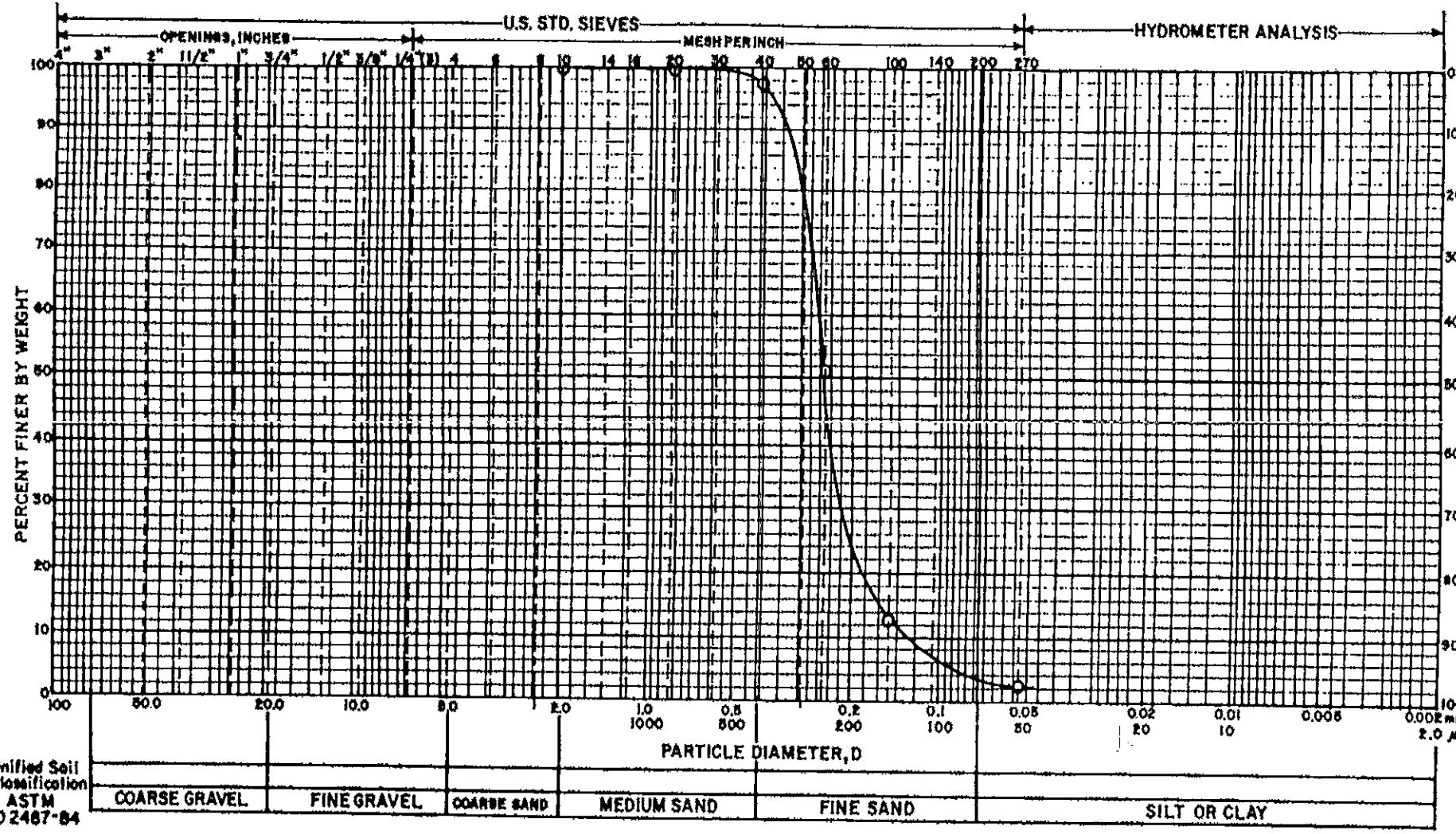

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-224	35.0-37.0

☐ Insufficient Sample Size per ASTM D 422

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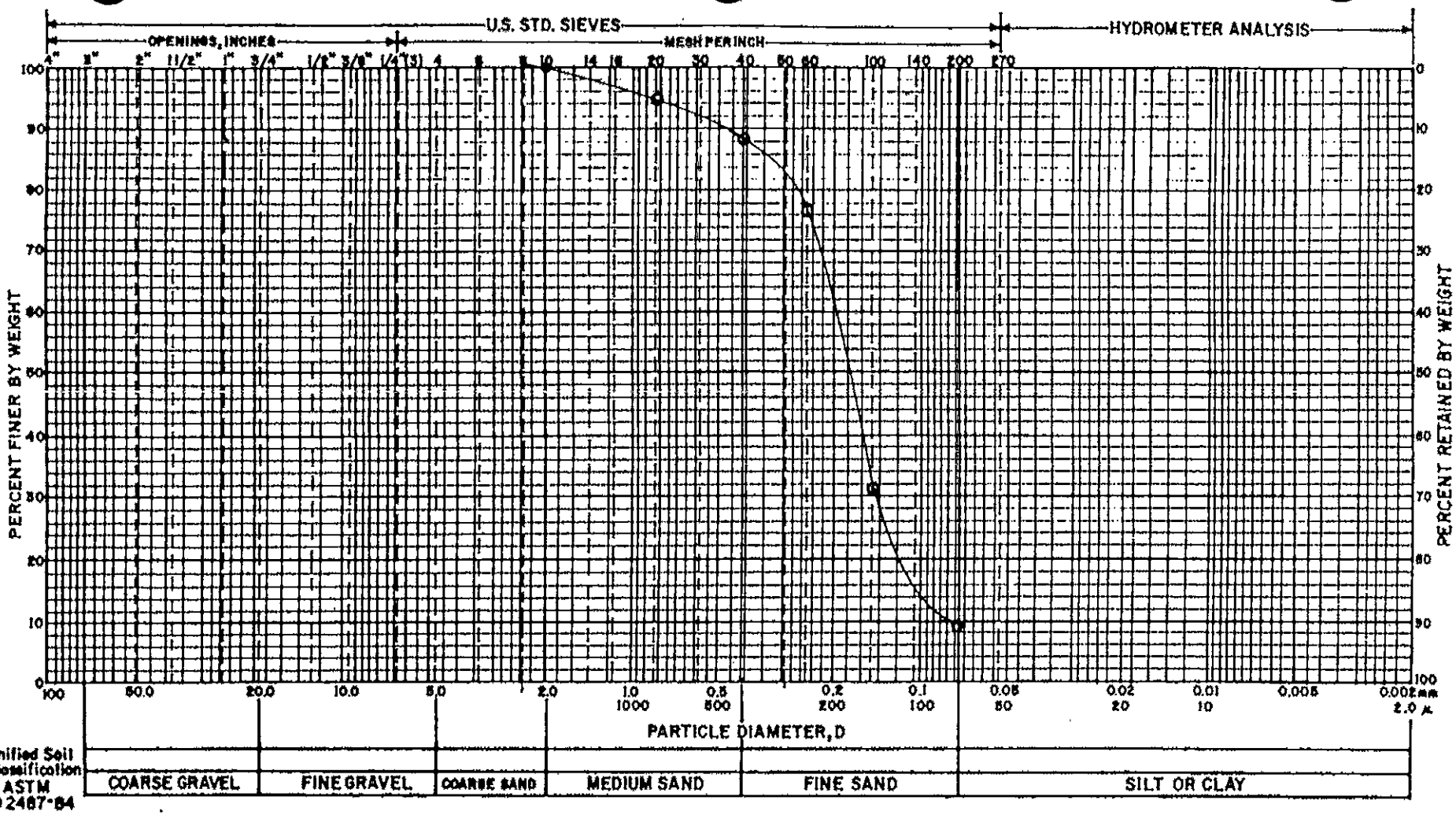

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-229A	60.0-62.0

☐ **Insufficient Sample Size per ASTM D 422**

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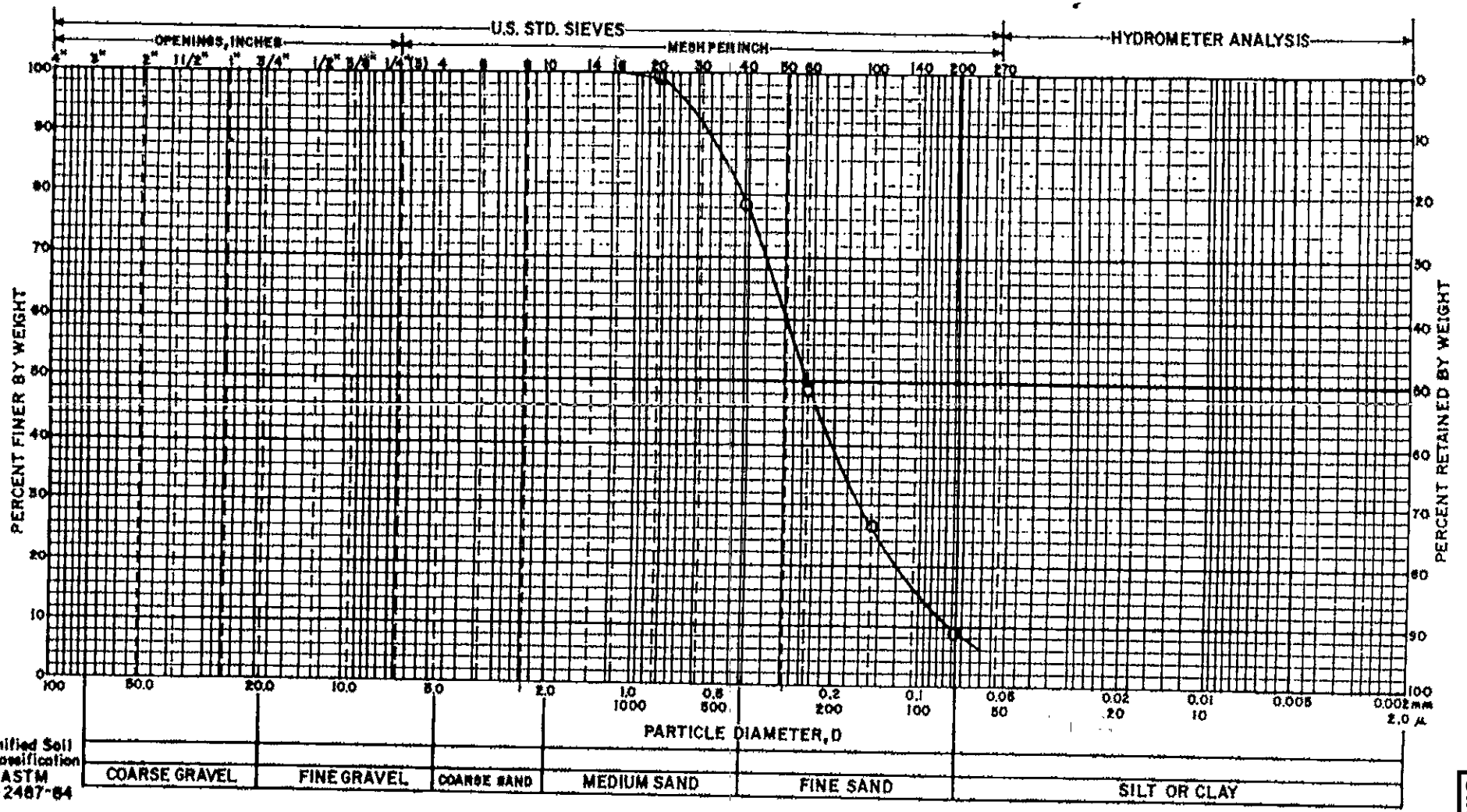

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-229B	30.0-32.0

☐ **Insufficient Sample Size per ASTM D 422**

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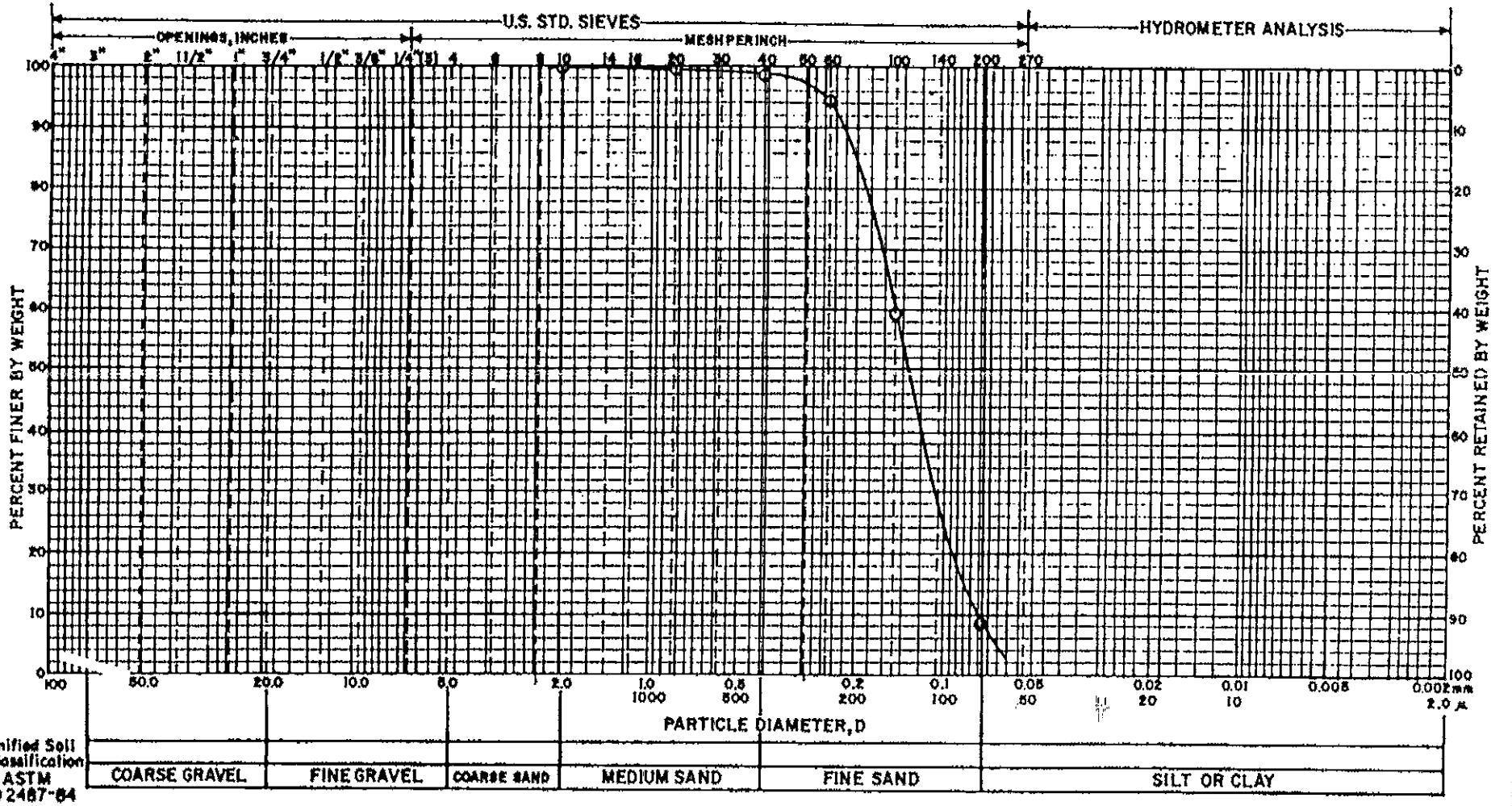

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-230A	80.0-82.0

☐ Insufficient Sample Size per ASTM D 422

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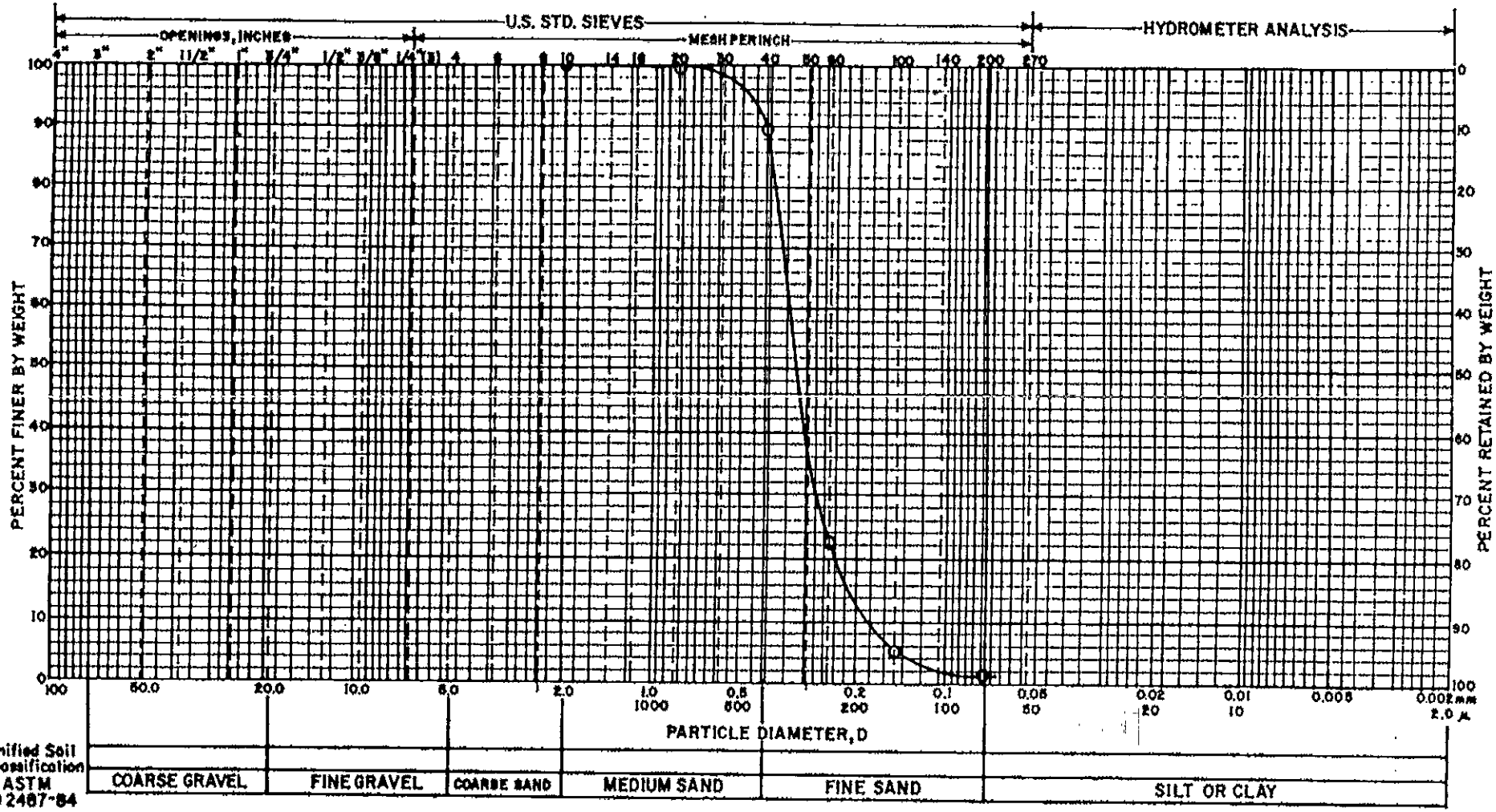

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-230B	55.0-57.0

☐ Insufficient Sample Size per ASTM D 422

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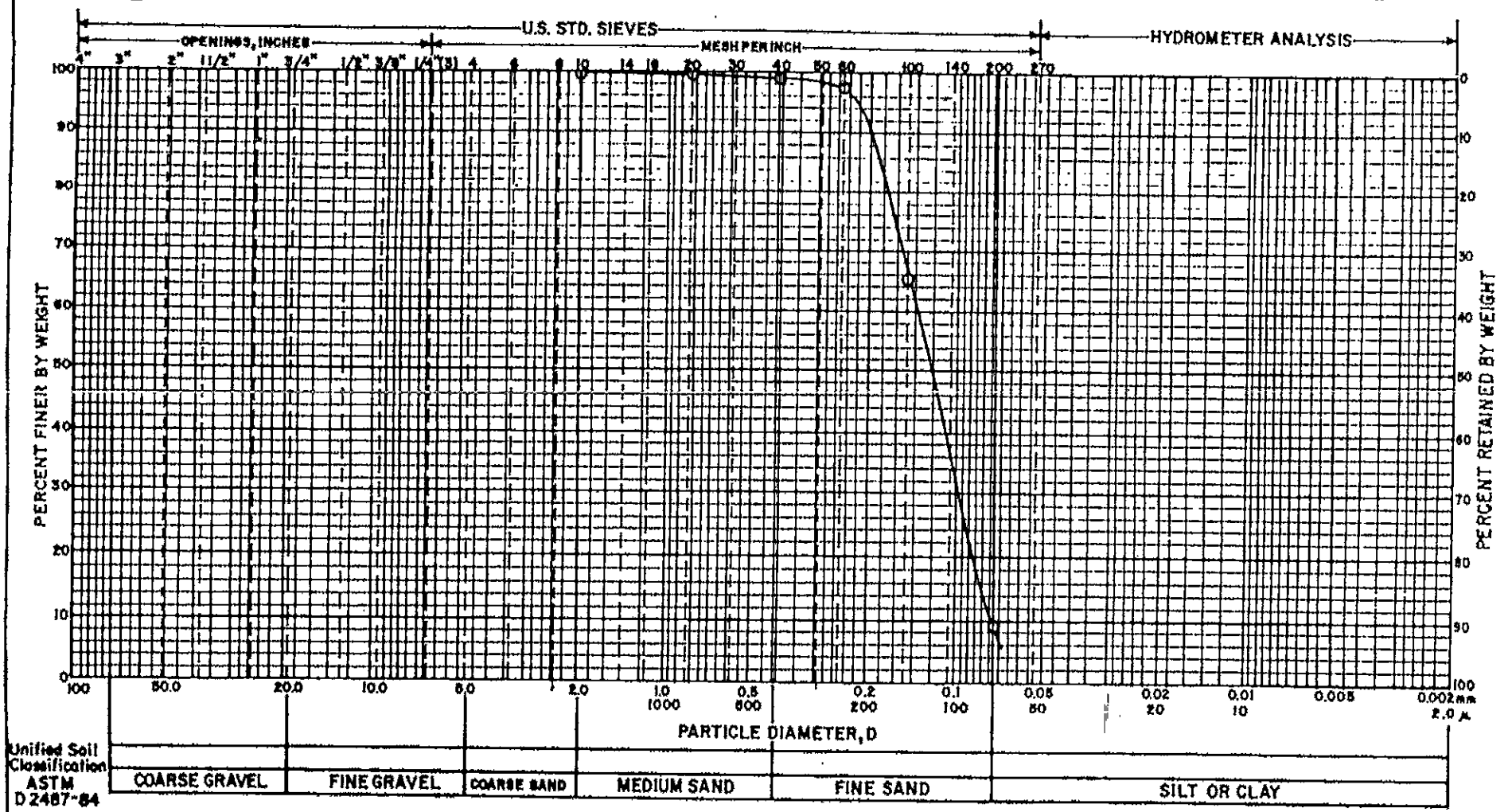

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-231A	55.0-57.0

☐ **Insufficient Sample Size per ASTM D 422**

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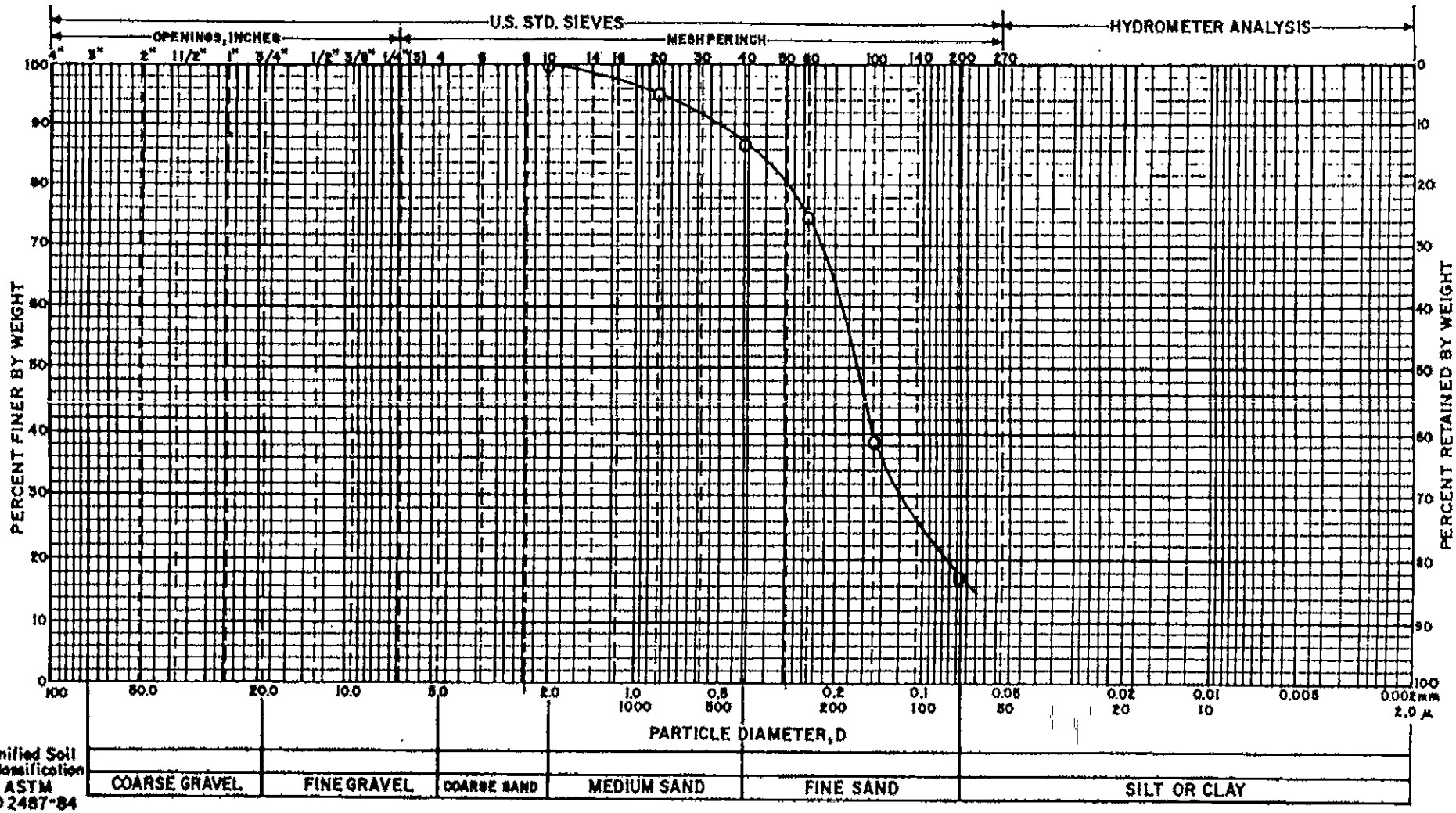

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-231B	30.0-32.0

☐ Insufficient Sample Size per ASTM D 422

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PARTICLE SIZE ANALYSIS

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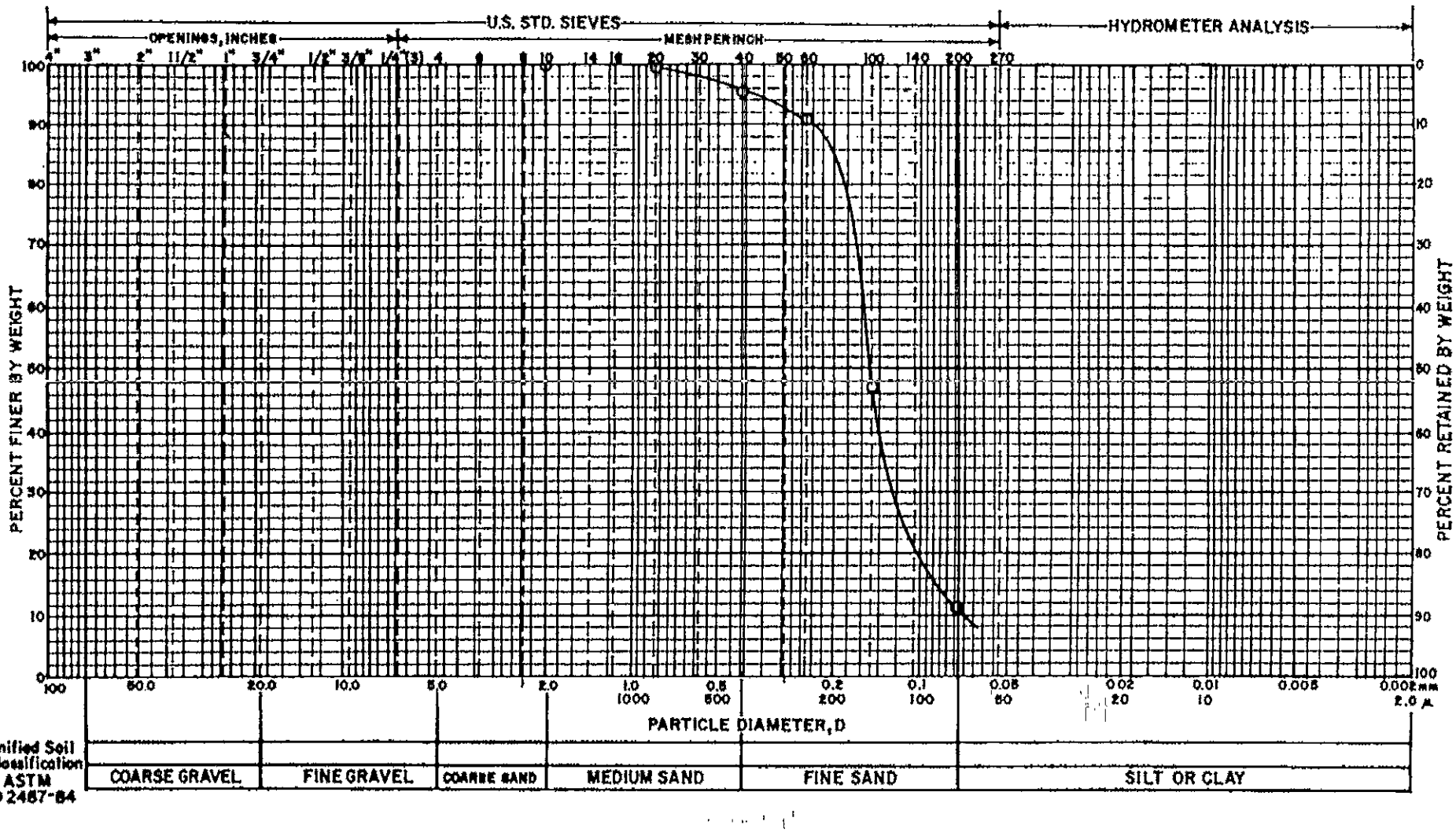

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-232A	36.0-38.0

☐ Insufficient Sample Size per ASTM D 422

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PARTICLE SIZE ANALYSIS

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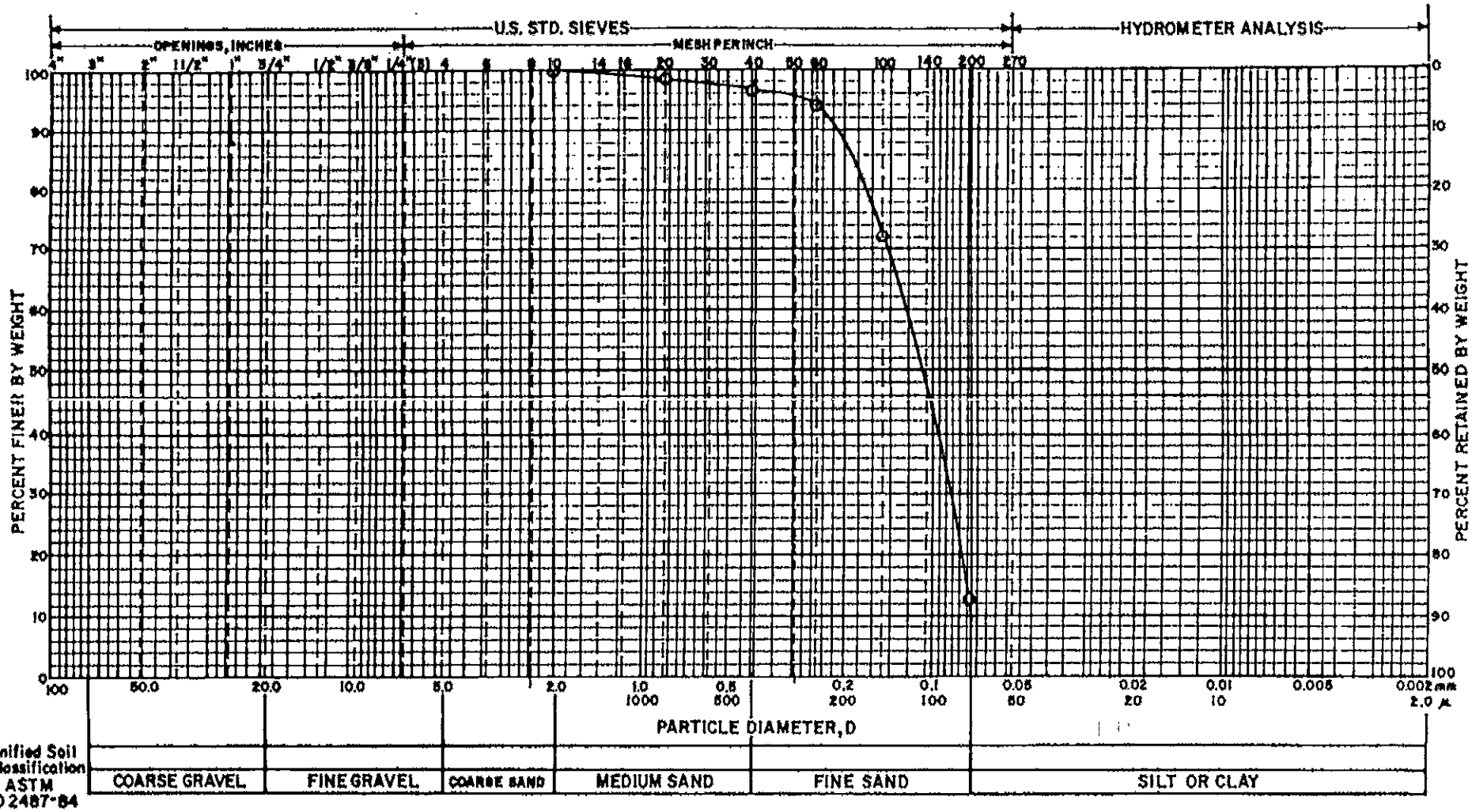

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-232B	20.0-22.0

☐ **Insufficient Sample Size per ASTM D 422**

EMPIRE SOILS INVESTIGATIONS INC

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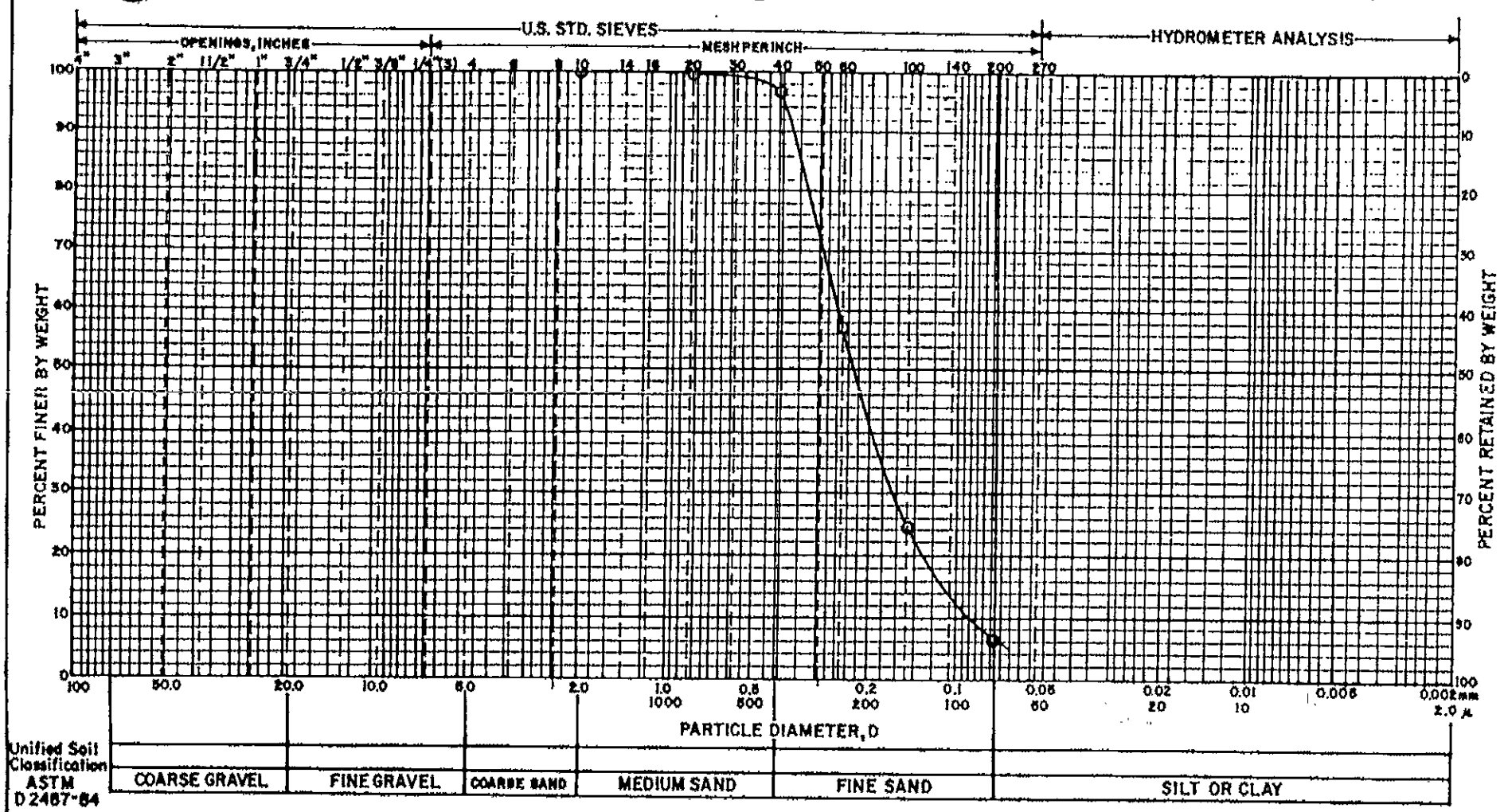

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-233	70.0-72.0

☐ **Insufficient Sample Size per ASTM D 422**

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

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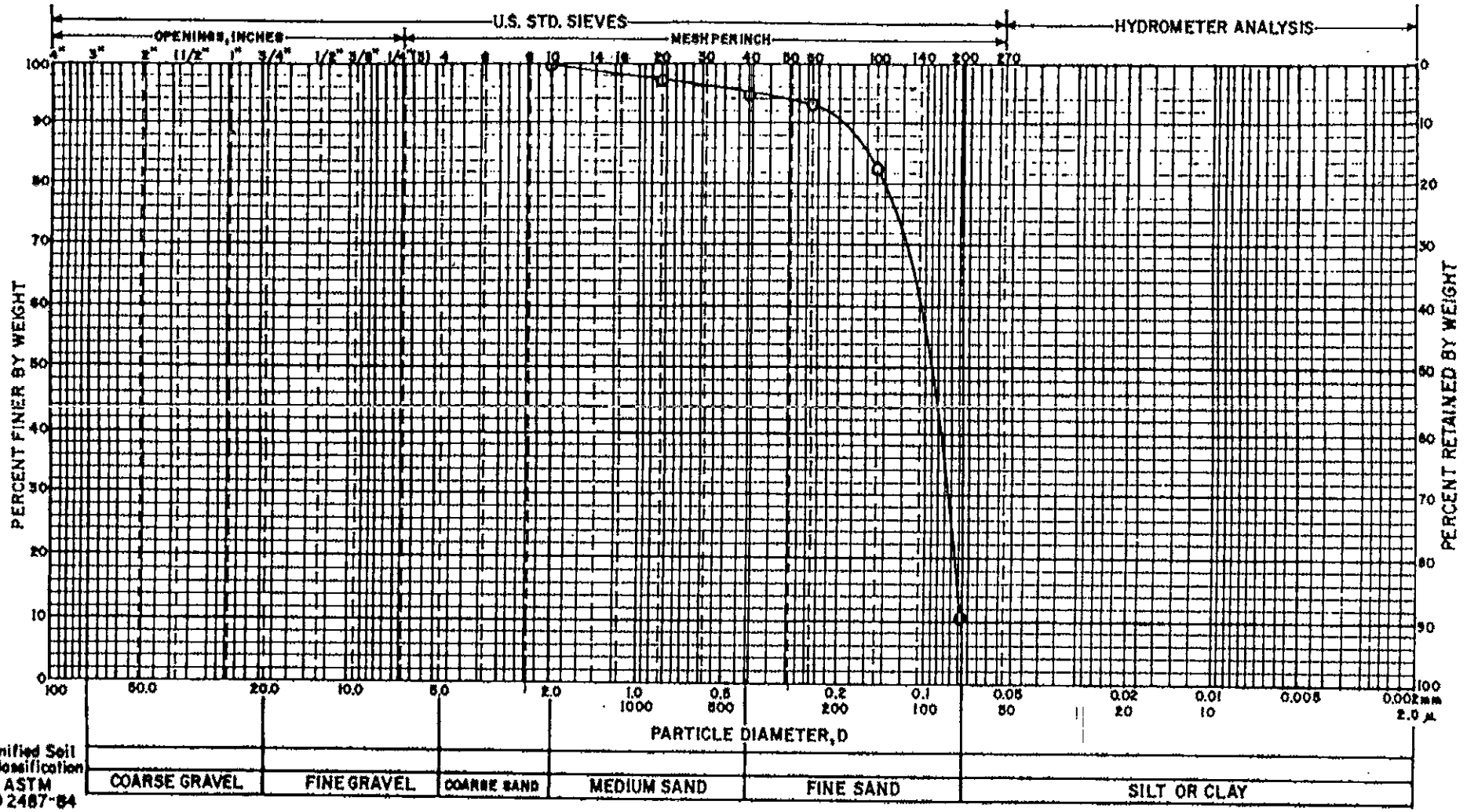

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-234	18.0-20.0

☐ Insufficient Sample Size per ASTM D 422

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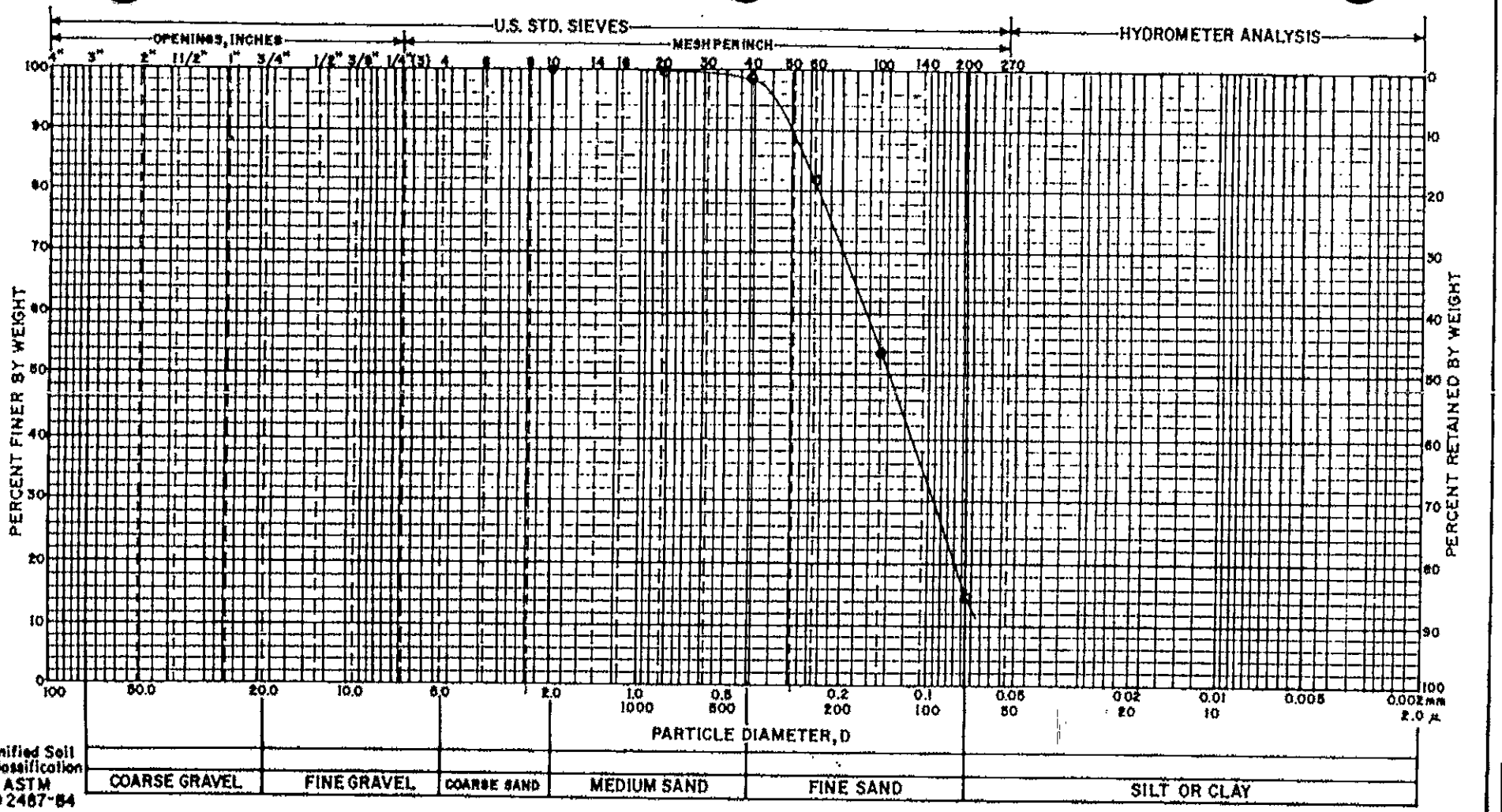

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-408	12.0-14.0

☐ **Insufficient Sample Size per ASTM D 422**

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PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
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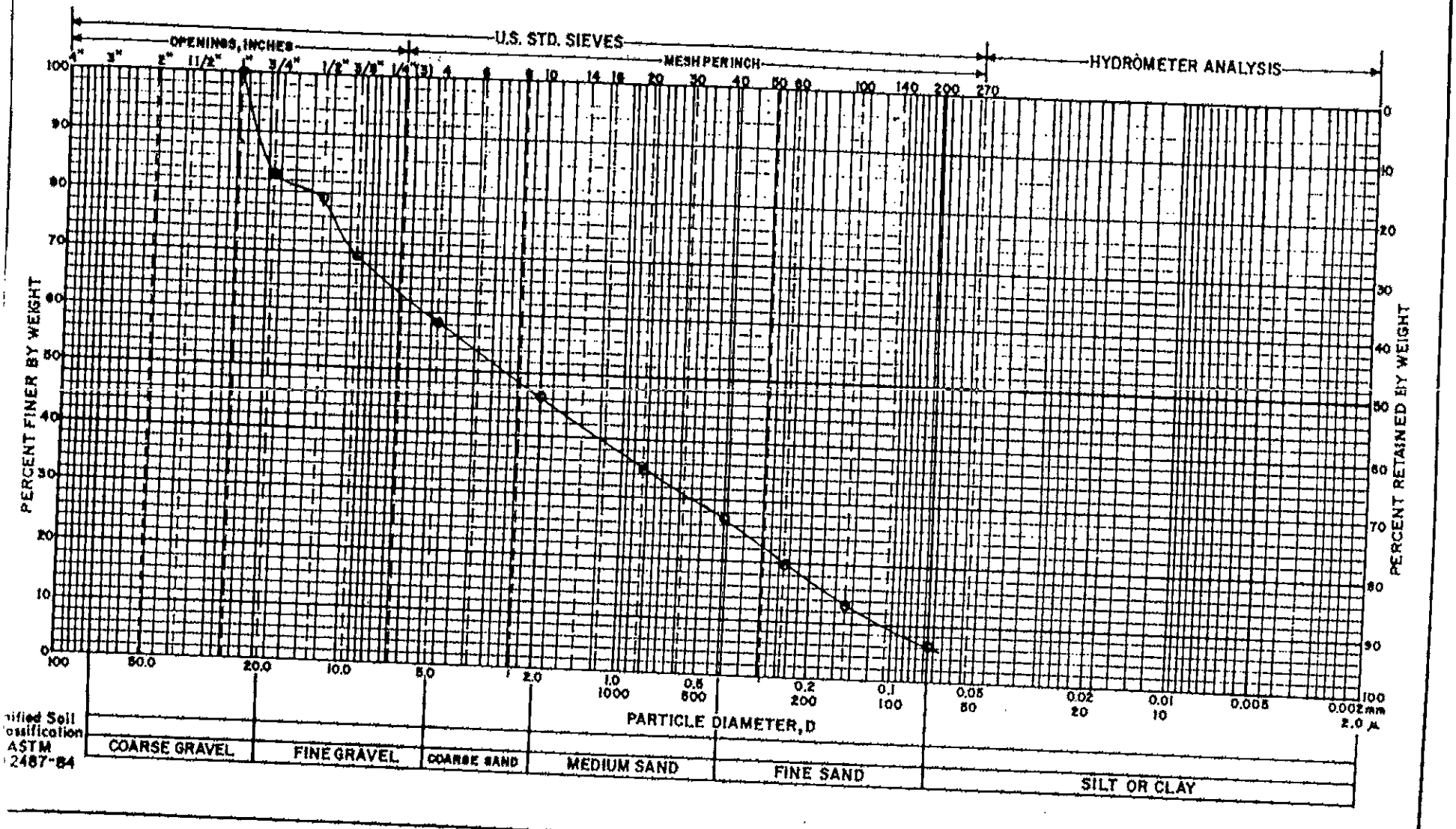

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-810	24.0-26.0

☒ **Insufficient Sample Size per ASTM D 422**

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
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DR. BY: JFC	CK'D. JFC	DATE: Nov. '89	PROJ. NO. .002

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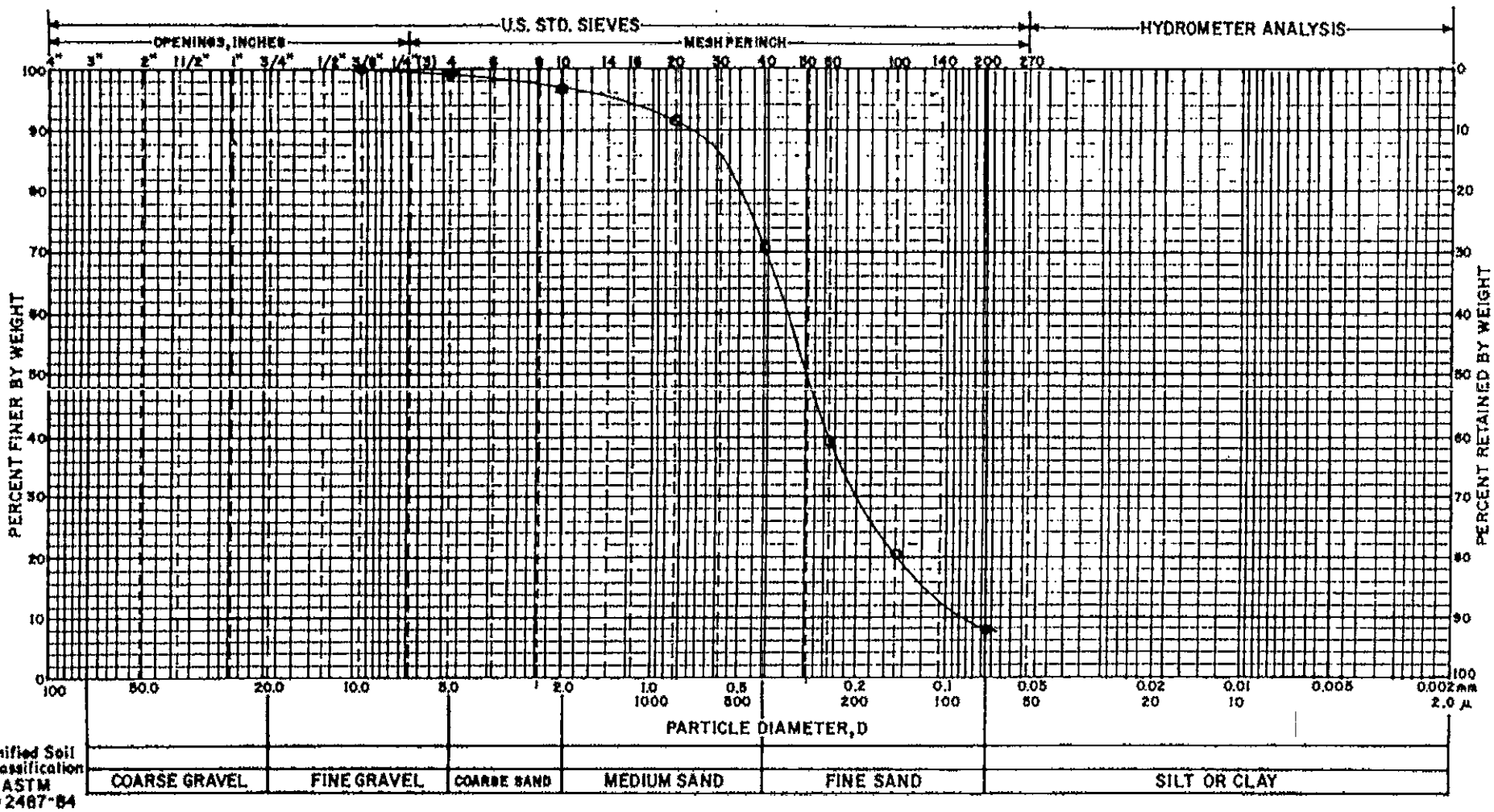

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-811	2.0-4.0

☐ Insufficient Sample Size per ASTM D 422

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
BRUNSWICK, MAINE

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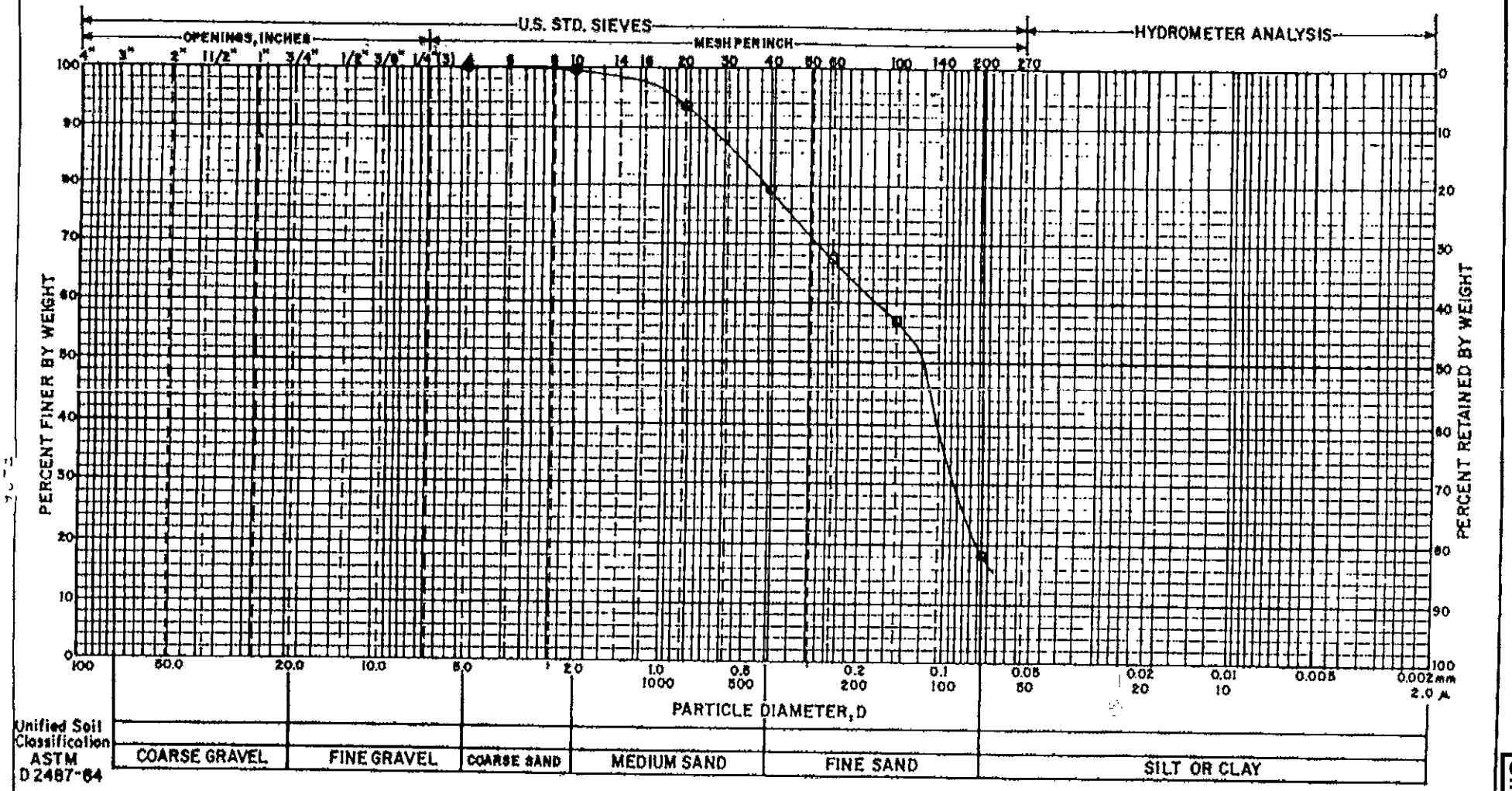

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
OW-812	61.0-63.0

☐ **Insufficient Sample Size per ASTM D 422**

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
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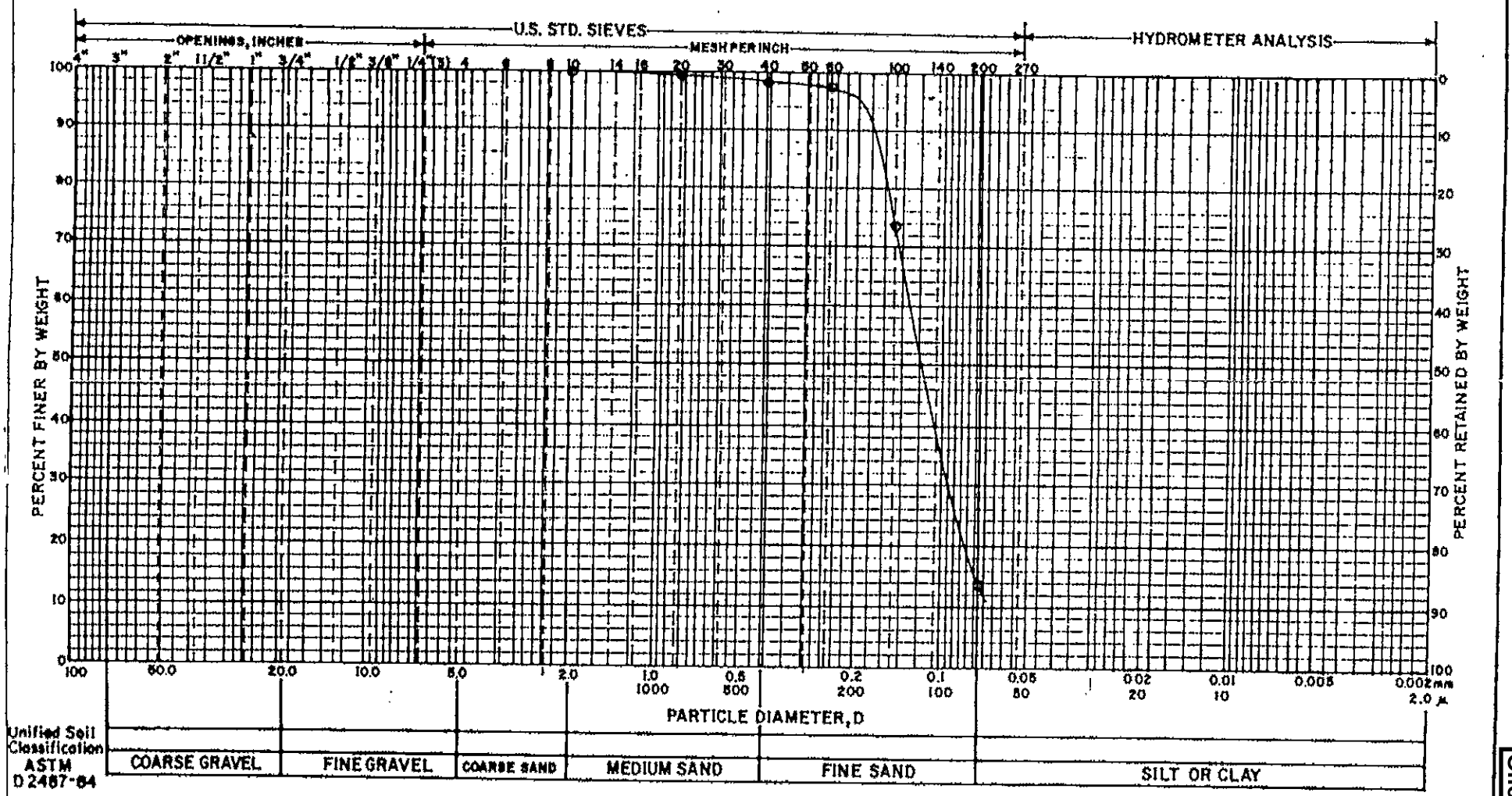

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
OW-813	37.0-39.0

☐ Insufficient Sample Size per ASTM D 422

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PARTICLE SIZE ANALYSIS

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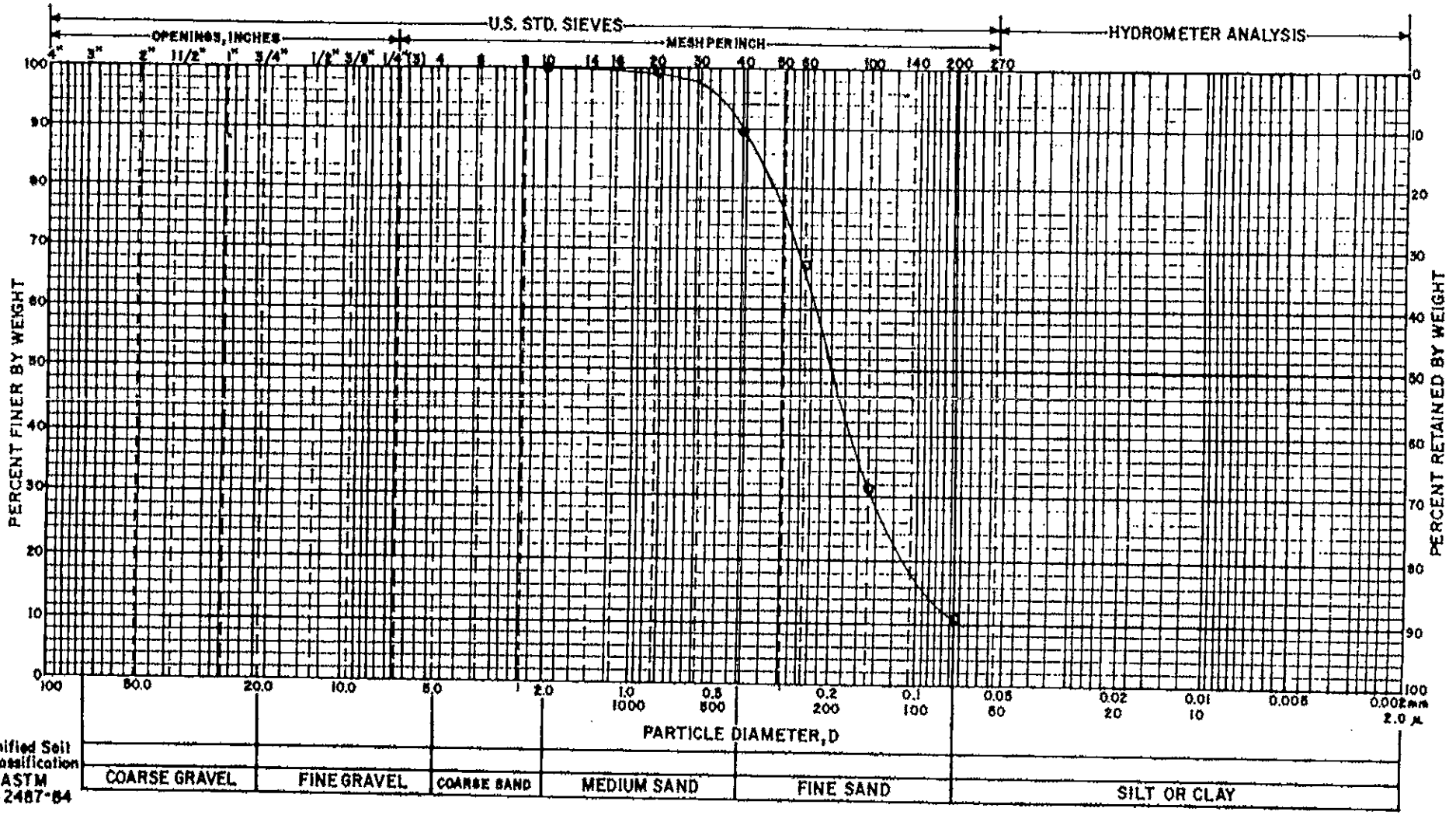

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
OW-814	51.0-53.0

☐ Insufficient Sample Size per ASTM D 422

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PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
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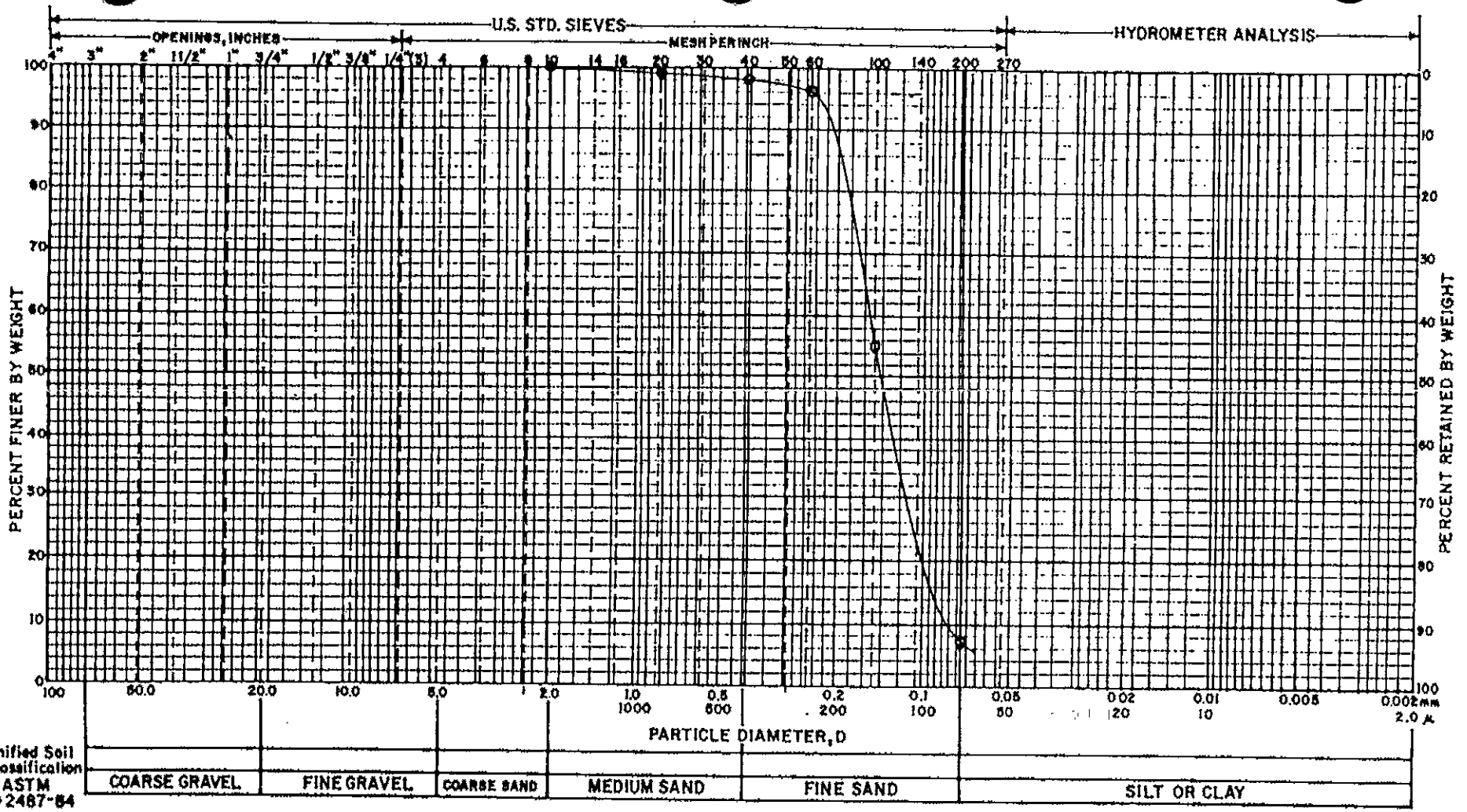

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-906	18.0-20.0

☐ Insufficient Sample Size per ASTM D 422

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
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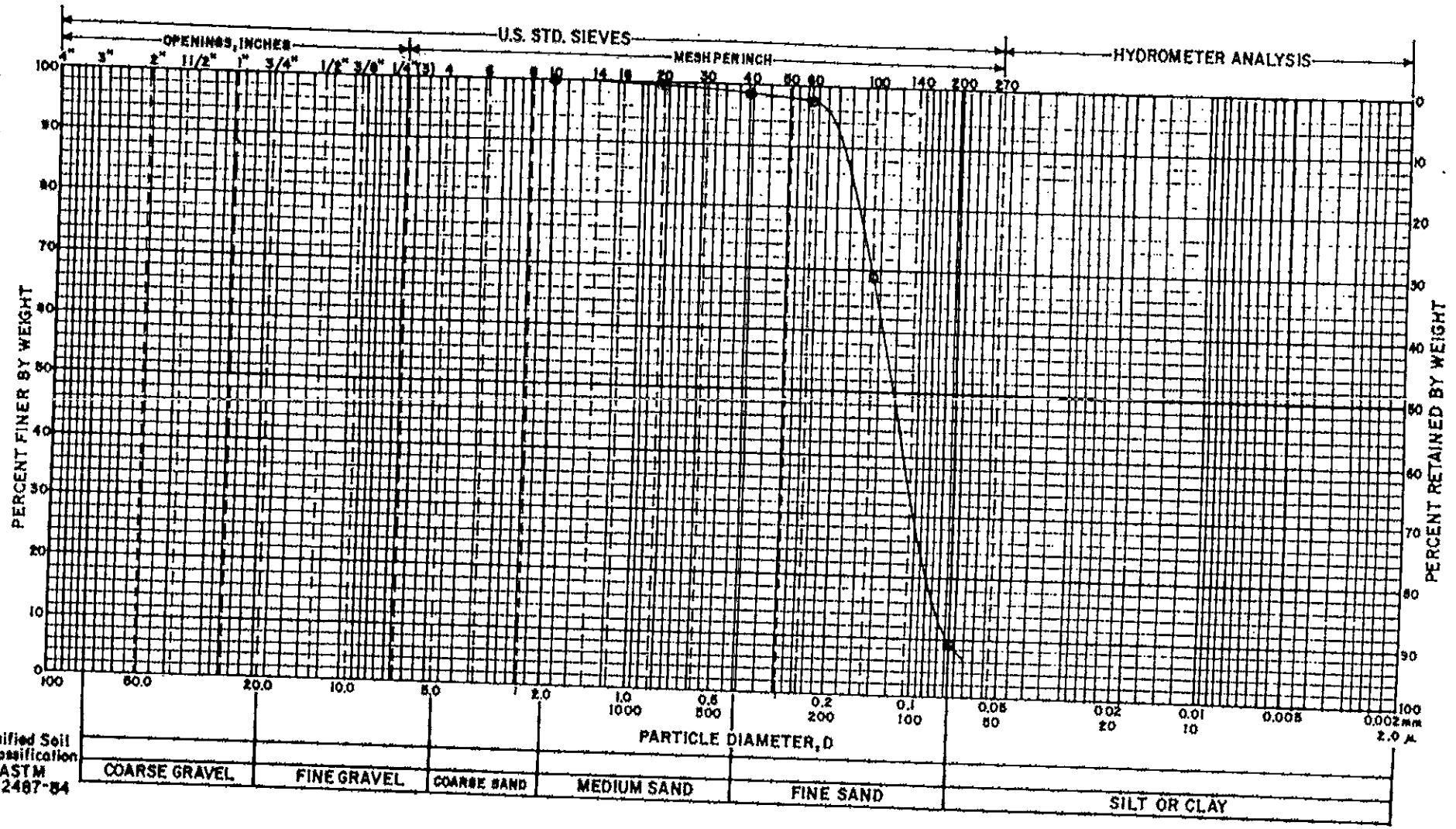

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-907	16.0-18.0

☐ **Insufficient Sample Size per ASTM D 422**

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PARTICLE SIZE ANALYSIS

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E-30

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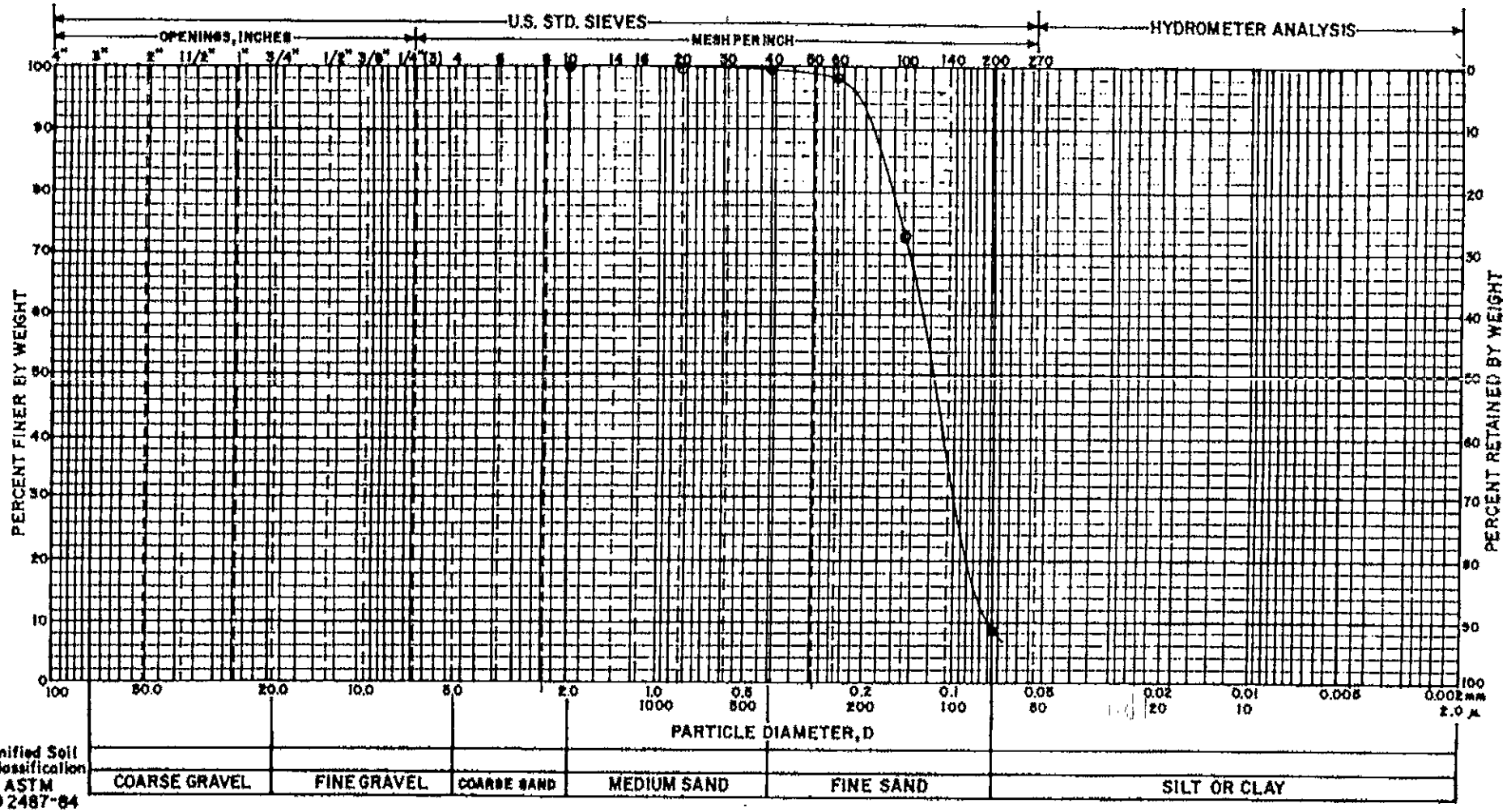

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-908	12.0-14.0

☐ Insufficient Sample Size per ASTM D 422

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PARTICLE SIZE ANALYSIS

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DR. BY: JFC	CK'D. JFC	DATE: Nov. '89	PROJ. NO. G020.002

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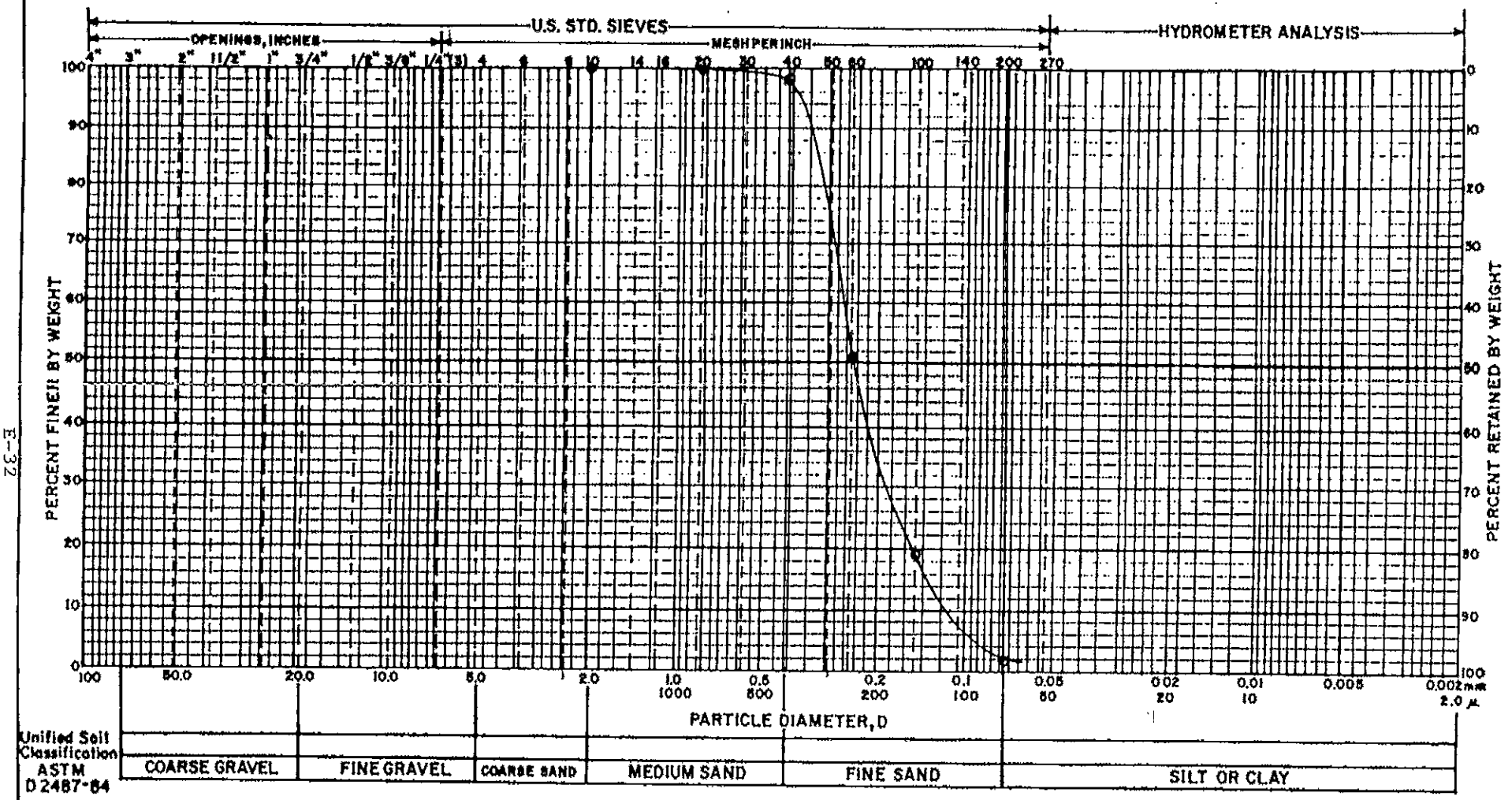
PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-1101	10.0-12.0

☐ Insufficient Sample Size per ASTM D 422

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
BRUNSWICK, MAINE

DR. BY: JFC	CK'D. JRC	DATE: Nov. '89	PROJ. G020.002

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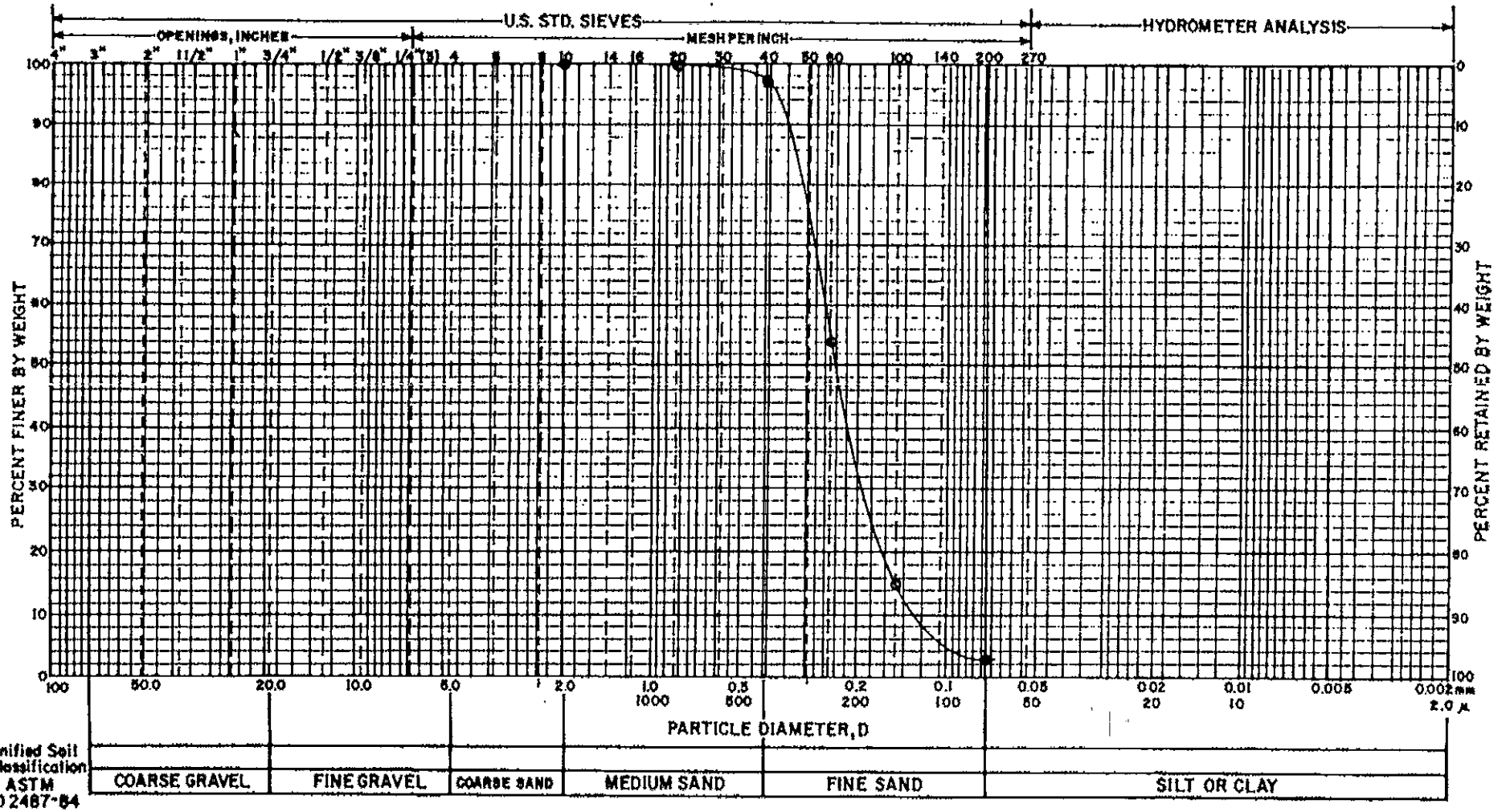

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-1102	10.0-12.0

☐ **Insufficient Sample Size per ASTM D 422**

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
BRUNSWICK, MAINE

DR. BY: JFC	CK'D. JFC	DATE: Nov. '89	PROJ. NO. G020.002

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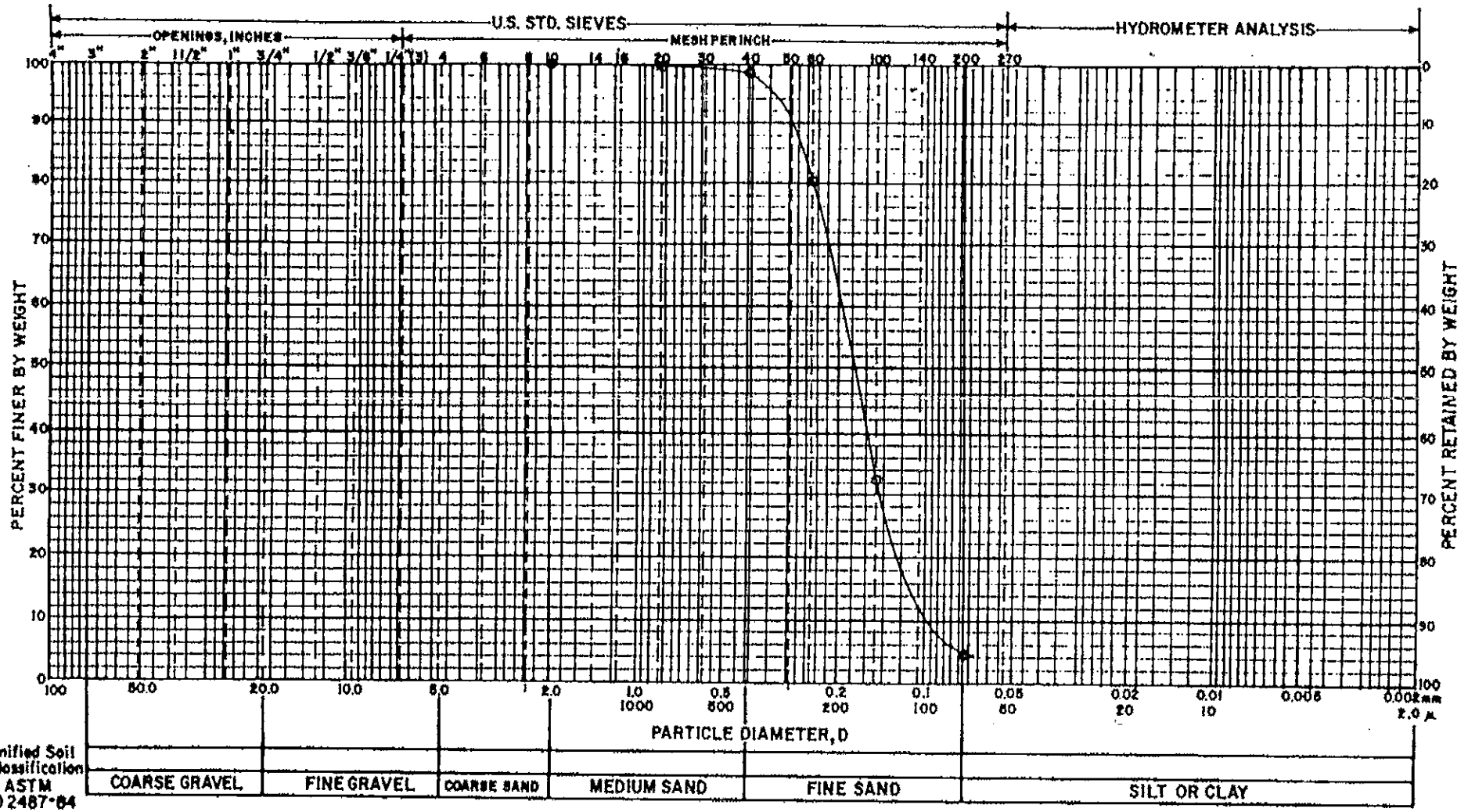

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-1103	12.0-14.0

☐ Insufficient Sample Size per ASTM D 422

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
BRUNSWICK, MAINE

DR. BY: JFC	CK'D. JFC	DATE: Nov. '89	PRO. 6020.002

Click Here to Return to Main Index

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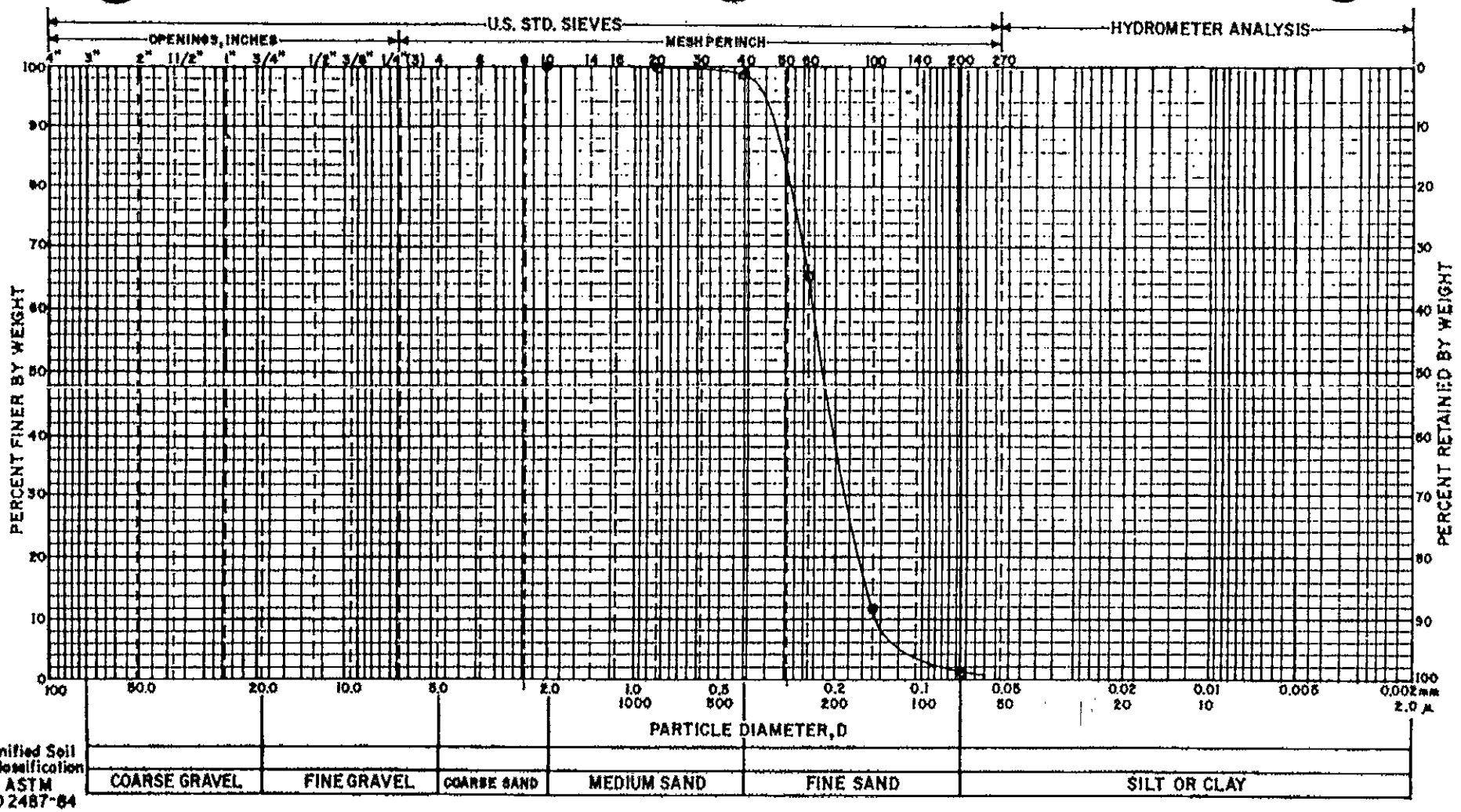

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-1104	20.0-22.0

☐ **Insufficient Sample Size per ASTM D 422**

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
BRUNSWICK, MAINE

DR. BY: JFC	CK'D. JFC	DATE: Nov. '89	PROJ. NO. G020.002

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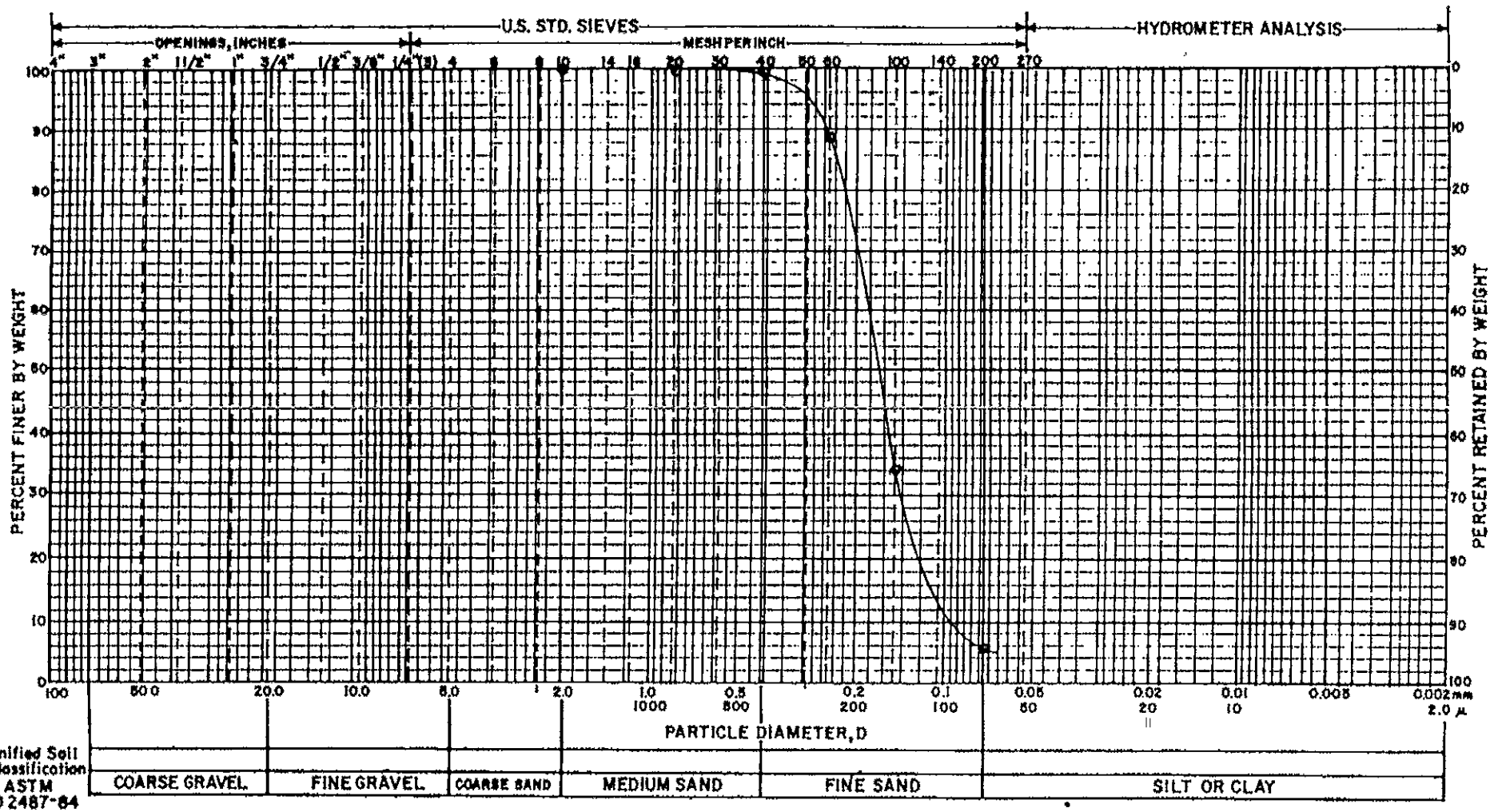
PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-1303	20.0-22.0

☐ **Insufficient Sample Size per ASTM D 422**

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
BRUNSWICK, MAINE

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Click Here to Return to Main Index

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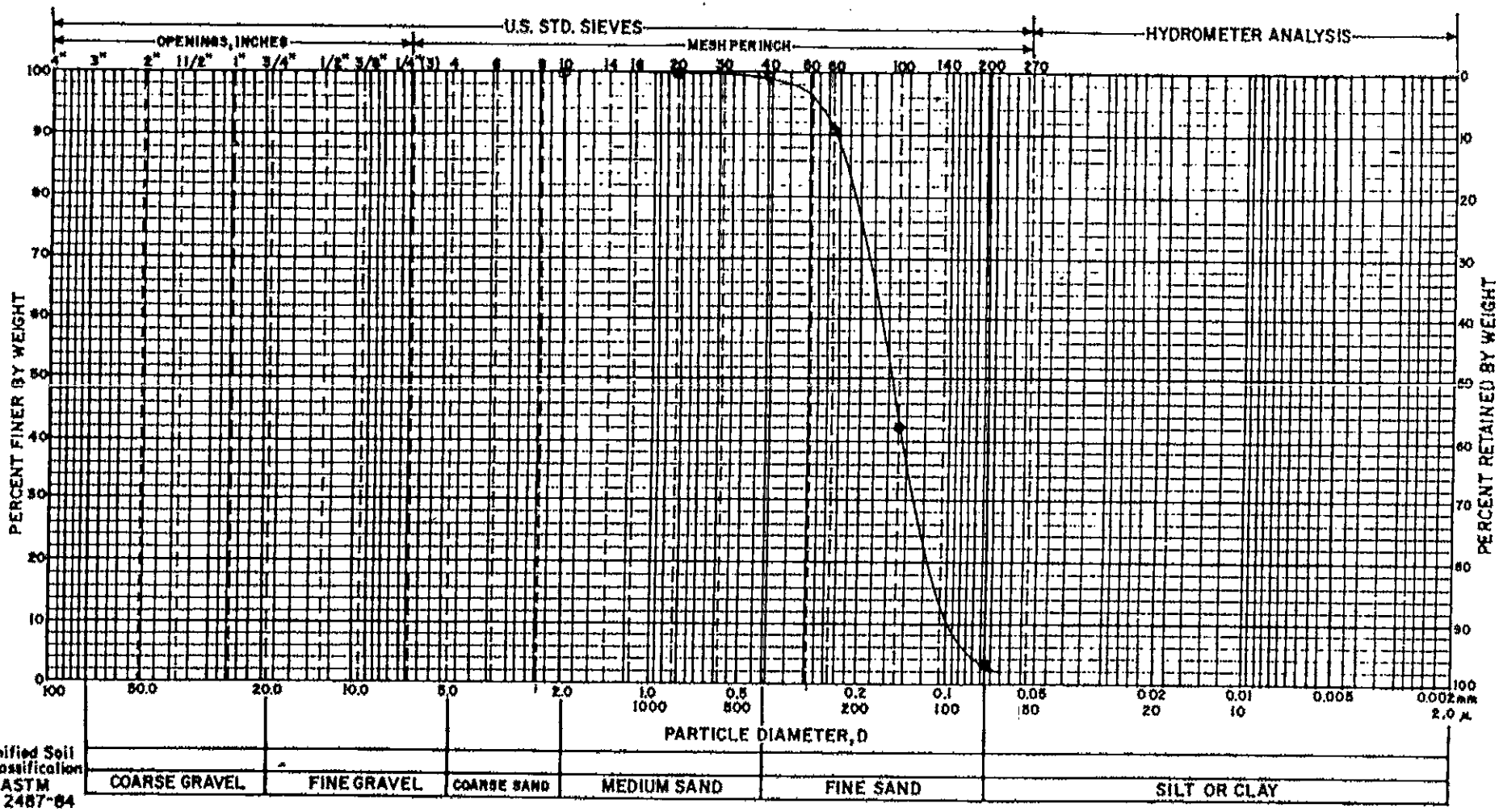

SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-1302	20.0-22.0

☐ Insufficient Sample Size per ASTM D 422

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
BRUNSWICK, MAINE

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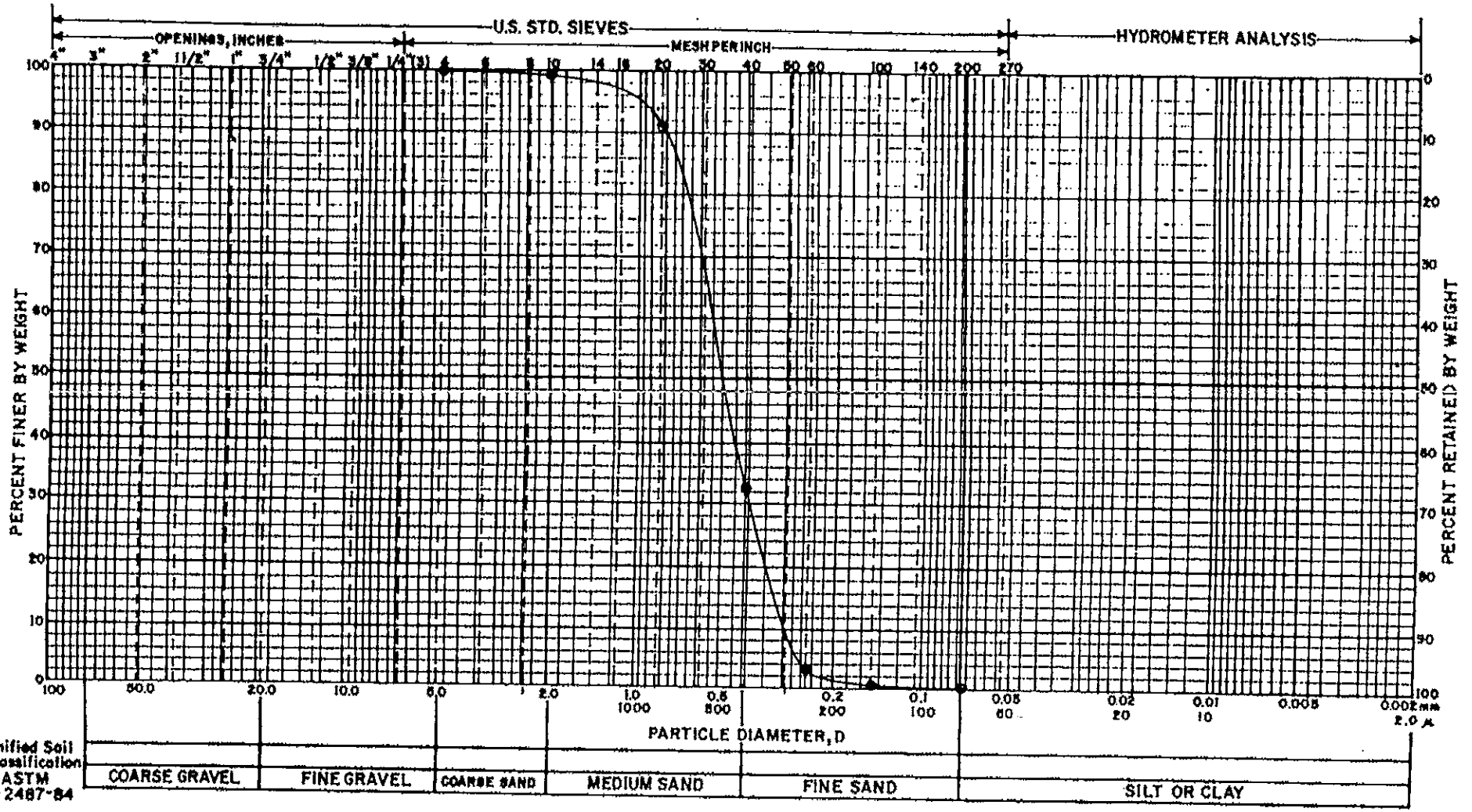
PARTICLE SIZE DISTRIBUTION CURVE



SAMPLE INFORMATION:

Boring No.	Sample Depth (ft)
MW-1301	10.0-12.0

☐ **Insufficient Sample Size per ASTM D 422**

EMPIRE SOILS INVESTIGATIONS INC

PARTICLE SIZE ANALYSIS

NAVAL AIR STATION
BRUNSWICK, MAINE

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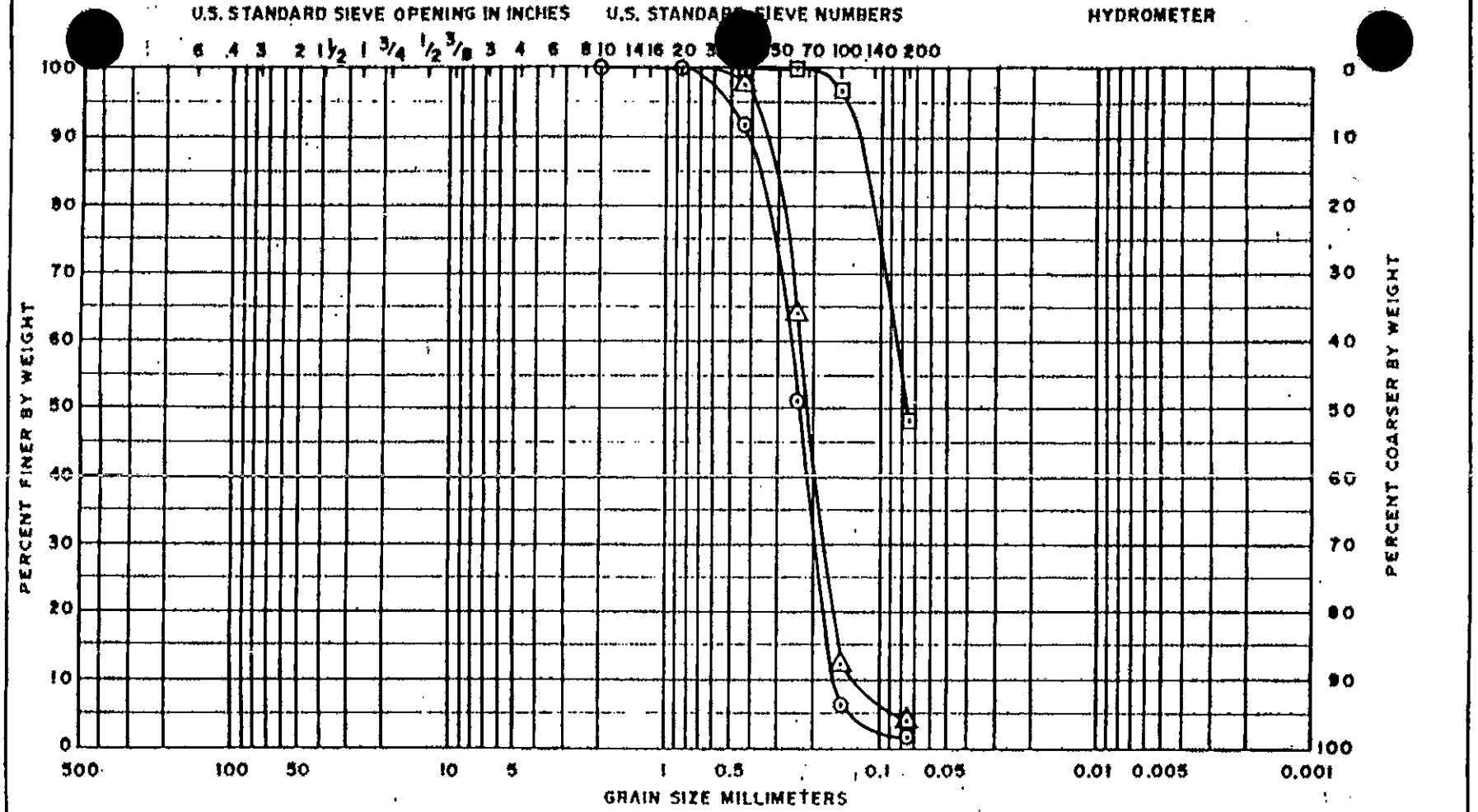

COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	BORING NO.	DEPTH (ft.)	NAT W%	LL	PL	PI
⊙ 201/S-6	24-26	MW-201	24-26	26.8			
⊡ 202/S-12	22-24	MW-202	22-24	25.5			
△ 203/S-8	35-37	MW-203	35-37	24.9			

GRAIN SIZE DISTRIBUTION CURVES

BRUNSWICK NAVAL AIR STATION

TESTED BY	CHECKED BY	PROJ NO
GC	D.H.	4609-07
	DATE	

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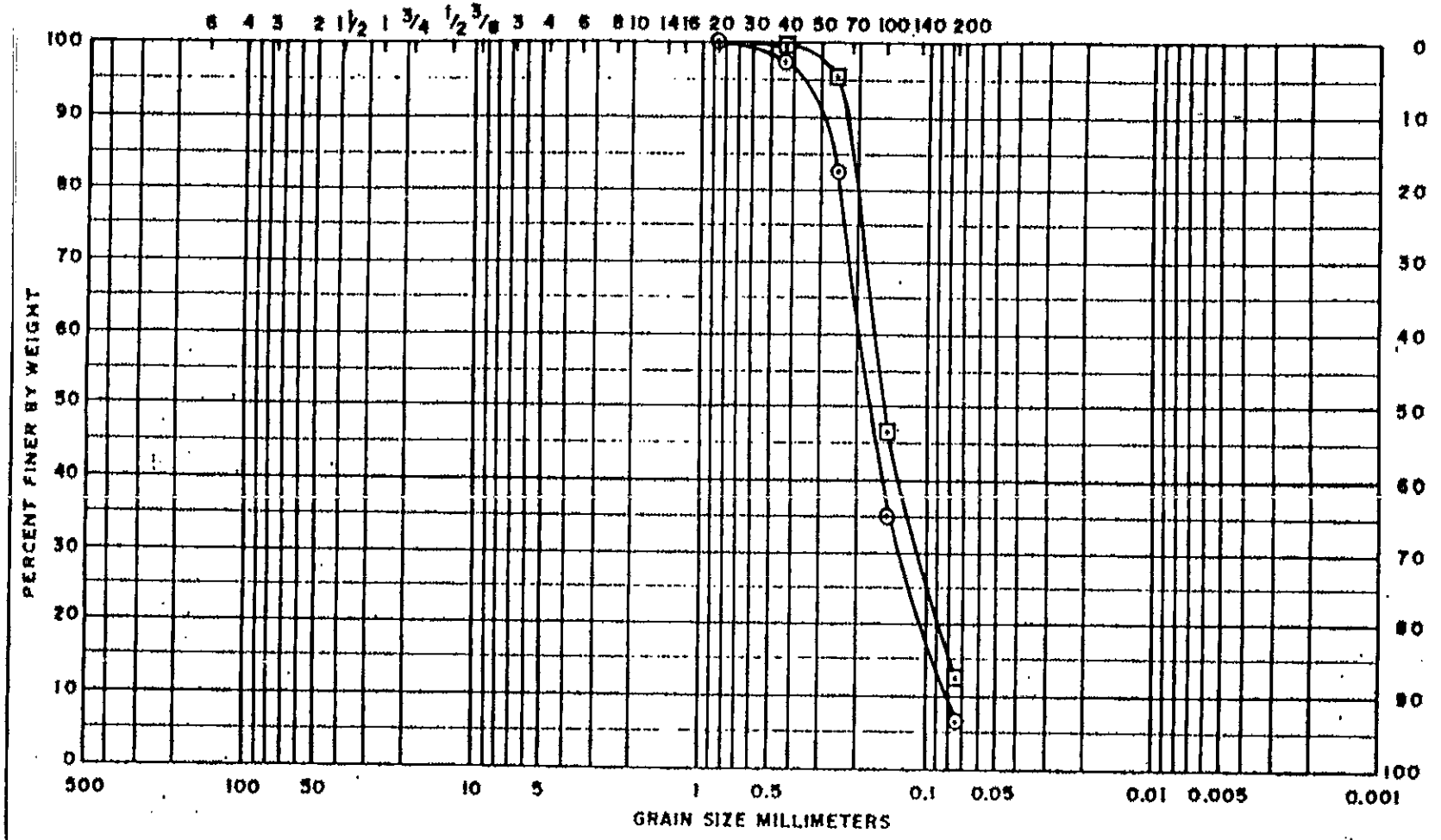

COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	BORING NO. DEPTH (ft.)	NAT W%	LL	PL	PI
⊙ 204/S-7	30-32	MW-204 30-32	25.1			
⊡ 206A/S9	70-72	MW-206A 70-72				

GRAIN SIZE DISTRIBUTION CURVES

BRUNSWICK NAVAL AIR STATION

TESTED BY	CHECKED BY	PROJ NO
GC	DH.	4609-07
	DATE 11-10-88	

J6A 003
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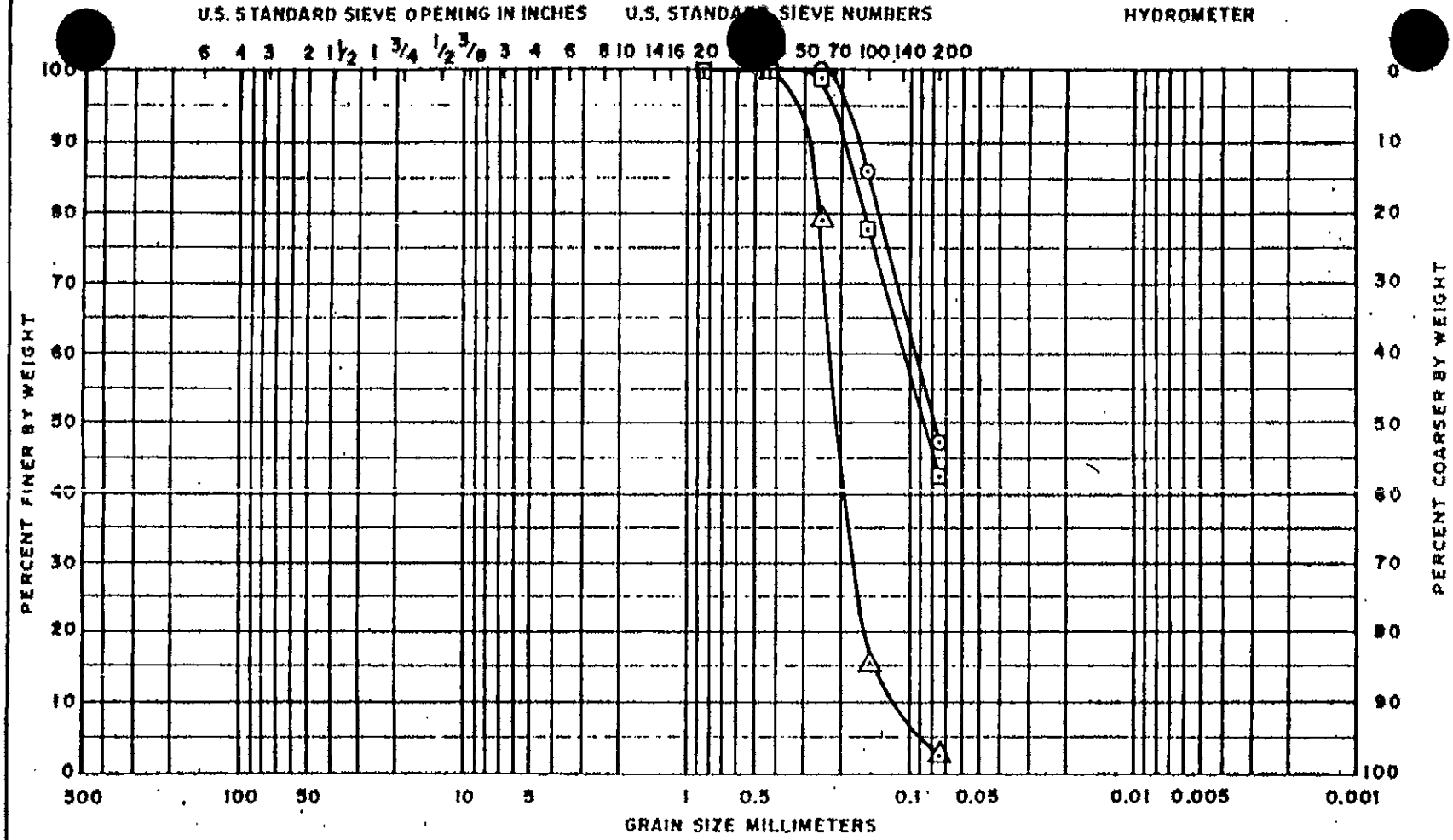

COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	BORING NO. DEPTH (ft.)	NAT W%	LL	PL	PI
□ 206B/S-5	20-22	MW-206B 20-22	27.1			
○ 207A/S-10	60-62	MW-207A 60-62	26.1			
△ 209/S-7	25-27	MW-209 25-27	27.7			

GRAIN SIZE DISTRIBUTION CURVES

BRUNSWICK NAVAL AIR STATION

TESTED BY	CHECKED BY	PROJ NO
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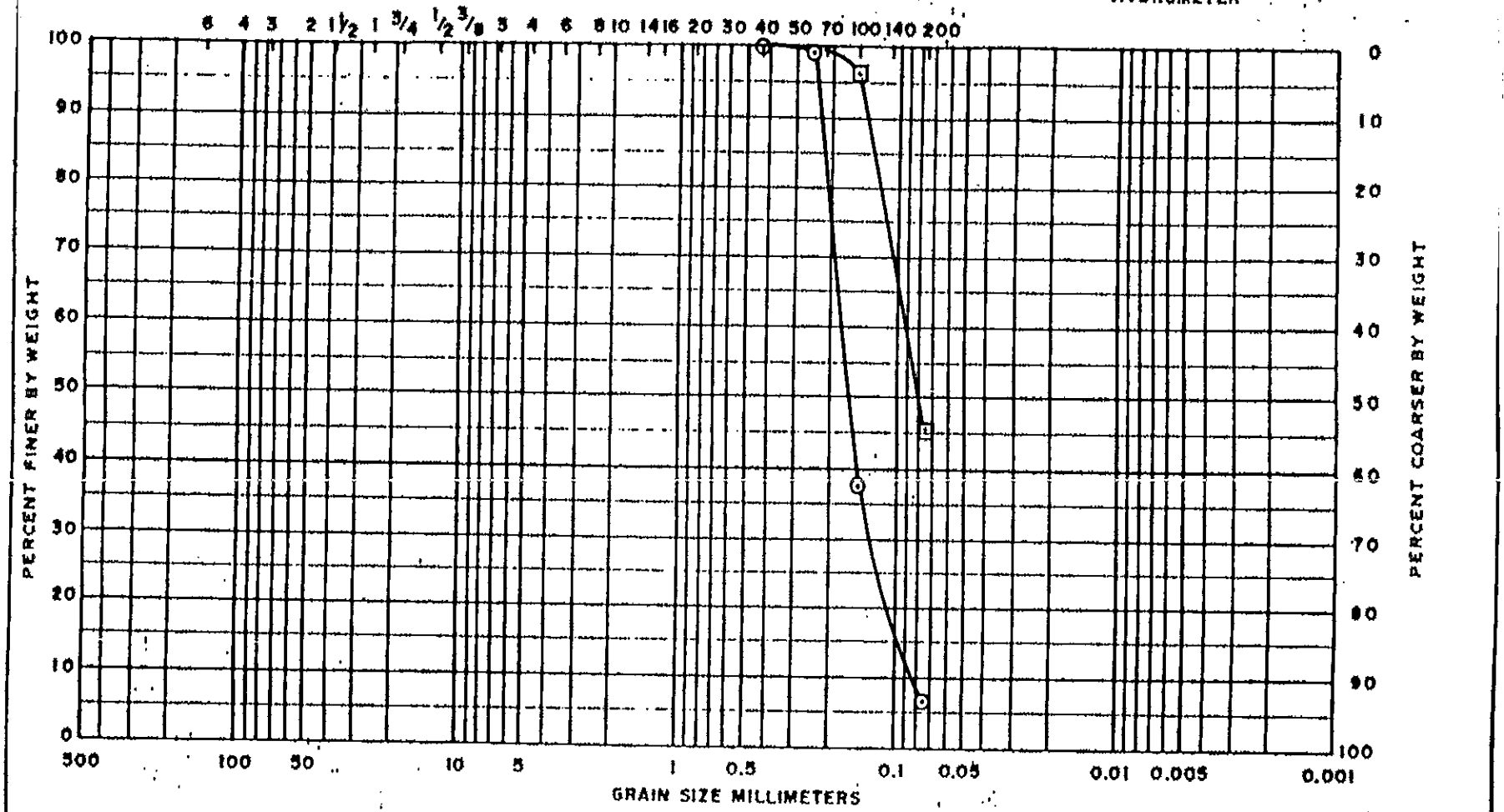

COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	BORING NO. DEPTH (ft.)	NAT W%	LL	PL	PI
⊙ 210A/S-6	20-22	MW-210A 20-22	24.2			
⊡ 211A/S-6	25-27	MW-211A 25-27	26.0			

GRAIN SIZE DISTRIBUTION CURVES

BRUNSWICK NAVAL AIR STATION

TESTED BY	CHECKED BY	PROJ NO
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	DATE 11-08-88	

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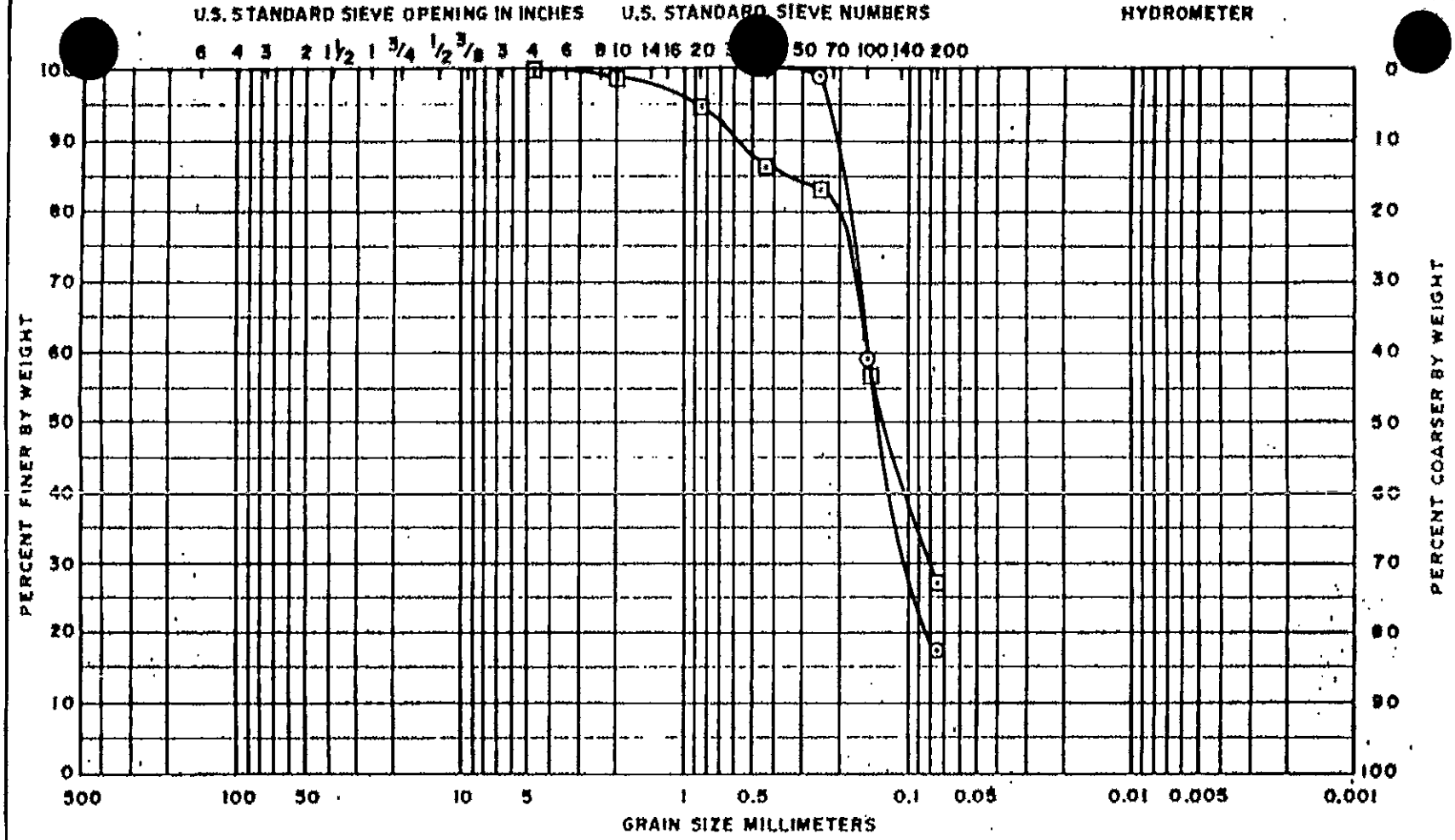

COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	BORING NO.	DEPTH (ft.)	NAT W%	LL	PL	PI
⊙ ZDB/S-ZZ	90-92	MW-208	90-92	25.3			
⊡ ZIZ/S-3	10-12	MW-212	10-12	37.2			

GRAIN SIZE DISTRIBUTION CURVES

BRUNSWICK NAVAL AIR STATION

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	DATE 11-10-88	

JGA 003
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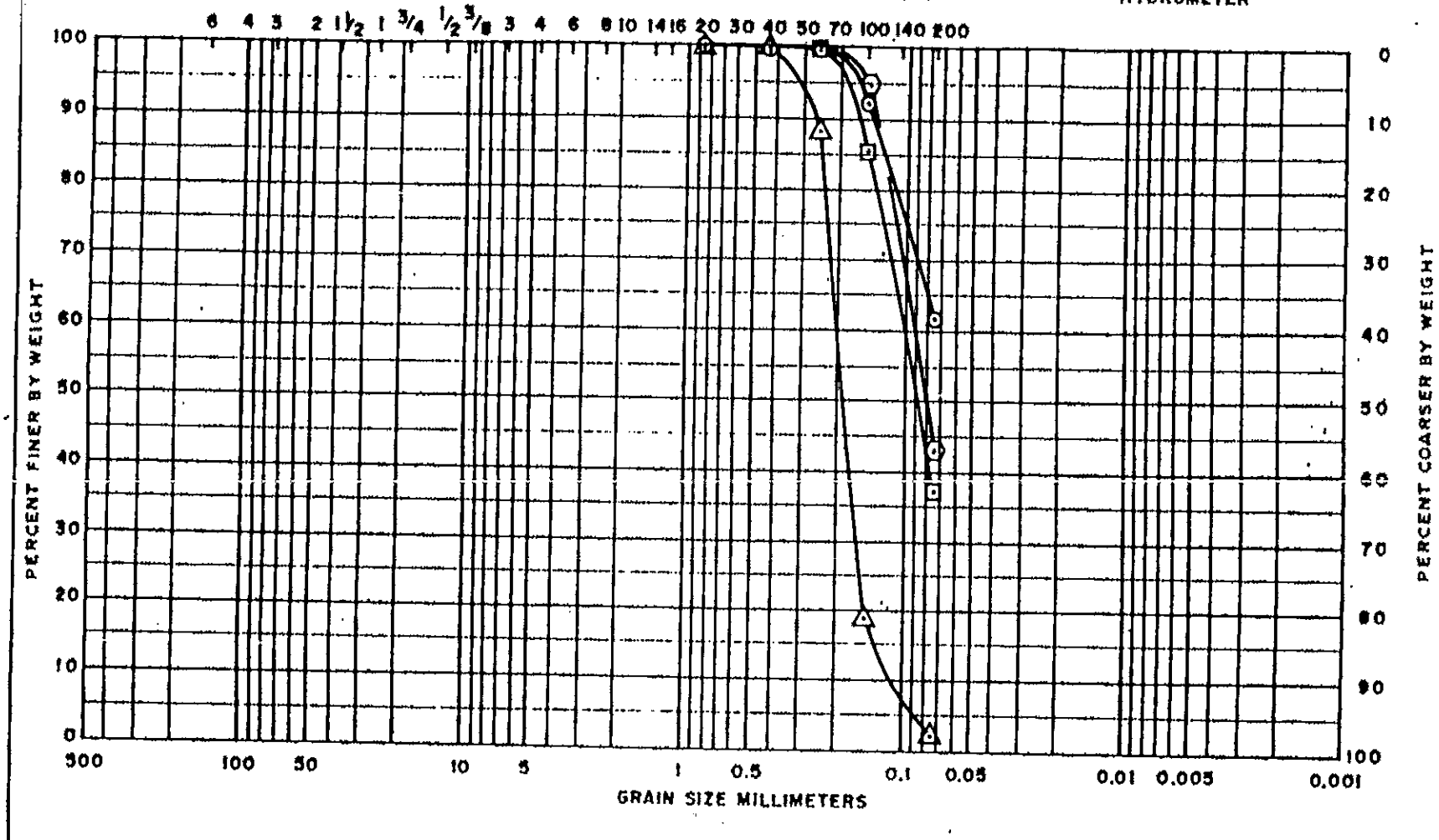

COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	BORING NO.	DEPTH (ft.)	NAT W%	LL	PL	PI
⊙ 213/S-9	19-21	MW-213	19-21	27.5			
⊡ 404/S-7	30-32	MW-404	30-32	21.3			
△ 406/S-11	44-46	MW-406	44-46	28.3			
⊙ 407/S-14	54-56	MW-407	54-56	23.5			

GRAIN SIZE DISTRIBUTION CURVES

BRUNSWICK NAVAL AIR STATION

TESTED BY	CHECKED BY	PROJ NO
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	DATE 11-16-88	

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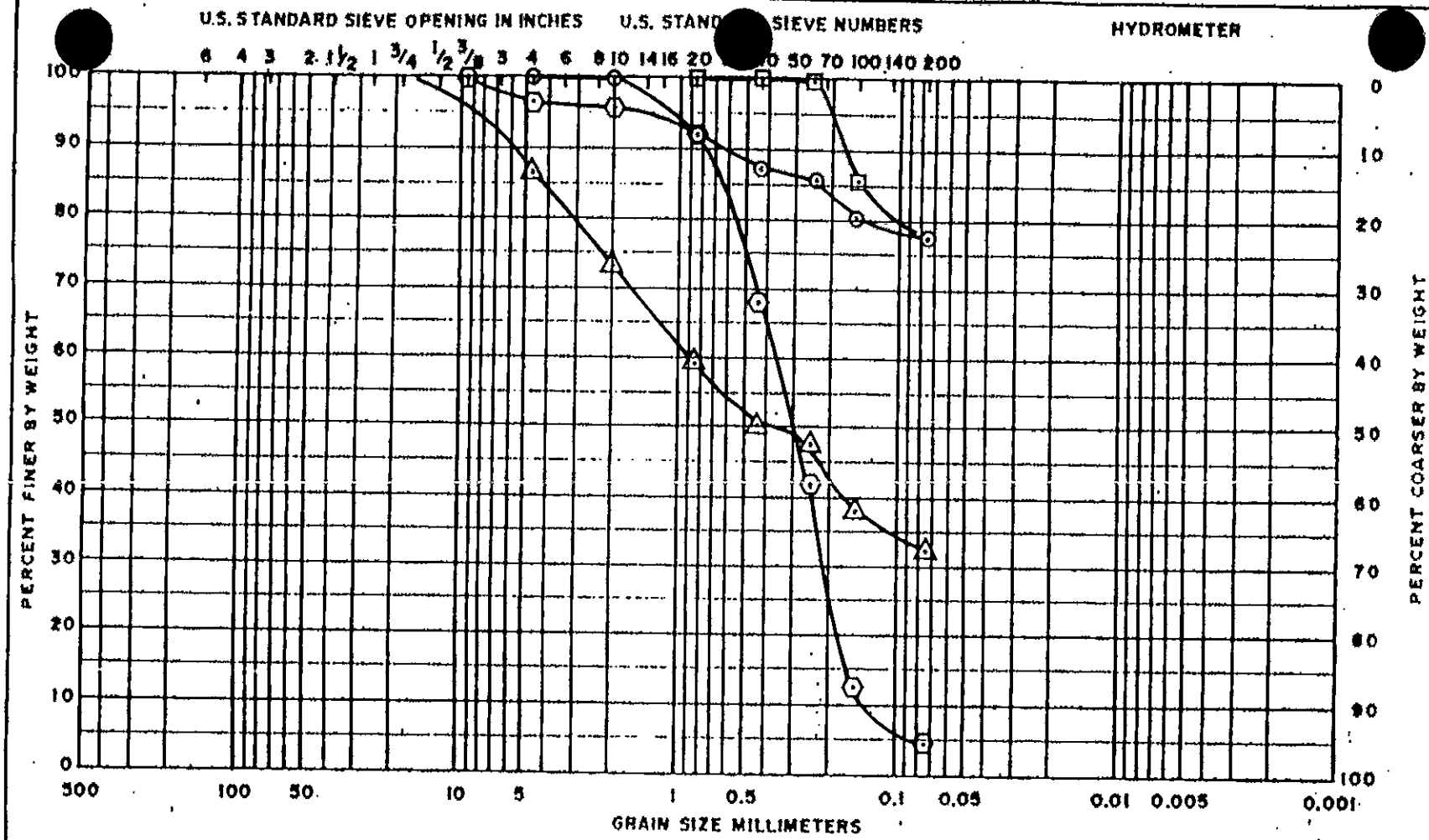

COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	BORING NO.	DEPTH (ft.)	NAT W%	LL	PL	PI
⊙ 807/S-7	12-14	MW-807	12-14	27.9			
⊡ 904/S-2	5-7	MW-904	5-7	12.7			
△ 905/S-7	29-31	MW-905	29-31	20.0			
⊙ TP101	2	TP-101	2	4.5			

GRAIN SIZE DISTRIBUTION CURVES

BRUNSWICK NAVAL AIR STATION

TESTED BY	CHECKED BY	PROJ NO
GC	D.H.	4609-07
	DATE 11-08-88	

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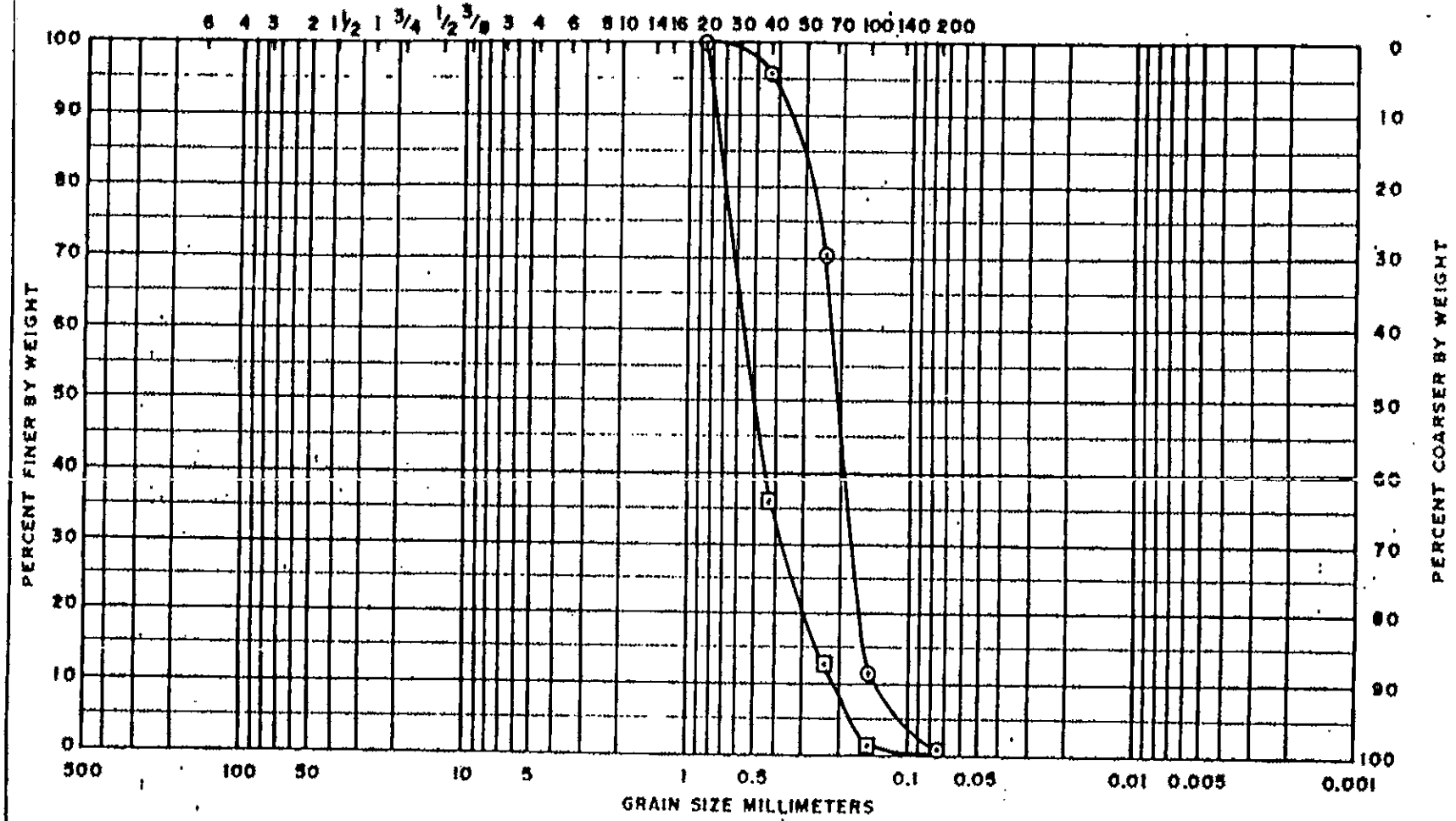

COBBLES	GRAVEL		SAND			SILT	CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

SAMPLE NO.	ELEV. OR DEPTH	BORING NO. DEPTH (ft.)	NAT W%	LL	PL	PI
⊙ TP 702	5.5'	TP-702 5.5				
⊡ FLINT SHOT		SAND PACK FOR SOME WELLS INSTALLED IN 1988				

GRAIN SIZE DISTRIBUTION CURVES

BRUNSWICK NAVAL AIR STATION

TESTED BY	CHECKED BY	PROJ NO
GC	D.H.	4409-07
	DATE 11-06-88	

JGA 003
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E-46

Click Here to Return to Main Index

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APPENDIX F
MONITORING WELL DETAILS

NAS BRUNSWICK
BRUNSWICK, MAINE

Click Here to Return to Main Index

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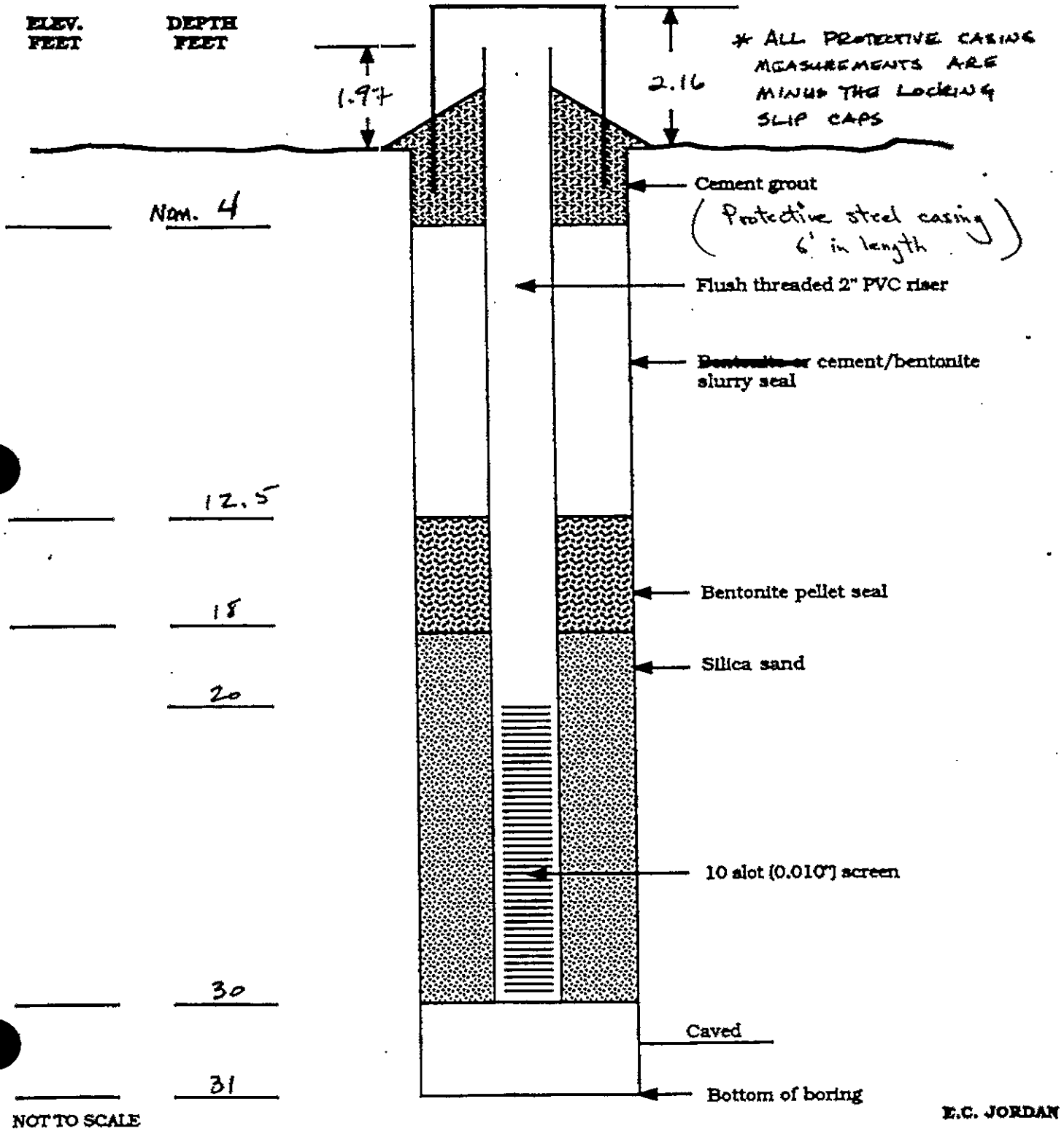
WELL INSTALLATION DETAILS

Project no.	4807-09	Project name	NASB	Well no.	MW-201
Installed by	MATHES / BB	Date installed	7/15/88	Boring diameter	8" (4.25 I.D.)
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



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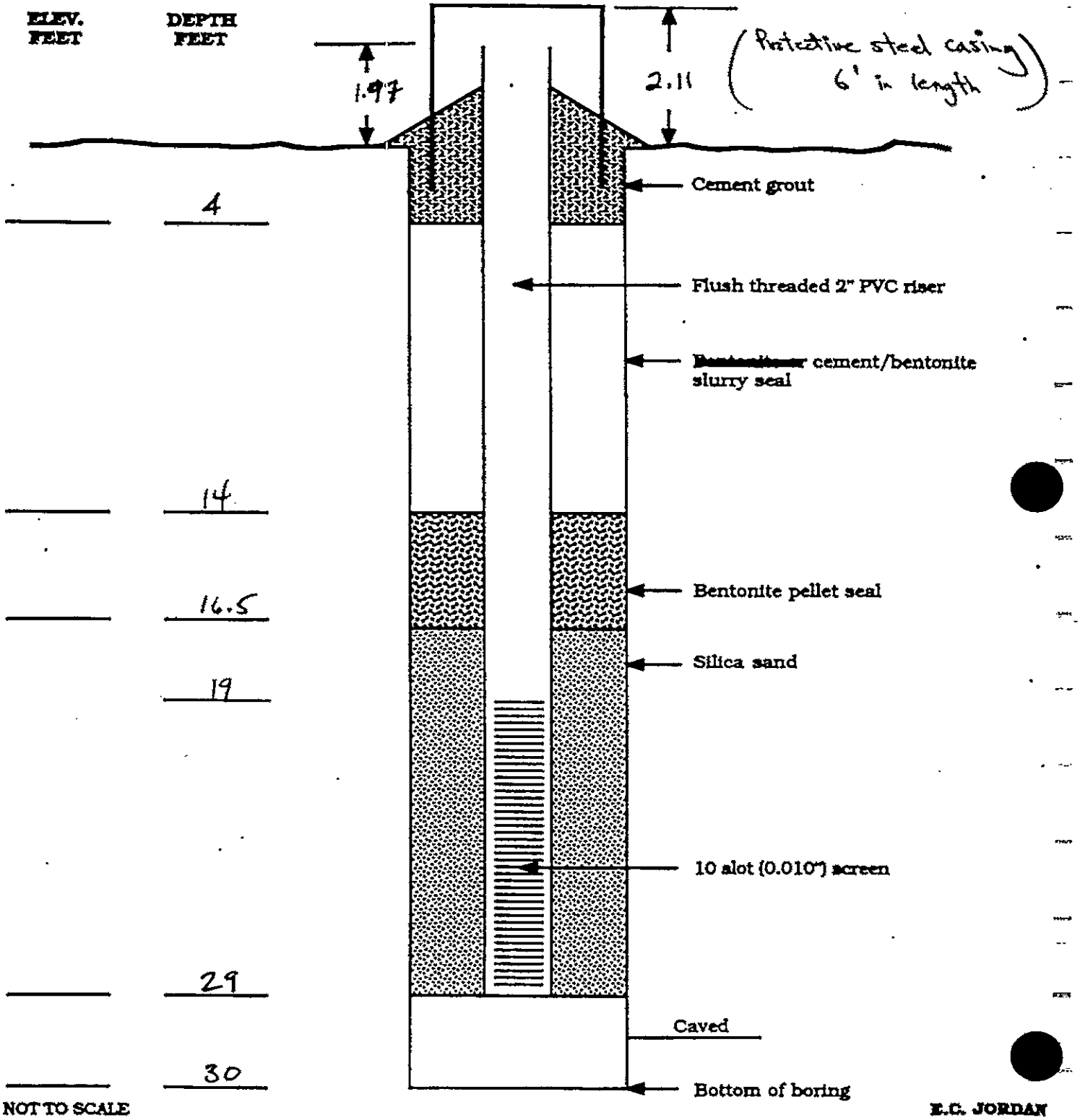
WELL INSTALLATION DETAILS

Project no.	4807-09	Project name	NASB	Well no.	MW-202A
Installed by	MATHES / G.D.	Date installed	8/15/88	Boring diameter	8" (4.25 I.D.)
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



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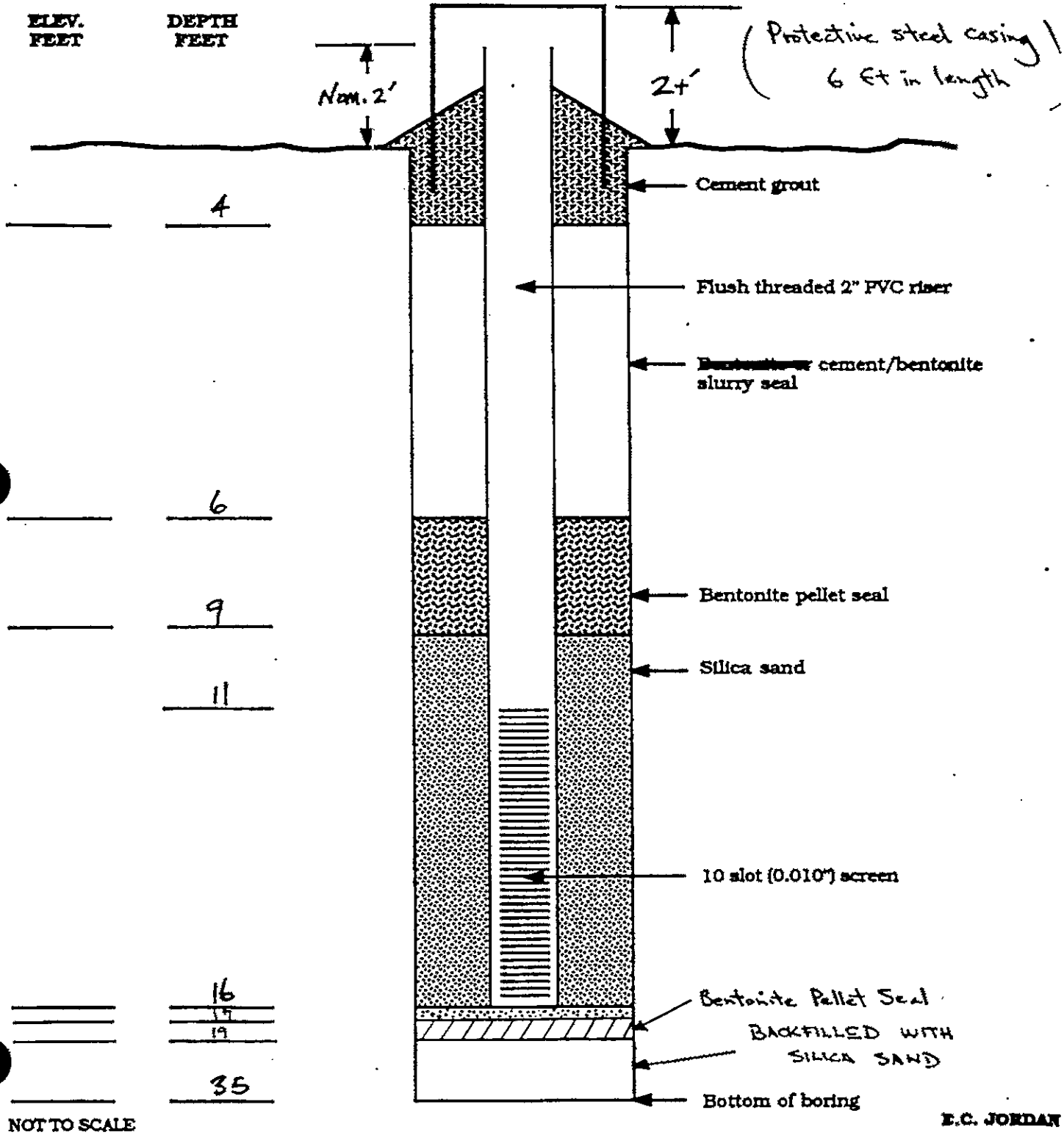
WELL INSTALLATION DETAILS

Project no. 4807-09	Project name NASB	Well no. MW-202B
Installed by MATHES/JU, BB	Date installed 7/19/88	Boring diameter 8" (4.25 ID)
Well diameter 2"	Well material SCH 40 PVC	Backfill material SILICA SAND



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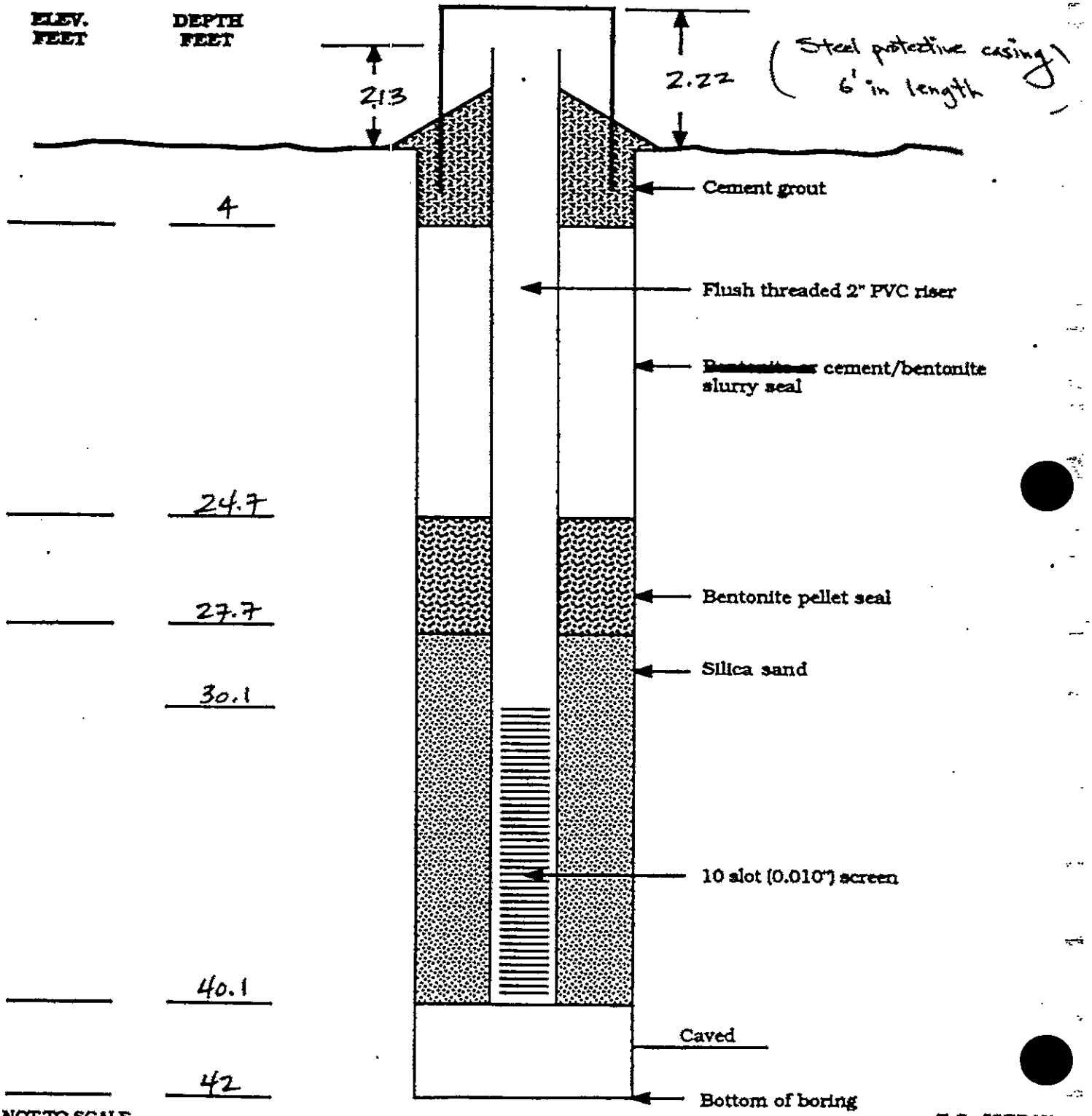
WELL INSTALLATION DETAILS

Project no. 4807-09	Project name NASB	Well no. MW-203
Installed by MATHES/JU	Date installed 7/17/1998	Boring diameter 8" (4.25 ID)
Well diameter 2"	Well material SCH 40 PVC	Backfill material SILICA SAND



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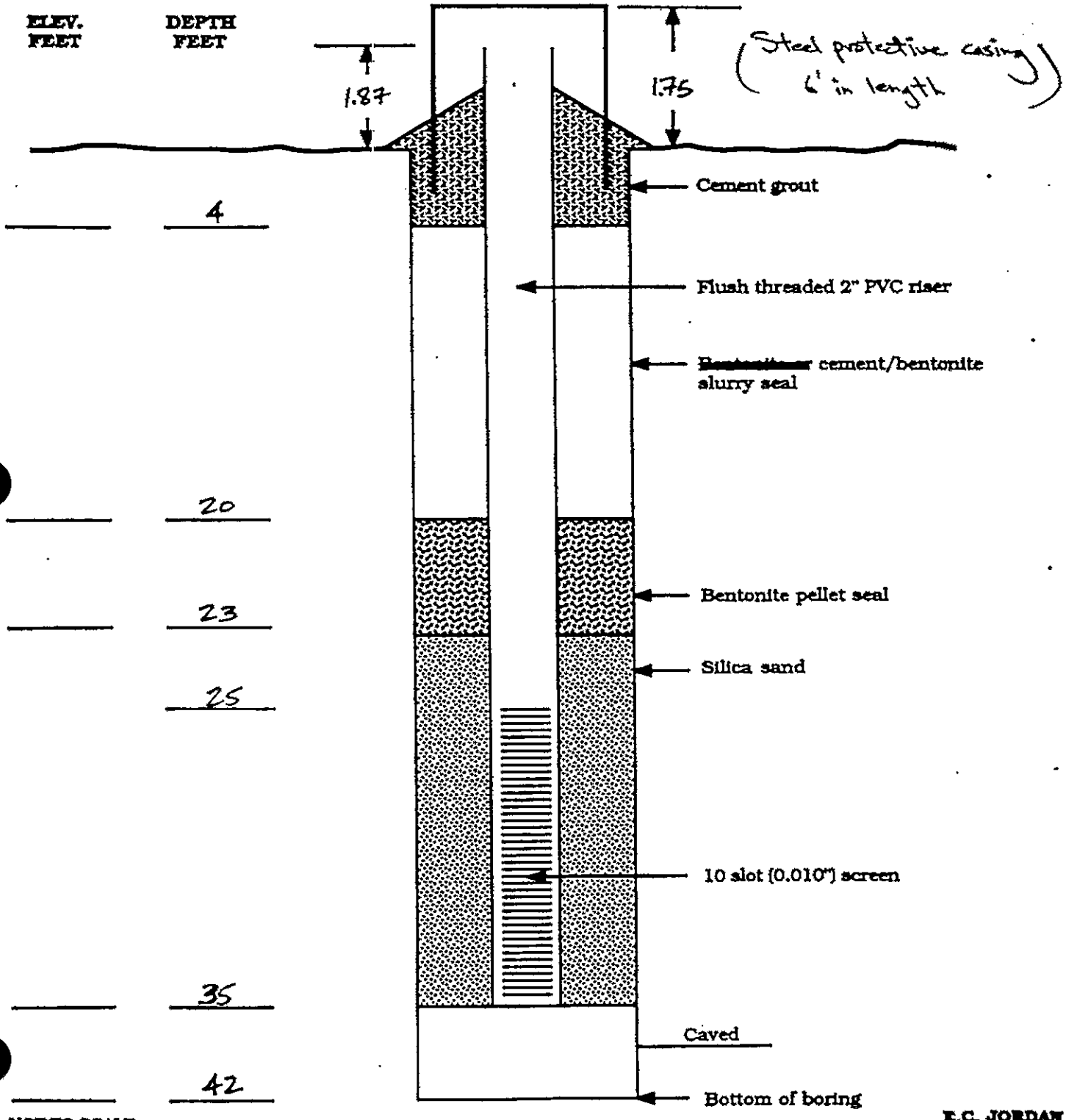
WELL INSTALLATION DETAILS

Project no. 4807-09	Project name NASB	Well no. MW-204
Installed by MATHES/BB	Date installed 7/17/88	Boring diameter 8" (4.25 ID)
Well diameter 2"	Well material SCH 40 PVC	Backfill material SILICA SAND



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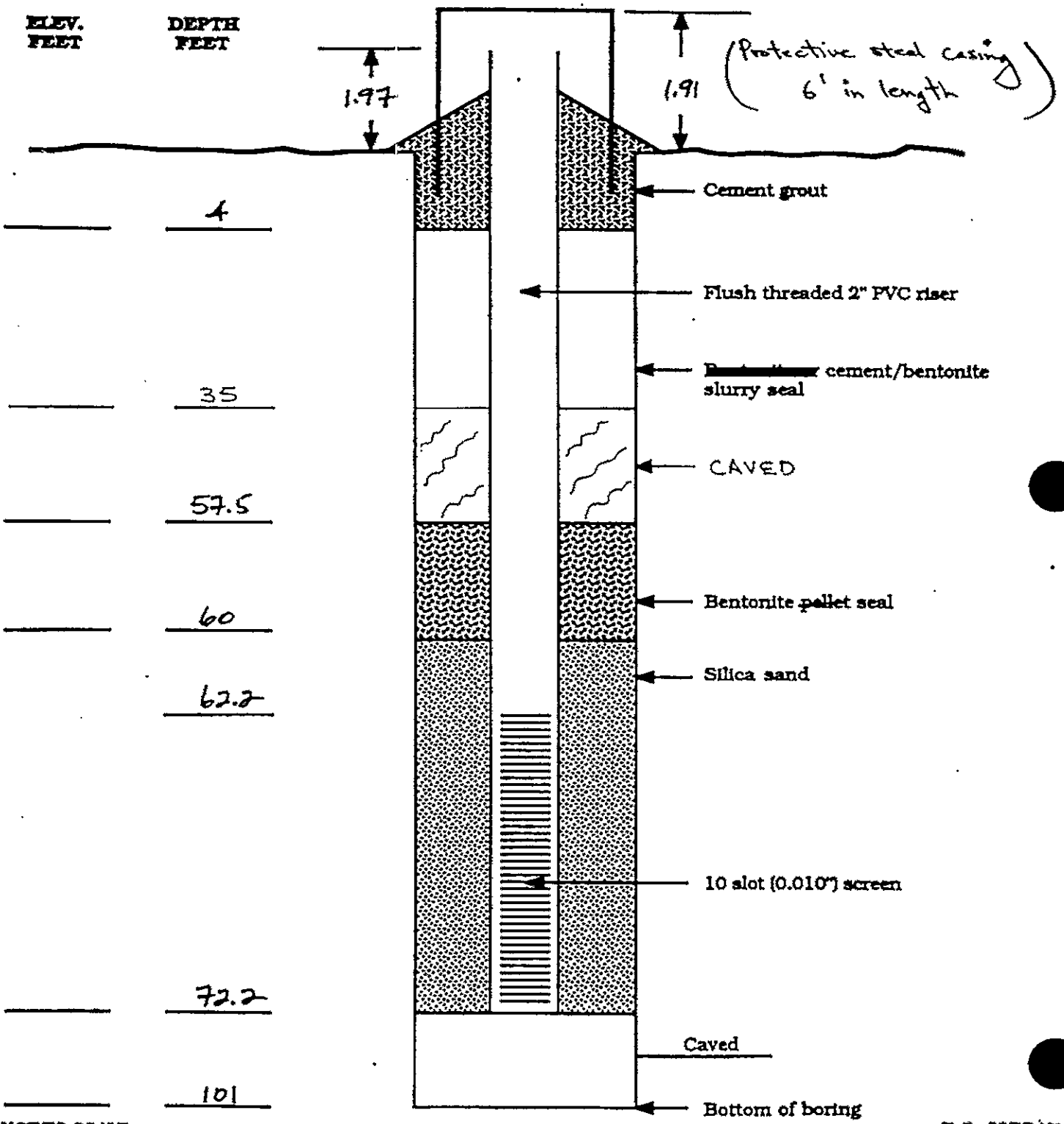
WELL INSTALLATION DETAILS

Project no. 4607-09	Project name NASB	Well no. MW-205
Installed by MATHES/B.B.	Date installed 8/3/88	Boring diameter 8" (4.25 ID)
Well diameter 2"	Well material SCH 40 PVC	Backfill material SILICA SAND



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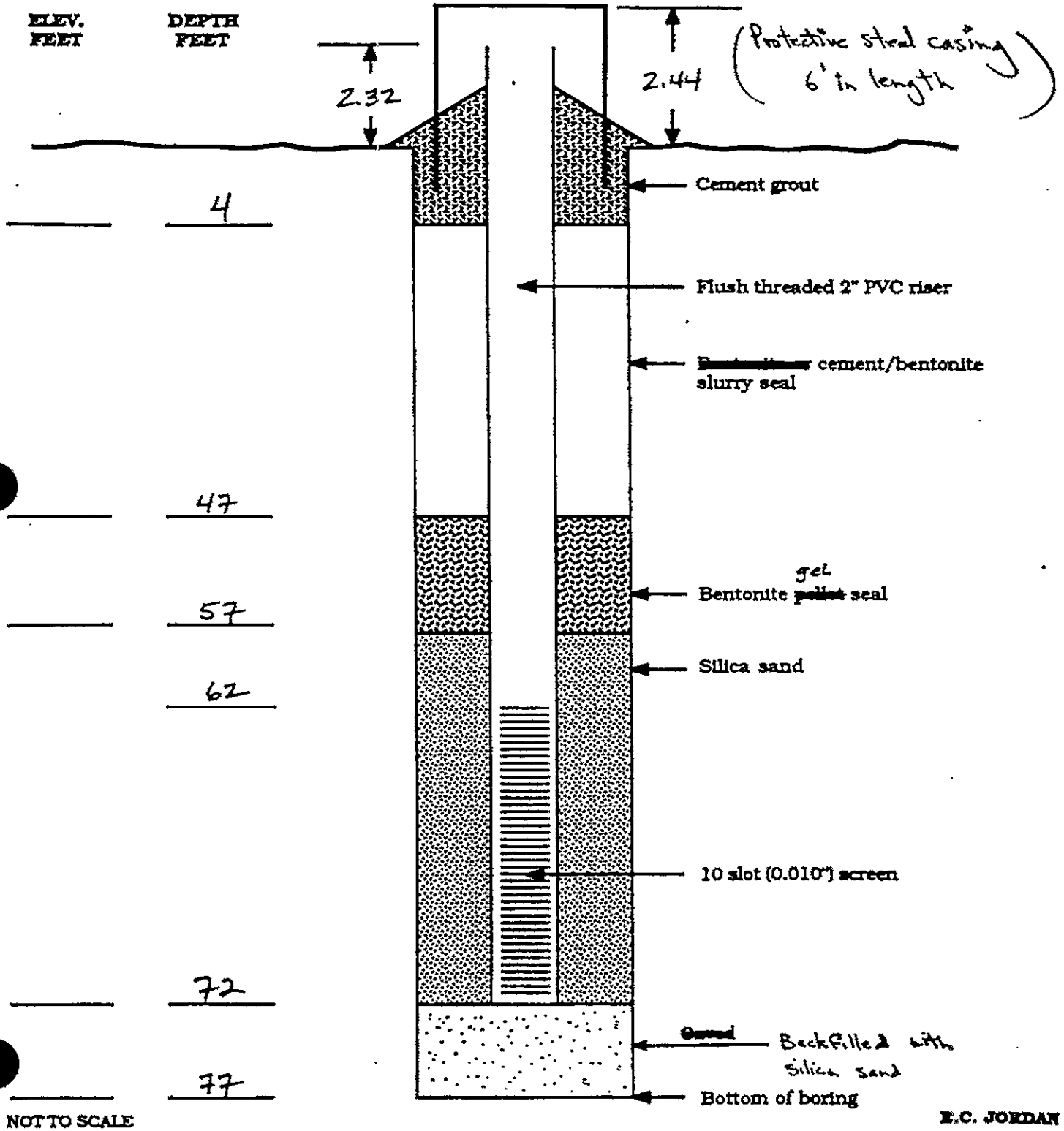
WELL INSTALLATION DETAILS

Project no.	4807-09	**Project name**	NASB	**Well no.**	MW-206 A
Installed by	MATHES / G.D.	**Date installed**	8/13/88	**Boring diameter**	8" (4.25 I.D.)
Well diameter	2"	**Well material**	SCH 40 PVC	**Backfill material**	SILICA SAND



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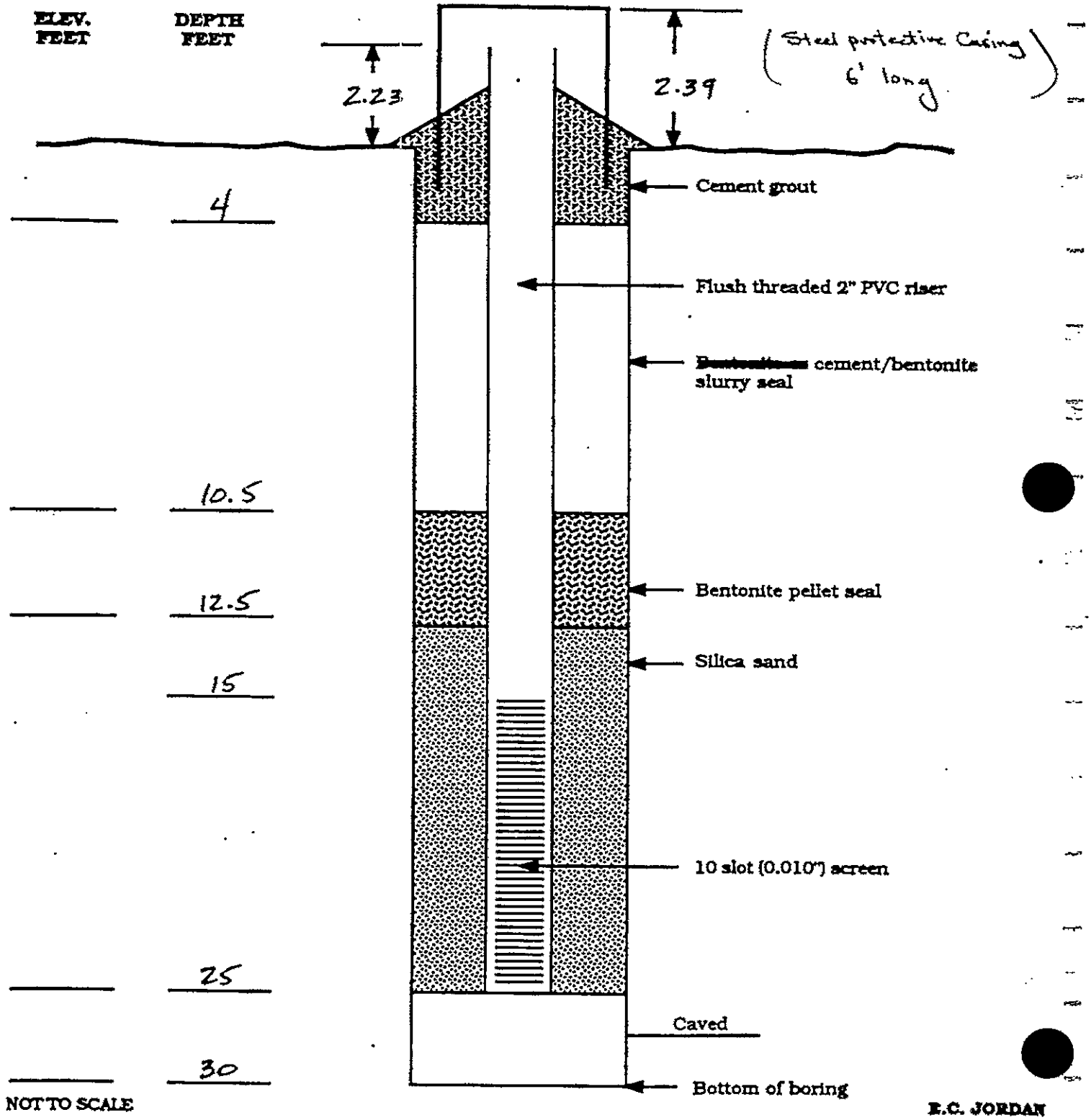
WELL INSTALLATION DETAILS

Project no.	4807-09	Project name	NASB	Well no.	MW-206 B
Installed by	MATHES / G.D.	Date installed	7/30/88	Boring diameter	8" (4.25 I.D.)
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



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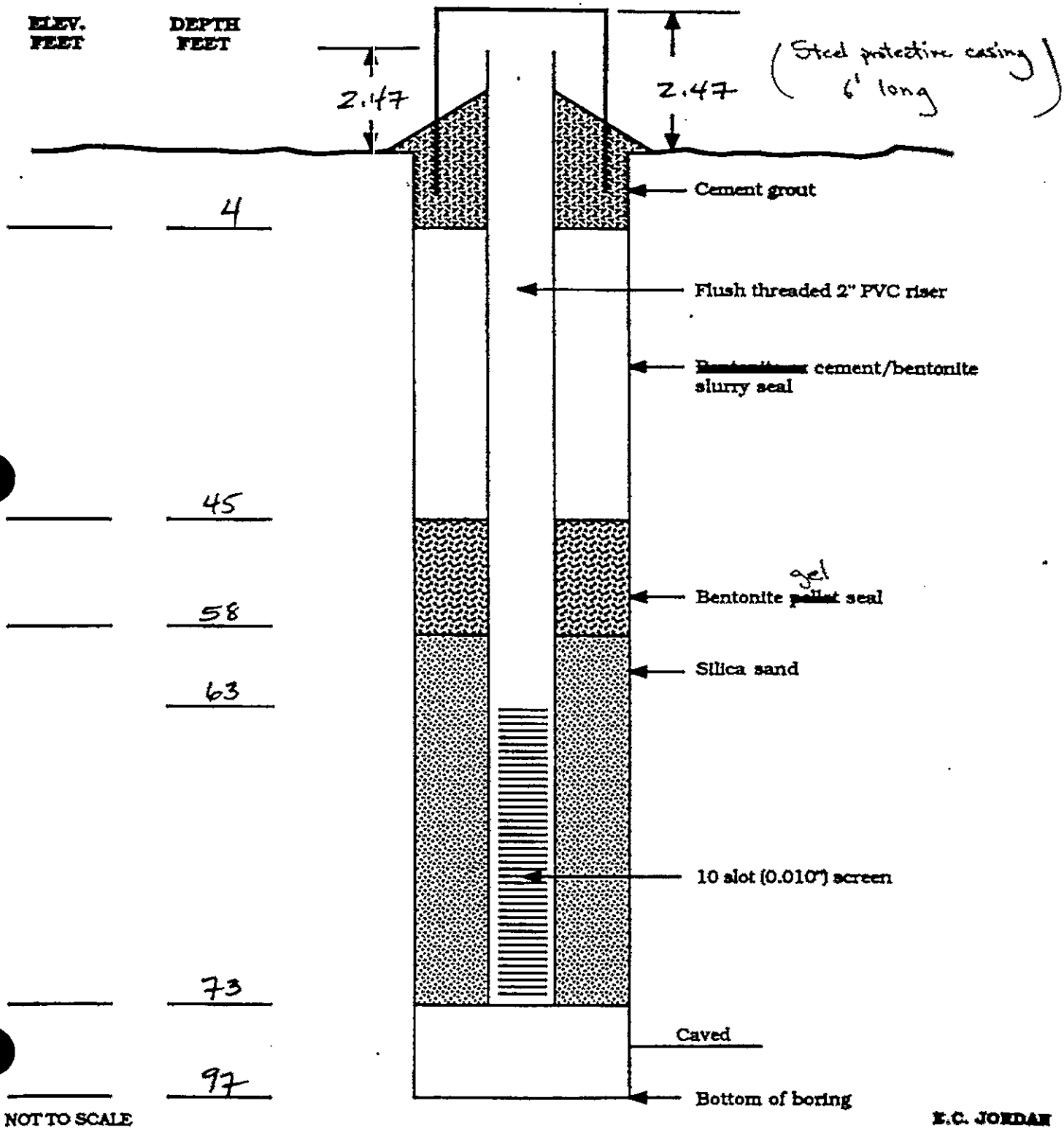
WELL INSTALLATION DETAILS

Project no.	4807-09	Project name	NASB	Well no.	MW-207A
Installed by	MATHES / GD	Date installed	8/4/88	Boring diameter	8" (4.25 I.D.)
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



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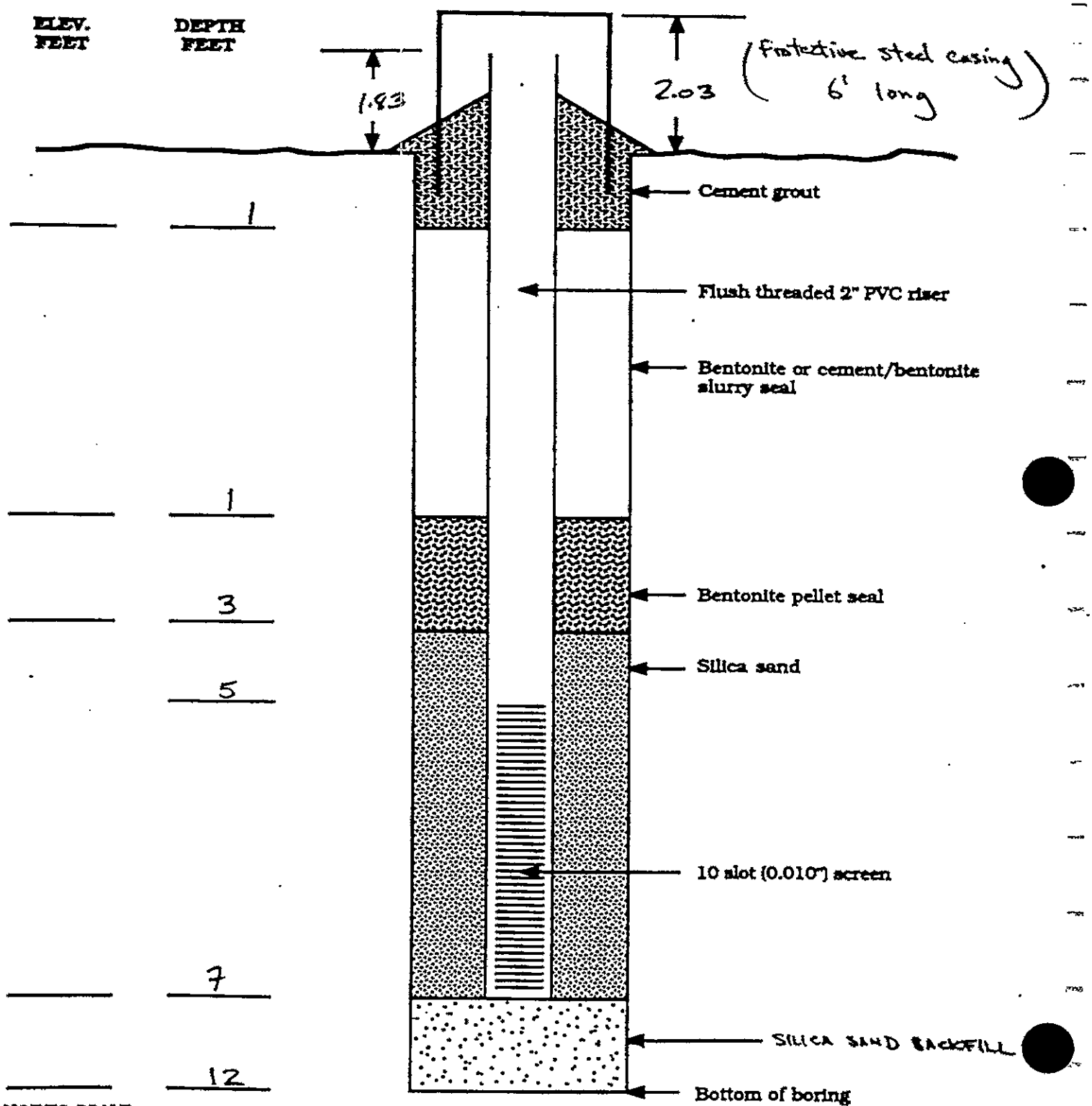
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

Project no.	4807-09	Project name	NASB	Well no.	MW-207 B
Installed by	MATHES/GD	Date installed	7/31/88	Boring diameter	8" (4.25 I.D.)
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



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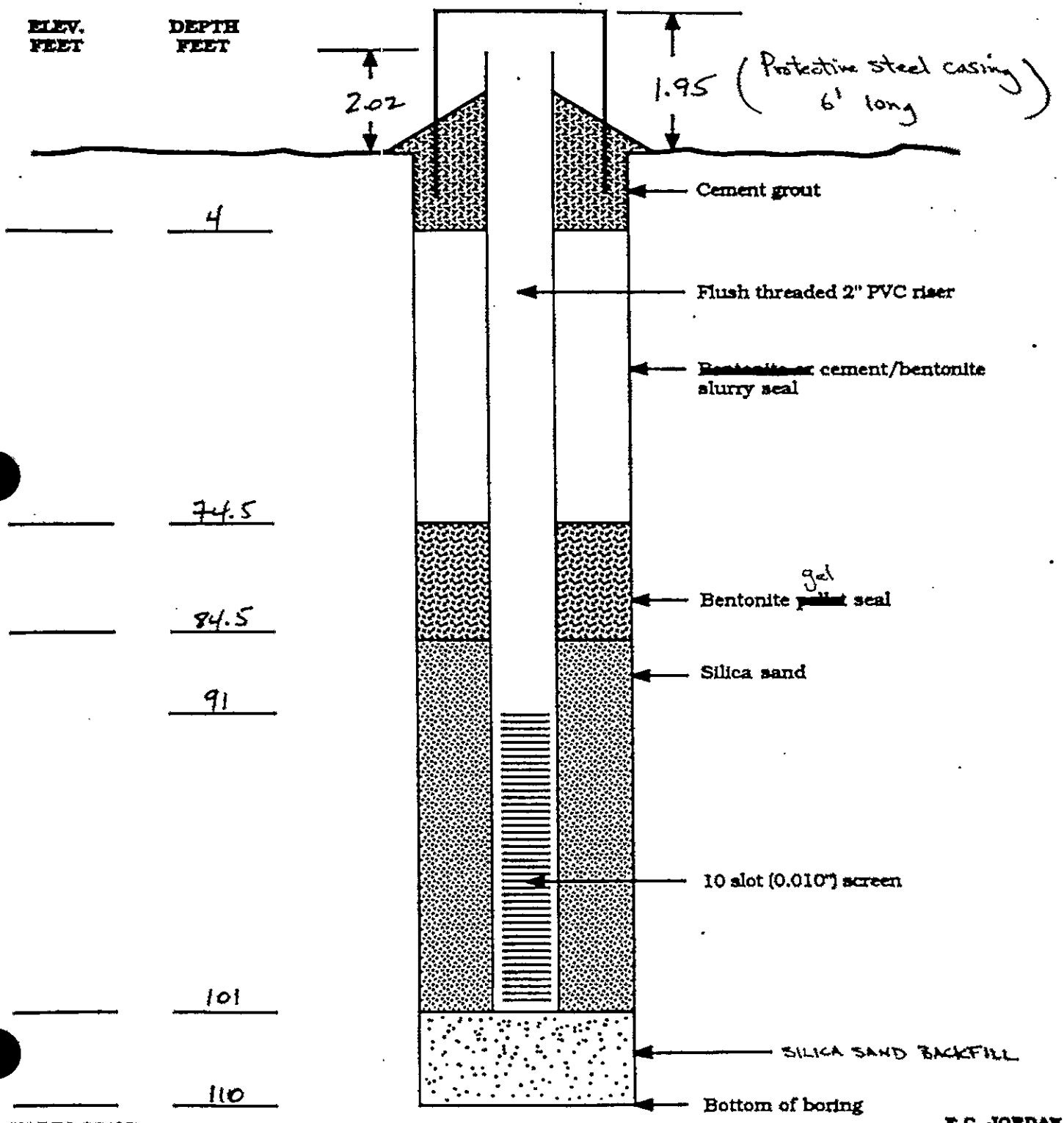
WELL INSTALLATION DETAILS

Project no.	4607-09	Project name	NASB	Well no.	MW-208
Installed by	MATHES/GD	Date installed	8/11/88	Boring diameter	8" (4.25 I.D.)
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



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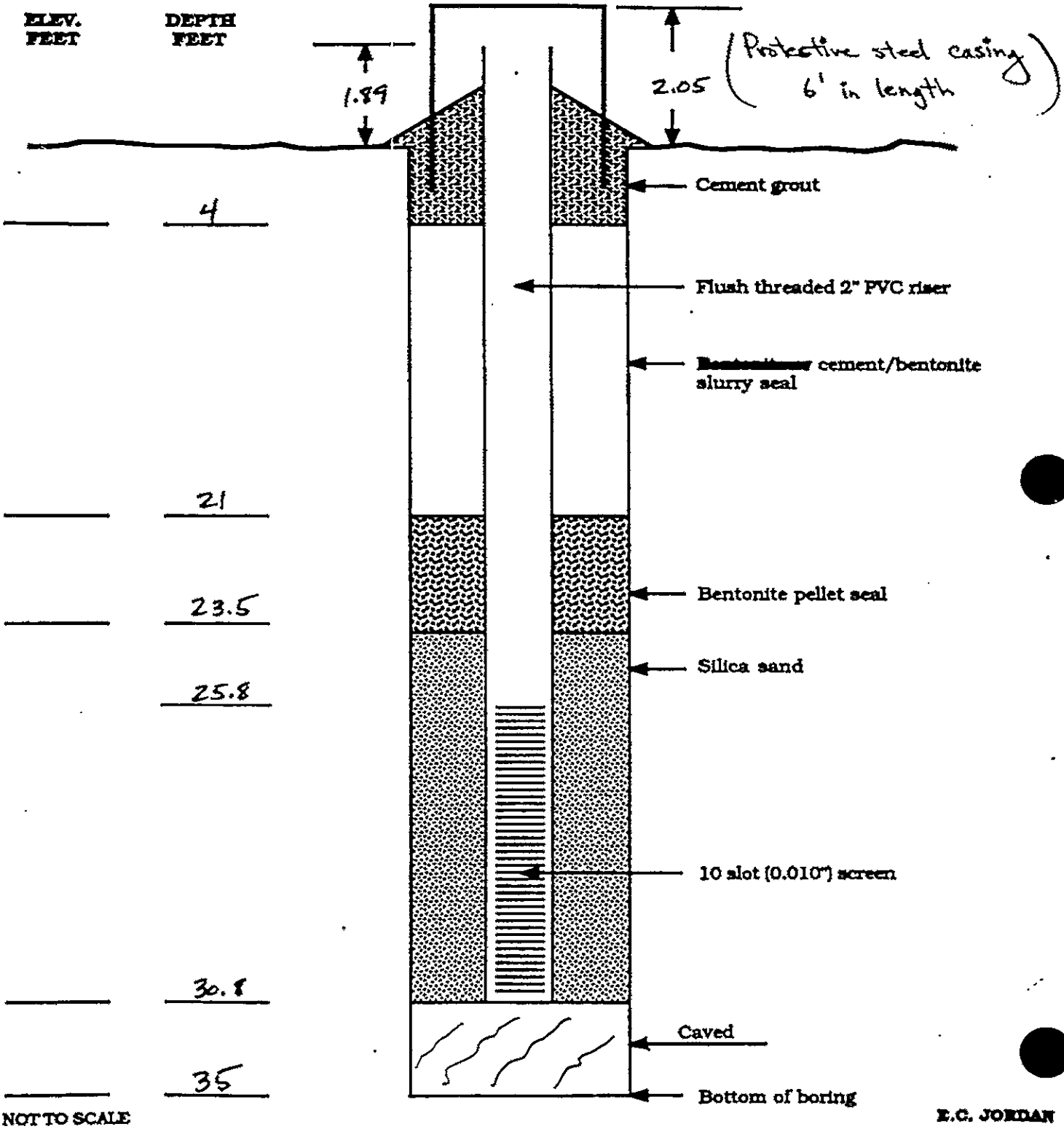
WELL INSTALLATION DETAILS

Project no.	4607-09	Project name	NASB	Well no.	MW-209
Installed by	MATHES/GD	Date installed	7/20/88	Boring diameter	8" (4.25 I.D.)
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



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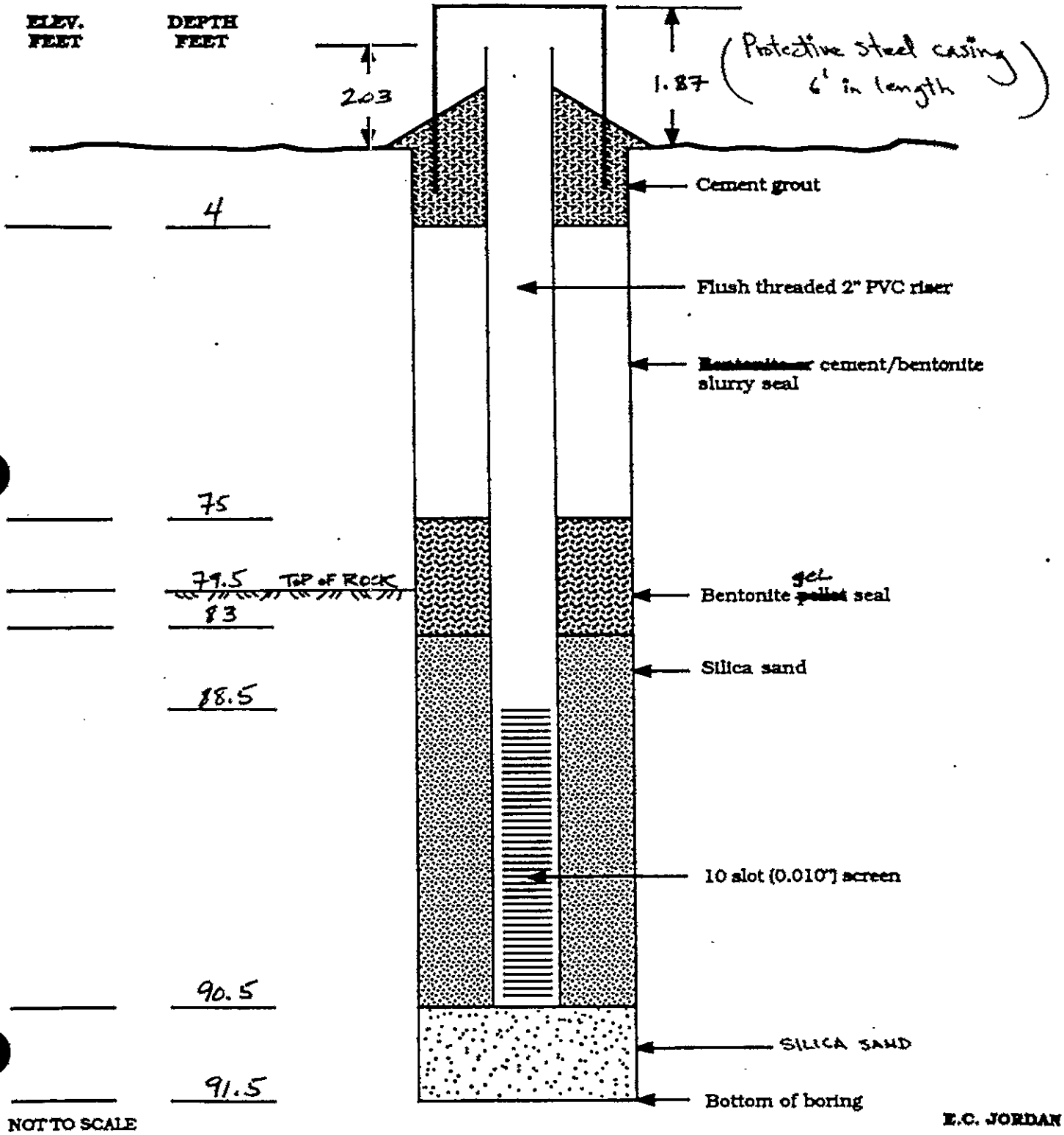
WELL INSTALLATION DETAILS

Project no.	4807-09	Project name	NASB	Well no.	MW-210A
Installed by	MATHES/BB-JH	Date installed	7/31/91	Boring diameter	8" (4.25 I.D.)
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



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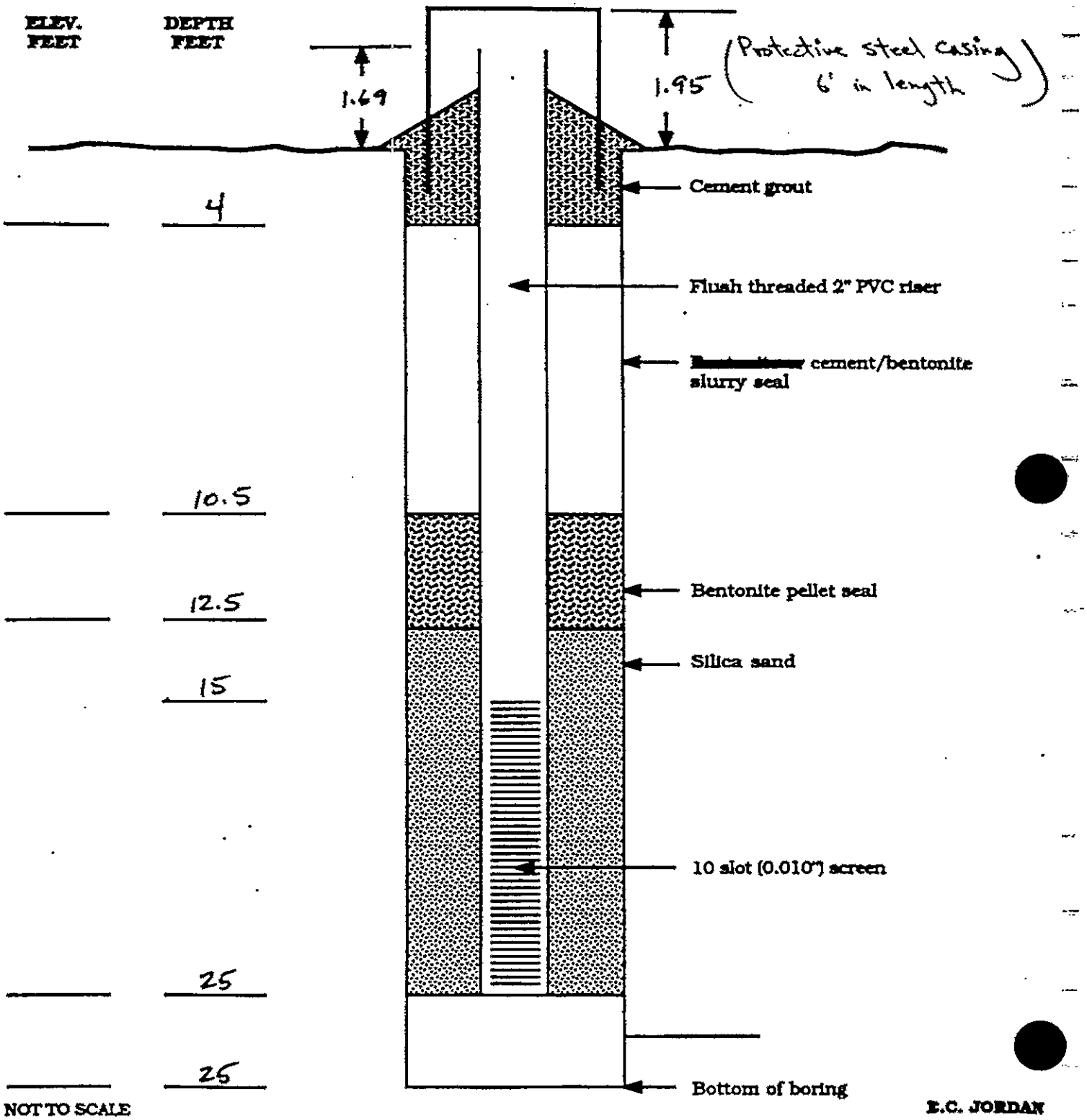
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

Project no.	4807-09	**Project name**	NASB	**Well no.**	210 B
Installed by	MATHES/GD	**Date installed**	7/30/91	**Boring diameter**	8" (4.25 I.D.)
Well diameter	2"	**Well material**	SCH 40 PVC	**Backfill material**	SILICA SAND



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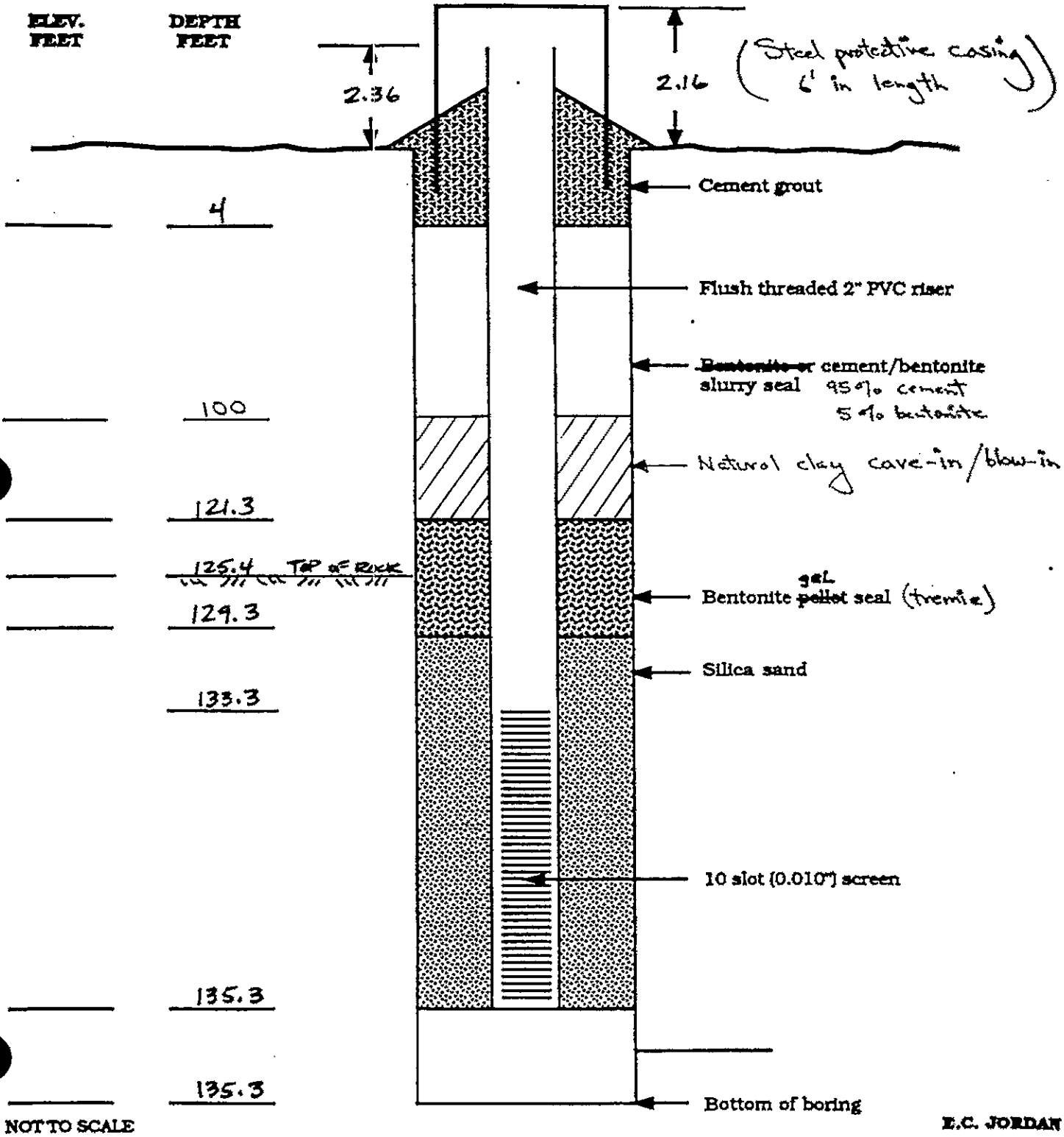
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

Project no.	4807-09	Project name	NASB	Well no.	MW-211 A
Installed by	MATHES/BB-JH	Date installed	7/28/88	Boring diameter	8" (4.25 I.D.)
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



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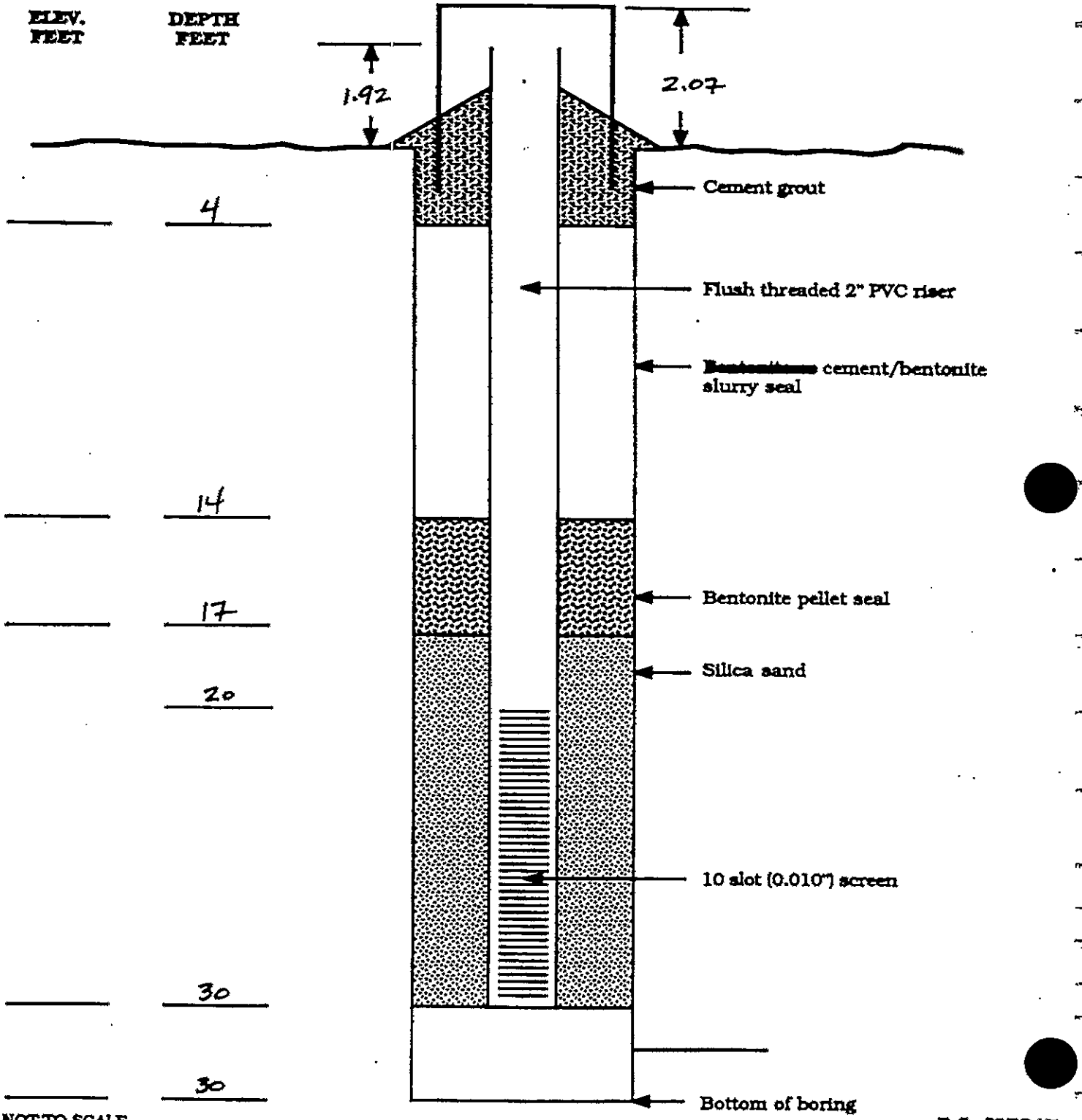
E.C. JORDAN

Click Here to Return to Main Index

WELL INSTALLATION DETAILS

Project no. 4607-09	Project name NASB	Well no. MW-211B
Installed by MATHES/GD	Date installed 7/25/88	Boring diameter 8" (4.25 I.D.)
Well diameter 2"	Well material SCH 40 PVC	Backfill material SILICA SAND



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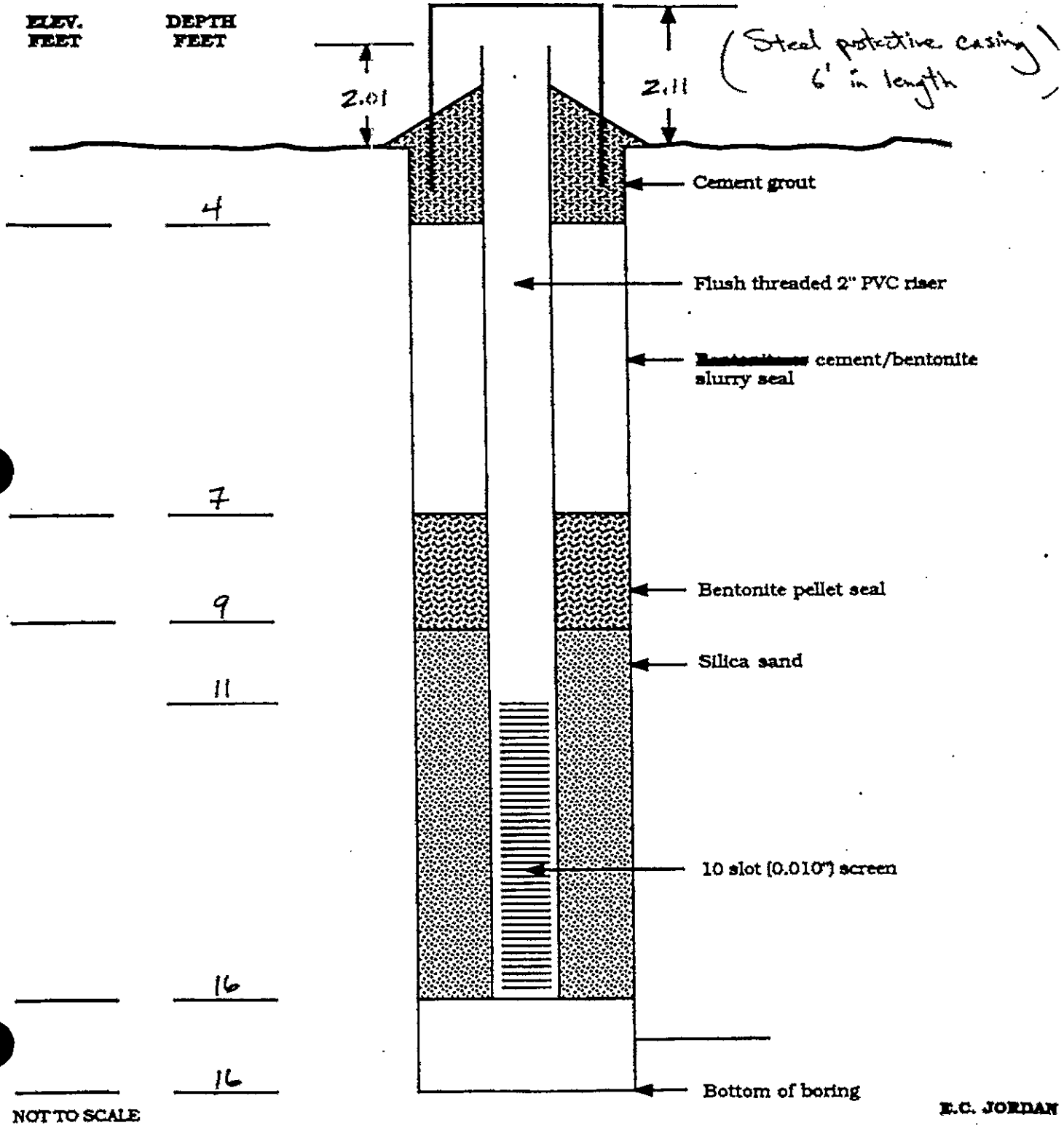
E.C. JORDAN

Click Here to Return to Main Index

WELL INSTALLATION DETAILS

Project no.	4807-09	Project name	NASB	Well no.	MW-212
Installed by	MATHES/GD	Date installed	7/19/88	Boring diameter	8" (4.25 I.D.)
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



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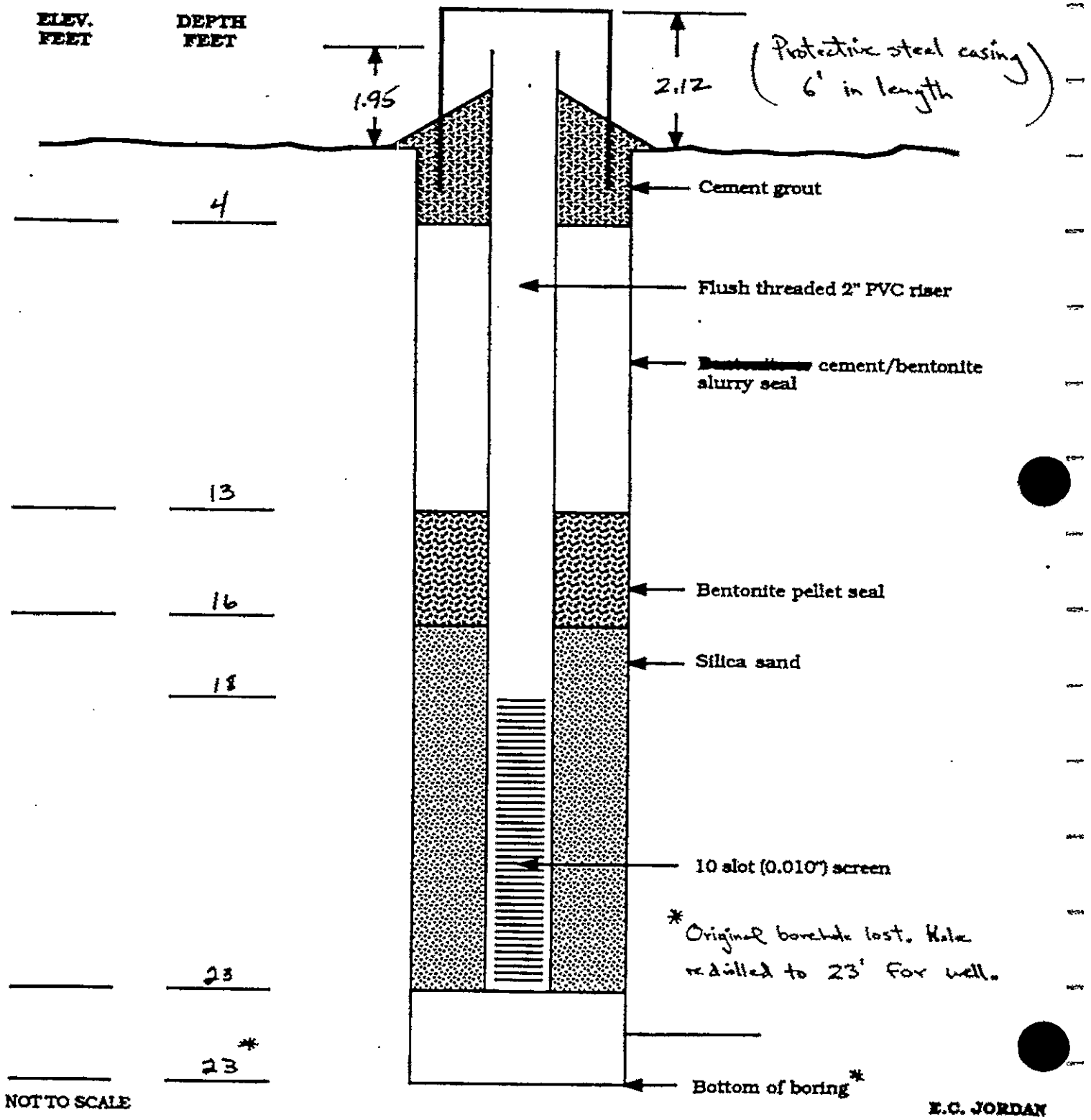
WELL INSTALLATION DETAILS

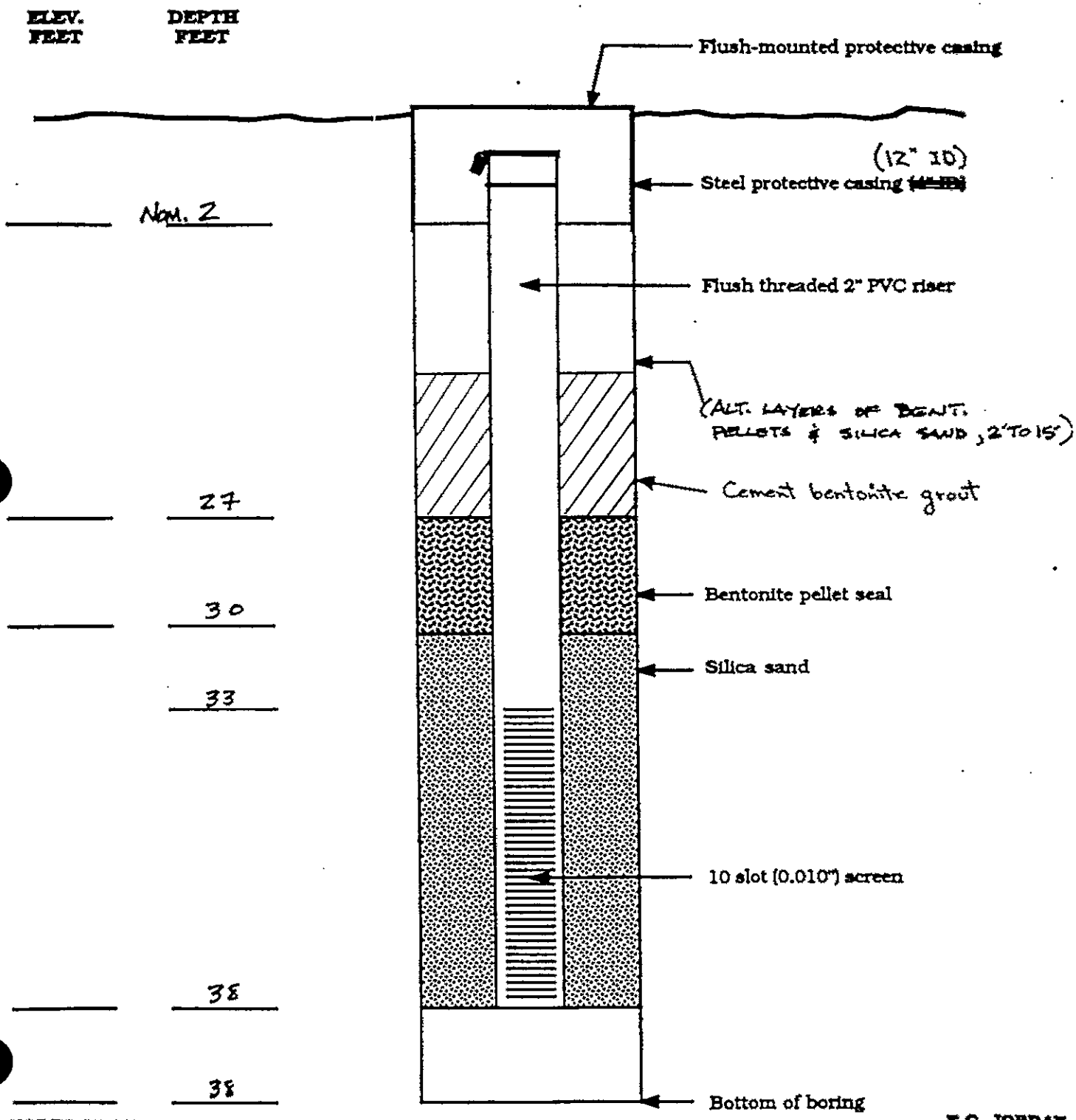
Project no. 4607-09	Project name NASB	Well no. MW-213
Installed by MATHES/GD	Date installed 7/20/88	Boring diameter 8" (4.25 I.D.)
Well diameter 2"	Well material SCH 40 PVC	Backfill material SILICA SAND



Click Here to Return to Main Index

WELL INSTALLATION DETAILS

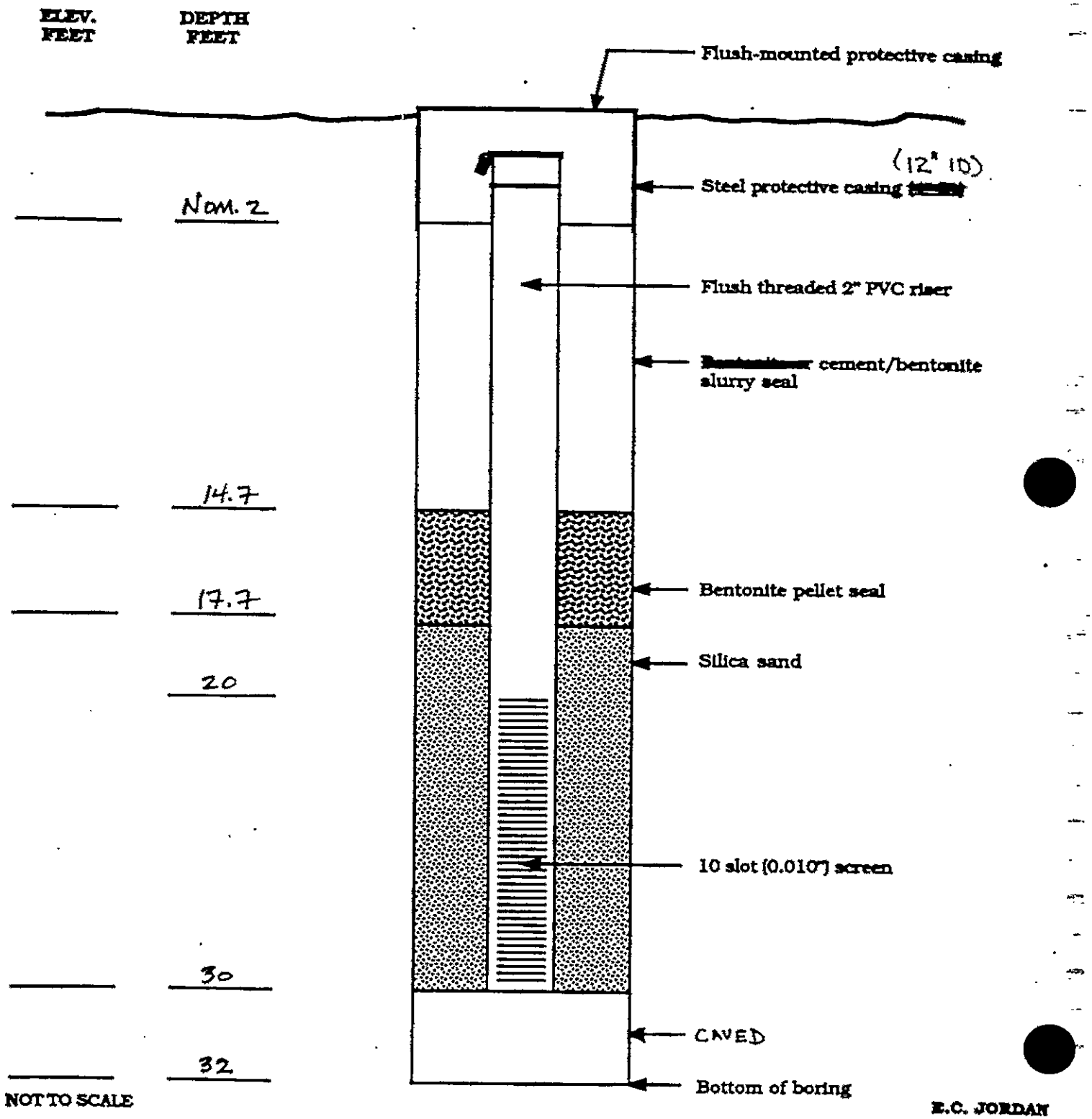
Project no. 4607-09	Project name NASB	Well no. MW-404
Installed by MATHES/GD	Date installed 7/21/88	Boring diameter 8" (4.25 I.D.)
Well diameter 2"	Well material SCH 40 PVC	Backfill material SILICA SAND



Click Here to Return to Main Index

WELL INSTALLATION DETAILS

Project no.	4607-09	Project name	NASB	Well no.	MW-405
Installed by	MATHES/BB-JU	Date installed	8/2/88	Boring diameter	8" (4.25 I.D.)
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



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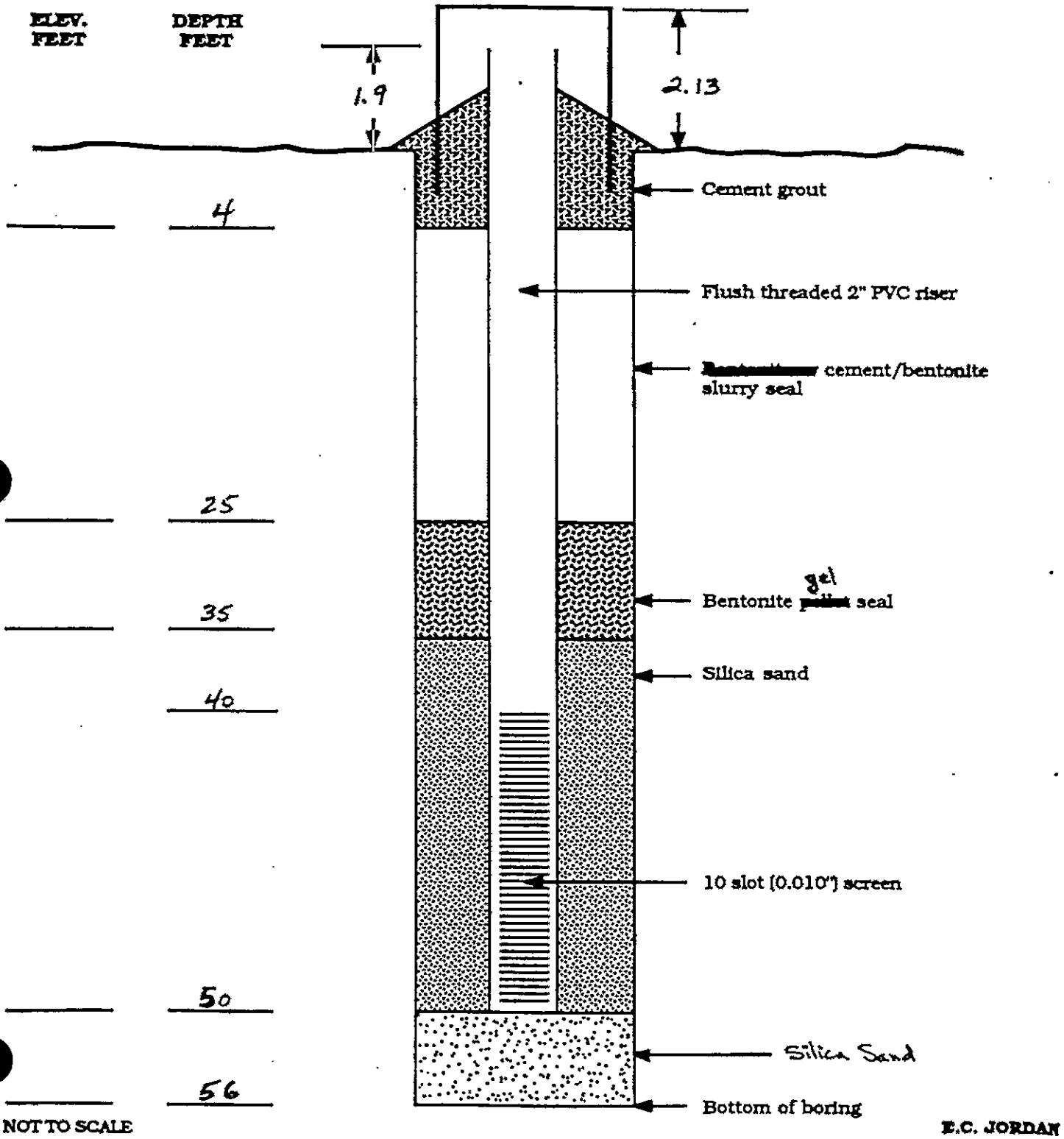
WELL INSTALLATION DETAILS

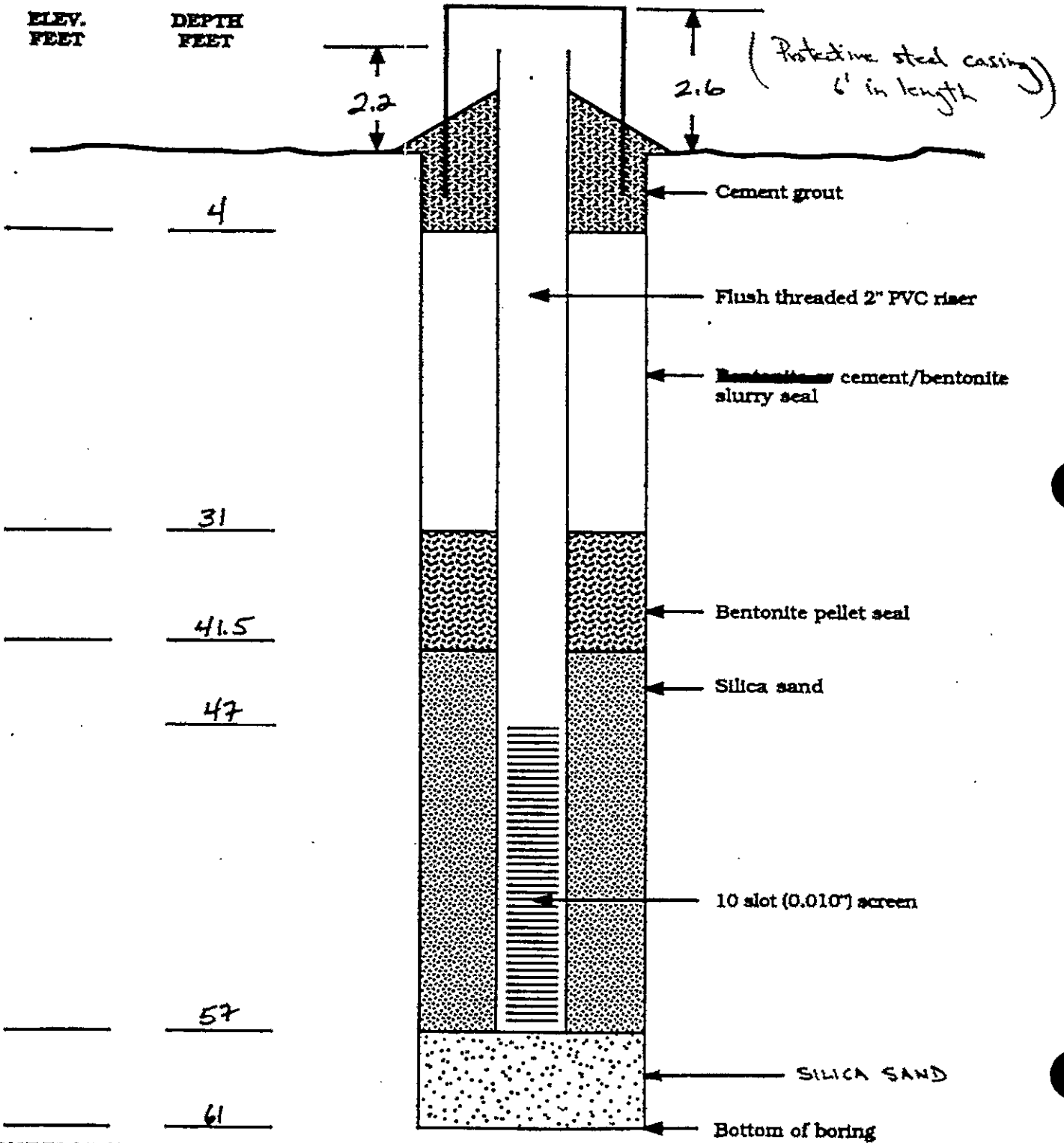
Project no.	4607-09	Project name	NASB	Well no.	MW-406
Installed by	MATHES/GD	Date installed	8/14/88	Boring diameter	8" (4.25 I.D.)
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



Click Here to Return to Main Index

WELL INSTALLATION DETAILS

Project no. 4607-09	Project name NASB	Well no. MW-407
Installed by MATHES/GD	Date installed 8/15/89	Boring diameter 8" (4.25 I.D.)
Well diameter 2"	Well material SCH 40 PVC	Backfill material SILICA SAND



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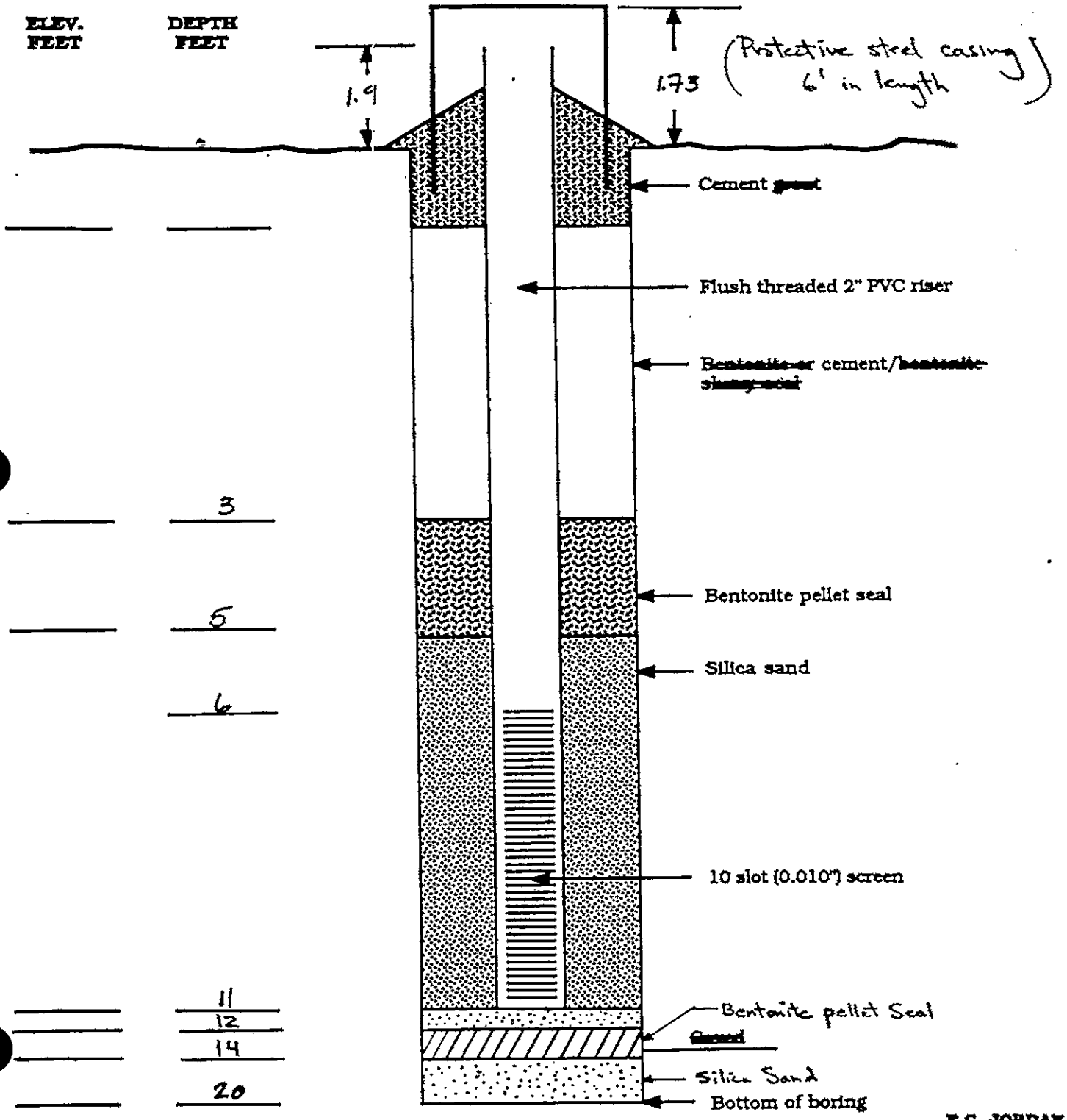
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

Project no. 4807-09	Project name NASB	Well no. MW-704
Installed by HATHES/BKB JV	Date installed 7/19/88	Boring diameter 8" (4.25 I.D.)
Well diameter 2"	Well material SCH 40 PVC	Backfill material SILICA SAND



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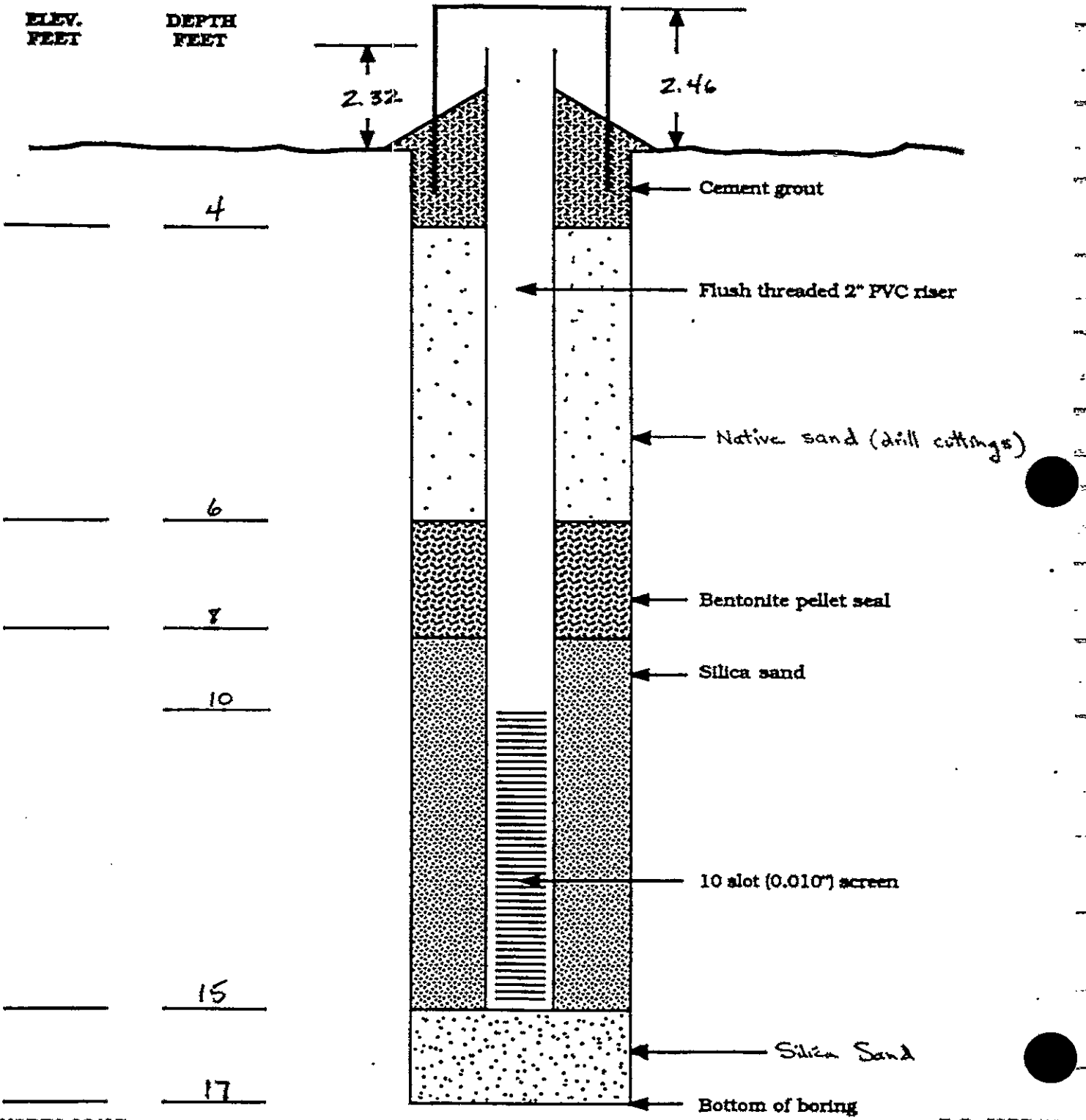
E.C. JORDAN

Click Here to Return to Main Index

WELL INSTALLATION DETAILS

Project no. 4807-09	Project name NASB	Well no. MW-705
Installed by MATHES/GD	Date installed 7-18-88	Boring diameter 8" (4.25 I.D.)
Well diameter 2"	Well material SCH 40 PVC	Backfill material SILICA SAND



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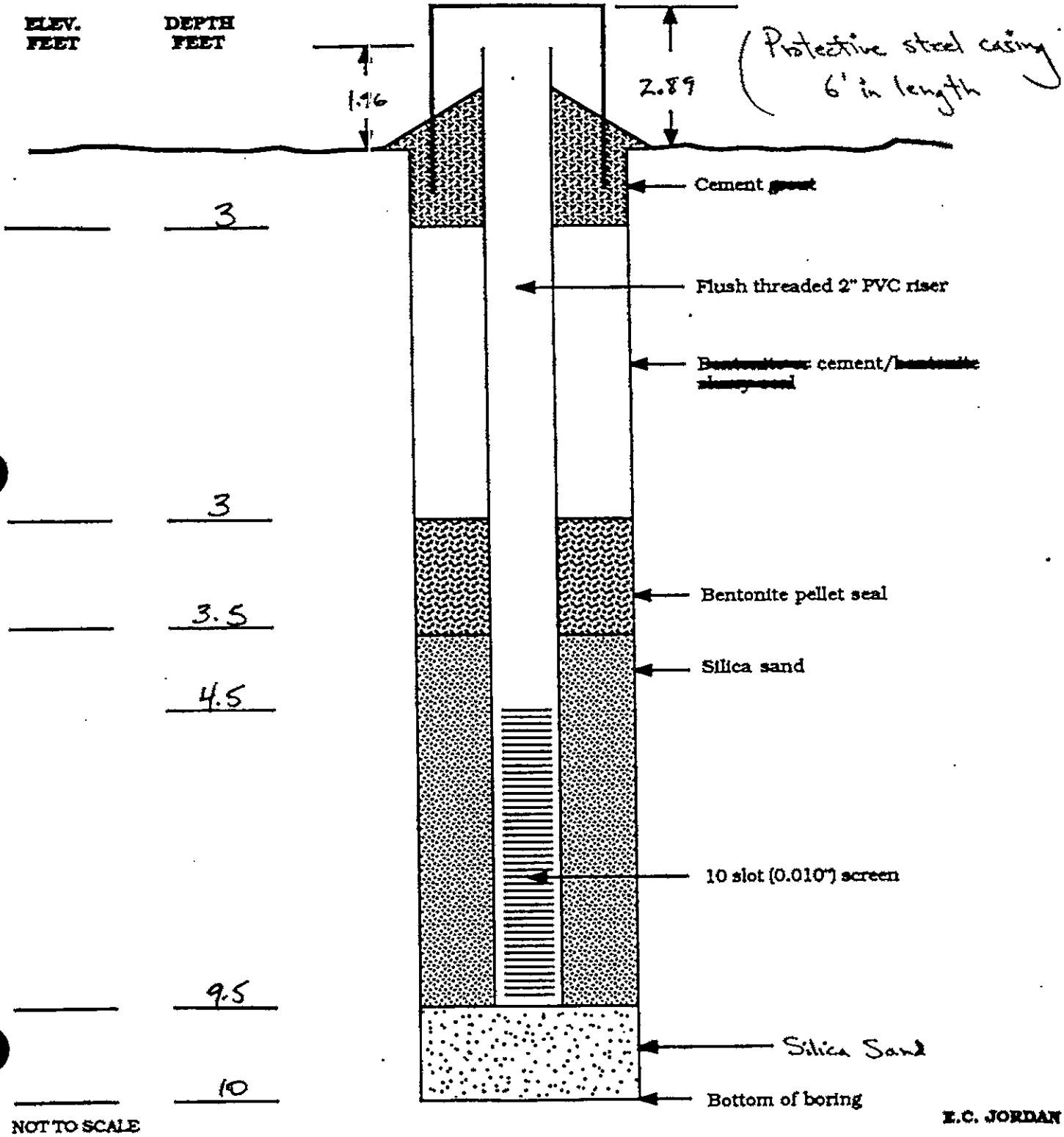
E.C. JORDAN

Click Here to Return to Main Index

WELL INSTALLATION DETAILS

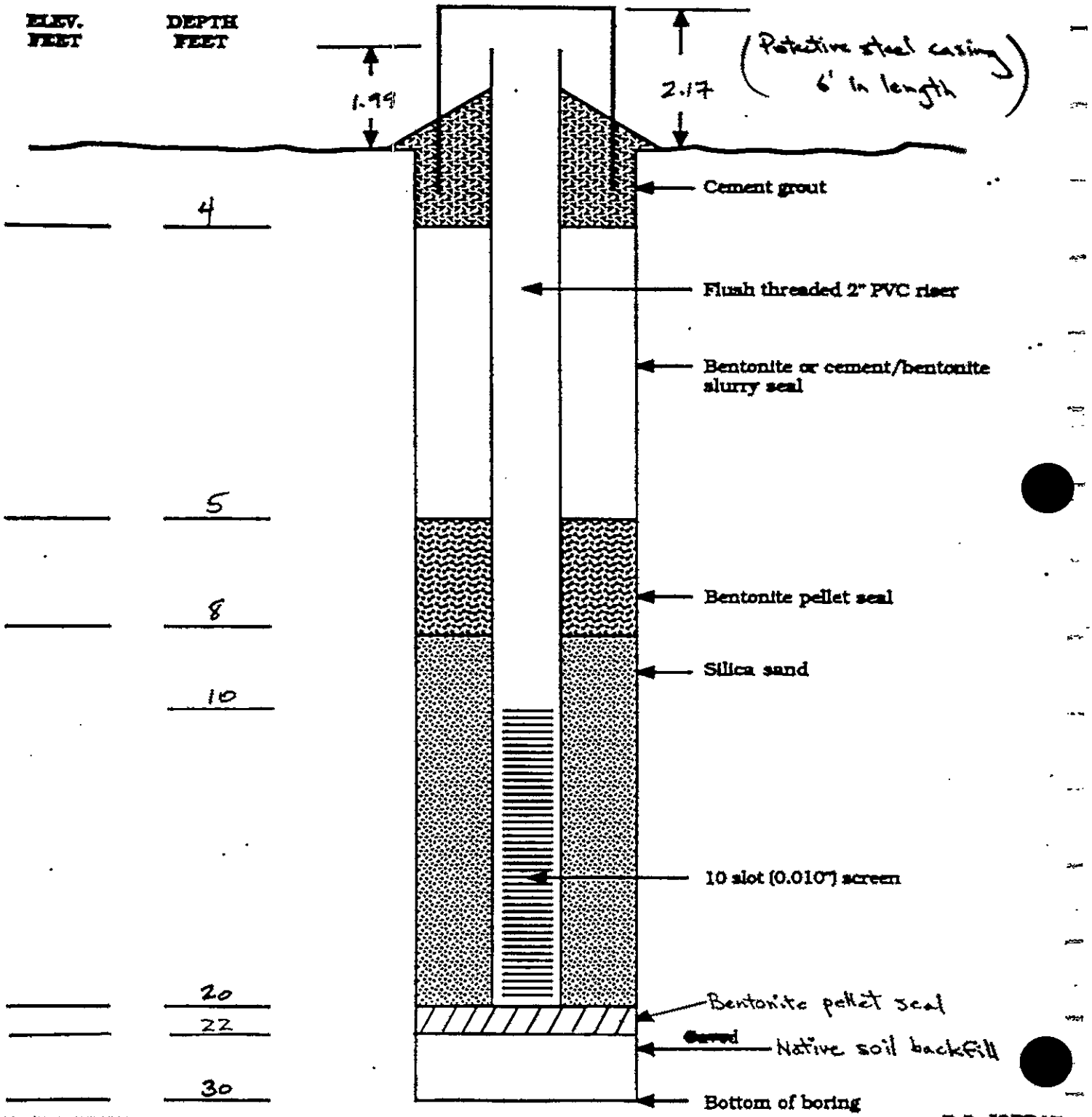
Project no.	4807-09	Project name	NASB	Well no.	MW-706
Installed by	MATRICS/BB & JU	Date installed	7/20/88	Boring diameter	8" (4.25 I.D.)
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



Click Here to Return to Main Index

WELL INSTALLATION DETAILS

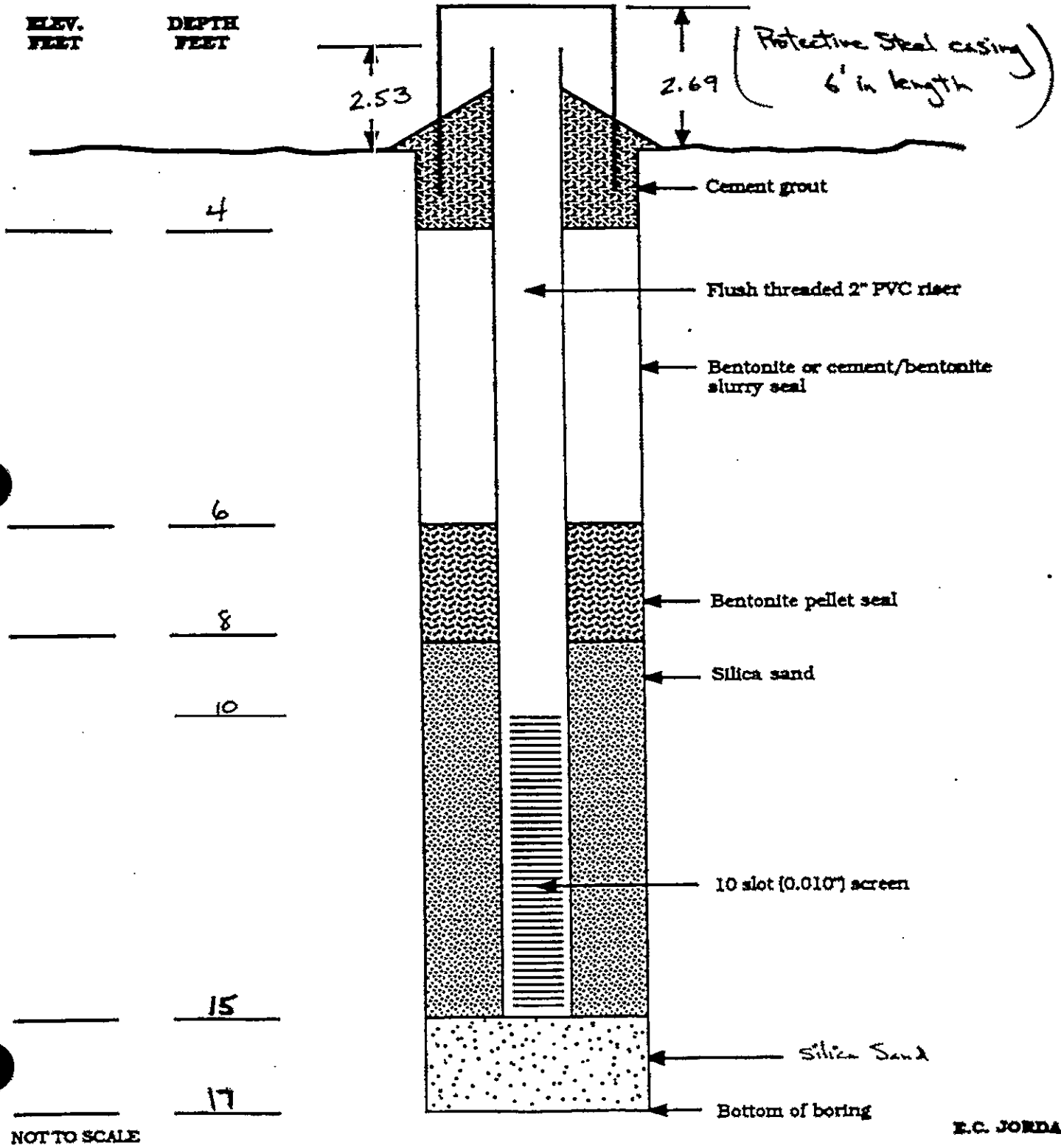
Project no.	4607-09	Project name	NASB	Well no.	MW-807
Installed by	MATHES/GD	Date installed	7/15/88	Boring diameter	8" (4.25 I.D.
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



Click Here to Return to Main Index

WELL INSTALLATION DETAILS

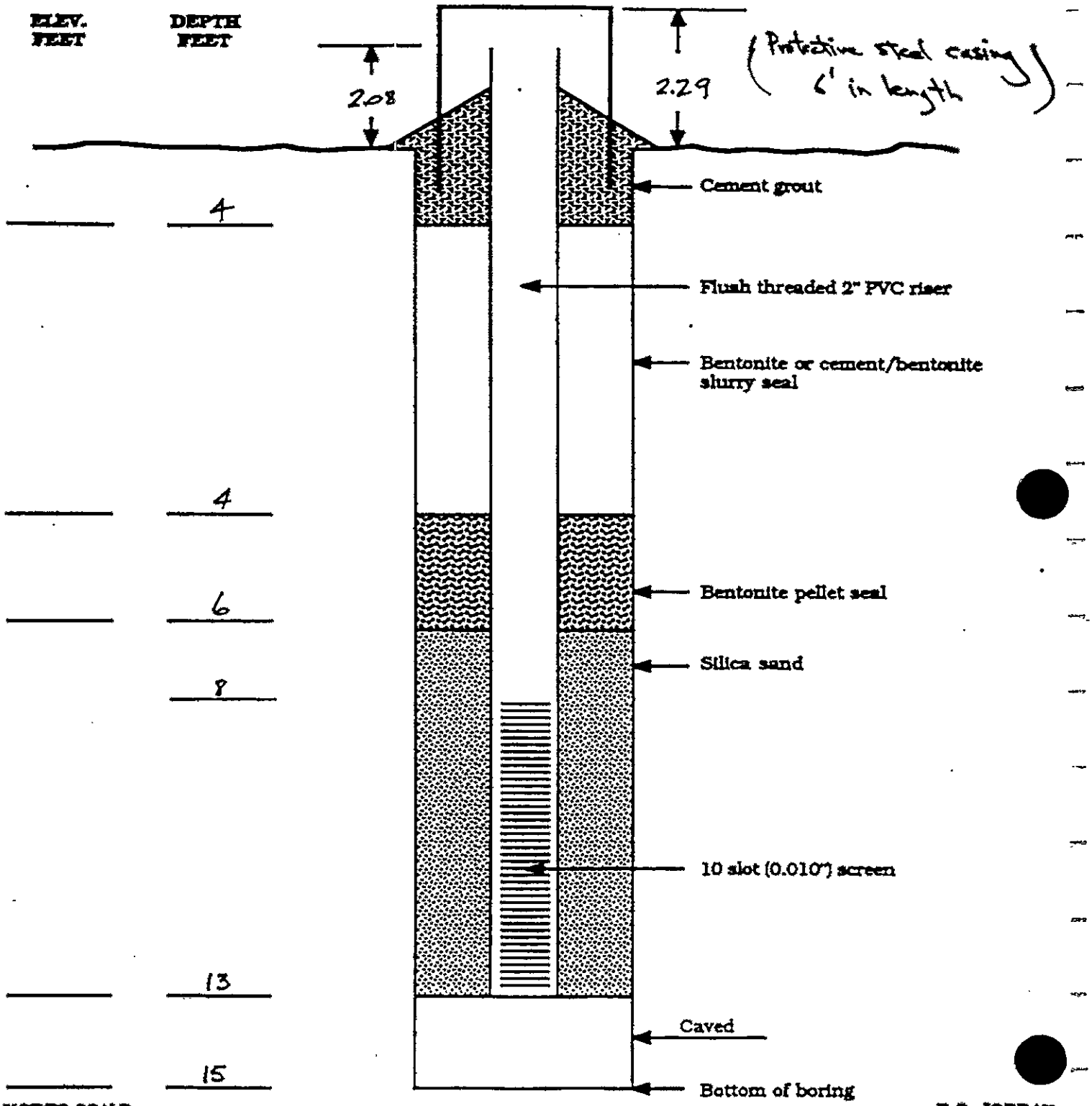
Project no. 4607-09	Project name NASB	Well no. MW-808
Installed by MATHES/GD	Date installed 8/3/88	Boring diameter 8" (4.25 I.D.)
Well diameter 2"	Well material SCH 40 PVC	Backfill material SILICA SWD



Click Here to Return to Main Index

WELL INSTALLATION DETAILS

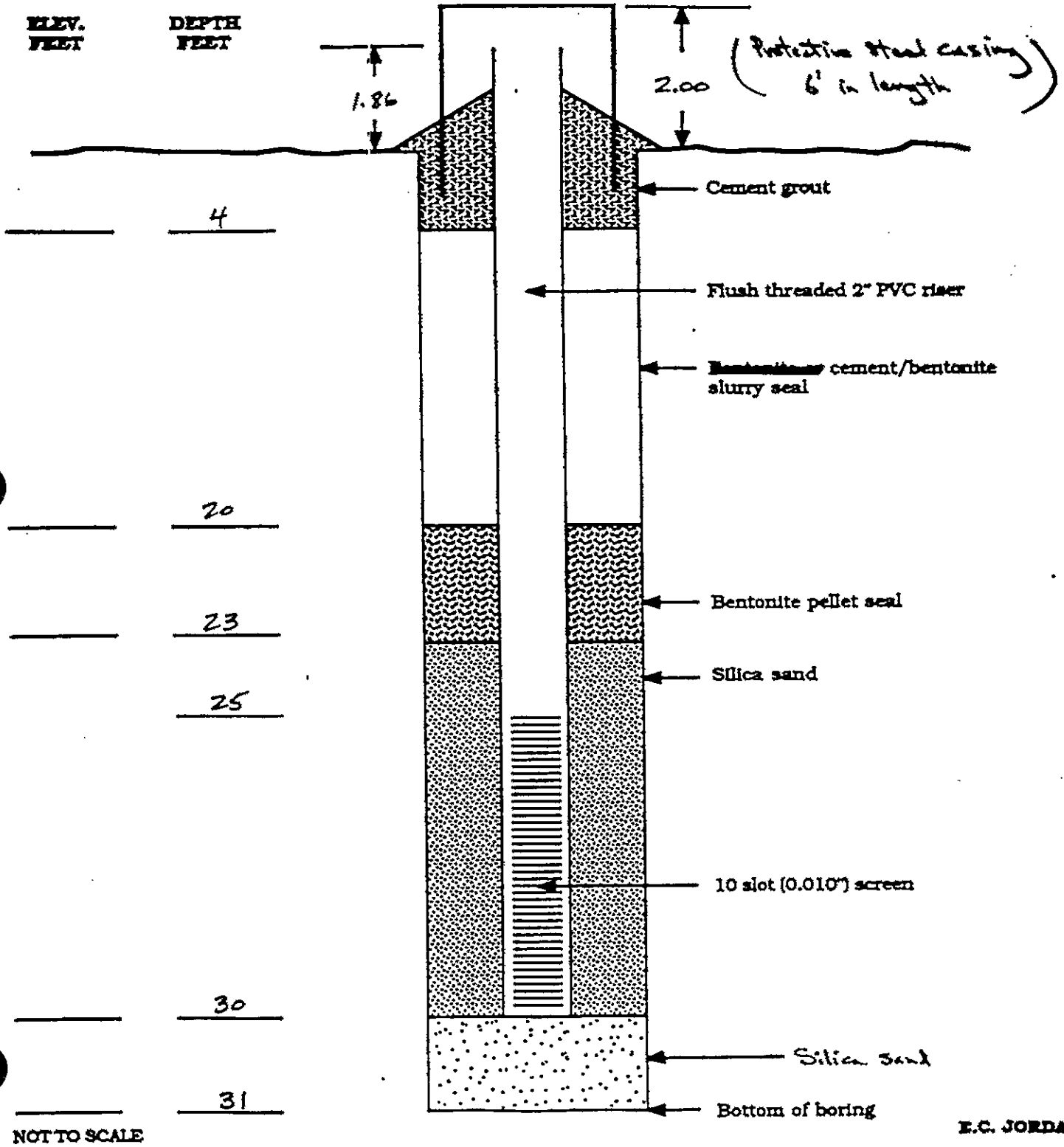
Project no.	4807-09	Project name	NASB	Well no.	MW-904
Installed by	HATHES / GD	Date installed	7/18/88	Boring diameter	8" (4.25 I.D.
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



Click Here to Return to Main Index

WELL INSTALLATION DETAILS

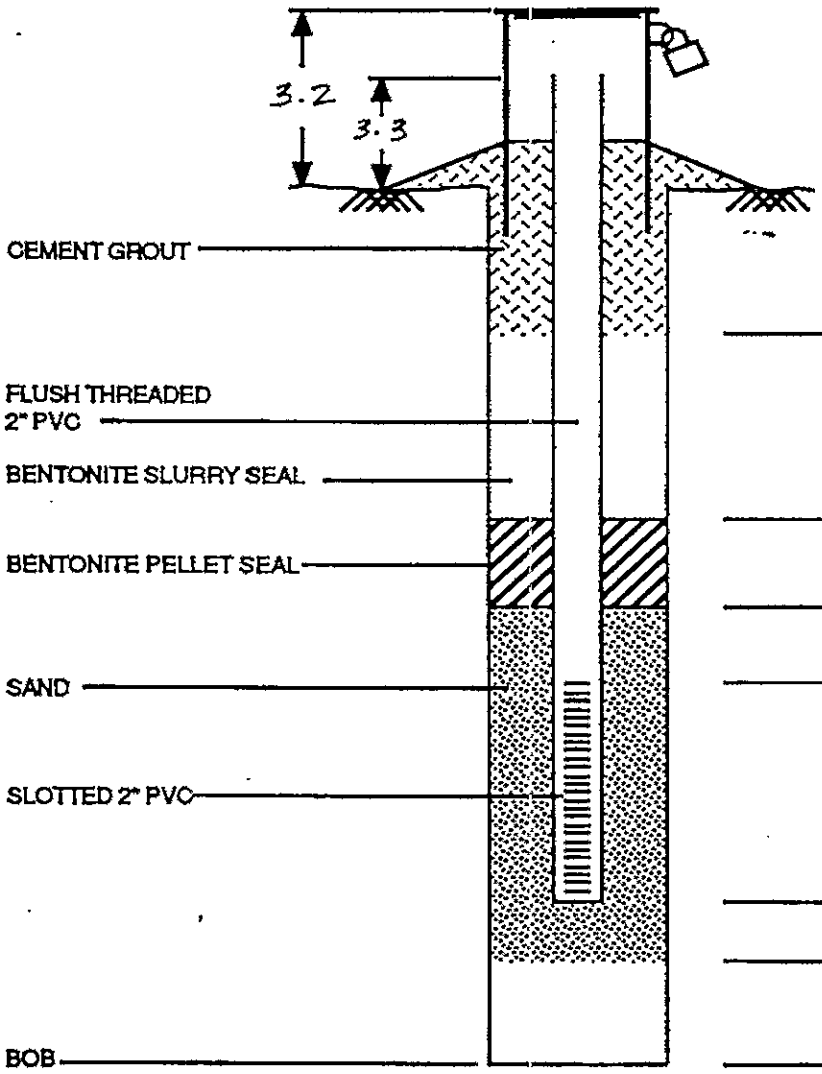
Project no.	4607-09	Project name	NASB	Well no.	MW-905
Installed by	MATHES/BB & JU	Date installed	7/20/88	Boring diameter	8" (4.25 I.D.)
Well diameter	2"	Well material	SCH 40 PVC	Backfill material	SILICA SAND



Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-214
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
NEW ENGLAND / NG-MW	9-12-99	~10"
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	SILICA SAND



	DEPTH (feet)	ELEVATION (feet)
	0	59.9
	3	56.9
	22	37.9
	25	34.9
	28	31.9
	35	21.9
	38	21.9
	48	11.9

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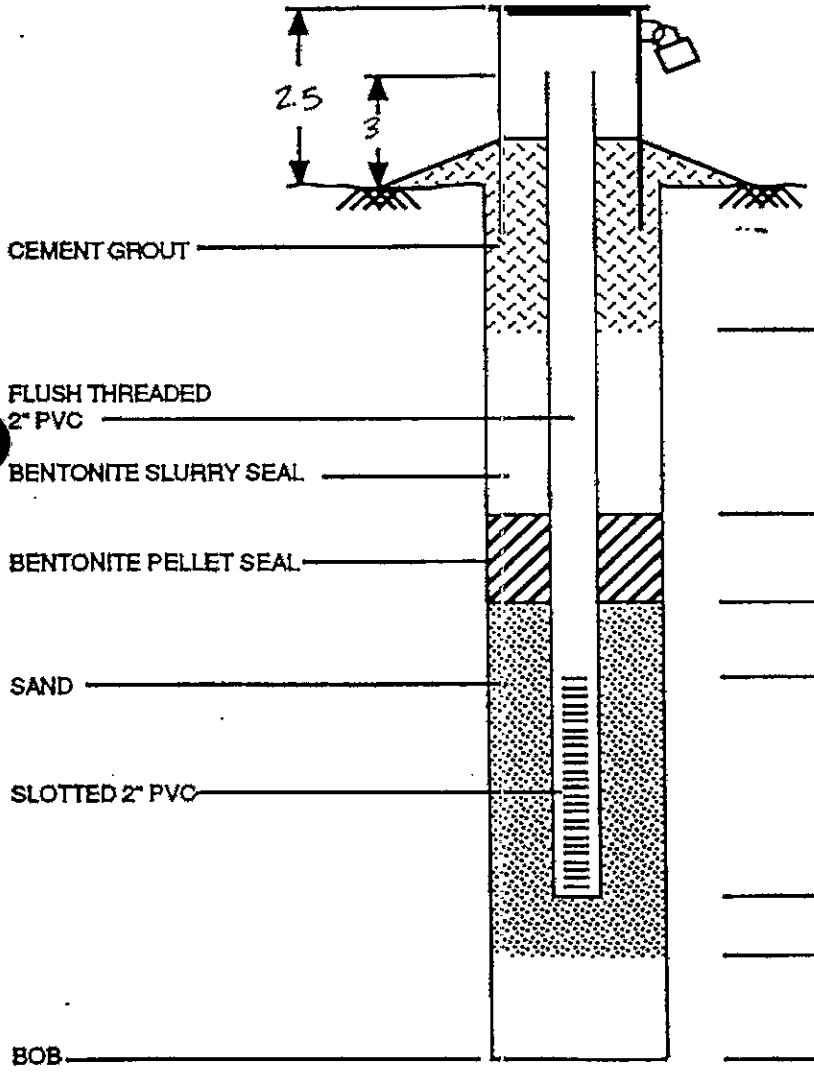
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW 215
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
Tim / John / LAF JU	9-12-89	~10"
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	SILICA SAND



	DEPTH (feet)	ELEVATION (feet)
	0	58.1
	2'	56.1
	20'	38.1
	23'	35.1
	26'	32.1
	36'	22.1
	40'	18.1
	46'	12.1

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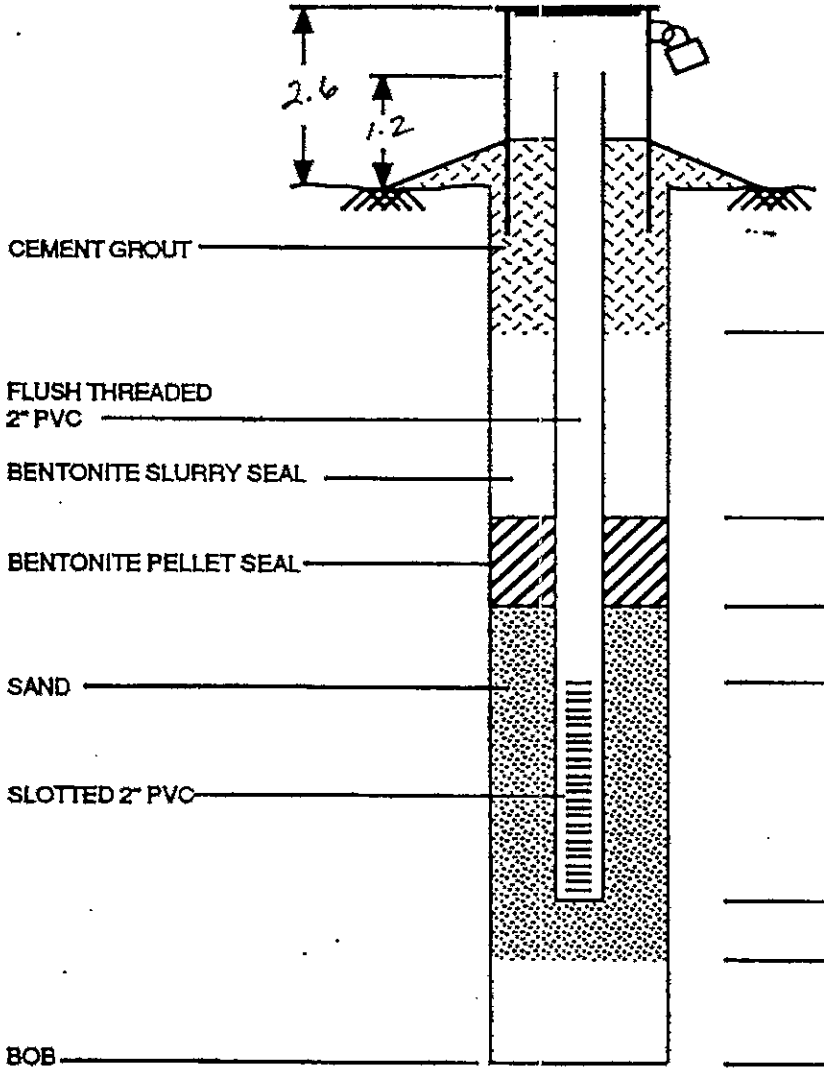
WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-216A
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
NEBC G. WISHART	3/28-30/89	6 5/8" ϕ HSA
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	BENTONITE GROUT



	DEPTH (feet)	ELEVATION (feet)
	0'	52.2
CEMENT GROUT	2'	50.2
FLUSH THREADED 2" PVC		
BENTONITE SLURRY SEAL	12'	40.2
BENTONITE PELLET SEAL	15'	37.2
SAND	18.5	33.7
SLOTTED 2" PVC		
	28.5	23.7
	35	17.2
BOB	37	15.2

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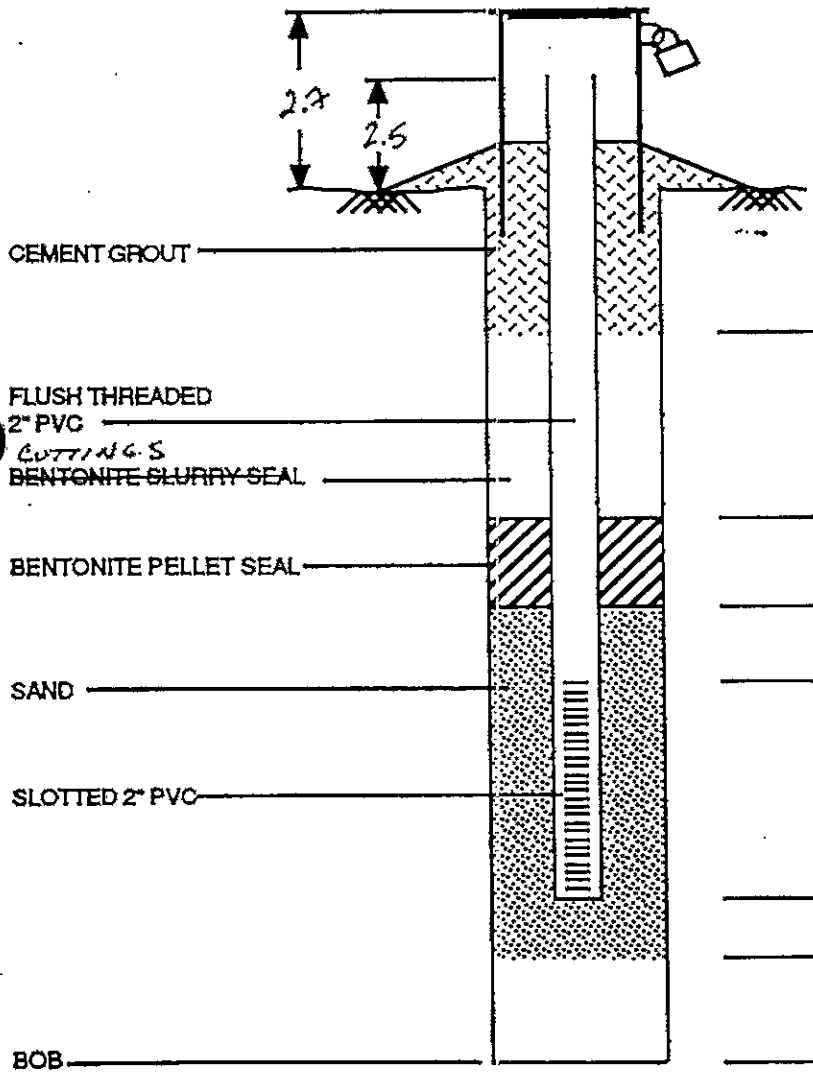
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-2168
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
NEBC / MW	9/30/89	~10"
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	SILICA SAND



	DEPTH (feet)	ELEVATION (feet)
	0'	52.2
	2'	50.2
	5'	47.2
	7.7'	44.5
	10'	42.2
	20'	32.2
	20'	32.2
	20'	32.2

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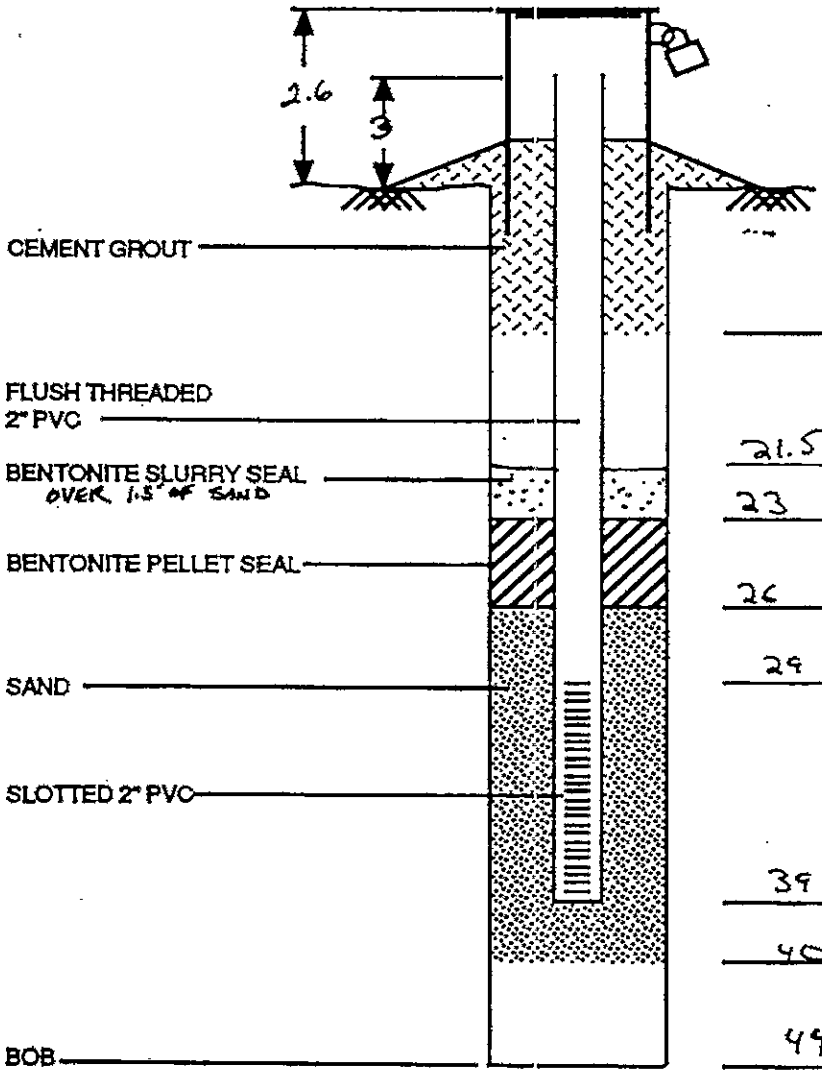
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	mw 217A
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
JJG	9-18-81	6 5/8
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	GROUT



	DEPTH (feet)	ELEVATION (feet)
	0	53
CEMENT GROUT	3	50
FLUSH THREADED 2" PVC		
BENTONITE SLURRY SEAL OVER 1.5' OF SAND	21.5	31.5
	23	30
BENTONITE PELLET SEAL	26	27
SAND	29	24
SLOTTED 2" PVC		
	39	14
	40	13
BOB	44	9

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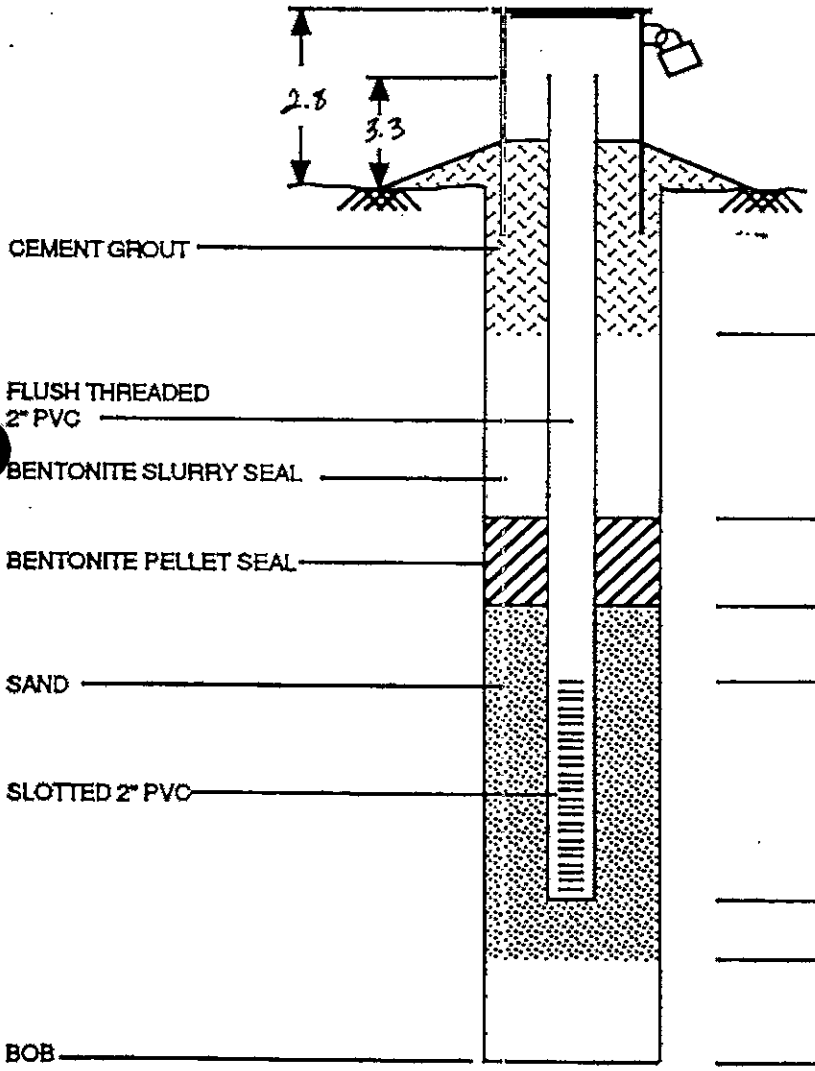
WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW 217B
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
NSG	9/18-19/89	~10"
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	GROUT



	DEPTH (feet)	ELEVATION (feet)
	0	53.2
	2	51.2
	7.5	45.7
	10.5	42.7
	15	38.2
	25	28.2
	25	28.2
	25	28.2

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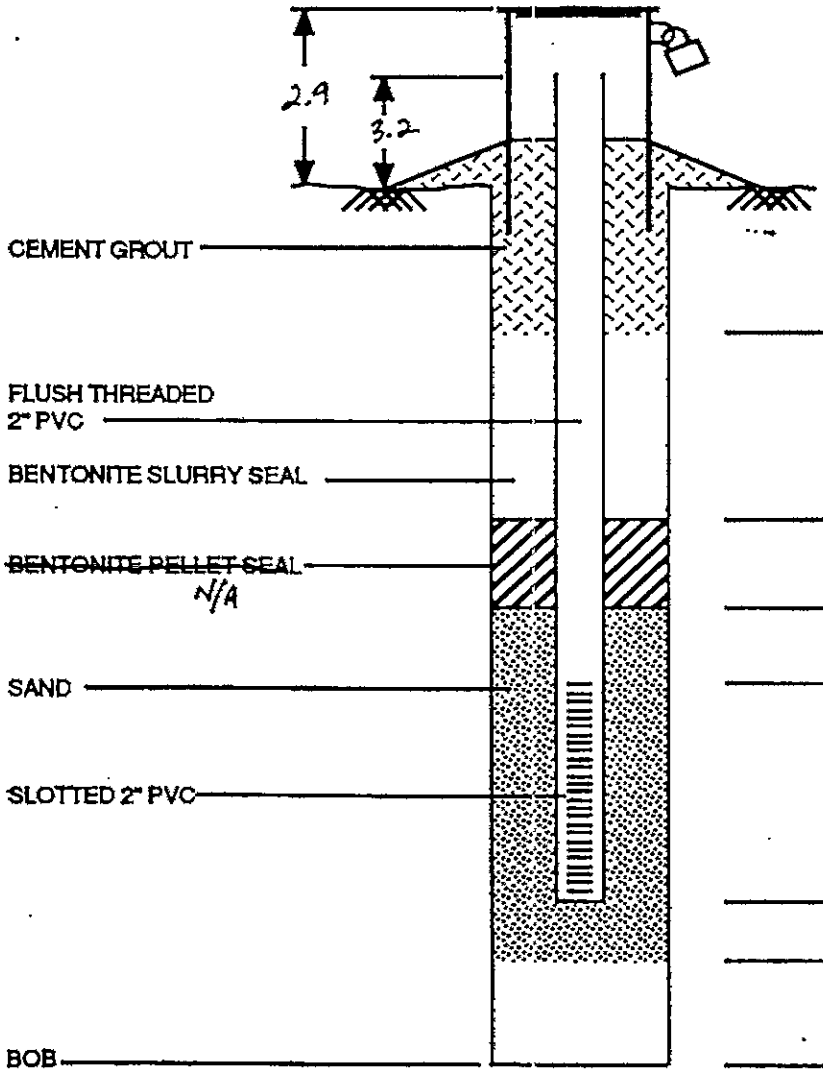
WELL INSTALLATION DETAILS

PROJECT NO.: 4607-31	**PROJECT NAME:** NAVAL AIR STATION, BRUNSWICK, MAINE	**WELL NO.:** MW. 218
INSTALLED BY: J Urquhart	**DATE INSTALLED:** 8/16/89	**BORING DIAMETER:** ~10"
WELL DIAMETER: 2"	**WELL MATERIAL:** Schedule 40 PVC	**BACKFILL MATERIAL:** Volclay Bentonite



	DEPTH (feet)	ELEVATION (feet)
	0	51
CEMENT GROUT	2	49
FLUSH THREADED 2" PVC		
BENTONITE SLURRY SEAL		
BENTONITE PELLET SEAL N/A	40	11
SAND	45	6
SLOTTED 2" PVC		
	50	1
BOB	70'	-19

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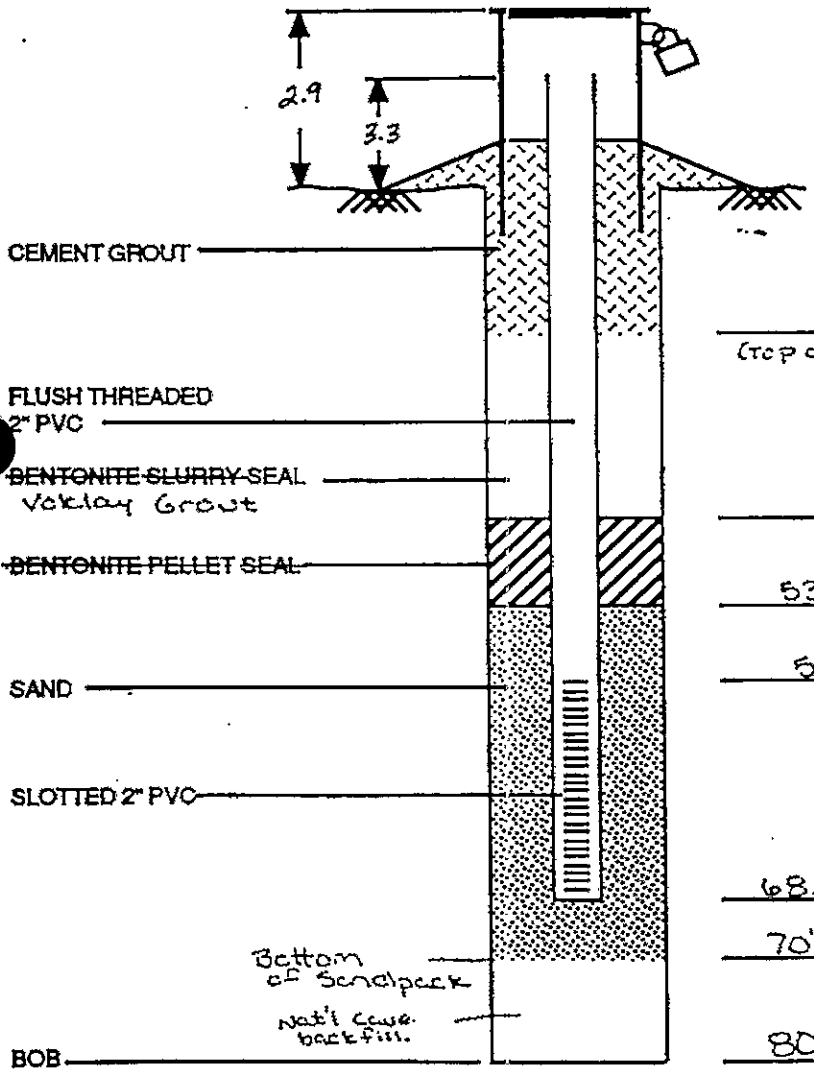
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-219
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
BKB, NG	8-21-89	4 inch
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	Volclay Grout



	DEPTH (feet)	ELEVATION (feet)
Surface		48.6
(top of grout)	3.0'	45.6
	53.0	-4.4
	58.4	-9.8
	68.4'	-19.8
	70' bgs	-21.4
	80' bgs	-31.4

*used 6 3/8" augers to 45' bgs
Telescoped down w/ 4 inch (ID) casing to BOB

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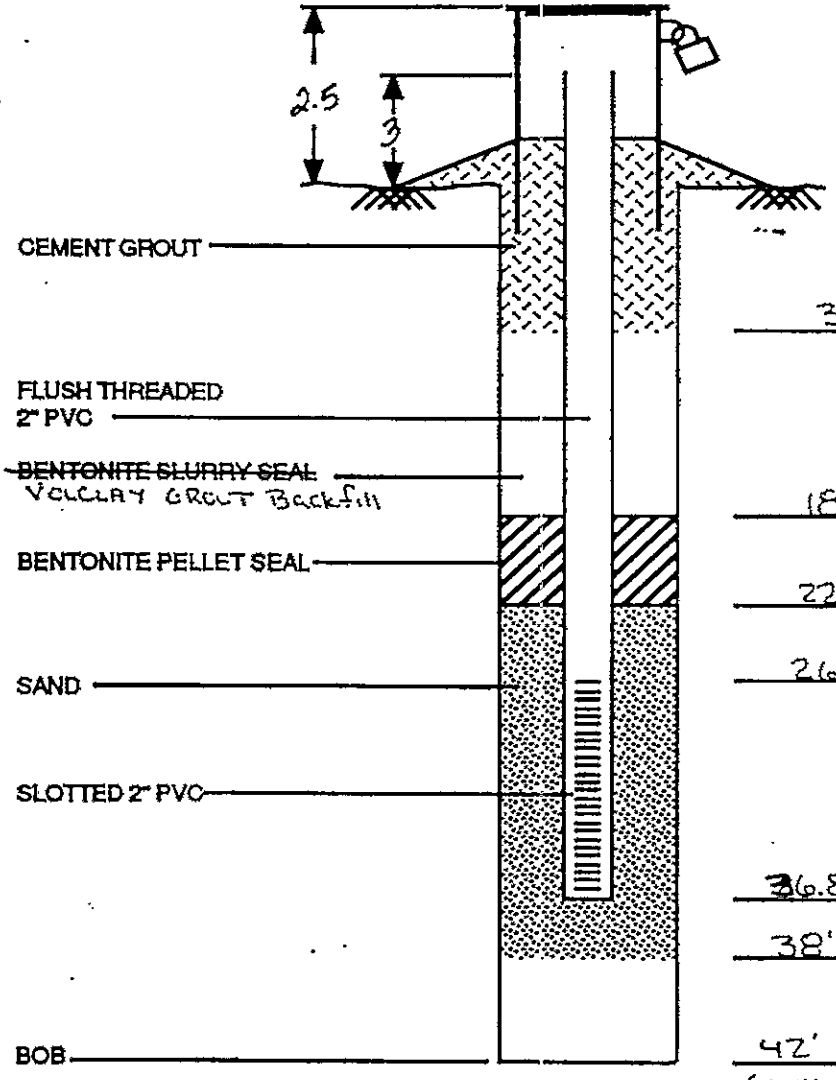
WELL INSTALLATION DETAILS

PROJECT NO.: 4607-31	PROJECT NAME: NAVAL AIR STATION, BRUNSWICK, MAINE	WELL NO.: MW-220
INSTALLED BY: BKO, NSG	DATE INSTALLED: 8-23-89	BORING DIAMETER: ~10"
WELL DIAMETER: 2"	WELL MATERIAL: PVC	BACKFILL MATERIAL: Volclay Grout



	DEPTH (feet)	ELEVATION (feet)
	0	36.5
	3' bgs	33.5
	18' bgs	18.5
	22' bgs	14.5
	26.8' bgs	9.7
	36.8' bgs	-0.3
	38' bgs	-1.5
	42' bgs (drilled to 40' bgs)	-5.5

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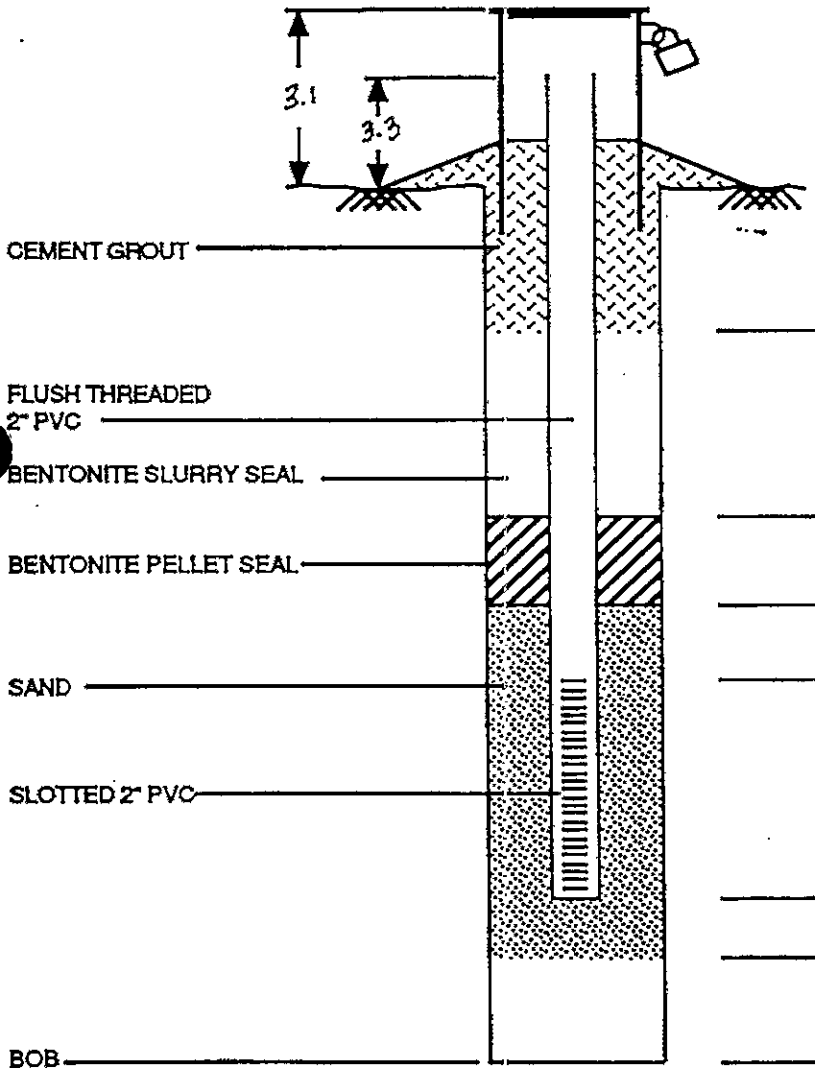
WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-22
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
MJW/NSW	9/7/89 - 9/8/89	6 5/8
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	BENTONITE GROUT



	DEPTH (feet)	ELEVATION (feet)
	0'	54.1
	3'	51.1
	25'	29.1
	28'	26.1
	31'	23.1
	41'	13.1
	41'	13.1
	57'	-2.9

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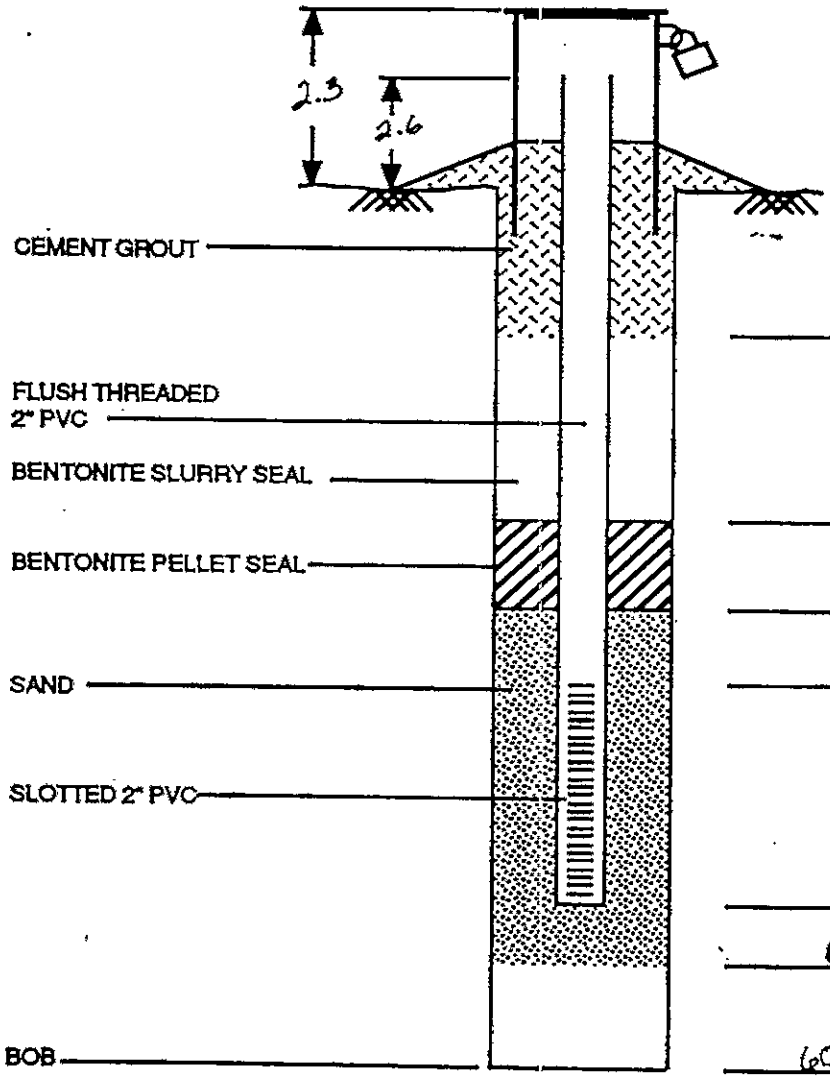
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.: 4607-31	PROJECT NAME: NAVAL AIR STATION, BRUNSWICK, MAINE	WELL NO.: MW 223
INSTALLED BY: NEBC	DATE INSTALLED: 9-8-89	BORING DIAMETER: 6 5/8 ID
WELL DIAMETER: 2"	WELL MATERIAL: SCH 40 PVC	BACKFILL MATERIAL: Silica sand



	DEPTH (feet)	ELEVATION (feet)
	0	51.1
	2	49.1
	24.2	26.9
	27	24.1
	30	21.1
	40	11.1
	60.5	-9.4
BOB	60.5	-9.4

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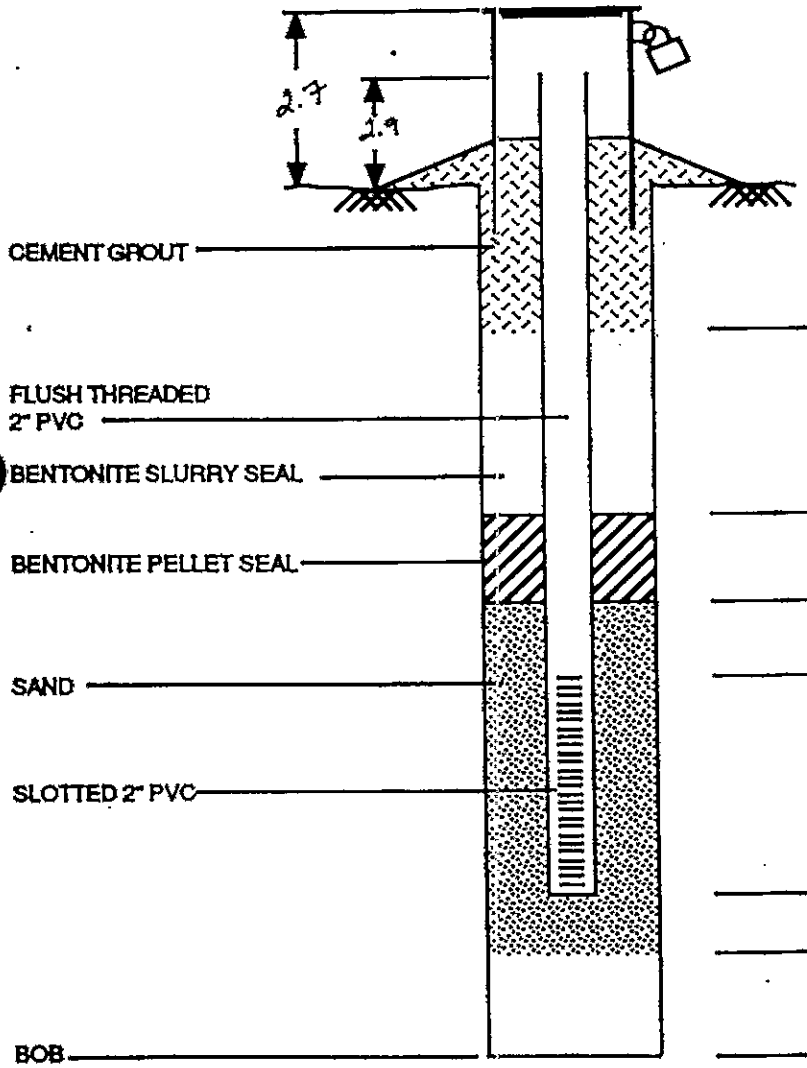
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-224
INSTALLED BY: NEBC Tim Carpenter Chas. Lyons Wayne Hull Lisa Falecia	**DATE INSTALLED:** 9-7-89	**BORING DIAMETER:** 6 5/8 ID
WELL DIAMETER: 2"	**WELL MATERIAL:** Sch 40 PVC	**BACKFILL MATERIAL:** Silica Sand #2, Bentonite Pellets, Enviro-Plug Grout



	DEPTH (feet)	ELEVATION (feet)
	0.0	54.7
	27.5	27.2
	31.1	23.6
	34.0	20.7
	44.0	10.7
	60.5	-5.8

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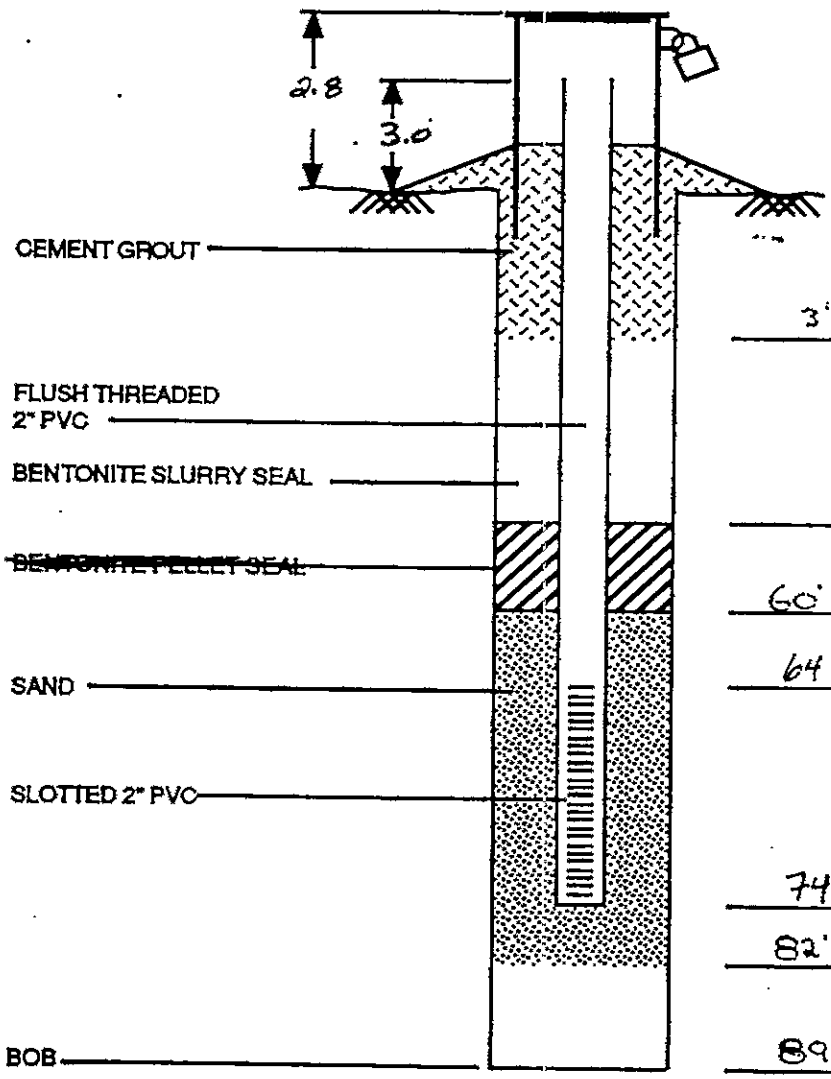
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.: 4607-31	PROJECT NAME: NAVAL AIR STATION, BRUNSWICK, MAINE	WELL NO.: MW 325 A
INSTALLED BY: -- NSG	DATE INSTALLED: 8-28-89	BORING DIAMETER: 4"
WELL DIAMETER: 2"	WELL MATERIAL: PVC	BACKFILL MATERIAL: VOLCLAY GROUT



	DEPTH (feet)	ELEVATION (feet)
	0	43
	3'	40
	60'	-17
	64	-21
	74	-31
	82'	-39
	89'	-46

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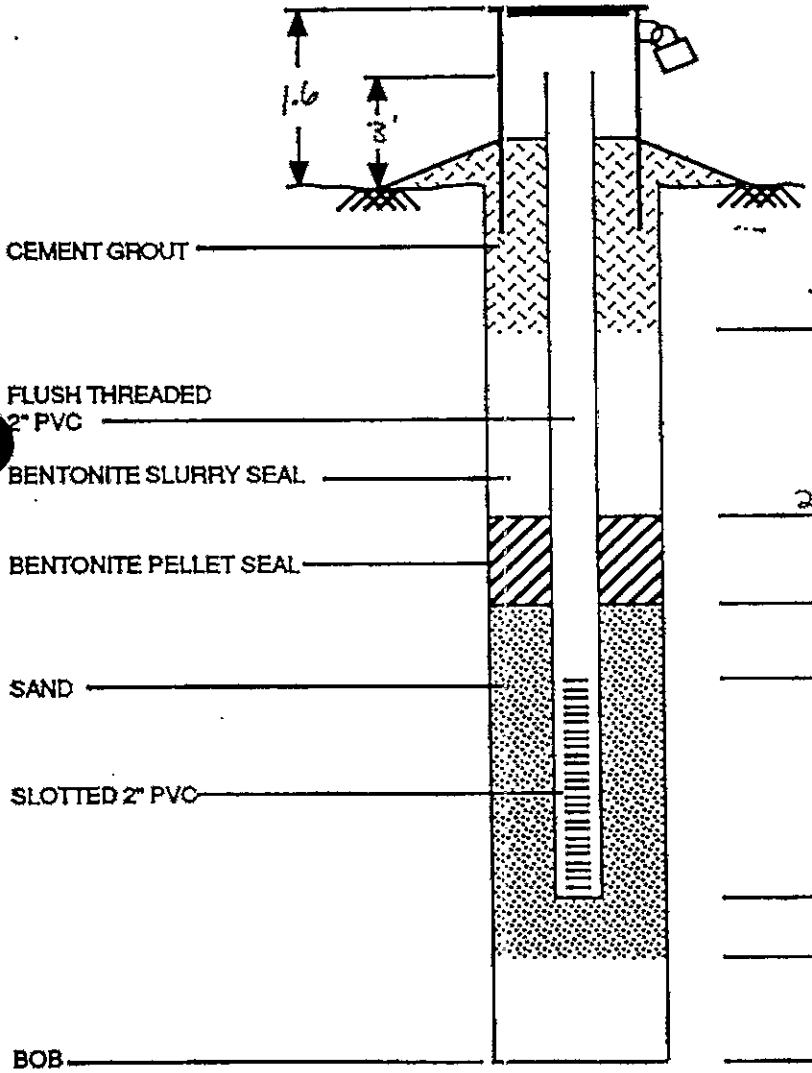
WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW 225B
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
NSG, GD	8 29-89	6 5/8"
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	VOLCAY GRAN



	DEPTH (feet)	ELEVATION (feet)
	0	43.3
	3'	40.3
	22'	21.3
	25'	18.3
	39'	14.3
	39'	4.3
	42'	1.3

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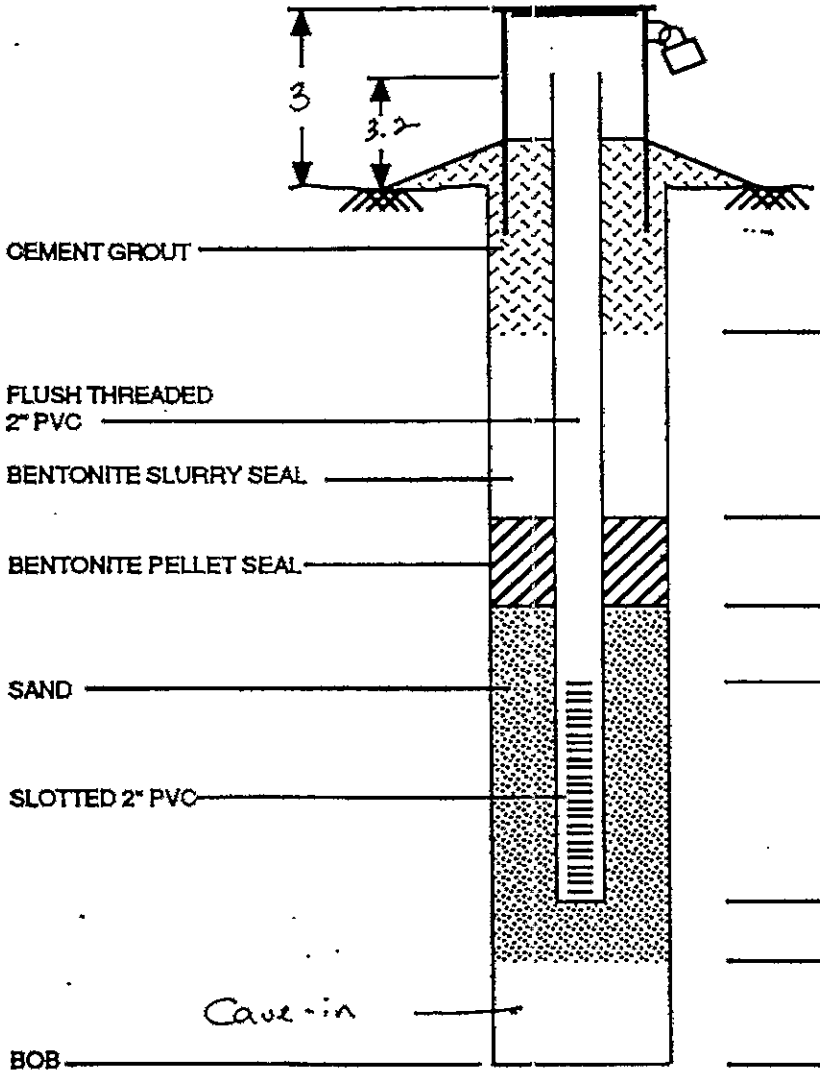
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.: 4507-31	PROJECT NAME: NAVAL AIR STATION, BRUNSWICK, MAINE	WELL NO.: MW-229A
INSTALLED BY: NE BC Tim. Carpenter Steve Prell C. Ryans C-EE	DATE INSTALLED: 9-5-89	BORING DIAMETER: 4" Ø
WELL DIAMETER: 2"	WELL MATERIAL: Sch 40 PVC	BACKFILL MATERIAL: Silica sand #2, Bentonite Pellets and Volclaygrout



DEPTH (feet)	ELEVATION (feet)
0.0	30.6
47.0	-16.4
49.1	-18.5
52.0	-21.4
62.0	-31.4
65.0	-34.4
94.0	-63.4

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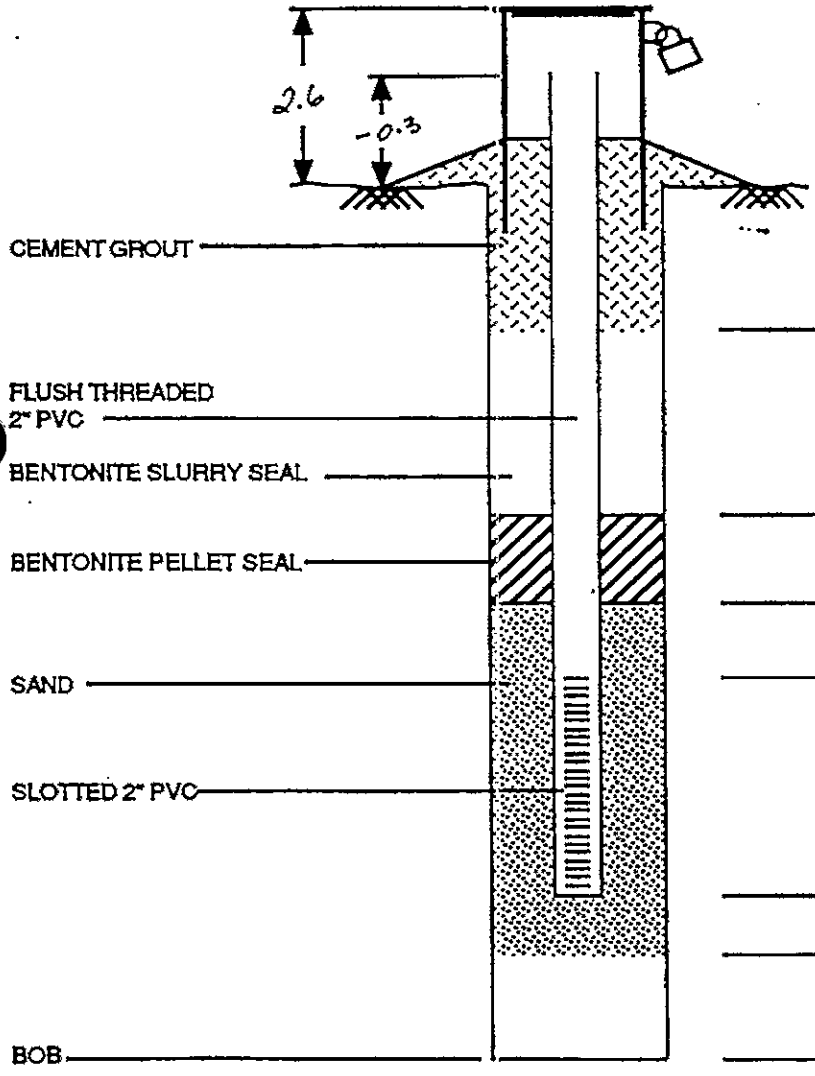
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4507-~~30~~ 31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-229B
INSTALLED BY: NE BC Tim Carpenter Wayne C.Lyons C-EE	**DATE INSTALLED:** 9-5-89	**BORING DIAMETER:** 6 5/8" Ø
WELL DIAMETER: 2"	**WELL MATERIAL:** Sch 40 PVC	**BACKFILL MATERIAL:** Silica Sand #2, Bentonite Pellets, Enviro-Plug Grout



	DEPTH (feet)	ELEVATION (feet)
	0.0	30.3
	13.5	16.8
	17.0	13.3
	20.0	10.3
	30.0	0.3
	30.0	0.3

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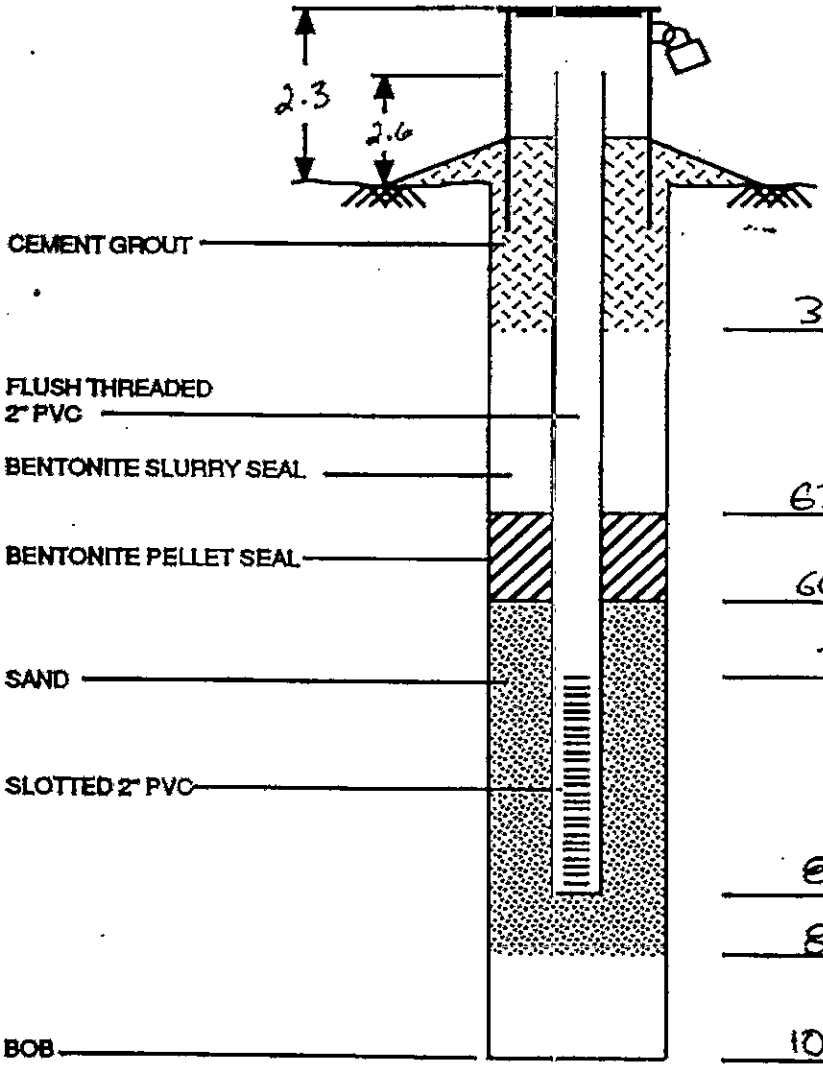
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-30	NAVAL AIR STATION, BRUNSWICK, MAINE	MW 230A
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
NSG	9-5-89	0-60' 6 5/8" 60-102 4"
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	VOLCLAY GROUT



	DEPTH (feet)	ELEVATION (feet)
	0	33.7
	3	30.7
	63	-29.3
	66.5	-32.8
	70	-36.3
	80	-46.3
	80.5	-46.8
	102'	-68.3

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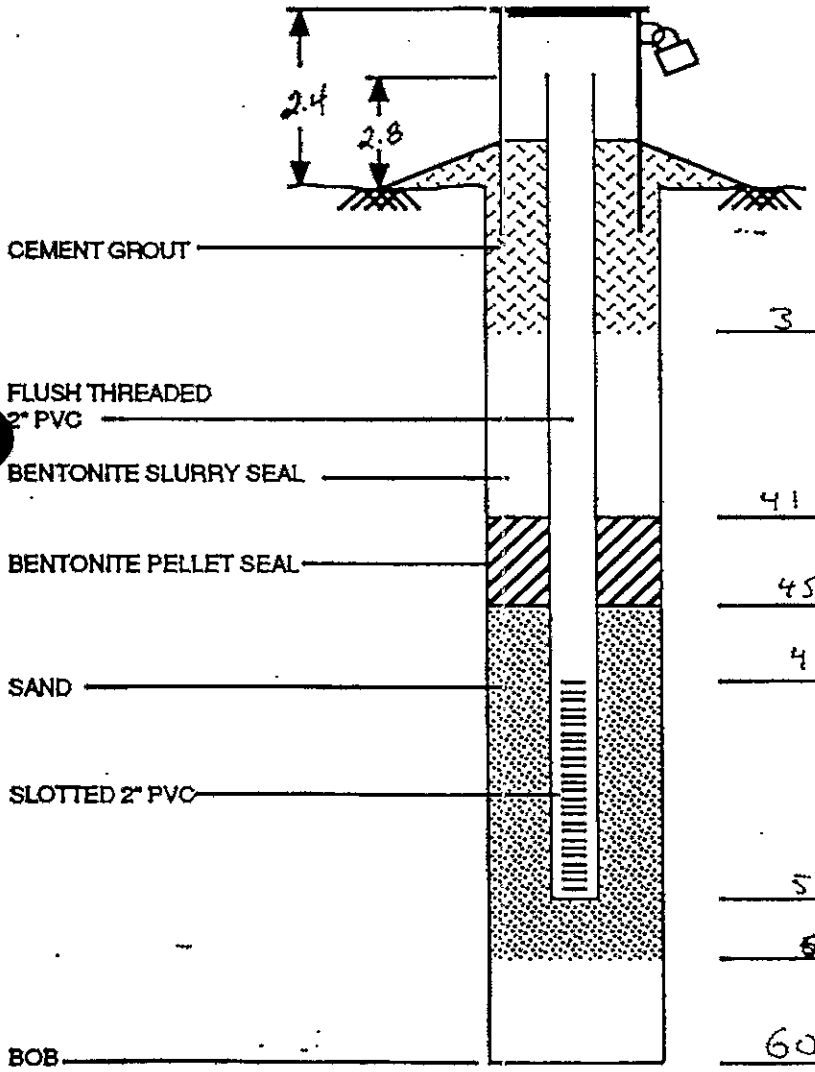
WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-30	NAVAL AIR STATION, BRUNSWICK, MAINE	MW 230B
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
DSG, MJC	9-6-89	6 5/8"
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	VOLCLAY GROUT



	DEPTH (feet)	ELEVATION (feet)
	0	33.6
	3	30.6
	41	-7.4
	45	-11.4
	49	-15.4
	59	-25.4
	60	-26.4
BOB	60	-26.4

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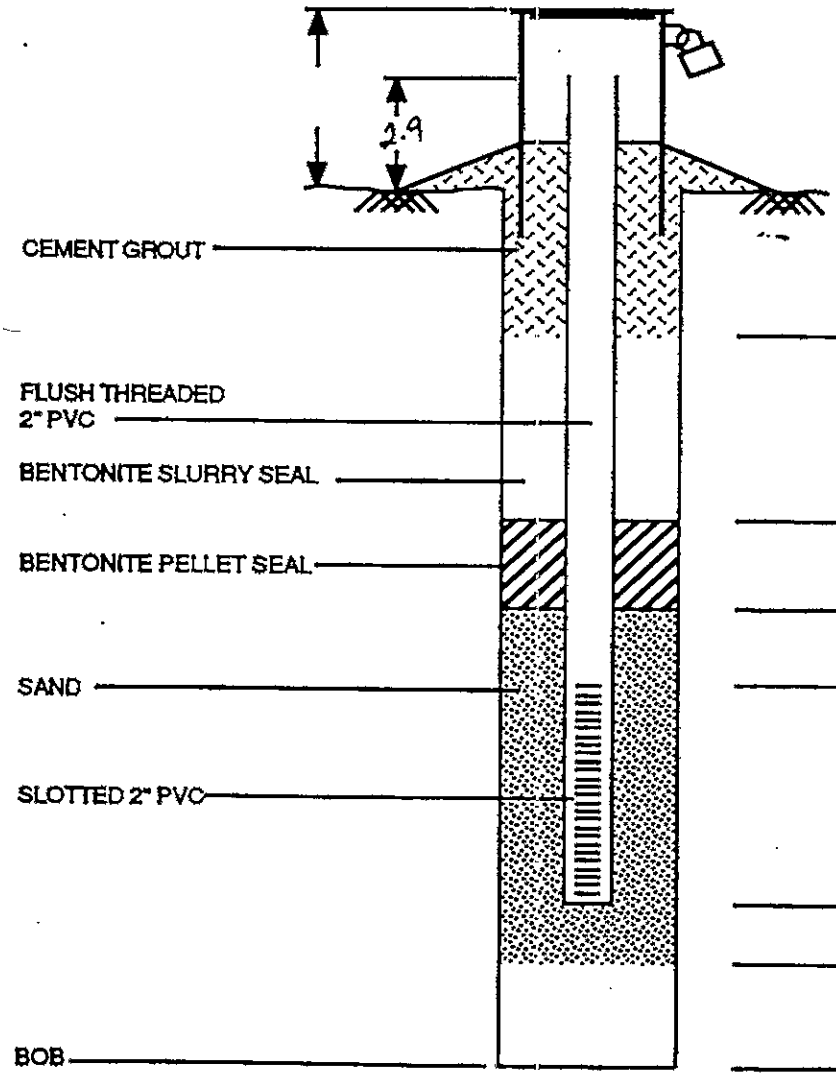
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW 231 A
INSTALLED BY: JO / TC	**DATE INSTALLED:** 9-14-89	**BORING DIAMETER:** 6 5/8
WELL DIAMETER: 2"	**WELL MATERIAL:** PVC	**BACKFILL MATERIAL:** grout



	DEPTH (feet)	ELEVATION (feet)
	0	42.5
	3	39.5
	42'	0.5
	45'	-2.5
	50'	-7.5
	60'	-17.5
	65	-22.5
	72'	-29.5

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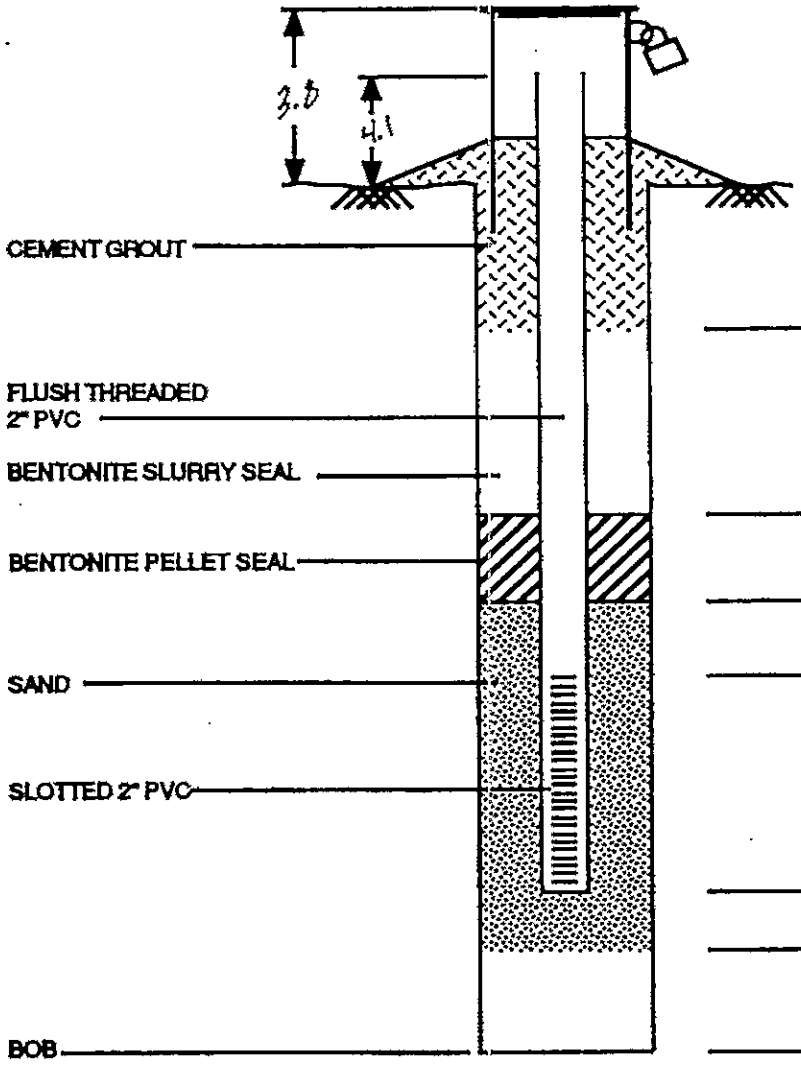
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	231B
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
Steve / Glenn	9.19.89	6 5/8"
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	grout



	DEPTH (feet)	ELEVATION (feet)
	0	42.2
	3	39.2
	19	23.2
	22'	20.2
	25'	17.2
	35'	7.2
	36'	6.2
	36.1	6.2

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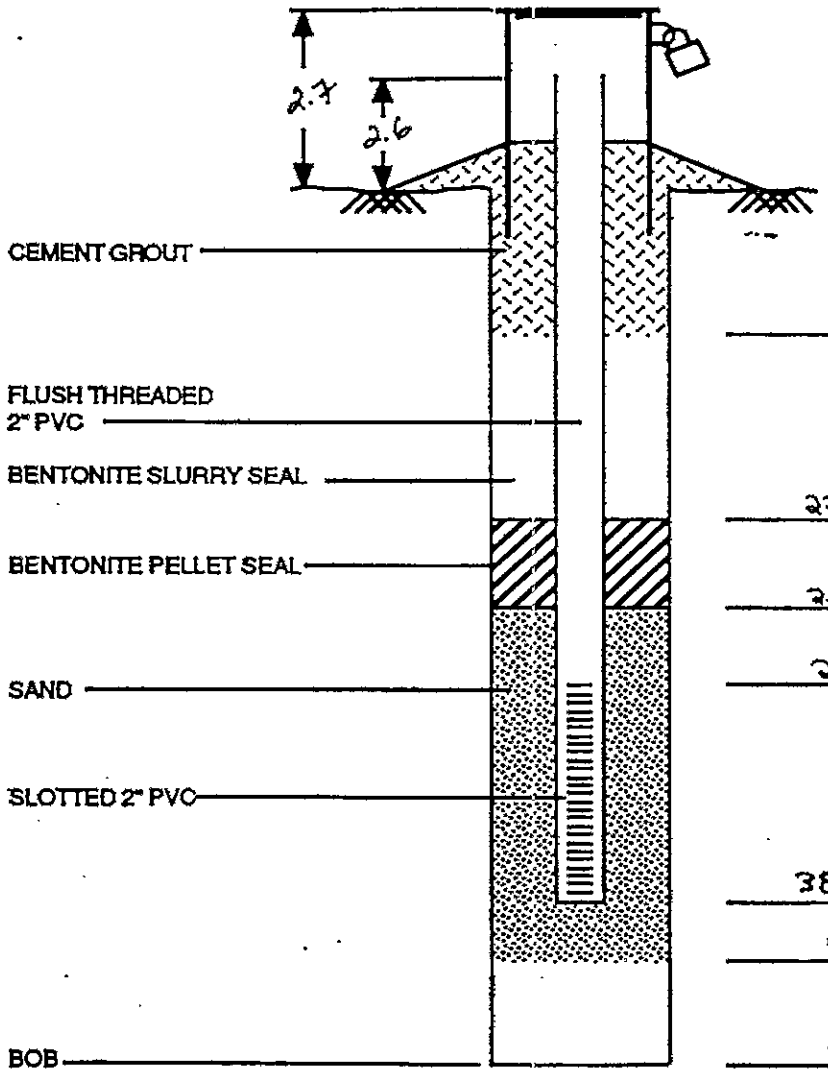
WELL INSTALLATION DETAILS

PROJECT NO.: 4607-31	PROJECT NAME: NAVAL AIR STATION, BRUNSWICK, MAINE	WELL NO.: MW 232A
INSTALLED BY: NSA	DATE INSTALLED: 8-30-89	BORING DIAMETER: 6 5/8"
WELL DIAMETER: 2"	WELL MATERIAL: PVC	BACKFILL MATERIAL: VOLCLAY GROUT



	DEPTH (feet)	ELEVATION (feet)
	0	53.1
	3'	50.1
	22'	31.1
	25'	28.1
	28'	25.1
	38'	15.1
	40	13.1
	43	10.1

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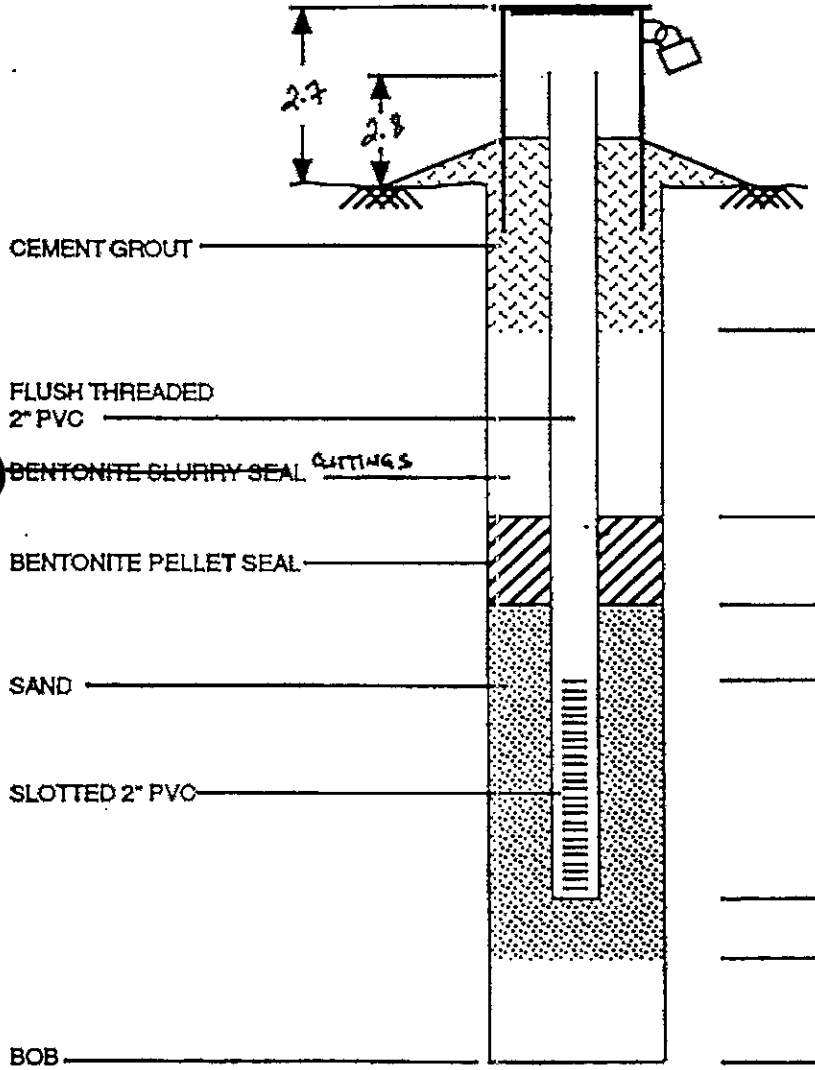
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.: 4607-31	PROJECT NAME: NAVAL AIR STATION, BRUNSWICK, MAINE	WELL NO.: MW-232B
INSTALLED BY: NSG	DATE INSTALLED: 8-30-89	BORING DIAMETER: 6 5/8" ID
WELL DIAMETER: 2"	WELL MATERIAL: PVC	BACKFILL MATERIAL: SILICA SAND/? CUTTINGS



DEPTH (feet)	ELEVATION (feet)
0	53.1
3	50.1
4	49.1
7	46.1
10	43.1
20	33.1
20	33.1

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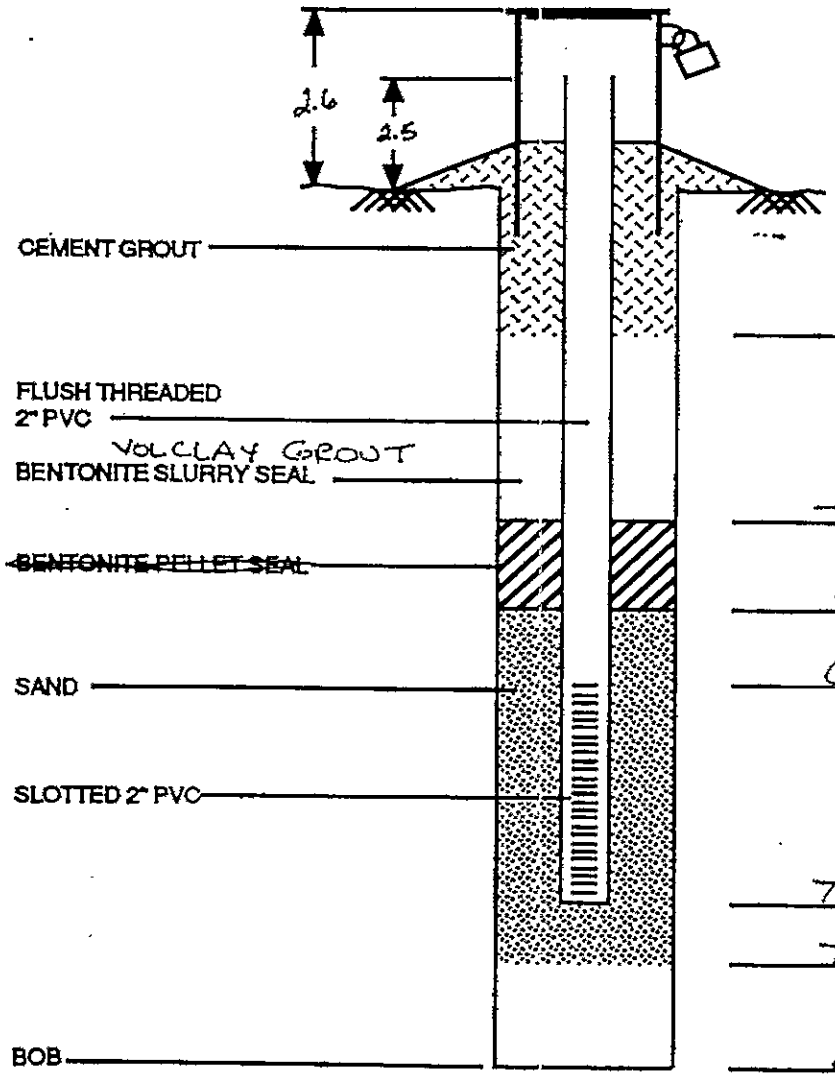
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-233
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
NEBC G. Wishart	8/25/89	6 5/8 ϕ HSA
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	Volclay Grout



	DEPTH (feet)	ELEVATION (feet)
	0	58.1
	2	56.1
	—	—
	59	-0.9
	65	-6.9
	75	-16.9
	77	-18.9
	80	-21.9

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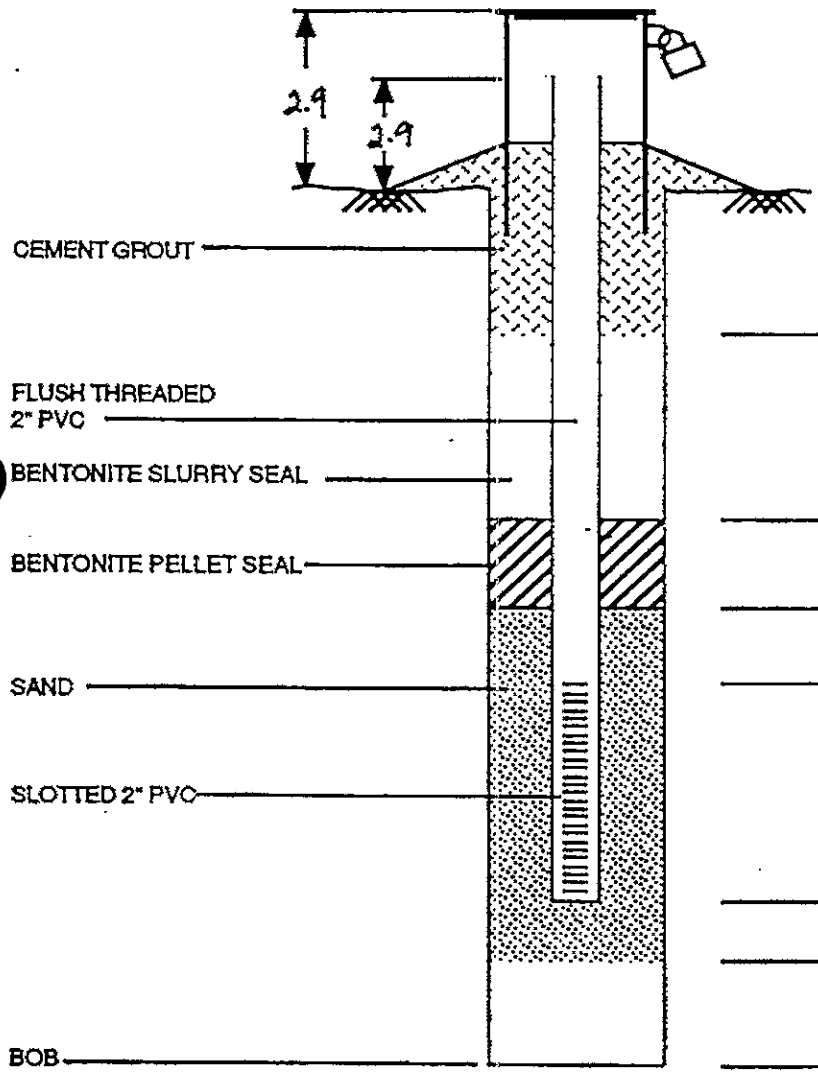
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-234
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
NSG	9-21-89	6 5/8" I.D.
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	SILICA SAND



	DEPTH (feet)	ELEVATION (feet)
	0	52.9
	2	50.9
	2	50.9
	8	44.9
	11	41.9
	21	31.9
	22.5	30.4
	42	10.9

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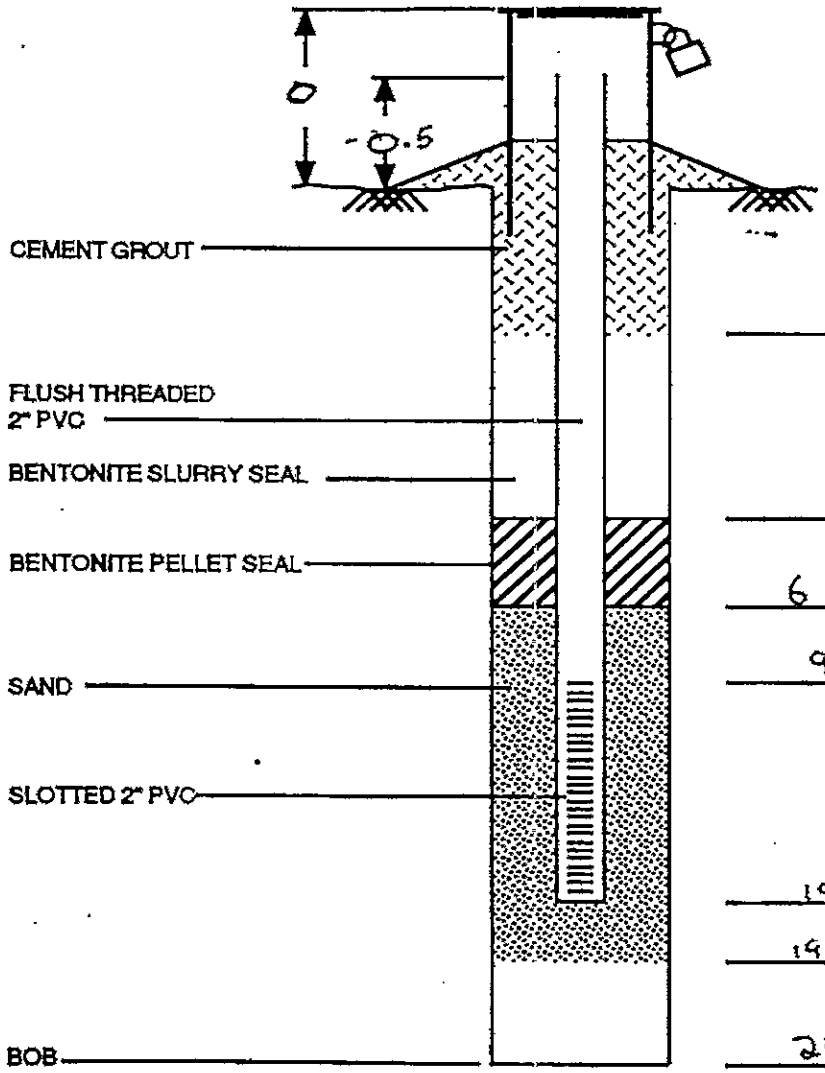
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-34	NAVAL AIR STATION, BRUNSWICK, MAINE	MW 4CB
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
NSG / m Jw	9 12 89	6 5/8"
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	Pellets



	DEPTH (feet)	ELEVATION (feet)
	0	58.4
	3	55.4
	—	—
	6	52.4
	9	49.4
	19	39.4
	19	39.4
	24	34.4

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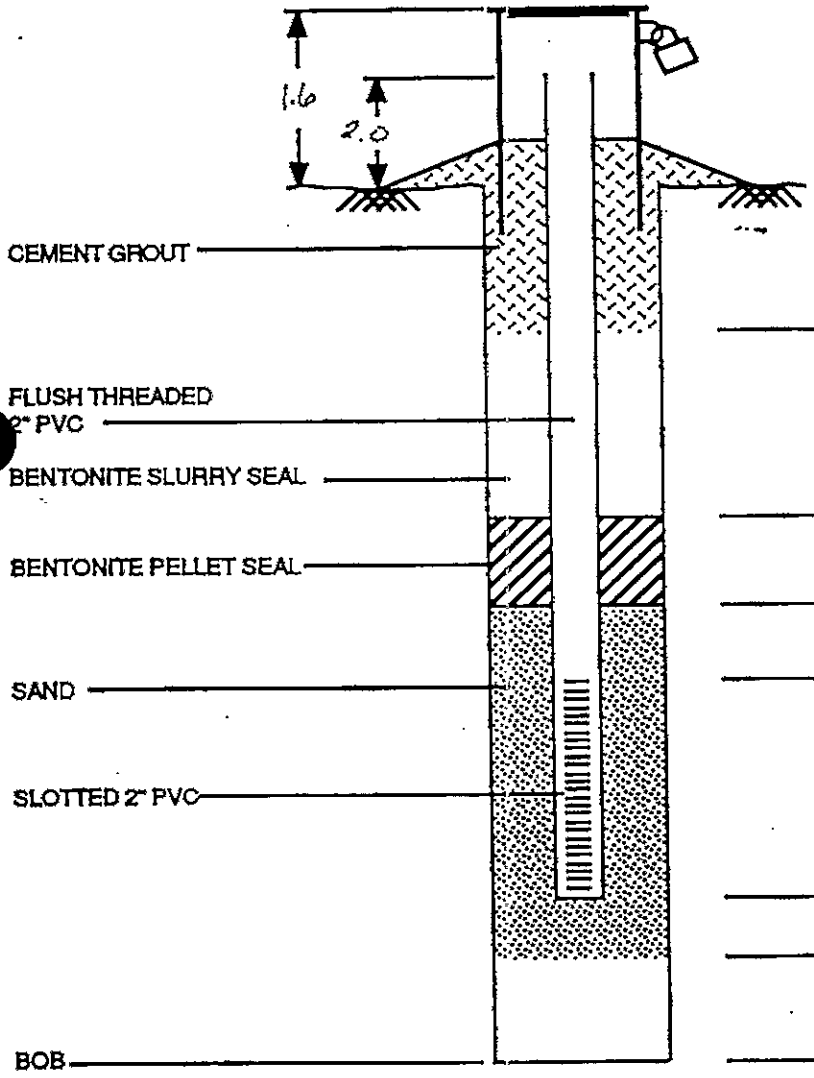
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.: 4607-31	PROJECT NAME: NAVAL AIR STATION, BRUNSWICK, MAINE	WELL NO.: 810
INSTALLED BY: SJS	DATE INSTALLED: 9/1/89	BORING DIAMETER: 6 5/8" I.D.
WELL DIAMETER: 2"	WELL MATERIAL: PVC	BACKFILL MATERIAL: Volclay



	DEPTH (feet)	ELEVATION (feet)
	0	64.6
	30	61.6
	12.0	52.6
	15.0	49.6
	18.0	46.6
	28.0	36.6
	28.5	36.1
	32.0	32.6

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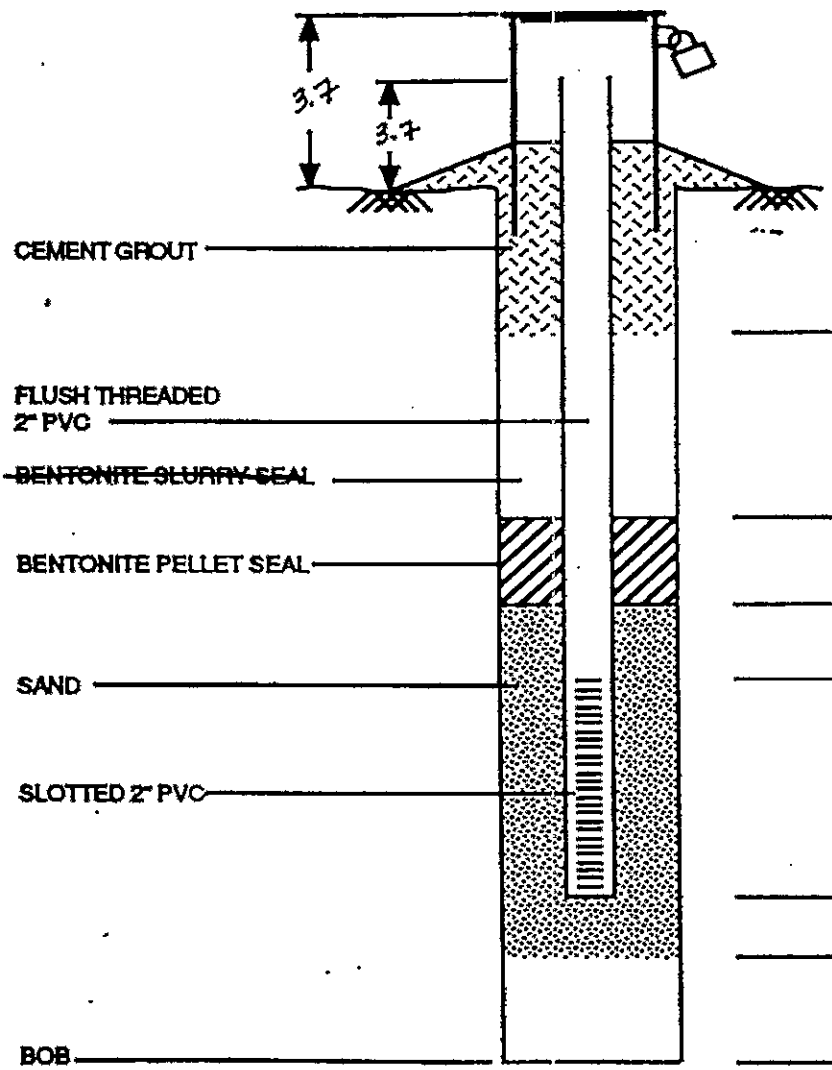
WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-8 & 11
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
NSG/MJN	9/13/89	4"
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	BENTONITE/CEMENT



	DEPTH (feet)	ELEVATION (feet)
	0'	36.9
CEMENT GROUT	2'	34.9
FLUSH THREADED 2" PVC		
BENTONITE SLURRY SEAL	2'	34.9
BENTONITE PELLET SEAL	5'	31.9
SAND	6'	30.9
SLOTTED 2" PVC	8'	28.9
	8'	28.9
BOB	12'	24.9

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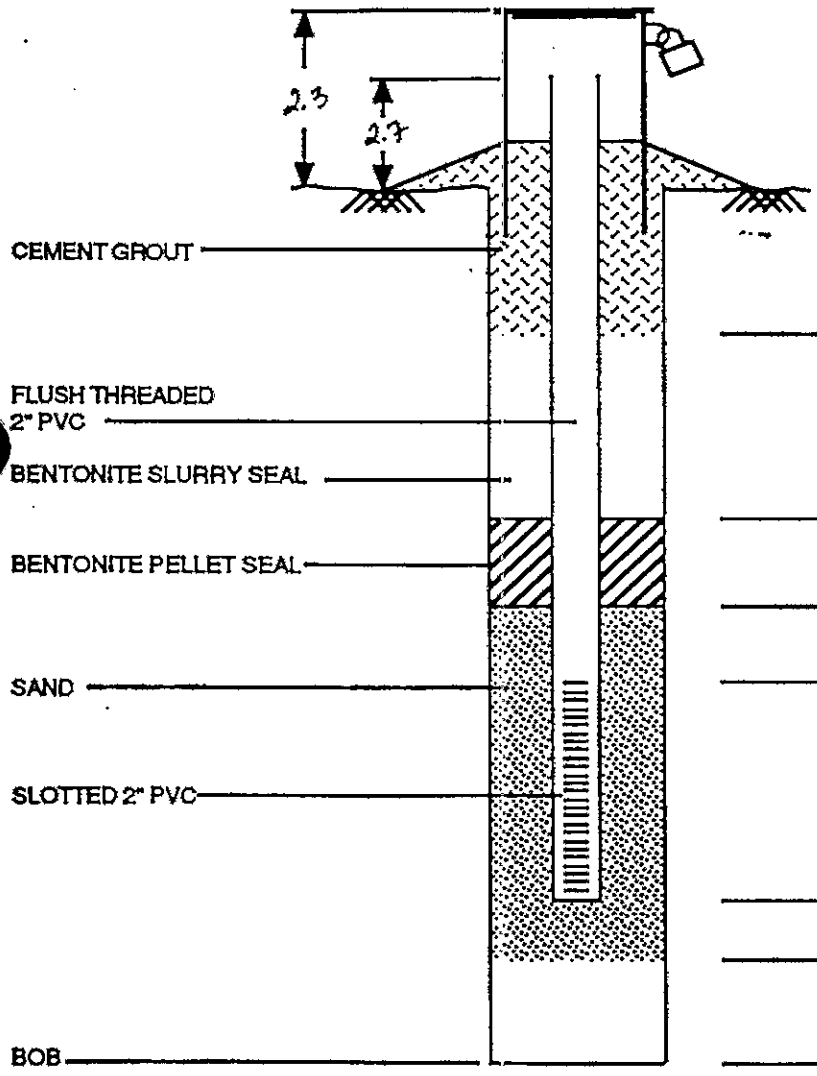
WELL INSTALLATION DETAILS

PROJECT NO.: 4607-361	PROJECT NAME: NAVAL AIR STATION, BRUNSWICK, MAINE	WELL NO.: OW - 812
INSTALLED BY: NEA DRILLER: TIM CARPENTER HELPER: STEVE PRELI	DATE INSTALLED: 8/24/89	BORING DIAMETER: 10.25" OR GREATER (6.25" IDHSA)
WELL DIAMETER: 2"	WELL MATERIAL: SCH 40 2" ID PVC	BACKFILL MATERIAL: #2 SAND; BENTONITE PELLETS VOLCLAY 5:1



	DEPTH (feet)	ELEVATION (feet)
	0.0	62.4
	3.0	59.4
	52.5	9.9
	56.0	6.4
	59.0	3.4
	69.0'	-6.6
	69.5'	-7.1
	75.3	-12.6

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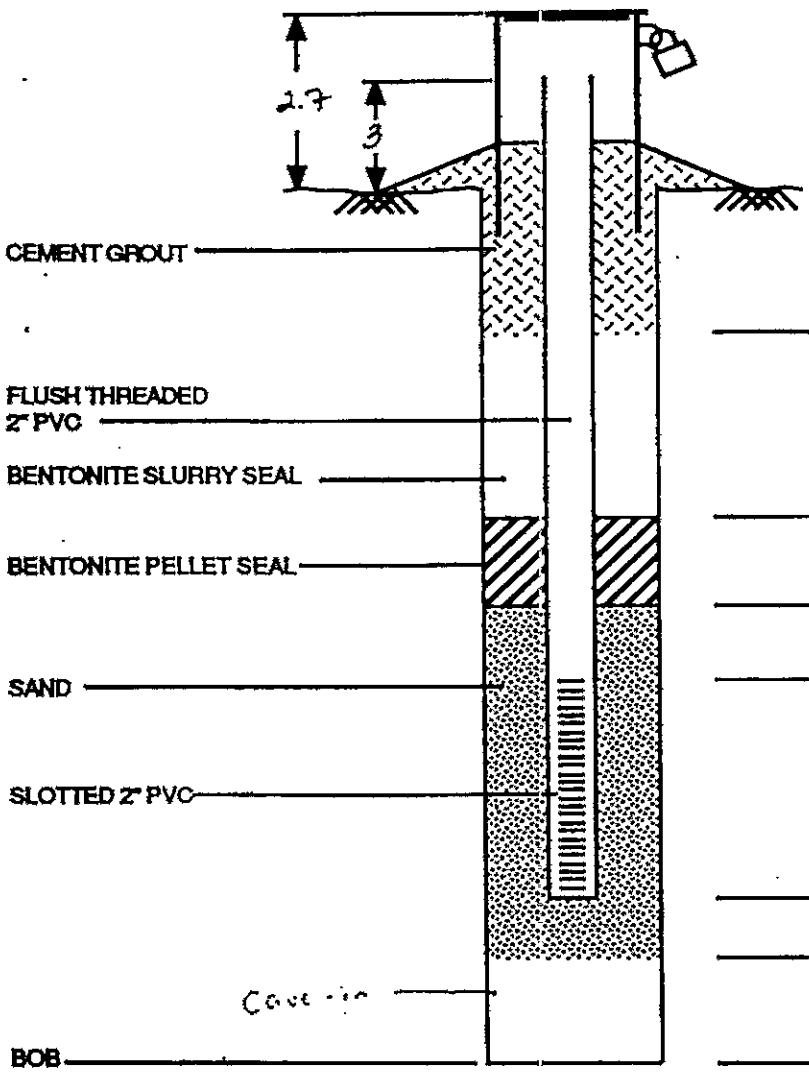
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.: 4607-31	PROJECT NAME: NAVAL AIR STATION, BRUNSWICK, MAINE	WELL NO.: OW-813
INSTALLED BY: N.E.B	DATE INSTALLED: 8-29-89	BORING DIAMETER: 6 5/8 ID HSA
WELL DIAMETER: 2"	WELL MATERIAL: Sch 40 PVC	BACKFILL MATERIAL: #2 Sand; Bentonite Pellets, Volclay Grout



	DEPTH (feet)	ELEVATION (feet)
	0.0	57.3
CEMENT GROUT	2.5	54.8
FLUSH THREADED 2" PVC		
BENTONITE SLURRY SEAL	27.2	30.1
BENTONITE PELLET SEAL	30.5	26.8
	32.5	24.8
SAND		
SLOTTED 2" PVC		
	42.5	14.8
	47.5	9.8
Cave-in		
BOB	53.0	4.3

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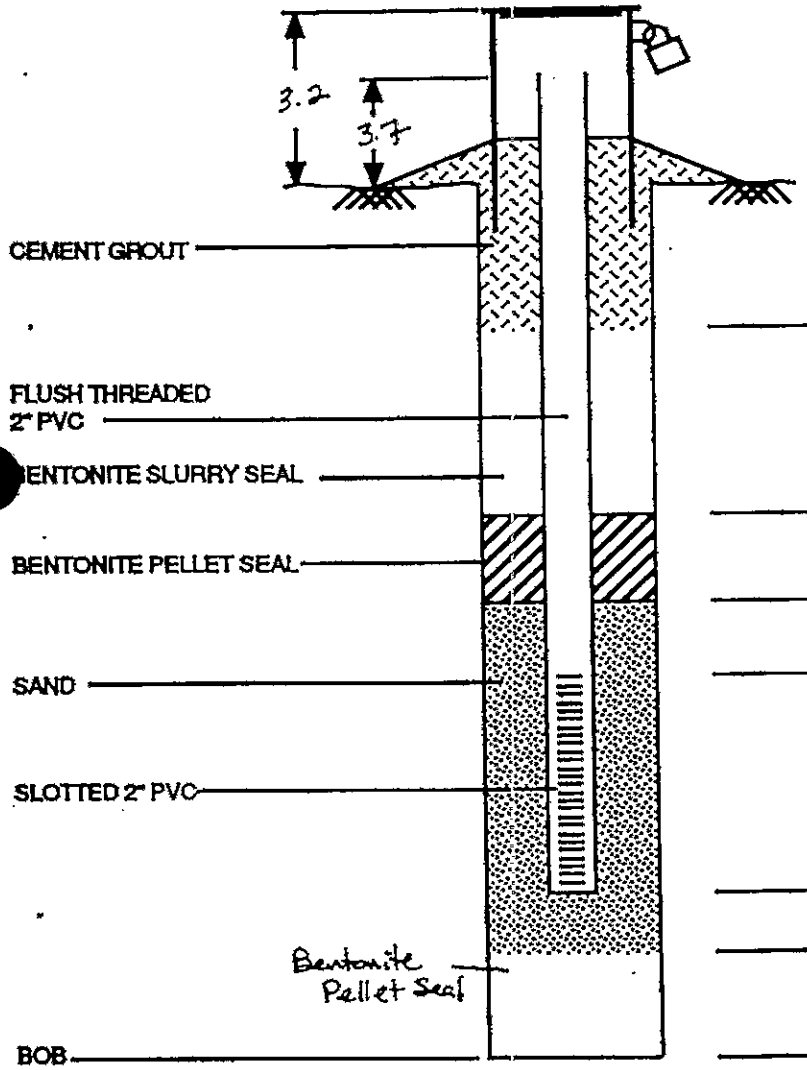
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.: 4607-31	PROJECT NAME: NAVAL AIR STATION, BRUNSWICK, MAINE	WELL NO.: OW-814
INSTALLED BY: NEB DRILLER: Tim Carpenter HELPER: Steve Prell	DATE INSTALLED: 8/28/89	BORING DIAMETER: 6.25 ID HSA
WELL DIAMETER: 2"	WELL MATERIAL: Sch 40 PVC ID	BACKFILL MATERIAL: #2 Sand, Bentonite Pellets Volclay 5:1



	DEPTH (feet)	ELEVATION (feet)
	0.0	62
CEMENT GROUT	2.0	60
FLUSH THREADED 2" PVC		
BENTONITE SLURRY SEAL	42.5	19.5
BENTONITE PELLET SEAL	46.5	15.5
SAND	49.0	13
SLOTTED 2" PVC		
	59.0	3
Bentonite Pellet Seal	60.5 61.5	1.5 0.5
BOB	79.0	-17

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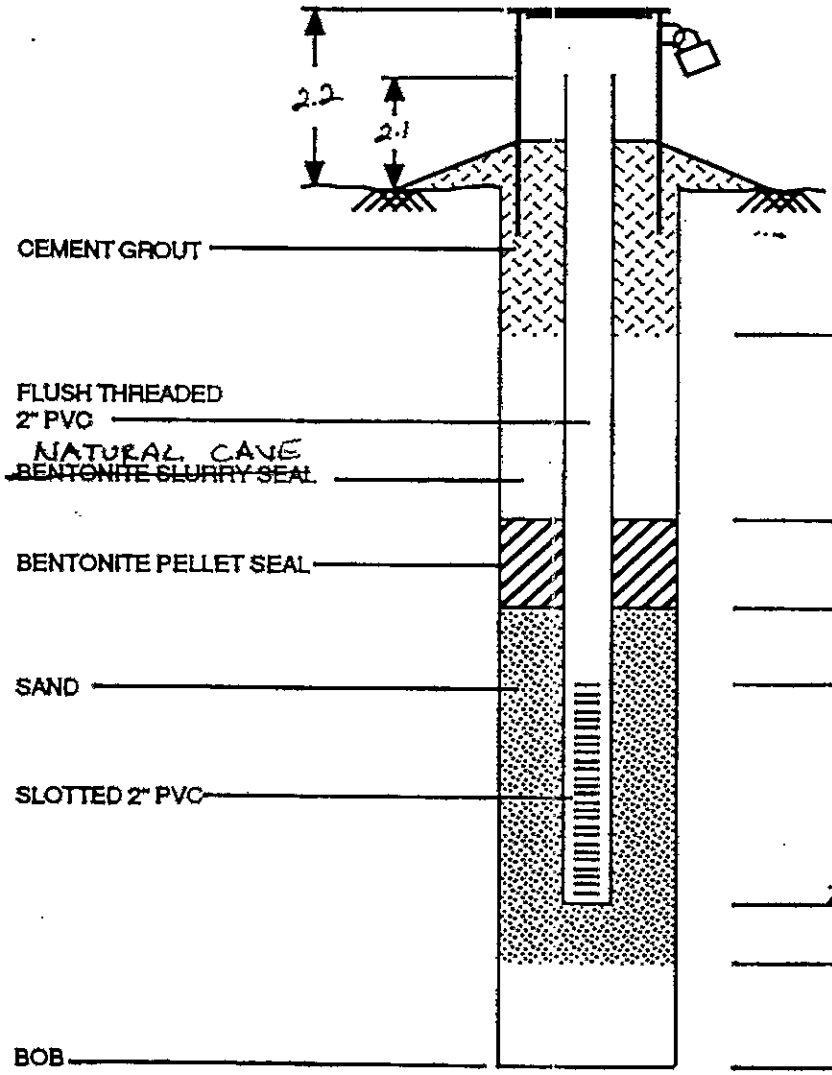
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-3♦	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-906
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
New England Boring	8/22/89	(6 5/8" I.D. HSA) 2"ϕ well
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	Natural Sand



	DEPTH (feet)	ELEVATION (feet)
	0	49.6
CEMENT GROUT	2'	47.6
FLUSH THREADED 2" PVC		
NATURAL CAVE		
~~BENTONITE SLURRY SEAL~~	8'	41.6
BENTONITE PELLET SEAL	11'	38.6
SAND	14'	35.6
SLOTTED 2" PVC		
	24'	25.6
	24.5'	25.1
BOB	28'	21.6

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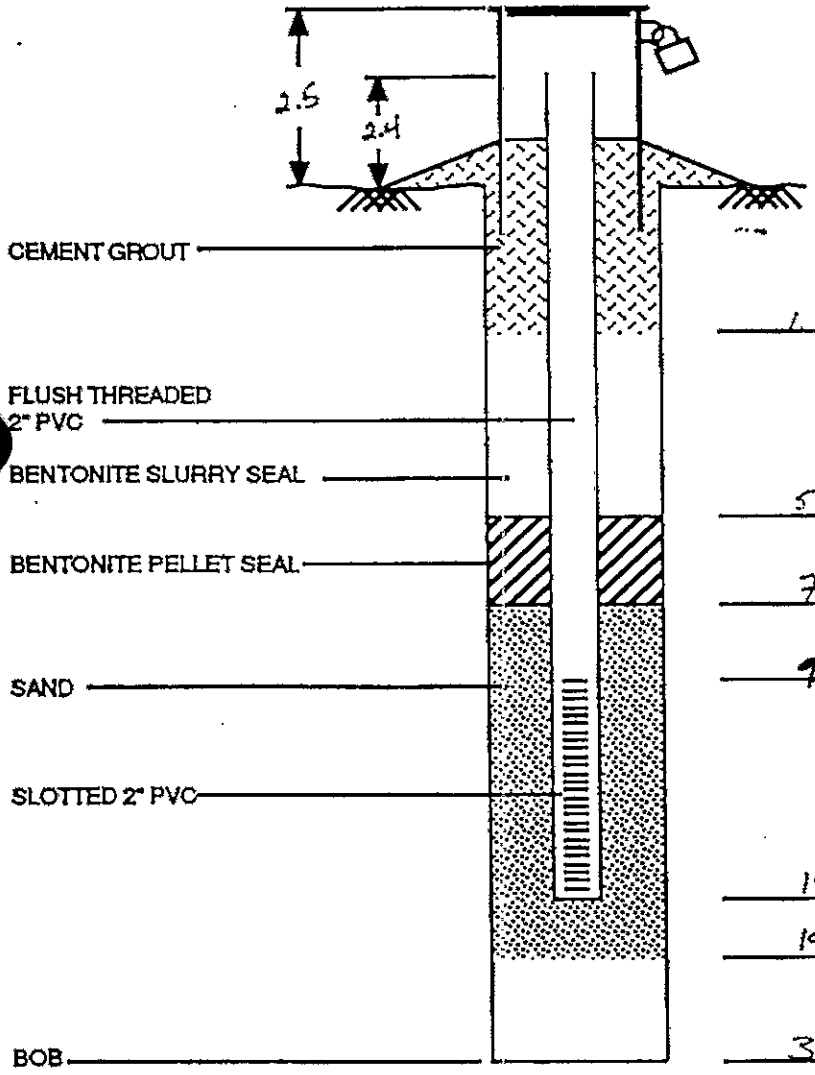
WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-907
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
New England Boring	8/17/89	12.0'
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	Silica Sand



	DEPTH (feet)	ELEVATION (feet)
	0.0	52.5
	1.0	51.5
	5.0	47.5
	7.0	45.5
	9.0	43.5
	19.0	33.5
	19.0	33.5
	30.0	22.5

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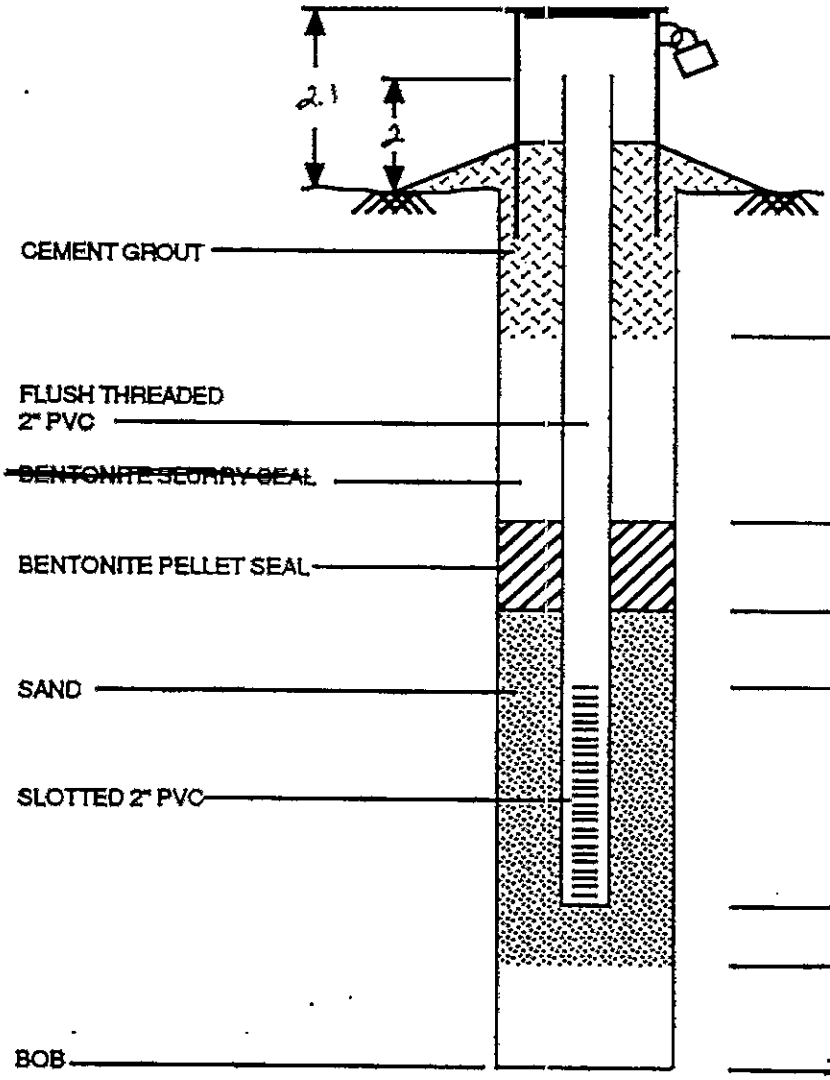
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-908 (Redrill)
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
New England Boring/T.L.	10-4-89	~10"
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	Marie Silica Sand



	DEPTH (feet)	ELEVATION (feet)
	0	50.8
	2'	48.8
	2'	48.8
	5'	45.8
	7.5	43.3
	17.5	33.3
	18'	32.8
	30'	20.8

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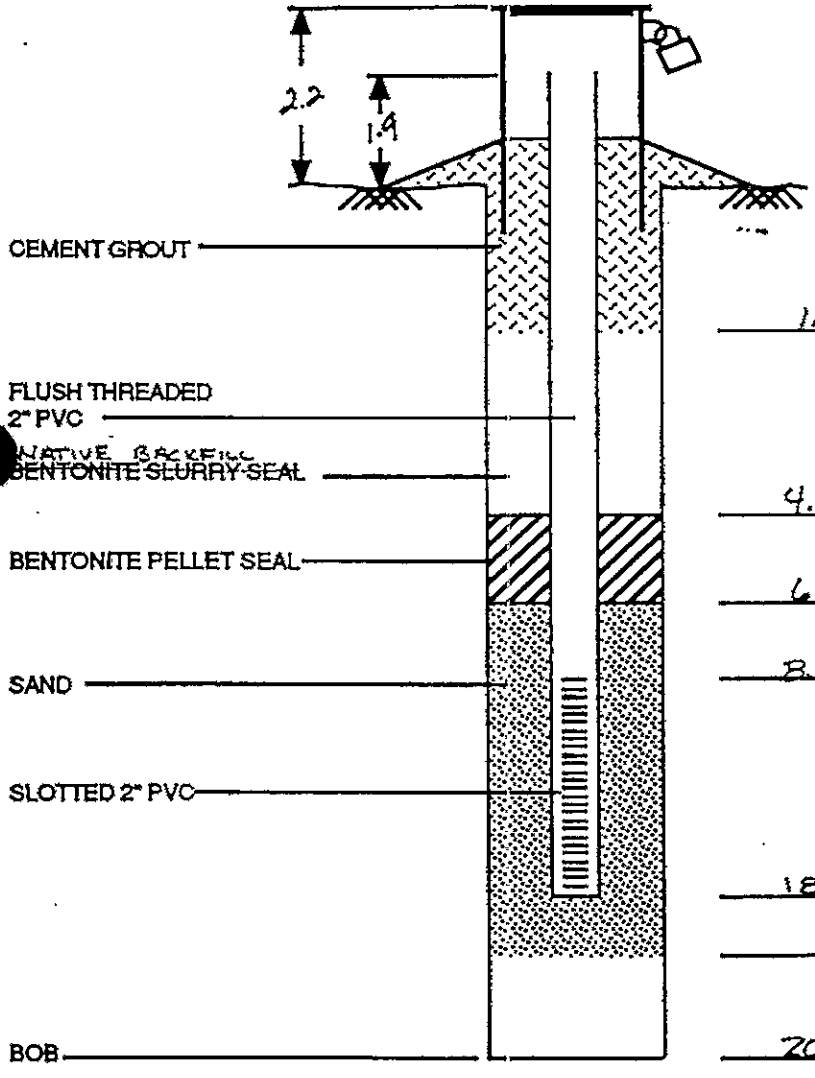
WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-1101
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
NEW ENGLAND BORING	8/16/89	12"
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	Silica Sand



	DEPTH (feet)	ELEVATION (feet)
	0.0	58.5
	1.0	57.5
	4.0	54.5
	6.0	52.5
	8.0	50.5
	18.0	40.5
	20.0	38.5

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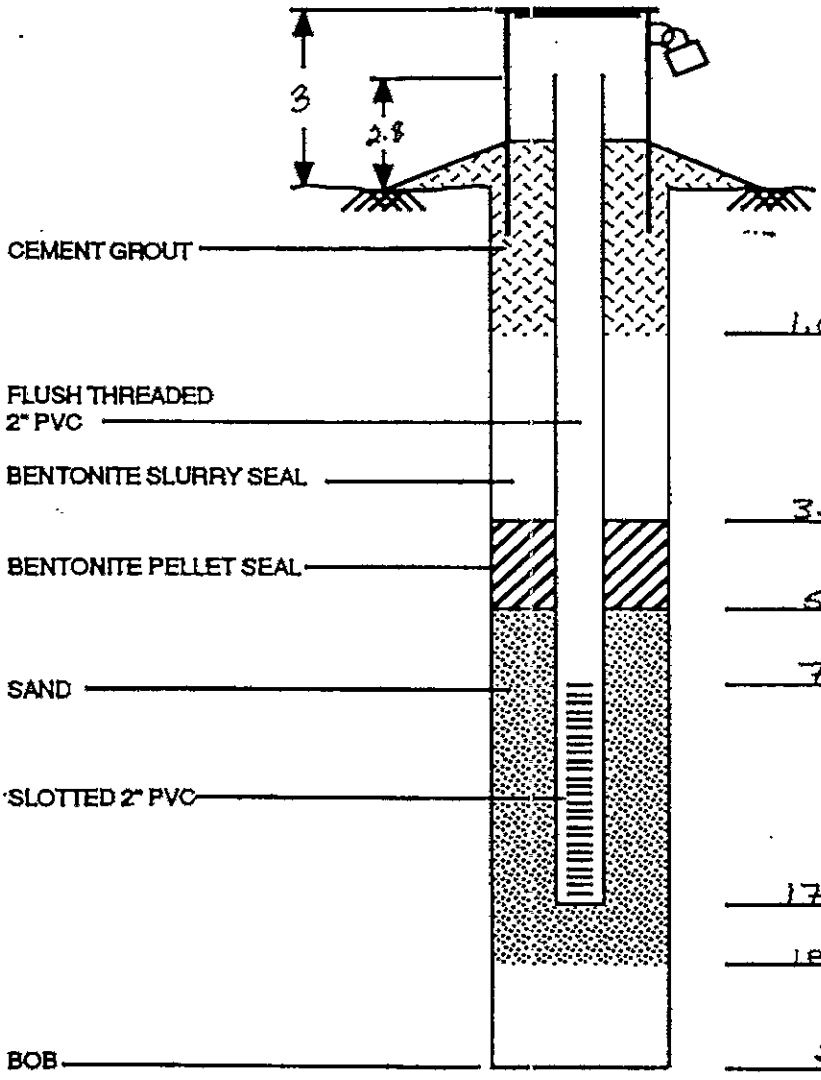
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.: 4607-3	PROJECT NAME: NAVAL AIR STATION, BRUNSWICK, MAINE	WELL NO.: MW-1102
INSTALLED BY: NEW ENGLAND BORING	DATE INSTALLED: 8/16/89	BORING DIAMETER: 12"
WELL DIAMETER: 2"	WELL MATERIAL: PVC	BACKFILL MATERIAL: SILICA SAND



	DEPTH (feet)	ELEVATION (feet)
	0.0'	57.7
	1.0'	56.6
	3.0'	54.7
	5.0'	52.7
	7.0'	50.7
	17.0'	40.7
	18.0'	39.7
	20'	37.7

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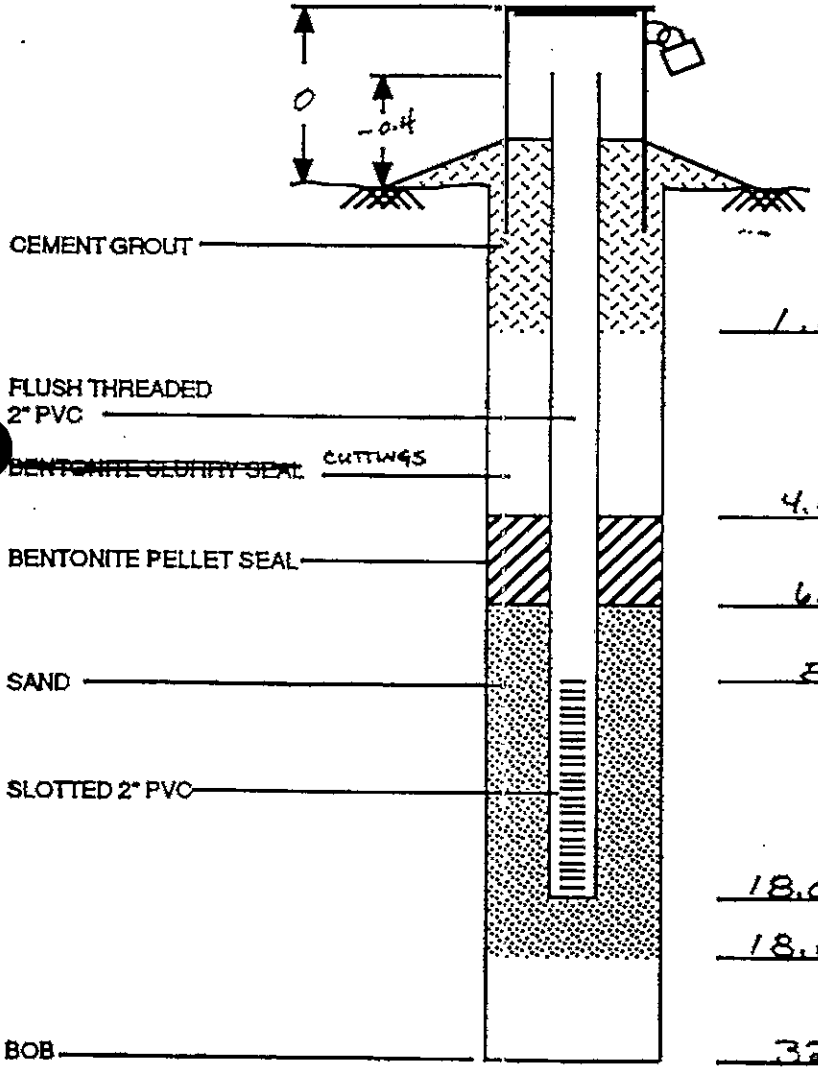
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-1103
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
New England Boring	8/17/89	12.0"
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	Silica Sand



	DEPTH (feet)	ELEVATION (feet)
	0.0	57.9
	1.0'	56.9
	4.0'	53.9
	6.0'	51.9
	8.0'	49.9
	18.0'	39.9
	18.0'	39.9
	32.0'	25.9

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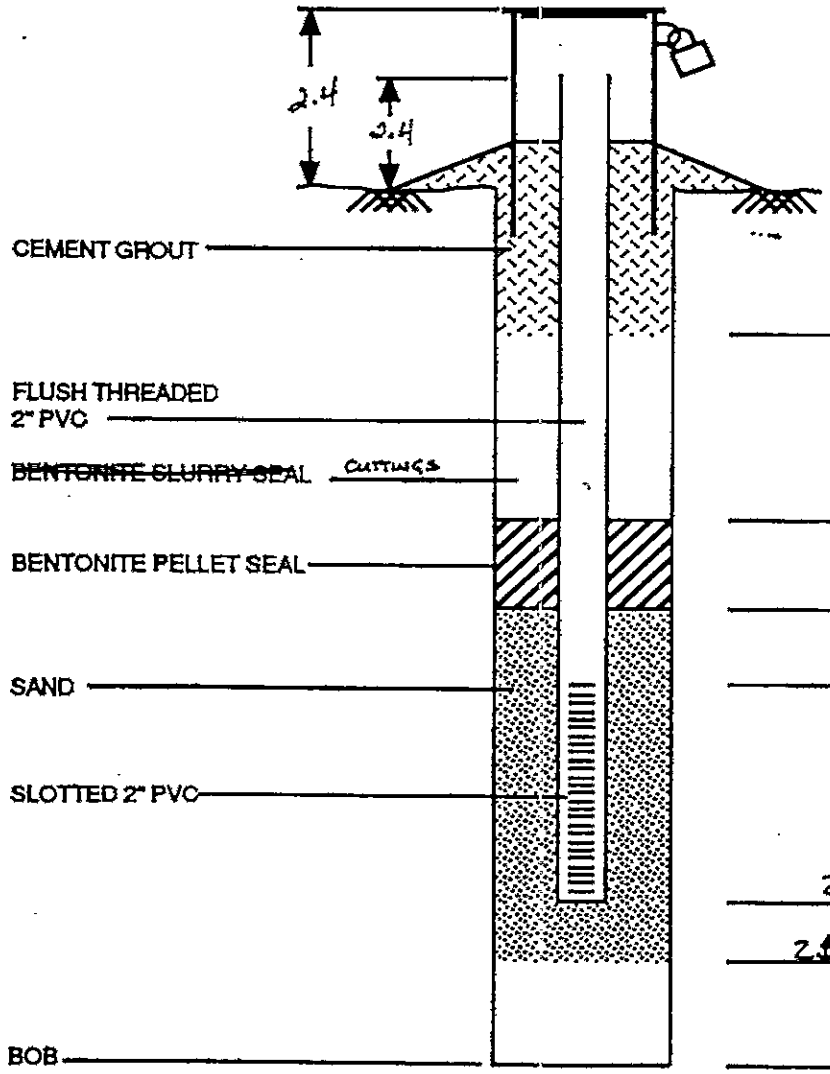
WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-1104
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
NEBC G. Wishart	8/24/89	6 5/8" ⌀ HSA
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	Natural Cuttings



	DEPTH (feet)	ELEVATION (feet)
	0	57.6
	2	55.6
	8.5	49.1
	11.5	46.1
	15	42.6
	25	32.6
	25.5	32.1
	32	25.6

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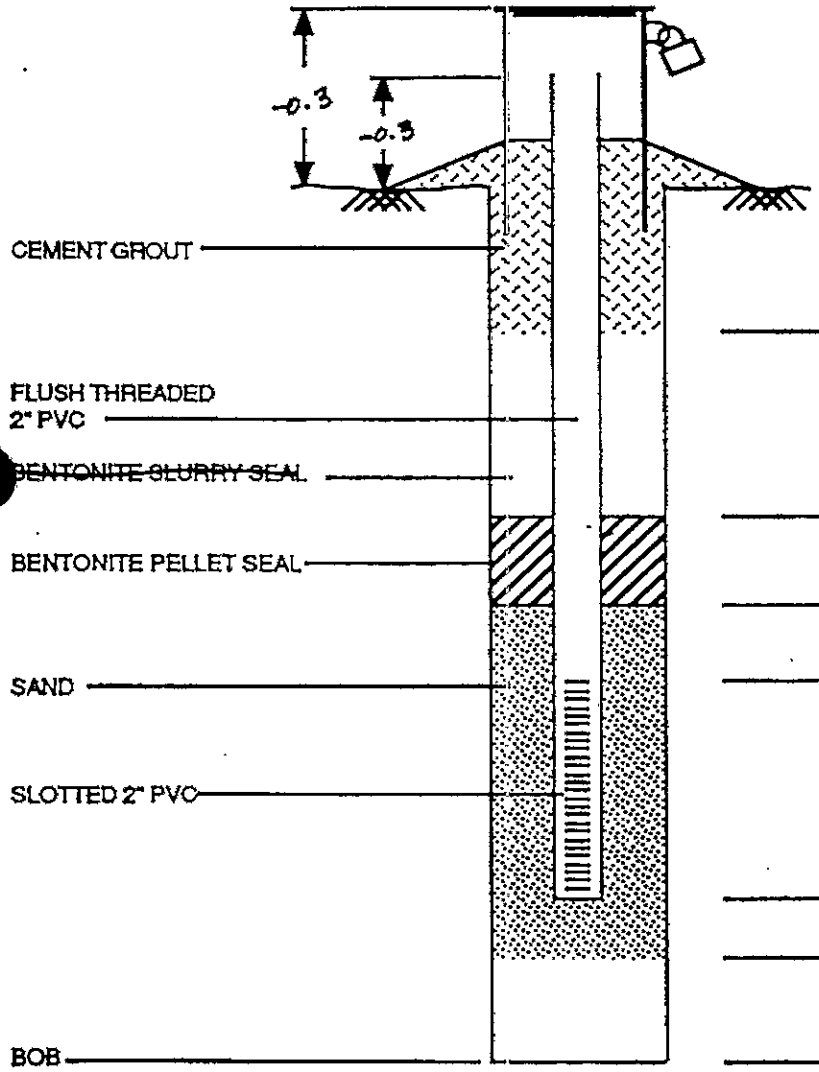
WELL INSTALLATION DETAILS

PROJECT NO.:	PROJECT NAME:	WELL NO.:
4607-31	NAVAL AIR STATION, BRUNSWICK, MAINE	MW-1301
INSTALLED BY:	**DATE INSTALLED:**	**BORING DIAMETER:**
NGB/NSG	9-14-89	6 5/8" ID
WELL DIAMETER:	**WELL MATERIAL:**	**BACKFILL MATERIAL:**
2"	PVC	SILICA SAND



	DEPTH (feet)	ELEVATION (feet)
	0	59
	2	57
	2	57
	5	54
	6.5	52.5
	14.5	42.5
	17	42
	20	39

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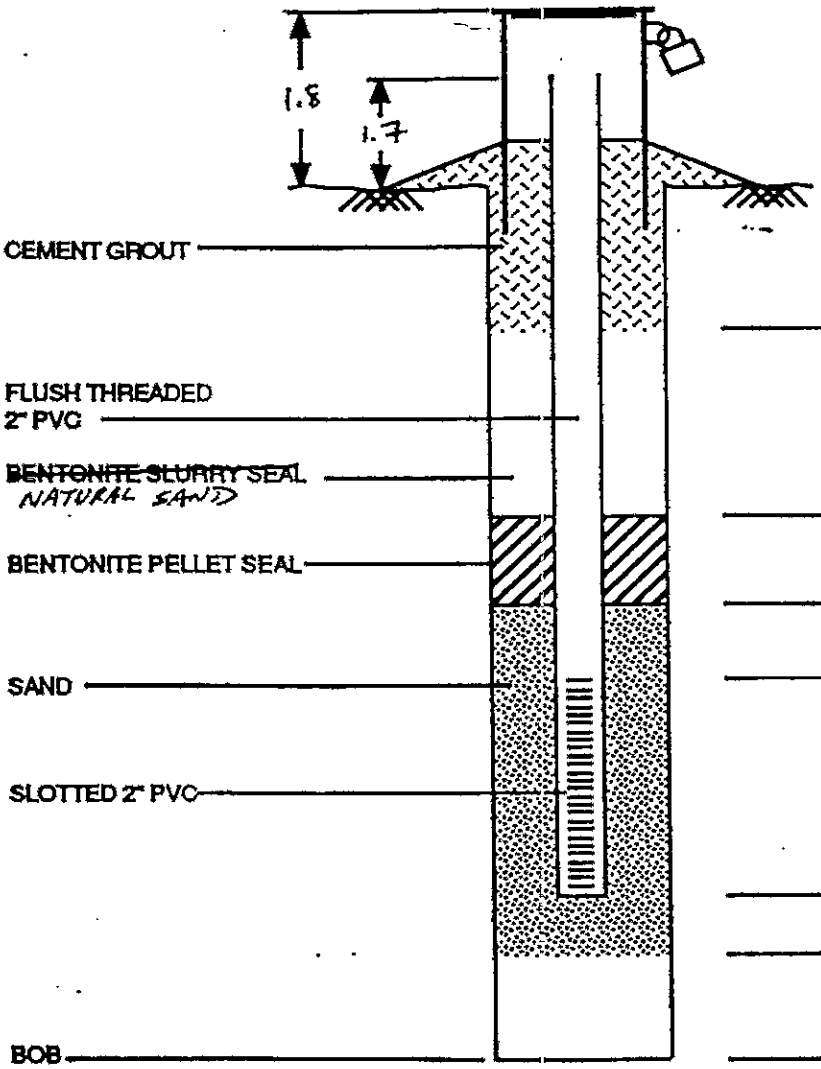
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.: 4607-31	**PROJECT NAME:** NAVAL AIR STATION, BRUNSWICK, MAINE	**WELL NO.:** MW - 1302
INSTALLED BY:	**DATE INSTALLED:** 8/22/89	**BORING DIAMETER:** 6 5/8" ID HSA 2" ϕ WELL
WELL DIAMETER: 2"	**WELL MATERIAL:** PVC	**BACKFILL MATERIAL:** NATURAL SAND



	DEPTH (feet)	ELEVATION (feet)
	0	61.6'
CEMENT GROUT	2	59.6
FLUSH THREADED 2" PVC		
BENTONITE SLURRY SEAL NATURAL SAND	6'	55.6
BENTONITE PELLET SEAL	9'	52.6
SAND	12'	49.6
SLOTTED 2" PVC	22'	39.6
	25'	36.6
BOB	25'	36.6

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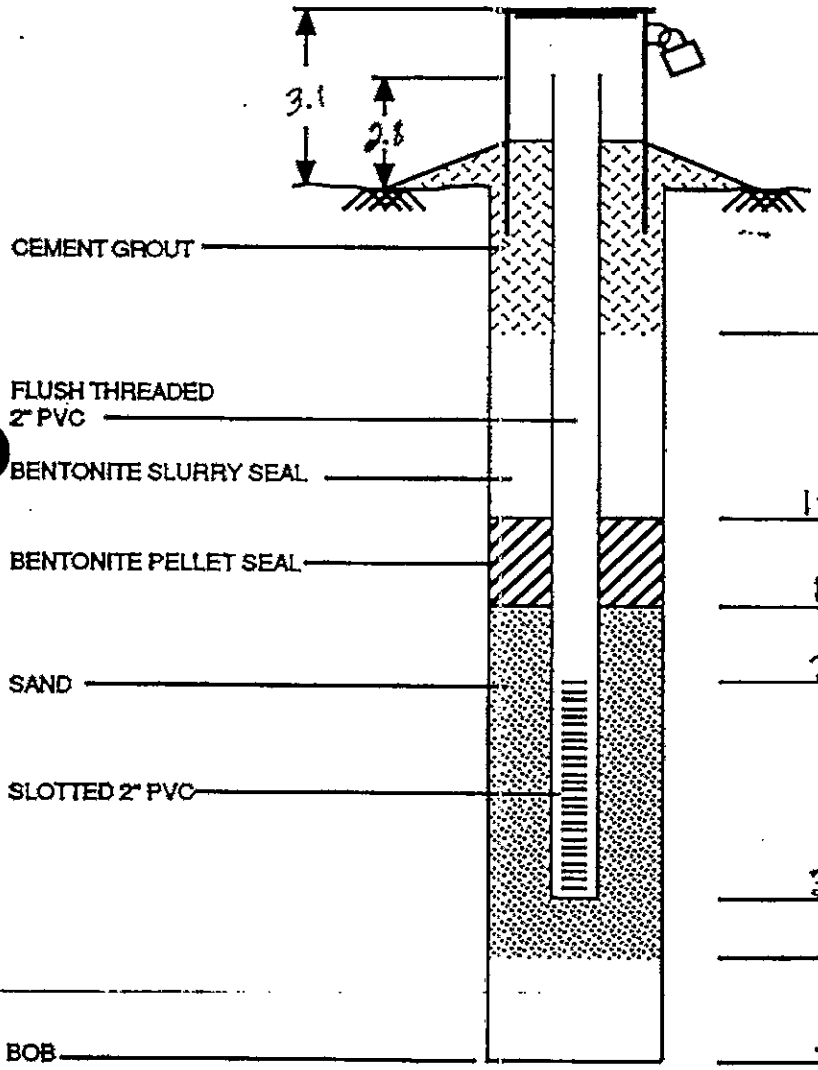
Click Here to Return to Main Index

WELL INSTALLATION DETAILS

PROJECT NO.: 4607-31	**PROJECT NAME:** NAVAL AIR STATION, BRUNSWICK, MAINE	**WELL NO.:** MW-1303
INSTALLED BY: NEBC G.W.Shart	**DATE INSTALLED:** 8/23/89	**BORING DIAMETER:** 6 5/8" HSA
WELL DIAMETER: 2"	**WELL MATERIAL:** PVC	**BACKFILL MATERIAL:** Volclay Grout



	DEPTH (feet)	ELEVATION (feet)
	0	59.6
	2	57.6
	14	45.6
	17	42.6
	20	39.6
	30	29.6
	30.5	29.1
	40	19.6

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Click Here to Return to Main Index

APPENDIX G
FIELD PARAMETERS: pH AND SPECIFIC CONDUCTIVITY

NAS BRUNSWICK
BRUNSWICK, MAINE

Click Here to Return to Main Index

ROUND 1 FIELD PARAMETERS
RI/FS PROGRAM
NAS BRUNSWICK

LOCATION:	DATE SAMPLED	TEMPERATURE (DEG C)	pH	SPECIFIC CONDUCTIVITY (umhos/cm)
MW-101	9-8-88	13.2	4.3	670
MW-102	9-15-88	10.4	7.1	109
MW-103	9-9-88	12.0	3.9	70
MW-104	9-9-88	9.1	5.7	102
MW-105A	9-8-88	9.4	5.3	54
MW-105B	9-8-88	12.8	5.6	64
MW-106	9-9-88	9.0	6.5	105
MW-201	9-8-88	10.2	4.1	64
MW-202A	9-7-88	11.8	5.8	544
MW-202B	9-7-88	15.1	5.7	427
MW-203	9-7-88	11.6	5.4	324
MW-204	9-7-88	10.2	6.9	81
MW-205	9-7-88	10.4	6.3	179
MW-206A	9-7-88	10.0	6.5	135
MW-206B	9-7-88	9.7	5.6	62
MW-207A	9-15-88	9.7	7.1	176
MW-207B	9-15-88	12.2	7.4	89
MW-208	9-9-88	10.0	8.7	155
MW-209	9-9-88	9.0	5.1	53
MW-210A	9-7-88	11.1	9.3	1733
MW-210B	9-7-88	14.1	3.9	327
MW-211A	9-8-88	11.6	9.2	1587
MW-211B	9-8-88	10.7	7.5	195
MW-212	9-9-88	12.9	6.2	80
MW-213	9-9-88	10.4	6.8	252
MW-401	9-12-88	11.1	7.6	66
MW-402	9-8-88	11.6	6.0	35
MW-403	9-13-88	10.7	5.6	27
MW-404	9-15-88	12.3	6.6	46
MW-405	9-15-88	12.0	6.2	128
MW-406	9-15-88	8.0	6.7	50
MW-407	9-15-88	10.9	7.2	70
MW-701	9-15-88	10.2	6.1	57
MW-702	9-15-88	13.6	6.0	125
MW-703	9-15-88	11.2	6.3	36
MW-704	9-15-88	15.5	6.1	250
MW-705	9-15-88	12.0	6.2	38
MW-706	9-15-88	14.0	6.2	120
MW-801	9-14-88	14.7	6.9	259
MW-802	9-13-88	10.7	6.5	195
MW-803	9-14-88	11.6	5.8	199
MW-804	9-12-88	13.1	6.4	366
MW-807	9-12-88	15.6	5.3	414
MW-808	9-13-88	10.7	6.8	114
MW-901	9-14-88	14.0	6.6	212
MW-902	9-14-88	13.6	6.1	296
MW-903	9-14-88	12.9	6.4	169
MW-904	9-6-88	23.5	6.4	144
MW-905	9-6-88	24.5	8.5	335

Click Here to Return to Main Index

ROUND 1 FIELD PARAMETERS
RI/FS PROGRAM
NAS BRUNSWICK

LOCATION:	DATE SAMPLED	TEMPERATURE (DEG C)	pH	SPECIFIC CONDUCTIVITY (umhos/cm)
SW-002	9-7-88	15.0	7.1	165
SW-003	9-8-88	13.0	6.2	65
SW-004	9-8-88	17.0	4.5	90
SW-006	9-13-88	16.3	6.5	1097
SW-007	9-13-88	12.9	5.3	91
SW-008	9-13-88	13.8	5.7	147
SW-009	9-13-88	15.0	5.7	433
SW-010	9-8-88	16.0	NA	175
SW-011	9-8-88	16.5	NA	120
SW-012	9-8-88	15.0	NA	180
SW-113	9-9-88	17.0	7.3	80
SW-114	9-9-88	17.0	7.3	85
SW-115	9-8-88	16.5	NA	90
SW-118	9-9-88	17.0	7.3	93
SW-119	9-9-88	11.5	7.1	90
SW-316	9-7-88	15.0	7.1	80
SW-317	9-7-88	15.0	7.0	85
SW-817	9-14-88	13.7	6.8	197
SW-818	9-14-88	12.9	6.9	205
SW-819	9-13-88	13.8	5.7	370
SW-820	9-12-88	17.9	6.7	1442
SW-821	9-13-88	12.3	5.3	99
SW-915	9-8-88	16.0	NA	190
SW-916	9-8-88	16.0	NA	180
SW-917	9-16-88	15.6	6.1	147
SW-918	9-22-88	16.8	7.7	104
LT-201	9-7-88	15.0	6.4	100
LT-202	9-7-88	13.0	6.1	340
LT-301	9-7-88	14.0	6.3	198
LT-302	9-7-88	13.0	6.2	200
LT-303	9-6-88	15.0	6.1	370
LT-304	9-7-88	14.0	6.0	175
LT-305	9-7-88	14.0	6.6	210

NOTES:
NA - NOT AVAILABLE

Click Here to Return to Main Index

ROUND 2 FIELD PARAMETERS
RI/FS PROGRAM
NAS BRUNSWICK

LOCATION:	DATE SAMPLED	TEMPERATURE (DEG C)	pH	SPECIFIC CONDUCTIVITY (umhos/cm)
MW-101	12-14-88	9.6	7.7	136
MW-102	12-14-88	8.2	7.2	650
MW-103	12-13-88	7.9	5.8	66
MW-104	12-8-88	7.9	7.5	101
MW-105A	12-8-88	8.1	7.7	58
MW-105B	12-8-88	9.3	6.8	49
MW-106	12-6-88	6.3	6.3	186
MW-201	12-6-88	8.4	5.9	271
MW-202A	12-13-88	6.5	6.3	502
MW-202B	NA	8.0	6.6	430
MW-203	12-6-88	9.8	6.3	558
MW-204	12-6-88	8.7	6.7	129
MW-205	12-9-88	8.1	8.1	171
MW-206A	12-9-88	7.7	8.5	156
MW-206B	12-9-88	9.5	7.2	61
MW-207A	12-14-88	8.1	7.4	203
MW-207B	12-14-88	7.7	7.6	52
MW-208	12-9-88	5.5	7.9	154
MW-209	12-9-88	6.6	6.3	57
MW-210A	12-9-88	9.0	10.0	1883
MW-210B	12-13-88	9.7	6.3	417
MW-211A	12-13-88	9.0	9.6	2090
MW-211B	12-13-88	6.1	7.4	241
MW-212	12-13-88	7.1	6.0	81
MW-213	12-13-88	8.2	7.0	278
MW-401	12-7-88	9.3	7.7	67
MW-402	12-7-88	11.3	6.2	45
MW-403	12-7-88	9.5	6.1	24
MW-404	12-7-88	11.3	6.9	39
MW-405	12-7-88	11.0	7.0	116
MW-406	12-7-88	8.2	6.5	1014
MW-407	12-7-88	9.7	7.3	66
MW-701	12-20-88	9.6	6.2	65
MW-702	12-20-88	7.1	6.6	117
MW-703	12-20-88	8.2	7.1	36
MW-704	12-20-88	8.4	5.6	163
MW-705	12-20-88	9.5	6.4	45
MW-706	12-20-88	7.4	6.7	87
MW-801	12-20-88	6.0	3.5	1350
MW-802	12-20-88	8.1	7.7	232
MW-803	12-20-88	6.8	6.9	158
MW-804	12-20-88	9.3	6.6	440
MW-807	12-12-88	10.3	5.8	477
MW-808	12-15-88	8.8	7.2	132
MW-901	12-7-88	11.8	6.7	210
MW-902	12-7-88	13.9	5.7	327
MW-903	12-19-88	12.5	6.2	172
MW-904	12-7-88	10.2	6.2	117
MW-905	12-19-88	8.9	11.0	383

Click Here to Return to Main Index

ROUND 2 FIELD PARAMETERS
RI/FS PROGRAM
NAS BRUNSWICK

LOCATION:	DATE SAMPLED	TEMPERATURE (DEG C)	pH	SPECIFIC CONDUCTIVITY (umhos/cm)
SW-BK1	12-16-88	0.5	7.1	93
SW-BK2	12-16-88	0.5	6.8	175
SW-002	12-9-88	0.5	6.6	168
SW-003	12-6-88	0.9	7.3	71
SW-004	12-6-88	NA	6.3	54
SW-006	12-12-88	4.3	5.6	53
SW-007	12-15-88	4.1	6.5	740
SW-008	12-15-88	4.8	6.1	142
SW-009	12-19-88	1.8	7.5	473
SW-010	12-16-88	2.7	6.9	317
SW-011	12-16-88	4.3	7.3	252
SW-012	12-16-88	3.6	7.1	390
SW-113	12-14-88	1.4	5.6	86
SW-114	12-14-88	1.4	6.5	97
SW-115	12-6-88	1.4	7.5	100
SW-118	12-14-88	2.5	6.8	109
SW-119	12-14-88	1.2	6.8	93
SW-316	12-9-88	2.1	6.9	110
SW-317	12-9-88	7.2	7.2	126
SW-817	12-19-88	1.2	6.3	129
SW-818	12-19-88	3.2	6.4	146
SW-819	12-12-88	3.6	5.3	75
SW-820	12-15-88	7.9	6.8	1127
SW-821	12-15-88	6.6	6.6	93
SW-915	12-16-88	7.2	7.4	239
SW-916	12-16-88	2.1	7.2	92
SW-918	12-19-88	0.0	6.0	100
LT-201	12-6-88	2.3	6.8	107
LT-202	12-9-88	5.0	6.2	322
LT-301	12-8-88	4.3	6.5	250
LT-302	12-8-88	6.6	5.9	252
LT-303	12-8-88	8.4	6.2	414
LT-304	12-8-88	5.7	4.5	322
LT-305	12-8-88	6.7	6.5	417
LT-802	12-19-88	10.9	6.4	568
LT-803	12-12-88	11.3	5.9	536

NOTES:

NA - NOT AVAILABLE

Click Here to Return to Main Index

ROUND 3 FIELD PARAMETERS
RI/FS PROGRAM
NAS BRUNSWICK

LOCATION:	DATE SAMPLED	TEMPERATURE (DEG C)	pH	SPECIFIC CONDUCTIVITY (umhos/cm)
MW-101	4-13-89	9.5	7.5	38
MW-102	4-11-89	5.0	7.4	656
MW-105A	4-12-89	8.0	7.1	39
MW-105B	4-12-89	5.8	6.0	29
MW-106	4-12-89	7.6	NA	92
MW-202A	4-11-89	8.6	6.9	329
MW-205	4-10-89	8.3	6.9	128
MW-206A	4-10-89	8.0	6.0	98
MW-206B	4-10-89	7.9	5.4	40
MW-207A	4-13-89	8.4	7.3	135
MW-207B	4-13-89	5.1	6.4	49
MW-208	4-10-89	7.4	NA	101
MW-210A	4-11-89	9.5	NA	1265
MW-210B	4-11-89	8.6	6.0	230
MW-211A	4-12-89	8.7	9.0	1390
MW-213	4-12-89	8.3	6.7	266
MW-281	4-17-89	9.9	5.7	89
MW-403	4-12-89	6.5	5.5	24
[illegible]W-405	4-13-89	10.3	5.8	39
[illegible]W-407	4-13-89	10.1	7.0	48
MW-701	4-13-89	6.7	6.0	57
MW-801	4-14-89	2.5	6.9	98
MW-803	4-14-89	3.2	6.6	94
MW-804	4-14-89	6.1	6.8	214
MW-807	4-14-89	5.3	5.5	462
MW-904	4-17-89	6.8	6.7	154
MW-905	4-17-89	12.0	7.9	337
SW-BK1	4-13-89	7.1	6.4	114
SW-BK2	4-13-89	7.1	6.9	107
SW-003	4-10-89	4.2	5.9	56
SW-007	4-14-89	4.5	7.5	838
SW-008	4-14-89	6.1	7.2	224
SW-009	4-14-89	4.7	7.1	315
SW-010	4-18-89	8.6	6.5	214
SW-011	4-18-89	10.0	7.6	243
SW-113	4-13-89	NA	6.6	104
SW-114	4-13-89	NA	6.6	113
SW-115	4-10-89	6.3	7.8	95
SW-118	4-13-89	6.3	7.0	127
SW-119	4-17-89	6.9	6.1	91
SW-317	4-12-89	5.7	6.5	134
SW-817	4-14-89	4.4	7.7	220
SW-818	4-14-89	4.7	7.6	248
SW-820	4-14-89	6.4	7.3	1113

Click Here to Return to Main Index

ROUND 3 FIELD PARAMETERS
RI/FS PROGRAM
NAS BRUNSWICK

LOCATION:	DATE SAMPLED	TEMPERATURE (DEG C)	pH	SPECIFIC CONDUCTIVITY (umhos/cm)
SW-915	4-13-89	NA	6.4	258
SW-916	4-13-89	9.7	7.8	251
SW-917	4-14-89	5.0	7.4	134
SW-918	4-18-89	6.1	6.8	112
LT-202	4-12-89	5.0	6.1	302
LT-301	4-11-89	4.6	6.2	208
LT-302	4-11-89	6.9	6.1	270
LT-303	4-11-89	6.2	6.1	274
LT-304	4-11-89	7.0	5.9	449
LT-305	4-10-89	8.2	5.3	282
LT-801	4-18-89	1.8	7.0	180
LT-802	4-18-89	8.2	6.4	928
LT-803	4-18-89	7.5	6.2	544
LT-901	4-18-89	8.2	6.7	251

NOTES:
NA - NOT AVAILABLE

Click Here to Return to Main Index

ROUND 4 FIELD PARAMETERS
RI/FS PROGRAM
NAS BRUNSWICK

LOCATION:	DATE SAMPLED	TEMPERATURE (DEG C)	pH	SPECIFIC CONDUCTIVITY (umhos/cm)
MW-104	10-6-89	8.7	5.4	355
MW-105A	10-4-89	NA	7.0	-8
MW-105B	10-4-89	9.9	6.5	13
MW-106	10-4-89	6.4	5.8	-38
MW-201	10-6-89	11.0	5.5	84
MW-202A	10-6-89	11.0	6.2	433
MW-203	10-10-89	9.9	6.1	161
MW-204	10-6-89	9.2	6.6	762
MW-205	10-10-89	8.6	7.0	133
MW-206A	10-4-89	7.8	6.6	147
MW-206B	10-4-89	8.6	6.2	678
MW-207A	10-6-89	9.0	7.3	2120
MW-207B	10-6-89	11.6	7.3	681
MW-210B	10-10-89	10.0	6.0	311
MW-213	10-6-89	11.1	6.5	322
MW-214	10-4-89	9.4	5.9	216
MW-215	10-4-89	9.6	6.3	266
MW-216A	10-4-89	9.5	6.3	225
MW-216B	10-4-89	10.2	6.1	360
	10-11-89	10.8	6.2	260
-217A	10-11-89	9.9	6.5	780
MW-217B	10-11-89	11.8	6.1	975
MW-218	10-11-89	9.6	7.7	848
MW-219	10-10-89	9.2	6.5	92
MW-220	10-5-89	10.4	6.7	2360
MW-222	10-5-89	7.1	6.1	91
MW-223	10-5-89	7.7	5.9	97
MW-224	10-4-89	7.1	5.8	108
MW-225A	10-5-89	9.9	6.4	189
MW-225B	10-5-89	8.4	4.2	69
MW-229A	10-6-89	8.2	7.4	988
MW-229B	10-5-89	7.5	5.3	117
MW-230A	10-6-89	9.7	7.5	810
MW-230B	10-6-89	8.4	7.7	153
MW-231A	10-11-89	7.4	7.2	44
MW-231B	10-11-89	7.4	N/A	79
MW-232A	10-10-89	10.0	6.3	391
MW-232B	10-11-89	13.2	5.5	791
MW-233	10-10-89	9.6	9.0	365
MW-234	10-10-89	13.3	6.3	749
MW-401	10-3-89	11.0	7.6	799
MW-402	10-3-89	10.9	5.9	41
MW-403	10-3-89	10.0	5.5	26
MW-404	10-3-89	12.4	6.1	40
MW-405	10-3-89	12.7	5.6	1706
MW-406	10-3-89	8.7	6.1	76
MW-407	10-9-89	9.7	7.1	60

Click Here to Return to Main Index

TABLE
ROUND 4 FIELD PARAMETERS
RI/FS PROGRAM
NAS BRUNSWICK

LOCATION:	DATE SAMPLED	TEMPERATURE (DEG C)	pH	SPECIFIC CONDUCTIVITY (umhos/cm)
MW-408	10-12-89	11.6	5.8	49
MW-801	10-9-89	11.9	4.5	208
MW-802	10-4-89	9.0	7.4	30
MW-803	10-4-89	9.0	6.6	28
MW-804	10-9-89	9.6	7.0	429
MW-807	10-3-89	12.6	6.4	54
MW-808	10-3-89	12.1	6.5	119
MW-810	10-9-89	9.9	6.2	517
MW-811	10-10-89	9.9	6.8	614
MW-901	10-3-89	14.3	6.3	235
MW-902	10-3-89	13.3	5.7	377
MW-903	10-3-89	12.5	6.2	172
MW-904	10-9-89	11.0	5.6	167
MW-905	10-3-89	13.2	8.6	388
MW-906	10-9-89	11.2	5.5	249
MW-907	10-2-89	13.8	6.3	290
MW-908	10-12-89	12.8	6.2	125
MW-1101	10-3-89	12.9	5.9	50
MW-1102	10-3-89	13.2	6.1	1380
MW-1103	10-3-89	12.6	6.3	764
MW-1104	10-9-89	11.1	6.2	88
MW-1301	10-10-89	13.3	5.6	270
MW-1302	10-9-89	10.4	5.1	226
MW-1303	10-9-89	11.8	5.5	224
GZA1	10-10-89	11.6	5.1	46
GZA3	10-12-89	11.4	5.4	70
GOLF1	10-12-89	10.9	6.8	1200
GOLF2	10-12-89	10.4	6.6	885
SW-002	8-28-89	13.6	6.3	238
SW-003	8-28-89	13.7	5.5	115
SW-004	8-28-89	19.6	6.4	121
SW-008	9-1-89	12.6	6.4	143
SW-010	8-29-89	16.1	6.5	218
SW-011	8-29-89	15.4	6.0	233
SW-012	8-29-89	16.0	6.7	213
SW-113	8-31-89	18.9	7.5	384
SW-114	8-31-89	20.7	7.2	151
SW-115	8-28-89	17.5	6.3	133
SW-118	8-31-89	20.2	6.1	155
SW-119	8-31-89	20.0	7.0	154
SW-120	8-28-89	16.0	6.8	123
SW-121	8-28-89	17.8	6.5	127
SW-122	8-28-89	14.1	6.3	277
SW-123	8-28-89	18.8	6.7	129
SW-124	8-29-89	18.0	6.6	150
SW-125A	8-31-89	9.4	7.0	180
SW-125B	8-31-89	15.1	7.0	125

Click Here to Return to Main Index

ROUND 4 FIELD PARAMETERS
RI/FS PROGRAM
NAS BRUNSWICK

LOCATION:	DATE SAMPLED	TEMPERATURE (DEG C)	pH	SPECIFIC CONDUCTIVITY (umhos/cm)
SW-126	8-31-89	17.7	5.6	1828
SW-127	8-31-89	16.9	6.4	1913
SW-128	8-31-89	19.7	6.9	13150
SW-129	8-31-89	18.6	6.8	9810
SW-316	8-28-89	18.1	6.7	128
SW-317	8-28-89	16.9	7.0	121
SW-318	8-30-89	16.4	5.9	206
SW-319	8-28-89	17.6	6.6	234
SW-818	9-1-89	14.0	4.5	2050
SW-822	9-1-89	16.4	5.2	590
SW-823	9-1-89	13.8	6.7	641
SW-824	9-1-89	15.5	4.0	541
SW-915	8-29-89	14.2	5.8	257
SW-916	8-29-89	16.3	6.5	228
SW-919	8-29-89	15.3	6.3	220
SW-920	8-29-89	15.5	6.0	225
SW-921	8-29-89	16.4	6.6	219
SW-922	8-29-89	16.3	6.8	210
SW-923	9-1-89	15.1	5.1	146
[illegible]-924	9-1-89	14.6	5.6	205
[illegible]-925	8-31-89	21.8	7.3	165
SW-926	8-31-89	20.9	6.9	145
SW-927	8-30-89	20.9	6.6	137
LT-201	8-30-89	15.0	5.9	150
LT-202	8-30-89	13.8	6.1	490
LT-203	10-6-89	10.8	5.6	380
LT-301	8-28-89	15.5	6.4	293
LT-302	8-30-89	13.0	6.1	209
LT-303	8-30-89	14.5	6.0	472
LT-304	8-30-89	15.8	6.1	263
LT-305	8-30-89	16.3	6.0	456
LT-306	8-30-89	11.4	6.1	136
LT-307	8-30-89	17.4	6.2	215
LT-801	9-1-89	14.4	6.2	652
LT-802	9-1-89	11.0	6.4	612
LT-803	9-1-89	10.9	6.5	551
LT-901	8-29-89	16.4	6.2	352

NOTES:
NA - NOT AVAILABLE

Click Here to Return to Main Index

APPENDIX H
GROUND SURVEY DATA

NAS BRUNSWICK
BRUNSWICK, MAINE

Click Here to Return to Main Index

EXPLORATION LOCATIONS AND ELEVATIONS
RI/FS PROGRAM
NAS BRUNSWICK

SITES 1 - 2 - 3

MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW201	59.74	59.92	57.7	383373.476	561954.965
MW202A	52.51	52.65	50.6	382702.354	561764.443
MW202B	53.20	53.06	51.4	382692.531	561743.201
MW203	52.75	52.68	50.5	382442.803	561973.565
MW204	50.50	50.38	48.6	382095.568	562387.368
MW205	45.99	45.93	44.0	381926.055	562828.135
MW206A	43.02	43.08	40.6	382334.566	563014.973
MW206B	42.77	42.94	40.5	382336.221	563031.694
MW207A	24.06	24.06	21.6	382410.619	563445.788
MW207B	22.90	23.08	21.1	382389.403	563447.045
MW208	49.40	49.34	47.4	383013.083	563245.991
MW209	54.84	55.00	52.9	383149.981	563015.899
MW210A	38.89	38.74	36.8	382735.917	562468.802
MW210B	37.60	37.84	35.8	382753.978	562490.562
MW211A	61.01	60.84	58.6	383437.949	562209.083
MW211B	60.76	60.90	58.8	383425.892	562232.334
MW212	50.19	50.31	48.1	381982.103	561613.148
MW213	27.49	27.66	25.4	382178.194	561937.255

OLD MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW101	54.44	54.56	51.6	383430.825	561462.412
MW102	27.76	27.85	24.1	382708.933	561630.669
MW103	56.97	57.05	54.2	382126.784	561676.977
MW104	22.70	22.73	19.1	381951.769	562097.893
MW105A	24.19	24.38	20.9	381863.229	562967.310
MW105B	24.55	24.71	21.1	381868.612	562971.979
MW106	51.26	51.35	47.7	382416.484	561956.542

TEST PITS:

	GROUND	COORDINATES NORTH	COORDINATES EAST
TP101	59.5	382951.345	561782.522
TP102	55.6	382830.372	561782.724
TP103	50.2	382689.900	561856.697

Click Here to Return to Main Index

EXPLORATION LOCATIONS AND ELEVATIONS (continued)
RI/FS PROGRAM
NAS BRUNSWICK

SURFACE WATER AND SEDIMENT SAMPLES:

	GROUND	COORDINATES NORTH	COORDINATES EAST
SW002	24.1	382722.893	561659.845
SW003	19.2	381890.670	562065.117
SW004	15.2	381732.129	563033.842
SW113	10.9	382201.979	563421.908
SW114	7.5	382003.124	564183.264
SW115	16.6	381883.487	562483.845
SW118	8.5	382441.118	564157.929
SW119	3.8	381091.416	563678.196
SW316	19.2	382734.591	561337.863
SW317	19.5	382740.683	561365.141
SW917	15.7	383472.413	564622.004
LT201	19.1	382237.499	561890.794
LT202	23.0	382338.584	561704.514
LT301	28.0	382772.674	561705.514
LT302	31.3	382860.602	561702.992
LT303	37.7	382682.333	561803.336
LT304	24.0	382510.442	561862.688
LT305	20.9	382388.273	561976.388

SITE 4

MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW404	58.55	58.76	58.7	384418.641	562663.833
MW405	58.30	58.60	58.6	384505.019	562647.223
MW406	61.82		59.8	384006.257	562676.788
MW407	63.00		60.8	384144.524	562871.508

OLD MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW401	57.75	57.84	54.7	384568.046	562736.896
MW402	61.28	61.40	57.7	384418.127	562870.793
MW403	59.53	59.63	56.4	384602.531	562960.810

TEST PITS:

	GROUND	COORDINATES NORTH	COORDINATES EAST
TP401	61.0	384034.247	462658.748
TP402	59.6	384133.342	562682.123
TP403	59.1	384182.175	562728.171

Click Here to Return to Main Index

EXPLORATION LOCATIONS AND ELEVATIONS (continued)
RI/FS PROGRAM
NAS BRUNSWICK

SITE 7

MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW704	77.30	77.45	75.4	389776.352	564097.874
MW705	79.15	79.27	76.8	389742.887	564001.858
MW706	73.56	73.61	71.7	389488.920	564072.390

OLD MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW701	76.29	76.37	72.5	389493.313	564063.428
MW702	77.24	77.30	73.2	389803.321	564062.425
MW703	77.67	77.80	74.4	389828.743	564102.658

TEST PITS:

	GROUND	COORDINATES NORTH	COORDINATES EAST
TP701	76.8	389736.361	564045.468
TP702	75.0	389803.321	564062.425
TP703	75.0	389828.743	564102.658
TP704	74.9	389836.851	564055.540
TP705	75.2	389858.028	564130.376
TP706	72.6	389559.086	564082.105
TP707	76.4	389730.492	564069.327

Click Here to Return to Main Index

EXPLORATION LOCATIONS AND ELEVATIONS (continued)
RI/FS PROGRAM
NAS BRUNSWICK

SITE 8

MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW807	68.62	68.25	66.0	390846.437	562803.282
MW808	38.52	38.69	36.0	391006.551	562502.527

OLD MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW801	42.66	42.78	39.7	390605.124	562575.437
MW802	32.86	33.11	30.0	390917.640	562454.469
MW803	29.71	29.76	27.9	391729.950	562604.697
MW804	72.15	72.26	68.6	390729.950	562925.190

SURFACE WATER AND SEDIMENT SAMPLES:

	GROUND	COORDINATES NORTH	COORDINATES EAST
SW006	30.3	390706.353	562322.767
SW007	33.6	390722.104	562523.307
SW008	26.9	391097.709	562585.119
SW009	27.0	391089.235	562613.219
SW817	14.9	391906.849	562823.701
SW818	20.5	391409.610	562611.205
SW819	31.9	390925.360	562442.679
SW820	44.7	390498.270	562599.790
SW821	35.1	390475.193	562158.658
LT801	27.9	391075.906	562666.124
LT802	35.6	391014.597	562810.166
LT803	38.3	391007.049	562829.445

BORINGS:

	GROUND	COORDINATES NORTH	COORDINATES EAST
B805	37.3	390949.010	562488.921
B808	35.3	391014.073	562511.291

Click Here to Return to Main Index

EXPLORATION LOCATIONS AND ELEVATIONS (continued)
RI/FS PROGRAM
NAS BRUNSWICK

SITE 9

MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW904	49.81	50.01	47.7	385767.827	563133.748
MW905	51.71	51.86	49.6	385875.690	563276.580

OLD MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW901	57.30	57.54	54.5	386090.891	562719.393
MW902	58.18	58.27	55.5	386165.518	562882.340
MW903	46.25	46.33	42.5	385978.864	562907.966

TEST PITS:

	GROUND	COORDINATES NORTH	COORDINATES EAST
TP901	51.7	386009.285	563124.624
TP902	53.2	386038.403	363198.179

SURFACE WATER AND SEDIMENT SAMPLES:

	GROUND	COORDINATES NORTH	COORDINATES EAST
SW010	37.1	385886.701	563071.051
SW011	34.9	385862.000	563689.300
SW012	36.6	385783.403	563305.404
SW915	37.7	385669.516	562736.866
SW916	32.1	385862.000	563689.300

Click Here to Return to Main Index

TABLE 1
EXPLORATION LOCATIONS AND ELEVATIONS
RI/FS PROGRAM
NAS BRUNSWICK

SITE 1

SURFACE WATER AND SEDIMENT SAMPLES:

	ELEVATION	COORDINATES NORTH	EAST
SW126	0.3	379761.196	562551.800
SW127	0.1	379643.396	562364.568
SW128	-0.55	379476.636	562175.582
SW129	-0.82	379338.968	562284.000
SW918	25.9	384114.427	564714.651
SW923	25.6	385412.278	564873.257
SW924	25.8	385181.204	564323.486
SW925	25.9	384760.635	564335.297
SW926	25.9	384355.943	564510.177
SW927	25.8	384075.583	564614.743
SW318	40.7	383457.349	563193.475
SW319	31.3	382894.697	561669.205
SW120	18.9	382658.624	561560.173
SW121	18.6	382546.581	561648.908
SW122	18.2	382067.875	562085.034
SW123	16.5	381838.701	562315.248
SW124	11.9	381982.892	563296.078
SW125	14.9	382243.642	563317.650
LT203	24	382453.579	561634.333
LT306	35.3	383256.276	563142.328
LT307	31.2	382911.833	561663.582
LT203	24	382453.579	561634.333

SITES 1, 2, AND 3

MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	EAST
MW214	63.21	63.14	59.90	383031.851	561816.630
MW215	61.11	60.60	58.10	382867.564	561796.645
MW216A	53.71	55.11	52.50	383081.721	562346.099
MW216B	54.70	54.87	52.20	383136.657	562407.593
MW217A	56.04	55.57	53.00	382799.820	562113.407
MW217B	56.45	55.99	53.20	382803.215	562121.873
MW218	54.16	53.94	51.00	382449.231	561965.905
MW219	51.87	51.53	48.60	382091.960	562394.776
MW220	39.46	39.09	36.50	382733.944	562486.842
MW222	57.43	57.20	54.10	383275.982	563126.261
MW223	53.71	53.44	51.10	383088.132	563168.813
MW224	57.63	57.37	54.70	383421.119	563215.544
MW225A	45.95	45.83	43.00	382628.158	563101.098
MW225B	46.25	44.88	43.30	382613.982	563099.817
MW229A	33.83	33.55	30.60	381604.431	563261.599
MW229B	30.08	32.89	30.30	381605.701	563269.553
MW230A	36.32	36.02	33.70	381277.872	563105.693
MW230B	36.36	35.97	33.60	381288.719	563114.575
MW231A	45.41	42.25	42.50	381240.643	562484.694
MW231B	46.31	46.09	42.20	381238.379	562478.666
MW232A	55.65	55.75	53.10	382922.914	562214.698
MW232B	55.91	55.78	53.10	382932.918	562222.316
MW233	60.57	60.65	58.10	383372.721	561971.131
MW234	55.78	55.80	52.90	382941.696	562082.842

Click Here to Return to Main Index

TABLE 1
EXPLORATION LOCATIONS AND ELEVATIONS
RI/FS PROGRAM
NAS BRUNSWICK
(CONTINUED)

SITES 1 AND 3

TEST PITS:

	ELEVATION	COORDINATES NORTH	COORDINATES EAST
TP104	59.6	38299.4237	561829.328
TP105	60.0	383114.204	561889.303
TP106	59.2	383243.049	561955.675
TP107	56.9	383389.524	562024.566
TP108	54.1	383388.721	562129.619
TP109	54.4	383256.866	562069.455
TP110	55.0	383164.553	562023.391
TP111	57.4	383027.260	561928.963
TP112	52.6	382945.655	562093.726
TP113	53.1	383052.003	562171.064
TP114A	52.6	383334.758	562300.416
TP114B	54.1	383372.510	562268.648
TP115	52.2	383165.741	562310.550
TP116	51.0	383044.933	562345.355
TP117	50.7	382926.583	562293.129
TP118	53.7	382809.742	562173.157
TP119	46.1	383071.812	562541.185
TP120	46.1	382947.964	562522.662
TP121	46.2	382815.557	562404.395
TP122	42.3	382707.206	563104.214
TP123	42.3	382498.119	563049.309
TP124	53.4	383146.531	562074.765

SITE 4

MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW408	57.92	58.36	58.4	384509.554	562712.04

SITE 7

TEST PITS:

	ELEVATION	COORDINATES NORTH	COORDINATES EAST
TP708	74.2	389876.714	564057.209
TP709	74.5	389825.844	564037.980
TP710	76.6	389774.509	564020.482
TP711	74.2	389898.393	564097.357
TP712	75.0	389850.587	564090.377
TP713	75.0	389919.324	564137.128
TP714	74.7	389873.465	564115.027
TP715	75.1	389798.684	564091.727
TP716	74.3	389907.033	564172.705
TP717	74.3	389845.004	564156.783
TP718	74.1	389806.252	564129.475
TP719	74.6	389761.295	564114.468

Click Here to Return to Main Index

TABLE 1
EXPLORATION LOCATIONS AND ELEVATIONS
RI/FS PROGRAM
NAS BRUNSWICK
(CONTINUED)

SITE 8

MONITORING WELLS

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW807	68.62	68.5	65.8	340846.465	562803.167
MW810	66.57	66.23	64.6	390927.193	562823.902
MW811	40.62	40.62	36.9	391014.040	562816.062
OW812	65.12	64.70	62.4	391683.775	562628.806
OW813	60.28	60.05	57.3	391818.290	562621.652
OW814	65.66	65.20	62.0	391832.924	562704.150

TEST PITS:

	GROUND	COORDINATES NORTH	COORDINATES EAST
TP801	63.1	390852.066	562604.170
TP802	64.6	390904.784	562657.353
TP803	64.8	390954.785	562742.136
TP804	65.4	390861.665	562742.349
TP805	65.1	390900.416	562831.395
TP806	66.3	390861.628	562861.311
TP807	70.6	390707.403	562779.901
TP808	69.4	390719.509	562831.028
TP809	73.5	390575.746	562808.944
TP810	73.6	390584.488	562863.596
BORING 809	66.1	390880.709	562900.976
SW822	28.35	391107.203	562688.045
SW823	33.3	391043.195	562794.251
SW824	43.1	390983.966	562850.686

SITE 9

MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW906	51.68	51.75	49.6	385745.412	563008.918
MW907	54.91	55.00	52.5	385763.587	562925.028
MW908	52.79	52.92	50.8	385870.512	562984.620
SW919			35.9	385663.960	562973.412
SW920			35.4	385802.199	563186.239
SW921			32.2	385842.862	563443.044
SW922			29.8	385794.745	563846.495
LT901			41.9	385985.191	562915.149

SITE 11

MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW1101	60.37	60.71	58.50	384660.150	563108.724
MW1102	60.47	60.68	57.74	384690.263	563202.318
MW1103	57.52	57.90	57.90	384611.355	563194.063
MW1104	60.09	60.11	57.60	384493.102	563285.136

Click Here to Return to Main Index

TABLE 1
EXPLORATION LOCATIONS AND ELEVATIONS
RI/FS PROGRAM
NAS BRUNSWICK
(CONTINUED)

SITE 13

MONITORING WELLS:

WELLS	RISER	CASING	GROUND	COORDINATES NORTH	COORDINATES EAST
MW1301	58.68	59.00	59.0	384409.353	562590.258
MW1302	63.42	63.49	61.6	384153.836	562883.743
MW1303	62.39	62.68	59.6	384202.829	562748.784

TEST PITS

	GROUND	COORDINATES NORTH	COORDINATES EAST
TP1301	60.3	384194.995	562649.174
TP1302	60.2	384135.380	562589.582
TP1303	59.1	384135.319	562702.427
TP1304	58.9	383990.776	562686.831
TP1305	60.8	384161.348	562809.785
TP1306	59.9	384073.590	562721.166

WELLS BY OTHERS:

WELLS	RISER	CASING	GROUND
GZA3	63.06	62.99	60.3
GZA1	62.6	---	59.7

LOCATIONS ARE REFERENCED TO THE MAINE COORDINATE SYSTEM

Click Here to Return to Main Index

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APPENDIX I
PERMEABILITY TEST DATA

REMEDIAL INVESTIGATION
NAS BRUNSWICK

Click Here to Return to Main Index

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PERMEABILITY TEST
(Constant-Head)

DATE 11/10/88

PROJECT BNAS JOB NO. 4687-09

BORING NO. 207A SAMPLE NO. U-2 DEPTH, FT. 90-92 PERM NO. II

SPECIMEN DESCRIPTION

	TARE NO.		34	DIAMETER OF SPECIMEN, cm	D	7.14
WEIGHT IN GRAMS	TARE PLUS WET SOIL		411.8	AREA OF SPECIMEN, sq cm	A	40.04
	TARE PLUS DRY SOIL		332.2	HEIGHT OF SPECIMEN, cm	L	5.12
	WATER	W_w	79.6	VOLUME OF SPECIMEN, cc = AL	V	205.0
	TARE		55.7	SPECIFIC GRAVITY MEASURED ☐ ASSUMED ☒	G_s	2.65
	DRY SOIL	W_s	276.5	VOLUME OF SOLIDS, cc = $W_s \div G_s$	V_s	104.3
	WATER CONTENT, %	w	28.8	VOID RATIO = $(V-V_s) \div V_s$	e	0.96
	CELL PRESSURE kg/cm²	δ_c	4.7	DRY DENSITY, PCF = $W_s/V \times 62.4$	γ_D	84.2
	BOTTOM BACK PRESSURE kg/cm²	δ_{bb}	4.0	HEAD, cm = $(\delta_{bb} - \delta_{bt}) \times 1000$	h	500
	TOP BACK PRESSURE kg/cm²	δ_{bt}	4.5	SATURATION COEFFICIENT 4.48 - 4.01	B	1.2

TIME	ELAPSED TIME, SEC. $\Delta t = t_2 - t_1$	V cc		Q, cc = $V_1 - V_2$	K=cm/sec
11/10 6^{05}		19.4	22.0		
11/11 9^{27}	55320	26.8		7.4	3.4×10^{-8}
11/11 10^{07}	2400	27.1		0.3	3.2×10^{-8}
2^{20}	15180	28.8		1.7	2.9×10^{-8}
4^{40}	8400	29.6	11.9	0.8	2.4×10^{-8}
11/14 8^{38}	172800		35.0	23.1	3.4×10^{-8}
12^{57}	15540	4.5	36.8	1.8	3.0×10^{-8}
11/15 8^{40}	70980	12.0		7.5	2.7×10^{-8}
10^{00}	4800	12.5		0.5	2.7×10^{-8}

$K = \frac{QL}{A \Delta t h}$ $K_{AVG} = 3.0 \times 10^{-8}$ cm/sec

REMARKS

TECHNICIAN GWC COMPUTED BY GWC CHECKED BY

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PERMEABILITY TEST
(Constant-Head)

DATE 10/31/88

PROJECT BNAS JOB NO. 4607-09

BORING NO. MW 808 SAMPLE NO. U-2 DEPTH, FT. 24-26 PERM NO. II

SPECIMEN DESCRIPTION

WEIGHT IN GRAMS						
	TARE NO. AFTER TEST		26	DIAMETER OF SPECIMEN, cm	D	7.02
	TARE PLUS WET SOIL		433.2	AREA OF SPECIMEN, sq cm	A	38.7
	TARE PLUS DRY SOIL		349.5	HEIGHT OF SPECIMEN, cm	L	5.26
	WATER	W_w	83.7	VOLUME OF SPECIMEN, cc = AL	V	202.6
	TARE		51.9	SPECIFIC GRAVITY MEASURED ☐ ASSUMED ☒	G_s	2.65
	DRY SOIL	W_s	297.6	VOLUME OF SOLIDS, cc = $W_s \div G_s$	V_s	112.3
	WATER CONTENT, %	w	28.1	VOID RATIO = $(V-V_s) \div V_s$	e	0.81
	CELL PRESSURE kg/cm²	δ_c	4.7	DRY DENSITY, PCF = $W_s/V \times 62.4$	Y_D	91.7
	BOTTOM BACK PRESSURE kg/cm²	δ_{bb}	4.0	HEAD, cm = $(\delta_{bb}-\delta_{bt}) \times 1000$	h	500
	TOP BACK PRESSURE kg/cm²	δ_{bt}	4.5	SATURATION COEFFICIENT 4.48-4.01	B	0.76

TIME	ELAPSED TIME, SEC. $\Delta t = t_2 - t_1$	V cc	Q, cc = $V_1 - V_2$	K = cm/sec
11/1/88 10^{10}	0	20.4 21.2		
11^{47}	5460	20.6	0.2	10.0×10^{-9}
1^{02}	4500	22.0	1.4	8.5×10^{-8}
2^{30}	5280	23.0	1.0	5.1×10^{-8}
5^{09}	9540	24.5	1.5	4.3×10^{-8}
11/2 8^{19}	5460	33.6	9.1	4.5×10^{-8}
9^{24}	3900	34.3	0.7	4.9×10^{-8}
11^{45}	8460	35.9	1.6	5.1×10^{-8}
2^{10}	8700	37.4	1.5	4.7×10^{-8}

$K = \frac{QL}{A \Delta t h}$ $K_{AVE} = 4.8 \times 10^{-8}$ cm/sec

REMARKS

TECHNICIAN GWC COMPUTED BY CHECKED BY DH

JGA 020
1 NOV 91

JORDAN GORRILL ASSOCIATES
GEOTECHNICAL CONSULTANTS

Click Here to Return to Main Index

PERMEABILITY TEST
(Constant-Head)

DATE 10/31/83

PROJECT BNAS JOB NO. 4602-09

BORING NO. MW 808 SAMPLE NO. U-1 DEPTH, FT. 19-22' PERM NO. I

SPECIMEN DESCRIPTION

	TARE NO.	A/T	14	DIAMETER OF SPECIMEN, cm	D	7.05
WEIGHT IN GRAMS	TARE PLUS WET SOIL		416.5	AREA OF SPECIMEN, sq cm	A	39.0
	TARE PLUS DRY SOIL		339.2	HEIGHT OF SPECIMEN, cm	L	5.18
	WATER	W_w	77.3	VOLUME OF SPECIMEN, cc = AL	V	202.0
	TARE		41.9	SPECIFIC GRAVITY MEASURED ☐ ASSUMED ☒	G_s	2.65
	DRY SOIL	W_s	297.3	VOLUME OF SOLIDS, cc = $W_s \div G_s$	V_s	112.2
	WATER CONTENT, %	w	26.0	VOID RATIO = $(V-V_s) \div V_s$	e	0.80
CELL PRESSURE kg/cm²		δ_c	4.7	DRY DENSITY, PCF = $W_s/V \times 62.4$	Y_D	91.8
BOTTOM BACK PRESSURE kg/cm²		δ_{bb}	4.0	HEAD, cm = $(\delta_{bb}-\delta_{bt}) \times 1000$	h	500
TOP BACK PRESSURE kg/cm²		δ_{bt}	4.5	SATURATION COEFFICIENT 4.48-40e	B	0.94

TIME	ELAPSED TIME, SEC. $\Delta t = t_2 - t_1$	V cc		Q, cc = $V_1 - V_2$	K=cm/sec
11/1 10^{16}	0	18.8	19.0		
11^{46}	5400		20.5	1.5	7.4×10^{-5}
1^{02}	4560		26.6	6.1	3.6×10^{-7}
2^{30}	5280		30.4	3.8	1.9×10^{-7}
5^{08}	9480	1.4	36.7	6.3	1.5×10^{-7}
5^{41}	1980	0	37.9	1.2	1.6×10^{-7}
6^{03}	reset	18.2	19.7	.	
6^{16}	stopped test		20.4		
11/2 8^{27}		17.4	20.3		
9^{23}	3360		23.1	2.9	2.2×10^{-7}
11^{45}	8520		29.0	5.9	1.8×10^{-7}
2^{10}	8700		34.4	5.4	1.6×10^{-7}

$K = \frac{QL}{A\Delta th}$ $K_{AVE} = 1.8 \times 10^{-7}$ cm/SEC

REMARKS

TECHNICIAN GWC COMPUTED BY CHECKED BY

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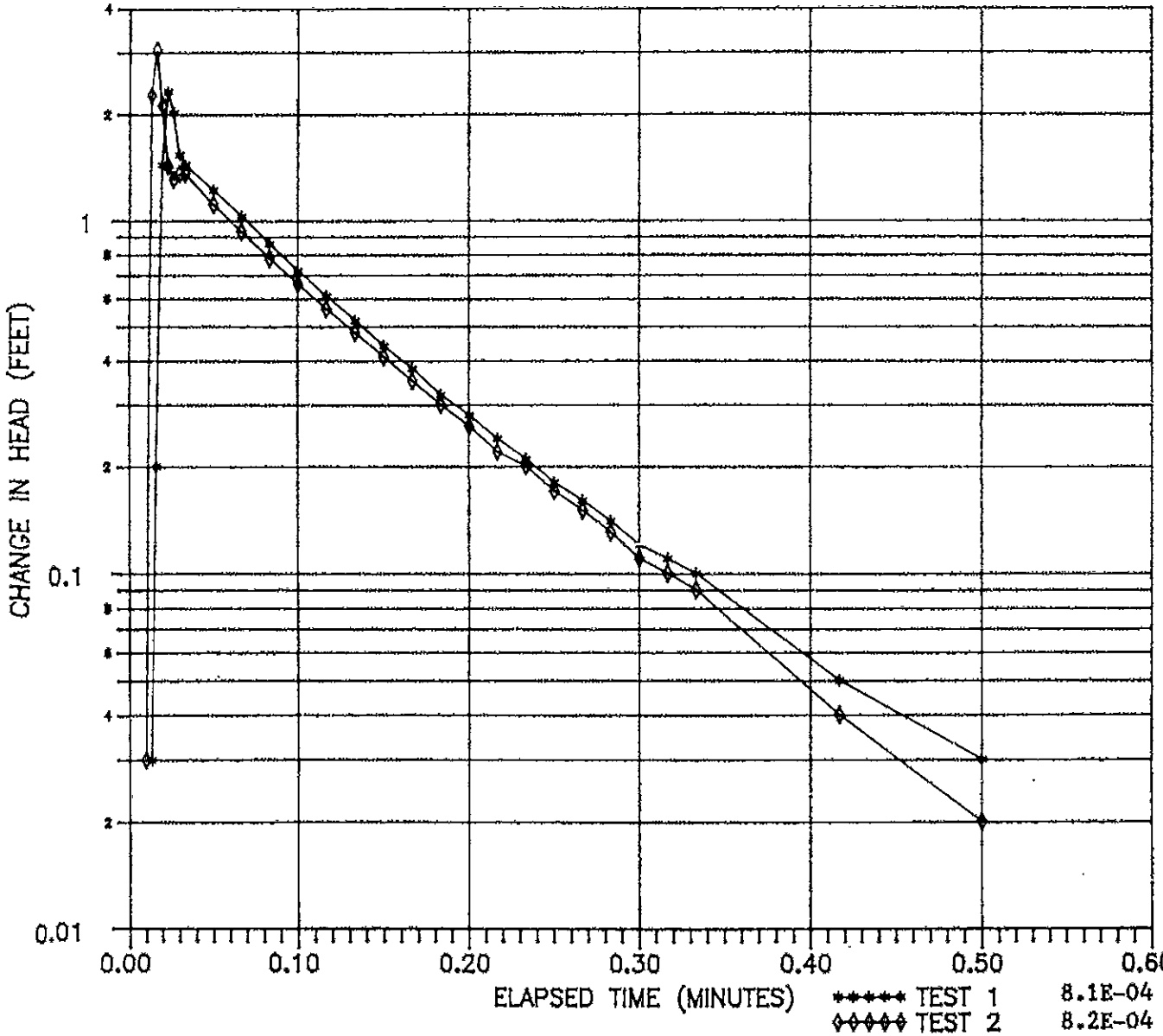
RISING HEAD PERMEABILITY TEST
MW-214

NAVAL AIR STATION, BRUNSWICK
BRUNSWICK, MAINE



RISING HEAD PERMEABILITY TEST
MW-215

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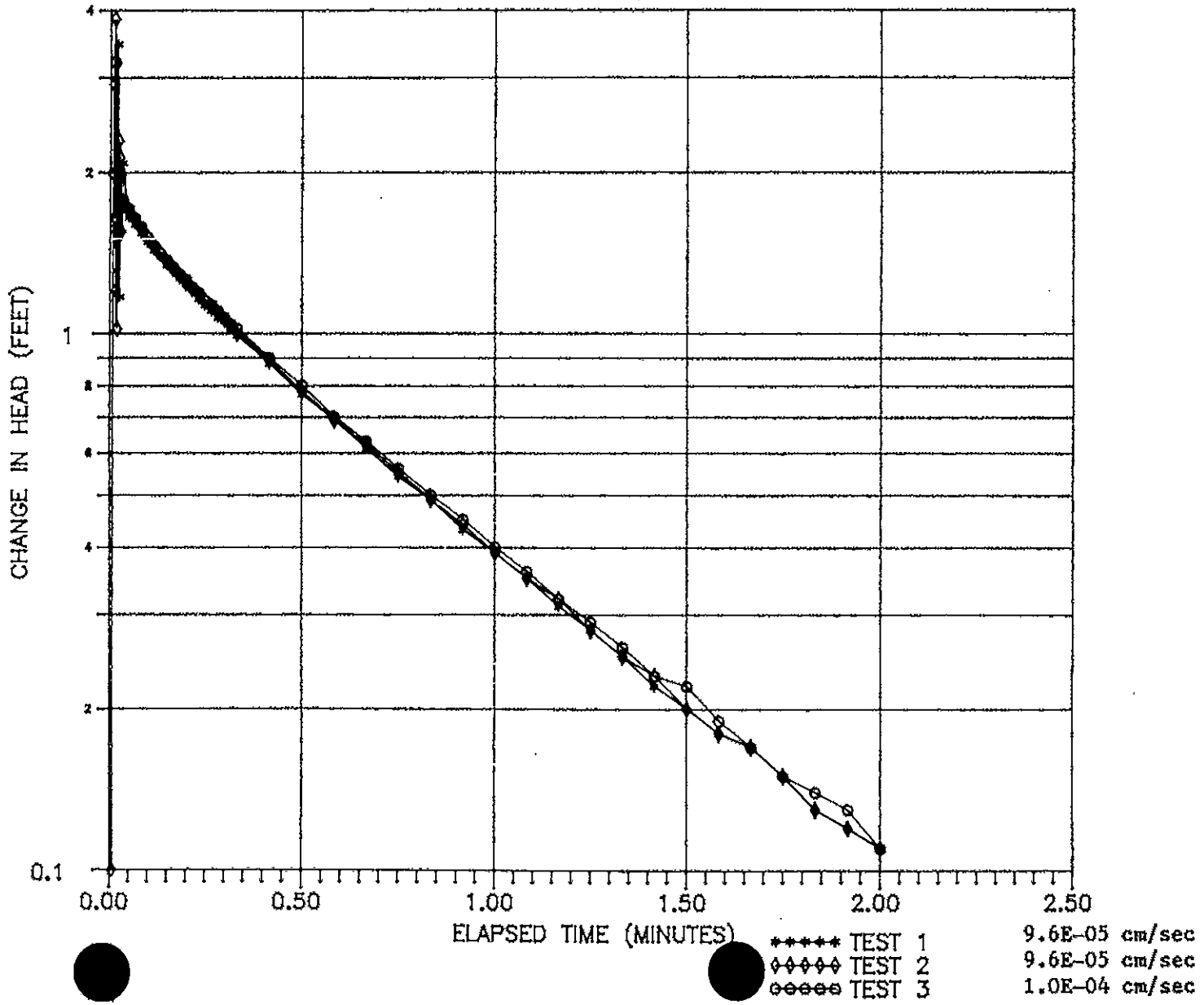
BRUNSWICK, MAINE



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RISING HEAD PERMEABILITY TEST
MW-216A

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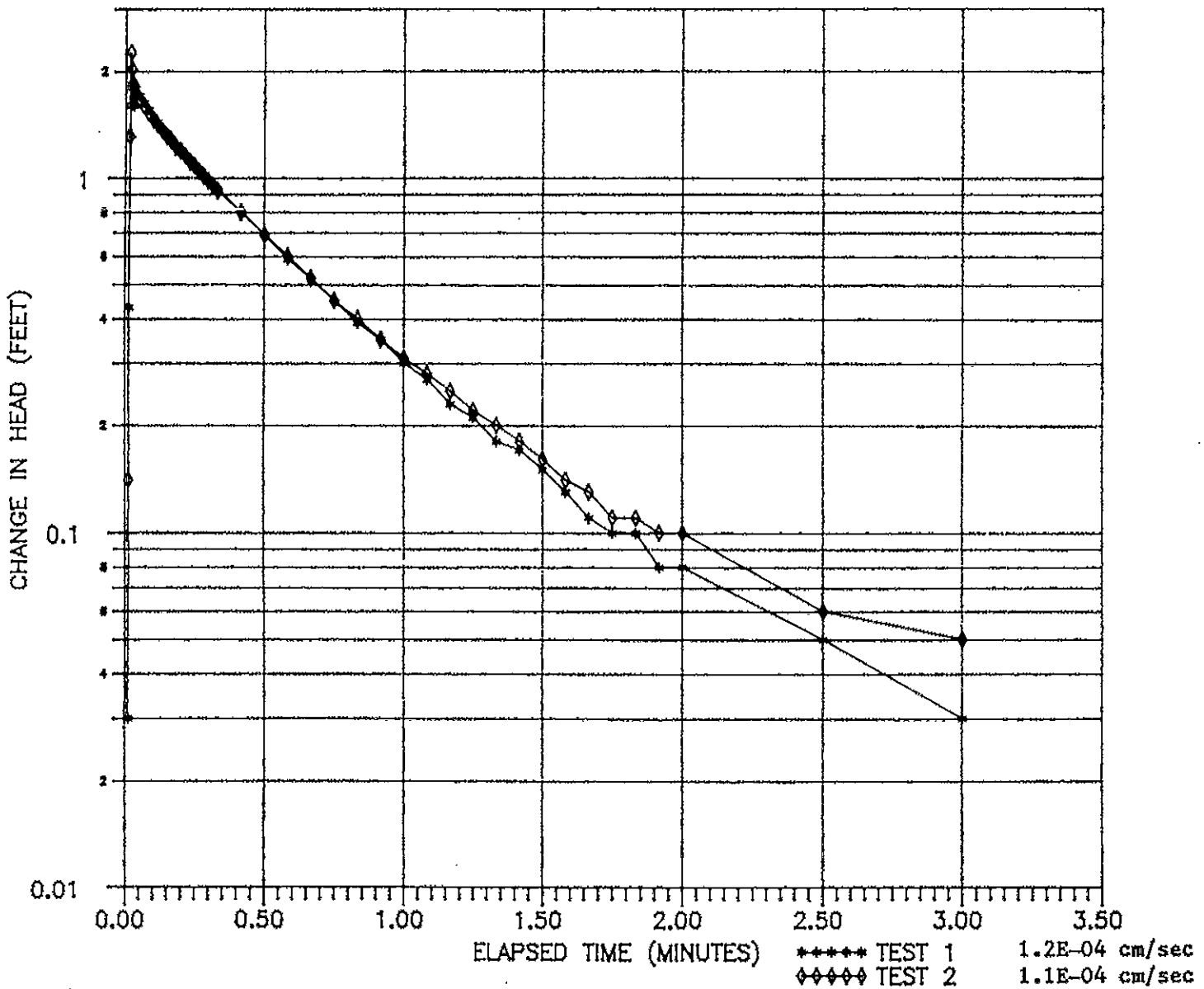
BRUNSWICK, MAINE



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RISING HEAD PERMEABILITY TEST
MW-216B

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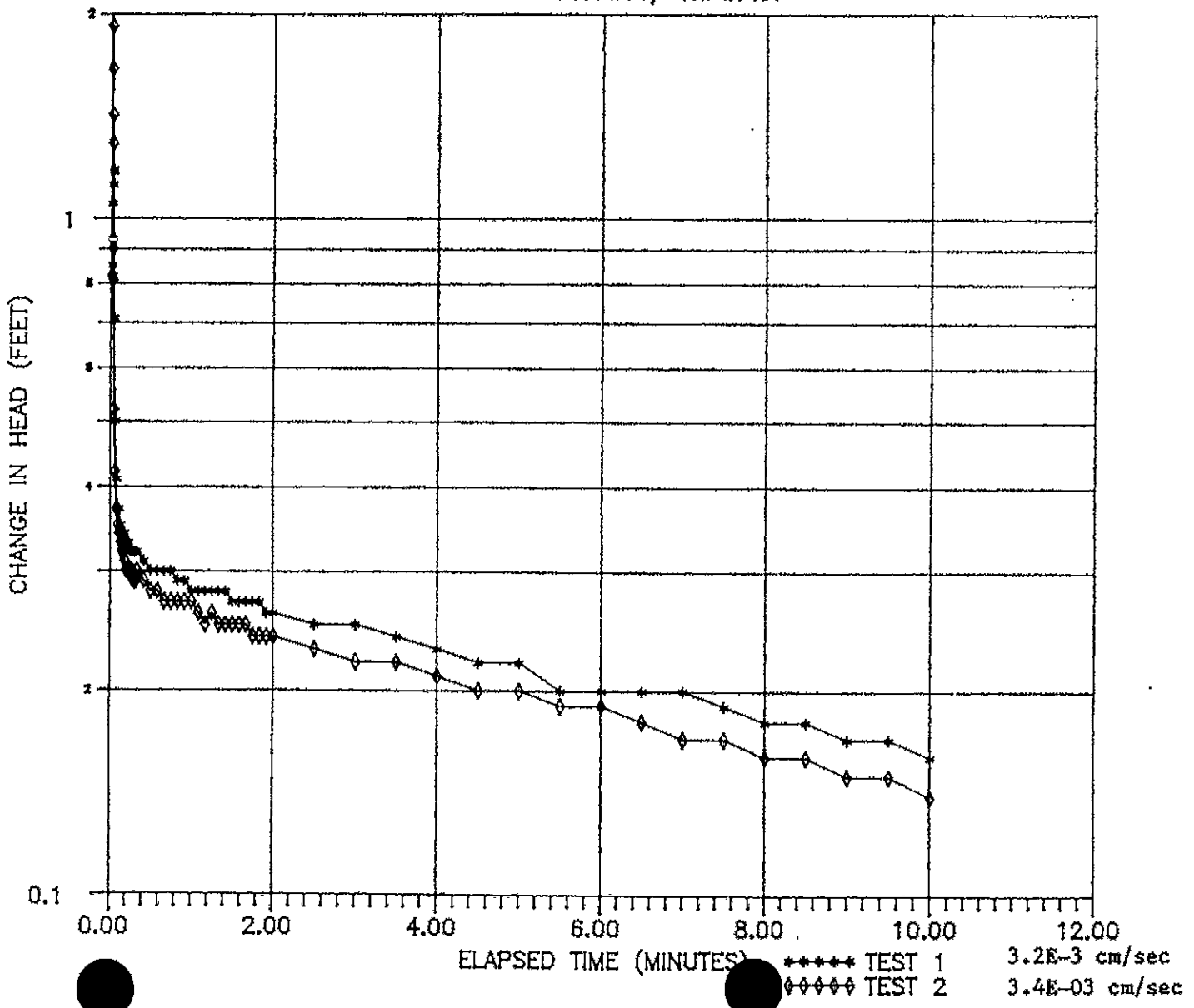
BRUNSWICK, MAINE



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RISING HEAD PERMEABILITY TEST
MW-217A

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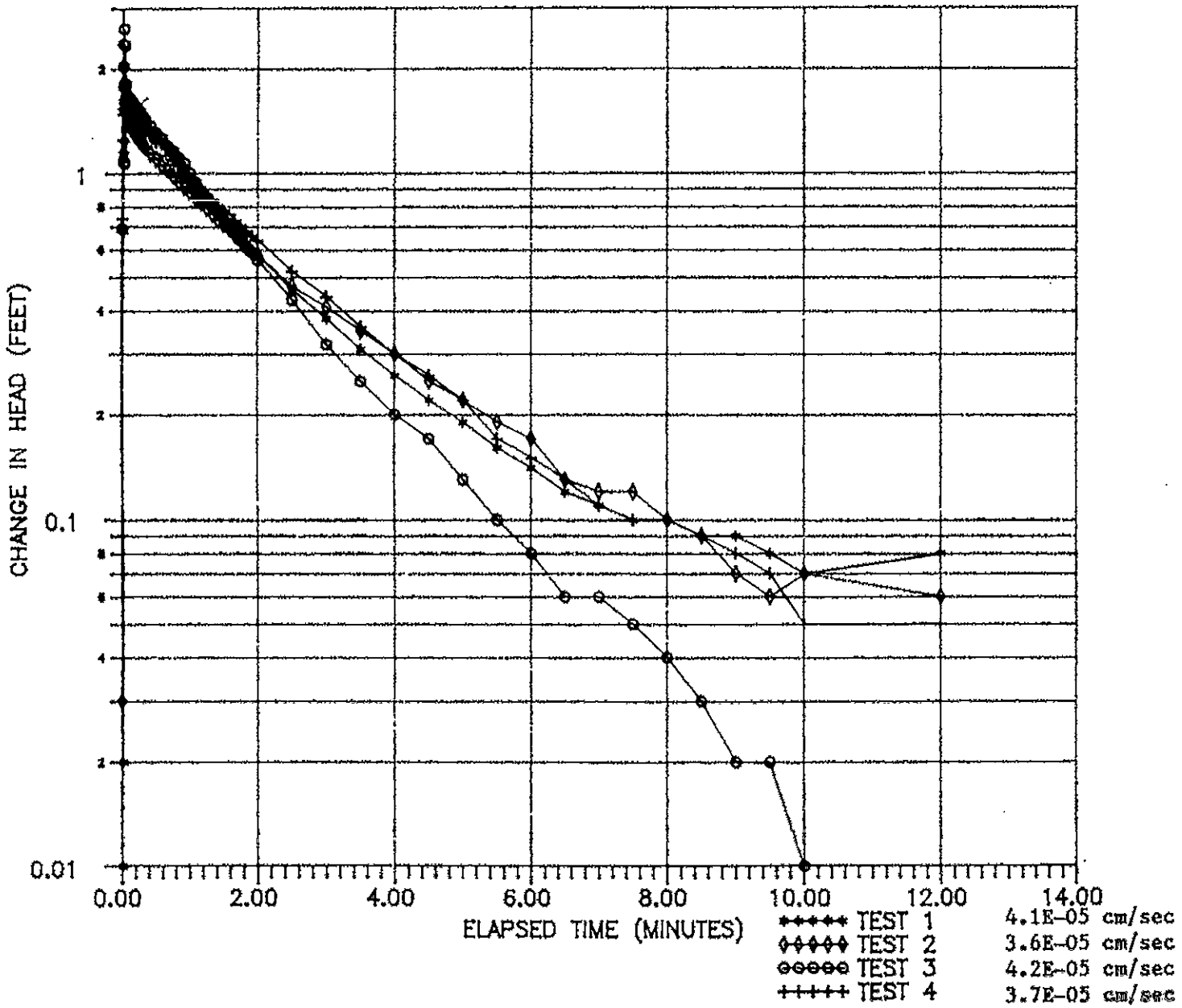
BRUNSWICK, MAINE



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RISING HEAD PERMEABILITY TEST
MW-217B

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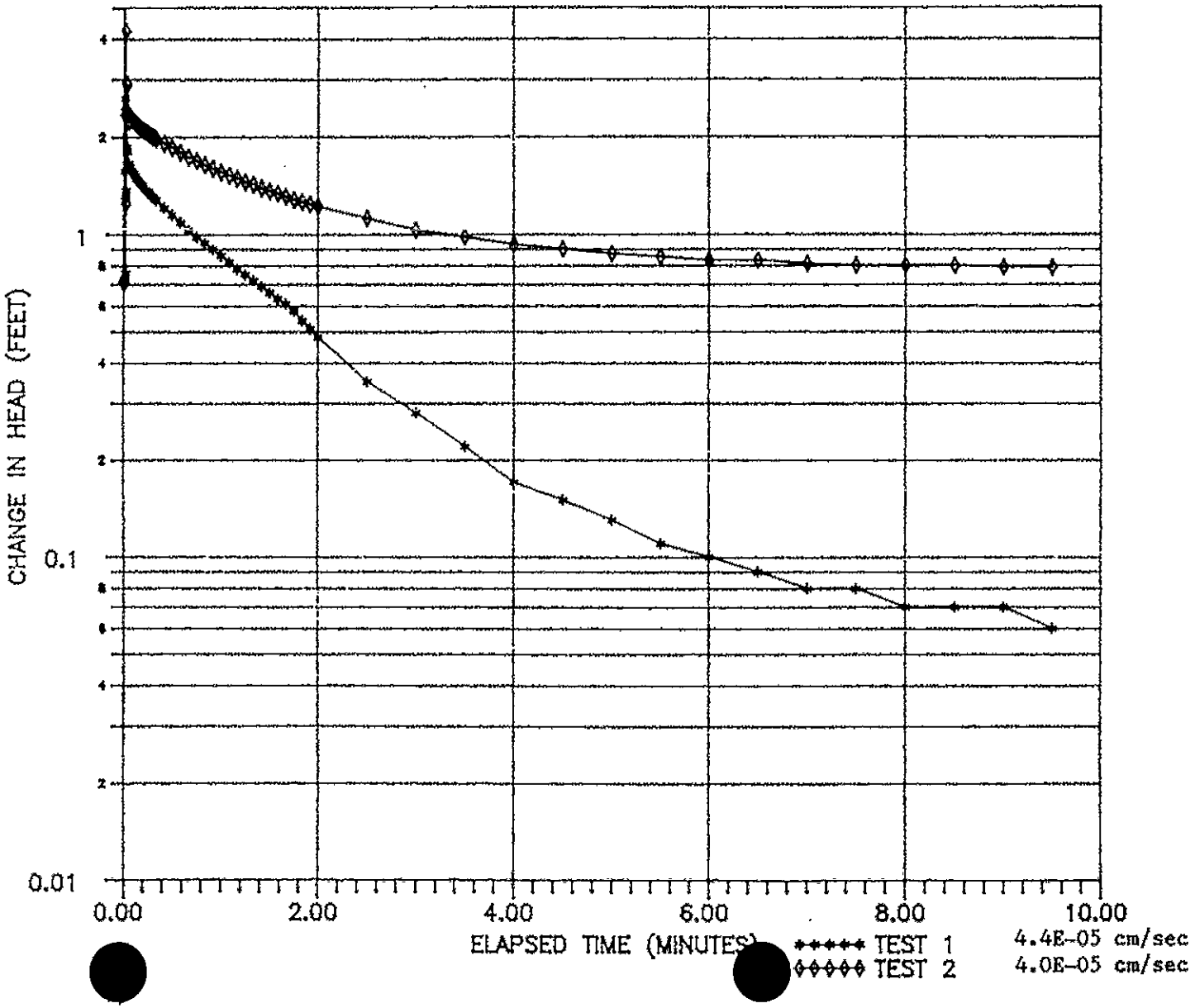
BRUNSWICK, MAINE



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RISING HEAD PERMEABILITY TEST
MW-218

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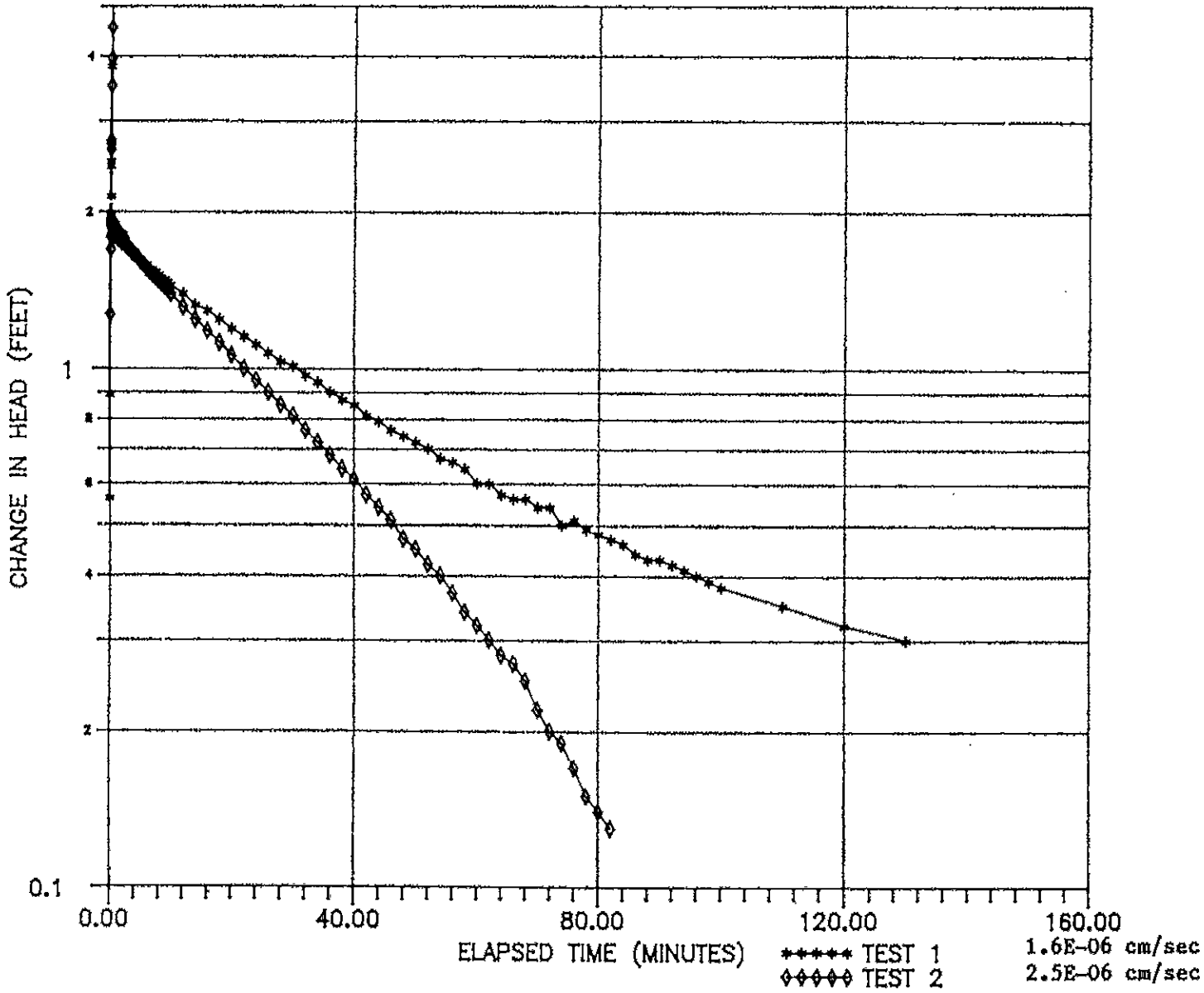
BRUNSWICK, MAINE



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RISING HEAD PERMEABILITY TEST
MW-219

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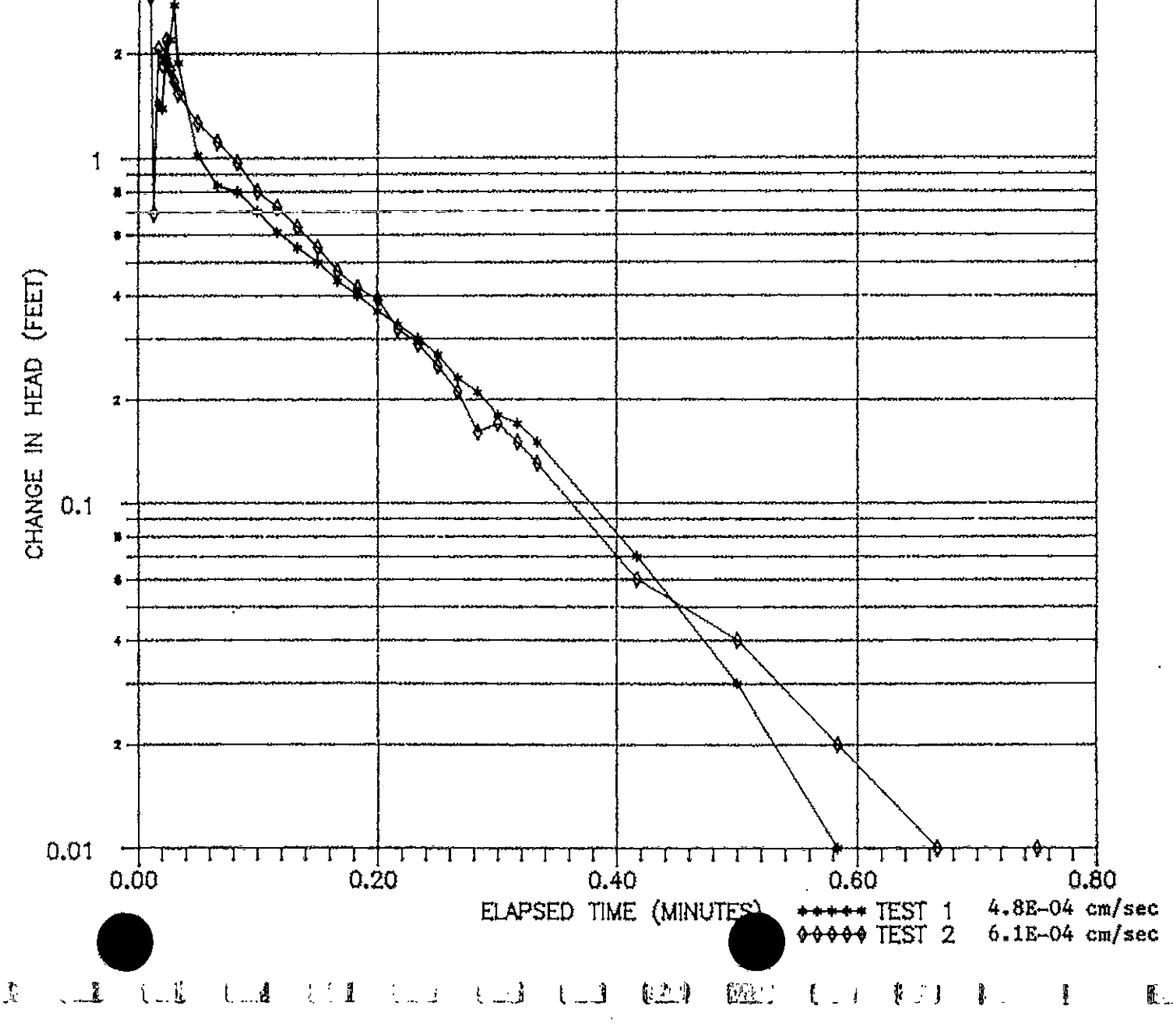
BRUNSWICK, MAINE



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RISING HEAD PERMEABILITY TEST
MW-220

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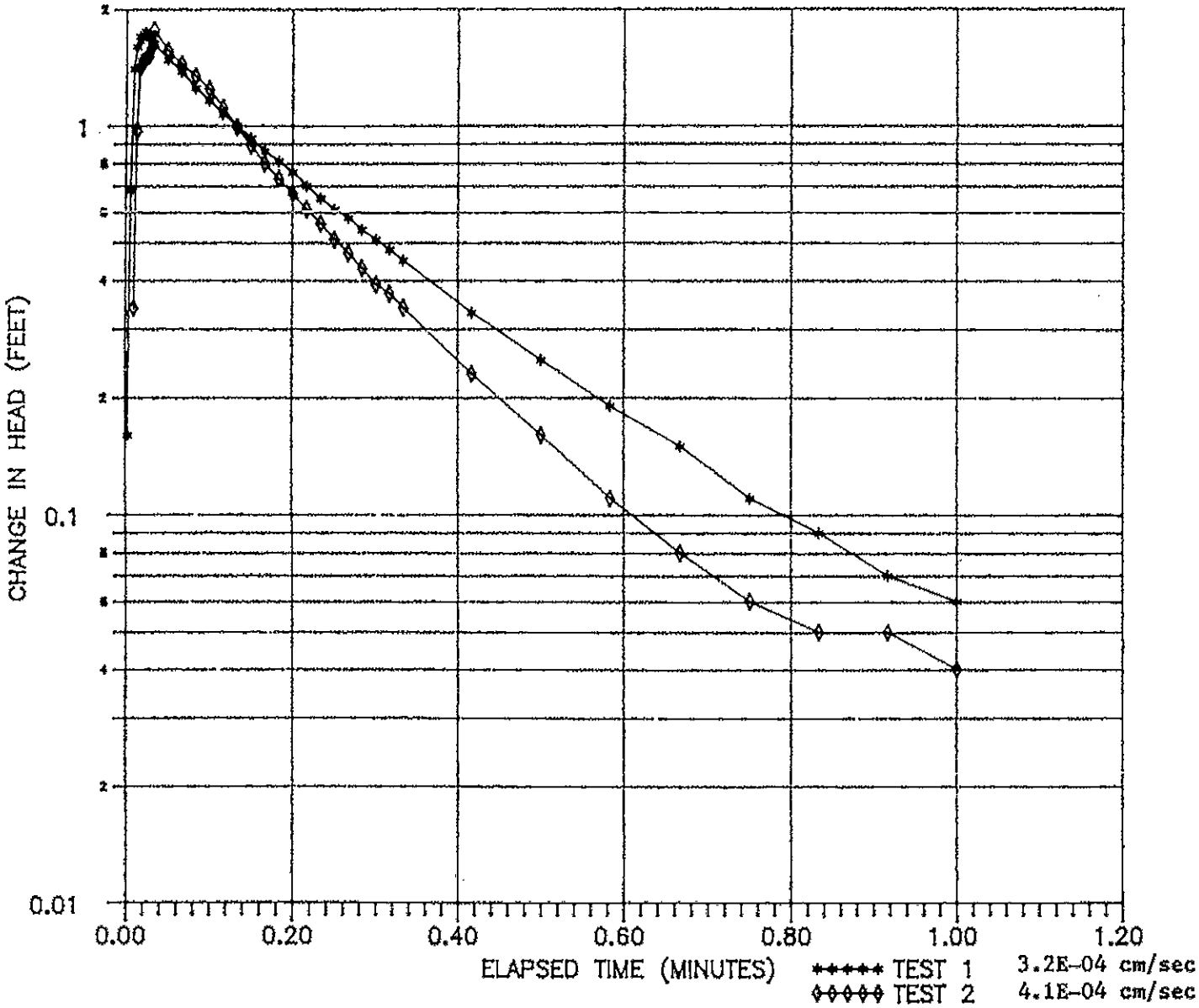
BRUNSWICK, MAINE



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RISING HEAD PERMEABILITY TEST
MW-222

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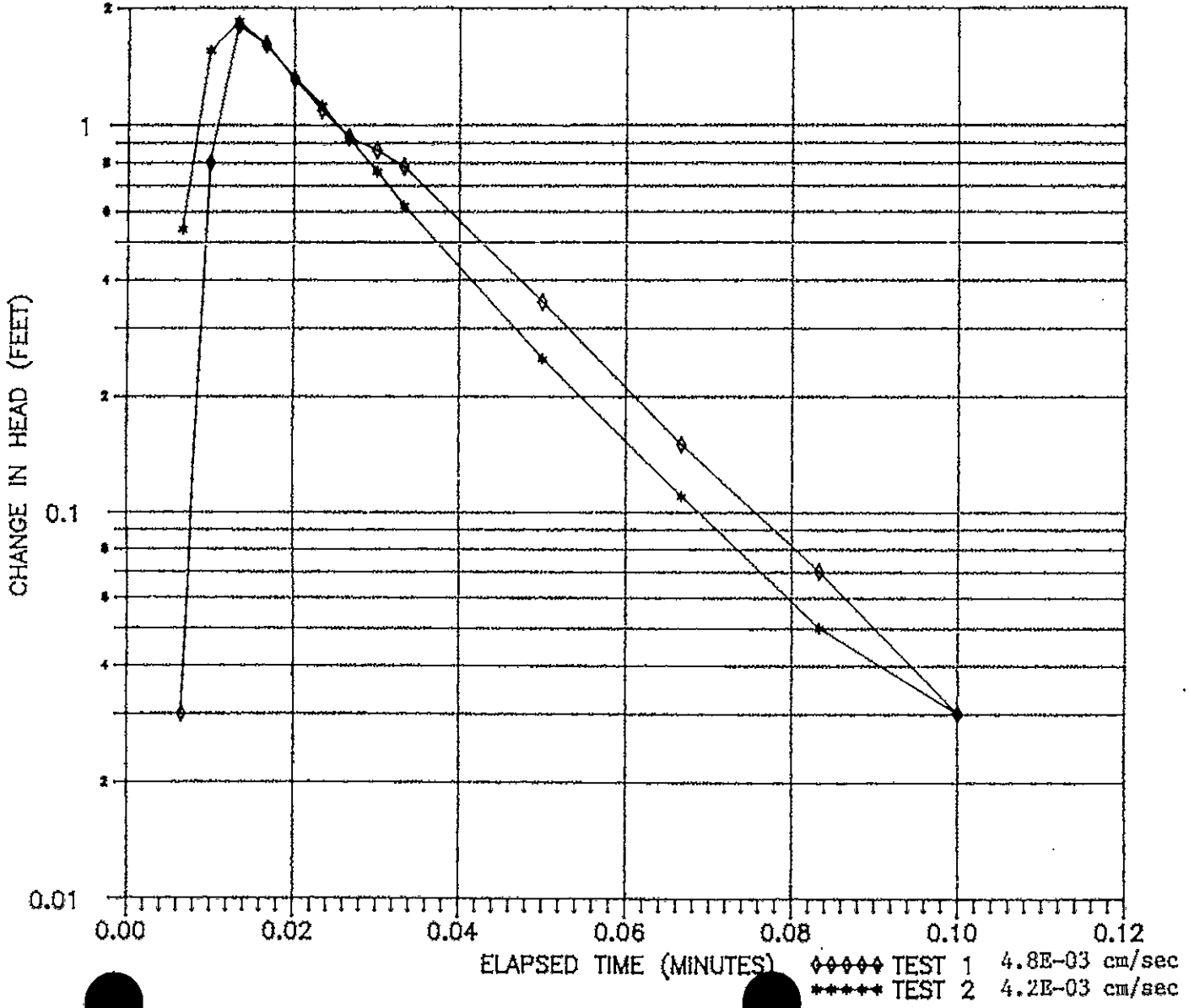
BRUNSWICK, MAINE



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RISING HEAD PERMEABILITY TEST
MW-223

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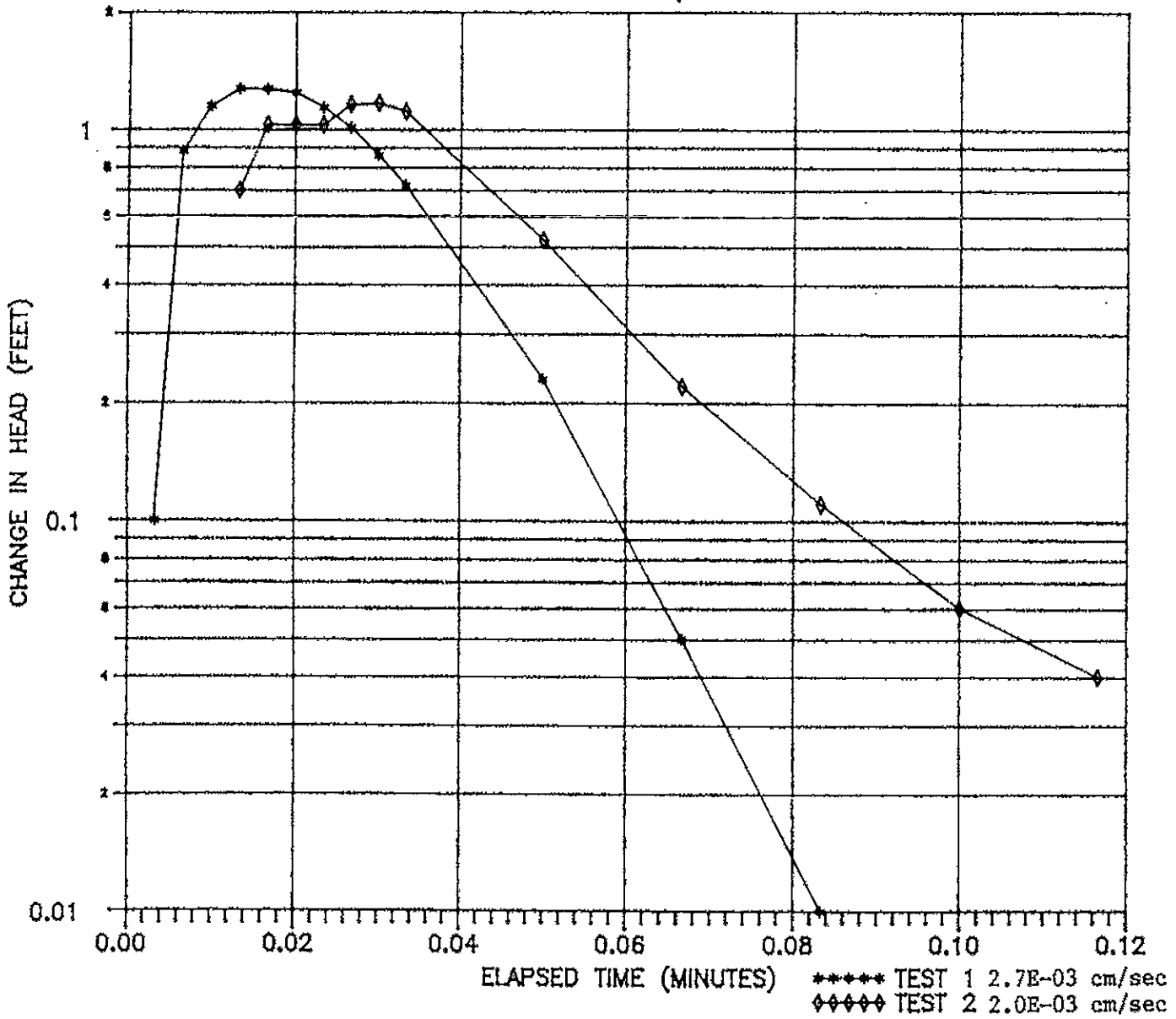
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
MW-224

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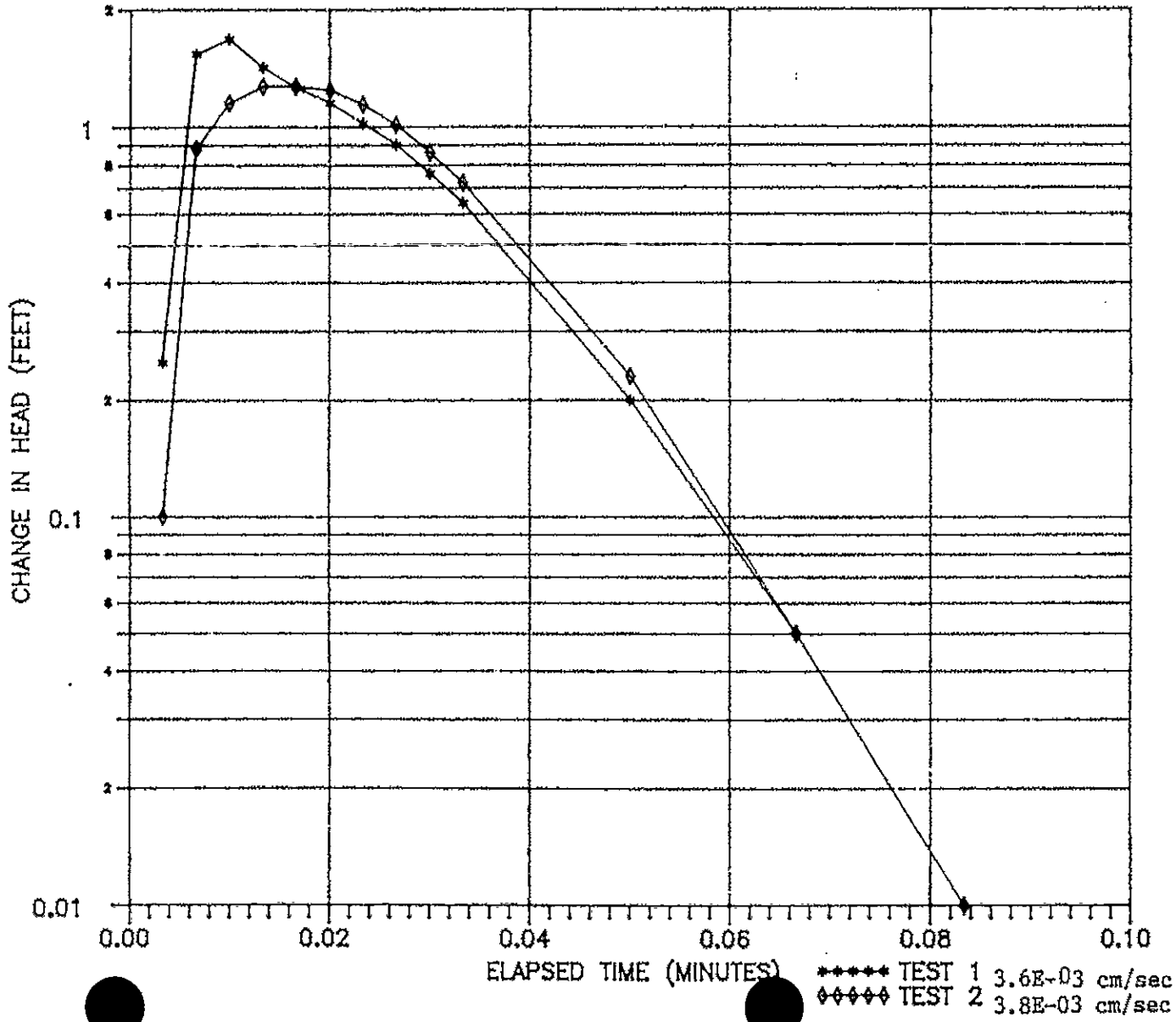
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
MW-225A

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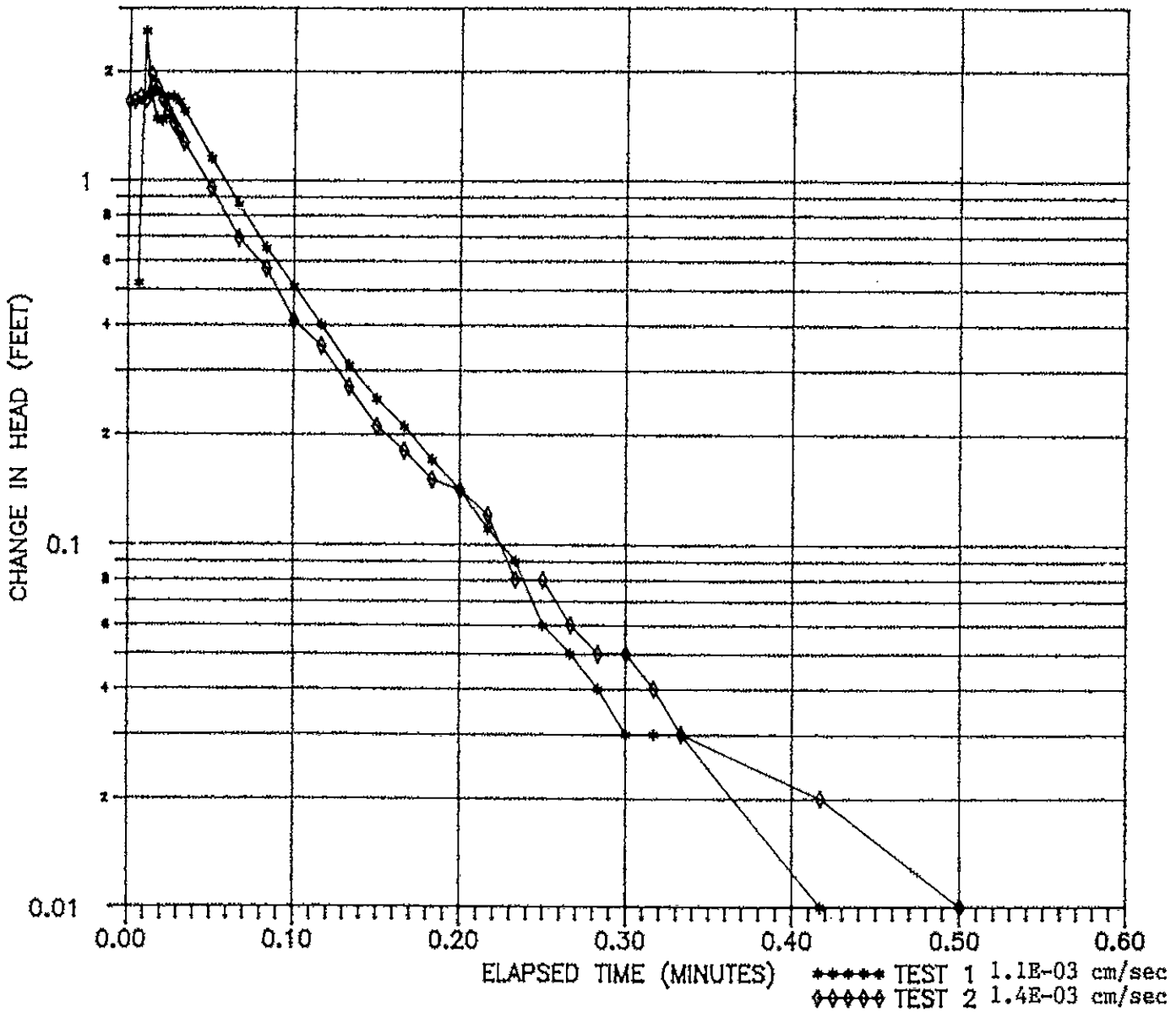
BRUNSWICK, MAINE



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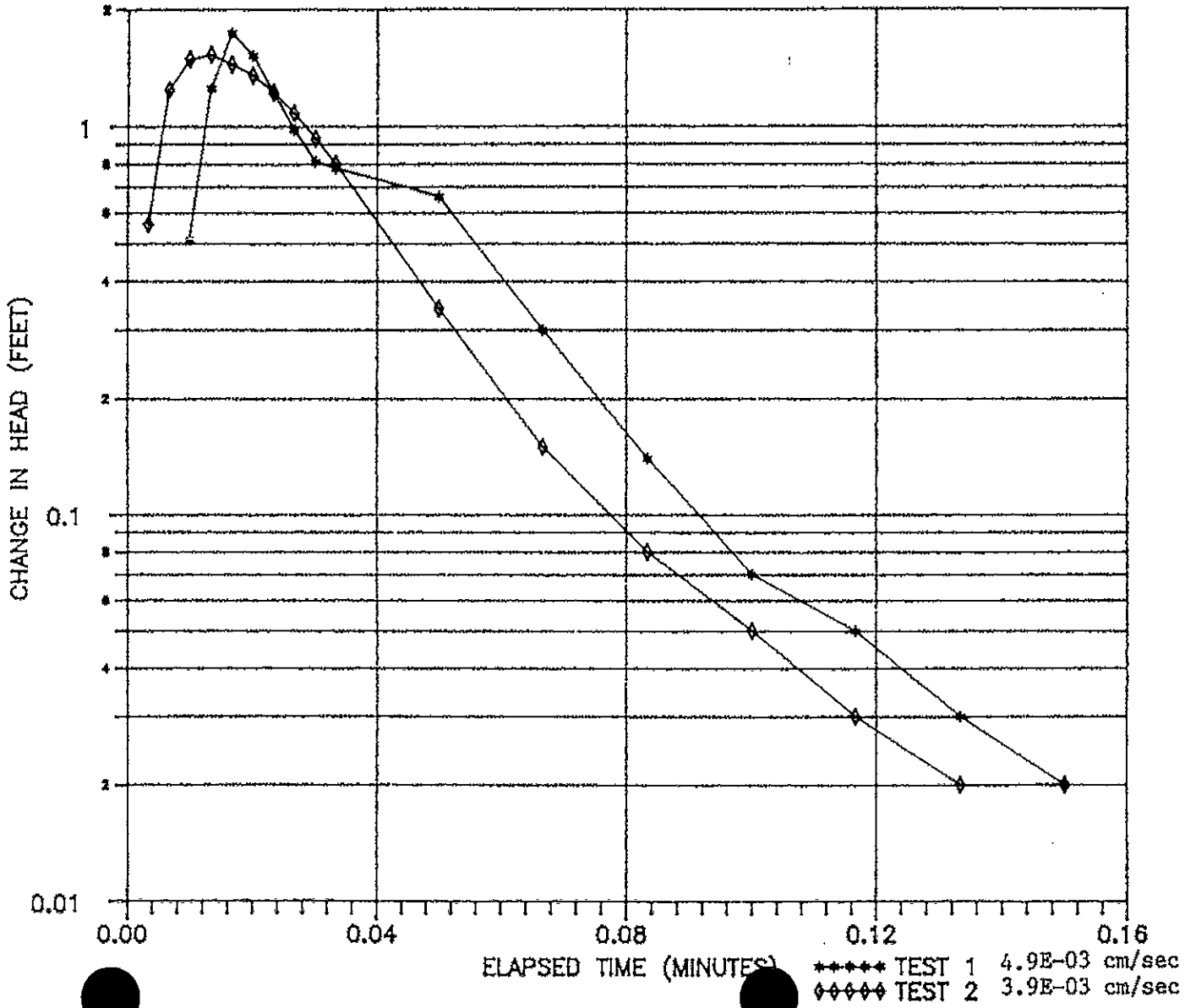
RISING HEAD PERMEABILITY TEST
MW-225B

NAVAL AIR STATION, BRUNSWICK
BRUNSWICK, MAINE



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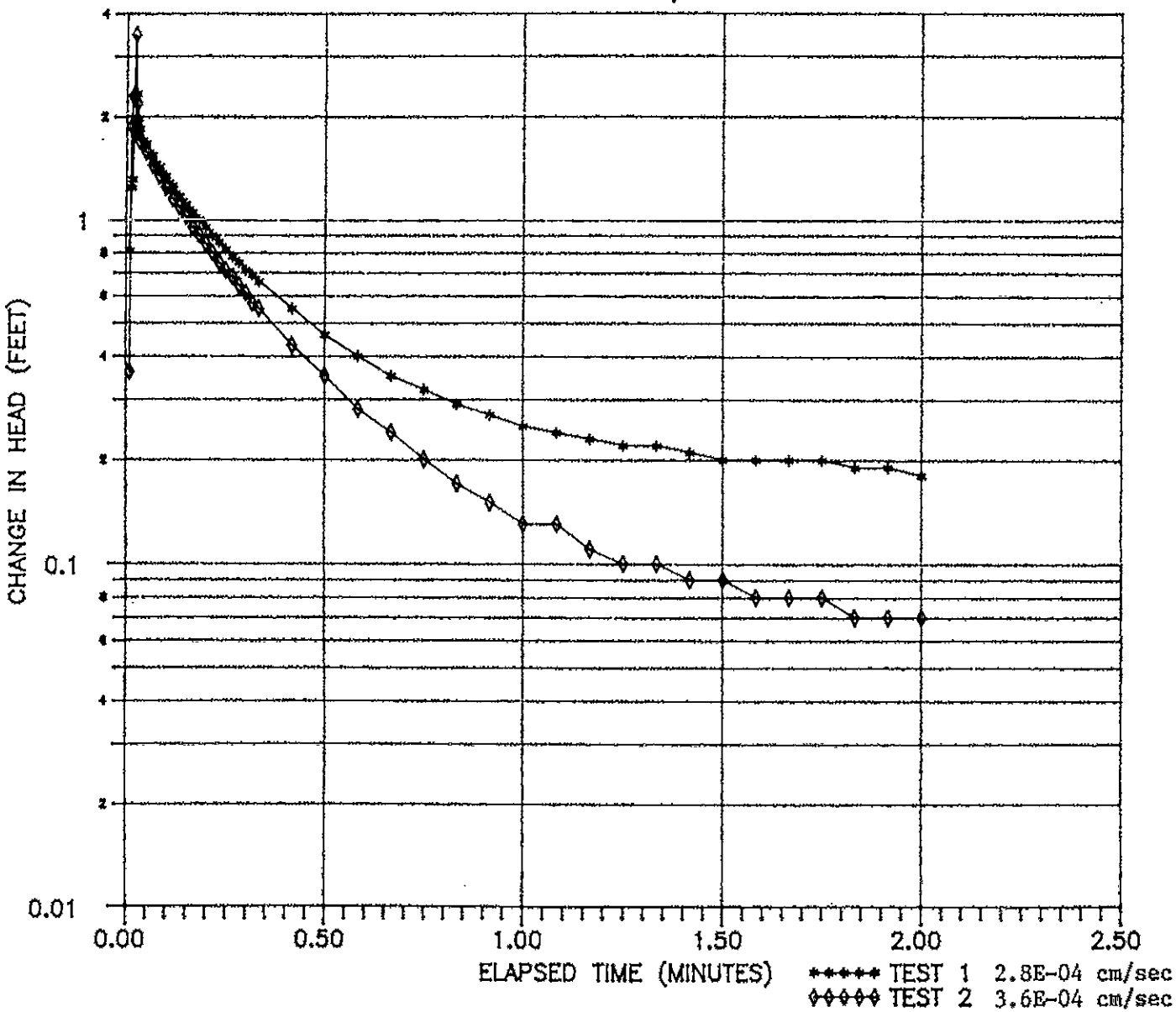
RISING HEAD PERMEABILITY TEST
MW-229A

NAVAL AIR STATION, BRUNSWICK
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
MW-229B

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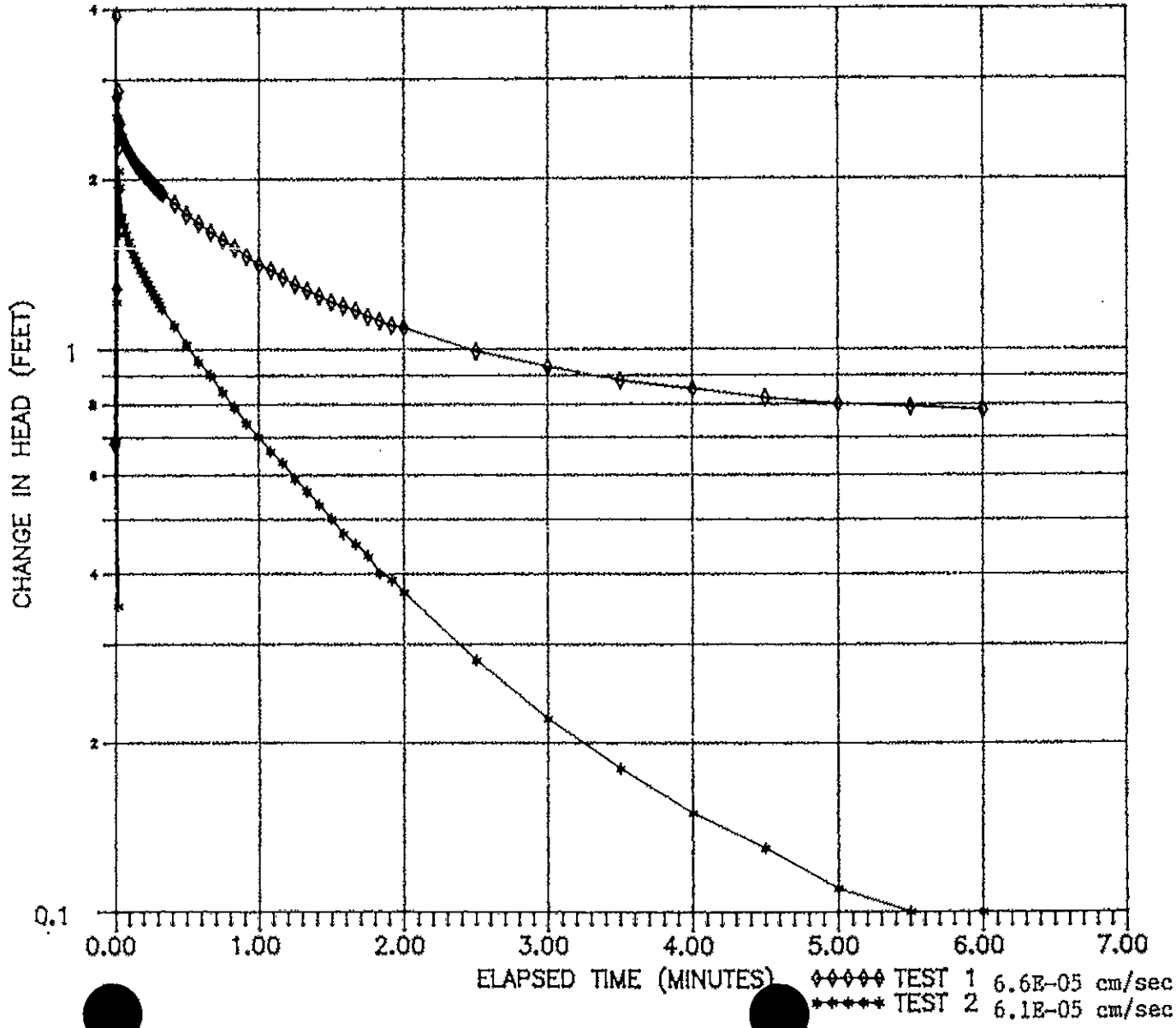
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
MW-230A

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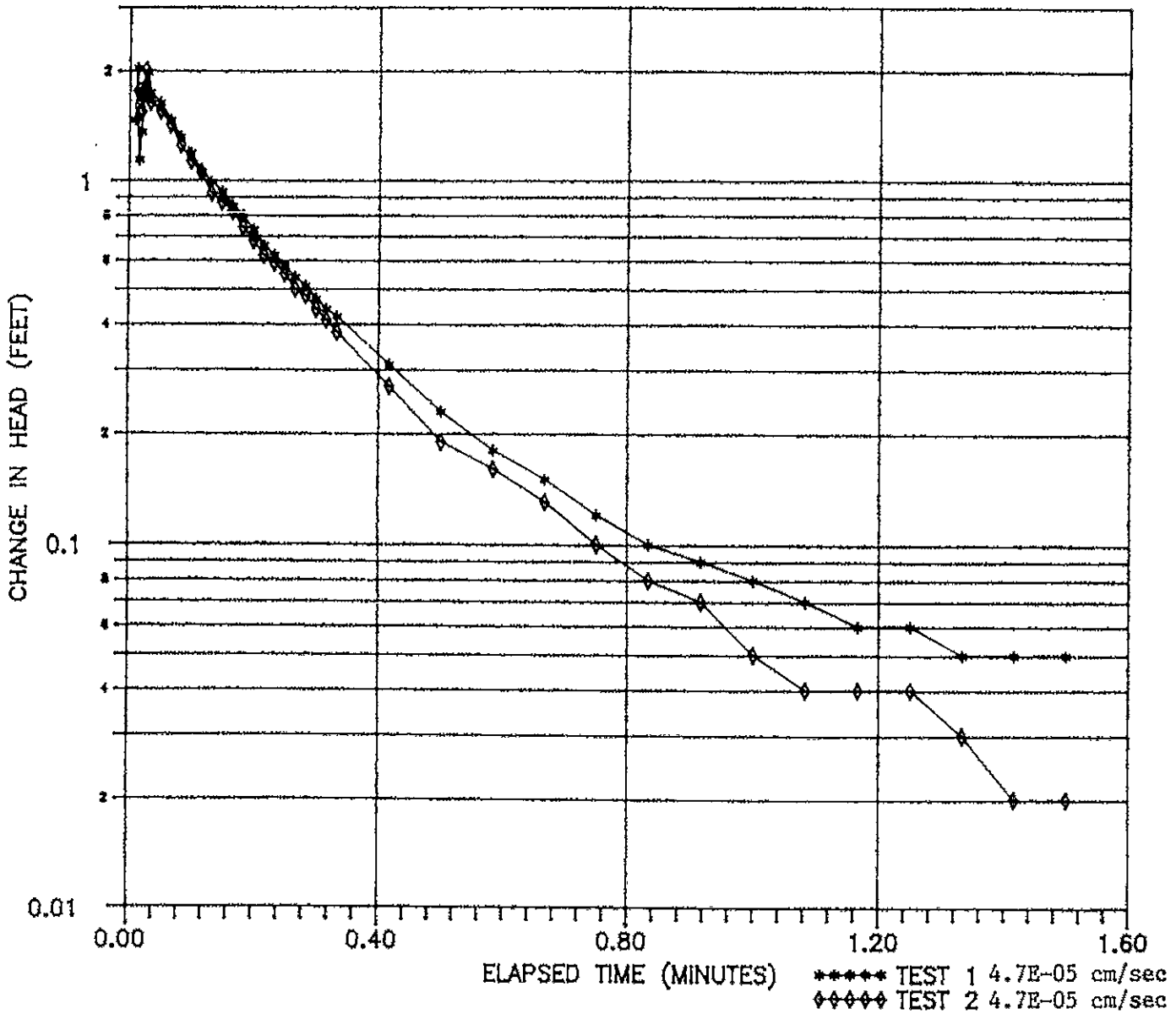
BRUNSWICK, MAINE



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RISING HEAD PERMEABILITY TEST
MW-230B

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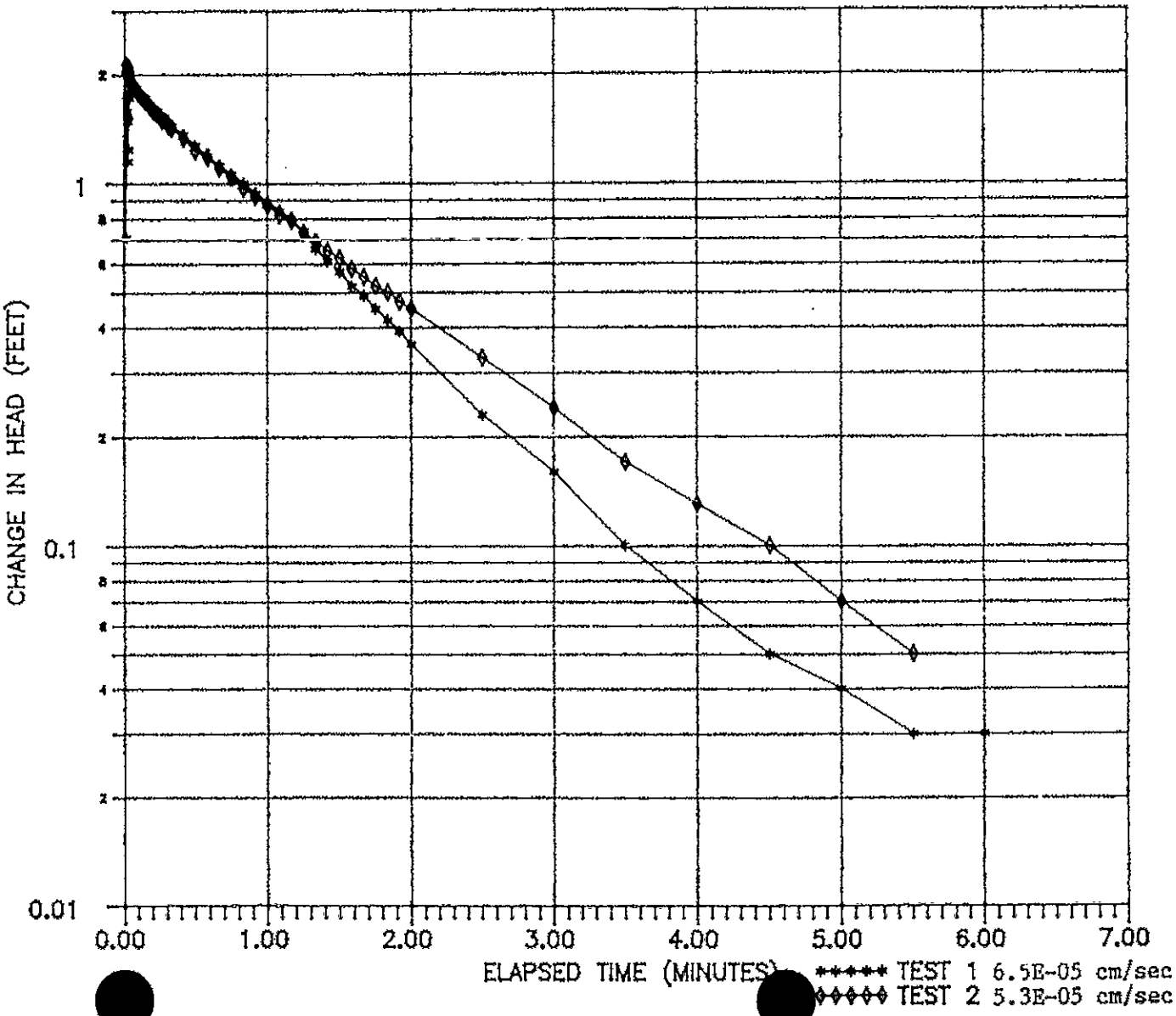
BRUNSWICK, MAINE



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RISING HEAD PERMEABILITY TEST
MW-231A

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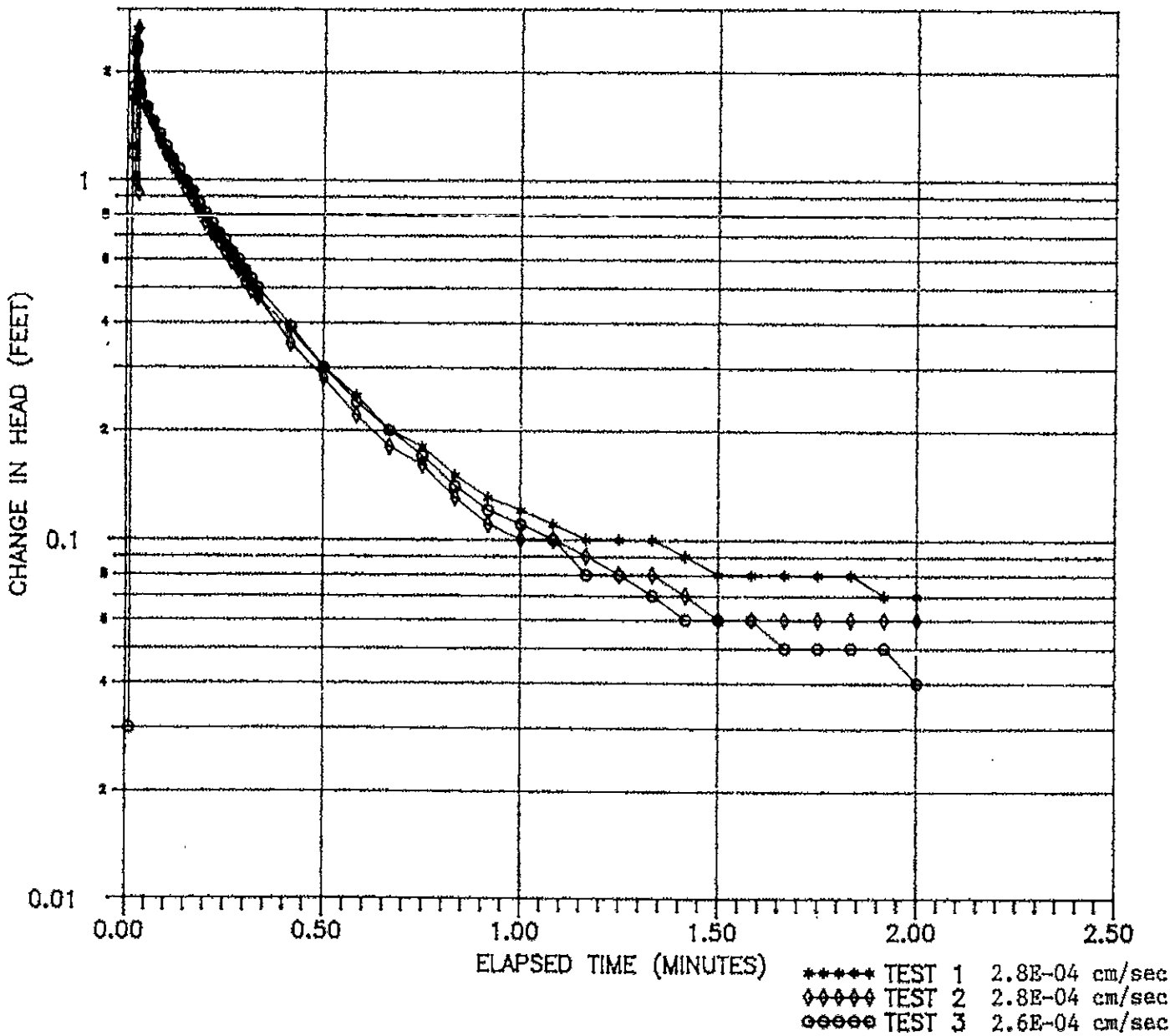
BRUNSWICK, MAINE



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RISING HEAD PERMEABILITY TEST
MW-231B

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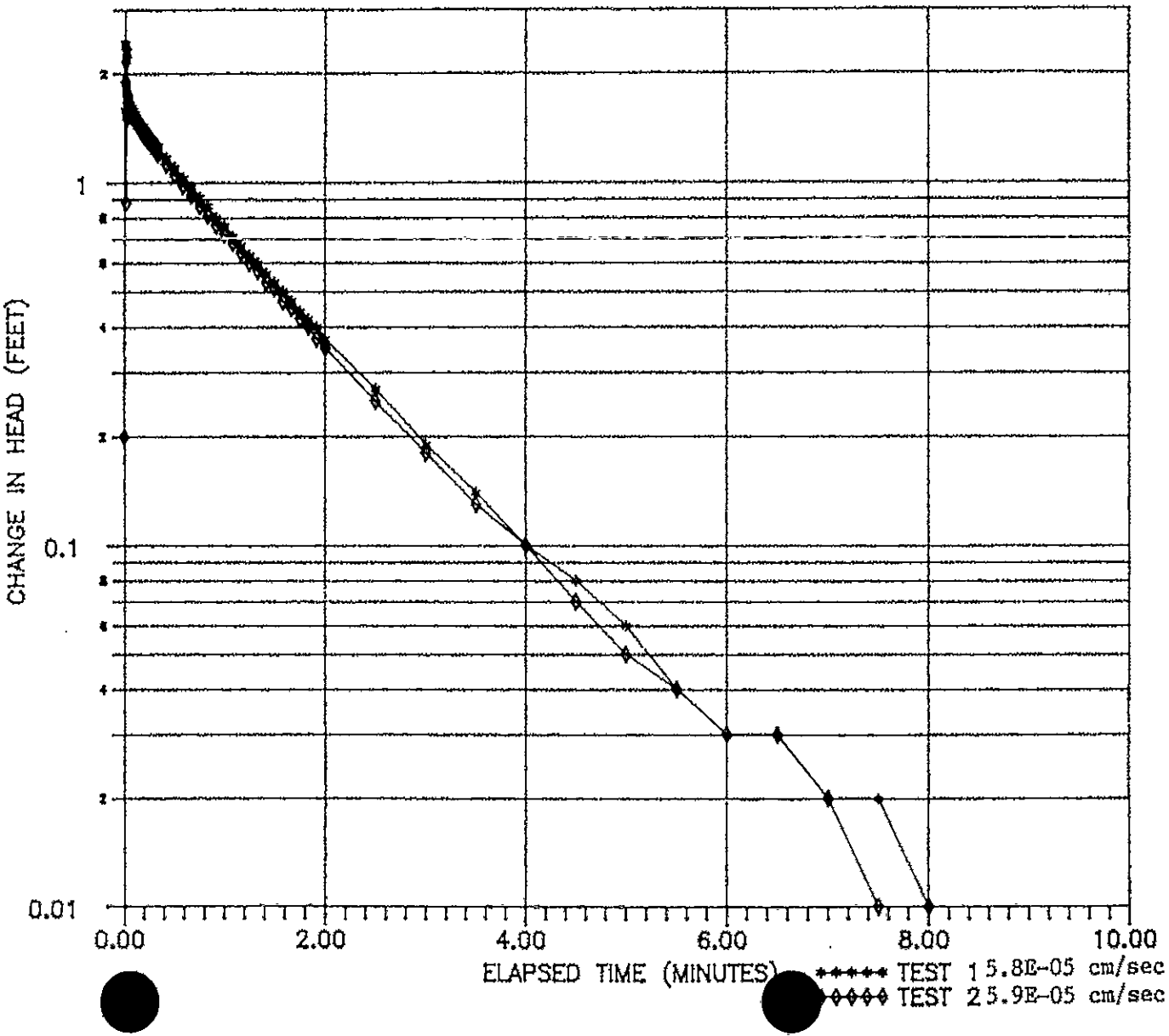
BRUNSWICK, MAINE



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RISING HEAD PERMEABILITY TEST
MW-232A

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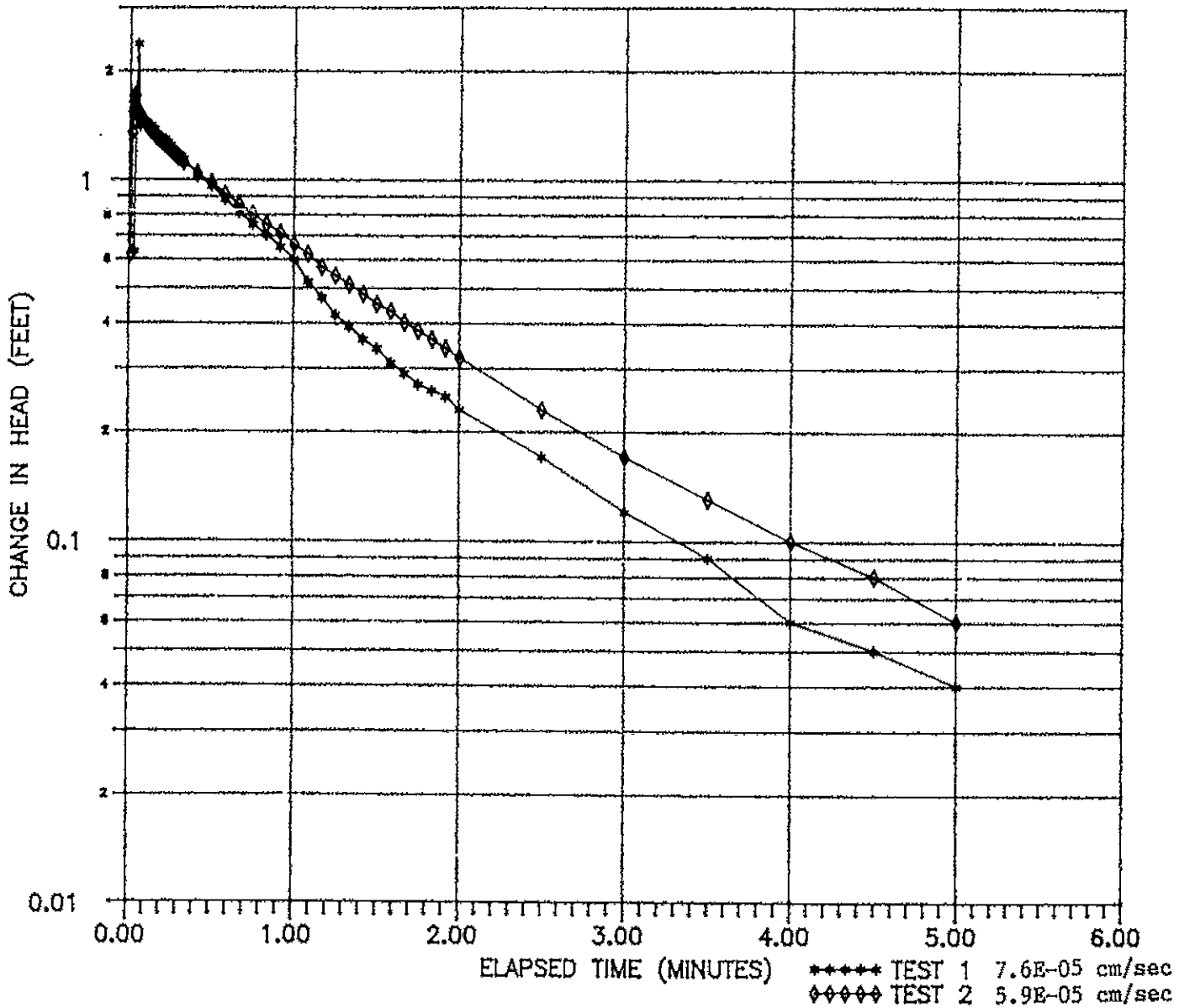
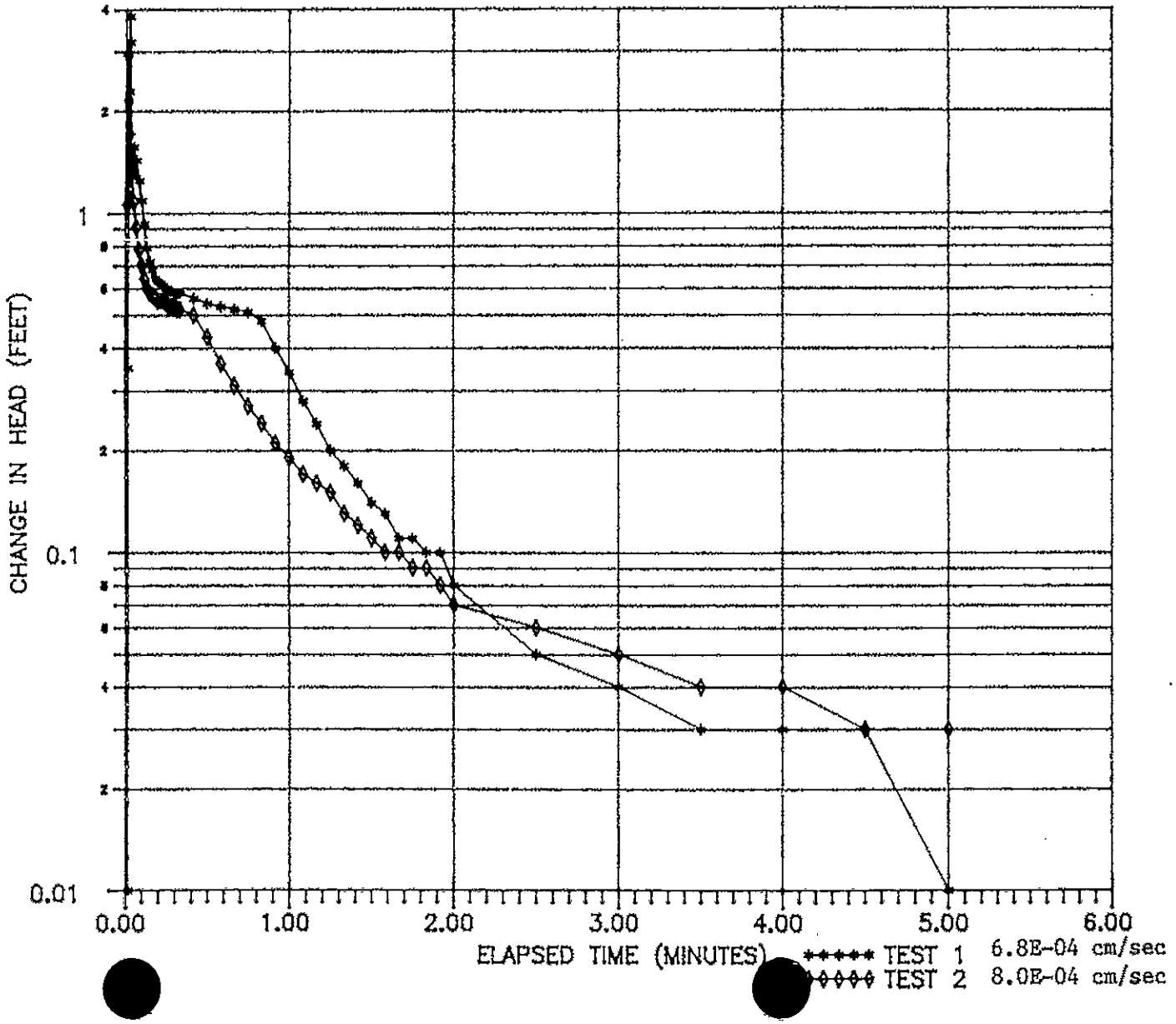
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
MW-232B

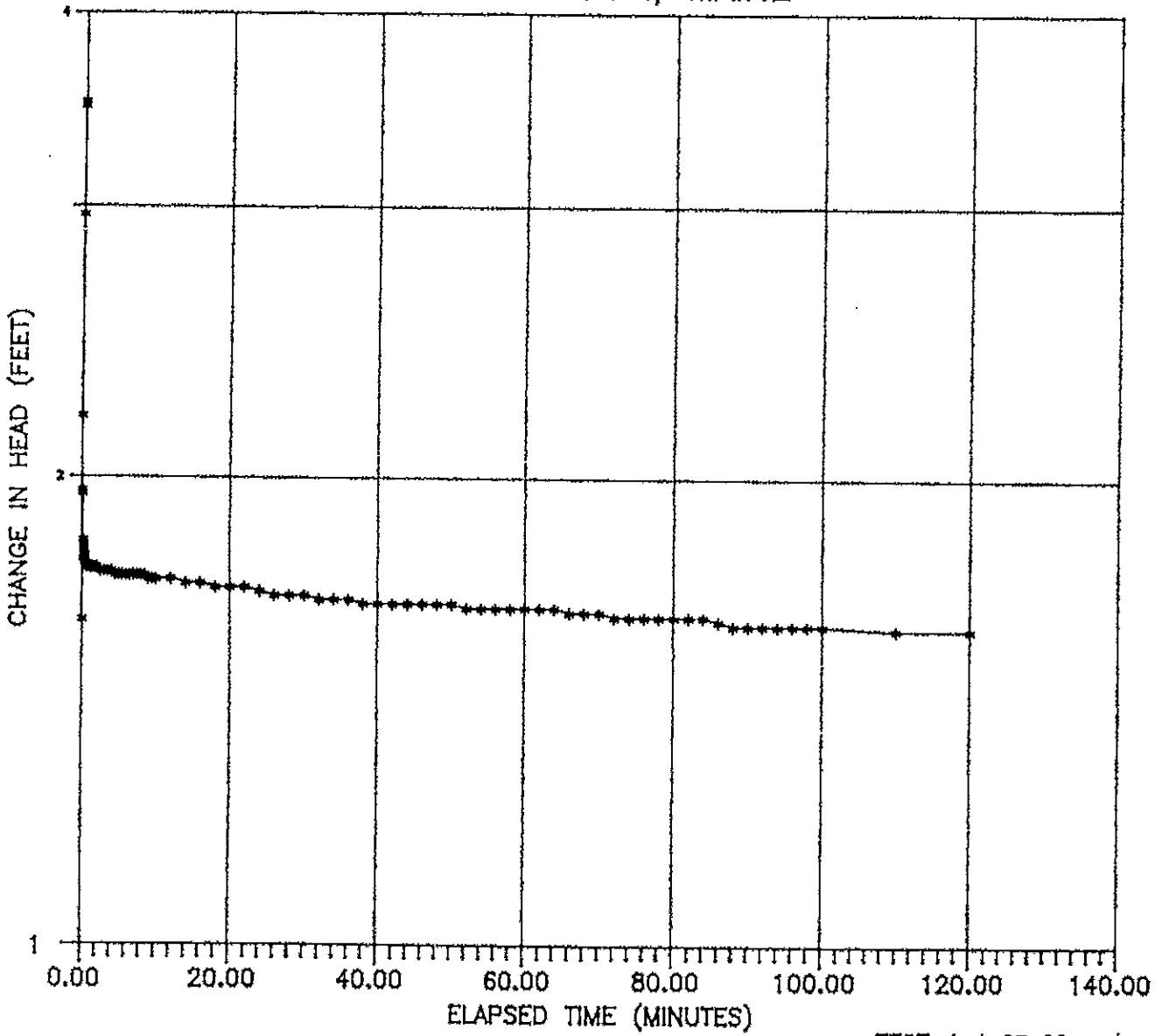
NAVAL AIR STATION, BRUNSWICK
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
MW-233

NAVAL AIR STATION, BRUNSWICK
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
MW-234

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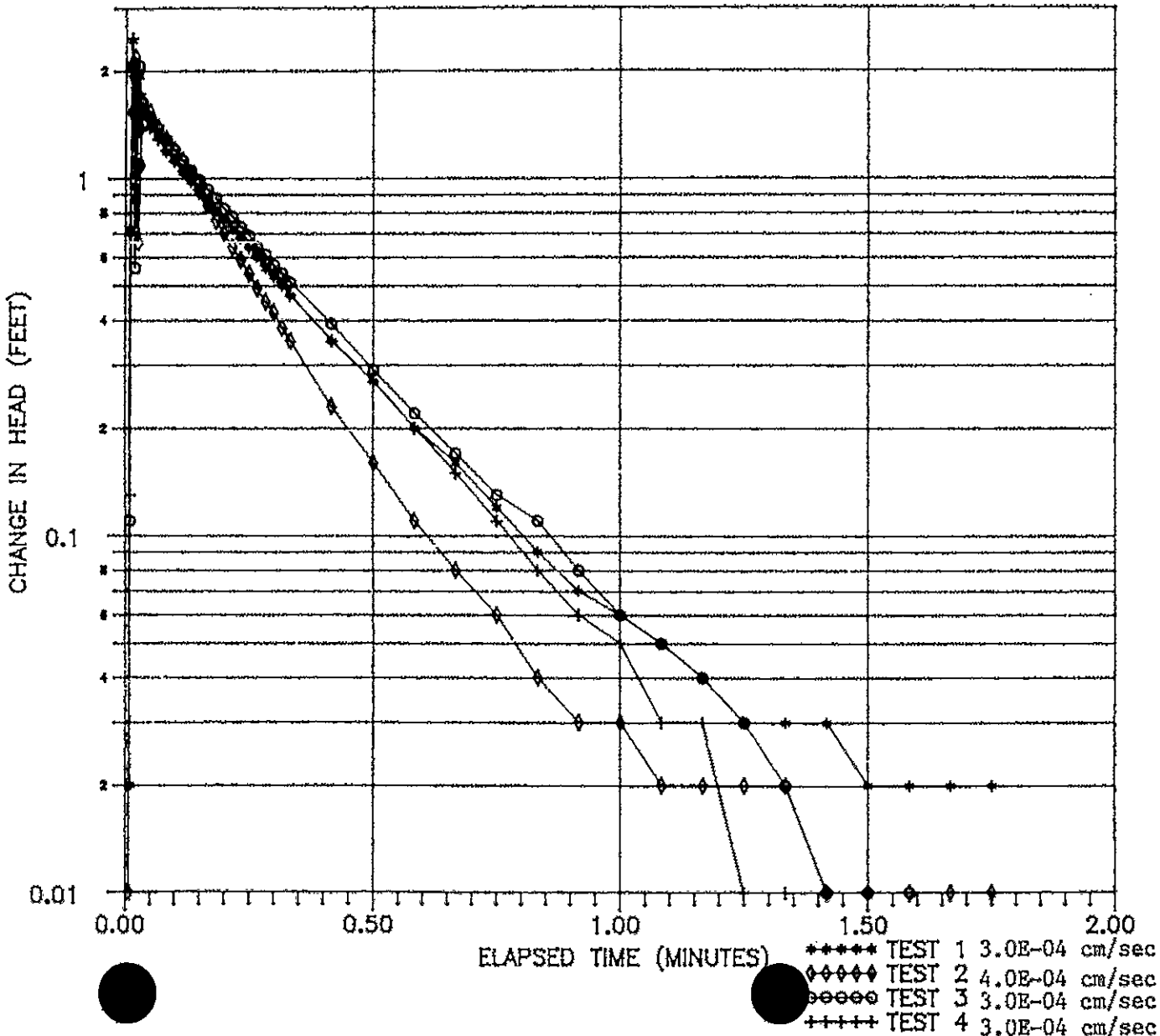

Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
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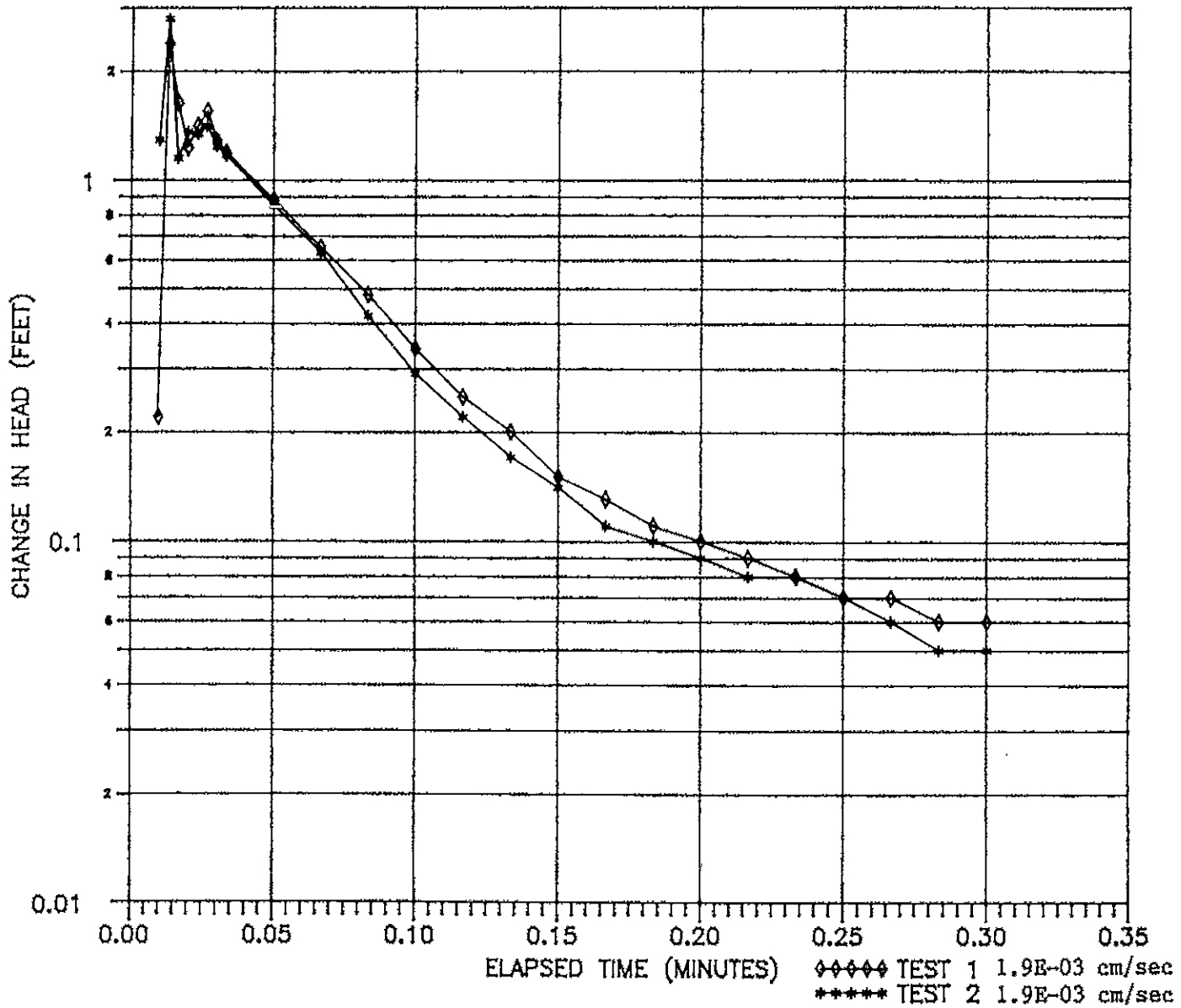

Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
MW-810

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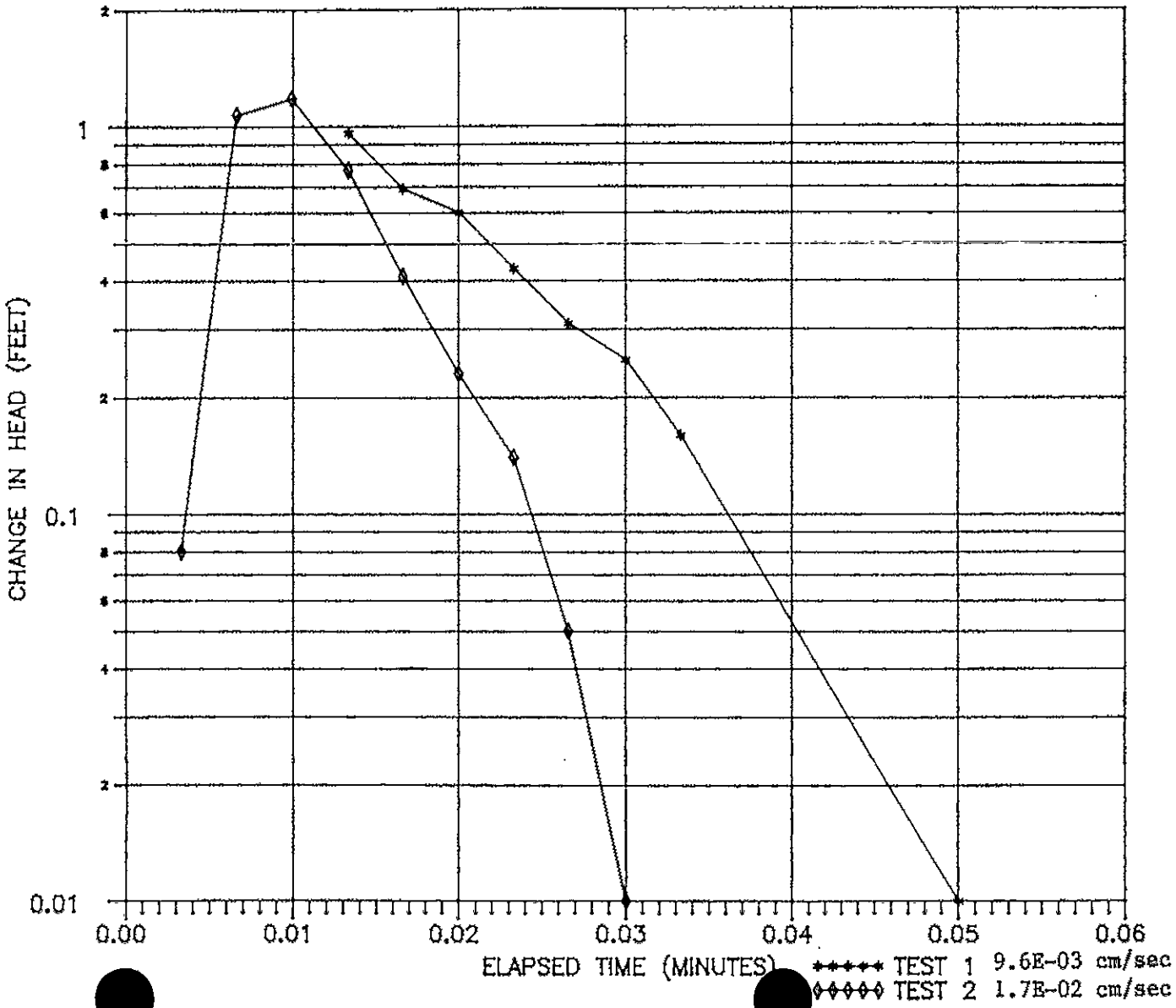
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
MW-811

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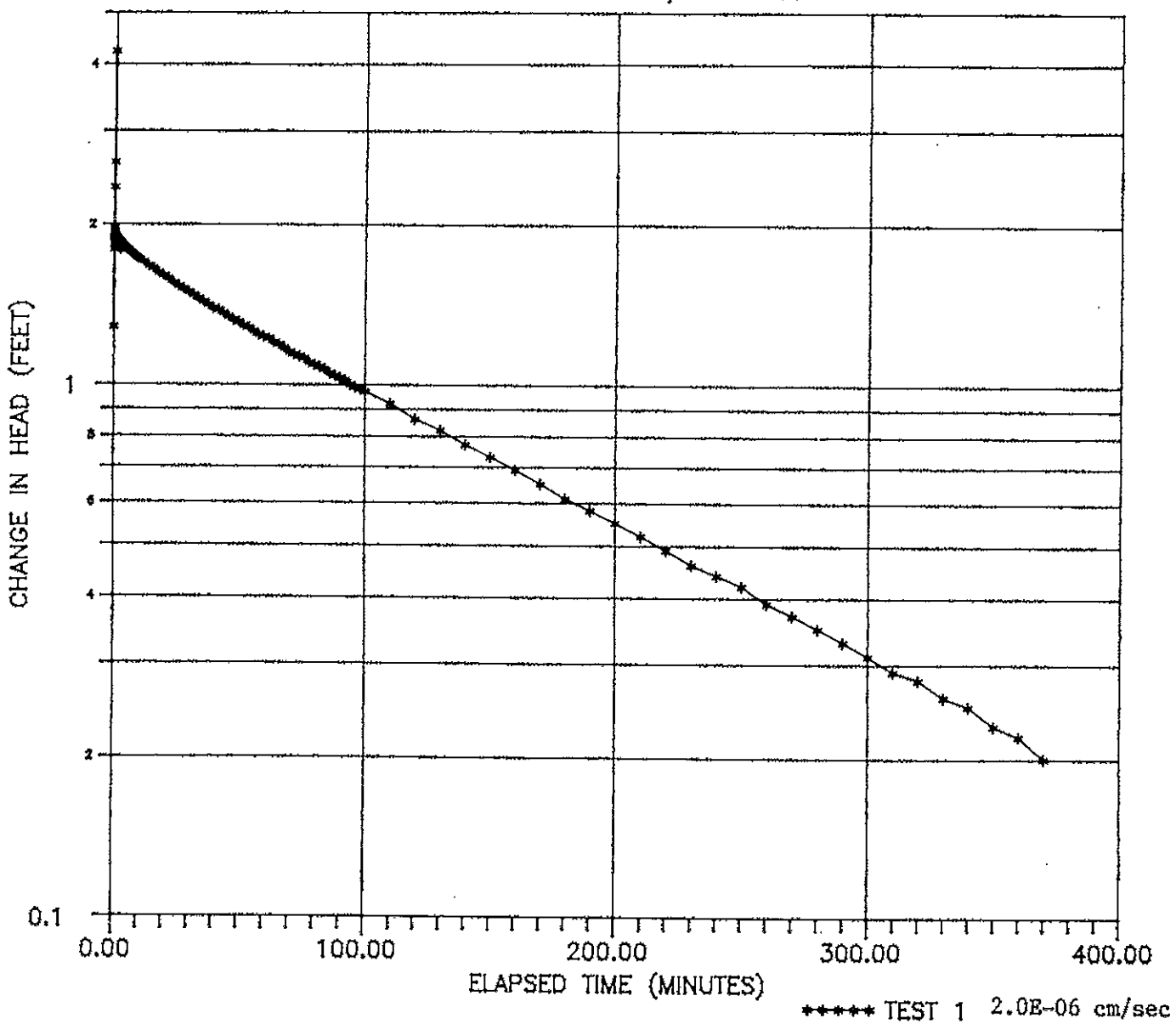
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
OW-812

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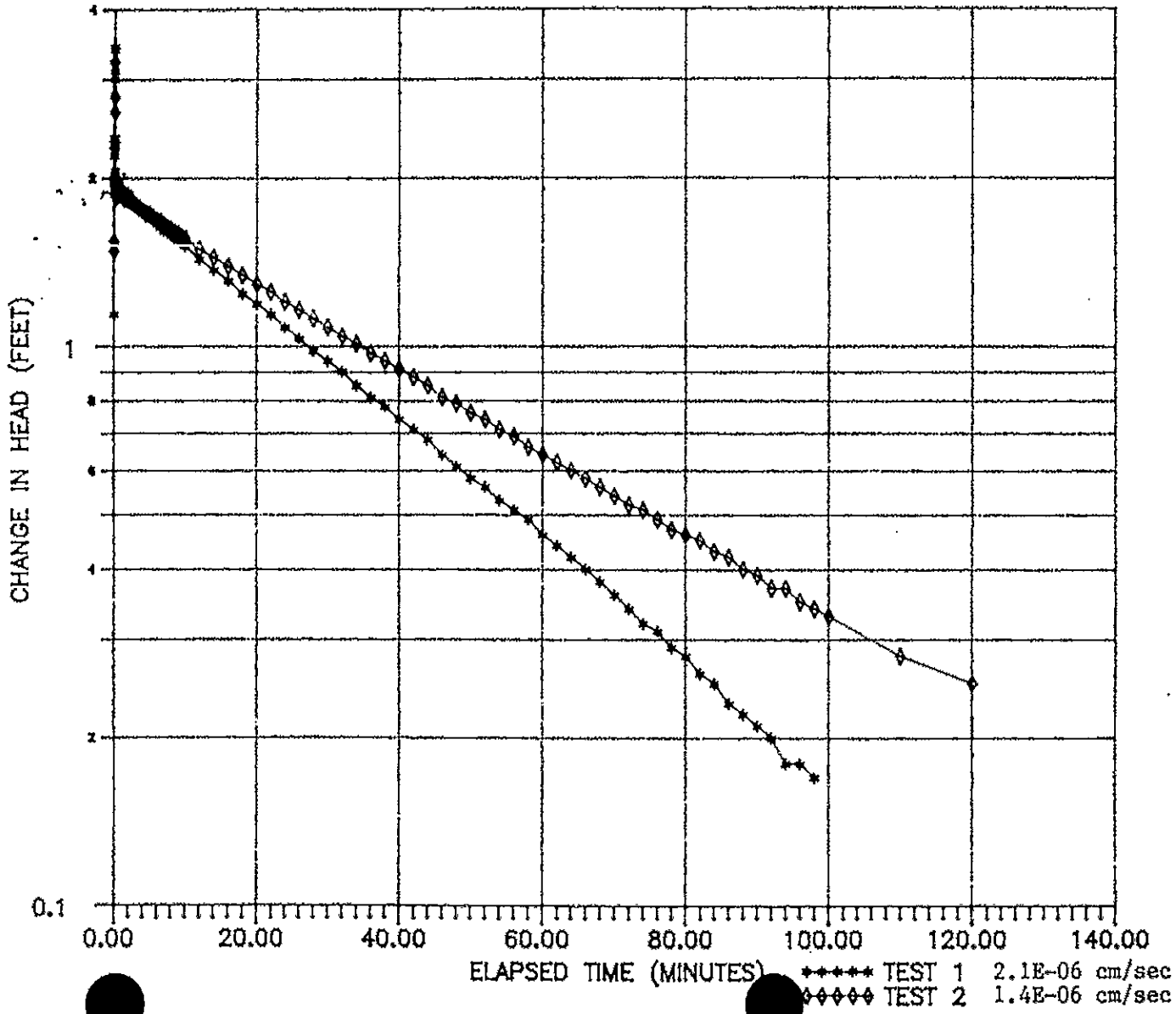
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
OW-813

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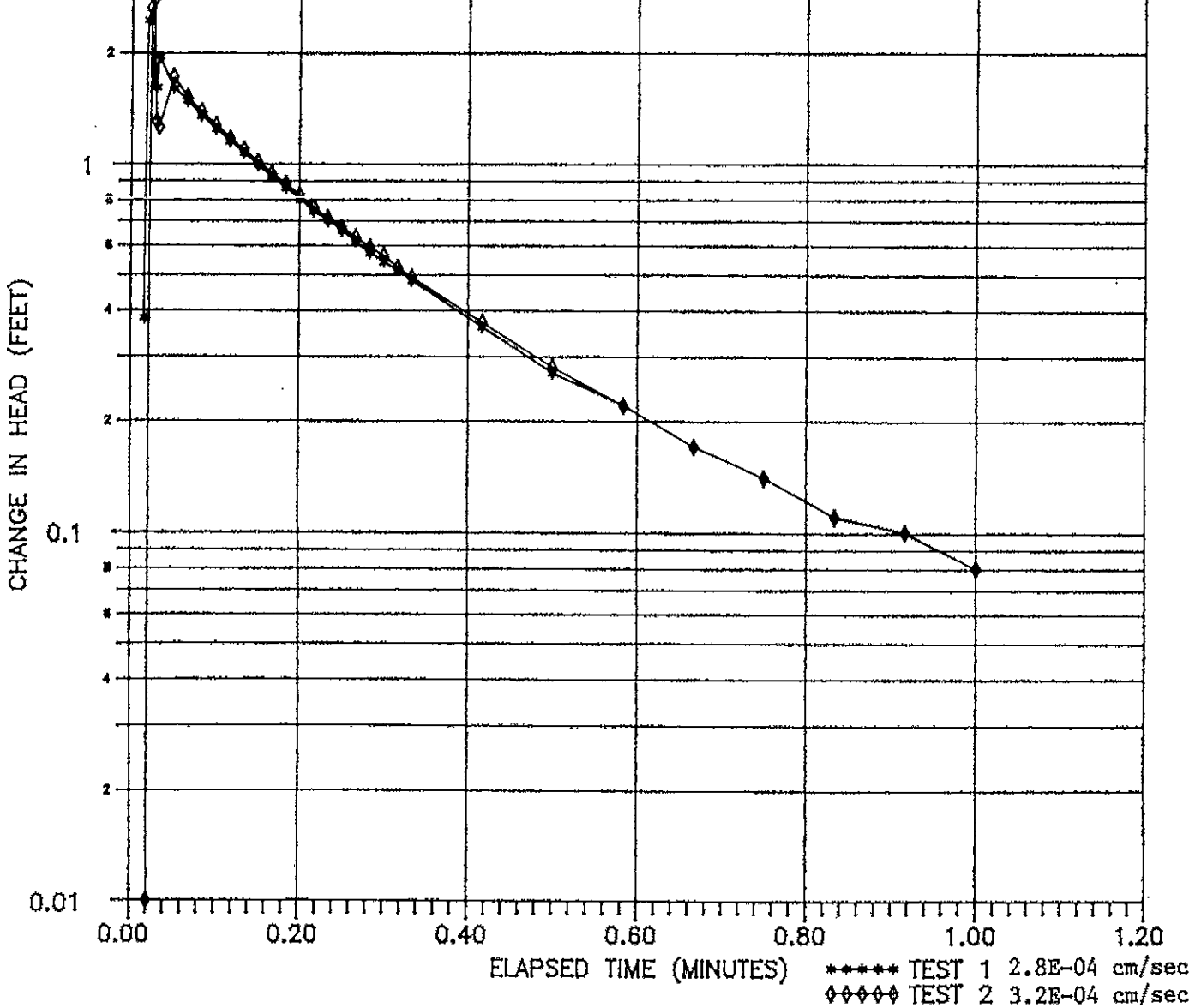
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
OW-814

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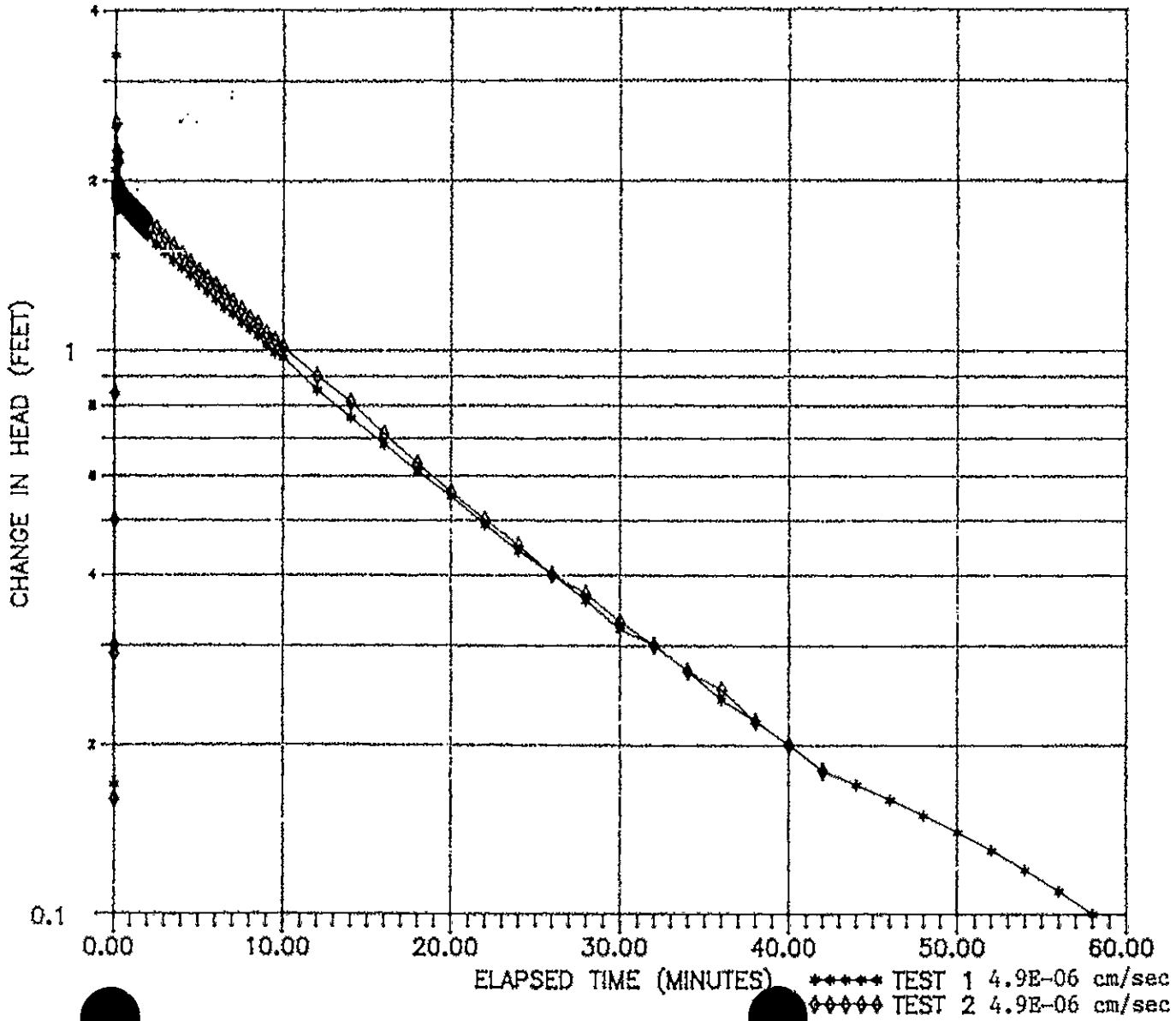
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
MW-906

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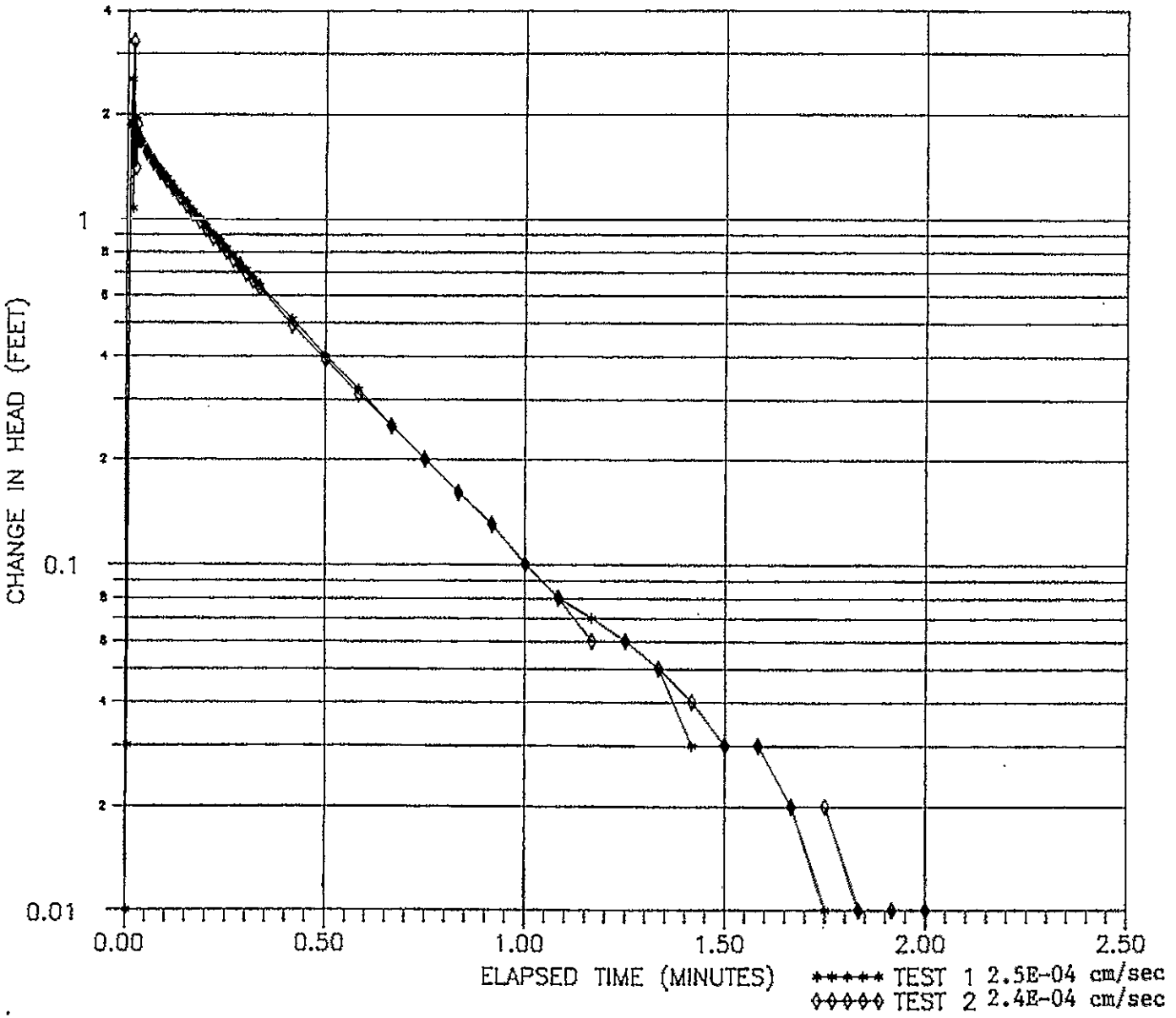
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
MW-907

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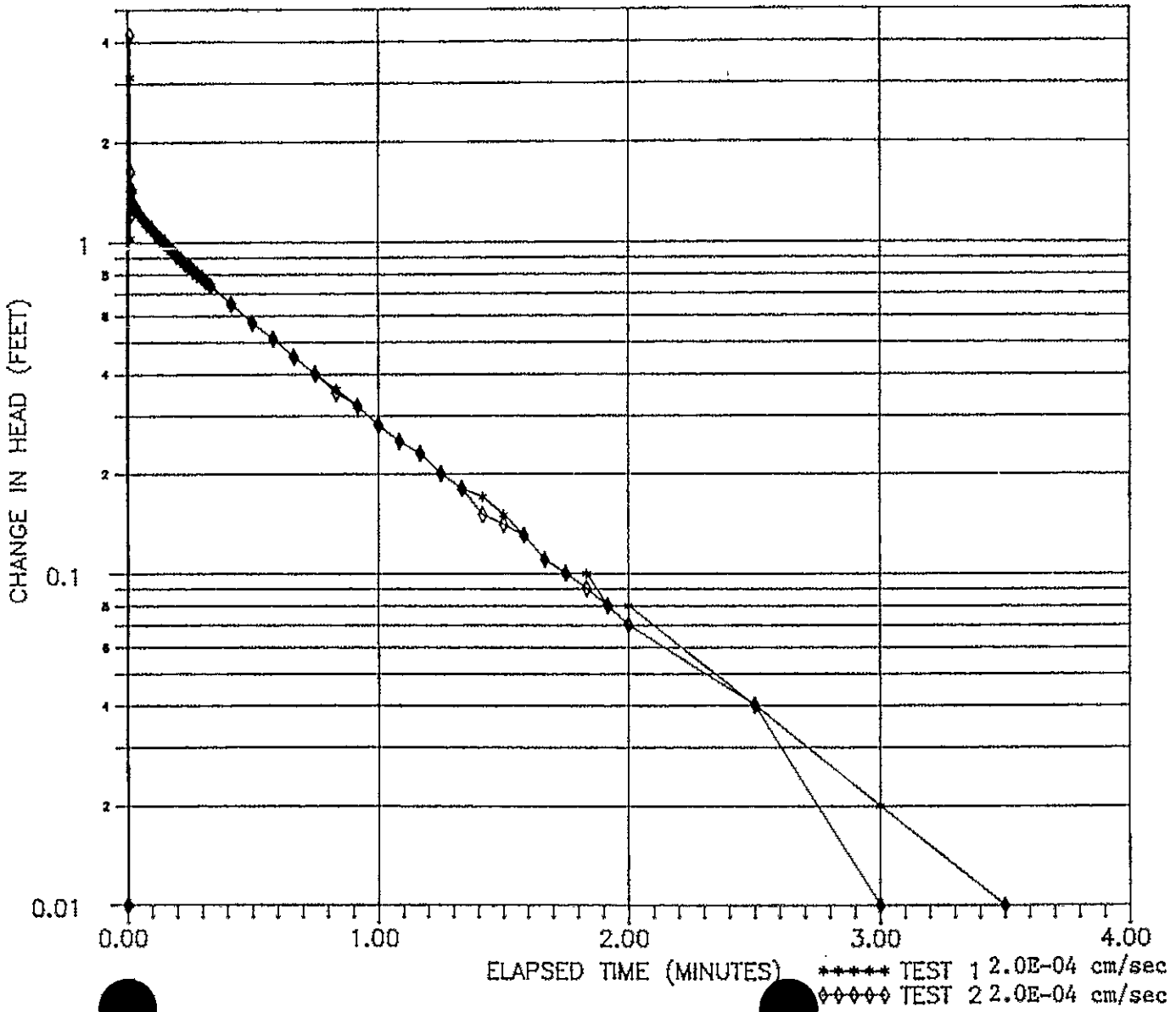
BRUNSWICK, MAINE



Click Here to Return to Main Index

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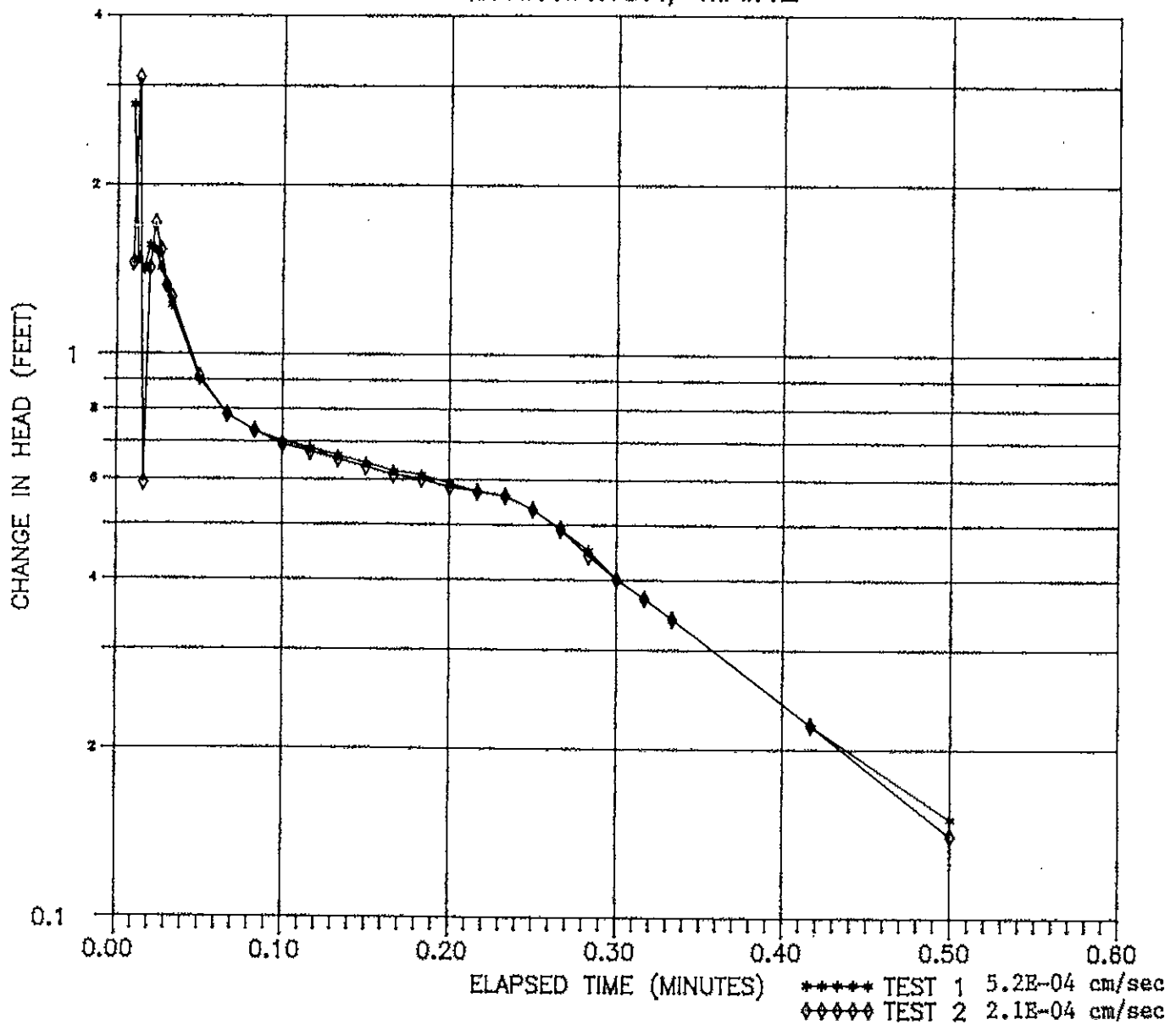
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
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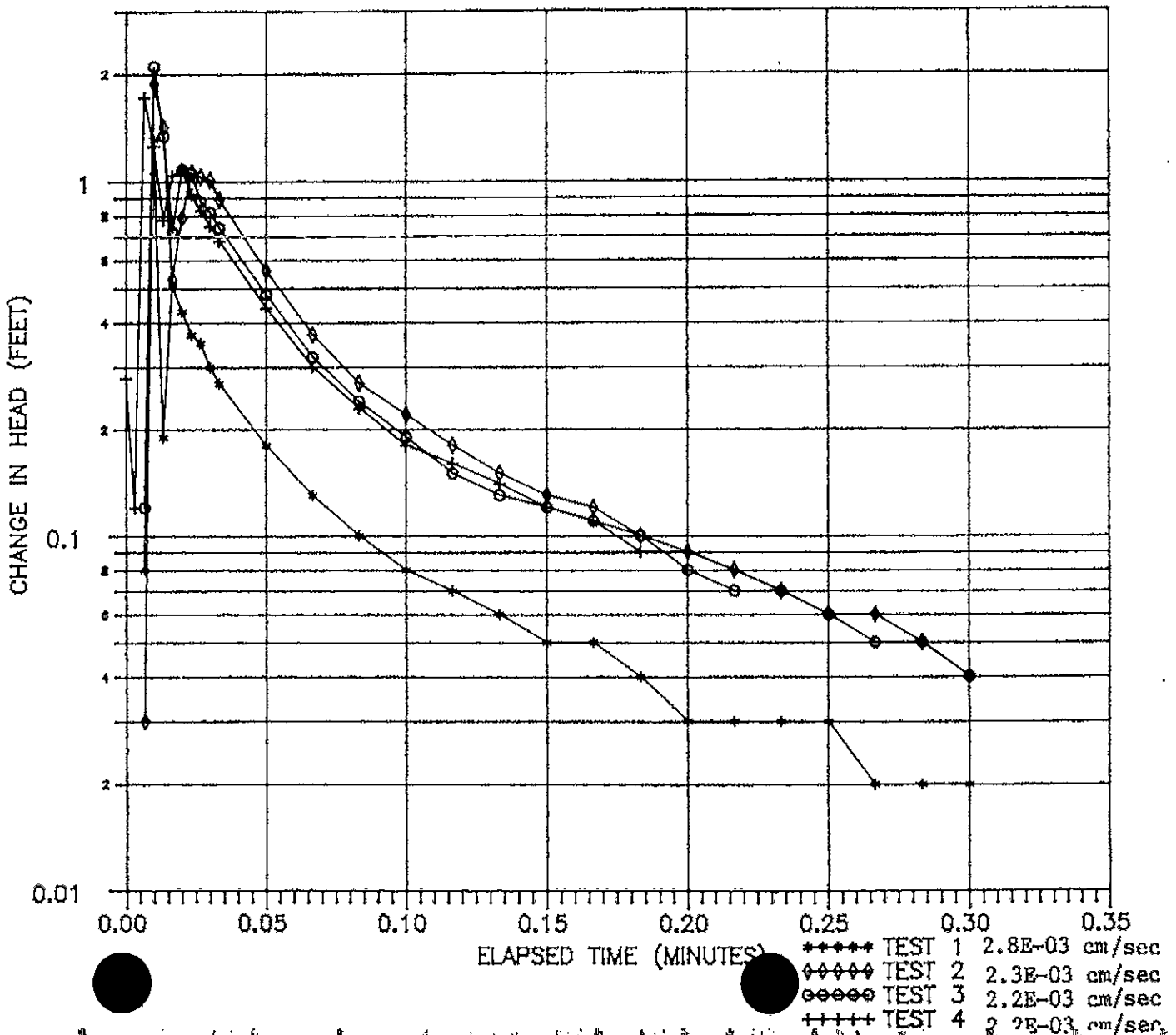
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
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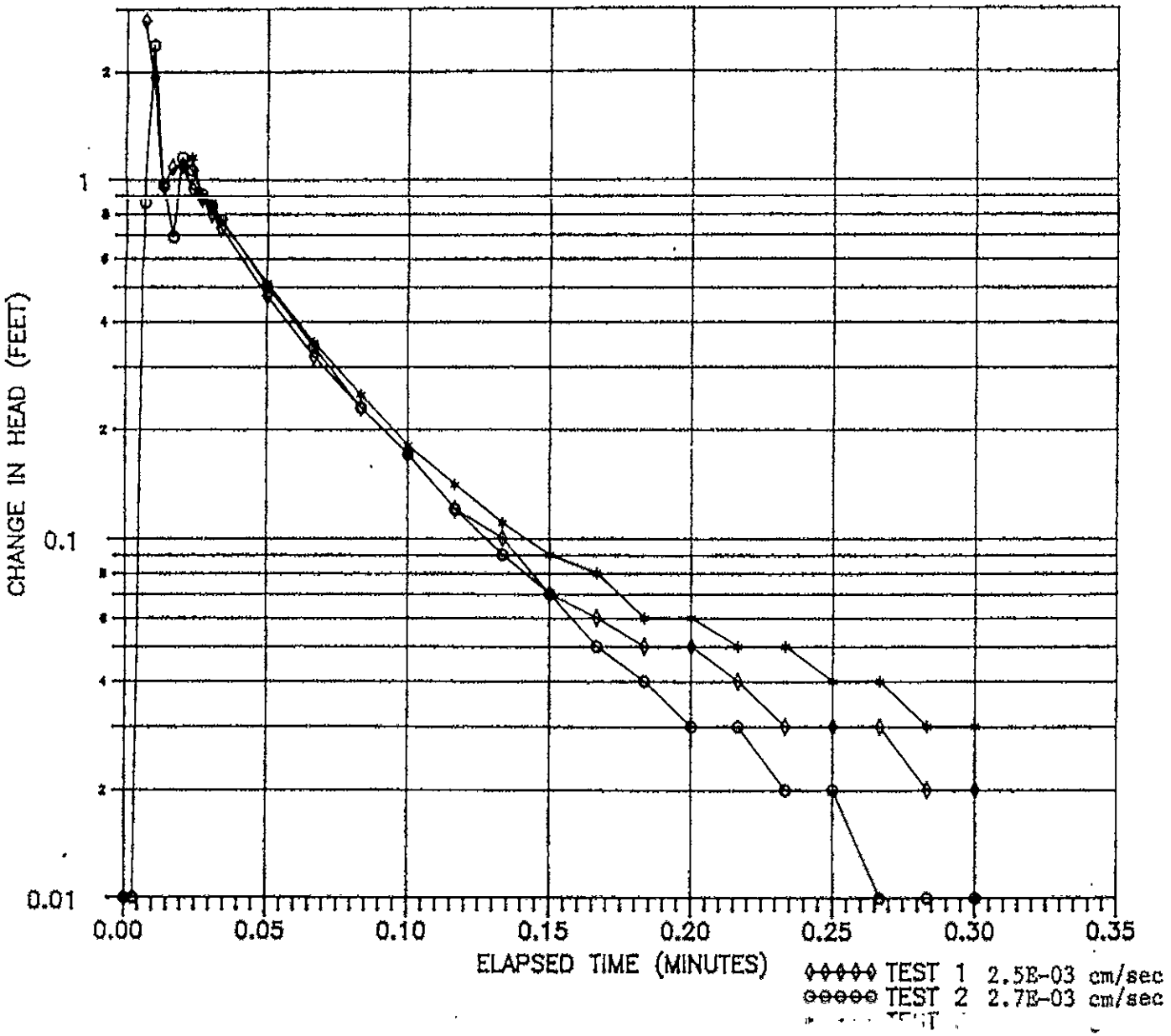
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
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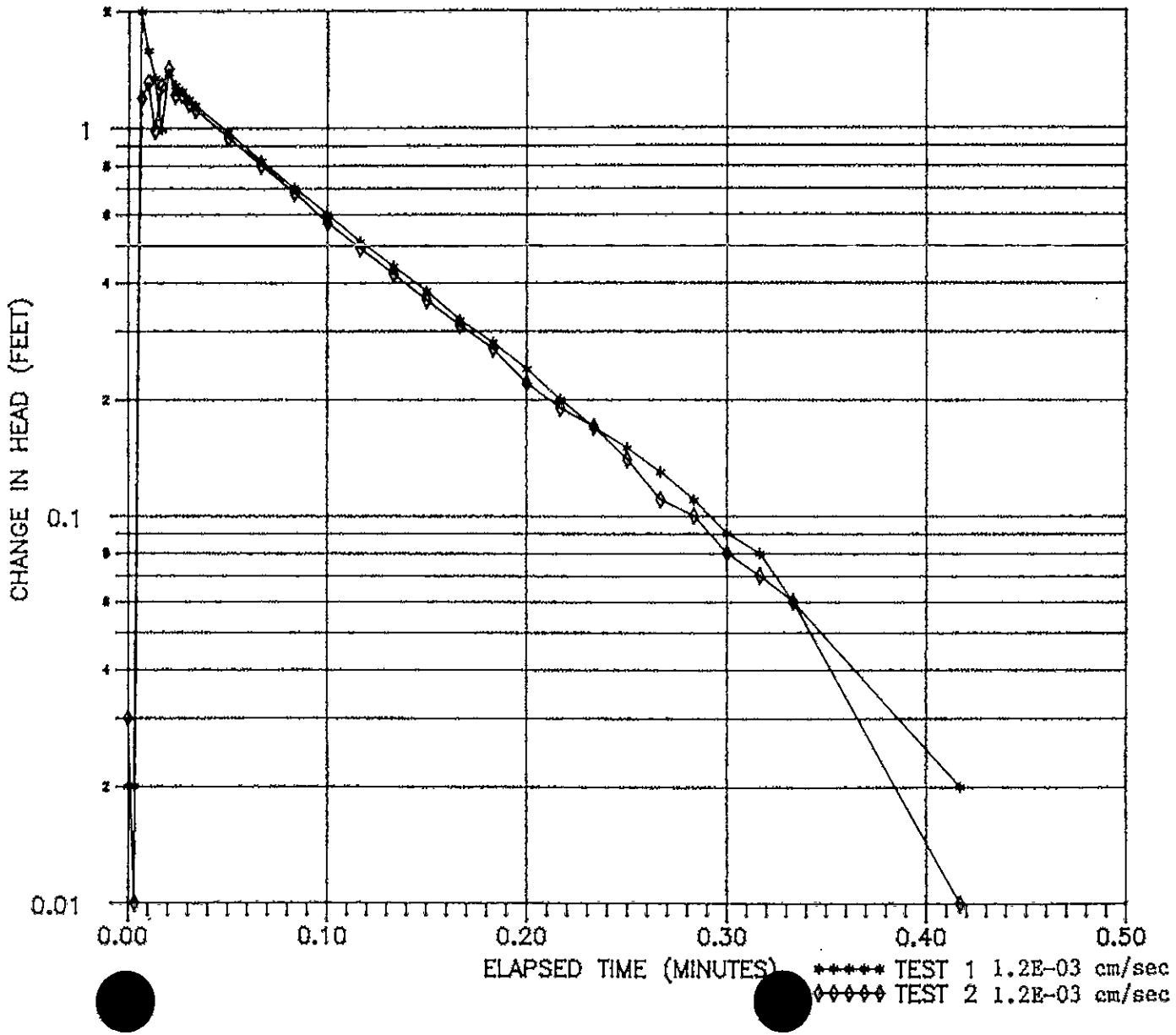
BRUNSWICK, MAINE



Click Here to Return to Main Index

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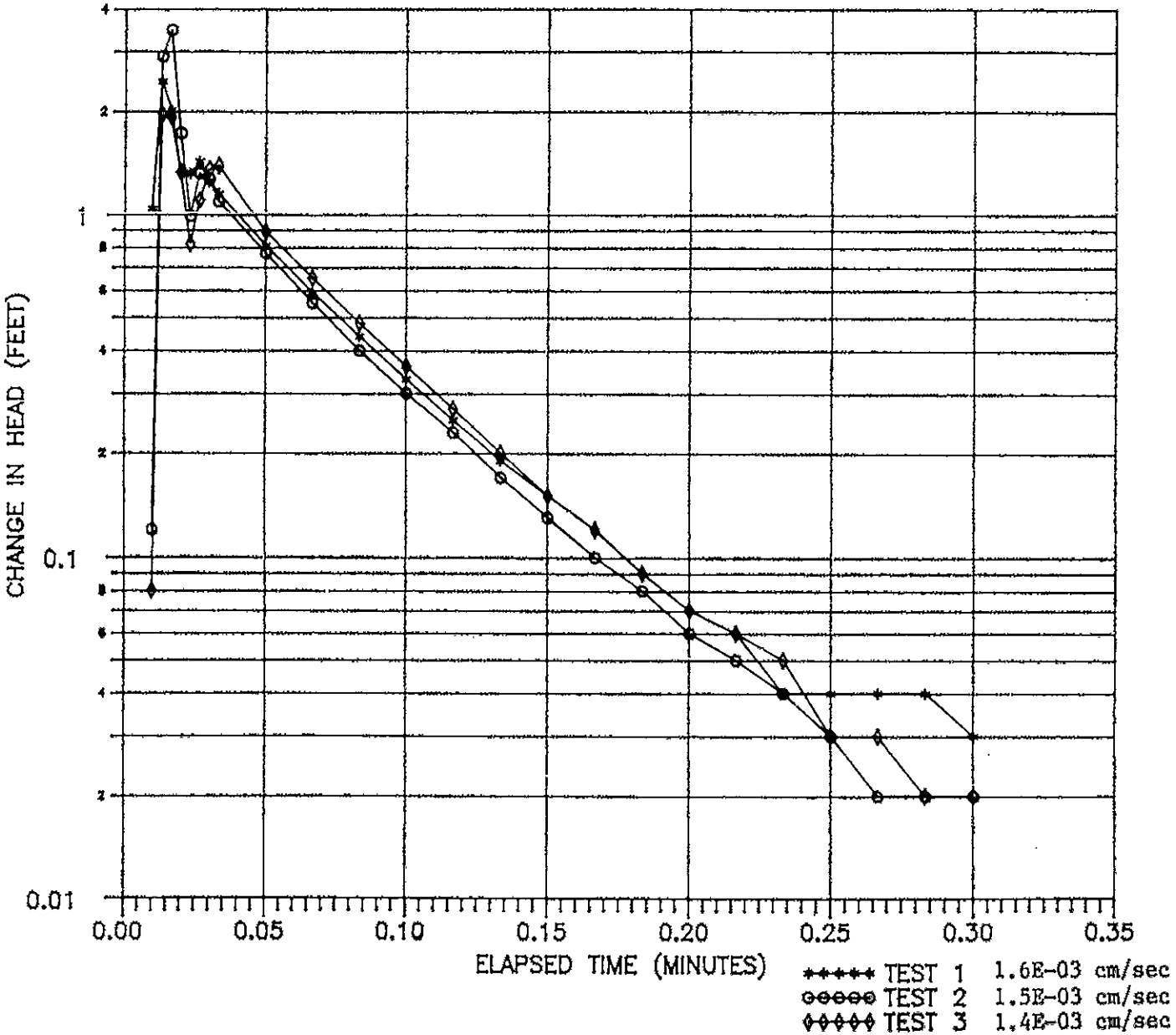
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
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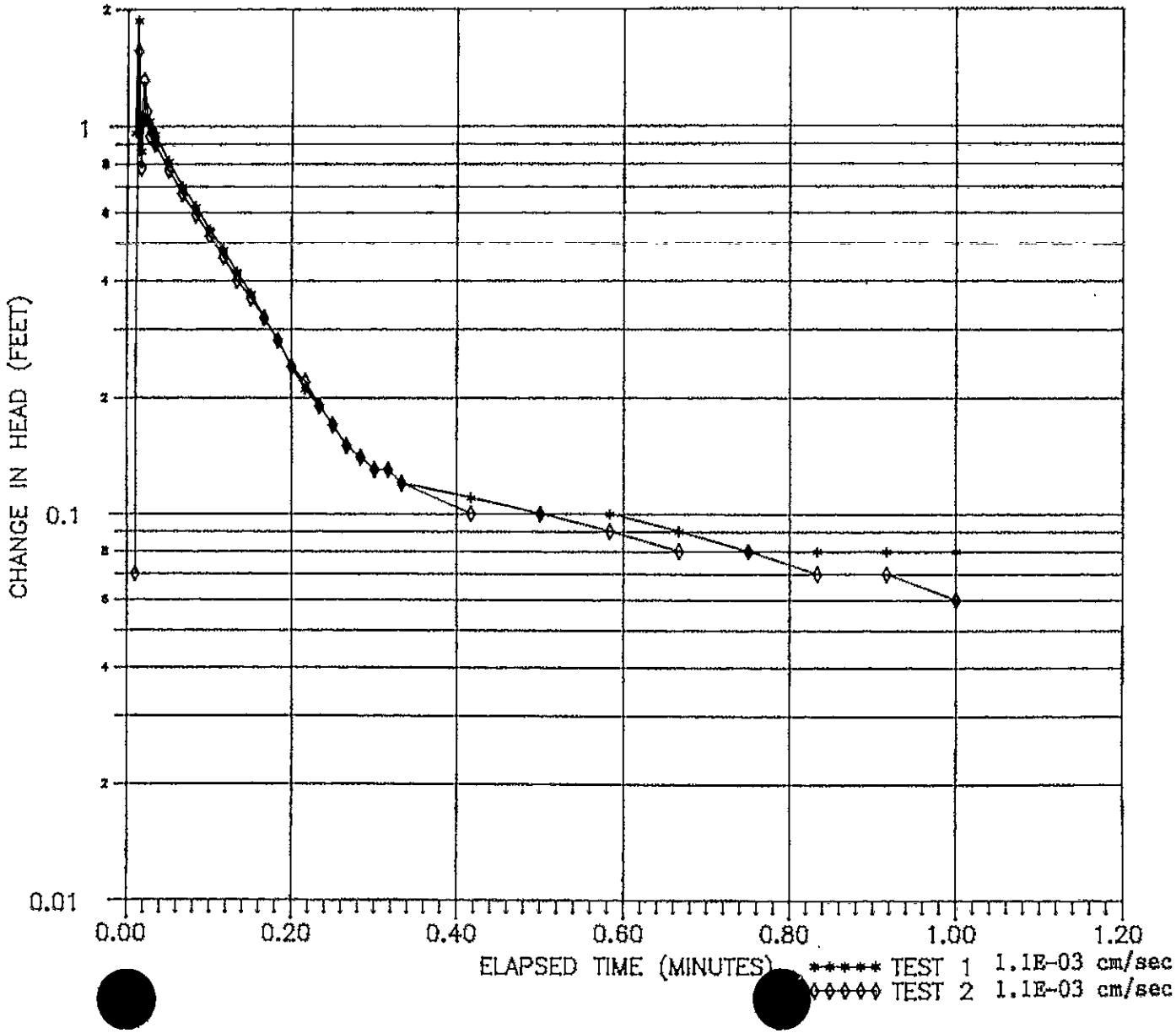
BRUNSWICK, MAINE



Click Here to Return to Main Index

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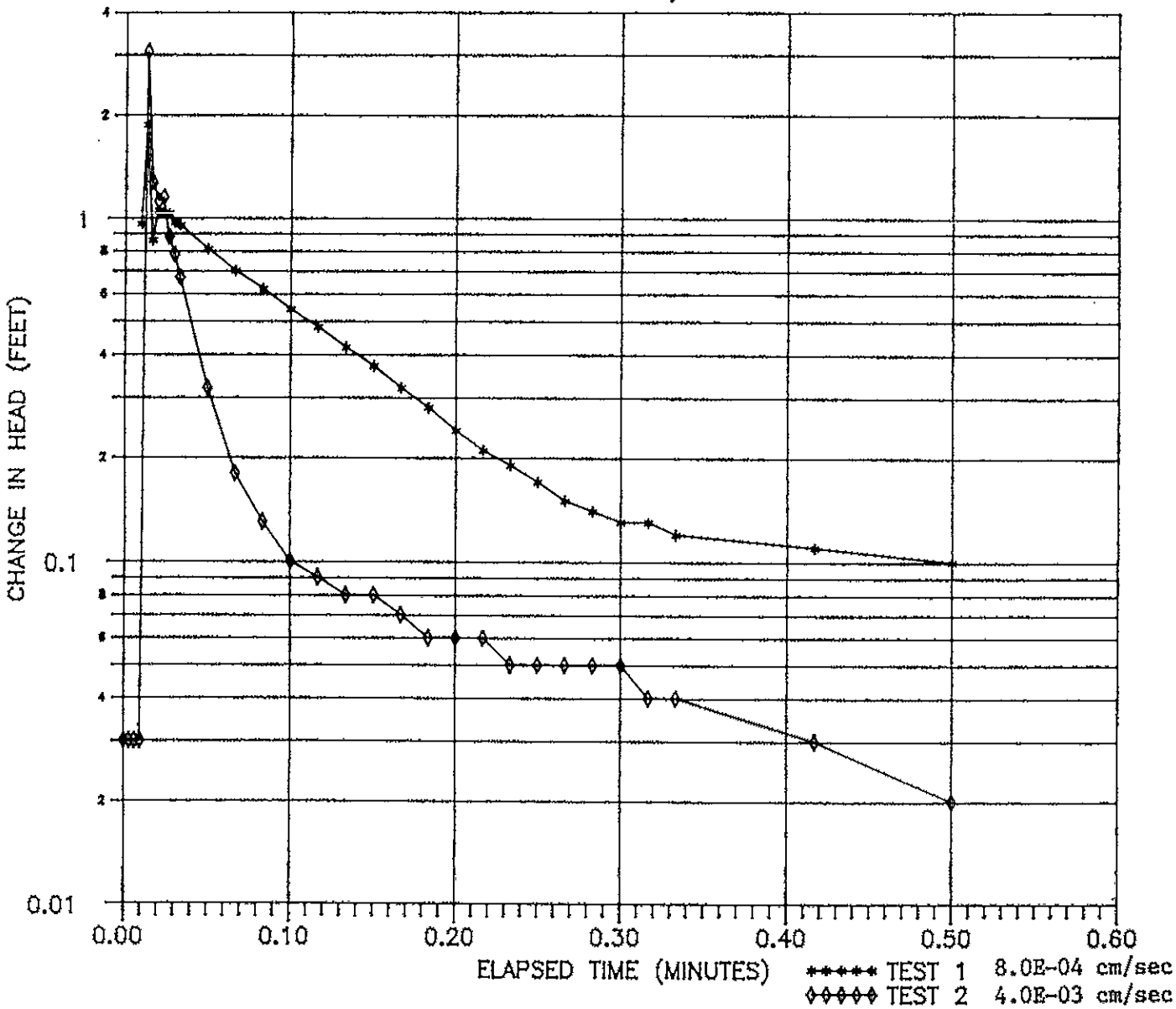
BRUNSWICK, MAINE



Click Here to Return to Main Index

RISING HEAD PERMEABILITY TEST
MW-1303

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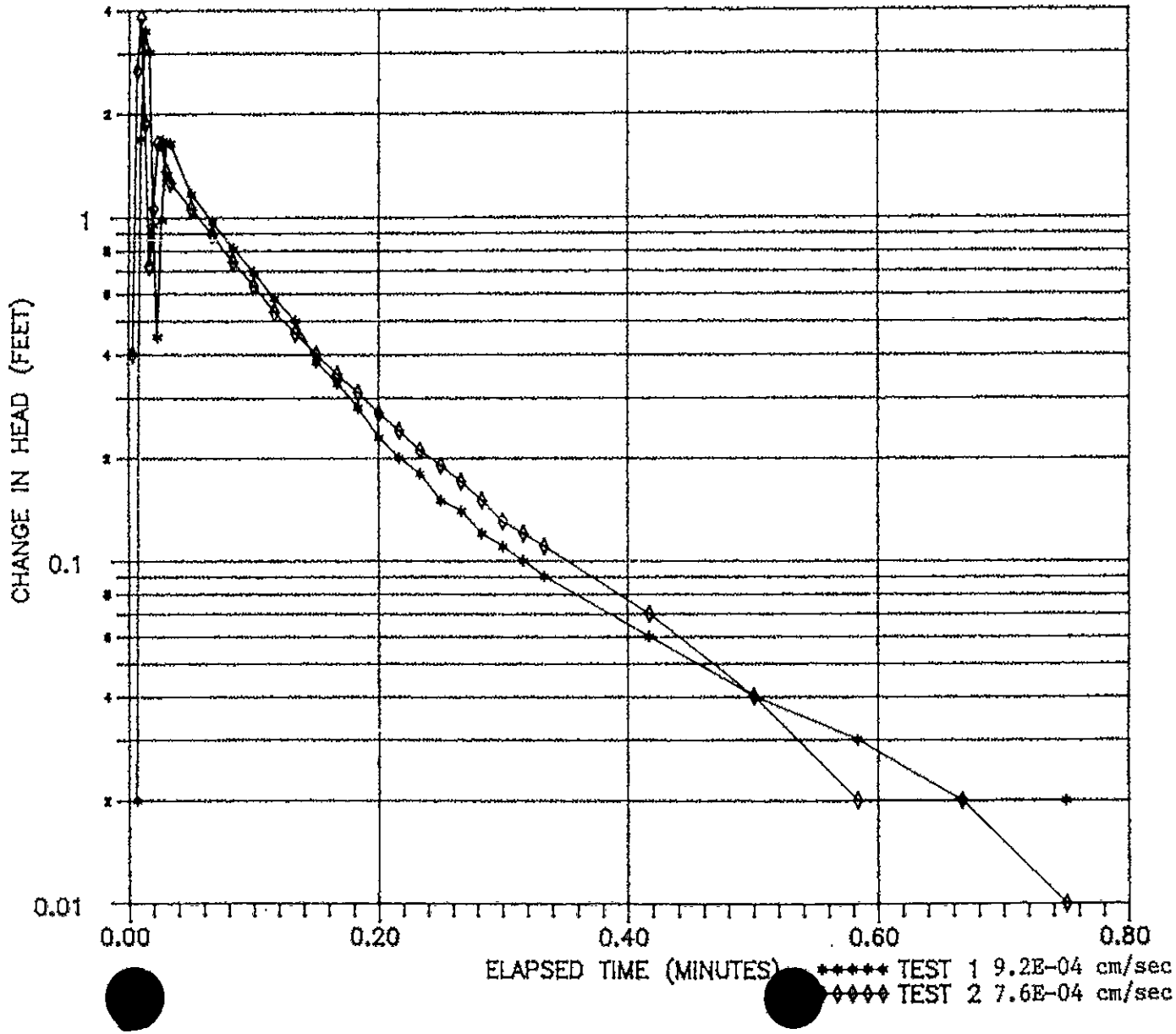
BRUNSWICK, MAINE



Click Here to Return to Main Index

Click Here to Return to Main Index

Click Here to Return to Main Index

APPENDIX J
SUMMARY TABLES OF LABORATORY ANALYTICAL DATA, INCLUDING TENTATIVELY IDENTIFIED COMPOUNDS (TICS)

NAS BRUNSWICK
BRUNSWICK, MAINE

Click Here to Return to Main Index

Click Here to Return to Main Index

DATE: February 1989

SUBJECT: NAS Brunswick Round 1 Quality Assurance

Quality Assurance

All organic (VOA, SVOA, pesticide/PCB) and inorganic (elements) analytical data for this study were generated by the protocols specified by the USEPA for the National Contract Laboratory Program (CLP). The stringent quality control measures specified by the CLP program provides an initial assurance that the data meet acceptance criteria.

Once the data was received, it was validated according to the guidelines set forth by the USEPA in "Laboratory Data Validation, Functional Guidelines for Evaluating Organics Analyses" and "Laboratory Data Validation, Functional Guidelines for Evaluating Inorganics Analyses" and reviewed by the site chemist. The validation process determines the useability of the data. The data was determined to be useable with no qualifications, useable with qualifications (as indicated by data flags) or unuseable (rejected as indicated by "R"). The site chemist reviewed the data to ensure that the data set was internally consistent and supported by the accompanying documentation.

Data Quality Summary

Approximately 13% of the volatile data was rejected (flagged "R") or considered estimates (flagged "J") because the samples were analyzed after the holding times or the laboratory failed to meet the acceptance criteria for a response factor. The validation guidelines state that if a sample is analyzed after the holding times, all positive values are considered estimates and all nondetects are rejected. The validation guidelines also state that if a laboratory fails to meet the acceptance criteria for the response factor of any analyte during the calibration, all positive values obtained for that analyte are flagged as estimates and all nondetects for that analyte are rejected. The only volatile analyte which had to be flagged "J" or "R" for failure to meet the response factor criteria was 2-butanone. Although the number of entries for 2-butanone which had to be rejected due to this criteria appeared to be excessive, it is not unusual to have difficulty with this analyte due to its poor mass spectrum.

Approximately 6% of the semivolatile data had to be rejected (flagged "R") or considered estimates (flagged "J") because the samples were extracted or analyzed after the holding times or the response factors for analytes did not meet the response factor criteria. The validation criteria is the same as stated above for volatiles. That is, all positive values are considered estimates (flagged "J") and all nondetects rejected (flagged "R"). The analytes which

Click Here to Return to Main Index

were effected by the inability of the laboratory to meet the response factor criteria were 3- and 4-nitroaniline and 3,3'-dichlorobenzidine. As with 2-butanone, these analytes are difficult to quantify due to poor mass spectra.

Approximately 2% of the inorganic data and 4-5% of the pesticide/PCB data had to be rejected. These percentages are acceptable. The inorganic data was rejected due to poor matrix spike or matrix spike duplicate (MS/MSD) recovery which might be sample related. The pesticide/PCB data was rejected due to excessive holding times, MS/MSD recovery or failure to achieve the required DCB retention times. This final criteria (DCB retention time) is a poor indicator of the quality of pesticide/PCB analysis and will be removed as a validation criteria in future guidelines.

Other criteria which caused minor qualifications (flagging) were MS/MSD recovery of organics, percent difference (difference between initial and continuing calibrations response factors) and surrogate recovery. Problems with these criteria were not considered excessive.

Method blank corrections were also performed during the data validation process. The amount of any analyte found in a method blank is used to calculate a revised detection limit (RDL) for those analytes in the samples associated with that method blank. The RDL is then used to evaluate whether an analyte was present in the sample or the result of laboratory contamination. The results of the method blank data, which is discussed below, also aids in the evaluation of the likelihood of contaminants being due to laboratory contamination.

Four types of quality assurance analyses were used to identify potential sources of sample contamination:

- o Laboratory Method Blanks
- o Trip Blanks
- o Sampler Blanks
- o Filtration Blanks

Laboratory Method Blanks. A method blank is deionized water or clean soil which is prepared and analyzed by the laboratory along with the samples to detect any contamination which may be introduced into the sample during preparation and/or analysis. During this study, 143 method blanks were analyzed by the laboratories. Of these, 23 were analyzed for inorganics, 48 were analyzed for volatiles, 33 were analyzed for semivolatiles and 39 were analyzed for pesticide/PCBs. The results for the method blanks are summarized in Tables Q-1, Q-2, Q-3, and Q-4.

Table Q-1 contains the volatile method blank results for low level water and low and medium level soils. The high percentage of samples in which acetone and methylene chloride were found demonstrates the difficulty in performing the analysis without contaminating samples with these common laboratory solvents. These results are similar to those obtained from other laboratories and other studies. These data suggests that detections of methylene chloride and acetone in samples should be considered carefully or confirmed by a repeat analysis prior to making definite decisions based on their detection.

The high levels of compounds found in the medium level soils is a result of the way the analysis is performed. Low level volatile soil analysis is direct analysis of the soil by purge and trap whereas medium level volatile analysis is extraction of the organics from the soil with methanol followed by analysis of a small portion of the methanol for the extracted volatile organics. This method is used when there is a high concentration of the organics in the soils to prevent both instrument saturation and contamination. Because only a fraction of the extract for the latter method (medium level) is analyzed, the resulting concentration must be multiplied by a factor of 125 to compensate for the remaining volatiles in the extract. Whenever a sample is analyzed by a medium level analysis within a designated sample group, a method blank must also be similarly analyzed to identify laboratory contamination.

With the exception of 2-butanone, 1,1,1-trichloroethane, and toluene in the medium level soils and the 2-butanone in a few of the low level soils, the other detections were near or below the contract required detection limit (CRDL). There is no CRDL for carbon disulfide.

The results for the semivolatile method blanks are presented in Table Q-2. The high percentage of samples in which phthalates were detected reflects the difficulty in preparing these samples without contaminating them with this group of compounds. This contamination can occur during the drying of the sample extract with sodium sulfate if the sodium sulfate has not been properly prepared. Again, because of the prevalence of these compounds in the method blanks, detections of these compounds in samples should be considered carefully or confirmed prior to making definite decisions based on their detection.

The results for the pesticide/PCB and inorganic method blanks are presented in Tables Q-3 and Q-4, respectively. In the case of the inorganic method blanks, all analytes were detected below the CRDL. Although the soil pesticides/PCB method blanks contained detections greater than the CRDL, the detections only occurred in less than 4% of the blanks. No pesticides or PCBs were detected in the water method blanks.

Trip Blanks. A trip blank consists of deionized water which is placed in a VOA sample container, shipped, stored, and analyzed with each set of water samples to be analyzed for volatile organics. A trip blank is generally prepared every day that water samples for volatile organic analyzes are collected and shipped to the laboratory. These blanks are used to determine if any contamination of the samples is occurring during shipment and handling. Six (6) trip blanks were prepared and analyzed during this study. No volatiles were detected after the method blank corrections were performed.

Sampler Blanks. A sampler blank is used to determine the effectiveness of the decontamination procedure. It consists of deionized water which is run through the groundwater sampling collection apparatus and analyzed by the laboratory. Five (5) sampler blanks were collected and analyzed during this study. All five (5) were analyzed for volatiles, semivolatiles, pesticide/PCBs and inorganics. The only volatile detected in any of the blanks after method blank corrections was 8 µg/ℓ in one (1) blank. In view of the frequency of detection of this compound in the water method blanks (50%) the possibility of laboratory

Click Here to Return to Main Index

contamination cannot be ruled out. No semivolatiles or pesticide/PCBs were detected in any of the blanks and no inorganics were detected above the CRDL.

Filtration Blanks. Groundwater monitoring well samples scheduled for analysis of inorganic parameters are filtered during collection. A filtration blank is used to determine the effectiveness of the decontamination procedure used to clean the sample filter apparatus, the potential for cross-contamination of samples, and the contribution to the sample by the filter itself. It consists of deionized water which is passed through a freshly-cleaned filtration apparatus and analyzed for inorganics by the laboratory.

Two (2) filtration blanks were prepared and analyzed for inorganics. Lead was detected in one (1) sample near the CRDL while calcium, manganese and sodium were detected in the second. The calcium was detected near the CRDL while manganese and sodium were detected at concentrations 2 to 3 times greater than the CRDL.

Click Here to Return to Main Index

TABLE Q-1

SUMMARY OF VOLATILE LABORATORY METHOD BLANKS

A) Soil-Low Level Analysis (25 Analyzes)

COMPOUND	% FREQUENCY	AVERAGE CONC. (ug/kg)	RANGE (ug/kg)	CRDL (ug/kg)
Methylene Chloride	72%	9.7	2-25	5
Acetone	32%	18.8	11-32	10
2-Butanone	12%	16.7	6-29	10
Benzene	4%	2	2	5
4-Methyl-2-Pentanone	4%	4	4	10
2-Hexanone	4%	7	7	10
Toluene	4%	2	2	5
1,1,2,2-Tetrachloroethane	4%	1	1	5
Styrene	4%	3	3	5
Carbon Disulfide	4%	3	3	NA

B) Soil-Medium Level Analysis (7 Analyses)

COMPOUND	% FREQUENCY	AVERAGE CONC. (ug/kg)	RANGE (ug/kg)	CRDL (ug/kg)
Methylene Chloride	57%	1400	1200-1700	625
Acetone	86%	2378	940-3300	1250
2-Butanone	29%	2350	1600-3108	1250
1,1,1-Trichloroethane	14%	560	560	625
Toluene	43%	490	300-590	625

C) Water-Low Level Analysis (16 Analyses)

COMPOUND	% FREQUENCY	AVERAGE CONC. (ug/kg)	RANGE (ug/kg)	CRDL (ug/kg)
Methylene Chloride	50%	3.9	1-8	5
Acetone	12.5%	5.5	5-6	10
1,1,2,2-Tetrachloroethane	6.3%	1	1	5
2-Hexanone	6.3%	3	3	10
Ethyl benzene	12.5%	1	1	5
Chlorobenzene	12.5%	1	1	5
Styrene	18.8%	1	1	5

NA = Not Applicable

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Click Here to Return to Main Index

TABLE Q-2

SUMMARY OF SEMIVOLATILE LABORATORY METHOD BLANKS

A) Soils - Low Level Analysis (22 Analyses)

COMPOUND	% FREQUENCY	AVERAGE CONC. (µg/kg)	RANGE (µg/kg)	CRDL (µg/kg)
Di-n-butylphthalate	95.5%	383	40-1500	330
bis(2-Ethylhexyl)phthalate	40.9%	590	63-1600	330
Diethylphthalate	9.1%	12.5	12-13	330
N-Nitroso-di-n-propylamine	4.5%	150	150	330

B) Water - Low Level Analysis (11 Analyses)

COMPOUND	% FREQUENCY	AVERAGE CONC. (µg/kg)	RANGE (µg/kg)	CRDL (µg/kg)
bis(2-Ethylhexyl)phthalate	18.2%	3	2-4	10

Click Here to Return to Main Index

TABLE Q-3

SUMMARY OF PESTICIDE/PCB LABORATORY METHOD BLANKS

A) Soils - Low Level Analysis (27 Analyses)

COMPOUND	% FREQUENCY	AVERAGE CONC. (µg/kg)	RANGE (µg/kg)	CRDL (µg/kg)
gamma-BHC	3.7%	13	13	8
Heptachlor	3.7%	2.6	2.6	8
Endosulfan sulfate	3.7%	31	31	NA
Heptachlor epoxide	3.7%	1.9	1.9	8

B) Water - Low Level Analysis (12 analyzes)

None Detected

Click Here to Return to Main Index

TABLE Q-4

SUMMARY OF INORGANIC LABORATORY METHOD BLANKS

B) Water - Low Level Analysis (10 Analyses)

ANALYTE	% FREQUENCY	AVERAGE CONC. (ug/kg)	RANGE (ug/kg)	CRDL (ug/kg)
Aluminum	60%	31.7	11-97	200
Antimony	10%	12	12	60
Barium	60%	6.5	4-11	200
Calcium	40%	265	140-536	5000
Iron	60%	33	9-57	100
Lead	10%	2	2	5
Copper	20%	3	3	25
Magnesium	20%	396	96-696	5000
Manganese	40%	3.5	3-4	15
Mercury	50%	0.11	0.1-0.13	0.2
Silver	20%	3.5	3-4	10
Sodium	30%	47.7	4-67	5000
Thallium	30%	1.1	0.89-1.34	10
Vanadium	30%	5	5	50
Zinc	20%	6.8	2.6-11	20
Boron	30%	7.7	5-13	NA

NA = Not Applicable

Click Here to Return to Main Index

TABLE Q-4

SUMMARY OF INORGANIC LABORATORY METHOD BLANKS

A) Soil - Low Level Analysis (13 Analyses)

ANALYTE	% FREQUENCY	AVERAGE CONC. (µg/kg)	RANGE (µg/kg)	CRDL (µg/kg)
Aluminum	23.1%	4.4	0.6-10.6	40
Antimony	38.5%	1.8	1.45-2.95	12
Arsenic	15.4%	0.095	0.08-0.11	2
Barium	46.2%	1.025	0.1-5	40
Beryllium	23.1%	0.067	0.05-0.1	1
Cadmium	15.4%	0.015	0.150	1
Calcium	46.2%	21.15	3.85-33.5	1000
Chromium	30.8%	0.220	0.03-.35	2
Cobalt	30.8%	2.4	0.3-8.5	10
Copper	46.2%	16.7	0.1-0.25	5
Iron	23.1%	2.48	1.4-3.5	20
Lead	30.8%	0.04	0.03-0.16	1
Magnesium	30.8%	11.15	1.55-21.45	1000
Manganese	38.5%	0.24	0.15-0.55	3
Mercury	7.7%	0.01	0.01	0.04
Nickel	38.5%	0.736	0.10-1.35	8
Potassium	38.5%	8.88	6.55-14.65	1000
Selenium	7.7%	0.04	0.04	1
Silver	30.8%	0.163	0.1-0.2	2
Sodium	46.2%	8.63	4.2-22.25	1000
Thallium	38.5%	0.094	0.02-0.11	2
Vanadium	30.8%	0.19	0.05-0.25	10
Zinc	38.5%	0.30	0.2-0.4	4

Click Here to Return to Main Index

Date: March 17, 1989

Subject: NAS Brunswick Round 2 - Quality Assurance

Data Quality Verification

All organic and inorganic analytical data for the groundwater, soil, and sediment samples were generated by the protocols specified by the USEPA for the Contract Laboratory Program (CLP). The stringent quality control procedures outlined in the CLP protocols provide a preliminary level of assurance of data quality. In addition, all laboratory deliverables (analytical results and raw data) were subjected to a Level IV review by both experienced data reviewers and a project chemist using procedures specified in the USEPA "Functional Guidelines for Evaluating Organic Analyses" (HQ-8410-01, May 28, 1985) and the "Functional Guidelines for Evaluating Inorganic Analyses" and included the January 1987 USEPA Region I revisions. Level IV data quality represents confirmational data characterized by rigorous quality control and validation procedur and is adequate to support Risk Assessment, enforcement, and engineering alternative design. The validation guidelines used specify a systematic procedure for evaluating laboratory data, including holding times, blank analysis, surrogate recoveries, matrix spike results, GC/MS tuning, instrument calibration, compound identification, and method performance. The definitions of the data qualifiers (as well as laboratory qualifiers) used in reporting the analytical data are presented in Table I.

Additionally, several samples were analyzed for various other parameters, including volatiles by USEPA Method 524.1, phenolics, TOC, herbicides, sulfide, sulfate, nitrate, nitrite, chloride, TDS, MBAS, fluoride, coliform, and carbonate-bicarbonate. These analyses were subjected to Level III review which covers USEPA approved methods (but not specifically CLP). This evaluation included method blanks, holding times, and calibration where provided.

Volatile Organics

In general the volatile organics data was acceptable and may be used without qualification. In many cases the non-detected results for 2-butanone were qualified as unusable (R) because the minimum response criteria for calibration were not met. Because of its solubility, this compound is extremely difficult to analyze by the purge & trap procedure used by this method. Therefore, this low response is typical for laboratories in the CLP. In one case this same problem was observed for trans-1,3-dichloropropene, but the majority of data was acceptable.

In some cases the non-detected results for chloromethane and trans-1,3-dichloropropene analyzed by EPA 524.1 were qualified as unusable (R) because the minimum response criteria for calibration were not met.

All field duplicate results were acceptable.

Semivolatile Organics

In general the semivolatile organics data were acceptable and may be used without qualification. The acid fraction for 01GW203, 01GW210B, 03GW202A, 02GW102, and 09SW915, and the acid/base/neutral fractions for 03GW202A were qualified as unusable for non-detected results because of poor surrogate recoveries. Also, in some cases the non-detected results for benzoic acid, 2,4-dinitrophenol, 4-nitrophenol, and hexachlorocyclopentadiene were qualified as unusable because the minimum response criteria for calibration were not met.

All field duplicate results were acceptable.

Inorganics

In general inorganics results were acceptable and may be used without qualification. Poor agreement was observed between field duplicates for 02LT201 and 01LT304. Since the laboratory data was reviewed and QC was found to be acceptable, these discrepancies may represent the difficulty associated with collecting a representative leachate sample. It may be necessary to re-sample these locations to better define the concentration of analytes present.

Blank Analyses

A total of 52 volatile method blanks were analyzed with this sample set. Of these, 29 were analyzed as low water samples, 19 as low soil, and 4 as low water by EPA 524.1. The results presented in Table II are typical for method blank data. Methylene chloride and acetone were the most frequently observed contaminants and were all with the established CLP limits for blank contamination.

A total of 29 semivolatile method blanks were analyzed (21 low water and 8 low soil). The results presented in Table III are typical for method blank data.

A total of 13 inorganics method blanks were analyzed and all contaminants were less than the CRQL.

No pesticide blank contamination was observed.

Click Here to Return to Main Index

TABLE 1

DATA QUALIFIERS

Data qualifiers are flags which are affixed to sample results by either the analytical laboratory or the data validator. The purpose of these flags is to alert the data user to any complications which may have arisen during the sample analysis which places limitations on the quality of the data. A brief description of these qualifiers is included.

Organic Data Qualifiers

J - Indicates an estimated value; result is either below the contract required detection limit (laboratory flag) or all quality assurance criteria were not met during analysis (validation flag).

JJ - Validation flag for values below CRDL only.

U - Indicates that parameter was analyzed for but not detected at the concentration value preceding the qualifier.

UJ - Non-detected result was estimated; QC not acceptable.

B - Indicates the analyte was detected in both the same and associated method blank.

UJB - Non-detected; detection limit was adjusted for blank contamination.

E - Indicates that the concentration reported exceeded the calibration range of the analysis method and that sample should have been diluted and reanalyzed.

D - Indicates that the sample required dilution prior to analysis to bring the detected value within the calibration range of the method of analysis.

R - Indicates that data is not useable because quality control criteria were not met.

UR - Non-detected result was rejected; QC not acceptable.

X - Indicates that a combination of flags were required or that the sample required additional notes not covered by other flags. A case specific explanation is included when this qualifier is used.

Inorganic Data Qualifiers (Flags)

E - The reported value is estimated because of the presence of interference. An explanatory note must be included by the laboratory under Comments on the cover page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M - Duplicate injection precision not met.

Click Here to Return to Main Index

N - Spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions.

W - Postdigestion spike for Furnace Atomic Absorption analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

[] - Value reported is less than the CRDL.

* - Duplicate analysis not within control limits.

+ - Correlation coefficient for the Method of Standard Addition is less than 0.995.

Others

The following letters or notations may appear on the tables:

R - Analysis not requested.

NA - Analyte requested but not analyzed.

-- - Analyte analyzed for but not detected.

Click Here to Return to Main Index

Table II
Volatile Method Blank Summary
Frequency/Concentration Range (ug/l or ug/kg)

compound	low water (29 total)	low soil (19 total)	method 524.1 (4 total)
methylene chloride	12(1J-2J)	19(3J-20)	--
acetone	8(5J-15)	19(5J-35)	--
chloroform	--	1(1J)	--
styrene	1(1J)	--	--
xylenes	5(1J)	--	--

Table III
Semivolatile Method Blank Summary
Frequency/Concentration Range (ug/l or ug/kg)

compound	low water (7 total)	low soil (11 total)
bis(2-ethylhexyl)phthalate	--	1(38J)
phenol	1(4J)	1(77J)
2,4-dichlorophenol	1(2J)	--

Click Here to Return to Main Index

Date: July 19, 1989

Subject: NAS Brunswick Round 3 - Quality Assurance

Data Quality Verification

All organic and inorganic analytical data for the groundwater, soil, and sediment samples were generated by the protocols specified by the USEPA for the Contract Laboratory Program (CLP). The stringent quality control procedures outlined in the CLP protocols provide a preliminary level of assurance of data quality. In addition, all laboratory deliverables (analytical results and raw data) were subjected to a Level IV review by both experienced data reviewers and a project chemist using procedures specified in the USEPA "Functional Guidelines for Evaluating Organic Analyses" (HQ-8410-01, May 28, 1985) and the "Functional Guidelines for Evaluating Inorganic Analyses" and included the January 1987 USEPA Region I revisions. Level IV data quality represents confirmational data characterized by rigorous quality control and validation procedures and is adequate to support Risk Assessment, enforcement, and engineering alternative design. The validation guidelines used specify a systematic procedure for evaluating laboratory data, including holding times, blank analysis, surrogate recoveries, matrix spike results, GC/MS tuning, instrument calibration, compound identification, and method performance. The definitions of the data qualifiers (as well as laboratory qualifiers) used in reporting the analytical data are presented in Table I.

Additionally, several samples were analyzed for volatiles by USEPA Method 524.2. These analyses were subjected to Level III review which covers USEPA approved methods (but not specifically CLP). This evaluation included method blanks, holding times, and calibration where provided.

Volatile Organics

In general the volatile organics data was acceptable and may be used without qualification. In one case the non-detected results for 2-butanone were qualified as unusable (R) because the minimum response criteria for calibration were not met. Because of its solubility, this compound is extremely difficult to analyze by the purge & trap procedure used by this method. Therefore, this low response is typical for laboratories in the CLP.

All field duplicate results were acceptable.

Click Here to Return to Main Index

Semivolatile Organics

In general the semivolatile organics data were acceptable and may be used without qualification. The acid fraction for 03GW202AXX03XX and 02LT202XXX03XX were qualified as unusable for non-detected results because of poor surrogate recoveries. All field duplicate results were acceptable.

Inorganics

In general inorganics results were acceptable and may be used without qualification. Poor agreement was observed between field duplicates for 08SD803XXX03XX, 04GWGZB1XX03XX, and 08SW007XXX03XX. Since the laboratory data was reviewed and QC was found to be acceptable, these discrepancies may represent the difficulty associated with collecting a representative sample.

Blank Analyses

A total of 22 volatile method blanks were analyzed with this sample set. Of these, 13 were analyzed as low water samples, 8 as low soil, and 1 as low water by EPA 524.2. The results presented in Table II are typical for method blank data. Methylene chloride and acetone were the only contaminants observed and were all within the established CLP limits for blank contamination.

A total of 22 semivolatile method blanks were analyzed (18 low water and 4 low soil). The results presented in Table III are typical for method blank data.

No inorganics method blank contamination was reported above the CRQL.

No pesticide blank contamination was observed.

Click Here to Return to Main Index

TABLE 1

DATA QUALIFIERS

Data qualifiers are flags which are affixed to sample results by either the analytical laboratory or the data validator. The purpose of these flags is to alert the data user to any complications which may have arisen during the sample analysis which places limitations on the quality of the data. A brief description of these qualifiers is included.

Organic Data Qualifiers

J - Indicates an estimated value; result is either below the contract required detection limit (laboratory flag) or all quality assurance criteria were not met during analysis (validation flag).

JJ - Validation flag for values below CRDL only.

U - Indicates that parameter was analyzed for but not detected at the concentration value preceding the qualifier.

UJ - Non-detected result was estimated; QC not acceptable.

B - Indicates the analyte was detected in both the same and associated method blank.

UJB - Non-detected; detection limit was adjusted for blank contamination.

E - Indicates that the concentration reported exceeded the calibration range of the analysis method and that sample should have been diluted and reanalyzed.

D - Indicates that the sample required dilution prior to analysis to bring the detected value within the calibration range of the method of analysis.

R - Indicates that data is not useable because quality control criteria were not met.

UR - Non-detected result was rejected; QC not acceptable.

X - Indicates that a combination of flags were required or that the sample required additional notes not covered by other flags. A case specific explanation is included when this qualifier is used.

Inorganic Data Qualifiers (Flags)

E - The reported value is estimated because of the presence of interference. An explanatory note must be included by the laboratory under Comments on the cover page (if the problem applies to all samples) or on the specific FORM I-IN (if it is an isolated problem).

M - Duplicate injection precision not met.

Click Here to Return to Main Index

N - Spiked sample recovery not within control limits.

S - The reported value was determined by the Method of Standard Additions.

W - Postdigestion spike for Furnace Atomic Absorption analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

[] - Value reported is less than the CRDL.

* - Duplicate analysis not within control limits.

+ - Correlation coefficient for the Method of Standard Addition is less than 0.995.

Others

The following letters or notations may appear on the tables:

NR - Analysis not requested.

NA - Analyte requested but not analyzed.

-- - Analyte analyzed for but not detected.

Click Here to Return to Main Index

Table II
Volatile Method Blank Summary
Frequency/Concentration Range (ug/l or ug/kg)

compound	low water (13 total)	low soil (8 total)	method 524.1 (4 total)
methylene chloride	1(2J)	8(2J-19)	1(4.2)
acetone	4(15)	1(8J)	--

Table III
Semivolatile Method Blank Summary
Frequency/Concentration Range (ug/l or ug/kg)

compound	low water (18 total)	low soil (4 total)
bis(2-ethylhexyl)phthalate	--	2(48J-310J)
benzioc acid	1(3J)	--

Click Here to Return to Main Index

NAS BRUNSWICK ROUND 4 - QUALITY ASSURANCE

DATA QUALITY VERIFICATION

All organic and inorganic analytical data were generated by the protocols specified by the USEPA for the Contract Laboratory Program (CLP). The stringent quality control procedures outlined in the CLP protocols provide a preliminary level of assurance of data quality. In addition, all laboratory deliverables (analytical results and raw data) were subjected to full validation by both experienced data reviewers and a project chemist using procedures specified in the USEPA "Functional Guidelines for Evaluating Organic Analyses" (February 1988) and the "Functional Guidelines for Evaluating Inorganic Analysis" (June 1988) and includes the current USEPA Region I revisions. These analyses and validation provide USEPA Level IV data quality, which represents confirmational data characterized by rigorous quality control and validation procedures and is adequate to support risk assessment, enforcement, and engineering alternative design. The validation guidelines used specify a systematic procedure for evaluating laboratory data, including holding times, blank analyses, surrogate recoveries, matrix spike results, GC/MS tuning, instrument calibration, compound identification, and method performance. The definitions of the data qualifiers (as well as laboratory qualifiers) used in reporting the analytical data are presented in Table 1.

The holding time requirements specified by the CLP statement of Work (SOW) do not agree with the holding time evaluation procedure outlined in the validation guidelines. These differences are summarized as follows:

Parameter	CLP SOW	Validation Guidelines
VOCs	10d VTSR	7d date of collection
SVOCs, Pesticides/PCBs	5d VTSR (water)	7d date of collection
	10d VTSR (soil)	7d date of collection
Mercury	26d VTSR	28d date of collection
Cyanide	12d VTSR	14d date of collection

These differences should be considered when evaluating laboratory performance, since data may have been qualified for holding time during validation even though the laboratory may have been in compliance with the CLP SOW. The USEPA is aware of this problem and is currently reviewing their holding time policy. In the interim, data qualifications are based on the validation guidelines. These holding time qualifications may be considered as minor; in the case of VOCs, USEPA is considering changing the laboratory requirement to 28 days.

Method blanks, matrix spikes, and other laboratory QC results used during the validation process are not provided with this document. This information is maintained on file by Jordan and is available for inspection.

VOLATILE ORGANICS

In general, the volatile organics data were acceptable and may be used without qualification. In several cases, however, 2-butanone (MEK) results were

qualified as unusable (R) because the minimum response criteria for calibration were not met. Because of its solubility this compound is extremely difficult to analyze by the purge and trap procedure used by this method. Therefore, this low response is typical for laboratories in the CLP. Similarly, in some cases bromoform and 1,1,2,2-tetrachloroethane also failed to meet minimum response criteria and were, therefore, rejected.

A total of 20 (18 water, two soil) field blanks were analyzed, nine of which exhibited no contamination. For the remaining blank samples acetone, MEK, chloroform, methylene chloride, and 1,2-dichloroethene (total) were detected.

Twenty-five volatile field duplicates were analyzed, 22 of which were well within CLP acceptance criteria. The remaining duplicate pairs, BSMW403XXX04XX/XD, 01SB216X2901XX/DX, and 11SBX03X1201XX/XD failed with respect to one or more of the following analytes: MEK, toluene, 1,1,1-trichloroethane, and trichloroethene. Results should be considered as estimated.

A total of 114 method blanks were analyzed in conjunction with this set of samples. Of these, 43 were analyzed as water while the remaining 71 were analyzed as soil. Contaminants present in these volatile method blanks include methylene chloride, bromomethane, trichloroethene, acetone, chloroform, 2-hexanone, 1,1,1-trichloroethane, 1,1,2,2-tetrachloroethane, toluene, and total xylenes. The results presented in Table 2 are typical for volatile method blank data.

SEMIVOLATILE ORGANICS

In general, semivolatile organics data were acceptable and may be used without qualification. In several cases, however, analytes were rejected (R qualifier) for one of three reasons. The acid fraction for BSMW215XXX04XX, BSMW907XXX04XX, BSMW215XXX04XX, BSM215XXX04XXRE, BSMW907XXX04XX, 08SW818XXX04XX, and 08SW818XXX04XXRE were qualified as unusable for non-detected results because of poor surrogate recoveries. These results are typical and represent potential matrix interferences. Samples BSMW234XXX04XX and BSMW216BXX04XX also failed surrogate recovery criteria with respect to the base/neutral fraction. Analytes included in the acid fraction were further qualified as unacceptable for either (1) failing to meet acceptance criteria for matrix spike analysis, and/or (2) failing to meeting continuing calibration requirements.

Of a total of eight semivolatile field blanks analyzed (three soil, five water) only one water analyses showed contamination (bis[2-ethylhexyl]phathalate). this contamination was within CLP limits for blank contamination.

Poor agreement was observed between field duplicates 01TP117X1101XX, 01TP118X0701XX, 01TP121X0701XX, 01TP107X001XX, 09SD920XXX04XX, and 01TP108X001XX. Since the laboratory data was reviewed and QC was found to be acceptable, these discrepancies may represent the difficulty associated with collecting a representative sample. Results should be considered as estimated. Several samples analyzed for semivolatile components failed to meet the necessary holding time requirements, and the positive values were qualified as estimated.

Click Here to Return to Main Index

A total of 90 semivolatile method blanks were analyzed in conjuction with this set of samples. Of these, 43 were analyzed as water while the remaining 57 were analyzed so as soil. Contaminants detected included bis(2-ethylhexyl)phathalate, diethylphathalate, di-n-butylphathalate, benzoic acid, and 4-nitrophenol. All concentrations were within CLP limits for blank contamination. The results presented in Table 3 are typical for semivolatile organic method blank data.

INORGANICS

In general, the results for inorganics were acceptable and may be used without qualification. Several selenium results exhibited poor matrix spike recoveries and were rejected (R qualifier). These results for selenium are typical and represent potential matrix interferences. Of a total of 28 field duplicates analyzed, 16 failed percent difference criteria for at least one analyte. Since the laboratory data was reviewed and QC was found to be acceptable, these discrepancies may represent the difficulty associated with collecting a representative sample. Results should be considered as estimated.

A total of eight field blanks were analyzed. Three were analyzed as soil while the remaining five were analyzed as water. Zinc and iron were the only contaminants present and they were detected in only one sampler blank. Contamination levels were within CLP limits for blank contamination. No inorganic method blank contamination was reported above CRQL.

PESTICIDES

In general, pesticides data were acceptable and may be used without qualification. Poor agreement was observed between field duplicates 07TP7150001XX and 01TP117X1101XX with respect to Arochlor-1254 and 1242. Results should be considered as estimated.

No pesticide field blank contamination was observed and no pesticide method blank contamination was reported.

TOTAL ORGANIC CARBON

In general, TOC data were acceptable and may be used without qualification. All duplicate analyses were within QC criteria and no blank contamination was observed.

Click Here to Return to Main Index

TABLE 1

DEFINITION OF DATA QUALIFIERS

Organic Data Qualifiers

J - Indicates an estimated concentration because results are either below the contract required detection level (CRQL) or quality control criteria were not met.

JJ - Validation qualifier for concentrations below the CRQL.

U - Indicates that compound was analyzed but not detected.

UJ - Indicates that quantitation level was estimated because QC criteria were not met.

B - Indicates analyte was detected in both the sample and the associated laboratory method blank.

E - Indicates that the analyte concentration exceeded the calibration range of the GC/MS and that a re-analysis of a diluted sample is required.

D - Indicates that sample concentration was obtained by dilution to bring result within calibration range.

R - Indicates that data is unusable because QC criteria were not met.

X - Laboratory-defined qualifier used to provide additional information not covered by the other qualifiers.

Inorganic Data Qualifiers

E - The reported concentration is estimated because of the presence of an interference.

J - Indicates an estimated concentration because QC criteria were not met.

R - Indicates that data is unusable because QC criteria were not met.

M - Duplicate precision criteria were not met.

N - Spiked sample recovery not within control limits.

S - The reported concentration was determined by the method of standard additions.

W - Postdigestion spike for furnace atomic adsorption analysis is outside control limits.

1.90.108T
0001.0.0

Click Here to Return to Main Index

TABLE 1
(continued)

DEFINITION OF DATA QUALIFIERS

[]	-	Concentration reported is below CRQL.
*	-	Duplicate analysis not within control limits.
+	-	Correlation coefficient for the method of standard additions was less than 0.995

Other Notations

NR	-	Analysis not requested.
NA	-	Analysis requested by not performed.
-	-	Compound analyzed but not detected.

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Click Here to Return to Main Index

TABLE 2

VOLATILE METHOD BLANK SUMMARY
FREQUENCY/CONCENTRATION RANGE (µg/L or µg/kg)

COMPOUND	WATER (43 total)	SOIL (71 total)
Trichloroethene	2 (2J)	2 (2J)
Acetone	6 (4J-18)	52 (5J-48)
Chloroform	--	15 (1J-3J)
Methylene Chloride	30 (0.9J-19)	71 (2J-860)
2-Butanone	--	2 (1J)
2-Hexanone	--	6 (4J-6J)
1,1,1-Trichloroethane	--	2 (1J-2J)
1,1,2,2-Tetrachloroethane	--	2 (2J)
Toluene	--	3 (1J-190J)
Xylene (total)	--	1 (1J)
Bromomethane	1 (2J)	--

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Click Here to Return to Main Index

TABLE 3

SEMIVOLATILE METHOD BLANK SUMMARY
FREQUENCY/CONCENTRATION RANGE (µg/L or µg/kg)

COMPOUND	WATER (43 total)	SOIL (57 total)
bis(2-ethylhexyl)phthalate	4 (3J-48)	7 (40J-170J)
Diethylphathalate	1 (2J)	--
Di-n-butylphathalate	--	2 (38J-39J)
Benzoic Acid	--	2 (43J-48J)
4-Nitrophenol	--	1 (110J)

Click Here to Return to Main Index

SEDIMENT DATA

ROUNDS I, II, III, AND IV

PROJECT: Naval Air Station Brunswick

Volatile Sediment Analysis (ug/kg)

31-Jan-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	03SD002XXX01XX	03SD002XXX02XX	01SD002XXX04XX	03SD002XXX01DX	02SD003XXX01XX	02SD003XXX02XX	02SD003XXX04XX	01SD004XXX01XX
	LAB NUMBER:	8252-024	234888	283062	8252-025	8253-020	233749	283063	8253-021
	DATE SAMPLED:	9/7/88	12/09/88	08/28/89	9/7/88	9/08/88	12/06/88	08/28/89	9/08/88
ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	14000
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	R	-	R	R	R	-	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	12	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	125
Percent Solids:		56	48	62	54	76	78	75	69
Associated Method Blank:		VBLK08	GH035852B18	GH083217B19	VBLK08	C3647	GH033921B12	GH083226B12	C3706
Associated Equipment Blank:		SB-001	01SB001XXX02XX	SAMPLERBLANK01	SB-001	01SB002XXX01XX	01SB001XXX02XX	00QS001XXX04XX	01SB002XXX01XX

* = Held for Analysis, NA = Not Analyzed.

BRSD-CVS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Sediment Analysis (ug/kg)

31-Jan-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01SD004XXX02XX	01SD004XXX04XX	08SD006XXX01XX	08SD006XXX02XX	08SD007XXX01XX	08SD007XXX02XX	08SD008XXX01XX	08SD008XXX02XX
LAB NUMBER:	233744	283064	8258-013	235431	8258-015	236496	8258-017	236495
DATE SAMPLED:	12/06/88	08/28/89	9/13/88	12/12/88	9/13/88	12/15/88	9/13/88	12/15/88

ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	-	R	R	R	R	R	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		66	65	80	77	78	78	80	76
Associated Method Blank:		GH033921B12	GH083226B12	VBLKF	GH035603A18	VBLKF	GH036920A13	VBLKF	GH036920A13
Associated Equipment Blank:		01SB001XXX02XX	00QS001XXX04XX	01SB002XXX01XX	01SB002XXX02XX	01SB002XXX01XX	01SB002XXX02XX	01SB002XXX01XX	01SB002XXX02XX

* = Held for Analysis, NA = Not Analyzed.

BRSD-CWS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Sediment Analysis (ug/kg)

31-Jan-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:	08SD009XXX01XX	08SD009XXX02XX	09SD010XXX01XX	09SD010XXX02XX	09SD010XXX04XX	09SD011XXX01XX	09SD011XXX02XX	09SD011XXX03XX
LAB NUMBER:	8258-016	237104	8253-022	236756	283392	8253-023	236757	257315
DATE SAMPLED:	9/13/88	12/19/88	9/08/88	12/16/88	08/29/89	9/8/88	12/16/88	04/18/89

ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	1200	-	-
Acetone	10	80	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	R	R	R	-	R	R	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		60	72	80	73	81	79	74	72
Associated Method Blank:		VBLKF	GH037214B18	C3647	GH036920A13	GH083586C19	VBLKK	GH036920A13	GH057370A12
Associated Equipment Blank:		01SB002XXX01XX	01SB003XXX02XX	01SB002XXX01XX	01SB002XXX02XX	00QS002XXX04XX	01SB002XXX01XX	01SB002XXX02XX	-

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BRSD-CVS

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	09SD011XXX04XX	09SD011XXX01DX	09SD012XXX01XX	09SD012XXX02XX	09SD012XXX04XX	01SD113XXX01XX	01SD113XXX02XX	01SD113XXX03XX
SAMPLE ID:		09SD011XXX04XX	09SD011XXX01DX	09SD012XXX01XX	09SD012XXX02XX	09SD012XXX04XX	01SD113XXX01XX	01SD113XXX02XX	01SD113XXX03XX
LAB NUMBER:		283393	8253-024	8253-025	236758	283394	8256-018	236018	256482
DATE SAMPLED:		08/29/89	9/8/88	9/8/88	12/16/88	08/29/89	9/9/88	12/14/88	04/13/89
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	1000	1200	-	-	1100	-	-
Acetone	10	-	-	-	-	-	2700	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	R	R	R	-	R	R	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	880	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		82	80	81	72	81	79	61	72
Associated Method Blank:		GH083925B18	VBLKK	VBLKK	GH036920A13	GH083926C18	VBLKK	GH036350A19	GH056824A19
Associated Equipment Blank:		00QS002XXX04XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX02XX	00QS002XXX04XX	01SB002XXX01XX	01SB002XXX02XX	

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BRSD-CVS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Sediment Analysis (ug/kg)

31-Jan-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:		01SD113XXX04XX	01SD113XXX01DX	01SD114XXX01XX	01SD114XXX02XX	01SD114XXX04XX	01SD115XXX01XX	01SD115XXX02XX	01SD115XXX03XX
LAB NUMBER:		284124	8256-019	8256-020	236022	284113	8253-026	233745	255792
DATE SAMPLED:		08/31/89	9/9/88	09/09/88	12/14/88	08/31/89	9/8/88	12/06/88	04/10/89
ANALYTE	CRDL								
Chloromethane	10	-	-	NA	-	-	-	-	-
Bromomethane	10	-	-	NA	-	-	-	-	-
Vinyl Chloride	10	-	-	NA	-	-	-	-	-
Chloroethane	10	-	-	NA	-	-	-	-	-
Methylene Chloride	5	-	12	NA	-	-	2100	-	54
Acetone	10	-	-	NA	-	-	-	-	-
Carbon Disulfide	5	-	-	NA	-	-	-	-	-
1,1-Dichloroethene	5	-	-	NA	-	-	-	-	-
1,1-Dichloroethane	5	-	-	NA	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	NA	-	-	-	-	-
Chloroform	5	-	-	NA	-	-	-	-	-
1,2-Dichloroethane	5	-	-	NA	-	-	-	-	-
2-Butanone	10	27	R	NA	R	-	R	40 J	-
1,1,1-Trichloroethane	5	-	78	NA	-	-	-	-	-
Carbon Tetrachloride	5	-	-	NA	-	-	-	-	-
Vinyl Acetate	10	-	-	NA	-	-	-	-	-
Bromodichloromethane	5	-	-	NA	-	-	-	-	-
1,2-Dichloropropane	5	-	-	NA	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	NA	-	-	-	-	-
Trichloroethene	5	-	-	NA	-	-	-	-	-
Dibromochloromethane	5	-	-	NA	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	NA	-	-	-	-	-
Benzene	5	-	-	NA	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	NA	-	-	-	-	-
Bromoform	5	-	-	NA	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	NA	-	-	-	-	-
2-Hexanone	10	-	-	NA	-	-	-	-	-
Tetrachloroethene	5	-	-	NA	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	NA	-	-	1600	-	-
Toluene	5	-	-	NA	-	-	-	-	-
Chlorobenzene	5	-	-	NA	-	-	-	-	-
Ethylbenzene	5	-	-	NA	-	-	-	-	-
Styrene	5	-	-	NA	-	-	-	-	-
Xylenes (Total)	5	-	-	NA	-	-	-	-	-
Dilution Factor:		1	1	-	1	1	1	1	1
Percent Solids:		69	78	-	74	75	41	36	32
Associated Method Blank:		GH084530C19	VBLKB	-	GH036350A19	GH084530C19	VBLKK	GH033921B12	GH057360B19
Associated Equipment Blank:		00QS003XXX04XX	01SB002XXX01XX	-	01SB002XXX02XX	00QS003XXX04XX	01SB002XXX01XX	01SB001XXX02XX	-

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BRSD-CVS

J-31

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Sediment Analysis (ug/kg)

31-Jan-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	01SD115XXX04XX	01SD118XXX01XX	01SD118XXX02XX	01SS118XXX01XX	01SS118XXX02XX	01SD118XXX04XX	01SD119XXX01XX	01SD119XXX02XX
	LAB NUMBER:	283061	8256-021	236014	8253-029	234892	284120	8256-022	236009
	DATE SAMPLED:	08/28/89	9/9/88	12/14/88	9/8/88	12/09/88	08/31/89	9/9/88	12/14/88
ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	1200	-	1200	-	-	17	-
Acetone	10	-	2900	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	22	R	R	R	R	-	R	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	970	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		52	76	71	66	21	70	70	69
Associated Method Blank:		GH083217B19	VBLKK	GH036349A19	VBLKK	GH035107C18	GH084530C19	VBLKB	GH036349A19
Associated Equipment Blank:		SAMPLERBLANK01	01SB002XXX01XX	01SB002XXX02XX	01SB002XXX01XX	01SB001XXX02XX	00qS003XXX04XX	01SB002XXX01XX	01SB002XXX02XX

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BRSD-CVS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Sediment Analysis (ug/kg)

31-Jan-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01SD119XXX04XX	01SD120XXX04XX	01SD121XXX04XX	01SD122XXX04XX	01SD123XXX04XX	01SD124XXX04XX	01SD124XXX04XD	01SD125AXX04XX
LAB NUMBER:	284131	283060	283057	283054	283055	283385	283390	284213
DATE SAMPLED:	08/31/89	08/28/89	08/28/89	08/28/89	08/28/89	08/29/89	08/29/89	08/31/89

ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	-	34	-	-	-	-	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	72	69	56	65	76	69	74	77

Associated Method Blank:	GH084530C19	GH083217B19	GH083217B19	GH083217B19	GH083217B19	GH083585C19	GH083586C19	GH084914B12
Associated Equipment Blank:	00QS003XXX04XX	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK01	00QS002XXX04XX	00QS002XXX04XX	00QS003XXX04XX

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BRSD-CVS

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	01SD125AXX04XD	01SD126XXX04XX	01SD127XXX04XX	01SD128XXX04XX	01SD129XXX04XX	02SD201XXX01XX	02SD201XXX02XX	02SD201XXX03XX
SAMPLE ID:		01SD125AXX04XD	01SD126XXX04XX	01SD127XXX04XX	01SD128XXX04XX	01SD129XXX04XX	02SD201XXX01XX	02SD201XXX02XX	02SD201XXX03XX
LAB NUMBER:		284214	284156	284152	284167	284179	8252-026	233756	255768
DATE SAMPLED:		08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	9/7/88	12/06/88	04/10/89
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	37 J
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	-	-	-	-	R	29 J	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	200 J	15	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		94	60	48	53	53	53	71	51
Associated Method Blank:		GH084914B12	GH084530C19	GH084530C19	GH084530C19	GH084530C19	V8LK08	GH033923C12	GH056045C12
Associated Equipment Blank:		00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	SB-001	01SB001XXX02XX	-

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Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Sediment Analysis (ug/kg)

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	02SD201XXX04XX	02SD201XXX03XD	02SD202XXX01XX	02SD202XXX02XX	02SD202XXX03XX	02SD202XXX04XX	02SD202XXX02DX	BSSD203XXX04XX
LAB NUMBER:	283688	255779	8252-027	234886	256293	283689	234887	293375
DATE SAMPLED:	08/30/89	04/10/89	9/7/88	12/09/88	04/12/89	08/30/89	12/09/88	10/06/89
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	39 J	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	-	R	R	-	-	R	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	10	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	5	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		74	61	54	39	56	72	43	24
Associated Method Blank:		GH085336C12	GH056045C12		VBLK08	GH035106B18	GH056824A19	GH085337A12	GH035852B18	GH093583C19
Associated Equipment Blank:		00QS003XXX04XX	-		SB-001	01SB001XXX02XX	01BS003XXX03XX 01BS001XXX03XX	00QS003XXX04XX	01SB001XXX02XX	BSQSXX1XXX04XX

BRSD-CVS

* = Held for Analysis, NA = Not Analyzed.

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Sediment Analysis (ug/kg)

31-Jan-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	03SD301XXX01XX	03SD301XXX02XX	03SD301XXX03XX	03SD301XXX04XX	03SD302XXX01XX	03SD302XXX02XX	03SD302XXX03XX	03SD302XXX04XX
	LAB NUMBER:	8252-028RE	234628	255970	283051	8252-029	234627	255971	283690
	DATE SAMPLED:	9/7/88	12/08/88	04/10/89	08/28/89	9/7/88	12/08/88	04/11/89	08/30/89
ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	52 J	-	60 J	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	34	78	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	R	-	-	R	R	-	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	10	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	440	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	3700	210	330	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		45	64	50	41	19	59	52	57
Associated Method Blank:		VBLK09	GH035110A13	GH056045C12	GH083217B19	VBLK09	GH035109C13	GH057632A19	GH085337A12
Associated Equipment Blank:		SB-001	01SB001XXX02XX	-	SAMPLERBLANK01	SB-001	01SB001XXX02XX	-	00QS003XXX04XX

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BRSD-CVS

J-36

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Sediment Analysis (ug/kg)

31-Jan-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:	01SD303XXX01XX	01SD303XXX02XX	01SD303XXX03XX	03SD303XXX04XX	03SD303XXX04XD	01SD304XXX01XX	01SD304XXX02XX	01SD304XXX03XX
LAB NUMBER:	8252-030	234623	255972	283691	283693	8252-031RE	234624	255968
DATE SAMPLED:	9/7/88	12/08/88	04/11/89	08/30/89	08/30/89	09/7/88	12/08/88	04/11/89

ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	33	-	-	-	-	540 J
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	R	-	-	-	R	-	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	110
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		59	71	70	75	73	21	10	9
Associated Method Blank:		VBLK08	GH035109C13	GH056824A19	GH085337A12	GH085337A12	VBLK09	GH035212A13	GH056045C12
Associated Equipment Blank:		SB-001	01SB001XXX02XX	-	00QS003XXX04XX	00QS003XXX04XX	SB-001	01SB001XXX02XX	-

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BRSD-CVS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Sediment Analysis (ug/kg)

31-Jan-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	03SD304XXX04XX	01SD304XXX02DX	01SD305XXX01XX	01SD305XXX02XX	01SD305XXX03XX	03SD305XXX04XX	03SD306XXX04XX	03SD307XXX04XX
	LAB NUMBER:	283694	234625	8252-032	234626	255969	283696	283695	283697
	DATE SAMPLED:	08/30/89	12/08/88	9/7/88	12/08/88	04/10/89	08/30/89	08/30/89	08/30/89
ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	-	R	R	-	-	-	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		13	9	47	61	56	68	68	52
Associated Method Blank:		GH085337A12	GH035109C13	VBLK08	GH035212A13	GH056045C12	GH083954C18	GH083954C18	GH085191C19
Associated Equipment Blank:		00QS003XXX04XX	01SB001XXX02XX	SB-001	01SB001XXX02XX	-	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX

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BRSD-CVS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Sediment Analysis (ug/kg)

31-Jan-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:	03SD316XXX01XX	03SD316XXX02XX	03SD316XXX04XX	03SD317XXX01XX	03SD317XXX02XX	03SD317XXX04XX	03SD317XXX02DX	03SD318XXX04XX
LAB NUMBER:	8252-033	234889	283052	8252-034	234890	283056	234891	283687
DATE SAMPLED:	9/7/88	12/09/88	08/28/89	9/7/88	12/09/88	08/28/89	12/09/88	08/30/89

ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	R	-	R	R	-	R	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	47	72	88	58	76	80	74	74
Associated Method Blank:	VBLK08	GH035107C18	GH083217B19	VBLK08	GH035107C18	GH083217B19	GH035107C18	GH085336C12
Associated Equipment Blank:	SB-001	01SB001XXX02XX	SAMPLERBLANK01	SB-001	01SB001XXX02XX	SAMPLERBLANK01	01SB001XXX02XX	00QS003XXX04XX

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BRSD-CVS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 03SD318XXX04XD LAB NUMBER: 283692 DATE SAMPLED: 08/30/89	03SD319XXX04XX 283053 08/28/89	08SD801XXX01XX 8259-009 09/14/88	08SD801XXX03XX 257304 04/18/89	08SD801XXX04XX 284445 09/01/89	08SD801XXX03XD 257306 04/18/89	08SD802XXX01XX 8259-011 9/14/88	08SD802XXX02XX 237102 12/19/88
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	2300	-
Acetone	10	-	-	1800	410	-	330	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	62	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	-	220 J	-	-	-	R	R
1,1,1-Trichloroethane	5	-	-	59	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	5	1	1	1	1	1
Percent Solids:		61	67	49	31	72	28	65	58
Associated Method Blank:		GH085337A12	GH083217B19	VBLKG	GH057370A12	GH084915C12	GH057370A12	C3905	GH037584A13
Associated Equipment Blank:		00QS003XXX04XX	SAMPLERBLANK01	01SB002XXX01XX	-	00QS003XXX04XX	-	01SB001XXX01XX	01SB003XXX02XX

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BRSD-CVS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Sediment Analysis (ug/kg)

31-Jan-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	08SD802XXX03XX	08SD802XXX04XX	08SD803XXX01XX	08SD803XXX02XX	08SD803XXX03XX	08SD803XXX04XX	08SD803XXX03XD	08SD817XXX01XX
	LAB NUMBER:	257307	284449	8259-010	235430	257309	284448	257311	8259-012
	DATE SAMPLED:	04/18/89	09/01/89	9/14/88	12/12/88	04/18/89	09/01/89	04/18/89	9/14/88
ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	1900
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	93	-	360	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	15	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	R
2-Butanone	10	-	-	R	R	-	-	-	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		56	67	55	58	63	72	61	61
Associated Method Blank:		GH057370A12	GH084915C12	C3876	GH035603A18	GH057370A12	GH084915C12	GH057370A12	C3905
Associated Equipment Blank:		-	00QS003XXX04XX	01SB001XXX01XX	01SB002XXX02XX	-	00QS003XXX04XX	-	01SB001XXX01XX

* = Held for Analysis, NA = Not Analyzed.

BRSD-CVS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick | Volatile Sediment Analysis (ug/kg) | 31-Jan-90

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	08SD817XXX02XX	08SD818XXX01XX	08SD818XXX02XX	08SD819XXX01XX	08SD819XXX02XX	08SD820XXX01XX	08SD820XXX02XX	08SD821XXX01XX
SAMPLE ID:		08SD817XXX02XX	08SD818XXX01XX	08SD818XXX02XX	08SD819XXX01XX	08SD819XXX02XX	08SD820XXX01XX	08SD820XXX02XX	08SD821XXX01XX
LAB NUMBER:		237106	8259-013	237108	8258-012	235429	8257-008	236497	8258-014
DATE SAMPLED:		12/19/88	9/14/88	12/19/88	09/13/88	12/12/88	9/12/88	12/15/88	9/13/88
Chloromethane	10	-	-	-	R	-	-	-	-
Bromomethane	10	-	-	-	R	-	-	-	-
Vinyl Chloride	10	-	-	-	R	-	-	-	-
Chloroethane	10	-	-	-	R	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	110 JB	-	-
Acetone	10	-	38	-	R	-	75	-	-
Carbon Disulfide	5	-	-	-	R	-	-	-	-
1,1-Dichloroethene	5	-	-	-	R	-	-	-	-
1,1-Dichloroethane	5	-	-	-	R	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	R	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	11
1,2-Dichloroethane	5	-	-	-	R	-	-	-	-
2-Butanone	10	-	R	R	R	R	R	R	R
1,1,1-Trichloroethane	5	-	-	-	R	-	-	-	-
Carbon Tetrachloride	5	-	-	-	R	-	-	-	-
Vinyl Acetate	10	-	-	-	R	-	-	-	-
Bromodichloromethane	5	-	-	-	R	-	-	-	-
1,2-Dichloropropane	5	-	-	-	R	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	R	-	-	-	-
Trichloroethene	5	-	-	-	R	-	-	-	-
Dibromochloromethane	5	-	-	-	R	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	R	-	-	-	-
Benzene	5	-	-	-	R	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	R	-	-	-	-
Bromoform	5	-	-	-	R	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	R	-	-	-	-
2-Hexanone	10	-	-	-	R	-	-	-	-
Tetrachloroethene	5	-	-	-	R	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	R	-	-	-	-
Toluene	5	-	-	-	R	-	-	-	-
Chlorobenzene	5	-	-	-	R	-	-	-	-
Ethylbenzene	5	-	-	-	R	-	-	-	-
Styrene	5	-	-	-	R	-	-	-	-
Xylenes (Total)	5	-	-	-	R	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		34	67	73	80	72	70	58	78
Associated Method Blank:		GH037214B18	C3890	GH037216C13	VBLKF	GH035603A18	VBLKE	GH036920A13	VBLKF
Associated Equipment Blank:		01SB003XXX02XX	01SB001XXX01XX	01SB003XXX02XX	01SB002XXX01XX	01SB001XXX02XX	01SB002XXX01XX	01SB002XXX02XX	01SB002XXX01XX

* = Held for Analysis, NA = Not Analyzed.

BRSD-CVS

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PROJECT: Naval Air Station Brunswick

Volatile Sediment Analysis (ug/kg)

31-Jan-90

Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 08SD821XXX02XX LAB NUMBER: 236498 DATE SAMPLED: 12/15/88	09SD901XXX03XX 257313 04/18/89	09SD901XXX04XX 283396 08/29/89	09SD915XXX01XX 8253-027 9/8/88	09SD915XXX02XX 236761 12/16/88	09SD915XXX03XX 256483 04/13/89	09SD915XXX04XX 283386 08/29/89	09SD916XXX01XX 8253-028 9/8/88
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	1500	-	-	-	1100
Acetone	10	-	290	-	-	-	-	-	2400
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	R	-	R	R	-	-	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	920
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		73	55	73	59	65	78	81	76
Associated Method Blank:		GH036920A13	GH057627A12	GH083580C18	VBLKK	GH036921B13	GH056824A19	GH083586C19	VBLKK
Associated Equipment Blank:		01SB002XXX02XX	-	00QS002XXX04XX	01SB002XXX01XX	01SB002XXX02XX	-	00QS002XXX04XX	01SB002XXX01XX

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BRSD-CVS

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	09SD916XXX02XX	09SD916XXX03XX	09SD916XXX04XX	09SD917XXX01XX	09SD917XXX03XX	09SD917XXX01DX	01SD918XXX01XX	09SD918XXX02XX
SAMPLE ID:		09SD916XXX02XX	09SD916XXX03XX	09SD916XXX04XX	09SD917XXX01XX	09SD917XXX03XX	09SD917XXX01DX	01SD918XXX01XX	09SD918XXX02XX
LAB NUMBER:		236762	256492	283387	8260-031	256712	8260-032	8267-003	237110
DATE SAMPLED:		12/16/88	04/13/89	08/29/89	9/16/88	04/14/89	9/16/88	9/22/88	12/19/88
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	1600	-	2200	-	-
Acetone	10	-	-	-	-	-	-	300 J	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	1100	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	-	-	R	-	R	R	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	R	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		71	76	74	64	62	64	56	66
Associated Method Blank:		GH036921B13	GH057993A03	GH083586C19	C3905	GH056848C12	C3905	C4000	GH037584A13
Associated Equipment Blank:		01SB002XXX02XX	-	00QS002XXX04XX	01SB003XXX01XX	-	01SB003XXX01XX	01SB003XXX01XX	01SB003XXX02XX

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BRSD-CVS

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PROJECT: Naval Air Station Brunswick

Volatile Sediment Analysis (ug/kg)

31-Jan-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:	09SD918XXX02DX	09SD919XXX04XX	09SD920XXX04XX	09SD920XXX04XD	09SD921XXX04XX	09SD922XXX04XX	09SD923XXX04XX	09SD924XXX04XX
LAB NUMBER:	237111	283388	283389	283403	283391	283395	284447	284446
DATE SAMPLED:	12/19/88	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	09/01/89	09/01/89

ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	-	-	-	-	-	-	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	66	83	77	76	80	79	38	80

Associated Method Blank:	GH037216C13	GH083586C19	GH083586C19	GH083580C18	GH083586C19	GH083926C18	GH084915C12	GH084915C12
Associated Equipment Blank:	01SB003XXX02XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS003XXX04XX	00QS003XXX04XX

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BRSD-CVS

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09SD925XXX04XX LAB NUMBER: 284205 DATE SAMPLED: 08/31/89	09SD926XXX04XX 284212 08/31/89	09SD927XXX04XX 283698 08/30/89	09SDBK1XXX02XX 236759 12/16/88	01SDBK1XXX03XX 256486 04/13/89	09SDBK2XXX02XX 236760 12/16/88	01SDBK2XXX03XX 256489 04/13/89
Chloromethane	10	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-
2-Butanone	10	-	-	-	-	-	R	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-
Toluene	5	-	470	460	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1
Percent Solids:		74	11	29	64	74	86	79
Associated Method Blank:		GH084914B12	GH084914B12	GH085191C19	GH036921B13	GH056824A19	GH036921B13	GH056824A19
Associated Equipment Blank:		00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	01SB002XXX02XX	-	01SB002XXX02XX	-

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PROJECT: Naval Air Station Brunswick

Pesticides/PCBs Sediment Analysis (ug/kg)

08-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	03SD002XXX01XX	03SD002XXX02XX	01SD002XXX04XX	03SD002XXX01DX	02SD003XXX01XX	02SD003XXX02XX	02SD003XXX04XX	01SD004XXX01XX
	LAB NUMBER:	8252-024	234888	283062	8252-025	8253-020	233749	283063	8253-021
	DATE SAMPLED:	9/7/88	12/09/88	08/28/89	9/7/88	9/08/88	12/06/88	08/28/89	9/08/88
ANALYTE	CRDL								
alpha-BHC	8	-	-	-	-	-	-	-	-
beta-BHC	8	-	-	-	-	-	-	-	-
delta-BHC	8	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	8	-	-	-	-	-	-	-	-
Heptachlor	8	-	-	-	-	-	-	-	-
Aldrin	8	-	-	-	-	-	-	-	-
Heptachlor epoxide	8	-	-	-	-	-	-	-	-
Endosulfan I	8	-	-	-	-	-	-	-	-
Dieldrin	16	-	-	-	-	-	-	-	-
4,4'-DDE	16	-	-	-	-	-	-	-	-
Endrin	16	-	-	-	-	-	-	-	-
Endosulfan II	16	-	-	-	-	-	-	-	-
4,4'-DDD	16	-	-	-	-	-	-	-	-
Endosulfan sulfate	16	-	-	-	-	-	-	-	-
4,4'-DDT	16	-	-	-	-	-	-	-	-
Methoxychlor	80	-	-	-	-	-	-	-	-
Endrin ketone	16	-	-	-	-	-	-	-	-
alpha-Chlordane	80	-	-	-	-	-	-	-	-
gamma-Chlordane	80	-	-	-	-	-	-	-	-
Toxaphene	160	-	-	-	-	-	-	-	-
Aroclor-1016	80	-	-	-	-	-	-	-	-
Aroclor-1221	80	-	-	-	-	-	-	-	-
Aroclor-1232	80	-	-	-	-	-	-	-	-
Aroclor-1242	80	-	-	-	-	-	-	-	-
Aroclor-1248	80	-	-	-	-	-	-	-	-
Aroclor-1254	160	-	-	-	-	-	-	-	-
Aroclor-1260	160	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		72	48	62	75	76	78	75	69
Associated Method Blank:		PBLK03	236145	283152	PBLK03	PBLKBB	233912	283484	PBLKBB
Associated Equipment Blank:		01SB002XXX01XX	01SB001XXX02XX	SAMPLERBLANK01	01SB002XXX01XX	01SB002XXX01XX	01SB001XXX02XX	00QS001XXX04XX	01SB002XXX01XX

NA = Not Analyzed, * = Held for Analysis

BRSD-CPS

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Combined Summary Table for Statistical Analysis

SAMPLE ID:	01SD004XXX02XX	01SD004XXX04XX	08SD006XXX01XX	08SD006XXX02XX	08SD007XXX01XX	08SD007XXX02XX	08SD008XXX01XX	08SD008XXX02XX
LAB NUMBER:	233744	283064	8258-013	235431	8258-015	236496	8258-017	236495
DATE SAMPLED:	12/06/88	08/28/89	09/13/88	12/12/88	9/13/88	12/15/88	9/13/88	12/15/88
ANALYTE	CRDL							
alpha-BHC	8	-	-	R	-	-	-	-	-
beta-BHC	8	-	-	R	-	-	-	-	-
delta-BHC	8	-	-	R	-	-	-	-	-
gamma-BHC (Lindane)	8	-	-	R	-	-	-	-	-
Heptachlor	8	-	-	R	-	-	-	-	-
Aldrin	8	-	-	R	-	-	-	-	-
Heptachlor epoxide	8	-	-	R	-	-	-	-	-
Endosulfan I	8	-	-	R	-	-	-	-	-
Dieldrin	16	-	-	R	-	-	-	-	-
4,4'-DDE	16	-	-	R	-	-	-	-	-
Endrin	16	-	-	R	-	-	-	-	-
Endosulfan II	16	-	-	R	-	-	-	-	-
4,4'-DDD	16	-	-	R	-	-	-	-	-
Endosulfan sulfate	16	-	-	R	-	-	-	-	-
4,4'-DDT	16	-	-	R	-	-	-	-	-
Methoxychlor	80	-	-	R	-	-	-	-	-
Endrin ketone	16	-	-	R	-	-	-	-	-
alpha-Chlordane	80	-	-	R	-	-	-	-	-
gamma-Chlordane	80	-	-	R	-	-	-	-	-
Toxaphene	160	-	-	R	-	-	-	-	-
Aroclor-1016	80	-	-	R	-	-	-	-	-
Aroclor-1221	80	-	-	R	-	-	-	-	-
Aroclor-1232	80	-	-	R	-	-	-	-	-
Aroclor-1242	80	-	-	R	-	-	-	-	-
Aroclor-1248	80	-	-	R	-	-	-	-	-
Aroclor-1254	160	-	-	R	-	-	-	-	-
Aroclor-1260	160	-	-	R	-	-	-	-	-
Dilution Factor:		1	2	1	1	1	1	1	1
Percent Solids:		66	65	80	77	78	78	80	76
Associated Method Blank:		233912	283484	PBLKDD	236145	PBLKDD	236939	PBLKDD	236939
Associated Equipment Blank:		01SB001XXX02XX	00QS001XXX04XX	01SB002XXX01XX	01SB002XXX02XX	01SB002XXX01XX	01SB002XXX02XX	01SB002XXX01XX	01SB002XXX02XX

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PROJECT: Naval Air Station Brunswick

Pesticides/PCBs Sediment Analysis (ug/kg)

08-Feb-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:	08SD008XXX04XD	08SD009XXX01XX	08SD009XXX02XX	09SD010XXX01XX	09SD010XXX02XX	09SD010XXX03XX	09SD011XXX01XX	09SD011XXX02XX
LAB NUMBER:	284444	8258-016	237104	8253-022	236756	257303	8253-023	236757
DATE SAMPLED:	09/01/89	9/13/88	12/19/88	9/08/88	12/16/88	04/18/89	09/08/88	12/16/88

ANALYTE	CRDL								
alpha-BHC	8	-	-	-	-	-	-	R	-
beta-BHC	8	-	-	-	-	-	-	R	-
delta-BHC	8	-	-	-	-	-	-	R	-
gamma-BHC (Lindane)	8	-	-	-	-	-	-	R	-
Heptachlor	8	-	-	-	-	-	-	R	-
Aldrin	8	-	-	-	-	-	-	R	-
Heptachlor epoxide	8	-	-	-	-	-	-	R	-
Endosulfan I	8	-	-	-	-	-	-	R	-
Dieldrin	16	-	-	-	-	-	-	R	-
4,4'-DDE	16	-	-	-	-	-	-	R	-
Endrin	16	-	-	-	-	-	-	R	-
Endosulfan II	16	-	-	-	-	-	-	R	-
4,4'-DDD	16	-	-	-	-	64	78	R	-
Endosulfan sulfate	16	-	-	-	-	-	-	R	-
4,4'-DDT	16	-	-	-	-	-	-	R	-
Methoxychlor	80	-	-	-	-	-	-	R	-
Endrin ketone	16	-	-	-	-	-	-	R	-
alpha-Chlordane	80	-	-	-	-	-	-	R	-
gamma-Chlordane	80	-	-	-	-	-	-	R	-
Toxaphene	160	-	-	-	-	-	-	R	-
Aroclor-1016	80	-	-	-	-	-	-	R	-
Aroclor-1221	80	-	-	-	-	-	-	R	-
Aroclor-1232	80	-	-	-	-	-	-	R	-
Aroclor-1242	80	-	-	-	-	-	-	R	-
Aroclor-1248	80	-	-	-	-	-	-	R	-
Aroclor-1254	160	-	-	-	-	-	-	R	-
Aroclor-1260	160	-	-	-	-	-	-	R	-

Dilution Factor:	1	1	1	1	1	1.0	1	1
Percent Solids:	75	60	72	80	73	81	79	78
Associated Method Blank:	284890	PBLKDD	238376	PBLKBB	237482	257341	PBLKGG	237482
Associated Equipment Blank:	D0QS003XXX04XX	01SB002XXX01XX	01SB003XXX02XX	01SB002XXX01XX	01SB002XXX02XX	-	01SB002XXX01XX	01SB002XXX02XX

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BRSD-CPS

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09SD011XXX01DX LAB NUMBER: 8253-024 DATE SAMPLED: 09/08/88	09SD012XXX01XX 8253-025 09/08/88	09SD012XXX02XX 236758 12/16/88	01SD113XXX01XX 8256-018 9/9/88	01SD113XXX02XX 236018 12/14/88	01SD113XXX04XX 284124 08/31/89	01SD113XXX01DX 8256-019 9/9/88	01SD114XXX01XX 8256-020 09/09/88
alpha-BHC	8	R	R	-	-	-	-	-	NA
beta-BHC	8	R	R	-	-	-	-	-	NA
delta-BHC	8	R	R	-	-	-	-	-	NA
gamma-BHC (Lindane)	8	R	R	-	-	-	-	-	NA
Heptachlor	8	R	R	-	-	-	-	-	NA
Aldrin	8	R	R	-	-	-	-	-	NA
Heptachlor epoxide	8	R	R	-	-	-	-	-	NA
Endosulfan I	8	R	R	-	-	-	-	-	NA
Dieldrin	16	R	R	-	-	-	-	-	NA
4,4'-DDE	16	R	R	-	-	-	-	-	NA
Endrin	16	R	R	-	-	-	-	-	NA
Endosulfan II	16	R	R	-	-	-	-	-	NA
4,4'-DDD	16	R	R	-	-	-	-	-	NA
Endosulfan sulfate	16	R	R	-	-	-	-	-	NA
4,4'-DDT	16	R	R	-	-	-	-	-	NA
Methoxychlor	80	R	R	-	-	-	-	-	NA
Endrin ketone	16	R	R	-	-	-	-	-	NA
alpha-Chlordane	80	R	R	-	-	-	-	-	NA
gamma-Chlordane	80	R	R	-	-	-	-	-	NA
Toxaphene	160	R	R	-	-	-	-	-	NA
Aroclor-1016	80	R	R	-	-	-	-	-	NA
Aroclor-1221	80	R	R	-	-	-	-	-	NA
Aroclor-1232	80	R	R	-	-	-	-	-	NA
Aroclor-1242	80	R	R	-	-	-	-	-	NA
Aroclor-1248	80	R	R	-	-	-	-	-	NA
Aroclor-1254	160	R	R	-	-	-	-	-	NA
Aroclor-1260	160	R	R	-	-	-	-	-	NA
Dilution Factor:		1	1	1	1	1	1	1	-
Percent Solids:		80	81	72	79	74	69	78	-
Associated Method Blank:		PBLKGG	PBLKGG	237482	PBLKRR	236939	284635	PBLKRR	-
Associated Equipment Blank:		01SB002XXX01XX	01SB002XXX01XX	01SB002XXX02XX	01SB002XXX01XX	01SB002XXX02XX	00QS003XXX04XX	01SB002XXX01XX	-

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BRSD-CPS

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PROJECT: Naval Air Station Brunswick

Pesticides/PCBs Sediment Analysis (ug/kg)

08-Feb-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:	01SD114XXX02XX	01SD114XXX04XX	01SD115XXX01XX	01SD115XXX02XX	01SD115XXX04XX	01SD118XXX01XX	01SD118XXX02XX	01SD118XXX04XX
LAB NUMBER:	236022	284113	8253-026	233745	283061	8256-021	236014	284120
DATE SAMPLED:	12/14/88	08/31/89	09/08/88	12/06/88	08/28/89	9/9/88	12/14/88	08/31/89

ANALYTE	CRDL								
alpha-BHC	8	-	-	R	-	-	-	-	-
beta-BHC	8	-	-	R	-	-	-	-	-
delta-BHC	8	-	-	R	-	-	-	-	-
gamma-BHC (Lindane)	8	-	-	R	-	-	-	-	-
Heptachlor	8	-	-	R	-	-	-	-	-
Aldrin	8	-	-	R	-	-	-	-	-
Heptachlor epoxide	8	-	-	R	-	-	-	-	-
Endosulfan I	8	-	-	R	-	-	-	-	-
Dieldrin	16	-	-	R	-	-	-	-	-
4,4'-DDE	16	-	-	R	-	-	-	-	-
Endrin	16	-	-	R	-	-	-	-	-
Endosulfan II	16	-	-	R	-	-	-	-	-
4,4'-DDD	16	-	-	R	-	-	-	-	-
Endosulfan sulfate	16	-	-	R	-	-	-	-	-
4,4'-DDT	16	-	-	R	-	-	R	-	-
Methoxychlor	80	-	-	R	-	-	-	-	-
Endrin ketone	16	-	-	R	-	-	-	-	-
alpha-Chlordane	80	-	-	R	-	-	-	-	-
gamma-Chlordane	80	-	-	R	-	-	-	-	-
Toxaphene	160	-	-	R	-	-	-	-	-
Aroclor-1016	80	-	-	R	-	-	-	-	-
Aroclor-1221	80	-	-	R	-	-	-	-	-
Aroclor-1232	80	-	-	R	-	-	-	-	-
Aroclor-1242	80	-	-	R	-	-	-	-	-
Aroclor-1248	80	-	-	R	-	-	-	-	-
Aroclor-1254	160	-	-	R	-	-	-	-	-
Aroclor-1260	160	-	-	R	-	-	-	-	-

Dilution Factor:	1	1	1	1	2	1	1	1
Percent Solids:	74	75	41	36	52	76	75	70

Associated Method Blank:	236939	284635	PBLKGG	233912	283152	PBLKRR	236939	284635
Associated Equipment Blank:	01SB002XXX02XX	000S003XXX04XX	01SB002XXX01XX	01SB001XXX02XX	SAMPLERBLANK01	01SB002XXX01XX	01SB002XXX02XX	000S003XXX04XX

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BRSD-CPS

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Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01SS118XXX01XX	01SS118XXX02XX	01SD119XXX01XX	01SD119XXX02XX	01SD119XXX04XX	01SD120XXX04XX	01SD121XXX04XX	01SD122XXX04XX
LAB NUMBER:	8253-029	234892	8256-022	236009	284131	283060	283057	283054
DATE SAMPLED:	09/08/88	12/09/88	9/9/88	12/14/88	08/31/89	08/28/89	08/28/89	08/28/89

ANALYTE	CRDL								
alpha-BHC	8	R	-	-	-	-	-	-	-
beta-BHC	8	R	-	-	-	-	-	-	-
delta-BHC	8	R	-	-	-	-	-	-	-
gamma-BHC (Lindane)	8	R	-	-	-	-	-	-	-
Heptachlor	8	R	-	-	-	-	-	-	-
Aldrin	8	R	-	-	-	-	-	-	-
Heptachlor epoxide	8	R	-	-	-	-	-	-	-
Endosulfan I	8	R	-	-	-	-	-	-	-
Dieldrin	16	R	-	-	-	-	-	-	-
4,4'-DDE	16	R	-	-	-	-	-	-	-
Endrin	16	R	-	-	-	-	-	-	-
Endosulfan II	16	R	-	-	-	-	-	-	-
4,4'-DDD	16	R	-	-	-	-	-	-	-
Endosulfan sulfate	16	R	-	-	-	-	-	-	-
4,4'-DDT	16	R	-	-	-	-	-	-	-
Methoxychlor	80	R	-	-	-	-	-	-	-
Endrin ketone	16	R	-	-	-	-	-	-	-
alpha-Chlordane	80	R	-	-	-	-	-	-	-
gamma-Chlordane	80	R	-	-	-	-	-	-	-
Toxaphene	160	R	-	-	-	-	-	-	-
Aroclor-1016	80	R	-	-	-	-	-	-	-
Aroclor-1221	80	R	-	-	-	-	-	-	-
Aroclor-1232	80	R	-	-	-	-	-	-	-
Aroclor-1242	80	R	-	-	-	-	-	-	-
Aroclor-1248	80	R	-	-	-	-	-	-	-
Aroclor-1254	160	R	-	-	-	-	-	-	-
Aroclor-1260	160	R	-	-	-	-	-	-	-

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	66	21	70	72	72	69	56	65
Associated Method Blank:	PBLKGG	236145	PBLKRR	236939	284635	283152	283152	283152
Associated Equipment Blank:	01SB002XXX01XX	01SB001XXX02XX	01SB002XXX01XX	01SB002XXX02XX	00QS003XXX04XX	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK01

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PROJECT: Naval Air Station Brunswick

Pesticides/PCBs Sediment Analysis (ug/kg)

08-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01SD123XXX04XX	01SD124XXX04XX	01SD124XXX04XD	01SD126XXX04XX	01SD126XXX04XD	01SD127XXX04XX	01SD128XXX04XX	01SD129XXX04XX
LAB NUMBER:	283055	283385	283390	284156	284215	284152	284167	284179
DATE SAMPLED:	08/28/89	08/29/89	08/29/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89

ANALYTE	CRDL								
alpha-BHC	8	-	-	-	-	-	-	-	-
beta-BHC	8	-	-	-	-	-	-	-	-
delta-BHC	8	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	8	-	-	-	-	-	-	-	-
Heptachlor	8	-	-	-	-	-	-	-	-
Aldrin	8	-	-	-	-	-	-	-	-
Heptachlor epoxide	8	-	-	-	-	-	-	-	-
Endosulfan I	8	-	-	-	-	-	-	-	-
Dieldrin	16	-	-	-	-	-	-	-	-
4,4'-DDE	16	-	-	-	-	-	-	-	-
Endrin	16	-	-	-	-	-	-	-	-
Endosulfan II	16	-	-	-	-	-	-	-	-
4,4'-DDD	16	-	-	-	-	-	-	-	-
Endosulfan sulfate	16	-	-	-	-	-	-	-	-
4,4'-DDT	16	-	-	-	-	-	-	-	-
Methoxychlor	80	-	-	-	-	-	-	-	-
Endrin ketone	16	-	-	-	-	-	-	-	-
alpha-Chlordane	80	-	-	-	-	-	-	-	-
gamma-Chlordane	80	-	-	-	-	-	-	-	-
Toxaphene	160	-	-	-	-	-	-	-	-
Aroclor-1016	80	-	-	-	-	-	-	-	-
Aroclor-1221	80	-	-	-	-	-	-	-	-
Aroclor-1232	80	-	-	-	-	-	-	-	-
Aroclor-1242	80	-	-	-	-	-	-	-	-
Aroclor-1248	80	-	-	-	-	-	-	-	-
Aroclor-1254	160	-	-	-	-	-	-	-	-
Aroclor-1260	160	-	-	-	-	-	-	-	-

Dilution Factor:	1	1	1	1	1	2	1	1
Percent Solids:	76	69	74	60	80	48	53	53
Associated Method Blank:	283152	283492	283492	284635	286878	284635	284635	284635
Associated Equipment Blank:	SAMPLERBLANK01	00QS002XXX04XX*	00QS002XXX04XX*	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX

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Combined Summary Table for
Statistical Analysis

SAMPLE ID:	02SD201XXX01XX	02SD201XXX02XX	02SD201XXX03XX	02SD201XXX04XX	02SD201XXX03XD	02SD202XXX01XX	02SD202XXX02XX	02SD202XXX03XX
LAB NUMBER:	8252-026	233756	255768	283688	255779	8252-027	234886	256293
DATE SAMPLED:	9/7/88	12/06/88	04/10/89	08/30/89	04/10/89	9/7/88	12/09/88	04/12/89
ANALYTE	CRDL							
alpha-BHC	8	-	-	-	-	-	-	-	-
beta-BHC	8	-	-	-	-	-	-	-	-
delta-BHC	8	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	8	-	-	-	-	-	-	-	-
Heptachlor	8	-	-	-	-	-	-	-	-
Aldrin	8	-	-	-	-	-	-	-	-
Heptachlor epoxide	8	-	-	-	-	-	-	-	-
Endosulfan I	8	-	-	-	-	-	-	-	-
Dieldrin	16	-	-	-	-	-	-	-	-
4,4'-DDE	16	-	-	-	-	-	-	-	-
Endrin	16	-	-	-	-	-	-	-	-
Endosulfan II	16	-	-	-	-	-	-	-	-
4,4'-DDD	16	-	-	-	-	-	-	-	-
Endosulfan sulfate	16	-	-	-	-	-	-	-	-
4,4'-DDT	16	-	-	-	-	-	-	-	-
Methoxychlor	80	-	-	-	-	-	-	-	-
Endrin ketone	16	-	-	-	-	-	-	-	-
alpha-Chlordane	80	-	-	-	-	-	-	-	-
gamma-Chlordane	80	-	-	-	-	-	-	-	-
Toxaphene	160	-	-	-	-	-	-	-	-
Aroclor-1016	80	-	-	-	-	-	-	-	-
Aroclor-1221	80	-	-	-	-	-	-	-	-
Aroclor-1232	80	-	-	-	-	-	-	-	-
Aroclor-1242	80	-	-	-	-	-	-	-	-
Aroclor-1248	80	-	-	-	-	-	-	-	-
Aroclor-1254	160	-	-	-	-	-	-	-	-
Aroclor-1260	160	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1.0	1	1.0	1	1	1.0
Percent Solids:		71	71	51	74	61	75	48	56
Associated Method Blank:		PBLK03	233912	255973	284622	255973	PBLK03	236145	256549
Associated Equipment Blank:		01SB002XXX01XX	01SB001XXX02XX	-	00QS003XXX04XX	-	01SB002XXX01XX	01SB001XXX02XX	01BS003XXX03XX

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BRSD-CPS

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 02SD202XXX04XX LAB NUMBER: 283689 DATE SAMPLED: 08/30/89	02SD202XXX02DX 234887 12/09/88	BSSD203XXX04XX 293375 10/06/89	03SD301XXX01XX 8252-028 9/7/88	03SD301XXX02XX 234628 12/08/88	03SD301XXX03XX 255970 04/11/89	01SD301XXX04XX 283051 08/28/89	03SD302XXX01XX 8252-029 9/7/88
alpha-BHC	8	-	-	-	-	-	-	-	-
beta-BHC	8	-	-	-	-	-	-	-	-
delta-BHC	8	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	8	-	-	-	-	-	-	-	-
Heptachlor	8	-	-	-	-	-	-	-	-
Aldrin	8	-	-	-	-	-	-	-	-
Heptachlor epoxide	8	-	-	-	-	-	-	-	-
Endosulfan I	8	-	-	-	-	-	-	-	-
Dieldrin	16	-	-	-	-	-	-	-	-
4,4'-DDE	16	-	-	-	-	-	-	-	-
Endrin	16	-	-	-	-	-	-	-	-
Endosulfan II	16	-	-	-	-	-	-	-	-
4,4'-DDD	16	-	-	-	-	-	-	-	-
Endosulfan sulfate	16	-	-	-	-	-	-	-	-
4,4'-DDT	16	-	-	-	-	-	-	-	-
Methoxychlor	80	-	-	-	-	-	-	-	-
Endrin ketone	16	-	-	-	-	-	-	-	-
alpha-Chlordane	80	-	-	-	-	-	-	-	-
gamma-Chlordane	80	-	-	-	-	-	-	-	-
Toxaphene	160	-	-	-	-	-	-	-	-
Aroclor-1016	80	-	-	-	-	-	-	-	-
Aroclor-1221	80	-	-	-	-	-	-	-	-
Aroclor-1232	80	-	-	-	-	-	-	-	-
Aroclor-1242	80	-	-	-	-	-	-	-	-
Aroclor-1248	80	-	-	-	-	-	-	-	-
Aroclor-1254	160	-	-	-	-	-	-	-	-
Aroclor-1260	160	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1.0	1	1
Percent Solids:		72	47	24	69	64	50	41	20
Associated Method Blank:		284729	236145	293838	PBLK03	235868	256340	283152	PBLK03
Associated Equipment Blank:		00QS003XXX04XX	01SB001XXX02XX	BSQSXX1XXX04XX	01SB002XXX01XX	01SB001XXX02XX	-	SAMPLERBLANK01	01SB002XXX01XX

NA = Not Analyzed, * = Held for Analysis

BRSD-CPS

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 03SD302XXX02XX LAB NUMBER: 234627 DATE SAMPLED: 12/08/88	03SD302XXX03XX 255971 04/11/89	03SD302XXX04XX 283690 08/30/89	01SD303XXX01XX 8252-030 9/7/88	01SD303XXX02XX 234623 12/08/88	01SD303XXX03XX 255972 04/11/89	03SD303XXX04XX 283691 08/30/89	03SD303XXX04XD 283693 08/30/89
alpha-BHC	8	-	-	-	-	-	-	-	-
beta-BHC	8	-	-	-	-	-	-	-	-
delta-BHC	8	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	8	-	-	-	-	-	-	-	-
Heptachlor	8	-	-	-	-	-	-	-	-
Aldrin	8	-	-	-	-	-	-	-	-
Heptachlor epoxide	8	-	-	-	-	-	-	-	-
Endosulfan I	8	-	-	-	-	-	-	-	-
Dieldrin	16	-	-	-	-	-	-	-	-
4,4'-DDE	16	-	-	-	-	-	-	-	-
Endrin	16	-	-	-	-	-	-	-	-
Endosulfan II	16	-	-	-	-	-	-	-	-
4,4'-DDD	16	-	-	-	-	-	-	-	-
Endosulfan sulfate	16	-	-	-	-	-	-	-	-
4,4'-DDT	16	-	-	-	-	-	-	-	-
Methoxychlor	80	-	-	-	-	-	-	-	-
Endrin ketone	16	-	-	-	-	-	-	-	-
alpha-Chlordane	80	-	-	-	-	-	-	-	-
gamma-Chlordane	80	-	-	-	-	-	-	-	-
Toxaphene	160	-	-	-	-	-	-	-	-
Aroclor-1016	80	-	-	-	-	-	-	-	-
Aroclor-1221	80	-	-	-	-	-	-	-	-
Aroclor-1232	80	-	-	-	-	-	-	-	-
Aroclor-1242	80	-	-	-	-	-	-	-	-
Aroclor-1248	80	-	-	-	-	-	-	-	-
Aroclor-1254	160	-	-	-	-	-	-	-	-
Aroclor-1260	160	-	-	-	-	-	-	-	-
Dilution Factor:		1	1.0	1	1	1	1.0	1	1
Percent Solids:		59	52	57	78	73	70	75	73
Associated Method Blank:		235868	256340	284729	PBLK03	235868	256340	284729	284729
Associated Equipment Blank:		01SB001XXX02XX	-	00QS003XXX04XX	01SB002XXX01XX	01SB001XXX02XX	-	00QS003XXX04XX	00QS003XXX04XX

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BRSD-CPS

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PROJECT: Naval Air Station Brunswick

Pesticides/PCBs Sediment Analysis (ug/kg)

08-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	01SD304XXX01XX	01SD304XXX02XX	01SD304XXX03XX	03SD304XXX04XX	01SD304XXX02DX	01SD305XXX01XX	01SD305XXX02XX	01SD305XXX03XX
	LAB NUMBER:	8252-031	234624	255968	283694	234625	8252-032	234626	255969
	DATE SAMPLED:	9/7/88	12/08/88	04/11/89	08/30/89	12/08/88	9/7/88	12/08/88	04/10/89
ANALYTE	CRDL								
alpha-BHC	8	-	-	-	-	-	-	-	-
beta-BHC	8	-	-	-	-	-	-	-	-
delta-BHC	8	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	8	-	-	-	-	-	-	-	-
Heptachlor	8	-	-	-	-	-	-	-	-
Aldrin	8	-	-	-	-	-	-	-	-
Heptachlor epoxide	8	-	-	-	-	-	-	-	-
Endosulfan I	8	-	-	-	-	-	-	-	-
Dieldrin	16	-	-	-	-	-	-	-	-
4,4'-DDE	16	-	-	-	-	-	-	-	-
Endrin	16	-	-	-	-	-	-	-	-
Endosulfan II	16	-	-	-	-	-	-	-	-
4,4'-DDD	16	-	-	-	-	-	-	-	-
Endosulfan sulfate	16	-	-	-	-	-	-	-	-
4,4'-DDT	16	-	-	-	-	-	-	-	-
Methoxychlor	80	-	-	-	-	-	-	-	-
Endrin ketone	16	-	-	-	-	-	-	-	-
alpha-Chlordane	80	-	-	-	-	-	-	-	-
gamma-Chlordane	80	-	-	-	-	-	-	-	-
Toxaphene	160	-	-	-	-	-	-	-	-
Aroclor-1016	80	-	-	-	-	-	-	-	-
Aroclor-1221	80	-	-	-	-	-	-	-	-
Aroclor-1232	80	-	-	-	-	-	-	-	-
Aroclor-1242	80	-	-	-	-	-	-	-	-
Aroclor-1248	80	-	-	-	-	-	-	-	-
Aroclor-1254	160	-	-	-	-	-	-	-	-
Aroclor-1260	160	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1.0	1	1	1	1	1.0
Percent Solids:		16	10	9	13	10	66	61	56
Associated Method Blank:		PBLK03	235868	256340	284729	235868	PBLK03	235868	256340
Associated Equipment Blank:		01SB002XXX01XX	01SB001XXX02XX	-	00QS003XXX04XX	01SB001XXX02XX	01SB002XXX01XX	01SB001XXX02XX	-

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BRSD-CPS

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	03SD305XXX04XX	03SD306XXX04XX	03SD307XXX04XX	03SD316XXX01XX	03SD316XXX02XX	01SD316XXX04XX	03SD317XXX01XX	03SD317XXX02XX
SAMPLE ID:		03SD305XXX04XX	03SD306XXX04XX	03SD307XXX04XX	03SD316XXX01XX	03SD316XXX02XX	01SD316XXX04XX	03SD317XXX01XX	03SD317XXX02XX
LAB NUMBER:		283696	283695	283697	8252-033	234889	283052	8252-034	234890
DATE SAMPLED:		08/30/89	08/30/89	08/30/89	9/7/88	12/09/88	08/28/89	9/7/88	12/09/88
alpha-BHC	8	-	-	-	-	-	-	-	-
beta-BHC	8	-	-	-	-	-	-	-	-
delta-BHC	8	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	8	-	-	-	-	-	-	-	-
Heptachlor	8	-	-	-	-	-	-	-	-
Aldrin	8	-	-	-	-	-	-	-	-
Heptachlor epoxide	8	-	-	-	-	-	-	-	-
Endosulfan I	8	-	-	-	-	-	-	-	-
Dieldrin	16	-	-	-	-	-	-	-	-
4,4'-DDE	16	-	-	-	-	-	-	-	-
Endrin	16	-	-	-	-	-	-	-	-
Endosulfan II	16	-	-	-	-	-	-	-	-
4,4'-DDD	16	-	-	-	-	-	-	-	-
Endosulfan sulfate	16	-	-	-	-	-	-	-	-
4,4'-DDT	16	-	-	-	-	-	-	-	-
Methoxychlor	80	-	-	-	-	-	-	-	-
Endrin ketone	16	-	-	-	-	-	-	-	-
alpha-Chlordane	80	-	-	-	-	-	-	-	-
gamma-Chlordane	80	-	-	-	-	-	-	-	-
Toxaphene	160	-	-	-	-	-	-	-	-
Aroclor-1016	80	-	-	-	-	-	-	-	-
Aroclor-1221	80	-	-	-	-	-	-	-	-
Aroclor-1232	80	-	-	-	-	-	-	-	-
Aroclor-1242	80	-	-	-	-	-	-	-	-
Aroclor-1248	80	-	-	-	-	-	-	-	-
Aroclor-1254	160	-	-	-	-	-	-	-	-
Aroclor-1260	160	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		68	68	52	68	74	80	76	76
Associated Method Blank:		284729	284729	284729	PBLK03	236145	283152	PBLK03	236145
Associated Equipment Blank:		00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	01SB002XXX01XX	01SB001XXX02XX	SAMPLERBLANK01	01SB002XXX01XX	01SB001XXX02XX

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BRSD-CPS

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PROJECT: Naval Air Station Brunswick

Pesticides/PCBs Sediment Analysis (ug/kg)

08-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01SD317XXX04XX	03SD317XXX02DX	03SD318XXX04XX	03SD318XXX04XD	01SD319XXX04XX	08SD801XXX01XX	08SD801XXX03XX	08SD801XXX04XX
	LAB NUMBER:	283056	234891	283687	283692	283053	8259-009	257304	284445
	DATE SAMPLED:	08/28/89	12/09/88	08/30/89	08/30/89	08/28/89	9/14/88	04/18/89	09/01/89
ANALYTE	CRDL								
alpha-BHC	8	-	-	-	-	-	-	-	-
beta-BHC	8	-	-	-	-	-	-	-	-
delta-BHC	8	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	8	-	-	-	-	-	-	-	-
Heptachlor	8	-	-	-	-	-	-	-	-
Aldrin	8	-	-	-	-	-	-	-	-
Heptachlor epoxide	8	-	-	-	-	-	-	-	-
Endosulfan I	8	-	-	-	-	-	-	-	-
Dieldrin	16	-	-	-	-	-	-	-	-
4,4'-DDE	16	-	-	-	-	-	-	-	-
Endrin	16	-	-	-	-	-	-	-	-
Endosulfan II	16	-	-	-	-	-	-	-	-
4,4'-DDD	16	-	-	-	-	-	-	-	-
Endosulfan sulfate	16	-	-	-	-	-	-	-	-
4,4'-DDT	16	-	-	-	-	-	-	-	-
Methoxychlor	80	-	-	-	-	-	-	-	-
Endrin ketone	16	-	-	-	-	-	-	-	-
alpha-Chlordane	80	-	-	-	-	-	-	-	-
gamma-Chlordane	80	-	-	-	-	-	-	-	-
Toxaphene	160	-	-	-	-	-	-	-	-
Aroclor-1016	80	-	-	-	-	-	-	-	-
Aroclor-1221	80	-	-	-	-	-	-	-	-
Aroclor-1232	80	-	-	-	-	-	-	-	-
Aroclor-1242	80	-	-	-	-	-	-	-	-
Aroclor-1248	80	-	-	-	-	-	-	-	-
Aroclor-1254	160	-	-	-	-	-	-	-	-
Aroclor-1260	160	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1.0	1
Percent Solids:		80	74	74	61	67	49	39	72
Associated Method Blank:		283152	236145	284622	284729	283152	PBLKDD	257337	284926
Associated Equipment Blank:		SAMPLERBLANK01	01SB001XXX02XX	00QS003XXX04XX	00QS003XXX04XX	SAMPLERBLANK01	01SB001XXX01XX	-	00QS003XXX04XX

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	08SD801XXX03XD	08SD802XXX01XX	08SD802XXX02XX	08SD802XXX03XX	08SD802XXX04XX	08SD803XXX01XX	08SD803XXX02XX	08SD803XXX03XX
SAMPLE ID:		08SD801XXX03XD	08SD802XXX01XX	08SD802XXX02XX	08SD802XXX03XX	08SD802XXX04XX	08SD803XXX01XX	08SD803XXX02XX	08SD803XXX03XX
LAB NUMBER:		257306	8259-011	237102	257307	284449	8259-010	235430	257309
DATE SAMPLED:		04/18/89	9/14/88	12/19/88	04/18/89	09/01/89	9/14/88	12/12/88	04/18/89
alpha-BHC	8	-	-	-	-	-	-	-	-
beta-BHC	8	-	-	-	-	-	-	-	-
delta-BHC	8	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	8	-	-	-	-	-	-	-	-
Heptachlor	8	-	-	-	-	-	-	-	-
Aldrin	8	-	-	-	-	-	-	-	-
Heptachlor epoxide	8	-	-	-	-	-	-	-	-
Endosulfan I	8	-	-	-	-	-	-	-	-
Dieldrin	16	-	-	-	-	-	-	-	-
4,4'-DDE	16	-	-	-	-	-	-	-	-
Endrin	16	-	-	-	-	-	-	-	-
Endosulfan II	16	-	-	-	-	-	-	-	-
4,4'-DDD	16	-	-	-	-	-	-	-	-
Endosulfan sulfate	16	-	-	-	-	-	-	-	-
4,4'-DDT	16	-	-	-	-	-	-	58	38
Methoxychlor	80	-	-	-	-	-	-	-	-
Endrin ketone	16	-	-	-	-	-	-	-	-
alpha-Chlordane	80	-	-	-	-	-	-	-	-
gamma-Chlordane	80	-	-	-	-	-	-	-	-
Toxaphene	160	-	-	-	-	-	-	-	-
Aroclor-1016	80	-	-	-	-	-	-	-	-
Aroclor-1221	80	-	-	-	-	-	-	-	-
Aroclor-1232	80	-	-	-	-	-	-	-	-
Aroclor-1242	80	-	-	-	-	-	-	-	-
Aroclor-1248	80	-	-	440	-	-	-	-	-
Aroclor-1254	160	-	-	-	-	-	-	-	-
Aroclor-1260	160	-	-	-	-	-	-	-	-
Dilution Factor:		1.0	1	1	1.0	1	1	1	1.0
Percent Solids:		37	65	58	59	67	55	63	71
Associated Method Blank:		257337	PBLKEE	238376	257337	284902	PBLKEE	236145	257337
Associated Equipment Blank:		-	01SB001XXX01XX	01SB003XXX02XX	-	000S003XXX04XX	01SB001XXX01XX	01SB002XXX02XX	-

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Combined Summary Table for Statistical Analysis

SAMPLE ID:	08SD803XXX04XX	08SD803XXX03XD	08SD817XXX01XX	08SD817XXX02XX	08SD818XXX01XX	08SD818XXX02XX	08SD819XXX01XX	08SD819XXX02XX
LAB NUMBER:	284448	257311	8259-012	237106	8259-013	237108	8258-012	235429
DATE SAMPLED:	09/01/89	04/18/89	9/14/88	12/19/88	9/14/88	12/19/88	09/13/88	12/12/88

ANALYTE	CRDL								
alpha-BHC	8	-	-	-	-	-	-	R	-
beta-BHC	8	-	-	-	-	-	-	R	-
delta-BHC	8	-	-	-	-	-	-	R	-
gamma-BHC (Lindane)	8	-	-	-	-	-	-	R	-
Heptachlor	8	-	-	-	-	-	-	R	-
Aldrin	8	-	-	-	-	-	-	R	-
Heptachlor epoxide	8	-	-	-	-	-	-	R	-
Endosulfan I	8	-	-	-	-	-	-	R	-
Dieldrin	16	-	-	-	-	-	-	R	-
4,4'-DDE	16	-	-	-	-	-	-	R	-
Endrin	16	-	-	-	-	-	-	R	-
Endosulfan II	16	-	-	-	-	-	-	R	-
4,4'-DDD	16	-	-	-	-	-	-	R	-
Endosulfan sulfate	16	-	-	-	-	-	-	R	-
4,4'-DDT	16	-	30	-	-	-	-	R	-
Methoxychlor	80	-	-	-	-	-	-	R	-
Endrin ketone	16	-	-	-	-	-	-	R	-
alpha-Chlordane	80	-	-	-	-	-	-	R	-
gamma-Chlordane	80	-	-	-	-	-	-	R	-
Toxaphene	160	-	-	-	-	-	-	R	-
Aroclor-1016	80	-	-	-	-	-	-	R	-
Aroclor-1221	80	-	-	-	-	-	-	R	-
Aroclor-1232	80	-	-	-	-	-	-	R	-
Aroclor-1242	80	-	-	-	-	-	-	R	-
Aroclor-1248	80	-	-	-	-	-	-	R	-
Aroclor-1254	160	-	-	-	-	-	-	R	-
Aroclor-1260	160	-	-	-	-	-	-	R	-
Dilution Factor:		1	1.0	1	1	1	1	1	1
Percent Solids:		72	76	61	34	77	73	80	75
Associated Method Blank:		284902	257337	PBLKEE	238376	PBLKEE	238376	PBLKDD	236145
Associated Equipment Blank:		00QS003XXX04XX	-	01SB001XXX01XX	01SB003XXX02XX	01SB001XXX01XX	01SB003XXX02XX	01SB002XXX01XX	01SB002XXX02XX

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Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08SD820XXX01XX	08SD820XXX02XX	08SD820XXX03XX	08SD821XXX01XX	08SD821XXX02XX
	LAB NUMBER:	8257-008	236497	256708	8258-014	236498
	DATE SAMPLED:	9/12/88	12/15/88	04/14/89	9/13/88	12/15/88
ANALYTE	CRDL					
alpha-BHC	8	-	-	-	-	-
beta-BHC	8	-	40	-	-	-
delta-BHC	8	-	-	-	-	-
gamma-BHC (Lindane)	8	-	-	-	-	-
Heptachlor	8	-	-	-	-	-
Aldrin	8	-	-	-	-	-
Heptachlor epoxide	8	-	-	-	-	-
Endosulfan I	8	-	-	-	-	-
Dieldrin	16	-	-	-	-	-
4,4'-DDE	16	-	-	-	-	-
Endrin	16	-	-	-	-	-
Endosulfan II	16	-	-	-	-	-
4,4'-DDD	16	-	-	-	-	-
Endosulfan sulfate	16	-	-	-	-	-
4,4'-DDT	16	-	-	-	-	-
Methoxychlor	80	-	-	-	-	-
Endrin ketone	16	-	-	-	-	-
alpha-Chlordane	80	-	-	-	-	-
gamma-Chlordane	80	-	-	-	-	-
Toxaphene	160	-	-	-	-	-
Aroclor-1016	80	-	-	-	-	-
Aroclor-1221	80	-	-	-	-	-
Aroclor-1232	80	-	-	-	-	-
Aroclor-1242	80	-	-	-	-	-
Aroclor-1248	80	-	-	-	-	-
Aroclor-1254	160	-	-	-	-	-
Aroclor-1260	160	-	-	-	-	-
Dilution Factor:		1	1	1.0	1	1
Percent Solids:		70	58	78	80	76
Associated Method Blank:		PBLKDD	236939	256916	PBLKDD	236939
Associated Equipment Blank:		01SB002XXX01XX	01SB002XXX02XX	-	01SB002XXX01XX	01SB002XXX02XX

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PROJECT: Naval Air Station Brunswick

Pesticides/PCBs Sediment Analysis (ug/kg)

08-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	09SD901XXX03XX	01SD915XXX01XX	09SD915XXX02XX	09SD916XXX01XX	09SD916XXX02XX	09SD917XXX01XX	09SD917XXX01DX	01SD918XXX01XX
	LAB NUMBER:	257313	8253-027	236761	8253-028	236762	8260-031	8260-032	8267-003
	DATE SAMPLED:	04/18/89	09/08/88	12/16/88	09/08/88	12/16/88	9/16/88	9/16/88	9/22/88
ANALYTE	CRDL								
alpha-BHC	8	-	R	-	R	-	-	-	-
beta-BHC	8	-	R	-	R	-	-	-	-
delta-BHC	8	-	R	-	R	-	-	-	-
gamma-BHC (Lindane)	8	-	R	-	R	-	-	-	-
Heptachlor	8	-	R	-	R	-	-	-	-
Aldrin	8	-	R	-	R	-	-	-	-
Heptachlor epoxide	8	-	R	-	R	-	-	-	-
Endosulfan I	8	-	R	-	R	-	-	-	-
Dieldrin	16	-	R	-	R	-	-	-	-
4,4'-DDE	16	23	R	-	R	-	-	-	-
Endrin	16	-	R	-	R	-	-	-	-
Endosulfan II	16	-	R	-	R	-	-	-	-
4,4'-DDD	16	110	R	-	R	-	-	-	-
Endosulfan sulfate	16	-	R	-	R	-	-	-	-
4,4'-DDT	16	-	R	-	R	-	-	-	-
Methoxychlor	80	-	R	-	R	-	-	-	-
Endrin ketone	16	-	R	-	R	-	-	-	-
alpha-Chlordane	80	-	R	-	R	-	-	-	-
gamma-Chlordane	80	-	R	-	R	-	-	-	-
Toxaphene	160	-	R	-	R	-	-	-	-
Aroclor-1016	80	-	R	-	R	-	-	-	-
Aroclor-1221	80	-	R	-	R	-	-	-	-
Aroclor-1232	80	-	R	-	R	-	-	-	-
Aroclor-1242	80	-	R	-	R	-	-	-	-
Aroclor-1248	80	-	R	-	R	-	-	-	-
Aroclor-1254	160	-	R	-	R	-	-	-	-
Aroclor-1260	160	-	R	-	R	-	-	-	-
Dilution Factor:		1.0	1	1	1	1	2	2	2
Percent Solids:		77	59	65	76	71	64	64	56
Associated Method Blank:		257337	PBLKGG	237482	PBLKGG	237482	PBLKFF	PBLKFF	PBLKDD
Associated Equipment Blank:		-	01SB002XXX01XX	01SB002XXX02XX	01SB002XXX01XX	01SB002XXX02XX	01SB003XXX01XX	01SB003XXX01XX	01SB003XXX01XX
Associated Field Blank:		-	-	-	-	-	-	-	-

NA = Not Analyzed, * = Held for Analysis

BRSD-CPS

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Combined Summary Table for
Statistical Analysis

SAMPLE ID:	09SD918XXX02XX	09SD918XXX02DX	09SDBK1XXX02XX	01SDBK1XXX03XX	09SDBK2XXX02XX	01SDBK2XXX03XX
LAB NUMBER:	237110	237111	236759	256486	236760	256489
DATE SAMPLED:	12/19/88	12/19/88	12/16/88	04/13/89	12/16/88	04/13/89

ANALYTE	CRDL						
alpha-BHC	8	-	-	-	-	-	-
beta-BHC	8	-	-	-	-	-	-
delta-BHC	8	-	-	-	-	-	-
gamma-BHC (Lindane)	8	-	-	-	-	-	-
Heptachlor	8	-	-	-	-	-	-
Aldrin	8	-	-	-	-	-	-
Heptachlor epoxide	8	-	-	-	-	-	-
Endosulfan I	8	-	-	-	-	-	-
Dieldrin	16	-	-	-	-	-	-
4,4'-DDE	16	-	-	-	-	-	-
Endrin	16	-	-	-	-	-	-
Endosulfan II	16	-	-	-	-	-	-
4,4'-DDD	16	-	-	-	-	-	-
Endosulfan sulfate	16	-	-	-	-	-	-
4,4'-DDT	16	-	-	-	-	-	-
Methoxychlor	80	-	-	-	-	-	-
Endrin ketone	16	-	-	-	-	-	-
alpha-Chlordane	80	-	-	-	-	-	-
gamma-Chlordane	80	-	-	-	-	-	-
Toxaphene	160	-	-	-	-	-	-
Aroclor-1016	80	-	-	-	-	-	-
Aroclor-1221	80	-	-	-	-	-	-
Aroclor-1232	80	-	-	-	-	-	-
Aroclor-1242	80	-	-	-	-	-	-
Aroclor-1248	80	-	-	-	-	-	-
Aroclor-1254	160	-	-	-	-	-	-
Aroclor-1260	160	-	-	-	-	-	-
Dilution Factor:		1	1	1	1.0	1	1.0
Percent Solids:		66	66	73	74	86	79
Associated Method Blank:		238375	238375	237482	256666	237482	256666
Associated Equipment Blank:		01SB003XXX02XX	01SB003XXX02XX	01SB002XXX02XX	-	01SB002XXX02XX	-
Associated Field Blank:		-	-	-	-	-	-

NA = Not Analyzed, * = Held for Analysis

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PROJECT: Naval Air Station Brunswick - Round 4 Sediment Samples - Miscellaneous Analysis (mg/kg) 08-Feb-90

Combined Summary Table for Statistical Analysis

SAMPLE LOCATION:	01SD002XXX04XX	02SD003XXX04XX	01SD004XXX04XX	08SD008XXX04XX	09SD010XXX04XX	09SD011XXX04XX	09SD012XXX04XX	01SD115XXX04XX
LAB NUMBER:	283104	283113	283115	284470	284358	284359	284360	283102
DATE SAMPLED:	08/28/89	08/28/89	08/28/89	08/29/89	08/29/89	08/29/89	08/29/89	08/28/89
DATE ANALYZED:	09/01/89	09/01/89	09/01/89	09/19/89	09/15/89	09/19/89	09/19/89	09/01/89
ANALYTE DL								
Total Organic Carbon 25	9500	2900	7600	1700	2700	1300	2100	17000
Percent Solids:	62	75	65	71	81	82	81	52
Associated Method Blank:	283972	283972	283972	288282	288283	288282	288282	283972
Associated Equipment Blank:	-	-	-	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

SAMPLE LOCATION:		01SD120XXX04XX	01SD121XXX04XX	01SD122XXX04XX	01SD123XXX04XX	01SD124XXX04XX	01SD124XXX04XD	02SD201XXX04XX	02SD202XXX04XX
LAB NUMBER:		283100	283098	283092	283094	284337	284353	284293	284294
DATE SAMPLED:		08/28/89	08/28/89	08/28/89	08/28/89	08/29/89	08/29/89	08/30/89	08/30/89
DATE ANALYZED:		09/01/89	09/01/89	09/01/89	09/01/89	09/15/89	09/15/89	09/08/89	09/08/89
ANALYTE	DL								
Total Organic Carbon	25	6000	20000	12000	2000	4000	3300	4700	9100
Percent Solids:		69	56	65	76	69	74	74	72
Associated Method Blank:		283972	283972	283972	283972	288283	288283	285550	285550
Associated Equipment Blank:		-	-	-	-	00QS002XXX04XX	00QS002XXX04XX	-	-

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PROJECT: Naval Air Station Brunswick - Round 4 Sediment Samples - Miscellaneous Analysis (mg/kg) 08-Feb-90

Combined Summary Table for Statistical Analysis

SAMPLE LOCATION:	03SD301XXX04XX	03SD302XXX04XX	03SD303XXX04XX	03SD303XXX04XD	03SD304XXX04XX	03SD305XXX04XX	03SD306XXX04XX	03SD307XXX04XX
LAB NUMBER:	283084	284295	284296	284298	284299	284304	284300	284305
DATE SAMPLED:	08/28/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89
DATE ANALYZED:	09/01/89	09/08/89	09/08/89	09/08/89	09/08/89	09/15/89	09/15/89	09/15/89
ANALYTE DL								
Total Organic Carbon 25	15000	14000	3100	2200	30000	3900	1900	7400
Percent Solids:	41	57	75	73	13	68	68	52
Associated Method Blank:	283972	285550	285550	285550	285550	288283	288283	288283
Associated Equipment Blank:	-	-	-	-	-	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX

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Combined Summary Table for
Statistical Analysis

SAMPLE LOCATION:	03SD316XXX04XX	03SD317XXX04XX	03SD318XXX04XX	03SD318XXX04XD	03SD319XXX04XX	08SD818XXX04XX	08SD822XXX04XX	08SD822XXX04XD
LAB NUMBER:	283085	283096	284292	284297	283087	284474	284473	284478
DATE SAMPLED:	08/28/89	08/28/89	08/30/89	08/30/89	08/28/89	09/01/89	09/01/89	09/01/89
DATE ANALYZED:	09/01/89	09/01/89	09/08/89	09/08/89	09/01/89	09/25/89	09/25/89	09/25/89
ANALYTE / DL								
Total Organic Carbon / 25	2300	2400	13000	7300	11000	23000	3300	3600
Percent Solids:	80	80	74	61	67	58	78	80
Associated Method Blank:	283972	283972	285550	285550	283972	289079	289079	289079
Associated Equipment Blank:	-	-	-	-	-	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX

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Combined Summary Table for
Statistical Analysis

SAMPLE LOCATION:		08SD823XXX04XX	08SD824XXX04XX	09SD915XXX04XX	09SD916XXX04XX	09SD919XXX04XX	09SD920XXX04XX	09SD920XXX04XD	09SD921XXX04XX
LAB NUMBER:		284471	284472	284349	284351	284352	284332	284348	284357
DATE SAMPLED:		09/01/89	09/01/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89
DATE ANALYZED:		09/25/89	09/25/89	09/15/89	09/15/89	09/15/89	09/15/89	09/15/89	09/15/89
ANALYTE	DL								
Total Organic Carbon	25	15000	7200	4800	11000	2200	3100	2700	1600
Percent Solids:		20	9	81	74	83	77	76	80
Associated Method Blank:		289079	289079	288283	288283	288283	288283	288283	288283
Associated Equipment Blank:		00QS003XXX04XX	00QS003XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX

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Combined Summary Table for
Statistical Analysis

SAMPLE LOCATION:	09SD922XXX04XX	09SD923XXX04XX	09SD924XXX04XX	09SD925XXX04XX	09SD926XXX04XX	09SD927XXX04XX
LAB NUMBER:	284361	284496	284495	284221	284225	284306
DATE SAMPLED:	08/29/89	09/01/89	09/01/89	08/31/89	08/31/89	08/30/89
DATE ANALYZED:	09/19/89	09/25/89	09/25/89	09/08/89	09/08/89	09/15/89
ANALYTE / DL						
Total Organic Carbon / 25	1300	37000	3000	8600	55000	110000
Percent Solids:	79	38	80	74	11	29
Associated Method Blank:	288282	289079	289079	285550	285550	288283
Associated Equipment Blank:	00QS002XXX04XX	00QS003XXX04XX	00QS003XXX04XX	-	-	00QS003XXX04XX

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Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	03SD002XXX01XX	03SD002XXX02XX	01SD002XXX04XX	03SD002XXX01DX	02SD003XXX01XX	02SD003XXX02XX	02SD003XXX03XX	02SD003XXX04XX
	LAB NUMBER:	8252-024	234896	283103	8252-025	8253-020	233759	255785	283105
	DATE SAMPLED:	9/7/88	12/09/88	08/28/89	9/7/88	9/8/88	12/06/88	04/10/89	08/28/89
ANALYTE	CRDL								
Aluminum	40	4600 J	4760	3150	4400 J	4400 J	4550	3160	3380
Antimony	12	-	-	-	-	-	-	-	-
Arsenic	2	4.8 J	-	-	-	-	-	-	-
Barium	40	-	-	-	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	2.7	-	-	2.5	-	-	-	-
Calcium	1000	-	-	-	-	-	-	-	-
Chromium	2	6 J	5.1	-	5.9 J	7.1 J	6	4.5	3.9
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	-	-	8.2	-	-	-	-	7.3
Iron	20	23000 J	34900	31600	22000 J	6600 J	7060	4780	5420
Lead	1	-	3.4	2.4	2.5 J	2.1 J	3.3	3.0 J	4.3
Magnesium	1000	-	-	-	-	-	-	-	-
Manganese	3	690 J	1470	693	730 J	68 J	63	51.5	51.6
Mercury	0.04	-	-	-	-	-	-	-	-
Nickel	8	-	-	-	28 J	-	-	-	-
Potassium	1000	-	-	-	-	-	-	-	-
Selenium	1	-	-	-	R	R	-	-	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	-	-	-	-	-
Vanadium	10	-	-	-	-	-	-	-	-
Zinc	4	21	50 J	-	23	27	38 J	24.7	-
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		56	48	61.6	54	68	78	78.4	80.4
Associated Method Blank:		PBS1	15784B	17603G	PBS1	PBS2	15784B	16534B	MR17603E
Associated Equipment Blank:		01SB001XXX01XX	01SB001XXX02XX	00QS001XXX04XX	01SB001XXX01XX	01SB001XXX01XX	01SB001XXX02XX	-	00QS001XXX04XX

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 01SD004XXX01XX LAB NUMBER: 8253-021 DATE SAMPLED: 9/8/88	01SD004XXX02XX 233757 12/06/88	01SD004XXX04XX 283114 08/28/89	08SD006XXX01XX 8258-013 9/13/88	08SD006XXX02XX 235434 12/12/88	08SD007XXX01XX 8258-015 9/13/88	08SD007XXX02XX 236500 12/15/88	08SD007XXX03XX 256716 04/14/89
Aluminum	40	3600 J	4670	8950	3900 J	2620	3000 J	3760	5170
Antimony	12	-	-	-	R	-	R	-	-
Arsenic	2	4.6 J	-	3.6	-	-	-	-	-
Barium	40	-	-	-	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	-	-	-	-	-	-	-
Calcium	1000	-	-	-	440	-	450	-	-
Chromium	2	7 J	7.7	14.5	5.6 J	5.3	5.7 J	6.9	9.8
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	-	10	18.5	-	-	-	7.6	-
Iron	20	5600 J	8130	17600	6600 J	4220	5900 J	6520	10300
Lead	1	5.3 J	18	13.4	2.7 J	2.7	2.9 J	2.3	3.4 J
Magnesium	1000	-	1700	3220 J	-	-	-	-	1890 J
Manganese	3	120 J	281	355	160 J	61	200 J	97	248
Mercury	0.04	-	0.14	0.19	-	-	-	-	-
Nickel	8	-	-	-	-	-	-	-	-
Potassium	1000	-	1910	-	-	-	-	1700	-
Selenium	1	R	-	-	-	-	-	-	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	R	-	R	-	-
Vanadium	10	-	-	24.7 J	-	-	-	-	16.3
Zinc	4	22	64 J	75.8	19 J	-	16 J	-	34.2 J
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		66.7	66	65.1	74	77	72.2	78	74.1
Associated Method Blank:		PBS2	157848	MR17603E	SOIL3	15820C	SOIL3	15784G	16534F
Associated Equipment Blank:		01SB001XXX01XX	01SB001XXX02XX	00QS001XXX04XX	01SB001XXX01XX	01SB002XXX02XX	01SB001XXX01XX	01SB002XXX02XX	-

NA = Not Analyzed, NR = Not Requested, * = Held for Analysis

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PROJECT: Naval Air Station Brunswick

Inorganic Sediment Analysis (mg/kg)

08-Feb-90

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 08SD008XXX01XX LAB NUMBER: 8258-017 DATE SAMPLED: 9/13/88	08SD008XXX02XX 236499 12/15/88	08SD008XXX03XX 256717 04/14/89	08SD009XXX01XX 8258-016 9/13/88	08SD009XXX02XX 237122 12/19/88	08SD009XXX03XX 256720 04/14/89	09SD010XXX01XX 8253-022 9/8/88	09SD010XXX02XX 236763 12/16/88
Aluminum	40	3300 J	2630	3130	5500 J	3770	6570	3400 J	3650
Antimony	12	R	-	-	R	-	-	-	-
Arsenic	2	-	-	-	5.4 J	-	-	-	-
Barium	40	-	-	-	36 J	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	-	-	5.7 J	-	-	-	-
Calcium	1000	540	-	-	1700	-	-	-	-
Chromium	2	5.6 J	5.3	7.7	8.1 J	-	13.9	22 J	10
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	-	7.7	-	-	7.2	15.4	6.6	8.1
Iron	20	150 J	5090	6200	58000 J	12500	25500	4800 J	3990
Lead	1	2.5 J	2.5	4.3 J	16 J	6.5	9.6 J	14 J	11
Magnesium	1000	-	-	-	-	-	2060 J	1400 J	-
Manganese	3	170 J	91	111	220 J	72	173	75 J	64
Mercury	0.04	-	-	-	-	-	-	-	-
Nickel	8	-	-	-	-	-	-	18 J	-
Potassium	1000	-	1450	-	-	-	1680	-	-
Selenium	1	-	-	-	-	-	-	R	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	R	-	-	R	-	-	-	-
Vanadium	10	-	-	-	15 J	-	-	-	-
Zinc	4	-	-	24.0 J	50 J	29 JB	56.8	26	-
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		80.2	76	71.1	54.6	71	60.4	76.8	74
Associated Method Blank:		SOIL3	15784G	16534F	SOIL3	15784G	16534I	PBS2	15784G
Associated Equipment Blank:		01SB001XXX01XX	01SB002XXX02XX	-	01SB001XXX01XX	01SB003XXX02XX	-	01SB001XXX01XX	01SB002XXX02XX

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09SD010XXX03XX LAB NUMBER: 257324 DATE SAMPLED: 04/18/89	09SD010XXX04XX 283443 08/29/89	09SD011XXX01XX 8253-023 9/8/88	09SD011XXX02XX 236764 12/16/88	09SD011XXX04XX 283444 08/29/89	09SD011XXX01DX 8253-024 9/8/88	09SD012XXX01XX 8253-025 9/8/88	09SD012XXX02XX 236765 12/16/88
Aluminum	40	2920	3870	3000 J	4240	3820	3300 J	3200 J	3500
Antimony	12	-	-	-	-	-	-	-	-
Arsenic	2	-	-	-	-	-	-	-	-
Barium	40	-	-	-	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	-	-	-	-	-	-	-
Calcium	1000	-	-	-	-	-	-	-	-
Chromium	2	4.7	6.4	7.9 J	14	5.8	16 J	11 J	12
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	-	7.2	9.1	7.8	14.4	7.2	8.2	16
Iron	20	3690	5030	4700 J	5970	6170	5100 J	4900 J	5510
Lead	1	42.1	13	16 J	20	16.1	40 J	20 J	24
Magnesium	1000	-	1360 J	-	1890 J	1250 J	1500 J	-	-
Manganese	3	46.7	68.5	120 J	296	229	110 J	140 J	176
Mercury	0.04	-	-	-	-	-	-	-	-
Nickel	8	-	-	-	-	-	10 J	-	-
Potassium	1000	-	-	-	-	-	-	-	-
Selenium	1	-	-	R	-	-	R	R	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	-	-	-	-	-
Vanadium	10	-	-	-	16	12.8	-	-	-
Zinc	4	21.2	-	37	41 JB	47.9	33	39	40 JB
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		80.8	81.4	78.3	74	81.6	74.6	79.7	72
Associated Method Blank:		16534K	MR17603H	PBS2	15784G	MR17603H	PBS2	PBS2	15784G
Associated Equipment Blank:		01BS002XXX03XX	00QS002XXX04XX*	01SB001XXX01XX	01SB002XXX02XX	00QS002XXX04XX*	01SB001XXX01XX	01SB001XXX01XX	01SB002XXX02XX

NA = Not Analyzed, NR = Not Requested, * = Held for Analysis

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Inorganic Sediment Analysis (mg/kg)

08-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	09SD012XXX04XX	01SD113XXX01XX	01SD113XXX02XX	01SD113XXX03XX	01SD113XXX04XX	01SD113XXX01DX	01SD114XXX01XX	01SD114XXX02XX
	LAB NUMBER:	283445	8256-018	236030	256494	284231	8256-019	8256-020	236031
	DATE SAMPLED:	08/29/89	9/9/88	12/14/88	04/13/89	08/31/89	9/9/88	9/9/88	12/14/88
ANALYTE	CRDL								
Aluminum	40	4020	3600 J	4580	3260	3610	3600 J	3900 J	3890
Antimony	12	-	-	-	-	-	-	-	-
Arsenic	2	3.1	6.2 J	4.2	4.3	5 J	5.5 J	5.9 J	5.4
Barium	40	-	-	-	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	-	-	-	-	-	1.9	-
Calcium	1000	1310	-	-	-	-	-	-	-
Chromium	2	9.8	8.6 J	9	5.7	5.8	6.5 J	7.1 J	8.1
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	10.7	-	9.2	-	-	-	-	7.3
Iron	20	6130	11000 J	11600	12900	10800	11000 J	14000 J	13400
Lead	1	22.2	4.3 J	59	5.8 J	9.1	3.9 J	5.2 J	6.6
Magnesium	1000	1790 J	-	1700 J	-	-	-	-	1470 J
Manganese	3	229	230 J	376	304	187	240 J	580 J	1170
Mercury	0.04	-	-	-	-	-	-	-	-
Nickel	8	-	34 J	-	-	-	-	-	-
Potassium	1000	-	-	1710	-	-	-	-	1860
Selenium	1	-	R	-	-	-	R	R	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	-	-	-	-	-
Vanadium	10	13.2	-	-	-	13.9	-	-	-
Zinc	4	43.8	32	45 J8	43.1 J	60.3	31	44	55
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		81	68.1	61	72.4	69.3	68.8	66.6	74
Associated Method Blank:		MR17603H	PBS3	15784G	16534F	MR17603L	PBS3	PBS3	15784G
Associated Equipment Blank:		00QS002XXX04XX*	01SB001XXX01XX	01SB002XXX02XX	-	00QS003XXX04XX	01SB001XXX01XX	01SB001XXX01XX	01SB002XXX02XX

NA = Not Analyzed, NR = Not Requested, * = Held for Analysis

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 01SD114XXX03XX LAB NUMBER: 256495 DATE SAMPLED: 04/13/89	01SD114XXX04XX 284229 08/31/89	01SD115XXX01XX 8253-026 9/8/88	01SD115XXX02XX 233758 12/06/88	01SD115XXX04XX 283101 08/28/89	01SD118XXX01XX 8256-021 9/9/88	01SD118XXX02XX 236029 12/14/88	01SD118XXX03XX 256496 04/13/89
Aluminum	40	3700	3990	8200 J	10300	4570	3100 J	2490	6090
Antimony	12	-	-	-	-	-	-	-	-
Arsenic	2	3.7	3.6 J	14 J	10	5.7 J	-	-	-
Barium	40	-	-	-	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	-	3	-	-	-	-	-
Calcium	1000	-	-	-	-	-	-	-	-
Chromium	2	7.2	6.8	21 J	26	9.4	5.5 J	-	11.3
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	-	7.5	-	21	11.3	-	8.2	-
Iron	20	10700	10200	21000 J	28800	14300	5400 J	3920	10600
Lead	1	9.0 J	11	73 J	29	23.5	4.6 J	4.8	18.7 J
Magnesium	1000	1430 J	1520 J	-	3630	-	-	-	2070 J
Manganese	3	281	483	370 J	1260	204	180 J	292	642
Mercury	0.04	-	-	-	-	-	-	-	-
Nickel	8	-	-	-	-	-	-	-	-
Potassium	1000	-	-	-	4940	-	-	-	-
Selenium	1	-	-	R	-	-	-	-	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	-	-	-	-	-
Vanadium	10	-	15.2	31	37	-	-	-	19.7
Zinc	4	65.5 J	60.1	87	179 J	104 J	38	34 JB	96.9 J
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		70.7	74.7	34.5	36	52.2	68.4	71	60.8
Associated Method Blank:		16534F	MR17603L	PBS2	157848	17603G	PBS3	15784G	16534F
Associated Equipment Blank:		-	00QS003XXX04XX	01SB001XXX01XX	01SB001XXX02XX	00QS001XXX04XX	01SB001XXX01XX	01SB002XXX02XX	-

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PROJECT: Naval Air Station Brunswick

Inorganic Sediment Analysis (mg/kg)

08-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01SD118XXX04XX	01SS118XXX01XX	01SS118XXX02XX	01SS118XXX03XX	01SD119XXX01XX	01SD119XXX02XX	01SD119XXX03XX	01SD119XXX04XX
	LAB NUMBER:	284230	8253-029	234900	255790	8256-022	236010	257045	284232
	DATE SAMPLED:	08/31/89	9/8/88	12/09/88	04/10/89	9/9/88	12/14/88	04/17/89	08/31/89
ANALYTE	CRDL								
Aluminum	40	5760	17000 J	8530	9400	20000 J	5130	4770	3720
Antimony	12	-	-	-	-	-	-	-	-
Arsenic	2	-	7.1 J	28	5.1	14 J	4.4	3.6	4.2 J
Barium	40	-	-	-	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	2.2	-	-	3.7	-	-	-
Calcium	1000	-	-	6650	-	2600	-	-	-
Chromium	2	11.7	26 J	16	16.1	38 J	9.6	8.3	7
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	8.9	21	31	13.4	27	7.8	-	-
Iron	20	6860	20000 J	45300	17800	33000 J	13500	13300	12400
Lead	1	28.8	9.9 J	56	11.8 J	5.5 J	8.1	8.5 J	9.1
Magnesium	1000	1880 J	5700 J	-	2980	9600 J	1750 J	1770 J	1400 J
Manganese	3	112	300 J	3040	215	500 J	478	633	235
Mercury	0.04	-	-	-	-	-	-	-	-
Nickel	8	-	22 J	-	-	30 J	-	-	-
Potassium	1000	-	2100	-	-	4300	-	-	-
Selenium	1	-	R	-	-	R	-	-	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	-	-	-	-	-
Vanadium	10	23.4	38	-	-	49	-	-	14.8
Zinc	4	87	63	174 J	53.7	67	58	62.8	66.2
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		70	49.6	21	46.1	69.8	69	59.2	72.5
Associated Method Blank:		MR17603L	PBS2	15784B	16534B	PBS3	15784G	16534I	MR17603L
Associated Equipment Blank:		00QS003XXX04XX	01SB001XXX01XX	01SB001XXX02XX	-	01SB001XXX01XX	01SB002XXX02XX	-	00QS003XXX04XX

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Combined Summary Table for Statistical Analysis

SAMPLE ID:	01SD120XXX04XX	01SD121XXX04XX	01SD122XXX04XX	01SD123XXX04XX	01SD124XXX04XX	01SD124XXX04XD	01SD125AXX04XX	01SD125AXX04XD
LAB NUMBER:	283099	283097	283091	283093	283436	283441	284233	284234
DATE SAMPLED:	08/28/89	08/28/89	08/28/89	08/28/89	08/29/89	08/29/89	08/31/89	08/31/89
ANALYTE	CRDL							
Aluminum	40	3780	5680	7750	2920	3970	4000	1740	1510
Antimony	12	-	-	-	-	-	-	-	-
Arsenic	2	-	-	-	-	3.8	-	-	-
Barium	40	62.4	-	-	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	-	-	-	-	-	-	-
Calcium	1000	-	-	-	-	-	-	-	-
Chromium	2	7.9	11.1	12.9	4.4	6.6	6.2	3.2	3
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	8.8	10.8	13.8	7.8	8.6	7.8	-	-
Iron	20	12100	14600	9680	5470	10400	8350	3370	2930
Lead	1	130	24.1	7.4	2.9	9.2	8	4.3	3.1
Magnesium	1000	1500	1870	2790	-	-	1420 J	-	-
Manganese	3	572	247	167	102	320	201	41.3	34.1
Mercury	0.04	-	-	-	-	-	-	-	-
Nickel	8	12.1	14.7	18	-	-	11.9	-	-
Potassium	1000	-	-	-	-	-	-	-	-
Selenium	1	-	-	-	-	-	-	-	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	-	-	-	-	-
Vanadium	10	-	21.1	22.2	-	-	-	-	-
Zinc	4	73.5 J	111 J	58.9 J	75.7 J	62.7	-	-	-
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		68.8	56	64.7	76	68.8	73.8	77.1	93.8
Associated Method Blank:		17603G	17603G	17603G	17603G	MR17603H	MR17603H	MR17603L	MR17603L
Associated Equipment Blank:		00QS001XXX04XX	00QS001XXX04XX	00QS001XXX04XX	00QS001XXX04XX	00QS002XXX04XX*	00QS002XXX04XX*	00QS003XXX04XX	00QS003XXX04XX

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PROJECT: Naval Air Station Brunswick

Inorganic Sediment Analysis (mg/kg)

08-Feb-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:	01SD126XXX04XX	01SD127XXX04XX	01SD128XXX04XX	01SD129XXX04XX	02SD201XXX01XX	02SD201XXX02XX	02SD201XXX03XX	02SD201XXX04XX
LAB NUMBER:	284236	284235	284237	284238	8252-026	233766	255778	283757
DATE SAMPLED:	08/31/89	08/31/89	08/31/89	08/31/89	9/7/88	12/06/88	04/10/89	08/30/89

ANALYTE	CRDL								
Aluminum	40	13100	17800	16900	12100	7500 J	7600	4500	6310 J
Antimony	12	-	-	-	-	-	-	-	-
Arsenic	2	7.8 J	9.8 J	9.1 J	11.5 J	6 J	-	-	-
Barium	40	-	-	-	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	-	-	-	-	-	-	-
Calcium	1000	1620	2090	-	-	-	-	-	-
Chromium	2	27.6	38.5	37.4	26.5	9.8 J	8.2	7.3	6.2 J
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	15.1	19.1	16.8	14.3	-	13	13.6	7.9
Iron	20	21900	29400	29500	26300	8900 J	9380	7560	7620
Lead	1	11.7	20.1	6.8	22	6 J	8.7	11.6 J	4.2
Magnesium	1000	5680 J	7760 J	7760 J	5820 J	2800 J	-	-	1470
Manganese	3	304	415	279	708	94 J	119	165	71.4 J
Mercury	0.04	-	-	-	-	0.14	0.52	-	-
Nickel	8	-	20.6	20.9	-	-	-	-	-
Potassium	1000	-	-	-	-	-	-	-	-
Selenium	1	-	-	-	-	R	-	-	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	1620	2330	4360	4090	-	-	-	-
Thallium	2	-	-	-	-	-	-	-	-
Vanadium	10	40.8	55.6	47.5	43.4	-	-	-	-
Zinc	4	76.6	125	80.7	76.1	28	50 J	54.4	-
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		60.2	47.9	53.4	52.7	53	51	51.2	73.7

Associated Method Blank:	MR17603L	MR17603L	MR17603L	MR17603L	PBS1	15784B	16534B	17603I
Associated Equipment Blank:	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	01SB001XXX01XX	01SB001XXX02XX	-	00QS003XXX04XX

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 02SD201XXX03XD LAB NUMBER: 255780 DATE SAMPLED: 04/10/89	02SD202XXX01XX 8252-027 9/7/88	02SD202XXX02XX 234894 12/09/88	02SD202XXX03XX 256297 04/12/89	02SD202XXX04XX 283758 08/30/89	02SD202XXX02DX 234895 12/09/88	03SD301XXX01XX 8252-028 9/7/88	01SD301XXX02XX 234639 12/08/88
Aluminum	40	4510	27000 J	22700	16700	19100 J	18800	6100 J	5270
Antimony	12	-	-	-	-	-	-	-	-
Arsenic	2	-	25 J	10	-	5.6 J	13	-	-
Barium	40	-	120	-	71.5	71.5	-	-	-
Beryllium	1	-	-	-	-	1.7	-	-	-
Cadmium	1	-	4.1	-	-	-	-	-	-
Calcium	1000	-	-	-	1640	1430	-	-	-
Chromium	2	7.2	44 J	42	35.3	36.4 J	37	8.2 J	7
Cobalt	10	-	18	-	-	16.7	-	-	-
Copper	5	-	28	34	19.4	28.1	30	-	11
Iron	20	6750	41000 J	37900	29500	28800	32500	12000 J	16800
Lead	1	11.2 J	-	20	13.0 J	13.1	16	6.6 J	6.6
Magnesium	1000	-	11000 J	7470	6130	7010	6570	-	-
Manganese	3	126	420 J	434	319	335 J	353	150 J	182
Mercury	0.04	-	-	-	-	-	0.23	-	-
Nickel	8	-	42 J	36	25.5	37	25	-	-
Potassium	1000	-	4800	4110	2990	-	3500	-	-
Selenium	1	-	R	-	-	-	-	R	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	-	-	-	-	-
Vanadium	10	-	57	62	37.9	48.4	50	-	-
Zinc	4	65.7	99	109 J	70.5	93.1 J	122 J	26	39 J
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		60.7	54	39	58.3	71.7	43	45	57
Associated Method Blank:		16534B	PBS1	15784B	16534B	176031	15784B	PBS1	15784B
Associated Equipment Blank:		-	01SB001XXX01XX	01SB001XXX02XX	01SB003XXX03XX	00QS003XXX04XX	01SB001XXX02XX	01SB001XXX01XX	01SB001XXX02XX

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PROJECT: Naval Air Station Brunswick

Inorganic Sediment Analysis (mg/kg)

08-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	03SD301XXX03XX	03SD301XXX04XX	03SD302XXX01XX	01SD302XXX02XX	03SD302XXX03XX	03SD302XXX04XX	01SD303XXX01XX	01SD303XXX02XX
	LAB NUMBER:	255987	283082	8252-029	234638	255988	283760	8252-030	234634
	DATE SAMPLED:	04/11/89	08/28/89	9/7/88	12/08/88	04/11/89	08/30/89	9/7/88	12/08/88
ANALYTE	CRDL								
Aluminum	40	5410	4880	3700 J	5400	4020	3060 J	4300 J	4000
Antimony	12	-	-	-	-	-	-	-	-
Arsenic	2	4.4	-	11 J	-	-	-	4.4 J	-
Barium	40	-	-	250	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	-	43	3	-	-	-	-
Calcium	1000	-	-	4800	-	-	-	-	-
Chromium	2	7.1	-	-	6.4	5.6	3.5 J	8 J	5.7
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	10.0	14.7	-	15	-	-	-	9.6
Iron	20	43900	37200	420000 J	13400	17000	7900	9400 J	8890
Lead	1	6.9 J	7.6	21 J	13	7.4 J	6.1	6.1 J	7.1
Magnesium	1000	-	-	-	-	-	-	-	-
Manganese	3	340	239	21000 J	232	257	177 J	94 J	82
Mercury	0.04	-	-	0.47	0.49	-	-	-	-
Nickel	8	-	22.4	-	-	-	-	-	-
Potassium	1000	-	-	-	-	-	-	-	-
Selenium	1	-	-	R	-	-	-	R	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	-	-	-	-	-
Vanadium	10	-	-	-	-	-	-	-	-
Zinc	4	36.1	102 J	100	40 J	25.6	71.8 J	48	87 J
Total Cyanide	2	4.3	-	-	-	-	-	-	-
Percent Solids:		49.5	40.7	19	45	52.4	57.1	59	70
Associated Method Blank:		16534B	17603G	PBS1	15784B	16534B	17603I	PBS1	15784B
Associated Equipment Blank:		-	00QS001XXX04XX	01SB001XXX01XX	01SB001XXX02XX		00QS003XXX04XX	01SB001XXX01XX	01SB001XXX02XX

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J-181

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PROJECT: Naval Air Station Brunswick

Inorganic Sediment Analysis (mg/kg)

08-Feb-90

Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 01SD303XXX03XX LAB NUMBER: 255989 DATE SAMPLED: 04/11/89	03SD303XXX04XX 283761 08/30/89	03SD303XXX04XD 283764 08/30/89	01SD304XXX01XX 8252-031 9/7/88	01SD304XXX02XX 234635 12/08/88	01SD304XXX03XX 255985 04/11/89	03SD304XXX04XX 283765 08/30/89	01SD304XXX02DX 234636 12/08/88
Aluminum	40	3710	3810 J	4070 J	4200 J	5240	6020	5620 J	4870
Antimony	12	-	-	-	-	-	-	-	-
Arsenic	2	-	-	-	R	42	59.5	71 J	42
Barium	40	-	-	-	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	-	-	-	-	-	-	-
Calcium	1000	-	-	-	7700	11900	11000	-	11200
Chromium	2	6.9	4.2 J	5.6 J	-	-	-	-	-
Cobalt	10	-	-	-	-	-	-	232	-
Copper	5	-	7.7	7.8	-	58	-	-	58
Iron	20	7730	9150	9750	17000 J	34000	175000	39300	27700
Lead	1	5.1 J	5.1	7.9	23 J	123 J	83.3 J	50.8	103
Magnesium	1000	-	1520	-	-	-	-	-	-
Manganese	3	83.4	80.7 J	84.6 J	180 J	265	756	222 J	244
Mercury	0.04	-	-	-	0.29	4.6	3.4	2.8	4.7
Nickel	8	-	-	-	-	-	-	-	-
Potassium	1000	-	-	-	-	10400	-	-	-
Selenium	1	-	-	-	R	-	-	-	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	-	-	-	-	-
Vanadium	10	-	14.1	17	-	-	-	-	-
Zinc	4	62.1	123 J	91.9 J	31	266 J	155	-	146 J
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		70.5	74.7	72.9	21	9.6	9.2	13.2	11
Associated Method Blank:		16534B	17603I	17603I	PBS1	15784B	16534B	17603I	15784B
Associated Equipment Blank:		-	00QS003XXX04XX	00QS003XXX04XX	01SB001XXX01XX	01SB001XXX02XX	-	00QS003XXX04XX	01SB001XXX02XX

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PROJECT: Naval Air Station Brunswick

Inorganic Sediment Analysis (mg/kg)

08-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	01SD305XXX01XX	01SD305XXX02XX	01SD305XXX03XX	03SD305XXX04XX	03SD306XXX04XX	03SD307XXX04XX	03SD316XXX01XX	03SD316XXX02XX
	LAB NUMBER:	8252-032	234637	255986	283768	283767	283770	8252-033	234898
	DATE SAMPLED:	9/7/88	12/08/88	04/10/89	08/30/89	08/30/89	08/30/89	9/7/88	12/09/88
ANALYTE	CRDL								
Aluminum	40	820 J	5990	5210	4830 J	3760 J	6510 J	6900 J	4240
Antimony	12	-	-	-	-	-	-	-	-
Arsenic	2	34 J	38	29.0	24.7 J	-	-	6.5 J	3.2
Barium	40	-	-	-	-	-	-	-	56
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	-	-	-	-	-	-	-
Calcium	1000	-	-	-	-	-	-	-	-
Chromium	2	13 J	10	7.7	6.2 J	5.1 J	10.4 J	15 J	7.5
Cobalt	10	27	25	-	20.2	-	-	-	-
Copper	5	74	33	25.3	34.1	8.3	11.1	-	9
Iron	20	13000 J	10400	11500	11000	7650	11500	14000 J	9120
Lead	1	4 J	9.1	8.4 J	5.4	3.3	10.3	12 J	10
Magnesium	1000	2700 J	1940	-	-	1460	2260	2700 J	1410
Manganese	3	160 J	137	117	120 J	353 J	124 J	570 J	519
Mercury	0.04	-	-	-	-	-	-	-	-
Nickel	8	25 J	21	-	13.1	-	-	26 J	-
Potassium	1000	-	2640	-	-	-	-	-	-
Selenium	1	R	-	-	-	-	-	R	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	-	-	-	-	-
Vanadium	10	-	-	-	-	-	23.4	-	-
Zinc	4	33	53 J	28.2	-	48.7 J	79.3 J	52	50 J
Total Cyanide	2	-	-	-	-	-	-	-	-
	Percent Solids:	47	51	56.4	68.4	67.9	52.4	47	72
	Associated Method Blank:	PBS1	15784B	16534B	17603I	17603I	17603I	PBS1	15784B
	Associated Equipment Blank:	01SB001XXX01XX	01SB001XXX02XX	-	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	01SB001XXX01XX	01SB001XXX02XX

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 03SD316XXX04XX LAB NUMBER: 283083 DATE SAMPLED: 08/28/89	03SD317XXX01XX 8252-034 9/7/88	03SD317XXX02XX 234897 12/09/88	03SD317XXX03XX 256295 04/12/89	03SD317XXX04XX 283095 08/28/89	03SD317XXX02DX 234899 12/09/88	03SD318XXX04XX 283752 08/30/89	03SD318XXX04XD 283763 08/30/89
Aluminum	40	4530	9600 J	3250	3090	2930	3190	3420 J	4430 J
Antimony	12	-	-	-	-	-	-	-	-
Arsenic	2	4.8 J	9.3 J	-	-	-	-	4.6 J	7.8 J
Barium	40	-	120	-	77.4	313	192	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	-	-	1.5	-	-	-	-
Calcium	1000	-	-	-	-	-	-	-	-
Chromium	2	7	23 J	5.8	8.6	7.2	7.3	5.9 J	8.6 J
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	7.4	14	9	-	7.5	9	7.7	11.2
Iron	20	11500	14000 J	5610	6680	6180	5490	7460	10500
Lead	1	21.2	14 J	3.7	7.4 J	56.4	4.2	12.4	16.6
Magnesium	1000	1780	2800 J	-	-	1270	-	-	-
Manganese	3	267	180 J	73	114	149	71	72 J	87.2 J
Mercury	0.04	-	-	-	-	-	-	-	-
Nickel	8	13.2	18 J	-	-	11.9	-	-	-
Potassium	1000	-	2000 J	-	-	-	-	-	-
Selenium	1	-	R	-	-	-	-	-	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	-	-	-	-	-
Vanadium	10	14.4	23	-	-	-	-	-	-
Zinc	4	62.8 J	44	26 JB	28.5	109 J	49 J	-	59.7 J
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		79.6	58	76	72.5	79.8	74	73.7	61.2
Associated Method Blank:		17603G	PBS1	15784B	16534B	17603G	15784B	17603I	17603I
Associated Equipment Blank:		00QS001XXX04XX	01SB001XXX01XX	01SB001XXX02XX	01SB003XXX03XX	00QS001XXX04XX	01SB001XXX02XX	00QS003XXX04XX	00QS003XXX04XX

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 03SD319XXX04XX LAB NUMBER: 283086 DATE SAMPLED: 08/28/89	08SD801XXX01XX 8259-009 9/14/88	08SD801XXX03XX 257326 04/18/89	08SD801XXX04XX 284479 09/01/89	08SD801XXX03XD 257327 04/18/89	08SD802XXX01XX 8259-011 9/14/88	08SD802XXX02XX 237116 12/19/88	08SD802XXX03XX 257328 04/18/89
Aluminum	40	4060	9200 J	6280	3650	5400	7000 J	5480	5380
Antimony	12	-	R	-	-	-	R	-	-
Arsenic	2	-	5 J	-	-	-	5.2 J	3.7	-
Barium	40	-	43 J	-	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	7.6 J	-	-	-	2.5 J	-	-
Calcium	1000	-	2500	-	-	-	3000	2780	2550
Chromium	2	3.9	15 J	8.7	6.1	8.1	15 J	11	8.0
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	9	-	-	-	-	8.9	13	-
Iron	20	11900	64000 J	74100	6240	97300	19000 J	12300	10400
Lead	1	5	23 J	25.1 J	3.9 J	24.8 J	22 J	13	19.2 J
Magnesium	1000	-	2600 J	-	-	-	1800 J	-	-
Manganese	3	122	450 J	489	68.7	651	160 J	79	62.4
Mercury	0.04	-	-	-	-	-	R	-	-
Nickel	8	-	-	-	-	-	-	-	-
Potassium	1000	-	-	-	-	-	-	-	-
Selenium	1	-	-	-	-	-	-	-	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	R	-	-	-	R	-	-
Vanadium	10	-	25 J	-	-	-	21 J	-	-
Zinc	4	124 J	59 J	76.5	-	80.6	35 J	37 JB	33.5
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		66.5	38.9	38.6	72.1	32.6	63.2	64	58.9
Associated Method Blank:		17603G	SOIL3	16534K	17603K	16534K	SOIL3	15784G	16534K
Associated Equipment Blank:		00QS001XXX04XX	01SB001XXX01XX	01BS002XXX03XX	00QS003XXX04XX	01BS002XXX03XX	01SB001XXX01XX	01SB003XXX02XX	01BS002XXX03XX

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Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08SD802XXX04XX	08SD803XXX01XX	08SD803XXX02XX	08SD803XXX03XX	08SD803XXX04XX	08SD803XXX03XD
	LAB NUMBER:	284483	8259-010	235433	257329	284482	257330
	DATE SAMPLED:	09/01/89	9/14/88	12/12/88	04/18/89	09/01/89	04/18/89
ANALYTE	CRDL						
Aluminum	40	5050	6800 J	5650	5340	4060	4010
Antimony	12	-	R	-	-	-	-
Arsenic	2	-	6.1 J	3.9	3.4	3.2	-
Barium	40	-	30 J	-	-	-	-
Beryllium	1	-	-	-	4.5	-	-
Cadmium	1	-	4.1 J	-	-	-	-
Calcium	1000	2410	2200	2370	2730	1420	1360
Chromium	2	13	15 J	9.7	9.2	6.1	8.1
Cobalt	10	-	-	-	-	-	-
Copper	5	13.2	-	-	8.0	8.5	-
Iron	20	21900	36000 J	22000	17100	13200	13700
Lead	1	8.6 J	77 J	68	43.8	35.8 J	36.3
Magnesium	1000	2130 J	2100 J	-	1760 J	1490 J	1570 J
Manganese	3	80.9	150 J	115	114	89	74.9
Mercury	0.04	-	-	-	-	-	-
Nickel	8	13.2	-	-	-	-	-
Potassium	1000	-	-	-	-	-	-
Selenium	1	-	-	-	-	-	-
Silver	2	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-
Thallium	2	-	R	-	-	-	-
Vanadium	10	23.1	20 J	-	-	-	-
Zinc	4	-	48 J	-	37.7	45.7	26.6
Total Cyanide	2	-	-	-	-	-	-
Percent Solids:		67.2	61.5	58	71.5	71.8	75.8
Associated Method Blank:		17603K	SOIL3	15820C	16534K	17603K	16534K
Associated Equipment Blank:		00QS003XXX04XX	01SB001XXX01XX	01SB002XXX02XX	01BS002XXX03XX	00QS003XXX04XX	01BS002XXX03XX

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PROJECT: Naval Air Station Brunswick

Inorganic Sediment Analysis (mg/kg)

08-Feb-90

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 08SD817XXX01XX LAB NUMBER: 8259-012 DATE SAMPLED: 9/14/88	08SD817XXX02XX 237124 12/19/88	08SD817XXX03XX 256718 04/14/89	08SD818XXX01XX 8259-013 9/14/88	08SD818XXX02XX 237125 12/19/88	08SD818XXX03XX 256719 04/14/89	08SD819XXX01XX 8258-012 9/13/88	8SD819XXX02XX 235432 12/12/88
Aluminum	40	6300 J	6740	4580	6700 J	4620	3070	2500 J	2340
Antimony	12	R	-	-	R	-	-	R	-
Arsenic	2	5.3 J	-	-	5 J	-	-	-	-
Barium	40	-	-	-	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	2.1 J	-	-	-	-	-	-	-
Calcium	1000	1100	-	-	1600	-	-	430	-
Chromium	2	12 J	14	8.0	16 J	10	5.2	4.6 J	4.2
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	-	14	-	15	7.9	-	-	-
Iron	20	17000 J	18900	7180	10000 J	8430	6230	4500 J	3910
Lead	1	22 J	16	7.5 J	37 J	8.4	3.5 J	2.9 J	2.6
Magnesium	1000	2000 J	2300 J	1620 J	2400 J	1610 J	-	-	-
Manganese	3	180 J	211	71.6	95 J	166	123	140 J	109
Mercury	0.04	-	-	-	R	-	-	-	-
Nickel	8	-	-	-	-	-	-	-	-
Potassium	1000	-	-	-	-	-	-	-	-
Selenium	1	-	-	-	-	-	-	-	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	R	-	-	R	-	-	R	-
Vanadium	10	18 J	-	-	18 J	-	-	-	-
Zinc	4	35 J	54 JB	27.9 J	47 J	32 JB	20.8 J	18 J	-
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		59.3	52	70.0	70.8	72	74.5	76.9	72
Associated Method Blank:		SOIL3	15784G	16534F	WATER4	15784G	16534F	SOIL3	15820C
Associated Equipment Blank:		01SB001XXX01XX	01SB003XXX02XX	-	01SB001XXX01XX	01SB003XXX02XX	-	01SB001XXX01XX	01SB002XXX02XX
Associated Field Blank:		-	-	-	-	-	-	-	-

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 08SD820XXX01XX LAB NUMBER: 8257-008 DATE SAMPLED: 9/12/88	08SD820XXX02XX 236501 12/15/88	08SD821XXX01XX 8258-014 9/13/88	08SD821XXX02XX 236502 12/15/88	09SD901XXX03XX 257332 04/18/89	09SD901XXX04XX 283447 08/29/89	09SD915XXX01XX 8253-027 9/8/88	09SD915XXX02XX 236768 12/16/88
Aluminum	40	4600 J	5120	2400 J	2290	3200	2390	3500 J	6340
Antimony	12	-	-	R	-	-	-	-	-
Arsenic	2	-	-	-	-	-	-	3.7 J	3.9
Barium	40	-	-	-	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	-	-	-	-	-	-	-
Calcium	1000	-	-	500	-	-	-	-	5030
Chromium	2	7.3 J	9.9	5.7 J	5.5	8.8	5.3	11 J	16
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	-	9.8	-	-	6.9	-	-	11
Iron	20	5900 J	11100	4300 J	4270	5700	6340	5100 J	8900
Lead	1	3 J	4.6	2.3 J	2.9	74.3	67.9	4.9 J	11
Magnesium	1000	-	-	-	-	1240 J	-	-	2050 J
Manganese	3	130 J	560	84 J	150	48.8	42.9	240 J	340
Mercury	0.04	-	-	-	-	-	-	-	-
Nickel	8	-	-	-	-	-	-	-	-
Potassium	1000	-	-	-	-	-	-	-	1960
Selenium	1	R	-	-	-	-	R	R	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	R	-	-	-	-	-
Vanadium	10	-	-	-	-	-	-	-	-
Zinc	4	16	-	15 J	-	45.4	49.4 J	24	40 JB
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		58.4	58	74.8	73	77.1	73.3	55	65
Associated Method Blank:		PBS3	15784G	SOIL3	15784G	16534K	MR17603J	PBS2	15784G
Associated Equipment Blank:		01SB001XXX01XX	01SB002XXX02XX	01SB001XXX01XX	01SB002XXX02XX	01BS002XXX03XX	00QS002XXX04XX* SOURCEWATER	01SB001XXX01XX	01SB002XXX02XX
Associated Field Blank:		-	-	-	-	-		-	-

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PROJECT: Naval Air Station Brunswick

Inorganic Sediment Analysis (mg/kg)

08-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	09SD915XXX04XX	09SD916XXX01XX	09SD916XXX02XX	09SD916XXX04XX	09SD917XXX01XX	09SD917XXX01DX	09SD917XXX03XX	01SD918XXX01XX
	LAB NUMBER:	283437	8253-028	236769	283438	8260-031	8260-032	256728	8267-003
	DATE SAMPLED:	08/29/89	9/8/88	12/16/88	08/29/89	9/16/88	9/16/88	04/14/89	9/16/88
ANALYTE	CRDL								
Aluminum	40	7150	3700 J	3400	3490	9400 J	7000 J	8180	15000 J
Antimony	12	-	-	-	-	R	R	-	R
Arsenic	2	-	2.98 J	-	3.8	4.9 J	-	5.0	8.8 J
Barium	40	-	-	-	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	1.6	-	1.7	-	-	-	2.6 J
Calcium	1000	1540	-	-	-	1300	1100	-	1500
Chromium	2	16.9	24 J	7.3	16.2	13 J	9.3 J	15.5	24 J
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	15.8	12	16	23.3	-	-	12.2	18
Iron	20	12700	5200 J	5050	5620	13000 J	8700 J	14400	22000 J
Lead	1	173	26 J	24	61.4	-	17 J	45.2 J	40 J
Magnesium	1000	3080 J	-	-	-	2300 J	1600 J	2960 J	4300 J
Manganese	3	171	140 J	309	63.2	260 J	180 J	308	270 J
Mercury	0.04	-	-	-	-	-	-	-	-
Nickel	8	13.1	17 J	-	-	-	-	-	20
Potassium	1000	-	-	-	-	-	-	-	1900
Selenium	1	-	R	-	-	-	-	-	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	-	R	R	-	R
Vanadium	10	23.2	-	-	28.5	22 J	16 J	22.6	44 J
Zinc	4	39.7	46	43 JB	71.8	35 J	24 J	60.5	90 J
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		80.6	67.3	71	74.5	58.4	63.7	59.1	54.9
Associated Method Blank:		MR17603H	PBS2	15784G	MR17603H	SOIL3	SOIL3	16534I	SOIL4
Associated Equipment Blank:		00QS002XXX04XX*	01SB001XXX01XX	01SB002XXX02XX	00QS002XXX04XX*	01SB001XXX01XX	01SB003XXX01XX	-	01SB003XXX01XX
Associated Field Blank:		SOURCEWATER	-	-	SOURCEWATER	-	-	-	-

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09SD918XXX02XX LAB NUMBER: 237126 DATE SAMPLED: 12/19/88	09SD918XXX03XX 257322 04/18/89	09SD918XXX02DX 237127 12/19/88	09SD919XXX04XX 283439 08/29/89	09SD920XXX04XX 283440 08/29/89	09SD920XXX04XD 283457 08/29/89	09SD921XXX04XX 283442 08/29/89	09SD922XXX04XX 283446 08/29/89
Aluminum	40	8550	4410	6360	4850	3190	3240	3260	2790
Antimony	12	-	-	-	-	-	-	-	-
Arsenic	2	4.7	-	4.1 J	-	-	-	-	-
Barium	40	-	-	-	50.5	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	2.2	-	-	8.3	-	-	-	-
Calcium	1000	-	-	-	1490	-	-	-	-
Chromium	2	19	9.7	13	13.8	5.5	5	6.4	5.2
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	20	-	13	27.6	7.7	-	11.1	11.2
Iron	20	12900	7010	11300	9410	4130	4410	5300	4450
Lead	1	17	4.9 J	18	99	13.9	37.6	20.7	22.1
Magnesium	1000	2970 J	1890 J	2180	1810 J	-	-	1300 J	-
Manganese	3	186	107	145	276	76.2	69.3	183	84.4
Mercury	0.04	-	-	-	-	-	-	-	-
Nickel	8	-	-	15	-	-	-	-	-
Potassium	1000	2820	-	-	-	-	-	-	-
Selenium	1	-	-	-	-	-	R	-	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	-	-	-	-	-
Vanadium	10	28	-	18	16	-	-	-	-
Zinc	4	97	40.1	62	60.2	44.7	31.2 J	48.8	-
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		59	74.9	66	83	76.8	76.2	79.8	78.6
Associated Method Blank:		15784G	16534K	15847B	MR17603H	MR17603H	MR17603J	MR17603H	MR17603H
Associated Equipment Blank:		01SB003XXX02XX	01BS002XXX03XX	01SB003XXX02XX	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*
Associated Field Blank:		-	-	-	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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PROJECT: Naval Air Station Brunswick

Inorganic Sediment Analysis (mg/kg)

08-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	09SD923XXX04XX	09SD924XXX04XX	09SD925XXX04XX	09SD926XXX04XX	09SD927XXX04XX	09SDFLOCXXX04XX	01SDBK1XXX02XX	01SDBK1XXX03XX
	LAB NUMBER:	284481	284480	284228	284226	283779	283788	236766	256497
	DATE SAMPLED:	09/01/89	09/01/89	08/31/89	08/31/89	08/30/89	08/30/89	12/16/88	04/13/89
ANALYTE	CRDL								
Aluminum	40	2620	4180	5860	2860	4330	8160	6410	4240
Antimony	12	-	-	-	-	-	-	-	-
Arsenic	2	-	61.3	-	-	-	7.7 J	-	-
Barium	40	-	-	-	-	-	-	-	-
Beryllium	1	-	-	-	-	-	-	-	-
Cadmium	1	-	-	-	-	-	-	-	-
Calcium	1000	-	-	-	-	-	5260	-	-
Chromium	2	-	7.2	5.7	-	8.6	21.9	12	6.9
Cobalt	10	-	-	-	-	-	-	-	-
Copper	5	-	7.7	-	-	-	20.5	19	7.1
Iron	20	1460	5940	5050	6360	6110	24500	9490	6590
Lead	1	6 J	7.1 J	4.3	77.6	58.5	35	9.2	4.2 J
Magnesium	1000	-	1260 J	-	-	-	-	2250 J	1590 J
Manganese	3	9.1	68.6	33.7	264	46.6	425	225	126
Mercury	0.04	-	-	-	-	-	-	-	-
Nickel	8	-	-	-	-	-	-	-	-
Potassium	1000	-	-	-	-	-	-	2360	-
Selenium	1	-	-	-	-	-	-	-	-
Silver	2	-	-	-	-	-	-	-	-
Sodium	1000	-	-	-	-	-	-	-	-
Thallium	2	-	-	-	-	-	-	-	-
Vanadium	10	-	-	-	-	-	35.4	18	-
Zinc	4	-	-	-	-	-	113	47 JB	83.0 J
Total Cyanide	2	-	-	-	-	-	-	-	-
Percent Solids:		37.6	79.6	74	11.5	29	29.8	64	73.7
Associated Method Blank:		17603K	17603K	MR17603L	MR17603L	MR17603L	MR17603L	15784G	16534F
Associated Equipment Blank:		00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	-	01SB002XXX02XX	-
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	-	-	-

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Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01SDBK2XXX02XX	01SDBK2XXX03XX
	LAB NUMBER:	236767	256498
	DATE SAMPLED:	12/16/88	04/13/89
ANALYTE	CRDL		
Aluminum	40	5000	3020
Antimony	12	-	-
Arsenic	2	-	-
Barium	40	-	-
Beryllium	1	-	-
Cadmium	1	-	-
Calcium	1000	-	-
Chromium	2	9	6.4
Cobalt	10	-	-
Copper	5	13	-
Iron	20	7240	4900
Lead	1	3.2	4.0 J
Magnesium	1000	1840 J	-
Manganese	3	145	65.0
Mercury	0.04	-	-
Nickel	8	-	-
Potassium	1000	-	-
Selenium	1	-	-
Silver	2	-	-
Sodium	1000	-	-
Thallium	2	-	-
Vanadium	10	-	-
Zinc	4	30 JB	33.0 J
Total Cyanide	2	-	-
Percent Solids:		86	78.8
Associated Method Blank:		15784G	16534F
Associated Equipment Blank:		01SB002XXX02XX	-
Associated Field Blank:		-	-

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PROJECT: Naval Air Station Brunswick

Semivolatile Sediment Analysis (ug/kg)

02-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	03SD002XXX01XX	03SD002XXX02XX	01SD002XXX04XX	03SD002XXX010X	02SD003XXX01XX	02SD003XXX02XX	02SD003XXX03XX	02SD003XXX04XX
LAB NUMBER:	8252-024	234888	283062	8252-025	8253-020	233749	255781	283063
DATE SAMPLED:	9/7/88	12/09/88	08/28/89	9/7/88	9/08/88	12/06/88	04/10/89	08/28/89

ANALYTE	CRDL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexachlorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

* = Held for analysis

BRSD-CSS

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 03SD002XXX01XX LAB NUMBER: 8252-024 DATE SAMPLED: 9/7/88	03SD002XXX02XX 234888 12/09/88	01SD002XXX04XX 283062 08/28/89	03SD002XXX01DX 8252-025 9/7/88	02SD003XXX01XX 8253-020 9/08/88	02SD003XXX02XX 233749 12/06/88	02SD003XXX03XX 255781 04/10/89	02SD003XXX04XX 283063 08/28/89
3-Nitroaniline	1600	-	-	-	-	R	-	-	-
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	-	-	-	R	-	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	-	-	470	470	-
Anthracene	330	-	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	-	-	-	-	-	650	610	490
Pyrene	330	-	-	-	-	-	550	550	460
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	-	-	-	-
Chrysene	330	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	330	-	-	-	-	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	330	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	330	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	-	-	-	-	-
Dilution Factor:		2	0.98	1	2	2	1	1	1
Percent Solids:		72	48	62	75	76	78	78	75
Associated Method Blank:		SBLK03	GJ036145A02	GH083153C21	SBLK03	SBLKG	GH033912A20	GH055973A21	GH083484B21
Associated Equipment Blank:		SB-001	01SB001XXX02XX	SAMPLERBLANK01	SB-001	01SB002XXX01XX	01SB001XXX02XX	-	00QS001XXX04XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

BRSD-CSS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Sediment Analysis (ug/kg)

02-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01SD004XXX01XX	01SD004XXX02XX	01SD004XXX04XX	08SD006XXX01XX	08SD006XXX02XX	08SD007XXX01XX	08SD007XXX02XX	08SD008XXX01XX
LAB NUMBER:	8253-021	233744	283064	8258-013	235431	8258-015	236496	8258-017
DATE SAMPLED:	9/08/88	12/06/88	08/28/89	9/13/88	12/12/88	9/13/88	12/15/88	9/13/88
ANALYTE	CRDL							
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexachlorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

* = Held for analysis

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

SAMPLE ID:	01SD004XXX01XX	01SD004XXX02XX	01SD004XXX04XX	08SD006XXX01XX	08SD006XXX02XX	08SD007XXX01XX	08SD007XXX02XX	08SD008XXX01XX
LAB NUMBER:	8253-021	233744	283064	8258-013	235431	8258-015	236496	8258-017
DATE SAMPLED:	9/08/88	12/06/88	08/28/89	9/13/88	12/12/88	9/13/88	12/15/88	9/13/88

ANALYTE	CRDL								
3-Nitroaniline	1600	R	-	-	R	-	R	-	R
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	R	-	-	R	-	R	-	R
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	-	-	-	-	-
Anthracene	330	-	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	-	-	-	-	-	-	-	-
Pyrene	330	-	-	-	-	-	-	-	-
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	-	-	-	-
Chrysene	330	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	330	-	-	-	-	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	330	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	330	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	-	-	-	-	-
Dilution Factor:		2	1	1	2	1	2	1	1
Percent Solids:		69	66	65	80	77	78	78	80
Associated Method Blank:		SBLKG	GH033912A20	GH083484B21	BLANK3	GJ036145A02	BLANK3	GH036938A15	BLANK3
Associated Equipment Blank:		01SB002XXX01XX	01SB001XXX02XX	00QS001XXX04XX	01SB002XXX01XX	01SB002XXX02XX	01SB002XXX01XX	01SB002XXX02XX	01SB002XXX01XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

BRSD-CSS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Sediment Analysis (ug/kg)

02-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	08SD008XXX02XX	08SD008XXX04XX	08SD009XXX01XX	08SD009XXX02XX	08SD009XXX03XX	09SD010XXX01XX	09SD010XXX02XX	09SD010XXX04XX
LAB NUMBER:	236495	284438	8258-016	237104	256707	8253-022	236756	283392
DATE SAMPLED:	12/15/88	09/01/89	9/13/88	12/19/88	04/14/89	9/08/88	12/16/88	08/29/89

ANALYTE	CRDL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexachlorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

* = Held for analysis

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Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	08SD008XXX02XX	08SD008XXX04XX	08SD009XXX01XX	08SD009XXX02XX	08SD009XXX03XX	09SD010XXX01XX	09SD010XXX02XX	09SD010XXX04XX
SAMPLE ID:		08SD008XXX02XX	08SD008XXX04XX	08SD009XXX01XX	08SD009XXX02XX	08SD009XXX03XX	09SD010XXX01XX	09SD010XXX02XX	09SD010XXX04XX
LAB NUMBER:		236495	284438	8258-016	237104	256707	8253-022	236756	283392
DATE SAMPLED:		12/15/88	09/01/89	9/13/88	12/19/88	04/14/89	9/08/88	12/16/88	08/29/89
3-Nitroaniline	1600	-	-	R	-	-	R	-	-
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	-	R	-	-	R	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	-	-	2000	-	980	-	-	-
Anthracene	330	-	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	-	-	2600	-	1100	-	-	780
Pyrene	330	-	-	2300	470	1400	-	-	600
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	690	-	-	460
Chrysene	330	-	-	1700	-	610	-	-	480
bis(2-Ethylhexyl)phthalate	330	-	-	-	-	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	1300	-	1000 X	-	-	820 X
Benzo(k)Fluoranthene	330	-	-	-	-	1000 X	-	-	820 X
Benzo(a)Pyrene	330	-	-	-	-	-	-	-	420
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	1300	-	-	-	-	-
Dilution Factor:		1	1	2	1	1	2	1	1
Percent Solids:		77	71	60	72	64	80	77	81
Associated Method Blank:		GH036938A15	GH084904021	BLANK3	GH038375C08	G2J56832A15	SBLKG	GH037483C20	GH083913A21
Associated Equipment Blank:		01SB002XXX02XX	00QS003XXX04XX	01SB002XXX01XX	01SB003XXX02XX	-	01SB002XXX01XX	01SB002XXX02XX	00QS002XXX04XX*

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

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Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	09SD011XXX01XX	09SD011XXX02XX	09SD011XXX03XX	09SD011XXX04XX	09SD011XXX01DX	09SD012XXX01XX	09SD012XXX02XX	09SD012XXX04XX
	LAB NUMBER:	8253-023	236757	257315	283393	8253-024	8253-025	236758	283394
	DATE SAMPLED:	9/8/88	12/16/88	04/18/89	08/29/89	9/8/88	9/8/88	12/16/88	08/29/89
ANALYTE	CRDL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	2200	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexacholorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

* = Held for analysis

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09SD011XXX01XX LAB NUMBER: 8253-023 DATE SAMPLED: 9/8/88	09SD011XXX02XX 236757 12/16/88	09SD011XXX03XX 257315 04/18/89	09SD011XXX04XX 283393 08/29/89	09SD011XXX01DX 8253-024 9/8/88	09SD012XXX01XX 8253-025 9/8/88	09SD012XXX02XX 236758 12/16/88	09SD012XXX04XX 283394 08/29/89
3-Nitroaniline	1600	R	-	-	-	R	R	-	-
Acenaphthene	330	9400	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	5100	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	9500	-	-	-	-	-	-	-
4-Nitroaniline	1600	R	-	-	-	R	R	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	53000 D	-	1200	-	2700	1500	-	-
Anthracene	330	12000	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	60000 D	530	5000	500	14000	2600	1200	560
Pyrene	330	49000 D	450	4000	690	7700	1400	1000	510
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	24000 D	-	2300	780	3500	-	560	-
Chrysene	330	44000 D	-	2500	1600	7100	1600	530	-
bis(2-Ethylhexyl)phthalate	330	-	-	760	-	-	-	1000	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	32000 D	580 JX	3600 X	2500 X	5700	1500	880 J	530 X
Benzo(k)Fluoranthene	330	-	580 JX	3600 X	2500 X	-	-	880 J	530 X
Benzo(a)Pyrene	330	22000 D	470	1500	1100	2600	850	790	-
Indeno(1,2,3-cd)pyrene	330	20000	-	570 J	460	1600	-	-	-
Dibenz(a,h)anthracene	330	16000	-	-	-	1200	-	-	-
Benzo(g,h,i,)perylene	330	30000 D	-	690 J	430	3000	-	-	-
Dilution Factor:		3	1	1	1	2	2	1	1
Percent Solids:		79	78	78	82	80	81	77	81
Associated Method Blank:		BLANK1	GH037483C20	GH057336B15	GH083913A21	BLANK1	BLANK1	GH037483C20	GH083913A21
Associated Equipment Blank:		01SB002XXX01XX	01SB002XXX02XX	-	00QS002XXX04XX*	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX02XX	00QS002XXX04XX*

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Sediment Analysis (ug/kg)

02-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01SD113XXX01XX	01SD113XXX02XX	01SD113XXX04XX	01SD113XXX01DX	01SD114XXX01XX	01SD114XXX02XX	01SD114XXX04XX	01SD115XXX01XX
LAB NUMBER:	8256-018	236018	284124	8256-019	8256-020	236022	284113	8253-026
DATE SAMPLED:	9/9/88	12/14/88	08/31/89	9/9/88	09/09/88	12/14/88	08/31/89	9/8/88

ANALYTE	CRDL								
Phenol	330	-	-	-	-	NA	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	NA	-	-	-
2-Chlorophenol	330	-	-	-	-	NA	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	NA	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	NA	-	-	-
Benzyl alcohol	330	-	-	-	-	NA	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	NA	-	-	-
2-Methylphenol	330	-	-	-	-	NA	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	NA	-	-	-
4-Methylphenol	330	-	-	-	-	NA	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	NA	-	-	-
Hexachloroethane	330	-	-	-	-	NA	-	-	-
Nitrobenzene	330	-	-	-	-	NA	-	-	-
Isophorone	330	-	-	-	-	NA	-	-	-
2-Nitrophenol	330	-	-	-	-	NA	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	NA	-	-	-
Benzoic acid	1600	-	-	-	-	NA	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	NA	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	NA	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	NA	-	-	-
Naphthalene	330	-	-	-	-	NA	-	-	-
4-Chloroaniline	330	-	-	-	-	NA	-	-	-
Hexacholorobutadiene	330	-	-	-	-	NA	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	NA	-	-	-
2-Methylnaphthalene	330	-	-	-	-	NA	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	NA	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	NA	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	NA	-	-	-
2-Chloronaphthalene	330	-	-	-	-	NA	-	-	-
2-Nitroaniline	1600	-	-	-	-	NA	-	-	-
Dimethylphthalate	330	-	-	-	-	NA	-	-	-
Acenaphthylene	330	-	-	-	-	NA	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	NA	-	-	-

* = Held for analysis

BRSD-CSS

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 01SD113XXX01XX LAB NUMBER: 8256-018 DATE SAMPLED: 9/9/88	01SD113XXX02XX 236018 12/14/88	01SD113XXX04XX 284124 08/31/89	01SD113XXX01DX 8256-019 9/9/88	01SD114XXX01XX 8256-020 09/09/88	01SD114XXX02XX 236022 12/14/88	01SD114XXX04XX 284113 08/31/89	01SD115XXX01XX 8253-026 9/8/88
3-Nitroaniline	1600	R	-	-	R	NA	-	-	R
Acenaphthene	330	-	-	-	-	NA	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	NA	-	-	-
4-Nitrophenol	1600	-	-	-	-	NA	-	-	-
Dibenzofuran	330	-	-	-	-	NA	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	NA	-	-	-
Diethylphthalate	330	-	-	-	-	NA	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	NA	-	-	-
Fluorene	330	-	-	-	-	NA	-	-	-
4-Nitroaniline	1600	R	-	-	R	NA	-	-	R
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	NA	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	NA	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	NA	-	-	-
Hexachlorobenzene	330	-	-	-	-	NA	-	-	-
Pentachlorophenol	1600	-	-	-	-	NA	-	-	-
Phenanthrene	330	-	-	-	-	NA	-	-	-
Anthracene	330	-	-	-	-	NA	-	-	-
Di-n-butylphthalate	330	-	-	-	-	NA	-	-	-
Fluoranthene	330	-	-	-	-	NA	-	-	1700
Pyrene	330	-	-	-	-	NA	-	-	-
Butylbenzylphthalate	330	-	-	-	-	NA	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	NA	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	NA	-	-	-
Chrysene	330	-	-	-	-	NA	-	-	-
bis(2-Ethylhexyl)phthalate	330	-	-	-	-	NA	-	-	-
Di-n-octylphthalate	330	-	-	-	-	NA	-	-	-
Benzo(b)Fluoranthene	330	-	-	-	-	NA	-	-	-
Benzo(k)Fluoranthene	330	-	-	-	-	NA	-	-	-
Benzo(a)Pyrene	330	-	-	-	-	NA	-	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	NA	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	NA	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	-	NA	-	-	-
Dilution Factor:		2	1	1	2	-	1	1	2
Percent Solids:		79	61	69	78	-	74	75	41
Associated Method Blank:		BLANK4	GH036938A15	GJ084635C22	BLANK4	-	GH036938A15	GJ084635C22	BLANK1
Associated Equipment Blank:		01SB002XXX01XX	01SB002XXX02XX	00QS003XXX04XX	01SB002XXX01XX	-	01SB002XXX02XX	00QS003XXX04XX	01SB002XXX01XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

BRSD-CSS

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PROJECT: Naval Air Station Brunswick

Semivolatile Sediment Analysis (ug/kg)

02-Feb-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:	01SD115XXX02XX	01SD115XXX03XX	01SD115XXX04XX	01SD118XXX01XX	01SD118XXX02XX	01SD118XXX03XX	01SD118XXX04XX	01SS118XXX01XX
LAB NUMBER:	233745	255791	283061	8256-021	236014	256485	284120	8253-029
DATE SAMPLED:	12/06/88	04/10/89	08/28/89	9/9/88	12/14/88	04/13/89	08/31/89	9/8/88

ANALYTE	CRDL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	1200	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	R	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexacholorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

* = Held for analysis

BRSD-CSS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01SD115XXX02XX	01SD115XXX03XX	01SD115XXX04XX	01SD118XXX01XX	01SD118XXX02XX	01SD118XXX03XX	01SD118XXX04XX	01SS118XXX01XX
LAB NUMBER:	233745	255791	283061	8256-021	236014	256485	284120	8253-029
DATE SAMPLED:	12/06/88	04/10/89	08/28/89	9/9/88	12/14/88	04/13/89	08/31/89	9/8/88

ANALYTE	CRDL								
3-Nitroaniline	1600	-	-	-	R	-	-	-	R
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	-	-	R	-	-	-	R
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	-	780	-	-	-
Anthracene	330	-	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	-	1200	750	-	1000	800	-	-
Pyrene	330	-	1200	-	-	1100	640	-	-
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	-	-	-	-
Chrysene	330	-	1000	-	-	540	-	-	-
bis(2-Ethylhexyl)phthalate	330	-	1700	-	-	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	1800 X	650 X	-	750 X	610	-	-
Benzo(k)Fluoranthene	330	-	1800 X	650 X	-	750 X	-	-	-
Benzo(a)Pyrene	330	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	2	1	1	1	2
Percent Solids:		36	38	52	76	71	61	70	66

Associated Method Blank:	GH033912A20	GH055973A21	GH083153C21	BLANK4	GH036938A15	GH056665A06	GJ084635C22	BLANK1
Associated Equipment Blank:	01SB001XXX02XX	-	SAMPLERBLANK01	01SB002XXX01XX	01SB002XXX02XX	-	00QS003XXX04XX	01SB002XXX01XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Sediment Analysis (ug/kg)

02-Feb-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:	01SS118XXX02XX	01SD119XXX01XX	01SD119XXX02XX	01SD119XXX04XX	01SD120XXX04XX	01SD121XXX04XX	01SD122XXX04XX	01SD123XXX04XX
LAB NUMBER:	234892	8256-022	236009	284131	283060	283057	283054	283055
DATE SAMPLED:	12/09/88	9/9/88	12/14/88	08/31/89	08/28/89	08/28/89	08/28/89	08/28/89

ANALYTE	CRDL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexachlorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

* = Held for analysis

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	01SS118XXX02XX 234892 12/09/88	01SD119XXX01XX 8256-022 9/9/88	01SD119XXX02XX 236009 12/14/88	01SD119XXX04XX 284131 08/31/89	01SD120XXX04XX 283060 08/28/89	01SD121XXX04XX 283057 08/28/89	01SD122XXX04XX 283054 08/28/89	01SD123XXX04XX 283055 08/28/89
3-Nitroaniline	1600	-	R	-	-	-	-	-	-
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	R	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	-	2400	-	-	-
Anthracene	330	-	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	-	-	-	-	4500	690	-	-
Pyrene	330	-	-	-	-	4200	670	-	-
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	1400	-	-	-
Chrysene	330	-	-	-	-	1900	-	-	-
bis(2-Ethylhexyl)phthalate	330	-	-	-	-	2200	1000	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	-	-	1200	-	-	-
Benzo(k)Fluoranthene	330	-	-	-	-	1000	-	-	-
Benzo(a)Pyrene	330	-	-	-	-	1100	-	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	590	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	-	620	-	-	-
Dilution Factor:		1	2	1	1	1	1	1	1
Percent Solids:		21	70	72	72	69	56	65	76
Associated Method Blank:		GJ036145A02	BLANK4	GH036938A15	GJ084635C22	GH083153C21	GH083153C21	GH083153C21	GH083153C21
Associated Equipment Blank:		01SB001XXX02XX	01SB002XXX01XX	01SB002XXX02XX	00QS003XXX04XX	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK01

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Sediment Analysis (ug/kg)

02-Feb-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:	01SD124XXX04XX	01SD124XXX04XD	01SD126XXX04XX	01SD127XXX04XX	01SD128XXX04XX	01SD129XXX04XX	02SD201XXX01XX	02SD201XXX02XX
LAB NUMBER:	283385	283390	284156	284152	284167	284179	8252-026	233756
DATE SAMPLED:	08/29/89	08/29/89	08/31/89	08/31/89	08/31/89	08/31/89	9/7/88	12/06/88

ANALYTE	CRDL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	R	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexachlorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

* = Held for analysis

BRSD-CSS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01SD124XXX04XX	01SD124XXX04XD	01SD126XXX04XX	01SD127XXX04XX	01SD128XXX04XX	01SD129XXX04XX	02SD201XXX01XX	02SD201XXX02XX
LAB NUMBER:	283385	283390	284156	284152	284167	284179	8252-026	233756
DATE SAMPLED:	08/29/89	08/29/89	08/31/89	08/31/89	08/31/89	08/31/89	9/7/88	12/06/88
ANALYTE	CRDL							
3-Nitroaniline	1600	-	-	-	-	-	-	-
Acenaphthene	330	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	-	-	-	-
Anthracene	330	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-
Fluoranthene	330	-	-	-	-	-	-	-
Pyrene	330	-	-	-	-	-	-	-
Butylbenzylphthalate	330	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	-	-	-
Chrysene	330	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	330	-	-	-	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	330	-	-	-	-	-	-	-
Benzo(a)Pyrene	330	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	2	1
Percent Solids:		69	74	60	48	53	53	71	71
Associated Method Blank:		GH083492C16	GH083492C16	GJ084635C22	GJ084635C22	GJ084635C22	GJ084635C22	SBLK03	GH033912A20
Associated Equipment Blank:		00QS002XXX04XX*	00QS002XXX04XX*	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	SB-001	01SB001XXX02XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Sediment Analysis (ug/kg)

02-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	02SD201XXX03XX	02SD201XXX04XX	02SD201XXX03XD	02SD202XXX01XX	02SD202XXX02XX	02SD202XXX03XX	02SD202XXX04XX	02SD202XXX02DX
LAB NUMBER:	255768	283688	255779	8252-027	234886	256293	283689	234887
DATE SAMPLED:	04/10/89	08/30/89	04/10/89	9/7/88	12/09/88	04/12/89	08/30/89	12/09/88

ANALYTE	CRDL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexacholorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

* = Held for analysis

BRSD-CSS

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 02SD201XXX03XX LAB NUMBER: 255768 DATE SAMPLED: 04/10/89	02SD201XXX04XX 283688 08/30/89	02SD201XXX03XD 255779 04/10/89	02SD202XXX01XX 8252-027 9/7/88	02SD202XXX02XX 234886 12/09/88	02SD202XXX03XX 256293 04/12/89	02SD202XXX04XX 283689 08/30/89	02SD202XXX02DX 234887 12/09/88
3-Nitroaniline	1600	-	-	-	-	-	-	-	-
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	-	-	-	-	-
Anthracene	330	-	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	-	-	-	-	-	-	-	-
Pyrene	330	-	-	-	-	-	-	-	-
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	-	-	-	-
Chrysene	330	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	330	-	-	-	-	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	330	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	330	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	2	1	1	1	1
Percent Solids:		51	74	61	69	48	56	72	47
Associated Method Blank:		GH055973A21	GH084621C21	GH055973A21	SBLK03	GJ036145A02	GH056548A15	GH084728B02	GJ036145A02
Associated Equipment Blank:		-	00QS003XXX04XX	-	SB-001	01SB001XXX02XX	01BS003XXX03XX	00QS003XXX04XX	01SB001XXX02XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Sediment Analysis (ug/kg)

02-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSSD203XXX04XX	03SD301XXX01XX	03SD301XXX02XX	03SD301XXX03XX	03SD301XXX04XX	03SD302XXX01XX	03SD302XXX02XX	03SD302XXX03XX
	LAB NUMBER:	293375	8252-028	234628	255970	283051	8252-029	234627	255971
	DATE SAMPLED:	10/06/89	9/7/88	12/08/88	04/11/89	08/28/89	9/7/88	12/08/88	04/11/89
ANALYTE	CRDL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexachlorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

* = Held for analysis

BRSD-C5S

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: BSSD203XXX04XX	03SD301XXX01XX	03SD301XXX02XX	03SD301XXX03XX	03SD301XXX04XX	03SD302XXX01XX	03SD302XXX02XX	03SD302XXX03XX
		LAB NUMBER: 293375	8252-028	234628	255970	283051	8252-029	234627	255971
		DATE SAMPLED: 10/06/89	9/7/88	12/08/88	04/11/89	08/28/89	9/7/88	12/08/88	04/11/89
3-Nitroaniline	1600	-	-	-	-	-	-	-	-
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	-	-	-	-	-
Anthracene	330	-	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	-	-	-	-	-	-	-	-
Pyrene	330	-	-	-	-	-	-	-	-
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	-	-	-	-
Chrysene	330	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	330	-	-	-	-	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	330	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	330	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	-	-	-	-	-
Dilution Factor:		1	2	1	1	1	2	1	1
Percent Solids:		24	69	64	50	41	20	59	52
Associated Method Blank:		GJ093838B04	SBLK03	GH035868A06	GH056340A16	GH083152A20	SBLK03	GH035868A06	GH056340A16
Associated Equipment Blank:		BSQSXX1XXX04XX	SB-001	D1SB001XXX02XX	-	SAMPLERBLANK01	SB-001	D1SB001XXX02XX	-

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

BRSD-CSS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Sediment Analysis (ug/kg)

02-Feb-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:	03SD302XXX04XX	01SD303XXX01XX	01SD303XXX02XX	01SD303XXX03XX	03SD303XXX04XX	03SD303XXX04XD	01SD304XXX01XX	01SD304XXX02XX
LAB NUMBER:	283690	8252-030	234623	255972	283691	283693	8252-031	234624
DATE SAMPLED:	08/30/89	9/7/88	12/08/88	04/11/89	08/30/89	08/30/89	9/7/88	12/08/88

ANALYTE	CRDL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	6800	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexachlorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

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Combined Summary Table for
Statistical Analysis

SAMPLE ID:	03SD302XXX04XX	01SD303XXX01XX	01SD303XXX02XX	01SD303XXX03XX	03SD303XXX04XX	03SD303XXX04XD	01SD304XXX01XX	01SD304XXX02XX
LAB NUMBER:	283690	8252-030	234623	255972	283691	283693	8252-031	234624
DATE SAMPLED:	08/30/89	9/7/88	12/08/88	04/11/89	08/30/89	08/30/89	9/7/88	12/08/88
ANALYTE	CRDL							
3-Nitroaniline	1600	-	-	-	-	-	-	-
Acenaphthene	330	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	-	-	-	-
Anthracene	330	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-
Fluoranthene	330	-	-	-	-	-	-	-
Pyrene	330	-	-	-	-	-	-	-
Butylbenzylphthalate	330	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	-	-	-
Chrysene	330	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	330	-	-	-	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	330	-	-	-	-	-	-	-
Benzo(a)Pyrene	330	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	-	-	-	-
Dilution Factor:		1	2	1	1	1	2	1
Percent Solids:		57	78	73	70	75	73	16	10
Associated Method Blank:		GH084728B02	SBLK03	GH035868A06	GH056340A16	GH084728B02	GH084728B02	SBLK03	GH035868A06
Associated Equipment Blank:		00QS003XXX04XX	SB-001	01SB001XXX02XX	-	00QS003XXX04XX	00QS003XXX04XX	SB-001	01SB001XXX02XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

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PROJECT: Naval Air Station Brunswick

Semivolatile Sediment Analysis (ug/kg)

02-Feb-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:	01SD304XXX03XX	01SD304XXX02DX	03SD304XXX04XX	01SD305XXX01XX	01SD305XXX02XX	01SD305XXX03XX	03SD305XXX04XX	03SD306XXX04XX
LAB NUMBER:	255968	234625	283694	8252-032	234626	255969	283696	283695
DATE SAMPLED:	04/11/89	12/08/88	08/30/89	9/7/88	12/08/88	04/10/89	08/30/89	08/30/89

ANALYTE	CRDL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	4000	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexachlorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 01SD304XXX03XX	01SD304XXX02DX	03SD304XXX04XX	01SD305XXX01XX	01SD305XXX02XX	01SD305XXX03XX	03SD305XXX04XX	03SD306XXX04XX
		LAB NUMBER: 255968	234625	283694	8252-032	234626	255969	283696	283695
		DATE SAMPLED: 04/11/89	12/08/88	08/30/89	9/7/88	12/08/88	04/10/89	08/30/89	08/30/89
3-Nitroaniline	1600	-	-	-	-	-	-	-	-
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	-	-	-	-	-
Anthracene	330	-	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	-	-	-	-	-	-	-	-
Pyrene	330	-	-	-	-	-	-	-	-
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	-	-	-	-
Chrysene	330	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	330	-	-	-	-	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	330	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	330	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	2	1	1	1	1
Percent Solids:		9	10	13	66	61	56	68	68
Associated Method Blank:		GH056340A16	GH035868A06	GH084728B02	SBLK03	GH035868A06	GH056340A16	GH084728B02	GH084728B02
Associated Equipment Blank:		-	01SB001XXX02XX	00QS003XXX04XX	SB-001	01SB001XXX02XX	-	00QS003XXX04XX	00QS003XXX04XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

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Combined Summary Table for
Statistical Analysis

SAMPLE ID:	03SD307XXX04XX	03SD316XXX01XX	03SD316XXX02XX	03SD316XXX04XX	03SD317XXX01XX	03SD317XXX02XX	03SD317XXX04XX	03SD317XXX02DX
LAB NUMBER:	283697	8252-033	234889	283052	8252-034	234890	283056	234891
DATE SAMPLED:	08/30/89	9/7/88	12/09/88	08/28/89	9/7/88	12/09/88	08/28/89	12/09/88
ANALYTE	CRDL							
Phenol	330	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-
Hexacholorobutadiene	330	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 03SD307XXX04XX LAB NUMBER: 283697 DATE SAMPLED: 08/30/89	03SD316XXX01XX 8252-033 9/7/88	03SD316XXX02XX 234889 12/09/88	03SD316XXX04XX 283052 08/28/89	03SD317XXX01XX 8252-034 9/7/88	03SD317XXX02XX 234890 12/09/88	03SD317XXX04XX 283056 08/28/89	03SD317XXX02DX 234891 12/09/88
3-Nitroaniline	1600	-	-	-	-	-	-	-	-
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	1600	-	-	1600	-
Anthracene	330	-	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	-	-	-	4300	-	-	4000	-
Pyrene	330	-	-	-	3400	-	-	2900	-
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	1100	-	-	1200	-
Chrysene	330	-	-	-	1700	-	-	1400	-
bis(2-Ethylhexyl)phthalate	330	-	-	-	2900	-	470	2300	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	-	2100 X	-	-	1800 X	-
Benzo(k)Fluoranthene	330	-	-	-	2100 X	-	-	1800 X	-
Benzo(a)Pyrene	330	-	-	-	910	-	-	820	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	420	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	430	-	-	-	-
Dilution Factor:		1	2	1	1	2	1	1	1
Percent Solids:		52	68	72	80	76	76	80	74
Associated Method Blank:		GH084728802	SBLK03	GJ036145A02	GH083153C21	SBLK03	GJ036145A02	GH083153C21	GJ036145A02
Associated Equipment Blank:		00QS003XXX04XX	SB-001	01SB001XXX02XX	SAMPLERBLANK01	SB-001	01SB001XXX02XX	SAMPLERBLANK01	01SB001XXX02XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

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Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	03SD318XXX04XX	03SD318XXX04XD	03SD319XXX04XX	08SD801XXX01XX	08SD801XXX03XX	08SD801XXX04XX	08SD801XXX03XD	08SD802XXX01XX
	LAB NUMBER:	283687	283692	283053	8259-009	257304	284445	257306	8259-011
	DATE SAMPLED:	08/30/89	08/30/89	08/28/89	9/14/88	04/18/89	09/01/89	04/18/89	9/14/88
ANALYTE	CRDL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexachlorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	03SD318XXX04XX	03SD318XXX04XD	03SD319XXX04XX	08SD801XXX01XX	08SD801XXX03XX	08SD801XXX04XX	08SD801XXX03XD	08SD802XXX01XX
SAMPLE ID:		03SD318XXX04XX	03SD318XXX04XD	03SD319XXX04XX	08SD801XXX01XX	08SD801XXX03XX	08SD801XXX04XX	08SD801XXX03XD	08SD802XXX01XX
LAB NUMBER:		283687	283692	283053	8259-009	257304	284445	257306	8259-011
DATE SAMPLED:		08/30/89	08/30/89	08/28/89	9/14/88	04/18/89	09/01/89	04/18/89	9/14/88
3-Nitroaniline	1600	-	-	-	R	-	-	-	R
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	-	-	R	-	-	-	R
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	1600	-	-	-	-
Anthracene	330	-	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	-	-	-	2700	-	-	-	1400
Pyrene	330	-	-	-	1600	-	-	-	-
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	-	-	-	-
Chrysene	330	-	-	-	1700	-	-	-	-
bis(2-Ethylhexyl)phthalate	330	-	-	-	-	-	-	-	17000
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	-	1800	-	-	-	-
Benzo(k)Fluoranthene	330	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	330	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	1400	-	-	-	-
Dilution Factor:		1	1	1	2	1	1	1	2
Percent Solids:		74	61	67	49	39	72	33	65
Associated Method Blank:		GH084621C21	GH084728B02	GH083153C21	BLANK3	GH057336B15	G2J84925A08	GH057336B15	A1204
Associated Equipment Blank:		000S003XXX04XX	000S003XXX04XX	SAMPLERBLANK01	01SB002XXX01XX	-	000S003XXX04XX	-	01SB001XXX01XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

BRSD-CSS

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 08SD802XXX02XX LAB NUMBER: 237102 DATE SAMPLED: 12/19/88	08SD802XXX03XX 257307 04/18/89	08SD802XXX04XX 284449 09/01/89	08SD803XXX01XX 8259-010 9/14/88	08SD803XXX02XX 235430 12/12/88	08SD803XXX03XX 257309 04/18/89	08SD803XXX04XX 284448 09/01/89	08SD803XXX03XD 257311 04/18/89
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexacholorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

* = Held for analysis

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	08SD802XXX02XX	08SD802XXX03XX	08SD802XXX04XX	08SD803XXX01XX	08SD803XXX02XX	08SD803XXX03XX	08SD803XXX04XX	08SD803XXX03XD
SAMPLE ID:		08SD802XXX02XX	08SD802XXX03XX	08SD802XXX04XX	08SD803XXX01XX	08SD803XXX02XX	08SD803XXX03XX	08SD803XXX04XX	08SD803XXX03XD
LAB NUMBER:		237102	257307	284449	8259-010	235430	257309	284448	257311
DATE SAMPLED:		12/19/88	04/18/89	09/01/89	9/14/88	12/12/88	04/18/89	09/01/89	04/18/89
3-Nitroaniline	1600	-	-	-	R	-	-	-	-
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	-	-	R	-	-	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	1500	-	-	4000	630	1400	-	-
Anthracene	330	-	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	1500	900	1300	7700	1000	1900	1400	590
Pyrene	330	1600	580	-	5500	1400	1100	1000	440
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	630	-	-	2700	-	770	-	-
Chrysene	330	680	-	-	3900	710	750	-	-
bis(2-Ethylhexyl)phthalate	330	-	-	-	5900	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	570	-	-	3000	780 X	1200 X	-	-
Benzo(k)Fluoranthene	330	670	-	-	-	780 XJ	1200 X	-	-
Benzo(a)Pyrene	330	-	-	-	1900	-	660	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	1500	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	2600	-	-	-	-
Dilution Factor:		1	1	2	2	1	1	2	1
Percent Solids:		58	59	67	55	63	71	72	76
Associated Method Blank:		GH038375C08	GH057336B15	GJ084902C04	A1204	GJ036145A02	GH057336B15	GJ084902C04	GH057336B15
Associated Equipment Blank:		01SB003XXX02XX	-	00QS003XXX04XX	01SB001XXX01XX	01SB002XXX02XX	-	00QS003XXX04XX	-

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08SD817XXX01XX	08SD817XXX02XX	08SD817XXX03XX	08SD818XXX01XX	08SD818XXX02XX	08SD818XXX03XX	08SD818XXX04XX	08SD819XXX01XX
	LAB NUMBER:	8259-012	237106	256701	8259-013	237108	256702	284442	8258-012
	DATE SAMPLED:	9/14/88	12/19/88	04/14/89	9/14/88	12/19/88	04/14/89	09/01/89	9/13/88
ANALYTE	CROL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexachlorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

* = Held for analysis

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Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08SD817XXX01XX	08SD817XXX02XX	08SD817XXX03XX	08SD818XXX01XX	08SD818XXX02XX	08SD818XXX03XX	08SD818XXX04XX	08SD819XXX01XX
	LAB NUMBER:	8259-012	237106	256701	8259-013	237108	256702	284442	8258-012
	DATE SAMPLED:	9/14/88	12/19/88	04/14/89	9/14/88	12/19/88	04/14/89	09/01/89	9/13/88
ANALYTE	CRDL								
3-Nitroaniline	1600	R	-	-	R	-	-	-	R
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	2200	-	-	-	-
4-Nitroaniline	1600	R	-	-	R	-	-	-	R
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	10000	-	-	-	-
Anthracene	330	-	-	-	3300	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	-	-	-	16000	-	-	-	-
Pyrene	330	-	-	-	9500	-	-	-	-
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	7700	-	-	-	-
Chrysene	330	-	-	-	9600	-	-	-	-
bis(2-Ethylhexyl)phthalate	330	11000 D	-	-	5800	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	-	8000	-	-	-	-
Benzo(k)Fluoranthene	330	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	330	-	-	-	4600	-	-	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	2700	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	2400	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	4200	-	-	-	-
Dilution Factor:		2	1	1	3	1	1	1	2
Percent Solids:		61	34	78	77	73	81	58	80
Associated Method Blank:		A1204	GH038375C08	G2J56832A15	A1204	GH038375C08	G2J56832A15	GH084904C21	BLANK3
Associated Equipment Blank:		01SB001XXX01XX	01SB003XXX02XX	-	01SB001XXX01XX	01SB003XXX02XX	-	00QS003XXX04XX	01SB002XXX01XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Sediment Analysis (ug/kg)

02-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08SD819XXX02XX	08SD820XXX01XX	08SD820XXX02XX	08SD821XXX01XX	08SD821XXX02XX	08SD822XXX04XX	08SD822XXX04XD	08SD823XXX04XX
	LAB NUMBER:	235429	8257-008	236497	8258-014	236498	284441	284443	284439
	DATE SAMPLED:	12/12/88	9/12/88	12/15/88	9/13/88	12/15/88	09/01/89	09/01/89	09/01/89
ANALYTE	CRDL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexacholorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	R	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

* = Held for analysis

BRSD-CSS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 08SD819XXX02XX	08SD820XXX01XX	08SD820XXX02XX	08SD821XXX01XX	08SD821XXX02XX	08SD822XXX04XX	08SD822XXX04XD	08SD823XXX04XX
		LAB NUMBER: 235429	8257-008	236497	8258-014	236498	284441	284443	284439
		DATE SAMPLED: 12/12/88	9/12/88	12/15/88	9/13/88	12/15/88	09/01/89	09/01/89	09/01/89
3-Nitroaniline	1600	-	R	-	R	-	-	-	-
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	R	-	R	-	-	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	-	-	-	-	-
Anthracene	330	-	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	-	-	-	-	-	-	-	-
Pyrene	330	-	-	-	-	-	-	-	-
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	-	-	-	-
Chrysene	330	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	330	-	-	-	-	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	330	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	330	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	-	-	-	-	-
Dilution Factor:		1	2	1	2	1	1	1	1
Percent Solids:		75	70	63	78	73	78	80	20
Associated Method Blank:		GJ036145A02	BLANK3	GH036938A15	BLANK3	GH036938A15	GH085227C08	GH084904C21	GH084904C21
Associated Equipment Blank:		01SB002XXX02XX	01SB002XXX01XX	01SB002XXX02XX	01SB002XXX01XX	01SB002XXX02XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08SD824XXX04XX	09SD901XXX03XX	09SD901XXX04XX	09SD915XXX01XX	09SD915XXX02XX	09SD915XXX03XX	09SD915XXX04XX	09SD916XXX01XX
	LAB NUMBER:	284440	257313	283396	8253-027	236761	256484	283386	8253-028
	DATE SAMPLED:	09/01/89	04/18/89	08/29/89	9/8/88	12/16/88	04/13/89	08/29/89	9/8/88
ANALYTE	CRDL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexachlorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

* = Held for analysis

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 08SD824XXX04XX LAB NUMBER: 284440 DATE SAMPLED: 09/01/89	09SD901XXX03XX 257313 04/18/89	09SD901XXX04XX 283396 08/29/89	09SD915XXX01XX 8253-027 9/8/88	09SD915XXX02XX 236761 12/16/88	09SD915XXX03XX 256484 04/13/89	09SD915XXX04XX 283386 08/29/89	09SD916XXX01XX 8253-028 9/8/88
3-Nitroaniline	1600	-	-	-	R	-	-	-	R
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	-	-	R	-	-	-	R
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	-	720	3800	3400	1500
Anthracene	330	-	-	-	-	-	460	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	-	-	-	-	2800	8900 D	11000	2200
Pyrene	330	-	-	-	-	2000	6700	7700	2100
Butylbenzylphthalate	330	-	-	820	-	-	-	1000	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	980	3200	2900	1000
Chrysene	330	-	-	-	-	1100	4000	3700	2100
bis(2-Ethylhexyl)phthalate	330	-	-	-	-	-	5000	1900	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	-	-	1800 JX	2600	5800 X	1800
Benzo(k)Fluoranthene	330	-	-	-	-	1800 JX	3400	5800 X	-
Benzo(a)Pyrene	330	-	-	-	-	700	2500	2600	1000
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	-	1100	850	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	440	-	-
Benzo(g,h,i,)perylene	330	-	-	-	-	-	930	820	1200
Dilution Factor:		1	1	1	2	1	1	2	2
Percent Solids:		9	77	73	59	65	78	81	76
Associated Method Blank:		GH084904C21	GH057336B15	GJ083498B06	BLANK1	GH037483C20	GH056665A06	GH083913A21	BLANK1
Associated Equipment Blank:		000S003XXX04XX	-	000S002XXX04XX*	01SB002XXX01XX	01SB002XXX02XX	-	000S002XXX04XX*	01SB002XXX01XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

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PROJECT: Naval Air Station Brunswick

Semivolatile Sediment Analysis (ug/kg)

02-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	09SD916XXX02XX	09SD916XXX03XX	09SD916XXX04XX	09SD917XXX01XX	09SD917XXX01DX	01SD918XXX01XX	09SD918XXX02XX	09SD918XXX02DX
	LAB NUMBER:	236762	256493	283387	8260-031	8260-032	8267-003	237110	237111
	DATE SAMPLED:	12/16/88	04/13/89	08/29/89	9/16/88	9/16/88	9/22/88	12/19/88	12/19/88
ANALYTE	CRDL								
Phenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-	-
Hexachlorobutadiene	330	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-	-

* = Held for analysis

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	09SD916XXX02XX 236762 12/16/88	09SD916XXX03XX 256493 04/13/89	09SD916XXX04XX 283387 08/29/89	09SD917XXX01XX 8260-031 9/16/88	09SD917XXX01DX 8260-032 9/16/88	01SD918XXX01XX 8267-003 9/22/88	09SD918XXX02XX 237110 12/19/88	09SD918XXX02DX 237111 12/19/88
3-Nitroaniline	1600	-	-	-	R	R	R	-	-
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	-	-	R	R	R	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	-	-	-	-	-
Anthracene	330	-	-	-	-	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	-	-	990	-	-	-	-	-
Pyrene	330	-	-	1300	-	-	-	-	-
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	740	-	-	-	-	-
Chrysene	330	-	-	980	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	330	-	-	540	-	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	780 X	-	-	-	-	-
Benzo(k)Fluoranthene	330	-	-	780 X	-	-	-	-	-
Benzo(a)Pyrene	330	-	-	520	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	2	2	2	1	1
Percent Solids:		76	76	74	64	64	56	66	66
Associated Method Blank:		GH037483C20	GH057013A06	GH083913A21	A1195	A1195	A1195	GH038375C08	GH038375C08
Associated Equipment Blank:		01SB002XXX02XX	-	0005002XXX04XX*	01SB003XXX01XX	01SB003XXX01XX	01SB003XXX01XX	01SB003XXX02XX	01SB003XXX02XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

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Combined Summary Table for
Statistical Analysis

SAMPLE ID:	09SD919XXX04XX	09SD920XXX04XX	09SD920XXX04XD	09SD921XXX04XX	09SD922XXX04XX	09SD923XXX04XX	09SD924XXX04XX	09SD925XXX04XX
LAB NUMBER:	283388	283389	283403	283391	283395	284447	284446	284205
DATE SAMPLED:	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	09/01/89	09/01/89	08/31/89
ANALYTE	CRDL							
Phenol	330	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-
4-Methylphenol	330	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-
Hexachlorobutadiene	330	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-

* = Held for analysis

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09SD919XXX04XX LAB NUMBER: 283388 DATE SAMPLED: 08/29/89	09SD920XXX04XX 283389 08/29/89	09SD920XXX04XD 283403 08/29/89	09SD921XXX04XX 283391 08/29/89	09SD922XXX04XX 283395 08/29/89	09SD923XXX04XX 284447 09/01/89	09SD924XXX04XX 284446 09/01/89	09SD925XXX04XX 284205 08/31/89
3-Nitroaniline	1600	-	-	-	-	-	-	-	-
Acenaphthene	330	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	-	-	-	-
4-Nitroaniline	1600	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-	-
Phenanthrene	330	420	1500	1100	5400	-	-	-	-
Anthracene	330	-	-	-	670	-	-	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-	-
Fluoranthene	330	2500	1800	1600	44000 D	-	-	-	-
Pyrene	330	2400	1300	1200	32000 D	-	-	-	-
Butylbenzylphthalate	330	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	1500	760	610	13000 D	-	-	-	-
Chrysene	330	1500	770	620	15000 D	-	-	-	-
bis(2-Ethylhexyl)phthalate	330	620	-	-	500	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	4100 X	1300 X	-	13000 DX	-	-	-	-
Benzo(k)Fluoranthene	330	4100 X	1300 X	-	13000 DX	-	-	-	-
Benzo(a)Pyrene	330	2100	770	440	7100 D	-	-	-	-
Indeno(1,2,3-cd)pyrene	330	890	-	-	2300	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	1200	-	-	-	-
Benzo(g,h,i,)perylene	330	960	-	-	2400	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		83	77	76	80	79	38	80	74
Associated Method Blank:		GH083913A21	GH083913A21	GJ083498B06	GH083913A21	GH083913A21	GH084904C21	GH084904C21	GH084570A06
Associated Equipment Blank:		00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

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Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	09SD926XXX04XX	09SD927XXX04XX	09SDBK1XXX02XX	01SDBK1XXX03XX	09SDBK2XXX02XX	01SDBK2XXX03XX	09SDFLOCXX04XX
	LAB NUMBER:	284212	283698	236759	256486	236760	256489	283705
	DATE SAMPLED:	08/31/89	08/30/89	12/16/88	04/13/89	12/16/88	04/13/89	08/30/89
ANALYTE	CRDL							
Phenol	330	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	330	-	-	-	-	-	-	-
2-Chlorophenol	330	-	-	-	-	-	-	-
1,3-Dichlorobenzene	330	-	-	-	-	-	-	-
1,4-Dichlorobenzene	330	-	-	-	-	-	-	-
Benzyl alcohol	330	-	-	-	-	-	-	-
1,2-Dichlorobenzene	330	-	-	-	-	-	-	-
2-Methylphenol	330	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	330	-	-	-	-	-	-	-
4-Methylphenol	330	9100	9800	-	-	-	-	-
N-Nitroso-di-n-propylamine	330	-	-	-	-	-	-	-
Hexachloroethane	330	-	-	-	-	-	-	-
Nitrobenzene	330	-	-	-	-	-	-	-
Isophorone	330	-	-	-	-	-	-	-
2-Nitrophenol	330	-	-	-	-	-	-	-
2,4-Dimethylphenol	330	-	-	-	-	-	-	-
Benzoic acid	1600	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	330	-	-	-	-	-	-	-
2,4-Dichlorophenol	330	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	330	-	-	-	-	-	-	-
Naphthalene	330	-	-	-	-	-	-	-
4-Chloroaniline	330	-	-	-	-	-	-	-
Hexachlorobutadiene	330	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	330	-	-	-	-	-	-	-
2-Methylnaphthalene	330	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	330	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	330	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	1600	-	-	-	-	-	-	-
2-Chloronaphthalene	330	-	-	-	-	-	-	-
2-Nitroaniline	1600	-	-	-	-	-	-	-
Dimethylphthalate	330	-	-	-	-	-	-	-
Acenaphthylene	330	-	-	-	-	-	-	-
2,6-Dinitrotoluene	330	-	-	-	-	-	-	-

* = Held for analysis

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	09SD926XXX04XX	09SD927XXX04XX	09SDBK1XXX02XX	01SDBK1XXX03XX	09SDBK2XXX02XX	01SDBK2XXX03XX	09SDFLOCXX04XX
SAMPLE ID:		09SD926XXX04XX	09SD927XXX04XX	09SDBK1XXX02XX	01SDBK1XXX03XX	09SDBK2XXX02XX	01SDBK2XXX03XX	09SDFLOCXX04XX
LAB NUMBER:		284212	283698	236759	256486	236760	256489	283705
DATE SAMPLED:		08/31/89	08/30/89	12/16/88	04/13/89	12/16/88	04/13/89	08/30/89
3-Nitroaniline	1600	-	-	-	-	-	-	-
Acenaphthene	330	-	-	-	-	-	-	-
2,4-Dinitrophenol	1600	-	-	-	-	-	-	-
4-Nitrophenol	1600	-	-	-	-	-	-	-
Dibenzofuran	330	-	-	-	-	-	-	-
2,4-Dinitrotoluene	330	-	-	-	-	-	-	-
Diethylphthalate	330	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	330	-	-	-	-	-	-	-
Fluorene	330	-	-	-	-	500	-	-
4-Nitroaniline	1600	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	1600	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	330	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	330	-	-	-	-	-	-	-
Hexachlorobenzene	330	-	-	-	-	-	-	-
Pentachlorophenol	1600	-	-	-	-	-	-	-
Phenanthrene	330	-	-	-	560	5000	860	-
Anthracene	330	-	-	-	-	640	-	-
Di-n-butylphthalate	330	-	-	-	-	-	-	-
Fluoranthene	330	-	-	490	870	5500	1800	2100
Pyrene	330	-	-	-	540	4400	1400	2000
Butylbenzylphthalate	330	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	660	-	-	-	-	-	-	-
Benzo(a)Anthracene	330	-	-	-	-	2600	840	-
Chrysene	330	-	-	-	-	2200	800	-
bis(2-Ethylhexyl)phthalate	330	-	-	-	-	-	-	-
Di-n-octylphthalate	330	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	330	-	-	520 JX	-	3600 JX	450	-
Benzo(k)Fluoranthene	330	-	-	520 JX	-	3600 JX	680	-
Benzo(a)Pyrene	330	-	-	-	-	1500	520	-
Indeno(1,2,3-cd)pyrene	330	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	330	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	330	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1
Percent Solids:		11	29	73	74	86	79	30
Associated Method Blank:		GH084570A06	G2J84266A16	GH037483C20	GH056665A06	GH037483C20	G3J57886A20	G2J84266A16
Associated Equipment Blank:		00QS003XXX04XX	00QS003XXX04XX	01SB002XXX02XX	-	01SB002XXX02XX	-	-

NOTES: X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

* = Held for analysis

Click Here to Return to Main Index

Click Here to Return to Main Index

LEACHATE DATA

ROUNDS I, II, III, AND IV

PROJECT: Naval Air Station Brunswick

Volatile Aqueous Analysis (ug/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:		02LT201XXX01XX	02LT201XXX02XX	02LT201XXX03XX	02LT201XXX04XX	02LT201XXX02DX	02LT202XXX01XX	02LT202XXX02XX	02LT202XXX03XX
LAB NUMBER:		8252-015	233781	265669	283820	233782	8252-016	234902	256233
DATE SAMPLED:		9/7/88	12/06/88	06/02/89	08/30/89	12/06/88	9/7/88	12/09/88	04/12/89
ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	28	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	R	-	-	R	R	-	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	20	-	-	19	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	15 J	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		VBLK03	CB881208B09	VBLKGO	CB890906A03	CB881208B09	VBLK03	CB881214C09	CB890416A14
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		-	-	02BT009XXX03XX	00GT003XXX04XX	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	02LT202XXX04XX	BSLT203XXX04XX	03LT301XXX01XX	03LT301XXX02XX	03LT301XXX03XX	03LT301XXX04XX	03LT301XXX02DX	03LT301XXX03XD
	LAB NUMBER:	283822	293347	8252-017	234620	255962	283024	234621	255960
	DATE SAMPLED:	08/30/89	10/06/89	9/7/88	12/08/88	04/11/89	08/28/89	12/08/88	04/11/89
ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	-	R	R	-	-	R	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	9 J	-	6	-	-	5
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	17 J	-	5	-	-	5
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890908A13	CB891013C18	VBLK03	CC881213C11	CB890413A14	CB890830C19	CC881213C11	CB890413A14
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		00QT003XXX04XX	-	-	-	01BT002XXX03XX	-	-	01BT002XXX03XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick | Volatile Aqueous Analysis (ug/L) | 02-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	03LT302XXX01XX	03LT302XXX02XX	03LT302XXX03XX	03LT302XXX04XX	01LT303XXX01XX	01LT303XXX02XX	01LT303XXX03XX	03LT303XXX04XX
	LAB NUMBER:	8252-018	234619	255963	283818	8252-019	234614	255965	283835
	DATE SAMPLED:	9/7/88	12/08/88	04/11/89	08/30/89	9/7/88	12/08/88	04/11/89	08/30/89
ANALYTE	CROL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	11	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	R	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	11	8	-	-	-	-	-
1,2-Dichloroethene (total)	5	140	100	110	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	R	-	-	R	R	-	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	20	6	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	1100	990 D	510 D	-	-	-	-	-
Toluene	5	-	-	5	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	7	-	-	-	-	-
Dilution Factor:		10	1	1	1	1	1	1	1
Associated Method Blank:		VBLK04	CB881212B11	CB890413A14	CB890906A03	VBLK04	CB881212B11	CB890413A14	CB890906A03
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		-	-	01BT002XXX03XX	00QT003XXX04XX	-	-	01BT002XXX03XX	00QT003XXX04XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	03LT303XXX04XD 283833 08/30/89	01LT304XXX01XX 8252-020 9/7/88	01LT304XXX02XX 234616 12/08/88	01LT304XXX03XX 255958 04/11/89	03LT304XXX04XX 283827 08/30/89	01LT304XXX02DX 234617 12/08/88	01LT305XXX01XX 8252-021 9/7/88	01LT305XXX02XX 234618 12/08/88
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	24	24
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	R	R	-	-	R	R	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890908A13	V8LK06	CB881212B11	CB890413C14	CB890908A13	CC881213C11	V8LK06	CB881212B11
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		00QT003XXX04XX	-	-	01BT002XXX03XX	00QT003XXX04XX	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 01LT305XXX03XX LAB NUMBER: 255959 DATE SAMPLED: 04/10/89	03LT305XXX04XX 283831 08/30/89	03LT306XXX04XX 283816 08/30/89	03LT307XXX04XX 283829 08/30/89	08LT801XXX03XX 257239 04/18/89	08LT801XXX04XX 284405 09/01/89	08LT802XXX02XX 237147 12/19/88	08LT802XXX03XX 257256 04/18/89
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	39	-	10	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	7	16	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	-	-	-	-	-	R	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890413A14	CB890908A13	CB890906A03	CB890908A13	CB890420B13	CB890909A03	CB881221A11	CB890420B13
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		01BT001XXX03XX	00QT003XXX04XX	00QT003XXX04XX	00QT003XXX04XX	-	00QT005XXX04XX	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	08LT802XXX04XX	08LT803XXX02XX	08LT803XXX03XX	08LT803XXX04XX	09LT901XXX03XX
LAB NUMBER:	284410	235391	257259	284411	257263
DATE SAMPLED:	09/01/89	12/12/88	04/18/89	09/01/89	04/18/89

ANALYTE	CRDL					
Chloromethane	10	-	-	-	-	-
Bromomethane	10	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-
Chloroethane	10	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-
Acetone	10	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-
Chloroform	5	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-
2-Butanone	10	-	R	-	-	-
1,1,1-Trichloroethane	5	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-
Benzene	5	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-
Bromoform	5	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-
Toluene	5	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-
Styrene	5	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-
Dilution Factor:		1	1	1	1	1
Associated Method Blank:		CB890909A03	CB881215B11	CB890420B13	CB890909A13	CB890420B13
Associated Equipment Blank:		-	-	-	-	-
Associated Trip Blank:		00QT005XXX04XX	-	-	00QT005XXX04XX	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Miscellaneous Aqueous Analysis (mg/L)

02-Feb-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:		08LT801XXX01XX	08LT801XXX01XX	08LT802XXX01XX	08LT802XXX01XX	08LT802XXX02XX	08LT803XXX01XX	08LT803XXX01XX
LAB NUMBER:		8258-019	8259-003	8258-021	8259-005	237171	8258-020	8259-004
DATE SAMPLED:		9/14/88	9/14/88	9/14/88	9/14/88	12/19/88	9/14/88	9/14/88
ANALYTE	PQL RND 1	PQL RND 2						
Total Coliforms	1/100 ml	0	100	NR	30	NR	-	17	NR
Hexavalent Chromium	0.005	0.050	-	NR	-	NR	-	-	NR
Dissolved Chloride	2	3.0	NA	NR	68	NR	59	69	NR
Sulfate	1	1.0	NA	NR	210	NR	97	11	NR
Filterable Residue	10	10	NR	280	NR	600	420	NR	290
Fluoride	0.2	0.10	NR	-	NR	-	0.12	NR	-
Nitrate + Nitrite, AS N	0.05	0.050	NR	0.074	NR	-	1.8	NR	-
Total Sulfide (Iodometric)	1	0.050	NR	-	NR	-	-	NR	1.8
Total Recoverable Phenolics	5	10	NR	11	NR	7.4	-	NR	12
Methylene Blue Active Substances	0.04	0.020	NR	-	NR	-	0.090	NR	-
Nitrate - N		0.005	0.005	NR	NR	NR	NR	NR	NR
Nitrite - N		1.0	1.0	NR	NR	NR	NR	NR	NR
HERBICIDES METHOD 8150 (ug/L)		DL RND 2						
2,4-D		4	-	NR	-	NR	-	-	NR
2,4,5-TP (Silvex)		1	-	NR	-	NR	-	-	NR
2,4,5-T		1	NR	NR	NR	NR	-	NR	NR
Laboratory Method Blank			VBLK01	-	VBLK01	-	237460	VBLK01	-

NR = Not Requested, NA = Not Analyzed

BRLT-CMS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID: 08LT803XXX02XX
LAB NUMBER: 235414
DATE SAMPLED: 12/12/88

ANALYTE	PQL RND 1	PQL RND 2	
Total Coliforms	1/100 ml	0	5
Hexavalent Chromium	0.005	0.050	-
Dissolved Chloride	2	3.0	55
Sulfate	1	1.0	-
Filterable Residue	10	10	270
Fluoride	0.2	0.10	0.10
Nitrate + Nitrite, AS N	0.05	0.050	N/A
Total Sulfide (Iodometric)	1	0.050	-
Total Recoverable Phenolics	5	10	11
Methylene Blue Active Substances	0.04	0.020	0.080
Nitrate - N		0.005	0.015
Nitrite - N		1.0	18

HERBICIDES METHOD 8150 (ug/L)	DL RND 2	
2,4-D	4	-
2,4,5-TP (Silvex)	1	-
2,4,5-T	1	-

Laboratory Method Blank	236893

NR = Not Requested, NA = Not Analyzed

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	08LT801XXX01XX	08LT802XXX01XX	08LT803XXX01XX
LAB NUMBER:	8259-003	8259-005	8259-004
DATE SAMPLED:	9/14/88	9/14/88	9/14/88

ANALYTE			
Chloromethane	-	-	-
Bromomethane	-	-	-
Vinyl Chloride	-	-	-
Chloroethane	-	-	-
Methylene Chloride	-	-	-
1,1-Dichloroethene	-	-	-
1,1-Dichloroethane	-	-	-
trans-1,2-Dichloroethene	-	-	-
Chloroform	-	-	-
1,2-Dichloroethane	-	-	-
1,1,1-Trichloroethane	-	-	-
Carbon Tetrachloride	-	-	-
Bromodichloromethane	-	-	-
1,2-Dichloropropane	-	-	-
Trichloroethene	-	-	-
Dibromochloromethane	-	-	-
1,1,2-Trichloroethane	-	-	-
Benzene	-	-	-
Bromoform	-	-	-
Tetrachloroethene	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-
Toluene	-	-	-
Chlorobenzene	-	-	-
Ethylbenzene	-	-	-
Styrene	-	-	-
Dichlorodifluoromethane	-	-	-
Trichlorofluoromethane	-	-	-
Bromochloromethane	-	-	-
Dibromomethane	-	-	-
1,3-Dichloropropane	-	-	-
1,2-Dibromoethane	-	-	-
1,1,1,2-Tetrachloroethane	-	-	-
m- & p-Xlenes	-	-	-
o-Xylene	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08LT801XXX01XX	08LT802XXX01XX	08LT803XXX01XX
	LAB NUMBER:	8259-003	8259-005	8259-004
	DATE SAMPLED:	9/14/88	9/14/88	9/14/88
ANALYTE				
Isopropylbenzene		-	-	-
Bromobenzene		-	-	-
1,2,3-Trichloropropane		-	-	-
n-Propylbenzene		-	-	-
2-Chlorotoluene		-	-	-
4-Chlorotoluene		-	-	-
1,3,5-Trimethylbenzene		-	-	-
t-Butylbenzene		-	-	-
1,2,4-Trimethylbenzene		-	-	-
sec-Butylbenzene		-	-	-
p-Isopropyltoluene		-	-	-
n-Butylbenzene		-	-	-
1,2-Dibromo-3-chloropropane		-	-	-
1,2,3-Trichlorobenzene		-	-	-
cis-1,2-Dichloroethene		-	-	-
2,2-Dichloropropane		-	-	-
1,1-Dichloropropene		-	-	-
1,3-Dichlorobenzene		-	-	-
1,4-Dichlorobenzene		-	-	-
1,2-Dichlorobenzene		-	-	-
1,2,4-Trichlorobenzene		-	-	-
Naphthalene		-	-	-
Hexachlorobutadiene		-	-	-
Dilution Factor		1	1	1
Laboratory Method Blank		VBLK01	VBLK01	VBLK01
Associated Equipment Blank		SB-4	SB-4	-
Associated Trip Blank		TB-6	TB-6	TB-6

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	02LT201XXX01XX	02LT201XXX02XX	02LT201XXX03XX	02LT201XXX04XX	02LT201XXX02DX	02LT202XXX01XX	02LT202XXX02XX	02LT202XXX03XX
	LAB NUMBER:	8252-015	233781	265673	283820	233782	8252-016	234902	256233
	DATE SAMPLED:	9/7/88	12/06/88	06/02/89	08/30/89	12/06/88	9/7/88	12/09/88	04/12/89
ANALYTES	CRDL								
Phenol	10	-	-	-	-	-	-	-	R
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	R
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	R
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	57	-	-	-	-	-	-	R
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	R
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	R
Benzoic acid	50	-	-	-	-	-	-	-	R
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	R
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	R
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	R
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	R
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: 02LT201XXX01XX LAB NUMBER: 8252-015 DATE SAMPLED: 9/7/88	02LT201XXX02XX 233781 12/06/88	02LT201XXX03XX 265673 06/02/89	02LT201XXX04XX 283820 08/30/89	02LT201XXX02DX 233782 12/06/88	02LT202XXX01XX 8252-016 9/7/88	02LT202XXX02XX 234902 12/09/88	02LT202XXX03XX 256233 04/12/89
3-Nitroaniline	50	-	-	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	R
4-Nitrophenol	50	-	-	-	-	-	-	-	R
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	R
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	R
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		SBLK01	GH033909A21	SBLK70	GH084227C1S	GH033909A21	SBLK01	GH035152B02	GJ057070A16
Associated Equipment Blank:		-	-	-	-	-	-	-	01BS003XXX03XX 01BS001XXX03XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	02LT202XXX04XX	BSLT203XXX04XX	03LT301XXX01XX	03LT301XXX01XX	03LT301XXX02XX	03LT301XXX03XX	03LT301XXX04XX	03LT301XXX02DX
	LAB NUMBER:	283822	293347	8252-017	8260-030	234620	255962	283024	234621
	DATE SAMPLED:	08/30/89	10/06/89	9/7/88	9/16/88	12/08/88	04/11/89	08/28/89	12/08/88
ANALYTES	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	02LT202XXX04XX	BSLT203XXX04XX	03LT301XXX01XX	03LT301XXX01XX	03LT301XXX02XX	03LT301XXX03XX	03LT301XXX04XX	03LT301XXX02DX
	LAB NUMBER:	283822	293347	8252-017	8260-030	234620	255962	283024	234621
	DATE SAMPLED:	08/30/89	10/06/89	9/7/88	9/16/88	12/08/88	04/11/89	08/28/89	12/08/88
ANALYTES	CRDL								
3-Nitroaniline	50	-	-	-	R	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	R	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	R	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	23	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1.1	1	1	1	1	1
Associated Method Blank:		GJ084227A02	GH094180A21	SBLK01	A1137	GH035152B02	GJ056327A20	GH083163C20	GH035152B02
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: 03LT301XXX03XD	03LT302XXX01XX	03LT302XXX02XX	03LT302XXX03XX	03LT302XXX04XX	01LT303XXX01XX	01LT303XXX02XX	01LT303XXX03XX
		LAB NUMBER: 255960	8252-018	234619	255963	283818	8252-019	234614	255965
		DATE SAMPLED: 04/11/89	9/7/88	12/08/88	04/11/89	08/30/89	9/7/88	12/08/88	04/11/89
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	03LT301XXX03XD	03LT302XXX01XX	03LT302XXX02XX	03LT302XXX03XX	03LT302XXX04XX	01LT303XXX01XX	01LT303XXX02XX	01LT303XXX03XX
SAMPLE ID:		03LT301XXX03XD	03LT302XXX01XX	03LT302XXX02XX	03LT302XXX03XX	03LT302XXX04XX	01LT303XXX01XX	01LT303XXX02XX	01LT303XXX03XX
LAB NUMBER:		255960	8252-018	234619	255963	283818	8252-019	234614	255965
DATE SAMPLED:		04/11/89	9/7/88	12/08/88	04/11/89	08/30/89	9/7/88	12/08/88	04/11/89
3-Nitroaniline	50	-	-	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		GJ056327A20	SBLK01	GJ035864B21	GJ056327A20	GH084227C15	SBLK01	GH035499A16	GJ056327A20
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	03LT303XXX04XX	03LT303XXX04XD	01LT304XXX01XX	01LT304XXX02XX	01LT304XXX03XX	03LT304XXX04XX	01LT304XXX02DX	01LT305XXX01XX
	LAB NUMBER:	283841	283833	8252-020	234616	255958	283827	234617	8252-021
	DATE SAMPLED:	08/30/89	08/30/89	9/7/88	12/08/88	04/11/89	08/30/89	12/08/88	9/7/88
ANALYTES	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	12	-	17 J	-	-	-	-	36 J
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	64
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Aqueous Analysis (ug/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	03LT303XXX04XX	03LT303XXX04XD	01LT304XXX01XX	01LT304XXX02XX	01LT304XXX03XX	03LT304XXX04XX	01LT304XXX02DX	01LT305XXX01XX
	LAB NUMBER:	283841	283833	8252-020	234616	255958	283827	234617	8252-021
	DATE SAMPLED:	08/30/89	08/30/89	9/7/88	12/08/88	04/11/89	08/30/89	12/08/88	9/7/88
ANALYTES	CRDL								
3-Nitroaniline	50	-	-	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	10 J
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		GH084572A08	GJ084227A02	SBLK02	GH035499A16	GJ056327A20	GJ084227A02	GH035499A16	SBLK02
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01LT305XXX02XX	01LT305XXX03XX	03LT305XXX04XX	03LT306XXX04XX	03LT307XXX04XX	08LT801XXX01XX	08LT801XXX03XX	08LT801XXX04XX
LAB NUMBER:	234618	255959	283831	283816	283829	8259-003	257239	284405
DATE SAMPLED:	12/08/88	04/10/89	08/30/89	08/30/89	08/30/89	9/14/88	04/18/89	09/01/89
ANALYTES	CRDL							
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01LT305XXX02XX	01LT305XXX03XX	03LT305XXX04XX	03LT306XXX04XX	03LT307XXX04XX	08LT801XXX01XX	08LT801XXX03XX	08LT801XXX04XX
LAB NUMBER:	234618	255959	283831	283816	283829	8259-003	257239	284405
DATE SAMPLED:	12/08/88	04/10/89	08/30/89	08/30/89	08/30/89	9/14/88	04/18/89	09/01/89
ANALYTES	CRDL							
3-Nitroaniline	50	-	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	10	1	1
Associated Method Blank:		GH035499A16	GJ056327A20	GJ084227A02	GH084227C15	GJ084227A02	BLANK2	GH057883A06	GJ084511B15
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	08LT802XXX01XX	08LT802XXX02XX	08LT802XXX03XX	08LT802XXX04XX	08LT803XXX01XX	08LT803XXX02XX	08LT803XXX03XX	08LT803XXX04XX
LAB NUMBER:	8259-005	237147	257256	284410	8259-004	235391	257259	284411
DATE SAMPLED:	9/14/88	12/19/88	04/18/89	09/01/89	9/14/88	12/12/88	04/18/89	09/01/89

ANALYTES	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: 08LT802XXX01XX LAB NUMBER: 8259-005 DATE SAMPLED: 9/14/88	08LT802XXX02XX 237147 12/19/88	08LT802XXX03XX 257256 04/18/89	08LT802XXX04XX 284410 09/01/89	08LT803XXX01XX 8259-004 9/14/88	08LT803XXX02XX 235391 12/12/88	08LT803XXX03XX 257259 04/18/89	08LT803XXX04XX 284411 09/01/89
3-Nitroaniline	50	-	-	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		BLANK2	GJ038274B06	GH057883A06	GJ084511B15	BLANK2	GH036708A04	GH057883A06	GH084519C06
Associated Equipment Blank:		-	-	-	-	-	01SB004XXX02XX	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	09LT901XXX03XX	09LT901XXX04XX
LAB NUMBER:	257263	283310
DATE SAMPLED:	04/18/89	08/29/89

ANALYTES	CRDL		
Phenol	10	-	-
bis(2-Chloroethyl)ether	10	-	-
2-Chlorophenol	10	-	-
1,3-Dichlorobenzene	10	-	-
1,4-Dichlorobenzene	10	-	-
Benzyl alcohol	10	-	-
1,2-Dichlorobenzene	10	-	-
2-Methylphenol	10	-	-
bis(2-Chloroisopropyl)ether	10	-	-
4-Methylphenol	10	-	-
N-Nitroso-di-n-propylamine	10	-	-
Hexachloroethane	10	-	-
Nitrobenzene	10	-	-
Isophorone	10	-	-
2-Nitrophenol	10	-	-
2,4-Dimethylphenol	10	-	-
Benzoic acid	50	-	-
bis(2-Chloroethoxy)methane	10	-	-
2,4-Dichlorophenol	10	-	-
1,2,4-Trichlorobenzene	10	-	-
Naphthalene	10	-	-
4-Chloroaniline	10	-	-
Hexacholorobutadiene	10	-	-
4-Chloro-3-Methylphenol	10	-	-
2-Methylnaphthalene	10	-	-
Hexachlorocyclopentadiene	10	-	-
2,4,6-Trichlorophenol	10	-	-
2,4,5-Trichlorophenol	50	-	-
2-Chloronaphthalene	10	-	-
2-Nitroaniline	50	-	-
Dimethylphthalate	10	-	-
Acenaphthylene	10	-	-
2,6-Dinitrotoluene	10	-	-

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Combined Summary Table for
Statistical Analysis

SAMPLE ID:	09LT901XXX03XX	09LT901XXX04XX
LAB NUMBER:	257263	283310
DATE SAMPLED:	04/18/89	08/29/89

ANALYTES	CRDL		
3-Nitroaniline	50	-	-
Acenaphthene	10	-	-
2,4-Dinitrophenol	50	-	-
4-Nitrophenol	50	-	-
Dibenzofuran	10	-	-
2,4-Dinitrotoluene	10	-	-
Diethylphthalate	10	-	-
4-Chlorophenyl-phenylether	10	-	-
Fluorene	10	-	-
4-Nitroaniline	50	-	-
4,6-Dinitro-2-methylphenol	50	-	-
N-Nitrosodiphenylamine	10	-	-
4-Bromophenyl-phenylether	10	-	-
Hexachlorobenzene	10	-	-
Pentachlorophenol	50	-	-
Phenanthrene	10	-	-
Anthracene	10	-	-
Di-n-butylphthalate	10	-	-
Fluoranthene	10	-	-
Pyrene	10	-	-
Butylbenzylphthalate	10	-	-
3,3'-Dichlorobenzidine	20	-	-
Benzo(a)Anthracene	10	-	-
Chrysene	10	-	-
bis(2-Ethylhexyl)phthalate	10	-	-
Di-n-octylphthalate	10	-	-
Benzo(b)Fluoranthene	10	-	-
Benzo(k)Fluoranthene	10	-	-
Benzo(a)Pyrene	10	-	-
Indeno(1,2,3-cd)pyrene	10	-	-
Dibenz(a,h)anthracene	10	-	-
Benzo(g,h,i,)perylene	10	-	-
Dilution Factor:		1	1
Associated Method Blank:		GJ057883A04	GH083512C02
Associated Equipment Blank:		-	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Inorganic Aqueous Analysis (mg/L)

02-Feb-90

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 02LT201XXX01XX LAB NUMBER: 8252-015 DATE SAMPLED: 9/7/88	02LT201XXX02XX 233817 12/06/88	02LT201XXX03XX 265681 06/02/89	02LT201XXX04XX 283859 08/30/89	02LT201XXX020X 233819 12/06/88	02LT202XXX01XX 8252-016 9/7/88	02LT202XXX02XX 234924 12/09/88	02LT202XXX03XX 256268 04/12/89
Aluminum	200	960	153000	192000	67300	382000	8000	96400	651000
Antimony	60	-	-	-	-	-	-	-	108
Arsenic	10	-	-	-	15.2 J	-	-	15 J	46.5 J
Barium	200	-	324	385	-	754	-	552	4130
Beryllium	5	-	10	18.1 J	6.7	24	-	6.2	39.5
Cadmium	5	-	-	6.8 J	-	-	17	-	-
Calcium	5000	-	13500	14200	9580	29600	10000	18400	78800
Chromium	10	-	112	179	50.4	289	13	165	1190
Cobalt	50	-	61	102	-	130	-	72	675
Copper	25	-	86	140 J	60.3	218	-	126	914
Iron	1000	29000	134000	169000	96100	288000	140000	339000	766000
Lead	5	-	224	168	35	337	-	82	942
Magnesium	5000	-	20100	28400 J	9720	45500	5800	36500	243000
Manganese	15	1300	2270	1730 J	808	3840	4000	5680	21700
Mercury	0.20	0.47 J	18	5.5 (1)	1.7	14	0.22 J	1.3	2.2
Nickel	40	-	113	139	53.9	236	-	135	1050
Potassium	5000	-	-	-	-	9190	7500	12300	112000
Selenium	5	R	R	R	-	R	R	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	5400	-	-	6830	-	6700	5600	-
Thallium	10	R	-	-	-	-	R	-	R
Vanadium	50	-	251	326 J	124	563	-	243	1720
Zinc	20	26	534	489 J	213 J	1100	50	584	2770
Cyanide	100	-	15	-	-	392	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR

Associated Method Blank:	M202	15774A	16916A	BR17603FW	15774A	M202	15784D	16534
Associated Equipment Blank:	-	-	-	-	-	-	-	01BS003XXX03XX

(1) Original analysis was outside the calibration range; due to insufficient sample volume the results reported are from the duplicate analysis which was diluted and fell within the calibration range.

* = Reporting Limit, not a CRDL

BRLT-CIS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Inorganic Aqueous Analysis (mg/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	02LT202XXX04XX	BSLT203XXX04XX	03LT301XXX01XX	03LT301XXX02XX	03LT301XXX03XX	03LT301XXX04XX	03LT301XXX02DX	03LT301XXX03XD
	LAB NUMBER:	283862	293354	8252-017	234699	255980	283050	234704	255987
	DATE SAMPLED:	08/30/89	10/06/89	9/7/88	12/08/88	04/11/89	08/28/89	12/08/88	04/11/89
ANALYTE	CRDL								
Aluminum	200	81400	43200	11000	71900	93100	199000	126000	52400
Antimony	60	-	-	-	116 J	67.5	384	131 J	-
Arsenic	10	28.4 J	50.9	-	339 J	-	-	420 J	-
Barium	200	690	329	-	846	1050 J	3380	1030	688 J
Beryllium	5	6.9	-	-	-	8.5	6	8.8	-
Cadmium	5	-	-	37	-	-	-	-	-
Calcium	5000	22800	22800	20000	62400	75800	134000	74600	40400
Chromium	10	133	41.7	11	32	73.2	58.2	102	35.9
Cobalt	50	116	97.8	-	86	127	1170	157	108
Copper	25	121	-	-	79	116	511	148	64.8
Iron	1000	564000	416000	310000	1870000	1455100	825000	2190000	1452600
Lead	5	123	171	16 J	486	532	1740	692	477
Magnesium	5000	30900	8110	-	20700	20200	47300	31200	13400
Manganese	15	6930	3620	4500	19700	19000	43000	20500	12900
Mercury	0.20	0.83	9.3	0.42 J	0.65	-	3.8	1.5	1.1
Nickel	40	142	55.7	-	54	89.6	156	123	40.5
Potassium	5000	-	-	-	-	9070	-	-	7490
Selenium	5	- R	R	R	R	R	-	R	R
Silver	10	-	-	-	-	-	-	-	11.6
Sodium	5000	12600	15700	9500	8270	15100	22300	9140	14300
Thallium	10	-	- R	R	-	R	-	-	R
Vanadium	50	331	250	-	371	463	2600	635	294
Zinc	20	384 J	515	110	1180	1070	1770	1420	914
Cyanide	100	-	-	-	-	-	-	-	11.1 J
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Associated Method Blank:		BR17603FW	BR17603RW	H202	15784D	16534A	MR17603D	15784D	16534A
Associated Equipment Blank:		-	BSQSXX1XXX04XX	-	-	-	-	-	-

* = Reporting Limit, not a CRDL

8RLT-CIS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Inorganic Aqueous Analysis (mg/L)

02-Feb-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:		03LT302XXX01XX	03LT302XXX02XX	03LT302XXX03XX	03LT302XXX04XX	01LT303XXX01XX	01LT303XXX02XX	01LT303XXX03XX	03LT303XXX04XX
LAB NUMBER:		8252-018	234696	255981	283858	8252-019	234663	255983	283881
DATE SAMPLED:		9/7/88	12/08/88	04/11/89	08/30/89	9/7/88	12/08/88	04/11/89	08/30/89
ANALYTE	CRDL								
Aluminum	200	1300	7180	23300	347000	22000	17500	74900	66300
Antimony	60	-	-	-	117	75	-	-	-
Arsenic	10	-	-	-	-	-	-	R	27.3
Barium	200	-	-	-	1500	640	263	850 J	656
Beryllium	5	-	-	-	55.7	-	-	6.8	7.7
Cadmium	5	8	-	-	20.8	180	12	25.0	49.9
Calcium	5000	15000	26200	25500	144000	52000	50300	72800	67700
Chromium	10	-	-	17.2	321	18	18	108	82.6
Cobalt	50	-	-	-	690	57	-	232	117
Copper	25	-	-	39.1	490	-	53	138	171
Iron	1000	65000	530000	254000	1760000	170000	198000	463880	542000
Lead	5	6.7 J	63	92.9	1230	81 J	115	546	402
Magnesium	5000	-	5460	5830	53600	6000	7140	14400	14900
Manganese	15	3700	6970	6690	50000	2400	1960	3940	4940
Mercury	0.20	0.42 J	1.8	2.4	4.5	0.42 J	0.3	1.2	0.75
Nickel	40	-	-	41.7	560	140	54	376	279
Potassium	5000	-	-	-	-	8200	6680	13200	-
Selenium	5	R	R	R	-	R	R	R	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	8600	6170	10500	15400	9700	12500	14900	12300
Thallium	10	R	-	R	-	R	-	R	-
Vanadium	50	-	-	85.5	1290	62	89	456	477
Zinc	20	33	338	342	1040 J	3000	1300	4830	17600 J
Cyanide	100	-	-	-	10.3	-	-	12.6 J	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Associated Method Blank:		H202	15784D	16534A	BR17603FW	H202	15784D	16534A	BR17603FW
Associated Equipment Blank:		-	-	-	-	-	-	-	-

* = Reporting Limit, not a CRDL

BRLY-CIS

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 03LT303XXX04XD LAB NUMBER: 283873 DATE SAMPLED: 08/30/89	01LT304XXX01XX 8252-020 9/7/88	01LT304XXX02XX 234664 12/08/88	01LT304XXX03XX 255976 04/11/89	03LT304XXX04XX 283866 08/30/89	01LT304XXX02DX 234668 12/08/88	01LT305XXX01XX 8252-021 9/7/88	01LT305XXX02XX 234671 12/08/88
Aluminum	200	110000	74000	90400	12500	119000	41700	110000	74600
Antimony	60	76.9	-	116 J	-	103	61 J	-	62 J
Arsenic	10	22.6	200 J	1000 J	25.9 J	590	461 J	3600 J	3870 J
Barium	200	940	1800	2100	495 J	2140	1310	760 JB	488
Beryllium	5	11.3	7	14	-	22.9	6.6	6	5.4
Cadmium	5	70	140	8.8	-	5.9	-	170	7.9
Calcium	5000	83500	160000	213000	66500	273000	134000	210000	107000
Chromium	10	147	93	131	11.7	151	50	130	82
Cobalt	50	176	510	750	104	1240	382	1100	443
Copper	25	264	100	226	-	344	85	190	686
Iron	1000	751000	130000	1740000	499390	1340000	1000000	160000	1050000
Lead	5	575	500	1510	313	1430	731	720 J	762
Magnesium	5000	22800	11000	22000	6510	24700	12200	36000	25900
Manganese	15	6420	6800	7380	2060	12100	4090	20000	10700
Mercury	0.20	1.3	17 J	15	5.0	19.3	7.5	3.6 J	1.3
Nickel	40	406	370	523	94.9	689	233	880	337
Potassium	5000	-	8300	-	6850	-	-	9700	-
Selenium	5	- R	R	- R	R	-	R	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	13100	10000	17900	20300	13700	11100	33000	37500
Thallium	10	- R	R	-	R	-	-	R	-
Vanadium	50	773	350	612	92.8	819	253	620	361
Zinc	20	24800 J	690	1540	506	854 J	876	1100	1020
Cyanide	100	-	-	-	10.5 J	20.4	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Associated Method Blank:		BR17603FW	H202	15784D	16534A	BR17603FW	15784D	H202	15784D
Associated Equipment Blank:		-	-	-	-	-	-	-	-

* = Reporting Limit, not a CRDL

BRLT-CIS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01LT305XXX03XX	03LT305XXX04XX	03LT306XXX04XX	03LT307XXX04XX	08LT801XXX01XX	08LT801XXX03XX	08LT801XXX04XX	08LT802XXX01XX
	LAB NUMBER:	255977	283870	283857	283868	8259-003	257286	284430	8259-005
	DATE SAMPLED:	04/10/89	08/30/89	08/30/89	08/30/89	9/14/88	04/18/89	09/01/89	9/14/88
ANALYTE	CRDL								
Aluminum	200	44300	60400	7070	437	36000 J	3790	70300	6900 J
Antimony	60	-	132	-	-	-	-	-	-
Arsenic	10	466.3 J	386 J	-	-	-	-	-	-
Barium	200	369 J	894	-	-	290 J	-	464	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	46	-	-	7
Calcium	5000	71800	81600	11700	18200	26000 J	8570	46500	150000 J
Chromium	10	41.2	19	-	-	51	-	82.1	13
Cobalt	50	465	526	-	-	-	-	57.7	-
Copper	25	408	226	-	-	32	27.0	117	-
Iron	1000	1068900	2510000	10700	85600	480000 J	105000	353000	24000 J
Lead	5	654	480	10.7	-	140 J	23.8	176	29 J
Magnesium	5000	18300	34100	-	-	12000 J	-	21200	7200 J
Manganese	15	9090	11400	613	1270	6000 J	1760	6500	520 J
Mercury	0.20	1.6	0.41	-	-	-	-	-	-
Nickel	40	340	348	-	-	-	-	-	-
Potassium	5000	6680	-	-	-	8000	6160	-	-
Selenium	5	R	-	-	-	-	-	-	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	35400	54400	16800	18700	7400 J	-	11100	42000 J
Thallium	10	R	-	-	-	-	-	-	-
Vanadium	50	302	737	-	-	92	-	240	-
Zinc	20	908	622 J	90.6 J	82.3 J	410	84.9 J	428	75
Cyanide	100	25.2 J	26.9	-	-	-	21.0	10.8	-
Boron	60*	NR	NR	NR	NR	723	NR	NR	58
Associated Method Blank:		16534A	BR17603FW	BR17603FW	BR17603FW	WATER2	16534J	MR17603M	WATER3
Associated Equipment Blank:		-	-	-	-	-	-	-	-

* = Reporting Limit, not a CRDL

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 08LT802XXX02XX LAB NUMBER: 237162 DATE SAMPLED: 12/19/88	08LT802XXX03XX 257299 04/18/89	08LT802XXX04XX 284431 09/01/89	08LT803XXX01XX 8259-004 9/14/88	08LT803XXX02XX 235421 12/12/88	08LT803XXX03XX 257300 04/18/89	08LT803XXX04XX 284432 09/01/89	09LT901XXX03XX 257301 04/18/89
Aluminum	200	31400	6430	29100	6600 J	23400	481	17700	4480
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	24.6	-	-	-	14.5	24.2
Barium	200	-	-	450	-	298	-	329	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	8	-	-	-	-
Calcium	5000	101000	165000	99600	44000 J	68400	66800	49300	17400
Chromium	10	35	-	35.2	25	56	-	40.8	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	30	25.8	85.5	-	45	-	59.6	42.5
Iron	1000	47800	42000	471000	81000 J	329000	19200	380000	127000
Lead	5	126	-	72.2	230 J	738	6.5	399	358
Magnesium	5000	8760	13000	11300	6300 J	10100	7660	11900	-
Manganese	15	532	1370	1190	560 J	1160	504	1030	519
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	52	-	-	-	-	-	-	-
Potassium	5000	-	5550	-	-	-	5520	-	6480
Selenium	5	R	-	-	-	R	-	-	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	31400	43100	49300	41000 J	33000	40800	48600	26000
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	80	-	219	-	90	-	155	-
Zinc	20	282	113 J	192	99	419	80.2 J	194	403 J
Cyanide	100	25	-	17.8	-	-	-	22.8	-
Boron	60*	NR	NR	NR	121	NR	NR	NR	NR
Associated Method Blank:		15751B	16534J	MR17603M	WATER3	15784D	16534J	MR17603M	16534J
Associated Equipment Blank:		-	-	-	-	-	-	-	-

* = Reporting Limit, not a CRDL

BRLT-CIS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID: 09LT901XXX04XX
LAB NUMBER: 283343
DATE SAMPLED: 08/29/89

ANALYTE	CRDL		
Aluminum	200	32000	
Antimony	60	64.2	
Arsenic	10	37.1	J
Barium	200	693	
Beryllium	5	-	
Cadmium	5	-	
Calcium	5000	49100	
Chromium	10	40.3	
Cobalt	50	107	
Copper	25	211	
Iron	1000	1200000	
Lead	5	1210	
Magnesium	5000	12400	
Manganese	15	2340	
Mercury	0.20	-	
Nickel	40	57.7	
Potassium	5000	-	
Selenium	5	-	
Silver	10	-	
Sodium	5000	35300	
Thallium	10	-	
Vanadium	50	525	
Zinc	20	1930	J
Cyanide	100	-	
Boron	60*	NR	

Associated Method Blank: BR17603FW
Associated Equipment Blank: -

* = Reporting Limit, not a CRDL

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	02LT201XXX01XX	02LT201XXX02XX	02LT201XXX03XX	02LT201XXX04XX	02LT201XXX02DX	02LT202XXX01XX	02LT202XXX02XX	02LT202XXX03XX
	LAB NUMBER:	8252-015	233781	265677	283820	233782	8252-016	234902	256233
	DATE SAMPLED:	9/7/88	12/06/88	06/02/89	08/30/89	12/06/88	9/7/88	12/09/88	04/12/89
ANALYTES	CRDL								
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	0.3	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	0.100	-	0.22	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Associated Method Blank:		PBLK02	234783	PBLK43	284264	234783	PBLK02	235504	256352
Associated Equipment Blank:		-	-	-	-	-	-	-	01BS003XXX03XX 01BS001XXX03XX

NR = Not Requested, NA = Not Analyzed.

BRLT-CPS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	02LT202XXX04XX	BSLT203XXX04XX	03LT301XXX01XX	03LT301XXX01XX	03LT301XXX02XX	03LT301XXX03XX	03LT301XXX04XX	03LT301XXX02DX
LAB NUMBER:	283822	293347	8252-017	8260-030	234620	255962	283024	234621
DATE SAMPLED:	08/30/89	10/06/89	09/07/88	09/16/88	12/08/88	04/11/89	08/28/89	12/08/88

ANALYTES	CRDL								
alpha-BHC	0.05	-	-	NA	R	-	-	-	-
beta-BHC	0.05	-	-	NA	R	-	-	-	-
delta-BHC	0.05	-	-	NA	R	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	NA	R	-	-	-	-
Heptachlor	0.05	-	-	NA	R	-	-	-	-
Aldrin	0.05	-	-	NA	R	-	-	-	-
Heptachlor epoxide	0.05	-	-	NA	R	-	-	-	-
Endosulfan I	0.05	-	-	NA	R	-	-	-	-
Dieldrin	0.1	-	-	NA	R	-	-	-	-
4,4'-DDE	0.1	-	-	NA	R	-	-	-	-
Endrin	0.1	-	-	NA	R	-	-	-	-
Endosulfan II	0.1	-	-	NA	R	-	-	-	-
4,4'-DDD	0.1	-	-	NA	R	-	-	-	-
Endosulfan sulfate	0.1	-	-	NA	R	-	-	-	-
4,4'-DDT	0.1	-	-	NA	R	-	-	-	-
Methoxychlor	0.5	-	-	NA	R	-	-	-	-
Endrin ketone	0.1	-	-	NA	R	-	-	-	-
alpha-Chlordane	0.5	-	-	NA	R	-	-	-	-
gamma-Chlordane	0.5	-	-	NA	R	-	-	-	-
Toxaphene	1	-	-	NA	R	-	-	-	-
Aroclor-1016	0.5	-	-	NA	R	-	-	-	-
Aroclor-1221	0.5	-	-	NA	R	-	-	-	-
Aroclor-1232	0.5	-	-	NA	R	-	-	-	-
Aroclor-1242	0.5	-	-	NA	R	-	-	-	-
Aroclor-1248	0.5	-	-	NA	R	-	-	-	-
Aroclor-1254	1	-	-	NA	R	-	-	-	-
Aroclor-1260	1	-	-	NA	R	-	-	-	-
Dilution Factor		1	1	-	1	1	1	1	1
Associated Method Blank:		284264	296226	-	PBLKCC	235504	256072	283244	235504
Associated Equipment Blank:		-	-	-	-	-	-	-	-

NR = Not Requested, NA = Not Analyzed.

BRLT-CPS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	03LT301XXX03XD	03LT302XXX01XX	03LT302XXX02XX	03LT302XXX03XX	03LT302XXX04XX	01LT303XXX01XX	01LT303XXX02XX	01LT303XXX03XX
LAB NUMBER:	255960	8252-018	234619	255963	283818	8252-019	234614	255965
DATE SAMPLED:	04/11/89	9/7/88	12/08/88	04/11/89	08/30/89	9/7/88	12/08/88	04/11/89

ANALYTES	CRDL								
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Associated Method Blank:		256072	PBLK02	235524	256072	284264	PBLK02	235524	256072
Associated Equipment Blank:		-	-	-	-	-	-	-	-

NR = Not Requested, NA = Not Analyzed.

BRLT-CPS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	03LT303XXX04XX	03LT303XXX04XD	01LT304XXX01XX	01LT304XXX02XX	01LT304XXX03XX	03LT304XXX04XX	01LT304XXX02DX	01LT305XXX01XX
LAB NUMBER:	283841	283833	8252-020	234616	255958	283827	234617	8252-021
DATE SAMPLED:	08/30/89	08/30/89	9/7/88	12/08/88	04/11/89	08/30/89	12/08/88	9/7/88
ANALYTES / CRDL								
alpha-BHC 0.05	-	-	-	-	-	-	-	-
beta-BHC 0.05	-	-	-	-	-	-	-	-
delta-BHC 0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane) 0.05	-	-	-	-	-	-	-	-
Heptachlor 0.05	-	-	-	-	-	-	-	-
Aldrin 0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide 0.05	-	-	-	-	-	-	-	-
Endosulfan I 0.05	-	-	-	-	-	-	-	-
Dieldrin 0.1	-	-	-	-	-	-	-	-
4,4'-DDE 0.1	-	-	-	-	-	-	-	0.400
Endrin 0.1	-	-	-	-	-	-	-	-
Endosulfan II 0.1	-	-	-	-	-	-	-	-
4,4'-DDD 0.1	-	-	-	-	-	-	-	0.360
Endosulfan sulfate 0.1	-	-	-	-	-	-	-	-
4,4'-DDT 0.1	-	-	-	-	-	-	-	0.170
Methoxychlor 0.5	-	-	-	-	-	-	-	-
Endrin ketone 0.1	-	-	-	-	-	-	-	-
alpha-Chlordane 0.5	-	-	-	-	-	-	-	-
gamma-Chlordane 0.5	-	-	-	-	-	-	-	-
Toxaphene 1	-	-	-	-	-	-	-	-
Aroclor-1016 0.5	-	-	-	-	-	-	-	-
Aroclor-1221 0.5	-	-	-	-	-	-	-	-
Aroclor-1232 0.5	-	-	-	-	-	-	-	-
Aroclor-1242 0.5	-	-	-	-	-	-	-	-
Aroclor-1248 0.5	-	-	-	-	-	-	-	-
Aroclor-1254 1	-	-	-	-	-	-	-	-
Aroclor-1260 1	-	-	-	-	-	-	-	-
Dilution Factor	1	1	1	1	1	1	1	1
Associated Method Blank:	284607	285217	PBLK02	235524	256072	284264	235524	PBLK02
Associated Equipment Blank:	-	-	-	-	-	-	-	-

NR = Not Requested, NA = Not Analyzed.

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Combined Summary Table for
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SAMPLE ID:	01LT305XXX02XX	01LT305XXX03XX	03LT305XXX04XX	03LT306XXX04XX	03LT307XXX04XX	08LT801XXX01XX	08LT802XXX01XX	08LT801XXX03XX
LAB NUMBER:	234618	255959	283831	283816	283829	8259-003	8259-005	257239
DATE SAMPLED:	12/08/88	04/10/89	08/30/89	08/30/89	08/30/89	9/14/88	9/14/88	04/18/89
ANALYTES	CRDL							
alpha-BHC	0.05	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1.03	1	1
Associated Method Blank:		235524	256072	284264	284264	284264	PBLKAA	PBLKAA	257344
Associated Equipment Blank:		-	-	-	-	-	-	-	-

NR = Not Requested, NA = Not Analyzed.

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Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08LT801XXX04XX	08LT802XXX03XX	08LT802XXX04XX	08LT803XXX01XX	08LT803XXX03XX	08LT803XXX04XX	09LT901XXX03XX	09LT901XXX04XX
	LAB NUMBER:	284405	257256	284410	8259-004	257259	284411	257263	283310
	DATE SAMPLED:	09/01/89	04/18/89	09/01/89	9/14/88	04/18/89	09/01/89	04/18/89	08/29/89
ANALYTES	CRDL								
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	0.69
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	1.8
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	0.13
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1.06	1	1	1	1
Associated Method Blank:		284542	257344	286114	PBLKAA	257344	284880	257344	283510
Associated Equipment Blank:		-	-	-	-	-	-	-	-

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GROUNDWATER DATA

ROUNDS I, II, III, AND IV

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SURFACE WATER DATA

ROUNDS I, II, III, AND IV

Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 03SW002XXX01XX LAB NUMBER: 8252-013 DATE SAMPLED: 9/7/88	03SW002XXX02XX 234903 12/09/88	03SW002XXX01DX 8252-014 9/7/88	02SW003XXX01XX 8253-011 9/08/88	02SW003XXX02XX 233780 12/06/88	01SW004XXX01XX 8253-012 9/08/88	01SW004XXX02XX 233769 12/06/88	08SW006XXX01XX 8258-005 9/13/88
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1.05	1	0.97	1	1
Associated Method Blank:		PBLK02	235504	PBLK02	PBLKAA	234783	PBLKAA	234783	PBLK03
Associated Equipment Blank:		01SB004XXX01XX	-	01SB004XXX01XX	-	-	-	-	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Pesticides/PCBs Aqueous Analysis (ug/L)

01-Feb-90

Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 08SW007XXX01XX LAB NUMBER: 8258-007 DATE SAMPLED: 9/13/88	08SW008XXX01XX 8258-009 9/13/88	08SW009XXX01XX 8258-008 9/13/88	09SW010XXX01XX 8253-013 9/08/88	09SW010XXX03XX 257225 04/18/89	09SW010XXX03XD 257235 04/18/89	09SW011XXX01XX 8253-014 9/08/88	09SW011XXX01DX 8253-015 9/08/88
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	0.98	1	1	1	0.98
Associated Method Blank:		PBLK03	PBLK03	PBLK03	PBLKAA	257344	257344	PBLKAA	PBLKAA
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09SW012XXX01XX LAB NUMBER: 8253-016 DATE SAMPLED: 9/08/88	01SW113XXX01XX 8256-013 9/09/88	01SW113XXX02XX 235965 12/14/88	01SW113XXX01DX 8256-014 9/09/88	01SW114XXX01XX 8256-015 9/09/88	01SW114XXX02XX 235977 12/14/88	01SW115XXX01XX 8253-017 9/08/88	01SW115XXX02XX 233779 12/06/88
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		PBLKAA	PBLK01	236886	PBLK01	PBLK01	236886	PBLKAA	234783
Associated Equipment Blank:		-	-	-	-	-	-	-	-

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Pesticides/PCBs Aqueous Analysis (ug/L)

01-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01SW118XXX01XX	01SW118XXX02XX	01SW119XXX01XX	01SW119XXX02XX	01SW126XXX04XX	01SW126XXX04XD	01SW127XXX04XX	01SW128XXX04XX
	LAB NUMBER:	8256-016	235987	8256-017	235980	284149	284133	284138	284137
	DATE SAMPLED:	9/09/88	12/14/88	9/09/88	12/14/88	08/31/89	08/31/89	08/31/89	08/31/89
ANALYTE	CRDL								
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		PBLK02	236886	PBLK01	236886	284879	284879	284879	284879
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 01SW129XXX04XX	03SW316XXX01XX	03SW316XXX02XX	03SW316XXX02DX	03SW317XXX01XX	03SW317XXX02XX	08SW817XXX01XX	08SW818XXX01XX
		LAB NUMBER: 284122	8252-022	234904	234905	8252-023	234908	8259-006	8259-007
		DATE SAMPLED: 08/31/89	9/7/88	12/09/88	12/09/88	9/7/88	12/09/88	9/14/88	9/14/88
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1.02	1
Associated Method Blank:		284879	PBLK02	235504	235504	PBLK02	235858	PBLKAA	PBLKAA
Associated Equipment Blank:		-	01SB004XXX01XX	-	-	01SB004XXX01XX	01SB004XXX02XX	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 08SW819XXX01XX LAB NUMBER: 8258-004 DATE SAMPLED: 9/13/88	08SW820XXX01XX 8257-005 9/12/88	08SW820XXX03XX 256695 04/14/89	08SW821XXX01XX 8258-006 9/13/88	09SW915XXX01XX 8253-018 9/08/88	09SW916XXX01XX 8253-019 9/08/88	09SW917XXX01XX 8260-028 9/16/88	09SW917XXX01DX 8260-029 9/16/88
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	0.98	1.02	1	1
Associated Method Blank:		PBLK03	PBLK01	256835	PBLK03	PBLKAA	PBLKAA	PBLKCC	PBLKCC
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01SW918XXX01XX	01SW8K1XXX02XX	01SW8K1XXX03XX	01SW8K2XXX02XX	01SW8K2XXX03XX
	LAB NUMBER:	8267-002	236773	256448	236777	256459
	DATE SAMPLED:	9/22/88	12/16/88	04/13/89	12/16/88	04/13/89
ANALYTE	CRDL					
alpha-BHC	0.05	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-
Heptachlor	0.05	R	-	-	-	-
Aldrin	0.05	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-
Endrin	0.1	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-
Toxaphene	1	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-
Dilution Factor:		1	1	1	1	1
Associated Method Blank:		PBLKII	237474	256661	237474	256661
Associated Equipment Blank:		-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	03SW002XXX01XX	03SW002XXX02XX	01SW002XXX04XX	03SW002XXX01DX	02SW003XXX01XX	02SW003XXX02XX	01SW003XXX04XX	01SW004XXX01XX
LAB NUMBER:	8252-013	234903	283012	8252-014	8253-011	233780	283018	8253-012
DATE SAMPLED:	9/7/88	12/09/88	08/28/89	9/7/88	9/08/88	12/06/88	08/28/89	9/08/88

ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	R	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	-	-	R	R	R	-	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	12	20	-	11	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		VBLK04	CB881213A09	CB890830C19	VBLK03	VBLKE	CB881208B09	CB890830C19	VBLKF
Associated Equipment Blank:		01SB004XXX01XX	-	-	01SB004XXX01XX	-	-	-	-
Associated Trip Blank:		01TB001XXX01XX	01TB004XXX02XX	0001001XXX04XX	01TB001XXX01XX	01TB002XXX01XX	01TB001XXX02XX	0001001XXX04XX	01TB002XXX01XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Aqueous Analysis (ug/L)

08-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01SW004XXX02XX	01SW004XXX04XX	08SW006XXX02XX	08SW007XXX02XX	08SW008XXX02XX	08SW009XXX02XX	09SW010XXX01XX	09SW010XXX02XX
	LAB NUMBER:	233769	283015	235401	236507	236505	237143	8253-013	236770
	DATE SAMPLED:	12/06/88	08/28/89	12/12/88	12/15/88	12/15/88	12/19/88	9/08/88	12/16/88
ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	-	R	R	R	R	R	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB881208B09	CB890830C19	CB881215B11	CB881223A23	CB881222B23	CB881221A11	VBLKF	CB881221A12
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		01TB001XXX02XX	00QT001XXX04XX	01TB005XXX02XX	01TB008XXX02XX	01TB008XXX02XX	01TB010XXX02XX	01TB002XXX01XX	01TB009XXX02XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick | Volatile Aqueoues Analysis (ug/L) | 08-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	09SW010XXX04XX	09SW011XXX01XX	09SW011XXX02XX	09SW011XXX03XX	09SW011XXX04XX	09SW011XXX01DX	09SW011XXX03XD	09SW012XXX01XX
	LAB NUMBER:	283321	8253-014	236771	257267	283315	8253-015	257273	8253-016
	DATE SAMPLED:	08/29/89	9/08/88	12/16/88	04/18/89	08/29/89	9/08/88	04/18/89	9/08/88
ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	R	R	-	R	R	-	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	16	-	-	13	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	33	-	-	22	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	45	-	-	34	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CC890905B03	VBLKE	CB881221A12	CB890420B13	CC890905B03	VBLKF	CB890420B13	VBLKF
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		00QT002XXX04XX	01TB002XXX01XX	01TB009XXX02XX	01BT007XXX03XX	00QT002XXX04XX	01TB002XXX01XX	01BT007XXX03XX	01TB002XXX01XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Aqueoues Analysis (ug/L)

08-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:		09SW012XXX02XX	09SW012XXX04XX	01SW113XXX01XX	01SW113XXX02XX	01SW113XXX03XX	01SW113XXX04XX	01SW113XXX01DX	01SW114XXX01XX
LAB NUMBER:		236772	283323	8256-013	235965	256438	284128	8256-014	8256-015
DATE SAMPLED:		12/16/88	08/29/89	9/9/88	12/14/88	04/13/89	08/31/89	9/9/88	9/9/88
ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	-	R	R	-	-	R	R
1,1,1-Trichloroethane	5	-	-	9	13	7	-	7	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	7	5	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB881221A12	CB890906A03	VBLK02	CC881216A14	CB890420C14	CB890908A03	VBLK02	VBLK02
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		01TB009XXX02XX	00QT002XXX04XX	01TB003XXX01XX	01TB007XXX02XX	-	00QT004XXX04XX	01TB003XXX01XX	01TB003XXX01XX

BRSW-CVS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick | Volatile Aqueoues Analysis (ug/L) | 08-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	01SW114XXX02XX	01SW114XXX04XX	01SW115XXX01XX	01SW115XXX02XX	01SW115XXX03XX	01SW115XXX04XX	01SW118XXX01XX	01SW118XXX02XX
	LAB NUMBER:	235977	284142	8253-017	233779	255766	283011	8256-016	235987
	DATE SAMPLED:	12/14/88	08/31/89	9/08/88	12/06/88	04/10/89	08/28/89	9/9/88	12/14/88
ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	-	R	R	-	-	R	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CC881217A14	CB890909C03	VBLKF	CB881208C09	CB890413A14	CB890830C19	VBLK02	CC881217A14
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		01TB007XXX02XX	00QT004XXX04XX	01TB002XXX01XX	01TB001XXX02XX	01BT001XXX03XX	00QT001XXX04XX	01TB003XXX01XX	01TB007XXX02XX

J-183

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Aqueoues Analysis (ug/L)

08-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01SW118XXX04XX	01SW119XXX01XX	01SW119XXX02XX	01SW120XXX04XX	01SW121XXX04XX	01SW122XXX04XX	01SW123XXX04XX	01SW124XXX04XX
LAB NUMBER:	284135	8256-017	235980	283003	283009	283010	283004	283318
DATE SAMPLED:	08/31/89	9/9/88	12/14/88	08/28/89	08/28/89	08/28/89	08/28/89	08/29/89

ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	R	R	-	-	-	-	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890909C03	VBLK02	CC881217A14	CB890830C19	CB890830C19	CB890830C19	CB890830C19	CC890905B03
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		00QT004XXX04XX	01TB003XXX01XX	01TB007XXX02XX	00QT001XXX04XX	00QT001XXX04XX	00QT001XXX04XX	00QT001XXX04XX	00QT002XXX04XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

SAMPLE ID:	01SW125AXX04XX	01SW125AXX04XD	01SW125BXX04XD	01SW126XXX04XX	01SW126XXX04XD	01SW127XXX04XX	01SW128XXX04XX	01SW129XXX04XX
LAB NUMBER:	284118	284125	284154	284149	284133	284138	284137	284122
DATE SAMPLED:	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89

ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	5	27	30	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	29	31	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	29	30	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-

Dilution Factor:	1	1	1	1	1	1	1	1
Associated Method Blank:	CB890908A13	CB890908A13	CB890909A03	CB890909A03	CB890909C03	CB890909C03	CB890909C03	CB890908A13
Associated Equipment Blank:	-	-	-	-	-	-	-	-
Associated Trip Blank:	00QT004XXX04XX	00QT004XXX04XX	00QT004XXX04XX	00QT004XXX04XX	00QT004XXX04XX	00QT004XXX04XX	00QT004XXX04XX	00QT004XXX04XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick | Volatile Aqueoues Analysis (ug/L) | 08-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	03SW316XXX01XX	03SW316XXX02XX	03SW316XXX04XX	03SW316XXX02DX	03SW317XXX01XX	03SW317XXX02XX	03SW317XXX04XX	03SW318XXX04XX
	LAB NUMBER:	8252-022	234904	283022	234905	8252-023	234908	283008	283823
	DATE SAMPLED:	9/7/88	12/09/88	08/28/89	12/09/88	9/7/88	12/09/88	08/28/89	08/30/89
ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	-	-	-	R	R	-	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		VBLK06	CB881213A09	CB890830C19	CB881213A09	VBLK05	CB881214C11	CB890830C19	CB890908A13
Associated Equipment Blank:		01SB004XXX01XX	-	-	-	01SB004XXX01XX	-	-	-
Associated Trip Blank:		01TB001XXX01XX	01TB004XXX02XX	00QT001XXX04XX	01TB004XXX02XX	01TB001XXX01XX	01TB004XXX02XX	00QT001XXX04XX	00QT003XXX04XX

BRSW-CVS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick | Volatile Aqueoues Analysis (ug/L) | 08-Feb-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:		03SW318XXX04X0	03SW319XXX04XX	08SW817XXX02XX	08SW818XXX02XX	08SW819XXX02XX	08SW820XXX02XX	08SW821XXX02XX	09SW915XXX01XX
LAB NUMBER:		283824	283023	237142	237141	235387	236509	236510	8253-018
DATE SAMPLED:		08/30/89	08/28/89	12/19/88	12/19/88	12/12/88	12/15/88	12/15/88	9/08/88
ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	11	-	-	23 J	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	-	R	R	R	R	R	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	6
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890908A13	CB890830C19	CB881221A11	CB881221A11	CB881215B11	CC881221B23	CC881221B23	VBLKF
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		00QT003XXX04XX	00QT001XXX04XX	01TB010XXX02XX	01TB010XXX02XX	01TB005XXX02XX	01TB008XXX02XX	01TB008XXX02XX	01TB002XXX01XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick | Volatile Aqueoues Analysis (ug/L) | 08-Feb-90

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	09SW915XXX02XX 236778 12/16/88	09SW915XXX03XX 256439 04/13/89	09SW915XXX04XX 283298 08/29/89	09SW916XXX01XX 8253-019 9/08/88	09SW916XXX02XX 236779 12/16/88	09SW916XXX03XX 256465 04/13/89	09SW916XXX04XX 283283 08/29/89	09SW917XXX01XX 8260-028 9/16/88
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	9
Acetone	10	-	-	-	-	-	-	-	22
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	-	-	R	R	-	R	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	18	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	12	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	36	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	74	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB881221A12	CB890420C14	CC890905C03	VBLKF	CB881221A12	CB890420C14	CB890907A03	C3829
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		01TB009XXX02XX	-	00QT002XXX04XX	01TB002XXX01XX	01TB009XXX02XX	01BT004XXX03XX	00QT002XXX04XX	01TB006XXX01XX

BRSW-CVS

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09SW917XXX03XX	09SW917XXX01DX	01SW918XXX01XX	09SW918XXX02XX	09SW919XXX04XX	09SW920XXX04XX	09SW920XXX04XD	09SW921XXX04XX
		LAB NUMBER: 256699	8260-029	8267-002	237140	283297	283279	283307	283280
		DATE SAMPLED: 04/14/89	9/16/88	9/22/88	12/19/88	08/29/89	08/29/89	08/29/89	08/29/89
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	R	R	R	R	R	-	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890420C14	C3829	C3951	CB881221A11	CB890907A03	CC890905C23	CC890905C03	CC890906C23
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		01TB005XXX03XX	01TB006XXX01XX	01TB006XXX01XX	01TB010XXX02XX	00QT002XXX04XX	00QT002XXX04XX	00QT002XXX04XX	00QT002XXX04XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick | Volatile Aqueoues Analysis (ug/L) | 08-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	09SW922XXX04XX	09SW923XXX04XX	09SW924XXX04XX	09SW925XXX04XX	09SW926XXX04XX	09SW927XXX04XX	01SWBK1XXX02XX	01SWBK1XXX03XX
	LAB NUMBER:	283282	284423	284424	284145	284141	283848	236773	256448
	DATE SAMPLED:	08/29/89	09/01/89	09/01/89	08/31/89	08/31/89	08/30/89	12/16/88	04/13/89
ANALYTE	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	-	-	-	-	-	R	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890907A03	CB890909A13	CB890909A13	CB890909C03	CB890909C03	CB890908A13	CB881221A12	CB890416B14
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		00QT002XXX04XX	00QT005XXX04XX	00QT005XXX04XX	00QT004XXX04XX	00QT004XXX04XX	00QT003XXX04XX	01TB009XXX02XX	01BT004XXX03XX

J-190

BRSW-CVS

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Combined Summary Table for
Statistical Analysis

SAMPLE ID:		01SWBK2XXX02XX	01SWBK2XXX03XX
LAB NUMBER:		236777	256459
DATE SAMPLED:		12/16/88	04/13/89
ANALYTE	CRDL		
Chloromethane	10	-	-
Bromomethane	10	-	-
Vinyl Chloride	10	-	-
Chloroethane	10	-	-
Methylene Chloride	5	-	-
Acetone	10	-	-
Carbon Disulfide	5	-	-
1,1-Dichloroethene	5	-	-
1,1-Dichloroethane	5	-	-
1,2-Dichloroethene (total)	5	-	-
Chloroform	5	-	-
1,2-Dichloroethane	5	-	-
2-Butanone	10	R	-
1,1,1-Trichloroethane	5	-	-
Carbon Tetrachloride	5	-	-
Vinyl Acetate	10	-	-
Bromodichloromethane	5	-	-
1,2-Dichloropropane	5	-	-
cis-1,3-Dichloropropene	5	-	-
Trichloroethene	5	-	-
Dibromochloromethane	5	-	-
1,1,2-Trichloroethane	5	-	-
Benzene	5	-	-
Trans-1,3-Dichloropropene	5	-	-
Bromoform	5	-	-
4-Methyl-2-Pentanone	10	-	-
2-Hexanone	10	-	-
Tetrachloroethene	5	-	-
1,1,2,2-Tetrachloroethane	5	-	-
Toluene	5	-	-
Chlorobenzene	5	-	-
Ethylbenzene	5	-	-
Styrene	5	-	-
Xylenes (Total)	5	-	-
Dilution Factor:		1	1
Associated Method Blank:		CB881221A12	CB890416B14
Associated Equipment Blank:		-	-
Associated Trip Blank:		01TB009XXX02XX	01BTQ04XXX03XX

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PROJECT: Naval Air Station Brunswick

Inorganic Aqueous Analysis (ug/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	03SW002XXX01XX	03SW002XXX02XX	00SW002XXX04XX	03SW002XXX01DX	02SW003XXX01XX	02SW003XXX02XX	02SW003XXX03XX	02SW003XXX04XX
	LAB NUMBER:	8252-013	234929	283044	8252-014	8253-011	233814	255761	283047
	DATE SAMPLED:	9/7/88	12/09/88	08/28/89	9/7/88	9/8/88	12/06/88	04/10/89	08/28/89
ANALYTE	CRDL								
Aluminum	200	-	-	-	-	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	R	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	14000	13500	15500	14000	6600	6710	-	7380
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	4100	2140	3330	3400	1000	826	626	4950
Lead	5	-	-	-	-	8.3 J	-	-	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	680	566	1070	690	100	61	48.8	180
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	5420	-
Selenium	5	R	R	-	R	R	R	R	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	17000	11000	16900	17000	6100	-	5170	6710
Thallium	10	R	-	-	R	R	-	R	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	-	28	173	82.1	93.4
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Associated Method Blank:		H202	15784D	MR17603D	H202	H203	15774A	16534A	MR17603D
Associated Equipment Blank:		-	-	-	-	-	-	-	-

NR = Not Requested

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Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01SW004XXX01XX	01SW004XXX02XX	01SW004XXX04XX	08SW006XXX01XX	08SW006XXX02XX	08SW007XXX01XX	08SW007XXX02XX	08SW007XXX03XX
	LAB NUMBER:	8253-012	233809	283046	8258-005	235427	8258-007	236522	256730
	DATE SAMPLED:	9/8/88	12/06/88	08/28/89	9/13/88	12/12/88	9/13/88	12/15/88	04/14/89
ANALYTE	CRDL								
Aluminum	200	380	-	96100	-	-	-	1590	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	22.3	-	-	-	-	-
Barium	200	-	-	1340	-	-	-	-	-
Beryllium	5	-	-	12.8	-	-	-	-	-
Cadmium	5	-	-	15.4	-	-	-	-	-
Calcium	5000	7400	6970	47900	17000 J	7530	7700 J	9610	14500
Chromium	10	-	-	183	-	-	-	-	-
Cobalt	50	-	-	191	-	-	-	-	-
Copper	25	-	-	196	-	-	-	-	-
Iron	1000	1800	761	635000	1600 J	124	-	5020	274
Lead	5	-	-	491	-	-	1900 J	-	-
Magnesium	5000	-	-	30100	-	-	-	-	-
Manganese	15	210	183	31100	910 J	187	430 J	343	322
Mercury	0.20	-	-	0.77	-	-	-	-	-
Nickel	40	-	-	223	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	R	R	-	-	R	-	-	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	8900	5940	12800	270000 J	8380	7900 J	160000	171000
Thallium	10	R	-	-	-	-	-	-	-
Vanadium	50	-	-	418	-	-	-	-	-
Zinc	20	-	-	1780	-	-	-	-	-
Total Cyanide	100	-	-	13	-	-	-	-	70.9 J
Boron	60*	NR	NR	NR	-	NR	-	21	11.2
								NR	NR
Associated Method Blank:		H203	15774A	MR17603D	WATER1	15784E	WATER1	15751B	16534E
Associated Equipment Blank:		-	-	-	FB-001	-	FB-001	-	-

NR Requested

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08SW007XXX03XD	08SW008XXX01XX	08SW008XXX02XX	08SW008XXX03XX	08SW009XXX01XX	08SW009XXX02XX	08SW009XXX03XX	09SW010XXX01XX
	LAB NUMBER:	256731	8258-009	236520	256732	8258-008	237160	256741	8253-013
	DATE SAMPLED:	04/14/89	9/13/88	12/15/88	04/14/89	9/13/88	12/19/88	04/14/89	9/8/88
ANALYTE	CRDL								
Aluminum	200	372	-	341	-	-	315	1590	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	14400	7900	8880	8870	60000 J	49000	40100	16000
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	462	590 J	-	854	6200 J	7160	6270	-
Lead	5	-	2100 J	-	-	1500 J	-	-	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	332	320 J	262	493	480 J	466	394	300
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	-	-	-	-	-	R	-	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	168000	19000 J	21700	31900	31000 J	26900	22500	19000
Thallium	10	-	-	-	-	-	-	-	R
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	70.6 J	-	52 JB	134 J	-	161	114 J	-
Total Cyanide	100	14.4	-	-	-	-	37	-	-
Boron	60*	NR	-	NR	NR	-	NR	NR	NR
Associated Method Blank:		16534E	WATER1	15751B	16534E	WATER1	15751B	16534E	H203
Associated Equipment Blank:		-	-	-	-	FB-001	-	-	-

NR = Not Requested

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09SW010XXX02XX LAB NUMBER: 236780 DATE SAMPLED: 12/16/88	09SW010XXX04XX 283352 08/29/89	09SW011XXX01XX 8253-014 9/8/88	09SW011XXX02XX 236781 12/16/88	09SW011XXX04XX 283344 08/29/89	09SW011XXX01DX 8253-015 9/8/88	09SW012XXX01XX 8253-016 9/8/88	09SW012XXX02XX 236782 12/16/88
Aluminum	200	-	-	-	-	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	14500	14900	18000	15400	16300	17000	17000	15300
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	-	938	1000	2160	713	-	1100	1900
Lead	5	-	-	-	-	-	-	-	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	386	676	1200	954	842	1100	1000	888
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	-	-	R	-	-	R	R	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	18300	19500	18000	22100	17200	17000	17000	21000
Thallium	10	-	-	R	-	-	R	R	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	-	-	-	-	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Associated Method Blank:		15751B	BR17603FW	H203	15751B	BR17603FW	H204	H204	15751B
Associated Equipment Blank:		-	-	-	-	-	-	-	-

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Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Inorganic Aqueous Analysis (ug/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	09SW012XXX04XX	01SW113XXX01XX	01SW113XXX02XX	01SW113XXX03XX	01SW113XXX04XX	01SW113XXX01DX	01SW114XXX01XX	01SW114XXX02XX
	LAB NUMBER:	283353	8256-013	235993	256470	284169	8256-014	8256-015	235995
	DATE SAMPLED:	08/29/89	9/9/88	12/14/88	04/12/89	08/31/89	9/9/88	9/9/88	12/14/88
ANALYTE	CRDL								
Aluminum	200	-	-	-	-	-	-	220	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	R	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	16000	8900	7850	6960	8560	8900	8700	8630
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	1440	1300	855	714	788	1100	1800	676
Lead	5	-	-	-	-	-	-	-	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	780	150	223	165	67.1	120	180	218
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	-	R	R	R	-	R	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	17700	9200	5380	12100	8700	9400	9300	9190
Thallium	10	-	R	-	R	-	R	R	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	68.8 J	-	166	-	-	22	27	-
Total Cyanide	100	11.3	-	11	-	-	-	-	12
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Associated Method Blank:		BR17603FW	H205	15784W	16534	MR17603M	H205	H205	15784W
Associated Equipment Blank:		-	-	-	-	-	-	-	-

NR = Not Requested

BRSW-C1S

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	01SW114XXX03XX	01SW114XXX04XX	01SW115XXX01XX	01SW115XXX02XX	01SW115XXX04XX	01SW118XXX01XX	01SW118XXX02XX	01SW118XXX03XX
	LAB NUMBER:	256471	284187	8253-017	233812	283043	8256-016	235998	256473
	DATE SAMPLED:	04/13/89	08/31/89	9/8/88	12/06/88	08/28/89	9/9/88	12/14/88	04/13/89
ANALYTE	CRDL								
Aluminum	200	-	-	-	-	-	-	401	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	R	-	-	-	-	-	-	R
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	7430	8340	7800	7840	8700	8600	9540	8680
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	786	619	1400	891	974	-	1240	1000
Lead	5	-	-	-	-	-	-	-	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	261	67.1	190	205	143	120	235	418
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	R	-	R	R	-	R	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	12500	10900	9000	-	9670	10000	8850	13200
Thallium	10	R	-	R	-	-	R	-	R
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	169	-	-	111	-
Total Cyanide	100	-	11.5	-	-	-	-	12	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Associated Method Blank:		16534	MR17603M	H204	15774A	MR17603D	H205	15784W	16534
Associated Equipment Blank:		-	-	-	-	-	-	-	-

NR = Requested

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 01SW118XXX04XX LAB NUMBER: 284180 DATE SAMPLED: 08/31/89	01SW119XXX01XX 8256-017 9/9/88	01SW119XXX02XX 235996 12/14/88	01SW119XXX03XX 257035 04/17/89	01SW119XXX04XX 284175 08/31/89	01SW120XXX04XX 283026 08/28/89	01SW121XXX04XX 283041 08/28/89	01SW122XXX04XX 283042 08/28/89
Aluminum	200	226	-	-	226	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	8360	8000	8180	5720	8630	7820	7760	27400
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	1030	1100	860	771	660	986	1610	7060
Lead	5	-	-	-	-	-	-	-	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	212	140	225	155	67.1	156	151	2500
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	-	R	R	-	-	-	-	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	12100	9100	8490	9090	11200	9750	9320	6430
Thallium	10	-	R	-	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	25	79	53.4 J	-	-	138	-
Total Cyanide	100	15.6	-	15	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Associated Method Blank:		MR17603M	H205	15784W	16534J	-	-	-	-
Associated Equipment Blank:		-	-	-	-	-	-	-	-

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Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01SW123XXX04XX	01SW124XXX04XX	01SW125AXX04XX	01SW125AXX04XD	01SW126XXX04XX	01SW126XXX04XD	01SW127XXX04XX	01SW128XXX04XX
	LAB NUMBER:	283030	283345	284157	284159	284189	284178	284184	284182
	DATE SAMPLED:	08/28/89	08/29/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89
ANALYTE	CRDL								
Aluminum	200	-	-	259	-	1060	475	1040	454
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	8470	8450	-	-	16000	15700	19900	107000
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	853	791	993	524	2630	1550	3120	1120
Lead	5	-	-	-	12.4	-	-	-	-
Magnesium	5000	-	-	-	-	26800	26400	8900	324000
Manganese	15	113	78.5	-	-	210	167	277	67.1
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	101000
Selenium	5	-	-	-	-	-	-	-	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	11300	9570	5130	5830	221000	216000	326000	2780000
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	-	-	-	-	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Associated Method Blank:		-	-	-	-	-	-	-	-
Associated Equipment Blank:		-	-	-	-	-	-	-	-

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PROJECT: Naval Air Station Brunswick

Inorganic Aqueous Analysis (ug/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01SW129XXX04XX	03SW316XXX01XX	03SW316XXX02XX	03SW316XXX04XX	03SW316XXX02DX	03SW317XXX01XX	03SW317XXX02XX	03SW317XXX03XX
	LAB NUMBER:	284158	8252-022	234939	283048	234941	8252-023	234945	256266
	DATE SAMPLED:	08/31/89	9/7/88	12/09/88	08/28/89	12/09/88	9/7/88	12/09/88	04/12/89
ANALYTE	CRDL								
Aluminum	200	796	-	625	1210	815	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	77700	7500	7730	9280	8000	6500	13000	13300
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	1780	1300	3710	4150	4830	1300	519	519
Lead	5	-	-	-	5.6 J	62	-	-	-
Magnesium	5000	228000	-	-	-	-	-	-	-
Manganese	15	72.5	180	304	401	332	160	478	635
Mercury	0.20	-	-	-	-	-	0.37 J	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	71000	-	-	-	-	-	-	-
Selenium	5	-	R	R	-	R	R	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	1970000	7700	5600	9920	6830	7800	-	8290
Thallium	10	-	R	-	-	-	R	-	R
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	22	58 JB	-	51 JB	31	-	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Associated Method Blank:		-	H202	15784D	MR17603D	15784D	H202	15784D	16534
Associated Equipment Blank:		-	-	-	-	-	-	-	01BS003XXX03XX

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 03SW317XXX04XX LAB NUMBER: 283039 DATE SAMPLED: 08/28/89	03SW318XXX04XX 283863 08/30/89	03SW318XXX04XD 283865 08/30/89	03SW319XXX04XX 283049 08/28/89	08SW817XXX01XX 8259-006 9/14/88	08SW817XXX02XX 237157 12/19/88	08SW817XXX03XX 256733 04/14/89	08SW818XXX01XX 8259-007 9/14/88
Aluminum	200	-	60500	21400	-	-	-	-	-
Antimony	60	-	122	-	-	-	-	-	-
Arsenic	10	-	-	70.9	-	-	-	-	-
Barium	200	-	1380	326	-	-	-	-	-
Beryllium	5	-	9.5	-	-	-	-	-	-
Cadmium	5	-	12.1	-	-	-	-	-	-
Calcium	5000	8010	78200	29000	15900	12000 J	10800	13100	13000 J
Chromium	10	-	68.7	27.9	-	-	-	-	-
Cobalt	50	-	223	50.8	-	-	-	-	-
Copper	25	-	326	103	-	-	-	-	-
Iron	1000	1160	1910000	323000	10500	1400 J	1510	1630	720 J
Lead	5	-	415	169	-	8.2 J	-	-	-
Magnesium	5000	-	22100	7290	-	-	-	-	-
Manganese	15	209	6880	1600	765	260 J	195	427	320 J
Mercury	0.20	-	1.1	0.55	-	-	-	-	-
Nickel	40	-	153	60.3	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	-	-	-	-	-	R	-	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	9770	24600	20800	18500	21000 J	18600	28500	21000 J
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	-	721	185	-	-	-	-	-
Zinc	20	152	6760 J	1280 J	182	-	105	163 J	44
Total Cyanide	100	-	14.1	20.8	-	-	128	-	-
Boron	60*	NR	NR	NR	NR	-	NR	NR	34
Associated Method Blank:		-	-	-	-	WATER3	157518	16534E	WATER3
Associated Equipment Blank:		-	-	-	-	-	-	-	-

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PROJECT: Naval Air Station Brunswick

Inorganic Aqueous Analysis (ug/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08SW818XXX02XX	08SW818XXX03XX	08SW819XXX01XX	08SW819XXX02XX	08SW820XXX01XX	08SW820XXX02XX	08SW821XXX01XX	08SW821XXX02XX
	LAB NUMBER:	237155	256737	8258-004	235420	8257-005	236523	8258-006	236524
	DATE SAMPLED:	12/19/88	04/14/89	9/13/88	12/12/88	9/12/88	12/15/88	9/13/88	12/15/88
ANALYTE	CRDL								
Aluminum	200	-	374	-	-	530	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	10700	14100	8400 J	7790	24000	13700	8500 J	7890
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	-	1880	330 JB	239	-	-	-	-
Lead	5	-	-	-	-	-	-	-	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	188	533	420 J	185	800	283	570 J	245
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	R	-	-	R	-	-	-	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	18300	32500	9200 J	-	360000	216000	9600 J	9420
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	22.3 J	-	-	-	50 JB	-	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	-	NR	-	NR	-	NR
Associated Method Blank:		15751B	16534E	WATER1	15784D	H205	15751B	WATER1	15751B
Associated Equipment Blank:		-	-	FB-001	-	-	-	FB-001	-

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09SW915XXX01XX LAB NUMBER: 8253-018 DATE SAMPLED: 9/8/88	09SW915XXX02XX 236785 12/16/88	09SW915XXX04XX 283341 08/29/89	09SW916XXX01XX 8253-019 9/8/88	09SW916XXX02XX 236789 12/16/88	09SW916XXX04XX 283340 08/29/89	09SW917XXX01XX 8260-028 9/15/88	09SW917XXX03XX 256746 04/14/89
Aluminum	200	-	-	-	-	-	-	-	541
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	18000	15600	18200	17000	15200	17300	9700 J	8450
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	1700	2420	1390	1100	1590	700	620 J	1940
Lead	5	-	-	-	-	-	-	19 J	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	1300	1070	1150	960	811	711	230 J	461
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	40.2	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	R	R	-	R	R	-	-	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	18000	17300	23300	18000	18400	22800	14000 J	14400
Thallium	10	R	-	-	R	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	40	-	-	-	22	-	-	186 J
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Associated Method Blank:		H204	15751B	MR17603D	H204	15751B	MR17603D	WATER5	16534E
Associated Equipment Blank:		-	-	-	-	-	-	FB-001	-

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PROJECT: Naval Air Station Brunswick

Inorganic Aqueous Analysis (ug/L)

02-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	09SW917XXX01DX	01SW918XXX01XX	09SW918XXX02XX	09SW918XXX03XX	09SW919XXX04XX	09SW920XXX04XX	09SW920XXX04XD	09SW921XXX04XX
	LAB NUMBER:	8260-029	8267-002	237154	257283	283289	283334	283342	283337
	DATE SAMPLED:	9/15/88	9/16/88	12/19/88	04/18/89	08/29/89	08/29/89	08/29/89	08/29/89
ANALYTE	CRDL								
Aluminum	200	-	-	-	-	-	305	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	10000 J	10000 J	7040	8170	18000	16500	16800	17300
Chromium	10	-	12	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	650 J	500 J	-	807	1110	5010	2380	528
Lead	5	-	-	-	-	-	5.4 J	-	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	230 J	120 J	237	269	1040	687	613	765
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	-	-	R	R	-	-	-	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	14000 J	5800 J	11900	11800	22400	21100	24300	21500
Thallium	10	16 J	-	-	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	130	30	-	-	-	-	-
Total Cyanide	100	-	-	22	19.9 J	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Associated Method Blank:		WATER5	SOIL4	157518	16534L	MR17603D	-	-	-
Associated Equipment Blank:		FB-001	FB-2	-	01BF002XXX03XX	-	-	-	-

NR = Not Requested

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J-204

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09SW922XXX04XX LAB NUMBER: 283339 DATE SAMPLED: 08/29/89	09SW923XXX04XX 284433 09/01/89	09SW924XXX04XX 284434 09/01/89	09SW925XXX04XX 284188 08/31/89	09SW926XXX04XX 284186 08/31/89	09SW927XXX04XX 283883 08/30/89	01SWBK1XXX02XX 236783 12/16/88	01SWBK1XXX03XX 256474 04/13/89
Aluminum	200	-	2660	289	-	-	-	213	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	- R
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	16600	8610	13200	9760	8120	7940	6820	6170
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	616	8350	1920	1410	904	701	-	395
Lead	5	-	40.9	-	-	-	-	-	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	640	1170	1140	724	205	118	98	101
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	-	-	-	-	-	-	-	- R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	22600	6290	14800	12300	12000	10700	32000	11800
Thallium	10	-	-	-	-	-	-	-	- R
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	189	-	-	-	-	-	-
Total Cyanide	100	-	-	-	-	-	-	15	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Associated Method Blank:		-	-	-	-	-	-	15751B	16534
Associated Equipment Blank:		-	-	-	-	-	-	-	-

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Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01SWBK2XXX02XX	01SWBK2XXX03XX	
	LAB NUMBER:	236784	256475	
	DATE SAMPLED:	12/16/88	04/13/89	
ANALYTE	CRDL			
Aluminum	200	238	-	
Antimony	60	-	-	
Arsenic	10	-		R
Barium	200	-	-	
Beryllium	5	-	-	
Cadmium	5	-	-	
Calcium	5000	7070	5940	
Chromium	10	-	-	
Cobalt	50	-	-	
Copper	25	-	-	
Iron	1000	-	349	
Lead	5	-	-	
Magnesium	5000	-	-	
Manganese	15	96	65.4	
Mercury	0.20	-	-	
Nickel	40	-	-	
Potassium	5000	-	-	
Selenium	5	-		R
Silver	10	-	-	
Sodium	5000	32400	10100	
Thallium	10	-		R
Vanadium	50	-	-	
Zinc	20	-	-	
Total Cyanide	100	-	-	
Boron	60*	NR	NR	
Associated Method Blank:		157518	16534	
Associated Equipment Blank:		-	-	

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Combined Summary Table for Statistical Analysis

SAMPLE ID:		08SW006XXX01XX	08SW006XXX02XX	08SW007XXX01XX	08SW007XXX02XX	08SW008XXX01XX	08SW008XXX02XX	08SW009XXX01XX
LAB NUMBER:		8257012/8258005	235417	8257014/8258007	236534	8257015/8258009	236533	8257017/8258008
DATE SAMPLED:		9/13/88	12/12/88	9/13/88	12/15/88	9/13/88	12/15/88	9/13/88
ANALYTE (mg/L)	PQL RND 1	PQL RND 2						
Total Coliforms	1/100 ml	0	420	6	350	22	720 *	25	630
Hexavalent Chromium	0.005	0.05	-	-	-	-	-	-	-
Dissolved Chloride	2	3	400	6.5	10	240	31	35	53
Sulfate	1	1	20	2.4	7.7	14	8.3	6.5	60
Filterable Residue	10	10	720	64	63	460	110	120	300
Fluoride	0.2	0.1	-	-	-	-	-	-	-
Nitrate + Nitrite, AS N	0.05	0.05	1.1	N/A	2.5	N/A	1.9	N/A	0.41
Total Sulfide (Iodometric)	1	0.05	-	-	2.5	-	-	-	-
Total Recoverable Phenolics	5	10	-	-	10	-	5.8	-	16
Methylene Blue Active Substances	0.04	0.02	-	-	-	-	-	-	-
Nitrate - N	-	0.005	NR	-	NR	-	NR	1.6	NR
Nitrite - N	-	1	NR	5.8	NR	-	NR	0.013	NR
HERBICIDES (ug/L) METHOD 8150	DL RND 1	DL RND 2							
2,4-D	4	0.2	-	-	-	-	-	-	-
2,4,5-TP (Silvex)	1	0.02	-	-	-	-	-	-	-
2,4,5-T	1	-	NR	-	NR	-	NR	-	NR
Laboratory Method Blank			HBLK02	236893	HBLK02	23747	HBLK02	23747	HBLK02
Associated Equipment Blank			-	-	-	-	-	-	-
Associated Trip Blank			01TB004XXX01XX	-	01TB004XXX01XX	-	01TB004XXX01XX	-	01TB004XXX01XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

SAMPLE ID:		08SW009XXX02XX	08SW817XXX01XX	08SW817XXX02XX	08SW818XXX01XX	08SW818XXX02XX	08SW819XXX01XX	08SW819XXX02XX
LAB NUMBER:		237170	8258022/8259006	237169	8258023/8259007	237168	8257013/8258004	235411
DATE SAMPLED:		12/19/88	9/14/88	12/19/88	9/14/88	12/19/88	9/13/88	12/12/88
ANALYTE (mg/L)	PQL RND 1	PQL RND 2						
Total Coliforms	1/100 ml	0	2	530	-	67	13	78	12
Hexavalent Chromium	0.005	0.05	-	-	-	-	-	-	-
Dissolved Chloride	2	3	46	29	25	30	27	12	8.4
Sulfate	1	1	24	13	8.1	14	9.7	8.6	2.2
Filterable Residue	10	10	270	130	110	130	110	84	44
Fluoride	0.2	0.1	-	-	-	-	-	-	-
Nitrate + Nitrite, AS N	0.05	0.05	0.71	1.4	2	1.9	2	2	N/A
Total Sulfide (Iodometric)	1	0.05	-	-	-	1.8	-	-	-
Total Recoverable Phenolics	5	10	-	-	-	-	-	-	-
Methylene Blue Active Substances	0.04	0.02	0.050	-	0.050	-	0.050	-	-
Nitrate - N	-	0.005	N/A	NR	N/A	NR	N/A	NR	-
Nitrite - N	-	1	N/A	NR	N/A	NR	N/A	NR	6.2
HERBICIDES (ug/L) METHOD 8150	DL RND 1	DL RND 2						
2,4-D	4	0.2	-	-	-	-	-	-	-
2,4,5-TP (Silvex)	1	0.02	-	-	-	-	-	-	-
2,4,5-T	1	-	-	NR	-	NR	-	NR	-
Laboratory Method Blank			237460	VBLK01	237460	VBLK01	237460	HBLK02	236893
Associated Equipment Blank			-	SB-4	-	-	-	-	-
Associated Trip Blank			-	TB-6	-	TB-6	-	01TB004XXX01XX	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

			SAMPLE ID:	08SW820XXX01XX	08SW820XXX02XX	08SW821XXX01XX	08SW821XXX02XX
			LAB NUMBER:	8256027/8257005	236535	8257016/8258006	236536
			DATE SAMPLED:	9/13/88	12/15/88	9/13/88	12/15/88
ANALYTE (mg/L)	PQL RND 1	PQL RND 2					
Total Coliforms	1/100 ml	0		TNC	14	-	15
Hexavalent Chromium	0.005	0.05		-	-	-	-
Dissolved Chloride	2	3		510	360	12	12
Sulfate	1	1		-	20	8.2	3.7
Filterable Residue	10	10		970	160	66	100
Fluoride	0.2	0.1		-	-	-	-
Nitrate + Nitrite, AS N	0.05	0.05		1.4	N/A	2.6	N/A
Total Sulfide (Iodometric)	1	0.05		-	-	1.5	-
Total Recoverable Phenolics	5	10		-	-	-	46
Methylene Blue Active Substances	0.04	0.02		-	-	-	-
Nitrate - N	-	0.005		NR	1.2	NR	1.8
Nitrite - N	-	1		NR	-	NR	0.01
HERBICIDES (ug/L) METHOD 8150	DL RND 1	DL RND 2					
2,4-D	4	0.2		-	-	-	-
2,4,5-TP (Silvex)	1	0.02		-	-	-	-
2,4,5-T	1	-		NR	-	NR	-
Laboratory Method Blank				HBLK01	23747	HBLK02	23747
Associated Equipment Blank				-	-	-	-
Associated Trip Blank				01TB004XXX01XX	-	01TB004XXX01XX	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Aqueous Analysis - Method 524.1 (ug/L)

02-Feb-90

Combined Summary Table for Statistical Analysis

SAMPLE ID:	08SW006XXX01XX	08SW007XXX01XX	08SW008XXX01XX	08SW009XXX01XX	08SW817XXX01XX	08SW818XXX01XX	08SW819XXX01XX	08SW820XXX01XX
LAB NUMBER:	8258-005	8258-007	8258-009	8258-008	8259-006	8259-007	8258-004	8257-005
DATE SAMPLED:	9/13/88	9/13/88	9/13/88	9/13/88	9/14/88	9/14/88	9/13/88	9/12/88

ANALYTE	MDL								
Chloromethane	0.4	-	-	-	-	-	-	-	-
Bromomethane	0.4	-	-	-	-	-	-	-	-
Vinyl Chloride	0.5	-	-	-	-	-	-	-	-
Chloroethane	0.4	-	-	-	-	-	-	-	-
Methylene Chloride	0.5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	0.8	-	-	-	-	-	-	-	-
1,1-Dichloroethane	0.5	-	-	-	-	-	-	-	-
Trans-1,2-Dichloroethene	0.5	-	-	-	-	-	-	-	-
Chloroform	0.4	-	-	-	-	-	-	-	-
1,2-Dichloroethane	0.3	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	0.4	-	-	-	-	-	-	-	-
Carbon Tetrachloride	0.4	-	-	-	-	-	-	-	-
Bromodichloromethane	0.5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	0.3	-	-	-	-	-	-	-	-
Trichloroethene	0.3	-	-	-	-	-	-	-	-
Dibromochloromethane	0.3	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	0.4	-	-	-	-	-	-	-	-
Benzene	0.3	-	-	-	-	-	-	-	-
Bromoform	0.3	-	-	-	-	-	-	-	-
Tetrachloroethene	0.4	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	0.3	-	-	-	-	-	-	-	-
Toluene	0.5	-	-	-	-	-	-	-	-
Chlorobenzene	0.4	-	-	-	-	-	-	-	-
Ethylbenzene	0.5	-	-	-	-	-	-	-	-
Styrene	0.3	-	-	-	-	-	-	-	-
Dichlorodifluoromethane	0.4	-	-	-	-	-	-	-	-
Trichlorofluoromethane	0.5	-	-	-	-	-	-	-	-
Bromochloromethane	0.3	-	-	-	-	-	-	-	-
Dibromomethane	0.3	-	-	-	-	-	-	-	-
1,3-Dichloropropane	0.4	-	-	-	-	-	-	-	-
1,2-Dibromoethane	0.4	-	-	-	-	-	-	-	-
1,1,1,2-Tetrachloroethane	0.4	-	-	-	-	-	-	-	-
m- & p-Xylenes	0.4	-	-	-	-	-	-	-	-
o-Xylenes	0.5	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Aqueous Analysis - Method 524.1 (ug/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08SW006XXX01XX	08SW007XXX01XX	08SW008XXX01XX	08SW009XXX01XX	08SW817XXX01XX	08SW818XXX01XX	08SW819XXX01XX	08SW820XXX01XX
	LAB NUMBER:	8258-005	8258-007	8258-009	8258-008	8259-006	8259-007	8258-004	8257-005
	DATE SAMPLED:	9/13/88	9/13/88	9/13/88	9/13/88	9/14/88	9/14/88	9/13/88	9/12/88
ANALYTE	MDL								
Isopropylbenzene	0.3	-	-	-	-	-	-	-	-
Bromobenzene	0.3	-	-	-	-	-	-	-	-
1,2,3-Trichloropropane	0.3	-	-	-	-	-	-	-	-
n-Propylbenzene	0.3	-	-	-	-	-	-	-	-
2-Chlorotoluene	0.3	-	-	-	-	-	-	-	-
4-Chlorotoluene	0.3	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	0.3	-	-	-	-	-	-	-	-
t-Butylbenzene	0.3	-	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	0.3	-	-	-	-	-	-	-	-
sec-Butylbenzene	0.3	-	-	-	-	-	-	-	-
p-Isopropyltoluene	0.9	-	-	-	-	-	-	-	-
n-Butylbenzene	0.3	-	-	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane	0.3	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	0.3	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	0.4	-	-	-	-	-	-	-	-
2,2-Dichloropropane	0.4	-	-	-	-	-	-	-	-
1,1-Dichloropropene	0.3	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	0.3	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	0.3	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	0.3	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	0.3	-	-	-	-	-	-	-	-
Naphthalene	0.4	-	-	-	-	-	-	-	-
Hexachlorobutadiene	0.3	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1.0	1.0	1	1
Associated Method Blank:		VBLK01	VBLK01	VBLK01	VBLK01	-	-	VBLK01	VBLK01

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID: 08SW821XXX01XX
LAB NUMBER: 8258-006
DATE SAMPLED: 9/13/88

ANALYTE	MDL	
Chloromethane	0.4	-
Bromomethane	0.4	-
Vinyl Chloride	0.5	-
Chloroethane	0.4	-
Methylene Chloride	0.5	-
1,1-Dichloroethene	0.8	-
1,1-Dichloroethane	0.5	-
Trans-1,2-Dichloroethene	0.5	-
Chloroform	0.4	-
1,2-Dichloroethane	0.3	-
1,1,1-Trichloroethane	0.4	-
Carbon Tetrachloride	0.4	-
Bromodichloromethane	0.5	-
1,2-Dichloropropane	0.3	-
Trichloroethene	0.3	-
Dibromochloromethane	0.3	-
1,1,2-Trichloroethane	0.4	-
Benzene	0.3	-
Bromoform	0.3	-
Tetrachloroethene	0.4	-
1,1,2,2-Tetrachloroethane	0.3	-
Toluene	0.5	-
Chlorobenzene	0.4	-
Ethylbenzene	0.5	-
Styrene	0.3	-
Dichlorodifluoromethane	0.4	-
Trichlorofluoromethane	0.5	-
Bromochloromethane	0.3	-
Dibromomethane	0.3	-
1,3-Dichloropropane	0.4	-
1,2-Dibromoethane	0.4	-
1,1,1,2-Tetrachloroethane	0.4	-
m- & p-Xylenes	0.4	-
o-Xylenes	0.5	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID: 08SW821XXX01XX
LAB NUMBER: 8258-006
DATE SAMPLED: 9/13/88

ANALYTE	MDL	
Isopropylbenzene	0.3	-
Bromobenzene	0.3	-
1,2,3-Trichloropropane	0.3	-
n-Propylbenzene	0.3	-
2-Chlorotoluene	0.3	-
4-Chlorotoluene	0.3	-
1,3,5-Trimethylbenzene	0.3	-
t-Butylbenzene	0.3	-
1,2,4-Trimethylbenzene	0.3	-
sec-Butylbenzene	0.3	-
p-Isopropyltoluene	0.9	-
n-Butylbenzene	0.3	-
1,2-Dibromo-3-chloropropane	0.3	-
1,2,3-Trichlorobenzene	0.3	-
cis-1,2-Dichloroethene	0.4	-
2,2-Dichloropropane	0.4	-
1,1-Dichloropropene	0.3	-
1,3-Dichlorobenzene	0.3	-
1,4-Dichlorobenzene	0.3	-
1,2-Dichlorobenzene	0.3	-
1,2,4-Trichlorobenzene	0.3	-
Naphthalene	0.4	-
Hexachlorobutadiene	0.3	-

Dilution Factor: 1

Associated Method Blank: VBLK01

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	03SW002XXX01XX	03SW002XXX02XX	03SW002XXX01DX	02SW003XXX01XX	02SW003XXX02XX	02SW003XXX03XX	01SW004XXX01XX	01SW004XXX02XX
LAB NUMBER:	8252-013	234903	8252-014	8253-011	233780	255762	8253-012	233769
DATE SAMPLED:	9/7/88	12/09/88	9/7/88	9/08/88	12/06/88	04/10/89	9/08/88	12/06/88

ANALYTE	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	R	-	-	-	-
Hexachlorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 03SW002XXX01XX LAB NUMBER: 8252-013 DATE SAMPLED: 9/7/88	03SW002XXX02XX 234903 12/09/88	03SW002XXX01DX 8252-014 9/7/88	02SW003XXX01XX 8253-011 9/08/88	02SW003XXX02XX 233780 12/06/88	02SW003XXX03XX 255762 04/10/89	01SW004XXX01XX 8253-012 9/08/88	01SW004XXX02XX 233769 12/06/88
3-Nitroaniline	50	-	-	-	R	-	-	R	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1.02	1	1	1.02	1
Associated Method Blank:		SBLK01	GH035152B02	SBLK01	SBLK9/12	GH033909A21	G2J56026A15	SBLK9/12	GH033909A21
Associated Equipment Blank:		01SB004XXX01XX	-	01SB004XXX01XX	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08SW006XXX01XX	08SW006XXX02XX	08SW007XXX01XX	08SW007XXX02XX	08SW008XXX01XX	08SW008XXX02XX	08SW008XXX04XX	08SW009XXX01XX
	LAB NUMBER:	8258-005	235401	8258-007	236507	8258-009	236505	284421	8258-008
	DATE SAMPLED:	9/13/88	12/12/88	9/13/88	12/15/88	9/13/88	12/15/88	09/01/89	9/13/88
ANALYTE	CROL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexachlorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 08SW006XXX01XX LAB NUMBER: 8258-005 DATE SAMPLED: 9/13/88	08SW006XXX02XX 235401 12/12/88	08SW007XXX01XX 8258-007 9/13/88	08SW007XXX02XX 236507 12/15/88	08SW008XXX01XX 8258-009 9/13/88	08SW008XXX02XX 236505 12/15/88	08SW008XXX04XX 284421 09/01/89	08SW009XXX01XX 8258-008 9/13/88
3-Nitroaniline	50	-	-	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		SBLK02	GH036708A04	SBLK02	GH037188A16	SBLK02	GH037188A16	GH084519C06	SBLK02
Associated Equipment Blank:		-	01SB004XXX02XX	-	-	-	-	-	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Aqueous Analysis (ug/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	08SW009XXX02XX	08SW009XXX03XX	09SW010XXX01XX	09SW010XXX02XX	09SW010XXX04XX	09SW011XXX01XX	09SW011XXX02XX	09SW011XXX03XX
LAB NUMBER:	237143	256694	8253-013	236770	283321	8253-014	236771	257267
DATE SAMPLED:	12/19/88	04/14/89	9/08/88	12/16/88	08/29/89	9/08/88	12/16/88	04/18/89

ANALYTE	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:		08SW009XXX02XX	08SW009XXX03XX	09SW010XXX01XX	09SW010XXX02XX	09SW010XXX04XX	09SW011XXX01XX	09SW011XXX02XX	09SW011XXX03XX
LAB NUMBER:		237143	256694	8253-013	236770	283321	8253-014	236771	257267
DATE SAMPLED:		12/19/88	04/14/89	9/08/88	12/16/88	08/29/89	9/08/88	12/16/88	04/18/89
ANALYTE	CRDL								
3-Nitroaniline	50	-	-	R	-	-	R	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1.1	1	1	1.1	1	1
Associated Method Blank:		GJ038274B06	GH056963B15	SBLK9/12	GH037219A06	GH083512C02	SBLK9/12	GH037219A06	GH057883A06
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Aqueous Analysis (ug/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	09SW011XXX04XX	09SW011XXX01DX	09SW011XXX03XD	09SW012XXX01XX	09SW012XXX02XX	09SW012XXX04XX	01SW113XXX01XX	01SW113XXX02XX
	LAB NUMBER:	283315	8253-015	257273	8253-016	236772	283323	8256-013	235965
	DATE SAMPLED:	08/29/89	9/08/88	04/18/89	9/08/88	12/16/88	08/29/89	9/9/88	12/14/88
ANALYTE	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexachlorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	09SW011XXX04XX	09SW011XXX01DX	09SW011XXX03XD	09SW012XXX01XX	09SW012XXX02XX	09SW012XXX04XX	01SW113XXX01XX	01SW113XXX02XX
	LAB NUMBER:	283315	8253-015	257273	8253-016	236772	283323	8256-013	235965
	DATE SAMPLED:	08/29/89	9/08/88	04/18/89	9/08/88	12/16/88	08/29/89	9/9/88	12/14/88
ANALYTE	CRDL								
3-Nitroaniline	50	-	R	-	R	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1.1	1	1.1	1	1	1	1
Associated Method Blank:		GH083512C02	SBLK9/12	GH057883A06	SBLK9/12	GH037219A06	GH083512C02	SBLK01	GH036897A08
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Aqueous Analysis (ug/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01SW113XXX01DX	01SW114XXX01XX	01SW114XXX02XX	01SW115XXX01XX	01SW115XXX02XX	01SW115XXX03XX	01SW118XXX01XX	01SW118XXX02XX
LAB NUMBER:	8256-014	8256-015	235977	8253-017	233779	255767	8256-016	235987
DATE SAMPLED:	9/9/88	9/9/88	12/14/88	9/08/88	12/06/88	04/10/89	9/9/88	12/14/88

ANALTTE	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

SAMPLE ID:	01SW113XXX01DX	01SW114XXX01XX	01SW114XXX02XX	01SW115XXX01XX	01SW115XXX02XX	01SW115XXX03XX	01SW118XXX01XX	01SW118XXX02XX
LAB NUMBER:	8256-014	8256-015	235977	8253-017	233779	255767	8256-016	235987
DATE SAMPLED:	9/9/88	9/9/88	12/14/88	9/08/88	12/06/88	04/10/89	9/9/88	12/14/88
ANALYTE	CRDL							
3-Nitroaniline	50	-	-	-	R	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1.1	1	1	1	1
Associated Method Blank:		SBLK01	SBLK01	GH036897A08	SBLK9/12	GH033909A21	G2J56026A15	SBLK01	GH036897A08
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Aqueous Analysis (ug/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01SW118XXX03XX	01SW119XXX01XX	01SW119XXX02XX	01SW126XXX04XX	01SW126XXX04XD	01SW127XXX04XX	01SW128XXX04XX	01SW129XXX04XX
LAB NUMBER:	256442	8256-017	235980	284149	284133	284138	284137	284122
DATE SAMPLED:	04/13/89	9/9/88	12/14/88	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89

ANALYTE	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 01SW118XXX03XX LAB NUMBER: 256442 DATE SAMPLED: 04/13/89	01SW119XXX01XX 8256-017 9/9/88	01SW119XXX02XX 235980 12/14/88	01SW126XXX04XX 284149 08/31/89	01SW126XXX04XD 284133 08/31/89	01SW127XXX04XX 284138 08/31/89	01SW128XXX04XX 284137 08/31/89	01SW129XXX04XX 284122 08/31/89
3-Nitroaniline	50	-	-	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		GH056963B15	SBLK01	GH036897A08	GJ084274A06	GJ084274A06	GJ084274A06	GJ084274A06	GJ084274A06
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	03SW316XXX01XX	03SW316XXX02XX	03SW316XXX02DX	03SW317XXX01XX	03SW317XXX02XX	08SW817XXX01XX	08SW817XXX02XX	08SW817XXX03XX
	LAB NUMBER:	8252-022	234904	234905	8252-023	234908	8259-006	237142	256692
	DATE SAMPLED:	9/7/88	12/09/88	12/09/88	9/7/88	12/09/88	9/14/88	12/19/88	04/14/89
ANALYTE	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexachlorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

SAMPLE ID:	03SW316XXX01XX	03SW316XXX02XX	03SW316XXX02DX	03SW317XXX01XX	03SW317XXX02XX	08SW817XXX01XX	08SW817XXX02XX	08SW817XXX03XX
LAB NUMBER:	8252-022	234904	234905	8252-023	234908	8259-006	237142	256692
DATE SAMPLED:	9/7/88	12/09/88	12/09/88	9/7/88	12/09/88	9/14/88	12/19/88	04/14/89
ANALYTE	CRDL							
3-Nitroaniline	50	-	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		SBLK02	GH035152B02	GH035152B02	SBLK02	GH035743A16	BLANK2	GJ038274B06	GH056963B15
Associated Equipment Blank:		01SB004XXX01XX	-	-	01SB004XXX01XX	01SB004XXX02XX	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	08SW818XXX01XX	08SW818XXX02XX	08SW818XXX03XX	08SW818XXX04XX	08SW819XXX01XX	08SW819XXX02XX	08SW820XXX01XX	08SW820XXX02XX
LAB NUMBER:	8259-007	237141	256693	284422	8258-004	235387	8257-005	236509
DATE SAMPLED:	9/14/88	12/19/88	04/14/89	09/01/89	9/13/88	12/12/88	9/12/88	12/15/88

ANALYTE	CRDL								
Phenol	10	-	-	-	R	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	R	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	R	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	R	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	R	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	R	-	-	-	-
Benzoic acid	50	-	-	-	R	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	R	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	R	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	R	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	R	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:		08SW818XXX01XX	08SW818XXX02XX	08SW818XXX03XX	08SW818XXX04XX	08SW819XXX01XX	08SW819XXX02XX	08SW820XXX01XX	08SW820XXX02XX
LAB NUMBER:		8259-007	237141	256693	284422	8258-004	235387	8257-005	236509
DATE SAMPLED:		9/14/88	12/19/88	04/14/89	09/01/89	9/13/88	12/12/88	9/12/88	12/15/88
ANALYTE	CRDL								
3-Nitroaniline	50	-	-	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	R	-	-	-	-
4-Nitrophenol	50	-	-	-	R	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	R	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	R	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		BLANK2	GJ038274806	GH056963815	GH084519C06	SBLK02	GH036708A04	SBLK01	GH037188A16
Associated Equipment Blank:		-	-	-	-	-	01SB004XXX02XX	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	08SW821XXX01XX	08SW821XXX02XX	08SW822XXX04XX	08SW822XXX04XD	08SW823XXX04XX	08SW824XXX04XX	09SW915XXX01XX	09SW915XXX02XX
LAB NUMBER:	8258-006	236510	284425	284426	284427	284428	8253-018	236778
DATE SAMPLED:	9/13/88	12/15/88	09/01/89	09/01/89	09/01/89	09/01/89	9/08/88	12/16/88

ANALYTE	CRDL								
Phenol	10	-	-	-	-	-	-	-	R
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	R
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	R
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	R
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	R
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	R
Benzoic acid	50	-	-	-	-	-	-	-	R
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	R
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	R
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	R
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	R
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 08SW821XXX01XX LAB NUMBER: 8258-006 DATE SAMPLED: 9/13/88	08SW821XXX02XX 236510 12/15/88	08SW822XXX04XX 284425 09/01/89	08SW822XXX04XD 284426 09/01/89	08SW823XXX04XX 284427 09/01/89	08SW824XXX04XX 284428 09/01/89	09SW915XXX01XX 8253-018 9/08/88	09SW915XXX02XX 236778 12/16/88
3-Nitroaniline	50	-	-	-	-	-	-	R	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	R
4-Nitrophenol	50	-	-	-	-	-	-	-	R
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	R
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1.1	1
Associated Method Blank:		SBLK02	GH037188A16	GH084519A04	GH084519C06	GH084519C06	GH084519C06	SBLK9/12	GH037219A06
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09SW915XXX03XX LAB NUMBER: 256440 DATE SAMPLED: 04/13/89	09SW915XXX04XX 283298 08/29/89	09SW916XXX01XX 8253-019 9/08/88	09SW916XXX02XX 236779 12/16/88	09SW916XXX03XX 256466 04/13/89	09SW916XXX04XX 283283 08/29/89	09SW917XXX01XX 8260-028 9/16/88	09SW917XXX01DX 8260-029 9/16/88
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	26	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexachlorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	25	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	09SW915XXX03XX 256440 04/13/89	09SW915XXX04XX 283298 08/29/89	09SW916XXX01XX 8253-019 9/08/88	09SW916XXX02XX 236779 12/16/88	09SW916XXX03XX 256466 04/13/89	09SW916XXX04XX 283283 08/29/89	09SW917XXX01XX 8260-028 9/16/88	09SW917XXX01DX 8260-029 9/16/88
3-Nitroaniline	50	-	-	R	-	-	-	R	R
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	R	R
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	R
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1.1	1	1	1	1	1
Associated Method Blank:		GH056963B15	GH083512C02	SBLK9/12	GH037219A06	GH056963815	GH083487A21	A1137	A1137
Associated Equipment Blank:		01BS003XXX03XX 01BS001XXX03XX	-	-	-	-	-	-	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Aqueous Analysis (ug/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01SW918XXX01XX	09SW918XXX02XX	09SW919XXX04XX	09SW920XXX04XX	09SW920XXX04XD	09SW921XXX04XX	09SW922XXX04XX	09SW923XXX04XX
	LAB NUMBER:	8267-002	237140	283297	283279	283307	283280	283282	284423
	DATE SAMPLED:	9/22/88	12/19/88	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	09/01/89
ANALYTE	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01SW918XXX01XX	09SW918XXX02XX	09SW919XXX04XX	09SW920XXX04XX	09SW920XXX04XD	09SW921XXX04XX	09SW922XXX04XX	09SW923XXX04XX
LAB NUMBER:	8267-002	237140	283297	283279	283307	283280	283282	284423
DATE SAMPLED:	9/22/88	12/19/88	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	09/01/89
ANALYTE / CRDL								
3-Nitroaniline 50	R	-	-	-	-	-	-	-
Acenaphthene 10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol 50	-	-	-	-	-	-	-	-
4-Nitrophenol 50	-	-	-	-	-	-	-	-
Dibenzofuran 10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene 10	-	-	-	-	-	-	-	-
Diethylphthalate 10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether 10	-	-	-	-	-	-	-	-
Fluorene 10	-	-	-	-	-	-	-	-
4-Nitroaniline 50	R	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol 50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine 10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether 10	-	-	-	-	-	-	-	-
Hexachlorobenzene 10	-	-	-	-	-	-	-	-
Pentachlorophenol 50	-	-	-	-	-	-	-	-
Phenanthrene 10	-	-	-	-	-	-	-	-
Anthracene 10	-	-	-	-	-	-	-	-
Di-n-butylphthalate 10	-	-	-	-	-	-	-	-
Fluoranthene 10	-	-	-	-	-	-	-	-
Pyrene 10	-	-	-	-	-	-	-	-
Butylbenzylphthalate 10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine 20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene 10	-	-	-	-	-	-	-	-
Chrysene 10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate 10	-	-	-	-	-	-	-	-
Di-n-octylphthalate 10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene 10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene 10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene 10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene 10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene 10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene 10	-	-	-	-	-	-	-	-
Dilution Factor:	2	1	1	1	1	1	1	1
Associated Method Blank:	A1214	GJ038274B06	GJ083923C04	GH083487A21	GH083512C02	GH083487A21	GH083487A21	GH084519C06
Associated Equipment Blank:	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	09SW924XXX04XX	09SW925XXX04XX	09SW926XXX04XX	09SW927XXX04XX	SWXX101XX1 **	01SWBK1XXX02XX	01SWBK1XXX03XX	01SWBK2XXX02XX
LAB NUMBER:	284424	284145	284141	283848	8229-002	236773	256448	236777
DATE SAMPLED:	09/01/89	08/31/89	08/31/89	08/30/89	8/15/88	12/16/88	04/13/89	12/16/88

ANALYTE	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexachlorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09SW924XXX04XX LAB NUMBER: 284424 DATE SAMPLED: 09/01/89	09SW925XXX04XX 284145 08/31/89	09SW926XXX04XX 284141 08/31/89	09SW927XXX04XX 283848 08/30/89	SWXX101XX1 ** 8229-002 8/15/88	01SW8K1XXX02XX 236773 12/16/88	01SW8K1XXX03XX 256448 04/13/89	01SW8K2XXX02XX 236777 12/16/88
3-Nitroaniline	50	-	-	-	-	R	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	R	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	R	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		GH084519C06	GJ084274A06	GJ084274A06	GH083923B02	SBLK8/18W	GH037219A06	GH056963B15	GH037219A06
Associated Equipment Blank:		-	-	-	-	-	-	-	-

** = Source water - analysis
of drilling and decon water.

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID: 01SWBK2XXX03XX
LAB NUMBER: 256459
DATE SAMPLED: 04/13/89

ANALYTE	CRDL	
Phenol	10	-
bis(2-Chloroethyl)ether	10	-
2-Chlorophenol	10	-
1,3-Dichlorobenzene	10	-
1,4-Dichlorobenzene	10	-
Benzyl alcohol	10	-
1,2-Dichlorobenzene	10	-
2-Methylphenol	10	-
bis(2-Chloroisopropyl)ether	10	-
4-Methylphenol	10	-
N-Nitroso-di-n-propylamine	10	-
Hexachloroethane	10	-
Nitrobenzene	10	-
Isophorone	10	-
2-Nitrophenol	10	-
2,4-Dimethylphenol	10	-
Benzoic acid	50	-
bis(2-Chloroethoxy)methane	10	-
2,4-Dichlorophenol	10	-
1,2,4-Trichlorobenzene	10	-
Naphthalene	10	-
4-Chloroaniline	10	-
Hexacholorobutadiene	10	-
4-Chloro-3-Methylphenol	10	-
2-Methylnaphthalene	10	-
Hexachlorocyclopentadiene	10	-
2,4,6-Trichlorophenol	10	-
2,4,5-Trichlorophenol	50	-
2-Chloronaphthalene	10	-
2-Nitroaniline	50	-
Dimethylphthalate	10	-
Acenaphthylene	10	-
2,6-Dinitrotoluene	10	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID: 01SWBK2XXX03XX
LAB NUMBER: 256459
DATE SAMPLED: 04/13/89

ANALYTE	CRDL	
3-Nitroaniline	50	-
Acenaphthene	10	-
2,4-Dinitrophenol	50	-
4-Nitrophenol	50	-
Dibenzofuran	10	-
2,4-Dinitrotoluene	10	-
Diethylphthalate	10	-
4-Chlorophenyl-phenylether	10	-
Fluorene	10	-
4-Nitroaniline	50	-
4,6-Dinitro-2-methylphenol	50	-
N-Nitrosodiphenylamine	10	-
4-Bromophenyl-phenylether	10	-
Hexachlorobenzene	10	-
Pentachlorophenol	50	-
Phenanthrene	10	-
Anthracene	10	-
Di-n-butylphthalate	10	-
Fluoranthene	10	-
Pyrene	10	-
Butylbenzylphthalate	10	-
3,3'-Dichlorobenzidine	20	-
Benzo(a)Anthracene	10	-
Chrysene	10	-
bis(2-Ethylhexyl)phthalate	10	-
Di-n-octylphthalate	10	-
Benzo(b)Fluoranthene	10	-
Benzo(k)Fluoranthene	10	-
Benzo(a)Pyrene	10	-
Indeno(1,2,3-cd)pyrene	10	-
Dibenz(a,h)anthracene	10	-
Benzo(g,h,i,)perylene	10	-
Dilution Factor:		1

Associated Method Blank: GH056963B15
Associated Equipment Blank: -

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

SAMPLE ID:	01GW101XXX01XX	01GW101XXX02XX	01GW101XXX03XX	02GW102AXX01XX	02GW102XXX02XX	02GW102XXX03XX	03GW103XXX01XX	03GW103XXX02XX
LAB NUMBER:	8260-012	235983	256460	8253-009	235991	255966	8256-010	235701
DATE SAMPLED:	9/15/88	12/14/88	04/13/89	9/08/88	12/14/88	04/11/89	9/9/88	12/13/88

ANALYTES	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	40	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	R	-	R	R	22	R	25 J
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	10	1	1	1	1
Laboratory Method Blank		C3800	CC881217A14	CB890416B14	VBLKF	CC881218A14	CB890413A14	VBLK02	CB881216C23
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX02XX	-	01SB004XXX01XX	01SB004XXX02XX	-	01SB004XXX01XX	01SB004XXX02XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01TB005XXX01XX	01TB007XXX02XX	01BT004XXX03XX	01TB002XXX01XX	01TB007XXX02XX	01BT002XXX03XX	01TB003XXX01XX	01TB006XXX02XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	03GW104XXX01XX 8256-012 9/9/88	03GW104XXX02XX 234615 12/08/88	01GW105AXX01XX 8253-005 9/08/88	01GW105AXX02XX 234602 12/08/88	01GW105AXX03XX 256249 04/12/89	01GW105BXX01XX 8253-004 9/08/88	01GW105BXX02XX 234606 12/08/88	01GW105BXX03XX 256251 04/12/89
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	R	R	R	-	R	36 J	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		VBLK02	CB881212C11	VBLKE	CB881212C11	CB890416A14	VBLKE	CB881212C11	CB890416A14
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01BS003XXX03XX	01SB004XXX01XX	01SB004XXX02XX	01BS003XXX03XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01TB003XXX01XX	01TB003XXX02XX	01TB002XXX01XX	01TB003XXX02XX	01BT003XXX03XX	01TB002XXX01XX	01TB003XXX02XX	01BT003XXX03XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	01GW106XXX01XX 8256-007 9/9/88	01GW106XXX02XX 233767 12/06/88	01GW106XXX03XX 256255 04/12/89	BSMW106XXX04XX 292427 10/04/89 10/09/89	01GW201XXX01XX 8253-006 9/08/88	01GW201XXX02XX 233768 12/06/88	01GW202AXX01XX 8252-004 9/7/88	03GW202AXX02XX 235702 12/13/88
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	88	180
Chloroethane	10	-	-	-	-	-	-	-	25
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	48 J
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	31	38
1,2-Dichloroethene (total)	5	51	52	51	31	-	-	37	60
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	23 J	-	-	R	87 J	-	45 J
1,1,1-Trichloroethane	5	69	48	24	21	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	95	95	58	55	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	13
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	25	31	14	13	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	190	230 D
Chlorobenzene	5	-	-	-	-	-	-	32	22
Ethylbenzene	5	-	-	-	-	-	-	200	100 D
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	660 E	510 D
Dilution Factor		1	1	1	1	1	1	2	1
Laboratory Method Blank		VBLK01	CB881208C09	CB890416A14	CB891009C14	VBLKE	CB881208C09	VBLK02	CB881216A23
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX02XX	01BS003XXX03XX	BSQSXX1XXX04XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01TB003XXX01XX	01TB001XXX02XX	01BT003XXX03XX	BSQTXX3XXX04XX	01TB002XXX01XX	01TB001XXX02XX	01TB001XXX01XX	01TB006XXX02XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Aqueous Analysis (ug/L)

01-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	03GW202AXX03XX	BSMW202AXX04XX	03GW202AXX02DX	01GW203XXX01XX	01GW203XXX02XX	BSMW203XXX04XX	01GW204XXX01XX	01GW204XXX02XX
	LAB NUMBER:	255956	293346	235703	8252-005	233783	294124	8252-006	233784
	DATE SAMPLED:	04/11/89	10/06/89	12/13/88	9/7/88	12/06/88	10/10/89	9/7/88	12/06/88
ANALYTES	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	75	100	100	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	41 J	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	15	-	32	18	10	7	-	-
1,2-Dichloroethene (total)	5	20	17	43	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	170	61	R	R	14 J	200	R	23 J
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	180	150	210	-	-	-	-	-
Chlorobenzene	5	-	16	15	-	-	-	-	-
Ethylbenzene	5	-	79	130	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	560	430	470	-	-	-	-	-
Dilution Factor		2.3	2.6	2.5	1	1	1	1	1
Laboratory Method Blank		CB890414C14	CB891013C18	CB881218B23	VBLK01	CB881208B09	CC891019C18	VBLK01	CB881208B09
Associated Equipment Blank		-	BSQSXX1XXX04XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	BSQSXX2XXX04XX	01SB004XXX01XX	01SB004XXX02XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01BT002XXX03XX	BSQTXX5XXX04XX	01TB006XXX02XX	01TB001XXX01XX	01TB001XXX02XX	BSQTXX7XXX04XX	01TB001XXX01XX	01TB001XXX02XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick | Volatile Aqueous Analysis (ug/L) | 01-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	01GW205XXX01XX	01GW205XXX02XX	01GW205XXX03XX	BSMW205XXX04XX	BSMW205XXX04XD	01GW206AXX01XX	01GW206AXX02XX	01GW206AXX03XX
	LAB NUMBER:	8252-007	234901	255744	294118	294123	8252-008	234906	255755
	DATE SAMPLED:	9/7/88	12/09/88	04/10/89	10/10/89	10/10/89	9/7/88	12/09/88	04/10/89
ANALYTES	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	23 JB	18 JB	19	20	-	-	-	-
Acetone	10	-	-	-	-	-	33	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	12	6	8	-	9	6	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	7	6	7	-	6	5	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	-	-	-	-	120 J	-	120
1,1,1-Trichloroethane	5	200	130	120	110	160	110	89	120
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	200	140	120	94	120	66	56	46
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		VBLK03	CB881213A09	CB890413C14	CC891018C18	CC891018B18	VBLK03	CB881213A09	CB890413A14
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX02XX	-	BSQSXX2XXX04XX	BSQSXX2XXX04XX	01SB004XXX01XX	01SB004XXX02XX	-
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01TB001XXX01XX	01TB004XXX02XX	01BT001XXX01XX	BSQTXX7XXX04XX	BSQTXX7XXX04XX	01TB001XXX01XX	01TB004XXX02XX	01BT001XXX03XX

BRGW-CVS

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Aqueous Analysis (ug/L)

01-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	01GW206AXX01DX	01GW206BXX01XX	01GW206BXX02XX	01GW206BXX03XX	01GW207AXX01XX	01GW207AXX02XX	01GW207AXX03XX	01GW207BXX01XX
	LAB NUMBER:	8252-009	8252-010	234907	255756	8260-023	235971	256433	8260-024
	DATE SAMPLED:	9/7/88	9/7/88	12/09/88	04/10/89	9/15/88	12/14/88	04/13/89	9/15/88
ANALYTES	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	25	11	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	6	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	5	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	120 J	110 J	80	22	R	R	-	R
1,1,1-Trichloroethane	5	110	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	70	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		VBLK03	VBLK03	CB881213A09	CB890413A14	C3815	CCB881216A14	CB890420C14	C3829
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX02XX	-	-	01SB004XXX02XX	-	-
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01TB001XXX01XX	01TB001XXX01XX	01TB004XXX02XX	01BT001XXX01XX	01TB005XXX01XX	01TB007XXX02XX	-	01TB005XXX01XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	01GW207BXX02XX	01GW207BXX03XX	01GW208XXX01XX	01GW208XXX02XX	01GW208XXX03XX	01GW209XXX01XX	01GW209XXX02XX	01GW210AXX01XX
	LAB NUMBER:	235960	256441	8256-006	234920	255758	8256-008	234921	8252-011
	DATE SAMPLED:	12/14/88	04/13/89	9/9/88	12/09/88	04/10/89	9/9/88	12/09/88	9/7/88
ANALYTES	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	16
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	-	-	R	20	27 J	13 J	25 J
1,1,1-Trichloroethane	5	-	-	37	20	19	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	7	5	5	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		CC881216A14	CB890420C14	VBLK03	CB881214C11	CB890413A14	VBLK01	CB881214C11	VBLK03
Associated Equipment Blank		01SB004XXX02XX	-	01SB004XXX01XX	01SB004XXX02XX	-	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01TB007XXX02XX	-	01TB003XXX01XX	01TB004XXX02XX	01BT001XXX01XX	01TB003XXX01XX	01TB004XXX02XX	01TB001XXX01XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Aqueous Analysis (ug/L)

01-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:		01GW210AXX02XX	01GW210AXX03XX	01GW210AXX02DX	01GW210BXX01XX	01GW210BXX02XX	01GW210BXX03XX	01GW211AXX01XX	01GW211AXX02XX
LAB NUMBER:		234909	255961	234913	8252-012	235673	255964	8253-007	235704
DATE SAMPLED:		12/09/88	04/11/89	12/09/88	9/7/88	12/13/88	04/11/89	9/08/88	12/13/88
ANALYTES	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	19	42	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	8	5	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	28	R	R	R	340	R	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	7	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	9	-	-	-
Dilution Factor		1	1	1	1	1	2	1	1
Laboratory Method Blank		CB881214C11	CB890413A14	CB881214C11	VBLK03	CB881216C23	CB890413A14	VBLKE	CC881218A14
Associated Equipment Blank		01SB004XXX02XX	-	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	-	01SB004XXX01XX	01SB004XXX02XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01TB004XXX02XX	01BT002XXX03XX	01TB004XXX02XX	01TB001XXX01XX	01TB006XXX02XX	01BT002XXX03XX	01TB002XXX01XX	01TB006XXX02XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: 01GW211AXX03XX LAB NUMBER: 256229 DATE SAMPLED: 04/12/89	01GW211AXX03XD 256241 04/12/89	01GW211BXX01XX 8253-008 9/08/88	01GW211BXX02XX 235705 12/13/88	02GW212XXX01XX 8256-009 9/9/88	02GW212XXX02XX 235677 12/13/88	02GW213XXX01XX 8256-011 9/9/88	02GW213XXX02XX 235706 12/13/88
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	17	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	110	72	45 J	R	R	R	R	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		CC890415A14	CC890415A14	VBLKE	CC881218A14	VBLK02	CB881216C23	VBLK02	CB881218B23
Associated Equipment Blank		01BS003XXX03XX	01BS003XXX03XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01BT003XXX03XX	01BT003XXX03XX	01TB002XXX01XX	01TB006XXX02XX	01TB003XXX01XX	01TB006XXX02XX	01TB003XXX01XX	01TB006XXX02XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Volatile Aqueous Analysis (ug/L)

01-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	02GW213XXX03XX	02GW213XXX03XD	BSMW214XXX04XX	BSMW215XXX04XX	BSMW216AXX04XX	BSMW216AXX04XX	BSMW216BXX04XX	BSMW217AXX04XX
	LAB NUMBER:	256252	256254	292408	292409	292414	292414	294520	294515
	DATE SAMPLED:	04/12/89	04/12/89	10/04/89	10/04/89	10/04/89	10/04/89	10/11/89	10/11/89
ANALYTES	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	18	-	-	27	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	20	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	6	-	-	-	-
Chloroform	5	-	-	-	20	-	-	40	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	5	-	-	-	-	26	26	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	12	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	37	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		CB890416A14	CB890416A14	CB891009C14	CB891009C14	CB891009C14	CB891009C14	CB891022C18	CC891020B12
Associated Equipment Blank		01BS003XXX03XX	01BS003XXX03XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01BT003XXX03XX	01BT003XXX03XX	BSQTXX3XXX04XX	BSQTXX3XXX04XX	BSQTXX3XXX04XX	BSQTXX3XXX04XX	BSQTXX8XXX04XX	BSQTXX8XXX04XX

BRGW-CVS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW217BXX04XX	BSMW217BXX04XD	BSMW218XXX04XX	BSMW219XXX04XX	BSMW220XXX04XX	BSMW222XXX04XX	BSMW223XXX04XX	BSMW224XXX04XX
	LAB NUMBER:	294516	294517	294519	294121	292968	292969	292971	292416
	DATE SAMPLED:	10/11/89	10/11/89	10/11/89	10/10/89	10/05/89	10/05/89	10/05/89	10/04/89
ANALYTES	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	12	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	6	-	-	-	-	-
1,2-Dichloroethene (total)	5	7	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	-	-	-	-	22	34	49
1,1,1-Trichloroethane	5	-	-	-	-	-	7	26	49
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	17	33	190
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	6	-	7
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	15	16	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	83	83	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	260 D	300	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1.4
Laboratory Method Blank		CC891020B12	CB891021B12	CB891021B12	CC891019C18	CB891009C14	CB891013C18	CB891013C18	CB891009C14
Associated Equipment Blank		BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		BSQTXX8XXX04XX	BSQTXX8XXX04XX	BSQTXX8XXX04XX	BSQTXX7XXX04XX	BSQTXX4XXX04XX	BSQTXX4XXX04XX	BSQTXX4XXX04XX	BSQTXX3XXX04XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

SAMPLE ID:	BSMW225AXX04XX	BSMW225BXX04XX	BSMW229AXX04XX	BSMW229BXX04XX	BSMW229BXX04XD	BSMW230AXX04XX	BSMW230BXX04XX	BSMW231AXXX04XX
LAB NUMBER:	292957	292976	293341	292972	292973	293344	293345	294535
DATE SAMPLED:	10/05/89	10/05/89	10/06/89	10/05/89	10/05/89	10/06/89	10/06/89	10/11/89
ANALYTES	CRDL							
Chloromethane	10	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-
1,1-Dichloroethene	5	21	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	20	27	-	-	-	-	-
Chloroform	5	-	-	-	-	-	12	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-
2-Butanone	10	60	47	31	-	-	680	-
1,1,1-Trichloroethane	5	530 D	38	43	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-
Trichloroethene	5	240 D	55	43	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-
Tetrachloroethene	5	24	16	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	4.2	1	1
Laboratory Method Blank		CE891012C18	CE891012C18	CB891013C18	CB891013C18	CE891012C18	CC891016A23	CB891013C18	CB891022C18
Associated Equipment Blank		BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		BSQTXX4XXX04XX	BSQTXX4XXX04XX	BSQTXX5XXX04XX	BSQTXX4XXX04XX	BSQTXX4XXX04XX	BSQTXX5XXX04XX	BSQTXX5XXX04XX	BSQTXX8XXX04XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick | Volatile Aqueous Analysis (ug/L) | 01-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	BSMW231BXX04XX	BSMW231BXX04XD	BSMW232AXX04XX	BSMW232BXX04XX	BSMW233XXX04XX	BSMW234XXX04XX	04GW401XXX01XX	04GW401XXX02XX
	LAB NUMBER:	294532	294533	294120	294518	294528	294521	8257-007	234267
	DATE SAMPLED:	10/11/89	10/11/89	10/10/89	10/11/89	10/11/89	10/11/89	9/12/88	12/07/88
ANALYTES	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	460 D	-	-
Acetone	10	-	-	-	-	-	39	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	7	-	-	-	-	-
Chloroform	5	-	-	-	-	17	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	-	-	-	-	-	R	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	6	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	88	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	89	-	84	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	350	-	370 D	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		CB891022C18	CB891022C18	CC891017B18	CB891021B12	CB891022C18	CB891022C18	VBLK02	CB881210A09
Associated Equipment Blank		BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	01SB004XXX01XX	01SB004XXX02XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		BSQTXX8XXX04XX	BSQTXX8XXX04XX	BSQTXX7XXX04XX	BSQTXX8XXX04XX	BSQTXX8XXX04XX	BSQTXX8XXX04XX	01TB004XXX01XX	01TB002XXX02XX

BNGW-CVS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW401XXX04XX	04GW402XXX01XX	04GW402XXX02XX	BSMW402XXX04XX	04GW403XXX01XX	04GW403XXX02XX	04GW403XXX03XX	BSMW403XXX04XX
	LAB NUMBER:	291870	8253-010	234268	291875	8258-010	234270	256260	291912
	DATE SAMPLED:	10/03/89	9/08/88	12/07/88	10/03/89	9/13/88	12/07/88	04/12/89	10/03/89
ANALYTES	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	12	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	180 J	R	61	36 J	R	-	21
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		CB891012C12	VBLKE	CB881210A09	CB891011A12	VBLK03	CB881210A09	CB890416A14	CB891009C12
Associated Equipment Blank		BSQSXX1XXX04XX	01SB004XXX01XX	01SB004XXX02XX	BSQSXX1XXX04XX	01SB004XXX01XX	01SB004XXX02XX	01BS003XXX03XX	BSQSXX1XXX04XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		BSQTXX2XXX04XX	01TB002XXX01XX	01TB002XXX02XX	BSQTXX2XXX04XX	01TB004XXX01XX	01TB002XXX02XX	01BT003XXX03XX	BSQTXX2XXX04XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick | Volatile Aqueous Analysis (ug/L) | 01-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	04GW403XXX01DX	BSMW403XXX04XD	04GW404XXX01XX	04GW404XXX02XX	BSMW404XXX04XX	04GW405XXX01XX	04GW405XXX02XX	04GW405XXX03XX
	LAB NUMBER:	8258-011	291886	8260-019	234271	291877	8260-020	234272	256437
	DATE SAMPLED:	9/13/88	10/03/89	9/15/88	12/07/88	10/03/89	9/15/88	12/07/88	04/13/89
ANALYTES	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	22 J	14	R	21 J	270	730 J	R	19
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	6
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	5	1	1
Laboratory Method Blank		VBLK02	CB891011A12	C3800	CB881210A09	CB891011A12	C3815	CB881210A09	CB890420C14
Associated Equipment Blank		01SB004XXX01XX	BSQSXX1XXX04XX	01SB004XXX01XX	01SB004XXX02XX	BSQSXX1XXX04XX	-	01SB004XXX02XX	-
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01TB004XXX01XX	BSQTXX2XXX04XX	-	01TB002XXX02XX	BSQTXX2XXX04XX	01TB005XXX01XX	01TB002XXX02XX	-

BRGW-CVS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW405XXX04XX	04GW406XXX01XX	04GW406XXX02XX	BSMW406XXX04XX	04GW407XXX01XX	04GW407XXX02XX	04GW407XXX03XX	BSMW407XXX04XX
	LAB NUMBER:	291890	8260-022	234274	291891	8260-021	234275	256464	293701
	DATE SAMPLED:	10/03/89	9/15/88	12/07/88	10/03/89	9/15/88	12/07/88	04/13/89	10/09/89
ANALYTES	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	R	R	38	R	R	100	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	23	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		CB891011A12	C3815	CB881210A09	CB891011A12	C3815	CB881211A09	CB890416814	CC891018C18
Associated Equipment Blank		BSQSXX1XXX04XX	-	01SB004XXX02XX	BSQSXX1XXX04XX	-	01SB004XXX02XX	-	BSQSXX2XXX04XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		BSQTXX2XXX04XX	01TB005XXX01XX	01TB002XXX02XX	BSQTXX2XXX04XX	01TB005XXX01XX	01TB002XXX02XX	01BT004XXX03XX	BSQTXX6XXX04XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick | Volatile Aqueous Analysis (ug/L) | 01-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	BSMW408XXX04XX	07GW701XXX01XX	07GW701XXX02XX	07GW701XXX03XX	07GW702XXX01XX	07GW702XXX02XX	07GW703XXX01XX	07GW703XXX02XX
	LAB NUMBER:	295132	8260-015	237732	256467	8260-016	237373	8260-013	237374
	DATE SAMPLED:	10/12/89	9/15/88	12/20/88	04/13/89	9/15/88	12/20/88	9/15/88	12/20/88
ANALYTES	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	440 J	R	-	R	R	R	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor		1	5	1	1	1	1	1	1
Laboratory Method Blank		CB891022B18	C3829	CB881227B11	CB890420C14	C3800	CB881227B11	C3800	CB881227B11
Associated Equipment Blank		BSQSXX2XXX04XX	01SB004XXX01XX	01SB004XXX02XX	-	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		BSQTXX9XXX04XX	01TB005XXX01XX	01TB011XXX02XX	01BT004XXX03XX	01TB005XXX01XX	01TB011XXX02XX	01TB005XXX01XX	01TB011XXX02XX

BRGW-CVS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	07GW704XXX01XX	07GW704XXX02XX	07GW705XXX01XX	07GW705XXX02XX	07GW706XXX01XX	07GW706XXX02XX	09GW901XXX01XX	09GW901XXX02XX
	LAB NUMBER:	8260-014	237378	8260-018	237382	8260-017	237383	8259-015	234280
	DATE SAMPLED:	9/15/88	12/20/88	9/15/88	12/20/88	9/15/88	12/20/88	9/14/88	12/07/88
ANALYTES	CRDL								
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	R	250 EJ	R	R	R	18 J	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		C3800	CB881227B11	C3800	CB881223C11	C3800	CB881222B11	VBLK01	CB881211A09
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB001XXX01XX	01SB004XXX02XX
Associated Field Blank		-	-	-	-	-	-	01FB001XXX01XX	-
Associated Trip Blank		01TB005XXX01XX	01TB011XXX02XX	-	01TB011XXX02XX	01TB005XXX01XX	01TB011XXX02XX	01TB001XXX01XX	01TB002XXX02XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	BSMW901XXX04XX 291910 10/03/89	09GW902XXX01X 8259-014 9/14/88	09GW902XXX02XX 234277 12/07/88	BSMW902XXX04XX 291905 10/03/89	09GW903XXX01XX 8259-016 9/14/88	09GW903XXX02XX 237136 12/19/88	BSMW903XXX04XX 291907 10/03/89	09GW904XXX01XX 8252-003 9/6/88
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	12
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	-	-	12
1,2-Dichloroethene (total)	5	-	-	-	-	-	-	-	6
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	37 J	R	-	R	R	110	R
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		CB891009C12	VBLK01	CB881211A09	CB891009C12	VBLK01	CB881221A11	CB891009C12	VBLK01
Associated Equipment Blank		BSQSXX1XXX04XX	01SB001XXX01XX	01SB004XXX02XX	BSQSXX1XXX04XX	01SB001XXX01XX	01SB004XXX02XX	BSQSXX1XXX04XX	01SB004XXX01XX
Associated Field Blank		-	01FB001XXX01XX	-	-	01FB001XXX01XX	-	-	-
Associated Trip Blank		BSQTXX2XXX04XX	01TB001XXX01XX	01TB002XXX02XX	BSQTXX2XXX04XX	01TB001XXX01XX	01TB010XXX02XX	BSQTXX2XXX04XX	01TB001XXX01XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: 09GW904XXX02XX LAB NUMBER: 234279 DATE SAMPLED: 12/07/88	09GW904XXX03XX 257039 04/17/89	BSMW904XXX04XX 293689 10/09/89	09GW905XXX01XX 8252-082 9/6/88	09GW905XXX02XX 237137 12/19/88	09GW905XXX03XX 257038 04/17/89	BSMW905XXX04XX 291908 10/03/89	BSMW906XXX04XX 293703 10/09/89
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	27	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	14	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	12	6 J	5	-	-	-	-	-
1,2-Dichloroethene (total)	5	6	-	-	-	-	-	-	-
Chloroform	5	-	-	-	-	-	-	-	36
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	R	68 J	-	13 J	15 J	-	-	-
1,1,1-Trichloroethane	5	-	-	-	-	-	-	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	-	-	-	-	-
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	-	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		CB881211A09	CB890420B14	CC891018C18	VBLK01	CB881221A11	CB890420B14	CB891009C12	CC891018C18
Associated Equipment Blank		01SB004XXX02XX	-	BSQSXX2XXX04XX	01SB004XXX01XX	01SB004XXX02XX	-	BSQSXX1XXX04XX	BSQSXX2XXX04XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01TB002XXX02XX	TBK-6	BSQTXX6XXX04XX	01TB001XXX01XX	01TB010XXX02XX	TBK-6	BSQTXX2XXX04XX	BSQTXX6XXX04XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

SAMPLE ID:	BSMW907XXX04XX	BSMW908XXX04XX	BSMW908XXX04XD	BSMWGZA1XX04XX	04GWGZA3XX03XX	BSMWGZA3XX04XX	GZA3-BAILER	04GWGZB1XX03DX
LAB NUMBER:	291496	295135	295134	294119	258237	295133	92979	257037
DATE SAMPLED:	10/02/89	10/12/89	10/12/89	10/10/89	04/24/89	10/12/89	12/14/89	04/17/89
ANALYTES	CRDL							
Chloromethane	10	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-
Vinyl Chloride	10	18	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	-	-	-
Acetone	10	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	-	-	-	-	5	-
1,2-Dichloroethene (total)	5	-	-	-	31	-	8	-
Chloroform	5	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-
2-Butanone	10	-	-	-	-	-	34 J	17
1,1,1-Trichloroethane	5	-	-	-	53	-	8	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-
Trichloroethene	5	-	-	-	120	-	20	-
Dibromochloromethane	5	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-
Tetrachloroethene	5	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-
Toluene	5	-	-	-	7	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-
Ethylbenzene	5	-	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-
Xylenes (Total)	5	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1
Laboratory Method Blank		CB891007A12	CB891022B18	CB891022B18	CC891019C18	CC890425B23	CB891022B18	Y9352	CB890420B14
Associated Equipment Blank		BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	-	BSQSXX2XXX04XX	-	-
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		BSQTXX1XXX04XX	BSQTXX9XXX04XX	BSQTXX9XXX04XX	BSQTXX7XXX04XX	01BTD08XXX03XX	BSQTXX9XXX04XX	TRIP BLANK	TBK-6

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	BSMW1101XX04XX 291860 10/03/89	BSMW1102XX04XX 291862 10/03/89	BSMW1103XX04XX 291864 10/03/89	BSMW1104XX04XX 293697 10/09/89	BSMW1301XX04XX 294122 10/10/89	BSMW1302XX04XX 293702 10/09/89	BSMW1303XX04XX 293687 10/09/89	BSMW1303XX04XD 293693 10/09/89
Chloromethane	10	-	-	-	-	-	-	-	-
Bromomethane	10	-	-	-	-	-	-	-	-
Vinyl Chloride	10	-	-	-	-	-	-	-	-
Chloroethane	10	-	-	-	-	-	-	-	-
Methylene Chloride	5	-	-	-	-	6	-	-	-
Acetone	10	-	-	-	-	-	-	-	-
Carbon Disulfide	5	-	-	-	-	-	-	-	-
1,1-Dichloroethene	5	-	-	-	-	-	-	-	-
1,1-Dichloroethane	5	-	65	11	20	-	-	-	-
1,2-Dichloroethene (total)	5	-	60	17	32	-	-	770 D	770 D
Chloroform	5	-	-	-	-	-	-	-	-
1,2-Dichloroethane	5	-	-	-	-	-	-	-	-
2-Butanone	10	-	-	25	-	-	-	99	-
1,1,1-Trichloroethane	5	45	450	130	210	-	12	-	-
Carbon Tetrachloride	5	-	-	-	-	-	-	-	-
Vinyl Acetate	10	-	-	-	-	-	-	-	-
Bromodichloromethane	5	-	-	-	-	-	-	-	-
1,2-Dichloropropane	5	-	-	-	-	-	-	-	-
cis-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Trichloroethene	5	83	20	310	70	-	9	15	15
Dibromochloromethane	5	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	5	-	-	-	-	-	-	-	-
Benzene	5	-	-	-	-	-	-	16	15
Trans-1,3-Dichloropropene	5	-	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-
4-Methyl-2-Pentanone	10	-	-	-	-	-	-	-	-
2-Hexanone	10	-	-	-	-	-	-	-	-
Tetrachloroethene	5	9	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	5	-	-	-	-	-	-	-	-
Toluene	5	-	87	-	-	-	-	-	-
Chlorobenzene	5	-	-	-	-	-	-	-	-
Ethylbenzene	5	-	19	-	-	-	-	-	-
Styrene	5	-	-	-	-	-	-	-	-
Xylenes (Total)	5	-	120	-	-	-	-	-	-
Dilution Factor		1	2.5	2.2	1	1	1	1	1
Laboratory Method Blank		CB891009C12	CB891009C12	CB891012C12	CC891018C18	CC891019C18	CC891018C18	CC891017B18	CC891018C18
Associated Equipment Blank		BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		BSQTXX2XXX04XX	BSQTXX2XXX04XX	BSQTXX2XXX04XX	BSQTXX6XXX04XX	BSQTXX7XXX04XX	BSQTXX6XXX04XX	BSQTXX6XXX04XX	BSQTXX6XXX04XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	08GW801XXX01XX	08GW801XXX02XX	08GW801XXX03XX	08GW802XXX01XX	08GW802XXX02XX	08GW802XXX02DX	08GW803XXX01XX
LAB NUMBER:	8259-002	237361	3292-03	8258-003	235765	235767	8259-001
DATE SAMPLED:	9/14/88	12/15/88	04/14/89	9/13/88	12/12/88	12/12/88	9/14/88

ANALYTE	MDL	RL						
Chloromethane	0.4	2	-	R	-	-	-	-	-
Bromomethane	0.4	2	-	-	-	-	-	-	-
Vinyl Chloride	0.5	2	-	-	-	-	-	-	-
Chloroethane	0.4	2	-	-	-	-	-	-	-
Methylene Chloride	0.5	1	-	-	-	-	-	-	-
Acetone		5	NR	NR	NR	NR	NR	NR	NR
Carbon Disulfide		3	NR	NR	NR	NR	NR	NR	NR
1,1-Dichloroethene	0.8	2	-	-	-	-	-	-	-
1,1-Dichloroethane	0.5	2	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	0.5	2	-	-	-	-	-	-	-
Chloroform	0.4	2	-	-	-	-	-	-	-
1,2-Dichloroethane	0.3	2	-	-	-	-	-	-	-
2-Butanone		5	NR	NR	NR	NR	NR	NR	NR
1,1,1-Trichloroethane	0.4	2	-	-	-	-	-	-	-
Carbon Tetrachloride	0.4	2	-	-	-	-	-	-	-
Vinyl Acetate		5	NR	NR	NR	NR	NR	NR	NR
Bromodichloromethane	0.5	2	-	-	-	-	-	-	-
1,2-Dichloropropane	0.3	2	-	-	-	-	-	-	-
Cis-1,3-Dichloropropene		2	NR	NR	NR	NR	NR	NR	NR
Trichloroethene	0.3	2	-	-	-	-	-	-	-
Dibromochloromethane	0.3	2	-	-	-	-	-	-	-
1,1,2-Trichloroethane	0.4	2	-	-	-	-	-	-	-
Benzene	0.3	2	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene		1	NR	NR	NR	NR	NR	NR	NR
Bromoform	0.3	2	-	-	-	-	-	-	-
4-Methyl-2-Pentanone		2	NR	NR	NR	NR	NR	NR	NR
2-Hexanone		5	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	0.4	2	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	0.3	2	-	-	-	-	-	-	-
Toluene	0.5	2	-	-	-	-	-	-	-
Chlorobenzene	0.4	2	-	-	-	-	-	-	-
Ethylbenzene	0.5	2	-	-	-	-	-	-	-
Styrene	0.3	1	-	-	-	-	-	-	-
Xylene (total)		2	NR	NR	NR	NR	NR	NR	NR

NR = Not requested

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

SAMPLE ID:	08GW801XXX01XX	08GW801XXX02XX	08GW801XXX03XX	08GW802XXX01XX	08GW802XXX02XX	08GW802XXX02DX	08GW803XXX01XX
LAB NUMBER:	8259-002	237361	3292-03	8258-003	235765	235767	8259-001
DATE SAMPLED:	9/14/88	12/15/88	04/14/89	9/13/88	12/12/88	12/12/88	9/14/88

ANALYTE	MDL	RL							
Dichlorodifluoromethane	0.4		-	NR	-	-	NR	NR	-
Trichlorofluoromethane	0.5		-	NR	-	-	NR	NR	-
Bromochloromethane	0.3		-	NR	-	-	NR	NR	-
Dibromomethane	0.3		-	-	-	-	-	-	-
1,3-Dichloropropane	0.4		-	-	-	-	-	-	-
1,2-Dibromoethane	0.4		-	NR	-	-	NR	NR	-
1,1,1,2-Tetrachloroethane	0.4		-	-	-	-	-	-	-
m- & p-Xylenes	0.4		-	-	-	-	-	-	-
o-Xylenes	0.5		-	-	-	-	-	-	-
Isopropylbenzene	0.3		-	NR	-	-	NR	NR	-
Bromobenzene	0.3		-	-	-	-	-	-	-
1,2,3-Trichloropropane	0.3		-	NR	-	-	NR	NR	-
n-Propylbenzene	0.3		-	NR	-	-	NR	NR	-
2-Chlorotoluene	0.3		-	-	-	-	-	-	-
4-Chlorotoluene	0.3		-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	0.3		-	NR	-	-	NR	NR	-
t-Butylbenzene	0.3		-	NR	-	-	NR	NR	-
1,2,4-Trimethylbenzene	0.3		-	NR	-	-	NR	NR	-
sec-Butylbenzene	0.3		-	NR	-	-	NR	NR	-
p-Isopropyltoluene	0.9		-	NR	-	-	NR	NR	-
n-Butylbenzene	0.3		-	NR	-	-	NR	NR	-
1,2-Dibromo-3-chloropropane	0.3		-	NR	-	-	NR	NR	-
1,2,3-Trichlorobenzene	0.3		-	-	-	-	-	-	-
cis-1,2-Dichloroethene	0.4		-	-	-	-	-	-	-
2,2-Dichloropropane	0.4		-	-	-	-	-	-	-
1,1-Dichloropropene	0.3		-	-	-	-	-	-	-
1,3-Dichlorobenzene	0.3		-	-	-	-	-	-	-
1,4-Dichlorobenzene	0.3		-	-	-	-	-	-	-
1,2-Dichlorobenzene	0.3		-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	0.3		-	NR	-	-	NR	NR	-
Naphthalene	0.4		-	NR	-	-	NR	NR	-
Hexachlorobutadiene	0.3		-	NR	-	-	NR	NR	-
1,3-Dichloropropene(TOTAL)	1.0		NR	R	-	NR	R	R	NR
Dilution Factor:			1	-	1	1	-	-	1
Associated Method Blank:			-	VE881223C14	HH221B	VBLK01	VC881220A14	VE881221C14	-
Associated Equipment Blank:			-	-	-	-	-	-	-
Associated Trip Blank:			-	-	01TB005XXX03XX	-	01TB005XXX02XX	01TB005XXX02XX	-

NR = Not requested

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08GW803XXX02XX	08GW803XXX03XX	08GW803XXX02DX	08GW804XXX01XX	08GW804XXX02XX	08GW804XXX03XX	08GW804XXX01DX
	LAB NUMBER:	237665	3292-04	237366	8257-003	237667	3292-05	8257-004
	DATE SAMPLED:	12/15/88	04/14/89	12/15/88	9/12/88	12/15/88	04/14/89	9/12/88
ANALYTE	MDL	RL						
Chloromethane	0.4	2	R	-	R	-	R	-	-
Bromomethane	0.4	2	-	-	-	-	-	-	-
Vinyl Chloride	0.5	2	-	-	-	-	-	-	-
Chloroethane	0.4	2	-	-	-	-	-	-	-
Methylene Chloride	0.5	1	-	-	-	-	-	-	-
Acetone		5	NR	NR	NR	NR	NR	NR	NR
Carbon Disulfide		3	NR	NR	NR	NR	NR	NR	NR
1,1-Dichloroethene	0.8	2	-	-	-	-	-	-	-
1,1-Dichloroethane	0.5	2	-	-	-	-	-	-	-
1,2-Dichloroethene (total)	0.5	2	-	-	-	-	-	-	-
Chloroform	0.4	2	-	-	-	-	-	-	-
1,2-Dichloroethane	0.3	2	-	-	-	-	-	-	-
2-Butanone		5	NR	NR	NR	NR	NR	NR	NR
1,1,1-Trichloroethane	0.4	2	-	-	-	-	-	-	-
Carbon Tetrachloride	0.4	2	-	-	-	-	-	-	-
Vinyl Acetate		5	NR	NR	NR	NR	NR	NR	NR
Bromodichloromethane	0.5	2	-	-	-	-	-	-	-
1,2-Dichloropropane	0.3	2	-	-	-	-	-	-	-
Cis-1,3-Dichloropropene		2	NR	NR	NR	NR	NR	NR	NR
Trichloroethene	0.3	2	-	-	-	-	-	-	-
Dibromochloromethane	0.3	2	-	-	-	-	-	-	-
1,1,2-Trichloroethane	0.4	2	-	-	-	-	-	-	-
Benzene	0.3	2	-	-	-	-	-	-	-
Trans-1,3-Dichloropropene		1	NR	NR	NR	NR	NR	NR	NR
Bromoform	0.3	2	-	-	-	-	-	-	-
4-Methyl-2-Pentanone		2	NR	NR	NR	NR	NR	NR	NR
2-Hexanone		5	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	0.4	2	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	0.3	2	-	-	-	-	-	-	-
Toluene	0.5	2	-	-	-	-	-	-	-
Chlorobenzene	0.4	2	-	-	-	-	-	-	-
Ethylbenzene	0.5	2	-	-	-	-	-	-	-
Styrene	0.3	1	-	-	-	-	-	0.60	-
Xylene (total)		2	NR	NR	NR	NR	NR	NR	NR

NR = Not requested

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	08GW803XXX02XX	08GW803XXX03XX	08GW803XXX02DX	08GW804XXX01XX	08GW804XXX02XX	08GW804XXX03XX	08GW804XXX01DX
LAB NUMBER:	237665	3292-04	237366	8257-003	237667	3292-05	8257-004
DATE SAMPLED:	12/15/88	04/14/89	12/15/88	9/12/88	12/15/88	04/14/89	9/12/88

ANALYTE	MDL	RL						
Dichlorodifluoromethane	0.4		NR	-	NR	-	NR	-	-
Trichlorofluoromethane	0.5		NR	-	NR	-	NR	-	-
Bromochloromethane	0.3		NR	-	NR	-	NR	-	-
Dibromomethane	0.3		-	-	-	-	-	-	-
1,3-Dichloropropane	0.4		-	-	-	-	-	-	-
1,2-Dibromoethane	0.4		NR	-	NR	-	NR	-	-
1,1,1,2-Tetrachloroethane	0.4		-	-	-	-	-	-	-
m- & p-Xylenes	0.4		-	-	-	-	-	-	-
o-Xylenes	0.5		-	-	-	-	-	-	-
Isopropylbenzene	0.3		NR	-	NR	-	NR	-	-
Bromobenzene	0.3		-	-	-	-	-	-	-
1,2,3-Trichloropropane	0.3		NR	-	NR	-	NR	-	-
n-Propylbenzene	0.3		NR	-	NR	-	NR	-	-
2-Chlorotoluene	0.3		-	-	-	-	-	-	-
4-Chlorotoluene	0.3		-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	0.3		NR	-	NR	-	NR	-	-
t-Butylbenzene	0.3		NR	-	NR	-	NR	-	-
1,2,4-Trimethylbenzene	0.3		NR	-	NR	-	NR	-	-
sec-Butylbenzene	0.3		NR	-	NR	-	NR	-	-
p-Isopropyltoluene	0.9		NR	-	NR	-	NR	-	-
n-Butylbenzene	0.3		NR	-	NR	-	NR	-	-
1,2-Dibromo-3-chloropropane	0.3		NR	-	NR	-	NR	-	-
1,2,3-Trichlorobenzene	0.3		-	-	-	-	-	-	-
cis-1,2-Dichloroethene	0.4		-	-	-	-	-	-	-
2,2-Dichloropropane	0.4		-	-	-	-	-	-	-
1,1-Dichloropropene	0.3		-	-	-	-	-	-	-
1,3-Dichlorobenzene	0.3		-	-	-	-	-	-	-
1,4-Dichlorobenzene	0.3		-	-	-	-	-	-	-
1,2-Dichlorobenzene	0.3		-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	0.3		NR	-	NR	-	NR	-	-
Naphthalene	0.4		NR	-	NR	-	NR	-	-
Hexachlorobutadiene	0.3		NR	-	NR	-	NR	-	-
1,3-Dichloropropene(TOTAL)	1.0		R	-	R	NR	R	-	NR
Dilution Factor:			-	1	-	1	-	1	1
Associated Method Blank:			VF881222A14	HH221B	VE881223C14	VBLK01	VE881223C14	HH221B	VBLK01
Associated Equipment Blank:			-	-	-	-	-	-	-
Associated Trip Blank:			-	01TB005XXX03XX	-	-	-	01TB005XXX03XX	-

NR = Not requested

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:		08GW804XXX02DX	08GW807XXX01XX	08GW807XXX02XX	08GW807XXX03XX	08GW807XXX01DX	08GW808XXX01XX	08GW808XXX02XX
LAB NUMBER:		237368	8257-001	235768	3292-01	8257-002	8258-001	237645
DATE SAMPLED:		12/15/88	9/12/88	12/12/88	04/14/89	9/12/88	9/13/88	12/15/88
ANALYTE	MDL	RL						
Chloromethane	0.4	2	R	-	-	-	-	R
Bromomethane	0.4	2	-	-	-	-	-	-
Vinyl Chloride	0.5	2	-	-	-	-	-	-
Chloroethane	0.4	2	-	-	-	-	-	-
Methylene Chloride	0.5	1	-	-	-	-	-	-
Acetone		5	NR	NR	NR	NR	NR	NR
Carbon Disulfide		3	NR	NR	NR	NR	NR	NR
1,1-Dichloroethene	0.8	2	-	-	-	-	-	-
1,1-Dichloroethane	0.5	2	-	-	-	-	-	-
1,2-Dichloroethene (total)	0.5	2	-	-	-	-	-	-
Chloroform	0.4	2	-	-	-	-	-	-
1,2-Dichloroethane	0.3	2	-	-	-	-	-	-
2-Butanone		5	NR	NR	NR	NR	NR	NR
1,1,1-Trichloroethane	0.4	2	-	-	-	-	-	-
Carbon Tetrachloride	0.4	2	-	-	-	-	-	-
Vinyl Acetate		5	NR	NR	NR	NR	NR	NR
Bromodichloromethane	0.5	2	-	-	-	-	-	-
1,2-Dichloropropane	0.3	2	-	-	-	-	-	-
Cis-1,3-Dichloropropene		2	NR	NR	NR	NR	NR	NR
Trichloroethene	0.3	2	-	-	-	-	-	-
Dibromochloromethane	0.3	2	-	-	-	-	-	-
1,1,2-Trichloroethane	0.4	2	-	-	-	-	-	-
Benzene	0.3	2	-	-	-	-	-	-
Trans-1,3-Dichloropropene		1	NR	NR	NR	NR	NR	NR
Bromoform	0.3	2	-	-	-	-	-	-
4-Methyl-2-Pentanone		2	NR	NR	NR	NR	NR	NR
2-Hexanone		5	NR	NR	NR	NR	NR	NR
Tetrachloroethene	0.4	2	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	0.3	2	-	-	-	-	-	-
Toluene	0.5	2	-	-	-	-	-	-
Chlorobenzene	0.4	2	-	-	-	-	-	-
Ethylbenzene	0.5	2	-	-	-	-	-	-
Styrene	0.3	1	-	-	-	-	-	-
Xylene (total)		2	NR	NR	NR	NR	NR	NR

NR = Not requested

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTE	MDL	RL	SAMPLE ID: 08GW804XXX02DX LAB NUMBER: 237368 DATE SAMPLED: 12/15/88	SAMPLE ID: 08GW807XXX01XX LAB NUMBER: 8257-001 DATE SAMPLED: 9/12/88	SAMPLE ID: 08GW807XXX02XX LAB NUMBER: 235768 DATE SAMPLED: 12/12/88	SAMPLE ID: 08GW807XXX03XX LAB NUMBER: 3292-01 DATE SAMPLED: 04/14/89	SAMPLE ID: 08GW807XXX01DX LAB NUMBER: 8257-002 DATE SAMPLED: 9/12/88	SAMPLE ID: 08GW808XXX01XX LAB NUMBER: 8258-001 DATE SAMPLED: 9/13/88	SAMPLE ID: 08GW808XXX02XX LAB NUMBER: 237645 DATE SAMPLED: 12/15/88
Dichlorodifluoromethane	0.4		NR	-	NR	-	-	-	NR
Trichlorofluoromethane	0.5		NR	-	NR	-	-	-	NR
Bromochloromethane	0.3		NR	-	NR	-	-	-	NR
Dibromomethane	0.3		-	-	-	-	-	-	-
1,3-Dichloropropane	0.4		-	-	-	-	-	-	-
1,2-Dibromoethane	0.4		NR	-	NR	-	-	-	NR
1,1,1,2-Tetrachloroethane	0.4		-	-	-	-	-	-	-
m- & p-Xylenes	0.4		-	-	-	-	-	-	-
o-Xylenes	0.5		-	-	-	-	-	-	-
Isopropylbenzene	0.3		NR	-	NR	-	-	-	NR
Bromobenzene	0.3		-	-	-	-	-	-	-
1,2,3-Trichloropropane	0.3		NR	-	NR	-	-	-	NR
n-Propylbenzene	0.3		NR	-	NR	-	-	-	NR
2-Chlorotoluene	0.3		-	-	-	-	-	-	-
4-Chlorotoluene	0.3		-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	0.3		NR	-	NR	-	-	-	NR
t-Butylbenzene	0.3		NR	-	NR	-	-	-	NR
1,2,4-Trimethylbenzene	0.3		NR	-	NR	-	-	-	NR
sec-Butylbenzene	0.3		NR	-	NR	-	-	-	NR
p-Isopropyltoluene	0.9		NR	-	NR	-	-	-	NR
n-Butylbenzene	0.3		NR	-	NR	-	-	-	NR
1,2-Dibromo-3-chloropropane	0.3		NR	-	NR	-	-	-	NR
1,2,3-Trichlorobenzene	0.3		-	-	-	-	-	-	-
cis-1,2-Dichloroethene	0.4		-	-	-	-	-	-	-
2,2-Dichloropropane	0.4		-	-	-	-	-	-	-
1,1-Dichloropropene	0.3		-	-	-	-	-	-	-
1,3-Dichlorobenzene	0.3		-	-	-	-	-	-	-
1,4-Dichlorobenzene	0.3		-	-	-	-	-	-	-
1,2-Dichlorobenzene	0.3		-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	0.3		NR	-	NR	-	-	-	NR
Naphthalene	0.4		NR	-	NR	-	-	-	NR
Hexachlorobutadiene	0.3		NR	-	NR	-	-	-	NR
1,3-Dichloropropene(TOTAL)	1.0		R	NR	R	-	NR	NR	R
Dilution Factor:			-	1	-	1	1	1	-
Associated Method Blank:			VE881223C14	VBLK01	VE881221C14	HH221B	VBLK01	VBLK01	VE881223C14
Associated Equipment Blank:			-	-	-	-	-	-	-
Associated Trip Blank:			-	-	01T8005XXX02XX	01T8005XXX03XX	-	-	-

NR = Not requested

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	08GW808XXX01DX	BSMW810XXX04XX	BSMW811XXX04XX	BSMWGOLF1X04XX	BSMWGOLF2X04XX
LAB NUMBER:	8258-002	293688	295131	295129	295136
DATE SAMPLED:	9/13/88	10/09/89	10/12/89	10/12/89	10/12/89

ANALYTE	MDL	RL									
Chloromethane	0.4	2	-		-		-		-		-
Bromomethane	0.4	2	-		-		-		-		-
Vinyl Chloride	0.5	2	-		-		-		-		-
Chloroethane	0.4	2	-		-		-		-		-
Methylene Chloride	0.5	1	-		-		-		-		-
Acetone		5	NR		-		-		-		-
Carbon Disulfide		3	NR		-		-		-		-
1,1-Dichloroethene	0.8	2	-		-		-		-		-
1,1-Dichloroethane	0.5	2	-		-		-		-		-
1,2-Dichloroethene (total)	0.5	2	-		-		-		-		-
Chloroform	0.4	2	-		-		-		-		-
1,2-Dichloroethane	0.3	2	-		-		-		-		-
2-Butanone		5	NR		29	J	R		R		R
1,1,1-Trichloroethane	0.4	2	-		-		-		-		-
Carbon Tetrachloride	0.4	2	-		-		-		-		-
Vinyl Acetate		5	NR		-		-		-		-
Bromodichloromethane	0.5	2	-		-		-		-		-
1,2-Dichloropropane	0.3	2	-		-		-		-		-
Cis-1,3-Dichloropropene		2	NR		-		-		-		-
Trichloroethene	0.3	2	-		-		-		-		-
Dibromochloromethane	0.3	2	-		-		-		-		-
1,1,2-Trichloroethane	0.4	2	-		-		-		-		-
Benzene	0.3	2	-		-		-		-		-
Trans-1,3-Dichloropropene		1	NR		-		-		-		-
Bromoform	0.3	2	-		R		R		R		R
4-Methyl-2-Pentanone		2	NR		-		-		-		-
2-Hexanone		5	NR		-		-		-		-
Tetrachloroethene	0.4	2	-		-		-		-		-
1,1,2,2-Tetrachloroethane	0.3	2	-		R		R		R		R
Toluene	0.5	2	-		-		-		-		-
Chlorobenzene	0.4	2	-		-		-		-		-
Ethylbenzene	0.5	2	-		-		-		-		-
Styrene	0.3	1	-		-		-		-		-
Xylene (total)		2	NR		-		-		-		-

NR = Not requested

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08GW808XXX01DX	BSMW810XXX04XX	BSMW811XXX04XX	BSMWGOLF1X04XX	BSMWGOLF2X04XX
	LAB NUMBER:	8258-002	293688	295131	295129	295136
	DATE SAMPLED:	9/13/88	10/09/89	10/12/89	10/12/89	10/12/89
ANALYTE	MDL	RL				
Dichlorodifluoromethane	0.4	-	NR	NR	NR	NR
Trichlorofluoromethane	0.5	-	NR	NR	NR	NR
Bromochloromethane	0.3	-	NR	NR	NR	NR
Dibromomethane	0.3	-	NR	NR	NR	NR
1,3-Dichloropropane	0.4	-	NR	NR	NR	NR
1,2-Dibromoethane	0.4	-	NR	NR	NR	NR
1,1,1,2-Tetrachloroethane	0.4	-	NR	NR	NR	NR
m- & p-Xylenes	0.4	-	NR	NR	NR	NR
o-Xylenes	0.5	-	NR	NR	NR	NR
Isopropylbenzene	0.3	-	NR	NR	NR	NR
Bromobenzene	0.3	-	NR	NR	NR	NR
1,2,3-Trichloropropane	0.3	-	NR	NR	NR	NR
n-Propylbenzene	0.3	-	NR	NR	NR	NR
2-Chlorotoluene	0.3	-	NR	NR	NR	NR
4-Chlorotoluene	0.3	-	NR	NR	NR	NR
1,3,5-Trimethylbenzene	0.3	-	NR	NR	NR	NR
t-Butylbenzene	0.3	-	NR	NR	NR	NR
1,2,4-Trimethylbenzene	0.3	-	NR	NR	NR	NR
sec-Butylbenzene	0.3	-	NR	NR	NR	NR
p-Isopropyltoluene	0.9	-	NR	NR	NR	NR
n-Butylbenzene	0.3	-	NR	NR	NR	NR
1,2-Dibromo-3-chloropropane	0.3	-	NR	NR	NR	NR
1,2,3-Trichlorobenzene	0.3	-	NR	NR	NR	NR
cis-1,2-Dichloroethene	0.4	-	NR	NR	NR	NR
2,2-Dichloropropane	0.4	-	NR	NR	NR	NR
1,1-Dichloropropene	0.3	-	NR	NR	NR	NR
1,3-Dichlorobenzene	0.3	-	NR	NR	NR	NR
1,4-Dichlorobenzene	0.3	-	NR	NR	NR	NR
1,2-Dichlorobenzene	0.3	-	NR	NR	NR	NR
1,2,4-Trichlorobenzene	0.3	-	NR	NR	NR	NR
Naphthalene	0.4	-	NR	NR	NR	NR
Hexachlorobutadiene	0.3	-	NR	NR	NR	NR
1,3-Dichloropropene(TOTAL)	1.0	NR	NR	NR	NR	NR
Dilution Factor:		1	1	1	1	1
Associated Method Blank:		VBLK01	CB891018C11	CB891018C11	CB891018C11	CB891018C11
Associated Equipment Blank:		-	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX
Associated Trip Blank:		-	BSQTXX6XXX04XX	BSQTXX9XXX04XX	BSQTXX9XXX04XX	BSQTXX9XXX04XX

NR = Not requested

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01GW101XXX01XX	01GW101XXX02XX	02GW102AXX01XX	02GW102XXX02XX	03GW103XXX01XX	03GW103XXX02XX	03GW104XXX01XX	03GW104XXX02XX
LAB NUMBER:	8260-012RE	235983	8253-009	235991	8256-010	235701	8256-012	234615
DATE SAMPLED:	9/15/88	12/14/88	9/08/88	12/14/88	9/9/88	12/13/88	9/9/88	12/08/88
ANALYTES	CRDL							
Phenol	10	R	-	-	R	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	R	-	-	R	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	R	-	-	R	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	R	-	-	R	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	R	-	-	R	-	-	-	-
2,4-Dimethylphenol	10	R	-	-	R	-	-	-	-
Benzoic acid	50	R	-	-	R	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	R	-	-	R	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	R	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	R	-	-	R	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	R	-	-	R	-	-	-	-
2,4,5-Trichlorophenol	50	R	-	-	R	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: 01GW101XXX01XX LAB NUMBER: 8260-012RE DATE SAMPLED: 9/15/88	01GW101XXX02XX 235983 12/14/88	02GW102AXX01XX 8253-009 9/08/88	02GW102XXX02XX 235991 12/14/88	03GW103XXX01XX 8256-010 9/9/88	03GW103XXX02XX 235701 12/13/88	03GW104XXX01XX 8256-012 9/9/88	03GW104XXX02XX 234615 12/08/88
3-Nitroaniline	50	R	-	R	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	R	-	-	R	-	-	-	-
4-Nitrophenol	50	R	-	-	R	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	R	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	R	-	-	R	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	R	-	-	R	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1.02	1	1	1	1	1
Laboratory Method Blank		AI137	GH036897A08	SBLK9/12	GH036929A22	SBLK01	GH036707A15	SBLK01	GH035499A16
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01GW105AXX01XX	01GW105AXX02XX	01GW105BXX01XX	01GW105BXX02XX	01GW106XXX01XX	01GW106XXX02XX	01GW201XXX01XX	01GW201XXX02XX
	LAB NUMBER:	8253-005	234602	8253-004	234606	8256-007	233767	8253-006	233768
	DATE SAMPLED:	9/08/88	12/08/88	9/08/88	12/08/88	9/9/88	12/06/88	9/08/88	12/06/88
ANALYTES	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	R	-	R	-	-	-	R	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01GW105AXX01XX	01GW105AXX02XX	01GW105BXX01XX	01GW105BXX02XX	01GW106XXX01XX	01GW106XXX02XX	01GW201XXX01XX	01GW201XXX02XX
	LAB NUMBER:	8253-005	234602	8253-004	234606	8256-007	233767	8253-006	233768
	DATE SAMPLED:	9/08/88	12/08/88	9/08/88	12/08/88	9/9/88	12/06/88	9/08/88	12/06/88
ANALYTES	CRDL								
3-Nitroaniline	50	R	-	R	-	-	-	R	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	13	20	40	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1.02	1	1.02	1	1	1	1.02	1
Laboratory Method Blank		SBLK9/12	GH035499A16	SBLK9/12	GH035499A16	SBLK01	GH033909A21	SBLK9/12	GH033909A21
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: 01GW202AXX01XX LAB NUMBER: 8252-004 DATE SAMPLED: 9/6/88	03GW202AXX02XX 235702 12/13/88	03GW202AXX03XX 255957 04/11/89	03GW202AXX02DX 235703 12/13/88	01GW203XXX01XX 8252-005 9/7/88	01GW203XXX02XX 233783 12/06/88	01GW204XXX01XX 8252-006 9/7/88	01GW204XXX02XX 233784 12/06/88
Phenol	10	-	R	R	R	-	R	-	-
bis(2-Chloroethyl)ether	10	-	-	-	R	-	-	-	-
2-Chlorophenol	10	-	R	R	R	-	R	-	-
1,3-Dichlorobenzene	10	-	-	-	R	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	R	-	-	-	-
Benzyl alcohol	10	-	-	-	R	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	R	-	-	-	-
2-Methylphenol	10	-	R	R	R	-	R	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	R	-	-	-	-
4-Methylphenol	10	21	R	R	R	-	R	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	R	-	-	-	-
Hexachloroethane	10	-	-	-	R	-	-	-	-
Nitrobenzene	10	-	-	-	R	-	-	-	-
Isophorone	10	-	-	-	R	-	-	-	-
2-Nitrophenol	10	-	R	R	R	-	R	-	-
2,4-Dimethylphenol	10	-	R	R	R	-	R	-	-
Benzoic acid	50	-	R	R	R	-	R	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	R	-	-	-	-
2,4-Dichlorophenol	10	-	R	R	R	-	R	-	-
1,2,4-Trichlorobenzene	10	-	-	-	R	-	-	-	-
Naphthalene	10	-	-	11	10 J	-	-	-	-
4-Chloroaniline	10	-	-	-	R	-	-	-	-
Hexacholorobutadiene	10	-	-	-	R	-	-	-	-
4-Chloro-3-Methylphenol	10	-	R	R	R	-	R	-	-
2-Methylnaphthalene	10	-	-	-	R	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	R	-	-	-	-
2,4,6-Trichlorophenol	10	-	R	R	R	-	R	-	-
2,4,5-Trichlorophenol	50	-	R	R	R	-	R	-	-
2-Chloronaphthalene	10	-	-	-	R	-	-	-	-
2-Nitroaniline	50	-	-	-	R	-	-	-	-
Dimethylphthalate	10	-	-	-	R	-	-	-	-
Acenaphthylene	10	-	-	-	R	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	R	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	01GW202AXX01XX	03GW202AXX02XX	03GW202AXX03XX	03GW202AXX02DX	01GW203XXX01XX	01GW203XXX02XX	01GW204XXX01XX	01GW204XXX02XX
	LAB NUMBER:	8252-004	235702	255957	235703	8252-005	233783	8252-006	233784
	DATE SAMPLED:	9/6/88	12/13/88	04/11/89	12/13/88	9/7/88	12/06/88	9/7/88	12/06/88
ANALYTES	CRDL								
3-Nitroaniline	50	-	-	-	R	-	-	-	-
Acenaphthene	10	-	-	-	R	-	-	-	-
2,4-Dinitrophenol	50	-	R	R	R	-	R	-	-
4-Nitrophenol	50	-	R	R	R	-	R	-	-
Dibenzofuran	10	-	-	-	R	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	R	-	-	-	-
Diethylphthalate	10	-	-	-	R	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	R	-	-	-	-
Fluorene	10	-	-	-	R	-	-	-	-
4-Nitroaniline	50	-	-	-	R	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	R	R	R	-	R	-	-
N-Nitrosodiphenylamine	10	-	-	-	R	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	R	-	-	-	-
Hexachlorobenzene	10	-	-	-	R	-	-	-	-
Pentachlorophenol	50	-	R	R	R	-	R	-	-
Phenanthrene	10	-	-	-	R	-	-	-	-
Anthracene	10	-	-	-	R	-	-	-	-
Di-n-butylphthalate	10	-	-	-	R	-	-	-	-
Fluoranthene	10	-	-	-	R	-	-	-	-
Pyrene	10	-	-	-	R	-	-	-	-
Butylbenzylphthalate	10	-	-	-	R	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	R	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	R	-	-	-	-
Chrysene	10	-	-	-	R	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	R	-	-	-	-
Di-n-octylphthalate	10	-	-	-	R	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	R	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	R	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	R	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	R	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	R	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	R	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		SBLK01	GH036707A15	GJ056327A20	G2J36708A16	SBLK01	GH033909A21	SBLK01	GH033909A21
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX02XX	-	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01GW205XXX01XX	01GW205XXX02XX	01GW206AXX01XX	01GW206AXX02XX	01GW206AXX01DX	01GW206BXX01XX	01GW206BXX02XX	01GW207AXX01XX
LAB NUMBER:	8252-007	234901	8252-008	234906	8252-009	8252-010	234907	8260-023
DATE SAMPLED:	9/7/88	12/09/88	9/7/88	12/09/88	9/7/88	9/7/88	12/09/88	9/15/88

ANALYTES	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:		01GW205XXX01XX	01GW205XXX02XX	01GW206AXX01XX	01GW206AXX02XX	01GW206AXX01DX	01GW206BXX01XX	01GW206BXX02XX	01GW207AXX01XX
LAB NUMBER:		8252-007	234901	8252-008	234906	8252-009	8252-010	234907	8260-023
DATE SAMPLED:		9/7/88	12/09/88	9/7/88	12/09/88	9/7/88	9/7/88	12/09/88	9/15/88
ANALYTES	CROL								
3-Nitroaniline	50	-	-	-	-	-	-	-	
Acenaphthene	10	-	-	-	-	-	-	-	R
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	R
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	R
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	10	-	12	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		SBLK01	GH035152B02	SBLK01	GH035152B02	SBLK01	SBLK01	GH035152B02	AI137
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: 01GW207AXX02XX LAB NUMBER: 235971 DATE SAMPLED: 12/14/88	01GW207BXX01XX 8260-024 9/15/88	01GW207BXX02XX 235960 12/14/88	01GW208XXX01XX 8256-006 9/9/88	01GW208XXX02XX 234920 12/09/88	01GW209XXX01XX 8256-008 9/9/88	01GW209XXX02XX 234921 12/09/88	01GW210AXX01XX 8252-011 9/7/88
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Aqueous Analysis (ug/L)

01-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01GW207AXX02XX	01GW207BXX01XX	01GW207BXX02XX	01GW208XXX01XX	01GW208XXX02XX	01GW209XXX01XX	01GW209XXX02XX	01GW210AXX01XX
LAB NUMBER:	235971	8260-024	235960	8256-006	234920	8256-008	234921	8252-011
DATE SAMPLED:	12/14/88	9/15/88	12/14/88	9/9/88	12/09/88	9/9/88	12/09/88	9/7/88

ANALYTES	CRDL								
3-Nitroaniline	50	-	R	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dihitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	R	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	R	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	10	20	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GH036897A08	AI137	GH036897A08	SBLK01	GH035743A16	SBLK01	GH035743A16	SBLK01
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01GW210AXX02XX	01GW210AXX02DX	01GW210BXX01XX	01GW210BXX02XX	01GW211AXX01XX	01GW211AXX02XX	01GW211BXX01XX	01GW211BXX02XX
	LAB NUMBER:	234909	234913	8252-012	235673	8253-007	235704	8253-008	235705
	DATE SAMPLED:	12/09/88	12/09/88	9/7/88	12/13/88	9/08/88	12/13/88	9/08/88	12/13/88
ANALYTES	CRDL								
Phenol	10	-	-	-	R	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	R	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	R	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	R	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	R	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	R	-	-	-	-
Benzoic acid	50	-	-	-	R	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	R	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	R	-	R	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	R	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	R	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	R	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	01GW210AXX02XX 234909 12/09/88	01GW210AXX02DX 234913 12/09/88	01GW210BXX01XX 8252-012 9/7/88	01GW210BXX02XX 235673 12/13/88	01GW211AXX01XX 8253-007 9/08/88	01GW211AXX02XX 235704 12/13/88	01GW211BXX01XX 8253-008 9/08/88	01GW211BXX02XX 235705 12/13/88
3-Nitroaniline	50	-	-	-	-	R	-	R	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	R	-	-	-	-
4-Nitrophenol	50	-	-	-	R	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	R	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	R	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1.02	1	1.02	1
Laboratory Method Blank		GH035743A16	GJ036709B16	SBLK01	GH036707A15	SBLK9/12	G2J36708A16	SBLK9/12	G2J36708A16
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: 02GW212XXX01XX LAB NUMBER: 8256-009 DATE SAMPLED: 9/9/88	02GW212XXX02XX 235677 12/13/88	02GW213XXX01XX 8256-011 9/9/88	02GW213XXX02XX 235706 12/13/88	BSMW214XXX04XX 2924408 10/04/89	BSMW215XXX04XX 292409 10/04/89	BSMW216AXX04XX 292414 10/04/89	BSMW216BXX04XX 294520 10/11/89
Phenol	10	-	-	-	-	-	R	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	R
2-Chlorophenol	10	-	-	-	-	-	R	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	R
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	R
Benzyl alcohol	10	-	-	-	-	-	-	-	R
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	R
2-Methylphenol	10	-	-	-	-	-	R	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	R
4-Methylphenol	10	-	-	-	-	-	R	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	R
Hexachloroethane	10	-	-	-	-	-	-	-	R
Nitrobenzene	10	-	-	-	-	-	-	-	R
Isophorone	10	-	-	-	-	-	-	-	R
2-Nitrophenol	10	-	-	-	-	-	R	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	R	-	-
Benzoic acid	50	-	-	-	-	-	R	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	R
2,4-Dichlorophenol	10	-	-	-	-	-	R	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	R
Naphthalene	10	-	-	-	-	-	-	-	R
4-Chloroaniline	10	-	-	-	-	-	-	-	R
Hexacholorobutadiene	10	-	-	-	-	-	-	-	R
4-Chloro-3-Methylphenol	10	-	-	-	-	-	R	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	R
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	R
2,4,6-Trichlorophenol	10	-	-	-	-	-	R	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	R	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	R
2-Nitroaniline	50	-	-	-	-	-	-	-	R
Dimethylphthalate	10	-	-	-	-	-	-	-	R
Acenaphthylene	10	-	-	-	-	-	-	-	R
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	R

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: 02GW212XXX01XX LAB NUMBER: 8256-009 DATE SAMPLED: 9/9/88	02GW212XXX02XX 235677 12/13/88	02GW213XXX01XX 8256-011 9/9/88	02GW213XXX02XX 235706 12/13/88	BSMW214XXX04XX 2924408 10/04/89	BSMW215XXX04XX 292409 10/04/89	BSMW216AXX04XX 292414 10/04/89	BSMW216BXX04XX 294520 10/11/89
3-Nitroaniline	50	-	-	-	-	-	-	-	R
Acenaphthene	10	-	-	-	-	-	-	-	R
2,4-Dinitrophenol	50	-	-	-	-	-	R	-	-
4-Nitrophenol	50	-	-	-	-	-	R	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	R
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	R
Diethylphthalate	10	-	-	-	-	-	-	-	R
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	R
Fluorene	10	-	-	-	-	-	-	-	R
4-Nitroaniline	50	-	-	-	-	-	-	-	R
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	R	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	R
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	R
Hexachlorobenzene	10	-	-	-	-	-	-	-	R
Pentachlorophenol	50	-	-	-	-	-	R	-	-
Phenanthrene	10	-	-	-	-	-	-	-	R
Anthracene	10	-	-	-	-	-	-	-	R
Di-n-butylphthalate	10	-	-	-	-	-	-	-	R
Fluoranthene	10	-	-	-	-	-	-	-	R
Pyrene	10	-	-	-	-	-	-	-	R
Butylbenzylphthalate	10	-	-	-	-	-	-	-	R
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	R
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	R
Chrysene	10	-	-	-	-	-	-	-	R
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	R
Di-n-octylphthalate	10	-	-	-	-	-	-	-	R
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	R
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	R
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	R
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	R
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	R
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	R
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		SBLK01	GH036707A15	SBLK01	G2J36708A16	GJ093318B21	GJ093318B21	GJ093318B21	GH095437B08
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Semivolatile Aqueous Analysis (ug/L)

01-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW217AXX04XX	BSMW217BXX04XX	BSMW217BXX04XD	BSMW218XXX04XX	BSMW219XXX04XX	BSMW220XXX04XX	BSMW222XXX04XX	BSMW223XXX04XX
	LAB NUMBER:	294515	294516 RE	294517	294519	294121	292968	292969	292971
	DATE SAMPLED:	10/11/89	10/11/89	10/11/89	10/11/89	10/10/89	10/05/89	10/05/89	10/05/89
ANALYTES	CRDL								
Phenol	10	-	R	R	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	R	R	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	R	R	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	R	R	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	R	R	-	-	-	-	-
2,4-Dimethylphenol	10	-	R	R	-	-	-	-	-
Benzoic acid	50	-	R	R	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	R	R	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	12 J	13	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	R	R	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	R	R	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	R	R	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW217AXX04XX	BSMW217BXX04XX	BSMW217BXX04XD	BSMW218XXX04XX	BSMW219XXX04XX	BSMW220XXX04XX	BSMW222XXX04XX	BSMW223XXX04XX
	LAB NUMBER:	294515	294516 RE	294517	294519	294121	292968	292969	292971
	DATE SAMPLED:	10/11/89	10/11/89	10/11/89	10/11/89	10/10/89	10/05/89	10/05/89	10/05/89
ANALYTES	CRDL								
3-Nitroaniline	50	-	-	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	R	R	-	-	-	-	-
4-Nitrophenol	50	-	R	R	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	R	R	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	R	R	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	12	-	-	21 J
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GH095290C22	GJ096217C21	GH095290C22	GH095290C22	GJ094250A22	GH093568A16	GH093568A16	GH093568A16
Associated Equipment Blank		BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

SAMPLE ID:	BSMW224XXX04XX	BSMW225AXX04XX	BSMW225BXX04XX	BSMW229AXX04XX	BSMW229BXX04XX	BSMW229BXX04XD	BSMW230AXX04XX	BSMW230BXX04XX
LAB NUMBER:	292416	292957	292976	293341	292972	292973	293344	293345
DATE SAMPLED:	10/04/89	10/05/89	10/05/89	10/06/89	10/05/89	10/05/89	10/06/89	10/06/89

ANALYTES	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexachlorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	BSMW224XXX04XX	BSMW225AXX04XX	BSMW225BXX04XX	BSMW229AXX04XX	BSMW229BXX04XX	BSMW229BXX04XD	BSMW230AXX04XX	BSMW230BXX04XX
LAB NUMBER:	292416	292957	292976	293341	292972	292973	293344	293345
DATE SAMPLED:	10/04/89	10/05/89	10/05/89	10/06/89	10/05/89	10/05/89	10/06/89	10/06/89
ANALYTES	CRDL							
3-Nitroaniline	50	-	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	12	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1
Laboratory Method Blank		GJ093318B21	GH093568A16	GJ093568C15	GH094180A21	GJ093568C15	GJ093568C15	GH094180A21	GH094180A21
Associated Equipment Blank		BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	BSMW231AXXX04XX	BSMW231BXX04XX	BSMW231BXX04XD	BSMW232AXX04XX	BSMW232BXX04XX	BSMW233XXX04XX	BSMW234XXX04XX	04GW401XXX01XX
LAB NUMBER:	294535	294532	295533	294120	294518	294528	294521	8257-007
DATE SAMPLED:	10/11/89	10/11/89	10/11/89	10/10/89	10/11/89	10/11/89	10/11/89	9/12/88

ANALYTES	CRDL								
Phenol	10	-	-	-	-	-	-	230	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	R	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	R	-
1,4-Dichlorobenzene	10	-	-	-	-	10 J	-	27 J	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	R	-
2-Methylphenol	10	-	-	-	-	-	-	410 D	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	R	-
4-Methylphenol	10	-	-	-	-	-	-	95	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	R	-
Hexachloroethane	10	-	-	-	-	-	-	R	-
Nitrobenzene	10	-	-	-	-	-	-	R	-
Isophorone	10	-	-	-	-	-	-	R	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	86	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	R	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	R	-
Naphthalene	10	-	-	-	-	13 J	-	21 J	-
4-Chloroaniline	10	-	-	-	-	-	-	R	-
Hexacholorobutadiene	10	-	-	-	-	-	-	R	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	R	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	R	-
2-Nitroaniline	50	-	-	-	-	-	-	R	-
Dimethylphthalate	10	-	-	-	-	-	-	R	-
Acenaphthylene	10	-	-	-	-	-	-	R	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	R	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: BSMW231AXXX04XX LAB NUMBER: 294535 DATE SAMPLED: 10/11/89	BSMW231BXX04XX 294532 10/11/89	BSMW231BXX04XD 295533 10/11/89	BSMW232AXX04XX 294120 10/10/89	BSMW232BXX04XX 294518 10/11/89	BSMW233XXX04XX 294528 10/11/89	BSMW234XXX04XX 294521 10/11/89	04GW401XXX01XX 8257-007 9/12/88
3-Nitroaniline	50	-	-	-	-	-	-	R	-
Acenaphthene	10	-	-	-	-	-	-	R	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	R	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	R	-
Diethylphthalate	10	-	-	-	-	-	-	R	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	R	-
Fluorene	10	-	-	-	-	-	-	R	-
4-Nitroaniline	50	-	-	-	-	-	-	R	-
4,6-Dinitro-2-methylphenol	50	-	-	-	R	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	R	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	R	-
Hexachlorobenzene	10	-	-	-	-	-	-	R	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	R	-
Anthracene	10	-	-	-	-	-	-	R	-
Di-n-butylphthalate	10	-	-	-	-	-	-	R	-
Fluoranthene	10	-	-	-	-	-	-	R	-
Pyrene	10	-	-	-	-	-	-	R	-
Butylbenzylphthalate	10	-	-	-	-	-	-	R	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	R	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	R	-
Chrysene	10	-	-	-	-	-	-	R	-
bis(2-Ethylhexyl)phthalate	10	10	-	-	-	-	-	R	-
Di-n-octylphthalate	10	-	-	-	-	-	-	R	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	R	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	R	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	R	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	R	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	R	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	R	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GH095437B08	GH095437B08	GH095437B08	GJ094250A15	GH096947A08	GJ095437A15	GH095437B08	SBLK01
Associated Equipment Blank		BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	04GW401XXX02XX	04GW402XXX01XX	04GW402XXX02XX	04GW403XXX01XX	04GW403XXX02XX	04GW403XXX01DX	04GW404XXX01XX	04GW404XXX02XX
	LAB NUMBER:	234267	8253-010	234268	8258-010	234270	8258-011	8260-019	234271
	DATE SAMPLED:	12/07/88	9/08/88	12/07/88	9/13/88	12/07/88	9/13/88	9/15/88	12/07/88
ANALYTES	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-		-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	R	-	-	-	-	-	-
Hexachlorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: 04GW401XXX02XX LAB NUMBER: 234267 DATE SAMPLED: 12/07/88	04GW402XXX01XX 8253-010 9/08/88	04GW402XXX02XX 234268 12/07/88	04GW403XXX01XX 8258-010 9/13/88	04GW403XXX02XX 234270 12/07/88	04GW403XXX01DX 8258-011 9/13/88	04GW404XXX01XX 8260-019 9/15/88	04GW404XXX02XX 234271 12/07/88
3-Nitroaniline	50	-	R	-	-	-	-	R	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	R	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1	1.02	1	1	1	1	1	1
Laboratory Method Blank		G3J35024A15	SBLK9/12	G3J35024A15	SBLK02	G3J35024A15	SBLK02	A1137	G3J35024A15
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: 04GW405XXX01XX LAB NUMBER: 8260-020 DATE SAMPLED: 9/15/88	04GW405XXX02XX 234272 12/07/88	04GW406XXX01XX 8260-022 9/15/88	04GW406XXX02XX 234274 12/07/88	04GW407XXX01XX 8260-021 9/15/88	04GW407XXX02XX 234275 12/07/88	BSMW408XXX04XX 295132 10/12/89	07GW701XXX01XX 8260-015 9/15/88
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: 04GW405XXX01XX	04GW405XXX02XX	04GW406XXX01XX	04GW406XXX02XX	04GW407XXX01XX	04GW407XXX02XX	BSMW408XXX04XX	07GW701XXX01XX
		LAB NUMBER: 8260-020	234272	8260-022	234274	8260-021	234275	295132	8260-015
		DATE SAMPLED: 9/15/88	12/07/88	9/15/88	12/07/88	9/15/88	12/07/88	10/12/89	9/15/88
3-Nitroaniline	50	R	-	R	-	R	-	-	R
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	R	-	R	-	R	-	-	R
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	R	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	63 J
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	10	1	1	1
Laboratory Method Blank		AI137	G3J35024A15	AI137	G3J35024A15	AI137	G3J35024A15	GH095724B07	AI137
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	BSQSXX2XXX04XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	07GW701XXX02XX	07GW702XXX01XX	07GW702XXX02XX	07GW703XXX01XX	07GW703XXX02XX	07GW704XXX01XX	07GW704XXX02XX	07GW705XXX01XX
	LAB NUMBER:	237372	8260-016	237373	8260-013	237374	8260-014	237378	8260-018
	DATE SAMPLED:	12/20/88	9/15/88	12/20/88	9/15/88	12/20/88	9/15/88	12/20/88	9/15/88
ANALYTES	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexachlorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	07GW701XXX02XX	07GW702XXX01XX	07GW702XXX02XX	07GW703XXX01XX	07GW703XXX02XX	07GW704XXX01XX	07GW704XXX02XX	07GW705XXX01XX
	LAB NUMBER:	237372	8260-016	237373	8260-013	237374	8260-014	237378	8260-018
	DATE SAMPLED:	12/20/88	9/15/88	12/20/88	9/15/88	12/20/88	9/15/88	12/20/88	9/15/88
ANALYTES	CRDL								
3-Nitroaniline	50	-	R	-	R	-	R	-	R
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	R	-	R	-	R	-	R
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	11	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GH038318A06	AI137	GH038318A06	AI137	GH038318A06	AI137	GH038318A06	AI137
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTES	CRDL	SAMPLE ID: 07GW705XXX02XX LAB NUMBER: 237382 DATE SAMPLED: 12/20/88	07GW706XXX01XX 8260-017 9/15/88	07GW706XXX02XX 237383 12/20/88	08GW801XXX01XX 8259-002 9/14/88	08GW801XXX02XX 236511 12/15/88	08GW802XXX01XX 8258-003 9/13/88	08GW802XXX02XX 235393 12/12/88	08GW802XXX02DX 235395 12/12/88
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	07GW705XXX02XX	07GW706XXX01XX	07GW706XXX02XX	08GW801XXX01XX	08GW801XXX02XX	08GW802XXX01XX	08GW802XXX02XX	08GW802XXX02DX
	LAB NUMBER:	237382	8260-017	237383	8259-002	236511	8258-003	235393	235395
	DATE SAMPLED:	12/20/88	9/15/88	12/20/88	9/14/88	12/15/88	9/13/88	12/12/88	12/12/88
ANALYTES	CRDL								
3-Nitroaniline	50	-	R	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	R	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	5	1	1	1	1
Laboratory Method Blank		GH038318A06	AI137	GH038318A06	BLANK2	GH037188A16	SBLK02	GH036708A04	GH036708A04
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08GW803XXX01XX	08GW803XXX02XX	08GW803XXX02DX	08GW804XXX01XX	08GW804XXX02XX	08GW804XXX01DX	08GW804XXX02DX	08GW807XXX01XX
	LAB NUMBER:	8259-001	236512	236514	8257-003	236515	8257-004	236517	8257-001
	DATE SAMPLED:	9/14/88	12/15/88	12/15/88	9/12/88	12/15/88	9/12/88	12/15/88	9/12/88
ANALYTES	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08GW803XXX01XX	08GW803XXX02XX	08GW803XXX02DX	08GW804XXX01XX	08GW804XXX02XX	08GW804XXX01DX	08GW804XXX02DX	08GW807XXX01XX
	LAB NUMBER:	8259-001	236512	236514	8257-003	236515	8257-004	236517	8257-001
	DATE SAMPLED:	9/14/88	12/15/88	12/15/88	9/12/88	12/15/88	9/12/88	12/15/88	9/12/88
ANALYTES	CRDL								
3-Nitroaniline	50	-	-	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		BLANK2	GH037188A16	GH037188A16	SBLK01	GJ037188C06	SBLK01	GJ037188C06	SBLK01
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08GW807XXX02XX	08GW807XXX01DX	08GW808XXX01XX	08GW808XXX02XX	08GW808XXX01DX	BSMW810XXX04XX	BSMW811XXX04XX	09GW901XXX01XX
	LAB NUMBER:	235408	8257-002	8258-001	236518	8258-002	293688	295131	8259-015
	DATE SAMPLED:	12/12/88	9/12/88	9/13/88	12/15/88	9/13/88	10/09/89	10/12/89	9/14/88
ANALYTES	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:		08GW807XXX02XX	08GW807XXX01DX	08GW808XXX01XX	08GW808XXX02XX	08GW808XXX01DX	BSMW810XXX04XX	BSMW811XXX04XX	09GW901XXX01XX
LAB NUMBER:		235408	8257-002	8258-001	236518	8258-002	293688	295131	8259-015
DATE SAMPLED:		12/12/88	9/12/88	9/13/88	12/15/88	9/13/88	10/09/89	10/12/89	9/14/88
ANALYTES	CRDL								
3-Nitroaniline	50	-	-	-	-	-	-	-	R
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	R
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	24	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GH036708A04	SBLK01	SBLK02	GH037219A06	SBLK02	G2J94245A22	GH096947A08	BLANK5
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

SAMPLE ID:	09GW901XXX02XX	09GW902XXX01XX	09GW902XXX02XX	09GW903XXX01XX	09GW903XXX02XX	09GW904XXX01XX	09GW904XXX02XX	09GW905XXX01XX
LAB NUMBER:	234280	8259-014	234277	8259-016	237136	8252-003	234279	8252-002
DATE SAMPLED:	12/07/88	9/14/88	12/07/88	9/14/88	12/19/88	9/6/88	12/07/88	9/6/88

ANALYTES	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	CRDL	09GW901XXX02XX	09GW902XXX01XX	09GW902XXX02XX	09GW903XXX01XX	09GW903XXX02XX	09GW904XXX01XX	09GW904XXX02XX	09GW905XXX01XX
SAMPLE ID:		09GW901XXX02XX	09GW902XXX01XX	09GW902XXX02XX	09GW903XXX01XX	09GW903XXX02XX	09GW904XXX01XX	09GW904XXX02XX	09GW905XXX01XX
LAB NUMBER:		234280	8259-014	234277	8259-016	237136	8252-003	234279	8252-002
DATE SAMPLED:		12/07/88	9/14/88	12/07/88	9/14/88	12/19/88	9/6/88	12/07/88	9/6/88
3-Nitroaniline	50	-	-	-	R	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	R	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	-	-	-	10
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		G2J35024A21	BLANK2	G3J35024A15	BLANK5	GJ037451C20	SBLK04	G3J35024A15	SBLK01
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	09GW905XXX02XX	BSMW906XXX04XX	BSMW907XXX04XX	BSMW908XXX04XX	BSMW908XXX04XD	BSMW1101XX04XX	BSMW1102XX04XX	BSMW1103XX04XX
	LAB NUMBER:	237137	293703	291496	295135	295134	291860	291862	291864
	DATE SAMPLED:	12/19/88	10/09/89	10/02/89	10/12/89	10/12/89	10/03/89	10/03/89	10/03/89
ANALYTES	CRDL								
Phenol	10	-	-	R	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	R	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	R	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	R	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	R	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	R	-	-	-	-	-
Benzoic acid	50	-	-	R	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	R	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	R	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	R	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	R	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	09GW905XXX02XX	BSMW906XXX04XX	BSMW907XXX04XX	BSMW908XXX04XX	BSMW908XXX04XD	BSMW1101XX04XX	BSMW1102XX04XX	BSMW1103XX04XX
	LAB NUMBER:	237137	293703	291496	295135	295134	291860	291862	291864
	DATE SAMPLED:	12/19/88	10/09/89	10/02/89	10/12/89	10/12/89	10/03/89	10/03/89	10/03/89
ANALYTES	CRDL								
3-Nitroaniline	50	-	-	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	R	-	-	-	-	-
4-Nitrophenol	50	-	-	R	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	R	R	-	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	R	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	12	-	-	-	-	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GJ037451C20	GJ094250A15	GH92072A21	GJ095724C04	GJ095724C04	GH092159B21	GH092159B21	GH092159B21
Associated Equipment Blank		01SB004XXX02XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW1104XX04XX	BSMW1301XX04XX	BSMW1302XX04XX	BSMW1303XX04XX	BSMW1303XX04XD	BSMWGOLF1X04XX	BSMWGOLF2X04XX	BSMWGZA1XX04XX
	LAB NUMBER:	293697	294122	293702	293687	293693	295129	295136	294119
	DATE SAMPLED:	10/09/89	10/10/89	10/09/89	10/09/89	10/09/89	10/12/89	10/12/89	10/10/89
ANALYTES	CRDL								
Phenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-	-	-	-	-
2-Chlorophenol	10	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-	-	-	-	-
Benzyl alcohol	10	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-	-	-	-	-
2-Methylphenol	10	-	-	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-	-	-	-	-
4-Methylphenol	10	-	-	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-	-	-	-	-
Hexachloroethane	10	-	-	-	-	-	-	-	-
Nitrobenzene	10	-	-	-	-	-	-	-	-
Isophorone	10	-	-	-	-	-	-	-	-
2-Nitrophenol	10	-	-	-	-	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-	-	-	-	-
Benzoic acid	50	-	-	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-	-	-	-	-
Naphthalene	10	-	-	-	-	-	-	-	-
4-Chloroaniline	10	-	-	-	-	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-	-	-	-	-
2-Nitroaniline	50	-	-	-	-	-	-	-	-
Dimethylphthalate	10	-	-	-	-	-	-	-	-
Acenaphthylene	10	-	-	-	-	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW1104XX04XX	BSMW1301XX04XX	BSMW1302XX04XX	BSMW1303XX04XX	BSMW1303XX04XD	BSMWGOLF1X04XX	BSMWGOLF2X04XX	BSMWGZA1XX04XX
	LAB NUMBER:	293697	294122	293702	293687	293693	295129	295136	294119
	DATE SAMPLED:	10/09/89	10/10/89	10/09/89	10/09/89	10/09/89	10/12/89	10/12/89	10/10/89
ANALYTES	CRDL								
3-Nitroaniline	50	-	-	-	-	-	-	-	-
Acenaphthene	10	-	-	-	-	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-	-	-	-	-
4-Nitrophenol	50	-	-	-	-	-	-	-	-
Dibenzofuran	10	-	-	-	-	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-	-	-	-	-
Diethylphthalate	10	-	-	-	-	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-	-	-	-	-
Fluorene	10	-	-	-	-	-	-	-	-
4-Nitroaniline	50	-	-	-	-	-	-	-	-
4,6-Dinitro-2-methylphenol	50	R	-	R	-	-	-	-	R
N-Nitrosodiphenylamine	10	-	-	-	-	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-	-	-	-	-
Hexachlorobenzene	10	-	-	-	-	-	-	-	-
Pentachlorophenol	50	-	-	-	-	-	-	-	-
Phenanthrene	10	-	-	-	-	-	-	-	-
Anthracene	10	-	-	-	-	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-	-	-	-	-
Fluoranthene	10	-	-	-	-	-	-	-	-
Pyrene	10	-	-	-	-	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-	-	-	-	-
Chrysene	10	-	-	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	-	-	-	10	-	-	-
Di-n-octylphthalate	10	-	-	-	-	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-	-	-	-	-
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GJ094250A15	GJ094250A22	GJ094250A15	G2J94245A22	G2J95925B04	GJ095724C04	GJ095724C04	GJ094250A15
Associated Equipment Blank		BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	04GWGZA3XX03XX	BSMWGZA3XX04XX	04GWGZB1XX03XX	04GWGZB1XX03DX
LAB NUMBER:	258237	295133	257036	257037
DATE SAMPLED:	04/24/89	10/12/89	04/17/89	04/17/89

ANALYTES	CRDL				
Phenol	10	-	-	-	-
bis(2-Chloroethyl)ether	10	-	-	-	-
2-Chlorophenol	10	-	-	-	-
1,3-Dichlorobenzene	10	-	-	-	-
1,4-Dichlorobenzene	10	-	-	-	-
Benzyl alcohol	10	-	-	-	-
1,2-Dichlorobenzene	10	-	-	-	-
2-Methylphenol	10	-	-	-	-
bis(2-Chloroisopropyl)ether	10	-	-	-	-
4-Methylphenol	10	-	-	-	-
N-Nitroso-di-n-propylamine	10	-	-	-	-
Hexachloroethane	10	-	-	-	-
Nitrobenzene	10	-	-	-	-
Isophorone	10	-	-	-	-
2-Nitrophenol	10	-	-	-	-
2,4-Dimethylphenol	10	-	-	-	-
Benzoic acid	50	-	-	-	-
bis(2-Chloroethoxy)methane	10	-	-	-	-
2,4-Dichlorophenol	10	-	-	-	-
1,2,4-Trichlorobenzene	10	-	-	-	-
Naphthalene	10	-	-	-	-
4-Chloroaniline	10	-	-	-	-
Hexacholorobutadiene	10	-	-	-	-
4-Chloro-3-Methylphenol	10	-	-	-	-
2-Methylnaphthalene	10	-	-	-	-
Hexachlorocyclopentadiene	10	-	-	-	-
2,4,6-Trichlorophenol	10	-	-	-	-
2,4,5-Trichlorophenol	50	-	-	-	-
2-Chloronaphthalene	10	-	-	-	-
2-Nitroaniline	50	-	-	-	-
Dimethylphthalate	10	-	-	-	-
Acenaphthylene	10	-	-	-	-
2,6-Dinitrotoluene	10	-	-	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	04GWGZA3XX03XX	BSMWGZA3XX04XX	04GWGZB1XX03XX	04GWGZB1XX03DX
	LAB NUMBER:	258237	295133	257036	257037
	DATE SAMPLED:	04/24/89	10/12/89	04/17/89	04/17/89
ANALYTES	CRDL				
3-Nitroaniline	50	-	-	-	-
Acenaphthene	10	-	-	-	-
2,4-Dinitrophenol	50	-	-	-	-
4-Nitrophenol	50	-	-	-	-
Dibenzofuran	10	-	-	-	-
2,4-Dinitrotoluene	10	-	-	-	-
Diethylphthalate	10	-	-	-	-
4-Chlorophenyl-phenylether	10	-	-	-	-
Fluorene	10	-	-	-	-
4-Nitroaniline	50	-	-	-	-
4,6-Dinitro-2-methylphenol	50	-	-	-	-
N-Nitrosodiphenylamine	10	-	-	-	-
4-Bromophenyl-phenylether	10	-	-	-	-
Hexachlorobenzene	10	-	-	-	-
Pentachlorophenol	50	-	-	-	-
Phenanthrene	10	-	-	-	-
Anthracene	10	-	-	-	-
Di-n-butylphthalate	10	-	-	-	-
Fluoranthene	10	-	-	-	-
Pyrene	10	-	-	-	-
Butylbenzylphthalate	10	-	-	-	-
3,3'-Dichlorobenzidine	20	-	-	-	-
Benzo(a)Anthracene	10	-	-	-	-
Chrysene	10	-	-	-	-
bis(2-Ethylhexyl)phthalate	10	-	36	-	-
Di-n-octylphthalate	10	-	-	-	-
Benzo(b)Fluoranthene	10	-	-	-	-
Benzo(k)Fluoranthene	10	-	-	-	-
Benzo(a)Pyrene	10	-	-	-	-
Indeno(1,2,3-cd)pyrene	10	-	-	-	-
Dibenz(a,h)anthracene	10	-	-	-	-
Benzo(g,h,i,)perylene	10	-	-	-	-
Dilution Factor		1	1	1	1
Laboratory Method Blank		GH058336B16	GJ095724C04	G2J57090C06	G2J57090C06
Associated Equipment Blank		-	BSQSXX2XXX04XX	-	-

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

ANALYTES	PQL	SAMPLE ID: 01GW101XXX02XX DATE SAMPLED: 12/14/88	02GW102XXX02XX 12/14/88	03GW103XXX02XX 12/13/88	03GW104XXX02XX 12/08/88	BSMW104XXXX04XX 10/06/89	01GW105AXX02XX 12/08/88	BSMW105AXX04XX 10/04/89
Bicarbonate	1	47	150	10	40	NR	13	NR
Carbonate	1	-	-	-	-	NR	-	NR
Chloride	2	NR	NR	NR	NR	3.9	NR	4.8
Sulfate	1	NR	NR	NR	NR	-	NR	-
Phosphorus (total)	0.05	NR	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	NR
Total Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	NR	NR
Total Sulfide (Iodometric)	1	NR	NR	NR	NR	NR	NR	NR
Filterable Residue	10	NR	NR	NR	NR	NR	NR	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	NR	NR
Total Organic Carbon	1	-	8.7	2	1.4	NR	-	NR
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	BSQSXX1XXX04XX	01SB004XXX02XX	-
HERBICIDES	**MDL**							
2,4-D	0.2	NR	NR	NR	NR	NR	NR	NR
Silvex	0.02	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		-	-	-	-	-	-	-
Associated Equipment Blank		-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-

NR = Not Requested, ** = Confluent growth without coliform

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	01GW105BXX02XX	BSMW105BXX04XX	01GW106XXX02XX	BSMW106XXX04XX	01GW201XXX02XX	BSMW201XXX04XX	03GW202AXX02XX
	DATE SAMPLED:	12/08/88	10/04/89	12/06/88	10/04/89	12/06/88	10/06/89	12/13/88
ANALYTES	PQL							
Bicarbonate	1	10	NR	17	NR	8.3	NR	85
Carbonate	1	-	NR	-	NR	-	NR	-
Chloride	2	NR	4.9	NR	8.6	NR	5.2	NR
Sulfate	1	NR	11	NR	-	NR	11	NR
Phosphorus (total)	0.05	NR	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	NR
Total Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	NR	NR
Total Sulfide (Iodometric)	1	NR	NR	NR	NR	NR	NR	NR
Filterable Residue	10	NR	NR	NR	NR	NR	NR	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	NR	NR
Total Organic Carbon	1	1	NR	4.4	NR	-	NR	7.5
Associated Equipment Blank		01SB004XXX02XX	-	01SB004XXX02XX	-	01SB004XXX02XX	BSQSXX1XXX04XX	01SB004XXX02XX
HERBICIDES	MDL							
2,4-D	0.2	NR	NR	NR	NR	NR	NR	NR
Silvex	0.02	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		-	-	-	-	-	-	-
Associated Equipment Blank		-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-

NR = Not Requested, ** = Confluent growth without coliform

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	BSMW202AXX04XX	03GW202AXX02DX	01GW203XXX02XX	BSMW203XXX04XX	01GW204XXX02XX	01GW205XXX02XX	BSMW205XXX04XX
	DATE SAMPLED:	10/06/89	12/13/88	12/06/88	10/10/89	12/06/88	12/09/88	10/10/89
ANALYTES	PQL							
Bicarbonate	1	NR	89	76	NR	10	57	NR
Carbonate	1	NR	-	-	NR	-	-	NR
Chloride	2	25	NR	NR	15	NR	NR	17
Sulfate	1	-	NR	NR	-	NR	NR	-
Phosphorus (total)	0.05	NR	NR	NR	NR	NR	NR	-
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	-
Total Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	-
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	-
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	NR	NR
Total Sulfide (Iodometric)	1	NR	NR	NR	NR	NR	NR	NR
Filterable Residue	10	NR	NR	NR	NR	NR	NR	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	NR	NR
Total Organic Carbon	1	NR	8.5	7.1	NR	5.8	1.1	NR
Associated Equipment Blank		BSQSXX1XXX04XX	01SB004XXX02XX	01SB004XXX02XX	-	01SB004XXX02XX	01SB004XXX02XX	-
HERBICIDES	MDL							
2,4-D	0.2	NR	NR	NR	NR	NR	NR	NR
Silvex	0.02	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		-	-	-	-	-	-	-
Associated Equipment Blank		-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-

NR = Not Requested, ** = Confluent growth without coliform

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW205XXX04XD	02GW206AXX02XX	BSMW206AXX04XX	02GW206BXX02XX	BSMW206BXX04XX	01GW207AXX02XX	BSMW207AXX04XX
	DATE SAMPLED:	10/10/89	12/09/88	10/04/89	12/09/88	10/04/89	12/14/88	10/06/89
ANALYTES	PQL							
Bicarbonate	1	NR	30	NR	10	NR	74	NR
Carbonate	1	NR	-	NR	-	NR	-	NR
Chloride	2	17	NR	15	NR	2.4	NR	17
Sulfate	1	-	NR	-	NR	-	NR	11
Phosphorus (total)	0.05	-	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	-	NR	NR	NR	NR	NR	NR
Total Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	-	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	-	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	NR	NR
Total Sulfide (Iodometric)	1	NR	NR	NR	NR	NR	NR	NR
Filterable Residue	10	NR	NR	NR	NR	NR	NR	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	NR	NR
Total Organic Carbon	1	NR	1.7	NR	13	NR	-	NR
Associated Equipment Blank		-	01SB004XXX02XX	-	01SB004XXX02XX	-	01SB004XXX02XX	BSQSXX1XXX04XX
HERBICIDES	MDL							
2,4-D	0.2	NR	NR	NR	NR	NR	NR	NR
Silvex	0.02	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		-	-	-	-	-	-	-
Associated Equipment Blank		-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-

NR = Not Requested, ** = Confluent growth without coliform

BRGW-CMS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01GW207BXX02XX	BSMW207BXX04XX	01GW208XXX02XX	01GW209XXX02XX	01GW210AXX02DX	01GW210AXX02XX	01GW210BXX02XX
	DATE SAMPLED:	12/14/88	10/06/89	12/09/88	12/09/88	12/09/88	12/09/88	12/13/88
ANALYTES	PQL							
Bicarbonate	1	8.1	NR	20	-	440	500	170
Carbonate	1	-	NR	20	-	80	60	-
Chloride	2	NR	7.1	NR	NR	NR	NR	NR
Sulfate	1	NR	-	NR	NR	NR	NR	NR
Phosphorus (total)	0.05	NR	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	NR
Total Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	NR	NR
Total Sulfide (Iodometric)	1	NR	NR	NR	NR	NR	NR	NR
Filterable Residue	10	NR	NR	NR	NR	NR	NR	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	NR	NR
Total Organic Carbon	1	-	NR	-	-	4.1	4.4	4
Associated Equipment Blank		01SB004XXX02XX	BSQSXX1XXX04XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX
HERBICIDES	MDL							
2,4-D	0.2	NR	NR	NR	NR	NR	NR	NR
Silvex	0.02	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		-	-	-	-	-	-	-
Associated Equipment Blank		-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-

NR = Not Requested, ** = Confluent growth without coliform

BRGW-CMS

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	PQL	SAMPLE ID: BSMW210BXX04XX DATE SAMPLED: 10/10/89	01GW211AXX02XX 12/13/88	01GW211BXX02XX 12/13/88	02GW212XXX02XX 12/13/88	02GW213XXX02XX 12/13/88	BSMW213XXX04XX 10/06/89	BSMW214XXX04XX 10/04/89
Bicarbonate	1	NR	590	56	14	130	NR	-
Carbonate	1	NR	39	-	-	-	NR	22
Chloride	2	NR	NR	NR	NR	NR	4.6	42
Sulfate	1	NR	NR	NR	NR	NR	-	-
Phosphorus (total)	0.05	-	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	5.5	NR	NR	NR	NR	NR	NR
Total Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	-	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	-	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	NR	NR
Total Sulfide (Iodometric)	1	NR	NR	NR	NR	NR	NR	NR
Filterable Residue	10	NR	NR	NR	NR	NR	NR	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	NR	NR
Total Organic Carbon	1	NR	5.2	1.2	2.2	1.1	NR	NR
Associated Equipment Blank		-	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	BSQSXX1XXX04XX	-
HERBICIDES	**MDL**							
2,4-D	0.2	NR	NR	NR	NR	NR	NR	NR
Silvex	0.02	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		-	-	-	-	-	-	-
Associated Equipment Blank		-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-

NR = Not Requested, ** = Confluent growth without coliform

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW215XXX04XX	BSMW216AXX04XX	BSMW216BXX04XX	BSMW217AXX04XX	BSMW217BXX04XX	BSMW217BXX04DX	BSMW218XXX04XX
	DATE SAMPLED:	10/04/89	10/04/89	10/11/89	10/11/89	10/11/89	10/11/89	10/11/89
ANALYTES	PQL							
Bicarbonate	1	-	-	-	-	-	-	-
Carbonate	1	50	50	120	81	400	410	340
Chloride	2	35	20	14	190	61	52	76
Sulfate	1	-	13	24	-	-	-	-
Phosphorus (total)	0.05	NR	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	NR
Total Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	NR	NR
Total Sulfide (Iodometric)	1	NR	NR	NR	NR	NR	NR	NR
Filterable Residue	10	NR	NR	NR	NR	NR	NR	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	NR	NR
Total Organic Carbon	1	NR	NR	NR	NR	NR	NR	NR
Associated Equipment Blank		-	-	-	-	-	-	-
HERBICIDES	MDL							
2,4-D	0.2	NR	NR	NR	NR	NR	NR	NR
Silvex	0.02	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		-	-	-	-	-	-	-
Associated Equipment Blank		-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-

NR = Not Requested, ** = Confluent growth without coliform

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	PQL	SAMPLE ID: BSMW219XXX04XX DATE SAMPLED: 10/10/89	BSMW220XXX04XX 10/05/89	BSMW222XXX04XX 10/05/89	BSMW223XXX04XX 10/05/89	BSMW224XXX04XX 10/04/89	BSMW225AXX04XX 10/05/89	BSMW225BXX04XX 10/05/89
Bicarbonate	1	-	1	-	-	-	-	-
Carbonate	1	32	57	12	11	11	43	11
Chloride	2	6.6	13	8.1	8.5	8	17	7.2
Sulfate	1	11	16	-	-	-	-	-
Phosphorus (total)	0.05	-	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	-	NR	NR	NR	NR	NR	NR
Total Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	-	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	-	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	NR	NR
Total Sulfide (Iodometric)	1	NR	NR	NR	NR	NR	NR	NR
Filterable Residue	10	NR	NR	NR	NR	NR	NR	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	NR	NR
Total Organic Carbon	1	NR	NR	NR	NR	NR	NR	NR
Associated Equipment Blank		-	-	-	-	-	-	-

HERBICIDES	MDL							
2,4-D	0.2	NR	NR	NR	NR	NR	NR	NR
Silvex	0.02	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		-	-	-	-	-	-	-
Associated Equipment Blank		-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-

NR = Not Requested, ** = Confluent growth without coliform

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW229AXX04XX	BSMW229BXX04XX	BSMW229BXX04XD	BSMW230AXX04XX	BSMW230BXX04XX	BSMW231AXX04XX	BSMW231BXX04XX
	DATE SAMPLED:	10/06/89	10/05/89	10/05/89	10/06/89	10/06/89	10/11/89	10/11/89
ANALYTES	PQL							
Bicarbonate	1	-	-	-	27	-	-	-
Carbonate	1	31	9.8	22	-	47	17	25
Chloride	2	8.3	7.6	6.2	5.6	15	5.5	4.5
Sulfate	1	14	11	-	-	8	-	-
Phosphorus (total)	0.05	NR	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	NR
Total Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	NR	NR
Total Sulfide (Iodometric)	1	NR	NR	NR	NR	NR	NR	NR
Filterable Residue	10	NR	NR	NR	NR	NR	NR	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	NR	NR
Total Organic Carbon	1	NR	NR	NR	NR	NR	NR	NR
Associated Equipment Blank		BSQSXX1XXX04XX	-	-	BSQSXX1XXX04XX	BSQSXX1XXX04XX	-	-
HERBICIDES	MDL							
2,4-D	0.2	NR	NR	NR	NR	NR	NR	NR
Silvex	0.02	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		-	-	-	-	-	-	-
Associated Equipment Blank		-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-

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BRGW-CMS

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Combined Summary Table for Statistical Analysis

ANALYTES	PQL	SAMPLE ID: BSMW231BXX04XD DATE SAMPLED: 10/11/89	BSMW232AXX04XX 10/10/89	BSMW232BXX04XX 10/11/89	BSMW233XXX04XX 10/11/89	BSMW234XXX04XX 10/11/89	04GW401XXX02XX 12/07/88	04GW402XXX02XX 12/07/88
Bicarbonate	1	-	-	-	12	-	33	7.2
Carbonate	1	26	61	290	490	380	-	-
Chloride	2	5	67	5.2	38	17	NR	NR
Sulfate	1	-	20	-	11	-	NR	NR
Phosphorus (total)	0.05	NR	-	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	NR	-	NR	NR	NR	NR	NR
Total Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	NR	9.3	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	NR	-	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	NR	NR
Total Sulfide (Iodometric)	1	NR	NR	NR	NR	NR	NR	NR
Filterable Residue	10	NR	NR	NR	NR	NR	NR	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	NR	NR
Total Organic Carbon	1	NR	NR	NR	NR	NR	-	-
Associated Equipment Blank		-	-	-	-	-	01SB004XXX02XX	01SB004XXX02XX

HERBICIDES	MDL							
2,4-D	0.2	NR	NR	NR	NR	NR	NR	NR
Silvex	0.02	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		-	-	-	-	-	-	-
Associated Equipment Blank		-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-

NR = Not Requested, ** = Confluent growth without coliform

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Combined Summary Table for Statistical Analysis

ANALYTES	PQL	SAMPLE ID: 04GW403XXX02XX DATE SAMPLED: 12/07/88	04GW404XXX02XX 12/07/88	04GW405XXX02XX 12/07/88	04GW406XXX02XX 12/07/88	04GW407XXX02XX 12/07/88	BSMW408XXX04XX 10/12/89	07GW701XXX02XX 12/20/88
Bicarbonate	1	4.1	10	5.2	10	27	-	25
Carbonate	1	-	-	-	-	-	6	-
Chloride	2	NR	NR	NR	NR	NR	NR	NR
Sulfate	1	NR	NR	NR	NR	NR	NR	NR
Phosphorus (total)	0.05	NR	NR	NR	NR	NR	-	NR
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	-	NR
Total Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	4	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	-	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	NR	NR
Total Sulfide (Iodometric)	1	NR	NR	NR	NR	NR	NR	NR
Filterable Residue	10	NR	NR	NR	NR	NR	NR	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	NR	NR
Total Organic Carbon	1	1.7	-	-	1.2	-	NR	3.9
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	BSQSXX2XXX04XX	01SB004XXX02XX
HERBICIDES	MDL							
2,4-D	0.2	NR	NR	NR	NR	NR	NR	NR
Silvex	0.02	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		-	-	-	-	-	-	-
Associated Equipment Blank		-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-

NR = Not Requested, ** = Confluent growth without coliform.

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	07GW702XXX02XX	07GW703XXX02XX	07GW704XXX02XX	07GW705XXX02XX	07GW706XXX02XX	08GW801XXX01XX	08GW801XXX02XX
	DATE SAMPLED:	12/20/88	12/20/88	12/20/88	12/20/88	12/20/88	9/14/88	12/15/88
ANALYTES	PQL							
Bicarbonate	1	49	6.8	69	8.4	7.6	NR	15
Carbonate	1	-	-	-	-	-	NR	-
Chloride	2	NR	NR	NR	NR	NR	9.6	NR
Sulfate	1	NR	NR	NR	NR	NR	18	NR
Phosphorus (total)	0.05	NR	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	NR
Total Coliform	1/100 mL	NR	NR	NR	NR	NR	33	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	18	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	-	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	NR	NR	NR	NR	-	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	0.38	NR
Total Sulfide (Iodometric)	1	NR	NR	NR	NR	NR	2.5	NR
Filterable Residue	10	NR	NR	NR	NR	NR	310	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	-	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	-	NR
Total Organic Carbon	1	3.7	4.5	20	2.1	1.9	NR	1.7
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	-	01SB004XXX02XX
HERBICIDES	MDL							
2,4-D	0.2	NR	NR	NR	NR	NR	-	NR
Silvex	0.02	NR	NR	NR	NR	NR	-	NR
Laboratory Method Blank		-	-	-	-	-	VBLK01	-
Associated Equipment Blank		-	-	-	-	-	SB-4	-
Associated Trip Blank		-	-	-	-	-	TB-6	-

NR = Not Requested, ** = Confluent growth without coliform

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08GW801XXX03XX	08GW802XXX01XX	08GW802XXX02XX	08GW802XXX02DX	08GW803XXX01XX	08GW803XXX02XX	08GW803XXX03XX
	DATE SAMPLED:	04/14/89	9/13/88	12/12/88	12/12/88	9/14/88	12/15/88	04/14/89
ANALYTES	PQL							
Bicarbonate	1	NR	NR	120	88	NR	56	NR
Carbonate	1	NR	NR	-	-	NR	-	NR
Chloride	2	NR	3.5	NR	NR	7.9	NR	NR
Sulfate	1	NR	10	NR	NR	5.9	NR	NR
Phosphorus (total)	0.05	NR	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	NR
Total Coliform	1/100 mL	NR	-	NR	NR	3	NR	NR
Coliform Bacteria	4	NR	10	NR	NR	5.9	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	0.057	NR	NR	-	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	-	NR	NR	-	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	0.26	NR	NR	-	NR	NR
Total Sulfide (Iodometric)	1	NR	-	NR	NR	-	NR	NR
Filterable Residue	10	NR	170	NR	NR	210	NR	NR
Total Recoverable Phenolics	5	NR	5	NR	NR	-	NR	NR
Methylene Blue Active Substances	0.04	NR	-	NR	NR	-	NR	NR
Total Organic Carbon	1	NR	NR	1.6	1.2	NR	1	NR
Associated Equipment Blank		-	-	01SB004XXX02XX	01SB004XXX02XX	-	01SB004XXX02XX	-
HERBICIDES	MDL							
2,4-D	0.2	NR	-	NR	NR	-	NR	NR
Silvex	0.02	NR	-	NR	NR	-	NR	NR
Laboratory Method Blank		-	HBLK02	-	-	VBLK01	-	-
Associated Equipment Blank		-	01SB004XXX01XX	-	-	SB-4	-	-
Associated Trip Blank		-	01TB004XXX01XX	-	-	TB-6	-	-

NR = Not Requested, ** = Confluent growth without coliform

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	PQL	SAMPLE ID: 08GW803XXX02DX DATE SAMPLED: 12/15/88	08GW804XXX01XX 9/12/88	08GW804XXX02XX 12/15/88	08GW804XXX03XX 04/14/89	08GW804XXX01DX 9/12/88	08GW804XXX02DX 12/15/88	08GW807XXX01XX 9/12/88
Bicarbonate	1	57	NR	140	NR	NR	120	NR
Carbonate	1	-	NR	-	NR	NR	-	NR
Chloride	2	NR	32	NR	NR	37	NR	140
Sulfate	1	NR	4.7	NR	NR	5.7	NR	12
Phosphorus (total)	0.05	NR	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	NR
Total Coliform	1/100 mL	NR	-	NR	NR	-	NR	TNC
Coliform Bacteria	4	NR	4.7	NR	NR	5.7	NR	12
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	-	NR	NR	-	NR	0.6
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	-	NR	NR	-	NR	-
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	-	NR	NR	-	NR	-
Total Sulfide (Iodometric)	1	NR	1.3	NR	NR	-	NR	-
Filterable Residue	10	NR	260	NR	NR	330	NR	270
Total Recoverable Phenolics	5	NR	-	NR	NR	-	NR	-
Methylene Blue Active Substances	0.04	NR	-	NR	NR	-	NR	-
Total Organic Carbon	1	1.1	NR	2.6	NR	NR	3	NR
Associated Equipment Blank		01SB004XXX02XX	-	01SB004XXX02XX	-	-	01SB004XXX02XX	-

HERBICIDES	MDL							
2,4-D	0.2	NR	-	NR	NR	-	NR	-
Silvex	0.02	NR	-	NR	NR	-	NR	-
Laboratory Method Blank		-	HBLK01	-	-	HBLK01	-	HBLK01
Associated Equipment Blank		-	01SB004XXX01XX	-	-	01SB004XXX01XX	-	01SB004XXX01XX
Associated Trip Blank		-	01TB004XXX01XX	-	-	01TB004XXX01XX	-	01TB004XXX01XX

NR = Not Requested, ** = Confluent growth without coliform

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTES	PQL	SAMPLE ID: 08GW807XXX02XX DATE SAMPLED: 12/12/88	08GW807XXX03XX 04/14/89	08GW807XXX01DX 9/12/88	08GW808XXX01XX 9/13/88	08GW808XXX01DX 9/13/88	08GW808XXX02XX 12/15/88	BSMW810XXX04XX 10/09/89
Bicarbonate	1	14	NR	NR	NR	NR	31	-
Carbonate	1	-	NR	NR	NR	NR	-	120
Chloride	2	NR	NR	140	6.7	6.3	NR	62
Sulfate	1	NR	NR	12	8.6	8.6	NR	-
Phosphorus (total)	0.05	NR	NR	NR	NR	NR	NR	-
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	32
Total Coliform	1/100 mL	NR	NR	TNC	-	-	NR	**
Coliform Bacteria	4	NR	NR	12	8.6	8.6	NR	-
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	5.2
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	-
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	-
Nitrate + Nitrite, AS N	0.05	NR	NR	0.39	1.3	1.2	NR	-
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	300
Hexavalent Chromium	0.005	NR	NR	-	-	-	NR	-
Surfactants	0.025	NR	NR	NR	NR	NR	NR	-
Fluoride	0.2	NR	NR	-	-	-	NR	-
Total Sulfide (Iodometric)	1	NR	NR	2.5	-	-	NR	-
Filterable Residue	10	NR	NR	290	110	140	NR	NR
Total Recoverable Phenolics	5	NR	NR	-	11	11	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	-	-	-	NR	NR
Total Organic Carbon	1	2.2	NR	NR	NR	NR	6.5	NR
Associated Equipment Blank		01SB004XXX02XX	-	-	-	-	01SB004XXX02XX	BSQSXX1XXX04XX

HERBICIDES	MDL							
2,4-D	0.2	NR	NR	-	-	-	NR	NR
Silvex	0.02	NR	NR	-	-	-	NR	NR
Laboratory Method Blank		-	-	HBLK01	HBLK02	HBLK02	-	-
Associated Equipment Blank		-	-	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	-	-
Associated Trip Blank		-	-	01TB004XXX01XX	01TB004XXX01XX	01TB004XXX01XX	-	-

NR = Not Requested, ** = Confluent growth without coliform

BRGW-CMS

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW811XXX04XX	09GW901XXX02XX	09GW902XXX02XX	09GW903XXX02XX	09GW904XXX02XX	BSMW904XXX04XX	09GW905XXX02XX
	DATE SAMPLED:	10/09/89	12/07/88	12/07/88	12/19/88	12/07/88	10/09/89	12/19/88
ANALYTES	PQL							
Bicarbonate	1	-	39	12	38	76	NR	200
Carbonate	1	270	-	-	-	-	NR	-
Chloride	2	69	NR	NR	NR	NR	NR	NR
Sulfate	1	12	NR	NR	NR	NR	NR	NR
Phosphorus (total)	0.05	-	NR	NR	NR	NR	-	NR
Chemical Oxygen Demand	5	52	NR	NR	NR	NR	-	NR
Total Coliform	1/100 mL	24	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	15	NR	NR	NR	NR	5.4	NR
Total Kjeldahl Nitrogen	1	6.2	NR	NR	NR	NR	-	NR
Nitrate	0.04	1.5	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	10	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	0.953	NR	NR	NR	NR	NR	NR
Surfactants	0.025	0.046	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	NR	NR
Total Sulfide (Iodometric)	1	1.1	NR	NR	NR	NR	NR	NR
Filterable Residue	10	NR	NR	NR	NR	NR	NR	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	NR	NR
Total Organic Carbon	1	NR	2.6	2.8	1.6	2.3	NR	9.2
Associated Equipment Blank		BSQSXX2XXX04XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	BSQSXX1XXX04XX	01SB004XXX02XX
HERBICIDES	MDL							
2,4-D	0.2	NR	NR	NR	NR	NR	NR	NR
Silvex	0.02	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		-	-	-	-	-	-	-
Associated Equipment Blank		-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-

NR = Not Requested, ** = Confluent growth without coliform

BRGW-CMS

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Combined Summary Table for
Statistical Analysis

SAMPLE ID:	BSMW906XXX04XX	BSMW907XXX04XX	BSMW908XXX04XX	BSMW908XXX04XD	BSMW1101XX04XX	BSMW1102XX04XX	BSMW1103XX04XX
DATE SAMPLED:	10/09/89	10/03/89	10/09/89	10/09/89	10/03/89	10/03/89	10/03/89
ANALYTES	PQL						
Bicarbonate	1	-	-	-	-	-	-
Carbonate	1	76	87	36	38	13	32	19
Chloride	2	NR	NR	NR	NR	NR	NR	NR
Sulfate	1	NR	NR	NR	NR	NR	NR	NR
Phosphorus (total)	0.05	NR	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	NR
Total Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	NR	NR
Total Sulfide (Iodometric)	1	NR	NR	NR	NR	NR	NR	NR
Filterable Residue	10	NR	NR	NR	NR	NR	NR	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	NR	NR
Total Organic Carbon	1	NR	NR	NR	NR	NR	NR	NR
Associated Equipment Blank		-	-	-	-	-	-	-
HERBICIDES	MDL							
2,4-D	0.2	NR	NR	NR	NR	NR	NR	NR
Silvex	0.02	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		-	-	-	-	-	-	-
Associated Equipment Blank		-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-

NR = Not Requested, ** = Confluent growth without coliform

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Combined Summary Table for Statistical Analysis

ANALYTES	PQL	SAMPLE ID: BSMW1104XX04XX DATE SAMPLED: 10/09/89	BSMW1301XX04XX 10/10/89	BSMW1302XX04XX 10/09/89	BSMW1303XX04XX 10/09/89	BSMW1303XX04XD 10/09/89	BSMWGZA1XX04XX 10/10/89	BSMWGZA3XX04XX 10/10/89
Bicarbonate	1	-	-	-	-	-	-	-
Carbonate	1	33	73	5.7	61	32	2.8	7.7
Chloride	2	NR	NR	NR	NR	NR	NR	NR
Sulfate	1	NR	NR	NR	NR	NR	NR	NR
Phosphorus (total)	0.05	-	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	-	NR	NR	NR	NR	NR	NR
Total Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	5.7	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	-	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR
Coliform	1/100 mL	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR
Nitrate + Nitrite, AS N	0.05	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.005	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.2	NR	NR	NR	NR	NR	NR	NR
Total Sulfide (Iodometric)	1	NR	NR	NR	NR	NR	NR	NR
Filterable Residue	10	NR	NR	NR	NR	NR	NR	NR
Total Recoverable Phenolics	5	NR	NR	NR	NR	NR	NR	NR
Methylene Blue Active Substances	0.04	NR	NR	NR	NR	NR	NR	NR
Total Organic Carbon	1	NR	NR	NR	NR	NR	NR	NR
Associated Equipment Blank		BSQSXX1XXX04XX	-	-	-	-	-	-
HERBICIDES	MDL							
2,4-D	0.2	NR	NR	NR	NR	NR	NR	NR
Silvex	0.02	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		-	-	-	-	-	-	-
Associated Equipment Blank		-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-

NR = Not Requested, ** = Confluent growth without coliform

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Combined Summary Table for Statistical Analysis

SAMPLE ID:	01GW101XXX01XX	01GW101XXX02XX	01GW101XXX03XX	02GW102AXX01XX	02GW102XXX02XX	02GW102XXX03XX	03GW103XXX01XX	03GW103XXX02XX
LAB NUMBER:	8260-012	235997	256476	8253-009	236000	255984	8256-010	235711
DATE SAMPLED:	9/15/88	12/14/88	04/13/89	9/8/88	12/14/88	04/11/89	9/9/88	12/13/88
ANALYTE / CRDL								
Aluminum 200	-	-	-	-	-	-	-	435 JB
Antimony 60	-	-	-	-	-	-	-	-
Arsenic 10	-	-	10.6 J	16 J	-	-	-	-
Barium 200	-	-	-	-	-	-	-	-
Beryllium 5	-	-	-	-	-	-	-	-
Cadmium 5	-	-	-	-	-	-	-	-
Calcium 5000	6700 J	5440	5440	18000	19600	17700	-	5300
Chromium 10	-	-	-	-	-	-	-	-
Cobalt 50	-	-	-	-	-	-	-	-
Copper 25	-	-	-	-	-	-	-	-
Iron 1000	-	-	-	6500	11800	17600	-	-
Lead 5	-	-	-	-	-	-	-	180
Magnesium 5000	-	-	-	11000	10300	9180	-	-
Manganese 15	46 J	34	36.0	1400	2210	2250	37	33
Mercury 0.20	-	-	-	-	-	-	-	-
Nickel 40	-	-	-	-	-	-	-	-
Potassium 5000	-	-	-	5500	-	-	-	-
Selenium 5	- R	R	R	R	R	R	R	R
Silver 10	-	-	-	-	-	-	-	-
Sodium 5000	12000 J	14600	14600	87000	53000	54400	-	-
Thallium 10	-	-	- R	-	-	-	-	-
Vanadium 50	-	-	-	-	-	-	-	-
Zinc 20	-	21	-	-	21	22.0	-	82 JB
Total Cyanide 100	-	-	-	-	34	-	-	-
Boron 60*	NR	NR	NR	NR	NR	NR	NR	NR

Laboratory Method Blank	WATER5	15784W	16534D	H203	15784W	16534C	H204	15751A
Associated Equipment Blank	-	-	-	-	-	-	-	01SB004XXX02XX
Associated Field Blank	01FB001XXX01XX	01FB001XXX02XX	-	01FB001XXX01XX	01FB001XXX02XX	-	01FB001XXX01XX	01FB001XXX02XX

NA = Not Analyzed, NR = Not Requested, * = Reporting Limit (not a CRDL)

BRGW-C1S

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 03GW104XXX01XX LAB NUMBER: 8256-012 DATE SAMPLED: 9/9/88	03GW104XXX02XX 234677 12/08/88	01GW105AXX01XX 8253-005 9/8/88	01GW105AXX02XX 234640 12/08/88	01GW105AXX03XX 256274 04/12/89	01GW105BXX01XX 8253-004 9/8/88	01GW105BXX02XX 234645 12/08/88	01GW105BXX03XX 256276 04/12/89
Aluminum	200	-	-	-	-	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	5.5	-	-	-	-
Calcium	5000	-	-	-	-	-	-	-	-
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	-	-	-	-	-	-	-	-
Lead	5	-	-	-	-	-	-	-	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	32	24	-	-	-	15	-	-
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	R	R	R	R	R	R	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	15000	13700	-	-	6000	-	-	-
Thallium	10	R	-	-	-	-	R	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	34	-	-	-	-	-	-	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		H205	15784E	H203	15784B	16534D	H203	15784E	16534D
Associated Equipment Blank		-	-	-	-	-	-	-	-
Associated Field Blank		01FB001XXX01XX	01FB001XXX02XX	01FB001XXX01XX	01FB001XXX02XX	01BF001XXX03XX	01FB001XXX01XX	01FB001XXX02XX	01BF001XXX03XX

NA = Not Analyzed, NR = Not Requested, * = Reporting Limit (not a CRDL)

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 01GW106XXX01XX LAB NUMBER: 8256-007 DATE SAMPLED: 9/9/88	01GW106XXX02XX 233790 12/06/88	01GW106XXX03XX 256282 04/12/89	BSMW106XXX04XX 292458 10/04/89	01GW201XXX01XX 8253-006 9/8/88	01GW201XXX02XX 233791 12/06/88	01GW202AXX01XX 8252-004 9/7/88	03GW202AXX02XX 235712 12/13/88
Aluminum	200	-	-	-	-	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	12 J	11
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	13	-
Calcium	5000	6900	7300	5500	-	-	9640	27000	24400
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	-	-	-	-	-	-	110000	94900
Lead	5	-	-	-	-	-	-	-	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	-	-	-	-	-	18	3500	3410
Mercury	0.20	-	-	-	-	-	-	0.22 J	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	R	R	R	-	R	R	R	R
Silver	10	-	615	-	-	-	-	-	-
Sodium	5000	9200	7780	7660	-	5800	12200	25000	18600
Thallium	10	-	-	-	-	-	-	R	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	-	-	62 JB	32	56 JB
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		H204	15774A	16534D	BR17603UW	H203	15774A	H201	15751A
Associated Equipment Blank		-	-	-	-	-	-	-	01SB004XXX02XX
Associated Field Blank		01FB001XXX01XX	01FB001XXX02XX	01BF001XXX03XX	-	01FB001XXX01XX	01FB001XXX02XX	01FBXX1XX01XX	01FB001XXX02XX

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Combined Summary Table for Statistical Analysis

	SAMPLE ID:	03GW202AXX03XX	BSMW202AXX04XX	03GW202AXX02DX	01GW203XXX01XX	01GW203XXX02XX	BSMW203XXX04XX	01GW204XXX01XX	01GW204XXX02XX
	LAB NUMBER:	255975	293353	235713	8252-005	233822	294132	8252-006	233824
	DATE SAMPLED:	04/11/89	10/06/89	12/13/88	9/7/88	12/06/88	10/10/89	9/7/88	12/06/88
ANALYTE	CRDL								
Aluminum	200	-	-	-	-	-	-	-	2810
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	17.0 J	28	12	29	21	15.8	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	27800	22400	24700	28000	25100	18900	6400	6090
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	104000	80300	97000	14000	12100	7870 J	-	4330
Lead	5	-	-	-	-	-	15.6	-	-
Magnesium	5000	-	-	-	8700	6350	5790 J	-	-
Manganese	15	3550	3510	3500	1800	1760	1230	21	355
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	R	-	R	R	R	R	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	22800	26600	19600	16000	14200	9950	-	-
Thallium	10	-	-	-	R	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	58.5	-	60 JB	31	-	35.1	37	277
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		16534C	BR17603UW	15751A	H201	15774A	BR17603W	H201	15774A
Associated Equipment Blank		-	BSQSXX1XXX04XX	01SB004XXX02XX	-	-	BSQSXX1XXX04XX	-	-
Associated Field Blank		-	-	01FB001XXX02XX	01FBXX1XX01XX	01FB001XXX02XX	-	01FBXX1XX01XX	01FB001XXX02XX

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BRGW-CIS

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PROJECT: Naval Air Station Brunswick

Inorganic Aqueous Analysis (ug/L)

08-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01GW205XXX01XX	01GW205XXX02XX	01GW205XXX03XX	BSMW205XXX04XX	BSMW205XXX04XD	01GW206AXX01XX	01GW206AXX02XX	01GW206AXX01DX
	LAB NUMBER:	8252-007	234923	255748	294125	294131	8252-008	234943	8252-009
	DATE SAMPLED:	9/7/88	12/09/88	04/10/89	10/10/89	10/10/89	9/7/88	12/09/88	9/7/88
ANALYTE	CRDL								
Aluminum	200	-	-	-	-	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	14000	13700	14500	16900	17600	11000	11800	11000
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	-	111	-	454 J	-	-	-	-
Lead	5	-	-	-	-	-	-	-	-
Magnesium	5000	6800	6140 J	5460	6240 J	6460 J	-	-	-
Manganese	15	410	675	276	647	682	68	37	66
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	15000	-	-	-	-	-
Selenium	5	R	R	R	R	R	R	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	9000	8680	14900	-	-	8000	7560	8300
Thallium	10	R	-	-	-	-	R	-	R
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	32	-	-	-	-	-	-	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		H201	15784E	16534C	BR17603W	BR17603W	H201	15784E	H201
Associated Equipment Blank		-	-	-	BSQSXX1XXX04XX	BSQSXX1XXX04XX	-	-	-
Associated Field Blank		01FBXX1XX01XX	01FB001XXX02XX	-	-	-	01FBXX1XX01XX	01FB001XXX02XX	01FBXX1XX01XX

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BRGW-CIS

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 01GW206BXX01XX LAB NUMBER: 8252-010 DATE SAMPLED: 9/7/88	01GW206BXX02XX 234944 12/09/88	01GW206BXX03XX 255757 04/10/89	01GW207AXX01XX 8260-023 9/15/88	01GW207AXX02XX 235994 12/14/88	01GW207BXX01XX 8260-024 9/15/88	01GW207BXX02XX 235992 12/14/88	01GW207BXX03XX 256472 04/13/89
Aluminum	200	-	-	-	-	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	-	-	-	6400 J	6230	-	-	-
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	-	-	118	190 JB	214	-	129	203
Lead	5	-	-	-	-	-	-	-	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	-	-	-	67 J	67	65 J	51	54.6
Mercury	0.20	-	0.25	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	R	R	R	-	R	-	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	8500	9250	12900	30000 J	26300	-	-	6040
Thallium	10	R	-	-	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	52.2	-	-	-	22	-
Total Cyanide	100	-	-	-	-	-	-	14	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		H201	15784E	16534C	WATER5	15784W	WATER5	15784W	16534D
Associated Equipment Blank		-	-	-	-	-	-	-	-
Associated Field Blank		01FBXX1XX01XX	01FB001XXX02XX	-	01FB001XXX01XX	01FB001XXX02XX	01FB001XXX01XX	01FB001XXX02XX	-

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Combined Summary Table for Statistical Analysis

SAMPLE ID:	01GW208XXX01XX	01GW208XXX02XX	01GW208XXX03XX	01GW209XXX01XX	01GW209XXX02XX	01GW210AXX01XX	01GW210AXX02XX	01GW210AXX03XX
LAB NUMBER:	B256-006	234956	255759	B256-008	234965	B252-011	234946	255979
DATE SAMPLED:	9/9/88	12/09/88	04/10/89	9/9/88	12/09/88	9/7/88	12/09/88	04/11/89
ANALYTE / CRDL								
Aluminum 200	310	255	-	-	-	-	-	-
Antimony 60	-	-	-	-	-	-	-	-
Arsenic 10	-	-	-	-	-	-	-	15.3 J
Barium 200	-	-	-	-	-	-	-	-
Beryllium 5	-	-	-	-	-	-	-	-
Cadmium 5	-	-	-	-	6.2	-	-	-
Calcium 5000	9400	7910	8740	-	-	5800	5870	5330
Chromium 10	-	-	-	-	-	-	-	-
Cobalt 50	-	-	-	-	-	-	-	-
Copper 25	-	-	-	-	-	-	-	-
Iron 1000	-	276	-	-	-	-	-	206
Lead 5	-	-	-	-	-	-	-	-
Magnesium 5000	-	-	-	-	-	-	-	-
Manganese 15	91	90	116	-	-	18	-	
Mercury 0.20	-	-	-	-	-	-	-	-
Nickel 40	-	-	-	-	-	-	-	-
Potassium 5000	-	-	-	-	-	24000	18500	9910
Selenium 5	R	R	R	R	R	R	R	R
Silver 10	-	-	-	-	-	-	-	-
Sodium 5000	15000	16900	15600	-	-	440000	398000	391000
Thallium 10	-	-	-	R	-	R	-	-
Vanadium 50	-	-	-	-	-	-	-	-
Zinc 20	-	-	-	-	-	21	-	-
Total Cyanide 100	-	-	-	-	-	-	-	-
Boron 60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank	H204	15784E	16534C	H204	15784E	H201	15784E	16534C
Associated Equipment Blank	-	-	-	-	-	-	-	-
Associated Field Blank	01FB001XXX01XX	01FB001XXX02XX	-	01FB001XXX01XX	01FB001XXX02XX	01FBXX1XX01XX	01FB001XXX02XX	-

NA = Not Analyzed, NR = Not Requested, * = Reporting Limit (not a CRDL)

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Combined Summary Table for Statistical Analysis

	SAMPLE ID:	01GW210AXX02DX	01GW210BXX01XX	01GW210BXX02XX	01GW210BXX03XX	01GW211AXX01XX	01GW211AXX02XX	01GW211AXX03XX	01GW211AXX03XD
	LAB NUMBER:	234948	8252-012	235687	255982	8253-007	235714	256264	256270
	DATE SAMPLED:	12/09/88	9/7/88	12/13/88	04/11/89	9/8/88	12/13/88	04/12/89	04/12/89
ANALYTE	CRDL								
Aluminum	200	-	-	-	-	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	11	28 J	-	45.0 J	22 J	13	14.2 J	11.4 J
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	5890	24000	34100	28700	-	-	-	-
Chromium	10	-	-	-	-	11	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	-	25000	36900	25100	-	-	-	-
Lead	5	-	-	-	-	-	-	-	-
Magnesium	5000	-	6200	7910	6870	-	-	5150	5110
Manganese	15	-	4300	5400	4740	-	-	15.1	-
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	21700	-	-	-	90000	14200	15100	14400
Selenium	5	R	-	R	R	R	R	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	403000	12000	10800	14300	540000	436000	465000	461000
Thallium	10	-	R	-	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	20.5	-	-	-	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		15784E	H202	15751A	16534C	H203	15751A	16534D	16534D
Associated Equipment Blank		-	-	01SB004XXX02XX	-	-	01SB004XXX02XX	-	-
Associated Field Blank		01FB001XXX02XX	01FBXX1XX01XX	01FB001XXX02XX	-	01FB001XXX01XX	01FB001XXX02XX	01BF001XXX03XX	01BF001XXX03XX

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BRGW-CIS

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Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	01GW211BXX01XX	01GW211BXX02XX	02GW212XXX01XX	02GW212XXX02XX	02GW213XXX01XX	02GW213XXX02XX	02GW213XXX03XX	02GW213XXX03XD
	LAB NUMBER:	8253-008	235715	8256-009	235691	8256-011	235718	256277	256279
	DATE SAMPLED:	9/8/88	12/13/88	9/9/88	12/13/88	9/9/88	12/13/88	04/12/89	04/12/89
ANALYTE	CRDL								
Aluminum	200	-	-	5200	893	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	12 J	13	14.6 J	15.7 J
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	18000	18500	7800	5200	12000	11000	11300	10800
Chromium	10	-	-	12	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	-	-	6100	1390	14000	10100	9960	9640
Lead	5	-	-	-	60	-	-	-	-
Magnesium	5000	8300	7790	-	-	7000	6000	6630	6440
Manganese	15	570	522	180	178	470	380	408	382
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	R	R	R	R	R	R	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	15000	6790	-	-	26000	32700	41600	39800
Thallium	10	-	-	R	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	33	-	-	23	-	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		H203	15751A	H204	15751A	H205	15784W	16534D	16534D
Associated Equipment Blank		-	01SB004XXX02XX	-	01SB004XXX02XX	-	-	-	-
Associated Field Blank		01FB001XXX01XX	01FB001XXX02XX	01FB001XXX01XX	01FB001XXX02XX	01FB001XXX01XX	01FB001XXX02XX	01BF001XXX03XX	01BF001XXX03XX

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BRGW-C1S

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Combined Summary Table for Statistical Analysis

	SAMPLE ID:	BSMW214XXX04XX	BSMW215XXX04XX	BSMW216AXX04XX	BSMW216BXX04XX	BSMW217AXX04XX	BSMW217BXX04XX	BSMW217BXX04XD	BSMW218XXX04XX
	LAB NUMBER:	292442	292451	292455	294542	294537	294538	294539	294541
	DATE SAMPLED:	10/04/89	10/04/89	10/04/89	10/11/89	10/11/89	10/11/89	10/11/89	10/11/89
ANALYTE	CRDL								
Aluminum	200	-	-	-	792 J	2770 J	-	-	2750 J
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	18.2	23.8	107
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	11800	15600	20600	40900	39900	85100	69500	41900
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	153	8240	223	1120 J	4670 J	103000 J	132000 J	4180 J
Lead	5	3.5	-	3.1	-	9.2	-	-	11.8
Magnesium	5000	-	-	6250	11100 J	19000 J	22100 J	16800 J	21800 J
Manganese	15	711	1260	709	4710	492	4170	3560	1580
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	12300	-
Selenium	5	-	-	-	R	R	R	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	20600	20200	-	22400	17000	34900	26600	103000
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	110	44.1	44	-	85
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		BR17603UW	BR17603UW	BR17603UW	BR17603W	BR17603W	BR17603W	BR17603W	BR17603W
Associated Equipment Blank		-	-	-	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX
Associated Field Blank		-	-	-	-	-	-	-	-

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PROJECT: Naval Air Station Brunswick

Inorganic Aqueous Analysis (ug/L)

08-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW219XXX04XX	BSMW220XXX04XX	BSMW222XXX04XX	BSMW223XXX04XX	BSMW224XXX04XX	BSMW225AXX04XX	BSMW225BXX04XX	BSMW229AXX04XX
	LAB NUMBER:	294129	292986	292988	292989	292457	293006	293003	293350
	DATE SAMPLED:	10/10/89	10/05/89	10/05/89	10/05/89	10/04/89	10/05/89	10/05/89	10/06/89
ANALYTE	CRDL								
Aluminum	200	-	-	-	-	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	8870	13200	5460	5490	6000	13400	-	7500
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	-	-	-	-	-	-	-	-
Lead	5	-	-	-	-	-	-	-	-
Magnesium	5000	-	5560	-	-	-	5490	-	-
Manganese	15	37.9	215	-	117	111	52.1	-	-
Mercury	0.20	-	-	-	-	-	-	0.2	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	R	R	R	R	-	R	R	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	10500	20400	-	-	-	12100	6360	-
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	-	-	-	-	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		BR17603W	17603Z	17603Z	17603Z	BR17603UW	BR17603RW	BR17603RW	BR17603UW
Associated Equipment Blank		BSQSXX1XXX04XX	-	-	-	-	-	-	-
Associated Field Blank		-	-	-	-	-	-	-	-

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BRGW-C1

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Combined Summary Table for
Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: BSMW229BXX04XX LAB NUMBER: 292991 DATE SAMPLED: 10/05/89	SAMPLE ID: BSMW229BXX04XX LAB NUMBER: 292991 DATE SAMPLED: 10/05/89	SAMPLE ID: BSMW230AXX04XX LAB NUMBER: 293351 DATE SAMPLED: 10/06/89	SAMPLE ID: BSMW230BXX04XX LAB NUMBER: 293352 DATE SAMPLED: 10/06/89	SAMPLE ID: BSMW231AXX04XX LAB NUMBER: 294550 DATE SAMPLED: 10/11/89	SAMPLE ID: BSMW231BXX04XX LAB NUMBER: 294545 DATE SAMPLED: 10/11/89	SAMPLE ID: BSMW231BXX04XD LAB NUMBER: 294546 DATE SAMPLED: 10/11/89	SAMPLE ID: BSMW232AXX04XX LAB NUMBER: 294127 DATE SAMPLED: 10/10/89
Aluminum	200	58000	58000	-	-	-	416 J	287 J	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	226	226	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	5.2	5.2	-	-	-	-	-	-
Calcium	5000	11800	11800	-	6990	-	5930	5980	34700
Chromium	10	112	112	-	-	-	-	-	-
Cobalt	50	68.3	68.3	-	-	-	-	-	-
Copper	25	81.6	81.6	-	-	-	130	-	-
Iron	1000	91000	91000	589	-	529 J	789 J	431 J	-
Lead	5	29.6	29.6	-	-	-	-	-	-
Magnesium	5000	27200	27200	-	-	-	-	-	16100 J
Manganese	15	1620	1620	280	167	-	-	-	244
Mercury	0.20	0.22	0.22	-	-	-	-	-	-
Nickel	40	117	117	-	-	-	-	-	-
Potassium	5000	18300 J	18300 J	-	-	-	-	-	-
Selenium	5	R	R	-	-	R	R	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	15300	15300	-	20900	7290	9720	9940	14300
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	160	160	-	-	-	-	-	-
Zinc	20	469	469	-	-	44.4	363	-	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		BR17603RW	BR17603RW	BR17603UW	BR17603UW	BR17603W	BR17603W	BR17603W	BR17603W
Associated Equipment Blank		-	-	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX
Associated Field Blank		-	-	-	-	-	-	-	-

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: BSMW232BXX04XX LAB NUMBER: 294540 DATE SAMPLED: 10/11/89	SAMPLE ID: BSMW233XXX04XX LAB NUMBER: 294544 DATE SAMPLED: 10/11/89	SAMPLE ID: BSMW234XXX04XX LAB NUMBER: 294543 DATE SAMPLED: 10/11/89	SAMPLE ID: 04GW401XXX01XX LAB NUMBER: 8257-007 DATE SAMPLED: 9/12/88	SAMPLE ID: 04GW401XXX02XX LAB NUMBER: 234287 DATE SAMPLED: 12/07/88	SAMPLE ID: BSMW401XXX04XX LAB NUMBER: 291919 DATE SAMPLED: 10/03/89	SAMPLE ID: 04GW402XXX01XX LAB NUMBER: 8253-010 DATE SAMPLED: 9/8/88	SAMPLE ID: 04GW402XXX02XX LAB NUMBER: 234288 DATE SAMPLED: 12/07/88
Aluminum	200	1770	550000	1690 J	-	-	-	-	-
Antimony	60	-	177	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	1840	327	-	-	-	-	-
Beryllium	5	-	33	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	51000	113000	43500	-	-	-	-	-
Chromium	10	-	1040	-	-	-	-	-	-
Cobalt	50	-	652	60	-	-	-	-	-
Copper	25	-	984	-	-	-	-	-	-
Iron	1000	181000	962000	286000 J	-	160	432	-	-
Lead	5	-	203	9.1	-	-	-	-	-
Magnesium	5000	6240	320000	-	-	-	-	-	-
Manganese	15	1400	24900	2130	240	280	114	21	24
Mercury	0.20	-	1	-	-	-	-	-	-
Nickel	40	-	1100	77.8	-	-	-	-	-
Potassium	5000	-	196000 J	-	-	-	-	-	-
Selenium	5	R	R	R	R	R	R	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	5740	146000	7050	-	-	-	-	-
Thallium	10	-	-	-	R	-	-	R	-
Vanadium	50	52.2	1590	79.7	-	-	-	-	-
Zinc	20	51.5	2500	297	-	-	-	-	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		BR17603RW	BR17603RW	BR17603W	H205	15784B	17603Z	H203	15784B
Associated Equipment Blank		BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	-	-	-	-	-
Associated Field Blank		-	-	-	01FB001XXX01XX	01FB001XXX02XX	-	01FB001XXX01XX	01FB001XXX02XX

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: BSMW402XXX04XX LAB NUMBER: 291920 DATE SAMPLED: 10/03/89	04GW403XXX01XX 8258-010 9/13/88	04GW403XXX02XX 234289 12/07/88	04GW403XXX03XX 256284 04/12/89	BSMW403XXX04XX 291929 10/03/89	BSMW403XXX04XD 291922 10/03/89	04GW403XXX01DX 8258-011 9/13/88	04GW404XXX01XX 8260-019 9/15/88
Aluminum	200	-	-	-	-	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	-	-	-	-	-	-	-	-
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	287	-	-	-	-	-	-	-
Lead	5	-	13 J	-	-	-	7.5	13 J	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	-	-	-	-	-	-	-	25 J
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	R	-	R	R	R	R	-	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	-	-	-	-	-	-	-	-
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	27	-	-	-	-	-	-
Total Cyanide	100	-	-	-	-	NR	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		176032	WATER1	15784B	16534D	176032	176032	WATER2	WATER5
Associated Equipment Blank		-	-	-	-	-	-	-	-
Associated Field Blank		-	01FB001XXX01XX	01FB001XXX02XX	01BF001XXX03XX	-	-	01FB001XXX01XX	01FB001XXX01XX

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Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	04GW404XXX02XX	BSMW404XXX04XX	04GW405XXX01XX	04GW405XXX02XX	04GW405XXX03XX	BSMW405XXX04XX	04GW406XXX01XX	04GW406XXX02XX
	LAB NUMBER:	234291	291921	8260-020	234292	256469	291923	8260-022	234293
	DATE SAMPLED:	12/07/88	10/03/89	9/15/88	12/07/88	04/13/89	10/03/89	9/15/88	12/07/88
ANALYTE	CRDL								
Aluminum	200	-	-	-	-	-	-	-	266
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	-	-	-	-	-	5220	6000 J	-
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	-	-	-	-	-	-	-	380
Lead	5	-	-	-	-	-	-	5.8 J	-
Magnesium	5000	-	-	-	-	-	-	21000 J	-
Manganese	15	-	-	21 J	-	-	33.2	120 J	104
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	5010
Selenium	5	R	R	-	R	R	R	-	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	-	-	20000 J	13400	6290	23800	5700 J	-
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	-	-	-	-	195
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		15784B	17603Z	WATER5	15784B	16534D	17603Z	WATER5	15784B
Associated Equipment Blank		-	-	-	-	-	-	-	-
Associated Field Blank		01FB001XXX02XX	-	01FB001XXX01XX	01FB001XXX02XX	-	-	01FB001XXX01XX	01FB001XXX02XX

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BRGW-C1S

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Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: BSMW406XXX04XX LAB NUMBER: 291924 DATE SAMPLED: 10/03/89	04GW407XXX01XX 8260-021 9/15/88	04GW407XXX02XX 234294 12/07/88	04GW407XXX03XX 256477 04/13/89	BSMW407XXX04XX 293712 10/09/89	BSMW408XXX04XX 295192 10/12/89	07GW701XXX01XX 8260-015 9/15/88	07GW701XXX02XX 237388 12/20/88
Aluminum	200	-	160000 J	310	230	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	770 J	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	13	-	-	-	-	-	-
Calcium	5000	-	9300 J	5980	5180	-	-	-	6270
Chromium	10	-	200	-	-	-	-	-	-
Cobalt	50	-	77	-	-	-	-	-	-
Copper	25	-	140	-	-	-	-	-	-
Iron	1000	-	150000 J	449	319	-	-	-	-
Lead	5	-	14 J	-	-	-	-	-	-
Magnesium	5000	-	21000 J	-	-	-	-	-	-
Manganese	15	33.2	2200 J	70	18.0	-	26.4	25 J	26
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	150 J	-	-	-	-	-	-
Potassium	5000	-	46000	6150	-	-	-	-	5520
Selenium	5	R	-	R	R	-	-	-	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	-	14000 J	-	-	-	7890	-	-
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	-	280	-	-	-	-	-	-
Zinc	20	-	320	351	-	-	43.1	-	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		17603Z	WATER5	15784B	16534D	BR17603UW	BR17603T	WATER5	15784K
Associated Equipment Blank		-	-	-	-	BSQSXX1XXX04XX	BSQSXX2XXX04XX	-	01SB004XXX02XX
Associated Field Blank		-	01FB001XXX01XX	01FB001XXX02XX	-	-	-	01FB001XXX01XX	01FB002XXX02XX

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BRGW-C1S

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 07GW701XXX03XX LAB NUMBER: 256478 DATE SAMPLED: 04/13/89	07GW702XXX01XX 8260-016 9/15/88	07GW702XXX02XX 237389 12/20/88	07GW703XXX01XX 8260-013 9/15/88	07GW703XXX02XX 237395 12/20/88	07GW704XXX01XX 8260-014 9/15/88	07GW704XXX02XX 237397 12/20/88	07GW705XXX01XX 8260-018 9/15/88
Aluminum	200	-	-	-	-	-	-	417	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	8	15	-
Calcium	5000	6870	17000 J	16500	-	-	12000 J	10300	-
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	-	230 J	231	-	-	9700 J	6920	-
Lead	5	-	-	-	-	-	-	-	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	38.6	570 J	539	-	-	950 J	574	-
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	8400	6010	-
Selenium	5	R	-	R	-	R	-	R	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	-	-	-	-	-	13000 J	5750	-
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	-	-	-	39	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		16534G	WATER5	15784K	WATER5	15784K	WATER5	15784K	WATER5
Associated Equipment Blank		-	-	01SB004XXX02XX	-	01SB004XXX02XX	-	01SB004XXX02XX	-
Associated Field Blank		-	01FB001XXX01XX	01FB002XXX02XX	01FB001XXX01XX	01FB002XXX02XX	01FB001XXX01XX	01FB002XXX02XX	01FB001XXX01XX

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Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	07GW705XXX02XX	07GW706XXX01XX	07GW706XXX02XX	08GW801XXX01XX	08GW801XXX02XX	08GW801XXX03XX	BSMW801XXX04XX	08GW802XXX01XX
	LAB NUMBER:	237400	8260-017	237401	8259-002	236525	256742	293705	8258-003
	DATE SAMPLED:	12/20/88	9/15/88	12/20/88	9/14/88	12/15/88	04/14/89	10/09/89	9/13/88
ANALYTE	CRDL								
Aluminum	200	-	260 J	-	34000 J	-	652	30400	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	12 J	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	7.8	-	-	-	-	-
Calcium	5000	-	5900 J	5200	9400 J	-	5230	15500	10000 J
Chromium	10	-	-	-	45	-	-	49.7	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	40	-	-	-	-
Iron	1000	-	210 JB	153	30000 J	431	4430	40100	320 JB
Lead	5	-	14 J	-	83 J	-	6.7	117	-
Magnesium	5000	-	-	-	12000 J	-	-	18600	6800 JB
Manganese	15	-	51 J	38	850 J	89	120	1140	140 J
Mercury	0.20	-	-	-	-	-	-	0.62	-
Nickel	40	-	-	-	-	-	-	62.5	-
Potassium	5000	-	-	-	8200	-	-	11900 J	-
Selenium	5	R	-	R	-	R	-	R	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	-	-	-	14000 J	6700	9300	28000	29000 J
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	-	-	-	52	-	-	74.8	-
Zinc	20	-	-	38	290	35	105 J	148	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	87	NR	NR	NR	-
Laboratory Method Blank		15784K	WATER5	15784K	WATER2	15784W	16534E	BR17603RW	WATER1
Associated Equipment Blank		01SB004XXX02XX	-	01SB004XXX02XX	-	-	-	BSQSXX1XXX04XX	-
Associated Field Blank		01FB002XXX02XX	01FB001XXX01XX	01FB002XXX02XX	01FB001XXX01XX	01FB001XXX02XX	-	-	01FB001XXX01XX

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BRGW-C1S

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PROJECT: Naval Air Station Brunswick | Inorganic Aqueous Analysis (ug/L) | 08-Feb-90

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 08GW802XXX02XX LAB NUMBER: 235422 DATE SAMPLED: 12/12/88	BSMW802XXX04XX 292459 10/04/89	08GW802XXX02DX 235424 12/12/88	08GW803XXX01XX 8259-001 9/14/88	08GW803XXX02XX 236526 12/15/88	08GW803XXX03XX 256473 04/14/89	BSMW803XXX04XX 292461 10/04/89	08GW803XXX02DX 236527 12/15/88
Aluminum	200	-	-	-	-	-	928	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	12.6	-
Calcium	5000	10700	11200	10300	11000 J	7740	7110	7250	7510
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	191	404	217	2500 J	2820	2080	1500	2870
Lead	5	-	-	-	-	-	-	-	-
Magnesium	5000	7050 J	7340	6760 J	6000 J	-	5100 J	-	-
Manganese	15	92	152	124	240 J	190	114	164	184
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	R	-	R	-	R	R	-	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	27500	31400	29600	17000 J	10400	9050	-	11100
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	31	26	-	-	-
Total Cyanide	100	-	-	-	-	-	-	-	38
Boron	60*	NR	NR	NR	63	NR	NR	NR	NR
Laboratory Method Blank		15784E	BR17603UW	15784E	WATER2	15784W	16534G	BR17603UW	15784W
Associated Equipment Blank		-	BSQSXX1XXX04XX	-	-	-	-	-	-
Associated Field Blank		01FB001XXX02XX	-	01FB001XXX02XX	01FB001XXX01XX	01FB001XXX02XX	-	-	01FB001XXX02XX

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BRGW-C1

J-346

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Inorganic Aqueous Analysis (ug/L)

08-Feb-90

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	08GW804XXX01XX	08GW804XXX02XX	08GW804XXX03XX	BSMW804XXX04XX	08GW804XXX01DX	08GW804XXX02DX	08GW807XXX01XX	08GW807XXX02XX
	LAB NUMBER:	8257-003	236528	256744	293708	8257-004	236531	8257-001	235428
	DATE SAMPLED:	9/12/88	12/15/88	04/14/89	10/09/89	9/12/88	12/15/88	9/12/88	12/12/88
ANALYTE	CRDL								
Aluminum	200	-	-	-	-	440	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	67000	43700	28600	60800	54000	38400	11000	13400
Chromium	10	-	-	-	23.1	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	-	-	237	-	-	-	-	2970
Lead	5	-	-	-	-	-	-	-	6.2
Magnesium	5000	23000	15100	10500 J	21400	19000	13200	-	5850 J
Manganese	15	56	407	156	1370	1100	357	58	320
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	6800	-	-	-	-	-	-	-
Selenium	5	R	R	R	-	5800 R	- R	-	5850 R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	23000.002	21100	22300	20600	29000	24800	64000	62200
Thallium	10	R	-	-	-	R	-	R	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	-	-	-	-	-
Total Cyanide	100	-	11	24 J	-	-	11	-	47 JB
Boron	60*	-	NR	NR	NR	-	NR	-	NR

Laboratory Method Blank	H205	15784W	16534G	BR17603UW	H205	15784W	H205	15784E
Associated Equipment Blank	-	-	-	BSQSKX1XXX04XX	-	-	-	-
Associated Field Blank	01FB001XXX01XX	01FB001XXX02XX	-	-	01FB001XXX01XX	01FB001XXX02XX	01FB001XXX01XX	01FB001XXX02XX

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BRGW-C1S

J-347

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	08GW807XXX03XX	BSMW807XXX04XX	08GW807XXX01DX	08GW808XXX01XX	08GW808XXX02XX	BSMW808XXX04XX	08GW808XXX01DX	BSMW810XXX04XX
	LAB NUMBER:	256729	291931	8257-002	8258-001	236529	291933	8258-002	293707
	DATE SAMPLED:	04/14/89	10/03/89	9/12/88	9/13/88	12/15/88	10/03/89	9/13/88	10/09/89
ANALYTE	CRDL								
Aluminum	200	-	188000	-	-	-	2720	-	242
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	615	-	-	-	-	-	-
Beryllium	5	-	12.2	-	-	-	-	-	-
Cadmium	5	-	-	-	-	9.4	-	-	-
Calcium	5000	18100	37900	11000	7600 J	6800	7740	7800 J	36400
Chromium	10	-	300	-	-	-	-	-	-
Cobalt	50	-	147	-	-	-	-	-	-
Copper	25	25.4	243	-	-	-	-	-	-
Iron	1000	489	226000	-	-	-	4830	-	25100
Lead	5	-	218	-	-	-	9.4	-	-
Magnesium	5000	7380	66300	-	-	-	5730	-	-
Manganese	15	78.7	3240	76	17 J	-	114	-	1320
Mercury	0.20	-	-	-	-	-	-	-	1.5 J
Nickel	40	-	237	-	-	-	-	-	-
Potassium	5000	-	33300	-	-	-	-	-	-
Selenium	5	-	R	R	-	R	R	-	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	78600	61700	67000	7900 J	5430	-	7900 J	39200
Thallium	10	-	-	R	-	-	-	-	-
Vanadium	50	-	411	-	-	-	-	-	-
Zinc	20	547 J	614	-	-	-	-	-	-
Total Cyanide	100	21.5	-	-	-	-	-	-	-
Boron	60*	NR	NR	-	-	NR	NR	NA	-
Laboratory Method Blank		16534E	17603Z	H205	WATER1	15784W	17603Z	WATER1	-
Associated Equipment Blank		-	-	-	-	-	-	-	BSQSXX1XXX04XX
Associated Field Blank		-	-	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX02XX	-	01FB001XXX01XX	-

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BRGW-C1S

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Inorganic Aqueous Analysis (ug/L)

08-Feb-90

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW811XXX04XX	09GW901XXX01XX	09GW901XXX02XX	BSMW901XXX04XX	09GW902XXX01XX	09GW902XXX02XX	BSMW902XXX04XX	09GW903XXX01XX
	LAB NUMBER:	295184	8259-015	234297	292984	8259-014	234295	291925	8259-016
	DATE SAMPLED:	10/12/89	9/14/88	12/07/88	10/03/89	9/14/88	12/07/88	10/03/89	9/14/88
ANALYTE	CRDL								
Aluminum	200	-	-	-	-	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	69100	-	-	-	29000 J	23200	32800	9700 J
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	22000	-	-	-	-	-	-	-
Lead	5	-	-	-	-	-	-	-	3600 J
Magnesium	5000	16900	-	-	-	-	-	-	-
Manganese	15	4240	190 J	149	433	7000 J 1300 J	5760 J 1200	8550 1130	240 J
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	-	-	R	R	-	R	R	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	50800	40000 J	34700	36000	28000 J	21000	24900	17000 J
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	-	-	-	-	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	66.3	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		BR17603T	WATER4	15784B	17603Z	WATER4	15784B	17603Z	WATER4
Associated Equipment Blank		BSQSXX2XXX04XX	-	-	-	-	-	-	-
Associated Field Blank		-	01FB001XXX01XX	01FB001XXX02XX	-	01FB001XXX01XX	01FB001XXX02XX	-	01FB001XXX01XX

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BRGW-CIS

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09GW903XXX02XX LAB NUMBER: 237149 DATE SAMPLED: 12/19/88	BSMW903XXX04XX 291926 10/03/89	09GW904XXX01XX 8252-003 9/6/88	09GW904XXX02XX 234296 12/07/88	09GW904XXX03XX 257044 04/17/89	BSMW904XXX04XX 293709 10/09/89	09GW905XXX01XX 8252-002 9/6/88	09GW905XXX02XX 237150 12/19/88
Aluminum	200	-	-	-	-	1130	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	33 J	35
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	7140	6650	18000	21100	16800	18400	9800	8020
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	26
Iron	1000	3430	3700	-	-	1950	-	-	233
Lead	5	-	-	-	-	-	-	-	-
Magnesium	5000	-	-	5700	5960 J	5610 J	5730	-	-
Manganese	15	207	223	160	167	123	155	29	39
Mercury	0.20	-	-	0.22 J	0.23	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	5100	-
Selenium	5	R	R	R	R	R	-	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	14000	17800	7500	5410	8040	-	78000	71500
Thallium	10	-	-	R	-	-	-	R	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	-	25.3	-	23	25
Total Cyanide	100	-	-	-	-	-	-	-	26
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		15784W	17603Z	H201	15784B	16534H	BR17603UW	H201	15784W
Associated Equipment Blank		-	-	-	-	-	BSQSXX1XXX04XX	-	-
Associated Field Blank		01FB002XXX02XX	-	01FBXX1XX01XX	01FB001XXX02XX	-	-	01FBXX1XX01XX	01FB002XXX02XX

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BRGW-C1S

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	SAMPLE ID: 09GW905XXX03XX LAB NUMBER: 257043 DATE SAMPLED: 04/17/89	BSMW905XXX04XX 291927 10/03/89	BSMW906XXX04XX 293714 10/09/89	BSMW907XXX04XX 291514 10/02/89	BSMW908XXX04XX 295194 10/12/89	BSMW908XXX04XD 295193 10/12/89	BSMW1101XX04XX 291915 10/03/89	BSMW1102XX04XX 291917 10/03/89
Aluminum	200	1140	-	445 J	-	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	86.0	-	-	-	-	-	-	-
Barium	200	-	1770	-	-	-	-	-	-
Beryllium	5	-	20.8	-	-	-	-	-	-
Cadmium	5	-	-	-	-	-	-	-	-
Calcium	5000	8390	106000	12000	26600	17100	18200	-	7310
Chromium	10	-	1040	-	-	-	-	-	-
Cobalt	50	-	469	-	-	-	-	-	-
Copper	25	-	619	-	-	-	-	-	-
Iron	1000	1190	708000	-	-	-	-	-	14400
Lead	5	-	376	-	-	-	-	-	-
Magnesium	5000	-	249000	-	5570	-	-	-	-
Manganese	15	50.6	14200	336	2500	804	823	75.9	683
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	860	-	-	-	-	-	-
Potassium	5000	-	153000	-	-	-	-	-	-
Selenium	5	R	R	R	R	-	-	R	R
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	71300	82500	38700	16100	9410	10800	-	-
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	-	1270	-	-	-	-	-	-
Zinc	20	24.4	2090	-	-	-	-	-	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank		16534H	17603Z	BR17603W	17603Z	BR17603T	BR17603T	17603Z	17603Z
Associated Equipment Blank		-	-	BSQSXX1XXX04XX	-	BSQSXX2XXX04XX	BSQSXX2XXX04XX	-	-
Associated Field Blank		-	-	-	-	-	-	-	-

NA = Not Analyzed, NR = Not Requested, * = Reporting Limit (not a CRDL)

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	BSMW1103XX04XX	BSMW1104XX04XX	BSMW1301XX04XX	BSMW1302XX04XX	BSMW1303XX04XX	BSMW1303XX04XD	BSMWGOLF1X04XX	BSMWGOLF2X04XX
LAB NUMBER:	291918	293711	294130	293713	293706	293710	295183	295195
DATE SAMPLED:	10/03/89	10/09/89	10/10/89	10/09/89	10/09/89	10/09/89	10/12/89	10/12/89

ANALYTE	CRDL								
Aluminum	200	-	-	328 J	1360	-	-	-	-
Antimony	60	-	-	-	-	-	-	-	-
Arsenic	10	-	-	-	-	-	-	-	-
Barium	200	-	-	-	-	-	-	-	-
Beryllium	5	-	-	-	-	-	-	-	-
Cadmium	5	-	-	-	20.2	-	-	-	-
Calcium	5000	-	8110	16600	19900	11400	11600	-	-
Chromium	10	-	-	-	-	-	-	-	-
Cobalt	50	-	-	-	-	-	-	-	-
Copper	25	-	-	-	-	-	-	-	-
Iron	1000	4960	-	18000 J	-	282	276	-	-
Lead	5	-	-	-	-	27.5	11.1	-	-
Magnesium	5000	-	-	-	-	-	-	-	-
Manganese	15	733	628	720	355	2170	2190	-	-
Mercury	0.20	-	-	-	-	-	-	-	-
Nickel	40	-	-	-	-	-	-	-	-
Potassium	5000	-	-	-	-	-	-	-	-
Selenium	5	R	-	R	-	-	-	R	-
Silver	10	-	-	-	-	-	-	-	-
Sodium	5000	-	-	17300	-	18100	19500	83400	50600
Thallium	10	-	-	-	-	-	-	-	-
Vanadium	50	-	-	-	-	-	-	-	-
Zinc	20	-	-	-	143	-	-	21.4	-
Total Cyanide	100	-	-	-	-	-	-	-	-
Boron	60*	NR	NR	NR	NR	NR	NR	NR	NR

Laboratory Method Blank	17603Z	BR17603UW	BR17603W	BR17603UW	BR17603UW	BR17603UW	BR17603W	BR17603T
Associated Equipment Blank	-	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX
Associated Field Blank	-	-	-	-	-	-	-	-

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Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

ANALYTE	CRDL	BSMWGZA1XX04XX	04GWGZA3XX03XX	BSMWGZA3XX04XX	04GWGZB1XX03XX	04GWGZB1XX030X	01SB001XXX01XX	01SB002XXX01XX	01SB003XXX01XX
SAMPLE ID:		BSMWGZA1XX04XX	04GWGZA3XX03XX	BSMWGZA3XX04XX	04GWGZB1XX03XX	04GWGZB1XX030X	01SB001XXX01XX	01SB002XXX01XX	01SB003XXX01XX
LAB NUMBER:		294126	257281	294128	257041	257042	8259-008	8260-011	8260-026
DATE SAMPLED:		10/10/89	04/18/89	10/10/89	04/17/89	04/17/89	9/14/88	9/15/88	9/15/88
Aluminum	200	-	-	-	-	-	NA	-	-
Antimony	60	-	-	-	-	-	NA	-	-
Arsenic	10	-	-	-	-	-	NA	-	-
Barium	200	-	-	-	-	-	NA	-	-
Beryllium	5	-	-	-	-	-	NA	-	-
Cadmium	5	-	5.1	-	-	-	NA	-	-
Calcium	5000	-	10200	11700	8240	8330	NA	-	-
Chromium	10	-	-	-	-	-	NA	-	-
Cobalt	50	-	-	-	-	-	NA	-	-
Copper	25	-	-	-	-	-	NA	-	-
Iron	1000	-	-	-	-	-	NA	-	-
Lead	5	-	-	-	-	-	NA	-	-
Magnesium	5000	-	-	-	-	-	NA	-	-
Manganese	15	37.9	-	-	-	-	NA	-	-
Mercury	0.20	-	-	-	-	-	NA	-	-
Nickel	40	-	-	-	-	-	NA	-	-
Potassium	5000	-	-	-	-	-	NA	-	-
Selenium	5	R	R	R	R	R	NA	-	-
Silver	10	-	-	-	-	-	NA	-	-
Sodium	5000	-	5060	-	6140	5290	NA	-	-
Thallium	10	-	-	-	-	-	NA	-	-
Vanadium	50	-	-	-	-	-	NA	-	-
Zinc	20	-	-	-	30.6	-	NA	-	-
Total Cyanide	100	-	-	-	-	-	NA	-	-
Boron	60*	NR	NR	NR	NR	NR	NA	NR	NR
Laboratory Method Blank		BR17603W	16534L	BR17603W	16534H	16534H	-	WATER5	WATER5
Associated Equipment Blank		BSQSXX1XXX04XX	-	BSQSXX1XXX04XX	-	-	-	-	-
Associated Field Blank		-	01BF002XXX03XX	-	-	-	-	-	01FB001XXX01XX

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Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01SB004XXX01XX	SBXX406XX1	
LAB NUMBER:	8260-027	8229-005	
DATE SAMPLED:	9/15/88	8/14/88	
ANALYTE	CRDL		
Aluminum	200	-	-
Antimony	60	-	-
Arsenic	10	-	R
Barium	200	-	-
Beryllium	5	-	-
Cadmium	5	-	-
Calcium	5000	-	-
Chromium	10	-	-
Cobalt	50	-	-
Copper	25	-	-
Iron	1000	-	11.5 JB
Lead	5	-	R
Magnesium	5000	-	-
Manganese	15	-	1.3 J
Mercury	0.20	-	0.2
Nickel	40	-	-
Potassium	5000	-	-
Selenium	5	-	R
Silver	10	-	-
Sodium	5000	-	-
Thallium	10	-	-
Vanadium	50	-	-
Zinc	20	-	-
Total Cyanide	100	-	NA
Boron	60*	NR	NR
Laboratory Method Blank		WATER5	H201
Associated Equipment Blank		-	-
Associated Field Blank		01FB001XXX01XX	-

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Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Pesticides/PCBs Aqueous Analysis (ug/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01GW101XXX01XX	01GW101XXX02XX	02GW102AXX01XX	02GW102XXX02XX	03GW103XXX01XX	03GW103XXX02XX	03GW104XXX01XX	03GW104XXX02XX
LAB NUMBER:	8260-012	235983	8253-009	235991	8256-010	235701	8256-012	234615
DATE SAMPLED:	9/15/88	12/14/88	9/08/88	12/14/88	9/09/88	12/13/88	9/09/88	12/08/88
ANALYTES	CRDL							
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	0.98	1	1	1	1	1
Laboratory Method Blank:		PBLKBB	236886	PBLKAA	236886	PBLK01	235858	PBLK01	235524
Associated Equipment Blank:		01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01GW105AXX01XX	01GW105AXX02XX	01GW105BXX01XX	01GW105BXX02XX	01GW106XXX01XX	01GW106XXX02XX	01GW201XXX01XX	01GW201XXX02XX
LAB NUMBER:	8253-005	234602	8253-004	234606	8256-007	233767	8253-006	233768
DATE SAMPLED:	9/08/88	12/08/88	9/08/88	12/08/88	9/09/88	12/06/88	9/08/88	12/06/88
ANALYTES	CRDL							
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1.1	1	1.06	1	1	1	1.02	1
Laboratory Method Blank:		PBLKAA	235524	PBLKAA	235524	PBLK01	234783	PBLKAA	234783
Associated Equipment Blank:		01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

SAMPLE ID:	01GW202AXX01XX	03GW202AXX02XX	03GW202AXX02DX	01GW203XXX01XX	01GW203XXX02XX	01GW204XXX01XX	01GW204XXX02XX	01GW205XXX01XX
LAB NUMBER:	8252-004	235702	235703	8252-005	233783	8252-006	233784	8252-007
DATE SAMPLED:	9/7/88	12/13/88	12/13/88	9/7/88	12/06/88	9/7/88	12/06/88	9/7/88
ANALYTES / CRDL								
alpha-BHC 0.05	-	-	-	-	-	-	-	-
beta-BHC 0.05	-	-	-	-	-	-	-	-
delta-BHC 0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane) 0.05	-	-	-	-	-	-	-	-
Heptachlor 0.05	-	-	-	-	-	-	-	-
Aldrin 0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide 0.05	-	-	-	-	-	-	-	-
Endosulfan I 0.05	-	-	-	-	-	-	-	-
Dieldrin 0.1	-	-	-	-	-	-	-	-
4,4'-DDE 0.1	-	-	-	-	-	-	-	-
Endrin 0.1	-	-	-	-	-	-	-	-
Endosulfan II 0.1	-	-	-	-	-	-	-	-
4,4'-DDD 0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate 0.1	-	-	-	-	-	-	-	-
4,4'-DDT 0.1	-	-	-	-	-	-	-	-
Methoxychlor 0.5	-	-	-	-	-	-	-	-
Endrin ketone 0.1	-	-	-	-	-	-	-	-
alpha-Chlordane 0.5	-	-	-	-	-	-	-	-
gamma-Chlordane 0.5	-	-	-	-	-	-	-	-
Toxaphene 1	-	-	-	-	-	-	-	-
Aroclor-1016 0.5	-	-	-	-	-	-	-	-
Aroclor-1221 0.5	-	-	-	-	-	-	-	-
Aroclor-1232 0.5	-	-	-	-	-	-	-	-
Aroclor-1242 0.5	-	-	-	-	-	-	-	-
Aroclor-1248 0.5	-	-	-	-	-	-	-	-
Aroclor-1254 1	-	-	-	-	-	-	-	-
Aroclor-1260 1	-	-	-	-	-	-	-	-
Dilution Factor:	1	1	1	1	1	1	1	1
Laboratory Method Blank:	PBLK01	235858	236903	PBLK01	234783	PBLK01	234783	PBLK01
Associated Equipment Blank:	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01GW205XXX02XX	01GW206AXX01XX	01GW206AXX02XX	01GW206AXX01DX	01GW206BXX01XX	01GW206BXX02XX	01GW207AXX01XX	01GW207AXX02XX
LAB NUMBER:	234901	8252-008	234906	8252-009	8252-010	234907	8260-023	235971
DATE SAMPLED:	12/09/88	9/7/88	12/09/88	9/7/88	9/7/88	12/09/88	09/15/88	12/14/88
ANALYTES	CRDL							
alpha-BHC	0.05	-	-	-	-	-	R	-
beta-BHC	0.05	-	-	-	-	-	R	-
delta-BHC	0.05	-	-	-	-	-	R	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	R	-
Heptachlor	0.05	-	-	-	-	-	R	-
Aldrin	0.05	-	-	-	-	-	R	-
Heptachlor epoxide	0.05	-	-	-	-	-	R	-
Endosulfan I	0.05	-	-	-	-	-	R	-
Dieldrin	0.1	-	-	-	-	-	R	-
4,4'-DDE	0.1	-	-	-	-	-	R	-
Endrin	0.1	-	-	-	-	-	R	-
Endosulfan II	0.1	-	-	-	-	-	R	-
4,4'-DDD	0.1	-	-	-	-	-	R	-
Endosulfan sulfate	0.1	-	-	-	-	-	R	-
4,4'-DDT	0.1	-	-	-	-	-	R	-
Methoxychlor	0.5	-	-	-	-	-	R	-
Endrin ketone	0.1	-	-	-	-	-	R	-
alpha-Chlordane	0.5	-	-	-	-	-	R	-
gamma-Chlordane	0.5	-	-	-	-	-	R	-
Toxaphene	1	-	-	-	-	-	R	-
Aroclor-1016	0.5	-	-	-	-	-	R	-
Aroclor-1221	0.5	-	-	-	-	-	R	-
Aroclor-1232	0.5	-	-	-	-	-	R	-
Aroclor-1242	0.5	-	-	-	-	-	R	-
Aroclor-1248	0.5	-	-	-	-	-	R	-
Aroclor-1254	1	-	-	-	-	-	R	-
Aroclor-1260	1	-	-	-	-	-	R	-
Dilution Factor:		1	1	1	1	1	1	1	1
Laboratory Method Blank:		235504	PBLK01	235504	PBLK01	PBLK01	235504	PBLKBB	236886
Associated Equipment Blank:		01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	01GW207AXX03XX	01GW207BXX01XX	01GW207BXX02XX	01GW208XXX01XX	01GW208XXX02XX	01GW209XXX01XX	01GW209XXX02XX	01GW210AXX01XX
	LAB NUMBER:	256435	8260-024	235960	8256-006	234920	8256-008	234921	8252-011
	DATE SAMPLED:	04/13/89	9/15/88	12/14/88	9/09/88	12/09/88	9/09/88	12/09/88	9/7/88
ANALYTES	CRDL								
alpha-BHC	0.05	-	R	-	-	-	-	-	-
beta-BHC	0.05	-	R	-	-	-	-	-	-
delta-BHC	0.05	-	R	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	R	-	-	-	-	-	-
Heptachlor	0.05	-	R	-	-	-	-	-	-
Aldrin	0.05	-	R	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	R	-	-	-	-	-	-
Endosulfan I	0.05	-	R	-	-	-	-	-	-
Dieldrin	0.1	-	R	-	-	-	-	-	-
4,4'-DDE	0.1	-	R	-	-	-	-	-	-
Endrin	0.1	-	R	-	-	-	-	-	-
Endosulfan II	0.1	-	R	-	-	-	-	-	-
4,4'-DDD	0.1	-	R	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	R	-	-	-	-	-	-
4,4'-DDT	0.1	-	R	-	-	-	-	-	-
Methoxychlor	0.5	-	R	-	-	-	-	-	-
Endrin ketone	0.1	-	R	-	-	-	-	-	-
alpha-Chlordane	0.5	-	R	-	-	-	-	-	-
gamma-Chlordane	0.5	-	R	-	-	-	-	-	-
Toxaphene	1	-	R	-	-	-	-	-	-
Aroclor-1016	0.5	-	R	-	-	-	-	-	-
Aroclor-1221	0.5	-	R	-	-	-	-	-	-
Aroclor-1232	0.5	-	R	-	-	-	-	-	-
Aroclor-1242	0.5	-	R	-	-	-	-	-	-
Aroclor-1248	0.5	-	R	-	-	-	-	-	-
Aroclor-1254	1	-	R	-	-	-	-	-	-
Aroclor-1260	1	-	R	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Laboratory Method Blank:		256662	PBLKCC	236886	PBLK01	235858	PBLK01	235858	PBLK01
Associated Equipment Blank:		-	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	01GW210AXX02XX	01GW210AXX02DX	01GW210BXX01XX	01GW210BXX02XX	01GW211AXX01XX	01GW211AXX02XX	01GW211BXX01XX	01GW211BXX02XX
LAB NUMBER:	234909	234913	8252-012	235673	8253-007	235704	8253-008	235705
DATE SAMPLED:	12/09/88	12/09/88	9/7/88	12/13/88	9/08/88	12/13/88	9/08/88	12/13/88
ANALYTES	CRDL							
alpha-BHC	0.05	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	0.96	1	0.98	1
Laboratory Method Blank:		235858	235858	PBLK01	235858	PBLKAA	236903	PBLKAA	236903
Associated Equipment Blank:		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	O2GW212XXX01XX	O2GW212XXX02XX	O2GW213XXX01XX	O2GW213XXX02XX	BSMW214XXX04XX	BSMW215XXX04XX	BSMW216AXX04XX	BSMW216BXX04XX
	LAB NUMBER:	8256-009	235677	8256-011	235706	292408	292409	292414	294520
	DATE SAMPLED:	9/09/88	12/13/88	9/09/88	12/13/88	10/04/89	10/04/89	10/04/89	10/11/89
ANALYTES	CRDL								
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Laboratory Method Blank:		PBLK01	235858	PBLK01	236903	293812	293812	293812	295702
Associated Equipment Blank:		O1SB004XXX01XX	O1SB004XXX02XX	O1SB004XXX01XX	O1SB004XXX02XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW217AXX04XX	BSMW217BXX04XX	BSMW217BXX04XD	BSMW218XXX04XX	BSMW219XXX04XX	BSMW220XXX04XX	BSMW222XXX04XX	BSMW223XXX04XX
	LAB NUMBER:	294515	294516	294517	294519	294121	292968	292969	292971
	DATE SAMPLED:	10/11/89	10/11/89	10/11/89	10/11/89	10/10/89	10/05/89	10/05/89	10/05/89
ANALYTES	CRDL								
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Laboratory Method Blank:		295580	295580	295580	295580	294243	293321	293321	293321
Associated Equipment Blank:		BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	BSMW224XXX04XX	BSMW225AXX04XX	BSMW225BXX04XX	BSMW229AXX04XX	BSMW229BXX04XX	BSMW229BXX04XD	BSMW230AXX04XX	BSMW230BXX04XX
LAB NUMBER:	292416	292957	292976	293341	292972	292973	293344	293345
DATE SAMPLED:	10/04/89	10/05/89	10/05/89	10/06/89	10/05/89	10/05/89	10/06/89	10/06/89
ANALYTES	CRDL							
alpha-BHC	0.05	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Laboratory Method Blank:		293321	293321	293321	296226	293321	293321	296226	296226
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

SAMPLE ID:		BSMW231AXXX04XX	BSMW231BXX04XX	BSMW231BXX04XD	BSMW232AXX04XX	BSMW232BXX04XX	BSMW233XX04XX	BSMW234XXX04XX	BSMW408XXX04XX
LAB NUMBER:		294535	294532	294533	294120	294518	294528	294521	295132
DATE SAMPLED:		10/11/89	10/11/89	10/11/89	10/10/89	10/11/89	10/11/89	10/11/89	10/12/89
ANALYTES	CRDL								
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Laboratory Method Blank:		295702	295702	295702	294243	295580	295702	295702	295702
Associated Equipment Blank:		BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW810XXX04XX	BSMW811XXX04XX	04GW401XXX01XX	04GW401XXX02XX	04GW402XXX01XX	04GW402XXX02XX	04GW403XXX01XX	04GW403XXX02XX
	LAB NUMBER:	293688	295131	8257-007	234267	8253-010	234268	8258-010	234270
	DATE SAMPLED:	10/09/89	10/12/89	9/12/88	12/07/88	9/08/88	12/07/88	9/13/88	12/07/88
ANALYTES	CRDL								
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1.04	1	1	1
Laboratory Method Blank:		294204	296009	PBLK01	235055	PBLKAA	235055	PBLK03	235055
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX2XXX04XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	04GW403XXX01DX	04GW404XXX01XX	04GW404XXX02XX	04GW405XXX01XX	04GW405XXX02XX	04GW406XXX01XX	04GW406XXX02XX	04GW407XXX01XX
	LAB NUMBER:	8258-011	8260-019	234271	8260-020	234272	8260-022	234274	8260-021
	DATE SAMPLED:	9/13/88	9/15/88	12/07/88	9/15/88	12/07/88	9/15/88	12/07/88	9/15/88
ANALYTES	CRDL								
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Laboratory Method Blank:		PBLK03	PBLKBB	235055	PBLKBB	235055	PBLKBB	235055	PBLKBB
Associated Equipment Blank:		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

	SAMPLE ID:	04GW407XXX02XX	07GW701XXX01XX	07GW701XXX02XX	07GW702XXX01XX	07GW702XXX02XX	07GW703XXX01XX	07GW703XXX02XX	07GW704XXX01XX
	LAB NUMBER:	234275	8260-015	237372	8260-016	237373	8260-013	237374	8260-014
	DATE SAMPLED:	12/07/88	9/15/88	12/20/88	9/15/88	12/20/88	9/15/88	12/20/88	9/15/88
ANALYTES	CRDL								
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Laboratory Method Blank:		235055	PBLKBB	237960	PBLKBB	237960	PBLKBB	237960	PBLKBB
Associated Equipment Blank:		01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX

Click Here to Return to Main Index

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Pesticides/PCBs Aqueous Analysis (ug/L)

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Combined Summary Table for
Statistical Analysis

SAMPLE ID:	07GW704XXX02XX	07GW705XXX01XX	07GW705XXX02XX	07GW706XXX01XX	07GW706XXX02XX	08GW801XXX01XX	08GW802XXX01XX	08GW803XXX01XX
LAB NUMBER:	237378	8260-018	237382	8260-017	237383	8259-002	8258-003	8259-001
DATE SAMPLED:	12/20/88	9/15/88	12/20/88	9/15/88	12/20/88	9/14/88	9/13/88	9/14/88
ANALYTES	CRDL							
alpha-BHC	0.05	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1.04	1	1.03
Laboratory Method Blank:		237960	PBLKBB	237960	PBLKBB	237960	PBLKAA	PBLK03	PBLKAA
Associated Equipment Blank:		01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX02XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Summary Table for Statistical Analysis

SAMPLE ID:	08GW804XXX01XX	08GW804XXX01DX	08GW807XXX01XX	08GW807XXX01DX	08GW808XXX01XX	08GW808XXX01DX	09GW901XXX01XX	09GW902XXX01XX
LAB NUMBER:	8257-003	8257-004	8257-001	8257-002	8258-001	8258-002	8259-015	8259-014
DATE SAMPLED:	9/12/88	9/12/88	9/12/88	9/12/88	9/13/88	9/13/88	9/14/88	9/14/88

ANALYTES	CRDL								
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-

Dilution Factor:	1	1	1	1	1	1	1	1
Laboratory Method Blank:	PBLK01	PBLK01	PBLK01	PBLK01	PBLK03	PBLK03	PBLKAA	PBLKAA
Associated Equipment Blank:	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Pesticides/PCBs Aqueous Analysis (ug/L)

02-Feb-90

Combined Summary Table for
Statistical Analysis

SAMPLE ID:	09GW903XXX01XX	09GW904XXX01XX	09GW905XXX01XX	BSMW906XXX04XX	BSMW907XXX04XX	BSMW908XXX04XX	BSMW908XX04XXD	BSMW1101XX04XX
LAB NUMBER:	8259-016	8252-003	8252-002	293703	291496	295135	295134	291860
DATE SAMPLED:	9/14/88	9/6/88	9/6/88	10/09/89	10/02/89	10/12/89	10/12/89	10/03/89
ANALYTES	CRDL							
alpha-BHC	0.05	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-
Dilution Factor:		1	1	10	1	1	1	1	1
Laboratory Method Blank:		PBLKAA	PBLK01	PBLK01	295580	292134	296009	296009	292134
Associated Equipment Blank:		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX

* = For Sample 8252-002: the Pesticide fraction has a dilution factor of 10 and the PCB Analysis dilution factor is 1.

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMW1102XX04XX	BSMW1103XX04XX	BSMW1104XX04XX	BSMW1301XX04XX	BSMW1302XX04XX	BSMW1303XX04XX	BSMW1303XX04XD	BSMWGOLF1X04XX
	LAB NUMBER:	291862	291864	293697	294122	293702	293687	293693	295129
	DATE SAMPLED:	10/03/89	10/03/89	10/09/89	10/10/89	10/09/89	10/09/89	10/09/89	10/12/89
ANALYTES	CRDL								
alpha-BHC	0.05	-	-	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	0.12	-	-
delta-BHC	0.05	-	-	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	0.54	-	-
Methoxychlor	0.5	-	-	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1	1	1	1
Laboratory Method Blank:		292134	292134	294243	294243	295580	294204	295580	296009
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

Combined Summary Table for
Statistical Analysis

	SAMPLE ID:	BSMWG0LF2X04XX	BSMWGZA1XX04XX	04GWGZA3XX03XX	BSMWGZA3XX04XX	04GWGZB1XX03XX	04GWGZB1XX03DX
	LAB NUMBER:	295136	294119	258237	295133	257036	257037
	DATE SAMPLED:	10/12/89	10/10/89	04/24/89	10/12/89	04/17/89	04/17/89
ANALYTES	CRDL						
alpha-BHC	0.05	-	-	-	-	-	-
beta-BHC	0.05	-	-	-	-	-	-
delta-BHC	0.05	-	-	-	-	-	-
gamma-BHC (Lindane)	0.05	-	-	-	-	-	-
Heptachlor	0.05	-	-	-	-	-	-
Aldrin	0.05	-	-	-	-	-	-
Heptachlor epoxide	0.05	-	-	-	-	-	-
Endosulfan I	0.05	-	-	-	-	-	-
Dieldrin	0.1	-	-	-	-	-	-
4,4'-DDE	0.1	-	-	-	-	-	-
Endrin	0.1	-	-	-	-	-	-
Endosulfan II	0.1	-	-	-	-	-	-
4,4'-DDD	0.1	-	-	-	-	-	-
Endosulfan sulfate	0.1	-	-	-	-	-	-
4,4'-DDT	0.1	-	-	-	-	-	-
Methoxychlor	0.5	-	-	-	-	-	-
Endrin ketone	0.1	-	-	-	-	-	-
alpha-Chlordane	0.5	-	-	-	-	-	-
gamma-Chlordane	0.5	-	-	-	-	-	-
Toxaphene	1	-	-	-	-	-	-
Aroclor-1016	0.5	-	-	-	-	-	-
Aroclor-1221	0.5	-	-	-	-	-	-
Aroclor-1232	0.5	-	-	-	-	-	-
Aroclor-1242	0.5	-	-	-	-	-	-
Aroclor-1248	0.5	-	-	-	-	-	-
Aroclor-1254	1	-	-	-	-	-	-
Aroclor-1260	1	-	-	-	-	-	-
Dilution Factor:		1	1	1	1	1.25	1
Laboratory Method Blank:		296009	295580	258346	296009	257086	257086
Associated Equipment Blank:		BSQSXX2XXX04XX	BSQSXX2XXX04XX	-	BSQSXX2XXX04XX	-	-

Click Here to Return to Main Index

Click Here to Return to Main Index

Click Here to Return to Main Index

TENATIVELY IDENTIFIED COMPOUNDS

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: 8R422 - V, S
AQUEOUS (ug/L)

VOLATILE

	BSMW1102XX04XX	BSMW215XXX04XX
BENZENE,1-ETHYL-2-METHYL	81 J	
TRIMETHYLBENZENE ISOMER	111 J	
BENZENE,1,2,4-TRIMETHYL-		5 J

SEMIVOLATILE

	BSMW1103XX04XX
ETHANOL,2-CHLORO-,PHOSPHATE	14 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR411-V, S
SOIL (ug/kg)

VOLATILE

	03SD301XXX04XX
CYCLOHEXANE,1-METHYL-4-(1-METHYLETHYL)	56 J

SEMIVOLATILE

	01SD002XXX04XX	01SD115XXX04XX	01SD120XXX04XX	01SD121XXX04XX
OCTACOSANE	380 J			
DOCOSANE	3600 J			
OCTADECANAL	1500 J			
ETHYLDECANOL ISOMER	3500 J			
HEPTADECANE,2,6-DIMETHYL	2100 J			
17-PENTATRIACONTENE	750 J			
HEXATRIACONTANE		10600 J		
HEPTADECANE		580 J		
SULFUR, MOL (S8)		10000 J		
UNKNOWN PAH			530 J	710 J
UNKNOWN PHTHALATE			340 J	
9,10-ANTHRACENEDIONE			240 J	
11H-BENZO(A)FLUORENE			290 J	
11H-BENZO(B)FLUORENE			190 J	
BENZO(B)NAPHTHO(2,1-D)THIOPHENE			190 J	
BENZO(J)FLUORANTHENE			820 J	
1H-IMIDAZOLE-4-CARBOXAMIDE				2000 J
HEXADECANOIC ACID				360 J
HEXADECANOIC ACID, MONO(2-ETHYL)ESTER				710 J
HEXATRIACONTANE ISOMER				9300 J
HEPTADECANE ISOMER				4200 J
VITAMIN E ACETATE (VAN)				1400 J

	01SD122XXX04XX	01SD123XXX04XX	03SD301XXX04XX
DODECANE,1-IODO	5600 J		
DECANE,3,8-DIMETHYL-	920 J		
OCTACOSANE		1500 J	
6-OCTEN-1-OL,3,7-DIMETHYL-		130 J	
17-PENTATRIACONTENE		610 J	
PENTACOSANE ISOMER			37300 J
OCTADECANAL			3500 J
HEXADECANAL (ACN)			3900 J
9-OCTADECENE, (E)-			3700 J
VITAMIN E ACETATE (VAN)			6700 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR411-V, S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	03SD316XXX04XX	03SD317XXX04XX	03SD319XXX04XX
4H-CYCLOPENTA(D,E,F)PHENANTHRENE	170 J	170 J	
11H-BENZO(A)FLUORENE	330 J	170 J	
PYRENE,1-METHYL	120 J		
BENZO(B)NAPHTHO(2,1-D)THIOPHENE	120 J		
BENZO(C)PHENANTHRENE	170 J	170 J	
7H-BENZO(D,E)ANTHRACEN-7-ONE	120 J		
HEXATRIACONTANE	1210 J	2860 J	
PENTACOSANE	330 J		
TRIPHENYLENE,2-METHYL-	170 J	290 J	
BENZO(E)PYRENE	670 J	620 J	
11H-BENZO(B)FLUORENE		170 J	
PYRENE,4-METHYL		120 J	
UNKNOWN PAH		170 J	
PHENANTHRENE,2,4,5,7-TETRAMETHYL			2600 J
ALKENE			3200 J
DODECANE,2,7,10-TRIMETHYL-			2900 J
OCTACOSANE			750 J
UNDECANE,3,8-DIMETHYL-			1200 J
HEPTANE,4-(1-METHYLETHYL)-			350 J

Click Here to Return to Main Index

TENTATIVELY IDENETIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR409 - V,S
AQUEOUS (ug/L)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	08SW823XXX04XX	09SW923XXX04XX	09SW924XXX04XX
OCTACOSANE	26 J		
UNKNOWN HYDROCARBON	10 J		
OCTADECANAL		8.0 J	
NONADECANE,3-METHYL		10 J	
CYCLOPENTANONE,2-ETHYL			20 J
ALKOXY SUBSTITUTED ALCOHOL			92 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: 8R412-V,S
SOIL (ug/kg)

VOLATILE

	09SD926XXX04XX
CYCLOHEXANE,1-METHYL-4-(1-METHYLETHYL)	1300 J
3,5-OCTADIENE,2,7-DIMETHYL-	140 J

SEMIVOLATILE

	08SB810X1201XX	08SD008XXX04XX	08SD801XXX04XX
HEPTADECANE,2-6-DIMETHYL-	990 J		
PENTANE,1-(ETHENYLOXY)-		330 J	
BENZENE,2-ETHYL-1,4-DIMETHYL			320 J
PHENANTHRENE,3,4,5,6-TETRAMETHYL			1600 J

	08SD803XXX04XX	08SD818XXX04XX	08SD822XXX04XD	08SD822XXX04XX
UNKNOWN HYDROCARBON	2230 J		420 J	
OCTACOSANE	4400 J			380 J
BICYCLO(2.2.1)HEPTAN-2-OL,1,7,7-TRIMETHYL		340 J		
SULFUR, MOL. (S8)		630 J	670 J	
3-OCTADECENE, (E)-		1600 J		
1-HEXADECANOL,2-METHYL-		2200 J		
9-EICOSENE, (E)-		1700 J		
OCTADECANAL		4300 J		

	08SD823XXX04XX	08SD824XXX04XX	09SD923XXX04XX
ETHER,HEXYLPENTYL	2700 J		
HEXADECANOIC ACID	1500 J		
TETRACONTANE,3,5,2,4-TRIMETHYL	1000 J		
PENTACOSANE	27500 J		
HEXADECANAL (ACN)	1300 J		
1-HEXADECANOL,2-METHYL-	11000 J		
EICOSANE,2-METHYL	1200 J		
OCTADECANAL	10500 J		
HEXATRIACONTANE	14000 J		
1-HEPTADECANOL		2600 J	
BENZALDEHYDE (ACN)(DOT)			2200 J

4607-34 2

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR412-V,S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	09SD924XXX04XX	09SD926XXX04XX
SULFUR,MOL.(S8)	920 J	
BENZENE,2-ETHYL-1,4-DIMETHY		84000 J
CYCLOHEXANE,1-METHYL-4-(1-METHYLETHYL)		33000 J
CYCLOHEXANEMETHANOL,ALPHA		78000 J
TETRADECANOIC ACID		16000 J
HEXADECANIOC ACID		78000 J
DIMETHYL HEPTADECANE ISOMER		36000 J
17-PENTATRIACONTENE		57000 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR404-V, S
AQUEOUS (ug/L)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	03LT302XXX04XX	03LT305XXX04XX	02LT201XXX04XX
CAMPHOR (ACN)			16 J
BICYCLO[2.2.1]HEPTANOL-2-OL,1,7,7-TRIMETHYL			6.0 J
3-CARENE	78 J		
BICYCLO[3.1.0]HEXANE,4-METHYLENE-1-(1-METHYLENE)	62 J		
BENZALDEHYDE, 4-HYDROXY-3-METHOXY	12 J		
UNKNOWN FATTY ACID	40 J		
PHENANTHRENE,2,4,5,7-TETRAMETHYL	14 J		
UNKNOWN HYDROCARBON	42 J		
2,9-DIMETHYL-UNDECANE	26 J		
HEXADECANOIC ACID		10 J	

	09LT901XXX04XX	09SW011XXX04XX
UNKNOWN HYDROCARBON	12 J	
2-METHYL-UNDECANE	14 J	
2-PROPANOL,1-(2-METHOXY-1-METHYLETHOXY)-		10 J
2-PROPANOL,1-(2-METHOXYPROPOXY)-		12 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR407-V, S
SOIL (ug/kg)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	01SB216X1201XX	01SD004XXX04XX	08TP801X0201XX
HEXANOIC ACID (DOT)	510 J		
HEXANOIC ACID, 2-METHYL-	860 J		
SULFUR, MOL. (S8)		360 J	
DIMETHYL UNDECANE ISOMER		720 J	
2,4-DIMETHYL-DECANE			250 J

	08TP803X0001XX	08TP805X0401XX	08TP805X0001XX	08TP805X0001XXDL
UNKNOWN PNA	400 J	420 J	13280 J	2080 J
1-METHYL-ANTHRACENE	2380 J			
9,10-ANTHRACENEDIONE	470 J			
PHENANTHRENE,2,5-DIMETHYL-	400 J			
PHENANTHRENE,3,6-DIMETHYL-	340 J			
PYRENE,1-METHYL-	470 J			
PYRENE, 4-METHYL-	2160 J			
7H-BENZ[DE]ANTHRACEN-7-ONE	270 J		3200 J	1850 J
BENZO[B]NAPHTHO[2,1-D]THIOPHENE	400 J			
TRIPHENYLENE,2-METHYL-	270 J			
BENZO[E]PYRENE	1900 J	390 J		
METHYLANTHRACENE ISOMER			990 J	3100 J
METHYLPHENANTHRENE ISOMER			1200 J	
METHYLPYRENE ISOMER		360 J	29400 J	5600 J
TERPHENYL ISOMER			4800 J	
PERPHENYL ISOMER			4400 J	
METHYLCHRYSENE ISOMER			5500 J	
BENZO(J)FLUORANTHENE			3700 J	
2-ETHYL-PHENANTHRENE				1000 J
[1,1'-BIPHENYL]-4,4'-DICARBONITRILE				1200 J
1,3-DIMETHYL-PYRENE				1000 J
BENZO[C]PHENANTHRENE				1000 J
BENZ[A]ANTHRACENE,12-METHYL-				680 J
BENZOPYRENE ISOMER				2600 J
BENZOFLUORANTHENE ISOMER				
1-METHYL-TRIPHENYLENE		180 J		

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR407-V, S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	08TP805X0801XX	08TP806X0001XX
METHYLANTHRACENE ISOMER	660 J	
UNKNOWN PNA	630 J	2280 J
2,5-DIMETHYL-PHENANTHRENE	370 J	1100 J
11H-BENZO[B]FLUORENE	370 J	
METHYLPYRENE ISOMER	600 J	1010 J
BENZ[A]ANTHRACENE,12-METHYL-	150 J	
BENZO[E]PYRENE	700 J	
ANTHRACENE,2-METHYL-		1900 J
ANTHRACENE, 1-METHYL-		2400 J
11H-BENZO[A]FLUORENE		810 J
2-METHYL-TRIPHENYLENE		400 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR418-V,S,P
SOIL (ug/kg)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	07TP712X0001XX	07TP715X0001XX	07TP718X001XX
PYRENE,4-METNYL-	140 J		
UNKNOWN HYDROCARBON	5190 J	220 J	2400 J
UNKNOWN PNA	460 J	150 J	

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR413-V, S
SOIL (ug/kg)

VOLATILES

NO TICs WERE DETECTED

SEMIVOLATILE

	01SB232X1001XX	01SB232XX801XX	01TP106X0301XX
SULFUR, MOL.(SB)	5610 J	1800 J	
HEXANE,2-BROMO		450 J	
HEXANE, 3-BROMO			1100 J
3-OCTADECENE, (E)-			550 J
UNKNOWN ALKENE			840 J
UNKNOWN HYDROCARBON			630 J

	01TP109X0001XX	07TP709X0001XX	07TP709X0201XX	07TP709X0201XD
BENZO(E)PYRENE	140 J			
UNKNOWN PAH		320 J		
4H-CYCLOPENTA(D,E,F)PHENANTHRENE		600 J		
11H-BENZO(B)FLUORENE		1200 J		
BENZO(B)NAPHTHO(2,1-D)THIOPHENE		1000 J		
BENZO(G,H,I)FLUORANTHENE		740 J		
BENZO(C)PHENANTHRENE		890 J		
UNKNOWN HYDROCARBON		1300 J		890 J
BENZO(J)FLUORANTHENE		1400 J		
DOCOSANE		1600 J		
PENTADECANE,8-HEXYL-			440 J	
PENTACOSANE				970 J

	07TP711X0001XX	07TP716X0001XX	07TP717X0201XX
BENZALDEHYDE (ACN)(DOT)	360 J		
PENTACOSANE	4900 J	1600 J	
HEXATRIACONTANE		1900 J	
UNKNOWN HYDROCARBON			3400 J
HEPTADECANE,2,6-DIMETHYL-			3440 J
HEXADECANE			1340 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR413-V, S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	07TP717X0001XX	09SD920XXX04X0
4H-CYCLOPENTA(D,E,F)PHENANTHRENE	420 J	220 J
UNNOWN PAH	910 J	
11H-BENZO(B)FLUORENE	700 J	
PYRENE,1-METHYL-	600 J	
7H-BENZO(DE)ANTHRACEN-7-ONE	1900 J	
BENZO(B)NAPHTHO(2,1-D)THIOPHENE	1100 J	
BENZO(GHI)FLUORANTHENE	600 J	
TRIPHENYLENE,2-METHYL-	600 J	
HEPTADECANE,2,6-DIMETHYL	530 J	
BENZO(E)PYRENE	1200 J	
PYRENE,4-METHYL		180 J
ANTRACENE,2-METHYL		88 J
BENZO(E)ACEPHENANTHRYLENE		180 J
BENZO(J)FLUORANTHENE		390 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR414-V, S
SOIL (ug/kg)

VOLATILES

NO TICs WERE DETECTED

SEMIVOLATILE

	01TP106X0001XX	01TP107X0001XX	01TP107X0301XX	01TP107X0601XX
OCTANE,1-METHYL-	100 J			
PENTADECANE,2,6,10,14-TETRAMETHYL-		290 J		
ANTHRACENE,1-METHYL-		290 J		
11H-BENZO(B)FLUORENE		700 J		
PYRENE,4-METHYL-		290 J		
BENZO(G,H,I)FLUORANTHENE		510 J		
7H-BENZO(D,E)ANTHRECENE-7-ONE		260 J		
TRIPHENYLENE,2-METHYL-		370 J		
BENZO(J)FLUORANTHENE		1500 J		
SULFUR,MOL.(S8)			2420 J	210 J
PHENANTHRENE,3,4,5,6-TETRAMETHYL-			340 J	

	01TP107X0001XD	01TP108X0001XX	01TP108X0001XD	01TP108X0301XX
UNKNOWN PAH	180 J			
11H-BENZO(B)FLUORENE	290 J			
BENZO(G,H,I)FLUORANTHENE	140 J			
BENZO(E)PYRENE	690 J	670 J		
SULFUR,MOL.(S8)		450 J	340 J	250 J
PHENANTHRENE,1-METHYL-7-(1-METHYLETHYL)-		970 J		
PHENANTHRENE,2,4,5,7-TETRAMETHYL-			1100 J	
HEPTADECANE ISOMER			940 J	
BENZO(J)FLUORANTHENE			490 J	
DOCOSANE			490 J	

	01TP109X0301XX	02SD201XXX04XX	02SD202XXX04XX
SULFUR,MOL.(S8)	1720 J	3100 J	
PHENANTHRENE,2,4,5,7-TETRAMETHYL-	1200 J		
17-PENTATRIACONTENE		270 J	
1-DECANOL,2-ETHYL-		500 J	
UNKNOWN HYDROCARBON			510 J
PENTACOSANE			2900 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR414-V, S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	03SD303XXX04XX	03SD303XXX04XD	03SD302XXX04XX
3-CARENE			11000 J
BICYCLO(3.1.1)HEPTANE, 6,6-DIMETHYL-2-METHYLENE			8800 J
BENZENE,2-ETHYL-1,4-DIMETHYL			2000 J
CYCLOHEXANE,1-METHYL-4-(1-METHYLETHYL)			1600 J
1-PHENANTHRENECARBOXYLIC ACID			7000 J
UNKNOWN HYDROCARBON		1000 J	2400 J
HEXATRIACONTANE	4100 J	1500 J	6400 J
PENTACOSANE		1500 J	6400 J
UNKNOWN FATTY ACID	620 J		
HEXANE,3-ETHYL-2-METHYL		270 J	

	03SD305XXX04XX	03SD307XXX04XX	03SD304XXX04XX
BENZALDEHYDE(ACN)(DOT)			1800 J
IRON,TRICARBONYL[N-(PHENYL-2-PYRIDINYLMETHYLENE)]			15000 J
UNKNOWN HYDROCARBON		1900 J	15000 J
HEPTADECANE,2,6-DIMETHYL-	390 J		
HEXANE,3-ETHYL-2-METHYL-		700 J	
HEPTADECANE		1200 J	
HEXATRIACONTANE		1400 J	

	03SD318XXX04XX	03SD318XXX04XD
SULFUR,MOL.(S8)	1960 J	
HEPTADECANE,2,6-DIMETHYL-	1200 J	380 J
DODECANE,2,6,10-TRIMETHYL-	1100 J	
PENTACOSANE		9100 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR408-V, S
SOIL (ug/kg)

VOLATILE

	01TP112X0301XX	01TP113X0001XX	01TP113X0301XX	01SD113XXX04XX
2-PENTANONE	22 J			
2-HEPTANONE	170 J			
BENZENE,1,2,4-TRIMETHYL		5.3 J		
UNKNOWN HYDROCARBON			48 J	
CYCLOHEXANE,1-METHYL-4-(1-METHYLETHYL)			34 J	
TRIMETHYL BENZENE ISOMER			16 J	
BICYCLO[2.2.1]HEPT-2-ENE,1,7-DIMETHYL-				10 J

	01TP115X0301XX	09SD927XXX04XX
SUBSTITUTED BENZENE	45 J	
BICYCLO[2.2.1]HEPTANE 2,2-D1		59 J
CYCLOHEXANE,1-METHYL-4-(1-METHYLETHYL)		69 J
CYCLOHEXANE,3-METHYL-6-(1-METHYLETHYL)		38 J
BENZENE,2-ETHYL-1,4-DIMETHYL		170 J
CYCLOHEXANE,1-METHYL-4-(1-METHYLETHYL)		
TRIMETHYL BENZENE ISOMER		

SEMIVOLATILE

	01SD113XXX04XX	01SD114XXX04XX	01SD118XXX04XX	01SD119XXX04XX
UNKNOWN HYDROCARBON	1540 J	1370 J	1800 J	280 J
HEXATRIACONTANE	870			
PENTACOSANE	2600 J			
PENTATRIACONTANE	1400 J			
HEPTADECANE ISOMER	2000 J			
OCTACOSANE	630 J		570 J	650 J
SULFUR,MOL (S8)		220 J		
PENTACOSANE ISOMER			9960 J	1160 J
HEPTADECANE			2200 J	
ETHER,3-BUTENYL PENTYL				320 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR408-V, S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	01SD126XXX04XX	01SD127XXX04XX	01SD128XXX04XX	01SD129XXX04XX
UNKNOWN HYDROCARBON	3550 J	2140 J	1700 J	
SULFUR, MOL. (S8)		5020 J		
EICOSANE, 2-METHYL-		1000 J		
UNKNOWN ALKENE		490 J		
HEPTANE,2,3-DIMETHYL			250 J	
HEPTADECANE,2,6-DIMETHYL-			500 J	
HEXANE,2,3,5-TRIMETHYL				630 J
HEPTADECANE,2,6,10,15-TETRAMETHYL				570 J

	01TP110X0001XX	01TP112X0001XX	01TP112X0301XX	01TP113X0001XX
UNKNOWN PAH	150 J			
HEXANOIC ACID (DDT)		290 J		
OCTANOIC ACID		430 J		
NONANOIC ACID		640 J		
DECANOIC ACID		3300 J	430 J	
OCTACOSANE		250 J		
OCTANE,3,5-DIMETHYL-			110 J	
HEXADECANOIC ACID			2500 J	
HEPTADECANE,2,6-DIMETHYL-			360 J	
OCTACOSANE ISOMER			1160 J	
DOCOSANE ISOMER			360 J	
DIMETHYLUNDECANE ISOMER				1000 J
HEXATRIACONTANE ISOMER				570 J
PENTACOSANE ISOMER				18100 J
UNKNOWN HYDROCARBON				500 J

	01TP113X0301XX	01TP115X0001XX	01TP115X0701XX	01TP115X0301XX
DECANE,2,6,7-TRIMETHYL-	810 J			
DIMETHYLUNDECANE ISOMER	1130 J			
OCTANOIC ACID	930 J			
DIMETHYLHEPTADECANE ISOMER	880 J		1490 J	
UNKNOWN HYDROCARBON	2740 J			
PENTACOSANE	1600 J			
PENTACOSANE ISOMER	1940 J			
DOCOSANE	1100 J			
HEXACOSANE	930 J			
HEXACOSANE ISOMER	2300 J			
PHOSPHORIC ACID, 2-ETHYLHEXYL-		830 J		
UNDECANE,4,7-DIEMTHYL-		290 J		
HEXATRIACONTANE			320 J	5700 J
17-PENTATRIACONTENE			410 J	
1-DECENE,2,4-DIMETHYL-				1200 J
ETHYLMETHYLBENZENE ISOMER				6800 J
DECANE				7500 J
NONANE,2-6-DIMETHYL-				2600 J
DIETHYLBENZENE ISOMER				2800 J
CYCLOHEXANE, BUTYL-				3300 J
BENZENE,1-METHYL-3-PROPYL-				2400 J
BENZENE,2-ETHYL-1,3-DIMETHYL-				1700 J
BENZENE,1,2,3,5-TETRAMETHYL-				1100 J
BENZENE,(1,1-DIMETHYLETHYL)				5400 J
DIETHYLMETHYLBENZENE ISOMER				1500 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR408-V, S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	08S8809X1801XX	09S0927XXX04XX
7-HEXADECENE,(Z)-	1100 J	
5-EICOSENE,(E)-	13000 J	
1-HEPTADECANOL	12000 J	
UNKNOWN HYDROCARBON	1400 J	
HEXANOIC ACID (DOT)		3300 J
3-CARENE		7500 J
1,6-OCTADIEN-3-OL,3,7-DIMETHYL		11000 J
BENZENE,2-ETHYL-1,4-DIMETHYL		16000 J
UNKNOWN SUBST. HYDROCARBON		4000 J
BICYCLO[2.2.1]HEPTAN-2-ONE, 1,1,7-TRIMETHYL-		3700 J
BICYCLO[2.2.1]HEPTAN-OL-1,1,7-TRIMETHYL-		2900 J
CYCLOHEXANEMETHANOL,ALPHA.		10000 J
BENZENEPROPANOIC ACID		2200 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR405-V, S
SOIL (ug/kg)

VOLATILE

	01SB218X4701XX	01SB218X6701XX	01SB219X6201XX	09SB907X2001XX
HEXANE	11 J	11 J	16 J	6.4 J

	09SB908X1001XX	11SBX02X1401XX	11SBX03X1201XD
HEXANE	9.9 J	31 J	12 J

SEMIVOLATILE

	01SB218X6701XX	09SB908X1001XX	11SBX03X1201XD	13SBX02X1701XX
SULFUR,MOL. (S8)	13000 J			
HEXANE,2-BROMO-		2300 J		
TRIBROMOPHENOL ISOMER			210 J	
HEPTANE,2,3-DIMETHYL-				460 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR419-V, S
SOIL (ug/kg)

VOLATILE

	13SBX01X1001XX	13S8X01X1001XXRE
PENTANE,2,3-DIMETHYL-	1800 J	
CYCLOHEXANE,METHYL-	630 J	
UNKNOWN HYDROCARBON	10280 J	8560 J
BROMOMETHYLBUTANE	1100 J	
DECANE	2200 J	2300 J
BUTANE,2,2,3,3-TETRAMETHYL-		990 J
TRIMETHYLPENTANE		1900 J
HEXANE,2,2,5-TRIMETHYL-		2100 J
BENZENE,1,2,4-TRIMETHYL-		960 J

SEMIVOLATILE

	01SB222X2201XX	01SB223X4701XX	01SB224X2201XX	01TP122X0201XD
OCTANE,3-METHYL-	250 J	170 J	210 J	
BENZO(J)FLUORANTHENE				140 J

	01TP123X0501XD	03SB214X2001XX	03SB214XX601XX	13S8X01X1001XX
BENZOPYRENE	220 J			
OCTANE,3,4-DIMETHYL-		340 J		
2H-PYRAN-2,3-DIOL,TETRAHYDRO-,DIACETATE,CIS			310 J	
HYDROXLAMINE,O-DECYL-				7500 J
BUTYL OCTANOL ISOMER				36700 J
CYCLOPENTANE,1-HEXYL-3-METHYL-				7500 J
UNDECANE,2,10-DIMETHYL-				6700 J
HEPTADECANE,2,6-DIMETHYL-				9000 J
CYCLOHEXANE,UNDECYL-				6700 J
TRIMETHYL DODECANE ISOMER				19100 J
DODECANE 2-CYCLOHEXYL,2-CYCLOHEXYL-				5200 J
PENTACOSANE ISOMER				11000 J
UNKNOWN HYDROCARBON				19500 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR417-V, S
SOIL (ug/kg)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	01SB217X1001XX
OCTANE,3-METHYL-	360 J
SULFUR, MOL. (S8)	480 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR416-V, S
SOIL (ug/kg)

VOLATILE

	01TP117X1101XX	01TP117X1101XD	01TP121X0701XD
BENZENE,1,2,4-TRIMETHYL	12 J	580 J	
NONANE		140 J	
NONANE,3-METHYL-		780 J	
1-OCTANOL,2-BUTYL-		140 J	
CYCLOHEXANE,1-ETHYL-4-METHYL		110 J	
HEPTANE,3-ETHYL-2-METHYL-		150 J	
UNKNOWN & METHYLCYCLOHEXANE		520 J	
ETHYL METHYL BENZENE & UNKNOWN			280 J
UNKNOWN ALCOHOL			

SEMIVOLATILE

	01TP116X1101XX	01TP117X1101XX	01TP117X1101XD	01TP117X0001XX
HEXANE,2,3,4-TRIMETHYL-	190 J			
HEPTADECANE,2,6-DIMETHYL	370 J			
TRIMETHYL DECANE ISOMER	220 J	1400 J	8600 J	
UNDECANE,4,7-DIMETHYL-	150 J	2400 J	1900 J	
UNKNOWN HYDROCARBON	2960 J	1400 J		
NONANE,2-METHYL		6800 J	5300 J	
DECANE		1800 J	1500 J	
DECANE,2-CYCLOHEXYL-2-CYCLOHEXYL-		5300 J		
DECANE,2-METHYL-		9500 J		
1-OCTANOL,2-BUTYL-		1100 J		
2-PHENYLETHYL-PHENOL ISOMER		72400 J	188600 J	
PENTACOSANE			1600 J	
TETRADECANE			4500 J	
METHYL PROPYL BENZENE ISOMER				180 J
OCTANE,4-METHYL-				

	01TP118X0701XX	01TP118X0001XX	01TP118X0701XD	01TP120X0801XD
OCTANE, 4-METHYL-		240 J		1060 J
UNKNOWN HYDROCARBON	101900 J	8220 J		
PENTACOSANE		14500 J	420 J	
UNKNOWN PNA				210 J
OCTANE,3-METHYL		1900 J		
IRON,TRICARBONNYL [N-PHENYL-2-PYRIDINYLMETHYLENE)]				

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR416-V, S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	01TP121X0701XX	01TP121X0701XD	01TP122X0201XX	07TP120X0001XX
HEXANE,2,3,4-TRIMETHYL	140 J			
METHYL PYRENE ISOMER	920 J			
UNKNOWN PNA	2290 J	12540 J		
BENZO(J)FLUORANTHENE		1600 J		
OCTANE,3-METHYL			210 J	
2(5H)-FURANONE,5,5-DIMETHYL			500 J	
UNKNOWN HYDROCARBON				7650 J
IRON,TRICARBONYL[N-(PHENYL-2-PYRIDINYLMETHYLENE)]				1800 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR415-V, S
SOIL (ug/kg)

VOLATILE

	07TP712X0201XX	07TP719X0201XX	08SB810X1201XX
M-MENTHANE,(1S,3S)-(+)-	9.4 J		
CYCLOHEXANE,1-METHYL-4-(1-METHYLETHYL)-,TRANS-		27 J	
4-CARENE,(1S,3S,6R)-(-)-			15 J

SEMIVOLATILE

	01TP104X0001XX	01TP116X0001XX	01TP119X0301XX	01TP124X0001XX
HEXANE,2,3,4-TRIMETHYL	650 J			
OCTANE,3-METHYL-	510 J			
UNKNOWN SUBSTITUTED HYDROCARBON	270 J			
BUTYL OCTANOL ISOMER		920 J		
DIMETHYL HEPTADECANE ISOMER		2440 J		
HEPTADECANE		460 J		
PENTACOSANE ISOMER		960 J		
UNKNOWN HYDROCARBON			270 J	
BENZO PYRENE ISOMER				250 J

	01TP124X0301XX	07TP115X0001XD	07TP710X0001XX
SULFUR, MOL.(S8)	5790 J		
HEPTADECANE		140 J	
HEPTADECANE,2,6-DIMETHYL		1200 J	3000 J
BENZO(E)ACEPHENANTHRYLENE		250 J	
BENZO(J)FLUORANTHENE		210 J	
OCTADECANE			220 J
OCTADECANE,3-METHYL			470 J
BENZO(E)PYRENE			

	07TP710X0201XX	07TP712X0201XX	07TP714X0001XX
PENTADECANE,8-HEXYL-	140 J		
PENTACOSANE	250 J	1590 J	1300 J
HEXATRIACONTANE	820 J		
HEXADECANE,1-(ETHENYLOXY)-	290 J		
HEPTADECANE,2,6-DIMETHYL-		1400 J	600 J
M-MENTHANE,(1S,3S)-(+)-		390 J	
UNKNOWN FATTY ACID			340 J
UNDECANE,4,7-DIMETHYL-			340 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR415-V, S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	07TP714X0201XX	07TP714X0001XD	07TP715X0201XX
HEPTADECANE,2,6-DIMETHYL-	280 J	15600 J	
PHENANTHRENE,3,4,5,6-TETRAMETHYL	1400 J		
PENTACOSANE	3090 J		
DODECANE,2,6,10-TRIMETHYL-	2600 J	2800 J	
UNDECANE,4,7-DIMETHYL-		5500 J	
UNDECANE,2,6-DIMETHYL-		1100 J	
TRIDECANE,7-METHYL-		1900 J	
TETRADECANE		5200 J	
UNKNOWN HYDROCARBON		3800 J	5060 J
HEXADECANE		5600 J	
HEPTADECANE		2800 J	
UNDECANE,2-METHYL-		3000 J	
OCTADECANE		2700 J	
IRON,TRICARBONYL[N-(PHENYL-2-PYRIDINYLMETHYLENE)]		3400 J	

	07TP719X0001XX	07TP719X0201XX	08SB810X1201XX
UNKNOWN PNA	1320 J		
UNKNOWN HYDROCARBON	4220 J	6580 J	710 J
PENTACOSANE	21200 J		
UNKNOWN SUBST.HYDROCARBON		1000 J	

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR402 - V,S
AQUEOUS (ug/L)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	09SW921XXX04XX	09SW919XXX04XX
2-PROPANOL,1-(2-METHOXY-1-METHYLETHOXY)	10 J	14 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR403 - V,S
SOIL (ug/kg)

VOLATILE

	09SD916XXXD4XX
CYCLOOCTANE,1,4-DIMETHYL-,TRANS	8.1 J

SEMIVOLATILE

	08TP804X0001XX	09SD010XXX04XX	09SD011XXXD4XX
UNKNOWN HYDROCARBON	310 J		2700 J
UNKNOWN PNA	340 J		400 J
BENZO[J]FLUORANTHENE		370 J	
BENZO FLUORENE ISOMER			610 J
BENZOFLUORANTHENE ISOMER			1250 J
BENZO[B]NAPHTHO[2,1-D]THIOPHENE			280 J
BENZO[G,H,I]FLUORANTHENE			320 J
7-H-BENZO[D,E]ANTHRACEN-7-ONE			160 J
BENZO[C]PHENANTHRENE			240 J
HEXATRIACONTANE			1100 J

	09SD915XXX04XX	09SD012XXX04XX
1H-INDENE,OCTAHYDRO-2,2,4,4,7,7-HEXAMETHYL-		210 J
UNKNOWN PNA		160 J
HEXATRIACONTANE	580 J	1200 J
BENZO[E]ACEPHENANTHRYLENE		210 J
BENZO[J]FLUORANTHENE	2000 J	
BENZO FLUORENE ISOMER	740 J	
BENZO PHENANTHRENE ISOMER	650 J	
BENZO[B]NAPHTHO[2,1-D]THIOPHENE	330 J	
ANTHRACENE,2-METHYL	250 J	
4H-CYCLOPENTA[D,E,F]PHENANTHRENE	250 J	
UNKNOWN PHTHALATE	3000 J	

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR403 - V,S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	09SD916XXX04XX	09SD919XXX04XX	09SD920XXX04XX
DODECANE,6-METHYL	990 J		
TRIDECANE,7-METHYL-	1400 J		
DODECANE,2,6,10-TRIMETHYL-	2900 J		
11-INDENE,OCTAHYDRO-2,2,4,4,7,7-HEXAMETHYL	3300 J		
HEPTADECANE,2,6-DIMETHYL-	5800 J		520 J
UNKNOWN HYDROCARBON	1700 J		
UNKNOWN PAH	1300 J	280 J	
PHENANTHRENE,2,5-DIMETHYL-	5300 J		
PHENANTHRENE,2,3,5-TRIMETHYL	1890 J		
PYRENE,4-METHYL-	2600 J		220 J
PHENANTHRENE,3,4,5,6-TETRAMETHYL	1200 J		
PYRENE,1,3-DIMETHYL	950 J		
PYRENE,4,5,9,10-TETRAHYDRO-	1600 J		
HEXADECANE	1900 J		
UNKNOWN PNA		320 J	
11H-BENZO[B]FLUORENE		240 J	260 J
BENZO[G,H,I]FLUORANTHENE		240 J	
7H-BENZO[D,E]ANTHRACEN-7-ONE		160 J	
BENZO[C]PHENANTHRENE		280 J	
PENTACOSANE		520 J	
BENZO[A]ANTHRACENE,12-METHYL		320 J	
UNKNOWN PHTHALATE		400 J	
HEXATRIACONTANE		560 J	
BENZO[J]FLUORANTHENE		1100 J	
PHENANTHRENE,4-METHYL-			260 J

	09SD921XXX04XX	09SD921XXX04XXDL	09SD922XXX04XX
4H-CYCLOPENTA[D,E,F]PHENANTRENE	2700 J	1700 J	
UNKNOWN HYDROCARBON			1810 J
BENZO[B]NAPHTHO[2,3-D]FURAN	3400 J		
HEXATRIACONTANE			890 J
BENZO FLUORENE ISOMER	24700 J	2900 J	
7H-BENZO[D,E]ANTHRACEN-7-ONE	3200 J		
BENZO[B]NAPHTHO[2,1-D]THIOPHENE	5000 J		
BENZO(G,H,I)FLUORANTHENE	12000 J	2100 J	
UNKNOWN PHTHALATE		20900 J	
UNKNOWN PAH	6200 J		
BENZO[J]FLUORANTHENE	6700 J	5400 J	250 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR414 - V,S
SOIL (ug/kg)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	01TP106X0001XX	01TP107X0001XX	01TP107X0301XX	01TP107X0601XX
2-METHYL-OCTANE	100 J			
PENTADECANE,2,6,10,14-TETRAMETHYL		290 J		
1-METHYL-ANTRACENE		290 J		
11H-BENZO[B]FLUORENE		700 J		
4-METHYL-PYRENE		290 J		
BENZO(G,H,I)FLUORANTHENE		510 J		
7H-BENZO[DE]ANTHRACENE-7-ONE		260 J		
TRIPHENYLENE,2-METHYL		370 J		
BENZO(J)FLUORANTHENE		1500 J		
SULFUR, MOL. (S8)			780 J	210 J
PHENANTHRENE,3,4,5,6-TETRAMETHYL			340 J	

	01TP107X0001XD	01TP108X0001XX	01TP108X0001XD	01TP108X0301XX
UNKNOWN PAH	180 J			
11H-BENZO[B]FLUORANTHENE	290 J			
BENZO(G,H,I)FLUORANTHENE	140 J			
BENZO(E)PYRENE	690 J			
SULFUR, MOL. (S8)		450 J	340 J	250 J
PHENANTHRENE,1-METHYL-7(1-METHYLETHYL)-		970 J		
BENZO(E)PYRENE		670 J		
PHENANTHRENE,2,4,5,7-TETRAMETHYL			1100 J	
HEPTADECANE ISOMER			940 J	
BENZO(J)FLUORANTHENE			490 J	
DOCOSANE			490 J	

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR414 - V,S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	01TP109X0301XX	02SD201XXX04XX	02SD202XXX04XX	03SD302XXX04XX
SULFUR, MOL. (S8)	1720 J	3150 J		
PHENANTHRENE,2,4,5,7-TETRAMETHYL	1200 J			
17-PENTATRIACONTENE		270 J		
1-DECANOL,2-ETHYL		500 J		
UNKNOWN HYDROCARBON			510 J	
PENTACOSANE			2900 J	6400 J
3-CARENE				11000 J
BICYCLO[3.1.1]HEPTANE,6,6-DIMETHYL				8800 J
BENZENE,2-ETHYL-1,4-DIMETHYL				2000 J
CYCLOHEXANE,1-METHYL-4(1-METHYLETHYL)				1600 J
1-PHENANTHRENECARBOXYLIC ACID				7000 J
UNKNOWN HYDROCARBON				2400 J
HEXATRIACONTANE				6400 J

	03SD303XXX04XX	03SD303XXX04XD	03SD304XXX04XX	03SD305XXX04XX
UNKNOWN FATTY ACID	620 J			
HEXATRIACONTANE	4100 J	1500 J		
UNKNOWN HYDROCARBON		1000 J	15000 J	
PENTACOSANE		1500 J		
BENZALDEHYDE (ACN)(DOT)			1800 J	
IRON, TRICARBONYL [N-(PHENYL-2-PYRIDINYLMETHYLENE)			15000 J	
HEPTADECANE,2,6-DIMETHYL-				390 J

	03SD307XXX04XX	03SD318XXX04XX	03SD318XXX04XX
HEPTADECANE	1900 J		
UNKNOWN HYDROCARBON	1900 J		
HEXATRIACONTNAE	1400 J		
SULFUR, MOL. (S8)		1960 J	380 J
2,6-DIMETHYL-HEPTADECANE		1200 J	
2,6,10-TRIMETHYL-DODECANE		1100 J	
PENTACOSANE			9100 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR420-V, S
SOIL (ug/kg)

VOLATILE

	11HAX02XX201XX	11HAX02XX201XX	11HAX02XX401XX	11HAX02XX401XXRE
2-PENTANONE	50 J			
UNKNOWN HYDROCARBON	1610 J	4100 J		290 J
HEPTANE,2,2,4-TRIMETHYL-	170 J			140 J
NONANE,2,6-DIMETHYL-	130 J			210 J
NONANE-4-METHYL-	170 J			
2-HEXANONE,5-METHYL-	2800 J			
UNKNOWN OXYGENATED HYDROCARBON	700 J			
UNKNOWN CYCLIC HYDROCARBON	830 J	1900 J		
PENTANE,2,3,3-TRIMETHYL		1900 J	180 J	
HEXANE,2,2,5-TRIMETHYL-			170 J	
DECANE,2,5,9-TRIMETHYL-			73 J	
1-PENTANOL,4-METHYL-2-PROPYL			190 J	
HEPTANE,4-(1-METHYLETHYL)-			160 J	
1-OCTANOL,2-BUTYL-			1530 J	
METHYL(METHYETHYL)CYCLOHEXANE			390 J	
PROPYLHEPTANE			370 J	
ETHYLPENTANE			33 J	
TRIMETHYLHEPTANE				390 J
OCTANE,2,4,6-TRIMETHYL				230 J
NONANE,3-METHYL-				870 J
HEPTANE,3-ETHYL-2-METHYL-				900 J
METHYL-UNDECANE				3700 J

SEMIVOLATILE

	11HAX02XX201XX	11HAX02XX401XX	11HAX04XX201XX
NONANE,2,6-DIMETHYL-	23000 J	9800 J	
UNKNOWN HYDROCARBON	460000 J	78300 J	430 J
NAPHTHALENE,DECAHYDRO-		13000 J	
UNDECANE,4,7-DIMETHYL-		15000 J	
DODECANE,6-METHYL-		14000 J	
HENEICOSANE		9400 J	
TRIMETHYLHEPTANE ISOMER			330 J
BENZOFLUORANTHENE ISOMER			360 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR422 - V, S
AQUEOUS (ug/L)

VOLATILE

	BSMW1102XX04XX	BSMW215XXX04XX
BENZENE,1-ETHYL-2-METHYL	81 J	
TRIMETHYLBENZENE ISOMER	111 J	
BENZENE,1,2,4-TRIMETHYL-		5 J

SEMIVOLATILE

	BSMW1103XX04XX
ETHANOL,2-CHLORO-,PHOSPHATE	14 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR421-V, S
SOIL (ug/kg)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	BSS0203XXX04XX	BSSS101XXX04XX	BSSS102XXX04XX
OCTANE,4-METHYL-	1200 J		
PENTANE,1-(ETHENYLOXY)-		3500 J	
BICYCLO[2.2.1]HEPTAN-2-OL,1,7,7-TRIMETHYL-		2900 J	
PENTACOSANE ISOMER		42500 J	7400 J
HEXADECANAL (ACN)		3400 J	360 J
OCTADECANAL		15000 J	1800 J
HEXTRIACONTANE ISOMER		22000 J	
3-CARENE			360 J
CARYOPHYLENE(VAN)			320 J
1-PHENANTHRENECARBOXYLIC ACID			430 J
DOCOSANE ISOMER			1600 J

	BSSS104XXX04XX	BSSS105XXX04XX	BSSS103XXX04XX
3-CARENE			2100 J
CYCLOHEXENE,4-METHYLENE-1-(1-METHYLETHYL)-			3400 J
DODECANE,2,6,10-TRIMETHYL-			1200 J
1-OCTANOL,2-BUTYL-			1400 J
HEXADECANAL (ACN)			900 J
HEXADECANE			3000 J
OCTADECANAL			5100 J
PENTACOSANE ISOMER			17000 J
HEXATRIACONTANE ISOMER			26000 J
OCTANE,4-METHYL-	220 J		
HEXANE,2,3,4-TRIMETHYL-		300 J	
HEPTANE,4-(1-METHYLETHYL)-		220 J	
UNKNOWN SUBSTITUTED HYDROCARBON		410 J	
UNKNOWN HYDROCARBON		3340 J	

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR421-V, S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	BSSS902XXX04XX	BSSS903XXX04XX	BSSS901XXX04XX
BENZENE,1-METHYL-3-(1-METHYLETHYL)-		5520 J	2500 J
UNKNOWN HYDROCARBON	4030 J		5080 J
CYCLOHEXANEMETHANOL,.ALPHA.,.ALPHA.4-TRIMETHYL-			1300 J
UNKNOWN PNA			6310 J
METHYLPYRENE ISOMER			2500 J
UNKNOWN SUBSTITUTED HYDROCARBON		1200 J	3200 J
BENZONAPHOTHIOPHENE ISOMER			2300 J
BENZO FLUORANTHENE ISOMER	490 J		
BENZALDEHYDE (ACN)(DOT)		260 J	
BENZENESULFONAMIDE,4-METHYL-		2000 J	

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR423-V, S
AQUEOUS (ug/L)

VOLATILE

	BSMW1301XX04XX	BSMW1303XX04XD	BSMW1303XX04XDRE
UNKNOWN HYDROCARBON	30 J		63 J
BUTANE,2-METHYL-		120 J	
BUTANE,2,3-DIMETHYL-		70 J	
CYCLOHEXANE		37 J	
PENTANE,2,3-DIMETHYL		42 J	
PENTANE,2,2,4,TRIMETHYL-		69 J	
CYCLOHEXANE,METHYL-		22 J	
PENTANE,2,3,3-TRIMETHYL-		94 J	

	BSMW203XXX04XX	BSMW217BXX04XD	BSMW217BXX04XX
OXIRANE	64 J		
BENZENE,(1-METHYLETHYL)-		53 J	48 J
BENZENE,1,2,4-TRIMETHYL-		8.4 J	13 J
ETHANE,1,1-OXYBIS-			6.0 J

	BSMW217BXX04XXRE	BSMW232BXX04XX
BENZENE,(1-METHYLETHYL)-	46 J	32 J
BENZENE,1,2,4-TRIMETHYL-	8.6 J	6.7 J
ETHANE,1,1-OXYBIS-		12 J

SEMIVOLATILE

	BSMW1104XX04XX	BSMW1301XX04XX	BSMW1303XX04XD	BSMW906XXX04XX
ETHANOL,2-CHLORO-,PHOSPHATE	28 J		86 J	18 J
DECANE		28 J		
UNDECANE,4,7-DIMETHYL-		82 J		
UNKNOWN HYDROCARBON		98 J		
3-DECANOL			22 J	

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR423-V, S
AQUEOUS (ug/L)

SEMIVOLATILE cont'd

	BSMW1104XX04XX	BSMW1301XX04XX	BSMW1303XX04XD
METHYL ETHYL BENZENE ISOMER	18 J	56 J	22 J
TRIMETHYL BENZENE ISOMER	92 J		94 J
ETHYL DIMETHYL BENZENE ISOMER	8 J	14 J	
BICYCLO (2.2.1)HEPTAN-2-ONE	34 J	44 J	
CYCLOHEXANEMETHANOL,.ALPHA.	160 J	140 J	150 J
BENZENE,1-ETHYL-3-METHYL-		110 J	
UNKNOWN HYDROCARBON		12 J	
UNKNOWN SUBST. HYDROCARBON		30 J	
TETRAMETHYL BENZENE ISOMER			16 J
TRIMETHYLBICYCLOHEPTAN-2-ONE			32 J

	BSMW218XXX04XX	BSMW219XXX04XX	BSMW217BXX04XXRE
METHYLETHYL BENZENE ISOMER			104 J
BENZENE,1-ETHYL-3-METHYL-			38 J
1H-INDENE,2,3-DIHYDRO-			8 J
METHYLPROPYL BENZENE ISOMER			12 J
ETHYLDIMETHYLBENZENE ISOMER			32 J
UNKNOWN SUBST. HYDROCARBON		10 J	94 J
BENZENE,1-METHYL-4-(1-METHYLETHYL)			6 J
BENZENE,2-ETHYL-1,4-DIMETHYL-			8 J
CYCLOHEXANEMETHANOL,.ALPHA.,.ALPHA.,4-TRIMETHYL-			150 J
BICYCLO(2.2.1)HEPTAN-2-ONE,1,7,7-TRIMETHYL-			56 J
ETHANOL,2-CHLORO-,PHOSPHATE	12 J		

	BSMW232AXX04XX	BSMW232BXX04XX
ETHANOL,2-CHLORO-PHOSPHATE	64 J	
BENZENE,1-ETHYL-3-METHYL-		14 J
BENZENE 1,2,4-TRIMETHYL-		52 J
CYCLOHEXANEMETHANOL,.ALPHA.		60 J
CAMPHOR (ACN)		80 J
2(3H)-BENZOTHIAZOLONE		16 J
PHENOL,2-(1-(4-HYDROXYPHENYL)		12 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR425-V, S
AQUEOUS (ug/L)

VOLATILE

	BSMW1303XX03XX	BSMW1303XX04XXRE	BSMW202AXX04XX
BUTANE,2-METHYL-	130 J	69 J	
BUTANE,2,3-DIMETHYL-	78 J		
UNKNOWN HYDROCARBON	124 J		
CYCLOHEXANE	40 J		
PENTANE,2,3-DIMETHYL-	45 J		
HEXANE,2,2-DIMETHYL-	72 J	56 J	
CYCLOHEXANE,METHYL-	27 J		
BENZENE,1-ETHYL-4-METHYL			16 J
BENZENE,1,2,3-TRIMETHYL-			42 J

SEMIVOLATILE

	BSLT203XXX04XX	BSMW1303XX04XX	BSMW810XXX04XX
UNKNOWN HYDROCARBON	26 J		
3-DECANOL		24 J	
CYCLOHEXANEMETHANOL,.ALPHA.,.ALPHA.,DIMETHYL		10 J	
ETHANOL,2-CHLORO-,PHOSPHATE		720 J	
BENZENE,2-ETHYL-1,4-DIMETHYL-			18 J
3-CYCLOHEXEN-1-OL,4-METHYL-			4 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR424-V, S
AQUEOUS (ug/L)

VOLATILE

	BSMW234XXX04XX	BSMW234XXX04XXRE
ETHANE,1,1'-OXY BIS-	10 J	
BENZNE,PROPYL-	4 J	
ETHYLMETHYLBENZENE ISOMER	51 J	
TRIMETHYL BENZENE ISOMER	89 J	
BENZENE,1-ETHYL-3-METHYL-		34 J
BENZENE,1,2,3,-TRIMETHYL-		21 J
BENZENE,1-ETHYL-2-METHYL-		13 J
BENZENE,1,2,4-TRIMETHYL-		66 J

SEMIVOLATILE

	BSMW231AXX04XX	BSMW216BXX04XX	BSMW233XXX04XX
ETHANOL,2-CHLORO-,PHOSPHATE	88 J		
UNKNOWN SUBST.HYDROCARBON		26 J	
SULFUR,MOL.(S8)			580 J

	BSMW234XXX04XXDL	BSMW234XXX04XXRE	BSMW234XXX04XX
HEXANOIC ACID (DOT)		40 J	60 J
HEXANOIC ACID,2-METHYL-	40 J	42 J	46 J
1-ETHYLMETHYLBENZENE ISOMER		28 J	14 J
TRIMETHYLBENZENE ISOMER	76 J	86 J	70 J
UNKNOWN SUBSTITUTED BENZENE		42 J	12 J
ETHYLDIMETHYLBENZENE ISOMER		8 J	8 J
CYCLOHEXANEMETHANOL,.ALPHA.,.ALPHA.,4-TRIMETHYL-	120 J	170 J	98 J
METHYLBENZOIC ACID ISOMER	440 J	520 J	560 J

4607-34 24

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR410 - V, S
AQUEOUS (ug/L)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	03LT303XXX04XX	08LT801XXX04XX	09SW925XXX04XX
EICOSANE,10-METHYL-	16 J		
UNKNOWN PNA		8 J	
3-CARENE			24 J
BICYCLO[3.1.1]HEPTANE,6,6-DIMETHYL-2-METHYLENE			20 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR427-V, S
SOIL (ug/kg)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	01SB209X2601XX	04SB404X1401XX	04SB404X1901XX
FORMIC ACID,1-METHYLETHYL ESTER	300 J	400 J	500 J
S-TRIAZABORANE	200 J		
CYCLOHEXANE,1,2-DICHLORO-, TRANS			400 J

	07SB705X1901XX	07SB705X1401XX	04SB404X4001XX
CYCLOHEXANE,1,2-DICHLORO-, TRANS	800 J	700 J	
SULFUR, MOL. (S8)	2000 J		
FORMIC ACID,1-METHYLETHYL ESTER		400 J	200 J
1,2-PROPANEDIOL			1000 J
1,2-BENZENEDICARBOXYLIC ACID			200 J

	09SB905X1801XX	09SB905X1301XX	07SB706X1401XX
FORMIC ACID,1-METHYLETHYL ESTER	200 J		
SULFUR, MOL. (S8)	500 J		
PROPANEDIOIC ACID, DIMETHYL-		200 J	
CYCLOHEXANE,1,2-DICHLORO-, TRANS		700 J	
HEXANEDIOIC ACID, DIOCTYL ESTER		600 J	1000 J

	07SB706X0901XX
FORMIC ACID,1-METHYLETHYL ESTER	100 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR305-V, S
SOIL (ug/kg)

VOLATILE

	08SD801XXX03XD	08SD801XXX03XX
BENZENE,1-METHYL-4-(1-METHYLETHYL)	18 J	42 J

SEMIVOLATILE

	08SD009XXX03XX	08SD801XXX03XD	08SD801XXX03XX	08SD802XXX03XX
SULFUR,MOL.(S8)	730 J			
UNKNOWN HYDROCARBON	18100 J			
BENZOFLUORANTHENE	1400 J			
UNKNOWN ALDEHYDE	1200 J			
NONADECANE		4300 J		
HEXATRIACONTANE		8800 J		
VITAMIN E ACETATE (VAN)		4000 J		
1-PHENANTHRENE CARBOXALDEHYDE			2000 J	
BENZENE,1,1'-ETHYLIDENE BIS [4-ETHYL]-			1000 J	
HEXATRIACONTANE			1100 J	
BENZOIC ACID 4-(PHENYLMETHYL)-METHYL ESTER			26240 J	
OCTADECANAL			1800 J	
HEXADECANAL (ACN)			1700 J	
17-PENTATRIACONTENE			1400 J	
.GAMMA.SITOSTEROL			1800 J	
D-FRIEDOOLEAN-14-EN-3-ONE			12000 J	
1H-CYCLOPROP[E]AZULENE,DECAHYDRO-1,1,7-TRIMETHYL			5600 J	
A-NORCHOLESTAN-2-ONE,(5.ALPHA.)-			1000 J	
4,8,13-CYCLOTETRADECATRIENE-1,3-DIOL			3100 J	
2,5-CYCLOHEXADIENE-1,4-DIONE			11200 J	
STIGMAST-4-EN-3-ONE			2500 J	
4H-CYCLOPENTA[DEF]PHENANTHRENE			7700 J	
				230 J

	08SD803XXX03XD	08SD803XXX03XX	09SD011XXX03XX	09SD901XXX03XX
HEXATRIACONTANE	3400 J			
HEPTADECANE,2,6-DIMETHYL-	1100 J			1900 J
BENZO[J]FLUORANTHENE		660 J		
11H-BENZO[A]FLUORENE		190 J		
NONANE,4,5-DIMETHYL			340 J	
11H-BENZO[B]FLUORENE			260 J	
BENZO[E]PYRENE			210 J	
			1200 J	

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR301-V, S
AQUEOUS (ug/L)

VOLATILE

	01GW205XXX03XX	01GW206AXX03XX	01GW201AXX03XX	01GW210BXX03XX
ETHANE,1,1,2-TRICHLORO-1,2,2-TRIFLUORO	12 J	6 J		
OXIRANE			13 J	
ETHANOL				12 J
				52 J

	03GW202AXX03XX	01GW206AXX03XX
BENZENE,1-ETHYL-3-METHYL	18 J	
ETHANE-1,1,2-TRICHLORO-1,2,2-TRIFLUORO		6 J

SEMIVOLATILE

	01LT304XXX03XX	01LT305XXX03XX	03LT302XXX03XX
UNKNOWN HYDROCARBON	26 J		
BENZALDEHYDE,4-HYDROXY-3-METHOXY			18 J
BENZENE,1-ETHYL-2-METHYL		16 J	
BENZENE,1-ETHYL-3-METHYL		10 J	
BENZENE,1,2,3-TRIMETHYL		32 J	
BENZENE,1,2,4-TRIMETHYL		20 J	
BENZENEACETIC ACID			14 J
9-HEXADECANOIC ACID			14 J
HEXADECANOIC ACID			8 J
1H-NAPHTHO[2,1-B]PYRAN,4A,5,6,6A,7,8,9,10,10A-			24 J
1-PHENANTHRENECARBOXALDEHYDE			180 J
BENZENE,1,1'-ETHYLIDENE BIS[4-ETHYL]-			36 J
3,7,11-TRIDECATRIENOIC ACID,4,8,12-TRIMETHYL			10 J
1-HEPTADECANOL			16 J
1-TETRACOSANOL			40 J
OCTADECANAL			42 J
DOCOSANE			26 J
3-OCTADECENE,(E)-			52 J
CHOLESTEROL			26 J
PREGNANE-3,10,11,17,20-PENTOL,CYCLIC 17,21-			40 J
EICOSANE,2-METHYL			54 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR311-V, S
AQUEOUS (ug/L)

VOLATILE

	01GW211AXX03XD	01GW211AXX03XX	04GW405XXX03XX	09SW915XXX03XX
ETHANOL	12 J	14 J	11 J	
CYCLOPROPANE, 1,2-DIMETHYL-,CIS				9.0 J
PENTANE,2-METHOXY-2,4,4-TRIMETHYL				31 J
BENZENE,(1-METHYLETHYL)-				17 J
BENZENE,1,2,4-TRIMETHYL-				17 J
BENZENE,1-ETHYL-2-METHYL-				15 J

SEMIVOLATILE

	09SW915XXX03XX
BENZENE,1-ETHYL-2-METHYL	22 J
BENZENE,1,2,4-TRIMETHYL	66 J
BENZENE,1,7,3,5-TETRAMETHYL	8.0 J
1H-INDENE,2,3-DIHYDRO	10 J
BENZENE,(1-METHYL-1-PROPENYL),(E)	8.0 J
1H-INDENE, 2,3-DIHYDRO-4-METHYL	16 J
1H-INDENE, 1-ETHYLIDENE	8.0 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR310-V, S
AQUEOUS (ug/L)

VOLATILE

	04GWGZA3XX03XX
ETHANE,1,1,2-TRICHLORO,1,2,2-TRIFLUORO	32 J

SEMIVOLATILE

	04GWGZA3XX03XX
UNKNOWN SUBSTITUTED HYDROCARBON	24 J
UNKNOWN HYDROCARBON	16 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR308-V, S
AQUEOUS (ug/L)

VOLATILE

	01GW101XXX03XX	04GW407XXX03XX	09GW904XXX03XX	09SW916XXX03XX
ETHANOL	11 J	21 J	75 J	
PROPANE,2-METHOXY-2-METHYL				12 J

SEMIVOLATILE

NO TICs WERE DETECTED

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR309-V, S-
AQUEOUS (ug/L)

VOLATILE

	09SW011XXX03XD	09SW011XXX03XX
2-BUTANONE,3-METHOXY-3-METHYL	16 J	
BENZENE,1-ETHYL-3-METHYL	11 J	
BENZENE,1,2,4-TRIMETHYL	8.0 J	
BENZENE,1-ETHYL-2-METHYL		16 J
BENZENE,1-ETHYL-4-METHYL		9.0 J
PENTANE,2-METHOXY-2,4,4-TRIMETHYL		71 J

SEMIVOLATILE

	08LT801XXX03XX	09LT901XXX03XX	09LT901XXX03XXRE	09SW011XXX03XXRE
BENZALDEHYDE (ACN)(DOT)	10 J			
UNKNOWN HYDROCARBON	54 J			
PENTACOSANE		192 J	156 J	
2-PROPANOL,1-(2-METHOXY-1-METHYLETHOXY)				100 J
BENZENE,1-ETHYL-3-METHYL				10 J
BENZENE,1-ETHENYL-3-ETHYL				12 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR201-V, S
AQUEOUS (ug/L)

VOLATILE

	01GW204XXX02XX	01GW106XXX02XX	01GW201XXX02XX	01GW203XXX02XX
ETHANOL	120 J	140 J	230 J	180 J
ACETIC ACID, ETHYL ESTER			5 J	

	02LT201XXX02XX	04GW402XXX02XX	04GW402XXX02XX	04GW404XXX02XX
BENZENE,1-ETHYL-2,4-DIMETHYL	22 J			
ETHANOL		42 J	60 J	180 J

	04GW405XXX02XX	04GW406XXX02XX	09GW901XXX02XX	09GW902XXX02XX
ETHANOL	110 J	40 J	40 J	
UNKNOWN OXYGENATED COMPOUND				30 J

	09GW904XXX02XX
ETHANOL	66 J

SEMIVOLATILE

	01GW203XXX02XX	02LT201XXX02DX	02LT201XXX02XX
UNKNOWN SUBSTITUTED HYDROCARBON	24 J		
BENZENE,1-METHYL-3-(1-METHYLETHYL)		12 J	14 J
CYCLOHEXANEMETHANOL,.ALPHA.,.ALPHA.,4-TRIMETHYL		16 J	20 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR202-V, S
AQUEOUS (ug/L)

VOLATILE

	01GW105BXX02XX	01GW205XXX02XX	01GW206BXX02XX	01SB001XXX02XX
ETHANOL	9.0 J	12 J	220 J	
ETHANE,1,1,2-TRICHLORO-1,2,2-TRIFLUORO		8.0 J		
UNKNOWN OXYGENATED COMPOUND				43 J

	01GW206AXX02XX
ETHANOL	56 J
ETHANE,1,1,2-TRICHLORO-1,2,2-TRIFLUORO	6.0 J

SEMIVOLATILE

	01LT304XXX02XX	03LT301XXX02DX	03LT302XXX02XX
SILVEX ISOOCTYL ESTER	8.0 J		
PERAMEDIOIC ACID, DIDECYL ESTER		30 J	
UNKNOWN HYDROCARBON			148 J
BENZALDEHYDE,4-HYDROXY-3-METHOXY			14 J
UNKNOWN AROMATIC			10 J
HEPTADECANE, 2,6-DIMETHYL			16 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR204-V, S
AQUEOUS (ug/L)

VOLATILE

	03GW103XXX02XX
ETHANOL	7.0 J

SEMIVOLATILE

	03GW103XXX02XX	03GW202AXX02XX	03GW202AXX02XXRE	03GW202AXX02DX
UNKNOWN HYDROCARBON	26 J			
BENZENE,1-ETHYL-3-METHYL-		12 J	8.0 J	12 J
BENZENE,1-ETHYL-2-METHYL-		22 J		
BENZENE,1,2,4-TRIMETHYL		16 J		
CYCLOHEXANEMETHANOL,.ALPHA.,.ALPHA.,4-TRIMETHYL		32 J	24 J	
BENZENE,1,2,3-TRIMETHYL			20 J	
BICYCLO[2.2.1]HEPTAN-2-ONE,1,7,7-TRIMETHYL			8.0 J	
ETHANOL,2-BUTOXY-,PHOSPHATE			20 J	
1,3-CYCLOPENTANEDIONE				16 J
BENZENE,1,3,5-TRIMETHYL				38 J
CAMPHOR (ACN)				18 J

	03GW202AXX02DXRE
BENZENE,1-ETHYL-3-METHYL	8.0 J
BENZENE,1,2,3-TRIMETHYL	6.0 J
BENZENE,1,2,4-TRIMETHYL	20 J
CYCLOHEXANEMETHANOL,.ALPHA.,.ALPHA.,4-TRIMETHYL	28 J
ETHANOL,2-BUTOXY-,PHOSPHATE	8.0 J
BICYCLO[2.2.1]HEPTAN-2-ONE,1,7,7-TRIMETHYL	18 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR209-V, S
AQUEOUS (ug/L)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	09GW905XXX02XX
3,7,11-TRIDECATRIENOIC ACID,4,8,12-TRIMETHYL	30 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR210-V, S
SOIL (ug/kg)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	01SD113XXX02XX	01SD118XXX02XX	01SD119XXX02XX	08SD007XXX02XX
SULFUR,MOL. (S8)	220 J		600 J	
UNKNOWN HYDROCARBON	1310 J		880 J	640 J
11H-BENZO[A]FLUORENE		190 J		
UNKNOWN PNA		280 J		

	08SD009XXX02XX	08SD802XXX02XX	08SD818XXX02XX	08SD820XXX02XX
UNKNOWN HYDROCARBON	10960 J	1520 J	2660 J	1950 J
UNKNOWN PNA		1430 J		
UNKNOWN SUBSTITUTED HYDROCARBON		520 J		1170 J

	08SD821XXX02XX	09SD010XXX02XX	09SD011XXX02XX	09SD012XXX02XX
PHENOL,3-(2-PHENYLETHYL)-	640 J			
UNKNOWN PNA	230 J	260 J	340 J	2600 J
UNKNOWN HYDROCARBON			1870 J	

	09SD915XXX02XX	09SD916XXX02XX	09SD8K1XXX02XX	09SD8K2XXX02XX
UNKNOWN HYDROCARBON	10100 J	1440 J	2240 J	
UNKNOWN PNA	980 J	1140 J	910 J	12100 J
UNKNOWN FATTY ACID ESTER	260 J			
UNKNOWN OXYGENATED PNA				1200 J
UNKNOWN THIOPHENE				1300 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR211-V, S
SOIL (ug/kg)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	09SD918XXX02XX	09SD918XXX020X
UNKNOWN HYDROCARBON	4700 J	27720 J
UNKNOWN PNA		660 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR208-V, S
AQUEOUS (ug/L)

VOLATILE

	01SB002XXX02XX
OXIRANE	29 J

SEMIVOLATILE

	02GW102XXX02XX	02GW102XXX02XXRE
UNKNOWN SUBSTITUTED HYDROCARBON	118 J	44 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR203-V, S
SOIL (ug/kg)

VOLATILE

	01SD304XXX02DX	02SD201XXX02XX	03SD302XXX02XX
BENZENE,1,3-DICHLORO	660 J		
FURAN,2,5-DIHYDRO		9.9 J	
BICYCLO[3.1.1]HEPT-2-ENE,2,6,6-TRIMETHYL		21 J	
BICYCLO[3.1.0]HEX-2-ENE,2-METHYL-5-(1-METHYLETHYL)			140 J
BICYCLO[3.1.1]HEPTANE,6,6-DIMETHYL-2-METHYLENE-(1S)			24 J

SEMIVOLATILE

	01SD004XXX02XX	01SD115XXX02XX	01SD303XXX02XX	01SD304XXX02DX
UNKNOWN HYDROCARBON	6910 J	14530 J		
9-OCTADECANE,(E)-	1100 J			
PENTACOSANE	3800 J			27000 J
VITAMIN E ACETATE (VAN)	1400 J			11000 J
UNKNOWN SUBSTITUTE HYDROCARBON		2300 J		
BENZAMIDE, N,N-DIETHYL-3-METHYL			500 J	
HEXADECANOIC ACID			910 J	19000 J
SULFUR, MOL. (S8)			870 J	56700 J
PHOSPHORIC ACID, TRIS(3-METHYLPHENYL)ESTER			1370 J	
HEXATRIACONTANE			1600 J	33000 J
IRON,TRICARBONYL [N-(PHENYL-2-PYRIDINYLMETHYLENE)]			2300 J	

	01SD304XXX02XX	01SD305XXX02XX	01SS118XXX07XX	02SD003XXX02XX
SULFUR, MOL. (S8)	50300 J			
1-HEPTADECANOL	10000 J			
3-OCTADECENE, (E)-	18000 J			
PENTACOSANE	29000 J			
2,4,5-T 2-ETHYLHEXYL ESTER		600 J		
UNKNOWN HYDROCARBON			42500 J	1500 J
UNKNOWN SUBSTITUTE HYDROCARBON			27200 J	
UNKNOWN PNA				130 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR203-V, S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	02SD201XXX02XX	02SD202XXX02DX	02SD202XXX02XX	03SD002XXX02XX
UNKNOWN UNSATURATED HYDROCARBON	3400 J			
UNKNOWN SUBSTITUTED BENZENE	1200 J			
UNKNOWN HYDROCARBON	4200 J	56070 J	26060 J	6240 J
UNKNOWN SUBSTITUTED HYDROCARBON		16810 J	9710 J	7890 J
OCTADECANAL				1600 J

	03SD301XXX02XX	03SD302XXX02XX	01SD303XXX02XX	03SD316XXX02XX
SULFUR, MOL. (S8)	5200 J	5600 J	870 J	
DODECANE, 7,6,10-TRIMETHYL	160 J			
HEXTRICONTANE	1900 J		1600 J	
PENTACOSANE	6500 J			
9-OCTADECENE, (E)-		1200 J		
BENZAMIDE, N,N-DIMETHYL-3-METHYL			500 J	
HEXADECANOIC ACID			910 J	
PHOSPHORIC ACID, TRIS (3-METHYLPHENYL) ESTER			1370 J	
IRON, TRIACARBONYL [N-(PHENYL-2-PYRIDINYLMETHYLENE)]-			2300 J	
UNKNOWN HYDROCARBON				2840 J

	03SD317XXX02XX	03SD317XXX02DX	08SD006XXX02XX	08SD803XXX02XX
UNKNOWN HYDROCARBON	12790 J	14870 J		3360 J
UNKNOWN.SUBSTITUTE HYDROCARBON	180 J	540 J	390 J	1870 J

	08SD819XXX02XX
UNKNOWN SUBSTITUTE HYDROCARBON	360 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR18-V, S
SOIL (ug/kg)

VOLATILE

	09SD012XXX01XX	09SD916XXX01XX	01SD113XXX01DX	08SD819XXX01XX
PENTANE	20000000 J			
ETHYL ESTER		30000000 J		
ETHANE,1,1,2-TRICHLORO-1,2,2-TRIFLUORO			9000 J	
HEXANE				4000 J

SEMIVOLATILE

	09SD011XXX01XX	09SD011XXX01XXDL	09SD011XXX01DX	08SD801XXX01XX
NAPHTHALENE,1-(2-PROPENYL)-	20000000 J			
9H-FLUOREN-9-ONE	20000000 J			
DIBENZOTHIOPHENE	30000000 J	100000000 J		
D-GALACTITOL, (2-ACETYLMETHYL-AMINO)-2-DEOXY-3,4,6-TRI-O-METHYL-, 1,5-DIACETATE	30000000 J			
ANTHRACENE, 2-METHYL	30000000 J	100000000 J		
PHENANTHRENE, 3-METHYL	30000000 J			
4H-CYCLOPENTA[DEF]PHENANTHRENE	60000000 J	200000000 J		
9,10-ANTHRACENEDIONE	50000000 J			
11H-BENZO[A]FLUORENE	60000000 J	100000000 J	5000000 J	
BENZO[GHI]FLUORANTHENE	20000000 J	90000000 J	4000000 J	
BENZO[C]PHENANTHRENE	20000000 J			
BENZO[E]PYRENE	10000000 J			
BENZO[J]FLUORENTHENE	40000000 J	280000000 J		
DIBENZO[DEF,MNO]CHRYSENE	20000000 J			
1,1'-BIPHENYL, 2-METHYL		80000000 J		
DIBENZOFURAN, 4-METHYL		90000000 J		
9H-CARBAZOLE		100000000 J		
PHENANTHRENE, 1-METHYL		90000000 J		
11H-BENZO[B]FLUORENE		100000000 J	4000000 J	
UNDECANE, 3,6-DIMETHYL			4000000 J	
OCTANE, 3,6-DIMETHYL			6000000 J	
1H-INDENE, OCTAHYDRO-2,2,4,4,7,7-HEXAMETHYL-, TRANS			3000000 J	
1,2 BENZENE DICARBOXYLIC ACID, BIS(2-METHOXYETHYL)ESTER			3000000 J	
TRITETRACONTANE			4000000 J	
1-HEXADECANOL				6000000 J
DOCOSANE				4000000 J
OCTADECANAL				6000000 J
OCTACOSANE				30000000 J
NONACOSANE				40000000 J
11-OCTADECENAL				20000000 J
TETRATETRACONTANE				20000000 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR18-V, S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	09SD012XXX01XX	01SD115XXX01XX	01SD915XXX01XX	01SS118XXX01XX
UNDECANE	5000000 J			
PROPANOIC ACID, 2-METHYL-, 1-(1,1-DIMETHYL)-2-METHYL-1,3-PROPANEDIYL ESTER	4000000 J			
1,2 BENZENEDICARBOXYLIC ACID, BIS (2-METHOXYETHYL)ESTER	4000000 J	30000000 J		
SULFUR, MOL.	5000000 J	40000000 J		
PHENOL,2,6-BIS(1,1-DIMETHYL)-4-METHYL		30000000 J	10000000 J	10000000 J
TRITETRACONTANE		30000000 J		
OCTACOSANE		60000000 J		
OCTADECANAL		20000000 J		
IRON, TRICARBONYL[N-PHENYL-2-PYRIDINYLMETHYLENE] BENZENAMINE -N,N']-		60000000 J		
8-OCTADECENAL		20000000 J		
D-FRIEDOOLEAN-14-EN-3-ONE		50000000 J		
1-DOTRIACONTANOL			8000000 J	
STIGMASTEROL				7000000 J
.GAMMA.-SITOSTEROL				20000000 J

	01SD118XXX01XX	01SD119XXX01XX	01SD006XXX01XX	08SD009XXX01XX
PHENOL,2,6-BIS(1,1-DIMETHYL)-4-METNYL	8000000 J	7000000 J		
1,2-BENZENEDICARBOXYLIC ACID, BIS (2-METHOXYETHYL)ESTER			3000000 J	5000000 J
1-DOTRIACONTANOL				5000000 J
TRIDECANAL				7000000 J
NONACOSANE				30000000 J
15-OCTADECENAL				20000000 J
PENTATRIACONTANE				40000000 J
TETRATETRACONTANE				20000000 J
9-EICOSENE				6000000 J

	01SD113XXX01XX	01SD113XXX01DX
PHENOL, 2,6-BIS(1,1-DIMETHYLETHYL)-4-METHYL	7000000 J	6000000 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR17-S
AQUEOUS (ug/L)

SEMIVOLATILE

	09GW901XXX01XX	09GW903XXX01XX
BENZAMIDE,N,N-DIETHYL-3-METHYL	2000 J	1000 J
PHENOL,2,6-BIS(1,1-DIMETHYL)-4-METHYL		10000 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR13-V, S
AQUEOUS (ug/L)

VOLATILE

NO TICs WERE DETECTED	

SEMIVOLATILE

	01GW208AXX01XX	02GW213AXX01XX	03GW104AXX01XX	01SW114XXX01XX
UNKNOWN ACYCLIC HYDROCARBON	22 J		8 J	18 J
ETHANOL,2-CHLORO-PHOSPHATE	38 J	68 J		

	01SW119XXX01XX	08SW820XXX01XX	04GW401AXX01XX	08SW821XXX01XX
UNKNOWN ACYCLIC HYDROCARBON	22 J	12 J	18 J	
UNKNOWN ALKENE				8 J

	08SW008XXX01XX	04GW403AXX01DX	08SW007XXX01XX	01SW118XXX01XX
UNKNOWN ALKENE	8 J	8 J	8 J	8J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR12-V,S
SOIL (ug/kg)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	02SD003XXX01XX	01SD004XXX01XX	09SD010XXX01XX
PHENOL, 2,6-BIS(1,1-DIMETHYL)-4-METHYL	10000000 J	8000000 J	
1,2-BENZENEDICARBOXYLIC ACID, BIS (2-METHOXYETHYL)ESTER	5000000 J		
SULFUR, MOL.		10000000 J	6000000 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR11-V,S
AQUEOUS (ug/L)

VOLATILE

	04GW402AXX01XX
ETHANOL	7000 J

SEMIVOLATILE

	09SW915XXX01XX
BENZENE,1,2,3-TRIMETHYL	2000 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR20-V,S
SOIL (ug/kg)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	09SW917XXX01DX	03LT301XXX01XX
PHENOL, 2,6-BIS(1,1-DIMETHYL) -4-METHYL-	7000 J	2000 J
BENZENE,1-ETHYL-2-METHYL-		400 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR21-V,S
SOIL (ug/kg)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	09SD917XXX01XX	09SD917XXX01DX
PHENOL,2,6-BIS(1,1-DIMETHYL) -4-METHYL-	10000000 J	
HEXACOSANE	4000000 J	
TRITETRACONTANE	5000000 J	
1,2 BENZENDICARBOXYLIC ACID, BIS(2-METHOXYETHYL)ESTER		5000000 J
PENTATRIACONTANE		4000000 J
TETRATETRACONTANE		5000000 J

	01SD918XXX01XX
NAPHTHALENE,1,2,3,4-TETRAHYDRO-1,6-DIMETHYL-4-(1-METHYLETHYL)-(1S-CIS)-	2000000 J
SULFUR, MOL.	10000000 J
PHENANTHRENE,1-METHYL-7-(1-METHYLETHYL)-	1000000 J
HEXATRIACONTANE	1000000 J
UNDECANE,2,3-DIMETHYL	1000000 J
1-DOTRIACONTANOL	1000000 J
HEXATRIACONTANE	2000000 J
TRITETRACONTANE	4000000 J
PENTATRIACONTANE	2000000 J
OCTADECANAL	1000000 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR22-V,S
AQUEOUS (ug/L)

VOLATILE

	04GW404XXX01XX
AIR	600 J

SEMIVOLATILE

	01GW101XXX01XXRE	04GW406XXX01XX
BENZAMIDE,N-(1,1-DIMETHYLETHYL)-3-METHYL	400 J	300 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR23-V,S
SOIL (ug/kg)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	08SD802XXX01XX	08SD817XXX01XX	08SD817XXX01DL	08SD818XXX01XX
1,2-BENZENDICARBOXYLIC ACID, BIS (2-METHOXYETHYL) ESTER	7000000 J			
HEXATRIACONTANE	9000000 J			
TRITETRACONTANE	10000000 J	10000000 J	10000000 J	
HEXATRIACONTANE			30000000 J	
SULFUR, MOL.	10000000 J		20000000 J	
PENTATRIACONTANE	9000000 J			
HEPTADECANE, 2,6,10,15-TETRAMETHYL		4000000 J		
OCTACOSANE		20000000 J		
HEXADECANE,1,1-BIS (DODECYLOXY)		6000000 J		
1-DOTRIACONTANOL		9000000 J		
D-FRIEDOOLEAN-14-EN-3-ONE		6000000 J		
TETRATETRACONTANE			9000000 J	
NONACOSANE			40000000 J	
OCTADECANAL			20000000 J	
DIBENZOTHIOPHENE				8000000 J
PHENANTHRENE,3-METHYL				20000000 J
4H-CYCLOPENTA(DEF)PHENANTHRENE				20000000 J
PHENANTHRENE, 9-METHYL				20000000 J
FLUORANTHENE				10000000 J
BENZO[B]NAPHTHO[2,3-D]FURAN				6000000 J
11H-BENZO[B]FLUORENE				20000000 J
BENZONITRILE,4,4'-(1,2-ETHENEDIYL)BIS-				6000000 J
BENZO[GHI]FLUORANTHENE				7000000 J
BENZO[E]PYRENE				10000000 J

	08SD803XXX01XX
1,2-BENZENDICARBOXYLIC ACID, BIS (2-METHOXYEHTYL) ESTER	9000000 J
PHENANTHRENE, 4-METHYL	5000000 J
ANTHRACENE, 2-METHYL	5000000 J
PHENANTHRENE,2,5-DIMETHYL	5000000 J
11H-BENZO[A]FLUORENE	3000000 J
PYRENE, 1-METHYL	3000000 J
HEXATRIACONTANE	6000000 J
BENZO[J]FLUORANTHENE	3000000 J
TRITETRACONTANE	6000000 J
HEXATRIACONTANE	6000000 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NAS8); FILE: BR05-V,S
SOIL (ug/kg)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	03SD002XXX01DX	02SD201XXX01XX	02SD202XXX01XX	03SD301XXX01XX
UNKNOWN ALDEHYDE	1580 J	1580 J	620 J	
SATURATED ALIPHATIC HYDROCARBON	1230 J	1310 J	11080 J	16600 J
UNKNOWN OXYGENATED COMPOUND	790 J			
UNKNOWN HYDROCARBON	700 J	3300 J	2400 J	1100 J
UNKNOWN ORGANIC ACID		1500 J		
UNKNOWN KETONE				580 J
SULFUR (S6)				380 J
SULFUR (S8)				24000 J

	03SD302XXX01XX	01SD304XXX01XX	01SD305XXX01XX	03SD316XXX01XX
ETHANE, 1,1,2,2-TETRACHLORO	4300 J			
SULFUR, MOL. (S8)	47000 J			
SATURATED ALIPHATIC HYDROCARBON	72700 J	50000 J	800 J	3930 J
UNKNOWN HYDROCARBON	62400 J	8300 J		2370 J
UNKNOWN ALCOHOL		20000 J		
UNKNOWN ORGANIC ACID		6300 J		
UNKNOWN KETONE				390 J

	03SD002XXX01XX	01SD303XXX01XX	03SD317XXX01XX
UNKNOWN ALDEHYDE	4710 J		
SATURATED ALIPHATIC HYDROCARBON	12230 J	510 J	2500 J
UNKNOWN KETONE			1300 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR04-V,S
AQUEOUS (ug/L)

SEMIVOLATILE cont'd

	09GW905AXX01XX	01GW702AXX01XX	03LT302XXX01XX	01303LTXXX01XX
TRIBROMOPHENOL ISOMER	720 J			
TRIMETHYL BENZENE ISOMER		10 J	8.0 J	
ETHANE, 1,1,2,2-TETRACHLORO				62 J
UNKNOWN HYDROCARBON				22 J
SATURATED ALIPHATIC HYDROCARBON				

	03SW317XXX01XX
UNKNOWN KETONE	14 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR04-V,S
AQUEOUS (ug/L)

VOLATILE

	01GW206AXX01DX	01GW206BXX01XX	02LT201XXX01XX	02LT202XXX01XX
ETHANOL	160 J	15 J		
TERPENE ISOMER			5.0 J	
CYCLOHEXANE				5.0 J
ALKYLBENZENE				5.0 J

	01GW206AXX01XX
ETHANOL	170 J

SEMIVOLATILE

	01GW206BXX01XX	01GW210BXX01XX	02LT201XXX01XX	02LT202XXX01XX
UNKNOWN OXYGENATED COMPOUND	24 J	10 J		
UNKNOWN ORGANIC ACID		16 J	20 J	
UNKNOWN HYDROCARBON			22 J	
DIMETHYL ETHYL BENZENE ISOMER			120 J	
BENZENEPROPANOIC ACID			16 J	
HYDROXY METHOXY BENZALDEHYDE			20 J	
BENZOIC ACID, 4-HYDROXY-3-METHYL			10 J	
SATURATED ALIPHATIC HYDROCARBON			16 J	46 J
ALKYL SATURATED ALIPHATIC HYDROCARBON			10 J	

	01LT304XXX01XX	01LT304XXX01RE	01LT305XXX01XX	01LT305XXX01RE
SATURATED ALIPHATIC HYDROCARBON	152 J	532 J	130 J	800 J
UNKNOWN ORGANIC ACID	58 J	100 J		124 J
BENZALDEHYDE, 4-HYDROXY	18 J			
BENZALDEHYDE, 4-HYDROXY-3-METHYL	52 J	46 J		46 J
BENZOIC ACID, 4-HYDROXY-3-METHYL	34 J	20 J		
BENZOTHIAZOLE		40 J		
HYDROXY BENZALDEHYDE ISOMER			22 J	
HYDROXY METHOXY BENZALDEHYDE			60 J	
UNKNOWN ALDEHYDE				230 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NAS8); FILE: 8R02-V,S
SOIL (ug/kg)

VOLATILE

	MW01207121	MW01206171	TP07701031RE	TP03103031RE
ETHYL ETHER	6000000 J	5000000 J	7000000 J	5000000 J
1-BUTANAMINE	5000000 J			
PENTANE		4000000 J	4000000 J	7000000 J
HEXANE				8000000 J

	TP03102051RE	TP07702021RE
ETHYL ETHER	5000000 J	6000000 J
HEXANE	7000000 J	6000000 J

SEMIVOLATILE

	MW02213271	MW02213071	MW01211171	MW01211071
SULFUR, MOL.	2000000 J			
2-BUTANONE, 4-(ACETYLOXY)-	1000000 J			4000000 J
2-PENTENE, 2,4-DIMETHYL-	800000 J			
PROPANOIC ACID, 2-METHYL-, 1-(1,1-DIMETHYLETHYL)-2-METHYL-1,3-PROPANEDIYL ESTER	600000 J	2000000 J		900000 J
3-PENTEN-2-ONE, 4-METHYL-		1000000 J		
1,2-BENZENEDICARBOXYLIC ACID, BIS(2-METHOXY ETHYL)ESTER			2000000 J	2000000 J
1,2-PROPANDIOL				5000000 J
HEPTANE, 2-METHYL				800000 J
CYCLOPROPANE-1,1,2,2-TETRAMETHYL				900000 J
PHENOL, 2,6-BIS(1,1 DIMETHYLETHYL)-4-METHYL				4000000 J
BENZENE, 1,1'-ETHYLIDENE BIS [4 ETHYL]				500000 J
ETHANONE, 1-(4,6-DIHYDROXY-2,3,5-TRIMETHYL-7-BENZOFURANYL				2000000 J
1-DOTRIACONTANOL				800000 J

	MW01210142	MW01210321	MW01207121	MW01210141
PHENOL, 2,6-BIS(1,1-DIMETHYLETHYL)-4-METHYL			3000000 J	
SULFUR, MOL.			10000000 J	
PROPANOIC ACID, 2-METHYL-, 1-(1,1-DIMETHYLETHYL)2-METHYL-1,3-PROPANEDIYL ESTER				1000000 J
ACETIC ACID, 1-METHYLETHYL ESTER	6000000 J	6000000 J		
1,2 BENZENDICARBOXYLIC ACID, BIS(2-METHYLETHYL)ESTER		1000000 J		

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR02-V,S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	TP07702021RE	TP07702021	MW01206171	TP07701031
PHENOL,2,6-BIS(1,1-DIMETHYETHYL)-4-METHYL-	4000000 J	4000000 J	2000000 J	4000000 J
1,2-BENZENDICARBOXYLIC ACID, BIS(2-METHOXYETHYL)ESTER		2000000 J	1000000 J	
PHOSPHONIC ACID, DIOCTADECYL ESTER	1000000 J	1000000 J		5000000 J
1-HENTETRACONTANOL				8000000 J
CYCLOHEXADECANE				2000000 J
IRON, TRIACARBONYL [N-(PHENYL-2-PYRIDINYLMETHYLENE)BENZENAMINE-N,N']-				2000000 J
1-OCTADECANOL				2000000 J
.GAMMA.-SITOSTEROL				5000000 J
1-DOTRIACONTANOL	1000000 J	1000000 J		
HEXADECANE	1000000 J			

	TP03103031	TP03103041	TP03102051
PROPANOIC ACID	1000000 J		
1,2-BENZENEDICARBOXYLIC ACID, BIS(2-METHOXYETHYL)ESTER	2000000 J	1000000 J	1000000 J
BUTANE		5000000 J	
1-DOTRIACONTANOL			1000000 J

	MW01207071	MW01206121	MW09904171
PHENOL, 2,6-BIS(1,1-DIMETHYLETHYL)-4-METHYL-	1000000 J	3000000 J	
ACETIC ACID, ETHYL ESTER			900000 J
SULFUR, MOL.			3000000 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR19-V,S
SOIL (ug/kg)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	MW01209241
1,2-PROPANEDIOL	500000 J
PHENOL, 2,6-BIS(1,1-DIMETHYLETHYL)-4-METHYL	70000 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR03-V,S
SOIL (ug/kg)

VOLATILE

	TP09901011	TP09901092
ETHYL ETHER	5000000 J	6000000 J
1-BUTANAMINE	6000000 J	

SEMIVOLATILE

	TP03101031	MW08808171	MW08808191	TP09901011
1,3,5-METHENOL-1H-CYCLOPROPA[A] PENTANE,1,1A,4,5,5A,6-HEXACHLOROOCTAHYDRO-	700000 J			
CHLORDANE	1000000 J			
PROPIONIC ACID, 2-METHYL-1-(1,1 DIMETHYL ETHYL)- 2-METHYL-1,3-PROPANEDIYL ESTER		1000000 J		
1,2-BENZENEDICARBOXYLIC ACID, BIS(2-METHOXYETHYL)ESTER		3000000 J	2000000 J	
SULFUR, MOL.			2000000 J	
2-BUTANONE, 4-(ACETYLOXY)-			2000000 J	
CYCLOHEXANE, 4-METHYLENE-1-(1-METHYETHYL)-				4000000 J
BICYLCO [3.1.1] HEPT-2-ENE, 3,6,6-TRIMETHYL				2000000 J

	TP09902081	MW01205991	MW012051011	MW08808231
1,2-BENZENEDICARBOXYLIC ACID BIS(2-METHOXYETHYL)ESTER	1000000 J	2000000 J	1000000 J	3000000 J
SULFUR, MOL.		10000000 J	2000000 J	1000000 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR06-V,S
SOIL (ug/kg)

VOLATILE

	TP04401032	MW01206791	MW04407511
CYCLOTRISILOXANE, HEXAMETHYL	4000 J		
ETHYL ETHER (8CI)		200000 J	
BENZENE,1,4-DIFLUORO-			9000 J

SEMIVOLATILE

	MW01206671	MW01206771	TP04401032	TP07705051
PHENOL, 2,6-BIS (1,1-DIMETHYLETHYL-4-METHYL)		3000000 J	4000000 J	
1,2-BENZENEDICARBOXYLIC ACID, BIS 2-(METHOXYETHYL)ESTER	1000000 J	1000000 J	2000000 J	2000000 J
SULFUR, MOL.	1000000 J	3000000 J		

	MW01206791	MW04406511	MW04406262
PHENOL, 2,6-BIS (1,1-DIMETHYLETHYL-4-METHYL)	3000000 J	2000000 J	2000000 J
SULFUR, MOL.	8000000 J		
1,2-BENZENEDICARBOXYLIC ACID, BIS 2-(METHOXYETHYL)ESTER		1000000 J	1000000 J

	MW04406261	MW04407511
PHENOL, 2,6-BIS (1,1-DIMETHYLETHYL-4-METHYL)		1000000 J
SULFUR, MOL.		1000000 J
1,2-BENZENEDICARBOXYLIC ACID, BIS 2-(METHOXYETHYL)ESTER	1000000 J	

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR09-V,S
AQUEOUS (ug/L)

VOLATILE

NO TICs WERE DETECTED

SEMIVOLATILE

	SBXX406XX1
PHENOL 2,6-BIS (1,1-DIMETHYLETHYL-4-METHYL)	2000000 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR10-V,S
SOIL (ug/kg)

VOLATILE

	TP04402041	MW012081101	MW012081121	
ETHYL ETHER (BCI)	3000000 J			
CARBON DIOXIDE		200 J	200 J	

SEMIVOLATILE

	TP07703021	TP07705021	MW012081121	MW012081121REDL
UNKNOWN PHTHALATE	1000000 J			
1,2-BENZENEDICARBOXYLIC ACID, BIS(2-METHOXYETHYL)ESTER		1000000 J		
PHENOL, 2-6 BIS(1,1 DIMETHYLETHYL)-4-METHYL			1000000 J	
1,1'-BIPHENYL, 4-FLUORO-				200000000 J

	TP07703021	TP07705021	TP07704051	TP04403011
PHOSOPHONIC ACID, DIOCTADECYL ESTER	6000000 J			1000000 J
1-DOTRIACONTANOL	9000000 J	9000000 J		
D-FRIEDOOLEAN-14-EN-3-ONE	6000000 J			
.GAMMA.-SITOSTEROL	8000000 J			
1,2-BENZENEDICARBOXYLIC ACID, BIS(2-METHOXYETHYL)ESTER			1000000 J	
UNDECANE, 3,6-DIMETHYL				2000000 J
OCTANE, 2,3,7-TRIMETHYL				5000000 J
TRIDECANE, 6-METHYL-				2000000 J
DODECANE, 2,7,10-TRIMETHYL				5000000 J
OCTACOSANE				2000000 J
DODECANE, 2-METHYL,-8-PROPYL				3000000 J
PHOSPHORIC ACID, TRIS(METHYL)				1000000 J
TRITETRACONTANE				1000000 J
HEPTACOSANE				2000000 J
TRIDECANE, 6-PROPYL				2000000 J

	MW012081101	TP07705071	TP07707071
PROPANOIC ACID, 2-METHYL-,1-(1,1 DIMETHYLETHYL)-2-METHYL-1,3-PROPANEDIYL ESTER			1000000 J
UNKNOWN PHTHALATE			2000000 J
PHENOL, 2,6-BIS(1,1DIMETHYLETHYL)-4-METHYL	2000000 J	2000000 J	

4607-34 58

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR01-V,S
SOIL (ug/kg)

VOLATILE

	MW08807061	MW01205321	MW08807321	MW08805171
ETHYL ESTER	50000000 J			10000000 J
HEXANE	40000000 J			
PENTANE		10000000 J		
PENTANE, 3-METHYL			20000000 J	

	MW09904121	MW01201311	MW07705171	MW07705121
ETHANOL	70000 J			20000 J
PENTANE, 3-METHYL		700 J		
HEXANE			700 J	700 J

SEMIVOLATILE

	MW08807061	MW01204271	MW01204421	MW01203321
PROPANOIC ACID, 2-METHYL-,1-(1,1-DIMETHYL)-2-METHYL-1,3-PROPANEDIYL ESTER	4000000 J	800000 J	700000 J	900000 J
UNKNOWN PHTHALATE	20000000 J			
1-TETRACOSANOL	3000000 J			
1-DOTRIACONTANOL	30000000 J			
ETHANOL, 2-(TETRADECYLOXY)-	10000000 J			
D-FRIEDOOLEAN-14-EN-3-ONE	20000000 J			
METHANONE, (3,4-DIMETHOXYPHENYL)(3,4,5-TRIMETHOXY-2-METHYLPHENYL)-	6000000 J			
1,2-BENZENEDICARBOXYLIC ACID, BIS(METHOXYETHYL)ESTER		6000000 J	4000000 J	5000000 J
1,2-PROPANEDIOL				2000000 J
ACETIC ACID, ETHYL ESTER				1000000 J

Click Here to Return to Main Index

TENTATIVELY IDENTIFIED COMPOUNDS (TICs) SUMMARY
FOR BRUNSWICK (NASB); FILE: BR01-V,S
SOIL (ug/kg)

SEMIVOLATILE cont'd

	MW08807321	MW08805121	MW08805171	MW02212141
3-PENTENE-2-ONE, 4-METHYL		700000 J		800000 J
1,2-BENZENEDICARBOXYLIC ACID, BIS (2-METHOXY-ETHYL)ESTER			5000000 J	
SULFUR, MOL.	10000000 J			
ETHANE, ISOTHIOCYANATO-	2000000 J			
PHENOL, 2,6-BIS(1,1-DIMETHYL)-4-METHYL		3000000 J		
1,2-PROPANEDIOL			1000000 J	1000000 J
ACETIC ACID, PROPYL ESTER			900000 J	2000000 J
ACETIC ACID, 1-METHYL ETHYL ESTER				3000000 J

	MW03202061	MW03202161	MW07705121	MW07705121DL
1,2 PROPANEDIOL	1000000 J			
3-PENTENE-2-ONE, 4-METHYL		700000 J	1000000 J	
1,2-BENZENDICARBOXYL ACID, BIS (2-METHOXY-ETHYL)ESTER	1000000 J			6000000 J
2-PENTENE, 4,4-DIMETHYL-	500000 J			
2-PROPANOL	3000000 J			
SULFUR, MOL.		1000000 J		
CYCLOPROPANE, 1,1,2,2-TETRAMETHYL				2000000 J
CYCLOHEXANONE				2000000 J
BENZAMIDE, N,N-DIETHYL-3-METHYL-				900000 J
PROPANOIC ACID, 2-METHYLO,1-(1,1-DIMETHYLETHYL)-2-METHYL-1,3-PROPANEDIYL ESTER				2000000 J

	MW02101021	MW07704071	MW07705171	MW07704121
3-PENTEN-2-ONE, 4-METHYL	400000 J		6000000 J	
.ALPHA.-PINENE	700000 J			
PROPANOIC ACID, 2-METHYL-1-(1,1-DIMETHYL)-2-METHYL-1,3-PROPANEDIYL ESTER	600000 J		7000000 J	900000 J
.GAMMA.-SITOSTEROL	1000000 J			
CYCLOPROPANE, 1,1,2,2-TETRAMETHYL		1000000 J		
1,2-BENZENEDICARBOXYLIC ACID, BIS (2-METHOXY ETHYL ESTER)		2000000 J		
2-BUTANONE, 4-(ACETYLOXY)			4000000 J	

	MW01203421	MW01205321	MW02212161
1,2-PROPANEDIOL	4000000 J		2000000 J
ACETIC ACID, ETHYL ESTER	8000000 J		
3-PENTENE-2-ONE, 4- METHYL		2000000 J	6000000 J
PROPANOIC ACID, 2-METHYL-1(1,1 DIMETHYL)-2-METHYL-1,3 PROPANEDIYL ESTER		2000000 J	
1,2-BENZENEDICARBOXYLIC ACID, BIS(2-METHOXY-ETHYL)ESTER		10000000 J	6000000 J

Click Here to Return to Main Index

JORDAN AVENUE WELLFIELD DATA

Click Here to Return to Main Index

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90260
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MAR. 9 1990
TO:

PUBLIC HEALTH LABORATORY
221 STATE STREET, STATION #12
DEPARTMENT OF HUMAN SERVICES
AUGUSTA, MAINE 04333
207-289-2727

BRUNSWICK & TOPSHAM WATER DIST
ALAN FRASIER
PO BOX 580
BRUNSWICK, ME 04011

TE1

NOTE: PLEASE RETAIN THIS REPORT FOR YOUR INVOICE RECORDS, THANK YOU

Enclosed are the results of your recent sample request:
SAMPLE#90E-PUB-01688 SAMPLE RECEIVED ON: 02/28/90
(JORDAN AVE STATION)
SAMPLED BY: ART LOCATION: BRUNSWICK,
Your results are as follows:

Parameter		Analysis Results		Maximum Contaminant Level	
TOTAL COLIFORM		0	COL/100ML	1.000	COL/100ML
TOTAL HARDNESS		27.10	MG/L	500.000	MG/L
TOTAL CHLORIDE		21.90	MG/L	250.000	MG/L
NITRITE NITROGEN	<	.0200	MG/L	1.000	MG/L
NITRATE NITROGEN		1.71	MG/L	10.000	MG/L
COLOR		5.00	UNITS	15.000	UNITS
TURBIDITY		0.20	NTU	1.000	NTU
COPPER		0.08	MG/L	1.000	MG/L
I[redacted]		0.06	MG/L	.300	MG/L
MA[redacted]ANESE		0.13	MG/L	.300	MG/L
FLUORIDE		0.20	MG/L	4.000	MG/L
ARSENIC	<	.0030	MG/L	.050	MG/L
BARIUM	<	.0100	MG/L	1.000	MG/L
CADMIUM	<	.0005	MG/L	.010	MG/L
CHROMIUM	<	.0002	MG/L	.050	MG/L
LEAD	<	.0030	MG/L	.020	MG/L
MERCURY	<	.0003	MG/L	.002	MG/L
SELENIUM	<	.0010	MG/L	.010	MG/L
SILVER	<	.0010	MG/L	.050	MG/L
SODIUM		14.00	MG/L	20.000	MG/L
pH		6.70		8.500	
ZINC		0.40	MG/L	5.000	MG/L

The Maximum Contaminant Level is a benchmark for comparing your Analysis Results. If your Analysis Results exceed this Maximum Contaminant Level an asterisk (***) will be printed in the right most column. Parameters with an asterisk (***) MAY be unsatisfactory. For parameters an asterisk, we have enclosed additional information. IF YOU DO NOT FIND AN ASTERISK (***) IN THE RIGHT MOST COLUMN FOR ANY TEST PARAMETER, THEN YOUR WATER IS CONSIDERED SATISFACTORY FOR THAT PARAMETER. Likewise, if NONE of the parameters are marked with an asterisk, then the water is satisfactory for ALL of the parameters tested.

[redacted]nalysis results with a "<" sign indicates that the result was

MAR 14 1990

Click Here to Return to Main Index

less than" the detection limit for that particular parameter.

we can be of further assistance to you, please call us at 289-2727.

Environmental Testing
Public Health Laboratory

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90260

MAINE PUBLIC HEALTH LABORATORY
STATE OF MAINE, STATION #12
DEPARTMENT OF HUMAN SERVICES
AUGUSTA, MAINE 04333
207-289-2727

TO:
BRUNSWICK & TOPSHAM WTR D
BOX 580
BRUNSWICK, ME 04011

MAR. 1 1990

code:TSN

Enclosed are the results of your analytical test request.
Sample data associated with this test is listed below:
TEST REQUEST: VOLATILE ORGANICS SCREEN; E.P.A. METHOD 502.2
SAMPLE NUMBER: 90E-ORG-00886
DATE SAMPLE WAS RECEIVED: 02/28/90
SOURCE OF SAMPLE PUBLIC
SAMPLING POINT FAUCET
ESTABLISHMENT NAME: JORDAN AVE STATION

RESULTS: (THIS IS A SCREENING TEST FOR MANY COMPOUNDS
ONLY POSITIVE RESULTS OR COMMENTS ARE LISTED)

NAME OF COMPOUND(S) DETECTED	CONCENTRATION(ppb) parts per billion

NO COMPOUNDS COVERED BY THIS METHOD WERE DETECTED

If you have any questions about your results, the test method or any other tests available from the Public Health Laboratory, please call at the above number and ask for the ORGANICS SECTION. Please refer to your test code at this time for proper directing to appropriate chemists at the PHL.

Attached is a list of all the compounds routinely analyzed for, their detection limits, and the test method reference. All of these compounds have been analyzed in this analysis.

Approved by: DS

Click Here to Return to Main Index

VOLATILE ORGANICS TEST N
PARAMETER SHEET

Listed below are all the compounds routinely tested for using the Public Health Lab Volatile Organic Test (EPA Method 502.2). Trihalomethanes and fuel mixtures such as gasoline, kerosene, and fuel oil #2 are also detected by this method; but are not quantitated. If a fuel mixture is detected in your sample we recommend that it be retested by the Volatile Petroleum Screen (Test M) which is specifically designed to test for these fuel mixtures. Trihalomethanes are quantitated using THM test P. Minimum detection limit (MDL) for 1,2 Dibromomethane and 1,2 Dibromo-3-chloropropane is 5.0 parts per billion (ppb). MDL For Methylene chloride is 10 parts per billion. MDL for all other compounds is 0.5 ppb.

Benzene	Bromobenzene
Bromochloromethane	Bromomethane
n-Butylbenzene	sec-Butylbenzene
tert-Butylbenzene	Carbon tetrachloride
Chlorobenzene	Chloroethane
Chloromethane	2-Chlorotoluene
4-Chlorotoluene	1,2-Dibromo-3-chloropropane
1,2-Dibromoethane	Dibromomethane
1,2-Dichlorobenzene	1,3-Dichlorobenzene
1,4-Dichlorobenzene	Dichlorofluoromethane
1,1-Dichlorethane	1,2-Dichloroethane
1,1-Dichloroethylene	cis-1,2-Dichloroethene
trans-1,2-Dichloroethene	1,2-Dichloropropane
1,3-Dichloropropane	2,2-Dichloropropane
1,1-Dichloropropene	Ethlybenzene
Hexachlorobutadiene	Isopropylbenzene
p-Isopropyltoluene	Naphthalene
Methylene chloride	
n-Propylbenzene	Styrene
1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane
Tetrachloroethene	Toluene
1,2,3-Trichlorobenzene	1,2,4-Trichlorobenzene
1,3,5-Trichlorobenzene	1,1,1-Trichloroethane
1,1,2-Trichloroethane	Trichloroethene
Trichlorofluoromethane	1,2,3-Trichloropropane
1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
Vinyl chloride	o-Xylene
m-Xylene	p-Xylene

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PUB
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90260

STATE OF MAINE
PUBLIC HEALTH LABORATORY
221 STATE STREET, STATION #12
DEPARTMENT OF HUMAN SERVICES
AUGUSTA, MAINE 04333
207-289-2727

TO:
BRUNSWICK & TOPSHAM W
BOX 580
BRUNSWICK
ME 04011

MAR. 14 1990

code:TSM

We have completed the Hydrocarbon analysis (Test M) on your sample:
SAMPLE NUMBER: 90E-ORG-00986 90EORG886
DATE SAMPLE WAS COLLECTED: 2/28/90
DATE SAMPLE WAS RECEIVED: 02/28/90
SAMPLE SOURCE: PUBLIC
SAMPLE POINT: FAUCET
ESTABLISHMENT NAME: JORDAN AVE STATION
COMMENTS:

The following results can now be reported; all results are reported as ppb, parts per billion:

CONTAMINANT TESTED FOR	ANALYTICAL DETECTION LIMIT	CONCENTRATION FOUND AFTER ANALYSIS
MTBE	20.0	BDL
GASOLINE	10.0	BDL
FUEL OIL	50.0	BDL

In general, the Laboratory will print a BDL code for Below Detection Limit if the sample was less concentrated than our above reported Analytical Detection Limit. A report of NQ indicates that the component was not quantitated. Positive results will have an attached information sheet to discuss corrective actions and health risks. Unless otherwise requested, the Dept. of Environmental Protection receives copy of positive results so that they may offer assistance in determining corrective actions.

Thank you for using the Public Health Laboratory for your testing needs. If you have any questions on this or any other test we might perform for you, please contact the organics section of the Public Health Laboratory at the above number.

Approved by:

MAR 2 3 1990

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PUB
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90260

MAINE PUBLIC HEALTH LABORATORY
STATE OF MAINE, STATION #12
DEPARTMENT OF HUMAN SERVICES
AUGUSTA, MAINE 04333
207-289-2727

MAR. 12 1990

TO:
BRUNSWICK & TOPSHAM WTR D
BOX 580
BRUNSWICK, ME 04011

code:TQ1

Enclosed are the results of your analytical test request.
Sample data associated with this test is listed below:
TEST REQUEST: E.P.A. approved method 509A; Herbicide Screen
SAMPLE NUMBER: 90E-ORG-00887
DATE SAMPLE WAS RECEIVED: 02/28/90
SOURCE OF SAMPLE PUBLIC
SAMPLING POINT FAUCET
ESTABLISHMENT NAME: JORDAN AVE STATION

RESULTS: (THIS IS A SCREENING TEST FOR MANY COMPOUNDS
ONLY POSITIVE RESULTS OR COMMENTS ARE LISTED)

NAME OF COMPOUND(S) DETECTED	CONCENTRATION(ppb) parts per billion

NO COMPOUNDS COVERED BY THIS METHOD WERE DETECTED

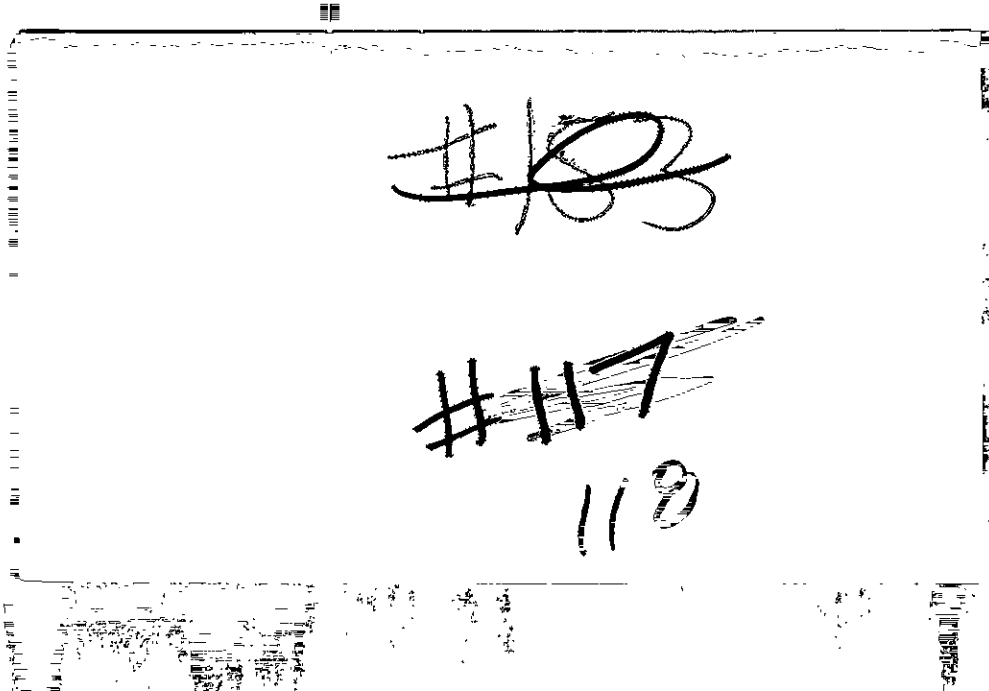
If you have any questions about your results, the test method or any other tests available from the Public Health Laboratory, please call at the above number and ask for the ORGANICS SECTION. Please refer to your test code at this time for proper directing to appropriate chemists at the PHL.

Attached is a list of all the compounds routinely analyzed for, their detection limits, and the test method reference. All of these compounds have been analyzed in this analysis.

Approved by:
[signature]

MAR 15 1990

Click Here to Return to Main Index



Click Here to Return to Main Index

U.S. DEPARTMENT OF THE NAVY

NAVAL AIR STATION, BRUNSWICK

BRUNSWICK, MAINE

DRAFT FINAL
RI REPORT

VOLUME 3
APPENDICES K - P

RI/FS PROGRAM

CONTRACT : N62472-84-C-1108

E. C. JORDAN PROJECT NO. 4607-41

AUGUST 1990

Click Here to Return to Main Index

APPENDICES

APPENDIX K - APPENDIX TABLES OF LABORATORY ANALYTICAL DATA
APPENDIX L - GROUNDWATER CONTAMINANT SUMMARY MAPS (ROUNDS I, II, III, IV)
APPENDIX M - SURFACE WATER, SEDIMENT, AND LEACHATE CONTAMINANT SUMMARY MAPS (ROUNDS I, II, III, IV)
APPENDIX N - SOIL CONTAMINANT SUMMARY MAPS (ROUNDS I AND IV)
APPENDIX O - PIPER DIAGRAMS
APPENDIX P - WATER LEVEL SUMMARY TABLE

Click Here to Return to Main Index

APPENDIX K
APPENDIX TABLES OF LABORATORY ANALYTICAL DATA

NAS BRUNSWICK
BRUNSWICK, MAINE

Click Here to Return to Main Index

ROUND I DATA

Combined Laboratory Report of Analysis

	SAMPLE ID:	01FB001XXX01XX	01FB002XXX01XX	01GW101XXX01XX	02GW102AXX01XX	03GW103XXX01XX	03GW104XXX01XX	01GW105AXX01XX	01GW105BXX01XX
	LAB NUMBER:	8259-017	8260-033	8260-012	8253-009	8256-010	8256-012	8253-005	8253-004
	DATE SAMPLED:	9/14/88	9/16/88	9/15/88	9/8/88	9/9/88	9/9/88	9/8/88	9/8/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METALS COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	11 U	11 U	55 [JE	78 [J	47 [J	18 [J	14 [J	12 [J
Antimony	P	60	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U
Arsenic	F	10	2.9 UN	2.9 UN	5.6 [J	16	3 U	3 U	2.9 U	2.9 U
Barium	P	200	4 [J	5 [J	5 [J	11 [J	8 [J	4 [J	4 [J	4 [J
Beryllium	P	5	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Cadmium	P	5	3 [J	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Calcium	P	5000	76 [J	100 [J	6700	18000	5000 [J	4200 [J	4200 [J	4700 [J
Chromium	P	10	6 U	6 U	6 U	9 [J	6 U	7 [J	9 [J	9 [J
Cobalt	P	50	7.2 U	7.2 UE	7.2 U	8 [J	7.2 U	7.2 U	7.2 U	7.2 U
Copper	P	25	2.6 U	2.6 U	3 [J	2.6 U	2.6 U	3 [J	2.6 U	2.6 U
Iron	P	1000	35 [J	13 [JE	86 [JE	6500	19 [J	37 [J	14 [J	27 [J
Lead	P/F	5	1.8 U	5.4	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Magnesium	P	5000	52 U	52 U	3200	11000	1500	2800	1400	2300
Manganese	P	15	2.1 U	2.1 U	46	1400	37	32	3 [J	15
Mercury	CV	0.20	0.1 U	0.1 U	0.1 U	0.15 [J	0.1 UN	0.15 [JN	0.15 [J	0.11 [J
Nickel	P	40	9.2 U	9.2 UE	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U
Potassium	P	5000	190 U	190 U	1900 [J	5500	710 [J	1600 [J	710 [J	910 [J
Selenium	F	5	1.8 U	1.8 UN	1.8 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Silver	P	10	3.7 U	3.7 U	3.7 UN	3.7 U	3.7 UN	3.7 UN	3.7 U	5 [J
Sodium	P	5000	280 [J	330 [JE	12000	87000	3800 [J	15000	3700 [J	3900 [J
Thallium	F	10	0.7 U	0.97 [J	1.5 [JN	0.7 UN	1.5 [JN	0.7 UN	0.75 [JN	0.7 UN
Vanadium	P	50	3.2 U	3.2 U	5 [J	7 [J	3.2 U	3.2 U	4 [J	7 [J
Zinc	P	20	56	2.6 U	5 [J	12 [J	18 [J	34	5 [J	5 [J
Total Cyanide	CM	100	NR	NA	5 U	5 U	5 U	5 U	5 U	5 U
Boron	P	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank			WATER4	WATER5	WATER5	H203	H204	H205	H203	H203
Associated Equipment Blank			-	01FB002XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX

* = Reporting Limit, not a CRDL

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01GW106XXX01XX	01GW201XXX01XX	01GW202AXX01XX	01GW203XXX01XX	01GW204XXX01XX	01GW205XXX01XX	01GW206AXX01XX	01GW206AXX01DX
	LAB NUMBER:	8256-007	8253-006	8252-004	8252-005	8252-006	8252-007	8252-008	8252-009
	DATE SAMPLED:	9/9/88	9/8/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METALS COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	23 []	63 []	30 []	35 []	38 []	100 []	20 []	21 []
Antimony	P	60	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U
Arsenic	F	10	3 U	2.9 U	12	29	2.9 U	2.9 U	2.9 U	2.98 U
Barium	P	200	3.6 U	10 []	47 []	24 []	9 []	10 []	9 []	12 []
Beryllium	P	5	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Cadmium	P	5	3 U	3 U	13	3 U	3 U	3 U	3 U	3 U
Calcium	P	5000	6900	3900 []	27000	28000	6400	14000	11000	11000
Chromium	P	10	6 U	6 []	6 U	6 U	6 U	6 U	6 U	6 U
Cobalt	P	50	7.2 U	7.2 U	15 []	16 []	7.2 U	8 []	7.2 U	8 []
Copper	P	25	4 []	4 []	2.6 U	2.6 U	3 []	2.6 U	3 []	2.6 U
Iron	P	1000	10 []	35 []	110000	14000	110	110	91 []	37 []
Lead	P/F	5	1.8 U	2.2 []	1.8 U	1.9 []	1.8 U	1.8 U	1.8 U	1.8 U
Magnesium	P	5000	2200	630 []	3100	8700	1900	6800	4800	4800
Manganese	P	15	7 []	12 []	3500	1800	21	410	68	66
Mercury	CV	0.20	0.1 UN	0.1 U	0.22	0.12 []	0.12 []	0.12 []	0.12 []	0.12 []
Nickel	P	40	9.2 U	9.2 U	18 []	11 []	15 []	17 []	18 []	13 []
Potassium	P	5000	700 []	730 []	4600 []	3700 []	570 []	4000 []	1400 []	1500 []
Selenium	F	5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Silver	P	10	3.7 UN	3.7 U	3.7 UN	3.7 UN	3.7 UN	3.7 UN	3.7 UN	3.7 UN
Sodium	P	5000	9200	5800	25000	16000	4900 []	9000	8000	8300
Thallium	F	10	1.1 []N	1.3 []N	0.7 UN	0.7 UN	0.79 []N	0.7 UN	0.7 UN	0.7 UN
Vanadium	P	50	3.2 U	5 []	3.2 U	3.2 U	4 []	4 []	3.2 U	5 []
Zinc	P	20	11 []	19 []	32	31	37	32	20 []	17 []
Total Cyanide	CM	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Boron	P	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank			H204	H203	H201	H201	H201	H201	H201	H201
Associated Equipment Blank			01FB001XXX01XX	01FB001XXX01XX	01FBXX1XX01XX	01FBXX1XX01XX	01FBXX1XX01XX	01FBXX1XX01XX	01FBXX1XX01XX	01FBXX1XX01XX

K-2

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Combined Laboratory Report
of Analysis

	SAMPLE ID:	01GW206BXX01XX	01GW207AXX01XX	01GW207BXX01XX	01GW208XXX01XX	01GW209XXX01XX	01GW210AXX01XX	01GW210BXX01XX	01GW211AXX01XX
	LAB NUMBER:	8252-010	8260-023	8260-024	8256-006	8256-008	8252-011	8252-012	8253-007
	DATE SAMPLED:	9/7/88	9/15/88	9/15/88	9/9/88	9/9/88	9/7/88	9/7/88	9/8/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METALS COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	17 []	24 []	27 []	310	11 U	30 []	15 []	53 []
Antimony	P	60	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U
Arsenic	F	10	2.9 U	6.1 []N	2.9 UN	3 U	3 U	9.9 []	28	22
Barium	P	200	7 []	10 []	5 []	3.6 U	6 []	25 []	16 []	33 []
Beryllium	P	5	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Cadmium	P	5	3 U	3 U	3 U	4 []	3 U	3 U	3 U	3 U
Calcium	P	5000	1400 []	6400	2900 []	9400	3200 []	5800	24000	4600 []
Chromium	P	10	6 U	6 U	6 U	6 U	6 U	6 U	6 U	11
Cobalt	P	50	7.2 U	7.2 UE	10 []E	7.2 U	9 []	7.2 U	13 []	7.2 U
Copper	P	25	3 []	2.6 U	3 []	3 []	3 []	2.6 U	2.6 U	2.6 U
Iron	P	1000	57 []	190 E	60 []E	410	8.2 U	110	25000	71 []
Lead	P/F	5	1.8 U	1.9 []	1.8 U	1.8 U	2 []	1.8 U	1.8 U	1.8 U
Magnesium	P	5000	170 []	4000	1300	4600	1200	3700	6200	4600
Manganese	P	15	12 []	67	65	91	7 []	18	4300	8 []
Mercury	CV	0.20	0.12 []	0.1 U	0.1 U	0.1 UN	0.1 UN	0.12 []	0.12 []	0.15 []
Nickel	P	40	14 []	9.2 UE	9.2 UE	9.2 U	9.2 U	14 []	9.21 U	9.2 U
Potassium	P	5000	660 []	2000 []	540 []	4000 []	490 []	24000	3100 []	90000
Selenium	F	5	1.1 U	1.8 UN	1.8 UN	1.1 U	1.1 U	1.1 U	3.1 []	1.1 U
Silver	P	10	3.7 UN	3.7 U	3.7 U	4 []N	3.7 UN	3.7 UN	3.7 UN	3.7 U
Sodium	P	5000	8500	30000 E	3900 []E	15000	3500 []	440000	12000	540000
Thallium	F	10	0.7 UN	0.7 U	0.7 U	0.75 []N	0.7 UN	0.7 UN	0.7 UN	1.3 []N
Vanadium	P	50	3.2 U	3.2 U	4 []	3.2 U	3.2 U	3.2 U	3.2 U	7 []
Zinc	P	20	19 []	11 []	10 []	7 []	17 []	21	20 []	5 []
Total Cyanide	CM	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Boron	P	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank			H201	WATER5	WATER5	H204	H204	H201	H202	H203
Associated Equipment Blank			01FBXX1XX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FBXX1XX01XX	01FBXX1XX01XX	01FB001XXX01XX

* = Reporting Limit, not a CRDL

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Combined Laboratory Report of Analysis

	SAMPLE ID:	01GW211BXX01XX	02GW212XXX01XX	02GW213XXX01XX	04GW401XXX01XX	04GW402XXX01XX	04GW403XXX01XX	04GW403XXX01DX	04GW404XXX01XX
	LAB NUMBER:	8253-008	8256-009	8256-011	8257-007	8253-010	8258-010	8258-011	8260-019
	DATE SAMPLED:	9/8/88	9/9/88	9/9/88	9/12/88	9/8/88	9/13/88	9/13/88	9/15/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METALS COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	140 []	5200	98 []	75 []	54 []	31 []E	22 []E	59 []E
Antimony	P	60	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U
Arsenic	F	10	2.9 U	3 U	12	4.3 []	2.9 U	2.9 U	2.9 U	2.9 U
Barium	P	200	13 []	25 []	5 []	3.6 U	5 []	8 []E	9 []E	7 []
Beryllium	P	5	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Cadmium	P	5	3 U	3 []	3 U	3 U	3 U	3 U	3 U	3 U
Calcium	P	5000	18000	7800	12000	3700 []	2000 []	1100 []	1100 []	2800 []
Chromium	P	10	6 U	12	6 U	6 U	6 U	6 U	6 U	6 U
Cobalt	P	50	8 []	7.2 U	7.2 U	7.2 U	9 []	7.2 U	7.2 U	8 []
Copper	P	25	2.6 U	11 []	2.6 U	3 []	2.6 U	2.6 U	3 []	2.6 U
Iron	P	1000	280	6100	14000	120	40 []	50 []	15 []	92 []E
Lead	P/F	5	1.8 U	1.8 U	1.8 U	1.8 U*	1.8 U	13 NS	13 NS	1.8 U
Magnesium	P	5000	8300	2800	7000	2700	470 []	620 []	620 []	680 []
Manganese	P	15	570	180	470	240	21	6 []	5 []	25
Mercury	CV	0.20	0.11 []	0.1 UN	0.11 []N	0.1 UN	0.11 []	0.13 []	0.13 []	0.1 U
Nickel	P	40	9.2 U	11 []	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U
Potassium	P	5000	4800 []	1400 []	3400 []	1700 []	700 []	370 []	290 []	970 []
Selenium	F	5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 UN	1.1 UN	1.8 U
Silver	P	10	3.7 U	3.7 UN	3.7 UN	3.7 UN	3.7 U	3.7 U	3.7 U	4 []N
Sodium	P	5000	15000	3200 []	26000	5000 []	4500 []	2600 []	2400 []	4000 []
Thallium	F	10	2.1 []N	0.7 UN	1.9 []N	0.7 UN	0.7 UN	0.7 UN	0.7 UN	0.7 UN
Vanadium	P	50	5 []	9 []	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	4 []
Zinc	P	20	18 []	33	19 []	9 []	5 []	27	9 []	9 []
Total Cyanide	CM	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Boron	P	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank			H203	H204	H205	H205	H203	WATER1	WATER2	WATER5
Associated Equipment Blank			01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX

K-4

* Reporting Limit, not a CRDL

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Combined Laboratory Report
of Analysis

	SAMPLE ID:	04GW405XXX01XX	04GW406XXX01XX	04GW407XXX01XX	07GW701XXX01XX	07GW702XXX01XX	07GW703XXX01XX	07GW704XXX01XX	07GW705XXX01XX
	LAB NUMBER:	8260-020	8260-022	8260-021	8260-015	8260-016	8260-013	8260-014	8260-018
	DATE SAMPLED:	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METALS COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	19 [ ]E	96 [ ]	160000	83 [ ]E	51 [ ]E	41 [ ]E	43 [ ]E	15 [ ]E
Antimony	P	60	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U
Arsenic	F	10	2.9 U	2.9 [ ]N	7.5 [ ]N	3.5 [ ]	2.9 U	2.9 U	2.9 U	2.9 U
Barium	P	200	21 [ ]	8 [ ]	770	24 [ ]	17 [ ]	7 [ ]	53 [ ]	5 [ ]
Beryllium	P	5	1.5 U	1.5 U	4 [ ]	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Cadmium	P	5	3 U	3 U	13	3 U	3 U	3 U	8	3 U
Calcium	P	5000	4300 [ ]	6000	9300	4200 [ ]	17000	2200 [ ]	12000	3000 [ ]
Chromium	P	10	6 U	6 U	200	6 [ ]	6 U	6 U	6 U	6 U
Cobalt	P	50	8 [ ]	8 [ ]E	77 E	8 [ ]	7.2 U	7.2 U	10 [ ]	7.2 U
Copper	P	25	3 [ ]	2.6 U	140	2.6 U	4 [ ]	4 [ ]	2.6 U	3 [ ]
Iron	P	1000	21 [ ]E	140 E	150000 E	68 [ ]E	230 E	46 [ ]E	9700 E	18 [ ]E
Lead	P/F	5	1.8 U	5.8	14 +	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Magnesium	P	5000	720 [ ]	21000	21000	1000	2400	890 [ ]	4100	930 [ ]
Manganese	P	15	21	120	2200	25	570	14 [ ]	950	2.1 U
Mercury	CV	0.20	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	P	40	9.2 U	9.2 UE	150 E	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U
Potassium	P	5000	1200 [ ]	1700 [ ]	46000	1100 [ ]	650 [ ]	230 [ ]	8400	630 [ ]
Selenium	F	5	1.8 U	1.8 UN	1.8 UN	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Silver	P	10	4 [ ]N	3.7 U	3.7 U	3.7 UN	3.7 UN	3.7 UN	3.7 UN	3.7 UN
Sodium	P	5000	20000	5700 E	14000 E	2400 [ ]	4400 [ ]	2500 [ ]	13000	3400 [ ]
Thallium	F	10	0.7 UN	0.7 U	0.72 [ ]	1.6 [ ]N	1.9 [ ]N	1.4 [ ]N	1 [ ]N	0.7 UN
Vanadium	P	50	3.2 U	3.2 U	280	3.2 U	3.2 U	3.2 U	3.2 U	4 [ ]
Zinc	P	20	17 [ ]	10 [ ]	320	18 [ ]	9 [ ]	13 [ ]	23	11 [ ]
Total Cyanide	CM	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Boron	P	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank			WATER5	WATER5	WATER5	WATER5	WATER5	WATER5	WATER5	WATER5
Associated Equipment Blank			01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX

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Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	07GW706XXX01XX	08GW801XXX01XX	08GW802XXX01XX	08GW803XXX01XX	08GW804XXX01XX	08GW804XXX01DX	08GW807XXX01XX	08GW807XXX01DX
	LAB NUMBER:	8260-017	8259-002	8258-003	8259-001	8257-003	8257-004	8257-001	8257-002
	DATE SAMPLED:	9/15/88	9/14/88	9/13/88	9/14/88	9/12/88	9/12/88	9/12/88	9/12/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METALS COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	260 E	34000 NE	160 [E	130 [NE	56 [	440	110 [	130 [
Antimony	P	60	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U
Arsenic	F	10	2.9 U	12	4.9 [	2.9 U	5.9 [	4.8 [	3 U	3 U
Barium	P	200	14 [	130 [	7 [E	11 [	26 [	21 [	14 [	16 [
Beryllium	P	5	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Cadmium	P	5	3 U	5 [	3 U	3 U	3 U	3 U	3 U	3 U
Calcium	P	5000	5900	9400 E	10000	11000 E	67000	54000	11000	11000
Chromium	P	10	6 [	45	6 U	6 U	7 [	6 U	10 [	7 [
Cobalt	P	50	7.2 U	22 [	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U
Copper	P	25	4 [	40	3 [	2.6 U	5 [	7 [	3 [	7 [
Iron	P	1000	210 E	30000 NE	320	2500 NE	720	370	64 [	300
Lead	P/F	5	14	83 N	1.8 UN	1.8 UN	1.8 U	1.8 U	1.8 U	1.8 U
Magnesium	P	5000	1600	12000 E	6800	6000 E	23000	19000	4300	4700
Manganese	P	15	51	850	140	240	56	1100	58	76
Mercury	CV	0.20	0.1 U	0.1 U	0.13 [	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	P	40	9.2 U	31 [	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U
Potassium	P	5000	1500 [	8200	2500 [	530 [	6800	5800	1600 [	1800 [
Selenium	F	5	1.8 U	1.8 U	1.1 UN	1.8 U	1.1 U	1.1 U	1.6 [	1.1 U
Silver	P	10	3.7 UN	5 [N	3.7 U	3.7 UN	5 [	3.7 U	4 [	3.7 U
Sodium	P	5000	5000 [	14000 E	29000	17000 E	23000.002	29000	64000	67000
Thallium	F	10	0.7 UN	0.7 UN	0.7 UN	0.7 UN	0.7 U	0.7 U	0.7 U	0.7 U
Vanadium	P	50	3.2 U	52	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U
Zinc	P	20	17 [	290	4 [	31	7 [	7 [	12 [	18 [
Total Cyanide	CN	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Boron	P	60*	NR	87	200 U	63	9	17	12	8
Laboratory Method Blank			WATER5	WATER2	WATER1	WATER2	H2O5	H2O5	H2O5	H2O5
Associated Equipment Blank			01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX

Reporting Limit, not a CRDL

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	08GW808XXX01XX	08GW808XXX01DX	09GW901XXX01XX	09GW902XXX01XX	09GW903XXX01XX	09GW904XXX01XX	09GW905XXX01XX	01SB002XXX01XX
	LAB NUMBER:	8258-001	8258-002	8259-015	8259-014	8259-016	8252-003	8252-002	8260-011
	DATE SAMPLED:	9/13/88	9/13/88	9/14/88	9/14/88	9/14/88	9/6/88	9/6/88	9/15/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METALS COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	110 [JE	41 [JE	550 U	550 U	550 U	88 [J	150 [J	12 [JE
Antimony	P	60	38 U	38 U	1900 U	1900 U	1900 U	38 U	38 U	38 U
Arsenic	F	10	2.9 U	2.9 U	150 UN	150 UN	150 UN	2.9 U	33	2.9 U
Barium	P	200	10 [JE	4 [JE	180 U	180 U	180 U	14 [J	7 [J	3.6 U
Beryllium	P	5	1.5 U	1.5 U	80 U	80 U	80 U	1.5 U	1.5 U	1.5 U
Cadmium	P	5	3 U	3 U	150 U	150 U	150 U	3 U	3 U	3 U
Calcium	P	5000	7600	7800	5000 [J	29000	9700	18000	9800	57 [J
Chromium	P	10	6 U	6 U	300 U	300 U	300 U	6 U	6 U	6 U
Cobalt	P	50	7.2 U	7.2 U	360 U	360 U	360 U	11 [J	11 [J	7.2 U
Copper	P	25	3 [J	3 [J	130 U	130 U	130 U	2.6 U	2.6 U	3 [J
Iron	P	1000	160	36 [J	410 U	410 U	3600	220	280	29 [JE
Lead	P/F	5	1.8 UN	1.8 UN	90 U	90 U	90 U	1.8 U	1.8 U	1.8 U
Magnesium	P	5000	4700	4900	2600 U	7000	3800	5700	2600	52 U
Manganese	P	15	17	13 [J	190	1300	240	160	29	3 [J
Mercury	CV	0.20	0.13 [J	0.13 [J	5 U	5 U	5 U	0.22	0.17 [J	0.1 U
Nickel	P	40	9.2 U	9.2 U	460 U	460 U	460 U	15 [J	18 [J	9.2 U
Potassium	P	5000	1500 [J	1500 [J	9500 U	9500 U	9500 U	1400 [J	5100	190 U
Selenium	F	5	1.1 UN	1.1 UN	90 U	90 U	90 U	1.1 U	1.1 U	1.8 U
Silver	P	10	3.7 U	4 [J	190 U	190 U	190 U	5 [JN	3.7 UN	3.7 UN
Sodium	P	5000	7900	7900	40000	28000	17000	7500	78000	130 [J
Thallium	F	10	0.7 UN	1 [JN	40 U	40 U	40 U	0.7 UN	0.7 UN	1.9 [JN
Vanadium	P	50	3.2 U	3.2 U	160 U	160 U	160 U	6 [J	4 [J	3.2 U
Zinc	P	20	20 [J	4 [J	130 U	130 U	130 U	19 [J	23	15 [J
Total Cyanide	CM	100	5 U	25 U	250 U	250 U	250 U	5 U	5 U	5 U
Boron	P	60*	25 U	NA	NR	NR	NR	NR	NR	NR
Laboratory Method Blank			WATER1	WATER1	WATER4	WATER4	WATER4	H2O1	H2O1	WATER5
Associated Equipment Blank			01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FB001XXX01XX	01FBXX1XX01XX	01FBXX1XX01XX	-

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Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	01SB003XXX01XX	01SB004XXX01	SBXX406XX1
	LAB NUMBER:	8260-026	8260-027	8229-005
	DATE SAMPLED:	9/15/88	9/15/88	8/14/88
	MATRIX:	WATER	WATER	WATER

METALS COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL			
Aluminum	P	200	11 U	18 []	5 []
Antimony	P	60	38 U	38 U	1.9 U
Arsenic	F	10	2.9 UN	2.9 UN	0.6 U
Barium	P	200	3.6 U	3.6 U	2 []
Beryllium	P	5	1.5 U	1.5 U	0.08 U
Cadmium	P	5	3 U	3 U	0.15 U
Calcium	P	5000	41 U	68 []	43.5 []
Chromium	P	10	6 U	6 U	0.3 U
Cobalt	P	50	7.2 UE	7.2 UE	0.36 U
Copper	P	25	2.6 U	2.6 U	0.45 []
Iron	P	1000	14 []E	16 []E	11.5
Lead	P/F	5	1.8 U	1.8 U	0.09 U
Magnesium	P	5000	52 U	52 U	2.6 U
Manganese	P	15	7 []	2.1 U	1.3
Mercury	CV	0.20	0.1 U	0.1 U	0.2
Nickel	P	40	9.2 UE	9.2 UE	0.75 []
Potassium	P	5000	190 U	190 U	9.5 U
Selenium	F	5	1.8 UN	1.8 UN	0.06 U
Silver	P	10	3.7 U	3.7 U	0.185 U
Sodium	P	5000	190 []E	190 []E	70 []
Thallium	F	10	0.7 U	0.7 U	0.04 U
Vanadium	P	50	3.2 U	3.2 U	0.16 U
Zinc	P	20	3 []	14 []	4.2 U
Total Cyanide	CN	100	5 U	5 U	NA
Boron	P	60*	NR	NR	
					0
Laboratory Method Blank			WATER5	WATER5	H201
Associated Equipment Blank			01FB001XXX01XX	01FB001XXX01XX	-

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Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01GW101XXX01XX	02GW102AXX01XX	03GW103XXX01XX	03GW104XXX01XX	01GW105AXX01XX	01GW105BXX01XX	01GW106XXX01XX	01GW201XXX01XX
LAB NUMBER:	8260-012	8253-009	8256-010	8256-012	8253-005	8253-004	8256-007	8253-006
DATE SAMPLED:	9/15/88	9/08/88	9/9/88	9/9/88	9/08/88	9/08/88	9/9/88	9/08/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER

VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL							
Chloromethane	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	2 JB	63 B	5 U	5 U	5 U	5 U	1 BJ	5 U
Acetone	10	10 U	100 U	40	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	50 U	5 U	5 U	5 U	5 U	4 J	5 U
1,1-Dichloroethane	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	50 U	5 U	5 U	5 U	5 U	51	5 U
Chloroform	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	50 U	5 U	5 U	5 U	5 U	69	5 U
Carbon Tetrachloride	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	50 U	5 U	5 U	5 U	5 U	95	5 U
Dibromochloromethane	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	50 U	5 U	5 U	5 U	5 U	25	5 U
1,1,2,2-Tetrachloroethane	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	50 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	10	1	1	1	1	1	1

Laboratory Method Blank	C3800	VBLKF	VBLK02	VBLK02	VBLKE	VBLKE	VBLK01	VBLKE
Associated Equipment Blank	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX
Associated Field Blank	-	-	-	-	-	-	-	-
Associated Trip Blank	01TB005XXX01XX	01TB002XXX01XX	01TB003XXX01XX	01TB003XXX01XX	01TB002XXX01XX	01TB002XXX01XX	01TB003XXX01XX	01TB002XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01GW202AXX01XX	01GW203XXX01XX	01GW204XXX01XX	01GW205XXX01XX	01GW206AXX01XX	01GW206AXX01DX	01GW206BXX01XX	01GW207AXX01XX
LAB NUMBER:	8252-004	8252-005	8252-006	8252-007	8252-008	8252-009	8252-010	8260-023
DATE SAMPLED:	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/15/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL							
Chloromethane	10	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	88	9 J	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	9 J	8 J	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	10 U	1 J	5 U	23 B	7 B	7 B	5 U	7 B
Acetone	10	31 B	2 JB	2 JB	10 U	33	25	11	10 U
Carbon Disulfide	5	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	10 U	5 U	5 U	12	6	6	5 U	5 U
1,1-Dichloroethane	5	31	18	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	37	3 J	5 U	7	5	5	5 U	5 U
Chloroform	5	10 U	5 U	5 U	3 J	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	16 JB	10 U	10 U	10 U	120	120	110	10 U
1,1,1-Trichloroethane	5	10 U	5 U	5 U	200	110	110	5 U	5 U
Carbon Tetrachloride	5	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	10 U	5 U	5 U	200	66	70	5 U	5 U
Dibromochloromethane	5	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	3 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	12 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	190	5 U	2 J	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	32	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	200	2 J	1 J	5 U	5 U	5 U	5 U	5 U
Styrene	5	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	660 E	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor		2	1	1	1	1	1	1	1
Laboratory Method Blank		VBLK02	VBLK01	VBLK01	VBLK03	VBLK03	VBLK03	VBLK03	C3815
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	-
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01TB001XXX01XX	01TB001XXX01XX	01TB001XXX01XX	01TB001XXX01XX	01TB001XXX01XX	01TB001XXX01XX	01TB001XXX01XX	01TB005XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01GW207BXX01XX	01GW208XXX01XX	01GW209XXX01XX	01GW210AXX01XX	01GW210BXX01XX	01GW211AXX01XX	01GW211BXX01XX	02GW212XXX01XX
LAB NUMBER:	8260-024	8256-006	8256-008	8252-011	8252-012	8253-007	8253-008	8256-009
DATE SAMPLED:	9/15/88	9/9/88	9/9/88	9/7/88	9/7/88	9/08/88	9/08/88	9/9/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CROL							
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	3 J	5 U	5 U	5 U	5 U	5 U
Acetone	10	10 U	7 J	10 U	16	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	3 J	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	8	5 U	5 U	5 U
Chloroform	5	5 U	1 J	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	1 J	5 U	5 U	5 U
2-Butanone	10	10 U	9 J	27	25	10 U	45	10 U
1,1,1-Trichloroethane	5	5 U	37	1 J	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	7	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	1 J	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1	1	1	1
Laboratory Method Blank		C3829	VBLK03	VBLK01	VBLK03	VBLK03	VBLKE	VBLKE	VBLK02
Associated Equipment Blank		-	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01TB005XXX01XX	01TB003XXX01XX	01TB003XXX01XX	01TB001XXX01XX	01TB001XXX01XX	01TB002XXX01XX	01TB002XXX01XX	01TB003XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	02GW213XXX01XX	04GW401XXX01XX	04GW402XXX01XX	04GW403XXX01XX	04GW403XXX01DX	04GW404XXX01XX	04GW405XXX01XX	04GW406XXX01XX
	LAB NUMBER:	8256-011	8257-007	8253-010	8258-010	8258-011	8260-019	8260-020	8260-022
	DATE SAMPLED:	9/9/88	9/12/88	9/08/88	9/13/88	9/13/88	9/15/88	9/15/88	9/15/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	50 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	50 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	50 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	50 U	10 U
Methylene Chloride	5	5 U	5 U	5 U	5 U	5 U	2 JB	37 B	7 B
Acetone	10	17	8 J	10 U	12	10 U	10 U	50 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
2-Butanone	10	10 U	10 U	180	36	22	10 U	730	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	50 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	50 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	50 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	25 U	5 U
Dilution Factor		1	1	1	1	1	1	5	1
Laboratory Method Blank		VBLK02	VBLK02	VBLKE	VBLK03	VBLK02	C3800	C3815	C3815
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	-	-
Associated Field Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		01TB003XXX01XX	01TB004XXX01XX	01TB002XXX01XX	01TB004XXX01XX	01TB004XXX01XX	-	01TB005XXX01XX	01TB005XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	04GW407XXX01XX	07GW701XXX01XX	07GW702XXX01XX	07GW703XXX01XX	07GW704XXX01XX	07GW705XXX01XX	07GW706XXX01XX	09GW901XXX01XX
LAB NUMBER:	8260-021	8260-015	8260-016	8260-013	8260-014	8260-018	8260-017	8259-015
DATE SAMPLED:	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88	9/14/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER

VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 B	25 U	3 JB	27 B	21 B	2 JB	4 JB	5 U
Acetone	10	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	25 U	5 U	3 J	3 J	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	440	10 U	10 U	10 U	250 E	10 U	18
1,1,1-Trichloroethane	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	50 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	25 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	5	1	1	1	1	1	1
Laboratory Method Blank		C3815	C3829	C3800	C3800	C3800	C3800	C3800	VBLK01
Associated Equipment Blank		-	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB001XXX01XX
Associated Field Blank		-	-	-	-	-	-	-	01FB001XXX01XX
Associated Trip Blank		01TB005XXX01XX	01TB005XXX01XX	01TB005XXX01XX	01TB005XXX01XX	01TB005XXX01XX	-	01TB005XXX01XX	01TB001XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	08GW801XXX01XX	08GW802XXX01XX	08GW803XXX01XX	08GW804XXX01XX	08GW804XXX01DX	08GW807XXX01XX	08GW807XXX01DX	08GW808XXX01XX
	LAB NUMBER:	8259-002	8258-003	8259-001	8257-003	8257-004	8257-001	8257-002	8258-001
	DATE SAMPLED:	9/14/88	9/13/88	9/14/88	9/12/88	9/12/88	9/12/88	9/12/88	9/13/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METHOD 524.1 VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	MDL								
Chloromethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Bromomethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Vinyl Chloride	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Methylene Chloride	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	0.8	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
1,1-Dichloroethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,2-Dichloroethane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,1,1-Trichloroethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Carbon Tetrachloride	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Bromodichloromethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Trichloroethene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Dibromochloromethane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,1,2-Trichloroethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Benzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Bromoform	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Tetrachloroethene	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1,2,2-Tetrachloroethane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Toluene	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Ethylbenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Dichlorodifluoromethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Dibromomethane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,3-Dichloropropane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,2-Dibromoethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1,1,2-Tetrachloroethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
m- & p-Xylenes	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
o-Xylenes	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	08GW801XXX01XX	08GW802XXX01XX	08GW803XXX01XX	08GW804XXX01XX	08GW804XXX01DX	08GW807XXX01XX	08GW807XXX01DX	08GW808XXX01XX
LAB NUMBER:	8259-002	8258-003	8259-001	8257-003	8257-004	8257-001	8257-002	8258-001
DATE SAMPLED:	9/14/88	9/13/88	9/14/88	9/12/88	9/12/88	9/12/88	9/12/88	9/13/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METHOD 524.1 VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	MDL							
Isopropylbenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Bromobenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,2,3-Trichloropropane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
n-Propylbenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
2-Chlorotoluene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
4-Chlorotoluene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,3,5-Trimethylbenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
t-Butylbenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,2,4-Trimethylbenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
sec-Butylbenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
p-Isopropyltoluene	0.9	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
n-Butylbenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,2-Dibromo-3-chloropropane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,2,3-Trichlorobenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
cis-1,2-Dichloroethene	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
2,2-Dichloropropane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1-Dichloropropene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,3-Dichlorobenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,4-Dichlorobenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,2-Dichlorobenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,2,4-Trichlorobenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Naphthalene	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Hexachlorobutadiene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Dilution Factor		1.0	1	1.0	1	1	1	1	1
Laboratory Method Blank		-	VBLK01	-	VBLK01	VBLK01	VBLK01	VBLK01	VBLK01
HERBICIDES									
2,4-D	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Silvex	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Laboratory Method Blank		VBLK01	HBLK02	VBLK01	HBLK01	HBLK01	HBLK01	HBLK01	HBLK02
Associated Equipment Blank		SB-4	01SB004XXX01XX	SB-4	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX
Associated Trip Blank		TB-6	01TB004XXX01XX	TB-6	01TB004XXX01XX	01TB004XXX01XX	01TB004XXX01XX	01TB004XXX01XX	01TB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID: 08GW808XXX01DX
LAB NUMBER: 8258-002
DATE SAMPLED: 9/13/88
MATRIX: WATER

METHOD 524.1
VOLATILE ORGANIC COMPOUNDS
UNITS: ug/l

	MDL	
Chloromethane	0.4	0.4 U
Bromomethane	0.4	0.4 U
Vinyl Chloride	0.5	0.5 U
Chloroethane	0.4	0.4 U
Methylene Chloride	0.5	0.5 U
1,1-Dichloroethene	0.8	0.8 U
1,1-Dichloroethane	0.5	0.5 U
Trans-1,2-Dichloroethene	0.5	0.5 U
Chloroform	0.4	0.4 U
1,2-Dichloroethane	0.3	0.3 U
1,1,1-Trichloroethane	0.4	0.4 U
Carbon Tetrachloride	0.4	0.4 U
Bromodichloromethane	0.5	0.5 U
1,2-Dichloropropane	0.3	0.3 U
Trichloroethene	0.3	0.3 U
Dibromochloromethane	0.3	0.3 U
1,1,2-Trichloroethane	0.4	0.4 U
Benzene	0.3	0.3 U
Bromoform	0.3	0.3 U
Tetrachloroethene	0.4	0.4 U
1,1,2,2-Tetrachloroethane	0.3	0.3 U
Toluene	0.5	0.5 U
Chlorobenzene	0.4	0.4 U
Ethylbenzene	0.5	0.5 U
Styrene	0.3	0.3 U
Dichlorodifluoromethane	0.4	0.4 U
Trichlorofluoromethane	0.5	0.5 U
Bromochloromethane	0.3	0.3 U
Dibromomethane	0.3	0.3 U
1,3-Dichloropropane	0.4	0.4 U
1,2-Dibromoethane	0.4	0.4 U
1,1,1,2-Tetrachloroethane	0.4	0.4 U
m- & p-Xylenes	0.4	0.4 U
o-Xylenes	0.5	0.5 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID: 08GW808XXX01DX
LAB NUMBER: 8258-002
DATE SAMPLED: 9/13/88
MATRIX: WATER

METHOD 524.1
VOLATILE ORGANIC COMPOUNDS
UNITS: ug/l

	MDL	
Isopropylbenzene	0.3	0.3 U
Bromobenzene	0.3	0.3 U
1,2,3-Trichloropropane	0.3	0.3 U
n-Propylbenzene	0.3	0.3 U
2-Chlorotoluene	0.3	0.3 U
4-Chlorotoluene	0.3	0.3 U
1,3,5-Trimethylbenzene	0.3	0.3 U
t-Butylbenzene	0.3	0.3 U
1,2,4-Trimethylbenzene	0.3	0.3 U
sec-Butylbenzene	0.3	0.3 U
p-Isopropyltoluene	0.9	0.9 U
n-Butylbenzene	0.3	0.3 U
1,2-Dibromo-3-chloropropane	0.3	0.3 U
1,2,3-Trichlorobenzene	0.3	0.3 U
cis-1,2-Dichloroethene	0.4	0.4 U
2,2-Dichloropropane	0.4	0.4 U
1,1-Dichloropropene	0.3	0.3 U
1,3-Dichlorobenzene	0.3	0.3 U
1,4-Dichlorobenzene	0.3	0.3 U
1,2-Dichlorobenzene	0.3	0.3 U
1,2,4-Trichlorobenzene	0.3	0.3 U
Naphthalene	0.4	0.4 U
Hexachlorobutadiene	0.3	0.3 U
Dilution Factor		1
Laboratory Method Blank		VBLK01

HERBICIDES

2,4-D	0.2	0.2 U
Silvex	0.02	0.02 U
Laboratory Method Blank		HBLK02
Associated Equipment Blank		01SB004XXX01XX
Associated Trip Blank		01TB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01GW101XXX01XX	01GW101XXX01XX	02GW102AXX01XX	03GW103XXX01XX	03GW104XXX01XX	01GW105AXX01XX	01GW105BXX01XX	01GW106XXX01XX
	LAB NUMBER:	8260-012	8260-012RE	8253-009	8256-010	8256-012	8253-005	8253-004	8256-007
	DATE SAMPLED:	9/15/88	9/15/88	9/08/88	9/9/88	9/9/88	9/08/88	9/08/88	9/9/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	51 U	51 U	51 U	50 U	50 U	51 U	51 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	51 U	51 U	51 U	50 U	50 U	51 U	51 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	51 U	51 U	51 U	50 U	50 U	51 U	51 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01GW101XXX01XX	01GW101XXX01XX	02GW102AXX01XX	03GW103XXX01XX	03GW104XXX01XX	01GW105AXX01XX	01GW105BXX01XX	01GW106XXX01XX
LAB NUMBER:	8260-012	8260-012RE	8253-009	8256-010	8256-012	8253-005	8253-004	8256-007
DATE SAMPLED:	9/15/88	9/15/88	9/08/88	9/9/88	9/9/88	9/08/88	9/08/88	9/9/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL							
3-Nitroaniline	50	51 U	51 U	51 U	50 U	50 U	51 U	51 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	51 U	51 U	51 U	50 U	50 U	51 U	51 U	50 U
4-Nitrophenol	50	51 U	51 U	51 U	50 U	50 U	51 U	51 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	51 U	51 U	51 U	50 U	50 U	51 U	51 U	50 U
4,6-Dinitro-2-methylphenol	50	51 U	51 U	51 U	50 U	50 U	51 U	51 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	51 U	51 U	51 U	50 U	50 U	51 U	51 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	21 U	21 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	2 J	4 J	4 J	13	40	4 J
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		AI137	AI137	SBLK9/12	SBLK01	SBLK01	SBLK9/12	SBLK9/12	SBLK01
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01GW201XXX01XX	01GW202AXX01XX	01GW203XXX01XX	01GW204XXX01XX	01GW205XXX01XX	01GW206AXX01XX	01GW206AXX01DX	01GW206BXX01XX
	LAB NUMBER:	8253-006	8252-004	8252-005	8252-006	8252-007	8252-008	8252-009	8252-010
	DATE SAMPLED:	9/08/88	9/6/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	3 J	3 J	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	2 J	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	21	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	51 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	6 J	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	51 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	51 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01GW201XXX01XX	01GW202AXX01XX	01GW203XXX01XX	01GW204XXX01XX	01GW205XXX01XX	01GW206AXX01XX	01GW206AXX01DX	01GW206BXX01XX
	LAB NUMBER:	8253-006	8252-004	8252-005	8252-006	8252-007	8252-008	8252-009	8252-010
	DATE SAMPLED:	9/08/88	9/6/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	51 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	51 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	51 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	51 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	51 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	51 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2 J
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	8 J	5 J	6 J	4 J	10 U	10	12	4 J
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		SBLK9/12	SBLK01	SBLK01	SBLK01	SBLK01	SBLK01	SBLK01	SBLK01
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	01GW207AXX01XX	01GW207BXX01XX	01GW208XXX01XX	01GW209XXX01XX	01GW210AXX01XX	01GW210BXX01XX	01GW211AXX01XX	01GW211BXX01XX
	LAB NUMBER:	8260-023	8260-024	8256-006	8256-008	8252-011	8252-012	8253-007	8253-008
	DATE SAMPLED:	9/15/88	9/15/88	9/9/88	9/9/88	9/7/88	9/7/88	9/08/88	9/08/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	2 J	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	52 U	49 U	50 U	50 U	50 U	50 U	51 U	51 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	52 U	49 U	50 U	50 U	50 U	50 U	51 U	51 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	52 U	49 U	50 U	50 U	50 U	50 U	51 U	51 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01GW207AXX01XX	01GW207BXX01XX	01GW208XXX01XX	01GW209XXX01XX	01GW210AXX01XX	01GW210BXX01XX	01GW211AXX01XX	01GW211BXX01XX
	LAB NUMBER:	8260-023	8260-024	8256-006	8256-008	8252-011	8252-012	8253-007	8253-008
	DATE SAMPLED:	9/15/88	9/15/88	9/9/88	9/9/88	9/7/88	9/7/88	9/08/88	9/08/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	52 U	49 U	50 U	50 U	50 U	50 U	51 U	51 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	52 U	49 U	50 U	50 U	50 U	50 U	51 U	51 U
4-Nitrophenol	50	52 U	49 U	50 U	50 U	50 U	50 U	51 U	51 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	52 U	49 U	50 U	50 U	50 U	50 U	51 U	51 U
4,6-Dinitro-2-methylphenol	50	52 U	49 U	50 U	50 U	50 U	50 U	51 U	51 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	52 U	49 U	50 U	50 U	50 U	50 U	51 U	51 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	2 J	2 J	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	21 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	2 J	20	3 J	6 J	2 J	6 J
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		AI137	AI137	SBLK01	SBLK01	SBLK01	SBLK01	SBLK9/12	SBLK9/12
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	02GW212XXX01XX	02GW213XXX01XX	04GW401XXX01XX	04GW402XXX01XX	04GW403XXX01XX	04GW403XXX01DX	04GW404XXX01XX	04GW405XXX01XX
LAB NUMBER:	8256-009	8256-011	8257-007	8253-010	8258-010	8258-011	8260-019	8260-020
DATE SAMPLED:	9/9/88	9/9/88	9/12/88	9/08/88	9/13/88	9/13/88	9/15/88	9/15/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL							
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	51 U	50 U	50 U	50 U	48 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	51 U	50 U	50 U	50 U	48 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	51 U	50 U	50 U	50 U	48 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	02GW212XXX01XX	02GW213XXX01XX	04GW401XXX01XX	04GW402XXX01XX	04GW403XXX01XX	04GW403XXX01DX	04GW404XXX01XX	04GW405XXX01XX
	LAB NUMBER:	8256-009	8256-011	8257-007	8253-010	8258-010	8258-011	8260-019	8260-020
	DATE SAMPLED:	9/9/88	9/9/88	9/12/88	9/08/88	9/13/88	9/13/88	9/15/88	9/15/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	50 U	50 U	51 U	50 U	50 U	50 U	48 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	51 U	50 U	50 U	50 U	48 U
4-Nitrophenol	50	50 U	50 U	50 U	51 U	50 U	50 U	50 U	48 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	51 U	50 U	50 U	50 U	48 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	51 U	50 U	50 U	50 U	48 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	51 U	50 U	50 U	50 U	48 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	19 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	5 J	3 J	3 J	4 J	10 U	10 U	10 U	7 J
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		SBLK01	SBLK01	SBLK01	SBLK9/12	SBLK02	SBLK02	AI137	AI137
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	04GW406XXX01XX	04GW407XXX01XX	07GW701XXX01XX	07GW702XXX01XX	07GW703XXX01XX	07GW704XXX01XX	07GW705XXX01XX	07GW706XXX01XX
LAB NUMBER:	8260-022	8260-021	8260-015	8260-016	8260-013	8260-014	8260-018	8260-017
DATE SAMPLED:	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	48 U	500 U	50 U	49 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	48 U	500 U	50 U	49 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	48 U	500 U	50 U	49 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	04GW406XXX01XX	04GW407XXX01XX	07GW701XXX01XX	07GW702XXX01XX	07GW703XXX01XX	07GW704XXX01XX	07GW705XXX01XX	07GW706XXX01XX
LAB NUMBER:	8260-022	8260-021	8260-015	8260-016	8260-013	8260-014	8260-018	8260-017
DATE SAMPLED:	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	48 U	500 U	50 U	49 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	48 U	500 U	50 U	49 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	48 U	500 U	50 U	49 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	48 U	500 U	50 U	49 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	48 U	500 U	50 U	49 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	48 U	500 U	50 U	49 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	19 U	200 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	74 J	63	9 J	5 J	10 U	10 U	8 J
Di-n-octylphthalate	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	100 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	10	1	1	1	1	1	1
Laboratory Method Blank		AI137	AI137	AI137	AI137	AI137	AI137	AI137	AI137
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	08GW801XXX01XX	08GW802XXX01XX	08GW803XXX01XX	08GW804XXX01XX	08GW804XXX01DX	08GW807XXX01XX	08GW807XXX01DX	08GW808XXX01XX
LAB NUMBER:	8259-002	8258-003	8259-001	8257-003	8257-004	8257-001	8257-002	8258-001
DATE SAMPLED:	9/14/88	9/13/88	9/14/88	9/12/88	9/12/88	9/12/88	9/12/88	9/13/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER

SEMI-VOLATILE ORGANIC COMPOUNDS

UNITS: ug/l	CRDL								
Phenol	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	250 U	50 U	56 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	250 U	50 U	56 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	250 U	50 U	56 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	08GW801XXX01XX	08GW802XXX01XX	08GW803XXX01XX	08GW804XXX01XX	08GW804XXX01DX	08GW807XXX01XX	08GW807XXX01DX	08GW808XXX01XX
	LAB NUMBER:	8259-002	8258-003	8259-001	8257-003	8257-004	8257-001	8257-002	8258-001
	DATE SAMPLED:	9/14/88	9/13/88	9/14/88	9/12/88	9/12/88	9/12/88	9/12/88	9/13/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	250 U	50 U	56 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	250 U	50 U	56 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	250 U	50 U	56 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	250 U	50 U	56 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	250 U	50 U	56 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	250 U	50 U	56 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	50 U	10 U	11 U	2 J	10 U	10 U	10 U	10 U
Fluoranthene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	100 U	20 U	22 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	13 JB	7 J	3 JB	7 J	7 J	10 U	2 J	24
Di-n-octylphthalate	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	50 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		5	1	1	1	1	1	1	1
Laboratory Method Blank		BLANK2	SBLK02	BLANK2	SBLK01	SBLK01	SBLK01	SBLK01	SBLK02
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	08GW808XXX01DX	09GW901XXX01XX	09GW902XXX01XX	09GW903XXX01XX	09GW904XXX01XX	09GW905XXX01XX	01SB001XXX01XX	01SB002XXX01XX
LAB NUMBER:	8258-002	8259-015	8259-014	8259-016	8252-003	8252-002	8259-008	8260-011
DATE SAMPLED:	9/13/88	9/14/88	9/14/88	9/14/88	9/6/88	9/6/88	9/14/88	9/15/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL							
Phenol	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	51 U	52 U	56 U	50 U	50 U	48 U	51 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	51 U	52 U	56 U	50 U	50 U	48 U	51 U
2-Chloronaphthalene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	51 U	52 U	56 U	50 U	50 U	48 U	51 U
Dimethylphthalate	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	08GW808XXX01DX	09GW901XXX01XX	09GW902XXX01XX	09GW903XXX01XX	09GW904XXX01XX	09GW905XXX01XX	01SB001XXX01XX	01SB002XXX01XX
LAB NUMBER:	8258-002	8259-015	8259-014	8259-016	8252-003	8252-002	8259-008	8260-011
DATE SAMPLED:	9/13/88	9/14/88	9/14/88	9/14/88	9/6/88	9/6/88	9/14/88	9/15/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	51 U	52 U	56 U	50 U	50 U	48 U	51 U
Acenaphthene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	51 U	52 U	56 U	50 U	50 U	48 U	51 U
4-Nitrophenol	50	50 U	51 U	52 U	56 U	50 U	50 U	48 U	51 U
Dibenzofuran	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	51 U	52 U	56 U	50 U	50 U	48 U	51 U
4,6-Dinitro-2-methylphenol	50	50 U	51 U	52 U	56 U	50 U	50 U	48 U	51 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	51 U	52 U	56 U	50 U	50 U	48 U	51 U
Phenanthrene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	21 U	22 U	20 U	20 U	19 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	6 J	10 U	9 JB	11 U	7 J	10	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1

Laboratory Method Blank	SBLK02	BLANK5	BLANK2	BLANK5	SBLK04	SBLK01	BLANK5	AI137
Associated Equipment Blank	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	-	01SB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	01SB003XXX01XX	01SB004XXX01XX	SBXX406XX1
	LAB NUMBER:	8260-026	8260-027	8229-005
	DATE SAMPLED:	9/16/88	9/16/88	8/14/88
	MATRIX:	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL			
Phenol	10	10 U	10 U	290 U
bis(2-Chloroethyl)ether	10	10 U	10 U	290 U
2-Chlorophenol	10	10 U	10 U	290 U
1,3-Dichlorobenzene	10	10 U	10 U	290 U
1,4-Dichlorobenzene	10	10 U	10 U	290 U
Benzyl alcohol	10	10 U	10 U	290 U
1,2-Dichlorobenzene	10	10 U	10 U	290 U
2-Methylphenol	10	10 U	10 U	290 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	290 U
4-Methylphenol	10	10 U	10 U	290 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	290 U
Hexachloroethane	10	10 U	10 U	290 U
Nitrobenzene	10	10 U	10 U	290 U
Isophorone	10	10 U	10 U	290 U
2-Nitrophenol	10	10 U	10 U	290 U
2,4-Dimethylphenol	10	10 U	10 U	290 U
Benzoic acid	50	49 U	49 U	1400 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	290 U
2,4-Dichlorophenol	10	10 U	10 U	290 U
1,2,4-Trichlorobenzene	10	10 U	10 U	290 U
Naphthalene	10	10 U	10 U	290 U
4-Chloroaniline	10	10 U	10 U	290 U
Hexacholorobutadiene	10	10 U	10 U	290 U
4-Chloro-3-Methylphenol	10	10 U	10 U	290 U
2-Methylnaphthalene	10	10 U	10 U	290 U
Hexachlorocyclopentadiene	10	10 U	10 U	290 U
2,4,6-Trichlorophenol	10	10 U	10 U	290 U
2,4,5-Trichlorophenol	50	49 U	49 U	1400 U
2-Chloronaphthalene	10	10 U	10 U	290 U
2-Nitroaniline	50	49 U	49 U	1400 U
Dimethylphthalate	10	10 U	10 U	290 U
Acenaphthylene	10	10 U	10 U	290 U
2,6-Dinitrotoluene	10	10 U	10 U	290 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	01SB003XXX01XX	01SB004XXX01XX	SBXX406XX1
	LAB NUMBER:	8260-026	8260-027	8229-005
	DATE SAMPLED:	9/16/88	9/16/88	8/14/88
	MATRIX:	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL			
3-Nitroaniline	50	49 U	49 U	1400 U
Acenaphthene	10	10 U	10 U	290 U
2,4-Dinitrophenol	50	49 U	49 U	1400 U
4-Nitrophenol	50	49 U	49 U	1400 U
Dibenzofuran	10	10 U	10 U	290 U
2,4-Dinitrotoluene	10	10 U	10 U	290 U
Diethylphthalate	10	10 U	10 U	290 U
4-Chlorophenyl-phenylether	10	10 U	10 U	290 U
Fluorene	10	10 U	10 U	290 U
4-Nitroaniline	50	49 U	49 U	1400 U
4,6-Dinitro-2-methylphenol	50	49 U	49 U	1400 U
N-Nitrosodiphenylamine	10	10 U	10 U	290 U
4-Bromophenyl-phenylether	10	10 U	10 U	290 U
Hexachlorobenzene	10	10 U	10 U	290 U
Pentachlorophenol	50	49 U	49 U	1400 U
Phenanthrene	10	10 U	10 U	290 U
Anthracene	10	10 U	10 U	290 U
Di-n-butylphthalate	10	10 U	10 U	290 U
Fluoranthene	10	10 U	10 U	290 U
Pyrene	10	10 U	10 U	290 U
Butylbenzylphthalate	10	10 U	10 U	290 U
3,3'-Dichlorobenzidine	20	20 U	20 U	570 U
Benzo(a)Anthracene	10	10 U	10 U	290 U
Chrysene	10	10 U	10 U	290 U
bis(2-Ethylhexyl)phthalate	10	10 U	9 J	61 JB
Di-n-octylphthalate	10	10 U	10 U	290 U
Benzo(b)Fluoranthene	10	10 U	10 U	290 U
Benzo(k)Fluoranthene	10	10 U	10 U	290 U
Benzo(a)Pyrene	10	10 U	10 U	290 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	290 U
Dibenz(a,h)anthracene	10	10 U	10 U	290 U
Benzo(g,h,i,)perylene	10	10 U	10 U	290 U
Dilution Factor		1	1	1
Laboratory Method Blank		A1137	A1137	SBLK8/25W
Associated Equipment Blank		-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01GW101XXX01XX	02GW102AXX01XX	03GW103XXX01XX	03GW104XXX01XX	01GW105AXX01XX	01GW105BXX01XX	01GW106XXX01XX	01GW201XXX01XX
	LAB NUMBER:	8260-012	8253-009	8256-010	8256-012	8253-005	8253-004	8256-007	8253-006
	DATE SAMPLED:	9/15/88	9/08/88	9/09/88	9/09/88	9/08/88	9/08/88	9/09/88	9/08/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL								
alpha-BHC	0.05	0.050 U	0.049 U	0.05 U	0.05 U	0.056 U	0.053 U	0.05 U	0.051 U
beta-BHC	0.05	0.050 U	0.049 U	0.05 U	0.05 U	0.056 U	0.053 U	0.05 U	0.051 U
delta-BHC	0.05	0.050 U	0.049 U	0.05 U	0.05 U	0.056 U	0.053 U	0.05 U	0.051 U
gamma-BHC (Lindane)	0.05	0.050 U	0.049 U	0.05 U	0.05 U	0.056 U	0.053 U	0.05 U	0.051 U
Heptachlor	0.05	0.050 U	0.049 U	0.05 U	0.05 U	0.056 U	0.053 U	0.05 U	0.051 U
Aldrin	0.05	0.050 U	0.049 U	0.05 U	0.05 U	0.056 U	0.053 U	0.05 U	0.051 U
Heptachlor epoxide	0.05	0.050 U	0.049 U	0.05 U	0.05 U	0.056 U	0.053 U	0.05 U	0.051 U
Endosulfan I	0.05	0.050 U	0.049 U	0.05 U	0.05 U	0.056 U	0.053 U	0.05 U	0.051 U
Dieldrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.49 U	0.5 U	0.5 U	0.56 U	0.53 U	0.5 U	0.51 U
Endrin ketone	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.49 U	0.5 U	0.5 U	0.56 U	0.53 U	0.5 U	0.51 U
gamma-Chlordane	0.5	0.5 U	0.49 U	0.5 U	0.5 U	0.56 U	0.53 U	0.5 U	0.51 U
Toxaphene	1	1 U	1.0 U	1 U	1 U	1.1 U	1.1 U	1 U	1.0 U
Aroclor-1016	0.5	0.5 U	0.49 U	0.5 U	0.5 U	0.56 U	0.53 U	0.5 U	0.51 U
Aroclor-1221	0.5	0.5 U	0.49 U	0.5 U	0.5 U	0.56 U	0.53 U	0.5 U	0.51 U
Aroclor-1232	0.5	0.5 U	0.49 U	0.5 U	0.5 U	0.56 U	0.53 U	0.5 U	0.51 U
Aroclor-1242	0.5	0.5 U	0.49 U	0.5 U	0.5 U	0.56 U	0.53 U	0.5 U	0.51 U
Aroclor-1248	0.5	0.5 U	0.49 U	0.5 U	0.5 U	0.56 U	0.53 U	0.5 U	0.51 U
Aroclor-1254	1	1 U	1.0 U	1 U	1 U	1.1 U	1.1 U	1 U	1.0 U
Aroclor-1260	1	1 U	1.0 U	1 U	1 U	1.1 U	1.1 U	1 U	1.0 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		PBLKBB	PBLKAA	PBLK01	PBLK01	PBLKAA	PBLKAA	PBLK01	PBLKAA
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01GW202AXX01XX	01GW203XXX01XX	01GW204XXX01XX	01GW205XXX01XX	01GW206AXX01XX	01GW206AXX01DX	01GW206BXX01XX	01GW208XXX01XX
	LAB NUMBER:	8252-004	8252-005	8252-006	8252-007	8252-008	8252-009	8252-010	8256-006
	DATE SAMPLED:	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/09/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL								
alpha-BHC	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U
beta-BHC	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U
delta-BHC	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U
gamma-BHC (Lindane)	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U
Heptachlor	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U
Aldrin	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U
Heptachlor epoxide	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U
Endosulfan I	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U
Dieldrin	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.1 U
4,4'-DDE	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.1 U
Endrin	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.1 U
Endosulfan II	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.1 U
4,4'-DDD	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.1 U
Endosulfan sulfate	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.1 U
4,4'-DDT	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.1 U
Methoxychlor	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.5 U
Endrin ketone	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.1 U
alpha-Chlordane	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.5 U
gamma-Chlordane	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.5 U
Toxaphene	1	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1 U
Aroclor-1016	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.5 U
Aroclor-1221	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.5 U
Aroclor-1232	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.5 U
Aroclor-1242	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.5 U
Aroclor-1248	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.5 U
Aroclor-1254	1	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1 U
Aroclor-1260	1	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		PBLK01	PBLK01	PBLK01	PBLK01	PBLK01	PBLK01	PBLK01	PBLK01
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01GW209XXX01XX	01GW210AXX01XX	01GW210BXX01XX	01GW211AXX01XX	01GW211BXX01XX	02GW212XXX01XX	02GW213XXX01XX	04GW401XXX01XX
	LAB NUMBER:	8256-008	8252-011	8252-012	8253-007	8253-008	8256-009	8256-011	8257-007
	DATE SAMPLED:	9/09/88	9/7/88	9/7/88	9/08/88	9/08/88	9/09/88	9/09/88	9/12/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL								
alpha-BHC	0.05	0.05 U	0.050 U	0.050 U	0.048 U	0.049 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.050 U	0.050 U	0.048 U	0.049 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.050 U	0.050 U	0.048 U	0.049 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.050 U	0.050 U	0.048 U	0.049 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.050 U	0.050 U	0.048 U	0.049 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.050 U	0.050 U	0.048 U	0.049 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.050 U	0.050 U	0.048 U	0.049 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.050 U	0.050 U	0.048 U	0.049 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1	0.1 U	0.100 U	0.100 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.100 U	0.100 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.100 U	0.100 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.100 U	0.100 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.100 U	0.100 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.100 U	0.100 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.100 U	0.100 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.500 U	0.500 U	0.48 U	0.49 U	0.5 U	0.5 U	0.5 U
Endrin ketone	0.1	0.1 U	0.100 U	0.100 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.500 U	0.500 U	0.48 U	0.49 U	0.5 U	0.5 U	0.5 U
gamma-Chlordane	0.5	0.5 U	0.500 U	0.500 U	0.48 U	0.49 U	0.5 U	0.5 U	0.5 U
Toxaphene	1	1 U	1.000 U	1.000 U	1.0 U	1.0 U	1 U	1 U	1 U
Aroclor-1016	0.5	0.5 U	0.500 U	0.500 U	0.48 U	0.49 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5	0.5 U	0.500 U	0.500 U	0.48 U	0.49 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5	0.5 U	0.500 U	0.500 U	0.48 U	0.49 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5	0.5 U	0.500 U	0.500 U	0.48 U	0.49 U	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5	0.5 U	0.500 U	0.500 U	0.48 U	0.49 U	0.5 U	0.5 U	0.5 U
Aroclor-1254	1	1 U	1.000 U	1.000 U	1.0 U	1.0 U	1 U	1 U	1 U
Aroclor-1260	1	1 U	1.000 U	1.000 U	1.0 U	1.0 U	1 U	1 U	1 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		PBLK01	PBLK01	PBLK01	PBLKAA	PBLKAA	PBLK01	PBLK01	PBLK01
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	04GW402XXX01XX	04GW403XXX01XX	04GW403XXX01DX	04GW404XXX01XX	04GW405XXX01XX	04GW406XXX01XX	04GW407XXX01XX	07GW701XXX01XX
LAB NUMBER:	8253-010	8258-010	8258-011	8260-019	8260-020	8260-022	8260-021	8260-015
DATE SAMPLED:	9/08/88	9/13/88	9/13/88	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL							
alpha-BHC	0.05	0.052 U	0.05 U	0.05 U	0.054 U	0.051 U	0.054 U	0.051 U	0.052 U
beta-BHC	0.05	0.052 U	0.05 U	0.05 U	0.054 U	0.051 U	0.054 U	0.051 U	0.052 U
delta-BHC	0.05	0.052 U	0.05 U	0.05 U	0.054 U	0.051 U	0.054 U	0.051 U	0.052 U
gamma-BHC (Lindane)	0.05	0.052 U	0.05 U	0.05 U	0.054 U	0.051 U	0.054 U	0.051 U	0.052 U
Heptachlor	0.05	0.052 U	0.05 U	0.05 U	0.054 U	0.051 U	0.054 U	0.051 U	0.052 U
Aldrin	0.05	0.052 U	0.05 U	0.05 U	0.054 U	0.051 U	0.054 U	0.051 U	0.052 U
Heptachlor epoxide	0.05	0.052 U	0.05 U	0.05 U	0.054 U	0.051 U	0.054 U	0.051 U	0.052 U
Endosulfan I	0.05	0.052 U	0.05 U	0.05 U	0.054 U	0.051 U	0.054 U	0.051 U	0.052 U
Dieldrin	0.1	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.11 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.11 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.11 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.11 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.11 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.11 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.11 U	0.1 U	0.1 U
Methoxychlor	0.5	0.52 U	0.5 U	0.5 U	0.54 U	0.51 U	0.54 U	0.51 U	0.52 U
Endrin ketone	0.1	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.11 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.52 U	0.5 U	0.5 U	0.54 U	0.51 U	0.54 U	0.51 U	0.52 U
gamma-Chlordane	0.5	0.52 U	0.5 U	0.5 U	0.54 U	0.51 U	0.54 U	0.51 U	0.52 U
Toxaphene	1	1.0 U	1 U	1 U	1.1 U	1 U	1.1 U	1 U	1 U
Aroclor-1016	0.5	0.52 U	0.5 U	0.5 U	0.54 U	0.51 U	0.54 U	0.51 U	0.52 U
Aroclor-1221	0.5	0.52 U	0.5 U	0.5 U	0.54 U	0.51 U	0.54 U	0.51 U	0.52 U
Aroclor-1232	0.5	0.52 U	0.5 U	0.5 U	0.54 U	0.51 U	0.54 U	0.51 U	0.52 U
Aroclor-1242	0.5	0.52 U	0.5 U	0.5 U	0.54 U	0.51 U	0.54 U	0.51 U	0.52 U
Aroclor-1248	0.5	0.52 U	0.5 U	0.5 U	0.54 U	0.51 U	0.54 U	0.51 U	0.52 U
Aroclor-1254	1	1.0 U	1 U	1 U	1.1 U	1 U	1.1 U	1 U	1 U
Aroclor-1260	1	1.0 U	1 U	1 U	1.1 U	1 U	1.1 U	1 U	1 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		PBLKAA	PBLK03	PBLK03	PBLKBB	PBLKBB	PBLKBB	PBLKBB	PBLKBB
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	07GW702XXX01XX	07GW703XXX01XX	07GW704XXX01XX	07GW705XXX01XX	07GW706XXX01XX	08GW801XXX01XX	08GW802XXX01XX	08GW803XXX01XX
	LAB NUMBER:	8260-016	8260-013	8260-014	8260-018	8260-017	8259-002	8258-003	8259-001
	DATE SAMPLED:	9/15/88	9/15/88	9/15/88	9/15/88	9/15/88	9/14/88	9/13/88	9/14/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL								
alpha-BHC	0.05	0.050 U	0.053 U	0.052 U	0.051 U	0.052 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.050 U	0.053 U	0.052 U	0.051 U	0.052 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.050 U	0.053 U	0.052 U	0.051 U	0.052 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.050 U	0.053 U	0.052 U	0.051 U	0.052 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.050 U	0.053 U	0.052 U	0.051 U	0.052 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.050 U	0.053 U	0.052 U	0.051 U	0.052 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.050 U	0.053 U	0.052 U	0.051 U	0.052 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.050 U	0.053 U	0.052 U	0.051 U	0.052 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U	0.10 U
4,4'-DDE	0.1	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U	0.10 U
Endrin	0.1	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U	0.10 U
Endosulfan II	0.1	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U	0.10 U
4,4'-DDD	0.1	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U	0.10 U
Endosulfan sulfate	0.1	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U	0.10 U
4,4'-DDT	0.1	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U	0.10 U
Methoxychlor	0.5	0.5 U	0.53 U	0.52 U	0.51 U	0.52 U	0.52 U	0.5 U	0.52 U
Endrin ketone	0.1	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U	0.10 U
alpha-Chlordane	0.5	0.5 U	0.53 U	0.52 U	0.51 U	0.52 U	0.52 U	0.5 U	0.52 U
gamma-Chlordane	0.5	0.5 U	0.53 U	0.52 U	0.51 U	0.52 U	0.52 U	0.5 U	0.52 U
Toxaphene	1	1 U	1.1 U	1 U	1 U	1 U	1.0 U	1 U	1.0 U
Aroclor-1016	0.5	0.5 U	0.53 U	0.52 U	0.51 U	0.52 U	0.52 U	0.5 U	0.52 U
Aroclor-1221	0.5	0.5 U	0.53 U	0.52 U	0.51 U	0.52 U	0.52 U	0.5 U	0.52 U
Aroclor-1232	0.5	0.5 U	0.53 U	0.52 U	0.51 U	0.52 U	0.52 U	0.5 U	0.52 U
Aroclor-1242	0.5	0.5 U	0.53 U	0.52 U	0.51 U	0.52 U	0.52 U	0.5 U	0.52 U
Aroclor-1248	0.5	0.5 U	0.53 U	0.52 U	0.51 U	0.52 U	0.52 U	0.5 U	0.52 U
Aroclor-1254	1	1 U	1.1 U	1 U	1 U	1 U	1.0 U	1 U	1.0 U
Aroclor-1260	1	1 U	1.1 U	1 U	1 U	1 U	1.0 U	1 U	1.0 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		PBLK88	PBLK88	PBLK88	PBLK88	PBLK88	PBLKAA	PBLK03	PBLKAA
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	08GW804XXX01XX	08GW804XXX01DX	08GW807XXX01XX	08GW807XXX01DX	08GW808XXX01XX	08GW808XXX01DX	09GW901XXX01XX	09GW902XXX01XX
	LAB NUMBER:	8257-003	8257-004	8257-001	8257-002	8258-001	8258-002	8259-015	8259-014
	DATE SAMPLED:	9/12/88	9/12/88	9/12/88	9/12/88	9/13/88	9/13/88	9/14/88	9/14/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL								
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.050 U	0.052 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.050 U	0.052 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.050 U	0.052 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.050 U	0.052 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.050 U	0.052 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.050 U	0.052 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.050 U	0.052 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.050 U	0.052 U
Dieldrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.52 U
Endrin ketone	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.52 U
gamma-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.52 U
Toxaphene	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1016	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.52 U
Aroclor-1221	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.52 U
Aroclor-1232	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.52 U
Aroclor-1242	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.52 U
Aroclor-1248	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.52 U
Aroclor-1254	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1260	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		PBLK01	PBLK01	PBLK01	PBLK01	PBLK03	PBLK03	PBLKAA	PBLKAA
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	09GW903XXX01XX	09GW904XXX01XX	09GW905XXX01XX	01SB002XXX01XX	01SB003XXX01XX	01SB004XXX01XX	SBXX406XX1
	LAB NUMBER:	8259-016	8252-003	8252-002	8260-011	8260-026	8260-027	8229-005
	DATE SAMPLED:	9/14/88	9/6/88	9/6/88	9/15/88	9/16/88	9/16/88	8/14/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL							
alpha-BHC	0.05	0.053 U	0.050 U	0.500 U	0.050 U	0.050 U	0.050 U	0.050 U
beta-BHC	0.05	0.053 U	0.050 U	0.500 U	0.050 U	0.050 U	0.050 U	0.31
delta-BHC	0.05	0.053 U	0.050 U	0.500 U	0.050 U	0.050 U	0.050 U	0.050 U
gamma-BHC (Lindane)	0.05	0.053 U	0.050 U	0.500 U	0.050 U	0.050 U	0.050 U	0.050 U
Heptachlor	0.05	0.053 U	0.050 U	0.500 U	0.050 U	0.050 U	0.050 U	0.050 U
Aldrin	0.05	0.053 U	0.050 U	0.500 U	0.050 U	0.050 U	0.050 U	0.050 U
Heptachlor epoxide	0.05	0.053 U	0.050 U	0.500 U	0.050 U	0.050 U	0.050 U	0.050 U
Endosulfan I	0.05	0.053 U	0.050 U	0.500 U	0.050 U	0.050 U	0.050 U	0.050 U
Dieldrin	0.1	0.11 U	0.100 U	1.000 U	0.1 U	0.1 U	0.1 U	0.062 J
4,4'-DDE	0.1	0.11 U	0.100 U	1.000 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.11 U	0.100 U	1.000 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.11 U	0.100 U	1.000 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.11 U	0.100 U	1.000 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.11 U	0.100 U	1.000 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.11 U	0.100 U	1.000 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.53 U	0.500 U	5.000 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin ketone	0.1	0.11 U	0.100 U	1.000 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.53 U	0.500 U	5.000 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-Chlordane	0.5	0.53 U	0.500 U	5.000 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	1	1.1 U	1.000 U	1.000 U*	1 U	1 U	1 U	1.0 U
Aroclor-1016	0.5	0.53 U	0.500 U	0.500 U*	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5	0.53 U	0.500 U	0.500 U*	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5	0.53 U	0.500 U	0.500 U*	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5	0.53 U	0.500 U	0.500 U*	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5	0.53 U	0.500 U	0.500 U*	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254	1	1.1 U	1.000 U	1.000 U*	1 U	1 U	1 U	1.0 U
Aroclor-1260	1	1.1 U	1.000 U	1.000 U*	1 U	1 U	1 U	1.0 U
Dilution Factor		1	1	10	1	1	1	1
Laboratory Method Blank		PBLKAA	PBLK01	PBLK01	PBLKBB	PBLKCC	PBLKCC	PBLKPP
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	01SB004XXX01XX	-	-	-

* = For Sample 8252-002: the Pesticide fraction has a dilution factor of 10 and the PCB Analysis dilution factor is 1.

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	08GW801XXX01XX	08GW801XXX01XX	08GW802XXX01XX	08GW802XXX01XX	08GW803XXX01XX	08GW803XXX01XX	08GW804XXX01XX
	LAB NUMBER:	8258-024	8259-002	8257-011	8258-003	8258-018	8259-001	8256-025
	DATE SAMPLED:	9/14/88	9/14/88	9/13/88	9/13/88	9/14/88	9/14/88	9/12/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
MISCELLANEOUS PARAMETERS UNITS: mg/l	PQL							
Total Coliforms	1/100 ml	33	NR	1 U	NR	3	NR	1 U
Hexavalent Chromium	0.005	0.005 U	NR	0.005 U	NR	0.005 U	NR	0.005 U
Dissolved Chloride	2	9.6	NR	3.5	NR	7.9	NR	32
Sulfate	1	18	NR	10	NR	5.9	NR	4.7
Filterable Residue	10	NR	310	NR	17U	NR	210	NR
Fluoride	0.2	NR	0.38	NR	0.26	NR	0.2 U	NR
Nitrate + Nitrite, AS N	0.05	NR	0.05 U	NR	0.057	NR	0.05 U	NR
Total Sulfide (Iodometric)	1	NR	2.5	NR	1 U	NR	1 U	NR
Total Recoverable Phenolics	5	NR	5 U	NR	5	NR	5 U	NR
Methylene Blue Active Substances	0.04	NR	0.04 U	NR	0.04 U	NR	0.04 U	NR

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	08GW804XXX01XX	08GW804XXX01DX	08GW804XXX01DX	08GW807XXX01XX	08GW807XXX01XX	08GW807XXX01DX	08GW807XXX01DX
	LAB NUMBER:	8257-003	8256-026	8257-004	8256-023	8257-001	8256-024	8257-002
	DATE SAMPLED:	9/12/88	9/12/88	9/12/88	9/12/88	9/12/88	9/12/88	9/12/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
MISCELLANEOUS PARAMETERS UNITS: mg/l	PQL							
Total Coliforms	1/100 ml	NR	1 U	NR	TNC	NR	TNC	NR
Hexavalent Chromium	0.005	NR	0.005 U	NR	0.005 U	NR	0.005 U	NR
Dissolved Chloride	2	NR	37	NR	140	NR	140	NR
Sulfate	1	NR	5.7	NR	12	NR	12	NR
Filterable Residue	10	260	NR	330	NR	270	NR	290
Fluoride	0.2	0.2 U	NR	0.2 U	NR	0.2 U	NR	0.2 U
Nitrate + Nitrite, AS N	0.05	0.05 U	NR	0.05 U	NR	0.6	NR	0.39
Total Sulfide (Iodometric)	1	1.3	NR	1 U	NR	1 U	NR	2.5
Total Recoverable Phenolics	5	5 U	NR	5 U	NR	5 U	NR	5 U
Methylene Blue Active Substances	0.04	0.04 U	NR	0.04 U	NR	0.04 U	NR	0.04 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	08GW808XXX01XX	08GW808XXX01XX	08GW808XXX01DX	08GW808XXX01DX
LAB NUMBER:	8257-009	8258-001	8257-010	8258-002
DATE SAMPLED:	9/13/88	9/13/88	9/13/88	9/13/88
MATRIX:	WATER	WATER	WATER	WATER

MISCELLANEOUS PARAMETERS UNITS: mg/l	PQL				
Total Coliforms	1/100 ml	1 U	NR	1 U	NR
Hexavalent Chromium	0.005	0.005 U	NR	0.005 U	NR
Dissolved Chloride	2	6.7	NR	6.3	NR
Sulfate	1	8.6	NR	8.6	NR
Filterable Residue	10	NR	110	NR	140
Fluoride	0.2	NR	0.2 U	NR	0.2 U
Nitrate + Nitrite, AS N	0.05	NR	1.3	NR	1.2
Total Sulfide (Iodometric)	1	NR	1 U	NR	1 U
Total Recoverable Phenolics	5	NR	11	NR	11
Methylene Blue Active Substances	0.04	NR	0.04 U	NR	0.04 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	02LT201XXX01XX	02LT202XXX01XX	03LT301XXX01XX	03LT302XXX01XX	01LT303XXX01XX	01LT304XXX01XX	01LT305XXX01XX	08LT801XXX01XX
	LAB NUMBER:	8252-015	8252-016	8252-017	8252-018	8252-019	8252-020	8252-021	8259-003
	DATE SAMPLED:	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/14/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METALS COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	960	8000	11000	1300	22000	74000	110000	36000 NE
Antimony	P	60	38 U	38 U	38 U	38 U	75	38 U	38 U	38 U
Arsenic	F	10	2.9 UN	4 [] N	2.9 UN	2.9 UN	2.9 UN	200 N	3600 N	2.9 U
Barium	P	200	16 []	94 []	160 []	39 []	640	1800	760	290
Beryllium	P	5	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	7	6	1.5 U
Cadmium	P	5	3 U	17	37	8	180	140	170	46
Calcium	P	5000	3100 []	10000	20000	15000	52000	160000	210000	26000 E
Chromium	P	10	6 U	13	11	6 U	18	93	130	51
Cobalt	P	50	23 []	22 []	13 []	26 []	57	510	1100	25 []
Copper	P	25	2.6 U	3 []	4 []	2.6 U	2.6 U	100	190	32
Iron	P	1000	29000	140000	310000	65000	170000	130000	160000	480000 NE
Lead	P/F	5	4.1 []	1.8 U	16	6.7	81	500	720 S	140 N
Magnesium	P	5000	1900	5800	4800	2800	6000	11000	36000	12000 E
Manganese	P	15	1300	4000	4500	3700	2400	6800	20000	6000
Mercury	CV	0.20	0.47 N	0.22 N	0.42 N	0.42 N	0.42 N	17 N	3.6 N	0.2 []
Nickel	P	40	10 []	15 []	12 []	9.2 U	140	370	880	32 []
Potassium	P	5000	1200 []	7500	4100 []	3000 []	8200	8300	9700	8000
Selenium	F	5	1.1 UN	1.1 UN	1.1 UN	1.1 UN	1.1 UN	1.1 UN	1.1 UN	1.8 U
Silver	P	10	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 U	3.7 UN
Sodium	P	5000	5400	6700	9500	8600	9700	10000	33000	7400 E
Thallium	F	10	0.7 UN	0.7 UN	0.7 UN	0.7 UN	0.7 UN	0.7 UN	0.7 UN	0.7 UN
Vanadium	P	50	11 []	9 []	9 []	3.2 U	62	350	620	92
Zinc	P	20	26	50	110	33	3000	690	1100	410
Total Cyanide	CM	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Boron	P	60*	NR	NR	NR	NR	NR	NR	NR	723
Laboratory Method Blank			H2O2	H2O2	H2O2	H2O2	H2O2	H2O2	H2O2	WATER2

● Reporting Limit, not a CRDL

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	08LT802XXX01XX		08LT803XXX01XX	
	LAB NUMBER:	8259-005		8259-004	
	DATE SAMPLED:	9/14/88		9/14/88	
	MATRIX:	WATER		WATER	
METALS COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL			
Aluminum	P	200	6900	NE	6600 NE
Antimony	P	60	38	U	38 U
Arsenic	F	10	3.1	[]	4.5 []
Barium	P	200	91	[]	90 []
Beryllium	P	5	1.5	U	1.5 U
Cadmium	P	5	7		8
Calcium	P	5000	150000	E	44000 E
Chromium	P	10	13		25
Cobalt	P	50	7.2	U	11 []
Copper	P	25	14	[]	11 []
Iron	P	1000	24000	NE	81000 NE
Lead	P/F	5	29	N	230 N
Magnesium	P	5000	7200	E	6300 E
Manganese	P	15	520		560
Mercury	CV	0.20	0.1	U	0.1 U
Nickel	P	40	10	[]	9.2 U
Potassium	P	5000	3600	[]	3100 []
Selenium	F	5	1.8	U	1.8 U
Silver	P	10	3.7	UN	3.7 UN
Sodium	P	5000	42000	E	41000 E
Thallium	F	10	0.7	UN	0.7 UN
Vanadium	P	50	25	[]	24 []
Zinc	P	20	75		99
Total Cyanide	CM	100	5	U	5 U
Boron	P	60*	58		121
Laboratory Method Blank			WATER3		WATER3

* = Reporting Limit, not = CRDL

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	02LT201XXX01XX	02LT202XXX01XX	03LT301XXX01XX	03LT302XXX01XX	01LT303XXX01XX	01LT304XXX01XX	01LT305XXX01XX
	LAB NUMBER:	8252-015	8252-016	8252-017	8252-018	8252-019	8252-020	8252-021
	DATE SAMPLED:	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL							
Chloromethane	10	10 U	10 U	10 U	100 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	100 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	15 J	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	1 J	100 U	10 U	10 U	6 J
Methylene Chloride	5	5 U	5 U	5 U	13 JB	15 B	5 U	5 U
Acetone	10	28	2 J	5 J	37 J	10 U	10 U	5 J
Carbon Disulfide	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	3 J	20 J	5 U	5 U	24
1,2-Dichloroethene (total)	5	5 U	5 U	1 J	140	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	100 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	100 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	31 J	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Benzene	5	5 U	1 J	5 U	50 U	5 U	5 U	1 J
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	100 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	100 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	50 U	5 U	5 U	1 J
1,1,2,2-Tetrachloroethane	5	5 U	5 U	2 J	1100	2 J	5 U	5 U
Toluene	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	50 U	3 J	5 U	2 J
Ethylbenzene	5	5 U	5 U	9	50 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	50 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	15	17	50 U	5 U	5 U	1 J
Dilution Factor		1	1	1	10	1	1	1
Laboratory Method Blank		VBLK03	VBLK03	VBLK03	VBLK04	VBLK04	VBLK06	VBLK06

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	08LT801XXX01XX	08LT802XXX01XX	08LT803XXX01XX
LAB NUMBER:	8259-003	8259-005	8259-004
DATE SAMPLED:	9/14/88	9/14/88	9/14/88
MATRIX:	WATER	WATER	WATER

METHOD 524.2
VOLATILE ORGANIC COMPOUNDS
UNITS: ug/l

Chloromethane	0.4 U	0.4 U	0.4 U
Bromomethane	0.4 U	0.4 U	0.4 U
Vinyl Chloride	0.5 U	0.5 U	0.5 U
Chloroethane	0.4 U	0.4 U	0.4 U
Methylene Chloride	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	0.8 U	0.8 U	0.8 U
1,1-Dichloroethane	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	0.5 U	0.5 U	0.5 U
Chloroform	0.4 U	0.4 U	0.4 U
1,2-Dichloroethane	0.3 U	0.3 U	0.3 U
1,1,1-Trichloroethane	0.4 U	0.4 U	0.4 U
Carbon Tetrachloride	0.4 U	0.4 U	0.4 U
Bromodichloromethane	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.3 U	0.3 U	0.3 U
Trichloroethene	0.3 U	0.3 U	0.3 U
Dibromochloromethane	0.3 U	0.3 U	0.3 U
1,1,2-Trichloroethane	0.4 U	0.4 U	0.4 U
Benzene	0.3 U	0.3 U	0.3 U
Bromoform	0.3 U	0.3 U	0.3 U
Tetrachloroethene	0.4 U	0.4 U	0.4 U
1,1,2,2-Tetrachloroethane	0.3 U	0.3 U	0.3 U
Toluene	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.4 U	0.4 U	0.4 U
Ethylbenzene	0.5 U	0.5 U	0.5 U
Styrene	0.3 U	0.3 U	0.3 U
Dichlorodifluoromethane	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane	0.5 U	0.5 U	0.5 U
Bromochloromethane	0.3 U	0.3 U	0.3 U
Dibromomethane	0.3 U	0.3 U	0.3 U
1,3-Dichloropropane	0.4 U	0.4 U	0.4 U
1,2-Dibromoethane	0.4 U	0.4 U	0.4 U
1,1,1,2-Tetrachloroethane	0.4 U	0.4 U	0.4 U
m- & p-Xlenes	0.4 U	0.4 U	0.4 U
o-Xylene	0.5 U	0.5 U	0.5 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	08LT801XXX01XX	08LT802XXX01XX	08LT803XXX01XX
	LAB NUMBER:	8259-003	8259-005	8259-004
	DATE SAMPLED:	9/14/88	9/14/88	9/14/88
	MATRIX:	WATER	WATER	WATER
METHOD 524.2 VOLATILE ORGANIC COMPOUNDS UNITS: ug/l				
Isopropylbenzene		0.3 U	0.3 U	0.3 U
Bromobenzene		0.3 U	0.3 U	0.3 U
1,2,3-Trichloropropane		0.3 U	0.3 U	0.3 U
n-Propylbenzene		0.3 U	0.3 U	0.3 U
2-Chlorotoluene		0.3 U	0.3 U	0.3 U
4-Chlorotoluene		0.3 U	0.3 U	0.3 U
1,3,5-Trimethylbenzene		0.3 U	0.3 U	0.3 U
t-Butylbenzene		0.3 U	0.3 U	0.3 U
1,2,4-Trimethylbenzene		0.3 U	0.3 U	0.3 U
sec-Butylbenzene		0.3 U	0.3 U	0.3 U
p-Isopropyltoluene		0.9 U	0.9 U	0.9 U
n-Butylbenzene		0.3 U	0.3 U	0.3 U
1,2-Dibromo-3-chloropropane		0.3 U	0.3 U	0.3 U
1,2,3-Trichlorobenzene		0.3 U	0.3 U	0.3 U
cis-1,2-Dichloroethene		0.4 U	0.4 U	0.4 U
2,2-Dichloropropane		0.4 U	0.4 U	0.4 U
1,1-Dichloropropene		0.3 U	0.3 U	0.3 U
1,3-Dichlorobenzene		0.3 U	0.3 U	0.3 U
1,4-Dichlorobenzene		0.3 U	0.3 U	0.3 U
1,2-Dichlorobenzene		0.3 U	0.3 U	0.3 U
1,2,4-Trichlorobenzene		0.3 U	0.3 U	0.3 U
Naphthalene		0.4 U	0.4 U	0.4 U
Hexachlorobutadiene		0.3 U	0.3 U	0.3 U
Dilution Factor		1.0	1.0	1.0
HERBICIDES (2,4-D & 2,4,5-TP)				
2,4-D		0.2 U	0.2 U	0.2 U
Silvex		0.02 U	0.02 U	0.02 U
Laboratory Method Blank		VBLK01	VBLK01	VBLK01
Associated Equipment Blank		SB-4	SB-4	-
Associated Trip Blank		TB-6	TB-6	TB-6

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	02LT201XXX01XX	02LT202XXX01XX	03LT301XXX01XX	03LT301XXX01XX	03LT302XXX01XX	01LT303XXX01XX	01LT304XXX01XX	01LT304XXX01XX
LAB NUMBER:	8252-015	8252-016	8252-017	8260-030	8252-018	8252-019	8252-020	8252-020RE
DATE SAMPLED:	9/7/88	9/7/88	9/7/88	9/16/88	9/7/88	9/7/88	9/7/88	9/7/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL							
Phenol	10	5 J	10 U	11 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	11 U	10 U	9 J	17	16
Benzyl alcohol	10	10 U	10 U	11 U	10 U	10 U	5 J	10 U
1,2-Dichlorobenzene	10	10 U	10 U	11 U	10 U	6 J	10 U	10 U
2-Methylphenol	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	57	10 U	11 U	10 U	10 U	2 J	13
N-Nitroso-di-n-propylamine	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U
Benzoic acid	50	48 J	7 J	55 U	50 U	11 J	5 J	50 U	110
bis(2-Chloroethoxy)methane	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	11 U	10 U	10 U	4 J	3 J
4-Chloroaniline	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	2 J
2-Methylnaphthalene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	55 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	55 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:		02LT201XXX01XX	02LT202XXX01XX	03LT301XXX01XX	03LT301XXX01XX	03LT302XXX01XX	01LT303XXX01XX	01LT304XXX01XX	01LT304XXX01XX
LAB NUMBER:		8252-015	8252-016	8252-017	8260-030	8252-018	8252-019	8252-020	8252-020RE
DATE SAMPLED:		9/7/88	9/7/88	9/7/88	9/16/88	9/7/88	9/7/88	9/7/88	9/7/88
MATRIX:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS									
UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	50 U	55 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	55 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	55 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	55 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	55 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	55 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	3 J	2 J	3 J	10 U	2 J	3 J	3 JB	3 J
Fluoranthene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	22 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	3 J	10 U	23	10 U	3 J	4 J	4 JB	3 J
Di-n-octylphthalate	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	11 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		SBLK01	SBLK01	SBLK01	A1137	SBLK01	SBLK01	SBLK02	SBLK05

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:		01LT305XXX01XX	01LT305XXX01XX	08LT801XXX01XX	08LT802XXX01XX	08LT803XXX01XX
LAB NUMBER:		8252-021	8252-021RE	8259-003	8259-005	8259-004
DATE SAMPLED:		9/7/88	9/7/88	9/14/88	9/14/88	9/14/88
MATRIX:		WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL					
Phenol	10	10 U	10 U	100 U	10 U	11 U
bis(2-Chloroethyl)ether	10	10 U	10 U	100 U	10 U	11 U
2-Chlorophenol	10	10 U	10 U	100 U	10 U	11 U
1,3-Dichlorobenzene	10	10 U	10 U	100 U	10 U	11 U
1,4-Dichlorobenzene	10	36	59	100 U	10 U	11 U
Benzyl alcohol	10	5 J	10 U	100 U	10 U	11 U
1,2-Dichlorobenzene	10	10 U	10 U	100 U	10 U	11 U
2-Methylphenol	10	10 U	10 U	100 U	10 U	11 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	100 U	10 U	11 U
4-Methylphenol	10	10 U	10 U	100 U	10 U	11 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	100 U	10 U	11 U
Hexachloroethane	10	10 U	10 U	100 U	10 U	11 U
Nitrobenzene	10	10 U	10 U	100 U	10 U	11 U
Isophorone	10	10 U	10 U	100 U	10 U	11 U
2-Nitrophenol	10	10 U	10 U	100 U	10 U	11 U
2,4-Dimethylphenol	10	10 U	10 U	100 U	10 U	11 U
Benzoic acid	50	64	39 J	500 U	50 U	53 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	100 U	10 U	11 U
2,4-Dichlorophenol	10	10 U	10 U	100 U	10 U	11 U
1,2,4-Trichlorobenzene	10	10 U	10 U	100 U	10 U	11 U
Naphthalene	10	2 J	3 J	100 U	10 U	11 U
4-Chloroaniline	10	10 U	10 U	100 U	10 U	11 U
Hexacholorobutadiene	10	10 U	10 U	100 U	10 U	11 U
4-Chloro-3-Methylphenol	10	10 U	10 U	100 U	10 U	11 U
2-Methylnaphthalene	10	10 U	10 U	100 U	10 U	11 U
Hexachlorocyclopentadiene	10	10 U	10 U	100 U	10 U	11 U
2,4,6-Trichlorophenol	10	10 U	10 U	100 U	10 U	11 U
2,4,5-Trichlorophenol	50	50 U	50 U	500 U	50 U	53 U
2-Chloronaphthalene	10	10 U	10 U	100 U	10 U	11 U
2-Nitroaniline	50	50 U	50 U	500 U	50 U	53 U
Dimethylphthalate	10	10 U	10 U	100 U	10 U	11 U
Acenaphthylene	10	10 U	10 U	100 U	10 U	11 U
2,6-Dinitrotoluene	10	10 U	10 U	100 U	10 U	11 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	01LT305XXX01XX	01LT305XXX01XX	08LT801XXX01XX	08LT802XXX01XX	08LT803XXX01XX
	LAB NUMBER:	8252-021	8252-021RE	8259-003	8259-005	8259-004
	DATE SAMPLED:	9/7/88	9/7/88	9/14/88	9/14/88	9/14/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL					
3-Nitroaniline	50	50 U	50 U	500 U	50 U	53 U
Acenaphthene	10	10 U	2 J	100 U	0.9 J	0.4 J
2,4-Dinitrophenol	50	50 U	50 U	500 U	50 U	53 U
4-Nitrophenol	50	50 U	50 U	500 U	50 U	53 U
Dibenzofuran	10	10 U	10 U	100 U	0.6 J	11 U
2,4-Dinitrotoluene	10	10 U	10 U	100 U	10 U	11 U
Diethylphthalate	10	10 U	10 U	100 U	10 U	11 U
4-Chlorophenyl-phenylether	10	10 U	10 U	100 U	10 U	11 U
Fluorene	10	10 U	10 U	100 U	0.8 J	11 U
4-Nitroaniline	50	50 U	50 U	500 U	50 U	53 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	500 U	50 U	53 U
N-Nitrosodiphenylamine	10	10 U	10 U	100 U	10 U	11 U
4-Bromophenyl-phenylether	10	10 U	10 U	100 U	10 U	11 U
Hexachlorobenzene	10	10 U	10 U	100 U	10 U	11 U
Pentachlorophenol	50	50 U	50 U	500 U	50 U	53 U
Phenanthrene	10	10 U	3 J	100 U	10 U	11 U
Anthracene	10	10 U	10 U	100 U	10 U	11 U
Di-n-butylphthalate	10	4 J	3 J	100 U	10 U	11 U
Fluoranthene	10	10 U	4 J	100 U	10 U	11 U
Pyrene	10	10 U	4 J	100 U	10 U	11 U
Butylbenzylphthalate	10	10 U	10 U	100 U	10 U	11 U
3,3'-Dichlorobenzidine	20	20 U	20 U	200 U	20 U	21 U
Benzo(a)Anthracene	10	10 U	10 U	100 U	10 U	11 U
Chrysene	10	10 U	3 J	100 U	10 U	11 U
bis(2-Ethylhexyl)phthalate	10	10	24	36 JB	4 JB	4 JB
Di-n-octylphthalate	10	10 U	10 U	100 U	10 U	11 U
Benzo(b)Fluoranthene	10	10 U	10 U	100 U	10 U	11 U
Benzo(k)Fluoranthene	10	10 U	10 U	100 U	10 U	11 U
Benzo(a)Pyrene	10	10 U	10 U	100 U	10 U	11 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	100 U	10 U	11 U
Dibenz(a,h)anthracene	10	10 U	10 U	100 U	10 U	11 U
Benzo(g,h,i,)perylene	10	10 U	10 U	100 U	10 U	11 U
Dilution Factor		1	1	10	1	1
Laboratory Method Blank		SBLK02	SBLK05	BLANK2	BLANK2	BLANK2

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	02LT201XXX01XX	02LT202XXX01XX	03LT302XXX01XX	01LT303XXX01XX	01LT304XXX01XX	01LT305XXX01XX	08LT801XXX01XX	08LT802XXX01XX
LAB NUMBER:	8252-015	8252-016	8252-018	8252-019	8252-020	8252-021	8259-003	8259-005
DATE SAMPLED:	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/14/88	9/14/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL							
alpha-BHC	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U	0.05 U
beta-BHC	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U	0.05 U
delta-BHC	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U	0.05 U
Heptachlor	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U	0.05 U
Aldrin	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U	0.05 U
Endosulfan I	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.05 U	0.05 U
Dieldrin	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.10 U	0.10 U
4,4'-DDE	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.400	0.10 U	0.10 U
Endrin	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.10 U	0.10 U
Endosulfan II	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.10 U	0.10 U
4,4'-DDD	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.360	0.10 U	0.10 U
Endosulfan sulfate	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.10 U	0.10 U
4,4'-DDT	0.1	0.100	0.100 U	0.100 U	0.100 U	0.100 U	0.170	0.10 U	0.10 U
Methoxychlor	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.52 U	0.50 U
Endrin ketone	0.1	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.10 U	0.10 U
alpha-Chlordane	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.52 U	0.50 U
gamma-Chlordane	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.52 U	0.50 U
Toxaphene	1	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1.0 U	1.0 U
Aroclor-1016	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.52 U	0.50 U
Aroclor-1221	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.52 U	0.50 U
Aroclor-1232	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.52 U	0.50 U
Aroclor-1242	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.52 U	0.50 U
Aroclor-1248	0.5	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.52 U	0.50 U
Aroclor-1254	1	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1.0 U	1.0 U
Aroclor-1260	1	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1.000 U	1.0 U	1.0 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		PBLK02	PBLK02	PBLK02	PBLK02	PBLK02	PBLK02	PBLKAA	PBLKAA

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID: 08LT803XXX01XX
LAB NUMBER: 8259-004
DATE SAMPLED: 9/14/88
MATRIX: WATER

PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL	
alpha-BHC	0.05	0.05 U
beta-BHC	0.05	0.05 U
delta-BHC	0.05	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U
Heptachlor	0.05	0.05 U
Aldrin	0.05	0.05 U
Heptachlor epoxide	0.05	0.05 U
Endosulfan I	0.05	0.05 U
Dieldrin	0.1	0.11 U
4,4'-DDE	0.1	0.11 U
Endrin	0.1	0.11 U
Endosulfan II	0.1	0.11 U
4,4'-DDD	0.1	0.11 U
Endosulfan sulfate	0.1	0.11 U
4,4'-DDT	0.1	0.11 U
Methoxychlor	0.5	0.53 U
Endrin ketone	0.1	0.11 U
alpha-Chlordane	0.5	0.53 U
gamma-Chlordane	0.5	0.53 U
Toxaphene	1	1.1 U
Aroclor-1016	0.5	0.53 U
Aroclor-1221	0.5	0.53 U
Aroclor-1232	0.5	0.53 U
Aroclor-1242	0.5	0.53 U
Aroclor-1248	0.5	0.53 U
Aroclor-1254	1	1.1 U
Aroclor-1260	1	1.1 U
Dilution Factor		1
Laboratory Method Blank		PBLKAA

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	03SD002XXX01XX	03SD002XXX01DX	02SD003XXX01XX	01SD004XXX01XX	08SD006XXX01XX	08SD007XXX01XX	08SD008XXX01XX	08SD009XXX01XX
	LAB NUMBER:	8252-024	8252-025	8253-020	8253-021	8258-013	8258-015	8258-017	8258-016
	DATE SAMPLED:	9/7/88	9/7/88	9/8/88	9/8/88	9/13/88	9/13/88	9/13/88	9/13/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	4600 E	4400 E	4400	3600	3900 E	3000 E	3300 E	5500 E
Antimony	P	12	3.4 UN*	3.5 UN*	2.8 U	2.8 U	2.6 UN	2.6 UN	2.4 UN	3.5 UN
Arsenic	F	2	4.8 N	3.4 N	2.1 N	4.6 N	1.8	1.6	1	5.4
Barium	P	40	24	23	15	15	10 [JE	10 [JE	9.7 [JE	36 E
Beryllium	P	1	0.14 U	0.15 U	0.12 U	0.12 U	0.11 U	0.11 U	0.1 U	0.15 U
Cadmium	P	1	2.7 E	2.5	0.81	0.67	0.68 E	0.62 E	0.75 E	5.7 E
Calcium	P	1000	1100	920	970	670	440	450	540	1700
Chromium	P	2	6	5.9	7.1 NE	7 NE	5.6 E	5.7 E	5.6 E	8.1 E
Cobalt	P	10	3 [J]	3.3 [J]	2.7 [J]	2.2 [J]	3.4	2.6 [J]	2.6 [J]	3.9 [J]
Copper	P	5	1.9 [J]	2.1 [J]	3.5	4.9	3.3	2.5	0.16 U	5
Iron	P	20	23000 E	22000 E	6600 E	5600 E	6600	5900	150	58000
Lead	P/F	1	1 N+	2.5 N	2.1 N+	5.3 N+	2.7 S	2.9	2.5 +	16
Magnesium	P	1000	1200	1000	27 [J]	1300	1200	970	950	1400
Manganese	P	3	690	730	68 E	120 E	160	200	170	220
Mercury	CV	0.04	0.02	0.035	0.007 U	0.014 [J]	0.011 [J]	0.011 [J]	0.01 [J]	0.024
Nickel	P	8	6.2	28	5.7 N	5.4 N	6.1	4.6	4.3	6.7
Potassium	P	1000	340 [JE	330 [JE	630 E	420 E	420	350	12 U	680
Selenium	F	1	0.16	0.17 UN	0.088 UN	0.09 UN	0.081 UN	0.083 UN	0.075 UN	0.11 UN
Silver	P	2	0.34 UN	0.35 UN	0.28 UN	0.28 UN	0.26 UN	0.26 UN	0.24 UN	0.35 UN
Sodium	P	1000	62 [JE	54 [J]	52 [JE	41 [J]	140 [J]	29 [J]	33 [J]	59 [J]
Thallium	F	2	0.71 UN	0.074 UN	0.059 UN*	0.06 UN*	0.054 UN	0.055 UN	0.05 UN	0.073 UN
Vanadium	P	10	9.3	8.6	11	8.6	9.1	8.2	10	15
Zinc	P	4	21	23	27	22	19	16	0.31 [J]	50
Total Cyanide	CN	2	0.45 U	0.46 U	0.37 U	0.37 U	0.34 U	0.35 U	0.31 U	0.46 U
Boron			NR	NR	NR	NR	NA	NA	NA	NA
Percent Solids			56	54	68	66.7	74	72.2	80.2	54.6
Laboratory Method Blank			PBS1 SB-001 01SB001XXX01XX	PBS1 SB-001 01SB001XXX01XX	PBS2 SB-001 01SB001XXX01XX	PBS2 SB-001 01SB001XXX01XX	SOIL3 SB-001 01SB001XXX01XX	SOIL3 SB-001 01SB001XXX01XX	SOIL3 SB-001 01SB001XXX01XX	SOIL3 SB-001 01SB001XXX01XX
Associated Equipment Blank										

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	09SD010XXX01XX	09SD011XXX01XX	09SD011XXX01DX	09SD012XXX01XX	01SD113XXX01XX	01SD113XXX01DX	01SD114XXX01XX	01SD115XXX01XX
	LAB NUMBER:	8253-022	8253-023	8253-024	8253-025	8256-018	8256-019	8256-020	8253-026
	DATE SAMPLED:	9/8/88	9/8/88	9/8/88	9/8/88	9/9/88	9/9/88	9/9/88	9/8/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	3400	3000	3300	3200	3600	3600	3900	8200
Antimony	P	12	2.5 U	2.4 U	2.5 U	2.4 U	2.8 U	2.8 U	2.9 U	5.5 U
Arsenic	F	2	1.7 N	2.4 N	2.2 N	2 NS	6.2 NS	5.5 N	5.9 N	14 N
Barium	P	40	28	45	17	19	17	16	32	57
Beryllium	P	1	0.1 U	0.1 U	0.11 U	0.1 U	0.15 []	0.15 []	0.12 U	0.25 U
Cadmium	P	1	0.59	1	1.1	1.2	1.2	1.3	1.9	3
Calcium	P	1000	570	710	970	800	660	670	630	1900
Chromium	P	2	22 NE	7.9 NE	16 NE	11 E	8.6	6.5	7.1	21 E
Cobalt	P	10	2.4 []	2.4 []	3.6	2.4 []	3.2 []	2.7 []	4.7	8.3
Copper	P	5	6.6	9.1	7.2	8.2	3.7	3	2.8	12
Iron	P	20	4800 E	4700 E	5100 E	4900 E	11000	11000	14000	21000 E
Lead	P/F	1	14 N	16 N	40 NS	20 N	4.3	3.9	5.2	73 N
Magnesium	P	1000	1400	1100	1500	1200	1400 E	1400 E	1500 E	2700
Manganese	P	3	75 E	120 E	110 E	140 E	230 E	240 E	580 E	370 E
Mercury	CV	0.04	0.01 []	0.048	0.016	0.017	0.007 U	0.007 U	0.008 U	0.053
Nickel	P	8	18 N	6.3 N	10 N	5.7 N	34	5.1	7.2	17 N
Potassium	P	1000	700 E	460 E	510 E	520 E	570	570	650	1000 E
Selenium	F	1	0.078 UN	0.077 UN	0.08 UN	0.075 UN	0.088 UN	0.087 UN	0.09 UN	0.17 UN
Silver	P	2	0.25 UN	0.24 UN	0.25 UN	0.24 UN	0.28 U	0.28 U	0.29 U	0.55 UN
Sodium	P	1000	68 []E	61 []E	79 []E	60 []E	52 []	52 []	55 []	120 []E
Thallium	F	2	0.052 UN*	0.051 UN*	0.054 UN*	0.05 UN*	0.059 U	0.058 U	0.06 U	0.12 UN*
Vanadium	P	10	10	11	11	12	11	11	11	31
Zinc	P	4	26	37	33	39	32	31	44	87
Total Cyanide	CM	2	0.33 U	0.32 U	0.34 U	0.31 U	0.37 U	0.36 U	0.38 U	0.72 U
Boron			NR	NR	NR	NR	NR	NR	NR	NR
Percent Solids			76.8	78.3	74.6	79.7	68.1	68.8	66.6	34.5
Laboratory Method Blank			PBS2	PBS2	PBS2	PBS2	PBS3	PBS3	PBS3	PBS2
Associated Equipment Blank			SB-001 01SB001XXX01XX	SB-001 01SB001XXX01XX	SB-001 01SB001XXX01XX	SB-001 01SB001XXX01XX	SB-001 01SB001XXX01XX	SB-001 01SB001XXX01XX	SB-001 01SB001XXX01XX	SB-001 01SB001XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01SD118XXX01XX	01SS118XXX01XX	01SD119XXX01XX	02SD201XXX01XX	02SD202XXX01XX	03SD301XXX01XX	03SD302XXX01XX	01SD303XXX01XX
	LAB NUMBER:	8256-021	8253-029	8256-022	8252-026	8252-027	8252-028	8252-029	8252-030
	DATE SAMPLED:	9/9/88	9/8/88	9/9/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	3100	17000	20000	7500 E	27000 E	6100 E	3700 E	4300 E
Antimony	P	12	2.8 U	3.8 U	2.7 U	3.6 UN*	3.5 UN*	4.2 UN*	10 UN*	3.2 UN*
Arsenic	F	2	2.1 N	7.1 N	14 N	6 N	25 N	2.2 N+	11 N	4.4 N
Barium	P	40	12 []	16 []	55	17 []	120	23	250	16 []
Beryllium	P	1	0.12 U	0.5 []	0.11 U	0.15 U	0.65	0.16 U	0.42 U	0.14 U
Cadmium	P	1	0.88	2.2	3.7	0.94	4.1 E	1.1	43 E	1.4
Calcium	P	1000	530	1500	2600	660	1700	1100	4800	900
Chromium	P	2	5.5	26 NE	38	9.8	44	8.2	7.9	8
Cobalt	P	10	2.6 []	2.7 []	13	4.6 []	18	4.1 []	24	3.8 []
Copper	P	5	2.3	21	27	6.1	28	6.1	0.68 U	5.4
Iron	P	20	5400	20000 E	33000	8900 E	41000 E	12000 E	420000 E	9400 E
Lead	P/F	1	4.6	9.9 NS	5.5 S	6 N	0.96 N	6.6 N	21 N+	6.1 SN
Magnesium	P	1000	1100 E	5700	9600 E	2000	11000	2000	930	1600
Manganese	P	3	180 E	300 E	500 E	94	420	150	21000	94
Mercury	CV	0.04	0.008 []	0.024	0.007 U	0.14	0.039	0.058	0.47	0.036
Nickel	P	8	4.9	22 N	30	9.2	42	10	35	9
Potassium	P	1000	380	2100 E	4300	800 E	4800 E	840 E	610 []E	690 E
Selenium	F	1	0.088 UN	0.12 UN	0.086 UN	0.17 UN	0.17 UN	0.2 UN	0.47 UN	0.15 UN
Silver	P	2	0.28 U	0.38 UN	0.27 U	0.36 UN	0.35 UN	0.42 UN	1.1 []N	0.32 UN
Sodium	P	1000	55 []	110 []E	200 []	60 []	170 []E	57 []	100 []	41 []
Thallium	F	2	0.058 U	0.081 UN*	0.057 U	0.075 UN	0.074 UN	0.089 UN	0.21 UN	0.068 UN
Vanadium	P	10	9.1	38	49	17	57	16	16	16
Zinc	P	4	38	63	67	28	99	26	100	48
Total Cyanide	CM	2	0.37 U	0.5 U	0.36 U	0.47 U	0.46 U	0.56 U	1.3 U	0.42 U
Boron			NR	NR	NR	NR	NR	NR	NR	NR
Percent Solids			68.4	49.6	69.8	53	54	45	19	59
Laboratory Method Blank			PBS3 SB-001	PBS2 SB-001	PBS3 SB-001	PBS1 SB-001	PBS1 SB-001	PBS1 SB-001	PBS1 SB-001	PBS1 SB-001
Associated Equipment Blank			01SB001XXX01XX	01SB001XXX01XX	01SB001XXX01XX	01SB001XXX01XX	01SB001XXX01XX	01SB001XXX01XX	01SB001XXX01XX	01SB001XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01SD304XXX01XX	01SD305XXX01XX	03SD316XXX01XX	03SD317XXX01XX	08SD801XXX01XX	08SD802XXX01XX	08SD803XXX01XX	08SD817XXX01XX
	LAB NUMBER:	8252-031	8252-032	8252-033	8252-034	8259-009	8259-011	8259-010	8259-012
	DATE SAMPLED:	9/7/88	9/7/88	9/7/88	9/7/88	9/14/88	9/14/88	9/14/88	9/14/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	4200 E	820 E	6900 E	9600 E	9200 E	7000 E	6800 E	6300 E
Antimony	P	12	9 UN*	4 UN*	4 UN*	3.3 UN*	4.9 UN	3 UN	3.1 UN	3.2 UN
Arsenic	F	2	3.9 UN+	34 N	6.5 N	9.3 N+	5	5.2	6.1	5.3
Barium	P	40	0.86 U	19 []	48	120	43	28	30	24
Beryllium	P	1	0.71 []	0.21 []	0.17 U	0.17 []	0.26 []	0.16 []	0.16 []	0.13 U
Cadmium	P	1	2.6	1.2	1.5	1.6	7.6 E	2.5 E	4.1 E	2.1 E
Calcium	P	1000	7700	1100	1300	1200	2500	3000	2200	1100
Chromium	P	2	8.1	13	15	23	15	15	15	12
Cobalt	P	10	1.7 U	27	8.2	7.5	6.2 []	3.4 []	4 []	5.1
Copper	P	5	6.9	74	9.9	14	9.6	8.9	7.4	6.8
Iron	P	20	17000 E	13000 E	14000 E	14000 E	64000 E	19000 E	36000 E	17000 E
Lead	P/F	1	23 N	4 N	12 N	14 N+	23	22	77	22
Magnesium	P	1000	780	2700	2700	2800	2600	1800	2100	2000
Manganese	P	3	180	160	570	180	450	160	150	180
Mercury	CV	0.04	0.29	0.018 []	0.013 []	0.011 []	0.021 []N	0.008 UN	0.016 []N	0.019 N
Nickel	P	8	2.2 U	25	26	18	4.8 []	8.3	8	7.8
Potassium	P	1000	340 []E	930 E	1200 E	2000 E	1300	940	830	860
Selenium	F	1	0.43 UN	0.19 UN	0.19 UN	0.16 UN	0.23 U	0.14 U	0.15 U	0.15 U
Silver	P	2	0.9 UN	0.4 UN	0.4 UN	0.33 UN	0.49 UN	0.3 UN	0.31 UN	0.32 UN
Sodium	P	1000	170 []E	110 []E	92 []E	82 []E	93 []	180 []	130 []	98 []
Thallium	F	2	0.19 UN	0.085 UN	0.085 UN	0.069 UN	0.1 UN	0.063 UN	0.065 UN	0.067 UN
Vanadium	P	10	14	19	19	23	25	21	20	18
Zinc	P	4	31	33	52	44	59	35	48	35
Total Cyanide	CM	2	1.2 U	0.53 U	0.53 U	0.43 U	0.64 UN	0.4 UN	0.41 UN	0.42 UN
Boron			NR	NR	NR	NR	NA	NA	NA	NA
Percent Solids			21	47	47	58	38.9	63.2	61.5	59.3
Laboratory Method Blank			PBS1	PBS1	PBS1	PBS1	SOIL3	SOIL3	SOIL3	SOIL3
Associated Equipment Blank			SB-001 01SB001XXX01XX	SB-001 01SB001XXX01XX	SB-001 01SB001XXX01XX	SB-001 01SB001XXX01XX	SB-001 01SB001XXX01XX	SB-001 01SB001XXX01XX	SB-001 01SB001XXX01XX	SB-001 01SB001XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	08SD818XXX01XX	08SD819XXX01XX	08SD820XXX01XX	08SD821XXX01XX	09SD915XXX01XX	09SD916XXX01XX	09SD917XXX01XX	09SD917XXX01DX
	LAB NUMBER:	8259-013	8258-012	8257-008	8258-014	8253-027	8253-028	8260-031	8260-032
	DATE SAMPLED:	9/14/88	9/13/88	9/12/88	9/13/88	9/8/88	9/8/88	9/16/88	9/16/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	6700 E	2500 E	4600	2400 E	3500	3700	9400	7000
Antimony	P	12	2.7 UN	2.5 UN	3.3 U	2.5 UN	3.5 U	2.8 U	3.3 UN	3 UN
Arsenic	F	2	5	1.1	2.2 N	1.5	3.7 N	2.98 N	4.9 N	1.8 N
Barium	P	40	20	7 []E	13 []	6.3 []E	64	17	30	21
Beryllium	P	1	0.11 U	0.1 U	0.14 U	0.11 U	0.15 U	0.12 U	0.26 []	0.24 []
Cadmium	P	1	0.99 E	0.52 E	0.68	0.4 E	0.55	1.6	1.3	0.78
Calcium	P	1000	1600	430	910	500	1600	790	1300	1100
Chromium	P	2	16	4.6 E	7.3	5.7 E	11 NE	24 NE	13	9.3
Cobalt	P	10	3.9	2.1 []	2.1 []	2.1 []	1.8 []	2.7 []	5.6	3.9 []
Copper	P	5	15	1.8	3.3	1.9	4.1	12	7.8	5.3
Iron	P	20	10000 E	4500	5900	4300	5100 E	5200 E	13000	8700
Lead	P/F	1	37	2.9 S	3	2.3 S	4.9 N	26 NS	0.15 U	17
Magnesium	P	1000	2400	820	1400 E	850	1700	1200	2300	1600
Manganese	P	3	95	140	130 E	84	240 E	140 E	260 E	180 E
Mercury	CV	0.04	0.007 UN	0.009 []	0.013 []	0.011 []	0.014 []	0.008 []	0.02	0.01 []
Nickel	P	8	8.5	3.5	6.6	3.9	7.6 N	17 N	8.8	6.2
Potassium	P	1000	1200	330	650	330 []	970 E	500 E	910	560
Selenium	F	1	0.13 U	0.078 UN	0.1 UN	0.08 UN	0.11 UN	0.089 UN	0.15 UN	0.25 []N
Silver	P	2	0.27 UN	0.25 UN	0.33 U	0.25 UN	0.35 UN	0.28 UN	0.33 U	0.3 U
Sodium	P	1000	140 []	37 []	300 []	30 []	64 []E	82 []E	98 []	76 []
Thallium	F	2	0.056 UN	0.052 UN	0.068 U	0.053 UN	0.073 UN*	0.059 UN*	0 N	0.096 []N
Vanadium	P	10	18	6.4	10	5.8	13	14	22	16
Zinc	P	4	47	18	16	15	24	46	35	24
Total Cyanide	CN	2	0.35 UN	0.33 U	0.43 U	0.33 U	0.45 U	0.37 U	0.43 U	0.39 U
Boron			NA	NA	NR	NA	NR	NR	NR	NR
Percent Solids			70.8	76.9	58.4	74.8	55	67.3	58.4	63.7
Laboratory Method Blank			WATER4 SB-001	SOIL3 SB-001	PBS3 SB-001	SOIL3 SB-001	PBS2 SB-001	PBS2 SB-001	SOIL3 SB-001	SOIL3 SB-3
Associated Equipment Blank			01SB001XXX01XX	01SB001XXX01XX	01SB001XXX01XX	01SB001XXX01XX	01SB001XXX01XX	01SB001XXX01XX	01SB001XXX01XX	01SB003XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID: 01SD918XXX01XX
LAB NUMBER: 8267-003
DATE SAMPLED: 9/16/88
MATRIX: SOIL

METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL		
Aluminum	P	40	15000	
Antimony	P	12	3.5	UN
Arsenic	F	2	8.8	N
Barium	P	40	48	E
Beryllium	P	1	0.36	[]
Cadmium	P	1	2.6	
Calcium	P	1000	1500	
Chromium	P	2	24	
Cobalt	P	10	11	
Copper	P	5	18	
Iron	P	20	22000	
Lead	P/F	1	40	NS
Magnesium	P	1000	4300	E
Manganese	P	3	270	E
Mercury	CV	0.04	0.033	
Nickel	P	8	20	E
Potassium	P	1000	1900	
Selenium	F	1	0.11	UN
Silver	P	2	0.35	U
Sodium	P	1000	150	[] E
Thallium	F	2	0.073	UN
Vanadium	P	10	44	E
Zinc	P	4	90	
Total Cyanide	CM	2	0.46	U
Boron			NR	
Percent Solids			54.9	

Laboratory Method Blank: SOIL4
Associated Equipment Blank: SB-3
01SB003XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03SD002XXX01XX	03SD002XXX01DX	02SD003XXX01XX	01SD004XXX01XX	08SD006XXX01XX	08SD007XXX01XX	08SD008XXX01XX	08SD009XXX01XX
LAB NUMBER:	8252-024	8252-025	8253-020	8253-021	8258-013	8258-015	8258-017	8258-016
DATE SAMPLED:	9/7/88	9/7/88	9/08/88	9/08/88	9/13/88	9/13/88	9/13/88	9/13/88
MATRIX:	SOIL	SOIL	SOIL	SOIL *	SOIL	SOIL	SOIL	SOIL
VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
Chloromethane	10	18 U	19 U	13 U	1800 U	13 U	13 U	13 U	17 U
Bromomethane	10	18 U	19 U	13 U	1800 U	13 U	13 U	13 U	17 U
Vinyl Chloride	10	18 U	19 U	13 U	1800 U	13 U	13 U	13 U	17 U
Chloroethane	10	18 U	19 U	13 U	1800 U	13 U	13 U	13 U	17 U
Methylene Chloride	5	9 U	10 U	18 B	14000	10 B	9 B	11 B	14 B
Acetone	10	18 U	19 U	13 U	1800 U	13 U	13 U	13 U	80
Carbon Disulfide	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
1,1-Dichloroethene	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
1,1-Dichloroethane	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
1,2-Dichloroethene (total)	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
Chloroform	5	9 U	10 U	7 U	910 U	6 J	6 U	6 U	8 U
1,2-Dichloroethane	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
2-Butanone	10	18 U	19 U	13 U	1800 U	13 U	13 U	13 U	17 U
1,1,1-Trichloroethane	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
Carbon Tetrachloride	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
Vinyl Acetate	10	18 U	19 U	13 U	1800 U	13 U	13 U	13 U	17 U
Bromodichloromethane	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
1,2-Dichloropropane	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
cis-1,3-Dichloropropene	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
Trichloroethene	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
Dibromochloromethane	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
1,1,2-Trichloroethane	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
Benzene	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
Trans-1,3-Dichloropropene	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
Bromoform	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
4-Methyl-2-Pentanone	10	18 U	19 U	13 U	1800 U	13 U	13 U	13 U	17 U
2-Hexanone	10	18 U	19 U	13 U	1800 U	13 U	13 U	13 U	17 U
Tetrachloroethene	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
1,1,2,2-Tetrachloroethane	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
Toluene	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
Chlorobenzene	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
Ethylbenzene	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
Styrene	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
Xylenes (Total)	5	9 U	10 U	7 U	910 U	6 U	6 U	6 U	8 U
Dilution Factor		1	0.998	1	125	1	1	1	1
Percent Solids		56	54	76	69	80	78	80	60
Laboratory Method Blank		VBLK08	VBLK08	C3647	C3706	VBLKF	VBLKF	VBLKF	VBLKF
Associated Equipment Blank		SB-001	SB-001	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX

* = Medium Level Analysis

BR03-CVA

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	09SD010XXX01XX	09SD011XXX01XX	09SD011XXX01DX	09SD012XXX01XX	01SD113XXX01XX	01SD113XXX01DX	01SD115XXX01XX	01SD118XXX01XX
	LAB NUMBER:	8253-022	8253-023	8253-024	8253-025	8256-018	8256-019	8253-026	8256-021
	DATE SAMPLED:	9/08/88	9/8/88	9/8/88	9/8/88	9/9/88	9/9/88	9/8/88	9/9/88
	MATRIX:	SOIL	SOIL *	SOIL *	SOIL *	SOIL *	SOIL	SOIL *	SOIL *
VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Chloromethane	10	13 U	1600 U	1600 U	1500 U	1600 U	13 U	3000 U	1600 U
Bromomethane	10	13 U	1600 U	1600 U	1500 U	1600 U	13 U	3000 U	1600 U
Vinyl Chloride	10	13 U	1600 U	1600 U	1500 U	1600 U	13 U	3000 U	1600 U
Chloroethane	10	13 U	1600 U	1600 U	1500 U	1600 U	13 U	3000 U	1600 U
Methylene Chloride	5	27 B	1200	1000	1200	1100	12	2100	1200
Acetone	10	13 U	1600 U	1600 U	1500 U	2700	13 U	3000 U	2900
Carbon Disulfide	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
1,1-Dichloroethene	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
1,1-Dichloroethane	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
1,2-Dichloroethene (total)	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
Chloroform	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
1,2-Dichloroethane	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
2-Butanone	10	13 U	1600 U	1600 U	1500 U	1600 U	13 U	3000 U	1600 U
1,1,1-Trichloroethane	5	6 U	790 U	780 U	770 U	790 U	78	1500 U	820 U
Carbon Tetrachloride	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
Vinyl Acetate	10	13 U	1600 U	1600 U	1500 U	1600 U	13 U	3000 U	1600 U
Bromodichloromethane	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
1,2-Dichloropropane	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
cis-1,3-Dichloropropene	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
Trichloroethene	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
Dibromochloromethane	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
1,1,2-Trichloroethane	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
Benzene	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
Trans-1,3-Dichloropropene	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
Bromoform	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
4-Methyl-2-Pentanone	10	13 U	1600 U	1600 U	1500 U	1600 U	13 U	3000 U	1600 U
2-Hexanone	10	13 U	1600 U	1600 U	1500 U	1600 U	13 U	3000 U	1600 U
Tetrachloroethene	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
1,1,2,2-Tetrachloroethane	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
Toluene	5	6 U	790 U	880	770 U	790 U	6 U	1600	820 U
Chlorobenzene	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
Ethylbenzene	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
Styrene	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
Xylenes (Total)	5	6 U	790 U	780 U	770 U	790 U	6 U	1500 U	820 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		80	79	80	81	79	78	41	76
Laboratory Method Blank		C3647	VBLKK	VBLKK	VBLKK	VBLKK	VBLKB	VBLKK	VBLKK
Associated Equipment Blank		01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX

* Medium Level Analysis

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:		01SS118XXX01XX	01SD119XXX01XX	02SD201XXX01XX	02SD202XXX01XX	03SD301XXX01XX	03SD301XXX01XX	03SD302XXX01XX	01SD303XXX01XX
LAB NUMBER:		8253-029	8256-022	8252-026	8252-027	8252-028	8252-028RE	8252-029	8252-030
DATE SAMPLED:		9/8/88	9/9/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88
MATRIX:		SOIL *	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Chloromethane	10	1900 U	14 U	19 U	18 U	22 U	22 U	230 U	17 U
Bromomethane	10	1900 U	14 U	19 U	18 U	22 U	22 U	230 U	17 U
Vinyl Chloride	10	1900 U	14 U	19 U	18 U	22 U	22 U	34 J	17 U
Chloroethane	10	1900 U	14 U	19 U	18 U	22 U	22 U	230 U	17 U
Methylene Chloride	5	1200	17	9 U	9 U	3 J	3 J	55 J	6 U
Acetone	10	1900 U	14 U	19 U	18 U	22 U	52	230 U	17 U
Carbon Disulfide	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
1,1-Dichloroethene	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
1,1-Dichloroethane	5	950 U	7 U	9 U	9 U	11 U	11 U	25 J	8 U
1,2-Dichloroethene (total)	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
Chloroform	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
1,2-Dichloroethane	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
2-Butanone	10	1900 U	14 U	19 U	18 U	22 U	22 U	230 U	17 U
1,1,1-Trichloroethane	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
Carbon Tetrachloride	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
Vinyl Acetate	10	1900 U	14 U	19 U	18 U	22 U	22 U	230 U	17 U
Bromodichloromethane	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
1,2-Dichloropropane	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
cis-1,3-Dichloropropene	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
Trichloroethene	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
Dibromochloromethane	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
1,1,2-Trichloroethane	5	950 U	7 U	9 U	9 U	11 U	11 U	440	8 U
Benzene	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
Trans-1,3-Dichloropropene	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
Bromoform	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
4-Methyl-2-Pentanone	10	1900 U	14 U	19 U	18 U	22 U	22 U	230 U	17 U
2-Hexanone	10	1900 U	14 U	19 U	18 U	22 U	22 U	230 U	17 U
Tetrachloroethene	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
1,1,2,2-Tetrachloroethane	5	950 U	7 U	9 U	9 U	11 U	11 U	3700 B	8 U
Toluene	5	970	7 U	200	9 U	11 U	11 U	110 U	8 U
Chlorobenzene	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
Ethylbenzene	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
Styrene	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
Xylenes (Total)	5	950 U	7 U	9 U	9 U	11 U	11 U	110 U	8 U
Dilution Factor		1	1	1	0.99	0.98	0.99	0.957	0.986
Percent Solids		66	70	53	54	45	45	19	59
Laboratory Method Blank		VBLKK	VBLK8	VBLK08	VBLK08	VBLK08	VBLK09	VBLK09	VBLK08
Associated Equipment Blank		01SB002XXX01XX	01SB002XXX01XX	SB-001	SB-001	SB-001	SB-001	SB-001	SB-001

* = Medium Level Analysis

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SD304XXX01XX	01SD304XXX01XX	01SD305XXX01XX	03SD316XXX01XX	03SD317XXX01XX	08SD801XXX01XX	08SD802XXX01XX	08SD803XXX01XX
LAB NUMBER:	8252-031	8252-031RE	8252-032	8252-033	8252-034	8259-009	8259-011	8259-010
DATE SAMPLED:	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/14/88	9/14/88	9/14/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL *	SOIL
VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
Chloromethane	10	48 U	48 U	21 U	21 U	17 U	100 U	1900 U	18 U
Bromomethane	10	48 U	48 U	21 U	21 U	17 U	100 U	1900 U	18 U
Vinyl Chloride	10	48 U	48 U	21 U	21 U	17 U	100 U	1900 U	18 U
Chloroethane	10	48 U	48 U	21 U	21 U	17 U	100 U	1900 U	18 U
Methylene Chloride	5	24 U	8 J	10 U	2 J	2 J	84 B	2300	14 B
Acetone	10	48 U	48 U	21 U	21 U	17 U	1800	1900 U	360
Carbon Disulfide	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
1,1-Dichloroethene	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
1,1-Dichloroethane	5	24 U	24 U	6 J	11 U	9 U	51 U	960 U	9 U
1,2-Dichloroethene (total)	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
Chloroform	5	24 U	24 U	10 U	11 U	9 U	62	960 U	15
1,2-Dichloroethane	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
2-Butanone	10	48 U	48 U	21 U	21 U	17 U	220	1900 U	18 U
1,1,1-Trichloroethane	5	24 U	24 U	10 U	11 U	9 U	59	960 U	9 U
Carbon Tetrachloride	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
Vinyl Acetate	10	48 U	48 U	21 U	21 U	17 U	100 U	1900 U	18 U
Bromodichloromethane	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
1,2-Dichloropropane	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
cis-1,3-Dichloropropene	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
Trichloroethene	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
Dibromochloromethane	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
1,1,2-Trichloroethane	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
Benzene	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
Trans-1,3-Dichloropropene	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
Bromoform	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
4-Methyl-2-Pentanone	10	48 U	48 U	21 U	21 U	17 U	100 U	1900 U	18 U
2-Hexanone	10	48 U	48 U	21 U	21 U	17 U	100 U	1900 U	18 U
Tetrachloroethene	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
1,1,2,2-Tetrachloroethane	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
Toluene	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
Chlorobenzene	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
Ethylbenzene	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
Styrene	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
Xylenes (Total)	5	24 U	24 U	10 U	11 U	9 U	51 U	960 U	9 U
Dilution Factor		0.98	0.98	1	0.996	1	5	125	1
Percent Solids		21	21	47	47	58	49	65	55
Laboratory Method Blank		VBLK08	VBLK09	VBLK08	VBLK08	VBLK08	VBLK0	C3905	C3876
Associated Equipment Blank		SB-001	SB-001	SB-001	SB-001	SB-001	01SB002XXX01XX	01SB001XXX01XX	01SB001XXX01XX

Medium Level Analysis

BR03-CVA

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	08SD817XXX01XX	08SD818XXX01XX	08SD820XXX01XX	08SD821XXX01XX	09SD915XXX01XX	09SD916XXX01XX	09SD917XXX01XX	09SD917XXX01DX
LAB NUMBER:	8259-012	8259-013	8257-008	8258-014	8253-027	8253-028	8260-031	8260-032
DATE SAMPLED:	9/14/88	9/14/88	9/12/88	9/13/88	9/8/88	9/8/88	9/16/88	9/16/88
MATRIX:	SOIL *	SOIL	SOIL	SOIL	SOIL *	SOIL *	SOIL *	SOIL *
VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
Chloromethane	10	2000 U	15 U	14 U	13 U	2100 U	1600 U	2000 U	2000 U
Bromomethane	10	2000 U	15 U	14 U	13 U	2100 U	1600 U	2000 U	2000 U
Vinyl Chloride	10	2000 U	15 U	14 U	13 U	2100 U	1600 U	2000 U	2000 U
Chloroethane	10	2000 U	15 U	14 U	13 U	2100 U	1600 U	2000 U	2000 U
Methylene Chloride	5	1900	13 B	110 B	11 B	1500	1100	1600	2200
Acetone	10	2000 U	38	75	13 U	2100 U	2400	2000 U	2000 U
Carbon Disulfide	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
1,1-Dichloroethene	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
1,1-Dichloroethane	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
1,2-Dichloroethene (total)	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
Chloroform	5	1000 U	7 U	7 U	11	1100 U	820 U	1100	980 U
1,2-Dichloroethane	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
2-Butanone	10	2000 U	15 U	14 U	13 U	2100 U	1600 U	2000 U	2000 U
1,1,1-Trichloroethane	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
Carbon Tetrachloride	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
Vinyl Acetate	10	2000 U	15 U	14 U	13 U	2100 U	1600 U	2000 U	2000 U
Bromodichloromethane	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
1,2-Dichloropropane	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
cis-1,3-Dichloropropene	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
Trichloroethene	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
Dibromochloromethane	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
1,1,2-Trichloroethane	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
Benzene	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
Trans-1,3-Dichloropropene	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
Bromoform	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
4-Methyl-2-Pentanone	10	2000 U	15 U	14 U	13 U	2100 U	1600 U	2000 U	2000 U
2-Hexanone	10	2000 U	15 U	14 U	13 U	2100 U	1600 U	2000 U	2000 U
Tetrachloroethene	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
1,1,2,2-Tetrachloroethane	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
Toluene	5	1000 U	7 U	7 U	6 U	1100 U	920	980 U	980 U
Chlorobenzene	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
Ethylbenzene	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
Styrene	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
Xylenes (Total)	5	1000 U	7 U	7 U	6 U	1100 U	820 U	980 U	980 U
Dilution Factor		125	1	1	1	1	1	1	1
Percent Solids		61	67	70	78	59	76	64	64
Laboratory Method Blank		C3905	C3890	VBLKE	VBLKF	VBLKK	VBLKK	C3905	C3905
Associated Equipment Blank		01SB001XXX01XX	01SB001XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB003XXX01XX	01SB003XXX01XX

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Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID: 01SD918XXX01XX
LAB NUMBER: 8267-003
DATE SAMPLED: 9/22/88
MATRIX: SOIL

VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL	
Chloromethane	10	18 U
Bromomethane	10	18 U
Vinyl Chloride	10	18 U
Chloroethane	10	18 U
Methylene Chloride	5	9 U
Acetone	10	300
Carbon Disulfide	5	9 U
1,1-Dichloroethene	5	9 U
1,1-Dichloroethane	5	9 U
1,2-Dichloroethene (total)	5	9 U
Chloroform	5	9 U
1,2-Dichloroethane	5	9 U
2-Butanone	10	18 U
1,1,1-Trichloroethane	5	9 U
Carbon Tetrachloride	5	9 U
Vinyl Acetate	10	18 U
Bromodichloromethane	5	9 U
1,2-Dichloropropane	5	9 U
cis-1,3-Dichloropropene	5	9 U
Trichloroethene	5	9 U
Dibromochloromethane	5	9 U
1,1,2-Trichloroethane	5	9 U
Benzene	5	9 U
Trans-1,3-Dichloropropene	5	9 U
Bromoform	5	9 U
4-Methyl-2-Pentanone	10	18 U
2-Hexanone	10	18 U
Tetrachloroethene	5	9 U
1,1,2,2-Tetrachloroethane	5	9 U
Toluene	5	9 U
Chlorobenzene	5	9 U
Ethylbenzene	5	9 U
Styrene	5	9 U
Xylenes (Total)	5	9 U
Dilution Factor		1
Percent Solids		56
Laboratory Method Blank		C4000
Associated Equipment Blank		01SB003XXX01XX

Medium Level Analysis

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	03SD002XXX01XX	03SD002XXX01DX	02SD003XXX01XX	01SD004XXX01XX	08SD006XXX01XX	08SD007XXX01XX	08SD008XXX01XX	08SD009XXX01XX
LAB NUMBER:	8252-024	8252-025	8253-020	8253-021	8258-013	8258-015	8258-017	8258-016
DATE SAMPLED:	9/7/88	9/7/88	9/08/88	9/08/88	9/13/88	9/13/88	9/13/88	9/13/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
Phenol	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
bis(2-Chloroethyl)ether	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
2-Chlorophenol	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
1,3-Dichlorobenzene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
1,4-Dichlorobenzene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
Benzyl alcohol	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
1,2-Dichlorobenzene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
2-Methylphenol	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
bis(2-Chloroisopropyl)ether	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
4-Methylphenol	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
N-Nitroso-di-n-propylamine	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
Hexachloroethane	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
Nitrobenzene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
Isophorone	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
2-Nitrophenol	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
2,4-Dimethylphenol	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
Benzoic acid	1600	4400 U	4200 U	4300 U	4800 U	4100 U	4200 U	2100 U	5500 U
bis(2-Chloroethoxy)methane	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
2,4-Dichlorophenol	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
1,2,4-Trichlorobenzene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
Naphthalene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	290 J
4-Chloroaniline	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
Hexachlorobutadiene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
4-Chloro-3-Methylphenol	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
2-Methylnaphthalene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	40 J
Hexachlorocyclopentadiene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
2,4,6-Trichlorophenol	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
2,4,5-Trichlorophenol	1600	4400 U	4200 U	4300 U	4800 U	4100 U	4200 U	2100 U	5500 U
2-Chloronaphthalene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
2-Nitroaniline	1600	4400 U	4200 U	4300 U	4800 U	4100 U	4200 U	2100 U	5500 U
Dimethylphthalate	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
Acenaphthylene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
2,6-Dinitrotoluene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03SD002XXX01XX	03SD002XXX01DX	02SD003XXX01XX	01SD004XXX01XX	08SD006XXX01XX	08SD007XXX01XX	08SD008XXX01XX	08SD009XXX01XX
LAB NUMBER:	8252-024	8252-025	8253-020	8253-021	8258-013	8258-015	8258-017	8258-016
DATE SAMPLED:	9/7/88	9/7/88	9/08/88	9/08/88	9/13/88	9/13/88	9/13/88	9/13/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS
UNITS: ug/kg

	CRDL							
3-Nitroaniline	1600	4400 U	4200 U	4300 U	4800 U	4100 U	4200 U	2100 U	5500 U
Acenaphthene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	270 J
2,4-Dinitrophenol	1600	4400 U	4200 U	4300 U	4800 U	4100 U	4200 U	2100 U	5500 U
4-Nitrophenol	1600	4400 U	4200 U	4300 U	4800 U	4100 U	4200 U	2100 U	5500 U
Dibenzofuran	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	160 J
2,4-Dinitrotoluene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
Diethylphthalate	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
4-Chlorophenyl-phenylether	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
Fluorene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	270 J
4-Nitroaniline	1600	4400 U	4200 U	4300 U	4800 U	4100 U	4200 U	2100 U	5500 U
4,6-Dinitro-2-methylphenol	1600	4400 U	4200 U	4300 U	4800 U	4100 U	4200 U	2100 U	5500 U
N-Nitrosodiphenylamine	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
4-Bromophenyl-phenylether	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
Hexachlorobenzene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
Pentachlorophenol	1600	4400 U	4200 U	4300 U	4800 U	4100 U	4200 U	2100 U	5500 U
Phenanthrene	330	910 U	870 U	820 J	960 U	830 U	850 U	410 U	2000
Anthracene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	640 J
Di-n-butylphthalate	330	100 JB	110 JB	180 JB	220 JB	100 JB	130 JB	140 JB	200 JB
Fluoranthene	330	910 U	870 U	830 J	960 U	830 U	850 U	410 U	2600
Pyrene	330	910 U	870 U	810 J	960 U	830 U	850 U	60 J	2300
Butylbenzylphthalate	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
3,3'-Dichlorobenzidine	660	1800 U	1700 U	1700 U	1900 U	1700 U	1700 U	830 U	2200 U
Benzo(a)Anthracene	330	910 U	870 U	320 J	960 U	830 U	850 U	410 U	1100 J
Chrysene	330	910 U	870 U	730 J	960 U	830 U	850 U	410 U	1700
bis(2-Ethylhexyl)phthalate	330	910 U	260 JB	870 U	540 JB	140 JB	700 JB	81 JB	240 JB
Di-n-octylphthalate	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
Benzo(b)Fluoranthene	330	910 U	870 U	560 J	960 U	830 U	850 U	410 U	1300
Benzo(k)Fluoranthene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1100 U
Benzo(a)Pyrene	330	910 U	870 U	300 J	960 U	830 U	850 U	410 U	930 J
Indeno(1,2,3-cd)pyrene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	610 J
Dibenz(a,h)anthracene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	420 J
Benzo(g,h,i,)perylene	330	910 U	870 U	870 U	960 U	830 U	850 U	410 U	1300
Dilution Factor		2	2	2	2	2	2	1	2
Percent Solid		72	75	76	69	80	78	80	60
Laboratory Method Blank		SBLK03	SBLK03	SBLKG	SBLKG	BLANK3	BLANK3	BLANK3	BLANK3
Associated Equipment Blank		SB-001	SB-001	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	09SD010XXX01XX	09SD011XXX01XX	09SD011XXX01XX	09SD011XXX01DX	09SD012XXX01XX	01SD113XXX01XX	01SD113XXX01DX	01SD115XXX01XX
LAB NUMBER:	8253-022	8253-023	8253-023DL	8253-024	8253-025	8256-018	8256-019	8253-026
DATE SAMPLED:	9/08/88	9/8/88	9/8/88	9/8/88	9/8/88	9/9/88	9/9/88	9/8/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS

UNITS: ug/kg	CRDL								
Phenol	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
bis(2-Chloroethyl)ether	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
2-Chlorophenol	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
1,3-Dichlorobenzene	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
1,4-Dichlorobenzene	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
Benzyl alcohol	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
1,2-Dichlorobenzene	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
2-Methylphenol	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
bis(2-Chloroisopropyl)ether	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
4-Methylphenol	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
N-Nitroso-di-n-propylamine	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
Hexachloroethane	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
Nitrobenzene	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
Isophorone	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
2-Nitrophenol	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
2,4-Dimethylphenol	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
Benzoic acid	1600	4100 U	6300 U	17000 U	4100 U	4100 U	4200 U	4200 U	8100 U
bis(2-Chloroethoxy)methane	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
2,4-Dichlorophenol	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
1,2,4-Trichlorobenzene	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
Naphthalene	330	830 U	2200	2100 JD	43 J	68 J	840 U	850 U	1600 U
4-Chloroaniline	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
Hexacholorobutadiene	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
4-Chloro-3-Methylphenol	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
2-Methylnaphthalene	330	830 U	590 J	460 JD	830 U	820 U	840 U	850 U	1600 U
Hexachlorocyclopentadiene	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
2,4,6-Trichlorophenol	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
2,4,5-Trichlorophenol	1600	4100 U	6300 U	17000 U	4100 U	4100 U	4200 U	4200 U	8100 U
2-Chloronaphthalene	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
2-Nitroaniline	1600	4100 U	6300 U	17000 U	4100 U	4100 U	4200 U	4200 U	8100 U
Dimethylphthalate	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
Acenaphthylene	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
2,6-Dinitrotoluene	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	09SD010XXX01XX	09SD011XXX01XX	09SD011XXX01XX	09SD011XXX01DX	09SD012XXX01XX	01SD113XXX01XX	01SD113XXX01DX	01SD115XXX01XX
LAB NUMBER:	8253-022	8253-023	8253-023DL	8253-024	8253-025	8256-018	8256-019	8253-026
DATE SAMPLED:	9/08/88	9/8/88	9/8/88	9/8/88	9/8/88	9/9/88	9/9/88	9/8/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS

UNITS: ug/kg	CRDL								
3-Nitroaniline	1600	4100 U	6300 U	17000 U	4100 U	4100 U	4200 U	4200 U	8100 U
Acenaphthene	330	830 U	9400	8200 D	160 J	140 J	840 U	850 U	1600 U
2,4-Dinitrophenol	1600	4100 U	6300 U	17000 U	4100 U	4100 U	4200 U	4200 U	8100 U
4-Nitrophenol	1600	4100 U	6300 U	17000 U	4100 U	4100 U	4200 U	4200 U	8100 U
Dibenzofuran	330	830 U	5100	5300 JD	85 J	77 J	840 U	850 U	1600 U
2,4-Dinitrotoluene	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
Diethylphthalate	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
4-Chlorophenyl-phenylether	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
Fluorene	330	830 U	9500	5400 D	170 J	140 J	840 U	850 U	1600 U
4-Nitroaniline	1600	4100 U	6300 U	17000 U	4100 U	4100 U	4200 U	4200 U	8100 U
4,6-Dinitro-2-methylphenol	1600	4100 U	6300 U	17000 U	4100 U	4100 U	4200 U	4200 U	8100 U
N-Nitrosodiphenylamine	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
4-Bromophenyl-phenylether	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
Hexachlorobenzene	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
Pentachlorophenol	1600	4100 U	6300 U	17000 U	4100 U	4100 U	4200 U	4200 U	8100 U
Phenanthrene	330	270 J	74000 E	53000 D	2700	1500	110 J	850 U	910 J
Anthracene	330	830 U	12000	8600 D	380 J	250 J	840 U	850 U	1600 U
Di-n-butylphthalate	330	180 JB	1300 U	3300 U	230 JB	170 JB	95 JB	850 U	470 JB
Fluoranthene	330	340 J	64000 E	60000 D	14000	2600	220 J	850 U	1700
Pyrene	330	260 J	53000 E	49000 D	7700	1400	180 J	850 U	1200 J
Butylbenzylphthalate	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
3,3'-Dichlorobenzidine	660	1700 U	2500 U	6700 U	1700 U	1600 U	1700 U	1700 U	3200 U
Benzo(a)Anthracene	330	830 U	32000 E	24000 D	3500	800 J	840 U	850 U	480 J
Chrysene	330	830 U	47000 E	44000 D	7100	1600	840 U	850 U	1400 J
bis(2-Ethylhexyl)phthalate	330	320 JB	1200 JB	2000 JBD	530 JB	520 JB	520 J	180 J	1000 JB
Di-n-octylphthalate	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
Benzo(b)Fluoranthene	330	230 J	46000 E	32000 D	5700	1500	840 U	850 U	1500 J
Benzo(k)Fluoranthene	330	830 U	1300 U	3300 U	830 U	820 U	840 U	850 U	1600 U
Benzo(a)Pyrene	330	830 U	26000 E	22000 D	2600	850	840 U	850 U	730 J
Indeno(1,2,3-cd)pyrene	330	830 U	20000	15000 D	1600	450 J	840 U	850 U	440 J
Dibenz(a,h)anthracene	330	830 U	16000	12000 D	1200	400 J	840 U	850 U	1600 U
Benzo(g,h,i,)perylene	330	830 U	41000 E	30000 D	3000	760 J	840 U	850 U	1600 U
Dilution Factor		2	3	15	2	2	2	2	2
Percent Solid		80	79	79	80	81	79	78	41
Laboratory Method Blank		SBLKG	BLANK1	-	BLANK1	BLANK1	BLANK4	BLANK4	BLANK1
Associated Equipment Blank		01SB002XXX01XX	01SB002XXX01XX	-	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SD118XXX01XX	01SS118XXX01XX	01SD119XXX01XX	02SD201XXX01XX	02SD202XXX01XX	03SD301XXX01XX	03SD302XXX01XX	01SD303XXX01XX
LAB NUMBER:	8256-021	8253-029	8256-022	8252-026	8252-027	8252-028	8252-029	8252-030
DATE SAMPLED:	9/9/88	9/8/88	9/9/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
Phenol	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
bis(2-Chloroethyl)ether	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
2-Chlorophenol	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
1,3-Dichlorobenzene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
1,4-Dichlorobenzene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Benzyl alcohol	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
1,2-Dichlorobenzene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
2-Methylphenol	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
bis(2-Chloroisopropyl)ether	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
4-Methylphenol	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
N-Nitroso-di-n-propylamine	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Hexachloroethane	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Nitrobenzene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Isophorone	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
2-Nitrophenol	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
2,4-Dimethylphenol	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Benzoic acid	1600	4300 U	5000 U	4700 U	4500 U	4300 U	4600 U	16000 U	4100 U
bis(2-Chloroethoxy)methane	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
2,4-Dichlorophenol	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
1,2,4-Trichlorobenzene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Naphthalene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
4-Chloroaniline	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Hexachlorobutadiene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
4-Chloro-3-Methylphenol	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
2-Methylnaphthalene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Hexachlorocyclopentadiene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
2,4,6-Trichlorophenol	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
2,4,5-Trichlorophenol	1600	4300 U	5000 U	4700 U	4500 U	4300 U	4600 U	16000 U	4100 U
2-Chloronaphthalene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
2-Nitroaniline	1600	4300 U	5000 U	4700 U	4500 U	4300 U	4600 U	16000 U	4100 U
Dimethylphthalate	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Acenaphthylene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
2,6-Dinitrotoluene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SD118XXX01XX	01SS118XXX01XX	01SD119XXX01XX	02SD201XXX01XX	02SD202XXX01XX	03SD301XXX01XX	03SD302XXX01XX	01SD303XXX01XX
LAB NUMBER:	8256-021	8253-029	8256-022	8252-026	8252-027	8252-028	8252-029	8252-030
DATE SAMPLED:	9/9/88	9/8/88	9/9/88	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
3-Nitroaniline	1600	4300 U	5000 U	4700 U	4500 U	4300 U	4600 U	16000 U	4100 U
Acenaphthene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
2,4-Dinitrophenol	1600	4300 U	5000 U	4700 U	4500 U	4300 U	4600 U	16000 U	4100 U
4-Nitrophenol	1600	4300 U	5000 U	4700 U	4500 U	4300 U	4600 U	16000 U	4100 U
Dibenzofuran	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
2,4-Dinitrotoluene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Diethylphthalate	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
4-Chlorophenyl-phenylether	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Fluorene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
4-Nitroaniline	1600	4300 U	5000 U	4700 U	4500 U	4300 U	4600 U	16000 U	4100 U
4,6-Dinitro-2-methylphenol	1600	4300 U	5000 U	4700 U	4500 U	4300 U	4600 U	16000 U	4100 U
N-Nitrosodiphenylamine	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
4-Bromophenyl-phenylether	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Hexachlorobenzene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Pentachlorophenol	1600	4300 U	5000 U	4700 U	4500 U	4300 U	4600 U	16000 U	4100 U
Phenanthrene	330	430 J	150 J	940 U	920 U	880 U	950 U	3300 U	840 U
Anthracene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Di-n-butylphthalate	330	110 JB	120 JB	940 U	130 JB	110 JB	150 JB	530 JB	120 JB
Fluoranthene	330	830 J	260 J	940 U	920 U	880 U	950 U	3300 U	840 U
Pyrene	330	780 J	320 J	940 U	920 U	880 U	950 U	3300 U	840 U
Butylbenzylphthalate	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
3,3'-Dichlorobenzidine	660	1700 U	2000 U	1900 U	1800 U	1800 U	1900 U	6600 U	1700 U
Benzo(a)Anthracene	330	350 J	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Chrysene	330	860 J	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
bis(2-Ethylhexyl)phthalate	330	480 J	330 JB	940 U	140 JB	210 JB	770 JB	910 JB	240 JB
Di-n-octylphthalate	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Benzo(b)Fluoranthene	330	520 J	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Benzo(k)Fluoranthene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Benzo(a)Pyrene	330	250 J	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Indeno(1,2,3-cd)pyrene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Dibenz(a,h)anthracene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Benzo(g,h,i,)perylene	330	870 U	1000 U	940 U	920 U	880 U	950 U	3300 U	840 U
Dilution Factor		2	2	2	2	2	2	2	2
Percent Solid		76	66	70	71	75	69	20	78
Laboratory Method Blank		BLANK4	BLANK1	BLANK4	SBLK03	SBLK03	SBLK03	SBLK03	SBLK03
Associated Equipment Blank		01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	SB-001	SB-001	SB-001	SB-001	SB-001

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	01SD304XXX01XX	01SD305XXX01XX	03SD316XXX01XX	03SD317XXX01XX	08SD801XXX01XX	08SD802XXX01XX	08SD803XXX01XX	08SD817XXX01XX
LAB NUMBER:	8252-031	8252-032	8252-033	8252-034	8259-009	8259-011	8259-010	8259-012
DATE SAMPLED:	9/7/88	9/7/88	9/7/88	9/7/88	9/14/88	9/14/88	9/14/88	9/14/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS
UNITS: ug/kg

	CRDL								
Phenol	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
bis(2-Chloroethyl)ether	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
2-Chlorophenol	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
1,3-Dichlorobenzene	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
1,4-Dichlorobenzene	330	6800	310 J	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Benzyl alcohol	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
1,2-Dichlorobenzene	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
2-Methylphenol	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
bis(2-Chloroisopropyl)ether	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
4-Methylphenol	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
N-Nitroso-di-n-propylamine	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Hexachloroethane	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Nitrobenzene	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Isophorone	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
2-Nitrophenol	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
2,4-Dimethylphenol	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Benzoic acid	1600	4300 J	4800 U	4700 U	4200 U	6700 U	5100 U	6000 U	5400 U
bis(2-Chloroethoxy)methane	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
2,4-Dichlorophenol	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
1,2,4-Trichlorobenzene	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Naphthalene	330	660 J	990 U	970 U	870 U	210 J	1000 U	100 J	1100 U
4-Chloroaniline	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Hexacholorobutadiene	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
4-Chloro-3-Methylphenol	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
2-Methylnaphthalene	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Hexachlorocyclopentadiene	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
2,4,6-Trichlorophenol	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
2,4,5-Trichlorophenol	1600	20000 U	4800 U	4700 U	4200 U	6700 U	5100 U	6000 U	5400 U
2-Chloronaphthalene	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
2-Nitroaniline	1600	20000 U	4800 U	4700 U	4200 U	6700 U	5100 U	6000 U	5400 U
Dimethylphthalate	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Acenaphthylene	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	160 J	1100 U
2,6-Dinitrotoluene	330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SD304XXX01XX	01SD305XXX01XX	03SD316XXX01XX	03SD317XXX01XX	08SD801XXX01XX	08SD802XXX01XX	08SD803XXX01XX	08SD817XXX01XX
LAB NUMBER:	8252-031	8252-032	8252-033	8252-034	8259-009	8259-011	8259-010	8259-012
DATE SAMPLED:	9/7/88	9/7/88	9/7/88	9/7/88	9/14/88	9/14/88	9/14/88	9/14/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg CRDL								
3-Nitroaniline 1600	20000 U	4800 U	4700 U	4200 U	6700 U	5100 U	6000 U	5400 U
Acenaphthene 330	4100 U	990 U	970 U	870 U	280 J	260 J	1200 U	1100 U
2,4-Dinitrophenol 1600	20000 U	4800 U	4700 U	4200 U	6700 U	5100 U	6000 U	5400 U
4-Nitrophenol 1600	20000 U	4800 U	4700 U	4200 U	6700 U	5100 U	6000 U	5400 U
Dibenzofuran 330	4100 U	990 U	970 U	870 U	1300 U	160 J	180 J	1100 U
2,4-Dinitrotoluene 330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Diethylphthalate 330	1500 J	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
4-Chlorophenyl-phenylether 330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Fluorene 330	4100 U	990 U	970 U	870 U	230 J	340 J	560 J	1100 U
4-Nitroaniline 1600	20000 U	4800 U	4700 U	4200 U	6700 U	5100 U	6000 U	5400 U
4,6-Dinitro-2-methylphenol 1600	20000 U	4800 U	4700 U	4200 U	6700 U	5100 U	6000 U	5400 U
N-Nitrosodiphenylamine 330	510 J	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
4-Bromophenyl-phenylether 330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Hexachlorobenzene 330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Pentachlorophenol 1600	20000 U	4800 U	4700 U	4200 U	6700 U	5100 U	6000 U	5400 U
Phenanthrene 330	4100 U	990 U	320 J	180 J	1600	480 J	4000	360 J
Anthracene 330	4100 U	990 U	970 U	870 U	480 J	360 J	900 J	1100 U
Di-n-butylphthalate 330	630 JB	130 JB	1100 JB	120 JB	1100 JB	4200 B	4000 B	2300 B
Fluoranthene 330	4100 U	990 U	910 J	370 J	2700	1400	7700	840 J
Pyrene 330	4100 U	990 U	800 J	300 J	1600	880 J	5500	800 J
Butylbenzylphthalate 330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
3,3'-Dichlorobenzidine 660	8300 U	2000 U	1900 U	1700 U	2700 U	2000 U	2400 U	2200 U
Benzo(a)Anthracene 330	4100 U	990 U	260 J	150 J	980 J	600 J	2700	1100 U
Chrysene 330	4100 U	990 U	390 J	190 J	1700	880 J	3900	1100 U
bis(2-Ethylhexyl)phthalate 330	810 JB	200 JB	750 JB	1100 B	400 JB	17000	5900	23000 E
Di-n-octylphthalate 330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Benzo(b)Fluoranthene 330	4100 U	990 U	570 J	290 J	1800	760 J	3000	780 J
Benzo(k)Fluoranthene 330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Benzo(a)Pyrene 330	4100 U	990 U	270 J	130 J	1100 J	480 J	1900	1100 U
Indeno(1,2,3-cd)pyrene 330	4100 U	990 U	970 U	870 U	770 J	1000 U	1500	1100 U
Dibenz(a,h)anthracene 330	4100 U	990 U	970 U	870 U	1300 U	1000 U	1200 U	1100 U
Benzo(g,h,i,)perylene 330	4100 U	990 U	970 U	870 U	1400	1000 U	2600	1100 U
Dilution Factor	2	2	2	2	2	2	2	2
Percent Solid	16	66	68	76	49	65	55	61
Laboratory Method Blank	SBLK03	SBLK03	SBLK03	SBLK03	BLANK3	A1204	A1204	A1204
Associated Equipment Blank	SB-001	SB-001	SB-001	SB-001	01SB002XXX01XX	01SB001XXX01XX	01SB001XXX01XX	01SB001XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	08SD817XXX01XX	08SD818XXX01XX	08SD819XXX01XX	08SD820XXX01XX	08SD821XXX01XX	09SD915XXX01XX	09SD916XXX01XX	09SD917XXX01XX
	LAB NUMBER:	8259-012DL	8259-013	8258-012	8257-008	8258-014	8253-027	8253-028	8260-031
	DATE SAMPLED:	9/14/88	9/14/88	9/13/88	9/12/88	9/13/88	9/8/88	9/8/88	9/16/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Phenol	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
bis(2-Chloroethyl)ether	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
2-Chlorophenol	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
1,3-Dichlorobenzene	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
1,4-Dichlorobenzene	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
Benzyl alcohol	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
1,2-Dichlorobenzene	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
2-Methylphenol	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
bis(2-Chloroisopropyl)ether	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
4-Methylphenol	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	250 J
N-Nitroso-di-n-propylamine	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
Hexachloroethane	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
Nitrobenzene	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
Isophorone	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
2-Nitrophenol	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
2,4-Dimethylphenol	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
Benzoic acid	1600	11000 U	6400 U	4100 U	4700 U	4200 U	140 J	4300 U	5200 U
bis(2-Chloroethoxy)methane	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
2,4-Dichlorophenol	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
1,2,4-Trichlorobenzene	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
Naphthalene	330	2200 U	200 J	830 U	940 U	850 U	1100 U	83 J	1000 U
4-Chloroaniline	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
Hexachlorobutadiene	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
4-Chloro-3-Methylphenol	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
2-Methylnaphthalene	330	2200 U	250 J	830 U	940 U	850 U	1100 U	870 U	1000 U
Hexachlorocyclopentadiene	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
2,4,6-Trichlorophenol	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
2,4,5-Trichlorophenol	1600	11000 U	6400 U	4100 U	4700 U	4200 U	5600 U	4300 U	5200 U
2-Chloronaphthalene	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
2-Nitroaniline	1600	11000 U	6400 U	4100 U	4700 U	4200 U	5600 U	4300 U	5200 U
Dimethylphthalate	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
Acenaphthylene	330	2200 U	860 J	830 U	940 U	850 U	1100 U	870 U	1000 U
2,6-Dinitrotoluene	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	08SD817XXX01XX	08SD818XXX01XX	08SD819XXX01XX	08SD820XXX01XX	08SD821XXX01XX	09SD915XXX01XX	09SD916XXX01XX	09SD917XXX01XX
LAB NUMBER:	8259-012DL	8259-013	8258-012	8257-008	8258-014	8253-027	8253-028	8260-031
DATE SAMPLED:	9/14/88	9/14/88	9/13/88	9/12/88	9/13/88	9/8/88	9/8/88	9/16/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
3-Nitroaniline	1600	11000 U	6400 U	4100 U	4700 U	4200 U	5600 U	4300 U	5200 U
Acenaphthene	330	2200 U	340 J	830 U	940 U	850 U	1100 U	130 J	1000 U
2,4-Dinitrophenol	1600	11000 U	6400 U	4100 U	4700 U	4200 U	5600 U	4300 U	5200 U
4-Nitrophenol	1600	11000 U	6400 U	4100 U	4700 U	4200 U	5600 U	4300 U	5200 U
Dibenzofuran	330	2200 U	560 J	830 U	940 U	850 U	1100 U	67 J	1000 U
2,4-Dinitrotoluene	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
Diethylphthalate	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
4-Chlorophenyl-phenylether	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
Fluorene	330	2200 U	2200	830 U	940 U	850 U	1100 U	120 J	1000 U
4-Nitroaniline	1600	11000 U	6400 U	4100 U	4700 U	4200 U	5600 U	4300 U	5200 U
4,6-Dinitro-2-methylphenol	1600	11000 U	6400 U	4100 U	4700 U	4200 U	5600 U	4300 U	5200 U
N-Nitrosodiphenylamine	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
4-Bromophenyl-phenylether	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
Hexachlorobenzene	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
Pentachlorophenol	1600	11000 U	6400 U	4100 U	4700 U	4200 U	5600 U	4300 U	5200 U
Phenanthrene	330	2200 U	10000	830 U	940 U	850 U	1100 U	1500	1000 U
Anthracene	330	2200 U	3300	830 U	940 U	850 U	1100 U	180 J	1000 U
Di-n-butylphthalate	330	2300 BD	3000 B	130 JB	94 JB	100 JB	140 JB	120 JB	1200 B
Fluoranthene	330	730 JD	16000	830 U	940 U	850 U	1100 U	2200	1000 U
Pyrene	330	590 JD	9500	830 U	940 U	850 U	1100 U	2100	1000 U
Butylbenzylphthalate	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
3,3'-Dichlorobenzidine	660	4300 U	2600 U	1700 U	1900 U	1700 U	2200 U	1700 U	2100 U
Benzo(a)Anthracene	330	2200 U	7700	830 U	940 U	850 U	1100 U	1000	1000 U
Chrysene	330	2200 U	9600	830 U	940 U	850 U	1100 U	2100	1000 U
bis(2-Ethylhexyl)phthalate	330	11000 D	5800	830 U	940 U	850 U	370 JB	710 JB	670 J
Di-n-octylphthalate	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
Benzo(b)Fluoranthene	330	2200 U	8000	830 U	940 U	850 U	1100 U	1800	1000 U
Benzo(k)Fluoranthene	330	2200 U	1300 U	830 U	940 U	850 U	1100 U	870 U	1000 U
Benzo(a)Pyrene	330	2200 U	4600	830 U	940 U	850 U	1100 U	1000	1000 U
Indeno(1,2,3-cd)pyrene	330	2200 U	2700	830 U	940 U	850 U	1100 U	580 J	1000 U
Dibenz(a,h)anthracene	330	2200 U	2400	830 U	940 U	850 U	1100 U	550 J	1000 U
Benzo(g,h,i,)perylene	330	2200 U	4200	830 U	940 U	850 U	1100 U	1200	1000 U
Dilution Factor		4	3	2	2	2	2	2	2
Percent Solid		61	77	80	70	78	59	76	64
Laboratory Method Blank		A1204	A1204	BLANK3	BLANK3	BLANK3	BLANK1	BLANK1	A1195
Associated Equipment Blank		01SB001XXX01XX	01SB001XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB003XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	09SD917XXX01DX	01SD918XXX01XX
LAB NUMBER:	8260-032	8267-003
DATE SAMPLED:	9/16/88	9/22/88
MATRIX:	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL		
Phenol	330	1000 U	1200 U
bis(2-Chloroethyl)ether	330	1000 U	1200 U
2-Chlorophenol	330	1000 U	1200 U
1,3-Dichlorobenzene	330	1000 U	1200 U
1,4-Dichlorobenzene	330	1000 U	1200 U
Benzyl alcohol	330	1000 U	1200 U
1,2-Dichlorobenzene	330	1000 U	1200 U
2-Methylphenol	330	1000 U	1200 U
bis(2-Chloroisopropyl)ether	330	1000 U	1200 U
4-Methylphenol	330	1000 U	1200 U
N-Nitroso-di-n-propylamine	330	1000 U	1200 U
Hexachloroethane	330	1000 U	1200 U
Nitrobenzene	330	1000 U	1200 U
Isophorone	330	1000 U	1200 U
2-Nitrophenol	330	1000 U	1200 U
2,4-Dimethylphenol	330	1000 U	1200 U
Benzoic acid	1600	5200 U	5900 U
bis(2-Chloroethoxy)methane	330	1000 U	1200 U
2,4-Dichlorophenol	330	1000 U	1200 U
1,2,4-Trichlorobenzene	330	1000 U	1200 U
Naphthalene	330	1000 U	1200 U
4-Chloroaniline	330	1000 U	1200 U
Hexacholorobutadiene	330	1000 U	1200 U
4-Chloro-3-Methylphenol	330	1000 U	1200 U
2-Methylnaphthalene	330	1000 U	1200 U
Hexachlorocyclopentadiene	330	1000 U	1200 U
2,4,6-Trichlorophenol	330	1000 U	1200 U
2,4,5-Trichlorophenol	1600	5200 U	5900 U
2-Chloronaphthalene	330	1000 U	1200 U
2-Nitroaniline	1600	5200 U	5900 U
Dimethylphthalate	330	1000 U	1200 U
Acenaphthylene	330	1000 U	1200 U
2,6-Dinitrotoluene	330	1000 U	1200 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	09SD917XXX01DX	01SD918XXX01XX
LAB NUMBER:	8260-032	8267-003
DATE SAMPLED:	9/16/88	9/22/88
MATRIX:	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL		
3-Nitroaniline	1600	5200 U	5900 U
Acenaphthene	330	1000 U	1200 U
2,4-Dinitrophenol	1600	5200 U	5900 U
4-Nitrophenol	1600	5200 U	5900 U
Dibenzofuran	330	1000 U	1200 U
2,4-Dinitrotoluene	330	1000 U	1200 U
Diethylphthalate	330	1000 U	1200 U
4-Chlorophenyl-phenylether	330	1000 U	1200 U
Fluorene	330	1000 U	1200 U
4-Nitroaniline	1600	5200 U	5900 U
4,6-Dinitro-2-methylphenol	1600	5200 U	5900 U
N-Nitrosodiphenylamine	330	1000 U	1200 U
4-Bromophenyl-phenylether	330	1000 U	1200 U
Hexachlorobenzene	330	1000 U	1200 U
Pentachlorophenol	1600	5200 U	5900 U
Phenanthrene	330	1000 U	260 J
Anthracene	330	1000 U	1200 U
Di-n-butylphthalate	330	950 JB	1100 JB
Fluoranthene	330	1000 U	630 J
Pyrene	330	1000 U	490 J
Butylbenzylphthalate	330	1000 U	1200 U
3,3'-Dichlorobenzidine	660	2100 U	2400 U
Benzo(a)Anthracene	330	1000 U	1200 U
Chrysene	330	1000 U	1200 U
bis(2-Ethylhexyl)phthalate	330	1000 U	350 J
Di-n-octylphthalate	330	1000 U	1200 U
Benzo(b)Fluoranthene	330	1000 U	540 J
Benzo(k)Fluoranthene	330	1000 U	1200 U
Benzo(a)Pyrene	330	1000 U	1200 U
Indeno(1,2,3-cd)pyrene	330	1000 U	1200 U
Dibenz(a,h)anthracene	330	1000 U	1200 U
Benzo(g,h,i,)perylene	330	1000 U	1200 U
Dilution Factor		2	2
Percent Solid		64	56
Laboratory Method Blank		A1195	A1195
Associated Equipment Blank		01SB003XXX01XX	01SB003XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03SD002XXX01XX	03SD002XXX01DX	02SD003XXX01XX	01SD004XXX01XX	08SD007XXX01XX	08SD008XXX01XX	08SD009XXX01XX	09SD010XXX01XX
LAB NUMBER:	8252-024	8252-025	8253-020	8253-021	8258-015	8258-017	8258-016	8253-022
DATE SAMPLED:	9/7/88	9/7/88	9/08/88	9/08/88	9/13/88	9/13/88	9/13/88	9/08/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL							
alpha-BHC	8	22 U	21 U	11 U	12 U	10 U	10 U	13 U	10 U
beta-BHC	8	22 U	21 U	11 U	12 U	10 U	10 U	13 U	10 U
delta-BHC	8	22 U	21 U	11 U	12 U	10 U	10 U	13 U	10 U
gamma-BHC (Lindane)	8	22 U	21 U	11 U	12 U	10 U	10 U	13 U	10 U
Heptachlor	8	22 U	21 U	11 U	12 U	10 U	10 U	13 U	10 U
Aldrin	8	22 U	21 U	11 U	12 U	10 U	10 U	13 U	10 U
Heptachlor epoxide	8	22 U	21 U	11 U	12 U	10 U	10 U	13 U	10 U
Endosulfan I	8	22 U	21 U	11 U	12 U	10 U	10 U	13 U	10 U
Dieldrin	16	44 U	42 U	21 U	23 U	21 U	20 U	27 U	20 U
4,4'-DDE	16	44 U	42 U	21 U	23 U	21 U	20 U	27 U	20 U
Endrin	16	44 U	42 U	21 U	23 U	21 U	20 U	27 U	20 U
Endosulfan II	16	44 U	42 U	21 U	23 U	21 U	20 U	27 U	20 U
4,4'-DDD	16	44 U	42 U	21 U	23 U	21 U	20 U	27 U	20 U
Endosulfan sulfate	16	44 U	42 U	21 U	23 U	21 U	20 U	27 U	20 U
4,4'-DDT	16	44 U	42 U	21 U	23 U	21 U	20 U	27 U	20 U
Methoxychlor	80	220 U	210 U	110 U	120 U	100 U	100 U	130 U	100 U
Endrin ketone	16	44 U	42 U	21 U	23 U	21 U	20 U	27 U	20 U
alpha-Chlordane	80	220 U	210 U	110 U	120 U	100 U	100 U	130 U	100 U
gamma-Chlordane	80	220 U	210 U	110 U	120 U	100 U	100 U	130 U	100 U
Toxaphene	160	440 U	420 U	210 U	230 U	210 U	200 U	270 U	200 U
Aroclor-1016	80	220 U	210 U	110 U	120 U	100 U	100 U	130 U	100 U
Aroclor-1221	80	220 U	210 U	110 U	120 U	100 U	100 U	130 U	100 U
Aroclor-1232	80	220 U	210 U	110 U	120 U	100 U	100 U	130 U	100 U
Aroclor-1242	80	220 U	210 U	110 U	120 U	100 U	100 U	130 U	100 U
Aroclor-1248	80	220 U	210 U	110 U	120 U	100 U	100 U	130 U	100 U
Aroclor-1254	160	440 U	420 U	210 U	230 U	210 U	200 U	270 U	200 U
Aroclor-1260	160	440 U	420 U	210 U	230 U	210 U	200 U	270 U	200 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		72	75	76	69	78	80	60	80
Laboratory Method Blank		PBLK03	PBLK03	PBLK88	PBLK88	PBLKDD	PBLKDD	PBLKDD	PBLK88
Associated Equipment Blank		01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SD113XXX01XX	01SD113XXX01DX	01SD118XXX01XX	01SD119XXX01XX	02SD201XXX01XX	02SD202XXX01XX	03SD301XXX01XX	03SD302XXX01XX
LAB NUMBER:	8256-018	8256-019	8256-021	8256-022	8252-026	8252-027	8252-028	8252-029
DATE SAMPLED:	9/9/88	9/9/88	9/9/88	9/9/88	9/7/88	9/7/88	9/7/88	9/7/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL							
alpha-BHC	8	10 U	10 U	11 U	11 U	22 U	21 U	23 U	79 U
beta-BHC	8	10 U	10 U	11 U	11 U	22 U	21 U	23 U	79 U
delta-BHC	8	10 U	10 U	11 U	11 U	22 U	21 U	23 U	79 U
gamma-BHC (Lindane)	8	10 U	10 U	11 U	11 U	22 U	21 U	23 U	79 U
Heptachlor	8	10 U	10 U	11 U	11 U	22 U	21 U	23 U	79 U
Aldrin	8	10 U	10 U	11 U	11 U	22 U	21 U	23 U	79 U
Heptachlor epoxide	8	10 U	10 U	11 U	11 U	22 U	21 U	23 U	79 U
Endosulfan I	8	10 U	10 U	11 U	11 U	22 U	21 U	23 U	79 U
Dieldrin	16	20 U	21 U	21 U	23 U	44 U	43 U	46 U	160 U
4,4'-DDE	16	20 U	21 U	21 U	23 U	44 U	43 U	46 U	160 U
Endrin	16	20 U	21 U	21 U	23 U	44 U	43 U	46 U	160 U
Endosulfan II	16	20 U	21 U	21 U	23 U	44 U	43 U	46 U	160 U
4,4'-DDD	16	20 U	21 U	21 U	23 U	44 U	43 U	46 U	160 U
Endosulfan sulfate	16	20 U	21 U	21 U	23 U	44 U	43 U	46 U	160 U
4,4'-DDT	16	20 U	21 U	21 U	23 U	44 U	43 U	46 U	160 U
Methoxychlor	80	100 U	100 U	110 U	110 U	220 U	210 U	230 U	790 U
Endrin ketone	16	20 U	21 U	21 U	23 U	44 U	43 U	46 U	160 U
alpha-Chlordane	80	100 U	100 U	110 U	110 U	220 U	210 U	230 U	790 U
gamma-Chlordane	80	100 U	100 U	110 U	110 U	220 U	210 U	230 U	790 U
Toxaphene	160	200 U	210 U	210 U	230 U	440 U	430 U	460 U	1600 U
Aroclor-1016	80	100 U	100 U	110 U	110 U	220 U	210 U	230 U	790 U
Aroclor-1221	80	100 U	100 U	110 U	110 U	220 U	210 U	230 U	790 U
Aroclor-1232	80	100 U	100 U	110 U	110 U	220 U	210 U	230 U	790 U
Aroclor-1242	80	100 U	100 U	110 U	110 U	220 U	210 U	230 U	790 U
Aroclor-1248	80	100 U	100 U	110 U	110 U	220 U	210 U	230 U	790 U
Aroclor-1254	160	200 U	210 U	210 U	230 U	440 U	430 U	460 U	1600 U
Aroclor-1260	160	200 U	210 U	210 U	230 U	440 U	430 U	460 U	1600 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		79	78	76	70	71	75	69	20
Laboratory Method Blank		PBLKRR	PBLKRR	PBLKRR	PBLKRR	PBLK03	PBLK03	PBLK03	PBLK03
Associated Equipment Blank		01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SD303XXX01XX	01SD304XXX01XX	01SD305XXX01XX	03SD316XXX01XX	03SD317XXX01XX	08SD801XXX01XX	08SD802XXX01XX	08SD803XXX01XX
LAB NUMBER:	8252-030	8252-031	8252-032	8252-033	8252-034	8259-009	8259-011	8259-010
DATE SAMPLED:	9/7/88	9/7/88	9/7/88	9/7/88	9/7/88	9/14/88	9/14/88	9/14/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL								
alpha-BHC	8	21 U	98 U	24 U	23 U	21 U	16 U	12 U	15 U
beta-BHC	8	21 U	98 U	24 U	23 U	21 U	16 U	12 U	15 U
delta-BHC	8	21 U	98 U	24 U	23 U	21 U	16 U	12 U	15 U
gamma-BHC (Lindane)	8	21 U	98 U	24 U	23 U	21 U	16 U	12 U	15 U
Heptachlor	8	21 U	98 U	24 U	23 U	21 U	16 U	12 U	15 U
Aldrin	8	21 U	98 U	24 U	23 U	21 U	16 U	12 U	15 U
Heptachlor epoxide	8	21 U	98 U	24 U	23 U	21 U	16 U	12 U	15 U
Endosulfan I	8	21 U	98 U	24 U	23 U	21 U	16 U	12 U	15 U
Dieldrin	16	41 U	200 U	49 U	47 U	42 U	33 U	25 U	29 U
4,4'-DDE	16	41 U	200 U	49 U	47 U	42 U	33 U	25 U	29 U
Endrin	16	41 U	200 U	49 U	47 U	42 U	33 U	25 U	29 U
Endosulfan II	16	41 U	200 U	49 U	47 U	42 U	33 U	25 U	29 U
4,4'-DDD	16	41 U	200 U	49 U	47 U	42 U	33 U	25 U	29 U
Endosulfan sulfate	16	41 U	200 U	49 U	47 U	42 U	33 U	25 U	29 U
4,4'-DDT	16	41 U	200 U	49 U	47 U	42 U	33 U	25 U	29 U
Methoxychlor	80	210 U	980 U	240 U	230 U	210 U	160 U	120 U	150 U
Endrin ketone	16	41 U	200 U	49 U	47 U	42 U	33 U	25 U	29 U
alpha-Chlordane	80	210 U	980 U	240 U	230 U	210 U	160 U	120 U	150 U
gamma-Chlordane	80	210 U	980 U	240 U	230 U	210 U	160 U	120 U	150 U
Toxaphene	160	410 U	2000 U	490 U	470 U	420 U	330 U	250 U	290 U
Aroclor-1016	80	210 U	980 U	240 U	230 U	210 U	160 U	120 U	150 U
Aroclor-1221	80	210 U	980 U	240 U	230 U	210 U	160 U	120 U	150 U
Aroclor-1232	80	210 U	980 U	240 U	230 U	210 U	160 U	120 U	150 U
Aroclor-1242	80	210 U	980 U	240 U	230 U	210 U	160 U	120 U	150 U
Aroclor-1248	80	210 U	980 U	240 U	230 U	210 U	160 U	120 U	150 U
Aroclor-1254	160	410 U	2000 U	490 U	470 U	420 U	330 U	250 U	290 U
Aroclor-1260	160	410 U	2000 U	490 U	470 U	420 U	330 U	250 U	290 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		78	16	66	68	76	49	65	55
Laboratory Method Blank		PBLK03	PBLK03	PBLK03	PBLK03	PBLK03	PBLKDD	PBLKEE	PBLKEE
Associated Equipment Blank		01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB001XXX01XX	01SB001XXX01XX	01SB001XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	08SD817XXX01XX	08SD818XXX01XX	08SD820XXX01XX	08SD821XXX01XX	09SD917XXX01XX	09SD917XXX01DX	01SD918XXX01XX
LAB NUMBER:	8259-012	8259-013	8257-008	8258-014	8260-031	8260-032	8267-003
DATE SAMPLED:	9/14/88	9/14/88	9/12/88	9/13/88	9/16/88	9/16/88	9/22/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL						
alpha-BHC	8	13 U	10 U	11 U	10 U	13 U	13 U	14 U
beta-BHC	8	13 U	10 U	11 U	10 U	13 U	13 U	14 U
delta-BHC	8	13 U	10 U	11 U	10 U	13 U	13 U	14 U
gamma-BHC (Lindane)	8	13 U	10 U	11 U	10 U	13 U	13 U	14 U
Heptachlor	8	13 U	10 U	11 U	10 U	13 U	13 U	14 U
Aldrin	8	13 U	10 U	11 U	10 U	13 U	13 U	14 U
Heptachlor epoxide	8	13 U	10 U	11 U	10 U	13 U	13 U	14 U
Endosulfan I	8	13 U	10 U	11 U	10 U	13 U	13 U	14 U
Dieldrin	16	26 U	21 U	23 U	20 U	25 U	25 U	29 U
4,4'-DDE	16	26 U	21 U	23 U	20 U	25 U	25 U	29 U
Endrin	16	26 U	21 U	23 U	20 U	25 U	25 U	29 U
Endosulfan II	16	26 U	21 U	23 U	20 U	25 U	25 U	29 U
4,4'-DDD	16	26 U	21 U	23 U	20 U	25 U	25 U	29 U
Endosulfan sulfate	16	26 U	21 U	23 U	20 U	25 U	25 U	29 U
4,4'-DDT	16	26 U	21 U	23 U	20 U	25 U	25 U	29 U
Methoxychlor	80	130 U	100 U	110 U	100 U	130 U	130 U	140 U
Endrin ketone	16	26 U	21 U	23 U	20 U	25 U	25 U	29 U
alpha-Chlordane	80	130 U	100 U	110 U	100 U	130 U	130 U	140 U
gamma-Chlordane	80	130 U	100 U	110 U	100 U	130 U	130 U	140 U
Toxaphene	160	260 U	210 U	230 U	200 U	250 U	250 U	290 U
Aroclor-1016	80	130 U	100 U	110 U	100 U	130 U	130 U	140 U
Aroclor-1221	80	130 U	100 U	110 U	100 U	130 U	130 U	140 U
Aroclor-1232	80	130 U	100 U	110 U	100 U	130 U	130 U	140 U
Aroclor-1242	80	130 U	100 U	110 U	100 U	130 U	130 U	140 U
Aroclor-1248	80	130 U	100 U	110 U	100 U	130 U	130 U	140 U
Aroclor-1254	160	260 U	210 U	230 U	200 U	250 U	250 U	290 U
Aroclor-1260	160	260 U	210 U	230 U	200 U	250 U	250 U	290 U
Dilution Factor		1	1	1	1	2	2	2
Percent Solid		61	77	70	80	64	64	56
Laboratory Method Blank		PBLKEE	PBLKEE	PBLKDD	PBLKDD	PBLKFF	PBLKFF	PBLKDD
Associated Equipment Blank		01SB001XXX01XX	01SB001XXX01XX	01SB002XXX01XX	01SB002XXX01XX	01SB003XXX01XX	01SB003XXX01XX	01SB003XXX01XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

15-Feb-90

Combined Laboratory Report of Analysis

	SAMPLE ID:	03SW002XXX01XX	03SW002XXX01DX	02SW003XXX01XX	01SW004XXX01XX	08SW006XXX01XX	08SW007XXX01XX	08SW008XXX01XX	08SW009XXX01XX
	LAB NUMBER:	8252-013	8252-014	8253-011	8253-012	8258-005	8258-007	8258-009	8258-008
	DATE SAMPLED:	9/7/88	9/7/88	9/8/88	9/8/88	9/13/88	9/13/88	9/13/88	9/13/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METALS COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	35 []	35 []	110 []	380	170 []E	52 []E	62 []E	280 []
Antimony	P	60	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U
Arsenic	F	10	2.9 U	2.9 UN	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U	2.9 U
Barium	P	200	27 []	37 []	15 []	21 []	61 []E	17 []E	20 []E	38 []E
Beryllium	P	5	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Cadmium	P	5	3 U	3 U	3 U	3 U	3 U	3 []	3 U	3 U
Calcium	P	5000	14000	14000	6600	7400	17000	7700	7900	60000
Chromium	P	10	6 U	6 U	6 U	7 []	6 U	6 U	6 U	6 U
Cobalt	P	50	7.2 U	7.2 U	7.2 U	7.2 U	12 []	7.2 U	7.2 U	7.2 U
Copper	P	25	2.6 U	2.6 U	2.6 U	2.6 U	3 []	2.6 U	5 []	2.6 U
Iron	P	1000	4100	3400	1000	1800	1600	210	590	6200
Lead	P/F	5	1.8 U	1.8 U	8.3	1.8 U	1.8 UN	1900 N	2100 N	1500 N
Magnesium	P	5000	2600	2600	1600	1800	3500	1500	1600	4700
Manganese	P	15	680	690	100	210	910	430	320	480
Mercury	CV	0.20	0.12 []	0.12 []N	0.1 U	0.15 []	0.13 []	0.17 []	0.17 []	0.1 []
Nickel	P	40	16 []	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U
Potassium	P	5000	2200 []	2200 []	1400 []	1600 []	3900 []	1200 []	1300 []	2200 []
Selenium	F	5	1.1 U	1.1 UN	1.1 U	1.1 U	1.1 UN	1.1 UN	1.1 UN	1.1 UN
Silver	P	10	3.7 UN	3.7 U	3.7 U	5 []	3.7 U	3.7 U	3.7 U	3.7 U
Sodium	P	5000	17000	17000	6100	8900	270000	7900	19000	31000
Thallium	F	10	0.7 UN	0.7 UN	0.7 UN	0.7 UN	0.7 UN	0.7 UN	6.7 []N	0.7 UN
Vanadium	P	50	3.2 U	3.2 U	4 []	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U
Zinc	P	20	13 []	10 []	28	7 []	16 []	3 []	2.6 U	8 []
Total Cyanide	CN	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Boron	P	60*	NR	NR	NR	NR	25 U	25 U	25 U	25 U
Laboratory Method Blank			H202	H202	H203	H203	WATER1	WATER1	WATER1	WATER1
Associated Equipment Blank			-	-	-	-	FB-001 01FB001XXX01XX	FB-001 01FB001XXX01XX	-	FB-001 01FB001XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	09SW010XXX01XX	09SW011XXX01XX	09SW011XXX01DX	09SW012XXX01XX	01SW113XXX01XX	01SW113XXX01DX	01SW114XXX01XX	01SW115XXX01XX
	LAB NUMBER:	8253-013	8253-014	8253-015	8253-016	8256-013	8256-014	8256-015	8253-017
	DATE SAMPLED:	9/8/88	9/8/88	9/8/88	9/8/88	9/9/88	9/9/88	9/9/88	9/8/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METAL$ COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	82 []	39 []	52 []	120 []	120 []	75 []	220	130 []
Antimony	P	60	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U
Arsenic	F	10	2.9 U	2.9 U	2.9 U	2.9 U	3 U	3 U	3 U	2.9 U
Barium	P	200	23 []	32 []	32 []	34 []	16 []	18 []	7 []	18 []
Beryllium	P	5	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Cadmium	P	5	3 U	3 U	3 U	3 U	3 U	3 U	3 U	4 []
Calcium	P	5000	16000	18000	17000	17000	8900	8900	8700	7800
Chromium	P	10	6 U	9 []	7 []	6 U	6 U	6 U	6 U	6 U
Cobalt	P	50	7.2 U	7.2 U	7.2 U	7.2 U	8 []	7.2 U	10 []	7.2 U
Copper	P	25	2.6 U	2.6 U	4 []	4 []	2.6 U	3 []	3 []	6 []
Iron	P	1000	500	1000	980	1100	1300	1100	1800	1400
Lead	P/F	5	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Magnesium	P	5000	2800	2600	2500	2600	1800	1800	1800	1800
Manganese	P	15	300	1200	1100	1000	150	120	180	190
Mercury	CV	0.20	0.15 []	0.15 []	0.15 []	0.15 []	0.1 UN	0.11 []N	0.1 UN	0.15 []
Nickel	P	40	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	9.2 U	12 []	9.2 U
Potassium	P	5000	2200 []	2900 []	2500 []	2500 []	1800 []	1700 []	1800 []	1700 []
Selenium	F	5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Silver	P	10	3.7 U	4 []	3.7 U	4 []	3.7 UN	3.7 UN	3.7 UN	4 []
Sodium	P	5000	19000	18000	17000	17000	9200	9400	9300	9000
Thallium	F	10	0.7 UN	0.7 UN	0.7 UN	0.7 UN	0.7 UN	0.7 UN	0.7 UN	0.7 UN
Vanadium	P	50	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U	3.2 U
Zinc	P	20	2.6 U	2.6 U	12 []	19 []	16 []	22	27	15 []
Total Cyanide	CM	100	5 U*	5 U*	5 U*	5 U*	5 U	5 U	5 U	5 U*
Boron	P	60*	NR	NR	NR	NR	NR	NR	NR	NR
Laboratory Method Blank			H203	H203	H204	H204	H205	H205	H205	H204
Associated Equipment Blank			-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01SW118XXX01XX	01SW119XXX01XX	03SW316XXX01XX	03SW317XXX01XX	08SW817XXX01XX	08SW818XXX01XX	08SW819XXX01XX	08SW820XXX01XX
	LAB NUMBER:	8256-016	8256-017	8252-022	8252-023	8259-006	8259-007	8258-004	8257-005
	DATE SAMPLED:	9/9/88	9/9/88	9/7/88	9/7/88	9/14/88	9/14/88	9/13/88	9/12/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METALS COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	190 []	160 []	180 []	160 []	170 []NE	59 []NE	110 []E	530
Antimony	P	60	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U
Arsenic	F	10	3 U	3 U	2.9 UN	2.9 UN	2.9 U	2.9 U	2.9 U	3 U
Barium	P	200	15 []	18 []	23 []	24 []	16 []	18 []	16 []E	54 []
Beryllium	P	5	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Cadmium	P	5	3 []	4 []	3 U	3 U	3 U	3 []	3 U	3 U
Calcium	P	5000	8600	8000	7500	6500	12000 E	13000 E	8400	24000
Chromium	P	10	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Cobalt	P	50	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	10 []	7.2 U	7.2 U
Copper	P	25	2.6 U	2.6 U	4 []	2.6 U	2.6 U	2.6 U	2.6 U	6 []
Iron	P	1000	700	1100	1300	1300	1400 NE	720 NE	330	200
Lead	P/F	5	1.8 U*	1.8 U*	2.2 []	1.8 U	8.2 N	1.8 UN	1.8 UN	1.8 U
Magnesium	P	5000	1500	1700	1800	1600	1900 E	1800 E	1600	4800
Manganese	P	15	120	140	180	160	260	320	420	800
Mercury	CV	0.20	0.1 UN	0.1 UN	0.12 []N	0.37 N	0.1 U	0.1 U	0.13 []	0.11 []
Nickel	P	40	9.2 U	9.2 U	11 []	9.2 U	9.2 U	9.2 U	9.2 U	10 []
Potassium	P	5000	1600 []	1600 []	1300 []	1500 []	1300 []	1400 []	1200 []	4600 []
Selenium	F	5	1.1 U	1.1 U	1.1 UN	1.1 UN	1.8 U	1.8 U	1.1 UN	1.3 []
Silver	P	10	3.7 UN	3.7 UN	3.7 U	3.7 U	3.7 UN	3.7 UN	3.7 U	3.7 U
Sodium	P	5000	10000	9100	7700	7800	21000 E	21000 E	9200	360000
Thallium	F	10	0.7 UN	0.7 UN	0.7 UN	0.7 UN	1.2 []N	0.9 []N	0.7 UN	0.75 []
Vanadium	P	50	3.2 U	4 []	3.2 U	4 []	4 []	4 []	3.2 U	3.2 U
Zinc	P	20	13 []	25	22	31	20 []	44	5 []	17 []
Total Cyanide	CM	100	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Boron	P	60*	NR	NR	NR	NR	25 U	34	25 U	7
Laboratory Method Blank			H205	H205	H202	H202	WATER3	WATER3	WATER1	H205
Associated Equipment Blank			-	-	-	-	-	-	FB-001 01FB001XXX01XX	-

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	08SW821XXX01XX	09SW915XXX01XX	09SW916XXX01XX	09SW917XXX01XX	09SW917XXX01DX	01SW918XXX01XX	SWXX101XX1 **
	LAB NUMBER:	8258-006	8253-018	8253-019	8260-028	8260-029	8267-002	8229-002
	DATE SAMPLED:	9/13/88	9/8/88	9/8/88	9/15/88	9/15/88	9/16/88	8/15/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METALS COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL						
Aluminum	P	200	75 [JE	77 [J	67 [J	41 [J	50 [J	100 [J	4.3 [J
Antimony	P	60	38 U	38 U	38 U	38 U	38 U	38 U	1.6 [JN
Arsenic	F	10	2.9 U	2.9 U	2.9 U	2.9 UN	2.9 UN	2.9 UN	0.24 [JN
Barium	P	200	20 [JE	32 [J	30 [J	15 [J	16 [J	10 [J	0.30 [J
Beryllium	P	5	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	0.10 [J
Cadmium	P	5	3 U	3 [J	3 U	3 U	3 U	3 U	0.15 UN
Calcium	P	5000	8500	18000	17000	9700	10000	10000	600
Chromium	P	10	6 U	6 U	6 U	6 U	6 U	12	0.3 UN
Cobalt	P	50	7.2 U	7.2 U	7.2 U	7.2 UE	7.2 UE	7.2 U	0.36 U
Copper	P	25	4 [J	3 [J	4 [J	3 [J	2.6 U	2.6 U	0.41 [JN
Iron	P	1000	240	1700	1100	620 E	650 E	500 E	22.5
Lead	P/F	5	2.7 [JN	1.8 U	2.2 [J	19	1.8 U	2.1 [JS	1.1 N
Magnesium	P	5000	1600	2500	2500	1900	1900	960 [JE	115 [J
Manganese	P	15	570	1300	960	230	230	120	0.40 [J
Mercury	CV	0.20	0.13 [J	0.11 [J	0.11 [J	0.1 U	0.1 U	0.1 U	0.005 U
Nickel	P	40	9.2 U	9.2 U	9.2 U	9.2 UE	9.2 UE	9.2 U	0.46 UN
Potassium	P	5000	1400 [J	2700 [J	2600 [J	1500 [J	1800 [J	1100 [J	230 [J
Selenium	F	5	1.1 UN	1.1 U	1.1 U	1.8 UN	1.8 UN	1.1 U	0.09 UN*
Silver	P	10	3.7 U	3.7 U	5 [J	3.7 U	3.7 U	3.7 U	0.25 [JN
Sodium	P	5000	9600	18000	18000	14000 E	14000 E	5800 E	6500
Thallium	F	10	0.7 UN	0.7 UN	0.7 UN	0.7 U	16	0.9 [JN	0.035 UN*
Vanadium	P	50	3.2 U	4 [J	3.2 U	3.2 U	3.2 U	4 [J	0.16 UN
Zinc	P	20	7 [J	40	14 [J	10 [J	23	130	6.7 N
Total Cyanide	CN	100	5 U	5 U*	5 U*	5 U	5 U	5 U	0.15 U
Boron	P	60*	25 U	NR	NR	NR	NR	NR	NR
Laboratory Method Blank			WATER1	H204	H204	WATER5	WATER5	SOIL4	MBLK3
Associated Equipment Blank			FB-001 01FB001XXX01XX	-	-	FB-001 01FB001XXX01XX	FB-001 01FB001XXX01XX	FB-2 01FB002XXX01XX	-

** = Source water - analysis of drilling and decon wate

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:		03SW002XXX01XX	03SW002XXX01DX	02SW003XXX01XX	01SW004XXX01XX	09SW010XXX01XX	09SW011XXX01XX	09SW011XXX01DX	09SW012XXX01XX
LAB NUMBER:		8252-013	8252-014	8253-011	8253-012	8253-013	8253-014	8253-015	8253-016
DATE SAMPLED:		9/7/88	9/7/88	9/08/88	9/08/88	9/08/88	9/08/88	9/08/88	9/08/88
MATRIX:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	2 JB	5 U	5 JB	5 JB	5 U	5 JB	6 B
Acetone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	12	11	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		VBLK04	VBLK03	VBLKE	VBLKF	VBLKF	VBLKE	VBLKF	VBLKF
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	-	-	-	-	-	-
Associated Trip Blank		01TB001XXX01XX	01TB001XXX01XX	01TB002XXX01XX	01TB002XXX01XX	01TB002XXX01XX	01TB002XXX01XX	01TB002XXX01XX	01TB002XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01SW113XXX01XX	01SW113XXX01DX	01SW114XXX01XX	01SW115XXX01XX	01SW118XXX01XX	01SW119XXX01XX	03SW316XXX01XX	03SW317XXX01XX
	LAB NUMBER:	8256-013	8256-014	8256-015	8253-017	8256-016	8256-017	8252-022	8252-023
	DATE SAMPLED:	9/9/88	9/9/88	9/9/88	9/08/88	9/9/88	9/9/88	9/7/88	9/7/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	5 B	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
Acetone	10	10 U	10 U	10 U	5 U	10 U	10 U	2 J	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	5 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	9	7	1 J	5 U	5 U	1 J	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	5 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	3 J	2 J	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	10 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	5 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U		5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		VBLK02	VBLK02	VBLK02	VBLKF	VBLK02	VBLK02	VBLK06	VBLK05
Associated Equipment Blank		-	-	-	-	-	-	01SB004XXX01XX	01SB004XXX01XX
Associated Trip Blank		01TB003XXX01XX	01TB003XXX01XX	01TB003XXX01XX	01TB002XXX01XX	01TB003XXX01XX	01TB003XXX01XX	01TB001XXX01XX	01TB001XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	09SW915XXX01XX	09SW916XXX01XX	09SW917XXX01XX	09SW917XXX01DX	01SW918XXX01XX	SWXX101XX1 **
LAB NUMBER:	8253-018	8253-019	8260-028	8260-029	8267-002	8229-002
DATE SAMPLED:	9/08/88	9/08/88	9/16/88	9/16/88	9/22/88	8/15/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER

VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL						
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	6 B	6 B	9	5 U	3 JB	5 U
Acetone	10	10 U	10 U	22	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	51
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	6	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1	1	1
Laboratory Method Blank		VBLKF	VBLKF	C3829	C3829	C3951	C3596
Associated Equipment Blank		-	-	-	-	-	-
Associated Trip Blank		01TB002XXX01XX	01TB002XXX01XX	01TB006XXX01XX	01TB006XXX01XX	01TB006XXX01XX	01TB001XXX01XX

** = Source water - analysis of drilling and decon water.

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	08SW006XXX01XX	08SW007XXX01XX	08SW008XXX01XX	08SW009XXX01XX	08SW817XXX01XX	08SW818XXX01XX	08SW819XXX01XX	08SW820XXX01XX
	LAB NUMBER:	8258-005	8258-007	8258-009	8258-008	8259-006	8259-007	8258-004	8257-005
	DATE SAMPLED:	9/13/88	9/13/88	9/13/88	9/13/88	9/14/88	9/14/88	9/13/88	9/12/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METHOD 524.1 VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	MDL								
Chloromethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Bromomethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Vinyl Chloride	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Methylene Chloride	0.5	0.5 U	0.5 U	0.5 U	0.6 B	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	0.8	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
1,1-Dichloroethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,2-Dichloroethene	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,2-Dichloroethane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,1,1-Trichloroethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Carbon Tetrachloride	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Bromodichloromethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Trichloroethene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Dibromochloromethane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,1,2-Trichloroethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Benzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Bromoform	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Tetrachloroethene	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1,2,2-Tetrachloroethane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Toluene	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Ethylbenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Dichlorodifluoromethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Dibromomethane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,3-Dichloropropane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,2-Dibromoethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1,1,2-Tetrachloroethane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
m- & p-Xylenes	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
o-Xylenes	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	08SW006XXX01XX	08SW007XXX01XX	08SW008XXX01XX	08SW009XXX01XX	08SW817XXX01XX	08SW818XXX01XX	08SW819XXX01XX	08SW820XXX01XX
LAB NUMBER:	8258-005	8258-007	8258-009	8258-008	8259-006	8259-007	8258-004	8257-005
DATE SAMPLED:	9/13/88	9/13/88	9/13/88	9/13/88	9/14/88	9/14/88	9/13/88	9/12/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
METHOD 524.1 VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	MDL							
Isopropylbenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Bromobenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,2,3-Trichloropropane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
n-Propylbenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
2-Chlorotoluene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
4-Chlorotoluene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,3,5-Trimethylbenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
t-Butylbenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,2,4-Trimethylbenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
sec-Butylbenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
p-Isopropyltoluene	0.9	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U	0.9 U
n-Butylbenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,2-Dibromo-3-chloropropane	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,2,3-Trichlorobenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
cis-1,2-Dichloroethene	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
2,2-Dichloropropane	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1-Dichloropropene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,3-Dichlorobenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,4-Dichlorobenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,2-Dichlorobenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
1,2,4-Trichlorobenzene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Naphthalene	0.4	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Hexachlorobutadiene	0.3	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
Dilution Factor		1	1	1	1	1.0	1.0	1	1
Laboratory Method Blank		VBLK01	VBLK01	VBLK01	VBLK01	-	-	VBLK01	VBLK01
HERBICIDES									
2,4-D	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Silvex	0.02	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Laboratory Method Blank		HBLK02	HBLK02	HBLK02	HBLK02	VBLK01	VBLK01	HBLK02	HBLK01
Associated Equipment Blank		-	-	-	-	SB-4	-	-	-
Associated Trip Blank		01TB004XXX01XX	01TB004XXX01XX	01TB004XXX01XX	01TB004XXX01XX	TB-6	TB-6	01TB004XXX01XX	01TB004XXX01XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID: OBSW821XXX01XX
LAB NUMBER: 8258-006
DATE SAMPLED: 9/13/88
MATRIX: WATER

METHOD 524.1
VOLATILE ORGANIC COMPOUNDS
UNITS: ug/l

	MDL	
Chloromethane	0.4	0.4 U
Bromomethane	0.4	0.4 U
Vinyl Chloride	0.5	0.5 U
Chloroethane	0.4	0.4 U
Methylene Chloride	0.5	0.5 U
1,1-Dichloroethene	0.8	0.8 U
1,1-Dichloroethane	0.5	0.5 U
Trans-1,2-Dichloroethene	0.5	0.5 U
Chloroform	0.4	0.4 U
1,2-Dichloroethane	0.3	0.3 U
1,1,1-Trichloroethane	0.4	0.4 U
Carbon Tetrachloride	0.4	0.4 U
Bromodichloromethane	0.5	0.5 U
1,2-Dichloropropane	0.3	0.3 U
Trichloroethene	0.3	0.3 U
Dibromochloromethane	0.3	0.3 U
1,1,2-Trichloroethane	0.4	0.4 U
Benzene	0.3	0.3 U
Bromoform	0.3	0.3 U
Tetrachloroethene	0.4	0.4 U
1,1,2,2-Tetrachloroethane	0.3	0.3 U
Toluene	0.5	0.5 U
Chlorobenzene	0.4	0.4 U
Ethylbenzene	0.5	0.5 U
Styrene	0.3	0.3 U
Dichlorodifluoromethane	0.4	0.4 U
Trichlorofluoromethane	0.5	0.5 U
Bromochloromethane	0.3	0.3 U
Dibromomethane	0.3	0.3 U
1,3-Dichloropropane	0.4	0.4 U
1,2-Dibromoethane	0.4	0.4 U
1,1,1,2-Tetrachloroethane	0.4	0.4 U
m- & p-Xylenes	0.4	0.4 U
o-Xylenes	0.5	0.5 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID: 08SW821XXX01XX
LAB NUMBER: B258-006
DATE SAMPLED: 9/13/88
MATRIX: WATER

METHOD 524.1 VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	MDL	
Isopropylbenzene	0.3	0.3 U
Bromobenzene	0.3	0.3 U
1,2,3-Trichloropropane	0.3	0.3 U
n-Propylbenzene	0.3	0.3 U
2-Chlorotoluene	0.3	0.3 U
4-Chlorotoluene	0.3	0.3 U
1,3,5-Trimethylbenzene	0.3	0.3 U
t-Butylbenzene	0.3	0.3 U
1,2,4-Trimethylbenzene	0.3	0.3 U
sec-Butylbenzene	0.3	0.3 U
p-Isopropyltoluene	0.9	0.9 U
n-Butylbenzene	0.3	0.3 U
1,2-Dibromo-3-chloropropane	0.3	0.3 U
1,2,3-Trichlorobenzene	0.3	0.3 U
cis-1,2-Dichloroethene	0.4	0.4 U
2,2-Dichloropropane	0.4	0.4 U
1,1-Dichloropropene	0.3	0.3 U
1,3-Dichlorobenzene	0.3	0.3 U
1,4-Dichlorobenzene	0.3	0.3 U
1,2-Dichlorobenzene	0.3	0.3 U
1,2,4-Trichlorobenzene	0.3	0.3 U
Naphthalene	0.4	0.4 U
Hexachlorobutadiene	0.3	0.3 U
Dilution Factor		1
Laboratory Method Blank		VBLK01

HERBICIDES		
2,4-D	0.2	0.2 U
Silvex	0.02	0.02 U
Laboratory Method Blank		HBLK02
Associated Equipment Blank		-
Associated Trip Blank		01TB004XXX01XX

Click Here to Return to Main Index

Laboratory Report of Analysis

	SAMPLE ID:	03SW002XXX01XX	03SW002XXX01DX	02SW003XXX01XX	01SW004XXX01XX	08SW006XXX01XX	08SW007XXX01XX	08SW008XXX01XX	08SW009XXX01XX
	LAB NUMBER:	8252-013	8252-014	8253-011	8253-012	8258-005	8258-007	8258-009	8258-008
	DATE SAMPLED:	9/7/88	9/7/88	9/08/88	9/08/88	9/13/88	9/13/88	9/13/88	9/13/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	51 U	51 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	51 U	51 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	51 U	51 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Laboratory Report of Analysis

	SAMPLE ID:	03SW002XXX01XX	03SW002XXX01DX	02SW003XXX01XX	01SW004XXX01XX	08SW006XXX01XX	08SW007XXX01XX	08SW008XXX01XX	08SW009XXX01XX
	LAB NUMBER:	8252-013	8252-014	8253-011	8253-012	8258-005	8258-007	8258-009	8258-008
	DATE SAMPLED:	9/7/88	9/7/88	9/08/88	9/08/88	9/13/88	9/13/88	9/13/88	9/13/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	50 U	51 U	51 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	51 U	51 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	51 U	51 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	2 J	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	51 U	51 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	51 U	51 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	51 U	51 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	1 J	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	1 J	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	2 J	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	2 J	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	2 J	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	2 J	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	2 J	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	2 J	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	1 J	7 J	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	2 J	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	2 J	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		SBLK01	SBLK01	SBLK9/12	SBLK9/12	SBLK02	SBLK02	SBLK02	SBLK02
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	-	-	-	-	-	-

Click Here to Return to Main Index

Laboratory Report of Analysis

SAMPLE ID:		09SW010XXX01XX	09SW011XXX01XX	09SW011XXX01DX	09SW012XXX01XX	01SW113XXX01XX	01SW113XXX01DX	01SW114XXX01XX	01SW115XXX01XX
LAB NUMBER:		8253-013	8253-014	8253-015	8253-016	8256-013	8256-014	8256-015	8253-017
DATE SAMPLED:		9/08/88	9/08/88	9/08/88	9/08/88	9/9/88	9/9/88	9/9/88	9/08/88
MATRIX:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
bis(2-Chloroethyl)ether	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
2-Chlorophenol	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
1,3-Dichlorobenzene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
1,4-Dichlorobenzene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Benzyl alcohol	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
1,2-Dichlorobenzene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
2-Methylphenol	10	11 U	0.9 J	1 J	0.4 J	10 U	10 U	10 U	11 U
bis(2-Chloroisopropyl)ether	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
4-Methylphenol	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
N-Nitroso-di-n-propylamine	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Hexachloroethane	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Nitrobenzene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Isophorone	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
2-Nitrophenol	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
2,4-Dimethylphenol	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Benzoic acid	50	56 U	56 U	56 U	56 U	50 U	50 U	50 U	56 U
bis(2-Chloroethoxy)methane	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
2,4-Dichlorophenol	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
1,2,4-Trichlorobenzene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Naphthalene	10	11 U	1 J	1 J	11 U	10 U	10 U	10 U	11 U
4-Chloroaniline	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Hexachlorobutadiene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
4-Chloro-3-Methylphenol	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
2-Methylnaphthalene	10	11 U	2 J	2 J	11 U	10 U	10 U	10 U	11 U
Hexachlorocyclopentadiene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
2,4,6-Trichlorophenol	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
2,4,5-Trichlorophenol	50	56 U	56 U	56 U	56 U	50 U	50 U	50 U	56 U
2-Chloronaphthalene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
2-Nitroaniline	50	56 U	56 U	56 U	56 U	50 U	50 U	50 U	56 U
Dimethylphthalate	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Acenaphthylene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
2,6-Dinitrotoluene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U

Click Here to Return to Main Index

Laboratory Report of Analysis

SAMPLE ID:		09SW010XXX01XX	09SW011XXX01XX	09SW011XXX01DX	09SW012XXX01XX	01SW113XXX01XX	01SW113XXX01DX	01SW114XXX01XX	01SW115XXX01XX
LAB NUMBER:		8253-013	8253-014	8253-015	8253-016	8256-013	8256-014	8256-015	8253-017
DATE SAMPLED:		9/08/88	9/08/88	9/08/88	9/08/88	9/9/88	9/9/88	9/9/88	9/08/88
MATRIX:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS									
UNITS: ug/l	CRDL								
3-Nitroaniline	50	56 U	56 U	56 U	56 U	50 U	50 U	50 U	56 U
Acenaphthene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
2,4-Dinitrophenol	50	56 U	56 U	56 U	56 U	50 U	50 U	50 U	56 U
4-Nitrophenol	50	56 U	56 U	56 U	56 U	50 U	50 U	50 U	56 U
Dibenzofuran	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
2,4-Dinitrotoluene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Diethylphthalate	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
4-Chlorophenyl-phenylether	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Fluorene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
4-Nitroaniline	50	56 U	56 U	56 U	56 U	50 U	50 U	50 U	56 U
4,6-Dinitro-2-methylphenol	50	56 U	56 U	56 U	56 U	50 U	50 U	50 U	56 U
N-Nitrosodiphenylamine	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
4-Bromophenyl-phenylether	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Hexachlorobenzene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Pentachlorophenol	50	56 U	56 U	56 U	56 U	50 U	50 U	50 U	56 U
Phenanthrene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Anthracene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Di-n-butylphthalate	10	11 U	11 U	0.7 J	11 U	10 U	10 U	10 U	11 U
Fluoranthene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Pyrene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Butylbenzylphthalate	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
3,3'-Dichlorobenzidine	20	22 U	22 U	22 U	22 U	20 U	20 U	20 U	22 U
Benzo(a)Anthracene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Chrysene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
bis(2-Ethylhexyl)phthalate	10	0.9 J	5 J	5 J	5 J	10 U	10 U	10 U	3 J
Di-n-octylphthalate	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Benzo(b)Fluoranthene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Benzo(k)Fluoranthene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Benzo(a)Pyrene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Indeno(1,2,3-cd)pyrene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Dibenz(a,h)anthracene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Benzo(g,h,i,)perylene	10	11 U	11 U	11 U	11 U	10 U	10 U	10 U	11 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		SBLK9/12	SBLK9/12	SBLK9/12	SBLK9/12	SBLK01	SBLK01	SBLK01	SBLK9/12
Associated Equipment Blank		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Laboratory Report of Analysis

SAMPLE ID:		01SW118XXX01XX	01SW119XXX01XX	03SW316XXX01XX	03SW317XXX01XX	08SW817XXX01XX	08SW818XXX01XX	08SW819XXX01XX	08SW820XXX01XX
LAB NUMBER:		8256-016	8256-017	8252-022	8252-023	8259-006	8259-007	8258-004	8257-005
DATE SAMPLED:		9/9/88	9/9/88	9/7/88	9/7/88	9/14/88	9/14/88	9/13/88	9/12/88
MATRIX:		WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS									
UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Laboratory Report of Analysis

	SAMPLE ID:	01SW118XXX01XX	01SW119XXX01XX	03SW316XXX01XX	03SW317XXX01XX	08SW817XXX01XX	08SW818XXX01XX	08SW819XXX01XX	08SW820XXX01XX
	LAB NUMBER:	8256-016	8256-017	8252-022	8252-023	8259-006	8259-007	8258-004	8257-005
	DATE SAMPLED:	9/9/88	9/9/88	9/7/88	9/7/88	9/14/88	9/14/88	9/13/88	9/12/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	2 J	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	3 J	4 JB	4 JB	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		SBLK01	SBLK01	SBLK02	SBLK02	BLANK2	BLANK2	SBLK02	SBLK01
Associated Equipment Blank		-	-	01SB004XXX01XX	01SB004XXX01XX	-	-	-	-

Click Here to Return to Main Index

Laboratory Report of Analysis

	SAMPLE ID:	08SW821XXX01XX	09SW915XXX01XX	09SW916XXX01XX	09SW917XXX01XX	09SW917XXX01DX	01SW918XXX01XX	SWXX101XX1 **
	LAB NUMBER:	8258-006	8253-018	8253-019	8260-028	8260-029	8267-002	8229-002
	DATE SAMPLED:	9/13/88	9/08/88	9/08/88	9/16/88	9/16/88	9/22/88	8/15/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRQL							
Phenol	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
bis(2-Chloroethyl)ether	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
2-Chlorophenol	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
1,3-Dichlorobenzene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
1,4-Dichlorobenzene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Benzyl alcohol	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
1,2-Dichlorobenzene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
2-Methylphenol	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
4-Methylphenol	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Hexachloroethane	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Nitrobenzene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Isophorone	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
2-Nitrophenol	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
2,4-Dimethylphenol	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Benzoic acid	50	50 U	56 U	56 U	50 U	50 U	100 U	48 U
bis(2-Chloroethoxy)methane	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
2,4-Dichlorophenol	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
1,2,4-Trichlorobenzene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Naphthalene	10	10 U	5 J	11 U	10 U	10 U	20 U	10 U
4-Chloroaniline	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Hexacholorobutadiene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
4-Chloro-3-Methylphenol	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
2-Methylnaphthalene	10	10 U	3 J	11 U	10 U	10 U	20 U	10 U
Hexachlorocyclopentadiene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
2,4,6-Trichlorophenol	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
2,4,5-Trichlorophenol	50	50 U	56 U	56 U	50 U	50 U	100 U	48 U
2-Chloronaphthalene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
2-Nitroaniline	50	50 U	56 U	56 U	50 U	50 U	100 U	48 U
Dimethylphthalate	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Acenaphthylene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
2,6-Dinitrotoluene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U

Click Here to Return to Main Index

Laboratory Report of Analysis

	SAMPLE ID:	08SW821XXX01XX	09SW915XXX01XX	09SW916XXX01XX	09SW917XXX01XX	09SW917XXX01DX	01SW918XXX01XX	SWXX101XX1 **
	LAB NUMBER:	8258-006	8253-018	8253-019	8260-028	8260-029	8267-002	8229-002
	DATE SAMPLED:	9/13/88	9/08/88	9/08/88	9/16/88	9/16/88	9/22/88	8/15/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL							
3-Nitroaniline	50	50 U	56 U	56 U	50 U	50 U	100 U	48 U
Acenaphthene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
2,4-Dinitrophenol	50	50 U	56 U	56 U	50 U	50 U	100 U	48 U
4-Nitrophenol	50	50 U	56 U	56 U	50 U	50 U	100 U	48 U
Dibenzofuran	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
2,4-Dinitrotoluene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Diethylphthalate	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
4-Chlorophenyl-phenylether	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Fluorene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
4-Nitroaniline	50	50 U	56 U	56 U	50 U	50 U	100 U	48 U
4,6-Dinitro-2-methylphenol	50	50 U	56 U	56 U	50 U	50 U	100 U	48 U
N-Nitrosodiphenylamine	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
4-Bromophenyl-phenylether	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Hexachlorobenzene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Pentachlorophenol	50	50 U	56 U	56 U	50 U	50 U	20 U	48 U
Phenanthrene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Anthracene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Di-n-butylphthalate	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Fluoranthene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Pyrene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Butylbenzylphthalate	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
3,3'-Dichlorobenzidine	20	20 U	22 U	22 U	20 U	20 U	40 U	19 U
Benzo(a)Anthracene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Chrysene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	5 J	4 J	10 U	10 U	20 U	10 U
Di-n-octylphthalate	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Benzo(b)Fluoranthene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Benzo(k)Fluoranthene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Benzo(a)Pyrene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Dibenz(a,h)anthracene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Benzo(g,h,i,)perylene	10	10 U	11 U	11 U	10 U	10 U	20 U	10 U
Dilution Factor		1	1	1	1	1	2	1
Laboratory Method Blank		SBLK02	SBLK9/12	SBLK9/12	A1137	A1137	A1214	SBLK8/18W
Associated Equipment Blank		-	-	-	-	-	-	-

** = Source water - analysis of drilling and decon water.

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	03SW002XXX01XX	03SW002XXX01DX	02SW003XXX01XX	01SW004XXX01XX	08SW006XXX01XX	08SW007XXX01XX	08SW008XXX01XX	08SW009XXX01XX
	LAB NUMBER:	8252-013	8252-014	8253-011	8253-012	8258-005	8258-007	8258-009	8258-008
	DATE SAMPLED:	9/7/88	9/7/88	9/08/88	9/08/88	9/13/88	9/13/88	9/13/88	9/13/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL								
alpha-BHC	0.05	0.050 U	0.050 U	0.053 U	0.049 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.050 U	0.050 U	0.053 U	0.049 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.050 U	0.050 U	0.053 U	0.049 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.050 U	0.050 U	0.053 U	0.049 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.050 U	0.050 U	0.053 U	0.049 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.050 U	0.050 U	0.053 U	0.049 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.050 U	0.050 U	0.053 U	0.049 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.050 U	0.050 U	0.053 U	0.049 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1	0.100 U	0.100 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.100 U	0.100 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.100 U	0.100 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.100 U	0.100 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.100 U	0.100 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.100 U	0.100 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.100 U	0.100 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.500 U	0.500 U	0.53 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin ketone	0.1	0.100 U	0.100 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.500 U	0.500 U	0.53 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-Chlordane	0.5	0.500 U	0.500 U	0.53 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	1	1.000 U	1.000 U	1.1 U	1.0 U	1 U	1 U	1 U	1 U
Aroclor-1016	0.5	0.500 U	0.500 U	0.53 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5	0.500 U	0.500 U	0.53 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5	0.500 U	0.500 U	0.53 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5	0.500 U	0.500 U	0.53 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5	0.500 U	0.500 U	0.53 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254	1	1.000 U	1.000 U	1.1 U	1.0 U	1 U	1 U	1 U	1 U
Aroclor-1260	1	1.000 U	1.000 U	1.1 U	1.0 U	1 U	1 U	1 U	1 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		PBLK02	PBLK02	PBLKAA	PBLKAA	PBLK03	PBLK03	PBLK03	PBLK03
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	09SW010XXX01XX	09SW011XXX01XX	09SW011XXX01DX	09SW012XXX01XX	01SW113XXX01XX	01SW113XXX01DX	01SW114XXX01XX	01SW115XXX01XX
	LAB NUMBER:	8253-013	8253-014	8253-015	8253-016	8256-013	8256-014	8256-015	8253-017
	DATE SAMPLED:	9/08/88	9/08/88	9/08/88	9/08/88	9/09/88	9/09/88	9/09/88	9/08/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER
PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL								
alpha-BHC	0.05	0.049 U	0.050 U	0.049 U	0.050 U	0.05 U	0.05 U	0.05 U	0.050 U
beta-BHC	0.05	0.049 U	0.050 U	0.049 U	0.050 U	0.05 U	0.05 U	0.05 U	0.050 U
delta-BHC	0.05	0.049 U	0.050 U	0.049 U	0.050 U	0.05 U	0.05 U	0.05 U	0.050 U
gamma-BHC (Lindane)	0.05	0.049 U	0.050 U	0.049 U	0.050 U	0.05 U	0.05 U	0.05 U	0.050 U
Heptachlor	0.05	0.049 U	0.050 U	0.049 U	0.050 U	0.05 U	0.05 U	0.05 U	0.050 U
Aldrin	0.05	0.049 U	0.050 U	0.049 U	0.050 U	0.05 U	0.05 U	0.05 U	0.050 U
Heptachlor epoxide	0.05	0.049 U	0.050 U	0.049 U	0.050 U	0.05 U	0.05 U	0.05 U	0.050 U
Endosulfan I	0.05	0.049 U	0.050 U	0.049 U	0.050 U	0.05 U	0.05 U	0.05 U	0.050 U
Dieldrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.49 U	0.5 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin ketone	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.49 U	0.5 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-Chlordane	0.5	0.49 U	0.5 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	1	1.0 U	1.0 U	1.0 U	1.0 U	1 U	1 U	1 U	1.0 U
Aroclor-1016	0.5	0.49 U	0.5 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5	0.49 U	0.5 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5	0.49 U	0.5 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5	0.49 U	0.5 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5	0.49 U	0.5 U	0.49 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254	1	1.0 U	1.0 U	1.0 U	1.0 U	1 U	1 U	1 U	1.0 U
Aroclor-1260	1	1.0 U	1.0 U	1.0 U	1.0 U	1 U	1 U	1 U	1.0 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		PBLKAA	PBLKAA	PBLKAA	PBLKAA	PBLK01	PBLK01	PBLK01	PBLKAA
Associated Equipment Blank		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SW118XXX01XX	01SW119XXX01XX	03SW316XXX01XX	03SW317XXX01XX	08SW817XXX01XX	08SW818XXX01XX	08SW819XXX01XX	08SW820XXX01XX
LAB NUMBER:	8256-016	8256-017	8252-022	8252-023	8259-006	8259-007	8258-004	8257-005
DATE SAMPLED:	9/09/88	9/09/88	9/7/88	9/7/88	9/14/88	9/14/88	9/13/88	9/12/88
MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER	WATER

PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL								
alpha-BHC	0.05	0.05 U	0.05 U	0.050 U	0.050 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.050 U	0.050 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.050 U	0.050 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.050 U	0.050 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.050 U	0.050 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.050 U	0.050 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.050 U	0.050 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.050 U	0.050 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1	0.1 U	0.1 U	0.100 U	0.100 U	0.10 U	0.10 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.100 U	0.100 U	0.10 U	0.10 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.100 U	0.100 U	0.10 U	0.10 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.100 U	0.100 U	0.10 U	0.10 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.100 U	0.100 U	0.10 U	0.10 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.100 U	0.100 U	0.10 U	0.10 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.100 U	0.100 U	0.10 U	0.10 U	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.5 U	0.500 U	0.500 U	0.51 U	0.50 U	0.5 U	0.5 U
Endrin ketone	0.1	0.1 U	0.1 U	0.100 U	0.100 U	0.10 U	0.10 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.5 U	0.500 U	0.500 U	0.51 U	0.50 U	0.5 U	0.5 U
gamma-Chlordane	0.5	0.5 U	0.5 U	0.500 U	0.500 U	0.51 U	0.50 U	0.5 U	0.5 U
Toxaphene	1	1 U	1 U	1.000 U	1.000 U	1.0 U	1.0 U	1 U	1 U
Aroclor-1016	0.5	0.5 U	0.5 U	0.500 U	0.500 U	0.51 U	0.50 U	0.5 U	0.5 U
Aroclor-1221	0.5	0.5 U	0.5 U	0.500 U	0.500 U	0.51 U	0.50 U	0.5 U	0.5 U
Aroclor-1232	0.5	0.5 U	0.5 U	0.500 U	0.500 U	0.51 U	0.50 U	0.5 U	0.5 U
Aroclor-1242	0.5	0.5 U	0.5 U	0.500 U	0.500 U	0.51 U	0.50 U	0.5 U	0.5 U
Aroclor-1248	0.5	0.5 U	0.5 U	0.500 U	0.500 U	0.51 U	0.50 U	0.5 U	0.5 U
Aroclor-1254	1	1 U	1 U	1.000 U	1.000 U	1.0 U	1.0 U	1 U	1 U
Aroclor-1260	1	1 U	1 U	1.000 U	1.000 U	1.0 U	1.0 U	1 U	1 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		PBLK02	PBLK01	PBLK02	PBLK02	PBLKAA	PBLKAA	PBLK03	PBLK01
Associated Equipment Blank		-	-	01SB004XXX01XX	01SB004XXX01XX	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	08SW821XXX01XX	09SW915XXX01XX	09SW916XXX01XX	09SW917XXX01XX	09SW917XXX01DX	01SW918XXX01XX	SWXX101XX1 **
	LAB NUMBER:	8258-006	8253-018	8253-019	8260-028	8260-029	8267-002	8229-002
	DATE SAMPLED:	9/13/88	9/08/88	9/08/88	9/16/88	9/16/88	9/22/88	8/15/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL							
alpha-BHC	0.05	0.05 U	0.049 U	0.051 U	0.050 U	0.050 U	0.049 U	0.050 U
beta-BHC	0.05	0.05 U	0.049 U	0.051 U	0.050 U	0.050 U	0.049 U	0.050 U
delta-BHC	0.05	0.05 U	0.049 U	0.051 U	0.050 U	0.050 U	0.049 U	0.050 U
gamma-BHC (Lindane)	0.05	0.05 U	0.049 U	0.051 U	0.050 U	0.050 U	0.049 U	0.050 U
Heptachlor	0.05	0.05 U	0.049 U	0.051 U	0.050 U	0.050 U	0.049 U	0.050 U
Aldrin	0.05	0.05 U	0.049 U	0.051 U	0.050 U	0.050 U	0.049 U	0.050 U
Heptachlor epoxide	0.05	0.05 U	0.049 U	0.051 U	0.050 U	0.050 U	0.049 U	0.050 U
Endosulfan I	0.05	0.05 U	0.049 U	0.051 U	0.050 U	0.050 U	0.049 U	0.050 U
Dieldrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.49 U	0.51 U	0.5 U	0.5 U	0.49 U	0.5 U
Endrin ketone	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.10 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.49 U	0.51 U	0.5 U	0.5 U	0.49 U	0.5 U
gamma-Chlordane	0.5	0.5 U	0.49 U	0.51 U	0.5 U	0.5 U	0.49 U	0.5 U
Toxaphene	1	1 U	1.0 U	1.0 U	1 U	1 U	1 U	1.0 U
Aroclor-1016	0.5	0.5 U	0.49 U	0.51 U	0.5 U	0.5 U	0.49 U	0.5 U
Aroclor-1221	0.5	0.5 U	0.49 U	0.51 U	0.5 U	0.5 U	0.49 U	0.5 U
Aroclor-1232	0.5	0.5 U	0.49 U	0.51 U	0.5 U	0.5 U	0.49 U	0.5 U
Aroclor-1242	0.5	0.5 U	0.49 U	0.51 U	0.5 U	0.5 U	0.49 U	0.5 U
Aroclor-1248	0.5	0.5 U	0.49 U	0.51 U	0.5 U	0.5 U	0.49 U	0.5 U
Aroclor-1254	1	1 U	1.0 U	1.0 U	1 U	1 U	1 U	1.0 U
Aroclor-1260	1	1 U	1.0 U	1.0 U	1 U	1 U	1 U	1.0 U
Dilution Factor		1	1	1	1	1	1	1
Laboratory Method Blank		PBLK03	PBLKAA	PBLKAA	PBLKCC	PBLKCC	PBLKII	PBLKNN
Associated Equipment Blank		-	-	-	-	-	-	-

** = Source water - analysis of drilling and decon water.

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	08SW006XXX01XX	08SW006XXX01XX	08SW007XXX01XX	08SW007XXX01XX	08SW008XXX01XX	08SW008XXX01XX	08SW009XXX01XX
	LAB NUMBER:	8257-012	8258-005	8257-014	8258-007	8257-015	8258-009	8257-017
	DATE SAMPLED:	9/13/88	9/13/88	9/13/88	9/13/88	9/13/88	9/13/88	9/13/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
MISCELLANEOUS PARAMETERS UNITS: mg/l	PQL							
Total Coliforms	1/100 ml	420	NR	350	NR	720 *	NR	630
Hexavalent Chromium	0.005	0.005 U	NR	0.005 U	NR	0.005 U	NR	0.005 U
Dissolved Chloride	2	400	NR	10	NR	31	NR	53
Sulfate	1	20	NR	7.7	NR	8.3	NR	60
Filterable Residue	10	NR	720	NR	63	NR	110	NR
Fluoride	0.2	NR	0.2 U	NR	0.2 U	NR	0.2 U	NR
Nitrate + Nitrite, AS N	0.05	NR	1.1	NR	2.5	NR	1.9	NR
Total Sulfide (Iodometric)	1	NR	1 U	NR	2.5	NR	1 U	NR
Total Recoverable Phenolics	5	NR	5 U	NR	10	NR	5.8	NR
Methylene Blue Active Substances	0.04	NR	0.04 U	NR	0.04 U	NR	0.04 U	NR

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	08SW009XXX01XX	08SW817XXX01XX	08SW817XXX01XX	08SW818XXX01XX	08SW818XXX01XX	08SW819XXX01XX	08SW819XXX01XX
	LAB NUMBER:	8258-008	8258-022	8259-006	8258-023	8259-007	8257-013	8258-004
	DATE SAMPLED:	9/13/88	9/14/88	9/14/88	9/14/88	9/14/88	9/13/88	9/13/88
	MATRIX:	WATER	WATER	WATER	WATER	WATER	WATER	WATER
MISCELLANEOUS PARAMETERS UNITS: mg/l	PQL							
Total Coliforms	1/100 ml	NR	530	NR	67	NR	78	NR
Hexavalent Chromium	0.005	NR	0.005 U	NR	0.005 U	NR	0.005 U	NR
Dissolved Chloride	2	NR	29	NR	30	NR	12	NR
Sulfate	1	NR	13	NR	14	NR	8.6	NR
Filterable Residue	10	300	NR	130	NR	130	NR	84
Fluoride	0.2	0.2 U	NR	0.2 U	NR	0.2 U	NR	0.2 U
Nitrate + Nitrite, AS N	0.05	0.41	NR	1.4	NR	1.9	NR	2
Total Sulfide (Iodometric)	1	1 U	NR	1 U	NR	1.8	NR	1 U
Total Recoverable Phenolics	5	16	NR	5 U	NR	5 U	NR	5 U
Methylene Blue Active Substances	0.04	0.04 U	NR	0.04 U	NR	0.04 U	NR	0.04 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	08SW820XXX01XX	08SW820XXX01XX	08SW821XXX01XX	08SW821XXX01XX
	LAB NUMBER:	8256-027	8257-005	8257-016	8258-006
	DATE SAMPLED:	9/13/88	9/12/88	9/13/88	9/13/88
	MATRIX:	WATER	WATER	WATER	WATER
MISCELLANEOUS PARAMETERS UNITS: mg/l	PQL				
Total Coliforms	1/100 ml	TNC	NR	1 U	NR
Hexavalent Chromium	0.005	0.005 U	NR	0.005 U	NR
Dissolved Chloride	2	510	NR	12	NR
Sulfate	1	1 U	NR	8.2	NR
Filterable Residue	10	NR	970	NR	66
Fluoride	0.2	NR	0.2 U	NR	0.2 U
Nitrate + Nitrite, AS N	0.05	NR	1.4	NR	2.6
Total Sulfide (Iodometric)	1	NR	1 U	NR	1.5
Total Recoverable Phenolics	5	NR	5 U	NR	5 U
Methylene Blue Active Substances	0.04	NR	0.04 U	NR	0.04 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	MW01201021	MW01201311	MW01203321	MW01203421	MW01204271	MW01204421	MW012051011	MW01205321
LAB NUMBER:	8202-024	8202-025	8199-004	8199-005	8199-002	8199-003	8217-024	8199-006
DATE SAMPLED:	7/18/88	7/18/88	7/17/88	7/17/88	7/17/88	7/17/88	8/03/88	7/14/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	6300	3200	3100	21000	7000	3080	26000	8400
Antimony	P	12	1.6 U	1.7 U	1.7 U	4.8	1.7 U	1.7 U	1.7 UN	2.4 []
Arsenic	F	2	2.6 D	2.5	3.9	35 D	6.6	2.6	11 N+	14 D
Barium	P	40	11	13	12 []	69	26	11 []	88	60
Beryllium	P	1	0.33	0.061 []	0.054 U	0.33 []	0.57	0.054 U	0.86	0.31 []
Cadmium	P	1	0.13 U	0.14 U	0.14 U	0.15 U	0.14 U	0.14 U	3.7	0.14 U
Calcium	P	1000	570	710	650	2500	920	750	3900	2200
Chromium	P	2	6.1	5.2	5.5	44	13	6	41	31
Cobalt	P	10	3	2.3 []	2.9 []	17	5.7	2.6 []	17	13
Copper	P	5	5	4.3	4.5	30	8.6	4.6	27	21
Iron	P	20	6000	5800	6200	47000	12000	6210	39000	14000
Lead	P/F	1	2.1	1.2	1.1	1.3	1.3	1.5	9.4	0.92
Magnesium	P	1000	1200	1500	1400	8600	2900	1400	910	6100
Manganese	P	3	130	83	72	740	190	97	620	830
Mercury	CV	0.04	0.028	0.013	0.03	0.018	0.035	0.017	0.012 UN	0.008 []
Nickel	P	8	6.4	5.1	5.8	46	9.8	5	37	31
Potassium	P	1000	450	690	790	4600	1600	820	7200	4500
Selenium	F	1	0.084 U	0.091 U	4.8	6.3	4.9	1.6	0.098 UN	0.092 U
Silver	P	2	0.18 U	0.19 U	0.19 U	0.21 U	0.2 U	0.19 U	0.25 UN	0.2 U
Sodium	P	1000	55 []	170 []	67 []	250 []	99 []	85 []	930	230 []
Thallium	F	2	0.058 []	0.064 []	0.042 U	0.046 U	0.043 U	0.042 U	0.049 UN	0.043 U
Vanadium	P	10	11	9.3	8.7	49	21	10	55	43
Zinc	P	4	16	14	15	82	27	14	78	61
Total Cyanide	CN	2	0.28 U	0.3 U	0.3 U	0.33 U	0.31 U	0.3 U	0.31 U	0.31 U
Percent Solids			89.6	82.1	83.4	76.7	81.6	82.9	81.6	81.4

Laboratory Method Blank	BR012	BR012	BR011	BR011	BR011	BR011	MBLK3	BR011
Associated Equipment Blank	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW01205991	MW01206B121	MW01206B171	MW01206A671	MW01206A771	MW01206A791	MW01207B071	MW01207B121
LAB NUMBER:	8217-023	8215-006	8215-007	8228-020	8229-003	8229-004	8215-002	8215-001
DATE SAMPLED:	8/03/88	8/9/88	8/9/88	8/12/88	8/13/88	8/13/88	7/31/88	7/31/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL															
Aluminum	P	40	26000		9100		14000		9.1	[]	23000		31000		7200		28000	
Antimony	P	12	3.3	[]N	1.7	U	1.8	U	1.8	U	1.8	UN	1.8	UN	1.8	U	5.1	
Arsenic	F	2	16	N+	13	N+	3.8	N+	3.26	N+	26.5	N+	17	NS	26	N+	3.1	N+
Barium	P	40	88		35		51		0.13	U	60		93		23		83	
Beryllium	P	1	0.9		0.37		0.44		0.13	[]	0.63		1		0.13	[]	0.67	
Cadmium	P	1	3.9		0.14	UN	0.15	UN	0.13	[]	4.1	N	4.9	N	0.15	UN	0.15	UN
Calcium	P	1000	3600		1500		1600		33	[]	2400		3700		1300		2500	
Chromium	P	2	47		17		25		0.32	U	45	N	55	N	15		43	
Cobalt	P	10	19		7.8		11		0.57	[]	18		21		5.5		18	
Copper	P	5	31		12	N	18	N	0.19	[]	27	N	37	N	11	N	36	N
Iron	P	20	42000		14000		25000		11		42000		49000		12000		48000	
Lead	P/F	1	9.6		5.8	NS	5.7	NS	1.8		11	N	12	N	3.5	N	16	N
Magnesium	P	1000	9700		4500		6100		28	[]	9600		12000		3600		12000	
Manganese	P	3	700		250	N	490	N	0.32	[]	630		920		160	N	690	N
Mercury	CV	0.04	0.013	UN	0.012	U	0.013	U	0.013	U	0.013	U	0.013	U	0.013	U	0.013	U
Nickel	P	8	42		16		24		1.5	[]	48	N	50	N	13		40	
Potassium	P	1000	6900		3000		3900		18	[]	4200		7500		2000		7300	
Selenium	F	1	0.1	UN	0.10	UN	0.31	[]NE	0.1	UN	0.1	UN	0.1	UN	0.11	U	0.11	UN
Silver	P	2	0.26	UN	0.25	UN	0.25	UN	0.25	UN	0.25	UN	0.26	UN	0.26	UN	0.22	UN
Sodium	P	1000	850		150	[]	170	[]	4.5	U	290	[]	440		84	[]	310	[]
Thallium	F	2	0.051	UN	0.14	UW	0.044	U	0.05	UN	0.061	[]N	0.16	[]N	0.051	U	0.054	U
Vanadium	P	10	55		25		37		0.25	U	47	N	67	N	18		60	
Zinc	P	4	83		35		47		0.25	U	84	N	100	N	28		88	
Total Cyanide	CM	2	0.32	U	0.31	U	0.32	U	0.32	U	0.32	U	0.32	U	0.32	U	0.34	U
Percent Solids			77.7		81.4		79.3		79.3		79.0		78.3		78.4		74.3	

Laboratory Method Blank	MBLK3	BR0291	BR0291	MBLK3	MBLK3	MBLK3	BR0291	BR0291
Associated Equipment Blank	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	MW012081101	MW012081121	MW01208421	MW01208422	MW01208871	MW01209241	MW01209242	MW01210A141
LAB NUMBER:	8225-011	8225-012	8225-006	8225-007	8225-008	8203-044	8203-045	8215-003
DATE SAMPLED:	8/11/88	8/11/88	8/09/88	8/09/88	8/11/88	7/20/88	7/20/88	7/30/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL																			
Aluminum	P	40	27000		32000		4900		3900		12000		5700	E	3900	E	4300				
Antimony	P	12	1.8	UN	1.8	UN	1.7	UN	1.7	UN	1.7	UN	1.7	U	1.6	U	1.9	U			
Arsenic	F	2	24	N+	21	N+	0.56	[]N	0.37	[]N	0.39	[]N	7	+	5.2	+	4.2	N+			
Barium	P	40	67	N	89	N	15	N	13	N	21	N	28		20		20				
Beryllium	P	1	0.76	N	0.96	N	0.31	N	0.24	[]N	2.9	N	0.061	[]	0.052	U	0.15	[]			
Cadmium	P	1	4.4	N	5.2	N	0.92	N	0.67	N	3.9	N	0.14	U*	0.13	U*	0.15	UN			
Calcium	P	1000	2800		3200		880		700		1400		770		610		910				
Chromium	P	2	48		56		8.6		7.2		27		10	NE	8	NE	7.9				
Cobalt	P	10	18		21		3.7		3.1		4.1		4.5		3.4		4.3				
Copper	P	5	29	N	35	N	5	N	4.4	N	5.8	N	7.3		5		5.6	N			
Iron	P	20	47000		54000		8500		7100		25000		8700	E	7200	E	7600				
Lead	P/F	1	11	N	14	N	1.8	N	1.6	N	3.2	N	2.4		2		3.3	NS			
Magnesium	P	1000	9900		12000		1800		1500		5600		2800		2200		2300				
Manganese	P	3	780		820		120		110		220		150		140		99	N			
Mercury	CV	0.04	0.013	U	0.013	U	0.012	U	0.012	U	0.012	U	0.006	U	0.014		0.013	U			
Nickel	P	8	44	N	50	N	6.3	N	5.8	N	8.8	N	8.8	E	6.5	E	10				
Potassium	P	1000	5500		7400		1200		1000		3800		1600		1200		1300				
Selenium	F	1	0.1	UN	0.1	UN	0.098	UN	0.098	UN	0.099	UN	0.24	[]W	0.25	[]W	0.10	UN			
Silver	P	2	0.25	UN	0.26	UN	0.25	UN	0.24	UN	0.25	UN	0.2	UN	0.18	UN	0.27	UN			
Sodium	P	1000	440		660		110	[]	86	[]	170	[]	58	[]	56	[]	120	[]			
Thallium	F	2	0.16	[]N	0.27	[]N	0.049	UN	0.049	UN	0.049	UN	0.049	[]	0.074	[]	0.11	[]W			
Vanadium	P	10	55	N	69	N	14	N	12	N	48	N	16		12		14				
Zinc	P	4	94	N	110	N	20	N	17	N	71	N	23		18		19				
Total Cyanide	CM	2	0.32	U	0.32	U	0.31	U	0.31	U	0.31	U	0.31	U	0.29	U	0.33	U			
Percent Solids			79.1		78.4		81.6		81.8		81.0		81.8		86.6		74.9				

Laboratory Method Blank	MBLK3	MBLK3	MBLK1	MBLK2	MBLK3	BR02	BR02	BR0291
Associated Equipment Blank	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW01210A142	MW01210A321	MW01211A071	MW01211A171	MW02212141	MW02212161	MW02213071	MW02213271
LAB NUMBER:	8215-004	8215-005	8210-002	8210-001	8202-018	8202-019	8202-031	8202-030
DATE SAMPLED:	8/30/88	7/30/88	7/26/88	7/26/88	7/19/88	7/19/88	7/19/88	7/19/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	4200	4400	7700	6400	11000	15000	3800	2700
Antimony	P	12	1.9 U	1.8 U	1.8 U	1.9 U	1.7 U	1.8 U	1.9 []	2.2 []
Arsenic	F	2	2.5 N+	4.3 NS	2.7 N+	3.2 N+	14 D	7.3 D	3.4	13 D
Barium	P	40	20	21	12 []	27	38	47	11 []	40
Beryllium	P	1	0.13 []	0.59	0.19 []	0.067 []	0.5	0.59	0.063 []	0.43
Cadmium	P	1	0.15 UN	0.15 UN	0.15 UN	0.15 UN	0.14 U	0.15 U	0.14 U	0.14 U
Calcium	P	1000	720	1400	350	790	1200	1600	630	2100
Chromium	P	2	8.3	9	7.8	12	19	33	5.4	24
Cobalt	P	10	3.6	4.4	3.4	5.6	9	10	3.4	12
Copper	P	5	5.5 N	6.8 N	4.2 N	7.2 N	14	22	5.2	21
Iron	P	20	7300	8600	6900	10000	17000	22000	5400	5200
Lead	P/F	1	1.9 N	7 N+	6.2 N	2 N	2.2	2.5	1	1.9
Magnesium	P	1000	2400	2500	1200	3300	3800	6200	1500	6700
Manganese	P	3	87 N	100 N	110 N	140 N	360	290	140	390
Mercury	CV	0.04	0.013 U	0.013 U	0.025	0.013 U	0.006 U	0.018	0.006 U	0.006 U
Nickel	P	8	9.7	8.4	6.4	9.5	16	31	6	26
Potassium	P	1000	1300	1400	380	1800	2400	2700	750	3400
Selenium	F	1	0.184 []WN	0.10 []WN	0.10 UN	0.11 UN	0.099 []	0.099 U	0.42	0.093 U
Silver	P	2	0.27 UN	0.26 UN	0.25 UN	0.21 UN	0.2 U	0.21 U	0.2 U	0.2 U
Sodium	P	1000	61 []	120 []	34 []	59 []	140 []	150 []	160 []	410
Thallium	F	2	0.08 []W	0.078 UW	0.051 U	0.054 U	0.043 U	0.046 U	0.044 U	0.16 []
Vanadium	P	10	14	16	12	20	29	40	8.9	33
Zinc	P	4	17	19	17	25	40	82	13	48
Total Cyanide	CM	2	0.33 U	0.33 U	0.32 U	0.34 U	0.31 U	0.33 U	0.31 U	0.31 U
Percent Solids			75	76.5	78.6	74.5	80.7	76.1	80	80.7
Laboratory Method Blank			BR0291	BR0291	BR0291	BR0291	BR011	BR011	BR013	BR012
Associated Equipment Blank			SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank			SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	MW03202061	MW03202161	MW04404121	MW04404171	MW04404381	MW04405101	MW04405271	MW04406261
LAB NUMBER:	8202-020	8202-021	8203-046	8203-047	8203-048	8217-016	8217-017	8229-008
DATE SAMPLED:	7/18/88	7/18/88	7/21/88	7/21/88	7/21/88	8/01/88	8/01/88	8/14/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL																	
Aluminum	P	40	5000			6900			3800	E		4100	E		3700	E		5600			4100			6100		
Antimony	P	12	2.2	[]		2	[]		1.7	U		1.7	U		1.7	[]		1.8	[]	N	1.7	UN		2.8	[]	N
Arsenic	F	2	4	D		3			2.5			5.1	+		2.3	+		4.9	NS		3	N+		0.58	[]	N
Barium	P	40	11	[]		30			14			16			16			17			16			28		
Beryllium	P	1	0.46			0.13	[]		0.061	[]		0.25	[]		0.055	U		0.12	[]		0.06			0.25	[]	
Cadmium	P	1	0.13	U		0.15	U		0.14	U*		0.14	U*		0.14	U*		0.72			0.54			1	N	
Calcium	P	1000	430			1100			590			440			720			540			610			1400		
Chromium	P	2	6.4			12			7.4	NE		6.7	NE		6.9	NE		9			6.3			13	N	
Cobalt	P	10	3.3			5.1			2.7	[]		3.3			3	[]		5.2			3.9			5.9		
Copper	P	5	5.3			7.6			5.9			4.9			4.7			7.5			4.9			9.7	N	
Iron	P	20	6600			18000			6500	E		7300	E		6000	E		9200			7200			12000		
Lead	P/F	1	1.5			1.3			2.1			0.16	[]+		1.7			2			3.5			1.7	N	
Magnesium	P	1000	1600			3300			1900			2100			2000			2300			1700			2700		
Manganese	P	3	100			370			120			80			130			130			86			180		
Mercury	CV	0.04	0.006	U		0.011	[]		0.017			0.006	U		0.24			0.012	UN		0.012	UN		0.028		
Nickel	P	8	7.2			9.4			5.1	E		5.3	E		5.6	E		8			5.7			10	N	
Potassium	P	1000	780			1700			1200			1400			1200			1600			1100			1800		
Selenium	F	1	0.3			0.12	[]		0.24	[]	W	0.25	[]	W	0.25	[]	W	0.32	N		0.11	[]	N	0.099	UN	
Silver	P	2	0.18	U		0.2	U		0.2	UN		0.2	UN		0.2	UN		0.24	UN		0.24	UN		0.25	UN	
Sodium	P	1000	120	[]		210	[]		98	[]		47	[]		57	[]		85	[]		55	[]		110	[]	
Thallium	F	2	0.04	U		0.044	U		0.079	[]		0.095	[]		0.079	[]		0.048	UN		0.048	UN		0.077	[]	N
Vanadium	P	10	11			19			13			13			12			15			11			18	N	
Zinc	P	4	16			27			15			17			16			25			19			26	N	
Total Cyanide	CM	2	0.29	U		0.32	U		0.31	U		0.31	U		0.31	U		0.3	U		0.3	U		0.31	U	
Percent Solids			87.6			79.1			81.9			80.8			81.6			83.0			83.0			81.0		

Laboratory Method Blank	BR012	BR012	BR02	BR02	BR02	MBLK1	MBLK1	MBLK2
Associated Equipment Blank	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW04406262	MW04406511	MW04407201	MW04407511	MW07704071	MW07704121	MW07705061	MW07705121
LAB NUMBER:	8229-007	8229-006	8229-012	8229-009	8202-026	8202-028	8203-049	8202-022
DATE SAMPLED:	8/14/88	8/14/88	8/14/88	8/14/88	7/19/88	7/19/88	7/20/88	7/18/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL																	
Aluminum	P	40	7200		5300		9100		4300		3400		9200		6400	E	4700		
Antimony	P	12	1.7	UN	1.7	UN	1.8	UN	1.7	UN	1.8	U	2.8	[]	1.6	U	1.8	U	
Arsenic	F	2	0.43	[]N	0.54	[]N	0.62	[]N	1.1	N	4.7		12		5.9	+	2.8		
Barium	P	40	32		22		36		19		8.1	[]	26		24		14		
Beryllium	P	1	0.25	[]	0.24	[]	0.38		0.24	[]	0.063	[]	0.37		0.33		0.25	[]	
Cadmium	P	1	1.2	N	0.98	N	1.3	N	0.6	N	0.14	U	0.14	U	0.13	U*	0.15	U	
Calcium	P	1000	1700		1400		910		1100		330		1100		590		340		
Chromium	P	2	16	N	12	N	16	N	8.6	N	5.2		17		12	NE	8.1		
Cobalt	P	10	6.8		4.3		6.9		3.7		1.9	[]	6.4		5.9		3.7		
Copper	P	5	10	N	8.1	N	9.2	N	7.1	N	4.8		12		8.1		6.1		
Iron	P	20	13000		10000		13000		7600		5600		13000		8400	E	9800		
Lead	P/F	1	3.5	N	1.7	N	2.4	N	4.4	N	1.1		1.6		2.1		1.2		
Magnesium	P	1000	2900		2400		3600		1900		1300		4100		3100		2100		
Manganese	P	3	190		170		170		140		58		120		130		82		
Mercury	CV	0.04	0.012	U	0.012	U	0.013	U	0.012	U	0.006	U	0.008	[]	0.006	U	0.013		
Nickel	P	8	12	N	9.4	N	12	N	6.7	N	4.6		16		9.7	E	7.4		
Potassium	P	1000	1900		1600		2400		1200		620		1800		1500		1100		
Selenium	F	1	0.099	UN	0.098	UN	0.1	UN	0.096	UN	0.13	[]	0.092	U	0.22	[]	0.095	U	
Silver	P	2	0.25	UN	0.24	UN	0.25	UN	0.24	UN	0.2	U	0.2	U	0.18	UN	0.2	U	
Sodium	P	1000	150	[]	150	[]	86	[]	100	[]	150	[]	180	[]	52	[]	160	[]	
Thallium	F	2	0.058	[]N	0.049	UN	0.12	[]N	0.15	[]N	0.05	[]	0.19	[]	0.17	[]W	0.044	U	
Vanadium	P	10	22	N	16	N	24	N	12	N	10		22		17		16		
Zinc	P	4	30	N	23	N	34	N	18	N	13		32		25		18		
Total Cyanide	CM	2	0.31	U	0.31	U	0.32	U	0.3	U	0.31	U	0.31	U	0.28	U	0.32	U	
Percent Solids			80.9		81.8		79.3		83.0		80		81.6		90.3		79.2		

Laboratory Method Blank	MBLK2	MBLK2	MBLK3	MBLK3	BR012	BR012	BR02	BR012
Associated Equipment Blank	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	MW07705171	MW07706071	MW07706121	B08805121	B08805171	MW08807061	MW08807321	MW08808121
LAB NUMBER:	8202-027	8203-042	8203-043	8199-008	8199-009	8199-001	8199-007	8217-015
DATE SAMPLED:	7/18/88	7/20/88	7/20/88	7/15/88	7/15/88	7/14/88	7/15/88	8/03/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	22000	4300 E	24000 E	6900	9900	3800	15000	8800
Antimony	P	12	2.7 []	1.9 []	2.1 []	1.7 U	1.8 U	2 U	1.9 U	2.1 []N
Arsenic	F	2	34 D	12 +	20 S	8.2 D	14 D	0.063 U	30 D	3.1 N+
Barium	P	40	62	17	91	26	35	7.7 []	130	30
Beryllium	P	1	0.68	0.18 []	0.51	0.31 []	0.26 []	0.063 U	0.86	0.18 []
Cadmium	P	1	0.19 []	0.14 U*	0.15 U*	0.14 U	0.15 U	0.16 U	0.33 []	1.5
Calcium	P	1000	2200	500	3200	760	2000	430	8400	1600
Chromium	P	2	43	7.5 NE	50 NE	12	21	4.8	62	15
Cobalt	P	10	19	4.4	17	5	9	0.56 []	19	7.1
Copper	P	5	34	7	27	8	15	2.4	30	11
Iron	P	20	53000	7300 E	42000 E	11000	16000	2700	22000	16000
Lead	P/F	1	1.7	5.7	11	1.5	1.6	0.27 []	1.5	3.6
Magnesium	P	1000	10000	2000	12000	2600	4300	620	12000	3300
Manganese	P	3	1000	160	730	260	320	32	880	300
Mercury	CV	0.04	0.006 U	0.017	0.018	0.006 U	0.006 U	0.017	0.014	0.012 UN
Nickel	P	8	44	7.2 E	41 E	8.8	17	1.6 []	47	13
Potassium	P	1000	5100	1200	7300	1400	2900	300 []	9900	1800
Selenium	F	1	0.19 []	0.24 []W	0.25 []W	0.13 []	0.098 U	0.11 U	0.18 []	0.26 []N
Silver	P	2	0.2 U	0.19 UN	0.2 UN	0.2 U	0.21 U	0.22 U	0.21 U	0.24 UN
Sodium	P	1000	280 []	46 []	300 []	110 []	190 []	63 []	720	110 []
Thallium	F	2	0.2 []	0.063 []	0.22 []	0.043 U	0.046 U	0.049 U	0.062 []	0.049 UN
Vanadium	P	10	55	12	55	20	30	7.4	75	25
Zinc	P	4	88	15	83	26	41	9.7	98	31
Total Cyanide	CN	2	0.31 []	0.3 U	0.32 U	0.31 U	0.33 U	0.35 U	0.33 U	0.3 U
Percent Solids			80.6	83.2	79.1	80.7	76.9	71.3	75.5	82.0

Laboratory Method Blank	BR012	BR02	BR02	BR011	BR011	BR011	BR011	MBLK1
Associated Equipment Blank	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	MW08808171	MW08808191	MW08808231	MW09904121	MW09904171	MW09905111	MW09905161
	LAB NUMBER:	8217-012	8217-014	8217-013	8202-023	8202-029	8203-050	8203-051
	DATE SAMPLED:	8/03/88	8/03/88	8/03/88	7/18/88	7/18/88	7/20/88	7/20/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL						
Aluminum	P	40	21000	13000	33000	5000	5200	16000 E	5000 E
Antimony	P	12	4.1 N	3.9 N	1.8 N	1.8 U	5.2	2 []	1.9 []
Arsenic	F	2	10 N+	6 N+	14 N+	4 D	40 D	14 +	28 +
Barium	P	40	65	51	94	19	66	56	70
Beryllium	P	1	0.57	0.3 []	0.71	0.13 []	0.59	0.5	0.59
Cadmium	P	1	3	2.1	4.5	0.14 U	0.39	0.13 U*	0.15 U*
Calcium	P	1000	3000	2500	4500	960	3200	2000	3100
Chromium	P	2	36	25	55	10	42	36 NE	46 NE
Cobalt	P	10	14	11	22	4.1	18	17	18
Copper	P	5	254	19	38	7.1	32	25	31
Iron	P	20	36000	25000	55000	10000	9400	33000 E	9100 E
Lead	P/F	1	7.3	4.6	15	1.4	1.6	9.4	15
Magnesium	P	1000	7100	5700	12000	2600	12000	8200	12000
Manganese	P	3	720	330	950	150	730	460	670
Mercury	CV	0.04	0.013 UN	0.012 UN	0.013 UN	0.006 U	0.006 U	0.006 U	0.007 U
Nickel	P	8	29	20	49	7.8	41	35 E	40 E
Potassium	P	1000	5100	4200	7200	1700	5700	4400	5900
Selenium	F	1	0.19 []N	0.24 []N	0.1 UN	0.094 U	0.098 U	0.22 []W	0.26 []W
Silver	P	2	0.25 UN	0.24 UN	0.26 UN	0.2 U	0.21 U	0.18 UN	0.21 UN
Sodium	P	1000	320	340	610	180 []	440	190 []	360
Thallium	F	2	0.051 UN	0.048 UN	0.14 []N	0.044 U	0.16 []	0.18 []	0.15 []
Vanadium	P	10	48	34	70	18	58	47	57
Zinc	P	4	61	47	97	23	82	72	86
Total Cyanide	CN	2	0.32 U	0.3 U	0.32 U	0.31 U	0.33 U	0.28 U	0.33 U
Percent Solids			79.2	82.6	77.5	80	76.8	90.3	76.2
Laboratory Method Blank			MBLK3	MBLK3	MBLK3	BR012	BR012	BR02	BR02
Associated Equipment Blank			SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank			SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	MW01201021	MW01201311	MW01203321	MW01203421	MW01204271	MW01204421	MW012051011	MW01205321
	LAB NUMBER:	8202-024	8202-025	8199-004	8199-005	8199-002	8199-003	8217-024	8199-006
	DATE SAMPLED:	7/18/88	7/18/88	7/17/88	7/17/88	7/17/88	7/17/88	8/03/88	7/14/88
	MATRIX:	SOIL *	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL *
VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	1400 U	13 U	13 U	13 U	13 U	12 U	13 U	1600 U
Bromomethane	10	1400 U	13 U	13 U	13 U	13 U	12 U	13 U	1600 U
Vinyl Chloride	10	1400 U	13 U	13 U	13 U	13 U	12 U	13 U	1600 U
Chloroethane	10	1400 U	13 U	13 U	13 U	13 U	12 U	13 U	1600 U
Methylene Chloride	5	4100 B	52 B	25 B	27 B	33 B	23 B	25 B	3300 B
Acetone	10	3100 B	17 B	5 JB	15 B	10 JB	3 JB	28 B	2200 B
Carbon Disulfide	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
1,1-Dichloroethene	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
1,1-Dichloroethane	5	710 U	6 U	6 U	7	6 U	6 U	6 U	780 U
1,2-Dichloroethene (total)	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
Chloroform	5	710 U	6 U	6 U	6 U	6 U	2 J	6 U	780 U
1,2-Dichloroethane	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
2-Butanone	10	4300 B	13 B	13 U	12 J	13 U	12 U	15 B	3400 B
1,1,1-Trichloroethane	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
Carbon Tetrachloride	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
Vinyl Acetate	10	1400 U	13 U	13 U	13 U	13 U	12 U	13 U	1600 U
Bromodichloromethane	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
1,2-Dichloropropane	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
cis-1,3-Dichloropropene	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
Trichloroethene	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
Dibromochloromethane	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
1,1,2-Trichloroethane	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
Benzene	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
Trans-1,3-Dichloropropene	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
Bromoform	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
4-Methyl-2-Pentanone	10	1400 U	13 U	13 U	13 U	13 U	12 U	13 U	1600 U
2-Hexanone	10	1400 U	13 U	13 U	13 U	13 U	12 U	13 U	1600 U
Tetrachloroethene	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
1,1,2,2-Tetrachloroethane	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
Toluene	5	700 JB	2 J	6 U	3 J	6 U	6 U	6 U	800 B
Chlorobenzene	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
Ethylbenzene	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
Styrene	5	710 U	6 U	6 U	6 U	6 U	6 U	6 U	780 U
Xylenes (Total)	5	710 U	6 U	6 U	7	6 U	6 U	6 U	780 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		88	80	79	78	77	83	78	80
Laboratory Method Blank		C3254	C3223	C3181	C3181	C3181	C3181	C3401	C3277
Associated Equipment Blank		SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX406XX1	SBXX460XX1
Associated Field Blank		SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	-	SWXX101XX1

* = Medium Level Analysis

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	MW01205991	MW01206B121	MW01206B171	MW01206A671	MW01206A771	MW01206A791	MW01207B071	MW01207B121
	LAB NUMBER:	8217-023	8215-006	8215-007	8228-020	8229-003	8229-004	8215-002	8215-001
	DATE SAMPLED:	8/03/88	7/29/88	7/29/88	8/12/88	8/13/88	8/13/88	7/31/88	7/31/88
	MATRIX:	SOIL	SOIL	SOIL *	SOIL	SOIL	SOIL *	SOIL	SOIL *
VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	13 U	13 U	1600 U	13 U	13 U	1600 U	12 U	1800 U
Bromomethane	10	13 U	13 U	1600 U	13 U	13 U	1600 U	12 U	1800 U
Vinyl Chloride	10	13 U	13 U	1600 U	13 U	13 U	1600 U	12 U	1800 U
Chloroethane	10	13 U	13 U	1600 U	13 U	13 U	1600 U	12 U	1800 U
Methylene Chloride	5	20 B	29 B	11000 B	26 B	16 B	17000	27 B	14000 B
Acetone	10	31 B	30 B	3000 B	13 U	13 U	1600 U	22	3800 B
Carbon Disulfide	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
1,1-Dichloroethene	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
1,1-Dichloroethane	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
1,2-Dichloroethene (total)	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
Chloroform	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
1,2-Dichloroethane	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
2-Butanone	10	13 U	17 B	3200	13 U	13 U	1600 U	17 B	4400
1,1,1-Trichloroethane	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
Carbon Tetrachloride	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
Vinyl Acetate	10	13 U	13 U	1600 U	13 U	13 U	1600 U	12 U	1800 U
Bromodichloromethane	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
1,2-Dichloropropane	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
cis-1,3-Dichloropropene	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
Trichloroethene	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
Dibromochloromethane	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
1,1,2-Trichloroethane	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
Benzene	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
Trans-1,3-Dichloropropene	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
Bromoform	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
4-Methyl-2-Pentanone	10	13 U	13 U	1600 U	13 U	13 U	1600 U	12 U	1800 U
2-Hexanone	10	13 U	13 U	1600 U	13 U	13 U	1600 U	12 U	1800 U
Tetrachloroethene	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
1,1,2,2-Tetrachloroethane	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
Toluene	5	6 U	6 U	1100	6 U	6 U	1800	6 U	1200
Chlorobenzene	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
Ethylbenzene	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
Styrene	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
Xylenes (Total)	5	6 U	6 U	790 U	6 U	6 U	820 U	6 U	890 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		80	80	79	79	77	76	83	70
Laboratory Method Blank		C3401	C3367	C3423	C3661	C3636	C3691	C3359	C3423
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		-	SWXX101XX1	SWXX101XX1	-	-	-	SWXX101XX1	SWXX101XX1

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Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	MW012081101	MW012081121	MW01208421	MW01208422	MW01208871	MW01210A141	MW01210A142	MW01210A321
LAB NUMBER:	8225-011	8225-012	8225-006	8225-007	8225-008	8215-003	8215-004	8215-005
DATE SAMPLED:	8/11/88	8/11/88	8/9/88	8/9/88	8/11/88	7/30/88	7/30/88	7/30/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL							
Chloromethane	10	12 U	13 U	13 U	13 U	13 U	13 U	13 U	13 U
Bromomethane	10	12 U	13 U	13 U	13 U	13 U	13 U	13 U	13 U
Vinyl Chloride	10	12 U	13 U	16	13 U	13 U	13 U	13 U	13 U
Chloroethane	10	12 U	13 U	13 U	13 U	13 U	13 U	13 U	13 U
Methylene Chloride	5	25 B	39 B	27 B	30 B	34 B	24 B	27 B	34 B
Acetone	10	12 U	36	13 U	13 U	13 U	12 J	18	12 J
Carbon Disulfide	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene (total)	5	6 U	7 U	27	6 U	6 U	6 U	6 U	6 U
Chloroform	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	10	12 U	13 U	13 U	13 U	13 U	13 U	13 U	13 U
1,1,1-Trichloroethane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Vinyl Acetate	10	12 U	13 U	13 U	13 U	13 U	13 U	13 U	13 U
Bromodichloromethane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
cis-1,3-Dichloropropene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Dibromochloromethane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Benzene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Trans-1,3-Dichloropropene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Bromoform	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
4-Methyl-2-Pentanone	10	12 U	13 U	13 U	13 U	13 U	13 U	13 U	13 U
2-Hexanone	10	12 U	13 U	13 U	13 U	13 U	13 U	13 U	13 U
Tetrachloroethene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Toluene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Chlorobenzene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Ethylbenzene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Styrene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Xylenes (Total)	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		81	76	80	80	80	80	80	80
Laboratory Method Blank		C3605	C3605	C3605	C3605	C3605	C3359	C3359	C3359
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1 SWXX101XX1	SBXX406XX1 SWXX101XX1	SBXX406XX1 SWXX101XX1
Associated Field Blank		-	-	-	-	-			

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Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	MW01211A071	MW01211A171	MW02212141	MW02212161	MW02213071	MW02213271	MW03202061	MW03202161
	LAB NUMBER:	8210-002	8210-001	8202-018	8202-019	8202-031	8202-030	8202-020	8202-021
	DATE SAMPLED:	7/26/88	7/26/88	7/19/88	7/19/88	7/19/88	7/19/88	7/18/88	7/18/88
	MATRIX:	SOIL *	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	1500 U	13 U	13 U	13 U	13 U	13 U	10 U	13 U
Bromomethane	10	1500 U	13 U	13 U	13 U	13 U	13 U	10 U	13 U
Vinyl Chloride	10	1500 U	13 U	13 U	13 U	13 U	13 U	10 U	13 U
Chloroethane	10	1500 U	13 U	13 U	13 U	13 U	13 U	10 U	13 U
Methylene Chloride	5	4700 B	120 B	45 B	45 B	74 B	27 B	49 B	48 B
Acetone	10	3400 B	34 B	19 B	15 B	39 B	78 B	12 B	17 B
Carbon Disulfide	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
1,1-Dichloroethene	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
1,1-Dichloroethane	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
1,2-Dichloroethene (total)	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
Chloroform	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
1,2-Dichloroethane	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
2-Butanone	10	4400 B	12 JB	18 B	20 B	18 B	26 B	17 B	20 B
1,1,1-Trichloroethane	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
Carbon Tetrachloride	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
Vinyl Acetate	10	1500 U	13 U	13 U	13 U	13 U	13 U	10 U	13 U
Bromodichloromethane	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
1,2-Dichloropropane	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
cis-1,3-Dichloropropene	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
Trichloroethene	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
Dibromochloromethane	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
1,1,2-Trichloroethane	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
Benzene	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
Trans-1,3-Dichloropropene	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
Bromoform	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
4-Methyl-2-Pentanone	10	1500 U	13 U	13 U	13 U	13 U	13 U	10 U	13 U
2-Hexanone	10	1500 U	13 U	13 U	13 U	13 U	13 U	10 U	13 U
Tetrachloroethene	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
1,1,2,2-Tetrachloroethane	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
Toluene	5	670 JB	6 U	2 JB	6 U	6 U	6 U	5 U	6 U
Chlorobenzene	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
Ethylbenzene	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
Styrene	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
Xylenes (Total)	5	730 U	6 U	6 U	6 U	6 U	6 U	5 U	6 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		86	78	78	79	79	79	96	79
Laboratory Method Blank		C3254	C3236	C3236	C3236	C3236	C3236	C3236	C3236
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX460XX1	SBXX460XX1	SBXX406XX1	SBXX406XX1	SBXX460XX1	SBXX460XX1
Associated Field Blank		SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

Combined Laboratory Report of Analysis

SAMPLE ID:	MW04405101	MW04405271	MW04406261	MW04406262	MW04406511	MW04407201	MW04407511	MW07704071
LAB NUMBER:	8217-016	8217-017	8229-008	8229-007	8229-006	8229-012	8229-009	8202-026
DATE SAMPLED:	8/01/88	8/01/88	8/14/88	8/14/88	8/14/88	8/14/88	8/14/88	7/19/88
MATRIX:	SOIL	SOIL	SOIL	SOIL *	SOIL	SOIL	SOIL	SOIL

VOLATILE ORGANIC COMPOUNDS

UNITS: ug/l	CRDL								
Chloromethane	10	11 U	13 U	13 U	1600 U	12 U	13 U	12 U	13 U
Bromomethane	10	11 U	13 U	13 U	1600 U	12 U	13 U	12 U	13 U
Vinyl Chloride	10	11 U	13 U	13 U	1600 U	12 U	13 U	12 U	13 U
Chloroethane	10	11 U	13 U	13 U	1600 U	12 U	13 U	12 U	13 U
Methylene Chloride	5	36 B	35 B	16 B	13000	10 B	18 B	17 B	48 B
Acetone	10	32 B	29 B	13 U	5400 B	12 U	13 U	12 U	40 B
Carbon Disulfide	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene (total)	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
Chloroform	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
2-Butanone	10	16	13 U	13 U	1600 U	12 U	13 U	12 U	13 B
1,1,1-Trichloroethane	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
Vinyl Acetate	10	11 U	13 U	13 U	1600 U	12 U	13 U	12 U	13 U
Bromodichloromethane	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
cis-1,3-Dichloropropene	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
Trichloroethene	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
Dibromochloromethane	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
Benzene	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
Trans-1,3-Dichloropropene	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
Bromoform	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
4-Methyl-2-Pentanone	10	11 U	13 U	13 U	1600 U	12 U	13 U	12 U	13 U
2-Hexanone	10	11 U	13 U	13 U	1600 U	12 U	13 U	12 U	13 U
Tetrachloroethene	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
Toluene	5	6 U	6 U	6 U	1500	6 U	6 U	6 U	6 U
Chlorobenzene	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
Ethylbenzene	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
Styrene	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
Xylenes (Total)	5	6 U	6 U	6 U	790 U	6 U	6 U	6 U	6 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		90	79	80	79	81	78	82	79
Laboratory Method Blank		C3389	C3389	C3647	C3706	C3636	C3647	C3647	C3223
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX460XX1
Associated Field Blank		-	-	-	-	-	-	-	SWXX101XX1

* = Medium Level Analysis

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	MW07704121	MW07705121	MW07705171	B08805121	B08805171	MW08807061	MW08807321	MW08808121
LAB NUMBER:	8202-028	8202-022	8202-027	8199-008	8199-009	8199-001	8199-007	8217-015
DATE SAMPLED:	7/19/88	7/18/88	7/18/88	7/15/88	7/15/88	7/15/88	7/15/88	8/03/88
MATRIX:	SOIL	SOIL	SOIL	SOIL *	SOIL *	SOIL *	SOIL *	SOIL
VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL							
Chloromethane	10	14 U	13 U	13 U	1600 U	1500 U	2100 U	1700 U	13 U
Bromomethane	10	14 U	13 U	13 U	1600 U	1500 U	2100 U	1700 U	13 U
Vinyl Chloride	10	14 U	13 U	13 U	1600 U	1500 U	2100 U	1700 U	13 U
Chloroethane	10	14 U	13 U	13 U	1600 U	1500 U	2100 U	1700 U	13 U
Methylene Chloride	5	50 B	35 B	36 B	3300 B	3300 B	8900 B	3800 B	60 B
Acetone	10	82 B	34 B	30 B	1900 B	3400 B	3700 B	2600 B	27 B
Carbon Disulfide	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
1,1-Dichloroethene	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
1,1-Dichloroethane	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
1,2-Dichloroethene (total)	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
Chloroform	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
1,2-Dichloroethane	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
2-Butanone	10	20 B	42 B	22 B	3800 B	5100	5100 B	4100 B	56
1,1,1-Trichloroethane	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
Carbon Tetrachloride	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
Vinyl Acetate	10	14 U	13 U	13 U	1600 U	1500 U	2100 U	1700 U	13 U
Bromodichloromethane	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
1,2-Dichloropropane	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
cis-1,3-Dichloropropene	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
Trichloroethene	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
Dibromochloromethane	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
1,1,2-Trichloroethane	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
Benzene	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
Trans-1,3-Dichloropropene	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
Bromoform	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
4-Methyl-2-Pentanone	10	14 U	13 U	13 U	1600 U	1500 U	2100 U	1700 U	13 U
2-Hexanone	10	14 U	13 U	13 U	1600 U	1500 U	2100 U	1700 U	13 U
Tetrachloroethene	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
1,1,2,2-Tetrachloroethane	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
Toluene	5	7 U	2 J	6 U	730 JB	680 JB	970 JB	750 JB	6 U
Chlorobenzene	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
Ethylbenzene	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
Styrene	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
Xylenes (Total)	5	7 U	6 U	6 U	800 U	770 U	1000 U	860 U	6 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		73	78	80	78	81	60	73	78
Laboratory Method Blank		C3223	C3223	C3223	C3277	C3259	C3254	C3277	C3389
Associated Equipment Blank		SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX406XX1
Associated Field Blank		SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	-

* Medium Level Analysis

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Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	MW08808171	MW08808191	MW08808231	MW09904121	MW09904171
	LAB NUMBER:	8217-012	8217-014	8217-013	8202-023	8202-029
	DATE SAMPLED:	8/03/88	8/03/88	8/03/88	7/18/88	7/18/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL *
VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL					
Chloromethane	10	13 U	13 U	14 U	13 U	1700 U
Bromomethane	10	2 J	13 U	14 U	13 U	1700 U
Vinyl Chloride	10	13 U	13 U	14 U	13 U	1700 U
Chloroethane	10	13 U	13 U	14 U	13 U	1700 U
Methylene Chloride	5	46 B	43 B	39 B	28 B	5000 B
Acetone	10	55 B	44 B	65 B	26 B	3700 B
Carbon Disulfide	5	6 U	6 U	1 J	6 U	840 U
1,1-Dichloroethene	5	6 U	6 U	7 U	6 U	840 U
1,1-Dichloroethane	5	6 U	6 U	7 U	6 U	840 U
1,2-Dichloroethene (total)	5	6 U	6 U	7 U	6	840 U
Chloroform	5	3 J	6 U	7 U	6 U	840 U
1,2-Dichloroethane	5	3 J	6 U	7 U	6 U	840 U
2-Butanone	10	13 U	31	17	72 B	4900 B
1,1,1-Trichloroethane	5	6 U	6 U	7 U	6 U	840 U
Carbon Tetrachloride	5	6 U	6 U	7 U	6 U	840 U
Vinyl Acetate	10	13 U	13 U	14 U	13 U	1700 U
Bromodichloromethane	5	6 U	6 U	7 U	6 U	840 U
1,2-Dichloropropane	5	6 U	6 U	7 U	6 U	840 U
cis-1,3-Dichloropropene	5	6 U	6 U	7 U	6 U	840 U
Trichloroethene	5	6 U	6 U	7 U	6 U	840 U
Dibromochloromethane	5	6 U	6 U	7 U	6 U	840 U
1,1,2-Trichloroethane	5	6 U	6 U	7 U	6 U	840 U
Benzene	5	6 U	6 U	7 U	6 U	840 U
Trans-1,3-Dichloropropene	5	6 U	6 U	7 U	6 U	840 U
Bromoform	5	6 U	6 U	7 U	6 U	840 U
4-Methyl-2-Pentanone	10	13 U	13 U	14 U	13 U	1700 U
2-Hexanone	10	13 U	13 U	14 U	13 U	1700 U
Tetrachloroethene	5	6 U	6 U	7 U	6 U	840 U
1,1,2,2-Tetrachloroethane	5	6 U	6 U	7 U	6 U	840 U
Toluene	5	6 U	6 U	7 U	6 U	790 JB
Chlorobenzene	5	2 J	6 U	7 U	6 U	840 U
Ethylbenzene	5	6 U	6 U	7 U	6 U	840 U
Styrene	5	6 U	6 U	7 U	6 U	840 U
Xylenes (Total)	5	6 U	6 U	7 U	6 U	840 U
Dilution Factor		1	1	1	1	1
Percent Solids		78	77	74	80	74
Laboratory Method Blank		C3377	C3389	C3377	C3223	C3254
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX460XX1	SBXX406XX1
Associated Field Blank		-	-	-	SWXX101XX1	SWXX101XX1

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Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW01201021	MW01201311	MW01203321	MW01203421	MW01204271	MW01204421	MW012051011	MW01205321
LAB NUMBER:	8202-024	8202-025	8199-004	8199-005	8199-002	8199-003	8217-024	8199-006
DATE SAMPLED:	7/18/88	7/18/88	7/17/88	7/17/88	7/17/88	7/17/88	8/3/88	7/14/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS
UNITS: ug/kg

	CRDL								
Phenol	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
bis(2-Chloroethyl)Ether	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
2-Chlorophenol	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
1,3 - Dichlorobenzene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
1,4 - Dichlorobenzene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Benzyl Alcohol	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
1,2 - Dichlorobenzene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
2-Methylphenol	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
bis(2-Chloroisopropyl)Ether	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
4-Methylphenol	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
N-Nitroso-Di-n-Propylamine	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Hexachloroethane	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Nitrobenzene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Isophorone	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
2-Nitrophenol	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
2,4 - Dimethylphenol	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Benzoic Acid	1600	1900 U	2100 U	2100 U	4200 U	2100 U	2000 U	2100 U	4100 U
bis(2-Chloroethoxy)Methane	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
2,4 - Dichlorophenol	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
1,2,4 - Trichlorobenzene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Naphthalene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
4-Chloroaniline	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Hexachlorobutadiene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
4-Chloro-3-Methylphenol	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
2-Methylnaphthalene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Hexachlorocyclopentadiene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
2,4,6 - Trichlorophenol	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
2,4,5 - Trichlorophenol	1600	1900 U	2100 U	2100 U	4200 U	2100 U	2000 U	2100 U	4100 U
2-Chloronaphthalene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
2-Nitroaniline	1600	1900 U	2100 U	2100 U	4200 U	2100 U	2000 U	2100 U	4100 U
Dimethyl Phthalate	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Acenaphthylene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
2,6 - Dinitrotoluene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW01201021	MW01201311	MW01203321	MW01203421	MW01204271	MW01204421	MW01205101	MW01205321
LAB NUMBER:	8202-024	8202-025	8199-004	8199-005	8199-002	8199-003	8217-024	8199-006
DATE SAMPLED:	7/18/88	7/18/88	7/17/88	7/17/88	7/17/88	7/17/88	8/3/88	7/14/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
3-Nitroaniline	1600	1900 U	2100 U	2100 U	4200 U	2100 U	2000 U	2100 U	4100 U
Acenaphthene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
2,4 - Dinitrophenol	1600	1900 U	2100 U	2100 U	4200 U	2100 U	2000 U	2100 U	4100 U
4-Nitrophenol	1600	1900 U	2100 U	2100 U	4200 U	2100 U	2000 U	2100 U	4100 U
Dibenzofuran	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
2,4 - Dinitrotoluene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Diethylphthalate	330	380 U	19 JB	420 U	850 U	430 U	400 U	420 U	830 U
4-Chlorophenyl-Phenylether	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Fluorene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
4-Nitroaniline	1600	1900 U	2100 U	2100 U	4200 U	2100 U	2000 U	2100 U	4100 U
4,6 - Dinitro-2-Methylphenol	1600	1900 U	2100 U	2100 U	4200 U	2100 U	2000 U	2100 U	4100 U
N-Nitrosodiphenylamine (1)	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
4-Bromophenyl-Phenylether	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Hexachlorobenzene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Pentachlorophenol	1600	1900 U	2100 U	2100 U	4200 U	2100 U	2000 U	2100 U	4100 U
Phenanthrene	330	74 J	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Anthracene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Di-n-Butylphthalate	330	1800 B	5500 B	1000 B	960 B	1300 B	690 B	1200 B	1300 B
Fluoranthene	330	140 J	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Pyrene	330	140 J	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Butylbenzylphthalate	330	130 J	410 U	420 U	850 U	430 U	400 U	420 U	830 U
3,3' - Dichlorobenzidine	660	750 U	830 U	840 U	1700 U	860 U	800 U	850 U	1700 U
Benzo (a) Anthracene	330	69 J	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Chrysene	330	180 J	410 U	420 U	850 U	430 U	400 U	420 U	830 U
bis (2-Ethylhexyl) Phthalate	330	1300 B	2200 B	80 J	230 J	140 J	120 J	420 U	830 U
Di-n-Octyl Phthalate	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Benzo (b) Fluoranthene	330	130 J	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Benzo (k) Fluoranthene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Benzo (a) Pyrene	330	83 J	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Indeno (1,2,3-cd) Pyrene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Dibenz (a,h) Anthracene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Benzo (g,h,i,) Perylene	330	380 U	410 U	420 U	850 U	430 U	400 U	420 U	830 U
Dilution Factor		1	1	1	2	1	1	1	2
Percent Solids		88	80	79	78	77	83	78	80

Laboratory Method Blank	A0637	A0637	A0654	A0654	A0654	A0654	A0820	A0654
Associated Equipment Blank	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX406XX1	SBXX460XX1
Associated Field Blank	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	-	SWXX101XX1

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW01205991	MW01206B121	MW01206B171	MW01206A671	MW01206A771	MW01206A791	MW01207B071	MW01207B071
LAB NUMBER:	8217-023	8215-006	8215-007	8228-020	8229-003	8229-004	8215-002	8215-002RE
DATE SAMPLED:	8/3/88	7/29/88	7/29/88	8/12/88	8/13/88	8/13/88	7/31/88	7/31/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS

UNITS: ug/kg	CRDL								
Phenol	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
bis(2-Chloroethyl)Ether	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
2-Chlorophenol	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
1,3 - Dichlorobenzene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
1,4 - Dichlorobenzene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Benzyl Alcohol	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
1,2 - Dichlorobenzene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
2-Methylphenol	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
bis(2-Chloroisopropyl)Ether	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
4-Methylphenol	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
N-Nitroso-Di-n-Propylamine	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Hexachloroethane	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Nitrobenzene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Isophorone	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
2-Nitrophenol	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
2,4 - Dimethylphenol	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Benzoic Acid	1600	2100 U	2100 U	2100 U	2100 U	2100 U	2200 U	2000 U	2000 U
bis(2-Chloroethoxy)Methane	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
2,4 - Dichlorophenol	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
1,2,4 - Trichlorobenzene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Naphthalene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
4-Chloroaniline	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Hexachlorobutadiene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
4-Chloro-3-Methylphenol	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
2-Methylnaphthalene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Hexachlorocyclopentadiene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
2,4,6 - Trichlorophenol	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
2,4,5 - Trichlorophenol	1600	2100 U	2100 U	2100 U	2100 U	2100 U	2200 U	2000 U	2000 U
2-Chloronaphthalene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
2-Nitroaniline	1600	2100 U	2100 U	2100 U	2100 U	2100 U	2200 U	2000 U	2000 U
Dimethyl Phthalate	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Acenaphthylene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
2,6 - Dinitrotoluene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	MW01205991	MW01206B121	MW01206B171	MW01206A671	MW01206A771	MW01206A791	MW01207B071	MW01207B071
LAB NUMBER:	8217-023	8215-006	8215-007	8228-020	8229-003	8229-004	8215-002	8215-002RE
DATE SAMPLED:	8/3/88	7/29/88	7/29/88	8/12/88	8/13/88	8/13/88	7/31/88	7/31/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
3-Nitroaniline	1600	2100 U	2100 U	2100 U	2100 U	2100 U	2200 U	2000 U	2000 U
Acenaphthene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
2,4 - Dinitrophenol	1600	2100 U	2100 U	2100 U	2100 U	2100 U	2200 U	2000 U	2000 U
4-Nitrophenol	1600	2100 U	2100 U	2100 U	2100 U	2100 U	2200 U	2000 U	2000 U
Dibenzofuran	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
2,4 - Dinitrotoluene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Diethylphthalate	330	410 U	410 U	420 U	26 J	430 U	430 U	400 U	400 U
4-Chlorophenyl-Phenylether	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Fluorene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
4-Nitroaniline	1600	2100 U	2100 U	2100 U	2100 U	2100 U	2200 U	2000 U	2000 U
4,6 - Dinitro-2-Methylphenol	1600	2100 U	2100 U	2100 U	2100 U	2100 U	2200 U	2000 U	2000 U
N-Nitrosodiphenylamine (1)	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
4-Bromophenyl-Phenylether	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Hexachlorobenzene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Pentachlorophenol	1600	2100 U	2100 U	2100 U	2100 U	2100 U	2200 U	2000 U	2000 U
Phenanthrene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Anthracene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Di-n-Butylphthalate	330	1100 B	100 JB	76 JB	92 JB	52 JB	110 JB	81 JB	56 JB
Fluoranthene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Pyrene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Butylbenzylphthalate	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
3,3' - Dichlorobenzidine	660	830 U	830 U	860 U	840 U	860 U	870 U	800 U	800 U
Benzo (a) Anthracene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Chrysene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
bis (2-Ethylhexyl) Phthalate	330	140 J	290 J	420 U	130 J	720	450	400 U	400 U
Di-n-Octyl Phthalate	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Benzo (b) Fluoranthene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Benzo (k) Fluoranthene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Benzo (a) Pyrene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Indeno (1,2,3-cd) Pyrene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Dibenz (a,h) Anthracene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Benzo (g,h,i,) Perylene	330	410 U	410 U	420 U	420 U	430 U	430 U	400 U	400 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		80	80	79	79	77	76	83	83

Laboratory Method Blank	A0820	A0779	A0779	SBLK8/24S	SBLK8/24S	SBLK8/24S	A0779	A0779
Associated Equipment Blank	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW012078121	MW012081101	MW012081121	MW01208421	MW01208422	MW01208871	MW01210A141	MW01210A142
LAB NUMBER:	8215-001	8225-011	8225-012	8225-006	8225-007	8225-008	8215-003	8215-004
DATE SAMPLED:	7/31/88	8/11/88	8/11/88	8/9/88	8/9/88	8/11/88	7/30/88	7/30/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
Phenol	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
bis(2-Chloroethyl)Ether	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
2-Chlorophenol	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
1,3 - Dichlorobenzene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
1,4 - Dichlorobenzene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Benzyl Alcohol	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
1,2 - Dichlorobenzene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
2-Methylphenol	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
bis(2-Chloroisopropyl)Ether	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
4-Methylphenol	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
N-Nitroso-Di-n-Propylamine	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Hexachloroethane	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Nitrobenzene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Isophorone	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
2-Nitrophenol	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
2,4 - Dimethylphenol	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Benzoic Acid	1600	2400 U	2000 U	2200 U	2100 U	2100 U	2100 U	2100 U	2100 U
bis(2-Chloroethoxy)Methane	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
2,4 - Dichlorophenol	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
1,2,4 - Trichlorobenzene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Naphthalene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
4-Chloroaniline	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Hexachlorobutadiene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
4-Chloro-3-Methylphenol	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
2-Methylnaphthalene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Hexachlorocyclopentadiene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
2,4,6 - Trichlorophenol	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
2,4,5 - Trichlorophenol	1600	2400 U	2000 U	2200 U	2100 U	2100 U	2100 U	2100 U	2100 U
2-Chloronaphthalene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
2-Nitroaniline	1600	2400 U	2000 U	2200 U	2100 U	2100 U	2100 U	2100 U	2100 U
Dimethyl Phthalate	330	740 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Acenaphthylene	330	740 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
2,6 - Dinitrotoluene	330	740 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	MW01207B121	MW012081101	MW012081121	MW01208421	MW01208422	MW01208871	MW01210A141	MW01210A142
LAB NUMBER:	8215-001	8225-011	8225-012	8225-006	8225-007	8225-008	8215-003	8215-004
DATE SAMPLED:	7/31/88	8/11/88	8/11/88	8/9/88	8/9/88	8/11/88	7/30/88	7/30/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
3-Nitroaniline	1600	2400 U	2000 U	2200 U	2100 U	2100 U	2100 U	2100 U	2100 U
Acenaphthene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
2,4 - Dinitrophenol	1600	2400 U	2000 U	2200 U	2100 U	2100 U	2100 U	2100 U	2100 U
4-Nitrophenol	1600	2400 U	2000 U	2200 U	2100 U	2100 U	2100 U	2100 U	2100 U
Dibenzofuran	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
2,4 - Dinitrotoluene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Diethylphthalate	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
4-Chlorophenyl-Phenylether	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Fluorene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
4-Nitroaniline	1600	2400 U	2000 U	2200 U	2100 U	2100 U	2100 U	2100 U	2100 U
4,6 - Dinitro-2-Methylphenol	1600	2400 U	2000 U	2200 U	2100 U	2100 U	2100 U	2100 U	2100 U
N-Nitrosodiphenylamine (1)	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
4-Bromophenyl-Phenylether	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Hexachlorobenzene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Pentachlorophenol	1600	2400 U	2000 U	2200 U	2100 U	2100 U	2100 U	2100 U	2100 U
Phenanthrene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Anthracene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Di-n-Butylphthalate	330	120 JB	1700 B	1700 B	1900 B	1600 B	1500 B	130 JB	97 JB
Fluoranthene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Pyrene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Butylbenzylphthalate	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
3,3' - Dichlorobenzidine	660	940 U	820 U	870 U	830 U	830 U	830 U	830 U	830 U
Benzo (a) Anthracene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Chrysene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
bis (2-Ethylhexyl) Phthalate	330	470 U	410 U	430 U	410 U	410 U	410 U	350 J	220 J
Di-n-Octyl Phthalate	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Benzo (b) Fluoranthene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Benzo (k) Fluoranthene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Benzo (a) Pyrene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Indeno (1,2,3-cd) Pyrene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Dibenz (a,h) Anthracene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Benzo (g,h,i,) Perylene	330	470 U	410 U	430 U	410 U	410 U	410 U	410 U	410 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		70	81	76	80	80	80	80	80
Laboratory Method Blank		A0779	A0883	A0883	A0883	A0883	A0883	A0779	A0779
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	MW01210A321	MW01211A071	MW01211A171	MW02212141	MW02212161	MW02213071	MW02213271	MW03202061
LAB NUMBER:	8215-005	8210-002	8210-001	8202-018	8202-019	8202-031	8202-030	8202-020
DATE SAMPLED:	7/30/88	7/26/88	7/26/88	7/19/88	7/19/88	7/19/88	7/19/88	7/18/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
Phenol	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
bis(2-Chloroethyl)Ether	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
2-Chlorophenol	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
1,3 - Dichlorobenzene	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
1,4 - Dichlorobenzene	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
Benzyl Alcohol	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
1,2 - Dichlorobenzene	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
2-Methylphenol	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
bis(2-Chloroisopropyl)Ether	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
4-Methylphenol	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
N-Nitroso-Di-n-Propylamine	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
Hexachloroethane	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
Nitrobenzene	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
Isophorone	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
2-Nitrophenol	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
2,4 - Dimethylphenol	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
Benzoic Acid	1600	2100 U	1900 U	2100 U	2100 U	2100 U	2100 U	1700 U
bis(2-Chloroethoxy)Methane	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
2,4 - Dichlorophenol	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
1,2,4 - Trichlorobenzene	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
Naphthalene	330	410 U	9 J	420 U	420 U	420 U	420 U	340 U
4-Chloroaniline	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
Hexachlorobutadiene	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
4-Chloro-3-Methylphenol	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
2-Methylnaphthalene	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
Hexachlorocyclopentadiene	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
2,4,6 - Trichlorophenol	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
2,4,5 - Trichlorophenol	1600	2100 U	1900 U	2100 U	2100 U	2100 U	2100 U	1700 U
2-Chloronaphthalene	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
2-Nitroaniline	1600	2100 U	1900 U	2100 U	2100 U	2100 U	2100 U	1700 U
Dimethyl Phthalate	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
Acenaphthylene	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U
2,6 - Dinitrotoluene	330	410 U	380 U	420 U	420 U	420 U	420 U	340 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW01210A321	MW01211A071	MW01211A171	MW02212141	MW02212161	MW02213071	MW02213271	MW03202061
LAB NUMBER:	8215-005	8210-002	8210-001	8202-018	8202-019	8202-031	8202-030	8202-020
DATE SAMPLED:	7/30/88	7/26/88	7/26/88	7/19/88	7/19/88	7/19/88	7/19/88	7/18/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS

UNITS: ug/kg	CRDL								
3-Nitroaniline	1600	2100 U	1900 U	2100 U	2100 U	2100 U	2100 U	2100 U	1700 U
Acenaphthene	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
2,4 - Dinitrophenol	1600	2100 U	1900 U	2100 U	2100 U	2100 U	2100 U	2100 U	1700 U
4-Nitrophenol	1600	2100 U	1900 U	2100 U	2100 U	2100 U	2100 U	2100 U	1700 U
Dibenzofuran	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
2,4 - Dinitrotoluene	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
Diethylphthalate	330	410 U	380 U	420 U	420 U	14 J	420 U	420 U	19 JB
4-Chlorophenyl-Phenylether	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
Fluorene	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
4-Nitroaniline	1600	2100 U	1900 U	2100 U	2100 U	2100 U	2100 U	2100 U	1700 U
4,6 - Dinitro-2-Methylphenol	1600	2100 U	1900 U	2100 U	2100 U	2100 U	2100 U	2100 U	1700 U
N-Nitrosodiphenylamine (1)	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
4-Bromophenyl-Phenylether	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
Hexachlorobenzene	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
Pentachlorophenol	1600	2100 U	1900 U	2100 U	2100 U	2100 U	2100 U	2100 U	1700 U
Phenanthrene	330	410 U	34 J	420 U	420 U	420 U	420 U	420 U	340 U
Anthracene	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
Di-n-Butylphthalate	330	62 JB	370 JB	240 JB	1500 B	1000 B	1000 B	640 B	1200 B
Fluoranthene	330	410 U	43 J	420 U	420 U	420 U	420 U	420 U	340 U
Pyrene	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
Butylbenzylphthalate	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
3,3' - Dichlorobenzidine	660	830 U	770 U	850 U	850 U	840 U	840 U	840 U	690 U
Benzo (a) Anthracene	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
Chrysene	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
bis (2-Ethylhexyl) Phthalate	330	410 U	260 J	110 J	180 JB	210 JB	98 JB	190 JB	4600 B
Di-n-Octyl Phthalate	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
Benzo (b) Fluoranthene	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
Benzo (k) Fluoranthene	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
Benzo (a) Pyrene	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
Indeno (1,2,3-cd) Pyrene	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
Dibenz (a,h) Anthracene	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
Benzo (g,h,i,) Perylene	330	410 U	380 U	420 U	420 U	420 U	420 U	420 U	340 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		80	86	78	78	79	79	79	96
Laboratory Method Blank		A0779	A0700	A0700	A0655	A0655	A0637	A0637	A0637
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX460XX1	SBXX460XX1	SBXX406XX1	SBXX406XX1	SBXX460XX1
Associated Field Blank		-	-	-	SWXX101XX1	SWXX101XX1	-	-	SWXX101XX1

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW03202161	MW04405101	MW04405271	MW04406261	MW04406262	MW04406511	MW04407201	MW04407511
LAB NUMBER:	8202-021	8217-016	8217-017	8229-008	8229-007	8229-006	8229-012	8229-009
DATE SAMPLED:	7/18/88	8/1/88	8/1/88	8/14/88	8/14/88	8/14/88	8/14/88	8/14/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Phenol	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
bis(2-Chloroethyl)Ether	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
2-Chlorophenol	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
1,3 - Dichlorobenzene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
1,4 - Dichlorobenzene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Benzyl Alcohol	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
1,2 - Dichlorobenzene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
2-Methylphenol	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
bis(2-Chloraisopropyl)Ether	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
4-Methylphenol	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
N-Nitroso-Di-n-Propylamine	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Hexachloroethane	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Nitrobenzene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Isophorone	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
2-Nitrophenol	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
2,4 - Dimethylphenol	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Benzoic Acid	1600	2100 U	1800 U	2100 U	2100 U	2100 U	2000 U	2100 U	2000 U
bis(2-Chloroethoxy)Methane	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
2,4 - Dichlorophenol	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
1,2,4 - Trichlorobenzene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Naphthalene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
4-Chloroaniline	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Hexachlorobutadiene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
4-Chloro-3-Methylphenol	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
2-Methylnaphthalene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Hexachlorocyclopentadiene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
2,4,6 - Trichlorophenol	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
2,4,5 - Trichlorophenol	1600	2100 U	1800 U	2100 U	2100 U	2100 U	2000 U	2100 U	2000 U
2-Chloronaphthalene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
2-Nitroaniline	1600	2100 U	1800 U	2100 U	2100 U	2100 U	2000 U	2100 U	2000 U
Dimethyl Phthalate	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Acenaphthylene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
2,6 - Dinitrotoluene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW03202161	MW04405101	MW04405271	MW04406261	MW04406262	MW04406511	MW04407201	MW04407511
LAB NUMBER:	8202-021	8217-016	8217-017	8229-008	8229-007	8229-006	8229-012	8229-009
DATE SAMPLED:	7/18/88	8/1/88	8/1/88	8/14/88	8/14/88	8/14/88	8/14/88	8/14/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
3-Nitroaniline	1600	2100 U	1800 U	2100 U	2100 U	2100 U	2000 U	2100 U	2000 U
Acenaphthene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
2,4 - Dinitrophenol	1600	2100 U	1800 U	2100 U	2100 U	2100 U	2000 U	2100 U	2000 U
4-Nitrophenol	1600	2100 U	1800 U	2100 U	2100 U	2100 U	2000 U	2100 U	2000 U
Dibenzofuran	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
2,4 - Dinitrotoluene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Diethylphthalate	330	13 JB	370 U	420 U	410 U	420 U	410 U	420 U	400 U
4-Chlorophenyl-Phenylether	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Fluorene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
4-Nitroaniline	1600	2100 U	1800 U	2100 U	2100 U	2100 U	2000 U	2100 U	2000 U
4,6 - Dinitro-2-Methylphenol	1600	2100 U	1800 U	2100 U	2100 U	2100 U	2000 U	2100 U	2000 U
N-Nitrosodiphenylamine (1)	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
4-Bromophenyl-Phenylether	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Hexachlorobenzene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Pentachlorophenol	1600	2100 U	1800 U	2100 U	2100 U	2100 U	2000 U	2100 U	2000 U
Phenanthrene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Anthracene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Di-n-Butylphthalate	330	2200 B	480 B	1100 B	97 JB	83 JB	68 JB	230 JB	81 JB
Fluoranthene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Pyrene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Butylbenzylphthalate	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
3,3' - Dichlorobenzidine	660	840 U	730 U	840 U	830 U	840 U	820 U	850 U	810 U
Benzo (a) Anthracene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Chrysene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
bis (2-Ethylhexyl) Phthalate	330	1000 B	370 U	160 J	410 U	420 U	280 J	420 U	400 U
Di-n-Octyl Phthalate	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Benzo (b) Fluoranthene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Benzo (k) Fluoranthene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Benzo (a) Pyrene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Indeno (1,2,3-cd) Pyrene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Dibenz (a,h) Anthracene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Benzo (g,h,i,) Perylene	330	420 U	370 U	420 U	410 U	420 U	410 U	420 U	400 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		79	90	79	80	79	81	78	82

Laboratory Method Blank	A0637	A0820	A0820	SBLK8/25S	SBLK8/24S	SBLK8/24S	SBLK8/25S	SBLK8/25S
Associated Equipment Blank	SBXX460XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank	SWXX101XX1	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW07704071	MW07704121	MW07705121	MW07705121DL	MW07705171	B08805121	B08805171	MW08807061
LAB NUMBER:	8202-026	8202-028	8202-022	8202-022DL	8202-027	8199-008	8199-009	8199-001
DATE SAMPLED:	7/19/88	7/19/88	7/18/88	7/18/88	7/18/88	7/15/88	7/15/88	7/14/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
Phenol	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
bis(2-Chloroethyl)Ether	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
2-Chlorophenol	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
1,3 - Dichlorobenzene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
1,4 - Dichlorobenzene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Benzyl Alcohol	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
1,2 - Dichlorobenzene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
2-Methylphenol	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
bis(2-Chloroisopropyl)Ether	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
4-Methylphenol	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
N-Nitroso-Di-n-Propylamine	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Hexachloroethane	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Nitrobenzene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Isophorone	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
2-Nitrophenol	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
2,4 - Dimethylphenol	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Benzoic Acid	1600	2100 U	2300 U	2100 U	6300 U	10000 U	2100 U	2000 U	5500 U
bis(2-Chloroethoxy)Methane	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
2,4 - Dichlorophenol	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
1,2,4 - Trichlorobenzene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Naphthalene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
4-Chloroaniline	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Hexacholorobutadiene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
4-Chloro-3-Methylphenol	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
2-Methylnaphthalene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Hexachlorocyclopentadiene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
2,4,6 - Trichlorophenol	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
2,4,5 - Trichlorophenol	1600	2100 U	2300 U	2100 U	6300 U	10000 U	2100 U	2000 U	5500 U
2-Chloronaphthalene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
2-Nitroaniline	1600	2100 U	2300 U	2100 U	6300 U	10000 U	2100 U	2000 U	5500 U
Dimethyl Phthalate	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Acenaphthylene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
2,6 - Dinitrotoluene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW07704071	MW07704121	MW07705121	MW07705121DL	MW07705171	B08805121	B08805171	MW08807061
LAB NUMBER:	8202-026	8202-028	8202-022	8202-022DL	8202-027	8199-008	8199-009	8199-001
DATE SAMPLED:	7/19/88	7/19/88	7/18/88	7/18/88	7/18/88	7/15/88	7/15/88	7/14/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
3-Nitroaniline	1600	2100 U	2300 U	2100 U	6300 U	10000 U	2100 U	2000 U	5500 U
Acenaphthene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
2,4 - Dinitrophenol	1600	2100 U	2300 U	2100 U	6300 U	10000 U	2100 U	2000 U	5500 U
4-Nitrophenol	1600	2100 U	2300 U	2100 U	6300 U	10000 U	2100 U	2000 U	5500 U
Dibenzofuran	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
2,4 - Dinitrotoluene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Diethylphthalate	330	420 U	450 U	420 U	1300 U	2100 U	12 J	13 J	1100 U
4-Chlorophenyl-Phenylether	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Fluorene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
4-Nitroaniline	1600	2100 U	2300 U	2100 U	6300 U	10000 U	2100 U	2000 U	5500 U
4,6 - Dinitro-2-Methylphenol	1600	2100 U	2300 U	2100 U	6300 U	10000 U	2100 U	2000 U	5500 U
N-Nitrosodiphenylamine (1)	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
4-Bromophenyl-Phenylether	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Hexachlorobenzene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Pentachlorophenol	1600	2100 U	2300 U	2100 U	6300 U	10000 U	2100 U	2000 U	5500 U
Phenanthrene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Anthracene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Di-n-Butylphthalate	330	1900 B	870 B	2300 B	2900 B	1700 JB	1200 B	1300 B	1300 B
Fluoranthene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Pyrene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Butylbenzylphthalate	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
3,3' - Dichlorobenzidine	660	840 U	900 U	850 U	2500 U	4200 U	850 U	820 U	2200 U
Benzo (a) Anthracene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Chrysene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
bis (2-Ethylhexyl) Phthalate	330	1300 B	71 JB	15000 BE	14000 B	2100 U	420 U	410 U	160 J
Di-n-Octyl Phthalate	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Benzo (b) Fluoranthene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Benzo (k) Fluoranthene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Benzo (a) Pyrene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Indeno (1,2,3-cd) Pyrene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Dibenz (a,h) Anthracene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Benzo (g,h,i,) Perylene	330	420 U	450 U	420 U	1300 U	2100 U	420 U	410 U	1100 U
Dilution Factor		1	1	1	3	5	1	1	2
Percent Solids		79	73	78	78	80	78	81	60
Laboratory Method Blank		A0637	A0637	A0637	-	A0637	A0655	A0655	A0654
Associated Equipment Blank		SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1	SBXX460XX1
Associated Field Blank		SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	MW08807321	MW08808121	MW08808171	MW08808191	MW08808231	MW09904121	MW09904171
LAB NUMBER:	8199-007	8217-015	8217-012	8217-014	8217-013	8202-023	8202-029
DATE SAMPLED:	7/15/88	8/3/88	8/3/88	8/3/88	8/3/88	7/18/88	7/18/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
Phenol	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
bis(2-Chloroethyl)Ether	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
2-Chlorophenol	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
1,3 - Dichlorobenzene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
1,4 - Dichlorobenzene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Benzyl Alcohol	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
1,2 - Dichlorobenzene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
2-Methylphenol	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
bis(2-Chloroisopropyl)Ether	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
4-Methylphenol	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
N-Nitroso-Di-n-Propylamine	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Hexachloroethane	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Nitrobenzene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Isophorone	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
2-Nitrophenol	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
2,4 - Dimethylphenol	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Benzoic Acid	1600	2300 U	2100 U	2100 U	2100 U	2200 U	2100 U	2200 U
bis(2-Chloroethoxy)Methane	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
2,4 - Dichlorophenol	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
1,2,4 - Trichlorobenzene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Naphthalene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
4-Chloroaniline	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Hexacholorobutadiene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
4-Chloro-3-Methylphenol	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
2-Methylnaphthalene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Hexachlorocyclopentadiene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
2,4,6 - Trichlorophenol	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
2,4,5 - Trichlorophenol	1600	2300 U	2100 U	2100 U	2100 U	2200 U	2100 U	2200 U
2-Chloronaphthalene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
2-Nitroaniline	1600	2300 U	2100 U	2100 U	2100 U	2200 U	2100 U	2200 U
Dimethyl Phthalate	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Acenaphthylene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
2,6 - Dinitrotoluene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:		MW08807321	MW08808121	MW08808171	MW08808191	MW08808231	MW09904121	MW09904171
LAB NUMBER:		8199-007	8217-015	8217-012	8217-014	8217-013	8202-023	8202-029
DATE SAMPLED:		7/15/88	8/3/88	8/3/88	8/3/88	8/3/88	7/18/88	7/18/88
MATRIX:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS								
UNITS: ug/kg	CRDL							
3-Nitroaniline	1600	2300 U	2100 U	2100 U	2100 U	2200 U	2100 U	2200 U
Acenaphthene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
2,4 - Dinitrophenol	1600	2300 U	2100 U	2100 U	2100 U	2200 U	2100 U	220 U
4-Nitrophenol	1600	2300 U	2100 U	2100 U	2100 U	2200 U	2100 U	220 U
Dibenzofuran	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
2,4 - Dinitrotoluene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Diethylphthalate	330	12 J	420 U	420 U	430 U	450 U	410 U	450 U
4-Chlorophenyl-Phenylether	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Fluorene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
4-Nitroaniline	1600	2300 U	2100 U	2100 U	2100 U	2200 U	2100 U	2200 U
4,6 - Dinitro-2-Methylphenol	1600	2300 U	2100 U	2100 U	2100 U	2200 U	2100 U	2200 U
N-Nitrosodiphenylamine (1)	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
4-Bromophenyl-Phenylether	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Hexachlorobenzene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Pentachlorophenol	1600	2300 U	2100 U	2100 U	2100 U	2200 U	2100 U	2200 U
Phenanthrene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Anthracene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Di-n-Butylphthalate	330	1700 B	830 B	400 JB	300 JB	410 JB	2700 B	760 B
Fluoranthene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Pyrene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Butylbenzylphthalate	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
3,3' - Dichlorobenzidine	660	900 U	850 U	850 U	860 U	890 U	830 U	890 U
Benzo (a) Anthracene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Chrysene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
bis (2-Ethylhexyl) Phthalate	330	1200 B	120 J	420 U	430 U	450 U	2500 B	450 U
Di-n-Octyl Phthalate	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Benzo (b) Fluoranthene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Benzo (k) Fluoranthene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Benzo (a) Pyrene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Indeno (1,2,3-cd) Pyrene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Dibenz (a,h) Anthracene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Benzo (g,h,i,) Perylene	330	450 U	420 U	420 U	430 U	450 U	410 U	450 U
Dilution Factor		1	1	1	1	1	1	1
Percent Solids		73	78	78	77	74	80	74
Laboratory Method Blank		A0655	A0820	A0815	A0815	A0815	A0637	A0637
Associated Equipment Blank		SBXX460XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX460XX1	SBXX406XX1
Associated Field Blank		SWXX101XX1	-	-	-	-	SWXX101XX1	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW01201021	MW01201311	MW01203321	MW01203421	MW01204271	MW01204421	MW012051011	MW01205321
LAB NUMBER:	8202-024	8202-025	8199-004	8199-005	8199-002	8199-003	8217-024	8199-006
DATE SAMPLED:	7/18/88	7/18/88	7/17/88	7/17/88	7/17/88	7/17/88	8/03/88	7/17/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

PESTICIDES/PCB COMPOUNDS

UNITS: ug/kg	CRDL							
Alpha-BHC	8	9.1 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Beta-BHC	8	9.1 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Delta-BHC	8	9.1 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Gamma-BHC (Lindane)	8	9.1 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Heptachlor	8	9.1 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aldrin	8	9.1 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Heptachlor Epoxide	8	9.1 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Endosulfan I	8	9.1 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dieldrin	16	18 U	20 U	20 U	21 U	21 U	19 U	21 U	20 U
4,4'-DDE	16	18 U	20 U	20 U	21 U	21 U	19 U	21 U	20 U
Endrin	16	18 U	20 U	20 U	21 U	21 U	19 U	21 U	20 U
Endosulfan II	16	18 U	20 U	20 U	21 U	21 U	19 U	21 U	20 U
4,4'-DDD	16	18 U	20 U	20 U	21 U	21 U	19 U	21 U	20 U
Endosulfan Sulfate	16	18 U	20 U	20 U	21 U	21 U	19 U	21 U	20 U
4,4'-DDT	16	18 U	20 U	20 U	21 U	21 U	19 U	21 U	20 U
Methoxychlor	80	91 U	100 U	100 U	100 U	100 U	96 U	100 U	100 U
Endrin Ketone	16	18 U	20 U	20 U	21 U	21 U	19 U	21 U	20 U
Alpha-Chlordane	80	91 U	100 U	100 U	100 U	100 U	96 U	100 U	100 U
Gamma-Chlordane	80	91 U	100 U	100 U	100 U	100 U	96 U	100 U	100 U
Toxaphene	160	180 U	200 U	200 U	210 U	210 U	190 U	210 U	200 U
Aroclor-1016	80	91 U	100 U	100 U	100 U	100 U	96 U	100 U	100 U
Aroclor-1221	80	91 U	100 U	100 U	100 U	100 U	96 U	100 U	100 U
Aroclor-1232	80	91 U	100 U	100 U	100 U	100 U	96 U	100 U	100 U
Aroclor-1242	80	91 U	100 U	100 U	100 U	100 U	96 U	100 U	100 U
Aroclor-1248	80	91 U	100 U	100 U	100 U	100 U	96 U	100 U	100 U
Aroclor-1254	160	180 U	200 U	200 U	210 U	210 U	190 U	210 U	200 U
Aroclor-1260	160	180 U	200 U	200 U	210 U	210 U	190 U	210 U	200 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		88	80	79	78	77	83	78	80
Laboratory Method Blank		DAAA039	DAAA018	AAA026	AAA026	AAA026	AAA026	SEBB11	AAA026
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	-	SWXX101XX1

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW01205991	MW01206B121	MW01206B171	MW01206A671	MW01206A771	MW01206A791	MW01207B071	MW01207B121
LAB NUMBER:	8217-023	8215-006	8215-007	8228-020	8229-003	8229-004	8215-002	8215-001
DATE SAMPLED:	8/03/88	7/29/88	7/29/88	8/12/88	8/13/88	8/13/88	7/31/88	7/31/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL								
Alpha-BHC	8	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Beta-BHC	8	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Delta-BHC	8	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Gamma-BHC (Lindane)	8	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Heptachlor *	8	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Aldrin	8	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Heptachlor Epoxide	8	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Endosulfan I	8	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Dieldrin	16	20 U	20 U	20 U	20 U	21 U	21 U	22 U	23 U
4,4'-DDE	16	20 U	20 U	20 U	20 U	21 U	21 U	22 U	23 U
Endrin	16	20 U	20 U	20 U	27	33	21 U	22 U	23 U
Endosulfan II	16	20 U	20 U	20 U	20 U	21 U	21 U	22 U	23 U
4,4'-DDD	16	20 U	20 U	20 U	20 U	21 U	21 U	22 U	23 U
Endosulfan Sulfate	16	20 U	20 U	20 U	20 U	21 U	21 U	22 U	23 U
4,4'-DDT	16	20 U	20 U	20 U	20 U	21 U	21 U	22 U	23 U
Methoxychlor	80	100 U	100 U	100 U	100 U	100 U	110 U	110 U	110 U
Endrin Ketone	16	20 U	20 U	20 U	20 U	21 U	21 U	22 U	23 U
Alpha-Chlordane	80	100 U	100 U	100 U	100 U	100 U	110 U	110 U	110 U
Gamma-Chlordane	80	100 U	100 U	100 U	100 U	100 U	110 U	110 U	110 U
Toxaphene	160	200 U	200 U	200 U	200 U	210 U	210 U	220 U	230 U
Aroclor-1016	80	100 U	100 U	100 U	100 U	100 U	110 U	110 U	110 U
Aroclor-1221	80	100 U	100 U	100 U	100 U	100 U	110 U	110 U	110 U
Aroclor-1232	80	100 U	100 U	100 U	100 U	100 U	110 U	110 U	110 U
Aroclor-1242	80	100 U	100 U	100 U	100 U	100 U	110 U	110 U	110 U
Aroclor-1248	80	100 U	100 U	100 U	100 U	100 U	110 U	110 U	110 U
Aroclor-1254	160	200 U	200 U	200 U	200 U	210 U	210 U	220 U	230 U
Aroclor-1260	160	200 U	200 U	200 U	200 U	210 U	210 U	220 U	230 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		80	80	79	79	77	76	73	70
Laboratory Method Blank		SEBB11	PBLKHH	PBLKHH	PBLK00	PBLK00	PBLK00	PBLKAI	PBLKAI
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW012081101	MW012081121	MW01208421	MW01208422	MW01208871	MW01210A141	MW01210A142	MW01210A321
LAB NUMBER:	8225-011	8225-012	8225-006	8225-007	8225-008	8215-003	8215-004	8215-005
DATE SAMPLED:	8/11/88	8/11/88	8/9/88	8/9/88	8/11/88	7/30/88	7/30/88	7/30/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL							
Alpha-BHC	8	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U
Beta-BHC	8	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U
Delta-BHC	8	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U
Gamma-BHC (Lindane)	8	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U
Heptachlor	8	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U
Aldrin	8	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U
Heptachlor Epoxide	8	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U
Endosulfan I	8	10 U	11 U	10 U	10 U	10 U	10 U	10 U	10 U
Dieldrin	16	20 U	21 U	20 U	20 U	20 U	20 U	20 U	20 U
4,4'-DDE	16	20 U	21 U	20 U	20 U	20 U	20 U	20 U	20 U
Endrin	16	20 U	21 U	20 U	20 U	20 U	20 U	20 U	20 U
Endosulfan II	16	20 U	21 U	20 U	20 U	20 U	20 U	20 U	20 U
4,4'-DDD	16	20 U	21 U	20 U	20 U	20 U	20 U	20 U	20 U
Endosulfan Sulfate	16	20 U	21 U	20 U	20 U	20 U	20 U	20 U	20 U
4,4'-DDT	16	20 U	21 U	20 U	20 U	20 U	20 U	20 U	20 U
Methoxychlor	80	99 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U
Endrin Ketone	16	20 U	21 U	20 U	20 U	20 U	20 U	20 U	20 U
Alpha-Chlordane	80	99 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U
Gamma-Chlordane	80	99 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U
Toxaphene	160	200 U	210 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1016	80	99 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U
Aroclor-1221	80	99 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U
Aroclor-1232	80	99 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U
Aroclor-1242	80	99 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U
Aroclor-1248	80	99 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U
Aroclor-1254	160	200 U	210 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1260	160	200 U	210 U	200 U	200 U	200 U	200 U	200 U	200 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		81	76	80	80	80	80	80	80
Laboratory Method Blank		PBLKKK	PBLKKK	PBLKKK	PBLKKK	PBLKKK	PBLKHH	PBLKHH	PBLKHH
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW01211A071	MW01211A171	MW02212141	MW02212161	MW02213071	MW02213271	MW03202061	MW03202161
LAB NUMBER:	8210-002	8210-001	8202-018	8202-019	8202-031	8202-030	8202-020	8202-021
DATE SAMPLED:	7/26/88	7/26/88	7/19/88	7/19/88	7/19/88	7/19/88	7/18/88	7/18/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

PESTICIDES/PCB COMPOUNDS

UNITS: ug/kg	CRDL								
Alpha-BHC	8	9.3	U	10	U	10	U	10	U	10	U	10	U	8.3	U	10	U
Beta-BHC	8	9.3	U	10	U	10	U	10	U	10	U	10	U	8.3	U	10	U
Delta-BHC	8	9.3	U	10	U	10	U	10	U	10	U	10	U	8.3	U	10	U
Gamma-BHC (Lindane)	8	9.3	U	10	U	10	U	10	U	10	U	10	U	8.3	U	10	U
Heptachlor	8	9.3	U	10	U	10	U	10	U	10	U	10	U	8.3	U	10	U
Aldrin	8	9.3	U	10	U	10	U	10	U	10	U	10	U	8.3	U	10	U
Heptachlor Epoxide	8	9.3	U	10	U	10	U	10	U	10	U	10	U	8.3	U	10	U
Endosulfan I	8	9.3	U	10	U	10	U	10	U	10	U	10	U	8.3	U	10	U
Dieldrin	16	19	U	21	U	21	U	20	U	20	U	20	U	17	U	20	U
4,4'-DDE	16	19	U	21	U	21	U	20	U	20	U	20	U	17	U	20	U
Endrin	16	19	U	21	U	21	U	20	U	20	U	20	U	17	U	20	U
Endosulfan II	16	19	U	21	U	21	U	20	U	20	U	20	U	17	U	20	U
4,4'-DDD	16	19	U	21	U	21	U	20	U	20	U	20	U	17	U	20	U
Endosulfan Sulfate	16	19	U	21	U	21	U	20	U	20	U	20	U	17	U	20	U
4,4'-DDT	16	19	U	21	U	21	U	20	U	20	U	20	U	17	U	20	U
Methoxychlor	80	93	U	100	U	100	U	100	U	100	U	100	U	83	U	100	U
Endrin Ketone	16	19	U	21	U	21	U	20	U	20	U	20	U	17	U	20	U
Alpha-Chlordane	80	93	U	100	U	100	U	100	U	100	U	100	U	83	U	100	U
Gamma-Chlordane	80	93	U	100	U	100	U	100	U	100	U	100	U	83	U	100	U
Toxaphene	160	190	U	210	U	210	U	200	U	200	U	200	U	170	U	200	U
Aroclor-1016	80	93	U	100	U	100	U	100	U	100	U	100	U	83	U	100	U
Aroclor-1221	80	93	U	100	U	100	U	100	U	100	U	100	U	83	U	100	U
Aroclor-1232	80	93	U	100	U	100	U	100	U	100	U	100	U	83	U	100	U
Aroclor-1242	80	93	U	100	U	100	U	100	U	100	U	100	U	83	U	100	U
Aroclor-1248	80	93	U	100	U	100	U	100	U	100	U	100	U	83	U	100	U
Aroclor-1254	160	190	U	210	U	210	U	200	U	200	U	200	U	170	U	200	U
Aroclor-1260	160	190	U	210	U	210	U	200	U	200	U	200	U	170	U	200	U
Dilution Factor		1		1		1		1		1		1		1		1	
Percent Solids		86		78		78		79		79		79		96		79	
Laboratory Method Blank		PBLKEE		PBLKEE		ABC011		ABC011		PBLKDD		PBLKDD		DAAA018		BAAA034	
Associated Equipment Blank		SBXX406XX1		SBXX406XX1		SBXX406XX1		SBXX406XX1		SBXX406XX1		SBXX406XX1		SBXX406XX1		SBXX406XX1	
Associated Field Blank		-		-		SWXX101XX1		SWXX101XX1		-		-		SWXX101XX1		SWXX101XX1	

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	MW04405101	MW04405271	MW04406261	MW04406262	MW04406511	MW04407201	MW04407511	MW07704071
LAB NUMBER:	8217-016	8217-017	8229-008	8229-007	8229-006	8229-012	8229-009	8202-026
DATE SAMPLED:	8/01/88	8/01/88	8/14/88	8/14/88	8/14/88	8/14/88	8/14/88	7/19/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL								
Alpha-BHC	8	8.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Beta-BHC	8	8.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Delta-BHC	8	8.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Gamma-BHC (Lindane)	8	8.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Heptachlor	8	8.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Aldrin	8	8.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Heptachlor Epoxide	8	8.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Endosulfan I	8	8.9 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dieldrin	16	18 U	20 U	20 U	20 U	20 U	21 U	20 U	20 U
4,4'-DDE	16	18 U	20 U	20 U	20 U	20 U	21 U	20 U	20 U
Endrin	16	18 U	20 U	20 U	20 U	20 U	21 U	20 U	20 U
Endosulfan II	16	18 U	20 U	20 U	20 U	20 U	21 U	20 U	20 U
4,4'-DDD	16	18 U	20 U	20 U	20 U	20 U	21 U	20 U	20 U
Endosulfan Sulfate	16	18 U	20 U	20 U	20 U	20 U	21 U	20 U	20 U
4,4'-DDT	16	18 U	20 U	20 U	20 U	20 U	21 U	20 U	20 U
Methoxychlor	80	89 U	100 U	100 U	100 U	99 U	100 U	98 U	100 U
Endrin Ketone	16	18 U	20 U	20 U	20 U	20 U	21 U	20 U	20 U
Alpha-Chlordane	80	89 U	100 U	100 U	100 U	99 U	100 U	98 U	100 U
Gamma-Chlordane	80	89 U	100 U	100 U	100 U	99 U	100 U	98 U	100 U
Toxaphene	160	180 U	200 U	200 U	200 U	200 U	210 U	200 U	200 U
Aroclor-1016	80	89 U	100 U	100 U	100 U	99 U	100 U	98 U	100 U
Aroclor-1221	80	89 U	100 U	100 U	100 U	99 U	100 U	98 U	100 U
Aroclor-1232	80	89 U	100 U	100 U	100 U	99 U	100 U	98 U	100 U
Aroclor-1242	80	89 U	100 U	100 U	100 U	99 U	100 U	98 U	100 U
Aroclor-1248	80	89 U	100 U	100 U	100 U	99 U	100 U	98 U	100 U
Aroclor-1254	160	180 U	200 U	200 U	200 U	200 U	210 U	200 U	200 U
Aroclor-1260	160	180 U	200 U	200 U	200 U	200 U	210 U	200 U	200 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		90	79	80	79	81	78	82	79
Laboratory Method Blank		SEAA42A	SEBB11	PBLKQQ	PBLK00	PBLK00	PBLKQQ	PBLKQQ	DAAA018
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		-	-	-	-	-	-	-	SWXX101XX1

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE LOCATION:	MW07704121	MW07705121	MW07705171	B08805121	B08805171	MW08807061	MW08807321	MW08808121
LAB NUMBER:	8202-028	8202-022	8202-027	8199-008	8199-009	8199-001	8199-007	8217-015
DATE SAMPLED:	7/19/88	7/18/88	7/18/88	7/15/88	7/15/88	7/14/88	7/15/88	8/03/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL							
Alpha-BHC	8	11 U	10 U	10 U	10 U	10 U	13 U	11 U	10 U
Beta-BHC	8	11 U	10 U	10 U	10 U	10 U	13 U	11 U	10 U
Delta-BHC	8	11 U	10 U	10 U	10 U	10 U	13 U	11 U	10 U
Gamma-BHC (Lindane)	8	11 U	10 U	10 U	10 U	6 JB	13 U	11 U	10 U
Heptachlor	8	11 U	10 U	10 U	10 U	10 U	13 U	11 U	10 U
Aldrin	8	11 U	10 U	10 U	10 U	10 U	13 U	11 U	10 U
Heptachlor Epoxide	8	11 U	10 U	10 U	10 U	10 U	13 U	11 U	10 U
Endosulfan I	8	11 U	10 U	10 U	10 U	10 U	13 U	11 U	10 U
Dieldrin	16	22 U	21 U	20 U	21 U	20 U	27 U	22 U	21 U
4,4'-DDE	16	22 U	21 U	20 U	21 U	20 U	27 U	22 U	21 U
Endrin	16	22 U	21 U	20 U	21 U	20 U	27 U	22 U	21 U
Endosulfan II	16	22 U	21 U	20 U	21 U	20 U	27 U	22 U	21 U
4,4'-DDD	16	22 U	21 U	20 U	21 U	20 U	27 U	22 U	21 U
Endosulfan Sulfate	16	22 U	21 U	20 U	21 U	20 U	27 U	22 U	21 U
4,4'-DDT	16	22 U	21 U	20 U	21 U	20 U	27 U	22 U	21 U
Methoxychlor	80	110 U	100 U	100 U	100 U	99 U	130 U	110 U	100 U
Endrin Ketone	16	22 U	21 U	20 U	21 U	20 U	27 U	22 U	21 U
Alpha-Chlordane	80	110 U	100 U	100 U	100 U	99 U	130 U	110 U	100 U
Gamma-Chlordane	80	110 U	100 U	100 U	100 U	99 U	130 U	110 U	100 U
Toxaphene	160	220 U	210 U	200 U	210 U	200 U	270 U	220 U	210 U
Aroclor-1016	80	110 U	100 U	100 U	100 U	99 U	130 U	110 U	100 U
Aroclor-1221	80	110 U	100 U	100 U	100 U	99 U	130 U	110 U	100 U
Aroclor-1232	80	110 U	100 U	100 U	100 U	99 U	130 U	110 U	100 U
Aroclor-1242	80	110 U	100 U	100 U	100 U	99 U	130 U	110 U	100 U
Aroclor-1248	80	110 U	100 U	100 U	100 U	99 U	130 U	110 U	100 U
Aroclor-1254	160	220 U	210 U	200 U	210 U	200 U	270 U	220 U	210 U
Aroclor-1260	160	220 U	210 U	200 U	210 U	200 U	270 U	220 U	210 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		73	78	80	78	81	60	73	78
Laboratory Method Blank		DAAA018	DAA018	DAAA018	ABC011	ABC011	AAA026	ABC011	SEAA42A
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	-

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	MW06808171	MW08808191	MW08808231	MW09904121	MW09904171
LAB NUMBER:	8217-012	8217-014	8217-013	8202-023	8202-029
DATE SAMPLED:	8/03/88	8/03/88	8/03/88	7/18/88	7/18/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL

PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL					
Alpha-BHC	8	10 U	10 U	11 U	10 U	11 U
Beta-BHC	8	10 U	10 U	11 U	10 U	11 U
Delta-BHC	8	10 U	10 U	11 U	10 U	11 U
Gamma-BHC (Lindane)	8	10 U	10 U	11 U	10 U	11 U
Heptachlor	8	10 U	10 U	11 U	10 U	11 U
Aldrin	8	10 U	10 U	11 U	10 U	11 U
Heptachlor Epoxide	8	10 U	10 U	11 U	10 U	11 U
Endosulfan I	8	10 U	10 U	11 U	10 U	11 U
Dieldrin	16	21 U	21 U	22 U	20 U	22 U
4,4'-DDE	16	21 U	21 U	22 U	20 U	22 U
Endrin	16	21 U	21 U	22 U	20 U	22 U
Endosulfan II	16	21 U	21 U	22 U	20 U	22 U
4,4'-DDD	16	21 U	21 U	22 U	20 U	22 U
Endosulfan Sulfate	16	21 U	21 U	22 U	20 U	22 U
4,4'-DDT	16	21 U	21 U	22 U	20 U	22 U
Methoxychlor	80	100 U	100 U	110 U	100 U	110 U
Endrin Ketone	16	21 U	21 U	22 U	20 U	22 U
Alpha-Chlordane	80	100 U	100 U	110 U	100 U	110 U
Gamma-Chlordane	80	100 U	100 U	110 U	100 U	110 U
Toxaphene	160	210 U	210 U	220 U	200 U	220 U
Aroclor-1016	80	100 U	100 U	110 U	100 U	110 U
Aroclor-1221	80	100 U	100 U	110 U	100 U	110 U
Aroclor-1232	80	100 U	100 U	110 U	100 U	110 U
Aroclor-1242	80	100 U	100 U	110 U	100 U	110 U
Aroclor-1248	80	100 U	100 U	110 U	100 U	110 U
Aroclor-1254	160	210 U	210 U	220 U	200 U	220 U
Aroclor-1260	160	210 U	210 U	220 U	200 U	220 U
Dilution Factor		1	1	1	1	1
Percent Solids		78	77	74	80	74
Laboratory Method Blank		PBLKII	PBLKII	PBLKII	DAA018	PBLKDD
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		-	-	-	SWXX101XX1	

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	TP03101031	TP03101041	TP03101092	TP03102021	TP03102051	TP03103031	TP03103041	TP04401031
	LAB NUMBER:	8217-010	8217-009	8217-011	8217-008	8217-007	8217-005	8217-006	8228-005
	DATE SAMPLED:	8/03/88	8/03/88	8/03/88	8/03/88	8/03/88	8/03/88	8/03/88	8/12/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	4800	5500	4800	4700	8300	7100	2800	4200
Antimony	P	12	1.5 UN	1.5 UN	2.3 [N	1.7 UN	1.6 UN	1.5 UN	1.5 UN	1.6 UN
Arsenic	F	2	4.4 N+	0.14 [N	2.5 N+	0.11 [N	0.55 [N	1.4 N+	0.17 [N	1.9 N+
Barium	P	40	12	11	15	12	12	18	8.7 [	20 N
Beryllium	P	1	0.31	0.37	0.37	0.5	0.35	0.39	0.21 [	0.28 [N
Cadmium	P	1	0.63	0.58	0.63	0.71	0.76	0.99	0.52	0.73 N
Calcium	P	1000	630	480	560	730	240 [	1100	580	400
Chromium	P	2	6.5	6.4	6.3	6.8	6.98	9.4	4.3	4.1
Cobalt	P	10	4.8	4.4	4.4	5.1	2.7 [	5.2	3.6	1 [
Copper	P	5	5.8	5.8	54.9	6.1	4	7.4	4.4	3.5 N
Iron	P	20	7100	7000	7100	6900	8400	9700	5100	7400
Lead	P/F	1	2.6 N	2.2 N	82	2.8 N	7.6 N	5.5 N	2.2 N	11 N
Magnesium	P	1000	1800	1400	1300	1600	780	2300	1200	300
Manganese	P	3	190 N	210 N	170	170 N	120 N	160 N	120 N	130
Mercury	CV	0.04	0.01 U	0.011 U	0.011 UN	0.013	0.044	0.025	0.01 U	0.038
Nickel	P	8	7.6	6.9	7.6	7.1	4.4	9.1	6	2.4 N
Potassium	P	1000	740	490	650	650	240 [	970	520	190 [
Selenium	F	1	0.21 [N	0.19 [N	0.19 [N	0.3 N	0.21 [N	0.88 UN	0.12 [N	0.09 UN
Silver	P	2	0.21 UN	0.21 UN	0.21 UN	0.24 UN	0.23 UN	0.22 UN	0.21 UN	0.23 UN
Sodium	P	1000	67 [	48 [	55 [	57 [	326 [	85 [	51 [	44 [
Thallium	F	2	0.042 UN	0.042 UN	0.042 UN	0.047 UN	0.047 UN	0.044 UN	0.042 UN	0.045 UN
Vanadium	P	10	10	11	12	11	13	21	7.6	13 N
Zinc	P	4	15	14	16	16	12	45	12	8.5 N
Total Cyanide	CM	2	0.26 U	0.26 U	0.26 U	0.3 U	0.29 U	0.28 U	0.26 U	0.28 U
Percent Solids			95.5	95	94.5	84.7	86.0	90.8	96.2	88.6
Laboratory Method Blank			MBLK1	MBLK1	MBLK1	MBLK1	MBLK1	MBLK1	MBLK1	MBLK2

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	TP04401032	TP04402041	TP07701031	TP07701071	TP07702021	TP07702061	TP07703021	TP07704051
	LAB NUMBER:	8228-018	8228-003	8217-001	8217-003	8217-002	8217-004	8228-006	8228-012
	DATE SAMPLED:	8/12/88	8/12/88	8/02/88	8/02/88	8/02/88	8/02/88	8/12/88	8/12/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	4600	7200	6600	4500	9200	3300	5700	4400
Antimony	P	12	1.6 U	1.8 UN	2.1 UN	2.1 [N	1.9 UN	2.2 [N	1.7 UN	2.8 [
Arsenic	F	2	0.56 [N	8.4 N+	0.5 [N	0.18 [N	0.63 [N	0.08 [N	1.9 N	3.2 N+
Barium	P	40	24	28 N	340	12 [	19	14	14 N	9.9 [
Beryllium	P	1	0.22 [	0.38 N	0.45	0.5	0.4	0.19 [	0.24 [N	0.25 [
Cadmium	P	1	1.2	1.2 N	3.3	1	5.8	0.57	2.3 N	0.61
Calcium	P	1000	440	830	1300	1400	580	5430	500	580
Chromium	P	2	6.3	14	14	8.3	10	4.6	5.9	7.3
Cobalt	P	10	1.6 [	6.7	3.9	4.2	3.4	3 [	1.9 [	2.8 [
Copper	P	5	5	10 N	31	6.6	7.4	5.6	5.1 N	5
Iron	P	20	12000	11000	7400	9600	9700	5100	5800	7000
Lead	P/F	1	4.9	3.3 N	74 N	2 N+	8.6 N	1.9 N	7.6 N	1.4 U
Magnesium	P	1000	360	2500	1400	1900	1200	1400	640	1300
Manganese	P	3	100	180	120 N	100 N	88 N	72 N	52	72
Mercury	CV	0.04	0.025	0.013 U	0.21	0.13 U	0.06	0.013 U	0.46	0.012 U
Nickel	P	8	3.5	11 N	8.8	6.5	7.6	4.7	3.7 N	5.8
Potassium	P	1000	220 [	1500	710	860	590	750	330	620
Selenium	F	1	0.11 [N	0.1 UN	0.12 UN	0.1 UN	0.11 UN	0.1 UN	0.096 UN	0.098 UN
Silver	P	2	0.22 UN	0.25 UN	0.3 UN	0.44 [N	0.27 UN	0.25 UN	0.24 UN	0.25 UN
Sodium	P	1000	56 [	79 [	120 [	85 [	54 [	48 [	54 [	47 [
Thallium	F	2	0.045 UN	0.05 UN	0.061 UN	0.05 UN	0.053 UN	0.51 UN	0.048 UN	0.12 [N
Vanadium	P	10	15	22 N	14	17	16	6.2	10 N	11
Zinc	P	4	12	25 N	110	17	93	14	22 N	15
Total Cyanide	CM	2	0.28 U	0.31 U	0.38 U	0.31 U	0.33 U	0.32 U	0.3 U	0.31 U
Percent Solids			88.9	79.6	66.1	79.8	75.4	78.7	83.2	81.4
Laboratory Method Blank			MBLK2	MBLK2	MBLK1	MBLK1	MBLK1	MBLK1	MBLK2	MBLK2

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	TP07705021	TP07705051	TP07705071	TP07705072	TP07707071	TP09901011	TP09901091	TP09901092
	LAB NUMBER:	8228-007	8228-019	8228-004	8228-017	8228-014	8217-018	8217-019	8217-020
	DATE SAMPLED:	8/12/88	8/12/88	8/12/88	8/12/88	8/12/88	8/03/88	8/03/88	8/03/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	7200	4500	3800	4400	4000	7000	9700	8100
Antimony	P	12	1.8 UN	1.6 U	1.8 UN	1.8 U	1.6 U	2.9 [ ]N	2 UN	1.7 UN
Arsenic	F	2	3.6 N+	0.6 N	0.58 [ ]N+	2.8 N+	1.1 N	0.42 [ ]N+	6.3 N+	5.9 N+
Barium	P	40	24 N	15	11 [ ]N	13	11 [ ]	15	31	20
Beryllium	P	1	0.32 N	0.64	0.25 [ ]N	0.25 [ ]	0.213 [ ]	0.25 [ ]	0.21 [ ]	0.12 [ ]
Cadmium	P	1	0.83 N	1.3	0.57 N	0.76	0.68	0.74	1.3	1
Calcium	P	1000	1100	560	520	790	550	480	1000	850
Chromium	P	2	9.5	8.2	6	7.1	6.8	5.3	14	10
Cobalt	P	10	4	3.6	3 [ ]	3.8	2.3 [ ]	1.4 [ ]	6.2	4.3
Copper	P	5	5.7	5.9	5.2 N	6	5.1	3.7	8.9	6.4
Iron	P	20	9300	7900	6300	7800	7100	8400	14000	10000
Lead	P/F	1	11 N	2.4	2.6 N	3.4	1.7	7.8	2.6	7.1
Magnesium	P	1000	1400	1500	1300	1600	1300	460	3300	2000
Manganese	P	3	150	92	75	94	72	51	180	130
Mercury	CV	0.04	0.024	0.012 U	0.013 U	0.013 U	0.011 U	0.037 N	0.014 UN	0.012 UN
Nickel	P	8	6.5 N	6.8	6.1 N	6.3	5.6	3.3	11	7
Potassium	P	1000	790	890	780	880	800	240 [ ]	2000	1200
Selenium	F	1	0.1 UN	0.093 UN	0.1 UN	0.1 UN	0.091 UN	0.27 [ ]N	0.28 [ ]N	0.25 [ ]N
Silver	P	2	0.25 UN	0.23 N	0.25 UN	0.25 UN	0.23 UN	0.25 UN	0.28 UN	0.25 UN
Sodium	P	1000	70 [ ]	49 [ ]	50 [ ]	62 [ ]	46 [ ]	53 [ ]	130 [ ]	92 [ ]
Thallium	F	2	0.051 UN	0.046 UN	0.11 [ ]N	0.13 [ ]N	0.11 [ ]N	0.049 UN	0.056 UN	0.049 UN
Vanadium	P	10	16 N	14	9.9 N	13	12	13	25	18
Zinc	P	4	22 N	17	15 N	17	15	11	29	20
Total Cyanide	CM	2	0.32 U	0.29 U	0.32 U	0.31 U	0.28 U	0.31 U	0.35 U	0.31 U
Percent Solids			78.7	86.4	79.3	79.4	88.1	81.3	71.0	81.0
Laboratory Method Blank			MBLK2	MBLK2	MBLK2	MBLK2	MBLK2	MBLK1	MBLK1	MBLK1

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	TP09902021	TP09902081
LAB NUMBER:	8217-021	8217-022
DATE SAMPLED:	8/03/88	8/03/88
MATRIX:	SOIL	SOIL

METALS COMPOUNDS UNITS: mg/kg	ANALYTICAL METHOD	CRDL				
Aluminum	P	40	6100		26000	
Antimony	P	12	1.5	UN	2	UN
Arsenic	F	2	3.3	N+	16	NS
Barium	P	40	12		82	
Beryllium	P	1	0.32		0.9	
Cadmium	P	1	0.86		4.2	
Calcium	P	1000	450		3200	
Chromium	P	2	8.8		49	
Cobalt	P	10	3.8		17	
Copper	P	5	5		29	
Iron	P	20	9200		45000	
Lead	P/F	1	2.2		10	
Magnesium	P	1000	1500		8100	
Manganese	P	3	130		660	
Mercury	CV	0.04	0.011	UN	0.013	UN
Nickel	P	8	7.1		39	
Potassium	P	1000	830		5800	
Selenium	F	1	0.23	UN	0.1	UN
Silver	P	2	0.21	UN	0.26	UN
Sodium	P	1000	54	U	390	
Thallium	F	2	0.043	UN	0.051	UN
Vanadium	P	10	15		62	
Zinc	P	4	16		80	
Total Cyanide	CM	2	0.27	U	0.32	U
Percent Solids			93.2		78.2	
Laboratory Method Blank			MBLK1		MBLK3	

Click Here to Return to Main Index

Combined Laboratory Report
of Anlaysis

SAMPLE LOCATION:	TP03101031	TP03101041	TP03101092	TP03102021	TP03102051	TP03102051	TP03103031	TP03103031
LAB NUMBER:	8217-010	8217-009	8217-011	8217-008	8217-007	8217-007RE	8217-005	8217-005RE
DATE SAMPLED:	8/03/88	8/03/88	8/03/88	8/3/88	8/3/88	8/3/88	8/3/88	8/3/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL *	SOIL	SOIL *

VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Chloromethane	10	11	U	11	U	11	U	11	U	12	U	1500	U	13	U	1500	U
Bromomethane	10	11	U	11	U	11	U	11	U	12	U	1500	U	13	U	1500	U
Vinyl Chloride	10	11	U	11	U	11	U	11	U	12	U	1500	U	13	U	1500	U
Chloroethane	10	11	U	11	U	11	U	11	U	12	U	1500	U	13	U	1500	U
Methylene Chloride	5	56	B	57	B	40	B	41	B	53	B	12000	BD	27	B	12000	BD
Acetone	10	12	B	16	B	12	B	18	B	15	B	1500	U	20	B	3100	BD
Carbon Disulfide	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
1,1 - Dichloroethene	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
1,1 - Dichloroethane	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
1,2 - Dichloroethene (Total)	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
Chloroform	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
1,2 - Dichloroethane	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
2-Butanone	10	14		12		11	U	11	U	12	U	3200	D	13	U	1500	U
1,1,1 - Trichloroethane	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
Carbon Tetrachloride	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
Vinyl Acetate	10	11	U	11	U	11	U	11	U	12	U	1500	U	13	U	1500	U
Bromodichloromethane	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
1,2 - Dichloropropane	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
cis-1,3-Dichloropropene	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
Trichloroethene	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
Dibromochloromethane	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
1,1,2 - Trichloroethane	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
Benzene	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
trans-1,3-Dichloropropene	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
Bromoform	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
4-Methyl-2-Pentanone	10	11	U	11	U	11	U	11	U	12	U	1500	U	13	U	1500	U
2-Hexanone	10	11	U	11	U	11	U	11	U	12	U	1500	U	13	U	1500	U
Tetrachloroethene	5	6		6	U	5	U	5	U	6	U	750	U	7	U	750	U
1,1,2,2 - Tetrachloroethane	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
Toluene	5	5	U	6	U	5	U	5	U	6	U	1000	D	7	U	990	D
Chlorobenzene	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
Ethylbenzene	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
Styrene	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
Total Xylenes	5	5	U	6	U	5	U	5	U	6	U	750	U	7	U	750	U
Dilution Factor		1		1		1		1		1		1		1		1	
Percent Solid		95		90		94		95		83		83		76		83	
Laboratory Method Blank		C3377		C3377		C3377		C3377		C3377		C3423		C3367		C3423	
Associated Equipment Blank		SBXX406XX1		SBXX406XX1		SBXX406XX1		SBXX406XX1		SBXX406XX1		SBXX406XX1		SBXX406XX1		SBXX406XX1	
Associated Field Blank		*		*		*		SWXX101XX1		SWXX101XX1		SWXX101XX1		SWXX101XX1		SWXX101XX1	

* = Medium Level Analysis

Click Here to Return to Main Index

Combined Laboratory Report
of Aniaysis

SAMPLE LOCATION:	TP3103041	TP04401031	TP04401032	TP04402041	TP04403011	TP07701031	TP07701031	TP07701071
LAB NUMBER:	8217-006	8228-005	8228-018	8228-003	8228-013	8217-001	8217-001RE	8217-003
DATE SAMPLED:	8/3/88	8/12/88	8/12/88	8/12/88	8/12/88	; 8/2/88	8/2/88	8/2/88
MATRIX:	SOIL	SOIL *	SOIL	SOIL *	SOIL	SOIL	SOIL *	SOIL

VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Chloromethane	10	11 U	1400 U	15 U	1500 U	11 U	16 U	2000 U	13 U
Bromomethane	10	11 U	1400 U	15 U	1500 U	11 U	16 U	2000 U	13 U
Vinyl Chloride	10	11 U	1400 U	15 U	1500 U	11 U	16 U	2000 U	13 U
Chloroethane	10	11 U	1400 U	15 U	1500 U	11 U	16 U	2000 U	13 U
Methylene Chloride	5	20 B	13000	41 B	14000	28 B	38 B	15000 BD	24 B
Acetone	10	23 B	3900	15 U	1500 U	11 U	27 B	4000 BD	14 B
Carbon Disulfide	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
1,1 - Dichloroethene	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
1,1 - Dichloroethane	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
1,2 - Dichloroethene (Total)	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
Chloroform	5	5 U	700 U	7 U	480 J	6 U	8 U	980 U	6 U
1,2 - Dichloroethane	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
2-Butanone	10	18 B	9600	15 U	1500 U	11 U	16 U	2000 U	18 B
1,1,1 - Trichloroethane	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
Carbon Tetrachloride	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
Vinyl Acetate	10	11 U	1400 U	15 U	1500 U	11 U	16 U	2000 U	13 U
Bromodichloromethane	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
1,2 - Dichloropropane	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
cis-1,3-Dichloropropene	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
Trichloroethene	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
Dibromochloromethane	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
1,1,2 - Trichloroethane	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
Benzene	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
trans-1,3-Dichloropropene	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
Bromoform	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
4-Methyl-2-Pentanone	10	11 U	1400 U	15 U	1500 U	11 U	16 U	2000 U	13 U
2-Hexanone	10	11 U	1400 U	15 U	1500 U	11 U	16 U	2000 U	13 U
Tetrachloroethene	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
1,1,2,2 - Tetrachloroethane	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
Toluene	5	5 U	1300	7 U	1500	6 U	8 U	1300 D	6 U
Chlorobenzene	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
Ethylbenzene	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
Styrene	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
Total Xylenes	5	5 U	700 U	7 U	740 U	6 U	8 U	980 U	6 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		94	89	67	84	87	64	64	78
Laboratory Method Blank		C3367	C3691	C3616	C3691	C3616	C3367	C3423	C3367
Associated Equipment Blank		SBXX406XX1	-	-	-	-	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		SWXX101XX1	-	-	-	-	SWXX101XX1	SWXX101XX1	SWXX101XX1

Medium Level Analysis

Click Here to Return to Main Index

Combined Laboratory Report
of Anlaysis

SAMPLE LOCATION:	TP07702021	TP07702021	TP07702061	TP07703021	TP07704051	TP07705021	TP07705051	TP07705071
LAB NUMBER:	8217-002	8217-002RE	8217-004	8228-006	8228-012	8228-007	8228-019	8228-004
DATE SAMPLED:	8/2/88	8/2/88	8/2/88	8/12/88	8/12/88	8/12/88	8/12/88	8/12/88
MATRIX:	SOIL	SOIL *	SOIL	SOIL *	SOIL *	SOIL	SOIL *	SOIL

VOLATILE ORGANIC COMPOUNDS
UNITS: ug/kg

	CROL								
Chloromethane	10	13 U	1700 U	13 U	1600 U	1600 U	12 U	1600 U	12 U
Bromomethane	10	13 U	1700 U	13 U	1600 U	1600 U	12 U	1600 U	12 U
Vinyl Chloride	10	13 U	1700 U	13 U	1600 U	1600 U	12 U	1600 U	12 U
Chloroethene	10	13 U	1700 U	13 U	1600 U	1600 U	12 U	1600 U	12 U
Methylene Chloride	5	38 B	13000 BD	23 B	14000	12000	27 B	17000	29 B
Acetone	10	11 JB	1700 U	13 U	1600 U	4800 B	6 JB	1600 U	8 JB
Carbon Disulfide	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
1,1 - Dichloroethene	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
1,1 - Dichloroethane	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
1,2 - Dichloroethene (Total)	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
Chloroform	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
1,2 - Dichloroethane	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
2-Butanone	10	13 U	4300 BD	13 U	1600 U	1600 U	12 U	9000	12 U
1,1,1 - Trichloroethane	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
Carbon Tetrachloride	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
Vinyl Acetate	10	13 U	1700 U	13 U	1600 U	1600 U	12 U	1600 U	12 U
Bromodichloromethane	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
1,2 - Dichloropropane	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
cis-1,3-Dichloropropene	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
Trichloroethene	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
Dibromochloromethane	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
1,1,2 - Trichloroethane	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
Benzene	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
trans-1,3-Dichloropropene	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
Bromoform	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
4-Methyl-2-Pentanone	10	13 U	1700 U	13 U	1600 U	1600 U	12 U	1600 U	12 U
2-Hexanone	10	13 U	1700 U	13 U	1600 U	1600 U	12 U	1600 U	12 U
Tetrachloroethene	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
1,1,2,2 - Tetrachloroethane	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
Toluene	5	7 U	1100 D	6 U	1500	780 U	6 U	1900	6 U
Chlorobenzene	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
Ethylbenzene	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
Styrene	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
Total Xylenes	5	7 U	830 U	6 U	800 U	780 U	6 U	800 U	6 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		75	75	78	78	80	83	78	81
Laboratory Method Blank		C3367	C3423	C3367	C3706	C3706	C3616	C3691	C3616
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	-	-	-	-	-
Associated Field Blank		SWXX101XX1	SWXX101XX1	SWXX101XX1	-	-	-	-	-

* = Medium Level Analysis

Click Here to Return to Main Index

Combined Laboratory Report
of Anlaysis

SAMPLE LOCATION:	TP07705072	TP07707071	TP09901011	TP09901011	TP09901091	TP09901092	TP09902021	TP09902081
LAB NUMBER:	8228-017	8228-014	8217-018	8217-018RE	8217-019	8217-020	8217-021	8217-022
DATE SAMPLED:	8/12/88	8/12/88	8/03/88	8/03/88	8/03/88	8/03/88	8/03/88	8/03/88
MATRIX:	SOIL *	SOIL	SOIL	SOIL *	SOIL	SOIL *	SOIL	SOIL

VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Chloromethane	10	1600 U	12 U	13 U	1600 U	13 U	1600 U	11 U	13 U
Bromomethane	10	1600 U	12 U	13 U	1600 U	13 U	1600 U	11 U	13 U
Vinyl Chloride	10	1600 U	12 U	13 U	1600 U	13 U	1600 U	11 U	13 U
Chloroethane	10	1600 U	12 U	13 U	1600 U	13 U	1600 U	11 U	13 U
Methylene Chloride	5	13000	30 B	56 B	16000 BD	15 B	16000 B	11 B	21 B
Acetone	10	1600 U	12 U	25 B	2300 BD	66 B	1600 U	13 B	20 B
Carbon Disulfide	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
1,1 - Dichloroethene	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
1,1 - Dichloroethane	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
1,2 - Dichloroethene (Total)	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
Chloroform	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
1,2 - Dichloroethane	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
2-Butanone	10	1600 U	12 U	13 U	2500 BD	13 U	4500	16	14 B
1,1,1 - Trichloroethane	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
Carbon Tetrachloride	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
Vinyl Acetate	10	1600 U	12 U	13 U	1600 U	13 U	1600 U	11 U	13 U
Bromodichloromethane	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
1,2 - Dichloropropane	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
cis-1,3-Dichloropropene	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
Trichloroethene	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
Dibromochloromethane	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
1,1,2 - Trichloroethane	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
Benzene	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
trans-1,3-Dichloropropene	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
Bromoform	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
4-Methyl-2-Pentanone	10	1600 U	12 U	13 U	1600 U	13 U	1600 U	11 U	13 U
2-Hexanone	10	1600 U	12 U	13 U	1600 U	13 U	1600 U	11 U	13 U
Tetrachloroethene	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
1,1,2,2 - Tetrachloroethane	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
Toluene	5	1200	6 U	6 U	1100 D	6 U	800 U	5 U	6 U
Chlorobenzene	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
Ethylbenzene	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
Styrene	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
Total Xylenes	5	780 U	6 U	6 U	780 U	6 U	800 U	5 U	6 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		80	82	80	80	77	78	94	78
Laboratory Method Blank		C3691	C3616	C3389	C3423	C3401	C3423	C3401	C3401
Associated Equipment Blank		-	-	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		-	-	-	-	-	-	-	-

* = Medium Level Analysis

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	TP03101031	TP03101041	TP03101092	TP03102021	TP03102051	TP03103031	TP03103031	TP03103041
	LAB NUMBER:	8217-010	8217-009	8217-011	8217-008	8217-007	8217-005	8217-005RE	8217-006
	DATE SAMPLED:	8/3/88	8/3/88	8/3/88	8/3/88	8/3/88	8/3/88	8/3/88	8/3/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Phenol	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
bis(2-Chloroethyl)ether	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
2-Chlorophenol	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
1,3-Dichlorobenzene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
1,4-Dichlorobenzene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Benzyl Alcohol	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
1,2-Dichlorobenzene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
2-Methylphenol	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
bis(2-chloroisopropyl)Ether	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
4-Methylphenol	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
N-Nitroso-Di-n-Propylamine	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Hexachloroethane	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Nitrobenzene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Isophorone	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
2-Nitrophenol	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
2,4-Dimethylphenol	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Benzoic Acid	1600	1700 U	1800 U	1800 U	1700 U	16 J	2200 U	2200 U	1800 U
bis(2-Chloroethoxy)Methane	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
2,4-Dichlorophenol	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
1,2,4-Trichlorobenzene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Naphthalene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
4-Chloroaniline	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Hexacholorobutadiene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
4-Chloro-3-Methylphenol	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
2-Methylnaphthalene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Hexachlorocyclopentadiene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
2,4,6-Trichlorophenol	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
2,4,5-Trichlorophenol	1600	1700 U	1800 U	1800 U	1700 U	2000 U	2200 U	2200 U	1800 U
2-Chloronaphthalene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
2-Nitroaniline	1600	1700 U	1800 U	1800 U	1700 U	2000 U	2200 U	2200 U	1800 U
Dimethyl Phthalate	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Acenaphthylene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
2,6-Dinitrotoluene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	TP03101031	TP03101041	TP03101092	TP03102021	TP03102051	TP03103031	TP03103031	TP03103041
	LAB NUMBER:	8217-010	8217-009	8217-011	8217-008	8217-007	8217-005	8217-005RE	8217-006
	DATE SAMPLED:	8/3/88	8/3/88	8/3/88	8/3/88	8/3/88	8/3/88	8/3/88	8/3/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
3-Nitroaniline	1600	1700 U	1800 U	1800 U	1700 U	2000 U	2200 U	2200 U	1800 U
Acenaphthene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
2,4-Dinitrophenol	1600	1700 U	1800 U	1800 U	1700 U	2000 U	2200 U	2200 U	1800 U
4-Nitrophenol	1600	1700 U	1800 U	1800 U	1700 U	2000 U	2200 U	2200 U	1800 U
Dibenzofuran	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
2,4-Dinitrotoluene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Diethylphthalate	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
4-Chlorophenyl-phenylether	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Fluorene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
4-Nitroaniline	1600	1700 U	1800 U	1800 U	1700 U	2000 U	2200 U	2200 U	1800 U
4,6-Dinitro-2-Methylphenol	1600	1700 U	1800 U	1800 U	1700 U	2000 U	2200 U	2200 U	1800 U
N-Nitrosodiphenylamine	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
4-Bromophenyl-phenylether	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Hexachlorobenzene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Pentachlorophenol	1600	1700 U	1800 U	1800 U	1700 U	2000 U	2200 U	2200 U	1800 U
Phenanthrene	330	350 U	370 U	350 U	350 U	400 U	190 J	130 J	350 U
Anthracene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Di-n-Butylphthalate	330	290 JB	140 JB	390 B	89 JB	160 JB	180 JB	150 JB	170 JB
Fluoranthene	330	65 J	370 U	350 U	350 U	400 U	470	450	350 U
Pyrene	330	350 U	370 U	350 U	350 U	400 U	420 J	320 J	350 U
Butylbenzylphthalate	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
3,3'-Dichlorobenzidine	660	690 U	730 U	700 U	690 U	800 U	870 U	870 U	700 U
Benzo(a)Anthracene	330	350 U	370 U	350 U	350 U	400 U	200 J	210 J	350 U
Chrysene	330	350 U	370 U	350 U	350 U	400 U	470	430 J	350 U
bis(2-Ethylhexyl)Phthalate	330	190 J	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Di-n-Octyl Phthalate	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Benzo(b)Fluoranthene	330	350 U	370 U	350 U	350 U	400 U	380 J	430 J	350 U
Benzo(k)Fluoranthene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Benzo(a)Pyrene	330	350 U	370 U	350 U	350 U	400 U	200 J	230 J	350 U
Indeno(1,2,3-cd)Pyrene	330	350 U	370 U	350 U	350 U	400 U	130 J	140 J	350 U
Dibenz(a,h)Anthracene	330	350 U	370 U	350 U	350 U	400 U	430 U	430 U	350 U
Benzo(g,h,i,)Perylene	330	350 U	370 U	350 U	350 U	400 U	430 U	290 J	350 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		95	90	94	95	83	76	76	94
Laboratory Method Blank		A0815	A0815	A0815	A0815	A0815	A0815	A0815	A0815
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	TP04401031	TP04401031	TP04401032	TP04402041	TP04402041	TP04403011	TP07701031	TP07701071
	LAB NUMBER:	8228-005	8228-005REDL	8228-018	8228-003	8228-003REDL	8228-013	8217-001	8217-003
	DATE SAMPLED:	8/12/88	8/12/88	8/12/88	8/12/88	8/12/88	8/12/88	8/2/88	8/2/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Phenol	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
bis(2-Chloroethyl)ether	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
2-Chlorophenol	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
1,3-Dichlorobenzene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
1,4-Dichlorobenzene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Benzyl Alcohol	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
1,2-Dichlorobenzene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
2-Methylphenol	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
bis(2-chloroisopropyl)Ether	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
4-Methylphenol	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
N-Nitroso-Di-n-Propylamine	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Hexachloroethane	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Nitrobenzene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Isophorone	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
2-Nitrophenol	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
2,4-Dimethylphenol	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Benzoic Acid	1600	1900 U	9300 U	2500 U	2000 U	98000 U	1900 U	59 J	14 J
bis(2-Chloroethoxy)Methane	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
2,4-Dichlorophenol	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
1,2,4-Trichlorobenzene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Naphthalene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	23 J	420 U
4-Chloroaniline	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Hexachlorobutadiene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
4-Chloro-3-Methylphenol	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
2-Methylnaphthalene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Hexachlorocyclopentadiene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
2,4,6-Trichlorophenol	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
2,4,5-Trichlorophenol	1600	1900 U	9300 U	2500 U	2000 U	98000 U	1900 U	2600 U	2100 U
2-Chloronaphthalene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
2-Nitroaniline	1600	1900 U	9300 U	2500 U	2000 U	98000 U	1900 U	2600 U	2100 U
Dimethyl Phthalate	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Acenaphthylene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
2,6-Dinitrotoluene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	CRDL	TP04401031	TP04401031	TP04401032	TP04402041	TP04402041	TP04403011	TP07701031	TP07701071
SAMPLE ID:		TP04401031	TP04401031	TP04401032	TP04402041	TP04402041	TP04403011	TP07701031	TP07701071
LAB NUMBER:		8228-005	8228-005REDL	8228-018	8228-003	8228-003REDL	8228-013	8217-001	8217-003
DATE SAMPLED:		8/12/88	8/12/88	8/12/88	8/12/88	8/12/88	8/12/88	8/2/88	8/2/88
MATRIX:		SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS									
UNITS: ug/kg									
3-Nitroaniline	1600	1900 U	9300 U	2500 U	2000 U	98000 U	1900 U	2600 U	2100 U
Acenaphthene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	47 J	420 U
2,4-Dinitrophenol	1600	1900 U	9300 U	2500 U	2000 U	98000 U	1900 U	2600 U	2100 U
4-Nitrophenol	1600	1900 U	9300 U	2500 U	2000 U	98000 U	1900 U	2600 U	2100 U
Dibenzofuran	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
2,4-Dinitrotoluene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Diethylphthalate	330	370 U	1900 U	420 J	390 U	20000 U	380 U	520 U	420 U
4-Chlorophenyl-phenylether	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Fluorene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
4-Nitroaniline	1600	1900 U	9300 U	2500 U	2000 U	98000 U	1900 U	2600 U	2100 U
4,6-Dinitro-2-Methylphenol	1600	1900 U	9300 U	2500 U	2000 U	98000 U	1900 U	2600 U	2100 U
N-Nitrosodiphenylamine	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
4-Bromophenyl-phenylether	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Hexachlorobenzene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Pentachlorophenol	1600	1900 U	9300 U	2500 U	2000 U	98000 U	1900 U	2600 U	2100 U
Phenanthrene	330	370 U	1900 U	120 J	390 U	20000 U	380 U	300 J	420 U
Anthracene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Di-n-Butylphthalate	330	1300 B	910 JB	110 JB	2000 B	20000 U	390 B	110 JB	110 JB
Fluoranthene	330	370 U	1900 U	140 J	390 U	20000 U	380 U	320 J	420 U
Pyrene	330	370 U	1900 U	170 J	390 U	20000 U	380 U	210 J	420 U
Butylbenzylphthalate	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
3,3'-Dichlorobenzidine	660	740 U	3700 U	990 U	790 U	39000 U	760 U	1000 U	850 U
Benzo(a)Anthracene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	130 J	420 U
Chrysene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	220 J	420 U
bis(2-Ethylhexyl)Phthalate	330	17000 BE	18000 B	490 U	170000 E	44000	310 J	110 J	420 U
Di-n-Octyl Phthalate	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Benzo(b)Fluoranthene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	210 J	420 U
Benzo(k)Fluoranthene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Benzo(a)Pyrene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	110 J	420 U
Indeno(1,2,3-cd)Pyrene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Oibenz(a,h)Anthracene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Benzo(g,h,i,)Perylene	330	370 U	1900 U	490 U	390 U	20000 U	380 U	520 U	420 U
Dilution Factor		1	5	1	1	50	1	1	1
Percent Solid		89	89	67	84	84	87	64	78
Laboratory Method Blank		A0919	A0919	SBLK8/24S	A0883	A0883	A0930	A0779	A0779
Associated Equipment Blank		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	TP07702021	TP07702021	TP07702061	TP07703021	TP07704051	TP07705021	TP07705051	TP07705071
	LAB NUMBER:	8217-002	8217-002RE	8217-004	8228-006	8228-012	8228-007	8228-019	8228-004
	DATE SAMPLED:	8/2/88	8/2/88	8/2/88	8/12/88	8/12/88	8/12/88	8/12/88	8/12/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Phenol	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
bis(2-Chloroethyl)ether	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
2-Chlorophenol	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
1,3-Dichlorobenzene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
1,4-Dichlorobenzene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Benzyl Alcohol	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
1,2-Dichlorobenzene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
2-Methylphenol	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
bis(2-chloroisopropyl)Ether	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
4-Methylphenol	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
N-Nitroso-Di-n-Propylamine	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Hexachloroethane	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Nitrobenzene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Isophorone	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
2-Nitrophenol	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
2,4-Dimethylphenol	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Benzoic Acid	1600	2200 U	33 J	2100 U	4200 U	2100 U	6000 U	2100 U	2000 U
bis(2-Chloroethoxy)Methane	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
2,4-Dichlorophenol	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
1,2,4-Trichlorobenzene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Naphthalene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
4-Chloroaniline	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Hexachlorobutadiene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
4-Chloro-3-Methylphenol	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
2-Methylnaphthalene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Hexachlorocyclopentadiene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
2,4,6-Trichlorophenol	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
2,4,5-Trichlorophenol	1600	2200 U	2200 U	2100 U	4200 U	2100 U	6000 U	2100 U	2000 U
2-Chloronaphthalene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
2-Nitroaniline	1600	2200 U	2200 U	2100 U	4200 U	2100 U	6000 U	2100 U	2000 U
Dimethyl Phthalate	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Acenaphthylene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
2,6-Dinitrotoluene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	TP07702021	TP07702021	TP07702061	TP07703021	TP07704051	TP07705021	TP07705051	TP07705071
	LAB NUMBER:	8217-002	8217-002RE	8217-004	8228-006	8228-012	8228-007	8228-019	8228-004
	DATE SAMPLED:	8/2/88	8/2/88	8/2/88	8/12/88	8/12/88	;8/12/88	8/12/88	8/12/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
3-Nitroaniline	1600	2200 U	2200 U	2100 U	4200 U	2100 U	6000 U	2100 U	2000 U
Acenaphthene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
2,4-Dinitrophenol	1600	2200 U	2200 U	2100 U	4200 U	2100 U	6000 U	2100 U	2000 U
4-Nitrophenol	1600	2200 U	2200 U	2100 U	4200 U	2100 U	6000 U	2100 U	2000 U
Dibenzofuran	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
2,4-Dinitrotoluene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Diethylphthalate	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
4-Chlorophenyl-phenylether	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Fluorene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
4-Nitroaniline	1600	2200 U	2200 U	2100 U	4200 U	2100 U	6000 U	2100 U	2000 U
4,6-Dinitro-2-Methylphenol	1600	2200 U	2200 U	2100 U	4200 U	2100 U	6000 U	2100 U	2000 U
N-Nitrosodiphenylamine	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
4-Bromophenyl-phenylether	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Hexachlorobenzene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Pentachlorophenol	1600	2200 U	2200 U	2100 U	4200 U	2100 U	6000 U	2100 U	2000 U
Phenanthrene	330	110 J	100 J	420 U	260 J	410 U	1200 U	420 U	410 U
Anthracene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Di-n-Butylphthalate	330	150 JB	110 JB	160 JB	1300 B	550 B	1200 JB	100 JB	970 B
Fluoranthene	330	160 J	150 J	420 U	510 J	410 U	210 J	420 U	410 U
Pyrene	330	140 J	130 J	420 U	230 J	410 U	1200 U	420 U	410 U
Butylbenzylphthalate	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
3,3'-Dichlorobenzidine	660	88 U	880 U	850 U	1700 U	830 U	2400 U	850 U	820 U
Benzo(a)Anthracene	330	73 J	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Chrysene	330	140 J	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
bis(2-Ethylhexyl)Phthalate	330	440 U	440 U	420 U	650 JB	190 J	10000 B	110 J	4100
Di-n-Octyl Phthalate	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Benzo(b)Fluoranthene	330	140 J	440 U	420 U	290 J	410 U	1200 U	420 U	410 U
Benzo(k)Fluoranthene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Benzo(a)Pyrene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Indeno(1,2,3-cd)Pyrene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Dibenz(a,h)Anthracene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Benzo(g,h,i,)Perylene	330	440 U	440 U	420 U	850 U	410 U	1200 U	420 U	410 U
Dilution Factor		1	1	1	2	1	3	1	1
Percent Solid		75	75	78	78	80	83	78	81
Laboratory Method Blank		A0779	A0779	A0815	A0919	A0930	A0919	SBLK8/24S	A0883
Associated Equipment Blank		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	TP07705072	TP07707071	TP09901011	TP09901091	TP09901092	TP09902021	TP09902081
	LAB NUMBER:	8228-017	8228-014	8217-018	8217-019	8217-020	8217-021	8217-022
	DATE SAMPLED:	8/12/88	8/12/88	8/3/88	8/3/88	8/3/88	8/3/88	8/3/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
Phenol	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
bis(2-Chloroethyl)ether	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
2-Chlorophenol	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
1,3-Dichlorobenzene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
1,4-Dichlorobenzene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Benzyl Alcohol	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
1,2-Dichlorobenzene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
2-Methylphenol	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
bis(2-chloroisopropyl)Ether	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
4-Methylphenol	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
N-Nitroso-Di-n-Propylamine	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Hexachloroethane	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Nitrobenzene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Isophorone	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
2-Nitrophenol	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
2,4-Dimethylphenol	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Benzoic Acid	1600	2100 U	2000 U	2100 U	2100 U	2100 U	1800 U	2100 U
bis(2-Chloroethoxy)Methane	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
2,4-Dichlorophenol	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
1,2,4-Trichlorobenzene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Naphthalene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
4-Chloroaniline	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Hexachlorobutadiene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
4-Chloro-3-Methylphenol	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
2-Methylnaphthalene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Hexachlorocyclopentadiene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
2,4,6-Trichlorophenol	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
2,4,5-Trichlorophenol	1600	2100 U	2000 U	2100 U	2100 U	2100 U	1800 U	2100 U
2-Chloronaphthalene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
2-Nitroaniline	1600	2100 U	2000 U	2100 U	2100 U	2100 U	1800 U	2100 U
Dimethyl Phthalate	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Acenaphthylene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
2,6-Dinitrotoluene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	TP07705072	TP07707071	TP09901011	TP09901091	TP09901092	TP09902021	TP09902081
	LAB NUMBER:	8228-017	8228-014	8217-018	8217-019	8217-020	8217-021	8217-022
	DATE SAMPLED:	8/12/88	8/12/88	8/3/88	8/3/88	8/3/88	8/3/88	8/3/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
3-Nitroaniline	1600	2100 U	2000 U	2100 U	2100 U	2100 U	1800 U	2100 U
Acenaphthene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
2,4-Dinitrophenol	1600	2100 U	2000 U	2100 U	2100 U	2100 U	1800 U	2100 U
4-Nitrophenol	1600	2100 U	2000 U	2100 U	2100 U	2100 U	1800 U	2100 U
Dibenzofuran	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
2,4-Dinitrotoluene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Diethylphthalate	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
4-Chlorophenyl-phenylether	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Fluorene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
4-Nitroaniline	1600	2100 U	2000 U	2100 U	2100 U	2100 U	1800 U	2100 U
4,6-Dinitro-2-Methylphenol	1600	2100 U	2000 U	2100 U	2100 U	2100 U	1800 U	2100 U
N-Nitrosodiphenylamine	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
4-Bromophenyl-phenylether	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Hexachlorobenzene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Pentachlorophenol	1600	2100 U	2000 U	2100 U	2100 U	2100 U	1800 U	2100 U
Phenanthrene	330	410 U	400 U	410 U	420 U	420 U	350 U	150 J
Anthracene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Di-n-Butylphthalate	330	110 JB	310 JB	930 B	930 B	940 B	1200 B	1000 B
Fluoranthene	330	410 U	400 U	83 J	420 U	420 U	350 U	230 J
Pyrene	330	410 U	400 U	410 U	420 U	420 U	350 U	170 J
Butylbenzylphthalate	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
3,3'-Dichlorobenzidine	660	830 U	810 U	830 U	840 U	850 U	700 U	850 U
Benzo(a)Anthracene	330	410 U	400 U	410 U	420 U	420 U	350 U	95 J
Chrysene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
bis(2-Ethylhexyl)Phthalate	330	190 J	180 J	410 U	420 U	420 U	350 U	420 U
Di-n-Octyl Phthalate	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Benzo(b)Fluoranthene	330	410 U	400 U	410 U	420 U	420 U	350 U	120 J
Benzo(k)Fluoranthene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Benzo(a)Pyrene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Indeno(1,2,3-cd)Pyrene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Dibenz(a,h)Anthracene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Benzo(g,h,i,)Perylene	330	410 U	400 U	410 U	420 U	420 U	350 U	420 U
Dilution Factor		1	1	1	1	1	1	1
Percent Solid		80	82	80	79	78	94	78
Laboratory Method Blank		SBLK8/24S	A0930	A0820	A0820	A0820	A0820	A0820
Associated Equipment Blank		-	-	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1

Click Here to Return to Main Index

Combined Laboratory Report
of Anlaysis

	SAMPLE ID:	TP03101031	TP03101041	TP03101092	TP03102021	TP03102051	TP03103031	TP03103041	TP04401031
	LAB NUMBER:	8217-010	8217-009	8217-011	8217-008	8217-007	8217-005	8217-006	8228-005
	DATE SAMPLED:	8/03/88	8/03/88	8/03/88	8/03/88	8/03/88	8/03/88	8/03/88	8/12/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL								
alpha-BHC	8	8.4 U	8.9 U	8.5 U	8.4 U	10 U	11 U	8.5 U	9.0 U
beta-BHC	8	8.4 U	8.9 U	8.5 U	8.4 U	10 U	11 U	8.5 U	9.0 U
delta-BHC	8	8.4 U	8.9 U	8.5 U	8.4 U	10 U	11 U	8.5 U	9.0 U
gamma-BHC (Lindane)	8	8.4 U	8.9 U	15	8.4 U	10 U	5.2 J	8.5 U	9.0 U
Heptachlor	8	64	10	78	8.4 U	10 U	11 U	8.5 U	9.0 U
Aldrin	8	8.4 U	8.9 U	8.5 U	8.4 U	10 U	11 U	8.5 U	9.0 U
Heptachlor epoxide	8	8.4 U	8.9 U	8.5 U	8.4 U	10 U	11 U	8.5 U	9.0 U
Endosulfan I	8	8.4 U	8.9 U	8.5 U	8.4 U	10 U	11 U	8.5 U	9.0 U
Dieldrin	16	17 U	18 U	17 U	17 U	19 U	21 U	17 U	18 U
4,4'-DDE	16	17 U	18 U	17 U	17 U	19 U	21 U	17 U	18 U
Endrin	16	17 U	18 U	17 U	17 U	19 U	21 U	17 U	18 U
Endosulfan II	16	17 U	18 U	17 U	17 U	19 U	21 U	17 U	18 U
4,4'-DDD	16	17 U	18 U	17 U	17 U	19 U	21 U	17 U	18 U
Endosulfan sulfate	16	17 U	18 U	17 U	17 U	19 U	21 U	17 U	18 U
4,4'-DDT	16	150	7.9 J	120	17 U	19 U	4.4 J	17 U	18 U
Methoxychlor	80	84 U	89 U	85 U	84 U	96 U	110 U	85 U	90 U
Endrin ketone	16	17 U	18 U	17 U	17 U	19 U	21 U	17 U	18 U
alpha-Chlordane	80	800	73 J	540	84 U	96 U	110 U	85 U	90 U
gamma-Chlordane	80	1100	100	690	84 U	96 U	110 U	85 U	90 U
Toxaphene	160	170 U	180 U	170 U	170 U	190 U	210 U	170 U	180 U
Aroclor-1016	80	84 U	89 U	85 U	84 U	96 U	110 U	85 U	90 U
Aroclor-1221	80	84 U	89 U	85 U	84 U	96 U	110 U	85 U	90 U
Aroclor-1232	80	84 U	89 U	85 U	84 U	96 U	110 U	85 U	90 U
Aroclor-1242	80	84 U	89 U	85 U	84 U	96 U	110 U	85 U	90 U
Aroclor-1248	80	84 U	89 U	85 U	84 U	96 U	110 U	85 U	90 U
Aroclor-1254	160	170 U	180 U	170 U	170 U	190 U	210 U	170 U	180 U
Aroclor-1260	160	170 U	180 U	170 U	170 U	190 U	210 U	170 U	180 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		95	90	94	95	83	76	94	89
Laboratory Method Blank		PBLKII	PBLKII	PBLKII	PBLKII	PBLKII	PBLKHH	PBLKII	PBLKLL
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Anlaysis

	SAMPLE ID:	TP04401032	TP04402041	TP04403011	TP07701031	TP07701071	TP07702021	TP07702061	TP07703021
	LAB NUMBER:	8228-01B	8228-003	8228-013	8217-001	8217-003	8217-002	8217-004	8228-006
	DATE SAMPLED:	8/12/88	8/12/88	8/12/88	8/02/88	8/02/88	8/02/88	8/02/88	8/12/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL								
alpha-BHC	8	12 U	10 U	9.2 U	13 U	10 U	11 U	10 U	10 U
beta-BHC	8	12 U	10 U	9.2 U	13 U	10 U	11 U	10 U	10 U
delta-BHC	8	12 U	10 U	9.2 U	13 U	10 U	11 U	10 U	10 U
gamma-BHC (Lindane)	8	12 U	10 U	9.2 U	13 U	10 U	1.7 J	10 U	10 U
Heptachlor	8	12 U	10 U	9.2 U	13 U	10 U	11 U	10 U	10 U
Aldrin	8	12 U	10 U	9.2 U	13 U	10 U	11 U	10 U	10 U
Heptachlor epoxide	8	12 U	10 U	9.2 U	13 U	10 U	11 U	10 U	10 U
Endosulfan I	8	12 U	10 U	9.2 U	13 U	10 U	11 U	10 U	10 U
Dieldrin	16	24 U	19 U	18 U	25 U	21 U	21 U	21 U	21 U
4,4'-DDE	16	24 U	19 U	18 U	25 U	21 U	160	21 U	21 U
Endrin	16	24 U	19 U	18 U	25 U	21 U	21 U	21 U	21 U
Endosulfan II	16	24 U	19 U	18 U	25 U	21 U	21 U	21 U	21 U
4,4'-DDD	16	24 U	19 U	18 U	25 U	21 U	10 J	21 U	21 U
Endosulfan sulfate	16	24 U	19 U	18 U	25 U	21 U	21 U	21 U	21 U
4,4'-DDT	16	24 U	19 U	19	25 U	21 U	180	21 U	21 U
Methoxychlor	80	120 U	95 U	92 U	130 U	100 U	21 U	100 U	100 U
Endrin ketone	16	24 U	19 U	18 U	25 U	21 U	110 U	21 U	21 U
alpha-Chlordane	80	120 U	95 U	92 U	130 U	100 U	110 U	100 U	100 U
gamma-Chlordane	80	120 U	95 U	92 U	250 U	100 U	210 U	100 U	100 U
Toxaphene	160	240 U	190 U	180 U	130 U	210 U	110 U	210 U	210 U
Aroclor-1016	80	120 U	95 U	92 U	130 U	100 U	110 U	100 U	100 U
Aroclor-1221	80	120 U	95 U	92 U	130 U	100 U	110 U	100 U	100 U
Aroclor-1232	80	120 U	95 U	92 U	130 U	100 U	110 U	100 U	100 U
Aroclor-1242	80	120 U	95 U	92 U	130 U	100 U	110 U	100 U	100 U
Aroclor-1248	80	120 U	95 U	92 U	130 U	100 U	110 U	100 U	100 U
Aroclor-1254	160	240 U	190 U	180 U	250 U	210 U	210 U	210 U	210 U
Aroclor-1260	160	240 U	190 U	180 U	250 U	210 U	210 U	210 U	210 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		67	84	87	64	78	75	78	78
Laboratory Method Blank		PBLK00	PBLKKK	PBLKMM	PBLKHH	PBLKHH	PBLKHH	PBLKII	PBLKLL
Associated Equipment Blank		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report
of Anlaysis

SAMPLE ID:	TP07704051	TP07705021	TP07705051	TP07705071	TP07705072	TP07707071	TP09901011	TP09901091
LAB NUMBER:	8228-012	8228-007	8228-019	8228-004	8228-017	8228-014	8217-018	8217-019
DATE SAMPLED:	8/12/88	8/12/88	8/12/88	8/12/88	8/12/88	8/12/88	8/03/88	8/03/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL							
alpha-BHC	8	10 U	10 U	10 U	10 U	10 U	10 U	10 U	8 U
beta-BHC	8	10 U	10 U	10 U	10 U	10 U	10 U	10 U	8 U
delta-BHC	8	10 U	10 U	10 U	10 U	10 U	10 U	10 U	8 U
gamma-BHC (Lindane)	8	10 U	10 U	10 U	10 U	10 U	10 U	10 U	8 U
Heptachlor	8	10 U	10 U	10 U	10 U	10 U	10 U	10 U	8 U
Aldrin	8	10 U	10 U	10 U	10 U	10 U	10 U	10 U	8 U
Heptachlor epoxide	8	10 U	10 U	10 U	10 U	10 U	10 U	10 U	8 U
Endosulfan I	8	10 U	10 U	10 U	10 U	10 U	10 U	10 U	8 U
Dieldrin	16	20 U	19 U	21 U	20 U	20 U	20 U	20 U	16 U
4,4'-DDE	16	20 U	19 U	21 U	20 U	20 U	20 U	20 U	16 U
Endrin	16	20 U	19 U	21 U	20 U	20 U	20 U	20 U	16 U
Endosulfan II	16	20 U	19 U	21 U	20 U	20 U	20 U	20 U	16 U
4,4'-DDD	16	20 U	19 U	21 U	20 U	20 U	20 U	20 U	16 U
Endosulfan sulfate	16	20 U	19 U	21 U	20 U	20 U	20 U	20 U	16 U
4,4'-DDT	16	20 U	19 U	21 U	20 U	20 U	20 U	20 U	16 U
Methoxychlor	80	100 U	96 U	100 U	99 U	100 U	98 U	100 U	80 U
Endrin ketone	16	20 U	19 U	21 U	20 U	20 U	20 U	20 U	16 U
alpha-Chlordane	80	100 U	96 U	100 U	99 U	100 U	98 U	100 U	80 U
gamma-Chlordane	80	100 U	96 U	100 U	99 U	100 U	98 U	100 U	80 U
Toxaphene	160	200 U	190 U	210 U	200 U	200 U	200 U	200 U	160 U
Aroclor-1016	80	100 U	96 U	100 U	99 U	100 U	98 U	100 U	80 U
Aroclor-1221	80	100 U	96 U	100 U	99 U	100 U	98 U	100 U	80 U
Aroclor-1232	80	100 U	96 U	100 U	99 U	100 U	98 U	100 U	80 U
Aroclor-1242	80	100 U	96 U	100 U	99 U	100 U	98 U	100 U	80 U
Aroclor-1248	80	100 U	96 U	100 U	99 U	100 U	98 U	100 U	80 U
Aroclor-1254	160	200 U	190 U	210 U	200 U	200 U	200 U	200 U	160 U
Aroclor-1260	160	200 U	190 U	210 U	200 U	200 U	200 U	200 U	160 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		80	83	78	81	80	82	80	79
Laboratory Method Blank		PBLKMM	PBLKLL	PBLK00	PBLKKK	PBLK00	PBLKMM	SBBB11	SBBB11
Associated Equipment Blank		-	-	-	-	-	-	SBXX406XX1	SBXX406XX1

Click Here to Return to Main Index

Combined Laboratory Report
of Anlaysis

SAMPLE ID:	TP09901092	TP09902021	TP09902081
LAB NUMBER:	8217-020	8217-021	8217-022
DATE SAMPLED:	8/03/88	8/03/88	8/03/88
MATRIX:	SOIL	SOIL	SOIL

PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL			
alpha-BHC	8	10 U	8.5 U	10 U
beta-BHC	8	10 U	8.5 U	10 U
delta-BHC	8	10 U	8.5 U	10 U
gamma-BHC (Lindane)	8	10 U	8.5 U	10 U
Heptachlor	8	10 U	8.5 U	10 U
Aldrin	8	10 U	8.5 U	10 U
Heptachlor epoxide	8	10 U	8.5 U	10 U
Endosulfan I	8	10 U	8.5 U	10 U
Dieldrin	16	21 U	17 U	21 U
4,4'-DDE	16	21 U	17 U	21 U
Endrin	16	21 U	17 U	21 U
Endosulfan II	16	21 U	17 U	21 U
4,4'-DDD	16	21 U	17 U	21 U
Endosulfan sulfate	16	21 U	17 U	21 U
4,4'-DDT	16	21 U	17 U	21 U
Methoxychlor	80	100 U	85 U	100 U
Endrin ketone	16	21 U	17 U	21 U
alpha-Chlordane	80	100 U	85 U	100 U
gamma-Chlordane	80	100 U	85 U	100 U
Toxaphene	160	210 U	170 U	210 U
Aroclor-1016	80	100 U	85 U	100 U
Aroclor-1221	80	100 U	85 U	100 U
Aroclor-1232	80	100 U	85 U	100 U
Aroclor-1242	80	100 U	85 U	100 U
Aroclor-1248	80	100 U	85 U	100 U
Aroclor-1254	160	210 U	170 U	210 U
Aroclor-1260	160	210 U	170 U	210 U
Dilution Factor		1	1	1
Percent Solid		78	94	78
Laboratory Method Blank		SEBB11	SEBB11	SEBB11
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID: 01SB001XXX01XX
LAB NUMBER: 8259-008
DATE SAMPLED: 9/14/88
MATRIX: WATER

METALS COMPOUNDS UNITS: ug/l	ANALYTICAL METHOD	CRDL	
Aluminum	P	200	NA
Antimony	P	60	NA
Arsenic	F	10	NA
Barium	P	200	NA
Beryllium	P	5	NA
Cadmium	P	5	NA
Calcium	P	5000	NA
Chromium	P	10	NA
Cobalt	P	50	NA
Copper	P	25	NA
Iron	P	1000	NA
Lead	P/F	5	NA
Magnesium	P	5000	NA
Manganese	P	15	NA
Mercury	CV	0.20	NA
Nickel	P	40	NA
Potassium	P	5000	NA
Selenium	F	5	NA
Silver	P	10	NA
Sodium	P	5000	NA
Thallium	F	10	NA
Vanadium	P	50	NA
Zinc	P	20	NA
Total Cyanide	CN	100	NA
Boron	P	60*	NA

Laboratory Method Blank -
Associated Equipment Blank -

* = Reporting Limit, not a CRDL

NA = Not Analyzed.

Combined Laboratory Report of Analysis

SAMPLE ID:	01GW207AXX01XX	01GW207BXX01XX	03LT301XXX01XX	03LT301XXX01XX	01SB001XXX01XX
LAB NUMBER:	8260-023	8260-024	8252-017	8260-030	8259-008
DATE SAMPLED:	9/15/88	9/15/88	9/7/88	9/16/88	9/14/88
MATRIX:	WATER	WATER	WATER	WATER	WATER

PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL					
alpha-BHC	0.05	0.053 U	0.052 U	NA	0.051 U	NA
beta-BHC	0.05	0.053 U	0.052 U	NA	0.051 U	NA
delta-BHC	0.05	0.053 U	0.052 U	NA	0.051 U	NA
gamma-BHC (Lindane)	0.05	0.053 U	0.052 U	NA	0.051 U	NA
Heptachlor	0.05	0.053 U	0.052 U	NA	0.051 U	NA
Aldrin	0.05	0.053 U	0.052 U	NA	0.051 U	NA
Heptachlor epoxide	0.05	0.053 U	0.052 U	NA	0.051 U	NA
Endosulfan I	0.05	0.053 U	0.052 U	NA	0.051 U	NA
Dieldrin	0.1	0.11 U	0.1 U	NA	0.1 U	NA
4,4'-DDE	0.1	0.11 U	0.1 U	NA	0.1 U	NA
Endrin	0.1	0.11 U	0.1 U	NA	0.1 U	NA
Endosulfan II	0.1	0.11 U	0.1 U	NA	0.1 U	NA
4,4'-DDD	0.1	0.11 U	0.1 U	NA	0.1 U	NA
Endosulfan sulfate	0.1	0.11 U	0.1 U	NA	0.1 U	NA
4,4'-DDT	0.1	0.11 U	0.1 U	NA	0.1 U	NA
Methoxychlor	0.5	0.53 U	0.52 U	NA	0.51 U	NA
Endrin ketone	0.1	0.11 U	0.1 U	NA	0.1 U	NA
alpha-Chlordane	0.5	0.53 U	0.52 U	NA	0.51 U	NA
gamma-Chlordane	0.5	0.53 U	0.52 U	NA	0.51 U	NA
Toxaphene	1	1.1 U	1 U	NA	1 U	NA
Aroclor-1016	0.5	0.53 U	0.52 U	NA	0.51 U	NA
Aroclor-1221	0.5	0.53 U	0.52 U	NA	0.51 U	NA
Aroclor-1232	0.5	0.53 U	0.52 U	NA	0.51 U	NA
Aroclor-1242	0.5	0.53 U	0.52 U	NA	0.51 U	NA
Aroclor-1248	0.5	0.53 U	0.52 U	NA	0.51 U	NA
Aroclor-1254	1	1.1 U	1 U	NA	1 U	NA
Aroclor-1260	1	1.1 U	1 U	NA	1 U	NA
Dilution Factor		1	1	-	1	-
Laboratory Method Blank		PBLKBB	PBLKCC	-	PBLKCC	-
Associated Equipment Blank		01SB004XXX01XX	01SB004XXX01XX	-	-	-

* Not Analyzed

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SD114XXX01XX	08SD819XXX01XX	MW01209241	MW01209242	MW04404121	MW04404171	MW04404381	MW07705061
LAB NUMBER:	8256-020	8258-012	8203-044	8203-045	8203-046	8203-047	8203-048	8203-049
DATE SAMPLED:	9/9/88	9/13/88	7/20/88	7/20/88	7/21/88	7/21/88	7/21/88	7/20/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Chloromethane	10	NA	13 U	13 U	13 U	13 U	13 U	13 U	11 U
Bromomethane	10	NA	13 U	13 U	13 U	13 U	13 U	13 U	11 U
Vinyl Chloride	10	NA	13 U	13 U	13 U	13 U	13 U	13 U	11 U
Chloroethane	10	NA	13 U	13 U	13 U	13 U	13 U	13 U	11 U
Methylene Chloride	5	NA	12 B	17	14	15	16	16	16
Acetone	10	NA	13 U	13 U	13 U	13 U	13 U	13 U	11 U
Carbon Disulfide	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1-Dichloroethene	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1-Dichloroethane	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,2-Dichloroethene (total)	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
Chloroform	5	NA	6 J	6 U	6 U	7 U	6 U	6 U	6 U
1,2-Dichloroethane	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
2-Butanone	10	NA	13 U	13 U	13 U	13 U	13 U	13 U	11 U
1,1,1-Trichloroethane	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
Carbon Tetrachloride	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
Vinyl Acetate	10	NA	13 U	13 U	13 U	13 U	13 U	13 U	11 U
Bromodichloromethane	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,2-Dichloropropane	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
cis-1,3-Dichloropropene	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
Trichloroethene	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
Dibromochloromethane	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1,2-Trichloroethane	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
Benzene	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
Trans-1,3-Dichloropropene	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
Bromoform	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
4-Methyl-2-Pentanone	10	NA	13 U	13 U	13 U	13 U	13 U	13 U	11 U
2-Hexanone	10	NA	13 U	13 U	13 U	13 U	13 U	13 U	11 U
Tetrachloroethene	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
Toluene	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
Chlorobenzene	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
Ethylbenzene	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
Styrene	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
Xylenes (Total)	5	NA	6 U	6 U	6 U	7 U	6 U	6 U	6 U
Dilution Factor		-	1	1	1	1	1	1	1
Percent Solids		-	80	78	79	76	78	78	89
Laboratory Method Blank		-	VBLKF	C4391	C4375	C4375	C4375	C4375	C4391
Associated Equipment Blank		-	01SB002XXX01XX	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		-	-	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

NA = Not Analyzed.

BR08-CVA

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	MW07706071	MW07706121	MW09905111	MW09905161
LAB NUMBER:	8203-042	8203-043	8203-050	8203-051
DATE SAMPLED:	7/20/88	7/20/88	7/20/88	7/20/88
MATRIX:	SOIL	SOIL	SOIL	SOIL

VOLATILE ORGANIC COMPOUNDS

UNITS: ug/kg	CRDL				
Chloromethane	10	13 U	13 U	13 U	13 U
Bromomethane	10	13 U	13 U	13 U	13 U
Vinyl Chloride	10	13 U	13 U	13 U	13 U
Chloroethane	10	13 U	13 U	13 U	13 U
Methylene Chloride	5	16	16	17	20
Acetone	10	13 U	13 U	13 U	13 U
Carbon Disulfide	5	6 U	6 U	6 U	7 U
1,1-Dichloroethene	5	6 U	6 U	6 U	7 U
1,1-Dichloroethane	5	6 U	6 U	6 U	7 U
1,2-Dichloroethene (total)	5	6 U	6 U	6 U	7 U
Chloroform	5	6 U	6 U	6 U	7 U
1,2-Dichloroethane	5	6 U	6 U	6 U	7 U
2-Butanone	10	13 U	13 U	13 U	13 U
1,1,1-Trichloroethane	5	6 U	6 U	6 U	7 U
Carbon Tetrachloride	5	6 U	6 U	6 U	7 U
Vinyl Acetate	10	13 U	13 U	13 U	13 U
Bromodichloromethane	5	6 U	6 U	6 U	7 U
1,2-Dichloropropane	5	6 U	6 U	6 U	7 U
cis-1,3-Dichloropropene	5	6 U	6 U	6 U	7 U
Trichloroethene	5	6 U	6 U	6 U	7 U
Dibromochloromethane	5	6 U	6 U	6 U	7 U
1,1,2-Trichloroethane	5	6 U	6 U	6 U	7 U
Benzene	5	6 U	6 U	6 U	7 U
Trans-1,3-Dichloropropene	5	6 U	6 U	6 U	7 U
Bromoform	5	6 U	6 U	6 U	7 U
4-Methyl-2-Pentanone	10	13 U	13 U	13 U	13 U
2-Hexanone	10	13 U	13 U	13 U	13 U
Tetrachloroethene	5	6 U	6 U	6 U	7 U
1,1,2,2-Tetrachloroethane	5	6 U	6 U	6 U	7 U
Toluene	5	6 U	6 U	6 U	7 U
Chlorobenzene	5	6 U	6 U	6 U	7 U
Ethylbenzene	5	6 U	6 U	6 U	7 U
Styrene	5	6 U	6 U	6 U	7 U
Xylenes (Total)	5	6 U	6 U	6 U	7 U
Dilution Factor		1	1	1	1
Percent Solids		79	77	79	76

Laboratory Method Blank	C4375	C4375	C4375	C4391
Associated Equipment Blank	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

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Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SD114XXX01XX	MW01209241	MW01209242	MW04404121	MW04404121	MW04404171	MW04404171	MW04404381
LAB NUMBER:	8256-020	8203-044	8203-045	8203-046	8203-046RE	8203-047	8203-047RE	8203-048
DATE SAMPLED:	9/9/88	7/20/88	7/20/88	7/21/88	7/21/88	7/21/88	7/21/88	7/21/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Phenol	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
bis(2-Chloroethyl)ether	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
2-Chlorophenol	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
1,3-Dichlorobenzene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
1,4-Dichlorobenzene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Benzyl alcohol	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
1,2-Dichlorobenzene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
2-Methylphenol	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
bis(2-Chloroisopropyl)ether	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
4-Methylphenol	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
N-Nitroso-di-n-propylamine	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Hexachloroethane	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Nitrobenzene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Isophorone	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
2-Nitrophenol	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
2,4-Dimethylphenol	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Benzoic acid	1600	NA	2100 U	2100 U	2200 U	2200 U	2100 U	2100 U	2100 U
bis(2-Chloroethoxy)methane	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
2,4-Dichlorophenol	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
1,2,4-Trichlorobenzene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Naphthalene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
4-Chloroaniline	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Hexacholorobutadiene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
4-Chloro-3-Methylphenol	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
2-Methylnaphthalene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Hexachlorocyclopentadiene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
2,4,6-Trichlorophenol	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
2,4,5-Trichlorophenol	1600	NA	2100 U	2100 U	2200 U	2200 U	2100 U	2100 U	2100 U
2-Chloronaphthalene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
2-Nitroaniline	1600	NA	2100 U	2100 U	2200 U	2200 U	2100 U	2100 U	2100 U
Dimethylphthalate	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Acenaphthylene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
2,6-Dinitrotoluene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U

NA = Not Analyzed.

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SD114XXX01XX	MW01209241	MW01209242	MW04404121	MW04404121	MW04404171	MW04404171	MW04404381
LAB NUMBER:	8256-020	8203-044	8203-045	8203-046	8203-046RE	8203-047	8203-047RE	8203-048
DATE SAMPLED:	9/9/88	7/20/88	7/20/88	7/21/88	7/21/88	7/21/88	7/21/88	7/21/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
3-Nitroaniline	1600	NA	2100 U	2100 U	2200 U	2200 U	2100 U	2100 U	2100 U
Acenaphthene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
2,4-Dinitrophenol	1600	NA	2100 U	2100 U	2200 U	2200 U	2100 U	2100 U	2100 U
4-Nitrophenol	1600	NA	2100 U	2100 U	2200 U	2200 U	2100 U	2100 U	2100 U
Dibenzofuran	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
2,4-Dinitrotoluene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Diethylphthalate	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
4-Chlorophenyl-phenylether	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Fluorene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
4-Nitroaniline	1600	NA	2100 U	2100 U	2200 U	2200 U	2100 U	2100 U	2100 U
4,6-Dinitro-2-methylphenol	1600	NA	2100 U	2100 U	2200 U	2200 U	2100 U	2100 U	2100 U
N-Nitrosodiphenylamine	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
4-Bromophenyl-phenylether	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Hexachlorobenzene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Pentachlorophenol	1600	NA	2100 U	2100 U	2200 U	2200 U	2100 U	2100 U	2100 U
Phenanthrene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Anthracene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Di-n-butylphthalate	330	NA	160 JB	44 JB	67 JB	67 JB	48 JB	50 JB	49 JB
Fluoranthene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Pyrene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Butylbenzylphthalate	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
3,3'-Dichlorobenzidine	660	NA	850 U	840 U	870 U	870 U	850 U	850 U	850 U
Benzo(a)Anthracene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Chrysene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
bis(2-Ethylhexyl)phthalate	330	NA	96 J	420 U	430 U	430 U	420 U	420 U	64 J
Di-n-octylphthalate	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Benzo(b)Fluoranthene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Benzo(k)Fluoranthene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Benzo(a)Pyrene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Indeno(1,2,3-cd)pyrene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Dibenz(a,h)anthracene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Benzo(g,h,i,)perylene	330	NA	420 U	420 U	430 U	430 U	420 U	420 U	420 U
Dilution Factor		-	1	1	1	1	1	1	1
Percent Solid		-	78	79	76	76	78	78	78
Laboratory Method Blank		-	A1308	A1309	A1309	A1309	A1309	A1309	A1309
Associated Equipment Blank		-	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		-	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

* Not Analyzed.

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	MW07705061	MW07706071	MW00706121	MW09905111	MW09905161
LAB NUMBER:	8203-049	8203-042	8203-043	8203-050	8203-051
DATE SAMPLED:	7/20/88	7/20/88	7/20/88	7/20/88	7/20/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL					
Phenol	330	370 U	420 U	860 U	840 U	430 U
bis(2-Chloroethyl)ether	330	370 U	420 U	860 U	840 U	430 U
2-Chlorophenol	330	370 U	420 U	860 U	840 U	430 U
1,3-Dichlorobenzene	330	370 U	420 U	860 U	840 U	430 U
1,4-Dichlorobenzene	330	370 U	420 U	860 U	840 U	430 U
Benzyl alcohol	330	370 U	420 U	860 U	840 U	430 U
1,2-Dichlorobenzene	330	370 U	420 U	860 U	840 U	430 U
2-Methylphenol	330	370 U	420 U	860 U	840 U	430 U
bis(2-Chloroisopropyl)ether	330	370 U	420 U	860 U	840 U	430 U
4-Methylphenol	330	370 U	420 U	860 U	840 U	430 U
N-Nitroso-di-n-propylamine	330	370 U	420 U	860 U	840 U	430 U
Hexachloroethane	330	370 U	420 U	860 U	840 U	430 U
Nitrobenzene	330	370 U	420 U	860 U	840 U	430 U
Isophorone	330	370 U	420 U	860 U	840 U	430 U
2-Nitrophenol	330	370 U	420 U	860 U	840 U	430 U
2,4-Dimethylphenol	330	370 U	420 U	860 U	840 U	430 U
Benzoic acid	1600	1900 U	2100 U	4300 U	4200 U	2200 U
bis(2-Chloroethoxy)methane	330	370 U	420 U	860 U	840 U	430 U
2,4-Dichlorophenol	330	370 U	420 U	860 U	840 U	430 U
1,2,4-Trichlorobenzene	330	370 U	420 U	860 U	840 U	430 U
Naphthalene	330	370 U	420 U	860 U	840 U	430 U
4-Chloroaniline	330	370 U	420 U	860 U	840 U	430 U
Hexachlorobutadiene	330	370 U	420 U	860 U	840 U	430 U
4-Chloro-3-Methylphenol	330	370 U	420 U	860 U	840 U	430 U
2-Methylnaphthalene	330	370 U	420 U	860 U	840 U	430 U
Hexachlorocyclopentadiene	330	370 U	420 U	860 U	840 U	430 U
2,4,6-Trichlorophenol	330	370 U	420 U	860 U	840 U	430 U
2,4,5-Trichlorophenol	1600	1900 U	2100 U	4300 U	4200 U	2200 U
2-Chloronaphthalene	330	370 U	420 U	860 U	840 U	430 U
2-Nitroaniline	1600	1900 U	2100 U	4300 U	4200 U	2200 U
Dimethylphthalate	330	370 U	420 U	860 U	840 U	430 U
Acenaphthylene	330	370 U	420 U	860 U	840 U	430 U
2,6-Dinitrotoluene	330	370 U	420 U	860 U	840 U	430 U

NA = Not Analyzed.

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	MW07705061	MW07706071	MW00706121	MW09905111	MW09905161
LAB NUMBER:	8203-049	8203-042	8203-043	8203-050	8203-051
DATE SAMPLED:	7/20/88	7/20/88	7/20/88	7/20/88	7/20/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL

SEMI-VOLATILE ORGANIC COMPOUNDS

UNITS: ug/kg	CRDL					
3-Nitroaniline	1600	1900 U	2100 U	4300 U	4200 U	2200 U
Acenaphthene	330	370 U	420 U	860 U	840 U	430 U
2,4-Dinitrophenol	1600	1900 U	2100 U	4300 U	4200 U	2200 U
4-Nitrophenol	1600	1900 U	2100 U	4300 U	4200 U	2200 U
Dibenzofuran	330	370 U	420 U	860 U	840 U	430 U
2,4-Dinitrotoluene	330	370 U	420 U	860 U	840 U	430 U
Diethylphthalate	330	370 U	420 U	860 U	840 U	430 U
4-Chlorophenyl-phenylether	330	370 U	420 U	860 U	840 U	430 U
Fluorene	330	370 U	420 U	860 U	840 U	430 U
4-Nitroaniline	1600	1900 U	2100 U	4300 U	4200 U	2200 U
4,6-Dinitro-2-methylphenol	1600	1900 U	2100 U	4300 U	4200 U	2200 U
N-Nitrosodiphenylamine	330	370 U	420 U	860 U	840 U	430 U
4-Bromophenyl-phenylether	330	370 U	420 U	860 U	840 U	430 U
Hexachlorobenzene	330	370 U	420 U	860 U	840 U	430 U
Pentachlorophenol	1600	1900 U	2100 U	4300 U	4200 U	2200 U
Phenanthrene	330	370 U	420 U	860 U	840 U	430 U
Anthracene	330	370 U	420 U	860 U	840 U	430 U
Di-n-butylphthalate	330	370 U	120 JB	250 JB	73 JB	77 JB
Fluoranthene	330	370 U	420 U	860 U	840 U	430 U
Pyrene	330	370 U	420 U	860 U	840 U	430 U
Butylbenzylphthalate	330	370 U	420 U	860 U	840 U	430 U
3,3'-Dichlorobenzidine	660	740 U	840 U	1700 U	1700 U	870 U
Benzo(a)Anthracene	330	370 U	420 U	860 U	840 U	430 U
Chrysene	330	370 U	420 U	860 U	840 U	430 U
bis(2-Ethylhexyl)phthalate	330	370 U	420 U	81 J	840 U	160 J
Di-n-octylphthalate	330	370 U	420 U	860 U	840 U	430 U
Benzo(b)Fluoranthene	330	370 U	420 U	860 U	840 U	430 U
Benzo(k)Fluoranthene	330	370 U	420 U	860 U	840 U	430 U
Benzo(a)Pyrene	330	370 U	420 U	860 U	840 U	430 U
Indeno(1,2,3-cd)pyrene	330	370 U	420 U	860 U	840 U	430 U
Dibenz(a,h)anthracene	330	370 U	420 U	860 U	840 U	430 U
Benzo(g,h,i,)perylene	330	370 U	420 U	860 U	840 U	430 U
Dilution Factor		1	1	2	2	1
Percent Solid		89	79	77	79	76
Laboratory Method Blank		A1309	A1308	A1308	A1309	A1309
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

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Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick

15-Feb-90

Laboratory Report of Analysis

SAMPLE ID:	09SD916XXX01XX	09SD011XXX01XX	09SD011XXX01XX	09SD011XXX01DX	09SD012XXX01XX	01SD114XXX01XX	01SS118XXX01XX	08SD819XXX01XX
LAB NUMBER:	8253-028	8253-023	8253-023DL	8253-024	8253-025	8256-020	8253-029	8258-012
DATE SAMPLED:	9/8/88	9/8/88	9/8/88	9/8/88	9/8/88	9/9/88	9/8/88	9/13/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL							
alpha-BHC	8	11 U	10 U	100 U	10 U	10 U	NA	12 U	10 U
beta-BHC	8	11 U	10 U	100 U	10 U	10 U	NA	12 U	10 U
delta-BHC	8	11 U	10 U	100 U	10 U	10 U	NA	12 U	10 U
gamma-BHC (Lindane)	8	11 U	10 U	100 U	10 U	10 U	NA	12 U	10 U
Heptachlor	8	11 U	10 U	100 U	10 U	10 U	NA	12 U	10 U
Aldrin	8	11 U	10 U	100 U	10 U	10 U	NA	12 U	10 U
Heptachlor epoxide	8	11 U	10 U	100 U	10 U	10 U	NA	12 U	10 U
Endosulfan I	8	11 U	10 U	100 U	10 U	10 U	NA	12 U	10 U
Dieldrin	16	21 U	20 U	200 U	20 U	20 U	NA	24 U	20 U
4,4'-DDE	16	21 U	20 U	200 U	20 U	20 U	NA	24 U	20 U
Endrin	16	21 U	20 U	200 U	20 U	20 U	NA	24 U	20 U
Endosulfan II	16	21 U	20 U	200 U	20 U	20 U	NA	24 U	20 U
4,4'-DDD	16	21 U	20 U	200 U	20 U	20 U	NA	24 U	20 U
Endosulfan sulfate	16	21 U	20 U	200 U	20 U	20 U	NA	24 U	20 U
4,4'-DDT	16	21 U	200 U	200 U	20 U	20 U	NA	24 U	20 U
Methoxychlor	80	110 U	1000 U	1000 U	100 U	99 U	NA	120 U	100 U
Endrin ketone	16	21 U	200 U	200 U	20 U	20 U	NA	24 U	20 U
alpha-Chlordane	80	110 U	100 U	1000 U	100 U	99 U	NA	120 U	100 U
gamma-Chlordane	80	110 U	100 U	1000 U	100 U	99 U	NA	120 U	100 U
Toxaphene	160	210 U	200 U	2000 U	200 U	200 U	NA	240 U	200 U
Aroclor-1016	80	110 U	100 U	1000 U	100 U	99 U	NA	120 U	100 U
Aroclor-1221	80	110 U	100 U	1000 U	100 U	99 U	NA	120 U	100 U
Aroclor-1232	80	110 U	100 U	1000 U	100 U	99 U	NA	120 U	100 U
Aroclor-1242	80	110 U	100 U	1000 U	100 U	99 U	NA	120 U	100 U
Aroclor-1248	80	110 U	100 U	1000 U	100 U	99 U	NA	120 U	100 U
Aroclor-1254	160	210 U	200 U	2000 U	200 U	200 U	NA	240 U	200 U
Aroclor-1260	160	210 U	200 U	2000 U	200 U	200 U	NA	240 U	200 U
Dilution Factor		1	1	10	1	1	-	1	1
Percent Solid		76	79	79	80	81	-	66	80
Laboratory Method Blank		PBLKGG	PBLKGG	-	PBLKGG	PBLKGG	-	PBLKGG	PBLKDD
Associated Equipment Blank		01SB002XXX01XX	01SB002XXX01XX	-	01SB002XXX01XX	01SB002XXX01XX	-	01SB002XXX01XX	01SB002XXX01XX
Associated Field Blank		-	-	-	-	-	-	-	-

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Click Here to Return to Main Index

Laboratory Report of Analysis

	SAMPLE ID:	08SD006XXX01XX	01SD115XXX01XX	09SD915XXX01XX	MW01209241	MW01209242	MW04404121	MW04404171	MW04404381
	LAB NUMBER:	8258-013	8253-026	8253-027	8203-044	8203-045	8203-046	8203-047	8203-048
	DATE SAMPLED:	9/13/88	9/8/88	9/8/88	7/20/88	7/20/88	7/21/88	7/21/88	7/21/88
	MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL								
alpha-BHC	8	10 U	20 U	14 U	10 U	10 U	11 U	10 U	10 U
beta-BHC	8	10 U	20 U	14 U	10 U	10 U	11 U	10 U	10 U
delta-BHC	8	10 U	20 U	14 U	10 U	10 U	11 U	10 U	10 U
gamma-BHC (Lindane)	8	10 U	20 U	14 U	10 U	10 U	11 U	10 U	10 U
Heptachlor	8	10 U	20 U	14 U	10 U	10 U	11 U	10 U	10 U
Aldrin	8	10 U	20 U	14 U	10 U	10 U	11 U	10 U	10 U
Heptachlor epoxide	8	10 U	20 U	14 U	10 U	10 U	11 U	10 U	10 U
Endosulfan I	8	10 U	20 U	14 U	10 U	10 U	11 U	10 U	10 U
Dieldrin	16	20 U	39 U	27 U	21 U	20 U	21 U	21 U	21 U
4,4'-DDE	16	20 U	39 U	27 U	21 U	20 U	21 U	21 U	21 U
Endrin	16	20 U	39 U	27 U	21 U	20 U	21 U	21 U	21 U
Endosulfan II	16	20 U	39 U	27 U	21 U	20 U	21 U	21 U	21 U
4,4'-DDD	16	20 U	39 U	27 U	21 U	20 U	21 U	21 U	21 U
Endosulfan sulfate	16	20 U	39 U	27 U	21 U	20 U	21 U	21 U	21 U
4,4'-DDT	16	20 U	39 U	27 U	21 U	20 U	21 U	21 U	21 U
Methoxychlor	80	100 U	200 U	140 U	100 U	100 U	110 U	100 U	100 U
Endrin ketone	16	20 U	39 U	27 U	21 U	20 U	21 U	21 U	21 U
alpha-Chlordane	80	100 U	200 U	140 U	100 U	100 U	110 U	100 U	100 U
gamma-Chlordane	80	100 U	200 U	140 U	100 U	100 U	110 U	100 U	100 U
Toxaphene	160	200 U	390 U	270 U	210 U	200 U	210 U	210 U	210 U
Aroclor-1016	80	100 U	200 U	140 U	100 U	100 U	110 U	100 U	100 U
Aroclor-1221	80	100 U	200 U	140 U	100 U	100 U	110 U	100 U	100 U
Aroclor-1232	80	100 U	200 U	140 U	100 U	100 U	110 U	100 U	100 U
Aroclor-1242	80	100 U	200 U	140 U	100 U	100 U	110 U	100 U	100 U
Aroclor-1248	80	100 U	200 U	140 U	100 U	100 U	110 U	100 U	100 U
Aroclor-1254	160	200 U	390 U	270 U	210 U	200 U	210 U	210 U	210 U
Aroclor-1260	160	200 U	390 U	270 U	210 U	200 U	210 U	210 U	210 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		80	41	59	78	79	76	78	78
Laboratory Method Blank		PBLKDD	PBLKGG	PBLKGG	PBLKJJ	PBLKKK	PBLKKK	PBLKKK	PBLKKK
Associated Equipment Blank		01SB002XXX01XX	01SB002XXX01XX	01SB002XXX01XX	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		-	-	-	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

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Click Here to Return to Main Index

Laboratory Report of Analysis

SAMPLE ID:	MW07705061	MW07706071	MW07706121	MW09905111	MW09905161
LAB NUMBER:	8203-049	8203-042	8203-043	8203-050	8203-051
DATE SAMPLED:	7/20/88	7/20/88	7/20/88	7/20/88	7/20/88
MATRIX:	SOIL	SOIL	SOIL	SOIL	SOIL

PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL					
alpha-BHC	8	9 U	10 U	10 U	10 U	11 U
beta-BHC	8	9 U	10 U	10 U	10 U	11 U
delta-BHC	8	9 U	10 U	10 U	10 U	11 U
gamma-BHC (Lindane)	8	9 U	10 U	10 U	10 U	11 U
Heptachlor	8	9 U	10 U	10 U	10 U	11 U
Aldrin	8	9 U	10 U	10 U	10 U	11 U
Heptachlor epoxide	8	9 U	10 U	10 U	10 U	11 U
Endosulfan I	8	9 U	10 U	10 U	10 U	11 U
Dieldrin	16	18 U	20 U	21 U	20 U	21 U
4,4'-DDE	16	18 U	20 U	21 U	20 U	21 U
Endrin	16	18 U	20 U	21 U	20 U	21 U
Endosulfan II	16	18 U	20 U	21 U	20 U	21 U
4,4'-DDD	16	18 U	20 U	21 U	20 U	21 U
Endosulfan sulfate	16	18 U	20 U	21 U	20 U	21 U
4,4'-DDT	16	18 U	20 U	21 U	20 U	21 U
Methoxychlor	80	90 U	100 U	100 U	100 U	110 U
Endrin ketone	16	18 U	20 U	21 U	20 U	21 U
alpha-Chlordane	80	90 U	100 U	100 U	100 U	110 U
gamma-Chlordane	80	90 U	100 U	100 U	100 U	110 U
Toxaphene	160	180 U	200 U	210 U	200 U	210 U
Aroclor-1016	80	90 U	100 U	100 U	100 U	110 U
Aroclor-1221	80	90 U	100 U	100 U	100 U	110 U
Aroclor-1232	80	90 U	100 U	100 U	100 U	110 U
Aroclor-1242	80	90 U	100 U	100 U	100 U	110 U
Aroclor-1248	80	90 U	100 U	100 U	100 U	110 U
Aroclor-1254	160	180 U	200 U	210 U	200 U	210 U
Aroclor-1260	160	180 U	200 U	210 U	200 U	210 U
Dilution Factor		1	1	1	1	1
Percent Solid		89	79	77	79	76
Laboratory Method Blank		PBLKKK	PBLKJJ	PBLKJJ	PBLKKK	PBLKKK
Associated Equipment Blank		SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1	SBXX406XX1
Associated Field Blank		SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1	SWXX101XX1

NA = Not Analyzed.

Click Here to Return to Main Index

Click Here to Return to Main Index

Click Here to Return to Main Index

ROUND II DATA

Combined Laboratory Report
of Analysis

SAMPLE ID:	01LT304XXX02DX	01LT305XXX02XX	08LT802XXX02XX	08LT803XXX02XX
LAB NUMBER:	234617	234618	237147	235391
DATE SAMPLED:	12/08/88	12/08/88	12/19/88	12/12/88
DATE SAMPLE PREP.:	12/14/88	12/14/88	12/24/88	12/17/88
DATE SAMPLE ANALYSIS:	12/14/88	12/14/88	12/29/88	12/18/88
MATRIX:	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL				
Phenol	10	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	5 J	9 J	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U
Benzoic acid	50	6 J	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	02LT201XXX02XX	02LT201XXX02DX	02LT202XXX02XX	03LT301XXX02XX	03LT301XXX02DX	03LT302XXX02XX	01LT303XXX02XX	01LT304XXX02XX
LAB NUMBER:	233781	233782	234902	234620	234621	234619	234614	234616
DATE SAMPLED:	12/06/88	12/06/88	12/09/88	12/08/88	12/08/88	12/08/88	12/08/88	12/08/88
DATE SAMPLE PREP.:	12/08/88	12/08/88	12/13/88	12/13/88	12/13/88	12/15/88	12/14/88	12/14/88
DATE SAMPLE ANALYSIS:	12/10/88	12/10/88	12/14/88	12/14/88	12/13/88	12/16/88	12/14/88	12/14/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS
UNITS: ug/l

	CRDL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GH033909A21	GH033909A21	GH035152B02	GH035152B02	GH035152B02	GJ035864B21	GH035499A16	GH035499A16
Associated Equipment Blank		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	02LT201XXX02XX	02LT201XXX02DX	02LT202XXX02XX	03LT301XXX02XX	03LT301XXX02DX	03LT302XXX02XX	01LT303XXX02XX	01LT304XXX02XX
LAB NUMBER:	233781	233782	234902	234620	234621	234619	234614	234616
DATE SAMPLED:	12/06/88	12/06/88	12/09/88	12/08/88	12/08/88	12/08/88	12/08/88	12/08/88
DATE SAMPLE PREP.:	12/08/88	12/08/88	12/13/88	12/13/88	12/13/88	12/15/88	12/14/88	12/14/88
DATE SAMPLE ANALYSIS:	12/10/88	12/10/88	12/14/88	12/14/88	12/13/88	12/16/88	12/14/88	12/14/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	4 J	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	6 J	6 J
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	3 J	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	8 J	4 J	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:		01LT304XXX02XX	01LT304XXX02DX	01LT305XXX02XX	08LT802XXX02XX	08LT803XXX02XX
LAB NUMBER:		234616	234617	234618	237147	235391
DATE SAMPLED:		12/08/88	12/08/88	12/08/88	12/19/88	12/12/88
DATE SAMPLE ANALYSIS:		12/13/88	12/13/88	12/13/88	12/22/88	12/16/88
MATRIX:		Water	Water	Water	Water	Water
VOLATILE ORGANIC COMPOUNDS						
UNITS: ug/l	CRDL					
Chloromethane	10	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	7 J	10 U	10 U
Methylene Chloride	5	5 U	1 J	5 U	5 U	1 JB
Acetone	10	10 U	6 JB	6 J	10	6 JB
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	24	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	2 J	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1	1
Laboratory Method Blank		CB881212B11	CC881213C11	CB881212B11	CB881221A11	CB881215B11

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	02LT201XXX02XX	02LT201XXX02DX	02LT202XXX02XX	03LT301XXX02XX	03LT301XXX02DX	03LT302XXX02XX	03LT302XXX02XX	01LT303XXX02XX
LAB NUMBER:	233781	233782	234902	234620	234621	234619	234619RE	234614
DATE SAMPLED:	12/06/88	12/06/88	12/09/88	12/08/88	12/08/88	12/08/88	12/08/88	12/08/88
DATE SAMPLE ANALYSIS:	12/09/88	12/08/88	12/14/88	12/13/88	12/13/88	12/13/88	12/14/88	12/13/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	71 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	71 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	71 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	71 U	10 U
Methylene Chloride	5	5 U	5 U	2 J	3 J	1 J	5 U	8 JD	4 J
Acetone	10	10 U	10 U	2 JB	10 B	8 JB	7 J	40 JDB	7 J
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	3 J	3 J	11	36 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	100	46 D	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	71 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	4 J	36 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	71 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	20	14 JD	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	3 J	36 U	5 U
Benzene	5	5 U	5 U	2 J	5 U	5 U	5 U	36 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	71 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	71 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	720 E	990 D	3 J
Toluene	5	20	19	5 U	5 U	5 U	5 U	36 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	1 J	36 U	4 J
Ethylbenzene	5	5 U	5 U	5 U	5 U	3 J	5 U	36 U	2 J
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	36 U	5 U
Xylenes (Total)	5	5 U	5 U	4 JB	3 JB	5 U	5 U	36 U	5 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		CB881208B09	CB881208B09	CB881214C09	CC881213C11	CC881213C11	CB881212B11	CB881214C11	CB881212B11

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01LT304XXX020X	01LT305XXX02XX	08LT802XXX02XX	08LT803XXX02XX
	LAB NUMBER:	234668	234671	237162	235421
	DATE SAMPLED:	12/08/88	12/08/88	12/19/88	12/12/88
	MATRIX:	Water	Water	Water	Water
METALS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	41700		74600		31400		23400	
Antimony	P	60	61	N	62	N	43	U	50	UN
Arsenic	F	10	461	N	3870	N	10	U	9.4	UN
Barium	P	200	1310		488		160	U	298	
Beryllium	P	5	6.6		5.4		3.1	U	2.3	U
Cadmium	P	5	4.4	U	7.9		4.3	U	4.3	U
Calcium	P	5000	134000		107000		101000		68400	
Chromium	P	10	50		82		35		56	
Cobalt	P	50	382		443		8.9	U	4.2	U
Copper	P	25	85		686		30		45	
Cyanide	CM	10	10	U	10	U	25		10	U
Iron	P	100	1000000		1050000		47800		329000	
Lead	P/F	5	731		762		126		738	
Magnesium	P	5000	12200		25900		8760		10100	
Manganese	P	15	4090		10700		532		1160	
Mercury	CV	0.20	7.5		1.3		0.2	U	0.2	U
Nickel	P	40	233		337		52		24	U
Potassium	P	5000	2360	U	2360	U	2360	U	3460	U
Selenium	F	5	21	UN	21	UEN	10	UEN	10	UEN
Silver	P	10	4.3	U	5.1	U	4.3	U	4.3	U
Sodium	P	5000	11100		37500		31400		33000	
Thallium	F	10	2.1	U	3	U	2	U	2	U
Vanadium	P	50	253		361		80		90	
Zinc	P	20	876		1020		282		419	
Laboratory Method Blank			15784D		15784D		15751B		15784D	

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	02LT201XXX02XX	02LT201XXX02DX	02LT202XXX02XX	03LT301XXX02XX	03LT301XXX02DX	03LT302XXX02XX	01LT303XXX02XX	01LT304XXX02XX
	LAB NUMBER:	233817	233819	234924	234699	234704	234696	234663	234664
	DATE SAMPLED:	12/06/88	12/06/88	12/09/88	12/08/88	12/08/88	12/08/88	12/08/88	12/08/88
	MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
METALS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	153000	382000	96400	71900	126000	7180	17500	90400
Antimony	P	60	43 U	43 U	43 UN	116 N	131 N	43 UN	43 UN	116 N
Arsenic	F	10	16 U	16 U	15 N	339 N	420 N	1.6 UN	5.2 [] N	1000 N
Barium	P	200	324	754	552	846	1030	200 []	263	2180
Beryllium	P	5	10	24	6.2	4.4 []	8.8	2.5 []	2.8 []	14
Cadmium	P	5	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	12	8.8
Calcium	P	5000	13500	29600	18400	62400	74600	26200	50300	213000
Chromium	P	10	112	289	165	32	102	5 U	18	131
Cobalt	P	50	61	130	72	86	157	2.5 []	24 []	750
Copper	P	25	86	218	126	79	148	17 []	53	226
Cyanide	CN	10	15	392	10 U	10 U	10 U	10 U	10 U	10 U
Iron	P	100	134000	288000	339000	1870000	2190000	530000	198000	1740000
Lead	P/F	5	224	337	82	486	692	63	115	1510
Magnesium	P	5000	20100	45500	36500	20700	31200	5460	7140	22000
Manganese	P	15	2270	3840	5680	19700	20500	6970	1960	7380
Mercury	CV	0.20	18	14	1.3	0.65	1.5	1.8	0.3	15
Nickel	P	40	113	236	135	54	123	25 []	54	523
Potassium	P	5000	4140 []	9190	12300	2360 U	2360 U	2360 U	6680	2360 U
Selenium	F	5	21 UN	42 UEN	10 UEN	21 UN	21 UEN	10 UEN	10 UEN	21 UEN
Silver	P	10	4.3 U	4.3 U	4.3 U	6 []	5.5 []	4.3 U	4.3 U	8.1 []
Sodium	P	5000	1890 U	2730 []	5600	8270	9140	6170	12500	17900
Thallium	F	10	2 U	2 U	2 U	2 U	2 []	2 U	2 U	2.2 []
Vanadium	P	50	251	563	243	371	635	50 []	89	612
Zinc	P	20	534	1100	584	1180	1420	338	1300	1540
Laboratory Method Blank			15774A	15774A	15784D	15784D	15784D	15784D	15784D	15784D

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick (Round 2)

Combined Laboratory Report
of Analysis

SAMPLE ID:	08GW808XXX02XX
LAB NUMBER:	236543
DATE SAMPLED:	12/15/88
MATRIX:	Water

MISCELLANEOUS COMPOUNDS UNITS: mg/l	DL		
Total Phenols	10		BDL
Chloride	3.0		6.5
Sulfate	1.0		BDL
Nitrate - N	0.005		1
Nitrite - N	1.0		BDL
Sulfide	0.050		BDL
Hexavalent Chromium	0.050	<	.050
Fluoride	0.10	<	.10
Methylene Blue Active Substances	0.020	<	.020
Total Dissloved Solids	10		78
Total Coliform (col/100 ml)	0		8

HERBICIDES METHOD 8150 UNITS: ug/l	DL	
2,4-D	4	BDL
2,4,5-TP (Silvex)	1	BDL
2,4,5-T	1	BDL

Laboratory Method Blank	237460
Date Sample Prep.	12/22/88
Date Sample Analyzed	01/21/89

BDL = Below Detection Limit

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	08GW801XXX01XX	08GW802XXX02XX	08GW802XXX02DX	08GW803XX02XX	08GW803XX02DX	08GW804XXX02XX	08GW804XXX02DX	08GW807XXX02XX
LAB NUMBER:	236537	235415	235416	236538	236539	236540	236541	235419
DATE SAMPLED:	12/15/88	12/12/88	12/12/88	12/15/88	12/15/88	12/15/88	12/15/88	12/12/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
MISCELLANEOUS COMPOUNDS								
UNITS: mg/l	DL							
Total Phenols	10	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloride	3.0	9.3	BDL	BDL	8.4	8.4	44	43	120
Sulfate	1.0	8.1	BDL	BDL	2.1	2.1	6.9	4.1	BDL
Nitrate - N	0.005	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nitrite - N	1.0	BDL	3.0	1.3	BDL	BDL	BDL	BDL	10
Sulfide	0.050	0.13	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Hexavalent Chromium	0.050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
Fluoride	0.10	0.18	0.36	0.34	< .10	< .10	< .10	< .10	< .10
Methylene Blue Active Substances	0.020	< .020	< .020	< .020	< .020	< .020	< .020	< .020	< .020
Total Dissloved Solids	10	650	170	140	55	94	260	230	260
Total Coliform (col/100 ml)	0	0	0	0	0	0	0	0	TNTC *
HERBICIDES METHOD 8150								
UNITS: ug/l	DL							
2,4-D	4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4,5-TP (Silvex)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4,5-T	1	BDL	BDL	BDL	1.2	BDL	BDL	BDL	1.2
Laboratory Method Blank		237460	236893	236893	237460	237460	237460	237460	236893
Date Sample Prep.		12/22/88	12/18/88	12/18/88	12/22/88	12/22/88	12/22/88	12/22/88	12/18/88
Date Sample Analyzed		01/21/89	01/13/89	01/13/89	01/21/89	01/21/89	01/21/89	01/21/89	01/13/89

< = Below Detection Limit

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	09GW901XXX02XX	09GW902XX02XX	09GW903XXX02XX	09GW904XXX02XX	09GW905XXX02XX	01SB004XXX02XX
LAB NUMBER:	234324/234314	234322/234312	237184/237172	234323/234313	237185/237173	237186/237174
DATE SAMPLED:	12/07/88	12/07/88	12/19/88	12/07/88	12/19/88	12/19/88
MATRIX:	Water	Water	Water	Water	Water	Water
MISCELLANEOUS COMPOUNDS UNITS: mg/l	DL					
Total Organic Carbon	1	2.6	2.8	1.6	2.3	9.2	BDL
Bicarbonate	1	39	12	38	76	200	BDL
Carbonate	1	BDL	BDL	BDL	BDL	BDL	BDL
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	-

* Carbonate analyzed 12/22/88.

BDL = Below Detection Limit

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	08GW802XXX02XX	08GW802XXX02DX	08GW803XXX02XX	08GW803XXX02DX	08GW804XXX02XX	08GW804XXX02DX	08GW807XXX02XX	08GW808XXX02XX
LAB NUMBER:	235562/235566	235573/235575	236572/236579	236573/236580	236574/236582	236575/236584	235581/235579	236577/236585
DATE SAMPLED:	12/12/88	12/12/88	12/15/88	12/15/88	12/15/88	12/15/88	12/12/88	12/15/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
MISCELLANEOUS COMPOUNDS UNITS: mg/l	DL							
Total Organic Carbon	1	1.6	1.2	1	1.1	2.6	3	2.2	6.5
Bicarbonate	1	120	88	56	57	140	120	14	31
Carbonate	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

* Carbonate analyzed 12/22/88.

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Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:		04GW407XXX02XX	07GW701XXX02XX	07GW702XXX02XX	07GW703XXX02XX	07GW704XXX02XX	07GW705XXX02XX	07GW706XXX02XX	08GW801XXX02XX
LAB NUMBER:		234321/234311	237408/237402	237409/237403	237410/237404	237414/237405	237415/237406	237416/237407	236571/236578
DATE SAMPLED:		12/07/88	12/20/88	12/20/88	12/20/88	12/20/88	12/20/88	12/20/88	12/15/88
MATRIX:		Water	Water	Water	Water	Water	Water	Water	Water
MISCELLANEOUS COMPOUNDS UNITS: mg/l	DL								
Total Organic Carbon	1	BDL	3.9	3.7	4.5	20	2.1	1.9	1.7
Bicarbonate	1	27	25	49	6.8	69	8.4	7.6	15
Carbonate	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

* Carbonate analyzed 12/22/88.

BDL = Below Detection Limit

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:		02GW212XXX02XX	02GW213XXX02XX	04GW401XXX02XX	04GW402XXX02XX	04GW403XXX02XX	04GW404XXX02XX	04GW405XXX02XX	04GW406XX02XX
LAB NUMBER:		235698/235700	235731/235744	234315/234301	234316/234302	234317/234304	234318/234307	234319/234309	234320/234310
DATE SAMPLED:		12/13/88	12/13/88	12/07/88	12/07/88	12/07/88	12/07/88	12/07/88	12/07/88
MATRIX:		Water	Water	Water	Water	Water	Water	Water	Water
MISCELLANEOUS COMPOUNDS UNITS: mg/l	DL								
Total Organic Carbon	1	2.2	1.1	BDL	BDL	1.7	BDL	BDL	1.2
Bicarbonate	1	14	130	33	7.2	4.1	10	5.2	10
Carbonate	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

* Carbonate analyzed 12/22/88.

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Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	01GW207BXX02XX	01GW208XX02XX	01GW209XXX02XX	01GW210AXX02XX	01GW210AXX02DX	01GW210BXX02XX	01GW211AXX02XX	01GW211BXX02XX
LAB NUMBER:	236006/236003	234981/234974	234982/234975	234979/234972	234980/234973	235697/235699	235728/235740	235729/235742
DATE SAMPLED:	12/14/88	12/09/88	12/09/88	12/09/88	12/09/88	12/13/88	12/13/88	12/13/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
MISCELLANEOUS COMPOUNDS UNITS: mg/l	DL							
Total Organic Carbon	1	BDL	BDL	BDL	4.4	4.1	4	5.2	1.2
Bicarbonate	1	8.1	20	BDL	440	500	170	590	56
Carbonate	1	BDL	20	BDL	80	60	BDL	39	BDL
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

* Carbonate analyzed 12/22/88.

BDL = Below Detection Limit

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	03GW202AXX02XX	03GW202AXX02DX	01GW203XXX02XX	01GW204XXX02XX	01GW205XXX02XX	02GW206AXX02XX	02GW206BXX02XX	01GW207AXX02XX
LAB NUMBER:	235726/235738	235727/235739	233832/233832	233835/233835	234976/234969	234977/234970	234978/234971	236007/236004
DATE SAMPLED:	12/13/88	12/13/88	12/06/88	12/06/88	12/09/88	12/09/88	12/09/88	12/14/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
MISCELLANEOUS COMPOUNDS UNITS: mg/l	DL							
Total Organic Carbon	1	7.5	8.5	7.1	5.8	1.1	1.7	13	BDL
Bicarbonate	1	85	89	76	10	57	30	10	74
Carbonate	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

* Carbonate analyzed 12/22/88.

= Below Detection Limit

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	01GW101XXX02XX	02GW102XXX02XX	03GW103XXX02XX	03GW104XXX02XX	01GW105AXX02XX	01GW105BXX02XX	01GW106XXX02XX	01GW201XXX02XX
LAB NUMBER:	236008/236005	236127/236132	235725/235736	234689/234686	234642/234641	234657/234654	233828/233828	233830/233830
DATE SAMPLED:	12/14/88	12/14/88	12/13/88	12/08/88	12/08/88	12/08/88	12/06/88	12/06/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
MISCELLANEOUS COMPOUNDS UNITS: mg/l	DL							
Total Organic Carbon	1	BDL	8.7	2	1.4	BDL	1	4.4	BDL
Bicarbonate	1	47	150	10	40	13	10	17	8.3
Carbonate	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

* Carbonate analyzed 12/22/88.

BDL = Below Detection Limit

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	01SB002XXX02XX	01SB003XXX02XX	01SB004XXX02XX
LAB NUMBER:	235990	237139	237138
DATE SAMPLED:	12/14/88	12/19/88	12/19/88
DATE SAMPLE PREP.:	12/23/88	12/22/88	12/22/88
DATE SAMPLE ANALYSIS:	12/30/88	12/28/88	12/28/88
MATRIX:	Water	Water	Water

PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL			
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U
Dieldrin	0.1	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.5 U	0.5 U
Endrin ketone	0.1	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.5 U	0.5 U
gamma-Chlordane	0.5	0.5 U	0.5 U	0.5 U
Toxaphene	1	1 U	1 U	1 U
Aroclor-1016	0.5	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5	0.5 U	0.5 U	0.5 U
Aroclor-1254	1	1 U	1 U	1 U
Aroclor-1260	1	1 U	1 U	1 U
Dilution Factor		1	1	1
Laboratory Method Blank		236886	237474	237474
Associated Equipment Blank		-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	04GW407XXX02XX	07GW701XXX02XX	07GW702XXX02XX	07GW703XXX02XX	07GW704XXX02XX	07GW705XXX02XX	07GW706XXX02XX	01SB001XXX02XX
LAB NUMBER:	234275	237372	237373	237374	237378	237382	237383	234613
DATE SAMPLED:	12/07/88	12/20/88	12/20/88	12/20/88	12/20/88	12/20/88	12/20/88	12/08/88
DATE SAMPLE PREP.:	12/12/88	12/31/88	12/23/88	12/23/88	12/23/88	12/23/88	12/23/88	12/14/88
DATE SAMPLE ANALYSIS:	12/13/88	1/04/88	12/28/88	12/28/88	12/28/88	12/28/88	12/28/88	12/17/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL								
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin ketone	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1016	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1260	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		235055	237960	237960	237960	237960	237960	237960	235524
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	02GW212XXX02XX	02GW213XXX02XX	04GW401XXX02XX	04GW402XXX02XX	04GW403XXX02XX	04GW404XXX02XX	04GW405XXX02XX	04GW406XXX02XX
LAB NUMBER:	235677	235706	234267	234268	234270	234271	234272	234274
DATE SAMPLED:	12/13/88	12/13/88	12/07/88	12/07/88	12/07/88	12/07/88	12/07/88	12/07/88
DATE SAMPLE PREP.:	12/15/88	12/18/88	12/12/88	12/12/88	12/12/88	12/12/88	12/12/88	12/12/88
DATE SAMPLE ANALYSIS:	12/20/88	12/24/88	12/13/88	12/13/88	12/13/88	12/13/88	12/13/88	12/13/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL								
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin ketone	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1016	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1260	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		235858	236903	235055	235055	235055	235055	235055	235055
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	01GW207BXX02XX	01GW208XXX02XX	01GW209XXX02XX	01GW210AXX02XX	01GW210AXX02DX	01GW210BXX02XX	01GW211AXX02XX	01GW211BXX02XX
LAB NUMBER:	235960	234920	234921	234909	234913	235673	235704	235705
DATE SAMPLED:	12/14/88	12/09/88	12/09/88	12/09/88	12/09/88	12/13/88	12/13/88	12/13/88
DATE SAMPLE PREP.:	12/18/88	12/15/88	12/15/88	12/15/88	12/15/88	12/15/88	12/18/88	12/18/88
DATE SAMPLE ANALYSIS:	12/20/88	12/19/88	12/20/88	12/19/88	12/19/88	12/20/88	12/23/88	12/23/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL								
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin ketone	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1016	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1260	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dilution Factor		1	1	1	1	1	1	1	1

Laboratory Method Blank	236886	235858	235858	235858	235858	235858	236903	236903
Associated Equipment Blank	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03GW202AXX02XX	03GW202AXX020X	01GW203XXX02XX	01GW204XXX02XX	01GW205XXX02XX	01GW206AXX02XX	01GW206BXX02XX	01GW207AXX02XX
LAB NUMBER:	235702	235703	233783	233784	234901	234906	234907	235971
DATE SAMPLED:	12/13/88	12/13/88	12/06/88	12/06/88	12/09/88	12/09/88	12/09/88	12/14/88
DATE SAMPLE PREP.:	12/15/88	12/18/88	12/09/88	12/09/88	12/14/88	12/14/88	12/14/88	12/18/88
DATE SAMPLE ANALYSIS:	12/20/88	12/23/88	12/12/88	12/12/88	12/16/88	12/16/88	12/17/88	12/20/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL							
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin ketone	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1016	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1260	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		235858	236903	234783	234783	235504	235504	235504	236886
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:		01GW101XXX02XX	02GW102XXX02XX	03GW103XXX02XX	03GW104XXX02XX	01GW105AXX02XX	01GW105BXX02XX	01GW106XXX02XX	01GW201XXX02XX
LAB NUMBER:		235983	235991	235701	234615	234602	234606	233767	233768
DATE SAMPLED:		12/14/88	12/14/88	12/13/88	12/08/88	12/08/88	12/08/88	12/06/88	12/06/88
DATE SAMPLE PREP.:		12/18/88	12/18/88	12/15/88	12/14/88	12/14/88	12/14/88	12/09/88	12/09/88
DATE SAMPLE ANALYSIS:		12/20/88	12/20/88	12/20/88	12/17/88	12/17/88	12/17/88	12/12/88	12/12/88
MATRIX:		Water	Water	Water	Water	Water	Water	Water	Water
PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL								
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin ketone	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1016	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1260	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		236886	236886	235858	235524	235524	235524	234783	234783
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	09GW905XXX02XX	01SB001XXX02XX	01SB002XXX02XX	01SB003XXX02XX	01SB004XXX02XX
LAB NUMBER:	237137	234613	235990	237139	237138
DATE SAMPLED:	12/19/88	12/08/88	12/14/88	12/19/88	12/19/88
DATE SAMPLE PREP.:	12/21/88	12/14/88	12/18/88	12/21/88	12/21/88
DATE SAMPLE ANALYSIS:	12/28/88	12/14/88	12/21/88	1/03/89	1/03/89
MATRIX:	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL					
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	12	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1

Laboratory Method Blank	GJ037451C20	GH035499A16	GH036897A08	GJ037451A21	GJ037451A21
Associated Equipment Blank	01SB004XXX02XX	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	09GW905XXX02XX	01SB001XXX02XX	01SB002XXX02XX	01SB003XXX02XX	01SB004XXX02XX
	LAB NUMBER:	237137	234613	235990	237139	237138
	DATE SAMPLED:	12/19/88	12/08/88	12/14/88	12/19/88	12/19/88
	DATE SAMPLE PREP.:	12/21/88	12/14/88	12/18/88	12/21/88	12/21/88
	DATE SAMPLE ANALYSIS:	12/28/88	12/14/88	12/21/88	1/03/89	1/03/89
	MATRIX:	Water	Water	Water	Water	Water
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL					
Phenol	10	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	08GW804XXX02XX	08GW804XXX02DX	08GW807XXX02XX	08GW808XXX02XX	09GW901XXX02XX	09GW902XXX02XX	09GW903XXX02XX	09GW904XXX02XX
LAB NUMBER:	236515	236517	235408	236518	234280	234277	237136	234279
DATE SAMPLED:	12/15/88	12/15/88	12/12/88	12/15/88	12/07/88	12/07/88	12/19/88	12/07/88
DATE SAMPLE PREP.:	12/20/88	12/20/88	12/17/88	12/21/88	12/11/88	12/11/88	12/21/88	12/11/88
DATE SAMPLE ANALYSIS:	12/28/88	12/28/88	12/18/88	12/22/88	12/14/88	12/13/88	12/28/88	12/13/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	6 J	9 J	10 U	5 J	1 J	3 J	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1

Laboratory Method Blank	GJ037188C06	GJ037188C06	GH036708A04	GH037219A06	G2J35024A21	G3J35024A15	GJ037451C20	G3J35024A15
Associated Equipment Blank	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	08GW804XXX02XX	08GW804XXX02DX	08GW807XXX02XX	08GW808XXX02XX	09GW901XXX02XX	09GW902XXX02XX	09GW903XXX02XX	09GW904XXX02XX
LAB NUMBER:	236515	236517	235408	236518	234280	234277	237136	234279
DATE SAMPLED:	12/15/88	12/15/88	12/12/88	12/15/88	12/07/88	12/07/88	12/19/88	12/07/88
DATE SAMPLE PREP.:	12/20/88	12/20/88	12/17/88	12/21/88	12/11/88	12/11/88	12/21/88	12/11/88
DATE SAMPLE ANALYSIS:	12/28/88	12/28/88	12/18/88	12/22/88	12/14/88	12/13/88	12/28/88	12/13/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	07GW704XXX02XX	07GW705XXX02XX	07GW706XXX02XX	08GW801XXX02XX	08GW802XXX02XX	08GW802XXX02DX	08GW803XXX02XX	08GW803XXX02DX
LAB NUMBER:	237378	237382	237383	236511	235393	235395	236512	236514
DATE SAMPLED:	12/20/88	12/20/88	12/20/88	12/15/88	12/12/88	12/12/88	12/15/88	12/15/88
DATE SAMPLE PREP.:	12/26/88	12/26/88	12/26/88	12/20/88	12/17/88	12/17/88	12/20/88	12/20/88
DATE SAMPLE ANALYSIS:	12/28/88	12/28/88	12/28/88	12/23/88	12/18/88	12/18/88	12/23/88	12/23/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	4 J	5 J	2 J	10 U	10 U	2 J	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GH038318A06	GH038318A06	GH038318A06	GH037188A16	GH036708A04	GH036708A04	GH037188A16	GH037188A16
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	07GW704XXX02XX	07GW705XXX02XX	07GW706XXX02XX	08GW801XXX02XX	08GW802XXX02XX	08GW802XXX02DX	08GW803XXX02XX	08GW803XXX02DX
LAB NUMBER:	237378	237382	237383	236511	235393	235395	236512	236514
DATE SAMPLED:	12/20/88	12/20/88	12/20/88	12/15/88	12/12/88	12/12/88	12/15/88	12/15/88
DATE SAMPLE PREP.:	12/26/88	12/26/88	12/26/88	12/20/88	12/17/88	12/17/88	12/20/88	12/20/88
DATE SAMPLE ANALYSIS:	12/28/88	12/28/88	12/28/88	12/23/88	12/18/88	12/18/88	12/23/88	12/23/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:		04GW403XXX02XX	04GW404XXX02XX	04GW405XXX02XX	04GW406XXX02XX	04GW407XXX02XX	07GW701XXX02XX	07GW702XXX02XX	07GW703XXX02XX
LAB NUMBER:		234270	234271	234272	234274	234275	237372	237373	237374
DATE SAMPLED:		12/07/88	12/07/88	12/07/88	12/07/88	12/07/88	12/20/88	12/20/88	12/20/88
DATE SAMPLE PREP.:		12/11/88	12/11/88	12/11/88	12/11/88	12/11/88	12/26/88	12/26/88	12/26/88
DATE SAMPLE ANALYSIS:		12/13/88	12/13/88	12/13/88	12/13/88	12/13/88	12/28/88	12/28/88	12/28/88
MATRIX:		Water	Water	Water	Water	Water	Water	Water	Water
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U	10 U	11	7 J	2 J
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		G3J35024A15	G3J35024A15	G3J35024A15	G3J35024A15	G3J35024A15	GH038318A06	GH038318A06	GH038318A06
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	04GW403XXX02XX	04GW404XXX02XX	04GW405XXX02XX	04GW406XXX02XX	04GW407XXX02XX	07GW701XXX02XX	07GW702XXX02XX	07GW703XXX02XX
LAB NUMBER:	234270	234271	234272	234274	234275	237372	237373	237374
DATE SAMPLED:	12/07/88	12/07/88	12/07/88	12/07/88	12/07/88	12/20/88	12/20/88	12/20/88
DATE SAMPLE PREP.:	12/11/88	12/11/88	12/11/88	12/11/88	12/11/88	12/26/88	12/26/88	12/26/88
DATE SAMPLE ANALYSIS:	12/13/88	12/13/88	12/13/88	12/13/88	12/13/88	12/28/88	12/28/88	12/28/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01GW210AXX02DX	01GW210BXX02XX	01GW211AXX02XX	01GW211BXX02XX	02GW212XXX02XX	02GW213XXX02XX	04GW401XXX02XX	04GW402XXX02XX
LAB NUMBER:	234913	235673	235704	235705	235677	235706	234267	234268
DATE SAMPLED:	12/09/88	12/13/88	12/13/88	12/13/88	12/13/88	12/13/88	12/07/88	12/07/88
DATE SAMPLE PREP.:	12/17/88	12/17/88	12/17/88	12/17/88	12/17/88	12/17/88	12/11/88	12/11/88
DATE SAMPLE ANALYSIS:	12/18/88	12/18/88	12/22/88	12/22/88	12/18/88	12/22/88	12/13/88	12/13/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GJ036709B16	GH036707A15	G2J36708A16	G2J36708A16	GH036707A15	G2J36708A16	G3J35024A15	G3J35024A15
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01GW210AXX02DX	01GW210BXX02XX	01GW211AXX02XX	01GW211BXX02XX	02GW212XXX02XX	02GW213XXX02XX	04GW401XXX02XX	04GW402XXX02XX
LAB NUMBER:	234913	235673	235704	235705	235677	235706	234267	234268
DATE SAMPLED:	12/09/88	12/13/88	12/13/88	12/13/88	12/13/88	12/13/88	12/07/88	12/07/88
DATE SAMPLE PREP.:	12/17/88	12/17/88	12/17/88	12/17/88	12/17/88	12/17/88	12/11/88	12/11/88
DATE SAMPLE ANALYSIS:	12/18/88	12/18/88	12/22/88	12/22/88	12/18/88	12/22/88	12/13/88	12/13/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS
UNITS: ug/l

	CRDL								
Phenol	10	3 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	9 J	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	2 JB	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	4 J	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:		01GW205XXX02XX	01GW206AXX02XX	01GW206BXX02XX	01GW207AXX02XX	01GW207BXX02XX	01GW208XXX02XX	01GW209XXX02XX	01GW210AXX02XX
LAB NUMBER:		234901	234906	234907	235971	235960	234920	234921	234909
DATE SAMPLED:		12/09/88	12/09/88	12/09/88	12/14/88	12/14/88	12/09/88	12/09/88	12/09/88
DATE SAMPLE PREP.:		12/13/88	12/13/88	12/13/88	12/18/88	12/18/88	12/14/88	12/14/88	12/14/88
DATE SAMPLE ANALYSIS:		12/13/88	12/14/88	12/14/88	12/21/88	12/21/88	12/15/88	12/15/88	12/15/88
MATRIX:		Water	Water	Water	Water	Water	Water	Water	Water
SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	5 J	10 U	5 J	10	8 J	4 J
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GH035152B02	GH035152B02	GH035152B02	GH036897A08	GH036897A08	GH035743A16	GH035743A16	GH035743A16
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	01GW205XXX02XX	01GW206AXX02XX	01GW206BXX02XX	01GW207AXX02XX	01GW207BXX02XX	01GW208XXX02XX	01GW209XXX02XX	01GW210AXX02XX
LAB NUMBER:	234901	234906	234907	235971	235960	234920	234921	234909
DATE SAMPLED:	12/09/88	12/09/88	12/09/88	12/14/88	12/14/88	12/09/88	12/09/88	12/09/88
DATE SAMPLE PREP.:	12/13/88	12/13/88	12/13/88	12/18/88	12/18/88	12/14/88	12/14/88	12/14/88
DATE SAMPLE ANALYSIS:	12/13/88	12/14/88	12/14/88	12/21/88	12/21/88	12/15/88	12/15/88	12/15/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01GW201XXX02XX	03GW202AXX02XX	03GW202AXX02XX	03GW202AXX02DX	03GW202AXX02DX	01GW203XXX02XX	01GW203XXX02XX	01GW204XXX02XX
LAB NUMBER:	233768	235702	235702 RE	235703	235703 RE	233783	233783 RE	233784
DATE SAMPLED:	12/06/88	12/13/88	12/13/88	12/13/88	12/13/88	12/06/88	12/06/88	12/06/88
DATE SAMPLE PREP.:	12/08/88	12/17/88	12/22/88	12/17/88	12/22/88	12/08/88	12/14/88	12/08/88
DATE SAMPLE ANALYSIS:	12/10/88	12/19/88	12/27/88	12/19/88	12/27/88	12/10/88	12/14/88	12/11/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	3 J
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GH033909A21	GH036707A15	G2J37516A20	G2J36708A16	G2J37516A20	GH033909A21	GH035511B16	GH033909A21
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	-	01SB004XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	01GW201XXX02XX	03GW202AXX02XX	03GW202AXX02XX	03GW202AXX02DX	03GW202AXX02DX	01GW203XXX02XX	01GW203XXX02XX	01GW204XXX02XX
LAB NUMBER:	233768	235702	235702 RE	235703	235703 RE	233783	233783 RE	233784
DATE SAMPLED:	12/06/88	12/13/88	12/13/88	12/13/88	12/13/88	12/06/88	12/06/88	12/06/88
DATE SAMPLE PREP.:	12/08/88	12/17/88	12/22/88	12/17/88	12/22/88	12/08/88	12/14/88	12/08/88
DATE SAMPLE ANALYSIS:	12/10/88	12/19/88	12/27/88	12/19/88	12/27/88	12/10/88	12/14/88	12/11/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	4 JB	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	5 J	5 J	6 J	5 J	3 J	1 J	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	4 J	4 J	6 J	4 J	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	8 JB	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	8 J	8 J	10	10	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	2 J	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01GW101XXX02XX	02GW102XXX02XX	02GW102XXX02XX	03GW103XXX02XX	03GW104XXX02XX	01GW105AXX02XX	01GW105BXX02XX	01GW106XXX02XX
LAB NUMBER:	235983	235991	235991 RE	235701	234615	234602	234606	233767
DATE SAMPLED:	12/14/88	12/14/88	12/14/88	12/13/88	12/08/88	12/08/88	12/08/88	12/06/88
DATE SAMPLE PREP.:	12/18/88	12/19/88	12/22/88	12/17/88	12/14/88	12/14/88	12/14/88	12/08/88
DATE SAMPLE ANALYSIS:	12/21/88	12/20/88	12/28/88	12/20/88	12/14/88	12/14/88	12/14/88	12/10/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	7 J	12	4 J	10 U	20	5 J	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1

Laboratory Method Blank	GH036897A08	GH036929A22	GH037520C06	GH036707A15	GH035499A16	GH035499A16	GH035499A16	GH033909A21
Associated Equipment Blank	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01GW101XXX02XX	02GW102XXX02XX	02GW102XXX02XX	03GW103XXX02XX	03GW104XXX02XX	01GW105AXX02XX	01GW105BXX02XX	01GW106XXX02XX
LAB NUMBER:	235983	235991	235991 RE	235701	234615	234602	234606	233767
DATE SAMPLED:	12/14/88	12/14/88	12/14/88	12/13/88	12/08/88	12/08/88	12/08/88	12/06/88
DATE SAMPLE PREP.:	12/18/88	12/19/88	12/22/88	12/17/88	12/14/88	12/14/88	12/14/88	12/08/88
DATE SAMPLE ANALYSIS:	12/21/88	12/20/88	12/28/88	12/20/88	12/14/88	12/14/88	12/14/88	12/10/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Laboratory Report of Analysis

SAMPLE ID:	08GW808XXX02XX	01TB005XXX02XX	01TB008XXX02XX
LAB NUMBER:	237645	235766	236519
DATE SAMPLED:	12/15/88	12/12/88	12/15/88
DATE SAMPLE PREP:	12/23/88	12/21/88	12/22/88
DATE SAMPLE ANALYSIS:	12/23/88	12/21/88	12/22/88
MATRIX:	Water	Water	Water

METHOD 524.1 VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	DL			
Trans-1,2-Dichloroethene	1.0	1.0 U	1.0 U	1.0 U
Cis-1,2-Dichloroethene	1.0	1.0 U	1.0 U	1.0 U
Methylene Chloride	1.0	1.0 U	1.0	1.0 U
1,1-Dichloroethane	1.0	1.0 U	1.0 U	1.0 U
1,1-Dichloropropene	1.0	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	1.0	1.0 U	1.0 U	1.0 U
1,3-Dichloropropane	1.0	1.0 U	1.0 U	1.0 U
1,3-Dichloropropene(TOTAL)	1.0	1.0 U	1.0 U	1.0 U
2,2-Dichloropropane	1.0	1.0 U	1.0 U	1.0 U
Ethylbenzene	1.0	1.0 U	1.0 U	1.0 U
Styrene	1.0	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1.0	1.0 U	1.0 U	1.0 U
1,1,1,2-Tetrachloroethane	1.0	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	1.0	1.0 U	1.0 U	1.0 U
Tetrachloroethene	1.0	1.0 U	1.0 U	1.0 U
1,2,3-Trichloropropane	1.0	1.0 U	1.0 U	1.0 U
Toluene	1.0	1.0 U	1.0 U	1.0 U
p-Xylene	1.0	1.0 U	1.0 U	1.0 U
o-Xylene	1.0	1.0 U	1.0 U	1.0 U
m-Xylene	1.0	1.0 U	1.0 U	1.0 U
Laboratory Method Blank		VE881223C14	VE881221C14	236302
Associated Trip Blank		-	-	-

Click Here to Return to Main Index

Laboratory Report of Analysis

SAMPLE ID:	08GW808XXX02XX	01TB005XXX02XX	01TB008XXX02XX
LAB NUMBER:	237645	235766	236519
DATE SAMPLED:	12/15/88	12/12/88	12/15/88
DATE SAMPLE PREP:	12/23/88	12/21/88	12/22/88
DATE SAMPLE ANALYSIS:	12/23/88	12/21/88	12/22/88
MATRIX:	Water	Water	Water

METHOD 524.1
VOLATILE ORGANIC COMPOUNDS

UNITS: ug/l	DL			
1,4-Dichlorobenzene	1.0	1.0 U	1.0 U	1.0 U
Vinyl Chloride	1.0	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	1.0	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	1.0	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	1.0	1.0 U	1.0 U	1.0 U
Carbon Tetrachloride	1.0	1.0 U	1.0 U	1.0 U
Trichloroethene	1.0	1.0 U	1.0 U	1.0 U
Benzene	1.0	1.0 U	1.0 U	1.0 U
Bromobenzene	1.0	1.0 U	1.0 U	1.0 U
Bromodichloromethane	1.0	1.0 U	1.0 U	1.0 U
Bromoform	1.0	1.0 U	1.0 U	1.0 U
Bromomethane	1.0	1.0 U	1.0 U	1.0 U
Chlorobenzene	1.0	1.0 U	1.0 U	1.0 U
Dibromochloromethane	1.0	1.0 U	1.0 U	1.0 U
Chloroethane	1.0	1.0 U	1.0 U	1.0 U
Chloroform	1.0	1.0 U	1.0 U	1.0 U
Chloromethane	1.0	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	1.0	1.0 U	1.0 U	1.0 U
4-Chlorotoluene	1.0	1.0 U	1.0 U	1.0 U
Dibromomethane	1.0	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	1.0	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	1.0	1.0 U	1.0 U	1.0 U

Click Here to Return to Main Index

Laboratory Report of Analysis

SAMPLE ID:		08GW801XXX02XX	08GW802XXX02XX	08GW802XXX02DX	08GW803XXX02XX	08GW803XXX02DX	08GW804XXX02XX	08GW804XXX02DX	08GW807XXX02XX
LAB NUMBER:		237361	235765	235767	237665	237366	237667	237368	235768
DATE SAMPLED:		12/15/88	12/12/88	12/12/88	12/15/88	12/15/88	12/15/88	12/15/88	12/12/88
DATE SAMPLE PREP:		12/23/88	12/20/88	12/21/88	12/22/88	12/23/88	12/23/88	12/23/88	12/21/88
DATE SAMPLE ANALYSIS:		12/23/88	12/20/88	12/21/88	12/22/88	12/23/88	12/23/88	12/23/88	12/21/88
MATRIX:		Water	Water	Water	Water	Water	Water	Water	Water
METHOD 524.1 VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	DL								
Trans-1,2-Dichloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cis-1,2-Dichloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene Chloride	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloropropene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichloropropane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichloropropene(TOTAL)	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2,2-Dichloropropane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1,2-Tetrachloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichloropropane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
p-Xylene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
o-Xylene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
m-Xylene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Laboratory Method Blank		VE881223C14	VC881220A14	VE881221C14	VF881222A14	VE881223C14	VE881223C14	VE881223C14	VE881221C14
Associated Trip Blank		-	01TB005XXX02XX	01TB005XXX02XX	-	-	-	-	01TB005XXX02XX

Click Here to Return to Main Index

Laboratory Report of Analysis

SAMPLE ID:	08GW801XXX02XX	08GW802XXX02XX	08GW802XXX02DX	08GW803XXX02XX	08GW803XXX02DX	08GW804XXX02XX	08GW804XXX02DX	08GW807XXX02XX
LAB NUMBER:	237361	235765	235767	237665	237366	237667	237368	235768
DATE SAMPLED:	12/15/88	12/12/88	12/12/88	12/15/88	12/15/88	12/15/88	12/15/88	12/12/88
DATE SAMPLE PREP:	12/23/88	12/20/88	12/21/88	12/22/88	12/23/88	12/23/88	12/23/88	12/21/88
DATE SAMPLE ANALYSIS:	12/23/88	12/20/88	12/21/88	12/22/88	12/23/88	12/23/88	12/23/88	12/21/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

METHOD 524.1
VOLATILE ORGANIC COMPOUNDS
UNITS: ug/l

	DL								
1,4-Dichlorobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon Tetrachloride	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chlorotoluene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
4-Chlorotoluene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	01TB010XXX02XX	01TB011XXX02XX
	LAB NUMBER:	237148	237387
	DATE SAMPLED:	12/19/88	12/20/88
	DATE SAMPLE ANALYSIS:	12/22/88	12/23/88
	MATRIX:	Water	Water

VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL		
Chloromethane	10	10 U	10 U
Bromomethane	10	10 U	10 U
Vinyl Chloride	10	10 U	10 U
Chloroethane	10	10 U	10 U
Methylene Chloride	5	5 U	1 JB
Acetone	10	10	10 U
Carbon Disulfide	5	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U
Chloroform	5	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U
2-Butanone	10	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U
Vinyl Acetate	10	10 U	10 U
Bromodichloromethane	5	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U
Trichloroethene	5	5 U	5 U
Dibromochloromethane	5	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U
Benzene	5	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U
Bromoform	5	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U
2-Hexanone	10	10 U	10 U
Tetrachloroethene	5	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U
Toluene	5	5 U	5 U
Chlorobenzene	5	5 U	5 U
Ethylbenzene	5	5 U	5 U
Styrene	5	5 U	5 U
Xylenes (Total)	5	5 U	5 U
Dilution Factor		1	1

Laboratory Method Blank	CC881221B23	CB881222B11
Associated Equipment Blank	-	01SB004XXX02XX
Associated Trip Blank	-	01TB011XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SB004XXX02XX	01TB001XXX02XX	01TB002XXX02XX	01TB003XXX02XX	01TB004XXX02XX	01TB006XXX02XX	01TB007XXX02XX	01TB009XXX02XX
LAB NUMBER:	237138	233787	234282	234622	234922	235707	236002	236793
DATE SAMPLED:	12/19/88	12/06/88	12/07/88	12/08/88	12/09/88	12/13/88	12/14/88	12/16/88
DATE SAMPLE ANALYSIS:	12/21/88	12/08/88	12/11/88	12/12/88	12/14/88	12/16/88	12/16/88	12/21/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	3 JB	5 U	5 U	5 U	2 JB	5 U	5 U	5 U
Acetone	10	18	10 U	10 U	12 B	7 JB	5 J	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	2 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		CB881221A11	CB881208C09	CB881211A09	CB881212C11	CB881214C11	CC881216A14	CC881216A14	CB881220B12
Associated Equipment Blank		-	-	-	-	-	-	-	-
Associated Trip Blank		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	09GW901XXX02XX	09GW902XXX02XX	09GW903XXX02XX	09GW904XXX02XX	09GW905XXX02XX	01SB001XXX02XX	01SB002XXX02XX	01SB003XXX02XX
LAB NUMBER:	234280	234277	237136	234279	237137	234613	235990	237139
DATE SAMPLED:	12/07/88	12/07/88	12/19/88	12/07/88	12/19/88	12/08/88	12/14/88	12/19/88
DATE SAMPLE ANALYSIS:	12/11/88	12/11/88	12/21/88	12/11/88	12/21/88	12/12/88	12/18/88	12/21/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

VOLATILE ORGANIC COMPOUNDS

UNITS: ug/l	CRDL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	27	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	5 U	5 U	5 U	3 J	3 J	3 JB
Acetone	10	10 U	10 U	9 J	10 U	14	30	31	28
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	12	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	6	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 J
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	15	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1	1	1	1	1

Laboratory Method Blank	CB881211A09	CB881211A09	CB881221A11	CB881211A09	CB881221A11	CB881212C11	CC881218A14	CB881221A11
Associated Equipment Blank	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	-	-	-
Associated Trip Blank	01TB002XXX02XX	01TB002XXX02XX	01TB010XXX02XX	01TB002XXX02XX	01TB010XXX02XX	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	04GW406XXX02XX	04GW407XXX02XX	07GW701XXX02XX	07GW702XXX02XX	07GW703XXX02XX	07GW704XXX02XX	07GW705XXX02XX	07GW706XXX02XX
LAB NUMBER:	234274	234275	237732	237373	237374	237378	237382	237383
DATE SAMPLED:	12/07/88	12/07/88	12/20/88	12/20/88	12/20/88	12/20/88	12/20/88	12/20/88
DATE SAMPLE ANALYSIS:	12/10/88	12/11/88	12/27/88	12/27/88	12/27/88	12/27/88	12/23/88	12/23/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	5 U	5 U	5 U	2 JB	2 JB	
Acetone	10	10 U	10 U	24 B	10 U	10 U	9 JB	8 JB	18 B
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	9 J	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2 J
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1	1	1	1	1

Laboratory Method Blank	CB881210A09	CB881211A09	CB881227B11	CB881227B11	CB881227B11	CB881227B11	CB881223C11	CB881222B11
Associated Equipment Blank	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX
Associated Trip Blank	01TB002XXX02XX	01TB002XXX02XX	01TB011XXX02XX	01TB011XXX02XX	01TB011XXX02XX	01TB011XXX02XX	01TB011XXX02XX	01TB011XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01GW211BXX02XX	02GW212XXX02XX	02GW213XXX02XX	04GW401XXX02XX	04GW402XXX02XX	04GW403XXX02XX	04GW404XXX02XX	04GW405XXX02XX
LAB NUMBER:	235705	235677	235706	234267	234268	234270	234271	234272
DATE SAMPLED:	12/13/88	12/13/88	12/13/88	12/07/88	12/07/88	12/07/88	12/07/88	12/07/88
DATE SAMPLE ANALYSIS:	12/18/88	12/16/88	12/19/88	12/10/88	12/10/88	12/10/88	12/10/88	12/10/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL							
Chloromethane	10	1 J	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	2 J	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	1 J	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	21	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	4 J
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	1 J	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	4 J	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1	1	1	1
Laboratory Method Blank		CC881218A14	CB881216C23	CB881218B23	CB881210A09	CB881210A09	CB881210A09	CB881210A09	CB881210A09
Associated Equipment Blank		01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX
Associated Trip Blank		01TB006XXX02XX	01TB006XXX02XX	01TB006XXX02XX	01TB002XXX02XX	01TB002XXX02XX	01TB002XXX02XX	01TB002XXX02XX	01TB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01GW207AXX02XX	01GW207BXX02XX	01GW208XXX02XX	01GW209XXX02XX	01GW210AXX02XX	01GW210AXX02DX	01GW210BXX02XX	01GW211AXX02XX
LAB NUMBER:	235971	235960	234920	234921	234909	234913	235673	235704
DATE SAMPLED:	12/14/88	12/14/88	12/09/88	12/09/88	12/09/88	12/09/88	12/13/88	12/13/88
DATE SAMPLE ANALYSIS:	12/16/88	12/16/88	12/14/88	12/14/88	12/14/88	12/14/88	12/16/88	12/18/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	42	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	2 J	5 U	1 J	3 JB	5 U	5 U	1 J	5 U
Acetone	10	10 U	10 U	10 U	6 JB	10 U	10 B	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	13	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	20	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	1 J	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	7	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	2 J	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	4 J	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	9	5 U
Dilution Factor		1	1	1	1	1	1	1	1

Laboratory Method Blank	CC881216A14	CC881216A14	CB881214C11	CB881214C11	CB881214C11	CB881214C11	CB881216C23	CC881218A14
Associated Equipment Blank	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX
Associated Trip Blank	01TB007XXX02XX	01TB007XXX02XX	01TB004XXX02XX	01TB004XXX02XX	01TB004XXX02XX	01TB004XXX02XX	01TB006XXX02XX	01TB006XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03GW202AXX02XX	03GW202AXX02XX	03GW202AXX02DX	01GW203XXX02XX	01GW204XXX02XX	01GW205XXX02XX	01GW206AXX02XX	01GW206BXX02XX
LAB NUMBER:	235702	235702 RE	235703	233783	233784	234901	234906	234907
DATE SAMPLED:	12/13/88	12/13/88	12/13/88	12/06/88	12/06/88	12/09/88	12/09/88	12/09/88
DATE SAMPLE ANALYSIS:	12/16/88	12/18/88	12/19/88	12/08/88	12/08/88	12/13/88	12/13/88	12/13/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	10 U	25 U	25 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	25 U	25 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	180	120 D	100	5 J	10 U	10 U	10 U	10 U
Chloroethane	10	25	20 JD	15 J	7 J	10 U	10 U	10 U	10 U
Methylene Chloride	5	2 J	13 U	3 J	5 U	5 U	18 B	5 B	5 U
Acetone	10	48	38 D	41	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	13 U	13 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	13 U	13 U	5 U	5 U	6	3 J	5 U
1,1-Dichloroethane	5	38	33 D	32	10	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	60	51 D	43	1 J	5 U	6	3 J	5 U
Chloroform	5	5 U	13 U	13 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	13 U	13 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	45	25 U	25 U	14	23	10 U	8 J	80
1,1,1-Trichloroethane	5	2 J	13 U	13 U	5 U	5 U	130	89	5 U
Carbon Tetrachloride	5	5 U	13 U	13 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	25 U	25 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	13 U	13 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	13 U	13 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	13 U	13 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	1 J	13 U	13 U	5 U	5 U	140	56	5 U
Dibromochloromethane	5	5 U	13 U	13 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	13 U	13 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	3 J	13 U	13 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	13 U	13 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	13 U	13 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	13	11 JD	8 J	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	25 U	25 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	13 U	13 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	13 U	13 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	330 E	230 D	210	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	22	19 D	15	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	210 E	100 D	130	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	13 U	13 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	780 E	510 D	470	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1	1	1	1	1

Laboratory Method Blank	CB881216A23	CC881218A14	CB881218B23	CB881208B09	CB881208B09	CB881213A09	CB881213A09	CB881213A09
Associated Equipment Blank	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX
Associated Trip Blank	01TB006XXX02XX	01TB006XXX02XX	01TB006XXX02XX	01TB001XXX02XX	01TB001XXX02XX	01TB004XXX02XX	01TB004XXX02XX	01TB004XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01GW101XXX02XX	02GW102XXX02XX	03GW103XXX02XX	03GW104XXX02XX	01GW105AXX02XX	01GW105BXX02XX	01GW106XXX02XX	01GW201XXX02XX
LAB NUMBER:	235983	235991	235701	234615	234602	234606	233767	233768
DATE SAMPLED:	12/14/88	12/14/88	12/13/88	12/08/88	12/08/88	12/08/88	12/06/88	12/06/88
DATE SAMPLE ANALYSIS:	12/17/88	12/18/88	12/16/88	12/12/88	12/12/88	12/12/88	12/08/88	12/08/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

VOLATILE ORGANIC COMPOUNDS

UNITS: ug/l	CRDL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	5 U	5 U	5 U	5 U	2 J	5 U
Acetone	10	10 U	10 U	10 U	5 J	8 J	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	2 J	5 U
1,1-Dichloroethane	5	5 U	2 J	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	52	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	25	10 U	10 U	36	23	87
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	48	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	95	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	31	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1	1	1	1	1

Laboratory Method Blank	CC881217A14	CC881218A14	CB881216C23	CB881212C11	CB881212C11	CB881212C11	CB881208C09	CB881208C09
Associated Equipment Blank	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX
Associated Trip Blank	01TB007XXX02XX	01TB007XXX02XX	01TB006XXX02XX	01TB003XXX02XX	01TB003XXX02XX	01TB003XXX02XX	01TB001XXX02XX	01TB001XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	01SB004XXX02XX	01FB001XXX02XX	01FB002XXX02XX
	LAB NUMBER:	237152	236001	237151
	DATE SAMPLED:	12/19/88	12/14/88	12/19/88
	MATRIX:	Water	Water	Water
METALS UNITS: ug/l	ANALYTICAL METHOD	CRDL			
Aluminum	P	200	25 []	27 []	25 U
Antimony	P	60	43 U	43 U	43 U
Arsenic	F	10	1.6 U	1.6 U	1.6 U
Barium	P	200	2.1 []	0.85 U	0.85 U
Beryllium	P	5	1.1 U	1.1 U	1.1 U
Cadmium	P	5	4.3 U	4.3 U	4.3 U
Calcium	P	5000	32 []	35 []	40 []
Chromium	P	10	5 U	5 U	5 U
Cobalt	P	50	4.9 []	2.5 U	2.5 U
Copper	P	25	3.1 U	3.1 U	7.9 []
Cyanide	CM	10	10 U	NR	NR
Iron	P	100	253	31 []	28 []
Lead	P/F	5	1.6 []	0.91 U	0.91 U
Magnesium	P	5000	133 U	133 U	133 U
Manganese	P	15	1.7 U	1.7 U	1.7 U
Mercury	CV	0.20	0.2 U	0.2 U	0.2 U
Nickel	P	40	24 U	24 U	24 U
Potassium	P	5000	2360 U	2360 U	2360 U
Selenium	F	5	2.1 UN	2.1 UN	2.1 UN
Silver	P	10	4.3 U	4.3 U	4.3 U
Sodium	P	5000	1890 U	1890 U	1890 U
Thallium	F	10	2 U	2 U	2 U
Vanadium	P	50	2.3 U	2.3 U	2.3 U
Zinc	P	20	22	32	23
Laboratory Method Blank			15751B	15784W	15784W
Associated Equipment Blank			-	-	-
Associated Field Blank			-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	09GW901XXX02XX	09GW902XXX02XX	09GW903XXX02XX	09GW904XXX02XX	09GW905XXX02XX	01SB001XXX02XX	01SB002XXX02XX	01SB003XXX02XX
	LAB NUMBER:	234297	234295	237149	234296	237150	234660	235999	237153
	DATE SAMPLED:	12/07/88	12/07/88	12/19/88	12/07/88	12/19/88	12/08/88	12/14/88	12/19/88
	MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
METALS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	25 U	110 [I]	25 U	34 [I]	137 [I]	25 U	25 U	25 U
Antimony	P	60	43 U	43 U	43 U	43 U	43 U	43 UN	43 U	43 U
Arsenic	F	10	1.6 [I]	1.6 U	2 [I]	1.6 U	35	1.6 UN	1.6 U	1.6 U
Barium	P	200	2.3 [I]	26 [I]	7 [I]	7.9 [I]	1.5 [I]	0.85 U	0.85 U	2.1 [I]
Beryllium	P	5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Cadmium	P	5	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Calcium	P	5000	3750 [I]	23200	7140	21100	8020	25 [I]	9.3 U	33 [I]
Chromium	P	10	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cobalt	P	50	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	4.2 [I]	2.5 U	5.4 [I]
Copper	P	25	3.1 U	12 [I]	3.1 U	3.1 U	26	3.1 U	3.1 U	3.1 U
Cyanide	CM	10	10 U	10 U	10 U	10 U	26	10 U	10 U	10 U
Iron	P	100	79 [I]	44 [I]	3430	44 [I]	233	318	384	365
Lead	P/F	5	0.91 UN	0.91 UN	0.91 U	0.91 UN	0.91 U	5.3	2 [I]	2.5 [I]
Magnesium	P	5000	1360 [I]E	5760 E	2850 [I]	5960 E	2680 [I]	144 [I]	133 U	133 U
Manganese	P	15	149	1200	207	167	39	1.7 U	1.7 U	1.7 U
Mercury	CV	0.20	0.2 U	0.2 U	0.2 U	0.23	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	P	40	24 U	24 U	24 U	24 U	24 U	24 U	24 U	24 U
Potassium	P	5000	2360 U	2360 U	2360 U	2360 U	3100 [I]	2360 U	2360 U	2360 U
Selenium	F	5	10 UN	10 UEN	21 UN	10 UN	10 UN	2.1 UN	2.1 UN	2.1 UN
Silver	P	10	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Sodium	P	5000	34700	21000	14000	5410	71500	2370 [I]	1890 U	1890 U
Thallium	F	10	2 U	2 U	2 U	2.6 [I]	2 U	2 U	2 U	2 U
Vanadium	P	50	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
Zinc	P	20	21	87	11 [I]	7.4 [I]	25	26	28	22
Laboratory Method Blank			15784B	15784B	15784W	15784B	15784W	15784D	15784W	15751B
Associated Equipment Blank			-	-	-	-	-	-	-	-
Associated Field Blank			01FB001XXX02XX	01FB001XXX02XX	01FB002XXX02XX	01FB001XXX02XX	01FB002XXX02XX	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	08GW802XXX02XX	08GW802XXX02DX	08GW803XXX02XX	08GW803XXX02DX	08GW804XXX02XX	08GW804XXX02DX	08GW807XXX02XX	08GW808XXX02XX
	LAB NUMBER:	235422	235424	236526	236527	236528	236531	235428	236529
	DATE SAMPLED:	12/12/88	12/12/88	12/15/88	12/15/88	12/15/88	12/15/88	12/12/88	12/15/88
	MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
METALS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	68 []	71 []	70 []	60 []	48 []	51 []	176 []	25 U
Antimony	P	60	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
Arsenic	F	10	3.8 []	4.8 []	2 []	2.1 []	2.5 []	1.8 []	2.4 []	1.6 U
Barium	P	200	2 []	2.3 []	2.6 []	3.5 []	14 []	14 []	7.1 []	0.87 []
Beryllium	P	5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Cadmium	P	5	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	7.2	9.4
Calcium	P	5000	10700	10300	7740	7510	43700	38400	13400	6800
Chromium	P	10	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cobalt	P	50	3 []	3.9 []	2.5 U	2.5 U	2.5 U	2.5 U	9.9 []	2.5 U
Copper	P	25	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
Cyanide	CN	10	10 U	10 U	10 U	38	11	11	10 U	10 U
Iron	P	100	191	217	2820	2870	71 U	53 []	2970	39 []
Lead	P/F	5	0.91 U	0.91 U	0.91 U	3.6 []	0.91 U	0.91 U	6.2	0.91 U
Magnesium	P	5000	7050 E	6760 E	4490 []	4490 []	15100	13200	5850 E	3880 []
Manganese	P	15	92	124	190	184	407	357	320	9.8 []
Mercury	CV	0.20	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	P	40	24 U	24 U	24 U	24 U	24 U	24 U	24 U	24 U
Potassium	P	5000	3150 []	4210 []	2360 U	2360 U	2360 U	2360 U	5850	2360 U
Selenium	F	5	2.1 UN	2.1 UN	10 UN	10 UN	21 UN	21 UN	2.1 UN	21 UN
Silver	P	10	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Sodium	P	5000	27500	29600	10400	11100	21100	24800	62200	5430
Thallium	F	10	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Vanadium	P	50	2.3 U	2.6 []	2.3 U	2.3 U	2.3 U	2.3 U	5.6 []	2.3 U
Zinc	P	20	5.6 []	7.2 []	26	19 []	17 []	10 []	47	17 []
Laboratory Method Blank			15784E	15784E	15784W	15784W	15784W	15784W	15784E	15784W
Associated Equipment Blank			-	-	-	-	-	-	-	-
Associated Field Blank			01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	04GW407XXX02XX	07GW701XXX02XX	07GW702XXX02XX	07GW703XXX02XX	07GW704XXX02XX	07GW705XXX02XX	07GW706XXX02XX	08GW801XXX02XX
	LAB NUMBER:	234294	237388	237389	237395	237397	237400	237401	236525
	DATE SAMPLED:	12/07/88	12/30/88	12/30/88	12/30/88	12/30/88	12/30/88	12/30/88	12/15/88
	MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
METALS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	310	111 []	47 []	47 []	417	44 []	189 []	131 []
Antimony	P	60	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
Arsenic	F	10	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.7 []
Barium	P	200	7.9 []	22 []	10 []	1.1 []	79 []	8 []	6.8 []	1.5 []
Beryllium	P	5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Cadmium	P	5	4.3 U	4.3 U	4.3 U	4.3 U	15	4.3 U	7.8	4.3 U
Calcium	P	5000	5980	6270	16500	2010 []	10300	2190 []	5200	3060 []
Chromium	P	10	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cobalt	P	50	3.9 []	5.2 []	2.5 U	2.5 U	9.4 []	3 []	2.5 U	2.5 U
Copper	P	25	18 []	13 []	13 []	3.1 U	7.6 []	3.1 U	8.1 []	3.1 U
Cyanide	CM	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	P	100	449	32 []	231	22 []	6920	34 []	153	431
Lead	P/F	5	0.91 UN	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U	0.91 U
Magnesium	P	5000	2370 [] E	1680 []	2160 []	581 []	3900 []	955 []	1020 []	1330 []
Manganese	P	15	70	26	539	9.6 []	574	15 []	38	89
Mercury	CV	0.20	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	P	40	24 U	24 U	24 U	24 U	24 U	24 U	24 U	24 U
Potassium	P	5000	6150	5520	2360 U	2360 U	6010	2360 U	2360 U	2360 U
Selenium	F	5	10 UN	21 UN	2.1 UN	21 UEN	2.1 UN	2.1 UN	21 UN	10 UN
Silver	P	10	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Sodium	P	5000	3940 []	4250 []	4270 []	1890 U	5750	1950 []	1890 U	6700
Thallium	F	10	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Vanadium	P	50	5.3 []	2.3 U	2.3 U	2.3 U	2.5 []	2.3 U	2.3 U	2.3 U
Zinc	P	20	351	10 []	7.9 []	6.2 []	39	8.4 []	38	35
Laboratory Method Blank			15784B	15784K	15784K	15784K	15784K	15784K	15784K	15784W
Associated Equipment Blank			-	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX	-
Associated Field Blank			01FB001XXX02XX	01FB002XXX02XX	01FB002XXX02XX	01FB002XXX02XX	01FB002XXX02XX	01FB002XXX02XX	01FB002XXX02XX	01FB001XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	02GW212XXX02XX	02GW213XXX02XX	04GW401XXX02XX	04GW402XXX02XX	04GW403XXX02XX	04GW404XXX02XX	04GW405XXX02XX	04GW406XXX02XX
	LAB NUMBER:	235691	235718	234287	234288	234289	234291	234292	234293
	DATE SAMPLED:	12/13/88	12/13/88	12/07/88	12/07/88	12/07/88	12/07/88	12/07/88	12/07/88
	MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
METALS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	893	51 []	112 []	41 []	37 []	29 []	70 []	266
Antimony	P	60	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
Arsenic	F	10	1.6 U	13	2 []	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
Barium	P	200	7.8 []	3.5 []	0.85 U	5.9 []	4.6 []	0.85 U	16 []	3.3 []
Beryllium	P	5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Cadmium	P	5	4.3 U	4.3 U	4.3 U	4.6 []	4.3 U	4.3 U	4.3 U	4.3 U
Calcium	P	5000	5200	11000	3500 []	2720 []	1190 []	2300 []	3190 []	4990 []
Chromium	P	10	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5.2 []
Cobalt	P	50	2.5 U	2.5 U	2.5 U	2.5 U	4.3 []	3.6 []	2.5 U	2.8 []
Copper	P	25	3.1 U	3.1 U	3.1 U	3.1 U	15 []	3.1 U	8.9 []	12 []
Cyanide	CM	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	P	100	1390	10100	160	36 []	34 []	35 []	23 []	380
Lead	P/F	5	60	0.91 U	3 []N	0.91 UN	10 N	0.92 []N	1.8 []N	0.91 UN
Magnesium	P	5000	1610 []	6000	2560 []E	460 []E	657 []E	504 []E	212 []E	1770 []E
Manganese	P	15	178	380	280	24	11 []	13 []	14 []	104
Mercury	CV	0.20	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	P	40	24 U	24 U	24 U	24 U	24 U	24 U	24 U	24 U
Potassium	P	5000	2400 []	2360 U	2360 U	2360 U	3050 []	2740 []	3750 []	5010
Selenium	F	5	10 UN	10 UN	10 UN	10 UN	10 UN	10 UN	10 UEN	10 UN
Silver	P	10	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Sodium	P	5000	1890 U	32700	2760 []	3070 []	3010 []	4350 []	13400	4600 []
Thallium	F	10	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Vanadium	P	50	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
Zinc	P	20	17 []	23	24	58	34	18 []	34	195
Laboratory Method Blank			15751A	15784W	15784B	15784B	15784B	15784B	15784B	15784B
Associated Equipment Blank			01SB004XXX02XX	-	-	-	-	-	-	-
Associated Field Blank			01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01GW207BXX02XX	01GW208XXX02XX	01GW209XXX02XX	01GW210AXX02XX	01GW210AXX02DX	01GW210BXX02XX	01GW211AXX02XX	01GW211BXX02XX
	LAB NUMBER:	235992	234956	234965	234946	234948	235687	235714	235715
	DATE SAMPLED:	12/14/88	12/09/88	12/09/88	12/09/88	12/09/88	12/13/88	12/13/88	12/13/88
	MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
METALS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	25 U	255	85 []	46 []	26 []	25 U	62 []	251
Antimony	P	60	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
Arsenic	F	10	2.5 []	2.1 []	1.6 U	8 []	11	37 []	13	2 []
Barium	P	200	2.3 []	0.85 U	1.7 []	24 []	22 []	10 []	47 []	11 []
Beryllium	P	5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Cadmium	P	5	4.3 U	4.3 U	6.2	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Calcium	P	5000	2060 []	7910	2780 []	5870	5890	34100	4920 []	18500
Chromium	P	10	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cobalt	P	50	2.5 U	7.9 []	2.8 []	3.8 []	4.1 []	16 []	2.5 U	2.5 U
Copper	P	25	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	18 []	18 []
Cyanide	CM	10	14	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	P	100	129	276	87 []	70 []	81 []	36900	254	268
Lead	P/F	5	0.91 U	0.91 U	1.1 []	0.91 U	0.91 U	1.6 []	1.8 []	1.2 []
Magnesium	P	5000	842 []	4600 []E	1220 []E	3950 []E	4060 []E	7910	4560 []	7790
Manganese	P	15	51	90	2.8 []	7.4 []	7.4 []	5400	14 []	522
Mercury	CV	0.20	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	P	40	24 U	24 U	24 U	24 U	24 U	24 U	24 U	24 U
Potassium	P	5000	2360 U	2360 U	2360 U	18500	21700	4100 []	14200	2360 U
Selenium	F	5	10 UN	2.1 UN	2.1 UN	10 UN	10 UN	10 UN	10 UN	10 UN
Silver	P	10	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Sodium	P	5000	2070 []	16900	4850 []	398000	403000	10800	436000	6790
Thallium	F	10	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Vanadium	P	50	2.3 U	9.5 []	3.6 []	2.4 []	3.1 []	2.3 U	2.3 U	2.3 U
Zinc	P	20	22	8.5 []	11 []	9.9 []	12 []	29	24	38
Laboratory Method Blank			15784W	15784E	15784E	15784E	15784E	15751A	15751A	15751A
Associated Equipment Blank			-	-	-	-	-	01SB004XXX02XX	01SB004XXX02XX	01SB004XXX02XX
Associated Field Blank			01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	03GW202AXX02XX	03GW202AXX02DX	01GW203XXX02XX	01GW204XXX02XX	01GW205XXX02XX	01GW206AXX02XX	01GW206BXX02XX	01GW207AXX02XX
	LAB NUMBER:	235712	235713	233822	233824	234923	234943	234944	235994
	DATE SAMPLED:	12/13/88	12/13/88	12/06/88	12/06/88	12/09/88	12/09/88	12/09/88	12/14/88
	MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
METALS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	34 []	159 []	121 []	2810	31 []	25 U	25 U	30 []
Antimony	P	60	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
Arsenic	F	10	11	12	21	2.2 []	1.6 U	1.6 U	1.6 U	6.4 []
Barium	P	200	41 []	47 []	22 []	22 []	5.7 []	4.3 []	3.4 []	2 []
Beryllium	P	5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Cadmium	P	5	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Calcium	P	5000	24400	24700	25100	6090	13700	11800	1300 []	6230
Chromium	P	10	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cobalt	P	50	2.5 U	2.5 U	2.5 U	2.5 U	3.1 []	2.5 U	2.5 U	2.5 U
Copper	P	25	3.1 U	3.1 U	11 []	23 []	3.1 U	3.1 U	3.1 U	3.1 U
Cyanide	CM	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Iron	P	100	94900	97000	12100	4330	111	12 []	14 []	214
Lead	P/F	5	2 []	2 []	0.91 UN	5 []N	0.91 U	0.91 U	1.9 []	0.91 U
Magnesium	P	5000	4010 []	4000 []	6350	2030 []	6140 E	4800 []E	317 []E	3430 []
Manganese	P	15	3410	3500	1760	355	675	37	1.9 []	67
Mercury	CV	0.20	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.25	0.2 U
Nickel	P	40	24 U	24 U	29 []	26 []	24 U	24 U	24 U	24 U
Potassium	P	5000	2360 U	2360 U	2730 []	2360 U	2360 U	2360 U	2360 U	2360 U
Selenium	F	5	10 UN	10 UN	10 UN	10 UN	10 UEN	10 UN	2.1 UN	10 UN
Silver	P	10	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Sodium	P	5000	18600	19600	14200	1890 U	8680	7560	9250	26300
Thallium	F	10	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Vanadium	P	50	2.3 U	2.3 U	2.3 U	2.3 U	2.9 []	2.3 U	2.3 U	2.3 U
Zinc	P	20	56	60	48	277	11 []	9.6 []	9.7 []	10 []
Laboratory Method Blank			15751A	15751A	15774A	15774A	15784E	15784E	15784E	15784W
Associated Equipment Blank			01SB004XXX02XX	01SB004XXX02XX	-	-	-	-	-	-
Associated Field Blank			01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01GW101XXX02XX	02GW102XXX02XX	03GW103XXX02XX	03GW104XXX02XX	01GW105AXX02XX	01GW105BXX02XX	01GW106XXX02XX	01GW201XXX02XX
	LAB NUMBER:	235997	236000	235711	234677	234640	234645	233790	233791
	DATE SAMPLED:	12/14/88	12/14/88	12/13/88	12/08/88	12/08/88	12/08/88	12/06/88	12/06/88
	MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
METALS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	55 []	76 []	435	25 U	32 []	25 U	25 U	25 U
Antimony	P	60	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 U
Arsenic	F	10	8.6 []	9.6 []	1.6 U	4.3 []	2.2 []	1.6 U	1.6 U	1.6 U
Barium	P	200	2.6 []	7 []	2.3 []	3.4 []	0.85 U	4.3 []	5.9 []	21 []
Beryllium	P	5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Cadmium	P	5	4.3 U	4.3 U	4.3 U	4.3 U	5.5	4.3 U	4.8 []	4.3 U
Calcium	P	5000	5440	19600	5300	3750 []	4190 []	3180 []	7300	9640
Chromium	P	10	5 U	5 U	5 U	5 U	7.5 []	5 U	5 U	5 U
Cobalt	P	50	2.5 U	2.5 U	2.5 U	2.7 []	2.5 U	2.5 U	2.5 U	2.5 U
Copper	P	25	3.1 U	3.1 U	3.1 U	5.3 []	3.1 U	3.1 U	3.1 U	3.1 U
Cyanide	CM	10	10 U	34	10 U	10 U	10 U	10 U	10 U	10 U
Iron	P	100	49 []	11800	572	11 []	70 []	36 []	10 []	26 []
Lead	P/F	5	0.91 U	0.91 U	180	0.91 U	0.91 UN	0.91 U	3 []N	1.4 []N
Magnesium	P	5000	2460 []	10300	1400 []	2770 []E	1140 []E	1410 []E	1820 []	1350 []
Manganese	P	15	34	2210	33	24	1.7 U	2.3 []	8.3 []	18
Mercury	CV	0.20	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	P	40	24 U	24 U	24 U	24 U	24 U	24 U	24 U	24 U
Potassium	P	5000	2360 U	2400 []	2360 U	2500 []	2360 U	2360 U	2360 U	2360 U
Selenium	F	5	10 UN	10 UNE	10 UN	10 UN	2.1 UN	2.1 UN	10 UN	10 UN
Silver	P	10	4.3 U	4.3 U	7 []	4.3 U	4.3 U	4.3 U	615	4.3 U
Sodium	P	5000	14600	53000	3150 []	13700	2700 []	3930 []	7780	12200
Thallium	F	10	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Vanadium	P	50	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
Zinc	P	20	21	21	82	6.7 []	29	17 []	20	62
Laboratory Method Blank			15784W	15784W	15751A	15784E	15784B	15784E	15774A	15774A
Associated Equipment Blank			-	-	01SB004XXX02XX	-	-	-	-	-
Associated Field Blank			01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX	01FB001XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01LT304XXX02DX	01LT305XXX02XX	08LT802XXX02XX	08LT803XXX02XX
LAB NUMBER:	234617	234618	237147	235391
DATE SAMPLED:	12/08/88	12/08/88	12/19/88	12/12/88
DATE SAMPLE PREP.:	12/14/88	12/14/88	12/24/88	12/17/88
DATE SAMPLE ANALYSIS:	12/14/88	12/14/88	12/29/88	12/18/88
MATRIX:	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL				
3-Nitroaniline	50	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	4 J	10 U
Pyrene	10	10 U	10 U	3 J	3 J
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1
Laboratory Method Blank		GH035499A16	GH035499A16	GJ038274B06	GH036708A04
Associated Equipment Blank		-	-	-	01SB004XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	02LT201XXX02XX	02LT201XXX02DX	02LT202XXX02XX	03LT301XXX02XX	03LT301XXX02DX	03LT302XXX02XX	01LT303XXX02XX	01LT304XXX02XX
LAB NUMBER:	233781	233782	234902	234620	234621	234619	234614	234616
DATE SAMPLED:	12/06/88	12/06/88	12/09/88	12/08/88	12/08/88	12/08/88	12/08/88	12/08/88
DATE SAMPLE PREP:	12/09/88	12/09/88	12/14/88	12/14/88	12/14/88	12/14/88	12/14/88	12/14/88
DATE SAMPLE ANALYSIS:	12/12/88	12/12/88	12/16/88	12/16/88	12/16/88	12/17/88	12/17/88	12/17/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL								
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin ketone	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1016	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1260	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		234783	234783	235504	235504	235504	235524	235524	235524

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	01LT304XXX02DX	01LT305XXX02XX
LAB NUMBER:	234617	234618
DATE SAMPLED:	12/08/88	12/08/88
DATE SAMPLE PREP:	12/14/88	12/14/88
DATE SAMPLE ANALYSIS:	12/17/88	12/17/88
MATRIX:	Water	Water

PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL		
alpha-BHC	0.05	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U
Dieldrin	0.1	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.5 U
Endrin ketone	0.1	0.1 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.5 U
gamma-Chlordane	0.5	0.5 U	0.5 U
Toxaphene	1	1 U	1 U
Aroclor-1016	0.5	0.5 U	0.5 U
Aroclor-1221	0.5	0.5 U	0.5 U
Aroclor-1232	0.5	0.5 U	0.5 U
Aroclor-1242	0.5	0.5 U	0.5 U
Aroclor-1248	0.5	0.5 U	0.5 U
Aroclor-1254	1	1 U	1 U
Aroclor-1260	1	1 U	1 U
Dilution Factor		1	1
Laboratory Method Blank		235524	235524

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

	SAMPLE ID:	08LT802XXX02XX	08LT803XXX02XX
	LAB NUMBER:	237171	235414
	DATE SAMPLED:	12/19/88	12/12/88
	MATRIX:	Water	Water
MISCELLANEOUS COMPOUNDS UNITS: ug/l	DL		
Total Phenols	10	BDL	11
Chloride	3.0	59	55
Sulfate	1.0	97	BDL
Nitrate - N	0.005	N/A	0.015
Nitrite - N	1.0	N/A	18
Sulfide	0.050	BDL	BDL
Nitrate-Nitrite	0.050	1.8	N/A
Hexavalent Chromium	0.050	< .050	< .050
Fluoride	0.10	0.12	0.10
Methylene Blue Active Substances	0.020	0.090	0.080
Total Dissloved Solids	10	420	270
Total Coliform (col/100 ml)	0	< 4	5
HERBICIDES METHOD 8150 UNITS: ug/l	DL		
2,4-D	4	BDL	BDL
2,4,5-TP (Silvex)	1	BDL	BDL
2,4,5-T	1	BDL	BDL
Laboratory Method Blank		237460	236893
Date Sample Prep.		12/22/88	12/18/88
Date Sample Analyzed		01/23/89	01/13/89

BDL = Below Detection Limit N/A = Not Applicable

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	03SD002XXX02XX	02SD003XXX02XX	01SD004XXX02XX	08SD006XXX02XX	08SD007XXX02XX	08SD008XXX02XX	08SD009XXX02XX	09SD010XXX02XX
	LAB NUMBER:	234896	233759	233757	235434	236500	236499	237122	236763
	DATE SAMPLED:	12/09/88	12/06/88	12/06/88	12/12/88	12/15/88	12/15/88	12/19/88	12/16/88
	MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
METALS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	4760	4550	4670	2620	3760	2630	3770	3650
Antimony	P	12	17 UN	11 UN	13 UN	10 UN	11 UN	11 UN	12 UN	12 UN
Arsenic	F	2	2.8 []	0.81 []	2.6 []	0.82 []	1.1 []	1 []	1.8 []	1.3 []
Barium	P	40	41 []	10 []	23 []	7.7 []	11 []	7.5 []	12 []	9.1 []
Beryllium	P	1	0.72 []	0.67 []	0.82 []	0.26 U	0.28 U	0.28 U	0.31 U	0.3 U
Cadmium	P	1	1.7 U	1.1 U	1.3 U	1 U	1.1 U	1.1 U	1.2 U	1.2 U
Calcium	P	1000	1150 []	614 []	886 []	383 []	655 []	454 []	660 []	890 []
Chromium	P	2	5.1	6	7.7	5.3	6.9	5.3	5.8	10
Cobalt	P	10	2.4 []	1.3 []	4.5 []	2.7 []	4.3 []	2.6 []	2 []	2 []
Copper	P	5	8.7 []	5.5 []	10	4.2 []	7.6	7.7	7.2	8.1
Cyanide	CM	2	1 U	0.64 U	0.75 U	0.65 U	0.64 U	0.66 U	0.7 U	0.66 U
Iron	P	20	34900	7060	8130	4220	6520	5090	12500	3990
Lead	P/F	1	3.4	3.3	18 S	2.7	2.3	2.5	6.5	11
Magnesium	P	1000	1140 []	987 []	1700	976 []E	1260 []E	982 []E	1150 []E	1030 []E
Manganese	P	3	1470	63	281	61	97	91	72	64
Mercury	CV	0.04	0.16 U	0.12 U	0.14	0.12 U	0.13 U	0.11 U	0.14 U	0.12 U
Nickel	P	8	9.7 U	6 U	12 []	8.3 []	6.2 U	6.2 U	6.7 U	6.5 U
Potassium	P	1000	1240 []	696 []	1910	2880	1700	1450	660 U	636 U
Selenium	F	1	0.87 UN	0.49 UN	0.64 UN	0.52 UN	0.53 UN	0.54 UN	0.59 UN	0.57 UN
Silver	P	2	1.7 U	1.1 U	1.3 U	1.2 []	1.1 U	1.1 U	1.2 U	1.2 U
Sodium	P	1000	760 U	474 U	777 []	442 U	633 []	485 U	529 U	509 U
Thallium	F	2	0.83 U	0.47 U	0.61 U	0.5 U	0.59 []	0.69 []	0.73 []	0.77 []
Vanadium	P	10	13 []	12 []	12 []	8.5 []	11 []	9.4 []	9.7 []	8.3 []
Zinc	P	4	50 E	38 E	64 E	37	21	15	29	24
Percent Solids			48	78	66	77	78	76	71	74
Laboratory Method Blank			15784B	15784B	15784B	15820C	15784G	15784G	15784G	15784G
Associated Equipment Blank			01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB003XXX02XX	01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	09SD011XXX02XX	09SD012XXX02XX	01SD113XXX02XX	01SD114XXX02XX	01SD115XXX02XX	01SD118XXX02XX	01SS118XXX02XX	01SD119XXX02XX
	LAB NUMBER:	236764	236765	236030	236031	233758	236029	234900	236010
	DATE SAMPLED:	12/16/88	12/16/88	12/14/88	12/14/88	12/06/88	12/14/88	12/09/88	12/14/88
	MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
METALS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	4240	3500	4580	3890	10300	2490	8530	5130
Antimony	P	12	11 UN	12 UN	14 UN	11 UN	24 UN	12 UN	40 UN	12 UN
Arsenic	F	2	2 []	1.5 []	4.2	5.4	10	1.6 []	28	4.4
Barium	P	40	17 []	16 []	25 []	39 []	85 []	12 []	129 []	33 []
Beryllium	P	1	0.29 U	0.3 U	0.35 U	0.29 U	1.4 []	0.3 U	2.5 []	0.3 U
Cadmium	P	1	1.1 U	1.2 U	1.4 U	1.1 U	2.6 []	1.2 U	4 U	1.2 U
Calcium	P	1000	1240 []	807 []	1100 []	911 []	2710 []	632 []	6650	1030 []
Chromium	P	2	14	12	9	8.1	26	1.4 U	16	9.6
Cobalt	P	10	3.1 []	3.3 []	4.4 []	4.4 []	14 []	2.7 []	13 []	4.7 []
Copper	P	5	7.8	16	9.2	7.3	21	8.2	31	7.8
Cyanide	CM	2	0.68 U	0.68 U	0.81 U	0.68 U	1.4 U	0.7 U	2.4 U	0.72 U
Iron	P	20	5970	5510	11600	13400	28800	3920	45300	13500
Lead	P/F	1	20	24	59	6.6	29	4.8	56 S	8.1
Magnesium	P	1000	1890 E	1260 []E	1700 E	1470 E	3630	854 []E	3040 []	1750 E
Manganese	P	3	296	176	376	1170	1260	292	3040	478
Mercury	CV	0.04	0.13 U	0.12 U	0.16 U	0.12 U	0.22 U	0.13 U	0.48 U	0.12 U
Nickel	P	8	7.9 []	6.6 []	7.7 U	6.3 U	21 []	6.5 U	23 []	7.1 []
Potassium	P	1000	924 []	1200 []	1710	1860	4940	642 U	4310 []	654 U
Selenium	F	1	0.57 UN	0.57 UN	0.67 UN	0.54 UN	1.2 UN	0.57 UN	2 UN	0.61 UN
Silver	P	2	1.1 U	1.2 U	1.4 U	1.3 []	2.4 U	1.2 U	4 U	1.2 U
Sodium	P	1000	498 U	507 U	605 U	507 []	1160 []	514 U	1760 U	524 U
Thallium	F	2	0.73 []	0.68 []	0.64 U	0.68 []	1.1 U	0.54 U	1.9 U	0.58 U
Vanadium	P	10	16	11 []	14 []	12 []	37	6 []	37 []	14 []
Zinc	P	4	41	40	45	55	179 E	34	174 E	58
Percent Solids			74	72	61	74	36	71	21	69
Laboratory Method Blank			15784G	15784G	15784G	15784G	15784B	15784G	15784B	15784G
Associated Equipment Blank			01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB001XXX02XX	01SB002XXX02XX	01SB001XXX02XX	01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	02SD201XXX02XX	02SD202XXX02XX	02SD202XXX02DX	01SD301XXX02XX	01SD302XXX02XX	01SD303XXX02XX	01SD304XXX02XX	01SD304XXX02DX
	LAB NUMBER:	233766	234894	234895	234639	234638	234634	234635	234636
	DATE SAMPLED:	12/06/88	12/09/88	12/09/88	12/08/88	12/08/88	12/08/88	12/08/88	12/08/88
	MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
METALS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	7600	22700	18800	5270	5400	4000	5240	4870
Antimony	P	12	17 UN	22 UN	20 UN	15 UN	19 UN	12 UN	86 UN	79 UN
Arsenic	F	2	1.8 []	10	13	3.3 []	3.1 []	1.5 []	42	42
Barium	P	40	18 []	99 []	77 []	16 []	17 []	15 []	87 []	72 []
Beryllium	P	1	1 []	1.2 []	1.1 []	0.93 []	1.2 []	0.76 []	2.7 []	2 U
Cadmium	P	1	1.7 U	2.2 U	2 U	1.5 U	3	1.2 U	8.6 U	7.9 U
Calcium	P	1000	856 []	2070 []	2100 []	1160 []	918 []	837 []	11900	11200
Chromium	P	2	8.2	42	37	7	6.4	5.7	12 []	11 []
Cobalt	P	10	4.6 []	14 []	12 []	3.6 []	11 []	2.5 []	76 []	61 []
Copper	P	5	13	34	30	11	15	9.6	58	58
Cyanide	CM	2	0.97 U	1.3 U	1.2 U	0.88 U	1.1 U	0.71 U	5.1 U	4.7 U
Iron	P	20	9380	37900	32500	16800	13400	8890	34000	27700
Lead	P/F	1	8.7	20	16	6.6	13	7.1	123 S+	103 S
Magnesium	P	1000	1780 []	7470	6570	1610 []	1560 []	1270 []	1380 []	1260 []
Manganese	P	3	119	434	353	182	232	82	265	244
Mercury	CV	0.04	0.52	0.25 U	0.23	0.13 U	0.49	0.11 U	4.6	4.7
Nickel	P	8	9.3 U	36	25	8.3 U	13 []	6.8 U	48 U	44 U
Potassium	P	1000	1450 []	4110	3500	820 U	1560 []	672 U	10400	8200 []
Selenium	F	1	0.82 UN	1 UN	0.93 UN	0.72 UN	0.89 UN	0.59 UN	4.3 UN	3.9 UN
Silver	P	2	1.7 U	2.2 U	2 U	1.5 U	1.9 U	1.2 U	8.6 U	7.9 U
Sodium	P	1000	730 U	967 U	859 U	657 U	832 U	538 U	3790 U	3460 U
Thallium	F	2	0.78 U	0.98 U	0.88 U	0.68 U	0.85 U	0.56 U	4.1 U	3.7 U
Vanadium	P	10	18 []	62	50	15 []	15 []	13 []	39 []	37 []
Zinc	P	4	50 E	109 E	122 E	39 E	40 E	87 E	266 E	146 E
Percent Solids			51	39	43	57	45	70	9.6	11
Laboratory Method Blank			15784B	15784B	15784B	15784B	15784B	15784B	15784B	15784B
Associated Equipment Blank			01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	01SD305XXX02XX	03SD316XXX02XX	03SD317XXX02XX	03SD317XXX02DX	08SD802XXX02XX	08SD803XXX02XX	08SDB17XXX02XX	08SD818XXX02XX
	LAB NUMBER:	234637	234898	234897	234899	237116	235433	237124	237125
	DATE SAMPLED:	12/08/88	12/09/88	12/09/88	12/09/88	12/19/88	12/12/88	12/19/88	12/19/88
	MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
METALS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	5990	4240	3250	3190	5480	5650	6740	4620
Antimony	P	12	17 UN	12 UN	11 UN	11 UN	13 UN	14 UN	16 UN	12 UN
Arsenic	F	2	38	3.2	1.4 []	1.5 []	3.7	3.9	2.5 []	1.8 []
Barium	P	40	13 []	56	38 []	192	25 []	29 []	27 []	16 []
Beryllium	P	1	1 []	0.72 []	0.72 []	0.71 []	0.34 U	0.37 U	0.42 U	0.3 U
Cadmium	P	1	1.7 U	1.2 U	1.1 U	1.1 U	1.3 U	1.4 U	1.6 U	1.2 U
Calcium	P	1000	1110 []	707 []	695 []	522 []	2780	2370	1360 []	1040 []
Chromium	P	2	10	7.3	5.8	7.3	11	9.7	14	10
Cobalt	P	10	25	4.7 []	1.9 []	2.7 []	2.8 []	3.2 []	4.7 []	3.1 []
Copper	P	5	33	9	9	9	13	5.9 []	14	7.9
Cyanide	CN	2	0.97 U	0.69 U	0.66 U	0.68 U	0.77 U	0.85 U	0.96 U	0.68 U
Iron	P	20	10400	9120	5610	5490	12300	22000	18900	8430
Lead	P/F	1	9.1 S	10 S	3.7	4.2	13	68	16	8.4
Magnesium	P	1000	1940	1410	1210 []	1230 []	1490 []E	1640 []E	2300 E	1610 E
Manganese	P	3	137	519	73	71	79	115	211	166
Mercury	CV	0.04	0.15 U	0.1 U	0.11 U	0.11 U	0.14 U	0.16 U	0.19 U	0.12 U
Nickel	P	8	21	6.4 U	6.3 U	6.3 U	7.3 U	12 []	9.2 U	6.5 U
Potassium	P	1000	2640	633 U	657 []	833 []	719 U	3170	904 U	642 U
Selenium	F	1	0.82 UN	0.56 UN	0.54 UN	0.56 UN	0.65 UN	3.5 UN	0.78 UN	0.58 UN
Silver	P	2	1.7 U	1.2 U	1.1 U	1.1 U	1.3 U	1.4 U	1.6 U	1.2 U
Sodium	P	1000	819 []	507 U	497 U	493 U	576 U	632 U	724 U	514 U
Thallium	F	2	0.78 U	0.53 U	0.51 U	0.54 U	0.76 []	0.67 U	1 []	0.77 []
Vanadium	P	10	17 []	10 []	7.3 []	7.3 []	14 []	16 []	18 []	13 []
Zinc	P	4	53 E	50 E	26 E	49 E	37	58	54	32
Percent Solids			51	72	76	74	64	58	52	72
Laboratory Method Blank			15784B	15784B	15784B	15784B	15784G	15820C	15784G	15784G
Associated Equipment Blank			01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB003XXX02XX	01SB002XXX02XX	01SB003XXX02XX	01SB003XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	08SD819XXX02XX	08SD820XXX02XX	08SD821XXX02XX	09SD915XXX02XX	09SD916XXX02XX	09SD918XXX02XX	09SD918XXX02DX	01SDBK1XXX02XX
	LAB NUMBER:	235432	236501	236502	236768	236769	237126	237127	236766
	DATE SAMPLED:	12/12/88	12/15/88	12/15/88	12/16/88	12/16/88	12/19/88	12/19/88	12/16/88
	MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
METALS UNITS: mg/kg	ANALYTICAL METHOD	CRDL							
Aluminum	P	40	2340	5120	2290	6340	3400	8550	6360	6410
Antimony	P	12	9.5 UN	14 UN	11 UN	13 UN	12 UN	14 UN	12 UN	13 UN
Arsenic	F	2	0.67 []	2.1 []	1.2 []	3.9	1.3 []	4.7	4.1 N	2.6 []
Barium	P	40	6.5 []	29 []	7.2 []	44 []	15 []	38 []	25 []	32 []
Beryllium	P	1	0.24 U	0.37 U	0.29 U	0.33 U	0.3 U	0.91 []	0.9 []	0.54 U
Cadmium	P	1	0.95 U	1.4 U	1.1 U	1.3 U	1.2 U	2.2	1.2 U	1.3 U
Calcium	P	1000	457 []	1430 []	576 []	5030	760 []	1610 []	1190 []	1190 []
Chromium	P	2	4.2	9.9	5.5	16	7.3	19	13	12
Cobalt	P	10	1.9 []	6.7 []	2.1 []	3.7 []	3.3 []	6.9 []	3.6 []	6 []
Copper	P	5	0.95 []	9.8	3.8 []	11	16	20	13	19
Cyanide	CN	2	0.69 U	0.87 U	0.68 U	0.77 U	0.7 U	0.83 U	0.76 UN	0.79 U
Iron	P	20	3910	11100	4270	8900	5050	12900	11300	9490
Lead	P/F	1	2.6	4.6	2.9	11	24	17	18 *	9.2
Magnesium	P	1000	842 [] E	1420 [] E	908 [] E	2050 E	1180 [] E	2970 E	2180	2250 E
Manganese	P	3	109	560	150	340	309	186	145	225
Mercury	CV	0.04	0.12 U	0.16 U	0.14 U	0.15 U	0.13 U	0.15 U	0.15 U	0.15 U
Nickel	P	8	5.3 U	8.1 U	6.3 U	8.1 []	6.6 U	12 []	15	7.5 U
Potassium	P	1000	1270	1120 []	623 U	1960	749 []	2820	685 U	2360
Selenium	F	1	0.57 UN	0.72 UN	0.55 UN	0.64 UN	0.57 UN	0.69 UN	0.63 UN	0.65 UN
Silver	P	2	0.95 U	1.4 U	1.1 U	1.3 U	1.2 U	1.4 U	1.2 U	1.3 U
Sodium	P	1000	417 U	1030 []	499 U	570 U	522 U	1060 []	549 U	652 []
Thallium	F	2	0.54 U	0.91 []	0.76 []	0.83 []	0.84 []	0.72 []	0.6 U	0.87 []
Vanadium	P	10	6.5 []	14 []	7 []	15 []	11 []	28	18	18
Zinc	P	4	15	31	12	40	43	97	62	47
Percent Solids			72	58	73	65	71	59	66	64
Laboratory Method Blank			15820C	15784G	15784G	15784G	15784G	15784G	15847B	15784G
Associated Equipment Blank			01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB003XXX02XX	01SB003XXX02XX	01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID: 01SDBK2XXX02XX
LAB NUMBER: 236767
DATE SAMPLED: 12/16/88
MATRIX: Soil

METALS UNITS: mg/kg	ANALYTICAL METHOD	CRDL		
Aluminum	P	40	5000	
Antimony	P	12	9.6	UN
Arsenic	F	2	1.5	[]
Barium	F	40	23	[]
Beryllium	P	1	0.24	U
Cadmium	P	1	0.96	U
Calcium	P	1000	697	[]
Chromium	P	2	9	
Cobalt	P	10	4.3	[]
Copper	P	5	13	
Cyanide	CN	2	0.58	U
Iron	P	20	7240	
Lead	P/F	1	3.2	
Magnesium	P	1000	1840	E
Manganese	P	3	145	
Mercury	CV	0.04	0.1	U
Nickel	P	8	7.7	[]
Potassium	P	1000	1110	[]
Selenium	F	1	0.48	UN
Silver	P	2	0.96	U
Sodium	P	1000	648	[]
Thallium	F	2	0.64	[]
Vanadium	P	10	11	[]
Zinc	P	4	30	
Percent Solids			86	

Laboratory Method Blank 15784G
Associated Equipment Blank 01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03SD002XXX02XX	02SD003XXX02XX	01SD004XXX02XX	08SD006XXX02XX	08SD007XXX02XX	08SD008XXX02XX	08SD009XXX02XX	09SD010XXX02XX
LAB NUMBER:	234888	233749	233744	235431	236496	236495	237104	236756
DATE SAMPLED:	12/09/88	12/06/88	12/06/88	12/12/88	12/15/88	12/15/88	12/19/88	12/16/88
DATE SAMPLE ANALYZED:	12/15/88	12/09/88	12/08/88	12/17/88	12/19/88	12/19/88	12/22/88	12/19/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Chloromethane	10	21 U	13 U	15 U	13 U	13 U	13 U	14 U	14 U
Bromomethane	10	21 U	13 U	15 U	13 U	13 U	13 U	14 U	14 U
Vinyl Chloride	10	21 U	13 U	15 U	13 U	13 U	13 U	14 U	14 U
Chloroethane	10	21 U	13 U	15 U	13 U	13 U	13 U	14 U	14 U
Methylene Chloride	5	39 B	15 B	42 B	18 B	17 B	29 B	7 B	34 B
Acetone	10	44 B	25 B	43 B	10 JB	19 B	22 B	13 JB	13 JB
Carbon Disulfide	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
1,1-Dichloroethene	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
1,1-Dichloroethane	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
1,2-Dichloroethene (total)	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
Chloroform	5	10 U	6 U	8 U	6 U	3 J	7 U	2 J	7 U
1,2-Dichloroethane	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
2-Butanone	10	21 U	13 U	15 U	13 U	13 U	13 U	14 U	14 U
1,1,1-Trichloroethane	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
Carbon Tetrachloride	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
Vinyl Acetate	10	21 U	13 U	15 U	13 U	13 U	13 U	14 U	14 U
Bromodichloromethane	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
1,2-Dichloropropane	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
cis-1,3-Dichloropropene	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
Trichloroethene	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
Dibromochloromethane	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
1,1,2-Trichloroethane	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
Benzene	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
Trans-1,3-Dichloropropene	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
Bromoform	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
4-Methyl-2-Pentanone	10	21 U	13 U	15 U	13 U	13 U	13 U	14 U	14 U
2-Hexanone	10	21 U	13 U	15 U	13 U	13 U	13 U	14 U	14 U
Tetrachloroethene	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
1,1,2,2-Tetrachloroethane	5	12	6 U	8 U	6 U	6 U	7 U	7 U	7 U
Toluene	5	10 U	2 J	8 U	6 U	6 U	7 U	7 U	7 U
Chlorobenzene	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
Ethylbenzene	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
Styrene	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
Xylenes (Total)	5	10 U	6 U	8 U	6 U	6 U	7 U	7 U	7 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		48	78	66	77	78	76	72	73

Laboratory Method Blank	GW035852B18	GW033921B12	GW033921B12	GW035603A18	GW036920A13	GW036920A13	GW037214B18	GW036920A13
Associated Equipment Blank	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB003XXX02XX	01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	09SD011XXX02XX	09SD012XXX02XX	01SD113XXX02XX	01SD114XXX02XX	01SD115XXX02XX	01SD118XXX02XX	01SS118XXX02XX	01SD119XXX02XX
LAB NUMBER:	236757	236758	236018	236022	233745	236014	234892	236009
DATE SAMPLED:	12/16/88	12/16/88	12/14/88	12/14/88	12/06/88	12/14/88	12/09/88	12/14/88
DATE SAMPLE ANALYZED:	12/19/88	12/19/88	12/17/88	12/17/88	12/06/88	12/16/88	12/15/88	12/16/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Chloromethane	10	14 U	14 U	16 U	14 U	28 U	14 U	48 U	14 U
Bromomethane	10	14 U	14 U	16 U	14 U	28 U	14 U	48 U	14 U
Vinyl Chloride	10	14 U	14 U	16 U	14 U	28 U	14 U	48 U	14 U
Chloroethane	10	14 U	14 U	16 U	14 U	28 U	14 U	48 U	14 U
Methylene Chloride	5	44 B	50 B	11 B	16 B	38 B	20 B	45 B	17 B
Acetone	10	8 JB	40 B	11 JB	8 JB	180 B	7 JB	110 B	10 JB
Carbon Disulfide	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
1,1-Dichloroethene	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
1,1-Dichloroethane	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
1,2-Dichloroethene (total)	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
Chloroform	5	2 J	7 U	8 U	7 U	14 U	7 U	6 J	7 U
1,2-Dichloroethane	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
2-Butanone	10	14 U	14 U	16 U	14 U	40	14 U	48 U	14 U
1,1,1-Trichloroethane	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
Carbon Tetrachloride	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
Vinyl Acetate	10	14 U	14 U	16 U	14 U	28 U	14 U	48 U	14 U
Bromodichloromethane	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
1,2-Dichloropropane	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
cis-1,3-Dichloropropene	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
Trichloroethene	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
Dibromochloromethane	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
1,1,2-Trichloroethane	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
Benzene	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
Trans-1,3-Dichloropropene	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
Bromoform	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
4-Methyl-2-Pentanone	10	14 U	14 U	16 U	14 U	28 U	14 U	48 U	14 U
2-Hexanone	10	14 U	14 U	16 U	14 U	28 U	14 U	48 U	14 U
Tetrachloroethene	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
1,1,2,2-Tetrachloroethane	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
Toluene	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
Chlorobenzene	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
Ethylbenzene	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
Styrene	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
Xylenes (Total)	5	7 U	7 U	8 U	7 U	14 U	7 U	24 U	7 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		74	72	61	74	36	71	21	69

Laboratory Method Blank	GH036920A13	GH036920A13	GH036350A19	GH036350A19	GH033921B12	GH036349A19	GH035107C18	GH036349A19
Associated Equipment Blank	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB001XXX02XX	01SB002XXX02XX	01SB001XXX02XX	01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	02SD201XXX02XX	02SD202XXX02XX	02SD202XXX02DX	03SD301XXX02XX	03SD302XXX02XX	01SD303XXX02XX	01SD304XXX02XX	01SD304XXX02DX
LAB NUMBER:	233756	234886	234887	234628	234627	234623	234624	234625
DATE SAMPLED:	12/06/88	12/09/88	12/09/88	12/08/88	12/08/88	12/08/88	12/08/88	12/08/88
DATE SAMPLE ANALYZED:	12/09/88	12/14/88	12/15/88	12/13/88	12/13/88	12/13/88	12/14/88	12/13/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL							
Chloromethane	10	14 U	26 U	23 U	16 U	17 U	14 U	100 U	110 U
Bromomethane	10	14 U	26 U	23 U	16 U	17 U	14 U	100 U	110 U
Vinyl Chloride	10	14 U	26 U	23 U	16 U	2 J	14 U	100 U	110 U
Chloroethane	10	14 U	26 U	23 U	16 U	17 U	14 U	100 U	110 U
Methylene Chloride	5	15 B	34 B	67 B	35 B	18 B	16 B	390 B	59 B
Acetone	10	64 B	64 B	110 B	25 B	48 B	9 JB	340 B	480 B
Carbon Disulfide	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
1,1-Dichloroethene	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
1,1-Dichloroethane	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
1,2-Dichloroethene (total)	5	7 U	13 U	12 U	8 U	34	7 U	50 U	56 U
Chloroform	5	7 U	13 U	12 U	8 U	8 U	7 U	10 J	56 U
1,2-Dichloroethane	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
2-Butanone	10	29 B	26 U	23 U	16 U	17 U	14 U	40 J	110 J
1,1,1-Trichloroethane	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
Carbon Tetrachloride	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
Vinyl Acetate	10	14 U	26 U	23 U	16 U	17 U	14 U	100 U	110 U
Bromodichloromethane	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
1,2-Dichloropropane	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
cis-1,3-Dichloropropene	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
Trichloroethene	5	7 U	13 U	12 U	8 U	10	7 U	50 U	56 U
Dibromochloromethane	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
1,1,2-Trichloroethane	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
Benzene	5	2 JB	13 U	12 U	8 U	8 U	7 U	50 U	56 U
Trans-1,3-Dichloropropene	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
Bromoform	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
4-Methyl-2-Pentanone	10	5 JB	26 U	23 U	16 U	17 U	14 U	100 U	110 U
2-Hexanone	10	12 JB	26 U	23 U	16 U	17 U	14 U	100 U	110 U
Tetrachloroethene	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
1,1,2,2-Tetrachloroethane	5	2 JB	13 U	12 U	8 U	210	7 U	50 U	56 U
Toluene	5	15	13 U	4 J	8 U	8 U	7 U	50 U	56 U
Chlorobenzene	5	7 U	13 U	12 U	8 U	8 U	7 U	12 J	24 J
Ethylbenzene	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
Styrene	5	7 U	13 U	12 U	8 U	8 U	7 U	50 U	56 U
Xylenes (Total)	5	7 U	13 U	9 J	8 U	8 U	7 U	50 U	56 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		71	39	43	64	59	71	10	9
Laboratory Method Blank		GW033923C12	GW035106B18	GW035852B18	GW035110A13	GW035109C13	GW035109C13	GW035212A13	GW035109C13
Associated Equipment Blank		01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SD305XXX02XX	03SD316XXX02XX	03SD317XXX02XX	03SD317XXX02DX	08SD802XXX02XX	08SD803XXX02XX	08SD817XXX02XX	08SD818XXX02XX
LAB NUMBER:	234626	234889	234890	234891	237102	235430	237106	237108
DATE SAMPLED:	12/08/88	12/09/88	12/09/88	12/09/88	12/19/88	12/12/88	12/19/88	12/19/88
DATE SAMPLE ANALYZED:	12/14/88	12/15/88	12/15/88	12/15/88	12/22/88	12/17/88	12/22/88	12/23/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

VOLATILE ORGANIC COMPOUNDS

UNITS: ug/kg	CRDL								
Chloromethane	10	16 U	14 U	13 U	14 U	17 U	17 U	29 U	14 U
Bromomethane	10	16 U	14 U	13 U	14 U	17 U	17 U	29 U	14 U
Vinyl Chloride	10	16 U	14 U	13 U	14 U	17 U	17 U	29 U	14 U
Chloroethane	10	16 U	14 U	13 U	14 U	17 U	17 U	29 U	14 U
Methylene Chloride	5	26 B	27 B	21 B	23 B	11 B	11 B	6 JB	36 B
Acetone	10	33 B	21 B	15 B	20 B	42 B	22 B	65 B	22 B
Carbon Disulfide	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
1,1-Dichloroethene	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
1,1-Dichloroethane	5	5 J	7 U	7 U	7 U	9 U	9 U	15 U	7 U
1,2-Dichloroethene (total)	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
Chloroform	5	2 J	2 J	7 U	2 J	2 J	9 U	15 U	7 U
1,2-Dichloroethane	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
2-Butanone	10	16 U	14 U	13 U	14 U	17 U	17 U	7 J	14 U
1,1,1-Trichloroethane	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
Carbon Tetrachloride	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
Vinyl Acetate	10	16 U	14 U	13 U	14 U	17 U	17 U	29 U	14 U
Bromodichloromethane	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
1,2-Dichloropropane	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
cis-1,3-Dichloropropene	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
Trichloroethene	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
Dibromochloromethane	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
1,1,2-Trichloroethane	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
Benzene	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
Trans-1,3-Dichloropropene	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
Bromoform	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
4-Methyl-2-Pentanone	10	16 U	14 U	13 U	14 U	17 U	17 U	29 U	14 U
2-Hexanone	10	16 U	14 U	13 U	14 U	17 U	17 U	29 U	14 U
Tetrachloroethene	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
1,1,2,2-Tetrachloroethane	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
Toluene	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
Chlorobenzene	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
Ethylbenzene	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
Styrene	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
Xylenes (Total)	5	8 U	7 U	7 U	7 U	9 U	9 U	15 U	7 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		61	72	76	74	58	58	34	73

Laboratory Method Blank	GH035212A13	GH035107C18	GH035107C18	GH035107C18	GH037584A13	GH035603A18	GH037214B18	GH037216C13
Associated Equipment Blank	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB003XXX02XX	01SB002XXX02XX	01SB003XXX02XX	01SB003XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	08SD819XXX02XX	08SD820XXX02XX	08SD821XXX02XX	09SD915XXX02XX	09SD916XXX02XX	09SD918XXX02XX	09SD918XXX02DX	09SDBK1XXX02XX
LAB NUMBER:	235429	236497	236498	236761	236762	237110	237111	236759
DATE SAMPLED:	12/12/88	12/15/88	12/15/88	12/16/88	12/16/88	12/19/88	12/19/88	12/16/88
DATE SAMPLE ANALYZED:	12/17/88	12/19/88	12/19/88	12/20/88	12/20/88	12/22/88	12/23/88	12/20/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Chloromethane	10	14 U	17 U	14 U	15 U	14 U	15 U	15 U	16 U
Bromomethane	10	14 U	17 U	14 U	15 U	14 U	15 U	15 U	16 U
Vinyl Chloride	10	14 U	17 U	14 U	15 U	14 U	15 U	15 U	16 U
Chloroethane	10	14 U	17 U	14 U	15 U	14 U	15 U	15 U	16 U
Methylene Chloride	5	21 B	31 B	28 B	26 B	35 B	11 B	13 B	29 B
Acetone	10	15 B	19 B	11 JB	18 B	15 B	160 B	86 B	33 B
Carbon Disulfide	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
1,1-Dichloroethene	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
1,1-Dichloroethane	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
1,2-Dichloroethene (total)	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
Chloroform	5	7 U	9 U	7 U	2 J	1 J	8 U	8 U	8 U
1,2-Dichloroethane	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
2-Butanone	10	14 U	17 U	14 U	15 U	14 U	15 U	15 U	2 J
1,1,1-Trichloroethane	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
Carbon Tetrachloride	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
Vinyl Acetate	10	14 U	17 U	14 U	15 U	14 U	15 U	15 U	16 U
Bromodichloromethane	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
1,2-Dichloropropane	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
cis-1,3-Dichloropropene	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
Trichloroethene	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
Dibromochloromethane	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
1,1,2-Trichloroethane	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
Benzene	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
Trans-1,3-Dichloropropene	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
Bromoform	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
4-Methyl-2-Pentanone	10	14 U	17 U	14 U	15 U	14 U	15 U	15 U	16 U
2-Hexanone	10	14 U	17 U	14 U	15 U	14 U	15 U	15 U	16 U
Tetrachloroethene	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
1,1,2,2-Tetrachloroethane	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
Toluene	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
Chlorobenzene	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
Ethylbenzene	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
Styrene	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
Xylenes (Total)	5	7 U	9 U	7 U	8 U	7 U	8 U	8 U	8 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solids		72	58	73	65	71	66	66	64

Laboratory Method Blank	GW035603A18	GW036920A13	GW036920A13	GW036921B13	GW036921B13	GW037584A13	GW037216C13	GW036921B13
Associated Equipment Blank	01SB001XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB003XXX02XX	01SB003XXX02XX	01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID: 09SD8K2XXX02XX
LAB NUMBER: 236760
DATE SAMPLED: 12/16/88
DATE SAMPLE ANALYZED: 12/20/88
MATRIX: Soil

VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL	
Chloromethane	10	12 U
Bromomethane	10	12 U
Vinyl Chloride	10	12 U
Chloroethane	10	12 U
Methylene Chloride	5	14 B
Acetone	10	25 B
Carbon Disulfide	5	6 U
1,1-Dichloroethene	5	6 U
1,1-Dichloroethane	5	6 U
1,2-Dichloroethene (total)	5	6 U
Chloroform	5	2 J
1,2-Dichloroethane	5	6 U
2-Butanone	10	12 U
1,1,1-Trichloroethane	5	6 U
Carbon Tetrachloride	5	6 U
Vinyl Acetate	10	12 U
Bromodichloromethane	5	6 U
1,2-Dichloropropane	5	6 U
cis-1,3-Dichloropropene	5	6 U
Trichloroethene	5	6 U
Dibromochloromethane	5	6 U
1,1,2-Trichloroethane	5	6 U
Benzene	5	6 U
Trans-1,3-Dichloropropene	5	6 U
Bromoform	5	6 U
4-Methyl-2-Pentanone	10	12 U
2-Hexanone	10	12 U
Tetrachloroethene	5	6 U
1,1,2,2-Tetrachloroethane	5	6 U
Toluene	5	6 U
Chlorobenzene	5	6 U
Ethylbenzene	5	6 U
Styrene	5	6 U
Xylenes (Total)	5	6 U
Dilution Factor		1
Percent Solids		86

Laboratory Method Blank GW036921B13
Associated Equipment Blank 01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03SD002XXX02XX	02SD003XXX02XX	01SD004XXX02XX	08SD006XXX02XX	08SD007XXX02XX	08SD008XXX02XX	08SD009XXX02XX	09SD010XXX02XX
LAB NUMBER:	234888	233749	233744	235431	236496	236495	237104	236756
DATE SAMPLED:	12/09/88	12/06/88	12/06/88	12/12/88	12/15/88	12/15/88	12/19/88	12/16/88
DATE SAMPLE PREP:	12/15/88	12/08/88	12/08/88	12/15/88	12/19/88	12/19/88	12/28/88	12/22/88
DATE SAMPLE ANALYZED:	12/16/88	12/13/88	12/13/88	12/16/88	12/21/88	12/21/88	12/30/88	12/23/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Phenol	330	97 JB	420 U	500 U	60 JB	420 U	430 U	460 U	430 U
bis(2-Chloroethyl)ether	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
2-Chlorophenol	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
1,3-Dichlorobenzene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
1,4-Dichlorobenzene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Benzyl alcohol	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
1,2-Dichlorobenzene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
2-Methylphenol	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
bis(2-Chloroisopropyl)ether	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
4-Methylphenol	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
N-Nitroso-di-n-propylamine	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Hexachloroethane	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Nitrobenzene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Isophorone	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
2-Nitrophenol	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
2,4-Dimethylphenol	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Benzoic acid	1600	3300 U	2100 U	2400 U	2100 U	2100 U	2100 U	2200 U	2100 U
bis(2-Chloroethoxy)methane	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
2,4-Dichlorophenol	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
1,2,4-Trichlorobenzene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Naphthalene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
4-Chloroaniline	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Hexachlorobutadiene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
4-Chloro-3-Methylphenol	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
2-Methylnaphthalene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Hexachlorocyclopentadiene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
2,4,6-Trichlorophenol	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
2,4,5-Trichlorophenol	1600	3300 U	2100 U	2400 U	2100 U	2100 U	2100 U	2200 U	2100 U
2-Chloronaphthalene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
2-Nitroaniline	1600	3300 U	2100 U	2400 U	2100 U	2100 U	2100 U	2200 U	2100 U
Dimethylphthalate	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Acenaphthylene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
2,6-Dinitrotoluene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03SD002XXX02XX	02SD003XXX02XX	01SD004XXX02XX	08SD006XXX02XX	08SD007XXX02XX	08SD008XXX02XX	08SD009XXX02XX	09SD010XXX02XX
LAB NUMBER:	234888	233749	233744	235431	236496	236495	237104	236756
DATE SAMPLED:	12/09/88	12/06/88	12/06/88	12/12/88	12/15/88	12/15/88	12/19/88	12/16/88
DATE SAMPLE PREP:	12/15/88	12/08/88	12/08/88	12/15/88	12/19/88	12/19/88	12/28/88	12/22/88
DATE SAMPLE ANALYZED:	12/16/88	12/13/88	12/13/88	12/16/88	12/21/88	12/21/88	12/30/88	12/23/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
3-Nitroaniline	1600	3300 U	2100 U	2400 U	2100 U	2100 U	2100 U	2200 U	2100 U
Acenaphthene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
2,4-Dinitrophenol	1600	3300 U	2100 U	2400 U	2100 U	2100 U	2100 U	2200 U	2100 U
4-Nitrophenol	1600	3300 U	2100 U	2400 U	2100 U	2100 U	2100 U	2200 U	2100 U
Dibenzofuran	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
2,4-Dinitrotoluene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Diethylphthalate	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
4-Chlorophenyl-phenylether	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Fluorene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
4-Nitroaniline	1600	3300 U	2100 U	2400 U	2100 U	2100 U	2100 U	2200 U	2100 U
4,6-Dinitro-2-methylphenol	1600	3300 U	2100 U	2400 U	2100 U	2100 U	2100 U	2200 U	2100 U
N-Nitrosodiphenylamine	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
4-Bromophenyl-phenylether	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Hexachlorobenzene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Pentachlorophenol	1600	3300 U	2100 U	2400 U	2100 U	2100 U	2100 U	2200 U	2100 U
Phenanthrene	330	670 U	470	97 J	430 U	120 J	430 U	250 J	430 U
Anthracene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Di-n-butylphthalate	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Fluoranthene	330	670 U	650	200 J	430 U	180 J	430 U	390 J	59 J
Pyrene	330	670 U	550	240 J	430 U	120 J	430 U	470	73 J
Butylbenzylphthalate	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
3,3'-Dichlorobenzidine	660	1300 U	850 U	1000 U	860 U	850 U	860 U	920 U	860 U
Benzo(a)Anthracene	330	670 U	220 J	90 J	430 U	57 J	430 U	220 J	430 U
Chrysene	330	670 U	350 J	160 J	430 U	71 J	430 U	220 J	430 U
bis(2-Ethylhexyl)phthalate	330	670 U	54 JB	78 JB	430 U	420 U	430 U	99 J	69 J
Di-n-octylphthalate	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Benzo(b)Fluoranthene	330	670 U	350 JX	200 JX	430 U	99 JX	430 U	260 J	72 JX
Benzo(k)Fluoranthene	330	670 U	350 JX	200 JX	430 U	99 JX	430 U	150 J	72 JX
Benzo(a)Pyrene	330	670 U	200 J	120 J	430 U	51 J	430 U	180 J	430 U
Indeno(1,2,3-cd)pyrene	330	670 U	77 J	74 J	430 U	420 U	430 U	460 U	430 U
Dibenz(a,h)anthracene	330	670 U	420 U	500 U	430 U	420 U	430 U	460 U	430 U
Benzo(g,h,i,)perylene	330	670 U	93 J	85 J	430 U	420 U	430 U	460 U	430 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		48	78	66	77	78	77	72	77
Laboratory Method Blank		GJ036145A02	GM033912A20	GM033912A20	GJ036145A02	GM036938A15	GM036938A15	GM038375C08	GM037483C20
Associated Equipment Blank		01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB003XXX02XX	01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	09SD011XXX02XX	09SD012XXX02XX	01SD113XXX02XX	01SD114XXX02XX	01SD115XXX02XX	01SD118XXX02XX	01SS118XXX02XX	01SD119XXX02XX
LAB NUMBER:	236757	236758	236018	236022	233745	236014	234892	236009
DATE SAMPLED:	12/16/88	12/16/88	12/14/88	12/14/88	12/06/88	12/14/88	12/09/88	12/14/88
DATE SAMPLE PREP:	12/22/88	12/22/88	12/19/88	12/19/88	12/08/88	12/19/88	12/15/88	12/19/88
DATE SAMPLE ANALYZED:	12/23/88	12/23/88	12/22/88	12/21/88	12/22/88	12/20/88	12/16/88	12/21/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Phenol	330	420 U	430 U	540 U	450 U	920 U	460 U	230 JB	460 U
bis(2-Chloroethyl)ether	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
2-Chlorophenol	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
1,3-Dichlorobenzene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
1,4-Dichlorobenzene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Benzyl alcohol	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
1,2-Dichlorobenzene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
2-Methylphenol	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
bis(2-Chloroisopropyl)ether	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
4-Methylphenol	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
N-Nitroso-di-n-propylamine	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Hexachloroethane	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Nitrobenzene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Isophorone	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
2-Nitrophenol	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
2,4-Dimethylphenol	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Benzoic acid	1600	2100 U	2100 U	2600 U	2200 U	4400 U	2300 U	7600 U	2200 U
bis(2-Chloroethoxy)methane	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
2,4-Dichlorophenol	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
1,2,4-Trichlorobenzene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Naphthalene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
4-Chloroaniline	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Hexachlorobutadiene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
4-Chloro-3-Methylphenol	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
2-Methylnaphthalene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Hexachlorocyclopentadiene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
2,4,6-Trichlorophenol	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
2,4,5-Trichlorophenol	1600	2100 U	2100 U	2600 U	2200 U	4400 U	2300 U	7600 U	2200 U
2-Chloronaphthalene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
2-Nitroaniline	1600	2100 U	2100 U	2600 U	2200 U	4400 U	2300 U	7600 U	2200 U
Dimethylphthalate	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Acenaphthylene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
2,6-Dinitrotoluene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	09SD011XXX02XX	09SD012XXX02XX	01SD113XXX02XX	01SD114XXX02XX	01SD115XXX02XX	01SD118XXX02XX	01SS118XXX02XX	01SD119XXX02XX
LAB NUMBER:	236757	236758	236018	236022	233745	236014	234892	236009
DATE SAMPLED:	12/16/88	12/16/88	12/14/88	12/14/88	12/06/88	12/14/88	12/09/88	12/14/88
DATE SAMPLE PREP:	12/22/88	12/22/88	12/19/88	12/19/88	12/08/88	12/19/88	12/15/88	12/19/88
DATE SAMPLE ANALYZED:	12/23/88	12/23/88	12/22/88	12/21/88	12/22/88	12/20/88	12/16/88	12/21/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
3-Nitroaniline	1600	2100 U	2100 U	2600 U	2200 U	4400 U	2300 U	7600 U	2200 U
Acenaphthene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
2,4-Dinitrophenol	1600	2100 U	2100 U	2600 U	2200 U	4400 U	2300 U	7600 U	2200 U
4-Nitrophenol	1600	2100 U	2100 U	2600 U	2200 U	4400 U	2300 U	7600 U	2200 U
Dibenzofuran	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
2,4-Dinitrotoluene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Diethylphthalate	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
4-Chlorophenyl-phenylether	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Fluorene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
4-Nitroaniline	1600	2100 U	2100 U	2600 U	2200 U	4400 U	2300 U	7600 U	2200 U
4,6-Dinitro-2-methylphenol	1600	2100 U	2100 U	2600 U	2200 U	4400 U	2300 U	7600 U	2200 U
N-Nitrosodiphenylamine	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
4-Bromophenyl-phenylether	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Hexachlorobenzene	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Pentachlorophenol	1600	2100 U	2100 U	2600 U	2200 U	4400 U	2300 U	7600 U	2200 U
Phenanthrene	330	150 J	330 J	94 J	450 U	300 J	780	1600 U	460 U
Anthracene	330	420 U	64 J	540 U	450 U	920 U	57 J	1600 U	460 U
Di-n-butylphthalate	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Fluoranthene	330	530	1200	220 J	450 U	660 J	1000	190 J	65 J
Pyrene	330	450	1000	250 J	450 U	640 J	1100	220 J	67 J
Butylbenzylphthalate	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
3,3'-Dichlorobenzidine	660	850 U	860 U	1100 U	890 U	1800 U	930 U	3100 U	920 U
Benzo(a)Anthracene	330	230 J	560	120 J	450 U	270 J	420 J	1600 U	460 U
Chrysene	330	310 J	530	150 J	450 U	440 J	540	1600 U	460 U
bis(2-Ethylhexyl)phthalate	330	190 J	1000	94 J	450 U	470 JB	460 U	490 J	460 U
Di-n-octylphthalate	330	420 U	430 U	540 U	450 U	920 U	460 U	1600 U	460 U
Benzo(b)Fluoranthene	330	580 X	880	190 JX	450 U	600 JX	750 X	1600 U	53 JX
Benzo(k)Fluoranthene	330	580 X	880	190 JX	450 U	600 JX	750 X	1600 U	53 JX
Benzo(a)Pyrene	330	470	790	93 J	450 U	300 J	360 J	1600 U	460 U
Indeno(1,2,3-cd)pyrene	330	420 U	88 J	540 U	450 U	160 J	180 J	1600 U	460 U
Dibenz(a,h)anthracene	330	420 U	59 J	540 U	450 U	920 U	460 U	1600 U	460 U
Benzo(g,h,i,)perylene	330	420 U	120 J	540 U	450 U	190 J	200 J	1600 U	460 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		78	77	61	74	36	71	21	72

Laboratory Method Blank	GW037483C20	GW037483C20	GW036938A15	GW036938A15	GW033912A20	GW036938A15	GJ036145A02	GW036938A15
Associated Equipment Blank	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB001XXX02XX	01SB002XXX02XX	01SB001XXX02XX	01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	02SD201XXX02XX	02SD202XXX02XX	02SD202XXX02DX	03SD301XXX02XX	03SD302XXX02XX	01SD303XXX02XX	01SD304XXX02XX	01SD304XXX02DX
LAB NUMBER:	233756	234886	234887	234628	234627	234623	234624	234625
DATE SAMPLED:	12/06/88	12/09/88	12/09/88	12/08/88	12/08/88	12/08/88	12/08/88	12/08/88
DATE SAMPLE PREP:	12/08/88	12/15/88	12/15/88	12/15/88	12/15/88	12/15/88	12/15/88	12/15/88
DATE SAMPLE ANALYZED:	12/10/88	12/16/88	12/16/88	12/17/88	12/17/88	12/17/88	12/17/88	12/17/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Phenol	330	460 U	84 JB	79 JB	520 U	560 U	450 U	3300 U	3300 U
bis(2-Chloroethyl)ether	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
2-Chlorophenol	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
1,3-Dichlorobenzene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
1,4-Dichlorobenzene	330	460 U	690 U	700 U	520 U	560 U	450 U	1300 J	1700 J
Benzyl alcohol	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
1,2-Dichlorobenzene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
2-Methylphenol	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
bis(2-Chloroisopropyl)ether	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
4-Methylphenol	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
N-Nitroso-di-n-propylamine	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Hexachloroethane	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Nitrobenzene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Isophorone	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
2-Nitrophenol	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
2,4-Dimethylphenol	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Benzoic acid	1600	2300 U	3300 U	3400 U	2500 U	2700 U	2200 U	16000 U	960 J
bis(2-Chloroethoxy)methane	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
2,4-Dichlorophenol	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
1,2,4-Trichlorobenzene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Naphthalene	330	460 U	690 U	700 U	520 U	560 U	450 U	340 J	390 J
4-Chloroaniline	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Hexacholorobutadiene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
4-Chloro-3-Methylphenol	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
2-Methylnaphthalene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Hexachlorocyclopentadiene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
2,4,6-Trichlorophenol	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
2,4,5-Trichlorophenol	1600	2300 U	3300 U	3400 U	2500 U	2700 U	2200 U	16000 U	16000 U
2-Chloronaphthalene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
2-Nitroaniline	1600	2300 U	3300 U	3400 U	2500 U	2700 U	2200 U	16000 U	16000 U
Dimethylphthalate	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Acenaphthylene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
2,6-Dinitrotoluene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	02SD201XXX02XX	02SD202XXX02XX	02SD202XXX02DX	03SD301XXX02XX	03SD302XXX02XX	01SD303XXX02XX	01SD304XXX02XX	01SD304XXX02DX
LAB NUMBER:	233756	234886	234887	234628	234627	234623	234624	234625
DATE SAMPLED:	12/06/88	12/09/88	12/09/88	12/08/88	12/08/88	12/08/88	12/08/88	12/08/88
DATE SAMPLE PREP:	12/08/88	12/15/88	12/15/88	12/15/88	12/15/88	12/15/88	12/15/88	12/15/88
DATE SAMPLE ANALYZED:	12/10/88	12/16/88	12/16/88	12/17/88	12/17/88	12/17/88	12/17/88	12/17/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
3-Nitroaniline	1600	2300 U	3300 U	3400 U	2500 U	2700 U	2200 U	16000 U	16000 U
Acenaphthene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
2,4-Dinitrophenol	1600	2300 U	3300 U	3400 U	2500 U	2700 U	2200 U	16000 U	16000 U
4-Nitrophenol	1600	2300 U	3300 U	3400 U	2500 U	2700 U	2200 U	16000 U	16000 U
Dibenzofuran	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
2,4-Dinitrotoluene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Diethylphthalate	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
4-Chlorophenyl-phenylether	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Fluorene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
4-Nitroaniline	1600	2300 U	3300 U	3400 U	2500 U	2700 U	2200 U	16000 U	16000 U
4,6-Dinitro-2-methylphenol	1600	2300 U	3300 U	3400 U	2500 U	2700 U	2200 U	16000 U	16000 U
N-Nitrosodiphenylamine	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
4-Bromophenyl-phenylether	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Hexachlorobenzene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Pentachlorophenol	1600	2300 U	3300 U	3400 U	2500 U	2700 U	2200 U	16000 U	16000 U
Phenanthrene	330	460 U	110 J	700 U	520 U	560 U	450 U	3300 U	3300 U
Anthracene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Di-n-butylphthalate	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Fluoranthene	330	460 U	130 J	700 U	520 U	560 U	450 U	3300 U	3300 U
Pyrene	330	460 U	170 J	700 U	520 U	560 U	450 U	3300 U	3300 U
Butylbenzylphthalate	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
3,3'-Dichlorobenzidine	660	930 U	1400 U	1400 U	1000 U	1100 U	900 U	6600 U	6600 U
Benzo(a)Anthracene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Chrysene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
bis(2-Ethylhexyl)phthalate	330	110 JB	110 J	150 J	59 J	560 U	120 J	530 J	370 J
Di-n-octylphthalate	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Benzo(b)Fluoranthene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Benzo(k)Fluoranthene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Benzo(a)Pyrene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Indeno(1,2,3-cd)pyrene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Dibenz(a,h)anthracene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Benzo(g,h,i,)perylene	330	460 U	690 U	700 U	520 U	560 U	450 U	3300 U	3300 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		71	48	47	64	59	73	10	10
Laboratory Method Blank		GW033912A20	GJ036145A02	GJ036145A02	GW035868A06	GW035868A06	GW035868A06	GW035868A06	GW035868A06
Associated Equipment Blank		01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SD305XXX02XX	03SD316XXX02XX	03SD317XXX02XX	03SD317XXX02DX	08SD802XXX02XX	08SD803XXX02XX	08SD817XXX02XX	08SD818XXX02XX
LAB NUMBER:	234626	234889	234890	234891	237102	235430	237106	237108
DATE SAMPLED:	12/08/88	12/09/88	12/09/88	12/09/88	12/19/88	12/12/88	12/19/88	12/19/88
DATE SAMPLE PREP:	12/15/88	12/15/88	12/15/88	12/15/88	12/28/88	12/15/88	12/28/88	12/28/88
DATE SAMPLE ANALYZED:	12/17/88	12/16/88	12/16/88	12/16/88	12/30/88	12/16/88	12/30/88	12/30/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Phenol	330	540 U	110 JB	430 U	450 U	570 U	520 U	970 U	450 U
bis(2-Chloroethyl)ether	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
2-Chlorophenol	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
1,3-Dichlorobenzene	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
1,4-Dichlorobenzene	330	190 J	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Benzyl alcohol	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
1,2-Dichlorobenzene	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
2-Methylphenol	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
bis(2-Chloroisopropyl)ether	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
4-Methylphenol	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
N-Nitroso-di-n-propylamine	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Hexachloroethane	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Nitrobenzene	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Isophorone	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
2-Nitrophenol	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
2,4-Dimethylphenol	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Benzoic acid	1600	2600 U	2200 U	2100 U	2200 U	2800 U	2500 U	4700 U	2200 U
bis(2-Chloroethoxy)methane	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
2,4-Dichlorophenol	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
1,2,4-Trichlorobenzene	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Naphthalene	330	540 U	460 U	430 U	450 U	570 U	80 J	970 U	450 U
4-Chloroaniline	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Hexachlorobutadiene	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
4-Chloro-3-Methylphenol	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
2-Methylnaphthalene	330	540 U	460 U	430 U	450 U	570 U	73 J	970 U	450 U
Hexachlorocyclopentadiene	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
2,4,6-Trichlorophenol	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
2,4,5-Trichlorophenol	1600	2600 U	2200 U	2100 U	2200 U	2800 U	2500 U	4700 U	2200 U
2-Chloronaphthalene	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
2-Nitroaniline	1600	2600 U	2200 U	2100 U	2200 U	2800 U	2500 U	4700 U	2200 U
Dimethylphthalate	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Acenaphthylene	330	540 U	460 U	430 U	450 U	76 J	88 J	970 U	450 U
2,6-Dinitrotoluene	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SD305XXX02XX	03SD316XXX02XX	03SD317XXX02XX	03SD317XXX02DX	08SD802XXX02XX	08SD803XXX02XX	08SD817XXX02XX	08SD818XXX02XX
LAB NUMBER:	234626	234889	234890	234891	237102	235430	237106	237108
DATE SAMPLED:	12/08/88	12/09/88	12/09/88	12/09/88	12/19/88	12/12/88	12/19/88	12/19/88
DATE SAMPLE PREP:	12/15/88	12/15/88	12/15/88	12/15/88	12/28/88	12/15/88	12/28/88	12/28/88
DATE SAMPLE ANALYZED:	12/17/88	12/16/88	12/16/88	12/16/88	12/30/88	12/16/88	12/30/88	12/30/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
3-Nitroaniline	1600	2600 U	2200 U	2100 U	2200 U	2800 U	2500 U	4700 U	2200 U
Acenaphthene	330	540 U	460 U	430 U	450 U	570 U	99 J	970 U	450 U
2,4-Dinitrophenol	1600	2600 U	2200 U	2100 U	2200 U	2800 U	2500 U	4700 U	2200 U
4-Nitrophenol	1600	2600 U	2200 U	2100 U	2200 U	2800 U	2500 U	4700 U	2200 U
Dibenzofuran	330	540 U	460 U	430 U	450 U	130 J	93 J	970 U	450 U
2,4-Dinitrotoluene	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Diethylphthalate	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
4-Chlorophenyl-phenylether	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Fluorene	330	540 U	460 U	430 U	450 U	400 J	130 J	970 U	450 U
4-Nitroaniline	1600	2600 U	2200 U	2100 U	2200 U	2800 U	2500 U	4700 U	2200 U
4,6-Dinitro-2-methylphenol	1600	2600 U	2200 U	2100 U	2200 U	2800 U	2500 U	4700 U	2200 U
N-Nitrosodiphenylamine	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
4-Bromophenyl-phenylether	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Hexachlorobenzene	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Pentachlorophenol	1600	2600 U	2200 U	2100 U	2200 U	2800 U	2500 U	4700 U	2200 U
Phenanthrene	330	540 U	90 J	58 J	70 J	1500	630	320 J	83 J
Anthracene	330	540 U	460 U	430 U	450 U	430 J	270 J	970 U	450 U
Di-n-butylphthalate	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Fluoranthene	330	540 U	420 J	230 J	230 J	1500	1000	500 J	180 J
Pyrene	330	540 U	410 J	230 J	270 J	1600	1400	520 J	200 J
Butylbenzylphthalate	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
3,3'-Dichlorobenzidine	660	1100 U	920 U	870 U	890 U	1100 U	1000 U	1900 U	900 U
Benzo(a)Anthracene	330	540 U	110 J	85 J	86 J	630	510 J	270 J	96 J
Chrysene	330	540 U	220 J	140 J	160 J	680	710	370 J	110 J
bis(2-Ethylhexyl)phthalate	330	130 J	440 J	470	350 J	140 J	520 U	190 J	83 J
Di-n-octylphthalate	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Benzo(b)Fluoranthene	330	540 U	110 J	99 J	61 J	570	780 X	350 J	140 J
Benzo(k)Fluoranthene	330	540 U	170 J	76 J	130 J	670	780 X	330 J	72 J
Benzo(a)Pyrene	330	540 U	78 J	66 J	73 J	500 J	420 J	280 J	79 J
Indeno(1,2,3-cd)pyrene	330	540 U	460 U	430 U	450 U	110 J	520 U	970 U	450 U
Dibenz(a,h)anthracene	330	540 U	460 U	430 U	450 U	570 U	520 U	970 U	450 U
Benzo(g,h,i,)perylene	330	540 U	460 U	430 U	450 U	87 J	520 U	970 U	450 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		61	72	76	74	58	63	34	73

Laboratory Method Blank	GW035868A06	GJ036145A02	GJ036145A02	GJ036145A02	GW038375C08	GJ036145A02	GW038375C08	GW038375C08
Associated Equipment Blank	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB003XXX02XX	01SB002XXX02XX	01SB003XXX02XX	01SB003XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	08SD819XXX02XX	08SD820XXX02XX	08SD821XXX02XX	09SD915XXX02XX	09SD916XXX02XX	09SD918XXX02XX	09SD918XXX02DX	09SDBK1XXX02XX
LAB NUMBER:	235429	236497	236498	236761	236762	237110	237111	236759
DATE SAMPLED:	12/12/88	12/15/88	12/15/88	12/16/88	12/16/88	12/19/88	12/19/88	12/16/88
DATE SAMPLE PREP:	12/15/88	12/19/88	12/19/88	12/22/88	12/22/88	12/28/88	12/28/88	12/22/88
DATE SAMPLE ANALYZED:	12/16/88	12/21/88	12/21/88	12/23/88	12/23/88	12/30/88	12/30/88	12/23/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
Phenol	330	76 JB	520 U	450 U	510 U	430 U	500 U	500 U	450 U
bis(2-Chloroethyl)ether	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
2-Chlorophenol	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
1,3-Dichlorobenzene	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
1,4-Dichlorobenzene	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
Benzyl alcohol	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
1,2-Dichlorobenzene	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
2-Methylphenol	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
bis(2-Chloroisopropyl)ether	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
4-Methylphenol	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
N-Nitroso-di-n-propylamine	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
Hexachloroethane	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
Nitrobenzene	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
Isophorone	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
2-Nitrophenol	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
2,4-Dimethylphenol	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
Benzoic acid	1600	2100 U	2500 U	2200 U	2500 U	2100 U	120 J	2400 U	2200 U
bis(2-Chloroethoxy)methane	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
2,4-Dichlorophenol	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
1,2,4-Trichlorobenzene	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
Naphthalene	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
4-Chloroaniline	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
Hexachlorobutadiene	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
4-Chloro-3-Methylphenol	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
2-Methylnaphthalene	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
Hexachlorocyclopentadiene	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
2,4,6-Trichlorophenol	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
2,4,5-Trichlorophenol	1600	2100 U	2500 U	2200 U	2500 U	2100 U	2400 U	2400 U	2200 U
2-Chloronaphthalene	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
2-Nitroaniline	1600	2100 U	2500 U	2200 U	2500 U	2100 U	2400 U	2400 U	2200 U
Dimethylphthalate	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
Acenaphthylene	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
2,6-Dinitrotoluene	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	08SD819XXX02XX	08SD820XXX02XX	08SD821XXX02XX	09SD915XXX02XX	09SD916XXX02XX	09SD918XXX02XX	09SD918XXX02DX	09SDBK1XXX02XX
LAB NUMBER:	235429	236497	236498	236761	236762	237110	237111	236759
DATE SAMPLED:	12/12/88	12/15/88	12/15/88	12/16/88	12/16/88	12/19/88	12/19/88	12/16/88
DATE SAMPLE PREP:	12/15/88	12/19/88	12/19/88	12/22/88	12/22/88	12/28/88	12/28/88	12/22/88
DATE SAMPLE ANALYZED:	12/16/88	12/21/88	12/21/88	12/23/88	12/23/88	12/30/88	12/30/88	12/23/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL								
3-Nitroaniline	1600	2100 U	2500 U	2200 U	2500 U	2100 U	2400 U	2400 U	2200 U
Acenaphthene	330	440 U	520 U	450 U	64 J	430 U	500 U	500 U	450 U
2,4-Dinitrophenol	1600	2100 U	2500 U	2200 U	2500 U	2100 U	2400 U	2400 U	2200 U
4-Nitrophenol	1600	2100 U	2500 U	2200 U	2500 U	2100 U	2400 U	2400 U	2200 U
Dibenzofuran	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
2,4-Dinitrotoluene	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
Diethylphthalate	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
4-Chlorophenyl-phenylether	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
Fluorene	330	440 U	520 U	450 U	57 J	430 U	500 U	500 U	450 U
4-Nitroaniline	1600	2100 U	2500 U	2200 U	2500 U	2100 U	2400 U	2400 U	2200 U
4,6-Dinitro-2-methylphenol	1600	2100 U	2500 U	2200 U	2500 U	2100 U	2400 U	2400 U	2200 U
N-Nitrosodiphenylamine	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
4-Bromophenyl-phenylether	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
Hexachlorobenzene	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
Pentachlorophenol	1600	2100 U	2500 U	2200 U	2500 U	2100 U	2400 U	2400 U	2200 U
Phenanthrene	330	440 U	520 U	450 U	720	130 J	120 J	110 J	340 J
Anthracene	330	440 U	520 U	450 U	110 J	430 U	500 U	500 U	54 J
Di-n-butylphthalate	330	440 U	520 U	450 U	510 U	48 J	500 U	500 U	450 U
Fluoranthene	330	440 U	520 U	450 U	2800	240 J	230 J	290 J	490
Pyrene	330	440 U	520 U	450 U	2000	200 J	230 J	280 J	420 J
Butylbenzylphthalate	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
3,3'-Dichlorobenzidine	660	880 U	1000 U	900 U	1000 U	870 U	1000 U	1000 U	900 U
Benzo(a)Anthracene	330	440 U	520 U	450 U	980	130 J	120 J	130 J	220 J
Chrysene	330	440 U	520 U	450 U	1100	130 J	130 J	160 J	310 J
bis(2-Ethylhexyl)phthalate	330	440 U	520 U	56 J	510 U	170 J	350 J	330 J	64 J
Di-n-octylphthalate	330	440 U	520 U	450 U	510 U	430 U	500 U	500 U	450 U
Benzo(b)Fluoranthene	330	440 U	520 U	450 U	1800 X	290 JX	160 J	190 J	520 X
Benzo(k)Fluoranthene	330	440 U	520 U	450 U	1800 X	290 JX	96 J	150 J	520 X
Benzo(a)Pyrene	330	440 U	520 U	450 U	700	130 J	95 J	130 J	230 J
Indeno(1,2,3-cd)pyrene	330	440 U	520 U	450 U	150 J	430 U	500 U	500 U	47 J
Dibenz(a,h)anthracene	330	440 U	520 U	450 U	55 J	430 U	500 U	500 U	450 U
Benzo(g,h,i,)perylene	330	440 U	520 U	450 U	140 J	430 U	50 J	500 U	450 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		75	63	73	65	76	66	66	73

Laboratory Method Blank	GW036145A02	GW036938A15	GW036938A15	GW037483C20	GW037483C20	GW038375C08	GW038375C08	GW037483C20
Associated Equipment Blank	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB003XXX02XX	01SB003XXX02XX	01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID: 09SDBK2XXX02XX
LAB NUMBER: 236760
DATE SAMPLED: 12/16/88
DATE SAMPLE PREP: 12/22/88
DATE SAMPLE ANALYZED: 12/23/88
MATRIX: Soil

SEMI-VOLATILE ORGANIC COMPOUND$ UNIT$: ug/kg	CRDL	
Phenol	330	380 U
bis(2-Chloroethyl)ether	330	380 U
2-Chlorophenol	330	380 U
1,3-Dichlorobenzene	330	380 U
1,4-Dichlorobenzene	330	380 U
Benzyl alcohol	330	380 U
1,2-Dichlorobenzene	330	380 U
2-Methylphenol	330	380 U
bis(2-Chloroisopropyl)ether	330	380 U
4-Methylphenol	330	380 U
N-Nitroso-di-n-propylamine	330	380 U
Hexachloroethane	330	380 U
Nitrobenzene	330	380 U
Isophorone	330	380 U
2-Nitrophenol	330	380 U
2,4-Dimethylphenol	330	380 U
Benzoic acid	1600	1900 U
bis(2-Chloroethoxy)methane	330	380 U
2,4-Dichlorophenol	330	380 U
1,2,4-Trichlorobenzene	330	380 U
Naphthalene	330	380 U
4-Chloroaniline	330	380 U
Hexacholorobutadiene	330	380 U
4-Chloro-3-Methylphenol	330	380 U
2-Methylnaphthalene	330	380 U
Hexachlorocyclopentadiene	330	380 U
2,4,6-Trichlorophenol	330	380 U
2,4,5-Trichlorophenol	1600	1900 U
2-Chloronaphthalene	330	380 U
2-Nitroaniline	1600	1900 U
Dimethylphthalate	330	380 U
Acenaphthylene	330	240 J
2,6-Dinitrotoluene	330	380 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	09SDBK2XXX02XX
LAB NUMBER:	236760
DATE SAMPLED:	12/16/88
DATE SAMPLE PREP:	12/22/88
DATE SAMPLE ANALYZED:	12/23/88
MATRIX:	Soil

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/kg	CRDL		
3-Nitroaniline	1600	1900	U
Acenaphthene	330	99	J
2,4-Dinitrophenol	1600	1900	U
4-Nitrophenol	1600	1900	U
Dibenzofuran	330	130	J
2,4-Dinitrotoluene	330	380	U
Diethylphthalate	330	380	U
4-Chlorophenyl-phenylether	330	380	U
Fluorene	330	500	
4-Nitroaniline	1600	1900	U
4,6-Dinitro-2-methylphenol	1600	1900	U
N-Nitrosodiphenylamine	330	380	U
4-Bromophenyl-phenylether	330	380	U
Hexachlorobenzene	330	380	U
Pentachlorophenol	1600	1900	U
Phenanthrene	330	5000	
Anthracene	330	640	
Di-n-butylphthalate	330	380	U
Fluoranthene	330	5500	
Pyrene	330	4400	
Butylbenzylphthalate	330	380	U
3,3'-Dichlorobenzidine	660	770	U
Benzo(a)Anthracene	330	2600	
Chrysene	330	2200	
bis(2-Ethylhexyl)phthalate	330	57	J
Di-n-octylphthalate	330	380	U
Benzo(b)Fluoranthene	330	3600	X
Benzo(k)Fluoranthene	330	3600	X
Benzo(a)Pyrene	330	1500	
Indeno(1,2,3-cd)pyrene	330	280	J
Dibenz(a,h)anthracene	330	140	J
Benzo(g,h,i,)perylene	330	270	J
Dilution Factor		1	
Percent Solid		86	

Laboratory Method Blank	GK037483C20
Associated Equipment Blank	01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03SD002XXX02XX	02SD003XXX02XX	01S0004XXX02XX	08SD006XXX02XX	08SD007XXX02XX	08SD008XXX02XX	08SD009XXX02XX	09SD010XXX02XX
LAB NUMBER:	234888	233749	233744	235431	236496	236495	237104	236756
DATE SAMPLED:	12/09/88	12/06/88	12/06/88	12/12/88	12/15/88	12/15/88	12/19/88	12/16/88
DATE SAMPLE PREP:	12/15/88	12/08/88	12/08/88	12/15/88	12/19/88	12/19/88	12/28/88	12/22/88
DATE SAMPLE ANALYZED:	01/05/89	01/06/89	01/06/89	01/05/89	01/17/89	01/18/89	01/21/89	01/18/89
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL								
alpha-BHC	8	16 U	10 U	12 U	10 U	10 U	10 U	11 U	11 U
beta-BHC	8	16 U	10 U	12 U	10 U	10 U	10 U	11 U	11 U
delta-BHC	8	16 U	10 U	12 U	10 U	10 U	10 U	11 U	11 U
gamma-BHC (Lindane)	8	16 U	10 U	12 U	10 U	10 U	10 U	11 U	11 U
Heptachlor	8	16 U	10 U	12 U	10 U	10 U	10 U	11 U	11 U
Aldrin	8	16 U	10 U	12 U	10 U	10 U	10 U	11 U	11 U
Heptachlor epoxide	8	16 U	10 U	12 U	10 U	10 U	10 U	11 U	11 U
Endosulfan I	8	16 U	10 U	12 U	10 U	10 U	10 U	11 U	11 U
Dieldrin	16	33 U	20 U	24 U	21 U	20 U	21 U	22 U	22 U
4,4'-DDE	16	33 U	20 U	24 U	21 U	20 U	21 U	22 U	22 U
Endrin	16	33 U	20 U	24 U	21 U	20 U	21 U	22 U	22 U
Endosulfan II	16	33 U	20 U	24 U	21 U	20 U	21 U	22 U	22 U
4,4'-DDD	16	33 U	20 U	24 U	21 U	20 U	21 U	22 U	64
Endosulfan sulfate	16	33 U	20 U	24 U	21 U	20 U	21 U	22 U	22 U
4,4'-DDT	16	33 U	20 U	24 U	21 U	20 U	21 U	22 U	22 U
Methoxychlor	80	160 U	100 U	120 U	100 U	100 U	100 U	110 U	110 U
Endrin ketone	16	33 U	20 U	24 U	21 U	20 U	21 U	22 U	22 U
alpha-Chlordane	80	160 U	100 U	120 U	100 U	100 U	100 U	110 U	110 U
gamma-Chlordane	80	160 U	100 U	120 U	100 U	100 U	100 U	110 U	110 U
Toxaphene	160	330 U	200 U	240 U	210 U	200 U	210 U	220 U	220 U
Aroclor-1016	80	160 U	100 U	120 U	100 U	100 U	100 U	110 U	110 U
Aroclor-1221	80	160 U	100 U	120 U	100 U	100 U	100 U	110 U	110 U
Aroclor-1232	80	160 U	100 U	120 U	100 U	100 U	100 U	110 U	110 U
Aroclor-1242	80	160 U	100 U	120 U	100 U	100 U	100 U	110 U	110 U
Aroclor-1248	80	160 U	100 U	120 U	100 U	100 U	100 U	110 U	110 U
Aroclor-1254	160	330 U	200 U	240 U	210 U	200 U	210 U	220 U	220 U
Aroclor-1260	160	330 U	200 U	240 U	210 U	200 U	210 U	220 U	220 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		48	78	66	77	78	76	72	73
Laboratory Method Blank		236145	233912	233912	236145	236939	236939	238376	237482
Associated Equipment Blank		01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB003XXX02XX	01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	09SD011XXX02XX	09SD012XXX02XX	01SD113XXX02XX	01SD114XXX02XX	01SD115XXX02XX	01SD118XXX02XX	01SS118XXX02XX	01SD119XXX02XX
LAB NUMBER:	236757	236758	236018	236022	233745	236014	234892	236009
DATE SAMPLED:	12/16/88	12/16/88	12/14/88	12/14/88	12/06/88	12/14/88	12/09/88	12/14/88
DATE SAMPLE PREP:	12/22/88	12/22/88	12/19/88	12/19/88	12/08/88	12/19/88	12/15/88	12/19/88
DATE SAMPLE ANALYZED:	01/19/89	01/19/89	01/19/89	01/13/89	01/06/89	01/13/89	01/05/89	01/23/89
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL								
alpha-BHC	8	10 U	11 U	11 U	11 U	22 U	11 U	38 U	11 U
beta-BHC	8	10 U	11 U	11 U	11 U	22 U	11 U	38 U	11 U
delta-BHC	8	10 U	11 U	11 U	11 U	22 U	11 U	38 U	11 U
gamma-BHC (Lindane)	8	10 U	11 U	11 U	11 U	22 U	11 U	38 U	11 U
Heptachlor	8	10 U	11 U	11 U	11 U	22 U	11 U	38 U	11 U
Aldrin	8	10 U	11 U	11 U	11 U	22 U	11 U	38 U	11 U
Heptachlor epoxide	8	10 U	11 U	11 U	11 U	22 U	11 U	38 U	11 U
Endosulfan I	8	10 U	11 U	11 U	11 U	22 U	11 U	38 U	11 U
Dieldrin	16	20 U	22 U	22 U	22 U	44 U	21 U	76 U	22 U
4,4'-DDE	16	20 U	22 U	22 U	22 U	44 U	21 U	76 U	22 U
Endrin	16	20 U	22 U	22 U	22 U	44 U	21 U	76 U	22 U
Endosulfan II	16	20 U	22 U	22 U	22 U	44 U	21 U	76 U	22 U
4,4'-DDD	16	20 U	22 U	22 U	22 U	44 U	21 U	76 U	22 U
Endosulfan sulfate	16	20 U	22 U	22 U	22 U	44 U	21 U	76 U	22 U
4,4'-DDT	16	20 U	22 U	22 U	22 U	44 U	21 U	76 U	22 U
Methoxychlor	80	100 U	110 U	110 U	110 U	220 U	110 U	380 U	110 U
Endrin ketone	16	20 U	22 U	22 U	22 U	44 U	21 U	76 U	22 U
alpha-Chlordane	80	100 U	110 U	110 U	110 U	220 U	110 U	380 U	110 U
gamma-Chlordane	80	100 U	110 U	110 U	110 U	220 U	110 U	380 U	110 U
Toxaphene	160	200 U	220 U	220 U	220 U	440 U	210 U	760 U	220 U
Aroclor-1016	80	100 U	110 U	110 U	110 U	220 U	110 U	380 U	110 U
Aroclor-1221	80	100 U	110 U	110 U	110 U	220 U	110 U	380 U	110 U
Aroclor-1232	80	100 U	110 U	110 U	110 U	220 U	110 U	380 U	110 U
Aroclor-1242	80	100 U	110 U	110 U	110 U	220 U	110 U	380 U	110 U
Aroclor-1248	80	100 U	110 U	110 U	110 U	220 U	110 U	380 U	110 U
Aroclor-1254	160	200 U	220 U	220 U	220 U	440 U	210 U	760 U	220 U
Aroclor-1260	160	200 U	220 U	220 U	220 U	440 U	210 U	760 U	220 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		78	72	74	74	36	75	21	72
Laboratory Method Blank		237482	237482	236939	236939	233912	236939	236145	236939
Associated Equipment Blank		01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB001XXX02XX	01SB002XXX02XX	01SB001XXX02XX	01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	02SD201XXX02XX	02SD202XXX02XX	02SD202XXX02DX	03SD301XXX02XX	03SD302XXX02XX	01SD303XXX02XX	01SD304XXX02XX	01SD304XXX02DX
LAB NUMBER:	233756	234886	234887	234628	234627	234623	234624	234625
DATE SAMPLED:	12/06/88	12/09/88	12/09/88	12/08/88	12/08/88	12/08/88	12/08/88	12/08/88
DATE SAMPLE PREP:	12/08/88	12/15/88	12/15/88	12/18/88	12/18/88	12/18/88	12/15/88	12/15/88
DATE SAMPLE ANALYZED:	01/06/89	01/05/89	01/06/89	12/30/88	12/29/88	12/29/88	12/23/88	12/23/88
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL							
alpha-BHC	8	11 U	17 U	17 U	12 U	14 U	11 U	80 U	80 U
beta-BHC	8	11 U	17 U	17 U	12 U	14 U	11 U	80 U	80 U
delta-BHC	8	11 U	17 U	17 U	12 U	14 U	11 U	80 U	80 U
gamma-BHC (Lindane)	8	11 U	17 U	17 U	12 U	14 U	11 U	80 U	80 U
Heptachlor	8	11 U	17 U	17 U	12 U	14 U	11 U	80 U	80 U
Aldrin	8	11 U	17 U	17 U	12 U	14 U	11 U	80 U	80 U
Heptachlor epoxide	8	11 U	17 U	17 U	12 U	14 U	11 U	80 U	80 U
Endosulfan I	8	11 U	17 U	17 U	12 U	14 U	11 U	80 U	80 U
Dieldrin	16	22 U	33 U	34 U	25 U	27 U	22 U	160 U	160 U
4,4'-DDE	16	22 U	33 U	34 U	25 U	27 U	22 U	160 U	160 U
Endrin	16	22 U	33 U	34 U	25 U	27 U	22 U	160 U	160 U
Endosulfan II	16	22 U	33 U	34 U	25 U	27 U	22 U	160 U	160 U
4,4'-DDD	16	22 U	33 U	34 U	25 U	27 U	22 U	160 U	160 U
Endosulfan sulfate	16	22 U	33 U	34 U	25 U	27 U	22 U	160 U	160 U
4,4'-DDT	16	22 U	33 U	34 U	25 U	27 U	22 U	160 U	160 U
Methoxychlor	80	110 U	170 U	170 U	120 U	140 U	110 U	800 U	800 U
Endrin ketone	16	22 U	33 U	34 U	25 U	27 U	22 U	160 U	160 U
alpha-Chlordane	80	110 U	170 U	170 U	120 U	140 U	110 U	800 U	800 U
gamma-Chlordane	80	110 U	170 U	170 U	120 U	140 U	110 U	800 U	800 U
Toxaphene	160	220 U	330 U	340 U	250 U	270 U	220 U	1600 U	1600 U
Aroclor-1016	80	110 U	170 U	170 U	120 U	140 U	110 U	800 U	800 U
Aroclor-1221	80	110 U	170 U	170 U	120 U	140 U	110 U	800 U	800 U
Aroclor-1232	80	110 U	170 U	170 U	120 U	140 U	110 U	800 U	800 U
Aroclor-1242	80	110 U	170 U	170 U	120 U	140 U	110 U	800 U	800 U
Aroclor-1248	80	110 U	170 U	170 U	120 U	140 U	110 U	800 U	800 U
Aroclor-1254	160	220 U	330 U	340 U	250 U	270 U	220 U	1600 U	1600 U
Aroclor-1260	160	220 U	330 U	340 U	250 U	270 U	220 U	1600 U	1600 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		71	48	47	64	59	73	10	10
Laboratory Method Blank		233912	236145	236145	235868	235868	235868	235868	235868
Associated Equipment Blank		01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	01SD305XXX02XX	03SD316XXX02XX	03SD317XXX02XX	03SD317XXX02DX	08SD802XXX02XX	08SD803XXX02XX	08SD817XXX02XX	08SD818XXX02XX
LAB NUMBER:	234626	234889	234890	234891	237102	235430	237106	237108
DATE SAMPLED:	12/08/88	12/09/88	12/09/88	12/09/88	12/19/88	12/12/88	12/19/88	12/19/88
DATE SAMPLE PREP:	12/18/88	12/15/88	12/15/88	12/15/88	12/28/88	12/15/88	12/28/88	12/28/88
DATE SAMPLE ANALYZED:	12/29/88	01/05/89	01/05/89	01/05/89	01/21/89	01/05/89	01/21/89	01/21/89
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL								
alpha-BHC	8	13 U	11 U	10 U	11 U	14 U	13 U	24 U	11 U
beta-BHC	8	13 U	11 U	10 U	11 U	14 U	13 U	24 U	11 U
delta-BHC	8	13 U	11 U	10 U	11 U	14 U	13 U	24 U	11 U
gamma-BHC (Lindane)	8	13 U	11 U	10 U	11 U	14 U	13 U	24 U	11 U
Heptachlor	8	13 U	11 U	10 U	11 U	14 U	13 U	24 U	11 U
Aldrin	8	13 U	11 U	10 U	11 U	14 U	13 U	24 U	11 U
Heptachlor epoxide	8	13 U	11 U	10 U	11 U	14 U	13 U	24 U	11 U
Endosulfan I	8	13 U	11 U	10 U	11 U	14 U	13 U	24 U	11 U
Dieldrin	16	26 U	22 U	21 U	22 U	28 U	25 U	47 U	22 U
4,4'-DDE	16	26 U	22 U	21 U	22 U	28 U	25 U	47 U	22 U
Endrin	16	26 U	22 U	21 U	22 U	28 U	25 U	47 U	22 U
Endosulfan II	16	26 U	22 U	21 U	22 U	28 U	25 U	47 U	22 U
4,4'-DDD	16	26 U	22 U	21 U	22 U	28 U	25 U	47 U	22 U
Endosulfan sulfate	16	26 U	22 U	21 U	22 U	28 U	25 U	47 U	22 U
4,4'-DDT	16	26 U	22 U	21 U	22 U	28 U	58	47 U	22 U
Methoxychlor	80	130 U	110 U	100 U	110 U	140 U	130 U	240 U	110 U
Endrin ketone	16	26 U	22 U	21 U	22 U	28 U	25 U	47 U	22 U
alpha-Chlordane	80	130 U	110 U	100 U	110 U	140 U	130 U	240 U	110 U
gamma-Chlordane	80	130 U	110 U	100 U	110 U	140 U	130 U	240 U	110 U
Toxaphene	160	260 U	220 U	210 U	220 U	280 U	250 U	470 U	220 U
Aroclor-1016	80	130 U	110 U	100 U	110 U	140 U	130 U	240 U	110 U
Aroclor-1221	80	130 U	110 U	100 U	110 U	140 U	130 U	240 U	110 U
Aroclor-1232	80	130 U	110 U	100 U	110 U	140 U	130 U	240 U	110 U
Aroclor-1242	80	130 U	110 U	100 U	110 U	140 U	130 U	240 U	110 U
Aroclor-1248	80	130 U	110 U	100 U	110 U	440	130 U	240 U	110 U
Aroclor-1254	160	260 U	220 U	210 U	220 U	280 U	250 U	470 U	220 U
Aroclor-1260	160	260 U	220 U	210 U	220 U	280 U	250 U	470 U	220 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		61	74	76	74	58	63	34	73
Laboratory Method Blank		235868	236145	236145	236145	238376	236145	238376	238376
Associated Equipment Blank		01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB001XXX02XX	01SB003XXX02XX	01SB002XXX02XX	01SB003XXX02XX	01SB003XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	08SD819XXX02XX	08SD820XXX02XX	08SD821XXX02XX	09SD915XXX02XX	09SD916XXX02XX	09SD918XXX02XX	09SD918XXX02DX	09SDBK1XXX02XX
LAB NUMBER:	235429	236497	236498	236761	236762	237110	237111	236759
DATE SAMPLED:	12/12/88	12/15/88	12/15/88	12/16/88	12/16/88	12/19/88	12/19/88	12/16/88
DATE SAMPLE PREP:	12/15/88	12/19/88	12/19/88	12/22/88	12/22/88	12/28/88	12/28/88	12/22/88
DATE SAMPLE ANALYZED:	01/05/89	01/19/89	01/19/89	01/19/89	01/19/89	01/20/89	01/20/89	01/19/89
MATRIX:	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil

PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL								
alpha-BHC	8	11 U	14 U	10 U	12 U	11 U	12 U	12 U	11 U
beta-BHC	8	11 U	40	10 U	12 U	11 U	12 U	12 U	11 U
delta-BHC	8	11 U	14 U	10 U	12 U	11 U	12 U	12 U	11 U
gamma-BHC (Lindane)	8	11 U	14 U	10 U	12 U	11 U	12 U	12 U	11 U
Heptachlor	8	11 U	14 U	10 U	12 U	11 U	12 U	12 U	11 U
Aldrin	8	11 U	14 U	10 U	12 U	11 U	12 U	12 U	11 U
Heptachlor epoxide	8	11 U	14 U	10 U	12 U	11 U	12 U	12 U	11 U
Endosulfan I	8	11 U	14 U	10 U	12 U	11 U	12 U	12 U	11 U
Dieldrin	16	21 U	28 U	21 U	25 U	22 U	24 U	24 U	22 U
4,4'-DDE	16	21 U	28 U	21 U	25 U	22 U	24 U	24 U	22 U
Endrin	16	21 U	28 U	21 U	25 U	22 U	24 U	24 U	22 U
Endosulfan II	16	21 U	28 U	21 U	25 U	22 U	24 U	24 U	22 U
4,4'-DDD	16	21 U	28 U	21 U	25 U	22 U	24 U	24 U	22 U
Endosulfan sulfate	16	21 U	28 U	21 U	25 U	22 U	24 U	24 U	22 U
4,4'-DDT	16	21 U	28 U	21 U	25 U	22 U	24 U	24 U	22 U
Methoxychlor	80	110 U	140 U	100 U	120 U	110 U	120 U	120 U	110 U
Endrin ketone	16	21 U	28 U	21 U	25 U	22 U	24 U	24 U	22 U
alpha-Chlordane	80	110 U	140 U	100 U	120 U	110 U	120 U	120 U	110 U
gamma-Chlordane	80	110 U	140 U	100 U	120 U	110 U	120 U	120 U	110 U
Toxaphene	160	210 U	280 U	210 U	250 U	220 U	240 U	240 U	220 U
Aroclor-1016	80	110 U	140 U	100 U	120 U	110 U	120 U	120 U	110 U
Aroclor-1221	80	110 U	140 U	100 U	120 U	110 U	120 U	120 U	110 U
Aroclor-1232	80	110 U	140 U	100 U	120 U	110 U	120 U	120 U	110 U
Aroclor-1242	80	110 U	140 U	100 U	120 U	110 U	120 U	120 U	110 U
Aroclor-1248	80	110 U	140 U	100 U	120 U	110 U	120 U	120 U	110 U
Aroclor-1254	160	210 U	280 U	210 U	250 U	220 U	240 U	240 U	220 U
Aroclor-1260	160	210 U	280 U	210 U	250 U	220 U	240 U	240 U	220 U
Dilution Factor		1	1	1	1	1	1	1	1
Percent Solid		75	58	76	65	71	66	66	73
Laboratory Method Blank		236145	236939	236939	237482	237482	238375	238375	237482
Associated Equipment Blank		01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB002XXX02XX	01SB003XXX02XX	01SB003XXX02XX	01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	09SDBK2XXX02XX
LAB NUMBER:	236760
DATE SAMPLED:	12/16/88
DATE SAMPLE PREP:	12/22/88
DATE SAMPLE ANALYZED:	01/19/89
MATRIX:	Soil

PESTICIDES/PCB COMPOUNDS UNITS: ug/kg	CRDL	
alpha-BHC	8	9.3 U
beta-BHC	8	9.3 U
delta-BHC	8	9.3 U
gamma-BHC (Lindane)	8	9.3 U
Heptachlor	8	9.3 U
Aldrin	8	9.3 U
Heptachlor epoxide	8	9.3 U
Endosulfan I	8	9.3 U
Dieldrin	16	19 U
4,4'-DDE	16	19 U
Endrin	16	19 U
Endosulfan II	16	19 U
4,4'-DDD	16	19 U
Endosulfan sulfate	16	19 U
4,4'-DDT	16	19 U
Methoxychlor	80	93 U
Endrin ketone	16	19 U
alpha-Chlordane	80	93 U
gamma-Chlordane	80	93 U
Toxaphene	160	190 U
Aroclor-1016	80	93 U
Aroclor-1221	80	93 U
Aroclor-1232	80	93 U
Aroclor-1242	80	93 U
Aroclor-1248	80	93 U
Aroclor-1254	160	190 U
Aroclor-1260	160	190 U
Dilution Factor		1
Percent Solid		86

Laboratory Method Blank	237482
Associated Equipment Blank	01SB002XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	03SW002XXX02XX	02SW003XXX02XX	01SW004XXX02XX	08SW006XXX02XX	08SW007XXX02XX	08SW008XXX02XX	08SW009XXX02XX	09SW010XXX02XX
	LAB NUMBER:	234929	233814	233809	235427	236522	236520	237160	236780
	DATE SAMPLED:	12/09/88	12/06/88	12/06/88	12/12/88	12/15/88	12/15/88	12/19/88	12/16/88
	MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
METALS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	40 []	131 []	81 []	36 []	1590	341	315	31 []
Antimony	P	60	43 UN	43 U	43 U	43 U	43 U	43 U	43 U	43 U
Arsenic	F	10	1.6 UN	1.6 U	2.7 []	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
Barium	P	200	15 []	14 []	14 []	6.5 []	29 []	16 []	28 []	19 []
Beryllium	P	5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Cadmium	P	5	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Calcium	P	5000	13500	6710	6970	7530	9610	8880	49000	14500
Chromium	P	10	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cobalt	P	50	2.5 U	2.5 U	2.5 U	7.2 []	4.7 []	3.6 []	4.8 []	3.9 []
Copper	P	25	3.1 U	3.1 U	3.1 U	3.1 U	5.2 U	3.1 U	3.1 U	3.1 U
Cyanide	CN	10	10 U	10 U	10 U	10 U	21	10 U	37	10 U
Iron	P	100	2140	826	761	124	5020	970	7160	836
Lead	P/F	5	0.91 U	0.91 UN	4.8 [] N	0.91 U	2.3 []	2.6 []	2.6 []	0.91 U
Magnesium	P	5000	1940 []	1060 []	1280 []	1680 [] E	2400 []	1440 []	4190 []	2610 []
Manganese	P	15	566	61	183	187	343	262	466	386
Mercury	CV	0.20	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	P	40	24 U	24 U	24 U	24 U	24 U	24 U	24 U	24 U
Potassium	P	5000	2360 U	2360 U	2360 U	4630 []	2360 U	2360 U	2360 U	2360 U
Selenium	F	5	21 UN	10 UN	10 UN	2.1 UN	10 UN	10 UN	10 UN	2.1 UN
Silver	P	10	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Sodium	P	5000	11000	1890 U	5940	8380	160000	21700	26900	18300
Thallium	F	10	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Vanadium	P	50	2.3 U	2.3 U	2.3 U	7 []	2.3 U	2.3 U	2.3 U	2.3 U
Zinc	P	20	8 []	173	18 []	4.2 []	40	52	161	20 []
Laboratory Method Blank			15784D	15774A	15774A	15784E	15751B	15751B	15751B	15751B

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	09SW011XXX02XX	09SW012XXX02XX	01SW113XXX02XX	01SW114XXX02XX	01SW115XXX02XX	01SW118XXX02XX	01SW119XXX02XX	03SW316XXX02XX
	LAB NUMBER:	236781	236782	235993	235995	233812	235998	235996	234939
	DATE SAMPLED:	12/16/88	12/16/88	12/14/88	12/14/88	12/06/88	12/14/88	12/14/88	12/09/88
	MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
METALS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	75 []	31 []	85 []	78 []	132 []	401	159 []	625
Antimony	P	60	43 U	43 U	43 U	43 U	43 U	43 U	43 U	43 UN
Arsenic	F	10	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.8 []	1.6 U	1.6 UN
Barium	P	200	26 []	26 []	17 []	17 []	18 []	16 []	18 []	23 []
Beryllium	P	5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Cadmium	P	5	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Calcium	P	5000	15400	15300	7850	8630	7840	9540	8180	7730
Chromium	P	10	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cobalt	P	50	5 []	5.9 []	2.5 U	2.6 []	2.5 U	2.5 U	2.5 U	2.5 U
Copper	P	25	3.1 U	3.1 U	3.1 U	16 []	21 []	18 []	5.2 []	7.9 []
Cyanide	CM	10	10 U	10 U	11	12	10 U	12	15	10 U
Iron	P	100	2160	1900	855	676	891	1240	860	3710
Lead	P/F	5	0.91 U	0.91 U	0.91 U	0.91 U	0.91 UN	1.8 []	0.91 U	3.5 []
Magnesium	P	5000	2390 []	2360 []	1470 []	1770 []	1190 []	1810 []	1650 []	1520 []
Manganese	P	15	954	888	223	218	205	235	225	304
Mercury	CV	0.20	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	P	40	24 U	24 U	24 U	24 U	24 U	24 U	24 U	24 U
Potassium	P	5000	2360 U	2360 U	2360 U	3310 []	2790 []	2360 U	2360 U	2360 U
Selenium	F	5	10 UN	10 UN	10 UN	10 UN	10 UN	10 UN	10 UN	10 UN
Silver	P	10	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Sodium	P	5000	22100	21000	5380	9190	4550 []	8850	8490	5600
Thallium	F	10	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
Vanadium	P	50	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
Zinc	P	20	23	23	166	19 []	169	111	79	58
Laboratory Method Blank			15751B	15751B	15784W	15784W	15774A	15784W	15784W	15784D

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	03SW316XXX02DX	03SW317XXX02XX	08SW817XXX02XX	08SW818XXX02XX	08SW819XXX02XX	08SW820XXX02XX	08SW821XXX02XX	09SW915XXX02XX
	LAB NUMBER:	234941	234945	237157	237155	235420	236523	236524	236785
	DATE SAMPLED:	12/09/88	12/09/88	12/19/88	12/19/88	12/12/88	12/15/88	12/15/88	12/16/88
	MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
METALS UNITS: ug/l	ANALYTICAL METHOD	CRDL							
Aluminum	P	200	815	48 []	176 []	25 U	51 []	108 []	169 []	49 []
Antimony	P	60	43 UN	43 UN	43 U	43 U	43 UN	43 U	43 U	43 U
Arsenic	F	10	1.6 UN	1.6 UN	1.6 U	1.6 U	1.6 UN	1.6 U	1.6 U	1.6 U
Barium	P	200	25 []	15 []	12 []	12 []	7.7 []	26 []	12 []	26 []
Beryllium	P	5	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Cadmium	P	5	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Calcium	P	5000	8000	13000	10800	10700	7790	13700	7890	15600
Chromium	P	10	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cobalt	P	50	2.5 U	2.5 U	8.2 []	2.5 U	2.5 U	4.7 []	5 []	4.9 []
Copper	P	25	7.9 []	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U	3.1 U
Cyanide	CN	10	10 U	10 U	128	10 U	10 U	10 U	10 U	10 U
Iron	P	100	4830	519	1510	775	239	704	394	2420
Lead	P/F	5	62	0.91 U	2 []	0.91 U	1.1 []	0.91 U	2.2 []	0.91 U
Magnesium	P	5000	1660 []	1960 []	2050 []	1500 []	1110 []	2740 []	1330 []	2400 []
Manganese	P	15	332	478	195	188	185	283	245	1070
Mercury	CV	0.20	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	P	40	24 U	24 U	24 U	24 U	24 U	24 U	24 U	24 U
Potassium	P	5000	2360 U	2360 U	2360 U	2360 U	2360 U	2360 U	2360 U	2360 U
Selenium	F	5	10 UN	10 UN	10 UN	10 UN	10 UN	10 UN	10 UN	10 UN
Silver	P	10	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
Sodium	P	5000	6830	3860 []	18600	18300	4290 []	216000	9420	17300
Thallium	F	10	2 U	2 U	2 U	2.3 []	2 U	2 U	2 U	2 U
Vanadium	P	50	2.3 U	2.3 U	2.7 []	2.3 U	2.3 U	2.3 U	2.3 U	2.3 U
Zinc	P	20	51	22	105	9.7 []	19 []	50	19 []	13 []
Laboratory Method Blank			15784D	15784D	15751B	15751B	15784D	15751B	15751B	15751B

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	09SW916XXX02XX	09SW918XXX02XX	01SWBK1XXX02XX	01SWBK2XXX02XX
	LAB NUMBER:	236789	237154	236783	236784
	DATE SAMPLED:	12/16/88	12/19/88	12/16/88	12/16/88
	MATRIX:	Water	Water	Water	Water
METALS UNITS: ug/l	ANALYTICAL METHOD	CRDL				
Aluminum	P	200	35 []	54 []	213	238
Antimony	P	60	43 U	43 U	43 U	43 U
Arsenic	F	10	1.6 U	1.6 U	1.6 U	2 []
Barium	P	200	25 []	13 []	19 []	24 []
Beryllium	P	5	1.1 U	1.1 U	1.1 U	1.1 U
Cadmium	P	5	4.3 U	4.3 U	4.3 U	4.3 U
Calcium	P	5000	15200	7040	6820	7070
Chromium	P	10	5 U	5 U	5 U	5 U
Cobalt	P	50	3.8 []	5.2 []	4.6 []	3.9 []
Copper	P	25	3.1 U	3.1 U	3.1 U	3.1 U
Cyanide	CN	10	10 U	22	15	10 U
Iron	P	100	1590	683	554	597
Lead	P/F	5	1 []	0.91 U	1.8 []	3.1 []
Magnesium	P	5000	2340 []	1780 []	1550 []	1440 []
Manganese	P	15	811	237	98	96
Mercury	CV	0.20	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	P	40	24 U	24 U	24 U	24 U
Potassium	P	5000	2360 U	2360 U	2360 U	2360 U
Selenium	F	5	10 UN	10 UN	14 UN	21 UN
Silver	P	10	4.3 U	4.3 U	4.3 U	4.3 U
Sodium	P	5000	18400	11900	32000	32400
Thallium	F	10	2 U	2 U	2 U	3.3 []
Vanadium	P	50	2.3 U	2.3 U	2.3 U	2.3 U
Zinc	P	20	22	30	48	21
Laboratory Method Blank			15751B	15751B	15751B	15751B

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03SW002XXX02XX	02SW003XXX02XX	01SW004XXX02XX	08SW006XXX02XX	08SW007XXX02XX	08SW008XXX02XX	08SW009XXX02XX	09SW010XXX02XX
LAB NUMBER:	234903	233780	233769	235401	236507	236505	237143	236770
DATE SAMPLED:	12/09/88	12/06/88	12/06/88	12/12/88	12/15/88	12/15/88	12/19/88	12/16/88
DATE SAMPLE ANALYSIS:	12/13/88	12/08/88	12/08/88	12/15/88	12/23/88	12/23/88	12/22/88	12/21/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	2 J	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	1 JB
Acetone	10	10 U	10 U	10 U	17 B	8 J	10 U	7 J	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	1 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	15 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	20	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1	1	1	1	1

Laboratory Method Blank	CB881213A09	CB881208B09	CB881208B09	CB881215B11	CB881223A23	CB881222B23	CB881221A11	CB881221A12
Associated Trip Blank	01TB004XXX02XX	01TB001XXX02XX	01TB001XXX02XX	01TB005XXX02XX	01TB006XXX02XX	01TB008XXX02XX	01TB010XXX02XX	01TB009XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	09SW011XXX02XX	09SW012XXX02XX	01SW113XXX02XX	01SW114XXX02XX	01SW115XXX02XX	01SW118XXX02XX	01SW119XXX02XX	03SW316XXX02XX
LAB NUMBER:	236771	236772	235965	235977	233779	235987	235980	234904
DATE SAMPLED:	12/16/88	12/16/88	12/14/88	12/14/88	12/06/88	12/14/88	12/14/88	12/09/88
DATE SAMPLE ANALYSIS:	12/21/88	12/21/88	12/16/88	12/17/88	12/08/88	12/17/88	12/17/88	12/13/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	2 J	10 U	4 J	10 U	10 U	10 U
Methylene Chloride	5	5 B	2 JB	5 U	5 U	2 J	5 U	5 U	5 U
Acetone	10	5 J	10 U	10 U	10 U	4 J	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	2 J	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	15 U	15 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	13	1 J	1 J	5 U	1 J	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	7	5 U	2 J	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	3 J	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		CB881221A12	CB881221A12	CC881216A14	CC881217A14	CB881208C09	CC881217A14	CC881217A14	CB881213A09
Associated Trip Blank		01TB009XXX02XX	01TB009XXX02XX	01TB007XXX02XX	01TB007XXX02XX	01TB001XXX02XX	01TB007XXX02XX	01TB007XXX02XX	01TB004XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03SW316XXX02DX	03SW317XXX02XX	08SW817XXX02XX	08SW818XXX02XX	08SW819XXX02XX	08SW820XXX02XX	08SW821XXX02XX	09SW915XXX02XX
LAB NUMBER:	234905	234908	237142	237141	235387	236509	236510	236778
DATE SAMPLED:	12/09/88	12/09/88	12/19/88	12/19/88	12/12/88	12/15/88	12/15/88	12/16/88
DATE SAMPLE ANALYSIS:	12/13/88	12/14/88	12/21/88	12/21/88	12/15/88	12/21/88	12/21/88	12/21/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	1 JB	1 JB	5 U	1 J	5 U	5 U
Acetone	10	10 U	6 JB	10 U	11	11 B	10 U	23	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	15 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	2 J	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1	1	1	1	1

Laboratory Method Blank	CB881213A09	CB881214C11	CB881221A11	CB881221A11	CB881215B11	CC881221B23	CC881221B23	CB881221A12
Associated Trip Blank	01TB004XXX02XX	01TB004XXX02XX	01TB010XXX02XX	01TB010XXX02XX	01TB005XXX02XX	01TB008XXX02XX	01TB008XXX02XX	01TB009XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	09SW916XXX02XX	09SW918XXX02XX	01SWBK1XXX02XX	01SWBK2XXX02XX
LAB NUMBER:	236779	237140	236773	236777
DATE SAMPLED:	12/16/88	12/19/88	12/16/88	12/16/88
DATE SAMPLE ANALYSIS:	12/21/88	12/21/88	12/21/88	12/21/88
MATRIX:	Water	Water	Water	Water

VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL				
Chloromethane	10	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U
Methylene Chloride	5	1 JB	1 JB	5 U	2 JB
Acetone	10	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U
2-Butanone	10	15 U	15 U	15 U	15 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U
Dilution Factor		1	1	1	1

Laboratory Method Blank	CB881221A12	CB881221A11	CB881221A12	CB881221A12
Associated Trip Blank	01TB009XXX02XX	01TB010XXX02XX	01TB009XXX02XX	01TB009XXX02XX

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03SW002XXX02XX	02SW003XXX02XX	01SW004XXX02XX	08SW006XXX02XX	08SW007XXX02XX	08SW008XXX02XX	08SW009XXX02XX	09SW010XXX02XX
LAB NUMBER:	234903	233780	233769	235401	236507	236505	237143	236770
DATE SAMPLED:	12/09/88	12/06/88	12/06/88	12/12/88	12/15/88	12/15/88	12/19/88	12/16/88
DATE SAMPLE PREP:	12/13/88	12/08/88	12/08/88	12/17/88	12/20/88	12/20/88	12/24/88	12/21/88
DATE SAMPLE ANALYSIS:	12/14/88	12/10/88	12/10/88	12/18/88	12/22/88	12/22/88	12/29/88	12/22/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03SW002XXX02XX	02SW003XXX02XX	01SW004XXX02XX	08SW006XXX02XX	08SW007XXX02XX	08SW008XXX02XX	08SW009XXX02XX	09SW010XXX02XX
LAB NUMBER:	234903	233780	233769	235401	236507	236505	237143	236770
DATE SAMPLED:	12/09/88	12/06/88	12/06/88	12/12/88	12/15/88	12/15/88	12/19/88	12/16/88
DATE SAMPLE PREP:	12/13/88	12/08/88	12/08/88	12/17/88	12/20/88	12/20/88	12/24/88	12/21/88
DATE SAMPLE ANALYSIS:	12/14/88	12/10/88	12/10/88	12/18/88	12/22/88	12/22/88	12/29/88	12/22/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS

UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GH035152B02	GH033909A21	GH033909A21	GH036708A04	GH037188A16	GH037188A16	GJ038274B06	GH037219A06
Associated Equipment Blank		-	-	-	01SB004XXX02XX	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	09SW011XXX02XX	09SW012XXX02XX	01SW113XXX02XX	01SW114XXX02XX	01SW115XXX02XX	01SW118XXX02XX	01SW119XXX02XX	03SW316XXX02XX
LAB NUMBER:	236771	236772	235965	235977	233779	235987	235980	234904
DATE SAMPLED:	12/16/88	12/16/88	12/14/88	12/14/88	12/06/88	12/14/88	12/14/88	12/09/88
DATE SAMPLE PREP:	12/21/88	12/21/88	12/18/88	12/18/88	12/08/88	12/18/88	12/18/88	12/13/88
DATE SAMPLE ANALYSIS:	12/22/88	12/22/88	12/21/88	12/21/88	12/10/88	12/21/88	12/21/88	12/14/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	09SW011XXX02XX	09SW012XXX02XX	01SW113XXX02XX	01SW114XXX02XX	01SW115XXX02XX	01SW118XXX02XX	01SW119XXX02XX	03SW316XXX02XX
LAB NUMBER:	236771	236772	235965	235977	233779	235987	235980	234904
DATE SAMPLED:	12/16/88	12/16/88	12/14/88	12/14/88	12/06/88	12/14/88	12/14/88	12/09/88
DATE SAMPLE PREP:	12/21/88	12/21/88	12/18/88	12/18/88	12/08/88	12/18/88	12/18/88	12/13/88
DATE SAMPLE ANALYSIS:	12/22/88	12/22/88	12/21/88	12/21/88	12/10/88	12/21/88	12/21/88	12/14/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GH037219A06	GH037219A06	GH036897A08	GH036897A08	GH033909A21	GH036897A08	GH036897A08	GH035152B02
Associated Equipment Blank		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03SW316XXX02DX	03SW317XXX02XX	08SW817XXX02XX	08SW818XXX02XX	08SW819XXX02XX	08SW820XXX02XX	08SW821XXX02XX	09SW915XXX02XX
LAB NUMBER:	234905	234908	237142	237141	235387	236509	236510	236778
DATE SAMPLED:	12/09/88	12/09/88	12/19/88	12/19/88	12/12/88	12/15/88	12/15/88	12/16/88
DATE SAMPLE PREP:	12/13/88	12/14/88	12/24/88	12/24/88	12/17/88	12/20/88	12/20/88	12/21/88
DATE SAMPLE ANALYSIS:	12/14/88	12/15/88	12/29/88	12/29/88	12/18/88	12/22/88	12/22/88	12/22/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03SW316XXX02DX	03SW317XXX02XX	08SW817XXX02XX	08SW818XXX02XX	08SW819XXX02XX	08SW820XXX02XX	08SW821XXX02XX	09SW915XXX02XX
LAB NUMBER:	234905	234908	237142	237141	235387	236509	236510	236778
DATE SAMPLED:	12/09/88	12/09/88	12/19/88	12/19/88	12/12/88	12/15/88	12/15/88	12/16/88
DATE SAMPLE PREP:	12/13/88	12/14/88	12/24/88	12/24/88	12/17/88	12/20/88	12/20/88	12/21/88
DATE SAMPLE ANALYSIS:	12/14/88	12/15/88	12/29/88	12/29/88	12/18/88	12/22/88	12/22/88	12/22/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		GH035152B02	GH035743A16	GJ038274B06	GJ038274B06	GH036708A04	GH037188A16	GH037188A16	GH037219A06
Associated Equipment Blank		-	01SB004XXX02XX	-	-	01SB004XXX02XX	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	09SW915XXX02XX	09SW916XXX02XX	09SW918XXX02XX	01SWBK1XXX02XX	01SWBK2XXX02XX
LAB NUMBER:	236778 RE	236779	237140	236773	236777
DATE SAMPLED:	12/16/88	12/16/88	12/19/88	12/16/88	12/16/88
DATE SAMPLE PREP:	12/21/88	12/21/88	12/24/88	12/21/88	12/21/88
DATE SAMPLE ANALYSIS:	1/04/89	12/22/88	12/29/88	12/22/88	12/22/88
MATRIX:	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL					
Phenol	10	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	09SW915XXX02XX	09SW916XXX02XX	09SW918XXX02XX	01SWBK1XXX02XX	01SWBK2XXX02XX
LAB NUMBER:	236778 RE	236779	237140	236773	236777
DATE SAMPLED:	12/16/88	12/16/88	12/19/88	12/16/88	12/16/88
DATE SAMPLE PREP:	12/21/88	12/21/88	12/24/88	12/21/88	12/21/88
DATE SAMPLE ANALYSIS:	1/04/89	12/22/88	12/29/88	12/22/88	12/22/88
MATRIX:	Water	Water	Water	Water	Water

SEMI-VOLATILE ORGANIC COMPOUNDS UNITS: ug/l	CRDL					
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	4 J	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U
Dilution Factor		1	1	1	1	1

Laboratory Method Blank	GJ037451A21	GH037219A06	GJ038274B06	GH037219A06	GH037219A06
Associated Equipment Blank	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	03SW002XXX02XX	02SW003XXX02XX	01SW004XXX02XX	01SW113XXX02XX	01SW114XXX02XX	01SW115XXX02XX	01SW118XXX02XX	01SW119XXX02XX
LAB NUMBER:	234903	233780	233769	235965	235977	233779	235987	235980
DATE SAMPLED:	12/09/88	12/06/88	12/06/88	12/14/88	12/14/88	12/06/88	12/14/88	12/14/88
DATE SAMPLE PREP:	12/14/88	12/09/88	12/09/88	12/18/88	12/18/88	12/09/88	12/18/88	12/18/88
DATE SAMPLE ANALYSIS:	12/16/88	12/12/88	12/12/88	12/20/88	12/20/88	12/12/88	12/20/88	12/20/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water

PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL								
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin ketone	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1016	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5	0.5 U	0.5 U	0.5 U	0.5 U	1 U	1 U	1 U	1 U
Aroclor-1254	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Aroclor-1260	1	1 U	1 U	1 U	1 U				
Dilution Factor		1	1	1	1	1	1	1	1
Laboratory Method Blank		235504	234783	234783	236886	236886	234783	236886	236886
Associated Equipment Blank		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

	SAMPLE ID:	03SW316XXX02XX	03SW316XXX02DX	03SW317XXX02XX	01SWBK1XXX02XX	01SWBK2XXX02XX
	LAB NUMBER:	234904	234905	234908	236773	236777
	DATE SAMPLED:	12/09/88	12/09/88	12/09/88	12/16/88	12/16/88
	DATE SAMPLE PREP:	12/14/88	12/14/88	12/15/88	12/22/88	12/22/88
	DATE SAMPLE ANALYSIS:	12/16/88	12/16/88	12/19/88	12/28/88	12/28/88
	MATRIX:	Water	Water	Water	Water	Water
PESTICIDES/PCB COMPOUNDS UNITS: ug/l	CRDL					
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin ketone	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-Chlordane	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	1	1 U	1 U	1 U	1 U	1 U
Aroclor-1016	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254	1	1 U	1 U	1 U	1 U	1 U
Aroclor-1260	1	1 U	1 U	1 U	1 U	1 U
Dilution Factor		1	1	1	1	1
Laboratory Method Blank		235504	235504	235858	237474	237474
Associated Equipment Blank		-	-	01SB004XXX02XX	-	-

Click Here to Return to Main Index

Combined Laboratory Report of Analysis

SAMPLE ID:	08SW006XXX02XX	08SW007XXX02XX	08SW008XXX02XX	08SW009XXX02XX	08SW817XXX02XX	08SW818XXX02XX	08SW819XXX02XX	08SW820XXX02XX
LAB NUMBER:	240825	240826	240829	240817	240818	240819	240821	240830
DATE SAMPLED:	12/12/88	12/15/88	12/15/88	12/19/88	12/19/88	12/19/88	12/12/88	12/15/88
MATRIX:	Water	Water	Water	Water	Water	Water	Water	Water
MISCELLANEOUS COMPOUNDS UNITS: mg/l	DL							
Total Phenols	10	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Chloride	3.0	6.5	240	35	46	25	27	8.4	360
Sulfate	1.0	2.4	14	6.5	24	8.1	9.7	2.2	20
Nitrate - N	0.005	BDL	BDL	1.6	N/A	N/A	N/A	BDL	1.2
Nitrite - N	1.0	5.8	BDL	0.013	N/A	N/A	N/A	6.2	BDL
Sulfide	0.050	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Nitrate-Nitrite	0.050	N/A	N/A	N/A	0.71	2	2	N/A	N/A
Hexavalent Chromium	0.050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< < .050
Fluoride	0.10	< .10	< .10	< .10	< .10	< .10	< .10	< .10	< < .10
Methylene Blue Active Substances	0.020	< .020	< .020	< .020	0.050	0.050	0.050	< .020	< .020
Total Dissloved Solids	10	64	460	120	270	110	110	44	160
Total Coliform (col/100 ml)	0	6	22	25	2	0	13	12	14
HERBICIDES METHOD 8150 UNITS: ug/l	DL								
2,4-D	4	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4,5-TP (Silvex)	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
2,4,5-T	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Laboratory Method Blank		236893	23747	23747	237460	237460	237460	236893	23747
Date Sample Prep.		12/18/88	12/21/88	12/21/88	12/22/88	12/22/88	12/22/88	12/18/88	12/21/88
Date Sample Analyzed		01/13/89	01/13/89	01/13/89	01/21/89	01/21/89	01/21/89	01/13/89	01/13/89

BDL = Below Detection Limit N/A = Not Applicable

Click Here to Return to Main Index

Combined Laboratory Report
of Analysis

SAMPLE ID:	08SW821XXX02XX
LAB NUMBER:	240831
DATE SAMPLED:	12/15/88
MATRIX:	Water

MISCELLANEOUS COMPOUNDS UNITS: mg/l	DL	
Total Phenols	10	46
Chloride	3.0	12
Sulfate	1.0	3.7
Nitrate - N	0.005	1.8
Nitrite - N	1.0	0.01
Sulfide	0.050	BDL
Nitrate-Nitrite	0.050	N/A
Hexavalent Chromium	0.050	< .050
Fluoride	0.10	< .10
Methylene Blue Active Substances	0.020	< .020
Total Dissloved Solids	10	100
Total Coliform (col/100 ml)	0	15

HERBICIDES METHOD 8150 UNITS: ug/l	DL	
2,4-D	4	BDL
2,4,5-TP (Silvex)	1	BDL
2,4,5-T	1	BDL

Laboratory Method Blank	23747
Date Sample Prep.	12/21/88
Date Sample Analyzed	01/13/89

BDL = Below Detection Limit N/A = Not Applicable

Click Here to Return to Main Index

Click Here to Return to Main Index

ROUND III DATA

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	01BF001XXX03XX	01BF002XXX03XX	01BS001XXX03XX	01BS002XXX03XX	01BS003XXX03XX
	LAB NUMBER:	256291	257297	256287	257291	256272
	DATE SAMPLED:	04/12/89	04/18/89	04/12/89	04/18/89	04/12/89
ANALYTE	CRQL					
Aluminum	200	30.9 U	21.4 U	NR	NR	180 []
Antimony	60	43.2 U	31.5 U	NR	NR	43.2 U
Arsenic	10	1.2 UW*	1.4 []	NR	NR	1.2 UN*
Barium	200	5.5 []	1.1 []	NR	NR	1.9 U
Beryllium	5	1.2 U	0.50 U	NR	NR	1.2 U
Cadmium	5	4.0 U	4.2 U	NR	NR	4.0 U
Calcium	5000	109 []	33.8 []	NR	NR	32.2 []
Chromium	10	6.3 U	3.8 U	NR	NR	6.3 U
Cobalt	50	5.1 U	4.0 []	NR	NR	5.1 U
Copper	25	7.8 []	7.3 U	NR	NR	9.1 []
Iron	100	36.4 []	23.2 []	NR	NR	518
Lead	5	2.0 []	1.6 []	NR	NR	0.90 U
Magnesium	5000	226 U	248 []	NR	NR	226 U
Manganese	15	1.2 U	0.80 U	NR	NR	5.5 []
Mercury	0.2	0.20 U	0.20 UN	NR	NR	0.20 U
Nickel	40	35.3 U	18.6 U	NR	NR	35.3 U
Potassium	5000	4910 U	1740 U	NR	NR	4910 U
Selenium	5	1.0 UWN	1.0 UN	NR	NR	1.0 UN
Silver	10	5.5 U	4.9 U	NR	NR	5.5 U
Sodium	5000	2950 U	1820 []	NR	NR	2950 U
Thallium	10	1.1 UWN	1.1 UN	NR	NR	1.1 UN
Vanadium	50	4.4 U	2.6 U	NR	NR	4.4 U
Zinc	20	7.0 []	27.3	NR	NR	20.6
Cyanide	10	NR	NR	10.0 UN*	10.0 U	10.0 UN*
Associated Method Blank:		16534D	16534L	16534	16534J	16534

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01BS001XXX03XX	01BS002XXX03XX	01BS003XXX03XX	01BS004XXX03XX	01BT001XXX03XX	01BT002XXX03XX	01BT003XXX03XX	01BT004XXX03XX
LAB NUMBER:		256258	257243	256248	257461	255760	255967	256261	256468
DATE SAMPLED:		04/12/89	04/18/89	04/12/89	04/19/89	04/10/89	04/11/89	04/12/89	04/13/89
DATE ANALYZED:		04/16/89	04/21/89	04/15/89	04/21/89	04/13/89	04/13/89	04/16/89	04/17/89
ANALYTE	CRQL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	10	10 U	15	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	4 J	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890416A14	CB890420B13	CC890415A14	CB890420B13	CB890413C14	CB890413C14	CB890416A14	CB890416B14

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01TB005XXX03XX	TBK-6	01BT007XXX03XX	01BT008XXX03XX	02BT009XXX03XX
LAB NUMBER:		256700	257040	257223	258248	265688
DATE SAMPLED:		04/14/89	04/17/89	04/18/89	04/24/89	06/02/89
DATE ANALYZED:		04/20/89	04/20/89	04/21/89	04/26/89	06/05/89
ANALYTE	CRQL					
Chloromethane	10	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	2 J	2 JB	1 JB	5 U	5 U
Acetone	10	13 B	8 J	6 J	10 U	7 J
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1
Associated Method Blank:		CB890420C14	CB890420B14	CB890420B14	CC890425B23	CC890605A12

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01BS001XXX03XX	01BS003XXX03XX	01BS004XXX03XX
LAB NUMBER:	256258	256248	257461
DATE SAMPLED:	04/12/89	04/12/89	04/19/89
DATE EXTRACTED:	04/14/89	04/14/89	04/21/89
DATE ANALYZED:	04/16/89	04/16/89	04/22/89

ANALYTE	CRQL			
Phenol	10	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01BS001XXX03XX	01BS003XXX03XX	01BS004XXX03XX
LAB NUMBER:	256258	256248	257461
DATE SAMPLED:	04/12/89	04/12/89	04/19/89
DATE EXTRACTED:	04/14/89	04/14/89	04/21/89
DATE ANALYZED:	04/16/89	04/16/89	04/22/89

ANALYTE	CRQL			
3-Nitroaniline	50	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	4 J	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U
Dilution Factor:		1	1	1
Associated Method Blank:		GH056356A20	GH056356A20	G2J57791A21

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	01BS001XXX03XX	01BS003XXX03XX	01BS004XXX03XX
	LAB NUMBER:	256258	256248	257461
	DATE SAMPLED:	04/12/89	04/12/89	4/19/89
	DATE EXTRACTED:	04/14/89	04/14/89	4/20/89
	DATE ANALYZED:	04/20/89	04/21/89	4/26/89
ANALYTE	CRQL			
alpha-BHC	0.050	0.050 U	0.050 U	0.050 U
beta-BHC	0.050	0.050 U	0.050 U	0.050 U
delta-BHC	0.050	0.050 U	0.050 U	0.050 U
gamma-BHC (Lindane)	0.050	0.050 U	0.050 U	0.050 U
Heptachlor	0.050	0.050 U	0.050 U	0.050 U
Aldrin	0.050	0.050 U	0.050 U	0.050 U
Heptachlor epoxide	0.050	0.050 U	0.050 U	0.050 U
Endosulfan I	0.050	0.050 U	0.050 U	0.050 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.50	0.50 U	0.50 U	0.50 U
gamma-Chlordane	0.50	0.50 U	0.50 U	0.50 U
Toxaphene	1.0	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.50	0.50 U	0.50 U	0.50 U
Aroclor-1221	0.50	0.50 U	0.50 U	0.50 U
Aroclor-1232	0.50	0.50 U	0.50 U	0.50 U
Aroclor-1242	0.50	0.50 U	0.50 U	0.50 U
Aroclor-1248	0.50	0.50 U	0.50 U	0.50 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U
Dilution Factor:		1.0	1.0	1.0
Associated Method Blank:		256352	256352	257600

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick - Round 3 Inorganic Aqueous Analysis (ug/L) 21-Feb-90

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	01GW101XXX03XX	02GW102XXX03XX	01GW105AXX03XX	01GW105BXX03XX	01GW106XXX03XX	03GW202AXX03XX	01GW205XXX03XX	01GW206BXX03XX
	LAB NUMBER:	256476	255984	256274	256276	256282	255975	255748	255757
	DATE SAMPLED:	04/13/89	04/11/89	04/12/89	04/12/89	04/12/89	04/11/89	04/10/89	04/10/89
ANALYTE	CRQL								
Aluminum	200	51.9 []	77.8 []	36.2 []	30.9 U	30.9 U	76.5 []	30.9 U	30.9 U
Antimony	60	43.2 U	43.2 U	43.2 U	43.2 U	43.2 U	43.2 U	43.2 U	43.2 U
Arsenic	10	10.6 *	8.5 []*	1.2 U*	1.2 U*	1.2 UW*	17.0 *	1.2 UW*	1.2 U*
Barium	200	2.7 []	7.0 []	2.7 []	1.9 U	2.7 []	50.6 []	13.3 []	3.4 []
Beryllium	5	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Cadmium	5	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Calcium	5000	5440	17700	4110 []	3220 []	5500	27800	14500	2280 []
Chromium	10	6.3 U	6.3 U	6.3 U	6.3 U	6.3 U	6.3 U	6.3 U	6.3 U
Cobalt	50	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	5.1 U	9.2 []	5.1 U
Copper	25	5.2 []	6.9 []	7.8 []	7.8 []	1.6 U	1.6 U	2.7 []	10.7 []
Iron	100	64 []	17600	126	3.5 U	57.6 []	104000	23.8 []	118
Lead	5	1.6 []	2.5 []W	2.1 []	0.90 UW	0.90 U	1.6 []W	0.90 UW	3.8 []W
Magnesium	5000	2720 []	9180	1470 []	1330 []	1650 []	4360 []	5460	870 []
Manganese	15	36.0	2250	1.2 U	1.2 U	5.9 []	3550	276	14.7 []
Mercury	0.2	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	40	35.3 U	35.3 U	35.3 U	35.3 U	35.3 U	35.3 U	35.3 U	35.3 U
Potassium	5000	4910 U	4910 U	4910 U	4910 U	4910 U	4910 U	15000	4910 U
Selenium	5	5.0 UW	10.0 UW	5.0 UWW	5.0 UWW	5.0 UWW	10.0 UWW	10 UWW	1.0 UWW
Silver	10	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U	5.5 U
Sodium	5000	14600	54400	6000	4120 []	7660	22800	14900	12900
Thallium	10	1.1 UWW	1.1 UWW	1.1 UWW	1.1 UW	1.1 UWW	5.5 UWW	1.1 UWW	1.1 UWW
Vanadium	50	4.4 U	4.4 U	4.4 U	4.9 []	4.4 U	4.4 U	7.9 []	4.4 U
Zinc	20	15.4 []	22.0	11.2 []	5.2 []	5.6 []	58.5	6.5 []	52.2
Cyanide	10	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Associated Method Blank:		16534D	16534C	16534D	16534D	16534D	16534C	16534C	16534C
Associated Equipment Blank:		-	-	01BF001XXX03XX	01BF001XXX03XX	01BF001XXX03XX	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01GW207BXX03XX	01GW208XXX03XX	01GW210AXX03XX	01GW210BXX03XX	01GW211AXX03XX	01GW211AXX03XD	02GW213XXX03XX	02GW213XXX03XD
LAB NUMBER:		256472	255759	255979	255982	256264	256270	256277	256279
DATE SAMPLED:		04/13/89	04/10/89	04/11/89	04/11/89	04/12/89	04/12/89	04/12/89	04/12/89
ANALYTE	CRQL								
Aluminum	200	42.7 []	44.8 []	30.9 U	30.9 U	46.3 []	38.5 []	42.7 []	30.9 U
Antimony	60	43.2 U	43.2 U	43.2 U	43.2 U	43.2 U	43.2 U	43.2 U	43.2 U
Arsenic	10	2.9 []W*	1.6 []*	15.3 S*	45.0 S*	14.2 *	11.4 *	14.6 *	15.7 *
Barium	200	3.5 []	2.8 []	21.1 []	14.0 []	57.4 []	56.0 []	4.5 []	3.4 []
Beryllium	5	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Cadmium	5	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Calcium	5000	2880 []	8740	5330	28700	4180 []	4080 []	11300	10800
Chromium	10	6.3 U	6.3 U	6.3 U	6.3 U	6.3 U	6.3 U	6.3 U	6.3 U
Cobalt	50	5.1 U	5.1 U	5.1 U	17.3 []	5.1 U	5.1 U	5.1 U	5.1 U
Copper	25	2.6 []	6.7 []	1.6 U	7.8 []	1.6 U	1.6 U	10.4 []	1.6 U
Iron	100	203	84.3 []	206	25100	151	101	9960	9640
Lead	5	0.9 U	2.0 []W	0.90 UW	1.4 []W	0.90 UW	0.90 UW	0.90 U	0.90 U
Magnesium	5000	1520 []	4400 []	3990 []	6870	5150	5110	6630	6440
Manganese	15	54.6	116	12.1 []	4740	15.1	12.0 []	408	382
Mercury	0.2	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	40	35.3 U	35.3 U	35.3 U	35.3 U	35.3 U	35.3 U	35.3 U	35.3 U
Potassium	5000	4910 U	4910 U	9910	4910 U	15100	14400	4910 U	4910 U
Selenium	5	1.0 UWN	10.0 UN	10.0 UN	10.0 UWN	5.0 UWN	5.0 UWN	5.0 UWN	5.0 UWN
Silver	10	5.5 U	5.5 U	5.5 U	5.5 U	5.6 []	5.5 U	5.5 U	5.5 U
Sodium	5000	6040	15600	391000	14300	465000	461000	41600	39800
Thallium	10	1.1 UN	1.1 UWN	5.5 UWN	1.1 UWN	11.0 UEN	11.0 UWN	1.1 UWN	1.1 UWN
Vanadium	50	6.5 []	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	5.3 []	4.4 U
Zinc	20	8.5 []	11.0 []	7.6 []	20.5	6.6 []	35.2	6.0 []	2.8 []
Cyanide	10	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Associated Method Blank:		16534D	16534C	16534C	16534C	16534D	16534D	16534D	16534D
Associated Equipment Blank:		-	-	-	-	01BF001XXX03XX	01BF001XXX03XX	01BF001XXX03XX	01BF001XXX03XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	04GW403XXX03XX	04GW405XXX03XX	04GW407XXX03XX	07GW701XXX03XX	08GW801XXX03XX	08GW803XXX03XX	08GW804XXX03XX	08GW807XXX03XX
	LAB NUMBER:	256284	256469	256477	256478	256742	256473	256744	256729
	DATE SAMPLED:	04/12/89	04/13/89	04/13/89	04/13/89	04/14/89	04/14/89	04/14/89	04/14/89
ANALYTE	CRQL								
Aluminum	200	30.9 U	30.9 U	230	160 []	652	928	133 []	180 []
Antimony	60	43.2 U	43.2 U	43.2 U	31.5 U	31.5 U	31.5 U	31.5 U	31.5 U
Arsenic	10	1.2 UW*	1.2 UW*	1.2 UW*	1.2 UW	1.8 []	1.2 UW	1.2 UW	1.2 U
Barium	200	3.3 []	6.0 []	5.0 []	21.6 []	7.0 []	10.4 []	12.8 []	37.0 []
Beryllium	5	1.2 U	1.2 U	1.2 U	0.50 U	0.50 U	1.3 []	0.50 U	1.6 []
Cadmium	5	4.0 U	4.0 U	4.0 U	4.2 U	4.2 U	4.2 U	4.2 U	4.2 U
Calcium	5000	1090 []	1790 []	5180	6870	5230	7110	28600	18100
Chromium	10	6.3 U	6.3 U	6.3 U	3.8 U	6.3 []	3.8 U	3.8 U	3.8 U
Cobalt	50	5.1 U	5.1 U	5.1 U	7.7 []	6.5 []	3.3 U	3.3 U	3.4 []
Copper	25	10.4 []	2.6 []	2.6 []	7.3 U	10.7 []	10.2 []	10.2 []	25.4
Iron	100	142	3.5 U	319	28.9 []	4430	2080	237	489
Lead	5	5.7	0.9 U	2.1 []	1.2 []	6.7	3.9 []	1.2 []	2.2 []W
Magnesium	5000	623 []	729 []	2240 []	1700 []E	2670 []	5100 E	10500 E	7380
Manganese	15	4.6 []	6.0 []	18.0	38.6	120	114	156	78.7
Mercury	0.2	0.20 U	0.20 U	0.20 U	0.20 UN	0.20 U	0.20 UN	0.20 UN	0.20 U
Nickel	40	35.3 U	35.3 U	35.3 U	18.6 U	18.6 U	18.6 U	18.6 U	18.6 U
Potassium	5000	4910 U	4910 U	4910 U	3010 []	2290 []	1740 U	7650	4260 []
Selenium	5	1.0 UWN	1.0 UWN	5.0 UN	1.0 UWN	1.0 UWN	5.0 UN	5.0 UWN	5.0 UN
Silver	10	5.5 U	5.5 U	5.5 U	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U
Sodium	5000	2950 U	6290	3310 []	3940 []	9300	9050	22300	78600
Thallium	10	1.1 UN	1.1 UN	1.1 UN	1.1 UN	1.1 UWN	1.1 UWN	1.1 UWN	5.5 UWN
Vanadium	50	4.4 U	4.4 U	5.1 []	3.0 []	9.2 []	2.6 U	2.6 U	9.5 []
Zinc	20	14.8 []	5.6 []	8.7 []	20.8	105 *	24.9	7.8 []	547 *
Cyanide	10	10.0 U	10.0 U	10.0 U	10.0 UN	10.0 U	10.0 UN	24.0 W	21.5
Associated Method Blank:		16534D	16534D	16534D	16534G	16534E	16534G	16534G	16534E
Associated Equipment Blank:		01BF001XXX03XX	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	09GW904XXX03XX	09GW905XXX03XX	04GWGZA3XX03XX	04GWGZB1XX03XX	04GWGZB1XX03DX
	LAB NUMBER:	257044	257043	257281	257041	257042
	DATE SAMPLED:	04/17/89	04/17/89	04/18/89	04/17/89	04/17/89
ANALYTE	CRQL					
Aluminum	200	1130	1140	27.2 []	29.0 []	22.9 []
Antimony	60	31.5 U	31.5 U	31.5 U	31.5 U	31.5 U
Arsenic	10	1.2 U	86.0 S	1.6 []	1.2 U	1.2 U
Barium	200	13.1 []	8.5 []	7.8 []	8.5 []	8.5 []
Beryllium	5	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Cadmium	5	4.2 U	4.2 U	5.1	4.2 U	4.2 U
Calcium	5000	16800	8390	10200	8240	8330
Chromium	10	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U
Cobalt	50	8.8 []	3.3 U	3.4 []	6.3 []	5.0 []
Copper	25	7.3 U	7.9 []	7.3 U	11.8 []	7.3 U
Iron	100	1950	1190	58.8 []	18.5 []	8.5 []
Lead	5	4.5 []	4.2 []	2.8 []	0.90 U	0.90 U
Magnesium	5000	5610 E	3370 []E	2080 []	1590 []E	1560 []E
Manganese	15	123	50.6	6.1 []	8.6 []	8.6 []
Mercury	0.2	0.20 UN	0.20 UN	0.20 UN	0.20 UN	0.20 UN
Nickel	40	18.6 U	18.6 U	18.6 U	18.6 U	18.6 U
Potassium	5000	2890 []	4580 []	1740 U	2380 []	1740 U
Selenium	5	10.0 UWN	10.0 UWN	1.0 UWN	5.0 UWN	10.0 UWN
Silver	10	4.9 U	4.9 U	4.9 U	4.9 U	4.9 U
Sodium	5000	8040	71300	5060	6140	5290
Thallium	10	1.1 UWN	5.5 UEN	1.1 UN	1.1 UWN	1.1 UWN
Vanadium	50	8.0 []	2.7 []	2.6 U	2.6 U	2.6 U
Zinc	20	25.3	24.4	18.8 []	30.6	21.4
Cyanide	10	10 UN	10 UN	10.0 UN	10.0 UN	10 UN
Associated Method Blank:		16534H	16534H	16534L	16534H	16534H
Associated Equipment Blank:		-	-	01BF002XXX03XX	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01GW101XXX03XX	02GW102XXX03XX	01GW105AXX03XX	01GW105BXX03XX	01GW106XXX03XX	03GW202AXX03XX	01GW205XXX03XX	01GW206AXX03XX
LAB NUMBER:		256460	255966	256249	256251	256255	255956	255744	255755
DATE SAMPLED:		04/13/89	04/11/89	04/12/89	04/12/89	04/12/89	04/11/89	04/10/89	04/10/89
DATE ANALYZED:		04/17/89	04/13/89	04/16/89	04/16/89	04/16/89	04/14/89	04/13/89	04/13/89
ANALYTE	CRQL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	23 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	23 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	75	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	9 J	10 U	10 U
Methylene Chloride	5	5 U	5 U	5 U	5 U	5 U	9 J	19	4 JB
Acetone	10	10 U	10 U	10 U	10 U	10 U	23 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	11 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	11 U	8	4 J
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	15	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	51	20	7	3 J
Chloroform	5	5 U	5 U	5 U	5 U	5 U	11 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	11 U	5 U	5 U
2-Butanone	10	10 U	22	10 U	10 U	10 U	170	10 U	120
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	24	11 U	120	120
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	11 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	23 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	11 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	11 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	11 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	58	11 U	120	46
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	11 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	11 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	3 J	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	11 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	11 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	23 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	23 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	14	11 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	11 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	180	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	9 J	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	2 J	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	11 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	560	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890416B14	CB890413A14	CB890416A14	CB890416A14	CB890416A14	CB890414C14	CB890413C14	CB890413A14
Associated Equipment Blank:		-	-	01BS003XXX03XX	01BS003XXX03XX	01BS003XXX03XX	-	-	-
Associated Trip Blank:		01BT004XXX03XX	01BT002XXX03XX	01BT003XXX03XX	01BT003XXX03XX	01BT003XXX03XX	01BT002XXX03XX	01BT001XXX01XX	01BT001XXX03XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01GW206BXX03XX	01GW207AXX03XX	01GW207BXX03XX	01GW208XXX03XX	01GW210AXX03XX	01GW210BXX03XX	01GW211AXX03XX	01GW211AXX03XD
LAB NUMBER:	255756	256433	256441	255758	255961	255964	256229	256241
DATE SAMPLED:	04/10/89	04/13/89	04/13/89	04/10/89	04/11/89	04/11/89	04/12/89	04/12/89
DATE ANALYZED:	04/13/89	04/20/89	04/20/89	04/13/89	04/13/89	04/13/89	04/15/89	04/15/89

ANALYTE	CRQL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	4 J	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	1 J	1 JB	2 JB	9 JB	5 U	5 U
Acetone	10	10 U	11 B	8 JB	10 U	10 U	20 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	1 J	5 U	10 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	8 J	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
2-Butanone	10	22	10 U	10 U	20	28	340	110	72
1,1,1-Trichloroethane	5	5 U	5 U	5 U	19	5 U	10 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5	5 U	10 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	20 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U

Dilution Factor:	1	1	1	1	1	1	1	1
Associated Method Blank:	CB890413A14	CB890420C14	CB890420C14	CB890413A14	CB890413A14	CB890413A14	CC890415A14	CC890415A14
Associated Equipment Blank:	-	-	-	-	-	-	01BS003XXX03XX	01BS003XXX03XX
Associated Trip Blank:	01BT001XXX01XX	-	-	01BT001XXX01XX	01BT002XXX03XX	01BT002XXX03XX	01BT003XXX03XX	01BT003XXX03XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	02GW213XXX03XX	02GW213XXX03XD	04GW403XXX03XX	04GW405XXX03XX	04GW407XXX03XX	07GW701XXX03XX	09GW904XXX03XX	09GW905XXX03XX
SAMPLE LOCATION:		02GW213XXX03XX	02GW213XXX03XD	04GW403XXX03XX	04GW405XXX03XX	04GW407XXX03XX	07GW701XXX03XX	09GW904XXX03XX	09GW905XXX03XX
LAB NUMBER:		256252	256254	256260	256437	256464	256467	257039	257038
DATE SAMPLED:		04/12/89	04/12/89	04/12/89	04/13/89	04/13/89	04/13/89	04/17/89	04/17/89
DATE ANALYZED:		04/16/89	04/16/89	04/16/89	04/20/89	04/17/89	04/20/89	04/20/89	04/20/89
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	9 J	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	5 U	5 U	5 U	2 J	5 U	1 JB
Acetone	10	10 U	10 U	10 U	7 JB	10 U	10 B	10 U	2 J
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	6	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	2 J	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	19	100	10 U	68	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	6	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890416A14	CB890416A14	CB890416A14	CB890420C14	CB890416B14	CB890420C14	CB890420B14	CB890420B14
Associated Equipment Blank:		01BS003XXX03XX	01BS003XXX03XX	01BS003XXX03XX	-	-	-	-	-
Associated Trip Blank:		01BT003XXX03XX	01BT003XXX03XX	01BT003XXX03XX	-	01BT004XXX03XX	01BT004XXX03XX	TBK-6	TBK-6

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		04GWGZA3XX03XX	04GWGZB1XX03XX	04GWGZB1XX03DX
LAB NUMBER:		258237	257036	257037
DATE SAMPLED:		04/24/89	04/17/89	04/17/89
DATE ANALYZED:		04/26/89	04/20/89	04/20/89
ANALYTE	CRQL			
Chloromethane	10	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 B	3 JB
Acetone	10	10 U	4 J	10 U
Carbon Disulfide	5	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U
1,1-Dichloroethane	5	3 J	5 U	5 U
1,2-Dichloroethene (total)	5	31	5 U	5 U
Chloroform	5	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U
2-Butanone	10	10 U	17	17
1,1,1-Trichloroethane	5	53	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U
Trichloroethene	5	120	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U
Tetrachloroethene	5	3 J	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U
Toluene	5	7	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U
Xylenes (Total)	5	2 J	5 U	5 U
Dilution Factor:		1	1	1
Associated Method Blank:		CC890425B23	CB890420B14	CB890420B14
Associated Equipment Blank:		-	-	-
Associated Trip Blank:		01BT008XXX03XX	TBK-6	TBK-6

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	03GW202AXX03XX	03GW202AXX03XX	04GWGZA3XX03XX	04GWGZB1XX03XX	04GWGZB1XX03DX
LAB NUMBER:	255957	255957RE	258237	257036	257037
DATE SAMPLED:	04/11/89	04/11/89	04/24/89	04/17/89	04/17/89
DATE EXTRACTED:	04/13/89	04/18/89	04/26/89	04/19/89	04/19/89
DATE ANALYZED:	04/15/89	04/21/89	04/26/89	04/20/89	04/20/89

ANALYTE	CRQL					
Phenol	10	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	6 J	10 U	10 U	10 U
1,4-Dichlorobenzene	10	5 J	6 J	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	4 J	6 J	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	4 J	2 J	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	11	14	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	3 J	4 J	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		03GW202AXX03XX	03GW202AXX03XX	04GWGZA3XX03XX	04GWGZB1XX03XX	04GWGZB1XX03DX
LAB NUMBER:		255957	255957RE	258237	257036	257037
DATE SAMPLED:		04/11/89	04/11/89	04/24/89	04/17/89	04/17/89
DATE EXTRACTED:		04/13/89	04/18/89	04/26/89	04/19/89	04/19/89
DATE ANALYZED:		04/15/89	04/21/89	04/26/89	04/20/89	04/20/89
ANALYTE	CRQL					
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	12	10 U	10 U	6 J
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1	1
Associated Method Blank:		GJ056327A20	G2J57070C08	GH058336B16	G2J57090C06	G2J57090C06
Associated Equipment Blank:		-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	01GW207AXX03XX	04GWGZA3XX03XX	04GWGZB1XX03XX	04GWGZB1XX03DX
	LAB NUMBER:	256435	258237	257036	257037
	DATE SAMPLED:	04/13/89	04/24/89	04/17/89	04/17/89
	DATE EXTRACTED:	04/15/89	04/26/89	04/19/89	04/19/89
	DATE ANALYZED:	04/20/89	04/28/89	04/19/89	04/19/89
ANALYTE	CRQL				
alpha-BHC	0.05	0.050 U	0.050 U	0.062 U	0.050 U
beta-BHC	0.05	0.050 U	0.050 U	0.062 U	0.050 U
delta-BHC	0.05	0.050 U	0.050 U	0.062 U	0.050 U
gamma-BHC (Lindane)	0.05	0.050 U	0.050 U	0.062 U	0.050 U
Heptachlor	0.05	0.050 U	0.050 U	0.062 U	0.050 U
Aldrin	0.05	0.050 U	0.050 U	0.062 U	0.050 U
Heptachlor epoxide	0.05	0.050 U	0.050 U	0.062 U	0.050 U
Endosulfan I	0.05	0.050 U	0.050 U	0.062 U	0.050 U
Dieldrin	0.10	0.10 U	0.10 U	0.12 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.12 U	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.12 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.12 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.12 U	0.10 U
Endosulfan sulfate	0.10	0.10 U	0.10 U	0.12 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.10 U	0.12 U	0.10 U
Methoxychlor	0.50	0.50 U	0.50 U	0.62 U	0.50 U
Endrin ketone	0.10	0.10 U	0.10 U	0.12 U	0.10 U
alpha-Chlordane	0.50	0.50 U	0.50 U	0.62 U	0.50 U
gamma-Chlordane	0.50	0.50 U	0.50 U	0.62 U	0.50 U
Toxaphene	1.0	1.0 U	1.0 U	1.2 U	1.0 U
Aroclor-1016	0.50	0.50 U	0.50 U	0.62 U	0.50 U
Aroclor-1221	0.50	0.50 U	0.50 U	0.62 U	0.50 U
Aroclor-1232	0.50	0.50 U	0.50 U	0.62 U	0.50 U
Aroclor-1242	0.50	0.50 U	0.50 U	0.62 U	0.50 U
Aroclor-1248	0.50	0.50 U	0.50 U	0.62 U	0.50 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.2 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.2 U	1.0 U
Dilution Factor:		1.0	1.0	1.0	1.0
Associated Method Blank:		256662	258346	257086	257086
Associated Equipment Blank:		-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	08GW801XXX03XX	08GW803XXX03XX	08GW804XXX03XX	08GW807XXX03XX
LAB NUMBER:	3292-03	3292-04	3292-05	3292-01
DATE SAMPLED:	04/14/89	04/14/89	04/14/89	04/14/89
DATE ANALYZED:	04/17/89	04/17/89	04/17/89	04/17/89

ANALYTE	CRQL				
Dichlorodifluoromethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Trichlorofluoromethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Methylene Chloride	0.5	2.3 B	2.4 B	6.3 B	2.9 B
trans-1,2-Dichloroethene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloropropene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Benzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Dibromomethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Trans-1,3-Dichloropropene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	0.5	0.5 U	0.5 U	0.5 U	0.5 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	08GW801XXX03XX	08GW803XXX03XX	08GW804XXX03XX	08GW807XXX03XX
LAB NUMBER:	3292-03	3292-04	3292-05	3292-01
DATE SAMPLED:	04/14/89	04/14/89	04/14/89	04/14/89
DATE ANALYZED:	04/17/89	04/17/89	04/17/89	04/17/89

ANALYTE	CRQL				
1,3-Dichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1,2-Tetrachloroethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
m-Xylene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
p-Xylene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	0.5	0.5 U	0.5 U	0.60	0.5 U
Isopropylbenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichloropropane	0.5	0.5 U	0.5 U	0.5 U	0.5 U
n-Propylbenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Bromobenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
o-Chlorotoluene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
p-Chlorotoluene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
tert-Butylbenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trimethylbenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
p-Isopropyltoluene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,4-Dichlorobenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
n-Butylbenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Naphthalene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	0.5	0.5 U	0.5 U	0.5 U	0.5 U
Dilution Factor:		1	1	1	1
Associated Method Blank:		HH221B	HH221B	HH221B	HH221B
Associated Equipment Blank:		-	-	-	-
Associated Trip Blank:		01TB005XXX03XX	01TB005XXX03XX	01TB005XXX03XX	01TB005XXX03XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 02LT201XXX03XX LAB NUMBER: 265681 DATE SAMPLED: 06/02/89	02LT202XXX03XX 256268 04/12/89	03LT301XXX03XX 255980 04/11/89	03LT301XXX03XD 255987 04/11/89	03LT302XXX03XX 255981 04/11/89	01LT303XXX03XX 255983 04/11/89	01LT304XXX03XX 255976 04/11/89	01LT305XXX03XX 255977 04/10/89
Aluminum	200	192000	651000	93100	52400	23300	74900	12500	44300
Antimony	60	31.5 UN	108	67.5	55.7 []	43.2 U	49.3 []	43.2 U	49.2 []
Arsenic	10	10.2 []WN	46.5 N*	3.5 []NW	2.4 UWN*	6.4 []NW	12.0 UWN*	25.9 SN*	466.3 N*
Barium	200	385	4130	1050 E	688 E	146 []E	850 E	495 E	369 E
Beryllium	5	18.1 *	39.5	8.5	3.0 []	4.2 []	6.8	2.2 []	3.8 []
Cadmium	5	6.8 N*	4.0 U	4.0 U	4.0 U	4.0 U	25.0	4.0 U	4.0 U
Calcium	5000	14200	78800	75800	40400	25500	72800	66500	71800
Chromium	10	179	1190	73.2	35.9	17.2	108	11.7	41.2
Cobalt	50	102	675	127	108	32.8 []	232	104	465
Copper	25	140 *	914	116	64.8	39.1	138	20.1 []	408
Iron	100	169000	766000	1455100	1452600	254000	463880	499390	1068900
Lead	5	168	942	532	477	92.9	546	313	654
Magnesium	5000	28400 E	243000	20200	13400	5830	14400	6510	18300
Manganese	15	1730 N	21700	19000	12900	6690	3940	2060	9090
Mercury	0.2	5.5 *(1)	2.2	0.20 U	1.1	2.4	1.2	5.0	1.6
Nickel	40	139	1050	89.6	40.5	41.7	376	94.9	340
Potassium	5000	8000	112000	9070	7490	4910 U	13200	6850	6680
Selenium	5	10.0 UEN	10.0 UEN	14.0 UEN	14.0 UWN	14.0 UEN	14.0 UEN	14.0 UEN	14.0 UEN
Silver	10	4.9 U	5.5 U	5.5 U	11.6	5.5 U	5.5 U	5.5 U	5.6 []
Sodium	5000	6220	2950 U	15100	14300	10500	14900	20300	35400
Thallium	10	1.1 UWN	1.1 UWN	18.0 UWN	18.0 UWN	18.0 UWN	1.8 UWN	18.0 UEN	18.0 UEN
Vanadium	50	326 E	1720	463	294	85.5	456	92.8	302
Zinc	20	489 E	2770	1070	914	342	4830	506	908
Cyanide	10	20.0 UN	10.0 UN*	10.0 UN*	11.1 N*	10.0 UN*	12.6 N*	10.5 N*	25.2 N*
Associated Method Blank:		16916A	16534	16534A	16534A	16534A	16534A	16534A	16534A
Associated Equipment Blank:		-	01BS003XXX03XX	-	-	-	-	-	-

(1) Original analysis was outside the calibration range; due to insufficient sample volume the results reported are from the duplicate analysis which was diluted and fell within the calibration range.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	08LT801XXX03XX	08LT802XXX03XX	08LT803XXX03XX	09LT901XXX03XX
	LAB NUMBER:	257286	257299	257300	257301
	DATE SAMPLED:	04/18/89	04/18/89	04/18/89	04/18/89
ANALYTE	CRQL				
Aluminum	200	3790	6430	481	4480
Antimony	60	31.5 U	31.5 U	31.5 U	31.5 U
Arsenic	10	2.6 []	4.2 []	1.2 UW	24.2
Barium	200	61.0 []	115 []	64.8 []	79.0 []
Beryllium	5	0.50 U	0.50 U	0.50 U	0.50 U
Cadmium	5	4.2 U	4.2 U	4.2 U	4.2 U
Calcium	5000	8570	165000	66800	17400
Chromium	10	4.4 []	6.3 []	3.8 U	3.8 U
Cobalt	50	6.0 []	7.9 []	3.3 U	17.5 []
Copper	25	27.0	25.8	10.3 []	42.5
Iron	100	105000	42000	19200	127000
Lead	5	23.8	15.8 []	6.5	358
Magnesium	5000	2980 []	13000	7660	3290 []
Manganese	15	1760	1370	504	519
Mercury	0.2	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	40	18.6 U	18.6 U	18.6 U	22.9 []
Potassium	5000	6160	5550	5520	6480
Selenium	5	5.0 UWN	5.0 UWN	5.0 UWN	5.0 UWN
Silver	10	4.9 U	4.9 U	4.9 U	4.9 U
Sodium	5000	3790 []	43100	40800	26000
Thallium	10	1.1 UWN	5.5 UWN	5.5 UWN	5.5 UWN
Vanadium	50	12.7 []	17.0 []	5.0 []	39.7 []
Zinc	20	84.9 *	113 *	80.2 *	403 *
Cyanide	10	21.0	10.0 U	10.0 U	10.0 U
Associated Method Blank:		16534J	16534J	16534J	16534J
Associated Equipment Blank:		-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	02LT201XXX03XX	02LT202XXX03XX	03LT301XXX03XX	03LT301XXX03XD	03LT302XXX03XX	03LT302XXX03XX	01LT303XXX03XX	01LT304XXX03XX
LAB NUMBER:	265669	256233	255962	255960	255963	255963RE	255965	255958
DATE SAMPLED:	06/02/89	04/12/89	04/11/89	04/11/89	04/11/89	04/11/89	04/11/89	04/11/89
DATE ANALYZED:	06/05/89	04/16/89	04/13/89	04/13/89	04/13/89	04/13/89	04/13/89	04/13/89

ANALYTE	CRQL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	31 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	31 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	11	11 JD	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	31 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	2 JB	6 B	2 JB	4 BJD	5 U	2 J
Acetone	10	7 J	10 U	10 U	10 U	10 U	31 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	4 J	4 J	8	7 JD	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	110	110 D	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	31 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	31 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	6	7 JD	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
Benzene	5	5 U	1 J	5 U	5 U	5 U	16 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	31 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	31 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	1 J	16 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	480 E	510 D	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5	5 JD	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	6	5	3 J	4 JD	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	16 U	5 U	5 U
Xylenes (Total)	5	5 U	1 J	5	5	7	5 JD	5 U	5 U

Dilution Factor:	1	1	1	1	1	1	1	1
Associated Method Blank:	VBLKGO	CB890416A14	CB890413A14	CB890413A14	CB890413A14	CB890413A14	CB890413A14	CB890413C14
Associated Equipment Blank:	-	-	-	-	-	-	-	-
Associated Trip Blank:	02BT009XXX03XX	-	01BT002XXX03XX	01BT002XXX03XX	01BT002XXX03XX	01BT002XXX03XX	01BT002XXX03XX	01BT002XXX03XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01LT305XXX03XX	08LT801XXX03XX	08LT802XXX03XX	08LT803XXX03XX	09LT901XXX03XX
LAB NUMBER:		255959	257239	257256	257259	257263
DATE SAMPLED:		04/10/89	04/18/89	04/18/89	04/18/89	04/18/89
DATE ANALYZED:		04/13/89	04/21/89	04/21/89	04/21/89	04/21/89
ANALYTE	CRQL					
Chloromethane	10	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	2 JB	5 U	5 U	5 U	5 U
Acetone	10	10 U	39	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	7	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1
Associated Method Blank:		CB890413A14	CB890420B13	CB890420B13	CB890420B13	CB890420B13
Associated Equipment Blank:		-	-	-	-	-
Associated Trip Blank:		01BT001XXX03XX	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	02LT201XXX03XX	02LT202XXX03XX	02LT202XXX03XX	03LT301XXX03XX	03LT301XXX03XD	03LT302XXX03XX	01LT303XXX03XX	01LT304XXX03XX
LAB NUMBER:	265673	256233	256233RE	255962	255960	255963	255965	255958
DATE SAMPLED:	06/02/89	04/12/89	04/12/89	04/11/89	04/11/89	04/11/89	04/11/89	04/11/89
DATE EXTRACTED:	06/03/89	04/14/89	04/18/89	04/13/89	04/13/89	04/13/89	04/13/89	04/13/89
DATE ANALYZED:	06/06/89	04/24/89	04/21/89	04/15/89	04/15/89	04/15/89	04/15/89	04/14/89

ANALYTE	CRQL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	7 J
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	3 J	21 J	5 J	32 J
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 02LT201XXX03XX LAB NUMBER: 265673 DATE SAMPLED: 06/02/89 DATE EXTRACTED: 06/03/89 DATE ANALYZED: 06/06/89	02LT202XXX03XX 256233 04/12/89 04/14/89 04/24/89	02LT202XXX03XX 256233RE 04/12/89 04/18/89 04/21/89	03LT301XXX03XX 255962 04/11/89 04/13/89 04/15/89	03LT301XXX03XD 255960 04/11/89 04/13/89 04/15/89	03LT302XXX03XX 255963 04/11/89 04/13/89 04/15/89	01LT303XXX03XX 255965 04/11/89 04/13/89 04/15/89	01LT304XXX03XX 255958 04/11/89 04/13/89 04/14/89
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	3 J	2 J	6 J	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		SBLK70	GJ057070A16	G2J57070C08	GJ056327A20	GJ056327A20	GJ056327A20	GJ056327A20	GJ056327A20
Associated Equipment Blank:		-	01BS003XXX03XX 01BS001XXX03XX	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01LT305XXX03XX	08LT801XXX03XX	08LT802XXX03XX	08LT803XXX03XX	09LT901XXX03XX	09LT901XXX03XX
LAB NUMBER:	255959	257239	257256	257259	257263	257263RE
DATE SAMPLED:	04/10/89	04/18/89	04/18/89	04/18/89	04/18/89	04/18/89
DATE EXTRACTED:	04/13/89	04/21/89	04/21/89	04/21/89	04/21/89	04/21/89
DATE ANALYZED:	04/15/89	04/22/89	04/22/89	04/22/89	04/22/89	04/22/89

ANALYTE	CRQL						
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	6 J	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	13 J	9 J	50 U	50 U	8 J	10 J
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01LT305XXX03XX	08LT801XXX03XX	08LT802XXX03XX	08LT803XXX03XX	09LT901XXX03XX	09LT901XXX03XX
LAB NUMBER:		255959	257239	257256	257259	257263	257263RE
DATE SAMPLED:		04/10/89	04/18/89	04/18/89	04/18/89	04/18/89	04/18/89
DATE EXTRACTED:		04/13/89	04/21/89	04/21/89	04/21/89	04/21/89	04/21/89
DATE ANALYZED:		04/15/89	04/22/89	04/22/89	04/22/89	04/22/89	04/22/89
ANALYTE	CRQL						
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	3 J	3 J
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	2 J	10 U	10 U	9 J	7 J
Pyrene	10	10 U	3 J	10 U	10 U	5 J	4 J
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	3 J	3 J
Chrysene	10	10 U	10 U	10 U	10 U	4 J	3 J
bis(2-Ethylhexyl)phthalate	10	5 J	10 U	10 U	10 U	6 J	4 J
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	5 J	5 J
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	4 J	4 J
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	3 J	2 J
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1	1	1
Associated Method Blank:		GJ056327A20	GH057883A06	GH057883A06	GH057883A06	GJ057883A04	GJ057883A04
Associated Equipment Blank:		-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		02LT201XXX03XX	02LT202XXX03XX	03LT301XXX03XX	03LT301XXX03XD	03LT302XXX03XX	01LT303XXX03XX	01LT304XXX03XX	01LT305XXX03XX
LAB NUMBER:		265677	256233	255962	255960	255963	255965	255958	255959
DATE SAMPLED:		06/02/89	04/12/89	04/11/89	04/11/89	04/11/89	04/11/89	04/11/89	04/10/89
DATE EXTRACTED:		06/06/89	04/14/89	04/13/89	04/13/89	04/13/89	04/13/89	04/13/89	04/13/89
DATE ANALYZED:		06/08/89	04/21/89	04/18/89	04/18/89	04/18/89	04/22/89	04/18/89	04/18/89
ANALYTE	CRQL								
alpha-BHC	0.05	0.05 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
beta-BHC	0.05	0.05 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
delta-BHC	0.05	0.05 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
gamma-BHC (Lindane)	0.05	0.05 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Heptachlor	0.05	0.05 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Aldrin	0.05	0.05 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Heptachlor epoxide	0.05	0.05 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Endosulfan I	0.05	0.05 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10	0.30	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.22	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
gamma-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1221	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1232	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1242	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1248	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dilution Factor:		1	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Associated Method Blank:		PBLK43	256352	256072	256072	256072	256072	256072	256072
Associated Equipment Blank:		-	01BS003XXX03XX 01BS001XXX03XX	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	08LT801XXX03XX	08LT802XXX03XX	08LT803XXX03XX	09LT901XXX03XX
	LAB NUMBER:	257239	257256	257259	257263
	DATE SAMPLED:	04/18/89	04/18/89	04/18/89	04/18/89
	DATE EXTRACTED:	04/20/89	04/20/89	04/20/89	04/20/89
	DATE ANALYZED:	04/21/89	04/21/89	04/21/89	04/21/89
ANALYTE	CRQL				
alpha-BHC	0.05	0.050 U	0.050 U	0.050 U	0.050 U
beta-BHC	0.05	0.050 U	0.050 U	0.050 U	0.050 U
delta-BHC	0.05	0.050 U	0.050 U	0.050 U	0.050 U
gamma-BHC (Lindane)	0.05	0.050 U	0.050 U	0.050 U	0.050 U
Heptachlor	0.05	0.050 U	0.050 U	0.050 U	0.050 U
Aldrin	0.05	0.050 U	0.050 U	0.050 U	0.050 U
Heptachlor epoxide	0.05	0.050 U	0.050 U	0.050 U	0.050 U
Endosulfan I	0.05	0.050 U	0.050 U	0.050 U	0.050 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U
gamma-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.50	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1221	0.50	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1232	0.50	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1242	0.50	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1248	0.50	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Dilution Factor:		1.0	1.0	1.0	1.0
Associated Method Blank:		257344	257344	257344	257344
Associated Equipment Blank:		-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 02SD003XXX03XX LAB NUMBER: 255785 DATE SAMPLED: 04/10/89	08SD007XXX03XX 256716 04/14/89	08SD008XXX03XX 256717 04/14/89	08SD009XXX03XX 256720 04/14/89	09SD010XXX03XX 257324 04/18/89	01SD113XXX03XX 256494 04/13/89	01SD114XXX03XX 256495 04/13/89	01SD118XXX03XX 256496 04/13/89
Aluminum	40	3160	5170	3130	6570	2920	3260	3700	6090
Antimony	12	11.0 UN	8.4 UN	8.7 UN	9.9 U	7.4 U	8.5 UN	8.5 UN	10.3 UN
Arsenic	2	0.86 []	1.3 []	1.1 []	2.5 []	0.87 []	4.3	3.7	2.8 []
Barium	40	8.9 []	17.6 []	1.6 []	35.7 []	7.7 []	19.7 []	23.1 []	32.8 []
Beryllium	1	0.31 U	0.44 []	0.17 []	0.49 []	0.19 []	0.26 []	0.26 []	0.53 []
Cadmium	1	1.0 U	1.1 U	1.2 U	1.5 U	0.99 U	1.1 U	1.1 U	1.4 U
Calcium	1000	394 []	655 []	443 []	1380 []	567 []	562 []	716 []	1170 []
Chromium	2	4.5	9.8	7.7	13.9	4.7	5.7	7.2	11.3
Cobalt	10	1.3 U	4.8 []	2.7 []	6.9 []	1.8 []	4.6 []	4.4 []	8.2 []
Copper	5	0.68 []	5.7 []	5.2 []	15.4	3.4 []	4.3 []	5.8 []	7.8 []
Iron	20	4780	10300	6200	25500	3690	12900	10700	10600
Lead	1	3.0 N	3.4 N	4.3 N	9.6 *	42.1	5.8 N	9.0 N	18.7 N
Magnesium	1000	964 []	1890 E	1190 []E	2060 E	889 []E	1260 []E	1430 E	2070 E
Manganese	3	51.5 *	248 *	111 *	173	46.7	304 *	281 *	642 *
Mercury	0.1	0.12 U*	0.11 U*	0.13 U*	0.17 U	0.1 U	14 U*	0.13 U*	0.14 U*
Nickel	8	9.0 U	9.8 []	5.4 []	5.9 U	4.4 U	5.0 U	5.0 U	12.1 []
Potassium	1000	1250 U	727 []	479 U	1680	515 []	470 U	468 U	890 []
Selenium	1	0.25 UWN	0.26 UWN	0.27 UWN	0.32 UWN	0.24 UWN	0.27 UWN	0.28 UWN	0.32 UWN
Silver	2	1.4 U	1.3 U	1.4 U	1.5 U	1.2 U	1.3 U	1.3 U	1.6 U
Sodium	1000	752 U	416 U	429 U	491 U	367 U	421 U	419 U	507 U
Thallium	2	0.28 U	0.28 U	0.30 U	0.57 UWN	0.26 UN	0.39 []	0.31 U	0.78 []
Vanadium	10	5.0 []	16.3	9.7 []	14.6 []	6.3 []	10.7 []	11.8 []	19.7
Zinc	4	24.7	34.2 E	24.0 E	56.8	21.2	43.1 E	65.5 E	96.9 E
Cyanide	1	1.3 U	1.3 U	1.4 U	1.6 U	1.2 U	1.4 U	1.4 U	1.6 U
Percent Solids:		78.4	74.1	71.1	60.4	80.8	72.4	70.7	60.8
Associated Method Blank:		16534B	16534F	16534F	16534I	16534K	16534F	16534F	16534F
Associated Equipment Blank:		-	-	-	-	01BS002XXX03XX	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SS118XXX03XX LAB NUMBER: 255790 DATE SAMPLED: 04/10/89	01SD119XXX03XX 257045 04/17/89	02SD201XXX03XX 255778 04/10/89	02SD201XXX03XD 255780 04/10/89	02SD202XXX03XX 256297 04/12/89	03SD301XXX03XX 255987 04/11/89	03SD302XXX03XX 255988 04/11/89	01SD303XXX03XX 255989 04/11/89
Aluminum	40	9400	4770	4500	4510	16700	5410	4020	3710
Antimony	12	17.8 UN	10.1 U	16.7 UN	14.1 UN	14.1 UN	16.9 UN	15.6 UN	12.0 UN
Arsenic	2	5.1	3.6	2.3 []	0.95 []	8.1 []	4.4	2.3 []	1.3 []
Barium	40	49.7 []	31.2 []	14.9 []	15.0 []	71.5	28.1 []	14.8 []	12.8 []
Beryllium	1	0.67 []	0.42 []	0.46 U	0.72 []	0.92 []	0.47 U	0.43 U	0.33 U
Cadmium	1	1.7 U	1.4 U	1.5 U	1.3 U	1.3 U	1.6 U	1.4 U	1.1 U
Calcium	1000	1340 []	1100 []	902 []	691 []	1640	1330 []	921 []	684 []
Chromium	2	16.1	8.3	7.3	7.2	35.3	7.1	5.6	6.9
Cobalt	10	7.2 []	7.8 []	2.0 U	2.9 []	12.9 []	2.0 U	5.1 []	2.7 []
Copper	5	13.4	7.6 []	13.6	4.0 []	19.4	10.0	5.8 []	5.6 []
Iron	20	17800	13300	7560	6750	29500	43900	17000	7730
Lead	1	11.8 N	8.5 *	11.6 N	11.2 N	13.0 N	6.9 N	7.4 N	5.1 N
Magnesium	1000	2980	1770 E	1380 []	1370 []	6130	1480 []	1080 []	1300 []
Manganese	3	215 *	633	165 *	126 *	319 *	340 *	257 *	83.4 *
Mercury	0.1	0.21 U*	0.14 U	0.20 U*	0.16 U*	0.16 U*	0.18 U*	0.15 U*	0.12 U*
Nickel	8	14.6 U	6.0 U	13.7 U	11.5 U	25.5	13.8 U	12.7 U	9.8 U
Potassium	1000	2030 U	1360 []	1900 U	1600 U	2990	1930 U	1770 U	1370 U
Selenium	1	0.43 UWN	0.32 UWN	0.38 UWN	0.33 UWN	1.6 UWN	0.39 UWN	0.38 UWN	0.27 UWN
Silver	2	2.3 U	1.6 U	2.1 U	1.87 U	1.8 U	2.2 U	2.0 U	1.5 U
Sodium	1000	1220 U	501 U	1140 U	961 U	963 U	1160 U	1060 U	820 U
Thallium	2	0.47 U	0.58 UN	0.42 U	0.36 U	0.36 U	0.43 U	0.42 U	0.30 U
Vanadium	10	16.5 []	12.8 []	13.3 []	11.7 []	37.9	8.5 []	8.4 []	7.8 []
Zinc	4	53.7	62.8	54.4	65.7	70.5	36.1	25.6	62.1
Cyanide	1	2.1 U	1.7 U	1.9 U	1.6 U	1.7 U	4.3	1.9 U	1.4 U
Percent Solids:		46.1	59.2	51.2	60.7	58.3	49.5	52.4	70.5
Associated Method Blank:		16534B	16534I	16534B	16534B	16534B	16534B	16534B	16534B
Associated Equipment Blank:		-	-	-	-	01SB003XXX03XX	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SD304XXX03XX LAB NUMBER: 255985 DATE SAMPLED: 04/11/89	01SD305XXX03XX 255986 04/10/89	03SD317XXX03XX 256295 04/12/89	08SD801XXX03XX 257326 04/18/89	08SD801XXX03XD 257327 04/18/89	08SD802XXX03XX 257328 04/18/89	08SD803XXX03XX 257329 04/18/89	08SD803XXX03XD 257330 04/18/89
Aluminum	40	6020	5210	3090	6280	5400	5380	5340	4010
Antimony	12	90.3 UN	14.7 UN	11.6 UN	15.5 U	18.4 U	10.5 U	8.5 U	7.9 U
Arsenic	2	59.5	29.0	1.2 []	3.4 []	3.4 []	1.9 []	3.4	2.4 []
Barium	40	168 []	12.1 []	77.4	60.3 []	75.3 []	21.4 []	32.2 []	20.0 []
Beryllium	1	2.5 U	0.41 U	0.32 U	0.30 []	0.57 []	0.37 []	4.5	0.24 []
Cadmium	1	8.4 U	1.4 U	1.5	2.1 U	2.3 U	1.4 U	1.1 U	1.1 U
Calcium	1000	11000	911 []	724 []	2090 []	2770 []	2550	2730	1360
Chromium	2	13.2 U	7.7	8.6	8.7	8.1	8.0	9.2	8.1
Cobalt	10	94.3 []	14.6 []	2.5 []	3.8 []	3.0 []	1.9 []	2.3 []	2.9 []
Copper	5	19.7 []	25.3	4.7 []	8.3 []	11.3 []	7.3 []	8.0	3.9 []
Iron	20	175000	11500	6680	74100	97300	10400	17100	13700
Lead	1	83.3 N	8.4 N	7.4 N	25.1 *	24.8 *	19.2 *	43.8	36.3
Magnesium	1000	983 []	1530 []	1310 []	1880 []E	1690 []E	1170 []E	1760 E	1570 E
Manganese	3	756 *	117 *	114 *	489	651	62.4	114	74.9
Mercury	0.1	3.4 *	0.17 U*	0.11 U*	0.24 U	0.24 U	0.15 U	0.13 U	0.13 U
Nickel	8	73.8 U	13.1 []	9.8 []	11.8 []	10.9 U	6.9 []	10.2 []	5.2 []
Potassium	1000	10300 U	1680 U	1320 U	935 []	1010 U	578 U	467 U	1340
Selenium	1	2.1 UN	0.34 UWN	0.27 UWN	0.52 UWN	0.60 UWN	0.34 UWN	0.27 UWN	0.26 UWN
Silver	2	11.5 U	1.98 U	1.5 U	2.4 U	2.9 U	1.6 U	1.3 U	1.2 U
Sodium	1000	6160 U	1000 U	789 U	768 U	909 U	518 U	419 U	391 U
Thallium	2	2.3 U	0.37 U	0.3 U	0.57 UN	0.66 UN	0.37 UWN	0.31 []WN	0.28 UWN
Vanadium	10	33.0 []	7.5 []	4.9 []	14.0 []	11.8 []	12.1 []	10.3 []	8.9 []
Zinc	4	155	28.2	28.5	76.5	80.6	33.5	37.7	26.6
Cyanide	1	10.9 U	1.8 U	1.4 U	2.6 U	3.1 U	1.7 U	1.4 U	1.3 U
Percent Solids:		9.2	56.4	72.5	38.6	32.6	58.9	71.5	75.8
Associated Method Blank:		16534B	16534B	16534B	16534K	16534K	16534K	16534K	16534K
Associated Equipment Blank:		-	-	01SB003XXX03XX	01BS002XXX03XX	01BS002XXX03XX	01BS002XXX03XX	01BS002XXX03XX	01BS002XXX03XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick - Round 3 | Inorganic Soil Analysis (mg/kg) | 21-Feb-90

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	08SD817XXX03XX	08SD818XXX03XX	09SD901XXX03XX	09SD917XXX03XX	09SD918XXX03XX	01SDBK1XXX03XX	01SDBK2XXX03XX
	LAB NUMBER:	256718	256719	257332	256728	257322	256497	256498
	DATE SAMPLED:	04/14/89	04/14/89	04/18/89	04/14/89	04/18/89	04/13/89	04/13/89
ANALYTE	CRQL							
Aluminum	40	4580	3070	3200	8180	4410	4240	3020
Antimony	12	8.7 UN	8.4 UN	7.6 U	10.5 U	8.2 U	8.4 UN	8.0 UN
Arsenic	2	1.2 □	1.1 □	1.7 □	5.0	2.2 □	1.4 □	1.3 □
Barium	40	13.6 □	9.2 □	11.0 □	30.0 □	14.3 □	16.4 □	10.1 □
Beryllium	1	0.27 □	0.17 □	0.15 □	0.49 □	0.24 □	0.26 □	0.13 U
Cadmium	1	1.2 U	1.1 U	1.0 U	1.4 U	1.1 U	1.1 U	1.1 U
Calcium	1000	489 □	539 □	988 □	1270 □	1020 □	770 □	723 □
Chromium	2	8.0	5.2	8.8	15.5	9.7	6.9	6.4
Cobalt	10	4.0 □	3.0 □	1.3 □	8.9 □	5.0 □	4.7 □	3.0 □
Copper	5	3.7 □	2.5 □	6.9	12.2	3.0 □	7.1	3.4 □
Iron	20	7180	6230	5700	14400	7010	6590	4900
Lead	1	7.5 N	3.5 N	74.3	45.2 *	4.9 *	4.2 N	4.0 N
Magnesium	1000	1620 E	1130 □E	1240 E	2960 E	1890 E	1590 E	1160 □E
Manganese	3	71.6 *	123 *	48.8	308	107	126 *	65.0 *
Mercury	0.1	0.14 U*	0.13 U*	0.12 U	0.15 U	0.13 U	0.12 U*	0.12 U*
Nickel	8	5.1 U	4.9 U	6.5 □	8.1 □	9.8 □	6.6 □	4.7 U
Potassium	1000	752 □	461 U	821 □	1090 □	1390	865 □	441 U
Selenium	1	0.28 UWN	0.27 UWN	0.24 UWN	0.33 UWN	1.6 □N	0.27 UWN	0.25 UWN
Silver	2	1.3 U	1.3 U	1.2 U	1.6 U	1.3 U	1.3 U	1.2 U
Sodium	1000	427 U	414 U	377 U	516 U	407 U	414 U	395 U
Thallium	2	0.31 U	0.29 U	0.27 UWN	1.3 □WN	0.49 □N	0.30 U	0.27 U
Vanadium	10	10.9 □	8.6 □	7.0 □	22.6	10.8 □	10.8 □	11.2 □
Zinc	4	27.9 E	20.8 E	45.4	60.5	40.1	83.0 E	33.0 E
Cyanide	1	1.4 U	1.3 U	1.3 U	1.7 U	1.3 U	1.3 U	1.3 U
Percent Solids:		70.0	74.5	77.1	59.1	74.9	73.7	78.8
Associated Method Blank:		16534F	16534F	16534K	16534I	16534K	16534F	16534F
Associated Equipment Blank:		-	-	01BS002XXX03XX	-	01BS002XXX03XX	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	09SD011XXX03XX	01SD113XXX03XX	01SD115XXX03XX	02SD201XXX03XX	02SD201XXX03XD	02SD202XXX03XX	03SD301XXX03XX	03SD302XXX03XX
SAMPLE LOCATION:		09SD011XXX03XX	01SD113XXX03XX	01SD115XXX03XX	02SD201XXX03XX	02SD201XXX03XD	02SD202XXX03XX	03SD301XXX03XX	03SD302XXX03XX
LAB NUMBER:		257315	256482	255792	255768	255779	256293	255970	255971
DATE SAMPLED:		04/18/89	04/13/89	04/10/89	04/10/89	04/10/89	04/12/89	04/10/89	04/11/89
DATE ANALYZED:		04/20/89	04/19/89	04/20/89	04/14/89	04/14/89	04/19/89	04/14/89	04/21/89
Chloromethane	10	14 U	14 U	31 U	20 U	16 U	18 U	20 U	19 U
Bromomethane	10	14 U	14 U	31 U	20 U	16 U	18 U	20 U	19 U
Vinyl Chloride	10	14 U	14 U	31 U	20 U	16 U	18 U	20 U	19 U
Chloroethane	10	14 U	14 U	31 U	20 U	16 U	18 U	20 U	19 U
Methylene Chloride	5	46 B	12 B	22 B	54 B	52 B	33 B	42 B	38 B
Acetone	10	14 U	14 U	54	37	39	18 U	60	19 U
Carbon Disulfide	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
1,1-Dichloroethene	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
1,1-Dichloroethane	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
1,2-Dichloroethene (total)	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	78
Chloroform	5	7 U	2 J	16 U	10 U	8 U	9 U	10 U	3 J
1,2-Dichloroethane	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
2-Butanone	10	14 U	14 U	31 U	20 U	16 U	18 U	20 U	19 U
1,1,1-Trichloroethane	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
Carbon Tetrachloride	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
Vinyl Acetate	10	14 U	14 U	31 U	20 U	16 U	18 U	20 U	19 U
Bromodichloromethane	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
1,2-Dichloropropane	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
cis-1,3-Dichloropropene	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
Trichloroethene	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	8 J
Dibromochloromethane	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
1,1,2-Trichloroethane	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	7 J
Benzene	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
Trans-1,3-Dichloropropene	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
Bromoform	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
4-Methyl-2-Pentanone	10	14 U	14 U	31 U	20 U	16 U	18 U	20 U	19 U
2-Hexanone	10	14 U	14 U	31 U	20 U	16 U	18 U	20 U	19 U
Tetrachloroethene	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
1,1,2,2-Tetrachloroethane	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	330
Toluene	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
Chlorobenzene	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
Ethylbenzene	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
Styrene	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
Xylenes (Total)	5	7 U	7 U	16 U	10 U	8 U	9 U	10 U	10 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		72	72	32	51	61	56	50	52
Associated Method Blank:		GW057370A12	GW056824A19	GW057360B19	GW056045C12	GW056045C12	GW056824A19	GW056045C12	GW057632A19
Associated Equipment Blank:		-	-	-	-	-	01BS003XXX03XX 01BS001XXX01XX	-	-
Associated Trip Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SD303XXX03XX LAB NUMBER: 255972 DATE SAMPLED: 04/11/89 DATE ANALYZED: 04/19/89	01SD304XXX03XX 255968 04/11/89 04/14/89	01SD305XXX03XX 255969 04/10/89 04/14/89	08SD801XXX03XX 257304 04/18/89 04/20/89	08SD801XXX03XD 257306 04/18/89 04/20/89	08SD802XXX03XX 257307 04/18/89 04/20/89	08SD803XXX03XX 257309 04/18/89 04/20/89	08SD803XXX03XD 257311 04/18/89 04/20/89
Chloromethane	10	14 U	110 U	18 U	32 U	36 U	18 U	16 U	16 U
Bromomethane	10	14 U	110 U	18 U	32 U	36 U	18 U	16 U	16 U
Vinyl Chloride	10	14 U	110 U	18 U	32 U	36 U	18 U	16 U	16 U
Chloroethane	10	14 U	110 U	18 U	32 U	36 U	18 U	16 U	16 U
Methylene Chloride	5	33 B	270 B	41 B	86 B	54 B	15 B	30 B	23 B
Acetone	10	14 U	540	18 U	410	330	93	16 U	16 U
Carbon Disulfide	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
1,1-Dichloroethene	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
1,1-Dichloroethane	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
1,2-Dichloroethene (total)	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
Chloroform	5	2 J	56 U	9 U	16 U	18 U	9 U	8 U	8 U
1,2-Dichloroethane	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
2-Butanone	10	14 U	110 U	18 U	32 U	36 U	18 U	16 U	16 U
1,1,1-Trichloroethane	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
Carbon Tetrachloride	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
Vinyl Acetate	10	14 U	110 U	18 U	32 U	36 U	18 U	16 U	16 U
Bromodichloromethane	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
1,2-Dichloropropane	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
cis-1,3-Dichloropropene	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
Trichloroethene	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
Dibromochloromethane	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
1,1,2-Trichloroethane	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
Benzene	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
Trans-1,3-Dichloropropene	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
Bromoform	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
4-Methyl-2-Pentanone	10	14 U	110 U	18 U	32 U	36 U	18 U	16 U	16 U
2-Hexanone	10	14 U	110 U	18 U	32 U	36 U	18 U	16 U	16 U
Tetrachloroethene	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
1,1,2,2-Tetrachloroethane	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
Toluene	5	7 U	15 J	9 U	16 U	18 U	9 U	8 U	8 U
Chlorobenzene	5	7 U	34 J	9 U	16 U	18 U	9 U	8 U	8 U
Ethylbenzene	5	7 U	110	9 U	16 U	18 U	9 U	8 U	8 U
Styrene	5	7 U	56 U	9 U	16 U	18 U	9 U	8 U	8 U
Xylenes (Total)	5	7 U	36 J	9 U	16 U	18 U	9 U	8 U	8 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		70	9	56	31	28	56	63	61
Associated Method Blank:		GH056824A19	GH056045C12	GH056045C12	GH057370A12	GH057370A12	GH057370A12	GH057370A12	GH057370A12
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	09SD901XXX03XX	09SD915XXX03XX	09SD916XXX03XX	09SD917XXX03XX	01SDBK1XXX03XX	01SDBK2XXX03XX
LAB NUMBER:	257313	256483	256492	256712	256486	256489
DATE SAMPLED:	04/18/89	04/13/89	04/13/89	04/14/89	04/13/89	04/13/89
DATE ANALYZED:	04/21/89	04/19/89	04/24/89	04/19/89	04/19/89	04/19/89
ANALYTE / CRQL						
Chloromethane 10	18 U	13 U	13 U	16 U	14 U	13 U
Bromomethane 10	18 U	13 U	13 U	16 U	14 U	13 U
Vinyl Chloride 10	18 U	13 U	13 U	16 U	14 U	13 U
Chloroethane 10	18 U	13 U	13 U	16 U	14 U	13 U
Methylene Chloride 5	38 B	16 B	8 B	14 B	13 B	7 B
Acetone 10	290 B	13 U	13 U	16 U	14 U	13 U
Carbon Disulfide 5	9 U	6 U	7 U	8 U	7 U	6 U
1,1-Dichloroethene 5	9 U	6 U	7 U	8 U	7 U	6 U
1,1-Dichloroethane 5	9 U	6 U	7 U	8 U	7 U	6 U
1,2-Dichloroethene (total) 5	9 U	6 U	7 U	8 U	7 U	6 U
Chloroform 5	9 U	2 J	2 J	8 U	7 U	6 U
1,2-Dichloroethane 5	9 U	6 U	7 U	8 U	7 U	6 U
2-Butanone 10	18 U	13 U	13 U	16 U	14 U	13 U
1,1,1-Trichloroethane 5	9 U	6 U	7 U	8 U	7 U	6 U
Carbon Tetrachloride 5	9 U	6 U	7 U	8 U	7 U	6 U
Vinyl Acetate 10	18 U	13 U	13 U	16 U	14 U	13 U
Bromodichloromethane 5	9 U	6 U	7 U	8 U	7 U	6 U
1,2-Dichloropropane 5	9 U	6 U	7 U	8 U	7 U	6 U
cis-1,3-Dichloropropene 5	9 U	6 U	7 U	8 U	7 U	6 U
Trichloroethene 5	9 U	6 U	7 U	8 U	7 U	6 U
Dibromochloromethane 5	9 U	6 U	7 U	8 U	7 U	6 U
1,1,2-Trichloroethane 5	9 U	6 U	7 U	8 U	7 U	6 U
Benzene 5	9 U	6 U	7 U	8 U	7 U	6 U
Trans-1,3-Dichloropropene 5	9 U	6 U	7 U	8 U	7 U	6 U
Bromoform 5	9 U	6 U	7 U	8 U	7 U	6 U
4-Methyl-2-Pentanone 10	18 U	13 U	13 U	16 U	14 U	13 U
2-Hexanone 10	18 U	13 U	13 U	16 U	14 U	13 U
Tetrachloroethene 5	9 U	6 U	7 U	8 U	7 U	6 U
1,1,2,2-Tetrachloroethane 5	9 U	6 U	7 U	8 U	7 U	6 U
Toluene 5	9 U	6 U	7 U	8 U	7 U	6 U
Chlorobenzene 5	9 U	6 U	7 U	8 U	7 U	6 U
Ethylbenzene 5	9 U	6 U	7 U	8 U	7 U	6 U
Styrene 5	9 U	6 U	7 U	8 U	7 U	6 U
Xylenes (Total) 5	9 U	6 U	7 U	8 U	7 U	6 U
Dilution Factor:	1	1	1	1	1	1
Percent Solids:	55	78	76	62	74	79
Associated Method Blank:	GW057627A12	GW056824A19	GW057993A03	GW056848C12	GW056824A19	GW056824A19
Associated Equipment Blank:	-	-	-	-	-	-
Associated Trip Blank:	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	02SD003XXX03XX	08SD009XXX03XX	09SD011XXX03XX	01SD115XXX03XX	01SD118XXX03XX	02SD201XXX03XX	02SD201XXX03XD	02SD202XXX03XX
LAB NUMBER:	255781	256707	257315	255791	256485	255768	255779	256293
DATE SAMPLED:	04/10/89	04/14/89	04/18/89	04/10/89	04/13/89	04/10/89	04/10/89	04/12/89
DATE EXTRACTED:	04/12/89	04/17/89	04/19/89	04/12/89	04/15/89	04/12/89	04/12/89	04/14/89
DATE ANALYZED:	04/13/89	04/19/89	04/21/89	04/13/89	04/17/89	04/13/89	04/13/89	04/15/89

ANALYTE	CRQL								
Phenol	330	420 U	54 J	420 U	870 U	120 J	120 J	540 U	590 U
bis(2-Chloroethyl)ether	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
2-Chlorophenol	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
1,3-Dichlorobenzene	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
1,4-Dichlorobenzene	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
Benzyl alcohol	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
1,2-Dichlorobenzene	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
2-Methylphenol	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
bis(2-Chloroisopropyl)ether	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
4-Methylphenol	330	420 U	520 U	420 U	870 U	1200	650 U	540 U	590 U
N-Nitroso-di-n-propylamine	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
Hexachloroethane	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
Nitrobenzene	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
Isophorone	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
2-Nitrophenol	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
2,4-Dimethylphenol	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
Benzoic acid	1600	2100 U	2500 U	2100 U	540 J	76 J	1400 J	450 J	63 J
bis(2-Chloroethoxy)methane	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
2,4-Dichlorophenol	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
1,2,4-Trichlorobenzene	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
Naphthalene	330	420 U	79 J	420 U	870 U	540 U	650 U	540 U	590 U
4-Chloroaniline	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
Hexacholorobutadiene	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
4-Chloro-3-Methylphenol	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
2-Methylnaphthalene	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
Hexachlorocyclopentadiene	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
2,4,6-Trichlorophenol	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
2,4,5-Trichlorophenol	1600	2100 U	2500 U	2100 U	4200 U	2600 U	3100 U	2600 U	2900 U
2-Chloronaphthalene	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
2-Nitroaniline	1600	2100 U	2500 U	2100 U	4200 U	2600 U	93 J	2600 U	2900 U
Dimethylphthalate	330	420 U	520 U	420 U	870 U	540 U	140 J	540 U	590 U
Acenaphthylene	330	49 J	520 U	58 J	110 J	78 J	650 U	540 U	590 U
2,6-Dinitrotoluene	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	02SD003XXX03XX	08SD009XXX03XX	09SD011XXX03XX	01SD115XXX03XX	01SD118XXX03XX	02SD201XXX03XX	02SD201XXX03XD	02SD202XXX03XX
LAB NUMBER:	255781	256707	257315	255791	256485	255768	255779	256293
DATE SAMPLED:	04/10/89	04/14/89	04/18/89	04/10/89	04/13/89	04/10/89	04/10/89	04/12/89
DATE EXTRACTED:	04/12/89	04/17/89	04/19/89	04/12/89	04/15/89	04/12/89	04/12/89	04/14/89
DATE ANALYZED:	04/13/89	04/19/89	04/21/89	04/13/89	04/17/89	04/13/89	04/13/89	04/15/89

ANALYTE	CRQL								
3-Nitroaniline	1600	2100 U	2500 U	2100 U	4200 U	2600 U	3100 U	2600 U	2900 U
Acenaphthene	330	420 U	120 J	420 U	870 U	540 U	650 U	540 U	590 U
2,4-Dinitrophenol	1600	2100 U	2500 U	2100 U	4200 U	2600 U	3100 U	2600 U	2900 U
4-Nitrophenol	1600	2100 U	2500 U	2100 U	4200 U	2600 U	310 J	2600 U	2900 U
Dibenzofuran	330	420 U	72 J	420 U	870 U	540 U	650 U	540 U	590 U
2,4-Dinitrotoluene	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
Diethylphthalate	330	420 U	520 U	420 U	870 U	540 U	110 J	540 U	590 U
4-Chlorophenyl-phenylether	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
Fluorene	330	420 U	95 J	66 J	870 U	540 U	650 U	540 U	590 U
4-Nitroaniline	1600	2100 U	2500 U	2100 U	4200 U	2600 U	3100 U	2600 U	2900 U
4,6-Dinitro-2-methylphenol	1600	2100 U	2500 U	2100 U	4200 U	2600 U	3100 U	2600 U	2900 U
N-Nitrosodiphenylamine	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
4-Bromophenyl-phenylether	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
Hexachlorobenzene	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
Pentachlorophenol	1600	2100 U	2500 U	2100 U	4200 U	2600 U	120 J	2600 U	2900 U
Phenanthrene	330	470	980	1200	450 J	480 J	69 J	58 J	590 U
Anthracene	330	420 U	230 J	190 J	870 U	540 U	650 U	540 U	590 U
Di-n-butylphthalate	330	420 U	400 J	420 U	180 J	540 U	420 J	78 J	590 U
Fluoranthene	330	610	1100	5000	1200	800	92 J	71 J	63 J
Pyrene	330	550	1400	4000	1200	640	82 J	64 J	590 U
Butylbenzylphthalate	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
3,3'-Dichlorobenzidine	660	850 U	1000 U	850 U	1700 U	1100 U	1300 U	1100 U	1200 U
Benzo(a)Anthracene	330	200 J	690	2300	620 J	310 J	82 J	540 U	590 U
Chrysene	330	310 J	610	2500	1000	440 J	85 J	540 U	590 U
bis(2-Ethylhexyl)phthalate	330	70 J	180 J	760	1700	400 J	310 J	160 J	180 J
Di-n-octylphthalate	330	420 U	520 U	420 U	870 U	540 U	650 U	540 U	590 U
Benzo(b)Fluoranthene	330	390 JX	1000 X	3600 X	1800 X	610	180 JX	86 JX	590 U
Benzo(k)Fluoranthene	330	390 JX	1000 X	3600 X	1800 X	490 J	180 JX	86 JX	590 U
Benzo(a)Pyrene	330	210 J	510 J	1500	630 J	340 J	80 J	540 U	590 U
Indeno(1,2,3-cd)pyrene	330	120 J	210 J	570	360 J	100 J	650 U	540 U	590 U
Dibenz(a,h)anthracene	330	420 U	520 U	230 J	140 J	540 U	650 U	540 U	590 U
Benzo(g,h,i,)perylene	330	130 J	220 J	690	380 J	93 J	650 U	540 U	590 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	78	64	78	38	61	51	61	56
Associated Method Blank:	GH055973A21	G2J56832A15	GH057336B15	GH055973A21	GH056665A06	GH055973A21	GH055973A21	GH056548A15
Associated Equipment Blank:	-	-	-	-	-	-	-	01BS003XXX03XX 01BS001XXX03XX

X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	03SD301XXX03XX	03SD302XXX03XX	01SD303XXX03XX	01SD304XXX03XX	01SD305XXX03XX	08SD801XXX03XX	08SD801XXX03XD	08SD802XXX03XX
LAB NUMBER:	255970	255971	255972	255968	255969	257304	257306	257307
DATE SAMPLED:	04/11/89	04/11/89	04/11/89	04/11/89	04/10/89	04/18/89	04/18/89	04/18/89
DATE EXTRACTED:	04/14/89	04/14/89	04/14/89	04/14/89	04/14/89	04/19/89	04/19/89	04/19/89
DATE ANALYZED:	04/15/89	04/15/89	04/15/89	04/15/89	04/15/89	04/24/89	04/20/89	04/20/89

ANALYTE	CRQL								
Phenol	330	660 U	630 U	470 U	3700 U	590 U	110 J	1000 U	560 U
bis(2-Chloroethyl)ether	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
2-Chlorophenol	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
1,3-Dichlorobenzene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
1,4-Dichlorobenzene	330	660 U	630 U	49 J	4000	61 J	850 U	1000 U	560 U
Benzyl alcohol	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
1,2-Dichlorobenzene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
2-Methylphenol	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
bis(2-Chloroisopropyl)ether	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
4-Methylphenol	330	660 U	630 U	470 U	3700 U	590 U	680 J	360 J	560 U
N-Nitroso-di-n-propylamine	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
Hexachloroethane	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
Nitrobenzene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
Isophorone	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
2-Nitrophenol	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
2,4-Dimethylphenol	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
Benzoic acid	1600	3200 U	3100 U	2300 U	610 J	2900 U	1800 J	4800 U	2700 U
bis(2-Chloroethoxy)methane	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
2,4-Dichlorophenol	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
1,2,4-Trichlorobenzene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
Naphthalene	330	660 U	630 U	470 U	620 J	590 U	850 U	1000 U	560 U
4-Chloroaniline	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
Hexacholorobutadiene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
4-Chloro-3-Methylphenol	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
2-Methylnaphthalene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
Hexachlorocyclopentadiene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
2,4,6-Trichlorophenol	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
2,4,5-Trichlorophenol	1600	3200 U	3100 U	2300 U	18000 U	2900 U	4100 U	4800 U	2700 U
2-Chloronaphthalene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
2-Nitroaniline	1600	3200 U	3100 U	2300 U	18000 U	2900 U	4100 U	4800 U	2700 U
Dimethylphthalate	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
Acenaphthylene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
2,6-Dinitrotoluene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	03SD301XXX03XX	03SD302XXX03XX	01SD303XXX03XX	01SD304XXX03XX	01SD305XXX03XX	08SD801XXX03XX	08SD801XXX03XD	08SD802XXX03XX
LAB NUMBER:	255970	255971	255972	255968	255969	257304	257306	257307
DATE SAMPLED:	04/11/89	04/11/89	04/11/89	04/11/89	04/10/89	04/18/89	04/18/89	04/18/89
DATE EXTRACTED:	04/14/89	04/14/89	04/14/89	04/14/89	04/14/89	04/19/89	04/19/89	04/19/89
DATE ANALYZED:	04/15/89	04/15/89	04/15/89	04/15/89	04/15/89	04/24/89	04/20/89	04/20/89

ANALYTE	CRQL								
3-Nitroaniline	1600	3200 U	3100 U	2300 U	18000 U	2900 U	4100 U	4800 U	2700 U
Acenaphthene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	170 J
2,4-Dinitrophenol	1600	3200 U	3100 U	2300 U	18000 U	2900 U	4100 U	4800 U	2700 U
4-Nitrophenol	1600	3200 U	3100 U	2300 U	18000 U	2900 U	4100 U	4800 U	2700 U
Dibenzofuran	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	78 J
2,4-Dinitrotoluene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
Diethylphthalate	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
4-Chlorophenyl-phenylether	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
Fluorene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	290 J
4-Nitroaniline	1600	3200 U	3100 U	2300 U	18000 U	2900 U	4100 U	4800 U	2700 U
4,6-Dinitro-2-methylphenol	1600	3200 U	3100 U	2300 U	18000 U	2900 U	4100 U	4800 U	2700 U
N-Nitrosodiphenylamine	330	660 U	630 U	470 U	740 J	590 U	850 U	1000 U	560 U
4-Bromophenyl-phenylether	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
Hexachlorobenzene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
Pentachlorophenol	1600	3200 U	3100 U	2300 U	18000 U	2900 U	4100 U	4800 U	2700 U
Phenanthrene	330	660 U	630 U	470 U	3700 U	590 U	260 J	160 J	260 J
Anthracene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	290 J
Di-n-butylphthalate	330	660 U	630 U	470 U	3700 U	590 U	89 J	1000 U	560 U
Fluoranthene	330	660 U	110 J	470 U	3700 U	590 U	360 J	380 J	900
Pyrene	330	660 U	630 U	470 U	3700 U	590 U	400 J	320 J	580
Butylbenzylphthalate	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
3,3'-Dichlorobenzidine	660	1300 U	1300 U	940 U	7300 U	1200 U	1700 U	2000 U	1100 U
Benzo(a)Anthracene	330	660 U	630 U	470 U	3700 U	590 U	280 J	200 J	180 J
Chrysene	330	660 U	630 U	470 U	3700 U	590 U	250 J	200 J	230 J
bis(2-Ethylhexyl)phthalate	330	79 J	630 U	57 J	460 J	71 J	130 J	1000 U	560 U
Di-n-octylphthalate	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
Benzo(b)Fluoranthene	330	660 U	630 U	470 U	3700 U	590 U	450 JX	400 JX	310 JX
Benzo(k)Fluoranthene	330	660 U	630 U	470 U	3700 U	590 U	450 JX	400 JX	310 JX
Benzo(a)Pyrene	330	660 U	630 U	470 U	3700 U	590 U	200 J	200 J	150 J
Indeno(1,2,3-cd)pyrene	330	660 U	630 U	470 U	3700 U	590 U	87 J	1000 U	560 U
Dibenz(a,h)anthracene	330	660 U	630 U	470 U	3700 U	590 U	850 U	1000 U	560 U
Benzo(g,h,i,)perylene	330	660 U	630 U	470 U	3700 U	590 U	99 J	1000 U	560 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	50	52	70	9	56	39	33	59
Associated Method Blank:	GH056340A16	GH056340A16	GH05630A16	GH056340A16	GH056340A16	GH057336B15	GH057336B15	GH057336B15
Associated Equipment Blank:	-	-	-	-	-	-	-	-

X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	08SD803XXX03XX	08SD803XXX03XD	08SD817XXX03XX	08SD818XXX03XX	09SD901XXX03XX	09SD915XXX03XX	09SD915XXX03XX	09SD916XXX03XX
LAB NUMBER:	257309	257311	256701	256702	257313	256484	256484 DL	256493
DATE SAMPLED:	04/18/89	04/18/89	04/14/89	04/14/89	04/18/89	04/13/89	04/13/89	04/13/89
DATE EXTRACTED:	04/19/89	04/19/89	04/17/89	04/17/89	04/19/89	04/15/89	04/15/89	04/19/89
DATE ANALYZED:	04/20/89	04/20/89	04/19/89	04/19/89	04/20/89	04/17/89	04/17/89	04/20/89

ANALYTE	CROL								
Phenol	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
bis(2-Chloroethyl)ether	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
2-Chlorophenol	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
1,3-Dichlorobenzene	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
1,4-Dichlorobenzene	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Benzyl alcohol	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
1,2-Dichlorobenzene	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
2-Methylphenol	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
bis(2-Chloroisopropyl)ether	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
4-Methylphenol	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
N-Nitroso-di-n-propylamine	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Hexachloroethane	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Nitrobenzene	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Isophorone	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
2-Nitrophenol	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
2,4-Dimethylphenol	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Benzoic acid	1600	2300 U	2100 U	300 J	2000 U	2100 U	110 J	4100 U	2100 U
bis(2-Chloroethoxy)methane	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
2,4-Dichlorophenol	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
1,2,4-Trichlorobenzene	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Naphthalene	330	380 J	430 U	420 U	410 U	430 U	48 J	850 U	430 U
4-Chloroaniline	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Hexachlorobutadiene	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
4-Chloro-3-Methylphenol	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
2-Methylnaphthalene	330	95 J	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Hexachlorocyclopentadiene	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
2,4,6-Trichlorophenol	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
2,4,5-Trichlorophenol	1600	2300 U	2100 U	2100 U	2000 U	2100 U	2100 U	4100 U	2100 U
2-Chloronaphthalene	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
2-Nitroaniline	1600	2300 U	2100 U	2100 U	2000 U	2100 U	2100 U	4100 U	2100 U
Dimethylphthalate	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Acenaphthylene	330	460 U	47 J	420 U	410 U	430 U	420 U	850 U	430 U
2,6-Dinitrotoluene	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 08SD803XXX03XX	08SD803XXX03XD	08SD817XXX03XX	08SD818XXX03XX	09SD901XXX03XX	09SD915XXX03XX	09SD915XXX03XX	09SD916XXX03XX
		LAB NUMBER: 257309	257311	256701	256702	257313	256484	256484 DL	256493
		DATE SAMPLED: 04/18/89	04/18/89	04/14/89	04/14/89	04/18/89	04/13/89	04/13/89	04/13/89
		DATE EXTRACTED: 04/19/89	04/19/89	04/17/89	04/17/89	04/19/89	04/15/89	04/15/89	04/19/89
		DATE ANALYZED: 04/20/89	04/20/89	04/19/89	04/19/89	04/20/89	04/17/89	04/17/89	04/20/89
3-Nitroaniline	1600	2300 U	2100 U	2100 U	2000 U	2100 U	2100 U	4100 U	2100 U
Acenaphthene	330	250 J	430 U	420 U	410 U	430 U	320 J	350 JD	430 U
2,4-Dinitrophenol	1600	2300 U	2100 U	2100 U	2000 U	2100 U	2100 U	4100 U	2100 U
4-Nitrophenol	1600	2300 U	2100 U	2100 U	2000 U	2100 U	2100 U	4100 U	2100 U
Dibenzofuran	330	190 J	47 J	420 U	410 U	430 U	170 J	160 JD	430 U
2,4-Dinitrotoluene	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Diethylphthalate	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
4-Chlorophenyl-phenylether	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Fluorene	330	230 J	52 J	420 U	410 U	430 U	350 J	340 JD	430 U
4-Nitroaniline	1600	2300 U	2100 U	2100 U	2000 U	2100 U	2100 U	4100 U	2100 U
4,6-Dinitro-2-methylphenol	1600	2300 U	2100 U	2100 U	2000 U	2100 U	2100 U	4100 U	2100 U
N-Nitrosodiphenylamine	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
4-Bromophenyl-phenylether	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Hexachlorobenzene	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Pentachlorophenol	1600	2300 U	2100 U	2100 U	2000 U	2100 U	2100 U	4100 U	2100 U
Phenanthrene	330	1400	190 J	100 J	410 U	140 J	3800	4300 D	110 J
Anthracene	330	460 J	120 J	420 U	410 U	430 U	460	600 JD	430 U
Di-n-butylphthalate	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Fluoranthene	330	1900	590	140 J	410 U	280 J	7100 E	8900 D	330 J
Pyrene	330	1100	440	160 J	44 J	180 J	6700	7900 D	370 J
Butylbenzylphthalate	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
3,3'-Dichlorobenzidine	660	930 U	870 U	850 U	820 U	860 U	850 U	1700 U	870 U
Benzo(a)Anthracene	330	770	230 J	82 J	410 U	110 J	3200	3400 D	210 J
Chrysene	330	750	270 J	100 J	410 U	130 J	4000	4400 D	300 J
bis(2-Ethylhexyl)phthalate	330	460 U	430 U	100 J	110 J	180 J	5000	5100 D	320 J
Di-n-octylphthalate	330	460 U	430 U	420 U	410 U	430 U	420 U	850 U	430 U
Benzo(b)Fluoranthene	330	1200 X	420 JX	62 J	410 U	260 JX	2600	3800 XD	210 J
Benzo(k)Fluoranthene	330	1200 X	420 JX	80 J	410 U	260 JX	3400	3800 XD	370 J
Benzo(a)Pyrene	330	660	240 J	61 J	410 U	100 J	2500	2700 D	260 J
Indeno(1,2,3-cd)pyrene	330	230 J	68 J	420 U	410 U	430 U	1100	860 D	89 J
Dibenz(a,h)anthracene	330	110 J	430 U	420 U	410 U	430 U	440	290 JD	430 U
Benzo(g,h,i,)perylene	330	230 J	69 J	420 U	410 U	430 U	930	780 JD	98 J
Dilution Factor:		1	1	1	1	1	1	2	1
Percent Solids:		71	76	78	81	77	78	78	76
Associated Method Blank:		GH057336B15	GH057336B15	G2J56832A15	G2J56832A15	GH057336B15	GH056665A06	GH056665A06	GH057013A06
Associated Equipment Blank:		-	-	-	-	-	-	-	-

X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01SDBK1XXX03XX	01SDBK2XXX03XX
LAB NUMBER:		256486	256489
DATE SAMPLED:		04/13/89	04/13/89
DATE EXTRACTED:		04/15/89	04/21/89
DATE ANALYZED:		04/17/89	04/22/89
ANALYTE	CRQL		
Phenol	330	450 U	420 U
bis(2-Chloroethyl)ether	330	450 U	420 U
2-Chlorophenol	330	450 U	420 U
1,3-Dichlorobenzene	330	450 U	420 U
1,4-Dichlorobenzene	330	450 U	420 U
Benzyl alcohol	330	450 U	420 U
1,2-Dichlorobenzene	330	450 U	420 U
2-Methylphenol	330	450 U	420 U
bis(2-Chloroisopropyl)ether	330	450 U	420 U
4-Methylphenol	330	450 U	420 U
N-Nitroso-di-n-propylamine	330	450 U	420 U
Hexachloroethane	330	450 U	420 U
Nitrobenzene	330	450 U	420 U
Isophorone	330	450 U	420 U
2-Nitrophenol	330	450 U	420 U
2,4-Dimethylphenol	330	450 U	420 U
Benzoic acid	1600	2200 U	2000 U
bis(2-Chloroethoxy)methane	330	450 U	420 U
2,4-Dichlorophenol	330	450 U	420 U
1,2,4-Trichlorobenzene	330	450 U	420 U
Naphthalene	330	450 U	420 U
4-Chloroaniline	330	450 U	420 U
Hexacholorobutadiene	330	450 U	420 U
4-Chloro-3-Methylphenol	330	450 U	420 U
2-Methylnaphthalene	330	450 U	420 U
Hexachlorocyclopentadiene	330	450 U	420 U
2,4,6-Trichlorophenol	330	450 U	420 U
2,4,5-Trichlorophenol	1600	2200 U	2000 U
2-Chloronaphthalene	330	450 U	420 U
2-Nitroaniline	1600	2200 U	2000 U
Dimethylphthalate	330	450 U	420 U
Acenaphthylene	330	450 U	98 J
2,6-Dinitrotoluene	330	450 U	420 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SDBK1XXX03XX	01SDBK2XXX03XX
LAB NUMBER:	256486	256489
DATE SAMPLED:	04/13/89	04/13/89
DATE EXTRACTED:	04/15/89	04/21/89
DATE ANALYZED:	04/17/89	04/22/89

ANALYTE	CRQL		
3-Nitroaniline	1600	2200 U	2000 U
Acenaphthene	330	110 J	420 U
2,4-Dinitrophenol	1600	2200 U	2000 U
4-Nitrophenol	1600	2200 U	2000 U
Dibenzofuran	330	450 U	420 U
2,4-Dinitrotoluene	330	450 U	420 U
Diethylphthalate	330	450 U	420 U
4-Chlorophenyl-phenylether	330	450 U	420 U
Fluorene	330	50 J	70 J
4-Nitroaniline	1600	2200 U	2000 U
4,6-Dinitro-2-methylphenol	1600	2200 U	2000 U
N-Nitrosodiphenylamine	330	450 U	420 U
4-Bromophenyl-phenylether	330	450 U	420 U
Hexachlorobenzene	330	450 U	420 U
Pentachlorophenol	1600	2200 U	2000 U
Phenanthrene	330	560	860
Anthracene	330	110 J	140 J
Di-n-butylphthalate	330	450 U	420 U
Fluoranthene	330	870	1800
Pyrene	330	540	1400
Butylbenzylphthalate	330	450 U	420 U
3,3'-Dichlorobenzidine	660	890 U	840 U
Benzo(a)Anthracene	330	310 J	840
Chrysene	330	350 J	800
bis(2-Ethylhexyl)phthalate	330	100 J	60 JB
Di-n-octylphthalate	330	450 U	420 U
Benzo(b)Fluoranthene	330	280 J	450
Benzo(k)Fluoranthene	330	440 J	680
Benzo(a)Pyrene	330	320 J	520
Indeno(1,2,3-cd)pyrene	330	91 J	240 J
Dibenz(a,h)anthracene	330	450 U	90 J
Benzo(g,h,i,)perylene	330	450 U	290 J

Dilution Factor:	1	1
Percent Solids:	74	79
Associated Method Blank:	GH056665A06	G3J57886A20
Associated Equipment Blank:	-	-

X = Coeluting indistinguishable isomers; the value represents the combined quantity of Benzo(b)fluoranthene and Benzo(k)fluoranthene.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	09SD010XXX03XX	02SD201XXX03XX	02SD201XXX03XD	02SD202XXX03XX	03SD301XXX03XX	03SD302XXX03XX	01SD303XXX03XX	01SD304XXX03XX
LAB NUMBER:	257303	255768	255779	256293	255970	255971	255972	255968
DATE SAMPLED:	04/18/89	04/10/89	04/10/89	04/12/89	04/11/89	04/11/89	04/11/89	04/11/89
DATE EXTRACTED:	04/20/89	04/12/89	04/12/89	04/14/89	04/14/89	04/14/89	04/14/89	04/14/89
DATE ANALYZED:	04/20/89	04/14/89	04/14/89	04/17/89	04/18/89	04/18/89	04/19/89	04/18/89

ANALYTE	CRQL								
alpha-BHC	8	9.9 U	16 U	13 U	14 U	16 U	15 U	11 U	89 U
beta-BHC	8	9.9 U	16 U	13 U	14 U	16 U	15 U	11 U	89 U
delta-BHC	8	9.9 U	16 U	13 U	14 U	16 U	15 U	11 U	89 U
gamma-BHC (Lindane)	8	9.9 U	16 U	13 U	14 U	16 U	15 U	11 U	89 U
Heptachlor	8	9.9 U	16 U	13 U	14 U	16 U	15 U	11 U	89 U
Aldrin	8	9.9 U	16 U	13 U	14 U	16 U	15 U	11 U	89 U
Heptachlor epoxide	8	9.9 U	16 U	13 U	14 U	16 U	15 U	11 U	89 U
Endosulfan I	8	9.9 U	16 U	13 U	14 U	16 U	15 U	11 U	89 U
Dieldrin	16	20 U	31 U	26 U	28 U	32 U	31 U	23 U	180 U
4,4'-DDE	16	20 U	31 U	26 U	28 U	32 U	31 U	23 U	180 U
Endrin	16	20 U	31 U	26 U	28 U	32 U	31 U	23 U	180 U
Endosulfan II	16	20 U	31 U	26 U	28 U	32 U	31 U	23 U	180 U
4,4'-DDD	16	78	31 U	26 U	28 U	32 U	31 U	23 U	180 U
Endosulfan sulfate	16	20 U	31 U	26 U	28 U	32 U	31 U	23 U	180 U
4,4'-DDT	16	20 U	31 U	26 U	28 U	32 U	31 U	23 U	180 U
Methoxychlor	80	99 U	160 U	130 U	140 U	160 U	150 U	110 U	890 U
Endrin ketone	16	20 U	31 U	26 U	28 U	32 U	31 U	23 U	180 U
alpha-Chlordane	80	99 U	160 U	130 U	140 U	160 U	150 U	110 U	890 U
gamma-Chlordane	80	99 U	160 U	130 U	140 U	160 U	150 U	110 U	890 U
Toxaphene	160	200 U	310 U	260 U	280 U	320 U	310 U	230 U	1800 U
Aroclor-1016	80	99 U	160 U	130 U	140 U	160 U	150 U	110 U	890 U
Aroclor-1221	80	99 U	160 U	130 U	140 U	160 U	150 U	110 U	890 U
Aroclor-1232	80	99 U	160 U	130 U	140 U	160 U	150 U	110 U	890 U
Aroclor-1242	80	99 U	160 U	130 U	140 U	160 U	150 U	110 U	890 U
Aroclor-1248	80	99 U	160 U	130 U	140 U	160 U	150 U	110 U	890 U
Aroclor-1254	160	200 U	310 U	260 U	280 U	320 U	310 U	230 U	1800 U
Aroclor-1260	160	200 U	310 U	260 U	280 U	320 U	310 U	230 U	1800 U

Dilution Factor:	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Percent Solids:	81	51	61	56	50	52	70	9
Associated Method Blank:	257341	255973	255973	256549	256340	256340	256340	256340
Associated Equipment Blank:	-	-	-	01BS003XXX03XX 01BS001XXX03XX	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SD305XXX03XX	08SD801XXX03XX	08SD801XXX03XD	08SD802XXX03XX	08SD803XXX03XX	08SD803XXX03XD	08SD820XXX03XX	09SD901XXX03XX
LAB NUMBER:	255969	257304	257306	257307	257309	257311	256708	257313
DATE SAMPLED:	04/10/89	04/18/89	04/18/89	04/18/89	04/18/89	04/18/89	04/14/89	04/18/89
DATE EXTRACTED:	04/14/89	04/19/89	04/19/89	04/19/89	04/19/89	04/19/89	04/17/89	04/19/89
DATE ANALYZED:	04/18/89	04/20/89	04/20/89	04/20/89	04/20/89	04/20/89	04/18/89	04/20/89

ANALYTE	CRQL								
alpha-BHC	8	14 U	20 U	24 U	14 U	11 U	10 U	10 U	10 U
beta-BHC	8	14 U	20 U	24 U	14 U	11 U	10 U	10 U	10 U
delta-BHC	8	14 U	20 U	24 U	14 U	11 U	10 U	10 U	10 U
gamma-BHC (Lindane)	8	14 U	20 U	24 U	14 U	11 U	10 U	10 U	10 U
Heptachlor	8	14 U	20 U	24 U	14 U	11 U	10 U	10 U	10 U
Aldrin	8	14 U	20 U	24 U	14 U	11 U	10 U	10 U	10 U
Heptachlor epoxide	8	14 U	20 U	24 U	14 U	11 U	10 U	10 U	10 U
Endosulfan I	8	14 U	20 U	24 U	14 U	11 U	10 U	10 U	10 U
Dieldrin	16	28 U	41 U	48 U	27 U	22 U	21 U	20 U	21 U
4,4'-DDE	16	28 U	41 U	48 U	27 U	22 U	21 U	20 U	23
Endrin	16	28 U	41 U	48 U	27 U	22 U	21 U	20 U	21 U
Endosulfan II	16	28 U	41 U	48 U	27 U	22 U	21 U	20 U	21 U
4,4'-DDD	16	28 U	41 U	48 U	27 U	22 U	21 U	20 U	110
Endosulfan sulfate	16	28 U	41 U	48 U	27 U	22 U	21 U	20 U	21 U
4,4'-DDT	16	28 U	41 U	48 U	27 U	38	30	20 U	21 U
Methoxychlor	80	140 U	200 U	240 U	140 U	110 U	100 U	100 U	100 U
Endrin ketone	16	28 U	41 U	48 U	27 U	22 U	21 U	20 U	21 U
alpha-Chlordane	80	140 U	200 U	240 U	140 U	110 U	100 U	100 U	100 U
gamma-Chlordane	80	140 U	200 U	240 U	140 U	110 U	100 U	100 U	100 U
Toxaphene	160	280 U	410 U	480 U	270 U	220 U	210 U	200 U	210 U
Aroclor-1016	80	140 U	200 U	240 U	140 U	110 U	100 U	100 U	100 U
Aroclor-1221	80	140 U	200 U	240 U	140 U	110 U	100 U	100 U	100 U
Aroclor-1232	80	140 U	200 U	240 U	140 U	110 U	100 U	100 U	100 U
Aroclor-1242	80	140 U	200 U	240 U	140 U	110 U	100 U	100 U	100 U
Aroclor-1248	80	140 U	200 U	240 U	140 U	110 U	100 U	100 U	100 U
Aroclor-1254	160	280 U	410 U	480 U	270 U	220 U	210 U	200 U	210 U
Aroclor-1260	160	280 U	410 U	480 U	270 U	220 U	210 U	200 U	210 U

Dilution Factor:	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Percent Solids:	56	39	37	59	71	76	78	77
Associated Method Blank:	256340	257337	257337	257337	257337	257337	256916	257337
Associated Equipment Blank:	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01SDBK1XXX03XX	01SDBK2XXX03XX
LAB NUMBER:		256486	256489
DATE SAMPLED:		04/13/89	04/13/89
DATE EXTRACTED:		04/15/89	04/15/89
DATE ANALYZED:		04/18/89	04/18/89
ANALYTE	CRQL		
alpha-BHC	8	11 U	10 U
beta-BHC	8	11 U	10 U
delta-BHC	8	11 U	10 U
gamma-BHC (Lindane)	8	11 U	10 U
Heptachlor	8	11 U	10 U
Aldrin	8	11 U	10 U
Heptachlor epoxide	8	11 U	10 U
Endosulfan I	8	11 U	10 U
Dieldrin	16	22 U	20 U
4,4'-DDE	16	22 U	20 U
Endrin	16	22 U	20 U
Endosulfan II	16	22 U	20 U
4,4'-DDD	16	22 U	20 U
Endosulfan sulfate	16	22 U	20 U
4,4'-DDT	16	22 U	20 U
Methoxychlor	80	110 U	100 U
Endrin ketone	16	22 U	20 U
alpha-Chlordane	80	110 U	100 U
gamma-Chlordane	80	110 U	100 U
Toxaphene	160	220 U	200 U
Aroclor-1016	80	110 U	100 U
Aroclor-1221	80	110 U	100 U
Aroclor-1232	80	110 U	100 U
Aroclor-1242	80	110 U	100 U
Aroclor-1248	80	110 U	100 U
Aroclor-1254	160	220 U	200 U
Aroclor-1260	160	220 U	200 U
Dilution Factor:		1.0	1.0
Percent Solids:		74	79
Associated Method Blank:		256666	256666
Associated Equipment Blank:		-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 02SW003XXX03XX LAB NUMBER: 255761 DATE SAMPLED: 04/10/89	08SW007XXX03XX 256730 04/14/89	08SW007XXX03XD 256731 04/14/89	08SW008XXX03XX 256732 04/14/89	08SW009XXX03XX 256741 04/14/89	01SW113XXX03XX 256470 04/12/89	01SW114XXX03XX 256471 04/13/89	01SW118XXX03XX 256473 04/13/89
Aluminum	200	127 []	187 []	372	107 []	1590	140 []	153 []	187 []
Antimony	60	43.2 U	35.7 []	31.5 U	31.5 U	31.5 U	43.2 U	43.2 U	43.2 U
Arsenic	10	2.4 UW*	1.2 U	1.2 U	1.2 U	1.3 []	1.2 UW*	1.2 UW*	1.2 UW*
Barium	200	11.8 []E	24.7 []	25.7 []	13.6 []	34.0 []	15.6 []	15.9 []	15.4 []
Beryllium	5	1.2 U	0.50 U	0.50 U	0.50 U	0.50 U	1.2 U	1.2 U	1.2 U
Cadmium	5	4.0 U	4.2 U	4.2 U	4.2 U	4.2 U	4.0 U	4.0 U	4.0 U
Calcium	5000	4810 []	14500	14400	8870	40100	6960	7430	8680
Chromium	10	6.3 U	3.8 U	3.98 []	3.8 U	3.8 U	6.3 U	6.3 U	6.3 U
Cobalt	50	5.1 U	5.2 []	4.8 []	4.6 []	9.8 []	5.1 U	5.1 U	5.1 U
Copper	25	1.6 U	8.0 []	8.0 []	7.3 U	7.3 U	11.7 []	10.4 []	7.8 []
Iron	100	626	274	462	854	6270	714	786	1000
Lead	5	0.91 []	0.90 UW	1.2 []W	0.90 UW	3.3 []	0.98 []W	0.90 U	1.0 []W
Magnesium	5000	1460 []	3200 []	3180 []	1850 []	4900 []	1880 []	1770 []	1750 []
Manganese	15	48.8	322	332	493	394	165	261	418
Mercury	0.2	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	40	35.3 U	18.6 U	18.6 U	18.6 U	18.6 U	35.3 U	35.3 U	35.3 U
Potassium	5000	5420	2770 []	1870 []	1790 []	8510	4910 U	4910 U	4910 U
Selenium	5	1.4 UWN	1.0 UWN	1.0 UWN	1.0 UWN	1.0 UWN	1.0 UWN	1.0 UWN	1.0 UWN
Silver	10	5.5 U	5.5 []	4.9 U	4.9 U	4.9 U	5.5 U	5.5 U	5.5 U
Sodium	5000	5170	171000	168000	31900	22500	12100	12500	13200
Thallium	10	1.8 UWN	5.5 UEN	5.5 UWN	1.1 UWN	1.2 []WN	1.1 UWN	1.1 UWN	1.1 UWN
Vanadium	50	4.4 U	8.4 []	10.5 []	2.9 []	16.7 []	10.4 []	4.4 U	4.4 []
Zinc	20	82.1	70.9 *	70.6 *	134 *	114 *	8.6 []	17.7 []	27.6
Cyanide	10	10.0 UN*	11.2	14.4	10.0 U	10.0 U	10.0 UN*	10.0 UN*	10.0 UN*
Associated Method Blank:		16534A	16534E	16534E	16534E	16534E	16534	16534	16534
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SW119XXX03XX LAB NUMBER: 257035 DATE SAMPLED: 04/17/89	03SW317XXX03XX 256266 04/12/89	08SW817XXX03XX 256733 04/14/89	08SW818XXX03XX 256737 04/14/89	09SW917XXX03XX 256746 04/14/89	09SW918XXX03XX 257283 04/18/89	01SWBK1XXX03XX 256474 04/13/89	01SWBK2XXX03XX 256475 04/13/89
Aluminum	200	226	55.7 []	169 []	374	541	170 []	108 []	123 []
Antimony	60	31.5 U	43.2 U	31.5 U	31.5 U	31.5 U	31.5 U	43.2 U	43.2 U
Arsenic	10	1.2 UW	1.2 []WN*	1.2 U	1.6 []	1.2 []	1.6 []W	1.2 UWN*	1.2 UWN*
Barium	200	13.6 []	21.2 []	15.2 []	20.3 []	18.3 []	13.4 []	15.0 []	15.8 []
Beryllium	5	0.50 U	1.2 U	0.50 U	3.0 []	0.50 U	0.50 U	1.2 U	1.2 U
Cadmium	5	4.2 U	4.0 U	4.2 U	4.2 U	4.2 U	4.2 U	4.0 U	4.0 U
Calcium	5000	5720	13300	13100	14100	8450	8170	6170	5940
Chromium	10	3.8 U	6.3 U	3.8 U	4.0 []	3.8 U	3.8 U	6.3 U	6.3 U
Cobalt	50	3.3 U	5.1 U	5 []	7.2 []	6.9 []	3.7 []	5.1 U	5.1 U
Copper	25	15.4 []	7.8 []	17.4 []	9.4 []	8.0 []	7.3 U	1.6 U	1.6 U
Iron	100	771	519	1630	1880	1940	807	395	349
Lead	5	2.1 []	0.90 UW	0.90 UW	0.90 U	2.90 []W	1.9 []W	0.90 UW	0.90 UW
Magnesium	5000	1480 []	2450 []	2340 []	2410 []	2040 []	1670 []	1490 []	1380 []
Manganese	15	155	635	427	533	461	269	101	65.4
Mercury	0.2	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 UW	0.20 U	0.20 U
Nickel	40	18.6 U	35.3 U	18.6 U	18.6 U	18.6 U	18.6 U	35.3 U	35.3 U
Potassium	5000	4650 []	4910 U	2340 []	5180	2830 []	1740 U	4910 U	4910 U
Selenium	5	1.0 UWN	5.0 UWN	1.0 UWN	1.0 UWN	5.0 UN	1.0 UWN	1.0 UWN	1.0 UWN
Silver	10	4.9 U	5.5 U	4.9 U	4.9 U	4.9 U	4.9 U	5.5 U	5.5 U
Sodium	5000	9090	8290	28500	32500	14400	11800	11800	10100
Thallium	10	1.1 UWN	1.1 UWN	1.1 UWN	1.5 []WN	1.1 UWN	1.1 UWN	1.1 UWN	1.1 UWN
Vanadium	50	2.6 U	4.4 U	4.4 []	18.2 []	4.3 []	2.6 U	4.4 U	4.4 U
Zinc	20	53.4 *	8.8 []	163 *	22.3 *	186 *	29.5	17.2 []	12.7 []
Cyanide	10	10.0 U	10.0 UN*	10.0 U	10.0 U	10.0 U	19.9 N	10.0 UN*	10.0 UN*
Associated Method Blank:		16534J	16534	16534E	16534E	16534E	16534L	16534	16534
Associated Equipment Blank:		-	01BS003XXX03XX	-	-	-	01BF002XXX03XX	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 09SW011XXX03XX	09SW011XXX03XD	01SW113XXX03XX	01SW115XXX03XX	09SW915XXX03XX	09SW916XXX03XX	09SW917XXX03XX	01SW8K1XXX03XX
		LAB NUMBER: 257267	257273	256438	255766	256439	256465	256699	256448
		DATE SAMPLED: 04/18/89	04/18/89	04/13/89	04/10/89	04/13/89	04/13/89	04/14/89	04/13/89
		DATE ANALYZED: 04/21/89	04/21/89	04/20/89	04/13/89	04/20/89	04/20/89	04/20/89	04/17/89
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	2 J	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	1 JB	3 JB	1 JB	2 JB	1 JB	5 U
Acetone	10	10 U	10 U	11 B	10 U	17 B	10 B	14 B	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	7	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5	5 U	1 J	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	16	13	5 U	5 U	18	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	1 J	5 U	1 J	5 U	2 J	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	33	22	5 U	5 U	12	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	36	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	45	34	5 U	5 U	74	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890420B13	CB890420B13	CB890420C14	CB890413A14	CB890420C14	CB890420C14	CB890420C14	CB890416B14
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		01BT007XXX03XX	01BT007XXX03XX	-	01BT001XXX03XX	-	01BT004XXX03XX	01TB005XXX03XX	01BT004XXX03XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION: 01SWBK2XXX03XX
LAB NUMBER: 256459
DATE SAMPLED: 04/13/89
DATE ANALYZED: 04/17/89

ANALYTE	CRQL	
Chloromethane	10	10 U
Bromomethane	10	10 U
Vinyl Chloride	10	10 U
Chloroethane	10	10 U
Methylene Chloride	5	5 U
Acetone	10	10 U
Carbon Disulfide	5	5 U
1,1-Dichloroethene	5	5 U
1,1-Dichloroethane	5	5 U
1,2-Dichloroethene (total)	5	5 U
Chloroform	5	5 U
1,2-Dichloroethane	5	5 U
2-Butanone	10	10 U
1,1,1-Trichloroethane	5	5 U
Carbon Tetrachloride	5	5 U
Vinyl Acetate	10	10 U
Bromodichloromethane	5	5 U
1,2-Dichloropropane	5	5 U
cis-1,3-Dichloropropene	5	5 U
Trichloroethene	5	5 U
Dibromochloromethane	5	5 U
1,1,2-Trichloroethane	5	5 U
Benzene	5	5 U
Trans-1,3-Dichloropropene	5	5 U
Bromoform	5	5 U
4-Methyl-2-Pentanone	10	10 U
2-Hexanone	10	10 U
Tetrachloroethene	5	5 U
1,1,2,2-Tetrachloroethane	5	5 U
Toluene	5	5 U
Chlorobenzene	5	5 U
Ethylbenzene	5	5 U
Styrene	5	5 U
Xylenes (Total)	5	5 U

Dilution Factor: 1

Associated Method Blank: CB890416B14
Associated Equipment Blank: -
Associated Trip Blank: 01BT004XXX03XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		02SW003XXX03XX	08SW009XXX03XX	09SW011XXX03XX	09SW011XXX03XD	01SW115XXX03XX	01SW118XXX03XX	08SW817XXX03XX	08SW818XXX03XX
LAB NUMBER:		255762	256694	257267	257273	255767	256442	256692	256693
DATE SAMPLED:		04/10/89	04/14/89	04/18/89	04/18/89	04/10/89	04/13/89	04/14/89	04/14/89
DATE EXTRACTED:		04/12/89	04/18/89	04/21/89	04/21/89	04/12/89	04/18/89	04/18/89	04/18/89
DATE ANALYZED:		04/13/89	04/19/89	04/22/89	04/22/89	04/14/89	04/19/89	04/18/89	04/19/89
ANALYTE	CRQL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		02SW003XXX03XX	08SW009XXX03XX	09SW011XXX03XX	09SW011XXX03XD	01SW115XXX03XX	01SW118XXX03XX	08SW817XXX03XX	08SW818XXX03XX
LAB NUMBER:		255762	256694	257267	257273	255767	256442	256692	256693
DATE SAMPLED:		04/10/89	04/14/89	04/18/89	04/18/89	04/10/89	04/13/89	04/14/89	04/14/89
DATE EXTRACTED:		04/12/89	04/18/89	04/21/89	04/21/89	04/12/89	04/18/89	04/18/89	04/18/89
DATE ANALYZED:		04/13/89	04/19/89	04/22/89	04/22/89	04/14/89	04/19/89	04/18/89	04/19/89
ANALYTE	CRQL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		G2J56026A15	GH056963B15	GH057883A06	GH057883A06	G2J56026A15	GH056963B15	GH056963B15	GH056963B15
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		09SW915XXX03XX	09SW916XXX03XX	01SWBK1XXX03XX	01SWBK2XXX03XX
LAB NUMBER:		256440	256466	256448	256459
DATE SAMPLED:		04/13/89	04/13/89	04/13/89	04/13/89
DATE EXTRACTED:		04/18/89	04/18/89	04/18/89	04/18/89
DATE ANALYZED:		04/20/89	04/19/89	04/18/89	04/19/89
ANALYTE	CRQL				
Phenol	10	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U
Naphthalene	10	26	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	25	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		09SW915XXX03XX	09SW916XXX03XX	01SWBK1XXX03XX	01SWBK2XXX03XX
LAB NUMBER:		256440	256466	256448	256459
DATE SAMPLED:		04/13/89	04/13/89	04/13/89	04/13/89
DATE EXTRACTED:		04/18/89	04/18/89	04/18/89	04/18/89
DATE ANALYZED:		04/20/89	04/19/89	04/18/89	04/19/89
ANALYTE	CRQL				
3-Nitroaniline	50	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	3 J	10 U	10 U	2 J
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1
Associated Method Blank:		GH056963B15	GH056963B15	GH056963B15	GH056963B15
Associated Equipment Blank:		01BS003XXX03XX 01BS001XXX03XX	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	09SW010XXX03XX	09SW010XXX03XD	08SW820XXX03XX	01SWBK1XXX03XX	01SWBK2XXX03XX
	LAB NUMBER:	257225	257235	256695	256448	256459
	DATE SAMPLED:	04/18/89	04/18/89	04/14/89	04/13/89	04/13/89
	DATE EXTRACTED:	04/20/89	04/20/89	04/17/89	04/15/89	04/15/89
	DATE ANALYZED:	04/27/89	04/21/89	04/19/89	04/19/89	04/19/89
ANALYTE	CRQL					
alpha-BHC	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
beta-BHC	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
delta-BHC	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
gamma-BHC (Lindane)	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Heptachlor	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Aldrin	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Heptachlor epoxide	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Endosulfan I	0.05	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
gamma-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1221	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1232	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1242	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1248	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dilution Factor:		1.0	1.0	1.0	1.0	1.0
Associated Method Blank:		257344	257344	256835	256661	256661
Associated Equipment Blank:		-	-	-	-	-

Click Here to Return to Main Index

Click Here to Return to Main Index

ROUND IV DATA

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	BSMW106XXX04XX	BSMW202AXX04XX	BSMW203XXX04XX	BSMW205XXX04XD	BSMW205XXX04XX	BSMW214XXX04XX	BSMW215XXX04XX	BSMW216AXX04XX
	LAB NUMBER:	292458	293353	294132	294131	294125	292442	292451	292455
	DATE SAMPLED:	10/04/89	10/06/89	10/10/89	10/10/89	10/10/89	10/04/89	10/04/89	10/04/89
ANALYTE	CRQL								
Aluminum	200	67.5 []	55.3 []	110 []	83.3 []	22 []	147 []	52.1 []	65.3 []
Antimony	60	27 U	27 U	29.9 []	27 U	27 U	27 U	27 U	27 U
Arsenic	10	2 U	28	15.8	2 U	2 U	2 U	2.8 [] W	2 U
Barium	200	1 U	38.4 []	21.1 []	21.1 []	18.1 []	33.6 []	49.6 []	7.7 []
Beryllium	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Cadmium	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Calcium	5000	4600 []	22400	18900	17600	16900	11800	15600	20600
Chromium	10	6 U	6 U	6.4 []	6 U	6 U	6 U	6 U	6 U
Cobalt	50	6.6 []	16.5 []	7.3 []	3.8 []	3 U	3.3 []	11.7 []	7.3 []
Copper	25	7 U	7 U	7 U	7 U	7 U	7 U	7 U	7 U
Iron	100	85.6 []	80300	7870 *	223 *	454 *	153	8240	223
Lead	3	1 UW	1.6 []	15.6	1 U	1 U	3.5	1.4 []	3.1
Magnesium	5000	1510 []	3620 []	5790 E	6460 E	6240 E	2090 []	2920 []	6250
Manganese	15	9.8 []	3510	1230	682	647	711	1260	709
Mercury	0.2	0.2 UN	0.2 UN	0.2 U	0.2 U	0.2 U	0.2 UN	0.2 UN	0.2 UN
Nickel	40	38 U	38 U	38 U	38 U	38 U	38 U	38 U	38 U
Potassium	5000	3300 []	5880	3580 []	3710 []	1940 []	4700 []	4350 []	5070
Selenium	5	2 UWN	10 UWN	20 UN	20 UN	20 UWN	2 UWN	10 UWN	10 UWN
Silver	10	3 U	3 U	3 U	3 U	3 U	4.5 []	3 U	3 U
Sodium	5000	8400	26600	9950	8290	7560	20600	20200	11000
Thallium	10	2 U	2 UW	2 U	2 U	2 U	2 U	2 UW	2 U
Vanadium	50	6.5 []	22.7 []	3.6 []	3.3 []	2 U	2.5 []	9.7 []	8 []
Zinc	20	15.4 []	26	35.1	8.3 []	4.8 []	15.9 []	16.1 []	14.5 []
Cyanide	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Associated Method Blank:		BR17603UW	BR17603UW	BR17603W	BR17603W	BR17603W	BR17603UW	BR17603UW	BR17603UW
Associated Equipment Blank:		-	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW216BXX04XX	BSMW217AXX04XX	BSMW217BXX04XD	BSMW217BXX04XX	BSMW218XXX04XX	BSMW219XXX04XX	BSMW220XXX04XX	BSMW222XXX04XX
LAB NUMBER:	294542	294537	294539	294538	294541	294129	292986	292988
DATE SAMPLED:	10/11/89	10/11/89	10/11/89	10/11/89	10/11/89	10/10/89	10/05/89	10/05/89
ANALYTE / CRQL								
Aluminum 200	792	2770	41.8 []	191 []	2750	34.3 []	44.6 []	36.1 []
Antimony 60	27 U	42 []	59.1 []	38.5 []	27 U	27 U	50.2 U	50.2 U
Arsenic 10	2 UW	2.9 []	23.8	18.2	107	2 U	2.2 U	2.2 U
Barium 200	24.9 []	26.4 []	76.9 []	82.9 []	27.9 []	4.5 []	1.9 U	1.9 U
Beryllium 5	1 U	1 U	1 U	1 U	1 U	1 U	0.7 U	0.7 U
Cadmium 5	5 U	5 U	5 U	5 U	5 U	5 U	4.4 U	4.4 U
Calcium 5000	40900	39900	69500	85100	41900	8870	13200	5460
Chromium 10	6 U	8.6 []	6 U	6 U	6 U	6 U	6.2 U	6.2 U
Cobalt 50	12.9 []	10.2 []	38.3 []	34.7 []	11 []	3 U	3.9 U	3.9 U
Copper 25	7 U	7 U	7 U	7 U	7 U	7 U	7.2 U	7.2 U
Iron 100	1120 *	4670 *	132000 *	103000 *	4180 *	125 *	47.4 []	23.1 []
Lead 3	6.9	9.2	1 U	3.5	11.8	4.5 W	1.1 UW	1.9 [] W
Magnesium 5000	11100 E	19000 E	16800 E	22100 E	21800 E	3200 [] E	5560	1570 []
Manganese 15	4710	492	3560	4170	1580	37.9	215	3.3 U
Mercury 0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel 40	38 U	38 U	38 U	38 U	38 U	38 U	35.8 U	35.8 U
Potassium 5000	3990 []	3810 []	12300	11600	11500	1770 []	2020 U	2020 U
Selenium 5	20 UWN	20 UWN	20 UWN	20 UN	20 UWN	20 UN	8 UWN	8 UWN
Silver 10	4.2 []	3.2 []	3 U	3 U	3.5 []	3 U	5.7 U	5.7 U
Sodium 5000	22400	17000	26600	34900	103000	10500	20400	5240
Thallium 10	2 U	2 UW	2 UW	2 UW	2 UW	2 U	1.3 UW	1.3 UW
Vanadium 50	6.8 []	9.8 []	38 []	30.1 []	11.7 []	2.6 []	2.1 UE	2.1 UE
Zinc 20	110	44.1	15.2 []	44	85	16.6 []	4.8 []	6.7 []
Cyanide 10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Associated Method Blank:	BR17603W	BR17603W	BR17603W	BR17603W	BR17603W	BR17603W	17603Z	17603Z
Associated Equipment Blank:	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		BSMW223XXX04XX	BSMW224XXX04XX	BSMW225AXX04XX	BSMW225BXX04XX	BSMW229AXX04XX	BSMW229BXX04XD	BSMW229BXX04XX	BSMW230AXX04XX
LAB NUMBER:		292989	292457	293006	293003	293350	292996	292991	293351
DATE SAMPLED:		10/05/89	10/04/89	10/05/89	10/05/89	10/06/89	10/05/89	10/05/89	10/06/89
ANALYTE	CRQL								
Aluminum	200	27.7 []	72.9 []	28.2 []	55.1 []	49 []	52400	58000	47.6 []
Antimony	60	50.2 U	27 U	27 U	27 U	27 U	27 U	32 []	27 U
Arsenic	10	2.2 U	2 U	2 UW	2 U	2 U	4.5 []W	2.8 []W	2 U
Barium	200	1.9 []	7.7 []	8.3 []	4.5 []	1.4 []	204	226	1 U
Beryllium	5	0.7 U	1 U	1 U	1 U	1 U	2.7 []	2.5 []	1 U
Cadmium	5	4.4 U	5 U	5 U	5 U	5 U	5 U	5.2	5 U
Calcium	5000	5490	6000	13400	4760 []	7500	10900	11800	4940 []
Chromium	10	6.2 U	6 U	6 U	6 U	6 U	97.3	112	6 U
Cobalt	50	3.9 U	9.5 []	9.6 []E	6.5 []E	12 []	61.5 E	68.3 E	8.4 []
Copper	25	7.2 U	7 U	7 UE	7 UE	7 U	76 E	81.6 E	7 U
Iron	100	3.7 U	94.5 []	51.9 []	103	55 []	84400	91000	589
Lead	3	1.1 UW	1.5 []W	1 UW	1 UW	1.2 []	32.6	29.6	3.1
Magnesium	5000	1630 []	1620 []	5490	1420 []	4260 []	25300	27200	3060 []
Manganese	15	117	111	52.1	2.4 []	12.4 []	1520	1620	280
Mercury	0.2	0.2 U	0.2 UN	0.2 U	0.2	0.2 UN	0.2	0.22	0.2 UN
Nickel	40	35.8 U	38 U	38 U	38 U	38 U	96.7	117	38 U
Potassium	5000	2020 U	2560 []	3390 []E	2250 []E	4060 []	16700 E	18300 E	3150 []
Selenium	5	8 UWN	2 UWN	4 UWN	2 UWN	2 UWN	10 UWN	10 UWN	2 UWN
Silver	10	5.7 U	3 U	3 U	3 U	3 U	3 U	3 U	3 U
Sodium	5000	6670	8380	12100 E	6360 E	7370	8970 E	15300 E	7070
Thallium	10	1.3 UW	2 U	2 UW	2 U	2 U	2 UW	2 UW	2 U
Vanadium	50	2.1 UE	6.2 []	6.4 []	5.9 []	9.1 []	140	160	7.2 []
Zinc	20	5 []	20 []	11.8 []	7.7 []	9.6 []	242	469	17.8 []
Cyanide	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Associated Method Blank:	17603Z	BR17603UW	BR17603RW	BR17603RW	BR17603UW	BR17603RW	BR17603RW	BR17603UW
Associated Equipment Blank:	-	-	-	-	BSQSXX1XXX04XX	-	-	BSQSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		BSMW230BXX04XX	BSMW231AXX04XX	BSMW231BXX04XD	BSMW231BXX04XX	BSMW232AXX04XX	BSMW232BXX04XX	BSMW233XXX04XX	BSMW234XXX04XX
LAB NUMBER:		293352	294550	294546	294545	294127	294540	294544	294543
DATE SAMPLED:		10/06/89	10/11/89	10/11/89	10/11/89	10/10/89	10/11/89	10/11/89	10/11/89
ANALYTE	CRQL								
Aluminum	200	150 []	192 []	287	416	125 []	1770	550000	1690
Antimony	60	27 U	27 U	27 U	27 U	27 U	27 U	177	27 U
Arsenic	10	9 []	2 U	2 U	2 U	2 U	8.4 []	2 UW	3.4 []W
Barium	200	1 U	4.5 []	4.5 []	9 []	14.7 []	95.3 []	1840	327
Beryllium	5	1 U	1 U	1 U	1 U	1 U	1 U	33	1 U
Cadmium	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Calcium	5000	6990	4410 []	5980	5930	34700	51000	113000	43500
Chromium	10	6 U	6 U	6 U	6 U	6 U	6 U	1040	6 U
Cobalt	50	12.8 []	8 []	4.9 []	9.5 []	5.5 []	27.8 []E	652 E	60
Copper	25	7 U	7 U	7 U	130	7 U	7 UE	984 E	7 U
Iron	100	228	529 *	431 *	789 *	181 *	181000	962000	286000 *
Lead	3	1 UW	4.4	1.5 []	4.9	1 UW	3.1	203	9.1
Magnesium	5000	3780 []	1950 []E	2500 []E	2470 []E	16100 E	6240	320000	4930 []E
Manganese	15	167	37.9	1 U	19.7	244	1400	24900	2130
Mercury	0.2	0.2 UN	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1	0.2 U
Nickel	40	38 U	38 U	38 U	38 U	38 U	38 U	1100	77.8
Potassium	5000	6410	3060 []	3070 []	4180 []	3390 []	11900 E	196000 E	6440
Selenium	5	2 UWN	2 UWN	20 UN	20 UN	20 UN	10 UWN	20 UEN	20 UN
Silver	10	3 U	3 U	3 U	3 U	3 U	3 U	8.7 []	3 U
Sodium	5000	20900	7290	9940	9720	14300	5740 E	146000 E	7050
Thallium	10	2 U	2 UW	2 UW	2 UW	2 UW	2 U	2 UW	2 UW
Vanadium	50	10.6 []	8.2 []	5 []	6 []	2 U	52.2	1590	79.7
Zinc	20	12.6 []	44.4	11.8 []	363	4.9 []	51.5	2500	297
Cyanide	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Associated Method Blank:		BR17603UW	BR17603W	BR17603W	BR17603W	BR17603W	BR17603RW	BR17603RW	BR17603W
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW401XXX04XX	BSMW402XXX04XX	BSMW403XXX04XD	BSMW403XXX04XX	BSMW404XXX04XX	BSMW405XXX04XX	BSMW406XXX04XX	BSMW407XXX04XX
LAB NUMBER:	291919	291920	291922	291929	291921	291923	291924	293712
DATE SAMPLED:	10/03/89	10/03/89	10/03/89	10/03/89	10/03/89	10/03/89	10/03/89	10/09/89
ANALYTE / CRQL								
Aluminum 200	289	213	43.4 []	26.5 []	44.6 []	83.1 []	37.3 []	38.6 []
Antimony 60	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	27 U
Arsenic 10	2.2 U	11 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2 U
Barium 200	4.6 []	4.6 []	4.6 []	1.9 U	1.9 []	25 []	4.6 []	1 U
Beryllium 5	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	1 U
Cadmium 5	4.4 U	4.4 U	4.4 []	4.4 U	4.4 U	4.4 U	4.4 U	5 U
Calcium 5000	3690 []	1880 []	1070 []	1090 []	2030 []	5220	4970 []	4450 []
Chromium 10	6.2 U	7.6 []	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6 U
Cobalt 50	3.9 U	3.9 U	3.9 U	3.9 U	4.4 []	4.3 []	3.9 U	3 U
Copper 25	7.2 U	7.2 U	7.2 U	7.4 []	7.2 U	7.2 U	7.2 U	7 U
Iron 100	432	287	41.2 []	8.1 []	45.1 []	52.4 []	49.7 []	68.5 []
Lead 3	1.4 []	2.7 []	7.5	7.4	1.1 U	1.1 U	1.1 U	1 U
Magnesium 5000	3110 []	543 []	653 []	348 []	627 []	870 []	1790 []	2110 []
Manganese 15	114	23.7 []	3.3 U	3.3 U	3.3 U	33.2	33.2	5.7 []
Mercury 0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UW
Nickel 40	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U	38 U
Potassium 5000	2820 []	2020 U	2020 U	2020 U	2290 []	3500 []	3210 []	591 U
Selenium 5	8 UWN	8 UWN	8 UWN	1.6 UWN	8 UWN	8 UWN	8 UWN	2 UWN
Silver 10	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	3 U
Sodium 5000	6830	6470	4640 []	1870 U	6420	23800	7830	3450 []
Thallium 10	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U	2 U
Vanadium 50	2.1 UE	2.1 UE	2.3 []E	2.1 UE	3 []E	4 []E	3.4 []E	3 []
Zinc 20	12.4 []	6.7 []	5.9 []	10.9 []	7.6 []	7.6 []	2.5 []	6.9 []
Cyanide 10	10 U	10 U	10 U	NR	10 U	10 U	10 U	10 U
Associated Method Blank:	17603Z	17603Z	17603Z	17603Z	17603Z	17603Z	17603Z	BR17603UW
Associated Equipment Blank:	-	-	-	-	-	-	-	BSQSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	BSMW408XXX04XX	BSMW801XXX04XX	BSMW802XXX04XX	BSMW803XXX04XX	BSMW804XXX04XX	BSMW807XXX04XX	BSMW808XXX04XX	BSMW810XXX04XX
	LAB NUMBER:	295192	293705	292459	292461	293708	291931	291933	293707
	DATE SAMPLED:	10/12/89	10/09/89	10/04/89	10/04/89	10/09/89	10/03/89	10/03/89	10/09/89
ANALYTE	CRQL								
Aluminum	200	67.1 []	30400	48.7 []	135 []	37.5 []	188000	2720	242
Antimony	60	27 U	38.2 []	27 U	27 U	27 U	50.2 U	50.2 U	27 U
Arsenic	10	2 U	4.8 []W	5.9 []	2.1 []	2 U	8.9 []W	2.2 U	2 U
Barium	200	18.1 []	109 []	1 U	1 U	11.5 []	615	10.6 []	24.4 []
Beryllium	5	1 U	1 U	1 U	1 U	1 U	12.2	0.7 U	1 U
Cadmium	5	5 U	5 U	5 U	12.6	5 U	4.4 U	4.4 U	5 U
Calcium	5000	2960 []	15500	11200	7250	60800	37900	7740	36400
Chromium	10	6 U	49.7	6 U	6 U	23.1	300	6.2 U	6 U
Cobalt	50	7.1 []	39.8 []E	6.4 []	6.6 []	11.8 []	147	3.9 U	13.5 []
Copper	25	27.8 *	31.5 E	7 U	7 U	7 U	243	7.2 U	7 U
Iron	100	30.5 []	40100	404	1500	201	226000	4830	25100
Lead	3	1 UW	117	2.2 []	1.2 []	2 []	218	9.4 S	4
Magnesium	5000	414 []	18600	7340	4790 []	21400	66300	5730	4670 []
Manganese	15	26.4	1140	152	164	1370	3240	114	1320
Mercury	0.2	0.2 U	0.62	0.2 UW	0.2 UW	0.2 UW	0.2 U	0.2 U	1.5 N
Nickel	40	38 U	62.5	38 U	38 U	38 U	237	35.8 U	38 U
Potassium	5000	1350 []	11900 E	4060 []	2150 []	6010	33300	2020 U	3800 []
Selenium	5	2 UWN	2 UEN	10 UEN	2 UWN	2 UW	8 UEN	8 UWN	10 UN
Silver	10	3 U	3 U	3 U	3 U	3 U	5.7 U	5.7 U	3 U
Sodium	5000	7890	28000 E	31400	13500	20600	61700	9580	39200
Thallium	10	2 U	2 U	2 U	2 U	2 U	1.3 UW	1.3 U	2 UW
Vanadium	50	4.2 []	74.8	7.2 []	8 []	9.8 []	411 E	4.3 []E	6.8 []
Zinc	20	43.1	148	23.6	14.4 []	13.8 []	614	24	13.1 []
Cyanide	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Associated Method Blank:		BR17603T	BR17603RW	BR17603UW	BR17603UW	BR17603UW	17603Z	17603Z	BR17603UW
Associated Equipment Blank:		BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	-	BSQSXX1XXX04XX	-	-	BSQSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		BSMW811XXX04XX	BSMW901XXX04XX	BSMW902XXX04XX	BSMW903XXX04XX	BSMW904XXX04XX	BSMW905XXX04XX	BSMW906XXX04XX	BSMW907XXX04XX
LAB NUMBER:		295184	292984	291925	291926	293709	291927	293714	291514
DATE SAMPLED:		10/12/89	10/03/89	10/03/89	10/03/89	10/09/89	10/03/89	10/09/89	10/02/89
ANALYTE	CRQL								
Aluminum	200	206	106 []	79.5 []	34.9 []	67.2 []	474000	445	36.1 []
Antimony	60	27 U	50.2 U	50.2 U	50.2 U	27 U	73.8	27 U	50.2 U
Arsenic	10	2 U	2.2 U	2.2 UW	2.2 U	2 U	34.2 []W	2 U	2.2 U
Barium	200	41.1 []	2.6 []	28.1 []	4.6 []	8 []	1770	9 []	9.1 []
Beryllium	5	1 U	0.7 U	0.7 U	0.7 U	1 U	20.8	1 U	0.7 U
Cadmium	5	5 U	4.4 U	4.4 U	4.4 U	5 U	4.4 U	5 U	4.4 U
Calcium	5000	69100	4990 []	32800	6650	18400	106000	12000	26600
Chromium	10	6 U	6.2 U	6.2 U	6.2 U	6 U	1040	6 U	6.2 U
Cobalt	50	12.6 []	3.9 U	6.8 []	5.6 []	9.5 []	469	6.1 []	3.9 U
Copper	25	7 U*	7.4 []	7.2 U	7.2 U	7 U	619	7 U	7.2 U
Iron	100	22000	214	49.3 []	3700	217	708000	634 *	61.2 []
Lead	3	3.3	3.1 W	1.1 UW	1.5 []	2.2 []	376	1 UW	1.6 []
Magnesium	5000	16900	1780 []	8550	3140 []	5730	249000	4160 []E	5570
Manganese	15	4240	433	1130	223	155	14200	336	2500
Mercury	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UN	0.2 U	0.2 U	0.2 U
Nickel	40	38 U	35.8 U	35.8 U	35.8 U	38 U	860	38 U	35.8 U
Potassium	5000	5510	2020 U	2690 []	3900 []	3290 []	153000	2620 []	2020 U
Selenium	5	20 UWN	8 UWN	8 UWN	8 UWN	10 UWN	16 UEN	2 UN	3.2 UWN
Silver	10	3 U	5.7 U	5.7 U	5.7 U	3 U	5.7 U	3 U	5.7 U
Sodium	5000	50800	36000	24900	17800	13200	82500	38700	16100
Thallium	10	2 U	1.3 UW	1.3 U	1.3 U	2 U	1.3 U	2 UW	1.3 UW
Vanadium	50	9.4 []	2.1 UE	4.2 []E	5.4 []E	8 []	1270 E	3.5 []	2.1 UE
Zinc	20	19 []	21.3	11.5 []	5.3 []	15.2 []	2090	34.9	10.7 []
Cyanide	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Associated Method Blank:		BR17603T	17603Z	17603Z	17603Z	BR17603UW	17603Z	BR17603W	17603Z
Associated Equipment Blank:		BSQSXX2XXX04XX	-	-	-	BSQSXX1XXX04XX	-	BSQSXX1XXX04XX	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: BSMW908XXX04XD LAB NUMBER: 295193 DATE SAMPLED: 10/12/89	BSMW908XXX04XX 295194 10/12/89	BSMW1101XX04XX 291915 10/03/89	BSMW1102XX04XX 291917 10/03/89	BSMW1103XX04XX 291918 10/03/89	BSMW1104XX04XX 293711 10/09/89	BSMW1301XX04XX 294130 10/10/89	BSMW1302XX04XX 293713 10/09/89
Aluminum	200	26.3 []	63.7 []	27.7 []	31.3 []	60.2 []	41.9 []	328	1360
Antimony	60	27 U	27 U	50.2 U	50.2 U	50.2 U	27 U	27 U	27 U
Arsenic	10	2 U	2 UW	2.2 U	3.1 []	2.2 U	2 U	2.6 []	2 U
Barium	200	9.8 []	11.2 []	4.6 []	28 []	9.1 []	3.5 []	55 []	77.2 []
Beryllium	5	1 U	1 U	0.7 U	0.7 U	0.7 U	1 U	1 U	3.1 []
Cadmium	5	5 U	5 U	4.4 U	4.4 U	4.4 U	5 U	5 U	20.2
Calcium	5000	18200	17100	4460 []	7310	4630 []	8110	16600	19900
Chromium	10	6 U	6 U	6.2 U	6.2 U	6.2 U	6 U	6 U	6 U
Cobalt	50	3.2 []	3 U	3.9 U	6.5 []	6.9 []	6.6 []	12.4 []	52.8
Copper	25	7 U*	7 U*	7.2 U	7.2 U	7.2 U	7 U	7 U	7 U
Iron	100	37.3 []	88.8 []	21.2 []	14400	4960	171	18000 *	43.5 []
Lead	3	1 U	2.8 []	1.7 []	2 []	1.8 []	1 U	2.1 []	1 U
Magnesium	5000	2260 []	2000 []	730 []	1220 []	749 []	1930 []	3590 []E	2360 []
Manganese	15	823	804	75.9	683	733	628	720	355
Mercury	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UN	0.2 U	0.2 UN
Nickel	40	38 U	38 U	37.4 []	35.8 U	35.8 U	38 U	38 U	38 U
Potassium	5000	2190 []	591 U	2020 U	3600 []	2110 []	3580 []	6750	9260
Selenium	5	2 UWN	2 UWN	1.6 UWN	3.2 UWN	8 UWN	2 UWN	20 UN	2 UWN
Silver	10	3 U	3 U	5.7 U	5.7 U	5.7 U	3 U	3 U	3 U
Sodium	5000	10800	9410	4840 []	6500	3260 []	8060	17300	12400
Thallium	10	2 U	2 U	1.3 U	1.3 U	1.3 U	2 U	2 U	2 U
Vanadium	50	5.1 []	2 U	2.1 UE	3.4 []E	2.1 UE	7.6 []	6.3 []	10.9 []
Zinc	20	15.6 []	23.4	7.6 []	23.7	20.4	6.9 []	31.8	143
Cyanide	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Associated Method Blank:		BR17603T	BR17603T	17603Z	17603Z	17603Z	BR17603UW	BR17603W	BR17603UW
Associated Equipment Blank:		BSQSXX2XXX04XX	BSQSXX2XXX04XX	-	-	-	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	BSMW1303XX04XD	BSMW1303XX04XX	BSMWG0LF1X04XX	BSMWG0LF2X04XX	BSMWGZA1XX04XX	BSMWGZA3XX04XX
	LAB NUMBER:	293710	293706	295183	295195	294126	294128
	DATE SAMPLED:	10/09/89	10/09/89	10/12/89	10/12/89	10/10/89	10/10/89
ANALYTE	CRQL						
Aluminum	200	45.3 []	33.2 []	35.5 []	17 U	154 []	56.3 []
Antimony	60	27 U	27 U	27 U	27 U	27 U	27 U
Arsenic	10	2 UW	2 U	2 U	2 U	2 U	2 U
Barium	200	60.6 []	57.8 []	9 []	5.7 []	22.6 []	11.3 []
Beryllium	5	1 U	1 U	1 U	1 U	1 U	1 U
Cadmium	5	5 U	5 U	5 U	5 U	5 U	5 U
Calcium	5000	11600	11400	4350 []	1480 []	2780 []	11700
Chromium	10	6 U	6 U	6 U	6 U	6 U	6 U
Cobalt	50	26.3 []	22.9 []	5 []	3 U	3 U	3 U
Copper	25	7 U	7 U	7 U	15.8 []*	7 U	7 U
Iron	100	276	282	83 []*	147	66.5 []*	62.3 []*
Lead	3	11.1	27.5	1.1 []W	1 U	1 UW	1 UW
Magnesium	5000	3520 []	3440 []	1360 []E	1880 []	782 []E	2330 []E
Manganese	15	2190	2170	1 U	1 U	37.9	1 U
Mercury	0.2	0.2 UW	0.2 UW	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	40	38 U	38 U	38 U	38 U	38 U	38 U
Potassium	5000	5470	4280 []	5220	6840	591 U	591 U
Selenium	5	10 UWN	2 UWN	2 UWN	2 UWN	2 UWN	20 UN
Silver	10	3 U	3 U	3 U	3 U	3 U	3 U
Sodium	5000	19500	18100	83400	50600	3970 []	4620 []
Thallium	10	2 U	2 U	2 UW	2 U	2 U	2 U
Vanadium	50	9.4 []	6.4 []	4.8 []	2.4 []	2 U	2 U
Zinc	20	15.3 []	10 []	21.4	12.5 []	6.8 []	18.7 []
Cyanide	10	10 U	10 U	10 U	10 U	10 U	10 U
Associated Method Blank:		BR17603UW	BR17603UW	BR17603W	BR17603T	BR17603W	BR17603W
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW106XXX04XX	BSMW202AXX04XX	BSMW203XXX04XX	BSMW205XXX04XD	BSMW205XXX04XD	BSMW205XXX04XX	BSMW214XXX04XX	BSMW215XXX04XX
LAB NUMBER:	292427	293346	294124	294123	294123 RE	294118	292408	292409
DATE SAMPLED:	10/04/89	10/06/89	10/10/89	10/10/89	10/10/89	10/10/89	10/04/89	10/04/89
DATE ANALYZED:	10/09/89	10/13/89	10/19/89	10/18/89	10/19/89	10/18/89	10/09/89	10/09/89

ANALYTE	CRQL								
Chloromethane	10	10 U	26 U	10 U	10 U	15 U	17 U	10 U	10 U
Bromomethane	10	10 U	26 U	10 U	10 U	15 U	17 U	10 U	10 U
Vinyl Chloride	10	10 U	100	10 U	10 U	15 U	17 U	10 U	18
Chloroethane	10	10 U	26 U	10 U	10 U	15 U	17 U	10 U	6 J
Methylene Chloride	5	3 BJ	13 U	1 J	19 B	15 D	20	3 BJ	6 B
Acetone	10	10 U	26 U	10 U	10 U	15 U	17 U	20	8 J
Carbon Disulfide	5	5 U	13 U	5 U	5 U	8 U	8 U	5 U	5 U
1,1-Dichloroethene	5	5 U	13 U	5 U	9	8 U	6 J	5 U	5 U
1,1-Dichloroethane	5	5 U	13 U	7	5 U	8 U	8 U	5 U	6
1,2-Dichloroethene (total)	5	31	17	3 J	6	5 DJ	5 J	5 U	20
Chloroform	5	5 U	13 U	5 U	2 J	8 U	8 U	5 U	5 U
1,2-Dichloroethane	5	5 U	13 U	5 U	5 U	8 U	8 U	5 U	5 U
2-Butanone	10	7 J	61	200	230 E	170 D	250	6 J	2 J
1,1,1-Trichloroethane	5	21	13 U	5 U	160	110 D	110	5 U	5 U
Carbon Tetrachloride	5	5 U	13 U	5 U	5 U	8 U	8 U	5 U	5 U
Vinyl Acetate	10	10 U	26 U	10 U	10 U	15 U	17 U	10 U	10 U
Bromodichloromethane	5	5 U	13 U	5 U	5 U	8 U	8 U	5 U	5 U
1,2-Dichloropropane	5	5 U	13 U	5 U	5 U	8 U	8 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	13 U	5 U	5 U	8 U	8 U	5 U	5 U
Trichloroethene	5	55	13 U	5 U	120	77 D	94	5 U	5 U
Dibromochloromethane	5	5 U	13 U	5 U	5 U	8 U	8 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	13 U	5 U	5 U	8 U	8 U	5 U	5 U
Benzene	5	5 U	13 U	5 U	5 U	8 U	8 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	13 U	5 U	5 U	8 U	8 U	5 U	5 U
Bromoform	5	5 U	13 U	5 U	5 U	8 U	8 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	26 U	10 U	10 U	15 U	17 U	10 U	10 U
2-Hexanone	10	10 U	26 U	10 U	10 U	15 U	17 U	10 U	10 U
Tetrachloroethene	5	13	13 U	5 U	5 U	8 U	8 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	13 U	5 U	5 U	8 U	8 U	5 U	5 U
Toluene	5	5 U	150	5 U	5 U	8 U	8 U	5 U	12
Chlorobenzene	5	5 U	16	5 U	5 U	8 U	8 U	5 U	5 U
Ethylbenzene	5	5 U	79	5 U	5 U	8 U	8 U	5 U	1 J
Styrene	5	5 U	13 U	5 U	5 U	8 U	8 U	5 U	5 U
Xylene (Total)	5	5 U	430	5 U	5 U	8 U	8 U	5 U	37
Dilution Factor:		1	1	1	1	1	1	1	1

Associated Method Blank:	CB891009C14	CB891013C18	CC891019C18	CC891018B18	CC891019C18	CC891018C18	CB891009C14	CB891009C14
Associated Equipment Blank:	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX
Associated Trip Blank:	BSQTXX3XXX04XX	BSQTXX5XXX04XX	BSQTXX7XXX04XX	BSQTXX7XXX04XX	BSQTXX7XXX04XX	BSQTXX7XXX04XX	BSQTXX3XXX04XX	BSQTXX3XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: BSMW216AXX04XX LAB NUMBER: 292414 DATE SAMPLED: 10/04/89 DATE ANALYZED: 10/09/89	BSMW216BXX04XX 294520 10/11/89 10/22/89	BSMW217AXX04XX 294515 10/11/89 10/21/89	BSMW217BXX04XD 294517 10/11/89 10/21/89	BSMW217BXX04XX 294516 10/11/89 10/21/89	BSMW217BXX04XX 294516 RE 10/11/89 10/21/89	BSMW218XXX04XX 294519 10/11/89 10/21/89	BSMW219XXX04XX 294121 10/10/89 10/19/89
Chloromethane	10	10 U	10 U	10 U	17 U	10 U	14 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	17 U	10 U	14 U	10 U	10 U
Vinyl Chloride	10	1 J	27	10 U	13 J	12	14 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	17 U	10 U	14 U	10 U	10 U
Methylene Chloride	5	6 B	5 U	5 U	4 BJ	2 BJ	3 BDJ	5 U	5 U
Acetone	10	10 U	10 U	10 U	17 U	10 U	14 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	8 U	5 U	7 U	6	5 U
1,2-Dichloroethene (total)	5	4 J	40	5 U	8 J	7	7 DJ	5 U	5 U
Chloroform	5	5 U	5 U	5 U	8 U	5 U	7 U	5	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
2-Butanone	10	26	10 U	10 U	2 J	11	2 DJ	10 U	92
1,1,1-Trichloroethane	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	17 U	10 U	14 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
Benzene	5	5 U	1 J	5 U	4 J	3 J	3 DJ	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	17 U	10 U	14 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	17 U	10 U	14 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	8 U	1 J	7 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
Toluene	5	5 U	3 J	5 U	16	15	15 D	5 U	5 U
Chlorobenzene	5	5 U	1 J	5 U	2 J	2 J	2 DJ	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	83	83	79 D	5 U	5 U
Styrene	5	5 U	5 U	5 U	8 U	5 U	7 U	5 U	5 U
Xylene (Total)	5	5 U	5 U	5 U	300	270 E	260 D	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB891009C14	CB891022C18	CC891020B12	CB891021B12	CC891020B12	CC891020B12	CB891021B12	CC891019C18
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX
Associated Trip Blank:		BSQTXX3XXX04XX	BSQTXX8XXX04XX	BSQTXX8XXX04XX	BSQTXX8XXX04XX	BSQTXX8XXX04XX	BSQTXX8XXX04XX	BSQTXX8XXX04XX	BSQTXX7XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: BSMW220XXX04XX	BSMW222XXX04XX	BSMW223XXX04XX	BSMW224XXX04XX	BSMW225AXX04XX	BSMW225AXX04XX	BSMW225BXX04XX	BSMW229AXX04XX
		LAB NUMBER: 292968	292969	292971	292416	292957	292957 RE	292976	293341
		DATE SAMPLED: 10/05/89	10/05/89	10/05/89	10/04/89	10/05/89	10/05/89	10/05/89	10/06/89
		DATE ANALYZED: 10/09/89	10/13/89	10/13/89	10/09/89	10/12/89	10/12/89	10/12/89	10/13/89
Chloromethane	10	10 U	10 U	10 U	14 U	10 U	50 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	14 U	10 U	50 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	14 U	10 U	50 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	14 U	10 U	50 U	10 U	10 U
Methylene Chloride	5	3 BJ	5 U	5 U	4 BJ	11 B	19 BJD	2 BJ	6
Acetone	10	10 U	10 U	10 U	14 U	10 U	42 DJ	5 J	10 U
Carbon Disulfide	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	7 U	21	20 DJ	1 J	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	7 U	1 J	25 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	7 U	20	21 DJ	27	5 U
Chloroform	5	1 J	5 U	5 U	7 U	2 J	25 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	7 U	2 J	25 U	5 U	5 U
2-Butanone	10	5 J	22	34	49	60	70 D	47	31
1,1,1-Trichloroethane	5	5 U	7	26	49	550 E	530 D	38	43
Carbon Tetrachloride	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	14 U	10 U	50 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
Trichloroethene	5	5 U	17	33	190	250 E	240 D	55	43
Dibromochloromethane	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	7 U	2 J	25 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	14 U	10 U	50 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	14 U	10 U	50 U	10 U	10 U
Tetrachloroethene	5	5 U	6	2 J	7	24	27 D	16	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
Xylene (Total)	5	5 U	5 U	5 U	7 U	5 U	25 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB891009C14	CB891013C18	CB891013C18	CB891009C14	CB891012C18	CB891012C18	CB891012C18	CB891013C18
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX
Associated Trip Blank:		BSQTXX4XXX04XX	BSQTXX4XXX04XX	BSQTXX4XXX04XX	BSQTXX3XXX04XX	BSQTXX4XXX04XX	BSQTXX4XXX04XX	BSQTXX4XXX04XX	BSQTXX5XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	BSMW229BXX04XD	BSMW229BXX04XX	BSMW230AXX04XX	BSMW230BXX04XX	BSMW231AXXX04XX	BSMW231BXX04XD	BSMW231BXX04XX	BSMW232AXX04XX
SAMPLE LOCATION:									
LAB NUMBER:		292973	292972	293344	293345	294535	294533	294532	294120
DATE SAMPLED:		10/05/89	10/05/89	10/06/89	10/06/89	10/11/89	10/11/89	10/11/89	10/10/89
DATE ANALYZED:		10/12/89	10/13/89	10/16/89	10/13/89	10/22/89	10/22/89	10/22/89	10/17/89
Chloromethane	10	10 U	10 U	42 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	42 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	42 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	42 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	2 BJ	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Acetone	10	10 U	10 U	42 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	7
Chloroform	5	5 U	5 U	21 U	12	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	680	10 U	170	10 U	10 U	25
1,1,1-Trichloroethane	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	42 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	42 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	42 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Xylene (Total)	5	5 U	5 U	21 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB891012C18	CB891013C18	CC891016A23	CB891013C18	CB891022C18	CB891022C18	CB891022C18	CC891017B18
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX
Associated Trip Blank:		BSQTXX4XXX04XX	BSQTXX4XXX04XX	BSQTXX5XXX04XX	BSQTXX5XXX04XX	BSQTXX8XXX04XX	BSQTXX8XXX04XX	BSQTXX8XXX04XX	BSQTXX7XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW232BXX04XX	BSMW233XXX04XX	BSMW234XXX04XX	BSMW234XXX04XX	BSMW401XXX04XX	BSMW402XXX04XX	BSMW403XXX04XD	BSMW403XXX04XX
LAB NUMBER:	294518	294528	294521	294521 RE	291870	291875	291886	291912
DATE SAMPLED:	10/11/89	10/11/89	10/11/89	10/11/89	10/03/89	10/03/89	10/03/89	10/03/89
DATE ANALYZED:	10/21/89	10/22/89	10/22/89	10/22/89	10/12/89	10/11/89	10/11/89	10/09/89

ANALYTE	CRQL								
Chloromethane	10	17 U	10 U	6 J	7 J	10 U	10 U	10 U	10 U
Bromomethane	10	17 U	10 U	10 U	26 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	17 U	10 U	2 J	26 U	10 U	10 U	10 U	10 U
Chloroethane	10	17 U	10 U	2 J	26 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	2 BJ	1 BJ	400 E	460	1 J	2 BJ	2 BJ	6 B
Acetone	10	17 U	10 U	39	60	10 U	10 U	5 U	10 U
Carbon Disulfide	5	8 U	1 J	5 U	13 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	8 U	5 U	3 J	13 U	5 U	5 U	5 U	5 U
Chloroform	5	8 U	17	5 U	13 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
2-Butanone	10	17 U	73	44	42	10 U	61	14	21
1,1,1-Trichloroethane	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	17 U	10 U	10 U	26 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
Trichloroethene	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
Benzene	5	4 J	5 U	6	6 J	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
Bromoform	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	17 U	10 U	10 U	26 U	10 U	10 U	10 U	10 U
2-Hexanone	10	17 U	10 U	10 U	26 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	2 J	5 U	5 U	13 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
Toluene	5	7 J	5 U	88	87	5 U	5 U	5 U	5 U
Chlorobenzene	5	8 U	5 U	2 J	13 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	89	5 U	84	82	5 U	5 U	5 U	5 U
Styrene	5	8 U	5 U	5 U	13 U	5 U	5 U	5 U	5 U
Xylene (Total)	5	350	1 J	360 E	370	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB891021B12	CB891022C18	CB891022C18	CB891022C18	CB891012C12	CB891011A12	CB891011A12	CB891009C12
Associated Equipment Blank:		BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX
Associated Trip Blank:		BSQTXX8XXX04XX	BSQTXX8XXX04XX	BSQTXX8XXX04XX	BSQTXX8XXX04XX	BSQTXX2XXX04XX	BSQTXX2XXX04XX	BSQTXX2XXX04XX	BSQTXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW404XXX04XX	BSMW405XXX04XX	BSMW406XXX04XX	BSMW407XXX04XX	BSMW408XXX04XX	BSMW901XXX04XX	BSMW902XXX04XX	BSMW903XXX04XX
LAB NUMBER:	291877	291890	291891	293701	295132	291910	291905	291907
DATE SAMPLED:	10/03/89	10/03/89	10/03/89	10/09/89	10/12/89	10/03/89	10/03/89	10/03/89
DATE ANALYZED:	10/11/89	10/11/89	10/11/89	10/18/89	10/23/89	10/09/89	10/09/89	10/09/89
ANALYTE / CRQL								
Chloromethane 10	17 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane 10	17 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride 10	17 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane 10	17 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride 5	4 BJ	2 BJ	2 BJ	5 U	5 U	10 B	5 B	4 BJ
Acetone 10	17 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
1,1-Dichloroethene 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
1,1-Dichloroethane 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
1,2-Dichloroethene (total) 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Chloroform 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
1,2-Dichloroethane 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
2-Butanone 10	270	4 J	38	2 J	10 U	5 J	10 J	110
1,1,1-Trichloroethane 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Carbon Tetrachloride 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Vinyl Acetate 10	17 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
1,2-Dichloropropane 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Cis-1,3-Dichloropropene 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Trichloroethene 5	8 U	23	5 U	5 U	5 U	1 J	5 U	5 U
Dibromochloromethane 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
1,1,2-Trichloroethane 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Benzene 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Trans-1,3-Dichloropropene 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Bromoform 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
4-Methyl-2-Pentanone 10	17 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone 10	17 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
1,1,2,2-Tetrachloroethane 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Toluene 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Chlorobenzene 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Ethylbenzene 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Styrene 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Xylene (Total) 5	8 U	5 U	5 U	5 U	5 U	10 U	5 U	5 U
Dilution Factor:	1	1	1	1	1	1	1	1
Associated Method Blank:	CB891011A12	CB891011A12	CB891011A12	CC891018C18	CB891022B18	CB891009C12	CB891009C12	CB891009C12
Associated Equipment Blank:	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX
Associated Trip Blank:	BSQTXX2XXX04XX	BSQTXX2XXX04XX	BSQTXX2XXX04XX	BSQTXX6XXX04XX	BSQTXX9XXX04XX	BSQTXX2XXX04XX	BSQTXX2XXX04XX	BSQTXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: BSMW904XXX04XX LAB NUMBER: 293689 DATE SAMPLED: 10/09/89 DATE ANALYZED: 10/18/89	BSMW905XXX04XX 291908 10/03/89 10/09/89	BSMW906XXX04XX 293703 10/09/89 10/18/89	BSMW907XXX04XX 291496 10/02/89 10/07/89	BSMW908XXX04XD 295134 10/12/89 10/23/89	BSMW908XXX04XX 295135 10/12/89 10/23/89	BSMW1101XX04XX 291860 10/03/89 10/09/89	BSMW1102XX04XX 291862 10/03/89 10/09/89
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	25 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	25 U
Vinyl Chloride	10	10 U	10 U	2 J	18	10 U	10 U	10 U	25 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	25 U
Methylene Chloride	5	4 J	4 BJ	5 U	2 BJ	5 U	5 U	5 BJ	7 BJ
Acetone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	25 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	13 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3 J
1,1-Dichloroethane	5	5	5 U	5 U	4 J	5 U	5 U	2 J	65
1,2-Dichloroethene (total)	5	4 J	5 U	36	3 J	5 U	5 U	5 U	60
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	13 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	13 U
2-Butanone	10	10 U	1 J	10 U	10 U	10 U	10 U	10 U	25 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	45	450
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	13 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	25 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	13 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	13 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	13 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	83	20
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	13 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	13 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	3 J
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	13 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	13 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	25 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	25 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	9	13 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	13 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	87
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	13 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	19
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	13 U
Xylene (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	120
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CCB891018C18	CB891009C12	CCB891018C18	CB891007A12	CB891022B18	CB891022B18	CB891009C12	CB891009C12
Associated Equipment Blank:		BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX
Associated Trip Blank:		BSQTXX6XXX04XX	BSQTXX2XXX04XX	BSQTXX6XXX04XX	BSQTXX1XXX04XX	BSQTXX9XXX04XX	BSQTXX9XXX04XX	BSQTXX2XXX04XX	BSQTXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: BSMW1103XX04XX LAB NUMBER: 291864 DATE SAMPLED: 10/03/89 DATE ANALYZED: 10/12/89	SAMPLE LOCATION: BSMW1104XX04XX LAB NUMBER: 293697 DATE SAMPLED: 10/09/89 DATE ANALYZED: 10/18/89	SAMPLE LOCATION: BSMW1301XX04XX LAB NUMBER: 294122 DATE SAMPLED: 10/10/89 DATE ANALYZED: 10/19/89	SAMPLE LOCATION: BSMW1302XX04XX LAB NUMBER: 293702 DATE SAMPLED: 10/09/89 DATE ANALYZED: 10/18/89	SAMPLE LOCATION: BSMW1303XX04XD LAB NUMBER: 293693 DATE SAMPLED: 10/09/89 DATE ANALYZED: 10/18/89	SAMPLE LOCATION: BSMW1303XX04XD LAB NUMBER: 293693 RE DATE SAMPLED: 10/09/89 DATE ANALYZED: 10/18/89	SAMPLE LOCATION: BSMW1303XX04XX LAB NUMBER: 293687 DATE SAMPLED: 10/09/89 DATE ANALYZED: 10/17/89	SAMPLE LOCATION: BSMW1303XX04XX LAB NUMBER: 293687 RE DATE SAMPLED: 10/09/89 DATE ANALYZED: 10/18/89
Chloromethane	10	22 U	17 U	10 U	10 U	10 U	63 U	10 U	63 U
Bromomethane	10	22 U	17 U	10 U	10 U	10 U	63 U	10 U	63 U
Vinyl Chloride	10	22 U	17 U	10 U	10 U	10 U	63 U	10 U	63 U
Chloroethane	10	22 U	17 U	10 U	10 U	10 U	63 U	10 U	63 U
Methylene Chloride	5	4 J	3 U	6	5 U	2 J	16 DJ	5 U	31 U
Acetone	10	8 J	17 U	10 U	10 U	10 U	63 U	7 BJ	63 U
Carbon Disulfide	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
1,1-Dichloroethene	5	11 U	3 J	5 U	5 U	2 J	31 U	5 U	31 U
1,1-Dichloroethane	5	11	20	5 U	5 U	5 U	31 U	5 U	31 U
1,2-Dichloroethene (total)	5	17	32	5 U	5 U	710 E	770 D	740 E	770 D
Chloroform	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
1,2-Dichloroethane	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
2-Butanone	10	25	2 J	10 U	1 J	140	150 D	99	190 D
1,1,1-Trichloroethane	5	130	210	5 U	12	5 U	31 U	5 U	31 U
Carbon Tetrachloride	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
Vinyl Acetate	10	22 U	17 U	10 U	10 U	10 U	63 U	10 U	63 U
Bromodichloromethane	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
1,2-Dichloropropane	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
Cis-1,3-Dichloropropene	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
Trichloroethene	5	310	70	5 U	9	15	15 DJ	15	15 DJ
Dibromochloromethane	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
1,1,2-Trichloroethane	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
Benzene	5	11 U	8 U	5 U	5 U	15	18 DJ	16	17 DJ
Trans-1,3-Dichloropropene	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
Bromoform	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
4-Methyl-2-Pentanone	10	22 U	17 U	10 U	10 U	10 U	63 U	10 U	63 U
2-Hexanone	10	22 U	17 U	10 U	10 U	10 U	63 U	10 U	63 U
Tetrachloroethene	5	10 J	8 U	5 U	5 U	2 J	31 U	3 J	31 U
1,1,2,2-Tetrachloroethane	5	11 U	8 U	5 U	5 U	5 U	31 U	2 J	31 U
Toluene	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
Chlorobenzene	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
Ethylbenzene	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
Styrene	5	11 U	8 U	5 U	5 U	5 U	31 U	5 U	31 U
Xylene (Total)	5	11 U	8 U	2 J	5 U	1 J	31 U	2 J	31 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB891012C12	CC891018C18	CC891019C18	CC891018C18	CC891018C18	CC891018C18	CC891017B18	CC891018C18
Associated Equipment Blank:		BSQ6XX1XXX04XX	BSQ6XX2XXX04XX	BSQ6XX2XXX04XX	BSQ6XX2XXX04XX	BSQ6XX2XXX04XX	BSQ6XX2XXX04XX	BSQ6XX1XXX04XX	BSQ6XX1XXX04XX
Associated Trip Blank:		BSQTXX2XXX04XX	BSQTXX6XXX04XX	BSQTXX7XXX04XX	BSQTXX6XXX04XX	BSQTXX6XXX04XX	BSQTXX6XXX04XX	BSQTXX6XXX04XX	BSQTXX6XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	BSMWGZA1XX04XX	BSMWGZA3XX04XX	GZA3-BAILER
	LAB NUMBER:	294119	295133	92979
	DATE SAMPLED:	10/10/89	10/12/89	12/14/89
	DATE ANALYZED:	10/19/89	10/23/89	12/18/89
ANALYTE	CRQL			
Chloromethane	10	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	5 U
Acetone	10	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5
1,2-Dichloroethene (total)	5	5 U	5 U	8
Chloroform	5	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	34
1,1,1-Trichloroethane	5	5 U	5 U	8
Carbon Tetrachloride	5	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U
Trichloroethene	5	5 U	2 J	20
Dibromochloromethane	5	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U
Xylene (Total)	5	5 U	5 U	5 U
Dilution Factor:		1	1	1
Associated Method Blank:		CC891019C1B	CB891022B1B	Y9352
Associated Equipment Blank:		BSQSXX2XXX04XX	BSQSXX2XXX04XX	-
Associated Trip Blank:		BSQTXX7XXX04XX	BSQTXX9XXX04XX	TRIP BLANK

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	BSMW810XXX04XX	BSMW811XXX04XX	BSMWG0LF1X04XX	BSMWG0LF2X04XX
	LAB NUMBER:	293688	295131	295129	295136
	DATE SAMPLED:	10/09/89	10/12/89	10/12/89	10/12/89
	DATE ANALYZED:	10/18/89	10/18/89	10/18/89	10/18/89
ANALYTE	RL				
Chloromethane	2	2 U	2 U	2 U	2 U
Bromomethane	2	2 U	2 U	2 U	2 U
Vinyl Chloride	2	2 U	2 U	2 U	2 U
Chloroethane	2	2 U	2 U	2 U	2 U
Methylene Chloride	1	1 B	1 B	1 B	0.9 BJ
Acetone	5	5 U	5 U	5 U	5 U
Carbon Disulfide	3	3 U	3 U	3 U	3 U
1,1-Dichloroethene	2	2 U	2 U	2 U	2 U
1,1-Dichloroethane	2	2 U	2 U	2 U	2 U
1,2-Dichloroethene (total)	2	2 U	2 U	2 U	2 U
Chloroform	2	2 U	2 U	2 U	2 U
1,2-Dichloroethane	2	2 U	2 U	2 U	2 U
2-Butanone	5	29	5 U	5 U	5 U
1,1,1-Trichloroethane	2	2 U	2 U	2 U	2 U
Carbon Tetrachloride	2	2 U	2 U	2 U	2 U
Vinyl Acetate	5	5 U	5 U	5 U	5 U
Bromodichloromethane	2	2 U	2 U	2 U	2 U
1,2-Dichloropropane	2	2 U	2 U	2 U	2 U
Cis-1,3-Dichloropropene	2	2 U	2 U	2 U	2 U
Trichloroethene	2	2 U	2 U	2 U	2 U
Dibromochloromethane	2	2 U	2 U	2 U	2 U
1,1,2-Trichloroethane	2	2 U	2 U	2 U	2 U
Benzene	2	2 U	2 U	2 U	2 U
Trans-1,3-Dichloropropene	1	1 U	1 U	1 U	1 U
Bromoform	2	2 U	2 U	2 U	2 U
4-Methyl-2-Pentanone	2	2 U	2 U	2 U	2 U
2-Hexanone	5	5 U	5 U	5 U	5 U
Tetrachloroethene	2	2 U	2 U	2 U	2 U
1,1,2,2-Tetrachloroethane	2	2 U	2 U	2 U	2 U
Toluene	2	2 U	2 U	2 U	2 U
Chlorobenzene	2	2 U	2 U	2 U	2 U
Ethylbenzene	2	2 U	2 U	2 U	2 U
Styrene	1	1 U	1 U	1 U	1 U
Xylene (Total)	2	2 U	2 U	2 U	2 U
Dilution Factor:		1	1	1	1
Associated Method Blank:		CB891018C11	CB891018C11	CB891018C11	CB891018C11
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX
Associated Trip Blank:		BSQTXX6XXX04XX	BSQTXX9XXX04XX	BSQTXX9XXX04XX	BSQTXX9XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW214XXX04XX	BSMW215XXX04XX	BSMW215XXX04XX	BSMW216AXX04XX	BSMW216BXX04XX	BSMW216BXX04XX	BSMW217AXX04XX	BSMW217BXX04XD
LAB NUMBER:	2924408	292409	292409 RE	292414	294520	294520 RE	294515	294517
DATE SAMPLED:	10/04/89	10/04/89	10/04/89	10/04/89	10/11/89	10/11/89	10/11/89	10/11/89
DATE EXTRACTED:	10/07/89	10/07/89	10/10/89	10/07/89	10/14/89	10/17/89	10/13/89	10/13/89
DATE ANALYZED:	10/09/89	10/09/89	10/11/89	10/09/89	10/16/89	10/19/89	10/17/89	10/17/89

ANALYTE	CRQL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	5 J
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	13
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	3 J
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW214XXX04XX	BSMW215XXX04XX	BSMW215XXX04XX	BSMW216AXX04XX	BSMW216BXX04XX	BSMW216BXX04XX	BSMW217AXX04XX	BSMW217BXX04XD
LAB NUMBER:	2924408	292409	292409 RE	292414	294520	294520 RE	294515	294517
DATE SAMPLED:	10/04/89	10/04/89	10/04/89	10/04/89	10/11/89	10/11/89	10/11/89	10/11/89
DATE EXTRACTED:	10/07/89	10/07/89	10/10/89	10/07/89	10/14/89	10/17/89	10/13/89	10/13/89
DATE ANALYZED:	10/09/89	10/09/89	10/11/89	10/09/89	10/16/89	10/19/89	10/17/89	10/17/89

ANALYTE	CRQL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	10 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	7 J	20	7 J	10 U	10 U	10 U	2 J
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1	1	1	1	1

Associated Method Blank:	GJ093318B21	GJ093318B21	GJ093809A02	GJ093318B21	GH095437B08	G2J95925B04	GH095290C22	GH095290C22
Associated Equipment Blank:	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

BRMW-CS

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW217BXX04XD	BSMW217BXX04XX	BSMW217BXX04XX	BSMW218XXX04XX	BSMW219XXX04XX	BSMW220XXX04XX	BSMW222XXX04XX	BSMW223XXX04XX
LAB NUMBER:	294517 RE	294516	294516 RE	294519	294121	292968	292969	292971
DATE SAMPLED:	10/11/89	10/11/89	10/11/89	10/11/89	10/10/89	10/05/89	10/05/89	10/05/89
DATE EXTRACTED:	10/18/89	10/13/89	10/18/89	10/13/89	10/12/89	10/10/89	10/10/89	10/10/89
DATE ANALYZED:	10/20/89	10/17/89	10/20/89	10/17/89	10/16/89	10/11/89	10/11/89	10/11/89

ANALYTE	CRQL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10	6 J	9 J	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	14	13	12	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	5 J	3 J	5 J	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW217BXX04XD	BSMW217BXX04XX	BSMW217BXX04XX	BSMW218XXX04XX	BSMW219XXX04XX	BSMW220XXX04XX	BSMW222XXX04XX	BSMW223XXX04XX
LAB NUMBER:	294517 RE	294516	294516 RE	294519	294121	292968	292969	292971
DATE SAMPLED:	10/11/89	10/11/89	10/11/89	10/11/89	10/10/89	10/05/89	10/05/89	10/05/89
DATE EXTRACTED:	10/18/89	10/13/89	10/18/89	10/13/89	10/12/89	10/10/89	10/10/89	10/10/89
DATE ANALYZED:	10/20/89	10/17/89	10/20/89	10/17/89	10/16/89	10/11/89	10/11/89	10/11/89

ANALYTE	CRQL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	3 J	10 U	3 J	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	2 J	12	8 J	6 J	21
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1	1	1	1	1

Associated Method Blank:	GJ096217C21	GH095290C22	GJ096217C21	GH095290C22	GJ094250A22	GH093568A16	GH093568A16	GH093568A16
Associated Equipment Blank:	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW224XXX04XX	BSMW225AXX04XX	BSMW225BXX04XX	BSMW229AXX04XX	BSMW229BXX04XD	BSMW229BXX04XX	BSMW230AXX04XX	BSMW230BXX04XX
LAB NUMBER:	292416	292957	292976	293341	292973	292972	293344	293345
DATE SAMPLED:	10/04/89	10/05/89	10/05/89	10/06/89	10/05/89	10/05/89	10/06/89	10/06/89
DATE EXTRACTED:	10/07/89	10/10/89	10/10/89	10/11/89	10/10/89	10/10/89	10/11/89	10/11/89
DATE ANALYZED:	10/09/89	10/11/89	10/26/89	10/16/89	10/26/89	10/26/89	10/17/89	10/17/89

ANALYTE	CRQL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		BSMW224XXX04XX	BSMW225AXX04XX	BSMW225BXX04XX	BSMW229AXX04XX	BSMW229BXX04XD	BSMW229BXX04XX	BSMW230AXX04XX	BSMW230BXX04XX
LAB NUMBER:		292416	292957	292976	293341	292973	292972	293344	293345
DATE SAMPLED:		10/04/89	10/05/89	10/05/89	10/06/89	10/05/89	10/05/89	10/06/89	10/06/89
DATE EXTRACTED:		10/07/89	10/10/89	10/10/89	10/11/89	10/10/89	10/10/89	10/11/89	10/11/89
DATE ANALYZED:		10/09/89	10/11/89	10/26/89	10/16/89	10/26/89	10/26/89	10/17/89	10/17/89
ANALYTE	CRQL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	7 J	6 J	4 J	9 J	4 J	10 U	12	6 J
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		GJ093318B21	GH093568A16	GJ093568C15	GH094180A21	GJ093568C15	GJ093568C15	GH094180A21	GH094180A21
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW231AXXX04XX	BSMW231BXX04XD	BSMW231BXX04XX	BSMW232AXX04XX	BSMW232BXX04XX	BSMW233XXX04XX	BSMW234XXX04XX	BSMW234XXX04XX
LAB NUMBER:	294535	295533	294532	294120	294518	294528	294521	294521 DL
DATE SAMPLED:	10/11/89	10/11/89	10/11/89	10/10/89	10/11/89	10/11/89	10/11/89	10/11/89
DATE EXTRACTED:	10/14/89	10/14/89	10/14/89	10/12/89	10/20/89	10/14/89	10/14/89	10/20/89
DATE ANALYZED:	10/16/89	10/17/89	10/16/89	10/13/89	10/22/89	10/20/89	10/16/89	10/24/89

ANALYTE	CRQL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	230	200 D
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	20 U	20 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10	10 U	27	31 D
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	5 J	20 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	380 E	410 D
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	95	60 D
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	7 J	10 U	5 J	6 DJ	
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	86	46 DJ	
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Naphthalene	10	10 U	10 U	10 U	10 U	13	10 U	21	18 DJ
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	7 J	10 U	10 U	20 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	5 J	20 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	100 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	100 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: BSMW231AXXX04XX	BSMW231BXX04XD	BSMW231BXX04XX	BSMW232AXX04XX	BSMW232BXX04XX	BSMW233XXX04XX	BSMW234XXX04XX	BSMW234XXX04XX
		LAB NUMBER: 294535	295533	294532	294120	294518	294528	294521	294521 DL
		DATE SAMPLED: 10/11/89	10/11/89	10/11/89	10/10/89	10/11/89	10/11/89	10/11/89	10/11/89
		DATE EXTRACTED: 10/14/89	10/14/89	10/14/89	10/12/89	10/20/89	10/14/89	10/14/89	10/20/89
		DATE ANALYZED: 10/16/89	10/17/89	10/16/89	10/13/89	10/22/89	10/20/89	10/16/89	10/24/89
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	100 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	100 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	100 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 DJ
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	100 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	100 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	3 J	10 U	10 U	20 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	100 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	40 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
bis(2-Ethylhexyl)phthalate	10	10	10 U	10 U	10 U	3 J	2 J	10 U	20 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	20 U
Dilution Factor:		1	1	1	1	1	1	1	2
Associated Method Blank:		GW095437B08	GW095437B08	GW095437B08	GJ094250A15	GW096947A08	GJ095437A15	GW095437B08	GJ096947B06
Associated Equipment Blank:		BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW234XXX04XX	BSMW408XXX04XX	BSMW810XXX04XX	BSMW811XXX04XX	BSMW906XXX04XX	BSMW907XXX04XX	BSMW908XXX04XD	BSMW908XXX04XX
LAB NUMBER:	294521 RE	295132	293688	295131	293703	291496	295134	295135
DATE SAMPLED:	10/11/89	10/12/89	10/09/89	10/12/89	10/09/89	10/02/89	10/12/89	10/12/89
DATE EXTRACTED:	10/20/89	10/17/89	10/12/89	10/20/89	10/12/89	10/04/89	10/17/89	10/17/89
DATE ANALYZED:	10/22/89	10/17/89	10/14/89	10/22/89	10/13/89	10/10/89	10/18/89	10/18/89

ANALYTE	CRQL								
Phenol	10	170	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	33	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	3 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	330 E	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	69	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	9 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	54	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	23	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	5 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW234XXX04XX	BSMW408XXX04XX	BSMW810XXX04XX	BSMW811XXX04XX	BSMW906XXX04XX	BSMW907XXX04XX	BSMW908XXX04XD	BSMW908XXX04XX
LAB NUMBER:	294521 RE	295132	293688	295131	293703	291496	295134	295135
DATE SAMPLED:	10/11/89	10/12/89	10/09/89	10/12/89	10/09/89	10/02/89	10/12/89	10/12/89
DATE EXTRACTED:	10/20/89	10/17/89	10/12/89	10/20/89	10/12/89	10/04/89	10/17/89	10/17/89
DATE ANALYZED:	10/22/89	10/17/89	10/14/89	10/22/89	10/13/89	10/10/89	10/18/89	10/18/89

ANALYTE	CRQL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	14	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	3 J	3 J	10 U	10 U	10 U	6 J	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1	1	1	1	1

Associated Method Blank:	GH096947A08	GH095724B07	G2J94245A22	GH096947A08	GJ094250A15	GH92072A21	GJ095724C04	GJ095724C04
Associated Equipment Blank:	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	BSMW1101XX04XX	BSMW1102XX04XX	BSMW1103XX04XX	BSMW1104XX04XX	BSMW1301XX04XX	BSMW1302XX04XX	BSMW1303XX04XD	BSMW1303XX04XX
	LAB NUMBER:	291860	291862	291864	293697	294122	293702	293693	293687
	DATE SAMPLED:	10/03/89	10/03/89	10/03/89	10/09/89	10/10/89	10/09/89	10/09/89	10/09/89
	DATE EXTRACTED:	10/05/89	10/05/89	10/05/89	10/12/89	10/12/89	10/12/89	10/17/89	10/12/89
	DATE ANALYZED:	10/06/89	10/06/89	10/07/89	10/13/89	10/13/89	10/13/89	10/19/89	10/14/89
ANALYTE	CRQL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	3 J
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	BSMW1101XX04XX	BSMW1102XX04XX	BSMW1103XX04XX	BSMW1104XX04XX	BSMW1301XX04XX	BSMW1302XX04XX	BSMW1303XX04XD	BSMW1303XX04XX
	LAB NUMBER:	291860	291862	291864	293697	294122	293702	293693	293687
	DATE SAMPLED:	10/03/89	10/03/89	10/03/89	10/09/89	10/10/89	10/09/89	10/09/89	10/09/89
	DATE EXTRACTED:	10/05/89	10/05/89	10/05/89	10/12/89	10/12/89	10/12/89	10/17/89	10/12/89
	DATE ANALYZED:	10/06/89	10/06/89	10/07/89	10/13/89	10/13/89	10/13/89	10/19/89	10/14/89
ANALYTE	CRQL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		GH092159B21	GH092159B21	GH092159B21	GJ094250A15	GJ094250A22	GJ094250A15	G2J95925B04	G2J94245A22
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	BSMWG0LF1X04XX	BSMWG0LF2X04XX	BSMWGZA1XX04XX	BSMWGZA3XX04XX
	LAB NUMBER:	295129	295136	294119	295133
	DATE SAMPLED:	10/12/89	10/12/89	10/10/89	10/12/89
	DATE EXTRACTED:	10/17/89	10/17/89	10/12/89	10/17/89
	DATE ANALYZED:	10/18/89	10/18/89	10/13/89	10/18/89
ANALYTE	CRQL				
Phenol	10	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMWG0LF1X04XX	BSMWG0LF2X04XX	BSMWGZA1XX04XX	BSMWGZA3XX04XX
LAB NUMBER:	295129	295136	294119	295133
DATE SAMPLED:	10/12/89	10/12/89	10/10/89	10/12/89
DATE EXTRACTED:	10/17/89	10/17/89	10/12/89	10/17/89
DATE ANALYZED:	10/18/89	10/18/89	10/13/89	10/18/89

ANALYTE	CRQL				
3-Nitroaniline	50	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	36
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1

Associated Method Blank:	GJ095724C04	GJ095724C04	GJ094250A15	GJ095724C04
Associated Equipment Blank:	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW214XXX04XX	BSMW215XXX04XX	BSMW216AXX04XX	BSMW216BXX04XX	BSMW217AXX04XX	BSMW217BXX04XD	BSMW217BXX04XX	BSMW218XXX04XX
LAB NUMBER:	292408	292409	292414	294520	294515	294517	294516	294519
DATE SAMPLED:	10/04/89	10/04/89	10/04/89	10/11/89	10/11/89	10/11/89	10/11/89	10/11/89
DATE EXTRACTED:	10/10/89	10/10/89	10/10/89	10/17/89	10/16/89	10/16/89	10/16/89	10/16/89
DATE ANALYZED:	10/11/89	10/11/89	10/11/89	10/17/89	10/17/89	10/17/89	10/17/89	10/17/89

ANALYTE	CRQL								
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
gamma-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1221	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1232	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1242	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1248	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		293812	293812	293812	295702	295580	295580	295580	295580
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	BSMW219XXX04XX	BSMW220XXX04XX	BSMW222XXX04XX	BSMW223XXX04XX	BSMW224XXX04XX	BSMW225AXX04XX	BSMW225BXX04XX	BSMW229AXX04XX
	LAB NUMBER:	294121	292968	292969	292971	292416	292957	292976	293341
	DATE SAMPLED:	10/10/89	10/05/89	10/05/89	10/05/89	10/04/89	10/05/89	10/05/89	10/06/89
	DATE EXTRACTED:	10/12/89	10/07/89	10/07/89	10/07/89	10/07/89	10/07/89	10/07/89	10/18/89
	DATE ANALYZED:	10/13/89	10/10/89	10/10/89	10/10/89	10/10/89	10/10/89	10/10/89	10/20/89
ANALYTE	CRQL								
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
gamma-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1221	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1232	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1242	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1248	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		294243	293321	293321	293321	293321	293321	293321	296226
Associated Equipment Blank:		BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW229BXX04XD	BSMW229BXX04XX	BSMW230AXX04XX	BSMW230BXX04XX	BSMW231AXXX04XX	BSMW231BXX04XD	BSMW231BXX04XX	BSMW232AXX04XX
LAB NUMBER:	292973	292972	293344	293345	294535	294533	294532	294120
DATE SAMPLED:	10/05/89	10/05/89	10/06/89	10/06/89	10/11/89	10/11/89	10/11/89	10/10/89
DATE EXTRACTED:	10/07/89	10/07/89	10/18/89	10/18/89	10/17/89	10/17/89	10/17/89	10/12/89
DATE ANALYZED:	10/10/89	10/10/89	10/20/89	10/20/89	10/17/89	10/17/89	10/20/89	10/13/89

ANALYTE	CRQL								
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
gamma-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1221	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1232	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1242	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1248	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		293321	293321	296226	296226	295702	295702	295702	294243
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	BSMW232BXX04XX	BSMW233XX04XX	BSMW234XXX04XX	BSMW408XXX04XX	BSMW810XXX04XX	BSMW811XXX04XX	BSMW906XXX04XX	BSMW907XXX04XX
	LAB NUMBER:	294518	294528	294521	295132	293688	295131	293703	291496
	DATE SAMPLED:	10/11/89	10/11/89	10/11/89	10/12/89	10/09/89	10/12/89	10/09/89	10/02/89
	DATE EXTRACTED:	10/16/89	10/17/89	10/17/89	10/17/89	10/12/89	10/18/89	10/12/89	10/05/89
	DATE ANALYZED:	10/17/89	10/20/89	10/17/89	10/17/89	10/13/89	10/20/89	10/13/89	10/06/89
ANALYTE	CRQL								
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
gamma-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1221	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1232	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1242	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1248	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		295580	295702	295702	295702	294204	296009	295580	292134
Associated Equipment Blank:		BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	BSMW908XX04XXD	BSMW908XXX04XX	BSMW1101XX04XX	BSMW1102XX04XX	BSMW1103XX04XX	BSMW1104XX04XX	BSMW1301XX04XX	BSMW1302XX04XX
	LAB NUMBER:	295134	295135	291860	291862	291864	293697	294122	293702
	DATE SAMPLED:	10/12/89	10/12/89	10/03/89	10/03/89	10/03/89	10/09/89	10/10/89	10/09/89
	DATE EXTRACTED:	10/18/89	10/18/89	10/05/89	10/05/89	10/05/89	10/12/89	10/12/89	10/12/89
	DATE ANALYZED:	10/20/89	10/20/89	10/06/89	10/06/89	10/07/89	10/14/89	10/13/89	10/13/89
ANALYTE	CRQL								
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
gamma-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1221	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1232	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1242	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1248	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		296009	296009	292134	292134	292134	294243	294243	295580
Associated Equipment Blank:		BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSMW1303XX04XD	BSMW1303XX04XX	BSMWG0LF1X04XX	BSMWG0LF2X04XX	BSMWGZA1XX04XX	BSMWGZA3XX04XX
LAB NUMBER:	293693	293687	295129	295136	294119	295133
DATE SAMPLED:	10/09/89	10/09/89	10/12/89	10/12/89	10/10/89	10/12/89
DATE EXTRACTED:	10/12/89	10/12/89	10/18/89	10/18/89	10/12/89	10/18/89
DATE ANALYZED:	10/14/89	10/12/89	10/20/89	10/20/89	10/13/89	10/20/89

ANALYTE	CRQL						
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.12	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.54	0.10 U	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
gamma-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1221	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1232	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1242	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1248	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Dilution Factor:	1	1	1	1	1	1
Associated Method Blank:	295580	294204	296009	296009	295580	296009
Associated Equipment Blank:	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		BSMW104XXXX04XX	BSMW105AXX04XX	BSMW105BXX04XX	BSMW106XXX04XX	BSMW201XXX04XX	BSMW202AXX04XX	BSMW203XXX04XX	BSMW204XXX04XX
DATE SAMPLED:		10/06/89	10/04/89	10/04/89	10/04/89	10/06/89	10/06/89	10/10/89	10/06/89
ANALYTE	DL								
Carbonate	1	NR	NR	NR	NR	NR	NR	NR	NR
Bicarbonate	1	NR	NR	NR	NR	NR	NR	NR	NR
Chloride	1	3.9	4.8	4.9	8.6	5.2	25	15	6.3
Sulfate	10	1 U	1 U	11	1 U	11	10 U	10 U	10 U
Phosphorus (Total)	0.05	NR	NR	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	NR	NR
Total Coliform	4	NR	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR	NR
Coliform		NR	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR	NR
Nitrate-Nitrite	0.04	NR	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.006	NR	NR	NR	NR	NR	NR	NR	NR
Boron		NR	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.1	NR	NR	NR	NR	NR	NR	NR	NR
Sulfide	1	NR	NR	NR	NR	NR	NR	NR	NR
Associated Equipment Blank:		BSQSXX1XXX04XX	-	-	-	BSQSXX1XXX04XX	BSQSXX1XXX04XX	-	BSQSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		BSMW205XXX04XD	BSMW205XXX04XX	BSMW206AXX04XX	BSMW206BXX04XX	BSMW207AXX04XX	BSMW207BXX04XX	BSMW210BXX04XX	BSMW213XXX04XX
DATE SAMPLED:		10/10/89	10/10/89	10/04/89	10/04/89	10/06/89	10/06/89	10/10/89	10/06/89
ANALYTE	DL								
Carbonate	1	NR	NR	NR	NR	NR	NR	NR	NR
Bicarbonate	1	NR	NR	NR	NR	NR	NR	NR	NR
Chloride	1	17	17	15	2.4	17	7.1	NR	4.6
Sulfate	10	10 U	10 U	1 U	10 U	11	10 U	NR	1 U
Phosphorus (Total)	0.05	0.05 U	0.05 U	NR	NR	NR	NR	0.05 U	NR
Chemical Oxygen Demand	5	5 U	5 U	NR	NR	NR	NR	5.5	NR
Total Coliform	4	NR	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	4 U	4 U	NR	NR	NR	NR	4 U	NR
Total Kjeldahl Nitrogen	1	1 U	1 U	NR	NR	NR	NR	1 U	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR	NR
Coliform		NR	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR	NR
Nitrate-Nitrite	0.04	NR	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.006	NR	NR	NR	NR	NR	NR	NR	NR
Boron		NR	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.1	NR	NR	NR	NR	NR	NR	NR	NR
Sulfide	1	NR	NR	NR	NR	NR	NR	NR	NR
Associated Equipment Blank:		-	-	-	-	BSQSXX1XXX04XX	BSQSXX1XXX04XX	-	BSQSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		BSMW214XXX04XX	BSMW215XXX04XX	BSMW216AXX04XX	BSMW216BXX04XX	BSMW217AXX04XX	BSMW217BXX04DX	BSMW217BXX04XX	BSMW218XXX04XX
DATE SAMPLED:		10/04/89	10/04/89	10/04/89	10/11/89	10/11/89	10/11/89	10/11/89	10/11/89
ANALYTE	DL								
Carbonate	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bicarbonate	1	22	50	50	120	81	410	400	340
Chloride	1	42	35	20	14	190	52	61	76
Sulfate	10	10 U	10 U	13	24	10 U	10 U	10 U	10 U
Phosphorus (Total)	0.05	NR	NR	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	NR	NR
Total Coliform	4	NR	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR	NR
Coliform		NR	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR	NR
Nitrate-Nitrite	0.04	NR	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.006	NR	NR	NR	NR	NR	NR	NR	NR
Boron		NR	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.1	NR	NR	NR	NR	NR	NR	NR	NR
Sulfide	1	NR	NR	NR	NR	NR	NR	NR	NR
Associated Equipment Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick - Round 4 Monitoring Well Samples - Miscellaneous Analysis (mg/L) 23-Feb-90

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	DL	SAMPLE LOCATION: BSMW219XXX04XX DATE SAMPLED: 10/10/89	BSMW220XXX04XX 10/05/89	BSMW222XXX04XX 10/05/89	BSMW223XXX04XX 10/05/89	BSMW224XXX04XX 10/04/89	BSMW225AXX04XX 10/05/89	BSMW225BXX04XX 10/05/89	BSMW229AXX04XX 10/06/89
Carbonate	1	1 U	1	1 U	1 U	1 U	1 U	1 U	1 U
Bicarbonate	1	32	57	12	11	11	43	11	31
Chloride	1	6.6	13	8.1	8.5	8	17	7.2	8.3
Sulfate	10	11	16	10 U	10 U	10 U	10 U	10 U	14
Phosphorus (Total)	0.05	0.05 U	NR	NR	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	5 U	NR	NR	NR	NR	NR	NR	NR
Total Coliform	4	NR	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	4 U	NR	NR	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	1 U	NR	NR	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR	NR
Coliform		NR	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR	NR
Nitrate-Nitrite	0.04	NR	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.006	NR	NR	NR	NR	NR	NR	NR	NR
Boron		NR	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.1	NR	NR	NR	NR	NR	NR	NR	NR
Sulfide	1	NR	NR	NR	NR	NR	NR	NR	NR
Associated Equipment Blank:		-	-	-	-	-	-	-	BSQSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	DL	SAMPLE LOCATION: BSMW229BXX04XD DATE SAMPLED: 10/05/89	BSMW229BXX04XX 10/05/89	BSMW230AXX04XX 10/06/89	BSMW230BXX04XX 10/06/89	BSMW231AXX04XX 10/11/89	BSMW231BXX04XD 10/11/89	BSMW231BXX04XX 10/11/89	BSMW232AXX04XX 10/10/89
Carbonate	1	1 U	1 U	27	1 U	1 U	1 U	1 U	1 U
Bicarbonate	1	22	9.8	1 U	47	17	26	25	61
Chloride	1	6.2	7.6	5.6	15	5.5	5	4.5	67
Sulfate	10	10 U	11	10 U	8	10 U	10 U	10 U	20
Phosphorus (Total)	0.05	NR	NR	NR	NR	NR	NR	NR	0.05 U
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	NR	5 U
Total Coliform	4	NR	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	NR	9.3
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	NR	1 U
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR	NR
Coliform		NR	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR	NR
Nitrate-Nitrite	0.04	NR	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.006	NR	NR	NR	NR	NR	NR	NR	NR
Boron		NR	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.1	NR	NR	NR	NR	NR	NR	NR	NR
Sulfide	1	NR	NR	NR	NR	NR	NR	NR	NR
Associated Equipment Blank:		-	-	BSQSXX1XXX04XX	BSQSXX1XXX04XX	-	-	-	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick - Round 4 Monitoring Well Samples - Miscellaneous Analysis (mg/L) 23-Feb-90

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	DL	SAMPLE LOCATION: BSMW232BXX04XX DATE SAMPLED: 10/11/89	BSMW233XXX04XX 10/11/89	BSMW234XXX04XX 10/11/89	BSMW408XXX04XX 10/12/89	BSMW810XXX04XX 10/09/89	BSMW811XXX04XX 10/09/89	BSMW904XXX04XX 10/09/89	BSMW906XXX04XX 10/09/89
Carbonate	1	1 U	12	1 U	1 U	1 U	1 U	NR	1 U
Bicarbonate	1	290	490	380	6	120	270	NR	76
Chloride	1	5.2	38	17	NR	62	69	NR	NR
Sulfate	10	10 U	11	10 U	NR	10 U	12	NR	NR
Phosphorus (Total)	0.05	NR	NR	NR	0.05 U	0.05 U	0.05 U	0.05 U	NR
Chemical Oxygen Demand	5	NR	NR	NR	5 U	32	52	5 U	NR
Total Coliform	4	NR	NR	NR	NR	**	24	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	4 U	NR	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	4	5.2	15	5.4	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	1 U	1 U	6.2	1 U	NR
Nitrate	0.04	NR	NR	NR	NR	NR	1.5	NR	NR
Coliform		NR	NR	NR	NR	NR	10	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	10 U	NR	NR	NR
Nitrate-Nitrite	0.04	NR	NR	NR	NR	0.04 U	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	300	NR	NR	NR
Hexavalent Chromium	0.006	NR	NR	NR	NR	0.006 U	0.953	NR	NR
Boron		NR	NR	NR	NR	21.9 U	66.3	NR	NR
Surfactants	0.025	NR	NR	NR	NR	0.025 U	0.046	NR	NR
Fluoride	0.1	NR	NR	NR	NR	0.1 U	NR	NR	NR
Sulfide	1	NR	NR	NR	NR	1 U	1.1	NR	NR
Associated Equipment Blank:		-	-	-	BSQSXX2XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX1XXX04XX	-

** Confluent growth without coliform

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		BSMW907XXX04XX	BSMW908XXX04XD	BSMW908XXX04XX	BSMW1101XX04XX	BSMW1102XX04XX	BSMW1103XX04XX	BSMW1104XX04XX	BSMW1301XX04XX
DATE SAMPLED:		10/03/89	10/09/89	10/09/89	10/03/89	10/03/89	10/03/89	10/09/89	10/10/89
ANALYTE	DL								
Carbonate	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Bicarbonate	1	87	38	36	13	32	19	33	73
Chloride	1	NR	NR	NR	NR	NR	NR	NR	NR
Sulfate	10	NR	NR	NR	NR	NR	NR	NR	NR
Phosphorus (Total)	0.05	NR	NR	NR	NR	NR	NR	0.05 U	NR
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR	NR	5 U	NR
Total Coliform	4	NR	NR	NR	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR	NR	5.7	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR	NR	1 U	NR
Nitrate	0.04	NR	NR	NR	NR	NR	NR	NR	NR
Coliform		NR	NR	NR	NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR	NR	NR	NR
Nitrate-Nitrite	0.04	NR	NR	NR	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR	NR	NR	NR
Hexavalent Chromium	0.006	NR	NR	NR	NR	NR	NR	NR	NR
Boron		NR	NR	NR	NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR	NR	NR	NR
Fluoride	0.1	NR	NR	NR	NR	NR	NR	NR	NR
Sulfide	1	NR	NR	NR	NR	NR	NR	NR	NR
Associated Equipment Blank:		-	-	-	-	-	-	BSQSXX1XXX04XX	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick - Round 4 Monitoring Well Samples - Miscellaneous Analysis (mg/L) 23-Feb-90

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		BSMW1302XX04XX	BSMW1303XX04XD	BSMW1303XX04XX	BSMWGZA1XX04XX	BSMWGZA3XX04XX
DATE SAMPLED:		10/09/89	10/09/89	10/09/89	10/10/89	10/10/89
ANALYTE	DL					
Carbonate	1	1 U	1 U	1 U	1 U	1 U
Bicarbonate	1	5.7	32	61	2.8	7.7
Chloride	1	NR	NR	NR	NR	NR
Sulfate	10	NR	NR	NR	NR	NR
Phosphorus (Total)	0.05	NR	NR	NR	NR	NR
Chemical Oxygen Demand	5	NR	NR	NR	NR	NR
Total Coliform	4	NR	NR	NR	NR	NR
Coliform Bacteria	4	NR	NR	NR	NR	NR
Biochemical Oxygen Demand	4	NR	NR	NR	NR	NR
Total Kjeldahl Nitrogen	1	NR	NR	NR	NR	NR
Nitrate	0.04	NR	NR	NR	NR	NR
Coliform		NR	NR	NR	NR	NR
Phenols, Total	0.01	NR	NR	NR	NR	NR
Nitrate-Nitrite	0.04	NR	NR	NR	NR	NR
Total Dissolved Solids	10	NR	NR	NR	NR	NR
Hexavalent Chromium	0.006	NR	NR	NR	NR	NR
Boron		NR	NR	NR	NR	NR
Surfactants	0.025	NR	NR	NR	NR	NR
Fluoride	0.1	NR	NR	NR	NR	NR
Sulfide	1	NR	NR	NR	NR	NR
Associated Equipment Blank:		-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	DL	SAMPLE LOCATION: BSQSXX1XXX04XX DATE SAMPLED: 10/06/89	BSQSXX2XXX04XX 10/11/89	BSMWQSXXXX04XX 10/11/89
Carbonate	1	1 U	1 U	NR
Bicarbonate	1	1.6	2	NR
Chloride	1	1 U	1 U	NR
Sulfate	10	1 U	10 U	NR
Phosphorus (Total)	0.05	NR	0.05 U	NR
Chemical Oxygen Demand	5	NR	70	NR
Total Kjeldahl Nitrogen	1	NR	1 U	NR
Biochemical Oxygen Demand	4	NR	NR	47

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01TP104X0001XX LAB NUMBER: 284493 DATE SAMPLED: 09/01/89	01TP104X1001XX 284490 09/01/89	01TP104X1301XX 284494 09/01/89	01TP105X0001XX 284486 08/31/89	01TP106X0001XX 283728 08/30/89	01TP106X0301XX 283726 08/30/89	01TP107X0001XX 283740 08/30/89	01TP107X0001XD 283745 08/30/89
Aluminum	40	5080	4860	9340	4990	5920 *	5190	7290 *	6200 *
Antimony	12	10.3 U	10.7 U	12.1 U	12.7 U	10.4 U	10.6 UN	10.8 U	10.8 U
Arsenic	2	0.88 []	0.8 []	2.5	1 []	1.2 []N	0.97 []N	1.5 []N	1.4 []N
Barium	40	13.7 []	9.7 []	34.4 []	12.2 []	9.9 []	11.4 []	10.3 []	11 []
Beryllium	1	0.14 U	0.15 U	0.17 U	0.18 U	0.32 []	0.32 []	0.64 []	0.45 []
Cadmium	1	0.91 U	0.96 U	1.1 U	1.1 U	0.91 U	0.93 U	0.94 U	0.95 U
Calcium	1000	459 []	461 []	825 []	452 []	575 []	502 []	524 []	700 []
Chromium	2	7	6.3	14.6	5.4	5.8 *	6	5.6 *	5.2 *
Cobalt	10	3.8 []	4 []	8.4 []	6 []	3.1 []	4 []	3.8 []	4 []
Copper	5	6.4	6.7	15	7.7	6.1	12.4	6.3	6.4
Iron	20	6730 *	5780 *	14100 *	6380 *	5890 *	6230	6280 *	6240 *
Lead	1	3 N	2.7 N	4.5 N	4 N	3.5 *	3.9	6.7 *	5 *
Magnesium	1000	1770 E	1500 E	3660 E	1540 E	1140 E	1480 E	1030 []E	1200 E
Manganese	3	170 *	236 *	256 *	160 *	121 *	130	91.6 *	104 *
Mercury	0.1	0.1 U	0.11 U	0.12 U	0.13 U	0.1 U	0.11 U	0.1 U	0.11 U
Nickel	8	7.4 U	7.6 U	10.9	9 U	7.4 U	7.6 U	7.7 U	7.7 U
Potassium	1000	805 []	571 []	1930	901 []	419 U	427 U	433 U	436 U
Selenium	1	0.33 UWN	3.4 UWN	0.39 UWN	4 UWN	0.33 UWN	0.35 UWN	0.35 UWN	0.34 UWN
Silver	2	1.2 U	1.2 U	1.4 U	1.4 U	1.2 U	1.2 U	1.2 U	1.2 U
Sodium	1000	385 U	399 U	450 U	472 U	388 U	395 U	401 U	403 U
Thallium	2	0.32 []N	0.3 []N	0.61 []N	0.33 []N	0.26 U	0.29 U	0.28 U	0.28 U
Vanadium	10	12.3	11	24.9	10.5 []	9.8 []	10.2 []	14	21.1
Zinc	4	26.8	19.8	39	25.5	84.4 E	27.1 E	67.9 E	26.4 E
Cyanide	1	0.51 U	0.53 U	0.6 U	0.62 U	0.52 U	0.55 U	0.55 U	0.54 U
Percent Solids:		97.2	93.8	83.1	79.3	96.4	91	91.4	91.8
Associated Method Blank:		17603K	17603K	17603K	17603K	17603I	MR17603J	17603I	17603I

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01TP107X0301XX LAB NUMBER: 283748 DATE SAMPLED: 08/30/89	01TP107X0601XX 283737 08/30/89	01TP108X0001XX 283746 08/30/89	01TP108X0301XX 283738 08/30/89	01TP108X0301XD 283750 08/30/89	01TP109X0001XX 283727 08/30/89	01TP109X0301XX 283736 08/30/89	01TP110X0001XX 284253 08/30/89
Aluminum	40	8280 *	5040 *	6250 *	4850 *	5980 *	6100	4330 *	5940
Antimony	12	11.2 U	10.5 U	10.9 U	10.8 U	10.9 U	10.7 UN	11.1 U	11 U
Arsenic	2	1.2 []N	1.1 []N	2.1 []N	1.8 []N	2 []N	1.9 []N	1.1 []N	1.4 []W
Barium	40	9.6 []	9.6 []	14.6 []	13.4 []	13.5 []	14.9 []	10 []	14 []
Beryllium	1	0.4 []	0.33 []	0.59 []	0.33 []	0.32 []	0.31 []	0.35 []	0.15 U
Cadmium	1	0.98 U	0.92 U	0.96 U	0.95 U	0.95 U	0.94 U	0.98 U	0.96 U
Calcium	1000	593 []	538 []	1020 []	703 []	744 []	716 []	455 []	565 []
Chromium	2	6.5 *	5.7 *	5.7 *	5.6 *	5.9 *	5.9	5.1 *	7
Cobalt	10	3.5 []	3.1 []	3.2 []	3.5 []	3.1 []	4.2 []	3.2 []	4.8 []
Copper	5	6.6	6.2	6.4	6.4	6.4	6.3	6.5	6.7
Iron	20	5230 *	6000 *	6210 *	5930 *	5890 *	6480	5040 *	6130 *
Lead	1	4.4 *	3.6 *	7.2 *	4.2 *	6.9 *	6.1 $	3.4 *	8.2 N
Magnesium	1000	873 []E	1280 E	1290 E	1330 E	1090 E	1560 E	1170 E	1470 E
Manganese	3	56.2 *	75.1 *	105 *	84.1 *	95 *	84.8	76 *	75.5 *
Mercury	0.1	0.1 U	0.1 U	0.1 U	0.1 U	0.11 U	0.1 U	0.11 U	0.11 U
Nickel	8	8 U	7.5 U	9.5	7.7 U	7.8 U	7.6 U	7.9 U	7.8 U
Potassium	1000	452 U	423 U	440 U	436 U	437 U	430 U	448 U	846 []
Selenium	1	0.35 UWN	0.34 UWN	0.35 UN	0.34 UN	0.35 UWN	0.34 UWN	0.35 UN	1.8 UWN
Silver	2	1.3 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.3 U	1.2 U
Sodium	1000	418 U	392 U	407 U	404 U	405 U	398 U	415 U	409 U
Thallium	2	0.29 U	0.28 U	0.29 UW	0.28 U	0.29 UW	0.49 []	0.37 []	0.28 UWN
Vanadium	10	11.3	16.4	12.3	10.2 []	10.9	11.4	9.1 []	13.1
Zinc	4	21.1 E	34.8 E	23 E	33 E	23.3 E	26.9 E	24 E	26.9
Cyanide	1	0.56 U	0.53 U	0.56 U	0.54 U	0.56 U	0.54 U	0.55 U	0.54 U
Percent Solids:		89.4	93.6	89.2	92.6	88.8	92.2	90.2	91.4
Associated Method Blank:		17603I	17603I	17603I	17603I	17603I	MR17603J	17603I	17603K

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP111X0501XX	01TP112X0001XX	01TP112X0301XX	01TP113X0001XX	01TP113X0301XX	01TP114X0101XX	01TP115X0001XX	01TP115X0001XD
LAB NUMBER:	284485	284245	284240	284242	284241	284487	284244	284802
DATE SAMPLED:	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	09/02/89
ANALYTE / CRQL								
Aluminum 40	5810	4620	5150	5830	6030	6770	5970	5860
Antimony 12	10.8 U	10.7 U	10.7 U	10.5 U	11 U	11 U	10.6 U	10.7 UN
Arsenic 2	1.2 []	0.78 []W	2.2 WN	1.3 []N	1.2 []N	0.84 []	1.4 []N	3.2
Barium 40	16.4 []	14.4 []	16.8 []	21 []	22.1 []	11.8 []	15.4 []	19.5 []
Beryllium 1	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.64 []
Cadmium 1	0.95 U	0.94 U	0.94 U	0.92 U	0.96 U	0.96 U	0.93 U	3.2
Calcium 1000	603 []	540 []	820 []	770 []	818 []	586 []	928 []	963 []
Chromium 2	9	7.5	8.4	15.2	13.5	6.9	8.1	14.5
Cobalt 10	6.1 []	4.6 []	4.2 []	5.1 []	4.9 []	5.7 []	4.3 []	5.3 []
Copper 5	6.6	9.8	8.3	8.7	13.6	6.7	13.1	26
Iron 20	8010 *	5880 *	6580	6980	7330	5920 *	6680	7970
Lead 1	3.4 N	3.5 N	8.7	72.4	60.5	9.2 N	7	57.6 *
Magnesium 1000	2040 E	1650 E	1920 E	1880 E	1880 E	1120 E	1640 E	1780
Manganese 3	179 *	74 *	89	102	97.3	62.8 *	80	107 *
Mercury 0.1	0.11 U	0.11 U	0.11 U	0.1 U	0.1 U	0.11 U	0.1 U	2
Nickel 8	7.7 U	7.7 U	7.6 U	7.5 U	7.8 U	7.8 U	7.6 []	9.5 *
Potassium 1000	1180	1130	964 []	694 []	940 []	703 []	662 []	2190
Selenium 1	0.34 UWN	1.7 UWN	0.34 UWN	0.34 UN	0.35 UN	3.5 UWN	0.34 UWN	0.34 UWN
Silver 2	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Sodium 1000	403 U	400 U	398 U	390 U	409 U	409 U	394 U	494 []
Thallium 2	0.28 UN	0.48 []WN	0.28 U	0.28 U	0.28 U	0.36 []N	0.28 U	0.31 []
Vanadium 10	14.5	16.1	21.2	17.5	17.8	13.2	17.6	14.1
Zinc 4	28.7	36.3	40	107	110	22.3	159	75
Cyanide 1	0.54 U	0.53 U	0.54 U	0.53 U	0.56 U	0.54 U	0.54 U	0.53 U
Percent Solids:	92.8	93.4	92.2	94	89.6	91.4	92.2	93.6
Associated Method Blank:	17603K	17603K	MR17603L	MR17603L	MR17603L	17603K	MR17603L	17603N

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	01TP115X0301XX 284239 08/31/89	01TP115X0701XX 284243 08/31/89	01TP116X0001XX 284826 09/01/89	01TP116X1101XX 284975 09/06/89	01TP116X1101XD 284979 09/06/89	01TP117X0001XX 284978 09/06/89	01TP117X1101XX 284980 09/06/89	01TP117X1101XD 284981 09/06/89
Aluminum	40	6410	7280	5190	5630	5400	5150	5080	4960
Antimony	12	10.7 U	12.3 U	10.7 UN	11.2 U	11.4 U	10.6 U	11.5 U	11.4 U
Arsenic	2	1.4 [JN	1.5 [JN	1.2 [JW	2.2 N	1.3 [JN	1.2 [JN	1.8 [JN	1.7 [JN
Barium	40	19.5 [J	31.2 [J	16.8 [J	27.1 [J	20.2 [J	15.1 [J	20.1 [J	23.7 [J
Beryllium	1	0.15 U	0.17 U	0.28 [J	0.24 [J	0.42 [J	0.41 [J	0.16 U	0.16 U
Cadmium	1	0.94 U	1.1 U	0.94 U	0.98 U	1 U	0.93 U	1 U	0.8
Calcium	1000	946 [J	1210 [J	918 [J	1180	958 [J	775 [J	723 [J	835 [J
Chromium	2	10.1	12.7	7.3	9.5	8.9	6.3	9.2	10
Cobalt	10	5.1 [J	6.5 [J	4.5 [J	5.7 [J	6 [J	3.7 [J	3.7 [J	4.5 [J
Copper	5	8.9	11.4	6.6	7.1	7.2	6.7	14.4	10.8
Iron	20	7900	11900	7740	10400	8070	6800	6460	9200
Lead	1	8	3.9	6.2 N	2.7 N	2.9 N	4.9 N	10.6 N	17.2 N
Magnesium	1000	2100 E	3020 E	2080	2480 E	2340 E	1620 E	1750 E	1770 E
Manganese	3	102	223	129 *	138	110	105	72.1	97.3
Mercury	0.1	0.1 U	0.12 U	0.11 U	0.11 UN	0.11 UN	0.11 UN	0.11 UN	0.11 UN
Nickel	8	7.6 U	8.7 U	10.6 *	13.2	17.4	16.8	12.6	16.6
Potassium	1000	744 [J	1410	1110	729 [J	1000 [J	426 U	461 U	460 U
Selenium	1	0.34 UN	0.39 UN	1.7 UWN	1.8 UWN	0.36 UWN	3.4 UWN	0.37 UWN	0.36 UWN
Silver	2	1.2 U	1.4 U	1.2 U	1.3 U	1.3 U	1.2 U	1.3 U	1.3 U
Sodium	1000	399 U	457 U	399 U	417 U	426 U	395 U	427 U	426 U
Thallium	2	0.28 U	0.32 U	0.28 U	0.32 [JN	0.53 [JN	0.45 [JWN	0.51 [JN	0.45 [JN
Vanadium	10	19.3	22	37.7	15.8	17.6	13.8	33.2	26.1
Zinc	4	56.8	71.2	26.7	33.2 E*	39.9 E*	30.5 E*	88.8 E*	67.4 E*
Cyanide	1	0.54 U	0.61 U	0.53 U	0.56 UN	0.57 UN	0.53 UN	0.57 UN	0.57 UN
Percent Solids:		92.8	81.9	93.8	89.6	87.8	94.8	87.6	87.8
Associated Method Blank:		MR17603L	MR17603L	17603N	17603P	17603P	17603P	17603P	17603P

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP118X0001XX	01TP118X0701XX	01TP118X0701XD	01TP119X0001XX	01TP119X0301XX	07TP120X0001XX	01TP120X0801XX	01TP120X0801XD
LAB NUMBER:	284977	284976	284982	284843	284828	284860	285528	285529
DATE SAMPLED:	09/06/89	09/06/89	09/06/89	09/01/89	09/02/89	09/02/89	09/07/89	09/07/89
ANALYTE / CRQL								
Aluminum 40	6200	4660	4770	6270	3870	6730	5350	5370
Antimony 12	10.5 U	10.5 U	10.5 U	10.5 UN	10.4 UN	12 U	10.7 UN	10.5 UN
Arsenic 2	1.3 □N	0.46 UN	1.1 □N	1.3 □W	0.89 □W	4.2 N	0.83 □WN	2.9 N
Barium 40	20.8 □	15.9 □	13.7 □	16.4 □	13.1 □	15.4 □	22.8 □	22.5 □
Beryllium 1	0.4 □	0.43 □	0.42 □	0.27 □	0.19 □	0.46 □	0.17 □	0.15 U
Cadmium 1	1.5	0.92 U	1.3	0.92 U	0.91 U	1.1 U	2.1	1.3
Calcium 1000	1200	556 □	799 □	956 □	858 □	637 □	905 □	949 □
Chromium 2	9	6.5	7.9	9.1	5.8	6	11.2	11.4
Cobalt 10	4.2 □	3.4 □	3.2 □	4.5 □	3.8 □	2.5 □	8 □	7.7 □
Copper 5	6.6	6.6	6.6	25.4	6.4	7.5	8.6	7.9
Iron 20	7140	5920	5580	7720	6700	6710	8150	8110
Lead 1	8.7 N	11.7 N	9.9 N	21.1 N	7.2 N	15.6 N	9.1 N	10.9 N
Magnesium 1000	2080 E	1590 E	1580 E	1840	1730	1060 □E	2400	2460
Manganese 3	83.8	75.2	68.7	153 *	111 *	78.9	107	106
Mercury 0.1	0.1 UN	0.1 UN	0.1 UN	0.1 U	0.1 U	0.12 UN	0.1 U	0.1 U
Nickel 8	15.9	9.9	9.5	12 *	7.4 U*	12.8	14.7	9.6
Potassium 1000	705 □	423 U	421 U	840 □	1070	483 U	2340	2490
Selenium 1	0.33 UWN	0.33 UWN	0.33 UWN	1.7 UWN	1.7 UWN	3.8 UWN	0.34 UWN	0.33 UWN
Silver 2	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.4 U	1.2 U	1.2 U
Sodium 1000	391 U	391 U	390 U	390 U	387 U	447 U	397 U	501 □
Thallium 2	0.41 □N	0.44 □N	0.37 □N	0.27 U	0.27 U	0.31 UN	0.49 □W	0.45 □
Vanadium 10	14.8	11.1	11.5	37	11.9	15.7	22.7	26.2
Zinc 4	46 E*	38.8 E*	34.4 E*	76.5	33.4	32.7 E*	44.8 E	53.3 E
Cyanide 1	0.52 UN	0.52 UN	0.58 N	0.52 U	0.52 U	1.2 N	0.53 U	0.53 U
Percent Solids:	95.6	95.6	96	96	96.6	83.7	94.1	94.6
Associated Method Blank:	17603P	17603P	17603P	17603N	17603N	17603P	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01TP121X0701XX LAB NUMBER: 284974 DATE SAMPLED: 09/06/89	01TP121X0701XD 284973 09/06/89	01TP122X0201XX 285530 09/07/89	01TP122X0201XD 285531 09/07/89	01TP123X0501XX 285532 09/07/89	01TP123X0501XD 285533 09/07/89	01TP124X0001XX 284489 09/01/89	01TP124X0001XD 284491 09/01/89
Aluminum	40	5450	6440	4300	5230	9030	8680	5880	5210
Antimony	12	10.6 U	10.5 U	10.7 UN	10.6 UN	10.9 UN	10.9 UN	10.7 U	10.8 U
Arsenic	2	3.2 N	12.2 □N	1.2 □N	0.81 □N	2.4 N	2.4 N	1.5 □	1.4 □
Barium	40	17.2 □	17.7 □	12.2 □	13.4 □	33.4 □	32.4 □	14.3 □	12 □
Beryllium	1	0.4 □	0.22 □	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
Cadmium	1	0.93 U	0.92 U	0.94 U	0.93 U	0.95 U	0.95 U	0.94 U	0.95 U
Calcium	1000	955 □	1560	525 □	508 □	1050 □	868 □	554 □	493 □
Chromium	2	11.3	10.6	5.8	6.6	16.5	13.1	7.9	7
Cobalt	10	4.5 □	3.6 □	4.3 □	4.7 □	7.6 □	7.6 □	4 □	3.7 □
Copper	5	7.2	7.2	6.9	6.8	13.9	14	6.7	6.7
Iron	20	8070	6750	6110	6650	11800	11200	6990 *	6310 *
Lead	1	13.5 N	22.6 N	3.2 N	3.8 N	7.6 N	7.5 N	6 N	6.4 N
Magnesium	1000	1860 E	1800 E	1540	1610	3010	2780	1630 E	1390 E
Manganese	3	121	104	111	105	207	209	135 *	112 *
Mercury	0.1	0.11 UN	0.1 UN	0.1 U	0.1 U	0.1 U	0.11 U	0.11 U	0.11 U
Nickel	8	12.3	15.5	7.6 U	9.9	10	11	7.7 U	7.7 U
Potassium	1000	425 U	423 U	616 □	476 □	1140	1240	762 □	661 □
Selenium	1	3.4 UWN	3.4 UWN	0.34 UWN	1.7 UWN	0.35 UWN	0.34 UWN	3.4 UWN	3.5 UWN
Silver	2	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U	1.2 U
Sodium	1000	394 U	392 U	398 U	394 U	404 U	406 U	400 U	404 U
Thallium	2	0.27 UN	0.27 UN	0.41 □	0.37 □	0.38 □	0.39 □	0.46 □N	0.33 □N
Vanadium	10	14	15.3	10.4 □	11.3	21.1	18	16.9	15.9
Zinc	4	31.7 E*	29.7 E*	27.6 E	35.8 E	34.2 E	38.8 E	22.2	31
Cyanide	1	0.53 UN	2.2 N	0.53 U	0.53 U	0.54 U	0.55 U	0.53 U	0.54 U
Percent Solids:		95	95.4	94	95	91.6	91.3	93.4	92.6
Associated Method Blank:		17603P	17603P	-	-	-	-	17603K	17603K

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	01TP124X0301XX	07TP708X0001XX	07TP709X0001XX	07TP709X0201XX	07TP709X0201XD	07TP709X0401XX	07TP710X0001XX	07TP710X0201XX
	LAB NUMBER:	284492	284847	283722	283708	283709	283712	284811	284813
	DATE SAMPLED:	09/01/89	09/02/89	08/29/89	08/30/89	08/30/89	08/30/89	09/02/89	09/02/89
ANALYTE	CRQL								
Aluminum	40	4330	6030	5920	6330	6800	2970	7730	9220
Antimony	12	12 U	14 UN	10.6 UN	12 UN	12.1 UN	12.1 UN	10.9 UN	10.7 UN
Arsenic	2	1.2 □	0.84 □	2.1 □N	1 □N	0.96 □N	0.92 □N	1.6 □	1.4 □
Barium	40	18.1 □	7.1 □	20.5 □	13.3 □	14.3 □	8.2 □	22.4 □	18.7 □
Beryllium	1	0.17 U	0.19 U	0.28 □	0.37 □	0.37 □	0.25 □	0.39 □	0.62 □
Cadmium	1	1.1 U	1.2 U	0.93 U	1 U	1.1 U	1.1 U	0.96 U	0.94 U
Calcium	1000	801 □	184 □	1210	513 □	1080 □	452 □	1240	513 □
Chromium	2	7	5.2	9.5	5.4	6.2	4.2	10.2	9.3
Cobalt	10	4.8 □	2.7 □	4.3 □	2.5 □	2.5 □	2.6 □	5 □	3.7 □
Copper	5	7.5	4.3 □	12.4	7	7.1	7.1	9.6	7.6
Iron	20	7460 *	5870	7620	5890	6230	4950	8950	8750
Lead	1	2.6 N	2.5 N	15	6.3 S	8.4 S	3.1	13.8 N	7.5 SN
Magnesium	1000	2060 E	1090 □	1700 E	843 □E	840 □E	1130 □E	1950	1120
Manganese	3	87.9 *	54.5 *	129	63.2	75.9	50.8	114 *	74.8 *
Mercury	0.1	0.12 U	0.14 U	0.11 U	0.11 U	0.11 U	0.1 U	0.11 U	0.11 U
Nickel	8	8.6 U	10 U*	12.2	8.5 U	8.6 U	8.6 U	7.8 U*	7.7 U*
Potassium	1000	1460	563 U	542 □	481 U	485 U	486 U	643 □	612 □
Selenium	1	0.38 UWN	2.2 UWN	0.34 UWN	0.73 UWN	0.37 UWN	0.38 UWN	0.35 UWN	0.34 UWN
Silver	2	1.4 U	1.6 U	1.2 U	1.4 U	1.4 U	1.4 U	1.2 U	1.2 U
Sodium	1000	447 U	521 U	394 U	445 U	449 U	450 U	407 U	400 U
Thallium	2	0.31 UN	0.36 U	0.38 □	0.29 U	0.3 U	0.31 U	0.35 □	0.28 U
Vanadium	10	17.4	9 □	15.3	10.3 □	11.6 □	6.7 □	16.6	16.9
Zinc	4	49.5	20.6	35.7 E	27.6 E	42.1 E	18.3 E	32.6	23.4
Cyanide	1	0.59 U	0.7 U	0.53 U	0.6 U	0.61 U	0.6 U	0.54 U	0.54 U
	Percent Solids:	83.7	71.8	94	84	81.6	83.2	91.8	93.4
	Associated Method Blank:	17603K	17603N	MR17603J	MR17603J	MR17603J	MR17603J	17603N	17603N

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 07TP711X0001XX LAB NUMBER: 283711 DATE SAMPLED: 08/29/89	07TP711X0201XX 283716 08/29/89	07TP711X0401XX 283710 08/29/89	07TP712X0001XX 284849 09/02/89	07TP712X0201XX 284814 09/02/89	07TP712X0401XX 284841 09/02/89	07TP713X0001XX 283404 08/29/89	07TP713X0201XX 283406 08/29/89
Aluminum	40	6810	3630	3370	17000	6910	4500	6780	5080
Antimony	12	10.4 UN	10.5 UN	10.7 UN	13.8 UN	11.8 UN	12.9 UN	10.5 U	10.6 U
Arsenic	2	6.1 N	0.81 []N	2 []N	7.6 []	1.3 []	1.4 []W	3.2	1.4 []
Barium	40	17.9 []	10 []	10.2 []	25.9 []	15.1 []	8.3 []	22.4 []	14.8 []
Beryllium	1	0.34 []	0.32 []	0.33 []	0.19 U	0.21 []	0.18 U	0.54 []	0.42 []
Cadmium	1	0.91 U	0.92 U	0.93 U	8	1 U	1.1 U	0.92 U	0.93 U
Calcium	1000	1070	234 []	540 []	1170 []	731 []	365 []	1100	1090
Chromium	2	13.4	6.1	4.7	28.2	6.4	5.7	8.9	8.2
Cobalt	10	4 []	3.1 []	2.7 []	6.5 []	3 []	3.2 []	4 []	3.9 []
Copper	5	18.2	6.2	6.3	179	7.3	8	12.6	11.7
Iron	20	8480	5090	5330	13300	7270	6460	7520	8190
Lead	1	85.7	2.8	2.7 S	98.2 *	8.4 SN	3.1 N	29.4	4.6
Magnesium	1000	1810 E	1260 E	1370 []E	2390	1110 []	1580	1520 E	1920 E
Manganese	3	98.9	52.8	62.5	267 *	126 *	68.1 *	93.5 *	98.7 *
Mercury	0.1	0.1 U	0.1 U	0.1 U	0.16	0.12 U	0.13 U	0.1 U	0.11 U
Nickel	8	9	7.5 U	7.6 U	9.8 U*	8.4 U*	9.2 U*	12.3	10
Potassium	1000	417 U	423 U	429 U	1080 []	473 U	829 []	422 U	823 []
Selenium	1	0.34 UWN	0.33 UWN	0.53 []WN	4.4 UWN	0.37 UWN	2.1 UN	0.33 UWN	0.33 UWN
Silver	2	1.2 U	1.2 U	1.2 U	1.6 U	1.3 U	1.5 U	1.2 U	1.2 U
Sodium	1000	386 U	392 U	397 U	512 U	438 U	479 U	390 U	394 U
Thallium	2	0.27 U	0.27 U	0.27 U	0.36 U	0.46 []	0.33 U	0.27 U	0.27 U
Vanadium	10	14.6	9.9 []	8.8 []	22.7	13.7	11 []	16 E	15.3 E
Zinc	4	43.7 E	19.4 E	18.1 E	216	43.4	26	208	38.1
Cyanide	1	0.53 U	0.52 U	0.53 U	0.68 U	0.59 U	0.64 U	0.52 U	0.54 U
Percent Solids:		93.2	95.4	93.2	73	85.4	78	95.8	93
Associated Method Blank:		MR17603J	MR17603J	MR17603J	17603N	17603N	17603N	MR17603E	MR17603E

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 07TP713X0401XX LAB NUMBER: 283405 DATE SAMPLED: 08/29/89	07TP714X0001XX 284816 09/02/89	07TP714X0001XD 284830 09/02/89	07TP714X0201XX 284818 09/02/89	07TP714X0401XX 284845 09/02/89	07TP715X0001XX 284832 09/02/89	07TP715X0201XX 284820 09/02/89	07TP715X0401XX 284839 09/02/89
Aluminum	40	3370	5750	6080	7020	3830	6050	6490	3830
Antimony	12	11.4 U	11.3 UN	11.2 UN	11.9 UN	13.5 UN	11 UN	11.4 UN	11.2 UN
Arsenic	2	1.8 □	2 □	2.6 □$	1.8 □	1 □W	2.4 □$	1.6 □	1.5 □
Barium	40	9.7 □	20.1 □	26.7 □	16.7 □	8.7 □	19.9 □	15.3 □	8.5 □
Beryllium	1	0.34 □	0.19 □	0.19 □	0.21 □	0.19 U	0.18 □	0.2 □	0.16 U
Cadmium	1	1 U	0.99 U	0.98 U	1 U	1.2 U	1.2	1 U	0.98 U
Calcium	1000	578 □	1170	863 □	683 □	447 □	1050 □	656 □	532 □
Chromium	2	5.3	9.8	12.4	8.3	5.6	11.4	7.5	5.7
Cobalt	10	3.6 □	3.2 □	3.7 □	3.7 □	3.4 □	4.1 □	3.3 □	3 □
Copper	5	8.5	18.6	55.6	7.4	8.3	20.4	7.1	7
Iron	20	5430	7020	7780	7920	6030	7830	7350	5710
Lead	1	2	42.6 *	167 *	13.6 SN	3.3 N	37 N	8.5 N	15 N
Magnesium	1000	1450 E	1550	1390	1540	1510	1860	1290	1390
Manganese	3	59.8 *	99.3 *	91.7 *	123 *	66.8 *	115 *	118 *	72.1 *
Mercury	0.1	0.1 U	0.11 U	0.11 U	0.12 U	0.13 U	0.11 U	0.6	0.11 U
Nickel	8	8.1 U	8 U*	8 U*	8.5 U*	9.6 U*	7.8 U*	8.2 U*	8 U*
Potassium	1000	991 □	454 U	579 □	487 □	974 □	953 □	460 U	629 □
Selenium	1	0.37 UWN	0.36 UWN	1.8 UWN	0.38 UN	2.1 UWN	1.8 UWN	0.36 UWN	1.8 UN
Silver	2	1.3 U	1.3 U	1.3 U	1.4 U	1.5 U	1.2 U	1.3 U	1.3 U
Sodium	1000	423 U	420 U	418 U	444 U	502 U	409 U	426 U	418 U
Thallium	2	0.3 U	0.4 □	0.29 U	0.63 □	0.35 U	0.28 U	0.67 □W	0.29 U
Vanadium	10	11.7 E	14.4	13.8	14.4	8.7 □	14.5	13.6	10.2 □
Zinc	4	16.9	40	52.8	36.4	35.5	55.4	36.8	26.8
Cyanide	1	0.59 U	0.56 U	0.56 U	0.59 U	0.67 U	0.55 U	0.57 U	0.56 U
Percent Solids:		84.2	89	89.4	84.2	74.5	91.4	87.8	89.4
Associated Method Blank:		MR17603E	17603N	17603N	17603N	17603N	17603N	17603N	17603N

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 07TP716X0001XX LAB NUMBER: 283718 DATE SAMPLED: 08/29/89	07TP716X0201XX 283720 08/29/89	07TP716X0401XX 283714 08/29/89	07TP717X0001XX 283717 08/29/89	07TP717X0201XX 283719 08/29/89	07TP717X0401XX 283721 08/29/89	07TP718X0001XX 284834 09/02/89	07TP718X0201XX 284850 09/02/89
Aluminum	40	6550	6450	2900	5120	6780	3580	6130	2920
Antimony	12	10.6 UN	10.6 UN	11.8 UN	10.4 UN	11.5 UN	11.1 UN	10.7 UN	10.7 U
Arsenic	2	4.9 N	1 [JN	0.51 UN	2.2 N	2.2 [JN	1.2 [JN	9.9 S	1.1 [JWN
Barium	40	24.1 [J]	7.8 [J]	8.2 [J]	18 [J]	22.1 [J]	9.5 [J]	21.8 [J]	9.4 [J]
Beryllium	1	0.34 [J]	0.52 [J]	0.16 U	0.29 [J]	0.37 [J]	0.68 [J]	0.16 [J]	0.47 [J]
Cadmium	1	0.93 U	0.93 U	1 U	0.92 U	1 U	0.97 U	0.94 U	0.94 U
Calcium	1000	1030 [J]	213 [J]	398 [J]	958 [J]	841 [J]	972 [J]	1300	488 [J]
Chromium	2	10.3	5	4.6	9.7	9.4	6.2	17.8	4.8
Cobalt	10	4.6 [J]	3.8 [J]	2.6 [J]	4.1 [J]	3.6 [J]	3 [J]	5.4 [J]	2.4 [J]
Copper	5	15	9.9	6.9	15.3	13.5	6.5	26.5	6.8
Iron	20	8210	6420	3950	6860	9110	6270	11000	4450
Lead	1	43.2	3.7	2.3	31	41.4	2.8	104 *	2.2 W
Magnesium	1000	1660 E	1010 [JE	1220 E	1580 E	1380 E	1360 E	2280	1250 E
Manganese	3	114	70.5	48.8	115	106	64.7	120 *	56.5
Mercury	0.1	0.11 U	0.1 U	0.12 U	0.1 U	0.11 U	0.1 U	0.11 U	0.11 UN
Nickel	8	9.7	7.6 U	8.4 U	11.8	8.2 U	7.9 U	14.7 *	7.7 [J]
Potassium	1000	608 [J]	428 U	474 U	468 [J]	463 U	447 U	1150	432 U
Selenium	1	0.33 UWN	0.68 UEN	0.37 UWN	0.33 UWN	0.73 UWN	0.36 UWN	1.7 UWN	3.4 UWN
Silver	2	1.2 U	1.2 U	1.3 U	1.2 U	1.3 U	1.3 U	1.2 U	1.2 U
Sodium	1000	395 U	396 U	439 U	389 U	429 U	413 U	398 U	400 U
Thallium	2	0.27 U	0.28 U	0.3 U	0.27 U	0.3 U	0.45 [J]	0.28 U	0.28 UN
Vanadium	10	16.1	10.8	6.5 [J]	12.6	16.8	11.5	16	7 [J]
Zinc	4	51.1 E	25 E	16.5 E	32.2 E	31 E	21.7 E	55.5	37.9 E*
Cyanide	1	0.53 U	0.53 U	0.6 U	0.52 U	0.57 U	0.57 U	0.53 U	0.53 UN
Percent Solids:		92.8	93.4	82.8	95.2	87.2	87	94	93.6
Associated Method Blank:		MR17603J	MR17603J	MR17603J	MR17603J	MR17603J	MR17603J	17603N	17603P

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	07TP719X0001XX	07TP719X0201XX	08TP801X0001XX	08TP801X0201XX	08TP802X0001XX	08TP802X0101XX	08TP803X0001XX	08TP803X0201XX
LAB NUMBER:	284822	284823	283411	283412	283413	283414	283415	283427
DATE SAMPLED:	09/02/89	09/02/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89
ANALYTE / CRQL								
Aluminum 40	5940	6840	6170	4550	6300	5220	8210	4330
Antimony 12	12.1 UN	12.1 UN	10.1 U	10.4 U	10 U	10.5 U	10.1 U	10.4 UN
Arsenic 2	18.6 []	3.8 []$	1.6 []	0.78 []	1.6 []	1.6 []	5	1.6 []W
Barium 40	35.7 []	14.2 []	12 []	8.1 []	17.2 []	15.1 []	47.4	12.6 []
Beryllium 1	0.17 []	0.2 []	0.61 []	0.31 []	0.52 []	0.49 []	0.44 []	0.31 []
Cadmium 1	1.1 U	1.1 U	0.88 U	0.91 U	0.86 U	0.92 U	0.89 U	0.91 U
Calcium 1000	4800	512 []	317 []	382 []	904 []	1050 []	2270	1000 []
Chromium 2	12.3	8	7	5	9.7	7.4	21.4	5.4
Cobalt 10	3.3 []	4.2 []	3.7 []	5.8 []	5 []	4.9 []	6 []	5.3 []
Copper 5	22.4	7.5	9.6	6.2	9.5	9.5	18.2	9.3
Iron 20	6980	9140	6900	6200	8200	8050	11600	7090
Lead 1	65.9 *	7.5 N	6.7	3	5.7	3	37	3
Magnesium 1000	1730	1210	1410 E	1560 E	2230 E	2100 E	3150 E	1880 E
Manganese 3	176 *	192 *	117 *	119 *	149 *	172 *	166 *	177
Mercury 0.1	0.12 U	0.12 U	0.1 U	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel 8	8.6 U*	8.6 U*	11.3	11.3	15.4	15.7	20.6	7.4 U
Potassium 1000	664 []	485 U	406 U	419 U	568 []	424 U	1340	925 []
Selenium 1	0.39 UWN	1.9 UEN	0.32 UWN	0.34 UWN	0.33 UWN	0.34 UWN	0.32 UWN	0.33 UN
Silver 2	1.4 U	1.4 U	1.1 U	1.2 U	1.1 U	1.2 U	1.1 U	1.2 []
Sodium 1000	450 U	449 U	376 U	388 U	373 U	393 U	376 U	386 U
Thallium 2	0.41 []W	0.43 []	0.26 U	0.27 U	0.26 U	0.33 []	0.39 []	0.27 U
Vanadium 10	19	15.4	12.2 E	10.8 E	15.2 E	13.9 E	24.8 E	11.8
Zinc 4	187	34.8	32.1	22.3	33.5	24.8	57.6	26.7
Cyanide 1	0.6 U	0.6 U	0.51 U	0.53 U	0.51 U	0.52 U	0.5 U	0.52 U
Percent Solids:	83.1	83.3	97.6	94.6	98.4	95.2	99.4	97
Associated Method Blank:	17603N	17603N	MR17603E	MR17603E	MR17603E	MR17603E	MR17603E	MR17603H

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 08TP803X0301XX LAB NUMBER: 283416 DATE SAMPLED: 08/29/89	08TP804X0001XX 283426 08/29/89	08TP804X0201XX 283430 08/29/89	08TP805X0001XX 283123 08/28/89	08TP805X0401XX 283122 08/28/89	08TP805X0801XX 283124 08/28/89	08TP806X0001XX 283118 08/28/89	08TP806X0301XX 283121 08/28/89
Aluminum	40	8920	7640	3830	8430	4510	9140	6240	7300
Antimony	12	14.6 UN	10 UN	10.3 UN	9.9 U	10.1 U	10.7 U	10 U	10.5 U
Arsenic	2	1.7 []W	3.1	1.1 []W	2.6	1.3 []	5.8	2.8	4.9
Barium	40	17.8 []	28.9 []	11.5 []	26.7 []	15.2 []	37.6 []	22.4 []	23.8 []
Beryllium	1	0.46 []	0.49 []	0.31 []	0.58 []	0.3 []	0.65 []	0.62 []	0.55 []
Cadmium	1	1.3 U	0.88 U	0.9 U	0.87 U	0.89 U	0.94 U	0.88 U	0.92 U
Calcium	1000	1360 []	1550	647 []	1680	4090	4120	1260	5790
Chromium	2	8.8	12.6	4.3	13.3	6.1	16	10.8	12.1
Cobalt	10	4.4 []	5.1 []	4.2 []	6 []	4.3 []	7.1 []	5.5 []	5.8 []
Copper	5	8.7	11.8	6	11.9	8.6	15	12	12.6
Iron	20	6980	9560	6290	10500	6240	12300	8460	8940
Lead	1	25.8	9.4	2.6	13.4	3.1	11.7	10.7	5.3
Magnesium	1000	1080 []E	2250 E	1670 E	2600 E	1630 E	2850 E	2160 E	2400 E
Manganese	3	80.3	159	139	185 *	156 *	180 *	137 *	200 *
Mercury	0.1	0.15 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	8	10.4 U	10.1	8.9	14.7	9	17.6	12	14.7
Potassium	1000	588 U	780 []	748 []	1080	537 []	956 []	1160	1110
Selenium	1	0.47 UWN	0.33 UWN	0.33 UWN	0.33 UWN	0.33 UWN	0.33 UWN	0.32 UWN	0.34 UWN
Silver	2	1.7 U	1.2 []	1.9 []	1.1 U	2.1	1.2 U	1.1 U	1.2 U
Sodium	1000	544 U	374 U	384 U	370 U	378 U	399 U	373 U	391 U
Thallium	2	0.38 U	0.27 U	0.27 U	0.26 U	0.27 U	0.4 []	0.26 U	0.27 U
Vanadium	10	14.1 []	18.3	10.4	22.1 E	11.4 E	21.6 E	17.7 E	17 E
Zinc	4	61.7	33.1	22.2	38.5	31.4	42	31.9	28.4
Cyanide	1	0.73 U	0.51 U	0.51 U	0.51 U	0.52 U	0.54 U	0.5 U	0.53 U
Percent Solids:		68.7	97.2	97.4	98.2	95.2	92	99.4	94.6
Associated Method Blank:		MR17603H	MR17603H	MR17603H	MR17603E	MR17603E	MR17603E	MR17603E	MR17603E

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	08TP806X0601XX	08TP807X0101XX	08TP808X0101XX	08TP809X0201XX	08TP810X0101XX
	LAB NUMBER:	283119	283432	283433	283434	283435
	DATE SAMPLED:	08/28/89	08/29/89	08/29/89	08/29/89	08/29/89
ANALYTE	CRQL					
Aluminum	40	7540	3580	5450	4300	4070
Antimony	12	11.3 U	10.1 UN	10.4 UN	10.3 UN	10.3 UN
Arsenic	2	10.3	0.86 []	1.3 []	0.95 []W	0.95 []W
Barium	40	24.9 []	12.2 []	8.9 []	11 []	16.5 []
Beryllium	1	0.5 []	0.32 []	0.3 []	0.31 []	0.31 []
Cadmium	1	0.99 U	0.89 U	0.91 U	0.9 U	0.91 U
Calcium	1000	3550	632 []	398 []	746 []	743 []
Chromium	2	13.7	4.4	5.7	4.6	5.1
Cobalt	10	5.7 []	3.1 []	3.8 []	4.2 []	4 []
Copper	5	13.5	5.9	6.1	6	7.6
Iron	20	8570	5040	6980	6460	6340
Lead	1	4.8	3.5	2.9	2.4	2.1
Magnesium	1000	2460 E	1330 E	1500 E	1680 E	1780 E
Manganese	3	144 *	98.9	80.3	128	123
Mercury	0.1	0.11 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	8	19.3	7.2 U	7.4 []	7.4 U	8.3
Potassium	1000	1200	407 U	418 U	523 []	759 []
Selenium	1	0.36 UWN	0.33 UN	0.33 UWN	0.33 UWN	0.33 UWN
Silver	2	1.6 []	1.1 U	1.2 U	1.2 U	1.2 U
Sodium	1000	419 U	376 U	387 U	384 U	385 U
Thallium	2	0.29 U	0.27 U	0.27 U	0.27 U	0.27 U
Vanadium	10	17.7 E	8.5 []	12.2	10.6	10.5
Zinc	4	35.4	16.5	23.8	18.7	67.3
Cyanide	1	0.56 U	0.51 U	0.52 U	0.51 U	0.51 U
Percent Solids:		89.2	97.4	96.6	97.4	97.2
Associated Method Blank:		MR17603E	MR17603H	MR17603H	MR17603H	MR17603H

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01TP104X0001XX	01TP104X1001XX	01TP104X1301XX	01TP105X0001XX	01TP106X0001XX	01TP106X0301XX	01TP107X0001XX	01TP107X0001XD
LAB NUMBER:		284468	284465	284469	284452	283669	283667	283682	283683
DATE SAMPLED:		09/01/89	09/01/89	09/01/89	08/31/89	08/30/89	08/30/89	08/30/89	08/30/89
DATE ANALYZED:		09/10/89	09/10/89	09/10/89	09/10/89	09/09/89	09/07/89	09/09/89	09/09/89
ANALYTE	CRQL								
Chloromethane	10	10 U	11 U	12 U	13 U	10 U	11 U	11 U	11 U
Bromomethane	10	10 U	11 U	12 U	13 U	10 U	11 U	11 U	11 U
Vinyl Chloride	10	10 U	11 U	12 U	13 U	10 U	11 U	11 U	11 U
Chloroethane	10	10 U	11 U	12 U	13 U	10 U	11 U	11 U	11 U
Methylene Chloride	5	9 B	7 B	19 B	9 B	9 B	27 B	10 B	9 B
Acetone	10	10 U	19 B	13	13 U	10 U	29 B	8 BJ	7 BJ
Carbon Disulfide	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	6 U	6 U	1 BJ	2 BJ	1 BJ	5 U
1,2-Dichloroethane	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	11 U	12 U	13 U	10 U	11 U	11 U	11 U
1,1,1-Trichloroethane	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	11 U	12 U	13 U	10 U	11 U	11 U	11 U
Bromodichloromethane	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	11 U	12 U	13 U	10 U	11 U	11 U	11 U
2-Hexanone	10	10 U	11 U	12 U	13 U	10 U	11 U	11 U	11 U
Tetrachloroethene	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	6 U	6 U	5 U	2 J	5 U	5 U
Chlorobenzene	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	6 U	6 U	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		97	94	83	79	96	91	91	92
Associated Method Blank:		GH084647A12	GH084646C12	GH084647A12	GH084915C12	GH085336C12	GH083948C12	GH085336C12	GH085336C12

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP107X0301XX	01TP107X0601XX	01TP108X0001XX	01TP108X0001XD	01TP108X0301XX	01TP109X0001XX	01TP109X0301XX	01TP110X0001XX
LAB NUMBER:	283685	283680	283684	283686	283681	283668	283679	284204
DATE SAMPLED:	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89
DATE ANALYZED:	09/09/89	09/09/89	09/10/89	09/09/89	09/09/89	09/07/89	09/09/89	09/09/89

ANALYTE	CRQL								
Chloromethane	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Bromomethane	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Vinyl Chloride	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Chloroethane	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Methylene Chloride	5	11 B	9 B	16 B	9 B	14 B	22 B	13 B	10 B
Acetone	10	8 BJ	13 B	16	9 BJ	11 U	26 B	11 BJ	11 U
Carbon Disulfide	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
1,1-Dichloroethene	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
1,1-Dichloroethane	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
1,2-Dichloroethene (total)	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
Chloroform	5	6 U	5 U	6 U	6 U	1 BJ	2 BJ	1 BJ	5 U
1,2-Dichloroethane	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
2-Butanone	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	5	6 U	5 U	2 BJ	6 U	5 U	5 U	6 U	5 U
Carbon Tetrachloride	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
Vinyl Acetate	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Bromodichloromethane	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
1,2-Dichloropropene	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
Cis-1,3-Dichloropropene	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
Trichloroethene	5	6 U	5 U	2 BJ	6 U	5 U	5 U	6 U	5 U
Dibromochloromethane	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
1,1,2-Trichloroethane	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
Benzene	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
Trans-1,3-Dichloropropene	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
Bromoform	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
4-Methyl-2-Pentanone	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
2-Hexanone	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Tetrachloroethene	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
1,1,2,2-Tetrachloroethane	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
Toluene	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
Chlorobenzene	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
Ethylbenzene	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
Styrene	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
Xylenes (Total)	5	6 U	5 U	6 U	6 U	5 U	5 U	6 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		89	94	89	89	93	92	90	91
Associated Method Blank:		GH085336C12	GH085336C12	GH085581A18	GH085336C12	GH085336C12	GH083948C12	GH085336C12	GH084531B19

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01TP111X0501XX	01TP112X0001XX	01TP112X0301XX	01TP113X0001XX	01TP113X0301XX	01TP114X0101XX	01TP115X0001XX	07TP115X0001XD
		LAB NUMBER: 284451	284203	284192	284200	284193	284453	284202	284736
		DATE SAMPLED: 08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	09/02/89
		DATE ANALYZED: 09/12/89	09/09/89	09/09/89	09/09/89	09/09/89	09/07/89	09/09/89	09/09/89
Chloromethane	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Bromomethane	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Vinyl Chloride	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Chloroethane	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Methylene Chloride	5	35 B	4 BJ	17 B	9 B	16 B	31 B	6 B	28 B
Acetone	10	11	7 BJ	110 B	11 U	23 B	11 U	15 B	59 B
Carbon Disulfide	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	6 U	2 J	5 U	5 U
2-Butanone	10	11 U	11 U	29	11 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
Vinyl Acetate	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	11 U
2-Hexanone	10	11 U	11 U	87	11 U	11 U	11 U	11 U	11 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	3 J	5 U	6 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	6 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	4 J	5 U	1 J	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		93	93	92	94	90	91	92	94
Associated Method Blank:		GH085977C18	GH084531B19	GH084531B19	GH084531B19	GH084531B19	GH084645B12	GH084531B19	GH084920A18

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP115X0301XX	01TP115X0701XX	01TP116X0001XX	01TP116X1101XX	01TP116X1101XD	01TP117X0001XX	01TP117X1101XX	01TP117X1101XD
LAB NUMBER:	284190	284201	284748	284965	284969	284967	284970	284971
DATE SAMPLED:	08/31/89	08/31/89	09/01/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89
DATE ANALYZED:	09/09/89	09/09/89	09/09/89	09/13/89	09/16/89	09/16/89	09/14/89	09/14/89

ANALYTE	CRQL								
Chloromethane	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	11 U
Bromomethane	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	11 U
Vinyl Chloride	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	11 U
Chloroethane	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	11 U
Methylene Chloride	5	15 B	15 B	24 B	16 B	27 B	54 B	21 B	24 B
Acetone	10	26 B	30 B	49 B	23 B	38 B	51 B	18 B	10 BJ
Carbon Disulfide	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
1,1-Dichloroethene	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
1,1-Dichloroethane	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
1,2-Dichloroethene (total)	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
Chloroform	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
1,2-Dichloroethane	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
2-Butanone	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	3 J
Carbon Tetrachloride	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
Vinyl Acetate	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	11 U
Bromodichloromethane	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
1,2-Dichloropropane	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
Cis-1,3-Dichloropropene	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
Trichloroethene	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
Dibromochloromethane	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
1,1,2-Trichloroethane	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
Benzene	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
Trans-1,3-Dichloropropene	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
Bromoform	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
4-Methyl-2-Pentanone	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	11 U
2-Hexanone	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	11 U
Tetrachloroethene	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	3 J
1,1,2,2-Tetrachloroethane	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
Toluene	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	2 J
Chlorobenzene	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
Ethylbenzene	5	1 J	6 U	5 U	6 U	6 U	5 U	6 U	6 U
Styrene	5	5 U	6 U	5 U	6 U	6 U	5 U	6 U	6 U
Xylenes (Total)	5	33	4 J	5 U	6 U	6 U	5 U	6 U	36
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		93	82	94	90	88	95	88	88
Associated Method Blank:		GH084530C19	GH084531B19	GH084920A18	GH085201A19	GH087209A18	GH087209A18	GH085202B19	GH085202B19

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP118X0001XX	01TP118X0701XX	01TP118X0701XD	01TP119X0001XX	01TP119X0301XX	01TP120X0801XX	01TP120X0801XD	01TP121X0701XX
LAB NUMBER:	284968	284966	284972	284764	284749	285503	285506	284964
DATE SAMPLED:	09/06/89	09/06/89	09/06/89	09/01/89	09/01/89	09/07/89	09/07/89	09/06/89
DATE ANALYZED:	09/13/89	09/13/89	09/13/89	09/10/89	09/09/89	09/12/89	09/12/89	09/13/89

ANALYTE	CRQL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Methylene Chloride	5	12 B	37 B	33 B	6 B	25 B	19 B	13 B	12 B
Acetone	10	10 BJ	39 B	13 B	10 U	76 B	13	10 J	25 B
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	96	96	96	96	97	94	95	95
Associated Method Blank:	GW085201A19	GW085201A19	GW085202B19	GW085185B19	GW084920A18	GW085977C18	GW085977C18	GW085201A19

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP121X0701XD	01TP122X0201XX	01TP122X0201XD	01TP123X0501XX	01TP123X0501XD	01TP124X0001XX	01TP124X0001XD	01TP124X0301XX
LAB NUMBER:	284463	285508	285510	285512	285517	284464	284466	284467
DATE SAMPLED:	09/06/89	09/07/89	09/07/89	09/07/89	09/07/89	09/01/89	09/01/89	09/01/89
DATE ANALYZED:	09/13/89	09/12/89	09/14/89	09/13/89	09/13/89	09/10/89	09/10/89	09/10/89

ANALYTE	CRQL								
Chloromethane	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	12 U
Bromomethane	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	12 U
Vinyl Chloride	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	12 U
Chloroethane	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	12 U
Methylene Chloride	5	16 B	17 B	19 B	30 B	26 B	9 B	10 B	13 B
Acetone	10	16 B	11 U	8 BJ	37 B	20 B	11 U	11 U	29
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Chloroform	5	1 BJ	1 J	3 J	2 BJ	2 BJ	5 U	5 U	6 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
2-Butanone	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	12 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Vinyl Acetate	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	12 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
4-Methyl-2-Pentanone	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	12 U
2-Hexanone	10	11 U	11 U	11 U	11 U	11 U	11 U	11 U	12 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		95	94	95	92	91	93	93	84
Associated Method Blank:		GH085201A19	GH085977C18	GH086699A19	GH085985A12	GH085985A12	GH084646C12	GH084646C12	GH084647A12

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 07TP708X0001XX LAB NUMBER: 284766 DATE SAMPLED: 09/02/89 DATE ANALYZED: 09/10/89	07TP709X0001XX 283663 08/29/89 09/07/89	07TP709X0201XX 283646 08/30/89 09/08/89	07TP709X0201XD 283651 08/30/89 09/07/89	07TP709X0401XX 283655 08/30/89 09/07/89	07TP710X0001XX 284737 09/02/89 09/09/89	07TP710X0201XX 284738 09/02/89 09/09/89	07TP711X0001XX 283654 08/29/89 09/07/89
Chloromethane	10	14 U	11 U	12 U	12 U	12 U	11 U	11 U	11 U
Bromomethane	10	14 U	11 U	12 U	12 U	12 U	11 U	11 U	11 U
Vinyl Chloride	10	14 U	11 U	12 U	12 U	12 U	11 U	11 U	11 U
Chloroethane	10	14 U	11 U	12 U	12 U	12 U	11 U	11 U	11 U
Methylene Chloride	5	17 B	19 B	24 B	22 B	30 B	13 B	11 B	14 B
Acetone	10	11 BJ	30 B	19 B	33 B	42 B	38 B	11 U	22 B
Carbon Disulfide	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
1,1-Dichloroethene	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
1,1-Dichloroethane	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Chloroform	5	7 U	2 BJ	6 U	2 BJ	2 BJ	5 U	5 U	2 BJ
1,2-Dichloroethane	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
2-Butanone	10	14 U	11 U	12 U	12 U	12 U	11 U	11 U	11 U
1,1,1-Trichloroethane	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Carbon Tetrachloride	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Vinyl Acetate	10	14 U	11 U	12 U	12 U	12 U	11 U	11 U	11 U
Bromodichloromethane	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
1,2-Dichloropropane	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Trichloroethene	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Dibromochloromethane	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Benzene	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Bromoform	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	14 U	11 U	12 U	12 U	12 U	11 U	11 U	11 U
2-Hexanone	10	14 U	11 U	12 U	12 U	12 U	11 U	11 U	11 U
Tetrachloroethene	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Toluene	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Chlorobenzene	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Ethylbenzene	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Styrene	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Xylenes (Total)	5	7 U	5 U	6 U	6 U	6 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		72	94	84	82	83	92	93	93
Associated Method Blank:		GH085186C19	GH083948C12	GH084919C18	GH083948C12	GH083948C12	GH084920A18	GH084920A18	GH083948C12

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		07TP711X0201XX	07TP711X0401XX	07TP712X0001XX	07TP712X0201XX	07TP712X0401XX	07TP713X0001XX	07TP713X0201XX	07TP713X0401XX
LAB NUMBER:		283657	283653	284767	284739	284763	283355	283357	283356
DATE SAMPLED:		08/29/89	08/29/89	09/02/89	09/02/89	09/02/89	08/29/89	08/29/89	08/29/89
DATE ANALYZED:		09/07/89	09/07/89	09/10/89	09/09/89	09/10/89	09/01/89	09/01/89	09/01/89
ANALYTE	CRQL								
Chloromethane	10	11 U	11 U	14 U	12 U	13 U	10 U	11 U	12 U
Bromomethane	10	11 U	11 U	14 U	12 U	13 U	10 U	11 U	12 U
Vinyl Chloride	10	11 U	11 U	14 U	12 U	13 U	10 U	11 U	12 U
Chloroethane	10	11 U	11 U	14 U	12 U	13 U	10 U	11 U	12 U
Methylene Chloride	5	19 B	16 B	15 B	22 B	12 B	11 B	10 B	15 B
Acetone	10	24 B	23 B	23 B	12 U	16 B	9 BJ	9 BJ	11 BJ
Carbon Disulfide	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
1,1-Dichloroethene	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
1,1-Dichloroethane	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
1,2-Dichloroethene (total)	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
Chloroform	5	1 BJ	1 BJ	7 U	6 U	6 U	2 J	1 J	2 J
1,2-Dichloroethane	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
2-Butanone	10	11 U	11 U	14 U	12 U	13 U	10 U	11 U	12 U
1,1,1-Trichloroethane	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
Carbon Tetrachloride	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
Vinyl Acetate	10	11 U	11 U	14 U	12 U	13 U	10 U	11 U	12 U
Bromodichloromethane	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
1,2-Dichloropropane	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
Cis-1,3-Dichloropropene	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
Trichloroethene	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
Dibromochloromethane	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
1,1,2-Trichloroethane	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
Benzene	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
Trans-1,3-Dichloropropene	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
Bromoform	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
4-Methyl-2-Pentanone	10	11 U	11 U	14 U	12 U	13 U	10 U	11 U	12 U
2-Hexanone	10	11 U	11 U	14 U	12 U	13 U	10 U	11 U	12 U
Tetrachloroethene	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
Toluene	5	4 J	2 J	7 U	6 U	6 U	5 U	5 U	6 U
Chlorobenzene	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
Ethylbenzene	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
Styrene	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
Xylenes (Total)	5	5 U	5 U	7 U	6 U	6 U	5 U	5 U	6 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		95	93	73	85	78	96	93	84
Associated Method Blank:		GH083948C12	GH083948C12	GH085186C19	GH084920A18	GH085186C19	GH083580C18	GH083580C18	GH083580C18

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 07TP714X0001XX LAB NUMBER: 284740 DATE SAMPLED: 09/02/89 DATE ANALYZED: 09/09/89	07TP714X0001XD 284750 09/02/89 09/09/89	07TP714X0201XX 284744 09/02/89 09/09/89	07TP714X0401XX 284765 09/02/89 09/10/89	07TP715X0001XX 284751 09/02/89 09/10/89	07TP715X0201XX 284745 09/02/89 09/10/89	07TP715X0401XX 284762 09/02/89 09/10/89	07TP716X0001XX 283659 08/29/89 09/07/89
Chloromethane	10	11 U	11 U	12 U	14 U	11 U	11 U	11 U	11 U
Bromomethane	10	11 U	11 U	12 U	14 U	11 U	11 U	11 U	11 U
Vinyl Chloride	10	11 U	11 U	12 U	14 U	11 U	11 U	11 U	11 U
Chloroethane	10	11 U	11 U	12 U	14 U	11 U	11 U	11 U	11 U
Methylene Chloride	5	46 B	42 B	37 B	12 B	11 B	20 B	11 B	25 B
Acetone	10	11 U	180 B	69 B	18 B	15	15	16	58 B
Carbon Disulfide	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
1,1-Dichloroethene	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
1,1-Dichloroethane	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
1,2-Dichloroethene (total)	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
Chloroform	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	3 BJ
1,2-Dichloroethane	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
2-Butanone	10	11 U	11 U	12 U	14 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	5	6 U	6 U	6 U	7 U	5 U	2 BJ	6 U	5 U
Carbon Tetrachloride	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
Vinyl Acetate	10	11 U	11 U	12 U	14 U	11 U	11 U	11 U	11 U
Bromodichloromethane	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
1,2-Dichloropropane	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
Cis-1,3-Dichloropropene	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
Trichloroethene	5	6 U	6 U	6 U	7 U	5 U	1 BJ	6 U	5 U
Dibromochloromethane	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
1,1,2-Trichloroethane	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
Benzene	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
Trans-1,3-Dichloropropene	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
Bromoform	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
4-Methyl-2-Pentanone	10	11 U	11 U	12 U	14 U	11 U	11 U	11 U	11 U
2-Hexanone	10	11 U	11 U	12 U	14 U	11 U	11 U	11 U	11 U
Tetrachloroethene	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
1,1,2,2-Tetrachloroethane	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
Toluene	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
Chlorobenzene	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
Ethylbenzene	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
Styrene	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
Xylenes (Total)	5	6 U	6 U	6 U	7 U	5 U	6 U	6 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		89	89	84	74	91	88	89	93
Associated Method Blank:		GW084920A18	GW084920A18	GW084920A18	GW085186C19	GW085185B19	GW085581A18	GW085185B19	GW083948C12

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 07TP716X0201XX LAB NUMBER: 283661 DATE SAMPLED: 08/29/89 DATE ANALYZED: 09/07/89	07TP716X0401XX 283656 08/29/89 09/07/89	07TP717X0001XX 283658 08/29/89 09/07/89	07TP717X0201XX 283660 08/29/89 09/07/89	07TP717X0401XX 283662 08/29/89 09/07/89	07TP718X0001XX 284761 09/02/89 09/10/89	07TP718X0201XX 284768 09/02/89 09/10/89	07TP719X0001XX 284746 09/02/89 09/09/89
Chloromethane	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	12 U
Bromomethane	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	12 U
Vinyl Chloride	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	12 U
Chloroethane	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	12 U
Methylene Chloride	5	17 B	21 B	29 B	32 B	21 B	12 B	7 B	18 B
Acetone	10	32 B	22 B	28 B	90 B	50 B	16	26 B	12 U
Carbon Disulfide	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
1,1-Dichloroethene	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
1,1-Dichloroethane	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
1,2-Dichloroethene (total)	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
Chloroform	5	2 BJ	2 BJ	3 BJ	3 BJ	2 BJ	5 U	5 U	6 U
1,2-Dichloroethane	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
2-Butanone	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	12 U
1,1,1-Trichloroethane	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
Carbon Tetrachloride	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
Vinyl Acetate	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	12 U
Bromodichloromethane	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
1,2-Dichloropropane	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
Cis-1,3-Dichloropropene	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
Trichloroethene	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
Dibromochloromethane	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
1,1,2-Trichloroethane	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
Benzene	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
Trans-1,3-Dichloropropene	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
Bromoform	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
4-Methyl-2-Pentanone	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	12 U
2-Hexanone	10	11 U	12 U	11 U	11 U	11 U	11 U	11 U	12 U
Tetrachloroethene	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
1,1,2,2-Tetrachloroethane	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
Toluene	5	5 U	2 J	5 U	6 U	6 U	5 U	5 U	6 U
Chlorobenzene	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
Ethylbenzene	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
Styrene	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
Xylenes (Total)	5	5 U	6 U	5 U	6 U	6 U	5 U	5 U	6 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		93	83	95	87	87	94	94	83
Associated Method Blank:		GH083948C12	GH083948C12	GH083948C12	GH083948C12	GH083948C12	GH085185B19	GH085186C19	GH084920A18

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	07TP719X0201XX	08TP801X0001XX	08TP801X0201XX	08TP802X0001XX	08TP802X0101XX	08TP803X0001XX	08TP803X0201XX	08TP803X0301XX
SAMPLE LOCATION:		07TP719X0201XX	08TP801X0001XX	08TP801X0201XX	08TP802X0001XX	08TP802X0101XX	08TP803X0001XX	08TP803X0201XX	08TP803X0301XX
LAB NUMBER:		284747	283362	283363	283364	283365	283366	283378	283367
DATE SAMPLED:		09/02/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89
DATE ANALYZED:		09/09/89	09/06/89	09/06/89	09/06/89	09/06/89	09/08/89	09/01/89	09/01/89
Chloromethane	10	12 U	10 U	11 U	10 U	11 U	10 U	10 U	14 U
Bromomethane	10	12 U	10 U	11 U	10 U	11 U	10 U	10 U	14 U
Vinyl Chloride	10	12 U	10 U	11 U	10 U	11 U	10 U	10 U	14 U
Chloroethane	10	12 U	10 U	11 U	10 U	11 U	10 U	10 U	14 U
Methylene Chloride	5	19 B	6 B	8 B	14 B	9 B	18 B	21 B	45 B
Acetone	10	12 U	18 B	11 B	27 B	25 B	18 B	14 B	72 B
Carbon Disulfide	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
1,1-Dichloroethene	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
1,1-Dichloroethane	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
1,2-Dichloroethene (total)	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
Chloroform	5	6 U	5 U	5 U	5 U	5 U	1 J	5 U	2 J
1,2-Dichloroethane	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
2-Butanone	10	12 U	10 U	11 U	10 U	11 U	10 U	10 U	14 U
1,1,1-Trichloroethane	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
Carbon Tetrachloride	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
Vinyl Acetate	10	12 U	10 U	11 U	10 U	11 U	10 U	10 U	14 U
Bromodichloromethane	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
1,2-Dichloropropane	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
Cis-1,3-Dichloropropene	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
Trichloroethene	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
Dibromochloromethane	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
1,1,2-Trichloroethane	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
Benzene	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
Trans-1,3-Dichloropropene	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
Bromoform	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
4-Methyl-2-Pentanone	10	12 U	10 U	11 U	10 U	11 U	10 U	10 U	14 U
2-Hexanone	10	12 U	10 U	11 U	10 U	11 U	10 U	10 U	14 U
Tetrachloroethene	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
1,1,2,2-Tetrachloroethane	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
Toluene	5	6 U	3 J	4 J	7	3 J	5 U	5 U	7 U
Chlorobenzene	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
Ethylbenzene	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
Styrene	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
Xylenes (Total)	5	6 U	5 U	5 U	5 U	5 U	5 U	5 U	7 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		83	98	95	98	95	99	97	69
Associated Method Blank:		GW084920A18	GW083581C19	GW083581C19	GW083581C19	GW083581C19	GW084919C18	GW083585C19	GW083585C19

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		08TP804X0001XX	08TP804X0201XX	08TP805X0001XX	08TP805X0401XX	08TP805X0801XX	08TP806X0001XX	08TP806X0301XX	08TP806X0601XX
LAB NUMBER:		283374	283379	283080	283079	283081	283071	283078	283077
DATE SAMPLED:		08/29/89	08/29/89	08/28/89	08/28/89	08/28/89	08/28/89	08/28/89	08/28/89
DATE ANALYZED:		09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	08/31/89	09/01/89	08/31/89
ANALYTE	CRQL								
Chloromethane	10	10 U	10 U	10 U	11 U	11 U	10 U	11 U	11 U
Bromomethane	10	10 U	10 U	10 U	11 U	11 U	10 U	11 U	11 U
Vinyl Chloride	10	10 U	10 U	10 U	11 U	11 U	10 U	11 U	11 U
Chloroethane	10	10 U	10 U	10 U	11 U	11 U	10 U	11 U	11 U
Methylene Chloride	5	85 B	16 B	12 B	10 B	10 B	8 B	16 B	8 B
Acetone	10	17 B	15 B	10 U	11 U	11 U	30 B	15	13 B
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Chloroform	5	1 J	5 U	2 J	1 J	1 J	2 BJ	5 U	2 BJ
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
2-Butanone	10	10 U	10 U	10 U	11 U	11 U	10 U	11 U	11 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Vinyl Acetate	10	10 U	10 U	10 U	11 U	11 U	10 U	11 U	11 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	11 U	11 U	10 U	11 U	11 U
2-Hexanone	10	10 U	10 U	10 U	11 U	11 U	10 U	11 U	11 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	6 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		97	97	98	95	91	99	94	89
Associated Method Blank:		GH083585C19	GH083585C19	GH083227C12	GH083227C12	GH083227C12	GH083226B12	GH083227C12	GH083226B12

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 08TP807X0101XX	08TP808X0101XX	08TP809X0201XX	08TP810X0101XX	13TPX01X0001XX	13TPX01X0201XX	13TPX01X0401XX	13TPX02X0001XX
		LAB NUMBER: 283381	283382	283383	283384	284789	284780	284778	284774
		DATE SAMPLED: 08/29/89	08/29/89	08/29/89	08/29/89	09/05/89	09/05/89	09/05/89	09/05/89
		DATE ANALYZED: 09/01/89	09/01/89	09/01/89	09/01/89	09/11/89	09/11/89	09/11/89	09/10/89
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Methylene Chloride	5	29 B	22 B	11 B	6 B	9 B	21 B	34 B	8 B
Acetone	10	16 B	12 B	11 B	8 BJ	10 U	14 B	20 B	11 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	1 J	1 J	5 U	5 U	1 J	2 J	4 J	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	11 U	11 U	11 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		97	97	97	97	96	93	95	92
Associated Method Blank:		GW083585C19	GW083585C19	GW083585C19	GW083585C19	GW085192A18	GW085192A18	GW085192A18	GW085186C19

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	13TPX02X0201XX	13TPX02X0401XX	13TPX03X0001XX	13TPX03X0201XX	13TPX03X0401XX	13TPX04X0001XX	13TPX04X0201XX	13TPX05X0001XX
LAB NUMBER:	284770	284779	284787	284771	284773	284775	284790	284769
DATE SAMPLED:	09/05/89	09/05/89	09/05/89	09/05/89	09/05/89	09/05/89	09/05/89	09/05/89
DATE ANALYZED:	09/10/89	09/13/89	09/11/89	09/10/89	09/10/89	09/10/89	09/13/89	09/10/89

ANALYTE	CRQL								
Chloromethane	10	10 U	11 U	11 U	10 U	10 U	12 U	11 U	11 U
Bromomethane	10	10 U	11 U	11 U	10 U	10 U	12 U	11 U	11 U
Vinyl Chloride	10	10 U	11 U	11 U	10 U	10 U	12 U	11 U	11 U
Chloroethane	10	10 U	11 U	11 U	10 U	10 U	12 U	11 U	11 U
Methylene Chloride	5	7 B	13 B	12 B	5 BJ	7 B	6 B	10 B	4 BJ
Acetone	10	10 U	15 B	9 BJ	10 U	11 B	12 U	10 BJ	8 BJ
Carbon Disulfide	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
1,1-Dichloroethene	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
1,1-Dichloroethane	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Chloroform	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
1,2-Dichloroethane	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
2-Butanone	10	10 U	11 U	11 U	10 U	11 U	12 U	11 U	11 U
1,1,1-Trichloroethane	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Carbon Tetrachloride	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Vinyl Acetate	10	10 U	11 U	11 U	10 U	11 U	12 U	11 U	11 U
Bromodichloromethane	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
1,2-Dichloropropane	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Trichloroethene	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Dibromochloromethane	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Benzene	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Bromoform	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	11 U	11 U	10 U	11 U	12 U	11 U	11 U
2-Hexanone	10	10 U	11 U	11 U	10 U	11 U	12 U	11 U	11 U
Tetrachloroethene	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Toluene	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Chlorobenzene	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Ethylbenzene	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Styrene	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Xylenes (Total)	5	5 U	6 U	5 U	5 U	5 U	6 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		97	89	94	97	92	86	94	94
Associated Method Blank:		GM085186C19	GM086131C19	GM085192A18	GM085186C19	GM085186C19	GM085186C19	GM086131C19	GM085186C19

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		13TPX05X0001XD	13TPX05X0201XX	13TPX06X0001XX	13TPX06X0201XX	13TPX06X0401XX
LAB NUMBER:		284776	284772	284777	284793	284792
DATE SAMPLED:		09/05/89	09/05/89	09/05/89	09/05/89	09/05/89
DATE ANALYZED:		09/10/89	09/10/89	09/11/89	09/11/89	09/11/89
ANALYTE	CRQL					
Chloromethane	10	10 U	11 U	11 U	11 U	11 U
Bromomethane	10	10 U	11 U	11 U	11 U	11 U
Vinyl Chloride	10	10 U	11 U	11 U	11 U	11 U
Chloroethane	10	10 U	11 U	11 U	11 U	11 U
Methylene Chloride	5	7 B	5 U	14 B	20 B	13 B
Acetone	10	13 B	3 BJ	13 B	11 U	11 BJ
Carbon Disulfide	5	5 U	5 U	5 U	5 U	6 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	6 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	6 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	6 U
Chloroform	5	5 U	5 U	1 J	5 U	6 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	6 U
2-Butanone	10	10 U	11 U	11 U	11 U	11 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	6 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	6 U
Vinyl Acetate	10	10 U	11 U	11 U	11 U	11 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	6 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	6 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	6 U
Trichloroethene	5	5 U	5 U	5 U	5 U	6 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	6 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	6 U
Benzene	5	5 U	5 U	5 U	5 U	6 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	6 U
Bromoform	5	5 U	5 U	5 U	5 U	6 U
4-Methyl-2-Pentanone	10	10 U	11 U	11 U	11 U	11 U
2-Hexanone	10	10 U	11 U	11 U	11 U	11 U
Tetrachloroethene	5	5 U	1 J	5 U	5 U	6 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	6 U
Toluene	5	5 U	5 U	5 U	5 U	6 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	6 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	6 U
Styrene	5	5 U	5 U	5 U	5 U	6 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	6 U
Dilution Factor:		1	1	1	1	1
Percent Solids:		96	94	95	95	88
Associated Method Blank:		GW085186C19	GW085186C19	GW085192A18	GW085192A18	GW085192A18

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP104X0001XX	01TP104X1001XX	01TP104X1301XX	01TP106X0001XX	01TP106X0301XX	01TP107X0001XX	01TP107X0001XD	01TP107X0301XX
LAB NUMBER:	284468	284465	284469	283669	283667	283682	283683	283685
DATE SAMPLED:	09/01/89	09/01/89	09/01/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89
DATE EXTRACTED:	09/12/89	09/07/89	09/07/89	09/06/89	09/05/89	09/06/89	09/06/89	09/06/89
DATE ANALYZED:	09/13/89	09/08/89	09/09/89	09/07/89	09/06/89	09/07/89	09/07/89	09/07/89

ANALYTE	CRQL								
Phenol	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
bis(2-Chloroethyl)ether	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
2-Chlorophenol	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
1,3-Dichlorobenzene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
1,4-Dichlorobenzene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Benzyl alcohol	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
1,2-Dichlorobenzene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
2-Methylphenol	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
bis(2-Chloroisopropyl)ether	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
4-Methylphenol	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
N-Nitroso-di-n-propylamine	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Hexachloroethane	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Nitrobenzene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Isophorone	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
2-Nitrophenol	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
2,4-Dimethylphenol	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Benzoic acid	1600	1600 U	1700 U	1900 U	1700 U	1800 U	1800 U	1700 U	1800 U
bis(2-Chloroethoxy)methane	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
2,4-Dichlorophenol	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
1,2,4-Trichlorobenzene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Naphthalene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
4-Chloroaniline	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Hexachlorobutadiene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
4-Chloro-3-Methylphenol	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
2-Methylnaphthalene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Hexachlorocyclopentadiene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
2,4,6-Trichlorophenol	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
2,4,5-Trichlorophenol	1600	1600 U	1700 U	1900 U	1700 U	1800 U	1800 U	1700 U	1800 U
2-Chloronaphthalene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
2-Nitroaniline	1600	1600 U	1700 U	1900 U	1700 U	1800 U	1800 U	1700 U	1800 U
Dimethylphthalate	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Acenaphthylene	330	340 U	350 U	400 U	340 U	360 U	170 J	52 J	370 U
2,6-Dinitrotoluene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U

* = Held for analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP104X0001XX	01TP104X1001XX	01TP104X1301XX	01TP106X0001XX	01TP106X0301XX	01TP107X0001XX	01TP107X0001XD	01TP107X0301XX
LAB NUMBER:	284468	284465	284469	283669	283667	283682	283683	283685
DATE SAMPLED:	09/01/89	09/01/89	09/01/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89
DATE EXTRACTED:	09/12/89	09/07/89	09/07/89	09/06/89	09/05/89	09/06/89	09/06/89	09/06/89
DATE ANALYZED:	09/13/89	09/08/89	09/09/89	09/07/89	09/06/89	09/07/89	09/07/89	09/07/89

ANALYTE	CRQL								
3-Nitroaniline	1600	1600 U	1700 U	1900 U	1700 U	1800 U	1800 U	1700 U	1800 U
Acenaphthene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
2,4-Dinitrophenol	1600	1600 U	1700 U	1900 U	1700 U	1800 U	1800 U	1700 U	1800 U
4-Nitrophenol	1600	1600 U	1700 U	1900 U	1700 U	1800 U	1800 U	1700 U	1800 U
Dibenzofuran	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
2,4-Dinitrotoluene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Diethylphthalate	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
4-Chlorophenyl-phenylether	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Fluorene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
4-Nitroaniline	1600	1600 U	1700 U	1900 U	1700 U	1800 U	1800 U	1700 U	1800 U
4,6-Dinitro-2-methylphenol	1600	1600 U	1700 U	1900 U	1700 U	1800 U	1800 U	1700 U	1800 U
N-Nitrosodiphenylamine	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
4-Bromophenyl-phenylether	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Hexachlorobenzene	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Pentachlorophenol	1600	1600 U	1700 U	1900 U	1700 U	1800 U	1800 U	1700 U	1800 U
Phenanthrene	330	340 U	350 U	400 U	340 U	63 J	270 J	200 J	59 J
Anthracene	330	340 U	350 U	400 U	340 U	360 U	130 J	80 J	370 U
Di-n-butylphthalate	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Fluoranthene	330	340 U	55 J	400 U	340 U	130 J	2900	1200	110 J
Pyrene	330	340 U	100 J	400 U	340 U	120 J	2000	980	84 J
Butylbenzylphthalate	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
3,3'-Dichlorobenzidine	660	680 U	700 U	800 U	690 U	730 U	730 U	720 U	740 U
Benzo(a)Anthracene	330	340 U	41 J	400 U	340 U	70 J	1900	790	46 J
Chrysene	330	340 U	57 J	400 U	40 J	82 J	1500	680	74 J
bis(2-Ethylhexyl)phthalate	330	53 J	68 BJ	400 U	340 U	360 U	360 U	360 U	57 J
Di-n-octylphthalate	330	340 U	350 U	400 U	340 U	360 U	360 U	360 U	370 U
Benzo(b)Fluoranthene	330	340 U	81 JX	400 U	340 U	43 J	2700 X	1000 X	370 U
Benzo(k)Fluoranthene	330	340 U	81 JX	400 U	340 U	61 J	2700 X	1000 X	370 U
Benzo(a)Pyrene	330	340 U	41 J	400 U	340 U	50 J	1700	670	370 U
Indeno(1,2,3-cd)pyrene	330	340 U	350 U	400 U	340 U	360 U	660	350 J	370 U
Dibenz(a,h)anthracene	330	340 U	350 U	400 U	340 U	360 U	350 J	180 J	370 U
Benzo(g,h,i,)perylene	330	340 U	350 U	400 U	340 U	37 J	630	340 J	370 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		97	94	83	96	91	91	92	89
Associated Method Blank:		GJ086385A06	G2J84925A08	G2J84925A08	GW084621C21	GW084568A21	GW084621C21	GW084621C21	GW084621C21

* = [illegible] for analysis, X = Compounds could not be separated due to coelutio[illegible]

BRTP-[illegible]

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP107X0601XX	01TP108X0001XX	01TP108X0001XD	01TP108X0301XX	01TP109X0001XX	01TP109X0301XX	01TP110X0001XX	01TP112X0001XX
LAB NUMBER:	283680	283684	283686	283681	283668	283679	284204	284203
DATE SAMPLED:	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/31/89
DATE EXTRACTED:	09/06/89	09/06/89	09/06/89	09/06/89	09/05/89	09/06/89	09/06/89	09/06/89
DATE ANALYZED:	09/07/89	09/07/89	09/08/89	09/07/89	09/11/89	09/07/89	09/12/89	09/07/89

ANALYTE	CRQL								
Phenol	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
bis(2-Chloroethyl)ether	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
2-Chlorophenol	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
1,3-Dichlorobenzene	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
1,4-Dichlorobenzene	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
Benzyl alcohol	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
1,2-Dichlorobenzene	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
2-Methylphenol	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
bis(2-Chloroisopropyl)ether	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
4-Methylphenol	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
N-Nitroso-di-n-propylamine	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
Hexachloroethane	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
Nitrobenzene	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
Isophorone	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
2-Nitrophenol	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
2,4-Dimethylphenol	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
Benzoic acid	1600	1700 U	1800 U	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U
bis(2-Chloroethoxy)methane	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
2,4-Dichlorophenol	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
1,2,4-Trichlorobenzene	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
Naphthalene	330	350 U	140 J	43 J	350 U	360 U	370 U	360 U	350 U
4-Chloroaniline	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
Hexacholorobutadiene	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
4-Chloro-3-Methylphenol	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
2-Methylnaphthalene	330	350 U	110 J	370 U	350 U	360 U	370 U	360 U	350 U
Hexachlorocyclopentadiene	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
2,4,6-Trichlorophenol	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
2,4,5-Trichlorophenol	1600	1700 U	1800 U	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U
2-Chloronaphthalene	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
2-Nitroaniline	1600	1700 U	1800 U	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U
Dimethylphthalate	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
Acenaphthylene	330	350 U	120 J	50 J	350 U	360 U	370 U	360 U	350 U
2,6-Dinitrotoluene	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U

* = Held for analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP107X0601XX	01TP108X0001XX	01TP108X0001XD	01TP108X0301XX	01TP109X0001XX	01TP109X0301XX	01TP110X0001XX	01TP112X0001XX
LAB NUMBER:	283680	283684	283686	283681	283668	283679	284204	284203
DATE SAMPLED:	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/31/89
DATE EXTRACTED:	09/06/89	09/06/89	09/06/89	09/06/89	09/05/89	09/06/89	09/06/89	09/06/89
DATE ANALYZED:	09/07/89	09/07/89	09/08/89	09/07/89	09/11/89	09/07/89	09/12/89	09/07/89

ANALYTE	CRQL								
3-Nitroaniline	1600	1700 U	1800 U	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U
Acenaphthene	330	350 U	51 J	370 U	350 U	360 U	370 U	360 U	350 U
2,4-Dinitrophenol	1600	1700 U	1800 U	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U
4-Nitrophenol	1600	1700 U	1800 U	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U
Dibenzofuran	330	350 U	55 J	370 U	350 U	360 U	370 U	360 U	350 U
2,4-Dinitrotoluene	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
Diethylphthalate	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
4-Chlorophenyl-phenylether	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
Fluorene	330	350 U	120 J	370 U	350 U	53 J	370 U	360 U	350 U
4-Nitroaniline	1600	1700 U	1800 U	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U
4,6-Dinitro-2-methylphenol	1600	1700 U	1800 U	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U
N-Nitrosodiphenylamine	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
4-Bromophenyl-phenylether	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
Hexachlorobenzene	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
Pentachlorophenol	1600	1700 U	1800 U	1800 U	1700 U	1700 U	1800 U	1800 U	1700 U
Phenanthrene	330	350 U	640	220 J	350 U	510	370 U	80 J	350 U
Anthracene	330	350 U	96 J	260 J	350 U	130 J	370 U	360 U	350 U
Di-n-butylphthalate	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
Fluoranthene	330	350 U	1100	540	350 U	600	370 U	140 J	59 J
Pyrene	330	350 U	800	500	350 U	500	370 U	150 J	45 J
Butylbenzylphthalate	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
3,3'-Dichlorobenzidine	660	700 U	740 U	740 U	710 U	720 U	730 U	730 U	710 U
Benzo(a)Anthracene	330	350 U	490	260 J	350 U	270 J	370 U	88 J	350 U
Chrysene	330	350 U	640	390	37 J	300 J	370 U	120 J	37 J
bis(2-Ethylhexyl)phthalate	330	350 U	370 U	370 U	350 U	360 U	370 U	110 J	740
Di-n-octylphthalate	330	350 U	370 U	370 U	350 U	360 U	370 U	360 U	350 U
Benzo(b)Fluoranthene	330	350 U	480	570 X	350 U	190 J	370 U	170 JX	350 U
Benzo(k)Fluoranthene	330	350 U	340 J	570 X	350 U	230 J	370 U	170 JX	350 U
Benzo(a)Pyrene	330	350 U	460	320 J	350 U	200 J	370 U	95 J	350 U
Indeno(1,2,3-cd)pyrene	330	350 U	280 J	170 J	350 U	360 U	370 U	40 J	350 U
Dibenz(a,h)anthracene	330	350 U	140 J	76 J	350 U	360 U	370 U	360 U	350 U
Benzo(g,h,i,)perylene	330	350 U	300 J	180 J	350 U	360 U	370 U	40 J	350 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	94	89	89	93	92	90	91	93
Associated Method Blank:	GW084621C21	GW084621C21	GW084621C21	GW084621C21	GW084568A21	GW084621C21	GW084626B06	GW084626B06

* [illegible]d for analysis, X = Compounds could not be separated due to coelut[illegible]

BRTP-0[illegible]

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP112X0301XX	01TP113X0001XX	01TP113X0301XX	01TP114X0101XX	01TP115X0001XX	07TP115X0001XD	01TP115X0301XX	01TP115X0701XX
LAB NUMBER:	284192	284200	284193	284453	284202	284736	284190	284201
DATE SAMPLED:	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	09/02/89	08/31/89	08/31/89
DATE EXTRACTED:	09/06/89	09/06/89	09/06/89	09/07/89	09/06/89	09/08/89	09/06/89	09/06/89
DATE ANALYZED:	09/08/89	09/08/89	09/08/89	09/08/89	09/08/89	09/09/89	09/08/89	09/08/89

ANALYTE	CRQL								
Phenol	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
bis(2-Chloroethyl)ether	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
2-Chlorophenol	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
1,3-Dichlorobenzene	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
1,4-Dichlorobenzene	330	360 U	350 U	370 U	360 U	360 U	350 U	69 J	400 U
Benzyl alcohol	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
1,2-Dichlorobenzene	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
2-Methylphenol	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
bis(2-Chloroisopropyl)ether	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
4-Methylphenol	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
N-Nitroso-di-n-propylamine	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
Hexachloroethane	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
Nitrobenzene	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
Isophorone	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
2-Nitrophenol	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
2,4-Dimethylphenol	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
Benzoic acid	1600	1700 U	1700 U	1800 U	1800 U	1700 U	36 J	1700 U	2000 U
bis(2-Chloroethoxy)methane	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
2,4-Dichlorophenol	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
1,2,4-Trichlorobenzene	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
Naphthalene	330	360 U	350 U	75 J	360 U	360 U	350 U	810	400 U
4-Chloroaniline	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
Hexacholorobutadiene	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
4-Chloro-3-Methylphenol	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
2-Methylnaphthalene	330	360 U	47 J	150 J	360 U	360 U	350 U	150 J	400 U
Hexachlorocyclopentadiene	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
2,4,6-Trichlorophenol	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
2,4,5-Trichlorophenol	1600	1700 U	1700 U	1800 U	1800 U	1700 U	1700 U	1700 U	2000 U
2-Chloronaphthalene	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
2-Nitroaniline	1600	1700 U	1700 U	1800 U	1800 U	1700 U	1700 U	1700 U	2000 U
Dimethylphthalate	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
Acenaphthylene	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U
2,6-Dinitrotoluene	330	360 U	350 U	370 U	360 U	360 U	350 U	350 U	400 U

* = Held for analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP116X0001XX	01TP116X1101XX	01TP116X1101XD	01TP117X0001XX	01TP117X1101XX	01TP117X1101XD	01TP118X0001XX	01TP118X0701XX
LAB NUMBER:	284748	284965	284969	284967	284970	284971	284968	284966
DATE SAMPLED:	09/01/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89
DATE EXTRACTED:	09/08/89	09/09/89	09/09/89	09/09/89	09/09/89	09/09/89	09/09/89	09/09/89
DATE ANALYZED:	09/09/89	09/11/89	09/11/89	09/11/89	09/11/89	09/11/89	09/11/89	09/11/89

ANALYTE	CRQL								
Phenol	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
bis(2-Chloroethyl)ether	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
2-Chlorophenol	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
1,3-Dichlorobenzene	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
1,4-Dichlorobenzene	330	350 U	370 U	370 U	350 U	950	1100	340 U	78 J
Benzyl alcohol	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
1,2-Dichlorobenzene	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
2-Methylphenol	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
bis(2-Chloroisopropyl)ether	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
4-Methylphenol	330	350 U	370 U	370 U	350 U	230 J	150 J	340 U	340 U
N-Nitroso-di-n-propylamine	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
Hexachloroethane	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
Nitrobenzene	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
Isophorone	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
2-Nitrophenol	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
2,4-Dimethylphenol	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
Benzoic acid	1600	1700 U	1800 U	1800 U	1700 U	360 J	410 J	110 J	1700 U
bis(2-Chloroethoxy)methane	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
2,4-Dichlorophenol	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
1,2,4-Trichlorobenzene	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
Naphthalene	330	350 U	370 U	370 U	350 U	240 J	200 J	340 U	340 U
4-Chloroaniline	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
Hexachlorobutadiene	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
4-Chloro-3-Methylphenol	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
2-Methylnaphthalene	330	350 U	370 U	370 U	350 U	480	360 J	340 U	340 U
Hexachlorocyclopentadiene	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
2,4,6-Trichlorophenol	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
2,4,5-Trichlorophenol	1600	1700 U	1800 U	1800 U	1700 U	1800 U	1800 U	1700 U	1700 U
2-Chloronaphthalene	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
2-Nitroaniline	1600	1700 U	1800 U	1800 U	1700 U	1800 U	1800 U	1700 U	1700 U
Dimethylphthalate	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
Acenaphthylene	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	56 J
2,6-Dinitrotoluene	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U

* = [illegible] for analysis, X = Compounds could not be separated due to coelution

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP116X0001XX	01TP116X1101XX	01TP116X1101XD	01TP117X0001XX	01TP117X1101XX	01TP117X1101XD	01TP118X0001XX	01TP118X0701XX
LAB NUMBER:	284748	284965	284969	284967	284970	284971	284968	284966
DATE SAMPLED:	09/01/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89
DATE EXTRACTED:	09/08/89	09/09/89	09/09/89	09/09/89	09/09/89	09/09/89	09/09/89	09/09/89
DATE ANALYZED:	09/09/89	09/11/89	09/11/89	09/11/89	09/11/89	09/11/89	09/11/89	09/11/89

ANALYTE	CRQL								
3-Nitroaniline	1600	1700 U	1800 U	1800 U	1700 U	1800 U	1800 U	1700 U	1700 U
Acenaphthene	330	350 U	370 U	370 U	56 J	89 J	150 J	340 U	340 U
2,4-Dinitrophenol	1600	1700 U	1800 U	1800 U	1700 U	1800 U	1800 U	1700 U	1700 U
4-Nitrophenol	1600	1700 U	1800 U	1800 U	1700 U	1800 U	1800 U	1700 U	1700 U
Dibenzofuran	330	350 U	370 U	370 U	350 U	54 J	110 J	340 U	340 U
2,4-Dinitrotoluene	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
Diethylphthalate	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
4-Chlorophenyl-phenylether	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
Fluorene	330	350 U	370 U	370 U	350 U	120 J	200 J	340 U	340 U
4-Nitroaniline	1600	1700 U	1800 U	1800 U	1700 U	1800 U	1800 U	1700 U	1700 U
4,6-Dinitro-2-methylphenol	1600	1700 U	1800 U	1800 U	1700 U	1800 U	1800 U	1700 U	1700 U
N-Nitrosodiphenylamine	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
4-Bromophenyl-phenylether	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
Hexachlorobenzene	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
Pentachlorophenol	1600	1700 U	1800 U	1800 U	1700 U	1800 U	1800 U	1700 U	1700 U
Phenanthrene	330	71 J	370 U	370 U	240 J	260 J	790	140 J	120 J
Anthracene	330	350 U	370 U	370 U	40 J	82 J	210 J	40 J	340 U
Di-n-butylphthalate	330	350 U	370 U	370 U	350 U	300 J	100 J	49 J	74 J
Fluoranthene	330	110 J	370 U	370 U	320 J	360 J	850	300 J	240 J
Pyrene	330	130 J	370 U	370 U	290 J	290 J	590	220 J	350
Butylbenzylphthalate	330	350 U	370 U	370 U	350 U	890	330 J	340 U	340 U
3,3'-Dichlorobenzidine	660	700 U	730 U	750 U	690 U	750 U	750 U	690 U	690 U
Benzo(a)Anthracene	330	62 J	370 U	370 U	170 J	170 J	400	150 J	190 J
Chrysene	330	62 J	370 U	370 U	180 J	160 J	400	170 J	220 J
bis(2-Ethylhexyl)phthalate	330	350 U	110 J	370 U	43 J	1700	1300	100 J	480
Di-n-octylphthalate	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
Benzo(b)Fluoranthene	330	99 JX	370 U	370 U	130 J	120 J	290 J	140 J	180 J
Benzo(k)Fluoranthene	330	99 JX	370 U	370 U	140 J	130 J	360 J	130 J	190 J
Benzo(a)Pyrene	330	64 J	370 U	370 U	150 J	150 J	400	160 J	130 J
Indeno(1,2,3-cd)pyrene	330	350 U	370 U	370 U	72 J	370 U	90 J	76 J	340 U
Dibenz(a,h)anthracene	330	350 U	370 U	370 U	350 U	370 U	370 U	340 U	340 U
Benzo(g,h,i,)perylene	330	350 U	370 U	370 U	59 J	370 U	370 U	80 J	340 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		94	90	88	95	88	88	96	96
Associated Method Blank:		GM085211A16	GM085587C21	GM085587C21	GM085587C21	GM085587C21	GM085587C21	GM085587C21	GM085587C21

* = Held for analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP122X0201XX	01TP122X0201XD	01TP123X0501XX	01TP123X0501XD	01TP124X0001XX	01TP124X0001XD	01TP124X0301XX	07TP708X0001XX
LAB NUMBER:	285508	285510	285512	285517	284464	284466	284467	284766
DATE SAMPLED:	09/07/89	09/07/89	09/07/89	09/07/89	09/01/89	09/01/89	09/01/89	09/02/89
DATE EXTRACTED:	09/14/89	09/14/89	09/14/89	09/14/89	09/07/89	09/07/89	09/07/89	09/08/89
DATE ANALYZED:	09/16/89	09/15/89	09/15/89	09/15/89	09/08/89	09/08/89	09/08/89	09/10/89

ANALYTE	CRQL								
Phenol	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
bis(2-Chloroethyl)ether	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
2-Chlorophenol	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
1,3-Dichlorobenzene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
1,4-Dichlorobenzene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Benzyl alcohol	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
1,2-Dichlorobenzene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
2-Methylphenol	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
bis(2-Chloroisopropyl)ether	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
4-Methylphenol	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
N-Nitroso-di-n-propylamine	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Hexachloroethane	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Nitrobenzene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Isophorone	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
2-Nitrophenol	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
2,4-Dimethylphenol	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Benzoic acid	1600	1700 U	1700 U	1700 U	1800 U	1700 U	1700 U	1900 U	2200 U
bis(2-Chloroethoxy)methane	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
2,4-Dichlorophenol	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
1,2,4-Trichlorobenzene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Naphthalene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
4-Chloroaniline	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Hexachlorobutadiene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
4-Chloro-3-Methylphenol	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
2-Methylnaphthalene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Hexachlorocyclopentadiene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
2,4,6-Trichlorophenol	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
2,4,5-Trichlorophenol	1600	1700 U	1700 U	1700 U	1800 U	1700 U	1700 U	1900 U	2200 U
2-Chloronaphthalene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
2-Nitroaniline	1600	1700 U	1700 U	1700 U	1800 U	1700 U	1700 U	1900 U	2200 U
Dimethylphthalate	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Acenaphthylene	330	350 U	47 J	59 J	56 J	350 U	350 U	390 U	460 U
2,6-Dinitrotoluene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U

* [illegible] for analysis, X = Compounds could not be separated due to coelutio[illegible]

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Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP122X0201XX	01TP122X0201XD	01TP123X0501XX	01TP123X0501XD	01TP124X0001XX	01TP124X0001XD	01TP124X0301XX	07TP708X0001XX
LAB NUMBER:	285508	285510	285512	285517	284464	284466	284467	284766
DATE SAMPLED:	09/07/89	09/07/89	09/07/89	09/07/89	09/01/89	09/01/89	09/01/89	09/02/89
DATE EXTRACTED:	09/14/89	09/14/89	09/14/89	09/14/89	09/07/89	09/07/89	09/07/89	09/08/89
DATE ANALYZED:	09/16/89	09/15/89	09/15/89	09/15/89	09/08/89	09/08/89	09/08/89	09/10/89

ANALYTE	CRQL								
3-Nitroaniline	1600	1700 U	1700 U	1700 U	1800 U	1700 U	1700 U	1900 U	2200 U
Acenaphthene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
2,4-Dinitrophenol	1600	1700 U	1700 U	1700 U	1800 U	1700 U	1700 U	1900 U	2200 U
4-Nitrophenol	1600	1700 U	1700 U	1700 U	1800 U	1700 U	1700 U	1900 U	2200 U
Dibenzofuran	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
2,4-Dinitrotoluene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Diethylphthalate	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
4-Chlorophenyl-phenylether	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Fluorene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
4-Nitroaniline	1600	1700 U	1700 U	1700 U	1800 U	1700 U	1700 U	1900 U	2200 U
4,6-Dinitro-2-methylphenol	1600	1700 U	1700 U	1700 U	1800 U	1700 U	1700 U	1900 U	2200 U
N-Nitrosodiphenylamine	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
4-Bromophenyl-phenylether	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Hexachlorobenzene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Pentachlorophenol	1600	1700 U	1700 U	1700 U	1800 U	69 J	1700 U	1900 U	2200 U
Phenanthrene	330	150 J	200 J	66 J	83 J	56 J	58 J	390 U	460 U
Anthracene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Di-n-butylphthalate	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Fluoranthene	330	290 J	350	180 J	200 J	140 J	150 J	390 U	460 U
Pyrene	330	350 J	460	280 J	280 J	220 J	240 J	390 U	460 U
Butylbenzylphthalate	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
3,3'-Dichlorobenzidine	660	700 U	690 U	720 U	730 U	710 U	710 U	790 U	920 U
Benzo(a)Anthracene	330	200 J	160 J	140 J	130 J	80 J	110 J	390 U	460 U
Chrysene	330	190 J	270 J	190 J	190 J	130 J	140 J	390 U	460 U
bis(2-Ethylhexyl)phthalate	330	40 J	350 U	360 U	360 U	53 BJ	36 BJ	390 U	460 U
Di-n-octylphthalate	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Benzo(b)Fluoranthene	330	250 JX	160 J	290 JX	270 JX	180 JX	130 J	390 U	460 U
Benzo(k)Fluoranthene	330	250 JX	170 J	290 JX	270 JX	180 JX	75 J	390 U	460 U
Benzo(a)Pyrene	330	130 J	170 J	160 J	170 J	100 J	110 J	390 U	460 U
Indeno(1,2,3-cd)pyrene	330	53 J	65 J	60 J	69 J	59 J	72 J	390 U	460 U
Dibenz(a,h)anthracene	330	350 U	350 U	360 U	360 U	350 U	350 U	390 U	460 U
Benzo(g,h,i,)perylene	330	57 J	68 J	64 J	64 J	64 J	69 J	390 U	460 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	94	95	92	91	93	93	84	72
Associated Method Blank:	GH086905B06	GH086905B06	GH086905B06	GH086905B06	G2J84925A08	G2J84925A08	G2J84925A08	GH085226B02

* = Held for analysis, X = Compounds could not be separated due to coelution.

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Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	07TP709X0001XX	07TP709X0201XX	07TP709X0201XD	07TP709X0401XX	07TP710X0001XX	07TP710X0201XX	07TP711X0001XX	07TP711X0201XX
LAB NUMBER:	283663	283646	283651	283655	284737	284738	283654	283657
DATE SAMPLED:	08/29/89	08/30/89	08/30/89	08/30/89	09/02/89	09/02/89	08/29/89	08/29/89
DATE EXTRACTED:	09/05/89	09/05/89	09/05/89	09/05/89	09/08/89	09/08/89	09/05/89	09/05/89
DATE ANALYZED:	09/07/89	09/06/89	09/06/89	09/06/89	09/09/89	09/09/89	09/06/89	09/06/89

ANALYTE	CRQL								
Phenol	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
bis(2-Chloroethyl)ether	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
2-Chlorophenol	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
1,3-Dichlorobenzene	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
1,4-Dichlorobenzene	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Benzyl alcohol	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
1,2-Dichlorobenzene	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
2-Methylphenol	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
bis(2-Chloroisopropyl)ether	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
4-Methylphenol	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
N-Nitroso-di-n-propylamine	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Hexachloroethane	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Nitrobenzene	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Isophorone	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
2-Nitrophenol	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
2,4-Dimethylphenol	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Benzoic acid	1600	1700 U	74 J	72 J	1900 U	1700 U	1700 U	130 J	1700 U
bis(2-Chloroethoxy)methane	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
2,4-Dichlorophenol	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
1,2,4-Trichlorobenzene	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Naphthalene	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
4-Chloroaniline	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Hexachlorobutadiene	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
4-Chloro-3-Methylphenol	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
2-Methylnaphthalene	330	72 J	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Hexachlorocyclopentadiene	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
2,4,6-Trichlorophenol	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
2,4,5-Trichlorophenol	1600	1700 U	1900 U	2000 U	1900 U	1700 U	1700 U	1700 U	1700 U
2-Chloronaphthalene	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
2-Nitroaniline	1600	1700 U	1900 U	2000 U	1900 U	1700 U	1700 U	1700 U	1700 U
Dimethylphthalate	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Acenaphthylene	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
2,6-Dinitrotoluene	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U

* [illegible] for analysis, X = Compounds could not be separated due to coelutio[illegible]

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Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	07TP709X0001XX	07TP709X0201XX	07TP709X0201XD	07TP709X0401XX	07TP710X0001XX	07TP710X0201XX	07TP711X0001XX	07TP711X0201XX
LAB NUMBER:	283663	283646	283651	283655	284737	284738	283654	283657
DATE SAMPLED:	08/29/89	08/30/89	08/30/89	08/30/89	09/02/89	09/02/89	08/29/89	08/29/89
DATE EXTRACTED:	09/05/89	09/05/89	09/05/89	09/05/89	09/08/89	09/08/89	09/05/89	09/05/89
DATE ANALYZED:	09/07/89	09/06/89	09/06/89	09/06/89	09/09/89	09/09/89	09/06/89	09/06/89

ANALYTE	CRQL								
3-Nitroaniline	1600	1700 U	1900 U	2000 U	1900 U	1700 U	1700 U	1700 U	1700 U
Acenaphthene	330	660	390 U	400 U	400 U	45 J	38 J	350 U	350 U
2,4-Dinitrophenol	1600	1700 U	1900 U	2000 U	1900 U	1700 U	1700 U	1700 U	1700 U
4-Nitrophenol	1600	1700 U	1900 U	2000 U	1900 U	1700 U	1700 U	1700 U	1700 U
Dibenzofuran	330	240 J	390 U	400 U	400 U	360 U	350 U	350 U	350 U
2,4-Dinitrotoluene	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Diethylphthalate	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
4-Chlorophenyl-phenylether	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Fluorene	330	450	390 U	400 U	400 U	37 J	350 U	350 U	350 U
4-Nitroaniline	1600	1700 U	1900 U	2000 U	1900 U	1700 U	1700 U	1700 U	1700 U
4,6-Dinitro-2-methylphenol	1600	1700 U	1900 U	2000 U	1900 U	1700 U	1700 U	1700 U	1700 U
N-Nitrosodiphenylamine	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
4-Bromophenyl-phenylether	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Hexachlorobenzene	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Pentachlorophenol	1600	1700 U	1900 U	2000 U	1900 U	1700 U	1700 U	1700 U	1700 U
Phenanthrene	330	3600	390 U	41 J	400 U	350 J	230 J	260 J	350 U
Anthracene	330	650	390 U	400 U	400 U	67 J	44 J	50 J	350 U
Di-n-butylphthalate	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Fluoranthene	330	3900	63 J	68 J	400 U	530	280 J	360	350 U
Pyrene	330	3200	45 J	48 J	400 U	430	250 J	240 J	350 U
Butylbenzylphthalate	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
3,3'-Dichlorobenzidine	660	700 U	790 U	810 U	800 U	720 U	710 U	710 U	690 U
Benzo(a)Anthracene	330	1800	390 U	400 U	400 U	240 J	130 J	140 J	350 U
Chrysene	330	1800	390 U	400 U	400 U	280 J	150 J	180 J	350 U
bis(2-Ethylhexyl)phthalate	330	69 J	390 U	400 U	400 U	360 U	350 U	37 J	39 J
Di-n-octylphthalate	330	350 U	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Benzo(b)Fluoranthene	330	1500	390 U	70 JX	400 U	300 J	100 J	150 J	350 U
Benzo(k)Fluoranthene	330	1600	390 U	70 JX	400 U	220 J	97 J	150 J	350 U
Benzo(a)Pyrene	330	1500	390 U	41 J	400 U	260 J	140 J	150 J	350 U
Indeno(1,2,3-cd)pyrene	330	730	390 U	400 U	400 U	77 J	58 J	43 J	350 U
Dibenz(a,h)anthracene	330	450	390 U	400 U	400 U	360 U	350 U	350 U	350 U
Benzo(g,h,i,)perylene	330	770	390 U	400 U	400 U	75 J	59 J	39 J	350 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	94	84	82	83	92	93	93	95
Associated Method Blank:	GH084554A08	GH084554A08	GH084554A08	GH084554A08	GH085210A08	GH085210A08	GH084554A08	GH084554A08

* = Held for analysis, X = Compounds could not be separated due to coelution.

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Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	07TP711X0401XX	07TP712X0001XX	07TP712X0201XX	07TP712X0401XX	07TP713X0001XX	07TP713X0201XX	07TP713X0401XX	07TP714X0001XX
	LAB NUMBER:	283653	284767	284739	284763	283355	283357	283356	284740
	DATE SAMPLED:	08/29/89	09/02/89	09/02/89	09/02/89	08/29/89	08/29/89	08/29/89	09/02/89
	DATE EXTRACTED:	09/05/89	09/08/89	09/08/89	09/08/89	08/31/89	08/31/89	08/31/89	09/08/89
	DATE ANALYZED:	09/06/89	09/10/89	09/09/89	09/10/89	09/01/89	09/03/89	09/01/89	09/14/89
ANALYTE	CRQL								
Phenol	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
bis(2-Chloroethyl)ether	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
2-Chlorophenol	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
1,3-Dichlorobenzene	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
1,4-Dichlorobenzene	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
Benzyl alcohol	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
1,2-Dichlorobenzene	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
2-Methylphenol	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
bis(2-Chloroisopropyl)ether	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
4-Methylphenol	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
N-Nitroso-di-n-propylamine	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
Hexachloroethane	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
Nitrobenzene	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
Isophorone	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
2-Nitrophenol	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
2,4-Dimethylphenol	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
Benzoic acid	1600	1700 U	2200 U	61 J	2100 U	42 J	1700 U	1900 U	240 J
bis(2-Chloroethoxy)methane	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
2,4-Dichlorophenol	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
1,2,4-Trichlorobenzene	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
Naphthalene	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
4-Chloroaniline	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
Hexachlorobutadiene	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
4-Chloro-3-Methylphenol	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
2-Methylnaphthalene	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
Hexachlorocyclopentadiene	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
2,4,6-Trichlorophenol	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
2,4,5-Trichlorophenol	1600	1700 U	2200 U	1900 U	2100 U	1700 U	1700 U	1900 U	1800 U
2-Chloronaphthalene	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
2-Nitroaniline	1600	1700 U	2200 U	1900 U	2100 U	1700 U	1700 U	1900 U	1800 U
Dimethylphthalate	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
Acenaphthylene	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
2,6-Dinitrotoluene	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U

* = [illegible] for analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	07TP711X0401XX	07TP712X0001XX	07TP712X0201XX	07TP712X0401XX	07TP713X0001XX	07TP713X0201XX	07TP713X0401XX	07TP714X0001XX
LAB NUMBER:	283653	284767	284739	284763	283355	283357	283356	284740
DATE SAMPLED:	08/29/89	09/02/89	09/02/89	09/02/89	08/29/89	08/29/89	08/29/89	09/02/89
DATE EXTRACTED:	09/05/89	09/08/89	09/08/89	09/08/89	08/31/89	08/31/89	08/31/89	09/08/89
DATE ANALYZED:	09/06/89	09/10/89	09/09/89	09/10/89	09/01/89	09/03/89	09/01/89	09/14/89

ANALYTE	CRQL								
3-Nitroaniline	1600	1700 U	2200 U	1900 U	2100 U	1700 U	1700 U	1900 U	1800 U
Acenaphthene	330	350 U	230 J	390 U	420 U	340 U	350 U	390 U	65 J
2,4-Dinitrophenol	1600	1700 U	2200 U	1900 U	2100 U	1700 U	1700 U	1900 U	1800 U
4-Nitrophenol	1600	1700 U	2200 U	1900 U	2100 U	1700 U	1700 U	1900 U	1800 U
Dibenzofuran	330	350 U	91 J	390 U	420 U	340 U	350 U	390 U	370 U
2,4-Dinitrotoluene	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
Diethylphthalate	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
4-Chlorophenyl-phenylether	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
Fluorene	330	350 U	130 J	390 U	420 U	340 U	350 U	390 U	46 J
4-Nitroaniline	1600	1700 U	2200 U	1900 U	2100 U	1700 U	1700 U	1900 U	1800 U
4,6-Dinitro-2-methylphenol	1600	1700 U	2200 U	1900 U	2100 U	1700 U	1700 U	1900 U	1800 U
N-Nitrosodiphenylamine	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
4-Bromophenyl-phenylether	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
Hexachlorobenzene	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
Pentachlorophenol	1600	1700 U	2200 U	1900 U	2100 U	1700 U	1700 U	1900 U	1800 U
Phenanthrene	330	350 U	1300	190 J	420 U	280 J	350 U	390 U	290 J
Anthracene	330	350 U	190 J	40 J	420 U	65 J	350 U	390 U	46 J
Di-n-butylphthalate	330	350 U	450 U	390 U	420 U	40 J	350 U	390 U	370 U
Fluoranthene	330	350 U	1400	260 J	420 U	700	48 J	390 U	440
Pyrene	330	350 U	1500	200 J	420 U	260 J	60 J	390 U	340 J
Butylbenzylphthalate	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
3,3'-Dichlorobenzidine	660	710 U	900 U	780 U	850 U	690 U	710 U	790 U	740 U
Benzo(a)Anthracene	330	350 U	660	140 J	420 U	270 J	350 U	390 U	250 J
Chrysene	330	350 U	730	150 J	420 U	270 J	350 U	390 U	270 J
bis(2-Ethylhexyl)phthalate	330	350 U	110 BJ	140 J	51 BJ	340 U	350 U	390 U	370 U
Di-n-octylphthalate	330	350 U	450 U	390 U	420 U	340 U	350 U	390 U	370 U
Benzo(b)Fluoranthene	330	350 U	680	140 J	420 U	250 J	350 U	390 U	180 J
Benzo(k)Fluoranthene	330	350 U	360 J	130 J	420 U	150 J	350 U	390 U	240 J
Benzo(a)Pyrene	330	350 U	590	140 J	420 U	250 J	350 U	390 U	240 J
Indeno(1,2,3-cd)pyrene	330	350 U	300 J	48 J	420 U	340 U	350 U	390 U	120 J
Dibenz(a,h)anthracene	330	350 U	140 J	390 U	420 U	340 U	350 U	390 U	72 J
Benzo(g,h,i,)perylene	330	350 U	280 J	45 J	420 U	340 U	350 U	390 U	120 J

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	93	73	85	78	96	93	84	89

Associated Method Blank: GH084554A08 GH085226B02 GH085210A08 GH085226B02 GH083501C04 GJ083502A06 GH083501C04 GJ085210A06

* = Held for analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	07TP714X0001XD	07TP714X0201XX	07TP714X0401XX	07TP715X0001XX	07TP715X0201XX	07TP715X0401XX	07TP716X0001XX	07TP716X0201XX
	LAB NUMBER:	284750	284744	284765	284751	284745	284762	283659	283661
	DATE SAMPLED:	09/02/89	09/02/89	09/02/89	09/02/89	09/02/89	09/02/89	08/29/89	08/29/89
	DATE EXTRACTED:	09/08/89	09/08/89	09/08/89	09/08/89	09/08/89	09/08/89	09/05/89	09/05/89
	DATE ANALYZED:	09/10/89	09/09/89	09/10/89	09/10/89	09/10/89	09/10/89	09/06/89	09/07/89
ANALYTE	CRQL								
Phenol	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
bis(2-Chloroethyl)ether	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
2-Chlorophenol	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
1,3-Dichlorobenzene	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
1,4-Dichlorobenzene	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Benzyl alcohol	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
1,2-Dichlorobenzene	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
2-Methylphenol	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
bis(2-Chloroisopropyl)ether	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
4-Methylphenol	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
N-Nitroso-di-n-propylamine	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Hexachloroethane	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Nitrobenzene	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Isophorone	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
2-Nitrophenol	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
2,4-Dimethylphenol	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Benzoic acid	1600	82 J	110 J	2200 U	1800 U	140 J	1800 U	59 J	1700 U
bis(2-Chloroethoxy)methane	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
2,4-Dichlorophenol	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
1,2,4-Trichlorobenzene	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Naphthalene	330	40 J	390 U	450 U	360 U	370 U	370 U	350 U	350 U
4-Chloroaniline	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Hexacholorobutadiene	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
4-Chloro-3-Methylphenol	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
2-Methylnaphthalene	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Hexachlorocyclopentadiene	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
2,4,6-Trichlorophenol	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
2,4,5-Trichlorophenol	1600	1800 U	1900 U	2200 U	1800 U	1800 U	1800 U	1700 U	1700 U
2-Chloronaphthalene	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
2-Nitroaniline	1600	1800 U	1900 U	2200 U	1800 U	1800 U	1800 U	1700 U	1700 U
Dimethylphthalate	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Acenaphthylene	330	42 J	390 U	450 U	360 U	370 U	370 U	350 U	350 U
2,6-Dinitrotoluene	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U

* [redacted] for analysis, X = Compounds could not be separated due to coelutio[redacted]

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Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 07TP714X0001XD	07TP714X0201XX	07TP714X0401XX	07TP715X0001XX	07TP715X0201XX	07TP715X0401XX	07TP716X0001XX	07TP716X0201XX
		LAB NUMBER: 284750	284744	284765	284751	284745	284762	283659	283661
		DATE SAMPLED: 09/02/89	09/02/89	09/02/89	09/02/89	09/02/89	09/02/89	08/29/89	08/29/89
		DATE EXTRACTED: 09/08/89	09/08/89	09/08/89	09/08/89	09/08/89	09/08/89	09/05/89	09/05/89
		DATE ANALYZED: 09/10/89	09/09/89	09/10/89	09/10/89	09/10/89	09/10/89	09/06/89	09/07/89
3-Nitroaniline	1600	1800 U	1900 U	2200 U	1800 U	1800 U	1800 U	1700 U	1700 U
Acenaphthene	330	110 J	390 U	450 U	360 U	41 J	370 U	45 J	350 U
2,4-Dinitrophenol	1600	1800 U	1900 U	2200 U	1800 U	1800 U	1800 U	1700 U	1700 U
4-Nitrophenol	1600	1800 U	1900 U	2200 U	1800 U	1800 U	1800 U	1700 U	1700 U
Dibenzofuran	330	42 J	390 U	450 U	360 U	370 U	370 U	350 U	350 U
2,4-Dinitrotoluene	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Diethylphthalate	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
4-Chlorophenyl-phenylether	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Fluorene	330	80 J	390 U	450 U	360 U	370 U	370 U	43 J	350 U
4-Nitroaniline	1600	1800 U	1900 U	2200 U	1800 U	1800 U	1800 U	1700 U	1700 U
4,6-Dinitro-2-methylphenol	1600	1800 U	1900 U	2200 U	1800 U	1800 U	1800 U	1700 U	1700 U
N-Nitrosodiphenylamine	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
4-Bromophenyl-phenylether	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Hexachlorobenzene	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Pentachlorophenol	1600	1800 U	1900 U	2200 U	170 J	1800 U	1800 U	1700 U	1700 U
Phenanthrene	330	610	190 J	450 U	230 J	270 J	370 U	380	350 U
Anthracene	330	130 J	390 U	450 U	41 J	44 J	370 U	78 J	350 U
Di-n-butylphthalate	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Fluoranthene	330	940	310 J	450 U	330 J	350 J	370 U	590	350 U
Pyrene	330	700	240 J	450 U	440	290 J	61 J	380	350 U
Butylbenzylphthalate	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
3,3'-Dichlorobenzidine	660	740 U	790 U	890 U	730 U	750 U	740 U	710 U	710 U
Benzo(a)Anthracene	330	420	150 J	450 U	170 J	190 J	370 U	240 J	350 U
Chrysene	330	450	160 J	450 U	240 J	210 J	370 U	240 J	350 U
bis(2-Ethylhexyl)phthalate	330	370 U	42 J	68 BJ	75 BJ	370 U	80 BJ	350 U	350 U
Di-n-octylphthalate	330	370 U	390 U	450 U	360 U	370 U	370 U	350 U	350 U
Benzo(b)Fluoranthene	330	790 X	170 J	450 U	200 J	130 J	370 U	230 J	350 U
Benzo(k)Fluoranthene	330	790 X	150 J	450 U	110 J	130 J	370 U	240 J	350 U
Benzo(a)Pyrene	330	420	170 J	450 U	180 J	160 J	370 U	230 J	350 U
Indeno(1,2,3-cd)pyrene	330	140 J	44 J	450 U	95 J	75 J	370 U	73 J	350 U
Dibenz(a,h)anthracene	330	64 J	390 U	450 U	360 U	46 J	370 U	350 U	350 U
Benzo(g,h,i,)perylene	330	130 J	44 J	450 U	100 J	80 J	370 U	69 J	350 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		89	84	74	91	88	89	93	93
Associated Method Blank:		GH085210A08	GH085210A08	GH085226B02	GH085226B02	GH085210A08	GH085226B02	GH084554A08	GH084554A08

* = Held for analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	07TP716X0401XX	07TP717X0001XX	07TP717X0201XX	07TP717X0401XX	07TP718X0001XX	07TP718X0201XX	07TP719X0001XX	07TP719X0201XX
LAB NUMBER:	283656	283658	283660	283662	284761	284768	284746	284747
DATE SAMPLED:	08/29/89	08/29/89	08/29/89	08/29/89	09/02/89	09/02/89	09/02/89	09/02/89
DATE EXTRACTED:	09/05/89	09/05/89	09/05/89	09/05/89	09/08/89	09/08/89	09/08/89	09/08/89
DATE ANALYZED:	09/06/89	09/07/89	09/07/89	09/07/89	09/10/89	09/10/89	09/10/89	09/10/89

ANALYTE	CRQL								
Phenol	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
bis(2-Chloroethyl)ether	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
2-Chlorophenol	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
1,3-Dichlorobenzene	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
1,4-Dichlorobenzene	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Benzyl alcohol	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
1,2-Dichlorobenzene	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
2-Methylphenol	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
bis(2-Chloroisopropyl)ether	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
4-Methylphenol	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
N-Nitroso-di-n-propylamine	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Hexachloroethane	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Nitrobenzene	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Isophorone	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
2-Nitrophenol	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
2,4-Dimethylphenol	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Benzoic acid	1600	1900 U	1700 U	83 J	1800 U	1700 U	1700 U	130 J	94 J
bis(2-Chloroethoxy)methane	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
2,4-Dichlorophenol	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
1,2,4-Trichlorobenzene	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Naphthalene	330	400 U	62 J	380 U	380 U	350 U	350 U	62 J	400 U
4-Chloroaniline	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Hexacholorobutadiene	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
4-Chloro-3-Methylphenol	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
2-Methylnaphthalene	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Hexachlorocyclopentadiene	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
2,4,6-Trichlorophenol	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
2,4,5-Trichlorophenol	1600	1900 U	1700 U	1800 U	1800 U	1700 U	1700 U	1900 U	1900 U
2-Chloronaphthalene	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
2-Nitroaniline	1600	1900 U	1700 U	1800 U	1800 U	1700 U	1700 U	1900 U	1900 U
Dimethylphthalate	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Acenaphthylene	330	400 U	150 J	380 U	380 U	350 U	350 U	400 U	400 U
2,6-Dinitrotoluene	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U

* = [redacted] for analysis, X = Compounds could not be separated due to coelutio[redacted]

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 07TP716X0401XX LAB NUMBER: 283656 DATE SAMPLED: 08/29/89 DATE EXTRACTED: 09/05/89 DATE ANALYZED: 09/06/89	07TP717X0001XX 283658 08/29/89 09/05/89 09/07/89	07TP717X0201XX 283660 08/29/89 09/05/89 09/07/89	07TP717X0401XX 283662 08/29/89 09/05/89 09/07/89	07TP718X0001XX 284761 09/02/89 09/08/89 09/10/89	07TP718X0201XX 284768 09/02/89 09/08/89 09/10/89	07TP719X0001XX 284746 09/02/89 09/08/89 09/10/89	07TP719X0201XX 284747 09/02/89 09/08/89 09/10/89
3-Nitroaniline	1600	1900 U	1700 U	1800 U	1800 U	1700 U	1700 U	1900 U	1900 U
Acenaphthene	330	400 U	87 J	380 U	380 U	350 U	350 U	270 J	400 U
2,4-Dinitrophenol	1600	1900 U	1700 U	1800 U	1800 U	1700 U	1700 U	1900 U	1900 U
4-Nitrophenol	1600	1900 U	1700 U	1800 U	1800 U	1700 U	1700 U	1900 U	1900 U
Dibenzofuran	330	400 U	87 J	380 U	380 U	350 U	350 U	110 J	400 U
2,4-Dinitrotoluene	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Diethylphthalate	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
4-Chlorophenyl-phenylether	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Fluorene	330	400 U	190 J	380 U	380 U	350 U	350 U	230 J	400 U
4-Nitroaniline	1600	1900 U	1700 U	1800 U	1800 U	1700 U	1700 U	1900 U	1900 U
4,6-Dinitro-2-methylphenol	1600	1900 U	1700 U	1800 U	1800 U	1700 U	1700 U	1900 U	1900 U
N-Nitrosodiphenylamine	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
4-Bromophenyl-phenylether	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Hexachlorobenzene	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Pentachlorophenol	1600	1900 U	1700 U	1800 U	1800 U	1700 U	1700 U	1900 U	1900 U
Phenanthrene	330	400 U	3000.	190 J	380 U	47 J	350 U	1900	400 U
Anthracene	330	400 U	430	52 J	380 U	350 U	350 U	380 J	400 U
Di-n-butylphthalate	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Fluoranthene	330	400 U	3900	290 J	380 U	72 J	350 U	2400	53 J
Pyrene	330	400 U	3300	230 J	380 U	94 J	350 U	1800	54 J
Butylbenzylphthalate	330	400 U	350 U	380 U	380 U	350 U	350 U	54 J	400 U
3,3'-Dichlorobenzidine	660	800 U	690 U	760 U	760 U	700 U	700 U	800 U	800 U
Benzo(a)Anthracene	330	400 U	1900	130 J	380 U	40 J	350 U	1200	400 U
Chrysene	330	400 U	1700	130 J	380 U	47 J	350 U	1200	400 U
bis(2-Ethylhexyl)phthalate	330	400 U	350 U	380 U	42 J	100 BJ	42 BJ	130 J	400 U
Di-n-octylphthalate	330	400 U	350 U	380 U	380 U	350 U	350 U	400 U	400 U
Benzo(b)Fluoranthene	330	400 U	1200	130 J	380 U	350 U	350 U	2000 X	400 U
Benzo(k)Fluoranthene	330	400 U	1500	100 J	380 U	350 U	350 U	2000 X	41 J
Benzo(a)Pyrene	330	400 U	1400	130 J	380 U	350 U	350 U	1100	42 J
Indeno(1,2,3-cd)pyrene	330	400 U	720	49 J	380 U	350 U	350 U	380 J	400 U
Dibenz(a,h)anthracene	330	400 U	410	380 U	380 U	350 U	350 U	200 J	400 U
Benzo(g,h,i,)perylene	330	400 U	760	42 J	380 U	350 U	350 U	370 J	400 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		83	95	87	87	94	94	83	83
Associated Method Blank:		GH084554A08	GH084554A08	GH084554A08	GH084554A08	GH085226B02	GH085226B02	GH085210A08	GH085210A08

* = Held for analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	08TP801X0001XX	08TP801X0201XX	08TP802X0001XX	08TP802X0101XX	08TP803X0001XX	08TP803X0201XX	08TP803X0301XX	08TP804X0001XX
LAB NUMBER:	283362	283363	283364	283365	283366	283378	283367	283374
DATE SAMPLED:	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89
DATE EXTRACTED:	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89
DATE ANALYZED:	09/03/89	09/03/89	09/04/89	09/04/89	09/04/89	09/01/89	09/03/89	09/01/89

ANALYTE	CRQL								
Phenol	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
bis(2-Chloroethyl)ether	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
2-Chlorophenol	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
1,3-Dichlorobenzene	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
1,4-Dichlorobenzene	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Benzyl alcohol	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
1,2-Dichlorobenzene	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
2-Methylphenol	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
bis(2-Chloroisopropyl)ether	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
4-Methylphenol	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
N-Nitroso-di-n-propylamine	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Hexachloroethane	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Nitrobenzene	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Isophorone	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
2-Nitrophenol	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
2,4-Dimethylphenol	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Benzoic acid	1600	1600 U	1700 U	1600 U	1700 U	3200 U	1600 U	2300 U	1600 U
bis(2-Chloroethoxy)methane	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
2,4-Dichlorophenol	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
1,2,4-Trichlorobenzene	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Naphthalene	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
4-Chloroaniline	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Hexachlorobutadiene	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
4-Chloro-3-Methylphenol	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
2-Methylnaphthalene	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Hexachlorocyclopentadiene	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
2,4,6-Trichlorophenol	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
2,4,5-Trichlorophenol	1600	1600 U	1700 U	1600 U	1700 U	3200 U	1600 U	2300 U	1600 U
2-Chloronaphthalene	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
2-Nitroaniline	1600	1600 U	1700 U	1600 U	1700 U	3200 U	1600 U	2300 U	1600 U
Dimethylphthalate	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Acenaphthylene	330	340 U	350 U	340 U	350 U	190 J	340 U	480 U	51 J
2,6-Dinitrotoluene	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U

* [illegible] for analysis, X = Compounds could not be separated due to coelutio[illegible]

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Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 08TP801X0001XX LAB NUMBER: 283362 DATE SAMPLED: 08/29/89 DATE EXTRACTED: 08/31/89 DATE ANALYZED: 09/03/89	08TP801X0201XX 283363 08/29/89 08/31/89 09/03/89	08TP802X0001XX 283364 08/29/89 08/31/89 09/04/89	08TP802X0101XX 283365 08/29/89 08/31/89 09/04/89	08TP803X0001XX 283366 08/29/89 08/31/89 09/04/89	08TP803X0201XX 283378 08/29/89 08/31/89 09/01/89	08TP803X0301XX 283367 08/29/89 08/31/89 09/03/89	08TP804X0001XX 283374 08/29/89 08/31/89 09/01/89
3-Nitroaniline	1600	1600 U	1700 U	1600 U	1700 U	3200 U	1600 U	2300 U	1600 U
Acenaphthene	330	340 U	350 U	340 U	350 U	280 J	340 U	480 U	340 U
2,4-Dinitrophenol	1600	1600 U	1700 U	1600 U	1700 U	3200 U	1600 U	2300 U	1600 U
4-Nitrophenol	1600	1600 U	1700 U	1600 U	1700 U	3200 U	1600 U	2300 U	1600 U
Dibenzofuran	330	340 U	350 U	340 U	350 U	230 J	340 U	480 U	340 U
2,4-Dinitrotoluene	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Diethylphthalate	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
4-Chlorophenyl-phenylether	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Fluorene	330	340 U	350 U	340 U	350 U	530 J	340 U	480 U	340 U
4-Nitroaniline	1600	1600 U	1700 U	1600 U	1700 U	3200 U	1600 U	2300 U	1600 U
4,6-Dinitro-2-methylphenol	1600	1600 U	1700 U	1600 U	1700 U	3200 U	1600 U	2300 U	1600 U
N-Nitrosodiphenylamine	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
4-Bromophenyl-phenylether	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Hexachlorobenzene	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Pentachlorophenol	1600	1600 U	1700 U	1600 U	1700 U	3200 U	1600 U	2300 U	78 J
Phenanthrene	330	340 U	350 U	63 J	350 U	5400	340 U	120 J	150 J
Anthracene	330	340 U	350 U	340 U	350 U	720	340 U	480 U	340 U
Di-n-butylphthalate	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Fluoranthene	330	49 J	86 J	200 J	350 U	7700	340 U	150 J	580
Pyrene	330	71 J	180 J	290 J	350 U	8400	340 U	160 J	560
Butylbenzylphthalate	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
3,3'-Dichlorobenzidine	660	670 U	690 U	670 U	690 U	1300 U	680 U	960 U	680 U
Benzo(a)Anthracene	330	340 U	52 J	100 J	350 U	2400	340 U	50 J	330 J
Chrysene	330	53 J	76 J	150 J	350 U	3100	340 U	85 J	460
bis(2-Ethylhexyl)phthalate	330	340 U	350 U	38 J	350 U	130 J	340 U	480 U	340 U
Di-n-octylphthalate	330	340 U	350 U	340 U	350 U	670 U	340 U	480 U	340 U
Benzo(b)Fluoranthene	330	60 JX	54 J	160 JX	350 U	2000	340 U	480 U	540 X
Benzo(k)Fluoranthene	330	60 JX	55 J	160 JX	350 U	1700	340 U	480 U	540 X
Benzo(a)Pyrene	330	340 U	50 J	80 J	350 U	2000	340 U	480 U	320 J
Indeno(1,2,3-cd)pyrene	330	340 U	350 U	340 U	350 U	1200	340 U	480 U	190 J
Dibenz(a,h)anthracene	330	340 U	350 U	340 U	350 U	330 J	340 U	480 U	120 J
Benzo(g,h,i,)perylene	330	340 U	350 U	340 U	350 U	1600	340 U	480 U	220 J
Dilution Factor:		1	1	1	1	2	1	1	1
Percent Solids:		98	95	98	95	99	97	69	97
Associated Method Blank:		GJ083502A06	GJ083502A06	GJ083502A06	GJ083502A06	GJ083502A06	GH083492C16	GH083492C16	GH083492C16

* = Held for analysis, X = Compounds could not be separated due to coelution.

BRTP-CS

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Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	08TP804X0201XX	08TP805X0001XX	08TP805X0001XX	08TP805X0401XX	08TP805X0801XX	08TP806X0001XX	08TP806X0301XX	08TP806X0601XX
LAB NUMBER:	283379	283080	283080DL	283079	283081	283071	283078	283077
DATE SAMPLED:	08/29/89	08/28/89	08/28/89	08/28/89	08/28/89	08/28/89	08/28/89	08/28/89
DATE EXTRACTED:	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/30/89
DATE ANALYZED:	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	08/31/89

ANALYTE	CRQL								
Phenol	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
bis(2-Chloroethyl)ether	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
2-Chlorophenol	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
1,3-Dichlorobenzene	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
1,4-Dichlorobenzene	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
Benzyl alcohol	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
1,2-Dichlorobenzene	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
2-Methylphenol	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
bis(2-Chloroisopropyl)ether	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
4-Methylphenol	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
N-Nitroso-di-n-propylamine	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
Hexachloroethane	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
Nitrobenzene	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
Isophorone	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
2-Nitrophenol	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
2,4-Dimethylphenol	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
Benzoic acid	1600	1600 U	1600 U	8200 U	1700 U	1800 U	3200 U	3400 U	120 J
bis(2-Chloroethoxy)methane	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
2,4-Dichlorophenol	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
1,2,4-Trichlorobenzene	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
Naphthalene	330	340 U	84 J	1700 U	350 U	360 U	670 U	690 U	370 U
4-Chloroaniline	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
Hexachlorobutadiene	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
4-Chloro-3-Methylphenol	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
2-Methylnaphthalene	330	340 U	130 J	1700 U	350 U	360 U	670 U	690 U	370 U
Hexachlorocyclopentadiene	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
2,4,6-Trichlorophenol	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
2,4,5-Trichlorophenol	1600	1600 U	1600 U	8200 U	1700 U	1800 U	3200 U	3400 U	1800 U
2-Chloronaphthalene	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
2-Nitroaniline	1600	1600 U	1600 U	8200 U	1700 U	1800 U	3200 U	3400 U	1800 U
Dimethylphthalate	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
Acenaphthylene	330	340 U	1100	1400 DJ	140 J	480	430 J	100 J	80 J
2,6-Dinitrotoluene	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U

* = [illegible] for analysis, X = Compounds could not be separated due to coelution

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PROJECT: Naval Air Station Brunswick - Round 4 Test Pit Samples - Semivolatile Analysis (ug/kg) 23-Feb-90

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	08TP804X0201XX	08TP805X0001XX	08TP805X0001XX	08TP805X0401XX	08TP805X0801XX	08TP806X0001XX	08TP806X0301XX	08TP806X0601XX
LAB NUMBER:	283379	283080	283080DL	283079	283081	283071	283078	283077
DATE SAMPLED:	08/29/89	08/28/89	08/28/89	08/28/89	08/28/89	08/28/89	08/28/89	08/28/89
DATE EXTRACTED:	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/30/89
DATE ANALYZED:	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	08/31/89

ANALYTE	CRQL								
3-Nitroaniline	1600	1600 U	1600 U	8200 U	1700 U	1800 U	3200 U	3400 U	1800 U
Acenaphthene	330	340 U	140 J	1700 U	350 U	360 U	670 U	690 U	370 U
2,4-Dinitrophenol	1600	1600 U	1600 U	8200 U	1700 U	1800 U	3200 U	3400 U	1800 U
4-Nitrophenol	1600	1600 U	1600 U	8200 U	1700 U	1800 U	3200 U	3400 U	83 J
Dibenzofuran	330	340 U	78 J	1700 U	350 U	360 U	670 U	690 U	370 U
2,4-Dinitrotoluene	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
Diethylphthalate	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
4-Chlorophenyl-phenylether	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
Fluorene	330	340 U	390	230 DJ	350 U	140 J	220 J	690 U	370 U
4-Nitroaniline	1600	1600 U	1600 U	8200 U	1700 U	1800 U	3200 U	3400 U	1800 U
4,6-Dinitro-2-methylphenol	1600	1600 U	1600 U	8200 U	1700 U	1800 U	3200 U	3400 U	1800 U
N-Nitrosodiphenylamine	330	340 U	340 U	1700 U	350 U	360 U	240 J	690 U	370 U
4-Bromophenyl-phenylether	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
Hexachlorobenzene	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
Pentachlorophenol	1600	340 U	1600 U	8200 U	1700 U	1800 U	3200 U	3400 U	1800 U
Phenanthrene	330	340 U	2000	2500 D	88 J	670	960	100 J	65 J
Anthracene	330	340 U	470	730 DJ	350 U	250 J	320 J	690 U	370 U
Di-n-butylphthalate	330	340 U	340 U	1700 U	350 U	150 J	670 U	110 J	370 U
Fluoranthene	330	340 U	5800 E	8800 D	190 J	1700	4300	92 J	180 J
Pyrene	330	340 U	6800 E	10000 D	410	2500	5000	170 J	230 J
Butylbenzylphthalate	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
3,3'-Dichlorobenzidine	660	680 U	670 U	3400 U	690 U	730 U	1300 U	1400 U	740 U
Benzo(a)Anthracene	330	340 U	4300	4700 D	380	1100	1900	130 J	170 J
Chrysene	330	340 U	4100	5800 D	490	1400	2300	300 J	210 J
bis(2-Ethylhexyl)phthalate	330	340 U	340 U	1700 U	350 U	47 J	670 U	690 U	370 U
Di-n-octylphthalate	330	340 U	340 U	1700 U	350 U	360 U	670 U	690 U	370 U
Benzo(b)Fluoranthene	330	340 U	7600 EX	7600 DX	820 X	1600 X	1200	130 J	340 JX
Benzo(k)Fluoranthene	330	340 U	7600 EX	7600 DX	820 X	1600 X	1800	130 J	340 JX
Benzo(a)Pyrene	330	340 U	3900	4100 D	600	840	1800	180 J	220 J
Indeno(1,2,3-cd)pyrene	330	340 U	1400	1300 DJ	150 J	320 J	520 J	690 U	370 U
Dibenz(a,h)anthracene	330	340 U	770	350 DJ	47 J	140 J	200 J	690 U	370 U
Benzo(g,h,i,)perylene	330	340 U	1700	1500 DJ	180 J	390	600 J	690 U	370 U

Dilution Factor:	1	1	5	1	1	2	2	1
Percent Solids:	97	98	98	95	91	99	95	89
Associated Method Blank:	GH083492C16	GH083484B21	GH083484B21	GH083484B21	GH083484B21	GH083484B21	GH083484B21	GH083484B21

* = Held for analysis, X = Compounds could not be separated due to coelution.

BRTP-C

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	08TP807X0101XX	08TP808X0101XX	08TP809X0201XX	08TP810X0101XX
	LAB NUMBER:	283381	283382	283383	283384
	DATE SAMPLED:	08/29/89	08/29/89	08/29/89	08/29/89
	DATE EXTRACTED:	08/31/89	08/31/89	08/31/89	08/31/89
	DATE ANALYZED:	09/01/89	09/01/89	09/01/89	09/01/89
ANALYTE	CRQL				
Phenol	330	340 U	340 U	340 U	340 U
bis(2-Chloroethyl)ether	330	340 U	340 U	340 U	340 U
2-Chlorophenol	330	340 U	340 U	340 U	340 U
1,3-Dichlorobenzene	330	340 U	340 U	340 U	340 U
1,4-Dichlorobenzene	330	340 U	340 U	340 U	340 U
Benzyl alcohol	330	340 U	340 U	340 U	340 U
1,2-Dichlorobenzene	330	340 U	340 U	340 U	340 U
2-Methylphenol	330	340 U	340 U	340 U	340 U
bis(2-Chloroisopropyl)ether	330	340 U	340 U	340 U	340 U
4-Methylphenol	330	340 U	340 U	340 U	340 U
N-Nitroso-di-n-propylamine	330	340 U	340 U	340 U	340 U
Hexachloroethane	330	340 U	340 U	340 U	340 U
Nitrobenzene	330	340 U	340 U	340 U	340 U
Isophorone	330	340 U	340 U	340 U	340 U
2-Nitrophenol	330	340 U	340 U	340 U	340 U
2,4-Dimethylphenol	330	340 U	340 U	340 U	340 U
Benzoic acid	1600	1600 U	1600 U	1600 U	1600 U
bis(2-Chloroethoxy)methane	330	340 U	340 U	340 U	340 U
2,4-Dichlorophenol	330	340 U	340 U	340 U	340 U
1,2,4-Trichlorobenzene	330	340 U	340 U	340 U	340 U
Naphthalene	330	340 U	340 U	340 U	340 U
4-Chloroaniline	330	340 U	340 U	340 U	340 U
Hexacholorobutadiene	330	340 U	340 U	340 U	340 U
4-Chloro-3-Methylphenol	330	340 U	340 U	340 U	340 U
2-Methylnaphthalene	330	340 U	340 U	340 U	340 U
Hexachlorocyclopentadiene	330	340 U	340 U	340 U	340 U
2,4,6-Trichlorophenol	330	340 U	340 U	340 U	340 U
2,4,5-Trichlorophenol	1600	1600 U	1600 U	1600 U	1600 U
2-Chloronaphthalene	330	340 U	340 U	340 U	340 U
2-Nitroaniline	1600	1600 U	1600 U	1600 U	1600 U
Dimethylphthalate	330	340 U	340 U	340 U	340 U
Acenaphthylene	330	340 U	340 U	340 U	340 U
2,6-Dinitrotoluene	330	340 U	340 U	340 U	340 U

* = [illegible] for analysis, X = Compounds could not be separated due to coelution

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	08TP807X0101XX	08TP808X0101XX	08TP809X0201XX	08TP810X0101XX
LAB NUMBER:	283381	283382	283383	283384
DATE SAMPLED:	08/29/89	08/29/89	08/29/89	08/29/89
DATE EXTRACTED:	08/31/89	08/31/89	08/31/89	08/31/89
DATE ANALYZED:	09/01/89	09/01/89	09/01/89	09/01/89

ANALYTE	CRQL				
3-Nitroaniline	1600	1600 U	1600 U	1600 U	1600 U
Acenaphthene	330	340 U	340 U	340 U	340 U
2,4-Dinitrophenol	1600	1600 U	1600 U	1600 U	1600 U
4-Nitrophenol	1600	1600 U	1600 U	1600 U	1600 U
Dibenzofuran	330	340 U	340 U	340 U	340 U
2,4-Dinitrotoluene	330	340 U	340 U	340 U	340 U
Diethylphthalate	330	340 U	340 U	340 U	340 U
4-Chlorophenyl-phenylether	330	340 U	340 U	340 U	340 U
Fluorene	330	340 U	340 U	340 U	340 U
4-Nitroaniline	1600	1600 U	1600 U	1600 U	1600 U
4,6-Dinitro-2-methylphenol	1600	1600 U	1600 U	1600 U	1600 U
N-Nitrosodiphenylamine	330	340 U	340 U	340 U	340 U
4-Bromophenyl-phenylether	330	340 U	340 U	340 U	340 U
Hexachlorobenzene	330	340 U	340 U	340 U	340 U
Pentachlorophenol	1600	340 U	340 U	340 U	340 U
Phenanthrene	330	340 U	340 U	340 U	340 U
Anthracene	330	340 U	340 U	340 U	340 U
Di-n-butylphthalate	330	340 U	340 U	340 U	340 U
Fluoranthene	330	340 U	340 U	340 U	340 U
Pyrene	330	340 U	340 U	340 U	340 U
Butylbenzylphthalate	330	340 U	340 U	340 U	340 U
3,3'-Dichlorobenzidine	660	680 U	680 U	680 U	680 U
Benzo(a)Anthracene	330	340 U	340 U	340 U	340 U
Chrysene	330	340 U	340 U	340 U	340 U
bis(2-Ethylhexyl)phthalate	330	340 U	340 U	340 U	340 U
Di-n-octylphthalate	330	340 U	340 U	340 U	340 U
Benzo(b)Fluoranthene	330	340 U	340 U	340 U	340 U
Benzo(k)Fluoranthene	330	340 U	340 U	340 U	340 U
Benzo(a)Pyrene	330	340 U	340 U	340 U	340 U
Indeno(1,2,3-cd)pyrene	330	340 U	340 U	340 U	340 U
Dibenz(a,h)anthracene	330	340 U	340 U	340 U	340 U
Benzo(g,h,i,)perylene	330	340 U	340 U	340 U	340 U
Dilution Factor:		1	1	1	1
Percent Solids:		97	97	97	97
Associated Method Blank:		GH083492C16	GH083492C16	GH083492C16	GH083492C16

* = Held for analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP104X0001XX	01TP104X1001XX	01TP104X1301XX	01TP105X0001XX	01TP106X0001XX	01TP106X0301XX	01TP107X0001XX	01TP107X0001XD
LAB NUMBER:	284468	284465	284469	284452	283669	283667	283682	283683
DATE SAMPLED:	09/01/89	09/01/89	09/01/89	08/31/89	08/30/89	08/30/89	08/30/89	08/30/89
DATE EXTRACTED:	09/16/89	09/07/89	09/07/89	09/07/89	09/06/89	09/07/89	09/06/89	09/06/89
DATE ANALYZED:	09/18/89	09/10/89	09/10/89	09/08/89	09/07/89	09/09/89	09/07/89	09/07/89

ANALYTE	CRQL								
alpha-BHC	8	8.2 U	8.5 U	9.6 U	10 U	8.3 U	8.8 U	8.8 U	8.7 U
beta-BHC	8	8.2 U	8.5 U	9.6 U	10 U	8.3 U	8.8 U	8.8 U	8.7 U
delta-BHC	8	8.2 U	8.5 U	9.6 U	10 U	8.3 U	8.8 U	8.8 U	8.7 U
gamma-BHC (Lindane)	8	8.2 U	8.5 U	9.6 U	10 U	8.3 U	8.8 U	8.8 U	8.7 U
Heptachlor	8	8.2 U	8.5 U	9.6 U	10 U	8.3 U	8.8 U	8.8 U	8.7 U
Aldrin	8	8.2 U	8.5 U	9.6 U	10 U	8.3 U	8.8 U	8.8 U	8.7 U
Heptachlor epoxide	8	8.2 U	8.5 U	9.6 U	10 U	8.3 U	8.8 U	8.8 U	8.7 U
Endosulfan I	8	8.2 U	8.5 U	9.6 U	10 U	8.3 U	8.8 U	8.8 U	8.7 U
Dieldrin	16	16 U	17 U	19 U	20 U	17 U	18 U	18 U	17 U
4,4'-DDE	16	16 U	17 U	19 U	20 U	17 U	18 U	18 U	17 U
Endrin	16	16 U	17 U	19 U	20 U	17 U	18 U	18 U	17 U
Endosulfan II	16	16 U	17 U	19 U	20 U	17 U	18 U	18 U	17 U
4,4'-DDD	16	16 U	17 U	19 U	20 U	17 U	18 U	18 U	17 U
Endosulfan sulfate	16	16 U	17 U	19 U	20 U	17 U	18 U	18 U	17 U
4,4'-DDT	16	16 U	17 U	19 U	20 U	17 U	18 U	18 U	17 U
Methoxychlor	80	82 U	85 U	96 U	100 U	83 U	88 U	88 U	87 U
Endrin ketone	16	16 U	17 U	19 U	20 U	17 U	18 U	18 U	17 U
alpha-Chlordane	80	82 U	85 U	96 U	100 U	83 U	88 U	88 U	87 U
gamma-Chlordane	80	82 U	85 U	96 U	100 U	83 U	88 U	88 U	87 U
Toxaphene	160	160 U	170 U	190 U	200 U	170 U	180 U	180 U	170 U
Aroclor-1016	80	82 U	85 U	96 U	100 U	83 U	88 U	88 U	87 U
Aroclor-1221	80	82 U	85 U	96 U	100 U	83 U	88 U	88 U	87 U
Aroclor-1232	80	82 U	85 U	96 U	100 U	83 U	88 U	88 U	87 U
Aroclor-1242	80	82 U	85 U	96 U	100 U	83 U	88 U	88 U	87 U
Aroclor-1248	80	82 U	85 U	96 U	100 U	83 U	88 U	88 U	87 U
Aroclor-1254	160	160 U	170 U	190 U	200 U	170 U	180 U	180 U	170 U
Aroclor-1260	160	160 U	170 U	190 U	200 U	170 U	180 U	180 U	170 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	97	94	83	79	96	91	91	92
Associated Method Blank:	287359	284925	284925	284902	284622	285177	284622	284622
Associated Equipment Blank:	-	-	-	00QS003XXX04XX	-	-	-	-
Associated Field Blank:	-	-	-	SOURCEWATER	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP107X0301XX	01TP107X0601XX	01TP108X0001XX	01TP108X0001XD	01TP108X0301XX	01TP109X0001XX	01TP109X0301XX	01TP110X0001XX
LAB NUMBER:	283685	283680	283684	283686	283681	283668	283679	284204
DATE SAMPLED:	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89
DATE EXTRACTED:	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89	09/07/89	09/06/89	09/06/89
DATE ANALYZED:	09/07/89	09/07/89	09/07/89	09/07/89	09/07/89	09/09/89	09/07/89	09/09/89
ANALYTE / CRQL								
alpha-BHC 8	9 U	8.5 U	9 U	9 U	8.6 U	8.7 U	8.9 U	8.8 U
beta-BHC 8	9 U	8.5 U	9 U	9 U	8.6 U	8.7 U	8.9 U	8.8 U
delta-BHC 8	9 U	8.5 U	9 U	9 U	8.6 U	8.7 U	8.9 U	8.8 U
gamma-BHC (Lindane) 8	9 U	8.5 U	9 U	9 U	8.6 U	8.7 U	8.9 U	8.8 U
Heptachlor 8	9 U	8.5 U	9 U	9 U	8.6 U	8.7 U	8.9 U	8.8 U
Aldrin 8	9 U	8.5 U	9 U	9 U	8.6 U	8.7 U	8.9 U	8.8 U
Heptachlor epoxide 8	9 U	8.5 U	9 U	9 U	8.6 U	8.7 U	8.9 U	8.8 U
Endosulfan I 8	9 U	8.5 U	9 U	9 U	8.6 U	8.7 U	8.9 U	8.8 U
Dieldrin 16	18 U	17 U	18 U	18 U	17 U	17 U	18 U	18 U
4,4'-DDE 16	18 U	17 U	18 U	18 U	17 U	17 U	18 U	18 U
Endrin 16	18 U	17 U	18 U	18 U	17 U	17 U	18 U	18 U
Endosulfan II 16	18 U	17 U	18 U	18 U	17 U	17 U	18 U	18 U
4,4'-DDD 16	18 U	17 U	18 U	18 U	17 U	17 U	18 U	18 U
Endosulfan sulfate 16	18 U	17 U	18 U	18 U	17 U	17 U	18 U	18 U
4,4'-DDT 16	18 U	17 U	18 U	18 U	17 U	17 U	27	18 U
Methoxychlor 80	90 U	85 U	90 U	90 U	86 U	87 U	89 U	88 U
Endrin ketone 16	18 U	17 U	18 U	18 U	17 U	17 U	18 U	18 U
alpha-Chlordane 80	90 U	85 U	90 U	90 U	86 U	87 U	89 U	88 U
gamma-Chlordane 80	90 U	85 U	90 U	90 U	86 U	87 U	89 U	88 U
Toxaphene 160	180 U	170 U	180 U	180 U	170 U	170 U	180 U	180 U
Aroclor-1016 80	90 U	85 U	90 U	90 U	86 U	87 U	89 U	88 U
Aroclor-1221 80	90 U	85 U	90 U	90 U	86 U	87 U	89 U	88 U
Aroclor-1232 80	90 U	85 U	90 U	90 U	86 U	87 U	89 U	88 U
Aroclor-1242 80	90 U	85 U	90 U	90 U	86 U	87 U	89 U	88 U
Aroclor-1248 80	90 U	85 U	90 U	90 U	86 U	87 U	89 U	88 U
Aroclor-1254 160	180 U	170 U	180 U	180 U	170 U	170 U	180 U	180 U
Aroclor-1260 160	180 U	170 U	180 U	180 U	170 U	170 U	180 U	180 U
Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	89	94	89	89	93	92	90	91
Associated Method Blank:	284622	284622	284622	284622	284622	285177	284622	284627
Associated Equipment Blank:	-	-	-	-	-	-	-	-
Associated Field Blank:	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01TP111X0501XX	01TP112X0001XX	01TP112X0301XX	01TP113X0001XX	01TP113X0301XX	01TP114X0101XX	01TP115X0001XX	07TP115X0001XD
		LAB NUMBER: 284451	284203	284192	284200	284193	284453	284202	284736
		DATE SAMPLED: 08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	09/02/89
		DATE EXTRACTED: 09/07/89	09/06/89	09/06/89	09/06/89	09/06/89	09/07/89	09/06/89	09/08/89
		DATE ANALYZED: 09/08/89	09/09/89	09/09/89	09/09/89	09/08/89	09/10/89	09/12/89	09/11/89
alpha-BHC	8	8.6 U	8.6 U	8.7 U	8.5 U	8.9 U	8.8 U	8.7 U	8.5 U
beta-BHC	8	8.6 U	8.6 U	8.7 U	8.5 U	8.9 U	8.8 U	8.7 U	8.5 U
delta-BHC	8	8.6 U	8.6 U	8.7 U	8.5 U	8.9 U	8.8 U	8.7 U	8.5 U
gamma-BHC (Lindane)	8	8.6 U	8.6 U	8.7 U	8.5 U	8.9 U	8.8 U	8.7 U	8.5 U
Heptachlor	8	8.6 U	8.6 U	8.7 U	8.5 U	8.9 U	8.8 U	8.7 U	8.5 U
Aldrin	8	8.6 U	8.6 U	8.7 U	8.5 U	8.9 U	8.8 U	8.7 U	8.5 U
Heptachlor epoxide	8	8.6 U	8.6 U	8.7 U	8.5 U	8.9 U	8.8 U	8.7 U	8.5 U
Endosulfan I	8	8.6 U	8.6 U	8.7 U	8.5 U	8.9 U	8.8 U	8.7 U	8.5 U
Dieldrin	16	48	17 U	17 U	17 U	18 U	18 U	17 U	17 U
4,4'-DDE	16	17 U	17 U	17 U	17 U	18 U	18 U	17 U	17 U
Endrin	16	17 U	17 U	17 U	17 U	18 U	18 U	17 U	17 U
Endosulfan II	16	17 U	17 U	17 U	17 U	18 U	18 U	17 U	17 U
4,4'-DDD	16	17 U	17 U	17 U	17 U	18 U	18 U	17 U	17 U
Endosulfan sulfate	16	17 U	17 U	17 U	17 U	18 U	18 U	17 U	17 U
4,4'-DDT	16	17 U	17 U	17 U	17 U	18 U	18 U	17 U	17 U
Methoxychlor	80	86 U	86 U	87 U	85 U	89 U	88 U	87 U	85 U
Endrin ketone	16	17 U	17 U	17 U	17 U	18 U	18 U	17 U	17 U
alpha-Chlordane	80	86 U	86 U	87 U	85 U	89 U	88 U	87 U	85 U
gamma-Chlordane	80	86 U	86 U	87 U	85 U	89 U	88 U	87 U	85 U
Toxaphene	160	170 U	170 U	170 U	170 U	180 U	180 U	170 U	170 U
Aroclor-1016	80	86 U	86 U	87 U	85 U	89 U	88 U	87 U	85 U
Aroclor-1221	80	86 U	86 U	87 U	85 U	89 U	88 U	87 U	85 U
Aroclor-1232	80	86 U	86 U	87 U	85 U	89 U	88 U	87 U	85 U
Aroclor-1242	80	86 U	86 U	87 U	470	270	260	87 U	85 U
Aroclor-1248	80	86 U	86 U	87 U	85 U	89 U	88 U	87 U	85 U
Aroclor-1254	160	170 U	170 U	170 U	170 U	180 U	180 U	170 U	630
Aroclor-1260	160	720	170 U	170 U	170 U	180 U	180 U	170 U	170 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		93	93	92	94	90	91	92	94
Associated Method Blank:		284902	284627	284635	284635	284635	284925	284635	285210
Associated Equipment Blank:		000S003XXX04XX	-	-	-	-	-	-	-
Associated Field Blank:		SOURCEWATER	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP115X0301XX	01TP115X0701XX	01TP116X0001XX	01TP116X1101XX	01TP116X1101XD	01TP117X0001XX	01TP117X1101XX	01TP117X1101XD
LAB NUMBER:	284190	284201	284748	284965	284969	284967	284970	284971
DATE SAMPLED:	08/31/89	08/31/89	09/01/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89
DATE EXTRACTED:	09/06/89	09/06/89	09/08/89	09/09/89	09/09/89	09/09/89	09/14/89	09/09/89
DATE ANALYZED:	09/08/89	09/09/89	09/11/89	09/11/89	09/11/89	09/11/89	09/16/89	09/13/89

ANALYTE	CRQL								
alpha-BHC	8	8.6 U	9.8 U	8.5 U	8.9 U	9.1 U	8.4 U	9.1 U	9.1 U
beta-BHC	8	8.6 U	9.8 U	8.5 U	8.9 U	9.1 U	8.4 U	9.1 U	9.1 U
delta-BHC	8	8.6 U	9.8 U	8.5 U	8.9 U	9.1 U	8.4 U	9.1 U	9.1 U
gamma-BHC (Lindane)	8	8.6 U	9.8 U	8.5 U	8.9 U	9.1 U	8.4 U	9.1 U	9.1 U
Heptachlor	8	8.6 U	9.8 U	8.5 U	8.9 U	9.1 U	8.4 U	9.1 U	9.1 U
Aldrin	8	8.6 U	9.8 U	8.5 U	8.9 U	9.1 U	8.4 U	9.1 U	9.1 U
Heptachlor epoxide	8	8.6 U	9.8 U	8.5 U	8.9 U	9.1 U	8.4 U	9.1 U	9.1 U
Endosulfan I	8	8.6 U	9.8 U	8.5 U	8.9 U	9.1 U	8.4 U	9.1 U	9.1 U
Dieldrin	16	17 U	20 U	17 U	18 U	18 U	17 U	18 U	18 U
4,4'-DDE	16	17 U	20 U	17 U	18 U	18 U	17 U	18 U	18 U
Endrin	16	17 U	20 U	17 U	18 U	18 U	17 U	18 U	18 U
Endosulfan II	16	17 U	20 U	17 U	18 U	18 U	17 U	18 U	18 U
4,4'-DDD	16	17 U	20 U	17 U	18 U	18 U	17 U	18 U	28
Endosulfan sulfate	16	17 U	20 U	17 U	18 U	18 U	17 U	18 U	18 U
4,4'-DDT	16	17 U	20 U	17 U	18 U	18 U	17 U	18 U	18 U
Methoxychlor	80	86 U	98 U	85 U	89 U	91 U	84 U	91 U	91 U
Endrin ketone	16	17 U	20 U	17 U	18 U	18 U	17 U	18 U	18 U
alpha-Chlordane	80	86 U	98 U	85 U	89 U	91 U	84 U	91 U	91 U
gamma-Chlordane	80	86 U	98 U	85 U	89 U	91 U	84 U	91 U	91 U
Toxaphene	160	170 U	200 U	170 U	180 U	180 U	170 U	180 U	180 U
Aroclor-1016	80	86 U	98 U	85 U	89 U	91 U	84 U	91 U	91 U
Aroclor-1221	80	86 U	98 U	85 U	89 U	91 U	84 U	91 U	91 U
Aroclor-1232	80	86 U	98 U	85 U	89 U	91 U	84 U	91 U	91 U
Aroclor-1242	80	86 U	98 U	85 U	89 U	91 U	84 U	170	440
Aroclor-1248	80	86 U	98 U	85 U	89 U	91 U	84 U	91 U	91 U
Aroclor-1254	160	170 U	200 U	170 U	180 U	180 U	170 U	180 U	180 U
Aroclor-1260	160	170 U	200 U	170 U	180 U	180 U	170 U	180 U	180 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	93	82	94	90	88	95	88	88
Associated Method Blank:	284635	284635	285210	285587	285587	285587	286872	285587
Associated Equipment Blank:	-	-	-	-	-	-	-	-
Associated Field Blank:	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01TP118X0001XX	01TP118X0701XX	01TP118X0701XD	01TP119X0001XX	01TP119X0301XX	01TP120X0801XX	01TP120X0801XD	01TP121X0701XX
LAB NUMBER:		284968	284966	284972	284764	284749	285503	285506	284964
DATE SAMPLED:		09/06/89	09/06/89	09/06/89	09/01/89	09/01/89	09/07/89	09/07/89	09/06/89
DATE EXTRACTED:		09/09/89	09/09/89	09/09/89	09/08/89	09/08/89	09/14/89	09/14/89	09/14/89
DATE ANALYZED:		09/11/89	09/11/89	09/11/89	09/09/89	09/11/89	09/19/89	09/19/89	09/17/89
ANALYTE	CRQL								
alpha-BHC	8	8.3 U	8.3 U	8.3 U	8.3 U	8.2 U	8.5 U	8.4 U	8.4 U
beta-BHC	8	8.3 U	8.3 U	8.3 U	8.3 U	8.2 U	8.5 U	8.4 U	8.4 U
delta-BHC	8	8.3 U	8.3 U	8.3 U	8.3 U	8.2 U	8.5 U	8.4 U	8.4 U
gamma-BHC (Lindane)	8	8.3 U	8.3 U	8.3 U	8.3 U	8.2 U	8.5 U	8.4 U	8.4 U
Heptachlor	8	8.3 U	8.3 U	8.3 U	8.3 U	8.2 U	8.5 U	8.4 U	8.4 U
Aldrin	8	8.3 U	8.3 U	8.3 U	8.3 U	8.2 U	8.5 U	8.4 U	8.4 U
Heptachlor epoxide	8	8.3 U	8.3 U	8.3 U	8.3 U	8.2 U	8.5 U	8.4 U	8.4 U
Endosulfan I	8	8.3 U	8.3 U	8.3 U	8.3 U	8.2 U	8.5 U	8.4 U	8.4 U
Dieldrin	16	17 U	17 U	17 U	17 U	16 U	17 U	17 U	17 U
4,4'-DDE	16	17 U	17 U	17 U	17 U	16 U	17 U	17 U	17 U
Endrin	16	17 U	17 U	17 U	17 U	16 U	17 U	17 U	17 U
Endosulfan II	16	17 U	17 U	17 U	17 U	16 U	17 U	17 U	17 U
4,4'-DDD	16	17 U	17 U	17 U	17 U	16 U	17 U	17 U	17 U
Endosulfan sulfate	16	17 U	17 U	17 U	17 U	16 U	17 U	17 U	17 U
4,4'-DDT	16	17 U	17 U	17 U	17 U	16 U	17 U	17 U	17 U
Methoxychlor	80	83 U	83 U	83 U	83 U	82 U	85 U	84 U	84 U
Endrin ketone	16	17 U	17 U	17 U	17 U	16 U	17 U	17 U	17 U
alpha-Chlordane	80	83 U	83 U	83 U	83 U	82 U	85 U	84 U	84 U
gamma-Chlordane	80	83 U	83 U	83 U	83 U	82 U	85 U	84 U	84 U
Toxaphene	160	170 U	170 U	170 U	170 U	160 U	170 U	170 U	170 U
Aroclor-1016	80	83 U	83 U	83 U	83 U	82 U	85 U	84 U	84 U
Aroclor-1221	80	83 U	83 U	83 U	83 U	82 U	85 U	84 U	84 U
Aroclor-1232	80	83 U	83 U	83 U	83 U	82 U	85 U	84 U	84 U
Aroclor-1242	80	83 U	83 U	83 U	330	82 U	85 U	84 U	84 U
Aroclor-1248	80	83 U	83 U	83 U	83 U	82 U	85 U	84 U	84 U
Aroclor-1254	160	170 U	170 U	170 U	170 U	160 U	170 U	170 U	170 U
Aroclor-1260	160	170 U	170 U	170 U	170 U	160 U	170 U	170 U	170 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		96	96	96	96	97	94	95	95
Associated Method Blank:		285587	285587	285587	285226	285210	286906	286906	286872
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Field Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01TP121X0701XD	01TP122X0201XX	01TP122X0201XD	01TP123X0501XX	01TP123X0501XD	01TP124X0001XX	01TP124X0001XD	01TP124X0301XX
LAB NUMBER:	284963	285508	285510	285512	285517	284464	284466	284467
DATE SAMPLED:	09/06/89	09/07/89	09/07/89	09/07/89	09/07/89	09/01/89	09/01/89	09/01/89
DATE EXTRACTED:	09/14/89	09/14/89	09/14/89	09/14/89	09/14/89	09/07/89	09/07/89	09/07/89
DATE ANALYZED:	09/17/89	09/19/89	09/19/89	09/19/89	09/19/89	09/10/89	09/10/89	09/16/89

ANALYTE	CRQL								
alpha-BHC	8	8.4 U	8.5 U	8.4 U	8.7 U	8.8 U	8.6 U	8.6 U	9.5 U
beta-BHC	8	8.4 U	8.5 U	8.4 U	8.7 U	8.8 U	8.6 U	8.6 U	9.5 U
delta-BHC	8	8.4 U	8.5 U	8.4 U	8.7 U	8.8 U	8.6 U	8.6 U	9.5 U
gamma-BHC (Lindane)	8	8.4 U	8.5 U	8.4 U	8.7 U	8.8 U	8.6 U	8.6 U	9.5 U
Heptachlor	8	8.4 U	8.5 U	8.4 U	8.7 U	8.8 U	8.6 U	8.6 U	9.5 U
Aldrin	8	8.4 U	8.5 U	8.4 U	8.7 U	8.8 U	8.6 U	8.6 U	9.5 U
Heptachlor epoxide	8	8.4 U	8.5 U	8.4 U	8.7 U	8.8 U	8.6 U	8.6 U	9.5 U
Endosulfan I	8	8.4 U	8.5 U	8.4 U	8.7 U	8.8 U	8.6 U	8.6 U	9.5 U
Dieldrin	16	17 U	17 U	17 U	17 U	18 U	17 U	17 U	19 U
4,4'-DDE	16	17 U	17 U	17 U	17 U	18 U	17 U	17 U	19 U
Endrin	16	17 U	17 U	17 U	17 U	18 U	17 U	17 U	19 U
Endosulfan II	16	17 U	17 U	17 U	17 U	18 U	17 U	17 U	19 U
4,4'-DDD	16	17 U	17 U	17 U	17 U	18 U	17 U	17 U	19 U
Endosulfan sulfate	16	17 U	17 U	17 U	17 U	18 U	17 U	17 U	19 U
4,4'-DDT	16	17 U	17 U	17 U	17 U	18 U	17 U	17 U	19 U
Methoxychlor	80	84 U	85 U	84 U	87 U	88 U	86 U	86 U	95 U
Endrin ketone	16	17 U	17 U	17 U	17 U	18 U	17 U	17 U	19 U
alpha-Chlordane	80	84 U	85 U	84 U	87 U	88 U	86 U	86 U	95 U
gamma-Chlordane	80	84 U	85 U	84 U	87 U	88 U	86 U	86 U	95 U
Toxaphene	160	170 U	170 U	170 U	170 U	180 U	170 U	170 U	190 U
Aroclor-1016	80	84 U	85 U	84 U	87 U	88 U	86 U	86 U	95 U
Aroclor-1221	80	84 U	85 U	84 U	87 U	88 U	86 U	86 U	95 U
Aroclor-1232	80	84 U	85 U	84 U	87 U	88 U	86 U	86 U	95 U
Aroclor-1242	80	84 U	85 U	84 U	87 U	88 U	86 U	86 U	95 U
Aroclor-1248	80	84 U	85 U	84 U	87 U	88 U	86 U	86 U	95 U
Aroclor-1254	160	170 U	170 U	170 U	170 U	180 U	170 U	170 U	190 U
Aroclor-1260	160	170 U	170 U	170 U	170 U	180 U	170 U	170 U	190 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	95	94	95	92	91	93	93	84
Associated Method Blank:	286872	286906	286906	286906	286906	284925	284925	284925
Associated Equipment Blank:	-	-	-	-	-	-	-	-
Associated Field Blank:	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	07TP708X0001XX	07TP709X0001XX	07TP709X0201XX	07TP709X0201XD	07TP709X0401XX	07TP710X0001XX	07TP710X0201XX	07TP711X0001XX
LAB NUMBER:	284766	283663	283646	283651	283655	284737	284738	283654
DATE SAMPLED:	09/02/89	08/29/89	08/30/89	08/30/89	08/30/89	09/02/89	09/02/89	08/29/89
DATE EXTRACTED:	09/08/89	09/05/89	09/05/89	09/05/89	09/05/89	09/08/89	09/08/89	09/05/89
DATE ANALYZED:	09/09/89	09/07/89	09/06/89	09/06/89	09/07/89	09/11/89	09/11/89	09/07/89

ANALYTE	CRQL								
alpha-BHC	8	11 U	8.5 U	9.5 U	9.8 U	9.6 U	8.7 U	8.6 U	8.6 U
beta-BHC	8	11 U	8.5 U	9.5 U	9.8 U	9.6 U	8.7 U	8.6 U	8.6 U
delta-BHC	8	11 U	8.5 U	9.5 U	9.8 U	9.6 U	8.7 U	8.6 U	8.6 U
gamma-BHC (Lindane)	8	11 U	8.5 U	9.5 U	9.8 U	9.6 U	8.7 U	8.6 U	8.6 U
Heptachlor	8	11 U	8.5 U	9.5 U	9.8 U	9.6 U	8.7 U	8.6 U	8.6 U
Aldrin	8	11 U	8.5 U	9.5 U	9.8 U	9.6 U	8.7 U	8.6 U	8.6 U
Heptachlor epoxide	8	11 U	8.5 U	9.5 U	9.8 U	9.6 U	8.7 U	8.6 U	8.6 U
Endosulfan I	8	11 U	8.5 U	9.5 U	9.8 U	9.6 U	8.7 U	8.6 U	8.6 U
Dieldrin	16	22 U	17 U	19 U	20 U	19 U	17 U	17 U	17 U
4,4'-DDE	16	22 U	56	19 U	20 U	19 U	17 U	17 U	28
Endrin	16	22 U	17 U	19 U	20 U	19 U	17 U	17 U	17 U
Endosulfan II	16	22 U	17 U	19 U	20 U	19 U	17 U	17 U	17 U
4,4'-DDD	16	22 U	21	19 U	20 U	19 U	17 U	17 U	17 U
Endosulfan sulfate	16	22 U	17 U	19 U	20 U	19 U	17 U	17 U	17 U
4,4'-DDT	16	22 U	340	19 U	20 U	19 U	43	20	77
Methoxychlor	80	110 U	85 U	95 U	98 U	96 U	87 U	86 U	86 U
Endrin ketone	16	22 U	17 U	19 U	20 U	19 U	17 U	17 U	17 U
alpha-Chlordane	80	110 U	85 U	95 U	98 U	96 U	87 U	86 U	86 U
gamma-Chlordane	80	110 U	85 U	95 U	98 U	96 U	87 U	86 U	86 U
Toxaphene	160	220 U	170 U	190 U	200 U	190 U	170 U	170 U	170 U
Aroclor-1016	80	110 U	85 U	95 U	98 U	96 U	87 U	86 U	86 U
Aroclor-1221	80	110 U	85 U	95 U	98 U	96 U	87 U	86 U	86 U
Aroclor-1232	80	110 U	85 U	95 U	98 U	96 U	87 U	86 U	86 U
Aroclor-1242	80	110 U	85 U	95 U	98 U	96 U	87 U	86 U	86 U
Aroclor-1248	80	110 U	85 U	95 U	98 U	96 U	87 U	86 U	86 U
Aroclor-1254	160	220 U	170 U	190 U	200 U	190 U	170 U	170 U	170 U
Aroclor-1260	160	220 U	170 U	190 U	200 U	190 U	170 U	170 U	170 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	72	94	84	82	83	92	93	93
Associated Method Blank:	285226	284554	284554	284554	284554	285210	285210	284554
Associated Equipment Blank:	-	-	-	-	-	-	-	-
Associated Field Blank:	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	07TP711X0201XX	07TP711X0401XX	07TP712X0001XX	07TP712X0201XX	07TP712X0401XX	07TP713X0001XX	07TP713X0201XX	07TP713X0401XX
LAB NUMBER:	283657	283653	284767	284739	284763	283355	283357	283356
DATE SAMPLED:	08/29/89	08/29/89	09/02/89	09/02/89	09/02/89	08/29/89	08/29/89	08/29/89
DATE EXTRACTED:	09/05/89	09/05/89	09/08/89	09/08/89	09/08/89	08/31/89	08/31/89	08/31/89
DATE ANALYZED:	09/07/89	09/07/89	09/09/89	09/11/89	09/09/89	09/01/89	09/01/89	09/01/89
ANALYTE CRQL								
alpha-BHC 8	8.4 U	8.6 U	11 U	9.4 U	10 U	8.3 U	8.6 U	9.5 U
beta-BHC 8	8.4 U	8.6 U	11 U	9.4 U	10 U	8.3 U	8.6 U	9.5 U
delta-BHC 8	8.4 U	8.6 U	11 U	9.4 U	10 U	8.3 U	8.6 U	9.5 U
gamma-BHC (Lindane) 8	8.4 U	8.6 U	11 U	9.4 U	10 U	8.3 U	8.6 U	9.5 U
Heptachlor 8	8.4 U	8.6 U	11 U	9.4 U	10 U	8.3 U	8.6 U	9.5 U
Aldrin 8	8.4 U	8.6 U	11 U	9.4 U	10 U	8.3 U	8.6 U	9.5 U
Heptachlor epoxide 8	8.4 U	8.6 U	11 U	9.4 U	10 U	8.3 U	8.6 U	9.5 U
Endosulfan I 8	8.4 U	8.6 U	11 U	9.4 U	10 U	8.3 U	8.6 U	9.5 U
Dieldrin 16	17 U	17 U	22 U	19 U	20 U	17 U	17 U	19 U
4,4'-DDE 16	17 U	17 U	43	19 U	20 U	17 U	17 U	19 U
Endrin 16	17 U	17 U	22 U	19 U	20 U	17 U	17 U	19 U
Endosulfan II 16	17 U	17 U	22 U	19 U	20 U	17 U	17 U	19 U
4,4'-DDD 16	17 U	17 U	22 U	58	20 U	17 U	17 U	19 U
Endosulfan sulfate 16	17 U	17 U	22 U	19 U	20 U	17 U	17 U	19 U
4,4'-DDT 16	17 U	17 U	42	19 U	20 U	17 U	17 U	19 U
Methoxychlor 80	84 U	86 U	110 U	94 U	100 U	83 U	86 U	95 U
Endrin ketone 16	17 U	17 U	22 U	19 U	20 U	17 U	17 U	19 U
alpha-Chlordane 80	84 U	86 U	110 U	94 U	100 U	83 U	86 U	95 U
gamma-Chlordane 80	84 U	86 U	110 U	94 U	100 U	83 U	86 U	95 U
Toxaphene 160	170 U	170 U	220 U	190 U	200 U	170 U	170 U	190 U
Aroclor-1016 80	84 U	86 U	110 U	94 U	100 U	83 U	86 U	95 U
Aroclor-1221 80	84 U	86 U	110 U	94 U	100 U	83 U	86 U	95 U
Aroclor-1232 80	84 U	86 U	110 U	94 U	100 U	83 U	86 U	95 U
Aroclor-1242 80	84 U	86 U	110 U	94 U	100 U	83 U	86 U	95 U
Aroclor-1248 80	84 U	86 U	110 U	94 U	100 U	83 U	86 U	95 U
Aroclor-1254 160	170 U	170 U	220 U	190 U	200 U	170 U	170 U	190 U
Aroclor-1260 160	170 U	170 U	220 U	190 U	200 U	170 U	170 U	190 U
Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	95	93	73	85	78	96	93	84
Associated Method Blank:	284554	284554	285226	285210	285226	283501	283501	283501
Associated Equipment Blank:	-	-	-	-	-	-	-	-
Associated Field Blank:	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick - Round 4 Test Pit Samples - Pesticides/PCBs Analysis (ug/kg)

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	07TP714X0001XX	07TP714X0001XD	07TP714X0201XX	07TP714X0401XX	07TP715X0001XX	07TP715X0201XX	07TP715X0401XX	07TP716X0001XX
LAB NUMBER:	284740	284750	284744	284765	284751	284745	284762	283659
DATE SAMPLED:	09/02/89	09/02/89	09/02/89	09/02/89	09/02/89	09/02/89	09/02/89	08/29/89
DATE EXTRACTED:	09/08/89	09/08/89	09/08/89	09/08/89	09/08/89	09/08/89	09/08/89	09/05/89
DATE ANALYZED:	09/11/89	09/11/89	09/11/89	09/09/89	09/09/89	09/11/89	09/09/89	09/07/89

ANALYTE	CRQL								
alpha-BHC	8	9 U	9 U	9.5 U	11 U	8.8 U	9.1 U	9 U	8.6 U
beta-BHC	8	9 U	9 U	9.5 U	11 U	8.8 U	9.1 U	9 U	8.6 U
delta-BHC	8	9 U	9 U	9.5 U	11 U	8.8 U	9.1 U	9 U	8.6 U
gamma-BHC (Lindane)	8	9 U	9 U	9.5 U	11 U	8.8 U	9.1 U	9 U	8.6 U
Heptachlor	8	9 U	9 U	9.5 U	11 U	8.8 U	9.1 U	9 U	8.6 U
Aldrin	8	9 U	9 U	9.5 U	11 U	8.8 U	9.1 U	9 U	8.6 U
Heptachlor epoxide	8	9 U	9 U	9.5 U	11 U	8.8 U	9.1 U	9 U	8.6 U
Endosulfan I	8	9 U	9 U	9.5 U	11 U	8.8 U	9.1 U	9 U	8.6 U
Dieldrin	16	18 U	18 U	19 U	22 U	18 U	18 U	18 U	17 U
4,4'-DDE	16	30	22	19 U	22 U	18 U	18 U	18 U	18
Endrin	16	18 U	18 U	19 U	22 U	18 U	18 U	18 U	17 U
Endosulfan II	16	18 U	18 U	19 U	22 U	18 U	18 U	18 U	17 U
4,4'-DDD	16	26	18 U	72	22 U	18 U	32	18 U	22
Endosulfan sulfate	16	18 U	18 U	19 U	22 U	18 U	18 U	18 U	17 U
4,4'-DDT	16	21	34	19 U	22 U	18 U	18 U	18 U	82
Methoxychlor	80	90 U	90 U	95 U	110 U	88 U	91 U	90 U	86 U
Endrin ketone	16	18 U	18 U	19 U	22 U	18 U	18 U	18 U	17 U
alpha-Chlordane	80	90 U	90 U	95 U	110 U	88 U	91 U	90 U	86 U
gamma-Chlordane	80	90 U	90 U	95 U	110 U	88 U	91 U	90 U	86 U
Toxaphene	160	180 U	180 U	190 U	220 U	180 U	180 U	180 U	170 U
Aroclor-1016	80	90 U	90 U	95 U	110 U	88 U	91 U	90 U	86 U
Aroclor-1221	80	90 U	90 U	95 U	110 U	88 U	91 U	90 U	86 U
Aroclor-1232	80	90 U	90 U	95 U	110 U	88 U	91 U	90 U	86 U
Aroclor-1242	80	90 U	90 U	95 U	110 U	88 U	91 U	90 U	86 U
Aroclor-1248	80	90 U	90 U	95 U	110 U	88 U	91 U	90 U	86 U
Aroclor-1254	160	180 U	180 U	190 U	220 U	180 U	180 U	180 U	170
Aroclor-1260	160	180 U	180 U	190 U	220 U	180 U	180 U	180 U	170

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	89	89	84	74	91	88	89	93
Associated Method Blank:	285210	285210	285210	285226	285226	285210	285226	284554
Associated Equipment Blank:	-	-	-	-	-	-	-	-
Associated Field Blank:	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	CRQL	07TP716X0201XX	07TP716X0401XX	07TP717X0001XX	07TP717X0201XX	07TP717X0401XX	07TP718X0001XX	07TP718X0201XX	07TP719X0001XX
SAMPLE LOCATION:									
LAB NUMBER:		283661	283656	283658	283660	283662	284761	284768	284746
DATE SAMPLED:		08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	09/02/89	09/02/89	09/02/89
DATE EXTRACTED:		09/05/89	09/05/89	09/05/89	09/05/89	09/05/89	09/08/89	09/08/89	09/08/89
DATE ANALYZED:		09/07/89	09/07/89	09/07/89	09/07/89	09/07/89	09/09/89	09/10/89	09/11/89
ANALYTE									
alpha-BHC	8	8.6 U	9.6 U	8.4 U	9.2 U	9.2 U	8.5 U	8.5 U	9.6 U
beta-BHC	8	8.6 U	9.6 U	8.4 U	9.2 U	9.2 U	8.5 U	8.5 U	9.6 U
delta-BHC	8	8.6 U	9.6 U	8.4 U	9.2 U	9.2 U	8.5 U	8.5 U	9.6 U
gamma-BHC (Lindane)	8	8.6 U	9.6 U	8.4 U	9.2 U	9.2 U	8.5 U	8.5 U	9.6 U
Heptachlor	8	8.6 U	9.6 U	8.4 U	9.2 U	9.2 U	8.5 U	8.5 U	9.6 U
Aldrin	8	8.6 U	9.6 U	8.4 U	9.2 U	9.2 U	8.5 U	8.5 U	9.6 U
Heptachlor epoxide	8	8.6 U	9.6 U	8.4 U	9.2 U	9.2 U	8.5 U	8.5 U	9.6 U
Endosulfan I	8	8.6 U	9.6 U	8.4 U	9.2 U	9.2 U	8.5 U	8.5 U	9.6 U
Dieldrin	16	17 U	19 U	17 U	18 U	18 U	17 U	17 U	19 U
4,4'-DDE	16	17 U	19 U	17 U	18 U	18 U	17 U	17 U	19 U
Endrin	16	17 U	19 U	17 U	18 U	18 U	17 U	17 U	19 U
Endosulfan II	16	17 U	19 U	17 U	18 U	18 U	17 U	17 U	19 U
4,4'-DDD	16	17 U	19 U	17 U	33	18 U	24	17 U	19 U
Endosulfan sulfate	16	17 U	19 U	17 U	18 U	18 U	17 U	17 U	19 U
4,4'-DDT	16	17 U	19 U	17 U	18 U	18 U	17 U	17 U	36
Methoxychlor	80	86 U	96 U	84 U	92 U	92 U	85 U	85 U	96 U
Endrin ketone	16	17 U	19 U	17 U	18 U	18 U	17 U	17 U	19 U
alpha-Chlordane	80	86 U	96 U	84 U	92 U	92 U	85 U	85 U	96 U
gamma-Chlordane	80	86 U	96 U	84 U	92 U	92 U	85 U	85 U	96 U
Toxaphene	160	170 U	190 U	170 U	180 U	180 U	170 U	170 U	190 U
Aroclor-1016	80	86 U	96 U	84 U	92 U	92 U	85 U	85 U	96 U
Aroclor-1221	80	86 U	96 U	84 U	92 U	92 U	85 U	85 U	96 U
Aroclor-1232	80	86 U	96 U	84 U	92 U	92 U	85 U	85 U	96 U
Aroclor-1242	80	86 U	96 U	84 U	92 U	92 U	85 U	85 U	96 U
Aroclor-1248	80	86 U	96 U	84 U	92 U	92 U	85 U	85 U	96 U
Aroclor-1254	160	170 U	190 U	170 U	180 U	180 U	170 U	170 U	190 U
Aroclor-1260	160	170 U	190 U	170 U	180 U	180 U	170 U	170 U	190 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		93	83	95	87	87	94	94	83
Associated Method Blank:		284554	284554	284554	284554	284554	285226	285226	285210
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Field Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		07TP719X0201XX	08TP801X0001XX	08TP801X0201XX	08TP802X0001XX	08TP802X0101XX	08TP803X0001XX	08TP803X0201XX	08TP803X0301XX
LAB NUMBER:		284747	283362	283363	283364	283365	283366	283378	283367
DATE SAMPLED:		09/02/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89
DATE EXTRACTED:		09/08/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89
DATE ANALYZED:		09/11/89	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	09/05/89	09/01/89
ANALYTE	CRQL								
alpha-BHC	8	9.6 U	8.2 U	8.4 U	8.2 U	8.4 U	8.1 U	16 U	12 U
beta-BHC	8	9.6 U	8.2 U	8.4 U	8.2 U	8.4 U	8.1 U	16 U	12 U
delta-BHC	8	9.6 U	8.2 U	8.4 U	8.2 U	8.4 U	8.1 U	16 U	12 U
gamma-BHC (Lindane)	8	9.6 U	8.2 U	8.4 U	8.2 U	8.4 U	8.1 U	16 U	12 U
Heptachlor	8	9.6 U	8.2 U	8.4 U	8.2 U	8.4 U	8.1 U	16 U	12 U
Aldrin	8	9.6 U	8.2 U	8.4 U	8.2 U	8.4 U	8.1 U	16 U	12 U
Heptachlor epoxide	8	9.6 U	8.2 U	8.4 U	8.2 U	8.4 U	8.1 U	16 U	12 U
Endosulfan I	8	9.6 U	8.2 U	8.4 U	8.2 U	8.4 U	8.1 U	16 U	12 U
Dieldrin	16	19 U	16 U	17 U	16 U	17 U	16 U	33 U	23 U
4,4'-DDE	16	19 U	16 U	17 U	16 U	17 U	16 U	33 U	23 U
Endrin	16	19 U	16 U	17 U	16 U	17 U	16 U	33 U	23 U
Endosulfan II	16	19 U	16 U	17 U	16 U	17 U	16 U	33 U	23 U
4,4'-DDD	16	31	16 U	17 U	16 U	17 U	16 U	33 U	23 U
Endosulfan sulfate	16	19 U	16 U	17 U	16 U	17 U	16 U	33 U	23 U
4,4'-DDT	16	19 U	16 U	17 U	16 U	17 U	16 U	33 U	23 U
Methoxychlor	80	96 U	82 U	84 U	82 U	84 U	81 U	160 U	120 U
Endrin ketone	16	19 U	16 U	17 U	16 U	17 U	16 U	33 U	23 U
alpha-Chlordane	80	96 U	82 U	84 U	82 U	84 U	81 U	160 U	120 U
gamma-Chlordane	80	96 U	82 U	84 U	82 U	84 U	81 U	160 U	120 U
Toxaphene	160	190 U	160 U	170 U	160 U	170 U	160 U	330 U	230 U
Aroclor-1016	80	96 U	82 U	84 U	82 U	84 U	81 U	160 U	120 U
Aroclor-1221	80	96 U	82 U	84 U	82 U	84 U	81 U	160 U	120 U
Aroclor-1232	80	96 U	82 U	84 U	82 U	84 U	81 U	160 U	120 U
Aroclor-1242	80	96 U	82 U	84 U	82 U	84 U	81 U	160 U	120 U
Aroclor-1248	80	96 U	82 U	84 U	82 U	84 U	81 U	160 U	120 U
Aroclor-1254	160	190 U	160 U	170 U	160 U	170 U	160 U	330 U	230 U
Aroclor-1260	160	190 U	160 U	170 U	160 U	170 U	160 U	330 U	230 U
Dilution Factor:		1	1	1	1	1	1	2	1
Percent Solids:		83	98	95	98	95	99	97	69
Associated Method Blank:		285210	283501	283501	283501	283501	283501	283492	283492
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Field Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	08TP804X0001XX	08TP804X0201XX	08TP805X0001XX	08TP805X0401XX	08TP805X0801XX	08TP806X0001XX	08TP806X0301XX	08TP806X0601XX
LAB NUMBER:	283374	283379	283080	283079	283081	283071	283078	283077
DATE SAMPLED:	08/29/89	08/29/89	08/28/89	08/28/89	08/28/89	08/28/89	08/28/89	08/28/89
DATE EXTRACTED:	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89
DATE ANALYZED:	09/05/89	09/05/89	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	09/08/89

ANALYTE	CRQL								
alpha-BHC	8	8.2 U	8.2 U	8.2 U	8.4 U	8.8 U	8.1 U	8.5 U	9 U
beta-BHC	8	8.2 U	8.2 U	8.2 U	8.4 U	8.8 U	8.1 U	8.5 U	9 U
delta-BHC	8	8.2 U	8.2 U	8.2 U	8.4 U	8.8 U	8.1 U	8.5 U	9 U
gamma-BHC (Lindane)	8	8.2 U	8.2 U	8.2 U	8.4 U	8.8 U	8.1 U	8.5 U	9 U
Heptachlor	8	8.2 U	8.2 U	8.2 U	8.4 U	8.8 U	8.1 U	8.5 U	9 U
Aldrin	8	8.2 U	8.2 U	8.2 U	8.4 U	8.8 U	8.1 U	8.5 U	9 U
Heptachlor epoxide	8	8.2 U	8.2 U	8.2 U	8.4 U	8.8 U	8.1 U	8.5 U	9 U
Endosulfan I	8	8.2 U	8.2 U	8.2 U	8.4 U	8.8 U	8.1 U	8.5 U	9 U
Dieldrin	16	16 U	16 U	16 U	17 U	18 U	16 U	17 U	18 U
4,4'-DDE	16	16 U	16 U	16 U	17 U	18 U	16 U	17 U	18 U
Endrin	16	16 U	16 U	16 U	17 U	18 U	16 U	17 U	18 U
Endosulfan II	16	16 U	16 U	17	17 U	18 U	16 U	17 U	18 U
4,4'-DDD	16	16 U	16 U	16 U	17 U	18 U	16 U	17 U	18 U
Endosulfan sulfate	16	16 U	16 U	16 U	17 U	18 U	16 U	17 U	18 U
4,4'-DDT	16	16 U	16 U	16 U	20	18 U	16 U	30	76
Methoxychlor	80	82 U	82 U	82 U	84 U	88 U	81 U	85 U	90 U
Endrin ketone	16	16 U	16 U	16 U	17 U	18 U	16 U	17 U	18 U
alpha-Chlordane	80	82 U	82 U	82 U	84 U	88 U	81 U	85 U	90 U
gamma-Chlordane	80	82 U	82 U	82 U	84 U	88 U	81 U	85 U	90 U
Toxaphene	160	160 U	160 U	160 U	170 U	180 U	160 U	170 U	180 U
Aroclor-1016	80	82 U	82 U	82 U	84 U	88 U	81 U	85 U	90 U
Aroclor-1221	80	82 U	82 U	82 U	84 U	88 U	81 U	85 U	90 U
Aroclor-1232	80	82 U	82 U	82 U	84 U	88 U	81 U	85 U	90 U
Aroclor-1242	80	82 U	82 U	82 U	84 U	88 U	81 U	85 U	90 U
Aroclor-1248	80	82 U	82 U	82 U	84 U	88 U	81 U	85 U	90 U
Aroclor-1254	160	160 U	160 U	160 U	170 U	180 U	160 U	170 U	180 U
Aroclor-1260	160	160 U	160 U	160 U	170 U	180 U	160 U	170 U	180 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	97	97	98	95	91	99	94	89
Associated Method Blank:	283492	283492	283484	283484	283484	283484	283484	283484
Associated Equipment Blank:	-	-	-	-	-	-	-	-
Associated Field Blank:	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	08TP807X0101XX	08TP808X0101XX	08TP809X0201XX	08TP801X0101XX	13TPX01X0001XX	13TPX01X0201XX	13TPX01X0401XX	13TPX02X0001XX
LAB NUMBER:	283381	283382	283383	283384	284789	284780	284778	284774
DATE SAMPLED:	08/29/89	08/29/89	08/29/89	08/29/89	09/05/89	09/05/89	09/05/89	09/05/89
DATE EXTRACTED:	08/31/89	08/31/89	08/31/89	08/31/89	09/07/89	09/07/89	09/07/89	09/07/89
DATE ANALYZED:	09/05/89	09/05/89	09/05/89	09/05/89	09/08/89	09/08/89	09/09/89	09/09/89

ANALYTE	CRQL								
alpha-BHC	8	8.2 U	8.2 U	8.2 U	8.2 U	8.3 U	8.6 U	8.4 U	8.7 U
beta-BHC	8	8.2 U	8.2 U	8.2 U	8.2 U	8.3 U	8.6 U	8.4 U	8.7 U
delta-BHC	8	8.2 U	8.2 U	8.2 U	8.2 U	8.3 U	8.6 U	8.4 U	8.7 U
gamma-BHC (Lindane)	8	8.2 U	8.2 U	8.2 U	8.2 U	8.3 U	8.6 U	8.4 U	8.7 U
Heptachlor	8	8.2 U	8.2 U	8.2 U	8.2 U	8.3 U	8.6 U	8.4 U	8.7 U
Aldrin	8	8.2 U	8.2 U	8.2 U	8.2 U	8.3 U	8.6 U	8.4 U	8.7 U
Heptachlor epoxide	8	8.2 U	8.2 U	8.2 U	8.2 U	8.3 U	8.6 U	8.4 U	8.7 U
Endosulfan I	8	8.2 U	8.2 U	8.2 U	8.2 U	8.3 U	8.6 U	8.4 U	8.7 U
Dieldrin	16	16 U	16 U	16 U	16 U	17 U	17 U	17 U	17 U
4,4'-DDE	16	16 U	16 U	16 U	16 U	17 U	17 U	17 U	17 U
Endrin	16	16 U	16 U	16 U	16 U	17 U	17 U	17 U	17 U
Endosulfan II	16	16 U	16 U	16 U	16 U	17 U	17 U	17 U	17 U
4,4'-DDD	16	16 U	16 U	16 U	16 U	17 U	17 U	17 U	17 U
Endosulfan sulfate	16	16 U	16 U	16 U	16 U	17 U	17 U	17 U	17 U
4,4'-DDT	16	16 U	16 U	16 U	16 U	17 U	17 U	17 U	17 U
Methoxychlor	80	82 U	82 U	82 U	82 U	83 U	86 U	84 U	87 U
Endrin ketone	16	16 U	16 U	16 U	16 U	17 U	17 U	17 U	17 U
alpha-Chlordane	80	82 U	82 U	82 U	82 U	83 U	86 U	84 U	87 U
gamma-Chlordane	80	82 U	82 U	82 U	82 U	83 U	86 U	84 U	87 U
Toxaphene	160	160 U	160 U	160 U	160 U	170 U	170 U	170 U	170 U
Aroclor-1016	80	82 U	82 U	82 U	82 U	83 U	86 U	84 U	87 U
Aroclor-1221	80	82 U	82 U	82 U	82 U	83 U	86 U	84 U	87 U
Aroclor-1232	80	82 U	82 U	82 U	82 U	83 U	86 U	84 U	87 U
Aroclor-1242	80	82 U	82 U	82 U	82 U	83 U	86 U	84 U	87 U
Aroclor-1248	80	82 U	82 U	82 U	82 U	83 U	86 U	84 U	87 U
Aroclor-1254	160	160 U	160 U	160 U	160 U	170 U	170 U	170 U	170 U
Aroclor-1260	160	160 U	160 U	160 U	160 U	400	170 U	170 U	170 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		97	97	97	97	96	93	95	92
Associated Method Blank:		283492	283492	283492	283492	284928	284928	285181	285181
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Field Blank:		-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	13TPX02X0201XX	13TPX02X0401XX	13TPX03X0001XX	13TPX03X0201XX	13TPX03X0401XX	13TPX04X0001XX	13TPX04X0201XX	13TPX05X0001XX
LAB NUMBER:	284770	284779	284787	284771	284773	284775	284790	284769
DATE SAMPLED:	09/05/89	09/05/89	09/05/89	09/05/89	09/05/89	09/05/89	09/05/89	09/05/89
DATE EXTRACTED:	09/07/89	09/07/89	09/07/89	09/07/89	09/07/89	09/07/89	09/07/89	09/07/89
DATE ANALYZED:	09/09/89	09/09/89	09/08/89	09/09/89	09/09/89	09/09/89	09/08/89	09/09/89

ANALYTE	CRQL								
alpha-BHC	8	8.2 U	9 U	8.5 U	8.2 U	8.7 U	9.3 U	8.5 U	8.5 U
beta-BHC	8	8.2 U	9 U	8.5 U	8.2 U	8.7 U	9.3 U	8.5 U	8.5 U
delta-BHC	8	8.2 U	9 U	8.5 U	8.2 U	8.7 U	9.3 U	8.5 U	8.5 U
gamma-BHC (Lindane)	8	8.2 U	9 U	8.5 U	8.2 U	8.7 U	9.3 U	8.5 U	8.5 U
Heptachlor	8	8.2 U	9 U	8.5 U	8.2 U	8.7 U	9.3 U	8.5 U	8.5 U
Aldrin	8	8.2 U	9 U	8.5 U	8.2 U	8.7 U	9.3 U	8.5 U	8.5 U
Heptachlor epoxide	8	8.2 U	9 U	8.5 U	8.2 U	8.7 U	9.3 U	8.5 U	8.5 U
Endosulfan I	8	8.2 U	9 U	8.5 U	8.2 U	8.7 U	9.3 U	8.5 U	8.5 U
Dieldrin	16	16 U	18 U	17 U	16 U	17 U	19 U	17 U	17 U
4,4'-DDE	16	16 U	18 U	17 U	16 U	17 U	19 U	17 U	17 U
Endrin	16	16 U	18 U	17 U	16 U	17 U	19 U	17 U	17 U
Endosulfan II	16	16 U	18 U	17 U	16 U	17 U	19 U	17 U	17 U
4,4'-DDD	16	16 U	18 U	17 U	16 U	17 U	19 U	17 U	17 U
Endosulfan sulfate	16	16 U	18 U	17 U	16 U	17 U	19 U	17 U	17 U
4,4'-DDT	16	16 U	18 U	17 U	16 U	17 U	19 U	17 U	20
Methoxychlor	80	82 U	90 U	85 U	82 U	87 U	93 U	85 U	85 U
Endrin ketone	16	16 U	18 U	17 U	16 U	17 U	19 U	17 U	17 U
alpha-Chlordane	80	82 U	90 U	85 U	82 U	87 U	93 U	85 U	85 U
gamma-Chlordane	80	82 U	90 U	85 U	82 U	87 U	93 U	85 U	85 U
Toxaphene	160	160 U	180 U	170 U	160 U	170 U	190 U	170 U	170 U
Aroclor-1016	80	82 U	90 U	85 U	82 U	87 U	93 U	85 U	85 U
Aroclor-1221	80	82 U	90 U	85 U	82 U	87 U	93 U	85 U	85 U
Aroclor-1232	80	82 U	90 U	85 U	82 U	87 U	93 U	85 U	85 U
Aroclor-1242	80	82 U	90 U	85 U	82 U	87 U	93 U	85 U	85 U
Aroclor-1248	80	82 U	90 U	85 U	82 U	87 U	93 U	85 U	85 U
Aroclor-1254	160	160 U	180 U	170 U	160 U	170 U	190 U	170 U	170 U
Aroclor-1260	160	160 U	180 U	170 U	160 U	170 U	190 U	170 U	170 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	97	89	94	97	92	86	94	94
Associated Method Blank:	285181	285181	284928	285181	285181	285181	284928	285181
Associated Equipment Blank:	-	-	-	-	-	-	-	-
Associated Field Blank:	-	-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	13TPX05X0001XD	13TPX05X0201XX	13TPX06X0001XX	13TPX06X0201XX	13TPX06X0401XX
LAB NUMBER:	284776	284772	284777	284793	284792
DATE SAMPLED:	09/05/89	09/05/89	09/05/89	09/05/89	09/05/89
DATE EXTRACTED:	09/07/89	09/07/89	09/07/89	09/07/89	09/07/89
DATE ANALYZED:	09/09/89	09/09/89	09/09/89	09/08/89	09/08/89

ANALYTE	CRQL					
alpha-BHC	8	8.3 U	8.5 U	8.4 U	8.4 U	9.1 U
beta-BHC	8	8.3 U	8.5 U	8.4 U	8.4 U	9.1 U
delta-BHC	8	8.3 U	8.5 U	8.4 U	8.4 U	9.1 U
gamma-BHC (Lindane)	8	8.3 U	8.5 U	8.4 U	8.4 U	9.1 U
Heptachlor	8	8.3 U	8.5 U	8.4 U	8.4 U	9.1 U
Aldrin	8	8.3 U	8.5 U	8.4 U	8.4 U	9.1 U
Heptachlor epoxide	8	8.3 U	8.5 U	8.4 U	8.4 U	9.1 U
Endosulfan I	8	8.3 U	8.5 U	8.4 U	8.4 U	9.1 U
Dieldrin	16	17 U	17 U	17 U	17 U	18 U
4,4'-DDE	16	17 U	17 U	17 U	17 U	18 U
Endrin	16	17 U	17 U	17 U	17 U	18 U
Endosulfan II	16	17 U	17 U	17 U	17 U	18 U
4,4'-DDD	16	17 U	17 U	17 U	17 U	18 U
Endosulfan sulfate	16	17 U	17 U	17 U	17 U	18 U
4,4'-DDT	16	21	17 U	17 U	17 U	18 U
Methoxychlor	80	83 U	85 U	84 U	84 U	91 U
Endrin ketone	16	17 U	17 U	17 U	17 U	18 U
alpha-Chlordane	80	83 U	85 U	84 U	84 U	91 U
gamma-Chlordane	80	83 U	85 U	84 U	84 U	91 U
Toxaphene	160	170 U	170 U	170 U	170 U	180 U
Aroclor-1016	80	83 U	85 U	84 U	84 U	91 U
Aroclor-1221	80	83 U	85 U	84 U	84 U	91 U
Aroclor-1232	80	83 U	85 U	84 U	84 U	91 U
Aroclor-1242	80	83 U	85 U	84 U	84 U	91 U
Aroclor-1248	80	83 U	85 U	84 U	84 U	91 U
Aroclor-1254	160	170 U	170 U	170 U	170 U	180 U
Aroclor-1260	160	170 U	170 U	170 U	170 U	180 U

Dilution Factor:	1	1	1	1	1
Percent Solids:	96	94	95	95	88
Associated Method Blank:	285181	285181	285181	284928	284928
Associated Equipment Blank:	-	-	-	-	-
Associated Field Blank:	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	BSSS101XXX04XX	BSSS102XXX04XX	BSSS103XXX04XX	BSSS104XXX04XX	BSSS105XXX04XX	BSSS106XXX04XX	BSSS901XXX04XX	BSSS902XXX04XX
	LAB NUMBER:	292930	292928	292925	292924	292923	292907	293724	293725
	DATE SAMPLED:	10/05/89	10/05/89	10/05/89	10/05/89	10/05/89	10/05/89	10/09/89	10/09/89
ANALYTE	CRQL								
Aluminum	40	2790	4150	4660	6620	7390	6940	7760	7450
Antimony	12	14.4 U	5.8 U	9.2 U	5.9 U	6.1 U	7.6 J	6.9 U	6.6 U
Arsenic	2	1.4 JN	1.1 JN	1.8 JWN	1.2 JN	1.2 JN	1.4 JWN	4.2 N	2.4 JN
Barium	40	60.8 J	11.1 J	10.6 J	14.6 J	14.8 J	14.1 J	31.7 J	21.5 J
Beryllium	1	0.53 U	0.22 U	0.34 U	0.22 U	0.22 U	0.27 U	0.26 U	0.25 U
Cadmium	1	2.7 U	1.1 U	1.7 U	1.1 U	1.1 U	1.3 U	1.3 U	1.2 U
Calcium	1000	3870	337 J	359 J	366 J	394 J	414 J	2240	823 J
Chromium	2	9.4	6.7	8.1	5.6	9.4	7.9	10.5	12.5
Cobalt	10	3.6 J	3.3 J	4.5 J	5.6 J	5.8 J	4.7 J	4.2 J	5.1 J
Copper	5	10.7 J	6.7	12.4	4 J	8.2	7.8	11.2	9.4
Iron	20	4420	5260	7240	7460	8350	8280	9060	8920
Lead	0.6	75.3 *	29.6 N*	23.4 N*	6.9 N*	7.1 N*	19.9 N*	32.5 N*	20.6 N*
Magnesium	1000	909 JE	1010 JE	1480 JE	1690 E	1840 E	1480 E	1800 E	1720 E
Manganese	3	256	142	86	97.7	91.9	65.1	169	159
Mercury	0.1	3.3	3.3	1.3	0.65	0.11 U	0.18	0.13 U	0.12 U
Nickel	8	20.3 U	12.8	12.9 U	8.3 U	8.5 U	10.2 U	9.7 U	14.4
Potassium	1000	316 U	251 J	415 J	1720	1530	1430	151 U	145 U
Selenium	1	5.3 UWN	0.43 UWN	0.68 UWN	0.44 UWN	2.2 UWN	2.7 UWN	0.51 UWN	0.49 UWN
Silver	2	1.6 U	0.65 U	1 U	0.65 U	0.67 U	0.81 U	0.77 U	0.74 U
Sodium	1000	503 U	203 U	320 U	205 U	280 J	253 U	240 U	231 U
Thallium	2	1.1 U	0.43 U	0.68 U	0.44 U	0.45 U	0.54 U	0.51 U	0.49 U
Vanadium	10	32.7	16.5	21.1	16.5	20.1	18.4	19.3	17
Zinc	4	63.7	16.5	26.2	25.2	22.7	24.6	47.4	30.3
Cyanide	1	1.3 U	0.54 U	0.85 U	0.54 U	0.56 U	0.67 U	0.64 U	0.61 U
Percent Solids:		37.4	92.7	58.8	91.8	89.2	74.4	78.2	81.4
Associated Method Blank:		BR17603S	BR17603S	BR17603S	BR17603S	BR17603S	BR17603S	BR17603S	BR17603S
Associated Equipment Blank:		-	-	-	-	-	-	BSOSXX1XXX04XX	BSOSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION: BSSS03XXX04XX
LAB NUMBER: 293726
DATE SAMPLED: 10/09/89

ANALYTE	CRQL		
Aluminum	40	7290	
Antimony	12	6.1	U
Arsenic	2	1.7	[ ]N
Barium	40	13	[ ]
Beryllium	1	0.22	U
Cadmium	1	1.1	U
Calcium	1000	458	[ ]
Chromium	2	11.9	
Cobalt	10	3.1	[ ]
Copper	5	4.1	[ ]
Iron	20	6430	
Lead	0.6	12.7	N*
Magnesium	1000	767	[ ]E
Manganese	3	79.9	
Mercury	0.1	0.13	
Nickel	8	8.5	U
Potassium	1000	133	U
Selenium	1	2.2	UEN
Silver	2	0.67	U
Sodium	1000	211	U
Thallium	2	0.45	U
Vanadium	10	13	
Zinc	4	23.9	
Cyanide	1	0.56	U

Percent Solids: 88.9

Associated Method Blank: BR17603S
Associated Equipment Blank: BSQSXX1XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSSS101XXX04XX	BSSS102XXX04XX	BSSS103XXX04XX	BSSS104XXX04XX	BSSS105XXX04XX	BSSS106XXX04XX	BSSS901XXX04XX	BSSS902XXX04XX
LAB NUMBER:	292867	292871	292878	292879	292882	292885	293721	293722
DATE SAMPLED:	10/05/89	10/05/89	10/05/89	10/05/89	10/05/89	10/05/89	10/09/89	10/09/89
DATE ANALYZED:	10/14/89	10/14/89	10/16/89	10/16/89	10/16/89	10/16/89	10/14/89	10/14/89

ANALYTE	CRQL								
Chloromethane	10	27 U	11 U	17 U	11 U	11 U	14 U	13 U	12 U
Bromomethane	10	27 U	11 U	17 U	11 U	11 U	14 U	13 U	12 U
Vinyl Chloride	10	27 U	11 U	17 U	11 U	11 U	14 U	13 U	12 U
Chloroethane	10	27 U	11 U	17 U	11 U	11 U	14 U	13 U	12 U
Methylene Chloride	5	19 B	9 B	9 B	11 B	7 B	44 B	7 B	7 B
Acetone	10	36 B	11 B	17 U	3 JB	3 BJ	4 BJ	12 BJ	6 BJ
Carbon Disulfide	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
1,1-Dichloroethene	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
1,1-Dichloroethane	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
1,2-Dichloroethene (total)	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
Chloroform	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
1,2-Dichloroethane	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
2-Butanone	10	27 U	11 U	17 U	11 U	11 U	14 U	13 U	12 U
1,1,1-Trichloroethane	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
Carbon Tetrachloride	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
Vinyl Acetate	10	27 U	11 U	17 U	11 U	11 U	14 U	13 U	12 U
Bromodichloromethane	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
1,2-Dichloropropane	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
Trans-1,3-Dichloropropene	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
Trichloroethene	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
Dibromochloromethane	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
1,1,2-Trichloroethane	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
Benzene	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
Cis-1,3-Dichloropropene	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
Bromoform	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
4-Methyl-2-Pentanone	10	14 U	11 U	17 U	11 U	11 U	14 U	13 U	12 U
2-Hexanone	10	14 U	11 U	17 U	11 U	11 U	14 U	13 U	12 U
Tetrachloroethene	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	100	18	18	5 U	6 U	7 U	6 U	6 U
Toluene	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
Chlorobenzene	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
Ethylbenzene	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
Styrene	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
Xylenes (Total)	5	14 U	5 U	8 U	5 U	6 U	7 U	6 U	6 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		37	93	59	92	89	73	78	81
Associated Method Blank:		GW093581B13	GW093581B13	GW095595A19	GW093583C19	GW093583C19	GW093583C19	GW094222B19	GW094222B19
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION: BSSS903XXX04XX
LAB NUMBER: 293723
DATE SAMPLED: 10/09/89
DATE ANALYZED: 10/19/89

ANALYTE	CRQL	
Chloromethane	10	11 U
Bromomethane	10	11 U
Vinyl Chloride	10	11 U
Chloroethane	10	11 U
Methylene Chloride	5	29 B
Acetone	10	36 B
Carbon Disulfide	5	6 U
1,1-Dichloroethene	5	6 U
1,1-Dichloroethane	5	6 U
1,2-Dichloroethene (total)	5	6 U
Chloroform	5	2 BJ
1,2-Dichloroethane	5	6 U
2-Butanone	10	11 U
1,1,1-Trichloroethane	5	6 U
Carbon Tetrachloride	5	6 U
Vinyl Acetate	10	11 U
Bromodichloromethane	5	6 U
1,2-Dichloropropane	5	6 U
Trans-1,3-Dichloropropene	5	6 U
Trichloroethene	5	6 U
Dibromochloromethane	5	6 U
1,1,2-Trichloroethane	5	6 U
Benzene	5	6 U
Cis-1,3-Dichloropropene	5	6 U
Bromoform	5	6 U
4-Methyl-2-Pentanone	10	11 U
2-Hexanone	10	11 U
Tetrachloroethene	5	6 U
1,1,2,2-Tetrachloroethane	5	6 U
Toluene	5	6 U
Chlorobenzene	5	6 U
Ethylbenzene	5	6 U
Styrene	5	6 U
Xylenes (Total)	5	6 U

Dilution Factor: 1
Percent Solids: 89

Associated Method Blank: GH096261A13
Associated Equipment Blank: BSQSXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSSS101XXX04XX	BSSS102XX04XX	BSSS103XXX04XX	BSSS104XXX04XX	BSSS105XXX04XX	BSSS106XXX04XX	BSSS901XXX04XX	BSSS902XXX04XX
LAB NUMBER:	292867	292871	292878	292879	292882	292885	293721	293722
DATE SAMPLED:	10/05/89	10/05/89	10/05/89	10/05/89	10/05/89	10/05/89	10/09/89	10/09/89
DATE EXTRACTED:	10/11/89	10/11/89	10/11/89	10/11/89	10/11/89	10/11/89	10/13/89	10/13/89
DATE ANALYZED:	10/12/89	10/12/89	10/12/89	10/12/89	10/14/89	10/14/89	10/14/89	10/14/89

ANALYTE	CRQL								
Phenol	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
bis(2-Chloroethyl)ether	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
2-Chlorophenol	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
1,3-Dichlorobenzene	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
1,4-Dichlorobenzene	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
Benzyl alcohol	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
1,2-Dichlorobenzene	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
2-Methylphenol	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
bis(2-Chloroisopropyl)ether	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
4-Methylphenol	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
N-Nitroso-di-n-propylamine	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
Hexachloroethane	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
Nitrobenzene	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
Isophorone	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
2-Nitrophenol	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
2,4-Dimethylphenol	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
Benzoic acid	1600	740 J	46 J	210 J	1700 U	1800 U	2200 U	2100 U	2000 U
bis(2-Chloroethoxy)methane	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
2,4-Dichlorophenol	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
1,2,4-Trichlorobenzene	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
Naphthalene	330	890 U	350 U	560 U	360 U	370 U	450 U	250 J	410 U
4-Chloroaniline	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
Hexachlorobutadiene	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
4-Chloro-3-Methylphenol	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
2-Methylnaphthalene	330	890 U	350 U	560 U	360 U	370 U	450 U	180 J	410 U
Hexachlorocyclopentadiene	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
2,4,6-Trichlorophenol	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
2,4,5-Trichlorophenol	1600	4300 U	1700 U	2700 U	1700 U	1800 U	2200 U	2100 U	2000 U
2-Chloronaphthalene	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
2-Nitroaniline	1600	4300 U	1700 U	2700 U	1700 U	1800 U	2200 U	2100 U	2000 U
Dimethylphthalate	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
Acenaphthylene	330	890 U	350 U	560 U	360 U	370 U	450 U	220 J	410 U
2,6-Dinitrotoluene	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U

X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSSS101XXX04XX	BSSS102XX04XX	BSSS103XXX04XX	BSSS104XXX04XX	BSSS105XXX04XX	BSSS106XXX04XX	BSSS901XXX04XX	BSSS902XXX04XX
LAB NUMBER:	292867	292871	292878	292879	292882	292885	293721	293722
DATE SAMPLED:	10/05/89	10/05/89	10/05/89	10/05/89	10/05/89	10/05/89	10/09/89	10/09/89
DATE EXTRACTED:	10/11/89	10/11/89	10/11/89	10/11/89	10/11/89	10/11/89	10/13/89	10/13/89
DATE ANALYZED:	10/12/89	10/12/89	10/12/89	10/12/89	10/14/89	10/14/89	10/14/89	10/14/89

ANALYTE	CRQL							
3-Nitroaniline	1600	4300 U	1700 U	2700 U	1700 U	1800 U	2200 U	2100 U	2000 U
Acenaphthene	330	890 U	350 U	560 U	360 U	370 U	450 U	550	410 U
2,4-Dinitrophenol	1600	4300 U	1700 U	2700 U	1700 U	1800 U	2200 U	2100 U	2000 U
4-Nitrophenol	1600	4300 U	1700 U	2700 U	1700 U	1800 U	2200 U	2100 U	2000 U
Dibenzofuran	330	890 U	350 U	560 U	360 U	370 U	450 U	260 J	410 U
2,4-Dinitrotoluene	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
Diethylphthalate	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
4-Chlorophenyl-phenylether	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
Fluorene	330	890 U	350 U	560 U	360 U	370 U	450 U	500	410 U
4-Nitroaniline	1600	4300 U	1700 U	2700 U	1700 U	1800 U	2200 U	2100 U	2000 U
4,6-Dinitro-2-methylphenol	1600	4300 U	1700 U	2700 U	1700 U	1800 U	2200 U	2100 U	2000 U
N-Nitrosodiphenylamine	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
4-Bromophenyl-phenylether	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
Hexachlorobenzene	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
Pentachlorophenol	1600	4300 U	1700 U	2700 U	1700 U	1800 U	2200 U	2100 U	2000 U
Phenanthrene	330	250 J	61 J	75 J	360 U	370 U	450 U	3900	330 J
Anthracene	330	890 U	350 U	560 U	360 U	370 U	450 U	660	65 J
Di-n-butylphthalate	330	140 JB	350 U	560 U	360 U	370 U	450 U	420 U	410 U
Fluoranthene	330	460 J	110 J	140 J	360 U	370 U	450 U	6400	840
Pyrene	330	430 J	110 J	120 J	360 U	370 U	450 U	4400	730
Butylbenzylphthalate	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
3,3'-Dichlorobenzidine	660	1800 U	710 U	1100 U	720 U	740 U	890 U	850 U	820 U
Benzo(a)Anthracene	330	180 J	37 J	560 U	360 U	370 U	450 U	2900	340 J
Chrysene	330	270 J	76 J	90 J	360 U	370 U	450 U	3000	440
bis(2-Ethylhexyl)phthalate	330	220 J	150 J	220 J	51 J	370 U	450 U	130 BJ	150 BJ
Di-n-octylphthalate	330	890 U	350 U	560 U	360 U	370 U	450 U	420 U	410 U
Benzo(b)Fluoranthene	330	890 U	120 JX	560 U	360 U	370 U	450 U	2500	400 J
Benzo(k)Fluoranthene	330	890 U	120 JX	560 U	360 U	370 U	450 U	1800	360 J
Benzo(a)Pyrene	330	890 U	50 J	560 U	360 U	370 U	450 U	2300	420
Indeno(1,2,3-cd)pyrene	330	890 U	350 U	560 U	360 U	370 U	450 U	620	130 J
Dibenz(a,h)anthracene	330	890 U	350 U	560 U	360 U	370 U	450 U	350 J	410 U
Benzo(g,h,i,)perylene	330	890 U	350 U	560 U	360 U	370 U	450 U	610	130 J

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	37	93	59	92	89	74	78	81
Associated Method Blank:	GJ093838804	GJ093838804	GJ093838804	GJ093838804	GJ093838804	GJ093838804	GH094999A06	GH094999A06
Associated Equipment Blank:	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

X = Compounds could not be separated due to coelution.

BRSS-0

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSSS903XXX04XX
LAB NUMBER:	293723
DATE SAMPLED:	10/09/89
DATE EXTRACTED:	10/13/89
DATE ANALYZED:	10/14/89

ANALYTE	CRQL	
Phenol	330	370 U
bis(2-Chloroethyl)ether	330	370 U
2-Chlorophenol	330	370 U
1,3-Dichlorobenzene	330	370 U
1,4-Dichlorobenzene	330	370 U
Benzyl alcohol	330	370 U
1,2-Dichlorobenzene	330	370 U
2-Methylphenol	330	370 U
bis(2-Chloroisopropyl)ether	330	370 U
4-Methylphenol	330	370 U
N-Nitroso-di-n-propylamine	330	370 U
Hexachloroethane	330	370 U
Nitrobenzene	330	370 U
Isophorone	330	370 U
2-Nitrophenol	330	370 U
2,4-Dimethylphenol	330	370 U
Benzoic acid	1600	120 J
bis(2-Chloroethoxy)methane	330	370 U
2,4-Dichlorophenol	330	370 U
1,2,4-Trichlorobenzene	330	370 U
Naphthalene	330	370 U
4-Chloroaniline	330	370 U
Hexacholorobutadiene	330	370 U
4-Chloro-3-Methylphenol	330	370 U
2-Methylnaphthalene	330	370 U
Hexachlorocyclopentadiene	330	370 U
2,4,6-Trichlorophenol	330	370 U
2,4,5-Trichlorophenol	1600	1800 U
2-Chloronaphthalene	330	370 U
2-Nitroaniline	1600	1800 U
Dimethylphthalate	330	370 U
Acenaphthylene	330	370 U
2,6-Dinitrotoluene	330	370 U

X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION: BSSS903XXX04XX
LAB NUMBER: 293723
DATE SAMPLED: 10/09/89
DATE EXTRACTED: 10/13/89
DATE ANALYZED: 10/14/89

ANALYTE	CRQL	
3-Nitroaniline	1600	1800 U
Acenaphthene	330	370 U
2,4-Dinitrophenol	1600	1800 U
4-Nitrophenol	1600	1800 U
Dibenzofuran	330	370 U
2,4-Dinitrotoluene	330	370 U
Diethylphthalate	330	370 U
4-Chlorophenyl-phenylether	330	370 U
Fluorene	330	370 U
4-Nitroaniline	1600	1800 U
4,6-Dinitro-2-methylphenol	1600	1800 U
N-Nitrosodiphenylamine	330	370 U
4-Bromophenyl-phenylether	330	370 U
Hexachlorobenzene	330	370 U
Pentachlorophenol	1600	1800 U
Phenanthrene	330	310 J
Anthracene	330	53 J
Di-n-butylphthalate	330	370 U
Fluoranthene	330	630
Pyrene	330	490
Butylbenzylphthalate	330	370 U
3,3'-Dichlorobenzidine	660	740 U
Benzo(a)Anthracene	330	220 J
Chrysene	330	280 J
bis(2-Ethylhexyl)phthalate	330	180 BJ
Di-n-octylphthalate	330	370 U
Benzo(b)Fluoranthene	330	250 J
Benzo(k)Fluoranthene	330	220 J
Benzo(a)Pyrene	330	250 J
Indeno(1,2,3-cd)pyrene	330	65 J
Dibenz(a,h)anthracene	330	370 U
Benzo(g,h,i,)perylene	330	370 U

Dilution Factor: 1
Percent Solids: 89

Associated Method Blank: GH094999A06
Associated Equipment Blank: BSQSXX2XXX04XX

X [illegible]pounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		BSSS101XXX04XX	BSSS102XXX04XX	BSSS103XXX04XX	BSSS104XXX04XX	BSSS105XXX04XX	BSSS106XXX04XX	BSSS901XXX04XX	BSSS902XXX04XX
LAB NUMBER:		292867	292871	292878	292879	292882	292885	293721	293722
DATE SAMPLED:		10/05/89	10/05/89	10/05/89	10/05/89	10/05/89	10/05/89	10/09/89	10/09/89
DATE EXTRACTED:		10/11/89	10/11/89	10/11/89	10/11/89	10/11/89	10/11/89	10/20/89	10/13/89
DATE ANALYZED:		10/14/89	10/14/89	10/14/89	10/14/89	10/14/89	10/14/89	10/21/89	10/17/89
ANALYTE	CRQL								
alpha-BHC	8	22 U	8.6 U	14 U	8.7 U	9 U	11 U	10 U	9.9 U
beta-BHC	8	22 U	8.6 U	14 U	8.7 U	9 U	11 U	10 U	9.9 U
delta-BHC	8	22 U	8.6 U	14 U	8.7 U	9 U	11 U	10 U	9.9 U
gamma-BHC (Lindane)	8	22 U	8.6 U	14 U	8.7 U	9 U	11 U	10 U	9.9 U
Heptachlor	8	22 U	8.6 U	14 U	8.7 U	9 U	11 U	10 U	9.9 U
Aldrin	8	22 U	8.6 U	14 U	8.7 U	9 U	11 U	10 U	9.9 U
Heptachlor epoxide	8	22 U	8.6 U	14 U	8.7 U	9 U	11 U	10 U	9.9 U
Endosulfan I	8	22 U	8.6 U	14 U	8.7 U	9 U	11 U	10 U	9.9 U
Dieldrin	16	43 U	17 U	27 U	17 U	18 U	22 U	20 U	20 U
4,4'-DDE	16	43 U	17 U	27 U	17 U	18 U	22 U	470	100
Endrin	16	43 U	17 U	27 U	17 U	18 U	22 U	20 U	20 U
Endosulfan II	16	43 U	17 U	27 U	17 U	18 U	22 U	20 U	20 U
4,4'-DDD	16	43 U	17 U	27 U	17 U	18 U	22 U	20 U	20 U
Endosulfan sulfate	16	43 U	17 U	27 U	17 U	18 U	22 U	20 U	20 U
4,4'-DDT	16	52	22	27 U	17 U	18 U	23	400	100
Methoxychlor	80	220 U	86 U	140 U	87 U	90 U	110 U	100 U	99 U
Endrin ketone	16	43 U	17 U	27 U	17 U	18 U	22 U	20 U	20 U
alpha-Chlordane	80	220 U	86 U	140 U	87 U	90 U	110 U	100 U	99 U
gamma-Chlordane	80	220 U	86 U	140 U	87 U	90 U	110 U	100 U	99 U
Toxaphene	160	430 U	170 U	270 U	170 U	180 U	220 U	200 U	200 U
Aroclor-1016	80	220 U	86 U	140 U	87 U	90 U	110 U	100 U	99 U
Aroclor-1221	80	220 U	86 U	140 U	87 U	90 U	110 U	100 U	99 U
Aroclor-1232	80	220 U	86 U	140 U	87 U	90 U	110 U	100 U	99 U
Aroclor-1242	80	220 U	86 U	140 U	87 U	90 U	110 U	100 U	99 U
Aroclor-1248	80	220 U	86 U	140 U	87 U	90 U	110 U	100 U	99 U
Aroclor-1254	160	430 U	170 U	270 U	170 U	180 U	220 U	200 U	200 U
Aroclor-1260	160	430 U	170 U	270 U	170 U	180 U	220 U	200 U	200 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		37	93	59	92	89	74	78	81
Associated Method Blank:		293838	293838	293838	293838	293838	293838	296462	295000
Associated Equipment Blank:		BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	BSQSXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSSS903XXX04XX
LAB NUMBER:	293723
DATE SAMPLED:	10/10/89
DATE EXTRACTED:	10/13/89
DATE ANALYZED:	10/17/89

ANALYTE	CRQL	
alpha-BHC	8	9 U
beta-BHC	8	9 U
delta-BHC	8	9 U
gamma-BHC (Lindane)	8	9 U
Heptachlor	8	9 U
Aldrin	8	9 U
Heptachlor epoxide	8	9 U
Endosulfan I	8	9 U
Dieldrin	16	18 U
4,4'-DDE	16	41
Endrin	16	18 U
Endosulfan II	16	18 U
4,4'-DDD	16	18 U
Endosulfan sulfate	16	18 U
4,4'-DDT	16	62
Methoxychlor	80	90 U
Endrin ketone	16	18 U
alpha-Chlordane	80	90 U
gamma-Chlordane	80	90 U
Toxaphene	160	180 U
Aroclor-1016	80	90 U
Aroclor-1221	80	90 U
Aroclor-1232	80	90 U
Aroclor-1242	80	90 U
Aroclor-1248	80	90 U
Aroclor-1254	160	180 U
Aroclor-1260	160	180 U

Dilution Factor:	1
Percent Solids:	89

Associated Method Blank: 295000
Associated Equipment Blank: BSQSXX2XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 03SB214XX601XX LAB NUMBER: 285544 DATE SAMPLED: 09/11/89	03SB214X2001XX 285554 09/11/89	03SB214X2001XD 285556 09/11/89	03SB214X3601XX 285550 09/11/89	03SB215X1601XX 285559 09/12/89	03SB215X2201XX 285563 09/12/89	03SB215X3201XX 285562 09/12/89	01SB216X1201XX 283407 08/29/89
Aluminum	40	5250	4240	5790	4810	8620	5740	11700	5240
Antimony	12	10.3 UN	12.5 UN	12.3 UN	12.4 UN	10.6 UN	12.2 UN	12.3 UN	11.9 U
Arsenic	2	0.87 □N	0.89 □N	0.77 □N	1.6 □N	1.6 □N	1.5 □N	1.9 □WN	2.5
Barium	40	10.2 □	15 □	21 □	21.6 □	38.4 □	22.4 □	40.5 □	19.5 □
Beryllium	1	0.25 □	0.52 □	0.17 U	0.5 □	0.15 U	0.27 □	0.36 □	0.33 □
Cadmium	1	0.9 U	1.1 U	1.1 U	1.1 U	0.93 U	1.1 U	1.1 U	1 U
Calcium	1000	395 □	717 □	988 □	835 □	962 □	743 □	1400	696 □
Chromium	2	6.8	4.8	9.4	8.4	14.9	9.7	20.9	9.1
Cobalt	10	4.4 □	3.9 □	5 □	5.1 □	7.7 □	5.3 □	11.3 □	10.8 □
Copper	5	6.5	7.9	7.7	7.8	13.3	7.7	15.5	7.1
Iron	20	6440	7370	8330	8210	13100	8380	18900	8370
Lead	1	2.5 N	2.4 N	3.3 N	2.6 N	4 N	3.2 N	5.8 N	3.3
Magnesium	1000	1470	1970	2520	2300	3880	2590	5130	2430 E
Manganese	3	138	86.7	103	125	182	108	374	107 *
Mercury	0.1	0.1 U	0.12 U	0.12 U	0.11 U	0.1 U	0.1 U	0.1 U	0.12 U
Nickel	8	11	9 □	10.6	10	15	18.5	30.2	21.3
Potassium	1000	413 U	695 □	939 □	1020 □	1760	945 □	2120	1170 □
Selenium	1	0.32 UWN	0.4 UWN	0.4 UWN	0.4 UWN	0.35 UWN	0.38 UWN	0.39 UWN	0.37 UN
Silver	2	1.2 U	1.4 U	1.4 U	1.4 U	1.2 U	1.4 U	1.4 U	1.7 □
Sodium	1000	382 U	467 U	548 U	462 U	393 U	456 U	458 U	442 U
Thallium	2	0.26 U	0.32 □	0.32 U	0.32 U	0.28 U	0.31 U	0.32 U	0.3 U
Vanadium	10	10.5	12 □	14.9	13.8	24.7	16	29.6	15.4 E
Zinc	4	28.3 E	50.6 E	31.8 E	31.8 E	47.2 E	30.7 E	64.5 E	27.9
Cyanide	1	0.52 U	0.64 U	0.62 U	0.62 U	0.54 U	0.61 U	0.61 U	0.59 U
Percent Solids:		96	78.5	80	80.2	91.4	82	81.6	84.6
Associated Method Blank:		-	-	-	-	-	-	-	MR17603E
Associated Equipment Blank:		-	-	-	-	-	-	-	00QS002XXX04XX*
Associated Field Blank:		-	-	-	-	-	-	-	SOURCEWATER

* = Held for Analysis.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SB216X1401XX LAB NUMBER: 283408 DATE SAMPLED: 08/29/89	01SB216X2901XX 283409 08/29/89	01SB216X2901XD 283410 08/29/89	01SB217X1001XX 287436 09/15/89	01SB217X2401XX 287435 09/15/89	01SB217X3401XX 287437 09/15/89	01SB217X3401XD 287438 09/15/89	11SB218X4701XX 281603 08/16/89
Aluminum	40	6990	5300	5110	3360	6740	4740	5790	7700
Antimony	12	12.8 U	12.1 U	12 U	12 U	12.7 U	12.4 U	12.6 U	12.3 U
Arsenic	2	1.6 []	1.1 []	0.71 []	1.4 []N	1.5 []N	1.4 []N	1.3 []N	2.8 N
Barium	40	30.3 []	20.8 []	20.1 []	11.4 []	28.7 []	21.4 []	23.5 []	30.3 []
Beryllium	1	0.32 []	0.33 []	0.34 []	0.68 []	0.63 []	0.66 []	0.65 []	0.34 []
Cadmium	1	1.1 U	1.1 U	1.1 U	1 U	1.5	1.1 U	1.1 U	1.1 U
Calcium	1000	1790	1190 []	1210	870 []	2400	1490	1920	2040
Chromium	2	15.2	10.6	9.8	8.1 *	19.6 *	13.8 *	16.6 *	16.4
Cobalt	10	6.6 []	3.8 []	4 []	0.99 []	4.9 []	1.9 []	3.4 []	8.1 []
Copper	5	15.4	9.1	7.2	5.3 []	12	9.4	9.5	13.7
Iron	20	12200	8990	8570	5650	12300	9020	10500	14000
Lead	1	3.9	2.5	2.3	3.2	4	2.8	3.5	5
Magnesium	1000	3640 E	2730 E	2580 E	1410	3640	2390	2930	4280
Manganese	3	175 *	142 *	142 *	80	171	177	176	209
Mercury	0.1	0.12 U	0.1 U	0.12 U	0.1 U	0.11 U	0.12 U	0.12 U	0.11 U
Nickel	8	22.3	14.1	14.9	8.5 U*	9 U*	8.8 U*	11.8 *	11.6
Potassium	1000	545 []	485 U	485 U	844 []*	1620 *	1090 []*	1280 *	1910
Selenium	1	0.39 UWN	0.38 UWN	0.4 UWN	0.37 UWN	4 UWN	3.9 UWN	3.9 UWN	0.39 UWN
Silver	2	1.5 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Sodium	1000	477 U	449 U	449 U	445 U	472 U	461 U	468 U	459 U
Thallium	2	0.32 []	0.37 []	0.36 []	0.3 U	0.42 []	0.32 U	0.39 []	0.8 []
Vanadium	10	20.9 E	16.2 E	15.5 E	8.2 []	20.4	14.2	16.7	21.8
Zinc	4	45.1	29.9	37.4	15.7 E	30.7 E	19.3 E	23.4 E	41.2 *
Cyanide	1	0.64 U	0.62 U	0.63 U	0.6 UN	0.63 UN	0.62 UN	0.63 UN	0.62 U
Percent Solids:		78.4	80.8	79.4	84	79.2	81.1	79.9	80.6
Associated Method Blank:		MR17603E	MR17603E	MR17603E	17603Q	17603Q	17603Q	17603Q	BR17603AS
Associated Equipment Blank:		00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	-
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 11SB218X6701XX LAB NUMBER: 281601 DATE SAMPLED: 08/16/89	01SB219X5201XX 281637 08/17/89	01SB219X6201XX 281636 08/17/89	01SB220XX701XX 282253 08/22/89	01SB220X1701XX 282255 08/22/89	01SB222X2201XX 285534 09/07/89	01SB222X3301XX 285535 09/07/89	01SB223X3701X 285538 09/08/89
Aluminum	40	24800	3450	4330	5100	4570	3180	5030	3260
Antimony	12	12.9 U	12.2 U	12.4 U	12 U	12.9 U	12.6 UN	12.8 UN	12.7 UN
Arsenic	2	5.3 N	1.4 [N	1.1 [N	1.8 [WN	1.8 [WN	0.74 [N	0.74 [N	0.95 [N
Barium	40	84.6	10.7 [	16.4 [	20.2 [	21.5 [	11.2 [	18.6 [	11.3 [
Beryllium	1	1.6	0.17 U	0.17 U	0.19 [	0.18 U	0.18 U	0.18 U	0.18 U
Cadmium	1	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
Calcium	1000	3880	918 [	1130 [	844 [	916 [	594 [	795 [	660 [
Chromium	2	45.8	6.9	9.6	8.2	8.6	3.5	8.2	4.2
Cobalt	10	22.1	3.1 [	4.2 [	4.4 [	3.1 [	4.4 [	6.4 [	5.2 [
Copper	5	39.1	7.4	7.5	7	7.5	8.1	8.2	8.1
Iron	20	41400	6710	8030	8570	7640	6060	8060	6060
Lead	1	12.8 S	1.6	2.4	3.3	4.3	2.2 N	2.1 N	2.3 N
Magnesium	1000	11900	1670	2160	2320 E	2170 E	1520	2220	1610
Manganese	3	719	105	128	141	93	78	121	88.9
Mercury	0.1	0.13 U	0.12 U	0.12 U	0.12 U	0.11 U	0.11 U	0.12 U	0.13 U
Nickel	8	39.4	9.1 [	8.8 U	13.8	14.2	9 U	9.1 U	9 U
Potassium	1000	7040	492 U	922 [	482 U	521 U	747 [	1420	1860
Selenium	1	0.42 UWN	0.39 UWN	0.39 UWN	1.9 UWN	2.1 UWN	0.4 UWN	0.41 UWN	0.4 UWN
Silver	2	1.5 U	1.4 U	1.4 U	1.4 U	1.5 U	1.4 U	1.5 U	1.4 U
Sodium	1000	480 U	455 U	462 U	446 U	482 U	468 U	478 U	488 [
Thallium	2	0.62 [	0.37 [W	0.58 [	0.31 U	0.34 U	0.46 [	0.49 [	0.33 U
Vanadium	10	63.7	8.3 [	13	14.1	13	9.7 [	14.3	10.5 [
Zinc	4	112 *	25.8 *	29.1 *	26.3 E	22.6 E	28.3 E	31 E	25.1 E
Cyanide	1	0.66 U	0.61 U	0.62 U	0.6 U	0.65 U	0.63 U	0.64 U	0.63 U
Percent Solids:		74.9	81.3	80.2	83.8	76.8	79.1	77.5	79.2
Associated Method Blank:		BR17603AS	BR17603AS	BR17603AS	BR17603CS	BR17603CS	-	-	-
Associated Equipment Blank:		-	-	-	SAMPLERBLANK01	SAMPLERBLANK01	-	-	-
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	-	-	-

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SB223X4701XX LAB NUMBER: 285540 DATE SAMPLED: 09/08/89	01SB224X2201XX 285536 09/06/89	01SB224X4201XX 285537 09/06/89	01SB225X8201XX 282801 08/25/89	01SB232XX801XX 283723 08/30/89	01SB232X1001XX 283725 08/29/89	01SB232X2001XX 283724 08/30/89	01SB233X4201XX 282497 08/24/89
Aluminum	40	3250	2260	3280	3530	5060	3970	5990	2850
Antimony	12	12.7 UN	12.7 UN	12.3 UN	12.3 U	11 UN	12.2 UN	12.6 UN	12.7 U
Arsenic	2	0.87 □N	0.75 □N	0.71 □N	0.78 □WN	1.3 □N	1.2 □WN	1.4 □N	1.4 □N
Barium	40	12.1 □	9.9 □	13.4 □	15.4 □	16.4 □	14.7 □	25.4 □	10.7 □
Beryllium	1	0.18 U	0.18 U	0.17 U	0.17 U	0.31 □	0.37 □	0.33 □	0.18 U
Cadmium	1	1.1 U	1.1 U	1.1 U	1.1 U	0.97 U	1.1 U	1.1 U	1.1 U
Calcium	1000	554 □	1140 □	583 □	1400	629 □	945 □	1530	756 □
Chromium	2	2.6	3.4	3	7.1	6.1	6.4	12.1	4.6
Cobalt	10	4.8 □	2.9 □	4.4 □	2.4 □	4.6 □	4.4 □	6.6 □	1.7 □
Copper	5	8.1	8.2	7.9	7.1	12.9	10.7	14.1	7.4
Iron	20	5700	4630	6000	7000	7000	6670	10900	5130
Lead	1	2.3 N	2 N	2.2 N	1.9	7.9	3.5	3.2	2.1
Magnesium	1000	1590	1020 □	1610	2020 E	1830 E	1830 E	3070 E	1300 E
Manganese	3	93.9	71.8	83.1	88	84.4	92.3	191	74.7
Mercury	0.1	0.12 U	0.12 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Nickel	8	9 U	9.1 U	8.8 U	8.8 U	10.9	8.7 U	11.5	9.9 □
Potassium	1000	2090	815 □	1440	494 U	446 □	670 □	1460	512 U
Selenium	1	0.4 UWN	0.41 UWN	0.39 UWN	2 UWN	0.35 UWN	0.37 UWN	0.79 UWN	2 UWN
Silver	2	1.4 U	1.4 U	1.4 U	1.4 U	1.3 U	1.4 U	1.4 U	1.4 U
Sodium	1000	531 □	474 U	459 U	457 U	410 U	455 U	469 U	474 U
Thallium	2	0.32 U	0.41 □	0.44 □	0.32 U	0.29 U	0.3 U	0.33 □	0.33 U
Vanadium	10	10.3 □	5.1 □	9.7 □	10.1 □	13.6	11.3 □	18.7	7.6 □
Zinc	4	29.9 E	24.5 E	27.7 E	25.2 E	40.4 E	57.4 E	35 E	17.8 E
Cyanide	1	0.63 U	0.64 U	0.61 U	0.62 U	0.55 U	0.61 U	0.63 U	0.64 U
Percent Solids:		79.2	78.1	81.4	81	89.4	82.2	79.8	78.2
Associated Method Blank:		-	-	-	BR17603CS	MR17603J	MR17603J	MR17603J	BR17603CS
Associated Equipment Blank:		-	-	-	SAMPLERBLANK01	00QS003XXX04XX	00QS002XXX04XX*	00QS003XXX04XX	SAMPLERBLANK01
Associated Field Blank:		-	-	-	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SB233X7701XX LAB NUMBER: 282498 DATE SAMPLED: 08/24/89	04SB408X1001XX 285564 09/12/89	04SB408X2401XX 286565 09/12/89	08SB809X1801XX 284255 08/30/89	08SB809X3001XX 284254 08/30/89	08SB810X1201XX 284488 08/31/89	08SB810X2001XX 284484 08/30/89	08SB811X1201XX 286768 09/13/89
Aluminum	40	5380	4410	4850	11300	23100	5890	6890	27100
Antimony	12	11.8 U	11.9 UN	12.4 U	13.9 U	13 U	13.3 U	10.7 U	12.7 U
Arsenic	2	1.6 [N	0.7 [N	0.94 [N	1.5 [W	13.4 $	0.58 U	5.4	9.9 SN
Barium	40	17.8 [	15.4 [	19.5 [	18 [	97.8	12.1 [	29.8 [	96.5
Beryllium	1	0.16 U	0.49 [	1.4	0.19 U	0.18 U	0.19 U	0.15 U	2.8
Cadmium	1	1 U	1 U	1.1 U	1.2 U	1.1 U	1.2 U	0.93 U	1.1 U
Calcium	1000	975 [	862 [	879 [	7200	6300	2200	2110	4150
Chromium	2	10.1	6.5	13.1 *	13.5	55.4	6.3	19.1	53.3 *
Cobalt	10	4.6 [	3.6 [	6.1 [	6.2 [	22.3	2.4 [	7.9 [	27
Copper	5	7.4	7.5	9.5	8.4	29.6	4.1 [	13	38.9
Iron	20	9830	6200	7420	12400 *	36800 *	5370 *	10700 *	42000
Lead	1	2.8	2.5 N	2.3	5.7 N	10.8 N	4.2 N	4.3 N	19.9
Magnesium	1000	2690 E	2070	2340	1820 E	12600 E	856 [E	2660 E	11200
Manganese	3	161	82.5	110	119 *	661 *	43.5 *	166 *	1010
Mercury	0.1	0.1 U	0.11 U	0.13 U	0.14 U	0.13 U	0.13 U	0.11 U	0.11 U
Nickel	8	13.2	15.8	8.9 U*	9.9 U	35.9	9.5 U	10.7	52 *
Potassium	1000	928 [	633 [	1230 [*	970 [	7770	536 U	1880	7110 *
Selenium	1	1.8 UWN	0.39 UWN	4 UWN	2.2 UEN	0.41 UWN	4.2 UWN	0.34 UWN	4.1 UWN
Silver	2	1.3 U	1.4 U	1.4 U	1.6 U	1.5 U	1.5 U	1.2 U	1.4 U
Sodium	1000	439 U	445 U	463 U	517 U	601 [	496 U	397 U	474 U
Thallium	2	0.3 U	0.32 U	0.33 U	0.36 UWN	0.34 UN	0.38 [N	0.28 UN	0.79 [
Vanadium	10	14.4	11.5 [	15.1	19.6	62.6	11.1 [	20.9	69.3
Zinc	4	32 E	29.7 E	22.6 E	33.6	96.6	18.2	32.4	102 E
Cyanide	1	0.6 U	0.62 U	0.63 UN	0.69 U	0.64 U	0.66 U	0.53 U	0.66 UN
Percent Solids:		83.6	80.1	79.9	72.4	77.3	75.4	94.2	75.8
Associated Method Blank:		BR17603CS	-	17603Q	17603K	17603K	17603K	17603K	17603Q
Associated Equipment Blank:		$AMPLERBLANK01	-	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	-	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 09SB906X1001XX LAB NUMBER: 281906 DATE SAMPLED: 08/21/89	09SB906X1801XX 281907 08/22/89	09SB907X1201XX 281640 08/17/89	09SB907X2001XX 281638 08/17/89	09SB908X1001XX 281642 08/17/89	09SB908X1801XX 281641 08/17/89	11SBX01XX801XX 281590 08/16/89	13SBX01X1001XX 287088 09/14/89
Aluminum	40	6700	5840	7820	7480	8580	5300	5360	7220
Antimony	12	13 U	12.4 U	12.2 U	12.8 U	12 U	12.2 U	12.4 U	11 U
Arsenic	2	1.2 [] N	4.7 SN	1.6 [] WN	1.4 [] WN	1.7 [] N	0.96 [] N	2.9 N	1.8 [] SN
Barium	40	28.4 [] E	24.2 [] E	32.1 []	29.8 []	38 []	19.4 []	17.1 []	16.2 []
Beryllium	1	0.38 []	0.55 []	0.33 []	0.38 []	0.33 []	0.17 U	0.17 U	0.66 []
Cadmium	1	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	0.97 U
Calcium	1000	963 []	1300	1020 []	1280	950 []	1240	1020 []	409 []
Chromium	2	13.1	12.8	14.8	13.7	15.6	9.6	8.6	11.4 *
Cobalt	10	8.5 []	7.1 []	7.4 []	6.5 []	7.6 []	4.1 []	4.9 []	8 []
Copper	5	11.8	7.5	10.5	9.7	14.6	7.4	7.5	8.4
Iron	20	11300	10000	11900	11100	12100	8570	8220	11600
Lead	1	3.1	2.7	3.2	3.3	3.3	3	3.5	200
Magnesium	1000	3240	3020	3740	3390	3830	2350	2140	2840
Manganese	3	177	243	158	190	172	174	103	126
Mercury	0.1	0.13 U	0.1 U	0.12 U	0.13 U	0.12 U	0.12 U	0.12 U	0.11 U
Nickel	8	15.4	11.8	15.7	15.3	8.6 []	8.7 U	8.8 U	10.1 *
Potassium	1000	2620	1730	1730	1030 []	1520	704 []	878 []	2740 *
Selenium	1	0.4 UWN	2 UWN	0.41 UWN	0.4 UWN	2 UWN	0.39 UWN	0.39 UWN	3.5 UWN
Silver	2	1.5 U	1.4 U	1.4 U	1.5 U	1.4 U	1.4 U	1.4 U	1.3 U
Sodium	1000	484 U	462 U	455 U	477 U	448 U	456 U	461 U	410 U
Thallium	2	0.33 U	0.34 []	0.58 [] W	0.45 []	0.51 [] W	0.45 []	0.45 []	0.29 U
Vanadium	10	20.4	17.7	21.8	19.6	21.5	16.4	13.5	22.4
Zinc	4	51.5 *	32.9 *	39.7 *	34.9 *	72.2 *	31.8 *	31.4 *	25.6 E
Cyanide	1	0.65 U	0.62 U	0.64 U	0.64 U	0.62 U	0.62 U	0.62 U	0.56 UN
Percent Solids:		77.2	81	78.2	78.4	81	80.4	81.2	88.5
Associated Method Blank:		17603B	17603B	BR17603AS	BR17603AS	BR17603AS	BR17603AS	BR17603AS	17603Q
Associated Equipment Blank:		SAMPLERBLANK01	SAMPLERBLANK01	-	-	-	-	-	SAMPLERBLANK02
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	11SBX01X1201XX	13SBX01X2001XX	11SBX02XX601XX	11SBX02X1401XX	13SBX02X1701XX	13SBX02X2701XX	13SBX03XX701XX	11SBX03X1201XX
LAB NUMBER:	281598	287096	281600	281602	281908	281909	282247	281604
DATE SAMPLED:	08/16/89	09/14/89	08/16/89	08/16/89	08/22/89	08/22/89	08/23/89	08/16/89

ANALYTE	CRQL								
Aluminum	40	5400	7670	7440	3520	6460	5880	3700	5990
Antimony	12	11.8 U	12.6 U	11.5 U	12.5 U	12.2 U	12.1 U	10.2 U	12.4 U
Arsenic	2	1.6 □N	1 □WN	1.2 □N	1.6 □N	2.1 □N	0.89 □N	1.3 □WN	0.89 □N
Barium	40	17.3 □	29.7 □	18.9 □	11 □	25.8 □E	23.5 □E	13.4 □	21.4 □
Beryllium	1	0.37 □	0.9 □	0.33 □	0.17 U	0.32 □	0.28 □	0.19 □	0.38 □
Cadmium	1	1 U	1.1 U	1 U	1.1 U	1.1 U	1.1 U	0.9 U	1.1 U
Calcium	1000	805 □	748 □	583 □	739 □	835 □	701 □	671 □	979 □
Chromium	2	9.5	17.5 *	12.5	5.9	11	12.1	5.7	11.5
Cobalt	10	5.8 □	3.9 □	5.1 □	3.1 □	8.6 □	6.8 □	3.5 □	5.5 □
Copper	5	7.7	9.6	7.5	7.6	11.7	7.3	5.9	7.5
Iron	20	8460	11900	10300	6570	12100	8700	5520	9030
Lead	1	2.5	7.9	2.8	2	3.4	2.9	2.8	2.7
Magnesium	1000	2290	3510	2900	1540	3070	2970	1460 E	2820
Manganese	3	113	152	111	78.8	159	114	98.8	118
Mercury	0.1	0.1 U	0.13 U	0.11 U	0.12 U	0.12 U	0.12 U	0.1 U	0.12 U
Nickel	8	10.9	12.3 *	11.2	8.9 U	15.4	8.6 U	11.1	9.4 □
Potassium	1000	1180	1050 □*	824 □	503 U	2440	1450	1140	1160 □
Selenium	1	0.38 UWN	4.1 UWN	0.35 UWN	0.41 UWN	0.41 UWN	0.4 UWN	1.6 UWN	0.39 UWN
Silver	2	1.3 U	1.4 U	1.3 U	1.4 U	1.4 U	1.4 U	1.2 U	1.4 U
Sodium	1000	439 U	470 U	427 U	466 U	463 □	451 U	382 U	463 U
Thallium	2	0.36 □	0.39 □	0.42 □	0.53 □	0.33 U	0.33 U	0.26 UW	0.32 U
Vanadium	10	14.4	19.6	18.3	8.5 □	22.5	16.9	8.5 □	16.7
Zinc	4	33.9 *	30.9 E	35 *	24.9 *	45.4 *	46.4 *	19.6 E	34.3 *
Cyanide	1	0.59 U	0.64 UN	0.57 U	0.64 U	0.64 U	0.63 U	0.52 U	0.63 U
Percent Solids:		84.4	78	87.6	78.0	78.6	79	97	79.2
Associated Method Blank:		BR17603AS	17603Q	BR17603AS	BR17603AS	17603B	17603B	BR17603CS	BR17603AS
Associated Equipment Blank:		-	SAMPLERBLANK02	-	-	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK01	-
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	11SBX03X1201XD	13SBX03X2701XX	11SBX03X3001XX	11SBX04X1201XX	11SBX04X2701XX
LAB NUMBER:	281605	282248	281599	282496	282495
DATE SAMPLED:	08/16/89	08/23/89	08/16/89	08/23/89	08/24/89
ANALYTE / CRQL					
Aluminum 40	5880	4440	14600	4470	11500
Antimony 12	12.1 U	11.9 U	12.5 U	12.3 U	12.6 U
Arsenic 2	1 []N	2.4 []SN	3.6 N	1.2 []WN	9.6 +N
Barium 40	20.4 []	17.3 []	53.7	15.2 []	36.4 []
Beryllium 1	0.2 []	0.2 []	0.76 []	0.17 U	0.31 []
Cadmium 1	1.1 U	1 U	1.1 U	1.1 U	1.1 U
Calcium 1000	806 []	718 []	2510	731 []	1470
Chromium 2	11.8	7.4	27.8	7.7	23
Cobalt 10	5.2 []	4.8 []	16.3	2.6 []	11.1 []
Copper 5	7.3	6.9	22.8	7.2	22
Iron 20	8840	7450	22800	7040	21500
Lead 1	2.1	2.7	7.7	2.6	6.4
Magnesium 1000	2860	2070 E	5890	2060 E	5400 E
Manganese 3	115	133	449	81.2	339
Mercury 0.1	0.12 U	0.1 U	0.12 U	0.13 U	0.12 U
Nickel 8	8.6 U	8.5 U	31.8	12.4	25.5
Potassium 1000	1340	1840	2790	496 U	2370
Selenium 1	0.38 UWN	2 UWN	0.4 UWN	2 UWN	2 UWN
Silver 2	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
Sodium 1000	449 U	444 U	466 U	459 U	470 U
Thallium 2	0.41 []	0.32 U	0.33 U	0.32 U	0.33 U
Vanadium 10	16	12.4	35.5	11.8 []	31
Zinc 4	35.8 *	32.1 E	62.1 *	27.7 E	51.9 E
Cyanide 1	0.61 U	0.62 U	0.63 U	0.64 U	0.63 U
Percent Solids:	80.8	80.2	79.4	77.6	78.8
Associated Method Blank:	BR17603A$	BR17603C$	BR17603A$	BR17603C$	BR17603C$
Associated Equipment Blank:	-	SAMPLERBLANK01	-	SAMPLERBLANK01	SAMPLERBLANK01
Associated Field Blank:	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SB209X2601XX	03SB214XX601XX	03SB214X2001XX	03SB214X2001XD	03SB214X3601XX	03SB215X1601XX	03SB215X2201XX	03SB215X3201XX
LAB NUMBER:	9262-018	286523	286531	286533	286529	286535	286537	286536
DATE SAMPLED:	09/19/89	09/11/89	09/11/89	09/11/89	09/11/89	09/12/89	09/12/89	09/12/89
DATE ANALYZED:	09/20/89	09/14/89	09/14/89	09/14/89	09/14/89	09/14/89	09/14/89	09/19/89
ANALYTE / CRQL								
Chloromethane 10	13 U	10 U	13 U	13 U	13 U	11 U	12 U	12 U
Bromomethane 10	13 U	10 U	13 U	13 U	13 U	11 U	12 U	12 U
Vinyl Chloride 10	13 U	10 U	13 U	13 U	13 U	11 U	12 U	12 U
Chloroethane 10	13 U	10 U	13 U	13 U	13 U	11 U	12 U	12 U
Methylene Chloride 5	28 B	19 B	22 B	17 B	24 B	11 B	16 B	19 B
Acetone 10	26 B	4 BJ	15 B	18 B	13 B	6 BJ	12 BJ	16 B
Carbon Disulfide 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
1,1-Dichloroethene 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
1,1-Dichloroethane 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
1,2-Dichloroethene (total) 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
Chloroform 5	7 U	1 J	6 U	6 U	2 J	5 U	6 U	6 U
1,2-Dichloroethane 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
2-Butanone 10	13 U	10 U	13 U	13 U	13 U	11 U	12 U	12 U
1,1,1-Trichloroethane 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
Carbon Tetrachloride 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
Vinyl Acetate 10	13 U	10 U	13 U	13 U	13 U	11 U	12 U	12 U
Bromodichloromethane 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
1,2-Dichloropropane 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
Cis-1,3-Dichloropropene 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
Trichloroethene 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	2 J
Dibromochloromethane 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
1,1,2-Trichloroethane 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
Benzene 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
Trans-1,3-Dichloropropene 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
Bromoform 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
4-Methyl-2-Pentanone 10	13 U	10 U	13 U	13 U	13 U	11 U	12 U	12 U
2-Hexanone 10	13 U	10 U	13 U	13 U	13 U	11 U	12 U	12 U
Tetrachloroethene 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
1,1,2,2-Tetrachloroethane 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
Toluene 5	7 U	5 U	6 U	6 U	6 U	5 U	1 J	1 J
Chlorobenzene 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
Ethylbenzene 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
Styrene 5	7 U	5 U	6 U	6 U	6 U	5 U	6 U	6 U
Xylenes (Total) 5	7 U	5 U	6 U	6 U	6 U	5 U	2 J	6 U
Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	76	96	79	80	80	91	82	82
Associated Method Blank:	C8544	GW086699A19	GW086699A19	GW086699A19	GW086699A19	GW086699A19	GW086699A19	GW087560A19
Associated Equipment Blank:	SAMPLERBLANK02	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	01SB216X1201XX	01SB216X1401XX	01SB216X2901XX	01SB216X2901XD	01SB217X1001XX	01SB217X2401XX	01SB217X3401XX	01SB217X3401XD
	LAB NUMBER:	283358	283359	283360	283361	287417	287413	287424	287429
	DATE SAMPLED:	08/29/89	08/29/89	08/29/89	08/29/89	09/14/89	09/15/89	09/15/89	09/15/89
	DATE ANALYZED:	09/01/89	09/01/89	09/04/89	09/06/89	09/19/89	09/19/89	09/19/89	09/19/89
ANALYTE	CRQL								
Chloromethane	10	12 U	13 U	12 U	13 U	12 U	13 U	12 U	13 U
Bromomethane	10	12 U	13 U	12 U	13 U	12 U	13 U	12 U	13 U
Vinyl Chloride	10	12 U	13 U	12 U	13 U	12 U	13 U	12 U	13 U
Chloroethane	10	12 U	13 U	12 U	13 U	12 U	13 U	12 U	13 U
Methylene Chloride	5	14 B	20 B	14 B	14 B	28 B	20 B	25 B	31 B
Acetone	10	23 B	9 BJ	12 U	40 B	84 B	13 B	23 B	18 B
Carbon Disulfide	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene (total)	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Chloroform	5	1 J	2 J	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	10	11 J	4 J	17	21	110	17	12 U	13 U
1,1,1-Trichloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Vinyl Acetate	10	12 U	13 U	12 U	13 U	12 U	13 U	12 U	13 U
Bromodichloromethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Cis-1,3-Dichloropropene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Dibromochloromethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Benzene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Trans-1,3-Dichloropropene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Bromoform	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
4-Methyl-2-Pentanone	10	12 U	13 U	12 U	13 U	12 U	13 U	12 U	13 U
2-Hexanone	10	12 U	13 U	12 U	13 U	12 U	13 U	12 U	13 U
Tetrachloroethene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Toluene	5	6 U	6 U	9	4 J	6 U	6 U	6 U	6 U
Chlorobenzene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Ethylbenzene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Styrene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Xylenes (Total)	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		85	78	81	79	84	79	81	80
Associated Method Blank:		GH083580C18	GH083580C18	GH083925B18	GH083581C19	GH087560A19	GH087560A19	GH087560A19	GH087560A19
Associated Equipment Blank:		00@S002XXX04XX	00@S002XXX04XX	00@S002XXX04XX	00@S002XXX04XX	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SB218X4701XX	01SB218X6701XX	01SB219X5201XX	01SB219X6201XX	01SB220XX701XX	01SB220X1701XX	01SB222X2201XX	01SB222X3301XX
LAB NUMBER:	281587	281585	281616	281611	282226	282234	285521	285525
DATE SAMPLED:	08/16/89	08/16/89	08/17/89	08/17/89	08/22/89	08/22/89	09/07/89	09/07/89
DATE ANALYZED:	08/24/89	08/24/89	08/25/89	08/24/89	08/28/89	08/28/89	09/13/89	09/13/89

ANALYTE	CRQL								
Chloromethane	10	12 U	13 U	12 U	13 U	12 U	13 U	13 U	13 U
Bromomethane	10	12 U	13 U	12 U	13 U	12 U	13 U	13 U	13 U
Vinyl Chloride	10	12 U	13 U	12 U	13 U	12 U	13 U	13 U	13 U
Chloroethane	10	12 U	13 U	12 U	13 U	12 U	13 U	13 U	13 U
Methylene Chloride	5	39 B	24 B	54 B	1000 B	12 B	17 B	66 B	40 B
Acetone	10	57 B	22 B	84 B	56 B	18	46	91 B	30 B
Carbon Disulfide	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene (total)	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Chloroform	5	6 BJ	8 B	3 BJ	6 BJ	6 U	6 U	2 BJ	2 BJ
1,2-Dichloroethane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	10	12 U	13 U	12 U	13 U	12 U	13 U	13 U	13 U
1,1,1-Trichloroethane	5	6 U	1 J	6 U	6 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Vinyl Acetate	10	12 U	13 U	12 U	13 U	12 U	13 U	13 U	13 U
Bromodichloromethane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Cis-1,3-Dichloropropene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Dibromochloromethane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Benzene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Trans-1,3-Dichloropropene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Bromoform	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
4-Methyl-2-Pentanone	10	12 U	13 U	12 U	13 U	12 U	13 U	13 U	13 U
2-Hexanone	10	12 U	13 U	12 U	13 U	12 U	13 U	13 U	13 U
Tetrachloroethene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Toluene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Chlorobenzene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Ethylbenzene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Styrene	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Xylenes (Total)	5	6 U	7 U	6 U	6 U	6 U	6 U	6 U	6 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		81	75	81	80	84	77	79	77
Associated Method Blank:		GW081771C18	GW081771C18	GW081772C18	GW081771C18	GW082444C19	GW082444C19	GW085985A12	GW085985A12
Associated Equipment Blank:		-	-	-	-	SAMPLERBLANK01	SAMPLERBLANK01	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SB223X3701XX	01SB223X4701XX	01SB224X2201XX	01SB224X4201XX	01SB225X4201XX	01SB255X8201XX	01SB232XX801XX	01SB232X1001XX
LAB NUMBER:	285642	285641	285526	285527	283380	282800	283664	283666
DATE SAMPLED:	09/08/89	09/08/89	09/06/89	09/06/89	08/29/89	08/25/89	08/30/89	08/29/89
DATE ANALYZED:	09/13/89	09/13/89	09/14/89	09/13/89	09/03/89	08/29/89	09/07/89	09/07/89
ANALYTE	CRQL							
Chloromethane	10	13 U	13 U	13 U	12 U	13 U	12 U	11 U	12 U
Bromomethane	10	13 U	13 U	13 U	12 U	13 U	12 U	11 U	12 U
Vinyl Chloride	10	13 U	13 U	13 U	12 U	13 U	12 U	11 U	12 U
Chloroethane	10	13 U	13 U	13 U	12 U	13 U	12 U	11 U	12 U
Methylene Chloride	5	41 B	44 B	13 B	59 B	19 B	13 B	19 B	34 B
Acetone	10	33 B	48 B	9 BJ	41 B	37 B	33 B	33 B	76 B
Carbon Disulfide	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene (total)	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Chloroform	5	6 U	2 BJ	2 J	2 BJ	6 U	6 U	2 BJ	2 BJ
1,2-Dichloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	10	13 U	13 U	13 U	12 U	13 U	12 U	11 U	17
1,1,1-Trichloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Vinyl Acetate	10	13 U	13 U	13 U	12 U	13 U	12 U	11 U	12 U
Bromodichloromethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Cis-1,3-Dichloropropene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Dibromochloromethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Benzene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Trans-1,3-Dichloropropene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Bromoform	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
4-Methyl-2-Pentanone	10	13 U	13 U	13 U	12 U	13 U	12 U	11 U	12 U
2-Hexanone	10	13 U	13 U	13 U	12 U	13 U	12 U	11 U	12 U
Tetrachloroethene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Toluene	5	6 U	6 U	6 U	6 U	15	6 U	6 U	7
Chlorobenzene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Ethylbenzene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Styrene	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Xylenes (Total)	5	6 U	6 U	6 U	6 U	6 U	6 U	6 U	6 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		79	79	78	81	78	81	89	82
Associated Method Blank:		GH085985A12	GH085985A12	GH086699A19	GH085985A12	GH084499B12	GH082841C19	GH083948C12	GH083948C12
Associated Equipment Blank:		00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS002XXX04XX	SAMPLERBLANK01	00QS003XXX04XX	00QS002XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SB232X2001XX	01SB233X4201XX	01SB233X7701XX	04SB404X1401XX	04SB404X1901XX	04SB404X4001XX	04SB408X1001XX	04SB408X2401XX
		LAB NUMBER: 283665	282492	282485	9262-019	9262-020	9262-023	286538	286540
		DATE SAMPLED: 08/30/89	08/24/89	08/24/89	09/19/89	09/19/89	09/19/89	09/12/89	09/12/89
		DATE ANALYZED: 09/07/89	08/29/89	08/29/89	09/20/89	09/20/89	09/20/89	09/15/89	09/15/89
Chloromethane	10	13 U	13 U	12 U	14 U	13 U	13 U	13 U	13 U
Bromomethane	10	13 U	13 U	12 U	14 U	13 U	13 U	13 U	13 U
Vinyl Chloride	10	13 U	13 U	12 U	14 U	13 U	13 U	13 U	13 U
Chloroethane	10	13 U	13 U	12 U	14 U	13 U	13 U	13 U	13 U
Methylene Chloride	5	26 B	20 B	22 B	30 B	23 B	26 B	22 B	23 B
Acetone	10	78 B	72 B	66 B	38 B	20 B	28 B	11 BJ	7 BJ
Carbon Disulfide	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene (total)	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Chloroform	5	2 BJ	2 J	2 J	7 U	6 J	15	3 J	3 J
1,2-Dichloroethane	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
2-Butanone	10	13 U	13 U	12 U	14 U	19	13 U	13 U	7 J
1,1,1-Trichloroethane	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Vinyl Acetate	10	13 U	13 U	12 U	14 U	13 U	13 U	13 U	13 U
Bromodichloromethane	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Cis-1,3-Dichloropropene	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Trichloroethene	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Dibromochloromethane	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Benzene	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Trans-1,3-Dichloropropene	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Bromoform	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
4-Methyl-2-Pentanone	10	13 U	13 U	12 U	14 U	13 U	13 U	13 U	13 U
2-Hexanone	10	13 U	13 U	12 U	14 U	13 U	13 U	13 U	13 U
Tetrachloroethene	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Toluene	5	3 J	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Chlorobenzene	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Ethylbenzene	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Styrene	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Xylenes (Total)	5	6 U	6 U	6 U	7 U	6 U	6 U	6 U	6 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		80	78	84	72	77	79	80	80
Associated Method Blank:		GH083948C12	GH082814C19	GH082814C19	CB544	CB544	CB544	GH086700C19	GH086700C19
Associated Equipment Blank:		00QS003XXX04XX	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 07SB705X1401XX LAB NUMBER: 9262-022 DATE SAMPLED: 09/19/89 DATE ANALYZED: 09/20/89	07SB705X1901XX 9262-021 09/19/89 09/20/89	07SB706X0901XX 9263-018 09/20/89 09/22/89	07SB706X1401XX 9263-017 09/20/89 09/22/89	08SB809X1801XX 284197 08/30/89 09/09/89	08SB809X3001XX 284194 08/30/89 09/09/89	08SB810X1201XX 284463 08/31/89 09/12/89	08SB810X2001XX 284450 08/30/89 09/10/89
Chloromethane	10	13 U	13 U	13 U	13 U	14 U	13 U	13 U	11 U
Bromomethane	10	13 U	13 U	13 U	13 U	14 U	13 U	13 U	11 U
Vinyl Chloride	10	13 U	13 U	13 U	13 U	14 U	13 U	13 U	11 U
Chloroethane	10	13 U	13 U	13 U	13 U	14 U	13 U	13 U	11 U
Methylene Chloride	5	50 B	28 B	10 B	12 B	15 B	17 B	21 B	16 B
Acetone	10	43 B	41 B	15 B	43 B	28 B	32 B	33	30 B
Carbon Disulfide	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
1,1-Dichloroethene	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
1,1-Dichloroethane	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
1,2-Dichloroethene (total)	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Chloroform	5	4 J	11	6 U	7 U	1 J	6 U	7 U	5 U
1,2-Dichloroethane	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
2-Butanone	10	13 U	13 U	13 U	13 U	14 U	13 U	6 J	11 U
1,1,1-Trichloroethane	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Carbon Tetrachloride	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Vinyl Acetate	10	13 U	13 U	13 U	13 U	14 U	13 U	13 U	11 U
Bromodichloromethane	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
1,2-Dichloropropane	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Cis-1,3-Dichloropropene	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Trichloroethene	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Dibromochloromethane	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
1,1,2-Trichloroethane	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Benzene	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Trans-1,3-Dichloropropene	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Bromoform	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
4-Methyl-2-Pentanone	10	13 U	13 U	13 U	13 U	14 U	13 U	13 U	11 U
2-Hexanone	10	13 U	13 U	13 U	13 U	14 U	13 U	13 U	11 U
Tetrachloroethene	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
1,1,2,2-Tetrachloroethane	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Toluene	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Chlorobenzene	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Ethylbenzene	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Styrene	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Xylenes (Total)	5	6 U	7 U	6 U	7 U	7 U	6 U	7 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		80	75	78	75	72	77	75	94
Associated Method Blank:		C8544	C8544	C8587	C8587	GH084531B19	GH084531B19	GH085977C18	GH084915C12
Associated Equipment Blank:		SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		08SB811X1201XX	09SB905X1301XX	09SB905X1801XX	09SB906X1001XX	09SB906X1801XX	09SB907X1201XX	09SB907X2001XX	09SB908X1001XX
LAB NUMBER:		286767	9263-016	9263-015	281900	281901	281619	281618	281623
DATE SAMPLED:		09/13/89	09/20/89	09/20/89	08/21/89	08/22/89	08/17/89	08/17/89	08/18/89
DATE ANALYZED:		09/18/89	09/22/89	09/22/89	08/28/89	08/25/89	08/25/89	08/24/89	08/25/89
ANALYTE	CRQL								
Chloromethane	10	13 U	12 U	13 U	13 U	12 U	13 U	13 U	12 U
Bromomethane	10	13 U	12 U	13 U	13 U	12 U	13 U	13 U	12 U
Vinyl Chloride	10	13 U	12 U	13 U	13 U	12 U	13 U	13 U	12 U
Chloroethane	10	13 U	12 U	13 U	13 U	12 U	13 U	13 U	12 U
Methylene Chloride	5	21 B	9 B	13 B	12 B	23 B	84 B	77 B	57 B
Acetone	10	9 J	20 B	34 B	60 B	30 B	81 B	46 B	92 B
Carbon Disulfide	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene (total)	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Chloroform	5	7 U	6 U	7 U	6 U	1 BJ	4 BJ	5 BJ	2 BJ
1,2-Dichloroethane	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	10	13 U	12 U	13 U	33	4 J	13 U	13 U	12 U
1,1,1-Trichloroethane	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Vinyl Acetate	10	13 U	12 U	13 U	13 U	12 U	13 U	13 U	12 U
Bromodichloromethane	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Cis-1,3-Dichloropropene	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Dibromochloromethane	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Benzene	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Trans-1,3-Dichloropropene	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Bromoform	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
4-Methyl-2-Pentanone	10	13 U	12 U	13 U	13 U	12 U	13 U	13 U	12 U
2-Hexanone	10	13 U	12 U	13 U	13 U	12 U	13 U	13 U	12 U
Tetrachloroethene	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Toluene	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Chlorobenzene	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Ethylbenzene	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Styrene	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Xylenes (Total)	5	7 U	6 U	7 U	6 U	6 U	6 U	6 U	6 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		76	82	75	77	81	78	78	81
Associated Method Blank:		GN086927C19	C8587	C8587	GN082840B18	GN082030A19	GN081772C18	GN081771C18	GN082436B12
Associated Equipment Blank:		00QS003XXX04XX	SAMPLERBLANK02	SAMPLERBLANK02	"	SAMPLERBLANK01	"	"	"
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 09SB90BX1801XX LAB NUMBER: 281621 DATE SAMPLED: 08/18/89 DATE ANALYZED: 08/25/89	11SBX01XX801XX 281572 08/16/89 08/24/89	13SBX01X1001XX 287077 09/14/89 09/25/89	13SBX01X1001XX 287077 RE 09/14/89 09/25/89	11SBX01X1201XX 281579 08/16/89 08/24/89	13SBX01X2001XX 287078 09/14/89 09/25/89	11SBX02XX601XX 281584 08/16/89 08/24/89	11SBX02X1401XX 281586 08/16/89 08/24/89
Chloromethane	10	13 U	12 U	11 U	27 U	12 U	13 U	11 U	13 U
Bromomethane	10	13 U	12 U	11 U	27 U	12 U	13 U	11 U	13 U
Vinyl Chloride	10	13 U	12 U	11 U	27 U	12 U	13 U	11 U	13 U
Chloroethane	10	13 U	12 U	11 U	27 U	12 U	13 U	11 U	13 U
Methylene Chloride	5	68 B	30 B	14 B	53 BD	22 B	12 B	21 B	37 B
Acetone	10	62 B	25 B	27	27 U	17 B	19	26 B	68 B
Carbon Disulfide	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene (total)	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
Chloroform	5	3 BJ	3 BJ	6 U	7 BDJ	3 BJ	6 U	3 BJ	12 B
1,2-Dichloroethane	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
2-Butanone	10	13 U	12 U	11 U	27 U	12 U	31	11 U	13 U
1,1,1-Trichloroethane	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
Carbon Tetrachloride	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
Vinyl Acetate	10	13 U	12 U	11 U	27 U	12 U	13 U	11 U	13 U
Bromodichloromethane	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
Cis-1,3-Dichloropropene	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
Trichloroethene	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
Dibromochloromethane	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
Benzene	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
Trans-1,3-Dichloropropene	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
Bromoform	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
4-Methyl-2-Pentanone	10	13 U	12 U	11 U	27 U	12 U	13 U	11 U	13 U
2-Hexanone	10	13 U	12 U	11 U	27 U	12 U	13 U	11 U	13 U
Tetrachloroethene	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
Toluene	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	2 J
Chlorobenzene	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
Ethylbenzene	5	6 U	6 U	92	55 D	6 U	6 U	6 U	6 U
Styrene	5	6 U	6 U	6 U	13 U	6 U	6 U	6 U	6 U
Xylenes (Total)	5	6 U	6 U	560 E	430 D	6 U	6 U	6 U	6 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		80	81	89	89	84	78	88	78
Associated Method Blank:		GH081772C18	GH081771C18	GH087210A19	GH089236B19	GH081771C18	GH087210A19	GH081771C18	GH081771C18
Associated Equipment Blank:		"	"	SAMPLERBLANK02	SAMPLERBLANK02	"	SAMPLERBLANK02	"	"
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	13SBX02X1701XX 281902 08/22/89 08/25/89	13SBX02X2701XX 281903 08/22/89 08/25/89	13SBX03XX701XX 282215 08/23/89 08/28/89	11SBX03X1201XX 281588 08/16/89 08/25/89	11SBX03X1201XD 281589 08/16/89 08/24/89	13SBX03X2701XX 282219 08/23/89 08/28/89	11SBX03X3001XX 281583 08/16/89 08/24/89	11SBX04X1201XX 282493 08/23/89 08/29/89
Chloromethane	10	13 U	13 U	10 U	13 U	12 U	13 U	13 U	13 U
Bromomethane	10	13 U	13 U	10 U	13 U	12 U	13 U	13 U	13 U
Vinyl Chloride	10	13 U	13 U	10 U	13 U	12 U	13 U	13 U	13 U
Chloroethane	10	13 U	13 U	10 U	13 U	12 U	13 U	13 U	13 U
Methylene Chloride	5	21 B	88 B	34 B	33 B	70 B	21 B	30 B	12 B
Acetone	10	43 B	53 B	29	38 B	24 B	52	48 B	120 B
Carbon Disulfide	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethene	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
1,1-Dichloroethane	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloroethene (total)	5	6 U	6 U	5 U	6 U	4 J	6 U	6 U	6 U
Chloroform	5	1 BJ	6 U	5 U	4 BJ	6 BJ	6 U	12 B	6 U
1,2-Dichloroethane	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
2-Butanone	10	3 J	13 U	10 U	13 U	12 U	8 J	13 U	13 U
1,1,1-Trichloroethane	5	6 U	6 U	5 U	6 U	40	6 U	6 U	6 U
Carbon Tetrachloride	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
Vinyl Acetate	10	13 U	13 U	10 U	13 U	12 U	13 U	13 U	13 U
Bromodichloromethane	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
1,2-Dichloropropane	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
Cis-1,3-Dichloropropene	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
Trichloroethene	5	6 U	6 U	5 U	6 U	20	6 U	6 U	6 U
Dibromochloromethane	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
1,1,2-Trichloroethane	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
Benzene	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
Trans-1,3-Dichloropropene	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
Bromoform	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
4-Methyl-2-Pentanone	10	13 U	13 U	10 U	13 U	12 U	13 U	13 U	13 U
2-Hexanone	10	13 U	13 U	10 U	13 U	12 U	13 U	13 U	13 U
Tetrachloroethene	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
Toluene	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
Chlorobenzene	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
Ethylbenzene	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
Styrene	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
Xylenes (Total)	5	6 U	6 U	5 U	6 U	6 U	6 U	6 U	6 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		79	79	97	79	81	80	79	78
Associated Method Blank:		GW082030A19	GW082028C19	GW082444C19	GW082436B12	GW081771C18	GW082444C19	GW081771C18	GW082841C19
Associated Equipment Blank:		SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK01	-	-	SAMPLERBLANK01	-	SAMPLERBLANK01
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION: 11SBX04X2701XX
LAB NUMBER: 282494
DATE SAMPLED: 08/24/89
DATE ANALYZED: 08/29/89

ANALYTE	CRQL	
Chloromethane	10	13 U
Bromomethane	10	13 U
Vinyl Chloride	10	13 U
Chloroethane	10	13 U
Methylene Chloride	5	12 B
Acetone	10	55 B
Carbon Disulfide	5	6 U
1,1-Dichloroethene	5	6 U
1,1-Dichloroethane	5	6 U
1,2-Dichloroethene (total)	5	6 U
Chloroform	5	2 J
1,2-Dichloroethane	5	6 U
2-Butanone	10	13 U
1,1,1-Trichloroethane	5	6 U
Carbon Tetrachloride	5	6 U
Vinyl Acetate	10	13 U
Bromodichloromethane	5	6 U
1,2-Dichloropropane	5	6 U
Cis-1,3-Dichloropropene	5	6 U
Trichloroethene	5	6 U
Dibromochloromethane	5	6 U
1,1,2-Trichloroethane	5	6 U
Benzene	5	6 U
Trans-1,3-Dichloropropene	5	6 U
Bromoform	5	6 U
4-Methyl-2-Pentanone	10	13 U
2-Hexanone	10	13 U
Tetrachloroethene	5	6 U
1,1,2,2-Tetrachloroethane	5	6 U
Toluene	5	6 U
Chlorobenzene	5	6 U
Ethylbenzene	5	6 U
Styrene	5	6 U
Xylenes (Total)	5	6 U

Dilution Factor: 1
Percent Solids: 79

Associated Method Blank: GH082841C19
Associated Equipment Blank: SAMPLERBLANK01
Associated Field Blank: SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SB209X2601XX	03SB214XX601XX	03SB214X2001XX	03SB214X2001XD	03SB214X3601XX	03SB215X1601XX	03SB215X2201XX	03SB215X3201XX
		LAB NUMBER: 9262-018	286523	286531	286533	286529	286535	286537	286536
		DATE SAMPLED: 09/19/89	09/11/89	09/11/89	09/11/89	09/11/89	09/12/89	09/12/89	09/12/89
		DATE EXTRACTED: 09/20/89	09/16/89	09/16/89	09/16/89	09/16/89	09/16/89	09/16/89	09/16/89
		DATE ANALYZED: 09/25/89	09/18/89	09/18/89	09/18/89	09/18/89	09/18/89	09/18/89	09/18/89
Phenol	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
bis(2-Chloroethyl)ether	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
2-Chlorophenol	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
1,3-Dichlorobenzene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
1,4-Dichlorobenzene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Benzyl alcohol	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
1,2-Dichlorobenzene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
2-Methylphenol	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
bis(2-Chloroisopropyl)ether	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
4-Methylphenol	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
N-Nitroso-di-n-propylamine	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Hexachloroethane	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Nitrobenzene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Isophorone	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
2-Nitrophenol	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
2,4-Dimethylphenol	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Benzoic acid	1600	2100 U	1700 U	2000 U	2000 U	2000 U	1800 U	2000 U	2000 U
bis(2-Chloroethoxy)methane	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
2,4-Dichlorophenol	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
1,2,4-Trichlorobenzene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Naphthalene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
4-Chloroaniline	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Hexachlorobutadiene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
4-Chloro-3-Methylphenol	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
2-Methylnaphthalene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Hexachlorocyclopentadiene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
2,4,6-Trichlorophenol	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
2,4,5-Trichlorophenol	1600	2100 U	1700 U	2000 U	2000 U	2000 U	1800 U	2000 U	2000 U
2-Chloronaphthalene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
2-Nitroaniline	1600	2100 U	1700 U	2000 U	2000 U	2000 U	1800 U	2000 U	2000 U
Dimethylphthalate	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Acenaphthylene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
2,6-Dinitrotoluene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SB209X2601XX LAB NUMBER: 9262-018 DATE SAMPLED: 09/19/89 DATE EXTRACTED: 09/20/89 DATE ANALYZED: 09/25/89	03SB214XX601XX 286523 09/11/89 09/16/89 09/18/89	03SB214X2001XX 286531 09/11/89 09/16/89 09/18/89	03SB214X2001XD 286533 09/11/89 09/16/89 09/18/89	03SB214X3601XX 286529 09/11/89 09/16/89 09/18/89	03SB215X1601XX 286535 09/12/89 09/16/89 09/18/89	03SB215X2201XX 286537 09/12/89 09/16/89 09/18/89	03SB215X3201XX 286536 09/12/89 09/16/89 09/18/89
3-Nitroaniline	1600	2100 U	1700 U	2000 U	2000 U	2000 U	1800 U	2000 U	2000 U
Acenaphthene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
2,4-Dinitrophenol	1600	2100 U	1700 U	2000 U	2000 U	2000 U	1800 U	2000 U	2000 U
4-Nitrophenol	1600	2100 U	1700 U	2000 U	2000 U	2000 U	1800 U	2000 U	2000 U
Dibenzofuran	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
2,4-Dinitrotoluene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Diethylphthalate	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
4-Chlorophenyl-phenylether	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Fluorene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
4-Nitroaniline	1600	2100 U	1700 U	2000 U	2000 U	2000 U	1800 U	2000 U	2000 U
4,6-Dinitro-2-methylphenol	1600	2100 U	1700 U	2000 U	2000 U	2000 U	1800 U	2000 U	2000 U
N-Nitrosodiphenylamine	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
4-Bromophenyl-phenylether	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Hexachlorobenzene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Pentachlorophenol	1600	2100 U	1700 U	2000 U	2000 U	2000 U	1800 U	2000 U	2000 U
Phenanthrene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Anthracene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Di-n-butylphthalate	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Fluoranthene	330	420 U	70 J	420 U	410 U	410 U	360 U	400 U	400 U
Pyrene	330	420 U	94 J	420 U	410 U	410 U	360 U	400 U	400 U
Butylbenzylphthalate	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
3,3'-Dichlorobenzidine	660	820 U	690 U	840 U	830 U	830 U	730 U	810 U	810 U
Benzo(a)Anthracene	330	420 U	41 J	420 U	410 U	410 U	360 U	400 U	400 U
Chrysene	330	420 U	56 J	420 U	410 U	410 U	360 U	400 U	400 U
bis(2-Ethylhexyl)phthalate	330	420 U	340 U	420 U	410 U	410 U	360 U	210 J	400 U
Di-n-octylphthalate	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Benzo(b)Fluoranthene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Benzo(k)Fluoranthene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Benzo(a)Pyrene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Indeno(1,2,3-cd)pyrene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Dibenz(a,h)anthracene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Benzo(g,h,i,)perylene	330	420 U	340 U	420 U	410 U	410 U	360 U	400 U	400 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		76	96	79	80	80	91	82	82
Associated Method Blank:		A3144	GH087364C15	GH087364C15	GH087364C15	GH087364C15	GH087364C15	GH087364C15	GH087364C15
Associated Equipment Blank:		SAMPLERBLANK02	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = Not for Analysis, X = Compounds could not be separated due to coelution

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SB216X1201XX	01SB216X1401XX	01SB216X2901XX	01SB216X2901XD	01SB217X1001XX	01SB217X2401XX	01SB217X3401XX	01SB217X3401XD
LAB NUMBER:	283358	283359	283360	283361	287417	287413	287424	287429
DATE SAMPLED:	08/29/89	08/29/89	08/29/89	08/29/89	09/14/89	09/16/89	09/16/89	09/16/89
DATE EXTRACTED:	08/31/89	08/31/89	08/31/89	08/31/89	09/20/89	09/20/89	09/20/89	09/20/89
DATE ANALYZED:	09/03/89	09/03/89	09/03/89	09/03/89	09/20/89	09/21/89	09/21/89	09/21/89

ANALYTE	CRQL								
Phenol	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
bis(2-Chloroethyl)ether	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
2-Chlorophenol	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
1,3-Dichlorobenzene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
1,4-Dichlorobenzene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Benzyl alcohol	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
1,2-Dichlorobenzene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
2-Methylphenol	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
bis(2-Chloroisopropyl)ether	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
4-Methylphenol	330	110 J	420 U	410 U	420 U	390 U	420 U	410 U	410 U
N-Nitroso-di-n-propylamine	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Hexachloroethane	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Nitrobenzene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Isophorone	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
2-Nitrophenol	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
2,4-Dimethylphenol	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Benzoic acid	1600	1900 U	2100 U	2000 U	2000 U	1900 U	2000 U	2000 U	2000 U
bis(2-Chloroethoxy)methane	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
2,4-Dichlorophenol	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
1,2,4-Trichlorobenzene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Naphthalene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
4-Chloroaniline	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Hexachlorobutadiene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
4-Chloro-3-Methylphenol	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
2-Methylnaphthalene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Hexachlorocyclopentadiene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
2,4,6-Trichlorophenol	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
2,4,5-Trichlorophenol	1600	1900 U	2100 U	2000 U	2000 U	1900 U	2000 U	2000 U	2000 U
2-Chloronaphthalene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
2-Nitroaniline	1600	1900 U	2100 U	2000 U	2000 U	1900 U	2000 U	2000 U	2000 U
Dimethylphthalate	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Acenaphthylene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
2,6-Dinitrotoluene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SB216X1201XX	01SB216X1401XX	01SB216X2901XX	01SB216X2901XD	01SB217X1001XX	01SB217X2401XX	01SB217X3401XX	01SB217X3401XD
LAB NUMBER:	283358	283359	283360	283361	287417	287413	287424	287429
DATE SAMPLED:	08/29/89	08/29/89	08/29/89	08/29/89	09/14/89	09/16/89	09/16/89	09/16/89
DATE EXTRACTED:	08/31/89	08/31/89	08/31/89	08/31/89	09/20/89	09/20/89	09/20/89	09/20/89
DATE ANALYZED:	09/03/89	09/03/89	09/03/89	09/03/89	09/20/89	09/21/89	09/21/89	09/21/89

ANALYTE	CRQL								
3-Nitroaniline	1600	1900 U	2100 U	2000 U	2000 U	1900 U	2000 U	2000 U	2000 U
Acenaphthene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
2,4-Dinitrophenol	1600	1900 U	2100 U	2000 U	2000 U	1900 U	2000 U	2000 U	2000 U
4-Nitrophenol	1600	1900 U	2100 U	2000 U	2000 U	1900 U	2000 U	2000 U	2000 U
Dibenzofuran	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
2,4-Dinitrotoluene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Diethylphthalate	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
4-Chlorophenyl-phenylether	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Fluorene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
4-Nitroaniline	1600	1900 U	2100 U	2000 U	2000 U	1900 U	2000 U	2000 U	2000 U
4,6-Dinitro-2-methylphenol	1600	1900 U	2100 U	2000 U	2000 U	1900 U	2000 U	2000 U	2000 U
N-Nitrosodiphenylamine	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
4-Bromophenyl-phenylether	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Hexachlorobenzene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Pentachlorophenol	1600	1900 U	2100 U	2000 U	2000 U	1900 U	2000 U	2000 U	2000 U
Phenanthrene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Anthracene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Di-n-butylphthalate	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Fluoranthene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Pyrene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Butylbenzylphthalate	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
3,3'-Dichlorobenzidine	660	780 U	850 U	820 U	840 U	790 U	840 U	820 U	830 U
Benzo(a)Anthracene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Chrysene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
bis(2-Ethylhexyl)phthalate	330	390 U	420 U	170 J	150 J	66 J	420 U	410 U	410 U
Di-n-octylphthalate	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Benzo(b)Fluoranthene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Benzo(k)Fluoranthene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Benzo(a)Pyrene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Indeno(1,2,3-cd)pyrene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Dibenz(a,h)anthracene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U
Benzo(g,h,i,)perylene	330	390 U	420 U	410 U	420 U	390 U	420 U	410 U	410 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	85	78	81	79	84	79	81	80

Associated Method Blank:	GJ083502A06	GJ083502A06	GJ083502A06	GJ083502A06	GH087810B02	GH087810B02	GH087810B02	GH087810B02
Associated Equipment Blank:	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02
Associated Field Blank:	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = [illegible] for Analysis, X = Compounds could not be separated due to coelutio[illegible]

BRSB-CS

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SB218X4701XX	01SB218X6701XX	01SB219X5201XX	01SB219X6201XX	01SB220XX701XX	01SB220X1701XX	01SB222X2201XX	01SB222X3301XX
LAB NUMBER:	281587	281585	281616	281611	282226	282234	285521	285525
DATE SAMPLED:	08/16/89	08/16/89	08/17/89	08/17/89	08/22/89	08/22/89	09/07/89	09/07/89
DATE EXTRACTED:	08/23/89	08/23/89	08/23/89	08/23/89	08/29/89	08/29/89	09/14/89	09/14/89
DATE ANALYZED:	08/27/89	08/25/89	08/26/89	08/26/89	08/30/89	08/30/89	09/16/89	09/16/89

ANALYTE	CRQL								
Phenol	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
bis(2-Chloroethyl)ether	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
2-Chlorophenol	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
1,3-Dichlorobenzene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
1,4-Dichlorobenzene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Benzyl alcohol	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
1,2-Dichlorobenzene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
2-Methylphenol	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
bis(2-Chloroisopropyl)ether	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
4-Methylphenol	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
N-Nitroso-di-n-propylamine	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Hexachloroethane	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Nitrobenzene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Isophorone	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
2-Nitrophenol	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
2,4-Dimethylphenol	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Benzoic acid	1600	2000 U	2100 U	2000 U	2000 U	1900 U	2100 U	2000 U	2100 U
bis(2-Chloroethoxy)methane	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
2,4-Dichlorophenol	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
1,2,4-Trichlorobenzene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Naphthalene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
4-Chloroaniline	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Hexachlorobutadiene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
4-Chloro-3-Methylphenol	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
2-Methylnaphthalene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Hexachlorocyclopentadiene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
2,4,6-Trichlorophenol	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
2,4,5-Trichlorophenol	1600	2000 U	2100 U	2000 U	2000 U	1900 U	2100 U	2000 U	2100 U
2-Chloronaphthalene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
2-Nitroaniline	1600	2000 U	2100 U	2000 U	2000 U	1900 U	2100 U	2000 U	2100 U
Dimethylphthalate	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Acenaphthylene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
2,6-Dinitrotoluene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SB218X4701XX	01SB218X6701XX	01SB219X5201XX	01SB219X6201XX	01SB220XX701XX	01SB220X1701XX	01SB222X2201XX	01SB222X3301XX
LAB NUMBER:	281587	281585	281616	281611	282226	282234	285521	285525
DATE SAMPLED:	08/16/89	08/16/89	08/17/89	08/17/89	08/22/89	08/22/89	09/07/89	09/07/89
DATE EXTRACTED:	08/23/89	08/23/89	08/23/89	08/23/89	08/29/89	08/29/89	09/14/89	09/14/89
DATE ANALYZED:	08/27/89	08/25/89	08/26/89	08/26/89	08/30/89	08/30/89	09/16/89	09/16/89

ANALYTE	CRQL								
3-Nitroaniline	1600	2000 U	2100 U	2000 U	2000 U	1900 U	2100 U	2000 U	2100 U
Acenaphthene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
2,4-Dinitrophenol	1600	2000 U	2100 U	2000 U	2000 U	1900 U	2100 U	2000 U	2100 U
4-Nitrophenol	1600	3000 U	2100 U	2000 U	2000 U	1900 U	2100 U	2000 U	2100 U
Dibenzofuran	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
2,4-Dinitrotoluene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Diethylphthalate	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
4-Chlorophenyl-phenylether	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Fluorene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
4-Nitroaniline	1600	2000 U	2100 U	2000 U	2000 U	1900 U	2100 U	2000 U	2100 U
4,6-Dinitro-2-methylphenol	1600	2000 U	2100 U	2000 U	2000 U	1900 U	2100 U	2000 U	2100 U
N-Nitrosodiphenylamine	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
4-Bromophenyl-phenylether	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Hexachlorobenzene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Pentachlorophenol	1600	2000 U	2100 U	2000 U	2000 U	1900 U	2100 U	2000 U	2100 U
Phenanthrene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Anthracene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Di-n-butylphthalate	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Fluoranthene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Pyrene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Butylbenzylphthalate	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
3,3'-Dichlorobenzidine	660	820 U	880 U	820 U	820 U	790 U	860 U	840 U	860 U
Benzo(a)Anthracene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Chrysene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
bis(2-Ethylhexyl)phthalate	330	410 U	440 U	410 U	110 J	390 U	430 U	110 J	140 J
Di-n-octylphthalate	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Benzo(b)Fluoranthene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Benzo(k)Fluoranthene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Benzo(a)Pyrene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Indeno(1,2,3-cd)pyrene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Dibenz(a,h)anthracene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U
Benzo(g,h,i,)perylene	330	410 U	440 U	410 U	410 U	390 U	430 U	420 U	430 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	81	75	81	80	84	77	79	77
Associated Method Blank:	GJ081884B20	GJ081884B20	GJ081884B20	GJ081884B20	GH082893C06	GH082893C06	GH086905B06	GH086905B06
Associated Equipment Blank:	"	"	"	"	SAMPLERBLANK01	SAMPLERBLANK01	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* d for Analysis, X = Compounds could not be separated due to coelut

BRSB-0

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	01SB223X3701XX	01SB223X4701XX	01SB224X2201XX	01SB224X4201XX	01SB225X4201XX	01SB225X8201XX	01SB232XX801XX	01SB232X1001XX
	LAB NUMBER:	285642	285641	285526	285527	283380	282800	283664	283666
	DATE SAMPLED:	09/08/89	09/08/89	09/06/89	09/06/89	08/29/89	08/25/89	08/30/89	08/29/89
	DATE EXTRACTED:	09/14/89	09/14/89	09/14/89	09/14/89	08/31/89	08/30/89	09/05/89	09/05/89
	DATE ANALYZED:	09/16/89	09/16/89	09/16/89	09/16/89	09/06/89	08/30/89	09/06/89	09/06/89
ANALYTE	CRQL								
Phenol	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
bis(2-Chloroethyl)ether	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
2-Chlorophenol	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
1,3-Dichlorobenzene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
1,4-Dichlorobenzene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Benzyl alcohol	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
1,2-Dichlorobenzene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
2-Methylphenol	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
bis(2-Chloroisopropyl)ether	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
4-Methylphenol	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
N-Nitroso-di-n-propylamine	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Hexachloroethane	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Nitrobenzene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Isophorone	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
2-Nitrophenol	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
2,4-Dimethylphenol	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Benzoic acid	1600	2000 U	2000 U	2100 U	2000 U	2100 U	2000 U	1800 U	2000 U
bis(2-Chloroethoxy)methane	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
2,4-Dichlorophenol	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
1,2,4-Trichlorobenzene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Naphthalene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
4-Chloroaniline	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Hexacholorobutadiene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
4-Chloro-3-Methylphenol	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
2-Methylnaphthalene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Hexachlorocyclopentadiene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
2,4,6-Trichlorophenol	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
2,4,5-Trichlorophenol	1600	2000 U	2000 U	2100 U	2000 U	2100 U	2000 U	1800 U	2000 U
2-Chloronaphthalene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
2-Nitroaniline	1600	2000 U	2000 U	2100 U	2000 U	2100 U	2000 U	1800 U	2000 U
Dimethylphthalate	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Acenaphthylene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
2,6-Dinitrotoluene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SB223X3701XX	01SB223X4701XX	01SB224X2201XX	01SB224X4201XX	01SB225X4201XX	01SB225X8201XX	01SB232XX801XX	01SB232X1001XX
LAB NUMBER:	285642	285641	285526	285527	283380	282800	283664	283666
DATE SAMPLED:	09/08/89	09/08/89	09/06/89	09/06/89	08/29/89	08/25/89	08/30/89	08/29/89
DATE EXTRACTED:	09/14/89	09/14/89	09/14/89	09/14/89	08/31/89	08/30/89	09/05/89	09/05/89
DATE ANALYZED:	09/16/89	09/16/89	09/16/89	09/16/89	09/06/89	08/30/89	09/06/89	09/06/89

ANALYTE	CRQL								
3-Nitroaniline	1600	2000 U	2000 U	2100 U	2000 U	2100 U	2000 U	1800 U	2000 U
Acenaphthene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
2,4-Dinitrophenol	1600	2000 U	2000 U	2100 U	2000 U	2100 U	2000 U	1800 U	2000 U
4-Nitrophenol	1600	2000 U	2000 U	2100 U	2000 U	2100 U	2000 U	1800 U	2000 U
Dibenzofuran	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
2,4-Dinitrotoluene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Diethylphthalate	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
4-Chlorophenyl-phenylether	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Fluorene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
4-Nitroaniline	1600	2000 U	2000 U	2100 U	2000 U	2100 U	2000 U	1800 U	2000 U
4,6-Dinitro-2-methylphenol	1600	2000 U	2000 U	2100 U	2000 U	2100 U	2000 U	1800 U	2000 U
N-Nitrosodiphenylamine	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
4-Bromophenyl-phenylether	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Hexachlorobenzene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Pentachlorophenol	1600	2000 U	2000 U	2100 U	2000 U	2100 U	2000 U	1800 U	2000 U
Phenanthrene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Anthracene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Di-n-butylphthalate	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Fluoranthene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Pyrene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Butylbenzylphthalate	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
3,3'-Dichlorobenzidine	660	840 U	840 U	850 U	820 U	850 U	820 U	740 U	810 U
Benzo(a)Anthracene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Chrysene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
bis(2-Ethylhexyl)phthalate	330	45 J	200 J	100 J	78 J	50 J	53 J	40 J	62 J
Di-n-octylphthalate	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Benzo(b)Fluoranthene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Benzo(k)Fluoranthene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Benzo(a)Pyrene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Indeno(1,2,3-cd)pyrene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Dibenz(a,h)anthracene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Benzo(g,h,i,)perylene	330	420 U	420 U	420 U	410 U	420 U	410 U	370 U	400 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		79	79	78	81	78	81	89	82
Associated Method Blank:		GH086905B06	GH086905B06	GH086905B06	GH086905B06	GH083492C16	GH083135A20	GH084568A21	GH084568A21
Associated Equipment Blank:		00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS002XXX04XX*	SAMPLERBLANK01	00QS003XXX04XX	00QS002XXX04XX*
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = [illegible] for Analysis, X = Compounds could not be separated due to coelutio[illegible]

BRSB-C6

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SB232X2001XX	01SB233X4201XX	01SB233X7701XX	04SB404X1401XX	04SB404X1901XX	04SB404X4001XX	04SB408X1001XX	04SB408X2401XX
LAB NUMBER:	283665	282492	282485	9262-019	9262-020	9262-023	286538	286540
DATE SAMPLED:	08/30/89	08/24/89	08/24/89	09/19/89	09/19/89	09/19/89	09/12/89	09/12/89
DATE EXTRACTED:	09/05/89	08/29/89	08/29/89	09/20/89	09/20/89	09/29/89	09/16/89	09/16/89
DATE ANALYZED:	09/06/89	08/30/89	08/30/89	09/25/89	09/25/89	10/10/89	09/18/89	09/18/89

ANALYTE	CRQL								
Phenol	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
bis(2-Chloroethyl)ether	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
2-Chlorophenol	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
1,3-Dichlorobenzene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
1,4-Dichlorobenzene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Benzyl alcohol	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
1,2-Dichlorobenzene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
2-Methylphenol	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
bis(2-Chloroisopropyl)ether	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
4-Methylphenol	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
N-Nitroso-di-n-propylamine	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Hexachloroethane	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Nitrobenzene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Isophorone	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
2-Nitrophenol	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
2,4-Dimethylphenol	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Benzoic acid	1600	2000 U	2100 U	1900 U	2100 U	2100 U	2100 U	2000 U	2000 U
bis(2-Chloroethoxy)methane	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
2,4-Dichlorophenol	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
1,2,4-Trichlorobenzene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Naphthalene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
4-Chloroaniline	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Hexachlorobutadiene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
4-Chloro-3-Methylphenol	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
2-Methylnaphthalene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Hexachlorocyclopentadiene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
2,4,6-Trichlorophenol	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
2,4,5-Trichlorophenol	1600	2000 U	2100 U	1900 U	2100 U	2100 U	2100 U	2000 U	2000 U
2-Chloronaphthalene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
2-Nitroaniline	1600	2000 U	2100 U	1900 U	2100 U	2100 U	2100 U	2000 U	2000 U
Dimethylphthalate	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Acenaphthylene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
2,6-Dinitrotoluene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SB232X2001XX	01SB233X4201XX	01SB233X7701XX	04SB404X1401XX	04SB404X1901XX	04SB404X4001XX	04SB408X1001XX	04SB408X2401XX
		LAB NUMBER: 283665	282492	282485	9262-019	9262-020	9262-023	286538	286540
		DATE SAMPLED: 08/30/89	08/24/89	08/24/89	09/19/89	09/19/89	09/19/89	09/12/89	09/12/89
		DATE EXTRACTED: 09/05/89	08/29/89	08/29/89	09/20/89	09/20/89	09/29/89	09/16/89	09/16/89
		DATE ANALYZED: 09/06/89	08/30/89	08/30/89	09/25/89	09/25/89	10/10/89	09/18/89	09/18/89
3-Nitroaniline	1600	2000 U	2100 U	1900 U	2100 U	2100 U	2100 U	2000 U	2000 U
Acenaphthene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
2,4-Dinitrophenol	1600	2000 U	2100 U	1900 U	2100 U	2100 U	2100 U	2000 U	2000 U
4-Nitrophenol	1600	2000 U	2100 U	1900 U	2100 U	2100 U	2100 U	2000 U	2000 U
Dibenzofuran	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
2,4-Dinitrotoluene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Diethylphthalate	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
4-Chlorophenyl-phenylether	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Fluorene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
4-Nitroaniline	1600	2000 U	2100 U	1900 U	2100 U	2100 U	2100 U	2000 U	2000 U
4,6-Dinitro-2-methylphenol	1600	2000 U	2100 U	1900 U	2100 U	2100 U	2100 U	2000 U	2000 U
N-Nitrosodiphenylamine	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
4-Bromophenyl-phenylether	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Hexachlorobenzene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Pentachlorophenol	1600	2000 U	2100 U	1900 U	2100 U	2100 U	2100 U	2000 U	2000 U
Phenanthrene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Anthracene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Di-n-butylphthalate	330	410 U	420 U	390 U	420 U	430 U	780	410 U	410 U
Fluoranthene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Pyrene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Butylbenzylphthalate	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
3,3'-Dichlorobenzidine	660	830 U	850 U	790 U	830 U	860 U	830 U	830 U	830 U
Benzo(a)Anthracene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Chrysene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
bis(2-Ethylhexyl)phthalate	330	55 J	420 U	390 U	420 U	480	420 U	190 J	410 U
Di-n-octylphthalate	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Benzo(b)Fluoranthene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Benzo(k)Fluoranthene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Benzo(a)Pyrene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Indeno(1,2,3-cd)pyrene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Dibenz(a,h)anthracene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Benzo(g,h,i,)perylene	330	410 U	420 U	390 U	420 U	430 U	420 U	410 U	410 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		80	78	84	72	77	79	80	80
Associated Method Blank:		GH084568A21	GJ082893C04	GJ082893C04	A3144	A3144	A3264	GH087364C15	GH087364C15
Associated Equipment Blank:		000S003XXX04XX	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	000S003XXX04XX	000S003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = [illegible] for Analysis, X = Compounds could not be separated due to coelution

BRSB-CS1

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	07SB705X1401XX	07SB705X1901XX	07SB706X0901XX	07SB706X1401XX	08SB809X1801XX	08SB809X3001XX	08SB810X1201XX	08SB810X2001XX
LAB NUMBER:	9262-022	9262-021	9263-018	9263-017	284197	284194	284463	284450
DATE SAMPLED:	09/19/89	09/19/89	09/20/89	09/20/89	08/30/89	08/30/89	08/31/89	08/31/89
DATE EXTRACTED:	09/20/89	09/20/89	09/29/89	09/29/89	09/06/89	09/06/89	09/07/89	09/07/89
DATE ANALYZED:	09/26/89	09/25/89	10/09/89	10/09/89	09/08/89	09/08/89	09/08/89	09/08/89

ANALYTE	CRQL								
Phenol	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
bis(2-Chloroethyl)ether	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
2-Chlorophenol	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
1,3-Dichlorobenzene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
1,4-Dichlorobenzene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Benzyl alcohol	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
1,2-Dichlorobenzene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
2-Methylphenol	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
bis(2-Chloroisopropyl)ether	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
4-Methylphenol	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
N-Nitroso-di-n-propylamine	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Hexachloroethane	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Nitrobenzene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Isophorone	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
2-Nitrophenol	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
2,4-Dimethylphenol	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Benzoic acid	1600	2100 U	2200 U	2100 U	2200 U	2200 U	2100 U	130 J	3400 U
bis(2-Chloroethoxy)methane	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
2,4-Dichlorophenol	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
1,2,4-Trichlorobenzene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Naphthalene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
4-Chloroaniline	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Hexachlorobutadiene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
4-Chloro-3-Methylphenol	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
2-Methylnaphthalene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Hexachlorocyclopentadiene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
2,4,6-Trichlorophenol	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
2,4,5-Trichlorophenol	1600	2100 U	2200 U	2100 U	2200 U	2200 U	2100 U	2100 U	3400 U
2-Chloronaphthalene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
2-Nitroaniline	1600	2100 U	2200 U	2100 U	2200 U	2200 U	2100 U	2100 U	3400 U
Dimethylphthalate	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Acenaphthylene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
2,6-Dinitrotoluene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	07SB705X1401XX	07SB705X1901XX	07SB706X0901XX	07SB706X1401XX	08SB809X1801XX	08SB809X3001XX	08SB810X1201XX	08SB810X2001XX
LAB NUMBER:	9262-022	9262-021	9263-018	9263-017	284197	284194	284463	284450
DATE SAMPLED:	09/19/89	09/19/89	09/20/89	09/20/89	08/30/89	08/30/89	08/31/89	08/31/89
DATE EXTRACTED:	09/20/89	09/20/89	09/29/89	09/29/89	09/06/89	09/06/89	09/07/89	09/07/89
DATE ANALYZED:	09/26/89	09/25/89	10/09/89	10/09/89	09/08/89	09/08/89	09/08/89	09/08/89

ANALYTE	CRQL								
3-Nitroaniline	1600	2100 U	2200 U	2100 U	2200 U	2200 U	2100 U	2100 U	3400 U
Acenaphthene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
2,4-Dinitrophenol	1600	2100 U	2200 U	2100 U	2200 U	2200 U	2100 U	2100 U	3400 U
4-Nitrophenol	1600	2100 U	2200 U	2100 U	2200 U	2200 U	2100 U	2100 U	3400 U
Dibenzofuran	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
2,4-Dinitrotoluene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Diethylphthalate	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
4-Chlorophenyl-phenylether	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Fluorene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
4-Nitroaniline	1600	2100 U	2200 U	2100 U	2200 U	2200 U	2100 U	2100 U	3400 U
4,6-Dinitro-2-methylphenol	1600	2100 U	2200 U	2100 U	2200 U	2200 U	2100 U	2100 U	3400 U
N-Nitrosodiphenylamine	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
4-Bromophenyl-phenylether	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Hexachlorobenzene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Pentachlorophenol	1600	2100 U	2200 U	2100 U	2200 U	2200 U	2100 U	2100 U	3400 U
Phenanthrene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Anthracene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Di-n-butylphthalate	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Fluoranthene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Pyrene	330	420 U	440 U	430 U	440 U	51 J	430 U	440 U	110 J
Butylbenzylphthalate	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
3,3'-Dichlorobenzidine	660	820 U	880 U	850 U	880 U	920 U	860 U	880 U	1400 U
Benzo(a)Anthracene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Chrysene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	87 J
bis(2-Ethylhexyl)phthalate	330	420 U	850	430 U	440 U	110 J	430 U	100 BJ	120 J
Di-n-octylphthalate	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Benzo(b)Fluoranthene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Benzo(k)Fluoranthene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Benzo(a)Pyrene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Indeno(1,2,3-cd)pyrene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Dibenz(a,h)anthracene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U
Benzo(g,h,i,)perylene	330	420 U	440 U	430 U	440 U	460 U	430 U	440 U	700 U

Dilution Factor:	1	1	1	1	1	1	1	2
Percent Solids:	80	75	78	75	72	77	75	94
Associated Method Blank:	A3144	A3144	A3264	A3264	GJ084635C22	GJ084635C22	G2J84925A08	GJ084902C04
Associated Equipment Blank:	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = ...d for Analysis, X = Compounds could not be separated due to coelutio...

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	08SB811X1201XX	09SB905X1301XX	09SB905X1801XX	09SB906X1001XX	09SB906X1801XX	09SB907X1201XX	09SB907X2001XX	09SB908X1001XX
LAB NUMBER:	286767	9263-016	9263-015	281900	281901	281619	281618	281623
DATE SAMPLED:	09/13/89	09/20/89	09/20/89	08/21/89	08/22/89	08/17/89	08/17/89	08/18/89
DATE EXTRACTED:	09/16/89	09/29/89	09/29/89	08/24/89	08/24/89	08/23/89	08/23/89	08/23/89
DATE ANALYZED:	09/18/89	10/07/89	10/09/89	08/25/89	08/25/89	08/25/89	08/25/89	08/27/89

ANALYTE	CRQL								
Phenol	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
bis(2-Chloroethyl)ether	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
2-Chlorophenol	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
1,3-Dichlorobenzene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
1,4-Dichlorobenzene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Benzyl alcohol	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
1,2-Dichlorobenzene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
2-Methylphenol	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
bis(2-Chloroisopropyl)ether	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
4-Methylphenol	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
N-Nitroso-di-n-propylamine	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Hexachloroethane	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Nitrobenzene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Isophorone	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
2-Nitrophenol	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
2,4-Dimethylphenol	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Benzoic acid	1600	2100 U	2000 U	2200 U	2100 U	2000 U	2100 U	2100 U	49 J
bis(2-Chloroethoxy)methane	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
2,4-Dichlorophenol	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
1,2,4-Trichlorobenzene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Naphthalene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
4-Chloroaniline	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Hexachlorobutadiene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
4-Chloro-3-Methylphenol	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
2-Methylnaphthalene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Hexachlorocyclopentadiene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
2,4,6-Trichlorophenol	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
2,4,5-Trichlorophenol	1600	2100 U	2000 U	2200 U	2100 U	2000 U	2100 U	2100 U	2000 U
2-Chloronaphthalene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
2-Nitroaniline	1600	2100 U	2000 U	2200 U	2100 U	2000 U	2100 U	2100 U	2000 U
Dimethylphthalate	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Acenaphthylene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
2,6-Dinitrotoluene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 08SB811X1201XX LAB NUMBER: 286767 DATE SAMPLED: 09/13/89 DATE EXTRACTED: 09/16/89 DATE ANALYZED: 09/18/89	09SB905X1301XX 9263-016 09/20/89 09/29/89 10/07/89	09SB905X1801XX 9263-015 09/20/89 09/29/89 10/09/89	09SB906X1001XX 281900 08/21/89 08/24/89 08/25/89	09SB906X1801XX 281901 08/22/89 08/24/89 08/25/89	09SB907X1201XX 281619 08/17/89 08/23/89 08/25/89	09SB907X2001XX 281618 08/17/89 08/23/89 08/25/89	09SB908X1001XX 281623 08/18/89 08/23/89 08/27/89
3-Nitroaniline	1600	2100 U	2000 U	2200 U	2100 U	2000 U	2100 U	2100 U	2000 U
Acenaphthene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
2,4-Dinitrophenol	1600	2100 U	2000 U	2200 U	2100 U	2000 U	2100 U	2100 U	2000 U
4-Nitrophenol	1600	2100 U	2000 U	2200 U	2100 U	2000 U	2100 U	2100 U	2000 U
Dibenzofuran	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
2,4-Dinitrotoluene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Diethylphthalate	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
4-Chlorophenyl-phenylether	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Fluorene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
4-Nitroaniline	1600	2100 U	2000 U	2200 U	2100 U	2000 U	2100 U	2100 U	2000 U
4,6-Dinitro-2-methylphenol	1600	2100 U	2000 U	2200 U	2100 U	2000 U	2100 U	2100 U	2000 U
N-Nitrosodiphenylamine	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
4-Bromophenyl-phenylether	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Hexachlorobenzene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Pentachlorophenol	1600	2100 U	2000 U	2200 U	2100 U	2000 U	2100 U	2100 U	2000 U
Phenanthrene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Anthracene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Di-n-butylphthalate	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Fluoranthene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Pyrene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Butylbenzylphthalate	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
3,3'-Dichlorobenzidine	660	870 U	800 U	880 U	860 U	820 U	850 U	850 U	820 U
Benzo(a)Anthracene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Chrysene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
bis(2-Ethylhexyl)phthalate	330	1500	410 U	440 U	200 J	83 J	79 J	420 U	120 J
Di-n-octylphthalate	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Benzo(b)Fluoranthene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Benzo(k)Fluoranthene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Benzo(a)Pyrene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Indeno(1,2,3-cd)pyrene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Dibenz(a,h)anthracene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Benzo(g,h,i,)perylene	330	430 U	410 U	440 U	430 U	410 U	420 U	420 U	410 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		76	82	75	77	81	78	78	81
Associated Method Blank:		GH087364C15	A3264	A3264	GH082013A21	GH082013A21	GJ081875B02	GJ081875B02	GJ081875B02
Associated Equipment Blank:		000S003XXX04XX	SAMPLERBLANK02	SAMPLERBLANK02	-	SAMPLERBLANK01	-	-	-
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = Held for Analysis, X = Compounds could not be separated due to coelution

BRSB-CS

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	09SB908X1801XX	11SBX01XX801XX	13SBX01X1001XX	11SBX01X1201XX	13SBX01X2001XX	11SBX02XX601XX	11SBX02X1401XX	13SBX02X1701XX
LAB NUMBER:	281621	281572	287077	281579	287078	281584	281586	281902
DATE SAMPLED:	08/18/89	08/16/89	09/14/89	08/16/89	09/14/89	08/16/89	08/16/89	08/22/89
DATE EXTRACTED:	08/23/89	08/23/89	09/20/89	08/23/89	09/20/89	08/23/89	08/23/89	08/24/89
DATE ANALYZED:	08/25/89	08/25/89	09/20/89	08/25/89	09/20/89	08/25/89	08/25/89	08/28/89

ANALYTE	CRQL								
Phenol	330	410 U	410 U	370 U	390 U	46 J	370 U	420 U	420 U
bis(2-Chloroethyl)ether	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
2-Chlorophenol	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
1,3-Dichlorobenzene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
1,4-Dichlorobenzene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Benzyl alcohol	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
1,2-Dichlorobenzene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
2-Methylphenol	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
bis(2-Chloroisopropyl)ether	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
4-Methylphenol	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
N-Nitroso-di-n-propylamine	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Hexachloroethane	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Nitrobenzene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Isophorone	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
2-Nitrophenol	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
2,4-Dimethylphenol	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Benzoic acid	1600	2000 U	2000 U	1800 U	49 J	2100 U	1800 U	49 J	2000 U
bis(2-Chloroethoxy)methane	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
2,4-Dichlorophenol	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
1,2,4-Trichlorobenzene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Naphthalene	330	410 U	410 U	960	390 U	420 U	370 U	420 U	420 U
4-Chloroaniline	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Hexacholorobutadiene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
4-Chloro-3-Methylphenol	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
2-Methylnaphthalene	330	410 U	410 U	2800	390 U	420 U	370 U	420 U	420 U
Hexachlorocyclopentadiene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
2,4,6-Trichlorophenol	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
2,4,5-Trichlorophenol	1600	2000 U	2000 U	1800 U	1900 U	2100 U	1800 U	2100 U	2000 U
2-Chloronaphthalene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
2-Nitroaniline	1600	2000 U	2000 U	1800 U	1900 U	2100 U	1800 U	2100 U	2000 U
Dimethylphthalate	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Acenaphthylene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
2,6-Dinitrotoluene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	09SB908X1801XX	11SBX01XX801XX	13SBX01X1001XX	11SBX01X1201XX	13SBX01X2001XX	11SBX02XX601XX	11SBX02X1401XX	13SBX02X1701XX
SAMPLE LOCATION:		09SB908X1801XX	11SBX01XX801XX	13SBX01X1001XX	11SBX01X1201XX	13SBX01X2001XX	11SBX02XX601XX	11SBX02X1401XX	13SBX02X1701XX
LAB NUMBER:		281621	281572	287077	281579	287078	281584	281586	281902
DATE SAMPLED:		08/18/89	08/16/89	09/14/89	08/16/89	09/14/89	08/16/89	08/16/89	08/22/89
DATE EXTRACTED:		08/23/89	08/23/89	09/20/89	08/23/89	09/20/89	08/23/89	08/23/89	08/24/89
DATE ANALYZED:		08/25/89	08/25/89	09/20/89	08/25/89	09/20/89	08/25/89	08/25/89	08/28/89
3-Nitroaniline	1600	2000 U	2000 U	1800 U	1900 U	2100 U	1800 U	2100 U	2000 U
Acenaphthene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
2,4-Dinitrophenol	1600	2000 U	2000 U	1800 U	1900 U	2100 U	1800 U	2100 U	2000 U
4-Nitrophenol	1600	2000 U	2000 U	1800 U	1900 U	2100 U	1800 U	2100 U	2000 U
Dibenzofuran	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
2,4-Dinitrotoluene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Diethylphthalate	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
4-Chlorophenyl-phenylether	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Fluorene	330	410 U	410 U	240 J	390 U	420 U	370 U	420 U	420 U
4-Nitroaniline	1600	2000 U	2000 U	1800 U	1900 U	2100 U	1800 U	2100 U	2000 U
4,6-Dinitro-2-methylphenol	1600	2000 U	2000 U	1800 U	1900 U	2100 U	1800 U	2100 U	2000 U
N-Nitrosodiphenylamine	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
4-Bromophenyl-phenylether	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Hexachlorobenzene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Pentachlorophenol	1600	2000 U	2000 U	1800 U	1900 U	2100 U	1800 U	2100 U	2000 U
Phenanthrene	330	410 U	410 U	330 J	390 U	420 U	370 U	420 U	420 U
Anthracene	330	410 U	410 U	54 J	390 U	420 U	370 U	420 U	420 U
Di-n-butylphthalate	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Fluoranthene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Pyrene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Butylbenzylphthalate	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
3,3'-Dichlorobenzidine	660	830 U	820 U	740 U	790 U	850 U	750 U	850 U	840 U
Benzo(a)Anthracene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Chrysene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
bis(2-Ethylhexyl)phthalate	330	410 U	410 U	370 U	180 J	50 J	370 U	79 J	420 U
Di-n-octylphthalate	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Benzo(b)Fluoranthene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Benzo(k)Fluoranthene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Benzo(a)Pyrene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Indeno(1,2,3-cd)pyrene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Dibenz(a,h)anthracene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Benzo(g,h,i,)perylene	330	410 U	410 U	370 U	390 U	420 U	370 U	420 U	420 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		80	81	89	84	78	88	78	79
Associated Method Blank:		GJ081875B02	GJ081884B20	GJ087806B20	GJ081884B20	GH087810B02	GJ081884B20	GJ081884B20	GH082013A21
Associated Equipment Blank:		-	-	SAMPLERBLANK02	-	SAMPLERBLANK02	-	-	SAMPLERBLANK01
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = Held for Analysis, X = Compounds could not be separated due to coelution

BRSB-CS

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	13SBX02X2701XX	13SBX03XX701XX	11SBX03X1201XX	11SBX03X1201XD	13SBX03X2701XX	11SBX03X3001XX	11SBX04X1201XX	11SBX04X2701XX
LAB NUMBER:	281903	282215	281588	281589	282219	281583	282493	282494
DATE SAMPLED:	08/22/89	08/23/89	08/16/89	08/16/89	08/23/89	08/16/89	08/23/89	08/24/89
DATE EXTRACTED:	08/24/89	08/29/89	08/23/89	08/23/89	08/29/89	08/23/89	08/29/89	08/29/89
DATE ANALYZED:	08/28/89	08/30/89	08/26/89	08/26/89	08/30/89	08/25/89	08/30/89	08/30/89

ANALYTE	CRQL								
Phenol	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
bis(2-Chloroethyl)ether	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
2-Chlorophenol	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
1,3-Dichlorobenzene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
1,4-Dichlorobenzene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Benzyl alcohol	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
1,2-Dichlorobenzene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
2-Methylphenol	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
bis(2-Chloroisopropyl)ether	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
4-Methylphenol	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
N-Nitroso-di-n-propylamine	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Hexachloroethane	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Nitrobenzene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Isophorone	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
2-Nitrophenol	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
2,4-Dimethylphenol	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Benzoic acid	1600	2000 U	1600 U	320 J	160 J	2000 U	2000 U	2100 U	2000 U
bis(2-Chloroethoxy)methane	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
2,4-Dichlorophenol	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
1,2,4-Trichlorobenzene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Naphthalene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
4-Chloroaniline	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Hexachlorobutadiene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
4-Chloro-3-Methylphenol	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
2-Methylnaphthalene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Hexachlorocyclopentadiene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
2,4,6-Trichlorophenol	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
2,4,5-Trichlorophenol	1600	2000 U	1600 U	2000 U	2000 U	2000 U	2000 U	2100 U	2000 U
2-Chloronaphthalene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
2-Nitroaniline	1600	2000 U	1600 U	2000 U	2000 U	2000 U	2000 U	2100 U	2000 U
Dimethylphthalate	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Acenaphthylene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
2,6-Dinitrotoluene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	13SBX02X2701XX	13SBX03XX701XX	11SBX03X1201XX	11SBX03X1201XD	13SBX03X2701XX	11SBX03X3001XX	11SBX04X1201XX	11SBX04X2701XX
LAB NUMBER:	281903	282215	281588	281589	282219	281583	282493	282494
DATE SAMPLED:	08/22/89	08/23/89	08/16/89	08/16/89	08/23/89	08/16/89	08/23/89	08/24/89
DATE EXTRACTED:	08/24/89	08/29/89	08/23/89	08/23/89	08/29/89	08/23/89	08/29/89	08/29/89
DATE ANALYZED:	08/28/89	08/30/89	08/26/89	08/26/89	08/30/89	08/25/89	08/30/89	08/30/89

ANALYTE	CRQL								
3-Nitroaniline	1600	2000 U	1600 U	2000 U	2000 U	2000 U	2000 U	2100 U	2000 U
Acenaphthene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
2,4-Dinitrophenol	1600	2000 U	1600 U	2000 U	2000 U	2000 U	2000 U	2100 U	2000 U
4-Nitrophenol	1600	2000 U	1600 U	2000 U	2000 U	2000 U	2000 U	2100 U	2000 U
Dibenzofuran	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
2,4-Dinitrotoluene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Diethylphthalate	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
4-Chlorophenyl-phenylether	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Fluorene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
4-Nitroaniline	1600	2000 U	1600 U	2000 U	2000 U	2000 U	2000 U	2100 U	2000 U
4,6-Dinitro-2-methylphenol	1600	2000 U	1600 U	2000 U	2000 U	2000 U	2000 U	2100 U	2000 U
N-Nitrosodiphenylamine	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
4-Bromophenyl-phenylether	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Hexachlorobenzene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Pentachlorophenol	1600	2000 U	1600 U	2000 U	2000 U	2000 U	2000 U	2100 U	2000 U
Phenanthrene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Anthracene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Di-n-butylphthalate	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Fluoranthene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Pyrene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Butylbenzylphthalate	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
3,3'-Dichlorobenzidine	660	840 U	680 U	840 U	820 U	830 U	840 U	850 U	840 U
Benzo(a)Anthracene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Chrysene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
bis(2-Ethylhexyl)phthalate	330	110 J	340 U	170 J	130 J	53 J	200 J	420 U	420 U
Di-n-octylphthalate	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Benzo(b)Fluoranthene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Benzo(k)Fluoranthene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Benzo(a)Pyrene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Indeno(1,2,3-cd)pyrene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Dibenz(a,h)anthracene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Benzo(g,h,i,)perylene	330	420 U	340 U	420 U	410 U	410 U	420 U	420 U	420 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		79	97	79	81	80	79	78	79
Associated Method Blank:		GH082013A21	GH082893C06	GJ081884B20	GJ081884B20	GJ082893C04	GJ081884B20	GJ082893C04	GJ082893C04
Associated Equipment Blank:		SAMPLERBLANK01	SAMPLERBLANK01	-	-	SAMPLERBLANK01	-	SAMPLERBLANK01	SAMPLERBLANK01
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = Held for Analysis, X = Compounds could not be separated due to coelut[illegible]

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Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01SB209X2601XX	03SB214XX601XX	03SB214X2001XX	03SB214X2001XD	03SB214X3601XX	03SB215X1601XX	03SB215X2201XX	03SB215X3201XX
LAB NUMBER:		9262-018	286523	286531	286533	286529	286535	286537	286536
DATE SAMPLED:		09/19/89	09/11/89	09/11/89	09/11/89	09/11/89	09/12/89	09/12/89	09/12/89
DATE EXTRACTED:		09/21/89	09/16/89	09/16/89	09/16/89	09/16/89	09/16/89	09/16/89	09/16/89
DATE ANALYZED:		09/22/89	09/19/89	09/19/89	09/19/89	09/19/89	09/19/89	09/19/89	09/19/89
ANALYTE	CRQL								
alpha-BHC	8	10 U	8.3 U	10 U	10 U	10 U	8.8 U	9.8 U	9.8 U
beta-BHC	8	10 U	8.3 U	10 U	10 U	10 U	8.8 U	9.8 U	9.8 U
delta-BHC	8	10 U	8.3 U	10 U	10 U	10 U	8.8 U	9.8 U	9.8 U
gamma-BHC (Lindane)	8	10 U	8.3 U	10 U	10 U	10 U	8.8 U	9.8 U	9.8 U
Heptachlor	8	10 U	8.3 U	10 U	10 U	10 U	8.8 U	9.8 U	9.8 U
Aldrin	8	10 U	8.3 U	10 U	10 U	10 U	8.8 U	9.8 U	9.8 U
Heptachlor epoxide	8	10 U	8.3 U	10 U	10 U	10 U	8.8 U	9.8 U	9.8 U
Endosulfan I	8	10 U	8.3 U	10 U	10 U	10 U	8.8 U	9.8 U	9.8 U
Dieldrin	16	20 U	17 U	20 U	20 U	20 U	18 U	20 U	20 U
4,4'-DDE	16	20 U	17 U	20 U	20 U	20 U	18 U	20 U	20 U
Endrin	16	20 U	17 U	20 U	20 U	20 U	18 U	20 U	20 U
Endosulfan II	16	20 U	17 U	20 U	20 U	20 U	18 U	20 U	20 U
4,4'-DDD	16	20 U	17 U	20 U	20 U	20 U	18 U	20 U	20 U
Endosulfan sulfate	16	20 U	17 U	20 U	20 U	20 U	18 U	20 U	20 U
4,4'-DDT	16	20 U	71	20 U	20 U	20 U	18 U	20 U	20 U
Methoxychlor	80	100 U	83 U	100 U	100 U	100 U	88 U	98 U	98 U
Endrin ketone	16	20 U	17 U	20 U	20 U	20 U	18 U	20 U	20 U
alpha-Chlordane	80	100 U	83 U	100 U	100 U	100 U	88 U	98 U	98 U
gamma-Chlordane	80	100 U	83 U	100 U	100 U	100 U	88 U	98 U	98 U
Toxaphene	160	200 U	170 U	200 U	200 U	200 U	180 U	200 U	200 U
Aroclor-1016	80	100 U	83 U	100 U	100 U	100 U	88 U	98 U	98 U
Aroclor-1221	80	100 U	83 U	100 U	100 U	100 U	88 U	98 U	98 U
Aroclor-1232	80	100 U	83 U	100 U	100 U	100 U	88 U	98 U	98 U
Aroclor-1242	80	100 U	83 U	100 U	100 U	100 U	88 U	98 U	98 U
Aroclor-1248	80	100 U	83 U	100 U	100 U	100 U	88 U	98 U	98 U
Aroclor-1254	160	200 U	170 U	200 U	200 U	200 U	180 U	200 U	200 U
Aroclor-1260	160	200 U	170 U	200 U	200 U	200 U	180 U	200 U	200 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		76	96	79	80	80	91	82	82
Associated Method Blank:		SPJ013	287364	287364	287364	287364	287364	287364	287364
Associated Equipment Blank:		SAMPLERBLANK02	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = Held for Analysis.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SB216X1201XX	01SB216X1401XX	01SB216X2901XX	01SB216X2901XD	01SB217X1001XX	01SB217X2401XX	01SB217X3401XX	01SB217X3401XD
LAB NUMBER:	283358	283359	283360	283361	287417	287413	287424	287429
DATE SAMPLED:	08/29/89	08/29/89	08/29/89	08/29/89	09/14/89	09/15/89	09/15/89	09/15/89
DATE EXTRACTED:	08/31/89	08/31/89	08/31/89	08/31/89	09/20/89	09/20/89	09/20/89	09/20/89
DATE ANALYZED:	09/01/89	09/01/89	09/01/89	09/01/89	09/23/89	09/23/89	09/23/89	09/23/89

ANALYTE	CRQL							
alpha-BHC	8	9.4 U	10 U	9.9 U	10 U	9.5 U	10 U	9.9 U	10 U
beta-BHC	8	9.4 U	10 U	9.9 U	10 U	9.5 U	10 U	9.9 U	10 U
delta-BHC	8	9.4 U	10 U	9.9 U	10 U	9.5 U	10 U	9.9 U	10 U
gamma-BHC (Lindane)	8	9.4 U	10 U	9.9 U	10 U	9.5 U	10 U	9.9 U	10 U
Heptachlor	8	9.4 U	10 U	9.9 U	10 U	9.5 U	10 U	9.9 U	10 U
Aldrin	8	9.4 U	10 U	9.9 U	10 U	9.5 U	10 U	9.9 U	10 U
Heptachlor epoxide	8	9.4 U	10 U	9.9 U	10 U	9.5 U	10 U	9.9 U	10 U
Endosulfan I	8	9.4 U	10 U	9.9 U	10 U	9.5 U	10 U	9.9 U	10 U
Dieldrin	16	19 U	20 U	20 U	20 U	19 U	20 U	20 U	20 U
4,4'-DDE	16	19 U	20 U	20 U	20 U	19 U	20 U	20 U	20 U
Endrin	16	19 U	20 U	20 U	20 U	19 U	20 U	20 U	20 U
Endosulfan II	16	19 U	20 U	20 U	20 U	19 U	20 U	20 U	20 U
4,4'-DDD	16	19 U	20 U	20 U	20 U	19 U	20 U	20 U	20 U
Endosulfan sulfate	16	19 U	20 U	20 U	20 U	19 U	20 U	20 U	20 U
4,4'-DDT	16	19 U	20 U	20 U	20 U	19 U	20 U	20 U	20 U
Methoxychlor	80	94 U	100 U	99 U	100 U	95 U	100 U	99 U	100 U
Endrin ketone	16	19 U	20 U	20 U	20 U	19 U	20 U	20 U	20 U
alpha-Chlordane	80	94 U	100 U	99 U	100 U	95 U	100 U	99 U	100 U
gamma-Chlordane	80	94 U	100 U	99 U	100 U	95 U	100 U	99 U	100 U
Toxaphene	160	190 U	200 U	200 U	200 U	190 U	200 U	200 U	200 U
Aroclor-1016	80	94 U	100 U	99 U	100 U	95 U	100 U	99 U	100 U
Aroclor-1221	80	94 U	100 U	99 U	100 U	95 U	100 U	99 U	100 U
Aroclor-1232	80	94 U	100 U	99 U	100 U	95 U	100 U	99 U	100 U
Aroclor-1242	80	94 U	100 U	99 U	100 U	95 U	100 U	99 U	100 U
Aroclor-1248	80	94 U	100 U	99 U	100 U	95 U	100 U	99 U	100 U
Aroclor-1254	160	190 U	200 U	200 U	200 U	190 U	200 U	200 U	200 U
Aroclor-1260	160	190 U	200 U	200 U	200 U	190 U	200 U	200 U	200 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		85	78	81	79	84	79	81	80
Associated Method Blank:		283501	283501	283501	283501	287810	287810	287810	287810
Associated Equipment Blank:		00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SB218X4701XX	01SB218X6701XX	01SB219X5201XX	01SB219X6201XX	01SB220XX701XX	01SB220X1701XX	01SB222X2201XX	01SB222X3301XX
LAB NUMBER:	281587	281585	281616	281611	282226	282234	285521	285525
DATE SAMPLED:	08/16/89	08/16/89	08/17/89	08/17/89	08/22/89	08/22/89	09/07/89	09/07/89
DATE EXTRACTED:	08/23/89	08/23/89	08/23/89	08/23/89	08/29/89	08/29/89	09/14/89	09/14/89
DATE ANALYZED:	08/26/89	08/26/89	08/26/89	08/26/89	08/30/89	08/30/89	09/19/89	09/19/89

ANALYTE	CRQL								
alpha-BHC	8	9.9 U	11 U	9.9 U	10 U	9.5 U	10 U	10 U	10 U
beta-BHC	8	9.9 U	11 U	9.9 U	10 U	9.5 U	10 U	10 U	10 U
delta-BHC	8	9.9 U	11 U	9.9 U	10 U	9.5 U	10 U	10 U	10 U
gamma-BHC (Lindane)	8	9.9 U	11 U	9.9 U	10 U	9.5 U	10 U	10 U	10 U
Heptachlor	8	9.9 U	11 U	9.9 U	10 U	9.5 U	10 U	10 U	10 U
Aldrin	8	9.9 U	11 U	9.9 U	10 U	9.5 U	10 U	10 U	10 U
Heptachlor epoxide	8	9.9 U	11 U	9.9 U	10 U	9.5 U	10 U	10 U	10 U
Endosulfan I	8	9.9 U	11 U	9.9 U	10 U	9.5 U	10 U	10 U	10 U
Dieldrin	16	20 U	21 U	20 U	20 U	19 U	21 U	20 U	21 U
4,4'-DDE	16	20 U	21 U	20 U	20 U	19 U	21 U	20 U	21 U
Endrin	16	20 U	21 U	20 U	20 U	19 U	21 U	20 U	21 U
Endosulfan II	16	20 U	21 U	20 U	20 U	19 U	21 U	20 U	21 U
4,4'-DDD	16	20 U	21 U	20 U	20 U	19 U	21 U	20 U	21 U
Endosulfan sulfate	16	20 U	21 U	20 U	20 U	19 U	21 U	20 U	21 U
4,4'-DDT	16	20 U	21 U	20 U	20 U	19 U	21 U	20 U	21 U
Methoxychlor	80	99 U	110 U	99 U	100 U	95 U	100 U	100 U	100 U
Endrin ketone	16	20 U	21 U	20 U	20 U	19 U	21 U	20 U	21 U
alpha-Chlordane	80	99 U	110 U	99 U	100 U	95 U	100 U	100 U	100 U
gamma-Chlordane	80	99 U	110 U	99 U	100 U	95 U	100 U	100 U	100 U
Toxaphene	160	200 U	210 U	200 U	200 U	190 U	210 U	200 U	210 U
Aroclor-1016	80	99 U	110 U	99 U	100 U	95 U	100 U	100 U	100 U
Aroclor-1221	80	99 U	110 U	99 U	100 U	95 U	100 U	100 U	100 U
Aroclor-1232	80	99 U	110 U	99 U	100 U	95 U	100 U	100 U	100 U
Aroclor-1242	80	99 U	110 U	99 U	100 U	95 U	100 U	100 U	100 U
Aroclor-1248	80	99 U	110 U	99 U	100 U	95 U	100 U	100 U	100 U
Aroclor-1254	160	200 U	210 U	200 U	200 U	190 U	210 U	200 U	210 U
Aroclor-1260	160	200 U	210 U	200 U	200 U	190 U	210 U	200 U	210 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	81	75	81	80	84	77	79	77
Associated Method Blank:	281884	281884	281884	281884	282893	282893	286906	286906
Associated Equipment Blank:	-	-	-	-	SAMPLERBLANK01	SAMPLERBLANK01	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = Held for Analysis.

BRSB-CP

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01SB223X3701XX	01SB223X4701XX	01SB224X2201XX	01SB224X4201XX	01SB225X4201XX	01SB225X8201XX	01SB232XX801XX	01SB232X1001XX
LAB NUMBER:		285642	285641	285526	285527	283380	282800	283664	283666
DATE SAMPLED:		09/08/89	09/08/89	09/06/89	09/06/89	08/29/89	08/25/89	08/30/89	08/29/89
DATE EXTRACTED:		09/14/89	09/14/89	09/14/89	09/14/89	08/31/89	08/30/89	09/07/89	09/12/89
DATE ANALYZED:		09/19/89	09/19/89	09/19/89	09/19/89	09/05/89	08/31/89	09/09/89	09/13/89
ANALYTE	CRQL								
alpha-BHC	8	10 U	10 U	10 U	9.9 U	10 U	9.9 U	9 U	9.8 U
beta-BHC	8	10 U	10 U	10 U	9.9 U	10 U	9.9 U	9 U	9.8 U
delta-BHC	8	10 U	10 U	10 U	9.9 U	10 U	9.9 U	9 U	9.8 U
gamma-BHC (Lindane)	8	10 U	10 U	10 U	9.9 U	10 U	9.9 U	9 U	9.8 U
Heptachlor	8	10 U	10 U	10 U	9.9 U	10 U	9.9 U	9 U	9.8 U
Aldrin	8	10 U	10 U	10 U	9.9 U	10 U	9.9 U	9 U	9.8 U
Heptachlor epoxide	8	10 U	10 U	10 U	9.9 U	10 U	9.9 U	9 U	9.8 U
Endosulfan I	8	10 U	10 U	10 U	9.9 U	10 U	9.9 U	9 U	9.8 U
Dieldrin	16	20 U	20 U	20 U	20 U	20 U	20 U	18 U	20 U
4,4'-DDE	16	20 U	20 U	20 U	20 U	20 U	20 U	18 U	20 U
Endrin	16	20 U	20 U	20 U	20 U	20 U	20 U	18 U	20 U
Endosulfan II	16	20 U	20 U	20 U	20 U	20 U	20 U	18 U	20 U
4,4'-DDD	16	20 U	20 U	20 U	20 U	20 U	20 U	18 U	20 U
Endosulfan sulfate	16	20 U	20 U	20 U	20 U	20 U	20 U	18 U	20 U
4,4'-DDT	16	20 U	20 U	20 U	20 U	20 U	20 U	18 U	20 U
Methoxychlor	80	100 U	100 U	100 U	99 U	100 U	99 U	90 U	98 U
Endrin ketone	16	20 U	20 U	20 U	20 U	20 U	20 U	18 U	20 U
alpha-Chlordane	80	100 U	100 U	100 U	99 U	100 U	99 U	90 U	98 U
gamma-Chlordane	80	100 U	100 U	100 U	99 U	100 U	99 U	90 U	98 U
Toxaphene	160	200 U	200 U	200 U	200 U	200 U	200 U	180 U	200 U
Aroclor-1016	80	100 U	100 U	100 U	99 U	100 U	99 U	90 U	98 U
Aroclor-1221	80	100 U	100 U	100 U	99 U	100 U	99 U	90 U	98 U
Aroclor-1232	80	100 U	100 U	100 U	99 U	100 U	99 U	90 U	98 U
Aroclor-1242	80	100 U	100 U	100 U	99 U	100 U	99 U	90 U	98 U
Aroclor-1248	80	100 U	100 U	100 U	99 U	100 U	99 U	90 U	98 U
Aroclor-1254	160	200 U	200 U	200 U	200 U	200 U	200 U	180 U	200 U
Aroclor-1260	160	200 U	200 U	200 U	200 U	200 U	200 U	180 U	200 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		79	79	78	81	78	81	89	82
Associated Method Blank:		286906	286906	286906	286906	283492	283135	285177	286364
Associated Equipment Blank:		00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS002XXX04XX*	SAMPLERBLANK01	00QS003XXX04XX	00QS002XXX04XX*
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SB232X2001XX	01SB233X4201XX	01SB233X7701XX	04SB404X1401XX	04SB404X1901XX	04SB404X4001XX	04SB408X1001XX	04SB408X2401XX
LAB NUMBER:		283665	282492	282485	9262-019	9262-020	9262-023	286538	286540
DATE SAMPLED:		08/30/89	08/24/89	08/24/89	09/19/89	09/19/89	09/19/89	09/12/89	09/12/89
DATE EXTRACTED:		09/07/89	08/29/89	08/29/89	09/21/89	09/21/89	09/21/89	09/16/89	09/16/89
DATE ANALYZED:		09/09/89	08/31/89	08/31/89	09/22/89	09/22/89	09/23/89	09/19/89	09/19/89
alpha-BHC	8	10 U	10 U	9.5 U	10 U	10 U	10 U	10 U	10 U
beta-BHC	8	10 U	10 U	9.5 U	10 U	10 U	10 U	10 U	10 U
delta-BHC	8	10 U	10 U	9.5 U	10 U	10 U	10 U	10 U	10 U
gamma-BHC (Lindane)	8	10 U	10 U	9.5 U	10 U	10 U	10 U	10 U	10 U
Heptachlor	8	10 U	10 U	9.5 U	10 U	10 U	10 U	10 U	10 U
Aldrin	8	10 U	10 U	9.5 U	10 U	10 U	10 U	10 U	10 U
Heptachlor epoxide	8	10 U	10 U	9.5 U	10 U	10 U	10 U	10 U	10 U
Endosulfan I	8	10 U	10 U	9.5 U	10 U	10 U	10 U	10 U	10 U
Dieldrin	16	20 U	20 U	19 U	20 U	21 U	20 U	20 U	20 U
4,4'-DDE	16	20 U	20 U	19 U	20 U	21 U	20 U	20 U	20 U
Endrin	16	20 U	20 U	19 U	20 U	21 U	20 U	20 U	20 U
Endosulfan II	16	20 U	20 U	19 U	20 U	21 U	20 U	20 U	20 U
4,4'-DDD	16	20 U	20 U	19 U	20 U	21 U	20 U	20 U	20 U
Endosulfan sulfate	16	20 U	20 U	19 U	20 U	21 U	20 U	20 U	20 U
4,4'-DDT	16	20 U	20 U	19 U	20 U	21 U	20 U	20 U	20 U
Methoxychlor	80	100 U	100 U	95 U	100 U	100 U	100 U	100 U	100 U
Endrin ketone	16	20 U	20 U	19 U	20 U	21 U	20 U	20 U	20 U
alpha-Chlordane	80	100 U	100 U	95 U	100 U	100 U	100 U	100 U	100 U
gamma-Chlordane	80	100 U	100 U	95 U	100 U	100 U	100 U	100 U	100 U
Toxaphene	160	200 U	200 U	190 U	200 U	210 U	200 U	200 U	200 U
Aroclor-1016	80	100 U	100 U	95 U	100 U	100 U	100 U	100 U	100 U
Aroclor-1221	80	100 U	100 U	95 U	100 U	100 U	100 U	100 U	100 U
Aroclor-1232	80	100 U	100 U	95 U	100 U	100 U	100 U	100 U	100 U
Aroclor-1242	80	100 U	100 U	95 U	100 U	100 U	100 U	100 U	100 U
Aroclor-1248	80	100 U	100 U	95 U	100 U	100 U	100 U	100 U	100 U
Aroclor-1254	160	200 U	200 U	190 U	200 U	210 U	200 U	200 U	200 U
Aroclor-1260	160	200 U	200 U	190 U	200 U	210 U	200 U	200 U	200 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		80	78	84	72	77	79	80	80
Associated Method Blank:		285177	282893	282893	SPJ013	SPJ013	SPJ013	287364	287364
Associated Equipment Blank:		00QS003XXX04XX	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		07SB705X1401XX	07SB705X1901XX	07SB706X0901XX	07SB706X1401XX	08SB809X1801XX	08SB809X3001XX	08SB810X1201XX	08SB810X2001XX
LAB NUMBER:		9262-022	9262-021	9263-018	9263-017	284197	284194	284463	284450
DATE SAMPLED:		09/19/89	09/19/89	09/20/89	09/20/89	08/30/89	08/30/89	08/31/89	08/30/89
DATE EXTRACTED:		09/21/89	09/21/89	09/25/89	09/25/89	09/06/89	09/06/89	09/07/89	09/07/89
DATE ANALYZED:		09/22/89	09/22/89	09/28/89	09/27/89	09/12/89	09/13/89	09/10/89	09/08/89
ANALYTE	CRQL								
alpha-BHC	8	10 U	11 U	10 U	11 U	11 U	10 U	11 U	8.5 U
beta-BHC	8	10 U	11 U	10 U	11 U	11 U	10 U	11 U	8.5 U
delta-BHC	8	10 U	11 U	10 U	11 U	11 U	10 U	11 U	8.5 U
gamma-BHC (Lindane)	8	10 U	11 U	10 U	11 U	11 U	10 U	11 U	8.5 U
Heptachlor	8	10 U	11 U	10 U	11 U	11 U	10 U	11 U	8.5 U
Aldrin	8	10 U	11 U	10 U	11 U	11 U	10 U	11 U	8.5 U
Heptachlor epoxide	8	10 U	11 U	10 U	11 U	11 U	10 U	11 U	8.5 U
Endosulfan I	8	10 U	11 U	10 U	11 U	11 U	10 U	11 U	8.5 U
Dieldrin	16	20 U	21 U	21 U	21 U	22 U	21 U	21 U	17 U
4,4'-DDE	16	20 U	21 U	21 U	21 U	22 U	21 U	21 U	17 U
Endrin	16	20 U	21 U	21 U	21 U	22 U	21 U	21 U	17 U
Endosulfan II	16	20 U	21 U	21 U	21 U	22 U	21 U	21 U	17 U
4,4'-DDD	16	20 U	21 U	21 U	21 U	22 U	21 U	21 U	17 U
Endosulfan sulfate	16	20 U	21 U	21 U	21 U	22 U	21 U	21 U	17 U
4,4'-DDT	16	20 U	21 U	21 U	21 U	22 U	21 U	21 U	17 U
Methoxychlor	80	100 U	110 U	100 U	110 U	110 U	100 U	110 U	85 U
Endrin ketone	16	20 U	21 U	21 U	21 U	22 U	21 U	21 U	17 U
alpha-Chlordane	80	100 U	110 U	100 U	110 U	110 U	100 U	110 U	85 U
gamma-Chlordane	80	100 U	110 U	100 U	110 U	110 U	100 U	110 U	85 U
Toxaphene	160	200 U	210 U	210 U	210 U	220 U	210 U	210 U	170 U
Aroclor-1016	80	100 U	110 U	100 U	110 U	110 U	100 U	110 U	85 U
Aroclor-1221	80	100 U	110 U	100 U	110 U	110 U	100 U	110 U	85 U
Aroclor-1232	80	100 U	110 U	100 U	110 U	110 U	100 U	110 U	85 U
Aroclor-1242	80	100 U	110 U	100 U	110 U	110 U	100 U	110 U	85 U
Aroclor-1248	80	100 U	110 U	100 U	110 U	110 U	100 U	110 U	85 U
Aroclor-1254	160	200 U	210 U	210 U	210 U	220 U	210 U	210 U	170 U
Aroclor-1260	160	200 U	210 U	210 U	210 U	220 U	210 U	210 U	170 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		80	75	78	75	72	77	75	94
Associated Method Blank:		SPJ013	SPJ013	SPN013	SPN013	284635	284635	284925	284902
Associated Equipment Blank:		SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	08SB811X1201XX	09SB905X1301XX	09SB905X1801XX	09SB906X1001XX	09SB906X1801XX	09SB907X1201XX	09SB907X2001XX	09SB908X1001XX
LAB NUMBER:	286767	9263-016	9263-015	281900	281901	281619	281618	281623
DATE SAMPLED:	09/13/89	09/20/89	09/20/89	08/21/89	08/22/89	08/17/89	08/17/89	08/18/89
DATE EXTRACTED:	09/16/89	09/25/89	09/25/89	08/24/89	08/24/89	08/23/89	08/23/89	08/23/89
DATE ANALYZED:	09/20/89	09/27/89	09/27/89	08/26/89	08/26/89	08/27/89	08/27/89	08/25/89

ANALYTE	CRQL								
alpha-BHC	8	10 U	9.8 U	11 U	10 U	9.9 U	10 U	10 U	9.8 U
beta-BHC	8	10 U	9.8 U	11 U	10 U	9.9 U	10 U	10 U	9.8 U
delta-BHC	8	10 U	9.8 U	11 U	10 U	9.9 U	10 U	10 U	9.8 U
gamma-BHC (Lindane)	8	10 U	9.8 U	11 U	10 U	9.9 U	10 U	10 U	9.8 U
Heptachlor	8	10 U	9.8 U	11 U	10 U	9.9 U	10 U	10 U	9.8 U
Aldrin	8	10 U	9.8 U	11 U	10 U	9.9 U	10 U	10 U	9.8 U
Heptachlor epoxide	8	10 U	9.8 U	11 U	10 U	9.9 U	10 U	10 U	9.8 U
Endosulfan I	8	10 U	9.8 U	11 U	10 U	9.9 U	10 U	10 U	9.8 U
Dieldrin	16	21 U	20 U	21 U	21 U	20 U	20 U	20 U	20 U
4,4'-DDE	16	21 U	20 U	21 U	21 U	20 U	20 U	20 U	20 U
Endrin	16	21 U	20 U	21 U	21 U	20 U	20 U	20 U	20 U
Endosulfan II	16	21 U	20 U	21 U	21 U	20 U	20 U	20 U	20 U
4,4'-DDD	16	21 U	20 U	21 U	21 U	20 U	20 U	20 U	20 U
Endosulfan sulfate	16	21 U	20 U	21 U	21 U	20 U	20 U	20 U	20 U
4,4'-DDT	16	21 U	20 U	110 U	21 U	20 U	20 U	20 U	20 U
Methoxychlor	80	100 U	98 U	21 U	100 U	99 U	100 U	100 U	98 U
Endrin ketone	16	21 U	20 U	110 U	21 U	20 U	20 U	20 U	20 U
alpha-Chlordane	80	100 U	98 U	110 U	100 U	99 U	100 U	100 U	98 U
gamma-Chlordane	80	100 U	98 U	210 U	100 U	99 U	100 U	100 U	98 U
Toxaphene	160	210 U	200 U	110 U	210 U	200 U	200 U	200 U	200 U
Aroclor-1016	80	100 U	98 U	110 U	100 U	99 U	100 U	100 U	98 U
Aroclor-1221	80	100 U	98 U	110 U	100 U	99 U	100 U	100 U	98 U
Aroclor-1232	80	100 U	98 U	110 U	100 U	99 U	100 U	100 U	98 U
Aroclor-1242	80	100 U	98 U	110 U	100 U	99 U	100 U	100 U	98 U
Aroclor-1248	80	100 U	98 U	110 U	100 U	99 U	100 U	100 U	98 U
Aroclor-1254	160	210 U	200 U	210 U	210 U	200 U	200 U	200 U	200 U
Aroclor-1260	160	210 U	200 U	210 U	210 U	200 U	200 U	200 U	200 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		76	82	75	77	81	78	78	81
Associated Method Blank:		287364	SPN013	SPN013	282013	282013	281874	281874	281874
Associated Equipment Blank:		00QS003XXX04XX	SAMPLERBLANK02	SAMPLERBLANK02	-	SAMPLERBLANK01	-	-	-
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		09SB908X1801XX	11SBX01XX801XX	13SBX01X1001XX	11SBX01X1201XX	13SBX01X2001XX	11SBX02XX601XX	11SBX02X1401XX	13SBX02X1701XX
LAB NUMBER:		281621	281572	287077	281579	287078	281584	281586	281902
DATE SAMPLED:		08/18/89	08/16/89	09/14/89	08/16/89	09/14/89	08/16/89	08/16/89	08/22/89
DATE EXTRACTED:		08/23/89	08/23/89	09/20/89	08/23/89	09/20/89	08/23/89	08/23/89	08/24/89
DATE ANALYZED:		08/27/89	08/26/89	09/22/89	08/26/89	09/23/89	08/26/89	08/26/89	08/26/89
ANALYTE	CRQL								
alpha-BHC	8	9.9 U	9.9 U	9 U	9.5 U	10 U	9.1 U	10 U	10 U
beta-BHC	8	9.9 U	9.9 U	9 U	9.5 U	10 U	9.1 U	10 U	10 U
delta-BHC	8	9.9 U	9.9 U	9 U	9.5 U	10 U	9.1 U	10 U	10 U
gamma-BHC (Lindane)	8	9.9 U	9.9 U	9 U	9.5 U	10 U	9.1 U	10 U	10 U
Heptachlor	8	9.9 U	9.9 U	9 U	9.5 U	10 U	9.1 U	10 U	10 U
Aldrin	8	9.9 U	9.9 U	9 U	9.5 U	10 U	9.1 U	10 U	10 U
Heptachlor epoxide	8	9.9 U	9.9 U	9 U	9.5 U	10 U	9.1 U	10 U	10 U
Endosulfan I	8	9.9 U	9.9 U	9 U	9.5 U	10 U	9.1 U	10 U	10 U
Dieldrin	16	20 U	20 U	18 U	19 U	20 U	18 U	20 U	20 U
4,4'-DDE	16	20 U	20 U	18 U	19 U	20 U	18 U	20 U	20 U
Endrin	16	20 U	20 U	18 U	19 U	20 U	18 U	20 U	20 U
Endosulfan II	16	20 U	20 U	18 U	19 U	20 U	18 U	20 U	20 U
4,4'-DDD	16	20 U	20 U	18 U	19 U	20 U	18 U	20 U	20 U
Endosulfan sulfate	16	20 U	20 U	18 U	19 U	20 U	18 U	20 U	20 U
4,4'-DDT	16	20 U	20 U	18 U	19 U	20 U	18 U	20 U	20 U
Methoxychlor	80	99 U	99 U	90 U	95 U	100 U	91 U	100 U	100 U
Endrin ketone	16	20 U	20 U	18 U	19 U	20 U	18 U	20 U	20 U
alpha-Chlordane	80	99 U	99 U	90 U	95 U	100 U	91 U	100 U	100 U
gamma-Chlordane	80	99 U	99 U	90 U	95 U	100 U	91 U	100 U	100 U
Toxaphene	160	200 U	200 U	180 U	190 U	200 U	180 U	200 U	200 U
Aroclor-1016	80	99 U	99 U	90 U	95 U	100 U	91 U	100 U	100 U
Aroclor-1221	80	99 U	99 U	90 U	95 U	100 U	91 U	100 U	100 U
Aroclor-1232	80	99 U	99 U	90 U	95 U	100 U	91 U	100 U	100 U
Aroclor-1242	80	99 U	99 U	90 U	95 U	100 U	91 U	100 U	100 U
Aroclor-1248	80	99 U	99 U	90 U	95 U	100 U	91 U	100 U	100 U
Aroclor-1254	160	200 U	200 U	180 U	190 U	200 U	180 U	200 U	200 U
Aroclor-1260	160	200 U	200 U	180 U	190 U	200 U	180 U	200 U	200 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		80	81	89	84	78	88	78	79
Associated Method Blank:		281874	281884	287807	281884	287810	281884	281884	282013
Associated Equipment Blank:		-	-	SAMPLERBLANK02	-	SAMPLERBLANK02	-	-	SAMPLERBLANK01
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 13SBX02X2701XX	13SBX03XX701XX	11SBX03X1201XX	11SBX03X1201XD	13SBX03X2701XX	11SBX03X3001XX	11SBX04X1201XX	11SBX04X2701XX
		LAB NUMBER: 281903	282215	281588	281589	282219	281583	282493	282494
		DATE SAMPLED: 08/22/89	08/23/89	08/16/89	08/16/89	08/23/89	08/16/89	08/24/89	08/24/89
		DATE EXTRACTED: 08/24/89	08/29/89	08/23/89	08/23/89	08/29/89	08/23/89	08/29/89	08/29/89
		DATE ANALYZED: 08/26/89	08/30/89	08/26/89	08/26/89	08/30/89	08/26/89	08/31/89	08/31/89
alpha-BHC	8	10 U	8.2 U	10 U	9.9 U	10 U	10 U	10 U	10 U
beta-BHC	8	10 U	8.2 U	10 U	9.9 U	10 U	10 U	10 U	10 U
delta-BHC	8	10 U	8.2 U	10 U	9.9 U	10 U	10 U	10 U	10 U
gamma-BHC (Lindane)	8	10 U	8.2 U	10 U	9.9 U	10 U	10 U	10 U	10 U
Heptachlor	8	10 U	8.2 U	10 U	9.9 U	10 U	10 U	10 U	10 U
Aldrin	8	10 U	8.2 U	10 U	9.9 U	10 U	10 U	10 U	10 U
Heptachlor epoxide	8	10 U	8.2 U	10 U	9.9 U	10 U	10 U	10 U	10 U
Endosulfan I	8	10 U	8.2 U	10 U	9.9 U	10 U	10 U	10 U	10 U
Dieldrin	16	20 U	16 U	20 U	20 U	20 U	20 U	20 U	20 U
4,4'-DDE	16	20 U	16 U	20 U	20 U	20 U	20 U	20 U	20 U
Endrin	16	20 U	16 U	20 U	20 U	20 U	20 U	20 U	20 U
Endosulfan II	16	20 U	16 U	20 U	20 U	20 U	20 U	20 U	20 U
4,4'-DDD	16	20 U	16 U	20 U	20 U	20 U	20 U	20 U	20 U
Endosulfan sulfate	16	20 U	16 U	20 U	20 U	20 U	20 U	20 U	20 U
4,4'-DDT	16	20 U	16 U	20 U	20 U	20 U	20 U	20 U	20 U
Methoxychlor	80	100 U	82 U	100 U	99 U	100 U	100 U	100 U	100 U
Endrin ketone	16	20 U	16 U	20 U	20 U	20 U	20 U	20 U	20 U
alpha-Chlordane	80	100 U	82 U	100 U	99 U	100 U	100 U	100 U	100 U
gamma-Chlordane	80	100 U	82 U	100 U	99 U	100 U	100 U	100 U	100 U
Toxaphene	160	200 U	160 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1016	80	100 U	82 U	100 U	99 U	100 U	100 U	100 U	100 U
Aroclor-1221	80	100 U	82 U	100 U	99 U	100 U	100 U	100 U	100 U
Aroclor-1232	80	100 U	82 U	100 U	99 U	100 U	100 U	100 U	100 U
Aroclor-1242	80	100 U	82 U	100 U	99 U	100 U	100 U	100 U	100 U
Aroclor-1248	80	100 U	82 U	100 U	99 U	100 U	100 U	100 U	100 U
Aroclor-1254	160	200 U	160 U	200 U	200 U	200 U	200 U	200 U	200 U
Aroclor-1260	160	200 U	160 U	200 U	200 U	200 U	200 U	200 U	200 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		79	97	79	81	80	79	78	79
Associated Method Blank:		282013	282893	281884	281884	282893	281884	282893	282893
Associated Equipment Blank:		SAMPLERBLANK01	SAMPLERBLANK01	-	-	SAMPLERBLANK01	-	SAMPLERBLANK01	SAMPLERBLANK01
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = Held for Analysis.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	11HAX01XX201XX	11HAX01XX401XX	11HAX02XX201XX	11HAX02XX401XX	11HAX03XX201XX	11HAX03XX401XX	11HAX04XX201XX	11HAX04XX401XX
	LAB NUMBER:	290114	290113	290116	290115	290111	290110	290112	290102
	DATE SAMPLED:	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89
ANALYTE	CRQL								
Aluminum	40	7520	6910	7250	10200	7090	8790	6980	5910
Antimony	12	10.5 U	11.1 U	10.4 U	11.3 U	10.9 U	10.6 U	10.8 U	10.7 U
Arsenic	2	1.5 []	1.5 []	1.7 []	2.2	1.5 []	2 []	2.8	1.5 [] W
Barium	40	24.5 []E	26.3 []E	70.6 E	36.7 []E	39.2 []E	32.2 []E	17.6 []E	10.9 []E
Beryllium	1	0.15 U	0.15 U	0.15 U	0.59 []	0.15 U	0.55 []	0.15 U	0.15 U
Cadmium	1	0.92 UN	0.97 UN	0.91 UN	0.99 UN	2.3 N	0.96 []N	0.95 UN	0.94 UN
Calcium	1000	851 []	1110	1000 []	1110 []	712 []	820 []	971 []	774 []
Chromium	2	11.9	10	19.8	17.9	9.3	16.1	9.1	6.1
Cobalt	10	7 []	7.5 []	7.8 []	10.4 []	6.4 []	11.6	5.5 []	6.5 []
Copper	5	12.5	8.9	16.6	13.5	17.5	5.7	5.8	2.2 []
Iron	20	10600	10100	11400	14200	91	14300	7990	7630
Lead	1	2.9	2.8	66 *	7.7	11.7	3.4	9.9	3.6
Magnesium	1000	3100	3120	3230	4530	2130	4410	1680	1710
Manganese	3	127	129	143	177	128	172	119	127
Mercury	0.04	0.1 UN	0.11 UN	0.1 UN	0.11 UN	0.11 UN	0.1 UN	0.11 UN	0.1 UN
Nickel	8	7.8 []	9.8	17.1	16.7	7.8 U	8 []	7.7 U	7.6 U
Potassium	1000	1680	1930	2110	2550	1170	3760	864 []	1200
Selenium	1	0.33 UWN	0.35 UWN	0.34 UWN	3.6 UWN	3.5 UWN	0.34 UWN	3.3 UWN	3.4 UWN
Silver	2	1.2 U	1.3 U	1.2 U	1.3 U	1.2 U	1.2 U	1.2 U	1.2 U
Sodium	1000	390 U	414 U	583 []	419 U	408 U	664 []	403 U	398 U
Thallium	2	0.34 []	0.3 []	0.56 []	0.39 []	0.28 U	0.28 U	0.27 U	0.28 U
Vanadium	10	20.5	19.6	25.9	27.7	20.7	27.4	17.5	14.2
Zinc	4	25.6 E	26.9 E	53.2 E	36.5 E	34.2 E	33.5 E	19.1 E	17.4 E
Cyanide	2	0.52 U	0.55 U	0.53 U	0.56 U	0.55 U	0.53 U	0.54 U	0.53 U
Percent Solids:		95.8	90.4	93.7	89.2	90.8	93.6	91.8	94
Associated Method Blank:		BRNA17603S	BRNA17603S	BRNA17603S	BRNA17603S	BRNA17603S	BRNA17603S	BRNA17603S	BRNA17603S
Associated Equipment Blank:		SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		11HAX05XX401XX	11HAX05XX601XX
LAB NUMBER:		290117	290118
DATE SAMPLED:		09/27/89	09/27/89
ANALYTE	CRQL		
Aluminum	40	6500	9030
Antimony	12	11.2 U	11.6 U
Arsenic	2	1.7 []	2 []
Barium	40	15.4 []E	32.1 []E
Beryllium	1	0.16 U	0.52 []
Cadmium	1	0.98 UN	32.6 N
Calcium	1000	701 []	1450
Chromium	2	5.6	13.8
Cobalt	10	5 []	9.6 []
Copper	5	9	121
Iron	20	6650	13400
Lead	1	5.1	11.9
Magnesium	1000	1280	2860
Manganese	3	77.8	157
Mercury	0.04	0.11 UN	0.1 UN
Nickel	8	8 U	12.1
Potassium	1000	761 []	1490
Selenium	1	3.5 UWN	3.7 UWN
Silver	2	1.3 U	1.3 U
Sodium	1000	418 U	433 U
Thallium	2	0.54 []	0.52 []
Vanadium	10	13	21.8
Zinc	4	17.8 E	86 E
Cyanide	2	0.56 U	0.59 U
Percent Solids:		89.4	84.6
Associated Method Blank:		BRNA17603S	BRNA17603S
Associated Equipment Blank:		SAMPLERBLANK02	SAMPLERBLANK02
Associated Field Blank:		SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	11HAX01XX201XX	11HAX01XX401XX	11HAX02XX201XX	11HAX02XX201XX	11HAX02XX401XX	11HAX02XX401XX	11HAX03XX201XX	11HAX03XX401XX
LAB NUMBER:	290097	290096	290099	290099RE *	290098	290098RE	290094	290090
DATE SAMPLED:	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89
DATE ANALYZED:	10/03/89	10/03/89	10/08/89	10/09/89	10/03/89	10/05/89	10/03/89	10/04/89
ANALYTE / CRQL								
Chloromethane 10	10 U	11 U	11 U	1300 U	11 U	28 U	11 U	11 U
Bromomethane 10	10 U	11 U	11 U	1300 U	11 U	28 U	11 U	11 U
Vinyl Chloride 10	10 U	11 U	11 U	1300 U	11 U	28 U	11 U	11 U
Chloroethane 10	10 U	11 U	11 U	1300 U	11 U	28 U	11 U	11 U
Methylene Chloride 5	43 B	33 B	24 B	900 B	35 B	58 BD	14 B	44 B
Acetone 10	21 B	16 B	74	1300 U	14 B	100 BD	11 U	41 B
Carbon Disulfide 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
1,1-Dichloroethene 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
1,1-Dichloroethane 5	5 U	6 U	7	670 U	9	14 U	5 U	5 U
1,2-Dichloroethene (total) 5	5 U	6 U	22	670 U	28	13 DJ	5 U	5 U
Chloroform 5	3 J	4 J	1 J	670 U	3 J	8 BDJ	5 U	5 U
1,2-Dichloroethane 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
2-Butanone 10	10 U	11 U	140	1300 U	11 U	28 U	11 U	11 U
1,1,1-Trichloroethane 5	5 U	6 U	260 E	560 J	450 E	360 D	2 J	5 U
Carbon Tetrachloride 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
Vinyl Acetate 10	10 U	11 U	11 U	1300 U	11 U	28 U	11 U	11 U
Bromodichloromethane 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
1,2-Dichloropropane 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
Cis-1,3-Dichloropropene 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
Trichloroethene 5	5 U	6 U	59	1100	24	43 D	5 U	5 U
Dibromochloromethane 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
1,1,2-Trichloroethane 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
Benzene 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
Trans-1,3-Dichloropropene 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
Bromoform 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
4-Methyl-2-Pentanone 10	10 U	11 U	11 U	1300 U	11 U	28 U	11 U	11 U
2-Hexanone 10	10 U	11 U	9300 E	6700	11 U	28 U	11 U	11 U
Tetrachloroethene 5	5 U	6 U	8	190 J	6	15 D	5 U	5 U
1,1,2,2-Tetrachloroethane 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
Toluene 5	5 U	6 U	34	460 BJ	9	12 DJ	5 U	5 U
Chlorobenzene 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
Ethylbenzene 5	5 U	6 U	25	1300	6 U	14 U	5 U	5 U
Styrene 5	5 U	6 U	5 U	670 U	6 U	14 U	5 U	5 U
Xylenes (Total) 5	5 U	6 U	92	1100	99	120 D	5 U	5 U
Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	96	90	94	94	89	89	91	94
Associated Method Blank:	GH090894A19	GH090894A19	GH090896B03	CH093502B12	GH090894A19	GH092119A14	GH090894A19	GH091566A19
Associated Equipment Blank:	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02
Associated Field Blank:	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* Medium level analysis.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		11NAX04XX201XX	11NAX04XX401XX	11NAX05XX401XX	11NAX05XX601XX
LAB NUMBER:		290095	290083	290100	290101
DATE SAMPLED:		09/27/89	09/27/89	09/27/89	09/27/89
DATE ANALYZED:		10/03/89	10/03/89	10/06/89	10/06/89
ANALYTE	CRQL				
Chloromethane	10	11 U	11 U	11 U	12 U
Bromomethane	10	11 U	11 U	11 U	12 U
Vinyl Chloride	10	11 U	11 U	11 U	12 U
Chloroethane	10	11 U	11 U	11 U	12 U
Methylene Chloride	5	20 B	14 B	15 B	16 B
Acetone	10	11 B	9 BJ	11 BJ	12 B
Carbon Disulfide	5	5 U	5 U	6 U	6 U
1,1-Dichloroethene	5	5 U	5 U	6 U	6 U
1,1-Dichloroethane	5	5 U	5 U	6 U	6 U
1,2-Dichloroethene (total)	5	5 U	5 U	6 U	6 U
Chloroform	5	5 U	5 U	1 J	1 J
1,2-Dichloroethane	5	5 U	5 U	6 U	6 U
2-Butanone	10	11 U	11 U	11 U	12 U
1,1,1-Trichloroethane	5	5 U	5 U	2 J	6 U
Carbon Tetrachloride	5	5 U	5 U	6 U	6 U
Vinyl Acetate	10	11 U	11 U	11 U	12 U
Bromodichloromethane	5	5 U	5 U	6 U	6 U
1,2-Dichloropropane	5	5 U	5 U	6 U	6 U
Cis-1,3-Dichloropropene	5	5 U	5 U	6 U	6 U
Trichloroethene	5	3 J	3 J	11	3 J
Dibromochloromethane	5	5 U	5 U	6 U	6 U
1,1,2-Trichloroethane	5	5 U	5 U	6 U	6 U
Benzene	5	5 U	5 U	6 U	6 U
Trans-1,3-Dichloropropene	5	5 U	5 U	6 U	6 U
Bromoform	5	5 U	5 U	6 U	6 U
4-Methyl-2-Pentanone	10	11 U	11 U	11 U	12 U
2-Hexanone	10	11 U	11 U	11 U	12 U
Tetrachloroethene	5	5 U	5 U	6 U	6 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	6 U	6 U
Toluene	5	5 U	5 U	6 U	6 U
Chlorobenzene	5	5 U	5 U	6 U	6 U
Ethylbenzene	5	5 U	5 U	6 U	6 U
Styrene	5	5 U	5 U	6 U	6 U
Xylenes (Total)	5	5 U	5 U	6 U	6 U
Dilution Factor:		1	1	1	1
Percent Solids:		92	94	89	85
Associated Method Blank:		GW090894A19	GW090894A19	GW090895C19	GW090895C19
Associated Equipment Blank:		SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* * Medium level analysis.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	11HAX01XX201XX	11HAX01XX401XX	11HAX02XX201XX	11HAX02XX401XX	11HAX03XX201XX	11HAX03XX401XX	11HAX04XX201XX	11HAX04XX401XX
LAB NUMBER:	290097	290096	290099	290098	290094	290090	290095	290083
DATE SAMPLED:	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89
DATE EXTRACTED:	10/01/89	10/01/89	10/01/89	10/01/89	10/01/89	10/01/89	10/01/89	10/01/89
DATE ANALYZED:	10/03/89	10/03/89	10/04/89	10/04/89	10/03/89	10/03/89	10/10/89	10/03/89

ANALYTE	CRQL								
Phenol	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
bis(2-Chloroethyl)ether	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
2-Chlorophenol	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
1,3-Dichlorobenzene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
1,4-Dichlorobenzene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
Benzyl alcohol	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
1,2-Dichlorobenzene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
2-Methylphenol	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
bis(2-Chloroisopropyl)ether	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
4-Methylphenol	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
N-Nitroso-di-n-propylamine	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
Hexachloroethane	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
Nitrobenzene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
Isophorone	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
2-Nitrophenol	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
2,4-Dimethylphenol	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
Benzoic acid	1600	1700 U	1800 U	8500 U	9000 U	100 BJ	1700 U	1700 U	1700 U
bis(2-Chloroethoxy)methane	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
2,4-Dichlorophenol	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
1,2,4-Trichlorobenzene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
Naphthalene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
4-Chloroaniline	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
Hexachlorobutadiene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
4-Chloro-3-Methylphenol	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
2-Methylnaphthalene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
Hexachlorocyclopentadiene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
2,4,6-Trichlorophenol	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
2,4,5-Trichlorophenol	1600	1700 U	1800 U	8500 U	9000 U	1800 U	1700 U	1700 U	1700 U
2-Chloronaphthalene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
2-Nitroaniline	1600	1700 U	1800 U	8500 U	9000 U	1800 U	1700 U	1700 U	1700 U
Dimethylphthalate	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
Acenaphthylene	330	340 U	370 U	1800 U	1900 U	70 J	350 U	36 J	350 U
2,6-Dinitrotoluene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		11HAX01XX201XX	11HAX01XX401XX	11HAX02XX201XX	11HAX02XX401XX	11HAX03XX201XX	11HAX03XX401XX	11HAX04XX201XX	11HAX04XX401XX
LAB NUMBER:		290097	290096	290099	290098	290094	290090	290095	290083
DATE SAMPLED:		09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89
DATE EXTRACTED:		10/01/89	10/01/89	10/01/89	10/01/89	10/01/89	10/01/89	10/01/89	10/01/89
DATE ANALYZED:		10/03/89	10/03/89	10/04/89	10/04/89	10/03/89	10/03/89	10/10/89	10/03/89
ANALYTE	CRQL								
3-Nitroaniline	1600	1700 U	1800 U	8500 U	9000 U	1800 U	1700 U	1700 U	1700 U
Acenaphthene	330	340 U	370 U	1800 U	1900 U	76 J	350 U	360 U	350 U
2,4-Dinitrophenol	1600	1700 U	1800 U	8500 U	9000 U	1800 U	1700 U	1700 U	1700 U
4-Nitrophenol	1600	1700 U	1800 U	8500 U	9000 U	1800 U	1700 U	1700 U	1700 U
Dibenzofuran	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
2,4-Dinitrotoluene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
Diethylphthalate	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
4-Chlorophenyl-phenylether	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
Fluorene	330	340 U	370 U	320 J	1900 U	80 J	350 U	360 U	350 U
4-Nitroaniline	1600	1700 U	1800 U	8500 U	9000 U	1800 U	1700 U	1700 U	1700 U
4,6-Dinitro-2-methylphenol	1600	1700 U	1800 U	8500 U	9000 U	1800 U	1700 U	1700 U	1700 U
N-Nitrosodiphenylamine	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
4-Bromophenyl-phenylether	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
Hexachlorobenzene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
Pentachlorophenol	1600	1700 U	1800 U	8500 U	9000 U	410 J	1700 U	1700 U	1700 U
Phenanthrene	330	340 U	370 U	350 J	1900 U	400	350 U	240 J	350 U
Anthracene	330	340 U	370 U	1800 U	1900 U	98 J	350 U	48 J	350 U
Di-n-butylphthalate	330	340 U	370 U	320 J	1900 U	360 U	350 U	360 U	350 U
Fluoranthene	330	340 U	370 U	430 J	1900 U	570	350 U	360	350 U
Pyrene	330	340 U	370 U	740 J	1000 J	450	350 U	440	350 U
Butylbenzylphthalate	330	340 U	370 U	3900	1900 U	360 U	350 U	360 U	350 U
3,3'-Dichlorobenzidine	660	690 U	730 U	3500 U	3700 U	730 U	700 U	720 U	700 U
Benzo(a)Anthracene	330	340 U	370 U	1800 U	260 J	300 J	350 U	230 J	350 U
Chrysene	330	340 U	370 U	320 J	720 J	330 J	350 U	300 J	350 U
bis(2-Ethylhexyl)phthalate	330	340 U	370 U	5300	1300 J	240 J	350 U	96 J	41 J
Di-n-octylphthalate	330	340 U	370 U	1800 U	1900 U	360 U	350 U	360 U	350 U
Benzo(b)Fluoranthene	330	340 U	370 U	450 JX	1900 U	540 X	350 U	350 JX	350 U
Benzo(k)Fluoranthene	330	340 U	370 U	450 JX	1900 U	540 X	350 U	350 JX	350 U
Benzo(a)Pyrene	330	340 U	370 U	1800 U	1900 U	280 J	350 U	230 J	350 U
Indeno(1,2,3-cd)pyrene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	140 J	350 U
Dibenz(a,h)anthracene	330	340 U	370 U	1800 U	1900 U	360 U	350 U	69 J	350 U
Benzo(g,h,i,)perylene	330	340 U	370 U	1800 U	1900 U	83 J	350 U	140 J	350 U
Dilution Factor:		1	1	5	5	1	1	1	1
Percent Solids:		96	90	94	89	91	94	92	94
Associated Method Blank:		G3J91253B06	G3J91253B06	G3J91253B06	G3J91253B06	GJ091253A08	G3J91253B06	GJ091253A08	GJ091253A08
Associated Equipment Blank:		SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		11HAX05XX401XX	11HAX05XX601XX
LAB NUMBER:		290100	290101
DATE SAMPLED:		09/27/89	09/27/89
DATE EXTRACTED:		10/01/89	10/01/89
DATE ANALYZED:		10/03/89	10/04/89
ANALYTE	CRQL		
Phenol	330	370 U	390 U
bis(2-Chloroethyl)ether	330	370 U	390 U
2-Chlorophenol	330	370 U	390 U
1,3-Dichlorobenzene	330	370 U	390 U
1,4-Dichlorobenzene	330	370 U	390 U
Benzyl alcohol	330	370 U	390 U
1,2-Dichlorobenzene	330	370 U	390 U
2-Methylphenol	330	370 U	390 U
bis(2-Chloroisopropyl)ether	330	370 U	390 U
4-Methylphenol	330	370 U	390 U
N-Nitroso-di-n-propylamine	330	370 U	390 U
Hexachloroethane	330	370 U	390 U
Nitrobenzene	330	370 U	390 U
Isophorone	330	370 U	390 U
2-Nitrophenol	330	370 U	390 U
2,4-Dimethylphenol	330	370 U	390 U
Benzoic acid	1600	1800 U	1900 U
bis(2-Chloroethoxy)methane	330	370 U	390 U
2,4-Dichlorophenol	330	370 U	390 U
1,2,4-Trichlorobenzene	330	370 U	390 U
Naphthalene	330	370 U	390 U
4-Chloroaniline	330	370 U	390 U
Hexachlorobutadiene	330	370 U	390 U
4-Chloro-3-Methylphenol	330	370 U	390 U
2-Methylnaphthalene	330	370 U	390 U
Hexachlorocyclopentadiene	330	370 U	390 U
2,4,6-Trichlorophenol	330	370 U	390 U
2,4,5-Trichlorophenol	1600	1800 U	1900 U
2-Chloronaphthalene	330	370 U	390 U
2-Nitroaniline	1600	1800 U	1900 U
Dimethylphthalate	330	370 U	390 U
Acenaphthylene	330	370 U	390 U
2,6-Dinitrotoluene	330	370 U	390 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		11HAX05XX401XX	11HAX05XX601XX
LAB NUMBER:		290100	290101
DATE SAMPLED:		09/27/89	09/27/89
DATE EXTRACTED:		10/01/89	10/01/89
DATE ANALYZED:		10/03/89	10/04/89
ANALYTE	CRQL		
3-Nitroaniline	1600	1800 U	1900 U
Acenaphthene	330	370 U	390 U
2,4-Dinitrophenol	1600	1800 U	1900 U
4-Nitrophenol	1600	1800 U	1900 U
Dibenzofuran	330	370 U	390 U
2,4-Dinitrotoluene	330	370 U	390 U
Diethylphthalate	330	370 U	390 U
4-Chlorophenyl-phenylether	330	370 U	390 U
Fluorene	330	370 U	390 U
4-Nitroaniline	1600	1800 U	1900 U
4,6-Dinitro-2-methylphenol	1600	1800 U	1900 U
N-Nitrosodiphenylamine	330	370 U	390 U
4-Bromophenyl-phenylether	330	370 U	390 U
Hexachlorobenzene	330	370 U	390 U
Pentachlorophenol	1600	1800 U	1900 U
Phenanthrene	330	370 U	390 U
Anthracene	330	370 U	390 U
Di-n-butylphthalate	330	370 U	390 U
Fluoranthene	330	370 U	41 J
Pyrene	330	370 U	39 J
Butylbenzylphthalate	330	370 U	390 U
3,3'-Dichlorobenzidine	660	740 U	780 U
Benzo(a)Anthracene	330	370 U	390 U
Chrysene	330	370 U	390 U
bis(2-Ethylhexyl)phthalate	330	41 J	390 U
Di-n-octylphthalate	330	370 U	390 U
Benzo(b)Fluoranthene	330	370 U	390 U
Benzo(k)Fluoranthene	330	370 U	390 U
Benzo(a)Pyrene	330	370 U	390 U
Indeno(1,2,3-cd)pyrene	330	370 U	390 U
Dibenz(a,h)anthracene	330	370 U	390 U
Benzo(g,h,i,)perylene	330	370 U	390 U
Dilution Factor:		1	1
Percent Solids:		89	85
Associated Method Blank:		G3J91253B06	G3J91253B06
Associated Equipment Blank:		SAMPLERBLANK02	SAMPLERBLANK02
Associated Field Blank:		SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	11HAX01XX201XX	11HAX01XX401XX	11HAX02XX201XX	11HAX02XX401XX	11HAX03XX201XX	11HAX03XX401XX	11HAX04XX201XX	11HAX04XX401XX
LAB NUMBER:	290097	290096	290099	29009B	290094	290090	290095	290083
DATE SAMPLED:	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89	09/27/89
DATE EXTRACTED:	10/01/89	10/01/89	10/01/89	10/01/89	10/01/89	10/01/89	10/01/89	10/01/89
DATE ANALYZED:	10/04/89	10/04/89	10/04/89	10/04/89	10/04/89	10/04/89	10/04/89	10/03/89

ANALYTE	CRQL								
alpha-BHC	8	8.3 U	8.9 U	8.5 U	9 U	8.8 U	8.5 U	8.7 U	8.5 U
beta-BHC	8	8.3 U	8.9 U	8.5 U	9 U	8.8 U	8.5 U	8.7 U	8.5 U
delta-BHC	8	8.3 U	8.9 U	8.5 U	9 U	8.8 U	8.5 U	8.7 U	8.5 U
gamma-BHC (Lindane)	8	8.3 U	8.9 U	8.5 U	9 U	8.8 U	8.5 U	8.7 U	8.5 U
Heptachlor	8	8.3 U	8.9 U	8.5 U	9 U	8.8 U	8.5 U	8.7 U	8.5 U
Aldrin	8	8.3 U	8.9 U	8.5 U	9 U	8.8 U	8.5 U	8.7 U	8.5 U
Heptachlor epoxide	8	8.3 U	8.9 U	8.5 U	9 U	8.8 U	8.5 U	8.7 U	8.5 U
Endosulfan I	8	8.3 U	8.9 U	8.5 U	9 U	8.8 U	8.5 U	8.7 U	8.5 U
Dieldrin	16	17 U	18 U	17 U	18 U	18 U	17 U	17 U	17 U
4,4'-DDE	16	17 U	18 U	17 U	18 U	18 U	17 U	17 U	17 U
Endrin	16	17 U	18 U	17 U	18 U	18 U	17 U	17 U	17 U
Endosulfan II	16	17 U	18 U	17 U	18 U	18 U	17 U	17 U	17 U
4,4'-DDD	16	17 U	18 U	17 U	18 U	18 U	17 U	17 U	17 U
Endosulfan sulfate	16	17 U	18 U	17 U	18 U	18 U	17 U	17 U	17 U
4,4'-DDT	16	17 U	18 U	17 U	18 U	18 U	17 U	17 U	17 U
Methoxychlor	80	83 U	89 U	85 U	90 U	88 U	85 U	87 U	85 U
Endrin ketone	16	17 U	18 U	17 U	18 U	18 U	17 U	17 U	17 U
alpha-Chlordane	80	83 U	89 U	85 U	90 U	88 U	85 U	87 U	85 U
gamma-Chlordane	80	83 U	89 U	85 U	90 U	88 U	85 U	87 U	85 U
Toxaphene	160	170 U	180 U	170 U	180 U	180 U	170 U	170 U	170 U
Aroclor-1016	80	83 U	89 U	85 U	90 U	88 U	85 U	87 U	85 U
Aroclor-1221	80	83 U	89 U	85 U	90 U	88 U	85 U	87 U	85 U
Aroclor-1232	80	83 U	89 U	85 U	90 U	88 U	85 U	87 U	85 U
Aroclor-1242	80	83 U	89 U	85 U	90 U	88 U	85 U	87 U	85 U
Aroclor-1248	80	83 U	89 U	85 U	90 U	88 U	85 U	87 U	85 U
Aroclor-1254	160	170 U	180 U	420	180 U	180 U	170 U	170 U	170 U
Aroclor-1260	160	170 U	180 U	170 U	180 U	180 U	170 U	170 U	170 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	96	90	94	89	91	94	92	94
Associated Method Blank:	291252	291252	291252	291252	291252	291252	291252	291252
Associated Equipment Blank:	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02	SAMPLERBLANK02
Associated Field Blank:	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	11HAX05XX401XX	11HAX05XX601XX
LAB NUMBER:	290100	290101
DATE SAMPLED:	09/27/89	09/27/89
DATE EXTRACTED:	10/01/89	10/01/89
DATE ANALYZED:	10/04/89	10/04/89

ANALYTE	CRQL		
alpha-BHC	8	9 U	9.4 U
beta-BHC	8	9 U	9.4 U
delta-BHC	8	9 U	9.4 U
gamma-BHC (Lindane)	8	9 U	9.4 U
Heptachlor	8	9 U	9.4 U
Aldrin	8	9 U	9.4 U
Heptachlor epoxide	8	9 U	9.4 U
Endosulfan I	8	9 U	9.4 U
Dieldrin	16	18 U	19 U
4,4'-DDE	16	18 U	19 U
Endrin	16	18 U	19 U
Endosulfan II	16	18 U	19 U
4,4'-DDD	16	18 U	19 U
Endosulfan sulfate	16	18 U	19 U
4,4'-DDT	16	18 U	19 U
Methoxychlor	80	90 U	94 U
Endrin ketone	16	18 U	19 U
alpha-Chlordane	80	90 U	94 U
gamma-Chlordane	80	90 U	94 U
Toxaphene	160	180 U	190 U
Aroclor-1016	80	90 U	94 U
Aroclor-1221	80	90 U	94 U
Aroclor-1232	80	90 U	94 U
Aroclor-1242	80	90 U	94 U
Aroclor-1248	80	90 U	94 U
Aroclor-1254	160	180 U	190 U
Aroclor-1260	160	180 U	190 U

Dilution Factor:	1	1
Percent Solids:	89	85
Associated Method Blank:	291252	291252
Associated Equipment Blank:	SAMPLERBLANK02	SAMPLERBLANK02
Associated Field Blank:	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	SAMPLERBLANK01	SAMPLERBLANK02	SOURCEWATER	00QS001XXX04XX	00QS003XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX
	LAB NUMBER:	282238	287712	281905	283045	283860	293355	294548
	DATE SAMPLED:	08/22/89	09/14/89	08/21/89	08/28/89	08/30/89	10/06/89	10/11/89
	UNITS:	mg/kg	mg/kg	mg/kg	ug/L	ug/L	ug/L	ug/L
ANALYTE	CRDL ug/L	CRDL mg/kg						
Aluminum	200	40	4.5 U	4.6 U	4.5 U	26.9 []	30 []	30.9 []	51.5 []
Antimony	60	12	9.7 U	10 U	9.8 U	50.2 U	50.2 U	27 U	27 U
Arsenic	10	2	0.44 UN	0.44 UN	0.43 UN	2.2 U	2.2 U	2 UW	2 U
Barium	200	40	0.37 U	0.38 U	0.37 UE	1.9 U	1.9 U	1 U	1 U
Beryllium	5	1	0.14 U	0.14 U	0.14 U	0.7 U	0.7 U	1 U	1 U
Cadmium	5	1	0.85 U	0.88 U	0.86 U	4.4 U	4.4 U	5 U	5 U
Calcium	5000	1000	4.7 []	8 []	12.8 []	23 U	23 U	18.3 []	76.8 []
Chromium	10	2	1.2 U	1.2 U*	1.2 U	6.2 U	6.2 U	6 U	6 U
Cobalt	50	10	0.76 U	0.78 U	1 []	3.9 U	3.9 U	5.4 []	8.9 []
Copper	25	5	1.9 []	1.4 U	1.4 U	7.2 U	7.2 U	7 U	7 U
Iron	100	20	1.4 []	0.79 U	51.6	11.8 []	70 []	49.2 []	57.3 []*
Lead	5	1	0.22 U	0.22 U	0.21 U	1.1 UN	1.1 UW	1.2 []	1.8 []
Magnesium	5000	1000	18.2 UE	18.8 U	82.6 []	93.8 U	185 []	137 []	128 []E
Manganese	15	3	0.64 U	0.66 U	0.65 U	3.3 U	3.3 U	9.7 []	1 U
Mercury	0.2	0.1	0.1 U	0.1 U	0.1 U	0.2 U	0.2 U	0.2 UN	0.2 U
Nickel	40	8	7 U	7.2 U*	7 U	35.8 U	35.8 U	38 U	38 U
Potassium	5000	1000	392 U	404 U*	742 []	2020 U	2020 U	2680 []	2420 []
Selenium	5	1	0.32 UWN	0.32 UN	0.31 UWN	1.6 UN	1.6 UN	2 UWN	2 UN
Silver	10	2	1.1 U	1.1 U	1.1 U	5.7 U	5.7 U	3 U	3 U
Sodium	5000	1000	363 U	374 U	367 U	1870 U	1870 U	1800 []	940 U
Thallium	10	2	0.26 UW	0.26 U	0.25 U	1.3 UN	1.3 UW	2 U	2 U
Vanadium	50	10	0.41 U	0.42 U	0.81 []	2.1 U	4.4 []	6.2 []	6.8 []
Zinc	20	4	13.3 E	2.2 []	6.4 *	15.7 []	10.4 []E	7 []	1.8 []
Cyanide	5	1	0.5 U	0.5 U	0.5 U	10 U	10 U	10 U	10 U
	Percent Solids:		100	100	100	-	-	-	-
	Associated Method Blank:		BR17603CS	BR17603VS	17603B	MR17603D	BR17603FW	BR17603UW	BR17603W

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	SAMPLERBLANK01	SAMPLERBLANK02	SOURCEWATER	00QS001XXX04XX	00QS003XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX	00QT001XXX04XX
LAB NUMBER:	282236	287711	281904	283013	283821	293348	294534	283025
UNITS:	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L	ug/L
DATE SAMPLED:	08/22/89	09/14/89	08/21/89	08/28/89	08/30/89	10/06/89	10/11/89	08/28/89
DATE ANALYZED:	08/28/89	09/22/89	08/25/89	08/30/89	09/06/89	10/13/89	10/22/89	08/30/89

ANALYTE	ug/L	ug/kg								
Chloromethane	10	10	10 U	10 U	13 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10	10 U	10 U	13 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10	10 U	10 U	13 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10	10 U	10 U	13 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5	28 B	41 B	57 B	5 U	5 U	1 BJ	5 U	5 U
Acetone	10	10	35	14	16 B	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5	1 J	2 BJ	35 B	5 U	1 J	2 J	2 J	5 U
1,2-Dichloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10	10 U	10 U	10 U	10 U	10 U	10 U	18	10 U
1,1,1-Trichloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5	5 U	5 U	4 J	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor:			1	1	1	1	1	1	1	1
Percent Solids:			100	100	100	-	-			-
Associated Method Blank:			GH082444C19	GH087801A03	GH082030A19	CB890830C19	CB890906A03	CB891013B18	CB891022C18	CB890830C19

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	00QT002XXX04XX	00QT003XXX04XX	00QT004XXX04XX	00QT005XXX04XX	BSQTXX1XXX04XX	BSQTXX2XXX04XX	BSQTXX3XXX04XX	BSQTXX4XXX04XX
LAB NUMBER:	283325	283852	284151	284429	291487	291855	292429	292950
UNITS:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
DATE SAMPLED:	08/29/89	08/30/89	08/31/89	09/01/89	10/02/89	10/03/89	10/04/89	10/05/89
DATE ANALYZED:	09/05/89	09/08/89	09/09/89	09/09/89	10/07/89	10/09/89	10/09/89	10/09/89

ANALYTE	ug/L	ug/kg							
Chloromethane	10	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5	2 J	5 U	5 U	4 BJ	5 U	3 BJ	4 BJ	4 BJ
Acetone	10	10	3 J	10 U	10 U	10 U	10 U	10 U	4 J	6 J
Carbon Disulfide	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor:			1	1	1	1	1	1	1	1
Percent Solids:			-	-	-	-				
Associated Method Blank:			CC890905C03	CB890908A13	CB890909A03	CB890909A13	CB891007A12	CB891009C12	CB891009C14	CB891009C14

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSQTXX5XXX04XX	BSQTXX6XXX04XX	BSQTXX7XXX04XX	BSQTXX8XXX04XX	BSQTXX9XXX04XX	TRIP BLANK
LAB NUMBER:	293349	293704	294117	294536	295126	92981
UNITS:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
DATE SAMPLED:	10/06/89	10/09/89	10/10/89	10/11/89	10/12/89	12/14/89
DATE ANALYZED:	10/13/89	10/18/89	10/18/89	10/22/89	10/22/89	12/18/89

ANALYTE	ug/L	ug/kg						
Chloromethane	10	10	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5	5 U	5 U	5 U	5 U	5 U	5 U
Acetone	10	10	10 U	10 U	10 U	10 U	10 U	10 X
Carbon Disulfide	5	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5	5 U	2 J	5 U	5 U	5 U	5 U
Chloroform	5	5	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5	5 U	5 U	5 U	5 U	5 U	5 U

Dilution Factor:	1	1	1	1	1	
Percent Solids:						
Associated Method Blank:	CB891013C18	CC891017B18	CC891018C18	CB891022C18	CB891022C18	Y9352

X - Mass spectrum did not meet EPA CLP criteria, but compound presence is strongly suspected.

BRBK-11

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	00QS001XXX04XX	00QS003XXX04XX	SAMPLERBLANK01	SAMPLERBLANK02	SOURCEWATER	BSQSXX1XXX04XX	BSQSXX2XXX04XX
LAB NUMBER:	283013	283821	282236	287711	281904	293348	294534
UNITS:	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/L	ug/L
DATE SAMPLED:	08/28/89	08/30/89	08/22/89	09/14/89	08/21/89	10/06/89	10/11/89
DATE EXTRACTED:	08/30/89	09/01/89	08/29/89	09/22/89	08/24/89	10/11/89	10/14/89
DATE ANALYZED:	08/31/89	09/08/89	08/30/89	09/28/89	08/28/89	10/17/89	10/16/89

ANALYTE	CRQL ug/L	CRQL ug/kg							
Phenol	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
bis(2-Chloroethyl)ether	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
2-Chlorophenol	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
1,3-Dichlorobenzene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
1,4-Dichlorobenzene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Benzyl alcohol	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
1,2-Dichlorobenzene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
2-Methylphenol	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
4-Methylphenol	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Hexachloroethane	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Nitrobenzene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Isophorone	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
2-Nitrophenol	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
2,4-Dimethylphenol	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Benzoic acid	50	1600	50 U	50 U	1600 U	1600 U	1600 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
2,4-Dichlorophenol	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
1,2,4-Trichlorobenzene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Naphthalene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
4-Chloroaniline	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Hexacholorobutadiene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
4-Chloro-3-Methylphenol	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
2-Methylnaphthalene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Hexachlorocyclopentadiene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
2,4,6-Trichlorophenol	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
2,4,5-Trichlorophenol	50	1600	50 U	50 U	1600 U	1600 U	1600 U	50 U	50 U
2-Chloronaphthalene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
2-Nitroaniline	50	1600	50 U	50 U	1600 U	1600 U	1600 U	50 U	50 U
Dimethylphthalate	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Acenaphthylene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
2,6-Dinitrotoluene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	00QS001XXX04XX	00QS003XXX04XX	SAMPLERBLANK01	SAMPLERBLANK02	SOURCEWATER	BSQSXX1XXX04XX	BSQSXX2XXX04XX
LAB NUMBER:	283013	283821	282236	287711	281904	293348	294534
UNITS:	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/L	ug/L
DATE SAMPLED:	08/28/89	08/30/89	08/22/89	09/14/89	08/21/89	10/06/89	10/11/89
DATE EXTRACTED:	08/30/89	09/01/89	08/29/89	09/22/89	08/24/89	10/11/89	10/14/89
DATE ANALYZED:	08/31/89	09/08/89	08/30/89	09/28/89	08/28/89	10/17/89	10/16/89

ANALYTE	CRQL ug/L	CRQL ug/kg						
3-Nitroaniline	50	1600	50 U	50 U	1600 U	1600 U	1600 U	50 U	50 U
Acenaphthene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
2,4-Dinitrophenol	50	1600	50 U	50 U	1600 U	1600 U	1600 U	50 U	50 U
4-Nitrophenol	50	1600	50 U	50 U	1600 U	1600 U	1600 U	50 U	50 U
Dibenzofuran	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
2,4-Dinitrotoluene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Diethylphthalate	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
4-Chlorophenyl-phenylether	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Fluorene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
4-Nitroaniline	50	1600	50 U	50 U	1600 U	1600 U	1600 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	1600	50 U	50 U	1600 U	1600 U	1600 U	50 U	50 U
N-Nitrosodiphenylamine	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
4-Bromophenyl-phenylether	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Hexachlorobenzene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Pentachlorophenol	50	1600	50 U	50 U	1600 U	1600 U	1600 U	50 U	50 U
Phenanthrene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Anthracene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Di-n-butylphthalate	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Fluoranthene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Pyrene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Butylbenzylphthalate	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
3,3'-Dichlorobenzidine	20	660	20 U	20 U	660 U	660 U	660 U	20 U	20 U
Benzo(a)Anthracene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Chrysene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	330	10 U	4 J	330 U	330 U	330 U	10 U	10 U
Di-n-octylphthalate	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Benzo(b)Fluoranthene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Benzo(k)Fluoranthene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Benzo(a)Pyrene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Dibenz(a,h)anthracene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U
Benzo(g,h,i,)perylene	10	330	10 U	10 U	330 U	330 U	330 U	10 U	10 U

Dilution Factor:	1	1	1	1	1	1	1
Percent Solids:	-	-	100	100	100	-	-
Associated Method Blank:	GH083163C20	GJ084227A02	GH082893C06	GJ088470A20	GH082013A21	GH094180A21	GH095437B08

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	SAMPLERBLANK01	SAMPLERBLANK02	SOURCEWATER	00QS001XXX04XX	00QS003XXX04XX	BSQSXX1XXX04XX	BSQSXX2XXX04XX
LAB NUMBER:	282236	287711	281904	283013	283821	293348	294534
UNITS:	ug/kg	ug/kg	ug/kg	ug/L	ug/L	ug/L	ug/L
DATE SAMPLED:	08/22/89	09/14/89	08/21/89	08/28/89	08/30/89	10/06/89	10/11/89
DATE EXTRACTED:	08/29/89	09/22/89	08/24/89	08/30/89	09/01/89	10/18/89	10/17/89
DATE ANALYZED:	08/31/89	09/23/89	08/26/89	09/10/89	09/08/89	10/20/89	10/17/89

ANALYTE	CRQL ug/L	CRQL ug/kg							
alpha-BHC	0.05	8	8 U	8 U	8 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	8	8 U	8 U	8 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	8	8 U	8 U	8 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	8	8 U	8 U	8 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	8	8 U	8 U	8 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	8	8 U	8 U	8 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	8	8 U	8 U	8 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	8	8 U	8 U	8 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.1	16	16 U	16 U	16 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDE	0.1	16	16 U	16 U	16 U	0.1 U	0.1 U	0.1 U	0.1 U
Endrin	0.1	16	16 U	16 U	16 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan II	0.1	16	16 U	16 U	16 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDD	0.1	16	16 U	16 U	16 U	0.1 U	0.1 U	0.1 U	0.1 U
Endosulfan sulfate	0.1	16	16 U	16 U	16 U	0.1 U	0.1 U	0.1 U	0.1 U
4,4'-DDT	0.1	16	16 U	16 U	16 U	0.1 U	0.1 U	0.1 U	0.1 U
Methoxychlor	0.5	80	80 U	80 U	80 U	0.5 U	0.5 U	0.5 U	0.5 U
Endrin ketone	0.1	16	16 U	16 U	16 U	0.1 U	0.1 U	0.1 U	0.1 U
alpha-Chlordane	0.5	80	80 U	80 U	80 U	0.5 U	0.5 U	0.5 U	0.5 U
gamma-Chlordane	0.5	80	80 U	80 U	80 U	0.5 U	0.5 U	0.5 U	0.5 U
Toxaphene	1.0	160	160 U	160 U	160 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.5	80	80 U	80 U	80 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1221	0.5	80	80 U	80 U	80 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1232	0.5	80	80 U	80 U	80 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1242	0.5	80	80 U	80 U	80 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1248	0.5	80	80 U	80 U	80 U	0.5 U	0.5 U	0.5 U	0.5 U
Aroclor-1254	1.0	160	160 U	160 U	160 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	160	160 U	160 U	160 U	1.0 U	1.0 U	1.0 U	1.0 U
Dilution Factor:			1	1	1	1	1	1	1
Percent Solids:			100	100	100	-	-	-	-
Associated Method Blank:			282893	288471	282013	283244	284264	296226	295702

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SD002XXX04XX LAB NUMBER: 283103 DATE SAMPLED: 08/28/89	02SD003XXX04XX 283105 08/28/89	01SD004XXX04XX 283114 08/28/89	09SD010XXX04XX 283443 08/29/89	09SD011XXX04XX 283444 08/29/89	09SD012XXX04XX 283445 08/29/89	01SD113XXX04XX 284231 08/31/89	01SD114XXX04XX 284229 08/31/89
Aluminum	40	3150	3380	8950	3870	3820	4020	3610	3990
Antimony	12	16.3 U	12.1 U	15.4 U	12.3 UN	12.3 UN	12.2 UN	13.8 U	13.2 U
Arsenic	2	2 □N	1.4 □	3.6	0.85 □W	1.7 □W	3.1	5 N	3.6 N
Barium	40	31.5 □	9.2 □	46.4 □	9.2 □	38.9 □	16.8 □	19.9 □	26.6 □
Beryllium	1	0.23 U	0.38 □	0.69 □	0.37 □	0.37 □	0.36 □	0.19 U	0.18 U
Cadmium	1	1.4 U	1.1 U	1.4 U	1.1 U	1.1 U	1.1 U	1.2 U	1.2 U
Calcium	1000	826 □	504 □	1090 □	823 □	1220 □	1310	860 □	808 □
Chromium	2	2.3 □	3.9	14.5	6.4	5.8	9.8	5.8	6.8
Cobalt	10	4.2 □	2.4 □	8.4 □	2.7 □	3.9 □	3.4 □	4.3 □	5.4 □
Copper	5	8.2	7.3	18.5	7.2	14.4	10.7	5 □	7.5
Iron	20	31600	5420	17600	5030	6170	6130	10800	10200
Lead	1	2.4	4.3	13.4	13	16.1	22.2	9.1	11 S
Magnesium	1000	834 □	1160 □E	3220 E	1360 E	1250 E	1790 E	1360 □E	1520 E
Manganese	3	693	51.6 *	355 *	68.5	229	229	187	483
Mercury	0.1	0.14 U	0.12 U	0.19	0.12 U	0.12 U	0.12 U	0.14 U	0.12 U
Nickel	8	11.6 U	8.8 □	18.1	8.8 U	8.8 U	8.7 U	9.8 U	9.4 U
Potassium	1000	656 U	569 □	1390 □	496 U	759 □	489 U	622 □	623 □
Selenium	1	0.49 UWN	0.4 UWN	0.49 UWN	0.39 UWN	0.39 UWN	0.39 UWN	0.46 UWN	0.42 UWN
Silver	2	2.6 □	1.7 □	2.3 □	1.4 U	2.4 □	1.4 U	1.6 U	1.5 U
Sodium	1000	607 U	452 U	575 U	459 U	458 U	453 U	514 U	491 U
Thallium	2	0.4 U	0.32 U	0.4 UW	0.32 UW	0.32 U	0.31 UW	0.37 U	0.34 U
Vanadium	10	11.9 □	10.1 □E	24.7 E	11.9 □	12.8	13.2	13.9	15.2
Zinc	4	36.3 E	24.9	75.8	23.7	47.9	43.8	60.3	60.1
Cyanide	1	0.81 U	0.62 U	0.77 U	0.61 U	0.61 U	0.62 U	0.72 U	0.67 U
Percent Solids:		61.6	80.4	65.1	81.4	81.6	81	69.3	74.7
Associated Method Blank:		17603G	MR17603E	MR17603E	MR17603H	MR17603H	MR17603H	MR17603L	MR17603L
Associated Equipment Blank:		00QS001XXX04XX	00QS001XXX04XX	00QS001XXX04XX	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = Held for Analysis.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SD115XXX04XX LAB NUMBER: 283101 DATE SAMPLED: 08/28/89	01SD118XXX04XX 284230 08/31/89	01SD119XXX04XX 284232 08/31/89	01SD120XXX04XX 283099 08/28/89	01SD121XXX04XX 283097 08/28/89	01SD122XXX04XX 283091 08/28/89	01SD123XXX04XX 283093 08/28/89	01SD124XXX04XX 283436 08/29/89
Aluminum	40	4570	5760	3720	3780	5680	7750	2920	3970
Antimony	12	18.9 U	14.3 U	13.2 U	14.6 U	17.9 U	15.4 U	13 U	14.6 UN
Arsenic	2	5.7 N	2.5 □N	4.2 N	3.9 N	3.1 □N	1.8 □WN	1.2 □WN	3.8
Barium	40	34.2 □	24.2 □	24.8 □	62.4	39.9 □	29.9 □	15.9 □	24.8 □
Beryllium	1	0.57 □	0.2 U	0.18 U	0.44 □	0.51 □	0.8 □	0.35 □	0.45 □
Cadmium	1	1.7 U	1.3 U	1.2 U	1.3 U	1.6 □	1.3 U	1.1 U	1.3 U
Calcium	1000	1150 □	773 □	541 □	1300 □	1060 □	1250 □	665 □	831 □
Chromium	2	9.4	11.7	7	7.9	11.1	12.9	4.4	6.6
Cobalt	10	7 □	5.8 □	4.9 □	5.6 □	7.5 □	14.1 □	3.1 □	4.5 □
Copper	5	11.3	8.9	5.5 □	8.8	10.8	13.8	7.8	8.6
Iron	20	14300	6860	12400	12100	14600	9680	5470	10400
Lead	1	23.5	28.8	9.1	130	24.1	7.4	2.9	9.2
Magnesium	1000	1700 □	1880 E	1400 E	1500	1870	2790	1180 □	1400 □E
Manganese	3	204	112	235	572	247	167	102	320
Mercury	0.1	0.19 U	0.14 U	0.14 U	0.12 U	0.17 U	0.14 U	0.13 U	0.14 U
Nickel	8	14 □	10.2 U	9.4 U	12.1	14.7	18	10 □	10.4 U
Potassium	1000	759 U	709 □	531 U	587 U	721 U	920 □	521 U	587 U
Selenium	1	0.61 UWN	0.46 UWN	0.44 UWN	0.44 UWN	0.56 UWN	0.47 UWN	0.41 UWN	0.46 UN
Silver	2	4.2	1.6 U	1.5 U	1.7 U	2.8 □	1.7 U	2.4 □	1.7 U
Sodium	1000	702 U	534 U	491 U	544 U	668 U	572 U	482 U	544 U
Thallium	2	0.5 U	0.37 U	0.36 U	0.36 U	0.46 U	0.38 U	0.34 U	0.37 U
Vanadium	10	18.7 □	23.4	14.8	14.7 □	21.1	22.2	7.7 □	13 □
Zinc	4	104 E	87	66.2	73.5 E	111 E	58.9 E	75.7 E	62.7
Cyanide	1	0.95 U	0.71 U	0.69 U	0.73 U	0.89 U	0.77 U	0.65 U	0.73 U
Percent Solids:		52.2	70	72.5	68.8	56	64.7	76	68.8
Associated Method Blank:		17603G	MR17603L	MR17603L	17603G	17603G	17603G	17603G	MR17603H
Associated Equipment Blank:		00QS001XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS001XXX04XX	00QS001XXX04XX	00QS001XXX04XX	00QS001XXX04XX	00QS002XXX04XX*
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SD124XXX04XD LAB NUMBER: 283441 DATE SAMPLED: 08/29/89	01SD125AXX04XX 284233 08/31/89	01SD125AXX04XD 284234 08/31/89	01SD126XXX04XX 284236 08/31/89	01SD127XXX04XX 284235 08/31/89	01SD128XXX04XX 284237 08/31/89	01SD129XXX04XX 284238 08/31/89	02SD201XXX04XX 283757 08/30/89
Aluminum	40	4000	1740	1510	13100	17800	16900	12100	6310 *
Antimony	12	13.2 UN	12.4 U	10.6 U	16.2 U	20.5 U	18.1 U	18.5 U	13.5 U
Arsenic	2	2.3 []	0.65 []N	0.71 []N	7.8 N	9.8 N	9.1 N	11.5 N	1.4 []N
Barium	40	18.2 []	3.4 []	3.1 []	37.5 []	54.4 []	42.5 []	31.7 []	14.4 []
Beryllium	1	0.4 []	0.17 U	0.15 U	0.23 U	0.29 U	0.25 U	0.26 U	0.41 []
Cadmium	1	1.2 U	1.1 U	0.93 U	1.4 U	1.8 U	1.6 U	1.6 U	1.2 U
Calcium	1000	972 []	251 []	229 []	1620	2090	1780 []	1490 []	475 []
Chromium	2	6.2	3.2	3	27.6	38.5	37.4	26.5	6.2 *
Cobalt	10	4.6 []	1.8 []	1.9 []	10.8 []	16.1 []	13.4 []	11.9 []	4.1 []
Copper	5	7.8	2.6 []	1.6 []	15.1	19.1	16.8	14.3	7.9
Iron	20	8350	3370	2930	21900	29400	29500	26300	7620 *
Lead	1	8	4.3	3.1	11.7	20.1	6.8	22	4.2 *
Magnesium	1000	1420 E	683 []E	608 []E	5680 E	7760 E	7760 E	5820 E	1470 E
Manganese	3	201	41.3	34.1	304	415	279	708	71.4 *
Mercury	0.1	0.13 U	0.13 U	0.1 U	0.17 U	0.21 U	0.18 U	0.16 U	0.13 U
Nickel	8	11.9	8.8 U	7.6 U	11.5 U	20.6	20.9	13.2 U	9.6 U
Potassium	1000	531 U	499 U	426 U	3130	4440	4150	3030	543 U
Selenium	1	0.43 UN	0.41 UN	0.33 UN	0.52 UWN	0.66 UN	0.57 UN	0.6 UN	0.43 UWN
Silver	2	1.9 []	1.4 U	1.2 U	1.8 U	2.3 U	2.1 U	2.1 U	1.5 U
Sodium	1000	492 U	462 U	395 U	1620	2330	4360	4090	502 U
Thallium	2	0.35 U	0.33 U	0.27 U	0.42 U	0.54 UW	0.46 U	0.49 U	0.35 U
Vanadium	10	12.2 []	6.4 []	5.9 []	40.8	55.6	47.5	43.4	13.2 []
Zinc	4	35	24.4	23.7	76.6	125	80.7	76.1	22.3 E
Cyanide	1	0.68 U	0.65 U	0.53 U	0.83 U	1 U	0.93 U	0.94 U	0.68 U
Percent Solids:		73.8	77.1	93.8	60.2	47.9	53.4	52.7	73.7
Associated Method Blank:		MR17603H	MR17603L	MR17603L	MR17603L	MR17603L	MR17603L	MR17603L	176031
Associated Equipment Blank:		00QS002XXX04XX*	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 02SD202XXX04XX LAB NUMBER: 283758 DATE SAMPLED: 08/30/89	BSSD203XXX04XX 293376 10/06/89	03SD301XXX04XX 283082 08/28/89	03SD302XXX04XX 283760 08/30/89	03SD303XXX04XX 283761 08/30/89	03SD303XXX04XD 283764 08/30/89	03SD304XXX04XX 283765 08/30/89	03SD305XXX04XX 283768 08/30/89
Aluminum	40	19100 *	7460	4880	3060 *	3810 *	4070 *	5620 *	4830 *
Antimony	12	14 U	22.5 U	24.4 U	17.1 U	13 U	13.4 U	76.1 U	14.5 U
Arsenic	2	5.6 N	15.2 N	4.3 [ ]N	1.9 [ ]N	1.5 [ ]N	2.5 [ ]N	71 N	24.7 N
Barium	40	71.5	40.8 [ ]	26.3 [ ]	9 [ ]	12.5 [ ]	15.7 [ ]	56.5 [ ]	10.8 [ ]
Beryllium	1	1.7	0.83 U	0.58 [ ]	0.37 [ ]	0.38 [ ]	0.37 [ ]	1.1 U	0.44 [ ]
Cadmium	1	1.2 U	4.7	2.1 U	1.5 U	1.1 U	1.2 U	6.7 U	1.3 U
Calcium	1000	1430	1590 [ ]	1340 [ ]	680 [ ]	821 [ ]	796 [ ]	7530 [ ]	924 [ ]
Chromium	2	36.4 *	12.6	4.3 [ ]	3.5 *	4.2 *	5.6 *	9.4 U*	6.2 *
Cobalt	10	16.7	5.4 [ ]	6 [ ]	4.8 [ ]	3.6 [ ]	3.4 [ ]	232	20.2
Copper	5	28.1	13.7 [ ]	14.7	4.2 [ ]	7.7	7.8	10.9 U	34.1
Iron	20	28800 *	22400	37200	7900 *	9150 *	9750 *	39300 *	11000 *
Lead	1	13.1 *	30.8 N*	7.6	6.1 *	5.1 *	7.9 *	50.8 *	5.4 *
Magnesium	1000	7010 E	842 [ ]E	1340 [ ]	707 [ ]E	1520 E	1240 [ ]E	704 [ ]E	1420 [ ]E
Manganese	3	335 *	245	239	177 *	80.7 *	84.6 *	222 *	120 *
Mercury	0.1	0.13 U	2.9	0.21 U	0.17 U	0.12 U	0.12 U	2.8	0.13 U
Nickel	8	37	31.7 U	22.4	12.2 U	9.3 U	9.5 U	54.2 U	13.1
Potassium	1000	3020	492 U	983 U	687 U	525 U	538 U	3060 U	585 U
Selenium	1	0.45 UN	1.7 UWN	0.75 UWN	0.56 UWN	0.42 UN	0.43 UN	4.8 [ ]N	0.45 UN
Silver	2	1.7 [ ]	2.5 U	2.8 U	1.9 U	1.5 U	1.5 U	8.6 U	2.1 [ ]
Sodium	1000	522 U	783 U	910 U	636 U	486 U	498 U	2830 U	541 U
Thallium	2	0.36 U	1.7 U	0.61 UW	0.46 U	0.34 U	0.35 U	2 UW	0.36 U
Vanadium	10	48.4	21.4 [ ]	24.1 [ ]	7.7 [ ]	14.1	17	28.7 [ ]	13.8 [ ]
Zinc	4	93.1 E	57.2	102 E	71.8 E	123 E	91.9 E	94.4 E	34.9 E
Cyanide	1	0.69 U	2.1 U	1.2 U	0.87 U	0.67 U	0.68 U	3.8 U	0.73 U
Percent Solids:		71.7	24.0	40.7	57.1	74.7	72.9	13.2	68.4
Associated Method Blank:		17603I	BR17603$	17603G	17603I	17603I	17603I	17603I	17603I
Associated Equipment Blank:		00QS003XXX04XX	BSQSXX1XXX04XX	00QS001XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	-	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 03SD306XXX04XX LAB NUMBER: 283767 DATE SAMPLED: 08/30/89	03SD307XXX04XX 283770 08/30/89	03SD316XXX04XX 283083 08/28/89	03SD317XXX04XX 283095 08/28/89	03SD318XXX04XX 283752 08/30/89	03SD318XXX04XD 283763 08/30/89	03SD319XXX04XX 283086 08/28/89	08SD801XXX04XX 284479 09/01/89
Aluminum	40	3760 *	6510 *	4530	2930	3420 *	4430 *	4060	3650
Antimony	12	14.2 U	19 U	12.4 U	12.5 U	13.1 U	16.4 U	14.9 U	13.9 U
Arsenic	2	0.73 □N	1.7 □N	4.8 N	1.3 □N	4.6 N	7.8 N	3.3 WN	0.89 □
Barium	40	16.7 □	26.2 □	29.2 □	313	15.4 □	23.3 □	15.1 □	11.2 □
Beryllium	1	0.44 □	0.53 □	0.36 □	0.42 □	0.23 □	0.5 □	0.21 U	0.19 U
Cadmium	1	1.2 U	1.7 U	1.1 U	1.1 U	1.1 U	1.4 U	1.3 U	1.2 U
Calcium	1000	946 □	1040 □	579 □	676 □	957 □	1420 □	621 □	741 □
Chromium	2	5.1 *	10.4 *	7	7.2	5.9 *	8.6 *	3.9	6.1
Cobalt	10	4.1 □	4.6 □	6.2 □	4.2 □	3.6 □	4.6 □	2.3 □	4 □
Copper	5	8.3	11.1	7.4	7.5	7.7	11.2	9	4.2 □
Iron	20	7650 *	11500 *	11500	6180	7460 *	10500 *	11900	6240 *
Lead	1	3.3 *	10.3 *	21.2	56.4	12.4 *	16.6 *	5	3.9 N
Magnesium	1000	1460 E	2260 E	1780	1270	1210 □E	1560 □E	923 □	1270 □E
Manganese	3	353 *	124 *	267	149	72 *	87.2 *	122	68.7 *
Mercury	0.1	0.14 U	0.18 U	0.1 U	0.13 U	0.12 U	0.16 U	0.14 U	0.14 U
Nickel	8	10.1 U	13.5 U	13.2	11.9	9.3 U	13 □	11.3 □	9.9 U
Potassium	1000	572 U	763 U	498 U	501 U	527 U	660 U	602 U	756 □
Selenium	1	0.46 UN	0.61 UN	0.38 UWN	0.4 UWN	0.43 UN	0.52 UN	0.46 UWN	0.44 UWN
Silver	2	1.6 U	2.2 U	1.4 U	2.8	1.5 U	1.9 U	1.7 U	1.6 U
Sodium	1000	530 U	707 U	461 U	464 U	488 U	611 U	557 U	591 □
Thallium	2	0.38 UW	0.5 U	0.31 U	0.33 U	0.35 U	0.42 UW	0.37 U	0.36 UWN
Vanadium	10	12.1 □	23.4	14.4	7.5 □	11.9 □	15.5 □	11.6 □	10.5 □
Zinc	4	48.7 E	79.3 E	62.8 E	109 E	40.7 E	59.7 E	124 E	25.3
Cyanide	1	0.73 U	0.95 U	0.63 U	0.62 U	0.68 U	0.81 U	0.75 U	0.69 U
Percent Solids:		67.9	52.4	79.6	79.8	73.7	61.2	66.5	72.1
Associated Method Blank:		17603I	17603I	17603G	17603G	17603I	17603I	17603G	17603K
Associated Equipment Blank:		00QS003XXX04XX	00QS003XXX04XX	00QS001XXX04XX	00QS001XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS001XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	08SD802XXX04XX	08SD803XXX04XX	09SD901XXX04XX	09SD915XXX04XX	09SD916XXX04XX	09SD919XXX04XX	09SD920XXX04XX	09SD920XXX04XD
	LAB NUMBER:	284483	284482	283447	283437	283438	283439	283440	283457
	DATE SAMPLED:	09/01/89	09/01/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89
ANALYTE	CRQL								
Aluminum	40	5050	4060	2390	7150	3490	4850	3190	3240
Antimony	12	14.9 U	14 U	13.7 UN	12.5 UN	13.2 UN	11.7 UN	13.1 UN	12.9 UN
Arsenic	2	2.3 []	3.2	1.4 []N	1.9 []W	3.8 S	1.7 []W	0.87 []	0.63 []N
Barium	40	28.1 []	19.7 []	10.9 []	38.1 []	15.5 []	50.5	15.3 []	10.5 []
Beryllium	1	0.21 U	0.19 U	0.19 U	0.44 []	0.27 []	0.32 []	0.27 []	0.35 []
Cadmium	1	1.3 U	1.2 U	1.2 U	1.1 U	1.7	8.3	1.1 U	1.1 U
Calcium	1000	2410	1420	702 []	1540	698 []	1490	610 []	671 []
Chromium	2	13	6.1	5.3	16.9	16.2	13.8	5.5	5
Cobalt	10	6 []	4.6 []	2.1 []	4.9 []	2.7 []	4.3 []	2.5 []	2.5 []
Copper	5	13.2	8.5	10.7	15.8	23.3	27.6	7.7	10.1
Iron	20	21900 *	13200 *	6340	12700	5620	9410	4130	4410
Lead	1	8.6 N	35.8 N	67.9	173	61.4	99	13.9	37.6
Magnesium	1000	2130 E	1490 E	871 []E	3080 E	1200 []E	1810 E	992 []E	1020 []E
Manganese	3	80.9 *	89 *	42.9	171	63.2	276	76.2	69.3
Mercury	0.1	0.15 U	0.14 U	0.11 U	0.12 U	0.13 U	0.11 U	0.13 U	0.13 U
Nickel	8	13.2	10 U	9.8 U	13.1	9.4 U	8.4 U	9.3 U	9.2 U
Potassium	1000	919 []	773 []	551 U	1110 []	532 U	473 U	526 U	520 U
Selenium	1	0.48 UWN	4.5 UWN	0.42 UWN	0.4 UWN	0.43 UWN	0.39 UN	0.41 UN	0.84 UWN
Silver	2	1.7 U	1.6 U	1.6 U	1.4 U	1.5 U	1.8 []	1.5 U	1.5 U
Sodium	1000	557 U	653 []	510 U	464 U	492 U	437 U	487 U	481 U
Thallium	2	0.39 UN	0.36 UWN	0.34 U	0.32 U	0.35 U	0.31 U	0.34 UW	0.34 U
Vanadium	10	23.1	11.5 []	7.5 []	23.2	28.5	16	7.6 []	7.3 []
Zinc	4	38.3	45.7	49.4 E	39.7	71.8	60.2	44.7	31.2 E
Cyanide	1	0.74 U	0.69 U	0.68 U	0.62 U	0.67 U	0.6 U	0.65 U	0.65 U
Percent Solids:		67.2	71.8	73.3	80.6	74.5	83	76.8	76.2
Associated Method Blank:		17603K	17603K	MR17603J	MR17603H	MR17603H	MR17603H	MR17603H	MR17603J
Associated Equipment Blank:		00QS003XXX04XX	00QS003XXX04XX	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

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Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick - Round 4 Sediment Samples - Inorganic Analysis (mg/kg) 23-Feb-90

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 09SD921XXX04XX LAB NUMBER: 283442 DATE SAMPLED: 08/29/89	09SD922XXX04XX 283446 08/29/89	09SD923XXX04XX 284481 09/01/89	09SD924XXX04XX 284480 09/01/89	09SD925XXX04XX 284228 08/31/89	09SD926XXX04XX 284226 08/31/89	09SD927XXX04XX 283779 08/30/89	09SDFLDCXXX04XX 283788 08/30/89
Aluminum	40	3260	2790	2620	4180	5860	2860	4330	8160
Antimony	12	12.6 UN	12.8 UN	26.7 U	12.6 U	13.6 U	86.4 U	33.9 U	33 U
Arsenic	2	1.3 □W	1.2 □W	1.2 U	61.3	1.3 □WN	3.8 UWN	3 □N	7.7 N
Barium	40	13.7 □	10.9 □	11.3 □	15.7 □	6.7 □	31.9 □	15.4 □	72.6 □
Beryllium	1	0.38 □	0.24 □	0.37 U	0.18 U	0.19 U	1.2 U	0.47 U	0.46 U
Cadmium	1	1.1 U	1.1 U	2.3 U	1.1 U	1.2 U	7.6 U	3 U	2.9 U
Calcium	1000	770 □	597 □	645 □	880 □	281 □	4110 □	867 □	5260
Chromium	2	6.4	5.2	3.3 U	7.2	5.7	12.9 □	8.6	21.9
Cobalt	10	2.7 □	2.4 □	2.9 □	4.2 □	2.7 □	9.3 □	3.1 □	5.8 □
Copper	5	11.1	11.2	3.8 U	7.7	3.5 □	12.4 U	4.9 U	20.5
Iron	20	5300	4450	1460 *	5940 *	5050	6360	6110	24500
Lead	1	20.7	22.1	6 N	7.1 N	4.3	77.6 $	58.5	35 $
Magnesium	1000	1300 E	958 □E	262 □E	1260 E	726 □E	1370 □E	873 □E	2930 □E
Manganese	3	183	84.4	9.1 *	68.6 *	33.7	264	46.6	425
Mercury	0.1	0.11 U	0.11 U	0.27 U	0.13 U	0.12 U	0.76 U	0.34 U	0.31 U
Nickel	8	9 U	9.1 U	19 U	9 U	9.7 U	61.6 U	24.2 U	23.6 U
Potassium	1000	506 U	514 U	1070 U	588 □	596 □	3980 □	1370 U	1330 U
Selenium	1	0.4 UN	0.4 UN	0.85 UWN	4 UWN	0.42 UN	2.8 UWN	1.1 UWN	1.1 UN
Silver	2	1.4 U	1.5 U	3 U	1.4 U	1.5 U	9.8 U	3.9 U	3.8 U
Sodium	1000	469 U	476 U	995 U	470 U	505 U	4040 □	1260 U	1230 U
Thallium	2	0.33 UW	0.33 U	0.69 UN	0.33 UN	0.34 U	2.2 U	0.85 U	0.86 U
Vanadium	10	12 □	9.7 □	5.2 □	11 □	11.3 □	38.3 □	29.7 □	35.4
Zinc	4	48.8	38.6	24.4	28.6	31.1	165	59.8	113
Cyanide	1	0.63 U	0.64 U	1.3 U	0.62 U	0.67 U	4.3 U	1.7 U	1.7 U
Percent Solids:		79.8	78.6	37.6	79.6	74	11.5	29	29.8
Associated Method Blank:		MR17603H	MR17603H	17603K	17603K	MR17603L	MR17603L	MR17603L	MR17603L
Associated Equipment Blank:		00QS002XXX04XX*	00QS002XXX04XX*	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	*
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	*

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Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	01SD002XXX04XX	02SD003XXX04XX	01SD004XXX04XX	09SD010XXX04XX	09SD011XXX04XX	09SD012XXX04XX	01SD113XXX04XX	01SD114XXX04XX
	LAB NUMBER:	283062	283063	283064	283392	283393	283394	284124	284113
	DATE SAMPLED:	08/28/89	08/28/89	08/28/89	08/29/89	08/29/89	08/29/89	08/31/89	08/31/89
	DATE ANALYZED:	09/01/89	08/31/89	08/31/89	09/05/89	09/04/89	09/07/89	09/09/89	09/09/89
ANALYTE	CRQL								
Chloromethane	10	16 U	13 U	15 U	12 U	12 U	12 U	14 U	13 U
Bromomethane	10	16 U	13 U	15 U	12 U	12 U	12 U	14 U	13 U
Vinyl Chloride	10	16 U	13 U	15 U	12 U	12 U	12 U	14 U	13 U
Chloroethane	10	16 U	13 U	15 U	12 U	12 U	12 U	14 U	13 U
Methylene Chloride	5	16 B	29 B	27 B	23 B	18 B	14 B	40 B	26 B
Acetone	10	41 B	36 B	92 B	6 J	12 U	38 B	150 B	35 B
Carbon Disulfide	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
1,1-Dichloroethene	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
1,1-Dichloroethane	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
1,2-Dichloroethene (total)	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
Chloroform	5	2 BJ	3 BJ	4 BJ	1 J	6 U	2 J	7 U	7 U
1,2-Dichloroethane	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
2-Butanone	10	16 U	13 U	7 J	12 U	12 U	12 U	27	13 U
1,1,1-Trichloroethane	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
Carbon Tetrachloride	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
Vinyl Acetate	10	16 U	13 U	15 U	12 U	12 U	12 U	14 U	13 U
Bromodichloromethane	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
1,2-Dichloropropane	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
Cis-1,3-Dichloropropene	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
Trichloroethene	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
Dibromochloromethane	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
1,1,2-Trichloroethane	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
Benzene	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
Trans-1,3-Dichloropropene	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
Bromoform	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
4-Methyl-2-Pentanone	10	16 U	13 U	15 U	12 U	12 U	12 U	14 U	13 U
2-Hexanone	10	16 U	13 U	15 U	12 U	12 U	12 U	14 U	13 U
Tetrachloroethene	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
1,1,2,2-Tetrachloroethane	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
Toluene	5	8 U	7 U	8 U	6 U	6 U	6 U	3 J	7 U
Chlorobenzene	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
Ethylbenzene	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
Styrene	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
Xylenes (Total)	5	8 U	7 U	8 U	6 U	6 U	6 U	7 U	7 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		62	75	65	81	82	81	69	75
Associated Method Blank:		GH083217B19	GH083226B12	GH083226B12	GH083586C19	GH083925B18	GH083926C18	GH084530C19	GH084530C19
Associated Equipment Blank:		SAMPLER#BLANK01	000S001XXX04XX	000S001XXX04XX	000S002XXX04XX	000S002XXX04XX	000S002XXX04XX	000S003XXX04XX	000S003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SD115XXX04XX	01SD118XXX04XX	01SD119XXX04XX	01SD120XXX04XX	01SD121XXX04XX	01SD122XXX04XX	01SD123XXX04XX	01SD124XXX04XX
LAB NUMBER:	283061	284120	284131	283060	283057	283054	283055	283385
DATE SAMPLED:	08/28/89	08/31/89	08/31/89	08/28/89	08/28/89	08/28/89	08/28/89	08/29/89
DATE ANALYZED:	09/01/89	09/09/89	09/09/89	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89

ANALYTE	CRQL								
Chloromethane	10	19 U	14 U	14 U	14 U	18 U	15 U	13 U	14 U
Bromomethane	10	19 U	14 U	14 U	14 U	18 U	15 U	13 U	14 U
Vinyl Chloride	10	19 U	14 U	14 U	14 U	18 U	15 U	13 U	14 U
Chloroethane	10	19 U	14 U	14 U	14 U	18 U	15 U	13 U	14 U
Methylene Chloride	5	21 B	28 B	29 B	19 B	44 B	20 B	21 B	17 B
Acetone	10	99 B	71 B	90 B	26 B	140 B	51 B	41 B	46 B
Carbon Disulfide	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
1,1-Dichloroethene	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
1,1-Dichloroethane	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
1,2-Dichloroethene (total)	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Chloroform	5	10 U	7 U	7 U	7 U	2 BJ	2 BJ	1 BJ	7 U
1,2-Dichloroethane	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
2-Butanone	10	22	14 U	14 U	14 U	34	15 U	13 U	6 J
1,1,1-Trichloroethane	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Carbon Tetrachloride	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Vinyl Acetate	10	19 U	14 U	14 U	14 U	18 U	15 U	13 U	14 U
Bromodichloromethane	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
1,2-Dichloropropane	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Cis-1,3-Dichloropropene	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Trichloroethene	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Dibromochloromethane	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
1,1,2-Trichloroethane	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Benzene	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Trans-1,3-Dichloropropene	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Bromoform	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
4-Methyl-2-Pentanone	10	19 U	14 U	14 U	14 U	18 U	15 U	13 U	14 U
2-Hexanone	10	19 U	14 U	14 U	14 U	18 U	15 U	13 U	14 U
Tetrachloroethene	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
1,1,2,2-Tetrachloroethane	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Toluene	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Chlorobenzene	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Ethylbenzene	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Styrene	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Xylenes (Total)	5	10 U	7 U	7 U	7 U	9 U	8 U	7 U	7 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		52	70	72	69	56	65	76	69
Associated Method Blank:		GH083217B19	GH084530C19	GH084530C19	GH083217B19	GH083217B19	GH083217B19	GH083217B19	GH083585C19
Associated Equipment Blank:		SAMPLERBLANK01	00QS003XXX04XX	00QS003XXX04XX	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK01	00QS002XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SD124XXX04XD LAB NUMBER: 283390 DATE SAMPLED: 08/29/89 DATE ANALYZED: 09/05/89	01SD125AXX04XX 284213 08/31/89 09/09/89	01SD125AXX04XD 284214 08/31/89 09/09/89	01SD126XXX04XX 284156 08/31/89 09/09/89	01SD127XXX04XX 284152 08/31/89 09/09/89	01SD128XXX04XX 284167 08/31/89 09/09/89	01SD129XXX04XX 284179 08/31/89 09/09/89	02SD201XXX04XX 283688 08/30/89 09/09/89
Chloromethane	10	14 U	13 U	11 U	17 U	21 U	19 U	19 U	14 U
Bromomethane	10	14 U	13 U	11 U	17 U	21 U	19 U	19 U	14 U
Vinyl Chloride	10	14 U	13 U	11 U	17 U	21 U	19 U	19 U	14 U
Chloroethane	10	14 U	13 U	11 U	17 U	21 U	19 U	19 U	14 U
Methylene Chloride	5	21 B	24 B	16 B	46 B	45 B	36 B	46 B	10 B
Acetone	10	14	34 B	29 B	78 B	180 B	65 B	44 B	21 B
Carbon Disulfide	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
1,1-Dichloroethene	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
1,1-Dichloroethane	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
1,2-Dichloroethene (total)	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
Chloroform	5	7 U	6 U	1 J	8 U	10 U	9 U	9 U	7 U
1,2-Dichloroethane	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
2-Butanone	10	14 U	13 U	11 U	17 U	21 U	19 U	19 U	14 U
1,1,1-Trichloroethane	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
Carbon Tetrachloride	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
Vinyl Acetate	10	14 U	13 U	11 U	17 U	21 U	19 U	19 U	14 U
Bromodichloromethane	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
1,2-Dichloropropane	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
Cis-1,3-Dichloropropene	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
Trichloroethene	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
Dibromochloromethane	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
1,1,2-Trichloroethane	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
Benzene	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
Trans-1,3-Dichloropropene	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
Bromoform	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
4-Methyl-2-Pentanone	10	14 U	13 U	11 U	17 U	21 U	19 U	19 U	14 U
2-Hexanone	10	14 U	13 U	11 U	17 U	21 U	19 U	19 U	14 U
Tetrachloroethene	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
1,1,2,2-Tetrachloroethane	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
Toluene	5	1 JB	2 J	5 U	8 U	10 U	2 J	9 U	7 U
Chlorobenzene	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
Ethylbenzene	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
Styrene	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
Xylenes (Total)	5	7 U	6 U	5 U	8 U	10 U	9 U	9 U	7 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		74	77	94	60	48	53	53	74
Associated Method Blank:		GH083586C19	GH084914B12	GH084914B12	GH084530C19	GH084530C19	GH084530C19	GH084530C19	GH085336C12
Associated Equipment Blank:		00QS002XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	02SD202XXX04XX	85SD203XXX04XX	03SD301XXX04XX	03SD302XXX04XX	03SD303XXX04XX	03SD303XXX04XD	03SD304XXX04XX	03SD305XXX04XX
LAB NUMBER:	283689	293375	283051	283690	283691	283693	283694	283696
DATE SAMPLED:	08/30/89	10/06/89	08/28/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89
DATE ANALYZED:	09/09/89	10/16/89	08/31/89	09/09/89	09/09/89	09/09/89	09/09/89	09/08/89

ANALYTE	CRQL								
Chloromethane	10	14 U	42 U	24 U	18 U	13 U	14 U	77 U	15 U
Bromomethane	10	14 U	42 U	24 U	18 U	13 U	14 U	77 U	15 U
Vinyl Chloride	10	14 U	42 U	24 U	18 U	13 U	14 U	77 U	15 U
Chloroethane	10	14 U	42 U	24 U	18 U	13 U	14 U	77 U	15 U
Methylene Chloride	5	19 B	140 B	57 B	32 B	25 B	20 B	270 B	70 B
Acetone	10	92 B	20 BJ	70 B	42 B	33 B	39 B	460 B	15 B
Carbon Disulfide	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
1,1-Dichloroethene	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
1,1-Dichloroethane	5	7 U	21 U	12 U	2 J	7 U	7 U	38 U	7 U
1,2-Dichloroethene (total)	5	7 U	21 U	12 U	4 J	7 U	7 U	38 U	7 U
Chloroform	5	2 J	21 U	4 BJ	9 U	2 J	2 J	38 U	3 J
1,2-Dichloroethane	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
2-Butanone	10	6 J	42 U	24 U	18 U	13 U	14 U	66 J	15 U
1,1,1-Trichloroethane	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
Carbon Tetrachloride	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
Vinyl Acetate	10	14 U	42 U	24 U	18 U	13 U	14 U	77 U	15 U
Bromodichloromethane	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
1,2-Dichloropropane	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
Cis-1,3-Dichloropropene	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
Trichloroethene	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
Dibromochloromethane	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
1,1,2-Trichloroethane	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
Benzene	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
Trans-1,3-Dichloropropene	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
Bromoform	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
4-Methyl-2-Pentanone	10	14 U	42 U	24 U	18 U	13 U	14 U	77 U	15 U
2-Hexanone	10	14 U	42 U	24 U	18 U	13 U	14 U	77 U	15 U
Tetrachloroethene	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
1,1,2,2-Tetrachloroethane	5	7 U	21 U	12 U	2 J	7 U	7 U	38 U	7 U
Toluene	5	2 BJ	21 U	12 U	2 BJ	7 U	7 U	8 BJ	7 U
Chlorobenzene	5	7 U	21 U	12 U	9 U	7 U	7 U	13 J	7 U
Ethylbenzene	5	7 U	21 U	12 U	9 U	7 U	7 U	18 J	7 U
Styrene	5	7 U	21 U	12 U	9 U	7 U	7 U	38 U	7 U
Xylenes (Total)	5	4 J	21 U	12 U	9 U	7 U	7 U	25 J	7 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		72	24	41	57	75	73	13	68
Associated Method Blank:		GH085337A12	GH093583C19	GH083217#19	GH085337A12	GH085337A12	GH085337A12	GH085337A12	GH083954C18
Associated Equipment Blank:		00QS003XXX04XX	BSQSXX1XXX04XX	SAMPLERBLANK01	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	-	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 03SD306XXX04XX LAB NUMBER: 283695 DATE SAMPLED: 08/30/89 DATE ANALYZED: 09/08/89	03SD307XXX04XX 283697 08/30/89 09/09/89	03SD316XXX04XX 283052 08/28/89 08/31/89	03SD317XXX04XX 283056 08/28/89 09/01/89	03SD318XXX04XX 283687 08/30/89 09/09/89	03SD318XXX04XD 283692 08/30/89 09/09/89	03SD319XXX04XX 283053 08/28/89 08/31/89	08SD801XXX04XX 284445 09/01/89 09/10/89
Chloromethane	10	15 U	19 U	13 U	13 U	14 U	16 U	15 U	14 U
Bromomethane	10	15 U	19 U	13 U	13 U	14 U	16 U	15 U	14 U
Vinyl Chloride	10	15 U	19 U	13 U	13 U	14 U	16 U	15 U	14 U
Chloroethane	10	15 U	19 U	13 U	13 U	14 U	16 U	15 U	14 U
Methylene Chloride	5	46 B	14 B	73 B	26 B	11 B	11 B	21 B	17 B
Acetone	10	12 BJ	55 B	120 B	23 B	13 BJ	22 B	84 B	56 B
Carbon Disulfide	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
1,1-Dichloroethene	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
1,1-Dichloroethane	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
1,2-Dichloroethene (total)	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Chloroform	5	3 J	10 U	2 BJ	6 U	7 U	8 U	2 BJ	7 U
1,2-Dichloroethane	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
2-Butanone	10	15 U	19 U	13 U	13 U	14 U	16 U	15 U	14 U
1,1,1-Trichloroethane	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Carbon Tetrachloride	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Vinyl Acetate	10	15 U	19 U	13 U	13 U	14 U	16 U	15 U	14 U
Bromodichloromethane	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
1,2-Dichloropropane	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Cis-1,3-Dichloropropene	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Trichloroethene	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Dibromochloromethane	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
1,1,2-Trichloroethane	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Benzene	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Trans-1,3-Dichloropropene	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Bromoform	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
4-Methyl-2-Pentanone	10	15 U	19 U	13 U	13 U	14 U	16 U	15 U	14 U
2-Hexanone	10	15 U	19 U	13 U	13 U	14 U	16 U	15 U	14 U
Tetrachloroethene	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
1,1,2,2-Tetrachloroethane	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Toluene	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Chlorobenzene	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Ethylbenzene	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Styrene	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Xylenes (Total)	5	7 U	10 U	6 U	6 U	7 U	8 U	7 U	7 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		68	52	80	80	74	61	67	72
Associated Method Blank:		GH083954C18	GH085191C19	GH083217B19	GH083217B19	GH085336C12	GH085337A12	GH083217B19	GH084915C12
Associated Equipment Blank:		000S003XXX04XX	000S003XXX04XX	SAMPLERBLANK01	SAMPLERBLANK01	000S003XXX04XX	000S003XXX04XX	SAMPLERBLANK01	000S003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 08SD802XXX04XX LAB NUMBER: 284449 DATE SAMPLED: 09/01/89 DATE ANALYZED: 09/10/89	08SD803XXX04XX 284448 09/01/89 09/10/89	09SD901XXX04XX 283396 08/29/89 09/01/89	09SD915XXX04XX 283386 08/29/89 09/05/89	09SD916XXX04XX 283387 08/29/89 09/05/89	09SD919XXX04XX 283388 08/29/89 09/05/89	09SD920XXX04XX 283389 08/29/89 09/05/89	09SD920XXX04XD 283403 08/29/89 09/01/89
Chloromethane	10	15 U	14 U	14 U	12 U	14 U	12 U	13 U	13 U
Bromomethane	10	15 U	14 U	14 U	12 U	14 U	12 U	13 U	13 U
Vinyl Chloride	10	15 U	14 U	14 U	12 U	14 U	12 U	13 U	13 U
Chloroethane	10	15 U	14 U	14 U	12 U	14 U	12 U	13 U	13 U
Methylene Chloride	5	9 B	7 B	20 B	15 B	23 B	39 B	33 B	11 B
Acetone	10	33 B	30 B	16 B	6 J	8 J	9 J	14	9 BJ
Carbon Disulfide	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
1,1-Dichloroethene	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
1,1-Dichloroethane	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
1,2-Dichloroethene (total)	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
Chloroform	5	7 U	7 U	2 J	6 U	7 U	6 U	6 U	2 J
1,2-Dichloroethane	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
2-Butanone	10	15 U	14 U	14 U	12 U	14 U	12 U	13 U	13 U
1,1,1-Trichloroethane	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
Carbon Tetrachloride	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
Vinyl Acetate	10	15 U	14 U	14 U	12 U	14 U	12 U	13 U	13 U
Bromodichloromethane	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
1,2-Dichloropropane	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
Cis-1,3-Dichloropropene	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
Trichloroethene	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
Dibromochloromethane	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
1,1,2-Trichloroethane	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
Benzene	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
Trans-1,3-Dichloropropene	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
Bromoform	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
4-Methyl-2-Pentanone	10	15 U	14 U	14 U	12 U	14 U	12 U	13 U	13 U
2-Hexanone	10	15 U	14 U	14 U	12 U	14 U	12 U	13 U	13 U
Tetrachloroethene	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
1,1,2,2-Tetrachloroethane	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
Toluene	5	7 U	7 U	7 U	2 JB	2 JB	3 JB	1 JB	7 U
Chlorobenzene	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
Ethylbenzene	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
Styrene	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
Xylenes (Total)	5	7 U	7 U	7 U	6 U	7 U	6 U	6 U	7 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		67	72	73	81	74	83	77	76
Associated Method Blank:		GM084915C12	GM084915C12	GM083580C18	GM083586C19	GM083586C19	GM083586C19	GM083586C19	GM083580C18
Associated Equipment Blank:		00QS003XXX04XX	00QS003XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		09SD921XXX04XX	09SD922XXX04XX	09SD923XXX04XX	09SD924XXX04XX	09SD925XXX04XX	09SD926XXX04XX	09SD927XXX04XX
LAB NUMBER:		283391	283395	284447	284446	284205	284212	283698
DATE SAMPLED:		08/29/89	08/29/89	09/01/89	09/01/89	08/31/89	08/31/89	08/30/89
DATE ANALYZED:		09/05/89	09/07/89	09/10/89	09/10/89	09/09/89	09/09/89	09/09/89
ANALYTE	CRQL							
Chloromethane	10	13 U	13 U	26 U	13 U	14 U	91 U	34 U
Bromomethane	10	13 U	13 U	26 U	13 U	14 U	91 U	34 U
Vinyl Chloride	10	13 U	13 U	26 U	13 U	14 U	91 U	34 U
Chloroethane	10	13 U	13 U	26 U	13 U	14 U	91 U	34 U
Methylene Chloride	5	15 B	150 B	38 B	15 B	24 B	84 B	46 B
Acetone	10	13 U	43 B	26 U	21 B	27 B	340 B	97 B
Carbon Disulfide	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
1,1-Dichloroethene	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
1,1-Dichloroethane	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
1,2-Dichloroethene (total)	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
Chloroform	5	3 J	2 J	13 U	2 J	7 U	13 J	17 U
1,2-Dichloroethane	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
2-Butanone	10	13 U	13 U	26 U	13 U	14 U	91 U	10 J
1,1,1-Trichloroethane	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
Carbon Tetrachloride	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
Vinyl Acetate	10	13 U	13 U	26 U	13 U	14 U	91 U	34 U
Bromodichloromethane	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
1,2-Dichloropropane	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
Cis-1,3-Dichloropropene	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
Trichloroethene	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
Dibromochloromethane	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
1,1,2-Trichloroethane	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
Benzene	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
Trans-1,3-Dichloropropene	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
Bromoform	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
4-Methyl-2-Pentanone	10	13 U	13 U	26 U	13 U	14 U	91 U	34 U
2-Hexanone	10	13 U	13 U	26 U	13 U	14 U	91 U	34 U
Tetrachloroethene	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
1,1,2,2-Tetrachloroethane	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
Toluene	5	6 U	6 U	13 U	6 U	7 U	470	460
Chlorobenzene	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
Ethylbenzene	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
Styrene	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
Xylenes (Total)	5	6 U	6 U	13 U	6 U	7 U	45 U	17 U
Dilution Factor:		1	1	1	1	1	1	1
Percent Solids:		80	79	38	80	74	11	29
Associated Method Blank:		GH083586C19	GH083926C18	GH084915C12	GH084915C12	GH084914B12	GH084914B12	GH085191C19
Associated Equipment Blank:		00QS002XXX04XX	00QS002XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SD002XXX04XX	02SD003XXX04XX	01SD004XXX04XX	08SD008XXX04XX	09SD010XXX04XX	09SD011XXX04XX	09SD012XXX04XX	01SD113XXX04XX
LAB NUMBER:		283062	283063	283064	284438	283392	283393	283394	284124
DATE SAMPLED:		08/28/89	08/28/89	08/28/89	09/01/89	08/29/89	08/29/89	08/29/89	08/31/89
DATE EXTRACTED:		08/30/89	08/31/89	08/31/89	09/07/89	08/31/89	08/31/89	08/31/89	09/06/89
DATE ANALYZED:		09/01/89	08/31/89	08/31/89	09/08/89	09/03/89	09/04/89	09/04/89	09/07/89
Phenol	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
bis(2-Chloroethyl)ether	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
2-Chlorophenol	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
1,3-Dichlorobenzene	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
1,4-Dichlorobenzene	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
Benzyl alcohol	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
1,2-Dichlorobenzene	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
2-Methylphenol	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
bis(2-Chloroisopropyl)ether	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
4-Methylphenol	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
N-Nitroso-di-n-propylamine	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
Hexachloroethane	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
Nitrobenzene	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
Isophorone	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
2-Nitrophenol	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
2,4-Dimethylphenol	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
Benzoic acid	1600	2600 U	2100 U	2500 U	2300 U	2000 U	2000 U	100 J	2300 U
bis(2-Chloroethoxy)methane	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
2,4-Dichlorophenol	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
1,2,4-Trichlorobenzene	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
Naphthalene	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
4-Chloroaniline	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
Hexachlorobutadiene	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
4-Chloro-3-Methylphenol	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
2-Methylnaphthalene	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
Hexachlorocyclopentadiene	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
2,4,6-Trichlorophenol	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
2,4,5-Trichlorophenol	1600	2600 U	2100 U	2500 U	2300 U	2000 U	2000 U	2000 U	2300 U
2-Chloronaphthalene	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
2-Nitroaniline	1600	2600 U	2100 U	2500 U	2300 U	2000 U	2000 U	2000 U	2300 U
Dimethylphthalate	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
Acenaphthylene	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
2,6-Dinitrotoluene	330	530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION:	01SD002XXX04XX	02SD003XXX04XX	01SD004XXX04XX	08SD008XXX04XX	09SD010XXX04XX	09SD011XXX04XX	09SD012XXX04XX	01SD113XXX04XX
		LAB NUMBER:	283062	283063	283064	284438	283392	283393	283394	284124
		DATE SAMPLED:	08/28/89	08/28/89	08/28/89	09/01/89	08/29/89	08/29/89	08/29/89	08/31/89
		DATE EXTRACTED:	08/30/89	08/31/89	08/31/89	09/07/89	08/31/89	08/31/89	08/31/89	09/06/89
		DATE ANALYZED:	09/01/89	08/31/89	08/31/89	09/08/89	09/03/89	09/04/89	09/04/89	09/07/89
3-Nitroaniline	1600		2600 U	2100 U	2500 U	2300 U	2000 U	2000 U	2000 U	2300 U
Acenaphthene	330		530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
2,4-Dinitrophenol	1600		2600 U	2100 U	2500 U	2300 U	2000 U	2000 U	2000 U	2300 U
4-Nitrophenol	1600		2600 U	2100 U	2500 U	2300 U	2000 U	2000 U	2000 U	2300 U
Dibenzofuran	330		530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
2,4-Dinitrotoluene	330		530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
Diethylphthalate	330		530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
4-Chlorophenyl-phenylether	330		530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
Fluorene	330		530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
4-Nitroaniline	1600		2600 U	2100 U	2500 U	2300 U	2000 U	2000 U	2000 U	2300 U
4,6-Dinitro-2-methylphenol	1600		2600 U	2100 U	2500 U	2300 U	2000 U	2000 U	2000 U	2300 U
N-Nitrosodiphenylamine	330		530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
4-Bromophenyl-phenylether	330		530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
Hexachlorobenzene	330		530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
Pentachlorophenol	1600		2600 U	2100 U	2500 U	2300 U	2000 U	2000 U	2000 U	2300 U
Phenanthrene	330		530 U	380 J	320 J	460 U	260 J	210 J	280 J	81 J
Anthracene	330		530 U	440 U	69 J	460 U	57 J	140 J	410 U	480 U
Di-n-butylphthalate	330		530 U	440 U	70 J	460 U	410 U	400 U	410 U	480 U
Fluoranthene	330		530 U	490	490 J	460 U	780	500	560	230 J
Pyrene	330		530 U	460	480 J	460 U	600	690	510	150 J
Butylbenzylphthalate	330		530 U	440 U	510 U	460 U	410 U	400 U	150 J	480 U
3,3'-Dichlorobenzidine	660		1100 U	880 U	1000 U	930 U	820 U	810 U	820 U	960 U
Benzo(a)Anthracene	330		530 U	170 J	290 J	460 U	460	780	310 J	79 J
Chrysene	330		530 U	260 J	270 J	460 U	480	1600	340 J	91 J
bis(2-Ethylhexyl)phthalate	330		67 J	110 J	210 J	53 J	170 J	250 J	350 J	130 J
Di-n-octylphthalate	330		530 U	440 U	510 U	460 U	410 U	400 U	410 U	480 U
Benzo(b)Fluoranthene	330		530 U	150 J	410 JX	460 U	820 X	2500 X	530 X	68 J
Benzo(k)Fluoranthene	330		530 U	170 J	410 JX	460 U	820 X	2500 X	530 X	56 J
Benzo(a)Pyrene	330		530 U	160 J	230 J	460 U	420	1100	260 J	70 J
Indeno(1,2,3-cd)pyrene	330		530 U	62 J	91 J	460 U	130 J	460	82 J	480 U
Dibenz(a,h)anthracene	330		530 U	440 U	510 U	460 U	410 U	200 J	410 U	480 U
Benzo(g,h,i,)perylene	330		530 U	71 J	100 J	460 U	120 J	430	86 J	480 U
Dilution Factor:			1	1	1	1	1	1	1	1
Percent Solids:			62	75	65	71	81	82	81	69
Associated Method Blank:			GH083153C21	GH083484B21	GH083484B21	GH084904021	GH083913A21	GH083913A21	GH083913A21	GJ084635C22
Associated Equipment Blank:			SAMPLERBLANK01	00QS001XXX04XX	00QS001XXX04XX	00QS003XXX04XX	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS003XXX04XX
Associated Field Blanks:			SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = Held for Analysis, X = Compounds could not be separated due to coeluti

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	01SD114XXX04XX	01SD115XXX04XX	01SD118XXX04XX	01SD119XXX04XX	01SD120XXX04XX	01SD121XXX04XX	01SD122XXX04XX	01SD123XXX04XX
	LAB NUMBER:	284113	283061	284120	284131	283060	283057	283054	283055
	DATE SAMPLED:	08/31/89	08/28/89	08/31/89	08/31/89	08/28/89	08/28/89	08/28/89	08/28/89
	DATE EXTRACTED:	09/06/89	08/30/89	09/06/89	09/06/89	08/30/89	08/30/89	08/30/89	08/30/89
	DATE ANALYZED:	09/07/89	09/03/89	09/07/89	09/07/89	09/01/89	09/01/89	09/01/89	09/01/89
ANALYTE	CRQL								
Phenol	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
bis(2-Chloroethyl)ether	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
2-Chlorophenol	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
1,3-Dichlorobenzene	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
1,4-Dichlorobenzene	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Benzyl alcohol	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
1,2-Dichlorobenzene	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
2-Methylphenol	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
bis(2-Chloroisopropyl)ether	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
4-Methylphenol	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
N-Nitroso-di-n-propylamine	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Hexachloroethane	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Nitrobenzene	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Isophorone	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
2-Nitrophenol	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
2,4-Dimethylphenol	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Benzoic acid	1600	2100 U	3100 U	2300 U	2200 U	310 J	1200 J	2500 U	2100 U
bis(2-Chloroethoxy)methane	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
2,4-Dichlorophenol	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
1,2,4-Trichlorobenzene	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Naphthalene	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
4-Chloroaniline	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Hexachlorobutadiene	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
4-Chloro-3-Methylphenol	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
2-Methylnaphthalene	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Hexachlorocyclopentadiene	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
2,4,6-Trichlorophenol	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
2,4,5-Trichlorophenol	1600	2100 U	3100 U	2300 U	2200 U	2300 U	2900 U	2500 U	2100 U
2-Chloronaphthalene	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
2-Nitroaniline	1600	2100 U	3100 U	2300 U	2200 U	2300 U	2900 U	2500 U	2100 U
Dimethylphthalate	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Acenaphthylene	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
2,6-Dinitrotoluene	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SD114XXX04XX LAB NUMBER: 284113 DATE SAMPLED: 08/31/89 DATE EXTRACTED: 09/06/89 DATE ANALYZED: 09/07/89	01SD115XXX04XX 283061 08/28/89 08/30/89 09/03/89	01SD118XXX04XX 284120 08/31/89 09/06/89 09/07/89	01SD119XXX04XX 284131 08/31/89 09/06/89 09/07/89	01SD120XXX04XX 283060 08/28/89 08/30/89 09/01/89	01SD121XXX04XX 283057 08/28/89 08/30/89 09/01/89	01SD122XXX04XX 283054 08/28/89 08/30/89 09/01/89	01SD123XXX04XX 283055 08/28/89 08/30/89 09/01/89
3-Nitroaniline	1600	2100 U	3100 U	2300 U	2200 U	2300 U	2900 U	2500 U	2100 U
Acenaphthene	330	440 U	630 U	470 U	460 U	76 J	590 U	510 U	430 U
2,4-Dinitrophenol	1600	2100 U	3100 U	2300 U	2200 U	2300 U	2900 U	2500 U	2100 U
4-Nitrophenol	1600	2100 U	3100 U	2300 U	2200 U	2300 U	130 J	2500 U	2100 U
Dibenzofuran	330	440 U	630 U	470 U	460 U	65 J	590 U	510 U	430 U
2,4-Dinitrotoluene	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Diethylphthalate	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
4-Chlorophenyl-phenylether	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Fluorene	330	440 U	630 U	470 U	460 U	180 J	590 U	510 U	430 U
4-Nitroaniline	1600	2100 U	3100 U	2300 U	2200 U	2300 U	2900 U	2500 U	2100 U
4,6-Dinitro-2-methylphenol	1600	210 U	3100 U	2300 U	2200 U	2300 U	2900 U	2500 U	2100 U
N-Nitrosodiphenylamine	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
4-Bromophenyl-phenylether	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Hexachlorobenzene	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Pentachlorophenol	1600	2100 U	3100 U	2300 U	2200 U	2300 U	2900 U	2500 U	2100 U
Phenanthrene	330	160 J	630 U	220 J	460 U	2400	300 J	63 J	430 U
Anthracene	330	440 U	630 U	470 U	460 U	180 J	590 U	510 U	430 U
Di-n-butylphthalate	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Fluoranthene	330	290 J	750	400 J	55 J	4500	690	210 J	60 J
Pyrene	330	220 J	590 J	320 J	52 J	4200	670	180 J	54 J
Butylbenzylphthalate	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
3,3'-Dichlorobenzidine	660	880 U	1300 U	940 U	920 U	960 U	1200 U	100 U	870 U
Benzo(a)Anthracene	330	100 J	260 J	180 J	460 U	1400	310 J	75 J	430 U
Chrysene	330	130 J	420 J	230 J	460 U	1900	500 J	120 J	430 U
bis(2-Ethylhexyl)phthalate	330	440 U	500 J	190 J	460 U	2200	1000	510 U	430 U
Di-n-octylphthalate	330	440 U	630 U	470 U	460 U	480 U	590 U	510 U	430 U
Benzo(b)Fluoranthene	330	170 JX	650 X	380 JX	54 JX	1200	370 J	150 JX	430 U
Benzo(k)Fluoranthene	330	170 JX	650 X	380 JX	54 JX	1000	260 J	150 JX	430 U
Benzo(a)Pyrene	330	91 J	290 J	190 J	460 U	1100	310 J	510 U	430 U
Indeno(1,2,3-cd)pyrene	330	440 U	140 J	470 U	460 U	590	220 J	510 U	430 U
Dibenz(a,h)anthracene	330	440 U	630 U	470 U	460 U	190 J	590 U	510 U	430 U
Benzo(g,h,i,)perylene	330	440 U	140 J	470 U	460 U	620	260 J	510 U	430 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		75	52	70	72	69	56	65	76
Associated Method Blank:		GJ084635C22	GH083153C21	GJ084635C22	GJ084635C22	GH083153C21	GH083153C21	GH083153C21	GH083153C21
Associated Equipment Blank:		00QS003XXX04XX	SAMPLERBLANK01	00QS003XXX04XX	00QS003XXX04XX	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK01
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* [illegible]d for Analysis, X = Compounds could not be separated due to coeluti[illegible]

BRSD-C[illegible]

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SD124XXX04XX	01SD124XXX04XD	01SD126XXX04XX	01SD127XXX04XX	01SD128XXX04XX	01SD129XXX04XX	02SD201XXX04XX	02SD202XXX04XX
LAB NUMBER:	283385	283390	284156	284152	284167	284179	283688	283689
DATE SAMPLED:	08/29/89	08/29/89	08/31/89	08/31/89	08/31/89	08/31/89	08/30/89	08/30/89
DATE EXTRACTED:	08/31/89	08/31/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89
DATE ANALYZED:	09/03/89	09/01/89	09/07/89	09/07/89	09/07/89	09/08/89	09/08/89	09/08/89

ANALYTE	CRQL								
Phenol	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
bis(2-Chloroethyl)ether	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
2-Chlorophenol	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
1,3-Dichlorobenzene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
1,4-Dichlorobenzene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Benzyl alcohol	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
1,2-Dichlorobenzene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
2-Methylphenol	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
bis(2-Chloroisopropyl)ether	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
4-Methylphenol	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
N-Nitroso-di-n-propylamine	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Hexachloroethane	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Nitrobenzene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Isophorone	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
2-Nitrophenol	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
2,4-Dimethylphenol	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Benzoic acid	1600	2300 U	2200 U	2700 U	3300 U	3000 U	3000 U	2200 U	130 J
bis(2-Chloroethoxy)methane	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
2,4-Dichlorophenol	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
1,2,4-Trichlorobenzene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Naphthalene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
4-Chloroaniline	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Hexacholorobutadiene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
4-Chloro-3-Methylphenol	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
2-Methylnaphthalene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Hexachlorocyclopentadiene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
2,4,6-Trichlorophenol	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
2,4,5-Trichlorophenol	1600	2300 U	2200 U	2700 U	3300 U	3000 U	3000 U	2200 U	2200 U
2-Chloronaphthalene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
2-Nitroaniline	1600	2300 U	2200 U	2700 U	3300 U	3000 U	3000 U	2200 U	2200 U
Dimethylphthalate	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Acenaphthylene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
2,6-Dinitrotoluene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SD124XXX04XX	01SD124XXX04XD	01SD126XXX04XX	01SD127XXX04XX	01SD128XXX04XX	01SD129XXX04XX	02SD201XXX04XX	02SD202XXX04XX
		LAB NUMBER: 283385	283390	284156	284152	284167	284179	283688	283689
		DATE SAMPLED: 08/29/89	08/29/89	08/31/89	08/31/89	08/31/89	08/31/89	08/30/89	08/30/89
		DATE EXTRACTED: 08/31/89	08/31/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89
		DATE ANALYZED: 09/03/89	09/01/89	09/07/89	09/07/89	09/07/89	09/08/89	09/08/89	09/08/89
3-Nitroaniline	1600	2300 U	2200 U	2700 U	3300 U	3000 U	3000 U	2200 U	2200 U
Acenaphthene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
2,4-Dinitrophenol	1600	2300 U	2200 U	2700 U	3300 U	3000 U	3000 U	2200 U	2200 U
4-Nitrophenol	1600	2300 U	2200 U	2700 U	3300 U	3000 U	3000 U	2200 U	2200 U
Dibenzofuran	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
2,4-Dinitrotoluene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Diethylphthalate	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
4-Chlorophenyl-phenylether	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Fluorene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
4-Nitroaniline	1600	2300 U	2200 U	2700 U	3300 U	3000 U	3000 U	2200 U	2200 U
4,6-Dinitro-2-methylphenol	1600	2300 U	2200 U	2700 U	3300 U	3000 U	3000 U	2200 U	2200 U
N-Nitrosodiphenylamine	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
4-Bromophenyl-phenylether	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Hexachlorobenzene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Pentachlorophenol	1600	2300 U	2200 U	2700 U	3300 U	3000 U	3000 U	2200 U	2200 U
Phenanthrene	330	140 J	110 J	550 U	690 U	620 U	620 U	450 U	460 U
Anthracene	330	50 J	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Di-n-butylphthalate	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Fluoranthene	330	380 J	230 J	550 U	690 U	620 U	620 U	450 U	460 U
Pyrene	330	370 J	280 J	550 U	690 U	620 U	620 U	450 U	460 U
Butylbenzylphthalate	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
3,3'-Dichlorobenzidine	660	960 U	890 U	1100 U	1400 U	1200 U	1200 U	890 U	920 U
Benzo(a)Anthracene	330	190 J	110 J	550 U	690 U	620 U	620 U	450 U	460 U
Chrysene	330	270 J	150 J	550 U	690 U	620 U	620 U	450 U	460 U
bis(2-Ethylhexyl)phthalate	330	100 J	75 J	240 J	100 J	620 U	620 U	450 U	55 J
Di-n-octylphthalate	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Benzo(b)Fluoranthene	330	390 JX	120 J	550 U	690 U	620 U	620 U	450 U	460 U
Benzo(k)Fluoranthene	330	390 JX	58 J	550 U	690 U	620 U	620 U	450 U	460 U
Benzo(a)Pyrene	330	180 J	99 J	550 U	690 U	620 U	620 U	450 U	460 U
Indeno(1,2,3-cd)pyrene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Dibenz(a,h)anthracene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Benzo(g,h,i,)perylene	330	480 U	450 U	550 U	690 U	620 U	620 U	450 U	460 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		69	74	60	48	53	53	74	72
Associated Method Blank:		GH083492C16	GH083492C16	GJ084635C22	GJ084635C22	GJ084635C22	GJ084635C22	GH084621C21	GH084728B02
Associated Equipment Blank:		00QS002XXX04XX*	00QS002XXX04XX*	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* [illegible]d for Analysis, X = Compounds could not be separated due to coelut[illegible]

BRSD-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	BSSD203XXX04XX	03SD301XXX04XX	03SD302XXX04XX	03SD303XXX04XX	03SD303XXX04XD	03SD304XXX04XX	03SD305XXX04XX	03SD306XXX04XX
LAB NUMBER:	293375	283051	283690	283691	283693	283694	283696	283695
DATE SAMPLED:	10/06/89	08/28/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89
DATE EXTRACTED:	10/11/89	08/30/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89
DATE ANALYZED:	10/15/89	08/31/89	09/07/89	09/07/89	09/07/89	09/08/89	09/07/89	09/07/89
ANALYTE	CRQL							
Phenol	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
bis(2-Chloroethyl)ether	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
2-Chlorophenol	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
1,3-Dichlorobenzene	330	1400 U	800 U	580 U	71 J	110 J	2500 U	490 U	490 U
1,4-Dichlorobenzene	330	1400 U	800 U	580 U	92 J	120 J	2000 J	310 J	490 U
Benzyl alcohol	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
1,2-Dichlorobenzene	330	1400 U	800 U	580 U	54 J	88 J	2500 U	490 U	490 U
2-Methylphenol	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
bis(2-Chloroisopropyl)ether	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
4-Methylphenol	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
N-Nitroso-di-n-propylamine	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Hexachloroethane	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Nitrobenzene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Isophorone	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
2-Nitrophenol	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
2,4-Dimethylphenol	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Benzoic acid	1600	6700 U	3900 U	2800 U	62 J	2200 U	1100 J	2400 U	2400 U
bis(2-Chloroethoxy)methane	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
2,4-Dichlorophenol	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
1,2,4-Trichlorobenzene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Naphthalene	330	1400 U	800 U	580 U	440 U	450 U	520 J	73 J	490 U
4-Chloroaniline	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Hexacholorobutadiene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
4-Chloro-3-Methylphenol	330	1400 U	800 U	580 U	440 U	450 U	270 J	490 U	490 U
2-Methylnaphthalene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Hexachlorocyclopentadiene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
2,4,6-Trichlorophenol	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
2,4,5-Trichlorophenol	1600	6700 U	3900 U	2800 U	2100 U	2200 U	12000 U	2400 U	2400 U
2-Chloronaphthalene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
2-Nitroaniline	1600	6700 U	3900 U	2800 U	2100 U	2200 U	12000 U	2400 U	2400 U
Dimethylphthalate	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Acenaphthylene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
2,6-Dinitrotoluene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: BSSD203XXX04XX	03SD301XXX04XX	03SD302XXX04XX	03SD303XXX04XX	03SD303XXX04XD	03SD304XXX04XX	03SD305XXX04XX	03SD306XXX04XX
		LAB NUMBER: 293375	283051	283690	283691	283693	283694	283696	283695
		DATE SAMPLED: 10/06/89	08/28/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89
		DATE EXTRACTED: 10/11/89	08/30/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89
		DATE ANALYZED: 10/15/89	08/31/89	09/07/89	09/07/89	09/07/89	09/08/89	09/07/89	09/07/89
3-Nitroaniline	1600	6700 U	3900 U	2800 U	2100 U	2200 U	12000 U	2400 U	2400 U
Acenaphthene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
2,4-Dinitrophenol	1600	6700 U	3900 U	2800 U	2100 U	2200 U	12000 U	2400 U	2400 U
4-Nitrophenol	1600	6700 U	3900 U	2800 U	2100 U	450 U	12000 U	2400 U	2400 U
Dibenzofuran	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
2,4-Dinitrotoluene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Diethylphthalate	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
4-Chlorophenyl-phenylether	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Fluorene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
4-Nitroaniline	1600	6700 U	3900 U	2800 U	2100 U	2200 U	12000 U	2400 U	2400 U
4,6-Dinitro-2-methylphenol	1600	6700 U	3900 U	2800 U	2100 U	2200 U	12000 U	2400 U	2400 U
N-Nitrosodiphenylamine	330	1400 U	800 U	580 U	440 U	450 U	430 J	490 U	490 U
4-Bromophenyl-phenylether	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Hexachlorobenzene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Pentachlorophenol	1600	6700 U	3900 U	2800 U	2100 U	2200 U	12000 U	2400 U	2400 U
Phenanthrene	330	1400 U	800 U	580 U	48 J	450 U	2500 U	490 U	490 U
Anthracene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Di-n-butylphthalate	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Fluoranthene	330	1400 U	800 U	580 U	56 J	47 J	2500 U	490 U	490 U
Pyrene	330	1400 U	800 U	580 U	63 J	58 J	2500 U	490 U	490 U
Butylbenzylphthalate	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
3,3'-Dichlorobenzidine	660	2800 U	1600 U	1200 U	880 U	900 U	51000 U	970 U	970 U
Benzo(a)Anthracene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Chrysene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
bis(2-Ethylhexyl)phthalate	330	1400 U	800 U	210 J	110 J	160 J	610 J	160 J	74 J
Di-n-octylphthalate	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Benzo(b)Fluoranthene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Benzo(k)Fluoranthene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Benzo(a)Pyrene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Indeno(1,2,3-cd)pyrene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Dibenz(a,h)anthracene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Benzo(g,h,i,)perylene	330	1400 U	800 U	580 U	440 U	450 U	2500 U	490 U	490 U
Dilution Factor:		1	1	1	1	1	1	1	1
Percent Solids:		24	41	57	75	73	13	68	68
Associated Method Blank:		GJ093838804	GH083152A20	GH084728B02	GH084728B02	GH084728B02	GH084728B02	GH084728B02	GH084728B02
Associated Equipment Blank:		BSQSXX1XXX04XX	SAMPLERBLANK01	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		-	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* [illegible] for Analysis, X = Compounds could not be separated due to coeluti[illegible]

BRSD-[illegible]

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	03SD307XXX04XX	03SD316XXX04XX	03SD317XXX04XX	03SD318XXX04XX	03SD318XXX04XD	03SD319XXX04XX	08SD801XXX04XX	08SD802XXX04XX
LAB NUMBER:	283697	283052	283056	283687	283692	283053	284445	284449
DATE SAMPLED:	08/30/89	08/28/89	08/28/89	08/30/89	08/30/89	08/28/89	09/01/89	09/01/89
DATE EXTRACTED:	09/06/89	08/30/89	08/30/89	09/06/89	09/06/89	08/30/89	09/07/89	09/07/89
DATE ANALYZED:	09/07/89	09/03/89	09/03/89	09/07/89	09/07/89	09/01/89	09/09/89	09/08/89

ANALYTE	CRQL								
Phenol	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
bis(2-Chloroethyl)ether	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
2-Chlorophenol	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
1,3-Dichlorobenzene	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
1,4-Dichlorobenzene	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
Benzyl alcohol	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
1,2-Dichlorobenzene	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
2-Methylphenol	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
bis(2-Chloroisopropyl)ether	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
4-Methylphenol	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
N-Nitroso-di-n-propylamine	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
Hexachloroethane	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
Nitrobenzene	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
Isophorone	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
2-Nitrophenol	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
2,4-Dimethylphenol	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
Benzoic acid	1600	3100 U	2000 U	2000 U	2200 U	2600 U	2400 U	2200 U	4800 U
bis(2-Chloroethoxy)methane	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
2,4-Dichlorophenol	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
1,2,4-Trichlorobenzene	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
Naphthalene	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
4-Chloroaniline	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
Hexachlorobutadiene	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
4-Chloro-3-Methylphenol	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
2-Methylnaphthalene	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
Hexachlorocyclopentadiene	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
2,4,6-Trichlorophenol	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
2,4,5-Trichlorophenol	1600	3100 U	2000 U	2000 U	2200 U	2600 U	2400 U	2200 U	4800 U
2-Chloronaphthalene	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
2-Nitroaniline	1600	3100 U	2000 U	2000 U	2200 U	2600 U	2400 U	2200 U	4800 U
Dimethylphthalate	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
Acenaphthylene	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
2,6-Dinitrotoluene	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		03SD307XXX04XX	03SD316XXX04XX	03SD317XXX04XX	03SD318XXX04XX	03SD318XXX04XD	03SD319XXX04XX	08SD801XXX04XX	08SD802XXX04XX
LAB NUMBER:		283697	283052	283056	283687	283692	283053	284445	284449
DATE SAMPLED:		08/30/89	08/28/89	08/28/89	08/30/89	08/30/89	08/28/89	09/01/89	09/01/89
DATE EXTRACTED:		09/06/89	08/30/89	08/30/89	09/06/89	09/06/89	08/30/89	09/07/89	09/07/89
DATE ANALYZED:		09/07/89	09/03/89	09/03/89	09/07/89	09/07/89	09/01/89	09/09/89	09/08/89
ANALYTE	CRQL								
3-Nitroaniline	1600	3100 U	2000 U	200 U	2200 U	2600 U	2400 U	2200 U	4800 U
Acenaphthene	330	630 U	45 J	80 J	450 U	540 U	490 U	460 U	990 U
2,4-Dinitrophenol	1600	3100 U	2000 U	2000 U	2200 U	2600 U	2400 U	2200 U	4800 U
4-Nitrophenol	1600	3100 U	2000 U	2000 U	2200 U	2600 U	2400 U	2200 U	4800 U
Dibenzofuran	330	630 U	410 U	47 J	450 U	540 U	490 U	460 U	990 U
2,4-Dinitrotoluene	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
Diethylphthalate	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
4-Chlorophenyl-phenylether	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
Fluorene	330	630 U	79 J	110 J	450 U	540 U	490 U	460 U	990 U
4-Nitroaniline	1600	3100 U	2000 U	2000 U	2200 U	2600 U	2400 U	2200 U	4800 U
4,6-Dinitro-2-methylphenol	1600	3100 U	2000 U	2000 U	2200 U	2600 U	2400 U	2200 U	4800 U
N-Nitrosodiphenylamine	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
4-Bromophenyl-phenylether	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
Hexachlorobenzene	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
Pentachlorophenol	1600	3100 U	2000 U	2000 U	2200 U	2600 U	2400 U	2200 U	4800 U
Phenanthrene	330	630 U	1600	1600	53 J	170 J	490 U	180 J	490 J
Anthracene	330	630 U	160 J	200 J	450 U	540 U	490 U	460 U	170 J
Di-n-butylphthalate	330	630 U	410 U	410 U	450 U	540 U	69 J	460 U	990 U
Fluoranthene	330	93 J	4300	4000	90 J	210 J	490 U	330 J	1300
Pyrene	330	140 J	3400	2900	100 J	230 J	490 U	290 J	830 J
Butylbenzylphthalate	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
3,3'-Dichlorobenzidine	660	1300 U	830 U	830 U	890 U	1100 U	990 U	920 U	2000 U
Benzo(a)Anthracene	330	630 U	1100	1200	46 J	79 J	490 U	150 J	320 J
Chrysene	330	77 J	1700	1400	59 J	130 J	490 U	140 J	400 J
bis(2-Ethylhexyl)phthalate	330	250 J	2900	2300	71 J	100 J	490 U	100 BJ	100 J
Di-n-octylphthalate	330	630 U	410 U	410 U	450 U	540 U	490 U	460 U	990 U
Benzo(b)Fluoranthene	330	630 U	2100 X	1800 X	87 JX	110 J	490 U	120 J	370 J
Benzo(k)Fluoranthene	330	630 U	2100 X	1800 X	87 JX	86 J	490 U	100 J	190 J
Benzo(a)Pyrene	330	630 U	910	820	450 U	96 J	490 U	140 J	290 J
Indeno(1,2,3-cd)pyrene	330	630 U	420	350 J	450 U	540 U	490 U	68 J	990 U
Dibenz(a,h)anthracene	330	630 U	140 J	110 J	450 U	540 U	490 U	460 U	990 U
Benzo(g,h,i,)perylene	330	630 U	430	370 J	450 U	540 U	490 U	79 J	990 U
Dilution Factor:		1	1	1	1	1	1	1	2
Percent Solids:		52	80	80	74	61	67	72	67
Associated Method Blank:		GH084728B02	GH083153C21	GH083153C21	GH084621C21	GH084728B02	GH083153C21	G2J84925A08	GJ084902C04
Associated Equipment Blank:		00QS003XXX04XX	SAMPLERBLANK01	SAMPLERBLANK01	00QS003XXX04XX	00QS003XXX04XX	SAMPLERBLANK01	00QS003XXX04XX	00QS003XXX04XX
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* [illegible]d for Analysis, X = Compounds could not be separated due to coeluti[illegible]

BRSD-C[illegible]

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	08SD803XXX04XX	08SD818XXX04XX	08SD822XXX04XX	08SD822XXX04XD	08SD823XXX04XX	08SD824XXX04XX	09SD901XXX04XX	09SD915XXX04XX
LAB NUMBER:	284448	284442	284441	284443	284439	284440	283396	283386
DATE SAMPLED:	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	08/29/89	08/29/89
DATE EXTRACTED:	09/07/89	09/07/89	09/08/89	09/07/89	09/07/89	09/07/89	08/31/89	08/31/89
DATE ANALYZED:	09/08/89	09/08/89	09/12/89	09/08/89	09/08/89	09/08/89	09/01/89	09/04/89

ANALYTE	CRQL								
Phenol	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
bis(2-Chloroethyl)ether	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
2-Chlorophenol	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
1,3-Dichlorobenzene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
1,4-Dichlorobenzene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
Benzyl alcohol	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
1,2-Dichlorobenzene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
2-Methylphenol	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	160 J
bis(2-Chloroisopropyl)ether	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
4-Methylphenol	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
N-Nitroso-di-n-propylamine	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
Hexachloroethane	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
Nitrobenzene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
Isophorone	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
2-Nitrophenol	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
2,4-Dimethylphenol	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
Benzoic acid	1600	4400 U	2800 U	2100 U	2000 U	8000 U	18000 U	130 BJ	4000 U
bis(2-Chloroethoxy)methane	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
2,4-Dichlorophenol	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
1,2,4-Trichlorobenzene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
Naphthalene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	200 J
4-Chloroaniline	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
Hexachlorobutadiene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
4-Chloro-3-Methylphenol	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
2-Methylnaphthalene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	110 J
Hexachlorocyclopentadiene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
2,4,6-Trichlorophenol	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
2,4,5-Trichlorophenol	1600	4400 U	2800 U	2100 U	2000 U	8000 U	18000 U	2200 U	4000 U
2-Chloronaphthalene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
2-Nitroaniline	1600	4400 U	2800 U	2100 U	2000 U	8000 U	18000 U	2200 U	4000 U
Dimethylphthalate	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
Acenaphthylene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
2,6-Dinitrotoluene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	08SD803XXX04XX	08SD818XXX04XX	08SD822XXX04XX	08SD822XXX04XD	08SD823XXX04XX	08SD824XXX04XX	09SD901XXX04XX	09SD915XXX04XX
LAB NUMBER:	284448	284442	284441	284443	284439	284440	283396	283386
DATE SAMPLED:	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	08/29/89	08/29/89
DATE EXTRACTED:	09/07/89	09/07/89	09/08/89	09/07/89	09/07/89	09/07/89	08/31/89	08/31/89
DATE ANALYZED:	09/08/89	09/08/89	09/12/89	09/08/89	09/08/89	09/08/89	09/01/89	09/04/89

ANALYTE	CRQL								
3-Nitroaniline	1600	4400 U	2800 U	2100 U	2000 U	8000 U	18000 U	2200 U	4000 U
Acenaphthene	330	110 J	570 U	420 U	410 U	1700 U	3700 U	450 U	470 J
2,4-Dinitrophenol	1600	4400 U	2800 U	2100 U	2000 U	8000 U	18000 U	2200 U	4000 U
4-Nitrophenol	1600	4400 U	2800 U	2100 U	2000 U	8000 U	18000 U	2200 U	4000 U
Dibenzofuran	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	170 J
2,4-Dinitrotoluene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
Diethylphthalate	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
4-Chlorophenyl-phenylether	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
Fluorene	330	110 J	570 U	420 U	410 U	1700 U	3700 U	450 U	320 J
4-Nitroaniline	1600	4400 U	2800 U	2100 U	2000 U	8000 U	18000 U	2200 U	4000 U
4,6-Dinitro-2-methylphenol	1600	4400 U	2800 U	2100 U	2000 U	8000 U	18000 U	2200 U	4000 U
N-Nitrosodiphenylamine	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
4-Bromophenyl-phenylether	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
Hexachlorobenzene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
Pentachlorophenol	1600	4400 U	2800 U	2100 U	2000 U	8000 U	18000 U	2200 U	4000 U
Phenanthrene	330	540 J	200 J	100 J	130 J	1700 U	3700 U	200 J	3400
Anthracene	330	220 J	570 U	420 U	410 U	1700 U	3700 U	450 U	430 J
Di-n-butylphthalate	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
Fluoranthene	330	1400	420 J	260 J	280 J	280 J	3700 U	410 J	11000
Pyrene	330	1000	350 J	340 J	300 J	200 J	3700 U	420 J	7700
Butylbenzylphthalate	330	920 U	570 U	420 U	410 U	1700 U	3700 U	820	1000
3,3'-Dichlorobenzidine	660	1800 U	1100 U	850 U	830 U	3300 U	7300 U	900 U	1600 U
Benzo(a)Anthracene	330	500 J	200 J	140 J	180 J	1700 U	3700 U	180 J	2900
Chrysene	330	530 J	260 J	180 J	220 J	1700 U	3700 U	230 J	3700
bis(2-Ethylhexyl)phthalate	330	920 U	570 U	49 J	42 J	1700 U	3700 U	350 J	1900
Di-n-octylphthalate	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	810 U
Benzo(b)Fluoranthene	330	290 J	380 JX	140 J	260 JX	1700 U	3700 U	190 J	5800 X
Benzo(k)Fluoranthene	330	350 J	380 JX	93 J	260 JX	1700 U	3700 U	160 J	5800 X
Benzo(a)Pyrene	330	450 J	190 J	140 J	170 J	1700 U	3700 U	170 J	2600
Indeno(1,2,3-cd)pyrene	330	920 U	87 J	420 U	92 J	1700 U	3700 U	450 U	850
Dibenz(a,h)anthracene	330	920 U	570 U	420 U	410 U	1700 U	3700 U	450 U	310 J
Benzo(g,h,i,)perylene	330	920 U	91 J	420 U	110 J	1700 U	3700 U	450 U	820

Dilution Factor:	2	1	1	1	1	1	1	2
Percent Solids:	72	58	78	80	20	9	73	81
Associated Method Blank:	GJ084902C04	GH084904C21	GH085227C08	GH084904C21	GH084904C21	GH084904C21	GJ083498B06	GH083913A21
Associated Equipment Blank:	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS002XXX04XX*	00QS002XXX04XX*
Associated Field Blank:	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* x = [illegible] for Analysis, X = Compounds could not be separated due to coelutio[illegible]

BRSD-C[illegible]

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	09SD916XXX04XX	09SD919XXX04XX	09SD920XXX04XX	09SD920XXX04XD	09SD921XXX04XX	09SD921XXX04XX	09SD922XXX04XX	09SD923XXX04XX
LAB NUMBER:	283387	283388	283389	283403	283391	283391DL	283395	284447
DATE SAMPLED:	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	09/01/89
DATE EXTRACTED:	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	09/07/89
DATE ANALYZED:	09/03/89	09/03/89	09/03/89	09/01/89	09/03/89	09/07/89	09/04/89	09/08/89

ANALYTE	CRQL								
Phenol	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
bis(2-Chloroethyl)ether	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
2-Chlorophenol	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
1,3-Dichlorobenzene	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
1,4-Dichlorobenzene	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
Benzyl alcohol	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
1,2-Dichlorobenzene	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
2-Methylphenol	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
bis(2-Chloroisopropyl)ether	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
4-Methylphenol	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
N-Nitroso-di-n-propylamine	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
Hexachloroethane	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
Nitrobenzene	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
Isophorone	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
2-Nitrophenol	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
2,4-Dimethylphenol	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
Benzoic acid	1600	2200 U	49 J	2100 U	2100 U	2000 U	20000 U	50 J	1500 J
bis(2-Chloroethoxy)methane	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
2,4-Dichlorophenol	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
1,2,4-Trichlorobenzene	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
Naphthalene	330	61 J	400 U	160 J	430 U	410 U	4100 U	420 U	870 U
4-Chloroaniline	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
Hexachlorobutadiene	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
4-Chloro-3-Methylphenol	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
2-Methylnaphthalene	330	450 U	400 U	77 J	430 U	410 U	4100 U	420 U	870 U
Hexachlorocyclopentadiene	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
2,4,6-Trichlorophenol	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
2,4,5-Trichlorophenol	1600	2200 U	1900 U	2100 U	2100 U	2000 U	20000 U	2000 U	4200 U
2-Chloronaphthalene	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
2-Nitroaniline	1600	2200 U	1900 U	2100 U	2100 U	2000 U	20000 U	2000 U	4200 U
Dimethylphthalate	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
Acenaphthylene	330	61 J	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
2,6-Dinitrotoluene	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 09SD916XXX04XX	09SD919XXX04XX	09SD920XXX04XX	09SD920XXX04XD	09SD921XXX04XX	09SD921XXX04XX	09SD922XXX04XX	09SD923XXX04XX
		LAB NUMBER: 283387	283388	283389	283403	283391	283391DL	283395	284447
		DATE SAMPLED: 08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	09/01/89
		DATE EXTRACTED: 08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	09/07/89
		DATE ANALYZED: 09/03/89	09/03/89	09/03/89	09/01/89	09/03/89	09/07/89	09/04/89	09/08/89
3-Nitroaniline	1600	2200 U	1900 U	2100 U	2100 U	2000 U	20000 U	2000 U	4200 U
Acenaphthene	330	71 J	400 U	300 J	59 J	260 J	4100 U	420 U	870 U
2,4-Dinitrophenol	1600	2200 U	1900 U	2100 U	2100 U	2000 U	20000 U	2000 U	4200 U
4-Nitrophenol	1600	2200 U	1900 U	2100 U	2100 U	2000 U	20000 U	2000 U	4200 U
Dibenzofuran	330	110 J	400 U	130 J	430 U	62 J	4100 U	420 U	870 U
2,4-Dinitrotoluene	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
Diethylphthalate	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
4-Chlorophenyl-phenylether	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
Fluorene	330	180 J	400 U	250 J	100 J	250 J	4100 U	420 U	870 U
4-Nitroaniline	1600	2200 U	1900 U	2100 U	2100 U	2000 U	20000 U	2000 U	4200 U
4,6-Dinitro-2-methylphenol	1600	2200 U	1900 U	2100 U	2100 U	2000 U	20000 U	2000 U	4200 U
N-Nitrosodiphenylamine	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
4-Bromophenyl-phenylether	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
Hexachlorobenzene	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
Pentachlorophenol	1600	2200 U	1900 U	2100 U	2100 U	2000 U	20000 U	2000 U	4200 U
Phenanthrene	330	380 J	420	1500	1100	5400	4800 D	180 J	870 U
Anthracene	330	130 J	88 J	380 J	200 J	670	920 DJ	420 U	870 U
Di-n-butylphthalate	330	450 U	4000 U	430 U	430 U	410 U	4100 U	420 U	870 U
Fluoranthene	330	990	2500	1800	1600	27000 E	44000 D	400 J	870 U
Pyrene	330	1300	2400	1300	1200	22000 E	32000 D	330 J	870 U
Butylbenzylphthalate	330	450 U	400 U	430 U	430 U	69 J	4100 U	420 U	870 U
3,3'-Dichlorobenzidine	660	890 U	800 U	860 U	870 U	830 U	8300 U	840 U	1700 U
Benzo(a)Anthracene	330	740	1500	760	610	14000 E	13000 D	180 J	870 U
Chrysene	330	980	1500	770	620	12000 E	15000 D	230 J	870 U
bis(2-Ethylhexyl)phthalate	330	540	620	100 J	500	500	4100 U	230 J	870 U
Di-n-octylphthalate	330	450 U	400 U	430 U	430 U	410 U	4100 U	420 U	870 U
Benzo(b)Fluoranthene	330	780 X	4100 X	1300 X	420 J	17000 EX	13000 DX	360 JX	870 U
Benzo(k)Fluoranthene	330	780 X	4100 X	1300 X	390 J	17000 EX	13000 DX	360 JX	870 U
Benzo(a)Pyrene	330	520	2100	770	440	7600 E	7100 D	200 J	870 U
Indeno(1,2,3-cd)pyrene	330	200 J	890	300 J	130 J	2300	2400 DJ	420 U	870 U
Dibenz(a,h)anthracene	330	110 J	330 J	120 J	430 U	1200	1000 DJ	420 U	870 U
Benzo(g,h,i,)perylene	330	390 J	960	330 J	140 J	2400	2300 DJ	420 U	870 U
Dilution Factor:		1	1	1	1	1	10	1	1
Percent Solids:		74	83	77	76	80	80	79	38
Associated Method Blank:		GH083913A21	GH083913A21	GH083913A21	GJ083498B06	GH083913A21	GH083913A21	GH083913A21	GH084904C21
Associated Equipment Blank:		00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS002XXX04XX*	00QS003XXX04XX
Associated Field Blanks:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = [illegible] for Analysis, X = Compounds could not be separated due to coelutio[illegible]

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	09SD924XXX04XX	09SD925XXX04XX	09SD926XXX04XX	09SD927XXX04XX	09SDFLOCXX04XX
LAB NUMBER:	284446	284205	284212	283698	283705
DATE SAMPLED:	09/01/89	08/31/89	08/31/89	08/30/89	08/30/89
DATE EXTRACTED:	09/07/89	09/05/89	09/05/89	09/01/89	09/01/89
DATE ANALYZED:	09/08/89	09/06/89	09/06/89	09/04/89	09/04/89

ANALYTE	CRQL					
Phenol	330	410 U	440 U	1000 J	730 J	1100 U
bis(2-Chloroethyl)ether	330	410 U	440 U	3000 U	1100 U	1100 U
2-Chlorophenol	330	410 U	440 U	3000 U	1100 U	1100 U
1,3-Dichlorobenzene	330	410 U	440 U	3000 U	1100 U	1100 U
1,4-Dichlorobenzene	330	410 U	440 U	3000 U	1100 U	1100 U
Benzyl alcohol	330	410 U	440 U	3000 U	1100 U	1100 U
1,2-Dichlorobenzene	330	410 U	440 U	3000 U	1100 U	1100 U
2-Methylphenol	330	410 U	440 U	3000 U	1100 U	1100 U
bis(2-Chloroisopropyl)ether	330	410 U	440 U	3000 U	1100 U	1100 U
4-Methylphenol	330	410 U	440 U	9100	9800	1100 U
N-Nitroso-di-n-propylamine	330	410 U	440 U	3000 U	1100 U	1100 U
Hexachloroethane	330	410 U	440 U	3000 U	1100 U	1100 U
Nitrobenzene	330	410 U	440 U	3000 U	1100 U	1100 U
Isophorone	330	410 U	440 U	3000 U	1100 U	1100 U
2-Nitrophenol	330	410 U	440 U	3000 U	1100 U	1100 U
2,4-Dimethylphenol	330	410 U	440 U	3000 U	1100 U	1100 U
Benzoic acid	1600	2000 U	2100 U	3400 J	3100 J	5300 U
bis(2-Chloroethoxy)methane	330	410 U	440 U	3000 U	1100 U	1100 U
2,4-Dichlorophenol	330	410 U	440 U	3000 U	1100 U	1100 U
1,2,4-Trichlorobenzene	330	410 U	440 U	3000 U	1100 U	1100 U
Naphthalene	330	410 U	440 U	3000 U	1100 U	1100 U
4-Chloroaniline	330	410 U	440 U	3000 U	1100 U	1100 U
Hexacholorobutadiene	330	410 U	440 U	3000 U	1100 U	1100 U
4-Chloro-3-Methylphenol	330	410 U	440 U	3000 U	1100 U	1100 U
2-Methylnaphthalene	330	410 U	440 U	3000 U	1100 U	1100 U
Hexachlorocyclopentadiene	330	410 U	440 U	3000 U	1100 U	1100 U
2,4,6-Trichlorophenol	330	410 U	440 U	3000 U	1100 U	1100 U
2,4,5-Trichlorophenol	1600	2000 U	2100 U	14000 U	5500 U	5300 U
2-Chloronaphthalene	330	410 U	440 U	3000 U	1100 U	1100 U
2-Nitroaniline	1600	2000 U	2100 U	14000 U	5500 U	5300 U
Dimethylphthalate	330	410 U	440 U	3000 U	1100 U	1100 U
Acenaphthylene	330	410 U	440 U	3000 U	1100 U	1100 U
2,6-Dinitrotoluene	330	410 U	440 U	3000 U	1100 U	1100 U

* = Held for Analysis, X = Compounds could not be separated due to coelution.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		09SD924XXX04XX	09SD925XXX04XX	09SD926XXX04XX	09SD927XXX04XX	09SDFLOCXX04XX
LAB NUMBER:		284446	284205	284212	283698	283705
DATE SAMPLED:		09/01/89	08/31/89	08/31/89	08/30/89	08/30/89
DATE EXTRACTED:		09/07/89	09/05/89	09/05/89	09/01/89	09/01/89
DATE ANALYZED:		09/08/89	09/06/89	09/06/89	09/04/89	09/04/89
ANALYTE	CRQL					
3-Nitroaniline	1600	2000 U	2100 U	14000 U	5500 U	5300 U
Acenaphthene	330	410 U	440 U	3000 U	1100 U	1100 U
2,4-Dinitrophenol	1600	2000 U	2100 U	14000 U	5500 U	5300 U
4-Nitrophenol	1600	200 U	2100 U	14000 U	5500 U	5300 U
Dibenzofuran	330	410 U	440 U	3000 U	1100 U	1100 U
2,4-Dinitrotoluene	330	410 U	440 U	3000 U	1100 U	1100 U
Diethylphthalate	330	410 U	440 U	3000 U	1100 U	1100 U
4-Chlorophenyl-phenylether	330	410 U	440 U	3000 U	1100 U	1100 U
Fluorene	330	410 U	440 U	3000 U	1100 U	1100 U
4-Nitroaniline	1600	2000 U	2100 U	14000 U	5500 U	5300 U
4,6-Dinitro-2-methylphenol	1600	2000 U	2100 U	14000 U	5500 U	5300 U
N-Nitrosodiphenylamine	330	410 U	440 U	3000 U	1100 U	1100 U
4-Bromophenyl-phenylether	330	410 U	440 U	3000 U	1100 U	1100 U
Hexachlorobenzene	330	410 U	440 U	3000 U	1100 U	1100 U
Pentachlorophenol	1600	2000 U	2100 U	14000 U	5500 U	5300 U
Phenanthrene	330	150 J	440 U	3000 U	250 J	580 J
Anthracene	330	410 U	440 U	3000 U	1100 U	1100 U
Di-n-butylphthalate	330	44 J	440 U	3000 U	1100 U	1100 U
Fluoranthene	330	250 J	440 U	540 J	430 J	2100
Pyrene	330	190 J	440 U	3000 U	360 J	2000
Butylbenzylphthalate	330	410 U	440 U	3000 U	1100 U	280 J
3,3'-Dichlorobenzidine	660	830 U	880 U	6000 U	2300 U	2200 U
Benzo(a)Anthracene	330	120 J	440 U	3000 U	210 J	570 J
Chrysene	330	150 J	440 U	3000 U	270 J	800 J
bis(2-Ethylhexyl)phthalate	330	130 J	75 J	1400 J	200 J	960 J
Di-n-octylphthalate	330	410 U	440 U	3000 U	1100 U	1100 U
Benzo(b)Fluoranthene	330	230 JX	440 U	3000 U	310 JX	850 JX
Benzo(k)Fluoranthene	330	230 JX	440 U	3000 U	310 JX	850 JX
Benzo(a)Pyrene	330	120 J	440 U	3000 U	180 J	470 J
Indeno(1,2,3-cd)pyrene	330	80 J	440 U	3000 U	130 J	230 J
Dibenz(a,h)anthracene	330	410 U	440 U	3000 U	1100 U	1100 U
Benzo(g,h,i,)perylene	330	83 J	440 U	3000 U	1100 U	210 J
Dilution Factor:		1	1	1	1	1
Percent Solids:		80	74	11	29	30
Associated Method Blank:		GH084904C21	GH084570A06	GH084570A06	G2J84266A16	G2J84266A16
Associated Equipment Blank:		00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	-
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	-

* = Held for Analysis, X = Compounds could not be separated due to coelution

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SD002XXX04XX	02SD003XXX04XX	01SD004XXX04XX	08SD008XXX04XD	01SD113XXX04XX	01SD114XXX04XX	01SD115XXX04XX	01SD118XXX04XX
LAB NUMBER:	283062	283063	283064	284444	284124	284113	283061	284120
DATE SAMPLED:	08/28/89	08/28/89	08/28/89	09/01/89	08/31/89	08/31/89	08/28/89	08/31/89
DATE EXTRACTED:	08/30/89	08/31/89	08/31/89	09/07/89	09/06/89	09/06/89	08/30/89	09/06/89
DATE ANALYZED:	09/01/89	09/01/89	09/01/89	09/11/89	09/08/89	09/08/89	09/01/89	09/08/89

ANALYTE	CRQL								
alpha-BHC	8	13 U	11 U	25 U	11 U	12 U	11 U	31 U	11 U
beta-BHC	8	13 U	11 U	25 U	11 U	12 U	11 U	31 U	11 U
delta-BHC	8	13 U	11 U	25 U	11 U	12 U	11 U	31 U	11 U
gamma-BHC (Lindane)	8	13 U	11 U	25 U	11 U	12 U	11 U	31 U	11 U
Heptachlor	8	13 U	11 U	25 U	11 U	12 U	11 U	31 U	11 U
Aldrin	8	13 U	11 U	25 U	11 U	12 U	11 U	31 U	11 U
Heptachlor epoxide	8	13 U	11 U	25 U	11 U	12 U	11 U	31 U	11 U
Endosulfan I	8	13 U	11 U	25 U	11 U	12 U	11 U	31 U	11 U
Dieldrin	16	26 U	21 U	49 U	21 U	23 U	21 U	62 U	23 U
4,4'-DDE	16	26 U	21 U	49 U	21 U	23 U	21 U	62 U	23 U
Endrin	16	26 U	21 U	49 U	21 U	23 U	21 U	62 U	23 U
Endosulfan II	16	26 U	21 U	49 U	21 U	23 U	21 U	62 U	23 U
4,4'-DDD	16	26 U	21 U	49 U	21 U	23 U	21 U	62 U	23 U
Endosulfan sulfate	16	26 U	21 U	49 U	21 U	23 U	21 U	62 U	23 U
4,4'-DDT	16	26 U	21 U	49 U	21 U	23 U	21 U	62 U	23 U
Methoxychlor	80	130 U	110 U	250 U	110 U	120 U	110 U	310 U	110 U
Endrin ketone	16	26 U	21 U	49 U	21 U	23 U	21 U	62 U	23 U
alpha-Chlordane	80	130 U	110 U	250 U	110 U	120 U	110 U	310 U	110 U
gamma-Chlordane	80	130 U	110 U	250 U	110 U	120 U	110 U	310 U	110 U
Toxaphene	160	260 U	210 U	490 U	210 U	230 U	210 U	620 U	230 U
Aroclor-1016	80	130 U	110 U	250 U	110 U	120 U	110 U	310 U	110 U
Aroclor-1221	80	130 U	110 U	250 U	110 U	120 U	110 U	310 U	110 U
Aroclor-1232	80	130 U	110 U	250 U	110 U	120 U	110 U	310 U	110 U
Aroclor-1242	80	130 U	110 U	250 U	110 U	120 U	110 U	310 U	110 U
Aroclor-1248	80	130 U	110 U	250 U	110 U	120 U	110 U	310 U	110 U
Aroclor-1254	160	260 U	210 U	490 U	210 U	230 U	210 U	620 U	230 U
Aroclor-1260	160	260 U	210 U	490 U	210 U	230 U	210 U	620 U	230 U

Dilution Factor:	1	1	2	1	1	1	2	1
Percent Solids:	62	75	65	75	69	75	52	70

Associated Method Blank:	283152	283484	283484	284890	284635	284635	283152	284635
Associated Equipment Blank:	SAMPLERBLANK01	00QS001XXX04XX	00QS001XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	SAMPLERBLANK01	00QS003XXX04XX
Associated Field Blank:	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = Held for Analysis.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SD119XXX04XX	01SD120XXX04XX	01SD121XXX04XX	01SD122XXX04XX	01SD123XXX04XX	01SD124XXX04XX	01SD124XXX04XD	01SD126XXX04XX
LAB NUMBER:	284131	283060	283057	283054	283055	283385	283390	284156
DATE SAMPLED:	08/31/89	08/28/89	08/28/89	08/28/89	08/28/89	08/29/89	08/29/89	08/31/89
DATE EXTRACTED:	09/06/89	08/30/89	08/30/89	08/30/89	08/30/89	08/31/89	08/31/89	09/06/89
DATE ANALYZED:	09/08/89	09/01/89	09/01/89	09/01/89	09/01/89	09/05/89	09/05/89	09/08/89

ANALYTE	CRQL								
alpha-BHC	8	11 U	12 U	14 U	12 U	10 U	12 U	11 U	13 U
beta-BHC	8	11 U	12 U	14 U	12 U	10 U	12 U	11 U	13 U
delta-BHC	8	11 U	12 U	14 U	12 U	10 U	12 U	11 U	13 U
gamma-BHC (Lindane)	8	11 U	12 U	14 U	12 U	10 U	12 U	11 U	13 U
Heptachlor	8	11 U	12 U	14 U	12 U	10 U	12 U	11 U	13 U
Aldrin	8	11 U	12 U	14 U	12 U	10 U	12 U	11 U	13 U
Heptachlor epoxide	8	11 U	12 U	14 U	12 U	10 U	12 U	11 U	13 U
Endosulfan I	8	11 U	12 U	14 U	12 U	10 U	12 U	11 U	13 U
Dieldrin	16	22 U	23 U	28 U	25 U	21 U	23 U	22 U	27 U
4,4'-DDE	16	22 U	23 U	28 U	25 U	21 U	23 U	22 U	27 U
Endrin	16	22 U	23 U	28 U	25 U	21 U	23 U	22 U	27 U
Endosulfan II	16	22 U	23 U	28 U	25 U	21 U	23 U	22 U	27 U
4,4'-DDD	16	22 U	23 U	28 U	25 U	21 U	23 U	22 U	27 U
Endosulfan sulfate	16	22 U	23 U	28 U	25 U	21 U	23 U	22 U	27 U
4,4'-DDT	16	22 U	23 U	28 U	25 U	21 U	23 U	22 U	27 U
Methoxychlor	80	110 U	120 U	140 U	120 U	100 U	120 U	110 U	130 U
Endrin ketone	16	22 U	23 U	28 U	25 U	21 U	23 U	22 U	27 U
alpha-Chlordane	80	110 U	120 U	140 U	120 U	100 U	120 U	110 U	130 U
gamma-Chlordane	80	110 U	120 U	140 U	120 U	100 U	120 U	110 U	130 U
Toxaphene	160	220 U	230 U	280 U	250 U	210 U	230 U	220 U	270 U
Aroclor-1016	80	110 U	120 U	140 U	120 U	100 U	120 U	110 U	130 U
Aroclor-1221	80	110 U	120 U	140 U	120 U	100 U	120 U	110 U	130 U
Aroclor-1232	80	110 U	120 U	140 U	120 U	100 U	120 U	110 U	130 U
Aroclor-1242	80	110 U	120 U	140 U	120 U	100 U	120 U	110 U	130 U
Aroclor-1248	80	110 U	120 U	140 U	120 U	100 U	120 U	110 U	130 U
Aroclor-1254	160	220 U	230 U	280 U	250 U	210 U	230 U	220 U	270 U
Aroclor-1260	160	220 U	230 U	280 U	250 U	210 U	230 U	220 U	270 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	72	69	56	65	76	69	74	60
Associated Method Blank:	284635	283152	283152	283152	283152	283492	283492	284635
Associated Equipment Blank:	00QS003XXX04XX	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK01	SAMPLERBLANK01	00QS002XXX04XX*	00QS002XXX04XX*	00QS003XXX04XX
Associated Field Blank:	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* Held for Analysis.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01SD126XXX04XX	01SD127XXX04XX	01SD128XXX04XX	01SD129XXX04XX	02SD201XXX04XX	02SD202XXX04XX	BSSD203XXX04XX	01SD301XXX04XX
LAB NUMBER:		284215	284152	284167	284179	283688	283689	293375	283051
DATE SAMPLED:		08/31/89	08/31/89	08/31/89	08/31/89	08/30/89	08/30/89	10/06/89	08/28/89
DATE EXTRACTED:		09/14/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89	10/11/89	08/30/89
DATE ANALYZED:		09/20/89	09/08/89	09/08/89	09/08/89	09/07/89	09/08/89	10/14/89	09/01/89
ANALYTE	CRQL								
alpha-BHC	8	10 U	33 U	15 U	15 U	11 U	11 U	33 U	20 U
beta-BHC	8	10 U	33 U	15 U	15 U	11 U	11 U	33 U	20 U
delta-BHC	8	10 U	33 U	15 U	15 U	11 U	11 U	33 U	20 U
gamma-BHC (Lindane)	8	10 U	33 U	15 U	15 U	11 U	11 U	33 U	20 U
Heptachlor	8	10 U	33 U	15 U	15 U	11 U	11 U	33 U	20 U
Aldrin	8	10 U	33 U	15 U	15 U	11 U	11 U	33 U	20 U
Heptachlor epoxide	8	10 U	33 U	15 U	15 U	11 U	11 U	33 U	20 U
Endosulfan I	8	10 U	33 U	15 U	15 U	11 U	11 U	33 U	20 U
Dieldrin	16	20 U	67 U	30 U	30 U	22 U	22 U	67 U	39 U
4,4'-DDE	16	20 U	67 U	30 U	30 U	22 U	22 U	67 U	39 U
Endrin	16	20 U	67 U	30 U	30 U	22 U	22 U	67 U	39 U
Endosulfan II	16	20 U	67 U	30 U	30 U	22 U	22 U	67 U	39 U
4,4'-DDD	16	20 U	67 U	30 U	30 U	22 U	22 U	67 U	39 U
Endosulfan sulfate	16	20 U	67 U	30 U	30 U	22 U	22 U	67 U	39 U
4,4'-DDT	16	20 U	67 U	30 U	30 U	22 U	22 U	67 U	39 U
Methoxychlor	80	100 U	330 U	150 U	150 U	110 U	110 U	330 U	200 U
Endrin ketone	16	20 U	67 U	30 U	30 U	22 U	22 U	67 U	39 U
alpha-Chlordane	80	100 U	330 U	150 U	150 U	110 U	110 U	330 U	200 U
gamma-Chlordane	80	100 U	330 U	150 U	150 U	110 U	110 U	330 U	200 U
Toxaphene	160	200 U	670 U	300 U	300 U	220 U	220 U	670 U	390 U
Aroclor-1016	80	100 U	330 U	150 U	150 U	110 U	110 U	330 U	200 U
Aroclor-1221	80	100 U	330 U	150 U	150 U	110 U	110 U	330 U	200 U
Aroclor-1232	80	100 U	330 U	150 U	150 U	110 U	110 U	330 U	200 U
Aroclor-1242	80	100 U	330 U	150 U	150 U	110 U	110 U	330 U	200 U
Aroclor-1248	80	100 U	330 U	150 U	150 U	110 U	110 U	330 U	200 U
Aroclor-1254	160	200 U	670 U	300 U	300 U	220 U	220 U	670 U	390 U
Aroclor-1260	160	200 U	670 U	300 U	300 U	220 U	220 U	670 U	390 U
Dilution Factor:		1	2	1	1	1	1	1	1
Percent Solids:		80	48	53	53	74	72	24	41
Associated Method Blank:		286878	284635	284635	284635	284622	284729	293838	283152
Associated Equipment Blank:		00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	BSQSXX1XXX04XX	SAMPLERBLANK01
Associated Field Blank:		SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	-	SOURCEWATER

* = Held for Analysis.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	03SD302XXX04XX	03SD303XXX04XX	03SD303XXX04XD	03SD304XXX04XX	03SD305XXX04XX	03SD306XXX04XX	03SD307XXX04XX	01SD316XXX04XX
LAB NUMBER:	283690	283691	283693	283694	283696	283695	283697	283052
DATE SAMPLED:	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/28/89
DATE EXTRACTED:	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89	08/30/89
DATE ANALYZED:	09/08/89	09/08/89	09/08/89	09/08/89	09/08/89	09/08/89	09/08/89	09/01/89

ANALYTE	CRQL								
alpha-BHC	8	14 U	11 U	11 U	62 U	12 U	12 U	15 U	10 U
beta-BHC	8	14 U	11 U	11 U	62 U	12 U	12 U	15 U	10 U
delta-BHC	8	14 U	11 U	11 U	62 U	12 U	12 U	15 U	10 U
gamma-BHC (Lindane)	8	14 U	11 U	11 U	62 U	12 U	12 U	15 U	10 U
Heptachlor	8	14 U	11 U	11 U	62 U	12 U	12 U	15 U	10 U
Aldrin	8	14 U	11 U	11 U	62 U	12 U	12 U	15 U	10 U
Heptachlor epoxide	8	14 U	11 U	11 U	62 U	12 U	12 U	15 U	10 U
Endosulfan I	8	14 U	11 U	11 U	62 U	12 U	12 U	15 U	10 U
Dieldrin	16	28 U	21 U	22 U	120 U	24 U	24 U	31 U	20 U
4,4'-DDE	16	28 U	21 U	22 U	120 U	24 U	24 U	31 U	20 U
Endrin	16	28 U	21 U	22 U	120 U	24 U	24 U	31 U	20 U
Endosulfan II	16	28 U	21 U	22 U	120 U	24 U	24 U	31 U	20 U
4,4'-DDD	16	28 U	21 U	22 U	120 U	24 U	24 U	31 U	20 U
Endosulfan sulfate	16	28 U	21 U	22 U	120 U	24 U	24 U	31 U	20 U
4,4'-DDT	16	28 U	21 U	22 U	120 U	24 U	24 U	31 U	20 U
Methoxychlor	80	140 U	110 U	110 U	620 U	120 U	120 U	150 U	100 U
Endrin ketone	16	28 U	21 U	22 U	120 U	24 U	24 U	31 U	20 U
alpha-Chlordane	80	140 U	110 U	110 U	620 U	120 U	120 U	150 U	100 U
gamma-Chlordane	80	140 U	110 U	110 U	620 U	120 U	120 U	150 U	100 U
Toxaphene	160	280 U	210 U	220 U	1200 U	240 U	240 U	310 U	200 U
Aroclor-1016	80	140 U	110 U	110 U	620 U	120 U	120 U	150 U	100 U
Aroclor-1221	80	140 U	110 U	110 U	620 U	120 U	120 U	150 U	100 U
Aroclor-1232	80	140 U	110 U	110 U	620 U	120 U	120 U	150 U	100 U
Aroclor-1242	80	140 U	110 U	110 U	620 U	120 U	120 U	150 U	100 U
Aroclor-1248	80	140 U	110 U	110 U	620 U	120 U	120 U	150 U	100 U
Aroclor-1254	160	280 U	210 U	220 U	1200 U	240 U	240 U	310 U	200 U
Aroclor-1260	160	280 U	210 U	220 U	1200 U	240 U	240 U	310 U	200 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	57	75	73	13	68	68	52	80

Associated Method Blank:	284729	284729	284729	284729	284729	284729	284729	283152
Associated Equipment Blank:	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	SAMPLERBLANK01
Associated Field Blank:	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

Held for Analysis.

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SD317XXX04XX	03SD318XXX04XX	03SD318XXX04XD	01SD319XXX04XX	08SD801XXX04XX	08SD802XXX04XX	08SD803XXX04XX	09SD901XXX04XX
LAB NUMBER:	283056	283687	283692	283053	284445	284449	284448	303220
DATE SAMPLED:	08/28/89	08/30/89	08/30/89	08/28/89	09/01/89	09/01/89	09/01/89	08/29/89
DATE EXTRACTED:	08/30/89	09/06/89	09/06/89	08/30/89	09/07/89	09/07/89	09/07/89	11/20/89
DATE ANALYZED:	09/01/89	09/07/89	09/08/89	09/01/89	09/10/89	09/08/89	09/09/89	11/22/89

ANALYTE	CRQL								
alpha-BHC	8	10 U	11 U	13 U	12 U	11 U	12 U	11 U	8.7 U
beta-BHC	8	10 U	11 U	13 U	12 U	11 U	12 U	11 U	8.7 U
delta-BHC	8	10 U	11 U	13 U	12 U	11 U	12 U	11 U	8.7 U
gamma-BHC (Lindane)	8	10 U	11 U	13 U	12 U	11 U	12 U	11 U	8.7 U
Heptachlor	8	10 U	11 U	13 U	12 U	11 U	12 U	11 U	8.7 U
Aldrin	8	10 U	11 U	13 U	12 U	11 U	12 U	11 U	8.7 U
Heptachlor epoxide	8	10 U	11 U	13 U	12 U	11 U	12 U	11 U	8.7 U
Endosulfan I	8	10 U	11 U	13 U	12 U	11 U	12 U	11 U	8.7 U
Dieldrin	16	20 U	22 U	26 U	24 U	22 U	24 U	22 U	17 U
4,4'-DDE	16	20 U	22 U	26 U	24 U	22 U	24 U	22 U	17 U
Endrin	16	20 U	22 U	26 U	24 U	22 U	24 U	22 U	17 U
Endosulfan II	16	20 U	22 U	26 U	24 U	22 U	24 U	22 U	17 U
4,4'-DDD	16	20 U	22 U	26 U	24 U	22 U	24 U	22 U	97
Endosulfan sulfate	16	20 U	22 U	26 U	24 U	22 U	24 U	22 U	17 U
4,4'-DDT	16	20 U	22 U	26 U	24 U	22 U	24 U	22 U	17 U
Methoxychlor	80	100 U	110 U	130 U	120 U	110 U	120 U	110 U	87 U
Endrin ketone	16	20 U	22 U	26 U	24 U	22 U	24 U	22 U	17 U
alpha-Chlordane	80	100 U	110 U	130 U	120 U	110 U	120 U	110 U	87 U
gamma-Chlordane	80	100 U	110 U	130 U	120 U	110 U	120 U	110 U	87 U
Toxaphene	160	200 U	220 U	260 U	240 U	220 U	240 U	220 U	170 U
Aroclor-1016	80	100 U	110 U	130 U	120 U	110 U	120 U	110 U	87 U
Aroclor-1221	80	100 U	110 U	130 U	120 U	110 U	120 U	110 U	87 U
Aroclor-1232	80	100 U	110 U	130 U	120 U	110 U	120 U	110 U	87 U
Aroclor-1242	80	100 U	110 U	130 U	120 U	110 U	120 U	110 U	87 U
Aroclor-1248	80	100 U	110 U	130 U	120 U	110 U	120 U	110 U	87 U
Aroclor-1254	160	200 U	220 U	260 U	240 U	220 U	240 U	220 U	170 U
Aroclor-1260	160	200 U	220 U	260 U	240 U	220 U	240 U	220 U	170 U

Dilution Factor:	1	1	1	1	1	1	1	1
Percent Solids:	80	74	61	67	72	67	72	92

Associated Method Blank:	283152	284622	284729	283152	284926	284902	284902	303466
Associated Equipment Blank:	SAMPLERBLANK01	00QS003XXX04XX	00QS003XXX04XX	SAMPLERBLANK01	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX	00QS002XXX04XX*
Associated Field Blank:	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER	SOURCEWATER

* = Held for Analysis.

BRSD-C

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01SD002XXX04XX	02SD003XXX04XX	01SD004XXX04XX	08SD008XXX04XX	09SD010XXX04XX	09SD011XXX04XX	09SD012XXX04XX	01SD115XXX04XX
LAB NUMBER:		283104	283113	283115	284470	284358	284359	284360	283102
DATE SAMPLED:		08/28/89	08/28/89	08/28/89	08/29/89	08/29/89	08/29/89	08/29/89	08/28/89
DATE ANALYZED:		09/01/89	09/01/89	09/01/89	09/19/89	09/15/89	09/19/89	09/19/89	09/01/89
ANALYTE	DL								
Total Organic Carbon	25	9500	2900	7600	1700	2700	1300	2100	17000
Percent Solids:		62	75	65	71	81	82	81	52
Associated Method Blank:		283972	283972	283972	288282	288283	288282	288282	283972
Associated Equipment Blank:		-	-	-	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	-

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick - Round 4 Sediment Samples - Miscellaneous Analysis (mg/kg) 23-Feb-90

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01SD120XXX04XX	01SD121XXX04XX	01SD122XXX04XX	01SD123XXX04XX	01SD124XXX04XX	01SD124XXX04XD	02SD201XXX04XX	02SD202XXX04XX
LAB NUMBER:		283100	283098	283092	283094	284337	284353	284293	284294
DATE SAMPLED:		08/28/89	08/28/89	08/28/89	08/28/89	08/29/89	08/29/89	08/30/89	08/30/89
DATE ANALYZED:		09/01/89	09/01/89	09/01/89	09/01/89	09/15/89	09/15/89	09/08/89	09/08/89
ANALYTE	DL								
Total Organic Carbon	25	6000	20000	12000	2000	4000	3300	4700	9100
Percent Solids:		69	56	65	76	69	74	74	72
Associated Method Blank:		283972	283972	283972	283972	288283	288283	285550	285550
Associated Equipment Blank:		-	-	-	-	00QS002XXX04XX	00QS002XXX04XX	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		03SD301XXX04XX	03SD302XXX04XX	03SD303XXX04XX	03SD303XXX04XD	03SD304XXX04XX	03SD305XXX04XX	03SD306XXX04XX	03SD307XXX04XX
LAB NUMBER:		283084	284295	284296	284298	284299	284304	284300	284305
DATE SAMPLED:		08/28/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89	08/30/89
DATE ANALYZED:		09/01/89	09/08/89	09/08/89	09/08/89	09/08/89	09/15/89	09/15/89	09/15/89
ANALYTE	DL								
Total Organic Carbon	25	15000	14000	3100	2200	30000	3900	1900	7400
Percent Solids:		41	57	75	73	13	68	68	52
Associated Method Blank:		283972	285550	285550	285550	285550	288283	288283	288283
Associated Equipment Blank:		-	-	-	-	-	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick - Round 4 Sediment Samples - Miscellaneous Analysis (mg/kg) 23-Feb-90

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	03SD316XXX04XX	03SD317XXX04XX	03SD318XXX04XX	03SD318XXX04XD	03SD319XXX04XX	08SD818XXX04XX	08SD822XXX04XX	08SD822XXX04XD
LAB NUMBER:	283085	283096	284292	284297	283087	284474	284473	284478
DATE SAMPLED:	08/28/89	08/28/89	08/30/89	08/30/89	08/28/89	09/01/89	09/01/89	09/01/89
DATE ANALYZED:	09/01/89	09/01/89	09/08/89	09/08/89	09/01/89	09/25/89	09/25/89	09/25/89
ANALYTE DL								
Total Organic Carbon 25	2300	2400	13000	7300	11000	23000	3300	3600
Percent Solids:	80	80	74	61	67	58	78	80
Associated Method Blank:	283972	283972	285550	285550	283972	289079	289079	289079
Associated Equipment Blank:	-	-	-	-	-	00QS003XXX04XX	00QS003XXX04XX	00QS003XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	08SD823XXX04XX	08SD824XXX04XX	09SD915XXX04XX	09SD916XXX04XX	09SD919XXX04XX	09SD920XXX04XX	09SD920XXX04XD	09SD921XXX04XX
LAB NUMBER:	284471	284472	284349	284351	284352	284332	284348	284357
DATE SAMPLED:	09/01/89	09/01/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89
DATE ANALYZED:	09/25/89	09/25/89	09/15/89	09/15/89	09/15/89	09/15/89	09/15/89	09/15/89
ANALYTE DL								
Total Organic Carbon 25	15000	7200	4800	11000	2200	3100	2700	1600
Percent Solids:	20	9	81	74	83	77	76	80
Associated Method Blank:	289079	289079	288283	288283	288283	288283	288283	288283
Associated Equipment Blank:	00QS003XXX04XX	00QS003XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX	00QS002XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		09SD922XXX04XX	09SD923XXX04XX	09SD924XXX04XX	09SD925XXX04XX	09SD926XXX04XX	09SD927XXX04XX
LAB NUMBER:		284361	284496	284495	284221	284225	284306
DATE SAMPLED:		08/29/89	09/01/89	09/01/89	08/31/89	08/31/89	08/30/89
DATE ANALYZED:		09/19/89	09/25/89	09/25/89	09/08/89	09/08/89	09/15/89
ANALYTE	DL						
Total Organic Carbon	25	1300	37000	3000	8600	55000	110000
Percent Solids:		79	38	80	74	11	29
Associated Method Blank:		288282	289079	289079	285550	285550	288283
Associated Equipment Blank:		00QS002XXX04XX	00QS003XXX04XX	00QS003XXX04XX	-	-	00QS003XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 02LT201XXX04XX LAB NUMBER: 283859 DATE SAMPLED: 08/30/89	02LT202XXX04XX 283862 08/30/89	BSLT203XXX04XX 293354 10/06/89	03LT301XXX04XX 283050 08/28/89	03LT302XXX04XX 283858 08/30/89	03LT303XXX04XX 283881 08/30/89	03LT303XXX04XD 283873 08/30/89	03LT304XXX04XX 283866 08/30/89
Aluminum	200	67300	81400	43200	199000	347000	66300	110000	119000
Antimony	60	50.2 U	50.2 U	43.9 []	384	117	52.4 []	76.9	103
Arsenic	10	15.2 +	28.4 +	50.9	11 UW	38.7 []W	27.3 $	22.6 $	590
Barium	200	143 []	690	329	3380	1500	656	940	2140
Beryllium	5	6.7	6.9	1.8 []	6	55.7	7.7	11.3	22.9
Cadmium	5	4.4 U	4.4 U	5 U	4.4 U	20.8	49.9	70	5.9
Calcium	5000	9580	22800	22800	134000	144000	67700	83500	273000
Chromium	10	50.4	133	41.7	58.2	321	82.6	147	151
Cobalt	50	38.2 []	116	97.8 E	1170	690	117	176	1240
Copper	25	60.3	121	53.7 E	511	490	171	264	344
Iron	100	96100	564000	416000	825000	1760000	542000	751000	1340000
Lead	5	35	123	171	1740	1230	402	575	1430
Magnesium	5000	9720	30900	8110	47300	53600	14900	22800	24700
Manganese	15	808	6930	3620	43000	50000	4940	6420	12100
Mercury	0.2	1.7	0.83	9.3	3.8	4.5	0.75	1.3	19.3
Nickel	40	53.9	142	55.7	156	560	279	406	689
Potassium	5000	2020 U	16600	3680 []E	4890 []	13200	7730	10100	3280 []
Selenium	5	1.6 UWN	16 UWN	10 UEN	8 UEN	16 UEN	16 UEN	16 UEN	16 UWN
Silver	10	11.5	5.7 U	8.4 []	12.2	9.3 []	5.7 U	5.7 U	8.6 []
Sodium	5000	6830	12600	15700 E	22300	15400	12300	13100	13700
Thallium	10	1.3 UW	1.5 []W	10 UW	26 UEN	1.3 []W	6.5 UW	6.8 []W	2.5 []W
Vanadium	50	124	331	250	2600	1290	477	773	819
Zinc	20	213 E	384 E	515	1770	1040 E	17600 E	24800 E	854 E
Cyanide	10	10 U	10 U	10 U	10 U	10.3	10 U	10 U	20.4
Associated Method Blank:		BR17603FW	BR17603FW	BR17603RW	MR17603D	BR17603FW	BR17603FW	BR17603FW	BR17603FW
Associated Equipment Blank:		-	-	BSQSXX1XXX04XX	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	03LT305XXX04XX	03LT306XXX04XX	03LT307XXX04XX	08LT801XXX04XX	08LT802XXX04XX	08LT803XXX04XX	09LT901XXX04XX
	LAB NUMBER:	283870	283857	283868	284430	284431	284432	283343
	DATE SAMPLED:	08/30/89	08/30/89	08/30/89	09/01/89	09/01/89	09/01/89	08/29/89
ANALYTE	CRQL							
Aluminum	200	60400	7070	437	70300	29100	17700	32000
Antimony	60	132	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	64.2
Arsenic	10	386 +	2.2 U	2.7 []	2.2 UW	24.6 S	14.5 S	37.1 +
Barium	200	894	85.1 []	55.5 []	464	450	329	693
Beryllium	5	4.6 []	1.7 []	0.7 U	2 []	0.7 U	0.7 U	3.4 []
Cadmium	5	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
Calcium	5000	81600	11700	18200	46500	99600	49300	49100
Chromium	10	19	7.4 []	6.2 U	82.1	35.2	40.8	40.3
Cobalt	50	526	9.2 []	6.5 []	57.7	37.5 []	28.7 []	107
Copper	25	226	17.6 []	15.1 []	117	85.5	59.6	211
Iron	100	2510000	10700	85600	353000	471000	380000	1200000
Lead	5	480	10.7	1.9 []	176	72.2	399	1210
Magnesium	5000	34100	3630 []	3240 []	21200	11300	11900	12400
Manganese	15	11400	613	1270	6500	1190	1030	2340
Mercury	0.2	0.41	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	40	348	35.8 U	35.8 U	37.8 []	35.8 U	35.8 U	57.7
Potassium	5000	9550	2020 U	2090 []	9440	2020 U	2020 U	2380 []
Selenium	5	16 UEN	1.6 UWN	1.6 UWN	8 UEN	16 UEN	8 UEN	16 UWN
Silver	10	7.9 []	6.1 []	12.2	7.6 []	5.7 U	5.7 U	5.7 U
Sodium	5000	54400	16800	18700	11100	49300	48600	35300
Thallium	10	6.5 UE	1.6 []W	1.3 UW	1.3 UW	1.3 UW	1.5 []W	6.5 UE
Vanadium	50	737	23 []	19.5 []	240	219	155	525
Zinc	20	622 E	90.6 E	82.3 E	428	192	194	1930 E
Cyanide	10	26.9	10 U	10 U	10.8	17.8	22.8	10 U
Associated Method Blank:		BR17603FW	BR17603FW	BR17603FW	MR17603M	MR17603M	MR17603M	BR17603FW
Associated Equipment Blank:		-	-	-	-	-	-	-

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		02LT201XXX04XX	02LT202XXX04XX	BSLT203XXX04XX	03LT301XXX04XX	03LT302XXX04XX	03LT303XXX04XX	03LT303XXX04XD	03LT304XXX04XX
LAB NUMBER:		283820	283822	293347	283024	28381B	283835	283833	283827
DATE SAMPLED:		08/30/89	08/30/89	10/06/89	08/28/89	08/30/89	08/30/89	08/30/89	08/30/89
DATE ANALYZED:		09/06/89	09/08/89	10/13/89	08/30/89	09/06/89	09/06/89	09/08/89	09/08/89
ANALYTE	CRQL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	1 BJ	1 BJ	5 U	5 U	3 BJ	3 BJ	2 BJ	2 BJ
Acetone	10	10 U	10 U	10 U	10 U	2 J	2 J	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890906A03	CB890908A13	CB891013C18	CB890830C19	CB890906A03	CB890906A03	CB890908A13	CB890908A13
Associated Trip Blank:		00QT003XXX04XX	00QT003XXX04XX	-	-	00QT003XXX04XX	00QT003XXX04XX	00QT003XXX04XX	00QT003XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	03LT305XXX04XX	03LT306XXX04XX	03LT307XXX04XX	08LT801XXX04XX	08LT802XXX04XX	08LT803XXX04XX	09LT901XXX04XX
	LAB NUMBER:	283831	283816	283829	284405	284410	284411	283310
	DATE SAMPLED:	08/30/89	08/30/89	08/30/89	09/01/89	09/01/89	09/01/89	08/29/89
	DATE ANALYZED:	09/08/89	09/06/89	09/06/89	09/09/89	09/09/89	09/09/89	09/05/89
ANALYTE	CRQL							
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	4 J	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	3 BJ	1 BJ	2 BJ	5 U	5 U	1 BJ	1 J
Acetone	10	10 U	10 U	10 U	10 U	10 U	10 U	1 J
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	16	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	1 J	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1
Associated Method Blank:		CB890908A13	CB890906A03	CB890908A13	CB890909A03	CB890909A03	CB890909A13	CC890905C03
Associated Trip Blank:		00QT003XXX04XX	00QT003XXX04XX	00QT003XXX04XX	00QT005XXX04XX	00QT005XXX04XX	00QT005XXX04XX	00QT002XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	02LT201XXX04XX	02LT202XXX04XX	BSLT203XXX04XX	03LT301XXX04XX	03LT302XXX04XX	03LT303XXX04XX	03LT303XXX04XD	03LT304XXX04XX
LAB NUMBER:	283820	283822	293347	283024	283818	283841	283833	283827
DATE SAMPLED:	08/30/89	08/30/89	10/06/89	08/28/89	08/30/89	08/30/89	08/30/89	08/30/89
DATE EXTRACTED:	09/01/89	09/01/89	10/11/89	08/30/89	09/01/89	09/05/89	09/01/89	09/01/89
DATE ANALYZED:	09/06/89	09/08/89	10/17/89	08/31/89	09/06/89	09/06/89	09/08/89	09/08/89

ANALYTE	CRQL								
Phenol	10	2 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	9 J	7 J	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	12	9 J	4 J
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	8 J	7 J	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	8 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	17 J	6 J	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		02LT201XXX04XX	02LT202XXX04XX	BSLT203XXX04XX	03LT301XXX04XX	03LT302XXX04XX	03LT303XXX04XX	03LT303XXX04XD	03LT304XXX04XX
LAB NUMBER:		283820	283822	293347	283024	283818	283841	283833	283827
DATE SAMPLED:		08/30/89	08/30/89	10/06/89	08/28/89	08/30/89	08/30/89	08/30/89	08/30/89
DATE EXTRACTED:		09/01/89	09/01/89	10/11/89	08/30/89	09/01/89	09/05/89	09/01/89	09/01/89
DATE ANALYZED:		09/06/89	09/08/89	10/17/89	08/31/89	09/06/89	09/06/89	09/08/89	09/08/89
ANALYTE	CRQL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U	3 J	5 J	3 J	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		GH084227C15	GJ084227A02	GH094180A21	GH083163C20	GH084227C15	GH084572A08	GJ084227A02	GJ084227A02

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	03LT305XXX04XX	03LT306XXX04XX	03LT307XXX04XX	08LT801XXX04XX	08LT802XXX04XX	08LT803XXX04XX	09LT901XXX04XX
LAB NUMBER:	283831	283816	283829	284405	284410	284411	283310
DATE SAMPLED:	08/30/89	08/30/89	08/30/89	09/01/89	09/01/89	09/01/89	08/29/89
DATE EXTRACTED:	09/01/89	09/01/89	09/01/89	09/05/89	09/05/89	09/05/89	08/31/89
DATE ANALYZED:	09/08/89	09/06/89	09/08/89	09/06/89	09/06/89	09/06/89	09/01/89

ANALYTE	CRQL							
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	7 J	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	14 J	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	03LT305XXX04XX	03LT306XXX04XX	03LT307XXX04XX	08LTB01XXX04XX	08LTB02XXX04XX	08LTB03XXX04XX	09LT901XXX04XX
LAB NUMBER:	283831	283816	283829	284405	284410	284411	283310
DATE SAMPLED:	08/30/89	08/30/89	08/30/89	09/01/89	09/01/89	09/01/89	08/29/89
DATE EXTRACTED:	09/01/89	09/01/89	09/01/89	09/05/89	09/05/89	09/05/89	08/31/89
DATE ANALYZED:	09/08/89	09/06/89	09/08/89	09/06/89	09/06/89	09/06/89	09/01/89

ANALYTE	CRQL							
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenephthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	4 J	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Dilution Factor:	1	1	1	1	1	1	1
Associated Method Blank:	GJ084227A02	GH084227C15	GJ084227A02	GJ084511B15	GJ084511B15	GH084519C06	GH083512C02

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	02LT201XXX04XX	02LT202XXX04XX	BSLT203XXX04XX	03LT301XXX04XX	03LT302XXX04XX	03LT303XXX04XX	03LT303XXX04XD	03LT304XXX04XX
LAB NUMBER:	283820	283822	293347	283024	283818	283841	283833	283827
DATE SAMPLED:	08/30/89	08/30/89	10/06/89	08/28/89	08/30/89	08/30/89	08/30/89	08/30/89
DATE EXTRACTED:	09/01/89	09/01/89	10/18/89	08/30/89	09/01/89	09/05/89	09/08/89	09/01/89
DATE ANALYZED:	09/08/89	09/06/89	10/20/89	09/10/89	09/06/89	09/08/89	09/10/89	09/08/89

ANALYTE	CRQL								
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
gamma-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1221	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1232	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1242	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1248	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		284264	284264	296226	283244	284264	284607	285217	284264

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	03LT305XXX04XX	03LT306XXX04XX	03LT307XXX04XX	08LT801XXX04XX	08LT802XXX04XX	08LT803XXX04XX	09LT901XXX04XX
	LAB NUMBER:	283831	283816	283829	284405	284410	284411	283310
	DATE SAMPLED:	08/30/89	08/30/89	08/30/89	09/01/89	09/01/89	09/01/89	08/29/89
	DATE EXTRACTED:	09/01/89	09/01/89	09/01/89	09/05/89	09/11/89	09/06/89	08/31/89
	DATE ANALYZED:	09/06/89	09/08/89	09/08/89	09/07/89	09/12/89	09/14/89	09/01/89
ANALYTE	CRQL							
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.69
Endrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.8
Endosulfan sulfate	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.13
Methoxychlor	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
gamma-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1221	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1232	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1242	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1248	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dilution Factor:		1	1	1	1	1	1	1
Associated Method Blank:		284264	284264	284264	284542	286114	284880	283510

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		00SW002XXX04XX	02SW003XXX04XX	01SW004XXX04XX	09SW010XXX04XX	09SW011XXX04XX	09SW012XXX04XX	01SW113XXX04XX	01SW114XXX04XX
LAB NUMBER:		283044	283047	283046	283352	283344	283353	284169	284187
DATE SAMPLED:		08/28/89	08/28/89	08/28/89	08/29/89	08/29/89	08/29/89	08/31/89	08/31/89
ANALYTE	CRQL								
Aluminum	200	56.3 []	90.3 []	96100	34.7 []	23 U	24.4 []	25.4 []	23 U
Antimony	60	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U
Arsenic	10	2.2 U	2.2 U	22.3 $	2.2 U	2.2 U	2.2 U	2.2 UW	2.2 UW
Barium	200	17.9 []	11.9 []	1340	16.3 []	24.7 []	22.9 []	13.9 []	11.1 []
Beryllium	5	0.7 U	0.7 U	12.8	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Cadmium	5	4.4 U	4.4 U	15.4	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
Calcium	5000	15500	7380	47900	14900	16300	16000	8560	8340
Chromium	10	6.2 U	6.2 U	183	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U
Cobalt	50	3.9 U	5.5 []	191	3.9 U	4.3 []	3.9 U	3.9 U	3.9 U
Copper	25	7.2 U	7.2 U	196	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U
Iron	100	3330	4950	635000	938	713	1440	788	619
Lead	5	1.1 UWN	1.1 UN	491	1.3 []W	1.1 UW	1.1 U	1.6 []	2 []
Magnesium	5000	2850 []	2290 []	30100	3490 []	3070 []	3040 []	2190 []	2050 []
Manganese	15	1070	180	31100	676	842	780	67.1	67.1
Mercury	0.2	0.2 U	0.2 U	0.77	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	40	35.8 U	35.8 U	223	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U
Potassium	5000	2130 []	2470 []	11500	2020 U	2320 []	2020 U	2020 U	2020 U
Selenium	5	1.6 UWN	3.2 UWN	3.2 UEN	1.6 UWN	1.6 UWN	1.6 UWN	1.6 UWN	1.6 UWN
Silver	10	5.7 U	5.7 U	6.9 []	5.7 U	9 []	6 []	5.7 U	5.7 U
Sodium	5000	16900	6710	12800	19500	17200	17700	8700	10900
Thallium	10	1.3 UWN	1.3 UWN	6.5 UWN	1.3 U	1.8 []W	1.3 U	2.3 []	1.7 []
Vanadium	50	3.5 []	6.2 []	418	6.3 []	7.5 []	6.6 []	4.7 []	5.4 []
Zinc	20	19.4 []	93.4	1780	22.7 E	13.9 []E	66.8 E	3.6 []	8.4 []
Cyanide	10	10 U	10 U	13	10 U	10 U	11.3	10 U	11.5
Associated Method Blank:		MR17603D	MR176030	MR17603D	BR17603FW	BR17603FW	BR17603FW	MR17603M	MR17603M

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 01SW115XXX04XX LAB NUMBER: 283043 DATE SAMPLED: 08/28/89	01SW118XXX04XX 284180 08/31/89	01SW119XXX04XX 284175 08/31/89	01SW120XXX04XX 283026 08/28/89	01SW121XXX04XX 283041 08/28/89	01SW122XXX04XX 283042 08/28/89	01SW123XXX04XX 283030 08/28/89	01SW124XXX04XX 283345 08/29/89
Aluminum	200	28.5 []	226	38 []	49.4 []	52.3 []	112 []	44.5 []	33.9 []
Antimony	60	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U
Arsenic	10	2.2 UW	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U
Barium	200	15.1 []	13.9 []	13.9 []	17.5 []	18.4 []	33.5 []	13.8 []	13.4 []
Beryllium	5	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Cadmium	5	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
Calcium	5000	8700	8360	8630	7820	7760	27400	8470	8450
Chromium	10	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U
Cobalt	50	3.9 U	4.9 []	3.9 U	4.6 []	3.9 U	11.1 []	4.6 []	3.9 U
Copper	25	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U
Iron	100	974	1030	660	986	1610	7060	853	791
Lead	5	1.1 UWN	2.6 []	1.4 []	1.1 UWN	1.1 UN	1.1 UN	1.1 UN	1.1 []
Magnesium	5000	2080 []	2010 []	2160 []	1940 []	1840 []	4660 []	2160 []	2270 []
Manganese	15	143	212	67.1	156	151	2500	113	78.5
Mercury	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	40	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U
Potassium	5000	2020 U	2020 U	2020 U	2530 []	2020 U	4980 []	3420 []	2020 U
Selenium	5	1.6 UWN	1.6 UWN	1.6 UWN	1.6 UWN	1.6 UWN	3.2 UWN	3.2 UWN	1.6 UWN
Silver	10	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	6.7 []
Sodium	5000	9670	12100	11200	9750	9320	6430	11300	9570
Thallium	10	1.3 UWN	1.7 []W	2 []W	1.3 UWN	1.3 UWN	1.3 UWN	1.3 UWN	1.3 UW
Vanadium	50	2.1 U	7.8 []	5.8 []	2.8 []	2.2 []	4.8 []	3.6 []	4 []
Zinc	20	18.4 []	24.6	10.1 []	19.4 []	138	53	51.7	29.7 E
Cyanide	10	10 U	15.6	10 U	10 U	10 U	10 U	10 U	10 U
Associated Method Blank:		MR17603D	MR17603M	MR17603M	MR17603D	MR17603D	MR17603D	MR17603D	BR17603FW

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SW125AXX04XX	01SW125AXX04XD	01SW126XXX04XX	01SW126XXX04XD	01SW127XXX04XX	01SW128XXX04XX	01SW129XXX04XX	03SW316XXX04XX
LAB NUMBER:	284157	284159	284189	284178	284184	284182	284158	283048
DATE SAMPLED:	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/28/89

ANALYTE	CRQL								
Aluminum	200	259	144 []	1060	475	1040	454	796	1210
Antimony	60	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U
Arsenic	10	2.2 U	2.2 UW	2.2 []	2.2 U	2.2 UW	11 U	4.4 U	2.2 U
Barium	200	4.2 []	4.2 []	13.9 []	11.1 []	13.9 []	10.9 []	11.1 []	34.9 []
Beryllium	5	1.4 []	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Cadmium	5	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
Calcium	5000	3680 []	3710 []	16000	15700	19900	107000	77700	9280
Chromium	10	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U
Cobalt	50	3.9 U	3.9 U	3.9 U	3.9 U	3.9 U	11.3 []	10 []	6.6 []
Copper	25	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U	7.2 U
Iron	100	993	524	2630	1550	3120	1120	1780	4150
Lead	5	3.6 []	12.4	3.7 []	2 []	2.7 []	10.6 []W	3 []+	5.6 N
Magnesium	5000	1160 []	1280 []	26800	26400	8900	324000	228000	2350 []
Manganese	15	14 []	11.1 []	210	167	277	67.1	72.5	401
Mercury	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	40	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U
Potassium	5000	2020 U	2020 U	6560	6990	10700	101000	71000	2880 []
Selenium	5	1.6 UWN	8 UWN	1.6 UN	1.6 UWN	1.6 UWN	14.4 []WN	5.1 []WN	3.2 UWN
Silver	10	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U
Sodium	5000	5130	5830	221000	216000	326000	2780000	1970000	9920
Thallium	10	1.3 U	2.2 []	2.1 []	1.4 []	1.7 []	8.6 []	2 []W	1.3 UWN
Vanadium	50	2.1 U	5.5 []	7.9 []	7.6 []	9.9 []	22.4 []	14.8 []	8.2 []
Zinc	20	24.4	31.8	30.8	25.3	20.7	6 []	27.8	88.1
Cyanide	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Associated Method Blank:	MR17603M	MR17603M	MR17603M	MR17603M	MR17603M	MR17603M	MR17603M	MR17603D

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 03SW317XXX04XX LAB NUMBER: 283039 DATE SAMPLED: 08/28/89	03SW318XXX04XX 283863 08/30/89	03SW318XXX04XD 283865 08/30/89	03SW319XXX04XX 283049 08/28/89	09SW915XXX04XX 283341 08/29/89	09SW916XXX04XX 283340 08/29/89	09SW919XXX04XX 283289 08/29/89	09SW920XXX04XX 283334 08/29/89
Aluminum	200	77.7 []	60500	21400	95.1 []	36.5 []	46 []	27.8 []	305
Antimony	60	50.2 U	122	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U
Arsenic	10	2.2 U	13.2 []W	70.9	2.2 UW	2.2 U	2.2 U	2.2 UW	3.3 []
Barium	200	19.3 []	1380	326	24.6 []	27.8 []	23.6 []	27.5 []	20.3 []
Beryllium	5	0.7 U	9.5	3 []	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
Cadmium	5	4.4 U	12.1	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
Calcium	5000	8010	78200	29000	15900	18200	17300	18000	16500
Chromium	10	6.2 U	68.7	27.9	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U
Cobalt	50	3.9 U	223	50.8	5.1 []	17.4 []	17.9 []	17.7 []	5.2 []
Copper	25	7.2 U	326	103	7.2 U	7.2 U	10 []	7.2 U	7.2 U
Iron	100	1160	1910000	323000	10500	1390	700	1110	5010
Lead	5	1.1 UN	415	169	1.1 UN	1.1 UN	1.1 UN	1.1 UN	5.4 SN
Magnesium	5000	1880 []	22100	7290	2880 []	3040 []	3320 []	3310 []	3570 []
Manganese	15	209	6880	1600	765	1150	711	1040	687
Mercury	0.2	0.2 U	1.1	0.55	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	40	35.8 U	153	60.3	35.8 U	35.8 U	40.2	35.8 U	35.8 U
Potassium	5000	2020 U	4030 []	2080 []	3080 []	9190	9240	8510	3160 []
Selenium	5	3.2 UEN	8 UEN	1.6 UWN	1.6 UWN	3.2 UWN	1.6 UWN	1.6 UWN	1.6 UWN
Silver	10	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U
Sodium	5000	9770	24600	20800	18500	23300	22800	22400	21100
Thallium	10	1.3 UWN	6.5 UW	1.3 UW	1.3 UWN	1.3 UWN	1.3 UWN	1.3 UWN	1.3 UWN
Vanadium	50	2.8 []	721	185	6.3 []	15.6 []	17 []	15.6 []	5 []
Zinc	20	152	6760 E	1280 E	182	27	79.5	29.1	68.3
Cyanide	10	10 U	14.1	20.8	10 U	10 U	10 U	10 U	10 U
Associated Method Blank:		MR17603D	BR17603FW	BR17603FW	MR17603D	MR17603D	MR17603D	MR17603D	MR17603D

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

ANALYTE	CRQL	SAMPLE LOCATION: 09SW920XXX04XD LAB NUMBER: 283342 DATE SAMPLED: 08/29/89	09SW921XXX04XX 283337 08/29/89	09SW922XXX04XX 283339 08/29/89	09SW923XXX04XX 284433 09/01/89	09SW924XXX04XX 284434 09/01/89	09SW925XXX04XX 284188 08/31/89	09SW926XXX04XX 284186 08/31/89	09SW927XXX04XX 283883 08/30/89
Aluminum	200	146 []	23 U	23.8 []	2660	289	188 []	39.6 []	23 U
Antimony	60	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U	50.2 U
Arsenic	10	2.2 U	2.2 UW	2.2 UW	2.4 []W	2.2 U	2.2 UW	2.2 UW	2.2 U
Barium	200	19.3 []	24.3 []	22.2 []	66.5 []	27.2 []	19.4 []	13.4 []	8.2 []
Beryllium	5	0.7 U	0.7 U	0.7 U	1.2 []	0.7 U	0.7 U	0.7 U	0.7 U
Cadmium	5	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U	4.4 U
Calcium	5000	16800	17300	16600	8610	13200	9780	8120	7940
Chromium	10	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U	6.2 U
Cobalt	50	17.1 []	16.8 []	16.3 []	4.8 []	4.3 []	3.9 U	4.2 []	3.9 U
Copper	25	15 []	10 []	7.2 U	7.8 []	7.2 U	7.2 U	7.2 U	7.2 U
Iron	100	2380	528	616	8350	1920	1410	904	701
Lead	5	1.9 []WN	1.1 UN	1.1 UWN	40.9	5.2	3.9 []	2.7 []	1.1 U
Magnesium	5000	3740 []	3290 []	3280 []	2250 []	2760 []	2240 []	1930 []	1950 []
Manganese	15	613	765	640	1170	1140	724	205	118
Mercury	0.2	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Nickel	40	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U	35.8 U
Potassium	5000	8620	8620	9090	2020 U	2020 U	2020 U	2020 U	2020 U
Selenium	5	1.6 UWN	1.6 UWN	1.6 UWN	8 UWN	8 UWN	1.6 UWN	1.6 UWN	1.6 UWN
Silver	10	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	5.7 U	7.9 []
Sodium	5000	24300	21500	22600	6290	14800	12300	12000	10700
Thallium	10	1.3 UWN	1.3 UWN	1.3 UWN	1.3 U	1.3 U	1.3 U	1.7 []W	1.3 U
Vanadium	50	17.8 []	14.6 []	16.7 []	15.7 []	4.3 []	8.4 []	6.9 []	5.8 []
Zinc	20	59.1	28.5	34.3	189	71.9	67.3	22.2	9.4 []E
Cyanide	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Associated Method Blank:		MR17603D	MR17603D	MR17603D	MR17603M	MR17603M	MR17603M	MR17603M	BR17603FW

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01SW002XXX04XX	01SW003XXX04XX	01SW004XXX04XX	09SW010XXX04XX	09SW011XXX04XX	09SW012XXX04XX	01SW113XXX04XX	01SW114XXX04XX
LAB NUMBER:		283012	283016	283015	283321	283315	283323	284128	284142
DATE SAMPLED:		08/28/89	08/28/89	08/28/89	08/29/89	08/29/89	08/29/89	08/31/89	08/31/89
DATE ANALYZED:		08/30/89	08/30/89	08/30/89	09/06/89	09/06/89	09/06/89	09/08/89	09/09/89
ANALYTE	CRQL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	2 J	5 U	5 U	1 BJ	5 U	7 B	2 J
Acetone	10	10 U	10 U	10 U	10 U	10 U	10 U	5 J	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	3 J	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	2 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890830C19	CB890830C19	CB890830C19	CC890905B03	CC890905B03	CB890906A03	CB890908A03	CB890909C03
Associated Trip Blank:		00QT001XXX04XX	00QT001XXX04XX	00QT001XXX04XX	00QT002XXX04XX	00QT002XXX04XX	00QT002XXX04XX	00QT004XXX04XX	00QT004XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SW115XXX04XX	01SW118XXX04XX	01SW119XXX04XX	01SW120XXX04XX	01SW121XXX04XX	01SW122XXX04XX	01SW123XXX04XX	01SW124XXX04XX
LAB NUMBER:	283011	284135	284130	283003	283009	283010	283004	283318
DATE SAMPLED:	08/28/89	08/31/89	08/31/89	08/28/89	08/28/89	08/28/89	08/28/89	08/29/89
DATE ANALYZED:	08/30/89	09/09/89	09/09/89	08/30/89	08/30/89	08/30/89	08/30/89	09/06/89

ANALYTE	CRQL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	1 J	5 U	5 U	5 U	5 U	5 U
Acetone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890830C19	CB890909C03	CB890909C03	CB890830C19	CB890830C19	CB890830C19	CB890830C19	CC890905B03
Associated Trip Blank:		00QT001XXX04XX	00QT004XXX04XX	00QT004XXX04XX	00QT001XXX04XX	00QT001XXX04XX	00QT001XXX04XX	00QT001XXX04XX	00QT002XXX04XX

Click Here to Return to Main Index

PROJECT: Naval Air Station Brunswick - Round 4 Surface Water Samples - Volatile Analysis (ug/L) 22-Feb-90

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		01SW125AXX04XX	01SW125AXX04XD	01SW125BXX04XX	01SW126XXX04XX	01SW126XXX04XD	01SW127XXX04XX	01SW128XXX04XX	01SW129XXX04XX
LAB NUMBER:		284118	284125	284154	284149	284133	284138	284137	284122
DATE SAMPLED:		08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89
DATE ANALYZED:		09/08/89	09/08/89	09/09/89	09/09/89	09/09/89	09/09/89	09/09/89	09/08/89
ANALYTE	CRQL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	19 B	3 BJ	5 U	5 U	5 U	5 U	5 U	4 BJ
Acetone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	2 J	2 J	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	27	30	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	29	31	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	29	30	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890908A13	CB890908A13	CB890909A03	CB890909A03	CB890909C03	CB890909C03	CB890909C03	CB890908A13
Associated Trip Blank:		00QT004XXX04XX	00QT004XXX04XX	00QT004XXX04XX	00QT004XXX04XX	00QT004XXX04XX	00QT004XXX04XX	00QT004XXX04XX	00QT004XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:		03SW316XXX04XX	03SW317XXX04XX	03SW318XXX04XX	03SW318XXX04XD	03SW319XXX04XX	09SW915XXX04XX	09SW916XXX04XX	09SW919XXX04XX
LAB NUMBER:		283022	283008	283823	283824	283023	283298	283283	283297
DATE SAMPLED:		08/28/89	08/28/89	08/30/89	08/30/89	08/28/89	08/29/89	08/29/89	08/29/89
DATE ANALYZED:		08/30/89	08/30/89	09/08/89	09/08/89	08/30/89	09/05/89	09/07/89	09/07/89
ANALYTE	CRQL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	1 J	2 J	6 B	2 BJ	5 U	1 J	2 BJ	5 U
Acetone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CB890830C19	CB890830C19	CB890908A13	CB890908A13	CB890830C19	CC890905C03	CB890907A03	CB890907A03
Associated Trip Blank:		00QT001XXX04XX	00QT001XXX04XX	00QT003XXX04XX	00QT003XXX04XX	00QT001XXX04XX	00QT002XXX04XX	00QT002XXX04XX	00QT002XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

	SAMPLE LOCATION:	09SW920XXX04XX	09SW920XXX04XD	09SW921XXX04XX	09SW922XXX04XX	09SW923XXX04XX	09SW924XXX04XX	09SW925XXX04XX	09SW926XXX04XX
	LAB NUMBER:	283279	283307	283280	283282	284423	284424	284145	284141
	DATE SAMPLED:	08/29/89	08/29/89	08/29/89	08/29/89	09/01/89	09/01/89	08/31/89	08/31/89
	DATE ANALYZED:	09/05/89	09/05/89	09/06/89	09/07/89	09/09/89	09/09/89	09/09/89	09/09/89
ANALYTE	CRQL								
Chloromethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	5	5 U	5 U	4 J	5 U	5 U	5 U	5 U	5 U
Acetone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Vinyl Acetate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Cis-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dibromochloromethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Benzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Toluene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chlorobenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethylbenzene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Xylenes (Total)	5	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		CCB90905C23	CCB90905C03	CCB90906C23	CB890907A03	CB890909A13	CB890909A13	CB890909C03	CB890909C03
Associated Trip Blank:		00QT002XXX04XX	00QT002XXX04XX	00QT002XXX04XX	00QT002XXX04XX	00QT005XXX04XX	00QT005XXX04XX	00QT004XXX04XX	00QT004XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION: 09SW9Z7XXX04XX
LAB NUMBER: 283848
DATE SAMPLED: 08/30/89
DATE ANALYZED: 09/08/89

ANALYTE	CRQL	
Chloromethane	10	10 U
Bromomethane	10	10 U
Vinyl Chloride	10	10 U
Chloroethane	10	10 U
Methylene Chloride	5	1 BJ
Acetone	10	10 U
Carbon Disulfide	5	5 U
1,1-Dichloroethene	5	5 U
1,1-Dichloroethane	5	5 U
1,2-Dichloroethene (total)	5	5 U
Chloroform	5	5 U
1,2-Dichloroethane	5	5 U
2-Butanone	10	10 U
1,1,1-Trichloroethane	5	5 U
Carbon Tetrachloride	5	5 U
Vinyl Acetate	10	10 U
Bromodichloromethane	5	5 U
1,2-Dichloropropane	5	5 U
Cis-1,3-Dichloropropene	5	5 U
Trichloroethene	5	5 U
Dibromochloromethane	5	5 U
1,1,2-Trichloroethane	5	5 U
Benzene	5	5 U
Trans-1,3-Dichloropropene	5	5 U
Bromoform	5	5 U
4-Methyl-2-Pentanone	10	10 U
2-Hexanone	10	10 U
Tetrachloroethene	5	5 U
1,1,2,2-Tetrachloroethane	5	5 U
Toluene	5	5 U
Chlorobenzene	5	5 U
Ethylbenzene	5	5 U
Styrene	5	5 U
Xylenes (Total)	5	5 U

Dilution Factor: 1

Associated Method Blank: CB890908A13
Associated Trip Blank: 00QT003XXX04XX

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Anlaysis

SAMPLE LOCATION:	08SW008XXX04XX	09SW010XXX04XX	09SW011XXX04XX	09SW012XXX04XX	01SW126XXX04XX	01SW126XXX04XD	01SW127XXX04XX	01SW128XXX04XX
LAB NUMBER:	284421	283321	283315	283323	284149	284133	284138	284137
DATE SAMPLED:	09/01/89	08/29/89	08/29/89	08/29/89	08/31/89	08/31/89	08/31/89	08/31/89
DATE EXTRACTED:	09/05/89	08/31/89	08/31/89	08/31/89	09/01/89	09/01/89	09/01/89	09/01/89
DATE ANALYZED:	09/06/89	09/01/89	09/01/89	09/01/89	09/06/89	09/05/89	09/05/89	09/05/89

ANALYTE	CRQL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Anlaysis

	SAMPLE LOCATION:	08SW008XXX04XX	09SW010XXX04XX	09SW011XXX04XX	09SW012XXX04XX	01SW126XXX04XX	01SW126XXX04XD	01SW127XXX04XX	01SW128XXX04XX
	LAB NUMBER:	284421	283321	283315	283323	284149	284133	284138	284137
	DATE SAMPLED:	09/01/89	08/29/89	08/29/89	08/29/89	08/31/89	08/31/89	08/31/89	08/31/89
	DATE EXTRACTED:	09/05/89	08/31/89	08/31/89	08/31/89	09/01/89	09/01/89	09/01/89	09/01/89
	DATE ANALYZED:	09/06/89	09/01/89	09/01/89	09/01/89	09/06/89	09/05/89	09/05/89	09/05/89
ANALYTE	CRQL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		GH084519C06	GH083512C02	GH083512C02	GH083512C02	GJ084274A06	GJ084274A06	GJ084274A06	GJ084274A06

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Anlaysis

SAMPLE LOCATION:	01SW129XXX04XX	08SW818XXX04XX	08SW818XXX04XX	08SW822XXX04XX	08SW822XXX04XD	08SW823XXX04XX	08SW824XXX04XX	09SW915XXX04XX
LAB NUMBER:	284122	284422	284422 RE	284425	284426	284427	284428	283298
DATE SAMPLED:	08/31/89	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	08/29/89
DATE EXTRACTED:	09/01/89	09/05/89	09/07/89	09/05/89	09/05/89	09/05/89	09/05/89	08/31/89
DATE ANALYZED:	09/05/89	09/12/89	09/08/89	09/06/89	09/06/89	09/06/89	09/06/89	09/01/89

ANALYTE	CRQL								
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Anlaysis

SAMPLE LOCATION:	01SW129XXX04XX	08SW818XXX04XX	08SW818XXX04XX	08SW822XXX04XX	08SW822XXX04XO	08SW823XXX04XX	08SW824XXX04XX	09SW915XXX04XX
LAB NUMBER:	284122	284422	284422 RE	284425	284426	284427	284428	283298
DATE SAMPLED:	08/31/89	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	09/01/89	08/29/89
DATE EXTRACTED:	09/01/89	09/05/89	09/07/89	09/05/89	09/05/89	09/05/89	09/05/89	08/31/89
DATE ANALYZED:	09/05/89	09/12/89	09/08/89	09/06/89	09/06/89	09/06/89	09/06/89	09/01/89

ANALYTE	CRQL								
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	3 J	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	2 J	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		GJ084274A06	GH084519C06	GH084924B08	GH084519A04	GH084519C06	GH084519C06	GH084519C06	GH083512C02

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Anlaysis

ANALYTE	CRQL	SAMPLE LOCATION: 09SW916XXX04XX	09SW919XXX04XX	09SW920XXX04XX	09SW920XXX04XD	09SW921XXX04XX	09SW922XXX04XX	09SW923XXX04XX	09SW924XXX04XX
		LAB NUMBER: 283283	283297	283279	283307	283280	283282	284423	284424
		DATE SAMPLED: 08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	09/01/89	09/01/89
		DATE EXTRACTED: 08/31/89	09/01/89	08/31/89	08/31/89	08/31/89	08/31/89	09/05/89	09/05/89
		DATE ANALYZED: 08/31/89	09/05/89	08/31/89	09/01/89	08/31/89	08/31/89	09/06/89	09/06/89
Phenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Anlaysis

ANALYTE	CRQL	SAMPLE LOCATION: 09SW916XXX04XX	09SW919XXX04XX	09SW920XXX04XX	09SW920XXX04XD	09SW921XXX04XX	09SW922XXX04XX	09SW923XXX04XX	09SW924XXX04XX
		LAB NUMBER: 283283	283297	283279	283307	283280	283282	284423	284424
		DATE SAMPLED: 08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	08/29/89	09/01/89	09/01/89
		DATE EXTRACTED: 08/31/89	09/01/89	08/31/89	08/31/89	08/31/89	08/31/89	09/05/89	09/05/89
		DATE ANALYZED: 08/31/89	09/05/89	08/31/89	09/01/89	08/31/89	08/31/89	09/06/89	09/06/89
3-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dilution Factor:		1	1	1	1	1	1	1	1
Associated Method Blank:		GH083487A21	GJ083923C04	GH083487A21	GH083512C02	GH083487A21	GH083487A21	GH084519C06	GH084519C06

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Anlaysis

SAMPLE LOCATION:	09SW925XXX04XX	09SW926XXX04XX	09SW927XXX04XX
LAB NUMBER:	284145	284141	283848
DATE SAMPLED:	08/31/89	08/31/89	08/30/89
DATE EXTRACTED:	09/01/89	09/01/89	09/01/89
DATE ANALYZED:	09/06/89	09/05/89	09/01/89

ANALYTE	CRQL			
Phenol	10	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U
Benzyl alcohol	10	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U
bis(2-Chloroisopropyl)ether	10	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U
Benzoic acid	50	50 U	50 U	50 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U
Hexacholorobutadiene	10	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U
2,4,5-Trichlorophenol	50	50 U	50 U	50 U
2-Chloronaphthalene	10	10 U	10 U	10 U
2-Nitroaniline	50	50 U	50 U	50 U
Dimethylphthalate	10	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Anlaysis

SAMPLE LOCATION:	09SW925XXX04XX	09SW926XXX04XX	09SW927XXX04XX
LAB NUMBER:	284145	284141	283848
DATE SAMPLED:	08/31/89	08/31/89	08/30/89
DATE EXTRACTED:	09/01/89	09/01/89	09/01/89
DATE ANALYZED:	09/06/89	09/05/89	09/01/89

ANALYTE	CRQL			
3-Nitroaniline	50	50 U	50 U	50 U
Acenaphthene	10	10 U	10 U	10 U
2,4-Dinitrophenol	50	50 U	50 U	50 U
4-Nitrophenol	50	50 U	50 U	50 U
Dibenzofuran	10	10 U	10 U	10 U
2,4-Dinitrotoluene	10	10 U	10 U	10 U
Diethylphthalate	10	10 U	10 U	10 U
4-Chlorophenyl-phenylether	10	10 U	10 U	10 U
Fluorene	10	10 U	10 U	10 U
4-Nitroaniline	50	50 U	50 U	50 U
4,6-Dinitro-2-methylphenol	50	50 U	50 U	50 U
N-Nitrosodiphenylamine	10	10 U	10 U	10 U
4-Bromophenyl-phenylether	10	10 U	10 U	10 U
Hexachlorobenzene	10	10 U	10 U	10 U
Pentachlorophenol	50	50 U	50 U	50 U
Phenanthrene	10	10 U	10 U	10 U
Anthracene	10	10 U	10 U	10 U
Di-n-butylphthalate	10	10 U	10 U	10 U
Fluoranthene	10	10 U	10 U	10 U
Pyrene	10	10 U	10 U	10 U
Butylbenzylphthalate	10	10 U	10 U	10 U
3,3'-Dichlorobenzidine	20	20 U	20 U	20 U
Benzo(a)Anthracene	10	10 U	10 U	10 U
Chrysene	10	10 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10	10 U	10 U	10 U
Di-n-octylphthalate	10	10 U	10 U	10 U
Benzo(b)Fluoranthene	10	10 U	10 U	10 U
Benzo(k)Fluoranthene	10	10 U	10 U	10 U
Benzo(a)Pyrene	10	10 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10	10 U	10 U	10 U
Dibenz(a,h)anthracene	10	10 U	10 U	10 U
Benzo(g,h,i,)perylene	10	10 U	10 U	10 U
Dilution Factor:		1	1	1

Associated Method Blank: GJ084274A06 GJ084274A06 GH083923B02

Click Here to Return to Main Index

Table 1
Combined Laboratory Report
of Analysis

SAMPLE LOCATION:	01SW126XXX04XX	01SW126XXX04XD	01SW127XXX04XX	01SW128XXX04XX	01SW129XXX04XX
LAB NUMBER:	284149	284133	284138	284137	284122
DATE SAMPLED:	08/31/89	08/31/89	08/31/89	08/31/89	08/31/89
DATE EXTRACTED:	09/06/89	09/06/89	09/06/89	09/06/89	09/06/89
DATE ANALYZED:	09/08/89	09/08/89	09/08/89	09/08/89	09/08/89

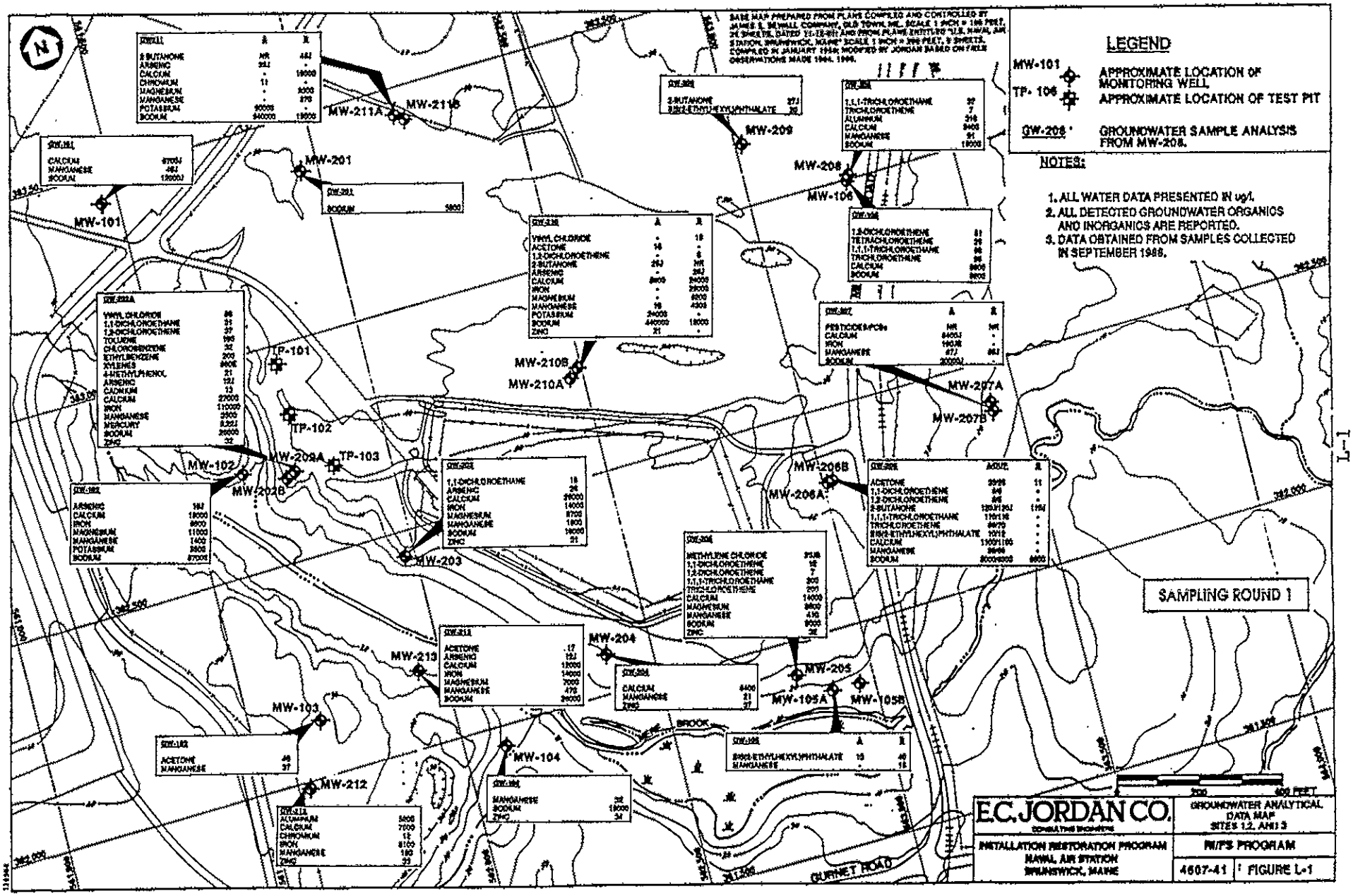
ANALYTE	CRQL					
alpha-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
beta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
delta-BHC	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
gamma-BHC (Lindane)	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Aldrin	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Heptachlor epoxide	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Endosulfan I	0.05	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Dieldrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin Aldehyde	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
gamma-Chlordane	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toxaphene	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1016	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1221	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1232	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1242	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1248	0.50	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Aroclor-1254	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dilution Factor:		1	1	1	1	1
Associated Method Blank:		284879	284879	284879	284879	284879

Click Here to Return to Main Index

Click Here to Return to Main Index

APPENDIX L
GROUNDWATER CONTAMINANT SUMMARY MAPS (ROUNDS I, II, III, IV)

NAS BRUNSWICK
BRUNSWICK, MAINE



L-1

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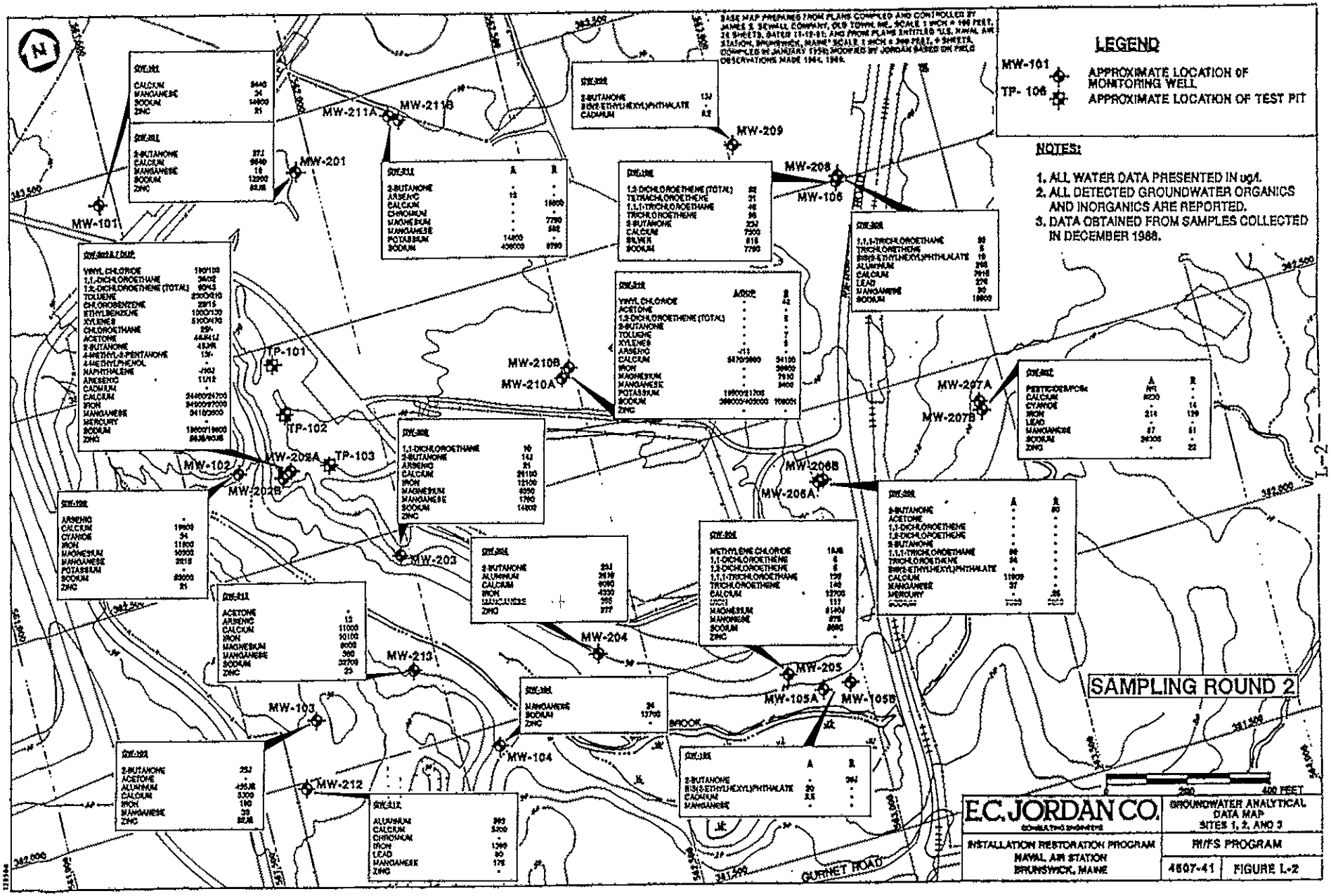

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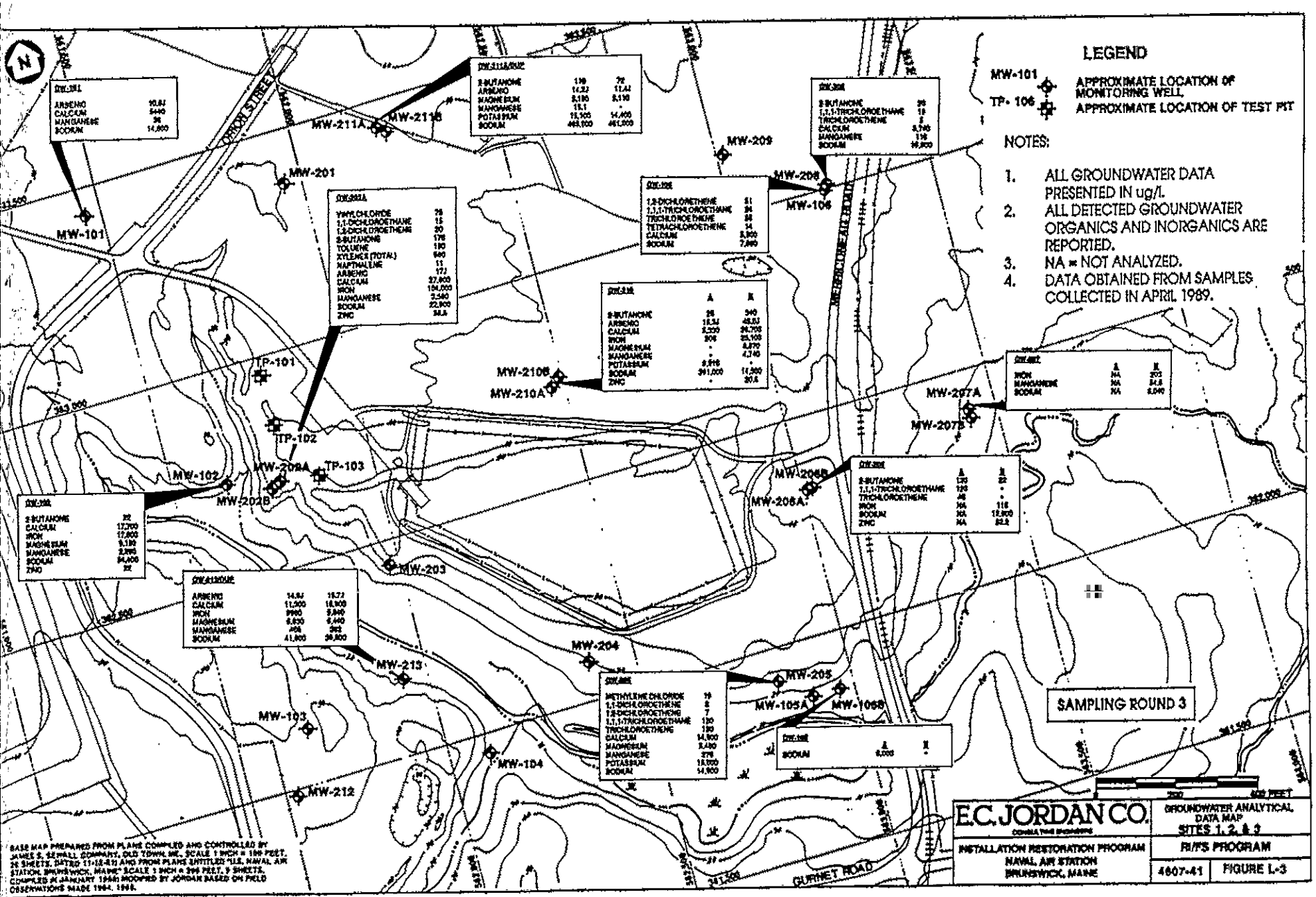

L-3

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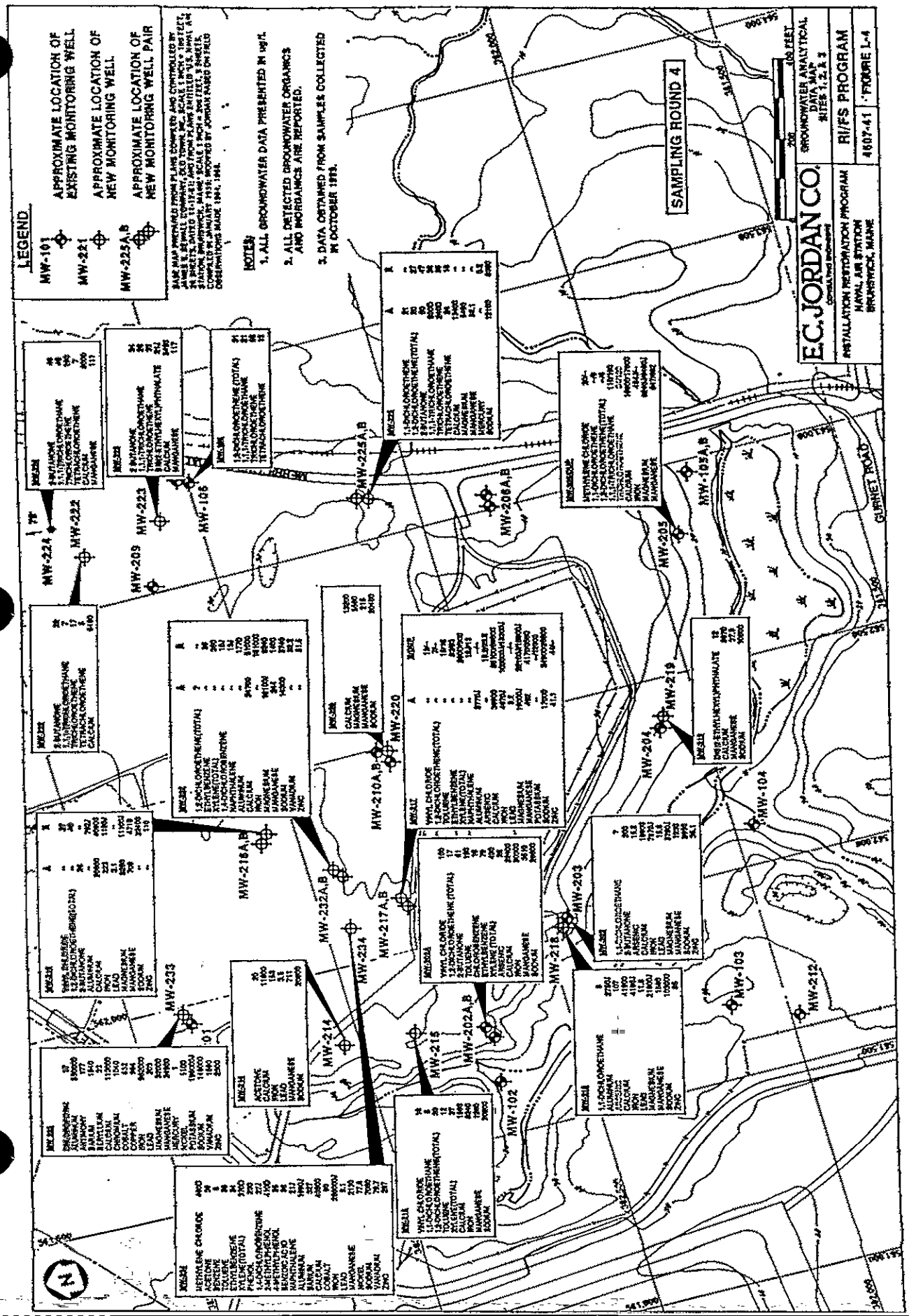
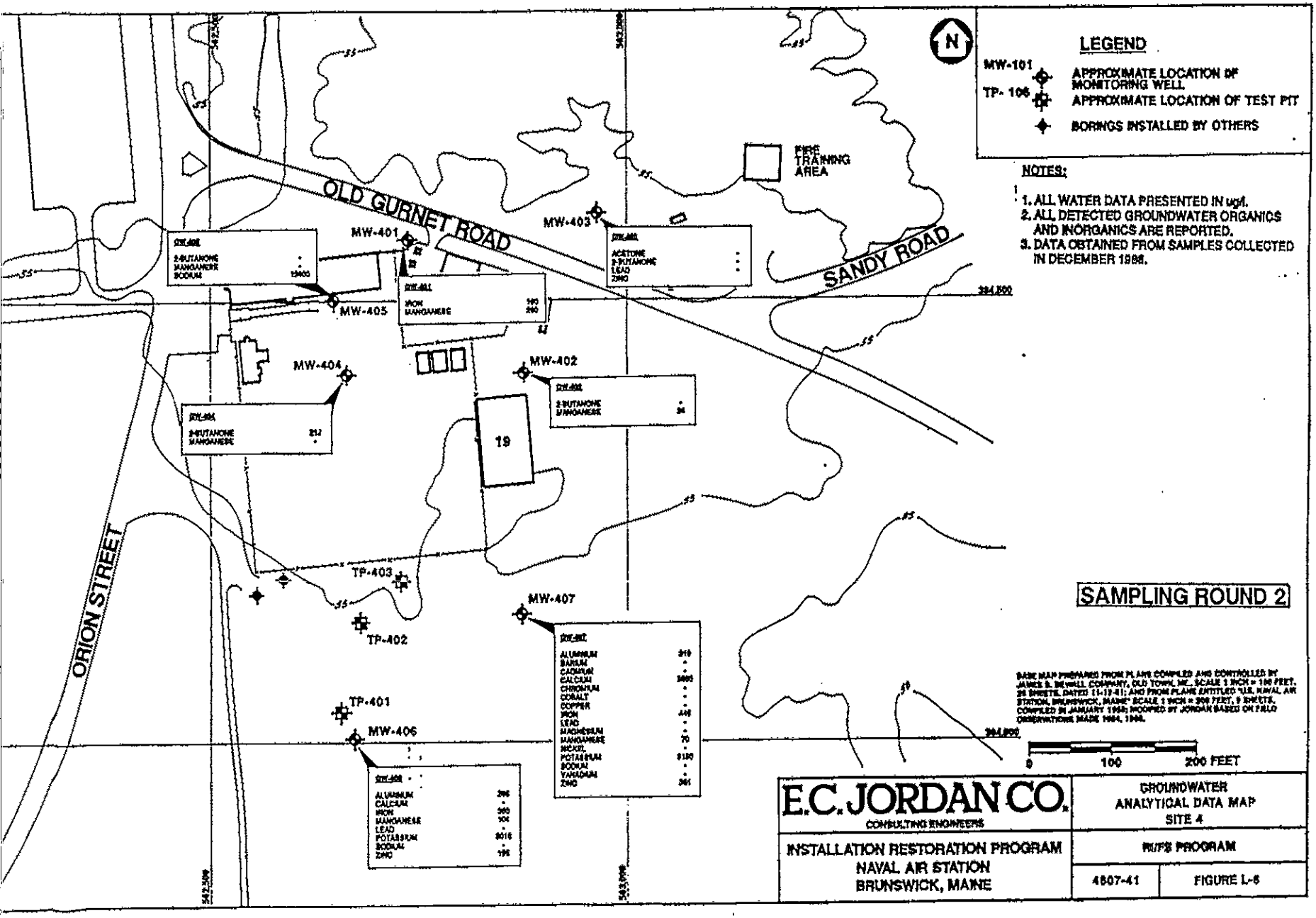

LEGEND
APPROXIMATE LOCATION OF EXISTING MONITORING WELL
APPROXIMATE LOCATION OF NEW MONITORING WELL
APPROXIMATE LOCATION OF NEW MONITORING WELL PAIR
NOTES:
1. ALL GROUNDWATER DATA PRESENTED IN ug/l.
2. ALL DETECTED GROUNDWATER ORGANICS AND INORGANICS ARE REPORTED.
3. DATA OBTAINED FROM SAMPLES COLLECTED IN OCTOBER 1993.
SAMPLING ROUND 4
E.C. JORDAN CO.
GROUNDWATER ANALYTICAL DATA MAP SITES 1, 2 & 3
RI/FS PROGRAM
INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE
4607-41
FIGURE L-4
GURNET ROAD
MW-101
MW-102
MW-103
MW-104
MW-105A,B
MW-106
MW-202A,B
MW-203
MW-204
MW-205
MW-206A,B
MW-208A,B
MW-209
MW-210A,B
MW-211
MW-212
MW-213
MW-214
MW-215
MW-216
MW-217A,B
MW-218A,B
MW-219
MW-220
MW-221
MW-222
MW-223
MW-224
MW-225A,B
MW-232A,B
MW-233
MW-234

Click Here to Return to Main Index



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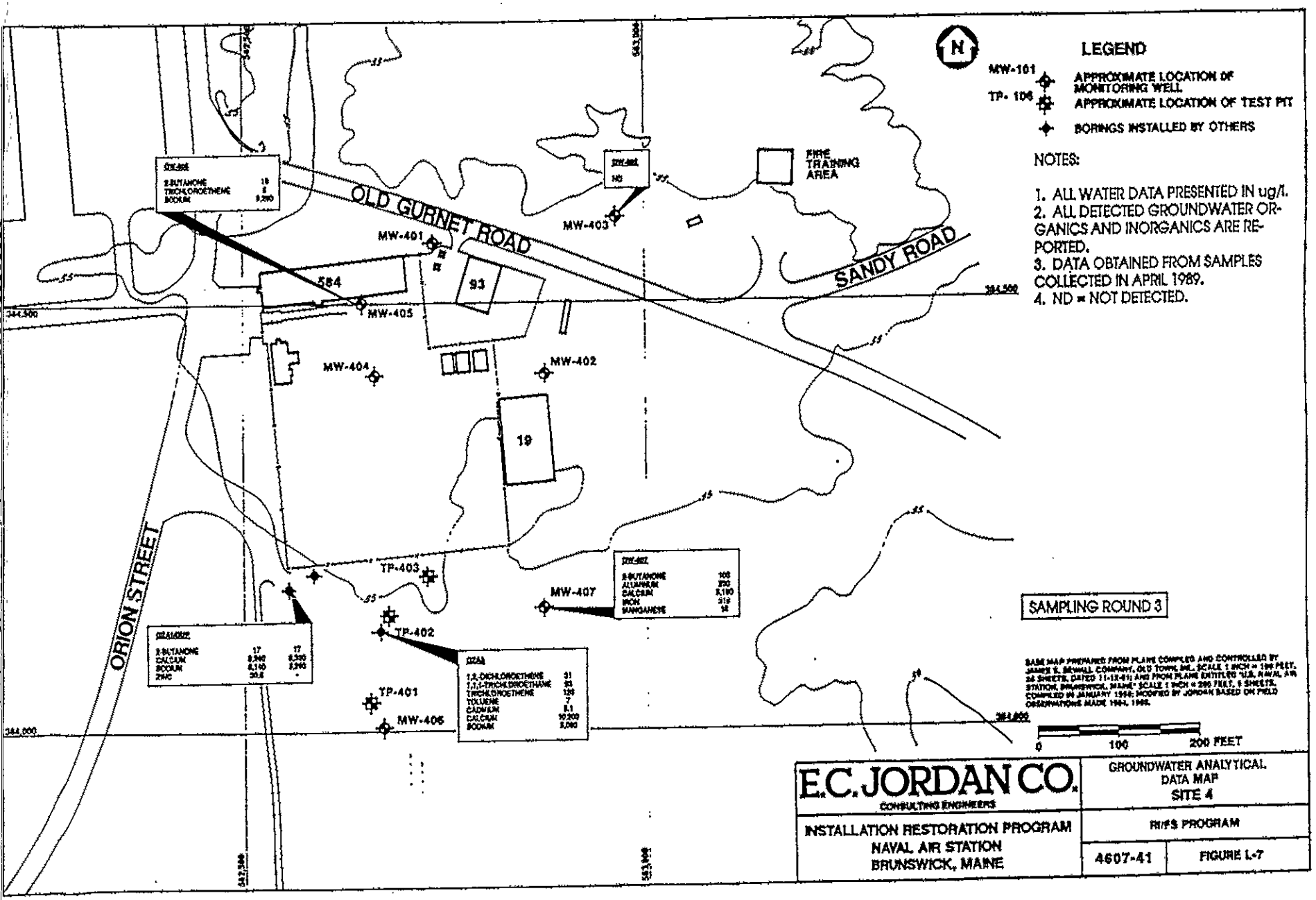
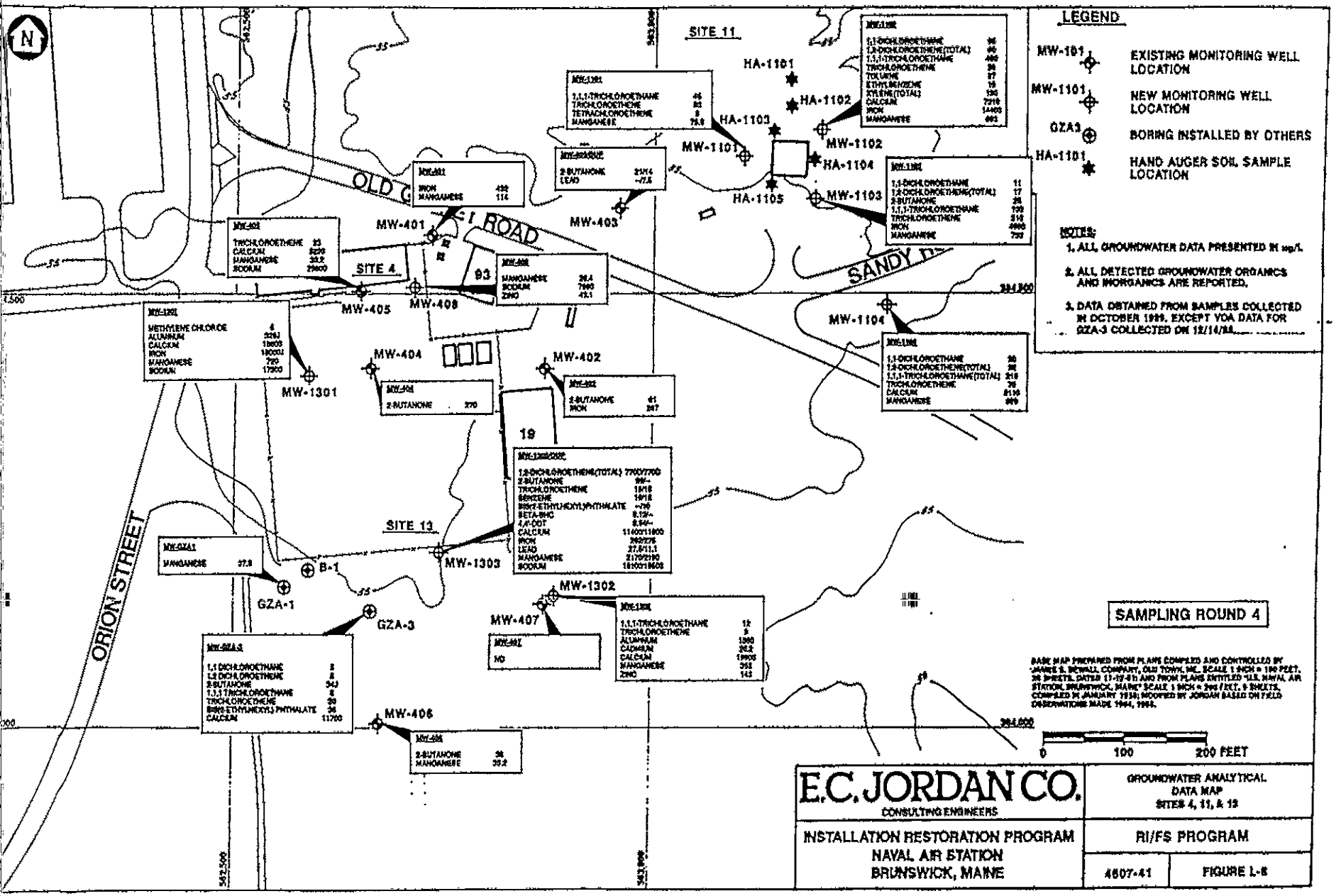


E.C. JORDAN CO. CONSULTING ENGINEERS	GROUNDWATER ANALYTICAL DATA MAP SITE 4
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
	4607-41 FIGURE L-7

Click Here to Return to Main Index



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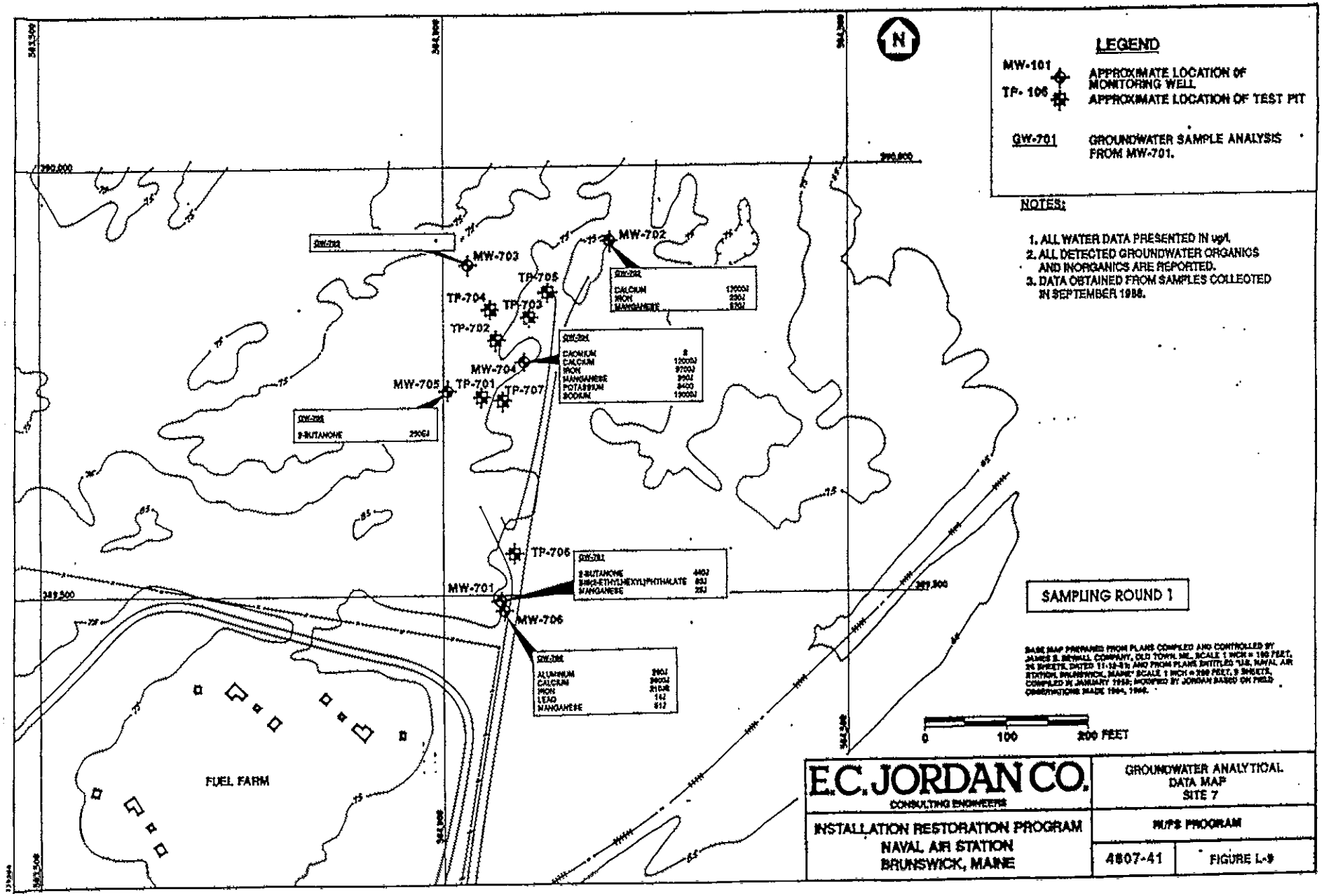

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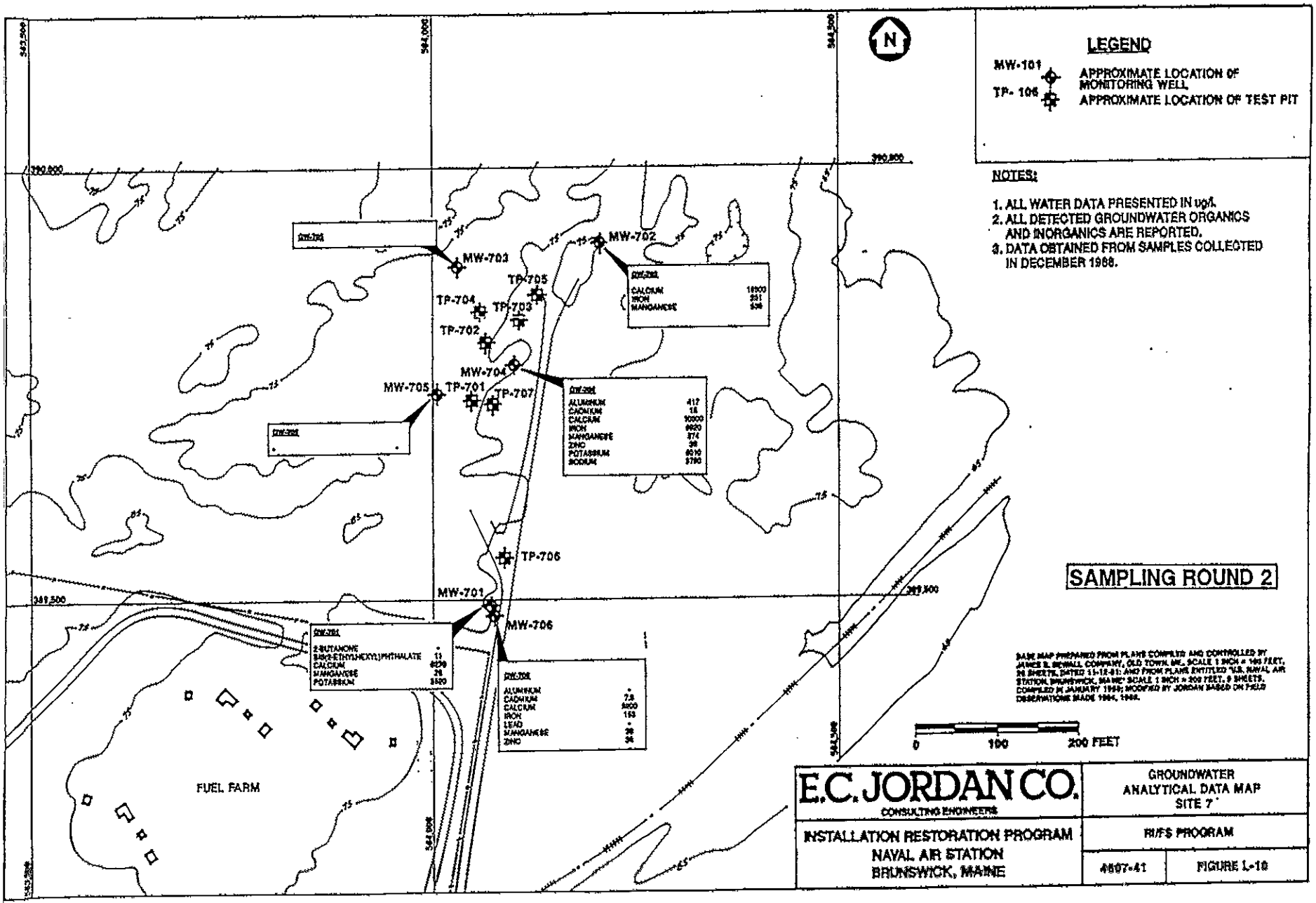

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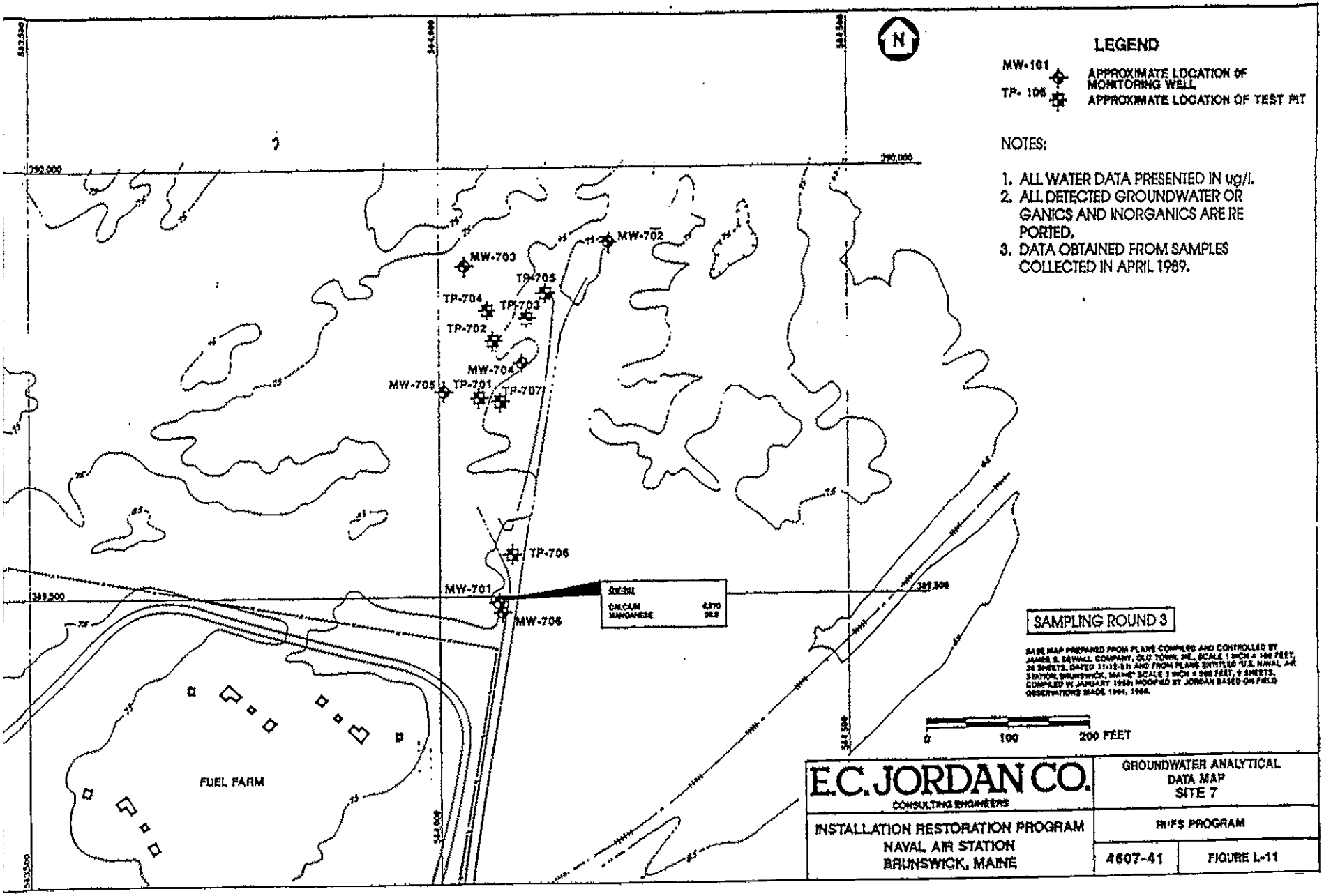

L-11

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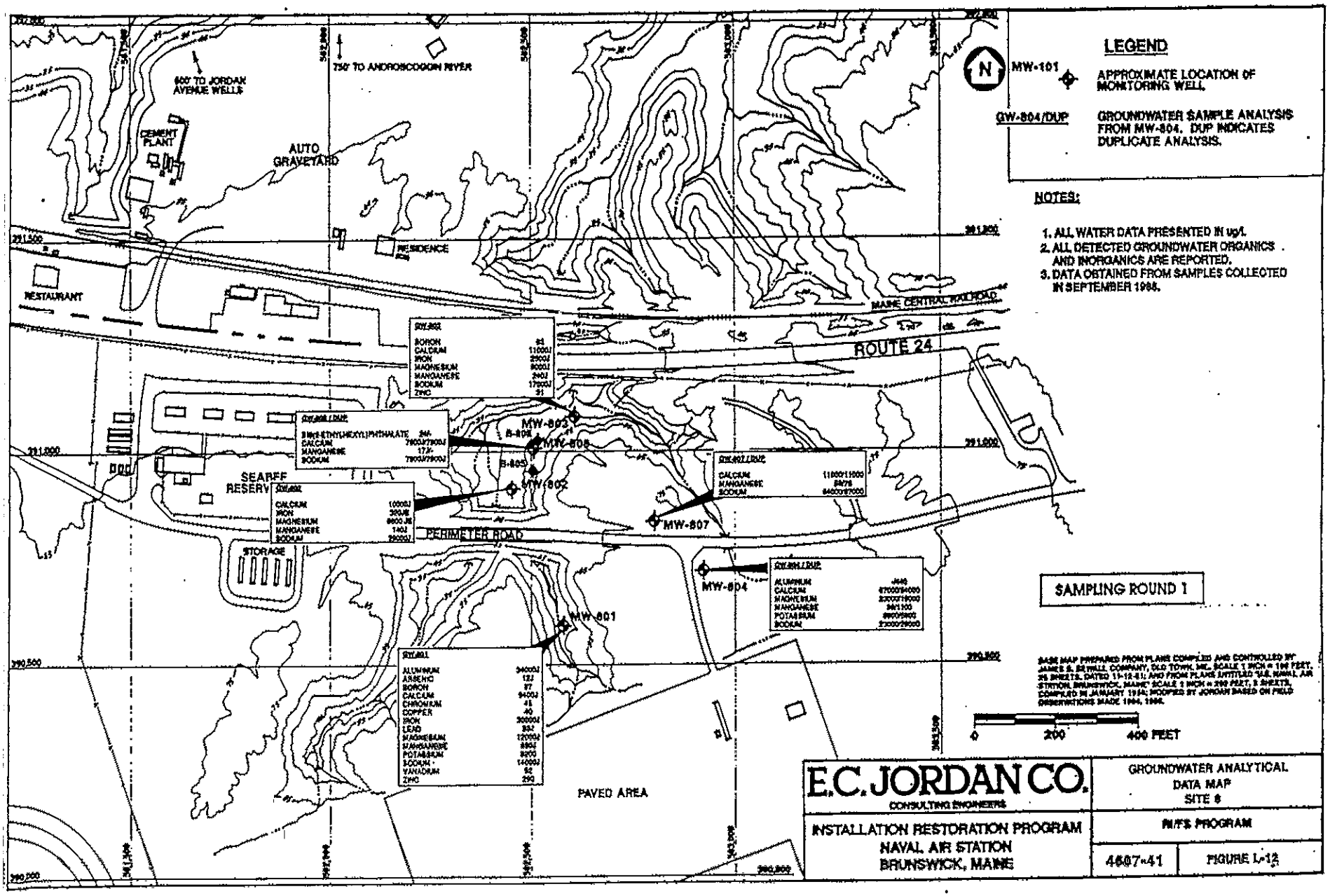

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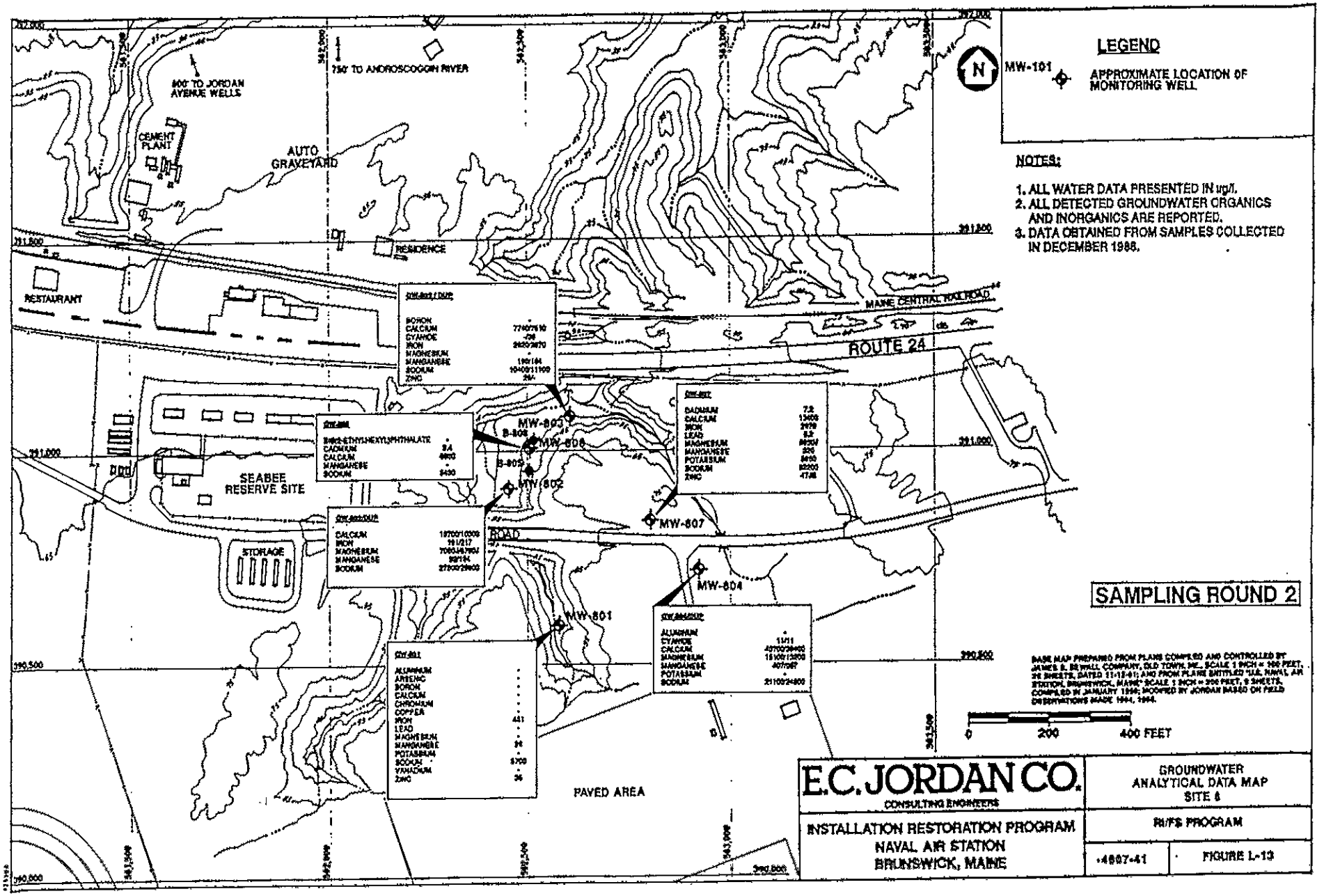

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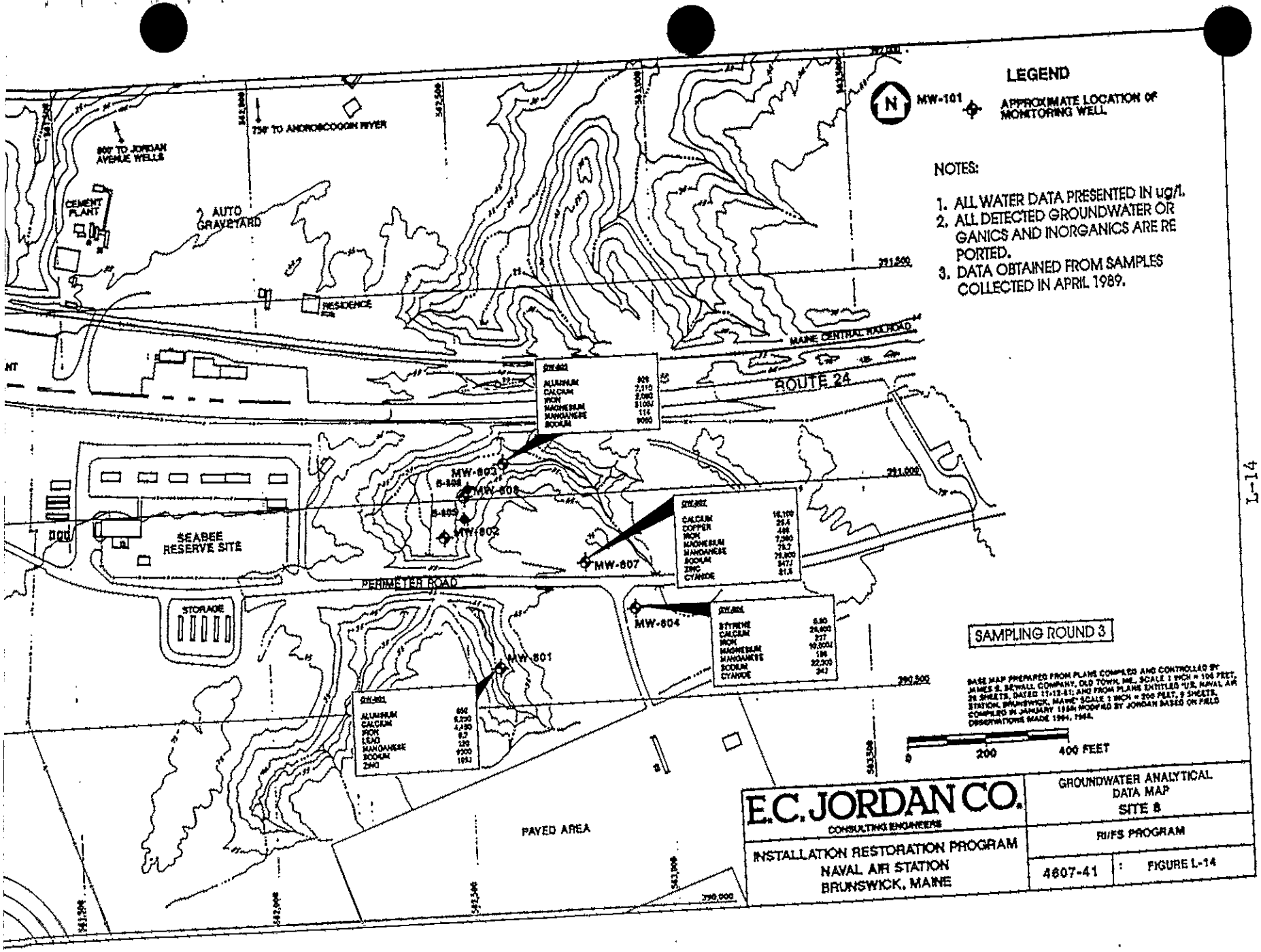

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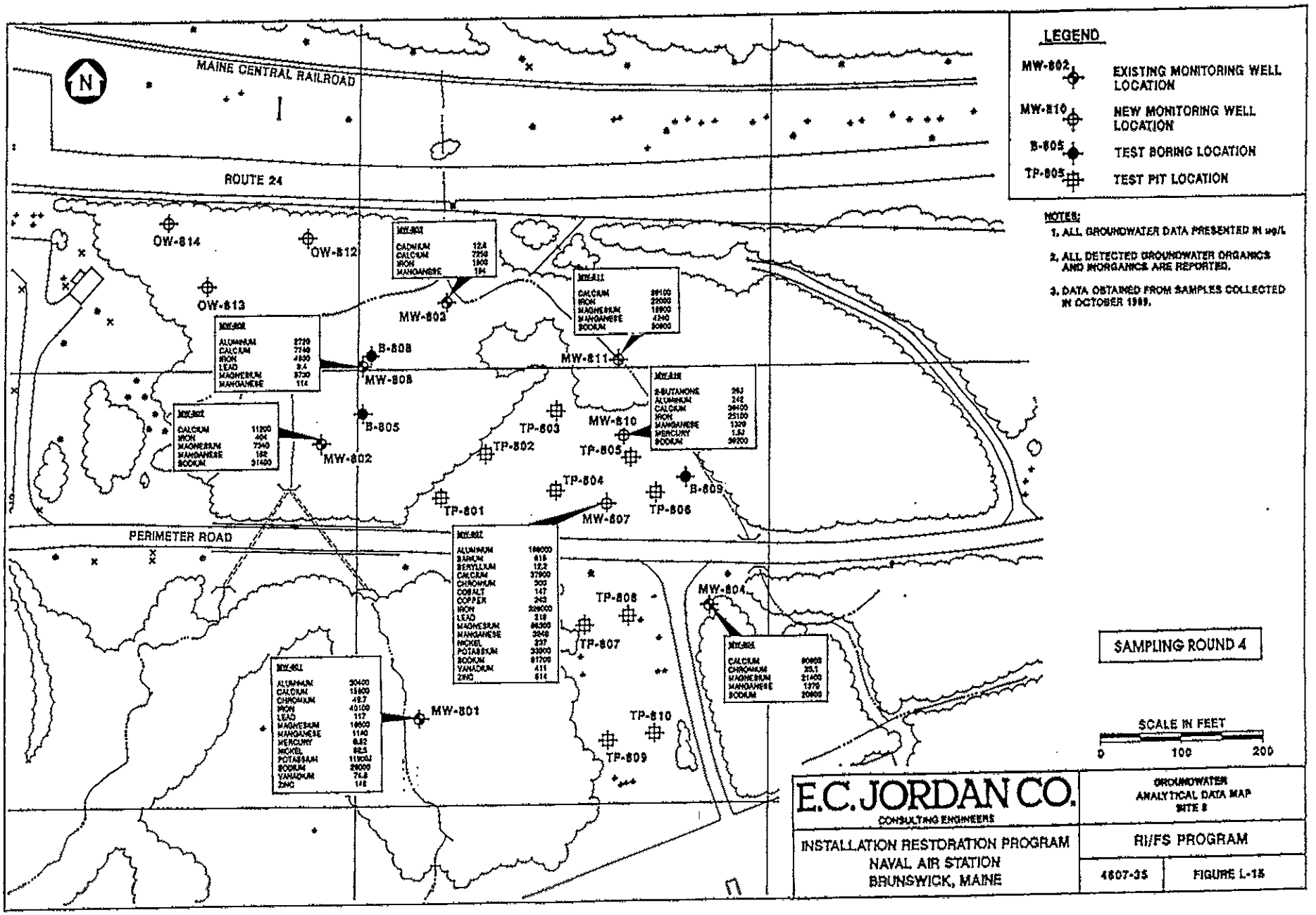

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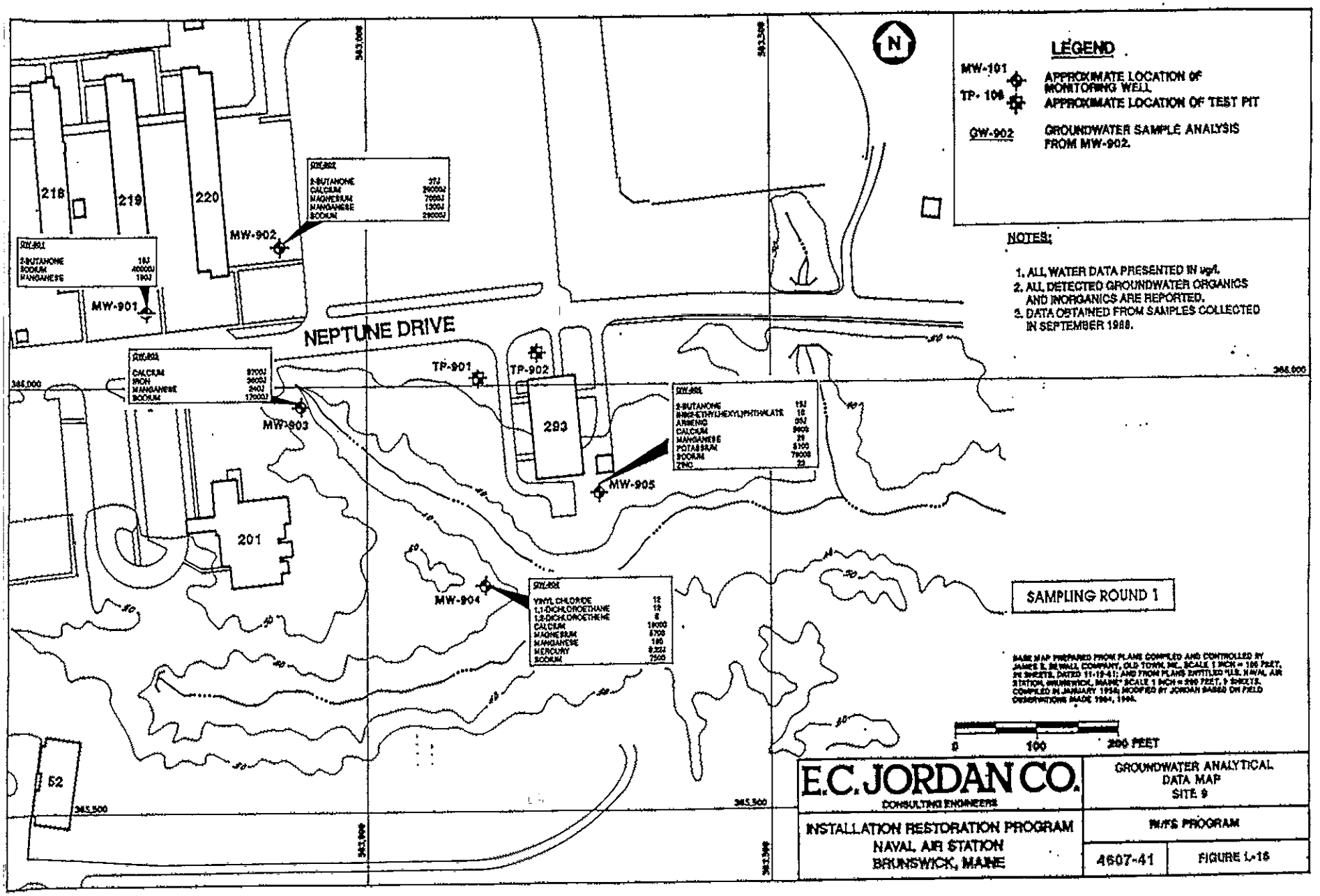

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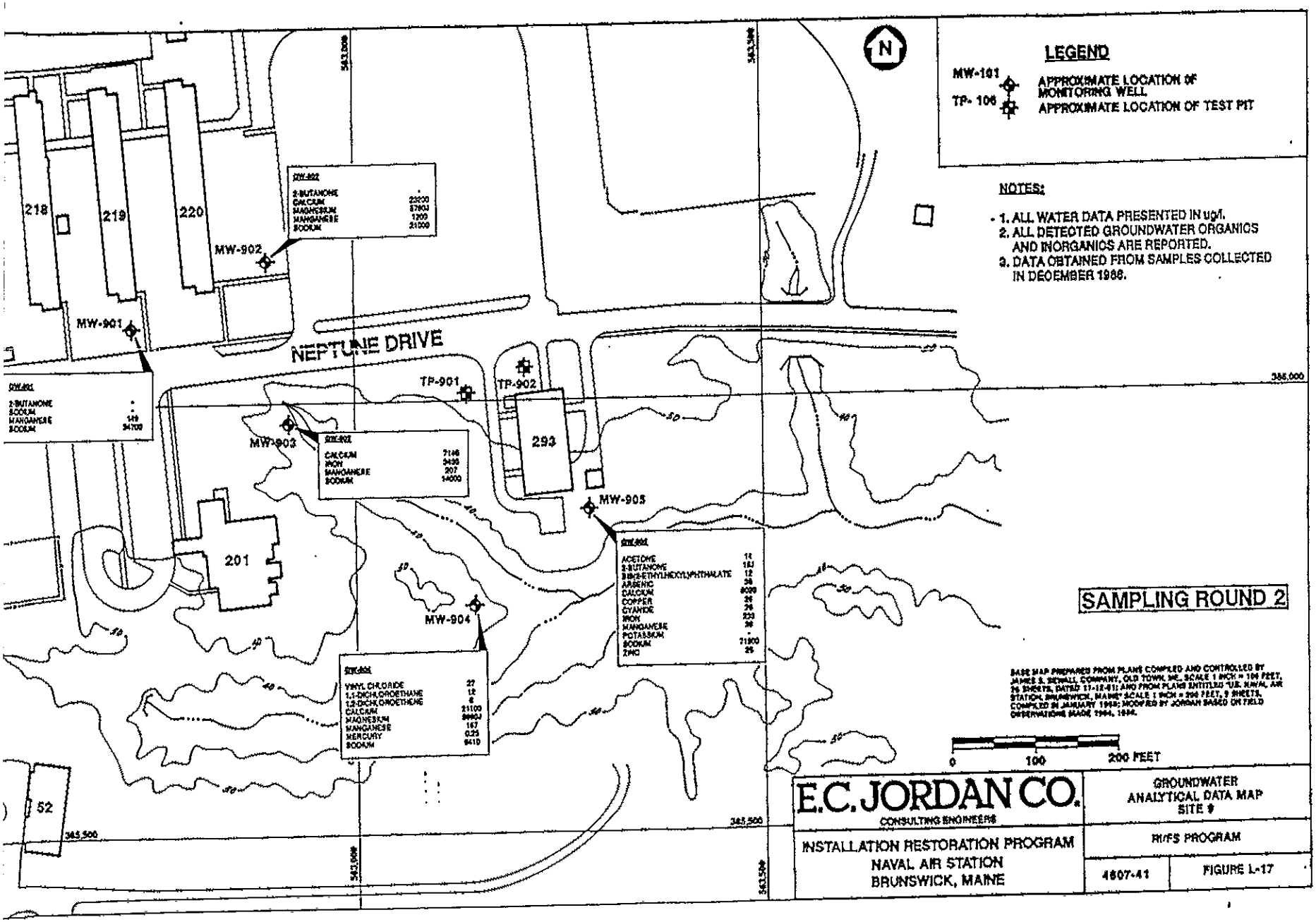

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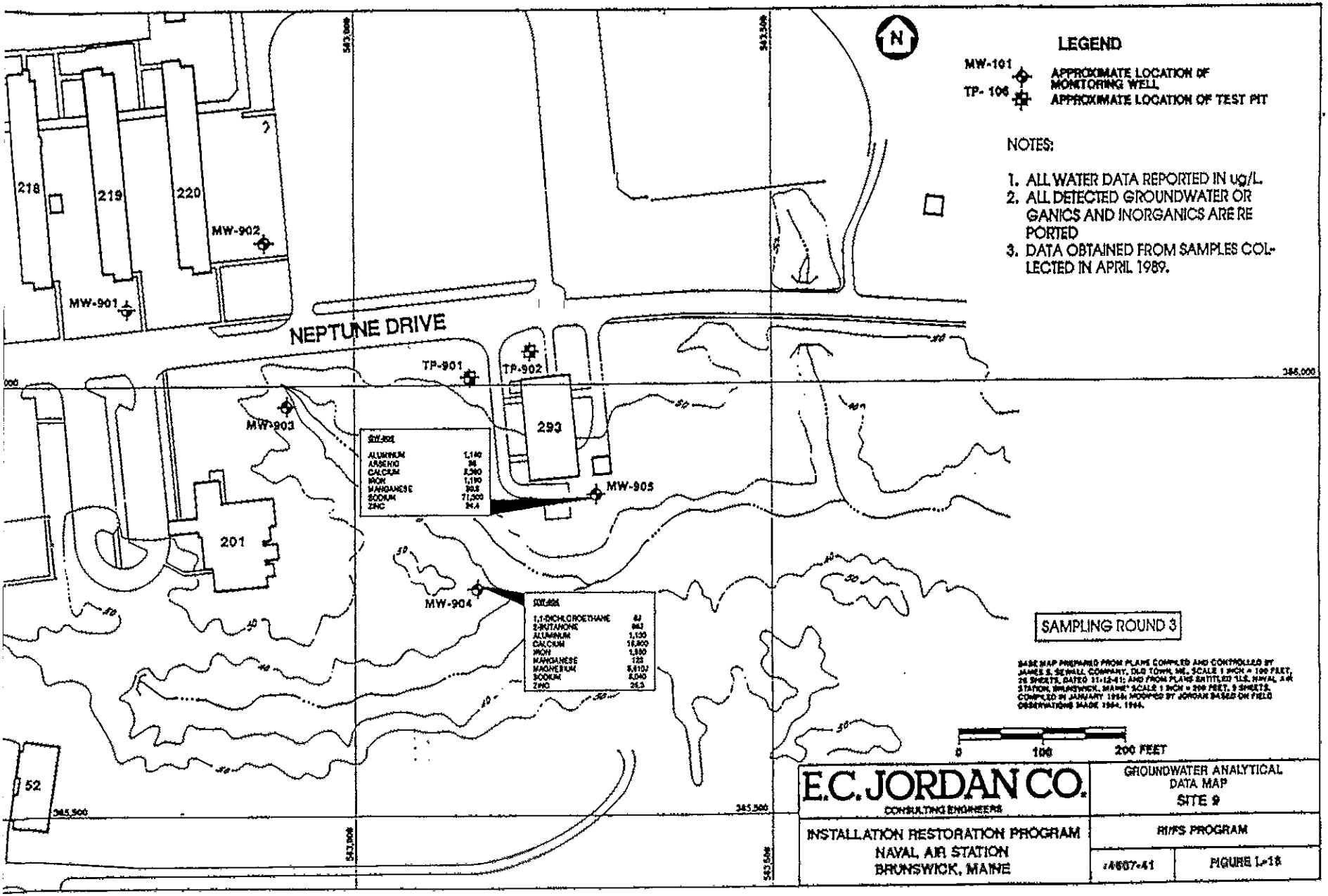

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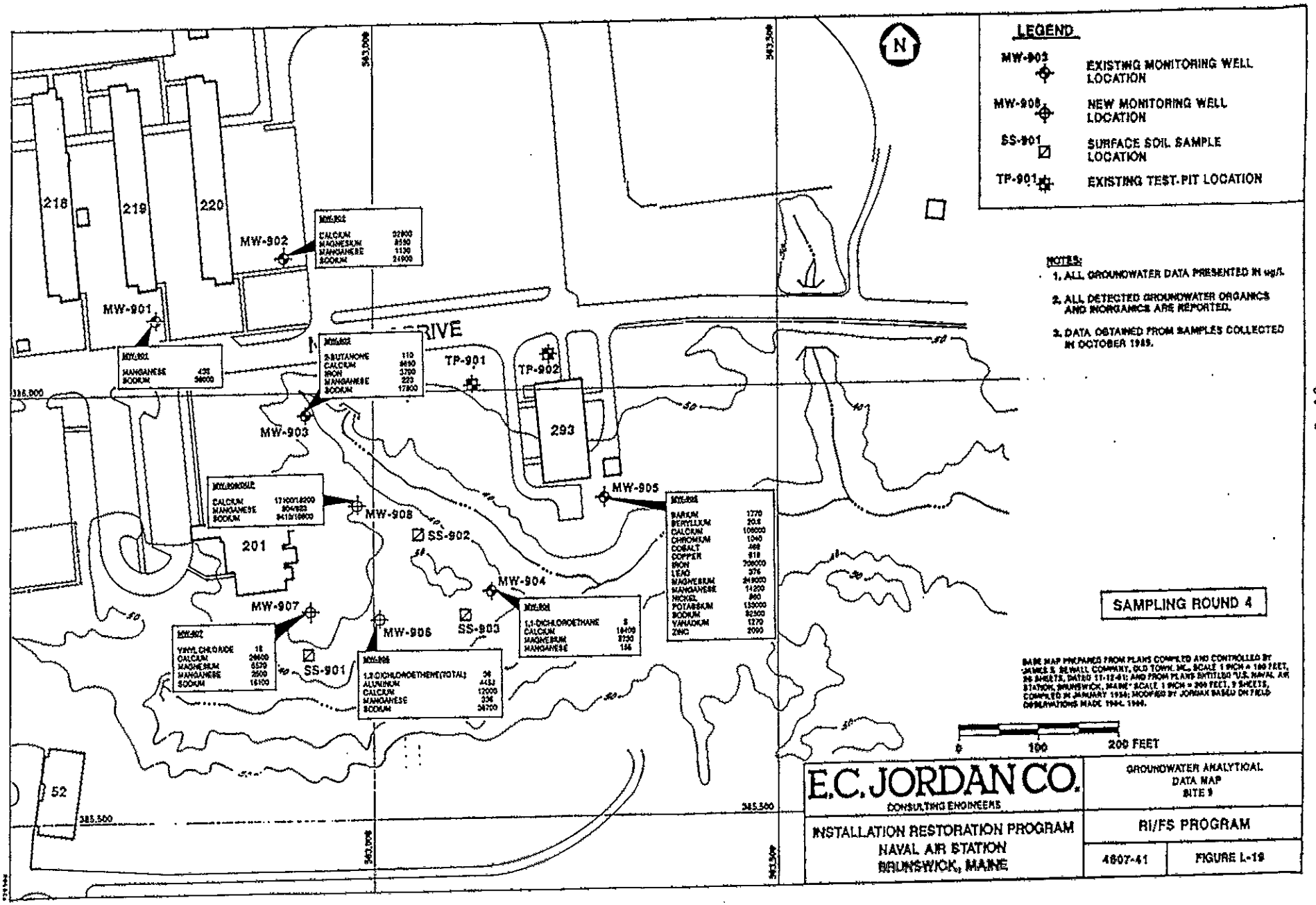


Click Here to Return to Main Index

Click Here to Return to Main Index

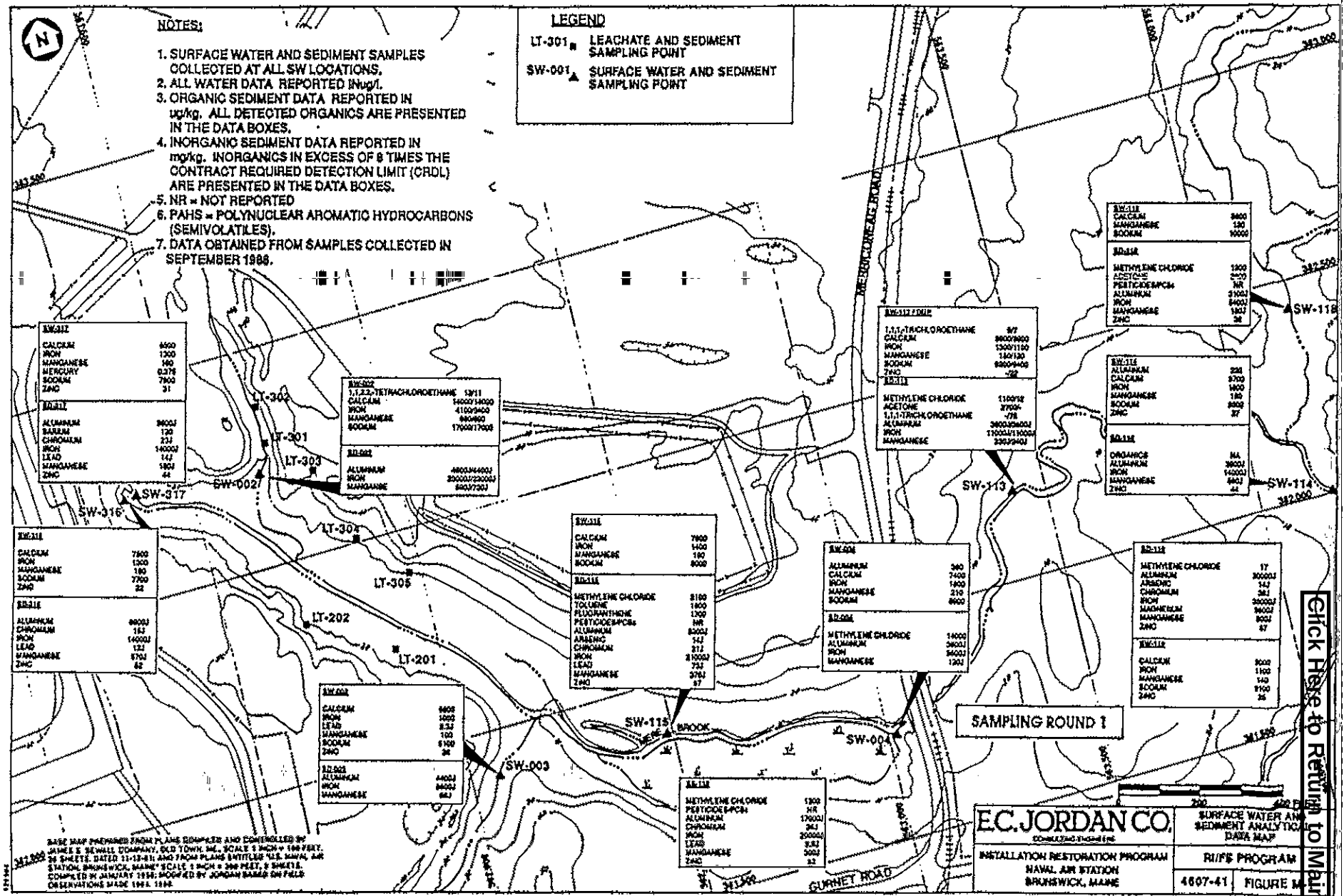
APPENDIX N
SOIL CONTAMINANT SUMMARY MAPS (ROUNDS I AND IV)

NAS BRUNSWICK
BRUNSWICK, MAINE

Click Here to Return to Main Index

APPENDIX M
SURFACE WATER, SEDIMENT, AND LEACHATE CONTAMINANT SUMMARY MAPS
(ROUNDS I, II, III, IV)

NAS BRUNSWICK
BRUNSWICK, MAINE



M-1

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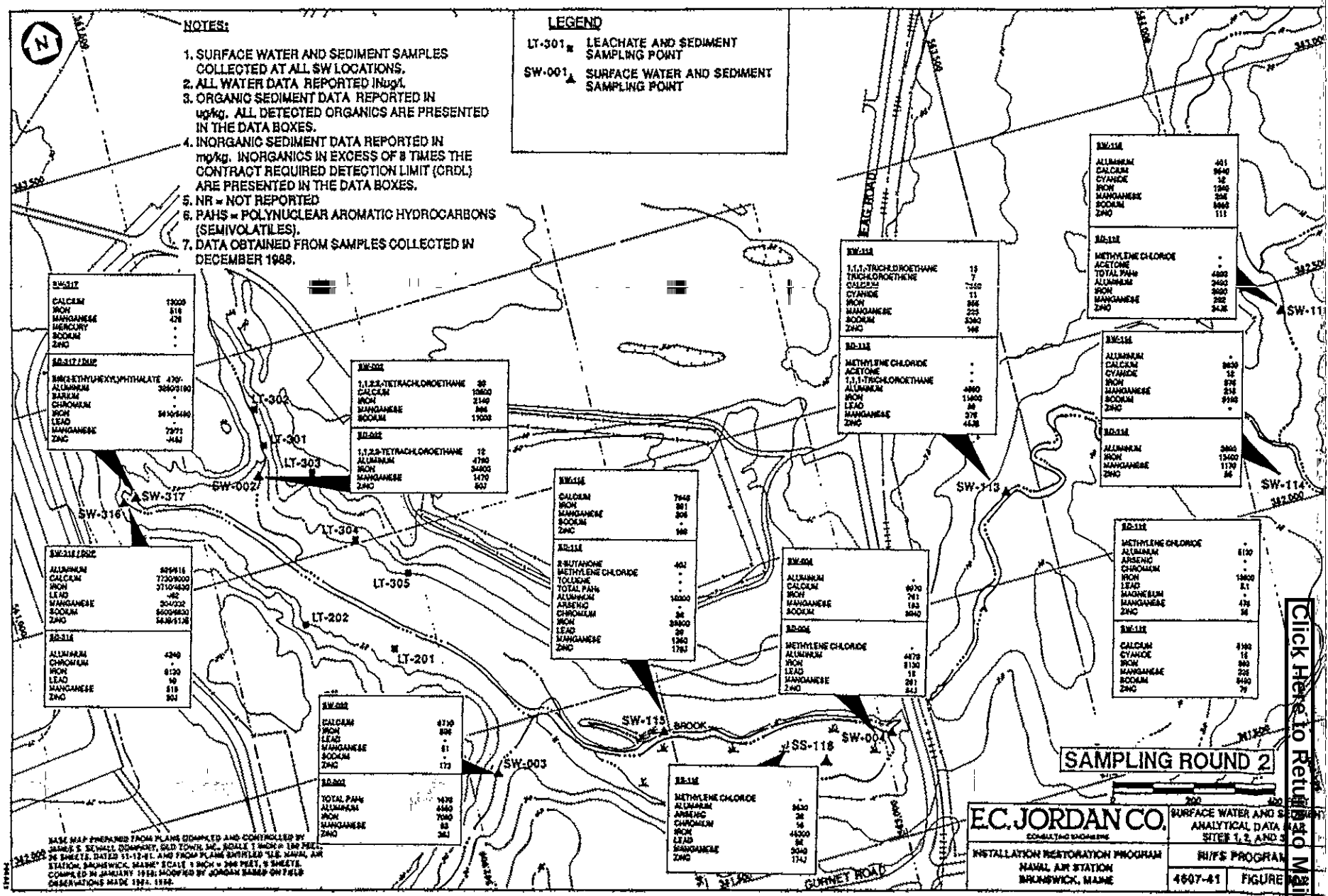

M-2

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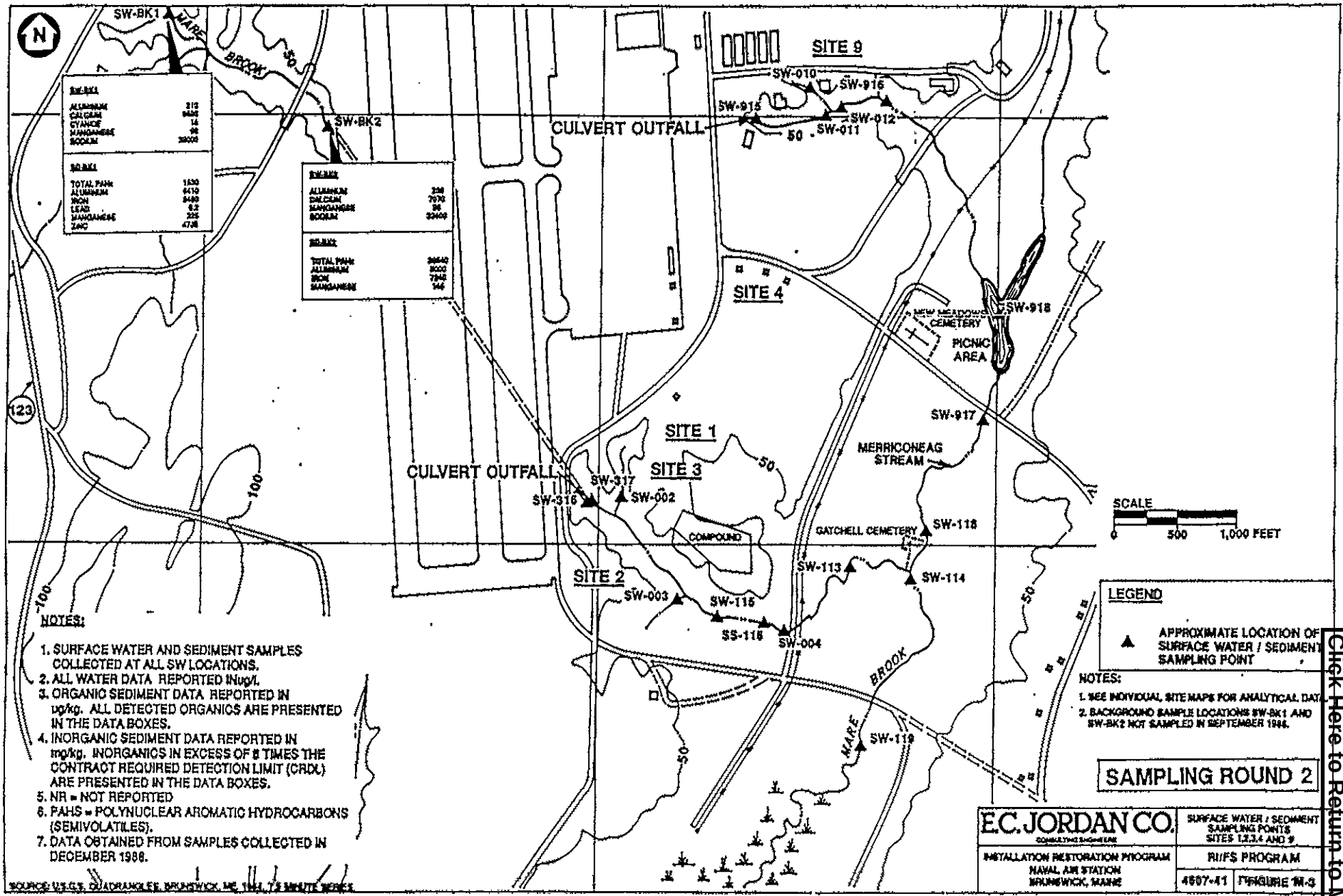

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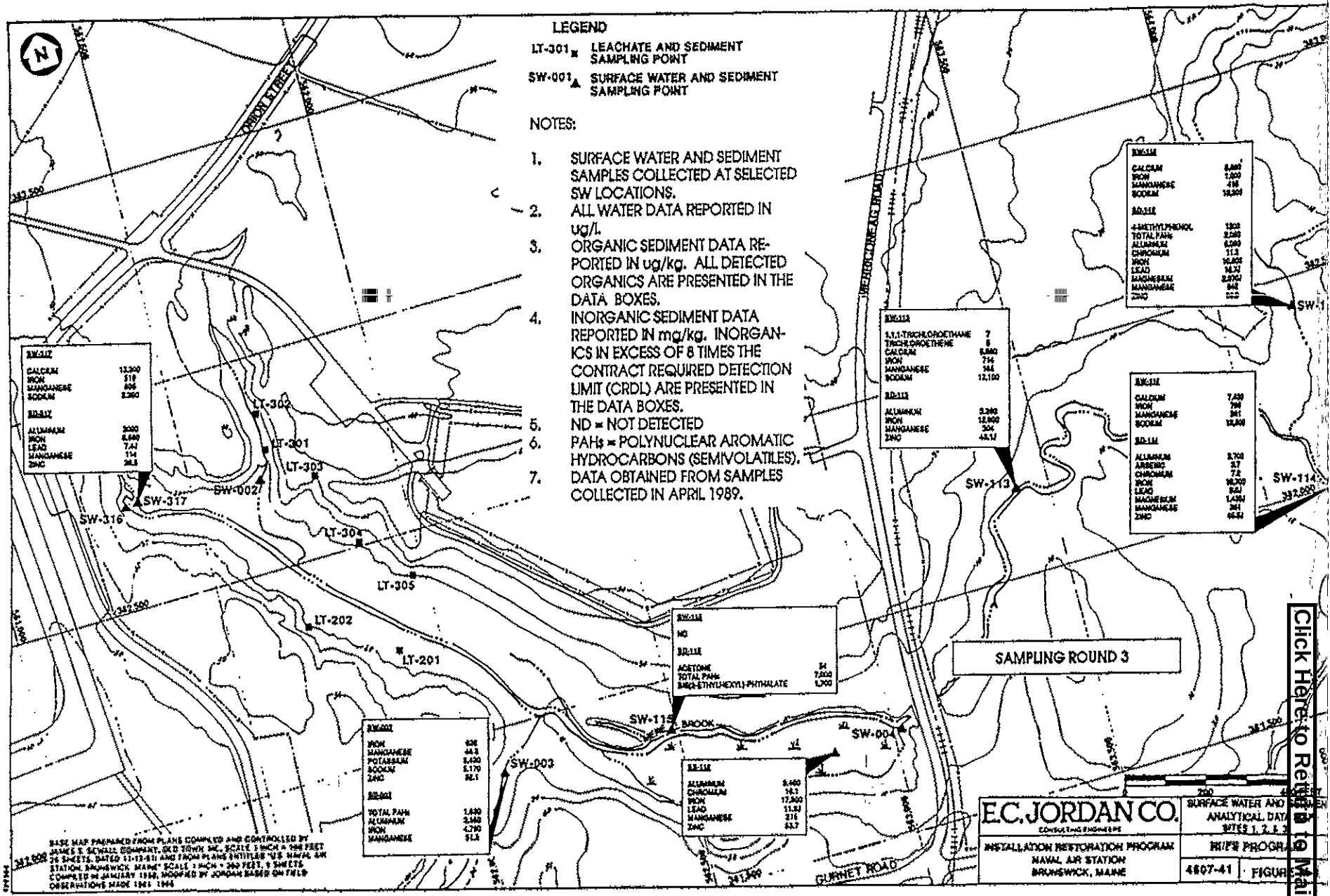

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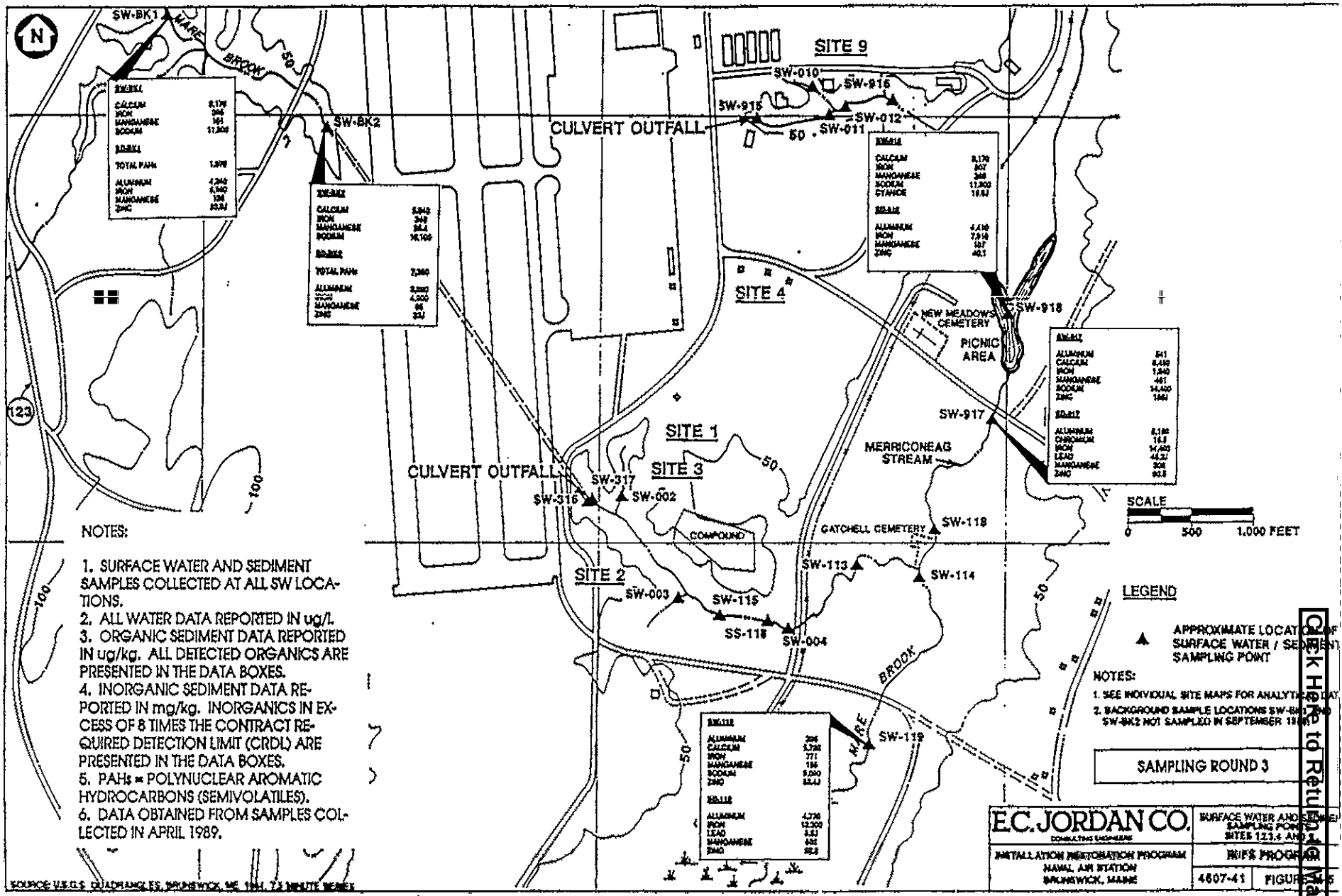

NOTES:

1. SURFACE WATER AND SEDIMENT SAMPLES COLLECTED AT ALL SW LOCATIONS.
2. ALL WATER DATA REPORTED IN ug/l.
3. ORGANIC SEDIMENT DATA REPORTED IN ug/kg. ALL DETECTED ORGANICS ARE PRESENTED IN THE DATA BOXES.
4. INORGANIC SEDIMENT DATA REPORTED IN mg/kg. INORGANICS IN EXCESS OF 8 TIMES THE CONTRACT REQUIRED DETECTION LIMIT (CRDL) ARE PRESENTED IN THE DATA BOXES.
5. PAHs = POLYNUCLEAR AROMATIC HYDROCARBONS (SEMIVOLATILES).
6. DATA OBTAINED FROM SAMPLES COLLECTED IN APRIL 1989.

SOURCE: U.S.G.S. QUADRANGLES, BRUNSWICK, ME. 1964, 7.5 MINUTE SERIES

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SURFACE WATER AND SEDIMENT SAMPLING POINTS SITES 123,4 AND 9

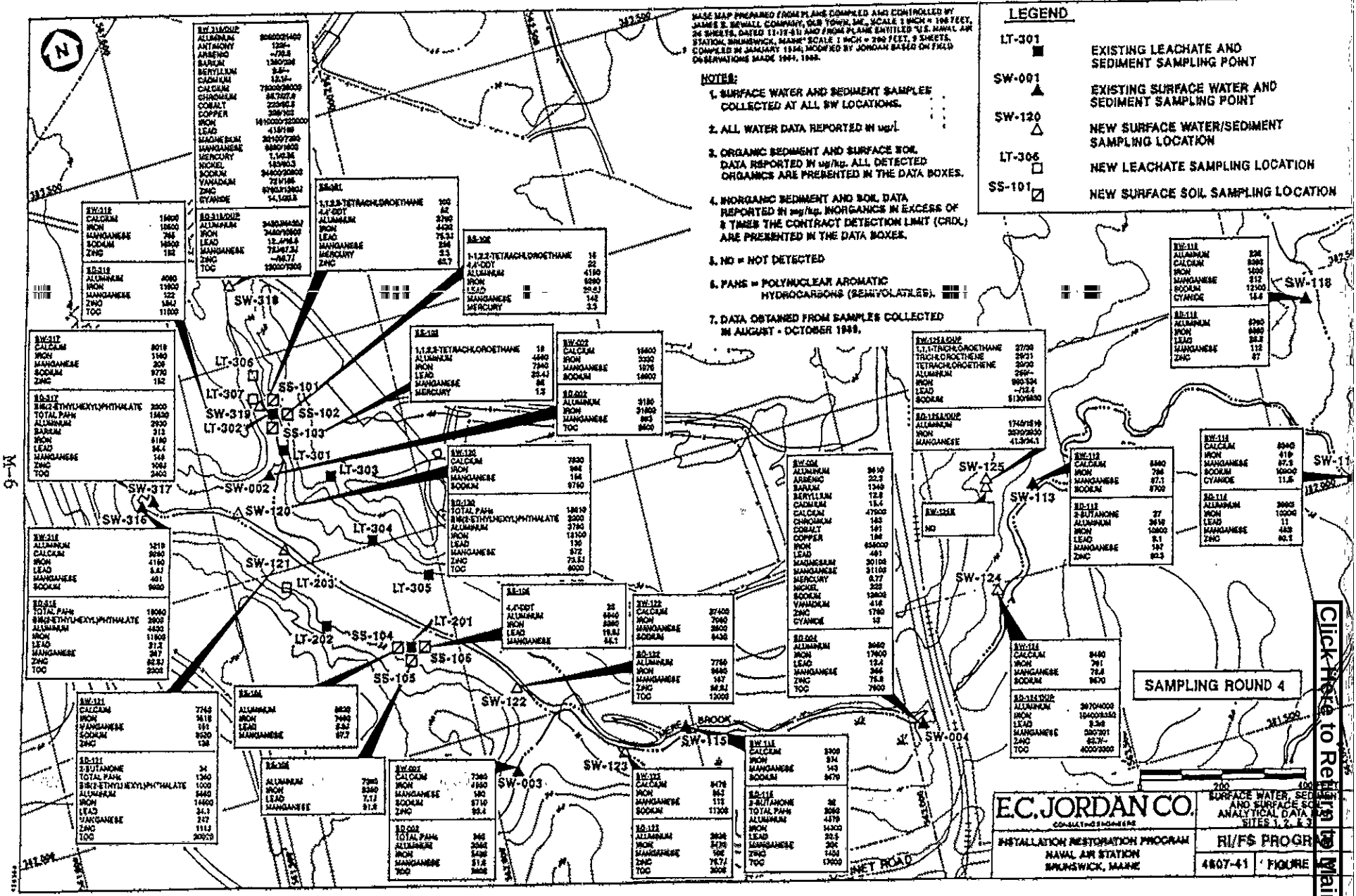
INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

RI/FS PROGRAM

4607-41 FIGURE 6

M-5

Click Here to Return to Main Index



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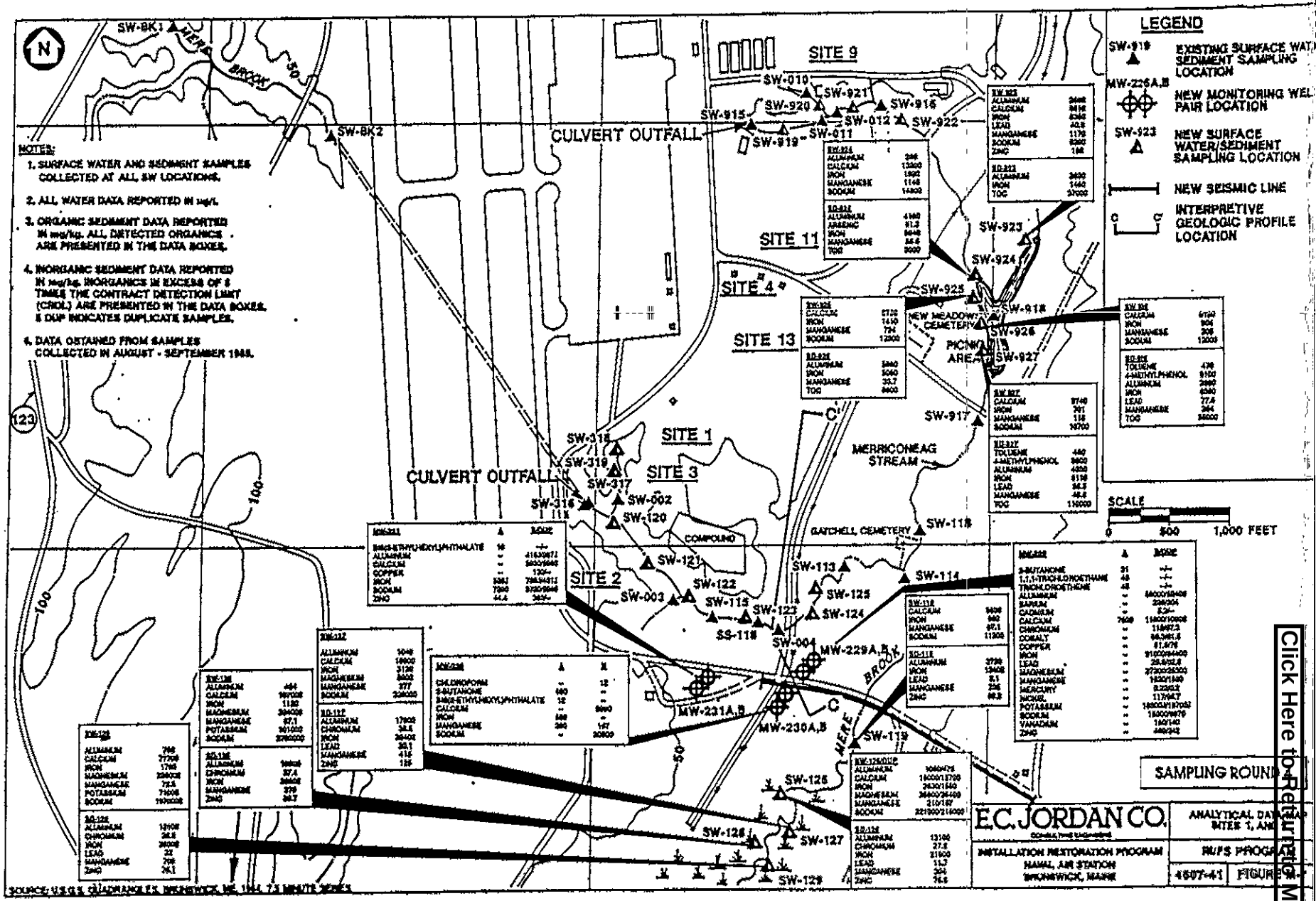

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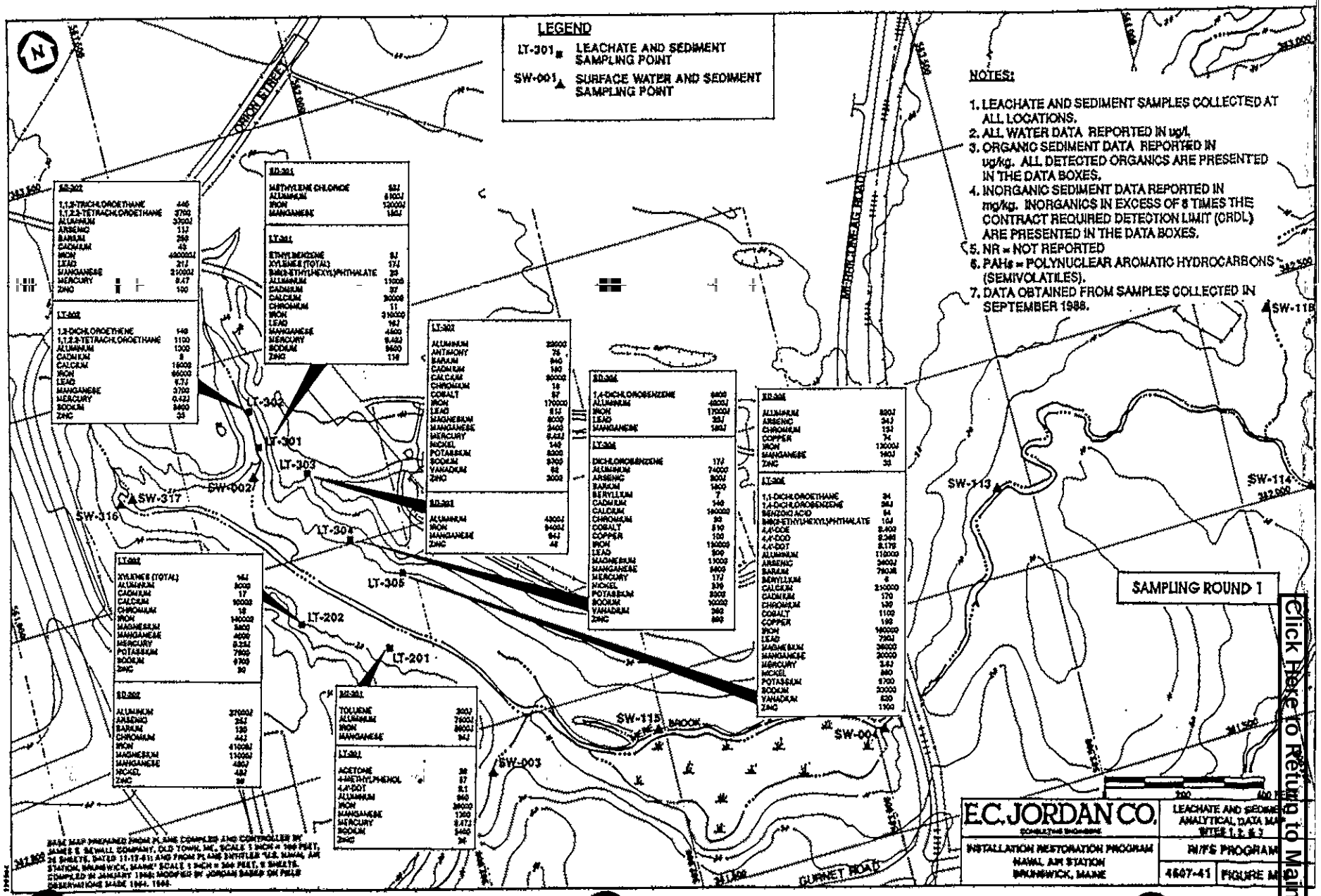

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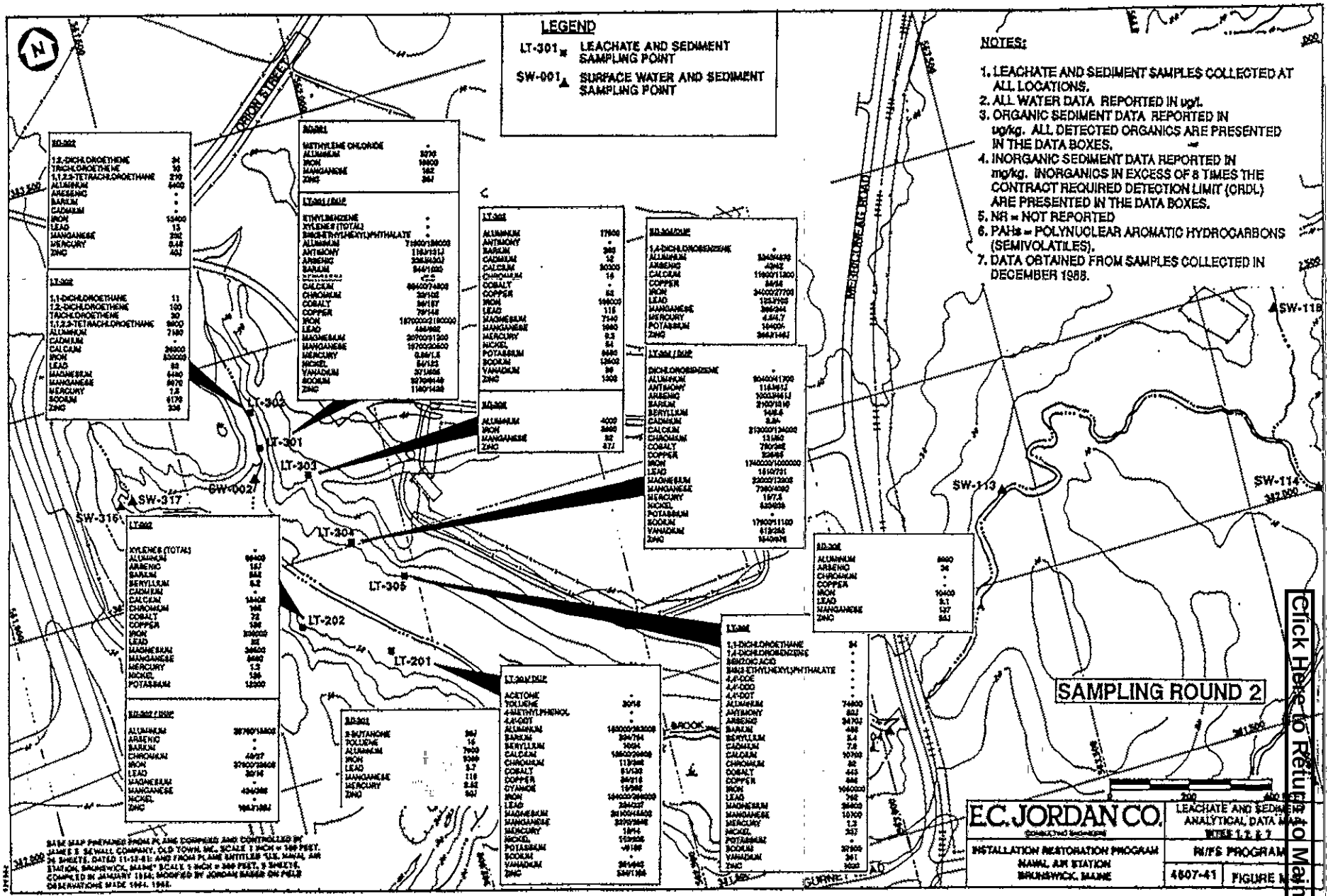

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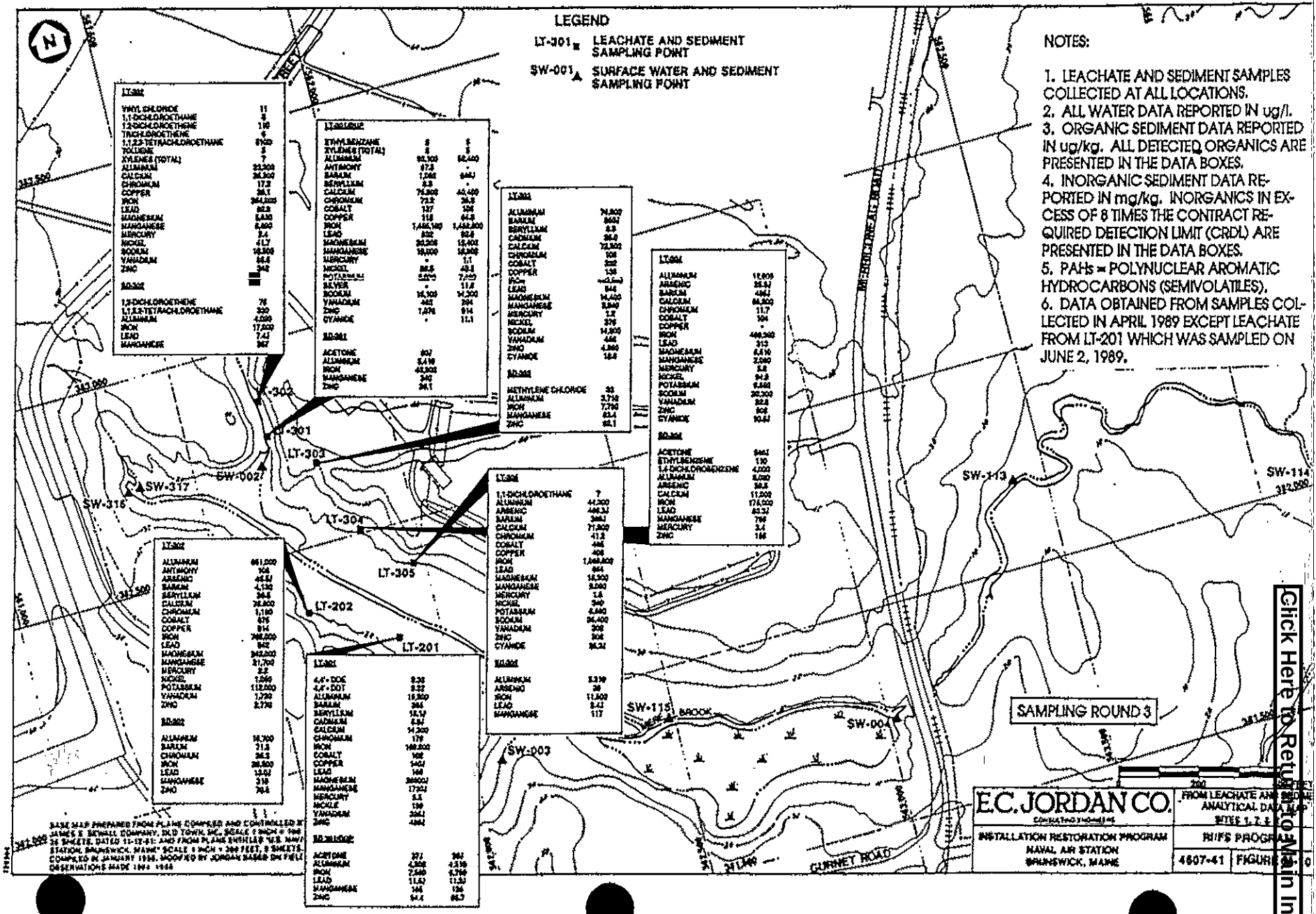

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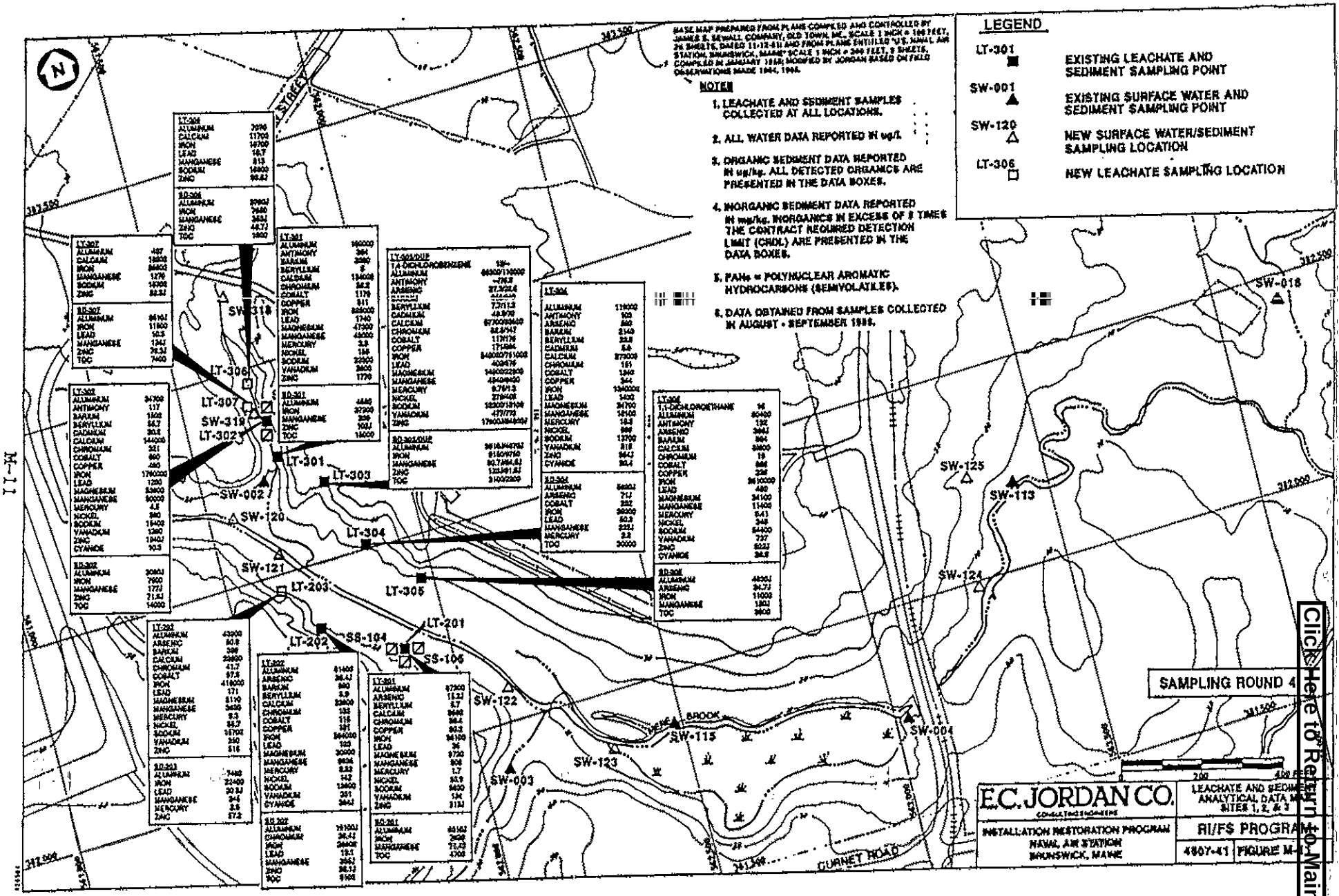

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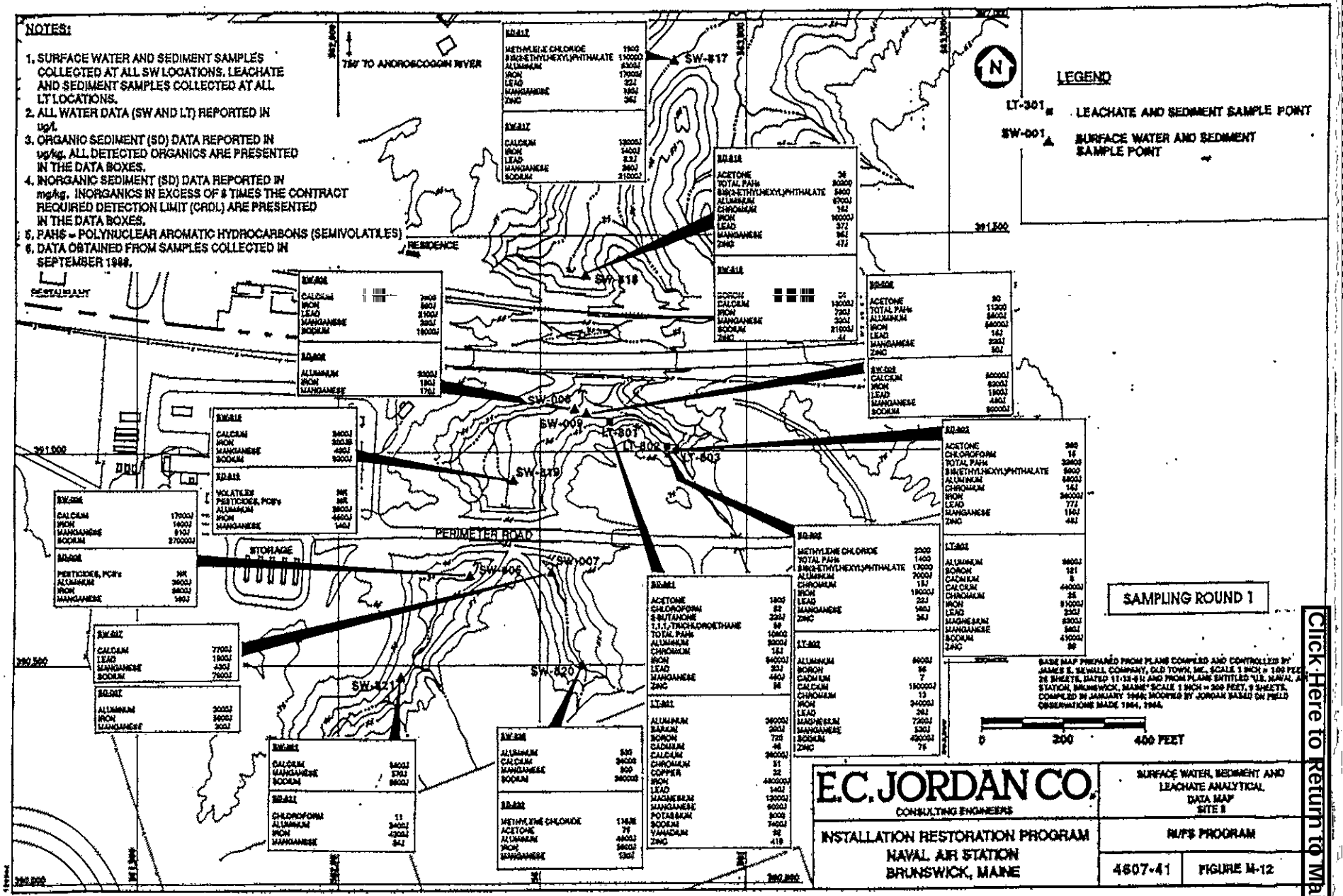

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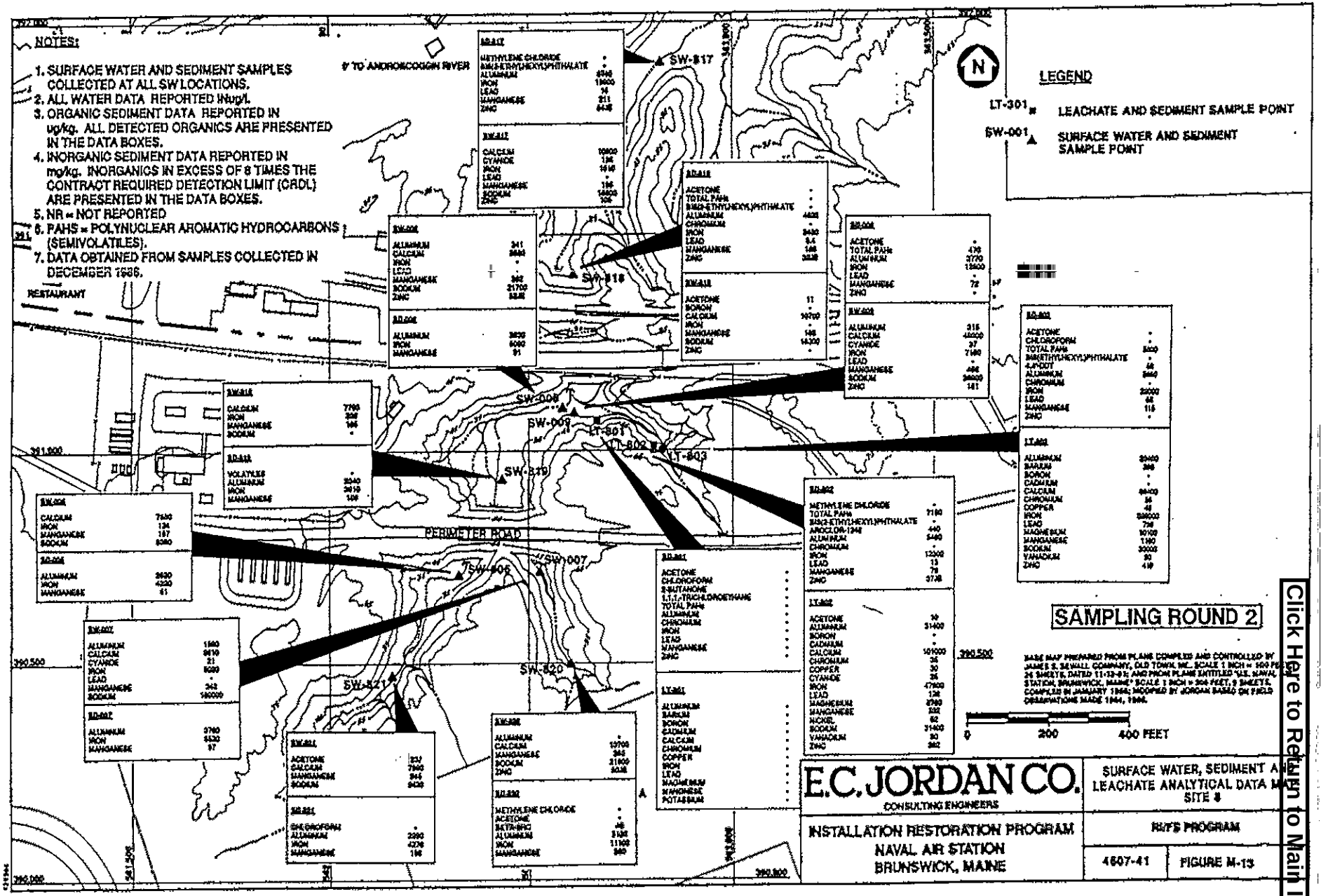

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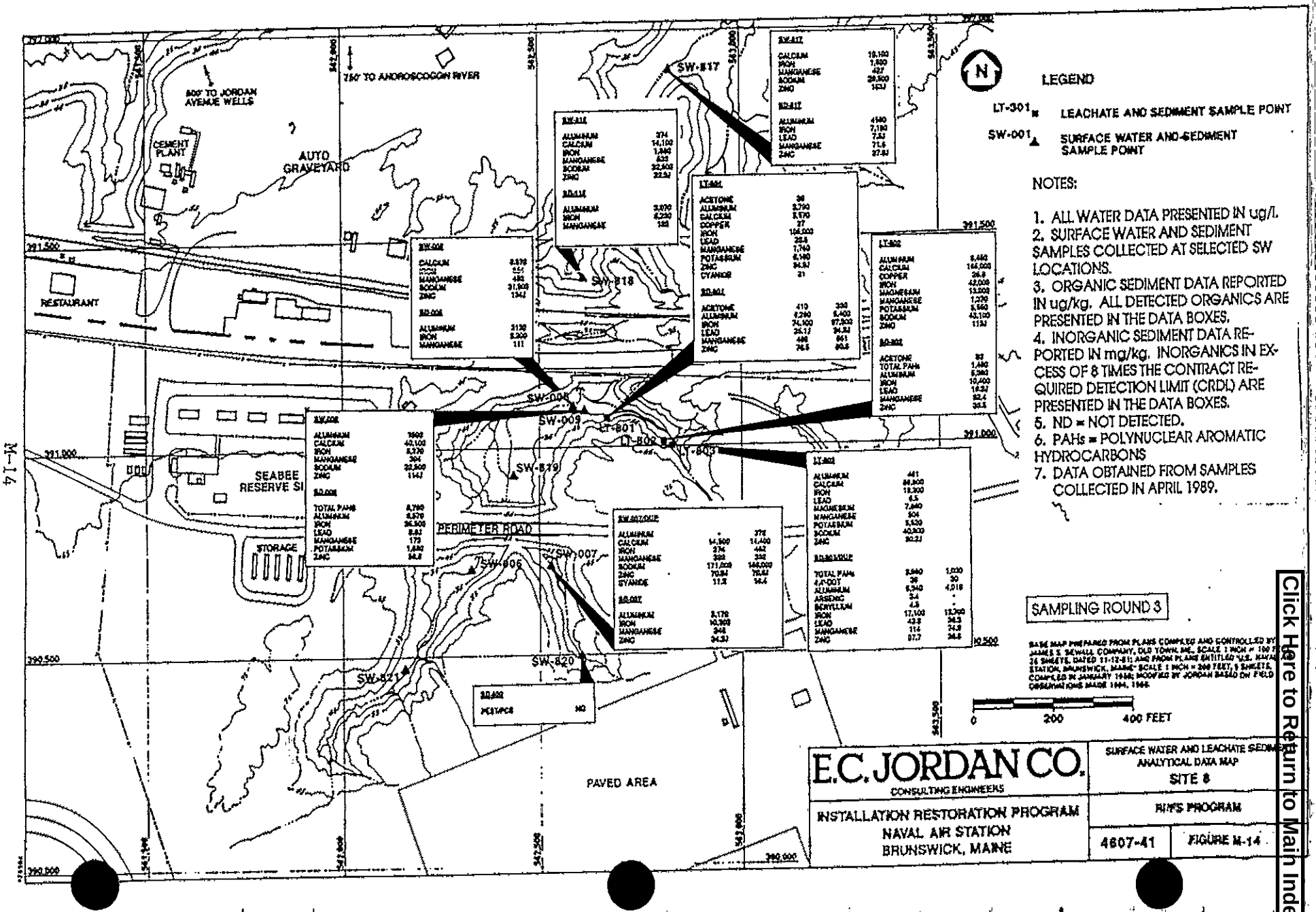

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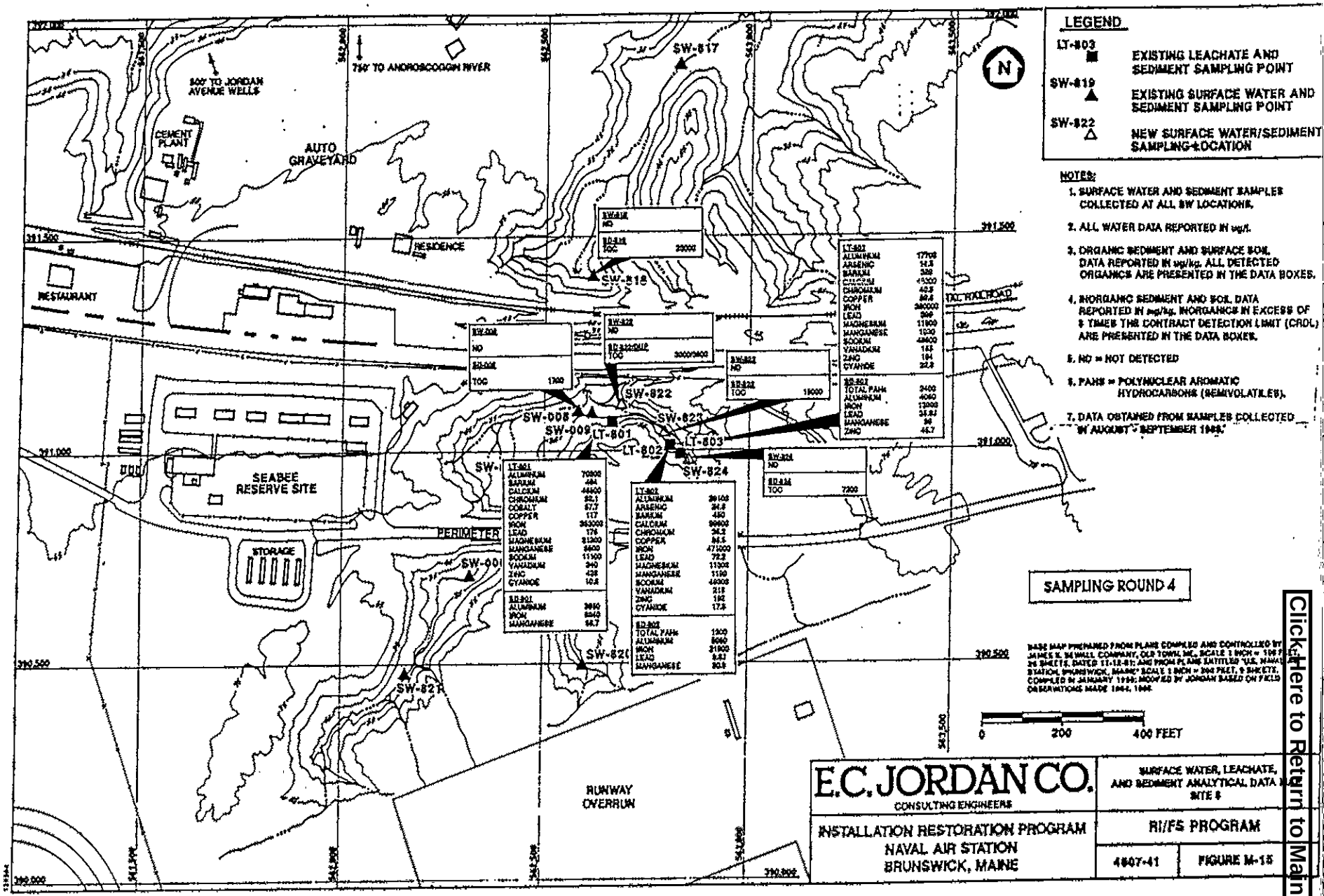
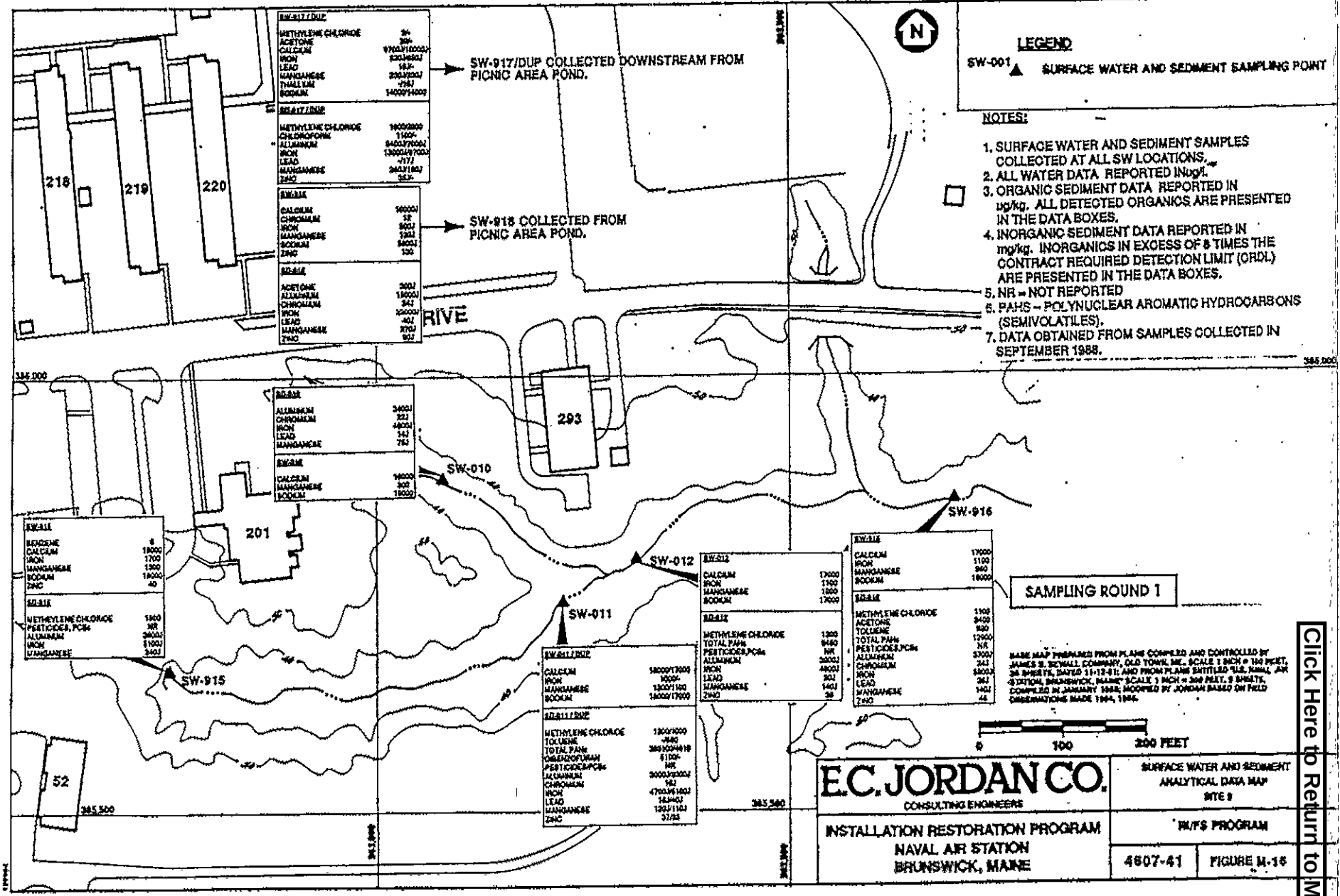


M-15

Click Here to Return to Main Index



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NAVAL AIR STATION
BRUNSWICK, MAINE

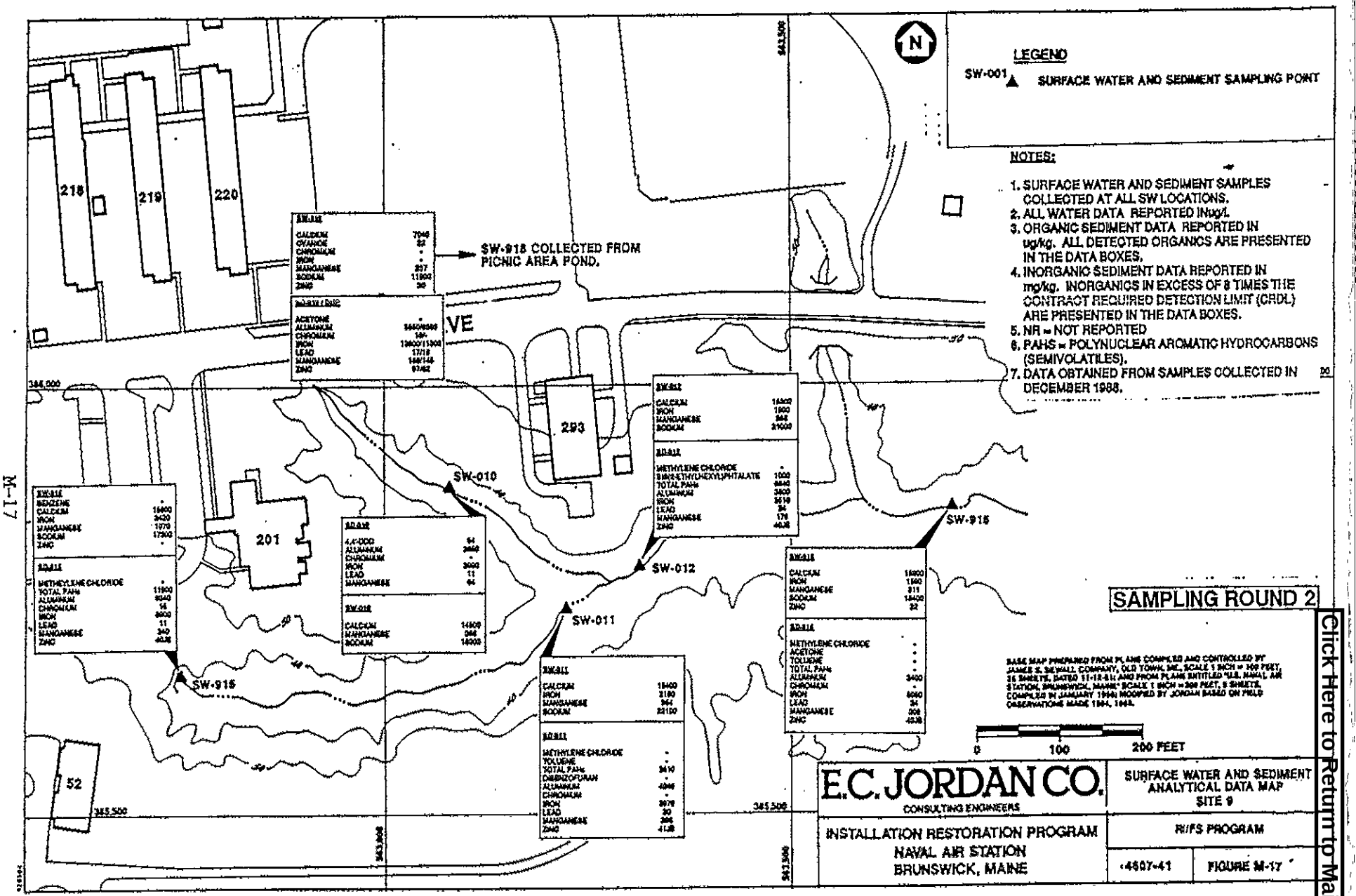
SURFACE WATER AND SEDIMENT ANALYTICAL DATA MAP
SITE 9

RI/FS PROGRAM

4607-41 | FIGURE M-16

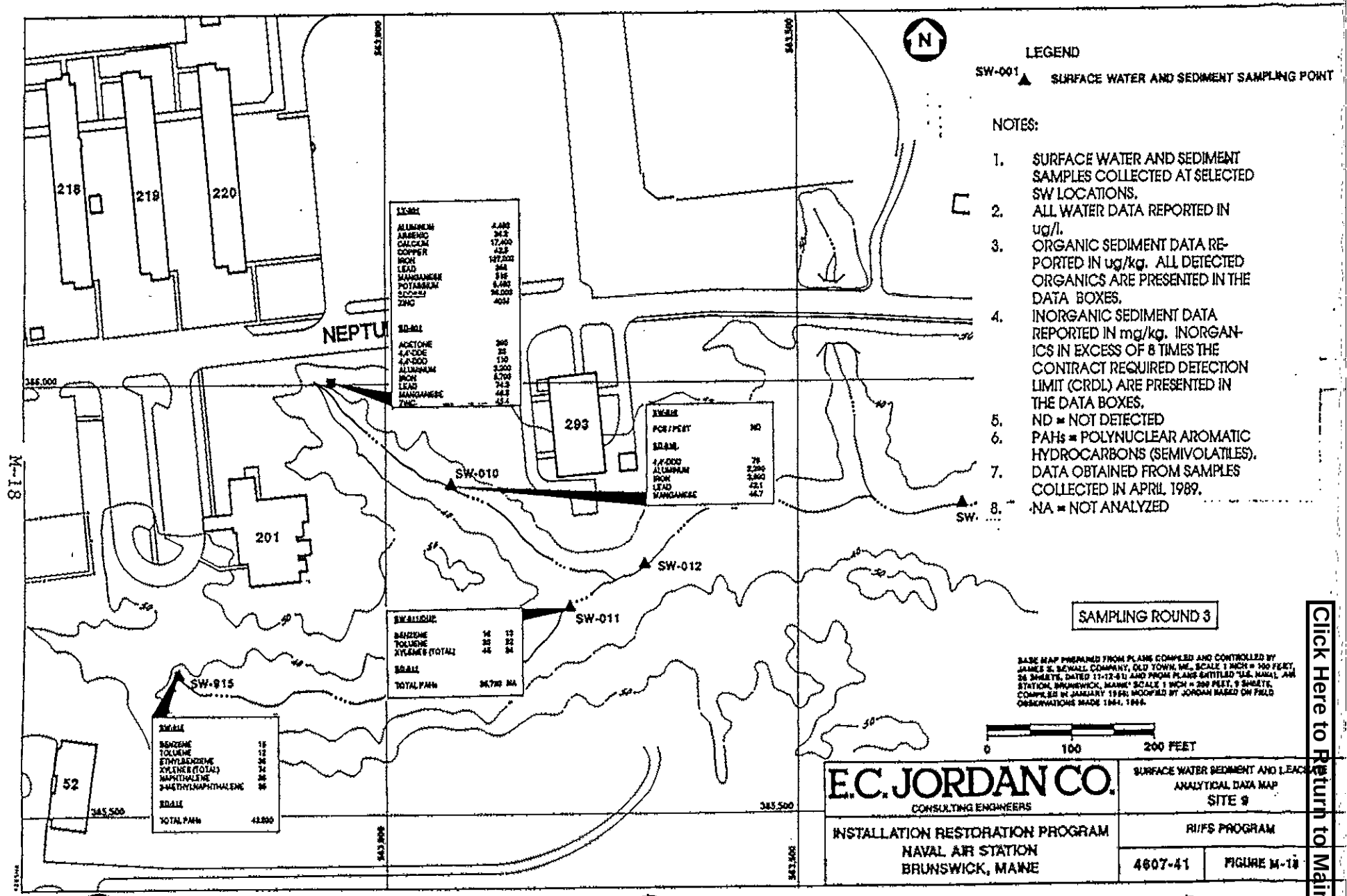
M-16

Click Here to Return to Main Index



M-17

Click Here to Return to Main Index



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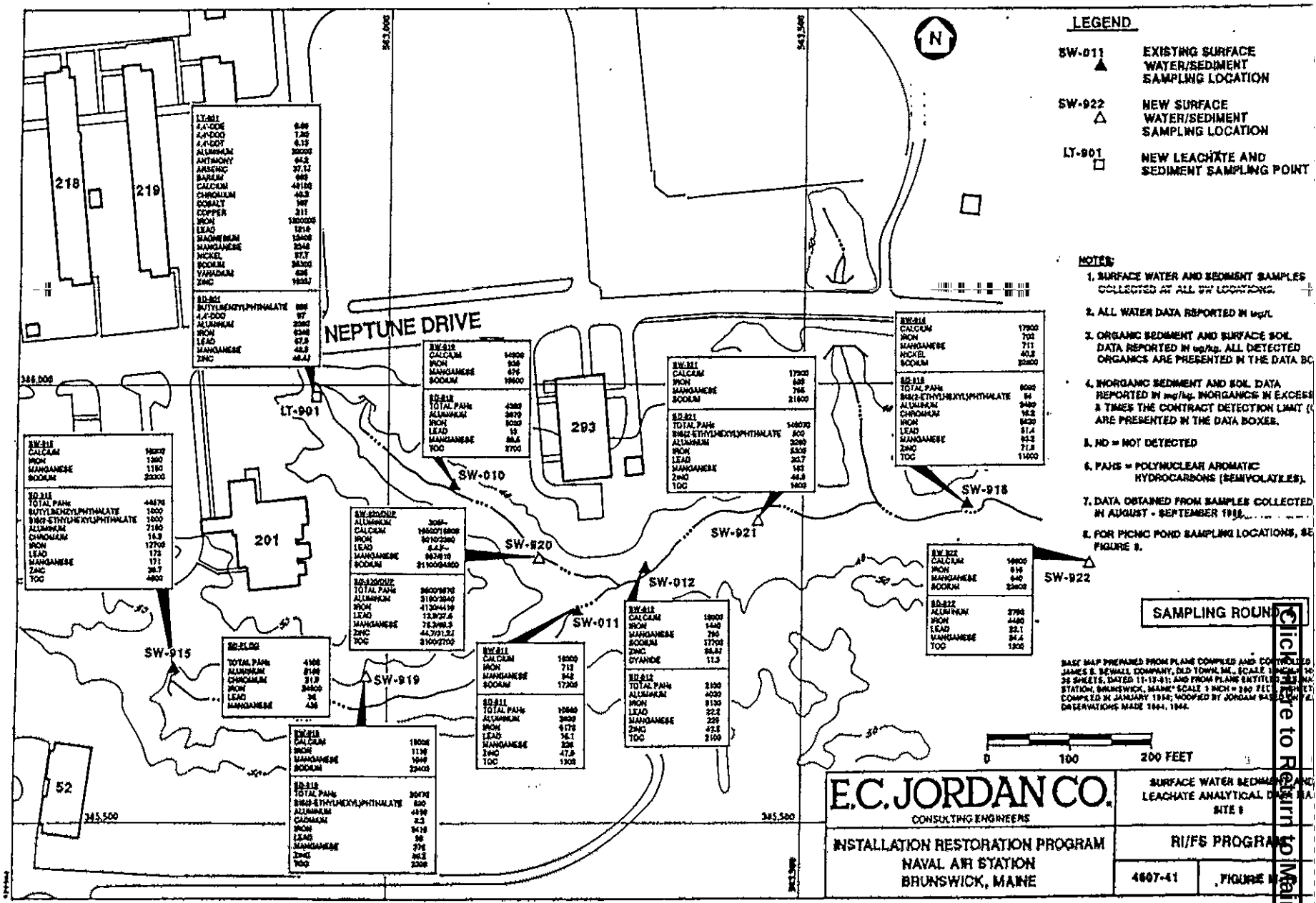

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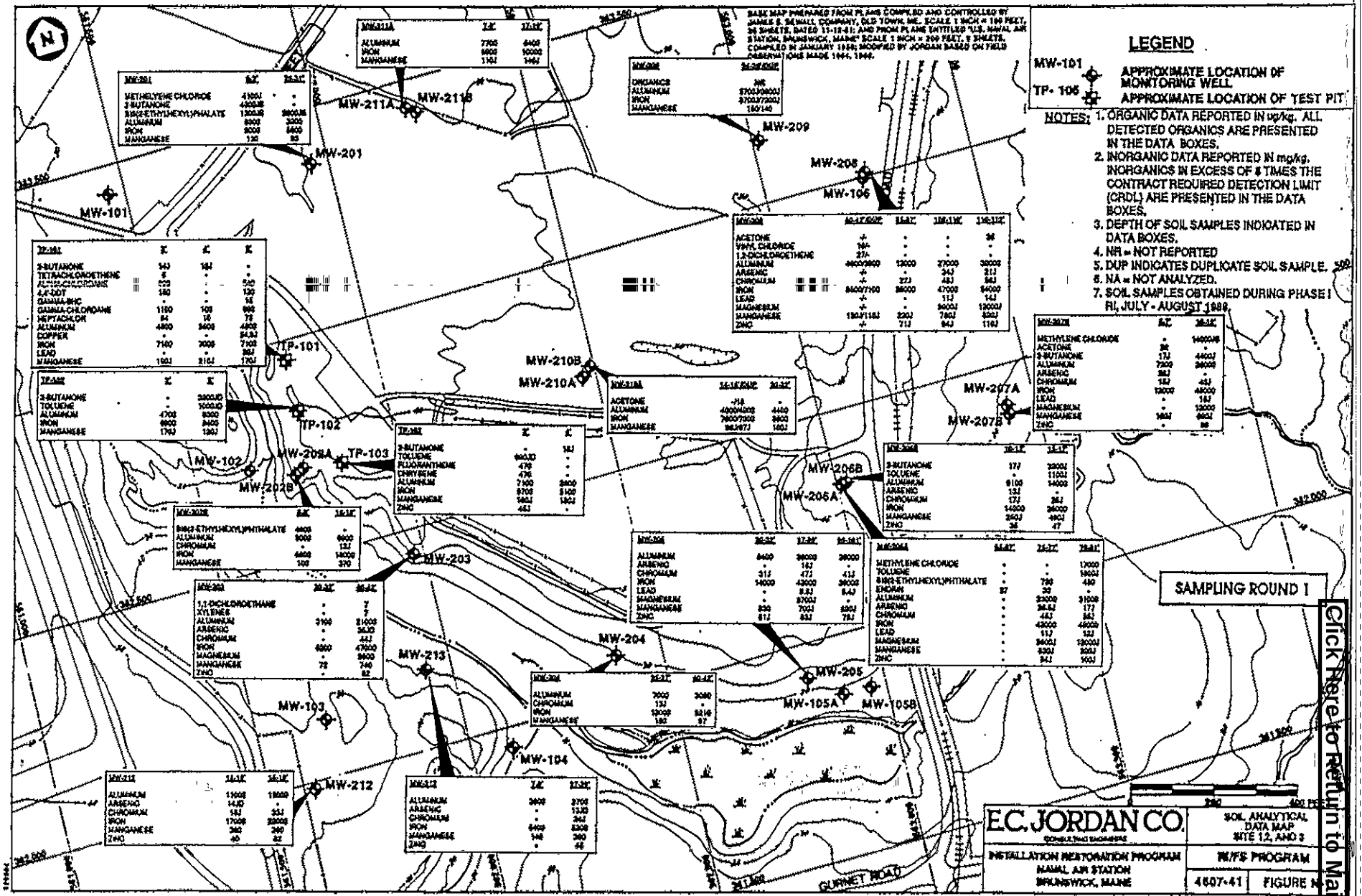

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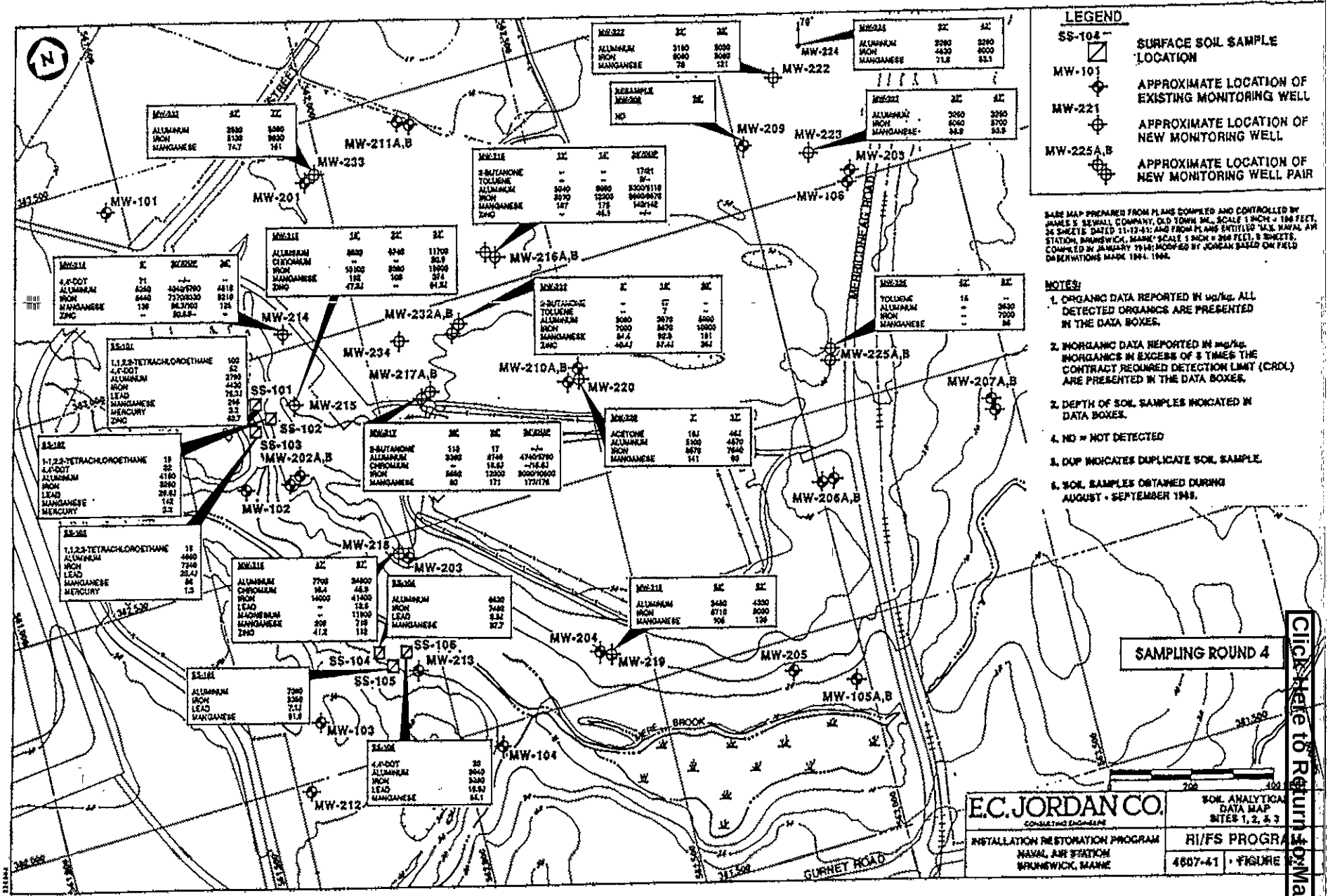
Click Here to Return to Main Index



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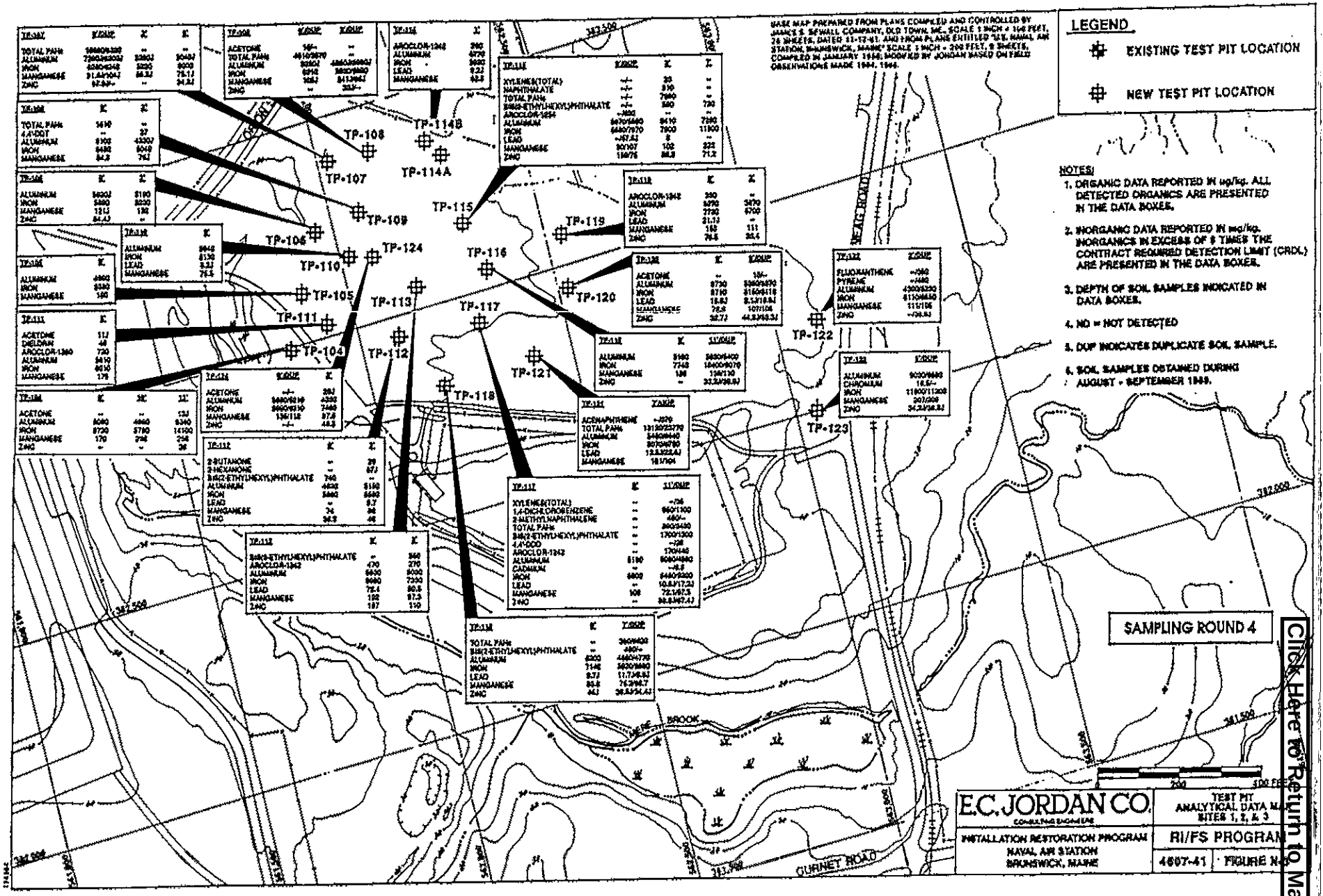

N-3

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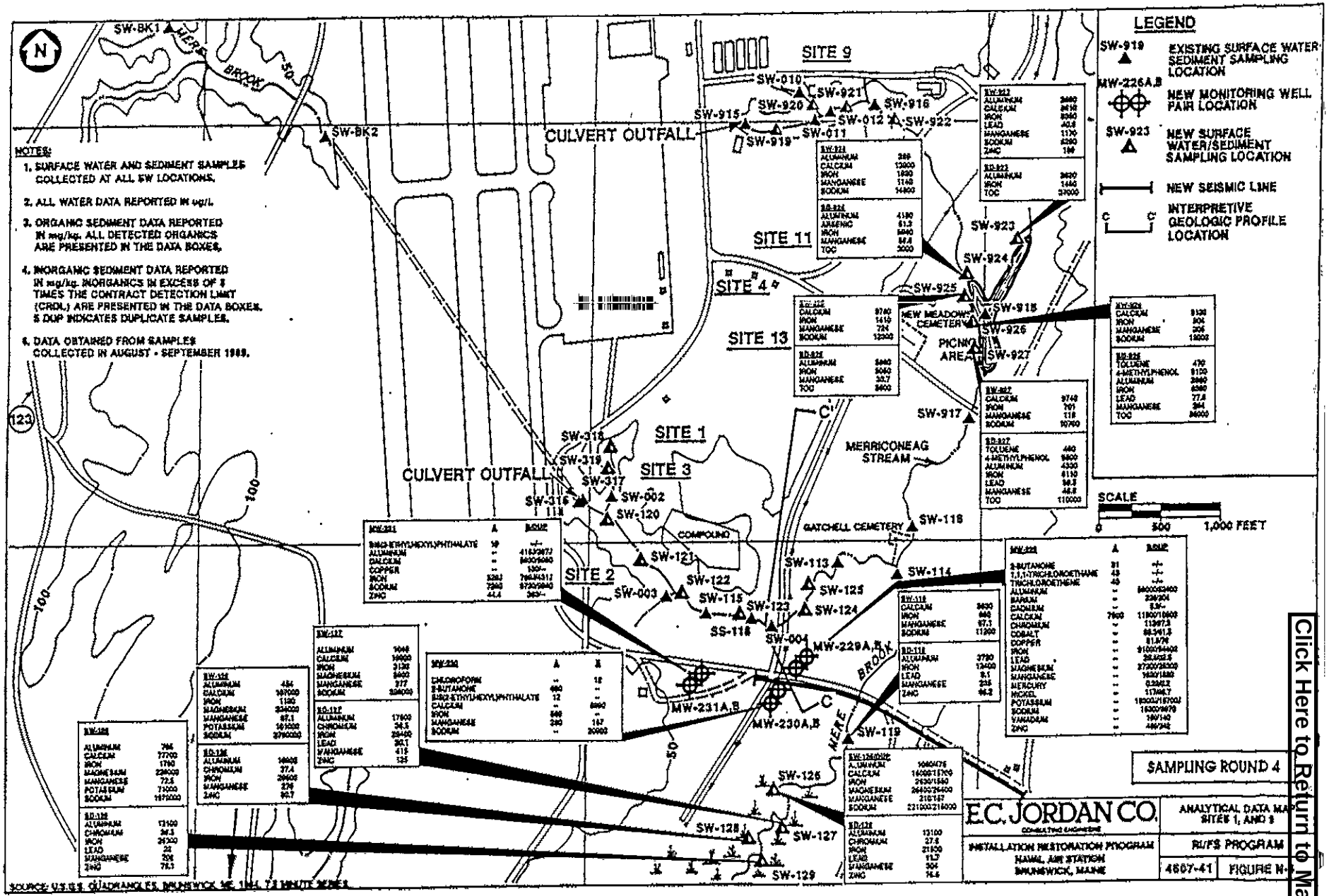

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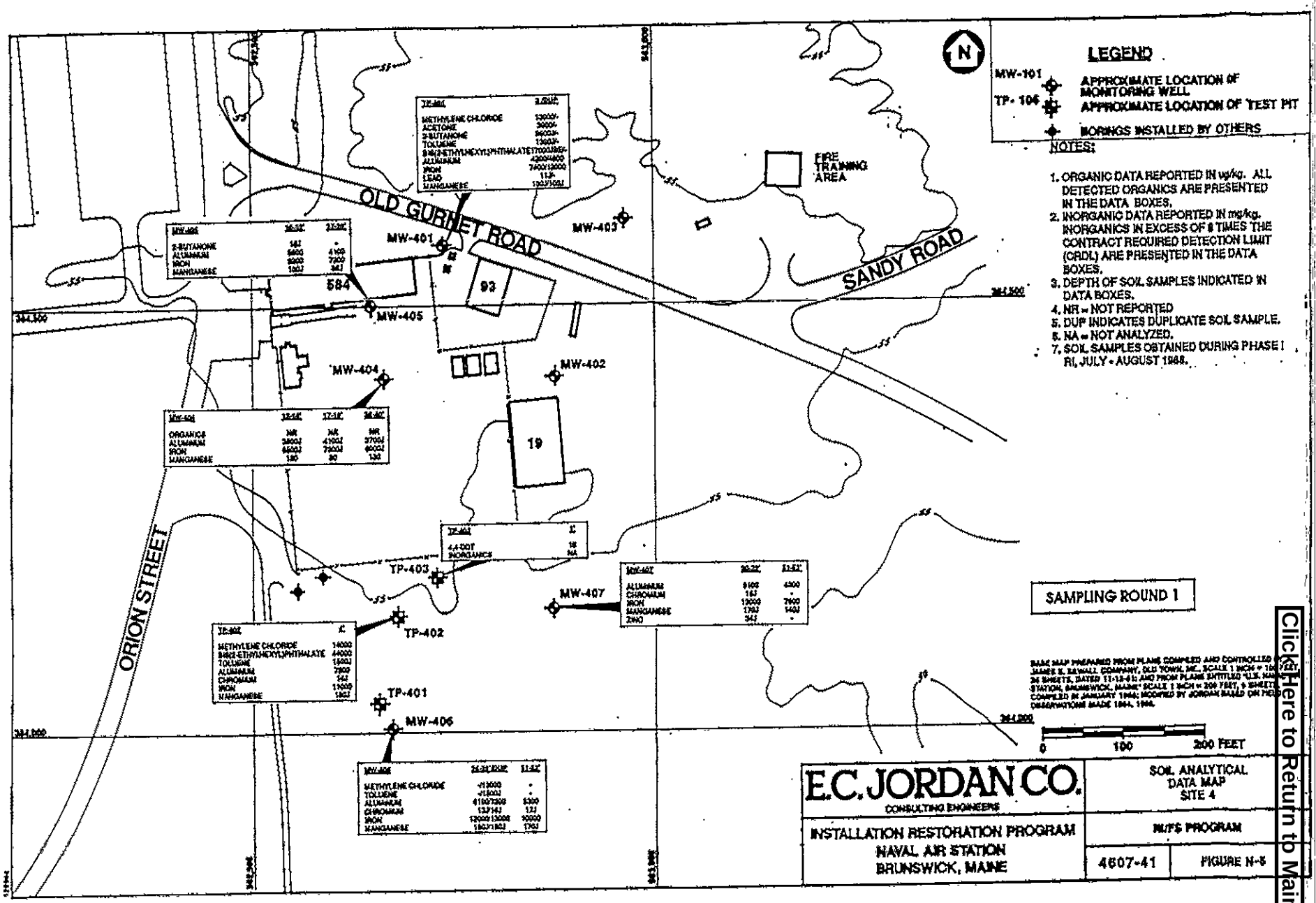

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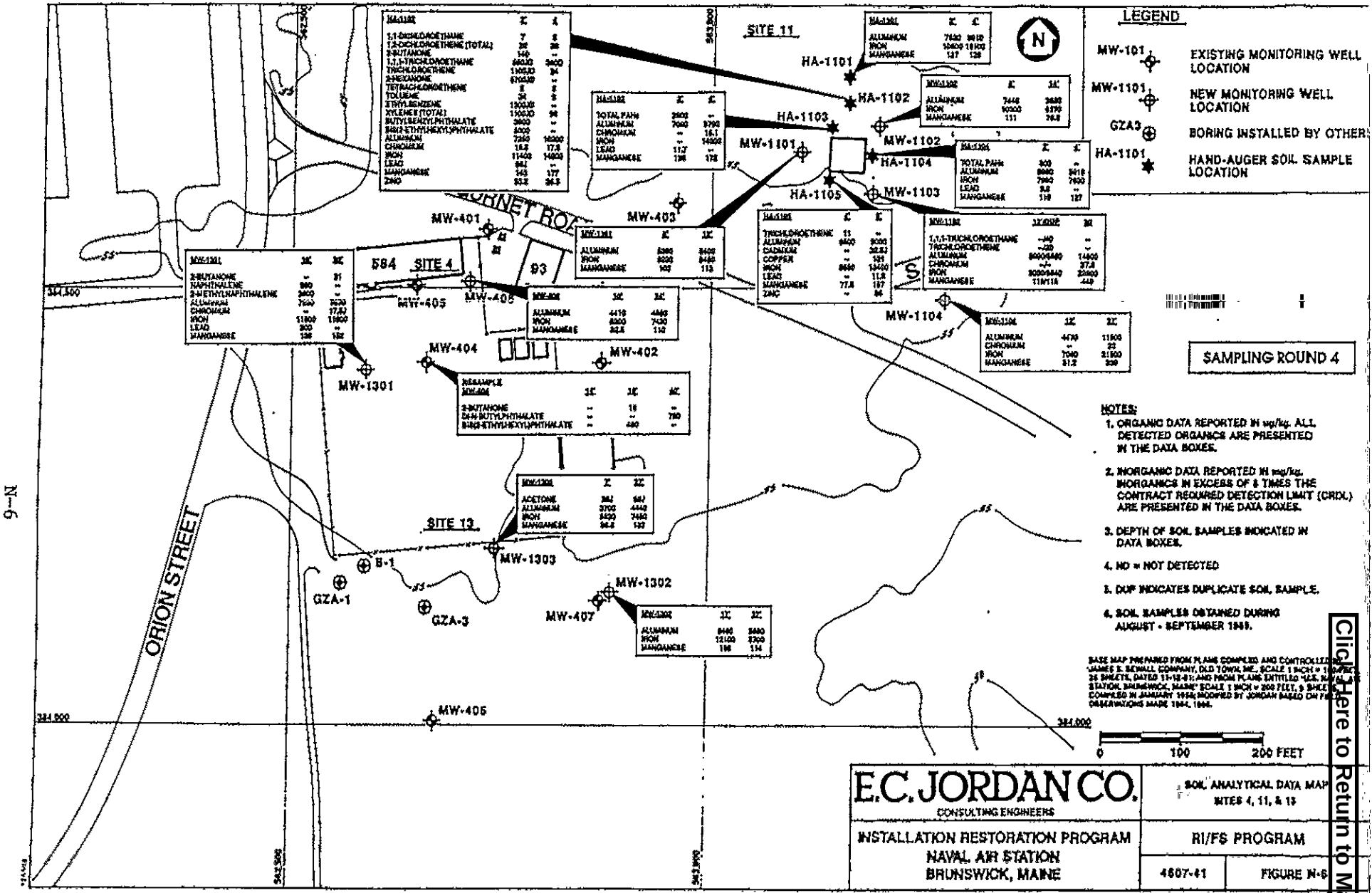

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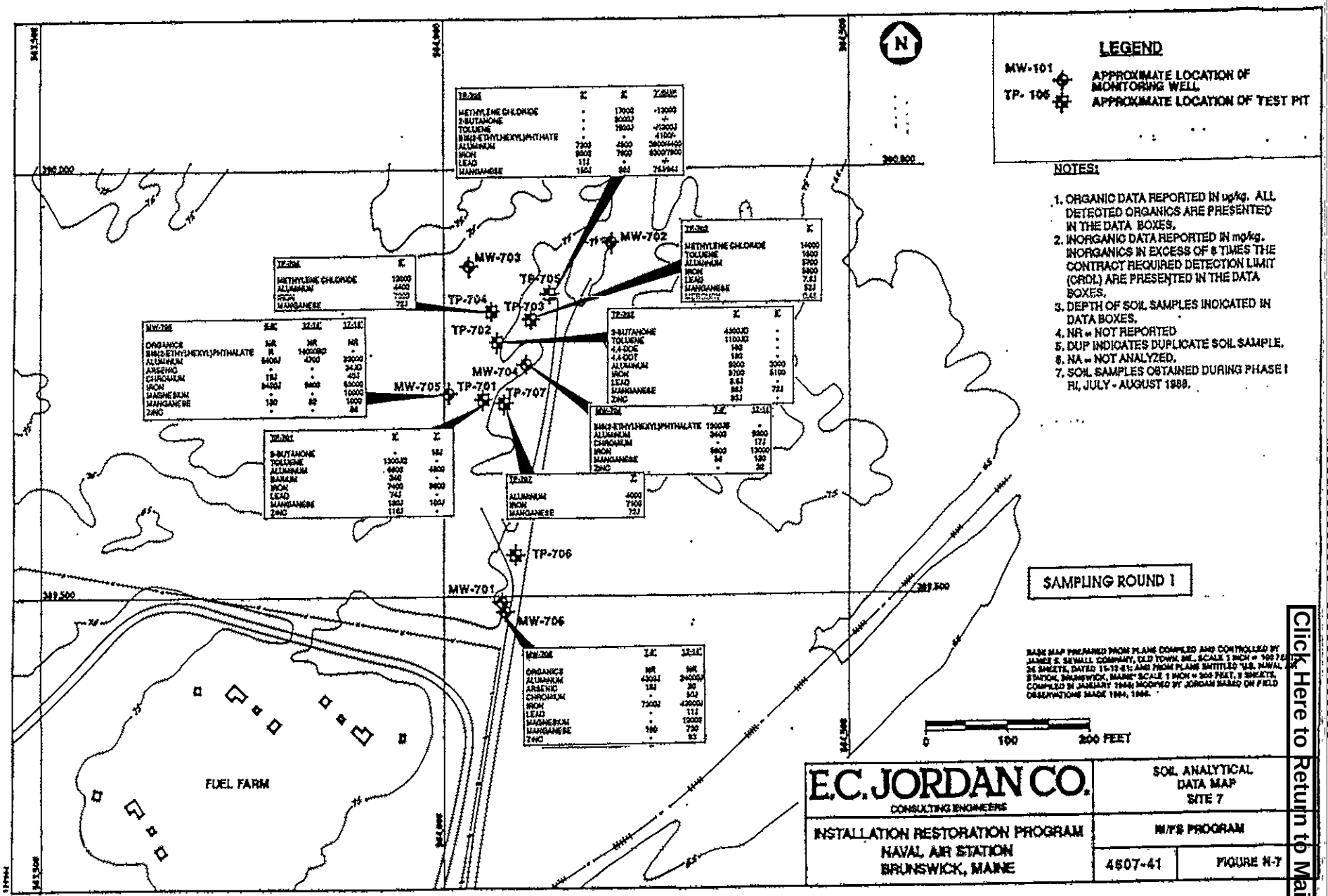

N-7

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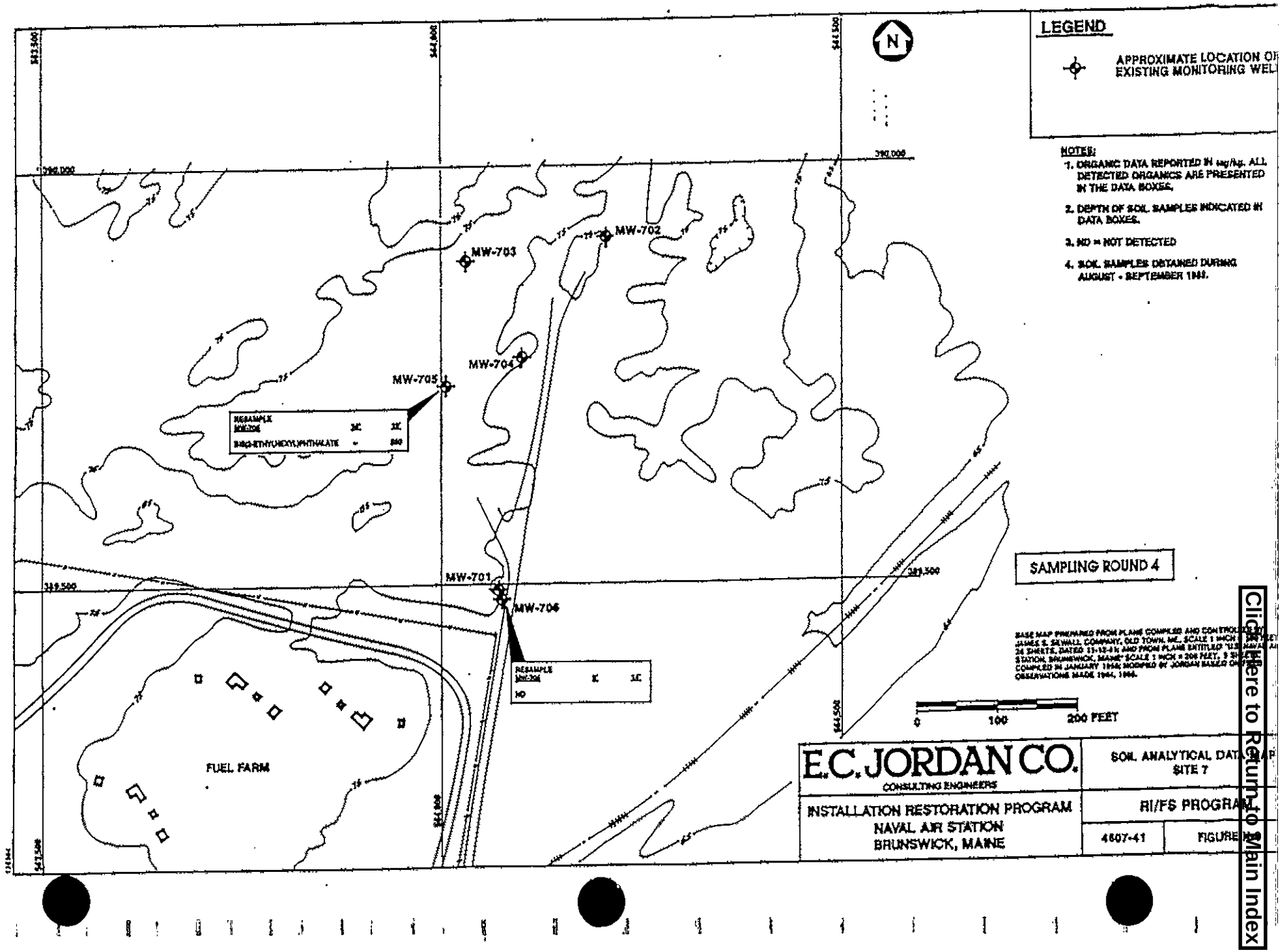

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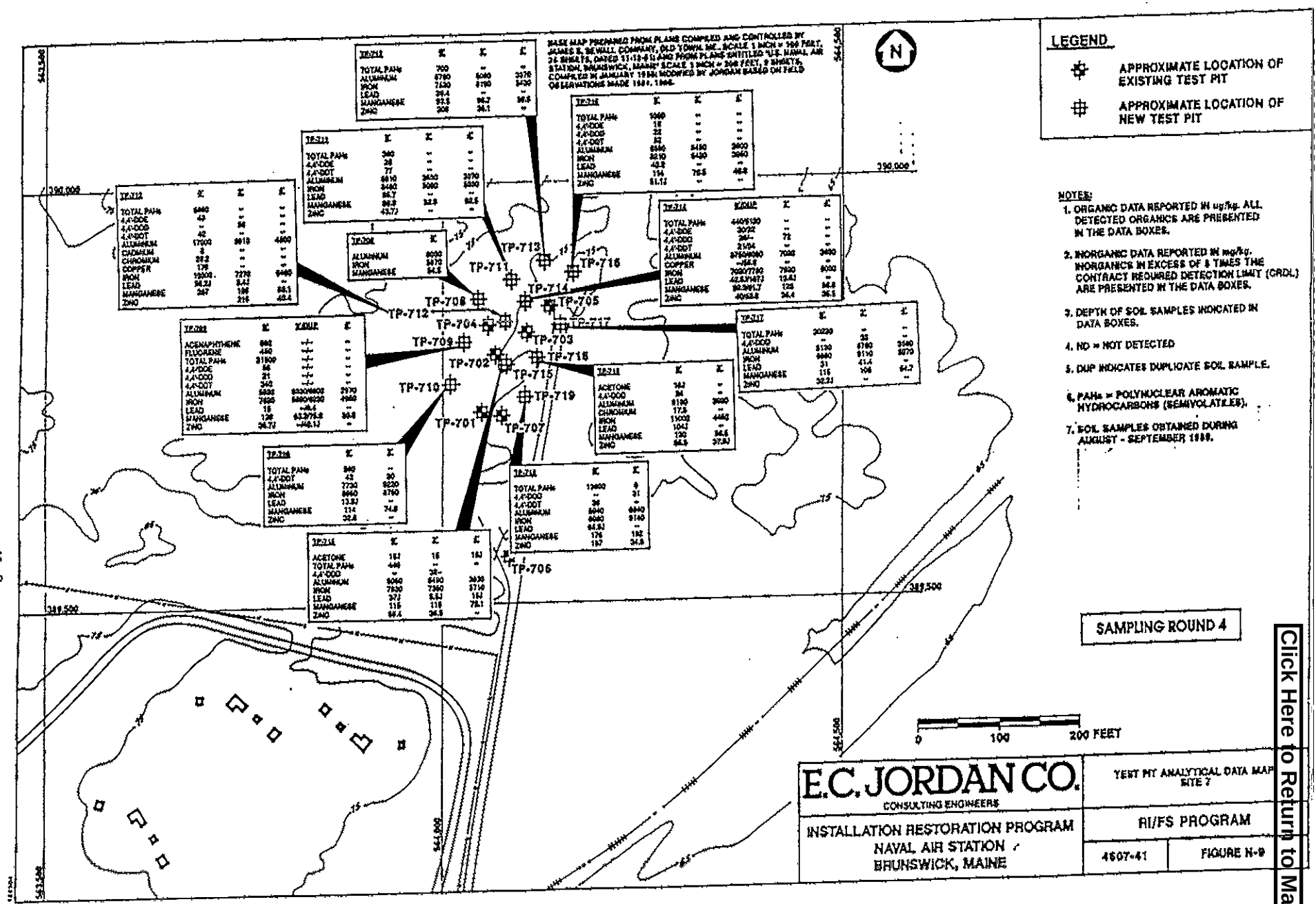

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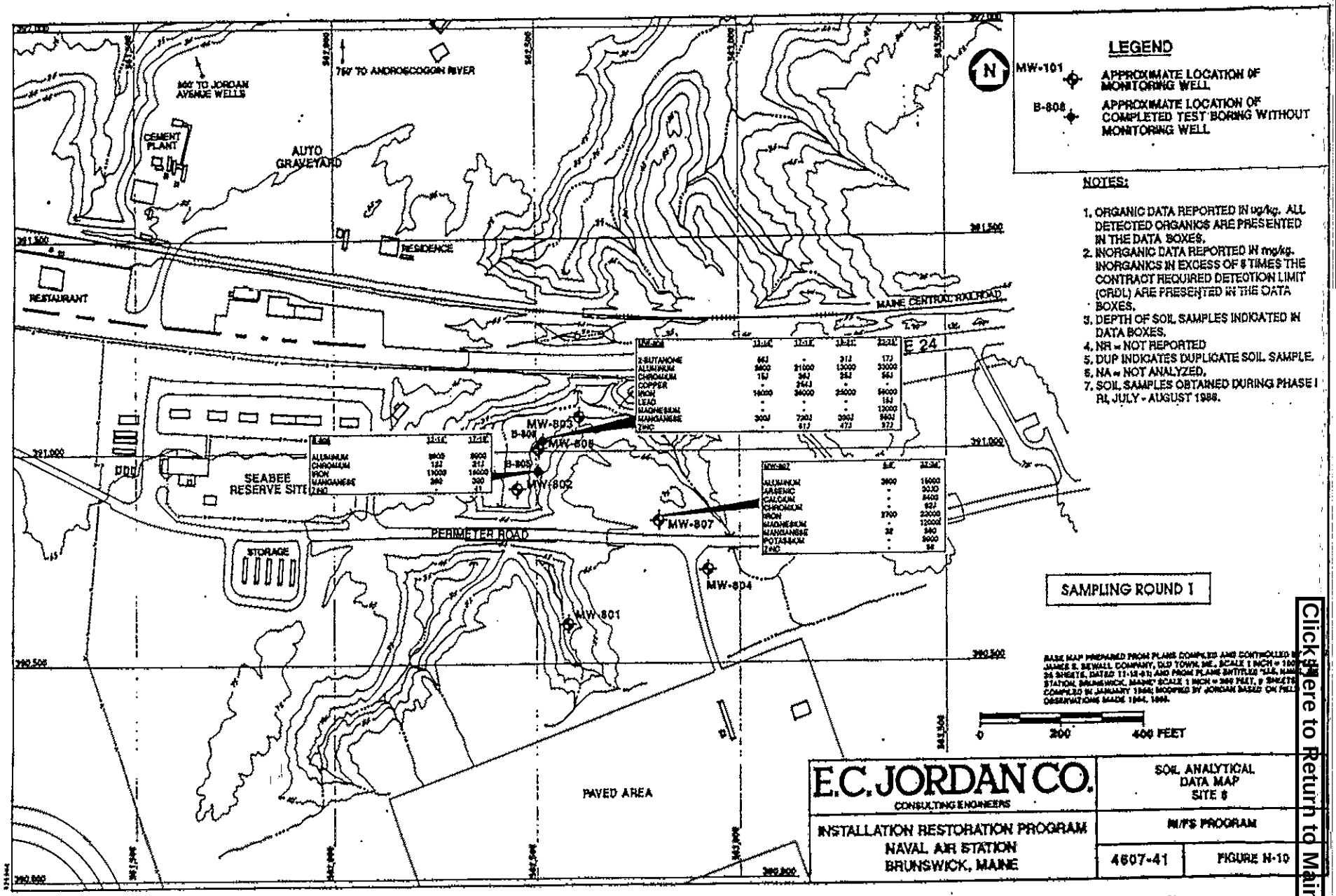

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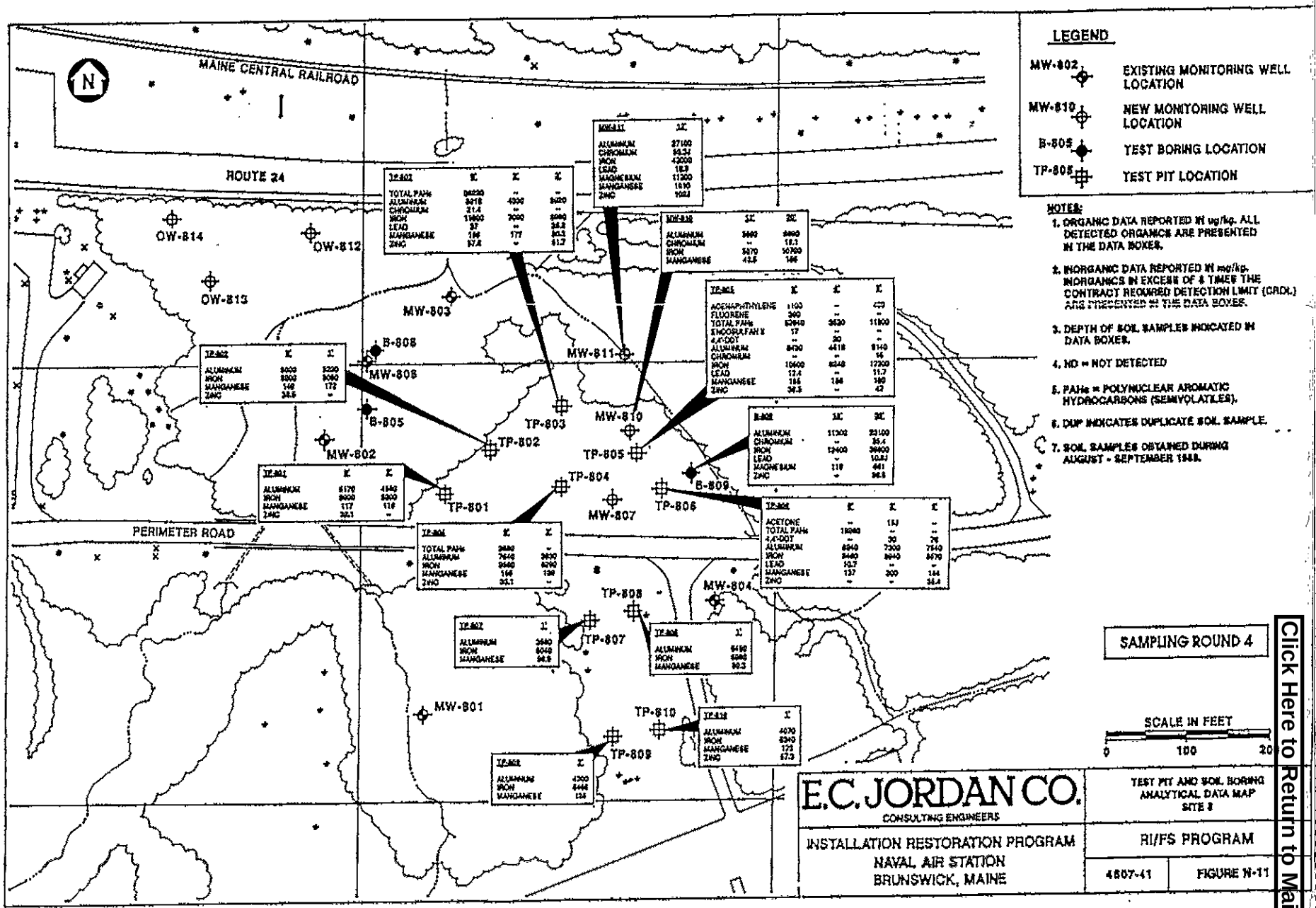

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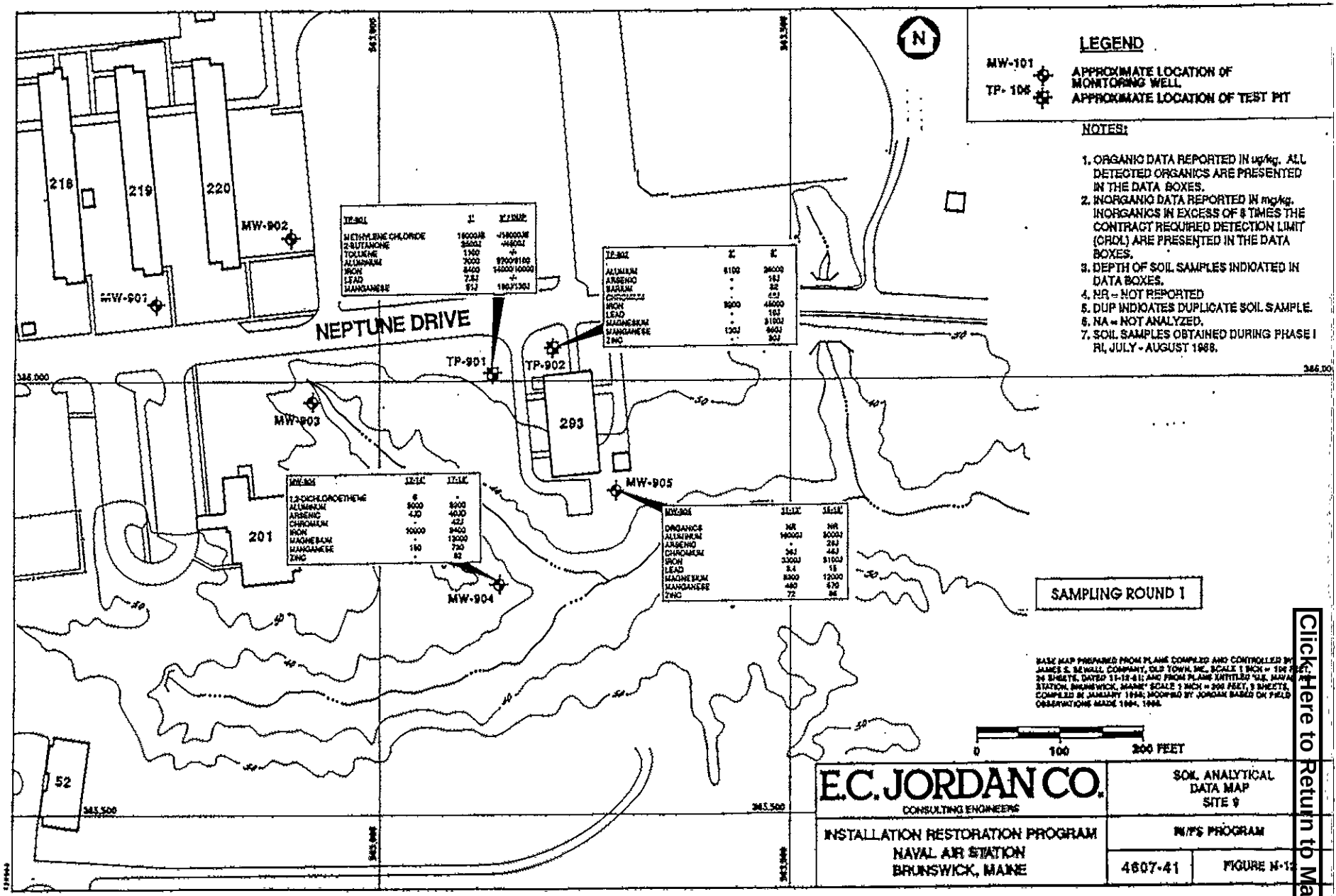

N-12

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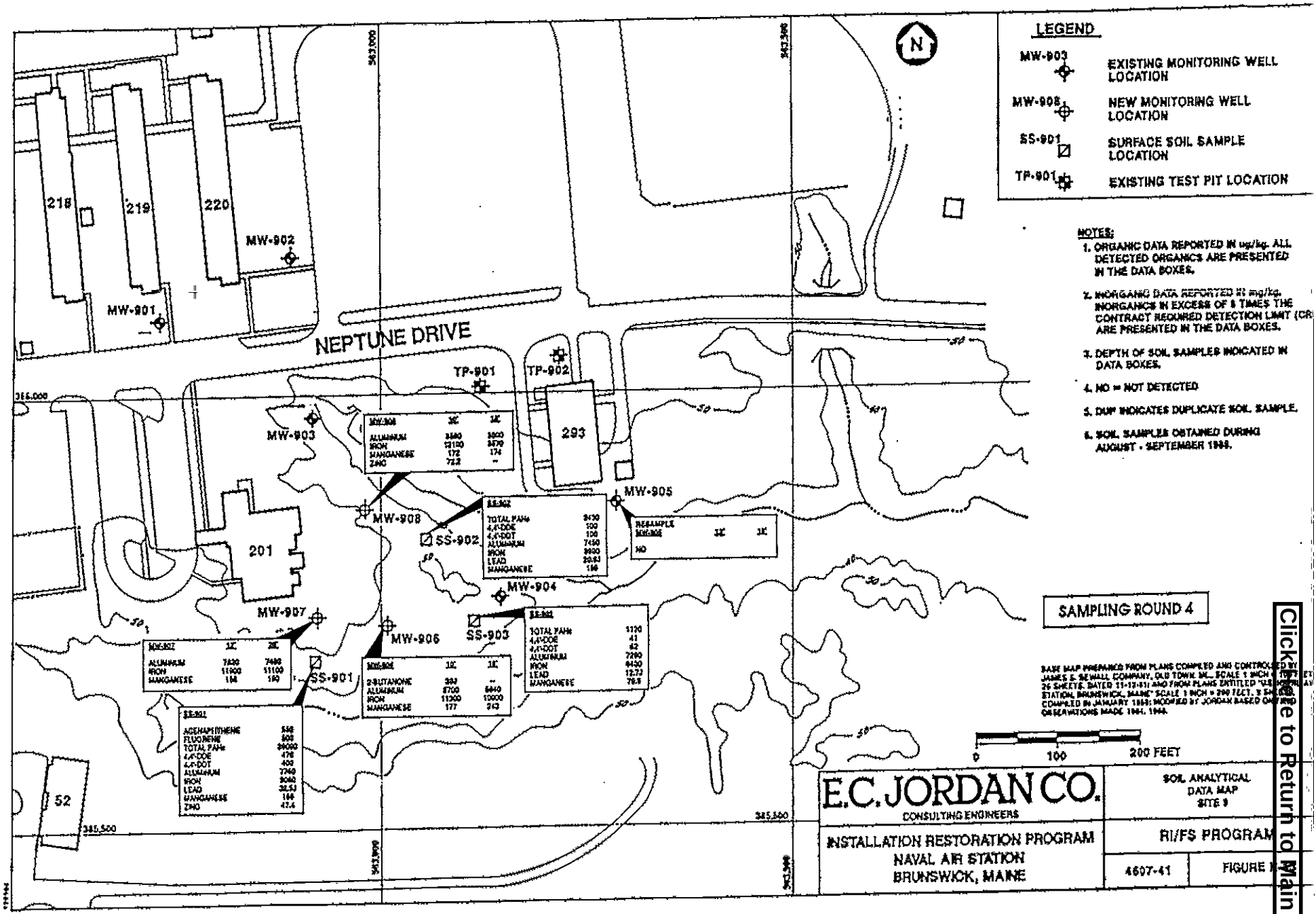
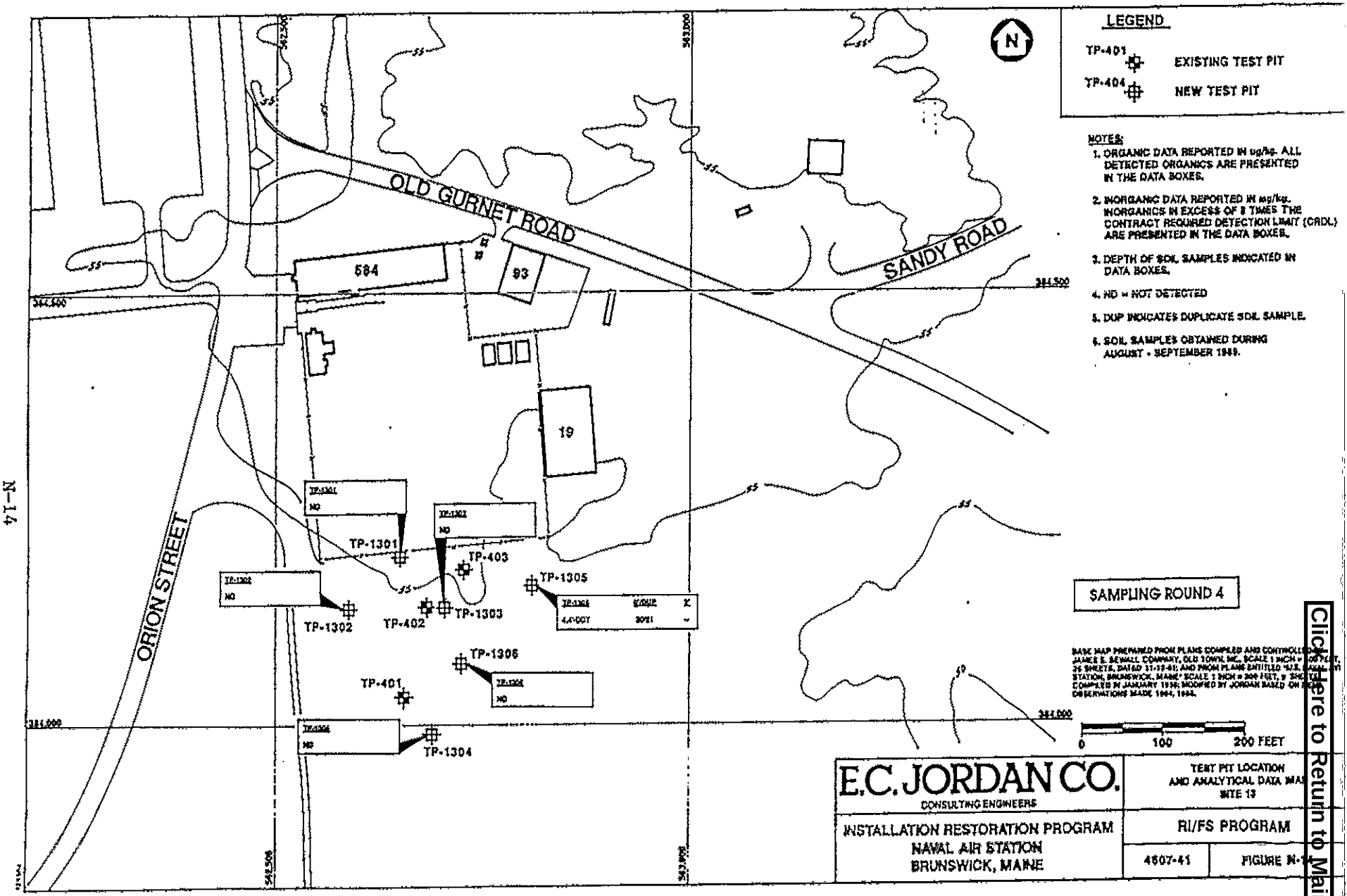


N-13

Click to Return to Main Index



N-14

Click here to Return to Main Index

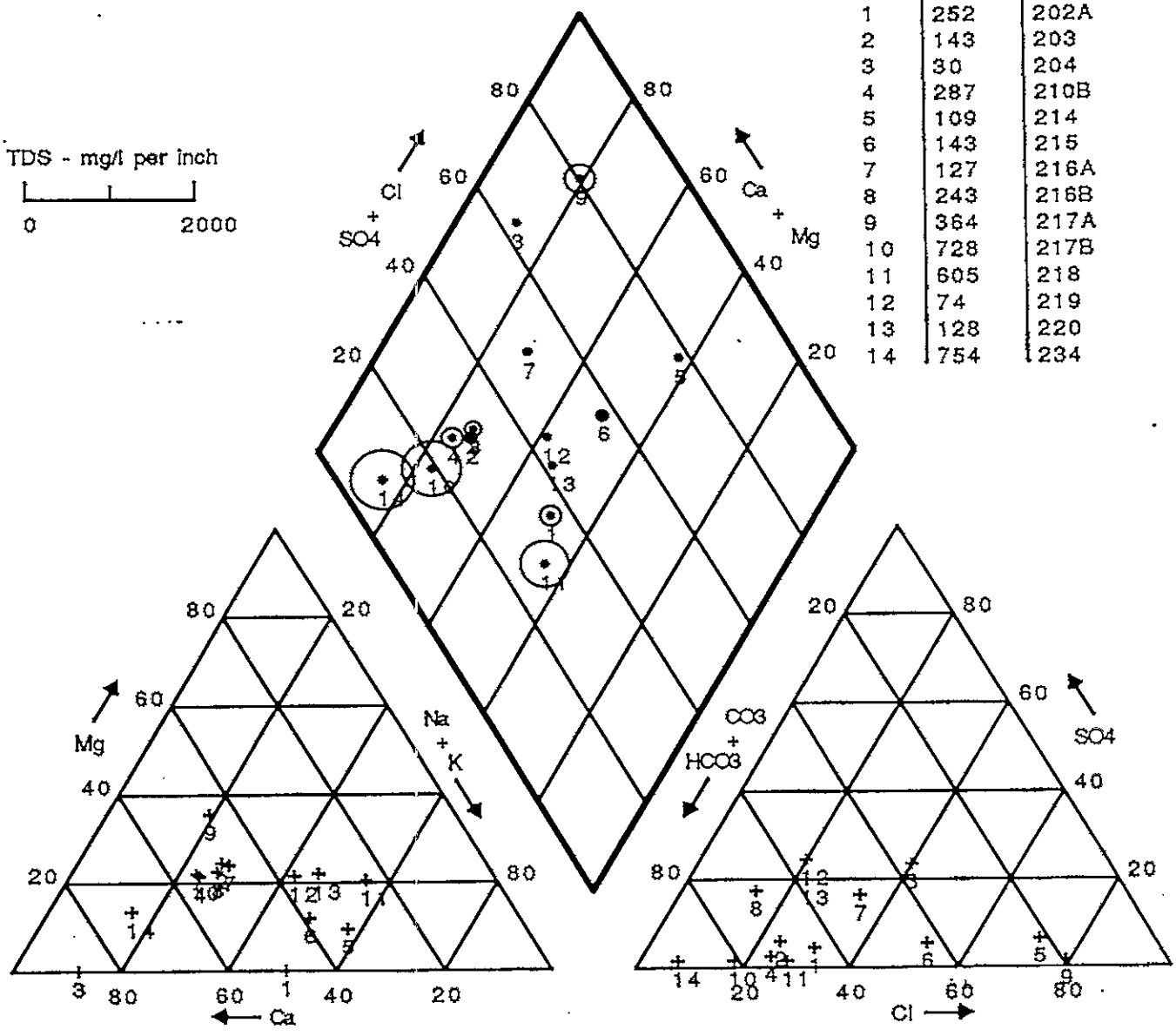
Click Here to Return to Main Index

APPENDIX O
PIPER DIAGRAMS

NAS BRUNSWICK
BRUNSWICK, MAINE

Click Here to Return to Main Index

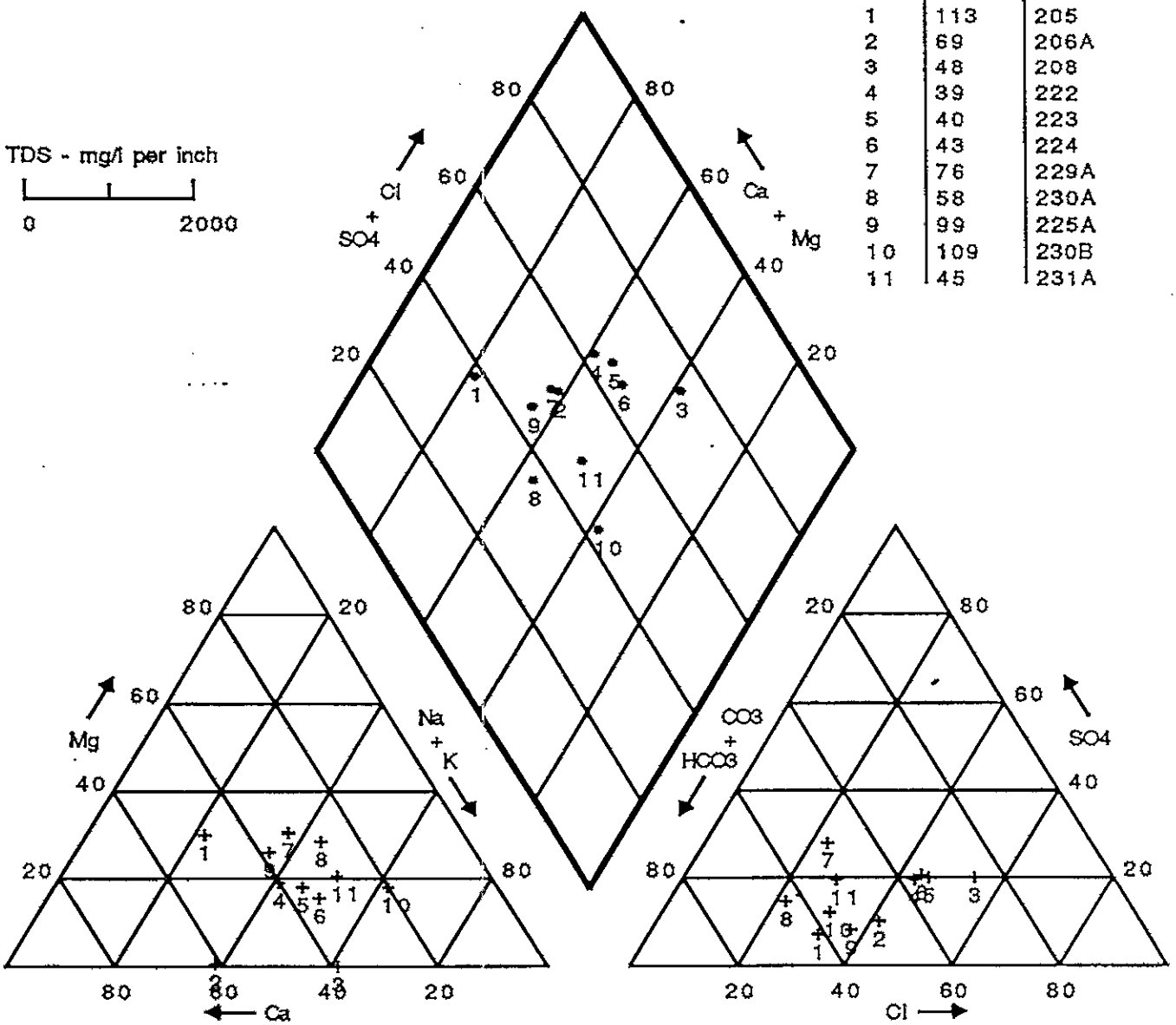
No.	TDS	Well Name
1	252	202A
2	143	203
3	30	204
4	287	210B
5	109	214
6	143	215
7	127	216A
8	243	216B
9	364	217A
10	728	217B
11	605	218
12	74	219
13	128	220
14	754	234



E.C. JORDAN CO. CONSULTING ENGINEERS	PIPER DIAGRAM LANDFILL AREA SITES 1 AND 3
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
	4607-41 FIGURE 0-1

Click Here to Return to Main Index

No.	TDS	Well Name
1	113	205
2	69	206A
3	48	208
4	39	222
5	40	223
6	43	224
7	76	229A
8	58	230A
9	99	225A
10	109	230B
11	45	231A



E.C. JORDAN CO. CONSULTING ENGINEERS	PIPER DIAGRAM EASTERN PLUME SITES 1 AND 3
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, MAINE	RI/FS PROGRAM
	4607-41 FIGURE 0-2

Click Here to Return to Main Index

APPENDIX P
WATER LEVEL SUMMARY TABLE

NAS BRUNSWICK
BRUNSWICK, MAINE

WATER LEVEL[redacted]ARY TABLE

REMEDIAL INVESTIGATION
NAS BRUNSWICK

Revision 5
July 27, 1990

MONITORING WELL NO.	GROUND SURFACE ELEVATION (MSL)(1)	TOP OF RISER ELEVATION (MSL)(1)	TOP/BOTTOM ELEVATIONS OF SCREEN INTERVAL (MSL)(1)	WATER ELEVATION(1) (9/6-7/88)	WATER ELEVATION(1) (10/26/88)	WATER ELEVATION(1) (12/5/88)	WATER ELEVATION(1) (10/24/89)	WATER ELEVATION(1) (12/20/89)
MW-101	51.6	54.44	22.7/12.7			45.34	44.84	
MW-102	24.1	27.76	16.1/13.1			22.56	22.90	
MW-103	54.2	56.97	37.2/27.2	35.26		35.32	34.26	
MW-104	19.1	22.70	10.1/0.1			(2)	20.60	
MW-105A	20.9	24.19	-13.1/-23.1	23.69		(2)	23.42	
MW-105B	21.1	24.55	12.1/2.1	17.03		17.14	16.26	
MW-106	47.7	51.26	23.7/13.7	31.26		31.61	31.53	
MW-201	57.7	59.74	37.7/27.7	46.48		46.70	45.46	45.86
MW-202A	50.8	52.51	31.6/21.6	35.1		35.51	35.11	
MW-202B	51.4	53.20	40.4/35.4	36.28		36.6	35.87	
MW-203	50.5	52.75	20.4/10.4	22.67	22.38	22.66	22.35	22.21
MW-204	48.6	50.50	23.6/13.6	21.51	21.23	21.40	21.31	
MW-205	44.0	45.99	-18.2/-28.2	24.58		24.68	24.33	
MW-206A	40.6	43.02	-21.4/-31.4	27.28		27.49	27.16	
MW-206B	40.5	42.77	25.5/15.5	25.95	25.66	26.22	25.73	
MW-207A	21.6	24.06	-41.4/-51.4	FLOWING(3)	28.4(4)	FLOWING(3)	FLOWING(3)	
MW-207B	21.1	22.90	16.1/14.1	17.4		17.75	17.10	
MW-208	47.4	49.40	-43.6/-53.6	31.52		31.81	31.77	
MW-209	52.9	54.84	27.1/22.1	31.98	31.83	32.31	32.28	
MW-210A	36.8	38.89	-51.7/-53.7	34.67		34.85	34.23	34.48
MW-210B	35.8	37.60	20.8/10.8	29.49		29.76	29.08	28.9
MW-211A	58.6	61.01	-74.7/-76.7	41.87		42.23	41.03	41.86
MW-211B	58.8	60.76	38.8/28.8	48.19		48.49	46.87	47.54
MW-212	48.1	50.19	37.1/32.1	39.16		39.04	38.75	
MW-213	25.4	27.49	7.4/2.4	21.57		21.49	20.48	
MW-214	59.9	63.21	31.9/21.9				42.71	
MW-215	58.1	61.11	32.1/22.1				40.54	
MW-216A	52.5	53.71	33.7/23.7				43.98	44.57
MW-216B	52.2	54.70	42.2/32.2				39.66	40.00
MW-217A	53.0	56.04	24.0/14.0				40.37	40.76

Click Here to Return to Main Index

WATER LEVEL SUMMARY TABLE
(CONTINUED)

REMEDIAL INVESTIGATION
NAS BRUNSWICK

MONITORING WELL NO.	GROUND SURFACE ELEVATION (MSL)(1)	TOP OF RISER ELEVATION (MSL)(1)	TOP/BOTTOM ELEVATIONS OF SCREEN INTERVAL (MSL)(1)	WATER ELEVATION(1) (9/6-7/88)	WATER ELEVATION(1) (10/26/88)	WATER ELEVATION(1) (12/5/88)	WATER ELEVATION(1) (10/24/89)	WATER ELEVATION(1) (12/20/89)
MW-217B	53.2	56.45	38.2/28.2				41.80	42.13
MW-218	51.0	54.16	6.0/1.0				20.68	
MW-219	48.6	51.87	-9.8/-19.8				22.96	22.72
MW-220	36.5	39.46	9.7/-0.3				29.02	28.83
MW-222	54.1	57.43	23.1/13.1				33.03	
MW-223	51.1	53.71	21.1/11.1				31.94	
MW-224	54.7	57.83	20.7/10.7				33.79	
MW-225A	43.0	45.95	-21.0/-31.0				30.01	
MW-225B	43.3	46.25	14.3/4.3				28.62	
MW-229A	30.6	33.83	-21.4/-31.4				19.54	
MW-229B	30.3	30.08	10.3/0.3				17.13	
MW-230A	33.7	36.32	-36.3/-46.3				22.52	
MW-230B	33.6	36.36	-15.4/-25.4				18.43	
MW-231A	42.5	45.41	-7.5/-17.5				24.93	
MW-231B	42.2	46.31	17.2/7.2				22.23	
MW-232A	53.1	55.65	25.1/15.1				42.61	43.06
MW-232B	53.1	55.91	43.1/33.1				43.61	44.1
MW-233	58.1	60.57	-6.9/-16.9				40.98	45.12
MW-234	52.9	55.78	41.9/31.9				45.34	46.19
MW-401	54.7	57.75	18.2/8.2	48.91		48.94	48.21	
MW-402	57.7	61.28	41.7/31.7	49.37		49.28	48.45	
MW-403	56.4	59.53	42.4/32.4	49.83		49.67	48.67	
MW-404	58.7	58.55	25.7/20.7	49.66		49.62	48.86	
MW-405	58.6	58.30	38.6/28.6	50.09		49.93	49.19	
MW-406	59.8	61.82	19.8/9.8	48.22		48.22	47.37	
MW-407	60.8	63.00	13.8/3.8	48.10		48.90	47.29	
MW-408	58.4	57.92	49.4/39.4				49.26	
MW-701	72.5	76.29	55.6/55.6	61.06		61.19	59.83	
MW-702	73.2	77.24	56.1/62.7	71.04		71.41	69.40	
MW-703	74.4	77.87	68.4/58.4	71.30		71.74	69.58	

Click Here to Return to Main Index

WATER LEVEL [redacted]ARY TABLE
(CON[redacted]D)

REMEDIAL INVESTIGATION
NAS BRUNSWICK

MONITORING WELL NO.	GROUND SURFACE ELEVATION (MSL)(1)	TOP OF RISER ELEVATION (MSL)(1)	TOP/BOTTOM ELEVATIONS OF SCREEN INTERVAL (MSL)(1)	WATER ELEVATION(1) (9/6-7/88)	WATER ELEVATION(1) (10/26/88)	WATER ELEVATION(1) (12/5/88)	WATER ELEVATION(1) (10/24/89)	WATER ELEVATION(1) (12/20/89)
MW-704	75.4	77.30	69.4/64.4	71.19		71.38	69.33	
MW-705	76.8	79.15	66.8/61.8	71.39		71.72	69.36	
MW-706	71.7	73.56	67.2/62.2	69.16		69.50	67.50	
MW-801	39.7	42.66	37.7/32.7	39.11		39.08	38.34	
MW-802	30.0	32.86	24.1/16.1	30.60		30.63	30.01	
MW-803	27.9	29.71	24.2/20.2	27.32		27.44	27.24	
MW-804	68.6	72.15	63.0/47.8	64.63		64.08	61.90	
MW-807	65.8	68.62	56.0/46.0	59.92		60.04	57.18	
MW-808	36.0	38.52	26.0/21.0	29.23		32.33	28.93	
MW-810	64.6	66.57	46.6/36.6				46.76	
MW-811	36.9	40.62	30.9/28.9				36.58	
OW-812	62.4	65.12	3.4/-6.6				28.38	
OW-813	57.3	60.28	24.8/14.8				30.82	
OW-814	62.0	65.66	13.0/3.0				30.30	
MW-901	54.5	57.30	24.5/14.5	46.73		46.68	46.08	
MW-902	55.5	58.18	40.5/30.5	46.84		46.80	46.24	
MW-903	42.5	46.25	35.5/25.5	44.09		(2)	43.70	
MW-904	47.7	49.81	39.7/34.7	40.16		40.07	40.24	
MW-905	49.6	51.71	24.6/19.6	43.06		43.29	42.61	
MW-906	49.6	51.68	35.6/25.6				41.38	
MW-907	52.5	54.91	43.5/33.5				40.88	
MW-908	50.8	52.79	43.3/33.3				41.37	
MW-1101	58.5	60.37	50.5/40.5				48.30	
MW-1102	57.7	60.47	50.7/40.7				48.04	
MW-1103	57.9	57.52	49.9/39.9				48.02	
MW-1104	57.6	60.09	42.6/32.6				46.88	
MW-1301	59.0	58.68	52.5/42.5				48.41	
MW-1302	61.6	63.42	49.6/39.6				46.01	
MW-1303	59.6	62.39	39.6/29.6				46.80	
GZA-1	59.7	62.60	49.7/39.7				47.34	
GZA-3	60.3	63.06	50.0/35.0				OBS	

Click Here to Return to Main Index

NOTES:

(1) – Levels are referenced to MSL.
(2) – Water in monitoring well was frozen.
(3) – Water flowing out top of well riser.
(4) – Field test (with temporary riser extension) recorded head approximately 6.8 feet above ground surface.

Click Here to Return to Main Index

HRA-0159

NAS BRUNSWICK, ME
AIMD ADMIN
QTY 2
W/C O'TETRA TEC EPA
DATE 24 AUG 09

DEPARTMENT OF THE NAVY
AIRCRAFT INTERMEDIATE MAINTENANCE DETACHMENT
BRUNSWICK MAINE
1251 ORION ST SOUTH
BRUNSWICK, ME 04011-5000

IN REPLY REFER TO:

AIMDBINST 5100.37
640
APR - 9 2008

AIMD BRUNSWICK INSTRUCTION 5100.37

Subj: HANDLING PROCEDURES FOR THORIUM FLUORIDE COATED GERMANIUM LENSES ON P-3 IRDS TURRET ASSEMBLIES

Ref: (a) NAVAIR 16-35R2005-1
(b) NAVAIR 16-35R2248-1
(c) NAVSEA S0420-AA-RAD-010
(d) BUMEDINST 6470.10
(e) Material Safety Data Sheets (MSDS)
(f) COMNAVAIRFORINST 4790.2A CH-10.19

Encl: (1) Personal Protective Equipment (PPE) and required materials list.
(2) Personal Qualification Standard (PQS) for handling of Thorium Fluoride coated lenses

1. Purpose. To provide a detailed set of procedures for the safe handling and replacement of Thorium Fluoride Coated Germanium Lenses.

2. Discussion. As noted in references (a) through (f), Thorium Fluoride coated lenses require special handling due to the alpha particle radiation. Additional care should be taken to avoid inhalation or ingestion of any particles when handling lenses, when the lenses are broken, or show signs of the coating flaking off. Only properly trained personnel, after completing the requirements of the PQS in Enclosure (2), shall perform the procedures involved in the removal and replacement of the Thorium Fluoride coated lenses. Radiac, or equivalent, sweeps may be obtained through properly trained 500 Division NDI personnel.

3. Action.

a. Procedures for handling flaking lenses.

(1) Evacuate all personnel from immediate area that are not required for cleanup.

(2) Notify Production Control, Quality Assurance, NAVOSH, NASB Fire Department and Industrial Hygienist of a possible alpha particle radiation hazard.

(3) Notify medical of the person(s) that may have been exposed. Those person(s) exposed shall seek immediate medical attention immediately as per reference (d).

(4) Inventory and assemble PPE and materials listed in Enclosure (1).

WARNING:
ONLY QUALIFIED PERSONNEL SHALL USE RESPIRATORS. A RESPIRATOR IS REQUIRED INSIDE AFFECTED AREAS.

(5) Personnel will wear disposable protective clothing including respirator, double long thick butyl rubber or nylon surgical gloves, eye goggles, and shoe covers while following all safety procedures outlined in references (d) and (f).

(6) If breakage occurs inside or outside of work center, establish a working perimeter to eliminate unnecessary traffic through affected area. Double bag ball cover using appropriate-sized trash bags.

(7) Tape all lenses in ball cover with masking tape. This prevents additional flaking and stops further contamination in the area.

(8) Carefully place ball cover assembly into large double trash bags.

WARNING:
DO NOT USE BROOM OR FOX TAIL, AS THEY WILL ONLY PICK UP DUST PARTICLES.

(9) Use Radiac or equivalent monitor to sweep affected area for contamination.

(10) Use masking tape as a means to carefully collect any flakes without contacting the particles. with gloved hands, place strips of masking tape across broken particles using a

pressing motion, not a rubbing motion, and gently apply pressure to the masking tape to ensure adhesion to broken particles. Pull masking tape up from ends. Log the part number and serial number for further references, fold masking tape over itself (adhesive to adhesive), and place into second zip lock bag and seal tightly using masking tape.

(11) Wet mop affected area to ensure no flakes remain on the floor. Double bag mop and dispose of properly, clearly marking mop as **"POSSIBLE RADIATION HAZARD- ALPHA PARTICULATE."**

(12) Place bagged ball cover assembly in decontamination area.

(13) Dispose of any waste lens material and clothing used in cleanup process by double bagging in zip lock bags and sealing in a cardboard box clearly marked **"POSSIBLE RADIATION HAZARD-ALPHA."** If alpha particle contamination is found in step (7) use metal container clearly marked **"POSSIBLE RADIATION HAZARD- ALPHA PARTICULATE."**

(14) When metal waste container is full or clean up is complete, contact AIMD Radiation Officer for disposal instructions.

(15) Follow up procedures in reference (a) though (f) as applicable for removal, replacement and handling of turret assembly windows.

(16) Retrograde lenses shall be double bagged and boxed up. Package shall be labeled **"DO NOT OPEN, POSSIBLE THORIUM FLUORIDE HAZARD"** in bold highly visible print prior to turning into AIMD Radiation Officer and the Supply Department.

b. Procedures for handling broken lenses.

(1) Evacuate all personnel from immediate area not required for cleanup.

(2) Notify Production Control, Quality Assurance, NAVOSH, NASB Fire Department and Industrial Hygienist of a possible alpha particle radiation hazard.

(3) Notify medical of person(s) that may have been exposed. The persons exposed shall seek immediate medical attention as per reference (d).

WARNING:
ONLY QUALIFIED PERSONNEL SHALL USE RESPIRATORS. A RESPIRATOR IS REQUIRED INSIDE AFFECTED AREAS.

(4) Inventory and assemble PPE and materials listed in Enclosure (1).

(5) Personnel will wear disposable protective clothing including respirator, double long thick butyl rubber or nylon surgical gloves, eye goggles and shoe covers while following all safety procedures outlined in references (d) and (f).

(6) If breakage occurs inside or outside of work center, establish a working perimeter to eliminate unnecessary traffic through affected area. Double bag ball cover using appropriate-sized trash bags.

WARNING:
DO NOT USE BROOM OR FOX TAIL, AS THEY WILL ONLY PICK UP DUST PARTICLES.

(7) Use masking tape as a means to carefully collect any broken pieces without contacting the particles. With gloved hands, place strips of masking tape across broken particles using a pressing motion, not a rubbing motion, and gently apply pressure to the masking tape to ensure adhesion to broken particles. Pull masking tape up from ends. Log the part number and serial number for future references, fold masking tape over itself (adhesive to adhesive), and place into a zip lock bag. After collecting into first bag, place into second zip lock bag and seal tightly using masking tape.

(8) Perform a radiation sweep using Radiac, or equivalent monitor.

(9) Wet mop affected area to ensure no flakes remain on the floor. Double bag mop and dispose of properly, clearly marking mop as **"POSSIBLE RADIATION HAZARD-ALPHA."**

(10) Place bagged ball cover assembly in decontamination area.

(11) Carefully remove PPE to ensure no cross contamination or exposure to contamination by turning PPE inside out as removal is performed.

(12) Dispose of any waste lens material and clothing used in cleanup process by double bagging in zip lock bags and sealing in a cardboard box marked as **"possible radiation hazard-Alpha"** and in a metal container marked as **"radiation hazard - alpha particulate."**

(13) When metal waste container is full or clean up is complete, contact NAS Brunswick HAZMAT for disposal instructions.

(14) Prior to disestablishment of perimeter or use of the affected area, obtain a final radiation sweep using the Radiac, or equivalent, monitor.

(15) Retrograde lenses must be double bagged and boxed up. Package must be clearly labeled **"DO NOT OPEN, POSSIBLE THORIUM FLUORIDE HAZARD"** in bold highly visible print prior to turning into AIMD Radiation Officer and the Supply Department.

(16) Follow all procedures in reference (a) through (f) as applicable for removal, replacement and handling of turret assembly windows.

D. J. LAFOND

PERSONAL PROTECTIVE EQUIPMENT AND MATERIALS REQUIRED FOR THE HANDLING OF THORIUM FLUORIDE COATED LENSES

Specification or Part Number	Nomenclature
ZZ-6-381	Gloves, Black Butyl Rubber, Long
1-092-7531	Paper Suits W/ Shoe Covers
3M 6000 or 7000 Series	Half or Full Face Respirator
3M 7090	P100 Class High Efficiency Particulate Air Filter (Respirator Filter)
761177	Paper Filter bag Protector
IM-160G & AN/PDR-56 or DT-304 & AN/PDR-56	Probe and Radiac Monitor
7510-00-684-8784	Masking Tape
8105-00-837-7756	Zip Lock bags
8115-00-101-7638	Reusable Fast Pack
8105-01-183-9768	Trash Bags (Large)
8105-01-195-8730	Trash Bags (Small)

PQS FOR HANDLING OF THORIUM FLUORIDE COATED LENSES

Personnel will complete the following requirements prior to being involved with the cleanup and/or the removal and replacement of Thorium Fluoride coated lenses.

REQUIRED READING

Supervisor Sign and Date

1. Thorium Fluoride training lecture. _____

2. Material Data Safety Sheets for Thorium Fluoride _____

3. AIMDBINST 5100.37 _____

4. Respirator Physical _____

5. Respirator Fit Check _____

PRACTICAL ON THE JOB TRAINING

1. Demonstrate knowledge and proper usage of Personal Protective Equipment. _____

2. Perform removal and installation procedures of coated lenses in accordance with AIMDBINST and applicable Maintenance Instruction Manual. _____

QUALIFICATION

Training requirements have been satisfactorily completed. Member is now qualified to remove, replace, and handle Thorium Fluoride Coated Germanium Lenses.

Work Center Supervisor _____
(Signature) Date

Branch Chief _____
(Signature) Date

Division LCPO _____
(Signature) Date

Division Officer _____
(Signature) Date

HRA-0162

DOE/ES-0003/1

A HISTORY OF THE ATOMIC ENERGY COMMISSION

by:
Alice L. Buck

July 1983

U.S. Department of Energy
Assistant Secretary, Management and Administration
Office of The Executive Secretariat
History Division
Washington, D.C.20585

Table of Contents

Introduction 1
The First Commission 1
The Nuclear Arsenal 1
Production Expansion 2
Organizing the National Laboratories 2
Reactor Development 2
Atoms for Peace 3
The Atomic Energy Act of 1954 3
The Five Year Plan 3
Cooperation With Industry 3
International Participation 3
Weapon Testing and Fallout 4
Limited Test Ban Treaty 4
Civilian Power: The Proliferation of the Peaceful Atom in the Sixties 5
Private Ownership Legislation 5
Nuclear Power Capacity 5
The Breeder Reactor 5
Licensing and Regulation 6
Research 6
Applied Technology 6
Nonnuclear Research 6
Reorganization 7
Calvert Cliffs Decision 7
The Commission's Last Days 7
Reactor Safety 8
Summary 8
Footnotes 9
Appendix I Personnel 11
Appendix II Chronology 13
Appendix III Laboratories and Production Facilities 15
Appendix IV Organization Charts 17
Appendix V Nuclear Detonations and Early Stockpile Data 23
Appendix VI Financial Statistics 25
Appendix VII Institutional Origins of the Department of Energy 26

Introduction

Almost a year after World War II ended, Congress established the United States Atomic Energy Commission to foster and control the peacetime development of atomic science and technology. Reflecting America's postwar optimism, Congress declared that atomic energy should be employed not only in the Nation's defense, but also to promote world peace, improve the public welfare, and strengthen free competition in private enterprise. After long months of intensive debate among politicians, military planners and atomic scientists, President Harry S. Truman confirmed the civilian control of atomic energy by signing the Atomic Energy Act on August 1, 1946.(1)

The provisions of the new Act bore the imprint of the American plan for international control presented to the United Nations Atomic Energy Commission two months earlier by U.S. Representative Bernard Baruch. Although the Baruch proposal for a multinational corporation to develop the peaceful uses of atomic energy failed to win the necessary Soviet support, the concept of combining development, production, and control in one agency found acceptance in the domestic legislation creating the United States Atomic Energy Commission.(2)

Congress gave the new civilian Commission extraordinary power and independence to carry out its awesome responsibilities. Five Commissioners appointed by the President would exercise authority for the operation of the Commission, while a general manager, also appointed by the President, would serve as chief executive officer. To provide the Commission exceptional freedom in hiring scientists and professionals, Commission employees would be exempt from the Civil Service system. Because of the need for great security, all production facilities and nuclear reactors would be government-owned, while all technical information and research results would be under Commission control, and thereby excluded from the normal application of the patent system.

In addition, the Act provided for three major advisory committees: a Congressional Joint Committee on Atomic Energy, a Military Liaison Committee, and a General Advisory Committee of outstanding scientists.(3)

The First Commission

On January 1, 1947, the fledgling Atomic Energy Commission took over from the Manhattan Engineer District the massive research and production facilities built during World War II to develop the atomic bomb. The facilities were the product of an extraordinary mission accomplished in three years in almost complete secrecy. Under the direction of General Leslie R. Groves of the Army Corps of Engineers, the laboratory experiments of Enrico Fermi and other American and European scientists had been transformed into operating plants capable of producing a military weapon of devastating power. When the atomic bomb was dropped on Hiroshima on August 6, 1945, and three days later on Nagasaki, not only was a long and costly war brought to an end, but the world also became aware of a completely new and largely unexpected technology.(4)

As the first chairman of the agency created to control the peacetime development of the new technology, President Harry Truman appointed David E. Lilienthal, a lawyer and former head of the Tennessee Valley Authority. During the preceding year, Lilienthal and Under Secretary of State Dean Acheson had co-authored the well-known Acheson-Lilienthal report which had formed the basis for the American plan for international control of atomic energy. Serving with Lilienthal on the Commission were Sumner T. Pike, a businessman from New England, William T. Waymack, a farmer and newspaper editor from Iowa, Lewis L. Strauss, a conservative banker and reserve admiral, and Robert F. Bacher, a physicist from Los Alamos and the only scientist on the Commission. Carroll L. Wilson, a young engineer who had helped Vannevar Bush organize the National Defense Research Committee during the war, was appointed general manager. Two floors of the New War Department Building in Washington provided a temporary home for the Commission. A few months later more permanent headquarters were found at 19th and Constitution Avenue, N.W., in the former wartime offices of the Joint Chiefs of Staff.

The new Commission faced a challenging future. World War II was quickly followed by an uneasy international situation commonly referred to as the Cold War, and Lilienthal and his colleagues soon found that most of the Commission's resources had to be devoted to weapon development and production. The requirements of national defense thus quickly obscured their original goal of developing the full potential of the peaceful atom. For two decades military-related programs would command the lion's share of the Commission's time and the major portion of the budget.(5)

The Nuclear Arsenal

To meet the Nation's expanding requirements for fissionable material the Commission set about refurbishing the production and research facilities built during the war. A major overhaul of the original reactors and two new plutonium reactors were authorized for the Hanford, Washington plant. Oak Ridge was scheduled for an addition to the existing K-25 plant and a third gaseous diffusion plant for the production of uranium 235. The Commission decided to adopt the Army's practice of hiring private corporations to operate plants and laboratories, thereby extending into peacetime the contractor system previously used by the Government only in times of national emergency.

The first test of new weapons was conducted at Enewetak Atoll in April and May 1948. Operation *Sandstone* explored weapon designs and tested a new fission weapon to replace the clumsy tailor-made models used during World War II. By 1948 the Commission had both gun-type and implosion-type non-nuclear and nuclear components in stockpile and was well on the way toward producing an arsenal of nuclear weapons.

In early September 1949 a special Air Force unit detected a large radioactive mass over the Pacific, indicating that the Soviet Union had successfully detonated a nuclear device. The Soviet detonation not only ended the United States' monoploy of nuclear weapons, but also had an immediate effect on the Commission's planned expansion program. During the prolonged debate which followed the announcement of the Soviet event, Commissioner Lewis L. Strauss, supported by fellow Commis-

sioner Gordon Dean, urged the Commission to take a "quantum jump" by developing a thermonuclear weapon. Strong support for the Strauss' position came from the Congressional Joint Committee on Atomic Energy, and from scientists such as Edward Teller, Luis W. Alverez, and Ernest O. Lawrence, who agreed that the development of the superbomb was absolutely essential to the security of the United States. The members of the General Advisory Committee, however, while concurring in the need for giving high priority to the development of atomic weapons for tactical purposes, recommended against an all-out effort to develop a hydrogen bomb. On January 31, 1950, President Truman settled the issue with his momentous decision that the Commission should expedite work on the thermonuclear weapon.(6)

Production Expansion

David Lilienthal resigned on February 15th after three years as chairman of the Atomic Energy Commission. Although his dream of developing the full potential of the peaceful atom had not been fulfilled, the Commission under his leadership had become an effective government institution. Indeed, the future held great promise for the peaceful atom, but for the moment at least the military atom would continue to be in the ascendancy.

By mid July 1950 Gordon Dean had become chairman of the Commission, and the Nation was no longer in a twilight zone between peace and war. Following an attack by North Korean troops across the 38th parallel, President Truman ordered U.S. forces to the aid of South Korea. Suddenly increased military demands, added to the President's decision to develop the hydrogen bomb, threatened to exhaust the Commission's production capacity. Beginning in October 1950 the Commission embarked on a vast expansion program. During the next three years the construction of huge plants increased capacity at each step in the production chain. The new facilities included a feed materials production center at Fernald, Ohio; a plant to produce large quantities of lithium 6 at Oak Ridge; a gaseous-diffusion plant at Paducah, Kentucky; a whole new gaseous diffusion complex at Portsmouth, Ohio; two "Jumbo" reactors and a separation plant for producing plutonium at Hanford; and five heavy-water reactors at the Savannah River site in South Carolina for producing tritium from lithium 6 as well as plutonium. The three year three-billion-dollar expansion program represented one of the greatest federal construction projects in peacetime history.

In addition to having an impact on the Commission's expansion program, the Korean War also focused attention on the need for a continental test site. In December 1950, with the approval of the Department of Defense and the General Advisory Committee, the Commission selected the Las Vegas bombing and gunnery range as the site to conduct the January 1951 *Ranger* test series, the first atomic tests in the United States since the *Trinity* detonation at Alamogordo on July 16, 1945.(7)

The United States detonated the world's first thermonuclear device in the fall of 1952. Code-named *Mike*, the shot was part of the *Ivy* test series conducted at Enewetak. By the end of 1953 more than thirty weapon test devices had been successfully fired at Pacific or Nevada sites, the result of extraordinary efforts by scientists and engineers at the Commission's Los Alamos weapon laboratory. A second weapon laboratory established at Livermore, California in early 1952, soon became the center of a weapon engineering and production network which included the Sandia Laboratory near Albuquerque, New Mexico, as well as new or expanded facilities in Iowa, Texas, Missouri, Ohio, and Colorado.(8)

Organizing the National Laboratories

Fortunately the concentrated effort on weapon production did not mean a total neglect of the Commission's research laboratories. The Commission recognized the need to maintain the vitality of the national labs, and to encourage the university research teams and industry groups whose research on the peaceful uses of atomic energy would provide the technology of the future. The Metallurgical Laboratory at the University of Chicago had been reorganized by the Army in 1946 as the Argonne National Laboratory. The following year the Commission obtained a new site for the lab at Argonne, Illinois and determined that the laboratory should become a large multidisciplinary research center for the midwest. Under the direction of Walter H. Zinn, one of Enrico Fermi's principal assistants in developing the world's first reactor, Argonne very quickly became the Commission's center for reactor development.(9)

The Clinton Laboratories, built during World War II at Oak Ridge, Tennessee, became the regional research center for southeastern United States. Reorganized in 1948 as the Oak Ridge National Laboratory, Oak Ridge became the Nation's largest supplier of radioisotopes for medical, industrial and physical research, as well as a regional center for research in chemistry, physics, metallurgy, and biology. The laboratory also conducted the largest radiation genetics program in the world.

To provide regional research facilities for the northeast, the Commission approved a plan by Associated Universities, Inc. to build and operate a laboratory at Upton, New York. The Brookhaven National Laboratory provided research facilities in reactor physics, high-energy accelerators, and the biomedical sciences. A fourth center in the far west was established by expanding the facilities of the University of California Radiation Laboratory at Berkeley. In addition to the regional centers the Commission continued to support the wartime research laboratories at a number of colleges and universities, and awarded and administered hundreds of contracts with research institutions, universities and nonprofit organizations for basic research in the physical and biological sciences.(10)

Reactor Development

Although by 1953 the vast production complex of the Atomic Energy Commission was almost totally dedicated to military purposes, the idea of a civilian nuclear power system based on American industry was very much alive. As early as 1947, Lilienthal had publicly encouraged a partnership with industry in developing the peaceful uses of atomic energy. The Commission had supported a modest but coherent plan for developing nuclear power and propulsion and had permitted a few industry committees

behind the Commission's security barriers to evaluate the opportunities for commercial development. On December 20, 1951, at the Commission's Idaho Test station, Zinn and a group of engineers from the Argonne National Laboratory succeeded in producing a token amount of electricity from an experimental fast breeder reactor. This historic accomplishment demonstrated in a practical way that the atomic nucleus could serve mankind as a source of power.(11)

Probably the most successful reactor program in the 1950's was the naval reactors project established and directed by Admiral Hyman G. Rickover. On June 14, 1952, at the keel-laying ceremony for the world's first nuclear powered ship, Chairman Gordon Dean noted that the propulsion of the submarine *Nautilus* would be the first practical utilization of atomic power, heretofore used primarily as an explosive. The Navy project later played a significant role in the widespread adoption of pressurized-water reactors by the nuclear power industry in the United States.(12)

By the end of 1952, technological developments had generated a broad interest in nuclear power in Congress as well as in industry, and the election of a Republican president brought further encouragement. Indeed, there was soon reason for optimism. Two outstanding accomplishments of the Eisenhower years, the 1953 Atoms-for-Peace plan, and the passage of the 1954 Atomic Energy Act were to have a significant impact on the Nation's nuclear program.(13)

Atoms for Peace

Speaking before the United Nation's General Assembly on December 8, 1953, President Dwight D. Eisenhower declared that "peaceful power from atomic energy is no dream of the future. . .that capability, already proved, is here today."(14) The President's Atoms-for-Peace proposal became a major pronouncement of America's public policy concerning the international management of nuclear energy. With a sufficient supply of uranium to satisfy its own military needs, by 1954 the United States could turn its attention to the promotion of the peaceful uses of nuclear energy.(15)

Lewis Strauss had been President Eisenhower's special assistant for atomic energy prior to his appointment as Commission chairman in July 1953. Strongly committed to national security during his early years as a Commissioner, and supportive of Truman's decision to expedite the development of the thermonuclear weapon, Strauss was now in a position to work closely with Eisenhower in promoting the peaceful atom on a world-wide basis.

The Atomic Energy Act of 1954

The President's Atoms-for-Peace speech also focused attention on the need for a fundamental revision of the Atomic Energy Act of 1946 to enable the Commission to share technical and scientific information with foreign governments. On February 17, 1954, the President asked Congress to pass legislation "making it possible for American atomic energy development, public and private, to play a full and effective part in leading mankind into a new era of progress and peace." Exhaustive hearings in the spring of 1954 and Congressional debate during the early summer resulted in a new law which opened the door for an exchange of nuclear technology with other nations. Although industry did not gain the right to own fissionable material, liberal licensing provisions, greater access to technical data, and the right to own reactors provided the essential conditions for the private development of nuclear power in the United States.(16)

The Five Year Plan

Even before Congress had passed the Atomic Energy Act of 1954, the Commission had launched a new program for power reactor development. In early 1954 Strauss announced plans to test the basic designs then under study by building five experimental reactors within five years. Of the five reactor prototypes planned, the one with the most immediate impact on nuclear power development was the Pressurized Water Reactor (PWR) at Shippingport, Pennsylvania. Based on the technology developed for nuclear propulsion systems for submarines, Shippingport was completed on schedule in late 1957 as the Nation's first full-scale nuclear generating station.

The other reactor experiments constructed under the five year program included the Sodium Reactor Experiment built by North American Aviation, a Commission contractor in southern California; the Experimental Boiling Water Reactor constructed at the Commission's Argonne National Laboratory; and new models of the fast breeder and homogeneous reactor experiments built in the early 1950's at the National Reactor Testing station in central Idaho, and the Oak Ridge National Laboratory in Tennessee. Of the five experiments in the program, the Shippingport and the Argonne boiling-water reactors encountered fewer technical problems, but each experiment contributed to the development of the technology needed to build full-scale nuclear power plants in the future.

Cooperation with Industry

The terms of the Atomic Energy Act enabled the Commission to encourage private industry to build its own nuclear plants, using fissionable material leased from the Government. Industry responded to the Commission's January 1955 Power Demonstration Reactor Program with four proposals covering all but one of the Commission's five prototypes. Thus by the end of 1957, the Commission had seven experimental reactors in operation and American industry was participating in nine independent or cooperative projects capable of producing almost 800,000 kilowatts of electricity by the mid-1960's. For the moment at least, prospects for the future of the peaceful atom were extremely encouraging.(17)

International Participation

In his Atoms-for-Peace proposal of December 8, 1953, President Eisenhower had proposed that the nuclear powers contribute portions of their stockpiles of normal uranium and fissionable materials to an international atomic energy agency, which would then allocate these materials toward peaceful uses. After three years of patient diplomatic negotiations, the International Atomic Energy Agency (IAEA) was formally inaugurated in Vienna, Austria on October 1, 1957. As head of the United States

delegation to the first IAEA conference, Lewis Strauss delivered the President's message of hope that the fissioned atom would now be transformed from a symbol of fear to one of hope. The new spirit of international cooperation had been in evidence even earlier when more than 1400 scientists from 73 nations attended the first United Nations sponsored International Conference on the Peaceful Uses of Atomic Energy, held in Geneva, Switzerland in August 1965. Similar conferences were held in 1958, 1964 and 1971.

In addition to sponsoring the International Atomic Energy Agency, the United States gave strong support to *Euratom,* the European atomic energy community consisting of West Germany, France, Italy, Belgium, the Netherlands and Luxembourg. Formally inaugurated in January 1958, *Euratom* undertook to establish an integrated program for developing an atomic energy industry in Europe similar to the European Coal and Steel Community. Prior to the establishment of either the International Atomic Energy Agency or *Euratom,* the Atomic Energy Commission had negotiated a series of bilateral agreements to provide research reactors, power reactor fuel and technical information to friendly nations, as well as training programs for nuclear scientists and technicians. Although no bilateral agreements were made with the Soviet Union, Commission Chairman John A. McCone and his Soviet counterpart, Professor Vasily S. Emelyanov, signed a Memorandum on Cooperation on November 24, 1959, covering exchanges of visits and information on several unclassified areas of peaceful nuclear application. Similar memoranda in the 1960's and early 1970's covered joint experiments in the fields of high energy physics, controlled thermonuclear research and fast breeder reactors.(18)

Weapon Testing and Fallout

The detonation of the first shot in the *Castle* weapon test series in the spring of 1954, however, had threatened to cast a shadow over the glowing prospects for the peaceful atom, so recently kindled by Eisenhower's atoms-for-peace proposal. At the time of the *Bravo* shot on March 1, a Japanese fishing vessel had been within 82 nautical miles of the test area, close enough to receive a heavy dusting of radioactive fallout. By the time the ship, the *Fukuryu Maru* (or *Lucky Dragon*) returned to Japan the effects of the radiation exposure had become evident, and several members of the crew required hospitalization. The American and Japanese press accounts of the incident had made the public aware, probably for the first time, of the worldwide dangers of radiation from fallout.(19)

On February 15, 1955, with the approval of the President, Strauss released a major report on the "Effects of High-Yield Nuclear Explosions." The report did little to calm public apprehension, and mounting concerns found expression in numerous articles on radiation and fallout in scientific journals and other public media. Both the Committee on Armed Services and the Joint Committee on Atomic Energy held hearings in the spring of 1955 on problems associated with radioactive fallout. The following December, the United Nations established a Scientific Committee on Radiation with the former director of the Commission's Division of Biology and Medicine, Shields Warren, as United States' representative.(20)

In January 1956 Commissioner Willard F. Libby revealed the existence of Project Sunshine, a study of global fallout from weapon testing which Libby had initiated in the fall of 1953 while serving on the General Advisory Committee. Commission laboratories and contractors had been analyzing data collected through a worldwide network monitoring the presence of strontium 90 in humans, foods and soils. Prior to 1953 public concern with radiation had focused primarily on workers in atomic energy projects. In 1957 the Joint Committee's hearings on the nature of radioactive fallout revealed for the first time the extent of the Commission's radiation research program. Millions of dollars were involved in more than 300 Commission-sponsored projects on various aspects of radiation and fallout.(21)

Testing of nuclear devices by the United States continued throughout the 1950's, although the Eisenhower Administration repeatedly expressed its willingness to suspend nuclear tests as part of a disarmament agreement. When the Conference of Experts convened in Geneva in the summer of 1958, the President announced that the United States was prepared to negotiate a test ban agreement and would voluntarily suspend all weapon testing after the completion of the *Hardtack* series in the fall. As a result an unpoliced moratorium period began on October 31, 1958, during which both the United States and the Soviet Union refrained from nuclear weapon experiments.(22)

Limited Test Ban Treaty

Three years later the Soviet Union abruptly ended the moratorium by announcing, on August 31, 1961, that they intended to resume testing. By now John F. Kennedy was in the White House, and Glenn Seaborg had succeeded John McCone as chairman. One of the original members of the General Advisory Committee and the first scientist appointed as chairman of the Commission, Seaborg served during the entire decade of the 1960's.

Although the Soviet Union tested a large number of high-yield weapons in the atmosphere during the autumn of 1961, President Kennedy limited the Commission's weapon laboratories to underground tests until April 25, 1962, when the first shot in the *Dominic* series was conducted at Christmas Island in the Pacific. With technical support from Seaborg and the Commission, the President at the same time had been earnestly pursuing a test ban agreement with the Soviet Union. It had been a long and arduous task bearing little fruit. In an address to the Nation on March 2, 1962, Kennedy had explained that he deplored the necessity of beginning atmospheric testing again, but "a nation which is refraining from tests obviously cannot match the gains of a nation conducting tests."(23)

Finally, after months of negotiations, a limited test ban treaty was signed in Moscow on August 5, 1963, prohibiting nuclear explosion tests in the atmosphere, outer space, or under water, but permitting underground detonations provided no radioactive debris crossed the borders of the country in which the test was being conducted.

In the absence of further success in negotiating a comprehensive test ban treaty, President Kennedy, and later Presidents Johnson and Nixon, continued to authorize

underground tests in accordance with the 1963 treaty. Although the limitations of the treaty imposed severe technical problems, particularly in testing high-yield warheads, the Commission's laboratories nevertheless were highly successful in devising ways to improve and update nuclear weapons by testing underground.

Civilian Power: The Proliferation of the Peaceful Atom in the Sixties

The signing of the Limited Test Ban Treaty in August 1963 also had an impact on the civilian power program. The cessation of weapon testing in the atmosphere gave new hope that the peaceful atom might soon command as large a share of the Commission's time and budget as the military atom had for so many years.

Although the imminence of economic nuclear power had been a main theme at the 1958 Geneva Conference, recurring technical difficulties in many of the prototype and demonstration plants in several European countries continued in the next few years to frustrate hopes for a practical new source of electrical power. In the United States, however, prospects were somewhat more encouraging. In March 1962 President Kennedy had requested the Atomic Energy Commission to take a "new and hard look at the role of nuclear power" in the Nation's economy. In submitting the Commission's report several months later, Seaborg noted optimistically that the Commission's ten-year civilian power program, adopted in 1958, was on the threshold of attaining its primary objective of competitive nuclear power by 1968. Suggested goals for the future included a concentration of resources in the most promising reactor systems, the early establishment of a self-sufficient and growing nuclear power industry, and increased emphasis on the development of improved converter or breeder reactors which would conserve natural uranium resources. The report was broadly circulated and stimulated public confidence in the economic prospects for civilian nuclear power.(24)

On November 22, 1963, Lyndon B. Johnson became President of the United States. One of Johnson's first and probably most significant acts was to order a 25 percent cutback in production of enriched uranium and the shut down of four plutonium piles, with the expectation that other nations might be challenged to do the same. Although verification was difficult, Chairman Khruschev later announced production cutbacks in the Soviet Union.

Another milestone in civilian power development occurred on December 12, 1963, when the Jersey Central Power and Light Company announced that it had contracted for a large nuclear power reactor to be built at Oyster Creek near Toms River, New Jersey. According to the company's own evaluation, the plant would be competitive with a fossil fuel plant. For the first time an American utility company had selected a nuclear power plant on purely economic grounds without government assistance and in direct competition with a fossil-fuel plant. In a commencement address at Holy Cross College on June 10, 1964, President Johnson called it an "economic breakthrough."(25) Two months later private industry received further encouragement from Congress in the form of new legislation.

Private Ownership Legislation

On August 26, 1964, President Johnson brought to an end an eighteen-year mandatory government monopoly of special nuclear materials by signing into law the "Private Ownership of Special Nuclear Materials Act." Enriched uranium for power reactor fuel would no longer have to be leased from the government. Private entities would be permitted to assume title to special nuclear materials. Although the new law provided for a transition period for the changeover from government to private ownership, after June 20, 1973 private ownership of power reactor fuels would become mandatory. The Act also authorized the Commission to offer uranium enriching services to both domestic and foreign customers under long-term contracts, beginning on January 1, 1969. Most of the Atomic Energy Commision's literature on reactor technology had been declassified as early as 1955. With the adoption of the Private Ownership Act in 1964, fissionable materials as well as reactors now entered the public domain, and a full-fledged nuclear industry became a possibility.(26)

But how would a full-fledged nuclear industry be regulated? Could one agency continue to regulate a single energy technology in a time of increasing energy needs? In a few years the energy crisis of 1973 would bring these questions into sharp focus.

Nuclear Power Capacity

The Commission's 1962 report on civilian power had projected 5,000 megawatts of nuclear power capacity by 1970 and 40,000 by 1980. Within five years the outlook had changed so dramatically that in March 1967 the Commission issued a supplementary report doubling its previous predictions. Within a few years, however, even these revised statistics were exceeded. (By the end of 1974 two hundred and thirty-three nuclear central-station generating units, with a capacity of 232,000 megawatts, were either in operation, under construction, or on order in the United States.)(27)

The Breeder Reactor

In addition to predicting dramatic increases in megawatt capacity, the Commission's 1967 report on civilian nuclear power reaffirmed the promise of the breeder reactor for meeting long-term energy needs, and gave the Liquid Metal Fast Breeder Reactor (LMFBR) the highest priority for civilian reactor development. A major boost was given to the program four years later by President Richard Nixon. In his "clean energy" message to Congress on June 4, 1971, the President called for the commercial demonstration of a breeder reactor by 1980, stating that "The breeder reactor could extend the life of our natural uranium fuel supply from decades to centuries, with far less impact on the environment than the power plants which are operating today."(28)

The fast breeder project included a demonstration plant in Oak Ridge, Tennessee—the Clinch River Breeder Reactor (CRBR)—and a test reactor in Richland, Washington—the Fast Flux Test Facility (FFTF). Clinch

River promised to be a major step in the transition from technology to large-scale demonstration of the fast breeder concept. The project was launched in August 1972 with the signing of a memorandum of understanding between the Commission and the principal utility participants, the Commonwealth Edison Company and the Tennessee Valley Authority. The Commission would be responsible for research and development of the demonstration plant while the Commonwealth Edison Company and the Tennessee Valley Authority would engineer, manufacture and proof test equipment and systems.(29)

Licensing and Regulation

Under the terms of the Atomic Energy Act of 1954, Congress had given the Atomic Energy Commission the responsibility for regulating and licensing commercial atomic activities. As the Nation's electric power industry increasingly turned toward nuclear plants, the Commission found it necessary to modify its organizational structure to separate regulatory from non-regulatory functions. In 1961 the regulatory staff was separated from the General Manager's office and placed under a Director of Regulation who reported directly to the Commissioners. Two years later the regulatory and operational functions were separated physically when the regulatory staff was moved from the headquarters building in Germantown, Maryland to offices in Bethesda.(30)

Licensing procedures involved a series of technical reviews and public hearings, including an independent technical safety evaluation by the Advisory Committee on Reactor Safeguards. The Commission itself served as a final review board for all licenses granted, and maintained continuous surveillance of licensed reactors throughout their operating lifetime.

Research

The weapon requirements for national defense in the early years had forced the Commission to postpone goals for an all-out program of research on the peaceful atom. As seen in the development of the power reactor, however, there was a gradual shift in emphasis during the Eisenhower era, and the trend continued to gain momentum during the Kennedy and Johnson Years. In 1966 the AEC budget for the first time was divided about equally between weapons and peaceful uses.

Research and development programs in the 1960's and early 1970's produced a significant fund of knowledge about radiation and its effects, and provided basic data needed to determine radiation protection standards and to assess the environmental impact of nuclear technology. Advances in medical diagnostic techniques based on the use of radioisotopes and radiation machines added to the skills of the medical profession, while immunological research provided the knowledge needed for successful transplants. Other medical breakthroughs included the treatment of Parkinson's Disease, the preservation of cells for transfusion, and the introduction of small accelerators to produce short-lived radioisotopes for immediate use in patients. Although Oak Ridge produced virtually all of the radioisotopes available for physical and biomedical as well as for industrial applications, the Commission gradually transferred production, packaging, and shipping to commercial suppliers, while continuing to support research on new applications.(31)

During the 1960's the Commission produced a series of radioisotope-powered and reactor-powered electrical-generating units for space applications. The first such unit was launched into space from Vandenburg Air Force Base in California on April 3, 1965, under the Systems for Nuclear Auxiliary Power (SNAP) program. Newly discovered heavy isotopes, such as Californium-252, were found useful in both research and industry. In addition, significant progress was made in developing cardiac pacemakers for human use and ultimately artificial hearts using radioisotopic-power sources.(32)

Major research facilities such as high energy accelerators were constructed and operated by the AEC. Building on the accomplishments of the Berkeley Bevatron and the Brookhaven Cosmotron in the 1950's, the Commission supported even larger accelerators in the 1960's and 1970's, including the Alternating Gradient Synchrotron at Brookhaven, the Zero Gradient Synchrotron at Argonne, and the two-mile long Stanford Linear Accelerator. The Fermi National Accelerator Laboratory, completed in 1972, contained the world's most powerful proton synchrotron. The principal centers for research on controlled thermonuclear (fusion) reactors were Oak Ridge, Los Alamos, Livermore, and Princeton, although many universities and industrial facilities were involved on a smaller scale.

Applied Technology

As nuclear technology developed, the Commission perfected special applications of nuclear power, such as nuclear explosives for earth moving and for extracting resources deep underground. *Gnome*, the first experiment in the *Plowshare* series, was conducted in December 1961 in a thick salt bed deposit near Carlsbad, New Mexico, while the first nuclear cratering experiment, Project *Sedan*, was completed the following July at the Nevada Test Site. Project *Gasbuggy* in 1967, *Rulison* in 1969, and *Rio Blanco* in 1973, tested methods for extracting natural gas from impermeable rock. In the early 1970's, the Commission directed applied technology projects toward environmental research, energy storage and transmission systems, synthetic fuels, and nonnuclear energy.

Nonnuclear Research

The scientific and technological expertise gained by the national laboratories in developing nuclear energy made the Commission a logical contender for a strong role in developing new energy options. The doors of the national labs first opened to nonnuclear research in 1960 when the Commission, in a special report to the Joint Committee on Atomic Energy, acknowledged "that the strong capabilities of the laboratories are not the exclusive resources of the atomic energy field; they are held in trust for the Nation as a whole." Accordingly, work from other federal agencies would be accommodated whenever the skills of the national laboratories were needed.(33)

On August 11, 1971, largely in response to President Nixon's energy message of June 4, Congress authorized the Atomic Energy Commission to undertake research and

development projects geared to providing a variety of alternatives for meeting the Nation's energy needs. As a result the Commission's industrial contractors and national laboratories became involved in the areas of superconducting power transmission systems, energy storage, solar energy, geothermal resources, and coal gasification.(34)

Reorganization

James R. Schlesinger took over the helm of the Atomic Energy Commission in August 1971, as its twenty-fifth year as an agency was drawing to a close. American troops were still in Vietnam and anti-war protests were widespread. The Nation faced increasing demands for energy, a leveling out of domestic oil production, limitations on coal use due to environmental concerns, inadequate natural gas supplies, and field delays in the licensing and construction of nuclear power plants. The rapid growth in atomic energy activities in the previous decade and changing perspectives in nuclear technology clearly pointed to the need for a substantial reorganization of the Commission's operational and regulatory functions. For nearly a quarter of a century the Commission had focused research and development toward responding to national defense requirements, funding and developing new uses for atomic energy, and fostering the growth of a competitive and viable nuclear industry. The next few years would see increasing attacks on the Commission's role as a regulatory overseer of the nuclear industry, particularly in the areas of quality of product and public safety.(35)

As a first order of business, Schlesinger led the Commission in a comprehensive review of the agency's functions and organization. An economist and former assistant director of the Bureau of the Budget, Schlesinger announced the results of the review in December 1971. The first broad reorganizaton in ten years would bring together various related programs previously scattered throughout the agency. Developmental and operational functions formerly under the jurisdiction of the general manager would now be under six assistant general managers for Energy and Development Programs, Research, Production and Management of Nuclear Materials, Environment and Safety Programs, National Security, and Administration. Reflecting expanding areas of Commission involvement were new divisions of Controlled Thermonuclear Research, International Security Affairs, and Applied Technology.(36) The second half of 1971 also saw a major revamping of the regulatory organization and functions.

Calvert Cliffs Decision

The Nixon Administration believed that nuclear power, as an environmentally "clean" fuel, could help the Nation produce the increasing supply of energy needed for the future. On the other hand ponderous licensing procedures and increasing environmental considerations lengthened the time necessary to bring nuclear power plants on line, and increased costs to the industry, and ultimately to the consumer. As Commissioner Doub informed the Atomic Industrial Forum in October 1971, the Commission harbored no illusions as to the magnitude of the task of trying to match "the capabilities of a dynamic and complex technology to the urgent energy and environmental needs of the country."(37)

The Federal Court of Appeals' August 4, 1971 landmark decision concerning the Calvert Cliffs nuclear power plant became a pivot point for a major revamping of the Commission's licensing procedures. The Court ruled that the Atomic Energy Commission's regulations for implementing the National Environmental Policy Act of 1969 in licensing procedures did not comply in several respects with the Act, and that the Commission should make an independent review and evaluation of all environmental effects at every decision point in the nuclear power plant licensing process.

Moving swiftly to implement the Court's ruling, the Commission made substantive changes in environmental review procedures. Both the Commission and the license applicant would now be required to consider the total impact of the proposed plant on the environment, including water quality. In addition, a cost-benefit analysis would balance the benefits of building the facility against a variety of alternatives.(38) These changes in procedures affected virtually all nuclear power plants whether licensed for operation or under review.

To expedite the additional procedures which the Calvert Cliff's decision required, Schlesinger made significant changes in the Commission's regulatory organization, and added additional personnel to the staff to help with the expanded reactor licensing workload. Additional changes in 1972 further streamlined the regulatory staff. Three directors consolidated the functions previously performed by seven divisions. All licensing activities were centered in the largest of the three, the Directorate of Licensing, headed by John F. O'Leary, former Director of the Bureau of Mines.(39)

The Commission's Last Days

Schlesinger left the Atomic Energy Commission in January 1973 to become head of the Central Intelligence Agency. He was succeeded as chairman by Dr. Dixy Lee Ray, a marine biologist from the state of Washington who had been appointed to the Commission by President Nixon in August 1972. The first woman to be chairman of the Atomic Energy Commission, Ray took over at a time when the Nation was faced with the monumental task of reconciling energy needs, environmental concerns and economic goals. More importantly for the Commission, criticism had begun to mount against an agency that regulated the very same energy source that it helped to produce and operate.

In June 1973, President Nixon directed the chairman of the Atomic Energy Commission to undertake an immediate review of federal and private energy research and development activities and to recommend an integrated program for the Nation.(40) The President's energy proposals to Congress the following January reflected the recommendations submitted by Chairman Ray in the December 1, 1973 report on "The Nation's Energy Future." Because of the energy crisis resulting from the October Arab oil embargo, the President had chosen to break tradition and present his energy request to Congress before delivering his State of the Union address. Both his proposal for a five-year $10 billion energy research and

development program, and his determination to double the total federal commitment to energy research and development for fiscal year 1975, were in line with the recommendations made by the Commission chairman. The Ray report also supported the President's recommendation to establish an Energy Research and Development Administration.(41)

Reactor Safety

In December 1973 the Commission announced new requirements for the performance of the emergency core cooling systems (ECCS) installed in light-water-cooled power reactors. Such systems provided the capability for emergency removal of heat from the reactor core in the event of a loss of the normal reactor coolant water. The Commission's action concluded a two-year public rulemaking hearing which had served as a focal point for public discussion of opposing viewpoints on the safety of nuclear power plants. Six months of hearing sessions, between January 27, 1972 and July 25, 1973, had produced a voluminous transcript, a clear witness to the complexity of the technical issues involved in nuclear safety. A constant advocate of the public's right to know and fully understand the possible dangers of radiation, the Joint Committee on Atomic Energy had also held a hearing in early 1973 on the safety of nuclear power plants.

Clearly the handwriting on the wall was spelling out the numbered days of the AEC in 1973. Although nuclear power constituted a significant part of the answer to the Nation's need for additional sources of energy, it was by no means the only answer as had been predicted in the early decades of the Commission's existence.

Summary

When President Ford signed the Energy Reorganization Act of 1974 on October 11, the Atomic Energy Commission's twenty-eight year stewardship of the Nation's nuclear energy program came to an end. On January 19, 1975, the Commission's research and development responsibilities were assumed by the Energy Research and Development Administration, and the regulatory and licensing functions by the Nuclear Regulatory Commission. Six thousand, three hundred and twenty Commission employees went to ERDA while one thousand nine hundred and seventy former regulatory personnel became part of the new Nuclear Regulatory Commission.

In the preceding twenty-eight years the Atomic Energy Commission had accomplished a large portion of the mission established by the Congress in 1946. First, through its weapon laboratories and production contractors, it had developed and stockpiled an array of sophisticated nuclear weapons which for nearly three decades had served as an important element in national defense. Also in the area of defense, the Commission had supported the development of nuclear propulsion reactors which made possible the creation of a fleet of reliable nuclear submarines and surface ships.

Although for many years military related programs commanded the major portion of the budget, the Commission had initiated and supported extensive research in the nuclear sciences. The research contract and the national laboratory had become key instruments in the widespread development and application of nuclear technology for scientific, medical, and industrial purposes. Through participation in the International Atomic Energy Agency, international conferences and bilateral agreements, the United States shared the new technology with other nations.

The congressional mandate of 1946 also called for the use of atomic energy in a way that would strengthen free competition in private enterprise. Although the severe restrictions of the 1946 Act made atomic energy virtually a government monopoly, the Commission in less than a decade advanced nuclear technology to the point where industrial participation was feasible, and then encouraged the passage of new legislation in 1954 which made a nuclear industry possible. By the early 1970's nuclear power offered a promising option for meeting national and world energy needs.

In carrying out the Congressional mandate of 1946, the Atomic Energy Commission essentially worked its way out of existence. After concentrating on defense commitments in the early years, the Commission then focused on the development of a viable nuclear industry, only to come under fire in the late 1960's and 1970's for being in the position of regulating the same industry it helped to create.

This difficulty had been foreseen in 1961 when the functions of the agency were divided between the General Manager and the Director of Regulation. Then in 1963 the two functions were physically separated by being housed in different geographical locations. Finally, the legal separation of the developmental and regulatory functions, requested in 1973 by the Commission itself, was accomplished by the Energy Reorganization Act of 1974. The regulatory and licensing responsibilities became the exclusive focus of a new agency headed by a five-member board, the Nuclear Regulatory Commission, while the developmental functions were placed under a single administrator in a second agency, the Energy Research and Development Administration.

In the preceding decade the Atomic Energy Commission had lost much of its privileged status with Congress and the American public. The exclusive monopoly and the mantle of secrecy had been largely removed, and no longer did atomic energy seemingly provide the perfect formula for both military defense and civilian energy needs. Regulatory restrictions and environmental concerns were a large part of the reason for the demise of the AEC, but more important was the recognition that a single technology should not be the exclusive focus of one agency. The energy crisis would now require the coordination of all major energy programs in a new research and development agency, whose primary purpose would be to assist the Nation in achieving energy independence.

As a legacy to the new agency, the Atomic Energy Commission passed on its unique production facilities, its valuable network of national laboratories, and the proven technological skills, resourcefulness, and experience of its personnel. Three years later the Energy Research and Development Administration, like the Atomic Energy Commission before it, became part of an even larger organization. On October 1, 1977 Congress created a cabinet-level Department of Energy to coordinate Federal energy policies and programs.

FOOTNOTES

1. Sect. 1(a), Atomic Energy Act of 1946 (Public Law 585) 78th Cong. 1st sess.
2. Corbin Allardice and Edward R. Trapnell, *The Atomic Energy Commission* (New York: Praeger Publishers, 1974), pp. 31-32 (hereafter cited as Allardice and Trapnell, *The AEC*).
3. Dr. Richard G. Hewlett, former Chief Historian of the AEC, believes that the most influential group in the early years was not the Commission itself but its General Advisory Committee consisting of such famous scientists as J. Robert Oppenheimer, James B. Conant, Enrico Fermi and Isador I. Rabi. Richard G. Hewlett, "The Advent of Nuclear Power, 1945-1968" (Paper delivered before the American Association for The Advancement of Science, Dallas, TX, Dec. 28, 1968), p. 4 (hereafter cited as Hewlett, "The Advent of Nuclear Power").
4. Richard G. Hewlett, "Nuclear Power in the Public Interest: The Atomic Energy Act of 1954" (Paper delivered before the American Historical Association, Dallas, TX, Dec. 1977), pp. 1-3.
5. Richard G. Hewlett, "The AEC in Retrospect" (unpublished ms., Historian's Office, Feb. 10, 1976), p. 12 (hereafter cited as Hewlett, "The AEC in Retrospect").
6. *Public Papers of the Presidents of the United States: Harry S. Truman 1950* (Washington: Government Printing Office, 1965), p. 138. For a detailed presentation of the decision on the hydrogen bomb, see Richard G. Hewlett and Francis Duncan, *Atomic Shield, 1947-1952, Vol. II of A History of the United States Atomic Energy Commission* (University Park: Pennsylvania State University Press, 1969), pp. 362-409 (hereafter cited as Hewlett and Duncan, *Atomic Shield*).
7. Hewlett and Duncan, *Atomic Shield*, pp. 534-35, 563-64.
8. Hewlett and Duncan *Atomic Shield*, pp. 411, 424-30, 441; "The Eisenhower Imprint," unpublished ms., Department of Energy Historian's Office, pp. 3-4; "A History of the Expansion of AEC Production Facilities," Report by the General Manager, Aug. 16, 1963, pp. 13-20.
9. Hewlett and Duncan, *Atomic Shield*, p. 432; Richard G. Hewlett and Francis Duncan, *Nuclear Navy 1946-1962* (Chicago: University of Chicago Press, 1974), pp. 54-55 (hereafter cited as Hewlett and Duncan, *Nuclear Navy*).
10. *Atomic Shield*, pp. 222-227, 432.
11. Proposal for Industrial Development of Atomic Energy, enc. C.A. Thomas to S. Pike, June 20, 1950; David Lilienthal, Speech before the Economic Club, Detroit, MI, Oct. 6, 1947; AEC Press Release 59, Oct. 6, 1947; Hewlett and Duncan, *Atomic Shield*, pp. 495-98.
12. Hewlett and Duncan, *Nuclear Navy*, pp. 178-79, 235-57; Dean Diary, June 14, 1952.
13. Hewlett, "The Advent of Nuclear Power", p. 12.
14. *Public Papers of the Presidents of the United States, 1953, Dwight D. Eisenhower* (Washington: Government Printing Office, 1960), pp. 813-22.
15. For a discussion of Atoms for Peace as an instrument of foreign policy, see Jack M. Holl, "Eisenhower's Peaceful Atomic Diplomacy: Atoms for Peace in the Public Interest" (Paper delivered before the American Historical Association, Dallas, TX, Dec. 23-30, 1977), p. 1 (hereafter cited as Holl, "Eisenhower's Peaceful Diplomacy").
16. "Message from the President of the United States, "House Document, 83 Cong., 2 sess., no. 328 (Feb. 17, 1954); Richard G. Hewlett, "Industry and the Atomic Energy Commission, 1947-1954" (Paper delivered at a joint session of the Society for the History of Technology and the Organization of American Historians, Chicago, IL, April 27, 1967), pp. 21-22.
17. Joint Committee on Atomic Energy, *Current Statement of the Atomic Energy Commission on the Five-Year Reactor Development Program*, May 4, 1955 (Washington: Government Printing Office, 1955).
18. Holl, "Eisenhower's Peaceful Diplomacy" pp. 9-18; AEC, *Twenty-third Semiannual Report, January 1958* (Washington: Government Printing Office, 1958), pp. 189-221.
19. Robert A. Divine, *Blowing on the Wind, the Nuclear Test Ban Debate 1954-1960* (New York: Oxford University Press, 1978), pp. 3-18; AEC, *Sixteenth Semiannual Report, July 1954* (Washington: Government Printing Office, 1958), pp. 51-5; Richard G. Hewlett and Jack M. Holl, "Nuclear Weapons: A New Reality" (unpublished ms., Historian's Office, 1981), pp. 61-63.
20. "A Report by United States Atomic Energy Commission on Effect of High-Yield Nuclear Explosions," Appendix 7, *Eighteenth Semiannual Report of the Atomic Energy Commission July 1955* (Washington: Government Printing Office, 1955), pp. 147-54; Senate Committee on Armed Services, *Civil Defense Program*, 84th Cong., 1st Sess., Feb. 22, 1955, p. 2; Joint Committee on Atomic Energy, *Health and Safety Problems Associated with Atomic Explosions*, April 15, 1955; AEC, *Major Activities in The Atomic Energy Programs, January-June 1956*, p. 16.
21. Willard F. Libby, "Radioactive Fallout and Radioactive Strontium," Northwestern University, Evanston, IL, Jan. 19, 1956; Joint Committee on Atomic Energy Press Release No. 80, April 18, 1957.
22. AEC, *Twenty-fifth Semi-Annual Report of the Atomic Energy Commission, January 1959* (Washington: Government Printing Office, 1960), pp.

179-80. Richard G. Hewlett, "Nuclear Weapon Testing and Studies Related to Health Effects: An Historical Summary" (unpublished ms., Oct. 1980), pp. 43-44.

23. *Major Activities in the Atomic Energy Program, January-December 1961* (Washington: Government Printing Office, 1962), pp. 161-62; AEC, *Major Activities in the Atomic Energy Programs, January-December 1962* (Washington: Government Printing Office, 1963), p. 234; *Public Papers of Presidents of the United States: John F. Kennedy 1962* (Washington: Government Printing Office, 1963), pp. 186-92.

24. AEC, *Civilian Nuclear Power—A Report to the President—1962*, Nov. 20, 1962.

25. "Annual Message to the Congress on the State of the Union," Jan. 8, 1964; "Commencement Address at Holy Cross College," June 10, 1964, both in *Public Papers of the Presidents: Lyndon B. Johnson*, (Washington: Government Printing office, 1965), pp. 117, 763-764.

26. AEC, *Annual Report to Congress for 1964*, (Washington: Government Printing Office, 1965), pp. 12-14; Hewlett, "The AEC in Retrospect," p. 18; "Remarks Upon Signing Bill Permitting Private Ownership of Nuclear Materials," *Public Papers of the Presidents: Lyndon B. Johnson*, (Washington: Government Printing Office, 1965), p. 1006.

27. AEC, *Civilian Nuclear Power, The 1967 Supplement to the 1962 Report to the President*, February, 1967; AEC, *1974 Annual Report to Congress*, p. 239.

28. Richard M. Nixon, "A Program to Insure an Adequate Supply of Clean Energy in the Future," June 4, 1971, as reprinted in *Executive Energy Documents*, published by the Senate Committee on Energy and Natural Resources, July 1978, pp. 1-12 (Hereafter cited as *Executive Energy Documents*).

29. "Operating and Developmental Functions," AEC *1972 Annual Report to Congress*, pp. 10-12; "AEC Continues Developmental Push for Breeder Reactor," AEC Announcement 0-10, January 29, 1971.

30. AEC, *Major Activities in the Atomic Energy Programs, January-December 1961* (Washington: Government Printing Office 1962), pp. 337-38; Richard G. Hewlett, "The Development of the Nuclear Power Industry" (unpublished ms., Historian's Office, 1974), pp. 13-14; AEC, *Major Activities in the Atomic Energy Programs, January-December 1961*, p. 337-38.

31. *AEC, 1974 Annual Report to Congress*, (Washington: Government Printing Office, 1974), pp. 24-26.

32. *AEC Annual Report to Congress for 1965*, (Washington: Government Printing Office, 1966), p. 151; *Annual Report to Congress for 1966*, (Washington: Government Printing Office, 1967), p. 211; AEC, *1974 Annual Report to Congress*, p. 114.

33. "Atomic Energy Research in the Life and Physical Sciences—1960," A Special Report of the United States Atomic Energy Commission, January 1961, (Washington: Government Printing Office, 1961); AEC, Annual Report to Congress for 1960, (Washington: Government Printing Office, 1961), p. 156-57.

34. Authorization Act for Fiscal Year 1972 (PL. 92-84, Sections 31-33, Aug. 11, 1971; Richard G. Hewlett, "Nonnuclear Energy Research in the Atomic Energy Commission" (unpublished ms., Historian's Office, 1974).

35. Corbin Allardice and Edward R. Trapnell, *The Atomic Energy Commission* (New York: Praegar Publishers, 1974), pp. 131-32.

36. "Reorganization of Atomic Energy Operating Functions," AEC Announcement 216, Dec. 7, 1971.

37. "The Right to be Heard—Laying It on the Line," Remarks given by AEC Commissioner William O. Doub (at 1971 Annual Conference of the Industrial Forum, Oct. 18, 1971); President Richard M. Nixon, Message to the Congress on "A Program to Insure an Adequate Supply of Clean Energy in the Future," June 4, 1971 in *Executive Energy Documents*, p. 1.

38. "Statement by the AEC on Court of Appeals Decision in Calvert Cliffs Litigation," AEC Announcement 0-134, Aug. 4, 1971; AEC *Annual Report to Congress for 1971* (Washington: Government Printing Office, 1972) pp. 1-2, 21-23.

39. "AEC Makes Organizational Changes to Strengthen Its Regulatory Program," Press Release 0-207, Nov. 11, 1971.

40. Richard M. Nixon, "Statement," June 29, 1973 in *Executive Energy Documents*, pp. 49-55; Statement by Dixy Lee Ray, Chairman of the AEC, AEC Press Release R-274, June 29, 1973.

41. *The Nation's Energy Future*, A Report to President Richard M. Nixon, December 1973 (Washington: Government Printing Office, 1973) p. ix; "Proposals to Deal with the Energy Crisis," Jan. 23, 1974, in *Executive Energy Documents*, pp. 119-134; White House Fact Sheet, "Energy Research and Development," Oct. 11, 1973.

APPENDIX I
(Personnel)

Joint Committee on Atomic Energy

CHAIRMEN	*DATES OF SERVICE*
Brien McMahon	1946 -
Burke B. Hickenlooper	1947 - 1948
Brien McMahon	1949 - 1952 (d. 7/28/52)
Carl T. Durham (Acting)	1952 -
W. Sterling Cole	1953 - 1954
Clinton P. Anderson	1954 - 1956
Carl T. Durham	1956 - 1958
Clinton P. Anderson	1959 -
Chet Holifield	1960 - 1961
John O. Pastore	1962 - 1964
Chet Holifield	1965 - 1966
John O. Pastore	1967 - 1968
Chet Holifield	1969 - 1970
John O. Pastore	1970 - 1972
Melvin Price	1973 -

Military Liaison Committee

CHAIRMEN	*DATES OF SERVICE*
Lt. Gen. Lewis H. Brereton, USAF	1946 - 1948
Donald F. Carpenter	1948 -
William Webster	1948 - 1949
Robert F. LeBaron	1949 - 1954
Herbert B. Loper	1954 - 1960
Gerald W. Johnson	1961 - 1962
W.J. Howard	1963 - 1965
Carl Walske	1966 - 1969
Chet Holifield	1970 -
Carl Walske	1971 - 1972
Donald R. Cotter	1973 -

General Advisory Committee

CHAIRMEN	*DATES OF SERVICE*
J. Robert Oppenheimer	1946 - 1952
Isidor I. Rabi	1952 - 1956
Warren C. Johnson	1956- 1959
Kenneth S. Pitzer	1960 - 1961
Manson Benedict	1962 - 1963
L.R. Hafstad	1964 - 1967
Norman F. Ramsey	1968 -
Howard G. Vesper	1969 - 1972
Lombard Squires	1973 -

AEC Commissioners

	From	To
Sumner T. Pike	Oct. 31, 1946	Dec. 15, 1951
David E. Lilienthal, Chairman	Nov. 1, 1946	Feb. 15, 1950
Robert F. Bacher	Nov. 1, 1946	May 10, 1949
William W. Waymack	Nov. 5, 1946	Dec. 21, 1948
Lewis L. Strauss	Nov. 12, 1946	Apr. 15, 1950
Chairman	July 2, 1953	June 30, 1958
Gordon Dean	May 24, 1949	June 30, 1953
Chairman	July 11, 1950	June 30, 1953
Henry DeWolf Smyth	May 30, 1949	Sept. 30, 1954
Thomas E. Murray	May 9, 1950	June 30, 1957
Thomas Keith Glennan	Oct. 2, 1950	Nov. 1, 1952
Eugene M. Zuckert	Feb. 25, 1952	June 30, 1954
Joseph Campbell	July 27, 1953	Nov. 30, 1954
Willard F. Libby	Oct. 5, 1954	June 30, 1959
John Von Neumann	Mar. 15, 1955	Feb. 8, 1957
Harold S. Vance	Oct. 31, 1955	Aug. 31, 1959
John S. Graham	Sept. 12, 1957	June 30, 1962
John Forrest Floberg	Oct. 1, 1957	June 23, 1960
John A. McCone, Chairman	July 14, 1958	Jan. 20, 1961
John H. Williams	Aug. 13, 1959	June 30, 1960
Robert E. Wilson	Mar. 22, 1960	Jan. 31, 1964
Loren K. Olson	June 23, 1960	June 30, 1962
Glenn T. Seaborg, Chairman	Mar. 1, 1961	Aug. 16, 1971
Leland J. Haworth	Apr. 17, 1961	June 30, 1963
John G. Palfrey	Aug. 31, 1962	June 30, 1966
James T. Ramey	Aug. 31, 1962	June 30, 1973
Gerald F. Tape	July 15, 1963	Apr. 30, 1969
Mary I. Bunting	June 29, 1964	June 30, 1965
Wilfred E. Johnson	Aug. 1, 1966	June 30, 1972
Samuel M. Nabrit	Aug. 1, 1966	Aug. 1, 1967
Francesco Costagliola	Oct. 1, 1968	June 30, 1969
Theos J. Thompson	June 12, 1969	Nov. 25, 1970
Clarence E. Larson	Sept. 2, 1969	June 30, 1974
James R. Schlesinger, Chairman	Aug. 17, 1971	Jan. 26, 1973
William O. Doub	Aug. 17, 1971	Aug. 17, 1974
Dixy Lee Ray	Aug. 8, 1972	
Chairman	Feb. 6, 1973	Jan. 18, 1975
William E. Kriegsman	June 12, 1973	Jan. 18, 1975
William A. Anders	Aug. 6, 1973	Jan. 18, 1975

General Managers

Carroll L. Wilson	Dec. 31, 1946	Aug. 15, 1950
Marion Boyer	Nov. 1, 1950	Oct. 31, 1953
Kenneth D. Nichols	Nov. 1, 1953	Apr. 30, 1955
Kenneth F. Fields	May 1, 1955	June 30, 1958
Paul F. Foster	July 1, 1958	Nov. 30, 1958
A. R. Luedecke	Dec. 1, 1958	July 31, 1964
R. E. Hollingsworth	Aug. 11, 1964	Dec. 31, 1973
John A. Erlewine	Feb. 15, 1974	Dec. 31, 1974

APPENDIX I

APPENDIX II

Chronology

DATE	EVENTS
August 1, 1946	Atomic Energy Act of 1946 signed by President Truman.
January 1, 1947	Atomic energy program transferred from the Manhattan Engineer District to the Atomic Energy Commission.
September 1947	Start of construction on first of two new Hanford reactors.
March 1, 1948	Oak Ridge National Laboratory officially established to continue work of Clinton Laboratories established in 1943.
April-May 1948	Operation *Sandstone*, the first AEC nuclear test series conducted at Enewetak Atoll.
March 1, 1949	Announcement by AEC of selection of a site for the National Reactor Testing Station in Idaho.
August 29, 1949	Soviet Union detonated nuclear device.
January 31, 1950	President Truman directs Commission "to continue work on all forms of weapons, including the so-called hydrogen or super-bomb."
June 27, 1950	Truman orders U.S. forces to aid of South Korea.
December 20, 1951	Experimental Breeder Reactor No. 1 (EBR-1) first reactor to produce electric power from nuclear energy.
June 14, 1952	Keel of the world's first nuclear-powered ship, the submarine *Nautilus*, laid at Groton, Connecticut.
November 1952	World's first thermonuclear device detonated by U.S. at Enewetak.
December 8, 1953	Announcement by President Eisenhower of the Atoms-for-Peace program and proposal to establish an international agency to promote peaceful applications of atomic energy.
March 1, 1954	First shot in *Castle* weapon test series fired in Pacific.
August 30, 1954	President Eisenhower signed the Atomic Energy Act of 1954, a major revision of the 1946 Act. The new law made possible greater participation by private industry and more cooperation with other countries in developing the peaceful uses of nuclear energy.
January 10, 1955	Announcement by the AEC of the Power Demonstration Reactor Program, under which the AEC and industry would cooperate in the construction and operation of experimental power reactors.
August 8-20, 1955	First United Nations International Conference on the Peaceful Uses of Atomic Energy, in Geneva, Switzerland.
October 1, 1957	International Atomic Energy Agency inaugurated in Vienna, Austria. AEC Chairman Lewis Strauss announced U.S. offer to make 5,000 kilograms of uranium 235 available to the agency.
December 23, 1957	Full-power operation of the Shippingport Atomic Power Station, the world's first full-scale nuclear power plant, at Shippingport, Pennsylvania.
August 22, 1958	President Eisenhower announced moratorium on weapon testing to begin on October 31.
November 24, 1959	AEC Chairman John A. McCone and Professor Vasily S. Emelyanov signed Memorandum of Cooperation between U.S. and U.S.S. R.
March 1961	Regulatory functions separated from General Manager's Office and placed under a Director of Regulation.
August 31, 1961	Soviet Union broke moratorium and began testing nuclear weapons.
December 10, 1961	Project *Gnome*, the first Plowshare nuclear detonation, conducted in New Mexico.
April 25, 1962	First shot in *Dominic* series conducted at Christmas Island in the Pacific.
August 5, 1963	Limited test ban treaty between U.S., U.K., and U.S.S.R. signed in Moscow.
August 26, 1964	President Johnson signed Private Ownership of Special Nuclear Materials Act.
October 1964	The nuclear-powered surface ships, *Enterprise, Long Beach* and *Bainbridge*, completed "Operation Sea Orbit," a round-the-world cruise without logistic support of any kind.

December 16, 1964	AEC issued a permit to Jersey Central Power and Light Company for the construction of a nuclear power plant at Oyster Creek, New Jersey. This was the first civilian power reactor to be built on a competitive basis with conventional plants and without government assistance.
April 3, 1965	The first launching and operation of a nuclear reactor in space (SNAP-10A).
March 5, 1970	Ratification of the Treaty for the Nonproliferation of Nuclear Weapons by the United States, the United Kingdom, and the Soviet Union and 45 other nations.
June 4, 1971	President Nixon announced as a national goal a commitment to complete LMFBR demonstration plant by 1980.
July 23, 1971	Calvert Cliffs decision regarding AEC licensing procedures for nuclear power plants.
March 1972	Completion of National Accelerator Laboratory at Batavia, Illinois, world's most powerful proton synchrotron.
October 17, 1973	Organization of Arab Petroleum Exporting Countries embargoed oil to the United States.
December 1, 1973	AEC Chairman Dixy Lee Ray submitted report to President Nixon on "The Nation's Energy Future."
October 11, 1974	Energy Reorganization Act of 1974 signed by President Ford.
August 4, 1977	Department of Energy Reorganization Act signed by President Carter.

APPENDIX III

Laboratories and Production Facilities

Atomic Energy Commission

AEC facility	*Location*	*Contractor-operator*
Multiprogram Laboratories		
Argonne National Laboratory	Chicago, Ill.	Univ. of Chicago and Argonne Universities Assn.
Brookhaven National Laboratory	Upton, N.Y.	Associated Universities, Inc.
Lawrence Berkeley Laboratory	Berkeley, Ca.	University of California
Lawrence Livermore Laboratory	Livermore, Ca.	University of California
Los Alamos Scientific Laboratory	Los Alamos, N. Mex.	University of California
Oak Ridge National Laboratory	Oak Ridge, Tenn.	Nuclear Div., Union Carbide Corp.
Pacific Northwest Laboratory	Richland, Wash.	Pacific Northwest Div. Battelle Memorial Inst.
Engineering Development		
Bettis Atomic Power Laboratory	Pittsburgh, Pa.	Westinghouse Electric Corp.
Hanford Engineering Development Lab.	Richland, Wash.	Westinghouse Hanford Co.
Knolls Atomic Power Laboratory	Schenectady, N.Y.	General Electric Co.
Liquid Metal Engineering Center	Santa Susana, Ca.	Atomics International Div. Rockwell Int'l Corp.
Idaho National Engineering Lab.	Idaho Falls, Id.	Aerojet Nuclear Co.
Naval Reactors Facility, INEL	Idaho Falls, Id.	Westinghouse Electric Corp.
Sandia Laboratories	Albuquerque, N. Mex. & Livermore, Ca.	Sandia Corp. (Western Electric-Bell System)
Savannah River Laboratory	Aiken, S.C.	E.I. du Pont de Nemours & Co
Shippingport Atomic Power Station	Shippingport, Pa.	Duquesne Light Co.
Specialized Physical Research Laboratories		
Ames Laboratory	Ames, Iowa	Iowa State U. of Sci. & Tech.
Fermi National Accelerator Laboratory	Batavia, Ill.	Universities Research Assn.
Notre Dame Radiation Lab.	South Bend, Ind.	Univ. of Notre Dame
Princeton Plasma Physics Lab.	Princeton, N.J.	Princeton University
Stanford Linear Accelerator Center	Palo Alto, Ca.	Stanford University
Specialized Biomedical Research Laboratories		
Comparative Animal Research Laboratory	Oak Ridge, Tenn.	University of Tennessee
Franklin McLean Memorial Research Inst, (formerly Argonne Cancer Res. Hosp.)	Chicago, Ill	University of Chicago
Inhalation Toxicology Res. Inst.	Albuquerque, N. Mex.	Lovelace Foundation of Medical Education and Research
Laboratory of Nuclear Medicine & Radiobiology	Los Angeles, Ca.	Univ. of Calif. at L.A. (UCLA)
Laboratory of Radiobiology	San Francisco, Ca.	Univ. of Calif. Medical Center
MSU/AEC Plant Research Lab.	E. Lansing, Mich.	Michigan State University
ORAU Research Facilities	Oak Ridge, Tenn.	Oak Ridge Associated Universities
Puerto Rico Nuclear Center	Mayaguez and Rio Piedras, P.R.	University of Puerto Rico
Radiobiology Laboratory	Davis, Calif.	University of Calif. (Davis)
Radiobiology Laboratory	Salt Lake City, Utah	University of Utah
Savannah River Ecology Lab.	Aiken, S.C.	University of Georgia
U. of Rochester Med. Lab.	Rochester, N.Y.	University of Rochester

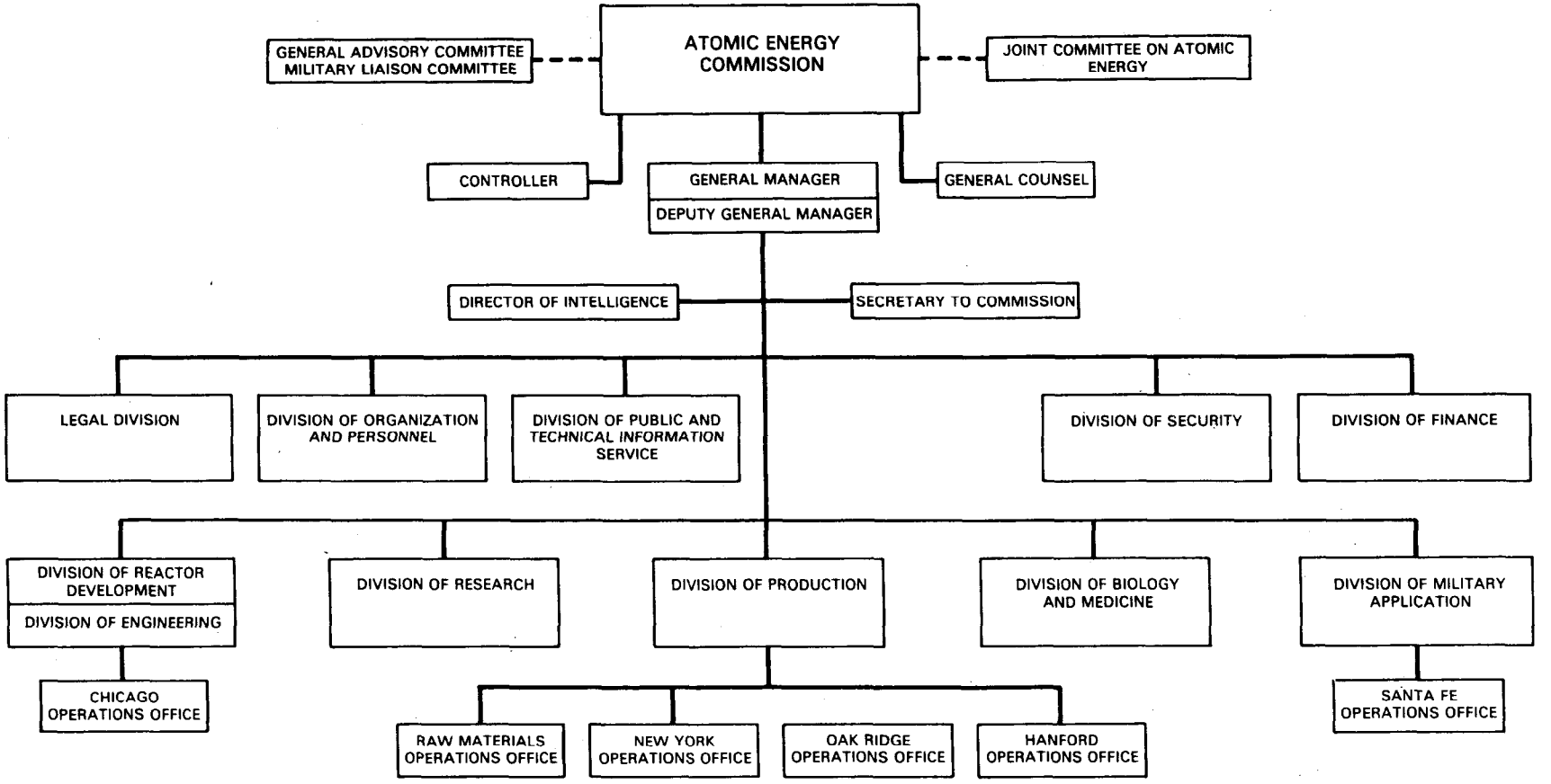
Production, Development, and Fabrication Centers

Burlington-AEC Plant	Burlington, Iowa	Mason & Hanger-Silas Mason Co., Inc.
Feed Materials Plant	Ashtabula, Ohio	Reactive Metals, Inc.
Feed Materials Plant	Fernald, Ohio	National Lead Co.
Feed Materials Plant	Paducah, Ky.	Nuclear Div., Union Carbide Corp.
Hanford Works	Richland, Wash.	Atlantic-Richfield Hanford Co. and United Nuclear, Inc.
Idaho Chemical Processing Plant	INEL, Idaho	Allied Chemical Corp.
Kansas City Plant	Kansas City, Mo.	Bendix Corp.
Mound Laboratory	Miamisburg, Ohio	Monsanto Research Corp.
Nevada Test Site	Mercury, Nev.	Reynolds Electrical & Engineering Co.; EG&G, Inc.; and Holmes & Narver Inc.
Oak Ridge Gaseous Diffusion Plant	Oak Ridge, Tenn.	Nuclear Div., Union Carbide Corp.
Paducah Gaseous Diffusion Plant	Paducah, Ky.	Nuclear Div., Union Carbide Corp.
Portsmouth Gaseous Diffusion Plant	Portmouth, Ohio	Goodyear Atomic Corp.
Pantex Plant	Amarillo, Texas	Mason & Hanger-Silas Mason Co. Inc.
Pinellas Plant	Clearwater, Fla.	General Electric Co.
Rocky Flats Plant	Golden, Colo.	Atomics International Div. Rockwell International Corp.
Savannah River Plant	Aiken, S.C.	E.I. du Pont de Nemours & Co.
Y-12 Plant	Oak Ridge, Tenn.	Nuclear Div., Union Carbide Corp.

APPENDIX IV

Organization Charts

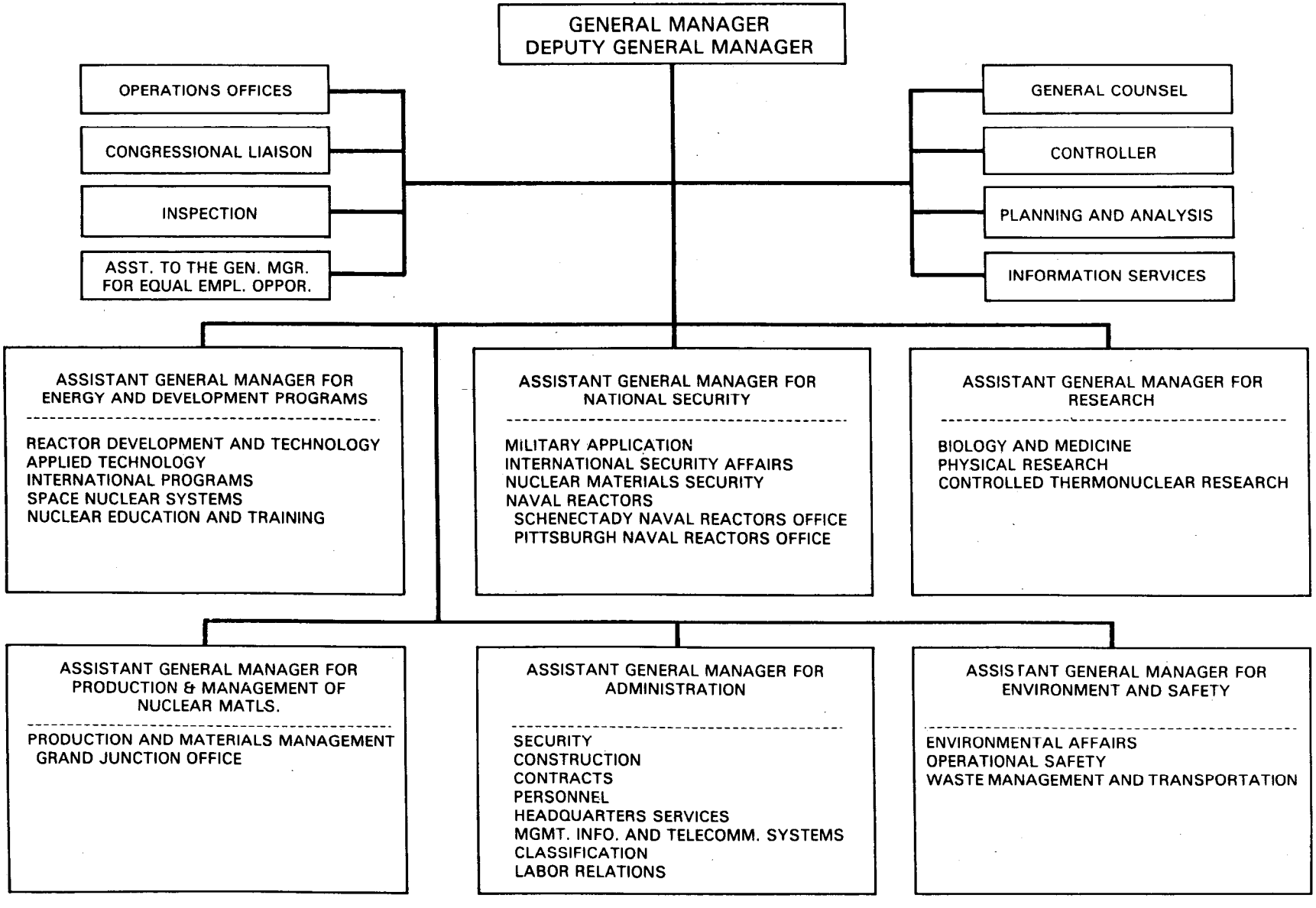
U.S. ATOMIC ENERGY COMMISSION



APPENDIX IV-1

December 1948

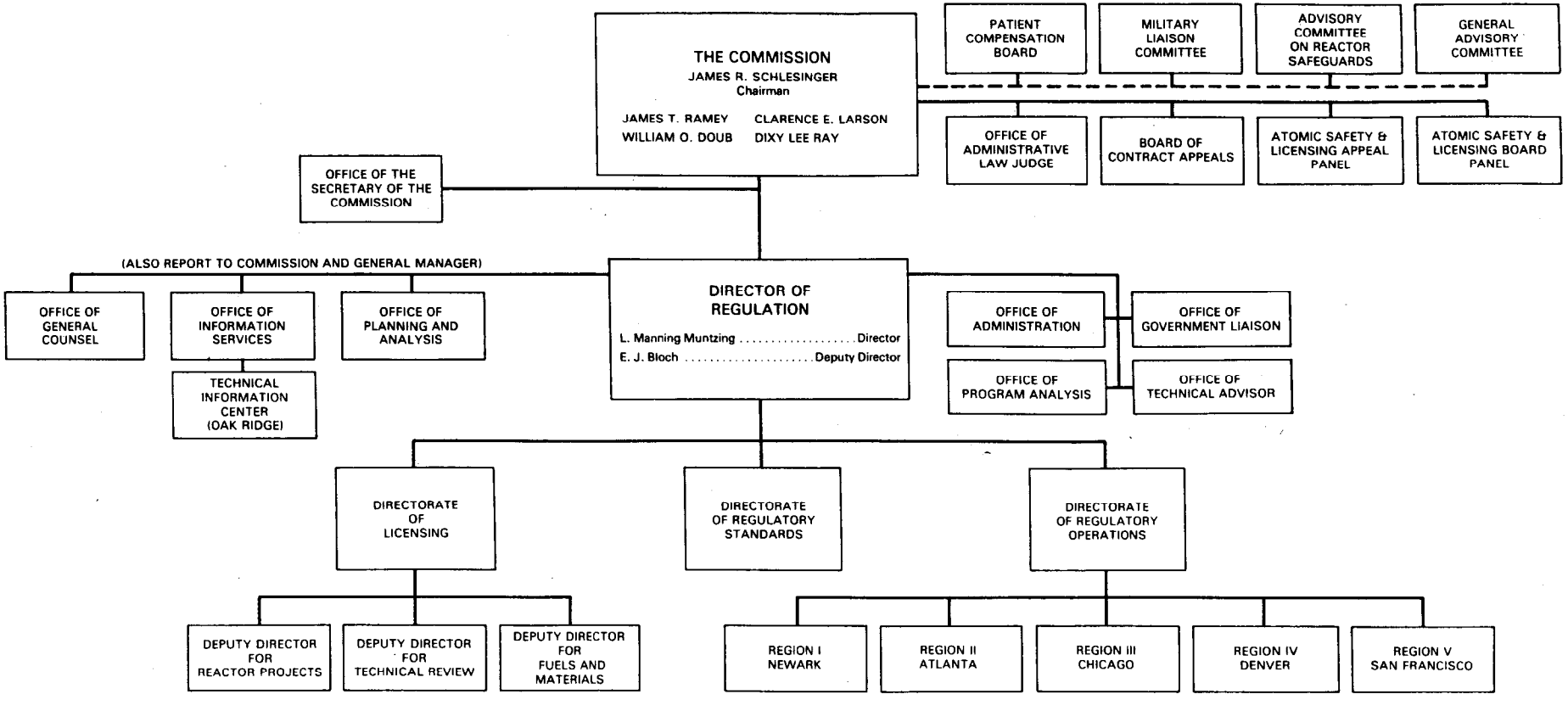
UNITED STATES
ATOMIC ENERGY COMMISSION



December 1971

APPENDIX IV-2

ATOMIC ENERGY COMMISSION
REGULATORY ORGANIZATION

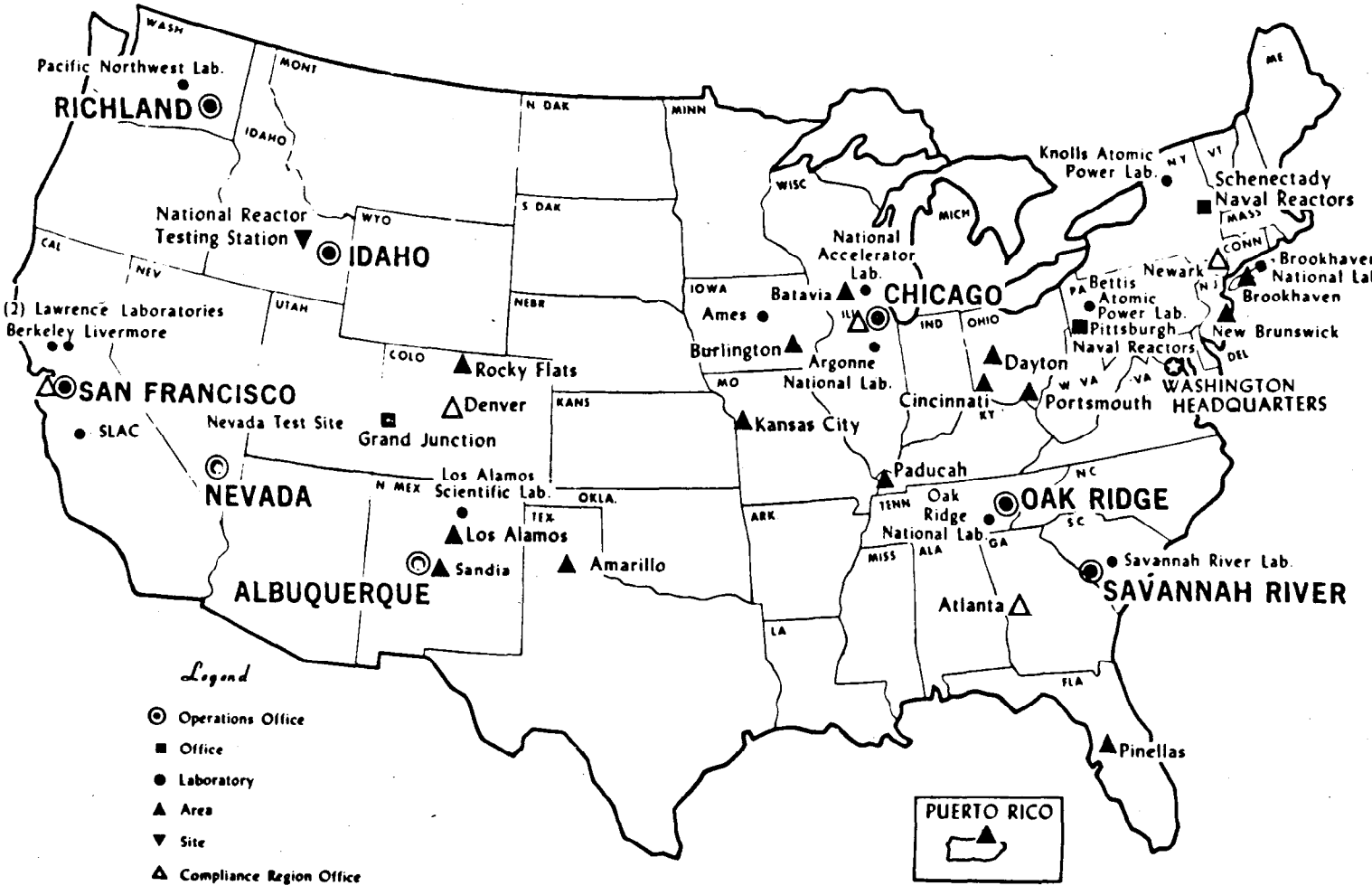


APPENDIX IV-3

August 1972

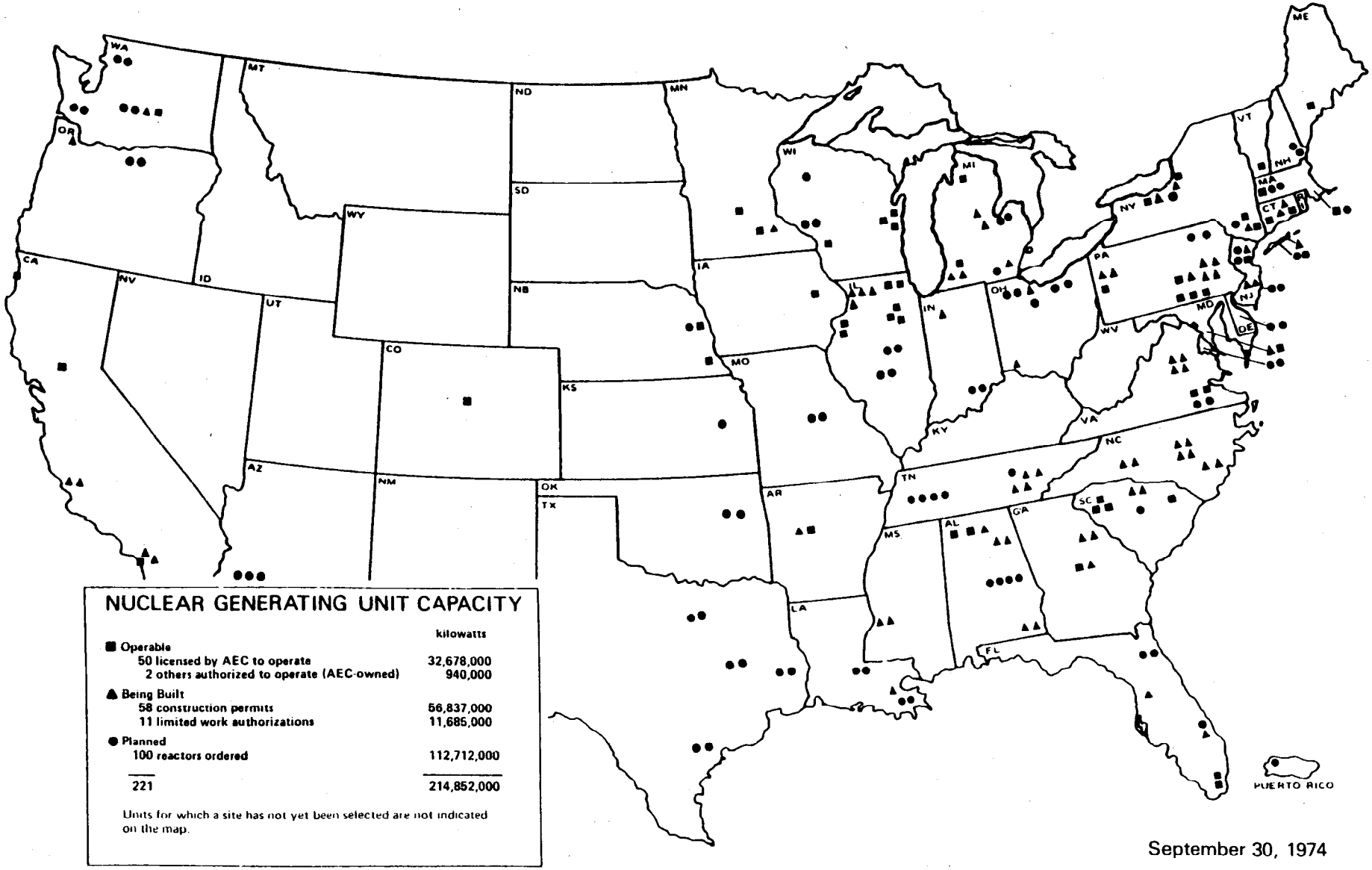
UNITED STATES
ATOMIC ENERGY COMMISSION

OFFICES AND LABORATORIES



December 1973

NUCLEAR POWER REACTORS IN THE UNITED STATES



NUCLEAR GENERATING UNIT CAPACITY

		kilowatts
■ Operable		
	50 licensed by AEC to operate	32,678,000
	2 others authorized to operate (AEC-owned)	940,000
▲ Being Built		
	58 construction permits	56,837,000
	11 limited work authorizations	11,685,000
● Planned		
	100 reactors ordered	112,712,000
	221	214,852,000

Units for which a site has not yet been selected are not indicated on the map.

September 30, 1974

APPENDIX V

United States Announced Nuclear Detonations and Early Stockpile Data

1945 - 1974

Event or Series Name	Description	Dates
Trinity	First test of an atomic bomb	July 16, 1945
Hiroshima	First use in combat	August 6, 1945
Nagasaki	Second use in combat	August 9, 1945
Crossroads		June - July 1946
Sandstone		April - May 1948
Ranger		January - February 1951
Greenhouse		April - May 1951
Buster-Jangle		October - November 1951
Tumbler-Snapper		April - June 1952
Ivy		October - November 1952
	Mike, experimental thermonuclear device	October 31, 1952
Upshot-Knothole		March - June 1953
Castle		February - May 1954
	Bravo, experimental thermonuclear device	February 28, 1954
Teapot		February - May 1955
Wigwam		May 14, 1955
Redwing		May - July 1956
Plumbbob		May - October 1957
Hardtack		April - August 1958
Argus		August - September 1958
Hardtack		September - October 1958

NO TESTS CONDUCTED FROM OCTOBER 30, 1958 to SEPTEMBER 1961

Nougat		September 1961 - June 1962
Dominic I		April 1962 - June 1962
Storax		July 1962 - June 1963
	Sedan, excavation experiment	July 6, 1962
Dominic II	Three above ground tests.	July 1962

LIMITED TEST BAND TREATY, AUG. 5, 1963, PROHIBITED NUCLEAR DETONATIONS IN ATMOSPHERE, OUTER SPACE AND UNDER WATER

Niblick	August 1963 - June 1964
Whetstone	July 1964 - June 1965
Flintlock	July 1965 - June 1966
Latchkey	July 1966 - June 1967
Crosstie	July 1967 - June 1968
Bowline	July 1968 - June 1969
Mandrel	July 1969 - June 1970
Emery	October 1970 - June 1971
Grommet	July 1971 - May 1972
Toggle	July 1972 - June 1973
Arbor	October 1973 - June 1974
Bedrock	July 1974 -

Total Announced Detonations by Year

1945	3	1961	9
1946	2	1962	89
1947	0	1963	25
1948	3	1964	28
1949	0	1965	28
1950	0	1966	40
1951	16	1967	28
1952	10	1968	33
1953	11	1969	28
1954	6	1970	30
1955	15	1971	11
1956	17	1972	8
1957	24	1973	9
1958	55	1974	7
1959	0		
1960	0	TOTAL	535

Early Nuclear Weapon Stockpile Data

	Fiscal Year			
	1945	*1946*	*1947*	*1948*
Number of nonnuclear components				
1. Gun-type	0	0	0*	2*
2. Implosion-type	2	9	29*	53*
Number of nuclear components				
3. Gun-type	0	0	0	0
4. Implosion-type	2	9	13	50

***Numbers declassified in 1976**

APPENDIX VI

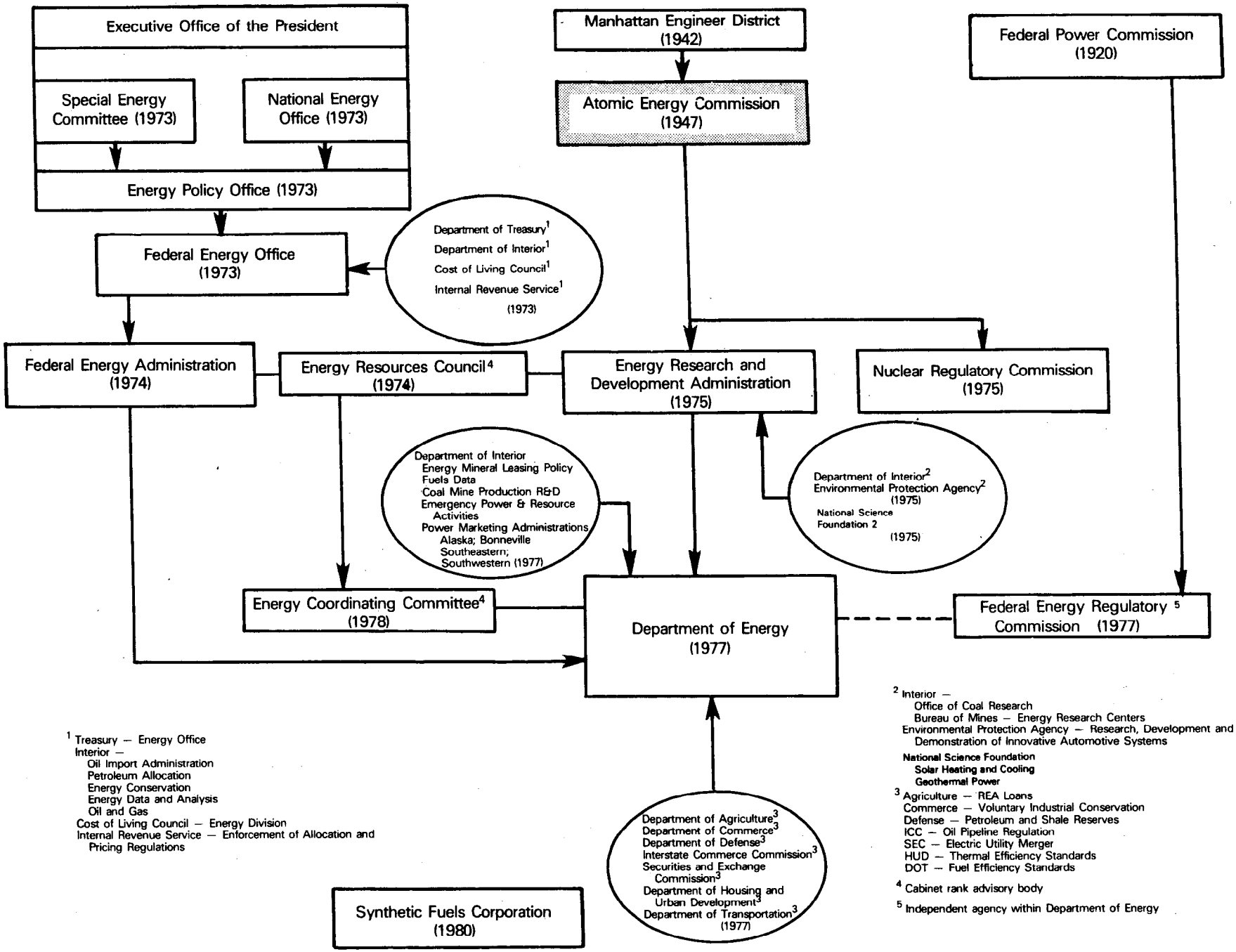
Financial Statistics

U.S. Government Investment in the Atomic Energy Program

(From June 1940 Through January 18, 1975)

	(in millions)
Appropriation Expenditures:	
National Defense Research Council	$ .5
Office of Scientific Research and Development	14.6
War Department (including Manhattan Engineer District)	2,218.3
	2,233.4
Atomic Energy Commission:	
Fiscal years prior to 1966	34,643.8
Fiscal year 1966	2,402.9
Fiscal year 1967	2,263.7
Fiscal year 1968	2,466.6
Fiscal year 1969	2,450.4
Fiscal year 1970	2,455.0
Fiscal year 1971	2,274.7
Fiscal year 1972	2,392.1
Fiscal year 1973	2,393.1
Fiscal year 1974	2,307.5
Fiscal Year 1975 (through January 18)	1,512.6
Total AEC	57,562.4
Total Appropriation Expenditures	59,795.8
Unexpended Balance of Funds in U.S. Treasury January 18, 1975	3,439.9
Total Funds Appropriated	63,235.7
Less:	
Collections paid to U.S. Treasury	58.0
Property and services transferred to other Federal agencies without reimbursement, net of such transfers received from other Federal agencies	462.0
Cost of operations from June 1940 through January 18, 1975	46,562.2
AEC Equity at January 18, 1975 as shown on Balance Sheet	$16,153.5

Institutional Origins of the Department of Energy



[1] Treasury — Energy Office
Interior —
Oil Import Administration
Petroleum Allocation
Energy Conservation
Energy Data and Analysis
Oil and Gas
Cost of Living Council — Energy Division
Internal Revenue Service — Enforcement of Allocation and Pricing Regulations

[2] Interior —
Office of Coal Research
Bureau of Mines — Energy Research Centers
Environmental Protection Agency — Research, Development and Demonstration of Innovative Automotive Systems
National Science Foundation
Solar Heating and Cooling
Geothermal Power

[3] Agriculture — REA Loans
Commerce — Voluntary Industrial Conservation
Defense — Petroleum and Shale Reserves
ICC — Oil Pipeline Regulation
SEC — Electric Utility Merger
HUD — Thermal Efficiency Standards
DOT — Fuel Efficiency Standards

[4] Cabinet rank advisory body

[5] Independent agency within Department of Energy

*U.S. GOVERNMENT PRINTING OFFICE: 1983-0-381-060/42

HRA-0164

Wednesday: September 28, 2011

Welcome aboard

H.M.S. VENGEANCE

With No. 1850 and No. 812 Royal Navy Squadrons

The First Commissions of H.M.S.Vengeance:- 16th December 1944 to 10th March 1945 (Homewaters) and the 12th March 1945 to 12th August 1946 (Operational)

H.M.S. VENGEANCE

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HMS. VENGEANCE ITINERARY	1849 SQUADRON HISTORY	HEART OF OAK - R.N. MARCH
HMS. VENGEANCE ITINERARY MAP	1850 SQUADRON HISTORY	812 SQUADRON HISTORY
HMS. VENGEANCE SHIP's BELL	1850 SQUADRON ITINERARY	812 SQUADRON ITINERARY
HMS. VENGEANCE PERSONNEL	1850 SQUADRON PERSONNEL	812 SQUADRON PERSONNEL
EARLIER HMS. VENGEANCE's	1850 SQUADRON AIRCRAFT	812 SQUADRON AIRCRAFT
HMS. VENGEANCE PHOTOGRAPHS	1850 SQUADRON PHOTOGRAPHS	812 SQUADRON PHOTOGRAPHS
THE LATEST HMS. VENGEANCE	MY FATHER's SERVICE	WEBSITE PRESENTATION
TECHNICAL SPECIFICATIONS	MY FATHER's PHOTOGRAPHS	OTHER ITEMS OF INTEREST
GENERAL INFORMATION	CHANCE VOUGHT CORSAIR	LINKS
COMMUNICATIONS	WARTIME CALENDAR	ABBREVIATIONS
COLOSSUS CLASS CARRIERS	WAR STORIES	SITE MAP
NAMES LIST 1944 - 1946	IN MEMORIAM	MESSAGE BOARD
HMS. VENGEANCE E-CARDS	LOST SERVICE PALS	LATEST WEBSITE UPDATES
HMS. VENGEANCE (1946 - 1952)	HMAS. VENGEANCE	MINAS GERAIS
HMS. VENGEANCE SLOPS STORE	REGISTRATION CERTIFICATE	MINAS GERAIS SHIP's PLANS

HMS. VENGEANCE ASSOCIATION	WHERE ARE THEY NOW?	DONATIONS FOR WEBSITE UPKEEP
WEBSITE FAULT REPORT	HMS. VENGEANCE SQDN. HISTORIES	COMPUTER VIRUS INFORMATION
SHIP & SQUADRON REUNIONS	CAN YOU HELP?	THE LAST FAREWELL
WAR MEDAL INFORMATION	OBITUARY NOTICES	SERVICE NUMBER INFORMATION
SIGN OUR GUESTBOOK	ACKNOWLEDGEMENTS	READ OUR GUESTBOOK

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HMS. Gosling (FAA 1944) Photograph Page. Go Now

World War 2 Royal Navy Aircraft Carriers

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A Brief History

'No.1849 Royal Navy Squadron'

Most of the personnel, formed and assembled at Townhill Camp, in June 1944 and left Liverpool, on the troopship 'Queen Mary', destined for Brunswick, Maine, U.S.A., via New York, where pilot's were awaiting form-up on August 1st 1944.

No.1849 Squadron Pilots.

The Squadron consisted of, Commanding Officer Lt. Cdr. Patrick Chilton R.N., Senior Pilot Lt. Grogan R.C.N.V.R. and pilot's, S/L. Bardner, S/L. Borthwick, S/L. Bouchard, S/L. English, S/L. George, S/L. Gurnhill, S/L. Laine, S/L. Lynch, S/L. McKinstry, S/L. Rickell and S/L. Rouse. All but two of the pilot's, passed through H.M.S. St. Vincent at Gosport, Hampshire and progressed together through the various stages of Flight Training in the United States. S/L. Rouse wrote a Squadron ditty and played the guitar and S/L. Bardner was an accomplished classical pianist. All except the Commanding Officer and Senior Pilot, were trained in the United States and earned their 'wings' at Pensacola, Florida in late 1943.

No.1849 RN Squadron, USNAS. Brunswick, Maine, USA - 1944. Back row (l to r) S/L. Lynch, S/L. English, S/L. George, S/L. Rouse, S/L. Laine, S/L. Sheppard, S/L. Stacey, S/L. Rickell. Centre row (l to r) S/L. Aspen, ?, Sen. Pilot Lt. Grogan RCNVR, C.O. Lt. Cdr. Chilton, S/L. Wadsworth, S/L. Borthwick. S/L. Bardner. Front row (l to r) ?, S/L. Ewing, S/L. McKinstry.

1849 Squadron Group photo, taken at HMS. Saker, Brunswick, Maine, USA in 1944.

S/L. Norman McKinstry in a Corsair at Bar Harbor, Maine, in September 1944.

Lt. Grogan was from British Columbia, Canada and through family connections and to help the war effort, arranged for a tribe of Native American Indian's to adopt 1849 Squadron. The Indian's named the Squadron "Thunderbirds" and gave each aircraft an Indian name, which was painted on the individual aircraft. A photo taken at Brunswick shows C.O. Chilton, S/L. Borthwick and S/L. McKinstry accepting the Totem.

C.O. Pat Chilton (left) S/L. Stanley Borthwick (centre) and S/L. Norman McKinstry (right) with Totem. Corsair 6V11 (JS 655) in background.

S/L. Stanley Borthwick (left) hands the Totem to C.O. Pat Chilton in the Corsair cockpit. S/L. Norman McKinstry standing (right).

ADDL's Ellsworth Airfield.

It is fair to say, that 1849 Squadron had an 'Esprit De Corps' above average. Flying was tighter than usual and this probably led to a mid-air collision at Brunswick, while flying Squadron formation to Bar Harbor, Maine on September 11th 1944, both S/L. Bouchard and S/L. Gurnhill lost their lives. Both are interred at the U.S. Navy Cemetery at Portsmouth, New Hampshire, U.S.A.

C.O. Pat Chilton as Bats Officer, during ADDL's at Bar Harbor, Maine, USA. September 1944.

1849 Squadron departed Norfolk, Virginia on November 22nd 1944 on H.M.S. Reaper for Belfast, Northern Ireland, arriving on December 6th 1944. The same day, 1849 Squadron was disbanded and part of the Squadron reformed with No.1850 Squadron.

ADDL's Ellsworth Airfield, Maine, USA, a satellite airfield of Brunswick United States Navy Air Station, being 'waved off - to high'.

Lt. Cdr. Chilton had a long and distinguished Naval career and after the war, sailed around the World with his wife as crew, he died a couple of years ago. Lt. Grogan continued flying and was killed in a flying accident after 1849 Squadron was disbanded.

S/L. J. Laine (seated) at Bar Harbor, Maine. 1944.

1849 Squadron 'Totem'.

Additional Link to:-

Brittanic Squadron News

No.738 Training Sqdn. at Lewiston-Auburn airport (RN air facility) Maine, USA in July 1944. A holding area for Corsair pilots from Jacksonville, Florida. (left to right) S/L. P. Cann, S/L. F. English, S/L. N. McKinstry, S/L. L. MacLean and S/L. H. Bouchard.

Smoke rises from crashed aircraft near NAS. Brunswick on Monday 11th September 1944. S/L. H. Bouchard (13V11 - JS612) and S/L. C. Gurnhill (8V11 - JS669) both killed. U.S. and R.N. ground crew look on.

Compiled mostly from memory, logbook & old photograph's by Norman McKinstry & Stanley Borthwick. (Former 1849 & 1850 Squadron pilots)

Contact:- norm.tallyho@verizon.net

1849 Squadron Aircraft

Chance-Vought F3A-1 Corsair III ordered from Brewster Aeronautical Corporation under Contract No. a(S) 172, Requisition No. N-1113, numbered JS 469 to JS 888. BuAer Nos. 04689 - 04774, 08550 - 08797, and 11067 - 11152. (2,000hp Pratt & Whitney Double Wasp R-2800-8). Total: 420 Aircraft.

Serial No.	Code	Arrival	Departure	Comments
JS 547	'15V11'	.08.44	23.10.44	
JS 548	'10V11'	03.09.44	23.10.44	Incident. Wingtip hit by JS 668 on 10.10.44. Repaired. Replacement for JS 662, lost on 30.08.44.
JS 571	'17V11'	28.09.44	23.10.44	
JS 573	'4V11'	.08.44	23.10.44	
JS 581	'19V11'	11.09.44	23.10.44	
JS 612	'13V11'	01.08.44	11.09.44	Lost. In formation at 800-1000 feet, tail cut off by JS 669. Crashed near Clinton, Maine., on 11.09.44. S/L. H. R. Bouchard killed.
JS 615	'7V11'	01.08.44	23.10.44	
JS 655	'6V11'	01.08.44	23.10.44	Featured in Totem Pole photographs.
JS 657	'9V11'	01.08.44	23.10.44	
JS 660	'5V11'	01.08.44	23.10.44	
JS 661	'8V11'	26.09.44	23.10.44	Replacement for JS 669, lost 11.09.44.
JS 662	'10V11'	01.08.44	30.08.44	Lost. Hit sea, low flying, ditched and sank within 30 seconds 30.08.44. S/L. E. P. George O.K.

JS 663	'11V11'	01.08.44	29.09.44	Unserviceable. No other details. Replaced by JS 876.
JS 665	'3V11'	01.08.44	23.10.44	
JS 667	'18V11'	01.08.44	23.10.44	
JS 668	'14V11'	01.08.44	23.10.44	Incident. Overran wingtip of JS 548 on 10.10.44. S/L. F. C. English.
JS 669	'8V11'	01.08.44	11.09.44	Lost. In formation at 800-1000 feet, hit tail of JS 612 and cut it off. Crashed near Clinton, Maine., on 11.09.44. S/L. C. P. Gurnhill killed. Replaced by JS 661.
JS 670	'12V11'	01.08.44	23.10.44	
JS 671		01.08.44	14.08.44	Lost. Head on collision at 8000 feet, with F3A-1 Corsair. Crashed near Clinton, Maine., 14.08.44. S/L. R. J. Wadsworth killed.
JS 719	'18V11'	01.08.44	.09.44	
JS 802	'2V11'	01.08.44	23.10.44	
JS 869	'16V11'	01.08.44	23.10.44	
JS 875	'1V11'	01.08.44	23.10.44	
JS 876	'11V11'	22.10.44	23.10.44	Replacement for JS 663. (Unserviceable)
JT 173	'5S'	.08.44	.09.44	Not a Squadron aircraft. F4U-1.

Summary

25 Aircraft

2 Incidents

4 Aircraft Lost

3 Pilots Killed

Aircraft Coding

'1V11' to '19V11' from 01.08.44 to 23.10.44

6th December 1944, Squadron disbanded

Additional Links to:-

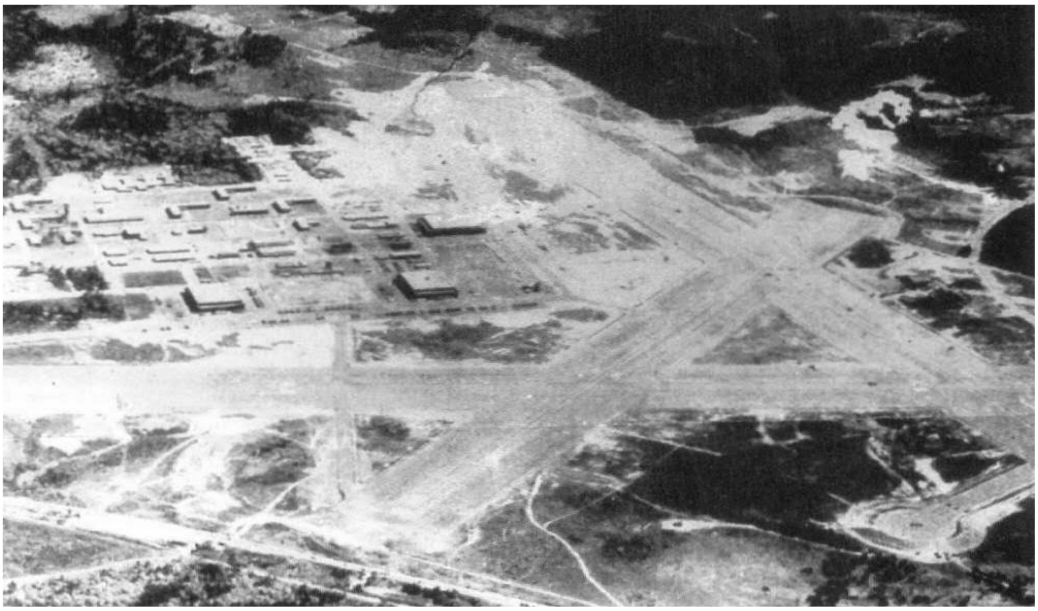
1849 Squadron Memorial

Where are they now?

Home

HMS. Saker, (USNAS.) Brunswick, Maine, U.S.A.

Group photograph of 1850 Squadron at USNAS. Brunswick (HMS. Saker) in August 1944.



Aerial photo of USNAS. Brunswick (HMS. Saker) in late 1944.

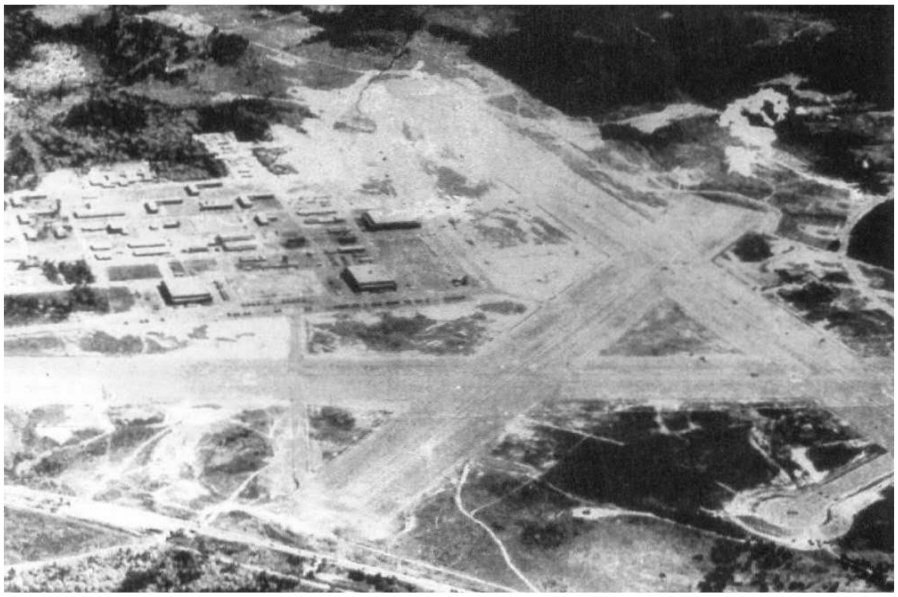
The scrap yard at USNAS. Brunswick (HMS. Saker).

1850 Squadron Photograph's

1850 Squadron Corsairs at aircraft dispersal, USNAS. Brunswick, Maine, USA., in 1944.

1850 Squadron Corsairs at aircraft dispersal, USNAS. Brunswick, Maine, USA., in 1944.

Squadron C.O. Michael Hordern's aircraft at USNAS. Brunswick in 1944.



Aerial view of USNAS. Brunswick in late 1944.

The scrap yard at USNAS. Brunswick, Maine, USA.

1850 Squadron DLT's at Bar Harbor, Maine, USA in 1944.

1850 Squadron DLT's at Bar Harbor, Maine, USA in 1944.

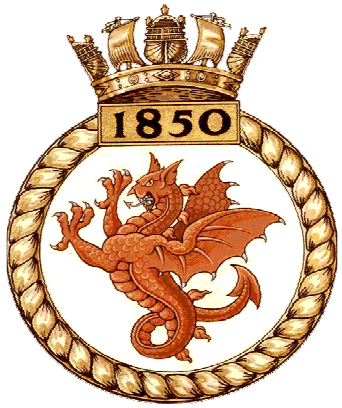
1850 Squadron DLT's at Bar Harbor, Maine, USA in 1944.

1850 Squadron DLT's at Bar Harbor, Maine, USA in 1944.

1850 Squadron DLT's at Bar Harbor, Maine, USA in 1944.

Crossing the Atlantic from the USA to the UK aboard HMS. Reaper in November 1944.

Next Home



'No.1850 Royal Navy Fighter Squadron'

(1st August 1944 to 12th August 1946)

No.1850 Squadron was formed at Brunswick, Maine, U.S.A., (H.M.S. Saker) on the 1st August 1944, as a single seat fighter and front line squadron, equipped with 18 Chance Vought Corsair Mk.IV aircraft, built by Goodyear at Akron, Ohio. The Maintenance crews sailed from the U.K. to New York and then to Brunswick. The Commanding Officer and Senior Pilot, sailed independently and eventually, all met up at Brunswick.

The Royal Navy pilots, were all U.S. trained and joined the squadron, from Lewiston, Maine and Pensacola, Florida. The first casualty of the squadron was S/L. N. Shaw, who perished in a fire in one of the accommodation blocks on the 4th August 1944. In September 1944, the squadron were at Bar Harbor, Maine, practising 'ADDL's' (Aerodrome Dummy Deck Landings) and then to the real thing of 'DLT's' (Deck Landing Trials) aboard the American Carrier, U.S.S. Charger. On the 15th November 1944, the squadron was at Floyd Bennett Field, Brooklyn, New York. They then went to Norfolk , Virginia, ready for transit to the U.K., arriving and departing on the 23rd November 1944. Following the three and a half months of concentrated 'working up' procedure, the pilot's were now turned into a proficient team, ready to join the Fleet.

The squadron sailed from Norfolk, Virginia, absorbing part of the disbanded No.1849 Squadron and increasing No.1850 squadron to 24 aircraft, in H.M.S. Reaper, a Ruler Class Ferry Carrier (D82, ex-USS. Winjah CVE-34) arriving at H.M.S. Gadwall, Belfast, Northern Ireland on the 6th December 1944. The squadron then went to H.M.S. Gannet, R.N.A.S. Eglinton, near Londonderry, Northern Ireland, arriving on the 27th December 1944, for further 'work up' and 'deck landing practise'. The squadron then went to an R.A.F. base at Ayr, Scotland, (H.M.S. Wagtail) arriving on the 13th January 1945.

On the 10th February 1945, No.1850 squadron joined H.M.S. Venerable (R04 Colossus Class Light Fleet Carrier) for further 'DLT's' (Deck Landing Trails). There was some confusion, as No.1850 squadron was already destined for H.M.S. Vengeance, although the squadron was ready, the ship was not. In the case of H.M.S. Venerable, the ship was ready, although her squadron was not, thus, No.1850 squadron had a temporary stay with H.M.S. Venerable and continued training in the Firth of Clyde. The second casualties for the squadron came on the 23rd February 1945, in the Clyde Approaches, two aircraft failed to return from a dawn Formation Practise, both S/L. C. Macey and S/L. P. Hudson, were lost. The Deck Landing Trials, aboard H.M.S. Venerable, were filmed by the Royal Navy and are now housed in the Imperial War Museum Film Archive. (MTE 1838).

On the 25th February 1945, No.1850 squadron transferred from H.M.S. Venerable to H.M.S. Vengeance (R71 Colossus Class Light Fleet Carrier) forming the 11th Aircraft Carrier Squadrons, with No.812 Squadron, intended for the British Pacific Fleet. Due to German U-boat activity in the Clyde Approaches and Irish Sea, (U-1302) it was decided that H.M.S. Vengeance should be diverted to the Mediterranean.

At 12.45hrs. on the 12th March 1945, H.M.S. Vengeance, together with the other members of the 11th ACS (Aircraft Carrier Squadrons), H.M.S. Colossus, H.M.S. Glory and H.M.S. Venerable, escorted by the Destroyer Escorts, H.M.S. Tartar , H.M.S. Cotton, H.M.S. Inman, H.M.S. Assiniboine, H.M.S. Stockham and H.M.S. Ulysses, left the Clyde and sailed around the North, then West coasts of Ireland towards Gibraltar. On the same day U-260 was sunk off Fastnet Rock, South of Ireland, which may have been waiting for the Fleet.

No.1850 squadron's first 'active' base was at H.M.S. Falcon, R.N.A.S. Hal Far in Malta, arriving on the 19th March 1945. From there, the squadron flew their first exercises over Sicily, commencing on the 29th March 1945. On the 5th April 1945, aircraft from No.1850 squadron escorted No.812 squadron (Barracuda Mk.II's) to Syracusa, Sicily on practice bombing raids. On the 6th April 1945, the squadron suffered another casualty, when returning to Hal Far from an Interception Exercise, S/L. E. Bardner, bailed-out from his aircraft, possibly due to low oil pressure, and was never found, despite a lengthy air and sea search. No.812 squadron also encountered loss on the night search, for S/L. Bardner. Pilot S/L. J. Birch, Observer S/L. D. Robbins and TAG L/A. H. Hamill failed to return from the search. No.1850 squadron remained at Hal Far until the 23rd April 1945, when they returned to H.M.S. Vengeance in Valletta Harbour, celebrating 'VE Day' on the 8th May 1945, in Malta. Although the War was officially over in Europe, it was still continuing in the Pacific and this where No.1850 squadron was heading.

On the 11th June 1945, the squadron's next base was at H.M.S. Valluru, Tambaram, Madras, and H.M.S. Garuda, Coimbatore, Cochin, in Southern India, where they took part in new weapon training, air gunnery and dive bombing practice, returning to H.M.S. Vengeance on 1st July 1945.

The next base for No.1850 squadron was H.M.S. Nabswick, Jervis Bay, Australia, (MONAB V) arriving on the 22nd July 1945. The squadron remained there in readiness and continued 'working up' procedures in the Pacific. Now at the peak of efficiency and raring to go, until the 13th August 1945, when they returned to H.M.S. Vengeance, which was anchored in Sydney. With the end of the War imminent, there was a rush to get Squadron's re-embarked onto their respective Carriers. The squadron was briefed for an Operation against a Japanese held Island called Truk, which was still heavily defended. The 11th ACS (Aircraft Carrier Squadron's) was ultimately destined to cover the Invasion of Japan. On the 15th August 1945, (VJ Day) the Pacific War ended, some of the squadron considered this an anti-climax, for all their hard training, there were no celebrations this time for the squadron's or ship's, as they left Australia, in company with H.M.S. Indomitable, H.M.S. Colossus, and H.M.S. Venerable, followed by cruisers H.M.S. Bermuda and H.M.S. Swiftsure, destroyers H.M.S. Quadrant, H.M.S. Tuscan, H.M.S. Ursa, H.M.S. Tyrian, H.M.S. Kempenfelt and H.M.S. Whirlwind.

In order to keep aircrew personnel in flying practise, it was decided to disembark No.1850 squadron to an airstrip at Ponam in the Admiralty Isles, the British Pacific Fleet forward Operating Base, arriving at H.M.S. Nabaron (MONAB IV) on the 23rd August 1945. This was soon curtailed and the squadron returned to H.M.S. Vengeance on 30th August 1945.

No.1850 squadron was then sent to Hong Kong, arriving on the 3rd September 1945. It was rumoured that Japanese suicide boats were awaiting the Fleet and the following Japanese ships were in the Hong Kong area at that time, SAGA, MIAKO and HATUKARI. The squadron were based at H.M.S. Nabcatcher, Kai-Tak Airfield (MONAB VIII), in Kowloon, to take the surrender of the Japanese Forces and to give aid and Policing duties, the squadron being reduced to 12 aircraft at this time. The 1st and the 11th ACS (Aircraft Carrier Squadron's) were amalgamated into the 1st ACS. The squadron remained there for almost the rest of the year, leaving on the 28th December 1945. There is a plaque, dedicated to the officer's and men of H.M.S. Vengeance, who liberated the Royal Hong Kong Yacht Club, from the Japanese Forces.

The squadron's next base was at H.M.S. Nabthorpe (MONAB VI) at Schofields, Sydney, Australia, arriving on the 12th January 1946, where No.1850 squadron remained, until the 19th March 1946, due to H.M.S. Vengeance being in dry dock for repairs. H.M.S. Vengeance and her squadron's, were transferred from the British Pacific Fleet to the East Indies Fleet and subsequently sailed for Ceylon.

No.1850 squadron's last base was at H.M.S. Ukussa, Katukurunda, Ceylon, arriving on the 5th April 1946, this was to be the final Squadron base for No.1850 before leaving for home on 11th June 1946.

On arrival at Gosport on the 12th August 1946, No.1850 squadron was disbanded, which coincided, with the end of the First Commission of H.M.S. Vengeance. The squadron number, was earmarked in 1953, for a post-war Royal Navy Volunteer Reserve Squadron, but this became No.1843 instead.

Back Home

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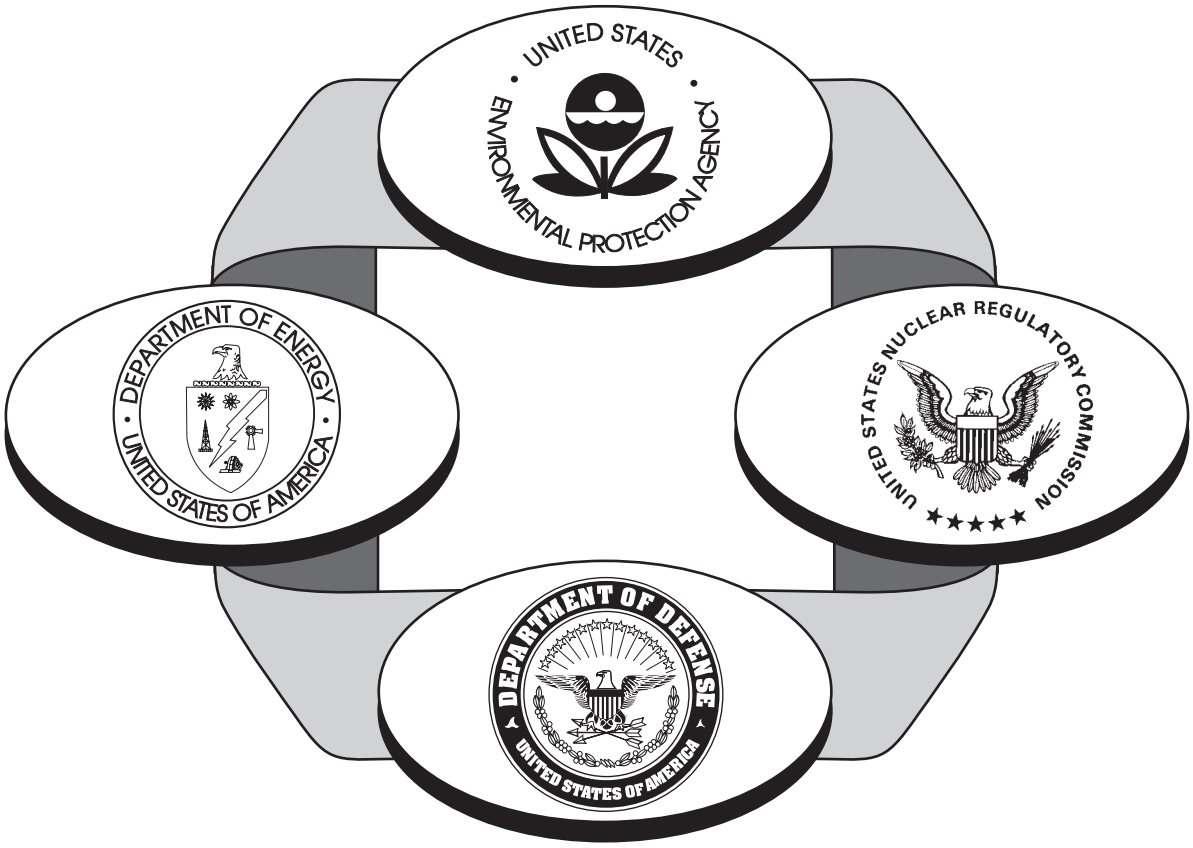
MULTI-AGENCY RADIATION SURVEY AND SITE INVESTIGATION MANUAL (MARSSIM)



Revision 1

August 2000

NUREG-1575, Rev. 1
EPA 402-R-97-016, Rev. 1
DOE/EH-0624, Rev. 1

MULTI-AGENCY RADIATION SURVEY AND SITE INVESTIGATION MANUAL (MARSSIM)

AUGUST 2000
REVISION 1

ABSTRACT

The MARSSIM provides information on planning, conducting, evaluating, and documenting building surface and surface soil final status radiological surveys for demonstrating compliance with dose or risk-based regulations or standards. The MARSSIM is a multi-agency consensus document that was developed collaboratively by four Federal agencies having authority and control over radioactive materials: Department of Defense (DOD), Department of Energy (DOE), Environmental Protection Agency (EPA), and Nuclear Regulatory Commission (NRC). The MARSSIM's objective is to describe a consistent approach for planning, performing, and assessing building surface and surface soil final status surveys to meet established dose or risk-based release criteria, while at the same time encouraging an effective use of resources.

DISCLAIMER

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CONTENTS

Page

Abstract iii
Disclaimer iv
Acknowledgments xix
Abbreviations xxiii
Conversion Factors xxvii
Errata and Addenda xxviii

Roadmap Roadmap-1

1. Introduction 1-1
   1.1 Purpose and Scope of MARSSIM 1-1
   1.2 Structure of the Manual 1-4
   1.3 Use of the Manual 1-6
   1.4 Missions of the Federal Agencies Producing MARSSIM 1-7
      1.4.1 Environmental Protection Agency 1-7
      1.4.2 Nuclear Regulatory Commission 1-7
      1.4.3 Department of Energy 1-7
      1.4.4 Department of Defense 1-8

2. Overview of the Radiation Survey and Site Investigation Process 2-1
   2.1 Introduction 2-1
   2.2 Understanding Key MARSSIM Terminology 2-2
   2.3 Making Decisions Based on Survey Results 2-6
      2.3.1 Planning Effective Surveys—Planning Phase 2-8
      2.3.2 Estimating the Uncertainty in Survey Results—Implementation Phase 2-11
      2.3.3 Interpreting Survey Results—Assessment Phase 2-11
      2.3.4 Uncertainty in Survey Results 2-12
      2.3.5 Reporting Survey Results 2-13
   2.4 Radiation Survey and Site Investigation Process 2-14
      2.4.1 Site Identification 2-16
      2.4.2 Historical Site Assessment 2-22
      2.4.3 Scoping Survey 2-22
      2.4.4 Characterization Survey 2-23
      2.4.5 Remedial Action Support Survey 2-23
      2.4.6 Final Status Survey 2-24
      2.4.7 Regulatory Agency Confirmation and Verification 2-25
   2.5 Demonstrating Compliance With a Dose- or Risk-Based Regulation 2-25
      2.5.1 The Decision To Use Statistical Tests 2-25
      2.5.2 Classification 2-28
      2.5.3 Design Considerations for Small Areas of Elevated Activity 2-29

CONTENTS

Page

2.5.4 Design Considerations for Relatively Uniform Distributions of Contamination 2-30
2.5.5 Developing an Integrated Survey Design 2-31
2.6 Flexibility in Applying MARSSIM Guidance 2-33
2.6.1 Alternate Statistical Methods 2-34
2.6.2 Alternate Null Hypothesis 2-39
2.6.3 Integrating MARSSIM with Other Survey Designs 2-39

3. Historical Site Assessment 3-1
3.1 Introduction 3-1
3.2 Data Quality Objectives 3-2
3.3 Site Identification 3-4
3.4 Preliminary Historical Site Assessment Investigation 3-4
3.4.1 Existing Radiation Data 3-7
3.4.2 Contracts and Interviews 3-9
3.5 Site Reconnaissance 3-9
3.6 Evaluation of Historical Site Assessment Data 3-10
3.6.1 Identify Potential Contaminants 3-11
3.6.2 Identify Potentially Contaminated Areas 3-12
3.6.3 Identify Potentially Contaminated Media 3-13
3.6.4 Develop a Conceptual Model of the Site 3-21
3.6.5 Professional Judgment 3-22
3.7 Determining the Next Step in the Site Investigation Process 3-24
3.8 Historical Site Assessment Report 3-24
3.9 Review of the Historical Site Assessment 3-25

4. Preliminary Survey Considerations 4-1
4.1 Introduction 4-1
4.2 Decommissioning Criteria 4-1
4.3 Identify Contaminants and Establish Derived Concentration Guideline Levels 4-3
4.3.1 Direct Application of DCGLs 4-4
4.3.2 DCGLs and the Use of Surrogate Measurements 4-4
4.3.3 Use of DCGLs for Sites With Multiple Radionulcides 4-8
4.3.4 Integrated Surface and Soil Contamination DCGLs 4-8
4.4 Classify Areas by Contamination Potential 4-11
4.5 Select Background Reference Areas 4-13
4.6 Identify Survey Units 4-14

CONTENTS

Page

4.7 Select Instruments and Survey Techniques 4-16
4.7.1 Selection of Instruments 4-16
4.7.2 Selection of Survey Techniques 4-17
4.7.3 Criteria for Selection of Sample Collection and Direct Measurement Methods 4-19
4.8 Site Preparation 4-22
4.8.1 Consent for Survey 4-22
4.8.2 Property Boundaries 4-22
4.8.3 Physical Characteristics of Site 4-22
4.8.4 Clearing To Provide Access 4-24
4.8.5 Reference Coordinate System 4-27
4.9 Quality Control 4-32
4.9.1 Precision and Systematic Errors (Bias) 4-33
4.9.2 Number of Quality Control Measurements 4-34
4.9.3 Controlling Sources of Error 4-38
4.10 Health and Safety 4-38

5. Survey Planning and Design 5-1
5.1 Introduction 5-1
5.2 Scoping Surveys 5-1
5.2.1 General 5-1
5.2.2 Survey Design 5-2
5.2.3 Conducting Surveys 5-3
5.2.4 Evaluating Survey Results 5-3
5.2.5 Documentation 5-4
5.3 Characterization Surveys 5-7
5.3.1 General 5-7
5.3.2 Survey Design 5-8
5.3.3 Conducting Surveys 5-9
5.3.4 Evaluating Survey Results 5-14
5.3.5 Documentation 5-15
5.4 Remedial Action Support Surveys 5-18
5.4.1 General 5-18
5.4.2 Survey Design 5-18
5.4.3 Conducting Surveys 5-19
5.4.4 Evaluating Survey Results 5-19
5.4.5 Documentation 5-19

CONTENTS

Page

5.5 Final Status Surveys 5-21
5.5.1 General 5-21
5.5.2 Survey Design 5-21
5.5.3 Developing an Integrated Survey Strategy 5-46
5.5.4 Evaluating Survey Results 5-52
5.5.5 Documentation 5-52

6. Field Measurement Methods and Instrumentation 6-1
6.1 Introduction 6-1
6.2 Data Quality Objectives 6-2
6.2.1 Identifying Data Needs 6-2
6.2.2 Data Quality Indicators 6-3
6.3 Selecting a Service Provider to Perform Field Data Collection Activities 6-8
6.4 Measurement Methods 6-10
6.4.1 Direct Measurements 6-10
6.4.2 Scanning Surveys 6-13
6.5 Radiation Detection Instrumentation 6-15
6.5.1 Radiation Detectors 6-15
6.5.2 Display and Recording Equipment 6-17
6.5.3 Instrument Selection 6-18
6.5.4 Instrument Calibration 6-20
6.6 Data Conversion 6-28
6.6.1 Surface Activity 6-29
6.6.2 Soil Radionuclide Concentration and Exposure Rates 6-31
6.7 Detection Sensitivity 6-31
6.7.1 Direct Measurement Sensitivity 6-32
6.7.2 Scanning Sensitivity 6-37
6.8 Measurement Uncertainty (Error) 6-49
6.8.1 Systematic and Random Uncertainties 6-50
6.8.2 Statistical Counting Uncertainty 6-52
6.8.3 Uncertainty Propagation 6-52
6.8.4 Reporting Confidence Intervals 6-53
6.9 Radon Measurements 6-55
6.9.1 Direct Radon Measurements 6-58
6.9.2 Radon Progeny Measurements 6-59
6.9.3 Radon Flux Measurements 6-60
6.10 Special Equipment 6-61
6.10.1 Positioning Systems 6-61
6.10.2 Mobile Systems with Integrated Positioning Systems 6-62
6.10.3 Radar, Magnetometer, and Electromagnetic Sensors 6-63
6.10.4 Aerial Radiological Surveys 6-66

CONTENTS

Page

7. Sampling and Preparation for Laboratory Measurements 7-1
   7.1 Introduction 7-1
   7.2 Data Quality Objectives 7-1
      7.2.1 Identifying Data Needs 7-2
      7.2.2 Data Quality Indicators 7-2
   7.3 Communications with the Laboratory 7-7
      7.3.1 Communications During Survey Planning 7-8
      7.3.2 Communications Before and During Sample Collection 7-8
      7.3.3 Communications During Sample Analysis 7-9
      7.3.4 Communications Following Sample Analysis 7-9
   7.4 Selecting a Radioanalytical Laboratory 7-10
   7.5 Sampling 7-11
      7.5.1 Surface Soil 7-12
      7.5.2 Building Surfaces 7-15
      7.5.3 Other Media 7-16
   7.6 Field Sample Preparation and Preservation 7-16
      7.6.1 Surface Soil 7-17
      7.6.2 Building Surfaces 7-17
      7.6.3 Other Media 7-17
   7.7 Analytical Procedures 7-17
      7.7.1 Photon Emitting Radionuclides 7-21
      7.7.2 Beta Emitting Radionuclides 7-21
      7.7.3 Alpha Emitting Radionuclides 7-22
   7.8 Sample Tracking 7-23
      7.8.1 Field Tracking Considerations 7-24
      7.8.2 Transfer of Custody 7-24
      7.8.3 Laboratory Tracking 7-25
   7.9 Packaging and Transporting Samples 7-25
      7.9.1 U.S. Nuclear Regulatory Commission Regulations 7-27
      7.9.2 U.S. Department of Transportation Regulations 7-27
      7.9.3 U.S. Postal Service Regulations 7-28

8. Interpretation of Survey Results 8-1
   8.1 Introduction 8-1
   8.2 Data Quality Assessment 8-1
      8.2.1 Review the Data Quality Objectives and Sampling Design 8-2
      8.2.2 Conduct a Preliminary Data Review 8-2
      8.2.3 Select the Tests 8-6

CONTENTS

Page

8.2.4 Verify the Assumptions of the Tests 8-7
8.2.5 Draw Conclusions From the Data 8-8
8.2.6 Example 8-10
8.3 Contaminant Not Present in Background 8-11
8.3.1 One-Sample Statistical Test 8-11
8.3.2 Applying the Sign Test 8-12
8.3.3 Sign Test Example: Class 2 Exterior Soil Survey Unit 8-12
8.3.4 Sign Test Example: Class 3 Exterior Soil Survey Unit 8-14
8.4 Contaminant Present in Background 8-17
8.4.1 Two-Sample Statistical Test 8-17
8.4.2 Applying the Wilcoxon Rank Sum Test 8-18
8.4.3 Wilcoxon Rank Sum Test Example: Class 2 Interior Drywall Survey Unit 8-19
8.4.4 Wilcoxon Rank Sum Test Example: Class 1 Interior Concrete Survey Unit 8-21
8.4.5 Multiple Radionuclides 8-21
8.5 Evaluating the Results: The Decision 8-21
8.5.1 Elevated Measurement Comparison 8-21
8.5.2 Interpretation of Statistical Test Results 8-23
8.5.3 If the Survey Unit Fails 8-23
8.5.4 Removable Activity 8-25
8.6 Documentation 8-25

9. Quality Assurance and Quality Control 9-1
9.1 Introduction 9-1
9.2 Development of a Quality Assurance Project Plan 9-3
9.3 Data Assessment 9-5
9.3.1 Data Verification 9-6
9.3.2 Data Validation 9-7

References Ref-1

Appendix A Example of MARSSIM Applied to a Final Status Survey A-1
A.1 Introduction A-1
A.2 Survey Preparations A.1
A.3 Survey Design A-7
A.4 Conducting Surveys A-14
A.5 Evaluating Survey Results A-15

CONTENTS

		Page
Appendix B	Simplified Procedure for Certain Users of Sealed Sources, Short Half-Life Materials, and Small Quantities	B-1
Appendix C	Site Regulations and Requirements Associated With Radiation Surveys and Site Investigations	C-1
C.1	EPA Statutory Authorities	C-1
C.2	DOE Regulations and Requirements	C-4
C.3	NRC Regulations and Requirements	C-12
C.4	DOD Regulations and Requirements	C-15
C.5	State and Local Regulations and Requirements	C-20
Appendix D	The Planning Phase of the Data Life Cycle	D-1
D.1	State the Problem	D-4
D.2	Identify the Decision	D-5
D.3	Identify the Inputs to the Decision	D-5
D.4	Define the Boundaries of the Study	D-6
D.5	Develop a Decision Rule	D-8
D.6	Specify Limits on Decision Errors	D-13
D.7	Optimize the Design for Collecting Data	D-28
Appendix E	The Assessment Phase of the Data Life Cycle	E-1
E.1	Review DQOs and Survey Design	E-1
E.2	Conduct a Preliminary Data Review	E-3
E.3	Select the Statistical Test	E-4
E.4	Verify the Assumptions of the Statistical Test	E-4
E.5	Draw Conclusions from the Data	E-5
Appendix F	The Relationship Between the Radiation Survey and Site Investigation Process, the CERCLA Remedial or Removal Process, and the RCRA Correction Action Process	F-1
Appendix G	Historical Site Assessment Information Sources	G-1
Appendix H	Description of Field Survey and Laboratory Analysis Equipment	H-1
H.1	Introduction	H-3
H.2	Field Survey Equipment	H-5
H.3	Laboratory Instruments	H-38

CONTENTS

		Page
Appendix I	Statistical Tables and Procedures	I-1
I.1	Normal Distribution	I-1
I.2	Sample Sizes for Statistical Tests	I-2
I.3	Critical Values for the Sign Test	I-4
I.4	Critical Values for the WRS Test	I-6
I.5	Probability of Detecting an Elevated Area	I-11
I.6	Random Numbers	I-14
I.7	Stem and Leaf Display	I-17
I.8	Quantile Plots	I-18
I.9	Power Calculations for the Statistical Tests	I-25
I.10	Spreadsheet Formulas for the Wilcoxon Rank Sum Test	I-30
I.11	Example WRS Test for Two Radionuclides	I-31
Appendix J	Derivation of Alpha Scanning Equations Presented in Section 6.7.2.2	J-1
Appendix K	Comparison Tables Between Quality Assurance Documents	K-1
Appendix L	Regional Radiation Program Managers	L-1
L.1	Department of Energy	L-2
L.2	Environmental Protection Agency	L-3
L.3	Nuclear Regulatory Commission	L-5
L.4	Department of the Army	L-6
L.5	Department of the Navy	L-7
L.6	Department of the Air Force	L-8
Appendix M	Sampling Methods: A List of Sources	M-1
M.1	Introduction	M-1
M.2	List of Sources	M-1
Appendix N	Data Validation Using Data Descriptors	N-1
N.1	Reports to Decision Maker	N-1
N.2	Documentation	N-2
N.3	Data Sources	N-4
N.4	Analytical Method and Detection Limit	N-4
N.5	Data Review	N-5
N.6	Data Quality Indicators	N-6
Glossary		GL-1
Index		Index-1

CONTENTS

LIST OF TABLES

		Page
1.1	Scope of MARSSIM	1-8
2.1	The Data Life Cycle used to Support the Radiation Survey and Site Investigation Process	2-16
2.2	Recommended Conditions for Demonstrating Compliance Based on Survey Unit Classification for a Final Status Survey	2-32
2.3	Examples of Alternate Statistical Tests	2-35
3.1	Questions Useful for the Preliminary HSA Investigation	3-5
4.1	Selection of Direct Measurement Techniques Based on Experience	4-20
4.2	Example of DQO Planning Considerations	4-21
4.3	Upper Confidence Limits for the True Variance as a Function of the Number of QC Measurements used to Determine the Estimated Variance	4-36
5.1	Values of P_r for Given Values of the Relative Shift, Δ/σ, when the Contaminant is Present in Background	5-28
5.2	Percentiles Represented by Selected Values of α and β	5-28
5.3	Values of N/2 for Use with the Wilcoxon Rank Sum Test	5-30
5.4	Values of Sign p for Given Values of the Relative Shift, Δ/σ, when the Contaminant is Not Present in Background	5-32
5.5	Values of N for Use with the Sign Test	5-34
5.6	Illustrative Examples of Outdoor Area Dose Factors	5-37
5.7	Illustrative Examples of Indoor Area Dose Factors	5-37
5.8	Example Final Status Survey Investigation Levels	5-45
5.9	Recommended Survey Coverage for Structures and Land Areas	5-47
6.1	Radiation Detectors With Applications for Alpha Surveys	6-20
6.2	Radiation Detectors With Applications for Beta Surveys	6-21
6.3	Radiation Detectors With Applications for Gamma Surveys	6-22
6.4	Examples of Estimated Detection Sensitivities for Alpha and Beta Survey Instrumentation	6-36
6.5	Values of d' for Selected True Positive and False Positive Proportions	6-40
6.6	Scanning Sensitivity (MDCR) of the Ideal Observer for Various Background Levels	6-41

LIST OF TABLES

		Page
6.7	NaI(Tl) Scintillation Detector Scan MDCs for Common Radiological Contaminants	6-47
6.8	Probability of Detecting 300 dpm/100 cm^2 of Alpha Activity While Scanning with Alpha Detectors Using an Audible Output	6-49
6.9	Areas Under Various Intervals About the Mean of a Normal Distribution	6-54
6.10	Radiation Detectors with Applications to Radon Surveys	6-57
6.11	Typical Radar Penetration Depths for Various Geologic Materials	6-64
7.1	Soil Sampling Equipment	7-14
7.2	Examples of Sources for Routine Analytical Methods	7-18
7.3	Typical Measurement Sensitivities for Laboratory Radiometric Procedures	7-20
8.1	Methods for Checking the Assumptions of Statistical Tests	8-8
8.2	Summary of Statistical Tests	8-9
8.3	Final Status Survey Parameters for Example Survey Units	8-10
8.4	Example Sign Analysis: Class 2 Exterior Soil Survey Unit	8-14
8.5	Sign Test Example Data for Class 3 Exterior Survey Unit	8-16
8.6	WRS Test for Class 2 Interior Drywall Survey Unit	8-20
9.1	The Elements of a Quality System Related to the Data Life Cycle	9-2
9.2	Examples of QAPP Elements for Site Surveys and Investigations	9-4
9.3	Suggested Content or Consideration, Impact if Not Met, and Corrective Actions for Data Descriptors	9-8
A.1	Class 1 Interior Concrete Survey Unit and Reference Area Data	A-15
A.2	Stem and Leaf Displays for Class 1 Interior Concrete Survey Unit	A-16
A.3	WRS Test for Class 1 Interior Concrete Survey Unit	A-18
C.1	DOE Authorities, Orders and Regulations Related to Radiation Protection	C-5
C.2	Agreement States	C-21
C.3	States that Regulate Diffuse NORM	C-21
D.1	Example Representation of Decision Errors for a Final Status Survey	D-15
F.1	Program Comparison	F-5
F.2	Data Elements for Site Visits	F-10
F.3	Comparison of Sampling Emphasis Between Remedial Site Assessment and Removal Assessment	F-10
G.1	Site Assessment Information Sources (Organized by Information Needed)	G-2
G.2	Site Assessment Information Sources (Organized by Information Source)	G-7

LIST OF TABLES

		Page
H.1	Radiation Detectors with Applications to Alpha Surveys	H-50
H.2	Radiation Detectors with Applications to Beta Surveys	H-52
H.3	Radiation Detectors with Applications to Gamma Surveys	H-53
H.4	Radiation Detectors with Applications to Radon Surveys	H-55
H.5	Systems that Measure Atomic Mass or Emissions	H-56
I.1	Cumulative Normal Distribution Function $\Phi(z)$	I-1
I.2a	Sample Sizes for Sign Test	I-2
I.2b	Sample Sizes for Wilcoxon Rank Sum Test	I-3
I.3	Critical Values for the Sign Test Statistic S+	I-4
I.4	Critical Values for the WRS Test	I-6
I.5	Risk that an Elevated Area with Length L/G and Shape S will not be Detected and the Area (%) of the Elevated Area Relative to a Triangular Sample Grid Area of 0.866 G^2	I-11
I.6	1,000 Random Numbers Uniformly Distributed between Zero and One	I-14
I.7	Data for Quantile Plot	I-19
I.8	Ranked Reference Area Concentrations	I-22
I.9	Interpolated Ranks for Survey Unit Concentrations	I-23
I.10	Values of P_r and p_2 for Computing the Mean and Variance of W_{MW}	I-28
I.11	Spreadsheet Formulas Used in Table 8.6	I-30
I.12	Example WRS Test for Two Radionuclides	I-35
K.1	Comparison of EPA QA/R-5 and EPA QAMS-005/80	K-2
K.2	Comparison of EPA QA/R-5 and ASME NQA-1	K-3
K.3	Comparison of EPA QA/R-5 and DOE Order 5700.6c	K-4
K.4	Comparison of EPA QA/R-5 and MIL-Q-9858A	K-5
K.5	Comparison of EPA QA/R-5 and ISO 9000	K-6
N.1	Use of Quality Control Data	N-7
N.2	Minimum Considerations for Precision, Impact if Not Met, and Corrective Actions	N-9
N.3	Minimum Considerations for Bias, Impact if Not Met, and Corrective Actions	N-10
N.4	Minimum Considerations for Representativeness, Impact if Not Met, and Corrective Actions	N-13
N.5	Minimum Considerations for Comparability, Impact if Not Met, and Corrective Actions	N-15
N.6	Minimum Considerations for Completeness, Impact if Not Met, and Corrective Actions	N-16

CONTENTS

LIST OF FIGURES

		Page
1.1	Compliance Demonstration	1-2
2.1	The Data Life Cycle	2-7
2.2	The Data Quality Objectives Process	2-10
2.3	The Assessment Phase of the Data Life Cycle	2-12
2.4	The Radiation Survey and Site Investigation Process in Terms of Area Classification	2-17
2.5	The Historical Site Assessment Portion of the Radiation Survey and Site Investigation Process	2-18
2.6	The Scoping Survey Portion of the Radiation Survey and Site Investigation Process	2-19
2.7	The Characterization and Remedial Action Support Survey Portion of the Radiation Survey and Site Investigation Process	2-20
2.8	The Final Status Survey Portion of the Radiation Survey and Site Investigation Process	2-21
3.1	Example Showing How a Site Might Be Classified Prior to Cleanup Based on the Historical Site Assessment	3-23
3.2	Example of a Historical Site Assessment Report Format	3-26
4.1	Sequence of Preliminary Activities Leading to Survey Design	4-2
4.2	Flow Diagram for Selection of Field Survey Instrumentation for Direct Measurements and Analysis of Samples	4-18
4.3	Indoor Grid Layout With Alphanumeric Grid Block Designation	4-28
4.4	Example of a Grid System for Survey of Site Grounds Using Compass Directions	4-29
4.5	Example of a Grid System for Survey of Site Grounds Using Distances Left or Right of the Baseline	4-30
5.1	Flow Diagram Illustrating the Process for Identifying Measurement Locations	5-22
5.2	Flow Diagram for Identifying the Number of Data Points, N, for Statistical Tests	5-23
5.3	Flow Diagram for Identifying Data Needs for Assessment of Potential Areas of Elevated Activity in Class 1 Survey Units	5-24
5.4	Example of a Random Measurement Pattern	5-41
5.5	Example of a Random-Start Triangular Grid Measurement Pattern	5-43
6.1	The Physical Probe Area of a Detector	6-29
6.2	Graphically Represented Probabilities for Type I and Type II Errors in Detection Sensitivity for Instrumentation With a Background Response	6-33

LIST OF FIGURES

		Page
8.1	Examples of Posting Plots	8-4
8.2	Example of a Frequency Plot	8-5
9.1	Example of a QAPP Format	9-5
A.1	Plot Plan for the Specialty Source Manufacturing Company	A-3
A.2	Building Floor Plan	A-4
A.3	Examples of Scanning Patterns for Each Survey Unit Classification	A-6
A.4	Reference Coordinate System for the Class 1 Interior Concrete Survey Unit	A-8
A.5	Power Chart for the Class 1 Interior Concrete Survey Unit	A-9
A.6	Prospective Power Curve for the Class 1 Interior Concrete Survey Unit	A-12
A.7	Measurement Grid for the Class 1 Interior Concrete Survey Unit	A-13
A.8	Quantile-Quantile Plot for the Class 1 Interior Concrete Survey Unit	A-17
A.9	Retrospective Power Curve for the Class 1 Interior Concrete Survey Unit	A-20
D.1	The Data Quality Objectives Process	D-2
D.2	Repeated Applications of the DQO Process Throughout the Radiation Survey and Site Investigation Process	D-3
D.3	Example of the Parameter of Interest for the 1-Sample Case	D-11
D.4	Example of the Parameter of Interest for the 2-Sample Case	D-12
D.5	Possible Statement of the Null Hypothesis for the Final Status Survey Addressing the Issue of Compliance	D-18
D.6	Possible Statement of the Null Hypothesis for the Final Status Survey Addressing the Issue of Indistinguishability from Background	D-19
D.7	Geometric Probability of Sampling at Least One Point of an Area of Elevated Activity as a Function of Sample Density with Either a Square or Triangular Sampling Pattern	D-24
D.8	Example of a Power Chart Illustrating the Decision Rule for the Final Status Survey	D-25
D.9	Example of an Error Chart Illustrating the Decision Rule for the Final Status Survey	D-27
E.1	The Assessment Phase of the Data Life Cycle	E-2
F.1	Comparison of the Radiation Survey and Site Investigation Process with the CERCLA Superfund Process and the RCRA Corrective Action Process	F-2

LIST OF FIGURES

		Page
I.1	Example of a Stem and Leaf Display	I-18
I.2	Example of a Quantile Plot	I-20
I.3	Quantile Plot for Example Class 2 Exterior Survey Unit of Section 8.3.3	I-21
I.4	Example Quantile-Quantile Plot	I-24
I.5	Retrospective Power Curve for Class 3 Exterior Survey Unit	I-26
I.6	Retrospective Power Curve for Class 2 Interior Drywall Survey Unit	I-29
J.1	Probability (P) of Getting One or More Counts When Passing Over a 100 cm^2 Area Contaminated at 500 dpm/100 cm^2 Alpha	J-5
J.2	Probability (P) of Getting One or More Counts When Passing Over a 100 cm^2 Area Contaminated at 1,000 dpm/100 cm^2 Alpha	J-6
J.3	Probability (P) of Getting One or More Counts When Passing Over a 100 cm^2 Area Contaminated at 5,000 dpm/100 cm^2 Alpha	J-7
J.4	Probability (P) of Getting Two or More Counts When Passing Over a 100 cm^2 Area Contaminated at 500 dpm/100 cm^2 Alpha	J-8
J.5	Probability (P) of Getting Two or More Counts When Passing Over a 100 cm^2 Area Contaminated at 1,000 dpm/100 cm^2 Alpha	J-9
J.6	Probability (P) of Getting Two or More Counts When Passing Over a 100 cm^2 Area Contaminated at 5,000 dpm/100 cm^2 Alpha	J-10
N.1	Measurement Bias and Random Measurement Uncertainty	N-11

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ABBREVIATIONS

AEA	Atomic Energy Act
AEC	Atomic Energy Commission
AFI	Air Force Instructions
ALARA	as low as reasonably achievable
AMC	Army Material Command
ANSI	American National Standards Institute
AR	Army Regulations
ARA	Army Radiation Authorization
ASTM	American Society of Testing and Materials
ATSDR	Agency for Toxic Substances and Disease Registry
CAA	Clean Air Act
Capt.	Captain (Air Force)
CAPT	Captain (Navy)
CDR	Commander
CEDE	committed effective dose equivalent
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CHP	Certified Health Physicist
CPM	counts per minute
DCF	dose conversion factor
DCGL	derived concentration guideline level
$DCGL_{EMC}$	DCGL for small areas of elevated activity, used with the EMC
$DCGL_{W}$	DCGL for average concentrations over a wide area, used with statistical tests
DEFT	Decision Error Feasibility Trials
DLC	Data Life Cycle
DOD	Department of Defense
DOE	Department of Energy
DOT	Department of Transportation
DQA	Data Quality Assessment
DQO	Data Quality Objectives
EERF	Eastern Environmental Radiation Facility
Ehf	human factors efficiency
EMC	elevated measurement comparison
EML	Environmental Measurements Laboratory
EMMI	Environmental Monitoring Methods Index
EPA	Environmental Protection Agency
EPIC	Environmental Photographic Interpretation Center
ERAMS	Environmental Radiation Ambient Monitoring System

ABBREVIATIONS

FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FRDS	Federal Reporting Data System
FSP	Field Sampling Plan
FWPCA	Federal Water Pollution Control Act
FUSRAP	Formerly Utilized Sites Remedial Action Program
GEMS	Geographical Exposure Modeling System
GM	Geiger-Mueller
GPS	global positioning system
GRIDS	Geographic Resources Information Data System
GWSI	Ground Water Site Inventory
H_0	null hypothesis
H_a	alternative hypothesis
HSA	Historical Site Assessment
HSWA	Hazardous and Solid Waste Amendments
ISI	Information System Inventory
L_C	critical level
L_D	detection limit
LBGR	lower bound of the gray region
LCDR	Lieutenant Commander
LLRWPA	Low Level Radioactive Waste Policy Act as Amended
LT	Lieutenant
MARLAP	Multi-Agency Radiation Laboratory Analytical Protocols (Manual)
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MCA	multichannel analyzer
MDC	minimum detectable concentration
MDCR	minimum detectable count rate
MED	Manhattan Engineering District
NARM	naturally occurring or accelerator produced radioactive material
NCAPS	National Corrective Action Prioritization System
NCRP	National Council on Radiation Protection and Measurements
NCP	National Contingency Plan
NIST	National Institute of Standards and Technology
NORM	naturally occurring radioactive material
NPDC	National Planning Data Corporation

ABBREVIATIONS

NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
NWPA	Nuclear Waste Policy Act
NWWA	National Water Well Association
ODES	Ocean Data Evaluation System
ORNL	Oak Ridge National Laboratory
ORISE	Oak Ridge Institute for Science and Education
PERALS	photon electron rejecting alpha liquid scintillator
PIC	pressurized ionization chamber
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
QMP	Quality Management Plan
RASP	Radiological Affairs Support Program
RAGS/HHEM	Risk Assessment Guidance for Superfund/Human Health Evaluation Manual
RC	release criterion
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RODS	Records of Decision System
RSSI	Radiation Survey and Site Investigation
SARA	Superfund Amendments and Reauthorization Act
SAP	Sampling and Analysis Plan
SDWA	Safe Drinking Water Act
SFMP	Surplus Facilities Management Program
SOP	Standard Operating Procedures
STORET	Storage and Retrieval of U.S. Waterways Parametric Data
TEDE	total effective dose equivalent
TLD	thermoluminescence dosimeter
TRU	transuranic
TSCA	Toxic Substances Control Act

ABBREVIATIONS

UMTRCA	Uranium Mill Tailings Radiation Control Act
USGS	United States Geological Survey
USPHS	United States Public Health Service
USRADS	Ultrasonic Ranging and Data System
WATSTORE	National Water Data Storage and Retrieval System
WL	working level
WRS	Wilcoxon rank sum
WSR	Wilcoxon signed ranks
WT	Wilcoxon test

CONVERSION FACTORS

To Convert From	To	Multiply By	To Convert From	To	Multiply By
acre	hectare	0.405	meter (m)	inch	39.4
	sq. meter (m^2)	4,050		mile	0.000621
	sq. feet (ft^2)	43,600	sq. meter (m^2)	acre	0.000247
becquerel (Bq)	curie (Ci)	$2.7x10^{-11}$		hectare	0.0001
	dps	1		sq. feet (ft^2)	10.8
	pCi	27		sq. mile	$3.86x10^{-7}$
Bq/kg	pCi/g	0.027	m^3	liter	1,000
Bq/m^2	dpm/100 cm^2	0.60	mrem	mSv	0.01
Bq/m^3	Bq/L	0.001	mrem/y	mSv/y	0.01
	pCi/L	0.027	mSv	mrem	100
centimeter (cm)	inch	0.394	mSv/y	mrem/y	100
Ci	Bq	$3.70x10^{10}$	ounce (oz)	liter (L)	0.0296
	pCi	$1x10^{12}$	pCi	Bq	0.037
				dpm	2.22
dps	dpm	60	pCi/g	Bq/kg	37
	pCi	27	pCi/L	Bq/m^3	37
dpm	dps	0.0167	rad	Gy	0.01
	pCi	0.451	rem	mrem	1,000
gray (Gy)	rad	100		mSv	10
hectare	acre	2.47		Sv	0.01
liter (L)	cm^3	1000	seivert (Sv)	mrem	100,000
	m^3	0.001		mSv	1,000
	ounce (fluid)	33.8		rem	100

ERRATA AND ADDENDA

In response to comments received on the December 1997 Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), minor modifications were made to individual pages. Modifications to the manual that correct errors are listed as errata, while modifications made to clarify guidance or provide additional information are referred to as addenda. The pages affected by these modifications are listed here and have the date of the modification in the footer. A complete list of comments and resolutions is available on the MARSSIM web site at:

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ROADMAP

Introduction to MARSSIM

The Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) provides detailed guidance for planning, implementing, and evaluating environmental and facility radiological surveys conducted to demonstrate compliance with a dose- or risk-based regulation. The MARSSIM guidance focuses on the demonstration of compliance during the final status survey following scoping, characterization, and any necessary remedial actions.

The process of planning the survey, implementing the survey plan, and assessing the survey results prior to making a decision is called the Data Life Cycle. MARSSIM Chapter 2 and Appendix D provide detailed guidance on developing appropriate survey designs using the Data Quality Objectives (DQO) Process to ensure that the survey results are of sufficient quality and quantity to support the final decision. The survey design process is described in MARSSIM Chapters 3, 4, and 5. Guidance on selecting appropriate measurement methods (*i.e.*, scan surveys, direct measurements, samples) and measurement systems (*i.e.*, detectors, instruments, analytical methods) is provided in MARSSIM Chapters 6 and 7 and Appendix H. Data Quality Assessment (DQA) is the process of assessing the survey results, determining that the quality of the data satisfies the objectives of the survey, and interpreting the survey results as they apply to the decision being made. The DQA process is described in MARSSIM Chapter 2 and Appendix E and is applied in MARSSIM Chapter 8. Quality Assurance and Quality Control (QA/QC) procedures are developed and recorded in survey planning documents, such as a Quality Assurance Project Plan (QAPP) which is described in MARSSIM Chapter 9.

MARSSIM does not provide guidance for translating the release criterion into derived concentration guideline levels (DCGLs). MARSSIM discusses contamination of surface soil and building surfaces in detail. If other media (*e.g.*, ground water, surface water, subsurface soil, equipment, vicinity properties) are potentially contaminated at the time of the final status survey, modifications to the MARSSIM survey design guidance and examples may be required.

The Goal of the Roadmap

The goal of the roadmap is to present a summary of the major steps in the design, implementation, and assessment of a final status survey and to identify where guidance on these steps is located in MARSSIM. A brief description of each step is included in the roadmap along with references to the sections of MARSSIM that provide more detailed guidance.

This roadmap provides the user with basic guidance from MARSSIM combined with "rules of thumb" (indicated by ☞) for performing compliance demonstration surveys. The roadmap is not designed to be a stand-alone document, but to be used as a quick reference to MARSSIM for

users already familiar with the process of planning and performing surveys. Roadmap users will also find flow charts summarizing the major steps in the Radiation Survey and Site Investigation Process, combined with references to sections in MARSSIM where detailed guidance may be found. In addition, the roadmap serves as an overview and example for applying MARSSIM guidance at sites with radioactive contamination of surface soil and building surfaces. The roadmap assumes a working knowledge of MARSSIM terminology. If such knowledge is lacking, the user may refer to Section 2.2 of MARSSIM for definitions of key terms. In addition, a complete set of definitions is provided in the Glossary.

Data Life Cycle

Compliance demonstration is simply a decision as to whether or not a survey unit meets the release criterion. For most sites, this decision is supported by statistical tests based on the results of one or more surveys. The initial assumption used in MARSSIM is that each survey unit is contaminated above the release criterion until proven otherwise. The surveys are designed to provide the information needed to reject this initial assumption. MARSSIM recommends using the Data Life Cycle as a framework for planning, implementing, and evaluating survey results prior to making a decision. Figure 1 summarizes the major activities associated with each phase of the Data Life Cycle.

Planning Stage

The survey design is developed and documented using the Data Quality Objectives (DQO) Process (Section 2.3.1, Appendix D). The DQOs for the project are established and preliminary surveys (*e.g.*, scoping, characterization) are performed to provide information necessary to design the final status survey for compliance demonstration. The DQOs for the project are re-evaluated for each of the preliminary surveys. The preliminary surveys may provide information for purposes other than compliance demonstration that are not discussed in MARSSIM. For example, a characterization survey may provide information to support evaluation of remedial alternatives. In addition, any of the preliminary surveys may be designed to demonstrate compliance with the release criterion as one of the survey objectives. These alternate survey designs are developed based on site-specific considerations (Section 2.6). The planning phase of the Data Life Cycle produces a final status survey design that is used for demonstrating compliance with the release criterion. This design is recorded in planning documents, such as a Quality Assurance Project Plan (QAPP) described in Section 9.2.

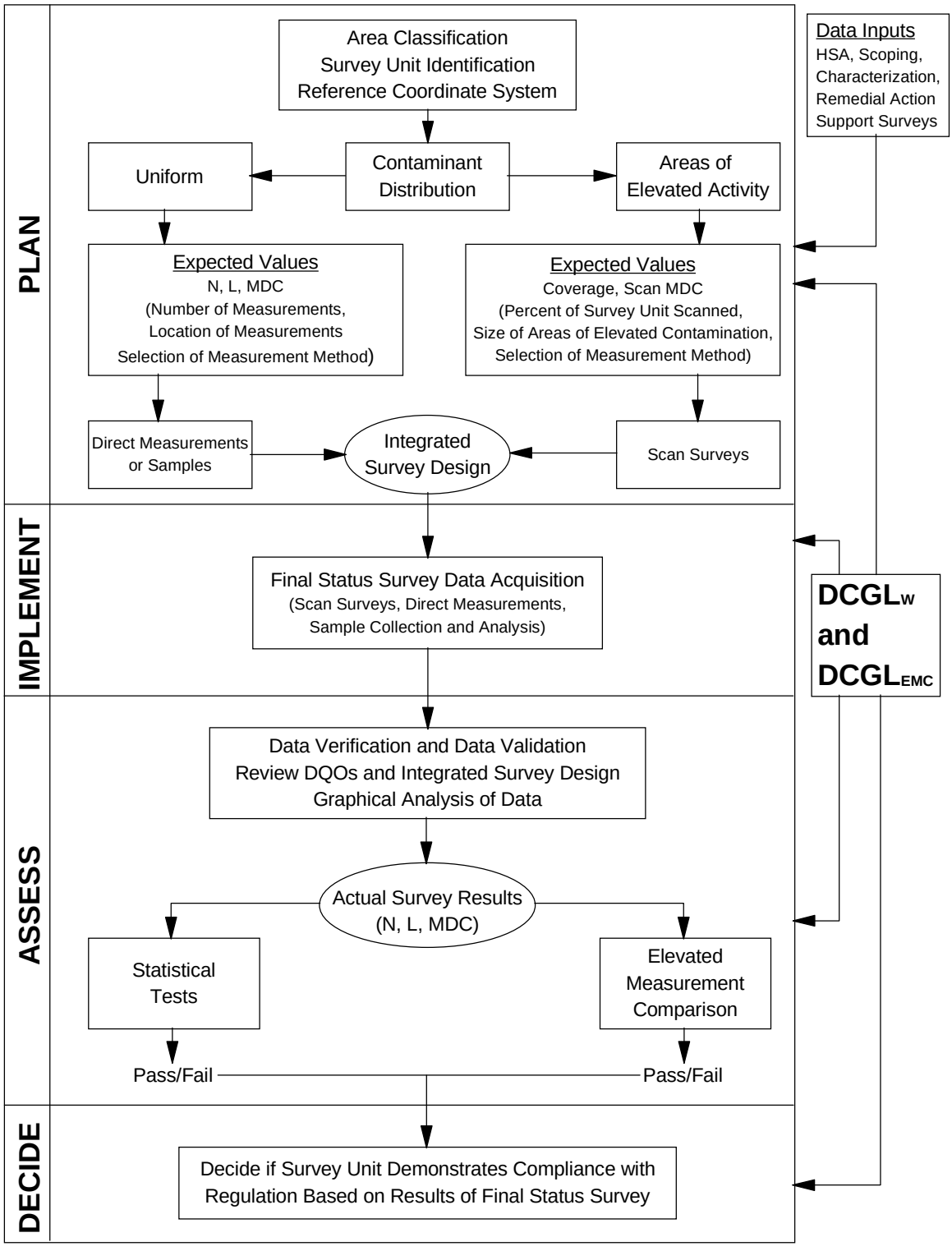

Figure 1 The Data Life Cycle Applied to a Final Status Survey

A minimum amount of information is needed from the preliminary surveys to develop an effective final status survey design. This includes

- Sufficient information to justify classification and specification of boundaries for survey units (the default is Class 1 which results in the highest level of survey effort)
- An estimate of the variability of the contaminant concentration in the survey unit (σ_s) and the reference area (σ_r) if necessary

After the preliminary surveys are completed, the final status survey design can be developed. Figure 2 presents the major steps in the development of a survey design that integrates scanning surveys with direct measurements and sampling. Most of the steps are easy to understand and references to appropriate sections of MARSSIM are included in the flowchart. Several of these steps are important enough to justify additional discussion in this guide. These steps are

- Classify Areas by Contamination Potential
- Group/Separate Areas into Survey Units
- Determine Number of Data Points
- Select Instrumentation
- Develop an Integrated Survey Design

Classify Areas by Contamination Potential (Section 4.4)

Classification is a critical step in survey design because it determines the level of survey effort based on the potential for contamination. Overestimating the potential for contamination results in an unnecessary increase in the level of survey effort. Underestimating the potential for contamination greatly increases the probability of failing to demonstrate compliance based on the survey results. There are two key decisions made when classifying areas: 1) is the average activity in the area likely to exceed the $DCGL_W$, and 2) is the contamination present in small areas of elevated activity or is the contamination distributed relatively homogeneously across the area. Each of these decisions is considered separately when designing the survey and then combined into an integrated survey design. Class 1 areas, prior to remediation, are impacted areas with concentrations of residual radioactivity that exceed the $DCGL_W$. Class 2 areas are impacted areas where concentrations of residual activity that exceed the $DCGL_W$ are not expected. Class 3 areas are impacted areas that have a low probability of containing areas with residual radioactivity. The information obtained from the preliminary surveys is crucial for classifying areas (see Figure 2.4).

☞ Area classification considers both the level of contamination relative to the $DCGL_W$ and the distribution of the contamination. The contamination may be uniformly distributed or present as small areas of elevated activity.

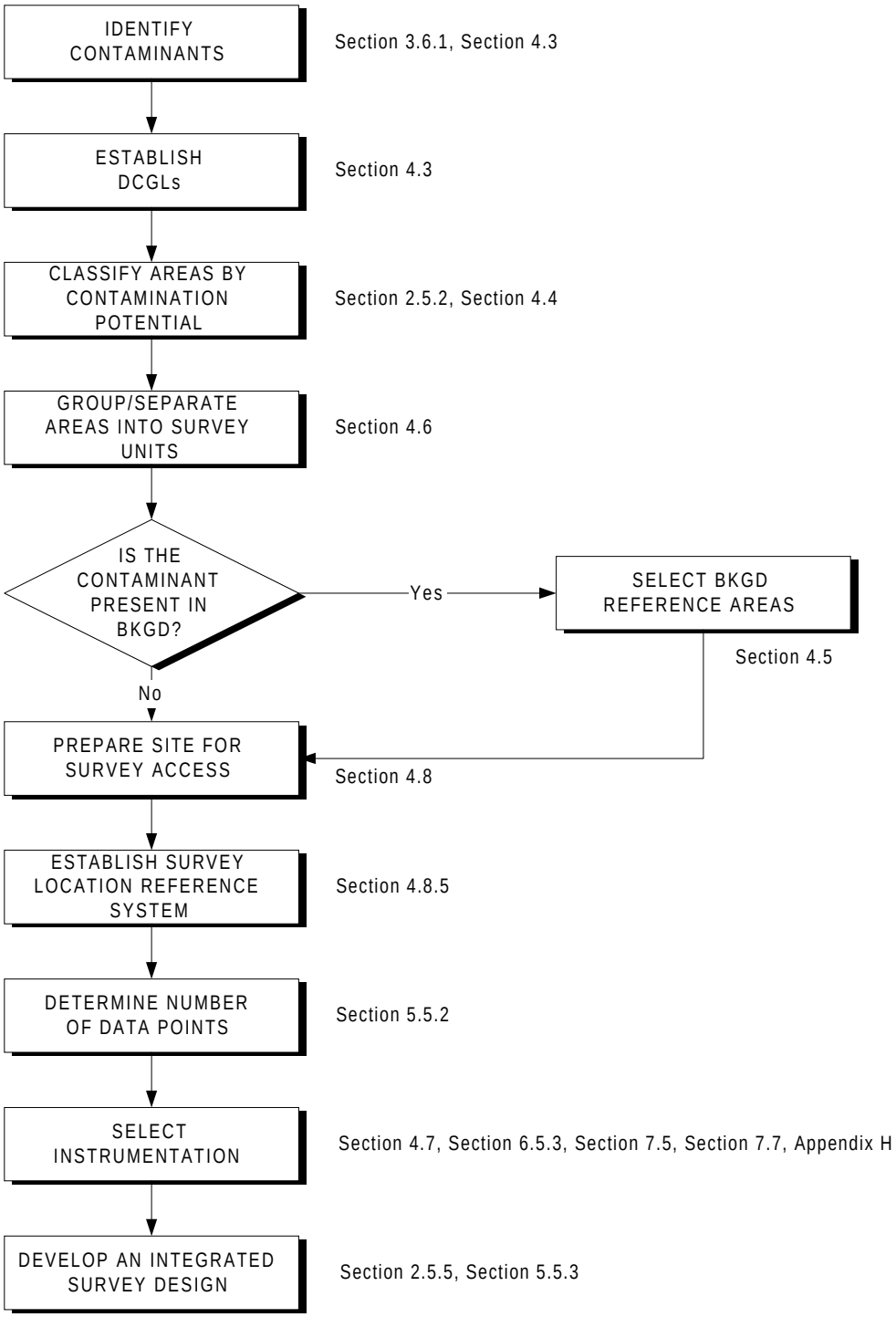

Figure 2 Flow Diagram for Designing a Final Status Survey

Group/Separate Areas into Survey Units (Section 4.6)

Survey units are limited in size based on classification, exposure pathway modeling assumptions, and site-specific conditions. Table 1 provides suggested survey unit areas based on area classification. The rationale for selecting a larger survey unit area should be developed using the DQO Process and fully documented.

Table 1 Suggested Survey Unit Areas

Classification	Suggested Area
Class 1	
Structures	up to 100 m^2
Land Areas	up to 2,000 m^2
Class 2	
Structures	100 to 1,000 m^2
Land Areas	2,000 to 10,000 m^2
Class 3	
Structures	no limit
Land Areas	no limit

☞ Survey unit areas should be consistent with exposure pathway modeling assumptions used to develop DCGLs.

Determine Number of Data Points (Section 5.5.2)

The number of data points is determined based on the selection of a statistical test, which in turn is based on whether or not the contaminant is present in background. Figure 3 presents a flow chart for determining the number of data points.

The first step in determining the number of data points is to specify the acceptable decision error rates, α and β. Decision error rates are site-specific and selected using the DQO Process. Changes in the values of α and β may result from successive iterations of the DQO Process.

☞ Values for α and β are site-specific and selected using the DQO Process.

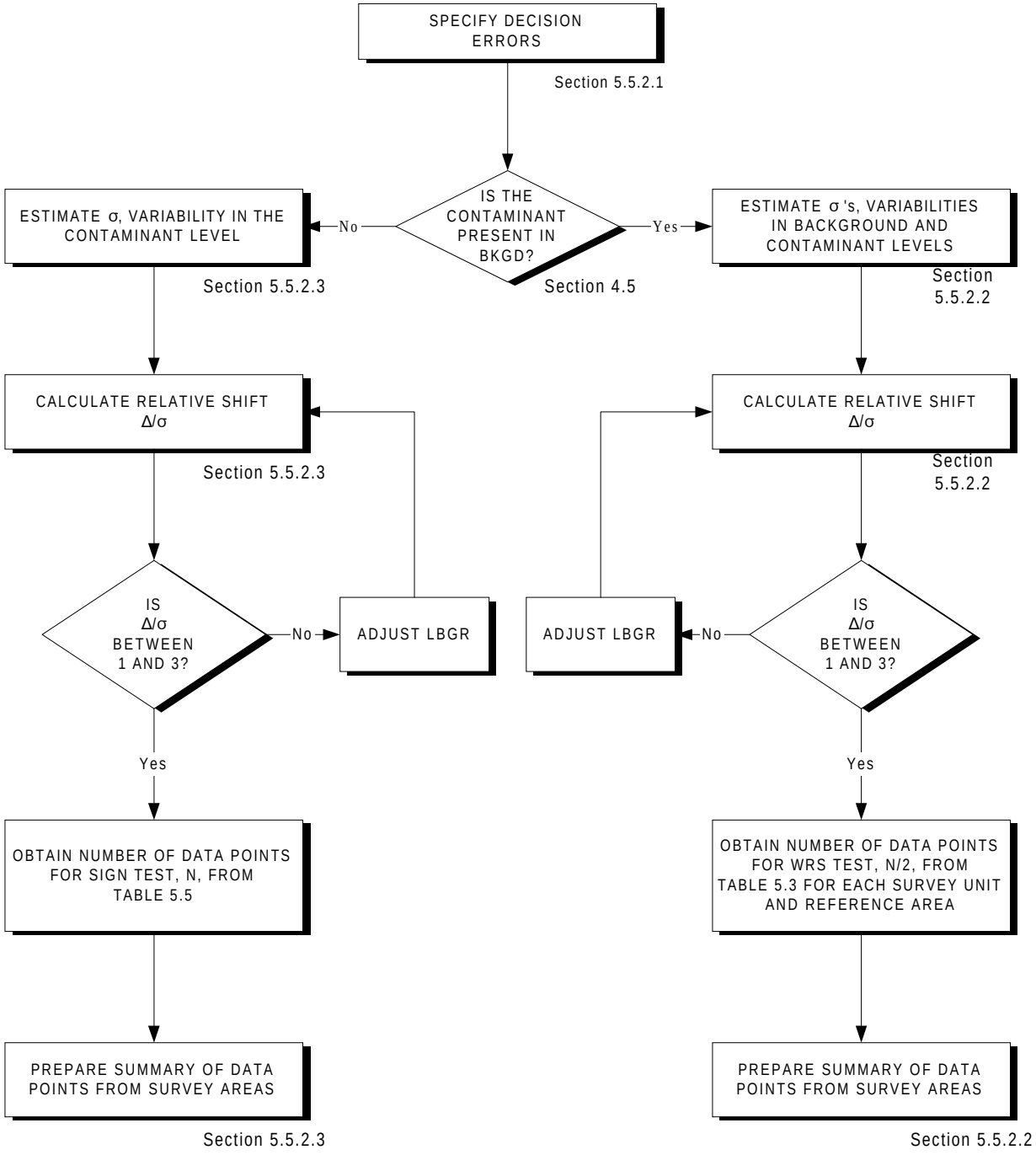

Figure 3 Flow Diagram for Determining the Number of Data Points

The next step, after determining whether or not the contaminant is present in background, is to estimate the variability of the contaminant concentration, σ. The standard deviation of the contaminant concentration determined from the preliminary survey results should provide an appropriate estimate of σ. If the contaminant is present in background, the variability in the survey unit (σ_s) and the variability in the reference area (σ_r) should both be estimated. The larger of the two values should be selected for determining the number of data points. Underestimating σ can underestimate the number of measurements needed to demonstrate compliance with the regulation, which increases the probability the survey unit will fail the statistical test. Overestimating σ can result in collecting more data than is necessary to demonstrate compliance.

☞	It is better to overestimate values of σ_s and σ_r.

☞	When σ_s and σ_r are different, select the larger of the two values.

The third step is to calculate the relative shift, Δ/σ. The variability of the contaminant concentration, σ, was determined in the previous step. The shift, Δ, is equal to the width of the gray region. The upper bound of the gray region is defined as the $DCGL_W$. The lower bound of the gray region (LBGR) is a site-specific parameter, adjusted to provide a value for Δ/σ between one and three. Δ/σ can be adjusted using the following steps:

- Initially select LBGR to equal one half the $DCGL_W$. This means $\Delta = (DCGL_W - LBGR)$ also equals one half the $DCGL_W$. Calculate Δ/σ.
- If Δ/σ is between one and three, obtain the appropriate number of data points from Table 5.3 or Table 5.5.
- If Δ/σ is less than one, select a lower value for LBGR. Continue to select lower values for LBGR until Δ/σ is greater than or equal to one, or until LBGR equals zero.
- If Δ/σ is greater than three, select a higher value for LBGR. Continue to select higher values for LBGR until Δ/σ is less than or equal to three.

Alternatively, Δ/σ can be adjusted by solving the following equation and calculating Δ/σ:

$$LBGR = DCGL_W - \sigma$$

If LBGR is less than zero, Δ/σ can be calculated as $DCGL_W/\sigma$.

☞	Adjust the LBGR to provide a value for Δ/σ between one and three.

The final step in determining the number of data points is to obtain the appropriate value from Table 5.3 or Table 5.5. Table 5.3 provides the number of data points for each survey unit and each reference area when the contaminant is present in background (N/2). Table 5.5 provides the number of data points for each survey unit when the contaminant is not present in background (N).

Select Instrumentation (Section 4.7, Section 6.5.3, Section 7.5, Section 7.7, Appendix H)

Instrumentation or measurement techniques should be selected based on detection sensitivity to provide technically defensible results that meet the objectives of the survey. Because of the uncertainty associated with interpreting scanning results, the detection sensitivity of the selected instruments should be as far below the DCGL as possible. For direct measurements and sample analyses, minimum detectable concentrations (MDCs) less than 10% of the DCGL are preferable while MDCs up to 50% of the DCGL are acceptable.

☞	Estimates of the MDC that minimize potential decision errors should be used for planning surveys.

Develop an Integrated Survey Design (Section 5.5.3)

The integrated survey design combines scanning surveys with direct measurements and sampling. The level of survey effort is determined by the potential for contamination as indicated by the survey unit classification. This is illustrated in Figure 4. Class 3 survey units receive judgmental scanning and randomly located measurements. Class 2 survey units receive scanning over a portion of the survey unit based on the potential for contamination combined with direct measurements and sampling performed on a systematic grid. Class 1 survey units receive scanning over 100% of the survey unit combined with direct measurements and sampling performed on a systematic grid. The grid spacing is adjusted to account for the scan MDC (Section 5.5.2.4).

Table 2 provides a summary of the recommended survey coverage for structures and land areas. Modifications to the example survey designs may be required to account for other contaminated media (*e.g.*, ground water, subsurface soil).

Implementation Phase

The objectives outlined in the QAPP are incorporated into Standard Operating Procedures (SOPs). The final status survey design is carried out in accordance with the SOPs and the QAPP resulting in the generation of raw data. Chapter 6, Chapter 7, and Appendix H provide information on measurement techniques.

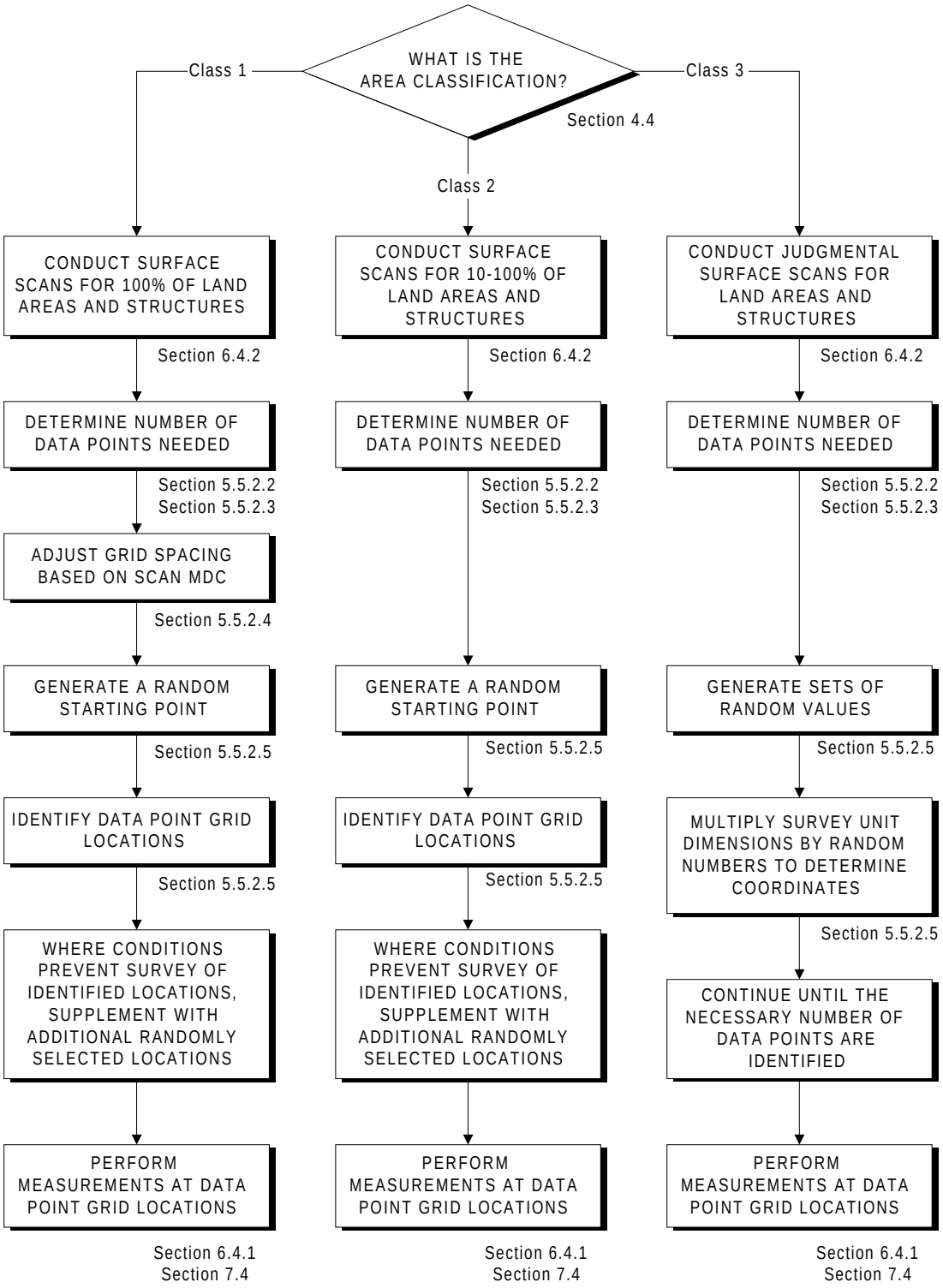

Figure 4 Flow Diagram for Developing an Integrated Survey Design

Table 2 Recommended Survey Coverage for Structures and Land Areas

Area Classification	Structures		Land Areas	
	Surface Scans	Surface Activity Measurements	Surface Scans	Surface Soil Measurements
Class 1	100%	Number of data points from statistical tests (Sections 5.5.2.2 and 5.5.2.3); additional direct measurements and samples may be necessary for small areas of elevated activity (Section 5.5.2.4)	100%	Number of data points from statistical tests (Sections 5.5.2.2 and 5.5.2.3); additional direct measurements and samples may be necessary for small areas of elevated activity (Section 5.5.2.4)
Class 2	10 to 100% (10 to 50% for upper walls and ceilings) Systematic and Judgmental	Number of data points from statistical tests (Sections 5.5.2.2 and 5.5.2.3)	10 to 100% Systematic and Judgmental	Number of data points from statistical tests (Sections 5.5.2.2 and 5.5.2.3)
Class 3	Judgmental	Number of data points from statistical tests (Sections 5.5.2.2 and 5.5.2.3)	Judgmental	Number of data points from statistical tests (Sections 5.5.2.2 and 5.5.2.3)

Assessment Phase

The assessment phase of the Data Life Cycle includes verification and validation of the survey results combined with an assessment of the quantity and quality of the data. As previously stated, both the average level of contamination in the survey unit and the distribution of the contamination within the survey unit are considered during area classification. For this reason, the assessment phase includes a graphical review of the data to provide a visual representation of the radionuclide distribution, an appropriate statistical test to demonstrate compliance for the average concentration of a uniformly distributed radionuclide, and the elevated measurement comparison (EMC) to demonstrate compliance for small areas of elevated activity.

The survey data are verified to ensure that SOPs specified in the survey design were followed and that the measurement systems were performed in accordance with the criteria specified in the QAPP (Section 9.3.1). The data are validated to ensure that the results support the objectives of the survey, as documented in the QAPP, or permit a determination that these objectives should

be modified (Section 9.3.2). The Data Quality Assessment (DQA) process is then applied using the verified and validated data to determine if the quality of the data satisfies the data user's needs. DQA is described in Appendix E and is applied in Chapter 8.

The first step in DQA is to review the DQOs and survey design to ensure that they are still applicable. For example, if the data suggest that a survey unit is misclassified, the DQOs and survey design would be modified for the new classification.

The next step is to conduct a preliminary data review to learn about the structure of the data and to identify patterns, relationships, or potential anomalies. This review should include calculating basic statistical quantities (*i.e.*, mean, standard deviation, median) and graphically presenting the data using at least a histogram and a posting plot. The results of the preliminary data review are also used to verify the assumptions of the tests. Some of the assumptions and possible methods for assessing them are summarized in Table 3. Information on diagnostic tests is provided in Section 8.2 and Appendix I.

Table 3 Methods for Checking the Assumptions of Statistical Tests

Assumption	Diagnostic
Spatial Independence	Posting Plot (Figure 8.1)
Symmetry	Histogram (Figure 8.2) Quantile Plot (Figure I.2)
Data Variance	Sample Standard Deviation (Section 8.2)
Power is Adequate	Retrospective Power Chart (Sign Test, Figure I.5) (WRS Test, Figure I.6)

The final step in interpreting the data is to draw conclusions from the data. Table 4 summarizes the statistical tests recommended in MARSSIM. Section 8.3 provides guidance on performing the Sign test when the contaminant is not present in background. Section 8.4 provides guidance on performing the Wilcoxon Rank Sum (WRS) test when the contaminant is present in background.

Table 4 Summary of Statistical Tests

Radionuclide not in background and radionuclide-specific measurements made:

Survey Result	Conclusion
All measurements less than $DCGL_W$	Survey unit meets release criterion
Average greater than $DCGL_W$	Survey unit does not meet release criterion
Any measurement greater than $DCGL_W$ and the average less than $DCGL_W$	Conduct Sign test and elevated measurement comparison

Radionuclide in background or radionuclide non-specific (gross) measurements made:

Survey Result	Conclusion
Difference between maximum survey unit measurement and minimum reference area measurements is less than $DCGL_W$	Survey unit meets release criterion
Difference of survey unit average and reference area average is greater than $DCGL_W$	Survey unit does not meet release criterion
Difference between any survey unit measurement and any reference area measurement greater than $DCGL_W$ and the difference of survey unit average and reference area average is less than $DCGL_W$	Conduct WRS test and elevated measurement comparison

Table 5 provides examples of final status survey investigation levels for each survey unit classification and type of measurement. For a Class 1 survey unit, measurements above the $DCGL_W$ are not necessarily unexpected. However, a measurement above the $DCGL_W$ at one of the discrete measurement locations might be considered unusual if it were much higher than all of the other discrete measurements. Thus, any discrete measurement that is above both the $DCGL_W$ and the statistical-based parameter for the measurements should be investigated further. Any measurement, either at a discrete location or from a scan, that is above the $DCGL_{EMC}$ should be flagged for further investigation.

In Class 2 or Class 3 areas, neither measurements above the $DCGL_W$ nor areas of elevated activity are expected. Any measurement at a discrete location exceeding the $DCGL_W$ in these areas should be flagged for further investigation. Because the survey design for Class 2 and Class 3 survey units is not driven by the EMC, the scanning MDC might exceed the $DCGL_W$. In this case, any indication of residual radioactivity during the scan would warrant further investigation.

Table 5 Summary of Investigation Levels

Survey Unit Classification	Flag Direct Measurement or Sample Result When:	Flag Scanning Measurement Result When:
Class 1	> $DCGL_{EMC}$ or > $DCGL_W$ and > a statistical-based parameter value	> $DCGL_{EMC}$
Class 2	> $DCGL_W$	> $DCGL_W$ or > MDC
Class 3	> fraction of $DCGL_W$	> $DCGL_W$ or > MDC

Because there is a low expectation for residual radioactivity in a Class 3 area, it may be prudent to investigate any measurement exceeding even a fraction of the $DCGL_W$. The level one chooses here depends on the site, the radionuclides of concern, and the measurement and scanning methods chosen. This level should be set using the DQO Process during the survey design phase of the Data Life Cycle. In some cases, the user may also decide to follow this procedure for Class 2 and even Class 1 survey units.

Both the measurements at discrete locations and the scans are subject to the EMC. The result of the EMC does not in itself lead to a conclusion as to whether the survey unit meets or exceeds the release criterion, but is a flag or trigger for further investigation. The investigation may involve taking further measurements in order to determine that the area and level of the elevated residual radioactivity are such that the resulting dose or risk meets the release criterion.[1] The investigation should also provide adequate assurance that there are no other undiscovered areas of elevated residual radioactivity in the survey unit that might result in a dose exceeding the release criterion. This could lead to a re-classification of all or part of a survey unit—that is, unless the results of the investigation indicate that reclassification is not necessary.

Decision Making Phase

A decision is made, in coordination with the responsible regulatory agency, based on the conclusions drawn from the assessment phase. The results of the EMC are used to demonstrate compliance with the dose- or risk-based regulation for small areas of elevated activity, while the nonparametric statistical tests are used to demonstrate that the average radionuclide concentration in the survey unit complies with the release criterion. The objective is to make technically defensible decisions with a specified level of confidence.

[1] Rather than, or in addition to, taking further measurements, the investigation may involve assessing the adequacy of the exposure pathway model used to obtain the DCGLs and area factors, and the consistency of the results obtained with the Historical Site Assessment and the scoping, characterization, and remedial action support surveys.

The EMC consists of comparing each measurement from the survey unit with the investigation levels in Table 5. The EMC is performed for measurements obtained from the systematic or random sample locations as well as locations flagged by scanning surveys. Any measurement from the survey unit that is equal to or greater than the investigation level indicates an area of relatively higher concentration and is investigated, regardless of the outcome of the nonparametric statistical tests.

☞ Any measurement from the survey unit that is equal to or greater than the investigation level indicates an area of relatively higher concentration and is investigated, regardless of the outcome of the nonparametric statistical tests.

The result of the Sign test or the WRS test is the decision to reject or not to reject the null hypothesis that the survey unit is contaminated above the $DCGL_W$. Provided that the results of any investigations triggered by the EMC have been resolved, a rejection of the null hypothesis leads to the decision that the survey unit meets the release criterion. If necessary, the amount of residual radioactivity in the survey unit can be estimated so that dose or risk calculations can be made. In most cases, the average concentration is the best estimate for the amount of residual radioactivity.

Summary

The roadmap presents a summary of the planning, implementation, assessment, and decision making phases for a final status survey and identifies where guidance on these phases is located in MARSSIM. Each step in the process is described briefly along with references to the sections of MARSSIM to which the user may refer for more detailed guidance. Flow charts are provided to summarize the major steps in the Radiation Survey and Site Investigation Process, again citing appropriate sections of MARSSIM. In addition to providing the user with basic guidance from MARSSIM, the roadmap also includes “rules of thumb” for performing compliance demonstration surveys.

1 INTRODUCTION

1.1 Purpose and Scope of MARSSIM

Radioactive materials have been produced, processed, used, and stored at thousands of sites throughout the United States. Many of these sites—ranging in size from Federal weapons-production facilities covering hundreds of square kilometers to the nuclear medicine departments of small hospitals—were at one time or are now radioactively contaminated.

The owners and managers of a number of sites would like to determine if these sites are contaminated, clean them up if contaminated, and release them for restricted use or for unrestricted public use. The Environmental Protection Agency (EPA), the Nuclear Regulatory Commission (NRC), and the Department of Energy (DOE) are responsible for the release of sites following cleanup. These responsibilities apply to facilities under the control of Federal agencies, such as the DOE and Department of Defense (DOD), and to sites licensed by the NRC and its Agreement States. Some States have responsibilities for similar sites under their control.

The Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) provides a nationally consistent consensus approach to conducting radiation surveys and investigations at potentially contaminated sites. This approach should be both scientifically rigorous and flexible enough to be applied to a diversity of site cleanup conditions. MARSSIM's title includes the term "survey" because it provides information on planning and conducting surveys, and includes the term "site investigation" because the process outlined in the manual allows one to begin by investigating any site (*i.e.*, by gathering data or information) that may involve radioactive contamination.

The decommissioning that follows remediation will normally require a demonstration to the responsible Federal or State agency that the cleanup effort was successful and that the release criterion (a specific regulatory limit) was met. In MARSSIM, this demonstration is given the name "final status survey." This manual assists site personnel or others in performing or assessing such a demonstration. (Generally, MARSSIM may serve to guide or monitor remediation efforts whether or not a release criterion is applied.)

As illustrated in Figure 1.1, the demonstration of compliance with respect to conducting surveys is comprised of three interrelated parts:

I. Translate: Translating the cleanup/release criterion (*e.g.*, mSv/y, mrem/y, specific risk) into a corresponding derived contaminant concentration level (*e.g.*, Bq/kg or pCi/g in soil) through the use of environmental pathway modeling.

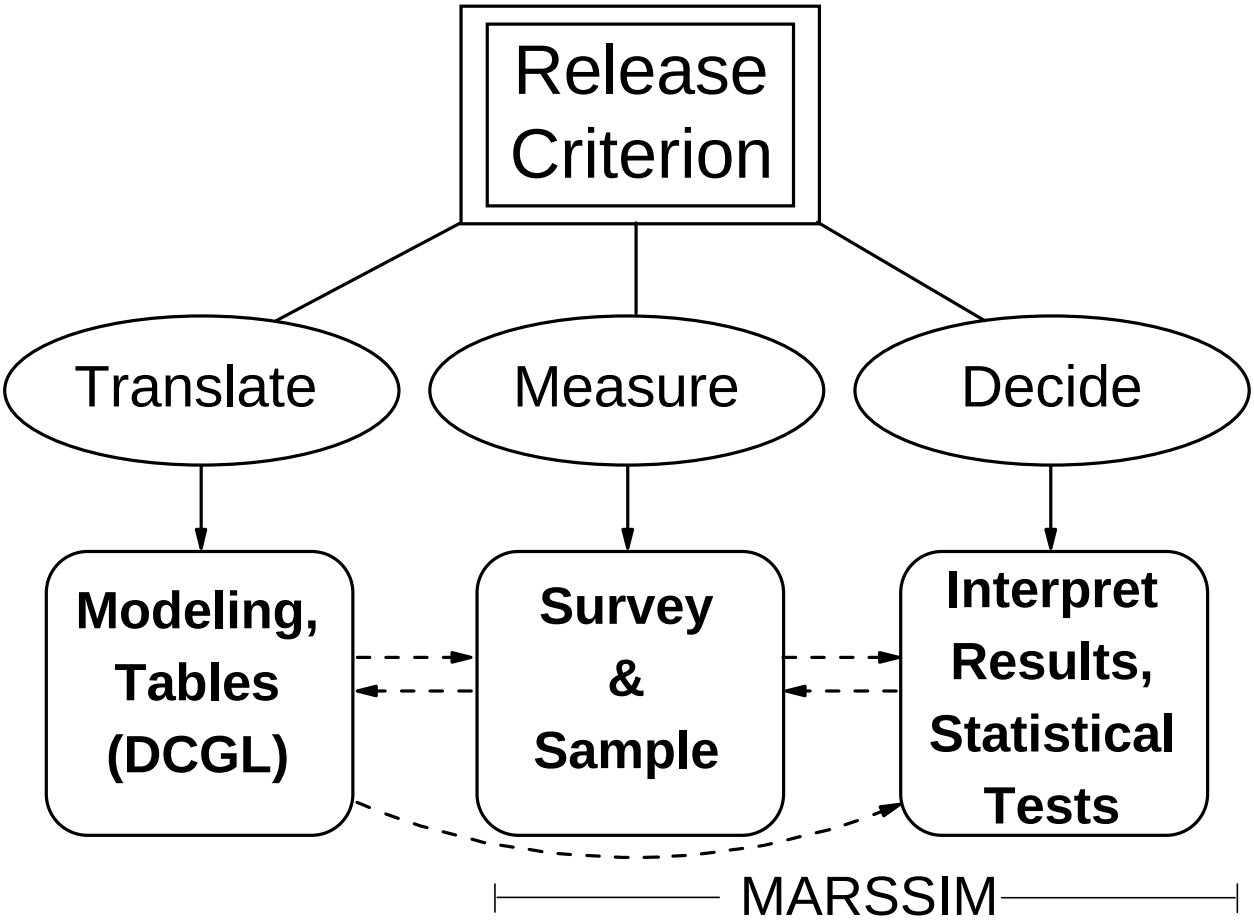

Figure 1.1 Compliance Demonstration

II. Measure: Acquiring scientifically sound and defensible site-specific data on the levels and distribution of residual contamination, as well as levels and distribution of radionuclides present as background, by employing suitable field and/or laboratory measurement techniques.[1]

III. Decide: Determining that the data obtained from sampling does support the assertion that the site meets the release criterion, within an acceptable degree of uncertainty, through application of a statistically based decision rule.

[1] Measurements include field and laboratory analyses, however, MARSSIM leaves detailed discussions of laboratory sample analyses to another manual (*i.e.*, a companion document, the Multi-Agency Radiation Laboratory Analytical Protocols (MARLAP) manual that is currently under development).

MARSSIM presents comprehensive guidance—specifically for II and III above—for contaminated soil and buildings. This guidance describes a performance-based approach for demonstrating compliance with a dose- or risk-based regulation. This approach includes processes that identify data quality needs and may reveal limitations that enter into conducting a survey. The data quality needs stated as Data Quality Objectives (DQOs) include performance measures and goals in relation to a specific intended use of the data (EPA 1997a).

DQOs must be developed on a site-specific basis. However, because of the large variability in the types of radiation sites, it is impossible to provide criteria that apply to every situation. As an example, MARSSIM presents a method for planning, implementing, assessing, and making decisions about regulatory compliance at sites with radioactive contaminants in surface soil and on building surfaces. In particular, MARSSIM describes generally acceptable approaches for:

- planning and designing scoping, characterization, remediation-support, and final status surveys for sites with surface soil and building surface contamination
- Historical Site Assessment (HSA)
- QA/QC in data acquisition and analysis
- conducting surveys
- field and laboratory methods and instrumentation, and interfacing with radiation laboratories
- statistical hypothesis testing, and the interpretation of statistical data
- documentation

Thus, MARSSIM provides standardized and consistent approaches for planning, conducting, evaluating, and documenting environmental radiological surveys, with a specific focus on the final status surveys that are carried out to demonstrate compliance with cleanup regulations. These approaches may not meet the DQOs at every site, so other methods may be used to meet site-specific DQOs, as long as an equivalent level of performance can be demonstrated.

Table 1.1, at the end of Chapter 1, summarizes the scope of MARSSIM. Several issues related to releasing sites are beyond the scope of MARSSIM. These include translation of dose or risk standards into radionuclide specific concentrations, or demonstrating compliance with ground water or surface water regulations. MARSSIM can be applied to surveys performed at vicinity properties—those not under government or licensee control—but the decision to apply the MARSSIM at vicinity properties is outside the scope of MARSSIM. Other contaminated media (*e.g.*, sub-surface soil, building materials, ground water) and the release of contaminated components and equipment are also not addressed by MARSSIM. With MARSSIM's main focus on final status surveys, this manual continues a process of following remediation activities that are intended to remove below-surface contaminants. Therefore, some of the reasons for limiting the scope of the guidance to contaminated surface soils and building surfaces include: 1) contamination is limited to these media for many sites following remediation, 2) since many

sites have surface soil and building surface contamination as the leading source of contamination, existing computer models used for calculating the concentrations based on dose or risk generally consider only surface soils or building surfaces as a source term, and 3) MARSSIM was written in support of cleanup rulemaking efforts for which supporting data are mostly limited to contaminated surface soil and building surfaces.

MARSSIM also recognizes that there may be other factors, such as cost or stakeholder concerns, that have an impact on designing surveys. Guidance on how to address these specific concerns is outside the scope of MARSSIM. Unique site-specific cases may arise that require a modified approach beyond what is presently described in MARSSIM. This includes examples such as: 1) the release of sites contaminated with naturally occurring radionuclides in which the concentrations corresponding to the release criteria are close to the variability of the background and 2) sites where a reference background cannot be established. However, the process of planning, implementing, assessing, and making decisions about a site described in MARSSIM is applicable to all sites, even if the examples in this manual do not meet a site's specific objectives.

Of MARSSIM's many topics, the Data Quality Objective (DQO) approach to data acquisition and analysis and the Data Quality Assessment (DQA) for determining that data meet stated objectives are two elements that are a consistent theme throughout the manual. The DQO Process and DQA approach, described in Chapter 2, present a method for building common sense and the scientific method into all aspects of designing and conducting surveys, and making best use of the obtainable information. This becomes a formal framework for systematizing the planning of data acquisition surveys so that the data sought yield the kind of information actually needed for making important decisions—such as whether or not to release a particular site following remediation.

1.2 Structure of the Manual

MARSSIM begins with the overview of the Radiation Survey and Site Investigation Process in Chapter 2—Figures 2.4 through 2.8 are flowcharts that summarize the steps and decisions taken in the process. Chapter 3 provides instructions for performing an Historical Site Assessment (HSA)—a detailed investigation to collect existing information on the site or facility and to develop a conceptual site model. The results of the HSA are used to plan surveys, perform measurements, and collect additional information at the site. Chapter 4 covers issues that arise in all types of surveys. Detailed information on performing specific types of surveys is included in Chapter 5. Guidance on selecting the appropriate instruments and measurement techniques for each type of measurement is in Chapters 6 and 7. Chapter 6 discusses direct measurements and scanning surveys, and Chapter 7 discusses sampling and sample preparation for laboratory measurements. The interpretation of survey results is described in Chapter 8. Chapter 9 provides guidance on data management, quality assurance (QA), and quality control (QC). Information on specific subjects related to radiation site investigation can be found in the appendices.

MARSSIM contains several appendices to provide additional guidance on specific topics. Appendix A presents an example of how to apply the MARSSIM guidance to a specific site. Appendix B describes a simplified procedure for compliance demonstration that may be applicable at certain types of sites. Appendix C summarizes the regulations and requirements associated with radiation surveys and site investigations for each of the agencies involved in the development of MARSSIM. Detailed guidance on the DQO Process is in Appendix D, and Appendix E has guidance on DQA. Appendix F describes the relationships among MARSSIM, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the Resource Conservation and Recovery Act (RCRA). Sources of information used during site assessment are listed in Appendix G. Appendix H describes field survey and laboratory analysis equipment that may be used for radiation surveys and site investigations. Appendix I offers tables of statistical data and supporting information for interpreting survey results described in Chapter 8. The derivation of the alpha scanning detection limit calculations used in Chapter 6 is described in Appendix J. Comparison tables for QA documents are in Appendix K. Appendix L lists the regional radiation program managers for each of the agencies participating in the development of MARSSIM. Appendix M lists publications that serve as resources describing sampling methods. Information on data validation is provided in Appendix N.

MARSSIM is presented in a modular format, with each module containing guidance on conducting specific aspects of, or activities related to, the survey process. Followed in order, each module leads to the generation and implementation of a complete survey plan. Although this approach may involve some overlap and redundancy in information, it also allows many users to concentrate only on those portions of the manual that apply to their own particular needs or responsibilities. The procedures within each module are listed in order of performance and options are provided to guide a user past portions of the manual that may not be specifically applicable to the user's area of interest. Where appropriate, checklists condense and summarize major points in the process. The checklists may be used to verify that every suggested step is followed or to flag a condition in which specific documentation should explain why a step was not needed.

Also included in the manual is a section titled Roadmap. The roadmap is designed to be used with MARSSIM as a quick reference for users already familiar with the process of planning and performing radiation surveys. The roadmap gives the user basic guidance, rules of thumb, and references to sections in the manual containing detailed guidance.

MARSSIM, which is based on a graded approach, also contains a simplified procedure (see Appendix B) that many users of radioactive materials may—with the approval of the responsible regulatory agency—be able to employ to demonstrate compliance with the release criterion. Sites that may qualify for simplified release procedures are those in which the radioactive materials used were 1) of relatively short half-life (*e.g.*, $t_{1/2} \leq 120$ days) and have since decayed to insignificant quantities, 2) kept only in small enough quantities so as to be exempted or not

requiring a specific license from a regulatory authority, 3) used or stored only in the form of non-leaking sealed sources, or 4) combinations of the above.

1.3 Use of the Manual

Potential users of this manual are Federal, State, and local government agencies having authority for control of radioactive environmental contamination; their contractors; and other parties, such as organizations with licensed authority to possess and use radioactive materials. The manual is intended for a technical audience having knowledge of radiation health physics and an understanding of statistics as well as experience with the practical applications of radiation protection. An understanding of instrumentation and methodologies and expertise in planning, approving, and implementing surveys of environmental levels of radioactive material is assumed. This manual has been written so that individuals responsible for planning, approving, and implementing radiological surveys will be able to understand and apply the guidance provided here. Certain situations and sites may require consultation with more experienced personnel.

MARSSIM provides guidance for conducting radiation surveys and site investigations. MARSSIM uses the word "should" as a recommendation, that ought not be interpreted as a requirement. The reader need not expect that every recommendation in this manual will be taken literally and applied at every site. Rather, it is expected that the survey planning documentation will address how the guidance will be applied on a site-specific basis.

As previously stated, MARSSIM supports implementation of dose- or risk-based regulations. The translation of the regulatory dose limit to a corresponding concentration level is not addressed in MARSSIM, so the guidance in this manual is applicable to a broad range of regulations, including risk- or concentration-based regulations. The terms dose and dose-based regulation are used throughout the manual, but these terms are not intended to limit the use of the manual.

Note that Federal or State agencies that can approve a demonstration of compliance may support requirements that differ from what is presented in this version of MARSSIM . *It is essential*, therefore, *that the persons carrying out the surveys*, whether they are conducting surveys in accordance with the simplified approach of Appendix B or the full MARSSIM process, *remain in close communication with the proper Federal or State authorities throughout the compliance demonstration process*.

1.4 Missions of the Federal Agencies Producing MARSSIM

MARSSIM is the product of a multi-agency workgroup with representatives from EPA, NRC, DOE, and DOD. This section briefly describes the missions of the participating agencies. Regulations and requirements governing site investigations for each of the agencies associated with radiation surveys and site investigations are presented in Appendix C.

1.4.1 Environmental Protection Agency

The mission of the U.S. Environmental Protection Agency (EPA) is to improve and preserve the quality of the environment, on both national and global levels. The EPA's scope of responsibility includes implementing and enforcing environmental laws, setting guidelines, monitoring pollution, performing research, and promoting pollution prevention. EPA Headquarters maintains overall planning, coordination, and control of EPA programs, and EPA's ten regional offices are responsible for executing EPA's programs within the boundaries of each region. EPA also coordinates with, and supports research and development of, pollution control activities carried out by State and local governments.

1.4.2 Nuclear Regulatory Commission

The mission of the U.S. Nuclear Regulatory Commission (NRC) is to ensure adequate protection of public health and safety, the common defense and security, and the environment in the use of certain radioactive materials in the United States. The NRC's scope of responsibility includes regulation of commercial nuclear power reactors; non-power research, test, and training reactors; fuel cycle facilities; medical, academic, and industrial uses of nuclear materials; and the transport, storage, and disposal of nuclear materials and waste. The Energy Reorganization Act of 1974 and the Atomic Energy Act of 1954, as amended, provide the foundation for regulation of the Nation's commercial use of radioactive materials.

1.4.3 Department of Energy

The mission of the Department of Energy (DOE) is to develop and implement a coordinated national energy policy to ensure the availability of adequate energy supplies and to develop new energy sources for domestic and commercial use. In addition, DOE is responsible for the development, construction and testing of nuclear weapons for the U.S. Military. DOE is also responsible for managing the low- and high-level radioactive wastes generated by past nuclear weapons and research programs and for constructing and maintaining a repository for civilian radioactive wastes generated by the commercial nuclear reactors. DOE has the lead in decontaminating facilities and sites previously used in atomic energy programs.

1.4.4 Department of Defense

The global mission of the Department of Defense (DOD) is to provide for the defense of the United States. In doing this, DOD is committed to protecting the environment. Each military service has specific regulations addressing the use of radioactive sources and the development of occupational health programs and radiation protection programs. The documents describing these regulations are used as guidance in developing environmental radiological surveys within DOD and are discussed in Appendix C.

Table 1.1 Scope of MARSSIM

Within Scope of MARSSIM		Beyond Scope of MARSSIM	
Guidance	MARSSIM provides technical guidance on conducting radiation surveys and site investigations.	*Regulation*	MARSSIM does not set new regulations or non-technical issues (*e.g.*, legal or policy) for site cleanup. Release criterion will be provided rather than calculated using MARSSIM.
Tool Box	MARSSIM can be thought of as an extensive tool box with many components—some within the text of MARSSIM, others by reference.	*Tool Box*	Many topics are beyond the scope of MARSSIM, for example: -a public participation program -packaging and transportation of wastes for disposal -decontamination and stabilization techniques -training
Measurement	The guidance given in MARSSIM is performance-based and directed towards acquiring site-specific data.	*Procedure*	The approaches suggested in MARSSIM vary depending on the various site data needs—there are no set procedures for sample collection, measurement techniques, storage and disposal established in MARSSIM.
Modeling	The interface between environmental pathway modeling and MARSSIM is an important survey design consideration addressed in MARSSIM.	*Modeling*	Environmental pathway modeling and ecological endpoints in modeling are beyond the scope of MARSSIM.

Table 1.1 Scope of MARSSIM (continued)

Within Scope of MARSSIM		Beyond Scope of MARSSIM	
Soil and Buildings	The two main media of interest in MARSSIM are contaminated surface soil and building surfaces.	*Other Media*	MARSSIM does not cover other media, including construction materials, equipment, subsurface soil, surface or subsurface water, biota, air, sewers, sediments or volumetric contamination.
Final Status Survey	The focus of MARSSIM is on the final status survey as this is the deciding factor in judging if the site meets the release criterion.	*Materials or Equipment*	MARSSIM does not recommend the use of any specific materials or equipment—there is too much variability in the types of radiation sites—this information will be in other documents.
Radiation	MARSSIM only considers radiation-derived hazards.	*Chemicals*	MARSSIM does not deal with any hazards posed by chemical contamination.
Remediation Method	MARSSIM assists users in determining when sites are ready for a final status survey and provides guidance on how to determine if remediation was successful.	*Remediation Method*	MARSSIM does not discuss selection and evaluation of remedial alternatives, public involvement, legal considerations, policy decisions related to planning
DQO Process	MARSSIM presents a systemized approach for designing surveys to collect data needed for making decisions such as whether or not to release a site.	*DQO Process*	MARSSIM does not provide prescriptive or default values of DQOs.
DQA	MARSSIM provides a set of statistical tests for evaluating data and lists alternate tests that may be applicable at specific sites.	*DQA*	MARSSIM does not prescribe a statistical test for use at all sites.

2 OVERVIEW OF THE RADIATION SURVEY AND SITE INVESTIGATION PROCESS

2.1 Introduction

This chapter provides a brief overview of the Radiation Survey and Site Investigation (RSSI) Process, several important aspects of this Process, and its underlying principles. The concepts introduced here are discussed in detail throughout the manual.

The purpose of MARSSIM is to provide a standardized approach to demonstrating compliance with a dose- or risk-based regulation. Since most of the manual is based on general technical and statistical concepts, much of the guidance can still be applied to other types of regulations or standards. The purpose of this chapter is to provide the overview information required to understand the rest of this manual.

Section 2.2 introduces and defines key terms used throughout the manual. Some of these terms may be familiar to the MARSSIM user, while others are new terms developed specifically for this manual.

Section 2.3 describes the flow of information used to decide whether or not a site or facility complies with a regulation. The section describes the framework that is used to demonstrate compliance with a regulation, and is the basis for all guidance presented in this manual. The decision-making process is broken down into four phases: 1) planning, 2) implementation, 3) assessment, and 4) decision making.

Section 2.4 introduces the Radiation Survey and Site Investigation Process, which can be used for compliance demonstration at many sites. The section describes a series of surveys that combine to form the core of this process. Each survey has specified goals and objectives to support a final decision on whether or not a site or facility complies with the appropriate regulations. Flow diagrams showing how the different surveys support the overall process are provided, along with descriptions of the information provided by each type of survey.

Section 2.5 presents major considerations that relate to the decision-making and survey-design processes. This section, as well as the examples discussed in detail throughout the manual, focuses on residual radioactive contamination in surface soils and on building surfaces. Recommended survey designs for demonstrating compliance are presented along with the rationale for selecting these designs.

Section 2.6 recognizes that the methods presented in MARSSIM may not represent the optimal survey design at all sites. Some alternate methods for applying the Radiation Survey and Site Investigation process are discussed. Different methods for demonstrating compliance that are technically defensible may be developed with the approval of the responsible regulatory agency.

MARSSIM provides an approach that is technically defensible and flexible enough to be applied to a variety of site-specific conditions. Applying this guidance to a dose- or risk-based regulation provides a consistent approach to protecting human health and the environment. The manual's performance-based approach to decision making provides the flexibility needed to address compliance demonstration at individual sites.

2.2 Understanding Key MARSSIM Terminology

The first step in understanding the Radiation Survey and Site Investigation (RSSI) Process is accomplished by understanding the scope of this manual, the terminology, and the concepts set forth. Some of the terms used in MARSSIM were developed for the purposes of this manual, while other commonly used terms are also adopted for use in MARSSIM. This section explains some of the terms roughly in the order of their presentation in the manual.

The process described in MARSSIM begins with the premise that a release criterion has already been provided in terms of a measurement quantity. The methods presented in MARSSIM are generally applicable and are not dependent on the value of the release criterion.

A *release criterion* is a regulatory limit expressed in terms of dose (mSv/y or mrem/y) or risk (cancer incidence or cancer mortality). The terms release limit or cleanup standard are also used to describe this term. A release criterion is typically based on the total effective dose equivalent (TEDE), the committed effective dose equivalent (CEDE), risk of cancer incidence (morbidity), or risk of cancer death (mortality) and generally cannot be measured directly. *Exposure pathway modeling* is used to calculate a radionuclide-specific predicted concentration or surface area concentration of specific nuclides that could result in a dose (TEDE or CEDE) or specific risk equal to the release criterion. In this manual, such a concentration is termed the *derived concentration guideline level (DCGL)*. Exposure pathway modeling is an analysis of various exposure pathways and scenarios used to convert dose or risk into concentration. In many cases DCGLs can be obtained from responsible regulatory agency guidance based on default modeling input parameters, while other users may elect to take into account site-specific parameters to determine DCGLs. In general, the units for the DCGL are the same as the units for measurements performed to demonstrate compliance (*e.g.*, Bq/kg or pCi/g, Bq/m^2 or dpm/100 cm^2). This allows direct comparisons between the survey results and the DCGL. A discussion of the uncertainty associated with using DCGLs to demonstrate compliance is included in Appendix D, Section D.6.

An *investigation level* is a radionuclide-specific level based on the release criterion that, if exceeded, triggers some response such as further investigation or remediation. An investigation level may be used early in decommissioning to identify areas requiring further investigation, and may also be used as a screening tool during compliance demonstration to identify potential problem areas. A DCGL is an example of a specific investigation level.

While the derivation of DCGLs is outside the scope of MARSSIM, it is important to understand the assumptions that underlie this derivation. The derivation assumptions must be consistent with those used for planning a compliance demonstration survey. One of the most important assumptions used for converting a dose or risk limit into a media-specific concentration is the modeled area of contamination. Other considerations include sample depth, composition, modeling parameters, and exposure scenarios. MARSSIM defines two potential DCGLs based on the area of contamination.

- If the residual radioactivity is evenly distributed over a large area, MARSSIM looks at the average activity over the entire area. The $DCGL_W$[1] (the DCGL used for the statistical tests, see Section 2.5.1.2) is derived based on an average concentration over a large area.

- If the residual radioactivity appears as small areas of elevated activity[2] within a larger area, typically smaller than the area between measurement locations, MARSSIM considers the results of individual measurements. The $DCGL_{EMC}$ (the DCGL used for the elevated measurement comparison (EMC), see Section 2.5.3 and Section 2.5.4) is derived separately for these small areas and generally from different exposure assumptions than those used for larger areas.

A *site* is any installation, facility, or discrete, physically separate parcel of land, or any building or structure or portion thereof, that is being considered for survey and investigation.

Area is a very general term that refers to any portion of a site, up to and including the entire site.

Decommissioning is the process of safely removing a site from service, reducing residual radioactivity through remediation to a level that permits release of the property, and termination of the license or other authorization for site operation. Although only part of the process, the term decommissioning is used in this sense for the Radiation Survey and Site Investigation (RSSI) Process, and is used this way throughout MARSSIM.

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[1] The "W" in $DCGL_W$ stands for Wilcoxon Rank Sum test, which is the statistical test recommended in MARSSIM for demonstrating compliance when the contaminant is present in background. The Sign test recommended for demonstrating compliance when the contaminant is not present in background also uses the $DCGL_W$.

[2] A small area of elevated activity, or maximum point estimate of contamination, might also be referred to as a "hot spot." This term has been purposefully omitted from MARSSIM because the term often has different meanings based on operational or local program concerns. As a result, there may be problems associated with defining the term and reeducating MARSSIM users in the proper use of the term. Because these implications are inconsistent with MARSSIM concepts, the term is not used.

A *survey unit* is a physical area consisting of structure or land areas of specified size and shape for which a separate decision will be made as to whether or not that area exceeds the release criterion. This decision is made as a result of the *final status survey*—the survey in the RSSI Process used to demonstrate compliance with the regulation or standard. The size and shape of the survey unit are based on factors, such as the potential for contamination, the expected distribution of contamination, and any physical boundaries (*e.g.*, buildings, fences, soil type, surface water body) at the site.

For MARSSIM, *measurement* is used interchangeably to mean: 1) the act of using a detector to determine the level or quantity of radioactivity on a surface or in a sample of material removed from a media being evaluated, or 2) the quantity obtained by the act of measuring. *Direct measurements* are obtained by placing a detector near the media being surveyed and inferring the radioactivity level directly from the detector response. *Scanning* is a measurement technique performed by moving a portable radiation detector at a constant speed above a surface to semi-quantitatively detect areas of elevated activity. *Sampling* is the process of collecting a portion of an environmental medium as being representative of the locally remaining medium. The collected portion, or aliquot, of the medium is then analyzed to identify the contaminant and determine the concentration. The word sample may also refer to a set of individual measurements drawn from a population whose properties are studied to gain information about the entire population. This second definition of sample is primarily used for statistical discussions.

To make the best use of resources for decommissioning, MARSSIM places greater survey efforts on areas that have, or had, the highest potential for contamination. This is referred to as a *graded approach*. The final status survey uses statistical tests to support decision making. These statistical tests are performed using survey data from areas with common characteristics, such as contamination potential, which are distinguishable from other areas with different characteristics. *Classification* is the process by which an area or survey unit is described according to radiological characteristics. The significance of survey unit classification is that this process determines the final status survey design and the procedures used to develop this design. Preliminary area classifications, made earlier in the MARSSIM Process, are useful for planning subsequent surveys.

Areas that have no reasonable potential for residual contamination are classified as *non-impacted areas*. These areas have no radiological impact from site operations and are typically identified early in decommissioning. Areas with reasonable potential for residual contamination are classified as *impacted areas*.

Impacted areas are further divided into one of three classifications:

- *Class 1 Areas*: Areas that have, or had prior to remediation, a potential for radioactive contamination (based on site operating history) or known contamination (based on previous radiation surveys) above the $DCGL_W$. Examples of Class 1 areas include: 1) site areas previously subjected to remedial actions[3], 2) locations where leaks or spills are known to have occurred, 3) former burial or disposal sites, 4) waste storage sites, and 5) areas with contaminants in discrete solid pieces of material and high specific activity.

- *Class 2 Areas*: Areas that have, or had prior to remediation, a potential for radioactive contamination or known contamination, but are not expected to exceed the $DCGL_W$. To justify changing the classification from Class 1 to Class 2, there should be measurement data that provides a high degree of confidence that no individual measurement would exceed the $DCGL_W$. Other justifications for reclassifying an area as Class 2 may be appropriate, based on site-specific considerations. Examples of areas that might be classified as Class 2 for the final status survey include: 1) locations where radioactive materials were present in an unsealed form, 2) potentially contaminated transport routes, 3) areas downwind from stack release points, 4) upper walls and ceilings of buildings or rooms subjected to airborne radioactivity, 5) areas handling low concentrations of radioactive materials, and 6) areas on the perimeter of former contamination control areas.

- *Class 3 Areas*: Any impacted areas that are not expected to contain any residual radioactivity, or are expected to contain levels of residual radioactivity at a small fraction of the $DCGL_W$, based on site operating history and previous radiation surveys. Examples of areas that might be classified as Class 3 include buffer zones around Class 1 or Class 2 areas, and areas with very low potential for residual contamination but insufficient information to justify a non-impacted classification.

Class 1 areas have the greatest potential for contamination and therefore receive the highest degree of survey effort for the final status survey using a graded approach, followed by Class 2, and then by Class 3. Non-impacted areas do not receive any level of survey coverage because they have no potential for residual contamination. Non-impacted areas are determined on a site-specific basis. Examples of areas that would be non-impacted rather than impacted usually include residential or other buildings that have or had nothing more than smoke detectors or exit signs with sealed radioactive sources.

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[3] Remediated areas are identified as Class 1 areas because the remediation process often results in less than 100% removal of the contamination, even though the goal of remediation is to comply with regulatory standards and protect human health and the environment. The contamination that remains on the site after remediation is often associated with relatively small areas with elevated levels of residual radioactivity. This results in a non-uniform distribution of the radionuclide and a Class 1 classification. If an area is expected to have no potential to exceed the $DCGL_W$ and was remediated to demonstrate the residual radioactivity is as low as reasonably achievable (ALARA), the remediated area might be classified as Class 2 for the final status survey.

If the radionuclide of potential concern is present in background, or if the measurement system used to determine concentration in the survey unit is not radionuclide-specific, background measurements are compared to the survey unit measurements to determine the level of residual radioactivity. The *background reference area* is a geographical area from which representative reference measurements are performed for comparison with measurements performed in specific survey units. The background reference area is defined as an area that has similar physical, chemical, radiological, and biological characteristics as the survey unit(s) being investigated but has not been contaminated by site activities (*i.e.*, non-impacted).

The process of planning the survey, implementing the survey plan, and assessing the survey results prior to making a decision is called the *Data Life Cycle*. Survey planning uses the *Data Quality Objectives (DQO) Process* to ensure that the survey results are of sufficient quality and quantity to support the final decision. *Quality Assurance and Quality Control (QA/QC)* procedures are performed during implementation of the survey plan to collect information necessary to evaluate the survey results. *Data Quality Assessment* (DQA) is the process of assessing the survey results, determining that the quality of the data satisfies the objectives of the survey, and interpreting the survey results as they apply to the decision being made.

A systematic process and structure for quality should be established to provide confidence in the quality and quantity of data collected to support decision making. The data used in decision making should be supported by a planning document that records how quality assurance and quality control are applied to obtain type and quality of results that are needed and expected. There are several terms used to describe a variety of planning documents, some of which document only a small part of the survey design process. MARRSIM uses the term *Quality Assurance Project Plan* (QAPP) to describe a single document that incorporates all of the elements of the survey design. This term is consistent with consensus guidance ANSI/ASQC E4-1994 (ASQC 1995) and EPA guidance (EPA 1994c; EPA 1997a), and is recommended to promote consistency. The use of the term QAPP in MARSSIM does not exclude the use of other terms (*e.g.*, Decommissioning Plan, Sampling and Analysis Plan, Field Sampling Plan) to describe survey documentation provided the information included in the documentation supports the objectives of the survey.

2.3 Making Decisions Based on Survey Results

Compliance demonstration is simply a decision as to whether or not a survey unit meets the release criterion. For most sites this decision is based on the results of one or more surveys. When survey results are used to support a decision, the decision maker[4] needs to ensure that the

[4] The term decision maker is used throughout this section to describe the person, team, board, or committee responsible for the final decision regarding disposition of the survey unit.

data will support that decision with satisfactory confidence. Usually a decision maker will make a correct decision after evaluating the data. However, since uncertainty in the survey results is unavoidable, the possibility of errors in decisions supported by survey results is unavoidable. For this reason, positive actions must be taken to manage the uncertainty in the survey results so that sound, defensible decisions may be made. These actions include proper survey planning to control known causes of uncertainty, proper application of quality control (QC) procedures during implementation of the survey plan to detect and control significant sources of error , and careful analysis of uncertainty before the data are used to support decision making. These actions describe the flow of data throughout each type of survey, and are combined in the Data Life Cycle as shown in Figure 2.1.

There are four phases of the Data Life Cycle:

- *Planning Phase*. The survey design is developed and documented using the Data Quality Objectives (DQO) Process. Quality assurance and quality control (QA/QC) procedures are developed and documented in the Quality Assurance Project Plan (QAPP). The QAPP is the principal product of the planning process which incorporates the DQOs as it integrates all technical and quality aspects for the life cycle of the project, including planning, implementation, and assessment. The QAPP documents planning results for survey operations and provides a specific format for obtaining the type and quality of data needed for decision making. The QAPP elements are presented in an order corresponding to the Data Life Cycle by grouping them into two types of elements: 1) project management; and 2) collection and evaluation of environmental data (ASQC 1995). The DQO process is described in Appendix D, and applied in Chapters 3, 4, and 5 of this manual. Development of the QAPP is described in Section 9.2 and applied throughout decommissioning.

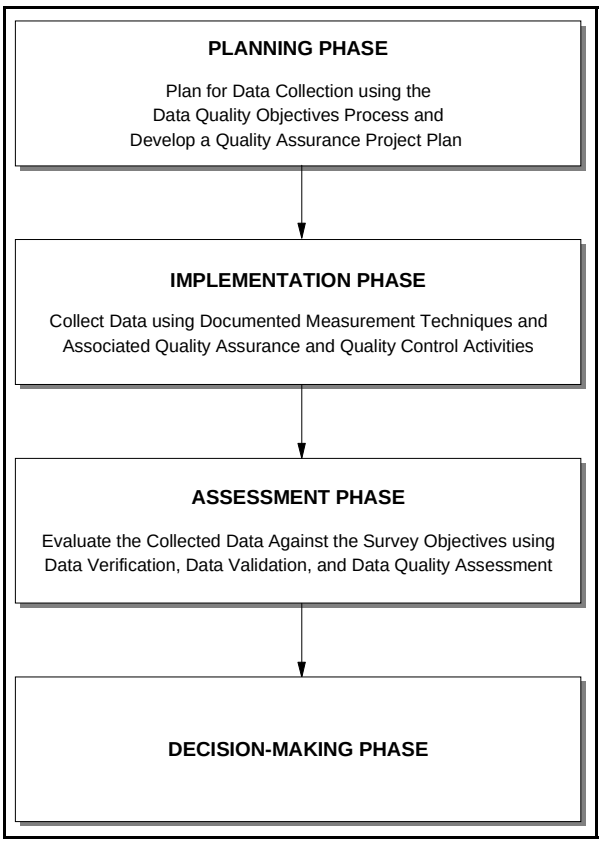


Figure 2.1 The Data Life Cycle

- *Implementation Phase*. The survey design is carried out in accordance with the SOPs and QAPP, resulting in the generation of raw data. Chapter 6, Chapter 7, and Appendix H provide information on the selection of data collection techniques. The QA and QC measurements, discussed in Chapter 6 and Chapter 7, also generate data and other important information that will be used during the Assessment Phase.

- *Assessment Phase*. The data generated during the Implementation Phase are first verified to ensure that the SOPs specified in the QAPP were actually followed and that the measurement systems performed in accordance with the criteria specified in the QAPP. Then the data are validated to ensure that the results of data collection activities support the objectives of the survey as documented in the QAPP, or permit a determination that these objectives should be modified. The data quality assessment (DQA) process is then applied using the validated data to determine if the quality of the data satisfies the data user's needs. Data verification and validation are described in Section 9.3. The DQA process is described in Appendix E and is applied in Chapter 8.

- *Decision-Making Phase*. A decision is made, in coordination with the responsible regulatory agency, based on the conclusions drawn from the assessment process. The ultimate objective is to make technically defensible decisions with a specified level of confidence (Chapter 8).

2.3.1 Planning Effective Surveys—Planning Phase

The first step in designing effective surveys is planning. The DQO Process is a series of planning steps based on the scientific method for establishing criteria for data quality and developing survey designs (ASQC 1995, EPA 1994a, EPA 1987b, EPA 1987c). Planning radiation surveys using the DQO Process improves the survey effectiveness and efficiency, and thereby the defensibility of decisions. This minimizes expenditures related to data collection by eliminating unnecessary, duplicative, or overly precise data. Using the DQO Process ensures that the type, quantity, and quality of environmental data used in decision making will be appropriate for the intended application. MARSSIM supports the use of the DQO Process to design surveys for input to both evaluation techniques (elevated measurement comparison and the statistical test). The DQO Process provides systematic procedures for defining the criteria that the survey design should satisfy, including what type of measurements to perform, when and where to perform measurements, the level of decision errors for the survey, and how many measurements to perform.

The level of effort associated with planning a survey is based on the complexity of the survey. Large, complicated sites generally receive a significant amount of effort during the planning phase, while smaller sites may not require as much planning. This graded approach defines data quality requirements according to the type of survey being designed, the risk of making a

decision error based on the data collected, and the consequences of making such an error. This approach provides a more effective survey design combined with a basis for judging the usability of the data collected.

DQOs are qualitative and quantitative statements derived from the outputs of the DQO Process that:

- clarify the study objective
- define the most appropriate type of data to collect
- determine the most appropriate conditions for collecting the data
- specify limits on decision errors which will be used as the basis for establishing the quantity and quality of data needed to support the decision

The DQO Process consists of seven steps, as shown in Figure 2.2. Each step is discussed in detail in Appendix D. While all of the outputs of the DQO Process are important for designing efficient surveys, there are some that are referred to throughout the manual. These DQOs are mentioned briefly here, and are discussed in detail throughout MARSSIM and in Appendix D.

The minimum information (outputs) required from the DQO Process to proceed with the methods described in MARSSIM are:

- classify and specify boundaries of survey units: this can be accomplished at any time, but must be finalized during final status survey planning (Section 4.4, Section 4.6)
- state the null hypothesis (H_0): the residual radioactivity in the survey unit exceeds the release criterion (Section 2.5, Appendix D, Section D.6)
- specify a gray region where the consequences of decision errors are relatively minor: the upper bound of the gray region is defined as the $DCGL_W$, and the lower bound of the gray region (LBGR) is a site-specific variable generally initially selected to equal one half the $DCGL_W$ and adjusted to provide an acceptable value for the relative shift (Section 5.5.2.2, Section 5.5.2.3, Appendix D, Section D.6)
- define Type I and Type II decision errors and assign probability limits for the occurrence of these errors: the probability of making a Type I decision error (α) or a Type II decision error (β) are site-specific variables (Section 5.5.2.2, Section 5.5.2.3, Appendix D, Section D.6)
- estimate the standard deviation of the measurements in the survey unit: the standard deviation (σ) is a site-specific variable, typically estimated from preliminary survey data (Section 5.5.2.2, Section 5.5.2.3)
- specify the relative shift: the shift (Δ) is equal to the width of the gray region ($DCGL_W$ - LBGR), and the relative shift is defined as Δ/σ, which is generally designed to have a value between one and three (Section 5.5.2.2, Section 5.5.2.3)

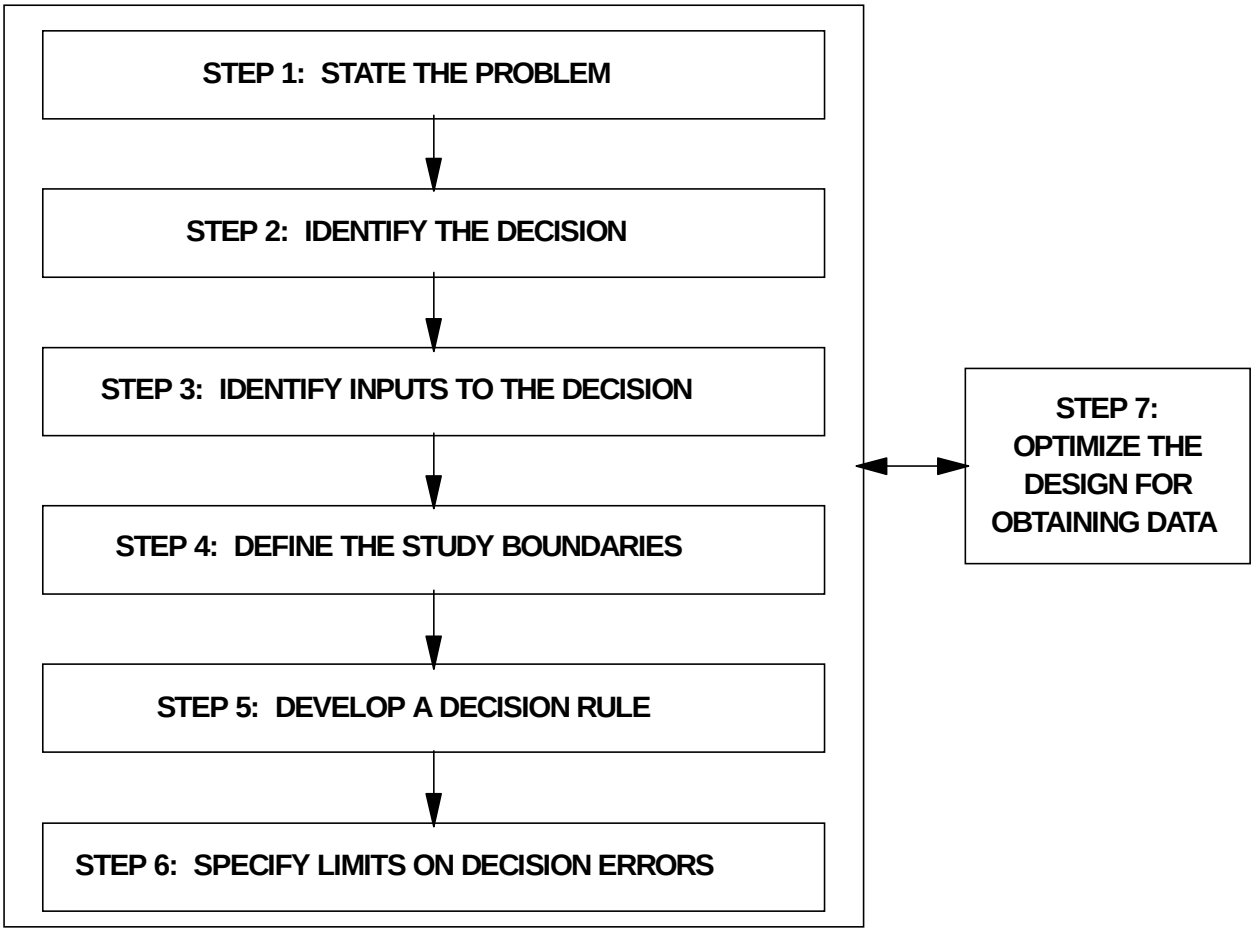


Figure 2.2 The Data Quality Objectives Process

- specify the detection limit for all measurement techniques (scanning, direct measurement, and sample analysis) specified in the QAPP: the minimum detectable concentration (MDC) is unique for each measurement system (Section 6.7)
- calculate the estimated number of measurements (N) and specify the measurement locations required to demonstrate compliance: the number of measurements depends on the relative shift (Δ/σ), Type I and Type II decision error rates (α and β), the potential for small areas of elevated activity, and the selection and classification of survey units (Section 5.5.2.2, Section 5.5.2.3)
- specify the documentation requirements for the survey, including survey planning documentation: documentation supporting the decision on whether or not the site complies with the release criterion is determined on a site-specific basis (Appendix N, Section N.2)

In addition to DQOs, values for the Data Quality Indicators (DQIs) should also be established and recorded during the planning stage. Where DQOs include performance measures and goals in relation to a specific intended use of the data, DQIs quantify the amount of error in the data collection process and the analytical measurement system regardless of how the data may be used (EPA 1997a). Precision, bias, accuracy, representativeness, comparability, and completeness are the DQIs recommended for quantifying the amount of error for survey data. These DQIs are discussed in detail in Appendix N, Section N.6.

2.3.2 Estimating the Uncertainty in Survey Results—Implementation Phase

To encourage flexibility and the use of optimal measurement techniques for a specific site, MARSSIM does not provide detailed guidance on specific techniques. Instead, MARSSIM encourages the decision maker to evaluate available techniques based on the survey objectives. Guidance on evaluating these objectives, such as detection limit, is provided.

QC programs can both lower the chances of making an incorrect decision and help the data user understand the level of uncertainty that surrounds the decision (EPA 1997a). As discussed previously, QC data are collected and analyzed during implementation to provide an estimate of the uncertainty associated with the survey results. QC measurements (scans, direct measurements, and samples) are technical activities performed to measure the attributes and performance of the survey. During any survey, a certain number of measurements should be taken for QC purposes.

2.3.3 Interpreting Survey Results—Assessment Phase

Assessment of environmental data is used to evaluate whether the data meet the objectives of the survey and whether the data are sufficient to determine compliance with the DCGL (EPA 1992a, EPA 1992b, EPA 1996a). The assessment phase of the Data Life Cycle consists of three phases: data verification, data validation, and Data Quality Assessment (DQA).

Data verification is used to ensure that the requirements stated in the planning documents are implemented as prescribed (see Section 9.3). Data validation is used to ensure that the results of the data collection activities support the objectives of the survey as documented in the QAPP, or permit a determination that these objectives should be modified (see Section 9.3 and Appendix N). Data quality assessment (DQA) is the scientific and statistical evaluation of data to determine if the data are of the right type, quality, and quantity to support their intended use (EPA 1996a). DQA helps complete the Data Life Cycle by providing the assessment needed to determine that the planning objectives are achieved (see Section 8.2). Figure 2.3 illustrates where data verification, data validation, and DQA fit into the Assessment Phase of the Data Life Cycle.

There are five steps in the DQA Process:

- Review the DQOs and Survey Design
- Conduct a Preliminary Data Review
- Select the Statistical Test
- Verify the Assumptions of the Statistical Test
- Draw Conclusions from the Data

The strength of DQA is its design that progresses in a logical and efficient manner to promote an understanding of how well the data meet the intended use. The Assessment Phase is described in more detail in Appendix E. Section 2.6 discusses the flexibility of the Data Life Cycle and describes the use of survey designs other than those described later in MARSSIM.

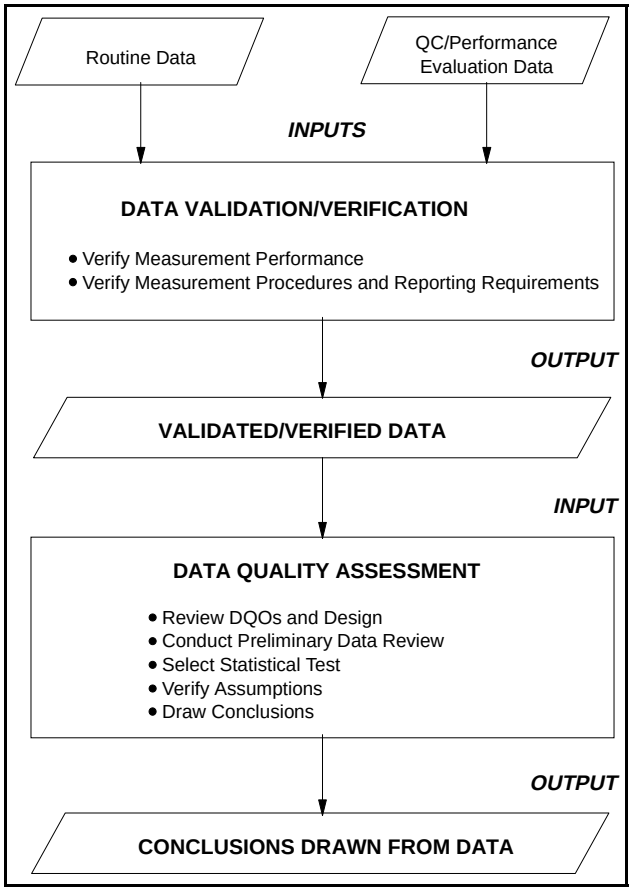


Figure 2.3 The Assessment Phase of the Data Life Cycle (EPA 1996a)

2.3.4 Uncertainty in Survey Results

Uncertainty in survey results arises primarily from two sources: survey design errors and measurement errors. Survey design errors occur when the survey design is unable to capture the complete extent of variability that exists for the radionuclide distribution in a survey unit. Since it is impossible in every situation to measure the residual radioactivity at every point in space and time, the survey results will be incomplete to some degree. It is also impossible to know with complete certainty the residual radioactivity at locations that were not measured, so the incomplete survey results give rise to uncertainty. The greater the natural or inherent variation in residual radioactivity, the greater the uncertainty associated with a decision based on the survey results. The unanswered question is: "How well do the survey results represent the true level of residual radioactivity in the survey unit?"

Measurement errors create uncertainty by masking the true level of residual radioactivity and may be classified as random or systematic errors. Random errors affect the precision of the measurement system, and show up as variations among repeated measurements. Systematic errors show up as measurements that are biased to give results that are consistently higher or lower than the true value. Measurement uncertainty is discussed in Section 6.8.

MARSSIM uses the Data Life Cycle to control and estimate the uncertainty in the survey results on which decisions are made. Adequate planning should minimize known sources of uncertainty. QC data collected during implementation of the survey plan provide an estimate of the uncertainty. Statistical hypothesis testing during the assessment phase provides a level of confidence for the final decision. There are several levels of decisions included within each survey type. Some decisions are quantitative, based on the numerical results of measurements performed during the survey. Other decisions are qualitative based on the available evidence and best professional judgment. The Data Life Cycle can and should be applied consistently to both types of decisions.

2.3.5 Reporting Survey Results

The process of reporting survey results is an important consideration in planning the survey. Again, the level of effort for reporting should be based on the complexity of the survey. A simple survey with relatively few results may specify a single report, while a more complicated survey may specify several reports to meet the objectives of the survey. Reporting requirements for individual surveys should be developed during planning and clearly documented in the QAPP. These requirements should be developed with cooperation from the people performing the analyses (*e.g.*, the analytical laboratory should be consulted on reporting results for samples). The Health Physics Society has developed several suggestions for reporting survey results (EPA 1980c). These suggestions include:

- Report the actual result of the analysis. Do not report data as "less than the detection limit." Even negative results and results with large uncertainties can be used in the statistical tests to demonstrate compliance. Results reported only as "<MDC" cannot be fully used and, for example, complicate even such simple analyses as calculating an average. While the nonparametric tests described in Section 8.3 and Section 8.4 can accommodate as much as 40% of the results as non-detects, it is better to report the actual results and avoid the possibility of exceeding this limit.

- Report results using the correct units and the correct number of significant digits. The choice of reporting results using SI units (*e.g.*, Bq/kg, Bq/m^2) or conventional units (*e.g.*, pCi/g, dpm/100 cm^2) is made on a site-specific basis. Generally, MARSSIM recommends that all results be reported in the same units as the DCGLs. Sometimes the results may be more convenient to work with as counts directly from the detector. In these cases the user should decide what the appropriate units are for a specific survey based on the survey objectives. The user should also report the correct number of significant digits as described in EPA 1980c.

- Report the measurement uncertainty for every analytical result or series of results, such as for a measurement system. This uncertainty, while not directly used for demonstrating compliance with the release criterion, is used for survey planning and data assessment throughout the Radiation Survey and Site Investigation Process. In addition, the uncertainty is used for evaluating the performance of measurement systems using QC measurement results (as described in Section 6.2 for scans and direct measurements, and in Section 7.2 for laboratory analysis of samples). The uncertainty is also used for comparing individual measurements to the action level, which is especially important in the early stages of decommissioning (scoping, characterization, and remedial action support surveys described in Section 2.4) when decisions are made based on a limited number of measurements. Section 6.8 discusses methods for calculating the measurement uncertainty.

- Report the minimum detectable concentration (MDC) for the measurement system as well as the method used to calculate the MDC. The MDC is an *a priori* estimate of the capability for detecting an activity concentration with a specific measurement system (EPA 1980c). As such, this estimate is valuable for planning and designing radiation surveys. Optimistic estimates of the MDC (calculated using ideal conditions that may not apply to actual measurements) overestimate the ability of a technique to detect residual radioactivity, especially when scanning for alpha or low-energy beta radiations. This can invalidate survey results, especially for scanning surveys. Using a more realistic MDC, as described in Section 6.7, during scoping and characterization surveys helps in the proper classification of survey units for final status surveys and minimizes the possibility of designing and performing subsequent surveys because of errors in classification. Estimates of the MDC that minimize potential decision errors should be used for planning surveys.

Reporting requirements for individual surveys should be developed during planning and clearly documented in the QAPP.

2.4 Radiation Survey and Site Investigation Process

The Data Life Cycle discussed in Section 2.3 is the basis for the performance-based guidance in MARSSIM. As a framework for collecting the information required for demonstrating compliance identified using the DQO Process, MARSSIM recommends using a series of surveys. The Radiation Survey and Site Investigation (RSSI) Process is an example of a series of surveys designed to demonstrate compliance with a dose- or risk-based regulation for sites with radioactive contamination.

There are six principal steps in the RSSI Process:

- Site Identification
- Historical Site Assessment
- Scoping Survey
- Characterization Survey
- Remedial Action Support Survey
- Final Status Survey

Table 2.1 provides a simplified overview of the principal steps in the RSSI process and how the Data Life Cycle can be used in an iterative fashion within the process. Each of these steps is briefly described in the Sections 2.4.1 through 2.4.6, and described in more detail in Chapter 3 and Chapter 5. In addition, there is a brief description of regulatory agency confirmation and verification (see Section 2.4.7). Because MARSSIM focuses on demonstrating compliance with a release criterion, specifically through the use of a final status survey, these surveys have additional objectives that are not fully discussed in MARSSIM (*e.g.*, health and safety of workers, supporting selection of values for exposure pathway model parameters).

Figure 2.4 illustrates the Radiation Survey and Site Investigation Process in terms of area classification, and lists the major decision to be made for each type of survey. The flowchart demonstrates one method for quickly estimating the survey unit classification early in the MARSSIM Process based on limited information. While this figure shows the relationship between area classification and survey unit classification along with the major decision points that determine classification, this illustration is not designed to comprehensively consider every possibility that may occur at individual survey units. As such, it is a useful tool for visualizing the classification process, but there are site-specific characteristics that may cause variation from this scheme.

The flowchart, illustrated in Figures 2.5 through 2.8, presents the principal steps and decisions in the site investigation process and shows the relationship of the survey types to the overall assessment process. As shown in these figures, there are several sequential steps in the site investigation process and each step builds on information provided by its predecessor. Properly applying each sequential step in the RSSI Process should provide a high degree of assurance that the release criterion has not been exceeded.

Table 2.1 The Data Life Cycle used to Support the Radiation Survey and Site Investigation Process

RSSI Process	Data Life Cycle		MARSSIM Guidance
Site Identification			Provides information on identifying potential radiation sites (Section 3.3)
Historical Site Assessment	Historical Site Assessment Data Life Cycle	Plan Implement Assess Decide	Provides information on collecting and assessing existing site data (Sections 3.4 through 3.9) and potential sources of information (Appendix G)
Scoping Survey	Scoping Data Life Cycle	Plan Implement Assess Decide	Discusses the purpose and general approach for performing scoping surveys, especially as sources of information when planning final status surveys (Section 5.2)
Characterization Survey	Characterization Data Life Cycle	Plan Implement Assess Decide	Discusses the purpose and general approach for performing characterization surveys, especially as sources of information when planning final status surveys (Section 5.3)
Remedial Action Support Survey	Remedial Action Data Life Cycle	Plan Implement Assess Decide	Discusses the purpose and general approach for performing remedial action support surveys, especially as sources of information when planning final status surveys (Section 5.4)
Final Status Survey	Final Status Data Life Cycle	Plan Implement Assess Decide	Provides detailed guidance for planning final status surveys (Chapter 4 and Section 5.5), selecting measurement techniques (Chapter 6, Chapter 7, and Appendix H), and assessing the data collected during final status surveys (Chapter 8 and Chapter 9)

2.4.1 Site Identification

The identification of known, likely, or potential sites is generally easily accomplished, and is typically performed before beginning decommissioning. Any facility preparing to terminate an NRC or agreement state license would be identified as a site. Formerly terminated NRC licenses may also become sites for the EPA Superfund Program. Portions of military bases or DOE facilities may be identified as sites based on records of authorization to possess or handle radioactive materials. In addition, information obtained during the performance of survey activities may identify additional potential radiation sites related to the site being investigated. Information on site identification is provided in Section 3.3.

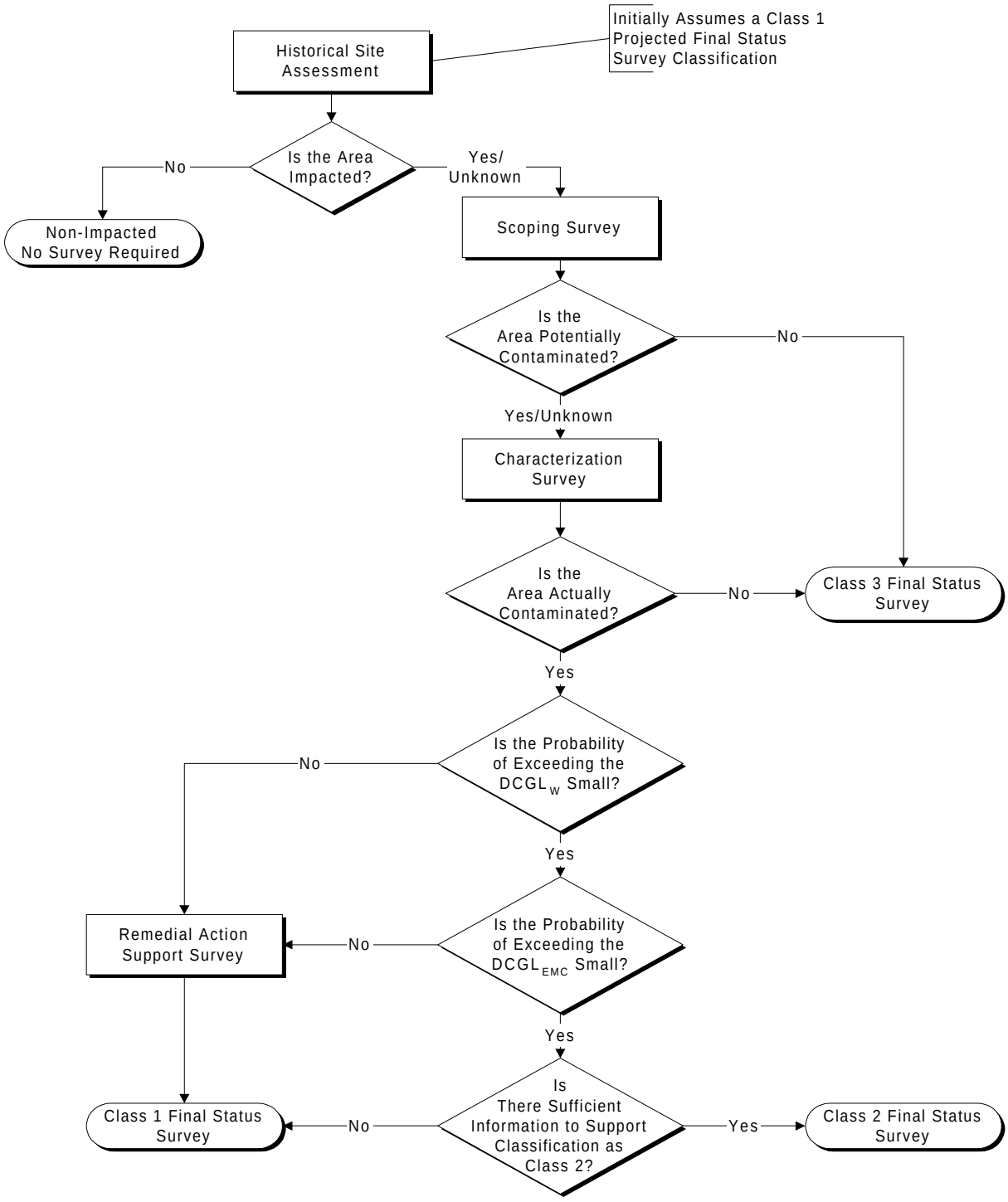


Figure 2.4 The Radiation Survey and Site Investigation Process in Terms of Area Classification

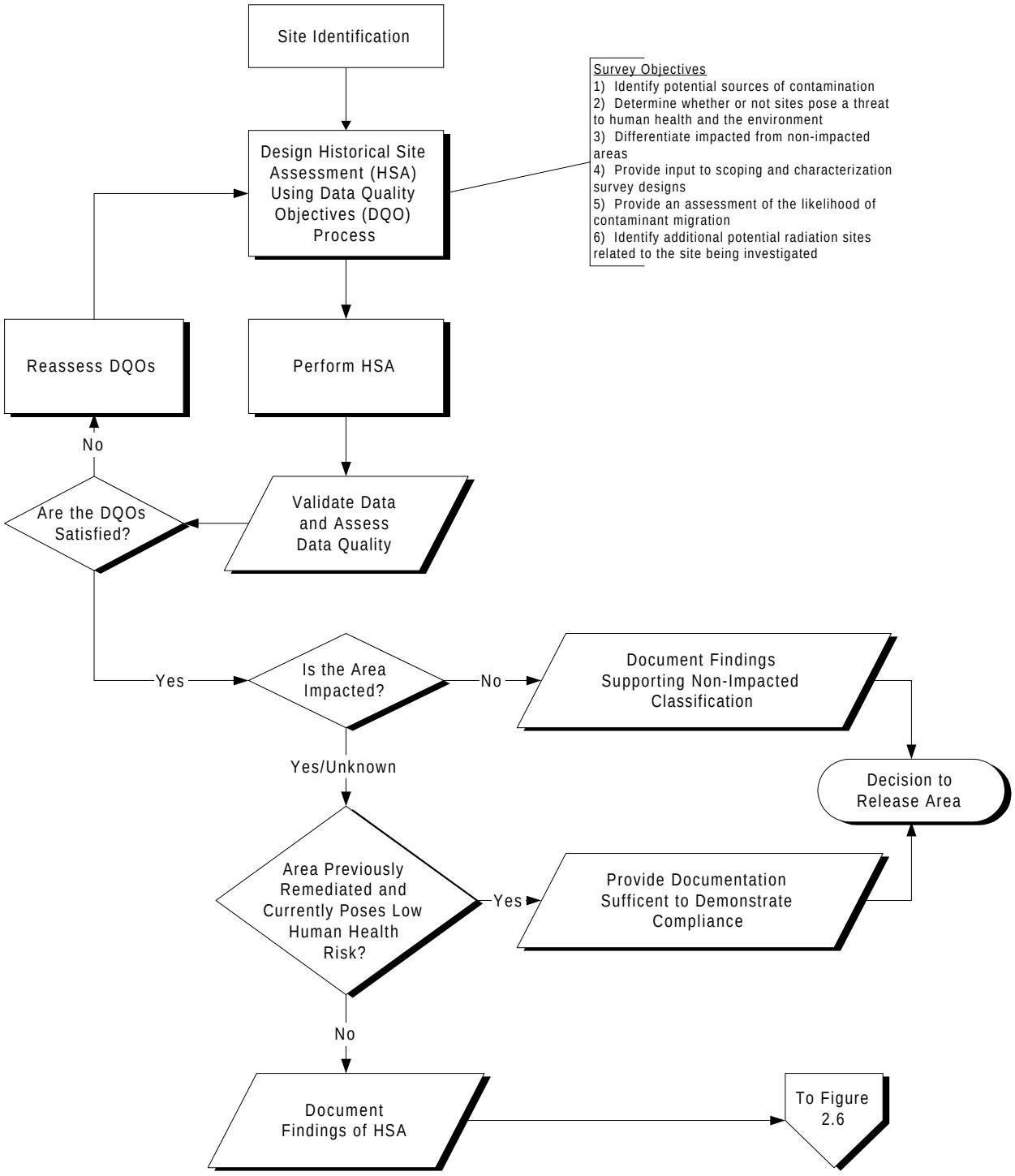


Figure 2.5 The Historical Site Assessment Portion of the Radiation Survey and Site Investigation Process

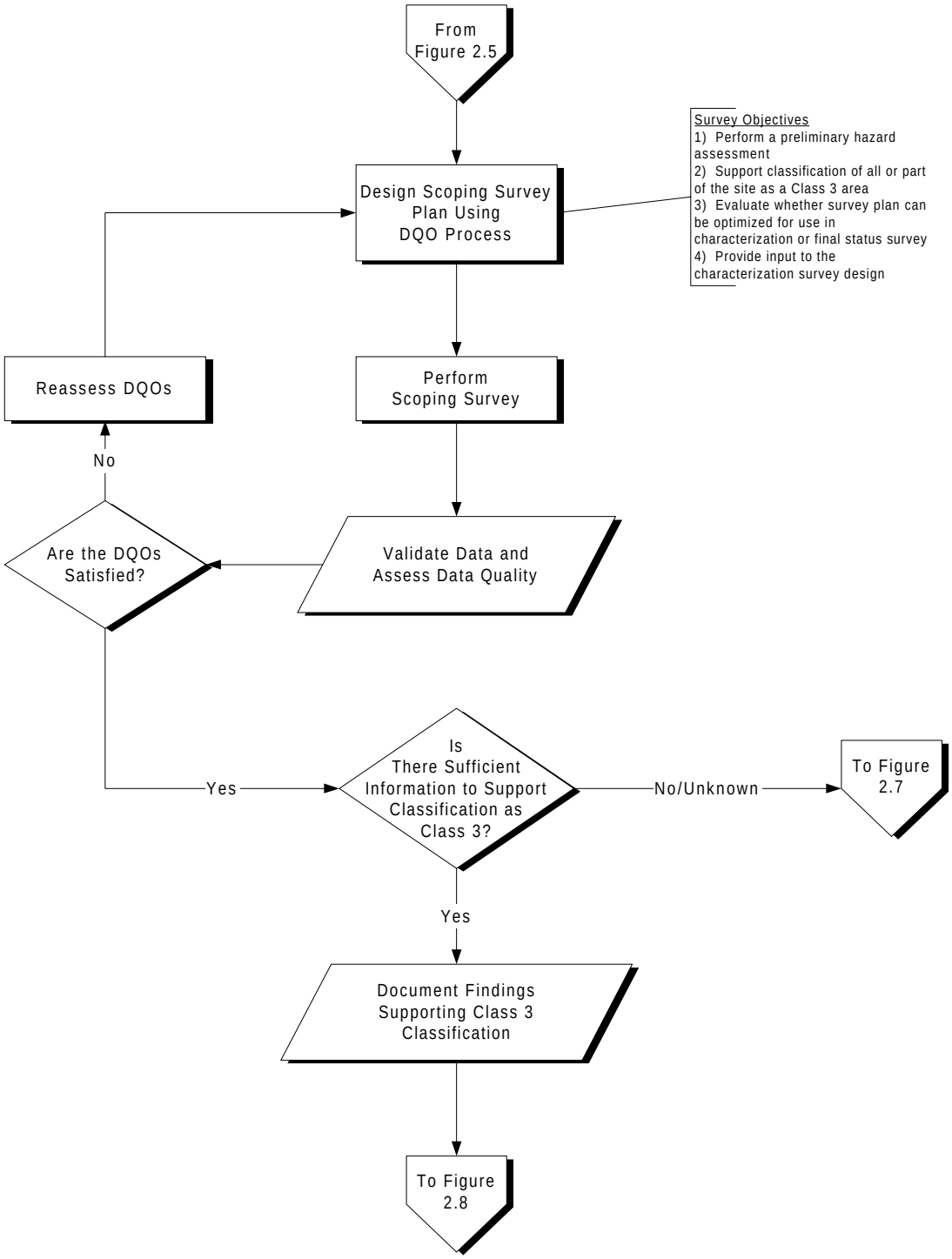
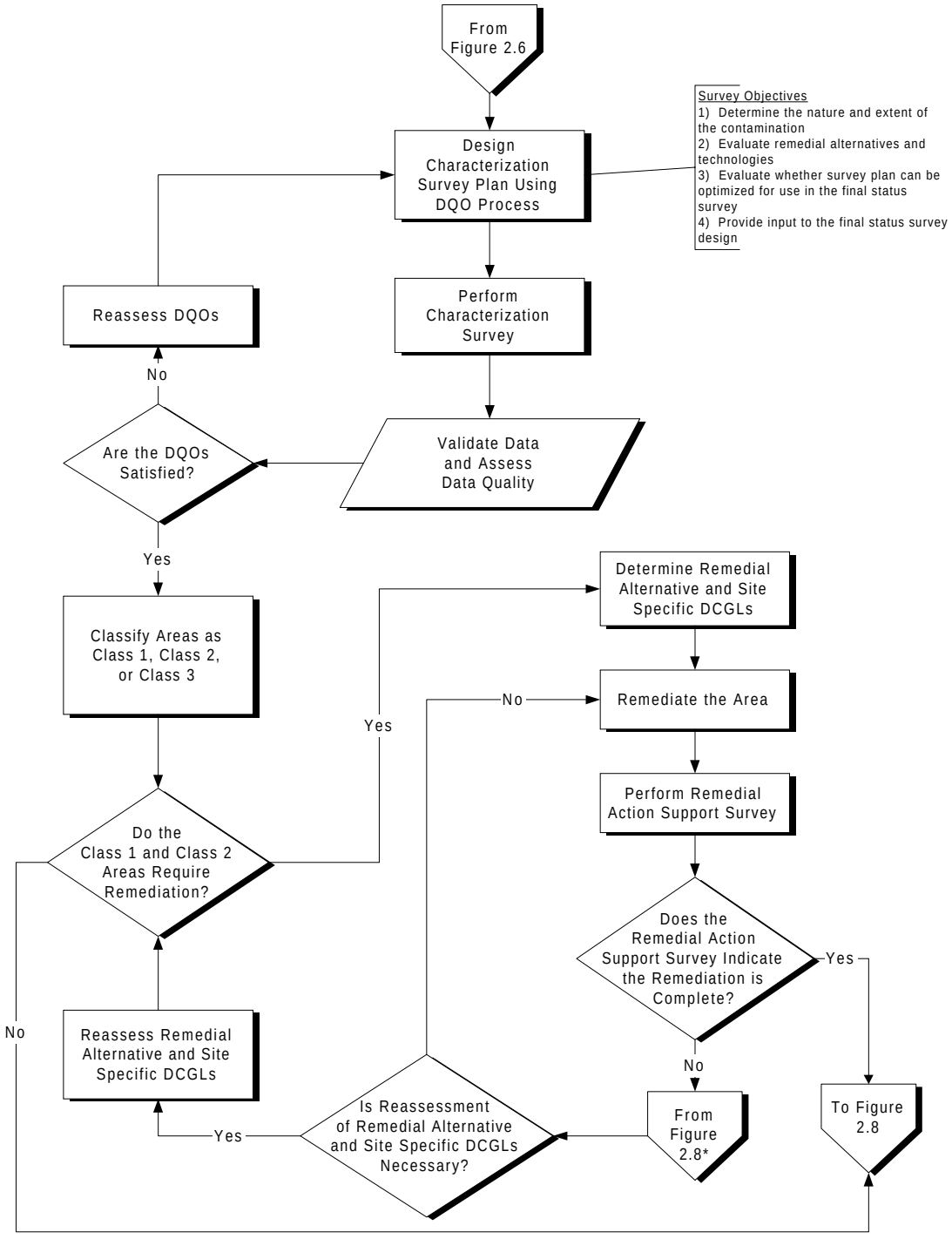
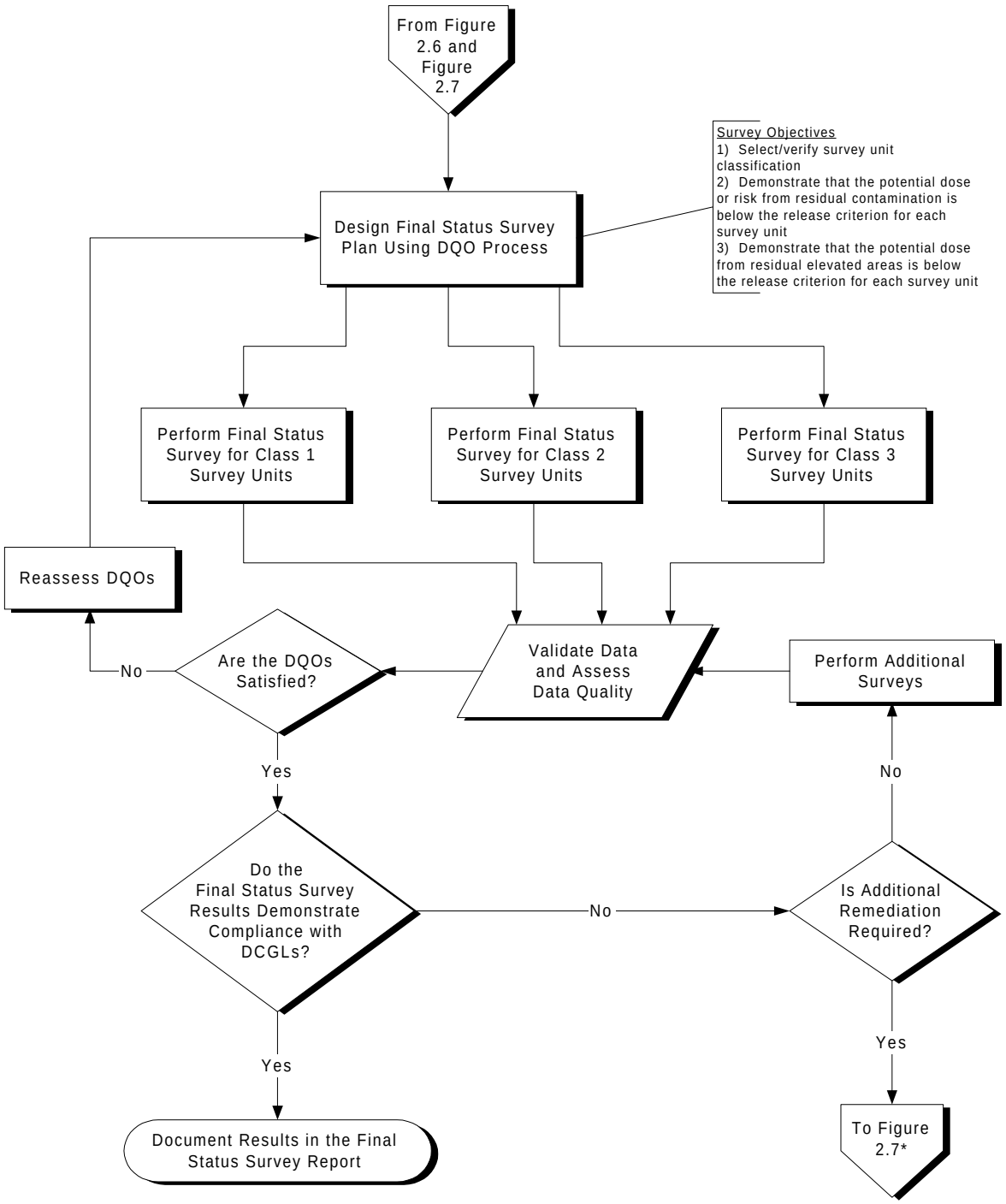


Figure 2.6 The Scoping Survey Portion of the Radiation Survey and Site Investigation Process



* The point where survey units that fail to demonstrate compliance in the final status survey in Figure 2.8 re-enter the process

Figure 2.7 The Characterization and Remedial Action Support Survey Portion of the Radiation Survey and Site Investigation Process



* Connects with the Remedial Action Support Survey portion of the process in Figure 2.7

Figure 2.8 The Final Status Survey Portion of the Radiation Survey and Site Investigation Process

2.4.2 Historical Site Assessment

The primary purpose of the Historical Site Assessment (HSA) is to collect existing information concerning the site and its surroundings.

The primary objectives of the HSA are to:

- identify potential sources of contamination
- determine whether or not sites pose a threat to human health and the environment
- differentiate impacted from non-impacted areas
- provide input to scoping and characterization survey designs
- provide an assessment of the likelihood of contaminant migration
- identify additional potential radiation sites related to the site being investigated

The HSA typically consists of three phases: identification of a candidate site, preliminary investigation of the facility or site, and site visits or inspections. The HSA is followed by an evaluation of the site based on information collected during the HSA.

2.4.3 Scoping Survey

If the data collected during the HSA indicate an area is impacted, a scoping survey could be performed. Scoping surveys provide site-specific information based on limited measurements.

The primary objectives of a scoping survey are to:

- perform a preliminary hazard assessment
- support classification of all or part of the site as a Class 3 area
- evaluate whether the survey plan can be optimized for use in the characterization or final status surveys
- provide data to complete the site prioritization scoring process (CERCLA and RCRA sites only)
- provide input to the characterization survey design if necessary

Scoping surveys are conducted after the HSA is completed and consist of judgment measurements based on the HSA data. If the results of the HSA indicate that an area is Class 3 and no contamination is found, the area may be classified as Class 3 and a Class 3 final status survey is performed. If the scoping survey locates contamination, the area may be considered as Class 1 (or Class 2) for the final status survey and a characterization survey is typically performed. Sufficient information should be collected to identify situations that require immediate radiological attention. For sites where the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requirements are applicable, the scoping survey

should collect sufficient data to complete the Hazard Ranking System (HRS) scoring process. For sites where the Resource Conservation and Recovery Act (RCRA) requirements are applicable, the scoping survey should collect sufficient data to complete the National Corrective Action Prioritization System (NCAPS) scoring process. Sites that meet the National Contingency Plan (NCP) criteria for a removal should be referred to the Superfund removal program (EPA 1988c). A comparison of MARSSIM guidance to CERCLA and RCRA requirements is provided in Appendix F.

2.4.4 Characterization Survey

If an area could be classified as Class 1 or Class 2 for the final status survey, based on the HSA and scoping survey results, a characterization survey is warranted. The characterization survey is planned based on the HSA and scoping survey results. This type of survey is a detailed radiological environmental characterization of the area.

The primary objectives of a characterization survey are to:

- determine the nature and extent of the contamination
- collect data to support evaluation of remedial alternatives and technologies
- evaluate whether the survey plan can be optimized for use in the final status survey
- support Remedial Investigation/Feasibility Study requirements (CERCLA sites only) or Facility Investigation/Corrective Measures Study requirements (RCRA sites only)
- provide input to the final status survey design

The characterization survey is the most comprehensive of all the survey types and generates the most data. This includes preparing a reference grid, systematic as well as judgment measurements, and surveys of different media (*e.g.*, surface soils, interior and exterior surfaces of buildings). The decision as to which media will be surveyed is a site-specific decision addressed throughout the Radiation Survey and Site Investigation Process.

2.4.5 Remedial Action Support Survey

If an area is adequately characterized and is contaminated above the derived concentration guideline levels (DCGLs), a decontamination plan should be prepared. A remedial action support survey is performed while remediation is being conducted, and guides the cleanup in a real-time mode.

Remedial action support surveys are conducted to:

- support remediation activities
- determine when a site or survey unit is ready for the final status survey

- provide updated estimates of site-specific parameters used for planning the final status survey

This manual does not provide guidance on the routine operational surveys used to support remediation activities. The determination that a survey unit is ready for a final status survey following remediation is an important step in the RSSI Process. In addition, remedial activities result in changes to the distribution of contamination within the survey unit. For most survey units, the site-specific parameters used during final status survey planning (*e.g.*, variability in the radionuclide concentration, probability of small areas of elevated activity) will need to be re-established following remediation. Obtaining updated values for these critical parameters should be considered when planning a remedial action support survey.

2.4.6 Final Status Survey

The final status survey is used to demonstrate compliance with regulations. This type of survey is the major focus of this manual.

The primary objectives of the final status survey are to:

- select/verify survey unit classification
- demonstrate that the potential dose or risk from residual contamination is below the release criterion for each survey unit
- demonstrate that the potential dose or risk from small areas of elevated activity is below the release criterion for each survey unit

The final status survey provides data to demonstrate that all radiological parameters satisfy the established guideline values and conditions.

Although the final status survey is discussed as if it were an activity performed at a single stage of the site investigation process, this does not have to be the case. Data from other surveys conducted during the Radiation Survey and Site Investigation Process—such as scoping, characterization, and remedial action support surveys—can provide valuable information for planning a final status survey provided they are of sufficient quality.

Professional judgment and biased sampling are important for locating contamination and characterizing the extent of contamination at a site. However, the MARSSIM focus is on planning the final status survey which utilizes a more systematic approach to sampling. Systematic sampling is based on rules that endeavor to achieve the representativeness in sampling consistent with the application of statistical tests.

2.4.7 Regulatory Agency Confirmation and Verification

The regulatory agency responsible for the site often confirms whether the site is acceptable for release. This confirmation may be accomplished by the agency or an impartial party. Although some actual measurements may be performed, much of the work required for confirmation and verification will involve evaluation and review of documentation and data from survey activities. The evaluation may include site visits to observe survey and measurement procedures or split-sample analyses by the regulatory agency's laboratory. Therefore, accounting for confirmation and verification activities during the planning stages is important to each type of survey. In some cases, post-remedial sampling and analysis may be performed by an impartial party. The review of survey results should include verifying that the data quality objectives are met, reviewing the analytical data used to demonstrate compliance, and verifying that the statistical test results support the decision to release the site. Confirmation and verification are generally ongoing processes throughout the Radiation Survey and Site Investigation (RSSI) Process.

2.5 Demonstrating Compliance With a Dose- or Risk-Based Regulation

MARSSIM presents a process for demonstrating compliance with a dose- or risk-based regulation. The RSSI Process provides flexibility in planning and performing surveys based on site-specific considerations. A dose- or risk-based regulation usually allows one to take into account radionuclide and site-specific differences.

The final status survey is designed to demonstrate compliance with the release criterion. The earlier surveys in the RSSI Process are performed to support decisions and assumptions used in the design of the final status survey. These preliminary surveys (*e.g.*, scoping, characterization) may have other objectives in addition to compliance demonstration that need to be considered during survey planning that are not fully discussed in this manual. For this reason MARSSIM focuses on final status survey design. To allow maximum flexibility in the survey design, MARSSIM provides guidance on designing a survey using the RSSI Process. This allows users with few resources available for planning to develop an acceptable survey design. The rationale for the development of the guidance in MARSSIM is presented in the following sections. Users with available planning resources are encouraged to investigate alternate survey designs for site-specific applications using the information provided in Section 2.6.

2.5.1 The Decision to Use Statistical Tests

The objective of compliance demonstration is to provide some level of confidence that the release criterion is not exceeded. As previously stated, 100% confidence in a decision cannot be proven because the data always contain some uncertainty. The use of statistical methods is necessary to provide a quantitative estimate of the probability that the release criterion is not

exceeded at a particular site. Statistical methods provide for specifying (controlling) the probability of making decision errors and for extrapolating from a set of measurements to the entire site in a scientifically valid fashion (EPA 1994b).

Clearly stating the null hypothesis is necessary before a statistical test can be performed. The null hypothesis recommended for use in MARSSIM is: "The residual radioactivity in the survey unit exceeds the release criterion." This statement directly addresses the issue of compliance demonstration for the regulator and places the burden of proof for demonstrating compliance on the site owner or responsible party. The statistical tests are only applied at sites that were subjected to an Historical Site Assessment (HSA). At this point, the results of the HSA have been reviewed and the site is determined to be impacted based on existing data and professional judgment as described in Chapter 3. An impacted site, by definition, is expected to contain areas of contamination, so this statement of the null hypothesis is reasonable for these sites.

The information needed to perform a statistical test is determined by the assumptions used to develop the test. MARSSIM recommends the use of nonparametric statistical tests because these tests use fewer assumptions, and consequently require less information to verify these assumptions. The tests described in MARSSIM (see Chapter 8) are relatively easy to understand and implement compared to other statistical tests.

Site conditions can also affect the selection of statistical tests. The distribution of contamination is of particular concern at sites with residual radioactivity. Is the contamination distributed uniformly, or is it located in small areas of elevated activity? Is the residual radioactivity present as surface, volumetric, or subsurface contamination? To demonstrate the use of the RSSI Process at radiation sites, MARSSIM addresses only surface soil and building surfaces for the final status survey to demonstrate compliance. This represents a situation that is expected to commonly occur at sites with radioactive contamination, and allows the survey design to take into account the ability to directly measure surface radioactivity using scanning techniques. Other contaminated media may be identified during the HSA or preliminary surveys (*i.e.*, scoping, characterization, remedial action support). If other contaminated media (*e.g.*, subsurface contamination, volumetric contamination of building materials) are identified, methodologies for demonstrating compliance other than those described in this manual may need to be developed or evaluated. Situations where scanning techniques may not be effective (*e.g.*, volumetric or subsurface contamination) are discussed in existing guidance (EPA 1989a, EPA 1994b, EPA 1994d).

2.5.1.1 Small Areas of Elevated Activity

While the development of DCGLs is outside the scope of MARSSIM, this manual assumes that DCGLs will be developed using exposure pathway models which in turn assume a relatively uniform distribution of contamination. While this represents an ideal situation, small areas of elevated activity are a concern at many sites.

MARSSIM addresses the concern for small areas of elevated activity by using a simple comparison to an investigation level as an alternative to statistical methods. Using the elevated measurement comparison (EMC) represents a conservative approach, in that every measurement needs to be below the action level. The investigation level for this comparison is called the $DCGL_{EMC}$, which is the $DCGL_W$ modified to account for the smaller area. This area factor correction (discussed in Section 5.5.2.4) is considered to be a defensible modification because the exposure assumptions (*e.g.*, exposure time and duration) are the same as those used to develop the $DCGL_W$. In the case of multiple areas of elevated activity in a survey unit, a posting plot (discussed in Section 8.2.2.2) or similar representation of the distribution of activity in the survey unit can be used to determine any pattern in the location of these areas.

If elevated levels of residual radioactivity are found in an isolated area, in addition to residual radioactivity distributed relatively uniformly across the survey unit, the unity rule (Section 4.3.3) can be used to ensure that the total dose or risk meets the release criterion. If there is more than one of these areas, a separate term should be included in the calculation for each area of elevated activity. As an alternative to the unity rule, the dose or risk due to the actual residual radioactivity distribution can be calculated if there is an appropriate exposure pathway model available. Note that these considerations generally only apply to Class 1 survey units, since areas of elevated activity should not be present in Class 2 or Class 3 survey units.

2.5.1.2 Relatively Uniform Distribution of Contamination

As discussed previously, the development of a DCGL starts with the assumption of a relatively uniform distribution of contamination. Some variability in the measurements is expected. This is primarily due to a random spatial distribution of contamination and uncertainties in the measurement process. The arithmetic mean of the measurements taken from such a distribution would represent the parameter of interest for demonstrating compliance.

Whether or not the radionuclide of concern is present in background determines the form of the statistical test. The Wilcoxon Rank Sum (WRS) test is recommended for comparisons of survey unit radionuclide concentrations with background. When the radionuclide of concern is not present in background, the Sign test is recommended. Instructions on performing these tests are provided in Section 8.3 and Section 8.4.

The WRS and Sign tests are designed to determine whether or not the level of residual activity uniformly distributed throughout the survey unit exceeds the $DCGL_W$. Since these methods are based on ranks, the results are generally expressed in terms of the median. When the underlying measurement distribution is symmetric, the mean is equal to the median. When the underlying distribution is not symmetric, these tests are still true tests of the median but only approximate tests of the mean. However, numerous studies show that this is a fairly good approximation (Hardin and Gilbert, 1993). The assumption of symmetry is less restrictive than that of normality because the normal distribution is itself symmetric. If, however, the measurement distribution is skewed to the right, the average will generally be greater than the median. In severe cases, the average may exceed the $DCGL_W$ while the median does not. For this reason, MARSSIM recommends comparing the arithmetic mean of the survey unit data to the $DCGL_W$ as a first step in the interpretation of the data (see Section 8.2.2.1).

The WRS test is a two-sample test that compares the distribution of a set of measurements in a survey unit to that of a set of measurements in a reference area. The test is performed by first adding the value of the $DCGL_W$ to each measurement in the reference area. The combined set of survey unit data and adjusted reference area data are listed, or ranked, in increasing numerical order. If the ranks of the adjusted reference site measurements are significantly higher than the ranks of the survey unit measurements, the survey unit demonstrates compliance with the release criterion.

The Sign test is a one-sample test that compares the distribution of a set of measurements in a survey unit to a fixed value, namely the $DCGL_W$. First, the value for each measurement in the survey unit is subtracted from the $DCGL_W$. The resulting distribution is tested to determine if the center of the distribution is greater than zero. If the adjusted distribution is significantly greater than zero, the survey unit demonstrates compliance with the release criterion.

Guidance on performing the statistical tests and presenting graphical representations of the data is provided in Chapter 8 and Appendix I.

2.5.2 Classification

Classifying a survey unit is crucial to the survey design because this step determines the level of survey effort based on the potential for contamination. Areas are initially classified as impacted or non-impacted based on the results of the HSA. Non-impacted areas have no reasonable potential for residual contamination and require no further evidence to demonstrate compliance with the release criterion. When planning the final status survey, impacted areas may be further divided into survey units. If a survey unit is classified incorrectly, the potential for making decision errors increases. For this reason, all impacted areas are initially assumed to be Class 1. Class 1 areas require the highest level of survey effort because they are known to have contaminant concentrations above the $DCGL_W$, or the contaminant concentrations are unknown.

Information indicating the potential or known contaminant concentration is less than the $DCGL_W$ can be used to support re-classification of an area or survey unit as Class 2 or Class 3.

There is a certain amount of information necessary to demonstrate compliance with the release criterion. The amount of this information that is available and the level of confidence in this information is reflected in the area classification. The initial assumption for affected areas is that none of the necessary information is available. This results in a default Class 1 classification. This corresponds with the statement of the null hypothesis that the survey unit is contaminated, and represents the most efficient case for the regulator. For this reason, the recommendations for a Class 1 final status survey represent the minimal amount of information necessary to demonstrate compliance.

Not all of the information available for an area will have been collected for purposes of compliance demonstration. For example, data are collected during characterization surveys to determine the extent, and not necessarily the amount, of contamination. This does not mean that the data do not meet the objectives of compliance demonstration, but may mean that statistical tests would be of little or no value because the data have not been collected using appropriate protocols or design. Rather than discard potentially valuable information, MARSSIM allows for a qualitative assessment of existing data (Chapter 3). Non-impacted areas represent areas where all of the information necessary to demonstrate compliance is available from existing sources. For these areas, no statistical tests are considered necessary. A classification as Class 2 or Class 3 indicates that some information on describing the potential for contamination is available for that survey unit. The data collection recommendations are modified to account for the information already available, and the statistical tests are performed on the data collected during the final status survey.

As previously stated, the conservative assumption that an area receive a classification of Class 1 is only applied to impacted sites. The HSA (described in Chapter 3) is used to provide an initial classification for the site of impacted or non-impacted based on existing data and professional judgment.

2.5.3 Design Considerations for Small Areas of Elevated Activity

Scanning surveys are typically used to identify small areas of elevated activity. The size of the area of elevated activity that the survey is designed to detect affects the $DCGL_{EMC}$, which in turn determines the ability of a scanning technique to detect these areas. Larger areas have a lower $DCGL_{EMC}$ and are more difficult to detect than smaller areas.

The percentage of the survey unit to be covered by scans is also an important consideration. 100% coverage means that the entire surface area of the survey unit has been covered by the field of view of the scanning instrument. 100% scanning coverage provides a high level of confidence

that all areas of elevated activity have been identified. If the available information concerning the survey unit provides information demonstrating that areas of elevated activity may not be present, the survey unit may be classified as Class 2 or Class 3. Because there is already some level of confidence that areas of elevated activity are not present, 100% coverage may not be necessary to demonstrate compliance. The scanning survey coverage may be adjusted based on the level of confidence supplied by the existing data. If there is evidence providing a high level of confidence that areas of elevated activity are not present, 10% scanning coverage may meet the objectives of the survey. If the existing information provides a lower level of confidence, the scanning coverage may be adjusted between 10 and 100% based on the level of confidence and the objectives of the survey. A general recommendation is to always err to minimize the decision error. In general, scanning the entire survey unit is less expensive than finding areas of elevated activity later in the survey process. Finding such areas will lead to performing additional surveys due to survey unit misclassification.

Another consideration for scanning surveys is the selection of scanning locations. This is not an issue when 100% of the survey unit is scanned. Whenever less than 100% of the survey unit is scanned, a decision must be made on what areas are scanned. The general recommendation is that when large amounts of the survey unit are scanned (*e.g.*, >50%), the scans should be systematically performed along transects of the survey unit. When smaller amounts of the survey unit are scanned, selecting areas based on professional judgment may be more appropriate and efficient for locating areas of elevated activity (*e.g.*, drains, ducts, piping, ditches). A combination of 100% scanning in portions of the survey unit selected based on professional judgement and less coverage (*e.g.*, 20-50%) for all remaining areas may result in an efficient scanning survey design for some survey units.

2.5.4 Design Considerations for Relatively Uniform Distributions of Contamination

The survey design for areas with relatively uniform distributions of contamination is primarily controlled by classification and the requirements of the statistical test. Again, the recommendations provided for Class 1 survey units are designed to minimize the decision error. Recommendations for Class 2 or Class 3 surveys may be appropriate based on the existing information and the level of confidence associated with this information.

The first consideration is the identification of survey units. The identification of survey units may be accomplished early (*e.g.*, scoping) or late (*e.g.*, final status) in the survey process, but must be accomplished prior to performing a final status survey. Early identification of survey units can help in planning and performing surveys throughout the RSSI Process. Late identification of survey units can prevent misconceptions and problems associated with reclassification of areas based on results of subsequent surveys. The area of an individual survey unit is determined based on the area classification and modeling assumptions used to develop the $DCGL_W$. Identification of survey units is discussed in Section 4.6.

Another consideration is the estimated number of measurements to demonstrate compliance using the statistical tests. Section 5.5.2 describes the calculations used to estimate the number of measurements. These calculations use information that is usually available from planning or from preliminary surveys (*i.e.*, scoping, characterization, remedial action support).

The information needed to perform these calculations is: 1) acceptable values for the probabilities of making Type I (α) or Type II (β) decision errors, 2) the estimates of the measurement variability in the survey unit (σ_s) and the reference area (σ_r) if necessary, and 3) the shift (Δ).

MARSSIM recommends that site-specific values be determined for each of these parameters. To assist the user in selecting site-specific values for decision error rates and Δ, MARSSIM recommends that an initial value be selected and adjusted to develop a survey design that is appropriate for a specific site. An arbitrary initial value of one half the $DCGL_W$ is selected for the lower bound of the gray region. This value is adjusted to provide a relative shift (Δ/σ) value between one and three as described in Section 5.5.2. For decision error rates a value that minimizes the risk of making a decision error is recommended for the initial calculations. The number of measurements can be recalculated using different decision error rates until an optimum survey design is obtained. A prospective power curve (see Appendix D, Section D.6 and Appendix I, Section I.9) that considers the effects of these parameters can be very helpful in designing a survey and considering alternative values for these parameters, and is highly recommended.

To ensure that the desired power is achieved with the statistical test and to account for uncertainties in the estimated values of the measurement variabilities, MARSSIM recommends that the estimated number of measurements calculated using the formulas in Section 5.5.2.2 and 5.5.2.3 be increased by 20%. Insufficient numbers of measurements may result in failure to achieve the DQO for power and result in increased Type II decision errors, where survey units below the release criterion fail to demonstrate compliance.

Once survey units are identified and the number of measurements is determined, measurement locations should be selected. The statistical tests assume that the measurements are taken from random locations within the survey unit. A random survey design is used for Class 3 survey units, and a random starting point for the systematic grid is used for Class 2 and Class 1 survey units.

2.5.5 Developing an Integrated Survey Design

To account for assumptions used to develop the $DCGL_W$ and the realistic possibility of small areas of elevated activity, an integrated survey design should be developed to include all of the design considerations. An integrated survey design combines a scanning survey for areas of

elevated activity with random measurements for relatively uniform distributions of contamination. Table 2.2 presents the recommended conditions for demonstrating compliance for a final status survey based on classification.

Table 2.2 Recommended Conditions for Demonstrating Compliance Based on Survey Unit Classification for a Final Status Survey

Survey Unit Classification		Statistical Test	Elevated Measurement Comparison	Sampling and/or Direct Measurements	Scanning
Impacted	Class 1	Yes	Yes	Systematic	100% Coverage
	Class 2	Yes	Yes	Systematic	10-100% Systematic
	Class 3	Yes	Yes	Random	Judgmental
Non-Impacted		No	No	No	None

Random measurement patterns are used for Class 3 survey units to ensure that the measurements are independent and meet the requirements of the statistical tests. Systematic grids are used for Class 2 survey units because there is an increased probability of small areas of elevated activity. The use of a systematic grid allows the decision maker to draw conclusions about the size of any potential areas of elevated activity based on the area between measurement locations, while the random starting point of the grid provides an unbiased method for determining measurement locations for the statistical tests. Class 1 survey units have the highest potential for small areas of elevated activity, so the areas between measurement locations are adjusted to ensure that these areas can be identified by the scanning survey if the area of elevated activity is not detected by the direct measurements or samples.

The objectives of the scanning surveys are different. Scanning is used to identify locations within the survey unit that exceed the investigation level. These locations are marked and receive additional investigations to determine the concentration, area, and extent of the contamination.

For Class 1 areas, scanning surveys are designed to detect small areas of elevated activity that are not detected by the measurements using the systematic grids. For this reason, the measurement locations and the number of measurements may need to be adjusted based on the sensitivity of the scanning technique (see Section 5.5.2.4). This is also the reason for recommending 100% coverage for the scanning survey.

Scanning surveys in Class 2 areas are also performed primarily to find areas of elevated activity not detected by the measurements using the systematic pattern. However, the measurement

locations are not adjusted based on sensitivity of the scanning technique, and scanning is only performed in portions of the survey unit. The level of scanning effort should be proportional to the potential for finding areas of elevated activity: in Class 2 survey units that have residual radioactivity close to the release criterion a larger portion of the survey unit would be scanned, but for survey units that are closer to background scanning a smaller portion of the survey unit may be appropriate. Class 2 survey units have a lower probability for areas of elevated activity than Class 1 survey units, but some portions of the survey unit may have a higher potential than others. Judgmental scanning surveys would focus on the portions of the survey unit with the highest probability for areas of elevated activity. If the entire survey unit has an equal probability for areas of elevated activity, or the judgmental scans don't cover at least 10% of the area, systematic scans along transects of the survey unit or scanning surveys of randomly selected grid blocks are performed.

Class 3 areas have the lowest potential for areas of elevated activity. For this reason, MARSSIM recommends that scanning surveys be performed in areas of highest potential (*e.g.*, corners, ditches, drains) based on professional judgment. This provides a qualitative level of confidence that no areas of elevated activity were missed by the random measurements or that there were no errors made in the classification of the area.

Note that the DCGL itself is not free of error. The assumptions made in any model used to develop DCGLs for a site should be examined carefully. The results of this examination should determine if the use of site-specific parameters result in large changes in the DCGLs, or whether a site-specific model should be developed to obtain DCGLs more relevant to the exposure conditions at the site. Appendix D, Section D.6 provides additional information about the uncertainty associated with the DCGL and other considerations for developing an integrated survey design using the DQO Process.

2.6 Flexibility in Applying MARSSIM Guidance

Section 2.5 describes an example that applies the performance-based guidance presented in Section 2.3 and Section 2.4 to design a survey for a site with specific characteristics (*i.e.*, surface soil and building surface contamination). Obviously this design cannot be uniformly applied at every site with radioactive contamination, so flexibility has been provided in the form of performance-based guidance. This guidance encourages the user to develop a site-specific survey design to account for site-specific characteristics. It is expected that most users will adopt the portions of the MARSSIM guidance that apply to their site. In addition, changes to the overall survey design that account for site-specific differences would be presented as part of the survey plan. The plan should also demonstrate that the extrapolation from measurements performed at specific locations to the entire site or survey unit is performed in a technically defensible manner.

Where Section 2.5 describes the development of a generic survey design that will be applicable at most radiation sites, this section describes the flexibility available within the MARSSIM for designing a site-specific survey design. Alternate methods for accomplishing the demonstration of compliance are briefly described and references for obtaining additional information on these alternate methods are provided.

2.6.1 Alternate Statistical Methods

MARSSIM encourages the use of statistics to provide a quantitative estimate of the probability that the release criterion is not exceeded at a site. While it is unlikely that any site will be able to demonstrate compliance with a dose- or risk-based regulation without at least considering the use of statistics, MARSSIM recognizes that the use of statistical tests may not always provide the most effective method for demonstrating compliance. For example, MARSSIM recommends a simple comparison to an investigation level to evaluate the presence of small areas of elevated activity in place of complicated statistical tests. At some sites a simple comparison of each measurement result to the $DCGL_W$, to demonstrate that all the measurement results are below the release criterion, may be more effective than statistical tests for the overall demonstration of compliance with the regulation provided an adequate number of measurements are performed.

MARSSIM recommends the use of nonparametric statistical tests for evaluating environmental data. There are two reasons for this recommendation: 1) environmental data is usually not normally distributed, and 2) there are often a significant number of qualitative survey results (*e.g.*, less than MDC). Either one of these conditions means that parametric statistical tests may not be appropriate. If one can demonstrate that the data are normally distributed and that there are a sufficient number of results to support a decision concerning the survey unit, parametric tests will generally provide higher power (or require fewer measurements to support a decision concerning the survey unit). The tests to demonstrate that the data are normally distributed generally require more measurements than the nonparametric tests. EPA provides guidance on selecting and performing statistical tests to demonstrate that data are normally distributed (EPA 1996a). Guidance is also available for performing parametric statistical tests (NRC 1992, EPA 1989a, EPA 1994b, EPA 1996a).

There are a wide variety of statistical tests designed for use in specific situations. These tests may be preferable to the generic statistical tests recommended in MARSSIM when the underlying assumptions for these tests can be verified. Table 2.3 lists several examples of statistical tests that may be considered for use at individual sites or survey units. A brief description of the tests and references for obtaining additional information on these tests are also listed in the table. Applying these tests may require consultation with a statistician.

Table 2.3 Examples of Alternate Statistical Tests

Alternate Tests	Probability Model Assumed	Type of Test	Reference	Advantages	Disadvantages
Alternate 1-Sample Tests (no reference area measurements)					
Student's t Test	Normal	Parametric test for H_o: Mean < L	*Guidance for Data Quality Assessment*, EPA QA/G-9, p. 3.2-2.	Appropriate if data appears to be normally distributed and symmetric.	Relies on a non-robust estimator for μ and σ. Sensitive to outliers and departures from normality.
t Test Applied To Logarithms	Lognormal	Parametric test for H_o: Median < L	*Guidance for Data Quality Assessment*, EPA QA/G-9, p. 3.2-2	This is a well- known and easy-to-apply test. Useful for a quick summary of the situation if the data is skewed to right.	Relies on a non-robust estimator for σ. Sensitive to outliers and departures from lognormality.
Minimum Variance Unbiased Estimator For Lognormal Mean	Lognormal	Parametric estimates for mean and variance of lognormal distribution	Gilbert, *Statistical Methods for Environmental Pollution Monitoring*, p. 164, 1987.	A good parametric test to use if the data is lognormal.	Inappropriate if the data is not lognormal.
Chen Test	Skewed to right, including Lognormal	Parametric test for H_o: Mean > 0	*Journal of the American Statistical Association (90)*, p.767, 1995.	A good parametric test to use if the data is lognormal.	Applicable only for testing H_o: "survey unit is clean." Survey unit must be significantly greater than 0 to fail. Inappropriate if the data is not skewed to the right.

Table 2.3 (continued)

Alternative Tests	Probability Model Assumed	Type of Test	Reference	Advantages	Disadvantages
Alternate 1-Samples Tests (no reference area measurements)					
Bayesian Approaches	Varies, but a family of probability distributions must be selected.	Parametric test for H_o: Mean < L	DeGroot, *Optimal Statistical Decisions*, p. 157, 1970.	Permits use of subjective "expert judgment" in interpretation of data.	Decisions based on expert judgment may be difficult to explain and defend.
Bootstrap	No restriction	Nonparametric. Uses resampling methods to estimate sampling variance.	Hall, *Annals of Statistics (22)*, p. 2011-2030, 1994.	Avoids assumptions concerning the type of distribution.	Computer intensive analysis required. Accuracy of the results can be difficult to assess.
Lognormal Confidence Intervals Using Bootstrap	Lognormal	Uses resampling methods to estimate one-sided confidence interval for lognormal mean.	Angus, *The Statistician (43)*, p. 395, 1994.	Nonparametric method applied within a parametric lognormal model.	Computer intensive analysis required. Accuracy of the results can be difficult to assess.

Table 2.3 (continued)

Alternative Tests	Probability Model Assumed	Type of Test	Reference	Advantages	Disadvantages
Alternate 2-Sample Tests (reference area measurements are required)					
Student's t Test	Symmetric, normal	Parametric test for difference in means H_o: $\mu_x < \mu_y$	*Guidance for Data Quality Assessment*, EPA QA/G-9, p. 3.3-2	Easy to apply. Performance for non-normal data is acceptable.	Relies on a non-robust estimator for σ, therefore test results are sensitive to outliers.
Mann-Whitney Test	No restrictions	Nonparametric test difference in location H_o: $\mu_x < \mu_y$	Hollander and Wolfe, *Nonparametric Statistical Methods*, p. 71, 1973.	Equivalent to the WRS test, but used less often. Similar to resampling, because test is based on set of all possible differences between the two data sets.	Assumes that the only difference between the test and reference areas is a shift in location.
Kolmogorov-Smirnov	No restrictions	Nonparametric test for any difference between the 2 distributions	Hollander and Wolfe, *Nonparametric Statistical Methods*, p. 219, 1973.	A robust test for equality of two sample distributions against all alternatives.	May reject because variance is high, although mean is in compliance.
Bayesian Approaches	Varies, but a family of probability distributions must be selected	Parametric tests for difference in means or difference in variance.	Box and Tiao, *Bayesian Inference in Statistical Analysis*, Chapter 2, 1973.	Permits use of "expert judgment" in the interpretation of data.	Decisions based on expert judgement may be difficult to explain and defend.

Table 2.3 (continued)

Alternative Tests	Probability Model Assumed	Type of Test	Reference	Advantages	Disadvantages
Alternate 2-Sample Tests (reference area measurements are required)					
2-Sample Quantile Test	No restrictions	Nonparametric test for difference in shape and location.	EPA, *Methods for Evaluating the Attainment of Cleanup Standards, Vol. 3*, p. 7.1, 1992.	Will detect if survey unit distribution exceeds reference distribution in the upper quantiles.	Applicable only for testing H_o: "survey unit is clean." Survey unit must be significantly greater than 0 to fail.
Simultaneous WRS and Quantile Test	No restrictions	Nonparametric test for difference in shape and location.	EPA, *Methods for Evaluating the Attainment of Cleanup Standards, Vol. 3*, p. 7.17, 1992.	Additional level of protection provided by using two tests. Has advantages of both tests.	Cannot be combined with the WRS test that uses H_o: "survey unit is not clean." Should only be combined with WRS test for H_o: "survey unit is clean."
Bootstrap and Other Resampling Methods	No restrictions	Nonparametric. Uses resampling methods to estimate sampling variance.	Hall, *Annals of Statistics (22)*, p. 2011, 1994.	Avoids assumptions concerning the type of distribution. Generates informative resampling distributions for graphing.	Computer intensive analysis required.
Alternate to Statistical Tests					
Decision Theory	No restrictions	Incorporates loss function in the decision theory approach.	DOE, *Statistical and Cost-Benefit Enhancements to the DQO Process for Characterization Decisions*, 1996.	Combines elements of cost-benefit analysis and risk assessment into the planning process.	Limited experience in applying the method to compliance demonstration and decommissioning. Computer intensive analysis required.

2.6.2 Alternate Null Hypothesis

The selection of the null hypothesis in MARSSIM is designed to be protective of human health and the environment as well as consistent with current methods used for demonstrating compliance with regulations. MARSSIM also acknowledges that site-specific conditions (*e.g.*, high variability in background, lack of measurement techniques with appropriate detection sensitivity) may preclude the use of the null hypothesis that the survey unit is assumed to be contaminated. Similarly, a different null hypothesis and methodology could be used for different survey units (*e.g.*, Class 3 survey units). NUREG 1505 (NRC 1997b) provides guidance on determining when background variability might be an issue, designing surveys based on the null hypothesis that the survey unit concentration is indistinguishable from the concentration in the reference area, and performing statistical tests to demonstrate that the survey unit is indistinguishable from background.

2.6.3 Integrating MARSSIM with Other Survey Designs

2.6.3.1 Accelerated Cleanup Models

There are a number of approaches designed to expedite site cleanups. These approaches can save time and resources by reducing sampling, preventing duplication of effort, and reducing inactive time periods between steps in a cleanup process. Although Section 2.4 describes the RSSI Process recommended in MARSSIM as one with six principal steps, MARSSIM is not intented to be a serial process that would slow site cleanups. Rather, MARSSIM supports existing programs and encourages approaches to expedite site cleanups. Part of the significant emphasis on planning in MARSSIM is meant to promote saving time and resources.

There are many examples of accelerated cleanup approaches. The Superfund Accelerated Cleanup Model (SACM), which includes a module called integrated site assessment, has as its objectives increased efficiency and shorter response times (EPA 1992f, EPA 1993c, EPA 1997b).

Sandia National Laboratories (SNL) uses the Observational Approach. This approach uses an iterative process of sample collection and real-time data evaluation to characterize a site. This process allows early field results to guide later data collection in the field. Data collection is limited to only that required for selecting a unique remedy for a site.[5]

At DOE's Hanford Site, the parties to the Tri-Party Agreement negotiated a method to implement the CERCLA process in order to 1) accelerate the assessment phase, and 2) coordinate RCRA

[5] Information on the Observational Approach recommended by Sandia National Laboratories is available on the internet at http://www.em.doe.gov/tie/strechar.html.

and CERCLA requirements whenever possible, thereby resulting in cost savings. The Hanford Past Practice Strategy (HPPS) was developed in 1991 to accelerate decisionmaking and initiation of remediation through activities that include maximizing the use of existing data consistent with data quality objectives.[6]

The adaptive sampling programs at the Environmental Assessment Division (EAD) of Argonne National Laboratory quantitatively fuse soft data (for example, historical records, aerial photos, nonintrusive geophysical data) with hard sampling results to estimate contaminant extent, measure the uncertainty associated with these estimates, determine the benefits from collecting additional samples, and assist in siting new sample locations to maximize the information gained.[7]

2.6.3.2 Superfund Soil Screening Guidance

The goal of the Soil Screening Guidance (EPA 1996b, EPA 1996c) is to help standardize and accelerate the evaluation and cleanup of contaminated soils at sites on the National Priorities List (NPL) designated for future residential land use. The guidance provides a methodology for calculating risk-based, site-specific, soil screening levels for chemical contaminants in soil that may be used to identify areas needing further investigation at NPL sites. While the Soil Screening Guidance was not developed for use with radionuclides, the methodology used is comparable to the MARSSIM guidance for demonstrating compliance using DCGLs. The Soil Screening Guidance assumes that there is a low probability of contamination, and does not account for small areas of elevated activity. These assumptions correlate to a Class 3 area in MARSSIM. Because the Soil Screening Guidance is designed as a screening tool instead of a final demonstration of compliance, the specific values for decision error levels, the bounds of the gray region, and the number and location of measurements are developed to support these objectives. However, MARSSIM guidance can be integrated with the survey design in the Soil Screening Guidance using this guidance as an alternate MARSSIM survey design.

The Soil Screening Guidance survey design is based on collecting samples, so scan surveys and direct measurements are not considered. To reduce analytical costs the survey design recommends compositing samples and provides a statistical test for demonstrating compliance. Compositing samples provides an additional source of uncertainty and prevents the detection of small areas of elevated activity.

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[6] Information on the Hanford Past Practice Strategy is available on the internet at http://www.bhi-erc.com/map/sec5.html.

[7] Information on the Argonne National Laboratory adaptive sampling programs can be obtained on the internet at http://www.ead.anl.gov/~web/newead/prgprj/proj/adaptive/adaptive.html.

3 HISTORICAL SITE ASSESSMENT

3.1 Introduction

The Radiation Survey and Site Investigation (RSSI) Process uses a graded approach that starts with the Historical Site Assessment (HSA) and is later followed by other surveys that lead to the final status survey. The HSA is an investigation to collect existing information describing a site's complete history from the start of site activities to the present time. The necessity for detailed information and amount of effort to conduct an HSA depend on the type of site, associated historical events, regulatory framework, and availability of documented information. For example, some facilities—such as Nuclear Regulatory Commission (NRC) licensees that routinely maintain records throughout their operations—already have HSA information in place. Other facilities, such as Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or Resource Conservation and Recovery Act (RCRA) sites, may initiate a comprehensive search to gather HSA information (also see Appendix F for comparison of Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), CERCLA, and RCRA). In the former case, the HSA is essentially complete and a review of the following sections ensures that all information sources are incorporated into the overall investigation. In still other cases, where sealed sources or small amounts of radionuclides are described by the HSA, the site may qualify for a simplified decommissioning procedure (see Appendix B).

The HSA

- identifies potential, likely, or known sources of radioactive material and radioactive contamination based on existing or derived information
- identifies sites that need further action as opposed to those posing no threat to human health
- provides an assessment for the likelihood of contaminant migration
- provides information useful to scoping and characterization surveys
- provides initial classification of the site or survey unit[1] as impacted or non-impacted

The HSA may provide information needed to calculate derived concentration guideline levels (DCGLs, initially described in Section 2.2) and furthermore provide information that reveals the magnitude of a site's DCGLs. This information is used for comparing historical data to potential DCGLs and determining the suitability of the existing data as part of the assessment of the site. The HSA also supports emergency response and removal activities within the context of the

[1] Refer to Section 4.6 for a discussion of survey units.

EPA's Superfund program, fulfills public information needs, and furnishes appropriate information about the site early in the Site Investigation process. For a large number of sites (*e.g.* currently licensed facilities), site identification and reconnaissance may not be needed. For certain response activities, such as reports concerning the possible presence of radioactivity, preliminary investigations may consist more of a reconnaissance and a scoping survey in conjunction with efforts to gather historical information.

The HSA is typically described in three sections: identification of a candidate site (Section 3.3), preliminary investigation of the facility or site (Section 3.4), and site reconnaissance (Section 3.5). The reconnaissance however is not a scoping survey. The HSA is followed by an evaluation of the site based on information collected during the HSA.

3.2 Data Quality Objectives

The Data Quality Objectives (DQO) Process assists in directing the planning of data collection activities performed during the HSA. Information gathered during the HSA supports other DQOs when this process is applied to subsequent surveys.

Three HSA-DQO results are expected:

- identifying an individual or a list of planning team members—including the decision maker (DQO Step 1, Appendix D, Section D.1)

- concisely describing the problem (DQO Step 1, Appendix D, Section D.1)

- initially classifying site and survey unit as impacted or non-impacted (DQO Step 4, Appendix D, Section D.4)

Other results may accompany these three, and this added information may be useful in supporting subsequent applications of the DQO process.

The planning team clarifies and defines the DQOs for a site-specific survey. This multidisciplinary team of technical experts offers the greatest potential for solving problems when identifying every important aspect of a survey. Including a stakeholder group representative is an important consideration when assembling this team. Once formed, the team can also consider the role of public participation for this assessment and the possible surveys to follow. The number of team members is directly related to the scope and complexity of the problem. For a small site or simplified situations, planning may be performed by the site owner. For other specific sites (*e.g.*, CERCLA), a regulatory agency representative may be included.

The representative's role facilitates survey planning—without direct participation in survey plan development—by offering comments and information based on past precedent, current guidance, and potential pitfalls. For a large, complex facility, the team may include technical project managers, site managers, scientists, engineers, community and local government representatives, health physicists, statisticians, and regulatory agency representatives. A reasonable effort should be made to include other individuals—that is, specific decision makers or data users—who may use the study findings sometime in the future.

The planning team is generally led by a member who is referred to as the decision maker. This individual is often the person with the most authority over the study and may be responsible for assigning the roles and responsibilities to planning team members. Overall, the decision-making process arrives at final decisions based on the planning team's recommendations.

The problem or situation description provides background information on the fundamental issue to be addressed by the assessment (see EPA 1994a). The following steps may be helpful during DQO development:

- describe the conditions or circumstances regarding the problem or situation and the reason for undertaking the survey
- describe the problem or situation as it is currently understood by briefly summarizing existing information
- conduct literature searches and interviews, and examine past or ongoing studies to ensure that the problem is correctly defined
- if the problem is complex, consider breaking it into more manageable pieces

Section 3.4 provides guidance on gathering existing site data and determining the usability of this data.

The initial classification of the site involves developing a conceptual model based on the existing information collected during the preliminary investigation. Conceptual models describe a site or facility and its environs and present hypotheses regarding the radionuclides for known and potential residual contamination (EPA 1987b, 1987c). The classification of the site is discussed in Section 3.6, Evaluation of Historical Site Assessment Data.

Several results of the DQO Process may be addressed initially during the HSA. This information or decision may be based on limited or incomplete data. As the site assessment progresses and as decisions become more difficult, the iterative nature of the DQO Process allows for re-evaluation of preliminary decisions. This is especially important for classification of sites and survey units where the final classification is not made until the final status survey is planned.

3.3 Site Identification

A site may already be known for its prior use and presence of radioactive materials. Elsewhere, potential radiation sites may be identified through the following:

- records of authorization to possess or handle radioactive materials (*e.g.*, NRC or NRC Agreement State License, DOE facility records, Naval Radioactive Materials Permit, USAF Master Materials License, Army Radiation Authorization, State Authorization for Naturally Occurring and Accelerator Produced Radioactive Material (NARM))

- notification to government Agencies of possible releases of radioactive substances

- citizens filing a petition under section 105(d) of the Superfund Amendments and Reauthorization Act of 1986 (SARA; EPA 1986)

- ground and aerial radiological surveys

- contacts with knowledge of the site

- review of EPA's Environmental Radiation Ambient Monitoring System (ERAMS) database (Appendix G)

Once identified, the name, location, and current legal owner or custodian (where available) of the site should be recorded.

3.4 Preliminary HSA Investigation

This limited-scope investigation serves to collect readily available information concerning the facility or site and its surroundings. The investigation is designed to obtain sufficient information to provide initial classification of the site or survey unit as impacted or non-impacted. Information on the potential distribution of radioactive contamination may be used for classifying each site or survey unit as Class 2 or Class 1 and is useful for planning scoping and characterization surveys.

Table 3.1 provides a set of questions that can be used to assist in the preliminary HSA investigation. Apart from obvious cases (*e.g.*, NRC licensees), this table focuses on characteristics that identify a previously unrecognized or known but undeclared source of potential contamination. Furthermore, these questions may identify confounding factors for selecting reference sites.

Table 3.1 Questions Useful for the Preliminary HSA Investigation

1.	Was the site ever licensed for the manufacture, use, or distribution of radioactive materials under Agreement State Regulations, NRC licenses, or Armed Services permits, or for the use of 91B material?	Indicates a higher probability that the area is impacted.
2.	Did the site ever have permits to dispose of, or incinerate, radioactive material onsite? Is there evidence of such activities?	Evidence of radioactive material disposal indicates a higher probability that the area is impacted.
3.	Has the site ever had deep wells for injection or permits for such?	Indicates a higher probability that the area is impacted.
4.	Did the site ever have permits to perform research with radiation generating devices or radioactive materials except medical or dental x-ray machines?	Research that may have resulted in the release of radioactive materials indicates a higher probability that the area is impacted.
5.	As a part of the site's radioactive materials license were there ever any Soil Moisture Density Gauges (Americium-Beryllium or Plutonium-Beryllium sources), or Radioactive Thickness Monitoring Gauges stored or disposed of onsite?	Leak test records of sealed sources may indicate whether or not a storage area is impacted. Evidence of radioactive material disposal indicates a higher probability that the area is impacted.
6.	Was the site used to create radioactive material(s) by activation?	Indicates a higher probability that the area is impacted.
7.	Were radioactive sources stored at the site?	Leak test records of sealed sources may indicate whether or not a storage area is impacted.
8.	Is there evidence that the site was involved in the Manhattan Project or any Manhattan Engineering District (MED) activities (1942-1946)?	Indicates a higher probability that the area is impacted.
9.	Was the site ever involved in the support of nuclear weapons testing (1945-1962)?	Indicates a higher probability that the area is impacted.
10.	Were any facilities on the site used as a weapons storage area? Was weapons maintenance ever performed at the site?	Indicates a higher probability that the area is impacted.
11.	Was there ever any decontamination, maintenance, or storage of radioactively contaminated ships, vehicles, or planes performed onsite?	Indicates a higher probability that the area is impacted.

Table 3.1 Questions Useful for the Preliminary HSA Investigation (continued)

12.	Is there a record of any aircraft accident at or near the site (*e.g.*, depleted uranium counterbalances, thorium alloys, radium dials)?	May include other considerations such as evidence of radioactive materials that were not recovered.
13.	Was there ever any radiopharmaceutical manufacturing, storage, transfer, or disposal onsite?	Indicates a higher probability that the area is impacted.
14.	Was animal research ever performed at the site?	Evidence that radioactive materials were used for animal research indicates a higher probability that the area is impacted.
15.	Were uranium, thorium, or radium compounds (NORM) used in manufacturing, research, or testing at the site, or were these compounds stored at the site?	Indicates a higher probability that the area is impacted or results in a potential increase in background variability.
16.	Has the site ever been involved in the processing or production of Naturally Occurring Radioactive Material (*e.g.*, radium, fertilizers, phosphorus compounds, vanadium compounds, refractory materials, or precious metals) or mining, milling, processing, or production of uranium?	Indicates a higher probability that the area is impacted or results in a potential increase in background variability.
17.	Were coal or coal products used onsite? If yes, did combustion of these substances leave ash or ash residues onsite? If yes, are runoff or production ponds onsite?	May indicate other considerations such as a potential increase in background variability.
18.	Was there ever any onsite disposal of material known to be high in naturally occurring radioactive materials (*e.g.*, monazite sands used in sandblasting)?	May indicate other considerations such as a potential increase in background variability.
19.	Did the site process pipe from the oil and gas industries?	Indicates a higher probability that the area is impacted or results in a potential increase in background variability.
20.	Is there any reason to expect that the site may be contaminated with radioactive material (other than previously listed)?	See Section 3.6.3.

Appendix G of this document provides a general listing and cross-reference of information sources—each with a brief description of the information contained in each source. The *Site Assessment Information Directory* (EPA 1991e) contains a detailed compilation of data sources, including names, addresses, and telephone numbers of agencies that can provide HSA information.

3.4.1 Existing Radiation Data

Site files, monitoring data, former site evaluation data, Federal, State, or local investigations, or emergency actions may be sources of useful site information. Existing site data may provide specific details about the identity, concentration, and areal distribution of contamination. However, these data should be examined carefully because:

- Previous survey and sampling efforts may not be compatible with HSA objectives or may not be extensive enough to characterize the facility or site fully.

- Measurement protocols and standards may not be known or compatible with HSA objectives (*e.g.*, Quality Assurance/Quality Control (QA/QC) procedures, limited analysis rather than full-spectrum analysis) or may not be extensive enough to characterize the facility or site fully.

- Conditions may have changed since the site was last sampled (*i.e.*, substances may have been released, migration may have spread the contamination, additional waste disposal may have occurred, or decontamination may have been performed).

Existing data can be evaluated using the Data Quality Assessment (DQA) process described in Appendix E. (Also see DOE 1987 and EPA 1980c, 1992a, 1992b, 1996a for additional guidance on evaluating data.)

3.4.1.1 Licenses, Site Permits, and Authorizations

The facility or site radioactive materials license and supporting or associated documents are potential sources of information for licensed facilities. If a license does not exist, there may be a permit or other document that authorized site operations involving radioactivity. These documents may specify the quantities of radioactive material authorized for use at the site, the chemical and physical form of the materials, operations for which the materials are (or were) used, locations of these operations at the facility or site, and total quantities of material used at the site during its operating lifetime.

EPA and State agencies maintain files on a variety of environmental programs. These files may contain permit applications and monitoring results with information on specific waste types and quantities, sources, type of site operations, and operating status of the facility or site. Some of these information sources are listed in Appendix G (*e.g.*, Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), Resource Conservation and Recovery Information System (RCRIS), Ocean Data Evaluation System (ODES)).

3.4.1.2 Operating Records

Records and other information sources useful for site evaluations include those describing onsite activities; current and past contamination control procedures; and past operations involving demolition, effluent releases, discharge to sewers or onsite septic systems, production of residues, land filling, waste and material storage, pipe and tank leaks, spills and accidental releases, release of facilities or equipment from radiological controls, and onsite or offsite radioactive and hazardous waste disposal. Some records may be or may have been classified for National Security purposes and means should be established to review all pertinent records. Past operations should be summarized in chronological order along with information indicating the type of permits and approvals that authorized these operations. Estimates of the total activity disposed of or released at the site and the physical and chemical form of the radioactive material should also be included. Records on waste disposal, environmental monitoring, site inspection reports, license applications, operational permits, waste disposal material balance and inventory sheets, and purchase orders for radioactive materials are useful—for estimating total activity. Information on accidents, such as fires, flooding, spills, unintentional releases, or leakage, should be collected as potential sources of contamination. Possible areas of localized contamination should be identified.

Site plats or plots, blueprints, drawings, and sketches of structures are especially useful to illustrate the location and layout of buildings on the site. Site photographs, aerial surveys, and maps can help verify the accuracy of these drawings or indicate changes following the time when the drawings were prepared. Processing locations—plus waste streams to and from the site as well as the presence of stockpiles of raw materials and finished product—should be noted on these photographs and maps. Buildings or outdoor processing areas may have been modified or reconfigured such that former processing areas were converted to other uses or configurations. The locations of sewers, pipelines, electric lines, water lines, *etc.*, should also be identified. This information facilitates planning the Site Reconnaissance and subsequent surveys, developing a site conceptual model, and increasing the efficiency of the survey program.

Corporate contract files may also provide useful information during subsequent stages of the Radiation Survey and Site Investigation Process. Older facilities may not have complete operational records, especially for obsolete or discontinued processes. Financial records may also provide information on purchasing and shipping that in turn help to reconstruct a site's operational history.

While operating records can be useful tools during the HSA, the investigator should be careful not to place too much emphasis on this type of data. These records are often incomplete and lack information on substances previously not considered hazardous. Out-of-date blueprints and drawings may not show modifications made during the lifetime of a facility.

3.4.2 Contacts and Interviews

Interviews with current or previous employees are performed to collect first-hand information about the site or facility and to verify or clarify information gathered from existing records. Interviews to collect first-hand information concerning the site or facility are generally conducted early in the data-gathering process. Interviews cover general topics, such as radioactive waste handling procedures. Results of early interviews are used to guide subsequent data collection activities.

Interviews scheduled late in the data gathering process may be especially useful. This activity allows questions to be directed to specific areas of the investigation that need additional information or clarification. Photographs and sketches can be used to assist the interviewer and allow the interviewees to recall information of interest. Conducting interviews onsite where the employees performed their tasks often stimulates memories and facilitates information gathering. In addition to interviewing managers, engineers, and facility workers, interviews may be conducted with laborers and truck drivers to obtain information from their perspective. The investigator should be cautious in the use of interview information. Whenever possible, anecdotal evidence should be assessed for accuracy and results of interviews should be backed up with supporting data. Steps that ensure specific information is properly recorded may include hiring trained investigators and taking affidavits.

3.5 Site Reconnaissance

The objective of the Site Reconnaissance or Site Visit is to gather sufficient information to support a decision regarding further action. Reconnaissance activity is not a risk assessment, a scoping survey, or a study of the full extent of contamination at a facility or site. The reconnaissance offers an opportunity to record information concerning hazardous site conditions as they apply to conducting future survey work. In this regard, information describing physical hazards, structural integrity of buildings, or other conditions, defines potential problems that may impede future work. This section is most applicable to sites with less available information and may not be necessary at other sites having greater amounts of data, such as Nuclear Regulatory Commission (NRC) licensed facilities.

To prepare for the Site Reconnaissance, begin by reviewing what is known about the facility or site and identify data gaps. Given the site-specific conditions, consider whether or not a Site Reconnaissance is necessary and practical. This type of effort may be deemed necessary if a site is abandoned, not easily observed from areas of public access, or discloses little information during file searches. These same circumstances may also make a Site Reconnaissance risky for health and safety reasons—in view of the many unknowns—and may make entry difficult. This investigative step may be practical, but less critical, for active facilities whose operators grant

access and provide requested information. Remember to arrange for proper site access and prepare an appropriate health and safety plan, if required, before initiating the Site Reconnaissance.

Investigators should acquire signed consent forms from the site or equipment owner to gain access to the property to conduct the reconnaissance. Investigators are to determine if State and Federal officials, and local individuals, should be notified of the reconnaissance schedule. If needed, local officials should arrange for public notification. Guidance on obtaining access to sites can be found in *Entry and Continued Access Under CERCLA* (EPA 1987d).

A study plan should be prepared before the Site Reconnaissance to anticipate every reconnaissance activity and identify specific information to be gathered. This plan should incorporate a survey of the site's surroundings and provide details for activities that verify or identify the location of: nearby residents, worker populations, drinking water or irrigation wells, foods, and other site environs information.

Preparing for the Site Reconnaissance includes initially gathering necessary materials and equipment. This includes a camera to document site conditions, health and safety monitoring instruments including a radiation detection meter for use during the site visit, and extra copies of topographic maps to mark target locations, water distribution areas, and other important site features. A logbook is critical to keeping a record of field activities and observations as they occur. For documentation purposes MARSSIM recommends that the logbook be completed in waterproof ink, preferably by one individual. Furthermore, each page of the logbook should be signed and dated, including the time of day, after the last entry on the page. Corrections should be documented and approved.

3.6 Evaluation of Historical Site Assessment Data

The main purpose of the Historical Site Assessment (HSA) is to determine the current status of the site or facility, but the data collected may also be used to differentiate sites that need further action from those that pose little or no threat to human health and the environment. This screening process can serve to provide a site disposition recommendation or to recommend additional surveys. Because much of the data collected during HSA activities is qualitative or is analytical data of unknown quality, many decisions regarding a site are the result of professional judgment.

There are three possible recommendations that follow the HSA:

- An emergency action to reduce the risk to human health and the environment—this alternative is applicable to Superfund removal actions, which are discussed in detail by EPA (EPA 1988c).

- The site or area is impacted and further investigation is needed before a decision regarding final disposition can be made. The area may be Class 1, Class 2, or Class 3, and a scoping survey or a characterization survey should be performed. Information collected during the HSA can be very useful in planning these subsequent survey activities.

- The site or area is non-impacted. There is no possibility or an extremely low probability of residual radioactive materials being present at the site. The site or area can be released.

Historical analytical data indicating the presence of contamination in environmental media (surface soil, subsurface soil, surface water, ground water, air, or buildings) can be used to support the hypothesis that radioactive material was released at the facility or site. A decision that the site is contaminated can be made regardless of the quality of the data, its attribution to site operations, or its relationship to background levels. In such cases, analytical indications are sufficient to support the hypothesis—it is not necessary to definitively demonstrate that a problem exists. Conversely, historical analytical data can also be used to support the hypothesis that no release has occurred. However, these data should not be the sole basis for this hypothesis. Using historical analytical data as the principal reason for ruling out the occurrence of contamination forces the data to demonstrate that a problem does not exist.

In most cases it is assumed there will be some level of process knowledge available in addition to historical analytical data. If process knowledge suggests that no residual contamination should be present and the historical analytical data also suggests that no residual contamination is present, the process knowledge provides an additional level of confidence and supports classifying the area as non-impacted. However, if process knowledge suggests no residual contamination should be present but the historical analytical data indicate the presence of residual contamination, the area will probably be considered impacted.

The following sections describe the information recommended for assessing the status of a site. This information is needed to accurately and completely support a site disposition recommendation. If some of the information is not available, it should be identified as a data need for future surveys. Data needs are collected during Step 3 of the Data Quality Objective (DQO) process (Identify Inputs to the Decision) as described in Appendix D, Section D.3. Section 3.6.5 provides information on professional judgment and how it may be applied to the decision making process.

3.6.1 Identify Potential Contaminants

An efficient HSA gathers information sufficient to identify the radionuclides used at the site—including their chemical and physical form. The first step in evaluating HSA data is to estimate the potential for residual contamination by these radionuclides.

Site operations greatly influence the potential for residual contamination (NRC 1992a). An operation that only handled encapsulated sources is expected to have a low potential for contamination—assuming that the integrity of the sources was not compromised. A review of leak-test records for such sources may be adequate to demonstrate the low probability of residual contamination. A chemical manufacturing process facility would likely have contaminated piping, ductwork, and process areas, with a potential for soil contamination where spills, discharges, or leaks occurred. Sites using large quantities of radioactive ores—especially those with outside waste collection and treatment systems—are likely to have contaminated grounds. If loose dispersible materials were stored outside or process ventilation systems were poorly controlled, then windblown surface contamination may be possible.

Consider how long the site was operational. If enough time elapsed since the site discontinued operations, radionuclides with short half-lives may no longer be present in significant quantities. In this case, calculations demonstrating that residual activity could not exceed the DCGL may be sufficient to evaluate the potential residual contaminants at the site. A similar consideration can be made based on knowledge of a contaminant's chemical and physical form. Such a determination relies on records of radionuclide inventories, chemical and physical forms, total amounts of activity in waste shipments, and purchasing records to document and support this decision. However, a number of radionuclides experience significant decay product ingrowth, which should be included when evaluating existing site information.

3.6.2 Identify Potentially Contaminated Areas

Information gathered during the HSA should be used to provide an initial classification of the site areas as impacted or non-impacted.

Impacted areas have a reasonable potential for radioactive contamination (based on historical data) or contain known radioactive contamination (based on past or preliminary radiological surveillance). This includes areas where 1) radioactive materials were used and stored; 2) records indicate spills, discharges, or other unusual occurrences that could result in the spread of contamination; and 3) radioactive materials were buried or disposed. Areas immediately surrounding or adjacent to these locations are included in this classification because of the potential for inadvertent spread of contamination.

Non-impacted areas—identified through knowledge of site history or previous survey information—are those areas where there is no reasonable possibility for residual radioactive contamination. The criteria used for this segregation need not be as strict as those used to demonstrate final compliance with the regulations. However, the reasoning for classifying an area as non-impacted should be maintained as a written record. Note that—based on accumulated survey data—an impacted area's classification may change as the RSSI Process progresses.

All potential sources of radioactivity in impacted areas should be identified and their dimensions recorded (in 2 or 3 dimensions—to the extent they can be measured or estimated). Sources can be delineated and characterized through visual inspection during the site reconnaissance, interviews with knowledgeable personnel, and historical information concerning disposal records, waste manifests, and waste sampling data. The HSA should address potential contamination from the site whether it is physically within or outside of site boundaries. This approach describes the site in a larger context, but as noted in Chapter 1, MARSSIM's scope concerns releasing a site and not areas outside a site's boundaries.

3.6.3 Identify Potentially Contaminated Media

The next step in evaluating the data gathered during the HSA is to identify potentially contaminated media at the site. To identify media that may and media that do not contain residual contamination supports both preliminary area classification (Section 4.4) and planning subsequent survey activities.

This section provides guidance on evaluating the likelihood for release of radioactivity into the following environmental media: surface soil, subsurface soil, sediment, surface water, ground water, air, and buildings. While MARSSIM's scope is focused on surface soils and building surfaces, this section makes note of still other media to provide a starting place to identify and address all possible media. The evaluation will result in either a finding of "Suspected Contamination" or "No Suspected Contamination," which may be based on analytical data, professional judgment, or a combination of the two.

Subsequent sections describe the environmental media and pose questions pertinent to each type. Each question is accompanied by a commentary. Carefully consider the questions within the context of the site and the available data. Avoid spending excessive amounts of time answering each question because answers to every question are unlikely to be available at each site. Questions that cannot be answered based on existing data can be used to direct future surveys of the site. Also, keep in mind the numerous differences in site-specific circumstances and that the questions do not identify every characteristic that might apply to a specific site. Additional questions or characteristics identified during a specific site assessment should be included in the HSA report (Section 3.8; EPA 1991f).

3.6.3.1 Surface Soil

Surface soil is the top layer of soil on a site that is available for direct exposure, growing plants, resuspension of particles for inhalation, and mixing from human disturbances. Surface soil may also be defined as the thickness of soil that can be measured using direct measurement or scanning techniques. Typically, this layer is represented as the top 15 cm (6 in.) of soil (40 CFR 192). Surface sources may include gravel fill, waste piles, concrete, or asphalt paving. For many

sites where radioactive materials were used, one first assumes that surface contamination exists and the evaluation is used to identify areas of high and low probability of contamination (Class 1, Class 2 or Class 3 areas).

- Were all radiation sources used at the site encapsulated sources?

A site where only encapsulated sources were used would be expected to have a low potential for contamination. A review of the leak-test records and documentation of encapsulated source location may be adequate for a finding of "No Suspected Contamination."

- Were radiation sources used only in specific areas of the site?

Evidence that radioactive materials were confined to certain areas of the site may be helpful in determining which areas are impacted and which are non-impacted.

- Was surface soil regraded or moved elsewhere for fill or construction purposes?

This helps to identify additional potential radiation sites.

3.6.3.2 Subsurface Soil and Media

Subsurface soil and media are defined as any solid materials not considered to be surface soil. The purpose of these investigations is to locate and define the vertical extent of the potential contamination. Subsurface measurements can be expensive, especially for beta- or alpha-emitting radionuclides. Removing areas from consideration for subsurface measurements or defining areas as non-impacted for subsurface sampling conserves limited resources and focuses the site assessment on areas of concern.

- Are there areas of known or suspected surface soil contamination?

Surface soil contamination can migrate deeper into the soil. Surface soil sources should be evaluated based on radionuclide mobility, soil permeability, and infiltration rate to determine the potential for subsurface contamination. Computer modeling may be helpful for evaluating these types of situations.

- Is there a ground-water plume without an identifiable source?

Contaminated ground water indicates that a source of contamination is present. If no source is identified during the HSA, subsurface contamination is a probable source.

- Is there potential for enhanced mobility of radionuclides in soils?

Radionuclide mobility can be enhanced by the presence of solvents or other volatile chemicals that affect the ion-exchange capacity of soil.

- Is there evidence that the surface has been disturbed?

Recent or previous excavation activities are obvious sources of surface disturbance. Areas with developed plant life (forested or old growth areas) may indicate that the area remained undisturbed during the operating life of the facility. Areas where vegetation is removed during previous excavation activity may be distinct from mature plant growth in adjacent areas. If a site is not purposely replanted, vegetation may appear in a sequence starting with grasses that are later replaced by shrubs and trees. Typically, grasslands recover within a few years, sagebrush or low ground cover appears over decades, while mature forests may take centuries to develop.

- Is there evidence of subsurface disturbance?

Non-intrusive, non-radiological measurement techniques may provide evidence of subsurface disturbance. Magnetometer surveys can identify buried metallic objects, and ground-penetrating radar can identify subsurface anomalies such as trenches or dump sites. Techniques involving special equipment are discussed in Section 6.10.

- Are surface structures present?

Structures constructed at a site—during the operational history of that site—may cover below-ground contamination. Some consideration for contaminants that may exist beneath parking lots, buildings, or other onsite structures may be warranted as part of the investigation. There may be underground piping, drains, sewers, or tanks that caused contamination.

3.6.3.3 Surface Water

Surface waters include streams and rivers, lakes, coastal tidal waters, and oceans. Note that certain ditches and intermittently flowing streams qualify as surface water. The evaluation determines whether radionuclides are likely to migrate to surface waters or their sediments. Where a previous release is not suspected, the potential for future release depends on the distance to surface water and the flood potential at the site. With regard to the two preceding sections, one can also consider an interaction between soil and water in relation to seasonal factors including soil cracking due to freezing, thawing, and dessication that influence the dispersal or infiltration of radionuclides.

- Is surface water nearby?

The proximity of a contaminant to local surface water is essentially determined by runoff and radionuclide migration through the soil. The definition for *nearby* depends on site-specific conditions. If the terrain is flat, precipitation is low, and soils are sandy, nearby may be within several meters. If annual precipitation is high or occasional rainfall events are high, within 1,200 meters (3/4 mile) might be considered nearby. In general, sites need not include the surface water pathway where the overland flow distance to the nearest surface water is more than 3,200 meters (2 miles).

- Is the waste quantity particularly large?

Depending on the physical and chemical form of the waste and its location, *large* is a relative term. A *small* quantity of liquid waste may be of more importance—*i.e.*, a greater risk or hazard—than a *large* quantity of solid waste stored in water tight containers.

- Is the drainage area large?

The drainage area includes the area of the site itself plus the upgradient area that produces runoff flowing over the site. Larger drainage areas generally produce more runoff and increase the potential for surface water contamination.

- Is rainfall heavy?

If the site and surrounding area are flat, a combination of heavy precipitation and low infiltration rate may cause rainwater to pool on the site. Otherwise, these characteristics may contribute to high runoff rates that carry radionuclides overland to surface water. Total annual rainfall exceeding one meter (40 inches), or a once in two-year-24-hour precipitation exceeding five cm (two inches) might be considered “heavy.”

Rainfall varies for locations across the continental United States from high (*e.g.*, 89 in./y, Mt. Washington, NH) to low values (*e.g.*, 4.2 in./y, Las Vegas, NV). Precipitation rates will vary during the year at each location due to seasonal and geographic factors. A median value for rainfall within the United States, as found in van der Leeden *et al*. 1990, is about 26 in./y as is observed for Minneapolis, MN.

- Is the infiltration rate low?

Infiltration rates range from very high in gravelly and sandy soils to very low in fine silt and clay soils. Paved sites prevent infiltration and generate runoff.

- Are sources of contamination poorly contained or prone to runoff?

Proper containment which prevents radioactive material from migrating to surface water generally uses engineered structures such as dikes, berms, run-on and runoff control systems, and spill collection and removal systems. Sources prone to releases via runoff include leaks, spills, exposed storage piles, or intentional disposal on the ground surface. Sources not prone to runoff include underground tanks, above-ground tanks, and containers stored in a building.

- Is a runoff route well defined?

A well defined runoff route—along a gully, trench, berm, wall, *etc*.—will more likely contribute to migration to surface water than a poorly defined route. However, a poorly defined route may contribute to dispersion of contamination to a larger area of surface soil.

- Has deposition of waste into surface water been observed?

Indications of this type of activity will appear in records from past practice at a site or from information gathered during personal interviews.

- Is ground water discharge to surface water probable?

The hydrogeology and geographical information of the area around and inside the site may be sufficiently documented to indicate discharge locations.

- Does analytical or circumstantial evidence suggest surface water contamination?

Any condition considered suspicious—and that indicates a potential contamination problem—can be considered circumstantial evidence.

- Is the site prone to flooding?

The Federal Emergency Management Agency (FEMA) publishes flood insurance rate maps that delineate 100-year and 500-year flood plains. Ten-year floodplain maps may also be available. Generally, a site on a 500-year floodplain is not considered prone to flooding.

3.6.3.4 Ground Water

Proper evaluation of ground water includes a general understanding of the local geology and subsurface conditions. Of particular interest is descriptive information relating to subsurface stratigraphy, aquifers, and ground water use.

- Are sources poorly contained?

Proper containment which prevents radioactive material from migrating to ground water generally uses engineered structures such as liners, layers of low permeability soil (*e.g.*, clay), and leachate collection systems.

- Is the source likely to contaminate ground water?

Underground tanks, landfills,[2] surface impoundments and lagoons are examples of sources that are likely to release contaminants that migrate to ground water. Above ground tanks, drummed solid wastes, or sources inside buildings are less likely to contribute to ground-water contamination.

- Is waste quantity particularly large?

Depending on the physical and chemical form of the waste and its location, *large* is a relative term. A *small* quantity of liquid waste may be of more importance—*i.e.*, greater risk or hazard—than a *large* quantity of solid waste stored in water tight containers.

- Is precipitation heavy?

If the site and surrounding area are flat, a combination of heavy precipitation and low infiltration rate may cause rainwater to pool on the site. Otherwise, these characteristics may contribute to high runoff rates that carry radionuclides overland to surface water. Total annual rainfall exceeding one meter (40 in.), or a once in two-year-24-hour precipitation exceeding five cm (two in.) might be considered "heavy."

Rainfall varies for locations across the continental United States from high (*e.g.*, 89 in./y, Mt. Washington, NH) to low values (*e.g.*, 4.2 in./y, Las Vegas, NV). Precipitation rates will vary during the year at each location due to seasonal and geographic factors. A median value for rainfall within the United States, as found in van der Leeden *et al*. 1990, is about 26 in./y as is observed for Minneapolis, MN.

- Is the infiltration rate high?

Infiltration rates range from very high in gravelly and sandy soils to very low in fine silt and clay soils. Unobstructed surface areas are potential candidates for further examination to determine infiltration rates.

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[2] Landfills can affect the geology and hydrogeology of a site and produce heterogeneous conditions. It may be necessary to consult an expert on landfills and the conditions they generate.

- Is the site located in an area of karst terrain?

In karst terrain, ground water moves rapidly through channels caused by dissolution of the rock material (usually limestone) that facilitates migration of contaminants.

- Is the subsurface highly permeable?

Highly permeable soils favor downward movement of water that may transport radioactive materials. Well logs, local geologic literature, or interviews with knowledgeable individuals may help answer this question.

- What is the distance from the surface to an aquifer?

The shallower the source of ground water, the higher the threat of contamination. It is difficult to determine whether an aquifer may be a potential source of drinking water in the future (*e.g.*, next 1,000 years). This generally applies to the shallowest aquifer below the site.

- Are suspected contaminants highly mobile in ground water?

Mobility in ground water can be estimated based on the distribution coefficient (K_d) of the radionuclide. Elements with a high K_d, like thorium (*e.g.*, K_d = 3,200 cm^3/g), are not mobile while elements with a low K_d, like hydrogen (*e.g.*, K_d = 0 cm^3/g), are very mobile. The NRC (NRC 1992b) and Department of Energy (DOE) (Yu, *et al.*, 1993) provide a compilation of K_d values. These values can be influenced by site-specific considerations such that site-specific K_d values need to be evaluated or determined. Also, the mobility of a radionuclide can be enhanced by the presence of a solvent or volatile chemical.

- Does analytical or circumstantial evidence suggest ground water contamination?

Evidence for contamination may appear in current site data; historical, hydrogeological, and geographical information systems records; or as a result of personal interviews.

3.6.3.5 Air

Evaluation of air is different than evaluation of other potentially contaminated media. Air is rarely the source of contamination. Air is evaluated as a pathway for resuspending and dispersing radioactive contamination as well as a contaminated media.

- Were there observations of contaminant releases into the air?

Direct observation of a release to the air might occur where radioactive materials are suspected to be present in particulate form (*e.g.*, mine tailings, waste pile) or adsorbed to particulates (*e.g.*, contaminated soil), and where site conditions favor air transport (*e.g.*, dry, dusty, windy).

- Does analytical or circumstantial evidence suggest a release to the air?

Other evidence for releases to the air might include areas of surface soil contamination that do not appear to be caused by direct deposition or overland migration of radioactive material.

- For radon exposure only, are there elevated amounts of radium (^{226}Ra) in the soil or water that could act as a source of radon in the air?

The source, ^{226}Ra, decays to ^{222}Rn, which is radon gas. Once radon is produced, the gas needs a pathway to escape from its point of origin into the air. Radon is not particularly soluble in water, so this gas is readily released from water sources which are open to air. Soil, however, can retain radon gas until it has decayed (see Section 6.9). The rate that radon is emitted by a solid, *i.e.* radon flux, can be measured directly to evaluate potential sources of radon.

- Is there a prevailing wind and a propensity for windblown transport of contamination?

Information pertaining to geography, ground cover (*e.g.*, amount and types of local vegetation), meteorology (*e.g.*, windspeed at 7 meters above ground level) for and around the site, plus site-specific parameters related to surface soil characteristics enter into calculations used to describe particulate transport. Mean annual windspeed can be obtained from the National Weather Service surface station nearest to the site.

3.6.3.6 Structures

Structures used for storage, maintenance, or processing of radioactive materials are potentially contaminated by these materials. The questions presented in Table 3.1 help to determine if a building might be potentially contaminated. The questions listed in this section are for identifying potentially contaminated structures, or portions of structures, that might not be identified using Table 3.1. Section 4.8.3.1 also presents useful information on identifying structural contamination.

- Were adjacent structures used for storage, maintenance, or processing of radioactive materials?

Adjacent is a relative term for this question. A processing facility with a potential for venting radioactive material to the air could contaminate buildings downwind. A facility with little potential for release outside of the structures handling the material would be less likely to contaminate nearby structures.

- Is a building or its addition or a new structure located on a former radioactive waste burial site or contaminated land?

Comparing past and present photographs or site maps and retrieving building permits or other structural drawings and records in relation to historical operations information will reveal site locations where structures may have been built over buried waste or contaminated land.

- Was the building constructed using contaminated material?

Building materials such as concrete, brick, or cinder block may have been formed using contaminated material.

- Does the potentially non-impacted portion of the building share a drainage system or ventilation system with a potentially contaminated area?

Technical and architectural drawings for site structures along with visual inspections are required to determine if this is a concern in terms of current or past operations.

- Is there evidence that previously identified areas of contamination were remediated by painting or similar methods of immobilizing contaminants?

Removable sources of contamination immobilized by painting may be more difficult to locate, and may need special consideration when planning subsequent surveys.

3.6.4 Develop a Conceptual Model of the Site

Starting with project planning activities, one gathers and analyzes available information to develop a conceptual site model. The model is essentially a site diagram showing locations of known contamination, areas of suspected contamination, types and concentrations of radionuclides in impacted areas, potentially contaminated media, and locations of potential reference (background) areas. The diagram should include the general layout of the site including buildings and property boundaries. When possible, produce three dimensional diagrams. The conceptual site model will be upgraded and modified as information becomes

available throughout the RSSI Process. The process of developing this model is also briefly described in Attachment A of EPA 1996b.

The model is used to assess the nature and the extent of contamination, to identify potential contaminant sources, release mechanisms, exposure pathways, human and/or environmental receptors, and to develop exposure scenarios. Further, this model helps to identify data gaps, determine media to be sampled, and assists staff in developing strategies for data collection. Site history and preliminary survey data generally are extremely useful sources of information for developing this model. The conceptual site model should include known and suspected sources of contamination and the types of contaminants and affected media. Such a model can also illustrate known and potential routes of migration and known or potential human and environmental receptors.

The site should be classified or initially divided into similar areas. Classification may be based on the operational history of the site or observations made during the Site Reconnaissance (see Section 3.5.2). After the site is classified using current and past site characteristics, further divide the site or facility based on anticipated future use. This classification can help to a) assign limited resources to areas that are anticipated to be released without restrictions, and b) identify areas with little or no possibility of unrestricted release. Figure 3.1 shows an example of how a site might be classified in this manner. Further classification of a site may be possible based on site disposition recommendations (unrestricted vs. release with passive controls).

3.6.5 Professional Judgment

In some cases, traditional sources of information, data, models, or scientific principles are unavailable, unreliable, conflicting, or too costly or time consuming to obtain. In these instances professional judgment may be the only practical tool available to the investigator. Professional judgment is the expression of opinion, that is documented in written form and based on technical knowledge and professional experience, assumptions, algorithms, and definitions, as stated by an expert in response to technical problems (NRC 1990). For general applications, this type of judgment is a routine part of scientific investigation where knowledge is incomplete. Professional judgment can be used as an independent review of historical data to support decision making during the HSA. Professional judgment should only be used in situations where data are not reasonably obtainable by collection or experimentation.

The process of recruiting professionals should be documented and as unbiased as possible. The credentials of the selected individual or individuals enhance the credibility of the elicitation, and the ability to communicate their reasoning is a primary determinant of the quality of the results. Qualified professionals can be identified by different sources, including the planning team, professional organizations, government agencies, universities, consulting firms, and public interest groups. The selection criteria for the professionals should include potential conflict of interest (economic or personal), evidence of expertise in a required topic, objectiveness, and availability.

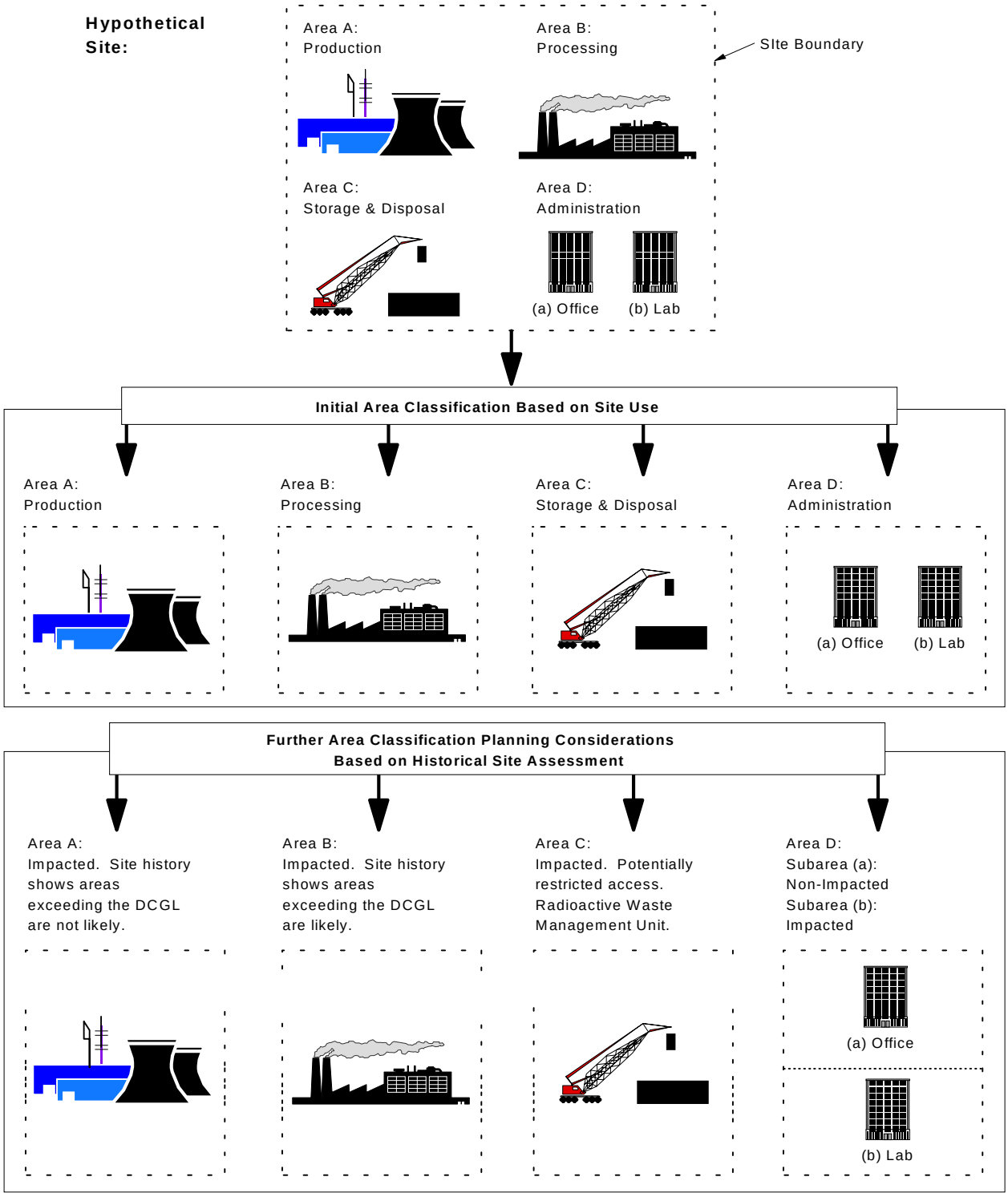


Figure 3.1 Example Showing how a Site Might be Classified Prior to Cleanup Based on the Historical Site Assessment

3.7 Determining the Next Step in the Site Investigation Process

As stated in Section 1.1, the purpose of this manual is to describe a process-oriented approach for demonstrating compliance with the release criterion for residual radioactivity. The highest probability of demonstrating compliance can be obtained by sequentially following each step in the RSSI Process. In some cases, however, performing each step in the process is not practical or necessary. This section provides guidance on how the results of the HSA can be used to determine the next step in the process.

The best method for determining the next step is to review the purpose for each type of survey described in Chapter 5. For example, a scoping survey is performed to provide sufficient information for determining 1) whether present contamination warrants further evaluation and 2) initial estimates of the level of effort for decontamination and preparing a plan for a more detailed survey. If the HSA demonstrates that this information is already available, do not perform a scoping survey. On the other hand, if the information obtained during the HSA is limited, a scoping survey may be necessary to narrow the scope of the characterization survey.

The exception to conducting additional surveys before a final status survey is the use of HSA results to release a site. Generally, the analytical data collected during the HSA are not adequate to statistically demonstrate compliance for impacted areas as described in Chapter 8. This means that the decision to release the site will be based on professional judgment. This determination will ultimately be decided by the responsible regulatory agency.

3.8 Historical Site Assessment Report

A narrative report is generally a useful product for an HSA. Use this report to summarize what is known about the site, what is assumed or inferred, activities conducted during the HSA, and all researched information. Cite a supporting reference for each factual statement given in the report. Attach copies of references (*i.e.*, those not generally available to the public) to the report. The narrative portion of the report should be written in plain English and avoid the use of technical terminology.

To encourage consistency in the content of HSA narratives, both the structure and content of each report should follow the outline shown in Figure 3.2. Additional information not identified in the outline may be requested by the regulatory agency at its discretion. The level of effort to produce the report should reflect the amount of information gathered during the HSA.

3.9 Review of the HSA

The planning team should ensure that someone (a first reviewer) conducts a detailed review of the HSA report for internal consistency and as a quality-control mechanism. A second reviewer with considerable site assessment experience should then examine the entire information package to assure consistency and to provide an independent evaluation of the HSA conclusions. The second reviewer also evaluates the package to determine if special circumstances exist where radioactivity may be present but not identified in the HSA. Both the first reviewer and a second independent reviewer should examine the HSA written products to ensure internal consistency in the report's information, summarized data, and conclusions. The site review ensures that the HSA's recommendations are appropriate.

An important quality assurance objective is to find and correct errors. A significant inconsistency indicating either an error or a flawed conclusion, if undetected, could contribute to an inappropriate recommendation. Identifying such a discrepancy directs the HSA investigator and site reviewers to reexamine and resolve the apparent conflict.

Under some circumstances, experienced investigators may have differing interpretations of site conditions and draw differing conclusions or hypotheses regarding the likelihood of contamination. Any such differences should be resolved during the review. If a reviewer's interpretations contradict those of the HSA investigator, the two should discuss the situation and reach a consensus. This aspect of the review identifies significant points about the site evaluation that may need detailed explanation in the HSA narrative report to fully support the conclusions. Throughout the review, the HSA investigator and site reviewers should keep in mind the need for conservative judgments in the absence of definitive proof to avoid underestimating the presence of contamination, which could lead to an inappropriate HSA recommendation.

1. Glossary of Terms, Acronyms and Abbreviations
2. Executive Summary
3. Purpose of the Historical Site Assessment
4. Property Identification
   - 4.1 Physical Characteristics
     - 4.1.1 Name - CERCLIS ID# (if applicable), owner/operator name, address
     - 4.1.2 Location - street address, city, county, state, geographic coordinates
     - 4.1.3 Topography - USGS 7.5 minute quadrangle or equivalent
     - 4.1.4 Stratigraphy
   - 4.2 Environmental Setting
     - 4.2.1 geology
     - 4.2.2 hydrogeology
     - 4.2.3 hydrology
     - 4.2.4 meteorology
5. Historical Site Assessment Methodology
   - 5.1 Approach and Rationale
   - 5.2 Boundaries of Site
   - 5.3 Documents Reviewed
   - 5.4 Property Inspections
   - 5.5 Personal Interviews
6. History and Current Usage
   - 6.1 History - years of operation, type of facility, description of operations, regulatory involvement; permits & licenses, waste handling procedures
   - 6.2 Current Usage - type of facility, description of operations, probable source types and sizes, description of spills or releases, waste manifests, radionuclide inventories, emergency or removal actions
   - 6.3 Adjacent Land Usage - sensitive areas such as wetlands or preschools
7. Findings
   - 7.1 Potential Contaminants
   - 7.2 Potential Contaminated Areas
     - 7.2.1 Impacted Areas—known and potential
     - 7.2.2 Non-Impacted Areas
   - 7.3 Potential Contaminated Media
   - 7.4 Related Environmental Concerns
8. Conclusions
9. References
10. Appendices
    - A. Conceptual Model and Site Diagram showing Classifications
    - B. List of Documents
    - C. Photo documentation Log
      Original photographs of the site and pertinent site features

Figure 3.2 Example of a Historical Site Assessment Report Format

4 PRELIMINARY SURVEY CONSIDERATIONS

4.1 Introduction

This chapter assists the MARSSIM user in designing a survey plan by presenting areas of consideration common to radiation surveys and site investigations in support of decommissioning. The topics discussed here should be addressed during the planning stages of each survey. Figure 4.1 illustrates the sequence of preliminary activities described in this chapter and their relationship to the survey design process.

Conducting radiological surveys in support of decommissioning serves to answer several basic questions, including:

- Is there residual radioactive contamination present from previous uses?
- What is the character (qualitative and quantitative) of the residual activity?
- Is the average residual activity level below the established derived concentration guideline level?
- Are there small localized areas of residual activity in excess of the investigation level?

The survey methods used to evaluate radiological conditions and develop answers to these questions depend on a number of factors including: contaminants, contaminant distribution, acceptable contaminant levels established by the regulatory agency, future site use, and physical characteristics of the site.

4.2 Decommissioning Criteria

The decommissioning process assures that residual radioactivity will not result in individuals being exposed to unacceptable levels of radiation or radioactive materials. Regulatory agencies establish radiation dose standards based on risk considerations and scientific data relating dose to risk. Residual levels of radioactive material that correspond to allowable radiation dose standards are calculated (derived) by analysis of various pathways and scenarios (direct radiation, inhalation, ingestion, *etc.*) through which exposures could occur. These derived levels, known as derived concentration guideline levels (DCGLs), are presented in terms of surface or mass activity concentrations. DCGLs usually refer to average levels of radiation or radioactivity above appropriate background levels. DCGLs applicable to building or other structural and miscellaneous surfaces are expressed in units of activity per surface area (typically Bq/m^2 or $dpm/100\ cm^2$). When applied to soil and induced activity from neutron irradiation, DCGLs are expressed in units of activity per unit of mass (typically Bq/kg or pCi/g).

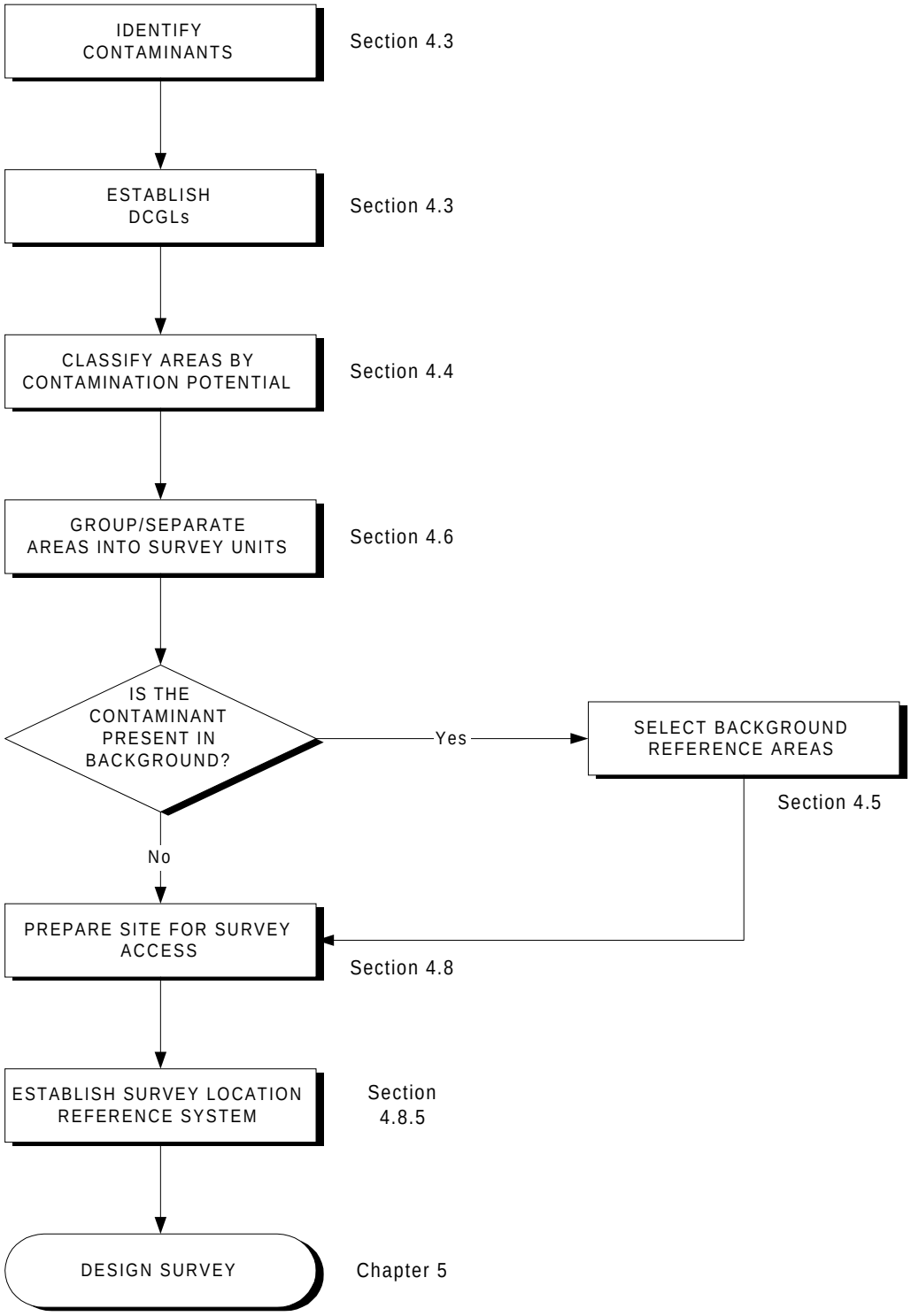


Figure 4.1 Sequence of Preliminary Activities Leading to Survey Design

The $DCGL_W$, based on pathway modeling, is the uniform residual radioactivity concentration level within a survey unit that corresponds to the release criterion (*e.g.*, regulatory limit in terms of dose or risk). Note that for the majority of MARSSIM users, the DCGL will simply be obtained using regulatory agency guidance based on default parameters—other users may elect to perform site-specific pathway modeling to determine DCGLs. In both cases, the DCGL is based on the spatial distribution of the contaminant, and each derivation can produce different values depending on the specific radionuclide distribution and pathway modeling.

In addition to the numerical DCGLs, criteria include conditions for implementing those guideline levels. Conditions applicable to satisfying decommissioning objectives described in Chapter 5 are as follows:

- The uniform residual contamination above background is below the $DCGL_W$.

- Individual measurements or samples, representing small areas of residual radioactivity, do not exceed the $DCGL_{EMC}$ for areas of elevated residual radioactivity. These small areas of residual radioactivity may exceed the $DCGL_W$ established for average residual radioactivity levels in a survey unit, provided these areas of residual radioactivity satisfy the criteria of the responsible regulatory agency.

The manner in which a DCGL is applied should be clearly documented in the survey plans and reports.

4.3 Identify Contaminants and Establish DCGLs

Some objectives of the scoping and characterization surveys, as discussed in Chapter 5, include identifying site contaminants, determining relative ratios of contaminants, and establishing DCGLs and conditions for the contaminants which satisfy the requirements of the responsible agency. Identification of potential radionuclide contaminants at the site is generally performed through laboratory analyses, such as alpha and gamma spectrometry. These analyses are used to determine the relative ratios of the identified contaminants, as well as isotopic ratios for common contaminants like uranium and thorium. This information is essential in establishing and applying the DCGLs for the site. DCGLs provide the goal for essentially all aspects of designing, implementing, and evaluating the final status survey. The DCGLs discussed in this manual are limited to structure surfaces and soil contamination; the user should consult the responsible regulatory agency if it is necessary to establish DCGLs for other environmental media (*e.g.*, ground water, and other water pathways). This section contains information regarding the selection and application of DCGLs.

The development of DCGLs is often an iterative process, where the DCGLs selected or developed early in the Radiation Survey and Site Investigation (RSSI) Process are modified as additional site-specific information is obtained from subsequent surveys. One example of the iterative nature of DCGLs is the development of final cleanup levels in EPA's Superfund program. Soil Screening Levels[1] (SSLs; EPA 1996b, EPA 1996c) are selected or developed at a point early in the process, usually corresponding to the scoping survey in MARSSIM. An SSL can be further developed, based on site-specific information, to become a preliminary remediation goal (PRG; EPA 1991h), usually at a point corresponding to the characterization survey. If the PRG is found to be acceptable during the characterization survey, it is documented as the final cleanup level in the Record of Decision (ROD) for the site. The ROD is typically in place prior to any remedial action, because the remedy is also documented in the ROD. Additional information on the Superfund program can be found in Appendix F.

4.3.1 Direct Application of DCGLs

In the simplest case, the DCGLs may be applied directly to survey data to demonstrate compliance. This involves assessing the surface activity levels and volumetric concentrations of radionuclides and comparing measured values to the appropriate DCGL. For example, consider a site that used only one radionuclide, such as ^{90}Sr throughout its operational lifetime. The default DCGL for ^{90}Sr on building surfaces and in soil may be obtained from the responsible agency. Survey measurements and samples are then compared to the surface and volume activity concentration DCGLs for ^{90}Sr directly to demonstrate compliance. While seemingly straightforward, this approach is not always possible (*e.g.*, when more than one radionuclide is present).

4.3.2 DCGLs and the Use of Surrogate Measurements

For sites with multiple contaminants, it may be possible to measure just one of the contaminants and still demonstrate compliance for all of the contaminants present through the use of surrogate measurements. Both time and resources can be saved if the analysis of one radionuclide is simpler than the analysis of the other. For example, using the measured ^{137}Cs concentration as a surrogate for ^{90}Sr reduces the analytical costs because wet chemistry separations do not have to be performed for ^{90}Sr on every sample. In using one radionuclide to measure the presence of others, a sufficient number of measurements, spatially separated throughout the survey unit, should be made to establish a "consistent" ratio. The number of measurements needed to determine the ratio is selected using the Data Quality Objectives (DQO) Process and based on the chemical, physical, and radiological characteristics of the nuclides and the site. If consistent

[1] Soil Screening Levels are currently available for chemical contaminants and are not designed for use at sites with radioactive contamination.

radionuclide ratios cannot be determined during the Historical Site Assessment (HSA) based on existing information, MARSSIM recommends that one of the objectives of scoping or characterization be a determination of the ratios rather than attempting to determine ratios based on the final status survey. If the ratios are determined using final status survey data, MARSSIM recommends that at least 10% of the measurements (both direct measurements and samples) include analyses for all radionuclides of concern.

In the use of surrogates, it is often difficult to establish a "consistent" ratio between two or more radionuclides. Rather than follow prescriptive guidance on acceptable levels of variability for the surrogate ratio, a more reasonable approach may be to review the data collected to establish the ratio and to use the DQO process to select an appropriate ratio from that data. An example is provided to illustrate the application of surrogate measurements.

Ten soil samples within the survey unit were collected and analyzed for ^{137}Cs and ^{90}Sr to establish a surrogate ratio. The ratios of ^{90}Sr to ^{137}Cs were as follows: 6.6, 5.7, 4.2, 7.9, 3.0, 3.8, 4.1, 4.6, 2.4, and 3.3. An assessment of this example data set results in an average ^{90}Sr to ^{137}Cs surrogate ratio of 4.6, with a standard deviation of 1.7. There are various approaches that may be used to develop a surrogate ratio from this data—but each must consider the variability and level of uncertainty in the data. One may consider the variability in the surrogate ratio by selecting the 95% upper bound of the surrogate ratio (to yield a conservative value of ^{90}Sr from the measured ^{137}Cs), which is 8.0 in this case. Similarly, one may select the most conservative value from the data set (7.9). The DQO process should be used to assess the use of surrogates. The benefit of using the surrogate approach is the reduced cost of not having to perform costly wet chemistry analyses on each sample. This benefit should be considered relative to the difficulty in establishing the surrogate ratio, as well as the potential consequence of unnecessary investigations that result from the error in using a "conservative" surrogate ratio. Selecting a conservative surrogate ratio ensures that potential exposures from individual radionuclides are not underestimated. The surrogate method can only be used with confidence when dealing with the same media in the same surroundings—for example, soil samples with similar physical and geological characteristics. The MARSSIM user will need to consult with the responsible regulatory agency for concurrence on the approach used to determine the surrogate ratio.

Once an appropriate surrogate ratio is determined, one needs to consider how compliance will be demonstrated using surrogate measurements. That is, the user must modify the DCGL of the measured radionuclide to account for the inferred radionuclide. Continuing with the above example, the modified DCGL for ^{137}Cs must be reduced according to the following equation:

$$DCGL_{Cs,\mathrm{mod}} = DCGL_{Cs} \times \frac{DCGL_{Sr}}{[(C_{Sr}/C_{Cs}) \times DCGL_{Cs}] + DCGL_{Sr}} \qquad 4\text{-}1$$

where C_{Sr}/C_{Cs} is the surrogate ratio of ^{90}Sr to ^{137}Cs.

Assuming that the $DCGL_{Sr}$ is 15 Bq/kg, the $DCGL_{Cs}$ is 10 Bq/kg, and the surrogate ratio is 8 (as derived previously), the modified DCGL for ^{137}Cs ($DCGL_{Cs,\ mod}$) can be calculated using Equation 4-1:

$$DCGL_{Cs,\mathrm{mod}} = 10 \times \frac{15}{[8 \times 10] + 15} = 1.6\ Bq/kg$$

This modified DCGL is then used for survey design purposes described in Chapter 5.

The potential for shifts or variations in the radionuclide ratios means that the surrogate method should be used with caution. Physical or chemical differences between the radionuclides may produce different migration rates, causing the radionuclides to separate and changing the radionuclide ratios. Remediation activities have a reasonable potential to alter the surrogate ratio established prior to remediation. MARSSIM recommends that when the ratio is established prior to remediation, additional post-remediation samples should be collected to ensure that the data used to establish the ratio are still appropriate and representative of the existing site condition. If these additional post-remediation samples are not consistent with the pre-remediation data, surrogate ratios should be re-established.

Compliance with surface activity DCGLs for radionuclides of a decay series (*e.g.*, thorium and uranium) that emit both alpha and beta radiation may be demonstrated by assessing alpha, beta, or both radiations. However, relying on the use of alpha surface contamination measurements often proves problematic due to the highly variable level of alpha attenuation by rough, porous, and dusty surfaces. Beta measurements typically provide a more accurate assessment of thorium and uranium contamination on most building surfaces because surface conditions cause significantly less attenuation of beta particles than alpha particles. Beta measurements, therefore, may provide a more accurate determination of surface activity than alpha measurements.

The relationship of beta and alpha emissions from decay chains or various enrichments of uranium should be considered when determining the surface activity for comparison with the $DCGL_W$ values. When the initial member of a decay chain has a long half-life, the radioactivity associated with the subsequent members of the series will increase at a rate determined by the individual half-lives until all members of the decay chain are present at activity levels equal to the activity of the parent. This condition is known as secular equilibrium.

Consider an example where the average surface activity $DCGL_W$ for natural thorium is 1,000 Bq/m^2 (600 dpm/100 cm^2), and all of the progeny are in secular equilibrium—that is, for each disintegration of ^{232}Th there are six alpha and four beta particles emitted in the thorium decay

series. Note that in this example, the surface activity $DCGL_W$ of 1,000 Bq/m^2 is assumed to apply to the total activity from all members of the decay chain. In this situation, the corresponding alpha activity $DCGL_W$ should be adjusted to 600 Bq/m^2 (360 dpm/100 cm^2), and the corresponding beta activity $DCGL_W$ to 400 Bq/m^2 (240 dpm/100 cm^2), in order to be equivalent to 1,000 Bq/m^2 of natural thorium surface activity. For a surface activity $DCGL_W$ of 1,000 Bq/m^2, the beta activity $DCGL_W$ is calculated as follows:

$$\frac{\left(\frac{1{,}000\ Bq\ of\ chain}{m^2}\right) \times \left(\frac{4\beta}{dis\ of\ Th\text{-}232}\right)}{\frac{10\ Bq\ of\ chain}{1\ Bq\ of\ Th\text{-}232}} = \frac{400\ \beta\ Bq}{m^2} \qquad 4\text{-}2$$

To demonstrate compliance with the beta activity $DCGL_W$ for this example, beta measurements (in cpm) must be converted to activity using a weighted beta efficiency that accounts for the energy and yield of each beta particle. For decay chains that have not achieved secular equilibrium, the relative activities between the different members of the decay chain can be determined as previously discussed for surrogate ratios.

Another example for the use of surrogates involves the measurement of exposure rates, rather than surface or volume activity concentrations, for radionuclides that deliver the majority of their dose through the direct radiation pathway. That is, instead of demonstrating compliance with soil or surface contamination DCGLs derived from the direct radiation pathway, compliance is demonstrated by direct measurement of exposure rates. To implement this surrogate method, Historical Site Assessment (HSA) documentation should provide reasonable assurance that no radioactive materials are buried at the site and that radioactive materials have not seeped into the soil or groundwater. This surrogate approach may still be possible for sites that contain radionuclides that *do not* deliver the majority of their dose through the direct radiation pathway. This requires that a consistent relative ratio for the radionuclides that *do* deliver the majority of their dose through the direct radiation pathway can be established. The appropriate exposure rate limit in this case accounts for the radionuclide(s) that *do not* deliver the majority of their dose to the direct radiation pathway. This is accomplished by determining the fraction of the total activity represented by radionuclide(s) that *do* deliver the majority of their dose through the direct radiation pathway, and weighting the exposure rate limit by this fraction. Note that the considerations for establishing consistent relative ratios discussed above apply to this surrogate approach as well. The responsible regulatory agency should be consulted prior to implementing this surrogate approach.

4.3.3 Use of DCGLs for Sites with Multiple Radionuclides

Typically, each radionuclide DCGL corresponds to the release criterion (*e.g.*, regulatory limit in terms of dose or risk). However, in the presence of multiple radionuclides, the total of the DCGLs for all radionuclides would exceed the release criterion. In this case, the individual DCGLs need to be adjusted to account for the presence of multiple radionuclides contributing to the total dose. One method for adjusting the DCGLs is to modify the assumptions made during exposure pathway modeling to account for multiple radionuclides. The surrogate measurements discussed in the previous section describe another method for adjusting the DCGL to account for multiple radionuclides. Other methods include the use of the unity rule and development of a gross activity DCGL for surface activity to adjust the individual radionuclide DCGLs.

The unity rule, represented in the expression below, is satisfied when radionuclide mixtures yield a combined fractional concentration limit that is less than or equal to one:

$$\frac{C_1}{DCGL_1} + \frac{C_2}{DCGL_2} + \ldots \frac{C_n}{DCGL_n} \leq 1 \qquad \text{4-3}$$

where

C = concentration
DCGL = guideline value for each individual radionuclide (1, 2, ..., n)

For sites that have a number of significant radionuclides, a higher sensitivity will be needed in the measurement methods as the values of C become smaller. Also, this is likely to affect statistical testing considerations—specifically by increasing the numbers of data points necessary for statistical tests.

4.3.4 Integrated Surface and Soil Contamination DCGLs

Surface contamination DCGLs apply to the total of fixed plus removable surface activity. For cases where the surface contamination is due entirely to one radionuclide, the DCGL for that radionuclide is used for comparison to measurement data (Section 4.3.1).

For situations where multiple radionuclides with their own DCGLs are present, a gross activity DCGL can be developed. This approach enables field measurement of gross activity, rather than determination of individual radionuclide activity, for comparison to the DCGL. The gross activity DCGL for surfaces with multiple radionuclides is calculated as follows:

1. Determine the relative fraction (f) of the total activity contributed by the radionuclide.
2. Obtain the DCGL for each radionuclide present.
3. Substitute the values of f and DCGL in the following equation.

$$Gross\ Activity\ DCGL = \frac{1}{\left(\frac{f_1}{DCGL_1} + \frac{f_2}{DCGL_2} + \ldots \frac{f_n}{DCGL_n} \right)} \qquad 4\text{-}4$$

Example

Assume that 40% of the total surface activity was contributed by a radionuclide with a DCGL of 8,300 Bq/m^2 (5000 dpm/100 cm^2); 40% by a radionuclide with a DCGL of 1,700 Bq/m^2 (1000 dpm/100 cm^2); and 20% by a radionuclide with a DCGL of 830 Bq/m^2 (500 dpm/100 cm^2). Using Equation 4-4,

$$Gross\ Activity\ DCGL = \frac{1}{\frac{0.40}{8{,}300} + \frac{0.40}{1{,}700} + \frac{0.20}{830}}$$

$$= 1{,}900\ \text{Bq/m}^2$$

Note that Equation 4-4 may not work for sites exhibiting surface contamination from multiple radionuclides having unknown or highly variable concentrations of radionuclides throughout the site. In these situations, the best approach may be to select the most conservative surface contamination DCGL from the mixture of radionuclides present. If the mixture contains radionuclides that cannot be measured using field survey equipment, laboratory analyses of surface materials may be necessary.

Because gross surface activity measurements are not nuclide-specific, they should be evaluated by the two-sample nonparametric tests described in Chapter 8 to determine if residual contamination meets the release criterion. Therefore, gross surface activity measurements should be performed for both the survey units being evaluated and for background reference areas. The background reference areas for surface activity typically involve building surfaces and construction materials that are considered free of residual radioactivity (see Section 4.5). The total surface activity due to residual contamination should not exceed the gross activity DCGL calculated above.

For soil contamination, it is likely that specific radionuclides, rather than gross activity, will be measured for demonstrating compliance. For radionuclides that are present in natural background, the two-sample nonparametric test described in Section 8.4 should be used to determine if residual soil contamination exceeds the release criterion. The soil contamination due to residual activity should not exceed the DCGL. To account for multiple background radionuclides, the DCGL should be adjusted in a manner similar to the gross activity DCGL described above. For a known mixture of these radionuclides, each having a fixed relative fraction of the total activity, the site-specific DCGLs for each radionuclide may be calculated by first determining the gross activity DCGL and then multiplying that gross DCGL by the respective fractional contribution of each radionuclide. For example, if ^{238}U, ^{226}Ra, and ^{232}Th have DCGLs of 190 Bq/kg (5.0 pCi/g), 93 Bq/kg (2.5 pCi/g), and 37 Bq/kg (1.0 pCi/g) and activity ratios of 40%, 40%, and 20%, respectively, Equation 4-4 can be used to calculate the gross activity DCGL.

$$Gross\ Activity\ DCGL = \frac{1}{\frac{0.40}{190} + \frac{0.40}{93} + \frac{0.20}{37}}$$

$$= 85 \text{ Bq/kg}$$

The adjusted DCGLs for each of the contributory radionuclides, when present in the given activity ratios, are then 34 Bq/kg (0.40 × 85) for ^{238}U, 34 Bq/kg (0.40 × 85) for ^{226}Ra, and 17 Bq/kg (0.20 × 85) for ^{232}Th. Determining gross activity DCGLs to demonstrate compliance enables an evaluation of site conditions based on analysis for only one of the contributory contaminants (surrogate approach), provided the relative ratios of the contaminants do not change.

For situations where the background radionuclides occurring in background have unknown or variable relative concentrations throughout the site, it may be necessary to perform the two-sample nonparametric tests separately for each radionuclide present. The unity rule should be used to determine that the sum of each radionuclide concentration divided by its DCGL is less than or equal to one.

Therefore, at each measurement location calculate the quantity:

$$\frac{C_1}{DCGL_1} + \frac{C_2}{DCGL_2} + \ldots + \frac{C_n}{DCGL_n} \qquad 4\text{-}5$$

where C is the radionuclide concentration.

The values of C are the data to be used in the statistical tests to determine if the average over the survey unit exceeds one.

The same approach applies for radionuclides that are not present in background, with the exception that the one-sample nonparametric statistical test described in Section 8.3 is used in place of the two-sample nonparametric test (see Section 5.5.2.3). Again, for multiple radionuclides either the surrogate approach or the unity rule should be used to demonstrate compliance, if relative ratios are expected to change.

4.4 Classify Areas by Contamination Potential

All areas of the site will not have the same potential for residual contamination and, accordingly, will not need the same level of survey coverage to achieve the established release criteria. The process will be more efficient if the survey is designed so areas with higher potential for contamination (based in part on results of the HSA in Chapter 3) will receive a higher degree of survey effort.

Classification is a critical step in the survey design process. The working hypothesis of MARSSIM is that all impacted areas being evaluated for release have a reasonable potential for radioactive contamination above the DCGL. This initial assumption means that all areas are initially considered Class 1 areas unless some basis for reclassification as non-impacted, Class 3, or Class 2 is provided.

Areas that have no reasonable potential for residual contamination do not need any level of survey coverage and are designated as non-impacted areas. These areas have no radiological impact from site operations and are typically identified during the HSA (Chapter 3). Background reference areas are normally selected from non-impacted areas (Section 4.5).

Impacted areas are areas that have reasonable potential for containing contaminated material. They can be subdivided into three classes:

- Class 1 areas: Areas that have, or had prior to remediation, a potential for radioactive contamination (based on site operating history) or known contamination (based on previous radiological surveys). Examples of Class 1 areas include: 1) site areas previously subjected to remedial actions, 2) locations where leaks or spills are known to have occurred, 3) former burial or disposal sites, 4) waste storage sites, and 5) areas with contaminants in discrete solid pieces of material high specific activity. Note that areas containing contamination in excess of the $DCGL_W$ prior to remediation should be classified as Class 1 areas.

- Class 2 areas: These areas have, or had prior to remediation, a potential for radioactive contamination or known contamination, but are not expected to exceed the $DCGL_W$. To justify changing an area's classification from Class 1 to Class 2, the existing data (from the HSA, scoping surveys, or characterization surveys) should provide a high degree of confidence that no individual measurement would exceed the $DCGL_W$. Other justifications for this change in an area's classification may be appropriate based on the outcome of the DQO process. Examples of areas that might be classified as Class 2 for the final status survey include: 1) locations where radioactive materials were present in an unsealed form (*e.g.*, process facilities), 2) potentially contaminated transport routes, 3) areas downwind from stack release points, 4) upper walls and ceilings of some buildings or rooms subjected to airborne radioactivity, 5) areas where low concentrations of radioactive materials were handled, and 6) areas on the perimeter of former contamination control areas.

- Class 3 areas: Any impacted areas that are not expected to contain any residual radioactivity, or are expected to contain levels of residual radioactivity at a small fraction of the $DCGL_W$, based on site operating history and previous radiological surveys. Examples of areas that might be classified as Class 3 include buffer zones around Class 1 or Class 2 areas, and areas with very low potential for residual contamination but insufficient information to justify a non-impacted classification.

Class 1 areas have the greatest potential for contamination and, therefore, receive the highest degree of survey effort, followed by Class 2 and then Class 3 areas.

The criteria used for designating areas as Class 1, 2, or 3 should be described in the final status survey plan. Compliance with the classification criteria should be demonstrated in the final status survey report. A thorough analysis of HSA findings (Chapter 3) and the results of scoping and characterization surveys provide the basis for an area's classification. As a survey progresses, reevaluation of this classification may be necessary based on newly acquired survey data. For example, if contamination is identified in a Class 3 area, an investigation and reevaluation of that area should be performed to determine if the Class 3 area classification is appropriate. Typically, the investigation will result in part or all of the area being reclassified as Class 1 or Class 2. If survey results identify residual contamination in a Class 2 area exceeding the DCGL or suggest that there may be a reasonable potential that contamination is present in excess of the DCGL, an investigation should be initiated to determine if all or part of the area should be reclassified to Class 1. More information on investigations and reclassifications is provided in Section 5.5.3.

4.5 Select Background Reference Areas

Certain radionuclides may also occur at significant levels as part of background in the media of interest (soil, building material, *etc.*). Examples include members of the naturally-occurring uranium, thorium, and actinium series; ^{40}K; ^{14}C; and tritium. ^{137}Cs and other radionuclides are also present in background as a result of nuclear weapons fallout (Wallo, *et al*., 1994). Establishing background concentrations that describe a distribution of measurement data is necessary to identify and evaluate contributions attributable to site operations. Determining background levels for comparison with the conditions determined in specific survey units entails conducting surveys in one or more reference areas to define the radiological conditions of the site. NUREG-1505 (NRC 1997a) provides additional information on background reference areas.

A site background reference area should have similar physical, chemical, geological, radiological, and biological characteristics as the survey unit being evaluated. Background reference areas are normally selected from non-impacted areas, but are not limited to natural areas undisturbed by human activities. In some situations, a reference area may be associated with the survey unit being evaluated, but cannot be potentially contaminated by site activities. For example, background measurements may be taken from core samples of a building or structure surface, pavement, or asphalt. This option should be discussed with the responsible regulatory agency during survey planning. Generally, reference areas should not be part of the survey unit being evaluated.

Reference areas provide a location for background measurements which are used for comparisons with survey unit data. The radioactivity present in a reference area would be ideally the same as the survey unit had it never been contaminated. If a site includes physical, chemical, geological, radiological, or biological variability that is not represented by a single reference background area, selecting more than one reference area may be necessary.

It may be difficult to find a reference area within an industrial complex for comparison to a survey unit if the radionuclides of potential concern are naturally occurring. Background may vary greatly due to different construction activities that have occurred at the site. Examples of construction activities that change background include: leveling; excavating; adding fill dirt; importing rocks or gravel to stabilize soil or underlay asphalt; manufacturing asphalt with different matrix rock; using different pours of asphalt or concrete in a single survey unit; layering asphalt over concrete; layering different thicknesses of asphalt, concrete, rock, or gravel; and covering or burying old features such as railroad beds or building footings. Background variability may also increase due to the concentration of fallout in low areas of parking lots where runoff water collects and evaporates. Variations in background of a factor of five or more can occur in the space of a few hectares.

There are a number of possible actions to address these concerns. Reviewing and reassessing the selection of reference areas may be necessary. Selecting different reference areas to represent individual survey units is another possibility. More attention may also be needed in selecting survey units and their boundaries with respect to different areas of potential or actual background variability. More detailed scoping or characterization surveys may be needed to better understand background variability. Using radionuclide-specific measurement techniques instead of gross radioactivity measurement techniques may also be necessary. If a background reference area that satisfies the above recommendations is not available, consultation and negotiation with the responsible regulatory agency is recommended. Alternate approaches may include using published studies of radionuclide distributions.

Verifying that a particular background reference area is appropriate for a survey can be accomplished using the techniques described or referenced in Chapter 8. Verification provides assurance that assumptions used to design the survey are appropriate and defensible. This approach can also prevent decision errors that may result from selecting an inappropriate background reference area.

If the radionuclide contaminants of interest do not occur in background, or the background levels are known to be a small fraction of the $DCGL_W$ (*e.g.*, <10%), the survey unit radiological conditions may be compared directly to the specified DCGL and reference area background surveys are not necessary. If the background is not well defined at a site, and the decision maker is willing to accept the increased probability of incorrectly failing to release a survey unit (Type II error), the reference area measurements can be eliminated and a one-sample statistical test performed as described in Section 8.3.

4.6 Identify Survey Units

A survey unit is a physical area consisting of structures or land areas of specified size and shape for which a separate decision will be made as to whether or not that area exceeds the release criterion. This decision is made as a result of the final status survey. As a result, the survey unit is the primary entity for demonstrating compliance with the release criterion.

To facilitate survey design and ensure that the number of survey data points for a specific site are relatively uniformly distributed among areas of similar contamination potential, the site is divided into survey units that share a common history or other characteristics, or are naturally distinguishable from other portions of the site. A site may be divided into survey units at any time before the final status survey. For example, HSA or scoping survey results may provide sufficient justification for partitioning the site into Class 1, 2, or 3 areas. Note, however, that dividing the site into survey units is critical only for the final status survey—scoping, characterization, and remedial action support surveys may be performed without dividing the site into survey units.

A survey unit should not include areas that have different classifications. The survey unit's characteristics should be generally consistent with exposure pathway modeling that is used to convert dose or risk into radionuclide concentrations. For indoor areas classified as Class 1, each room may be designated as a survey unit. Indoor areas may also be subdivided into several survey units of different classification, such as separating floors and lower walls from upper walls and ceilings (and other upper horizontal surfaces) or subdividing a large warehouse based on floor area.

Survey units should be limited in size based on classification, exposure pathway modeling assumptions, and site-specific conditions. The suggested areas for survey units are as follows:

Classification	Suggested Area
Class 1	
Structures	up to 100 m^2 floor area
Land areas	up to 2,000 m^2
Class 2	
Structures	100 to 1,000 m^2
Land areas	2,000 to 10,000 m^2
Class 3	
Structures	no limit
Land areas	no limit

The limitation on survey unit size for Class 1 and Class 2 areas ensures that each area is assigned an adequate number of data points. The rationale for selecting a larger survey unit area should be developed using the DQO Process (Section 2.3) and fully documented. Because the number of data points (determined in Sections 5.5.2.2 or 5.5.2.3) is independent of the survey unit size, disregarding locating small areas of elevated activity, the survey coverage in an area is determined by dividing the fixed number of data points obtained from the statistical tests by the survey unit area. That is, if the statistical test estimates that 20 data points are necessary to demonstrate compliance, then the survey coverage is determined by dividing 20 by the area over which the data points are distributed.

Special considerations may be necessary for survey units with structure surface areas less than 10 m^2 or land areas less than 100 m^2. In this case, the number of data points obtained from the statistical tests is unnecessarily large and not appropriate for smaller survey unit areas. Instead, some specified level of survey effort should be determined based on the DQO process and with the concurrence of the responsible regulatory agency. The data generated from these smaller survey units should be obtained based on judgment, rather than on systematic or random design, and compared individually to the DCGLs.

4.7 Select Instruments and Survey Techniques

Based on the potential radionuclide contaminants, their associated radiations, and the types of residual contamination categories (*e.g.*, soil, structure surfaces) to be evaluated, the detection sensitivities of various instruments and techniques are determined and documented. Instruments should be identified for each of the three types of measurements: 1) scans, 2) direct measurements, and 3) laboratory analysis of samples. In some cases, the same instrument (*e.g.*, sodium iodide detector) or same type of instrument (*e.g.*, gas-flow proportional counter) may be used for performing several types of measurements. Once the instruments are selected, appropriate survey techniques and standard operating procedures (SOPs) should be developed and documented. The survey techniques describe how the instrument will be used to perform the required measurements.

Chapter 6 of this manual, NRC report NUREG-1507 (NRC 1997b), and draft NRC report NUREG-1506 (NRC 1995) discuss the concept of detection sensitivities and provide guidance on determining sensitivities and selecting appropriate measurement methods. Chapter 6 also discusses instruments and survey techniques for scans and direct measurements, while Chapter 7 provides guidance on sampling and laboratory analysis. Appendix H describes typical field and laboratory equipment plus associated cost and instrument sensitivities.

4.7.1 Selection of Instruments

Choose reliable instruments that are suited to the physical and environmental conditions at the site and capable of detecting the radiations of concern to the appropriate minimum detectable concentration (MDC). During survey design, it is generally considered good practice to select a measurement system with an MDC between 10-50% of the DCGL. Sometimes this goal may not be achievable based on site-specific conditions (*e.g.*, best available technology, cost restrictions).

The MDC is calculated based on an hypothesis test for individual measurements (see Section 6.7), and results below the MDC are variable and lead to a high value for σ of the measured values in the survey unit or reference area. This high value for σ can be accounted for using the statistical tests described in Chapter 8 for the final status survey, but a large number of measurements are needed to account for the variability. σ is defined as the standard deviation of the measurements in the survey unit.

Early in decommissioning, during scoping and characterization, low MDCs help in the identification of areas that can be classified as non-impacted or Class 3 areas. These decisions are usually based on fewer numbers of samples, and each measurement is evaluated individually. Using an optimistic estimation of the MDC (see Section 2.3.5) for these surveys may result in the misclassification of a survey unit and cleaning up an uncontaminated area or performing a final status survey in a contaminated area. Selecting a measurement technique with a well defined

MDC or a conservative estimate of the MDC ensures the usefulness of the data for making decisions for planning the final status survey. For these reasons, MARSSIM recommends that a realistic or conservative estimate of the MDC be used instead of an optimistic estimate. A conservative estimate of the MDC uses reasonably conservative values for parameters with a high level of uncertainty, and results in a MDC value that is higher than a non-conservative or optimistic estimate.

The instrument should be calibrated for the radiations and energies of interest at the site. This calibration should be traceable to an accepted standards organization such as the National Institute of Science and Technology (NIST). Routine operational checks of instrument performance should be conducted to assure that the check source response is maintained within acceptable ranges and that any changes in instrument background are not attributable to contamination of the detector. If the radionuclide contaminants cannot be detected at desired levels by direct measurement (Section 6.7), the portion of the survey dealing with measurements at discrete locations should be designed to rely primarily on sampling and laboratory analysis (Chapter 7).

Assuming the contaminants can be detected, either directly or by measuring a surrogate radionuclide in the mixture, the next decision point depends on whether the radionuclide being measured is present in background. Gross measurement methods will likely be more appropriate for measuring surface contamination in structures, scanning for locations of elevated activity, and determining exposure rates. Nuclide-specific measurement techniques, such as gamma spectrometry, provide a marked increase in detection sensitivity over gross measurements because of their ability to screen out contributions from other sources. Figure 4.2 illustrates the sequence of steps in determining if direct measurement techniques can be applied at a particular site, or if laboratory analysis is more appropriate. Scanning surveys are typically performed at all sites. The selection of appropriate instruments for scanning, direct measurement, and sampling and analysis should be survey specific.

4.7.2 Selection of Survey Techniques

In practice, the DQO process is used to obtain a proper balance among the use of various measurement techniques. In general, there is an inverse correlation between the cost of a specific measurement technique and the detection levels being sought. Depending on the survey objectives, important considerations include survey costs and choosing the optimum instrumentation and measurement mix.

A certain minimum number of direct measurements or samples will be needed to demonstrate compliance with the release criterion based on the nonparametric statistical tests (see Section 5.5.2). In addition, the potential for areas of elevated contamination will have to be considered for designing scanning surveys. Areas of elevated activity may also affect the number of measurements; however, scanning with survey instruments should generally be sufficient to

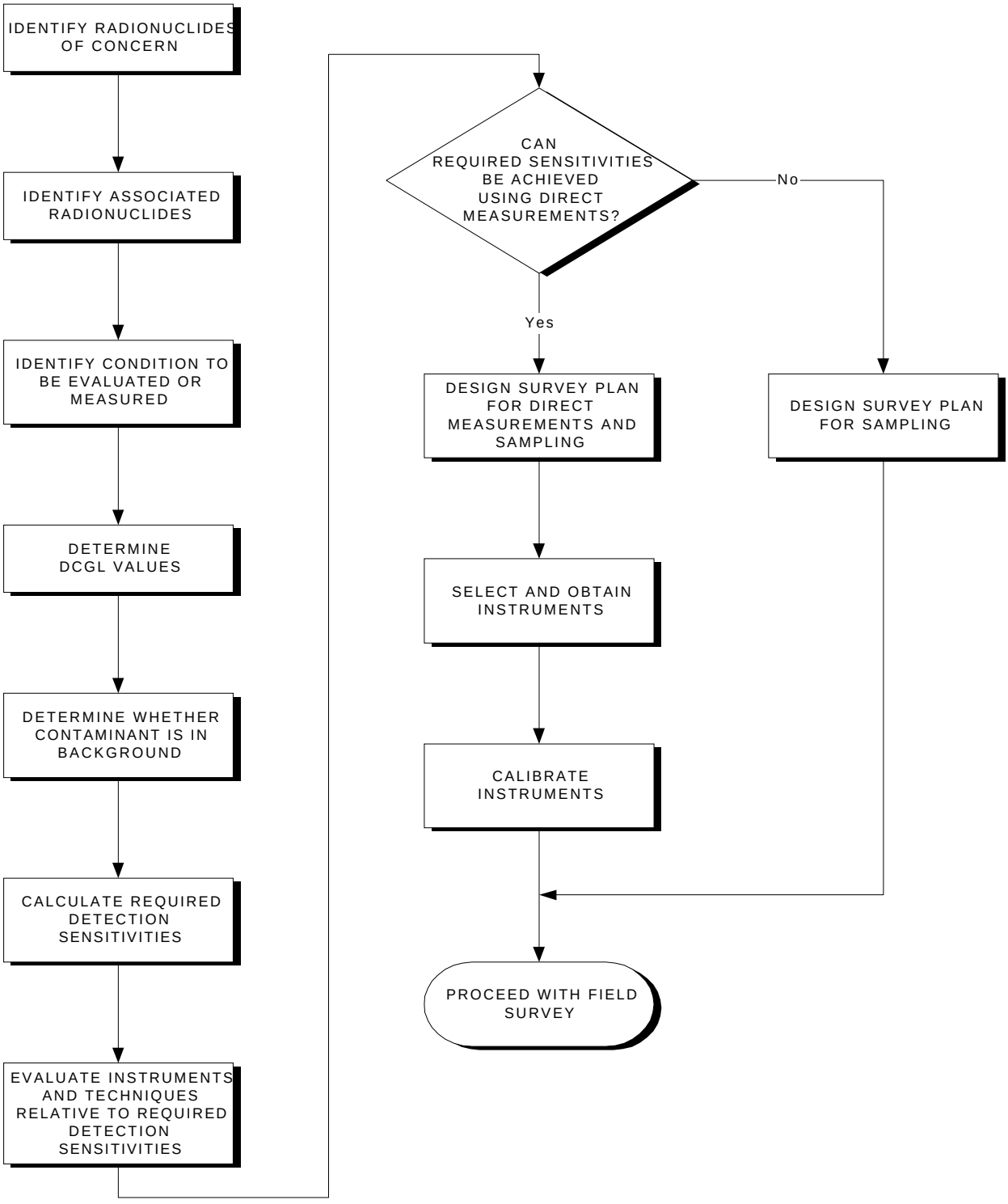


Figure 4.2 Flow Diagram for Selection of Field Survey Instrumentation for Direct Measurements and Analysis of Samples (Refer to Section 4.7)

ensure that no areas with unusually high levels of radioactivity are left in place. Some measurements may also provide information of a qualitative nature to supplement other measurements. An example of such an application is *in situ* gamma spectrometry to demonstrate the absence (or presence) of specific contaminants.

Table 4.1 presents a list of common contaminants along with recommended survey methods that have proven to be effective based on past survey experience in the decommissioning industry. This table provides a general indication of the detection capability of commercially-available instruments. As such, Table 4.1 may be used to provide an initial evaluation of instrument capabilities for some common radionuclides at the example DCGLs listed in the table. For example, consider the contamination of a surface with ^{241}Am. Table 4.1 indicates that ^{241}Am is detectable at the example DCGLs, and that viable direct measurement instruments include gas-flow proportional (α mode) and alpha scintillation detectors. Table 4.1 should not be interpreted as providing specific values for an instrument's detection sensitivity, which is discussed in Section 6.7. In addition, NRC draft report NUREG-1506 (NRC 1995) provides further information on factors that may affect survey instrumentation selection.

4.7.3 Criteria for Selection of Sample Collection and Direct Measurement Methods

Sample characteristics such as sample depth, volume, area, moisture level, and composition, as well as sample preparation techniques which may alter the sample, are important planning considerations for Data Quality Objectives. Sample preparation may include, but is not limited to, removing extraneous material, homogenizing, splitting, drying, compositing, and final preparation of samples. As is the case for determining survey unit characteristics, the physical sample characteristics and sampling method should be consistent with the dose or risk pathway modeling that is used to determine radionuclide DCGL's. If a direct measurement method is used, it should also be consistent with the pathway modeling.

For example, a sample depth of 15 cm (6 in.) for soil samples might be specified during the DQO process for a final status survey because this corresponds to the soil mixing or plow depth in several environmental pathway models (Yu *et al.*, 1993, NRC 1992b). If contamination exists at a depth less than this, a number of models uniformly mix it throughout this depth to simulate the soil mixing associated with plowing. Similarly, models may be based on dry weight, which may necessitate either drying samples or data transformation to account for dry weight.

The DQOs and subsequent direction to the laboratory for analysis might include removal of material not relevant for characterizing the sample, such as pieces of glass, twigs, or leaves. Table 4.2 provides examples of how a particular field soil composition of fine-, medium-, and coarse-grained materials might determine laboratory analysis DQOs for particular radionuclides. Fine materials consist of clay (less than 0.002 mm) and silt (0.002 to 0.062 mm). Medium materials consist of sand, which can be further divided into very fine, fine, medium, coarse, and very coarse sand. Coarse materials consist of gravel, which is composed of pebbles (2 to 64 mm), cobbles (64 to 256 mm), and boulders (greater than 256 mm) (Friedman 1978).

Table 4.1 Selection of Direct Measurement Techniques Based on Experience

Nuclide	Structure Surfaces		Land Areas		Direct Measurement Instruments[2]		
	Example DCGL[1] (Bq/m^2)	Detectable	Example DCGL[1] (Bq/kg)	Detectable	Surface Activity	Soil Activity	Exposure Rate
^{3}H	$1.6x10^{6}$	No	$1.5x10^{4}$	No	ND[6]	ND	ND
^{14}C	$4.7x10^{5}$	Yes	$1.4x10^{3}$	No	GPß	ND	ND
^{54}Mn	$1.3x10^{4}$	Yes	450	Yes	**GPß**[7],GM	**γS**,ISγ	**PIC**,γS,ISγ
^{55}Fe	$1.8x10^{6}$	No	$4.1x10^{5}$	No[5]	ND	ND(ISγ)	ND(ISγ)
^{60}Co	$3.1x10^{3}$	Yes	110	Yes	**GPß**,GM	**γS**,ISγ	**PIC**,γS,ISγ
^{63}Ni	$1.5x10^{6}$	Yes	$2.8x10^{5}$	No	GPß	ND	ND
^{90}Sr	$6.0x10^{3}$	Yes	420	No[5]	**GPß**,GM	ND (GM,GPß)	ND
^{99}Tc	$6.4x10^{5}$	Yes	$1.9x10^{3}$	No	**GPß**,GM	ND	ND
^{137}Cs	$8.2x10^{3}$	Yes	400	Yes	**GPß**,GM	**γS**,ISγ	**PIC**,γS,ISγ
^{152}Eu	$6.6x10^{3}$	Yes	240	Yes	**GPß**,GM	**γS**,ISγ	**PIC**,γS,ISγ
^{226}Ra (C)[3]	970	Yes	210	Yes	**GPα**,αS	**γS**,ISγ	**PIC**,γS,ISγ
^{232}Th (C)[3]	340	Yes	320	Yes	GPα,αS,**GPß**	**γS**,ISγ	**PIC**,γS,ISγ
U[4]	560	Yes	710	Yes	GPα,αS,**GPß**, ISγ	γS,**ISγ**, GPß	**PIC**,γS,ISγ
^{239}Pu, ^{240}Pu, ^{241}Pu	120	Yes	70	No[5]	**GPα**,αS	ND (ISγ)	ND
^{241}Am	110	Yes	70	Yes	**GPα**,αS	**γS**,ISγ	**PIC**,γS,ISγ

[1] Example DCGLs based on values given in NRC draft report NUREG-1500 (NRC 1994c).
[2] GPα = Gas-flow proportional counter (α mode)
GM = Geiger-Mueller survey meter
GPß = Gas-flow proportional counter (β mode)
PIC = Pressurized ionization chamber
αS = Alpha scintillation survey meter
γS = gamma scintillation (gross)
ISγ= *in situ* gamma spectrometry
[3] For decay chains having two or more radionuclides of significant half-life that reach secular equilibrium. The notation "(c)" indicates the direct measurement techniques assume the presence of progeny in the chain.
[4] Depleted, natural, and enriched.
[5] Possibly detectable at limits for areas of elevated activity.
[6] Not detectable.
[7] Bold indicates the preferred method where alternative methods are available.

Table 4.2 Example of DQO Planning Considerations

Separate out and evaluate fine-grain material because resuspension is associated with the fine grain fraction for the air pathway. If contamination resides on sand, pebbles, and cobbles, analyze these materials for direct exposure pathway and analyze the fine-grain fraction for the air pathway. Separation and homogenization are not necessary for analyses because direct exposure pathway depends upon the average concentration and presence of cobbles will usually not impact laboratory analysis. Determine if pathway modeling considered the presence of cobbles. Separate, homogenize, and evaluate fine-grain material because plant root uptake is associated with the fine-grain fraction for the plant ingestion pathway. Separate, homogenize, and evaluate fine-grain materials because of their relevance for the contaminant source term for contaminant migration to the sub-surface for the water pathway.

Both sample depth and area are considerations in determining appropriate sample volume, and sample volume is a key consideration for determining the laboratory MDC. The depth should also correlate with the conceptual model developed in Chapter 3 and upgraded throughout the Radiation Survey and Site Investigation (RSSI) Process. For example, if data collected during the Historical Site Assessment indicate contamination may exist to a depth of greater than 15 cm (6 in.), then samples should be deep enough to support the survey objectives, such as for the scoping or characterization survey. Taking samples as a function of depth might also be a survey design objective, such as for scoping, characterization, or remediation support.

The depth and area of the sample should be recorded as well as any observations, such as the presence of materials noted during sampling. Chapter 6 and Chapter 7 present more detail regarding the application of these survey planning considerations.

4.8 Site Preparation

Site preparation involves obtaining consent for performing the survey, establishing the property boundaries, evaluating the physical characteristics of the site, accessing surfaces and land areas of interest, and establishing a reference coordinate system. Site preparation may also include removing equipment and materials that restrict access to surfaces. The presence of furnishings or equipment will restrict access to building surfaces and add additional items that the survey should address.

4.8.1 Consent for Survey

When facilities or sites are not owned by the organization performing the surveys, consent from the site or equipment owner should be obtained before conducting the surveys. All appropriate local, State, and Federal officials as well as the site owner and other affected parties should be notified of the survey schedule. Section 3.5 discusses consent for access, and additional guidance based on the CERCLA program is available from EPA (EPA 1987d).

4.8.2 Property Boundaries

Property boundaries may be determined from property survey maps furnished by the owners or from plat maps obtained from city or county tax maps. Large-area properties and properties with obscure boundaries or missing survey markers may require the services of a professional land surveyor.

If the radiological survey is only performed inside buildings, a tax map with the buildings accurately located will usually suffice for site/building location designation.

4.8.3 Physical Characteristics of Site

The physical characteristics of the site will have a significant impact on the complexity, schedule, and cost of a survey. These characteristics include the number and size of structures, type of building construction, wall and floor penetrations, pipes, building condition, total area, topography, soil type, and ground cover. In particular, the accessibility of structures and land areas (Section 4.8.4) has a significant impact on the survey effort. In some cases survey techniques (*e.g., in situ* gamma spectrometry discussed in Chapter 6) can preclude or reduce the need to gain physical access or use intrusive techniques. This should be considered during survey planning.

4.8.3.1 Structures

Building design and condition will have a marked influence on the survey efforts. The time involved in conducting a survey of building interior surfaces is essentially directly proportional to the total surface area. For this reason the degree of survey coverage decreases as the potential for residual activity decreases. Judgment measurements and sampling, which are performed in addition to the measurements performed for the nonparametric tests, are recommended in areas likely to have accumulated deposits of residual activity. As discussed in Section 5.5.3.3 and Section 8.5, judgment measurements and samples are compared directly to the appropriate DCGL.

The condition of surfaces after decontamination may affect the survey process. Removing contamination that has penetrated a surface usually involves removing the surface material. As a result, the floors and walls of decontaminated facilities are frequently badly scarred or broken up and are often very uneven. Such surfaces are more difficult to survey because it is not possible to maintain a fixed distance between the detector and the surface. In addition, scabbled or porous surfaces may significantly attenuate radiations—particularly alpha and low-energy beta particles. Use of monitoring equipment on wheels is precluded by rough surfaces, and such surfaces also pose an increased risk of damage to fragile detector probe faces. These factors should be considered during the calibration of survey instruments; NRC report NUREG-1507 (NRC 1997b) provides additional information on how to address these surface conditions. The condition of the building should also be considered from a safety and health standpoint before a survey is conducted. A structural assessment may be needed to determine whether the structure is safe to enter.

Expansion joints, stress cracks, and penetrations into floors and walls for piping, conduit, and anchor bolts, *etc.*, are potential sites for accumulation of contamination and pathways for migration into subfloor soil and hollow wall spaces. Drains, sewers, and septic systems can also become contaminated. Wall/floor interfaces are also likely locations for residual contamination. Coring, drilling, or other such methods may be necessary to gain access for survey. Intrusive surveying may require permitting by local regulatory authorities. Suspended ceilings may cover areas of potential contamination such as ventilation ducts and fixtures.

Exterior building surfaces will typically have a low potential for residual contamination, however, there are several locations that should be considered during survey planning. If there are roof exhausts, roof accesses that allow for radioactive material movement, or the facility is proximal to the air effluent discharge points, the possibility of roof contamination should be considered. Because roofs are periodically resurfaced, contaminants may be trapped in roofing material, and sampling this material may be necessary. Roof drainage points such as driplines along overhangs, downspouts, and gutters are also important survey locations. Wall penetrations for process equipment, piping, and exhaust ventilation are potential locations for exterior

contamination. Window ledges and outside exits (doors, doorways, landings, stairways, *etc.*) are also building exterior surfaces that should be addressed.

4.8.3.2 Land Areas

Depending upon site processes and operating history, the radiological survey may include varying portions of the land areas. Potentially contaminated open land or paved areas to be considered include storage areas (*e.g.*, equipment, product, waste, and raw material), liquid waste collection lagoons and sumps, areas downwind (based on predominant wind directions on an average annual basis, if possible) of stack release points, and surface drainage pathways. Additionally, roadways and railways that may have been used for transport of radioactive or contaminated materials that may not have been adequately contained could also be potentially contaminated.

Buried piping, underground tanks, sewers, spill areas, and septic leach fields that may have received contaminated liquids are locations of possible contamination that may necessitate sampling of subsurface soil (Section 7.5.3). Information regarding soil type (*e.g.*, clay, sand) may provide insight into the retention or migration characteristics of specific radionuclides. The need for special sampling by coring or split-spoon equipment should be anticipated for characterization surveys.

If radioactive waste has been removed, surveys of excavated areas will be necessary before backfilling. If the waste is to be left in place, subsurface sampling around the burial site perimeter to assess the potential for future migration may be necessary.

Additionally, potentially contaminated rivers, harbors, shorelines, and other outdoor areas may require survey activities including environmental media (*e.g.*, sediment, marine biota) associated with these areas.

4.8.4 Clearing to Provide Access

In addition to the physical characteristics of the site, a major consideration is how to address inaccessible areas that have a potential for residual radioactivity. Inaccessible areas may need significant effort and resources to adequately survey. This section provides a description of common inaccessible areas that may have to be considered. The level of effort expended to access these difficult-to-reach areas should be commensurate with the potential for residual activity. For example, the potential for the presence of residual activity behind walls should be established before significant effort is expended to remove drywall.

4.8.4.1 Structures

Structures and indoor areas should be sufficiently cleared to permit completion of the survey. Clearing includes providing access to potentially contaminated interior surfaces (*e.g.*, drains, ducting, tanks, pits, ceiling areas, and equipment) by removing covers, disassembly, or other means of producing adequate openings.

Building features such as ceiling height, construction materials, ducts, pipes, *etc*., will determine the ease of accessibility of various surfaces. Scaffolding, cranes, lifts, or ladders may be necessary to reach some surfaces, and dismantling portions of the building may be required.

The presence of furnishings and equipment will restrict access to building surfaces and add additional items that the survey should address. Remaining equipment indirectly involved in the process may need to be dismantled in order to evaluate the radiological status, particularly of inaccessible parts of the equipment. Removing or relocating certain furnishings, such as lab benches and hoods, to obtain access to potentially contaminated floors and walls may also be necessary. The amount of effort and resources dedicated to such removal or relocation activities should be commensurate with the potential for contamination. Where the potential is low, a few spot-checks may be sufficient to provide confidence that covered areas are free of contamination. In other cases, complete removal may be warranted.

Piping, drains, sewers, sumps, tanks, and other components of liquid handling systems present special difficulties because of the inaccessibility of interior surfaces. Process information, operating history, and preliminary monitoring at available access points will assist in evaluating the extent of sampling and measurements included in the survey.

If the building is constructed of porous materials (*e.g.*, wood, concrete) and the surfaces were not sealed, contamination may be found in the walls, floors, and other surfaces. It may be necessary to obtain cores of these surfaces for laboratory analysis.

Another accessibility problem is the presence of contamination beneath tile or other floor coverings. This often occurs because the covering was placed over contaminated surfaces, or the joints in tile were not sealed to prevent penetration. The practice in some facilities has been to "fix" contamination (particularly alpha emitters) by painting over the surface of the contaminated area. Thus, actions to obtain access to potentially contaminated surfaces, such as removing wall and floor coverings (including paint, wax, or other sealer) and opening drains and ducts, may be necessary to enable representative measurements of the contaminant. If alpha radiation or very low energy beta radiation is to be measured, the surface should be free of overlying material, such as dust and water, which may significantly attenuate the radiations.

4.8.4.2 Land Areas

If ground cover needs to be removed or if there are other obstacles that limit access by survey personnel or necessary equipment, the time and expense of making land areas accessible should be considered. In addition, precautionary procedures need to be developed to prevent spreading surface contamination during ground cover removal or the use of heavy equipment.

Removal or relocation of equipment and materials that may entail special precautions to prevent damage or maintain inventory accountability should be performed by the property owner whenever possible. Clearing open land of brush and weeds will usually be performed by a professional land-clearing organization under subcontract arrangements. However, survey personnel may perform minor land-clearing activities as needed.

An important consideration prior to clearing is the possibility of bio-uptake and consequent radiological contamination of the material to be cleared. Special precautions to avoid exposure of personnel involved in clearing activities may be necessary. Initial radiological screening surveys should be performed to ensure that cleared material or equipment is not contaminated.

The extent of site clearing in specific areas depends primarily on the potential for radioactive contamination existing in those areas where: 1) the radiological history or results of previous surveys do not indicate potential contamination of an area (it may be sufficient to perform only minimum clearing to establish a reference coordinate system); 2) contamination is known to exist or a high potential for contamination necessitates completely clearing an area to provide access to all surfaces; and 3) new findings as the survey progresses may indicate that additional clearing be performed.

Open land areas may be cleared by heavy machinery (*e.g.*, bulldozers, bushhogs, and hydroaxes). However, care should be exercised to prevent relocation of surface contamination or damage to site features such as drainage ditches, utilities, fences, and buildings. Minor land clearing may be performed using manually operated equipment such as brushhooks, power saws, knives, and string trimmers. Brush and weeds should be cut to the minimum practical height necessary to facilitate measurement and sampling activities (approximately 15 cm). Care should be exercised to prevent unnecessary damage to or removal of mature trees or shrubs.

Potential ecological damage that might result from an extensive survey should be considered. If a survey is likely to result in significant or permanent damage to the environment, appropriate environmental analyses should be conducted prior to initiating the survey. In addition, environmental hazards such as poison ivy, ticks carrying Lyme disease, and poisonous snakes, spiders, or insects should be noted. These hazards can affect the safety and health of the workers as well as the schedule for performing the survey.

4.8.5 Reference Coordinate System

Reference coordinate systems are established at the site to:

- facilitate selection of measurement and sampling locations
- provide a mechanism for referencing a measurement to a specific location so that the same survey point can be relocated

A survey reference coordinate system consists of a grid of intersecting lines, referenced to a fixed site location or benchmark. Typically, the lines are arranged in a perpendicular pattern, dividing the survey location into squares or blocks of equal area; however, other types of patterns (*e.g.*, three-dimensional, polar) have been used.

The reference coordinate system used for a particular survey should provide a level of reproducibility consistent with the objectives of the survey. For example, a commercially available global positioning system will locate a position within tens of meters, while a differential global positioning system (DGPS) provides precision on the order of a few centimeters (see Section 6.10.1.1). On the other hand, a metal bar can be driven into the ground to provide a long-term reference point for establishing a local reference coordinate system.

Reference coordinate system patterns on horizontal surfaces are usually identified numerically on one axis and alphabetically on the other axis or in distances in different compass directions from the grid origin. Examples of structure interior and land area grids are shown in Figures 4.3 through 4.5. Grids on vertical surfaces may include a third designator, indicating position relative to floor or ground level. Overhead measurement and sampling locations (*e.g.*, ceiling and overhead beams) are referenced to corresponding floor grids.

For surveys of Class 1 and Class 2 areas, basic grid patterns at 1 to 2 meter intervals on structure surfaces and at 10 to 20 meter intervals of land areas may be sufficient to identify survey locations with a reasonable level of effort, while not being prohibitive in cost or difficulty of installation. Gridding of Class 3 areas may also be necessary to facilitate referencing of survey locations to a common system or origin but, for practical purposes, may typically be at larger intervals—*e.g.*, 5 to 10 meters for large structural surfaces and 20 to 50 meters for land areas.

Reference coordinate systems on structure surfaces are usually marked by chalk line or paint along the entire grid line or at line intersections. Land area reference coordinate systems are usually marked by wooden or metal stakes, driven into the surface at reference line intersections. The selection of an appropriate marker depends on the characteristics and routine uses of the surface. Where surfaces prevent installation of stakes, the reference line intersection can be marked by painting.

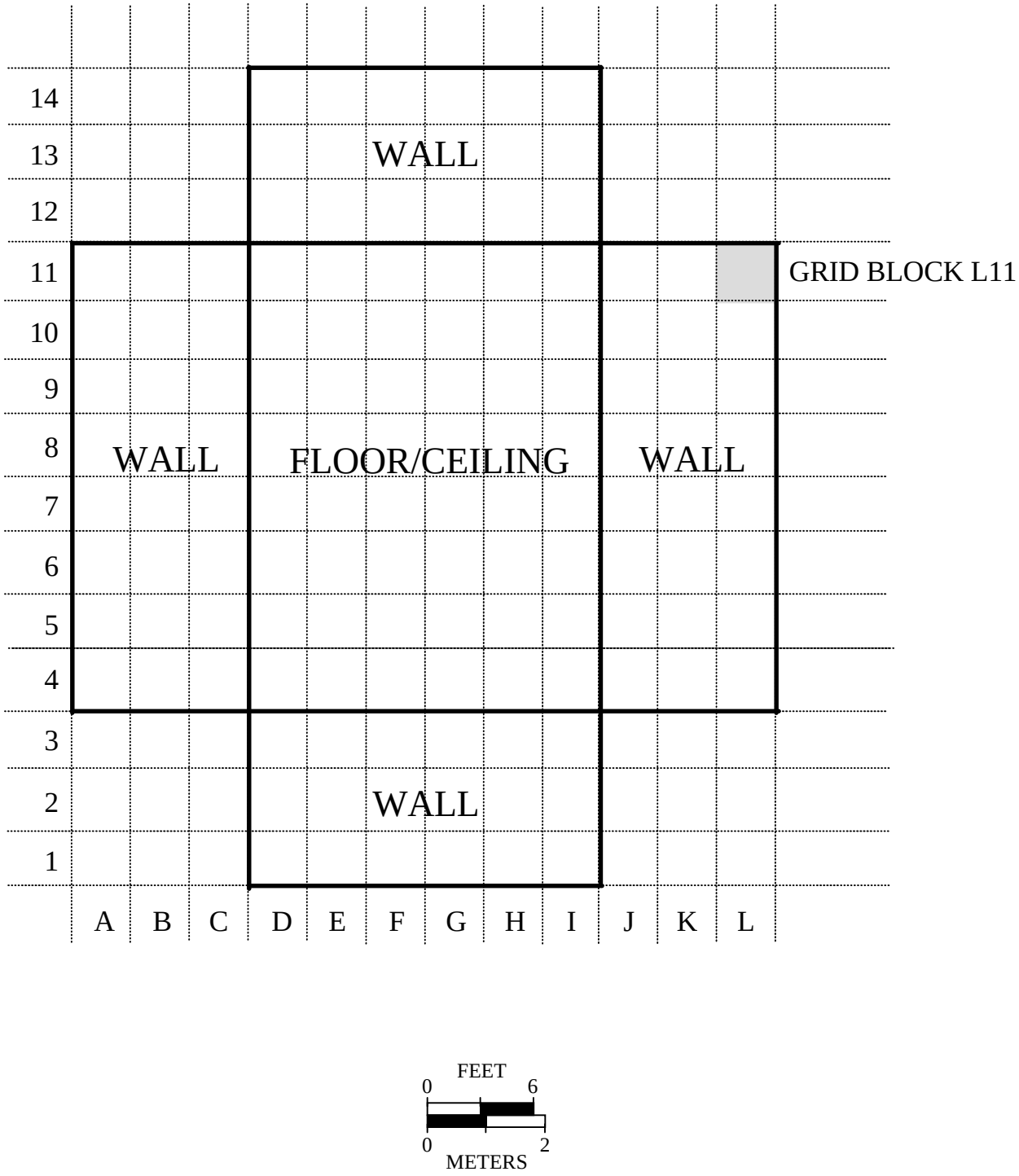
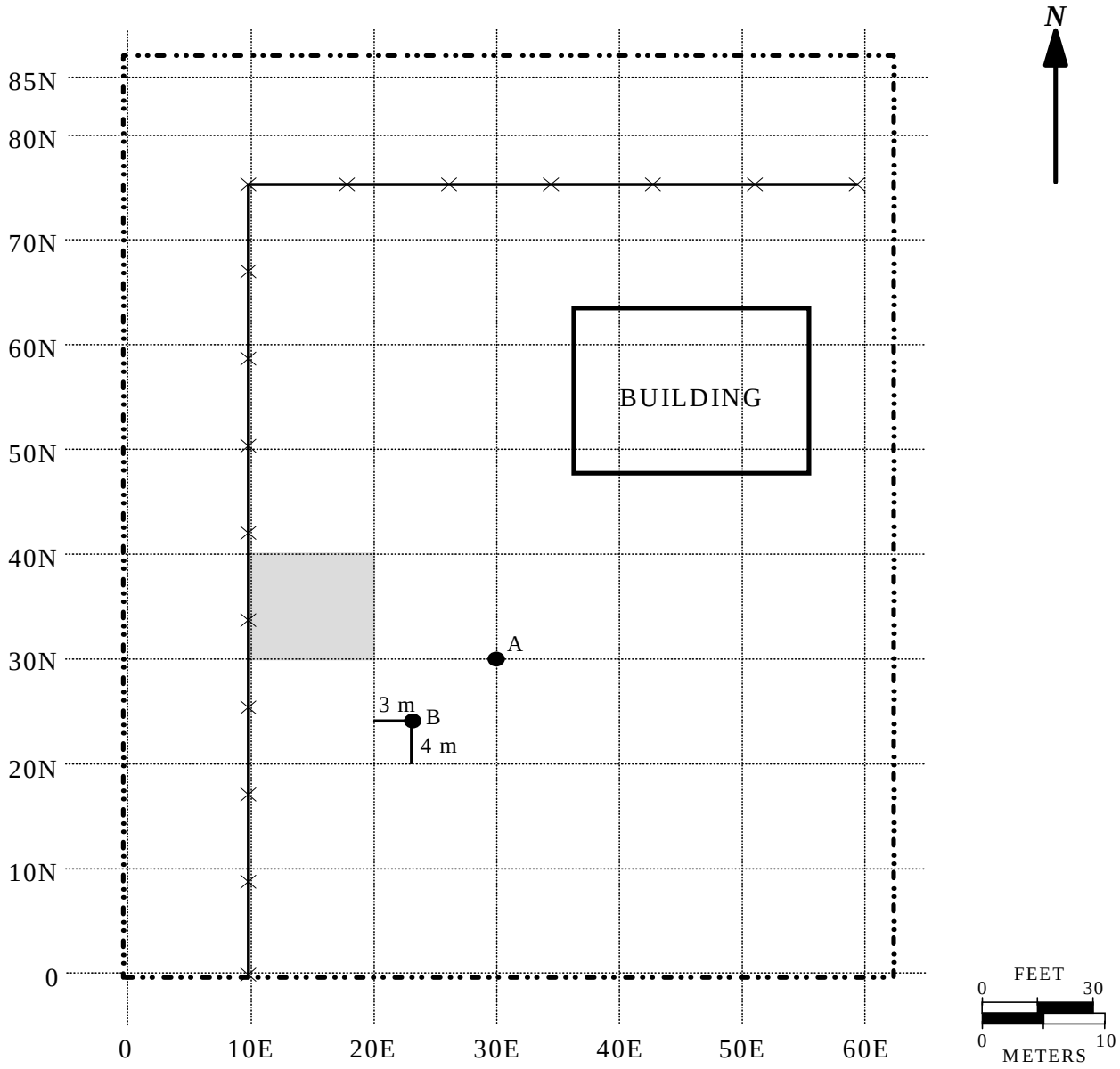


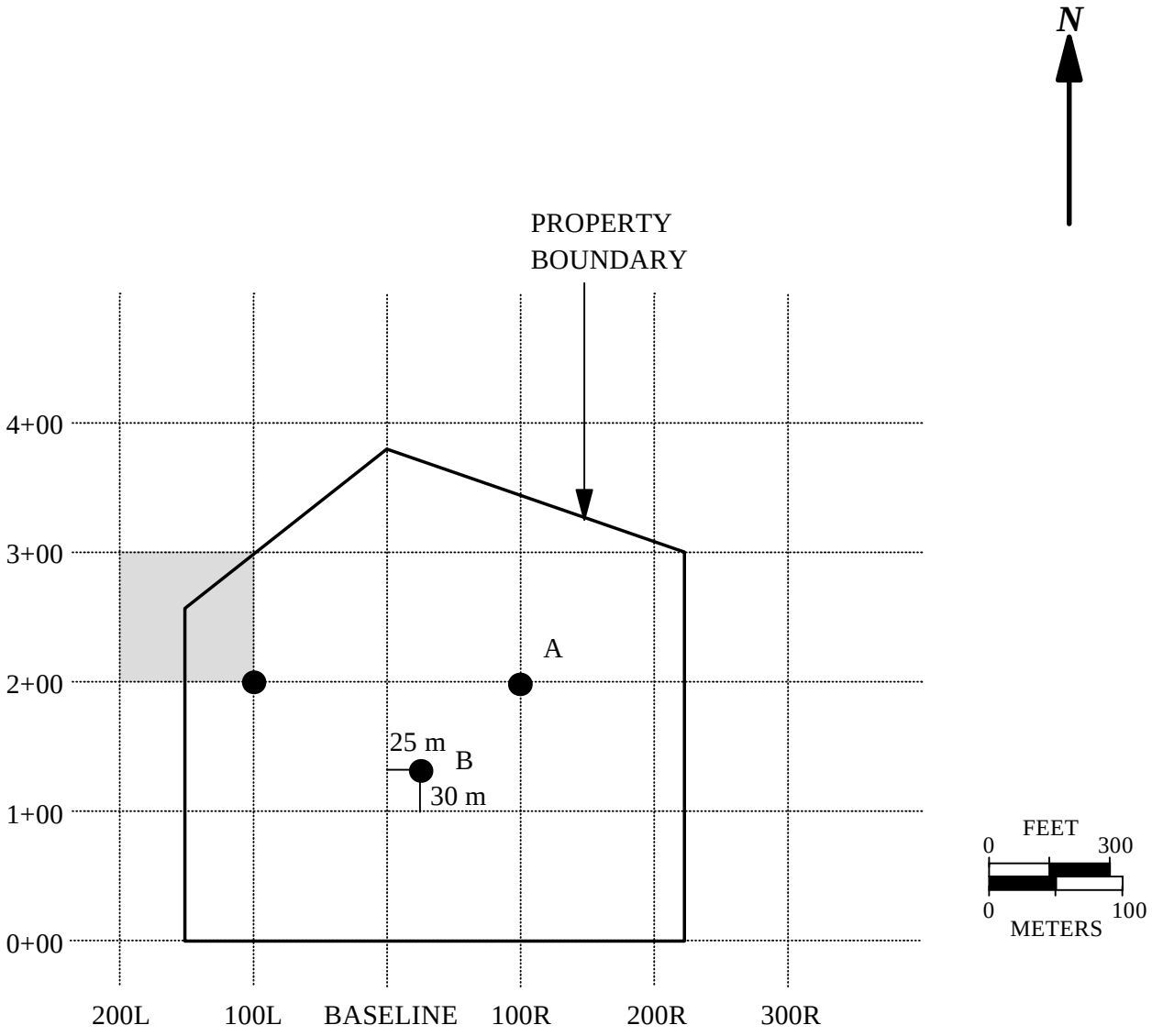
Figure 4.3 Indoor Grid Layout with Alphanumeric Grid Block Designation: Walls and Floors are Diagramed as Though They Lay Along the Same Horizontal Plane



POINT A GRID COORDINATES 30E, 30N
POINT B GRID COORDINATES 23E, 24N
SHADED BLOCK GRID COORDINATES 10E, 30N

SURVEY UNIT BOUNDARY
ONSITE FENCE

Figure 4.4 Example of a Grid System for Survey of Site Grounds Using Compass Directions



POINT A GRID COORDINATES 100R, 2+00
POINT B GRID COORDINATES 25R, 1+30
SHADED BLOCK GRID COORDINATES 200L, 2+00

Figure 4.5 Example of a Grid System for Survey of Site Grounds Using Distances Left or Right of the Baseline

Three basic coordinate systems are used for identifying points on a reference coordinate system. The reference system shown in Figure 4.3 references grid locations using numbers on the vertical axis and letters on the horizontal axis. The reference system shown on Figure 4.4 references distances from the 0,0 point using the compass directions N (north), S (south), E (east), and W (west). The reference system shown in Figure 4.5 references distances along and to the R (right) or L (left) of the baseline. In addition, a less frequently used reference system is the polar coordinate system, which measures distances along transects from a central point. Polar coordinate systems are particularly useful for survey designs to evaluate effects of stack emissions, where it may be desirable to have a higher density of samples collected near the stack and fewer samples with increasing distance from the stack.

Figure 4.5 shows an example grid system for an outdoor land area. The first digit or set of digits includes an L or R (separated from the first set by a comma) to indicate the distance from the baseline in units (meters) and the direction (left or right) from the baseline. The second digit or set of digits refers to the perpendicular distance from the 0,0 point on the baseline and is measured in hundreds of units. Point A in the example of a reference coordinate system for survey of site grounds, Figure 4.5, is identified 100R, 2+00 (*i.e.*, 200 m from the baseline and 100 m to the right of the baseline). Fractional distances between reference points are identified by adding the distance beyond the reference point and are expressed in the same units used for the reference coordinate system dimensions. Point B on Figure 4.5 is identified 25R, 1+30.

Open land reference coordinate systems should be referenced to a location on an existing State or local reference system or to a U.S. Geological Survey (USGS) bench mark. (This may require the services of a professional land surveyor.) Global positioning systems (GPS) are capable of locating reference points in terms of latitude and longitude (Section 6.10.1 provides descriptions of positioning systems).

Following establishment of the reference coordinate system, a drawing is prepared by the survey team or the land surveyor. This drawing indicates the reference lines, site boundaries, and other pertinent site features and provides a legend showing the scale and a reference compass direction. The process used to develop the reference coordinate system should be recorded in the survey planning documentation (*e.g.*, the Quality Assurance Project Plan or QAPP). An deviations from the requirements developed during planning should be documented when the reference coordinate system is established.

It should be noted that the reference coordinate systems described in this section are intended primarily for reference purposes and do not necessarily dictate the spacing or location of survey measurements or samples. Establishment of a measurement grid to demonstrate compliance with the DCGL is discussed in Section 5.5.2.5 and Chapter 8.

4.9 Quality Control

Site surveys should be performed in a manner that ensures results are accurate and sources of uncertainty are identified and controlled. This is especially the case for final status surveys that are vital to demonstrating a facility satisfies pre-established release criteria. Quality control (QC) and quality assurance (QA) are initiated at the start of a project and integrated into all surveys as DQOs are developed. This carries over to the writing of a Quality Assurance Project Plan (QAPP), which applies to each aspect of a survey. Section 9.2 provides guidance on developing a QAPP. Data quality is routinely a concern throughout the RSSI Process, and one should recognize that QA/QC procedures will change as data are collected and analyzed, and as DQOs become more rigorous for the different types of surveys that lead up to a final status survey.

In general, surveys performed by trained individuals are conducted with approved written procedures and properly calibrated instruments that are sensitive to the suspected contaminant. However, even the best approaches for properly performing measurements and acquiring accurate data need to consider QC activities. QC activities are necessary to obtain additional quantitative information to demonstrate that measurement results have the required precision and are sufficiently free of errors to accurately represent the site being investigated. The following two questions are the main focus of the rationale for the assessment of errors in environmental data collection activities (EPA 1990).

- How many and what type of measurements are required to assess the quality of data from an environmental survey?

- How can the information from the quality assessment measurements be used to identify and control sources of error and uncertainties in the measurement process?

These questions are introduced as part of guidance that also includes an example to illustrate the planning process for determining a reasonable number of quality control (QC) measurements. This guidance also demonstrates how the information from the process may be used to document the quality of the measurement data. This process was developed in terms of soil samples collected in the field and then sent to a laboratory for analysis (EPA 1990). For MARSSIM, these questions may be asked in relation to measurements of surface soils and building surfaces both of which include sampling, scanning, and direct measurements.

Quality control may be thought of in three parts: 1) determining the type of QC samples needed to detect precision or bias; 2) determining the number of samples as part of the survey design; and 3) scheduling sample collections throughout the survey process to identify and control sources of error and uncertainties. Section 4.9.1 introduces the concepts of precision and bias related to survey measurements and briefly discusses the types of QC measurements needed to detect and quantify precision and bias. Section 6.2 and Section 7.2 provide more detailed

guidance on the types of QC measurements. The number of QC measurements is addressed in Section 4.9.2, while Section 4.9.3 and Section 9.3 contain information on identifying and controlling sources of uncertainty. Overall, survey activities associated with MARSSIM include obtaining the additional information related to QA of both field and laboratory activities.

4.9.1 Precision and Systematic Errors (Bias)

Precision is a measure of agreement among repeated measurements. Precision is discussed further in Appendix N in statistical terms. Table N.2 presents the minimum considerations, impacts of not meeting these considerations, and corrective actions associated with assessing precision. Systematic errors, also called bias, accumulate during the measurement process and result from faults in sampling designs and procedures, analytical procedures, sample contamination, losses, interactions with containers, deterioration, inaccurate instrument calibration, and other sources. Bias causes the mean value of the sample data to be consistently higher or lower than the true mean value. Appendix N also discusses bias, and Table N.3 presents the minimum considerations associated with assessing bias, the impacts if the considerations are not met, and related corrective actions. Laboratories typically introduce QC samples into their sample load to assess possible bias. In simplest terms, spikes, repeated measurements, and blanks are used to assess bias, precision, and contamination, respectively. See Section 6.2 for further discussion of specific measurements for determining precision and bias for scans and direct measurements and Section 7.2 for further discussion of specific measurements for determining precision and bias for samples.

Field work using scanning or direct measurements eliminates some sources of error because samples are not removed, containerized, nor transported to another location for analysis. The operator's technique or field instrument becomes the source of bias. In this case, detecting bias might incorporate field replicates (see Section 7.2.2.1) by having a second operator to revisit measurement locations and following the same procedure with the same instrument as was used by the first operator. This is an approach used to assess precision of measurements. A field instrument's calibration can also be checked by one or more operators during the course of a survey and recorded on a control chart. Differences in set up or handling of instruments by different operators may reveal a significant source of bias that is quite different from sources of bias associated with laboratory work.

The following factors should be considered when evaluating sources of bias, error, and uncertainty. Contamination is an added factor to consider for each of the following items.

- sample collection methods
- handling and preparation of samples
- homogenization and aliquots of laboratory samples
- field methods for sampling, scanning, or direct measurements

- laboratory analytical process
- total bias contributed by all sources

The magnitude of the measurement system variability should be evaluated to determine if the variability approaches or exceeds the true but unknown variability in the population of interest. Errors, bias, or data variability may accumulate to the point of rendering data unusable to achieve survey objectives. Systematic investigations of field or laboratory processes can be initiated to assess and identify the extent of errors, bias, and data variability and to determine if the DQOs are achieved. An important aspect of each QC determination is the representative nature of a sample or measurement (see Appendix N for a description of representativeness). If additional samples or measurements are not taken according to the appropriate method, the resulting QC information will be invalid or unusable. For example, if an inadequate amount of sample is collected, the laboratory analytical procedure may not yield a proper result. The QC sample must represent the sample population being studied. Misrepresentation itself creates a bias that if undetected leads to inaccurate conclusions concerning an analysis. At the very least, misrepresentation leads to a need for additional QA investigation.

4.9.2 Number of Quality Control Measurements

The number of QC measurements is determined by the available resources and the degree to which one needs assurance that a measurement process is adequately controlled. The process is simplified, for example, when the scope of a survey is narrowed to a single method, one sampling crew, and a single laboratory to analyze field samples. Increasing the number of samples and scheduling sample collections and analyses over time or at different laboratories increases the level of difficulty and necessitates increasing the number of QC measurements. The number of QC measurements may also be driven upward as the action level approaches a given instrument's detection limit. This number is determined on a case-by-case basis, where the specific contaminant and instruments are assessed for detecting a particular radionuclide.

A widely used standard practice is to collect a set percentage, such as 5% (EPA 1987b), of samples for QA purposes. However, this practice has disadvantages. For example, it provides no real assessment of the uncertainties for a relatively small sample size. For surveys where the required number of measurements increases, there may be a point beyond which there is little added value in performing additional QC measurements. Aside from cost, determining the appropriate number of QC measurements essentially depends on site-specific factors. For example, soil may present a complex and variable matrix requiring many more QC measurements for surface soils than for building surfaces.

A performance based alternative (EPA 1990) to a set percentage or rule of thumb can be implemented. First, potential sources of error or uncertainty, the likelihood of occurrence, and the consequences in the context of the DQOs should be determined. Then, the appropriate type

and number of QC measurements based on the potential error or uncertainty are determined. For example, field replicate samples (*i.e.*, a single sample that is collected, homogenized, and split into equivalent fractions in the field) are used to estimate the combined contribution of several sources of variation. Hence, the number of field replicate samples to be obtained in the study should be dictated by how precise the estimate of the total measurement should be.

Factors influencing this estimate include the

- number of measurements
- number and experience of personnel involved
- current and historical performance of sampling and analytical procedures used
- the variability of survey unit and background reference area radioactivity measurement systems used
- number of laboratories used
- the level of radioactivity in the survey unit (which for a final status survey should be low)
- how close an action level (*e.g.*, DCGL) is to a detection limit (which may represent a greater concern after reducing or removing radionuclide concentrations by remediation)

The precision of an estimate of the "true" variance for precision or bias within a survey design depends on the number of degrees of freedom used to provide the estimate. Table 4.3 provides the one-sided upper confidence limits for selected degrees of freedom assuming the results of the measurements are normally distributed. Confidence limits are provided for 90, 95, 97.5, and 99 percent confidence levels. At the stated level of confidence, the "true" variance of the estimate of precision or bias for a specified number of QC measurements will be between zero and the multiple of the estimated variance listed in Table 4.3. For example, for five degrees of freedom one would be 90% confident that the true variance for precision falls between zero and 3.10 times the estimated variance. The number of QC measurements is equal to one greater than the degrees of freedom.

When planning surveys, the number of each type of QC measurement can be obtained from Table 4.3. For example, if the survey objective is to estimate the variance in the bias for a specific measurement system between zero and two times the estimated variance at a 95% confidence level, 15 degrees of freedom or 16 measurements of a material with known concentration (*e.g.*, performance evaluation samples) would be indicated. MARSSIM recommends that the survey objective be set such that the true variance falls between zero and two times the estimated variance. The level of confidence is then determined on a site-specific basis to adjust the number of each type of QC measurement to the appropriate level (*i.e.*, 11, 16, 21 or 31 measurements). The results of the QC measurements are evaluated during the assessment phase of the data life cycle (see Section 9.3 and Appendix N).

Table 4.3 Upper Confidence Limits for the True Variance as a Function of the Number of QC Measurements Used to Determine the Estimated Variance (EPA 1990)

Degrees of Freedom*	Level of Confidence (%)			
	90	95	97.5	99
2	9.49	19.49	39.21	99.50
5	3.10	4.34	6.02	9.02
10	2.05	2.54	3.08	3.91
15	1.76	2.07	2.40	2.87
20	1.61	1.84	2.08	2.42
25	1.52	1.71	1.91	2.17
30	1.46	1.62	1.78	2.01
40	1.38	1.51	1.64	1.80
50	1.33	1.44	1.61	1.68
100	1.21	1.28	1.35	1.43

* To obtain the necessary number of quality control measurements, add one to the degrees of freedom.

Example:

A site is contaminated with ^{60}Co and consists of four Class 1 interior survey units, nine Class 2 interior survey units, two Class 3 interior survey units, and one Class 3 exterior survey unit. Three different measurement systems are specified in the survey design for performing scanning surveys, one measurement system is specified for performing direct measurements for interior survey units, and one measurement system is specified for measuring samples collected from the exterior survey unit.

Repeated measurements are used to estimate precision. For scan surveys there is not a specified number of measurements. 10% of the scans in each Class 1 survey unit were repeated as replicates to measure operator precision (see Section 6.2.2.1) within 24 hours of the original scan survey. 5% of each Class 2 and Class 3 survey unit were similarly repeated as replicates to measure operator precision. The results of the repeated scans were evaluated based on professional judgment. For direct measurements and sample collection activities, a 95% confidence level was selected as consistent with the objectives of the survey. Using Table 4.3, it was determined that 16 repeated measurements were required for both the direct measurement technique and the sample collection and laboratory measurement technique. Because 72 direct measurements would be performed in Class 1 survey units, 99 in Class 2 survey units, and 20 in Class 3 survey units, it was anticipated that at least 16 direct measurements would have sufficient

activity above background to perform repeated measurements and obtain usable results (see Section 5.5.2 for guidance on determining the number of measurements and Appendix A for a more detailed discussion of the example site). The 16 direct measurement locations to be repeated would be selected based on the results of the direct measurements and would represent the entire usable range of activity found in the survey units rather than measuring the 16 locations with the highest activities. (The usable range of activity includes the highest measurement result in the survey unit and the lowest measurement result with an acceptable measurement uncertainty compared to the desired level of precision.) The repeated measurements would be performed by different operators using the same equipment, but they would not know the results of the original survey. To ensure that the measurements would be valid, the QC measurements to check for contamination would be performed at the same time. Because the laboratory's QA program called for periodic checks on the precision of the laboratory instruments, the total survey design precision for laboratory measurements was measured. Because the only samples collected would come from a Class 3 area, the sample activities were expected to be close to or below the measurement system MDC. This meant that field replicate samples would not provide any usable information. Also, QC samples for bias were repeated to obtain a usable estimate of precision for the survey design.

Measurements of materials with known concentrations above background (*e.g.*, performance evaluation samples) and known concentrations at or below background (*e.g.*, field blanks) are used to estimate bias. For scan surveys, the repeated scanning performed to estimate precision would also serves as a check for contamination using blanks. Because there was no appropriate material of known concentration on which to perform bias measurements, the calibration checks were used to demonstrate that the instruments were reading properly during the surveys. A control chart was developed using the instrument response for an uncalibrated check source. Measurements were obtained using a specified source-detector alignment that could be easily repeated. Measurements were obtained at several times during the day over a period of several weeks prior to taking the instruments into the field. Calibration checks were performed before and after each survey period in the field and the results immediately plotted on the control chart to determine if the instrument was performing properly. This method was also adopted for the direct measurement system. 20 samples were required by the survey design for the Class 3 exterior survey unit. To ensure that the samples were truly blind for the laboratory, samples three times the requested volume were collected. These samples were sent to a second laboratory for preparation. Each sample was weighed, dried, and reweighed to determine the moisture content. Then each sample was ground to a uniform particle size of 1 mm (approximately 16 mesh) and divided into three separate aliquots (each aliquot was the same size). For each sample one aliquot was packaged for transport to the laboratory performing the analysis. After these samples were packaged, 16 of the samples had both of the remaining aliquots spiked with the same level of activity using a

source solution traceable to the National Institute of Science and Technology (NIST). The 16 samples each had a different level of activity within a range that was accepted by the laboratory performing the analysis. These 32 samples were also packaged for transport to the laboratory. In addition, 16 samples of a soil similar to the soil at the site were prepared as blanks to check against contamination. The 20 samples, 32 spikes, and 16 blanks were transported to the laboratory performing the analyses in a single shipment so that all samples were indistinguishable from each other except by the sample identification.

4.9.3 Controlling Sources of Error

During the performance of a survey, it is important to identify sources of error and uncertainty early in the process so that problems can be resolved. The timing of the QC measurements within the survey design can be very important. In order to identify problems as early as possible, it may be necessary to perform a significant number of QC measurements early in the survey. This can be especially important for surveys utilizing an innovative or untested survey design. Survey designs that have been used previously and produced reliable results may be able to space the QC measurement evenly throughout the survey, or even wait to have samples analyzed at the end of the survey, as long as the objectives of the survey are achieved.

For example, a survey design requires a new scanning method to be used for several survey units when there are little performance data available for this technique. To ensure that the technique is working properly, the first few survey units are re-scanned to provide an initial estimate of the precision and bias. After the initial performance of the techniques has been verified, a small percentage of the remaining survey units is re-scanned to demonstrate that the technique is operating properly for the duration of the survey.

Identifying sources of error and uncertainty is only the first step. Once the sources of uncertainty have been identified, they should be minimized and controlled for the rest of the survey. Section 9.3 discusses the assessment of survey data and provides guidance on corrective actions that may be appropriate for controlling sources of error or uncertainty after they have been identified.

4.10 Health and Safety

Consistent with the approach for any operation, activities associated with the radiological surveys should be planned and monitored to assure the health and safety of the worker and other personnel, both onsite and offsite, are adequately protected. At the stage of determining the final status of the site, residual radioactivity is expected to be below the DCGL values; therefore, the final status survey should not include radiation protection controls. However, radiation protection controls may be necessary when performing scoping or characterization surveys where the potential for significant levels of residual radioactivity is unknown.

Significant health and safety concerns during any radiological survey include the potential industrial hazards commonly found at a construction site, such as exposed electrical circuitry, excavations, enclosed work spaces, hazardous atmospheres, insects, poisonous snakes, plants, and animals, unstable surfaces (*e.g.*, wet or swamp soil), heat and cold, sharp objects or surfaces, falling objects, tripping hazards, and working at heights. The survey plan should incorporate objectives and procedures for identifying and eliminating, avoiding, or minimizing these potential safety hazards.

5 SURVEY PLANNING AND DESIGN

5.1 Introduction

This chapter is intended to assist the user in planning a strategy for conducting a final status survey, with the ultimate objective being to demonstrate compliance with the derived concentration guideline levels (DCGLs). The survey types that make up the Radiation Survey and Site Investigation (RSSI) Process include scoping, characterization, remedial action support, and final status surveys. Although the scoping, characterization, and remedial action support surveys have multiple objectives, this manual focuses on those aspects related to supporting the final status survey and demonstrating compliance with DCGLs. In general, each of these survey types expands upon the data collected during the previous survey (*e.g.*, the characterization survey is planned with information collected during the scoping survey) up through the final status survey. The purpose of the final status survey is to demonstrate that the release criterion established by the regulatory agency has not been exceeded. This final release objective should be kept in mind throughout the design and planning phases for each of the other survey types. For example, scoping surveys may be designed to meet the objectives of the final status survey such that the scoping survey report is also the final status survey report. The survey and analytical procedures referenced in this chapter are described in Chapter 6, Chapter 7, and Appendix H. An example of a final status survey, as described in Section 5.5, appears in Appendix A. In addition, example checklists are provided for each type of survey to assist the user in obtaining the necessary information for planning a final status survey.

5.2 Scoping Surveys

5.2.1 General

If the data collected during the Historical Site Assessment (HSA) indicate that a site or area is impacted, a scoping survey could be performed. The objective of this survey is to augment the HSA for sites with potential residual contamination. Specific objectives may include: 1) performing a preliminary risk assessment and providing data to complete the site prioritization scoring process (CERCLA and RCRA sites only), 2) providing input to the characterization survey design, if necessary, 3) supporting the classification of all or part of the site as a Class 3 area for planning the final status survey, 4) obtaining an estimate of the variability in the residual radioactivity concentration for the site, and 5) identifying non-impacted areas that may be appropriate for reference areas and estimating the variability in radionuclide concentrations when the radionuclide of interest is present in background.

Scoping survey information needed when conducting a preliminary risk assessment (as noted above for CERCLA and RCRA sites) includes the general radiation levels at the site and gross levels of residual contamination on building surfaces and in environmental media. If unexpected

conditions are identified that prevent the completion of the survey, the MARSSIM user should contact the responsible regulatory agency for further guidance. Sites that meet the National Contingency Plan criteria for a removal should be referred to the Superfund Removal program (EPA 1988c).

If the HSA indicates that contamination is likely, a scoping survey could be performed to provide initial estimates of the level of effort for remediation and information for planning a more detailed survey, such as a characterization survey. Not all radiological parameters need to be assessed when planning for additional characterization because total surface activity or limited sample collection may be sufficient to meet the objectives of the scoping survey.

Once a review of pertinent site history indicates that an area is impacted, the minimum survey coverage at the site will include a Class 3 area final status survey prior to the site being released. For scoping surveys with this objective, identifying radiological decision levels is necessary for selecting instruments and procedures with the necessary detection sensitivities to demonstrate compliance with the release criterion. A methodology for planning, conducting, and documenting scoping surveys is described in the following sections.

5.2.2 Survey Design

Planning a scoping survey involves reviewing the HSA (Chapter 3). This process considers available information concerning locations of spills or other releases of radioactive material. Reviewing the radioactive materials license or similar documentation provides information on the identity, locations, and general quantities of radioactive material used at the site. This information helps to determine which areas are likely to contain residual radioactivity and, thus, areas where scoping survey activities will be concentrated. The information may also identify one or more non-impacted areas as potential reference areas when radionuclides of concern are present in background (Section 4.5). Following the review of the HSA, DCGLs that are appropriate for the site are selected. The DCGLs may be adjusted later if a determination is made to use site-specific information to support the development of DCGLs.

If residual radioactivity is identified during the scoping survey, the area may be classified as Class 1 or Class 2 for final status survey planning (refer to Section 4.4 for guidance on initial classification), and a characterization survey is subsequently performed. For scoping surveys that are designed to provide input for characterization surveys, measurements and sampling may not be as comprehensive or performed to the same level of sensitivity necessary for final status surveys. The design of the scoping survey should be based on specific data quality objectives (DQOs; see Section 2.3.1 and Appendix D) for the information to be collected.

For scoping surveys that potentially serve to release the site from further consideration, the survey design should consist of sampling based on the HSA data and professional judgment. If

residual radioactivity is *not* identified during judgment sampling, it may be appropriate to classify the area as Class 3 and perform a final status survey for Class 3 areas. Refer to Section 5.5 for a description of final status surveys. However, collecting additional information during subsequent surveys (*e.g.*, characterization surveys) may be necessary to make a final determination as to area classification.

5.2.3 Conducting Surveys

Scoping survey activities performed for preliminary risk assessment or to provide input for additional characterization include a limited amount of surface scanning, surface activity measurements, and sample collection (smears, soil, water, vegetation, paint, building materials, subsurface materials). In this case, scans, direct measurements, and samples are used to examine areas likely to contain residual radioactivity. These activities are conducted based on HSA data, preliminary investigation surveys, and professional judgment.

Background activity and radiation levels for the area should be determined, including direct radiation levels on building surfaces and radionuclide concentrations in media. Survey locations should be referenced to grid coordinates, if appropriate, or fixed site features. It may be considered appropriate to establish a reference coordinate system in the event that contamination is detected above the DCGLs (Section 4.8.5). Samples collected as part of a scoping survey should consider any sample tracking requirements, including chain of custody, if required (Section 7.8).

Scoping surveys that are expected to be used as Class 3 area final status surveys should be designed following the guidance in Section 5.5. These surveys should also include judgment measurements and sampling in areas likely to have accumulated residual radioactivity (Section 5.5.3).

5.2.4 Evaluating Survey Results

Survey data are converted to the same units as those in which DCGLs are expressed (Section 6.6). Identification of potential radionuclide contaminants at the site is performed using direct measurements or laboratory analysis of samples. The data are compared to the appropriate regulatory DCGLs.

For scoping survey activities that provide an initial assessment of the radiological hazards at the site, or provide input for additional characterization, the survey data are used to identify locations and general extent of residual radioactivity. Scoping surveys that are expected to be used as Class 3 area final status surveys should follow the methodology presented in Chapter 8 to determine if the release criterion has been exceeded.

5.2.5 Documentation

How the results of the scoping survey are documented depends on the specific objectives of the survey. For scoping surveys that provide additional information for characterization surveys, the documentation should provide general information on the radiological status of the site. Survey results should include identification of the potential contaminants (including the methods used for radionuclide identification), general extent of contamination (*e.g.*, activity levels, area of contamination, and depth of contamination), and possibly even relative ratios of radionuclides to facilitate DCGL application. A narrative report or a report in the form of a letter may suffice for scoping surveys used to provide input for characterization surveys. Sites being released from further consideration should provide a level of documentation consistent with final status survey reports.

EXAMPLE SCOPING SURVEY CHECKLIST

SURVEY DESIGN

_____ Enumerate DQOs: State the objectives of the survey; survey instrumentation capabilities should be appropriate for the specified survey objectives.

_____ Review the Historical Site Assessment for:

- _____ Operational history (*e.g.*, problems, spills, releases, or notices of violation) and available documentation (*e.g.*, radioactive materials license).
- _____ Other available resources—site personnel, former workers, residents, *etc.*
- _____ Types and quantities of materials that were handled and where radioactive materials were stored, handled, moved, relocated, and disposed.
- _____ Release and migration pathways.
- _____ Areas that are potentially affected and likely to contain residual contamination. Note: Survey activities will be concentrated in these areas.
- _____ Types and quantities of materials likely to remain onsite—consider radioactive decay.

_____ Select separate DCGLs for the site based on the HSA review. (It may be necessary to assume appropriate regulatory DCGLs in order to permit selection of survey methods and instrumentation for the expected contaminants and quantities.)

CONDUCTING SURVEYS

_____ Follow the survey design documented in the QAPP. Record deviations from the stated objectives or documented SOPs and document additional observations made when conducting the survey.

_____ Select instrumentation based on the specific DQOs of the survey. Consider detection capabilities for the expected contaminants and quantities.

_____ Determine background activity and radiation levels for the area; include direct radiation levels on building surfaces, radionuclide concentrations in media, and exposure rates.

_____ Record measurement and sample locations referenced to grid coordinates or fixed site features.

_____ For scoping surveys that are conducted as Class 3 area final status surveys, follow guidance for final status surveys.

_____ Conduct scoping survey, which involves judgment measurements and sampling based on HSA results:

- _____ Perform investigatory surface scanning.
- _____ Conduct limited surface activity measurements.
- _____ Perform limited sample collection (smears, soil, water, vegetation, paint, building materials, subsurface materials).
- _____ Maintain sample tracking.

EVALUATING SURVEY RESULTS

_____ Compare survey results with the DQOs.

_____ Identify radionuclides of concern.

_____ Identify impacted areas and general extent of contamination.

_____ Estimate the variability in the residual radioactivity levels for the site.

_____ Adjust DCGLs based on survey findings (the DCGLs initially selected may not be appropriate for the site).

_____ Determine the need for additional action (*e.g.*, none, remediate, more surveys)

_____ Prepare report for regulatory agency (determine if letter report is sufficient).

5.3 Characterization Surveys

5.3.1 General

Characterization surveys may be performed to satisfy a number of specific objectives. Examples of characterization survey objectives include: 1) determining the nature and extent of radiological contamination, 2) evaluating remediation alternatives (*e.g.*, unrestricted use, restricted use, onsite disposal, off-site disposal, *etc.*), 3) input to pathway analysis/dose or risk assessment models for determining site-specific DCGLs (Bq/kg, Bq/m^2), 4) estimating the occupational and public health and safety impacts during decommissioning, 5) evaluating remediation technologies, 6) input to final status survey design, and 7) Remedial Investigation/Feasibility Study requirements (CERCLA sites only) or RCRA Facility Investigation/Corrective Measures Study requirements (RCRA sites only).

The scope of this manual precludes detailed discussions of characterization survey design for each of these objectives, and therefore, the user should consult other references for specific characterization survey objectives not covered. For example, the *Decommissioning Handbook* (DOE 1994) is a good reference for characterization objectives that are concerned with evaluating remediation technologies or unrestricted/restricted use alternatives. Other references (EPA 1988b, 1988c, 1994a; NRC 1994) should be consulted for planning decommissioning actions, including decontamination techniques, projected schedules, costs, and waste volumes, and health and safety considerations during decontamination. Also, the types of characterization data needed to support risk or dose modeling should be determined from the specific modeling code documentation.

This manual concentrates on providing information for the final status survey design, with limited coverage on determining the specific nature and extent of radionuclide contamination. The specific objectives for providing information to the final status survey design include: 1) estimating the projected radiological status at the time of the final status survey, in terms of radionuclides present, concentration ranges and variances, spatial distribution, *etc.*, 2) evaluating potential reference areas to be used for background measurements, if necessary, 3) reevaluating the initial classification of survey units, 4) selecting instrumentation based on the necessary MDCs, and 5) establishing acceptable Type I and Type II errors with the regulatory agency (Appendix D provides guidance on establishing acceptable decision error rates). Many of these objectives are satisfied by determining the specific nature and extent of contamination of structures, residues, and environmental media. Additional detail on the performance of characterization surveys designed to determine the general extent of contamination can be found in the NRC's *Draft Branch Technical Position on Site Characterization for Decommissioning* (NRC 1994a) and EPA's RI/FS guidance (EPA 1988b; EPA 1993c).

Results of the characterization survey should include: 1) the identification and distribution of contamination in buildings, structures, and other site facilities; 2) the concentration and distribution of contaminants in surface and subsurface soils; 3) the distribution and concentration of contaminants in surface water, ground water, and sediments, and 4) the distribution and concentration of contaminants in other impacted media such as vegetation or paint. The characterization should include sufficient information on the physical characteristics of the site, including surface features, meteorology and climatology, surface water hydrology, geology, demography and land use, and hydrogeology. This survey should also address environmental conditions that could affect the rate and direction of contaminant transport in the environment, depending on the extent of contamination identified above.

The following sections describe a method for planning, conducting, and documenting characterization surveys. Alternative methodologies may also be acceptable to the regulatory agencies.

5.3.2 Survey Design

The design of the site characterization survey is based on the specific DQOs for the information to be collected, and is planned using the HSA and scoping survey results. The DQO Process ensures that an adequate amount of data with sufficient quality are collected for the purpose of characterization. The site characterization process typically begins with a review of the HSA, which includes available information on site description, operational history, and the type and extent of contamination (from the scoping survey, if performed). The site description, or conceptual site model as first developed in Section 3.6.4, consists of the general area, dimensions, and locations of contaminated areas on the site. A site map should show site boundaries, roads, hydrogeologic features, major structures, and other features that could affect decommissioning activities.

The operational history includes records of site conditions prior to operational activities, operational activities of the facility, effluents and on-site disposal, and significant incidents—including spills or other unusual occurrences—involving the spread of contamination around the site and on areas previously released from radiological controls. This review should include other available resources, such as site personnel, former workers, residents, *etc.* Historic aerial photographs and site location maps may be particularly useful in identifying potential areas of contamination.

The types and quantities of materials that were handled and the locations and disposition of radioactive materials should be reviewed using available documentation (*e.g.*, the radioactive materials license). Contamination release and migration pathways should be identified, as well as areas that are potentially affected and are likely to contain residual contamination. The types and quantities of materials likely to remain onsite, considering radioactive decay, should be determined.

The characterization survey should clearly identify those portions of the site (*e.g.*, soil, structures, and water) that have been affected by site activities and are potentially contaminated. The survey should also identify the portions of the site that have not been affected by these activities. In some cases where no remediation is anticipated, results of the characterization survey may indicate compliance with DCGLs established by the regulatory agency. When planning for the potential use of characterization survey data as part of the final status survey, the characterization data must be of sufficient quality and quantity for that use (see Section 5.5). There are several processes that are likely to occur in conjunction with characterization. These include considering and evaluating remediation alternatives, and calculating site-specific DCGLs.

The survey should also provide information on variations in the contaminant distribution in the survey area. The contaminant variation in each survey unit contributes to determining the number of data points based on the statistical tests used during the final status survey (Section 5.5.2). Additionally, characterization data may be used to justify reclassification for some survey units (*e.g.*, from Class 1 to Class 2).

Note that because of site-specific characteristics of contamination, performing all types of measurements described here may not be relevant at every site. For example, detailed characterization data may not be needed for areas with contamination well above the DCGLs that clearly require remediation. Judgment should be used in determining the types of characterization information needed to provide an appropriate basis for decontamination decisions.

5.3.3 Conducting Surveys

Characterization survey activities often involve the detailed assessment of various types of building and environmental media, including building surfaces, surface and subsurface soil, surface water, and ground water. The HSA data should be used to identify the potentially contaminated media onsite (see Section 3.6.3). Identifying the media that may contain contamination is useful for preliminary survey unit classification and for planning subsequent survey activities. Selection of survey instrumentation and analytical techniques are typically based on a knowledge of the appropriate DCGLs, because remediation decisions are made based on the level of the residual contamination as compared to the DCGL. Exposure rate measurements may be needed to assess occupational and public health and safety. The location of underground utilities should be considered before conducting a survey to avoid compounding the problems at the site.

5.3.3.1 Structure Surveys

Surveys of building surfaces and structures include surface scanning, surface activity measurements, exposure rate measurements, and sample collection (*e.g.*, smears, subfloor soil, water, paint, and building materials). Both field survey instrumentation (Chapter 6) and analytical laboratory equipment and procedures (Chapter 7) are selected based on their detection capabilities for the expected contaminants and their quantities. Field and laboratory instruments are described in Appendix H.

Background activity and radiation levels for the area should be determined from appropriate background reference areas. Background assessments include surface activity measurements on building surfaces, exposure rates, and radionuclide concentrations in various media (refer to Section 4.5).

Measurement locations should be documented using reference system coordinates, if appropriate, or fixed site features. A typical reference system spacing for building surfaces is 1 meter. This is chosen to facilitate identifying survey locations, evaluating small areas of elevated activity, and determining survey unit average activity levels.

Scans should be conducted in areas likely to contain residual activity, based on the results of the HSA and scoping survey.

Both systematic and judgment surface activity measurements are performed. Judgment direct measurements are performed at locations of elevated direct radiation, as identified by surface scans, to provide data on upper ranges of residual contamination levels. Judgment measurements may also be performed in sewers, air ducts, storage tanks, septic systems and on roofs of buildings, if necessary. Each surface activity measurement location should be carefully recorded on the appropriate survey form.

Exposure rate measurements and media sampling are performed as necessary. For example, subfloor soil samples may provide information on the horizontal and vertical extent of contamination. Similarly, concrete core samples are necessary to evaluate the depth of activated concrete in a reactor facility. Note that one type of radiological measurement may be sufficient to determine the extent of contamination. For example, surface activity measurements alone may be all that is needed to demonstrate that decontamination of a particular area is necessary; exposure rate measurements would add little to this determination.

Lastly, the measuring and sampling techniques should be commensurate with the intended use of the data, as characterization survey data may be used to supplement final status survey data, provided that the data meet the selected DQOs.

5.3.3.2 Land Area Surveys

Characterization surveys for surface and subsurface soils and media involve employing techniques to determine the lateral and vertical extent and radionuclide concentrations in the soil. This may be performed using either sampling and laboratory analyses, or *in situ* gamma spectrometry analyses, depending on the detection capabilities of each methodology for the expected contaminants and concentrations. Note that *in situ* gamma spectrometry analyses or any direct surface measurement cannot easily be used to determine vertical distributions of radionuclides. Sample collection followed by laboratory analysis introduces several additional sources of uncertainty that need to be considered during survey design. In many cases, a combination of direct measurements and samples is required to meet the objectives of the survey.

Radionuclide concentrations in background soil samples should be determined for a sufficient number of soil samples that are representative of the soil in terms of soil type, soil depth, *etc.* It is important that the background samples be collected in non-impacted areas. Consideration should be given to spatial variations in the background radionuclide concentrations as discussed in Section 4.5 and NRC draft report NUREG-1501 (NRC 1994b).

Sample locations should be documented using reference system coordinates (see Section 4.8.5), if appropriate, or fixed site features. A typical reference system spacing for open land areas is 10 meters (NRC 1992a). This spacing is somewhat arbitrary and is chosen to facilitate determining survey unit locations and evaluating areas of elevated radioactivity.

Surface scans for gamma activity should be conducted in areas likely to contain residual activity. Beta scans may be appropriate if the contamination is near the surface and represents the prominent radiation emitted from the contamination. The sensitivity of the scanning technique should be appropriate to meet the DQOs.

Both surface and subsurface soil and media samples may be necessary. Subsurface soil samples should be collected where surface contamination is present and where subsurface contamination is known or suspected. Boreholes should be constructed to provide samples representing subsurface deposits.

Exposure rate measurements at 1 meter above the sampling location may also be appropriate. Each surface and subsurface soil sampling and measurement location should be carefully recorded.

5.3.3.3 Other Measurements/Sampling Locations

Surface Water and Sediments. Surface water and sediment sampling may be necessary depending on the potential for these media to be contaminated. The contamination potential depends on several factors, including the proximity of surface water bodies to the site, size of the drainage area, total annual rainfall, and spatial and temporal variability in surface water flow rate and volume. Refer to Section 3.6.3.3 for further consideration of the necessity for surface water and sediment sampling.

Characterizing surface water involves techniques that determine the extent and distribution of contaminants. This may be performed by collecting grab samples of the surface water in a well-mixed zone. At certain sites, it may be necessary to collect stratified water samples to provide information on the vertical distribution of contamination. Sediment sampling should also be performed to assess the relationship between the composition of the suspended sediment and the bedload sediment fractions (*i.e.*, suspended sediments compared to deposited sediments). When judgment sampling is used to find radionuclides in sediments, contaminated sediments are more likely to be accumulated on fine-grained deposits found in low-energy environments (*e.g.*, deposited silt on inner curves of streams).

Radionuclide concentrations in background water samples should be determined for a sufficient number of water samples that are upstream of the site or in areas unaffected by site operations. Consideration should be given to any spatial or temporal variations in the background radionuclide concentrations.

Sampling locations should be documented using reference system coordinates, if appropriate, or scale drawings of the surface water bodies. Effects of variability of surface water flow rate should be considered. Surface scans for gamma activity may be conducted in areas likely to contain residual activity (*e.g.*, along the banks) based on the results of the document review and/or preliminary investigation surveys.

Surface water sampling should be performed in areas of runoff from active operations, at plant outfall locations, both upstream and downstream of the outfall, and any other areas likely to contain residual activity (see Section 3.6.3.3). Measurements of radionuclide concentrations in water should include gross alpha and gross beta assessments, as well as any necessary radionuclide-specific analyses. Non-radiological parameters, such as specific conductance, pH, and total organic carbon may be used as surrogate indicators of potential contamination, provided that a specific relationship exists between the radionuclide concentration and the level of the indicator (*e.g.*, a linear relationship between pH and the radionuclide concentration in water is found to exist, then the pH may be measured such that the radionuclide concentration can be calculated based on the known relationship rather than performing an expensive nuclide-specific analysis). The use of surrogate measurements is discussed in Section 4.3.2.

Each surface water and sediment sampling location should be carefully recorded on the appropriate survey form. Additionally, surface water flow models may be used to illustrate contaminant concentrations and migration rates.

Ground Water. Ground-water sampling may be necessary depending on the local geology, potential for subsurface contamination, and the regulatory framework. Because different agencies handle ground water contamination situations in different ways (*e.g.*, EPA's Superfund program and some States require compliance with maximum contaminant levels specified in the Safe Drinking Water Act), the responsible regulatory agency should be contacted if ground water contamination is expected. The need for ground-water sampling is described in Section 3.6.3.4.

If ground-water contamination is identified, the responsible regulatory agency should be contacted at once because: 1) ground water release criteria and DCGLs should be established by the appropriate agency (Section 4.3), and 2) the default DCGLs for soil may be inappropriate since they are usually based on initially uncontaminated ground water.

Characterization of ground-water contamination should determine the extent and distribution of contaminants, rates and direction of ground water migration, and the assessment of potential effects of ground water withdrawal on the migration of ground water contaminants. This may be performed by designing a suitable monitoring well network. The actual number and location of monitoring wells depends on the size of the contaminated area, the type and extent of the contaminants, the hydrogeologic system, and the objectives of the monitoring program.

When ground-water samples are taken, background should be determined by sufficient sampling and analysis of ground-water samples collected from the same aquifer upgradient of the site. The background samples should not be affected by site operations and should be representative of the quality of the ground water that would exist if the site had not been contaminated. Consideration should be given to any spatial or temporal variations in the background radionuclide concentrations.

Sampling locations should be referenced to grid coordinates, if appropriate, or to scale drawings of the ground-water monitoring wells. Construction specifications on the monitoring wells should also be provided, including elevation, internal and external dimensions, types of casings, type of screen and its location, borehole diameter, and other necessary information on the wells.

In addition to organic and inorganic constituents, ground-water sampling and analyses should include all significant radiological contaminants. Measurements in potential sources of drinking water should include gross alpha and gross beta assessments, as well as any other radionuclide-specific analyses. Non-radiological parameters, such as specific conductance, pH, and total organic carbon may be used as surrogate indicators of potential contamination, provided that a specific relationship exists between the radionuclide concentration and the level of the indicator.

Each ground-water monitoring well location should be carefully recorded on the appropriate survey form. Additionally, contaminant concentrations and sources should be plotted on a map to illustrate the relationship among contamination, sources, hydrogeologic features and boundary conditions, and property boundaries (EPA 1993b).

Other Media. Air sampling may be necessary at some sites depending on the local geology and the radionuclides of potential concern. This may include collecting air samples or filtering the air to collect resuspended particulates. Air sampling is often restricted to monitoring activities for occupational and public health and safety and is not required to demonstrate compliance with risk- or dose-based regulations. Section 3.6.3.5 describes examples of sites where air sampling may provide information useful to designing a final status survey. At some sites, radon measurements may be used to indicate the presence of radium, thorium, or uranium in the soil. Section 6.9 and Appendix H provide information on this type of sampling.

In rare cases, vegetation samples may be collected as part of a characterization survey to provide information in preparation for a final status survey. Because most risk- and dose-based regulations are concerned with potential future land use that may differ from the current land use, vegetation samples are unsuitable for demonstrating compliance with regulations. There is a relationship between radionuclide concentrations in plants and those in soil (the soil-to-plant transfer factor is used in many models to develop DCGLs) and the plant concentration could be used as a surrogate measurement of the soil concentration. In most cases, a measurement of the soil itself as the parameter of interest is more appropriate and introduces less uncertainty in the result.

5.3.4 Evaluating Survey Results

Survey data are converted to the same units as those in which DCGLs are expressed (Section 6.6). Identification of potential radionuclide contaminants at the site is performed through laboratory and *in situ* analyses. Appropriate regulatory DCGLs for the site are selected and the data are then compared to the DCGLs. For characterization data that are used to supplement final status survey data, the statistical methodology in Chapter 8 should be followed to determine if a survey unit satisfies the release criteria.

For characterization data that are used to help guide remediation efforts, the survey data are used to identify locations and general extent of residual activity. The survey results are first compared with DCGLs. Surfaces and environmental media are then differentiated as exceeding DCGLs, not exceeding DCGLs, or not contaminated, depending on the measurement results relative to the DCGL value. Direct measurements indicating areas of elevated activity are further evaluated and the need for additional measurements is determined.

5.3.5 Documentation

Documentation of the site characterization survey should provide a complete and unambiguous record of the radiological status of the site. In addition, sufficient information to characterize the extent of contamination, including all possible affected environmental media, should be provided in the report. This report should also provide sufficient information to support reasonable approaches or alternatives to site decontamination.

EXAMPLE CHARACTERIZATION SURVEY CHECKLIST

SURVEY DESIGN

_____ Enumerate DQOs: State objective of the survey; survey instrumentation capabilities should be appropriate for the specific survey objective.

_____ Review the Historical Site Assessment for:

- _____ Operational history (*e.g.*, any problems, spills, or releases) and available documentation (*e.g.*, radioactive materials license).
- _____ Other available resources—site personnel, former workers, residents, *etc.*
- _____ Types and quantities of materials that were handled and where radioactive materials were stored, handled, and disposed of.
- _____ Release and migration pathways.
- _____ Information on the potential for residual radioactivity that may be useful during area classification for final status survey design. Note: Survey activities will be concentrated in Class 1 and Class 2 areas.
- _____ Types and quantities of materials likely to remain on-site—consider radioactive decay.

CONDUCTING SURVEYS

_____ Select instrumentation based on detection capabilities for the expected contaminants and quantities and a knowledge of the appropriate DCGLs.

_____ Determine background activity and radiation levels for the area; include surface activity levels on building surfaces, radionuclide concentrations in environmental media, and exposure rates.

_____ Establish a reference coordinate system. Prepare scale drawings for surface water and ground-water monitoring well locations.

_____ Perform thorough surface scans of all potentially contaminated areas, *(e.g.*, indoor areas include expansion joints, stress cracks, penetrations into floors and walls for piping, conduit, and anchor bolts, and wall/floor interfaces); outdoor areas include radioactive material storage areas, areas downwind of stack release points, surface drainage pathways, and roadways that may have been used for transport of radioactive or contaminated materials.

_____ Perform systematic surface activity measurements.

_____ Perform systematic smear, surface and subsurface soil and media, sediment, surface water and groundwater sampling, if appropriate for the site.

_____ Perform judgment direct measurements and sampling of areas of elevated activity of residual radioactivity to provide data on upper ranges of residual contamination levels.

_____ Document survey and sampling locations.

_____ Maintain chain of custody of samples when necessary.

Note: One category of radiological data (*e.g.*, radionuclide concentration, direct radiation level, or surface contamination) may be sufficient to determine the extent of contamination; other measurements may not be necessary (*e.g.*, removable surface contamination or exposure rate measurements).

Note: Measuring and sampling techniques should be commensurate with the intended use of the data because characterization survey data may be used to supplement final status survey data.

EVALUATING SURVEY RESULTS

_____ Compare survey results with DCGLs. Differentiate surfaces/areas as exceeding DCGLs, not exceeding DCGLs, or not contaminated.

_____ Evaluate all locations of elevated direct measurements and determine the need for additional measurements/samples.

_____ Prepare site characterization survey report.

5.4 Remedial Action Support Surveys

5.4.1 General

Remedial action support surveys are conducted to 1) support remediation activities, 2) determine when a site or survey unit is ready for the final status survey, and 3) provide updated estimates of site-specific parameters to use for planning the final status survey. This manual does not discuss the routine operational surveys (*e.g.*, air sampling, dose rate measurements, environmental sampling) conducted to support remediation activities.

A remedial action support survey serves to monitor the effectiveness of decontamination efforts that are intended to reduce residual radioactivity to acceptable levels. This type of survey guides the cleanup in a real-time mode. The remedial action support survey typically relies on a simple radiological parameter, such as direct radiation near the surface, as an indicator of effectiveness. The investigation level (the level below which there is an acceptable level of assurance that the established DCGLs have been attained) is determined and used for immediate, in-field decisions (Section 5.5.2.6). Such a survey is intended for expediency and cost effectiveness and does not provide thorough or accurate data describing the radiological status of the site. Note that this survey does not provide information that can be used to demonstrate compliance with the DCGLs and is an interim step in the compliance demonstration process. Areas that are determined to satisfy the DCGLs on the basis of the remedial action support survey will then be surveyed in detail by the final status survey. Alternatively, the remedial action support survey can be designed to meet the objectives of a final status survey as described in Section 5.5. DCGLs may be recalculated based on the results of the remediation process as the regulatory program allows or permits.

Remedial activities result in changes to the distribution of contamination within a survey unit. The site-specific parameters used during final status survey planning (*e.g.*, variability in the radionuclide concentration within a survey unit or probability of small areas of elevated activity) will change during remediation. For most survey units, values for these parameters will need to be re-established following remediation. Obtaining updated values for these critical planning parameters should be considered when designing a remedial action support survey.

5.4.2 Survey Design

The objective of the remedial action support survey is to detect the presence of residual activity at or below the DCGL criteria. Although the presence of small areas of elevated radioactivity may satisfy the elevated measurement criteria, it may be more efficient to design the remedial action support survey to identify residual radioactivity at the $DCGL_W$ (and to remediate small areas of elevated activity that may potentially satisfy the release criteria). Survey instrumentation and techniques are therefore selected based on the detection capabilities for the known or suspected contaminants and DCGLs to be achieved.

There will be radionuclides and media that cannot be evaluated at the $DCGL_W$ using field monitoring techniques. For these cases, it may be feasible to collect and analyze samples by methods that are quicker and less costly than radionuclide-specific laboratory procedures. Field laboratories and screening techniques may be acceptable alternatives to more expensive analyses. Reviewing remediation plans may be required to get an indication of the location and amount of remaining contamination following remediation.

5.4.3 Conducting Surveys

Field survey instruments and procedures are selected based on their detection capabilities for the expected contaminants and their quantities. Survey methods typically include scans of surfaces followed by direct measurements to identify residual radioactivity. The surface activity levels are compared to the DCGLs, and a determination is made on the need for further decontamination efforts.

Survey activities for soil excavations include surface scans using field instrumentation sensitive to beta and gamma activity. Because it is difficult to correlate scanning results to radionuclide concentrations in soil, judgment should be carefully exercised when using scan results to guide the cleanup efforts. Field laboratories and screening techniques may provide a better approach for determining whether or not further soil remediation is necessary.

5.4.4 Evaluating Survey Results

Survey data (*e.g.*, surface activity levels and radionuclide concentrations in various media) are converted to standard units and compared to the DCGLs (Section 6.6). If results of these survey activities indicate that remediation has been successful in meeting the DCGLs, decontamination efforts are ceased and final status survey activities are initiated. Further remediation may be needed if results indicate the presence of residual activity in excess of the DCGLs.

5.4.5 Documentation

The remedial action support survey is intended to guide the cleanup and alert those performing remedial activities that additional remediation is needed or that the site may be ready to initiate a final survey. Data that indicate an area has been successfully remediated could be used to estimate the variance for the survey units in that area. Information identifying areas of elevated activity that existed prior to remediation may be useful for planning final status surveys.

EXAMPLE REMEDIAL ACTION SUPPORT SURVEY CHECKLIST

SURVEY DESIGN

_____ Enumerate DQOs: State the objectives of the survey; survey instrumentation capabilities should be able to detect residual contamination at the DCGL.

_____ Review the remediation plans.

_____ Determine applicability of monitoring surfaces/soils for the radionuclides of concern. Note: Remedial action support surveys may not be feasible for surfaces contaminated with very low energy beta emitters or for soils or media contaminated with pure alpha emitters.

_____ Select simple radiological parameters (*e.g.*, surface activity) that can be used to make immediate in-field decisions on the effectiveness of the remedial action.

CONDUCTING SURVEYS

_____ Select instrumentation based on its detection capabilities for the expected contaminants.

_____ Perform scanning and surface activity measurements near the surface being decontaminated.

_____ Survey soil excavations and perform field evaluation of samples (*e.g.*, gamma spectrometry of undried/non-homogenized soil) as remedial actions progress.

EVALUATING SURVEY RESULTS

_____ Compare survey results with DCGLs using survey data as a field decision tool to guide the remedial actions in a real-time mode.

_____ Document survey results.

5.5 Final Status Surveys

5.5.1 General

A final status survey is performed to demonstrate that residual radioactivity in each survey unit satisfies the predetermined criteria for release for unrestricted use or, where appropriate, for use with designated limitations. The survey provides data to demonstrate that all radiological parameters do not exceed the established DCGLs. For these reasons, more detailed guidance is provided for this category of survey. For the final status survey, survey units represent the fundamental elements for compliance demonstration using the statistical tests (see Section 4.6). The documentation specified in the following sections helps ensure a consistent approach among different organizations and regulatory agencies. This allows for comparisons of survey results between sites or facilities.

This section describes methods for planning and conducting final status surveys to satisfy the objectives of the regulatory agencies. The MARSSIM approach recognizes that alternative methods may be acceptable to those agencies. Flow diagrams and a checklist to assist the user in planning a survey are included in this section.

5.5.2 Survey Design

Figures 5.1 through 5.3 illustrate the process of designing a final status survey. This process begins with development of DQOs. On the basis of these objectives and the known or anticipated radiological conditions at the site, the numbers and locations of measurement and sampling points used to demonstrate compliance with the release criterion are then determined. Finally, survey techniques appropriate to develop adequate data (see Chapters 6 and 7) are selected and implemented.

Planning for the final status survey should include early discussions with the regulatory agency concerning logistics for confirmatory or verification surveys. A confirmatory survey (also known as an independent verification survey), may be performed by the responsible regulatory agency or by an independent third party (*e.g.*, contracted by the regulatory agency) to provide data to substantiate results of the final status survey. Actual field measurements and sampling may be performed. Another purpose of the confirmatory activities may be to identify any deficiencies in the final status survey documentation based on a thorough review of survey procedures and results. Independent confirmatory survey activities are usually limited in scope to spot-checking conditions at selected locations, comparing findings with those of the final status survey, and performing independent statistical evaluations of the data developed from the confirmatory survey and the final status survey.

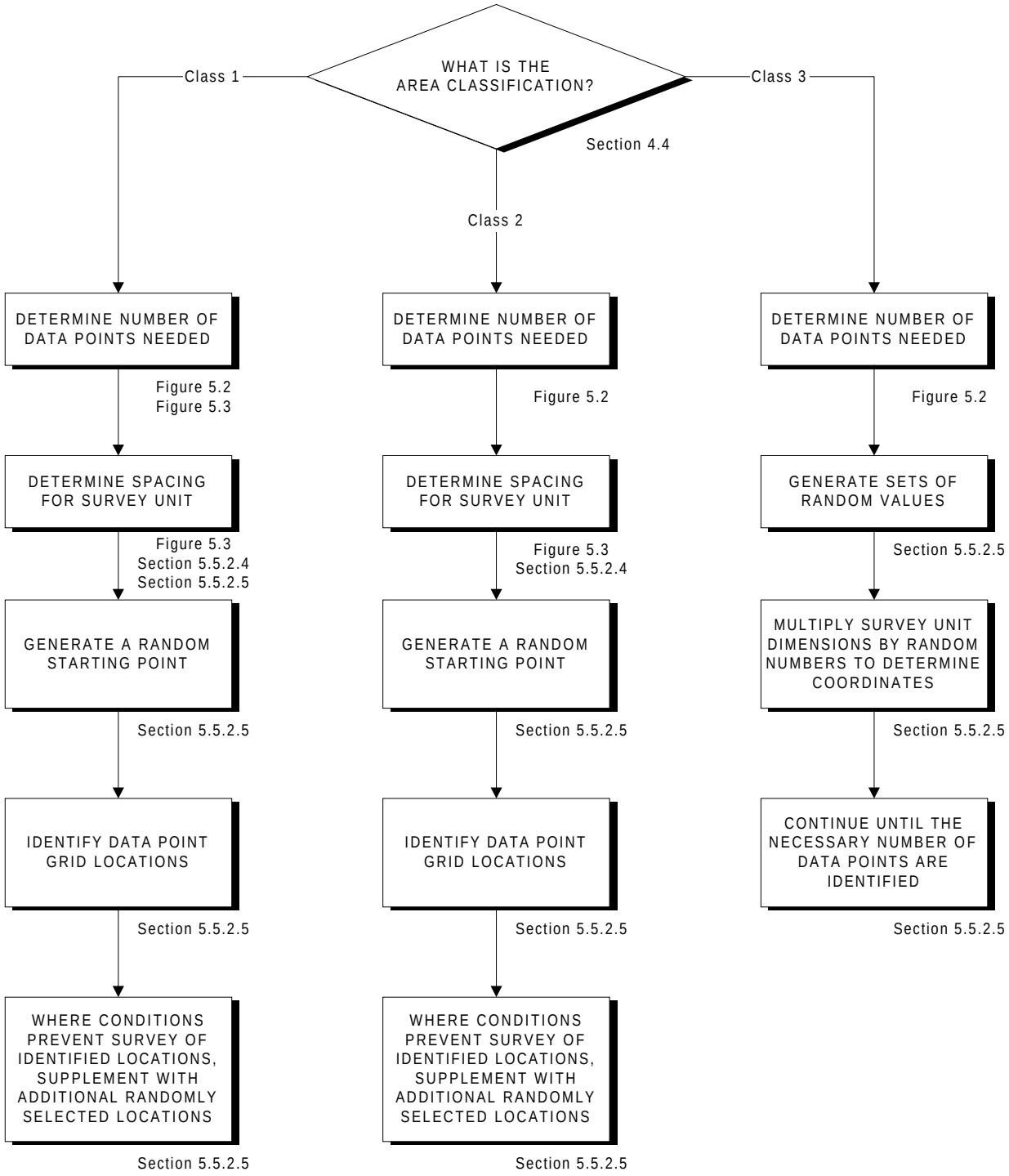


Figure 5.1 Flow Diagram Illustrating the Process for Identifying Measurement Locations (Refer to Section 5.5.2.5)

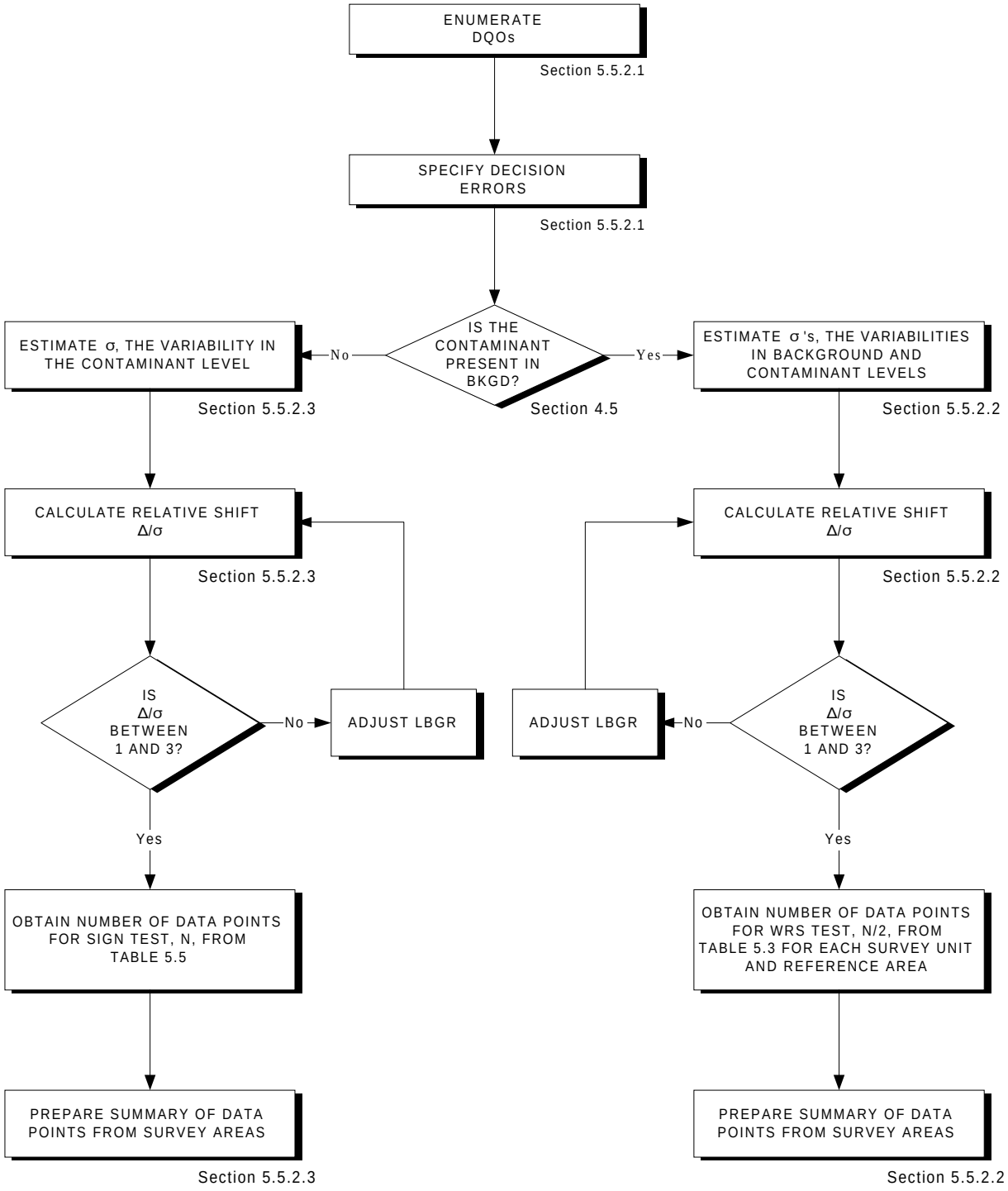


Figure 5.2 Flow Diagram for Identifying the Number of Data Points, N, for Statistical Tests

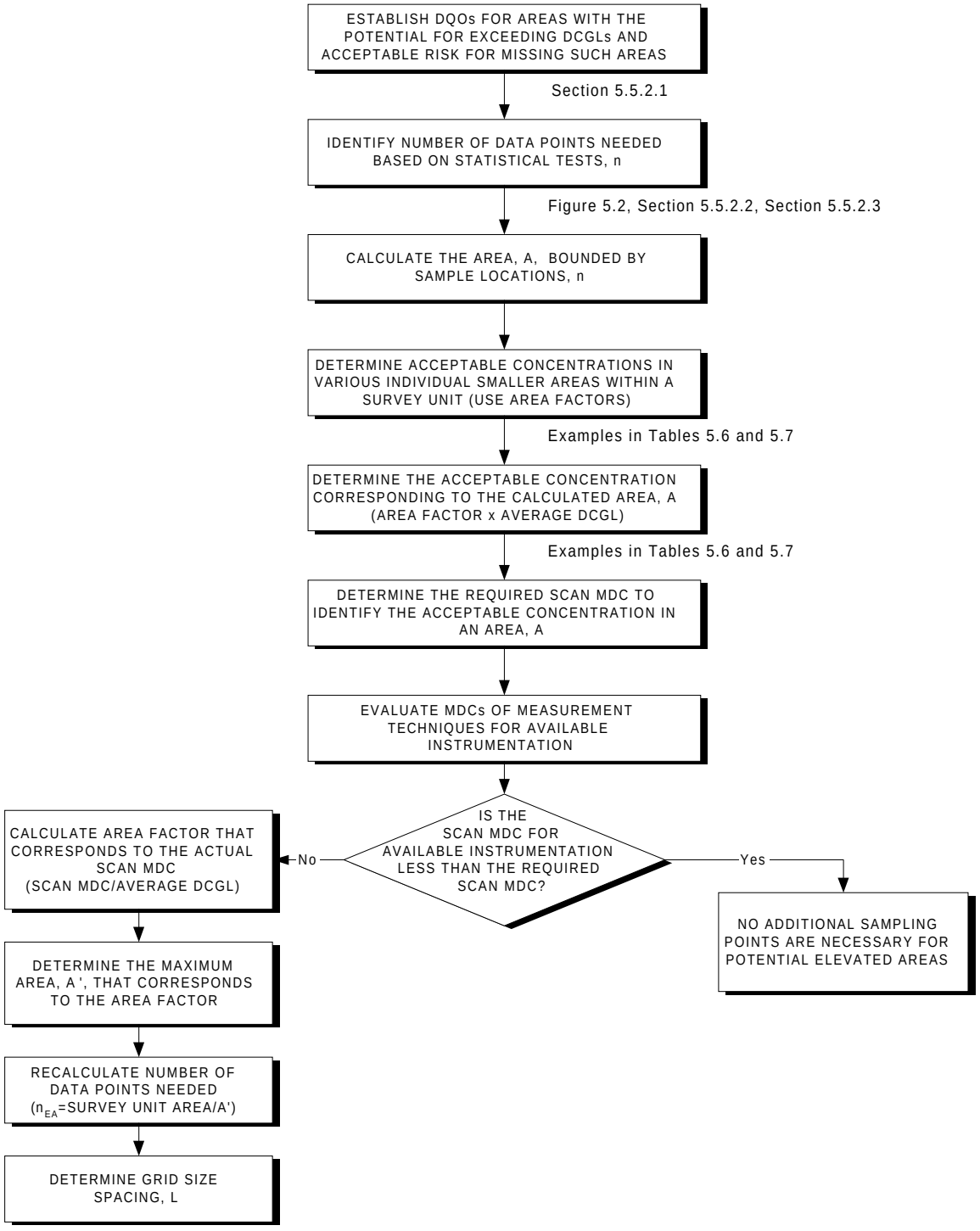


Figure 5.3 Flow Diagram for Identifying Data Needs for Assessment of Potential Areas of Elevated Activity in Class 1 Survey Units (Refer to Section 5.5.2.4)

5.5.2.1 Application of Decommissioning Criteria

The DQO Process, as it is applied to decommissioning surveys, is described in more detail in Appendix D of this manual and in EPA and NRC guidance documents (EPA 1994, 1987b, 1987c; NRC 1997a). As part of this process, the objective of the survey and the null and alternative hypotheses should be clearly stated. The objective of final status surveys is typically to demonstrate that residual radioactivity levels meet the release criterion. In demonstrating that this objective is met, the null hypothesis (H_o) tested is that residual contamination exceeds the release criterion; the alternative hypothesis (H_a) is that residual contamination meets the release criterion.

Two statistical tests are used to evaluate data from final status surveys. For contaminants that are present in background, the Wilcoxon Rank Sum (WRS) test is used. When contaminants are not present in background, the Sign test is used. To determine data needs for these tests, the acceptable probability of making Type I decision errors (α) and Type II decision errors (β) should be established (see Appendix D, Section D.6). The acceptable decision error rates are a function of the amount of residual radioactivity and are determined during survey planning using the DQO Process.

The final step of the DQO process includes selecting the optimal design that satisfies the DQOs. For some sites or survey units, the guidance provided in this section may result in a survey design that cannot be accomplished with the available resources. For these situations, the planning team will need to relax one or more of the constraints used to develop the survey design as described in Appendix D. Examples of survey design constraints discussed in this section include:

- increasing the decision error rates, not forgetting to consider the risks associated with making an incorrect decision
- increasing the width of the gray region by decreasing the lower bound of the gray region
- changing the boundaries—it may be possible to reduce measurement costs by changing or eliminating survey units that may require different decisions

5.5.2.2 Contaminant Present in Background—Determining Numbers of Data Points for Statistical Tests

The comparison of measurements from the reference area and survey unit is made using the WRS test, which should be conducted for each survey unit. In addition, the elevated measurement comparison (EMC) is performed against each measurement to ensure that the measurement result does not exceed a specified investigation level. If any measurement in the remediated survey unit exceeds the specified investigation level, then additional investigation is recommended, at least locally, regardless of the outcome of the WRS test.

The WRS test is most effective when residual radioactivity is uniformly present throughout a survey unit. The test is designed to detect whether or not this activity exceeds the $DCGL_W$. The advantage of this nonparametric test is that it does not assume the data are normally or log-normally distributed. The WRS test also allows for "less than" measurements to be present in the reference area and the survey units. As a general rule, this test can be used with up to 40 % "less than" measurements in either the reference area or the survey unit. However, the use of "less than" values in data reporting is not recommended. Wherever possible, the actual result of a measurement, together with its uncertainty, should be reported.

This section introduces several terms and statistical parameters that will be used to determine the number of data points needed to apply the nonparametric tests. An example is provided to better illustrate the application of these statistical concepts.

Calculate the Relative Shift. The lower bound of the gray region (LBGR) is selected during the DQO Process along with the target values for α and β. The width of the gray region, equal to (DCGL - LBGR), is a parameter that is central to the WRS test. This parameter is also referred to as the shift, Δ. The absolute size of the shift is actually of less importance than the relative shift, Δ/σ, where σ is an estimate of the standard deviation of the measured values in the survey unit. This estimate of σ includes both the real spatial variability in the quantity being measured and the precision of the chosen measurement system. The relative shift, Δ/σ, is an expression of the resolution of the measurements in units of measurement uncertainty.

The shift ($\Delta = DCGL_W$ - LBGR) and the estimated standard deviation in the measurements of the contaminant (σ_r and σ_s) are used to calculate the relative shift, Δ/σ (see Appendix D, Section D.6). The standard deviations in the contaminant level will likely be available from previous survey data (*e.g.*, scoping or characterization survey data for unremediated survey units or remedial action support surveys for remediated survey units). If they are not available, it may be necessary to 1) perform some limited preliminary measurements (about 5 to 20) to estimate the distributions, or 2) to make a reasonable estimate based on available site knowledge. If the first approach above is used, it is important to note that the scoping or characterization survey data or preliminary measurements used to estimate the standard deviation should use the same technique as that to be used during the final status survey. When preliminary data are not obtained, it may be reasonable to assume a coefficient of variation on the order of 30%, based on experience.

The value selected as an estimate of σ for a survey unit may be based on data collected only from within that survey unit or from data collected from a much larger area of the site. Note that survey units are not finalized until the planning stage of the final status survey. This means that there may be some difficulty in determining which individual measurements from a preliminary survey may later represent a particular survey unit. For many sites, the most practical solution is to estimate σ for each area classification (*i.e.*, Class 1, Class 2, and Class 3) for both interior and exterior survey units. This will result in all exterior Class 3 survey units using the same estimate

of σ, all exterior Class 2 survey units using a second estimate for σ, and all exterior Class 1 survey units using a third estimate for σ. If there are multiple types of surfaces within an area classification, additional estimates of σ may be required. For example, a Class 2 concrete floor may require a different estimate of σ than a Class 2 cinder block wall, or a Class 3 unpaved parking area may require a different estimate of σ than a Class 3 lawn. In addition, MARSSIM recommends that a separate estimate of σ be obtained for every reference area.

The importance of choosing appropriate values for σ_r and σ_s must be emphasized. *If the value is grossly underestimated*, the number of data points will be too few to obtain the desired power level for the test and a resurvey may be recommended (refer to Chapter 8). If, on the other hand, *the value is overestimated*, the number of data points determined will be unnecessarily large.

Values for the relative shift that are less than one will result in a large number of measurements needed to demonstrate compliance. The number of data points will also increase as Δ becomes smaller. Since the DCGL is fixed, this means that the lower bound of the gray region also has a significant effect on the estimated number of measurements needed to demonstrate compliance. When the estimated standard deviations in the reference area and survey units are different, the larger value should be used to calculate the relative shift (Δ/σ).

Determine P_r. The probability that a random measurement from the survey unit exceeds a random measurement from the background reference area by less than the $DCGL_W$ when the survey unit median is equal to the LBGR above background is defined as P_r. P_r is used in Equation 5-1 for determining the number of measurements to be performed during the survey. Table 5.1 lists relative shift values and values for P_r. Using the relative shift calculated in the preceding section, the value of P_r can be obtained from Table 5.1. Information on calculating individual values of P_r is available in NUREG-1505 (NRC 1997a).

If the actual value of the relative shift is not listed in Table 5.1, always select the next lower value that appears in the table. For example, Δ/σ=1.67 does not appear in Table 5.1. The next lower value is 1.6, so the value of P_r would be 0.871014.

Determine Decision Error Percentiles. The next step in this process is to determine the percentiles, $Z_{1-\alpha}$ and $Z_{1-ß}$, represented by the selected decision error levels, α and ß, respectively (see Table 5.2). $Z_{1-\alpha}$ and $Z_{1-ß}$ are standard statistical values (Harnett 1975).

Table 5.1 Values of P_r for Given Values of the Relative Shift, Δ/σ, when the Contaminant is Present in Background

Δ/σ	P_r	Δ/σ	P_r
0.1	0.528182	1.4	0.838864
0.2	0.556223	1.5	0.855541
0.3	0.583985	1.6	0.871014
0.4	0.611335	1.7	0.885299
0.5	0.638143	1.8	0.898420
0.6	0.664290	1.9	0.910413
0.7	0.689665	2.0	0.921319
0.8	0.714167	2.25	0.944167
0.9	0.737710	2.5	0.961428
1.0	0.760217	2.75	0.974067
1.1	0.781627	3.0	0.983039
1.2	0.801892	3.5	0.993329
1.3	0.820978	4.0	0.997658

If $\Delta/\sigma > 4.0$, use $P_r = 1.000000$

Table 5.2 Percentiles Represented by Selected Values of α and ß

α (or ß)	$Z_{1-\alpha}$ (or $Z_{1-ß}$)	α (or β)	$Z_{1-\alpha}$ (or $Z_{1-\beta}$)
0.005	2.576	0.10	1.282
0.01	2.326	0.15	1.036
0.015	2.241	0.20	0.842
0.025	1.960	0.25	0.674
0.05	1.645	0.30	0.524

Calculate Number of Data Points for WRS Test. The number of data points, N, to be obtained from each reference area/survey unit pair for the WRS test is next calculated using

$$N = \frac{(Z_{1-\alpha}+Z_{1-\beta})^2}{3(P_r-0.5)^2} \qquad (5\text{-}1)$$

The value of N calculated using equation 5-1 is an approximation based on estimates of σ and P_r, so there is some uncertainty associated with this calculation. In addition, there will be some missing or unusable data from any survey. The rate of missing or unusable measurements, R, expected to occur in survey units or reference areas and the uncertainty associated with the calculation of N should be accounted for during survey planning. The number of data points should be increased by 20%, and rounded up, over the values calculated using equation 5-1 to obtain sufficient data points to attain the desired power level with the statistical tests and allow for possible lost or unusable data. The value of 20% is selected to account for a reasonable amount of uncertainty in the parameters used to calculate N and still allow flexibility to account for some lost or unusable data. The recommended 20% correction factor should be applied as a minimum value. Experience and site-specific considerations should be used to increase the correction factor if required. If the user determines that the 20% increase in the number of measurements is excessive for a specific site, a retrospective power curve should be used to demonstrate that the survey design provides adequate power to support the decision (see Appendix I).

N is the total number of data points for each survey unit/reference area combination. The N data points are divided between the survey unit, n, and the reference area, m. The simplest method for distributing the N data points is to assign half the data points to the survey unit and half to the reference area, so n=m=N/2. This means that N/2 measurements are performed in each survey unit, and N/2 measurements are performed in each reference area. If more than one survey unit is associated with a particular reference area, N/2 measurements should be performed in each survey unit and N/2 measurements should be performed in the reference area.

Obtain Number of Data Points for WRS Test from Table 5.3. Table 5.3 provides a list of the number of data points used to demonstrate compliance using the WRS test for selected values of α, β, and Δ/σ. The values listed in Table 5.3 represent the number of measurements to be performed in each survey unit as well as in the corresponding reference area. The values were calculated using Equation 5-1 and increased by 20% for the reasons discussed in the previous section.

Example:

A site has 14 survey units and 1 reference area, and the same type of instrument and method is used to perform measurements in each area. The contaminant has a $DCGL_W$ which when converted to cpm equals 160 cpm. The contaminant is present in background at a level of 45 ± 7 (1σ) cpm. The standard deviation of the contaminant in the survey area is ± 20 cpm, based on previous survey results for

Table 5.3 Values of N/2 for Use with the Wilcoxon Rank Sum Test

	α=0.01					α=0.025					α=0.05					α=0.10					α=0.25				
	β					β					β					β					β				
Δ/σ	0.01	0.025	0.05	0.10	0.25	0.01	0.025	0.05	0.10	0.25	0.01	0.025	0.05	0.10	0.25	0.01	0.025	0.05	0.10	0.25	0.01	0.025	0.05	0.10	0.25
0.1	5452	4627	3972	3278	2268	4627	3870	3273	2646	1748	3972	3273	2726	2157	1355	3278	2646	2157	1655	964	2268	1748	1355	964	459
0.2	1370	1163	998	824	570	1163	973	823	665	440	998	823	685	542	341	824	665	542	416	243	570	440	341	243	116
0.3	614	521	448	370	256	521	436	369	298	197	448	369	307	243	153	370	298	243	187	109	256	197	153	109	52
0.4	350	297	255	211	146	297	248	210	170	112	255	210	175	139	87	211	170	139	106	62	146	112	87	62	30
0.5	227	193	166	137	95	193	162	137	111	73	166	137	114	90	57	137	111	90	69	41	95	73	57	41	20
0.6	161	137	117	97	67	137	114	97	78	52	117	97	81	64	40	97	78	64	49	29	67	52	40	29	14
0.7	121	103	88	73	51	103	86	73	59	39	88	73	61	48	30	73	59	48	37	22	51	39	30	22	11
0.8	95	81	69	57	40	81	68	57	46	31	69	57	48	38	24	57	46	38	29	17	40	31	24	17	8
0.9	77	66	56	47	32	66	55	46	38	25	56	46	39	31	20	47	38	31	24	14	32	25	20	14	7
1.0	64	55	47	39	27	55	46	39	32	21	47	39	32	26	16	39	32	26	20	12	27	21	16	12	6
1.1	55	47	40	33	23	47	39	33	27	18	40	33	28	22	14	33	27	22	17	10	23	18	14	10	5
1.2	48	41	35	29	20	41	34	29	24	16	35	29	24	19	12	29	24	19	15	9	20	16	12	9	4
1.3	43	36	31	26	18	36	30	26	21	14	31	26	22	17	11	26	21	17	13	8	18	14	11	8	4
1.4	38	32	28	23	16	32	27	23	19	13	28	23	19	15	10	23	19	15	12	7	16	13	10	7	4
1.5	35	30	25	21	15	30	25	21	17	11	25	21	18	14	9	21	17	14	11	7	15	11	9	7	3
1.6	32	27	23	19	14	27	23	19	16	11	23	19	16	13	8	19	16	13	10	6	14	11	8	6	3
1.7	30	25	22	18	13	25	21	18	15	10	22	18	15	12	8	18	15	12	9	6	13	10	8	6	3
1.8	28	24	20	17	12	24	20	17	14	9	20	17	14	11	7	17	14	11	9	5	12	9	7	5	3
1.9	26	22	19	16	11	22	19	16	13	9	19	16	13	11	7	16	13	11	8	5	11	9	7	5	3
2.0	25	21	18	15	11	21	18	15	12	8	18	15	13	10	7	15	12	10	8	5	11	8	7	5	3
2.25	22	19	16	14	10	19	16	14	11	8	16	14	11	9	6	14	11	9	7	4	10	8	6	4	2
2.5	21	18	15	13	9	18	15	13	10	7	15	13	11	9	6	13	10	9	7	4	9	7	6	4	2
2.75	20	17	15	12	9	17	14	12	10	7	15	12	10	8	5	12	10	8	6	4	9	7	5	4	2
3.0	19	16	14	12	8	16	14	12	10	6	14	12	10	8	5	12	10	8	6	4	8	6	5	4	2
3.5	18	16	13	11	8	16	13	11	9	6	13	11	9	8	5	11	9	8	6	4	8	6	5	4	2
4.0	18	15	13	11	8	15	13	11	9	6	13	11	9	7	5	11	9	7	6	4	8	6	5	4	2

the same or similar contaminant distribution. When the estimated standard deviation in the reference area and the survey units are different, the larger value, 20 cpm in this example, should be used to calculate the relative shift. During the DQO process the LBGR is selected to be one-half the $DCGL_W$ (80 cpm) as an arbitrary starting point for developing an acceptable survey design,[1] and Type I and Type II error values (α and β) of 0.05 have been selected. Determine the number of data points to be obtained from the reference area and from each of the survey units for the statistical tests.

The value of the relative shift for the reference area, Δ/σ, is (160-80)/20 or 4. From Table 5.1, the value of P_r is 0.997658. Values of percentiles, represented by the selected decision error levels, are obtained from Table 5.2. In this case $Z_{1-\alpha}$ (for $\alpha = 0.05$) is 1.645 and $Z_{1-ß}$ ($\beta = 0.05$) is also 1.645.

The number of data points, N, for the WRS test of each combination of reference area and survey units can be calculated using Equation 5-1

$$N = \frac{(1.645+1.645)^2}{3(0.997658-0.5)^2} = 14.6$$

Adding an additional 20% gives 17.5 which is then rounded up to the next even number, 18. This yields 9 data points for the reference area and 9 for each survey unit.

Alternatively, the number of data points can be obtained directly from Table 5.3. For α=0.05, β=0.05, and Δ/σ=4.0 a value of 9 is obtained for N/2. The table value has already been increased by 20% to account for missing or unusable data.

5.5.2.3 Contaminant Not Present in Background—Determining Numbers of Data Points for Statistical Tests

For the situation where the contaminant is not present in background or is present at such a small fraction of the $DCGL_W$ as to be considered insignificant, a background reference area is not necessary. Instead, the contaminant levels are compared directly with the DCGL value. The general approach closely parallels that used for the situation when the contaminant is present in background as described in Section 5.5.2.2. However, the statistical tests differ slightly. The one-sample Sign test replaces the two-sample Wilcoxon Rank Sum test described above.

[1] Appendix D provides more detailed guidance on the selection of the LBGR.

Calculate the Relative Shift. The initial step in determining the number of data points in the one-sample case is to calculate the relative shift, $\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$, from the DCGL value, the lower bound of the gray region (LBGR), and the standard deviation of the contaminant in the survey unit, σ_s, as described in Section 5.5.2.2. Also as described in Section 5.5.2.2, the value of σ_s may be obtained from earlier surveys, limited preliminary measurements, or a reasonable estimate. Values of the relative shift that are less than one will result in a large number of measurements needed to demonstrate compliance.

Determine Sign p. Sign p is the estimated probability that a random measurement from the survey unit will be less than the $DCGL_W$ when the survey unit median is actually at the LBGR. The Sign p is used to calculate the minimum number of data points necessary for the survey to meet the DQOs. The value of the relative shift calculated in the previous section is used to obtain the corresponding value of Sign p from Table 5.4.

Table 5.4 Values of Sign p for Given Values of the Relative Shift, Δ/σ, when the Contaminant is Not Present in Background

Δ/σ	Sign p	Δ/σ	Sign p
0.1	0.539828	1.2	0.884930
0.2	0.579260	1.3	0.903199
0.3	0.617911	1.4	0.919243
0.4	0.655422	1.5	0.933193
0.5	0.691462	1.6	0.945201
0.6	0.725747	1.7	0.955435
0.7	0.758036	1.8	0.964070
0.8	0.788145	1.9	0.971284
0.9	0.815940	2.0	0.977250
1.0	0.841345	2.5	0.993790
1.1	0.864334	3.0	0.998650

If $\Delta/\sigma > 3.0$, use Sign p = 1.000000

Determine Decision Error Percentiles. The next step in this process is to determine the percentiles, $Z_{1-\alpha}$ and $Z_{1-ß}$, represented by the selected decision error levels, α and ß, respectively (see Table 5.2).

Calculate Number of Data Points for Sign Test. The number of data points, N, to be obtained for the Sign test is next calculated using the following formula:

$$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(Sign\ p - 0.5)^2} \qquad 5\text{-}2$$

Finally, the number of anticipated data points should be increased by at least 20% as discussed in Section 5.5.2.2 to ensure sufficient power of the tests and to allow for possible data losses.

Obtain Number of Data Points for Sign Test from Table 5.5. Table 5.5 provides a list of the number of data points used to demonstrate compliance using the Sign test for selected values of α, β, and Δ/σ. The values listed in Table 5.5 represent the number of measurements to be performed in each survey unit. These values were calculated using Equation 5-2 and increased by 20% to account for missing or unusable data and uncertainty in the calculated value of N.

Example:

A site has 1 survey unit. The DCGL level for the contaminant of interest is 140 Bq/kg (3.9 pCi/g) in soil. The contaminant is not present in background; data from previous investigations indicate average residual contamination at the survey unit of 3.7 ± 3.7 (1σ) Bq/kg. The lower bound of the gray region was selected to be 110 Bq/kg. A value of 0.05 is next selected for the probability of Type I decision errors (α) and a value of 0.01 is selected for the probability of Type II decision errors (β) based on the survey objectives. Determine the number of data points to be obtained from the survey unit for the statistical tests.

The value of the shift parameter, Δ/σ, is (140-110)/3.7 or 8. From Table 5.4, the value of Sign p is 1.0. Since Δ/σ>3, the width of the gray region can be reduced. If the LBGR is raised to 125, then Δ/σ is (140-125)/3.7 or 4. The value of Sign p remains at 1.0. Thus, the number of data points calculated will not change. The probability of a Type II error is now specified at 125 Bq/kg (3.4 pCi/g) rather than 110 Bq/kg (3.0 pCi/g). As a consequence, the probability of a Type II error at 110 Bq/kg (3.0 pCi/g) will be even smaller.

Values of percentiles, represented by the selected decision error levels are obtained from Table 5.2. $Z_{1-\alpha}$ (for α = 0.05) is 1.645, and $Z_{1-ß}$ (β = 0.01) is 2.326.

Table 5.5 Values of N for Use with the Sign Test

	α=0.01					α=0.025					α=0.05					α=0.10					α=0.25				
	β					β					β					β					β				
Δ/σ	0.01	0.025	0.05	0.10	0.25	0.01	0.025	0.05	0.10	0.25	0.01	0.025	0.05	0.10	0.25	0.01	0.025	0.05	0.10	0.25	0.01	0.025	0.05	0.10	0.25
0.1	4095	3476	2984	2463	1704	3476	2907	2459	1989	1313	2984	2459	2048	1620	1018	2463	1989	1620	1244	725	1704	1313	1018	725	345
0.2	1035	879	754	623	431	879	735	622	503	333	754	622	518	410	258	623	503	410	315	184	431	333	258	184	88
0.3	468	398	341	282	195	398	333	281	227	150	341	281	234	185	117	282	227	185	143	83	195	150	117	83	40
0.4	270	230	197	162	113	230	1921	162	131	87	197	162	136	107	68	162	131	107	82	48	113	87	68	48	23
0.5	178	152	130	107	75	152	126	107	87	58	130	107	89	71	45	107	87	71	54	33	75	58	45	33	16
0.6	129	110	94	77	54	110	92	77	63	42	94	77	65	52	33	77	63	52	40	23	54	42	33	23	11
0.7	99	83	72	59	41	83	70	59	48	33	72	59	50	40	26	59	48	40	30	18	41	33	26	18	9
0.8	80	68	58	48	34	68	57	48	39	26	58	48	40	32	21	48	39	32	24	15	34	26	21	15	8
0.9	66	57	48	40	28	57	47	40	33	22	48	40	34	27	17	40	33	27	21	12	28	22	17	12	6
1.0	57	48	41	34	24	48	40	34	28	18	41	34	29	23	15	34	28	23	18	11	24	18	15	11	5
1.1	50	42	36	30	21	42	35	30	24	17	36	30	26	21	14	30	24	21	16	10	21	17	14	10	5
1.2	45	38	33	27	20	38	32	27	22	15	33	27	23	18	12	27	22	18	15	9	20	15	12	9	5
1.3	41	35	30	26	17	35	29	24	21	14	30	24	21	17	11	26	21	17	14	8	17	14	11	8	4
1.4	38	33	28	23	16	33	27	23	18	12	28	23	20	16	10	23	18	16	12	8	16	12	10	8	4
1.5	35	30	27	22	15	30	26	22	17	12	27	22	18	15	10	22	17	15	11	8	15	12	10	8	4
1.6	34	29	24	21	15	29	24	21	17	11	24	21	17	14	9	21	17	14	11	6	15	11	9	6	4
1.7	33	28	24	20	14	28	23	20	16	11	24	20	17	14	9	20	16	14	10	6	14	11	9	6	4
1.8	32	27	23	20	14	27	22	20	16	11	23	20	16	12	9	20	16	12	10	6	14	11	9	6	4
1.9	30	26	22	18	14	26	22	18	15	10	22	18	16	12	9	18	15	12	10	6	14	10	9	6	4
2.0	29	26	22	18	12	26	21	18	15	10	22	18	15	12	8	18	15	12	10	6	12	10	8	6	3
2.5	28	23	21	17	12	23	20	17	14	10	21	17	15	11	8	17	14	11	9	5	12	10	8	5	3
3.0	27	23	20	17	12	23	20	17	14	9	20	17	14	11	8	17	14	11	9	5	12	9	8	5	3

The number of data points, N, for the Sign test can be calculated using Equation 5-2.

$$N = \frac{(1.645+2.326)^2}{4(1.0-0.5)^2} = 15.85$$

Adding an additional 20% gives 19.2 and rounding up yields 20 data points for the survey unit.

Alternatively, the number of data points can be obtained directly from Table 5.5. For α=0.05, β=0.01, and Δ/σ>3.0 a value of 20 is obtained for N. The table value has already been increased by 20% to account for missing or unusable data and uncertainty in the calculated value of N.

5.5.2.4 Determining Data Points for Small Areas of Elevated Activity

The statistical tests described above (also see Chapter 8) evaluate whether or not the residual radioactivity in an area exceeds the $DCGL_W$ for contamination conditions that are approximately uniform across the survey unit. In addition, there should be a reasonable level of assurance that any small areas of elevated residual radioactivity that could be significant relative to the $DCGL_{EMC}$ are not missed during the final status survey. The statistical tests introduced in the previous sections may not successfully detect small areas of elevated contamination. Instead, systematic measurements and sampling, in conjunction with surface scanning, are used to obtain adequate assurance that small areas of elevated radioactivity will still satisfy the release criterion or the $DCGL_{EMC}$. The procedure is applicable for all radionuclides, regardless of whether or not they are present in background, and is implemented for survey units classified as Class 1.

The number of survey data points needed for the statistical tests discussed in Section 5.5.2.2 or 5.5.2.3 is identified (the appropriate section depends on whether the contaminant is present in background or not). These data points are then positioned throughout the survey unit by first randomly selecting a start point and establishing a systematic pattern. This systematic sampling grid may be either triangular or square. The triangular grid is generally more efficient for locating small areas of elevated activity. Appendix D includes a brief discussion on the efficiency of triangular and square grids for locating areas of elevated activity. A more detailed discussion is provided by EPA (EPA 1994b).

The number of calculated survey locations, n, is used to determine the grid spacing, L, of the systematic sampling pattern (see Section 5.5.2.5). The grid area that is bounded by these survey locations is given by $A = 0.866 \times L^2$ for a triangular grid and $A = L^2$ for a square grid. The risk of not sampling a circular area—equal to A—of elevated activity by use of a random-start grid pattern is illustrated in Figure D.7 in Appendix D.

One method for determining values for the $DCGL_{EMC}$ is to modify the $DCGL_w$ using a correction factor that accounts for the difference in area and the resulting change in dose or risk. The area factor is the magnitude by which the concentration within the small area of elevated activity can exceed $DCGL_W$ while maintaining compliance with the release criterion. The area factor is determined based on specific regulatory agency guidance.

Tables 5.6 and 5.7 provide examples of area factors generated using exposure pathway models. The outdoor area factors listed in Table 5.6 were calculated using RESRAD 5.6. For each radionuclide, all exposure pathways were calculated assuming a concentration of 37 Bq/kg (1 pCi/g). The area of contamination in RESRAD 5.6 defaults to 10,000 m^2. Other than changing the area (*i.e.*, 1, 3, 10, 30, 100, 300, 1,000, or 3,000 m^2), the RESRAD default values were not changed. The area factors were then computed by taking the ratio of the dose or risk per unit concentration generated by RESRAD for the default 10,000 m^2 to that generated for the other areas listed. If the DCGL for residual radioactivity distributed over 10,000 m^2 is multiplied by this value, the resulting concentration distributed over the specified smaller area delivers the same calculated dose. The indoor area factors listed in Table 5.7 were calculated in a similar manner using RESRAD-BUILD 1.5. For each radionuclide, all exposure pathways were calculated assuming a concentration of 37 Bq/m^2 (1 pCi/m^2). The area of contamination in RESRAD-BUILD 1.5 defaults to 36 m^2. The other areas compared to this value were 1, 4, 9, 16, or 25 m^2. Removable surface contamination was assumed to be 10%. No other changes to the default values were made. Note that the use of RESRAD to determine area factors is for illustration purposes only. The MARSSIM user should consult with the responsible regulatory agency for guidance on acceptable techniques to determine area factors.

The minimum detectable concentration (MDC) of the scan procedure—needed to detect an area of elevated activity at the limit determined by the area factor—is calculated as follows:

$$Scan\ MDC\ (required) = (DCGL_W) \times (Area\ Factor) \qquad 5\text{-}3$$

The actual MDCs of scanning techniques are then determined for the available instrumentation (see Section 6.7). The actual MDC of the selected scanning technique is compared to the required scan MDC. If the actual scan MDC is less than the required scan MDC, no additional sampling points are necessary for assessment of small areas of elevated activity. In other words, the scanning technique exhibits adequate sensitivity to detect small areas of elevated activity.

Table 5.6 Illustrative Examples of Outdoor Area Dose Factors*

	Area Factor								
Nuclide	**1 m^2**	**3 m^2**	**10 m^2**	**30 m^2**	**100 m^2**	**300 m^2**	**1000 m^2**	**3000 m^2**	**10000 m^2**
Am-241	208.7	139.7	96.3	44.2	13.4	4.4	1.3	1.0	1.0
Co-60	9.8	4.4	2.1	1.5	1.2	1.1	1.1	1.0	1.0
Cs-137	11.0	5.0	2.4	1.7	1.4	1.3	1.1	1.1	1.0
Ni-63	1175.2	463.7	154.8	54.2	16.6	5.6	1.7	1.5	1.0
Ra-226	54.8	21.3	7.8	3.2	1.1	1.1	1.0	1.0	1.0
Th-232	12.5	6.2	3.2	2.3	1.8	1.5	1.1	1.0	1.0
U-238	30.6	18.3	11.1	8.4	6.7	4.4	1.3	1.0	1.0

* The values listed in Table 5.6 are for illustrative purposes only. Consult regulatory guidance to determine area factors to be used for compliance demonstration.

Table 5.7 Illustrative Examples of Indoor Area Dose Factors*

	Area Factor					
Nuclide	**1 m^2**	**4 m^2**	**9 m^2**	**16 m^2**	**25 m^2**	**36 m^2**
Am-241	36.0	9.0	4.0	2.2	1.4	1.0
Co-60	9.2	3.1	1.9	1.4	1.2	1.0
Cs-137	9.4	3.2	1.9	1.4	1.2	1.0
Ni-63	36.0	9.0	4.0	2.3	1.4	1.0
Ra-226	18.1	5.5	2.9	1.9	1.3	1.0
Th-232	36.0	9.0	4.0	2.2	1.4	1.0
U-238	35.7	9.0	4.0	2.2	1.4	1.0

* The values listed in Table 5.7 are for illustrative purposes only. Consult regulatory guidance to determine area factors to be used for compliance demonstration.

If the actual scan MDC is greater than the required scan MDC (*i.e.*, the available scan sensitivity is not sufficient to detect small areas of elevated activity), then it is necessary to calculate the area factor that corresponds to the actual scan MDC:

$$Area\ Factor = \frac{scan\ MDC\ (actual)}{DCGL} \qquad 5\text{-}4$$

The size of the area of elevated activity (in m^2) that corresponds to this area factor is then obtained from specific regulatory agency guidance, and may be similar to those illustrated in Table 5.6 or Table 5.7. The data needs for assessing small areas of elevated activity can then be determined by dividing the area of elevated activity acceptable to the regulatory agency into the survey unit area. For example, if the area of elevated activity is 100 m^2 (from Table 5.6) and the survey unit area is 2,000 m^2, then the calculated number of survey locations is 20. The calculated number of survey locations, n_{EA}, is used to determine a revised spacing, L, of the systematic pattern (refer to Section 5.5.2.5). Specifically, the spacing, L, of the pattern (when driven by the areas of elevated activity) is given by:

$$L = \sqrt{\frac{A}{0.866\ n_{EA}}} \quad for\ a\ triangular\ grid \qquad 5\text{-}5$$

$$L = \sqrt{\frac{A}{n_{EA}}} \quad for\ a\ square\ grid \qquad 5\text{-}6$$

where A is the area of the survey unit. Grid spacings should generally be rounded *down* to the nearest distance that can be conveniently measured in the field.

If the number of data points required to identify areas of elevated activity (n_{EA}) is greater than the number of data points calculated using Equation 5-1 (N/2) or Equation 5-2 (N), L should be calculated using Equation 5-5 or Equation 5-6. This value of L is then used to determine the measurement locations as described in Section 5.5.2.5. If n_{EA} is smaller than N/2 or N, L is calculated using Equation 5-7 or Equation 5-8 as described in Section 5.5.2.5. The statistical tests are performed using this larger number of data points. Figure 5.3 provides a concise overview of the procedure used to identify data needs for the assessment of small areas of elevated activity. If residual radioactivity is found in an isolated area of elevated activity—in addition to residual radioactivity distributed relatively uniformly across the survey unit—the unity rule (described in Section 4.3.3) can be used to ensure that the total dose or risk does not exceed the release criterion (see Section 8.5.2). If there is more than one elevated area, a separate term should be included for each. As an alternative to the unity rule, the dose or risk due to the actual residual radioactivity distribution can be calculated if there is an appropriate exposure pathway model available. Note that these considerations generally apply only to Class 1 survey units, since areas of elevated activity should not exist in Class 2 or Class 3 survey units.

When the detection limit of the scanning technique is very large relative to the $DCGL_{EMC}$, the number of measurements estimated to demonstrate compliance using the statistical tests may become unreasonably large. In this situation perform an evaluation of the survey objectives and considerations. These considerations may include the survey design and measurement methodology, exposure pathway modeling assumptions and parameter values used to determine the DCGLs, Historical Site Assessment conclusions concerning source terms and radionuclide distributions, and the results of scoping and characterization surveys. In most cases the result of this evaluation is not expected to justify an unreasonably large number of measurements.

Example 1:

A Class 1 land area survey unit of 1,500 m^2 is potentially contaminated with ^{60}Co. The $DCGL_W$ value for ^{60}Co is 110 Bq/kg (3 pCi/g) and the scan sensitivity for this radionuclide has been determined to be 150 Bq/kg (4 pCi/g). Calculations indicate the number of data points needed for statistical testing is 27. The distance between measurement locations for this number of data points and the given land area is 8 m. The area encompassed by a triangular sampling pattern of 8 m is approximately 55.4 m^2. From Table 5.6 an area factor of about 1.4 is determined by interpolation. The acceptable concentration in a 55.4 m^2 area is therefore 160 Bq/kg (1.4 × 110 Bq/kg). Since the scan sensitivity of the procedure to be used is less than the $DCGL_W$ times the area factor, no additional data points are needed to demonstrate compliance with the elevated measurement comparison criteria.

Example 2:

A Class 1 land area survey unit of 1500 m^2 is potentially contaminated with ^{60}Co. The DCGL for ^{60}Co is 110 Bq/kg (3 pCi/g). In contrast to Example 1, the scan sensitivity for this radionuclide has been determined to be 170 Bq/kg (4.6 pCi/g). Calculations indicate the number of data points needed for statistical testing is 15. The distance between measurement locations for this number of data points and land area is 10 m. The area encompassed by a triangular sampling pattern of 10 m is approximately 86.6 m^2. From Table 5.6 an area factor of about 1.3 is determined by interpolation. The acceptable concentration in a 86.6 m^2 area is therefore 140 Bq/kg (1.3 × 110 Bq/kg). Since the scan sensitivity of the procedure to be used is greater than the $DCGL_W$ times the area factor, the data points obtained for the statistical testing may not be sufficient to demonstrate compliance using the elevated measurement comparison. The area multiplier for elevated activity that would have to be achieved is 1.5 (170/110 Bq/kg). This is equivalent to an area of 30 m^2 (Table 5.6) which would be obtained with a spacing of about 6 m. A triangular pattern of 6 m spacing includes 50 data points, so 50 measurements should be performed in the survey unit.

5.5.2.5 Determining Survey Locations

A scale drawing of the survey unit is prepared, along with the overlying planar reference coordinate system or grid system. Any location within the survey area is thus identifiable by a unique set of coordinates. The maximum length, X, and width, Y, dimensions of the survey unit are then determined. Identifying and documenting a specific location for each measurement performed is an important part of a final status survey to ensure that measurements can be reproduced if necessary. The reference coordinate system described in Section 4.8.5 provides a method for relating measurements to a specific location within a survey unit.

If the same values for α, β, and Δ/σ are used in Equations 5-1 or Equation 5-2, the required number of measurements is independent of survey unit classification. This means that the same number of measurements could be performed in a Class 1, Class 2, or Class 3 survey unit. While this is a best case scenario, it points out the importance of identifying appropriate survey units (*e.g.*, size, classification) in defining the level of survey effort. The spacing of measurements is affected by the number of measurements, which is independent of classification. However, the spacing of measurements is also affected by survey unit area, the variability in the contaminant concentration, and the interface with the models used to develop the DCGLs which are dependent on classification.

Land Areas. Measurements and samples in Class 3 survey units and reference areas should be taken at random locations. These locations are determined by generating sets of random numbers (2 values, representing the X axis and Y axis distances). Random numbers can be generated by calculator or computer, or can be obtained from mathematical tables. Sufficient sets of numbers will be needed to identify the total number of survey locations established for the survey unit. Each set of random numbers is multiplied by the appropriate survey unit dimension to provide coordinates, relative to the origin of the survey unit reference grid pattern. Coordinates identified in this manner, which do not fall within the survey until area or which cannot be surveyed, due to site conditions, are replaced with other survey points determined in the same manner. Figure 5.4 is an example of a random sampling pattern. In this example, 8 data points were identified using the appropriate formula based on the statistical tests (*i.e.*, Equation 5-1 or Equation 5-2). The locations of these points were determined using the table of random numbers found in Appendix I, Table I.6.

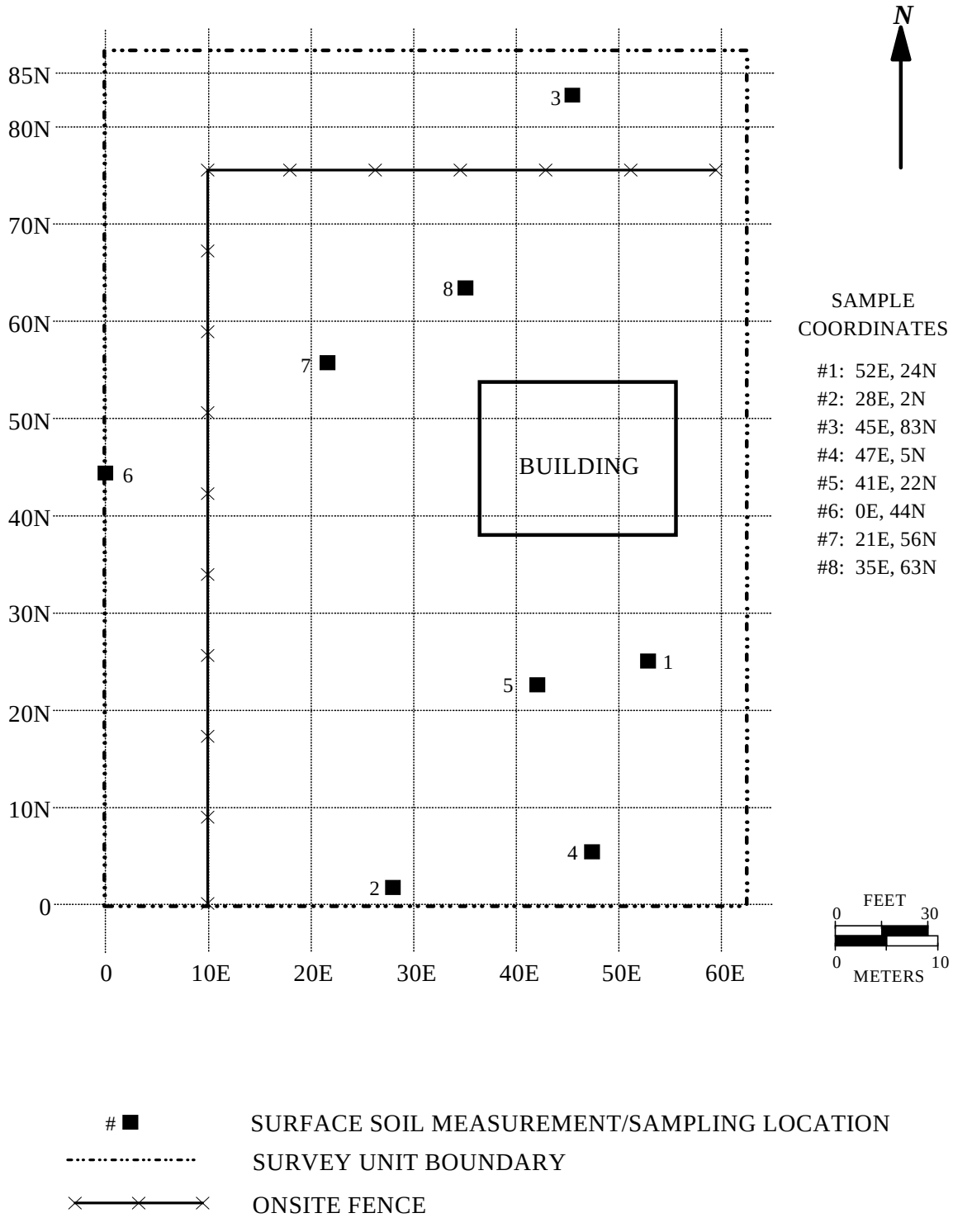


Figure 5.4 Example of a Random Measurement Pattern

Class 2 areas are surveyed on a random-start systematic pattern. The number of calculated survey locations, n, based on the statistical tests, is used to determine the spacing, L, of a systematic pattern by:

$$L = \sqrt{\frac{A}{0.866\ n}} \quad for\ a\ triangular\ grid \qquad 5\text{-}7$$

$$L = \sqrt{\frac{A}{n}} \quad for\ a\ square\ grid \qquad 5\text{-}8$$

where A is the area of the survey unit.

After L is determined, a random coordinate location is identified, as described previously, for a survey pattern starting location. Beginning at the random starting coordinate, a row of points is identified, parallel to the X axis, at intervals of L.

For a triangular grid, a second row of points is then developed, parallel to the first row, at a distance of 0.866 × L from the first row. Survey points along that second row are midway (on the X-axis) between the points on the first row. This process is repeated to identify a pattern of survey locations throughout the affected survey unit. If identified points fall outside the survey unit or at locations which cannot be surveyed, additional points are determined using the random process described above, until the desired total number of points is identified.

An example of such a survey pattern is shown in Figure 5.5. In this example, the statistical test calculations estimate 20 samples (Table 5.5, α=0.01, β=0.05, Δ/σ>3.0). The random-start coordinate was 27E, 53N. The grid spacing was calculated using Equation 5-7:

$$L = \sqrt{\frac{5{,}100\ m^2}{0.866\ \times\ 20}} = 17\ m.$$

Two points were identified on a row parallel to the X-axis, each 17 m from the starting point. The subsequent rows were positioned 0.866 × L, or 15 m, from the initial row. This random-start triangular sampling process resulted in 21 sampling locations, one of which was inaccessible because of the building location, which yields the desired number of data points.

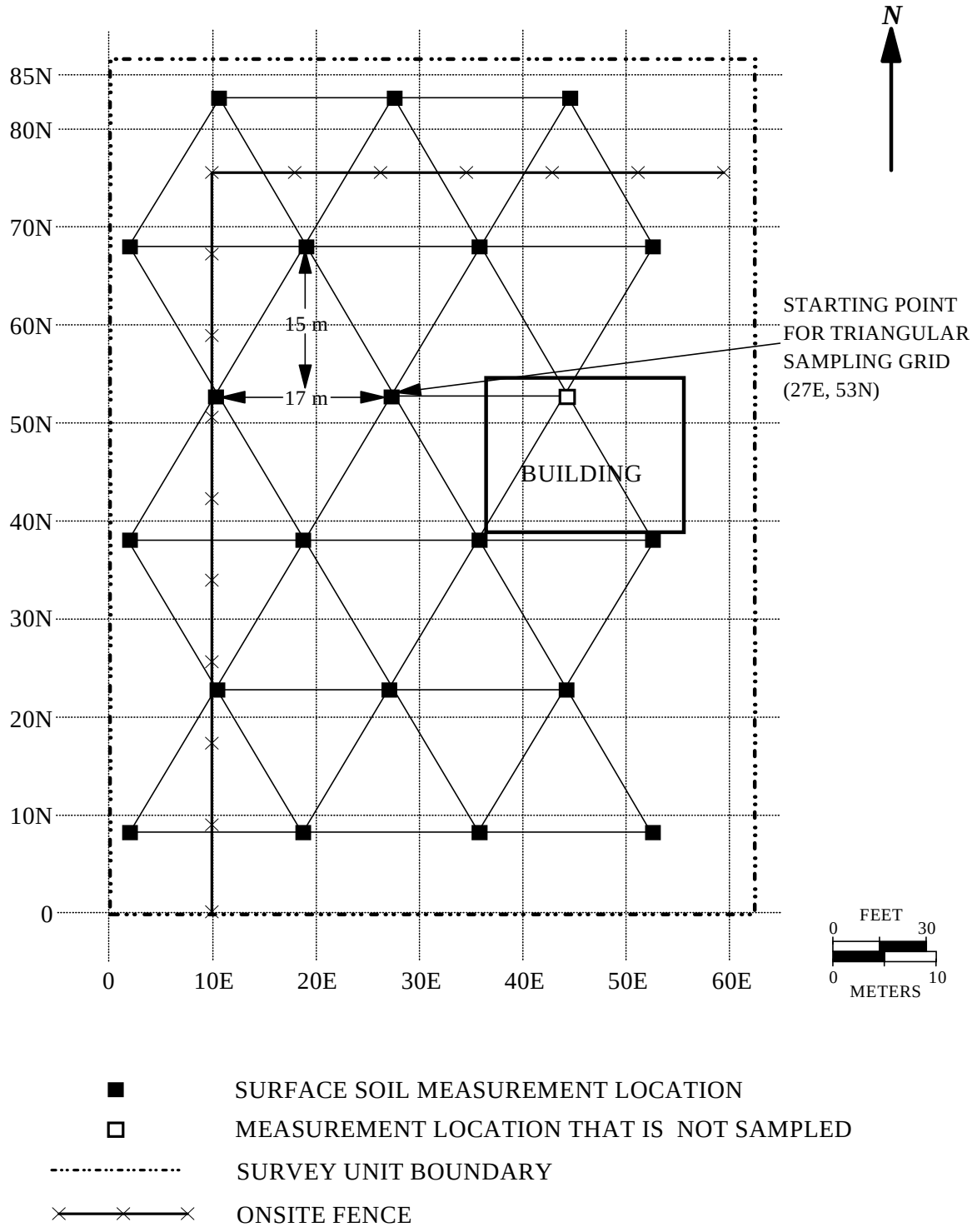


Figure 5.5 Example of a Random-Start Triangular Grid Measurement Pattern

For Class 1 areas a systematic pattern, having dimensions determined in Section 5.5.2.4, is installed on the survey unit. The starting point for this pattern is selected at random, as described above for Class 2 areas. The same process as described above for Class 2 areas applies to Class 1, only the estimated number of samples is different.

Structure Surfaces. All structure surfaces for a specific survey unit are included on a single reference grid system for purposes of identifying survey locations. The same methods as described above for land areas are then used to locate survey points for all classifications of areas.

In addition to the survey locations identified for statistical evaluations and elevated measurement comparisons, data will likely be obtained from judgment locations that are selected due to unusual appearance, location relative to contamination areas, high potential for residual activity, general supplemental information, *etc.* Data points selected based on professional judgment are not included with the data points from the random-start triangular grid for statistical evaluations; instead they are compared individually with the established DCGLs and conditions. Measurement locations selected based on professional judgment violate the assumption of unbiased measurements used to develop the statistical tests described in Chapter 8.

5.5.2.6 Determining Investigation Levels

An important aspect of the final status survey is the design and implementation of investigation levels. Investigation levels are radionuclide-specific levels of radioactivity used to indicate when additional investigations may be necessary. Investigation levels also serve as a quality control check to determine when a measurement process begins to get out of control. For example, a measurement that exceeds the investigation level may indicate that the survey unit has been improperly classified (see Section 4.4) or it may indicate a failing instrument.

When an investigation level is exceeded, the first step is to confirm that the initial measurement/sample actually exceeds the particular investigation level. This may involve taking further measurements to determine that the area and level of the elevated residual radioactivity are such that the resulting dose or risk meets the release criterion.[2] Depending on the results of the investigation actions, the survey unit may require reclassification, remediation, and/or resurvey. Table 5.8 illustrates an example of how investigation levels can be developed.

[2] Rather than, or in addition to, taking further measurements the investigation may involve assessing the adequacy of the exposure pathway model used to obtain the DCGLs and area factors, and the consistency of the results obtained with the Historical Site Assessment and the scoping, characterization and remedial action support surveys.

Table 5.8 Example Final Status Survey Investigation Levels

Survey Unit Classification	Flag Direct Measurement or Sample Result When:	Flag Scanning Measurement Result When:
Class 1	> $DCGL_{EMC}$ or > $DCGL_W$ and > a statistical parameter-based value	> $DCGL_{EMC}$
Class 2	> $DCGL_W$	> $DCGL_W$ or > MDC
Class 3	> fraction of $DCGL_W$	> $DCGL_W$ or > MDC

When determining an investigation level using a statistical-based parameter (*e.g.*, standard deviation) one should consider survey objectives, underlying radionuclide distributions and an understanding of corresponding types (*e.g.*, normal, log normal, non-parametric), descriptors (*e.g.*, standard deviation, mean, median), population stratifications (*i.e.*, are there sub-groups present?), and other prior survey and historical information. For example, a level might be arbitrarily established at the mean + 3s, where s is the standard deviation of the survey unit, assuming a normal distribution. A higher value might be used if locating discrete sources of higher activity was a primary survey objective. By the time the final status survey is conducted, survey units should be defined. Estimates of the mean, variance, and standard deviation of the radionuclide activity levels within the survey units should also be available.

For a Class 1 survey unit, measurements above the $DCGL_W$ are not necessarily unexpected. However, a measurement above the $DCGL_W$ at one of the discrete measurement locations might be considered unusual if it were much higher than all of the other discrete measurements. Thus, any discrete measurement that is both above the $DCGL_W$ and above the statistical-based parameter for the measurements should be investigated further. Any measurement, either at a discrete location or from a scan, that is above the $DCGL_{EMC}$ should be flagged for further investigation.

In Class 2 or Class 3 areas, neither measurements above the $DCGL_W$ nor areas of elevated activity are expected. Any measurement at a discrete location exceeding the $DCGL_W$ in these areas should be flagged for further investigation. Because the survey design for Class 2 and Class 3 survey units is not driven by the EMC, the scanning MDC might exceed the $DCGL_W$. In this case, any indication of residual radioactivity during the scan would warrant further investigation.

The basis for using the $DCGL_{EMC}$ rather than the more conservative criteria for Class 2 and Class 3 areas should be justified in survey planning documents. For example, where there is high uncertainty in the reported scanning MDC, a more conservative criteria would be warranted.

Similarly, DQA for scanning may warrant a more conservative flag, as would greater uncertainty from Historical Site Assessment or other surveys on the size of potential areas of elevated activity. In some cases, it may even be necessary to agree in advance with the regulatory agency responsible for the site on which site-specific investigation will be used if other than those presented in Table 5.8.

Because there is a low expectation for residual radioactivity in a Class 3 area, it may be prudent to investigate any measurement exceeding even a fraction of the $DCGL_W$. The level selected in these situations depends on the site, the radionuclides of concern, and the measurement and scanning methods chosen. This level should be set using the DQO Process during the survey design phase of the Data Life Cycle. In some cases, the user may also wish to follow this procedure for Class 2 and even Class 1 survey units.

5.5.3 Developing an Integrated Survey Strategy

The final step in survey design is to integrate the survey techniques (Chapter 6) with the number of measurements and measurement spacing determined earlier in this chapter. This integration along with the guidance provided in other portions of this manual produce an overall strategy for performing the survey. Table 5.9 provides a summary of the recommended survey coverage for structures and land areas. This survey coverage for different areas is the subject of this section.

Random measurement patterns are used for Class 3 survey units to ensure that the measurements are independent and support the assumptions of the statistical tests. Systematic grids are used for Class 2 survey units because there is an increased probability of small areas of elevated activity. The use of a systematic grid allows the decision maker to draw conclusions about the size of the potential areas of elevated activity based on the area between measurement locations. The random starting point of the grid provides an unbiased method for obtaining measurement locations to be used in the statistical tests. Class 1 survey units have the highest potential for small areas of elevated activity, so the areas between measurement locations are adjusted to ensure that these areas can be detected by scanning techniques.

The objectives of the scanning surveys are different. Scanning is used to identify locations within the survey unit that exceed the investigation level. These locations are marked and receive additional investigations to determine the concentration, area, and extent of the contamination.

For Class 1 areas, scanning surveys are designed to detect small areas of elevated activity that are not detected by the measurements using the systematic pattern. For this reason the measurement locations, and the number of measurements, may need to be adjusted based on the sensitivity of the scanning technique (Section 5.5.2.4). This is also the reason for recommending 100%

Table 5.9 Recommended Survey Coverage for Structures and Land Areas

Area Classification	Structures		Land Areas	
	Surface Scans	Surface Activity Measurements	Surface Scans	Soil Samples
Class 1	100%	Number of data points from statistical tests (Sections 5.5.2.2 and 5.5.2.3); additional measurements may be necessary for small areas of elevated activity (Section 5.5.2.4)	100%	Number of data points from statistical tests (Sections 5.5.2.2 and 5.5.2.3); additional measurements may be necessary for small areas of elevated activity (Section 5.5.2.4)
Class 2	10 to 100% (10 to 50% for upper walls and ceilings) Systematic and Judgmental	Number of data points from statistical tests (Sections 5.5.2.2 and 5.5.2.3)	10 to 100% Systematic and Judgmental	Number of data points from statistical tests (Sections 5.5.2.2 and 5.5.2.3)
Class 3	Judgmental	Number of data points from statistical tests (Sections 5.5.2.2 and 5.5.2.3)	Judgmental	Number of data points from statistical tests (Sections 5.5.2.2 and 5.5.2.3)

coverage for the scanning survey. 100% coverage means that the entire surface area of the survey unit is covered by the field of view of the scanning instrument. If the field of view is two meters wide, the survey instrument can be moved along parallel paths two meters apart to provide 100% coverage. If the field of view of the detector is 5 cm, the parallel paths should be 5 cm apart.

Scanning surveys in Class 2 areas are also primarily performed to find areas of elevated activity not detected by the measurements using the systematic pattern. However, the measurement locations are not adjusted based on sensitivity of the scanning technique and scanning is performed in portions of the survey unit. The level of scanning effort should be proportional to the potential for finding areas of elevated activity based on the conceptual site model developed and refined from Section 3.6.4. A larger portion of the survey unit would be scanned in Class 2 survey units that have residual radioactivity close to the release criterion, but for survey units that are closer to background scanning, a smaller portion of the survey unit may be appropriate. Class 2 survey units have a lower probability for areas of elevated activity than Class 1 survey units, but some portions of the survey unit may have a higher potential than others. Judgmental

scanning surveys focus on the portions of the survey unit with the highest probability for areas of elevated activity. If the entire survey unit has an equal probability for areas of elevated activity, or the judgmental scans don't cover at least 10% of the area, systematic scans along transects of the survey unit or scanning surveys of randomly selected grid blocks are performed.

Class 3 areas have the lowest potential for areas of elevated activity. For this reason, scanning surveys are recommended for areas with the highest potential for contamination (*e.g.*, corners, ditches, drains) based on professional judgment. Such recommendations are typically provided by a health physics professional with radiation survey experience. This provides a qualitative level of confidence that no areas of elevated activity were missed by the random measurements or that there were no errors made in the classification of the area.

The sensitivity for scanning techniques used in Class 2 and Class 3 areas is not tied to the area between measurement locations, as they are in a Class 1 area (see Section 5.5.2.4). The scanning techniques selected should represent the best reasonable effort based on the survey objectives. Structure surfaces are generally scanned for alpha, beta, and gamma emitting radionuclides. Scanning for alpha emitters or low-energy (<100 keV) beta emitters for land area survey units is generally not considered effective because of problems with attenuation and media interferences. If one can reasonably expect to find any residual radioactivity, it is prudent to perform a judgmental scanning survey.

If the equipment and methodology used for scanning is capable of providing data of the same quality as direct measurements (*e.g.*, detection limit, location of measurements, ability to record and document results), then scanning may be used in place of direct measurements. Results should be documented for at least the number of locations estimated for the statistical tests. The same logic can be applied for using direct measurements instead of sampling. In addition, some direct measurement systems may be able to provide scanning data.

As previously discussed, investigation levels are determined and used to indicate when additional investigations may be necessary or when a measurement process begins to get out of control. The results of all investigations should be documented in the final status survey report, including the results of scan surveys that may have potentially identified areas of elevated direct radiation.

5.5.3.1 Structure Surveys

Class 1 Areas. Surface scans are performed over 100% of structure surfaces for radiations which might be emitted from the potential radionuclide contaminants. Locations of direct radiation, distinguishable above background radiation, are identified and evaluated. Results of initial and followup direct measurements and sampling at these locations are recorded and documented in the final status survey report. Measurements of total and removable contamination are performed at locations identified by scans and at previously determined

locations (Section 5.5.2.5). Where gamma emitting radionuclides are present, *in situ* gamma spectroscopy may be used to identify the presence of specific radionuclides or to demonstrate compliance with the release criterion.

Direct measurement or sample investigation levels for Class 1 areas should establish a course of action for individual measurements that approach or exceed the $DCGL_W$. Because measurements above the $DCGL_W$ are not necessarily unexpected in a Class 1 survey unit, additional investigation levels may be established to identify discrete measurements that are much higher than the other measurements. Any discrete measurement that is both above the $DCGL_W$ and exceeds three times the standard deviation (s) of the mean should be investigated further (Section 5.5.2.6). Any measurement (direct measurement, sample, or scan) that exceeds the $DCGL_{EMC}$ should be flagged for further investigation. The results of the investigation and any additional remediation that was performed should be included in the final status survey report. Data are reviewed as described in Section 8.2.2, additional data are collected as necessary, and the final complete data set evaluated as described in Section 8.3 or Section 8.4.

Class 2 Areas. Surface scans are performed over 10 to 100% of structure surfaces. Generally, upper wall surfaces and ceilings should receive surface scans over 10 to 50% of these areas. Locations of scanning survey results above the investigation level are identified and investigated. If small areas of elevated activity are confirmed by this investigation, all or part of the survey unit should be reclassified as Class 1 and the survey strategy for that survey unit redesigned accordingly.

Investigation levels for Class 2 areas should establish a course of action for individual measurements that exceed or approach the $DCGL_w$. The results of the investigation of the positive measurements and basis for reclassifying all or part of the survey unit as Class 1 should be included in the final status survey report. Where gamma emitting radionuclides are contaminants, *in situ* gamma spectroscopy may be used to identify the presence of specific radionuclides or to demonstrate compliance with the release criterion. Data are reviewed as described in Section 8.2.2, additional data are collected as necessary, and the final complete data set evaluated as described in Section 8.3 or Section 8.4.

Class 3 Areas. Scans of Class 3 area surfaces should be performed for all radiations which might be emitted from the potential radionuclide contaminants. MARSSIM recommends that the surface area be scanned. Locations of scanning survey results above the investigation level are identified and evaluated. Measurements of total and removable contamination are performed at the locations identified by the scans and at the randomly selected locations that are chosen in accordance with Section 5.5.2.5. Identification of contamination suggests that the area may be incorrectly classified. If so, a re-evaluation of the Class 3 area classification should be performed and, if appropriate, all or part of the survey unit should be resurveyed as a Class 1 or Class 2 area. In some cases the investigation may include measurements by *in situ* gamma spectroscopy at a

few locations in each structure in a Class 3 area. A gamma spectroscopy system might even be an appropriate substitution for surface scans.

Because there is a low expectation for residual radioactivity in a Class 3 area, it may be prudent to investigate any measurement exceeding even a fraction of the $DCGL_W$. The investigation level selected will depend on the site, the radionuclides of concern, and the measurement and scanning methods chosen. This level should be determined using the DQO Process during survey planning. In some cases, the user may wish to follow this procedure for Class 2 survey units.

The results of the investigation of the measurements that exceed the investigation level and the basis for reclassifying all or part of the survey unit as Class 1 or Class 2 should be included in the final status survey report. The data are tested relative to the preestablished criteria. If additional data are needed, they should be collected and evaluated as part of the entire data set.

5.5.3.2 Land Area Surveys

Class 1 Areas. As with structure surfaces, 100% scanning coverage of Class 1 land areas is recommended. Locations of scanning survey results above the investigation level are identified and evaluated. Results of initial and followup direct measurements and sampling at these locations are recorded. Soil sampling is performed at locations identified by scans and at previously determined locations (Section 5.5.2.5). Where gamma emitting radionuclides are contaminants, *in situ* gamma spectroscopy may be used to confirm the absence of specific radionuclides or to demonstrate compliance.

Direct measurement or sample investigation levels for Class 1 areas should establish a course of action for individual measurements that approach or exceed the $DCGL_W$. Because measurements above the $DCGL_W$ are not necessarily unexpected in a Class 1 survey unit, additional investigation levels may be established to identify discrete measurements that are much higher than the other measurements. Any discrete measurement that is both above the $DCGL_W$ and exceeds three standard deviations above the mean should be investigated further (Section 5.5.2.6). Any measurement (direct measurement, sample, or scan) that exceeds the $DCGL_{EMC}$ should be flagged for further investigation. The results of the investigation and any additional remediation that was performed should be included in the final status survey report. Data are reviewed as described in Section 8.2.2, additional data are collected as necessary, and the final complete data set evaluated as described in Section 8.3 or Section 8.4.

Class 2 Areas. Surface scans are performed over 10 to 100% of open land surfaces. Locations of direct radiation above the scanning survey investigation level are identified and evaluated. If small areas of elevated activity are identified, the survey unit should be reclassified as "Class 1" and the survey strategy for that survey unit redesigned accordingly.

If small areas of elevated activity above DCGL values are not identified, direct measurement or soil sampling is performed at previously determined locations (Section 5.5.2.5). Where gamma emitting radionuclides are contaminants, *in situ* gamma spectroscopy may be used to confirm the absence of specific radionuclides or to demonstrate compliance. Data are reviewed as described in Section 8.2.2, additional data are collected as necessary, and the final complete data set evaluated as described in Section 8.3 or Section 8.4.

Investigation levels for Class 2 areas should establish levels for investigation of individual measurements close to but below the $DCGL_w$. The results of the investigation of the positive measurements and basis for reclassifying all or part of the survey unit as Class 1 should be included in the final status survey report.

Class 3 Areas. Class 3 areas may be uniformly scanned for radiations from the radionuclides of interest, or the scanning may be performed in areas with the greatest potential for residual contamination based on professional judgment and the objectives of the survey. In some cases a combination of these approaches may be the most appropriate. Locations exceeding the scanning survey investigation level are evaluated, and, if the presence of contamination not occurring in background is identified, reevaluation of the classification of contamination potential should be performed.

Investigation levels for Class 3 areas should be established to identify areas of elevated activity that may indicate the presence of residual radioactivity. Scanning survey locations that exceed the investigation level should be flagged for further investigation. The results of the investigation and basis for reclassifying all or part of the survey unit as Class 1 or Class 2 should be included in the final status survey report. The data are tested relative to the preestablished criteria. If additional data are needed, they should be collected and evaluated as part of the entire data set. Soil sampling is performed at randomly selected locations (Section 5.5.2.5); if the contaminant can be measured at DCGL levels by *in situ* techniques, this method may be used to replace or supplement the sampling and laboratory analysis approach. For gamma emitting radionuclides, the above data should be supplemented by several exposure rate and/or *in situ* gamma spectrometry measurements. Survey results are tested for compliance with DCGLs and additional data are collected and tested, as necessary.

5.5.3.3 Other Measurement/Sampling Locations

In addition to the building and land surface areas described above, there are numerous other locations where measurements and/or sampling may be necessary. Examples include items of equipment and furnishings, building fixtures, drains, ducts, and piping. Many of these items or locations have both internal and external surfaces with potential residual radioactivity. Subsurface measurements and/or sampling may also be necessary. Guidance on conducting or evaluating these types of surveys is outside the scope of MARSSIM.

Special situations may be evaluated by judgment sampling and measurements. Data from such surveys should be compared directly with DCGLs developed for the specific situation. Areas of elevated direct radiation identified by surface scans are typically followed by direct measurements or samples. These direct measurements and samples are not included in the nonparametric tests described in this manual, but rather, should be compared directly with DCGLs developed for the specific situation.

Quality control measurements are recommended for all surveys, as described in Section 4.9, Section 6.2, and Section 7.2. Also, some regulatory programs require removable activity measurements (*e.g.*, NRC Regulatory Guide 1.86; NRC 1974). These additional measurements should be considered during survey planning.

5.5.4 Evaluating Survey Results

After data are converted to DCGL units, the process of comparing the results to the DCGLs, conditions, and objectives begins. Individual measurements and sample concentrations are first compared to DCGL levels for evidence of small areas of elevated activity and not to determine if reclassification is necessary. Additional data or additional remediation and resurvey may be necessary. Data are then evaluated using statistical methods to determine if they exceed the release criterion. If the release criterion has been exceeded or if results indicate the need for additional data points, appropriate further actions will be determined by the site management and the responsible regulatory agency. The scope of further actions should be agreed upon and developed as part of the DQO Process before the survey begins (Appendix D). Finally, the results of the survey are compared with the data quality objectives established during the planning phase of the project. Note that Data Quality Objectives may require a report of the semi-quantitative evaluation of removable contamination resulting from the analysis of smears. These results may be used to satisfy regulatory requirements or to evaluate the effectiveness of ALARA procedures. Chapter 8 describes detailed procedures for evaluating survey results.

5.5.5 Documentation

Documentation of the final status survey should provide a complete and unambiguous record of the radiological status of the survey unit, relative to the established DCGLs. In addition, sufficient data and information should be provided to enable an independent re-creation and evaluation at some future time. Much of the information in the final status report will be available from other decommissioning documents; however, to the extent practicable, this report should be a stand-alone document with minimum information incorporated by reference. The report should be independently reviewed (see Section 3.9) and should be approved by a designated person (or persons) who is capable of evaluating all aspects of the report prior to release, publication, or distribution.

EXAMPLE FINAL STATUS SURVEY CHECKLIST

SURVEY PREPARATIONS

_____ Ensure that residual radioactivity limits have been determined for the radionuclides present at the site, typically performed during earlier surveys associated with the decommissioning process.

_____ Identify the radionuclides of concern. Determine whether the radionuclides of concern exist in background. This will determine whether one-sample or two-sample tests are performed to demonstrate compliance. Two-sample tests are performed when radionuclides are present in the natural background; one-sample tests may be performed if the radionuclide is not present in background.

_____ Segregate the site into Class 1, Class 2, and Class 3 areas, based on contamination potential.

_____ Identify survey units.

_____ Select representative reference (background) areas for both indoor and outdoor survey areas. Reference areas are selected from non-impacted areas and

- _____ are free of contamination from site operations,
- _____ exhibit similar physical, chemical, and biological characteristics of the survey area,
- _____ have similar construction, but have no history of radioactive operations.

_____ Select survey instrumentation and survey techniques. Determine MDCs (select instrumentation based on the radionuclides present) and match between instrumentation and DCGLs—the selected instruments should be capable of detecting the contamination at 10-50% of the DCGLs.

_____ Prepare area if necessary—clear and provide access to areas to be surveyed.

_____ Establish reference coordinate systems (as appropriate).

SURVEY DESIGN

_____ Enumerate DQOs: State objective of survey, state the null and alternative hypotheses, specify the acceptable decision error rates (Type I (α) and Type II (β)).

_____ Specify sample collection and analysis procedures.

_____ Determine numbers of data points for statistical tests, depending on whether or not the radionuclide is present in background.

- _____ Specify the number of samples/measurements to be obtained based on the statistical tests.
- _____ Evaluate the power of the statistical tests to determine that the number of samples is appropriate.
- _____ Ensure that the sample size is sufficient for detecting areas of elevated activity.
- _____ Add additional samples/measurements for QC and to allow for possible loss.

_____ Specify sampling locations.

_____ Provide information on survey instrumentation and techniques. The decision to use portable survey instrumentation or *in situ* techniques, and/or a combination of both, depends on whether or not the radiation levels are elevated compared to natural background, and whether or not the residual radioactivity is present at some fraction of background levels.

_____ Specify methods of data reduction and comparison of survey units to reference areas.

_____ Provide quality control procedures and QAPP for ensuring validity of survey data:

- _____ properly calibrated instrumentation,
- _____ necessary replicate, reference and blank measurements,
- _____ comparison of field measurement results to laboratory sample analyses.

_____ Document the survey plan (*e.g.*, QAPP, SOPs, *etc.*)

CONDUCTING SURVEYS

_____ Perform reference (background) area measurements and sampling.

Conduct survey activities:

_____ Perform surface scans of the Class 1, Class 2, and Class 3 areas.

_____ Conduct surface activity measurements and sampling at previously selected sampling locations.

_____ Conduct additional direct measurements and sampling at locations based on professional judgment.

_____ Perform and document any necessary investigation activities, including survey unit reclassification, remediation, and resurvey.

_____ Document measurement and sample locations; provide information on measurement system MDC and measurement errors.

_____ Document any observations, abnormalities, and deviations from the QAPP or SOPs

EVALUATING SURVEY RESULTS

_____ Review DQOs.

_____ Analyze samples.

_____ Perform data reduction on survey results.

_____ Verify assumptions of statistical tests.

_____ Compare survey results with regulatory DCGLs:

_____ Conduct elevated measurement comparison.

_____ Determine area-weighted average, if appropriate.

_____ Conduct WRS or Sign tests.

_____ Prepare final status survey report.

_____ Obtain an independent review of the report.

6 FIELD MEASUREMENT METHODS AND INSTRUMENTATION

6.1 Introduction

Measurement is used in MARSSIM to mean 1) the act of using a detector to determine the level or quantity of radioactivity on a surface or in a sample of material removed from a media being evaluated, or 2) the quantity obtained by the act of measuring. Three methods are available for collecting radiation data while performing a survey—direct measurements, scanning, and sampling. This chapter discusses scanning and direct measurement methods and instrumentation. The collection and analysis of media samples are presented in Chapter 7. Information on the operation and use of individual field and laboratory instruments is provided in Appendix H. Quality assurance and quality control (QA/QC) are discussed in Chapter 9.

Total surface activities, removable surface activities, and radionuclide concentrations in various environmental media (*e.g.*, soil, water, air) are the radiological parameters typically determined using field measurements and laboratory analyses. Certain radionuclides or radionuclide mixtures may necessitate the measurement of alpha, beta, and gamma radiations. In addition to assessing each survey unit as a whole, any small areas of elevated activity should be identified and their extent and activities determined. Due to numerous detector requirements, no single instrument (detector and readout combination) is generally capable of adequately measuring all of the parameters required to satisfy the release criterion or meet all the objectives of a survey.

Selecting instrumentation requires evaluation of both site and radionuclide specific parameters and conditions. Instruments should be stable and reliable under the environmental and physical conditions where they are used, and their physical characteristics (size and weight) should be compatible with the intended application. The instrument and measurement method should be able to detect the type of radiation of interest, and should, in relation to the survey or analytical technique, be capable of measuring levels that are less than the derived concentration guideline level (DCGL). Numerous commercial firms offer a wide variety of instruments appropriate for the radiation measurements described in this manual. These firms can provide thorough information regarding capabilities, operating characteristics, limitations, *etc.*, for specific equipment.

If the field instruments and measurement methods cannot detect radiation levels below the DCGLs, laboratory methods discussed in Chapter 7 are typically used. A discussion of detection limits and detection levels for some typical instruments is presented in Section 6.7. There are certain radionuclides that will be essentially impossible to measure at the DCGLs *in situ* using current state-of-the-art instrumentation and techniques because of the types, energies, and abundances of their radiations. Examples of such radionuclides include very low energy, pure beta emitters such as ^{3}H and ^{63}Ni and low-energy photon emitters such as ^{55}Fe and ^{125}I. Pure alpha emitters dispersed in soil or covered with some absorbing layer may not be detectable because alpha radiation will not penetrate through the media or covering to reach the detector. A

common example of such a condition would be ^{230}Th surface contamination, covered by paint, dust, oil, or moisture. NRC report NUREG-1507 (NRC 1997a) provides information on the extent to which these surface conditions may affect detection sensitivity. In circumstances such as these, the survey design will usually rely on sampling and laboratory analysis to measure residual activity levels.

6.2 Data Quality Objectives

The third step of the Data Quality Objectives (DQO) Process involves identifying the data needs for a survey. One decision that can be made at this step is the selection of direct measurements for performing a survey or deciding that sampling methods followed by laboratory analysis are necessary.

6.2.1 Identifying Data Needs

The decision maker and the survey planning team need to identify the data needs for the survey being performed, including the:

- type of measurements to be performed (Chapter 5)
- radionuclide(s) of interest (Section 4.3)
- number of direct measurements to be performed (Section 5.5.2)
- area of survey coverage for surface scans based on survey unit classification (Section 5.5.3)
- type and frequency of field QC measurements to be performed (Section 4.9)
- measurement locations and frequencies (Section 5.5.2)
- standard operating procedures (SOPs) to be followed or developed (Chapter 6)
- analytical bias and precision (*e.g.*, quantitative or qualitative) (Appendix N, Section N.6)
- target detection limits for each radionuclide of interest (Section 6.4)
- cost of the methods being evaluated (cost per measurement as well as total cost) (Appendix H)
- necessary turnaround time
- specific background for the radionuclide(s) of interest (Section 4.5)
- derived concentration guideline level (DCGL) for each radionuclide of interest (Section 4.3)
- measurement documentation requirements
- measurement tracking requirements

Some of this information will be supplied by subsequent steps in the DQO process, and several iterations of the process may be needed to identify all of the data needs. Consulting with a health physicist or radiochemist may be necessary to properly evaluate the information before deciding

between direct measurements or sampling methods to perform the survey. Many surveys will involve a combination of direct measurements and sampling methods, along with scanning techniques, to demonstrate compliance with the release criterion.

6.2.2 Data Quality Indicators

The data quality indicators identified as DQOs in Section 2.3.1 and described in Appendix N should be considered when selecting a measurement method (*i.e.*, scanning, direct measurement, sampling) or a measurement system (*e.g.*, survey instrument, human operator, and procedure for performing measurements). In some instances, the data quality indicator requirements will help in the selection of a measurement system. In other cases, the requirements of the measurement system will assist in the selection of appropriate levels for the data quality indicators.

6.2.2.1 Precision

Precision is a measure of agreement among replicate measurements of the same property, under prescribed similar conditions (ASQC 1995). Precision is determined quantitatively based on the results of replicate measurements (equations are provided in EPA 1990). The number of replicate analyses needed to determine a specified level of precision for a project is discussed in Section 4.9. Determining precision by replicating measurements with results at or near the detection limit of the measurement system is not recommended because the measurement uncertainty is usually greater than the desired level of precision. The types of replicate measurements applied to scanning and direct measurements are limited by the relatively uncomplicated measurement system (*i.e.*, the uncertainties associated with sample collection and preparation are eliminated). However, the uncertainties associated with applying a single calibration factor to a wide variety of site conditions mean these measurements are very useful for assessing data quality.

- Replicates to Measure Operator Precision. For scanning and direct measurements, replicates to measure operator precision provide an estimate of precision for the operator and the Standard Operating Procedure (SOP) or protocol used to perform the measurement. Replicates to measure operator precision are measurements performed using the same instrument at the same location, but with a different operator. Replicates to measure operator precision are usually non-blind or single-blind measurements.

- Replicates to Measure Instrument Precision. For scanning and direct measurements, replicates to measure instrument precision provide an estimate of precision for the type of instrument, the calibration, and the SOP or protocol used to perform the measurement. Replicates to measure instrument precision are measurements performed by the same operator at the same location, but with a different instrument. Replicates to measure instrument precision are usually non-blind or single-blind measurements.

For many surveys a combination of instrument and operator replicates are used to provide an estimate of overall precision for both scanning and direct measurements. Replicates of direct measurements can be compared with one another similar to the analytical results for samples. Results for scanning replicates may be obtained by stopping and recording instrument readings at specific intervals during the scanning survey (effectively performing direct measurements at specified locations). An alternative method for estimating the precision of scanning is to evaluate the effectiveness of the scanning survey for identifying areas of elevated activity. The results of scanning are usually locations that are identified for further investigation. A comparison of the areas identified by the replicate scanning surveys can be performed either quantitatively (using statistical methods) or qualitatively (using professional judgment). Because there is a necessity to evaluate whether the same number of locations were identified by both replicates as well as if the identified locations are the same, there is difficulty in developing precision as a DQO that can be evaluated.

6.2.2.2 Bias

Bias is the systematic or persistent distortion of a measurement process that causes error in one direction (EPA 1997a). Bias is determined quantitatively based on the measurement of materials with a known concentration. There are several types of materials with known concentrations that may be used to determine bias for scans and direct measurements.

- Reference Material. Reference material is a material or substance one or more of whose property values are sufficiently homogeneous and well established to be used for the calibration of an apparatus, the assessment of a measurement method, or for assigning values to materials (ISO 1993). A certified reference material is reference material for which each certified property value is accompanied by an uncertainty at a stated level of confidence. Radioactive reference materials may be available for certain radionuclides in soil (*e.g.*, uranium in soil), but reference building materials may not be available. Because reference materials are prepared and homogenized as part of the certification process, they are rarely available as double-blind samples. When appropriate reference materials are available (*i.e.*, proper matrix, proper radionuclide, proper concentration range) they are recommended for use in determining the overall bias for a measurement system. For scanning and direct measurements a known amount of reference material is sealed in a known geometry. This known material is measured in the field using a specified protocol (*e.g.*, specified measurement time at a specified distance from the reference material) to evaluate the performance of the instrument only.

- Performance Evaluation (PE) Samples. PE samples are used to evaluate the bias of the instrument and detect any error in the instrument calibration. These samples are usually prepared by a third party, using a quantity of analyte(s) which is known to the preparer but unknown to the operator, and always undergo certification analysis. The analyte(s)

used to prepare the PE sample is the same as the analyte(s) of interest (EPA 1991g). PE samples are recommended for use in determining bias for a measurement system when appropriate reference materials are not available. PE samples are equivalent to matrix spikes prepared by a third party that undergo certification analysis and can be non-blind or single-blind when used to measure bias for scanning and direct measurements.

- Matrix Spike Samples. Matrix spike samples are environmental samples that are spiked in the laboratory with a known concentration of a target analyte(s) to verify percent recoveries. They are primarily used to check sample matrix interferences but can also be used in the field to monitor instrument performance (EPA 1991g). Matrix Spike samples are often replicated to monitor a method's performance and evaluate bias and precision (when four or more pairs are analyzed). These replicates are often collectively referred to as a matrix spike/matrix spike duplicate (MS/MSD).

- Calibration Checks. Calibration checks are measurements performed to verify instrument performance each time an instrument is used (see Section 6.5.4). These checks may be qualitative or quantitative. Operators use qualitative checks to determine if an instrument is operating properly and can be used to perform measurements. Quantitative calibration checks require a specified protocol to measure a calibration source with a known instrument response, and the results are documented to provide a record of instrument precision and bias. The results of quantitative calibration checks are typically recorded on a control chart (see Section 6.2.2.7). Note that the calibration check source does not need to be traceable for qualitative or quantitative calibration checks as long as the instrument response has been adequately established (see Section 6.5.4). Because calibration checks are non-blind measurements they are only recommended when other types of QC measurements are not available.

Quality control measurements can also be used to estimate bias caused by contamination.

- Background Measurement. A background measurement is a measurement performed upgradient of the area of potential contamination (either onsite or offsite) where there is little or no chance of migration of the contaminants of concern (EPA 1991g). Background measurements are performed in the background reference area (Section 4.5), determine the natural composition and variability of the material of interest (especially important in areas with high concentrations of naturally occurring radionuclides), and are considered "clean." They provide a basis for comparison of contaminant concentration levels with measurements performed in the survey unit when the statistical tests described in Chapter 8 are performed.

- Measurement Blanks. Measurement blanks are samples prepared in the laboratory using certified clean sand or soil and brought to the field to monitor contamination for scanning and direct measurements. A measurement blank is used to evaluate contamination error associated with the instrument used to perform measurements in the field. Measurement blanks are recommended for determining bias resulting from contamination of instruments used for scanning and direct measurements.

6.2.2.3 Representativeness

Representativeness is a measure of the degree to which data accurately and precisely represent a characteristic of a population parameter at a sampling point (ASQC 1995) or measurement location. Representativeness is a qualitative term that is reflected in the survey design through the selection of a measurement method (*e.g.*, direct measurement or sampling).

Sample collection and analysis is typically less representative of true radionuclide concentrations at a specific measurement location than performing a direct measurement. This is caused by the additional steps required in collecting and analyzing samples, such as sample collection, field sample preparation, laboratory sample preparation, and radiochemical analysis. However, direct measurement techniques with acceptable detection limits are not always available. The location of the direct measurement is determined in Section 5.5.2.5, where random and systematic survey designs are selected based on survey unit classification. The coverage for a survey unit using scanning techniques is discussed in Section 5.5.3 and is also based primarily on survey unit classification. Because scanning locations are often selected based on professional judgment for survey units with less than 100% coverage, representativeness of these locations may be a concern. For both scanning and direct measurements the measurement locations and method for performing the measurements should be compared to the modeling assumptions used to develop the DCGLs.

6.2.2.4 Comparability

Comparability is a qualitative term that expresses the confidence that two data sets can contribute to a common analysis and interpolation. Generally, comparability is provided by using the same measurement system for all analyses of a specific radionuclide. Comparability is usually not an issue except in cases where historical data has been collected and is being compared to current analytical results, or when multiple laboratories are used to provide results as part of a single survey design.

6.2.2.5 Completeness

Completeness is a measure of the amount of valid data obtained from the measurement system. This is expressed as a percentage of the number of valid measurements that should have been

collected. Completeness is of greater concern for laboratory analyses than for direct measurements because the consequences of incomplete data often require the collection of additional data. Completeness is a concern for scanning only if the scanning results are invalidated for some reason. Direct measurements and scans can usually be repeated fairly easily while the personnel performing the measurements are still in the field. For this reason MARSSIM strongly recommends that scanning and direct measurement results be evaluated as soon as possible. Direct measurements performed on a systematic grid to locate areas of elevated activity are also a concern for completeness. If one direct measurement result is not valid, the entire survey design for locating areas of elevated activity may be invalidated.

6.2.2.6 Other Data Quality Indicators

Several additional data quality indicators that influence the final status survey design are identified as DQOs in Section 2.3.1. Many of these (*e.g.*, selection and classification of survey units, decision error rates, variability in the contaminant concentration, lower bound of the gray region) are used to determine the number of measurements and are discussed in detail in Section 5.5.2. The method detection limit is directly related to the selection of a measurement method and a specific measurement system.

Scanning and direct measurement techniques should be capable of measuring levels below the established DCGLs— detection limits of 10-50% of the DCGL should be the target (see Section 6.7). Cost, time, best available technology, or other constraints may create situations where the above stated sensitivities are deemed impractical. Under these circumstances, higher detection sensitivities may be acceptable. Although service providers and instrument manufacturers will state detection limits, these sensitivities are usually based on ideal or optimistic situations and may not be achievable under site-specific measurement conditions. Detection limits are subject to variation from measurement to measurement, instrument to instrument, operator to operator, and procedure to procedure. This variation depends on geometry, background, instrument calibration, abundance of the radiations being measured, counting time, operator training, operator experience, self-absorption in the medium being measured, and interferences from radionuclides or other materials present in the medium. The detection limit that is achievable in practice should not exceed the DCGL.

6.2.2.7 Using Control Charts to Provide Control of Field Measurement Systems

Control charts are commonly used in radioanalytical laboratories to monitor the performance of laboratory instruments. Control charts are also useful for monitoring the performance of field instruments and can be used to help control field measurement systems.

A control chart is a graphical plot of measurement results with respect to time or sequence of measurement, together with limits within in which the measurement values are expected to lie

when the system is in a state of statistical control (DOE 1995). Calibration check results are typically plotted on control charts for field measurements. However, control charts may be developed for any measurements where the expected performance is established and documented. A separate set of control charts for monitoring each type of measurement (*e.g.*, calibration check, background, measurement of PE samples) should be developed for each instrument.

The control chart is constructed by preparing a graph showing the arithmetic mean and the control limits as horizontal lines. The recommended control limits are two standard deviations above and below the mean, and three standard deviations above and below the mean. The measurement results in the appropriate units are shown on the y-axis and time or sequence is plotted using the x-axis. Detailed guidance on the development and use of control charts is available in *Quality Assurance of Chemical Measurements* (Taylor 1987) and *Statistical Methods for Quality Improvement* (Kume 1985).

As the quality control or other measurements are performed, the results are entered on the control chart. If the results are outside the control limits or show a particular trend or tendency, then the process is not in control. The control chart documents the performance of the measurement system during the time period of interest.

Quality control measurements for field instruments may be difficult or expensive to obtain for some surveys. In these cases control charts documenting instrument performance may represent the only determination of precision and bias for the survey. Because control charts are non-blind measurements they are generally not appropriate for estimating precision and bias. However, the control chart documents the performance of the field instruments. Provided the checks for precision and bias fall within the control limits, the results obtained using that instrument should be acceptable for the survey.

6.3 Selecting a Service Provider to Perform Field Data Collection Activities

One of the first steps in designing a survey is to select a service provider to perform field data collection activities. MARSSIM recommends that this selection take place early in the planning process so that the service provider can provide information during survey planning and participate in the design of the survey. Service providers may include in-house experts in field measurements and sample collection, health physics companies, or environmental engineering firms among others.

When the service provider is not part of the organization responsible for the site, these services are obtained using some form of procurement mechanism. Examples of procurement mechanisms include purchase orders or contracts. A graded approach should be used in determining the appropriate method for procuring services.

Potential service providers should be evaluated to determine their ability to perform the necessary analyses. For large or complex sites, this evaluation may take the form of a pre-award audit. The results of this audit provide a written record of the decision to use a specific service provider. For less complex sites or facilities, a review of the potential service provider's qualifications is sufficient for the evaluation.

There are six criteria that should be reviewed during this evaluation:

- Does the service provider possess the validated Standard Operating Procedures (SOPs), appropriate instrumentation, and trained personnel necessary to perform the field data collection activities? Field data collection activities (e.g., scanning surveys, direct measurements, and sample collection) are defined by the data needs identified by the DQO process.
- Is the service provider experienced in performing the same or similar data collection activities?
- Does the service provider have satisfactory performance evaluation or technical review results? The service provider should be able to provide a summary of QA audits and QC measurement results to demonstrate proficiency. Equipment calibrations should be performed using National Institute of Standards and Technology (NIST) traceable reference radionuclide standards whenever possible.
- Is there an adequate capacity to perform all field data collection activities within the desired timeframe? This criterion considers the number of trained personnel and quantity of calibrated equipment available to perform the specified tasks.
- Does the service provider conduct an internal quality control review of all generated data that is independent of the data generators?
- Are there adequate protocols for method performance documentation, sample tracking and security (if necessary), and documentation of results?

Potential service providers should have an active and fully documented quality system in place.[1] This system should enable compliance with the objectives determined by the DQO process in Section 2.3 and Appendix D (see EPA 1994c). The elements of a quality management system are discussed in Section 9.1 (ASQC 1995, EPA 1994f).

[1] The quality management system is typically documented in one or more documents such as a Quality Management Plan (QMP) or Quality Assurance Manual (QAM). A description of quality systems is included in Section 9.1.

6.4 Measurement Methods

Measurement methods used to generate field data can be classified into two categories commonly known as scanning surveys and direct measurements. The decision to use a measurement method as part of the survey design is determined by the survey objectives and the survey unit classification. Scanning is performed to identify areas of elevated activity that may not be detected by other measurement methods. Direct measurements are analogous to collecting and analyzing samples to determine the average activity in a survey unit. Section 5.5.3 discusses combining scans and direct measurements in an integrated survey design.

6.4.1 Direct Measurements

To conduct direct measurements of alpha, beta, and photon surface activity, instruments and techniques providing the required detection sensitivity are selected. The type of instrument and method of performing the direct measurement are selected as dictated by the type of potential contamination present, the measurement sensitivity requirements, and the objectives of the radiological survey. Direct measurements are taken by placing the instrument at the appropriate distance[2] above the surface, taking a discrete measurement for a pre-determined time interval (*e.g.*, 10 s, 60 s, *etc.*), and recording the reading. A one minute integrated count technique is a practical field survey procedure for most equipment and provides detection sensitivities that are below most DCGLs. However, longer or shorter integrating times may be warranted (see Section 6.7.1 for information dealing with the calculation of direct measurement detection sensitivities).

Direct measurements may be collected at random locations in the survey unit. Alternatively, direct measurements may be collected at systematic locations and supplement scanning surveys for the identification of small areas of elevated activity (see Section 5.5.2.5). Direct measurements may also be collected at locations identified by scanning surveys as part of an investigation to determine the source of the elevated instrument response. Professional judgment may also be used to identify location for direct measurements to further define the areal extent of contamination and to determine maximum radiation levels within an area, although these types of direct measurements are usually associated with preliminary surveys (*i.e.*, scoping, characterization, remedial action support). All direct measurement locations and results should be documented.

[2] Measurements at several distances may be needed. Near-surface or surface measurements provide the best indication of the size of the contaminated region and are useful for model implementation. Gamma measurements at 1 m provide a good estimate of potential direct external exposure.

If the equipment and methodology used for scanning is capable of providing data of the same quality required for direct measurement (*e.g.*, detection limit, location of measurements, ability to record and document results), then scanning may be used in place of direct measurements. Results should be documented for at least the number of locations required for the statistical tests. In addition, some direct measurement systems may be able to provide scanning data, provided they meet the objectives of the scanning survey.

The following sections briefly describe methods used to perform direct measurements in the field. The instruments used to perform these measurements are described in more detail in Section 6.5.3 and Appendix H.

6.4.1.1 Direct Measurements for Photon Emitting Radionuclides

There are a wide variety of instruments available for measuring photons in the field (see Appendix H) but all of them are used in essentially the same way. The detector is set up at a specified distance from the surface being measured and data are collected for a specified period of time. The distance from the surface to the detector is generally determined by the calibration of the instrument because photons do not interact appreciably with air. When measuring x-rays or low-energy gamma rays, the detector is often placed closer to the surface to increase the counting efficiency. The time required to perform a direct measurement may vary from very short (*e.g.*, 10 seconds) to very long (*e.g.*, several days or weeks) depending on the type of detector and the required detection limit. In general, the lower the required detection limit the longer the time required to perform the measurement. A collimator may be used in areas where activity from adjacent or nearby areas might interfere with the direct measurement. The collimator (usually lead, tungsten, or steel) shields the detector from extraneous photons but allows activity from a specified area of the surface to reach the detector.

Example:

The portable germanium detector, or *in situ* gamma spectrometer, can be used to estimate gamma-emitting radionuclide concentrations in the field. As with the laboratory-based germanium detector with multichannel analyzer, *in situ* gamma spectrometry can discriminate among various radionuclides on the basis of characteristic gamma and x-ray energies to provide a nuclide-specific measurement. A calibrated detector measures the fluence rate of primary photons at specific energies that are characteristic of a particular radionuclide (NRC 1995b). This fluence rate can then be converted to units of concentration. Under certain conditions the fluence rate may be converted directly to dose or risk for a direct comparison to the release criterion rather than to the $DCGL_W$. Although this conversion is generally made, the fluence rate should be considered the fundamental parameter for assessing the level of radiation at a specific location because it is a directly measurable physical quantity.

For outdoor measurements, where the contaminant is believed to be distributed within the surface soil, it may be appropriate to assume a uniform depth profile when converting the fluence rate to a concentration. At sites where the soil is plowed or overturned regularly, this assumption is quite realistic because of the effects of homogenization. At sites where the activity was initially deposited on the surface and has gradually penetrated deeper over time, the actual depth profile will have a higher activity at the surface and gradually diminish with depth. In this case, the assumption of a uniform depth profile will estimate a higher radionuclide concentration relative to the average concentration over that depth. In cases where there is an inverted depth profile (*i.e.*, low concentration at the surface that increase with depth), the assumption of a uniform depth profile will underestimate the average radionuclide concentration over that depth. For this reason, MARSSIM recommends that soil cores be collected to determine the actual depth profile for the site. These soil cores may be collected during the characterization or remedial action support survey to establish a depth profile for planning a final status survey. The cores may also be collected during the final status survey to verify the assumptions used to develop the fluence-to-concentration correction.

For indoor measurements, uncollimated *in situ* measurements can provide useful information on the low-level average activity across an entire room. The position of the measurement within the room is not critical if the radionuclide of interest is not present in the building materials. A measurement of peak count rate can be converted to fluence rate, which can in turn be related to the average surface activity. The absence of a discernible peak would mean that residual activity could not exceed a certain average level. However, this method will not easily locate small areas of elevated activity. For situations where the activity is not uniformly distributed on the surface, a series of collimated measurements using a systematic grid allows the operator to identify general areas of elevated contamination.

The NRC draft report *Measurement Methods for Radiological Surveys in Support of New Decommissioning Criteria* (NRC 1995b) provides a detailed description of the theory and implementation of *in situ* gamma spectrometry. *In situ* spectrometry is provided as one example of a useful tool for performing direct measurements for particular scenarios, but interpretation of the instrument output in terms of radionuclide distributions is dependent on the assumptions used to calibrate the method site-specifically. The depth of treatment of this technique in this example is not meant to imply that *in situ* gamma spectrometry is preferred *a priori* over other appropriate measurement techniques described in this manual.

6.4.1.2 Direct Measurements for Alpha Emitting Radionuclides

Direct measurements for alpha-emitting radionuclides are generally performed by placing the detector on or near the surface to be measured. The limited range of alpha particles (*e.g.*, about 1 cm or 0.4 in. in air, less in denser material) means that these measurements are generally restricted to relatively smooth, impermeable surfaces such as concrete, metal, or drywall where the activity is present as surface contamination. In most cases, direct measurements of porous (*e.g.*, wood) and volumetric (*e.g.*, soil, water) material cannot meet the objectives of the survey. However, special instruments such as the long range alpha detector (see Appendix H) have been developed to measure the concentration of alpha emitting radionuclides in soil under certain conditions. Because the detector is used in close proximity to the potentially contaminated surface, contamination of the detector or damage to the detector caused by irregular surfaces need to be considered before performing direct measurements for alpha emitters.

6.4.1.3 Direct Measurements for Beta Emitting Radionuclides

Direct measurements for beta emitting radionuclides are generally performed by placing the detector on or near the surface to be measured, similar to measurements for alpha emitting radionuclides. These measurements are typically restricted to relatively smooth, impermeable surfaces where the activity is present as surface contamination. In most cases, direct measurements of porous (*e.g.*, wood) and volumetric (*e.g.*, soil, water) material cannot meet the objectives of the survey. However, special instruments such as large area gas-flow proportional counters (see Appendix H) and arrays of beta scintillators have been developed to measure the concentration of beta emitting radionuclides in soil under certain conditions. Similar to direct measurements for alpha emitting radionuclides, contamination of the detector and damage to the detector need to be considered before performing direct measurements for beta emitters.

6.4.2 Scanning Surveys

Scanning is the process by which the operator uses portable radiation detection instruments to detect the presence of radionuclides on a specific surface (*i.e.*, ground, wall, floor, equipment). The term scanning survey is used to describe the process of moving portable radiation detectors across a suspect surface with the intent of locating radionuclide contamination. Investigation levels for scanning surveys are determined during survey planning to identify areas of elevated activity. Scanning surveys are performed to locate radiation anomalies indicating residual gross activity that may require further investigation or action. These investigation levels may be based on the $DCGL_W$, the $DCGL_{EMC}$, or some other level as discussed in Section 5.5.2.6.

Small areas of elevated activity typically represent a small portion of the site or survey unit. Thus, random or systematic direct measurements or sampling on the commonly used grid spacing may have a low probability of identifying such small areas. Scanning surveys are often relatively quick and inexpensive to perform. For these reasons, scanning surveys are typically performed before direct measurements or sampling. This way time is not spent fully evaluating an area that may quickly prove to be contaminated above the investigation level during the scanning process. Scans are conducted which would be indicative of all radionuclides potentially present, based on the Historical Site Assessment, surfaces to be surveyed, and survey design objectives. Surrogate measurements may be utilized where appropriate (see Section 4.3.2). Documenting scanning results and observations from the field is very important. For example, a scan that identified relatively sharp increases in instrument response or identified the boundary of an area of increased instrument response should be documented. This information is useful when interpreting survey results.

The following sections briefly describe techniques used to perform scanning surveys for different types of radiation. The instruments used to perform these measurements are described in more detail in Section 6.5.3 and Appendix H.

6.4.2.1 Scanning for Photon Emitting Radionuclides

Sodium iodide survey meters (NaI(Tl) detectors) are normally used for scanning areas for gamma emitters because they are very sensitive to gamma radiation, easily portable and relatively inexpensive. The detector is held close to the ground surface (~6 cm or 2.5 in.) and moved in a serpentine (*i.e.*, snake like, "S" shaped) pattern while walking at a speed that allows the investigator to detect the desired investigation level. A scan rate of approximately 0.5 m/s is typically used for distributed gamma emitting contaminants in soil; however, this rate must be adjusted depending on the expected detector response and the desired investigation level. Discussion of scanning rates versus detection sensitivity for gamma emitters is provided in Section 6.7.2.1.

Sodium iodide survey meters are also used for scanning to detect areas with elevated areas of low-energy gamma and x-ray emitting radionuclides such as ^{241}Am and ^{239}Pu. Specially designed detectors, such as the FIDLER (field instrument for the detection of low energy radiation) probe with survey meter, are typically used to detect these types of radionuclides.

6.4.2.2 Scanning for Alpha Emitting Radionuclides

Alpha scintillation survey meters and thin window gas-flow proportional counters are typically used for performing alpha surveys. Alpha radiation has a very limited range and, therefore, instrumentation must be kept close to the surface—usually less than 1 cm (0.4 in.). For this reason, alpha scans are generally performed on relatively smooth, impermeable surfaces (*e.g.*,

concrete, metal, drywall) and not on porous material (*e.g.*, wood) or for volumetric contamination (*e.g.*, soil, water). In most cases, porous and volumetric contamination cannot be detected by scanning for alpha activity and meet the objectives of the survey because of high detection sensitivities. Under these circumstances, samples of the material are usually collected and analyzed as discussed in Chapter 7. Determining scan rates when surveying for alpha emitters is discussed in Section 6.7.2.2 and Appendix J.

6.4.2.3 Scanning for Beta Emitting Radionuclides

Thin window gas-flow proportional counters are normally used when surveying for beta emitters, although solid scintillators designed for this purpose are also available. Typically, the beta detector is held less than 2 cm from the surface and moved at a rate such that the desired investigation level can be detected. Low-energy (<100 keV) beta emitters are subject to the same interferences and self-absorption problems found with alpha emitting radionuclides, and scans for these radionuclides are performed under similar circumstances. Determination of scan rates when surveying for beta emitters is discussed in Section 6.7.2.1.

6.5 Radiation Detection Instrumentation

Traditional radiation instruments consist of two components: 1) a radiation detector, and 2) electronic equipment to provide power to the detector and to display or record radiation events. This section identifies and very briefly describes the types of radiation detectors and associated display or recording equipment that are applicable to survey activities in support of environmental assessment or remedial action. Each survey usually requires performing direct field measurements using portable instrumentation and collection of samples for laboratory analysis. The selection and proper use of appropriate instruments for both direct measurements and laboratory analyses will likely be the most critical factors in assuring that the survey accurately determines the radiological status of a site and meets the survey objectives. Chapter 7 provides specific information on laboratory analysis of collected samples. Appendix H contains instrument specific information for various types of field survey and laboratory analysis equipment currently in use.

6.5.1 Radiation Detectors

The particular capabilities of a radiation detector will establish its potential applications in conducting a specific type of survey. Radiation detectors can be divided into four general classes based on the detector material or the application. These categories are: 1) gas-filled detectors, 2) scintillation detectors, 3) solid-state detectors, and 4) passive integrating detectors.

6.5.1.1 Gas-Filled Detectors

Radiation interacts with the fill gas, producing ion-pairs that are collected by charged electrodes. Commonly used gas-filled detectors are categorized as ionization, proportional, or Geiger-Mueller (GM), referring to the region of gas amplification in which they are operated. The fill gas varies, but the most common are: 1) air, 2) argon with a small amount of organic methane (usually 10% methane by mass, referred to as P-10 gas), and 3) argon or helium with a small amount of a halogen such as chlorine or bromine added as a quenching agent.

6.5.1.2 Scintillation Detectors

Radiation interacts with a solid or liquid medium causing electronic transitions to excited states in a luminescent material. The excited states decay rapidly, emitting photons that in turn are captured by a photomultiplier tube. The ensuing electrical signal is proportional to the scintillator light output, which, under the right conditions, is proportional to the energy loss that produced the scintillation. The most common scintillant materials are NaI(Tl), ZnS(Ag), Cd(Te), and CsI(Tl) which are used in traditional radiation survey instruments such as the NaI(Tl) detector used for gamma surveys and the ZnS(Ag) detector for alpha surveys.

6.5.1.3 Solid-State Detectors

Radiation interacting with a semiconductor material creates electron-hole pairs that are collected by a charged electrode. The design and operating conditions of a specific solid-state detector determines the types of radiations (alpha, beta, and/or gamma) that can be measured, the detection level of the measurements, and the ability of the detector to resolve the energies of the interacting radiations. The semiconductor materials currently being used are germanium and silicon which are available in both n and p types in various configurations.

Spectrometric techniques using these detectors provide a marked increase in sensitivity in many situations. When a particular radionuclide contributes only a fraction of the total particle fluence or photon fluence, or both, from all sources (natural or manmade background), gross measurements are inadequate and nuclide-specific measurements are necessary. Spectrometry provides the means to discriminate among various radionuclides on the basis of characteristic energies. *In-situ* gamma spectrometry is particularly effective in field measurements since the penetrating nature of the radiation allows one to "see" beyond immediate surface contamination. The availability of large, high efficiency germanium detectors permits measurement of low abundance gamma emitters such as ^{238}U as well as low energy emitters such as ^{241}Am and ^{239}Pu.

6.5.1.4 Passive Integrating Detectors

There is an additional class of instruments that consists of passive, integrating detectors and associated reading/analyzing instruments. The integrated ionization is read using a laboratory or hand-held reader. This class includes thermoluminescence dosimeters (TLDs) and electret ion chambers (EICs). Because these detectors are passive and can be exposed for relatively long periods of time, they can provide better sensitivity for measuring low activity levels such as free release limits or for continuing surveillance. The ability to read and present data onsite is a useful feature and such systems are comparable to direct reading instruments.

The scintillation materials in Section 6.5.1.2 are selected for their prompt fluorescence characteristics. In another class of inorganic crystals, called TLDs, the crystal material and impurities are chosen so that the free electrons and holes created following the absorption of energy from the radiation are trapped by impurities in the crystalline lattice thus locking the excitation energy in the crystal. Such materials are used as passive, integrating detectors. After removal from the exposure area, the TLDs are heated in a reader which measures the total amount of light produced when the energy is released. The total amount of light is proportional to the number of trapped, excited electrons, which in turn is proportional to the amount of energy absorbed from the radiation. The intensity of the light emitted from the thermoluminescent crystals is thus directly proportional to the radiation dose. TLDs come in a large number of materials, the most common of which are LiF, CaF_2:Mn, CaF_2:Dy, $CaSO_4$:Mn, $CaSO_4$:Dy, Al_2O_3:C.

The electret ion chamber consists of a very stable electret (a charged Teflon® disk) mounted inside a small chamber made of electrically charged plastic. The ions produced inside this air filled chamber are collected onto the electret, causing a reduction of its surface charge. The reduction in charge is a function of the total ionization during a specific monitoring period and the specific chamber volume. This change in voltage is measured with a surface potential voltmeter.

6.5.2 Display and Recording Equipment

Radiation detectors are connected to electronic devices to 1) provide a source of power for detector operation, and 2) enable measurement of the quantity and/or quality of the radiation interactions that are occurring in the detector. The quality of the radiation interaction refers to the amount of energy transferred to the detector. In many cases, radiation interacts with other material (*e.g.*, air) prior to interacting with the detector, or only partially interacts with the detector (*e.g.*, Compton scattering for photons). Because the energy recorded by the detector is affected, there is an increased probability of incorrectly identifying the radionuclide.

The most common recording or display device used for portable radiation measurement systems is a ratemeter. This device provides a display on an analog meter representing the number of events occurring over some time period (*e.g.*, counts per minute). Digital ratemeters are also commercially available. The number of events can also be accumulated over a preset time period using a digital scaling device. The resulting information from a scaling device is the total number of events that occurred over a fixed period of time, where a ratemeter display varies with time and represents a short term average of the event rate. Determining the average level on a ratemeter will require judgment by the user, especially when a low frequency of events results in significant variations in the meter reading.

Pulse height analyzers are specialized electronic devices designed to measure and record the number of pulses or events that occur at different pulse height levels. These types of devices are used with detectors which produce output pulses that are proportional in height to the energy deposited within them by the interacting radiation. They can be used to record only those events occurring in a detector within a single band of energy or can simultaneously record the events in multiple energy ranges. In the former case, the equipment is known as a single-channel analyzer; the latter application is referred to as a multichannel analyzer.

6.5.3 Instrument Selection

Radiation survey parameters that might be needed for site release purposes include surface activities, exposure rates, and radionuclide concentrations in soil. To determine these parameters, field measurements and laboratory analyses may be necessary. For certain radionuclides or radionuclide mixtures, both alpha and beta radiations may have to be measured. In addition to assessing average radiological conditions, the survey objectives should address identifying small areas of elevated activity and determining the extent and level of residual radioactivity.

Additionally, the potential uses of radiation instruments can vary significantly depending on the specific design and operating criteria of a given detector type. For example, a NaI(Tl) scintillator can be designed to be very thin with a low atomic number entrance window (*e.g.*, beryllium) such that the effective detection capability for low energy photons is optimized. Conversely, the same scintillant material can be fabricated as a thick cylinder in order to optimize the detection probability for higher energy photons. On the recording end of a detection system, the output could be a ratemeter, scaler, or multichannel analyzer as described in Section 6.5.2. Operator variables such as training and level of experience with specific instruments should also be considered.

With so many variables, it is highly unlikely that any single instrument (detector and readout combination) will be capable of adequately measuring all of the radiological parameters necessary to demonstrate that criteria for release have been satisfied. It is usually necessary to select multiple instruments to perform the variety of measurements required.

Selection of instruments will require an evaluation of a number of situations and conditions. Instruments must be stable and reliable under the environmental and physical conditions where they will be used, and their physical characteristics (size and weight) should be compatible with the intended application. The instrument must be able to detect the type of radiation of interest, and the measurement system should be capable of measuring levels that are less than the DCGL (see Section 6.7).

For gamma radiation scanning, a scintillation detector/ratemeter combination is the usual instrument of choice. A large-area proportional detector with a ratemeter is recommended for scanning for alpha and beta radiations where surface conditions and locations permit; otherwise, an alpha scintillation or thin-window GM detector (for beta surveys) may be used.

For direct gamma measurements, a pressurized ionization chamber or *in-situ* gamma spectroscopy system is recommended. As an option, a NaI(Tl) scintillation detector may be used if cross-calibrated to a pressurized ion chamber or calibrated for the specific energy of interest. The same alpha and beta detectors identified above for scanning surveys are also recommended for use in direct measurements.

There are certain radionuclides that, because of the types, energies, and abundances of their radiations, will be essentially impossible to measure at the guideline levels, under field conditions, using state-of-the-art instrumentation and techniques. Examples of such radionuclides include very low energy pure beta emitters, such as ^{3}H and ^{63}Ni, and low energy photon emitters, such as ^{55}Fe and ^{125}I. Pure alpha emitters dispersed in soil or covered with some absorbing layer will not be detectable because the alpha radiation will not penetrate through the media or covering to reach the detector. A common example of such a condition would be ^{230}Th surface contamination covered by paint, dust, oil, or moisture. In such circumstances, sampling and laboratory analysis would be required to measure the residual activity levels unless surrogate radionuclides are present as discussed in Section 4.3.2.

The number of possible design and operating schemes for each of the different types of detectors is too large to discuss in detail within the context of this document. For a general overview, lists of common radiation detectors along with their usual applications during surveys are provided in Tables 6.1 through 6.3. Appendix H contains specific information for various types of field survey and laboratory analysis equipment currently in use. Continual development of new technologies will result in changes to these listings.

Table 6.1 Radiation Detectors with Applications to Alpha Surveys

Detector Type	Detector Description	Application	Remarks
Gas Proportional	<1 mg/cm^2 window; probe area 50 to 1000 cm^2 <0.1 mg/cm^2 window; probe area 10 to 20 cm^2 No window (internal proportional)	Surface scanning; surface contamination measurement Laboratory measurement of water, air, and smear samples Laboratory measurement of water, air, and smear samples	Requires a supply of appropriate fill gas
Air Proportional	<1 mg/cm^2 window; probe area ~50 cm^2	Useful in low humidity conditions	
Scintillation	ZnS(Ag) scintillator; probe area 50 to 100 cm^2 ZnS(Ag) scintillator; probe area 10 to 20 cm^2 Liquid scintillation cocktail containing sample	Surface contamination measurements, smears Laboratory measurement of water, air, and smear samples Laboratory analysis, spectrometry capabilities	
Solid State	Silicon surface barrier detector	Laboratory analysis by alpha spectrometry	
Passive, integrating electret ion chamber	<0.8 mg/cm^2 window, also window-less, window area 50-180 cm^2, chamber volume 50-1,000 ml	Contamination on surfaces, in pipes and in soils	Useable in high humidity and temperature

6.5.4 Instrument Calibration

Calibration refers to the determination and adjustment of the instrument response in a particular radiation field of known intensity. Proper calibration procedures are an essential requisite toward providing confidence in measurements made to demonstrate compliance with cleanup criteria. Certain factors, such as energy dependence and environmental conditions, require consideration in the calibration process, depending on the conditions of use of the instrument in the field. Routine calibration of radiation detection instruments refers to calibration for normal use under typical field conditions. Considerations for the use and calibration of instruments include:

Table 6.2 Radiation Detectors with Applications to Beta Surveys

Detector Type	Detector Description	Application	Remarks
Gas Proportional	<1 mg/cm^2 window; probe area 50 to 1,000 cm^2	Surface scanning; surface contamination measurement	Requires a supply of appropriate fill gas
	<0.1 mg/cm^2 window; probe area 10 to 20 cm^2	Laboratory measurement of water, air, smear, and other samples	
	No window (internal proportional)	Laboratory measurement of water, air, smear, and other samples	Can be used for measuring very low-energy betas
Ionization (non-pressurized)	1-7 mg/cm^2 window	Contamination measurements; skin dose rate estimates	
Geiger-Mueller	<2 mg/cm^2 window; probe area 10 to 100 cm^2	Surface scanning; contamination measurements; laboratory analyses	
	Various window thickness; few cm^2 probe face	Special scanning applications	
Scintillation	Liquid scintillation cocktail containing sample	Laboratory analysis; spectrometry capabilities	
	Plastic scintillator	Contamination measurements	
Passive, integrating electret ion chamber	7 mg/cm^2 window, also window-less, window area 50-180 cm^2, chamber volume 50-1,000 ml	Low energy beta including H-3 contamination on surfaces and in pipes	Useable in high humidity and temperature

- use of the instrument for radiation of the type for which the instrument is designed
- use of the instrument for radiation energies within the range of energies for which the instrument is designed
- use under environmental conditions for which the instrument is designed
- use under influencing factors, such as magnetic and electrostatic fields, for which the instrument is designed
- use of the instrument in an orientation such that geotropic effects are not a concern
- use of the instrument in a manner that will not subject the instrument to mechanical or thermal stress beyond that for which it is designed

Table 6.3 Radiation Detectors with Applications to Gamma Surveys

Detector Type	Detector Description	Application	Remarks
Gas Ionization	Pressurized ionization chamber; Non-pressurized ionization chamber	Exposure rate measurements	
Geiger-Mueller	Pancake (<2 mg/cm^2 window) or side window (~30 mg/cm^2)	Surface scanning; exposure rate correlation (side window in closed position)	Low relative sensitivity to gamma radiation
Scintillation	NaI(Tl) scintillator; up to 5 cm by 5 cm	Surface scanning; exposure rate correlation	High sensitivity; Cross calibrate with PIC (or equivalent) or for specific site gamma energy mixture for exposure rate measurements.
	NaI(Tl) scintillator; large volume and "well" configurations	Laboratory gamma spectrometry	
	CsI or NaI(Tl) scintillator; thin crystal	Scanning; low-energy gamma and x-rays	Detection of low-energy radiation
	Organic tissue equivalent (plastics)	Dose equivalent rate measurements	
Solid State	Germanium semi-conductor	Laboratory and field gamma spectrometry and spectroscopy	
Passive, integrating electret ion chamber	7 mg/cm^2 window, also window-less, window area 50-180 cm^2, chamber volume 50-1,000 ml		Useable in high humidity and temperature

Routine calibration commonly involves the use of one or more sources of a specific radiation type and energy, and of sufficient activity to provide adequate field intensities for calibration on all ranges of concern.

Actual field conditions under which the radiation detection instrument will be used may differ significantly from those present during routine calibration. Factors which may affect calibration validity include:

- the energies of radioactive sources used for routine calibration may differ significantly from those of radionuclides in the field
- the source-detector geometry (*e.g.*, point source or large area distributed source) used for routine calibration may be different than that found in the field
- the source-to-detector distance typically used for routine calibration may not always be achievable in the field
- the condition and composition of the surface being monitored (*e.g.*, sealed concrete, scabbled concrete, carbon steel, stainless steel, and wood) and the presence of overlaying material (*e.g.*, water, dust, oil, paint) may result in a decreased instrument response relative to that observed during routine calibration

If the actual field conditions differ significantly from the calibration assumptions, a special calibration for specific field conditions may be required. Such an extensive calibration need only be done once to determine the effects of the range of field conditions that may be encountered at the site. If responses under routine calibration conditions and proposed use conditions are significantly different, a correction factor or chart should be supplied with the instrument for use under the proposed conditions.

As a minimum, each measurement system (detector/readout combination) should be calibrated annually and response checked with a source following calibration (ANSI 1996). Instruments may require more frequent calibration if recommended by the manufacturer. Re-calibration of field instruments is also required if an instrument fails a performance check or if it has undergone repair or any modification that could affect its response.

The user may decide to perform calibrations following industry recognized procedures (ANSI 1996b, DOE Order 5484.1, NCRP 1978, NCRP 1985, NCRP 1991, ISO 1988, HPS 1994a, HPS 1994b), or the user can choose to obtain calibration by an outside service, such as a major instrument manufacturer or a health physics services organization.

Calibration sources should be traceable to the National Institute of Standards and Technology (NIST). Where NIST traceable standards are not available, standards obtained from an industry recognized organization (*e.g.*, the New Brunswick Laboratory for various uranium standards) may be used.

Calibration of instruments for measurement of surface contamination should be performed such that a direct instrument response can be accurately converted to the 4π (total) emission rate from the source. An accurate determination of activity from a measurement of count rate above a surface in most cases is an extremely complex task because of the need to determine appropriate chacteristics of the source including decay scheme, geometry, energy, scatter, and self-absorption. For the purpose of release of contaminated areas from radiological control, measurements must provide sufficient accuracy to ensure that cleanup standards have been

achieved. Inaccuracies in measurements should be controlled in a manner that minimizes the consequences of decision errors. The variables that affect instrument response should be understood well enough to ensure that the consequences of decision errors are minimized. Therefore, the calibration should account for the following factors (where necessary):

- Calibrations for point and large area source geometries may differ, and both may be necessary if areas of activity smaller than the probe area and regions of activity larger than the probe area are present.
- Calibration should either be performed with the radionuclide of concern, or with appropriate correction factors developed for the radionuclide(s) present based on calibrations with nuclides emitting radiations similar to the radionuclide of concern.
- For portable instrumentation, calibrations should account for the substrate of concern (*i.e.*, concrete, steel) or appropriate correction factors developed for the substrates relative to the actual calibration standard substrate. This is especially important for beta emitters because backscatter is significant and varies with the composition of the substrate. Conversion factors developed during the calibration process should be for the same counting geometry to be used during the actual use of the detector.

For cleanup standards for building surfaces, the contamination level is typically expressed in terms of the particle emission rate per unit time per unit area, normally Bq/m^2 or disintegrations per minute (dpm) per 100 cm^2. In many facilities, surface contamination is assessed by converting the instrument response (in counts per minute) to surface activity using one overall total efficiency. The total efficiency may be considered to represent the product of two factors, the instrument (detector) efficiency, and the source efficiency. Use of the total efficiency is not a problem provided that the calibration source exhibits characteristics similar to the surface contamination (*i.e.*, radiation energy, backscatter effects, source geometry, self-absorption). In practice, this is hardly the case; more likely, instrument efficiencies are determined with a clean, stainless steel source, and then those efficiencies are used to determine the level of contamination on a dust-covered concrete surface. By separating the efficiency into two components, the surveyor has a greater ability to consider the actual characteristics of the surface contamination.

The instrument efficiency is defined as the ratio of the net count rate of the instrument and the surface emission rate of a source for a specified geometry. The surface emission rate is defined as the number of particles of a given type above a given energy emerging from the front face of the source per unit time. The surface emission rate is the 2π particle fluence that embodies both the absorption and scattering processes that effect the radiation emitted from the source. Thus, the instrument efficiency is determined by the ratio of the net count rate and the surface emission rate.

The instrument efficiency is determined during calibration by obtaining a static count with the detector over a calibration source that has a traceable activity or surface emission rate. In many cases, a source emission rate is measured by the manufacturer and certified as NIST traceable. The source activity is then calculated from the surface emission rate based on assumed backscatter and self-absorption properties of the source. The maximum value of instrument efficiency is 1.

The source efficiency is defined as the ratio of the number of particles of a given type emerging from the front face of a source and the number of particles of the same type created or released within the source per unit time. The source efficiency takes into account the increased particle emission due to backscatter effects, as well as the decreased particle emission due to self-absorption losses. For an ideal source (*i.e.*, no backscatter or self-absorption), the value of the source efficiency is 0.5. Many real sources will exhibit values less than 0.5, although values greater than 0.5 are possible, depending on the relative importance of the absorption and backscatter processes.

Source efficiencies may be determined experimentally. Alternatively, ISO-7503-1 (ISO 1988) makes recommendations for default source efficiencies. A source efficiency of 0.5 is recommended for beta emitters with maximum energies above 0.4 MeV. Alpha emitters and beta emitters with maximum beta energies between 0.15 and 0.4 MeV have a recommended source efficiency of 0.25. Source efficiencies for some common surface materials and overlaying material are provided in NUREG-1507 (NRC 1997b).

Instrument efficiency may be affected by detector-related factors such as detector size (probe surface area), window density thickness, geotropism, instrument response time, counting time (in static mode), scan rate (in scan mode), and ambient conditions such as temperature, pressure, and humidity. Instrument efficiency also depends on solid angle effects, which include source-to-detector distance and source geometry.

Source efficiency may be affected by source-related factors such as the type of radiation and its energy, source uniformity, surface roughness and coverings, and surface composition (*e.g.*, wood, metal, concrete).

The calibration of gamma detectors for the measurement of photon radiation fields should also provide reasonable assurance of acceptable accuracy in field measurements. Use of these instruments for demonstration of compliance with cleanup standards is complicated by the fact that most cleanup levels produce exposure rates of at most a few µR/h. Several of the portable survey instruments currently available in the United States for exposure rate measurements of ~1 µR/h (often referred to as micro-R meters) have full scale intensities of ~3 to 5 µR/h on the first range. This is below the ambient background for most low radiation areas and most calibration laboratories. (A typical background dose equivalent rate of 100 mrem/y gives a

background exposure rate of about 10 μR/h.) Even on the second range, the ambient background in the calibration laboratory is normally a significant part of the range and must be taken into consideration during calibration. The instruments commonly are not energy-compensated and are very sensitive to the scattered radiation that may be produced by the walls and floor of the room or additional shielding required to lower the ambient background.

Low intensity sources and large distances between the source and detector can be used for low-level calibrations if the appropriate precautions are taken. Field characterization of low-level sources with traceable transfer standards is difficult because of the poor signal-to-noise ratio in the standard chamber. In order to achieve adequate ionization current, the distance between the standard chamber and the source generally will be as small as possible while still maintaining good geometry (5 to 7 detector diameters). Generally it is not possible to use a standard ionization chamber to characterize the field at the distance necessary to reduce the field to the level required for calibration. A high quality GM detector, calibrated as a transfer standard, may be useful at low levels.

Corrections for scatter can be made using a shadow-shield technique in which a shield of sufficient density and thickness to eliminate virtually all the primary radiation is placed about midway between the source and the detector. The dimensions of the shield should be the minimum required to reduce the primary radiation intensity at the detector location to less than 2% of its unshielded value. The change in reading caused by the shield being removed is attributed to the primary field from the source at the detector position.

In some instruments that produce pulses (GM counters or scintillation counters), the detector can be separated electronically from the readout electronics and the detector output can be simulated with a suitable pulser. Caution must be exercised to ensure that either the high voltage is properly blocked or that the pulser is designed for this application. If this can be accomplished, the instrument can first be calibrated on a higher range that is not affected by the ambient background and in a geometry where scatter is not a problem and, after disconnecting the detector, to provide the pulse-rate from the pulser which will give the same instrument response. The pulse rate can then be related to field strength and reduced to give readings on lower ranges (with the detector disconnected) even below the ambient background. This technique does not take account of any inherent detector background independent of the external background.

Ionization chambers are commonly used to measure radiation fields at very low levels. In order to obtain the sensitivity necessary to measure these radiation levels, the instruments are frequently very large and often pressurized. These instruments have the same calibration problems as the more portable micro-R meters described above. The same precautions (shadow shield) must be taken to separate the response of the instrument to the source and to scattered radiation. Generally, it is not possible to substitute an electronic pulser for the radiation field in these instruments.

For energy-dependent gamma scintillation instruments, such as NaI(Tl) detectors, calibration for the gamma energy spectrum at a specific site may be accomplished by comparing the instrument response to that of a pressurized ionization chamber, or equivalent detector, at different locations on the site. Multiple radionuclides with various photon energies may also be used to calibrate the system for the specific energy of interest.

In the interval between calibrations, the instrument should receive a performance check prior to use. In some cases, a performance check following use may also provide valuable information. This calibration check is merely intended to establish whether or not the instrument is operating within certain specified, rather large, uncertainty limits. The initial performance check should be conducted following the calibration by placing the source in a fixed, reproducible location and recording the instrument reading. The source should be identified along with the instrument, and the same check source should be used in the same fashion to demonstrate the instrument's operability on a daily basis when the instrument is in use. For analog readout (count rate) instruments, a variation of ± 20% is usually considered acceptable. Optionally, instruments that integrate events and display the total on a digital readout typically provide an acceptable average response range of 2 or 3 standard deviations. This is achieved by performing a series of repetitive measurements (10 or more is suggested) of background and check source response and determining the average and standard deviation of those measurements. From a practical standpoint, a maximum deviation of ± 20% is usually adequate when compared with other uncertainties associated with the use of the equipment. The amount of uncertainty allowed in the response checks should be consistent with the level of uncertainty allowed in the final data. Ultimately the decision maker determines what level of uncertainty is acceptable.

Instrument response, including both the background and check source response of the instrument, should be tested and recorded at a frequency that ensures the data collected with the equipment is reliable. For most portable radiation survey equipment, MARSSIM recommends that a response check be performed twice daily when in use—typically prior to beginning the day's measurements and again following the conclusion of measurements on that same day. Additional checks can be performed if warranted by the instrument and the conditions under which it is used. If the instrument response does not fall within the established range, the instrument is removed from use until the reason for the deviation can be resolved and acceptable response again demonstrated. If the instrument fails the post-survey source check, all data collected during that time period with the instrument must be carefully reviewed and possibly adjusted or discarded, depending on the cause of the failure. Ultimately, the frequency of response checks must be balanced with the stability of the equipment being used under field conditions and the quantity of data being collected. For example, if the instrument experiences a sudden failure during the course of the day's work due to physical harm, such as a punctured probe, then the data collected up until that point is probably acceptable even though a post-use performance check cannot be performed. Likewise, if no obvious failure occurred but the instrument failed the post-use response check, then the data collected with that instrument since

the last response check should be viewed with great skepticism and possibly re-collected or randomly checked with a different instrument. Additional corrective action alternatives are presented in Section 9.3. If re-calibration is necessary, acceptable response ranges must be reestablished and documented.

Record requirements vary considerably and depend heavily on the needs of the user. While Federal and State regulatory agencies all specify requirements, the following records should be considered a minimum.

Laboratory Quality Control

- records documenting the traceabililty of radiological standards
- records documenting the traceability of electronic test equipment

Records for Instruments to be Calibrated

- date received in the calibration laboratory
- initial condition of the instrument, including mechanical condition (*e.g.*, loose or broken parts, dents, punctures), electrical condition (*e.g.*, switches, meter movement, batteries), and radiological condition (presence or absence of contamination)
- calibrator's records including training records and signature on calibration records
- calibration data including model and serial number of instrument, date of calibration, recommended recalibration date, identification of source(s) used, "as found" calibration results, and final calibration results—"as returned" for use.

In addition, records of instrument problems, failures, and maintenance can be included and are useful in assessing performance and identifying possible needs for altered calibration frequencies for some instruments. Calibration records should be maintained at the facility where the instruments are used as permanent records, and should be available either as hard copies or in safe computer storage.

6.6 Data Conversion

This section describes methods for converting survey data to appropriate units for comparison to radiological criteria. As stated in Chapter 4, conditions applicable to satisfying decommissioning requirements include determining that any residual contamination will not result in individuals being exposed to unacceptable levels of radiation and/or radioactive materials.

Radiation survey data are usually obtained in units, such as the number of counts per unit time, that have no intrinsic meaning relative to DCGLs. For comparison of survey data to DCGLs, the survey data from field and laboratory measurements should be converted to DCGL units.

6.6.1 Surface Activity

When measuring surface activity, it is important to account for the physical surface area assessed by the detector in order to make probe area corrections and report data in the proper units (*i.e.*, Bq/m^2, dpm/100 cm^2). This is termed the *physical probe area*. A common misuse is to make probe area corrections using the *effective probe area* which accounts for the amount of the physical probe area covered by a protective screen. Figure 6.1 illustrates the difference between the physical probe area and the effective probe area. The physical probe area is used because the reduced detector response due to the screen is accounted for during instrument calibration.

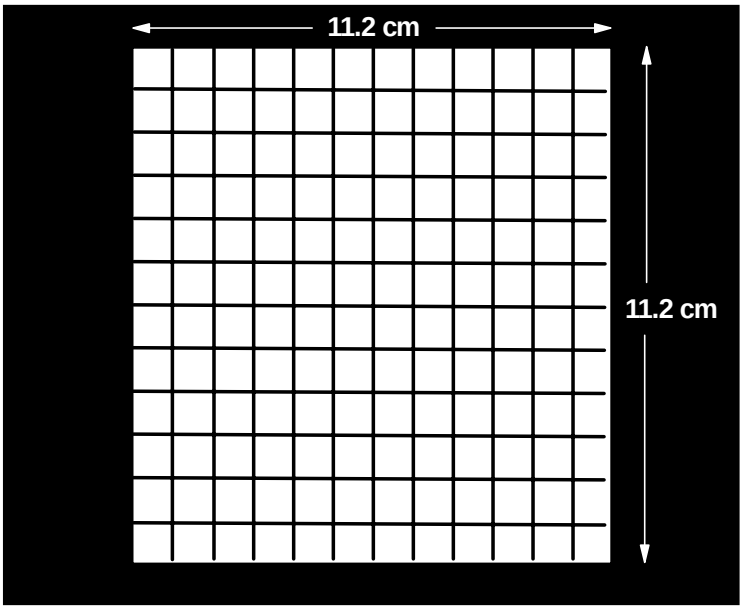


Figure 6.1 The Physical Probe Area of a Detector

The conversion of instrument display in counts to surface activity units is obtained using the following equation.

$$Bq/m^2 = \frac{\frac{C_s}{T_s}}{(\varepsilon_T \times A)} \qquad (6\text{-}1)$$

where

C_s	=	integrated counts recorded by the instrument
T_s	=	time period over which the counts were recorded in seconds
ε_T	=	total efficiency of the instrument in counts per disintegration, effectively the product of the instrument efficiency (ε_i) and the source efficiency (ε_s)
A	=	physical probe area in m^2

To convert instrument counts to conventional surface activity units, Equation 6-1 can be modified as shown in Equation 6-2.

$$\frac{dpm}{100\ cm^2} = \frac{\frac{C_s}{T_s}}{(\varepsilon_T) \times (A/100)} \qquad (6\text{-}2)$$

where T_s is recorded in minutes instead of seconds, and A is recorded in cm^2 instead of m^2.

Some instruments have background counts associated with the operation of the instrument. A correction for instrument background can be included in the data conversion calculation as shown in Equation 6-3. Note that the instrument background is not the same as the measurements in the background reference area used to perform the statistical tests described in Chapter 8.

$$Bq/m^2 = \frac{\frac{C_s}{T_s} - \frac{C_b}{T_b}}{(\varepsilon_T \times A)} \qquad (6\text{-}3)$$

where

C_b	=	background counts recorded by the instrument
T_b	=	time period over which the background counts were recorded in seconds

Equation 6-3 can be modified to provide conventional surface activity units as shown in Equation 6-4.

$$\frac{dpm}{100\ cm^2} = \frac{\frac{C_s}{T_s} - \frac{C_b}{T_b}}{(\varepsilon_T) \times (A/100)} \qquad (6\text{-}4)$$

where T_s and T_b are recorded in minutes instead of seconds and A is recorded in cm^2 instead of m^2.

The presence of multiple radionuclides at a site requires additional considerations for demonstrating compliance with a dose- or risk-based regulation. As demonstrated in Section 4.3.2, a gross activity DCGL should be determined. For example, consider a site contaminated with ^{60}Co and ^{63}Ni, with ^{60}Co representing 60% of the total activity. The relative fractions are 0.6 for ^{60}Co and 0.4 for ^{63}Ni. If the DCGL for ^{60}Co is 8,300 Bq/m^2 (5,000 dpm/100 cm^2) and the DCGL for ^{63}Ni is 12,000 Bq/m^2 (7,200 dpm/100 cm^2), the gross activity DCGL is 9,500 Bq/m^2 (5,700 dpm/100 cm^2) calculated using Equation 4-4.

When using the gross activity DCGL, it is important to use an appropriately weighted total efficiency to convert from instrument counts to surface activity units using Equations 6-1 through 6-4. In this example, the individual efficiencies for ^{60}Co and ^{63}Ni should be independently evaluated. The overall efficiency is then determined by weighting each individual efficiency by the relative fraction of each radionuclide.

6.6.2 Soil Radionuclide Concentration and Exposure Rates

Analytical procedures, such as alpha and gamma spectrometry, are typically used to determine the radionuclide concentration in soil in units of Bq/kg. Net counts are converted to soil DCGL units by dividing by the time, detector or counter efficiency, mass or volume of the sample, and by the fractional recovery or yield of the chemistry procedure (if applicable). Refer to Chapter 7 for examples of analytical procedures.

Instruments, such as a PIC or micro-R meter, used to measure exposure rate typically read directly in mSv/h. A gamma scintillation detector (*e.g.*, NaI(Tl)) provides data in counts per minute and conversion to mSv/h is accomplished by using site-specific calibration factors developed for the specific instrument (Section 6.5.4).

In situ gamma spectrometry data may require special analysis routines before the spectral data can be converted to soil concentration units or exposure rates.

6.7 Detection Sensitivity

The detection sensitivity of a measurement system refers to a radiation level or quantity of radioactive material that can be measured or detected with some known or estimated level of confidence. This quantity is a factor of both the instrumentation and the technique or procedure being used.

The primary parameters that affect the detection capability of a radiation detector are the background count rate, the detection efficiency of the detector and the counting time interval. It is important to use actual background count rate values and detection efficiencies when determining counting and scanning parameters, particularly during final status and verification surveys. When making field measurements, the detection sensitivity will usually be less than what can be achieved in a laboratory due to increased background and, often times, a significantly lower detection efficiency. It is often impossible to guarantee that pure alpha emitters can be detected *in situ* since the weathering of aged surfaces will often completely absorb the alpha emissions. NRC report NUREG-1507 (NRC 1997b) contains data on many of the parameters that affect detection efficiencies *in situ*, such as absorption, surface smoothness, and particulate radiation energy.

6.7.1 Direct Measurement Sensitivity

Prior to performing field measurements, an investigator must evaluate the detection sensitivity of the equipment proposed for use to ensure that levels below the DCGL can be detected (see Section 4.3). After a direct measurement has been made, it is then necessary to determine whether or not the result can be distinguished from the instrument background response of the measurement system. The terms that are used in this manual to define detection sensitivity for fixed point counts and sample analyses are:

Critical level (L_C)
Detection limit (L_D)
Minimum detectable concentration (MDC)

The critical level (L_C) is the level, in counts, at which there is a statistical probability (with a predetermined confidence) of incorrectly identifying a measurement system background value as "greater than background." Any response above this level is considered to be greater than background. The detection limit (L_D) is an *a priori* estimate of the detection capability of a measurement system, and is also reported in units of counts. The minimum detectable concentration (MDC) is the detection limit (counts) multiplied by an appropriate conversion factor to give units consistent with a site guideline, such as Bq/kg.

The following discussion provides an overview of the derivation contained in the well known publication by Currie (Currie 1968) followed by a description of how the resulting formulae should be used. Publications by Currie (Currie 1968, NRC 1984) and Altshuler and Pasternack (Altshuler and Pasternak 1963) provide details of the derivations involved.

The two parameters of interest for a detector system with a background response greater than zero are:

L_C the net response level, in counts, at which the detector output can be considered "above background"

L_D the net response level, in counts, that can be expected to be seen with a detector with a fixed level of certainty

Assuming that a system has a background response and that random uncertainties and systematic uncertainties are accounted for separately, these parameters can be calculated using Poisson statistics. For these calculations, two types of decision errors should be considered. A Type I error (or "false positive") occurs when a detector response is considered to be above background when, in fact, only background radiation is present. A Type II error (or "false negative") occurs when a detector response is considered to be background when in fact radiation is present at levels above background. The probability of a Type I error is referred to as α (alpha) and is associated with L_C; the probability of a Type II error is referred to as ß (beta) and is associated with L_D. Figure 6.2 graphically illustrates the relationship of these terms with respect to each other and to a normal background distribution.

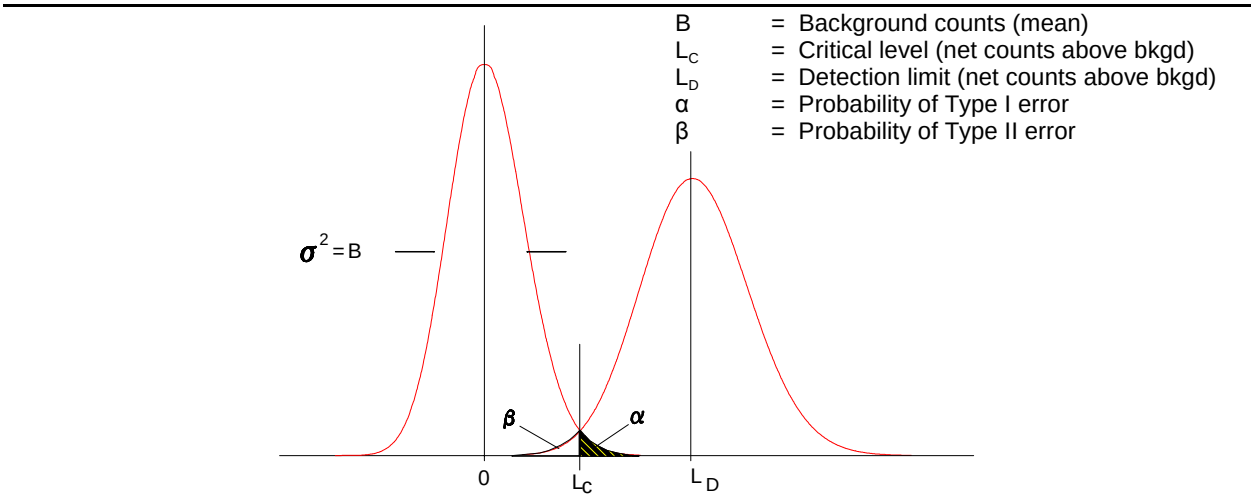


Figure 6.2 Graphically Represented Probabilities for Type I and Type II Errors in Detection Sensitivity for Instrumentation with a Background Response

If α and β are assumed to be equal, the variance (σ^2) of all measurement values is assumed to be equal to the values themselves. If the background of the detection system is not well known, then the critical detection level and the detection limit can be calculated by using the following formulae:

$$L_C = k\sqrt{2B}$$
$$L_D = k^2 + 2k\sqrt{2B} \quad (6\text{-}5)$$

where

L_C	=	critical level (counts)
L_D	=	detection limit (counts)
k	=	Poisson probability sum for α and β (assuming α and β are equal)
B	=	number of background counts that are expected to occur while performing an actual measurement

The curve to the left in the diagram is the background distribution minus the mean of the background distribution. The result is a Poisson distribution with a mean equal to zero and a variance, σ^2, equal to B. Note that the distribution accounts only for the expected statistical variation due to the stochastic nature of radioactive decay. Currie assumed "paired blanks" when deriving the above stated relationships (Currie 1968), which is interpreted to mean that the sample and background count times are the same.

If values of 0.05 for both α and β are selected as acceptable, then k = 1.645 (from Appendix I, Table I.1) and Equation 6-5 can be written as:

$$L_C = 2.33\sqrt{B}$$
$$L_D = 3 + 4.65\sqrt{B} \quad (6\text{-}6)$$

Note: In Currie's derivation, the constant factor of 3 in the L_D formula was stated as being 2.71, but since that time it has been shown (Brodsky 1992) and generally accepted that a constant factor of 3 is more appropriate. If the sample count times and background count times are different, a slightly different formulation is used.

For an integrated measurement over a preset time, the MDC can be obtained from Equation 6-6 by multiplying by the factor, C. This factor is used to convert from counts to concentration as shown in Equation 6-7:

$$MDC = C \times (3 + 4.65\sqrt{B}) \quad (6\text{-}7)$$

The total detection efficiency and other constants or factors represented by the variable C are usually not truly constants as shown in Equation 6-7. It is likely that at least one of these factors

will have a certain amount of variability associated with it which may or may not be significant. These varying factors are gathered together into the single constant, C, by which the net count result will be multiplied when converting the final data. If C varies significantly between measurements, then it might be best to select a value, C′, from the observed distribution of C values that represents a conservative estimate. For example, a value of C might be selected to ensure that at least 95% of the possible values of C are less than the chosen value, C′. The MDC calculated in this way helps assure that the survey results will meet the Data Quality Objectives. This approach for including uncertainties into the MDC calculation is recommended in both NUREG/CR-4007 (NRC 1984) and Appendix A to ANSI N13.30 (ANSI 1996a). Underestimating an MDC can have adverse consequences, especially if activity is later detected at a level above the stated MDC.

Summary of Direct Measurement Sensitivity Terms

- The MDC is the *a priori* net activity level above the critical level that an instrument can be expected to detect 95% of the time. This value should be used when stating the detection capability of an instrument. The MDC is the detection limit, $L_{D,}$ multiplied by an appropriate conversion factor to give units of activity. Again, this value is used before any measurements are made and is used to estimate the level of activity that can be detected using a given protocol.

- The critical level, L_C, is the lower bound on the 95% detection interval defined for L_D and is the level at which there is a 5% chance of calling a background value "greater than background." This value should be used when actually counting samples or making direct radiation measurements. Any response above this level should be considered as above background (*i.e.*, a net positive result). This will ensure 95% detection capability for L_D.

- From a conservative point of view, it is better to overestimate the MDC for a measurement method. Therefore, when calculating MDC and L_C values, a measurement system background value should be selected that represents the high end of what is expected for a particular measurement method. For direct measurements, probes will be moved from point to point and, as a result, it is expected that the background will most likely vary significantly due to variations in background, source materials, and changes in geometry and shielding. Ideally, the MDC values should be calculated for each type of area, but it may be more economical to simply select a background value from the highest distribution expected and use this for all calculations. For the same reasons, realistic values of detection efficiencies and other process parameters should be used when possible and should be reflective of the actual conditions. To a great degree, the selection of these parameters will be based on judgment and will require evaluation of site-specific conditions.

MDC values for other counting conditions may be derived from Equation 6-7 depending on the detector and contaminants of concern. For example, it may be required to determine what level of contamination, distributed over 100 cm^2, can be detected with a 500 cm^2 probe or what contamination level can be detected with any probe when the contamination area is smaller than the probe active area. Table 6.4 lists several common field survey detectors with estimates of MDC values for ^{238}U on a smooth, flat plane. As such, these represent minimum MDC values and may not be applicable at all sites. Appropriate site-specific MDC values should be determined using the DQO Process.

Table 6.4 Examples of Estimated Detection Sensitivities for Alpha and Beta Survey Instrumentation

(Static one minute counts for ^{238}U calculated using Equations 6-6 and 6-7)

Detector	Probe area (cm^2)	Background (cpm)	Efficiency (cpm/dpm)	Approximate Sensitivity		
				L_C (counts)	L_D (counts)	MDC (Bq/m^2) [a]
Alpha proportional	50	1	0.15	2	7	150
Alpha proportional	100	1	0.15	2	7	83
Alpha proportional	600	5	0.15	5	13	25
Alpha scintillation	50	1	0.15	2	7	150
Beta proportional	100	300	0.20	40	83	700
Beta proportional	600	1500	0.20	90	183	250
Beta GM pancake	15	40	0.20	15	32	1800

[a] Assumes that the size of the contamination area is at least as large as the probe area.

Sample Calculation 1:

The following example illustrates the calculation of an MDC in Bq/m^2 for an instrument with a 15 cm^2 probe area when the measurement and background counting times are each one minute:

B = 40 counts
C = (5 dpm/count)(Bq/60 dpm)(1/15 cm^2 probe area)(10,000 cm^2/m^2)
= 55.6 Bq/m^2-counts

The MDC is calculated using Equation 6-7:

$$MDC = 55.6 \times (3 + 4.65\sqrt{40}) = 1{,}800\ Bq/m^2\ (1{,}100\ dpm/100\ cm^2)$$

The critical level, L_c, for this example is calculated from Equation 6-6:

$$L_C = 2.33\sqrt{B} = 15 \text{ counts}$$

Given the above scenario, if a person asked what level of contamination could be detected 95% of the time using this method, the answer would be 1,800 Bq/m^2 (1,100 dpm/100 cm^2). When actually performing measurements using this method, any count yielding greater than 55 total counts, or greater than 15 net counts (55-40=15) during a period of one minute, would be regarded as greater than background.

6.7.2 Scanning Sensitivity

The ability to identify a small area of elevated radioactivity during surface scanning is dependent upon the surveyor's skill in recognizing an increase in the audible or display output of an instrument. For notation purposes, the term "scanning sensitivity" is used throughout this section to describe the ability of a surveyor to detect a pre-determined level of contamination with a detector. The greater the sensitivity, the lower the level of contamination that can be detected.

Many of the radiological instruments and monitoring techniques typically used for occupational health physics activities may not provide the detection sensitivities necessary to demonstrate compliance with the DCGLs. The detection sensitivity for a given application can be improved (*i.e.*, lower the MDC) by: 1) selecting an instrument with a higher detection efficiency or a lower background, 2) decreasing the scanning speed, or 3) increasing the size of the effective probe area without significantly increasing the background response.

Scanning is usually performed during radiological surveys in support of decommissioning to identify the presence of any areas of elevated activity. The probability of detecting residual contamination in the field depends not only on the sensitivity of the survey instrumentation when used in the scanning mode of operation, but is also affected by the surveyor's ability—*i.e.*, human factors. The surveyor must make a decision whether the signals represent only the

background activity, or residual contamination in excess of background. The greater the sensitivity, the lower the level of contamination that may be detected by scanning. Accounting for these human factors represents a significant change from the traditionally accepted methods of estimating scanning sensitivities.

An empirical method for evaluating the detection sensitivity for contamination surveys is by actual experimentation or, since it is certainly feasible, by simulating an experimental setup using computer software. The following steps provide a simple example of how one can perform this empirical evaluation:

1) A desired nuclide contamination level is selected.
2) The response of the detector to be used is determined for the selected nuclide contamination level.
3) A test source is constructed which will give a detector count rate equivalent to what was determined in step 2. The count rate is equivalent to what would be expected from the detector when placed on an actual contamination area equal in value to that selected in step 1.
4) The detector of choice is then moved over the source at different scan rates until an acceptable speed is determined.

The most useful aspect of this approach is that the source can then be used to show surveyors what level of contamination is expected to be targeted with the scan. They, in turn, can gain experience with what the expected response of the detector will be and how fast they can survey and still feel comfortable about detecting the target contamination level. The person responsible for the survey can then use this information when developing a fixed point measurement and sampling plan.

The remainder of this section is dedicated to providing the reader with information pertaining to the underlying processes involved when performing scanning surveys for alpha, beta, and gamma emitting radionuclides. The purpose is to provide relevant information that can be used for estimating realistic scanning sensitivities for survey activities.

6.7.2.1 Scanning for Beta and Gamma Emitters

The minimum detectable concentration of a scan survey (scan MDC) depends on the intrinsic characteristics of the detector (efficiency, physical probe area, *etc.*), the nature (type and energy of emissions) and relative distribution of the potential contamination (point versus distributed source and depth of contamination), scan rate, and other characteristics of the surveyor. Some factors that may affect the surveyor's performance include the costs associated with various outcomes—*e.g.*, fatigue, noise, level of training, experience—and the survey's *a priori* expectation of the likelihood of contamination present. For example, if the surveyor believes that

the potential for contamination is very low, as in a Class 3 area, a relatively large signal may be required for the surveyor to conclude that contamination is present. NRC draft report NUREG/CR-6364 (NRC 1997d) provides a complete discussion of the human factors as they relate to the performance of scan surveys.

Signal Detection Theory. Personnel conducting radiological surveys for residual contamination at decommissioning sites must interpret the audible output of a portable survey instrument to determine when the signal ("clicks") exceeds the background level by a margin sufficient to conclude that contamination is present. It is difficult to detect low levels of contamination because both the signal and the background vary widely. Signal detection theory provides a framework for the task of deciding whether the audible output of the survey meter during scanning is due to background or signal plus background levels. An index of sensitivity (d') that represents the distance between the means of the background and background plus signal (refer to Figure 6.2 for determining L_D), in units of their common standard deviation, can be calculated for various decision errors (correct detection and false positive rate). As an example, for a correct detection rate of 95% (complement of a false negative rate of 5%) and a false positive rate of 5%, d' is 3.29 (similar to the static MDC for the same decision error rates). The index of sensitivity is independent of human factors, and therefore, the ability of an ideal observer (theoretical construct), may be used to determine the minimum d' that can be achieved for particular decision errors. The ideal observer makes optimal use of the available information to maximize the percent correct responses, providing an effective upper bound against which to compare actual surveyors. Table 6.5 lists selected values of d'.

Two Stages of Scanning. The framework for determining the scan MDC is based on the premise that there are two stages of scanning. That is, surveyors do not make decisions on the basis of a single indication, rather, upon noting an increased number of counts, they pause briefly and then decide whether to move on or take further measurements. Thus, scanning consists of two components: continuous monitoring and stationary sampling. In the first component, characterized by continuous movement of the probe, the surveyor has only a brief "look" at potential sources, determined by the scan speed. The surveyor's willingness to decide that a signal is present at this stage is likely to be liberal, in that the surveyor should respond positively on scant evidence, since the only "cost" of a false positive is a little time. The second component occurs only after a positive response was made at the first stage. This response is marked by the surveyor interrupting his scanning and holding the probe stationary for a period of time, while comparing the instrument output signal during that time to the background counting rate. Owing to the longer observation interval, sensitivity is relatively high. For this decision, the criterion should be more strict, since the cost of a "yes" decision is to spend considerably more time taking a static measurement or a sample.

Table 6.5 Values of *d′* for Selected True Positive and False Positive Proportions

False Positive Proportion	True Positive Proportion							
	0.60	**0.65**	**0.70**	**0.75**	**0.80**	**0.85**	**0.90**	**0.95**
0.05	1.90	2.02	2.16	2.32	2.48	2.68	2.92	3.28
0.10	1.54	1.66	1.80	1.96	2.12	2.32	2.56	2.92
0.15	1.30	1.42	1.56	1.72	1.88	2.08	2.32	2.68
0.20	1.10	1.22	1.36	1.52	1.68	1.88	2.12	2.48
0.25	0.93	1.06	1.20	1.35	1.52	1.72	1.96	2.32
0.30	0.78	0.91	1.05	1.20	1.36	1.56	1.80	2.16
0.35	0.64	0.77	0.91	1.06	1.22	1.42	1.66	2.02
0.40	0.51	0.64	0.78	0.93	1.10	1.30	1.54	1.90
0.45	0.38	0.52	0.66	0.80	0.97	1.17	1.41	1.77
0.50	0.26	0.38	0.52	0.68	0.84	1.04	1.28	1.64
0.55	0.12	0.26	0.40	0.54	0.71	0.91	1.15	1.51
0.60	0.00	0.13	0.27	0.42	0.58	0.82	1.02	1.38

Since scanning can be divided into two stages, it is necessary to consider the survey's scan sensitivity for each of the stages. Typically, the minimum detectable count rate (MDCR) associated with the first scanning stage will be greater due to the brief observation intervals of continuous monitoring—provided that the length of the pause during the second stage is significantly longer. Typically, observation intervals during the first stage are on the order of 1 or 2 seconds, while the second stage pause may be several seconds long. The greater value of MDCR from each of the scan stages is used to determine the scan sensitivity for the surveyor.

Determination of MDCR and Use of Surveyor Efficiency. The minimum detectable number of net source counts in the interval is given by s_i. Therefore, for an ideal observer, the number of source counts required for a specified level of performance can be arrived at by multiplying the square root of the number of background counts by the detectability value associated with the desired performance (as reflected in *d′*) as shown in Equation 6-8:

$$s_i = d' \sqrt{b_i} \qquad (6\text{-}8)$$

where the value of *d′* is selected from Table 6.5 based on the required true positive and false positive rates and b_i is the number of background counts in the interval.

For example, suppose that one wished to estimate the minimum count rate that is detectable by scanning in an area with a background of 1,500 cpm. Note that the minimum detectable count rate must be considered for both scan stages—and the more conservative value is selected as the minimum count rate that is detectable. It will be assumed that a typical source remains under the probe for 1 second during the first stage, therefore, the average number of background counts in the observation interval is 25 ($b_i = 1500 \times (1/60)$). Furthermore, as explained earlier, it can be assumed that at the first scanning stage a high rate (*e.g.*, 95%) of correct detections is required, and that a correspondingly high rate of false positives (*e.g.*, 60%) will be tolerated. From Table 6.5, the value of *d′*, representing this performance goal, is 1.38. The net source counts needed to support the specified level of performance (assuming an ideal observer) will be estimated by multiplying 5 (the square root of 25) by 1.38. Thus, the net source counts per interval, s_i, needed to yield better than 95% detections with about 60% false positives is 6.9. The minimum detectable source count rate, in cpm, may be calculated by:

$$MDCR = s_i \times (60/i) \tag{6-9}$$

For this example, MDCR is equivalent to 414 cpm (1,914 cpm gross). Table 6.6 provides the scan sensitivity for the ideal observer (MDCR) at the first scanning stage for various background levels, based on an index of sensitivity (*d′*) of 1.38 and a 2-second observation interval.

Table 6.6 Scanning Sensitivity (MDCR) of the Ideal Observer for Various Background Levels[a]

Background (cpm)	MDCR (net cpm)	Scan Sensitivity (gross cpm)
45	50	95
60	60	120
260	120	380
300	130	430
350	140	490
400	150	550
1,000	240	1,240
3,000	410	3,410
4,000	480	4,480

*The sensitivity of the ideal observer during the first scanning stage is based on an index of sensitivity (d′) of 1.38 and a 2-second observation interval.

The minimum number of source counts required to support a given level of performance for the final detection decision (second scan stage) can be estimated using the same method. As explained earlier, the performance goal at this stage will be more demanding. The required rate of true positives remains high (*e.g.*, 95%), but fewer false positives (*e.g.*, 20%) can be tolerated, such that d' (from Table 6.5) is now 2.48. One will assume that the surveyor typically stops the probe over a suspect location for about 4 seconds before making a decision, so that the average number of background counts in an observation interval is 100 ($b_i = 1{,}500 \times (4/60)$). Therefore, the minimum detectable number of net source counts, s_i, needed will be estimated by multiplying 10 (the square root of 100) by 2.48 (the d' value); so s_i equals 24.8. The MDCR is calculated by $2.48 \times (60/4)$ and equals 372 cpm. The value associated with the first scanning stage (this example, 414 cpm) will typically be greater, owing to the relatively brief intervals assumed.

Laboratory studies using simulated sources and backgrounds were performed to assess the abilities of surveyors under controlled conditions. The methodology and analysis of results for these studies are described in draft NUREG/CR-6364 (NRC 1997d) and NUREG-1507 (NRC 1997b). The surveyor's actual performance as compared with that which is ideally possible (using the ideal observer construct) provided an indication of the efficiency of the surveyors. Based on the results of the confidence rating experiment, this surveyor efficiency (p) was estimated to be between 0.5 and 0.75.

MARSSIM recommends assuming an efficiency value at the lower end of the observed range (*i.e.*, 0.5) when making MDC estimates. Thus, the required number of net source counts for the surveyor, $MDCR_{surveyor}$, is determined by dividing the MDCR by the square root of p. Continuing with this example, the surveyor MDCR is calculated by 414 cpm/0.707, or 585 cpm (2,085 cpm gross).

Scan MDCs for Structure Surfaces and Land Areas. The survey design for determining the number of data points for areas of elevated activity (see Section 5.5.2.4) depends on the scan MDC for the selected instrumentation. In general, alpha or beta scans are performed on structure surfaces to satisfy the elevated activity measurements survey design, while gamma scans are performed for land areas. Because of low background levels for alpha emitters, the approach described here is not generally applied to determining scan MDCs for alpha contaminants—rather, the reader is referred to Section 6.7.2.2 for an appropriate method for determining alpha scan MDCs for building surfaces. In any case, the data requirements for assessing potential elevated areas of direct radiation depend on the scan MDC of the survey instrument (*e.g.*, floor monitor, GM detector, NaI scintillation detector).

Scan MDCs for Building/Structure Surfaces. The scan MDC is determined from the minimum detectable count rate (MDCR) by applying conversion factors that account for detector and surface characteristics and surveyor efficiency. As discussed above, the MDCR accounts for the background level, performance criteria (d'), and observation interval. The observation interval

during scanning is the actual time that the detector can respond to the contamination source—this interval depends on the scan speed, detector size in the direction of the scan, and area of elevated activity. Because the actual dimensions of potential areas of elevated activity in the field cannot be known *a priori*, MARSSIM recommends postulating a certain area (*e.g.*, perhaps 50 to 200 cm^2), and then selecting a scan rate that provides a reasonable observation interval.

Finally, the scan MDC for structure surfaces may be calculated:

$$Scan\ MDC = \frac{MDCR}{\sqrt{p}\ \varepsilon_i\ \varepsilon_s\ \frac{probe\ area}{100\ cm^2}} \qquad (6\text{-}10)$$

where

MDCR	=	minimum detectable count rate
ε_i	=	instrument efficiency
ε_s	=	surface efficiency
p	=	surveyor efficiency

As an example, the scan MDC (in dpm/100 cm^2) for ^{99}Tc on a concrete surface may be determined for a background level of 300 cpm and a 2-second observation interval using a hand-held gas proportional detector (126 cm^2 probe area). For a specified level of performance at the first scanning stage of 95% true positive rate and 60% false positive rate (and assuming the second stage pause is sufficiently long to ensure that the first stage is more limiting), d' equals 1.38 (Table 6.5) and the MDCR is 130 cpm (Table 6.6). Using a surveyor efficiency of 0.5, and assuming instrument and surface efficiencies of 0.36 and 0.54, respectively, the scan MDC is calculated using Equation 6-10:

$$Scan\ MDC = \frac{130}{\sqrt{0.5}\ (0.36)\ (0.54)\ (1.26)} = 750\ dpm/100\ cm^2$$

Additional examples for calculating the scan MDC may be found in NUREG-1507 (NRC 1997b).

Scan MDCs for Land Areas. In addition to the MDCR and detector characteristics, the scan MDC (in pCi/g) for land areas is based on the area of elevated activity, depth of contamination, and the radionuclide (*i.e.*, energy and yield of gamma emissions). If one assumes constant parameters for each of the above variables, with the exception of the specific radionuclide in question, the scan MDC may be reduced to a function of the radionuclide alone. NaI scintillation detectors are generally used for scanning land areas.

An overview of the approach used to determine scan MDCs for land areas follows. The NaI(Tl) scintillation detector background level and scan rate (observation interval) are postulated, and the MDCR for the ideal observer, for a given level of performance, is obtained. After a surveyor efficiency is selected, the relationship between the surveyor MDCR ($MDCR_{surveyor}$) and the radionuclide concentration in soil (in Bq/kg or pCi/g)is determined. This correlation requires two steps—first, the relationship between the detector's net count rate to net exposure rate (cpm per µR/h) is established, and second, the relationship between the radionuclide contamination and exposure rate is determined.

For a particular gamma energy, the relationship of NaI(Tl) scintillation detector count rate and exposure rate may be determined analytically (in cpm per µR/h). The approach used to determine the gamma fluence rate necessary to yield a fixed exposure rate (1 µR/h)—as a function of gamma energy—is provided in NUREG-1507 (NRC 1997b). The NaI(Tl) scintillation detector response (cpm) is related to the fluence rate at specific energies, considering the detector's efficiency (probability of interaction) at each energy. From this, the NaI(Tl) scintillation detector versus exposure rates for varying gamma energies are determined. Once the relationship between the NaI(Tl) scintillation detector response (cpm) and the exposure rate is established, the $MDCR_{surveyor}$ (in cpm) of the NaI(Tl) scintillation detector can be related to the minimum detectable net exposure rate. The minimum detectable exposure rate is used to determine the minimum detectable radionuclide concentration (*i.e.*, the scan MDC) by modeling a specified small area of elevated activity.

Modeling (using Microshield™) of the small area of elevated activity (soil concentration) is used to determine the net exposure rate produced by a radionuclide concentration at a distance 10 cm above the source. This position is selected because it relates to the average height of the NaI(Tl) scintillation detector above the ground during scanning.

The factors considered in the modeling include:

- radionuclide of interest (considering all gamma emitters for decay chains)
- expected concentration of the radionuclide of interest
- areal dimensions of the area of elevated activity
- depth of the area of elevated activity
- location of dose point (NaI(Tl) scintillation detector height above the surface)
- density of soil

Modeling analyses are conducted by selecting a radionuclide (or radioactive material decay series) and then varying the concentration of the contamination. The other factors are held constant—the areal dimension of a cylindrical area of elevated activity is 0.25 m^2 (radius of 28 cm), the depth of the area of elevated activity is 15 cm, the dose point is 10 cm above the surface, and the density of soil is 1.6 g/cm^3. The objective is to determine the radionuclide concentration that is correlated to the minimum detectable net exposure rate.

As an example, the scan MDC for ^{137}Cs using a 1.5 in. by 1.25 in. NaI(Tl) scintillation detector is considered in detail. Assume that the background level is 4,000 cpm and that the desired level of performance, 95% correct detections and 60% false positive rate, results in a d' of 1.38. The scan rate of 0.5m/s provides an observation interval of 1-second (based on a diameter of about 56 cm for the area of elevated activity). The $MDCR_{surveyor}$ may be calculated assuming a surveyor efficiency (p) of 0.5 as follows:

1) $b_i = (4{,}000 \text{ cpm}) \times (1 \text{ sec}) \times (1 \text{ min}/60 \text{ sec}) = 66.7 \text{ counts}$

2) $MDCR = (1.38) \times (\sqrt{66.7}) \times (60 \text{ sec}/1 \text{ min}) = 680 \text{ cpm}$

3) $MDCR_{surveyor} = 680/\sqrt{0.5} = 960 \text{ cpm}$

The corresponding minimum detectable exposure rate is determined for this detector and radionuclide. The manufacturer of this particular 1.5 in. by 1.25 in. NaI(Tl) scintillation detector quotes a count rate to exposure rate ratio for ^{137}Cs of 350 cpm per µR/h. The minimum detectable exposure rate is calculated by dividing the count rate (960 cpm) by the count rate to exposure rate ratio for the radionuclide of interest (350 cpm per µR/h). The minimum detectable exposure rate for this example is 2.73 µR/h.

Both ^{137}Cs and its short-lived progeny, ^{137m}Ba, were chosen from the Microshield™ library. The source activity and other modeling parameters were entered into the modeling code. The source activity was selected based on an arbitrary concentration of 5 pCi/g. The modeling code performed the appropriate calculations and determined an exposure rate of 1.307 µR/h (which accounts for buildup). Finally, the radionuclide concentrations of ^{137}Cs and ^{137m}Ba (scan MDC) necessary to yield the minimum detectable exposure rate (2.73 μR/h) may be calculated using the following formula.

$$scan\ MDC = \frac{(5\ pCi/g)(2.73\ \mu R/h)}{1.307\ \mu R/h} = 10.4\ pCi/g \qquad (6\text{-}11)$$

It must be emphasized that while a single scan MDC value can be calculated for a given radionuclide—other scan MDC values may be equally justifiable depending on the values chosen for the various factors, including the MDCR (background level, acceptable performance criteria, observation interval), surveyor efficiency, detector parameters and the modeling conditions of the contamination. It should also be noted that determination of the scan MDC for radioactive materials—like uranium and thorium—must consider the gamma radiation emitted from the entire decay series. NUREG-1507 (NRC 1997b) provides a detailed example of how the scan MDC can be determined for enriched uranium.

Table 6.7 provides scan MDCs for common radionuclides and radioactive materials in soil. It is important to note that the variables used in the above examples to determine the scan MDCs for the 1.25 in. by 1.5 in. NaI(Tl) scintillation detector—*i.e.*, the $MDCR_{surveyor}$ detector parameters (*e.g.*, cpm per µR/h), and the characteristics of the area of elevated activity—have all been held constant to facilitate the calculation of scan MDCs provided in Table 6.7. The benefit of this approach is that generally applicable scan MDCs are provided for different radioactive contaminants. Additionally, the relative detectability of different contaminants is evident because the only variable in Table 6.7 is the nature of the contaminant.

As noted above, the scan MDCs calculated using the approach in this section are dependent on several factors. One way to validate the appropriateness of the scan MDC is by tracking the residual radioactivity (both surface activity and soil concentrations) levels identified during investigations performed as a result of scanning surveys. The measurements performed during these investigations may provide an *a posteriori* estimate of the scan MDC that can be used to validate the *a priori* scan MDC used to design the survey.

6.7.2.2 Scanning for Alpha Emitters

Scanning for alpha emitters differs significantly from scanning for beta and gamma emitters in that the expected background response of most alpha detectors is very close to zero. The following discussion covers scanning for alpha emitters and assumes that the surface being surveyed is similar in nature to the material on which the detector was calibrated. In this respect, the approach is purely theoretical. Surveying surfaces that are dirty, non-planar, or weathered can significantly affect the detection efficiency and therefore bias the expected MDC for the scan. The use of reasonable detection efficiency values instead of optimistic values is highly recommended. Appendix J contains a complete derivation of the alpha scanning equations used in this section.

Since the time a contaminated area is under the probe varies and the background count rate of some alpha instruments is less than 1 cpm, it is not practical to determine a fixed MDC for scanning. Instead, it is more useful to determine the probability of detecting an area of contamination at a predetermined DCGL for given scan rates.

For alpha survey instrumentation with backgrounds ranging from <1 to 3 cpm, a single count provides a surveyor sufficient cause to stop and investigate further. Assuming this to be true, the probability of detecting given levels of alpha surface contamination can be calculated by use of Poisson summation statistics.

Table 6.7 NaI(Tl) Scintillation Detector Scan MDCs for Common Radiological Contaminants[a]

Radionuclide/Radioactive Material	1.25 in. by 1.5 in. NaI Detector		2 in. by 2 in. NaI Detector	
	Scan MDC (Bq/kg)	Weighted cpm/μR/h	Scan MDC (Bq/kg)	Weighted cpm/μR/h
Am-241	1,650	5,830	1,170	13,000
Co-60	215	160	126	430
Cs-137	385	350	237	900
Th-230	111,000	4,300	78,400	9,580
Ra-226 (in equilibrium with progeny)	167	300	104	760
Th-232 decay series (Sum of all radionuclides in he thorium decay series)	1,050	340	677	830
Th-232 (In equilibrium with progeny in decay series)	104	340	66.6	830
Depleted Uranium[b] (0.34% U-235)	2,980	1,680	2,070	3,790
Natural Uranium[b]	4,260	1,770	2,960	3,990
3% Enriched Uranium[b]	5,070	2,010	3,540	4,520
20% Enriched Uranium[b]	5,620	2,210	3,960	4,940
50% Enriched Uranium[b]	6,220	2,240	4,370	5,010
75% Enriched Uranium[b]	6,960	2,250	4,880	5,030

[a] Refer to text for complete explanation of factors used to calculate scan MDCs. For example, the background level for the 1.25 in. by 1.5 in. NaI detector was assumed to be 4,000 cpm, and 10,000 cpm for the 2 in. by 2 in. NaI detector. The observation interval was 1-sec and the level of performance was selected to yield d' of 1.38.

[b] Scan MDC for uranium includes sum of ^{238}U, ^{235}U, and ^{234}U.

Given a known scan rate and a surface contamination DCGL, the probability of detecting a single count while passing over the contaminated area is

$$P(n \geq 1) = 1 - e^{\frac{-GEd}{60v}} \quad (6\text{-}12)$$

where

$P(n \geq 1)$	=	probability of observing a single count
G	=	contamination activity (dpm)
E	=	detector efficiency (4π)
d	=	width of detector in direction of scan (cm)
v	=	scan speed (cm/s)

Note: Refer to Appendix J for a complete derivation of these formulas.

Once a count is recorded and the guideline level of contamination is present the surveyor should stop and wait until the probability of getting another count is at least 90%. This time interval can be calculated by

$$t = \frac{13{,}800}{CAE} \quad (6\text{-}13)$$

where

t	=	time period for static count (s)
C	=	contamination guideline (dpm/100 cm^2)
A	=	physical probe area (cm^2)
E	=	detector efficiency (4π)

Many portable proportional counters have background count rates on the order of 5 to 10 cpm, and a single count should not cause a surveyor to investigate further. A counting period long enough to establish that a single count indicates an elevated contamination level would be prohibitively inefficient. For these types of instruments, the surveyor usually will need to get at least 2 counts while passing over the source area before stopping for further investigation.

Assuming this to be a valid assumption, the probability of getting two or more counts can be calculated by:

$$P(n \geq 2) = 1 - P(n=0) - P(n=1)$$

$$= 1 - \left(1 + \frac{(GE + B)t}{60}\right)\left(e^{-\frac{(GE + B)t}{60}}\right) \quad (6\text{-}14)$$

where

$P(n \geq 2)$	=	probability of getting 2 or more counts during the time interval t
$P(n=0)$	=	probability of not getting any counts during the time interval t
$P(n=1)$	=	probability of getting 1 count during the time interval t
B	=	background count rate (cpm)

All other variables are the same as for Equation 6-12.

Appendix J provides a complete derivation of Equations 6-12 through 6-14 and a detailed discussion of the probability of detecting alpha surface contamination for several different variables. Several probability charts are included at the end of Appendix J for common detector sizes. Table 6.8 provides estimates of the probability of detecting 300 dpm/100 cm^2 for some commonly used alpha detectors.

Table 6.8 Probability of Detecting 300 dpm/100 cm^2 of Alpha Activity While Scanning with Alpha Detectors Using an Audible Output (calculated using Equation 6-12)

Detector Type	Detection Efficiency cpm/dpm	Probe Dimension in Direction of Scan (cm)	Scan Rate (cm/s)	Probability of detecting 300 dpm/100 cm^2
Proportional	0.20	5	3	80%
Proportional	0.15	15	5	90%
Scintillation	0.15	5	3	70%
Scintillation	0.15	10	3	90%

6.8 Measurement Uncertainty (Error)

The quality of measurement data will be directly impacted by the magnitude of the measurement uncertainty associated with it. Some uncertainties, such as statistical counting uncertainties, can be easily calculated from the count results using mathematical procedures. Evaluation of other

sources of uncertainty require more effort and in some cases is not possible. For example, if an alpha measurement is made on a porous concrete surface, the observed instrument response when converted to units of activity will probably not exactly equal the true activity under the probe. Variations in the absorption properties of the surface for particulate radiation will vary from point to point and therefore will create some level of variation in the expected detection efficiency. This variability in the expected detector efficiency results in uncertainty in the final reported result. In addition, QC measurement results provide an estimate of random and systematic uncertainties associated with the measurement process.

The measurement uncertainty for every analytical result or series of results, such as for a measurement system, should be reported. This uncertainty, while not directly used for demonstrating compliance with the release criterion, is used for survey planning and data assessment throughout the Radiation Survey and Site Investigation (RSSI) process. In addition, the uncertainty is used for evaluating the performance of measurement systems using QC measurement results. Uncertainty can also be used for comparing individual measurements to the DCGL. This is especially important in the early stages of decommissioning (*i.e.*, scoping, characterization, remedial action support) when decisions are made based on a limited number of measurements.

For most sites, evaluations of uncertainty associated with field measurements is important only for data being used as part of the final status survey documentation. The final status survey data, which is used to document the final radiological status of a site, should state the uncertainties associated with the measurements. Conversely, detailing the uncertainties associated with measurements made during scoping or characterization surveys may or may not be of value depending on what the data will be used for—*i.e.* the data quality objectives (DQOs). From a practical standpoint, if the observed data are obviously greater than the DCGL and will be eventually cleaned up, then the uncertainty may be relatively unimportant. Conversely, data collected during early phases of a site investigation that may eventually be used to show that the area is below the DCGL—and therefore does not require any clean-up action—will need the same uncertainty evaluation as the final status survey data. In summary, the level of effort needs to match the intended use of the data.

6.8.1 Systematic and Random Uncertainties

Measurement uncertainties are often broken into two sub-classes of uncertainty termed systematic (*e.g.*, methodical) uncertainty and random (*e.g.*, stochastic) uncertainty. Systematic uncertainties derive from a lack of knowledge about the true distribution of values associated with a numerical parameter and result in data that is consistently higher (or lower) than the true value. An example of a systematic uncertainty would be the use of a fixed counting efficiency value even though it is known that the efficiency varies from measurement to measurement but without knowledge of the frequency. If the fixed counting efficiency value is higher than the true

but unknown efficiency—as would be the case for an unrealistically optimistic value—then every measurement result calculated using that efficiency would be biased low. Random uncertainties refer to fluctuations associated with a known distribution of values. An example of a random uncertainty would be a well documented chemical separation efficiency that is known to fluctuate with a regular pattern about a mean. A constant recovery value is used during calculations, but the true value is known to fluctuate from sample to sample with a fixed and known degree of variation.

To minimize the need for estimating potential sources of uncertainty, the sources of uncertainty themselves should be reduced to a minimal level by using practices such as:

- The detector used should minimize the potential uncertainty. For example, when making field surface activity measurements for ^{238}U on concrete, a beta detector such as a thin-window Geiger-Mueller "pancake" may provide better quality data than an alpha detector depending on the circumstances. Less random uncertainty would be expected between measurements with a beta detector such as a pancake since beta emissions from the uranium will be affected much less by thin absorbent layers than will the alpha emissions.

- Calibration factors should accurately reflect the efficiency of a detector being used on the surface material being measured for the contaminant radionuclide or mixture of radionuclides (see Section 6.5.4). For most field measurements, variations in the counting efficiency on different types of materials will introduce the largest amount of uncertainty in the final result.

- Uncertainties should be reduced or eliminated by use of standardized measurement protocols (*e.g.*, SOPs) when possible. Special effort should be made to reduce or eliminate systematic uncertainties, or uncertainties that are the same for every measurement simply due to an error in the process. If the systematic uncertainties are reduced to a negligible level, then the random uncertainties, or those uncertainties that occur on a somewhat statistical basis, can be dealt with more easily.

- Instrument operators should be trained and experienced with the instruments used to perform the measurements.

- QA/QC should be conducted as described in Chapter 9.

Uncertainties that cannot be eliminated need to be evaluated such that the effect can be understood and properly propagated into the final data and uncertainty estimates. As previously stated, non-statistical uncertainties should be minimized as much as possible through the use of good work practices.

Overall random uncertainty can be evaluated using the methods described in the following sections. Section 6.8.2 describes a method for calculating random counting uncertainty. Section 6.8.3 discusses how to combine this counting uncertainty with other uncertainties from the measurement process using uncertainty propagation.

Systematic uncertainty is derived from calibration errors, incorrect yields and efficiencies, non-representative survey designs, and "blunders." It is difficult—and sometimes impossible—to evaluate the systematic uncertainty for a measurement process, but bounds should always be estimated and made small compared to the random uncertainty, if possible. If no other information on systematic uncertainty is available, Currie (NRC 1984) recommends using 16% as an estimate for systematic uncertainties (1% for blanks, 5% for baseline, and 10% for calibration factors).

6.8.2 Statistical Counting Uncertainty

When performing an analysis with a radiation detector, the result will have an uncertainty associated with it due to the statistical nature of radioactive decay. To calculate the total uncertainty associated with the counting process, both the background measurement uncertainty and the sample measurement uncertainty must be accounted for. The standard deviation of the net count rate, or the statistical counting uncertainty, can be calculated by

$$\sigma_n = \sqrt{\frac{C_{s+b}}{T_{s+b}^2} + \frac{C_b}{T_b^2}} \qquad (6\text{-}15)$$

where

σ_n = standard deviation of the net count rate result
C_{s+b} = number of gross counts (sample)
T_{s+b} = gross count time
C_b = number of background counts
T_b = background count time

6.8.3 Uncertainty Propagation

Most measurement data will be converted to different units or otherwise included in a calculation to determine a final result. The standard deviation associated with the final result, or the total uncertainty, can then be calculated. Assuming that the individual uncertainties are relatively small, symmetric about zero, and independent of one another, then the total uncertainty for the final calculated result can be determined by solving the following partial differential equation:

$$\sigma_u = \sqrt{\left(\frac{\partial u}{\partial x}\right)^2 \sigma_x^2 + \left(\frac{\partial u}{\partial y}\right)^2 \sigma_y^2 + \left(\frac{\partial u}{\partial z}\right)^2 \sigma_z^2 + \ldots} \qquad (6\text{-}16)$$

where

u	=	function, or formula, that defines the calculation of a final result as a function of the collected data. All variables in this equation, *i.e.*, x, y, z..., are assumed to have a measurement uncertainty associated with them and do not include numerical constants
σ_u	=	standard deviation, or uncertainty, associated with the final result
σ_x, σ_y,...	=	standard deviation, or uncertainty, associated with the parameters x, y, z, ...

Equation 6-16, generally known as the error propagation formula, can be solved to determine the standard deviation of a final result from calculations involving measurement data and their associated uncertainties. The solutions for common calculations along with their uncertainty propagation formulas are included below.

Data Calculation	Uncertainty Propagation
u = x + y , or u= x - y :	$\sigma_u = \sqrt{\sigma_x^2 + \sigma_y^2}$
u = x ÷ y , or u = x × y :	$\sigma_u = u\sqrt{\left(\frac{\sigma_x}{x}\right)^2 + \left(\frac{\sigma_y}{y}\right)^2}$
u = c × x, where c is a positive constant:	$\sigma_u = c\sigma_x$
u = x ÷ c, where c is a positive constant:	$\sigma_u = \frac{\sigma_x}{c}$

Note: In the above examples, x and y are measurement values with associated standard deviations, or uncertainties, equal to σ_x and σ_y respectively. The symbol "c" is used to represent a numerical constant which has no associated uncertainty. The symbol σ_u is used to denote the standard deviation, or uncertainty, of the final calculated value u.

6.8.4 Reporting Confidence Intervals

Throughout Section 6.8, the term "measurement uncertainty" is used interchangeably with the term "standard deviation." In this respect, the uncertainty is qualified as numerically identical to

the standard deviation associated with a normally distributed range of values. When reporting a confidence interval for a value, one provides the range of values that represent a pre-determined level of confidence (*i.e.*, 95%). To make this calculation, the final standard deviation, or total uncertainty σ_u as shown in Equation 6-16, is multiplied by a constant factor k representing the area under a normal curve as a function of the standard deviation. The values of k representing various intervals about a mean of normal distributions as a function of the standard deviation is given in Table 6.9. The following example illustrates the use of this factor in context with the propagation and reporting of uncertainty values.

Table 6.9 Areas Under Various Intervals About the Mean of a Normal Distribution

Interval ($\bar{\mu} \pm k\sigma$)	Area
$\bar{\mu} \pm 0.674\sigma$	0.500
$\bar{\mu} \pm 1.00\sigma$	0.683
$\bar{\mu} \pm 1.65\sigma$	0.900
$\bar{\mu} \pm 1.96\sigma$	0.950
$\bar{\mu} \pm 2.00\sigma$	0.954
$\bar{\mu} \pm 2.58\sigma$	0.990
$\bar{\mu} \pm 3.00\sigma$	0.997

Example:

Uncertainty Propagation and Confidence Interval: A measurement process with a zero background yields a count result of 28 ± 5 counts in 5 minutes, where the ± 5 counts represents one standard deviation about a mean value of 28 counts. The detection efficiency is 0.1 counts per disintegration ± 0.01 counts per disintegration, again representing one standard deviation about the mean.

Calculate the activity of the sample, in dpm, total measurement uncertainty, and the 95% confidence interval for the result.

1) The total number of disintegrations is:

$$\frac{28\ counts}{0.1\,c/d} = 280$$

2) Using the equation for error propagation for division, total uncertainty is:

$$280\sqrt{\left(\frac{5}{28}\right)^2 + \left(\frac{0.01}{0.1}\right)^2} = 57 \text{ disintegrations}$$

3) The activity will then be 280 ÷ 5 minutes = 56 dpm and the total uncertainty will be 57 ÷ 5 minutes = 11 dpm. (Since the count time is considered to have trivial variance, this is assumed to be a constant.)

Referring to Table 6.9, a k value of ±1.96 represents a confidence interval equal to 95% about the mean of a normal distribution. Therefore, the 95% confidence interval would be 1.96 × 11 dpm = 22 dpm. The final result would be 56 ± 22 dpm.

6.9 Radon Measurements

There are three radon isotopes in nature: ^{222}Rn (radon) in the ^{238}U decay chain, ^{220}Rn (thoron) in the ^{232}Th chain, and ^{219}Rn (actinon) in the ^{235}U chain. ^{219}Rn is the least abundant of these three isotopes, and because of its short half-life of 4 seconds it has the least probability of emanating into the atmosphere before decaying. ^{220}Rn with a 55 second half-life is somewhat more mobile. ^{222}Rn with a 3.8 d half-life is capable of migrating through several decimeters of soil or building material and reaching the atmosphere. Therefore, in most situations, ^{222}Rn should be the predominant airborne radon isotope.

Many techniques have been developed over the years for measuring radon (Jenkins 1986) and radon progeny in air. In addition, considerable attention is given by EPA to measurement of radon and radon progeny in homes (EPA 1992d). Radon and radon progeny emit alpha and beta particles and gamma rays. Therefore, numerous techniques can and have been developed for measuring these radionuclides based on detecting alpha particles, beta particles, or gamma rays, independently or in some combination. It is even difficult to categorize the various techniques that are presently in use. This section contains an overview of information dealing with the measurement of radon and radon progeny. The information is focused on the measurement of ^{222}Rn, however the information may be adapted for the measurement of ^{219}Rn and ^{220}Rn.

Radon concentrations within a fixed structure can vary significantly from one section of the building to another and can fluctuate over time. If a home has a basement, for instance, it is usually expected that a higher radon concentration will be found there. Likewise, a relatively small increase in the relative pressure between the soil and the inside of a structure can cause a significant increase in the radon emanation rate from the soil into the structure. Many factors play a role in these variations, but from a practical standpoint it is only necessary to recognize

that fluctuations are expected and that they should be accounted for. Long term measurement periods are required to determine a true mean concentration inside a structure and to account for the fluctuations.

Two analytical end points are of interest when performing radon measurements. The first and most commonly used is radon concentration, which is stated in terms of activity per unit volume (Bq/m^3 or pCi/L). Although this terminology is consistent with most federal guidance values, it only infers the potential dose equivalent associated with radon. The second analytical end point is the radon progeny working level. Radon progeny usually attach very quickly to charged aerosols in the air following creation. The fraction that remains unattached is usually quite small (*i.e.*, 5-10%). Since most aerosol particles carry an electrical charge and are relatively massive ($\geq$ 0.1 µm), they are capable of attaching to the surfaces of the lung. Essentially all dose or risk from radon is associated with alpha decays from radon progeny attached to tissues of the respiratory system. If an investigator is interested in accurately determining the potential dose or risk associated with radon in the air of a room, the radon progeny concentration must be known.

Radon progeny concentrations are usually reported in units of working levels (WL), where one working level is equal to the potential alpha energy associated with the radon progeny in secular equilibrium with 100 pCi/L of radon. One working level is equivalent to 1.28×10^5 MeV/L of potential alpha energy. Given a known breathing rate and lung attachment probability, the expected mean lung dose from exposure to a known working level of radon progeny can be calculated.

Radon progeny are not usually found in secular equilibrium with radon indoors due to plating out of the charged aerosols onto walls, furniture, *etc.* The ratio of ^{222}Rn progeny activity to ^{222}Rn activity usually ranges from 0.2 to as high as 0.8 indoors (NCRP 1988). If only the ^{222}Rn concentration is measured and it is not practical to measure the progeny concentrations, then general practice is to assume a progeny to ^{222}Rn equilibrium ratio of 0.5 for indoor areas. This allows one to estimate the expected dose or risk associated with a given radon concentration.

In general, the following generic guidelines should be followed when performing radon measurements during site investigations:

- The radon measurement method used should be well understood and documented.
- Long term measurements are used to determine the true mean radon concentration.
- The impact of variable environmental conditions (*e.g.*, humidity, temperature, dust loading, and atmospheric pressure) on the measurement process should be accounted for when necessary. Consideration should be given to effects on both the air collection process and the counting system.

- The background response of the detection system should be accounted for.

- If the quantity of interest is the working level, then the radon progeny concentrations should be evaluated. If this is not practical, then the progeny activities can be estimated by assuming they are 50% of the measured radon activity (NCRP 1988).

For a general overview, a list of common radiation detectors with their usual applications during radon surveys is provided in Table 6.10. Descriptions and costs for specific equipment used for the measurement of radon are contained in Appendix H.

Table 6.10 Radiation Detectors with Applications to Radon Surveys

System	Description	Application	Remarks
Large area activated charcoal collector	A canister containing activated charcoal is twisted into the surface and left for 24 hours.	Short term radon flux measurements	The LLD is 0.007 Bq $m^{-2}s^{-1}$ (0.2 pCi $m^{-2}s^{-1}$).
Continuous radon monitor	Air pump and scintillation cell or ionization chamber.	Track the real time concentration of radon	Takes 1 to 4 hours for system to equilibrate before starting. The LLD is 0.004-0.04 Bq/L (0.1-1.0 pCi/L).
Activated charcoal adsorption	Activated charcoal is opened to the ambient air, then gamma counted on a gamma scintillator or in a liquid scintillation counter.	Measure radon concentration in indoor air	Detector is deployed for 2 to 7 days. The LLD is 0.007-0.04 Bq/L (0.2 to 1.0 pCi/L).
Electret ion chamber	This is a charged plastic vessel that can be opened for air to pass through.	Measure short-term or long-term radon concentration in indoor air	Must correct reading for gamma background concentration. Electret is sensitive to extremes of temperature and humidity. LLD is 0.007-0.02 Bq/L (0.2-0.5 pCi/L).
Alpha track detection	A small piece of special plastic or film inside a small container. Damage tracks from alpha particles are chemically etched and tracks counted.	Measure indoor or outdoor radon concentration in air	LLD is 0.04 Bq $L^{-1}d^{-1}$ (1 pCi $L^{-1}d^{-1}$).

The following provides a general overview of radon sampling and measurement concepts. The intent of this section is to provide an overview of common methods and terminology.

6.9.1 Direct Radon Measurements

Direct radon measurements are performed by gathering radon into a chamber and measuring the ionizations produced. A variety of methods have been developed, each making use of the same fundamental mechanics but employing different measurement processes. The first step is to get the radon into a chamber without collecting any radon progeny from the ambient air. A filter is normally used to capture charged aerosols while allowing the radon gas to pass through. Most passive monitors rely on diffusion of the ambient radon in the air into the chamber to establish an equilibrium between the concentrations of radon in the air and in the chamber. Active monitors use some type of air pump system for the air exchange method.

Once inside the chamber, the radon decays by alpha emission to form ^{218}Po which usually takes on a positive charge within thousandths of a second following formation. Some monitor types collect these ionic molecules and subsequently measure the alpha particles emitted by the radon progeny. Other monitor types, such as the electret ion chamber, measure the ionization produced by the decay of radon in the air within the chamber by directly collecting the ions produced inside the chamber. Simple systems measure the cumulative radon during the exposure period based on the total alpha decays that occur. More complicated systems actually measure the individual pulse height distributions of the alpha and/or beta radiation emissions and derive the radon plus progeny isotopic concentration in the air volume.

Care must be taken to accurately calibrate a system and to understand the effects of humidity, temperature, dust loading, and atmospheric pressure on the system. These conditions create a small adverse effect on some systems and a large influence on others.

6.9.1.1 Integrating Methods for Radon Measurement

With integrating methods, measurements are made over a period of days, weeks, or months and the device is subsequently read by an appropriate device for the detector media used. The most common detectors used are activated charcoal adsorbers, electret ion chamber (EIC), and alpha track plastics. Short term fluctuations are averaged out, thus making the measurement representative of average concentration. Results in the form of an average value provide no way to determine the fluctuations of the radon concentration over the measurement interval. Successive short term measurements can be used in place of single long term measurements to gain better insight into the time dependence of the radon concentration.

6.9.1.2 Continuous Methods for Radon Measurement

Devices that measure direct radon concentrations over successive time increments are generally called continuous radon monitors. These systems are more complex than integrating devices in that they measure the radon concentration and log the results to a data recording device on a real

time basis. Continuous radon measurement devices normally allow the noble gas radon to pass through a filter into a detection chamber where the radon decays and the radon and/or the resulting progeny are measured. The most common detectors used for real time measurements are ion chambers, solid state surface barrier detectors, and ZnS(Ag) scintillation detectors.

Continuous methods offer the advantage of providing successive, short-term results over long periods of time. This allows the investigator not only to determine the average radon concentration, but also to analyze the fluctuations in the values over time. More complicated systems are available that measure the relative humidity and temperature at the measurement location and log the values along with the radon concentrations to the data logging device. This allows the investigator to make adjustments, if necessary, to the resulting data prior to reporting the results.

6.9.2 Radon Progeny Measurements

Radon progeny measurements are performed by collecting charged aerosols onto filter paper and subsequently counting the filter for attached progeny. Some systems pump air through a filter and then automatically count the filter for alpha and/or beta emissions. An equivalent but more labor intensive method is to collect a sample using an air sampling pump and then count the filter in stand alone alpha and/or beta counting systems. The measurement system may make use of any number of different techniques ranging from full alpha and beta spectrometric analysis of the filters to simply counting the filter for total alpha and or beta emissions.

When performing total (gross) counting analyses, the assumption is usually made that the only radioisotopes in the air are due to ^{222}Rn and its progeny. This uncertainty, which is usually very small, can be essentially eliminated when performing manual sampling and analysis by performing a follow up measurement of the filter after the radon progeny have decayed to a negligible level. This value can then be used as a background value for the air. Of course, such a simple approach is only applicable when ^{222}Rn is the isotope of concern. For ^{219}Rn or ^{220}Rn, other methods would have to be used.

Time is a significant element in radon progeny measurements. Given any initial equilibrium condition for the progeny isotopes, an investigator must be able to correlate the sampling and measurement technique back to the true concentration values. When collecting radon progeny, the buildup of total activity on the filter increases asymptotically until the activity on the filter becomes constant. At this point, the decay rate of the progeny atoms on the filter is equal to the collection rate of progeny atoms. This is an important parameter to consider when designing a radon sampling procedure.

Note that the number of charged aerosol particles in the air can affect the results for radon progeny measurements. If the number of particles is few, as is possible when humidity is low and a room is very clean, then most of the progeny will not be attached and can plate out on room

surfaces prior to reaching the sample filter. This is not a problem if the same conditions always exist in the room, however the calculated dose would underestimate the dose that would be received in a higher humidity or dust concentration state with the same radon progeny concentration.

6.9.3 Radon Flux Measurements

Sometimes it is desirable to characterize the source of radon in terms of the rate at which radon is emanating from a surface—that is, soil, uranium mill tailings, or concrete. One method used for measuring radon flux is briefly described here.

The measurement of radon flux can be achieved by adsorption onto charcoal using a variety of methods such as a charcoal canister or a large area collector (*e.g.*, 25 cm PVC end cap). The collector is deployed by firmly twisting the end cap into the surface of the material to be measured. After 24 hours of exposure, the activated charcoal is removed and transferred to plastic containers. The amount of radon adsorbed on the activated charcoal is determined by gamma spectroscopy. Since the area of the surface is well defined and the deployment period is known, the radon flux (in units of Bq/m^2-s or pCi/m^2-s) can be calculated.

This method is reliable for measuring radon flux in normal environmental situations. However, care should be taken if an extremely large source of radon is measured with this method. The collection time should be chosen carefully to avoid saturating the canister with radon. If saturation is approached, the charcoal loses its ability to absorb radon and the collection rate decreases. Even transporting and handling of a canister that is saturated with radon can be a problem due to the dose rate from the gamma rays being emitted. One would rarely encounter a source of radon that is so large that this would become a problem; however, it should be recognized as a potential problem. Charcoal can also become saturated with water, which will affect the absorption of radon. This can occur in areas with high humidity.

An alternative method for making passive radon flux measurements has been developed recently using electret ionization chambers (EICs). EIC technology has been widely used for indoor radon measurements. The passive EIC procedure is similar to the procedures used with large area activated charcoal canisters. In order to provide the data for the background corrections, an additional passive monitor is located side by side on a radon impermeable membrane. These data are used to calculate the net radon flux. The Florida State Bureau of Radiation Protection has compared the results from measurements of several phosphogypsum flux beds using the charcoal canisters and EICs and has shown that the two methods give comparable results. The passive method seems to have overcome some of the limitations encountered in the use of charcoal. The measurement periods can be extended from hours to several days in order to obtain a better average, if needed. EIC flux measurements are not affected by environmental conditions such as temperature, humidity, and air flow. The measured sensitivities are

comparable to the charcoal method but, unlike charcoal, EICs do not become saturated by humidity. Intermediate readings can be made if needed.. In view of the low cost of the EIC reading/analyzing equipment, the cost per measurement can be as much as 50% lower than the charcoal method with additional savings in time.

6.10 Special Equipment

Various specialized systems have been developed which can be used during the performance of radiation surveys and site investigations. These range from specially designed quick radiation scanning systems to commercial global positioning systems (GPSs). The equipment may be designed to detect radiation directly, detect and locate materials associated with the contamination (*e.g.*, metal containers), or locate the position where a particular measurement is performed (*e.g.*, GPS). Because these specialized systems are continuously being modified and developed for site-specific applications, it is not possible to provide detailed descriptions of every system. The following sections provide examples of specialized equipment that have been applied to radiation surveys and site investigations.

6.10.1 Positioning Systems

As stated in Section 4.8.5, documenting the location of measurements is important for demonstrating the reproducibility of the results. There are a variety of positioning systems available that provide a range of accuracy and precision that can be evaluated during survey planning to determine their applicability to a particular site. These positioning systems can be used to establish a reproducible reference coordinate system or to locate individual measurements using an established reference coordinate system (*e.g.*, longitude and latitude).

6.10.1.1 Differential Global Positioning Systems

A variety of practical and versatile GPSs based on radio signals tracked from satellite beacons are available (e.g., Trimble™, Novatel™, Garmin™). These systems are generally used to aid in recording and retrieving location data with precision on the order of tens of meters. With a stationary base station and a separate moving locator, the system is deployed in the "differential global positioning system" (DGPS) mode. DGPSs can record and retrieve location data with a precision in the centimeter range.

DGPS can be used to provide position information on surface features in areas being surveyed, linking the survey results to previously published maps and aerial photographs. In addition, survey results may be positioned using the DGPS readings to accurately and precisely locate the results as well as the results of any subsequent analyses to these same maps or photographs. A process called waypointing uses the DGPS to locate specific points and allows the user to find

predetermined locations and set up gridded locations for measurements based on location data that are tied into local or state coordinate systems.

Limitations on the use of DGPS are related to the number of satellite beacons available to the system. When three or fewer satellites are available the accuracy and precision of the location data will be reduced. There are short periods of time (usually less than one hour even on the worst days) when a limited number of satellites are overhead in the continental United States. Satellites may also be blocked by excess tree cover or tall buildings. Distance between the moving locator and the stationary base station may be several kilometers or may be limited to line-of-sight. This limitation can be mitigated through the strategic use of repeater stations to re-transmit the signal between the moving locator and the base station.

6.10.1.2 Local Microwave and Sonar Positioning Systems

Local microwave or sonar beacons and receivers may provide useful location data in small areas and tree-covered locales. One example of a sonar-based system is the ultrasonic ranging and data system (USRADS). With a number of fixed beacons in place, a roving unit can be oriented and provide location data with similar accuracy and precision as the DGPS. If the beacons are located at known points, the resulting positions can be determined using simple calculations based on the known reference locations of the beacons.

The logistics of deploying the necessary number of beacons properly and the short range of the signals are the major limitations of the system. In addition, multipathing of signals within wooded areas can cause jumps in the positioning data.

6.10.2 Mobile Systems with Integrated Positioning Systems

In recent years, the advent of new technologies has introduced mobile sensor systems for acquiring data that include fully-integrated positioning systems. Portable and vehicle-based versions of these systems record survey data while moving over surfaces to be surveyed and simultaneously recording the location data from either a roving DGPS receiver or local microwave/sonar receiver. All measurement data are automatically stored and processed with the measurement location for later posting (see Section 8.2.2.2 for a discussion of posting plots) or for mapping the results. These systems are designed with a variety of detectors for different applications. For example, alpha or beta detectors have been mounted on a robot a fixed distance over a smooth surface. The robot moves at a predetermined speed over the surface to provide scanning results, and also records individual direct measurements at predetermined intervals. This type of system not only provides the necessary measurement data, but also reduces the uncertainty associated with human factors. Other systems are equipped with several types of radiation detectors, magnetometers, electromagnetic sensors, or various combinations of multiple sensors. The limitations of each system should be evaluated on a site-specific basis to determine

if the positioning system, the detector, the transport system, or some combination based on site-specific characteristics will represent the limits of the system.

6.10.3 Radar, Magnetometer, and Electromagnetic Sensors

The number of sensors and sensor systems applicable to the detection and location of buried waste have increased in use and reliability in recent years. These systems are typically applicable to scoping and characterization surveys where the identification of subsurface contamination is a primary concern. However, the results of these surveys may be used during final status survey planning to demonstrate that subsurface contamination is not a concern for a particular site or survey unit. Some of the major technologies are briefly described in the following sections.

6.10.3.1 Ground Penetrating Radar

For most sites, ground penetrating radar (GPR) is the only instrument capable of collecting images of buried objects *in situ*, as compared to magnetometers (Section 6.10.3.2) and electromagnetic sensors (Section 6.10.3.3) which detect the strength of signals as measured at the ground surface. Additionally, GPR is unique in its ability to detect both metallic and non-metallic (*e.g.*, plastic, glass) containers.

Subsurface radar detection systems have been the focus of study for locating and identifying buried or submerged objects that otherwise could not be detected. There are two major categories of radar signals: 1) time domain, and 2) frequency domain. Time-domain radar uses short impulses of radar-frequency energy directed into the ground being investigated. Reflections of this energy, based on changes in dielectric properties, are then received by the radar. Frequency-domain radar, on the other hand, uses a continuous transmission where the frequency of the transmission can be varied either stepwise or continuously. The changes in the frequency characteristics due to effects from the ground are recorded. Signal processing, in both cases, converts this signal to represent the location of radar reflectors against the travel time of the return signal. Greater travel time corresponds to a greater distance beneath the surface. Table 6.11 lists the typical penetration depth for various geologic materials (fresh water is included as a baseline for comparison).

Examples of existing GPR technologies currently being applied to subsurface investigations include:

- narrow-band radar
- ultra-wideband radar
- synthetic aperture radar
- frequency modulated continuous radar
- polarized radar waves

Table 6.11 Typical Radar Penetration Depths for Various Geologic Materials

Material	Penetration Depth m (ft)
Fresh Water	100 (330)
Sand (desert)	5 (16)
Sandy Soil	3 (10)
Loam Soil	3 (10)
Clay Soil	2 (6)
Salt Flats (dry)	1 (3)
Coal	20 (66)
Rocks	20 (66)
Walls	0.3 (1)

The major limitation to GPR is the difficulty in interpreting the data, which is often provided in the form of hazy, "waterfall-patterned" data images requiring an experienced professional to interpret. Also, GPR can vary depending on the soil type as shown in Table 6.10. Highly conductive clay soils often absorb a large amount of the radar energy, and may even reflect the energy. GPR can be deployed using ground-based or airborne systems.

6.10.3.2 Magnetometers

Although contaminated soil and most radioactive waste possess no ferromagnetic properties, the containers commonly used to hold radioactive waste (*e.g.*, 55-gallon drums) are made from steel. These containers possess significant magnetic susceptibility making the containers detectable using magnetometry.

Magnetometers sense the pervasive magnetic field of the Earth. This field, when encountering an object with magnetic susceptibility, induces a secondary magnetic field in that object. This secondary field creates an increase or decrease in Earth's ambient magnetic field. Magnetometers measure these changes in the expected strength of the ambient magnetic field. Some magnetometers, called "vector magnetometers," can sense the direction as well as the magnitude of these changes. However, for subsurface investigations only the magnitude of the changes are used.

The ambient magnetic field on Earth averages 55,000 gamma in strength. The variations caused by the secondary magnetic fields typically range from 10 to 1,000 gamma, and average around 100 gamma. Most magnetometers currently in use have a sensitivity in the 0.1 to 0.01 gamma range and are capable of detecting these secondary fields.

An alternate magnetometer survey can be performed using two magnetometers in a gradiometric configuration. This means that the first magnetometer is placed at the ground surface, while the second is mounted approximately 0.5 meters above the first. Data is recorded from both sensors and compared. When the readings from both detectors are nearly the same, it implies that there is no significant disturbance in the Earth's ambient magnetic field or that such disturbances are broad and far away from the gradiometer. When a secondary magnetic field is induced in an object, it affects one sensor more strongly than the other, producing a difference in the readings from the two magnetometers. This approach is similar to the use of a guard detector in anti-coincidence mode in a low-background gas-flow proportional counter in a laboratory (see Appendix H for a description of gas-flow proportional counters). The gradiometric configuration filters out the Earth's ambient magnetic field, large scale variations, and objects located far from the sensor to measure the effects of nearby objects, all without additional data processing.

Fifty-five gallon drums buried 5 to 7 meters below the surface may be detectable using a magnetometer. At many sites, multiple drums have been buried in trenches or pits and detection is straightforward. A single operator carrying a magnetometer with the necessary electronics in a backpack can cover large areas in a relatively small amount of time.

The limitations on the system are related to the size of the objects and their depth below the surface. Objects that are too small or buried too deep will not provide a secondary magnetic field that can be detected at the ground surface.

6.10.3.3 Electromagnetic Sensors

Electromagnetic sensors emit an electromagnetic wave, in either a pulsed or continuous wave mode, and then receive the result of that transmission. The result of the transmission is two signals; quadrature and in-phase. As the wave passes through some material other than air, it is slowed down by a resistive medium or sped up by a conductor through dielectric effects. This produces the quadrature signal. If the electromagnetic wave encounters a highly conductive object it induces a magnetic field in the object. This induced electromagnetic field returns to the sensor as a reflection of the original electromagnetic wave and forms the in-phase signal.

The in-phase signal is indicative of the presence, size, and conductivity of nearby objects (*e.g.*, 55-gallon drums), while the quadrature signal is a measure of the dielectric properties of the nearby objects such as soil. This means that electromagnetic sensors can detect all metallic objects (including steel, brass, and aluminum), such as the metal in waste containers, and also sample the soil for changes in properties, such as those caused by leaks of contaminants.

Depths of interest are largely determined by the spacing between the coil used to transmit the primary electromagnetic wave, and the receiver used to receive that transmission. The rule of thumb is that the depth of interest is on the order of the distance between the transmitter and the receiver. A system designed with the transmitter and receiver placed tens of meters apart can detect signals from tens of meters below the surface. A system with the transmitter and receiver collocated can only detect signals from depths on the order of the size of the coil, which is typically about one meter. The limitations of electromagnetic sensors include a lack of clearly defined signals, and decreasing resolution of the signal as the distance below the surface increases.

6.10.4 Aerial Radiological Surveys

Low–altitude aerial radiological surveys are designed to encompass large areas and may be useful in:

- providing data to assist in the identification of radioactive contaminants and their corresponding concentrations and spatial distributions
- characterizing the nature, extent, and impact of contamination

The measurement sensitivity and data processing procedures provide total area coverage and a detailed definition of the extent of gamma-producing isotopes for a specific area. The gamma radiation spectral data are processed to provide a qualitative and quantitative analysis of the radionuclides in the survey area. Helicopter flights establish a grid pattern (*e.g.*, east–west) of parallel lines approximately 61 m (200 ft) above the ground surface.

The survey consists of airborne measurements of natural and man–made gamma radiation from the terrain surface. These measurements allow for the determination of terrestrial spatial distribution of isotopic concentrations and equivalent gamma exposure rates (*e.g.*, ^{60}Co, ^{234m}Pa, and ^{137}Cs). The results are reported as isopleths for the isotopes and are usually superimposed on scale maps of the area.

7 SAMPLING AND PREPARATION FOR LABORATORY MEASUREMENTS

7.1 Introduction

There are three methods for collecting radiation data while performing a survey. A direct measurement is obtained by placing the detector near or against the surface or in the media being surveyed and reading the radioactivity level directly. Scanning is an evaluation technique performed by moving a portable radiation detection instrument at a constant speed and distance above the surface to semi-quantitatively detect elevated areas of radiation. These measurement techniques are discussed in Chapter 6. Sampling is the process of collecting a portion of an environmental medium as representative of the locally remaining medium. The collected portion of the medium is then analyzed to determine the radionuclide concentration. This chapter discusses issues involved in collecting and preparing samples in the field for analysis, and in evaluating the results of these analyses. In addition, a general discussion on laboratory sample preparation and analysis is provided to assist in communications with the laboratory during survey planning.

Samples should be collected and analyzed by qualified individuals using the appropriate equipment and procedures. This manual assumes that the samples taken during the survey will be submitted to a qualified laboratory for analysis. The laboratory should have written procedures that document its analytical capabilities for the radionuclides of interest and a Quality Assurance/Quality Control (QA/QC) program that documents the compliance of the analytical process with established criteria. The method used to assay for the radionuclides of concern should be recognized as a factor affecting analysis time.

Commonly used radiation detection and measuring equipment for radiological survey field applications is described in Chapter 6 and Appendix H. Many of these equipment types are also used for laboratory analyses, usually under more controlled conditions that provide for lower detection limits and greater delineation between radionuclides. Laboratory methods often involve combinations of both chemical and instrument techniques to quantify the low levels expected in the samples. This chapter provides guidance to assist the MARSSIM user in selecting appropriate procedures for collecting and handling samples for laboratory analysis. More detailed information is available in documents listed in the reference section of this manual.

7.2 Data Quality Objectives

The survey design is developed and documented using the Data Quality Objectives (DQO) Process (see Appendix D). The third step of the DQO Process involves identifying the data needs for a survey. One decision that can be made at this step is the selection of direct

measurements for performing a survey or deciding that sampling methods followed by laboratory analysis are necessary.

7.2.1 Identifying Data Needs

The decision maker and the survey planning team need to identify the data needs for the survey being performed, including the:

- type of samples to be collected or measurements to be performed (Chapter 5)
- radionuclide(s) of interest (Section 4.3)
- number of samples to be collected (Section 5.5.2)
- type and frequency of field QC samples to be collected (Section 4.9)
- amount of material to be collected for each sample (Section 4.7.3 and Section 7.5)
- sampling locations and frequencies (Section 5.5.2)
- standard operating procedures (SOPs) to be followed or developed (Chapter 7)
- analytical bias and precision (*e.g.*, quantitative or qualitative) (Appendix N)
- target detection limits for each radionuclide of interest (Section 6.4 and Table 7.2)
- cost of the methods being evaluated (cost per analysis as well as total cost) (Appendix H)
- necessary turnaround time
- sample preservation and shipping requirements (Section 7.6 and Section 7.9)
- specific background for the radionuclide(s) of interest (Section 4.5)
- derived concentration guideline level (DCGL) for each radionuclide of interest (Section 4.3)
- measurement documentation requirements (Section 9.4.2.2)
- sample tracking requirements (Section 7.8)

Some of this information will be supplied by subsequent steps in the DQO process, and several iterations of the process may be needed to identify all of the data needs. Consulting with a radiochemist or health physicist may be necessary to properly evaluate the information before deciding between direct measurements or sampling methods to perform the survey. Surveys may require data from all three collection methods (*i.e.*, sample analysis, direct measurements, and scans) in order to demonstrate compliance with the regulation.

7.2.2 Data Quality Indicators

The data quality indicators identified as DQOs in Section 2.3.1 and described in Appendix N, Section N.6, should be considered when selecting a measurement method (*i.e.*, scanning, direct measurement, sampling) or an analytical technique (*e.g.*, radionuclide-specific analytical procedure). In some instances, the data quality indicator requirements will help in the selection of an analytical technique. In other cases, the analytical requirements will assist in the selection of appropriate levels for the data quality indicators.

7.2.2.1 Precision

Precision is a measure of agreement among replicate measurements of the same property under prescribed similar conditions (ASQC 1995). Precision is determined quantitatively based on the results of replicate measurements (equations are provided in EPA 1990). The number of replicate analyses needed to determine a specified level of precision for a project is discussed in Section 4.9. There are several types of replicate analyses available to determine the level of precision, and these replicates are typically distinguished by the point in the sample collection and analysis process where the sample is divided. Determining precision by replicating measurements with results at or near the detection limit of the measurement system is not recommended because the measurement uncertainty is usually greater than the desired level of precision.

- Collocated Samples. Collocated samples are samples collected adjacent to the routine field sample to determine local variability of the radionuclide concentration. Typically, collocated samples are collected about one-half to three feet away from the selected sample location. Analytical results from collocated samples can be used to assess site variation, but only in the immediate sampling area. Collocated samples should not be used to assess variability across a site and are not recommended for assessing error (EPA 1991g). Collocated samples can be non-blind, single-blind, or double-blind.

- Field Replicates. Field replicates are samples obtained from one location, homogenized, divided into separate containers and treated as separate samples throughout the remaining sample handling and analytical processes. These samples are used to assess error associated with sample heterogeneity, sample methodology and analytical procedures. Field replicates are used when determining total error for critical samples with contamination concentrations near the action level. For statistical analysis to be valid in such a case, a minimum of eight replicate samples would be required (EPA 1991g). Field replicates (or field split samples) can be non-blind, single-blind, or double-blind and are recommended for determining the level of precision for a radiation survey or site investigation.

- Analytical Laboratory Replicate. An analytical laboratory replicate is a subsample of a routine sample that is homogenized, divided into separate containers, and analyzed using the same analytical method. It is used to determine method precision, but because it is a non-blind sample, or known to the analyst, it can only be used by the analyst as an internal control tool and not as an unbiased estimate of analytical precision (EPA 1990).

- Laboratory Instrument Replicate. A laboratory instrument replicate is the repeated measurement of a sample that has been prepared for counting (*i.e.*, laboratory sample preparation and radiochemical procedures have been completed). It is used to determine

precision for the instrument (repeated measurements using same instrument) and the instrument calibration (repeated measurements using different instruments, such as two different germanium detectors with multichannel analyzers). A laboratory instrument replicate is generally performed as part of the laboratory QC program and is a non-blind sample. It is typically used as an internal control tool and not as an unbiased estimate of analytical precision.

7.2.2.2 Bias

Bias is the systematic or persistent distortion of a measurement process that causes error in one direction (ASQC 1995). Bias is determined quantitatively based on the analysis of samples with a known concentration. There are several types of samples with known concentrations. QC samples used to determine bias should be included as early in the analytical process as possible.

- Reference Material. A material or substance one or more of whose property values are sufficiently homogeneous and well established to be used for the calibration of an apparatus, the assessment of a measurement method, or for assigning values to materials (ISO 1993). A certified reference material is reference material for which each certified property value is accompanied by an uncertainty at a stated level of confidence. Radioactive reference materials may be available for certain radionuclides in soil (*e.g.*, uranium in soil), but reference building materials may not be available. Because reference materials are prepared and homogenized as part of the certification process, they are rarely available as double-blind samples. When appropriate reference materials are available (*i.e.*, proper matrix, proper radionuclide, proper concentration range), they are recommended for use in determining the overall bias for a measurement system.

- Performance Evaluation (PE) Samples. PE sample are samples that evaluate the overall bias of the analytical laboratory and detect any error in the analytical method used. These samples are usually prepared by a third party, using a quantity of analyte(s) which is known to the preparer but unknown to the laboratory, and always undergo certification analysis. The analyte(s) used to prepare the PE sample is the same as the analyte(s) of interest. Laboratory procedural error is evaluated by the percentage of analyte identified in the PE sample (EPA 1991g). PE samples are recommended for use in determining overall bias for a measurement system when appropriate reference material are not available. PE samples are equivalent to matrix spikes prepared by a third party that undergo certification analysis and can be non-blind, single-blind, or double-blind.

- Matrix Spike Samples. Matrix spike samples are environmental samples that are spiked in the laboratory with a known concentration of a target analyte(s) to verify percent recoveries. They are used primarily to check sample matrix interferences but can also be used to monitor laboratory performance. However, a data set of at least three or more

results is necessary to distinguish between laboratory performance and matrix interference (EPA 1991g). Matrix Spike samples are often replicated to monitor method performance and evaluate error due to laboratory bias and precision (when four or more pairs are analyzed). These replicates are often collectively referred to as a matrix spike/matrix spike duplicate (MS/MSD).

There are several additional terms applied to samples prepared by adding a known amount of the radionuclide of interest to the sample. The majority of these samples are designed to isolate individual sources of bias within a measurement system by preparing pre- and post-operation spikes. For example, the bias from the digestion phase of the measurement system can be determined by comparing the result from a pre-digest spike to the result from a post-digest spike.

There are also several types of samples used to estimate bias caused by contamination.

- Background Sample. A background sample is a sample collected upgradient of the area of potential contamination (either onsite or offsite) where there is little or no chance of migration of the contaminants of concern (EPA 1991g). Background samples are collected from the background reference area (Section 4.5), determine the natural composition and variability of the soil (especially important in areas with high concentrations of naturally occurring radionuclides), and are considered "clean" samples. They provide a basis for comparison of contaminant concentration levels with samples collected from the survey unit when the statistical tests described in Chapter 8 are performed.

- Field Blanks. Field blanks are samples prepared in the field using certified clean sand or soil and then submitted to the laboratory for analysis (EPA 1991g). A field blank is used to evaluate contamination error associated with sampling methodology and laboratory procedures. It also provides information about contaminants that may be introduced during sample collection, storage, and, transport. Field blanks are recommended for determining bias resulting from contamination for a radiation survey or site investigation.

- Method Blank. A method blank is an analytical control sample used to demonstrate that reported analytical results are not the result of laboratory contamination (ATSDR 1992). It contains distilled or deionized water and reagents, and is carried through the entire analytical procedure (laboratory sample preparation, digestion, and analysis). The method blank is also referred to as a reagent blank. The method blank is generally used as an internal control tool by the laboratory because it is a non-blind sample.

7.2.2.3 Representativeness

Representativeness is a measure of the degree to which data accurately and precisely represent a characteristic of a population parameter at a sampling point (ASQC 1995). Representativeness is a qualitative term that is reflected in the survey design through the selection of a measurement method (*e.g.*, direct measurement or sampling) and the size of a sample collected for analysis.

Sample collection and analysis is typically less representative of true radionuclide concentrations at a specific measurement location than performing a direct measurement. This is caused by the additional steps required in collecting and analyzing samples, such as sample collection, field sample preparation, laboratory sample preparation, and radiochemical analysis. However, direct measurement techniques with acceptable detection limits are not always available. When sampling is required as part of a survey design, it is critical that the sample collection procedures consider representativeness. The location of the sample is determined in Section 5.5.2.5, but the size and content of the sample are usually determined as the sample is collected. Sample size and content are discussed in Section 4.7.3 and Section 7.5. Sample collection procedures also need to consider the development of the DCGLs when determining the representativeness of the samples.

7.2.2.4 Comparability

Comparability is a qualitative term that expresses the confidence that two data sets can contribute to a common analysis and interpolation. Generally, comparability is provided by using the same measurement system for all analyses of a specific radionuclide. In many cases, equivalent procedures used within a measurement system are acceptable. For example, using a liquid-liquid extraction purification step to determine the concentration of ^{238}Pu using alpha spectrometry may be equivalent to using an ion-exchange column purification step. However, using a gross alpha measurement on a gas proportional counting system would not be considered equivalent. Comparability is usually not an issue except in cases where historical data have been collected and are being compared to current analytical results, or when multiple laboratories are used to provide results as part of a single survey design.

7.2.2.5 Completeness

Completeness is a measure of the amount of valid data obtained from the measurement system, expressed as a percentage of the number of valid measurements that should have been collected. Completeness is of greater concern for laboratory analyses than for direct measurements because the consequences of incomplete data often require the collection of additional samples. Direct measurements can usually be repeated fairly easily. The collection of additional samples generally requires a remobilization of sample collection personnel which can be expensive. Conditions at the site may have changed making it difficult or impossible to collect

representative and comparable samples without repeating the entire survey. On the other hand, if it is simply an analytical problem and sufficient sample was originally collected, the analysis can be repeated using archived sample material. Samples collected on a grid to locate areas of elevated activity are also a concern for completeness. If one sample analysis is not valid, the entire survey design for locating areas of elevated activity may be invalidated.

7.2.2.6 Other Data Quality Indicators

Several additional data quality indicators that influence the final status survey design are identified as DQOs in Section 2.3.1. Many of these (*e.g.*, selection and classification of survey units, decision error rates, variability in the contaminant concentration, lower bound of the gray region) are used to determine the number of measurements and are discussed in detail in Section 5.5. The method detection limit is directly related to the selection of a measurement method and a radionuclide-specific analytical technique.

Analytical methods should be capable of measuring levels below the established DCGLs, detection limits of 10-50% of the DCGL should be the target (see Section 6.7). Cost, time, best available technology, or other constraints may create situations where the above stated sensitivities are deemed impracticable. Under these circumstances, higher detection sensitivities may be acceptable. Although laboratories will state detection limits, these sensitivities are usually based on ideal or optimistic situations and may not be achievable under actual measurement conditions. Detection limits are subject to variation from sample to sample, instrument to instrument, and procedure to procedure, depending on sample size, geometry, background, instrument efficiency, chemical recovery, abundance of the radiations being measured, counting time, self-absorption in the prepared sample, and interferences from radionuclides or other materials present in the sample. The detection limit that is achievable in practice should not exceed the DCGL.

7.3 Communications with the Laboratory

Laboratory analyses of samples are generally performed by personnel not directly involved in the collection of the samples being analyzed. Samples are typically collected by one group working in the field, and analyzed by a second group located in a laboratory. This separation of tasks can potentially lead to problems based on the lack of communication between the two groups. For this reason, communications between the Project Manager, field personnel, and laboratory personnel are vital to ensuring the success of a project.

7.3.1 Communications During Survey Planning

The radioanalytical laboratory is a valuable resource during survey planning. Information on available analytical techniques, analytical bias and precision, method detection limits, analytical costs, and turnaround times can easily be provided by the laboratory. All of this information is used to make the decision to perform direct measurements or collect samples for laboratory measurements. Additional information, such as required sample size/volume, type of sample container, preservative requirements, and shipping requirements, including the availability of the laboratory for receipt of samples on weekends or holidays, can be obtained and factored into the survey plan.

Involving the radioanalytical laboratory during survey planning also provides the laboratory with site-specific information about the project. Information on the radionuclides of interest, possible chemical and physical form of the contamination, and mechanism for release of the contamination to the environment is used to modify or develop the analytical method for site-specific conditions if required. The laboratory should also be provided with the site-specific action levels (i.e., DCGLs, investigation levels) early in the survey planning process.

In some cases, it is not practical to select a radioanalytical laboratory early in the survey process to participate in the survey planning activities. For example, Federal procurement procedures require that a statement of work (SOW) identifying the tasks to be performed by the laboratory be developed prior to selecting a laboratory. Unfortunately, the details of the tasks for the laboratory to perform are developed during survey planning. This means that the information provided by the laboratory and used during survey planning will be obtained from another source, usually a radiochemist or health physicist trained in radiochemistry. The uncertainty associated with this information and subsequent decisions made based on this information increases. This may lead to increased costs caused by specifying an unnecessarily expensive analytical method in the SOW or repeated sampling and analysis of samples that did not meet the target detection limits because the specified analytical method was not sensitive enough. In addition, unnecessary or inappropriate analytical methods may be selected by the laboratory because site-specific information concerning the samples was not provided.

The laboratory should be consulted when planning the schedule for the survey to insure that the expected turnaround times can be met based on the projected laboratory workload.

7.3.2 Communications Before and During Sample Collection

In most situations, the sample collection and shipping containers are supplied by the laboratory; therefore, the laboratory should be notified well in advance of the sampling trip so that these items will be available to the sampling team during the survey.

The main purpose of communications with the laboratory during sample collection is to inform the laboratory of modifications to the survey design specified in the planning documents (*e.g.*, QAPP and SOPs). The laboratory should have a copy of the survey design in their possession prior to samples being collected.

Modifications to the survey design are often minor deviations from the SOPs caused by site-specific conditions and usually affect a small number of samples. For example, a rock outcropping covered by a thin layer of soil may restrict the depth of the surface soil sample to 5 cm (2 in.) instead of the 10 cm (4 in.) specified in the SOP. The mass of the samples collected from this area of the site is one-half the expected sample mass, and the laboratory needs to be informed of this deviation from the SOP.

In other situations, there may be an extensive modification to the number or types of samples collected at the site that will affect the analytical methods, detection capabilities, analytical costs, or even the assumptions used to develop the DCGL. For example, a large portion of the site may have been converted to a parking lot. A large pile of material that may represent the former surface soil will be sampled as well as soil collected from beneath the parking lot surface. The number of samples to be analyzed has doubled compared to the original SOW.

If the expected timing of receipt of samples at the laboratory changes due to sample collection schedule deviations, the laboratory should be notified. Most laboratories require prior notification for samples to be received on weekends.

7.3.3 Communications During Sample Analysis

The laboratory should communicate with the Project Manager and field personnel during sample analysis. The laboratory should provide a list of missing or damaged samples as soon after the samples are received as practical. This allows the Project Manager to determine if resampling is required to replace the missing or damaged samples. The Project Manager may also request notification from the laboratory when samples are spilled or lost during analysis. Preliminary reports of analytical results may be useful to help direct sampling activities and provide early indications of whether the survey objectives defined by the DQOs are being met. However, if preliminary results have not been verified or validated, their usefulness is limited.

7.3.4 Communications Following Sample Analysis

Following sample analysis, the laboratory will provide documentation of the analytical results as specified in the survey design. Laboratory personnel should be available to assist with data verification and validation.

7.4 Selecting a Radioanalytical Laboratory

Once the decision to perform sampling activities is made, the next step is to select the analytical methods and determine the data needs for these methods. It is advisable to select a radiochemical laboratory early in the survey planning process in order that it may be consulted on the analytical methodology[1] and the sampling activities. In addition, mobile laboratories can provide on-site analytical capability. Obtaining laboratory or other services may involve a specific procurement process. Federal procurement procedures may require additional considerations beyond the method described here.

The procurement of laboratory services usually starts with the development of a request for proposal that includes a statement-of-work describing the analytical services to be procured. The careful preparation of the statement-of-work is essential to the selection of a laboratory capable of performing the required services in a technically competent and timely manner.

The technical proposals received in response to the procurement request for proposal must be reviewed by personal familiar with radioanalytical laboratory operations in order to select the most qualified offerer. For complicated sites with a large number of laboratory analyses, it is recommended that a portion of this evaluation take the form of a pre-award audit. The provision for this audit must be in the request for proposal. The results of this audit provide a written record of the decision to use a specific laboratory. Smaller sites or facilities may decide that a review of the laboratory's qualifications is sufficient for the evaluation.

There are six criteria that should be reviewed during this evaluation:

- Does the laboratory possess the appropriate well-documented procedures, instrumentation, and trained personnel to perform the necessary analyses? Necessary analyses are defined by the data needs (radionuclide(s) of interest and target detection limits) identified by the DQO process.

- Is the laboratory experienced in performing the same or similar analyses?

- Does the laboratory have satisfactory performance evaluation results from formal monitoring or accreditation programs? The laboratory should be able to provide a summary of QA audits and proof of participation in interlaboratory cross-check programs. Equipment calibrations should be performed using National Institute of Standards and Technology (NIST) traceable reference radionuclide standards whenever possible.

[1] The laboratory provides information on personnel, capabilities, and current workload that are necessary inputs to the decision-making process.

- Is there an adequate capacity to perform all analyses within the desired timeframe? This criterion considers whether or not the laboratory possesses a radioactive materials handling license or permit for the samples to be analyzed. Very large survey designs may indicate that more than one analytical laboratory is necessary to meet the survey objectives.[2]

- Does the laboratory provide an internal quality control review of all generated data that is independent of the data generators?

- Are there adequate protocols for method performance documentation and sample security?

Providers of radioanalytical services should have an active and fully documented QA program in place.[3] This program should comply with the objectives determined by the DQO process in Section 2.3. The QA program should include:

- laboratory organizational structure
- personnel qualifications
- written standard operating procedures and instructions
- inter- and intralaboratory performance analyses
- design control to define the flow of samples through the laboratory
- a corrective action plan
- an internal audit program

Chain-of-Custody requirements and numbers of samples are also specified. The analytical procedures as well as the documentation and reporting requirements should be specified and agreed upon. These topics are discussed in detail in the following sections of this chapter.

7.5 Sampling

This section provides guidance on developing appropriate sample collection procedures for surveys designed to demonstrate compliance with a dose- or risk-based regulation. Sample collection procedures are concerned mainly with ensuring that a sample is representative of the sample media, is large enough to provide sufficient material to achieve the desired detection limit, and is consistent with assumptions used to develop the conceptual site model and the DCGLs. Additional considerations for sample collection activities are discussed in Section 4.7.3.

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[2] If several laboratories are performing analyses as part of the survey, the analytical methods used to perform the analyses should be similar to ensure comparability of results (see Appendix N, Section N.6.5).

[3] The QA program is typically documented in one or more documents such as a Quality Management Plan, Quality Assurance Manual, or Quality Assurance Project Plan.

The presence of radioactive and hazardous chemical wastes (mixed wastes) at a site can influence the survey design. The external exposure rates or radioactivity concentration of a specific sample may limit the time that workers will be permitted to remain in intimate contact with the samples, or may dictate that smaller samples be taken and special holding areas be provided for collected samples prior to shipment. These special handling considerations may conflict with the size specifications for the analytical method, normal sampling procedures, or equipment. There is a potential for biasing sampling programs by selecting samples that can be safely handled or legally shipped to support laboratories. Because final status surveys are performed to demonstrate that a site can be safely released, issues associated with high levels of radioactivity are not expected to be a concern.

7.5.1 Surface Soil

The purpose of surface soil sampling is to collect samples that accurately and precisely represent the radionuclides and their concentrations at the location being sampled. In order to do this and plan for sampling, a decision must be made as to the survey design. The selection of a survey design is based on the Historical Site Assessment, results from preliminary surveys (*i.e.*, scoping characterization, remedial action support), and the objectives of the survey developed using the Data Quality Objectives (DQO) Process. The selection between judgmental, random, and systematic survey designs is discussed in Section 5.5.3.

7.5.1.1 Sample Volume

The volume of soil collected should be specified in the sample collection procedure. In general, large volumes of soil are more representative than small volumes of soil. In addition, large samples provide sufficient sample to ensure that required detection limits can be achieved and that sample reanalysis can be done if there is a problem. However, large samples may cause problems with shipping, storage, and disposal. All of these issues should be discussed with the sample collection team and the analytical laboratory during development of sample collection procedures. In general, surface soil samples range in size from 100 g up to several kilograms.

The sample collection procedure should also make clear if it is more important to meet the volume requirement of the survey design or the surface area the sample represents. Constant volume is related to comparability of the results while surface area is more closely related to the representativeness of the results. Maintaining a constant surface area and depth for samples collected for a particular survey can eliminate problems associated with different depth profiles. The actual surface area included as part of the sample may be important for estimating the probability of locating areas of elevated concentration.

7.5.1.2 Sample Content

The material present in the field at the sample location may or may not provide a representative sample. Vegetative cover, soil particle size distribution, inaccessibility, or lack of sample material are examples of problems that may be identified during sample collection. All deviations from the survey design as documented in the Standard Operating Procedures (SOPs) should be recorded as part of the field sample documentation.

Sample content is generally defined by the assumptions used to develop the conceptual site model and the DCGLs. A typical agricultural scenario assumes that the top few centimeters of soil are available for resuspension in air, that the top 15 cm (6 in.) are homogenized by agricultural activities (*e.g.*, plowing), that roots can extend down several meters to obtain water and nutrients depending on the plant, and that external exposure is based on an assumed thickness of contaminated soil (usually at the surface). Depending on the dominant exposure pathways for each radionuclide, this can result in a complicated set of instructions for collecting representative samples. This situation can be further complicated by the fact that the site is not currently being used for agricultural purposes. For this situation it is necessary to look at the analytical results from the preliminary surveys (*i.e.*, scoping, characterization, remedial action support) to determine the expected depth of contamination.

In most situations the vegetative cover is not considered part of the surface soil sample and is removed in the field. For agricultural scenarios where external exposure is not the primary concern, soil particles greater than 2 mm (0.08 in.) are generally not considered as part of the sample (EPA 1990). Foreign material (*e.g.*, plant roots, glass, metal, or concrete) is also generally not considered part of the sample, but should be reviewed on a site-specific basis. It is important that the sample collection procedure clearly indicate what is and what is not considered part of the sample.

7.5.1.3 Sampling Equipment

The selection of proper sampling equipment is important to ensure that samples are collected effectively and efficiently. Sampling equipment generally consists of a tool to collect the sample and a container to place the collected sample in. Sample tracking begins as soon as the sample is collected, so it may be necessary to consider security of collected samples required by the objectives of the survey.

Sampling tools are selected based on the type of soil, sample depth, number of samples required, and training of available personnel. The selection of a sampling tool may also be based on the expected use of the results. For example, if a soil sample is collected to verify the depth profile used to develop the calibration for *in situ* gamma spectrometry, it is important to preserve the soil core. Table 7.1 lists several examples of tools used for collecting soil samples, situations where they are applicable, and some advantages and disadvantages involved in their use.

Table 7.1 Soil Sampling Equipment*

Equipment	Application	Advantages/Disadvantages
Tier	Soft surface soil	Inexpensive; easy to use and decontaminate; difficult to use in stone or dry soil.
Scoop or trowel	Soft surface soil	Inexpensive; easy to use and decontaminate; trowels with painted surfaces should be avoided
Bulb Planter	Soft Soil, 0-15 cm (0-6 in.)	Easy to use and decontaminate: uniform diameter and sample volume; preserves soil core; limited depth capability; can be difficult to decontaminate
Soil Coring Device	Soft soil, 0-60 cm (0-24 in.)	Relatively easy to use; preserves soil core; limited depth capability; can be difficult to decontaminate
Thin-wall tube sampler	Soft soil, 0-3 m (0-10 ft)	easy to use; preserves soil core; easy to decontaminate; can be difficult to remove cores
Split spoon sampler	Soil, to bedrock	Excellent depth range; preserves soil core; useful for hard soils; often used in conjunction with drill rig for obtaining deep cores
Shelby tube sampler	Soft soil, to bedrock	Excellent depth range; preserves soil core; tube may be used for shipping core to lab.; may be used in conjunction with drill rig for obtaining deep cores
Bucket auger	Soft soil, 7.5 cm - 3 m (3 in. - 10 ft)	Easy to use; good depth range; uniform diameter and sample volume; may disrupt and mix soil horizons greater than 15 cm
Hand -operated power auger	Soil, 15 cm - 4.5 m (6 in. -15 ft)	Good depth range; generally used in conjunction with bucket auger; destroys soil core; requires two or more operators; can be difficult to decontaminate

* Reproduced from EPA 1991g

Sample containers are generally not a major concern for collecting surface soil samples. Polyethylene bottles with screw caps and wide mouths are recommended. These containers are fairly economical, provide easy access for adding and removing samples, and resist chemicals, breaking, and temperature extremes. Glass containers are also acceptable, but they are fragile and tend to break during shipment. Metal containers are sometimes used, but sealing the container can present a problem and corrosion can be an issue if the samples are stored for a significant length of time.

7.5.2 Building Surfaces

Because building surfaces tend to be relatively smooth and the radioactivity is assumed to be on or near the surface, direct measurements are typically used to provide information on contaminant concentrations. Sometimes, however, it is necessary to collect actual samples of the building material surface for analysis in a laboratory.

7.5.2.1 Sample Volume

The sample volume collected from building surfaces is usually a less significant DQO concern than the area from which the sample was collected. This is because building surface DCGLs are usually expressed in terms of activity per unit area. It is still necessary to consider the sample volume to account for sample matrix effects that may reduce the chemical recovery, which in turn has an affect on the detection limit.

7.5.2.2 Sample Content

If residual activity is covered by paint or some other treatment, the underlying surface and the coating itself may be contaminated. If the activity is a pure alpha or low-energy beta emitter, measurements at the surface will probably not be representative of the actual residual activity level. In this case the surface layer is removed from the known area, such as by using a commercial stripping agent or by physically abrading the surface. The removed coating material is analyzed for activity content and the level converted to appropriate units (*i.e.*, Bq/m^2, $dpm/100\ cm^2$) for comparison with surface activity DCGLs. Direct measurements can be performed on the underlying surface after removal of the coating.

Residual radioactivity may be incorporated into building materials, such as pieces of concrete or other unusual matrices. Development of SOPs for collecting these types of samples may involve consultation with the analytical laboratory to help ensure that the objectives of the survey are achieved.

The thickness of the layer of building surface to be removed as a sample should be consistent with the development of the conceptual site model and the DCGLs. For most sites the surface layer will only be the first few millimeters of the material being sampled.

7.5.2.3 Sampling Equipment

Tools used to provide samples of building surfaces depend on the material to be sampled. Concrete may require chisels, hammers, drills, or other tools specifically designed to remove a thin layer of the surface. Wood surfaces may require using a sander or a saw to collect a sample. Paint may be chemically or physically stripped from the surface.

Sample containers for these samples are generally the same as those recommended for soil samples. If chemicals are used to strip paint or other surface materials, the chemical resistance of the container should be considered.

7.5.3 Other Media

Surface soil and building surfaces are the media addressed in MARSSIM during the final status survey design. Other media may be involved and may have been remediated. Data collection activities during preliminary surveys (*i.e.*, scoping, characterization, remedial action support) may involve collecting samples of other media to support the final status survey design. Examples of other media that may be sampled include:

- subsurface soil
- ground water
- surface water
- sediments
- sewers and septic systems
- flora and fauna (plants and animals)
- airborne particulates
- air (gas)

Appendix M provides a list of resources that can be used to develop sample collection procedures for other media that may required by preliminary surveys to support the development of a final status survey design.

7.6 Field Sample Preparation and Preservation

Proper sample preparation and preservation are essential parts of any radioactivity sampling program. The sampling objectives should be specified before sampling activities begin. Precise records of sample collection and handling are necessary to ensure that data obtained from different locations or time frames are correctly compared.

The appropriateness of sample preparation techniques is a function of the analysis to be performed (EPA 1992a, 1992b). Field sample preparation procedures are a function of the specified analysis and the objectives of the survey. It is essential that these objectives be clearly established and agreed upon in the early stages of survey planning (see Section 2.3).

7.6.1 Surface Soil

Soil and sediment samples, in most protocols, require no field preparation and are not preserved. In some protocols, cooling of soil samples to 4 ^{o}C is required during shipping and storage of soil samples. This is not a practice normally followed for the radiochemical analysis of soil samples.

When replicate samples are prepared in the field, it is necessary to homogenize the sample prior to separation into replicates. There are standard procedures for homogenizing soil in the laboratory (ASTM 1995), but the equipment required for these procedures may not be available in the field. Simple field techniques, such as cone and quarter, or using a riffle splitter to divide the sample may be appropriate if the sample can be dried (ASTM 1993, EPA 1991g). If the sample contains significant amounts of residual water (*e.g.*, forms clumps of soil) and there are no facilities for drying the sample, it is recommended that the homogenization and separation into replicates be performed in a laboratory. It is preferable to use non-blind replicates where the same laboratory prepares and analyzes the replicates rather than use poorly homogenized or heterogeneous samples to prepare replicates samples.

7.6.2 Building Surfaces

Field preparation and preservation of building and associated materials, including smear samples, is not generally required. Homogenization of samples to prepare replicates is the same for building surface material and soil.

7.6.3 Other Media

Other media may have significant requirements related to field sample preparation and preservation. For example, water samples may need filtering and acidification. Storage at reduced temperatures (*i.e.*, cooling or freezing) to reduce biological activity may be necessary for some samples. Addition of chemical preservatives for specific radionuclides or media may also be required.

7.7 Analytical Procedures

The selection of the appropriate radioanalytical methods is normally made prior to the procurement of analytical services and is included in the statement-of-work of the request for proposal. The statement-of-work may dictate the use of specific methods or be performance based. Unless there is a regulatory requirement, such as conformance to the EPA drinking water methods (EPA 1980a), the specification of performance based methodology is encouraged. One reason for this is that a laboratory will usually perform better using the methods routinely employed in its laboratory as contrasted to using other methods with which it has less experience.

The laboratory is also likely to have historical data on performance for methods routinely used by that laboratory. However, the methods employed in a laboratory should be derived from a reliable source, such as those listed in Table 7.2.

Table 7.2 Examples of References for Routine Analytical Methods

- *Methods of Air Sampling and Analysis* (Lodge 1988)
- *Annual Book of ASTM Standards, Water and Environmental technology. Volume 11.04, Environmental Assessment; Hazardous Substances and Oil Spill Responses; Waste Management; Environmental Risk Assessment* (ASTM 1997)
- *Standard Methods for the Examination of Water and Wastewater* (APHA 1995)
- *EML Procedures Manual* (DOE 1990b)
- *Radiochemical Analytical Procedures for Analysis of Environmental Samples* (EPA 1979)
- *Radiochemistry Procedures Manual* (EPA 1984a)
- *Indoor Radon and Radon Decay Product Measurement Protocols* (EPA 1992d)
- *USAEHA Environmental Sampling Guide* (Department of the Army 1993)

This section briefly describes specific equipment and procedures to be used once the sample is prepared for analysis. The results of these analyses (*i.e.*, the levels of radioactivity found in these samples) are the values used to determine the level of residual activity at a site. In a decommissioning effort, the DCGLs are expressed in terms of the concentrations of certain radionuclides. It is of vital importance, therefore, that the analyses be accurate and of adequate sensitivity for the radionuclides of concern. The selection of analytical procedures should be coordinated with the laboratory and specified in the survey plan.

Analytical methods should be adequate to meet the data needs identified in the DQO process. Consultation with the laboratory performing the analysis is recommended before selecting a course of action. MARSSIM is not intended to limit the selection of analytical procedures, rather all applicable methods should be reviewed to provide results that meet the objectives of the survey. The decision maker and survey planning team should decide whether routine methods will be used at the site or if non-routine methods may be acceptable.

- Routine analytical methods are documented with information on minimum performance characteristics, such as detection limit, precision and accuracy, and useful range of radionuclide concentrations and sample sizes. Routine methods may be issued by a recognized organization (*e.g.*, Federal or State agency, professional organization), published in a refereed journal, or developed by an individual laboratory. Table 7.2 lists examples of sources for routine methods.

- Non-routine methods address situations with unusual or problematic matrices, low detection limits, or new parameters, procedures or techniques. Non-routine methods include adjustments to routine methods, new techniques published in refereed literature, and development of new methods.

References that provide information on radiochemical methodology and should be considered in the methods review and selection process are available from such organizations as:

- National Council on Radiation Protection and Measurements (NCRP)
- American Society of Testing and Materials (ASTM)
- Radiological and Environmental Sciences Laboratory (RESL), Idaho Falls, Idaho (Operated by the DOE)
- DOE Technical Measurements Center, Grand Junction, CO
- Environmental Measurements Laboratory (EML); formerly the Health and Safety Laboratory of the DOE

Equipment vendor literature, catalogs, and instrument manuals are often a source of useful information on the characteristics of radiation detection equipment. Table 7.3 provides a summary of common laboratory methods with estimated detection limits.

Analytical procedures in the laboratory consist of several parts that are assembled to produce an SOP for a specific project or sample type. These parts include:

- laboratory sample preparation
- sample dissolution
- sample purification
- preparation for counting
- counting
- data reduction

Table 7.3 Typical Measurement Sensitivities for Laboratory Radiometric Procedures

Sample Type	Radionuclides or Radiation Measured	Procedure	Approximate Measurement Sensitivity
Smears (filter paper)	Gross alpha	Gas-flow proportional counter; 5-min count Alpha scintillation detector with scaler; 5-min count	5 dpm 20 dpm
	Gross beta	Gas-flow proportional counter; 5-min count End window GM with scaler; 5-min count (unshielded detector)	10 dpm 80 dpm
	Low energy beta (^{3}H, ^{14}C, ^{63}Ni)	Liquid scintillation spectrometer; 5-min count	30 dpm
Soil Sediment	^{137}Cs, ^{60}Co, ^{226}Ra (^{214}Bi)[a], ^{232}Th (^{228}Ac), ^{235}U	Germanium detector (25% relative efficiency) with multichannel analyzer; pulse height analyzer; 500-g sample; 15-min analysis	0.04-0.1 Bq/g (1-3 pCi/g)
	$^{234, 235, 238}$U; $^{238, 239, 240}$Pu; $^{227, 228, 230, 232}$Th; other alpha emitters	Alpha spectroscopy with multichannel analyzer - pyrosulfate fusion and solvent extraction; surface barrier detector; pulse height analyzer; 1-g sample; 16-hr count	0.004-0.02 Bq/g (0.1-0.5 pCi/g)
Water	Gross alpha	Gas-flow proportional counter; 100-ml sample, 200-min count	0.04 Bq/L (1 pCi/l)
	Gross beta	Gas-flow proportional counter; 100-ml sample, 200-min count	0.04 Bq/L (1 pCi/L)
	^{137}Cs, ^{60}Co, ^{226}Ra (^{214}Bi), ^{232}Th (^{228}Ac), ^{235}U	Germanium detector (25% relative efficiency) with multichannel analyzer; pulse height analyzer; 3.5L sample, 16-hr count	0.4 Bq/L (10 pCi/L)
	$^{234, 235, 238}$U; $^{238, 239, 240}$Pu; $^{227, 228, 230, 232}$Th; other alpha emitters	Alpha spectroscopy with multichannel analyzer - solvent extraction; surface barrier detector; pulse height analyzer; 100 ml sample, 30 min count	0.004-0.02 Bq/L (0.1-0.5 pCi/L)
	^{3}H	Liquid scintillation spectrometry; 5-ml sample, 30-min count	10 Bq/L (300 pCi/L)

[a] Indicates that a member of the decay series is measured to determine activity level of the parent radionuclide of primary interest.

7.7.1 Photon Emitting Radionuclides

There is no special sample preparation required for counting samples using a germanium detector or a sodium iodide detector beyond placing the sample in a known geometry for which the detector has been calibrated. The samples can be measured as they arrive at the laboratory, or the sample can be dried, ground to a uniform particle size, and mixed to provide a more homogeneous sample if required by the SOPs.

The samples are typically counted using a germanium detector with a multichannel analyzer or a sodium iodide detector with a multichannel analyzer. Germanium detectors have better resolution and can identify peaks (and the associated radionuclides) at lower concentrations. Sodium iodide detectors often have a higher efficiency and are significantly less expensive than germanium detectors. Low-energy photons (*i.e.*, x-rays and gamma rays below 50 keV) can be measured using specially designed detectors with an entrance window made from a very light metal, typically beryllium. Descriptions of germanium and sodium iodide detectors are provided in Appendix H.

Data reduction is usually the critical step in measuring photon emitting radionuclides. There are often several hundred individual gamma ray energies detected within a single sample. Computer software is usually used to identify the peaks, associate them with the proper energy, associate the energy with one or more radionuclides, correct for the efficiency of the detector and the geometry of the sample, and provide results in terms of concentrations with the associated uncertainty. It is important that the software be either a well-documented commercial package or thoroughly evaluated and documented before use.

7.7.2 Beta Emitting Radionuclides

Laboratory sample preparation is an important step in the analysis of surface soil and other solid samples for beta emitting radionuclides. The laboratory will typically have a sample preparation procedure that involves drying the sample and grinding the soil so that all of the particles are less than a specified size to provide a homogeneous sample. A small portion of the homogenized sample is usually all that is required for the individual analysis.

Once the sample has been prepared, a small portion is dissolved, fused, or leached to provide a clear solution containing the radionuclide of interest. The only way to ensure that the sample is solubilized is to completely dissolve the sample. However, this can be an expensive and time-consuming step in the analysis. In some cases, leaching with strong acids can consistently provide greater than 80% recovery of the radionuclide of interest (NCRP 1976a) and may be acceptable for certain applications. Gross beta measurements may be performed on material that has not been dissolved.

After dissolution, the sample is purified using a variety of chemical reactions to remove bulk chemical and radionuclide impurities. The objective is to provide a chemically and radiologically pure sample for measurement. Examples of purification techniques include precipitation, liquid-liquid extraction, ion-exchange chromatography, distillation, and electrodeposition. Gross beta measurements may be performed on material that has not been purified.

After the sample is purified, it is prepared for counting. Beta emitting radionuclides are usually prepared for a specific type of counter in a specified geometry. Solid material is usually precipitated and collected on a filter in a circular geometry to provide a homogeneous sample. Liquid samples are typically converted to the appropriate chemical form and diluted to a specified volume in preparation for counting.

Measurements of solid samples are typically performed using a gas-flow proportional counter. Because total beta activity is measured, it is important that the purification step be performed to remove any interfering radionuclides. Liquid samples are usually diluted using a liquid scintillation cocktail and counted using a liquid scintillation spectrometer. Liquid scintillation spectrometers can be used for low-energy beta emitting radionuclides, such as ^{3}H and ^{63}Ni. They also have high counting efficiencies, but often have a high instrument background as well. Gas-flow proportional counters have a very low background. Appendix H provides a description of both the gas-flow proportional counter and the liquid scintillation spectrometer.

Data reduction for beta emitting radionuclides is less complicated than that for photon emitting radionuclides. Since the beta detectors report total beta activity, the calculation to determine the concentration for the radionuclide of interest is straightforward.

7.7.3 Alpha Emitting Radionuclides

Laboratory sample preparation for alpha emitting radionuclides is similar to that for beta emitting radionuclides. Sample dissolution and purification tasks are also similar to those performed for beta emitting radionuclides.

Because of the limited penetrating power of alpha particles, the preparation for counting is often a critical step. Gross alpha measurements can be made using small sample sizes with a gas-flow proportional counter, but self-absorption of the alpha particles results in a relatively high detection limit for this technique. Liquid scintillation spectrometers can also be used to measure alpha emitting radionuclides but the resolution limits the usefulness of this technique. Most alpha emitting radionuclides are measured in a vacuum (to limit absorption by air) using alpha spectroscopy. This method requires that the sample be prepared as a virtually weightless mount in a specific geometry. Electrodeposition is the traditional method for preparing samples for counting. This technique provides the highest resolution, but it requires a significant amount of

training and expertise on the part of the analyst to produce a high quality sample. Precipitation of the radionuclide of interest on the surface of a substrate is often used to prepare samples for alpha spectroscopy. While this technique generally produces a spectrum with lower resolution, the preparation time is relatively short compared to electrodeposition, and personnel can be trained to prepare acceptable samples relatively quickly.

Alpha emitting radionuclides are typically measured using alpha spectroscopy. The data reduction requirements for alpha spectroscopy are greater than those for beta emitting radionuclides, and similar to those for photon emitting radionuclides. Alpha spectroscopy produces a spectrum of alpha particles detected at different energies, but because the sample is purified prior to counting, all of the alpha particles come from radionuclides of a single element. This simplifies the process of associating each peak with a specific radionuclide, but the lower resolution associated with alpha spectroscopy increases the difficulty of identifying the peaks. Although commercial software packages are available for interpreting alpha spectroscopy results, an experienced operator is required to ensure that the software is working properly.

7.8 Sample Tracking

Sample tracking refers to the identification of samples, their location, and the individuals responsible for their custody and transfer of the custody. This process covers the entire process from collection of the samples and remains intact through the analysis and final holding or disposal. It begins with the taking of a sample where its identification and designation of the sample are critical to being able to relate the analytical result to a site location.

Tracking samples from collection to receipt at the analytical laboratory is normally done through a Chain of Custody process, and documented on a Chain-of-Custody (COC) record. Once samples are received by the laboratory, internal tracking (*e.g.*, COC) procedures should be in place and codified through SOPs that assure integrity of the samples. Documentation of changes in the custody of a sample(s) is important. This is especially true for samples that may be used as evidence to establish compliance with a release criterion. In such cases, there should be sufficient evidence to demonstrate that the integrity of the sample is not compromised from the time it is collected to the time it is analyzed. During this time, the sample should either be under the positive control of a responsible individual or secured and protected from any activity that could change the true value of the results or the nature of the sample. When this degree of sample handling or custody is necessary, written procedures should be developed for field operations and for interfacing between the field operations and the analytical laboratory. This ensures that a clear transfer of the custodial responsibility is well documented and no questions exist as to who is responsible for the sample at any time.

7.8.1 Field Tracking Considerations

- Field personnel are responsible for maintaining field logbooks with adequate information to relate the sample identifier (sample number) to its location and for recording other information necessary to adequately interpret results of sample analytical data.
- The sample collector is responsible for the care and custody of the samples until they are properly transferred or dispatched. This means that samples are in their possession, under constant observation, or secured. Samples may be secured in a sealed container, locked vehicle, locked room, *etc*.
- Sample labels should be completed for each sample using waterproof ink.
- The survey manager or designee determines whether or not proper custody procedures were followed during the field work, and decides if additional sampling is indicated.
- If photographs are included as part of the sampling documentation, the name of the photographer, date, time, site location, and site description should be entered sequentially in a logbook as the photos are taken. After the photographs are developed, the prints should be serially numbered.

7.8.2 Transfer of Custody

- All samples leaving the site should be accompanied by a Chain-of-Custody record. This record documents sample custody transfer from the sampler, often through another person, to the laboratory. The individuals relinquishing the samples should sign and date the record. The record should include a list, including sample designation (number), of the samples in the shipping container and the analysis requested for each sample.
- Shipping containers should be sealed and include a tamper indicating seal that will indicate if the container seal has been disturbed. The method of shipment, courier name, or other pertinent information should be listed in the Chain-of-Custody record.
- The original Chain-of-Custody record should accompany the samples. A copy of the record should be retained by the individual or organization relinquishing the samples.
- Discuss the custody objectives with the shipper to ensure that the objectives are met. For example, if the samples are sent by mail and the originator of the sample requires a record that the shipment was delivered, the package should be registered with return receipt requested. If, on the other hand, the objective is to simply provide a written record of the shipment, a certificate of mailing may be a less expensive and appropriate alternative.
- The individual receiving the samples should sign and date the record. The condition of the container and the tamper indicating seal should be noted on the Chain-of-Custody record. Any problems with the individual samples, such as a broken container, should be noted on the record.

7.8.3 Laboratory Tracking

When the samples are received by the laboratory they are prepared for radiochemical analyses. This includes the fractionation of the sample into aliquots. The tracking and Chain-of-Custody documentation within the laboratory become somewhat complicated due to the fact that several portions of the original sample may exist in the laboratory at a given time. The use of a computer based Laboratory Information System (LIMS) can greatly assist in tracking samples and fractions through the analytical system.

The minimal laboratory tracking process consists of the following:

- transfer of custody on receipt of the samples (original Chain-of-Custody form is retained by the laboratory and submitted with the data package for the samples)
- documentation of sample storage (location and amount)
- documentation of removal and return of sample aliquots (amount, date and time, person removing or returning, and reason for removal)
- transfer of the samples and residues to the receiving authority (usually the site from which they were taken)

The procedure for accomplishing the above varies from laboratory to laboratory, but the exact details of performing the operations of sample tracking should be contained in a SOP.

7.9 Packaging and Transporting Samples

All samples being shipped for radiochemical analysis should be properly packaged and labeled before transport offsite or within the site. The primary concern is the possibility of spills, leaks, or breakage of the sample containers. In addition to resulting in the loss of samples and cross-contamination, the possible release of hazardous material poses a threat to the safety of persons handling and transporting the package.

Suggestions on packaging and shipping radioactive environmental samples are listed below.

1) Review NRC requirements (10 CFR part 71) and Department of Transportation (DOT) requirements (49 CFR parts 170 through 189) for packaging and shipping radioactive environmental samples.

2) Visually inspect each sample container for indication of leaks or defects in the sample container.

a) Liquid samples should be shipped in plastic containers, if possible, and the caps on the containers should be secured with tape. One exception to the use of plastic bottles is samples collected for ^{3}H analyses which may require glass containers.

b) Heavy plastic bags, with sealable tops, can be used to contain solid samples (*e.g.*, soil, sediment, air filters). The zip-lock should be secured with tape. Heavy plastic lawn bags can be used to contain vegetation samples. The tops should be closed with a "tie" that is covered by tape to prevent it from loosening and slipping off.

3) Wipe individual sample containers with a damp cloth or paper towel to remove any exterior contamination. The outer surfaces of containers holding samples collected in a contaminated area should be surveyed with a hand-held instrument(s), appropriate for the suspected type of radioactivity (β/γ or α).

4) If glass sample containers are used, place sample containers inside individual plastic bags and seal in order to contain the sample in case of breakage.

5) Use packing material (*e.g.*, paper, styrofoam, "bubble wrap") to immobilize and isolate each sample container and buffer hard knocks on the outer container during shipping. This is especially important in cold weather when plastic containers may become brittle and water samples may freeze.

6) When liquid samples are shipped, include a sufficient quantity of an absorbent material (*e.g.*, vermiculite) to absorb all liquid packed in the shipping container in case of breakage. This absorbent material may suffice as the packing material described above in item 5.

7) Include the original, signed and dated, Chain-of-Custody (COC) form, identifying each sample in the package. It is good practice to place the COC form in a plastic bag to prevent it from becoming wet or contaminated in case of a spill during shipment. If possible, avoid having multiple packages of samples covered by a single COC form.

8) Seal closed the package and apply COC tape in such a manner that it must be torn (broken) in order to open the package. The tape should carry the signature of the sender, and the date and time, so that it cannot be removed and replaced undetected.

9) Ice chests, constructed of metal or hard plastic, make excellent shipping containers for radioactive environmental samples.

If samples are sent offsite for analysis, the shipper is responsible for complying with all applicable Federal, State, and local regulations. Applicable Federal regulations are briefly addressed below. Any State or local regulation will very likely reflect a Federal regulation.

7.9.1 U.S. Nuclear Regulatory Commission Regulations

NRC regulations for packaging, preparation, and shipment of licensed material are contained in 10 CFR Part 71: "Packaging and Transportation of Radioactive materials".

Samples containing low levels of radioactivity are exempted as set forth in §§ 71.10. A licensee is exempt from all requirements of Part 71 if the specific activity of the sample being shipped is not greater than 74,000 Bq/kg (2,000 pCi/g).

Low Specific Activity Material (LSAM) is defined in §§ 71.4: “Definitions.” Samples classified as LSAM need only meet the requirements of the U.S. Department of Transportation (DOT), discussed below, and the requirements of §§ 71.88: “Air transport of plutonium.” Most environmental samples will fall into this category.

7.9.2 U.S. Department of Transportation Regulations

The U.S. Department of Transportation provides regulations governing the transport of hazardous materials under the Hazardous Materials Transportation Act of 1975 (88 Stat. 2156, Public Law 93-633). Applicable requirements of the regulations are found in 49 CFR Parts 170 through 189. Shippers of samples containing radioactivity should be aware of the current rules in the following areas.

- Accident Reporting - 49 CFR 171
- Marking and Labeling Packages for Shipment - 49 CFR 172
- Packaging - 49 CFR 173
- Placarding a Package - 49 CFR 172
- Registration of Shipper/Carrier - 49 CFR 107
- Shipper Required Training - 49 CFR 172
- Shipping Papers & Emergency Information - 49 CFR 172
- Transport by Air - 49 CFR 175

- Transport by Rail - 49 CFR 174
- Transport by Vessel - 49 CFR 176
- Transport on Public Highway - 49 CFR 177

7.9.3 U.S. Postal Service Regulations

Any package containing radioactive materials is nonmailable if required to bear the U.S. Department of Transportation's Radioactive White-1 (49 CFR 172.436), Radioactive Yellow-II (49 CFR 172.438), or Radioactive Yellow-III (49 CFR 172.440) label, or if it contains quantities of radioactive material in excess of those authorized in Publication 6, Radioactive Material, of the U.S. Postal Service.

8 INTERPRETATION OF SURVEY RESULTS

8.1 Introduction

This chapter discusses the interpretation of survey results, primarily those of the final status survey. Interpreting a survey's results is most straightforward when measurement data are entirely higher or lower than the $DCGL_W$. In such cases, the decision that a survey unit meets or exceeds the release criterion requires little in terms of data analysis. However, formal statistical tests provide a valuable tool when a survey unit's measurements are neither clearly above nor entirely below the $DCGL_W$. Nevertheless, the survey design *always* makes use of the statistical tests in helping to assure that the number of sampling points and the measurement sensitivity are adequate, but not excessive, for the decision to be made.

Section 8.2 discusses the assessment of data quality. The remainder of this chapter deals with application of the statistical tests used in the decision-making process, and the evaluation of the test results. In addition, an example checklist is provided to assist the user in obtaining the necessary information for interpreting the results of a final status survey.

8.2 Data Quality Assessment

Data Quality Assessment (DQA) is a scientific and statistical evaluation that determines if the data are of the right type, quality, and quantity to support their intended use. An overview of the DQA process appears in Section 2.3 and Appendix E. There are five steps in the DQA process:

- Review the Data Quality Objectives (DQOs) and Survey Design
- Conduct a Preliminary Data Review
- Select the Statistical Test
- Verify the Assumptions of the Statistical Test
- Draw Conclusions from the Data

The effort expended during the DQA evaluation should be consistent with the graded approach used in developing the survey design. More information on DQA is located in Appendix E, and the EPA Guidance Document QA/G-9 (EPA 1996a). Data should be verified and validated as described in Section 9.3 prior to the DQA evaluation.

8.2.1 Review the Data Quality Objectives (DQOs) and Sampling Design

The first step in the DQA evaluation is a review of the DQO outputs to ensure that they are still applicable. For example, if the data suggest the survey unit was misclassified as Class 3 instead of Class 1, then the original DQOs should be redeveloped for the correct classification.

The sampling design and data collection documentation should be reviewed for consistency with the DQOs. For example, the review should check that the appropriate number of samples were taken in the correct locations and that they were analyzed with measurement systems with appropriate sensitivity. Example checklists for different types of surveys are given in Chapter 5.

Determining that the sampling design provides adequate power is important to decision making, particularly in cases where the levels of residual radioactivity are near the $DCGL_W$. This can be done both prospectively, during survey design to test the efficacy of a proposed design, and retrospectively, during interpretation of survey results to determine that the objectives of the design are met. The procedure for generating power curves for specific tests is discussed in Appendix I. Note that the accuracy of a prospective power curve depends on estimates of the data variability, σ, and the number of measurements. After the data are analyzed, a sample estimate of the data variability, namely the sample standard deviation (s) and the actual number of valid measurements will be known. The consequence of inadequate power is that a survey unit that actually meets the release criterion has a higher probability of being incorrectly deemed *not* to meet the release criterion.

8.2.2 Conduct a Preliminary Data Review

To learn about the structure of the data—identifying patterns, relationships, or potential anomalies—one can review quality assurance (QA) and quality control (QC) reports, prepare graphs of the data, and calculate basic statistical quantities.

8.2.2.1 Data Evaluation and Conversion

Radiological survey data are usually obtained in units, such as the number of counts per unit time, that have no intrinsic meaning relative to DCGLs. For comparison of survey data to DCGLs, the survey data from field and laboratory measurements are converted to DCGL units. Further information on instrument calibration and data conversion is given in Section 6.2.7.

Basic statistical quantities that should be calculated for the sample data set are the:

- mean
- standard deviation
- median

Example:

Suppose the following 20 concentration values are from a survey unit:

90.7, 83.5, 86.4, 88.5, 84.4, 74.2, 84.1, 87.6, 78.2, 77.6,
86.4, 76.3, 86.5, 77.4, 90.3, 90.1, 79.1, 92.4, 75.5, 80.5.

First, the average of the data (83.5) and the sample standard deviation (5.7) should be calculated.

The average of the data can be compared to the reference area average and the $DCGL_W$ to get a preliminary indication of the survey unit status. Where remediation is inadequate, this comparison may readily reveal that a survey unit contains excess residual radioactivity—even before applying statistical tests. For example, if the average of the data exceeds the $DCGL_W$ and the radionuclide of interest does not appear in background, then the survey unit clearly does not meet the release criterion. On the other hand, if every measurement in the survey unit is below the $DCGL_W$, the survey unit clearly meets the release criterion.[1]

The value of the sample standard deviation is especially important. If too large compared to that assumed during the survey design, this may indicate an insufficient number of samples were collected to achieve the desired power of the statistical test. Again, inadequate power can lead to unnecessary remediation.

The median is the middle value of the data set when the number of data points is odd, and is the average of the two middle values when the number of data points is even. Thus 50% of the data points are above the median, and 50% are below the median. Large differences between the mean and the median would be an early indication of skewness in the data. This would also be evident in a histogram of the data. For the example data above, the median is 84.25 (*i.e.*, (84.1 + 84.4)/2). The difference between the median and the mean (*i.e.*, 84.25 - 83.5 = 0.75) is a small fraction of the sample standard deviation (*i.e.*, 5.7). Thus, in this instance, the mean and median would not be considered significantly different.

Examining the minimum, maximum, and range of the data may provide additional useful information. The minimum in this example is 74.2 and the maximum is 92.4, so the range is 92.4 - 74.2 = 18.2. This is only 3.2 standard deviations. Thus, the range is not unusually large. When there are 30 or fewer data points, values of the range much larger than about 4 to 5 standard deviations would be unusual. For larger data sets the range might be wider.

[1] It can be verified that if every measurement is below the $DCGL_W$, the conclusion from the statistical tests will always be that the survey unit does not exceed the release criterion.

8.2.2.2 Graphical Data Review

At a minimum, a graphical data review should consist of a posting plot and a histogram. Quantile plots are also useful diagnostic tools, particularly in the two-sample case, to compare the survey unit and reference area. These are discussed in Appendix I, Section I.8.

A *posting plot* is simply a map of the survey unit with the data values entered at the measurement locations. This potentially reveals heterogeneities in the data—especially possible patches of elevated residual radioactivity. Even in a reference area, a posting plot can reveal spatial trends in background data that might affect the results of the two-sample statistical tests.

If the data above were obtained using a triangular grid in a rectangular survey unit, the posting plot might resemble the display in Figure 8.1. Figure 8.1a shows no unusual patterns in the data. Figure 8.1b shows a different plot of the same values, but with individual results associated with different locations within the survey unit. In this plot there is an obvious trend towards smaller values as one moves from left to right across the survey unit. This trend is not apparent in the simple initial listing of the data. The trend may become more apparent if isopleths are added to the posting plot.

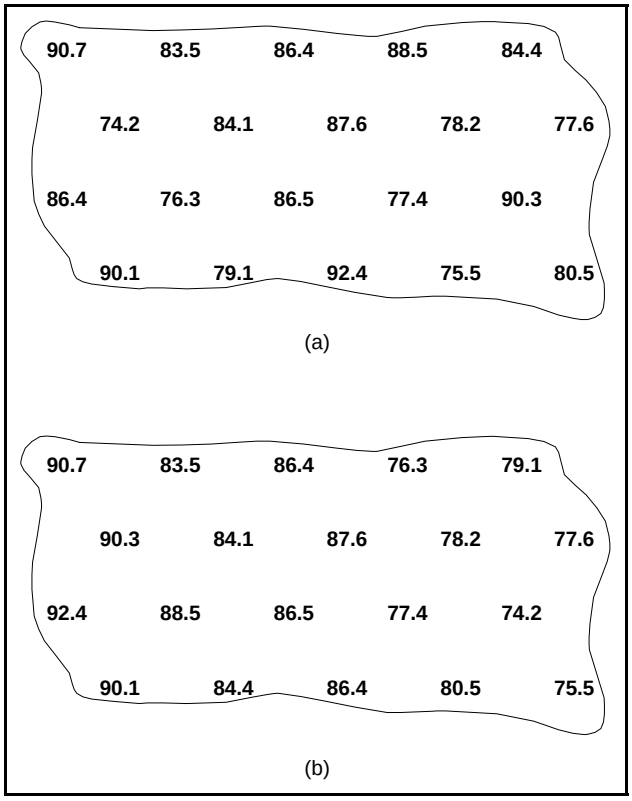

Figure 8.1 Examples of Posting Plots

If the posting plot reveals systematic spatial trends in the survey unit, the cause of the trends would need to be investigated. In some cases, such trends could be due to residual radioactivity, but may also be due to inhomogeneities in the survey unit background. Other diagnostic tools for examining spatial data trends may be found in EPA Guidance Document QA/G-9 (EPA 1996a). The use of geostatistical tools to evaluate spatial data trends may also be useful in some cases (EPA 1989a).

A *frequency plot* (or a histogram) is a useful tool for examining the general shape of a data distribution. This plot is a bar chart of the number of data points within a certain range of values. A frequency plot of the example data is shown in Figure 8.2). A simple method for generating a

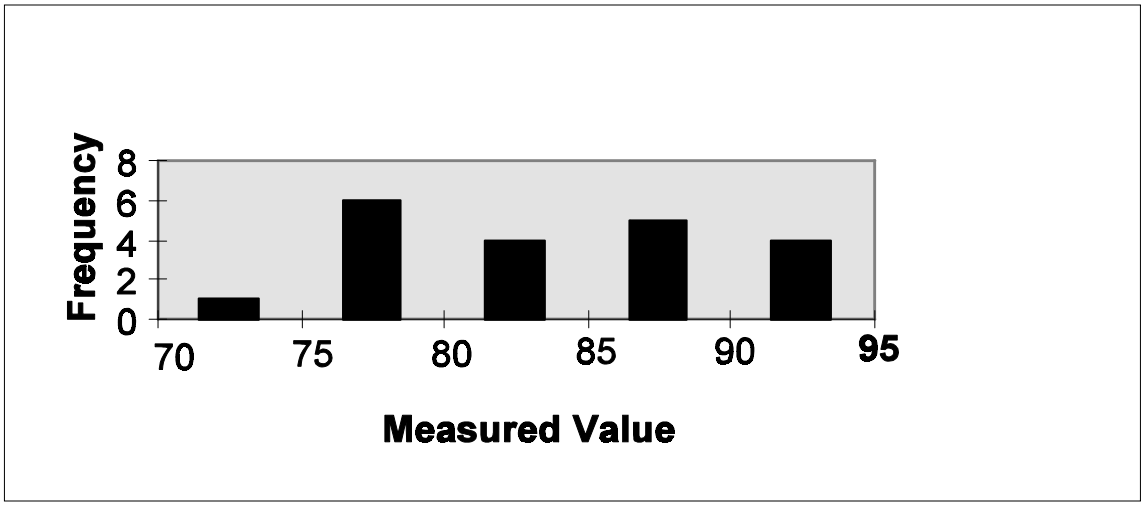

Figure 8.2 Example of a Frequency Plot

rough frequency plot is the stem and leaf display discussed in Appendix I, Section I.7. The frequency plot will reveal any obvious departures from symmetry, such as skewness or bimodality (two peaks), in the data distributions for the survey unit or reference area. The presence of two peaks in the survey unit frequency plot may indicate the existence of isolated areas of residual radioactivity. In some cases it may be possible to determine an appropriate background for the survey unit using this information. The interpretation of the data for this purpose will generally be highly dependent on site-specific considerations and should only be pursued after a consultation with the responsible regulatory agency.

The presence of two peaks in the background reference area or survey unit frequency plot may indicate a mixture of background concentration distributions due to different soil types, construction materials, *etc.* The greater variability in the data due to the presence of such a mixture will reduce the power of the statistical tests to detect an adequately remediated survey unit. These situations should be avoided whenever possible by carefully matching the background reference areas to the survey units, and choosing survey units with homogeneous backgrounds.

Skewness or other asymmetry can impact the accuracy of the statistical tests. A data transformation (*e.g.*, taking the logarithms of the data) can sometimes be used to make the distribution more symmetric. The statistical tests would then be performed on the transformed data. When the underlying data distribution is highly skewed, it is often because there are a few high areas. Since the EMC is used to detect such measurements, the difference between using the median and the mean as a measure for the degree to which uniform residual radioactivity remains in a survey unit tends to diminish in importance.

8.2.3 Select the Tests

An overview of the statistical considerations important for final status surveys appears in Section 2.5 and Appendix D. The most appropriate procedure for summarizing and analyzing the data is chosen based on the preliminary data review. The parameter of interest is the mean concentration in the survey unit. The nonparametric tests recommended in this manual, in their most general form, are tests of the median. If one assumes that the data are from a symmetric distribution—where the median and the mean are effectively equal—these are also tests of the mean. If the assumption of symmetry is violated, then nonparametric tests of the median approximately test the mean. Computer simulations (*e.g.,* Hardin and Gilbert, 1993) have shown that the approximation is a good one. That is, the correct decision will be made about whether or not the mean concentration exceeds the DCGL, even when the data come from a skewed distribution. In this regard, the nonparametric tests are found to be correct more often than the commonly used Student's t test. The robust performance of the Sign and WRS tests over a wide range of conditions is the reason that they are recommended in this manual.

When a given set of assumptions is true, a parametric test designed for exactly that set of conditions will have the highest power. For example, if the data are from a normal distribution, the Student's t test will have higher power than the nonparametric tests. It should be noted that for large enough sample sizes (*e.g.*, large number of measurements), the Student's t test is not a great deal more powerful than the nonparametric tests. On the other hand, when the assumption of normality is violated, the nonparametric tests can be very much more powerful than the t test. Therefore, any statistical test may be used provided that the data are consistent with the assumptions underlying their use. When these assumptions are violated, the prudent approach is to use the nonparametric tests which generally involve fewer assumptions than their parametric equivalents.

The one-sample statistical test (Sign test) described in Section 5.5.2.3 should only be used if the contaminant is not present in background and radionuclide-specific measurements are made. The one-sample test may also be used if the contaminant is present at such a small fraction of the $DCGL_W$ value as to be considered insignificant. In this case, background concentrations of the radionuclide are included with the residual radioactivity (*i.e.*, the entire amount is attributed to facility operations). Thus, the total concentration of the radionuclide is compared to the release criterion. This option should only be used if one expects that ignoring the background concentration will not affect the outcome of the statistical tests. The advantage of ignoring a small background contribution is that no reference area is needed. This can simplify the final status survey considerably.

The one-sample Sign test (Section 8.3.1) evaluates whether the median of the data is above or below the $DCGL_W$. If the data distribution is symmetric, the median is equal to the mean. In cases where the data are severely skewed, the mean may be above the $DCGL_W$, while the median

is below the $DCGL_W$. In such cases, the survey unit does *not* meet the release criterion regardless of the result of the statistical tests. On the other hand, if the largest measurement is below the $DCGL_W$, the Sign test will always show that the survey unit meets the release criterion.

For final status surveys, the two-sample statistical test (Wilcoxon Rank Sum test, discussed in Section 5.5.2.2) should be used when the radionuclide of concern appears in background or if measurements are used that are not radionuclide specific. The two-sample Wilcoxon Rank Sum (WRS) test (Section 8.4.1) assumes the reference area and survey unit data distributions are similar except for a possible shift in the medians. When the data are severely skewed, the value for the mean difference may be above the $DCGL_W$, while the median difference is below the $DCGL_W$. In such cases, the survey unit does *not* meet the release criterion regardless of the result of the statistical test. On the other hand, if the difference between the largest survey unit measurement and the smallest reference area measurement is less than the $DCGL_W$, the WRS test will always show that the survey unit meets the release criterion.

8.2.4 Verify the Assumptions of the Tests

An evaluation to determine that the data are consistent with the underlying assumptions made for the statistical procedures helps to validate the use of a test. One may also determine that certain departures from these assumptions are acceptable when given the actual data and other information about the study. The nonparametric tests described in this chapter assume that the data from the reference area or survey unit consist of independent samples from each distribution.

Spatial dependencies that potentially affect the assumptions can be assessed using posting plots (Section 8.2.2.2). More sophisticated tools for determining the extent of spatial dependencies are also available (*e.g.*, EPA QA/G-9). These methods tend to be complex and are best used with guidance from a professional statistician.

Asymmetry in the data can be diagnosed with a stem and leaf display, a histogram, or a Quantile plot. As discussed in the previous section, data transformations can sometimes be used to minimize the effects of asymmetry.

One of the primary advantages of the nonparametric tests used in this report is that they involve fewer assumptions about the data than their parametric counterparts. If parametric tests are used, (*e.g.*, Student's *t* test), then any additional assumptions made in using them should be verified (*e.g.*, testing for normality). These issues are discussed in detail in EPA QA/G-9 (EPA 1996a).

One of the more important assumptions made in the survey design described in Chapter 5 is that the sample sizes determined for the tests are sufficient to achieve the data quality objectives set for the Type I (α) and Type II (β) error rates. Verification of the power of the tests ($1-\beta$) to detect adequate remediation may be of particular interest. Methods for assessing the power are discussed in Appendix I.9. If the hypothesis that the survey unit residual radioactivity exceeds the release criterion is accepted, there should be reasonable assurance that the test is equally effective in determining that a survey unit has residual contamination less than the $DCGL_W$. Otherwise, unnecessary remediation may result. For this reason, it is better to plan the surveys cautiously—even to the point of:

- overestimating the potential data variability
- taking too many samples
- overestimating minimum detectable concentrations (MDCs)

If one is unable to show that the DQOs were met with reasonable assurance, a resurvey may be needed. Examples of assumptions and possible methods for their assessment are summarized in Table 8.1.

Table 8.1 Methods for Checking the Assumptions of Statistical Tests

Assumption	Diagnostic
Spatial Independence	Posting Plot
Symmetry	Histogram, Quantile Plot
Data Variance	Sample Standard Deviation
Power is Adequate	Retrospective Power Chart

8.2.5 Draw Conclusions from the Data

The types of measurements that can be made in a survey unit are 1) direct measurements at discrete locations, 2) samples collected at discrete locations, and 3) scans. The statistical tests are only applied to measurements made at discrete locations. Specific details for conducting the statistical tests are given in Sections 8.3 and 8.4. When the data clearly show that a survey unit meets or exceeds the release criterion, the result is often obvious without performing the formal statistical analysis. Table 8.2 describes examples of circumstances leading to specific conclusions based on a simple examination of the data.

Table 8.2 Summary of Statistical Tests

Radionuclide not in background and radionuclide-specific measurements made:

Survey Result	Conclusion
All measurements less than $DCGL_W$	Survey unit meets release criterion
Average greater than $DCGL_W$	Survey unit does not meet release criterion
Any measurement greater than $DCGL_W$ and the average less than $DCGL_W$	Conduct Sign test and elevated measurement comparison

Radionuclide in background or radionuclide non-specific (gross) measurements made:

Survey Result	Conclusion
Difference between largest survey unit measurement and smallest reference area measurement is less than $DCGL_W$	Survey unit meets release criterion
Difference of survey unit average and reference area average is greater than $DCGL_W$	Survey unit does not meet release criterion
Difference between any survey unit measurement and any reference area measurement greater than $DCGL_W$ and the difference of survey unit average and reference area average is less than $DCGL_W$	Conduct WRS test and elevated measurement comparison

Both the measurements at discrete locations and the scans are subject to the elevated measurement comparison (EMC). The result of the EMC is not conclusive as to whether the survey unit meets or exceeds the release criterion, but is a flag or trigger for further investigation. The investigation may involve taking further measurements to determine that the area and level of the elevated residual radioactivity are such that the resulting dose or risk meets the release criterion.[2] The investigation should also provide adequate assurance, using the DQO process, that there are no other undiscovered areas of elevated residual radioactivity in the survey unit that might otherwise result in a dose or risk exceeding the release criterion. In some cases, this may lead to re-classifying all or part of a survey unit—unless the results of the investigation indicate that reclassification is not necessary. The investigation level appropriate for each class of survey unit and type of measurement is shown in Table 5.8 and is described in Section 5.5.2.6.

[2] Rather than, or in addition to, taking further measurements the investigation may involve assessing the adequacy of the exposure pathway model used to obtain the DCGLs and area factors, and the consistency of the results obtained with the Historical Site Assessment and the scoping, characterization and remedial action support surveys.

8.2.6 Example

To illustrate the data interpretation process, consider an example facility with 14 survey units consisting of interior concrete surfaces, one interior survey unit with drywall surfaces, and two exterior survey units. The contaminant of concern is ^{60}Co. The interior surfaces were measured with a gas-flow proportional counter (see Appendix H) with an active surface area of 20 cm^2 to determine total beta-gamma activity. Because these measurements are not radionuclide specific, appropriate reference areas were chosen for comparison. The exterior soil was measured with a germanium spectrometer to provide radionuclide-specific results. A reference area is not needed because ^{60}Co does not have a significant background in soil.

The exterior Class 3 survey unit incorporates areas that are not expected to contain residual radioactivity. The exterior Class 2 survey unit is similar to the Class 3 survey unit, but is expected to contain residual radioactivity below the $DCGL_W$. The Class 1 Interior Concrete survey units are expected to contain small areas of elevated activity that may or may not exceed the $DCGL_W$. The Class 2 Interior Drywall survey unit is similar to the Class 1 Interior Concrete survey unit, but the drywall is expected to have a lower background, less measurement variability, and a more uniform distribution of contamination. The Class 2 survey unit is not expected to contain areas of activity above the $DCGL_W$. Section 8.3 describes the Sign test used to evaluate the survey units where the contaminant is not present in background. Section 8.4 describes the WRS test used to evaluate the survey units where the contaminant is present in background. Section 8.5 discusses the evaluation of the results of the statistical tests and the decision regarding compliance with the release criterion. The survey design parameters and DQOs developed for these survey units are summarized in Table 8.3.

Table 8.3 Final Status Survey Parameters for Example Survey Units

Survey Unit	Type	DQO		$DCGL_W$	Estimated Standard Deviation, σ		Test/Section
		α	β		Survey	Reference	
Interior Concrete	Class 1	.05	.05	5000 dpm per 100 cm^2	625 dpm per 100 cm^2	220 dpm per 100 cm^2	WRS/App. A
Interior Drywall	Class 2	.025	.05	5000 dpm per 100 cm^2	200 dpm per 100 cm^2	200 dpm per 100 cm^2	WRS/8.4.3
Exterior Lawn	Class 2	.025	.025	140 Bq/kg	3.8 Bq/kg	N/A	Sign/8.3.3
Exterior Lawn	Class 3	.025	.01	140 Bq/kg	3.8 Bq/kg	N/A	Sign/8.3.4

8.3 Contaminant Not Present in Background

The statistical test discussed in this section is used to compare each survey unit directly with the applicable release criterion. A reference area is not included because the measurement technique is radionuclide-specific and the radionuclide of concern is not present in background (see Section 8.2.6). In this case the contaminant levels are compared directly with the $DCGL_W$. The method in this section should only be used if the contaminant is not present in background or is present at such a small fraction of the $DCGL_W$ value as to be considered insignificant. In addition, one-sample tests are applicable only if radionuclide-specific measurements are made to determine the concentrations. Otherwise, the method in Section 8.4 is recommended.

Reference areas and reference samples are not needed when there is sufficient information to indicate there is essentially no background concentration for the radionuclide being considered. With only a single set of survey unit samples, the statistical test used here is called a one-sample test. See Section 5.5 for further information appropriate to following the example and discussion presented here.

8.3.1 One-Sample Statistical Test

The Sign test is designed to detect uniform failure of remedial action throughout the survey unit. This test does not assume that the data follow any particular distribution, such as normal or log-normal. In addition to the Sign Test, the $DCGL_{EMC}$ (see Section 5.5.2.4) is compared to each measurement to ensure none exceeds the $DCGL_{EMC}$. If a measurement exceeds this DCGL, then additional investigation is recommended, at least locally, to determine the actual areal extent of the elevated concentration.

The hypothesis tested by the Sign test is

Null Hypothesis
H_0: The median concentration of residual radioactivity in the survey unit is greater than the $DCGL_W$

versus

Alternative Hypothesis
H_a: The median concentration of residual radioactivity in the survey unit is less than the $DCGL_W$

The null hypothesis is assumed to be true unless the statistical test indicates that it should be rejected in favor of the alternative. The null hypothesis states that the probability of a measurement less than the $DCGL_W$ is less than one-half, *i.e.*, the 50th percentile (or median) is

greater than the $DCGL_W$. Note that some individual survey unit measurements may exceed the $DCGL_W$ even when the survey unit as a whole meets the release criterion. In fact, a survey unit average that is close to the $DCGL_W$ might have almost half of its individual measurements greater than the $DCGL_W$. Such a survey unit may still not exceed the release criterion.

The assumption is that the survey unit measurements are independent random samples from a symmetric distribution. If the distribution of measurements is symmetric, the median and the mean are the same.

The hypothesis specifies a release criterion in terms of a $DCGL_W$. The test should have sufficient power (1-β, as specified in the DQOs) to detect residual radioactivity concentrations at the Lower Boundary of the Gray Region (LBGR). If σ is the standard deviation of the measurements in the survey unit, then Δ/σ expresses the size of the shift (*i.e.*, $\Delta = DCGL_W$ - LBGR) as the number of standard deviations that would be considered "large" for the distribution of measurements in the survey unit. The procedure for determining Δ/σ is given in Section 5.5.2.3.

8.3.2 Applying the Sign Test

The Sign test is applied as outlined in the following five steps, and further illustrated by the examples in Sections 8.3.3 and 8.3.4.

1. List the survey unit measurements, X_i , i = 1, 2, 3..., N.

2. Subtract each measurement, X_i , from the $DCGL_W$ to obtain the differences:
   $$D_i = DCGL_W - X_i, \; i = 1, 2, 3..., N.$$

3. Discard each difference that is exactly zero and reduce the sample size, N, by the number of such zero measurements.

4. Count the number of positive differences. The result is the test statistic S+. Note that a positive difference corresponds to a measurement below the $DCGL_W$ and contributes evidence that the survey unit meets the release criterion.

5. Large values of S+ indicate that the null hypothesis (that the survey unit exceeds the release criterion) is false. The value of S+ is compared to the critical values in Table I.3. If S+ is greater than the critical value, k, in that table, the null hypothesis is rejected.

8.3.3 Sign Test Example: Class 2 Exterior Soil Survey Unit

For the Class 2 Exterior Soil survey unit, the one-sample nonparametric statistical test is appropriate since the radionuclide of concern does not appear in background and radionuclide-specific measurements were made.

Table 8.3 shows that the DQOs for this survey unit include $\alpha = 0.025$ and $\beta = 0.025$. The $DCGL_W$ is 140 Bq/kg (3.8 pCi/g) and the estimated standard deviation of the measurements is σ = 3.8 Bq/kg (0.10 pCi/g). Since the estimated standard deviation is much smaller than the $DCGL_W$, the LBGR should be set so that Δ/σ is about 3.

If $\Delta/\sigma = (DCGL_W - LBGR)/\sigma$
$= 3$
then $LBGR = DCGL_W - 3\sigma$
$= 140 - (3 \times 3.8)$
$= 128$ Bq/kg (3.5 pCi/g).

Table 5.5 indicates the number of measurements estimated for the Sign Test, N, is 20 ($\alpha = 0.025$, $\beta = 0.025$, and $\Delta/\sigma = 3$). (Table I.2a in Appendix I also lists the number of measurements estimated for the Sign test.) This survey unit is Class 2, so the 20 measurements needed were made on a random-start triangular grid. When laying out the grid, 22 measurement locations were identified.

The 22 measurements taken on the exterior lawn Class 2 survey unit are shown in the first column of Table 8.4. The mean of these data is 129 Bq/kg (3.5 pCi/g) and the standard deviation is 11 Bq/kg (0.30 pCi/g). Since the number of measurements is even, the median of the data is the average of the two middle values (126+128)/2 = 127 Bq/kg (3.4 pCi/g). A Quantile Plot of the data is shown in Appendix I.8, Figure I.3.

There are five measurements that exceed the $DCGL_W$ value of 140 Bq/kg: 142, 143, 145, 148, and 148. However, none exceed the mean of the data plus three standard deviations: $127 + (3 \times 11) = 160$ Bq/kg (4.3 pCi/g). Thus, these values appear to reflect the overall variability of the concentration measurements rather than to indicate an area of elevated activity—*provided* that these measurements were scattered through the survey unit. However, if a posting plot demonstrates that the locations of these measurements are grouped together, then that portion of the survey unit containing these locations merits further investigation.

The middle column of Table 8.4 contains the differences, $DCGL_W$ - *Data*, and the last column contains the signs of the differences. The bottom row shows the number of measurements with positive differences, which is the test statistic S+. In this case, S+ = 17.

The value of S+ is compared to the appropriate critical value in Table I.3. In this case, for $N = 22$ and $\alpha = 0.025$, the critical value is 16. Since S+ = 17 exceeds this value, the null hypothesis that the survey unit exceeds the release criterion is rejected.

Table 8.4 Example Sign Analysis: Class 2 Exterior Soil Survey Unit

Data (Bq/kg)	$DCGL_W$-Data (Bq/kg)	Sign
121	19	1
143	-3	-1
145	-5	-1
112	28	1
125	15	1
132	8	1
122	18	1
114	26	1
123	17	1
148	-8	-1
115	25	1
113	27	1
126	14	1
134	6	1
148	-8	-1
130	10	1
119	21	1
136	4	1
128	12	1
125	15	1
142	-2	-1
129	11	1
Number of positive differences S+ = 17		

8.3.4 Sign Test Example: Class 3 Exterior Soil Survey Unit

For the Class 3 exterior soil survey unit, the one-sample nonparametric statistical test is again appropriate since the radionuclide of concern does not appear in background and radionuclide-specific measurements were made.

Table 8.3 shows that the DQOs for this survey unit include $\alpha = 0.025$ and $\beta = 0.01$. The $DCGL_W$ is 140 Bq/kg (3.8 pCi/g) and the estimated standard deviation of the measurements is $\sigma = 3.8$ Bq/kg (0.10 pCi/g). Since the estimated standard deviation is much smaller than the $DCGL_W$, the lower bound for the gray region should be set so that Δ/σ is about 3.

If $\Delta/\sigma = (DCGL_W - LBGR)/\sigma$
$= 3$
then $LBGR = DCGL_W - 3\sigma$
$= 140 - (3 \times 4)$
$= 128$ Bq/kg (3.5 pCi/g).

Table 5.5 indicates that the sample size estimated for the Sign Test, N, is 23 ($\alpha = 0.025$, $\beta = 0.01$, and $\Delta/\sigma = 3$). This survey unit is Class 3, so the measurements were made at random locations within the survey unit.

The 23 measurements taken on the exterior lawn are shown in the first column of Table 8.5. Notice that some of these measurements are negative (-0.37 in cell A6). This might occur if an analysis background (*e.g.*, the Compton continuum under a spectrum peak) is subtracted to obtain the net concentration value. The data analysis is both easier and more accurate when numerical values are reported *as obtained* rather than reporting the results as "less than" or not detected. The mean of these data is 2.1 Bq/kg (0.057 pCi/g) and the standard deviation is 3.3 Bq/kg (0.089 pCi/g). None of the data exceed $2.1 + (3 \times 3.3) = 12.0$ Bq/kg (0.32 pCi/g). Since N is odd, the median is the middle (12th highest) value, namely 2.6 Bq/kg (0.070 pCi/g).

An initial review of the data reveals that every data point is below the $DCGL_W$, so the survey unit meets the release criterion specified in Table 8.3. For purely illustrative purposes, the Sign test analysis is performed. The middle column of Table 8.5 contains the quantity $DCGL_W$ - Data. Since every data point is below the $DCGL_W$, the sign of $DCGL_W$ - Data is always positive. The number of positive differences is equal to the number of measurements, N, and so the Sign test statistic S+ is 23. The null hypothesis will always be rejected at the maximum value of S+ (which in this case is 23) and the survey unit passes. Thus, the application of the Sign test in such cases requires no calculations and one need not consult a table for a critical value. If the survey is properly designed, the critical value must always be less than N.

Passing a survey unit without making a single calculation may seem an unconventional approach. However, the key is in the survey design which is intended to ensure enough measurements are made to satisfy the DQOs. As in the previous example, after the data are collected the conclusions and power of the test can be checked by constructing a retrospective power curve as outlined in Appendix I, Section I..9.

One final consideration remains regarding the survey unit classification: "Was any definite amount of residual radioactivity found in the survey unit?" This will depend on the MDC of the measurement method. Generally the MDC is at least 3 or 4 times the estimated measurement standard deviation. In the present case, the largest observation, 9.3 Bq/kg (0.25 pCi/g), is less than three times the estimated measurement standard deviation of 3.8 Bq/kg (0.10 pCi/g). Thus, it is unlikely that any of the measurements could be considered indicative of positive contamination. This means that the Class 3 survey unit classification was appropriate.

Table 8.5 Sign Test Example Data for Class 3 Exterior Survey Unit

	A	B	C
1	Data	$DCGL_W$-Data	Sign
2	3.0	137.0	1
3	3.0	137.0	1
4	1.9	138.1	1
5	0.37	139.6	1
6	-0.37	140.4	1
7	6.3	133.7	1
8	-3.7	143.7	1
9	2.6	137.4	1
10	3.0	137.0	1
11	-4.1	144.1	1
12	3.0	137.0	1
13	3.7	136.3	1
14	2.6	137.4	1
15	4.4	135.6	1
16	-3.3	143.3	1
17	2.1	137.9	1
18	6.3	133.7	1
19	4.4	135.6	1
20	-0.37	140.4	1
21	4.1	135.9	1
22	-1.1	141.1	1
23	1.1	138.9	1
24	9.3	130.7	1
25	Number of positive differences S+ =		23

If one determines that residual radioactivity is definitely present, this would indicate that the survey unit was initially mis-classified. Ordinarily, MARSSIM recommends a resurvey using a Class 1 or Class 2 design. If one determines that the survey unit is a Class 2, a resurvey might be avoided if the survey unit does not exceed the maximum size for such a classification. In this case, the only difference in survey design would be whether the measurements were obtained on a random or on a triangular grid. Provided that the initial survey's scanning methodology is sufficiently sensitive to detect areas at $DCGL_W$ without the use of an area factor, this difference in the survey grids alone would not affect the outcome of the statistical analysis. Therefore, if the above conditions were met, a resurvey might not be necessary.

8.4 Contaminant Present in Background

The statistical tests discussed in this section will be used to compare each survey unit with an appropriately chosen, site-specific reference area. Each reference area should be selected on the basis of its similarity to the survey unit, as discussed in Section 4.5.

8.4.1 Two-Sample Statistical Test

The comparison of measurements from the reference area and survey unit is made using the Wilcoxon Rank Sum (WRS) test (also called the Mann-Whitney test). The WRS test should be conducted for each survey unit. In addition, the EMC is performed against each measurement to ensure that it does not exceed a specified investigation level. If any measurement in the remediated survey unit exceeds the specified investigation level, then additional investigation is recommended, at least locally, regardless of the outcome of the WRS test.

The WRS test is most effective when residual radioactivity is uniformly present throughout a survey unit. The test is designed to detect whether or not this activity exceeds the $DCGL_W$. The advantage of the nonparametric WRS test is that it does not assume that the data are normally or log-normally distributed. The WRS test also allows for "less than" measurements to be present in the reference area and the survey units. As a general rule, the WRS test can be used with up to 40 percent "less than" measurements in either the reference area or the survey unit. However, the use of "less than" values in data reporting is not recommended as discussed in Section 2.3.5. When possible, report the actual result of a measurement together with its uncertainty.

The hypothesis tested by the WRS test is

> Null Hypothesis
> H_0: The median concentration in the survey unit exceeds that in the reference area by more than the $DCGL_W$
>
> versus
>
> Alternative Hypothesis
> H_a: The median concentration in the survey unit exceeds that in the reference area by less than the $DCGL_W$

The null hypothesis is assumed to be true unless the statistical test indicates that it should be rejected in favor of the alternative. One assumes that any difference between the reference area and survey unit concentration distributions is due to a shift in the survey unit concentrations to higher values (*i.e.*, due to the presence of residual radioactivity in addition to background). Note that some or all of the survey unit measurements may be larger than some reference area

measurements, while still meeting the release criterion. Indeed, some survey unit measurements may exceed some reference area measurements by more than the $DCGL_W$. The result of the hypothesis test determines whether or not the survey unit as a whole is deemed to meet the release criterion. The EMC is used to screen individual measurements.

Two assumptions underlying this test are: 1) samples from the reference area and survey unit are independent, identically distributed random samples, and 2) each measurement is independent of every other measurement, regardless of the set of samples from which it came.

8.4.2 Applying the Wilcoxon Rank Sum Test

The WRS test is applied as outlined in the following six steps and further illustrated by the examples in Section 8.4.3 and Appendix A.

1. Obtain the adjusted reference area measurements, Z_i , by adding the $DCGL_W$ to each reference area measurement, X_i. $Z_i = X_i + DCGL_W$

2. The m adjusted reference sample measurements, Z_i , from the reference area and the n sample measurements, Y_i , from the survey unit are pooled and ranked in order of increasing size from 1 to N, where $N = m+n$.

3. If several measurements are tied (*i.e.*, have the same value), they are all assigned the average rank of that group of tied measurements.

4. If there are t "less than" values, they are all given the average of the ranks from 1 to t. Therefore, they are all assigned the rank $t(t+1)/(2t) = (t+1)/2$, which is the average of the first t integers. If there is more than one detection limit, all observations below the largest detection limit should be treated as "less than" values.[3]

5. Sum the ranks of the adjusted measurements from the reference area, W_r. Note that since the sum of the first N integers is $N(N+1)/2$, one can equivalently sum the ranks of the measurements from the survey unit, W_s, and compute $W_r = N(N+1)/2 - W_s$.

6. Compare W_r with the critical value given in Table I.4 for the appropriate values of n, m, and α. If W_r is greater than the tabulated value, reject the hypothesis that the survey unit exceeds the release criterion.

---

[3] If more than 40 percent of the data from either the reference area or survey unit are "less than," the WRS test *cannot* be used. Such a large proportion of non-detects suggest that the DQO process be re-visited for this survey to determine if the survey unit was properly classified or the appropriate measurement method was used. As stated previously, the use of "less than" values in data reporting is not recommended. Wherever possible, the actual result of a measurement, together with its uncertainty, should be reported.

8.4.3 Wilcoxon Rank Sum Test Example: Class 2 Interior Drywall Survey Unit

In this example, the gas-flow proportional counter measures total beta-gamma activity (see Appendix H) and the measurements are not radionuclide specific. The two-sample nonparametric test is appropriate for the Class 2 interior drywall survey unit because gross beta-gamma activity contributes to background even though the radionuclide of interest does not appear in background.

Table 8.3 shows that the DQOs for this survey unit include $\alpha = 0.025$ and $\beta = 0.05$. The $DCGL_W$ is 8,300 Bq/m^2 (5,000 dpm per 100 cm^2) and the estimated standard deviation of the measurements is about σ = 1,040 Bq/m^2 (625 dpm per 100 cm^2). The estimated standard deviation is 8 times less than the $DCGL_W$. With this level of precision, the width of the gray region can be made fairly narrow. As noted earlier, sample sizes do not decrease very much once Δ/σ exceeds 3 or 4. In this example, the lower bound for the gray region was set so that Δ/σ is about 4.

If $\Delta/\sigma = (DCGL_W - LBGR)/\sigma$
$= 4$
then $LBGR = DCGL_W - 4\sigma$
$= 8{,}300 - (4 \times 1{,}040)$
$= 4{,}100$ Bq/m^2 (2,500 dpm per 100 cm^2).

In Table 5.3, one finds that the number of measurements estimated for the WRS test is 11 in each survey unit and 11 in each reference area ($\alpha = 0.025$, $\beta = 0.05$, and $\Delta/\sigma = 4$). (Table I.2b in Appendix I also lists the number of measurements estimated for the WRS test.) This survey unit was classified as Class 2, so the 11 measurements needed in the survey unit and the 11 measurements needed in the reference area were made using a random-start triangular grid.[4]

Table 8.6 lists the data obtained from the gas-flow proportional counter in units of counts per minute. A reading of 160 cpm with this instrument corresponds to the $DCGL_W$ of 8,300 Bq/m^2 (5,000 dpm per 100 cm^2). Column A lists the measurement results as they were obtained. The average and standard deviation of the reference area measurements are 44 and 4.4 cpm, respectively. The average and standard deviation of the survey unit measurements are 98 and 5.3 cpm, respectively.

[4]A random start systematic grid is used in Class 2 and 3 survey units primarily to limit the size of any potential elevated areas. Since areas of elevated activity are not an issue in the reference areas, the measurement locations can be either random or on a random start systematic grid (see Section 5.5.2.5).

Table 8.6 WRS Test for Class 2 Interior Drywall Survey Unit

	A	B	C	D	E
1	**Data (cpm)**	**Area**	**Adjusted Data**	**Ranks**	**Reference Area Ranks**
2	49	R	209	22	22
3	35	R	195	12	12
4	45	R	205	17.5	17.5
5	45	R	205	17.5	17.5
6	41	R	201	14	14
7	44	R	204	16	16
8	48	R	208	21	21
9	37	R	197	13	13
10	46	R	206	19	19
11	42	R	202	15	15
12	47	R	207	20	20
13	104	S	104	9.5	0
14	94	S	94	4	0
15	98	S	98	6	0
16	99	S	99	7	0
17	90	S	90	1	0
18	104	S	104	9.5	0
19	95	S	95	5	0
20	105	S	105	11	0
21	93	S	93	3	0
22	101	S	101	8	0
23	92	S	92	2	0
24	Sum =			253	**187**

In column B, the code "R" denotes a reference area measurement, and "S" denotes a survey unit measurement. Column C contains the Adjusted Data. The Adjusted Data are obtained by adding the $DCGL_W$ to the reference area measurements (see Section 8.4.2, Step 1). The ranks of the adjusted data appear in Column D. They range from 1 to 22, since there is a total of 11+11 measurements (see Section 8.4.2, Step 2).

Note that there were two cases of measurements tied with the same value, at 104 and 209. Each tied measurement is always assigned the average of the ranks. Therefore, both measurements at 104, are assigned rank (9+10)/2 = 9.5 (see Section 8.4.2, Step 3). Also note that the sum of *all* of the ranks is still 22(22+1)/2 = 253. Checking this value with the formula in Step 5 of Section 8.4.2 is recommended to guard against errors in the rankings.

Column E contains only the ranks belonging to the reference area measurements. The total is 187. This is compared with the entry for the critical value of 156 in Table I.4 for $\alpha = 0.025$, with $n = 11$ and $m = 11$. Since the sum of the reference area ranks is greater than the critical value, the null hypothesis (*i.e.*, that the average survey unit concentration exceeds the $DCGL_W$) is rejected.

The analysis for the WRS test is very well suited to the use of a computer spreadsheet. The spreadsheet formulas used for the example above are given in Appendix I.10, Table I.11.

8.4.4 Class 1 Interior Concrete Survey Unit

As in the previous example, the gas-flow proportional counter measures total beta-gamma activity (see Appendix H) and the measurements are not radionuclide specific. The two-sample nonparametric test is appropriate for the Class 1 interior concrete survey unit because gross beta-gamma activity contributes to background even though the radionuclide of interest does not appear in background.

Appendix A provides a detailed description of the calculations for the Class 1 interior concrete survey unit.

8.4.5 Multiple Radionuclides

The use of the unity rule when there is more than one radionuclide to be considered is discussed in Appendix I.11. An example application appears in Section I.11.4.

8.5 Evaluating the Results: The Decision

Once the data and the results of the tests are obtained, the specific steps required to achieve site release depend on the procedures instituted by the governing regulatory agency and site-specific ALARA considerations. The following suggested considerations are for the interpretation of the test results with respect to the release limit established for the site or survey unit. Note that the tests need not be performed in any particular order.

8.5.1 Elevated Measurement Comparison

The Elevated Measurement Comparison (EMC) consists of comparing each measurement from the survey unit with the *investigation levels* discussed in Section 5.5.2.6 and Section 8.2.5. The EMC is performed for both measurements obtained on the systematic-sampling grid and for locations flagged by scanning measurements. Any measurement from the survey unit that is equal to or greater than an *investigation level* indicates an area of relatively high concentrations that should be investigated—regardless of the outcome of the nonparametric statistical tests.

The statistical tests may not reject H_0 when only a very few high measurements are obtained in the survey unit. The use of the EMC against the investigation levels may be viewed as assurance that unusually large measurements will receive proper attention regardless of the outcome of those tests and that any area having the potential for significant dose contributions will be identified. The EMC is intended to flag potential failures in the remediation process. This should not be considered the primary means to identify whether or not a site meets the release criterion.

The derived concentration guideline level for the EMC is:

$$DCGL_{EMC} = A_m \times DCGL_W \qquad 8\text{-}1$$

where A_m is the area factor for the area of the systematic grid area. Note that $DCGL_{EMC}$ is an *a priori* limit, established both by the $DCGL_W$ and by the survey design (*i.e.*, grid spacing and scanning MDC). The true extent of an area of elevated activity can only be determined after performing the survey and taking additional measurements. Upon the completion of further investigation, the *a posteriori* limit, $DCGL_{EMC} = A_m \times DCGL_W$, can be established using the value of A_m appropriate for the *actual area of elevated concentration*. The area of elevated activity is generally bordered by concentration measurements below the $DCGL_W$. An individual elevated measurement on a systematic grid could conceivably represent an area four times as large as the systematic grid area used to define the $DCGL_{EMC}$. This is the area bounded by the nearest neighbors of the elevated measurement location. The results of the investigation should show that the appropriate $DCGL_{EMC}$ is not exceeded. Area factors are discussed in Section 5.5.2.4.

If measurements above the stated scanning MDC are found by sampling or by direct measurement at locations that were not flagged by the scanning survey, this may indicate that the scanning method did not meet the DQOs.

The preceding discussion primarily concerns Class 1 survey units. Measurements exceeding $DCGL_W$ in Class 2 or Class 3 areas may indicate survey unit mis-classification. Scanning coverage for Class 2 and Class 3 survey units is less stringent than for Class 1. If the investigation levels of Section 8.2.5 are exceeded, an investigation should: 1) ensure that the area of elevated activity discovered meets the release criterion, and 2) provide reasonable assurance that other undiscovered areas of elevated activity do not exist. If further investigation determines that the survey unit was mis-classified with regard to contamination potential, then a resurvey using the method appropriate for the new survey unit classification may be appropriate.

8.5.2 Interpretation of Statistical Test Results

The result of the statistical test is the decision to reject or not to reject the null hypothesis. Provided that the results of investigations triggered by the EMC were resolved, a rejection of the null hypothesis leads to the decision that the survey unit meets the release criterion. However, estimating the average residual radioactivity in the survey unit may also be necessary so that dose or risk calculations can be made. This estimate is designated δ. The average concentration is generally the best estimator for δ (EPA 1992g). However, only the unbiased measurements from the statistically designed survey should be used in the calculation of δ.

If residual radioactivity is found in an isolated area of elevated activity—in addition to residual radioactivity distributed relatively uniformly across the survey unit—the unity rule (Section 4.3.3) can be used to ensure that the total dose is within the release criterion:

$$\frac{\delta}{DCGL_W} + \frac{(average\ concentration\ in\ elevated\ area - \delta)}{(area\ factor\ for\ elevated\ area)(DCGL_W)} < 1 \qquad \textbf{8-2}$$

If there is more than one elevated area, a separate term should be included for each. When calculating δ for use in this inequality, measurements falling within the elevated area may be excluded providing the overall average in the survey unit is less than the $DCGL_W$. As an alternative to the unity rule, the dose or risk due to the actual residual radioactivity distribution can be calculated if there is an appropriate exposure pathway model available. Note that these considerations generally apply only to Class 1 survey units, since areas of elevated activity should not exist in Class 2 or Class 3 survey units.

A retrospective power analysis for the test will often be useful, especially when the null hypothesis is not rejected (see Appendix I.9). When the null hypothesis is not rejected, it may be because it is in fact true, or it may be because the test did not have sufficient power to detect that it is not true. The power of the test will be primarily affected by changes in the actual number of measurements obtained and their standard deviation. An effective survey design will slightly overestimate both the number of measurements and the standard deviation to ensure adequate power. This insures that a survey unit is not subjected to additional remediation simply because the final status survey is not sensitive enough to detect that residual radioactivity is below the guideline level. When the null hypothesis is rejected, the power of the test becomes a somewhat moot question. Nonetheless, even in this case, a retrospective power curve can be a useful diagnostic tool and an aid to designing future surveys.

8.5.3 If the Survey Unit Fails

The guidance provided in MARSSIM is fairly explicit concerning the steps that should be taken to show that a survey unit meets release criteria. Less has been said about the procedures that should be used if at any point the survey unit fails. This is primarily because there are many different ways that a survey unit may fail the final status survey. The overall level of residual

radioactivity may not pass the nonparametric statistical tests. Further investigation following the elevated measurement comparison may show that there is a large enough area with a concentration too high to meet the release criterion. Investigation levels may have caused locations to be flagged during scanning that indicate unexpected levels of residual radioactivity for the survey unit classification. Site-specific information is needed to fully evaluate all of the possible reasons for failure, their causes, and their remedies.

When a survey unit fails to demonstrate compliance with the release criterion, the first step is to review and confirm the data that led to the decision. Once this is done, the DQO Process (Appendix D) can be used to identify and evaluate potential solutions to the problem. The level of residual radioactivity in the survey unit should be determined to help define the problem. Once the problem has been stated the decision concerning the survey unit should be developed into a decision rule. Next, determine the additional data, if any, needed to document that the survey unit demonstrates compliance with the release criterion. Alternatives to resolving the decision statement should be developed for each survey unit that fails the tests. These alternatives are evaluated against the DQOs, and a survey design that meets the objectives of the project is selected.

For example, a Class 2 survey unit passes the nonparametric statistical tests, but has several measurements on the sampling grid that exceed the $DCGL_W$. This is unexpected in a Class 2 area, and so these measurements are flagged for further investigation. Additional sampling confirms that there are several areas where the concentration exceeds the $DCGL_W$. This indicates that the survey unit was mis-classified. However, the scanning technique that was used was sufficient to detect residual radioactivity at the $DCGL_{EMC}$ calculated for the sample grid. No areas exceeding the $DCGL_{EMC}$ where found. Thus, the only difference between the final status survey actually done, and that which would be required for a Class 1 area, is that the scanning may not have covered 100% of the survey unit area. In this case, one might simply increase the scan coverage to 100%. Reasons why the survey unit was misclassified should be noted. If no areas exceeding the $DCGL_{EMC}$ are found, the survey unit essentially demonstrates compliance with the release criterion as a Class 1 survey unit.

If, in the example above, the scanning technique was not sufficiently sensitive, it may be possible to re-classify as Class 1 only that portion of the survey unit containing the higher measurements. This portion would be re-sampled at the higher measurement density required for a Class 1 survey unit, with the rest of the survey unit remaining Class 2.

A second example might be a Class 1 Survey unit that passes the nonparametric statistical tests and contains some areas that were flagged for investigation during scanning. Further investigation, sampling and analysis indicates one area is truly elevated. This area has a concentration that exceeds the $DCGL_W$ by a factor greater than the area factor calculated for its actual size. This area is then remediated. Remediation control sampling shows that the residual

radioactivity was removed, and no other areas were contaminated with removed material. In this case one may simply document the original final status survey, the fact that remediation was performed, the results of the remedial action support survey, and the additional remediation data. In some cases, additional final status survey data may not be needed to demonstrate compliance with the release criterion.

As a last example, consider a Class 1 area which fails the nonparametric statistical tests. Confirmatory data indicates that the average concentration in the survey unit does exceed the $DCGL_W$ over a majority of its area. This indicates remediation of the entire survey unit is necessary, followed by another final status survey. Reasons for performing a final status survey in a survey unit with significant levels of residual radioactivity should be noted.

These examples are meant to illustrate the actions that may be necessary to secure the release of a survey unit that has failed to meet the release criterion. The DQO Process should be revisited to plan how to attain the original objective, that is to safely release the survey unit by showing that it meets the release criterion. Whatever data are necessary to meet this objective will be in addition to the final status survey data already in hand.

8.5.4 Removable Activity

Some regulatory agencies may require that smear samples be taken at indoor grid locations as an indication of removable surface activity. The percentage of removable activity assumed in the exposure pathway models has a great impact on dose calculations. However, measurements of smears are very difficult to interpret quantitatively. Therefore, the results of smear samples should not be used for determining compliance. Rather, they should be used as a diagnostic tool to determine if further investigation is necessary.

8.6 Documentation

Documentation of the final status survey should provide a complete and unambiguous record of the radiological status of the survey unit relative to the established DCGLs. In addition, sufficient data and information should be provided to enable an independent evaluation of the results of the survey including repeating measurements at some future time. The documentation should comply with all applicable regulatory requirements. Additional information on documentation is provided in Chapter 3, Chapter 5, Chapter 9, and Appendix N.

Much of the information in the final status report will be available from other decommissioning documents. However, to the extent practicable, this report should be a stand-alone document with minimum information incorporated by reference. This document should describe the

instrumentation or analytical methods used, how the data were converted to DCGL units, the process of comparing the results to the DCGLs, and the process of determining that the data quality objectives were met.

The results of actions taken as a consequence of individual measurements or sample concentrations in excess of the investigation levels should be reported together with any additional data, remediation, or re-surveys performed to demonstrate that issues concerning potential areas of elevated activity were resolved. The results of the data evaluation using statistical methods to determine if release criteria were satisfied should be described. If criteria were not met or if results indicate a need for additional data, appropriate further actions should be determined by the site management in consultation with the responsible regulatory agency.

EXAMPLE DATA INTERPRETATION CHECKLIST

CONVERT DATA TO STANDARD UNITS

_____ Structure activity in Bq/m^2 (dpm/100 cm^2)
_____ Solid media (soil, *etc.*) activity in Bq/kg (pCi/g)

EVALUATE ELEVATED MEASUREMENTS

_____ Identify elevated data
_____ Compare data with derived elevated area criteria
_____ Determine need to remediate and/or reinvestigate elevated condition
_____ Compare data with survey unit classification criteria
_____ Determine need to investigate and/or reclassify

ASSESS SURVEY DATA

_____ Review DQOs and survey design
_____ Verify that data of adequate quantity and quality were obtained
_____ Perform preliminary assessments (graphical methods) for unusual or suspicious trends or results—investigate further as appropriate

PERFORM STATISTICAL TESTS

_____ Select appropriate tests for category of contaminant
_____ Conduct tests
_____ Compare test results against hypotheses
_____ Confirm power level of tests

COMPARE RESULTS TO GUIDELINES

_____ Determine average or median concentrations
_____ Confirm that residual activity satisfies guidelines

COMPARE RESULTS WITH DQOs*

_____ Determine whether all DQOs are satisfied
_____ Explain/describe deviations from design-basis DQOs

* ALARA may be included in the DQOs.

9 QUALITY ASSURANCE AND QUALITY CONTROL

9.1 Introduction

The goal of quality assurance and quality control (QA/QC) is to identify and implement sampling and analytical methodologies which limit the introduction of error into analytical data. For MARSSIM data collection and evaluation, a system is needed to ensure that radiation surveys produce results that are of the type and quality needed and expected for their intended use. A *quality system* is a management system that describes the elements necessary to plan, implement, and assess the effectiveness of QA/QC activities. This system establishes many functions including: quality management policies and guidelines for the development of organization- and project-specific quality plans; criteria and guidelines for assessing data quality; assessments to ascertain effectiveness of QA/QC implementation; and training programs related to QA/QC implementation. A quality system ensures that MARSSIM decisions will be supported by sufficient data of adequate quality and usability for their intended purpose, and further ensures that such data are authentic, appropriately documented, and technically defensible.

Any organization collecting and evaluating data for a particular program must be concerned with the quality of results. The organization must have results that: meet a well-defined need, use, or purpose; comply with program requirements; and reflect consideration of cost and economics. To meet the objective, the organization should control the technical, administrative, and human factors affecting the quality of results. Control should be oriented toward the appraisal, reduction, elimination, and prevention of deficiencies that affect quality.

Quality systems already exist for many organizations involved in the use of radioactive materials. There are self-imposed internal quality management systems (*e.g.*, DOE) or there are systems required by regulation by another entity (*e.g.*, NRC) which require a quality system as a condition of the operating license.[1] These systems are typically called Quality Assurance Programs. An organization may also obtain services from another organization that already has a quality system in place. When developing an organization-specific quality system, there is no need to develop new quality management systems, to the extent that a facility's current Quality Assurance Program can be used. Standard ANSI/ASQC E4-1994 (ASQC 1995) provides national consensus quality standards for environmental programs. It addresses both quality systems and the collection and evaluation of environmental data. Annex B of ANSI/ASQC E4-1994

[1] Numerous quality assurance and quality control (QA/QC) requirements and guidance documents have been applied to environmental programs. Until now, each Federal agency has developed or chosen QA/QC requirements to fit its particular mission and needs. Some of these requirements include DOE Order 5700.6c (DOE 1991c); EPA QA/R-2 (EPA 1994f); EPA QA/R-5 (EPA 1994c); 10 CFR 50, App. B; NUREG-1293, Rev. 1 (NRC 1991); Reg Guide 4.15 (NRC 1979); and MIL-Q-9858A (DOD 1963). In addition, there are several consensus standards for QA/AC, including ASME NQA-1 (ASME 1989), and ISO 9000/ASQC Q9000 series (ISO 1987). ANSI/ASQC E4-1994 (ASQC 1995) is a consensus standard specifically for environmental data collection.

(ASQC 1995) and Appendix K of MARSSIM illustrate how existing quality system documents compare with organization- and project-specific environmental quality system documents.

Table 9.1 illustrates elements of a quality system as they relate to the Data Life Cycle. Applying a quality system to a project is typically done in three phases as described in Section 2.3: 1) the planning phase where the Data Quality Objectives (DQOs) are developed following the process described in Appendix D and documented in the Quality Assurance Project Plan (QAPP),[2] 2) the implementation phase involving the collection of environmental data in accordance with approved procedures and protocols, and 3) the assessment phase including the verification and validation of survey results as discussed in Section 9.3 and the evaluation of the environmental data using Data Quality Assessment (DQA) as discussed in Section 8.2 and Appendix E. Detailed guidance on quality systems is not provided in MARSSIM because a quality system should be in place and functioning prior to beginning environmental data collection activities.

Table 9.1 The Elements of a Quality System Related to the Data Life Cycle

Data Life Cycle	Quality System Elements
Planning	Data Quality Objectives (DQOs) Quality Assurance Project Plans (QAPPs) Standard Operating Procedures (SOPs)
Implementation	QAPPs SOPs Data collection Assessments and audits
Assessment	Data validation and verification Data Quality Assessment (DQA)

A graded approach bases the level of controls on the intended use of the results and the degree of confidence needed in their quality. Applying a graded approach may mean that some organizations (*e.g.*, those using the simplified procedures in Appendix B) make use of existing plans and procedures to conduct surveys. For many other organizations, the need for cleanup and restoration of contaminated facilities may create the need for one or more QAPPs suitable to the special needs of environmental data gathering, especially as it relates to the demonstration of compliance with regulatory requirements. There may even be a need to update or revise an existing quality management system.

[2] The quality assurance project plan is sometimes abbreviated QAPjP. MARSSIM adopts the terminology and abbreviations used in ANSI/ASQC E4-1994 (ASQC 1995) and EPA QA/R-5 (EPA 1994c).

9.2 Development of a Quality Assurance Project Plan

The Quality Assurance Project Plan (QAPP)[3] is the critical planning document for any environmental data collection operation because it documents how QA/QC activities will be implemented during the life cycle of a project (EPA 1997a). The QAPP is the blueprint for identifying how the quality system of the organization performing the work is reflected in a particular project and in associated technical goals. This section provides information on how to develop a QAPP based on the DQO process. The results of the DQO process provide key inputs to the QAPP and will largely determine the level of detail in the QAPP.

The consensus standard ANSI/ASQC E4-1994 (ASQC 1995) describes the minimum set of quality elements required to conduct programs involving environmental data collection and evaluation. Table 9.2 lists the quality elements for collection and evaluation of environmental data from ANSI/ASQC E4-1994. These quality elements are provided as examples that should be addressed when developing a QAPP. This table also includes references for obtaining additional information on each of these quality elements. Many of these elements will be addressed in existing documents, such as the organization's Quality Assurance Program or Quality Management Plan. Each of these quality elements should be considered during survey planning to determine the degree to which they will be addressed in the QAPP. Additional quality elements may need to be added to this list as a result of organizational preferences or requirements of Federal and State regulatory authorities. For example, safety and health or public participation may be included as elements to be considered during the development of a QAPP.

The QAPP should be developed using a graded approach as discussed in Section 9.1. In other words, existing procedures and survey designs can be included by reference. This is especially useful for sites using a simplified survey design process (*e.g.*, surveys designed using Appendix B).

A QAPP should be developed to document the results of the planning phase of the Data Life Cycle (see Section 2.3). The level of detail provided in the QAPP for relevant quality elements is determined using the DQO process during survey planning activities. Information that is already provided in existing documents does not need to be repeated in the QAPP, and can be included by reference (EPA 1997a).

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[3] MARSSIM uses the term Quality Assurance Project Plan to describe a single document that incorporates all of the elements of the survey design. This term is consistent with ANSI/ASQC E4-1994 (ASQC 1995) and EPA guidance (EPA 1994c, EPA 1997a), and is recommended to promote consistency. The use of the term QAPP in MARSSIM does not exclude the use of other terms (*e.g.*, Decommissioning Plan, Sampling and Analysis Plan, Field Sampling Plan) to describe survey planning documentation as long as the information in the documentation supports the objectives of the survey.

Table 9.2 Examples of QAPP Elements for Site Surveys and Investigations

QAPP Element	Information Source	
Planning and Scoping (reference the QA Manual for information on the quality system)	ASQC 1995 EPA 1994c EPA 1997a NRC 1997c EPA 1993d	Part A, Sections 2.1 and 2.7; Part B, Section 3.1 Sections A4, A5, A6 and A7 Chapter III, Sections A4, A5, A6, and A7 Chapter 14 Project Objectives
Design of Data Collection Operations (including training)	ASQC 1995 EPA 1994c EPA 1997a EPA 1993d	Part A, Section 2.3; Part B, Section 3.2 Sections A9 and B1 Chapter III, Sections A9 and B1 Sampling Design
Implementation of Planned Operations (including documents and records)	ASQC 1995 EPA 1994c EPA 1997a NRC 1997c EPA 1993d	Part A, Section 2.8; Part B, Section 3.3 Sections A1, A2, A3, B2, B3, B4, B5, B6, B7, B8, B9, and B10 Chapter III, Sections A1, A2, A3, B2, B3, B4, B5, B6, B7, B8, B9, and B10 Chapter 5 Sampling Execution, Sample Analysis
Assessment and Response	ASQC 1995 EPA 1994c EPA 1997a EPA 1993d	Part A, Section 2.9, Part B, Section 3.4 Sections C1 and C2 Chapter III, Sections C1 and C2 Exhibit 3, Reference Box 3
Assessment and Verification of Data Usability	ASQC 1995 EPA 1994c EPA 1997a NRC 1997c EPA 1993d	Part B, Section 3.5 Sections D1, D2, and D3 Chapter III, Sections D1, D2, and D3 Chapter 20, Appendix J, Appendix Q Assessment of Data Quality

For example, the quality system description, personnel qualifications and requirements, and Standard Operating Procedures (SOPs) for the laboratory analysis of samples may simply be references to existing documents (*e.g.*, Quality Management Plan, Laboratory Procedure Manual). SOPs for performing direct measurements with a specific instrument may be attached to the QAPP because this information may not be readily available from other sources.

There is no particular format recommended for developing a QAPP. Figure 9.1 provides an example of a QAPP format presented in EPA QA/R-5 (EPA 1994c). Appendix K compares the quality elements presented in this example to the quality elements found in EPA QAMS-005-80 (EPA 1980d), ASME NQA-1 (ASME 1989), DOE Order 5700.6c (DOE 1991c), MIL-Q-9858A (DOD 1963), and ISO 9000 (ISO 1987).

Project Management
- Title and Approval Sheet
- Table of Contents
- Distribution List
- Project/Task Organization
- Problem Definition/Background
- Project Task Description
- Quality Objectives and Criteria for Measurement Data
- Special Training Requirements/Certification

Measurement/Data Acquisition
- Sampling Process Design (Experimental Design)
- Sampling Methods Requirements
- Sample Handling and Custody Requirements
- Analytical Methods Requirements
- Quality Control Requirements
- Instrument/Equipment Testing, Inspection, and Maintenance Requirements
- Instrument Calibration and Frequency
- Inspection/Acceptance Requirements for Supplies and Consumables

Assessment/Oversight
- Assessments and Response Actions
- Reports to Management

Data Validation and Usability
- Data Review, Validation, and Verification Requirements
- Validation and Verification Methods
- Reconciliation with User Requirements

Figure 9.1 Example of a QAPP Format

9.3 Data Assessment

Assessment of environmental data is used to evaluate whether the data meet the objectives of the survey, and whether the data are sufficient to determine compliance with the DCGL (EPA 1992a, 1992b, 1996a). The assessment phase of the Data Life Cycle consists of three phases: data verification, data validation, and Data Quality Assessment (DQA). This section provides guidance on verifying and validating data collected during a final status survey designed to demonstrate compliance with a dose- or risk-based regulation. Guidance on DQA is provided in Chapter 8 and Appendix E. As with all components of a successful survey, the level of effort associated with the assessment of survey data should be consistent with the objectives of the survey (*i.e.*, a graded approach).

9.3.1 Data Verification

Data verification ensures that the requirements stated in the planning documents (*e.g.*, Quality Assurance Project Plan, Standard Operating Procedures) are implemented as prescribed. This means that deficiencies or problems that occur during implementation should be documented and reported. This also means that activities performed during the implementation phase are assessed regularly with findings documented and reported to management. Corrective actions undertaken should be reviewed for adequacy and appropriateness and documented in response to the findings. Data verification activities should be planned and documented in the QAPP. These assessments may include but are not limited to inspections, QC checks, surveillance, technical reviews, performance evaluations, and audits.

To ensure that conditions requiring corrective actions are identified and addressed promptly, data verification activities should be initiated as part of data collection during the implementation phase of the survey. The performance of tasks by personnel is generally compared to a prescribed method documented in the SOPs, and is generally assessed using inspections, surveillance, or audits. Self-assessments and independent assessments may be planned, scheduled, and performed as part of the survey. Self-assessment also means that personnel doing work should document and report deficiencies or problems that they encounter to their supervisors or management.

The performance of equipment such as radiation detectors or measurement systems such as an instrument and human operator can be monitored using control charts. Control charts are used to record the results of quantitative QC checks such as background and daily calibration or performance checks. Control charts document instrument and measurement system performance on a regular basis and identify conditions requiring corrective actions on a real time basis. Control charts are especially useful for surveys that extend over a significant period of time (*e.g.*, weeks instead of days) and for equipment that is owned by a company that is frequently used to collect survey data. Surveys that are accomplished in one or two days and use rented instruments may not benefit significantly from the preparation and use of control charts. The use of control charts is usually documented in the SOPs.

A technical review is an independent assessment that provides an in-depth analysis and evaluation of documents, activities, material, data, or items that require technical verification to ensure that established requirements are satisfied (ASQC 1995). A technical review typically requires a significant effort in time and resources and may not be necessary for all surveys. A complex survey using a combination of scanning, direct measurements, and sampling for multiple survey units is more likely to benefit from a detailed technical review than a simple survey design calling for relatively few measurements using one or two measurement techniques for a single survey unit.

9.3.2 Data Validation

Data validation activities ensure that the results of data collection activities support the objectives of the survey as documented in the QAPP, or support a determination that these objectives should be modified. Data Usability is the process of ensuring or determining whether the quality of the data produced meets the intended use of the data (EPA 1992a, EPA 1997a). Data verification compares the collected data with the prescribed activities documented in the SOPs; data validation compares the collected data to the DQOs documented in the QAPP. Corrective actions may improve data quality and reduce uncertainty, and may eliminate the need to qualify or reject data.

9.3.2.1 Data Qualifiers

Qualified data are any data that have been modified or adjusted as part of statistical or mathematical evaluation, data validation, or data verification operations (ASQC 1995). Data may be qualified or rejected as a result of data validation or data verification activities. Data qualifier codes or flags are often used to identify data that has been qualified. Any scheme used should be fully explained in the QAPP and survey documentation. The following are examples of data qualifier codes or flags derived from national qualifiers assigned to results in the contract laboratory program (CLP; EPA 1994g).

U or <MDC — The radionuclide of interest was analyzed for, but the radionuclide concentration was below the minimum detectable concentration (MDC). Section 2.3.5 recommends that the actual result of the analysis be reported so this qualifier would inform the reader that the result reported is also below the MDC.

J — The associated value reported is a modified, adjusted, or estimated quantity. This qualifier might be used to identify results based on surrogate measurements (see Section 4.3.2) or gross activity measurements (*e.g.*, gross alpha, gross beta). The implication of this qualifier is that the estimate may be inaccurate or imprecise which might mean the result is inappropriate for the statistical evaluation of the results. Surrogate measurements that are not inaccurate or imprecise may or may not be associated with this qualifier. It is recommended that the potential uncertainties associated with surrogate or gross measurements be quantified and included with the results.

R — The associated value reported is unusable. The result is rejected due to serious analytical deficiencies or quality control results. These data would be rejected because they do not meet the data quality objectives of the survey.

O — The associated value reported was determined to be an outlier.

9.3.2.2 Data Validation Descriptors

Data validation is often defined by six data descriptors. These six data descriptors are summarized in Table 9.3 and discussed in detail in Appendix N. The decision maker or reviewer examines the data, documentation, and reports for each of the six data descriptors to determine if performance is within the limits specified in the DQOs during planning. The data validation process for each data descriptor should be conducted according to procedures documented in the QAPP.

Table 9.3 Suggested Content or Consideration, Impact if Not Met, and Corrective Actions for Data Descriptors

Data Descriptor	Suggested Content or Consideration	Impact if Not Met	Corrective Action
Reports to Decision Maker	• Site description • Survey design with measurement locations • Analytical method and detection limit • Detection limits (MDCs) • Background radiation data • Results on per measurement basis, qualified for analytical limitations • Field conditions for media and environment • Preliminary reports • Meteorological data, if indicated by DQOs • Field reports	• Unable to perform a quantitative radiation survey and site investigation	• Request missing information • Perform qualitative or semi-quantitative site investigation
Documentation	• Chain-of-custody records • SOPs • Field and analytical records • Measurement results related to geographic location	• Unable to identify appropriate concentration for survey unit measurements • Unable to have adequate assurance of measurement results	• Request that locations be identified • Resurveying or resampling • Correct deficiencies
Data Sources	• Historical data used meets DQO's	• Potential for Type I and Type II decision errors • Lower confidence of data quality	• Resurveying, resampling, or reanalysis for unsuitable or questionable measurements

Table 9.3 (continued)

Data Descriptor	Suggested Content or Consideration	Impact if Not Met	Corrective Action
Analytical Method and Detection Limit	• Routine methods used to analyze radionuclides of potential concern	• Unquantified precision and accuracy • Potential for Type I and Type II decision errors	• Reanalysis • Resurveying, resampling, or reanalysis • Documented statements of limitation
Data Review	• Defined level of data review for all data	• Potential for Type I and Type II decision errors • Increased variability and bias due to analytical process, calculation errors, or transcription errors	• Perform data review
Data Quality Indicators	• Surveying and sampling variability identified for each radionuclide • QC measurements to identify and quantify precision and accuracy • Surveying, sampling, and analytical precision and accuracy quantified	• Unable to quantify levels for uncertainty • Potential for Type I and Type II decision errors	• Resurveying or resampling • Perform qualitative site investigation • Documented discussion of potential limitations

Data collected should meet performance objectives for each data descriptor. If they do not, deviations should be noted and any necessary corrective action performed. Corrective action should be taken to improve data usability when performance fails to meet objectives.

REFERENCES, REGULATIONS, & U. S. CODE

General References

42 FR 60956. November 30, 1977. "Persons Exposed to Transuranium Elements in the Environment," *Federal Register*

46 FR 52601. October 1981. "Disposal or On-site Storage of Thorium or Uranium Wastes From Past Operations," NRC Branch Technical Position, *Federal Register*

57 FR 13389. April 16, 1992. "Action Plan to Ensure Timely Cleanup of Site Decommissioning Management Plan Sites," *Federal Register*

57 FR 6136. February 20, 1992. "Order Establishing Criteria and Schedule for Decommissioning the Bloomberg Site." *Federal Register*

Agency for Toxic Substances and Disease Registry (ATSDR). 1992. *ATSDR - Public Health Assessment Guidance Manual*. ATSDR, Atlanta, GA. (PB92-147164)

Altshuler, B., and B. Pasternak. 1963. Statistical Measures of the Lower Limit of Detection of a Radioactivity Counter. *Health Physics* 9:293-298.

American National Standards Institute (ANSI). 1996a. *Performance Criteria for Radiobioassay*, N13.30.

American National Standards Institute (ANSI). 1996b. *Radiation Protection Instrumentation Test and Calibration - Portable Survey Instruments*, N323A.

American Nuclear Society (ANS). 1994. Mobile In Situ Gamma-Ray Spectroscopy System. *Transactions of the American Nuclear Society* 70:47.

American Nuclear Society (ANS). 1994. Large Area Proportional Counter for In Situ Transuranic Measurements. *Transactions of the American Nuclear Society* 70:47.

American Public Health Association (APHA). 1995. *Standard Methods for the Examination of Water and Wastewater*. 19th Edition, APHA, Washington, DC.

American Society of Mechanical Engineers (ASME). 1989. *Quality Assurance Program Requirements for Nuclear Facilities*. NQA-1, ASME, New York, New York.

American Society for Quality Control (ASQC). 1995. *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs.* ANSI/ASQC E4-1994, ASQC, Milwaukee, Wisconsin.

American Society of Testing and Materials (ASTM). 1993. *Reducing Samples of Aggregate to Testing Size*, C702-93. ASTM, West Conshohocken, PA.

American Society of Testing and Materials (ASTM). 1995. *Soil Sample preparation for the Determination of Radionuclides*, C999-90 (1995) e1. ASTM, West Conshohocken, PA.

American Society of Testing and Materials (ASTM). 1997. *Annual Book of ASTM Standards, Water and Environmental Technology: Environmental Assessment; Hazardous Substances and Oil Spill Responses; Waste Management; Environmental Risk Assessment*. Volume 11.04, ASTM, West Conshohocken, PA.

Bernabee, R., D. Percival, and D. Martin. 1980. Fractionation of Radionuclides in Liquid Samples from Nuclear Power Facilities. *Health Physics* 39:57-67.

Berven, B. A., W. D. Cottrell, R. W. Leggett, C. A. Little, T. E. Myrick, W. A. Goldsmith, and F. F. Haywood. 1986. *Generic Radiological Characterization Protocol for Surveys Conducted for DOE Remedial Action Programs.* ORNL/TM-7850, Martin Marietta Energy Systems, Inc., Oak Ridge National Laboratory. (DE86-011747)

Berven, B. A., W. D. Cottrell, R. W. Leggett, C. A. Little, T. E. Myrick, W. A. Goldsmith, and F. F. Haywood. 1987. *Procedures Manual for the ORNL Radiological Survey Activities (RASA) Program.* ORNL/TM-8600, Martin Marietta Energy Systems, Inc., Oak Ridge National Laboratory. (DE87-009089)

Brodsky, A. 1992. "Exact Calculation of Probabilities of False Positives and False Negatives for Low Background Counting," *Health Physics* 63(2):198-204.

Committee on the Biological Effects of Ionizing Radiations (BEIR). 1990. *Health Effects of Exposure to Low Levels of Ionizing Radiation*. BEIR V. National Academy of Sciences, National Academy Press, Washington D.C.

Conover. W. J. 1980. *Practical Nonparametric Statistics, Second Edition.* John Wiley & Sons, New York.

Currie, L.A. 1968. Limits for Qualitative Detection and Quantitative Determination. *Analytical Chemistry* 40(3):586-693.

Davidson, J.R. 1995. *ELIPGRID-PC: Upgraded Version*. ORNL/TM-13103. Oak Ridge National Laboratory.

Department of the Army. 1993. *USAEHA Environmental Sampling Guide.* Technical Guide No. 155, U.S. Army Environmental Hygiene Agency, Aberdeen Proving Ground, MD.

Department of Defense (DOD). 1963. *Quality Program Requirements*. Military Specification MIL-Q-9858A. DOD, Washington, D.C.

Department of Energy (DOE). 1982. *Radiological and Environmental Sciences Laboratory Procedures, Analytical Chemistry Branch Procedures Manual*. DOE/IDO-12096, DOE, Idaho Operations Office, Idaho Falls.

Department of Energy (DOE). 1985. *Formerly Utilized Sites Remedial Action Program, Verification and Certification Protocol — Supplement No. 2 to the FUSRAP Summary Protocol, Revision 1.* DOE, Division of Facility and Site Decommissioning Projects, Office of Nuclear Energy.

Department of Energy (DOE). 1986a. *Formerly Utilized Sites Remedial Action Program, Summary Protocol, Identification – Characterization – Designation - Remedial Action - Certification.* DOE, Division of Facility and Site Decommissioning Projects, Office of Nuclear Energy.

Department of Energy (DOE). 1986b. *Formerly Utilized Sites Remedial Action Program, Designation/Elimination Protocol—Supplement No. 1 to the FUSRAP Summary Protocol.* DOE, Division of Facility and Site Decommissioning Projects, Office of Nuclear Energy.

Department of Energy (DOE). 1987. *The Environmental Survey Manual, Appendix A - Criteria for Data Evaluation*. DOE/EH-0053, DOE, Office of Environmental Audit, Washington, D.C. (DE88-000254)

Department of Energy (DOE). 1990a. *Environmental Protection, Safety, and Health Protection Information Reporting Requirements*. DOE Order 5484.1, Change 7, DOE, Washington, DC.

Department of Energy (DOE). 1990b. *EML Procedures Manual, HASL-300, 28th ed.* HASL-300-ED.27-Vol 1, DOE, Environmental Measurements Laboratory, New York. (DE91-010178)

Department of Energy (DOE). 1991a. Deleted.

Department of Energy (DOE). 1991c. *Quality Assurance*. U.S. DOE Order 5700.6c.

Department of Energy (DOE). 1992. *Environmental Implementation Guide for Radiological Survey Procedures Manual, DOE Report for Comment*. Martin Marietta Energy Systems, Oak Ridge National Laboratory.

Department of Energy (DOE). 1994. *Decommissioning Handbook*. DOE/EM-0142P, DOE, Washington, D.C.**.** (DE94-008981)

Department of Energy (DOE). 1995. *DOE Methods for Evaluating Environmental and Waste Management Samples*. DOE/EM-0089T, Rev. 2. Prepared for the U.S. Department of Energy by Pacific Northwest Laboratory, Richland, WA.

Department of Energy (DOE). 1996. *Statistical and Cost-Benefit Enhancements to the DQO Process for Characterization Decisions*. DOE/EM-0316, U.S. Department of Energy, Washington, D.C.

Department of Energy (DOE). 1997. *EML Procedures Manual, HASL-300, 28th ed*. HASL-300-ED.27-Vol 1, DOE, Environmental Measurements Laboratory, New York**.** (DE91-010178)

Environmental Protection Agency (EPA). 1974. *Methods for Chemical Analysis of Water and Wastes*. EPA 625/6-74-003, (revised), EPA, Washington, D.C.

Environmental Protection Agency (EPA). 1979. *Radiochemical Analytical Procedures for Analysis of Environmental Samples*, EMSL-LV-0539-17, EPA, Office of Radiation and Indoor Air, Las Vegas. (EMSL-LV-0539-17)

Environmental Protection Agency (EPA). 1980a. *Prescribed Procedures for Measurement of Radioactivity in Drinking Water*. EPA-600/4-80-032, EPA, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio. (PB80-224744)

Environmental Protection Agency (EPA). 1980b. *Samplers and Sampling Procedures for Hazardous Waste Streams.* EPA-600/2-80-018, EPA, Washington, D.C. (PB80-135353)

Environmental Protection Agency (EPA). 1980c. *Upgrading Environmental Radiation Data, Health Physics Society Committee Report HPSR-1*. EPA 520/1-80-012, EPA, Office of Radiation Programs, Washington, D.C. (PB81-100364)

Environmental Protection Agency (EPA). 1980d. *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans*. QAMS-005/80, EPA, Washington, D.C.

Environmental Protection Agency (EPA). 1982. *Handbook for Sampling and Sample Preservation of Water and Wastewater.* EPA 600/4-82-029, EPA, Washington, D.C. (PB83-124503)

Environmental Protection Agency (EPA). 1983. *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans.* EPA, Washington, D.C. (PB83-170514)

Environmental Protection Agency (EPA). 1984a. *Eastern Environmental Radiation Facility: Radiochemical Procedures Manual*. EPA 520/5-84-006, EPA, Office of Radiation Programs, Eastern Environmental Radiation Facility [renamed the National Air and Radiation Environmental Laboratory (NAREL) in 1989], Montgomery, Alabama. (PB84-215581)

Environmental Protection Agency (EPA). 1984b. *Soil Sampling Quality Assurance User's Guide.* EPA 600/4-84-0043, EPA**,** Washington, D.C. (PB84-198621)

Environmental Protection Agency (EPA). 1986. *Preliminary Assessment Petition*. Publication 9200.5-301FS, EPA, Office of Emergency and Remedial Response, Washington, D.C.

Environmental Protection Agency (EPA). 1987a. *A Compendium of Superfund Field Operations Methods.* EPA 540/P-87-001, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB88-181557)

Environmental Protection Agency (EPA). 1987b. *Data Quality Objectives for Remedial Response Activities-Development Process.* EPA/540/G-87/003, OSWER Directive 9355.07B, EPA, Washington, D.C. (PB88-131370)

Environmental Protection Agency (EPA). 1987c. *DQOs for Remedial Response Activities-Example Scenario: RI/FS Activities at a Site with Contaminated Soils and Groundwater.* EPA/540/G-87/004. OSWER Directive 9355.07B, EPA, Washington, D.C. (PB88-131388)

Environmental Protection Agency (EPA). 1987d. *Entry and Continued Access Under CERCLA.* EPA, Washington, D.C. (PB91-138867)

Environmental Protection Agency (EPA). 1988a. *Field Screening Methods Catalog - User's Guide*. EPA 540/2-88-005, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB89-134159)

Environmental Protection Agency (EPA). 1988b. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*, Interim Final.. EPA/540/G-89/004, OSWER Directive 9355.3-01, EPA, Washington, D.C. (PB 89-184626)

Environmental Protection Agency (EPA). 1988c. *Superfund Removal Procedures*. OSWER Directive 9360.0-03B, EPA, Office of Emergency and Remedial Response, Washington, D.C.

Environmental Protection Agency (EPA). 1989a. *Methods for Evaluating the Attainment of Cleanup Standards, Volume 1: Soils and Solid Media.* EPA-230/02-89-042, EPA, Office of Policy, Planning, and Evaluation, Washington, D.C. (PB89-234959)

Environmental Protection Agency (EPA). 1989b. *Procedures for Completion And Deletion of National Priorities List Sites and (Update); Final Report.* OSWER Directive 9320.2-03B EPA, Office of Solid Waste and Emergency Response, Washington, D.C. (PB90-274556)

Environmental Protection Agency (EPA). 1989c. *Background Information Document on Procedures Approved for Demonstrating Compliance with 40 CFR Part 61, Subpart I.* EPA/520/1-89-001, EPA, Washington, D.C.

Environmental Protection Agency (EPA). 1990. *A Rationale for the Assessment of Errors in the Sampling of Soils*. EPA 600/4-90/013.

Environmental Protection Agency (EPA). 1991a. *Description and Sampling of Contaminated Soils.* EPA 625/12-91-002, EPA, Office**,** Washington, D.C.

Environmental Protection Agency (EPA). 1991b. *Compendium of ERT Soil Sampling and Surface Geophysics Procedures.* EPA 540/P-91-006, EPA, Office, Washington, D.C. (PB91-921273/CCE)

Environmental Protection Agency (EPA). 1991c. *Compendium of ERT Ground Water Sampling Procedures.* EPA 540/P-91-007, EPA, Office, Washington, D.C. (PB91-921275/CCE)

Environmental Protection Agency (EPA). 1991d. *Compendium of ERT Surface Water and Sediment Sampling Procedures*. EPA 540/P-91-005, EPA**,** Washington, D.C. (PB91-921274/CCE)

Environmental Protection Agency (EPA). 1991e. *Site Assessment Information Directory.* EPA, Office of Emergency and Remedial Response, Washington, D.C.

Environmental Protection Agency (EPA). 1991f. *Guidance for Performing Preliminary Assessments Under CERCLA.* EPA/540/G-91/013, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB92-963303)

Environmental Protection Agency (EPA). 1991g. *Removal Program Representative Sampling Guidance: Volume 1 - Soil*. Publication 9360.4-10, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB92-963408)

Environmental Protection Agency (EPA). 1991h. *Risk Assessment Guidance for Superfund. Volume 1, Human Health Evaluation Manual. Part B, Development of Risk Based Preliminary Remediation Goals*. Interim Report, EPA/540/R-92/003, OSWER 9285.7-01B, Office of Solid Waste and Emergency Response, Washington, D.C. (PB92-963333)

Environmental Protection Agency (EPA). 1992a. *Guidance for Data Useability in Risk Assessment, Part A.* OSWER Directive 9285.7-09A, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB92-963356)

Environmental Protection Agency (EPA). 1992b. *Guidance for Data Useability in Risk Assessment, Part B.* OSWER Directive 9285.7-09B, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB92-963362)

Environmental Protection Agency (EPA). 1992c. *Radon Measurement in Schools, Revised Edition.* EPA 402-R-92-014, EPA, Office of Air and Radiation, Washington, D.C.

Environmental Protection Agency (EPA). 1992d. *Indoor Radon and Radon Decay Product Measurement Device Protocols.* EPA 402-R-92-004, EPA, Office of Air and Radiation, Washington, D.C.

Environmental Protection Agency (EPA). 1992e. *Guidance for Performing Site Inspections Under CERCLA.* EPA/540-R-92-021, EPA, Office of Solid Waste and Emergency Response, Washington, D.C.

Environmental Protection Agency (EPA). 1992f. *Guidance on Implementation of the Superfund Accelerated Cleanup Model (SACM) under CERCLA and the NCP*. OSWER Directive 9203.1-03, EPA, Office of Solid Waste and Emergency Response, Washington, D.C.

Environmental Protection Agency (EPA). 1992g. *Supplemental Guidance to RAGS: Calculating the Concentration Term*. Publication 9285.7-081, EPA, Office of Solid Waste and Emergency Response, Washington, DC. (PB92-963373)

Environmental Protection Agency (EPA). 1993a. Deleted.

Environmental Protection Agency (EPA). 1993b. *RCRA Groundwater Monitoring: Draft Technical Guidance*. EPA/530-R-93-001. EPA Office of Solid Waste, Washington, D.C. (PB93-139350)

Environmental Protection Agency (EPA). 1993c. *Integrating Removal and Remedial Site Assessment Investigations*. OSWER Directive 9345.1-16FS, EPA, Office of Solid Waste and Emergency Response, Washington, D.C. (PB93-963341)

Environmental Protection Agency (EPA). 1993d. *Quality Assurance for Superfund Environmental Data Collection Activities*. Publication 9200.2-16FS, EPA, Office of Solid Waste and Emergency Response, Washington, D.C.

Environmental Protection Agency (EPA). 1993e. *Subsurface Characterization and Monitoring Techniques: A Desk Reference Guide, Volume 1.* EPA/625/R-93/003A, U.S. Environmental Protection Agency, Cincinnati, Ohio. (PB94-136272)

Environmental Protection Agency. 1993f. Description and Sampling of Contaminated Soils: A Field Pocket Guide, EPA/625/12-91/00.

Environmental Protection Agency (EPA). 1994a. *Guidance for the Data Quality Objectives Process.* EPA/600/R-96/055, EPA QA/G-4, Final, EPA, Quality Assurance Management Staff, Washington, D.C.

Environmental Protection Agency (EPA). 1994b. *Statistical Methods for Evaluating the Attainment of Cleanup Standards, Volume 3: Reference Based Standards for Soils and Solid Media.* EPA 230-R-94-004, EPA, Office of Policy, Planning, and Evaluation, Washington, D.C. (PB94-176831)

Environmental Protection Agency (EPA). 1994c. *EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations.* EPA QA/R-5, EPA, Draft Interim Final, Quality Assurance Management Staff, Washington, D.C.

Environmental Protection Agency (EPA). 1994d. *An SAB Report: Review of EPA's Approach to Screening for Radioactive Waste Materials at a Superfund Site in Uniontown, Ohio.* Prepared by the *ad hoc* Industrial Excess Landfill Panel of the Science Advisory Board (SAB). EPA-SAB-EC-94-010. EPA, SAB, Washington, D.C.

Environmental Protection Agency (EPA). 1994e. *Methods for Monitoring Pump-and-Treat Performance*. EPA/600/R-94/123, EPA, Office of Research and Development, Washington, D.C.

Environmental Protection Agency (EPA). 1994f. *EPA Requirements for Quality Management Plans*. EPA QA/R-2, Interim Draft. Quality Assurance Management Staff, Washington, D.C.

Environmental Protection Agency (EPA). 1995a. *DEFT Software for Data Quality Objectives.* EPA/600/R-96/056, EPA QA/G-4D. EPA, Washington, D.C.

Environmental Protection Agency (EPA). 1995b. *Guidance for the Preparation of Standard Operating Procedures (SOPs) for Quality Related Documents*. EPA QA/G-6, EPA, Quality Assurance Management Staff, Washington, D.C.

Environmental Protection Agency (EPA). 1996a. *Guidance for Data Quality Assessment: Practical Methods for Data Analysis.* EPA QA/G-9 QA96 Version, EPA/600/R-96/084, EPA, Quality Assurance Management Staff, Washington, D.C.

Environmental Protection Agency (EPA). 1996b. *Soil Screening Guidance: User's Guide*. EPA/540/R-96/018, EPA, Office of Emergency and Remedial Response, Washington, D.C.

Environmental Protection Agency (EPA). 1996c. *Soil Screening Guidance: Technical Background Document*. EPA/540/R-95/128, EPA, Office of Solid Waste and Emergency Response, Washington, D.C. (PB96-963502)

Environmental Protection Agency (EPA). 1997a. *EPA Guidance for Quality Assurance Project Plans*. Final, EPA QA/G-5, EPA, Office of Research and Development, Washington, D.C.

Environmental Protection Agency (EPA). 1997b. *Integrated Site Assessments may Expedite Cleanups.* GAO/RCED-97-181. GAO, Washington, D.C.

Egan, J.P. 1975. *Signal Detection Theory and ROC Analysis*. Academic Press, Inc., New York.

Eisenbud, M. 1987. *Environmental Radioactivity, 3rd ed.* Academic Press, Inc., New York.

Friedman, G.M. and J.L. Sanders. 1978. *Principles of Sedimentology*. John Wiley and Sons, New York, NY.

Fritzsche, A.E. 1987. *An Aerial Radiological Survey of the White Creek Floodplain, Oak Ridge Resrvation, Oak Ridge, Tennessee*. EGG-10282-1136, Remote Sensing Laboratory, EG&G/EM, Las Vegas, NV.

George, A.C. 1984. Passive, Integrated Measurement of Indoor Radon Using Activated Carbon. *Health Physics* 46:867.

Gilbert, R. O. 1987. *Statistical Methods for Environmental Pollution Monitoring*. Van Nostrand Reinhold, New York.

Hardin, J.W. and R.O. Gilbert. 1993. *Comparing Statistical tests for Detecting Soil Contamination Greater Than Background*. PNL-8989, Pacific Northwest Laboratory, Richland, WA.

Harnett, D. L. 1975. *Introduction to Statistical Methods, 2nd ed.* Addison-Wesley, Reading, Massachusetts.

Health Physics Society (HPS). 1994a. *Program handbook for the Accreditation of Calibration Laboratories by the Health Physics Society.* HPS, McLean, VA.

Health Physics Society (HPS). 1994b. *Criteria for Accreditation of Calibration Laboratories by the Health Physics Society*. HPS, McLean, VA.

Hora, S. C. and R. L. Iman. 1989. Expert Opinion in Risk Analysis: The NUREG-1150 Methodology. *Nuclear Science and Engineering.* 102 (4):323-331.

International Atomic Energy Agency (IAEA). 1971. *Handbook on Calibration of Radiation Protection Monitoring Instruments.* IAEA, Technical Report Series 133, Vienna.

International Organization for Standardization (ISO). 1987. ISO 9000/ASQC Q9000 Series. American Society for Quality Control, Milwaukee, Wisconsin.
ISO 9000-1, *Quality Management and Quality Assurance Standards - Guidelines for Selection and Use*.
ISO 9001-1, *Quality Systems - Model for Quality Assurance in Design/Development, Production, Installation and Servicing*.
ISO 9002, *Quality Systems - Model for Quality Assurance in Production and Installation, and Servicing*.
ISO 9003, *Quality Systems - Model for Quality Assurance in Final Inspection and Test.*
ISO 9004-1, *Quality Management and Quality System Elements - Guidelines*.

International Organization for Standardization (ISO). 1988. *Evaluation of Surface Contamination - Part 1: Beta Emitters and Alpha Emitters*. ISO-7503-1 (first edition), ISO, Geneva, Switzerland.

International Organization for Standardization (ISO). 1993. *International Vocabulary of Basic and General Terms in Metrology*. ISO, Geneva, Switzerland.

Jenkins, P .H. 1986. Radon Measurement Methods: An Overview. In *Proceedings of Health Physics Society Meeting*, 29 June 1986, Pittsburgh, PA. CONF-8606139-5, Monsanto Research Corporation, Miamisburg, Ohio, p. 38.

Kume, H. 1985. *Statistical Methods for Quality Improvement*. The Association of Overseas Technical Scholarship, Tokyo, Japan.

Lodge. J.P., Jr. (Ed). 1988. *Methods of Air Sampling and Analysis*. 3rd Edition, American Chemical Society, American Institute of Chemical Engineers, American Public Works Association, American Society of Mechanical Engineers, Association of Official Analytical Chemists, Air and Waste Management Association, Health Physics Society, Instrument Society of America. CRC Press, Inc. Boca Raton, FL.

Macmillan, N.A., and C.D. Creelman. 1991. *Detection Theory: A User's Guide*. Cambridge University Press, Cambridge, England.

Miller, K. M., P. Shebell and G. A. Klemic. 1994. In Situ Gamma-Ray Spectrometry for the Measurement of Uranium in Surface Soils. *Health Physics* 67, 140-150.

Myrick, T.E. et al. 1981. *State Background Radiation Levels: Results of Measurements Taken During 1975-1979*. ORNL/TM 7343, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

National Council on Radiation Protection and Measurements (NCRP). 1976a. *Environmental Radiation Measurements.* NCRP Report No. 50, NCRP, Bethesda, Maryland.

National Council on Radiation Protection and Measurements (NCRP). 1976b *Tritium Measurement Techniques.* NCRP Report 47, NCRP, Bethesda, Maryland.

National Council on Radiation Protection and Measurements (NCRP). 1978. *Instrumentation and Monitoring Methods for Radiation Protection*. NCRP Report 57, NCRP, Bethesda, Maryland.

National Council on Radiation Protection and Measurements (NCRP). 1985. *A Handbook of Radioactivity Measurement Procedures.* NCRP Report 58, 2nd ed, NCRP, Bethesda, Maryland.

National Council on Radiation Protection and Measurements (NCRP). 1987. *Exposure of the Population in the United States and Canada from Natural Radiation*. NCRP Report 94, NCRP, Bethesda, Maryland.

National Council on Radiation Protection and Measurements (NCRP). 1991. *Calibration of Survey Instruments used in Radiation Protection for the Assessment of Ionizing Radiation Fields and radioactive Surface Contamination*. NCRP Report 112, NCRP, Bethesda, Maryland.

Nuclear Regulatory Commission (NRC). 1974. *Termination of Operating Licenses for Nuclear Reactors*. Regulatory Guide 1.86, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1975. *Programs for Monitoring Radioactivity in the Environs of Nuclear Power Plants*. NRC Regulatory Guide 4.1, Rev. 1, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1979. *Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment*. Regulatory Guide 4.15, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1980. *Radiological Effluent and Environmental Monitoring at Uranium Mills*. NRC Regulatory Guide 4.14, Rev. 1, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1982. NRC, Office of Nuclear Reactor Regulation Letter to Stanford University, NRC Docket No. 50-401, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1984. *Lower Limit of Detection: Definition and Elaboration of a Proposed Position for Radiological Effluent and Environmental Measurements*. NUREG/CR-4007, U.S. Nuclear Regulatory Commission, Washington D.C.

Nuclear Regulatory Commission (NRC). 1990. *Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants*. NUREG-1150, Volume 1. Office of Nuclear Regulatory Research, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1991. *Quality Assurance Guidance for a Low-Level Radioactive Waste Disposal Facility*. NUREG-1293, Revision 1. NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1992a. *Manual for Conducting Radiological Surveys in Support of License Termination*. NUREG/CR-5849, Draft Report for Comment, U.S. Nuclear Regulatory Commission, Washington, D.C. and Oak Ridge Associated Universities, Oak Ridge, TN.

Nuclear Regulatory Commission (NRC). 1992b. *Residual Radioactive Contamination from Decommissioning*. NUREG/CR-5512, Final Report. U.S. Nuclear Regulatory Commission, Washington, D.C. and Pacific Northwest Laboratory, Richland, WA.

Nuclear Regulatory Commission (NRC). 1994a. *Draft Branch Technical Position on Site Characterization for Decommissioning*. NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1994b. *Background as a Residual Radioactivity Criterion for Decommissioning, Draft Report.* NUREG-1501, U. S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1994c. *Working Draft Regulatory Guide on Release Criteria for Decommissioning: NRC Staff's Draft for Comment.* NUREG-1500, U. S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1995. *Proposed Methodologies for Measuring Low Levels of Residual Radioactivity for Decommissioning.* NUREG-1506, Draft Report for Comment, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1997a. *A Proposed Nonparametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys.* NUREG-1505, Final, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1997b. *Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions*. NUREG/CR-1507, Final, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1997c. *NMSS Handbook for Decommissioning Fuel Cycle and Materials Licensees*. NUREG/BR-0241, NRC, Washington, D.C.

Perdue, P. A., R. W. Leggett, and F. F. Haywood. 1978. *A Technique for Evaluating Airborne Concentrations of Daughters of Radon Isotopes*. T. F. Gesell and W. M. Lowder, (eds). Third International Symposium on the Natural Radiation Environment, 23-28 April 1978, in Natural Radiation Environment III, Volume 1, pp. 347-356. CONF-780422, Houston, Texas.

Peter Gray & Associates (PGA). 2000. *The NORM Report*. (P.O. Box 11541, Fort Smith, Arkansas 72917). Fall 1999/Winter 2000, pp. 1-10.

Taylor, J.K. 1987. *Quality Assurance of Chemical Measurements.* Lewis Publishers, Inc., Chelsea, MI.

van der Leeden, F., F.L. Troise, and D.K. Todd. 1990. *The Water Encyclopedia*. 2nd Edition, Lewis Publishers, Chelsea, MI.

Wallo, A., M. Moscovitch, J.E. Rodgers, D. Duffey, and C. Soares. 1994. "Investigations of Natural Variations of Cesium-137 Concentrations in Residential Soils." *The Health Physics Society 39th Anual Meeting, June 28, 1994.* McLean, Virginia: The Health Physics Society.

Yu, C., A. J. Zidan, J.-J. Cheng, Y. C. Yuan, L. G. Jones, D. J. LePoire, Y. Y. Wang, C. O. Loureiro, E. Gnanaprgusan, E. Faillace, A. Wallo III, W. A. Williams, and H. Peterson. 1993. *Manual for Implementing Residual Radioactive Material Guidelines Using RESRAD, Version 5.0.* ANL/EAD/LD-2, Argonne National Laboratory, Argonne, Illinois. (DE94-015594)

Walpole, R.E. and R.H. Myers. 1985. *Probability and Statistics for Engineers and Scientists*. 3rd Edition, MacMillan Publishing Company, New York, NY.

U. S. Code of Federal Regulations

10 CFR, Chapter 1. 1995. U.S. Nuclear Regulatory Commission. "Nuclear Regulatory Commission."

10 CFR 20. 1995. U.S. Nuclear Regulatory Commission. "Standards for Protection Against Radiation."

10 CFR 20.1001. 1995. U.S. Nuclear Regulatory Commission. "Standards for Protection Against Radiation—Subpart A—General Provisions: Purpose."

10 CFR 20.1301. 1995. U.S. Nuclear Regulatory Commission. "Dose limits for individual members of the public—Subpart D—Occupational Dose Limits: Dose Limits for Individual Members of the Public."

10 CFR 20.2002. 1995. U.S. Nuclear Regulatory Commission. "Method for obtaining approval of proposed disposal procedures."

10 CFR 30. 1995. U.S. Nuclear Regulatory Commission. "Rules of General Applicability to Domestic Licensing of Byproducts and Material."

10 CFR 30.36. 1995. U.S. Nuclear Regulatory Commission. "Licenses: Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas."

10 CFR 40. 1995. U.S. Nuclear Regulatory Commission. "Domestic Licensing of Source Material."

10 CFR 40.42. 1995. U.S. Nuclear Regulatory Commission. "Licenses: Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas."

10 CFR 40.65. 1995. U.S. Nuclear Regulatory Commission. "Domestic Licensing of Source Material: Effluent Monitoring Reporting Requirements."

10 CFR 40, Appendix A. 1995. U.S. Nuclear Regulatory Commission. "Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material From Ores Processed Primarily for Their Source Material Content"

10 CFR Part 50. 1995. U.S. Nuclear Regulatory Commission. "Domestic Licensing of Production and Utilization Facilities."

10 CFR Part 50, Appendix I. 1995. U.S. Nuclear Regulatory Commission. "Numerical Guides for Design Objectives and Limiting Conditions for Operations to Meet the Criterion 'As Low as is Reasonably Achievable' For Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents."

10 CFR Part 50.82. 1995. U.S. Nuclear Regulatory Commission. "Domestic Licensing of Production and Utilization Facilities: US/IAEA Safeguards Agreement: Application for Termination of License."

10 CFR 70. 1995. U.S. Nuclear Regulatory Commission. "Domestic Licensing of Special Nuclear Material."

10 CFR 70.38. 1995. U.S. Nuclear Regulatory Commission. "Licenses: Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas."

10 CFR 70.59. 1995. U.S. Nuclear Regulatory Commission. "Special Nuclear Material Control, Records, Reports and Inspections: Effluent Monitoring Reporting Requirements."

10 CFR 71. 1996. U.S. Nuclear Regulatory Commission. "Packaging and Transportation of Radioactive Material."

10 CFR 71.4. 1996. U.S. Nuclear Regulatory Commission. "Packaging and Transportation of Radioactive Material—Subpart A—General Provisions: Definitions."

10 CFR 71.10. 1996. U.S. Nuclear Regulatory Commission. "Packaging and Transportation of Radioactive Material—Subpart B—Exemptions: Exemption for Low-level Materials."

10 CFR 71.88. 1996. U.S. Nuclear Regulatory Commission. "Packaging and Transportation of Radioactive Material—Subpart F—Operating Controls and Procedures: Air Transport of Plutonium."

10 CFR 72.54. 1995. U.S. Nuclear Regulatory Commission. "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-level Radioactive Waste—Subpart C—Issuance and Conditions of License: Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas."

40 CFR 141. 1994. U.S. Environmental Protection Agency. "National Primary Drinking Water Regulations."

40 CFR 141.15. 1994. U.S. Environmental Protection Agency. "National Primary Drinking Water Regulations—Subpart B—Maximum Contaminant Levels for Radium-226, Radium-228, and Gross Alpha Particle Radioactivity in Community Water Systems."

40 CFR 141.16. 1994. U.S. Environmental Protection Agency. "National Primary Drinking Water Regulations—Subpart C—Maximum Contaminant Levels for Beta Particle and Photon Radioactivity from Man-made Radionuclides in Community Water Systems."

40 CFR Part 190. 1995. U.S. Environmental Protection Agency. "Environmental Radiation Protection Standards for Nuclear Power Operations."

40 CFR 192, 30-34. 1994. U.S. Environmental Protection Agency. "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings—Subpart D—Standards for Management of Uranium Byproduct Materials Pursuant to Section 84 of the Atomic Energy Act of 1954, as Amended."

40 CFR 192, 40-43. 1994. U.S. Environmental Protection Agency. "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings—Subpart E—Standards for Management of Thorium Byproduct Materials Pursuant to Section 84 of the Atomic Energy Act of 1954, as Amended."

40 CFR 300. 1990. U.S. Environmental Protection Agency. "Hazard Ranking System."

49 CFR 107. 1996. U.S. Department of Transportation. "Registration of shipper/carrier—Subpart G—Registration of Persons Who Offer or Transport Hazardous Materials."

49 CFR 171. 1996. U.S. Department of Transportation. "Accident Reporting."

49 CFR 172. 1996. U.S. Department of Transportation. "Marking and Labeling Packages for Shipment."

49 CFR 173. 1996. U.S. Department of Transportation. "Packaging."

49 CFR 174. 1996. U.S. Department of Transportation. "Transport by Rail."

49 CFR 175. 1996. U.S. Department of Transportation. "Transport by Air."

49 CFR 176. 1996. U.S. Department of Transportation. "Transport by Vessel."

49 CFR 177. 1996. U.S. Department of Transportation. "Transport on Public Highway."

U.S. Federal Code

Atomic Energy Act of 1954 (AEA), as Amended.

Clean Air Act of 1955 (CAA).

Diplomatic Security and Anti-Terrorism Act of 1986.

Energy Reorganization Act of 1974, as Amended.

Executive Order 10831, "Federal Compliance With Pollution Control Standards."

Energy Policy Act of 1992.

Federal Water Pollution Control Act of 1948 (FWPCA).

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as Amended.

Low Level Radioactive Waste Policy Act (LLRWPA) of 1980, as amended.

Low-Level Radioactive Waste Policy Amendments Act of 1985.

Low-Level Radioactive Waste Policy Act of 1980.

Nuclear Non-Proliferation Act of 1982.

Nuclear Waste Policy Act of 1982 (NWPA).

Nuclear Waste Policy Amendments Act of 1987.

Resource Conservation and Recovery Act of 1976 (RCRA).

Safe Drinking Water Act of 1974 (SDWA).

Solar, Wind, Waste and Geothermal Power Production Incentives Act of 1990.

Toxic Substances Control Act of 1976 (TSCA).

Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), as Amended.

West Valley Demonstration Project Act of 1980.

APPENDIX A
Example of MARSSIM Applied to a Final Status Survey

A.1 Introduction

This appendix presents the final status survey for a relatively simple example of a radiation site. Portions of this example appear earlier in Chapter 5 and Chapter 8. This appendix highlights the major steps for implementing a final status survey and gathering information needed to prepare a report. The report's format will vary with the requirements of the responsible regulatory agency. The Final Status Survey Checklist given at the end of Section 5.5 serves as a general outline for this appendix—although not every point is discussed in detail. Chapters providing discussions on particular points are referenced at each step. This example presents detailed calculations for a single Class 1 survey unit. Section A.2 addresses the completion of steps 1-4 of the Data Quality Objectives (DQO) Process (see Appendix D, Sections D.1 to D.4). Section A.3 addresses the completion of steps 5-7 of the DQO Process (see Appendix D, Sections D.5 to D.7). Section A.4 covers survey performance. Section A.5 discusses evaluating the survey results using Data Quality Assessment (DQA, see Appendix E).

A.2 Survey Preparations

(Chapter 3- Historical Site Assessment)

The Specialty Source Manufacturing Company produced low-activity encapsulated sources of radioactive material for use in classroom educational projects, instrument calibration, and consumer products. The manufacturing process—conducted between 1978 and 1993—involved combining a liquid containing a known quantity of the radioactive material with a plastic binder. This mixture was poured into a metal form and allowed to solidify. After drying, the form and plastic were encapsulated in a metal holder which was pressure sealed. A variety of radionuclides were used in this operation, but the only one having a half-life greater than 60 days was ^{60}Co. Licensed activities were terminated as of April 1993 and stock materials containing residual radioactivity were disposed using authorized procedures. Decontamination activities included the initial identification and removal of contaminated equipment and facilities. The site was then surveyed to demonstrate that the radiological conditions satisfy regulatory agency criteria for release.

A.2.1 Identify the Radionuclides of Concern

(Section 4.3)

More than 15 half-lives have passed for the materials with a half-life of 60 days or less. Based on radioactive decay and the initial quantities of the radionuclides, the quantities that could remain at the site are negligible. A characterization survey confirmed that no radioactive contaminants, other than ^{60}Co, were present.

A.2.2 Determine Residual Radioactivity Limits (DCGLs)
(Section 4.3)

The objective of this survey is to demonstrate that residual contamination in excess of the release criterion is not present at the site. The $DCGL_W$ for ^{60}Co used for evaluating survey results is 8,300 Bq/m^2 (5,000 dpm/100 cm^2) for surface contamination of structures. The $DCGL_W$ for contamination in soil is 140 Bq/kg (3.8 pCi/g).[1]

A.2.3 Classify Areas Based on Contamination Potential.
(Section 4.4)

This facility consists of one administration/manufacturing building situated on approximately 0.4 hectares (1.0 acres) of land as shown in Figure A.1. The building is a concrete block structure on a poured concrete slab with a poured concrete ceiling. The northern portion of the building housed the manufacturing operations, and consists of a high-bay area of approximately 20 m x 20 m with a 7 m high ceiling. The remainder of the building is single-story with numerous small rooms partitioned by drywall construction. This portion of the building, used for administration activities, occupies an area of approximately 600 m^2 (20 m x 30 m). The license does not authorize use of radioactive materials in this area. Operating records and previous radiological surveys do not identify a potential for residual contamination in this section of the building. Figure A.2 is a drawing of the building.

The property is surrounded by a chain-link security fence. At the northern end of the property, the surface is paved and was used as a parking lot for employees and for truck access to the manufacturing and shipping/receiving areas. The remainder of the property is grass-covered. There are no indications of incidents or occurrences leading to radioactive material releases from the building. Previous surveys were reviewed and the results were determined to be appropriate for planning the final status survey. These surveys identified no radioactive contamination outside the building.

A.2.4 Identify Survey Units
(Section 4.6)

Based on the results of other decommissioning surveys at the site and the operating history, the following survey units were used to design the final status survey. All of the interior survey units consist of concrete surfaces (either poured concrete or cinder block) with the exception of the administration areas which are drywall. The results of previous surveys demonstrated that the same reference area could be used to represent the poured concrete and cinder block surfaces.

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[1] The DCGL values used in this appendix are meant to be illustrative examples and are not meant to be generally applied.

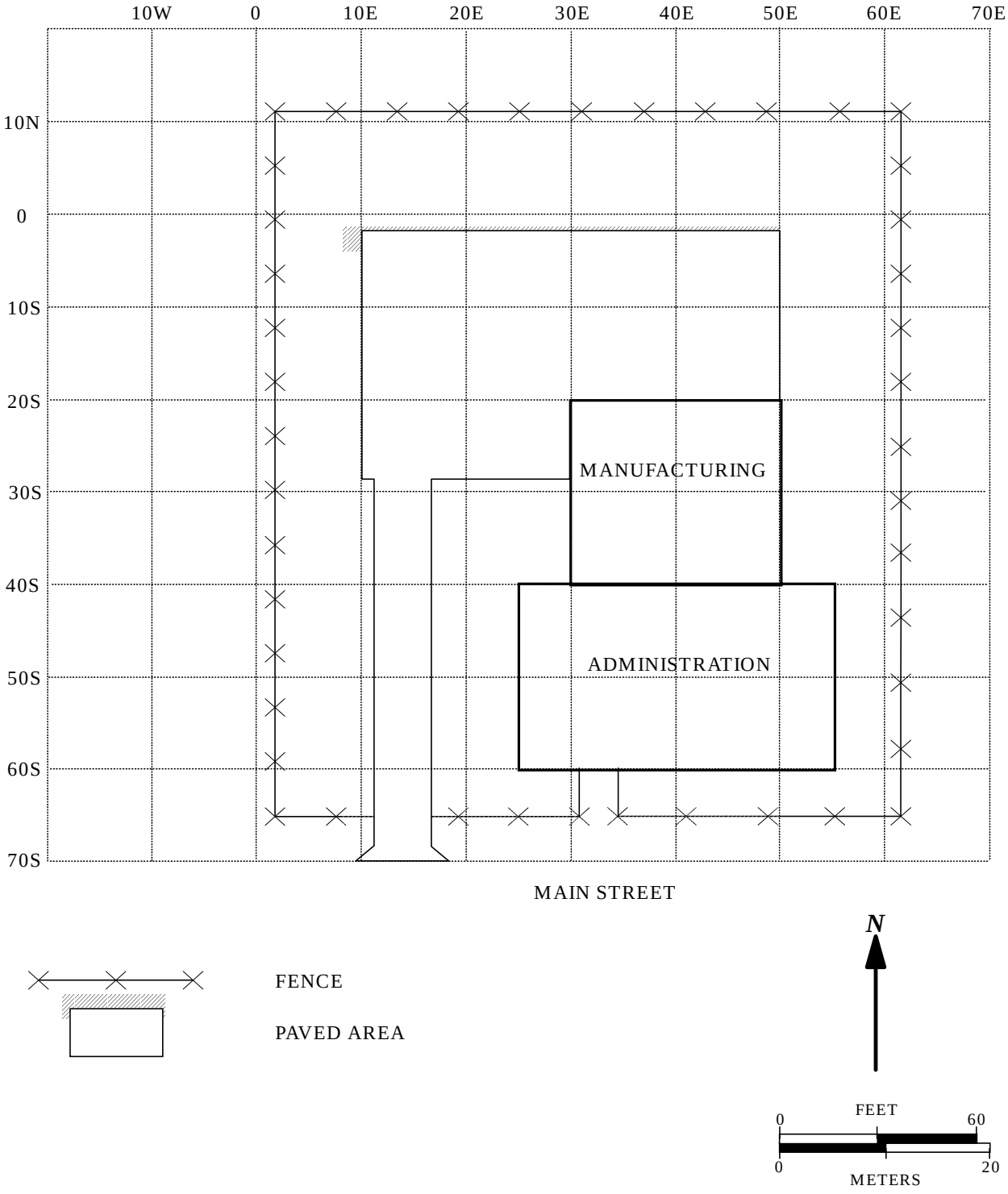


Figure A.1 Plot Plan of the Specialty Source Manufacturing Company

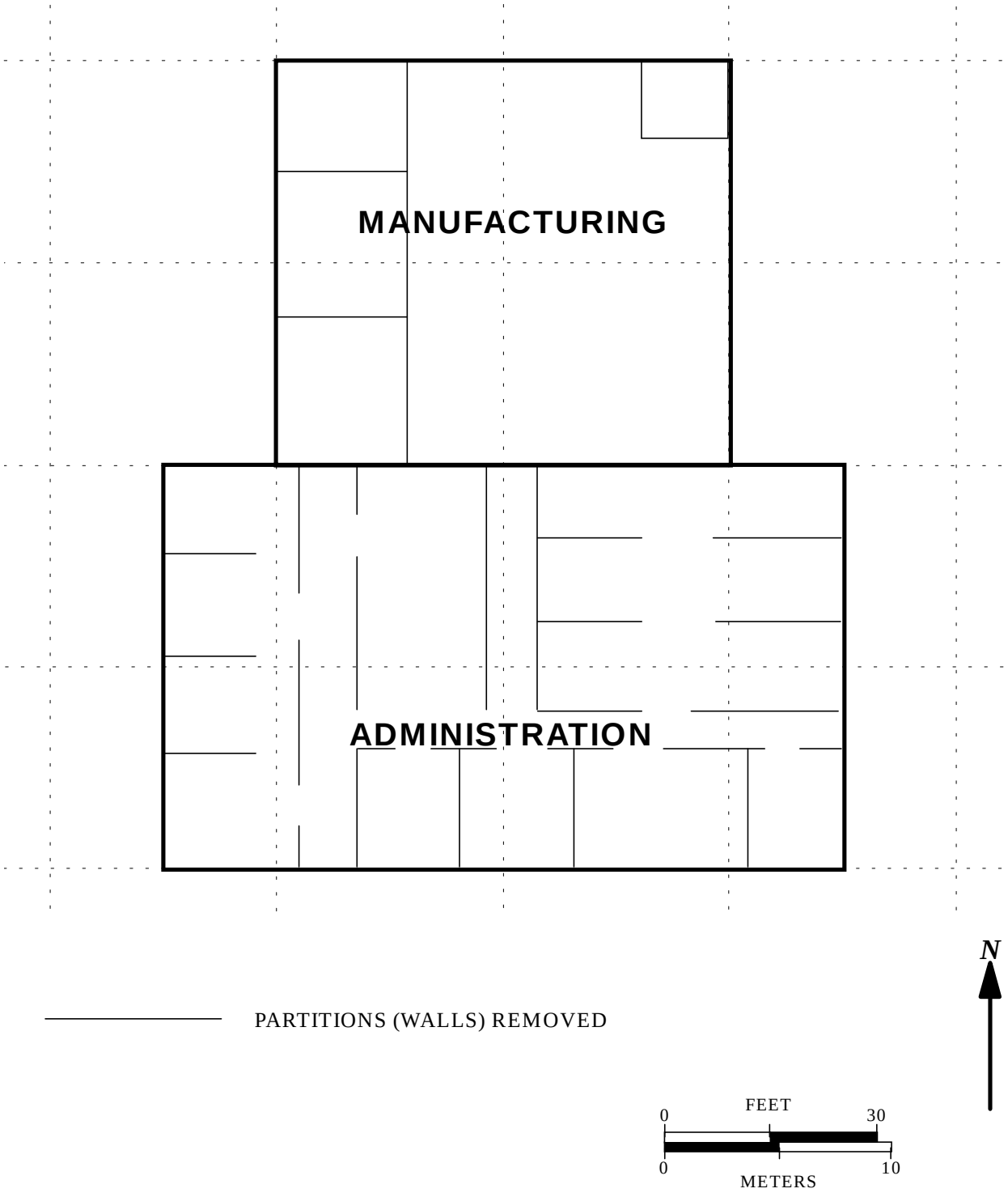


Figure A.2 Building Floor Plan

Structures

Class 1	Floor and lower walls (up to 2 meters above the floor) of manufacturing area - 4 survey units of 140 m^2 each.
Class 2	Upper walls (over 2 meters above the floor) of manufacturing area - 4 survey units of 100 m^2 each. Ceiling of manufacturing area - 4 survey units of 100 m^2 each. Paved area outside manufacturing area roll-up door - 1 survey unit of 60 m^2.
Class 3	Floors and lower walls of administration areas - 1 survey unit. Remainder of paved surfaces - 1 survey unit.

Land Areas

Class 3	Lawn areas - 1 survey unit.

A.2.5 Select Survey Instrumentation and Survey Techniques

(Section 4.7, Chapter 6, Chapter 7, Appendix H, and Appendix M)

For interior surfaces, direct measurements of gross beta activity were made using one minute counts on a gas flow proportional counter with an MDC of 710 Bq/m^2 (425 dpm/100 cm^2). This is actually less than 10% of the DCGL for ^{60}Co. Surfaces were scanned using either a 573 cm^2 floor monitor with an MDC of 6,000 Bq/m^2 (3,600 dpm/100 cm^2) or a 126 cm^2 gas flow proportional counter with an MDC of 3,300 Bq/m^2 (2,000 dpm/100 cm^2).

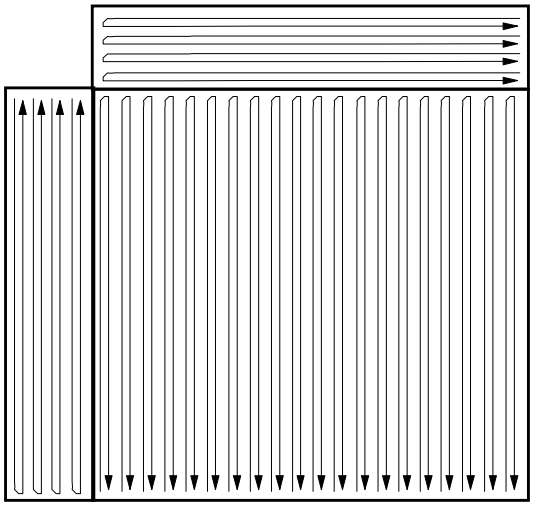
Exterior soil surfaces were sampled and counted in a laboratory using a Ge spectrometer with an MDC of 20 Bq/kg (0.5 pCi/g). This is actually slightly greater than 10% of the DCGL for ^{60}Co. Soil surfaces were scanned using a NaI(Tl) scintillator with an MDC of 185 Bq/kg (5.0 pCi/g) of ^{60}Co.

Examples of scanning patterns used in each of the Class 1, 2, and 3 areas are shown in Figure A.3.

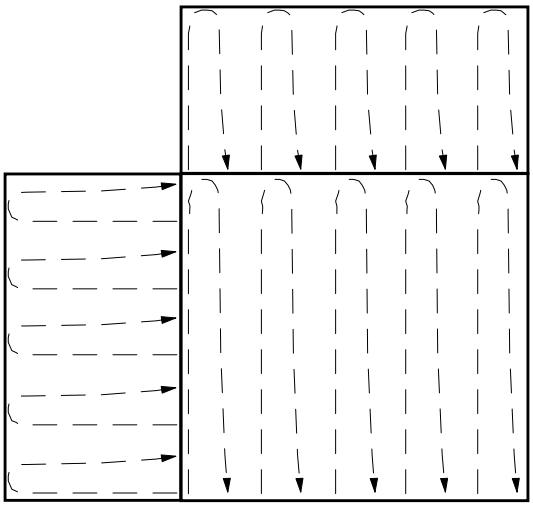
A.2.6 Select Representative Reference (Background) Areas

(Section 4.5)

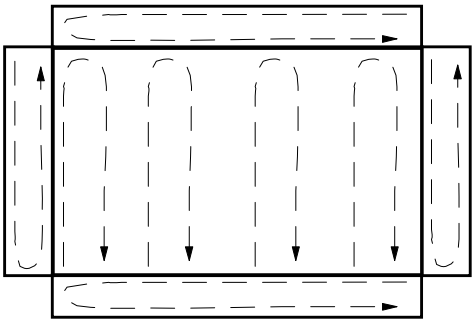
For the purposes of evaluating gross beta activity on structure surfaces, a building of similar construction was identified on the property immediately east of the site. This building served as a reference for surface activity measurements. Two reference areas—one for concrete surfaces and one for drywall surfaces—were required. Because ^{60}Co is not a constituent of background and evaluation of the soil concentrations was radionuclide-specific, a reference area was not needed for the land area surveys.



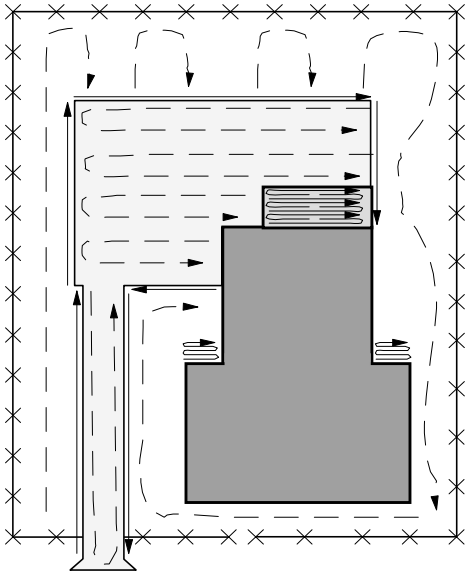
Interior Concrete Survey Units
Class 1 Floors - 100% Scan with Floor Monitor
Class 1 Walls - 100% Scans with Gas Flow
Proportional Counter



Manufacturing Area Upper Walls and Ceiling
Class 2 Areas - 25% Scans with Gas Flow
Proportional Counter



Administration/Office Areas
Class 3 Floors - 25% Scan with Floor Monitor
Class 3 Walls - 25% Scan with Gas Flow
Proportional Counter



Class 2 Paved Area - 100% Scan with Floor Monitor
Class 3 Paved Area - 25% Scan with NaI(Tl)
Class 3 Lawn Area - 100% Scan with NaI(Tl) at Downspouts
and Edge of Pavement (Runoff Areas)
10% Scan with NaI(Tl) on Remaining Lawn Area

Figure A.3 Examples of Scanning Patterns for Each Survey Unit Classification

A.2.7 Prepare Area
(Section 4.8)

Prior to the survey, and as part of the decommissioning process, all internal partitions were removed from the manufacturing area. Other items removed include the radioactive material control exhaust system, a liquid waste collection system, and other furnishings and fixtures not considered an integral part of the structure.

A.2.8 Establish Reference Coordinate Systems
(Section 4.8.5)

Land areas were gridded at 10 m intervals along north-south and east-west axes in preparation for the characterization survey as shown in Figure A.1. The grid was checked to verify its use for the final status survey.

Structure surfaces were already gridded at 2 m intervals, incorporating the floors and the lower 2 m of the walls. Figure A.4 is an example of the coordinate system installed for one of the Class 1 interior concrete survey units.

A.3 Survey Design

A.3.1 Quantify DQOs
(Section 2.3, Appendix D)

The null hypothesis for each survey unit is that the residual radioactivity concentrations exceed the release criterion (Scenario A, Figure D.5). Acceptable decision error probabilities for testing the hypothesis were determined to be α=0.05 and β=0.05 for the Class 1 interior concrete survey units, and α=0.025 and β=0.05 for all other survey units.

A.3.2 Construct the Desired Power Curve
(Section 2.3, Appendix D.6, Appendix I.9)

The desired power curve for the Class 1 interior concrete survey units is shown in Figure A.5. The gray region extends from 4,200 to 8,300 Bq/m^2 (2,500 to 5,000 dpm/100 cm^2). The survey was designed for the statistical test to have 95% power to decide that a survey unit containing less than 4,200 Bq/m^2 (2,500 dpm/100 cm^2) above background meets the release criterion. For the same test, a survey unit containing over 17,000 Bq/m^2 (10,000 dpm/100 cm^2) above background had less than a 2.5% probability of being released.

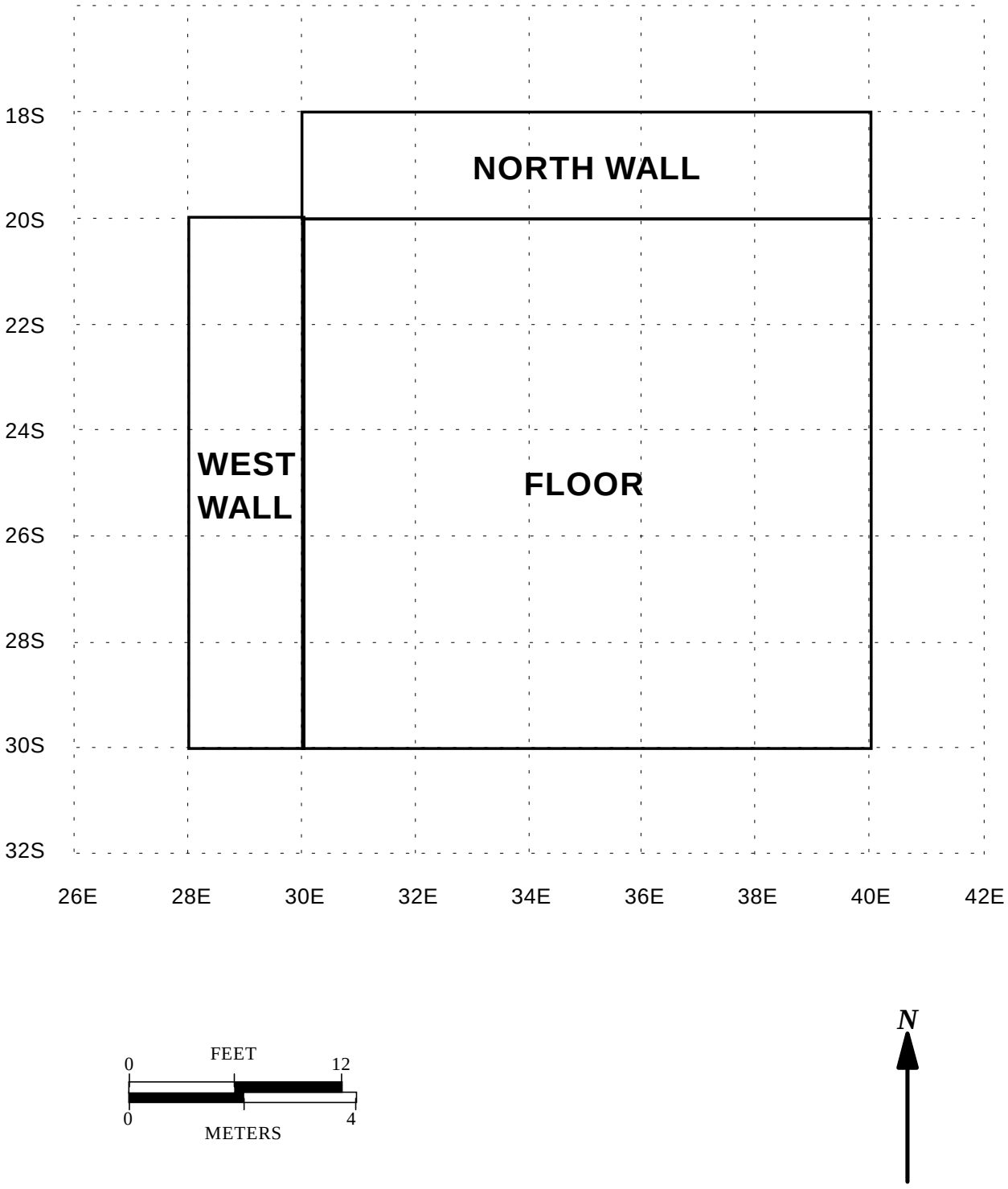


Figure A.4 Reference Coordinate System for the Class 1 Interior Concrete Survey Unit

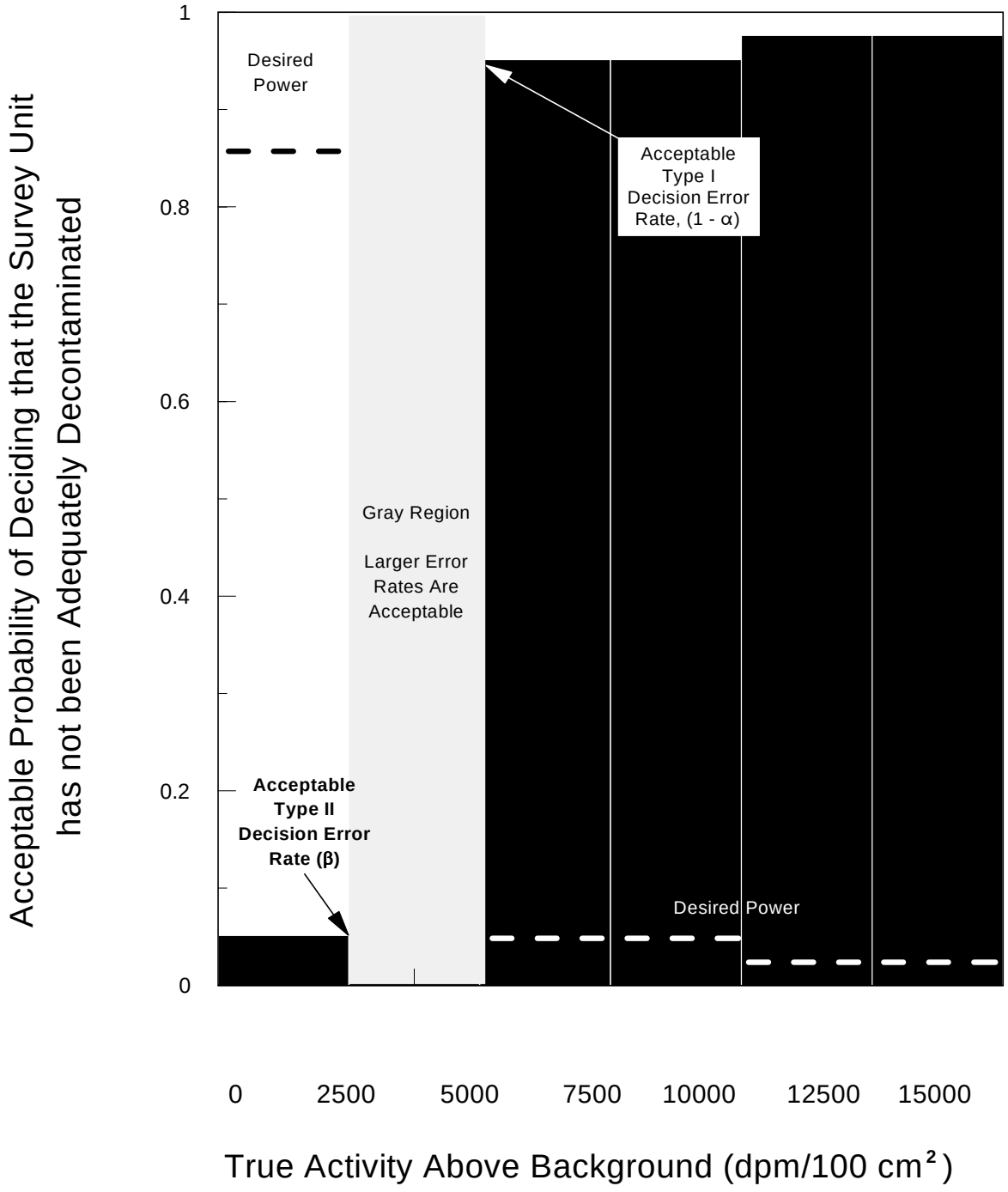


Figure A.5 Power Chart for the Class 1 Interior Concrete Survey Unit

A.3.3 Specify Sample Collection and Analysis Procedures
(Chapter 7)

In the Class 3 exterior survey unit soil cores were taken to a depth of 7.5 cm (3 in.) based on development of DQOs, the conceptual site model, and the assumptions used to develop the DCGLs. Each sample was labeled with the location code, date and time of sampling, sealed in a plastic bag, and weighed prior to shipment to the analytical laboratory. At the laboratory, the samples were weighed, dried, and weighed again. The samples were ground to a uniform particle size to homogenize the samples consistent with the modeling assumptions used to develop the DCGLs. One hundred gram (100 g) aliquots were gamma counted using a germanium detector with multichannel analyzer.

The decision to use radionuclide-specific measurements for soil means that the survey of the Class 3 exterior soil surface survey unit was designed for use with the one-sample Sign test.

A.3.4 Provide Information on Survey Instrumentation and Techniques
(Chapter 6)

A gas flow proportional counter with 20 cm^2 probe area and 16% 4π response was placed on the surface at each direct measurement location, and a one minute count taken. Calibration and background were checked before and after each series of measurements. The $DCGL_W$, adjusted for the detector size and efficiency, is:

$$(5{,}000 \text{ dpm}/100 \text{ cm}^2)\ (0.20)\ (0.16) = 160 \text{ cpm} \qquad \text{A-1}$$

The decision to use total activity measurements for interior surfaces means that the survey of all the interior survey units was designed for use with the two-sample WRS test for comparison with an appropriate reference area.

A.3.5 Determine Numbers of Data Points
(Section 5.5.2.2)

This facility contains 15 survey units consisting of interior concrete surfaces, interior drywall surfaces, exterior surface soil, and exterior paved surfaces.

Concrete Surfaces

The site has 12 interior concrete survey units to be compared with 1 reference area. The same type of instrument and method were used to perform measurements in each area.

The lower bound of the gray region is selected to be one-half the DCGL, and Type I and Type II error values (α and β) of 0.05 were selected. The number of samples/measurements to be obtained, based on the requirements of the statistical tests, was determined using Equation 5-1 in Section 5.5.2.2:

$$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{3(P_r - 0.5)^2} \qquad \text{A-2}$$

From Table 5.2 it is found that $Z_{1-\alpha} = Z_{1-\beta} = 1.645$ for $\alpha = \beta = 0.05$.

The parameter P_r depends on the relative shift, Δ/σ. The width of the gray region, Δ, in Figure A.5 is 4,200 Bq/m^2 (2,500 dpm/100 cm^2), which corresponds to 80 cpm. Data from previous scoping and characterization surveys indicate that the background level is 45 ± 7 (1σ) cpm. The standard deviation of the contaminant in the survey unit (σ_s) is estimated at ± 20 cpm. When the estimated standard deviation in the reference area and the survey units are different, the larger value should be used to calculate the relative shift. Thus, the value of the relative shift, Δ/σ, is (160-80)/20 or 4.[2] From Table 5.1, the value of P_r is approximately 1.000.

The number of data points for the WRS test of each combination of reference area and survey units according to the allocation formula was:

$$N = \frac{(1.645+1.645)^2}{3(1.000-0.5)^2} = 14.4 \qquad \text{A-3}$$

Adding an additional 20% and rounding up yielded 18 data points total for the reference area and each survey unit combined. Note that the same result is obtained by simply using Table 5.3 or Table I.2b with $\alpha = \beta = 0.05$ and $\Delta/\sigma = 4$. Of this total number, 9 were planned from the reference area and 9 from each survey unit. The total number of measurements calculated based on the statistical tests was 9 + (12)(9) = 117.

A.3.6 Evaluate the power of the statistical tests against the DQOs.
(Appendix I.9.2)

Using Equation I-8, the prospective power expected of the WRS test was calculated using the fact that 9 samples were planned in each of the survey units and the reference area. The value of σ_s was taken to be 20 cpm, the larger of the two values anticipated for the reference area (7 cpm) and the survey unit (20 cpm). This prospective power curve is shown in Figure A.6.

[2] Ordinarily Δ/σ would be adjusted to a value between 1 and 3. For this example the adjustment was not made.

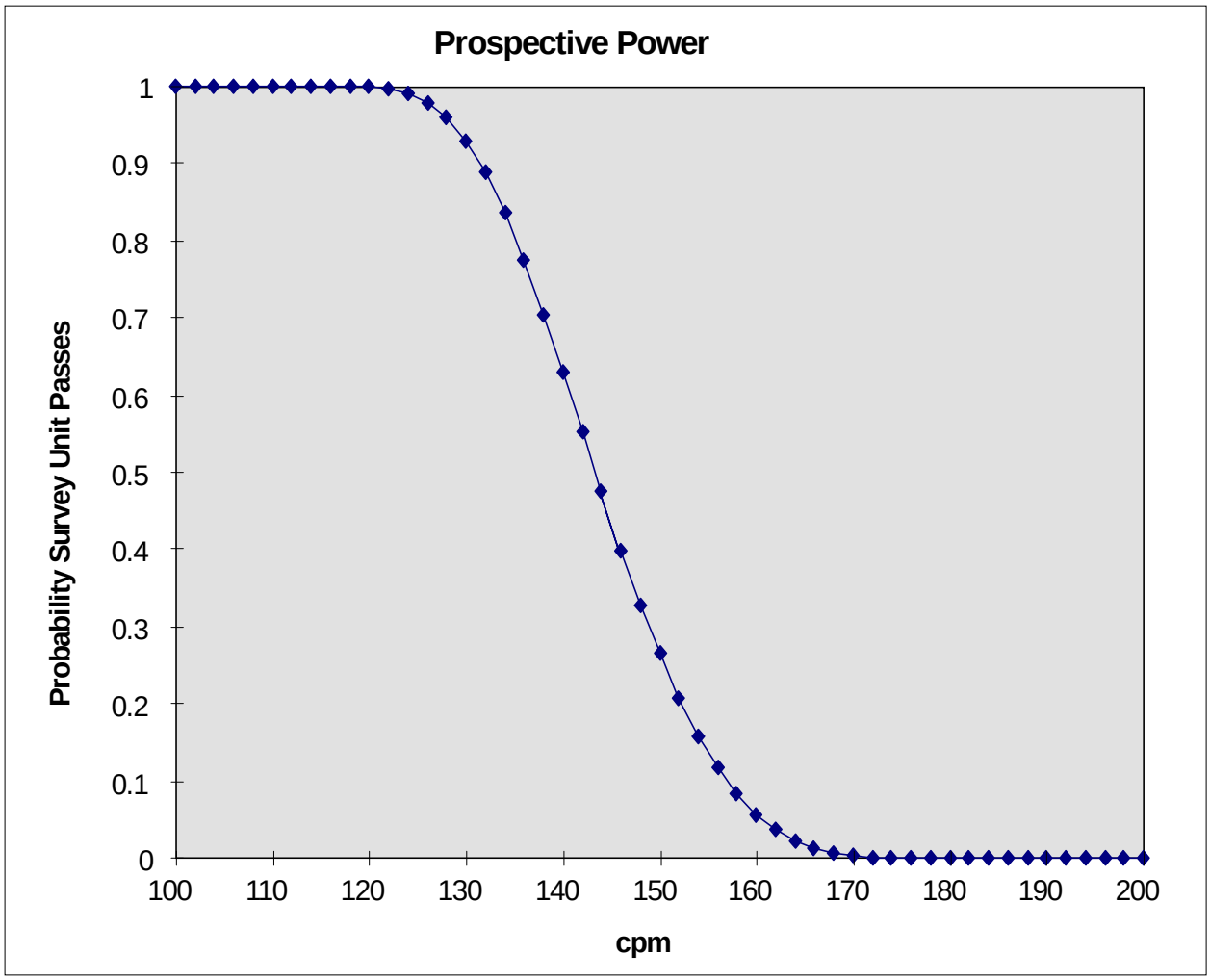


Figure A.6 Prospective Power Curve for the Class 1 Interior Concrete Survey Unit

A.3.7 Ensure that the Sample Size is Sufficient for Detecting Areas of Elevated Activity (Chapter 5.5.2.4)

The Class 1 concrete interior survey units each have an area of 140 m^2 (Figure A.7). The distance between measurement locations in these survey units was:

$$L = \sqrt{\frac{A}{0.866n}} = \sqrt{\frac{140}{0.866\ (10)}} = 4.2\ m \qquad \text{A-4}$$

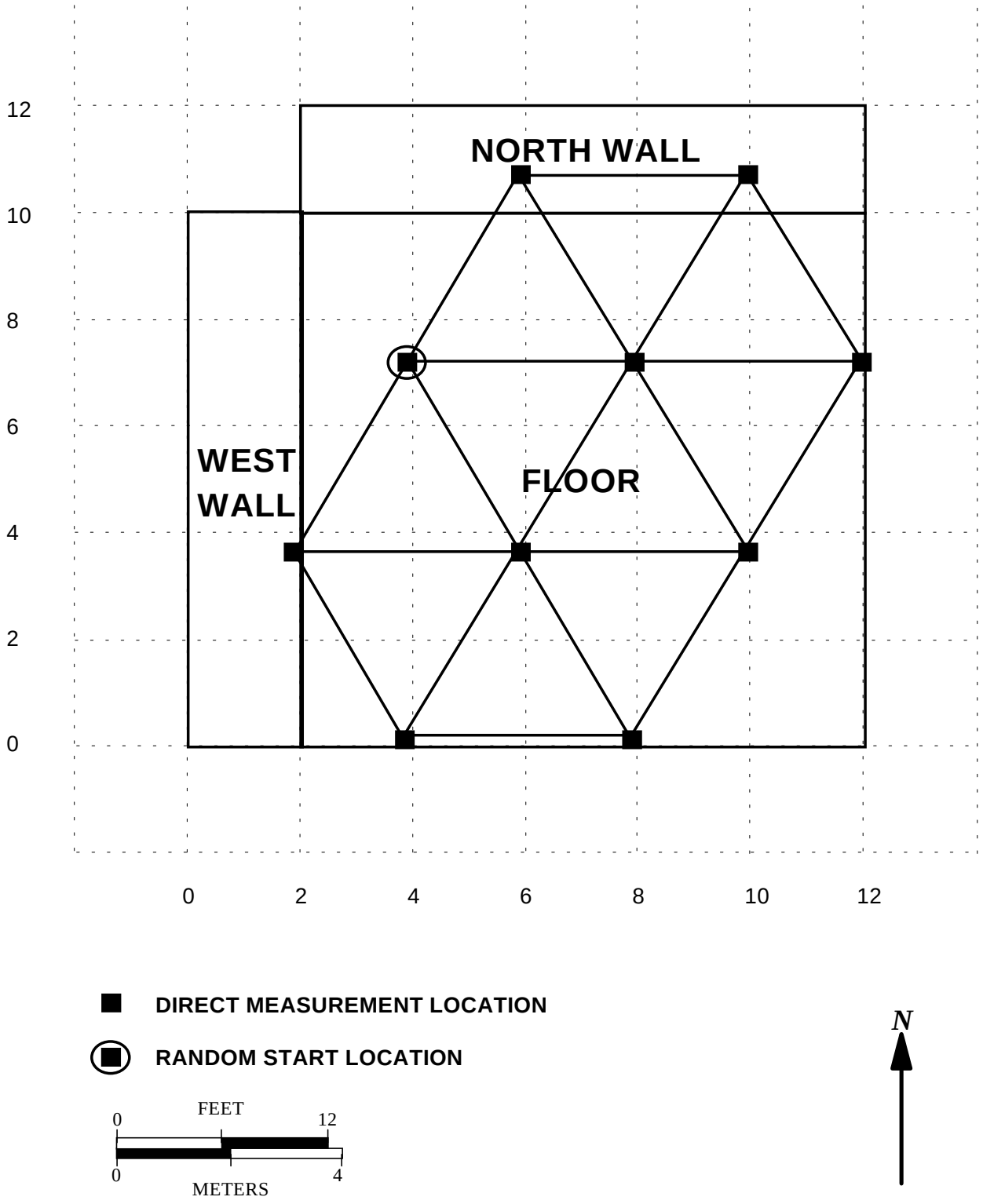


Figure A.7 Measurement Grid for the Class 1 Interior Concrete Survey Unit

The result for L was rounded *down* to the nearest meter, giving L = 4 m. This resulted in an area between sampling points of $0.866L^2 = 13.9\ m^2$. The $DCGL_W$ of 8,300 Bq/m^2 (5,000 dpm/100 cm^2) was well above the scanning MDC of 6,000 Bq/m^2 (3,600 dpm/100 m^2) for the least sensitive of the two scanning instruments (the floor monitor). Therefore, no adjustment to the number of data points to account for areas of elevated activity was necessary.

A.3.8 Specify Sampling Locations
(Chapter 5.5.2.5)

Two random numbers between zero and one were generated to locate the random start for the sampling grid. Using Table I.6 in Appendix I, 0.322467 and 0.601951 were selected. The random start for triangular sampling pattern was found by multiplying these numbers by the length of the reference grid X and Y axes:

$$X = 0.322467 \times 12\ m = 3.9 \quad \text{A-5}$$
$$Y = 0.601951 \times 12\ m = 7.2 \quad \text{A-6}$$

The first row of measurement locations was laid out at 4m intervals parallel to one axis of the reference grid. The second row was positioned (0.866)(4) = 3.5 m from the first row, with measurement locations offset by 2 m from those in the first row. The measurement grid is shown in Figure A.7. When the measurement grid was constructed it was found that 10 measurement locations were identified within the boundaries of the survey unit, which is greater than the 9 measurement locations calculated to be required for the statistical test. Because the spacing between the measurements (L) is important for identifying areas of elevated activity, *all* of the identified sampling locations should be used.

A.3.9 Develop Quality Control Procedures
(Section 4.9)

A.3.10 Document Results of Planning into a Quality Assurance Project Plan
(Section 9.2)

A.4 Conducting Surveys

A.4.1 Perform Reference (Background) Area Measurements and Scanning
(Chapter 6)

A.4.2 Collect and Analyze Samples
(Chapter 7)

A.5 Evaluating Survey Results

A.5.1 Perform Data Quality Assessment
(Chapter 8.2)

The data from the one Class 1 interior concrete survey unit and its associated reference area are given in Table A.1. Since ten sampling locations were identified, ten results are listed for the survey unit.[3] The average measurement in the survey unit is 206 cpm, and in the reference area the average is 46 cpm. The means and the medians are nearly equal in both cases. The standard deviations are also consistent with those estimated during the survey design. The survey unit clearly contains residual radioactivity close to the $DCGL_W$ of 160 cpm (calculated using Equation A-1).

Table A.1 Class 1 Interior Concrete Survey Unit and Reference Area Data

	Reference Area (cpm)	Survey Unit (cpm)
	45	205
	36	207
	32	203
	57	196
	46	211
	60	208
	39	172
	45	216
	53	233
	42	209
mean	46	206
standard deviation	9	15.4
median	45	207.5

[3] There are also ten results listed for the reference area. This is only because there were also ten locations identified there when the grid was laid out. Had nine locations been found, the survey would proceed using those nine locations. There is no requirement that the number of sampling locations in the survey unit and reference area be equal. It is only necessary that at least the minimum number of samples required for the statistical tests is obtained in each.

The stem and leaf displays (see Appendix I.7) for the data appear in Table A.2. They indicate that the data distributions are unimodal with no notable asymmetry. There are two noticeably extreme values in the survey unit data set, at 172 and 233 cpm. These are both about 2 standard deviations from the mean. A check of the data logs indicated nothing unusual about these points, so there was no reason to conclude that these values were due to anything other than random measurement variability.

Table A.2 Stem and Leaf Displays for Class 1 Interior Concrete Survey Unit

Reference Area				
30	6	2	9	
40	5	5	6	2
50	7	3		
60	0			

Survey Unit					
170	2				
180					
190	6				
200	5	7	3	8	9
210	1	6			
220					
230	3				

A Quantile-Quantile plot (see Appendix I.8) of this data, shown in Figure A.8, is consistent with these conclusions. The median and spread of the survey unit data are clearly above those in the reference area. The middle part of the curve has no sharp rises. However, the lower and upper portion of the curve both show a steep rise due to the two extreme measurements in the survey unit data set.

A.5.2 Conduct Elevated Measurement Comparison
(Section 8.5.1)

The $DCGL_W$ is 160 cpm above background. Based on an area between measurement locations 13.9 m^2 for L = 4 m, the area factor (from Table 5.7) is approximately 1.5. This means the $DCGL_{EMC}$ is 240 cpm above background. Even without subtracting the average background value of 46, there were no survey unit measurements exceeding this value. All of the survey unit measurements exceed the $DCGL_W$ and six exceed 206 cpm—the $DCGL_W$ plus the average background. If any of these data exceeded three standard deviations of the survey unit mean, they might have been considered unusual, but this was not the case. Thus, while the amount of residual radioactivity appeared to be near the release criterion, there was no evidence of smaller areas of elevated residual radioactivity.

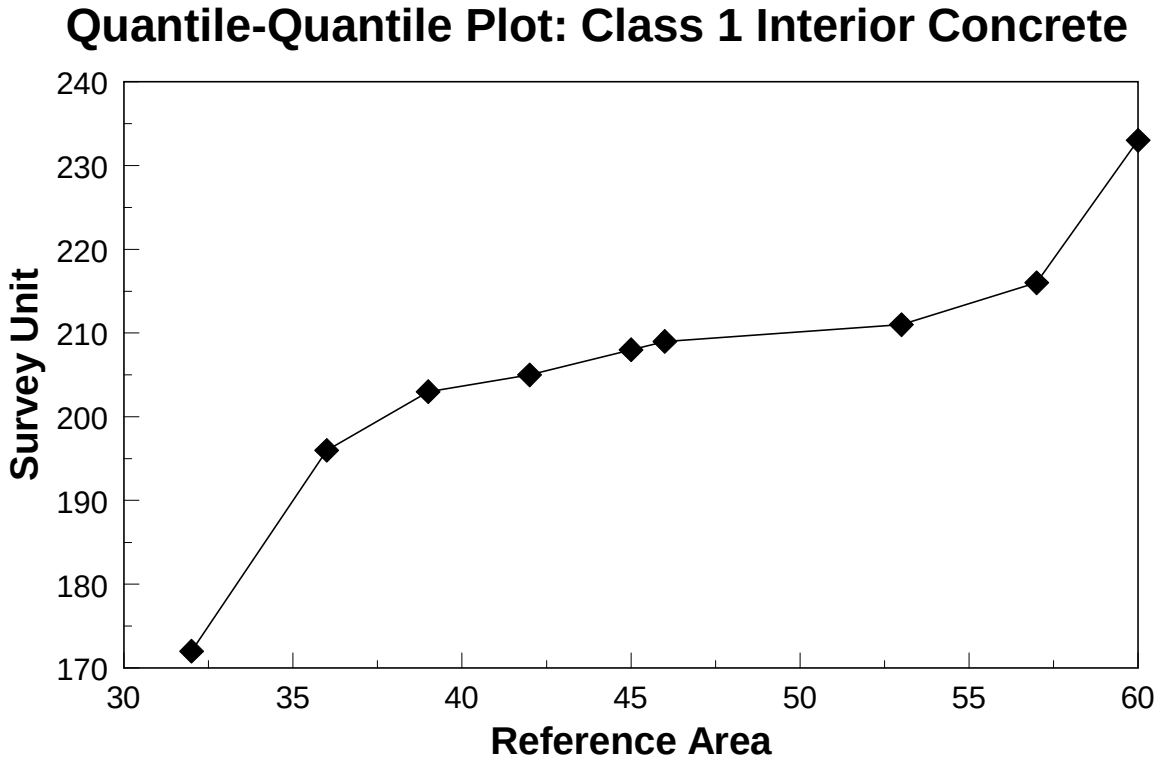


Figure A.8 Quantile-Quantile Plot for the Class 1 Interior Concrete Survey Unit

A.5.3 Conduct Statistical Tests
(Section 8.3, 8.4)

For the Class 1 interior concrete survey unit, the two-sample nonparametric statistical tests of Section 8.4 were appropriate since, although the radionuclide of concern does not appear in background, radionuclide specific measurements were not made. This survey unit was classified as Class 1, so the 10 measurements performed in the reference area and the 10 measurements performed in the survey unit were made on random start triangular grids.

Table A.3 shows the results of the twenty measurements in the first column. The average and standard deviation of the reference area measurements were 46 and 9, respectively. The average and standard deviation of the survey unit measurements were 206 and 15, respectively.

Table A.3 WRS Test for Class 1 Interior Concrete Survey Unit

Data	Area	Adjusted Data	Ranks	Reference Area Ranks
45	R	205	7.5	7.5
36	R	196	4	4
32	R	192	3	3
57	R	217	15	15
46	R	206	9	9
60	R	220	16	16
39	R	199	5	5
45	R	205	7.5	7.5
53	R	213	13	13
42	R	202	6	6
211	S	211	12	0
208	S	208	10	0
172	S	172	1	0
216	S	216	14	0
233	S	233	18	0
209	S	209	11	0
237	S	237	19	0
176	S	176	2	0
253	S	253	20	0
229	S	229	17	0
Sum=			210	86

The analysis proceeded as described in Section 8.6.3. In the “Area” column, the code "R" is inserted to denote a reference area measurement, and "S" to denote a survey unit measurement. In the “Data” column, the data were simply listed as obtained. The Adjusted Data were obtained by adding the $DCGL_W$ to the reference area measurements and leaving the survey unit measurements unchanged. The ranks of the Adjusted Data appear in the “Ranks” column. They range from 1 to 20, since there is a total of 20 (10+10) measurements. The sum of *all* of the ranks is 20(20+1)/2 = 210. It is recommended to check this value as a guard against errors in the rankings.

The “Reference Area Ranks” column contains only the ranks belonging to the reference area measurements. The total is 86. This was compared with the entry in Table I.4 for $\alpha = 0.05$, with $n = 10$ and $m = 10$. This critical value is 127. Thus, the sum of the reference area ranks was *less* than the critical value and the null hypothesis—that the survey unit concentrations exceed the $DCGL_W$—was accepted.

Again, as in Section 8.6.3, the retrospective power curve for the WRS test was constructed as described in Appendix I.9, using Equations I-8, I-9, and I-10, together with the actual number of concentration measurements obtained, N. The power as a function of Δ/s was calculated using the observed standard deviation, s = 15.4, in place of σ. The values of Δ/σ were converted to cpm using:

$$\text{cpm} = \text{DCGL}_W - (\Delta/\sigma)(\text{observed standard deviation}) \qquad \text{A-7}$$

The results for this example are plotted in Figure A.9, showing the probability that the survey unit would have passed the release criterion using the WRS test versus cpm of residual radioactivity. This curve shows that the data quality objectives were easily met. The curve shows that a survey unit with less than about 130 cpm above background would almost always pass and that a survey unit with more than about 170 cpm above background would almost always fail.

A.5.4 Estimate Amount of Residual Radioactivity

(Chapter 8.5.2.1)

The amount of residual radioactivity in the survey unit above background was estimated following the WRS test using the difference between the mean measurement in the survey unit and the mean measurement in the reference area: $\delta = 206 - 46 = 160$. This was converted to a surface area activity concentration of 8,300 Bq/m^2 (5,000 dpm/100 cm^2), which is just at the limiting value, DCGL_W.

The difference in the median measurements (207.5 - 45 = 162.5) was converted to a surface activity concentration of 8,500 Bq/m^2 (5,100 dpm/100 cm^2). This slightly exceeds the DCGL_W.

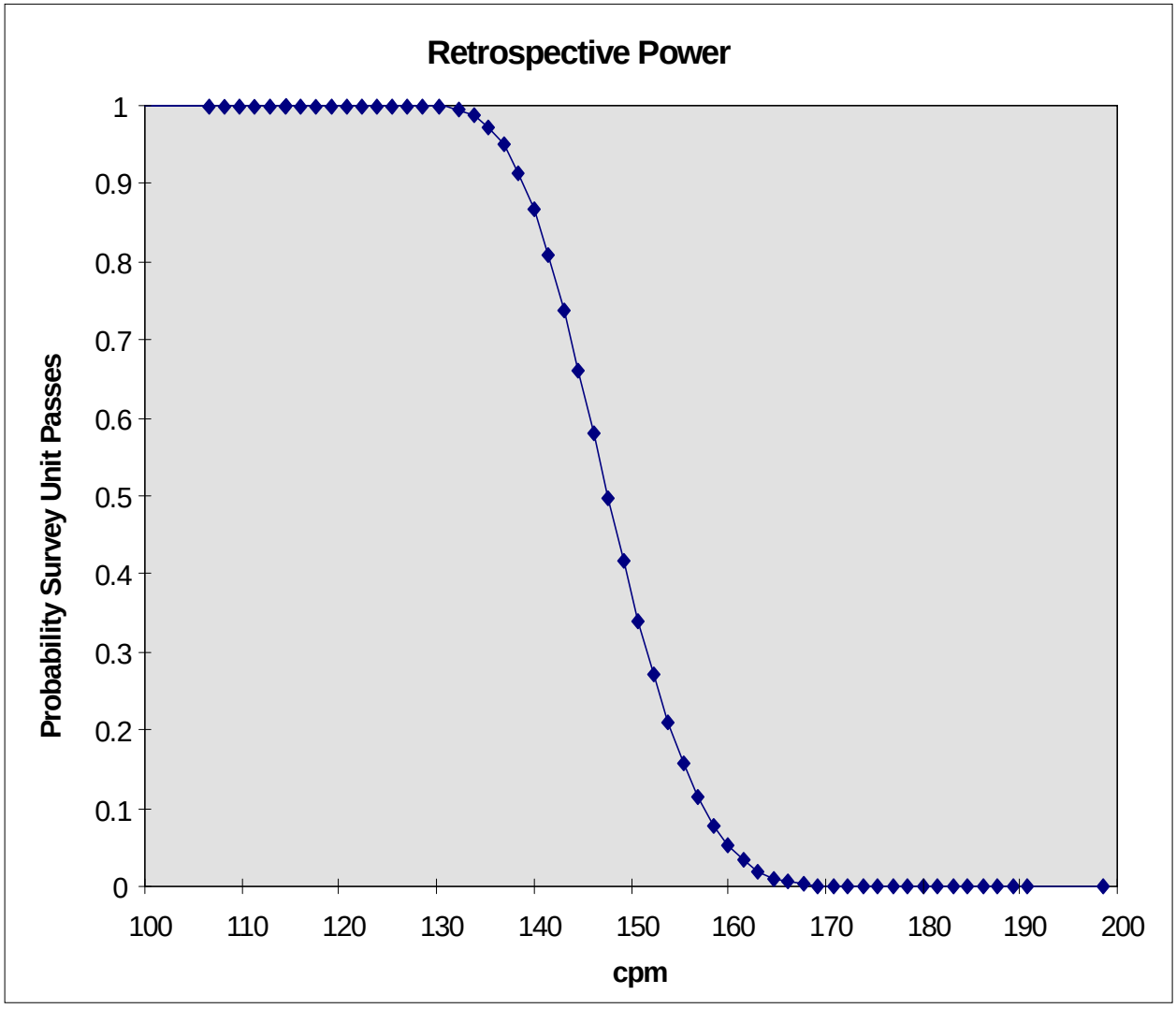


Figure A.9 Retrospective Power Curve for the Class 1 Interior Concrete Survey Unit

APPENDIX B

SIMPLIFIED PROCEDURE FOR CERTAIN USERS OF SEALED SOURCES, SHORT HALF-LIFE MATERIALS, AND SMALL QUANTITIES

A large number of users of radioactive materials may use a simplified procedure to demonstrate regulatory compliance for decommissioning, avoiding complex final status surveys. Sites that qualify for simplified decommissioning procedures are those where radioactive materials have been used or stored only in the form of: non-leaking, sealed sources; short half-life radioactive materials (*e.g.*, $t_{1/2} \leq 120$ days) that have since decayed to insignificant quantities; small quantities exempted or not requiring a specific license from a regulatory authority; or combinations of the above.

The user of a site that may qualify for implementation of a simplified procedure should provide the regulatory authority with a minimum of: (1) a certification that no residual radioactive contamination attributable to the user's activities is detectable by generally accepted survey methods for decommissioning; and (2) documentation on the disposal of nuclear materials, such as the information required in Form NRC-314 (Certification of Disposition of Materials). This minimum information may be used by the regulatory authority to document protection of both the public health and safety and the environment, based on the transfer, decay, or disposal of radioactive material in some authorized manner.

Normally, the absence of radioactive contamination can be demonstrated by: (1) documenting the amounts, kinds and uses of radionuclides as well as the processes involved; (2) conducting a radiation survey of the site; and (3) submitting a report on this survey. More specifically, a user of a qualified site should document from process knowledge and the nature of the use that either no or unmeasurable quantities of radioactive material remain onsite—whether on surfaces, buried, imbedded, submersed, or dissolved. The submittal to the regulatory authority should include possession history, use of the radioactive materials, and, if applicable, results of all leak tests. Where only small quantities or short half-life materials were handled, the regulatory authority may consider the documentation on a case-by-case basis.

For those sites where a simple final status survey is conducted to demonstrate compliance with the release criterion, the following information should be included in the final status survey report:

- basis for selecting the instrumentation used for the survey
- nature of the radionuclides surveyed
- measurement techniques and instruments used, including references for procedures and protocols used to perform the measurements

- minimum detectable concentrations (MDCs) of the instruments and measurement systems used to perform the measurements
- calibration, field testing, and maintenance of the instrumentation
- qualifications of the personnel using the instrumentation
- methods used to interpret the survey measurements
- qualifications of the personnel interpreting the survey measurements
- measurement results and measurement locations including the operator's name, instrument model and serial number, date the measurement was performed, and traceability of the measurement location

The number of measurements in each survey unit and each reference area can be determined using Table 5.3 for sites where the radionuclide of potential interest is present in background. The number of measurements for each survey unit where the radionuclide is not present in background can be determined using Table 5.5. Values for acceptable decision error levels (α and β) and the relative shift (Δ/σ) can be determined as described in Section 5.5.2. For sites where the simplified approach in this appendix is appropriate, reasonably conservative values for these parameters would be $\alpha = 0.05$, $\beta = 0.05$, and $\Delta/\sigma = 1$. After increasing the number of measurements by 20% to ensure adequate power for the statistical tests, Table 5.3 and Table 5.5 list a value of approximately 30 measurements for each survey unit and each reference. Therefore, 30 measurements may be used in place of the guidance in Section 5.5.2 at sites that qualify for the simplified survey design process.

The results of the survey should be compared to derived concentration guideline levels (DCGLs) using an appropriate statistical test, such as the Student's *t* test or Wilcoxon test. If all measurements are less than the $DCGL_W$, then the statistics do not need to be addressed because the conclusions are obvious. If the mean of the measurements exceeds the $DCGL_W$, the survey unit obviously fails to demonstrate compliance and the statistics do not need to be addressed.

Radiation levels and concentrations should be reported as follows:

- For external dose rates, units of:
  - milli-Sieverts (micro-rem) per hour at one meter from surfaces;

- For levels of radioactive materials, including alpha and beta measurements, units of:
  - Bq/m^2 (dpm/100 cm^2, pCi/100 cm^2) (removable and fixed) for surfaces;
  - Bq/L (pCi/mL) for water;
  - Bq/kg (pCi/g) for solids such as soils or concrete.

APPENDIX C
REGULATIONS AND REQUIREMENTS ASSOCIATED WITH RADIATION SURVEYS AND SITE INVESTIGATIONS[1]

C.1 EPA Statutory Authorities

The U.S. Environmental Protection Agency administers several statutes that address various aspects of the cleanup of radioactively contaminated sites. Listed below are the statutes, the implementing regulations, and the responsible EPA offices.

C.1.1 The Office of Air and Radiation (OAR) administers several statutes and implementing regulations:

- Clean Air Act (CAA) as amended (42 U.S.C. 7401-7671 q.): The CAA protects and enhances the nation's air quality through national ambient air quality standards, new source performance standards, and other provisions. Radionuclides are a hazardous air pollutant regulated under Section 112 of the Act.

  - National Emissions Standard for Hazardous Air Pollutants for Radionuclides (40 CFR Part 61, 10 CFR 20.101-20.108)

- Uranium Mill Tailings Radiation Control Act (UMTRCA) of 1978 (42 U.S.C. 2022): UMTRCA requires stabilization and control of byproduct materials (primarily mill tailings) at licensed commercial uranium and thorium processing sites. NRC and DOE implement standards under this Act.

  - Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings (40 CFR Part 192)

    This regulation, along with "Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material From Ores Processed Primarily for Their Source Material Content" (10 CFR 40, Appendix A), issued by the NRC and EPA, establish technical criteria related to the operation, decontamination, decommissioning, and reclamation of uranium or thorium mills and mill tailings. Both regulations provide design requirements for closure of the mill's waste disposal area.

[1] The user of this manual should consult the text of the statutes and regulations listed in this Appendix to ensure compliance with all requirements applicable to a specific site and to ensure the use of current versions of applicable statutes and regulations.

The principal radiological hazards from uranium milling operations and mill tailings disposal are due to radon gas emissions originating from uranium and thorium daughters. Release rates to the atmosphere are limited to an average rate of 0.7 Bq (20 pCi) per square meter per second. This rate is applicable to any portion of a licensed or disposal site unless land areas do not contain radium concentrations—averaged over 100 square meters—greater than (i) 185 Bq/kg (5 pCi/g) of radium averaged over the first 15 centimeters below the surface and (ii) 555 Bq/kg (15 pCi/g) of radium averaged over 15 cm thick layers more than 15 centimeters below the surface.

- Atomic Energy Act (AEA) as amended (42 U.S.C. 2011-2296): The AEA requires the management, processing, and utilization of radioactive materials in a manner that protects public health and the environment. This is the principal basis for EPA, NRC and DOE authorities.

  The AEA requires that source, special nuclear, and byproduct materials be managed, processed, and used in a manner that protects public health and the environment. Under the AEA and Reorganization Plan No. 3 of 1970, EPA is authorized to issue federal guidance on radiation protection matters as deemed necessary by the Agency or as mandated by Congress. This guidance may be issued as regulations, given that EPA possesses the authority to promulgate generally applicable radiation protection standards under Reorganization Plan No. 3. For example, under AEA authority EPA promulgated its environmental radiation protection standards for nuclear power operations in 40 CFR Part 190.

  In conjunction with the AEA, EPA presently supports the following:

  – Environmental Radiation Protection Standards for the Management and Disposal of Spent Nuclear, High-Level and Transuranic Radioactive Wastes (40 CFR 191)

- Nuclear Waste Policy Act (NWPA), as amended (Pub. L. 100-507, 42 U.S.C. 10101): The NWPA is intended to provide an orderly scheme for the selection and development of repositories for high-level radioactive waste and spent nuclear fuel.

- Low Level Radioactive Waste Policy Act (LLRWPA), as amended (Pub. L. 99-240, 42 U.S.C. 2021b): LLRWPA assigns States responsibility for ensuring adequate disposal capacity for low-level radioactive waste generated within their borders.

- Indoor Radon Abatement Act of 1988 (15 U.S.C. 2601 Sec. 301-311)

C.1.2 The Office of Emergency and Remedial Response (OERR) administers the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended (Pub. L. 99-499, 42 U.S.C. 9601-9657)

- CERCLA authorizes EPA, consistent with the National Oil and Hazardous Substances Contingency Plan (NCP, 40 CFR 300) to provide for remedial action in response to releases or substantial threats of releases of hazardous substances into the environment. Hazardous substances are defined as any substance designated or listed under the Clean Air Act, the Federal Water Pollution Control Act, the Toxic Substances Control Act, and the Resource Conservation and Recovery Act. Because the CAA designated radionuclides as a hazardous air pollutant, the provisions of CERCLA apply to radionuclides.

C.1.3 The Office of Solid Waste (OSW) administers the Resource Conservation and Recovery Act of 1976 (RCRA), as amended (Pub. L. 94-580, 42 U.S.C. 6901 *et seq*.)

- RCRA provides for detailed regulation of hazardous waste from generation to final disposal. Hazardous waste generators and transporters must comply with EPA standards. Owners and operators of treatment, storage, or disposal facilities must obtain RCRA permits. Materials defined in the AEA are expressly excluded from the definition of solid waste, and, thus from regulation under RCRA. Naturally occurring and accelerator produced radioactive materials, however, are not excluded.

C.1.4 The Office of Water (OW) administers several statutes and implementing regulations:

- Section 14.2 of the Public Health Service Act as amended by the Safe Drinking Water Act (SDWA) as amended (Pub. L. 93-523, 42 U.S.C. 300f *et seq*.). As amended in 1986, SDWA seeks to protect public water supply systems through protection of groundwater. Any radioactive substance that may be found in water is regulated under the Act (although the current regulations only specify a limited number of individual substances).

  - Maximum Contaminant Levels (includes certain radionuclides). (40 CFR 141.11-141.16)

- Clean Water Act as amended (Pub. L. 92-500, 33 U.S.C. 1251 *et seq.*)

  - Requirements (40 CFR Parts 131, 400-469) established pursuant to sections 301, 302, 303 (including State water quality standards), 306, 307, (including Federal Pretreatment requirements for discharge into a publicly owned treatment works), and 403 of the Clean Water Act.

C.1.5 The Office of Prevention, Pesticides and Toxic Substances administers the Toxic Substances and Control Act (TSCA; 15 U.S.C. 2601)

- TSCA regulates the manufacture, distribution in commerce, processing, use, and disposal of chemical substances and mixtures. Materials defined in the AEA are expressly excluded from TSCA. However, naturally occurring and accelerator produced radionuclides are not excluded.

C.2 DOE Regulations and Requirements

C.2.1 Authorities of the Department of Energy

The Department of Energy Organization Act, which created DOE, the Energy Reorganization Act of 1974, which created the Energy Research and Development Administration, and the Atomic Energy Act of 1954[2] provide the basic authorities of the Department of Energy. The principal DOE statutory authorities and regulations that pertain to radiation protection are shown in Table C.1.

C.2.1.1 Atomic Energy Act of 1954, as amended

The Atomic Energy Act of 1954 established a program of private ownership and use of nuclear materials and nuclear facilities, such as nuclear research reactors, and a program for government regulation of those applications. (Prior to 1954, all source, byproduct, and special nuclear materials were government owned). The Atomic Energy Commission was given both the regulatory authorities and the mission to develop both the peaceful and military uses of atomic energy. The Act also retained the Atomic Energy Commission as the civilian agency responsible for weapons programs production, development and research consistent with the Atomic Energy Act of 1946.

Under the Act, the Atomic Energy Commission was responsible for establishing regulations ensuring the safety of commercial facilities and establishing requirements that ensure public protection from radiation and radioactive materials resulting from or used in its research, development, and production activities.

[2]The Atomic Energy Commission was created by the Atomic Energy Act of 1946, not the 1954 act.

Table C.1

DOE AUTHORITIES, ORDERS AND REGULATIONS RELATED TO RADIATION PROTECTION

Statutes

Atomic Energy Act of 1954, as amended

Energy Reorganization Act of 1974

Uranium Mill Tailings Radiation Control Act of 1978, as amended

Nuclear Non-Proliferation Act of 1978

Department of Energy Organization Act of 1980

West Valley Demonstration Project Act of 1980

Nuclear Waste Policy Act of 1982

Low-Level Waste Policy Act of 1980

Low-Level Waste Policy Amendments Act of 1985

Energy Policy Act of 1992

Waste Isolation Pilot Plant Land Withdrawal Act

Price Anderson Act

DOE Regulations

10 CFR Part 835, "Occupational Radiation Protection"

Executive Orders

Executive Order 12580

DOE Orders

Order 5400.1, "General Environmental Protection Program"

Order 5400.2A, "Environmental Compliance Issue Coordination"

Order DOE 5400.5, "Radiation Protection of the Public and the Environment"

Order DOE 5400.4, "Comprehensive Environmental, Response, Compensation and Liability Act Requirements"

Order DOE 5440.1E, "National Environmental Policy Act Compliance Program"

Order DOE 5480.1B, "Environment, Safety and Health Program for Department of Energy Facilities"

Order DOE 5480.3, "Safety Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous Substances & Hazardous Wastes"

Order DOE 5480.4, "Environment, Safety and Health Protection Standards"

Order DOE 5480.6, "Safety of Department of Energy Owned Nuclear Reactors"

Order DOE 5480.11, "Occupational Radiation Protection"

Order DOE 5480.24, "Nuclear Criticality Safety"

Order DOE 5480.25, "Safety at Accelerator Facilities"

Order DOE 5484.1, "Environmental Protection, Safety and Health Protection Information Reporting Requirements"

Order DOE 5820.2A, "Radioactive Waste Management"

C.2.1.2 Energy Reorganization Act of 1974 (Public Law 93-438 (1974), as amended)

The Energy Reorganization Act of 1974 divided the former Atomic Energy Commission and created the Energy Research and Development Administration (ERDA) and the Nuclear Regulatory Commission. The ERDA was responsible for radiation protection at its facilities, to provide for worker and public health, worker safety, and environmental protection. ERDA was abolished with the creation of the Department of Energy in 1980.

C.2.1.3 Department of Energy Organization Act of 1977 Public Law 95-91

The Department of Energy Organization Act created the Department of Energy (DOE) by combining the Energy Research & Development Administration, the Federal Energy Administration, Federal Power Commission, and part of the Department of Interior.

The DOE was intended to identify potential environmental, health, safety, socioeconomic, institutional, and technological issues associated with the development and use of energy sources. Through this Act, DOE retained the responsibilities and authorities—held by its predecessor agencies—to take actions necessary to protect the public from radiation associated with radioactive materials production, research, and development. DOE established requirements through a directives system that largely used DOE Orders as its regulatory procedures. With the passage of the Price-Anderson Act Amendments of 1990, DOE began converting its health and safety Orders to rules.

C.2.1.4 Uranium Mill Tailings Radiation Control Act of 1978, as amended

The Uranium Mill Tailings Radiation Control Act (UMTRCA) provides a program of assessment and remedial action at active and inactive uranium mill sites to control their tailings in a safe and environmentally sound manner and to reduce radiation hazards to the public residing in the vicinity of these sites. The DOE was directed to complete remedial action at 21 sites of inactive uranium mills.

C.2.1.5 West Valley Demonstration Project Act of 1980

This act authorized DOE to carry out a project at West Valley, New York to demonstrate solidification techniques which could be used for preparing high level radioactive waste for disposal. The Act provides for informal review and project consultation by the NRC.

C.2.1.6 Low-Level Waste Policy Act of 1980

This act established the policy that each State is responsible for providing for the disposal of low-level radioactive waste generated within its borders, except for waste from defense activities of

DOE or Federal research and development activities, and authorized States to enter into compacts to carry out this policy. DOE was required to take actions to assist the States in carrying out this policy.

C.2.1.7 Nuclear Waste Policy Act of 1982 (Public Law 97-425, 1983)

This Act gives DOE the responsibility to develop repositories and to establish a program of research, development, and demonstration for the disposal of high-level radioactive waste and spent nuclear fuel. Title to and custody of commercial low-level waste sites under certain conditions could be transferred to DOE.

C.2.1.8 Low-Level Waste Policy Amendments Act of 1985

This act amends the Low-Level Waste Policy Act of 1980 to improve the procedures for State compacts. It also assigns responsibility to the Federal government for the disposal of low-level waste generated or owned by the DOE, specific other Federally generated or owned wastes, and wastes with concentrations of radionuclides that exceed the limits established by the NRC for class C radioactive waste. The Act provides that all class C radioactive wastes designated as a Federal responsibility—those that result from activities licensed by the NRC—shall be disposed of in a facility licensed by the NRC. The Act also assigns responsibilities to DOE to provide financial and technical assistance to the States in carrying out the Act.

C.2.1.9 Waste Isolation Pilot Plant Land Withdrawal Act

The Waste Isolation Pilot Plant (WIPP) is a repository intended for the disposal of transuranic radioactive waste produced by defense activities. The Act establishes the following:

1) an isolated parcel of land for the WIPP
2) provisions concerning testing and limits on the quantities of waste which may be disposed at the WIPP
3) EPA certification of compliance with disposal standards

C.2.1.10 Price Anderson Act

C.2.2 Executive Orders

Executive Order (E.O.) 12580 delegates to various Federal officials the responsibilities vested in the President for implementing the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA).

C.2.3 DOE Regulations and Orders

C.2.3.1 10 CFR Part 835, "Occupational Radiation Protection"

This rule, which became effective on January 13, 1993, provides for the protection of radiation workers at DOE owned facilities. The requirements contained in Part 835 are generally similar to those in Order DOE 5480.11 and those used in NRC Regulations pertaining to the commercial nuclear industry. In addition to the rule, DOE issued a dozen implementation guides, including the "DOE Radiological Control Manual," (DOE/EH-0256T, Rv.1, April 1994).

C.2.3.2 Order DOE 5400.5, "Radiation Protection of the Public and the Environment"

This Order, issued in February 1990, contains DOE's requirements for ensuring the protection of the public from the hazards of radiation. This regulation includes dose limits for protection of the public and environment, plus requirements:

1) to apply the ALARA process—to reduce doses to the public as far below the release criterion as is practicable
2) to apply the best available control technology to liquid effluents
3) for control of property containing residual radioactive material

DOE 5400.5 is supported by numerous guidance documents, including those listed in this section.

DOE 5400.5 is the primary directive relating to the release of property subject to radiological contamination by DOE operations. DOE 5400.5 will be replaced by 10 CFR Part 834 and its guidance will be adopted for Part 834 when it is issued.

Under DOE 5400.5 and the guidance included in this section (C.2.3), DOE established requirements for a case-by-case review and approval for release of real or non-real property containing residual radioactive material. Authorized limits and measurement procedures must be developed by DOE before facilities can release property from their control. The principle requirement is to reduce doses to levels that are as low as practicable using the ALARA process and assuming realistic but conservative use scenarios that are not likely to underestimate dose. This requirement ensures that doses are as far below the primary dose limit (1 mSv/y [100 mrem/y]) as is reasonably achievable. Because the primary dose limit is for doses from all sources and pathways, authorized limits should be selected at levels below a DOE dose constraint of 0.3 mSv/y (30 mrem/y). However, the goal is to reduce doses under likely-use scenarios to a few fractions of a mSv/year or less.

In addition to the requirement to apply ALARA and the dose constraint, DOE also utilizes surface contamination guidelines similar to those in NRC Regulatory Guide 1.86 and the 40 CFR Part 192 soil concentration limits for radium and thorium. The ALARA requirement ensures that the 40 CFR Part 192 limits are appropriately used. DOE also permits the use of supplemental limits for situations where cleanups to authorized limits are not practicable or where the scenarios used to develop the authorized limits are not appropriate. DOE 5400.5 permits the release of property for restricted use and requires procedures to ensure these restrictions are maintained.

Most DOE remedial action and restoration activities are also subject to CERCLA. In such cases, DOE requirements are integrated into the CERCLA process.

The following sections describe the scope and importance of several guidance documents.

A. Residual Radioactive Material Control:

DOE/CH-8901, Manual for Implementing Residual Radioactive Material Guidelines - A Supplement to the U.S. Department of Energy Guidelines for Residual Radioactive Material at FUSRAP and SFMP Sites, Department of Energy, June 1989.

DOE Guidance Memorandum, "Unrestricted Release of Radioactively Contaminated Personal Property," J. Maher, DOE Office of Nuclear Safety, Mar. 15, 1984.

ANL/EAD/LD-2, Manual for Implementing Residual Radioactive Material Guidelines Using RESRAD, Version 5.0, Published by Argonne National Laboratory and prepared by ANL and DOE staff, September 1993.

ANL/EAIS-8, Data Collection Handbook to Support Modeling the Impacts of Radioactive Material in Soil, Argonne National Laboratory, April 1993.

ANL/EAIS/TM-103, A Compilation of Radionuclide Transfer Factors for Plant, Meat, Milk and Aquatic Food Pathways and Suggested Default Values for the RESRAD Code, Argonne National Laboratory, August 1993.

PNL-8724, Radiation Dose Assessments to Support Evaluations of Radiological Control Levels for Recycling or Reuse of Material and Equipment, Pacific Northwest Laboratory, July 1995.

ANL/EAD.LD-3, RESRAD-Build: A Computer Model for Analyzing the Radiological Doses Resulting from the Remediation and Occupancy of Buildings Contaminated with Radioactive Material, Argonne National Laboratory, November 1994.

B. ALARA

DOE Guidance: DOE Guidance on the Procedures in Applying the ALARA Process for Compliance with DOE 5400.5, Department of Energy, Office of Environmental Guidance, March 8, 1991.

ANL/EAD/LD-2, Manual for Implementing Residual Radioactive Material Guidelines Using RESRAD, Version 5.0, Chapters 1 and 5 and App. M, September 1993.

C. Measurement and Data Reporting

DOE Manual for use and Comment, Environmental Implementation Guide for Radiological Survey Procedures, Department of Energy, Office of Environmental Guidance, Nov. 1992.

DOE/EH-0173T, Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance, Department of Energy, Jan. 1991.

D. Dose Factors

DOE/EH-0071, Internal Dose Conversion Factors for Calculation of Dose to the public, DOE, July 1988. DOE currently recommends use of EPA-520-1-88-020, Federal Guidance Report No. 11, Limiting Radionuclide Intake and Air Concentrations and Dose Conversion Factors for Inhalation, Submersion and Ingestion, Environmental Protection Agency, Sept. 1988, as an alternative to DOE/EH-0071.

DOE/EH-0070, External Dose-Rate Conversion Factors for Calculation of Dose to the Public, DOE, July 1988. DOE currently recommends use of EPA 402-R-93-081, Federal Guidance Report No. 12, External Exposure to Radionuclides in Air, Water and Soil, Environmental Protection Agency, Sept. 1993, as an alternative to DOE/EH-0070.

E. Liquid Effluents

Implementation Guidance for DOE 5400.5, Section II.3 (Management and Control of Radioactive Materials in Liquid Discharges and the Phaseout of Soil Columns), DOE Office of Environment, June 1992.

C.2.3.3 Order DOE 5820.2A, "Radioactive Waste Management"

Order DOE 5820.2A establishes the policies, guidelines, and requirements by which the DOE manages its radioactive and mixed waste and contaminated facilities. The Order implements DOE's responsibilities and authorities for prediction of public and worker health and safety and

the environment under the Atomic Energy Act. It contains the requirements for management and disposal of high-level waste, transuranic waste, low-level waste, NARM waste, and for the decommissioning of radioactively contaminated facilities.

A. High-level Waste

The Order specifies: (1) requirements for storage operations including requirements for waste characterization, transfer operations, monitoring, surveillance, and leak detection, and (2) specifies that disposal shall be in accordance with the requirements of the Nuclear Waste Policy Act of 1982.

B. Transuranic Waste

The Order requires waste to be certified in compliance with the Waste Isolation Pilot Plant-Waste Acceptance Criteria and sent to the WIPP. There are requirements for waste classification, waste generation and treatment, waste certification, waste packaging, temporary storage, transportation and shipping, and interim storage. There are provisions for use of the WIPP, and for assessing the disposition of previously buried transuranic-contaminated wastes.

C. Low-level Waste

The Order specifies performance objectives which assure that external exposure waste concentrations of radioactive material—which may be released into surface water, ground water, soil, plants, and animals—result in an effective dose equivalent that does not exceed 0.25 mSv/y (25 mrem/y) to a member of the public. Releases to the atmosphere shall meet the requirements of 40 CFR Part 61. Reasonable efforts should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable. Radiological performance assessments are required for the disposal of waste for the purpose of demonstrating compliance with these performance objectives.

For low-level waste, there are also requirements on waste generation, waste characterization, waste acceptance criteria, waste treatment, and long term storage. The Order includes additional disposal requirements concerning disposal facility and disposal site design and waste characteristic, site selection, facility operations, site closure and post closure, and environmental monitoring.

D. NARM Waste

For management of Naturally-Occurring and Accelerator-Produced Radioactive Materials (NARM) and 11(e)(2) byproduct materials (the tailings or wastes resulting from the concentration of uranium or thorium), the order specifies that storage and disposal shall be

consistent with the requirements of the residual radioactive material guidelines contained in 40 CFR 192.

E. Decommissioning of Radioactively Contaminated Facilities

For the decommissioning of contaminated facilities, the order requires DOE organizations to develop and document decommissioning programs which include provisions for surveillance and maintenance. There are requirements for facility design, post-operational activities, characterization, and environmental review.

C.3 NRC Regulations and Requirements

C.3.1 NRC's Mission and Statutory Authority

The mission of the U.S. Nuclear Regulatory Commission (NRC) is to ensure adequate protection of the public health and safety, the common defense and security, and the environment in the use of nuclear materials in the United States. The NRC's scope of responsibility includes regulation of commercial nuclear power reactors; nonpower research, test, and training reactors; fuel cycle facilities; medical, academic, and industrial uses of nuclear materials; and the storage and disposal of nuclear materials and waste.

The NRC is an independent agency created by the Energy Reorganization Act of 1974. This Act abolished the Atomic Energy Commission (AEC), moved the AEC's regulatory function to NRC, and, along with the Atomic Energy Act of 1954, as amended, provides the foundation for regulation of the nation's commercial nuclear power industry.

NRC regulations are issued under the United States Code of Federal Regulations (CFR) Title 10, Chapter 1. Principal statutory authorities that govern NRC's work are:

- Atomic Energy Act of 1954, as amended
- Energy Reorganization Act of 1974, as amended
- Uranium Mill Tailings Radiation Control Act of 1978, as amended
- Nuclear Non-Proliferation Act of 1978
- Low-Level Radioactive Waste Policy Act of 1980
- West Valley Demonstration Project Act of 1980
- Nuclear Waste Policy Act of 1982
- Low-Level Radioactive Waste Policy Amendments Act of 1985
- Diplomatic Security and Anti-Terrorism Act of 1986
- Nuclear Waste Policy Amendments Act of 1987
- Solar, Wind, Waste and Geothermal Power Production Incentives Act of 1990
- Energy Policy Act of 1992

The Atomic Energy Act of 1954, as amended, allows the NRC to issue orders to both licensees and persons not licensed by the NRC. NRC orders may be a means of compelling decommissioning at sites where the license has been terminated or at sites that were not previously licensed but currently contain radioactive material that is under the jurisdiction of the NRC.

The NRC and its licensees share a common responsibility to protect the public health and safety. Federal regulations and the NRC regulatory program are important elements in the protection of the public. NRC licensees, however, have the primary responsibility for the safe use of nuclear materials.

C.3.2 NRC Criteria for Decommissioning

This section of the survey manual contains information on the existing cleanup criteria for decommissioning sites regulated by the NRC. Additional cleanup criteria established by State and local governments may also be applicable at NRC-licensed sites at the time of decommissioning.

NRC's requirements for decommissioning and license termination are contained in 10 CFR 30.36, 40.42, 50.82, 70.38, and 72.54. The radiological criteria for license termination are contained in 10 CFR 20.1401 through 1406 (62 FR 39058, July 21, 1997).

Prior to the adoption of the current regulations on radiological criteria for license termination, the Commission's position on residual contamination criteria, site characterization, and other related decommissioning issues was outlined in a NRC document entitled "Action Plan to Ensure Timely Cleanup of Site Decommissioning Management Plan Sites," which was published in the Federal Register on April 6, 1993 (57 FR 13389). Other documents that were used in the past and which may continue to have some applicability in special cases include:

"Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material From Ores Processed Primarily for Their Source Material Content" (10 CFR 40, Appendix A) and Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings (40 CFR 192, Subparts D and E)

> These regulations, issued by the NRC and EPA, establish technical criteria related to the operation, decontamination, decommissioning, and reclamation of uranium or thorium mills and mill tailings. Both regulations provide design requirements for closure of the mill's waste disposal area, which requires an earthen cover over tailings or waste piles to control radiological hazards from uranium and thorium tailings for 200 to 1,000 years, according to Technical Criterion 6 of Appendix A to 10 CFR Part 40.

The principal radiological hazards from uranium milling operations and mill tailings disposal are radon from uranium and thorium daughters. The atmospheric release rates of these gaseous radionuclides to the atmosphere are limited to an average rate of 0.7 Bq (20 pCi) per square meter per second. This rate is applicable to any portion of a licensed or disposal site unless land areas do not contain radium concentrations—averaged over 100 square meters—greater than: (i) 0.2 Bq/g (5 pCi/g) of radium averaged over the first 15 centimeters below the surface, and (ii) 0.6 Bq/g (15 pCi/g) of radium averaged over 15-centimeter thick layers more than 15 centimeters below the surface.

Criterion 6 allows radon release rates to be averaged over a period of at least 1 year (but much less than 100 years) to account for the wide variability in atmospheric radon concentrations over short time periods and seasons. In addition, this criterion applies only to emissions from uranium daughters and does not include radon emissions from earthen materials used to cover the tailings piles. If appropriate, radon emissions from cover materials are evaluated when developing a closure plan for each site to account for this additional contribution from naturally occurring radon. However, direct gamma exposure rates from tailings or wastes should be reduced to background levels according to this standard.

C.3.3 NRC Decommissioning Process and Staff Plans for Implementing Survey Procedures in this Manual

NRC licensees are required to conduct radiation surveys of the premises where the licensed activities were conducted and submit a report describing the survey results. The survey process follows requirements contained in 10 CFR 30.36, 40.42, 50.82, 70.38, and 72.54, which pertain to decommissioning of a site and termination of a license. This process leads to the unrestricted release of a site; however, many of the requirements may not be necessary if the licensee demonstrates that the premises are suitable for release in some other manner. Each year, the NRC staff routinely evaluates licensee requests to discontinue licensed operations. The majority of these requests are straightforward, requiring little, if any, site remediation before radiological surveys are conducted and evaluated. However, some NRC sites require substantial remediation because buildings and lands contain nonroutine amounts of radiological contamination. Radiological surveys may also be performed by the NRC at sites where there is not a license.

The NRC decommissioning process for a site requiring substantial remediation can be described by the activities listed below:

- licensee notifies the NRC they intend to decommission all or part of the site
- site characterization, including preparation of the characterization plan and performance of site characterization
- development and submission of decommissioning plan

- NRC review and approval of decommissioning plan
- performance of decommissioning actions described in the plan
- performance of termination survey and submittal of termination survey report
- NRC performance and documentation of confirmatory survey
- NRC termination of license

The NRC staff plans to use the information contained in this manual as primary guidance for conducting radiological surveys of routine licensee requests for license termination and nonroutine license termination requests that require more extensive decommissioning actions. Supplementary guidance may be used by the NRC staff to assist licensees in conducting such surveys or aid the NRC staff in evaluating licensee's survey plans and survey results to determine compliance with decommissioning criteria. Examples of supplementary guidance include NRC Information Notices, Bulletins, Generic Letters, Branch Technical Positions, NUREG reports, Regulatory Guides, and other regulatory documents that transmit NRC requirements and guidance.

C.4 DOD Regulations and Requirements

The Department of Defense (DOD) consists of four primary military services: the United States Air Force, the United States Army, the United States Navy, and the United States Marine Corps.

DOD installations use sources of ionizing radiation and support radiation protection programs for the control of these radioactive materials. As a Federal agency, the DOD complies with all applicable environmental regulations under the Federal Facilities Compliance Act of 1992.

C.4.1 DOD Sources of Ionizing Radiation

DOD's list of radioactive materials includes:

- Special nuclear material such as plutonium or enriched uranium
- Source material such as uranium or thorium
- Byproduct material such as any radioactive material yielded in or made radioactive by exposure to radiation incident to the process of producing special nuclear material
- Naturally occurring or accelerator-produced radioactive material (NARM), such as radium, and not classified as source material
- Materials containing induced or deposited radioactivity

Ionizing Radiation Producing Devices: Electronic devices that are capable of emitting ionizing radiation. Examples are linear accelerators, cyclotrons, radiofrequency generators that use klystrons or magnetrons, and other electron tubes that produce x-rays. These devices may have

components that contain radioactive material or they may induce radioactivity in certain other materials.

C.4.2 Commodities Containing Radioactive Material Within the DOD System

The DOD uses a variety of manufactured items (commodities) incorporating in whole or in part both sealed and unsealed radioactive material. A sealed source is any radioactive material that is permanently bound or fixed in a capsule or matrix designed to prevent the release or dispersal of such material under the most severe conditions encountered in normal use.

Ionizing radiation is used directly in DOD systems as calibration and check sources for RADIAC or other survey-type instruments, as a source of radioluminescence in meters and gauges, as an ionization source in various devices, and as radiographic sources.

Indirectly, ionizing radiation may be emitted from a DOD material system as natural radioactivity or induced radioactivity incorporated into material or a component of the system.

Specific examples of commodities include instrument calibration sources, luminescent compasses and exit signs, certain electron tubes and spark gaps, depleted uranium counterweights and munitions, and magnesium-thorium aircraft components.

C.4.3 Licensed Radioactive Material

Licensed radioactive material is source, special nuclear, or byproduct material received, stored, possessed, used, or transferred under a specific or general license issued by the NRC or an NRC Agreement State.

Radioactive material licensed or controlled by the individual military services:

- The Department of the Air Force has been designated by the NRC, through the issuance of a Master Materials License, regulatory authority for the receipt, possession, distribution, use, transportation, transfer, and disposal of radioactive material at Air Force activities. The Air Force Radioisotope Committee was established to provide administrative control of all radioactive material used in the Air Force except for reactors and associated radioactivity, nuclear weapons, and certain components of weapons delivery systems. Air Force Radioactive Material Permits are used to maintain this control.

- The Department of the Army, through the issuance of NRC specific licenses to Army installations and activity commanders, maintains the regulatory authority for the receipt, possession, distribution, use, transportation, transfer, and disposal of radioactive material

at Army activities. In addition, within the Department of the Army, radioactive material classified as NARM may be used under a Department of the Army Radioactive Material Authorization (DARA) issued by the Army Material Command (AMC) or the Office of The Army Surgeon General. A Department of the Army Radiation Permit is required for use, storage, possession, and disposal of radiation sources by non-Army agencies (including contractors) on Army installations.

- The Department of the Navy is designated by the NRC to have—through the issuance of a Master Materials License—regulatory authority for the receipt, possession, distribution, use, transportation, transfer, and disposal of radioactive material at Navy and Marine Corps activities. The Navy Radiation Safety Committee was established to provide administrative control of all radioactive material used in the Navy and Marine Corps except for nuclear propulsion reactors and associated radioactivity, nuclear weapons, and certain components of weapons delivery systems. Navy Radioactive Material Permits are used to maintain this control.

C.4.4 Other Controlled Radioactive Material

Certain radioactive material on DOD installations may not be controlled or regulated by either the NRC or the DOE. However, during Base Realignment and Closure actions, DOD installation property which is identified to be returned to civilian use may have the potential for radioactive contamination by such material. The DOD complies with applicable State limits, guidelines, and procedures for this material. The methodologies and technical approaches for environmental radiological surveys outlined in this manual will provide guidance for dealing with issues concerning this material.

Naturally Occurring and Accelerator-Produced Radioactive Material

- Naturally occurring and accelerator-produced radioactive material (NARM) is controlled and regulated by the individual military services, as is similarly done by certain States for corporations and other users residing within their boundaries.

Special Nuclear Material Used in Military Applications

- Special nuclear material used in military applications is a unique category of radioactive material. This may be buried as radioactive waste on DOD installations, used in military weapons or utilization facilities, or used in nuclear reactors involving military applications on DOD installations. Radioactive material used or associated with weapons systems or reactors associated with such military applications is exempt from NRC and State regulations under Section 91b, Chapter 9, Military Application of Atomic Energy, Atomic Energy Act of 1954.

C.4.5 DOD Regulations Concerning Radiation and the Environment

The DOD, with its global mission, supports several directives and instructions concerning environmental compliance. The individual military services have regulations implementing these directives and instructions. The documents describing these regulations are used as guidance in developing environmental radiological surveys within DOD.

The DOD and each military service also have specific regulations addressing the use of radioactive sources and the development of occupational health programs and radiation protection programs. These regulations may help in identifying potential locations and sources of radioactive contamination on DOD installations.

C.4.6 DOD Regulations and Requirements

Regulations and Requirements Concerning Development of Environmental Radiological Surveys

1. DOD Directive 4165.60, Solid and Hazardous Waste Management-Collection, Disposal, Resource Recovery, and Recycling Program.
2. DOD Directive 4210.15, Hazardous Material Pollution Prevention.
3. DOD Directive 5100.50, Protection and Enhancement of Environmental Quality.
4. DOD Directive 6050.1, Environmental Effects in the United States of Department of Defense Actions.
5. DOD Directive 6050.7, Environmental Effects Abroad of Major Department of Defense Actions.
6. DOD Directive 6050.8, Storage and Disposal of Non-DOD-Owned-Hazardous or Toxic Materials on DOD Installations.
7. DOD Instruction 4120.14, Environmental Pollution Prevention, Control, and Abatement.
8. DOD Instruction 5100.5, Protection and Enhancement of Environmental Quality.

Regulations and Requirements Concerning Use of Radioactive Sources and Development of Occupational Health Programs and Radiation Protection Programs:

1. DOD Instruction 6055.5-M, Occupational Health Surveillance Manual.
2. DOD Instruction 6055.8, Occupational Radiation Protection Program.

Examples of Air Force Instructions (AFIs):

1. AFI 40-201, Managing Radioactive Materials in the Air Force.
2. AFI 32-7020, Environmental Restoration Program.
3. AFI 32-7066, Environmental Baseline and Close-out Surveys in Real Estate Transactions.

Examples of Army Regulations (ARs):

1. AR 11-9, The Army Radiation Safety Program
2. AR 40-5, Preventive Medicine.
3. AR 40-10, Health Hazard Assessment Program in Support of the Army Materiel Acquisition Decision Process.
4. AR 200-1, Environmental Protection and Enhancement.
5. AR 200-2, Environmental Effects of Army Actions.
6. AR 385-30, Safety Color Code Markings and Signs.
7. AR 700-64, Radioactive Commodities in the DOD Supply System.
8. AR 750-25, Army Test, Measurement, and Diagnostic Equipment (TMDE) Calibration and Repair Support Program.
9. TB MED 521, Management and Control of Diagnostic X-Ray, Therapeutic X-Ray, and Gamma Beam Equipment.
10. TB MED 522, Control of Health Hazards from Protective Material Used in Self-Luminous Devices.
11. TB MED 525, Control of Hazards to Health from Ionizing Radiation Used by the Army Medical Department.
12. TB 43-180, Calibration and Repair Requirements for the Maintenance of Army Materiel.
13. TB 43-0108, Handling, Storage, and Disposal of Army Aircraft Components Containing Radioactive Material.
14. TB 43-0116, Identification of Radioactive Items in the Army.
15. TB 43-0122, Identification of U.S. Army Communications-Electronic Command Managed Radioactive items in the Army.
16. TB 43-0141, Safe Handling, Maintenance, Storage, and Disposal of Radioactive Commodities Managed by U.S. Army Troop Support and Aviation Material Readiness Command (Including Aircraft Components).
17. TB 43-0197, Instructions for Safe Handling, Maintenance, Storage, and Disposal of Radioactive Items Managed by U.S. Army Armament Material Command.
18. TB 43-0216, Safety and Hazard Warnings for Operation and Maintenance of TACOM Equipment.
19. TM 3-261, Handling and Disposal of Unwanted Radioactive Material.
20. TM 55-315, Transportability Guidance for Safe Transport of Radioactive Materials.

Examples of Navy Regulations:

1. NAVMED P-5055, Radiation Health Protection Manual.
2. NAVSEA SO420-AA-RAD-010, Radiological Affairs Support Program (RASP) Manual.
3. OPNAV 6470.3, Navy Radiation Safety Committee.
4. NAVSEA 5100.18A, Radiological Affairs Support Program.
5. OPNAV 5100.8G, Navy Safety and Occupational Safety and Health Program.

6. NAVMEDCOM 6470.10, Initial Management of Irradiated or Radioactively Contaminated Personnel.
7. OPNAV 3710.31, Carrying Hazardous Materials; Operational Procedures.
8. NAVSUP 5101.11, Procedures for the Receipt, Storage, and Handling of Radioactive Material Shipments.
9. NAVSUP 5101.6, Procedures for the Requisitioning, Labeling, Handling, Storage, & Disposal of Items Which Contain Radioactive By-Product Material.
10. NAVSUP 4000.34, Radioactive Commodities in the DOD Supply System.
11. NAVSEA 9639.1, Radioluminescent Sources and Radioactively Contaminated Equipment Aboard Inactive Naval Ships and Craft.
12. NAVSUP 4510.28, Special Restrictions on Issue and Disposal of Radiological Control Materials.
13. NAVMED 6470.7, Procedures and Responsibilities for Use of Radioactive Materials at NAVMED Activities.

C.5 State and Local Regulations and Requirements

An Agreement State is a state that has signed an agreement with the NRC allowing the State to regulate the use of radioactive materials—*i.e.*, specifically Atomic Energy Act materials—within that state. Table C.2 lists the Agreement States as of April 15, 2000 (see Appendix L for contacts and addresses). Each Agreement State provides regulations governing the use of radioactive materials that may relate to radiation site investigations.[3] Table C.3 lists the states that regulate naturally occurring radioactive material (NORM) as of January 1, 2000 (PGA 2000). A number of other states are in the process of developing regulations governing the use of NORM. The decision maker should check with the state to ensure compliance with all applicable regulations.

[3] A current list of agreement states can be obtained through the U.S. Nuclear Regulatory Commission on the Internet on the State Program Directory page operated by the Oak Ridge National Laboratory at http://www.hsrd.ornl.gov/nrc/asframe.htm.

Table C.2 Agreement States		
Alabama	Louisiana	North Carolina
Arizona	Maine	North Dakota
Arkansas	Maryland	Ohio
California	Massachusetts	Oregon
Colorado	Mississippi	Rhode Island
Florida	Nebraska	South Carolina
Georgia	Nevada	Tennessee
Illinois	New Hampshire	Texas
Iowa	New Mexico	Utah
Kansas	New York	Washington
Kentucky		

Table C.3 States That Regulate Diffuse NORM		
Alabama (proposed)	Michigan	Oklahoma (proposed)
Arkansas	Mississippi	Oregon
Colorado (proposed)	New Jersey	South Carolina
Georgia	New Mexico	Texas
Illinois (proposed)	North Dakota	Utah
Louisiana	Ohio	

APPENDIX D

THE PLANNING PHASE OF THE DATA LIFE CYCLE

The planning phase of the Data Life Cycle is carried out using the Data Quality Objectives (DQO) Process. The DQO Process is a series of planning steps based on the scientific method for establishing criteria for data quality and developing survey designs (EPA 1994a, 1987b, 1987c). The level of effort associated with planning is based on the complexity of the survey. Large, complicated sites generally receive a significant amount of effort during the planning phase, while smaller sites may not require as much planning effort.

Planning radiological surveys using the DQO Process can improve the survey effectiveness and efficiency, and thereby the defensibility of decisions. It also can minimize expenditures related to data collection by eliminating unnecessary, duplicative, or overly precise data. The use of the DQO Process assures that the type, quantity, and quality of environmental data used in decision making will be appropriate for the intended application. It provides systematic procedures for defining the criteria that the survey design should satisfy, including when and where to perform measurements, the level of decision errors for the survey, and how many measurements to perform.

The expected output of planning a survey using the DQO Process is a quality assurance project plan (QAPP). The QAPP integrates all technical and quality aspects of the Data Life Cycle, and defines in detail how specific quality assurance and quality control activities will be implemented during the survey.

The DQO Process provides for early involvement of the decision maker and uses a graded approach to data quality requirements. This graded approach defines data quality requirements according to the type of survey being designed, the risk of making a decision error based on the data collected, and the consequences of making such an error. This approach provides a more effective survey design combined with a basis for judging the usability of the data collected.

DQOs are qualitative and quantitative statements derived from the outputs of the DQO Process that:

- clarify the study objective
- define the most appropriate type of data to collect
- determine the most appropriate conditions for collecting the data
- specify limits on decision errors which will be used as the basis for establishing the quantity and quality of data needed to support the decision

The DQO Process consists of seven steps, as shown in Figure D.1. The output from each step influences the choices that will be made later in the Process. Even though the DQO Process is depicted as a linear sequence of steps, in practice it is iterative; the outputs of one step may lead to reconsideration of prior steps as illustrated in Figure D.2. For example, defining the survey unit boundaries may lead to classification of the survey unit, with each area or survey unit having a different decision statement. This iteration is encouraged since it ultimately leads to a more efficient survey design. The first six steps of the DQO Process produce the decision performance criteria that are used to develop the survey design. The final step of the Process develops a survey design based on the DQOs. The first six steps should be completed before the final survey design is developed, and every step should be completed before data collection begins.

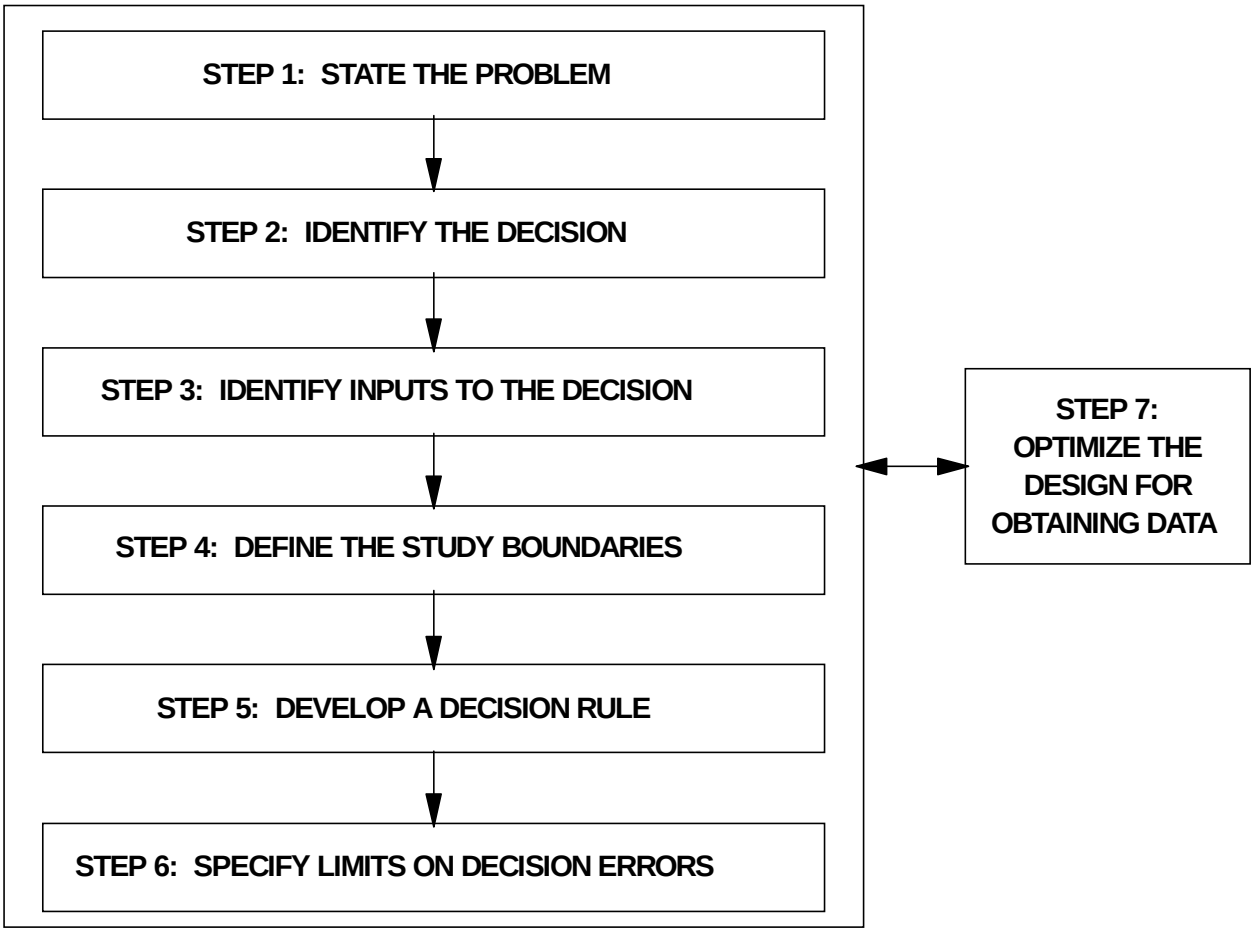


Figure D.1 The Data Quality Objectives Process

When the DQO Process is used to design a survey, it helps ensure that planning is performed properly the first time and establishes measures of performance for the data collector (implementation) and the decision maker (assessment) during subsequent phases of the Data Life Cycle. DQOs provide up-front planning and define decision maker/data collector relationships by presenting a clear statement of the decision maker's needs. This information is recorded in the QAPP.

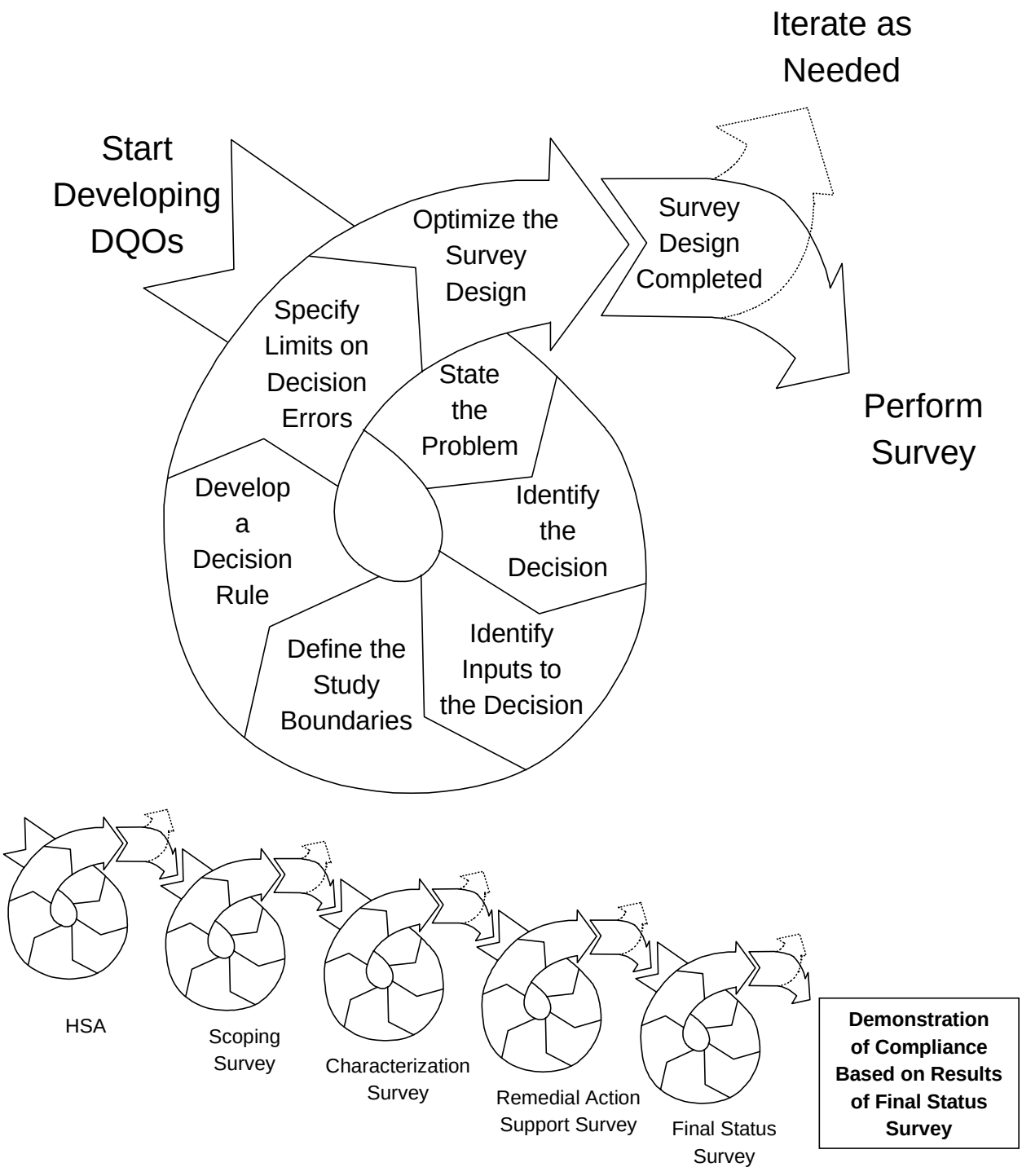


Figure D.2 Repeated Applications of the DQO Process Throughout the Radiation Survey and Site Investigation Process

DQOs for data collection activities describe the overall level of uncertainty that a decision maker is willing to accept for survey results. This uncertainty is used to specify the quality of the measurement data required in terms of objectives for precision, accuracy, representativeness, comparability, and completeness. These objectives are presented in detail in Section 9.3.2 and Appendix N.

The DQO Process is a flexible planning tool that can be used more or less intensively as the situation requires. For surveys that have multiple decisions, such as characterization or final status surveys, the DQO Process can be used repeatedly throughout the performance of the survey. Decisions made early in decommissioning are often preliminary in nature. For this reason, a scoping survey may only require a limited planning and evaluation effort. As the site investigation process nears conclusion the necessity of avoiding a decision error becomes more critical.

The following sections briefly discuss the steps of the DQO Process, especially as they relate to final status survey planning, and list the outputs for each step in the process. The outputs from the DQO Process should be included in the documentation for the survey plan.

D.1 State the Problem

The first step in any decision making process is to define the problem so that the focus of the survey will be unambiguous. Since many sites or facilities present a complex interaction of technical, economic, social, and political factors, the success of a project is critically linked to a complete but uncomplicated definition of the problem .

There are four activities associated with this step:

- identifying members of the planning team and stakeholders
- identifying the primary decision maker or decision-making method
- developing a concise description of the problem
- specifying available resources and relevant deadlines for the study

The expected outputs of this step are:

- a list of the planning team members and identification of the decision maker
- a concise description of the problem
- a summary of available resources and relevant deadlines for the survey

For a final status survey, examples of planning team members and stakeholders are described in Section 3.2. A description of the problem would typically involve the release of all or some portion of a site to demonstrate compliance with a regulation. The resources and deadlines are typically identified on a site-specific basis.

D.2 Identify the Decision

The goal of this step is to define the question that the survey will attempt to resolve and identify alternative actions that may be taken based on the outcome of the survey. The combination of these two elements is called the decision statement. The decision statement would be different for each type of survey in the Radiation Survey and Site Investigation Process, and would be developed based on the survey objectives described in Chapter 5.

There are four activities associated with this step in the DQO Process:

- identifying the principal study question
- defining the alternative actions that could result from resolution of the principal study question
- combining the principal study question and the alternative actions into a decision statement
- organizing multiple decisions

The expected output from this step is a decision statement that links the principal study question to possible solutions to the problem.

For a final status survey, the principal study question could be: "Is the level of residual radioactivity in the survey units in this portion of the site below the release criterion?" Alternative actions may include further remediation, re-evaluation of the modeling assumptions used to develop the DCGLs, re-assessment of the survey unit to see if it can be released with passive controls, or a decision not to release the survey unit. The decision statement may be: "Determine whether or not all the survey units in this portion of the site satisfy the release criterion."

D.3 Identify the Inputs to the Decision

Collecting data or information is necessary to resolve most decision statements. In this step, the planning team focuses on the information needed for the decision and identifies the different types of information needed to resolve the decision statement.

The key activities for this step include:

- Identifying the information required to resolve the decision statement. Ask general questions such as: "Is information on the physical properties of the site required?" or: "Is information on the chemical characteristics of the radionuclide or the matrix required?" Determine which environmental variables or other information are needed to resolve the decision statement.

- Determining the sources for each item of information. Identify and list the sources for the required information.
- Identifying the information needed to establish the action level or the derived concentration guideline level (DCGL) based on the release criterion. The actual numerical value will be determined in Step 5 (*i.e.*, Section D.5).
- Confirming that appropriate measurement methods exist to provide the necessary data. A list of potentially appropriate measurement techniques should be prepared based on the information requirements determined previously in this step. Field and laboratory measurement techniques for radionuclides are discussed in Chapters 6 and 7 of this manual. Information on using field and laboratory equipment, their detection limits and analytical costs are listed in Appendix H. This performance information will be used in Steps 5 and 7 of the DQO Process.

The expected outputs of this step are:

- a list of informational inputs needed to resolve the decision statement
- a list of environmental variables or characteristics that will be measured

For the final status survey, the list of information inputs generally involves measurements of the radioactive contaminants of concern in each survey unit. These inputs include identifying survey units, classifying survey units, identifying appropriate measurement techniques including measurement costs and detection limits, and whether or not background measurements from a reference area or areas need to be performed. The list of environmental variables measured during the final status survey is typically limited to the level of residual radioactivity in the affected media for each survey unit.

D.4 Define the Boundaries of the Study

During this step the planning team should develop a conceptual model of the site based on existing information collected in Step 1 of the DQO Process or during previous surveys. Conceptual models describe a site or facility and its environs, and present hypotheses regarding the radionuclides present and potential migration pathways. These models may include components from computer models, analytical models, graphic models, and other techniques. Additional data collected during decommissioning are used to expand the conceptual model.

The purpose of this step is to define the spatial and temporal boundaries that will be covered by the decision statement so data can be easily interpreted. These attributes include:

- spatial boundaries that define the physical area under consideration for release (site boundaries)

- spatial boundaries that define the physical area to be studied and locations where measurements could be performed (actual or potential survey unit boundaries)
- temporal boundaries that describe the time frame the study data represents and when measurements should be performed
- spatial and temporal boundaries developed from modeling used to determine DCGLs

There are seven activities associated with this step:

- specifying characteristics that define the true but unknown value of the parameter of interest
- defining the geographic area within which all decisions must apply
- when appropriate, dividing the site into areas or survey units that have relatively homogeneous characteristics
- determining the time frame to which the decision applies
- determining when to collect data
- defining the scale of decision making
- identifying any practical constraints on data collection

The expected outputs of this step are:

- a detailed description of the spatial and temporal boundaries of the problem (a conceptual model)
- any practical constraints that may interfere with the full implementation of the survey design

Specifying the characteristics that define the true but unknown value of the parameter of interest for the final status survey typically involves identifying the radionuclides of concern. If possible, the physical and chemical form of the radionuclides should be described. For example, describing the residual radioactivity in terms of total uranium is not as specific or informative as describing a mixture of uraninite (UO_2) and uranium metaphosphate ($U(PO_3)_4$) for natural abundances of ^{234}U, ^{235}U, and ^{238}U.

As an example, the study boundary may be defined as the property boundary of a facility or, if there is only surface contamination expected at the site, the soil within the property boundary to a depth of 15 cm. When appropriate (typically during and always before final status survey design), the site is subdivided into survey units with relatively homogeneous characteristics based on information collected during previous surveys. The radiological characteristics are defined by the area classification (Class 1, Class 2, or Class 3) while the physical characteristics may include structures vs. land areas, transport routes vs. grassy areas, or soil types with different radionuclide transfer characteristics.

The time frame to which the final status survey decision applies is typically defined by the regulation. For example: "The data are used to reflect the condition of radionuclides leaching into ground water over a period of 1,000 years." Temporal boundaries may also include seasonal conditions such as winter snow cover or summer drought that affect the accessibility of certain media for measurement.

For the final status survey, the smallest, most appropriate subsets of the site for which decisions will be made are defined as survey units. The size of the survey unit and the measurement frequency within a survey unit are based on classification, site-specific conditions, and relevant decisions used during modeling to determine the DCGLs.

D.5 Develop a Decision Rule

The purpose of this step is to define the parameter of interest, specify the action level (or DCGL), and integrate previous DQO outputs into a single statement that describes a logical basis for choosing among alternative actions.

There are three activities associated with this step:

- specifying the statistical parameter that characterizes the parameter of interest
- specifying the action level for the study
- combining the outputs of the previous DQO steps into an "if...then..." decision rule that defines the conditions that would cause the decision maker to choose among alternative actions

Certain aspects of the site investigation process, such as the HSA, are not so quantitative that a statistical parameter can be specified. Nevertheless, a decision rule should still be developed that defines the conditions that would cause the decision maker to choose among alternatives.

The expected outputs of this step are:

- the parameter of interest that characterizes the level of residual radioactivity
- the action level
- an "if...then..." statement that defines the conditions that would cause the decision maker to choose among alternative actions

The parameter of interest is a descriptive measure (such as a mean or median) that specifies the characteristic or attribute that the decision maker would like to know about the residual contamination in the survey unit.

The mean is the value that corresponds to the "center" of the distribution in the sense of the "center of gravity" (EPA 1989a). Positive attributes of the mean include: 1) it is useful when the action level is based on long-term, average health effects, 2) it is useful when the population is uniform with relatively small spread, and 3) it generally requires fewer samples than other parameters of interest. Negative attributes include: 1) it is not a very representative measure of central tendency for highly skewed distributions, and 2) it is not useful when a large proportion of the measurements are reported as less than the detection limit (EPA 1994a).

The median is also a value that corresponds to the "center" of a distribution, but where the mean represents the center of gravity the median represents the "middle" value of a distribution. The median is that value such that there are the same number of measurements greater than the median as less than the median. The positive attributes of the median include: 1) it is useful when the action level is based on long-term, average health effects, 2) it provides a more representative measure of central tendency than the mean for skewed populations, 3) it is useful when a large proportion of the measurements are reported as less than the detection limit, and 4) it relies on few statistical assumptions. Negative attributes include: 1) it will not protect against the effects of extreme values, and 2) it is not a very representative measure of central tendency for highly skewed distributions (EPA 1994a).

The nonparametric statistical tests discussed in Chapter 8 are designed to determine whether or not the level of residual activity uniformly distributed throughout the survey unit exceeds the $DCGL_W$. Since these methods are based on ranks, the results are generally expressed in terms of the median. When the underlying measurement distribution is symmetric, the mean is equal to the median. The assumption of symmetry is less restrictive than that of normality because the normal distribution is itself symmetric. If, however, the measurement distribution is skewed to the right, the average will generally be greater than the median. In severe cases, the average may exceed the $DCGL_W$ while the median does not. For this reason, MARSSIM recommends comparing the arithmetic mean of the survey unit data to the $DCGL_W$ as a first step in the interpretation of the data (see Section 8.2.2.1).

The action level is a measurement threshold value of the parameter of interest that provides the criterion for choosing among alternative actions. MARSSIM uses the investigation level, a radionuclide-specific level of radioactivity based on the release criterion that results in additional investigation when it is exceeded, as an action level. Investigation levels are developed for both the Elevated Measurement Comparison (EMC) using scanning techniques and the statistical tests using direct measurements and samples. Section 5.5.2.6 provides information on investigation levels used in MARSSIM.

The mean concentration of residual radioactivity is the parameter of interest used for making decisions based on the final status survey. The definition of residual radioactivity depends on whether or not the contaminant appears as part of background radioactivity in the reference area. If the radionuclide is not present in background, residual radioactivity is defined as the mean

concentration in the survey unit. If the radionuclide is present in background, residual radioactivity is defined as the difference between the mean concentration in the survey unit and the mean concentration in the reference area selected to represent background. The term *1-sample case* is used when the radionuclide does not appear in background, because measurements are only made in the survey unit. The term *2-sample case* is used when the radionuclide appears in background, because measurements are made in both the survey unit and the reference area.

Figure D.3 contains a simple, hypothetical example of the 1-sample case. The upper portion of the figure shows a probability distribution of residual radionuclide concentrations in the surface soil of the survey unit. The parameter of interest is the location of the mean of this distribution, represented by the vertical dotted line and denoted by the symbol D.

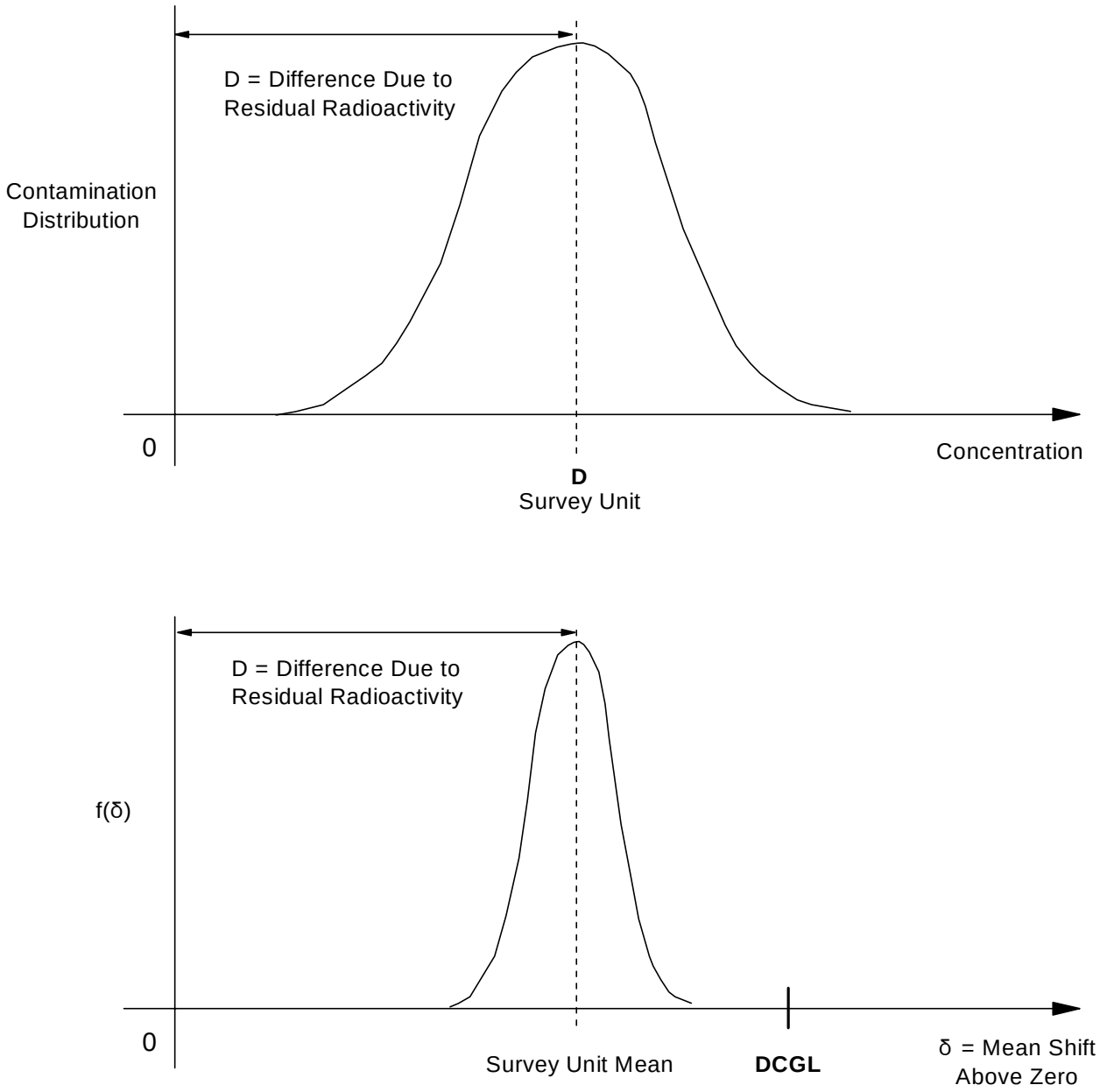
The decision rule for the 1-sample case is: "If the mean concentration in the survey unit is less than the investigation level, then the survey unit is in compliance with the release criterion." To implement the decision rule, an estimate of the mean concentration in the survey unit is required. An estimate of the mean of the survey unit distribution may be obtained by measuring radionuclide concentrations in soil at a set of n randomly selected locations in the survey unit. A point estimate for the survey unit mean is obtained by calculating the simple arithmetic average of the n measurements. Due to measurement variability, there is a distribution of possible values for the point estimate for the survey unit mean, δ. This distribution is referred to as $f(\delta)$, and is shown in the lower graph of Figure D.3. The investigation level for the Sign test used in the 1-sample case is the $DCGL_W$, shown on the horizontal axis of the graph.

If $f(\delta)$ lies far to the left (or to the right) of the $DCGL_W$, a decision of whether or not the survey unit demonstrates compliance can be easily made. However, if $f(\delta)$ overlaps the $DCGL_W$, statistical decision rules are used to assist the decision maker. Note that the width of the distribution for the estimated mean may be reduced by increasing the number of measurements. Thus, a large number of samples will reduce the probability of making decision errors.

Figure D.4 shows a simple, hypothetical example of the 2-sample case. The upper portion of the figure shows one probability distribution representing background radionuclide concentrations in the surface soil of the reference area, and another probability distribution representing radionuclide concentrations in the surface soil of the survey unit. The graph in the middle portion of the figure shows the distributions of the estimated mean concentrations in the reference area and the survey unit. In this case, the parameter of interest is the difference between the means of these two distributions, D, represented by the distance between the two vertical dotted lines.

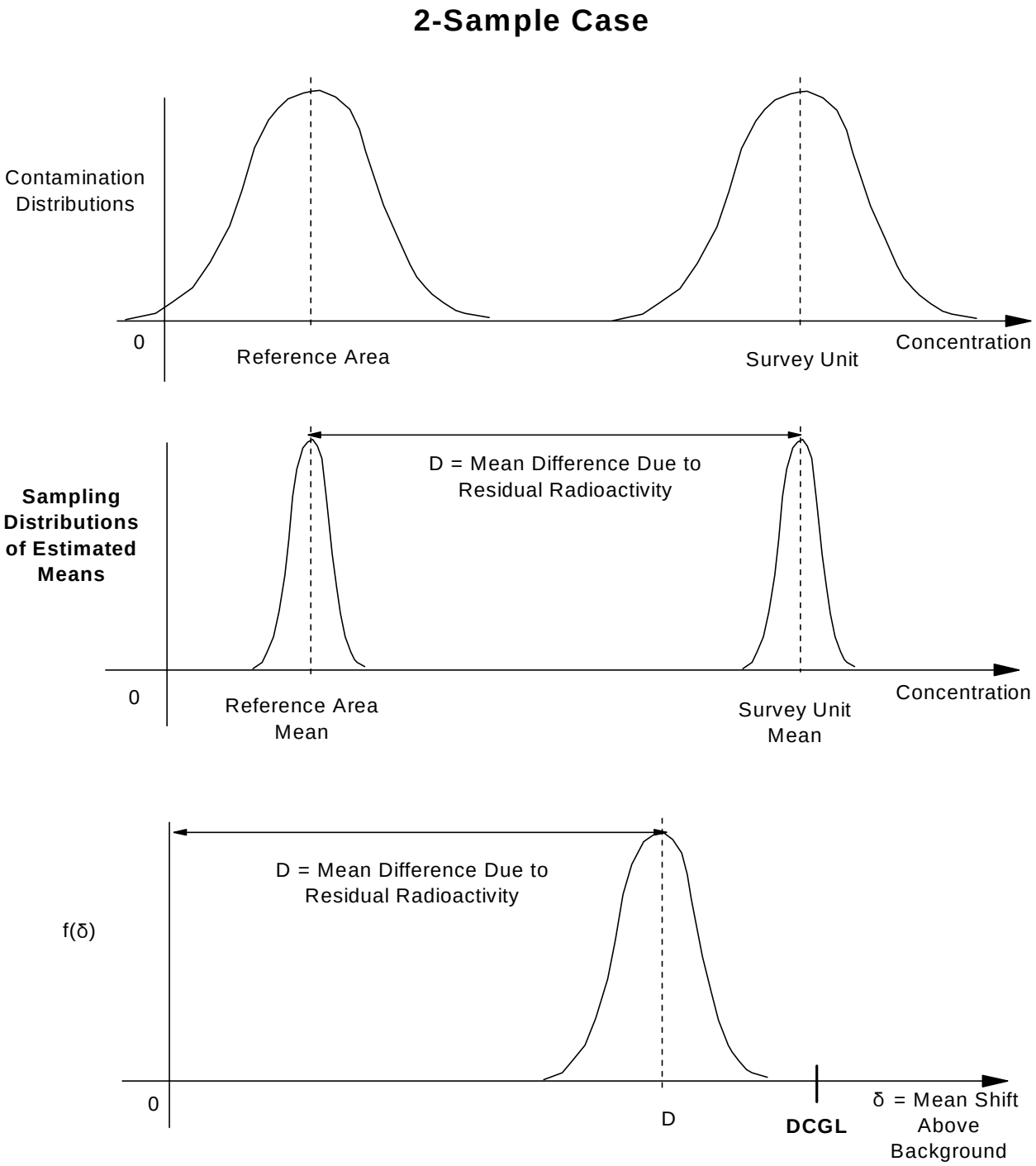
The decision rule for the 2-sample case is: "If the difference between the mean concentration in the survey unit and the mean concentration in the reference area is less than the investigation level, then the survey unit is in compliance with the release criterion." To implement the

1-Sample Case



f(δ) is the sampling distribution of the estimated survey unit mean.

Figure D.3 Example of the Parameter of Interest for the 1-Sample Case



f(δ) is the sampling distribution of the difference between the survey unit mean and the reference area mean.

Figure D.4 Example of the Parameter of Interest for the 2-Sample Case

decision rule, an estimate of the difference is required. This estimate may be obtained by measuring radionuclide concentrations at a set of "n" randomly selected locations in the survey unit and "m" randomly selected locations in the reference area. A point estimate of the survey unit mean is obtained by calculating the simple arithmetic average of the n measurements in the survey unit. A point estimate of the reference area mean is similarly calculated. A point estimate of the difference between the two means is obtained by subtracting the reference area average from the survey unit average.

The measurement distribution of this difference, $f(\delta)$, is centered at D, the true value of the difference. This distribution is shown in the lower graph of Figure D.4.

Once again, if $f(\delta)$ lies far to the left (or to the right) of the $DCGL_W$, a decision of whether or not the survey unit demonstrates compliance can be easily made. However, if $f(\delta)$ overlaps the $DCGL_W$, statistical decision rules are used to assist the decision maker.

D.6 Specify Limits on Decision Errors

Decisions based on survey results can often be reduced to a choice between "yes" or "no", such as determining whether or not a survey unit meets the release criterion. When viewed in this way, two types of incorrect decisions, or decision errors, are identified: 1) incorrectly deciding that the answer is "yes" when the true answer is "no", and 2) incorrectly deciding the answer is "no" when the true answer is "yes". The distinctions between these two types of errors are important for two reasons: 1) the consequences of making one type of error versus the other may be very different, and 2) the methods for controlling these errors are different and involve tradeoffs. For these reasons, the decision maker should specify levels for each type of decision error.

The purpose of this section is to specify the decision maker's limits on decision errors, which are used to establish performance goals for the data collection design. The goal of the planning team is to develop a survey design that reduces the chance of making a decision error.

While the possibility of a decision error can never be totally eliminated, it can be controlled. To control the possibility of making decision errors, the planning team attempts to control uncertainty in the survey results caused by sampling design error and measurement error. Sampling design error may be controlled by collecting a large number of samples. Using more precise measurement techniques or field duplicate analyses can reduce measurement error. Better sampling designs can also be developed to collect data that more accurately and efficiently represent the parameter of interest. Every survey will use a slightly different method of controlling decision errors, depending on the largest source of error and the ease of reducing those error components.

The estimate of the standard deviation for the measurements performed in a survey unit (σ_s) includes the individual measurement uncertainty as well as the spatial and temporal variations captured by the survey design. For this reason, individual measurement uncertainties are not used during the final status survey data assessment. However, individual measurement uncertainties may be useful for determining an *a priori* estimate of σ_s during survey planning. Since a larger value of σ_s results in an increased number of measurements needed to demonstrate compliance during the final status survey, the decision maker may seek to reduce measurement uncertainty through various methods (*e.g.*, different instrumentation). There are trade-offs that should be considered during survey planning. For example, the costs associated with performing additional measurements with an inexpensive measurement system may be less than the costs associated with a measurement system with better sensitivity (*i.e.*, lower measurement uncertainty, lower minimum detectable concentration). However, the more expensive measurement system with better sensitivity may reduce σ_s and the number of measurements used to demonstrate compliance to the point where it is more cost effective to use the more expensive measurement system. For surveys in the early stages of the Radiation Survey and Site Investigation Process, the measurement uncertainty and instrument sensitivity become even more important. During scoping, characterization, and remedial action support surveys, decisions about classification and remediation are made based on a limited number of measurements. When the measurement uncertainty or the instrument sensitivity values approach the value of the DCGL, it becomes more difficult to make these decisions. From an operational standpoint, when operators of a measurement system have an *a priori* understanding of the sensitivity and potential measurement uncertainties, they are able to recognize and respond to conditions that may warrant further investigation—*e.g.*, changes in background radiation levels, the presence of areas of elevated activity, measurement system failure or degradation, *etc.*

The probability of making decision errors can be controlled by adopting a scientific approach, called hypothesis testing. In this approach, the survey results are used to select between one condition of the environment (the null hypothesis, H_0) and an alternative condition (the alternative hypothesis, H_a). The null hypothesis is treated like a baseline condition that is assumed to be true in the absence of strong evidence to the contrary. Acceptance or rejection of the null hypothesis depends upon whether or not the particular survey results are consistent with the hypothesis.

A decision error occurs when the decision maker rejects the null hypothesis when it is true, or accepts the null hypothesis when it is false. These two types of decision errors are classified as Type I and Type II decision errors, and can be represented by a table as shown in Table D.1.

A Type I decision error occurs when the null hypothesis is rejected when it is true, and is sometimes referred to as a false positive error. The probability of making a Type I decision error, or the level of significance, is denoted by alpha (α). Alpha reflects the amount of evidence the decision maker would like to see before abandoning the null hypothesis, and is also referred to as the *size* of the test.

Table D.1 Example Representation of Decision Errors for a Final Status Survey

H_0: The Residual Activity in the Survey Unit Exceeds the Release Criterion			
		DECISION	
		Reject H_0 (Meets Release Criterion)	Accept H_0 (Exceeds Release Criterion)
TRUE CONDITION OF SURVEY UNIT	Meets Release Criterion	(No decision error)	Incorrectly Fail to Release Survey Unit (Type II)
	Exceeds Release Criterion	Incorrectly Release Survey Unit (Type I)	(No decision error)

A Type II decision error occurs when the null hypothesis is accepted when it is false. This is sometimes referred to as a false negative error. The probability of making a Type II decision error is denoted by beta (β). The term (1-β) is the probability of rejecting the null hypothesis when it is false, and is also referred to as the *power* of the test.

There is a relationship between α and β that is used in developing a survey design. In general, increasing α decreases β and vice versa, holding all other variables constant. Increasing the number of measurements typically results in a decrease in both α and β. The number of measurements that will produce the desired values of α and β from the statistical test can be estimated from α, β, the $DCGL_W$, and the estimated variance of the distribution of the parameter of interest.

There are five activities associated with specifying limits on decision errors:

- Determining the possible range of the parameter of interest. Establish the range by estimating the likely upper and lower bounds based on professional judgement.
- Identifying the decision errors and choosing the null hypothesis.
  a. Define both types of decision errors (Type I and Type II) and establish the true condition of the survey unit for each decision error.
  b. Specify and evaluate the potential consequences of each decision error.
  c. Establish which decision error has more severe consequences near the action level. Consequences include health, ecological, political, social, and resource risks.

d. Define the null hypothesis and the alternative hypothesis and assign the terms "Type I" and "Type II" to the appropriate decision error.

- Specifying a range of possible parameter values, a gray region, where the consequences of decision errors are relatively minor. It is necessary to specify a gray region because variability in the parameter of interest and unavoidable imprecision in the measurement system combine to produce variability in the data such that a decision may be "too close to call" when the true but unknown value of the parameter of interest is very near the action level. Additional guidance on specifying a gray region is available in *Guidance for the Data Quality Objectives Process* (EPA 1994a).
- Assigning probability limits to points above and below the gray region that reflect the probability for the occurrence of decision errors.
- Graphically representing the decision rule.

The expected outputs of this step are decision error rates based on the consequences of making an incorrect decision. Certain aspects of the site investigation process, such as the Historical Site Assessment (HSA), are not so quantitative that numerical values for decision errors can be specified. Nevertheless, a "comfort region" should be identified where the consequences of decision errors are relatively minor.

In Section D.5, the parameter of interest was defined as the difference between the survey unit mean concentration of residual radioactivity and the reference area mean concentration in the 2-sample case, or simply the survey unit mean concentration in the 1-sample case. The possible range of values for the parameter of interest is determined based on existing information (such as the Historical Site Assessment or previous surveys) and best professional judgement. The likely lower bound for $f(\delta)$ is either background or zero. For a final status survey when the residual radioactivity is expected to meet the release criterion, and a conservative upper bound might be approximately three times $DCGL_W$.

Hypothesis testing is used to determine whether or not a statement concerning the parameter of interest should be verified. The statement about the parameter of interest is called the null hypothesis. The alternative hypothesis is the opposite of what is stated in the null hypothesis. The decision maker needs to choose between two courses of action, one associated with the null hypothesis and one associated with the alternative hypothesis.

To make a decision using hypothesis testing, a test statistic is compared to a critical value. The *test statistic*[1] is a number calculated using data from the survey. The critical value of the test statistic defines a rejection region based on some assumptions about the true distribution of data in the survey unit. If the value of the test statistic falls within the rejection region, the null

[1] The test statistic is not necessarily identical to the parameter of interest, but is functionally related to it through the statistical analysis.

hypothesis is rejected. The decision rule, developed in Section D.5, is used to describe the relationship between the test statistic and the critical value.

MARSSIM considers two ways to state H_0 for a final status survey. The primary consideration in most situations will be compliance with the release criterion. This is shown as Scenario A in Figure D.5. The null hypothesis is that the survey unit exceeds the release criterion. Using this statement of H_0 means that significant evidence that the survey unit does not exceed the release criterion is required before the survey unit would be released.

In some situations, however, the primary consideration may be determining if any residual radioactivity at the site is distinguishable from background, shown as Scenario B in Figure D.6. In this manual, Scenario A is used as an illustration because it directly addresses the compliance issue and allows consideration of decision errors. More information on Scenario B can be found in the NRC draft report NUREG-1505 (NRC 1995a).

For Scenario A, the null hypothesis is that the survey unit does not meet the release criterion. A Type I decision error would result in the release of a survey unit containing residual radioactivity above the release criterion. The probability of making this error is α. Setting a high value for α would result in a higher risk that survey units that might be somewhat in excess of the release criterion would be passed as meeting the release criterion. Setting a low value for α would result in fewer survey units where the null hypothesis is rejected. However, the cost of setting a low value for α is either a higher value for β or an increased number of samples used to demonstrate compliance.

For Scenario A, the alternative hypothesis is that the survey unit does meet the release criterion. A Type II decision error would result in either unnecessary costs due to remediation of survey units that are truly below the release criterion or additional survey activities to demonstrate compliance. The probability of making a Type II error is β. Selecting a high value for β (low power) would result in a higher risk that survey units that actually meet the release criterion are subject to further investigation. Selecting a low value for β (high power) will minimize these investigations, but the tradeoff is either a higher value for α or an increased number of measurements used to demonstrate compliance. Setting acceptable values for α and β, as well as determining an appropriate gray region, is a crucial step in the DQO process.

In the MARSSIM framework, the gray region is always bounded from above by the DCGL corresponding to the release criterion. The *Lower Bound of the Gray Region* (LBGR) is selected during the DQO process along with the target values for α and β. The *width* of the gray region, equal to (DCGL - LBGR), is a parameter that is central to the nonparametric tests discussed in this manual. It is also referred to as the *shift*, Δ. The absolute size of the shift is actually of less importance than the *relative shift* Δ/σ, where σ is an estimate of the standard deviation of the measured values in the survey unit. The estimated standard deviation, σ, includes both the real spatial variability in the quantity being measured, and the precision of the chosen measurement

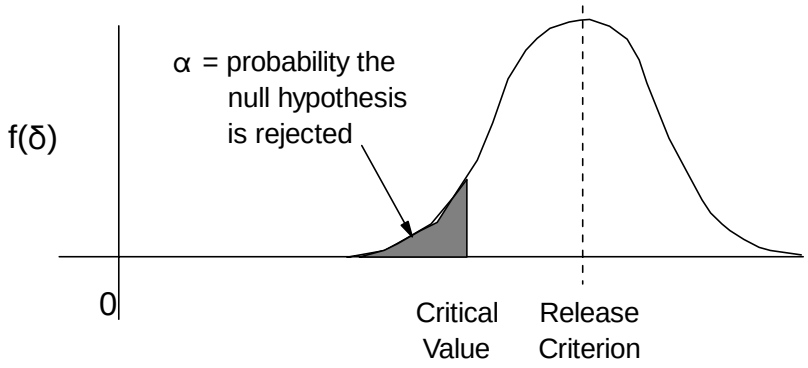
SCENARIO A

Assume as a null hypothesis that the survey unit exceeds the release criterion. This requires significant evidence that the residual radioactivity in the survey unit is less than the release criterion to reject the null hypothesis (and pass the survey unit). If the evidence is not significant at level α, the null hypothesis of a non-complying survey unit is accepted (and the survey unit fails).

HYPOTHESIS TEST

H_0: Survey unit does not meet release criterion
H_a: Survey unit does meet the release criterion

Survey unit passes if and only if the test statistic falls in the rejection region.



This test directly addresses the compliance question.

The mean shift for the survey unit must be significantly below the release criterion for the null hypothesis to be rejected.

With this test, site owners face a trade-off between additional sampling costs and unnecessary remediation costs. They may choose to increase the number of measurements in order to decrease the number of Type II decision errors (reduce the chance of remediating a clean survey unit for survey units at or near background levels.

Distinguishability from background is not directly addressed. However, sample sizes may be selected to provide adequate power at or near background levels, hence ensuring that most survey units near background would pass. Additional analyses, such as point estimates and/or confidence intervals, may be used to address this question.

A high percentage of survey units slightly below the release criterion may fail the release criterion, unless large numbers of measurements are used. This achieves a high degree of assurance that most survey units that are at or above the release criterion will not be improperly released.

Figure D.5 Possible Statement of the Null Hypothesis for the Final Status Survey Addressing the Issue of Compliance

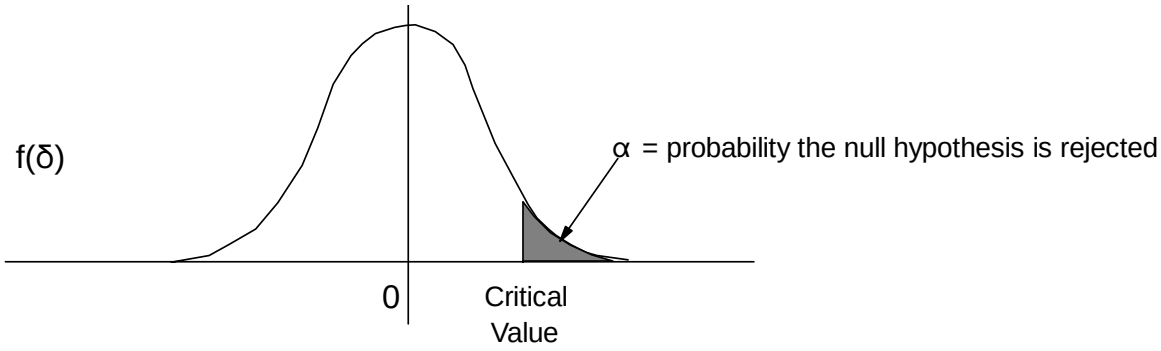
SCENARIO B

Assume as a null hypothesis that the survey unit is indistinguishable from background. This requires significant evidence that the survey unit residual radioactivity is greater than background to reject the null hypothesis (and fail the survey unit). If the evidence is not significant at level α, the null hypothesis of a clean survey unit is accepted (and the survey unit passes).

HYPOTHESIS TEST

H_0: Survey unit is indistinguishable from background
H_a: Survey unit is distinguishable from background

Survey unit passes if and only if the test statistic falls in the rejection region.



Distinguishability from background may be of primary importance to some stakeholders.

The residual radioactivity in the survey unit must be significantly above background for the null hypothesis to be rejected.

Compliance with the DCGLs is not directly addressed. However, the number of measurements may be selected to provide adequate power at or near the DCGL, hence ensuring that most survey units near the DCGL would not be improperly released. Additional analysis, based on point estimates and/or confidence intervals, is required to determine compliance if the null hypothesis is rejected by the test.

A high percentage of survey units slightly below the release criterion will fail unless large numbers of measurements are used. This is necessary to achieve a high degree of assurance that for most sites at or above the release criterion the null hypothesis will fail to be improperly released.

Figure D.6 Possible Statement of the Null Hypothesis for the Final Status Survey Addressing the Issue of Indistinguishability from Background

method. The relative shift, Δ/σ, is an expression of the resolution of the measurements in units of measurement uncertainty. Expressed in this way, it is easy to see that relative shifts of less than one standard deviation, $\Delta/\sigma < 1$, will be difficult to detect. On the other hand, relative shifts of more than three standard deviations, $\Delta/\sigma > 3$, are generally easier to detect. The number of measurements that will be required to achieve given error rates, α and β, depends almost entirely on the value of Δ/σ (see Chapter 5).

Since small values of Δ/σ result in large numbers of samples, it is important to design for $\Delta/\sigma > 1$ whenever possible. There are two obvious ways to increase Δ/σ. The first is to increase the width of the gray region by making LBGR small. Only Type II decision errors occur in the gray region. The disadvantage of making this gray region larger is that the probability of incorrectly failing to release a survey unit will increase. The target false negative rate β will be specified at lower residual radioactivity levels, i.e., a survey unit will generally have to be lower in residual radioactivity to have a high probability of being judged to meet the release criterion. The second way to increase Δ/σ is to make σ smaller. One way to make σ small is by having survey units that are relatively homogeneous in the amount of measured radioactivity. This is an important consideration in selecting survey units that have both relatively uniform levels of residual radioactivity and also have relatively uniform background radiation levels. Another way to make σ small is by using more precise measurement methods. The more precise methods might be more expensive, but this may be compensated for by the decrease in the number of required measurements. One example would be in using a radionuclide specific method rather than gross radioactivity measurements for residual radioactivity that does not appear in background. This would eliminate the variability in background from σ, and would also eliminate the need for reference area measurements.

The effect of changing the width of the gray region and/or changing the measurement variability on the estimated number of measurements (and cost) can be investigated using the DEFT (Decision Error Feasibility Trials) software developed by EPA (EPA 1995a). This program can only give approximate sample sizes and costs since it assumes that the measurement data are normally distributed, that a Student's t test will be used to evaluate the data, and that there is currently no provision for comparison to a reference area. Nevertheless, as a rough rule of thumb, the sample sizes calculated by DEFT are about 85% of those required by the one-sample nonparametric tests recommended in this manual. This rule of thumb works better for large numbers of measurements than for smaller numbers of measurements, but can be very useful for estimating the relative impact on costs of decisions made during the planning process.

Generally, the design goal should be to achieve Δ/σ values between one and three. The number of samples needed rises dramatically when Δ/σ is smaller than one. Conversely, little is usually gained by making Δ/σ larger than about three. If Δ/σ is greater than three or four, one should take advantage of the measurement precision available by making the width of the gray region smaller. It is even more important, however, that overly optimistic estimates for σ be avoided. The consequence of taking fewer samples than are needed given the actual measurement variations will be unnecessary remediations (increased Type II decision errors).

Once the preliminary estimates of Δ and σ are available, target values for α and β can be selected. The values of α and β should reflect the risks involved in making Type I and Type II decision errors, respectively.

One consideration in setting the false positive rate are the health risks associated with releasing a survey unit that might actually contain residual radioactivity in excess of the $DCGL_W$. If a survey unit did exceed the $DCGL_W$, the first question that arises is "How much above the $DCGL_W$ is the residual radioactivity likely to be?" The DEFT software can be used to evaluate this.

For example, if the $DCGL_W$ is 100 Bq/kg (2.7 pCi/g), the LBGR is 50 Bq/kg (1.4 pCi/g), σ is 50 Bq/kg (1.4 pCi/g), $\alpha = 0.10$ and $\beta = 0.05$, the DEFT calculations show that while a survey unit with residual radioactivity equal to the $DCGL_W$ has a 10% chance of being released, a survey unit at a level of 115 Bq/kg (3.1 pCi/g) has less than a 5% chance of being released, a survey unit at a level of 165 Bq/kg (4.5 pCi/g) has virtually no chance of being released. However, a survey unit with a residual radioactivity level of 65 Bq/kg (1.8 pCi/g) will have about an 80% chance of being released and a survey unit with a residual radioactivity level of 80 Bq/kg (2.2 pCi/g) will only have about a 40% chance of being released. Therefore, it is important to examine the probability of deciding that the survey unit does not meet the release criterion over the entire range of possible residual radioactivity values, and not only at the boundaries of the gray region. Of course, the gray region can be made narrower, but at the cost of additional sampling. Since the equations governing the process are not linear, small changes can lead to substantial changes in survey costs.

As stated earlier, the values of α and β that are selected in the DQO process should reflect the risk involved in making a decision error. In setting values for α, the following are important considerations:

- In radiation protection practice, public health risk is modeled as a linear function of dose (BEIR 1990). Therefore a 10% change in dose, say from 15 to 16.5, results in a 10% change in risk. This situation is quite different from one in which there is a threshold. In the latter case, the risk associated with a decision error can be quite high, and low values of α should be selected. When the risk is linear, much higher values of α at the release criterion might be considered adequately protective when the survey design results in smaller decision error rates at doses or risks greater than the release criterion. False positives will tend to be balanced by false negatives across sites and survey units, resulting in approximately equal human health risks.
- The DCGL itself is not free of error. The dose or risk cannot be measured directly, and many assumptions are made in converting doses or risks to derived concentrations. To be adequately protective of public health, these models are generally designed to over predict the dose or risk. Unfortunately, it is difficult to quantify this. Nonetheless, it is probably safe to say that most models have uncertainty sufficiently large such that the true dose or risk delivered by residual radioactivity at the DCGL is very likely to be lower than the

release criterion. This is an additional consideration for setting the value of α, that could support the use of larger values in some situations. In this case, one would prospectively address, as part of the DQO process, the magnitude, significance, and potential consequences of decision errors at values above the release criterion. The assumptions made in any model used to predict DCGLs for a site should be examined carefully to determine if the use of site specific parameters results in large changes in the DCGLs, or whether a site-specific model should be developed rather than designing a survey around DCGLs that may be too conservative.

- The risk of making the second type of decision error, β, is the risk of requiring additional remediation when a survey unit already meets the release criterion. Unlike the health risk, the cost associated with this type of error may be highly non-linear. The costs will depend on whether the survey unit has already had remediation work performed on it, and the type of residual radioactivity present. There may be a threshold below which the remediation cost rises very rapidly. If so, a low value for β is appropriate at that threshold value. This is primarily an issue for survey units that have a substantial likelihood of falling at or above the gray region for residual radioactivity. For survey units that are very lightly contaminated, or have been so thoroughly remediated that any residual radioactivity is expected to be far below the DCGL, larger values of β may be appropriate especially if final status survey sampling costs are a concern. Again, it is important to examine the probability of deciding that the survey unit does not meet the release criterion over the entire range of possible residual radioactivity values, below as well as above the gray region.
- Lower decision error rates may be possible if alternative sampling and analysis techniques can be used that result in higher precision. The same might be achieved with moderate increases in sample sizes. These alternatives should be explored before accepting higher design error rates. However, in some circumstances, such as high background variations, lack of a radionuclide specific technique, and/or radionuclides that are very difficult and expensive to quantify, error rates that are lower than the uncertainties in the dose or risk estimates may be neither cost effective nor necessary for adequate radiation protection.

None of the above discussion is meant to suggest that under any circumstances a less than rigorous, thorough, and professional approach to final status surveys would be satisfactory. The decisions made and the rationale for making these decisions should be thoroughly documented.

For Class 1 Survey Units, the number of samples may be driven more by the need to detect small areas of elevated activity than by the requirements of the statistical tests. This in turn will depend primarily on the sensitivity of available scanning instrumentation, the size of the area of elevated activity, and the dose or risk model. A given concentration of residual radioactivity spread over a smaller area will, in general, result in a smaller dose or risk. Thus, the $DCGL_{EMC}$ used for the elevated measurement comparison is usually larger than the $DCGL_W$ used for the statistical test. In some cases, especially radionuclides that deliver dose or risk primarily via internal pathways,

dose or risk is approximately proportional to inventory, and so the difference in the DCGLs is approximately proportional to the areas.

However, this may not be the case for radionuclides that deliver a significant portion of the dose or risk via external exposure. The exact relationship between the $DCGL_{EMC}$ and the $DCGL_W$ is a complicated function of the dose or risk modeling pathways, but area factors to relate the two DCGLs can be tabulated for most radionuclides (see Chapter 5), and site-specific area factors can also be developed.

For many radionuclides, scanning instrumentation is readily available that is sensitive enough to detect residual radioactivity concentrations at the $DCGL_{EMC}$ derived for the sampling grid of direct measurements used in the statistical tests. Where instrumentation of sufficient sensitivity (MDC, see Chapter 6) is not available, the number of samples in the survey unit can be increased until the area between sampling points is small enough (and the resulting area factor is large enough) that $DCGL_{EMC}$ can be detected by scanning. The details of this process are discussed in Chapter 5. For some radionuclides (*e.g.*, ^3H) the scanning sensitivity is so low that this process would never terminate—*i.e.*, the number of samples required could increase without limit. Thus, an important part of the DQO process is to determine the smallest size of an area of elevated activity that it is important to detect, A_{min} , and an acceptable level of risk , R_A , that it may go undetected. The probability of sampling a circular area of size A with either a square or triangular sampling pattern is shown in Figure D.7. The ELIPGRID-PC (Davidson 1995) computer code can also be used to calculate these probabilities.

In this part of the DQO process, the concern is less with areas of elevated activity that are found than with providing adequate assurance that negative scanning results truly demonstrate the absence of such areas. In selecting acceptable values for A_{min} and R_A, maximum use of information from the HSA and all surveys prior to the final status surveys should be used to determine what sort of areas of elevated activity could possibly exist, their potential size and shape, and how likely they are to exist. When the detection limit of the scanning technique is very large relative to the $DCGL_{EMC}$, the number of measurements estimated to demonstrate compliance using the statistical tests may become unreasonably large. In this situation an evaluation of the survey objectives and considerations be performed. These considerations may include the survey design and measurement methodology, exposure pathway modeling assumptions and parameter values used to determine the DCGLs, Historical Site Assessment conclusions concerning source terms and radionuclide distributions, and the results of scoping and characterization surveys. In most cases the results of this evaluation is not expected to justify an unreasonably large number of measurements.

A convenient method for visualizing the decision rule is to graph the probability of deciding that the survey unit does not meet the release criterion, *i.e.*, that the null hypothesis of Scenario A is accepted. An example of such a chart is shown in Figure D.8.

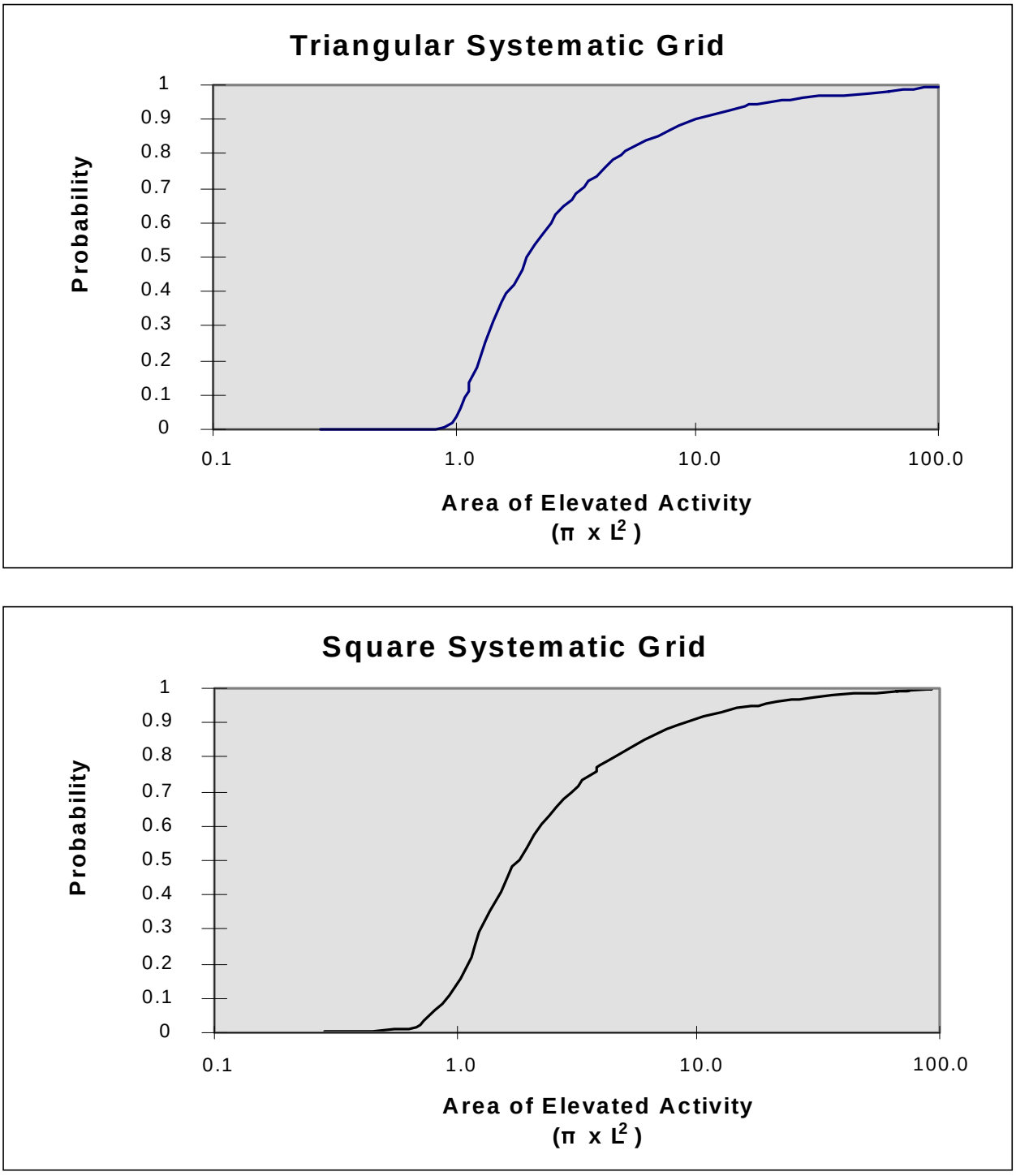


Figure D.7 Geometric Probability of Sampling at Least One Point of an Area of Elevated Activity as a Function of Sample Density with Either a Square or Triangular Sampling Pattern

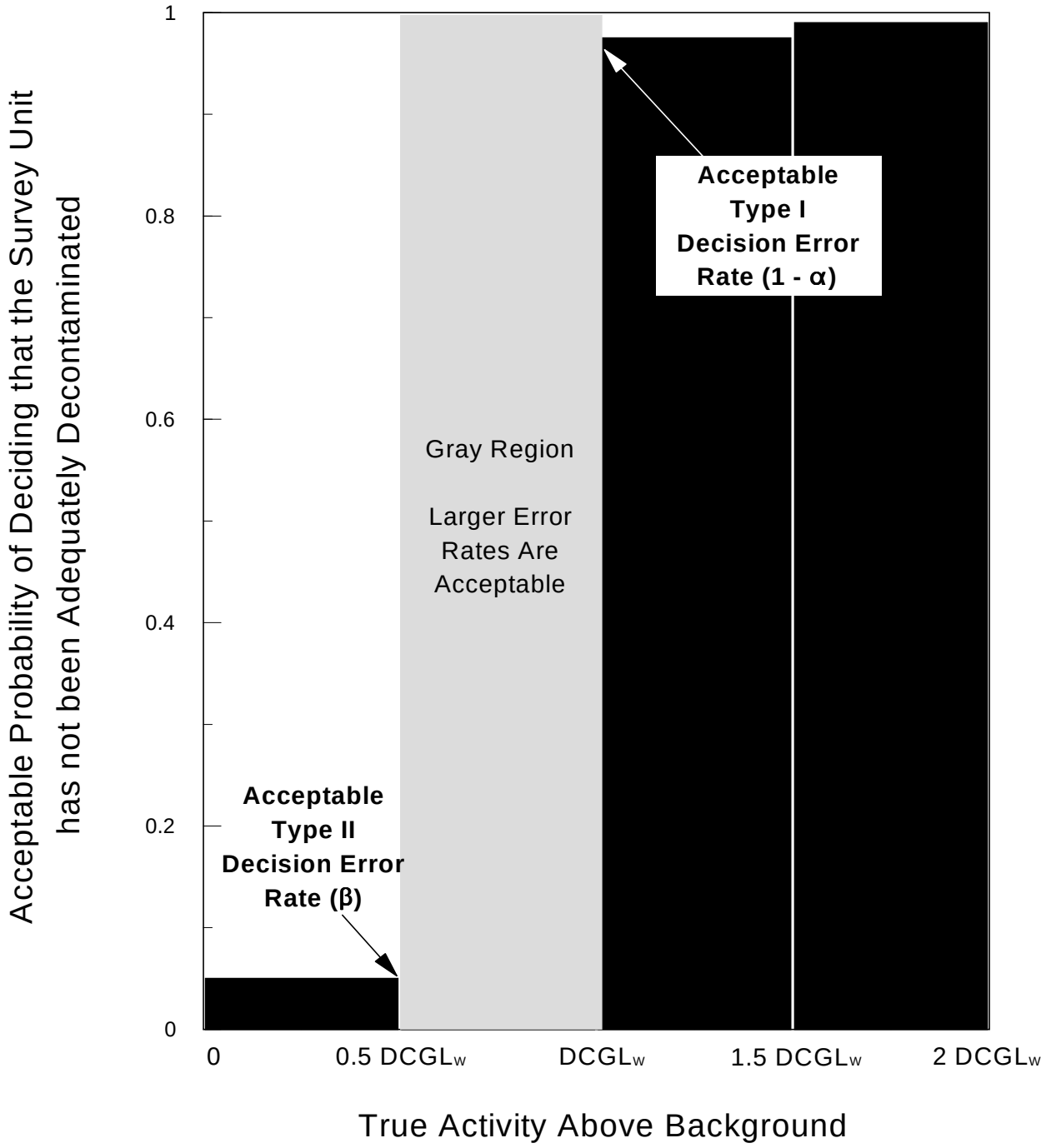


Figure D.8 Example of a Power Chart Illustrating the Decision Rule for the Final Status Survey

In this example α is 0.025 and β is 0.05, providing an expected power (1-β) of 0.95 for the test. A second method for presenting the information is shown in Figure D.9. This figure shows the probability of making a decision error for possible values of the parameter of interest, and is referred to as an error chart. In both examples a gray region, where the consequences of decision errors are deemed to be relatively minor, is shown. These charts are used in the final step of the DQO Process, combined with the outputs from the previous steps, to produce an efficient and cost-effective survey design. It is clear that setting acceptable values for α and β, as well as determining an appropriate gray region, is a crucial step in the DQO Process. Instructions for creating a prospective power curve, which can also be used to visualize the decision rule, are provided in Appendix I.

After the survey design is implemented, the expected values of α and β determined in this step are compared to the actual significance level and power of the statistical test based on the measurement results during the assessment phase of the Data Life Cycle. This comparison is used to verify that the objectives of the survey have been achieved.

EPA QA/G-9 (EPA 1996a) discusses considerations for selecting a particular null hypothesis. Because of the basic hypothesis testing philosophy, the null hypothesis is generally specified in terms of the *status quo* (*e.g.*, no change or action will take place if the null hypothesis is not rejected). Also, since the classical hypothesis testing approach exercises direct control over the Type I (false positive) error rate, this rate is generally associated with the error of most concern. In the case of the null hypothesis in which the residual radioactivity in the survey unit exceeds the release criterion, a Type I decision error would conclude that the residual activity was less than the release criterion when in fact it was above the release criterion. One difficulty, therefore, may be obtaining a consensus on which error should be of most concern (i.e., releasing a site where the residual activity exceeds the release criterion or failing to release a site where the residual activity is less than the release criterion). It is likely that the regulatory agency's public health-based protection viewpoint will differ from the viewpoint of the regulated party. The ideal approach is not only to define the null hypothesis in such a way that the Type I decision error protects human health and the environment but also in a way that encourages quality (high precision and accuracy) and minimizes expenditure of resources in situations where decisions are relatively "easy" (*e.g.*, all observations are far below the threshold level of interest or DCGL).

To avoid excessive expense in performing measurements, compromises are sometimes necessary. For example, suppose that a significance level (α) of 0.05 is to be used. However, the affordable sample size may be expected to yield a test with power (β) of only 0.40 at some specified parameter value chosen to have practical significance. One possible compromise may be to relax the Type I decision error rate (α) and use a value of 0.10, 0.15, or even 0.20. By relaxing the Type I decision error rate, a higher power (*i.e.*, a lower Type II decision error rate) can be achieved. An argument can be made that survey designs should be developed and number of measurements determined in such a way that both the Type I (α) and Type II (β) decision error rates are treated simultaneously and in a balanced manner (i.e., $\alpha = \beta = 0.15$). This approach of

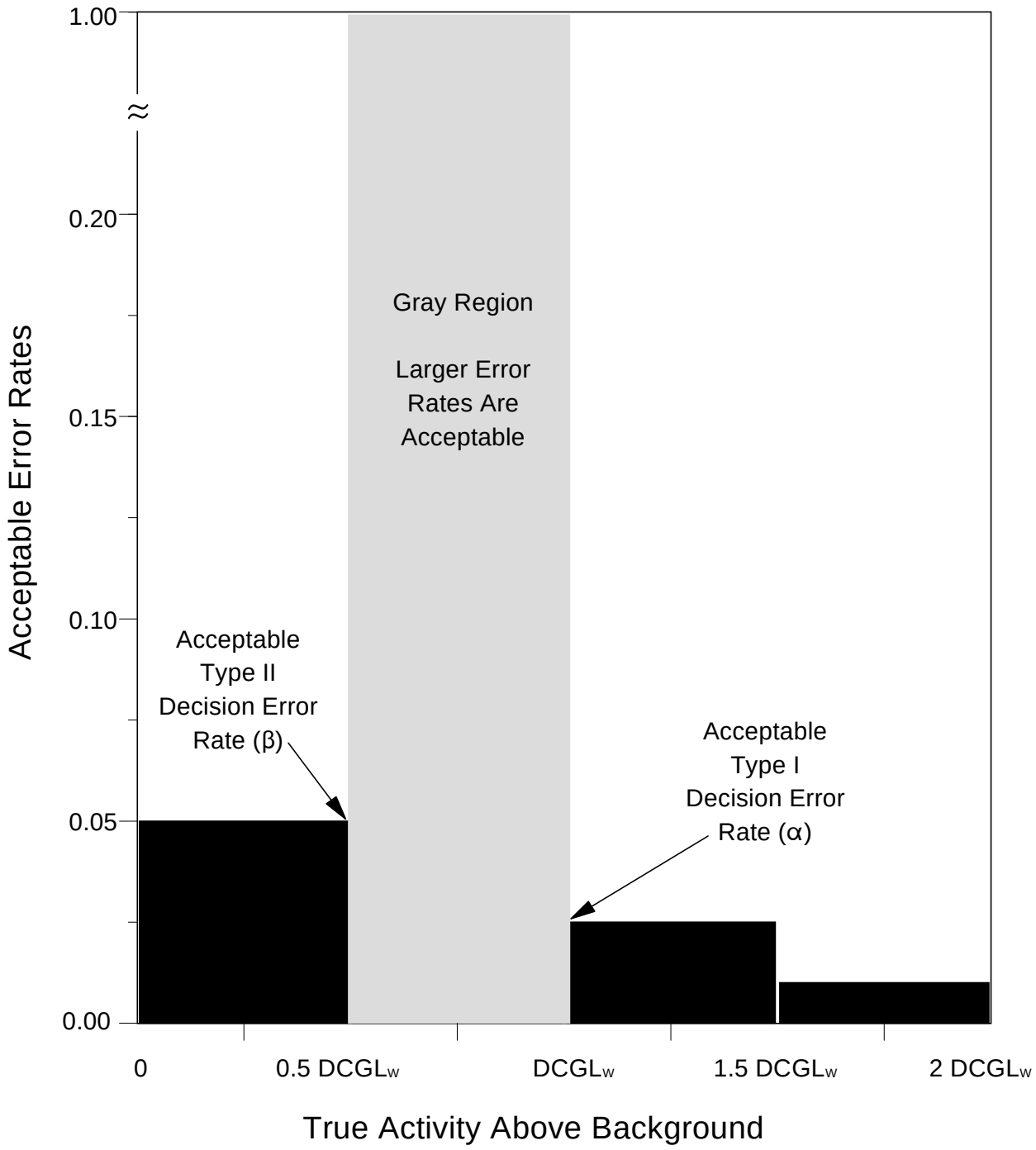


Figure D.9 Example of an Error Chart Illustrating the Decision Rule for the Final Status Survey

treating the Type I and Type II decision error rates simultaneously is taken by the DQO Process. It is recommended that several different values for α and β be investigated before specific values are selected.

D.7 Optimize the Design for Collecting Data

This step is designed to produce the most resource-effective survey design that is expected to meet the DQOs. It may be necessary to work through this step more than once after revisiting previous steps in the DQO Process.

There are six activities included in this step:

- Reviewing the DQO outputs and existing environmental data to ensure they are internally consistent.
- Developing general data collection design alternatives. Chapter 5 describes random and systematic sampling designs recommended for final status surveys based on survey unit classification.
- Formulating the mathematical expressions needed to solve the design problem for each data collection design alternative.
- Selecting the optimal design that satisfies the DQOs for each data collection design alternative. If the recommended design will not meet the limits on decision errors within the budget or other constraints, then the planning team will need to relax one or more constraints. Examples include:
  a. increasing the budget for sampling and analysis
  b. using exposure pathway modeling to develop site-specific DCGLs
  c. increasing the decision error rates, not forgetting to consider the risks associated with making an incorrect decision
  d. increasing the width of the gray region by decreasing the LBGR
  e. relaxing other project constraints—*e.g.*, schedule
  f. changing the boundaries—it may be possible to reduce measurement costs by changing or eliminating survey units that will require different decisions
  g. evaluating alternative measurement techniques with lower detection limits or lower survey costs
  h. considering the use of passive controls when releasing the survey unit rather than unrestricted release
- Selecting the most resource-effective survey design that satisfies all of the DQOs. Generally, the survey designs described in Chapter 5 will be acceptable for demonstrating compliance. Atypical sites (*e.g.*, mixed-waste sites) may require the planning team to consider alternative survey designs on a site-specific basis.

- Documenting the operational details and theoretical assumptions of the selected design in the QAPP, the field sampling plan, the sampling and analysis plan, or the decommissioning plan. All of the decisions that will be made based on the data collected during the survey should be specified along with the alternative actions that may be adopted based on the survey results.

Chapters 4 and 5 present a framework for a final status survey design. When this framework is combined with the site-specific DQOs developed using the guidance in this section, the survey design should be acceptable for most sites. The key inputs to Chapters 4 and 5 are:

- investigation levels and DCGLs for each radionuclide of interest
- acceptable measurement techniques for scanning, sampling, and direct measurements, including detection limits and estimated survey costs
- identification and classification of survey units
- an estimate of the variability in the distribution of residual radioactivity for each survey unit, and in the reference area if necessary
- the decision maker's acceptable *a priori* values for decision error rates (α and β)

APPENDIX E

THE ASSESSMENT PHASE OF THE DATA LIFE CYCLE

The assessment phase of the Data Life Cycle includes verification and validation of the survey data and assessment of quality of the data. Data verification is used to ensure that the requirements stated in the planning documents are implemented as prescribed. Data validation is used to ensure that the results of the data collection activities support the objectives of the survey as documented in the Quality Assurance Project Plan (QAPP), or permit a determination that these objectives should be modified. Data Quality Assessment (DQA) is the scientific and statistical evaluation of data to determine if the data are of the right type, quality, and quantity to support their intended use (EPA 1996a). DQA helps complete the Data Life Cycle by providing the assessment needed to determine that the planning objectives are achieved. Figure E.1 illustrates where data verification, data validation and DQA fit into the Assessment Phase of the Data Life Cycle.

There are five steps in the DQA Process:

- Review the Data Quality Objectives (DQOs) and Survey Design
- Conduct a Preliminary Data Review
- Select the Statistical Test
- Verify the Assumptions of the Statistical Test
- Draw Conclusions from the Data

These five steps are presented in a linear sequence, but the DQA process is applied in an iterative fashion much like the DQO process. The strength of the DQA process is that it is designed to promote an understanding of how well the data will meet their intended use by progressing in a logical and efficient manner.

E.1 Review DQOs and Survey Design

The DQA process begins by reviewing the key outputs from the Planning phase of the Data Life Cycle that are recorded in the planning documents (*e.g.*, the QAPP). The DQOs provide the context for understanding the purpose of the data collection effort. They also establish qualitative and quantitative criteria for assessing the quality of the data set for the intended use. The survey design (documented in the QAPP) provides important information about how to interpret the data.

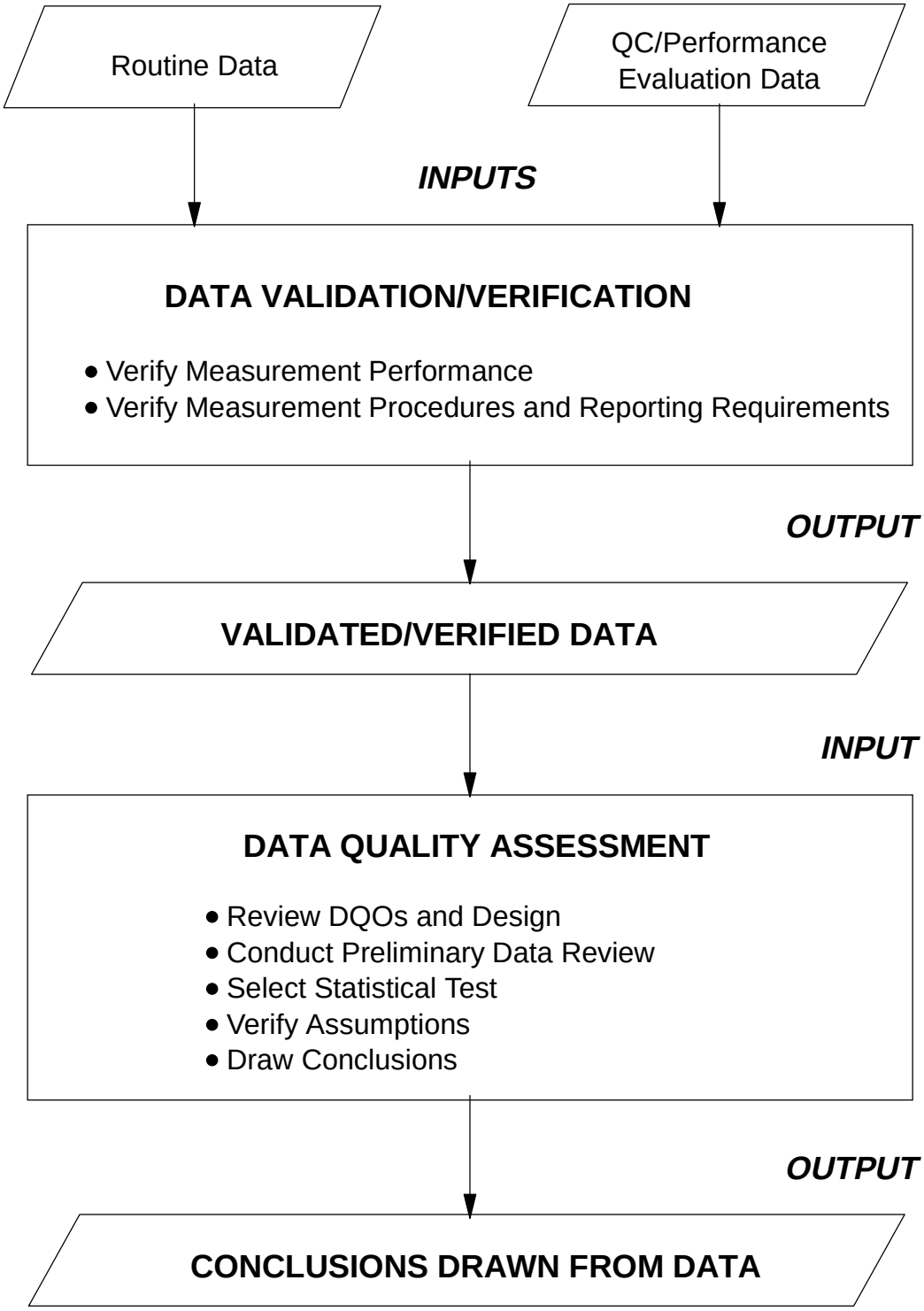


Figure E.1 The Assessment Phase of the Data Life Cycle (EPA 1996a)

There are three activities associated with this step in the DQA process:

- Translating the data user's objectives into a statement of the hypotheses to be tested using environmental data. These objectives should be documented as part of the DQO Process, and this activity is reduced to translating these objectives into the statement of hypotheses. If DQOs have not been developed, which may be the case for historical data, review Appendix D for assistance in developing these objectives.

- Translating the objectives into limits on the probability of committing Type I or Type II decision errors. Appendix D, Section D.6 provides guidance on specifying limits on decision errors as part of the DQO process.

- Reviewing the survey design and noting any special features or potential problems. The goal of this activity is to familiarize the analyst with the main features of the survey design used to generate the environmental data. Review the survey design documentation (*e.g.*, the QAPP) with the data user's objectives in mind. Look for design features that support or contradict these objectives.

For the final status survey, this step would consist of a review of the DQOs developed using Appendix D and the QAPP developed in Chapter 9.

E.2 Conduct a Preliminary Data Review

In this step of the DQA process, the analyst conducts a preliminary evaluation of the data set, calculating some basic statistical quantities and looking at the data through graphical representations. By reviewing the data both numerically and graphically, the analyst can learn the "structure" of the data and thereby identify appropriate approaches and limitations for their use.

This step includes three activities:

- reviewing quality assurance reports
- calculating statistical quantities (*e.g.*, relative standing, central tendency, dispersion, shape, and association)
- graphing the data (*e.g.*, histograms, scatter plots, confidence intervals, ranked data plots, quantile plots, stem-and-leaf diagrams, spatial or temporal plots)

Chapter 8 discusses the application of these activities to a final status survey.

E.3 Select the Statistical Test

The statistical tests presented in Chapter 8 are applicable for most sites contaminated with radioactive material. Chapter 2 discusses the rationale for selecting the statistical methods recommended for the final status survey in more detail. Additional guidance on selecting alternate statistical methods can be found in Section 2.6 and in EPA's DQA guidance document (EPA 1995).

E.4 Verify the Assumptions of the Statistical Test

In this step, the analyst assesses the validity of the statistical test by examining the underlying assumptions in light of the environmental data. The key questions to be resolved are: "Do the data support the underlying assumptions of the test?", and: "Do the data suggest that modifications to the statistical analysis are warranted?"

The underlying assumptions for the statistical tests are discussed in Section 2.5. Graphical representations of the data, such as those described in Section 8.2 and Appendix I, can provide important qualitative information about the validity of the assumptions. Documentation of this step is always important, especially when professional judgement plays a role in accepting the results of the analysis.

There are three activities included in this step:

- Determining the approach for verifying assumptions. For this activity, determine how the assumptions of the hypothesis test will be verified, including assumptions about distributional form, independence, dispersion, type, and quantity of data. Chapter 8 discusses methods for verifying assumptions for the final status survey statistical test during the preliminary data review.

- Performing tests of the assumptions. Perform the calculations selected in the previous activity for the statistical tests. Guidance on performing the tests recommended for the final status survey are included in Chapter 8.

- Determining corrective actions (if any). Sometimes the assumptions underlying the hypothesis test will not be satisfied and some type of corrective action should be performed before proceeding. In some cases, the data for verifying some key assumption may not be available and existing data may not support the assumption. In this situation, it may be necessary to collect new data, transform the data to correct a problem with the distributional assumptions, or select an alternate hypothesis test. Section 9.3 discusses potential corrective actions.

E.5 Draw Conclusions from the Data

The final step of the DQA process is performing the statistical test and drawing conclusions that address the data user's objectives. The procedure for implementing the statistical test is included in Chapter 8.

There are three activities associated with this final step:

- Performing the calculations for the statistical hypothesis test (see Chapter 8).

- Evaluating the statistical test results and drawing the study conclusions. The results of the statistical test will be either accept the null hypothesis, or reject the null hypothesis.

- Evaluating the performance of the survey design if the design is to be used again. If the survey design is to be used again, either in a later phase of the current study or in a similar study, the analyst will be interested in evaluating the overall performance of the design. To evaluate the survey design, the analyst performs a statistical power analysis that describes the estimated power of the test over the full range of possible parameter values. This helps the analyst evaluate the adequacy of the sampling design when the true parameter value lies in the vicinity of the action level (which may not have been the outcome of the current study). It is recommended that a statistician be consulted when evaluating the performance of a survey design for future use.

APPENDIX F

THE RELATIONSHIP BETWEEN THE RADIATION SURVEY AND SITE INVESTIGATION PROCESS, THE CERCLA REMEDIAL OR REMOVAL PROCESS, AND THE RCRA CORRECTIVE ACTION PROCESS

This appendix presents a discussion of the relationship between the Radiation Survey and Site Investigation Process, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Remedial or Removal Process, and the Resource Conservation and Recovery Act (RCRA) Corrective Action Process. Each of these processes has been designed to incorporate survey planning using the Data Quality Objectives (DQO) Process and data interpretation using Data Quality Assessment (DQA) using a series of surveys to accomplish the project objectives. At this basic level, MARSSIM is consistent with the other processes.

Figure F.1 illustrates the relationship between the major steps in each of these processes. As shown in Figure F.1, the scope of MARSSIM (Section 1.1) results in steps in the CERCLA Remedial or Removal Process and the RCRA Process that are not directly addressed by MARSSIM (*e.g.*, Feasibility Study or Corrective Measure Study). MARSSIM's focus on the demonstration of compliance for sites with residual radioactivity using a final status survey integrates with the remedial design/remedial action (RD/RA) step of the CERCLA Remedial Process described in Sec. 300.435(b)(1) of Part 40 of the Code of Federal Regulations. However, MARSSIM's focus is not directly addressed by the major steps of the CERCLA Removal Process or the RCRA Corrective Action Process.

Much of the guidance presented in MARSSIM for designing surveys and assessing the survey results is taken directly from the corresponding CERCLA or RCRA guidance. MARSSIM users familiar with the Superfund Preliminary Assessment guidance (EPA 1991f) will recognize the guidance provided on performing the Historical Site Assessment (Chapter 3) for identifying potentially contaminated soil, water, or sediment. In addition, MARSSIM provides guidance for identifying potentially contaminated structures which is not covered in the original CERCLA guidance. The survey designs and statistical tests for relatively uniform distributions of residual radioactivity discussed in MARSSIM are also discussed in CERCLA guidance (EPA 1989a, EPA 1994b). However, MARSSIM includes scanning for radioactive materials which isn't discussed in the more general CERCLA guidance that doesn't specifically address radionuclides. MARSSIM is not designed to replace or conflict with existing CERCLA or RCRA guidance, it is designed to provide supplemental guidance for specific applications of the CERCLA Remedial or Removal Process or the RCRA Corrective Action Process.

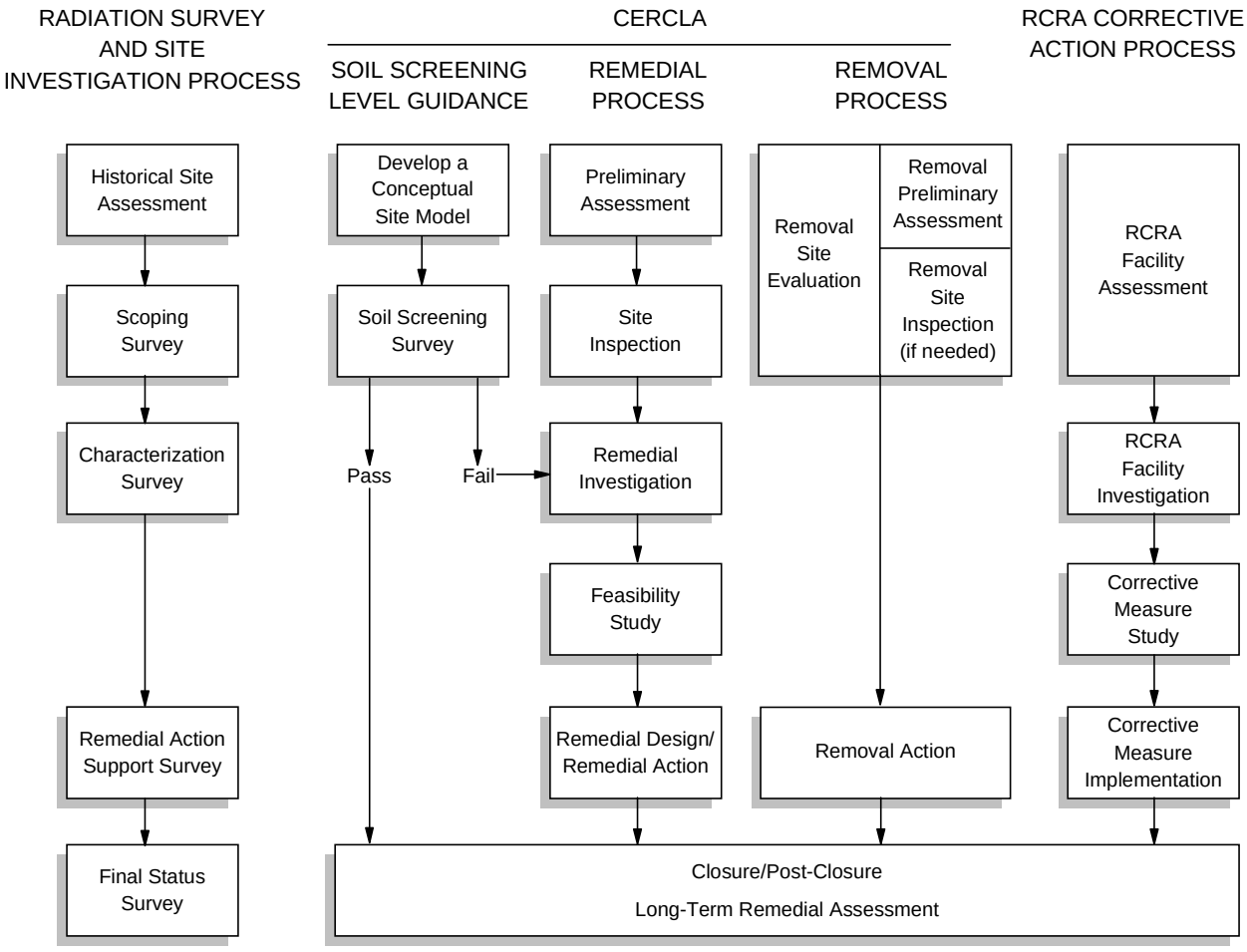


Figure F.1 Comparison of the Radiation Survey and Site Investigation Process with the CERCLA Superfund Process and the RCRA Corrective Action Process

Table F.1 lists the major steps in MARSSIM and other CERCLA and RCRA processes and describes the objectives of each step. This table provides a direct comparison of these processes, and it shows the correlation between the processes. This correlation is the result of carefully integrating CERCLA and RCRA guidance with guidance from other agencies participating in the development of MARSSIM to produce a multi-agency consensus document.

The first step in the CERCLA Remedial Process is the preliminary assessment to obtain existing information about the site and determine if there is a threat to human health and the environment. The next step is the site inspection which includes risk prioritization using the Hazard Ranking System—sites with a score above a certain level are put on the National Priorities List (NPL). Following the site assessment, the remedial investigation (RI) is performed to characterize the

extent and type of release, and to evaluate the risk to human health and the environment. A Sampling and Analysis Plan is constructed as part of the remedial investigation which consists of a Quality Assurance Project Plan, a Field Sampling Plan, a Health and Safety Plan, and a Community Relations Plan. The site feasibility study (FS) is the next step in the CERCLA Remedial Process (although the RI and FS are intended to be done concurrently) which involves an evaluation of alternative remedial actions. For sites listed on the NPL the next action would be to obtain a Record of Decision (ROD) which provides the remedy selected for the site. The remedial design/remedial action (RD/RA), which includes the development of the selected remedy and its implementation, follows development of the ROD. After the RD/RA activities there is a period of operation and maintenance when the site is given a long term remedial assessment followed by closure/post-closure of the site (or removal from the NPL). A removal action may occur at any stage of the CERCLA Remedial Process.

The CERCLA Removal Process is similar to the Remedial Process for the first few steps. 40 CFR § 300.400 (NCP Subpart E—Hazardous Substance Response) establishes methods and criteria for determining the extent of response when there is a release into the environment of a hazardous substance or any pollutant or contaminant that may present an imminent and substantial danger to the public health or welfare of the United States. The first step in the Removal Process is a removal site evaluation which includes a removal preliminary assessment and, if warranted, a removal site inspection. A removal preliminary assessment may be based on available information and should include an evaluation of the factors necessary to make the determination of whether a removal is necessary. A removal site inspection is performed, if warranted, in a similar manner as in the CERCLA Remedial Process. If environmental samples are to be collected, a sampling and analysis plan should be developed which consists of a field sampling plan and a quality assurance project plan. Post-removal site controls are those activities necessary to sustain the effectiveness and integrity of the removal action. In the case of all CERCLA removal actions taken pursuant to § 300.415, a designated spokesperson will inform the community of actions taken, respond to inquiries, and provide information concerning the release—this may include a formal community relations plan specifying the community relations activities expected during the removal response.

Comparisons have been made between the CERCLA Remedial Process and CERCLA Removal Process (EPA, 1993c). Table F.2 presents the data elements that are common to both programs and those that are generally common to one program rather than the other. Table F.3 shows the emphasis placed on sampling for remedial site assessment versus removal site assessment.

Another guidance document that can be compared to MARSSIM is the Soil Screening Guidance (EPA 1996b, EPA 1996c), which facilitates removing sites from consideration early in the CERCLA Process. Although not written to specifically address radioactive contaminants, the Soil Screening Guidance leads the user from the initial site conceptualization and planning stages through data collection and evaluation to the final testing step. MARSSIM also leads the user through similar planning, evaluation, and testing stages, but the guidance focuses on the final compliance demonstration step.

The Soil Screening Guidance provides a way to calculate risk-based, site-specific, soil screening levels (SSLs) for contaminants in soil. SSLs can be used as preliminary remediation goals (PRGs) if the conditions found at a specific site are similar to the conditions assumed in calculating the SSLs.

Both the Soil Screening Guidance and MARSSIM provide examples of acceptable sampling and analysis plans (SAP) for site contaminants. The Soil Screening Guidance recommended default survey design for surface soils is very specific—recommendations for the grid size for sampling, the number of soil samples collected from each subarea and composited, and data analysis and interpretation techniques are described in detail. MARSSIM provides guidance that is consistent and compatible with the Soil Screening Guidance with respect to the approaches, framework, tools, and overall objectives.

SSLs calculated using the CERCLA Soil Screening Guidance could also be used for RCRA Corrective Action sites as action levels. The RCRA Corrective Action program views action levels as generally fulfilling the same purpose as soil screening levels. Table F.1 shows other similarities between the RCRA Corrective Action Process, CERCLA Remedial or Removal Process, and MARSSIM.

The similarities between the CERCLA Remedial Process and Removal Process have led to a number of streamlined approaches to expedite site cleanups by reducing sampling and preventing duplication of effort. One example of these approaches is the Superfund Accelerated Cleanup Model (SACM) where the concept of integrating the removal and remedial site assessment was introduced (EPA, 1993c). A memorandum from EPA, DOE, and DOD (August 22,1994) discusses guidance on accelerating and developing streamlined approaches for the cleanup of hazardous waste at federal facility sites.

Table F.1 Program Comparison

MARSSIM	CERCLA REMEDIAL PROCESS	CERCLA REMOVAL PROCESS	RCRA
Historical Site Assessment Performed to gather existing information about radiation sites. Designed to distinguish between sites that possess no potential for residual radioactivity and those that require further investigation. Performed in three stages: 1) Site Identification 2) Preliminary Investigation 3) Site Reconnaissance	Preliminary Assessment Performed to gather existing information about the site and surrounding area. The emphasis is on obtaining comprehensive information on people and resources that might be threatened by a release from the site. Designed to distinguish between sites that pose little or no threat to human health and the environment and sites that require further investigation.	Preliminary Assessment Performed in a similar manner as in the CERCLA Remedial Process. The removal preliminary assessment may be based on available information. A removal preliminary assessment may include an identification of the source, nature and magnitude of the release, evaluation by ATSDR of the threat to public health, and evaluation of factors necessary to make the determination of whether a removal is necessary.	Facility Assessment Performed to identify and gather information at RCRA facilities, make preliminary determinations regarding releases of concern and identify the need for further actions and interim measures at the facility. Performed in three stages: 1) Preliminary Review 2) Visual Site Inspection 3) Sampling Visit (if necessary) The RCRA Facility Assessment accomplishes the same objectives as the Preliminary Assessment and Site Inspection under the Superfund Process. The RCRA Facility Assessment often forms the basis for the first conceptual model of the site.
Scoping Survey Performed to provide a preliminary assessment of the radiological hazards of the site. Supports classification of all or part of the site as Class 3 areas and identifying non-impacted areas of the site. Scoping surveys provide data to complete the site prioritization scoring process for CERCLA or RCRA sites.	Site Inspection Performed to identify the substances present, determine whether hazardous substances are being released to the environment, and determine whether hazardous substances have impacted specific targets. Designed to gather information on identified sites in order to complete the Hazard Ranking System to determine whether removal actions or further investigations are necessary.	Site Inspection Performed in a similar manner as in the Remedial Process. A removal site inspection may be performed as part of the removal site evaluation (§ 300.410) if warranted. A removal site inspection may include an perimeter or on-site inspection. If the removal site evaluation shows that removal is not required, but that remedial action under § 300.430 may be necessary, a remedial site evaluation pursuant to § 300.420 would be initiated.	

Table F.1 Program Comparison

MARSSIM	CERCLA REMEDIAL PROCESS	CERCLA REMOVAL PROCESS	RCRA
Characterization Survey Performed to support planning for final status surveys to demonstrate compliance with a dose- or risk-based regulation. Objectives include determining the nature and extent of contamination at the site, as well as meeting the requirements of RI/FS and FI/CMS.	Remedial Investigation Performed to characterize the extent and type of release of contaminants. The RI is the mechanism for collecting data to characterize site conditions, determine the nature of the waste, assess risk to human health and the environment, and conduct treatability testing as necessary to evaluate the potential performance and cost of the treatment technologies that are being considered. EPA guidance presents a combined RI/FS Model Statement of Work. The RI is generally performed in seven tasks: 1) project planning (scoping): - summary of site location - history and nature of problem - history of regulatory and response actions - preliminary site boundary - development of site operations plans 2) field investigations 3) sample/analysis verification 4) data evaluation 5) assessment of risks 6) treatability study/pilot testing 7) RI reporting	Removal Action Performed once the decision has been made to conduct a removal action at the site (under § 300.415). Whenever a planning period of at least six months exists before on-site activities must be initiated, an engineering evaluation/cost analysis or its equivalent is conducted. If environmental samples are to be collected, a sampling and analysis plan is developed to provide a process for obtaining data of sufficient quality and quantity to satisfy data needs. The sampling and analysis plan consists of: 1) The field sampling plan, which describes the number, type, and location of samples and the type of analysis 2) The quality assurance project plan, which describes policy, organization, and functional activities and the data quality objectives and measures necessary to achieve adequate data for use in removal actions.	Facility Investigation Defines the presence, magnitude, extent, direction, and rate of movement of any hazardous wastes and hazardous constituents within and beyond the facility boundary. The scope is to : 1) characterize the potential pathways of contaminant migration 2) characterize the source(s) of contamination 3) define the degree and extent of contamination 4) identify actual or potential receptors 5) support the development of alternatives from which a corrective measure will be selected by the EPA The Facility Investigation is performed in seven tasks: 1) description of current conditions 2) identification of preliminary remedial measures technologies 3) FI work plan requirements - project management plan - data collection QAPP - data management plan - health and safety plan - community relations plan 4) facility investigation 5) investigation analysis 6) laboratory and bench-scale studies 7) reports

Table F.1 Program Comparison

MARSSIM	CERCLA REMEDIAL PROCESS	CERCLA REMOVAL PROCESS	RCRA
DCGLs Residual levels of radioactive material that correspond to allowable radiation dose standards are calculated (derived concentration guideline levels) and provided to the user. The survey unit is then evaluated against this radionuclide-specific DCGL. The DCGLs in this manual are for structure surfaces and soil contamination. MARSSIM does not provide equations or guidance for calculating DCGLs.	PRGs Preliminary remediation goals are developed early in the RI/FS process. PRGs may then be used as the basis for final cleanup levels based on the nine criteria in the National Contingency Plan. Soil Screening Levels (SSLs) can be used as PRGs provided conditions at a specific site are similar to those assumed in calculating the SSLs. SSLs are derived with exposure assumptions for suburban residential land use only. SSLs are based on a 10^{-6} risk for carcinogens, a hazard index quotient of 1 for noncarcinogens (child ingestion assumptions), or MCLGs, MCLs, or HBLs for the migration to groundwater. The User's Guide provides equations and guidance for calculating site-specific SSLs.	Removal Levels The removal level is established by identification of applicable or relevant and appropriate requirements (ARARs), or by health assessments. Concern is for protection of human health and the environment from the immediate hazard of a release rather than a permanent remedy.	Action Levels At certain facilities subject to RCRA corrective action, contamination will be present at concentrations (action levels) that may not justify further study or remediation. Action levels are health- or environmental-based concentrations derived using chemical-specific toxicity information and standardized exposure assumptions. The SSLs developed under CERCLA guidance can be used as action levels since the RCRA corrective action program currently views them as serving the same purpose.

Table F.1 Program Comparison

MARSSIM	CERCLA REMEDIAL PROCESS	CERCLA REMOVAL PROCESS	RCRA
No Direct Correlation (MARSSIM characterization and remedial action support surveys may provide data to the Feasibility Study or the Corrective Measures Study)	Feasibility Study The FS serves as the mechanism for the development, screening, and detailed evaluation of alternative remedial actions. As noted above, the RI and the FS are intended to be performed concurrently. However, the FS is generally considered to be composed of four general tasks. These tasks are: 1) development and screening of remedial alternatives 2) detailed analysis of alternatives 3) community relations 4) FS reporting	No Direct Correlation	Corrective Measures Study The purpose of the CMS is to identify , develop, and evaluate potentially applicable corrective measures and to recommend the corrective measures to be taken. The CMS is performed following an FI and consists of the following four tasks: 1) identification and development of the corrective measures alternatives 2) evaluation of the corrective measures alternatives 3) justification and recommendations of the corrective measures alternatives 4) reports

Table F.1 Program Comparison

MARSSIM	CERCLA REMEDIAL PROCESS	CERCLA REMOVAL PROCESS	RCRA
Remedial Action Support Survey Performed to support remediation activities and determine when a site or survey unit is ready for the final status survey. These surveys monitor the effectiveness of decontamination efforts in reducing residual radioactivity to acceptable levels. Remedial action support surveys do not include routine operational surveys conducted to support remedial activities.	Remedial Design/Remedial Action This activity includes the development of the selected remedy and implementation of the remedy through construction. A period of operation and maintenance may follow the RD/RA activities. Generally, the RD/RA includes: 1) plans and specifications - preliminary design - intermediate design - prefinal/final design - estimated cost - correlation of plans and specifications - selection of appropriate RCRA facilities - compliance with requirements of other environmental laws - equipment startup and operator training 2) additional studies 3) operation and maintenance plan 4) QAPP 5) site safety plan	No Direct Correlation	Corrective Measures Implementation The purpose of the CMI is to design, construct, operate, maintain, and monitor the performance of the corrective measures selected in the CMS. The CMI consists of four activities: 1) Corrective Measure Implementation Program Plan 2) corrective measure design - design plans and specifications - operation and maintenance plan - cost estimate - schedule - construction QA objectives - health and safety plan - design phases 3) corrective measures construction (includes a construction QA program) 4) reporting
Final Status Survey Performed to demonstrate that residual radioactivity in each survey unit satisfies the release criterion.	Long Term Remedial Assessment Closure/Post-Closure NPL De-Listing	Post-Removal Site Control Those activities that are necessary to sustain the integrity of a removal action following its conclusion.	Closure/Post-Closure

Table F.2 Data Elements for Site Visits[a]

Data Elements Common to Both Remedial and Removal Assessment	Generally Remedial Site Assessment Only	Generally Removal Assessment Only
-Current human exposure identification -Sources identification, including locations, sizes, volumes -Information on substances present -Labels on drums and containers -Containment evaluation -Evidence of releases (*e.g.*, stained soils) -Locations of wells on site and in immediate vicinity -Nearby wetlands identification -Nearby land uses -Distance measurements or estimates for wells, land uses (residences and schools), surface waters, and wetlands -Public accessibility -Blowing soils and air contaminants -Photodocumentation -Site sketch	-Perimeter survey -Number of people within 200 feet -Some sensitive environments -Review all pathways	-Petroleum releases -Fire and explosion threat -Urgency of need for response -Response and treatment alternatives evaluation -Greater emphasis on specific pathways (*e.g.*, direct contact) -Sampling

[a]From EPA, 1993c

Table F.3 Comparison of Sampling Emphasis Between Remedial Site Assessment and Removal Assessment[a]

Remedial Site Assessment Emphasis	Removal Assessment Emphasis
-Attribution to the site -Background samples -Ground water samples -Grab samples from residential soils -Surface water sediment samples -HRS factors related to surface water sample locations -Fewer samples on average (10-30) than removal assessment -Strategic sampling for HRS -Contract Laboratory Program usage -Full screening organics and inorganics analyses -Definitive analyses -Documentation, including targets and receptors -Computing HRS scores -Standardized reports	-Sampling from containers -Physical characteristics of wastes -Treatability and other engineering concerns -On-site contaminated soils -Composite and grid sampling -Rapid turnaround on analytical services -Field/screening analyses -PRP-lead removal actions -Goal of characterizing site -Focus on NCP removal action criteria

[a]From EPA, 1993c

APPENDIX G

HISTORICAL SITE ASSESSMENT INFORMATION SOURCES

This appendix provides lists of information sources often useful to site assessment. The lists are organized in two ways:

- Table G.1, beginning on page G-2, identifies information needs by category and lists appropriate information sources for each. The categories are:

  -- General site information, p. G-2
  -- Source and waste characteristics, p. G-2
  -- Ground water use and characteristics, p. G-3
  -- Surface water use and characteristics, p. G-4
  -- Soil exposure characteristics, p. G-5
  -- Air characteristics, p. G-6

- The reverse approach is provided in Table G.2, beginning on page G-7. Categories of information sources are listed with a brief explanation of the information provided by each source. A contact is provided for additional information. The categories are:

  -- Databases, p. G-7
  -- Maps and aerial photographs, p. G-13
  -- Files, p. G-17
  -- Expert and other sources, p. G-19

More complete listings of site assessment information sources are available in the *Site Assessment Information Directory* (EPA91e).

Table G.1 Site Assessment Information Sources
(Organized by Information Needed)

General Site Information	
Site Location, Latitude/Longitude CERCLIS USGS Topographic Maps State Department of Transportation Maps Site Reconnaissance USGS Global Land Information System U.S. Census Bureau Tiger Mapping Services	*Type of Operation and Site Status* EPA Regional Libraries State Environmental Agency Files Site Reconnaissance
Owner/Operator Information EPA Regional Libraries State Environmental Agency Files Local Tax Assessor	*Environmental Setting, Size of Site* USGS Topographic Maps Aerial Photographs Site Reconnaissance
Source and Waste Characteristics	
Source Types, Locations, Sizes EPA Regional Libraries State Environmental Agency Files Aerial Photographs Site Reconnaissance DOE Field Offices	*Hazardous Substances Present* EPA Regional Libraries State Environmental Agency Files RCRIS Local Health Department Local Fire Department ERAMS Local Public Works Department
Waste Types and Quantities EPA Regional Office Files State Environmental Agency Files RCRIS Local Fire Department Aerial Photographs Site Reconnaissance Aerial Radiation Surveys	

Table G.1 Site Assessment Information Sources (continued)
(Organized by Information Needed)

Ground Water Use and Characteristics	
General Stratigraphy USGS Topographic Maps U.S. Geological Survey State Geological Surveys Geologic and Bedrock Maps Local Experts Local University or College	*Private and Municipal Wells* Local Water Authority Local Health Department Local Well Drillers State Environmental Agency Files WellFax WATSTORE
Karst Terrain USGS Topographic Maps U.S. Geological Survey State Geological Surveys Geologic and Bedrock Maps Local Experts Local University or College	*Distance to Nearest Drinking Water Well* USGS Topographic Maps Local Water Authority Local Well Drillers Local Health Department WellFax WATSTORE Site Reconnaissance
Depth to Aquifer U.S. Geological Survey State Geological Surveys Geologic and Bedrock Maps Local Experts Local Well Drillers WATSTORE	*Wellhead Protection Areas* State Environmental Agency Local Water Authority Local Well Drillers Local Health Department EPA Regional Water Officials

Table G.1 Site Assessment Information Sources (continued)
(Organized by Information Needed)

Surface Water Use and Characteristics	
Surface Water Body Types USGS Topographic Maps State Department of Transportation Maps Aerial Photographs Site Reconnaissance	*Drinking Water Intakes* Local Water Authority USGS Topographic Maps U.S. Army Corps of Engineers State Environmental Agency
Distance to Nearest Surface Water Body USGS Topographic Maps State Department of Transportation Aerial Photographs Site Reconnaissance	*Fisheries* U.S. Fish and Wildlife Service State Environmental Agency Local Fish and Wildlife Officials
Surface Water Flow Characteristics U.S. Geological Survey State Environmental Agency U.S. Army Corps of Engineers STORET WATSTORE	*Sensitive Environments* USGS Topographic Maps State Department of Transportation Maps State Environmental Agency U.S. Fish and Wildlife Service Local Fish and Wildlife Officials National Wetland Inventory Maps Ecological Inventory Maps Natural Heritage Program
Flood Frequency at the Site Federal Emergency Management Agency State Environmental Agency	

Table G.1 Site Assessment Information Sources (continued)
(Organized by Information Needed)

Soil Exposure Characteristics	
Number of People Living Within 200 Feet Site Reconnaissance USGS Topographic Maps Aerial Photographs U.S. Census Bureau Tiger Mapping Service	*Schools or Day Care Within 200 Feet* Site Reconnaissance USGS Topographic Maps Local Street Maps
Number of Workers Onsite Site Reconnaissance Owner/Operator Interviews	*Locations of Sensitive Environment* USGS Topographic State Department of Transportation Maps State Environmental Agency U.S. Fish and Wildlife Service Ecological Inventory Maps Natural Heritage Program

Table G.1 Site Assessment Information Sources (continued)
(Organized by Information Needed)

Air Pathway Characteristics	
Populations Within Four Miles GEMS NPDC USGS Topographic Maps Site Reconnaissance U.S. Census Bureau Tiger Mapping Services	*Locations of Sensitive Environments, Acreage of Wetlands* USGS Topographic Maps State Department of Transportation Maps State Environmental Agency U.S. Fish and Wildlife Service National Wetland Inventory Maps Ecological Inventory Maps Natural Heritage Program
Distance to Nearest Individual USGS Topographic Maps Site Reconnaissance	

Table G.2 Site Assessment Information Sources
(Organized by Information Source)

Databases	
Source:	CERCLIS (Comprehensive Environmental Response, Compensation, and Liability Information System)
Provides:	EPA's inventory of potential hazardous waste sites. Provides site name, EPA identification number, site address, and the date and types of previous investigations
Supports:	General Site Information
Contact:	U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response Office of Emergency and Remedial Response Mike Cullen 703/603-8881 Fax 703/603-9133
Source:	RODS (Records of Decision System)
Provides:	Information on technology justification, site history, community participation, enforcement activities, site characteristics, scope and role of response action, and remedy.
Supports:	General Site Information, Source and Waste Characteristics
Contacts:	U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response Office of Emergency and Remedial Response Mike Cullen 703/603-8881 Fax 703/603-9133

Table G.2 Site Assessment Information Sources (continued)
(Organized by Information Source)

Databases	
Source:	RCRIS (Resource Conservation and Recovery Information System)
Provides:	EPA's inventory of hazardous waste generators. Contains facility name, address, phone number, and contact name; EPA identification number; treatment, storage and disposal history; and date of notification.
Supports:	General Site Information, Source and Waste Characteristics
Contacts:	U.S. Environmental Protection Agency Office of Solid Waste and Emergency Response Office of Solid Waste Kevin Phelps 202/260-4697 Fax 202/260-0284
Source:	ODES (Ocean Data Evaluation System)
Provides:	Information associated with both marine and fresh water supplies with the following programs: •301(h) sewage discharge •National Pollutant Discharge Elimination System (NPDES) •Ocean Dumping •National Estuary Program •403c Industrial Discharge •Great Lakes Remedial Action Program •National Coastal Waters Program Houses a variety of data pertaining to water quality, oceanographic descriptions, sediment pollutants, physical/chemical characteristics, biological characteristics, and estuary information.
Supports:	General Site Information, Source and Waste Characteristics, Surface Water Use and Characteristics
Contact:	U.S. Environmental Protection Agency Office of Water Robert King 202/260-7026 Fax 202/260-7024

Table G.2 Site Assessment Information Sources (continued)
(Organized by Information Source)

Databases	
Source:	EMMI (Environmental Monitoring Methods Index)
Provides:	U.S. Environmental Protection Agency's official methods compendium. Serves as a source of standard analytical methods.
Supports:	General Site Information
Contact:	U.S. Environmental Protection Agency User Support 703/519-1222 Annual updates may be purchased from the National Technical Information Service at 703/487-4650
Source:	WellFax
Provides:	National Water Well Association's inventory of municipal and community water supplies. Identifies public and private wells within specified distances around a point location and the number of households served by each.
Supports:	Ground Water Use and Characteristics
Contact:	National Water Well Association (NWWA) 6375 Riverside Drive Dublin, OH 43017
Source:	Geographic Resources Information Data System (GRIDS)
Provides:	National access to commonly requested geographic data products such as those maintained by the U.S. Geologic Survey, the Bureau of the Census, and the U.S. Fish and Wildlife Service.
Supports:	General Site Information, Ground Water Use and Characteristics, Surface Water Use and Characteristics, Soil Exposure Characteristics, Air Pathway Characteristics
Contact:	U.S. Environmental Protection Agency Office of Administration and Resources Management Office of Information Resources Management Bob Pease 703/235-5587 Fax 703/557-3186

Table G.2 Site Assessment Information Sources (continued)
(Organized by Information Source)

Databases	
Source:	National Planning Data Corporation (NPDC)
Provides:	Commercial database of U.S. census data. Provides residential populations in specified distance rings around a point location.
Supports:	Soil Exposure Characteristics, Air Pathway Characteristics
Contact:	National Planning Data Corporation 20 Terrace Hill Ithaca, NY 14850-5686
Source:	STORET (Storage and Retrieval of U.S. Waterways Parametric Data)
Provides:	EPA's repository of water quality data for waterways within the U.S. The system is capable of performing a broad range of reporting, statistical analysis, and graphics functions.
Supports:	Geographic and descriptive information on various waterways; analytical data from surface water, fish tissue, and sediment samples; stream flow data.
Contact:	U.S. Environmental Protection Agency Office of Water Office of Wetlands, Oceans, and Watersheds and Office of Information Resources Management Louie H. Hoelman 202/260-7050 Fax 202/260-7024

Table G.2 Site Assessment Information Sources (continued)
(Organized by Information Source)

Databases	
Source:	Federal Reporting Data System (FRDS)
Provides:	General information on public water supplies, including identification information, noncompliance related events, violations of the State Drinking Water Act, enforcement actions, identification of significant noncompliers, and information on variances, exemptions, and waivers.
Supports:	Ground Water Use and Characteristics, Surface Water Use and Characteristics
Contact:	U.S. Environmental Protection Agency Office of Water Office of Ground Water and Drinking Water Abe Seigel 202/260-2804 Fax 202/260-3464
Source:	WATSTORE
Provides:	U.S. Geological Survey's National Water Data Storage and Retrieval System. Administered by the Water Resources Division and contains the Ground Water Site Inventory file (GWSI). This provides physical, hydrologic, and geologic data about test holes, springs, tunnels, drains, ponds, other excavations, and outcrops.
Supports:	General Site Information, Ground Water Use and Characteristics, Surface Water Use and Characteristics
Contact:	U.S. Geological Surgery or USGS Regional Field Office 12201 Sunrise Valley Drive Reston, VA 22092

Table G.2 Site Assessment Information Sources (continued)
(Organized by Information Source)

Databases	
Source:	ISI (Information Systems Inventory)
Provides:	Abstracts and contacts who can provide information on U.S. Environmental Protection Agency databases.
Supports:	All information needs
Contacts:	U.S. Environmental Protection Agency Office of Information and Resources Management Information Management and Services Division ISI System Manager 202/260-5914 Fax 202/260-3923
Source:	ERAMS (Environmental Radiation Ambient Monitoring System)
Provides;	A direct assessment of the population intake of radioactive pollutants due to fallout, data for developing dose computational models, population exposures from routine and accidental releases of radioactivity from major sources, data for indicating additional measurement needs or other actions required in the event of a major release of radioactivity in the environment, and a reference for data comparison with other localized and limited monitoring programs.
Supports:	Source and waste characteristics
Contact:	U.S. Environmental Protection Agency National Air and Radiation Environmental Laboratory 540 South Morris Avenue Montgomery, AL 36115 Phone 334/270-3400 Fax 334/270-3454

Table G.2 Site Assessment Information Sources (continued)
(Organized by Information Source)

Maps and Aerial Photographs			
Source:	U.S. Geological Survey (USGS) Topographic Quadrangles		
Provides:	Maps detailing topographic, geographical, political, and cultural features. Available in 7.5- and 15-minutes series.		
Supports:	Site location and environmental setting; latitude/longitude; houses, schools, and other buildings; distances to targets; surface water body types; drainage routes; wetlands and sensitive environments; karst terrain features.		
Contacts:	U.S. Geological Survey 12201 Sunrise Valley Drive Reston, VA 22092	or	USGS Regional or Field Office
Source:	National Wetland Inventory Maps		
Provides;	Maps delineating boundaries and acreage of wetlands.		
Supports:	Environmental setting and wetlands locations.		
Contact:	U.S. Geological Survey 12201 Sunrise Valley Drive Reston, VA 22092	or	U.S. Fish and Wildlife Service 18th and C Street, NW Washington, DC 20240
Source:	Ecological Inventory Maps		
Provides:	Maps delineating sensitive environments and habitats, including special land use areas, wetlands, study areas, and native plant and animal species.		
Supports:	Environmental setting, sensitive environments, wetland locations and size.		
Contact:	U.S. Geological Survey 12201 Sunrise Valley Drive Reston, VA 22092	or	U.S. Fish and Wildlife Service 18th and C Streets, NW Washington, DC 20240

Table G.2 Site Assessment Information Sources (continued)
(Organized by Information Source)

Maps and Aerial Photographs	
Source:	Flood Insurance Rate Maps (FIRM)
Provides:	Maps delineating flood hazard boundaries for flood insurance purposes.
Supports:	Flood frequency.
Contact:	Federal Emergency Management Agency (FEMA) or Local Zoning and Planning Office Federal Insurance Administration Office of Risk Assessment 500 C Street, SW Washington, DC 20472
Source:	State Department of Transportation Maps
Provides:	State maps detailing road systems, surface water systems, and other geographical, cultural, and political features.
Supports:	Site location and environmental setting, distances to targets, wetlands, and sensitive environments.
Contact:	State or Local Government Agency
Source:	Geologic and Bedrock Maps
Provides:	Maps detailing surficial exposure and outcrop of formations for interpreting subsurface geology. Bedrock maps describe depth and lateral distribution of bedrock.
Supports:	General stratigraphy beneath and surrounding the site.
Contact:	U.S. Geological Survey or USGS Regional or Field Office 12201 Sunrise Valley Drive State Geological Survey Office Reston, VA 22092

Table G.2 Site Assessment Information Sources (continued)
(Organized by Information Source)

Maps and Aerial Photographs	
Source:	Aerial Photographs
Provides:	Black and white and/or color photographic images detailing topographic, physical, and cultural features.
Supports:	Site location and size, location and extent of waste sources, identification of surrounding surficial geology, distances to targets, wetlands and sensitive environments. May provide information on historical site operations, waste quantity, and waste handling practices.
Contact:	State Department of Transportation Local Zoning and Planning Office County Tax Assessor's Office Colleges and Universities (geology or geography departments) EPA's Environmental Monitoring Services Laboratory (EMSL) EPA's Environmental Photographic Interpretation Center (EPIC) U.S. Army Corps of Engineers U.S. Department of Agriculture, Forest Service U.S. Geological Survey
Source:	Global Land Information System (GLIS)
Provides:	An interactive computer system about the Earth's land surfaces information. GLIS contains abstract, description, and search information for each data set. Through GLIS, scientists can evaluate data sets, determine their availability, place online requests for products, or, in some cases, download products. GLIS also offers online samples of earth science data.
Supports:	Site location and environmental setting; latitude/longitude; houses, schools, and other buildings; distances to targets; surface water body types; drainage routes; wetlands and sensitive environments; karst terrain features.
Contact:	Internet: http://mapping.usgs.gov or U.S. Geological Survey 12202 Sunrise Valley Drive Reston, VA 20192, USA

Table G.2 Site Assessment Information Sources (continued)
(Organized by Information Source)

Maps and Aerial Photographs	
Source:	Topologically Integrated Geographic Encoding and Referencing (TIGER) System
Provides:	Automates the mapping and related geographic activities required to support the decennial census and sample survey programs of the U.S. Census Bureau starting with the 1990 decennial census. The topological structure of the TIGER data base defines the location and relationship of streets, rivers, railroads, and other features to each other and to the numerous geographic entities for which the Census Bureau tabulates data from its censuses and sample surveys.
Supports:	General Site Information, Soil Exposure Characteristics, Air Pathway Characteristics
Contacts:	http://www.census.gov/geo/www/tiger Public Information Office Room 2705, FB-3 Census Bureau U.S. Department of Commerce Washington, DC 20233

Table G.2 Site Assessment Information Sources (continued)
(Organized by Information Source)

Files	
Source:	Office project files
Provides:	Site investigation reports, logbooks, telecons, references, etc.
Supports:	Information on nearby sites such as town populations, public and private water supplies, well locations, targets, and general stratigraphy descriptions.
Source:	State Environmental Agency files
Provides;	Historical site information, permits, violations, and notifications.
Supports:	General site information and operational history, source descriptions, waste quantities and waste handling practices. May provide results of previous site investigations.

Table G.2 Site Assessment Information Source (continued)
(Organized by Information Source)

Files		
Source:	EPA Regional Libraries	
Provides:	Historical information on CERCLIS sites, permits, violations, and notification. Additionally provides interlibrary loan services.	
Supports:	General site information and operational history, source descriptions, waste quantities and waste handling practices. May provide results of previous site investigations.	
Contact:	USEPA Region 1 Library JFK Federal Building Boston, MA 02203 617/565-3300 USEPA Region 2 Library 290 Broadway 16th Floor New York, NY 10007-1866 212/264-2881 USEPA Region 3 Information Resources Center, 3PM52 841 Chestnut Street Philadelphia, PA 19107 215/597-0580 USEPA Region 4 Library Atlanta Federal Center 61 Forsyth Street, SW Atlanta, GA 30303-8909 404/562-8190 USEPA Region 5 Library 77 W. Jackson Blvd., 12th Floor Chicago, IL 60604-3590 312/353-2022	USEPA Region 6 Library, 6M-A1 1445 Ross Avenue, Suite 1200 First Interstate Bank Tower Dallas, TX 75202-2733 214/655-6427 USEPA Region 7 Information Resources Center 726 Minnesota Avenue Kansas City, KS 66101 913/551-7358 USEPA Region 8 Library, 8PM-IML 999 18th Street Suite 500 Denver, CO 80202-2405 303/293-1444 USEPA Region 9 Library, MS:P-5-3 75 Hawthorne Street San Francisco, CA 94105 415/744-1510 USEPA Region 10 Library, MD-108 1200 Sixth Avenue Seattle, WA 98101 206/553-1289 or 1259

Table G.2 Site Assessment Information Sources (continued)
(Organized by Information Source)

Expert and Other Sources	
Source:	U.S. Geological Survey
Provides:	Geologic, hydrogeologic, and hydraulic information including maps, reports, studies, and databases.
Supports:	General stratigraphy descriptions, karst terrain, depth to aquifer, stream flow, ground water and surface water use and characteristics.
Contact:	U.S. Geological Survey or USGS Regional or Field Office 12201 Sunrise Valley Drive Reston, VA 22092
Source:	U.S. Army Corps of Engineers
Provides:	Records and data surrounding engineering projects involving surface waters.
Supports:	Ground water and surface water characteristics, stream flow, locations of wetlands and sensitive environments.
Contact:	U.S. Army Corps of Engineers
Source:	State Geological Survey
Provides:	State-specific geologic and hydrogeologic information including maps, reports, studies, and databases.
Supports:	General stratigraphy descriptions, karst terrain, depth to aquifer, ground water use and characteristics.
Contact:	State Geological Survey (Local or Field Office)
Source:	Natural Heritage Program
Provides:	Information on Federal and State designated endangered and threatened plants, animals, and natural communities. Maps, lists and general information may be available.
Supports:	Location of sensitive environments and wetlands.
Contact:	State Environmental Agency

Table G.2 Site Assessment Information Sources (continued)
(Organized by Information Source)

Expert and Other Sources	
Source:	U.S. Fish and Wildlife Service
Provides:	Environmental Information
Supports:	Locations of sensitive environments, wetlands, fisheries; surface water characteristics and stream flow.
Contact:	U.S. Fish and Wildlife Service 18th and C Streets, NW Washington, DC 20240 or U.S. Fish and Wildlife Service Regional office
Source:	Local Fish and Wildlife Officials
Provides:	Local Environmental Information
Supports:	Locations of sensitive environments, wetlands, fisheries; surface water characteristics and stream flow.
Contact:	State or Local Environmental Agency State or Local Game or Conservation Office
Source:	Local Tax Assessor
Provides:	Past and present land ownership records, lot and building sizes, assessors maps. May also provide historical aerial photographs.
Supports:	Name of present and past owners/operators, years of ownership, size of site, and operational history.
Contact:	Local Town Government Office

Table G.2 Site Assessment Information Sources (continued)
(Organized by Information Source)

Expert and Other Sources	
Source:	Local Water Authority
Provides:	Public and private water supply information, including service area maps, well locations and depths, well logs, surface water intake locations, information regarding water supply contamination.
Supports:	Locations and populations served by municipal and private drinking water sources (wells and surface water intakes), pumpage and production, blended systems, depth to aquifer, general stratigraphic descriptions, ground water and surface water characteristics, stream flow.
Contact:	Local Town Government Office
Source:	Local Health Department
Provides:	Information and reports regarding health-related problems that may be associated with a site. Information on private and municipal water supplies, and onsite monitoring wells.
Supports:	Primary/secondary targets differentiation, locations and characteristics of public substances present at the site.
Contact:	Local Town Government Office
Source:	Local Zoning Board or Planning Commission
Provides:	Records of local land development, including historical land use and ownership, and general stratigraphy descriptions.
Supports:	General site description and history, previous ownership, and land use.
Contact:	Local Town Government Office

Table G.2 Site Assessment Information Sources (continued)
(Organized by Information Source)

Expert and Other Sources	
Source:	Local Fire Department
Provides:	Records of underground storage tanks in the area, material safety data sheets (MSDS) for local commercial and industrial businesses, and other information on hazardous substances used by those businesses.
Supports:	Location and use of underground storage tanks and other potential sources of hazardous substances, identification of hazardous substances present at the site.
Contact:	Local Town Government Office
Source:	Local Well Drillers
Provides:	Public and Private water supply information including well locations and depths, well logs, pumpage and production.
Supports:	Populations served by private and municipal drinking water wells, depth to aquifer, general stratigraphic information.
Source:	Local University or College
Provides:	Geology/Environmental Studies departments may have relevant published materials (reports, theses, dissertations) and faculty experts knowledgeable in local geologic, hydrologic, and environmental conditions.
Supports:	General stratigraphic information, ground water and surface water use and characteristics, stream flow.
Source:	Site Reconnaissance
Provides:	Onsite and /or offsite visual observation of the site and surrounding area.
Supports:	General site information; source identification and descriptions; general ground water, surface water, soil, and air pathway characteristics; nearby targets; probable point of entry to surface water.

APPENDIX H

DESCRIPTION OF FIELD SURVEY AND LABORATORY ANALYSIS EQUIPMENT

H.1 INTRODUCTION H-3

H.2 FIELD SURVEY EQUIPMENT H-5
- **H.2.1 Alpha Particle Detectors** H-5
  - ALPHA SCINTILLATION SURVEY METER H-6
  - ALPHA TRACK DETECTOR H-7
  - ELECTRET ION CHAMBER H-8
  - GAS-FLOW PROPORTIONAL COUNTER H-9
  - LONG RANGE ALPHA DETECTOR (LRAD) H-10
- **H.2.2 Beta Particle Detectors** H-11
  - ELECTRET ION CHAMBER H-12
  - GAS-FLOW PROPORTIONAL COUNTER H-13
  - GM SURVEY METER WITH BETA PANCAKE PROBE H-14
- **H.2.3 Gamma Ray Detectors** H-15
  - ELECTRET ION CHAMBER H-16
  - GM SURVEY METER WITH GAMMA PROBE H-17
  - HAND-HELD ION CHAMBER SURVEY METER H-18
  - HAND-HELD PRESSURIZED ION CHAMBER SURVEY METER H-19
  - PORTABLE GERMANIUM MULTICHANNEL ANALYZER H-20
  - PRESSURIZED IONIZATION CHAMBER (PIC) H-22
  - SODIUM IODIDE SURVEY METER H-23
  - THERMOLUMINESCENCE DOSIMETER H-24
- **H.2.4 Radon Detectors** H-25
  - ACTIVATED CHARCOAL ADSORPTION H-26
  - ALPHA TRACK DETECTION H-27
  - CONTINUOUS RADON MONITOR H-28
  - ELECTRET ION CHAMBER H-29
  - LARGE AREA ACTIVATED CHARCOAL COLLECTOR H-30
- **H.2.5 X-Ray and Low Energy Gamma Detectors** H-31
  - FIDLER PROBE WITH SURVEY METER H-32
  - FIELD X-RAY FLUORESCENCE SPECTROMETER H-33
- **H.2.6 Other Field Survey Equipment** H-34
  - CHEMICAL SPECIES LASER ABLATION MASS SPECTROMETER . . H-35
  - LA-ICP-AES AND LA-ICP-MS H-36

H.3 LABORATORY INSTRUMENTS H-38
H.3.1 Alpha Particle Analysis H-38
ALPHA SPECTROSCOPY WITH MULTICHANNEL ANALYZER H-39
GAS-FLOW PROPORTIONAL COUNTER H-40
LIQUID SCINTILLATION SPECTROMETER H-41
LOW-RESOLUTION ALPHA SPECTROSCOPY H-42
H.3.2 Beta Particle Analysis H-43
GAS-FLOW PROPORTIONAL COUNTER H-44
LIQUID SCINTILLATION SPECTROMETER H-45
H.3.3 Gamma Ray Analysis H-46
GERMANIUM DETECTOR WITH MULTICHANNEL ANALYZER . . . H-47
SODIUM IODIDE DETECTOR WITH MULTICHANNEL ANALYZER . H-48

EQUIPMENT SUMMARY TABLES H-49

Table H.1 - Radiation Detectors with Applications to Alpha Surveys H-50

Table H.2 - Radiation Detectors with Applications to Beta Surveys H-52

Table H.3 - Radiation Detectors with Applications to Gamma Surveys H-53

Table H.4 - Radiation Detectors with Applications to Radon Surveys H-55

Table H.5 - Systems that Measure Atomic Mass or Emissions H-56

H.1 INTRODUCTION

This appendix provides information on various field and laboratory equipment used to measure radiation levels and radioactive material concentrations. The descriptions provide general guidance, and those interested in purchasing or using the equipment are encouraged to contact vendors and users of the equipment for specific information and recommendations. Although most of this equipment is in common use, a few specialty items are included to demonstrate promising developments.

The equipment is divided into two broad groupings of field survey and laboratory instruments, and each group is subdivided into equipment that measures alpha, beta, gamma, x-rays, and radon. A single sheet provides information for each system and includes its type of use (field or lab), the primary and secondary radiation detected, applicability for site surveys, operation, specificity/sensitivity, and cost of the equipment and surveys performed.

The Applicability for Site Surveys section discusses how the equipment is most useful for performing site radiological surveys. The Operation section provides basic technical information on what the system includes, how it works, how to use it practically in the field, and its features. The Specificity/Sensitivity section addresses the system's strengths and weaknesses, and the levels of radioactivity it can measure. Information for the Cost section was obtained primarily from discussions with manufacturers, users, and reviews of product literature. The cost per measurement is an estimate of the cost of producing and documenting a single data point, generally as part of a multipoint survey. It assumes times for instrument calibration (primarily if conducted at the time of the survey), use, sample analysis, and report preparation and review. It should be recognized that these values will change over time due to factors like inflation and market expansion.

It is assumed that the user of this appendix has a basic familiarity with field and laboratory equipment. Some of the typical instrument features and terms are listed below and may not be described separately for the individual instruments:

- Field survey equipment consists of a detector, a survey meter, and interconnected cables, although these are sometimes packaged in a single container. **The detector** or probe is the portion which is sensitive to radiation. It is designed in such a manner, made of selected materials, and operated at a high voltage that makes it sensitive to one or more types of radiation. Some detectors feature a window or a shield whose construction material and thickness make the detector more or less sensitive to a particular radiation. The size of the detector can vary depending on the specific need, but is often limited by the characteristics of the construction materials and the physics of the detection process. **The survey meter** contains the electronics and provides high voltage to the detector, processes the detector's signal, and displays the readings in analog or digital fashion. An analog survey meter has a continuous swing needle and typically a manually operated

scale switch, used to keep the needle on scale. The scaling switch may not be required on a digital survey meter. **The interconnecting cables** serve to transfer the high voltage and detector signals in the proper direction. These cables may be inside those units which combine the meter and detector into a single box, but they are often external with connectors that allow the user to interchange detectors.

- Scanning and measuring surveys. In a scanning survey, the field survey meter is operated while moving the detector over an area to search for a change in readings. Since the meter's audible signal responds faster than the meter display, listening to the built-in speaker or using headphones allows the user to more quickly discern changes in radiation level. When a scanning survey detects a change, the meter can be held in place for a more accurate static measurement.

- Integrated readings. Where additional sensitivity is desired, the reading can be integrated using internal electronics or an external scaler to give total values over time. The degree to which the sensitivity can be improved depends largely on the integration time selected.

- Units of measure. Survey meters with conventional meter faces measure radiation levels in units of counts, microRoentgen (µR), millirad (mrad), or millirem (mrem) in terms of unit time, *e.g.*, cpm or µR/hr. Those with SI meter faces use units of microSievert (µSv) or milliGray per unit time, *e.g.*, µSv/hr or mGy/hr.

H.2 FIELD SURVEY EQUIPMENT

H.2.1 Alpha Particle Detectors

System: ALPHA SCINTILLATION SURVEY METER
Lab/Field: Field
Radiation Detected: **Primary:** Alpha **Secondary**: None (in relatively low gamma fields)

Applicability to Site Surveys: The alpha scintillation survey meter is useful for determining the presence or absence of alpha-emitting contamination on nonporous surfaces, swipes, and air filters, or on irregular surfaces if the degree of surface shielding is known.

Operation: This survey meter uses an alpha radiation detector with a sensitive area of approximately 50 to 100 cm^2 (8 to 16 $in.^2$). The detector has a thin, aluminized window of mylar that blocks ambient light but allows alpha radiation to pass through. The detecting medium is silver activated zinc sulfide, ZnS(Ag). When the discriminator is appropriately adjusted, the meter is sensitive only to alpha radiation. Light pulses are amplified by a photomultiplier tube and passed to the survey meter.

The probe is generally placed close to the surface due to the short range of alpha particles in air. A scanning survey is used to identify areas of elevated surface contamination and then a direct survey is performed to obtain actual measurements. Integrating the readings over time improves the sensitivity enough to make the instrument very useful for alpha surface contamination measurements for many isotopes. The readings are displayed in counts per minute, but factors can usually be obtained to convert readings from cpm to dpm. Conversion factors, however, can be adversely affected by the short range of alpha particles which allows them to be shielded to often uncertain degrees if they are embedded in the surface. Systems typically use 2 to 6 "C" or "D" cells and will operate for 100-300 hours.

Specificity/Sensitivity: When the alpha discriminator is correctly adjusted, the alpha scintillation survey meter measures only alpha radiation, even if there are other radiations present. A scanning survey gives a quick indication of the presence or absence of surface contamination, while integrating the readings provides a measure of the activity on a surface, swipe, or filter. Alpha radiation is easily adsorbed by irregular, porous, moist, or over painted surfaces, and this should be carefully considered when converting count rate data to surface contamination levels. This also requires wet swipes and filters to be dried before counting. The minimum sensitivity is around 10 cpm using the needle deflection or 1 to 2 cpm when using headphones or a scaler. Some headphones or scalers give one click for every two counts, so the manual should be consulted to preclude underestimating the radioactivity by a factor of two.

Cost of Equipment: $1000

Cost per Measurement: $5

System: ALPHA TRACK DETECTOR
Lab/Field: Field and Indoor Surfaces
Radiation Detected: **Primary:** Alpha **Secondary:** None

Applicability to Site Surveys: Alpha track detectors measure gross alpha surface contamination, soil activity levels, or the depth profile of contamination.

Operation: This is a passive integrating detector. It consists of a l mm-thick sheet of polycarbonate material which is deployed directly on the soil surface or in close proximity to the contaminated surface. When alpha particles strike the detector surface, they cause microscopic damage centers to form in the plastic matrix. After deployment, the detector is etched in a caustic solution which preferentially attacks the damage centers. The etch pits may then be counted in an optical scanner. The density of etch pits, divided by the deployment time, is proportional to the soil or surface alpha activity. The measurement may be converted to isotopic concentration if the isotopes are known or measured separately. The area of a standard detector is 2 cm^2 (0.3 $in.^2$), but it may be cut into a variety of shapes and sizes to suit particular needs.

Specificity/Sensitivity: Alpha track detectors are relatively inexpensive, simple, passive, and have no measurable response to beta/gamma radiation. They provide a gross alpha measurement where the lower limit of detection is a function of deployment time. For surface contamination it is 330 Bq/m^2 (200 $dpm/100cm^2$) @ l hour, 50 Bq/m^2 (30 $dpm/100cm^2$) @ 8 hours, and 17 Bq/m^2 (10 $dpm/100cm^2$) @ 48 hours. For soil contamination it is 11,000 Bq/kg (300 pCi/g) @ 1 hour, 3,700 Bq/kg (100 pCi/g) @ 8 hours, and 740 Bq/kg (20 pCi/g) @ 96 hours. High surface contamination or soil activity levels may be measured with deployment times of a few minutes, while activity down to background levels may require deployment times of 48-96 hours. When placed on a surface, they provide an estimate of alpha surface contamination or soil concentration. When deployed against the side of a trench, they can provide an estimate of the depth profile of contamination. They may also be used in pipes and under/inside of equipment.

For most applications, the devices are purchased for a fixed price per measurement, which includes readout. This requires that the detectors be returned to the vendor and the data are not immediately available. For programs having continuing needs and a large number of measurements, automated optical scanners may be purchased. The cost per measurement is then a function of the number of measurements required.

Cost of Equipment: $65,000

Cost per Measurement: $5 to $10

System: ELECTRET ION CHAMBER
Lab/Field: Field
Radiation Detected: **Primary:** Alpha, beta, gamma, or radon **Secondary:** None
Applicability to Site Surveys: An electret is a passive integrating detector for measurements of alpha- or beta-emitting contaminants on surfaces and in soils, gamma radiation dose, or radon air concentration.

Operation: The system consists of a charged Teflon disk (electret), open-faced ionization chamber, and electret voltage reader/data logger. When the electret is screwed into the chamber, a static electric field is established and a passive ionization chamber is formed. For alpha or beta radiation, the chamber is opened and deployed directly on the surface or soil to be measured so the particles can enter the chamber. For gammas, however, the chamber is left closed and the gamma rays incident on the chamber penetrate the 2 mm-thick plastic detector wall. These particles or rays ionize the air molecules, the ions are attracted to the charged electret, and the electret's charge is reduced. The electret charge is measured before and after deployment with the voltmeter, and the rate of change of the charge is proportional to the alpha or beta surface or soil activity, with appropriate compensation for background gamma levels. A thin Mylar window may be used to protect the electret from dust. In low-level gamma measurements, the electret is sealed inside a Mylar bag during deployment to minimize radon interference. For alpha and beta measurements, corrections must be made for background gamma radiation and radon response. This correction is accomplished by deploying additional gamma or radon-sensitive detectors in parallel with the alpha or beta detector. Electrets are simple and can usually be reused several times before recharging by a vendor. Due to their small size (3.8 cm tall by 7.6 cm diameter or l.5 in. tall by 3 in. diameter), they may be deployed in hard-to-access locations.

Specificity/Sensitivity: This method gives a gross alpha, gross beta, gross gamma, or gross radon measurement. The lower limit of detection depends on the exposure time and the volume of the chamber used. High surface alpha or beta contamination levels or high gamma radiation levels may be measured with deployment times of a few minutes. Much lower levels can be measured by extending the deployment time to 24 hours or longer. For gamma radiation, the response of the detector is nearly independent of energy from 15 to 1200 keV, and fading corrections are not required. To quantify ambient gamma radiation fields of 10 µR/hr, a 1000 mL chamber may be deployed for two days or a 50 mL chamber deployed for 30 days. The smallest chamber is particularly useful for long-term monitoring and reporting of monthly or quarterly measurements. For alpha and beta particles, the measurement may be converted to isotopic concentration if the isotopes are known or measured separately. The lower limit of detection for alpha radiation is 83 Bq/m^2 (50 dpm/100 cm^2) @ 1 hour, 25 Bq/m^2 (l5 dpm/100 cm^2) @ 8 hours, and 13 Bq/m^2 (8 dpm/100 cm) @ 24 hours. For beta radiation from tritium it is 10,000 Bq/m^2 (6,000 dpm/cm^2) @ 1 hour and 500 Bq/m^2 (300 dpm/cm^2) @ 24 hours. For beta radiation from ^{99}Tc it is 830 Bq/m^2 (500 dpm/cm^2) @ 1 hour and 33 Bq/m^2 (20 dpm/cm^2) @ 24 hours.

Cost of Equipment: $4,000 to $25,000, for system if purchased.
Cost per Measurement: $8-$25, for use under service contract

System: GAS-FLOW PROPORTIONAL COUNTER
Lab/Field: Field
Radiation Detected: **Primary:** Alpha, Beta **Secondary:** Gamma
Applicability to Site Surveys: This equipment measures gross alpha or gross beta/gamma surface contamination levels on relatively flat surfaces like the floors and walls of facilities. It also serves as a screen to determine whether or not more nuclide-specific analyses may be needed.
Operation: This system consists of a gas-flow proportional detector, gas supply, supporting electronics, and a scaler or rate meter. Small detectors (~100 cm^2) are hand-held and large detectors (~400-600 cm^2) are mounted on a rolling cart. The detector entrance window can be <1 to almost 10 mg/cm^2 depending on whether alpha, alpha-beta, or gamma radiation is monitored. The gas used is normally P-10, a mixture of 10% methane and 90% argon. The detector is positioned as close as practical to the surface being monitored for good counting efficiency without risking damage from the detector touching the surface. Quick disconnect fittings allow the system to be disconnected from the gas bottle for hours with little loss of counting efficiency. The detector operating voltage can be set to make it sensitive only to alpha radiation, to both alpha and beta radiation, or to beta and low energy gamma radiation. These voltages are determined for each system by placing either an alpha source, such as ^{230}Th or ^{241}Am, or a beta source, such as ^{90}Sr, facing and near the detector window, then increasing the high voltage in incremental steps until the count rate becomes constant. The alpha plateau, the region of constant count rate, will be almost flat. The beta plateau will have a slope of 5 to 15 percent per 100 volts. Operation on the beta plateau allows detection of some gamma radiation, but the efficiency is very low. Some systems use a spectrometer to separate alpha, and beta/gamma events, allowing simultaneous determination of both the alpha and beta/gamma surface contamination levels.
Specificity/Sensitivity: These systems do not identify the alpha or beta energies detected and cannot be used to identify specific radionuclides. Background for operation on the alpha plateau is very low, 2 to 3 counts per minute, which is higher than for laboratory detectors because of the larger detector size. Background for operation on the beta plateau is dependent on the ambient gamma and cosmic ray background, and typically ranges from several hundred to a thousand counts per minute. Typical efficiencies for unattenuated alpha sources are 15-20%. Beta efficiency depends on the window thickness and the beta energy. For $^{90}Sr/^{90}Y$ in equilibrium, efficiencies range from 5% for highly attenuated to about 35% for unattenuated sources. Typical gamma ray efficiency is <1%. The presence of natural radionuclides in the surfaces could interfere with the detection of other contaminants. Unless the nature of the contaminant and any naturally-occurring radionuclides is well known, this system is better used for assessing gross surface contamination levels. The texture and porosity of the surface can hide or shield radioactive material from the detector, causing levels to be underestimated. Changes in temperature can affect the detectors's sensitivity. Incomplete flushing with gas can cause a nonuniform response over the detector's surface. Condensation in the gas lines or using the quick disconnect fittings can cause count rate instability.
Cost of Equipment: $2,000 to $4,000
Cost per Measurement: $2-$10 per m^2

System: LONG RANGE ALPHA DETECTOR (LRAD)
Lab/Field: Field
Radiation Detected: **Primary:** Alpha **Secondary:** None

Applicability to Site Surveys: The LRAD is a rugged field-type unit for measuring alpha surface soil concentration over a variety of dry, solid, flat terrains.

Operation: The LRAD system consists of a large (1 m x 1 m) aluminum box, open on the bottom side, containing copper plates that collect ions produced in the soil or surface under the box, and used to measure alpha surface contamination or soil concentration. It is attached to a lifting device on the front of a tractor and can be readily moved to new locations. Bias power is supplied by a 300-V dry cell battery, and the electrometer and computer are powered by an automobile battery and DC-to-AC inverter. A 50 cm grounding rod provides electrical grounding. A notebook computer is used for data logging and graphical interpretation of the data. Alpha particles emitted by radionuclides in soil travel only about 3 cm in air. However, these alpha particles interact with the air and produce ions that travel considerably farther. The LRAD detector box is lowered to the ground to form an enclosed ionization region. The copper detector plate is raised to +300V along with a guard detector mounted above the detector plate to control leakage current. The ions are then allowed to collect on the copper plate producing a current that is measured with a sensitive electrometer. The signal is then averaged and processed on a computer. The electric current produced is proportional to the ionization within the sensitive area of the detector and to the amount of alpha contamination present on the surface soil.

Due to its size and weight (300 lb), the unit can be mounted on a tractor for ease of movement. All metal surfaces are covered with plastic to reduce the contribution from ion sources outside the detector box. At each site, a ground rod is driven into the ground. Each location is monitored for at least 5 min. After each location is monitored, its data is fed into a notebook computer and an interpolative graph of alpha concentration produced. The unit is calibrated using standard alpha sources.

Sensitivity/Specificity: The terrain over which this system is used must be dry, to prevent the shielding of alpha particles by residual moisture, and flat, to prevent air infiltration from outside the detector, both of which can lead to large errors. The unit can detect a thin layer of alpha surface contamination at levels of 33-83 Bq/m^2 (20-50 dpm/100 cm^2), but does not measure alpha contamination of deeper layers. Alpha concentration errors are $\pm$74-740 Bq/kg ($\pm$2-20 pCi/g), with daily repeat accuracies of $\pm$370-3,700 Bq/kg ($\pm$10-100 pCi/g), depending on the contamination level. The dynamic measurement range appears to be 370-110,00 Bq/kg (10-3,000 pCi/g).

Cost of Equipment: $25,000 (est. for tractor, computer, software, electrometer, and detector)
Cost per Measurement: $80 (based on 30 min per point and a 2 person team)

H.2 FIELD SURVEY EQUIPMENT

H.2.2 Beta Particle Detectors

System: ELECTRET ION CHAMBER
Lab/Field: Field
Radiation Detected: **Primary:** Low energy beta (*e.g.* tritium, ^{99}Tc, ^{14}C, ^{90}Sr, ^{63}Ni), alpha, gamma, or radon **Secondary:** None

Applicability to Site Surveys: This system measures alpha- or beta-emitting contaminants on surfaces and in soils, gamma radiation dose, or radon air concentration, depending on how it is configured.

Operation: The system consists of a charged Teflon disk (electret), open-faced ionization chamber, and electret voltage reader/data logger. When the electret is screwed into the chamber, a static electric field is established and a passive ionization chamber is formed. For alpha or beta radiation, the chamber is opened and deployed directly on the surface or soil to be measured so the particles can enter the chamber. For gammas, however, the chamber is left closed and the gamma rays incident on the chamber penetrate the 2 mm-thick plastic detector wall. These particles or rays ionize the air molecules, the ions are attracted to the charged electret, and the electret's charge is reduced. The electret charge is measured before and after deployment with the voltmeter, and the rate of change of the charge is proportional to the alpha or beta surface or soil activity, with appropriate compensation for background gamma levels. A thin Mylar window may be used to protect the electret from dust. In low-level gamma measurements, the electret is sealed inside a Mylar bag during deployment to minimize radon interference. For alpha and beta measurements, corrections must be made for background gamma radiation and radon response. This correction is accomplished by deploying additional gamma or radon-sensitive detectors in parallel with the alpha or beta detector. Electrets are simple and can usually be reused several times before recharging by a vendor. Due to their small size (3.8 cm tall by 7.6 cm diameter or l.5 in. tall by 3 in. diameter), they may be deployed in hard-to-access locations.

Specificity/Sensitivity: This method gives a gross alpha, gross beta, gross gamma, or gross radon measurement. The lower limit of detection depends on the exposure time and the volume of the chamber used. High surface alpha or beta contamination levels or high gamma radiation levels may be measured with deployment times of a few minutes. Much lower levels can be measured by extending the deployment time to 24 hours or longer. For gamma radiation, the response of the detector is nearly independent of energy from 15 to 1200 keV, and fading corrections are not required. To quantify ambient gamma radiation fields of 10 µR/hr, a 1000 mL chamber may be deployed for two days or a 50 mL chamber deployed for 30 days. The smallest chamber is particularly useful for long-term monitoring and reporting of monthly or quarterly measurements. For alpha and beta particles, the measurement may be converted to isotopic concentration if the isotopes are known or measured separately. The lower limit of detection for alpha radiation is 83 Bq/m^2 (50 dpm/100 cm^2) @ 1 hour, 25 Bq/m^2 (15 dpm/100 cm^2) @ 8 hours, and 13 Bq/m^2 (8 dpm/100 cm^2) @ 24 hours. For beta radiation from tritium it is 10,000 Bq/m^2 (6,000 dpm/cm^2) @ 1 hour and 500 Bq/m^2 (300 dpm/cm^2) @ 24 hours. For beta radiation from ^{99}Tc it is 830 Bq/m^2(500 dpm/cm^2) @ 1 hour and 33 Bq/m^2 (20 dpm/cm^2) @ 24 hours.

Cost of Equipment: $4,000 to $25,000, for system if purchased.
Cost per Measurement: $8-$25, for use under service contract

System: GAS-FLOW PROPORTIONAL COUNTER
Lab/Field: Field
Radiation Detected: **Primary:** Alpha, Beta **Secondary:** Gamma
Applicability to Site Surveys: This equipment measures gross alpha or gross beta/gamma surface contamination levels on relatively flat surfaces like the floors and walls of facilities. It would serve as a screen to determine whether or not more nuclide-specific analyses were needed.
Operation: This system consists of a gas-flow proportional detector, gas supply, supporting electronics, and a scaler or rate meter. Small detectors (~100 cm^2) are hand-held and large detectors (~400-600 cm^2) are mounted on a rolling cart. The detector entrance window can be <1 to almost 10 mg/cm^2 depending on whether alpha, alpha-beta, or gamma radiation is monitored. The gas used is normally P-10, a mixture of 10% methane and 90% argon. The detector is positioned as close as practical to the surface being monitored for good counting efficiency without risking damage from the detector touching the surface. Quick disconnect fittings allow the system to be disconnected from the gas bottle for hours with little loss of counting efficiency. The detector operating voltage can be set to make it sensitive only to alpha radiation, to both alpha and beta radiation, or to beta and low energy gamma radiation. These voltages are determined for each system by placing either an alpha source, such as ^{230}Th or ^{241}Am, or a beta source, such as ^{90}Sr, facing and near the detector window, then increasing the high voltage in incremental steps until the count rate becomes constant. The alpha plateau, the region of constant count rate, will be almost flat. The beta plateau will have a slope of 5 to 15 percent per 100 volts. Operation on the beta plateau allows detection of some gamma radiation, but the efficiency is very low. Some systems use a spectrometer to separate alpha, and beta/gamma events, allowing simultaneous determination of both the alpha and beta/gamma surface contamination levels.
Specificity/Sensitivity: These systems do not identify the alpha or beta energies detected and cannot be used to identify specific radionuclides. Background for operation on the alpha plateau is very low, 2 to 3 counts per minute, which is higher than for laboratory detectors because of the larger detector size. Background for operation on the beta plateau is dependent on the ambient gamma and cosmic ray background, and typically ranges from several hundred to a thousand counts per minute. Typical efficiencies for unattenuated alpha sources are 15-20%. Beta efficiency depends on the window thickness and the beta energy. For $^{90}Sr/^{90}Y$ in equilibrium, efficiencies range from 5% for highly attenuated to about 35% for unattenuated sources. Typical gamma ray efficiency is <1%. The presence of natural radionuclides in the surfaces could interfere with the detection of other contaminants. Unless the nature of the contaminant and any naturally-occurring radionuclides is well known, this system is better used for assessing gross surface contamination levels. The texture and porosity of the surface can hide or shield radioactive material from the detector, causing levels to be underestimated. Changes in temperature can affect the detectors's sensitivity. Incomplete flushing with gas can cause a nonuniform response over the detector's surface. Condensation in the gas lines or using the quick disconnect fittings can cause count rate instability.
Cost of Equipment: $2,000 to $4,000
Cost per Measurement: $2-$10 per m^2

System: GM SURVEY METER WITH BETA PANCAKE PROBE
Lab/Field: Field
Radiation Detected: **Primary:** Beta **Secondary:** Gamma and alpha
Applicability to Site Surveys: This instrument is used to find and measure low levels of beta/gamma contamination on relatively flat surfaces.
Operation: This instrument consists of a flat "pancake" type Geiger-Mueller detector connected to a survey meter which measures radiation response in counts per minute. The detector housing is typically a rigid metal on all sides except the radiation entrance face or window, which is made of Mylar, mica, or a similar material. A steel, aluminum, lead, or tungsten housing surrounds the detector on all sides except the window, giving the detector a directional response. The detector requires approximately 900 volts for operation. It is held within a few cm of the surface to minimize the thickness of air shielding in between the radioactive material and the detector. It is moved slowly to scan the surface in search of elevated readings, then held in place long enough to obtain a stable measurement. Radiation entering the detector ionizes the gas, causes a discharge throughout the entire tube, and results in a single count being sent to the meter. The counts per minute meter reading is converted to a beta surface contamination level in the range of 1,700 Bq/m^2 (1,000 dpm/100 cm^2) using isotope specific factors.

Specificity/Sensitivity: Pancake type GM detectors primarily measure beta count rate in close contact with surfaces to indicate the presence of contamination. They are sensitive to any alpha, beta, or gamma radiation that enters the detector and causes ionization. As a result, they cannot determine the type or energy of that radiation, except by using a set of absorbers. To be detected, beta particles must have enough energy to penetrate through any surface material that the contamination is absorbed in, plus the detector window, and the layer of air and other shielding materials in between. Low energy beta particles from emitters like ^{3}H (17 keV) that cannot penetrate the window alone are not detectable, while higher energy betas like those from ^{60}Co (314 keV) can be readily detected. The beta detection efficiency at a field site is primarily a function of the beta energy, window thickness, and the surface condition. The detection sensitivity can be improved by using headphones or the audible response during scans. By integrating the count rate over a longer period or by counting the removable radioactive material collected on a swipe , the ability to detect surface contamination can be improved. The nominal 2 in. diameter detector can measure an increase of around 100 cpm above background, which equates to 4,200 Bq/m^2 (2,500 dpm/100 cm^2) of ^{60}Co on a surface under the detector or 20 Bq (500 pCi) on a swipe. Larger 100 cm^2 detectors improve sensitivity and eliminate the need to swipe. A swipe's collection efficiency may be below 100%, and depends on the wiping technique, the actual surface area covered, the texture and porosity of the surface, the affinity of the contamination for the swipe material, and the dryness of the swipe. This will proportionately change the values above. The sensitivity to gamma radiation is around 10% or less of the beta sensitivity, while the alpha detection efficiency is difficult to evaluate.

Cost of equipment: $400 to $1,500
Cost per Measurement: $5 to $10 per location

H.2 FIELD SURVEY EQUIPMENT

H.2.3 Gamma Ray Detectors

System: ELECTRET ION CHAMBER
Lab/Field: Field
Radiation Detected: **Primary:** Low energy beta (*e.g.* tritium, ^{99}Tc, ^{14}C, ^{90}Sr, ^{63}Ni), alpha, gamma, or radon **Secondary:** None

Applicability to Site Surveys: This system measures alpha- or beta-emitting contaminants on surfaces and in soils, gamma radiation dose, or radon air concentration, depending on how it is configured.

Operation: The system consists of a charged Teflon disk (electret), open-faced ionization chamber, and electret voltage reader/data logger. When the electret is screwed into the chamber, a static electric field is established and a passive ionization chamber is formed. For alpha or beta radiation, the chamber is opened and deployed directly on the surface or soil to be measured so the particles can enter the chamber. For gammas, however, the chamber is left closed and the gamma rays incident on the chamber penetrate the 2 mm-thick plastic detector wall. These particles or rays ionize the air molecules, the ions are attracted to the charged electret, and the electret's charge is reduced. The electret charge is measured before and after deployment with the voltmeter, and the rate of change of the charge is proportional to the alpha or beta surface or soil activity, with appropriate compensation for background gamma levels. A thin Mylar window may be used to protect the electret from dust. In low-level gamma measurements, the electret is sealed inside a Mylar bag during deployment to minimize radon interference. For alpha and beta measurements, corrections must be made for background gamma radiation and radon response. This correction is accomplished by deploying additional gamma or radon-sensitive detectors in parallel with the alpha or beta detector. Electrets are simple and can usually be reused several times before recharging by a vendor. Due to their small size (3.8 cm tall by 7.6 cm diameter or l.5 in. tall by 3 in. diameter), they may be deployed in hard-to-access locations.

Specificity/Sensitivity: This method gives a gross alpha, gross beta, gross gamma, or gross radon measurement. The lower limit of detection depends on the exposure time and the volume of the chamber used. High surface alpha or beta contamination levels or high gamma radiation levels may be measured with deployment times of a few minutes. Much lower levels can be measured by extending the deployment time to 24 hours or longer. For gamma radiation, the response of the detector is nearly independent of energy from 15 to 1200 keV, and fading corrections are not required. To quantify ambient gamma radiation fields of 10 µR/hr, a 1000 mL chamber may be deployed for two days or a 50 mL chamber deployed for 30 days. The smallest chamber is particularly useful for long-term monitoring and reporting of monthly or quarterly measurements. For alpha and beta particles, the measurement may be converted to isotopic concentration if the isotopes are known or measured separately. The lower limit of detection for alpha radiation is 83 Bq/m^2 (50 dpm/100 cm^2) @ 1 hour, 25 Bq/m^2 (15 dpm/100 cm^2) @ 8 hours, and 13 Bq/m^2 (8 dpm/100 cm^2) @ 24 hours. For beta radiation from tritium it is 10,000 Bq/m^2 (6,000 dpm/cm^2) @ 1 hour and 500 Bq/m^2 (300 dpm/cm^2) @ 24 hours. For beta radiation from ^{99}Tc it is 830 Bq/m^2(500 dpm/cm^2) @ 1 hour and 33 Bq/m^2 (20 dpm/cm^2) @ 24 hours.

Cost of Equipment: $4,000 to $25,000, for system if purchased.
Cost per Measurement: $8-$25, for use under service contract

System: GM SURVEY METER WITH GAMMA PROBE
Lab/Field: Field
Radiation Detected: **Primary:** Gamma **Secondary:** Beta

Applicability to Site Surveys: This instrument is used to give a quick indication of gamma-radiation levels present at a site. Due to its high detection limit, the GM survey meter may be useful during characterization surveys but may not meet the needs of final status surveys.

Operation: This instrument consists of a cylindrical Geiger Mueller detector connected to a survey meter. It is calibrated to measure gamma exposure rate in mR/hr. The detector is surrounded on all sides by a protective rigid metal housing. Some units called end window or side window have a hinged door or rotating sleeve that opens to expose an entry window of Mylar, mica, or a similar material, allowing beta radiation to enter the sensitive volume. The detector requires approximately 900 volts for operation. It is normally held at waist height, but is sometimes placed in contact with an item be evaluated. It is moved slowly over the area to scan for elevated readings, observing the meter or, preferably, listening to the audible signal. Then it is held in place long enough to obtain a stable measurement. Radiation entering the detector ionizes the gas, causes a discharge throughout the entire tube, and results in a single count being sent to the meter. Conversion from count rate to exposure rate is accomplished at calibration by exposing the detector at discrete levels and adjusting the meter scale(s) to read accordingly. In the field, the exposure rate is read directly from the meter. If the detector housing has an entry window , an increase in “open-door” over “closed-door” reading indicates the presence of beta radiation in the radiation field, but the difference is not a direct measure of the beta radiation level.

Specificity/Sensitivity: GM meters measure gamma exposure rate, and those with an entry window can identify if the radiation field includes beta radiation. Since GM detectors are sensitive to any energy of alpha, beta, or gamma radiation that enters the detector, instruments that use these detectors cannot identify the type or energy of that radiation, or the specific radionuclide(s) present. The sensitivity can be improved by using headphones or the audible response during scans, or by integrating the exposure rate over time. The instrument has two primary limitations for environmental work. First, its minimum sensitivity is high, around 0.1 mR/hr in rate meter mode or 0.01 mR/hr in integrate mode. Some instruments use a large detector to improve low end sensitivity. However, in many instances the instrument is not sensitive enough for site survey work. Second, the detector’s energy response is nonlinear. Energy compensated survey meters are commercially available, but the instrument's sensitivity may be reduced.

Cost of Equipment: $400 to $1,500.

Cost per Measurement: $5 per measurement for survey and report.

System: HAND-HELD ION CHAMBER SURVEY METER
Lab/Field: Field
Radiation Detected: **Primary:** Gamma **Secondary:** None

Applicability to Site Surveys: The hand-held ion chamber survey meter measures true gamma radiation exposure rate, in contrast to most other survey meter/probe combinations which are calibrated to measure exposure rate at one energy and approximate the exposure rate at all other energies. Due to their high detection limit, these instruments are not applicable for many final status surveys.

Operation: This device uses an ion chamber operated at a bias voltage sufficient to collect all ion pairs created by the passage of ionizing radiation, but not sufficiently high to generate secondary ion pairs as a proportional counter does. The units of readout are mR/hr, or some multiple of mR/hr. If equipped with an integrating mode, the operator can measure the total exposure over a period of time. The instrument may operate on two "D" cells or a 9 volt battery that will last for 100 to 200 hours of operation.

Specificity/Sensitivity: Ion chamber instruments respond only to gamma or x-radiation. They have no means to provide the identity of contaminants. Typical ion chamber instruments have a lower limit of detection of 0.5 mR/hr. These instruments can display readings below this, but the readings may be erratic and have large errors associated with them. In integrate mode, the instrument sensitivity can be as low as 0.05 mR/hr.

Cost of Equipment: $800 to $1,200

Cost per Measurement: $5, or higher for making integrated exposure measurements.

System: HAND-HELD PRESSURIZED ION CHAMBER (PIC) SURVEY METER
Lab/Field: Field
Radiation Detected: **Primary:** Gamma **Secondary:** None

Applicability to Site Surveys: The hand-held pressurized ion chamber survey meter measures true gamma radiation exposure rate, in contrast to most other survey meter/probe combinations which are calibrated to measure exposure rate at one energy and approximate the exposure rate at all other energies. Due to their high detection limit, these instruments are not applicable for many final status surveys.

Operation: This device uses a pressurized air ion chamber operated at a bias voltage sufficient to collect all ion pairs created by the passage of ionizing radiation, but not sufficiently high to cause secondary ionization.. The instrument is identical to the ion chamber meter on the previous page, except in this case the ion chamber is sealed and pressurized to 2 to 3 atmospheres to increase the sensitivity of the instrument by the same factors. The units of readout are µR/hr or mR/hr. A digital meter will allow an operator to integrate the total exposure over a period of time. The unit may use two "D" cells or a 9-volt battery that will last for 100 to 200 hours of operation.

Specificity/Sensitivity: Since the ion chamber is sealed, pressurized ion chamber instruments respond only to gamma or X-radiation. They have no means to provide the identity of contaminants. Typical instruments have a lower limit of detection of 0.1 mR/hr, or as low as 0.01 mR in integrate mode. These instruments can display readings below this, but the readings may be erratic and have large errors associated with them.

Cost of Equipment: $1,000 to $1,500

Cost per Measurement: $5, or higher for making integrated exposure measurements.

System: PORTABLE GERMANIUM MULTICHANNEL ANALYZER (MCA) SYSTEM
Lab/Field: Field
Radiation Detected: **Primary:** Gamma **Secondary:** None

Applicability for Site Surveys: This system produces semi-quantitative estimates of concentration of uranium and plutonium in soil, water, air filters, and quantitative estimates of many other gamma-emitting isotopes. With an appropriate dewar, the detector may be used in a vertical orientation to determine, *in situ*, gamma isotopes concentrations in soil.

Operation: This system consists of a portable germanium detector connected to a dewar of liquid nitrogen, high voltage power supply, and multichannel analyzer. It is used to identify and quantify gamma-emitting isotopes in soil or other surfaces.

Germanium is a semiconductor material. When a gamma ray interacts with a germanium crystal, it produces electron-hole pairs. An electric field is applied which causes the electrons to move in the conduction band and the holes to pass the charge from atom to neighboring atoms. The charge is collected rapidly and is proportional to the deposited energy.

The typical system consists of a portable multichannel analyzer (MCA) weighing about 7-10 lbs with batteries, a special portable low energy germanium detector with a built-in shield, and the acquisition control and spectrum analysis software. The detector is integrally mounted to a liquid nitrogen dewar. The liquid nitrogen is added 2-4 hours before use and replenished every 4-24 hours based on capacity.

The MCA includes all required front end electronics, such as a high voltage power supply, an amplifier, a digital stabilizer, and an analog-to-digital converter (ADC), which are fully controllable from a laptop computer and software.

One method uses the 94-104 keV peak region to analyze the plutonium isotopes from either “fresh” or aged materials. It requires virtually no user input or calibration. The source-to-detector distance for this method does not need to be calibrated as long as there are enough counts in the spectrum to perform the analysis.

For *in situ* applications, a collimated detector is positioned at a fixed distance from a surface to provide multichannel spectral data for a defined surface area. It is especially useful for qualitative and (based on careful field calibration or appropriate algorithms) quantitative analysis of freshly deposited contamination. Additionally, with prior knowledge of the depth distribution of the primary radionuclides of interest, which is usually not known, or using algorithms that match the site, the *in situ* system can be used to estimate the content of radionuclides distributed below the surface (dependent, of course, on adequate detection capability.)

Calibration based on Monte Carlo modeling of the assumed source-to-detector geometry or computation of fluence rates with analytical expressions is an important component to the accurate use of field spectrometry, when it is not feasible or desirable to use real radioactive sources. Such modeling used in conjunction with field spectrometry is becoming much more common recently, especially using the MCNP Monte Carlo computer software system.

Specificity/Sensitivity: With proper calibration or algorithms, field spectrometers can identify and quantify concentrations of gamma emitting radionuclides in the middle to upper energy range (*i.e.,* 50 keV with a P-type detector or 10 keV with an N-type detector).

For lower energy photons, as are important for plutonium and americium, an N-type detector or a planar crystal is preferred with a very thin beryllium (Be) window. This configuration allows measurement of photons in the energy range 5 to 80 keV. The Be window is quite fragile and a target of corrosion, and should be protected accordingly.

The detector high voltage should only be applied when the cryostat has contained sufficient liquid nitrogen for several hours. These systems can accurately identify plutonium, uranium, and many gamma-emitting isotopes in environmental media, even if a mixture of radionuclides is present. Germanium has an advantage over sodium iodide because it can produce a quantitative estimate of concentrations of multiple radionuclides in samples like soil, water, and air filters.

A specially designed low energy germanium detector that exhibits very little deterioration in the resolution as a function of count rate may be used to analyze uranium and plutonium, or other gamma-emitting radionuclides. When equipped with a built-in shield, it is unnecessary to build complicated shielding arrangements while making field measurements. Tin filters can be used to reduce the count rate from the ^{241}Am 59 keV line which allows the electronics to process more of the signal coming from Pu or U.

A plutonium content of 10 mg can be detected in a 55 gallon waste drum in about 30 minutes, although with high uncertainty. A uranium analysis can be performed for an enrichment range from depleted to 93% enrichment. The measurement time can be in the order of minutes depending on the enrichment and the attenuating materials.

Cost of Equipment: $40,000

Cost per Measurement: $100 to $200

System: PRESSURIZED IONIZATION CHAMBER (PIC)
Lab/Field: Field
Radiation Detected: **Primary:** Moderate (>80 keV) to high energy photons
Secondary: None

Applicability to Site Surveys: The PIC is a highly accurate ionization chamber for measuring gamma exposure rate in air, and for correcting for the energy dependence of other instruments due to their energy sensitivities. It is excellent for characterizing and evaluating the effectiveness of remediation of contaminated sites based on exposure rate. However, most sites also require nuclide-specific identification of the contributing radionuclides. Under these circumstances, PICs must be used in conjunction with other soil sampling or spectrometry techniques to evaluate the success of remediation efforts.

Operation: The PIC detector is a large sphere of compressed argon-nitrogen gas at 10 to 40 atmospheres pressure surrounded by a protective box. The detector is normally mounted on a tripod and positioned to sit about three feet off the ground. It is connected to an electronics box in which a strip chart recorder or digital integrator measures instantaneous and integrated exposure rate. It operates at a bias voltage sufficient to collect all ion pairs created by the passage of ionizing radiation, but not sufficiently high to amplify or increase the number of ion pairs . The high pressure inside the detector and the integrate feature make the PIC much more sensitive and precise than other ion chambers for measuring low exposures. The average exposure rate is calculated from the integrated exposure and the operating time. Arrays of PIC systems can be linked by telecommunications so their data can be observed from a central and remote location.

Specificity/Sensitivity: The PIC measures gamma or x-radiation and cosmic radiation. It is highly stable, relatively energy independent, and serves as an excellent tool to calibrate (in the field) other survey equipment to measure exposure rate. Since the PIC is normally uncollimated, it measures cosmic, terrestrial, and foreign source contributions without discrimination. Its rugged and stable behavior makes it an excellent choice for an unattended sensor where area monitors for gamma emitters are needed. PICs are highly sensitive, precise, and accurate to vast changes in exposure rate (1 µR/ hr up to 10 R/hr). PICs lack any ability to distinguish either energy spectral characteristics or source type. If sufficient background information is obtained , the data can be processed using algorithms that employ time and frequency domain analysis of the recorded systems to effectively separate terrestrial, cosmic, and "foreign" source contributions. One major advantage of PIC systems is that they can record exposure rate over ranges of 1 to 10,000,000 µR per hour (*i.e.*, µR/hr to 10 R/hr) with good precision and accuracy.

Cost of Equipment: $15,000 to $50,000 depending on the associated electronics, data processing, and telecommunications equipment.

Cost per Measurement: $50 to $500 based on the operating time at each site and the number of measurements performed.

System: SODIUM IODIDE SURVEY METER
Lab/Field: Field
Radiation Detected: **Primary:** Gamma **Secondary:** None
Applicability to Site Surveys: Sodium iodide survey meters can be response checked against a pressurized ionization chamber(PIC) and then used in its place so readings can be taken more quickly. This check should be performed often, possibly several times each day. They are useful for determining ambient radiation levels and for estimating the concentration of radioactive materials at a site.
Operation: The sodium iodide survey meter measures gamma radiation levels in µR/hr (10^{-6} R/hr) or counts per minute (cpm). Its response is energy and count rate dependent, so comparison with a pressurized ion chamber necessitates a conversion factor for adjusting the meter readings to true µR/hr values. The conversion factor obtained from this comparison is valid only in locations where the radionuclide mix is identical to that where the comparison is performed, and over a moderate range of readings. The detector is held at waist level or suspended near the surface and walked through an area listening to the audio and watching the display for changes. It is held in place and the response allowed to stabilize before each measurement is taken, with longer times required for lower responses. Generally, the center of the needle swing or the integrated reading is recorded. The detector is a sodium iodide crystal inside an aluminum container with an optical glass window that is connected to a photomultiplier tube. A gamma ray that interacts with the crystal produces light that travels out of the crystal and into the photomultiplier tube. There, electrons are produced and multiplied to produce a readily measurable pulse whose magnitude is proportional to the energy the gamma ray incident on the crystal. Electronic filters accept the pulse as a count if certain discrimination height restrictions are met. This translates into a meter response. Instruments with pulse height discrimination circuitry can be calibrated to view the primary gamma decay energy of a particular isotope. If laboratory analysis has shown a particular isotope to be present, the discrimination circuitry can be adjusted to partially tune out other isotopes, but this also limits its ability to measure exposure rate.
Specificity/Sensitivity: Sodium iodide survey meters measure gamma radiation in µR/hr or cpm with a minimum sensitivity of around 1-5 µR per hour, or 200-1,000 cpm, or lower in digital integrate mode. The reading error of 50% can occur at low count rates because of a large needle swing, but this decreases with increased count rate. The instrument is quite energy sensitive, with the greatest response around 100-120 keV and decreasing in either direction. Measuring the radiation level at a location with both a PIC and the survey meter gives a factor for converting subsequent readings to actual exposure rates. This ratio can change with location. Some meters have circuitry that looks at a few selected ranges of gamma energies, or one at a time with the aide of a single channel analyzer. This feature is used to determine if a particular isotope is present. The detector should be protected against thermal or mechanical shock which can break the sodium iodide crystal or the photomultiplier tube. Covering at least the crystal end with padding is often sufficient. The detector is heavy, so adding a carrying strap to the meter and a means of easily attaching and detaching the detector from the meter case helps the user endure long surveys.
Cost of Equipment: $2,000
Cost per Measurement: $5

System: THERMOLUMINESCENCE DOSIMETER (TLD)
Lab/Field: Field and lab
Radiation Detected: **Primary:** Gamma **Secondary:** Neutron, beta, x-ray
Applicability to Site Surveys: TLDs can be used to measure such a low dose equivalent that they can identify gamma levels slightly above natural background. TLDs should be placed in areas outside the site but over similar media to determine the average natural background radiation level in the area. Other TLDs should be posted on site to determine the difference from background. Groups should be posted quarterly for days to quarters and compared to identify locations of increased onsite doses.
Operation: A TLD is a crystal that measures radiation dose. TLDs are semiconductor crystals that contain small amounts of added impurities. When radiation interacts with the crystal, electrons in the valence band are excited into the conduction band. Many lose their energy and return directly to the valence band, but some are trapped at an elevated energy state by the impurity atoms. This trapped energy can be stored for long periods, but the signal can fade with age, temperature, and light. Heating the TLD in a TLD reader releases the excess energy in the form of heat and light. The quantity or intensity of the light given off gives a measure of the radiation dose the TLD received. If the TLDs are processed at an off site location, the transit dose (from the location to the site and return) must be determined and subtracted from the net dose. The ability to determine this transit dose affects the net sensitivity of the measurements. The TLD is left in the field for a period of a day to a quarter and then removed from the field and read in the laboratory on a calibrated TLD reader. The reading is the total dose received by the TLD during the posting period. TLDs come in various shapes (thin-rectangles, rods, and powder), sizes (0.08 cm to 0.6 cm (1/32 in. to 1/4 in.) on a side), and materials (CaF_2:Mn, $CaSO_4$:Dy, ^{6}LiF:Mn, ^{7}LiF:Mn, $LiBO_4$, LiF:Mg,Cu,P and Al_2O_3:C). The TLD crystals can be held loosely inside a holder, sandwiched between layers of Teflon, affixed to a substrate, or attached to a heater strip and surrounded by a glass envelope. Most are surrounded by special thin shields to correct for an over response to low-energy radiation. Many have special radiation filters to allow the same type TLD to measure various types and energies of radiation.
Specificity/Sensitivity: TLDs are primarily sensitive to gamma radiation, but selected TLD/filter arrangements can be used to measure beta, x-ray, and neutron radiation. They are posted both on site and off site in comparable areas. These readings are compared to determine if the site can cause personnel to receive more radiation exposure than would be received from background radiation. The low-end sensitivity can be reduced by specially calibrating each TLD and selecting those with high accuracy and good precision. The new Al_2O_3 TLD may be capable of measuring doses as low as 0.1 µSv (0.01 mrem) while specially calibrated CaF_2 TLDs posted quarterly can measure dose differences as low as 0.05 mSv/y (5 mrem/y). This is in contrast to standard TLDs that are posted monthly and may not measure doses below 1 mSv/y (100 mrem/y). TLDs should be protected from damage as the manufacturer recommends. Some are sensitive to visible light, direct sunlight, fluorescent light, excessive heat, or high humidity.
Cost of Equipment: $5K-$ 100K (reader), $25-$40 (TLD). TLDs cost $5 to $40 per rental.
Cost per Measurement: $25 to $125

H.2 FIELD SURVEY EQUIPMENT

H.2.4 Radon Detectors

System: ACTIVATED CHARCOAL ADSORPTION
Lab/Field: Field
Radiation Detected: **Primary:** Radon gas **Secondary:** None

Applicability to Site Surveys: Activated charcoal adsorption is a passive low cost screening method for measuring indoor air radon concentration. The charcoal adsorption method is not designed for outdoor measurements. For contaminated structures, charcoal is a good short-term indicator of radon contamination. Vendors provide measurement services which includes the detector and subsequent readout.

Operation: For this method, an airtight container with activated charcoal is opened in the area to be sampled and radon in the air adsorbs onto the charcoal. The detector, depending on its design, is deployed for 2 to 7 days. At the end of the sampling period, the container is sealed and sent to a laboratory for analysis. Proper deployment and analysis will yield accurate results.

Two analysis methods are commonly used in activated charcoal adsorption. The first method calculates the radon concentration based on the gamma decay from the radon progeny analyzed on a gamma scintillation or semiconductor detection system. The second method is liquid scintillation which employs a small vial containing activated charcoal for sampling. After exposure, scintillation fluid is added to the vial and the radon concentration is determined by the alpha and beta decay of the radon and progeny when counted in a liquid scintillation spectrometer.

Specificity/Sensitivity: Charcoal absorbers are designed to measure radon concentrations in indoor air. Some charcoal absorbers are sensitive to drafts, temperature and humidity. However, the use of a diffusion barrier over the charcoal reduces these effects. The minimum detectable concentration for this method ranges from 0.007-0.04 Bq/L (0.2-1.0 pCi/L).

Cost of Equipment: $10,000 for a liquid scintillation counter, $10,000 for a sodium iodide multichannel analyzer system, or $30,000+ for a germanium multichannel analyzer system. The cost of the activated charcoal itself is minimal.

Cost per Measurement: $5 to $30 including canister.

System: ALPHA TRACK DETECTOR
Lab/Field: Field
Radiation Detected: **Primary:** Radon Gas (Alpha Particles) **Secondary:** None
Applicability to Site Surveys: An alpha track detector is a passive, low cost, long term method used for measuring radon. Alpha track detectors can be used for site assessments both indoors and outdoors (with adequate protection from the elements).

Operation: Alpha track detectors employ a small piece of special plastic or film inside a small container. Air being tested diffuses through a filtering mechanism into the container. When alpha particles from the decay of radon and its progeny strike the detector, they cause damage tracks. At the end of exposure, the container is sealed and returned to the laboratory for analysis.

The plastic or film detector is chemically treated to amplify the damage tracks and then the number of tracks over a predetermined area are counted using a microscope, optical reader, or spark counter. The radon concentration is determined by the number of tracks per unit area. Detectors are usually exposed for 3 to 12 months, although shorter time frames may be used when measuring high radon concentrations.

Specificity/Sensitivity: Alpha track detectors are primarily used for indoor air measurements but specially designed detectors are available for outdoor measurements. Alpha track results are usually expressed as the radon concentration over the exposure period (Bq/L-days). The sensitivity is a function of detector design and exposure duration, and is on the order of 0.04 Bq/L-day (1 pCi/L-day).

Cost of Equipment: Not applicable when provided by a vendor

Cost per Measurement: $5 to $25

System: CONTINUOUS RADON MONITOR
Lab/Field: Field
Radiation Detected: **Primary:** Radon gas **Secondary:** None

Applicability to Site Surveys: Continuous radon monitors are devices that measure and record real-time measurements of radon gas or variations in radon concentration on an hourly basis. Since continuous monitors display real-time hourly radon measurements, they are useful for short-term site investigation.

Operation: Continuous radon monitors are precision devices that track and record real-time measurements and variations in radon gas concentration on an hourly basis. Air either diffuses or is pumped into a counting chamber. The counting chamber is typically a scintillation cell or ionization chamber. Using a calibration factor, the counts are processed electronically, and radon concentrations for predetermined intervals are stored in memory or directly transmitted to a printer.

Most continuous monitors are used for a relatively short measurement period, usually 1 to 7 days. These devices do require some operator skills and often have a ramp-up period to equilibrate with the surrounding atmosphere. This ramp-up time can range from 1 to 4 hours depending on the size of the counting chamber and rate of air movement into the chamber.

Specificity/Sensitivity: Most continuous monitors are designed for both indoor and outdoor radon measurements. The limiting factor for outdoor usage is the need for electrical power. In locations where external power is unavailable, the available operating time depends on the battery lifetime of the monitor. The minimum detectable concentration for these detectors ranges from 0.004-0.04 Bq/L (0.1-1.0 pCi/L).

Cost of Equipment: $1,000 to $5,000.

Cost per Measurement: $80+ based on duration of survey.

System: ELECTRET ION CHAMBER
Lab/Field: Field
Radiation Detected: **Primary:** Radon gas (alpha, beta) **Secondary:** Gamma

Applicability to Site Surveys: Electrets are used to measure radon concentration in indoor environments. For contaminated structures, the electret ion chamber is a good indicator of short-term and long-term radon concentrations.

Operation: For this method, an electrostatically charged disk (electret) is situated within a small container (ion chamber). During the measurement period, radon diffuses through a filter into the ion chamber, where the ionization produced by the decay of radon and its progeny reduces the charge on the electret. A calibration factor relates the voltage drop, due to the charge reduction, to the radon concentration. Variations in electret design enable the detector to make long-term or short-term measurements. Short-term detectors are deployed for 2 to 7 days, whereas long-term detectors may be deployed from 1 to 12 months.

Electrets are relatively inexpensive, passive, and can be used several times before discarding or recharging, except in areas of extreme radon concentrations. These detectors need to be corrected for the background gamma radiation during exposure since this ionization also discharges the electret.

Specificity/Sensitivity: Electrets are designed to make radon measurements primarily in indoor environments. Care must be taken to measure the background gamma radiation at the site during the exposure period. Extreme temperatures and humidity encountered outdoors may affect electret voltage. The minimum detectable concentration ranges from 0.007-0.02 Bq/L (0.2 to 0.5 pCi/L).

Cost of Equipment: Included in rental price

Cost per Measurement: $8 to $25 rental for an electret supplied by a vendor

System: LARGE AREA ACTIVATED CHARCOAL COLLECTOR
Lab/Field: Field
Radiation Detected: **Primary:** Radon gas **Secondary:** None

Applicability to Site Surveys: This method is used to make radon flux measurements (the surface emanation rate of radon gas) and involves the adsorption of radon on activated carbon in a large area collector.

Operation: The collector consists of a 10 inch diameter PVC end cap, spacer pads, charcoal distribution grid, retainer pad with screen, and a steel retainer spring. Between 170 and 200 grams of activated charcoal is spread in the distribution grid and held in place by the retainer pad and spring.

The collector is deployed by firmly twisting the end cap into the surface of the material to be measured. After 24 hours of exposure, the activated charcoal is removed and transferred to plastic containers. The amount of radon adsorbed on the activated charcoal is determined by gamma spectroscopy. This data is used to calculate the radon flux in units of Bq m^{-2} s^{-1}.

Specificity/Sensitivity: These collectors give an accurate short-term assessment of the radon gas surface emanation rate from a material. The minimum detectable concentration of this method is 0.007 Bq m^{-2} s^{-1} (0.2 pCi m^{-2} s^{-1}).

Exposures greater than 24 hours are not recommended due to atmospheric and surface moisture and temperature extremes which may affect charcoal efficiency.

Cost of Equipment: Not applicable

Cost per Measurement: $20 - $50 including canister

H.2 FIELD SURVEY EQUIPMENT

H.2.5 X-Ray and Low Energy Gamma Detectors

System: FIDLER PROBE WITH SURVEY METER
Lab/Field: Field
Radiation Detected: **Primary:** X-ray **Secondary:** Low Energy Gamma
Applicability to Site Surveys: The FIDLER (Field Instrument for the Detection of Low Energy Radiation) probe is a specialized detector consisting of a thin layer of sodium or cesium iodide which is optimized to detect gamma and x-radiation below 100 keV. It is most widely used for determining the presence of Pu and ^{241}Am, and can be used for estimating radionuclide concentrations in the field.
Operation: The FIDLER consists of a thin beryllium or aluminum window, a thin crystal of sodium iodide, a quartz light pipe, and photomultiplier tube. The probe can have either a 3 in. or 5 in. crystal. The discussion below is applicable to 5 in. crystals. The survey meter requires electronics capable of setting a window about an x-ray or gamma ray energy. This window allows the probe and meter to detect specific energies and, in most cases, provide information about a single element or radionuclide. The window also lowers the background count. Two types of survey meters are generally used with FIDLER probes. One type resembles those used with GM and alpha scintillation probes. They have an analog meter and range switch. The second type is a digital survey meter, which can display the count rate or accumulate counts in a scaler mode for a preset length of time. Both types have adjustable high voltage and window settings. The advantage of the digital meter is that both background and sample counts can be acquired in scaler mode, yielding a net count above background. The activity of a radionuclide can then be estimated in the field.
Specificity/Sensitivity: The FIDLER probe is quite sensitive to x-ray and low energy gamma radiation. Since it has the ability to discriminate energies, an energy window can be set that makes it possible to determine the presence of specific radionuclides when the nature of the contamination is known. If the identity of a contaminant is known, the FIDLER can be used to quantitatively determine the concentration. However, interferences can cause erroneous results if other radionuclides are present. The FIDLER can also be used as a survey instrument to detect the presence of x-ray or low energy gamma contaminates, and to determine the extent of the contamination. FIDLER probes are most useful for determining the presence of Pu and ^{241}Am. These isotopes have a complex of x-rays and gamma rays from 13-21 keV that have energies centered around 17 keV, and ^{241}Am has a gamma at 59 keV. There is an interference at 13 keV from both americium and uranium x-rays. The FIDLER cannot distinguish which isotope of Pu is present. ^{241}Am can be identified based on the 59 keV gamma. Typical sensitivities for ^{238}Pu and ^{239}Pu at one foot above the surface of a contaminated area are 500 to 700 and 250 to 350 counts per minute per µCi per square meter (cpm/µCi/m^2), respectively. Assuming a soil density of 1.5, uniform contamination of the first 1 mm of soil, and a typical background of 400 counts per minute, the MDC for ^{238}Pu and ^{239}Pu would be 370 and 740 Bq/kg (10 and 20 pCi/g), or 1500 and 3000 Bq/m^2 (900 and 1,800 dpm/100 cm^2). This MDC is for fresh deposition; and will be significantly less as the plutonium migrates into the soil. Because the window is fragile, most operations with a FIDLER probe require a low mass protective cover to prevent damaging the window. Styrofoam, cardboard, and other cushioning materials are common choices for a protective cover.
Cost of Equipment: $4,000 to $7,000
Cost per Measurement: $10 to $20

System: FIELD X-RAY FLUORESCENCE SPECTROMETER
Lab/Field: Field
Radiation Detected: **Primary:** X-ray and low energy gamma radiation
Secondary: None

Applicability to Site Surveys: The system accurately measures relative concentrations of metal atoms in soil or water samples down to the ppm range.

Operation: This system is a rugged form of x-ray fluorescence system that measures the characteristic x-rays of metals as they are released from excited electron structures. The associated electronic and multi-channel analyzer systems are essentially identical to those used with germanium spectrometry systems. The spectra of characteristic x-rays gives information for both quantitative and qualitative analysis; however, most frequently, the systems are only calibrated for relative atomic abundance or percent composition.

Specificity/Sensitivity: This is ideal for cases of contamination by metals that have strong x-ray emissions within 5-100 keV. Application for quantification of the transition metals (in the periodic table) is most common because of the x-ray emissions. Operation of this equipment is possible with only a moderate amount of training. The sensitivity ranges from a few percent to ppm depending on the particular atoms and their characteristic x-rays. When converted to activity concentration, the minimum detectable concentration for ^{238}U is around 1,850 Bq/kg (50 pCi/g) for typical soil matrices.

Cost of Equipment: $15,000 - $75,000 depending on size, speed of operation and auxiliary features employed for automatic analysis of the results.

Cost per Measurement: $200

H.2 FIELD SURVEY EQUIPMENT

H.2.6 Other Field Survey Equipment

System: CHEMICAL SPECIES LASER ABLATION MASS SPECTROMETER
Lab/Field: Field
Radiation Detected: None

Applicability to Site Surveys: Chemical Species Laser Ablation Mass Spectrometry has been successfully applied to the analysis of organic and inorganic molecular species in condensed material with high sensitivity and specificity.

Operation: Solids can be converted into aerosol particles which contain much of the molecular species information present in the original material. (One way this is done is by laser excitation of one component of a solid mixture which, when volatilized, carries along the other molecular species without fragmentation.) Aerosol particles can be carried hundreds of feet without significant loss in a confined or directed air stream before analysis by mass spectrometry. Some analytes of interest already exist in the form of aerosol particles. Laser ablation is also preferred over traditional means for the conversion of the aerosol particles into molecular ions for mass spectral analysis. Instrument manufacturers are working with scientists at national laboratories and universities in the development of compact portable laser ablation mass spectrometry instrumentation for field based analyses.

Specificity/Sensitivity: This system can analyze soils and surfaces for organic and inorganic molecular species, with extremely good sensitivity. Environmental concentrations in the range of 10^{-9} - 10^{-14} g/g can be determined, depending on environmental conditions. It is highly effective when used by a skilled operator, but of limited use due to high costs. It may be possible to quantify an individual radionuclide if no other nuclides of that isotope are present in the sample matrix. Potential MDC's are $4x10^{-8}$ Bq/kg ($1x10^{-9}$ pCi/g) for ^{238}U, 0.04 Bq/kg (10^{-3} pCi/g) for ^{239}Pu, 4 Bq/kg (1 pCi/g) for ^{137}Cs, and 37 Bq/kg (10 pCi/g) for ^{60}Co.

Cost of Equipment: Very expensive (prototype)

Cost per Measurement: May be comparable to laser ablation inductively coupled plasma atomic emission spectrometry (LA-ICP-AES) and laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS). When using the Atomic Emission Spectrometer, the reported cost is $4,000 per sample, or 80% of conventional sampling and analysis costs. This high cost for conventional samples is partly due to the 2-3 day time to analyze a sample for thorium by conventional methods. When using the mass spectrometer, the time required is about 30 minutes per sample.

System: LA-ICP-AES AND LA-ICP-MS
Lab/Field: Field
Radiation Detected: None

Applicability to Site Surveys: LA-ICP-AES and LA-ICP-MS are acronyms for Laser Ablation-Inductively Coupled Plasma-Atomic Emission Spectrometry or Mass Spectrometry. LA-ICP-AES/MS techniques are used to screen/characterize very small samples of soils and concrete (non-destructively) *in situ* to determine the level of contamination. It is particularly suited to measuring the surface concentration of uranium and thorium. The unit can assess the concentrations at various depths when lower levels are exposed by some means. It has the advantages of not consuming surface material, providing real time response, reducing sampling and analysis time, and keeping personnel clear of the materials being sampled. The information developed can assist in identifying locations for excavation. It is currently being tested.

Operation: Components of the system include a sampling system, fiber optics cables, spectrometer, potable water supply, cryogenic and high-pressure gas supply, a robotics arm, control computers, inductively coupled plasma torch, and video monitor.

Sampling probes have been developed and prototyped that will screen/characterize surface soils, concrete floors or pads, and subsurface soils. The sampling probes, both surface and subsurface, contain the laser (a 50-Hz Nd/YAG laser), associated optics, and control circuitry to raster the laser (ablation) energy across one square inch of sample surface. Either sampling probe is connected by an umbilical, currently 20 m long, to the Mobile Demonstration Laboratory for Environmental Screening Technologies (MDLEST), a completely self-contained mobile laboratory containing the instrumentation to immediately analyze the samples generated by the laser ablation.

A fiber optic cable delivers laser light to the surface of interest. This ablates a small quantity of material that is carried away in a stream of argon gas. The material enters the plasma torch where it is vaporized, atomized, ionized, and electrically excited at about 8,000 K. This produces an ionic emission spectrum that is analyzed on the atomic emission spectrometer.

The analysis instrumentation (ICP-AES/MS) in the MDLEST does not depend on radioactive decay for detection but looks directly at the atomic make up of the elements(s) of interest. A large number of metals including the longer half-life radioactive elements can be detected and quantified. The spectrometer is set up using either hardware, software, or both to simultaneously detect all elements of interest in each sample.

The MDLEST can be set up on site to monitor soil treatment processes. This function enables the remediation manager to monitor, in real time, the treatment processes removing the contaminants and ensure that satisfactory agreement with both regulatory agency and QC/QA requirements is attained.

Specificity/Sensitivity: This system measures the surface or depth concentration of atomic species, and is particularly suited to uranium and thorium analysis. It is highly effective with skilled operators. Some advantages are no contact with the soil, real time results, and no samples to dispose of. The sample results are quickly available for field remediation decisions, with the LA-ICP-AES taking about 10 minutes and LA-ICP-MS taking about 30 minutes. The detection limits for the two spectrometers that have been used are as follows:

1) The AES (atomic emission spectrometer) can see ppm levels for some 70 elements and reportedly detects uranium and thorium concentrations at 1 ppm, or 10 Bq/kg (0.3 pCi/g) for ^{238}U and 0.4 Bq/kg (0.1 pCi/g) for ^{232}Th. However, the technique is only sensitive to elements; it cannot discriminate between the different isotopes of uranium and thorium. This prevents it from being used for assessing lower Z elements that have stable isotopes, or from determining relative abundances of isotopes of any element. This may significantly limit its use at some sites.
2) The MS (mass spectrometer) can see sub-ppb levels and is capable of quantifying the uranium and thorium isotopes. This system has been used to search for ^{230}Th and ^{226}Ra and is reportedly useful in reaching 0.8 ppm or 0.6 Bq/g (15 pCi/g) for ^{230}Th content for remediated soil. It appears to measure uranium and thorium concentration of soil more sensitively than the LA-ICP-AES system.

Cost of Equipment: Very expensive, >$1M.

Cost per Measurement: When using the Atomic Emission Spectrometer, the reported cost is $4,000 per sample. When using the mass spectrometer, a dollar price was not provided.

H.3 LABORATORY INSTRUMENTS

H.3.1 Alpha Particle Analysis

System: ALPHA SPECTROSCOPY WITH MULTICHANNEL ANALYZER
Lab/Field: Lab
Radiation Detected: **Primary:** Alpha **Secondary:** None
Applicability to Site: This is a very powerful tool for accurately identifying and quantifying the activity of multiple alpha-emitting radionuclides in a sample of soil, water, air filters, etc. Methods exist for the analyses of most alpha emitting radionuclides including uranium, thorium, plutonium, polonium, and americium. Samples must first be prepared in a chemistry lab to isolate the radionuclides of interest from the environmental matrix.
Operation: This system consists of an alpha detector housed in a light-tight vacuum chamber, a bias supply, amplifier, analog-to-digital converter, multichannel analyzer, and computer. The bias is typically 25 to 100 volts. The vacuum is typically less than 10 microns (0.1 millitorr). The detector is a silicon diode that is reverse biased. Alpha particles which strike the diode create electron-hole pairs; the number of pairs is directly related to the energy of each alpha. These pairs cause a breakdown of the diode and a current pulse to flow. The charge is collected by a preamplifier and converted to a voltage pulse which is proportional to the alpha energy. It is amplified and shaped by an amplifier. The MCA stores the resultant pulses and displays a histogram of the number of counts vs. alpha energy. Since most alphas will loose all of their energy to the diode, peaks are seen on the MCA display that can be identified by specific alpha energies. Two system calibrations are necessary. A source with at least two known alpha energies is counted to correlate the voltage pulses with alpha energy. A standard source of known activity is analyzed to determine the system efficiency for detecting alphas. Since the sample and detector are in a vacuum, most commonly encountered alpha energies will be detected with approximately the same efficiency, provided there is no self-absorption in the sample. Samples are prepared in a chemistry lab. The sample is placed in solution and the element of interest (uranium, plutonium, *etc.*) separated. A tracer of known activity is added before separation to determine the overall recovery of the sample from the chemical procedures. The sample is converted to a particulate having very little mass and collected on a special filter, or it is collected from solution by electroplating onto a metal disk. It is then placed in the vacuum chamber at a fixed distance from the diode and analyzed. For environmental levels, samples are typically analyzed for 1000 minutes or more.
Specificity/Sensitivity: The system can accurately identify and quantify the various alpha emitting radioactive isotopes of each elemental species provided each has a different alpha energy that can be resolved by the system. For soils, a radionuclide can be measured below 0.004 Bq/g (0.1 pCi/g) . The system is appropriate for all alphas except those from gaseous radionuclides.
Cost of Equipment: $10,000 - $100,000 based on the number of detectors and sophistication of the computer and data reduction software. This does not include the cost of equipment for the chemistry lab.
Cost per Measurement: $250-$400 for the first element, $100-200 for each additional element per sample. The additional element cost depends on the separation chemistry involved and may not always be less. $200-$300 additional for a rush analysis.

System: GAS-FLOW PROPORTIONAL COUNTER
Lab/Field: Lab
Radiation Detected: **Primary:** Alpha, Beta **Secondary:** Gamma
Applicability to Site Surveys: This system can determine the gross alpha or gross beta activity of water, soil, air filters, or swipes. Results can indicate if nuclide-specific analysis is needed.
Operation: The system consists of a gas-flow detector, supporting electronics, and an optional guard detector for reducing background count rate. A thin window can be placed between the gas-flow detector and sample to protect the detector from contamination, or the sample can be placed directly into the detector. Systems with guard detectors operate sample and guard detectors in anticoincidence mode to reduce the background and MDC. The detector high voltage and discriminator are set to count alpha radiation, beta radiation, or both simultaneously. The alpha and beta operating voltages are determined for each system by placing an alpha source, like ^{230}Th or ^{241}Am, in the detector and increasing the high voltage incrementally until the count rate becomes constant, then repeating with a beta source, like ^{90}Sr. The alpha plateau, or region of constant count rate, should have a slope <2%/100V and be >800V long. The beta plateau should have a slope of <2.5%/100V and be >200V long. Operation on the beta plateau will also allow detection of some gamma radiation and bremsstrahlung (x-rays), but the efficiency is very low. Crosstalk between the α-to-β channels is typically around 10% while β-to-α channels should be <1%. The activity in soil samples is chemically extracted, separated if necessary, deposited in a thin layer in a planchet to minimize self absorption, and heated to dryness. Liquids are deposited and dried, while air filters and swipes are placed directly in the planchet. After each sample is placed under the detector, P-10 counting gas constantly flows through the detector. Systems with automatic sample changers can analyze tens to hundreds of planchet samples in a single run.
Specificity/Sensitivity: Natural radionuclides present in soil samples can interfere with the detection of other contaminants. Unless the nature of the contaminant and any naturally-occurring radionuclides is well known, this system is better used for screening samples. Although it is possible to use a proportional counter to roughly determine the energies of alpha and beta radiation, the normal mode of operation is to detect all alpha events or all alpha and beta events. Some systems use a discriminator to separate alpha and beta events, allowing simultaneous determination of both the alpha and beta activity in a sample. These systems do not identify the alpha or beta energies detected and cannot be used to identify specific radionuclides. The alpha channel background is very low, <0.2 cpm (<0.04 cpm guarded), depending on detector size. Typical, 4-pi, efficiencies for very thin alpha sources are 35-45% (window) and 40-50% (windowless). Efficiency depends on window thickness, particle energy, source-detector geometry, backscatter from the sample and holder, and detector size. The beta channel background ranges from 2 to 15 cpm (<0.5 cpm guarded). The 4-pi efficiency for a thin ^{90}Sr/^{90}Y source is >50% (window) to >60% (windowless), but can reduce to <5% for a thick source. MDA's for guarded gas-flow proportional counters are somewhat lower for beta emitters than for internal proportional counters because of the lower backgrounds. Analyzing a high radioactivity sample or flushing the detector with P10 gas at too high a flow rate can suspend fine particles and contaminate the detector.
Cost of Equipment: $4K-$5K (manual), $25K-$30K (automatic)
Cost per Measurement: $30 to $50 plus radiochemistry

System: LIQUID SCINTILLATION SPECTROMETER
Lab/Field: Lab (primarily), field (secondarily)
Radiation Detected: **Primary:** Alpha, beta **Secondary:** Gamma
Applicability to Site Surveys: Liquid Scintillation can be a very effective tool for measuring the concentration of radionuclides in soil, water, air filters, and swipes. Liquid scintillation has historically been applied more to beta emitters, particularly the low energy beta emitters ^{3}H and ^{14}C, but it can also apply to other radionuclides. More recently it has been used for measuring radon in air and water. Initial scoping surveys may be done (particularly for loose surface contamination) with surface swipes or air particulate filters. They may be counted directly in liquid scintillation cocktails with no paper dissolution or other sample preparation.
Operation: The liquid scintillation process involves detection of light pulses (usually in the near visible range) by photo-multiplier tubes (or conceptually similar devices). The detected light pulses originate from the re-structuring of previously excited molecular electron structures. The molecular species that first absorb and then re-admit the visible light are called "liquid scintillators" and the solutions in which they reside are called "liquid scintillation cocktails." For gross counting, samples may be placed directly into a LSC vial of cocktail, and counted with no preparation. Inaccuracies result when the sample itself absorbs the radiation before it can reach the LSC cocktail, or when the sample absorbs the light produced by the cocktail. For accurate results, these interferences are minimized. Interferences in liquid scintillation counting due to the inability of the solution to deliver the full energy pulse to the photo-multiplier detector, for a variety of reasons, are called "pulse quenching." Raw samples that cloud or color the LSC cocktail so the resulting scintillations are absorbed will "quench" the sample and result in underestimates of the activity. Such samples are first processed by ashing, radiochemical or solvent extraction, or pulverizing to place the sample in intimate contact with the LSC cocktail. Actions like bleaching the sample may also be necessary to make the cocktail solution transparent to the wavelength of light it emits. The analyst has several reliable computational or experimental procedures to account for "quenching." One is by exposing the sample and pure cocktail to an external radioactive standard and measuring the difference in response.
Specificity/Sensitivity: The method is extremely flexible and accurate when used with proper calibration and compensation for quenching effects. Energy spectra are 10 to 100 times broader than gamma spectrum photopeaks so that quantitative determination of complex multi-energy beta spectra is impossible. Sample preparation can range from none to complex chemical reactions. In some cases, liquid scintillation offers many unique advantages; no sample preparation before counting in contrast to conventional sample preparation for gas proportional counting. Recent advances in electronic stability and energy pulse shape discrimination has greatly expanded uses. Liquid scintillation counters are ideal instruments for moderate to high energy beta as well as alpha emitters, where the use of pulse shape discrimination has allowed dramatic increases in sensitivity by electronic discrimination against beta and gamma emitters. Additionally, very high energy beta emitters (above 1.5 MeV) may be counted using liquid scintillation equipment without "liquid scintillation cocktails" by use of the Cerenkov light pulse emitted as high energy charged particles move through water or similar substances.
Cost of Equipment: $20,000 to $70,000 based on the specific features and degree of automation
Cost per Measurement: $50 -200 plus cost of chemical separation, if required

System: LOW-RESOLUTION ALPHA SPECTROSCOPY
Lab/Field: Lab (Soil Samples)
Radiation Detected: **Primary:** Alpha **Secondary:**

Applicability to Site Surveys: Low-resolution alpha spectroscopy is a method for measuring alpha activity in soils with a minimum of sample preparation. Some isotopic information can be obtained.

Operation: The system consists of a 2 in. diameter silicon detector, small vacuum chamber, roughing pump, multichannel analyzer, laptop or benchtop computer, and analysis software. Soil samples are dried, milled to improve homogeneity, distributed into 2 in. planchets, loaded into the vacuum chamber, and counted. The accumulated alpha spectrum is displayed in real time. When sufficient counts have been accumulated, the spectrum is transferred to a data file and the operator inputs the known or suspected contaminant isotopes. The analysis software then fits the alpha spectrum with a set of trapezoidal peaks, one for each isotope, and outputs an estimate of the specific activity of each isotope.

Specificity/Sensitivity: This method fills the gap between gross alpha analysis and radiochemical separation/high-resolution alpha spectroscopy. Unlike gross alpha analysis, it does provide some isotopic information. Because this is a low-resolution technique, isotopes with energies closer than ~0.2 MeV cannot be separated. For example, ^{238}U (4.20 MeV) can be readily distinguished from ^{234}U (4.78 MeV), but ^{230}Th (4.69 MeV) cannot be distinguished from ^{234}U.

Because no chemical separation of isotopes is involved, only modest MDC's can be achieved. Detection limits are determined by the background alpha activity in the region of interest of the contaminant of concern, and also by the counting time. Typical MDC's are 1,500 Bq/kg (40 pCi/g) @ l5 min counting time, 260 Bq/kg (7 pCi/g) @ 8 hours, and 185 Bq/kg (5 pCi/g) @ 24 hours. The method does not generate any new waste streams and does not require a sophisticated laboratory or highly-trained personnel.

Cost of Equipment: $11,000

Cost per Measurement: $25-$100

H.3 LABORATORY INSTRUMENTS

H.3.2 Beta Particle Analysis

System: GAS-FLOW PROPORTIONAL COUNTER
Lab/Field: Lab
Radiation Detected: **Primary:** Alpha, Beta **Secondary:** Gamma
Applicability to Site Surveys: This system can determine the gross alpha or gross beta activity of water, soil, air filters, or swipes. Results can indicate if nuclide-specific analysis is needed.
Operation: The system consists of a gas-flow detector, supporting electronics, and an optional guard detector for reducing background count rate. A thin window can be placed between the gas-flow detector and sample to protect the detector from contamination, or the sample can be placed directly into the detector. Systems with guard detectors operate sample and guard detectors in anticoincidence mode to reduce the background and MDC. The detector high voltage and discriminator are set to count alpha radiation, beta radiation, or both simultaneously. The alpha and beta operating voltages are determined for each system by placing an alpha source, like ^{230}Th or ^{241}Am, in the detector and increasing the high voltage incrementally until the count rate becomes constant, then repeating with a beta source, like ^{90}Sr. The alpha plateau, or region of constant count rate, should have a slope <2%/100V and be >800V long. The beta plateau should have a slope of <2.5%/100V and be >200V long. Operation on the beta plateau will also allow detection of some gamma radiation and bremsstrahlung (x-rays), but the efficiency is very low. Crosstalk between the α-to-β channels is typically around 10% while β-to-α channels should be <1%. The activity in soil samples is chemically extracted, separated if necessary, deposited in a thin layer in a planchet to minimize self absorption, and heated to dryness. Liquids are deposited and dried, while air filters and swipes are placed directly in the planchet. After each sample is placed under the detector, P-10 counting gas constantly flows through the detector. Systems with automatic sample changers can analyze tens to hundreds of planchet samples in a single run.
Specificity/Sensitivity: Natural radionuclides present in soil samples can interfere with the detection of other contaminants. Unless the nature of the contaminant and any naturally-occurring radionuclides is well known, this system is better used for screening samples. Although it is possible to use a proportional counter to roughly determine the energies of alpha and beta radiation, the normal mode of operation is to detect all alpha events or all alpha and beta events. Some systems use a discriminator to separate alpha and beta events, allowing simultaneous determination of both the alpha and beta activity in a sample. These systems do not identify the alpha or beta energies detected and cannot be used to identify specific radionuclides. The alpha channel background is very low, <0.2 cpm (<0.04 cpm guarded), depending on detector size. Typical, 4-pi, efficiencies for very thin alpha sources are 35-45% (window) and 40-50% (windowless). Efficiency depends on window thickness, particle energy, source-detector geometry, backscatter from the sample and holder, and detector size. The beta channel background ranges from 2 to 15 cpm (<0.5 cpm guarded). The 4-pi efficiency for a thin ^{90}Sr/^{90}Y source is >50% (window) to >60% (windowless), but can reduce to <5% for a thick source. MDA's for guarded gas-flow proportional counters are somewhat lower for beta emitters than for internal proportional counters because of the lower backgrounds. Analyzing a high radioactivity sample or flushing the detector with P10 gas at too high a flow rate can suspend fine particles and contaminate the detector.
Cost of Equipment: $4K-$5K (manual), $25K-$30K (automatic)
Cost per Measurement: $30 to $50 plus radiochemistry

System: LIQUID SCINTILLATION SPECTROMETER
Lab/Field: Lab (primarily), field (secondarily)
Radiation Detected: **Primary:** Alpha, beta **Secondary:** Gamma
Applicability to Site Surveys: Liquid Scintillation can be a very effective tool for measuring the concentration of radionuclides in soil, water, air filters, and swipes. Liquid scintillation has historically been applied more to beta emitters, particularly the low energy beta emitters ^{3}H and ^{14}C, but it can also apply to other radionuclides. More recently it has been used for measuring radon in air and water. Initial scoping surveys may be done (particularly for loose surface contamination) with surface swipes or air particulate filters. They may be counted directly in liquid scintillation cocktails with no paper dissolution or other sample preparation.
Operation: The liquid scintillation process involves detection of light pulses (usually in the near visible range) by photo-multiplier tubes (or conceptually similar devices). The detected light pulses originate from the re-structuring of previously excited molecular electron structures. The molecular species that first absorb and then re-admit the visible light are called "liquid scintillators" and the solutions in which they reside are called "liquid scintillation cocktails." For gross counting, samples may be placed directly into a LSC vial of cocktail, and counted with no preparation. Inaccuracies result when the sample itself absorbs the radiation before it can reach the LSC cocktail, or when the sample absorbs the light produced by the cocktail. For accurate results, these interferences are minimized. Interferences in liquid scintillation counting due to the inability of the solution to deliver the full energy pulse to the photo-multiplier detector, for a variety of reasons, are called "pulse quenching." Raw samples that cloud or color the LSC cocktail so the resulting scintillations are absorbed will "quench" the sample and result in underestimates of the activity. Such samples are first processed by ashing, radiochemical or solvent extraction, or pulverizing to place the sample in intimate contact with the LSC cocktail. Actions like bleaching the sample may also be necessary to make the cocktail solution transparent to the wavelength of light it emits. The analyst has several reliable computational or experimental procedures to account for "quenching." One is by exposing the sample and pure cocktail to an external radioactive standard and measuring the difference in response.
Specificity/Sensitivity: The method is extremely flexible and accurate when used with proper calibration and compensation for quenching effects. Energy spectra are 10 to 100 times broader than gamma spectrum photopeaks so that quantitative determination of complex multi-energy beta spectra is impossible. Sample preparation can range from none to complex chemical reactions. In some cases, liquid scintillation offers many unique advantages such as no sample preparation before counting in contrast to conventional sample preparation for gas proportional counting. Recent advances in electronic stability and energy pulse shape discrimination has greatly expanded uses. Liquid scintillation counters are ideal instruments for moderate to high energy beta as well as alpha emitters, where the use of pulse shape discrimination has allowed dramatic increases in sensitivity by electronic discrimination against beta and gamma emitters. Additionally, very high energy beta emitters (above 1.5 MeV) may be counted using liquid scintillation equipment without "liquid scintillation cocktails" by use of the Cerenkov light pulse emitted as high energy charged particles move through water or similar substances.
Cost of Equipment: $20,000 to $70,000 based on the specific features and degree of automation
Cost per Measurement: $50 -200 plus cost of chemical separation, if required

H.3 LABORATORY INSTRUMENTS

H.3.3 Gamma Ray Analysis

System: GERMANIUM DETECTOR WITH MULTICHANNEL ANALYZER (MCA)
Lab/Field: Lab
Radiation Detected: **Primary:** Gamma **Secondary:** None
Applicability to Site: This system accurately measures the activity of gamma-emitting radionuclides in a variety of materials like soil, water, air filters, etc. with little preparation. Germanium is especially powerful in dealing with multiple radionuclides and complicated spectra.
Operation: This system consists of a germanium detector connected to a dewar of liquid nitrogen, high voltage power supply, spectroscopy grade amplifier, analog to digital converter, and a multichannel analyzer. P-type germanium detectors typically operate from +2000 to +5000 volts. N-type germanium detectors operate from -2000 to -5000 volts. Germanium is a semiconductor material. When a gamma ray interacts with a germanium crystal, it produces electron-hole pairs. An electric field is applied which causes the electrons to move in the conduction band and the holes to pass the charge from atom to neighboring atom. The charge is collected rapidly and is proportional to the deposited energy. The count rate/energy spectrum is displayed on the MCA screen with the full energy photopeaks providing more useful information than the general smear of Compton scattering events shown in between. The system is energy calibrated using isotopes that emit at least two known gamma ray energies, so the MCA data channels are given an energy equivalence. The MCA's display then becomes a display of intensity versus energy. Efficiency calibration is performed using known concentrations of mixed isotopes. A curve of gamma ray energy versus counting efficiency is generated, and it shows that P-type germanium is most sensitive at 120 keV and trails off to either side. Since the counting efficiency depends on the distance from the sample to the detector, each geometry must be given a separate efficiency calibration curve. From that point the center of each gaussian-shaped peak tells the gamma ray energy that produced it, the combination of peaks identifies each isotope, and the area under selected peaks is a measure of the amount of that isotope in the sample. Samples are placed in containers and tare weighed. Plastic petri dishes sit atop the detector and are useful for small volumes or low energies, while Marinelli beakers fit around the detector and provide exceptional counting efficiency for volume samples. Counting times of 1000 seconds to 1000 minutes are typical. Each peak is identified manually or by gamma spectrometry analysis software. The counts in each peak or energy band, the sample weight, the efficiency calibration curve, and the isotope's decay scheme are factored together to give the sample concentration.
Specificity/Sensitivity: The system accurately identifies and quantifies the concentrations of multiple gamma-emitting radionuclides in samples like soil, water, and air filters with minimum preparation. A P-type detector is good for energies over 50 keV. An N-type or P-type planar (thin crystal) detector with beryllium-end window is good for 5-80 keV energies using a thinner sample placed over the window.
Cost of Equipment: $35,000 to $150,000 based on detector efficiency and sophistication of MCA/computer/software system
Cost per Measurement: $ 100 to $200 (rush requests can double or triple costs)

System: SODIUM IODIDE DETECTOR WITH MULTICHANNEL ANALYZER
Lab/Field: Lab
Radiation Detected: **Primary:** Gamma **Secondary:** None
Applicability to Site Surveys: This system accurately measures the activity of gamma-emitting radionuclides in a variety of materials like soil, water, air filters, etc. with little preparation. Sodium iodide is inherently more efficient for detecting gamma rays but has lower resolution than germanium, particularly if multiple radionuclides and complicated spectra are involved.
Operation: This system consists of a sodium iodide detector, a high voltage power supply, an amplifier, an analog to digital converter, and a multichannel analyzer. The detector is a sodium iodide crystal connected to a photomultiplier tube (PMT). Crystal shapes can vary extensively and typical detector high voltage are 900-1,000 V. Sodium iodide is a scintillation material. A gamma ray interacting with a sodium iodide crystal produces light which is passed to the PMT. This light ejects electrons which the PMT multiplies into a pulse that is proportional to the energy the gamma ray imparted to the crystal. The MCA assesses the pulse size and places a count in the corresponding channel. The count rate and energy spectrum is displayed on the MCA screen with the full energy photopeaks providing more useful information than the general smear of Compton scattering events shown in between. The system is energy calibrated using isotopes that emit at least two gamma ray energies, so the MCA data channels are given an energy equivalence. The MCA's CRT then becomes a display of intensity versus energy. A non-linear energy response and lower resolution make isotopic identification less precise than with a germanium detector. Efficiency calibration is performed using known concentrations of single or mixed isotopes. The single isotope method develops a count rate to activity factor. The mixed isotope method produces a gamma ray energy versus counting efficiency curve that shows that sodium iodide is most sensitive around 100-120 keV and trails off to either side. Counting efficiency is a function of sample to detector distance, so each geometry must have a separate efficiency calibration curve. The center of each peak tells the gamma ray energy that produced it and the combination of peaks identifies each isotope. Although the area under a peak relates to that isotope's activity in the sample, integrating a band of channels often provides better sensitivity. Samples are placed in containers and tare weighed. Plastic petri dishes sit atop the detector and are useful for small volumes or low energies, while Marinelli beakers fit around the detector and provide exceptional counting efficiency for volume samples. Counting times of 60 seconds to 1,000 minutes are typical. The CRT display is scanned and each peak is identified by isotope. The counts in each peak or energy band, the sample weight, the efficiency calibration curve, and the isotope's decay scheme are factored together to give the sample concentration.
Specificity/Sensitivity: This system analyzes gamma-emitting isotopes with minimum preparation, better efficiency, but lower resolution compared to most germanium detectors. Germanium detectors do reach efficiencies of 150% compared with a 3 in. by 3 in. sodium iodide detector, but the cost is around $100,000 each compared with $3,000. Sodium iodide measures energies over 80 keV. The instrument response is energy dependent, the resolution is not superb, and the energy calibration is not totally linear, so care should be taken when identifying or quantifying multiple isotopes. Computer software can help interpret complicated spectra. Sodium iodide is fragile and should be protected from shock and sudden temperature changes.
Cost of Equipment: $6K-$20K
Cost per Measurement: $100-$200 per sample.

EQUIPMENT SUMMARY TABLES

Table H.1 - Radiation Detectors with Applications to Alpha Surveys

Table H.2 - Radiation Detectors with Applications to Beta Surveys

Table H.3 - Radiation Detectors with Applications to Gamma Surveys

Table H.4 - Radiation Detectors with Applications to Radon Surveys

Table H.5 - Systems that Measure Atomic Mass or Emissions

Table H.1 Radiation Detectors with Applications to Alpha Surveys

System	Description	Application	Remarks	Equipment Cost	Measurement Cost
Alpha spectroscopy	A system using silicon diode surface barrier detectors for alpha energy identification and quantification	Accurately identifies and measures the activity of multiple alpha radionuclides in a thin extracted sample of soil, water, or air filters.	Sample requires radiochemical separation or other preparation before counting	$10K-$100K	$250-$400
Alpha scintillation survey meter	<1 mg/cm^2 window, probe face area 50 to 100 cm^2.	Field measurement of presence or absence of alpha contamination on nonporous surfaces, swipes, and air filters, or on irregular surfaces if the degree of surface shielding is known.	Minimum sensitivity is 10 cpm, or 1 cpm with headphones	$1000	$5
Alpha Track Detector	Polycarbonate plastic sheet is placed in contact with a contaminated surface and kept in place	Measures gross alpha surface contamination, soil activity level, or the depth profile of contamination	Alpha radiation produces holes that are enlarged chemically. Density of holes gives a measure of the radioactivity level.		$5-$25
Electret ion chamber	A charged Teflon disk in an open-faced ion chamber	Measures alpha or beta contamination on surfaces and in soils, plus gamma radiation dose or radon concentration	The type of radiation is determined by how the electret is employed, *e.g.*, the unit is kept closed and bagged in plastic to measure gammas	$4,000-$5,000	$8-$25
Long range alpha detector (LRAD)	1m x 1m detector measures ionization inside the box. Attached to tractor for movement. Has location finder and plots graph of contamination.	Measures surface contamination or soil concentration at grid points and plots curves of constant contamination. Intended for large areas.	Alpha detection limit is 20-50 dpm/100 cm^2 or 0.4 Bq/g (10 pCi/g).	$25,000	$80

Table H.1 Radiation Detectors with Applications to Alpha Surveys

System	Description	Application	Remarks	Equipment Cost	Measurement Cost
Gas-flow proportional counter (field)	A detector through which P10 gas flows and which measures alpha and beta radiation. < 1-10 mg/cm^2 window, probe face area 50 to 100 cm^2 for hand held detectors; up to 600 cm^2 if cart mounted	Surface scanning, surface activity measurement, or field evaluation of swipes. Serves as a screen to determine if more nuclide-specific analyses are needed.	Natural radionuclides in samples can interfere with the detection of other contaminants. Requires P10 gas	$2K-$4K	$2-$10/m^2
Gas-flow proportional counter (lab)	Windowless (internal proportional) or window <0.1 mg/cm^2, probe face area 10 to 20 cm^2. May have a second or guard detector to reduce background and MDA.	Laboratory measurement of water, air, and swipe samples	Requires P10 gas. Windowless detectors can be contaminated.	$4K-$30K	$50
Liquid scintillation counter (LSC)	Samples are mixed with LSC cocktail and the radiation emitted causes light pulses with proportional intensity.	Laboratory analysis of alpha or beta emitters, including spectrometry capabilities.	Highly selective for alpha or beta radiation by pulse shape discrimination. Requires LSC cocktail.	$20K-$70K	$50-$200

Table H.2 Radiation Detectors with Applications to Beta Surveys

System	Description	Application	Remarks	Equipment Cost	Measurement Cost
GM survey meter with beta pancake probe	Thin 1.4 mg/cm^2 window detector, probe area 10 to 100 cm^2	Surface scanning of personnel, working areas, equipment, and swipes for beta contamination. Laboratory measurement of swipes when connected to a scaler.	Relatively high detection limit making it of limited value in final status surveys.	$400-$1,500	$5-$10
Gas-flow proportional counter (field)	A detector through which P10 gas flows and which measures alpha and beta radiation. < 1-10 mg/cm^2 window, probe face area 50 to 100 cm^2	Surface scanning, surface activity measurement, or field evaluation of swipes. Serves as a screen to determine if more nuclide-specific analyses are needed.	Natural radionuclides in samples can interfere with the detection of other contaminants. Requires P10 gas, but can be disconnected for hours.	$2K-$4K	$2-$10/m^2
Gas-flow proportional counter (lab)	Windowless (internal proportional) or window <0.1 mg/cm^2, probe face area 10 to 20 cm^2. May have a second or guard detector to reduce background and MDA.	Laboratory measurement of water, air, and swipe samples	Requires P10 gas. Windowless detectors can be contaminated.	$4K-$30K	$50
Liquid scintillation counter (LSC)	Samples are mixed with LSC cocktail and the radiation emitted causes light pulses with proportional intensity.	Laboratory analysis of alpha and beta emitters, including spectrometry capabilities.	Highly selective for alpha and beta radiation by pulse shape discrimination. Requires LSC cocktail.	$20K-$70K	$100-$200

Table H.3 Radiation Detectors with Applications to Gamma and X-Ray Surveys

System	Description	Application	Remarks	Cost of Equipment	Cost per Measurement
GM survey meter with gamma probe	Thick-walled 30 mg/cm^2 detector	Measure radiation levels above 0.1 mR/hr.	Its non-linear energy response can be corrected by using an energy compensated probe.	$400-$1,000	$5
Pressurized ion chamber (PIC)	A highly accurate ionization chamber that is rugged and stable.	Excellent for measuring gamma exposure rate during site remediation.	Is used in conjunction with radionuclide identification equipment.	$15K - $50K	$50 - $500
Electret ion chamber	Electrostatically charged disk inside an ion chamber	Gamma exposure rate	N/A, rented	included in rental price	$8 - $25
Hand-held ion chamber survey meter	Ion chamber for measuring higher radiation levels than typical background.	Measures true gamma exposure rate.	Not very useful for site surveys because of high detection limit above background levels.	$800-$1,200	$5
Hand-held pressurized ion chamber survey meter	Ion chamber for measuring higher radiation levels than typical background.	Measures true gamma exposure rate with more sensitivity than the unpressurized ion chamber.	Not very useful for site surveys because of high detection limit above background levels.	$1,000-$1,500	$5
Sodium Iodide survey meter	Detectors sizes up to 8"x8". Used in micro R-meter in smaller sizes.	Measures low levels of environmental radiation.	Its energy response is not linear, so it should be calibrated for the energy field it will measure or have calibration factors developed by comparison with a PIC for a specific site.	$2K	$5
FIDLER (Field Instrument for Detection of Low Energy Radiation)	Thin crystals of NaI or CsI.	Scanning of gamma/X radiation from plutonium and americium.		$6K-$7K	$10-$20

Table H.3 Radiation Detectors with Applications to Gamma and X-Ray Surveys

System	Description	Application	Remarks	Cost of Equipment	Cost per Measurement
Sodium iodide detector with multichannel analyzer (MCA)	Sodium iodide crystal with a large range of sizes and shapes, connected to a photomultiplier tube and MCA.	Laboratory gamma spectroscopy to determine the identity and concentration of gamma emitting radionuclides in a sample.	Sensitive for surface soil or groundwater contamination. Analysis programs have difficulty if sample contains more than a few isotopes.	$6K-$20K	$100 to $200
Germanium detector with multichannel analyzer (MCA)	Intrinsic germanium semiconductor in p- or n-type configuration and without a beryllium window.	Laboratory gamma spectroscopy to determine the identity and concentration of gamma emitting radionuclides in a sample.	Very sensitive for surface soil or groundwater contamination. Is especially powerful when more than one radionuclide is present in a sample.	$35K-$150K	$100 to $200
Portable Germanium Multichannel Analyzer (MCA) System	A portable version of a laboratory based germanium detector and multichannel analyzer.	Excellent during characterization through final status survey to identify and quantify the concentration of gamma ray emitting radionuclides and in situ concentrations of soil and other media	Requires a supply of liquid nitrogen or a mechanical cooling system, as well as highly trained operators.	$40K	$100
Field x-ray fluorescence spectrometer	Uses silicon or germanium semiconductor	Determining fractional abundance of low percentage metal atoms.		$15K-$75K	$200
Thermoluminescence dosimeters (TLDs)	Crystals that are sensitive to gamma radiation	Measure cumulative radiation dose over a period of days to months.	Requires special calibration to achieve high accuracy and reproducibility of results.	$5K-$50K for reader + $25-$40 per TLD	$25-$125

Table H.4 Radiation Detectors with Applications to Radon Surveys

System	Description	Application	Remarks	Equipment Cost	Measurement Cost
Large area activated charcoal collector	A canister containing activated charcoal is twisted into the surface and left for 24 hours.	Short term radon flux measurements	The LLD is 0.007 Bq $m^{-2}s^{-1}$ (0.2 pCi $m^{-2}s^{-1}$).	N/A, rented	$20-$50 including canister
Continuous radon monitor	Air pump and scintillation cell or ionization chamber	Track the real time concentration of radon	Takes 1 to 4 hours for system to equilibrate before starting. The LLD is 0.004-0.04 Bq/L (0.1-1.0 pCi/L).	$1K-$5K	$80
Activated charcoal adsorption	Activated charcoal is opened to the ambient air, then gamma counted on a gamma scintillator or in a liquid scintillation counter.	Measure radon concentration in indoor air	Detector is deployed for 2 to 7 days. The LLD is 0.007-0.04 Bq/L (0.2 to 1.0 pCi/L).	$10K-$30K	$5-$30 including canister if outsourced.
Electret ion chamber	This is a charged plastic vessel that can be opened for air to pass into.	Measure short-term or long-term radon concentration in indoor air.	Must correct reading for gamma background concentration. Electret is sensitive to extremes of temperature and humidity. LLD is 0.007-0.02 Bq/L (0.2-0.5 pCi/L).	N/A, rented	$8-$25 for rental
Alpha track detection	A small piece of special plastic or film inside a small container. Damage tracks from alpha particles are chemically etched and tracks counted.	Measure indoor or outdoor radon concentration in air.	LLD is 0.04 Bq $L^{-1}d^{-1}$ (1 pCi $L^{-1}d^{-1}$).		$5-$25

Table H.5 Systems that Measure Atomic Mass or Emissions

System	Description	Application	Remarks	Cost of Equipment	Cost per Measurement
LA-ICP-AES (Laser Ablation Inductively Coupled Plasma Atomic Emissions Spectrometer)	Vaporizes and ionizes the surface material, and measures emissions from the resulting atoms.	Live time analysis of radioactive U and Th contamination in the field.	Requires expensive equipment and skilled operators. LLD is 0.004 Bq/g (0.1 pCi/g) for ^{232}Th and 0.01 Bq/g (0.3 pCi/g) for ^{238}U.	>$1,000,000	$4,000
LA-ICP-MS (Laser Ablation Inductively Coupled Plasma Mass Spectrometer)	Vaporizes and ionizes the surface material, then measures the mass of the resulting atoms.	Live time analysis of radioactive U and Th contamination in the field.	Requires expensive equipment and skilled operators. More sensitive than LA-ICP-AES. LLD is 0.6 Bq/g (15 pCi/g) for ^{230}Th.	>$1,000,000	>$4,000
Chemical speciation laser ablation/mass spectrometer	A laser changes the sample into an aerosol that it analyzed with a mass spectrometer.	Analyze organic and inorganic species with high sensitivity and specificity.	Volatilized samples can be carried hundreds of feet to the analysis area.	>$1,000,000	>$4,000

APPENDIX I

STATISTICAL TABLES AND PROCEDURES

I.1 Normal Distribution

Table I.1 Cumulative Normal Distribution Function Φ(z)

z	*0.00*	*0.01*	*0.02*	*0.03*	*0.04*	*0.05*	*0.06*	*0.07*	*0.08*	*0.09*
0.00	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.10	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5674	0.5714	0.5753
0.20	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.30	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.40	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.50	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.60	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.70	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.80	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.90	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.6315	0.8340	0.8365	0.8389
1.00	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.10	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.20	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.30	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.40	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.50	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.60	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.70	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.80	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.90	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.00	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.10	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.20	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.30	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.40	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.50	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.60	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.70	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.80	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.90	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.00	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.10	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.20	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.30	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.40	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998

Negative values of z can be obtained from the relationship $\Phi(-z) = 1 - \Phi(z)$.

I.2 Sample Sizes for Statistical Tests

Table I.2a Sample Sizes for Sign Test

(Number of measurements to be performed in each survey unit)

	(α,β) **or** (β,α)														
Δ/σ	**0.01 0.01**	**0.01 0.025**	**0.01 0.05**	**0.01 0.1**	**0.01 0.25**	**0.025 0.025**	**0.025 0.05**	**0.025 0.1**	**0.025 0.25**	**0.05 0.05**	**0.05 0.1**	**0.05 0.25**	**0.1 0.1**	**0.1 0.25**	**0.25 0.25**
0.1	4095	3476	2984	2463	1704	2907	2459	1989	1313	2048	1620	1018	1244	725	345
0.2	1035	879	754	623	431	735	622	503	333	518	410	258	315	184	88
0.3	468	398	341	282	195	333	281	227	150	234	185	117	143	83	40
0.4	270	230	197	162	113	192	162	131	87	136	107	68	82	48	23
0.5	178	152	130	107	75	126	107	87	58	89	71	45	54	33	16
0.6	129	110	94	77	54	92	77	63	42	65	52	33	40	23	11
0.7	99	83	72	59	41	70	59	48	33	50	40	26	30	18	9
0.8	80	68	58	48	34	57	48	39	26	40	32	21	24	15	8
0.9	66	57	48	40	28	47	40	33	22	34	27	17	21	12	6
1.0	57	48	41	34	24	40	34	28	18	29	23	15	18	11	5
1.1	50	42	36	30	21	35	30	24	17	26	21	14	16	10	5
1.2	45	38	33	27	20	32	27	22	15	23	18	12	15	9	5
1.3	41	35	30	26	17	29	24	21	14	21	17	11	14	8	4
1.4	38	33	28	23	16	27	23	18	12	20	16	10	12	8	4
1.5	35	30	27	22	15	26	22	17	12	18	15	10	11	8	4
1.6	34	29	24	21	15	24	21	17	11	17	14	9	11	6	4
1.7	33	28	24	20	14	23	20	16	11	17	14	9	10	6	4
1.8	32	27	23	20	14	22	20	16	11	16	12	9	10	6	4
1.9	30	26	22	18	14	22	18	15	10	16	12	9	10	6	4
2.0	29	26	22	18	12	21	18	15	10	15	12	8	10	6	3
2.5	28	23	21	17	12	20	17	14	10	15	11	8	9	5	3
3.0	27	23	20	17	12	20	17	14	9	14	11	8	9	5	3

Table I.2b Sample Sizes for Wilcoxon Rank Sum Test

(Number of measurements to be performed in the reference area and in each survey unit)

(α,β) **or** (β,α)

Δ/σ	0.01 0.01	0.01 0.025	0.01 0.05	0.01 0.1	0.01 0.25	0.025 0.025	0.025 0.05	0.025 0.1	0.025 0.25	0.05 0.05	0.05 0.1	0.05 0.25	0.1 0.1	0.1 0.25	0.25 0.25
0.1	5452	4627	3972	3278	2268	3870	3273	2646	1748	2726	2157	1355	1655	964	459
0.2	1370	1163	998	824	570	973	823	665	440	685	542	341	416	243	116
0.3	614	521	448	370	256	436	369	298	197	307	243	153	187	109	52
0.4	350	297	255	211	146	248	210	170	112	175	139	87	106	62	30
0.5	227	193	166	137	95	162	137	111	73	114	90	57	69	41	20
0.6	161	137	117	97	67	114	97	78	52	81	64	40	49	29	14
0.7	121	103	88	73	51	86	73	59	39	61	48	30	37	22	11
0.8	95	81	69	57	40	68	57	46	31	48	38	24	29	17	8
0.9	77	66	56	47	32	55	46	38	25	39	31	20	24	14	7
1.0	64	55	47	39	27	46	39	32	21	32	26	16	20	12	6
1.1	55	47	40	33	23	39	33	27	18	28	22	14	17	10	5
1.2	48	41	35	29	20	34	29	24	16	24	19	12	15	9	4
1.3	43	36	31	26	18	30	26	21	14	22	17	11	13	8	4
1.4	38	32	28	23	16	27	23	19	13	19	15	10	12	7	4
1.5	35	30	25	21	15	25	21	17	11	18	14	9	11	7	3
1.6	32	27	23	19	14	23	19	16	11	16	13	8	10	6	3
1.7	30	25	22	18	13	21	18	15	10	15	12	8	9	6	3
1.8	28	24	20	17	12	20	17	14	9	14	11	7	9	5	3
1.9	26	22	19	16	11	19	16	13	9	13	11	7	8	5	3
2.0	25	21	18	15	11	18	15	12	8	13	10	7	8	5	3
2.25	22	19	16	14	10	16	14	11	8	11	9	6	7	4	2
2.5	21	18	15	13	9	15	13	10	7	11	9	6	7	4	2
2.75	20	17	15	12	9	14	12	10	7	10	8	5	6	4	2
3.0	19	16	14	12	8	14	12	10	6	10	8	5	6	4	2
3.5	18	16	13	11	8	13	11	9	6	9	8	5	6	4	2
4.0	18	15	13	11	8	13	11	9	6	9	7	5	6	4	2

I.3 Critical Values for the SignTest

Table I.3 Critical Values for the Sign Test Statistic S+

	Alpha								
N	***0.005***	***0.01***	***0.025***	***0.05***	***0.1***	***0.2***	***0.3***	***0.4***	***0.5***
4	4	4	4	4	3	3	3	2	2
5	5	5	5	4	4	3	3	3	2
6	6	6	5	5	5	4	4	3	3
7	7	6	6	6	5	5	4	4	3
8	7	7	7	6	6	5	5	4	4
9	8	8	7	7	6	6	5	5	4
10	9	9	8	8	7	6	6	5	5
11	10	9	9	8	8	7	6	6	5
12	10	10	9	9	8	7	7	6	6
13	11	11	10	9	9	8	7	7	6
14	12	11	11	10	9	9	8	7	7
15	12	12	11	11	10	9	9	8	7
16	13	13	12	11	11	10	9	9	8
17	14	13	12	12	11	10	10	9	8
18	14	14	13	12	12	11	10	10	9
19	15	14	14	13	12	11	11	10	9
20	16	15	14	14	13	12	11	11	10
21	16	16	15	14	13	12	12	11	10
22	17	16	16	15	14	13	12	12	11
23	18	17	16	15	15	14	13	12	11
24	18	18	17	16	15	14	13	13	12
25	19	18	17	17	16	15	14	13	12
26	19	19	18	17	16	15	14	14	13
27	20	19	19	18	17	16	15	14	13
28	21	20	19	18	17	16	15	15	14
29	21	21	20	19	18	17	16	15	14
30	22	21	20	19	19	17	16	16	15

Table I.3 Critical Values for the Sign Test Statistic S+ (continued)

	Alpha								
N	***0.005***	***0.01***	***0.025***	***0.05***	***0.1***	***0.2***	***0.3***	***0.4***	***0.5***
31	23	22	21	20	19	18	17	16	15
32	23	23	22	21	20	18	17	17	16
33	24	23	22	21	20	19	18	17	16
34	24	24	23	22	21	19	19	18	17
35	25	24	23	22	21	20	19	18	17
36	26	25	24	23	22	21	20	19	18
37	26	26	24	23	22	21	20	19	18
38	27	26	25	24	23	22	21	20	19
39	27	27	26	25	23	22	21	20	19
40	28	27	26	25	24	23	22	21	20
41	29	28	27	26	25	23	22	21	20
42	29	28	27	26	25	24	23	22	21
43	30	29	28	27	26	24	23	22	21
44	30	30	28	27	26	25	24	23	22
45	31	30	29	28	27	25	24	23	22
46	32	31	30	29	27	26	25	24	23
47	32	31	30	29	28	26	25	24	23
48	33	32	31	30	28	27	26	25	24
49	33	33	31	30	29	27	26	25	24
50	34	33	32	31	30	28	27	26	25

For N greater than 50, the table (critical) value can be calculated from:

$$\frac{N}{2} + \frac{z}{2}\sqrt{N}$$

z is the (1-α) percentile of a standard normal distribution, which can be found on page I-10 or on page 5-28 in Table 5.2.

I.4 Critical Values for the WRS Test

Table I.4 Critical Values for the WRS test

m is the number of reference area samples and n is the number of survey unit samples.

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 2	α=0.001	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	41	43
	α=0.005	7	9	11	13	15	17	19	21	23	25	27	29	31	33	35	37	39	40	42
	α=0.01	7	9	11	13	15	17	19	21	23	25	27	28	30	32	34	36	38	39	41
	α=0.025	7	9	11	13	15	17	18	20	22	23	25	27	29	31	33	34	36	38	40
	α=0.05	7	9	11	12	14	16	17	19	21	23	24	26	27	29	31	33	34	36	38
	α=0.1	7	8	10	11	13	15	16	18	19	21	22	24	26	27	29	30	32	33	35

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 3	α=0.001	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	56	59	62	65
	α=0.005	12	15	18	21	24	27	30	32	35	38	40	43	46	48	51	54	57	59	62
	α=0.01	12	15	18	21	24	26	29	31	34	37	39	42	45	47	50	52	55	58	60
	α=0.025	12	15	18	20	22	25	27	30	32	35	37	40	42	45	47	50	52	55	57
	α=0.05	12	14	17	19	21	24	26	28	31	33	36	38	40	43	45	47	50	52	54
	α=0.1	11	13	16	18	20	22	24	27	29	31	33	35	37	40	42	44	46	48	50

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 4	α=0.001	18	22	26	30	34	38	42	46	49	53	57	60	64	68	71	75	78	82	86
	α=0.005	18	22	26	30	33	37	40	44	47	51	54	58	61	64	68	71	75	78	81
	α=0.01	18	22	26	29	32	36	39	42	46	49	52	56	59	62	66	69	72	76	79
	α=0.025	18	22	25	28	31	34	37	41	44	47	50	53	56	59	62	66	69	72	75
	α=0.05	18	21	24	27	30	33	36	39	42	45	48	51	54	57	59	62	65	68	71
	α=0.1	17	20	22	25	28	31	34	36	39	42	45	48	50	53	56	59	61	64	67

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 5	α=0.001	25	30	35	40	45	50	54	58	63	67	72	76	81	85	89	94	98	102	107
	α=0.005	25	30	35	39	43	48	52	56	60	64	68	72	77	81	85	89	93	97	101
	α=0.01	25	30	34	38	42	46	50	54	58	62	66	70	74	78	82	86	90	94	98
	α=0.025	25	29	33	37	41	44	48	52	56	60	63	67	71	75	79	82	86	90	94
	α=0.05	24	28	32	35	39	43	46	50	53	57	61	64	68	71	75	79	82	86	89
	α=0.1	23	27	30	34	37	41	44	47	51	54	57	61	64	67	71	74	77	81	84

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 6	α=0.001	33	39	45	51	57	63	67	72	77	82	88	93	98	103	108	113	118	123	128
	α=0.005	33	39	44	49	54	59	64	69	74	79	83	88	93	98	103	107	112	117	122
	α=0.01	33	39	43	48	53	58	62	67	72	77	81	86	91	95	100	104	109	114	118
	α=0.025	33	37	42	47	51	56	60	64	69	73	78	82	87	91	95	100	104	109	113
	α=0.05	32	36	41	45	49	54	58	62	66	70	75	79	83	87	91	96	100	104	108
	α=0.1	31	35	39	43	47	51	55	59	63	67	71	75	79	83	87	91	94	98	102

Table I.4 Critical Values for the WRS Test (continued)

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 7	α=0.001	42	49	56	63	69	75	81	87	92	98	104	110	116	122	128	133	139	145	151
	α=0.005	42	49	55	61	66	72	77	83	88	94	99	105	110	116	121	127	132	138	143
	α=0.01	42	48	54	59	65	70	76	81	86	92	97	102	108	113	118	123	129	134	139
	α=0.025	42	47	52	57	63	68	73	78	83	88	93	98	103	108	113	118	123	128	133
	α=0.05	41	46	51	56	61	65	70	75	80	85	90	94	99	104	109	113	118	123	128
	α=0.1	40	44	49	54	58	63	67	72	76	81	85	90	94	99	103	108	112	117	121

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 8	α=0.001	52	60	68	75	82	89	95	102	109	115	122	128	135	141	148	154	161	167	174
	α=0.005	52	60	66	73	79	85	92	98	104	110	116	122	129	135	141	147	153	159	165
	α=0.01	52	59	65	71	77	84	90	96	102	108	114	120	125	131	137	143	149	155	161
	α=0.025	51	57	63	69	75	81	86	92	98	104	109	115	121	126	132	137	143	149	154
	α=0.05	50	56	62	67	73	78	84	89	95	100	105	111	116	122	127	132	138	143	148
	α=0.1	49	54	60	65	70	75	80	85	91	96	101	106	111	116	121	126	131	136	141

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 9	α=0.001	63	72	81	88	96	104	111	118	126	133	140	147	155	162	169	176	183	190	198
	α=0.005	63	71	79	86	93	100	107	114	121	127	134	141	148	155	161	168	175	182	188
	α=0.01	63	70	77	84	91	98	105	111	118	125	131	138	144	151	157	164	170	177	184
	α=0.025	62	69	76	82	88	95	101	108	114	120	126	133	139	145	151	158	164	170	176
	α=0.05	61	67	74	80	86	92	98	104	110	116	122	128	134	140	146	152	158	164	170
	α=0.1	60	66	71	77	83	89	94	100	106	112	117	123	129	134	140	145	151	157	162

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 10	α=0.001	75	85	94	103	111	119	128	136	144	152	160	167	175	183	191	199	207	215	222
	α=0.005	75	84	92	100	108	115	123	131	138	146	153	160	168	175	183	190	197	205	212
	α=0.01	75	83	91	98	106	113	121	128	135	142	150	157	164	171	178	186	193	200	207
	α=0.025	74	81	89	96	103	110	117	124	131	138	145	151	158	165	172	179	186	192	199
	α=0.05	73	80	87	93	100	107	114	120	127	133	140	147	153	160	166	173	179	186	192
	α=0.1	71	78	84	91	97	103	110	116	122	128	135	141	147	153	160	166	172	178	184

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 11	α=0.001	88	99	109	118	127	136	145	154	163	171	180	188	197	206	214	223	231	240	248
	α=0.005	88	98	107	115	124	132	140	148	157	165	173	181	189	197	205	213	221	229	237
	α=0.01	88	97	105	113	122	130	138	146	153	161	169	177	185	193	200	208	216	224	232
	α=0.025	87	95	103	111	118	126	134	141	149	156	164	171	179	186	194	201	208	216	223
	α=0.05	86	93	101	108	115	123	130	137	144	152	159	166	173	180	187	195	202	209	216
	α=0.1	84	91	98	105	112	119	126	133	139	146	153	160	167	173	180	187	194	201	207

Table I.4 Critical Values for the WRS Test (continued)

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 12	α=0.001	102	114	125	135	145	154	164	173	183	192	202	210	220	230	238	247	256	266	275
	α=0.005	102	112	122	131	140	149	158	167	176	185	194	202	211	220	228	237	246	254	263
	α=0.01	102	111	120	129	138	147	156	164	173	181	190	198	207	215	223	232	240	249	257
	α=0.025	100	109	118	126	135	143	151	159	168	176	184	192	200	208	216	224	232	240	248
	α=0.05	99	108	116	124	132	140	147	155	165	171	179	186	194	202	209	217	225	233	240
	α=0.1	97	105	113	120	128	135	143	150	158	165	172	180	187	194	202	209	216	224	231

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 13	α=0.001	117	130	141	152	163	173	183	193	203	213	223	233	243	253	263	273	282	292	302
	α=0.005	117	128	139	148	158	168	177	187	196	206	215	225	234	243	253	262	271	280	290
	α=0.01	116	127	137	146	156	165	174	184	193	202	211	220	229	238	247	256	265	274	283
	α=0.025	115	125	134	143	152	161	170	179	187	196	205	214	222	231	239	248	257	265	274
	α=0.05	114	123	132	140	149	157	166	174	183	191	199	208	216	224	233	241	249	257	266
	α=0.1	112	120	129	137	145	153	161	169	177	185	193	201	209	217	224	232	240	248	256

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 14	α=0.001	133	147	159	171	182	193	204	215	225	236	247	257	268	278	289	299	310	320	330
	α=0.005	133	145	156	167	177	187	198	208	218	228	238	248	258	268	278	288	298	307	317
	α=0.01	132	144	154	164	175	185	194	204	214	224	234	243	253	263	272	282	291	301	311
	α=0.025	131	141	151	161	171	180	190	199	208	218	227	236	245	255	264	273	282	292	301
	α=0.05	129	139	149	158	167	176	185	194	203	212	221	230	239	248	257	265	274	283	292
	α=0.1	128	136	145	154	163	171	180	189	197	206	214	223	231	240	248	257	265	273	282

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 15	α=0.001	150	165	178	190	202	212	225	237	248	260	271	282	293	304	316	327	338	349	360
	α=0.005	150	162	174	186	197	208	219	230	240	251	262	272	283	293	304	314	325	335	346
	α=0.01	149	161	172	183	194	205	215	226	236	247	257	267	278	288	298	308	319	329	339
	α=0.025	148	159	169	180	190	200	210	220	230	240	250	260	270	280	289	299	309	319	329
	α=0.05	146	157	167	176	186	196	206	215	225	234	244	253	263	272	282	291	301	310	319
	α=0.1	144	154	163	172	182	191	200	209	218	227	236	246	255	264	273	282	291	300	309

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 16	α=0.001	168	184	197	210	223	236	248	260	272	284	296	308	320	332	343	355	367	379	390
	α=0.005	168	181	194	206	218	229	241	252	264	275	286	298	309	320	331	342	353	365	376
	α=0.01	167	180	192	203	215	226	237	248	259	270	281	292	303	314	325	336	347	357	368
	α=0.025	166	177	188	200	210	221	232	242	253	264	274	284	295	305	316	326	337	347	357
	α=0.05	164	175	185	196	206	217	227	237	247	257	267	278	288	298	308	318	328	338	348
	α=0.1	162	172	182	192	202	211	221	231	241	250	260	269	279	289	298	308	317	327	336

Table I.4 Critical Values for the WRS Test (continued)

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 17	α=0.001	187	203	218	232	245	258	271	284	297	310	322	335	347	360	372	384	397	409	422
	α=0.005	187	201	214	227	239	252	264	276	288	300	312	324	336	347	359	371	383	394	406
	α=0.01	186	199	212	224	236	248	260	272	284	295	307	318	330	341	353	364	376	387	399
	α=0.025	184	197	209	220	232	243	254	266	277	288	299	310	321	332	343	354	365	376	387
	α=0.05	183	194	205	217	228	238	249	260	271	282	292	303	313	324	335	345	356	366	377
	α=0.1	180	191	202	212	223	233	243	253	264	274	284	294	305	315	325	335	345	355	365

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 18	α=0.001	207	224	239	254	268	282	296	309	323	336	349	362	376	389	402	415	428	441	454
	α=0.005	207	222	236	249	262	275	288	301	313	326	339	351	364	376	388	401	413	425	438
	α=0.01	206	220	233	246	259	272	284	296	309	321	333	345	357	370	382	394	406	418	430
	α=0.025	204	217	230	242	254	266	278	290	302	313	325	337	348	360	372	383	395	406	418
	α=0.05	202	215	226	238	250	261	273	284	295	307	318	329	340	352	363	374	385	396	407
	α=0.1	200	211	222	233	244	255	266	277	288	299	309	320	331	342	352	363	374	384	395

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 19	α=0.001	228	246	262	277	292	307	321	335	350	364	377	391	405	419	433	446	460	473	487
	α=0.005	227	243	258	272	286	300	313	327	340	353	366	379	392	405	419	431	444	457	470
	α=0.01	226	242	256	269	283	296	309	322	335	348	361	373	386	399	411	424	437	449	462
	α=0.025	225	239	252	265	278	290	303	315	327	340	352	364	377	389	401	413	425	437	450
	α=0.05	223	236	248	261	273	285	297	309	321	333	345	356	368	380	392	403	415	427	439
	α=0.1	220	232	244	256	267	279	290	302	313	325	336	347	358	370	381	392	403	415	426

	n =	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
m = 20	α=0.001	250	269	286	302	317	333	348	363	377	392	407	421	435	450	464	479	493	507	521
	α=0.005	249	266	281	296	311	325	339	353	367	381	395	409	422	436	450	463	477	490	504
	α=0.01	248	264	279	293	307	321	335	349	362	376	389	402	416	429	442	456	469	482	495
	α=0.025	247	261	275	289	302	315	329	341	354	367	380	393	406	419	431	444	457	470	482
	α=0.05	245	258	271	284	297	310	322	335	347	360	372	385	397	409	422	434	446	459	471
	α=0.1	242	254	267	279	291	303	315	327	339	351	363	375	387	399	410	422	434	446	458

Reject the null hypothesis if the test statistic (W_r) is greater than the table (critical) value. For n or m greater than 20, the table (critical) value can be calculated from:

$$m(n+m+1)/2 \; + \; z\sqrt{nm(n+m+1)/12} \qquad \text{(I.1)}$$

if there are few or no ties, and from

$$m(n+m+1)/2 \; + \; z\sqrt{\frac{nm}{12}[(n+m+1) - \sum_{j=1}^{g} \frac{t_j(t_j^2-1)}{(n+m)(n+m-1)}]} \qquad \text{(I.2)}$$

if there are many ties, where g is the number of groups of tied measurements and t_j is the number of tied measurements in the jth group. z is the (1-α) percentile of a standard normal distribution, which can be found in the following table:

α	**z**
0.001	3.09
0.005	2.575
0.01	2.326
0.025	1.960
0.05	1.645
0.1	1.282

Other values can be found in Table I-1.

I.5 Probability of Detecting an Elevated Area

Table I.5 Risk that an Elevated Area with Length L/G and Shape S will not be Detected and the Area (%) of the Elevated Area Relative to a Triangular Sample Grid Area of 0.866 G^2

	Shape Parameter, S																			
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00	
L/G	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area
0.01	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%
0.02	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%
0.03	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%
0.04	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	0.99	1%	0.99	1%
0.05	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	1.00	<1%	0.99	1%	0.99	1%	0.99	1%	0.99	1%	0.99	1%
0.06	1.00	<1%	1.00	<1%	1.00	<1%	0.99	<1%	0.99	1%	0.99	1%	0.99	1%	0.99	1%	0.99	1%	0.99	1%
0.07	1.00	<1%	1.00	<1%	0.99	1%	0.99	<1%	0.99	1%	0.99	1%	0.99	1%	0.99	1%	0.98	2%	0.98	2%
0.08	1.00	<1%	1.00	<1%	0.99	1%	0.99	<1%	0.99	1%	0.99	1%	0.98	2%	0.98	2%	0.98	2%	0.98	2%
0.09	1.00	<1%	0.99	1%	0.99	1%	0.99	1%	0.99	1%	0.98	2%	0.98	2%	0.98	2%	0.97	3%	0.97	3%
0.10	1.00	<1%	0.99	1%	0.99	1%	0.99	1%	0.98	2%	0.98	2%	0.97	3%	0.97	3%	0.97	3%	0.96	4%
0.11	1.00	<1%	0.99	1%	0.99	1%	0.98	2%	0.98	2%	0.97	3%	0.97	3%	0.96	4%	0.96	4%	0.96	4%
0.12	0.99	1%	0.99	1%	0.98	2%	0.98	2%	0.97	3%	0.97	3%	0.96	4%	0.96	4%	0.95	5%	0.95	5%
0.13	0.99	1%	0.99	1%	0.98	2%	0.98	2%	0.97	3%	0.96	4%	0.96	4%	0.95	5%	0.94	6%	0.94	6%
0.14	0.99	1%	0.99	1%	0.98	2%	0.97	3%	0.96	4%	0.96	4%	0.95	5%	0.94	6%	0.94	6%	0.93	7%
0.15	0.99	1%	0.98	2%	0.98	2%	0.97	3%	0.96	4%	0.95	5%	0.94	6%	0.93	7%	0.93	7%	0.92	8%
0.16	0.99	1%	0.98	2%	0.97	3%	0.96	4%	0.95	5%	0.94	6%	0.94	7%	0.93	7%	0.92	8%	0.91	9%
0.17	0.99	1%	0.98	2%	0.97	3%	0.96	4%	0.95	5%	0.94	6%	0.93	7%	0.92	8%	0.91	9%	0.90	10%
0.18	0.99	1%	0.98	2%	0.96	4%	0.95	5%	0.94	6%	0.93	7%	0.92	8%	0.91	9%	0.89	11%	0.88	12%
0.19	0.99	1%	0.97	3%	0.96	4%	0.95	5%	0.93	7%	0.92	8%	0.91	9%	0.90	10%	0.88	12%	0.87	13%
0.20	0.99	1%	0.97	3%	0.96	4%	0.94	6%	0.93	7%	0.91	9%	0.90	10%	0.88	12%	0.87	13%	0.85	15%
0.21	0.98	2%	0.97	3%	0.95	5%	0.94	6%	0.92	8%	0.90	10%	0.89	11%	0.87	13%	0.86	14%	0.84	16%
0.22	0.98	2%	0.96	4%	0.95	5%	0.93	7%	0.91	9%	0.89	11%	0.88	12%	0.86	14%	0.84	16%	0.82	18%
0.23	0.98	2%	0.96	4%	0.94	6%	0.92	8%	0.90	10%	0.88	12%	0.87	13%	0.85	15%	0.83	17%	0.81	19%
0.24	0.98	2%	0.96	4%	0.94	6%	0.92	8%	0.90	10%	0.87	13%	0.85	15%	0.83	17%	0.81	19%	0.79	21%
0.25	0.98	2%	0.95	5%	0.93	7%	0.91	9%	0.89	11%	0.86	14%	0.84	16%	0.82	18%	0.80	20%	0.77	23%
0.26	0.98	2%	0.95	5%	0.93	7%	0.90	10%	0.88	12%	0.85	15%	0.83	17%	0.80	20%	0.78	22%	0.75	25%
0.27	0.97	3%	0.95	5%	0.92	8%	0.89	11%	0.87	13%	0.84	16%	0.81	19%	0.79	21%	0.76	24%	0.74	26%
0.28	0.97	3%	0.94	6%	0.91	9%	0.89	11%	0.86	14%	0.83	17%	0.80	20%	0.77	23%	0.74	26%	0.72	28%
0.29	0.97	3%	0.94	6%	0.91	9%	0.88	12%	0.85	15%	0.82	18%	0.79	21%	0.76	24%	0.73	27%	0.69	31%
0.30	0.97	3%	0.93	7%	0.90	10%	0.87	13%	0.84	16%	0.80	20%	0.77	23%	0.74	26%	0.71	29%	0.67	33%

Guidance for using Table I.5 can be found in Gilbert 1987 and EPA 1989a.

Table I.5 Risk that an Elevated Area with Length L/G and Shape S will not be Detected and the Area (%) of the Elevated Area Relative to a Triangular Sample Grid Area of 0.866 G^2 (continued)

	Shape Parameter, S																			
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00	
L/G	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area
0.31	0.97	3%	0.93	7%	0.90	10%	0.86	14%	0.83	17%	0.79	21%	0.76	24%	0.72	28%	0.69	31%	0.65	35%
0.32	0.96	4%	0.93	7%	0.89	11%	0.85	15%	0.81	19%	0.78	22%	0.74	26%	0.70	30%	0.67	33%	0.63	37%
0.33	0.96	4%	0.92	8%	0.88	12%	0.84	16%	0.80	20%	0.76	24%	0.72	28%	0.68	32%	0.64	36%	0.61	40%
0.34	0.96	4%	0.92	8%	0.87	13%	0.83	17%	0.79	21%	0.75	25%	0.71	29%	0.66	34%	0.62	38%	0.58	42%
0.35	0.96	4%	0.91	9%	0.87	13%	0.82	18%	0.78	22%	0.73	27%	0.69	31%	0.64	36%	0.60	40%	0.56	44%
0.36	0.95	5%	0.91	9%	0.86	14%	0.81	19%	0.76	24%	0.72	28%	0.67	33%	0.62	38%	0.58	42%	0.53	47%
0.37	0.95	5%	0.90	10%	0.85	15%	0.80	20%	0.75	25%	0.70	30%	0.65	35%	0.60	40%	0.55	45%	0.50	50%
0.38	0.95	5%	0.90	10%	0.84	16%	0.79	21%	0.74	26%	0.69	31%	0.63	37%	0.58	42%	0.53	47%	0.48	52%
0.39	0.94	6%	0.89	11%	0.83	17%	0.78	22%	0.72	28%	0.67	33%	0.61	39%	0.56	44%	0.50	50%	0.45	55%
0.40	0.94	6%	0.88	12%	0.83	17%	0.77	23%	0.71	29%	0.65	35%	0.59	41%	0.54	46%	0.48	52%	0.42	58%
0.41	0.94	6%	0.88	12%	0.82	18%	0.76	24%	0.70	30%	0.63	37%	0.57	43%	0.51	49%	0.45	55%	0.39	61%
0.42	0.94	6%	0.87	13%	0.81	19%	0.74	26%	0.68	32%	0.62	38%	0.55	45%	0.49	51%	0.42	58%	0.36	64%
0.43	0.93	7%	0.87	13%	0.80	20%	0.73	27%	0.66	34%	0.60	40%	0.53	47%	0.46	54%	0.40	60%	0.33	67%
0.44	0.93	7%	0.86	14%	0.79	21%	0.72	28%	0.65	35%	0.58	42%	0.51	49%	0.44	56%	0.37	63%	0.30	70%
0.45	0.93	7%	0.85	15%	0.78	22%	0.71	29%	0.63	37%	0.56	44%	0.49	51%	0.41	59%	0.34	66%	0.27	73%
0.46	0.92	8%	0.85	15%	0.77	23%	0.69	31%	0.62	38%	0.54	46%	0.46	54%	0.39	61%	0.31	69%	0.23	77%
0.47	0.92	8%	0.84	16%	0.76	24%	0.68	32%	0.60	40%	0.52	48%	0.44	56%	0.36	64%	0.28	72%	0.20	80%
0.48	0.92	8%	0.83	17%	0.75	25%	0.67	33%	0.58	42%	0.50	50%	0.41	59%	0.33	67%	0.25	75%	0.16	84%
0.49	0.91	9%	0.83	17%	0.74	26%	0.65	35%	0.56	44%	0.48	52%	0.39	61%	0.30	70%	0.22	78%	0.13	87%
0.50	0.91	9%	0.82	18%	0.73	27%	0.64	36%	0.55	45%	0.46	54%	0.37	63%	0.27	73%	0.18	82%	0.09	91%
0.51	0.91	9%	0.81	19%	0.72	28%	0.62	38%	0.53	47%	0.43	57%	0.34	66%	0.25	75%	0.15	85%	0.07	94%
0.52	0.90	10%	0.80	20%	0.71	29%	0.61	39%	0.51	49%	0.41	59%	0.32	69%	0.22	78%	0.13	88%	0.05	98%
0.53	0.90	10%	0.80	20%	0.70	31%	0.59	41%	0.49	51%	0.39	61%	0.29	71%	0.19	82%	0.10	92%	0.03	102%
0.54	0.89	11%	0.79	21%	0.68	32%	0.58	42%	0.47	53%	0.37	63%	0.27	74%	0.17	85%	0.08	95%	0.02	106%
0.55	0.89	11%	0.78	22%	0.67	33%	0.56	44%	0.46	55%	0.35	66%	0.24	77%	0.14	88%	0.06	99%	0.01	110%
0.56	0.89	11%	0.77	23%	0.66	34%	0.55	46%	0.44	57%	0.33	68%	0.22	80%	0.12	91%	0.04	102%	0.00	114%
0.57	0.88	12%	0.77	24%	0.65	35%	0.54	47%	0.42	59%	0.31	71%	0.20	83%	0.10	94%	0.02	106%	0.00	118%
0.58	0.88	12%	0.76	24%	0.64	37%	0.52	49%	0.40	61%	0.29	73%	0.18	85%	0.08	98%	0.01	110%	0.00	122%
0.59	0.87	13%	0.75	25%	0.63	38%	0.51	51%	0.39	63%	0.27	76%	0.16	88%	0.06	101%	0.00	114%	0.00	126%
0.60	0.87	13%	0.74	26%	0.62	39%	0.49	52%	0.37	65%	0.25	78%	0.14	91%	0.04	104%	0.00	118%	0.00	131%
0.61	0.87	13%	0.73	27%	0.60	40%	0.48	54%	0.35	67%	0.23	81%	0.12	94%	0.03	108%	0.00	121%	0.00	135%
0.62	0.86	14%	0.73	28%	0.59	42%	0.46	56%	0.34	70%	0.21	84%	0.10	98%	0.02	112%	0.00	126%	0.00	139%
0.63	0.86	14%	0.72	29%	0.58	43%	0.45	58%	0.32	72%	0.20	86%	0.09	101%	0.01	115%	0.00	130%	0.00	144%
0.64	0.85	15%	0.71	30%	0.57	45%	0.43	59%	0.30	74%	0.18	89%	0.07	104%	0.00	119%	0.00	134%	0.00	149%
0.65	0.85	15%	0.70	31%	0.56	46%	0.42	61%	0.29	77%	0.16	92%	0.06	107%	0.00	123%	0.00	138%	0.00	153%

Table I.5 Risk that an Elevated Area with Length L/G and Shape S will not be Detected and the Area (%) of the Elevated Area Relative to a Triangular Sample Grid Area of $0.866G^2$ (continued)

	Shape Parameter, S																			
	0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90		1.00	
L/G	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area	Risk	Area
0.66	0.84	16%	0.69	32%	0.55	47%	0.40	63%	0.27	79%	0.15	95%	0.05	111%	0.00	126%	0.00	142%	0.00	158%
0.67	0.84	16%	0.68	33%	0.53	49%	0.39	65%	0.25	81%	0.13	98%	0.03	114%	0.00	130%	0.00	147%	0.00	163%
0.68	0.84	17%	0.68	34%	0.52	50%	0.38	67%	0.24	84%	0.12	101%	0.02	117%	0.00	134%	0.00	151%	0.00	168%
0.69	0.83	17%	0.67	35%	0.51	52%	0.36	69%	0.22	86%	0.10	104%	0.01	121%	0.00	138%	0.00	155%	0.00	173%
0.70	0.83	18%	0.66	36%	0.50	53%	0.35	71%	0.21	89%	0.09	107%	0.01	124%	0.00	142%	0.00	160%	0.00	178%
0.71	0.82	18%	0.65	37%	0.49	55%	0.33	73%	0.20	91%	0.08	110%	0.00	128%	0.00	146%	0.00	165%	0.00	183%
0.72	0.82	19%	0.64	38%	0.48	56%	0.32	75%	0.18	94%	0.07	113%	0.00	132%	0.00	150%	0.00	169%	0.00	188%
0.73	0.81	19%	0.63	39%	0.46	58%	0.31	77%	0.17	97%	0.05	116%	0.00	135%	0.00	155%	0.00	174%	0.00	193%
0.74	0.81	20%	0.62	40%	0.45	60%	0.29	79%	0.15	99%	0.04	119%	0.00	139%	0.00	159%	0.00	179%	0.00	199%
0.75	0.80	20%	0.61	41%	0.44	61%	0.28	82%	0.14	102%	0.04	122%	0.00	143%	0.00	163%	0.00	184%	0.00	204%
0.76	0.80	21%	0.61	42%	0.43	63%	0.27	84%	0.13	105%	0.03	126%	0.00	147%	0.00	168%	0.00	189%	0.00	210%
0.77	0.79	22%	0.60	43%	0.42	65%	0.25	86%	0.12	108%	0.02	129%	0.00	151%	0.00	172%	0.00	194%	0.00	215%
0.78	0.79	22%	0.59	44%	0.40	66%	0.24	88%	0.10	110%	0.01	132%	0.00	154%	0.00	177%	0.00	199%	0.00	221%
0.79	0.78	23%	0.58	45%	0.39	68%	0.23	91%	0.09	113%	0.01	136%	0.00	158%	0.00	181%	0.00	204%	0.00	226%
0.80	0.78	23%	0.57	46%	0.38	70%	0.22	93%	0.08	116%	0.00	139%	0.00	163%	0.00	186%	0.00	209%	0.00	232%
0.81	0.77	24%	0.56	48%	0.37	71%	0.20	95%	0.07	119%	0.00	143%	0.00	167%	0.00	190%	0.00	214%	0.00	238%
0.82	0.77	24%	0.55	49%	0.36	73%	0.19	98%	0.06	122%	0.00	146%	0.00	171%	0.00	195%	0.00	220%	0.00	244%
0.83	0.76	25%	0.54	50%	0.35	75%	0.18	100%	0.05	125%	0.00	150%	0.00	175%	0.00	200%	0.00	225%	0.00	250%
0.84	0.76	26%	0.53	51%	0.33	77%	0.17	102%	0.05	128%	0.00	154%	0.00	179%	0.00	205%	0.00	230%	0.00	256%
0.85	0.75	26%	0.52	52%	0.32	79%	0.16	105%	0.04	131%	0.00	157%	0.00	183%	0.00	210%	0.00	236%	0.00	262%
0.86	0.74	27%	0.51	54%	0.31	80%	0.14	107%	0.03	134%	0.00	161%	0.00	188%	0.00	215%	0.00	241%	0.00	268%
0.87	0.74	27%	0.50	55%	0.30	82%	0.13	110%	0.02	137%	0.00	165%	0.00	192%	0.00	220%	0.00	247%	0.00	275%
0.88	0.73	28%	0.50	56%	0.29	84%	0.12	112%	0.02	140%	0.00	169%	0.00	197%	0.00	225%	0.00	253%	0.00	281%
0.89	0.73	29%	0.49	57%	0.28	86%	0.11	115%	0.01	144%	0.00	172%	0.00	201%	0.00	230%	0.00	259%	0.00	287%
0.90	0.72	29%	0.48	59%	0.27	88%	0.10	118%	0.01	147%	0.00	176%	0.00	206%	0.00	235%	0.00	264%	0.00	294%
0.91	0.72	30%	0.47	60%	0.26	90%	0.10	120%	0.01	150%	0.00	180%	0.00	210%	0.00	240%	0.00	270%	0.00	300%
0.92	0.71	31%	0.46	61%	0.25	92%	0.09	123%	0.00	154%	0.00	184%	0.00	215%	0.00	246%	0.00	276%	0.00	307%
0.93	0.71	31%	0.45	63%	0.24	94%	0.08	126%	0.00	157%	0.00	188%	0.00	220%	0.00	251%	0.00	282%	0.00	314%
0.94	0.70	32%	0.44	64%	0.23	96%	0.07	128%	0.00	160%	0.00	192%	0.00	224%	0.00	256%	0.00	288%	0.00	321%
0.95	0.69	33%	0.43	65%	0.22	98%	0.07	131%	0.00	164%	0.00	196%	0.00	229%	0.00	262%	0.00	295%	0.00	327%
0.96	0.69	33%	0.42	67%	0.21	100%	0.06	134%	0.00	167%	0.00	201%	0.00	234%	0.00	267%	0.00	301%	0.00	334%
0.97	0.68	34%	0.41	68%	0.20	102%	0.05	137%	0.00	171%	0.00	205%	0.00	239%	0.00	273%	0.00	307%	0.00	341%
0.98	0.68	35%	0.40	70%	0.19	105%	0.05	139%	0.00	174%	0.00	209%	0.00	244%	0.00	279%	0.00	314%	0.00	348%
0.99	0.67	36%	0.40	71%	0.18	107%	0.04	142%	0.00	178%	0.00	213%	0.00	249%	0.00	284%	0.00	320%	0.00	356%
1.00	0.67	36%	0.39	73%	0.17	109%	0.04	145%	0.00	181%	0.00	218%	0.00	254%	0.00	290%	0.00	326%	0.00	363%

I.6 Random Numbers

Table I.6 1,000 Random Numbers Uniformly Distributed between Zero and One

0.163601	0.647423	0.555548	0.248859	0.259801	0.718368	0.305020	0.812482	0.601951	0.973160
0.934196	0.951102	0.979831	0.132364	0.157808	0.040605	0.997626	0.896462	0.360578	0.443218
0.054552	0.965257	0.999181	0.172627	0.583713	0.852958	0.116336	0.748483	0.058602	0.738495
0.972409	0.241889	0.799991	0.926726	0.585505	0.453993	0.877990	0.947022	0.910821	0.388081
0.556401	0.621126	0.293328	0.984335	0.366531	0.912588	0.733824	0.092405	0.717362	0.423421
0.625153	0.838711	0.196153	0.630553	0.867808	0.957094	0.830218	0.783518	0.141557	0.444997
0.527330	0.124034	0.351792	0.161947	0.688925	0.140346	0.553577	0.890058	0.470457	0.566196
0.826643	0.673286	0.550827	0.885295	0.690781	0.371540	0.108632	0.090765	0.618443	0.937184
0.296068	0.891272	0.392367	0.649633	0.261410	0.523221	0.769081	0.358794	0.924341	0.167665
0.848882	0.083603	0.274621	0.268003	0.272254	0.017727	0.309463	0.445986	0.244653	0.944564
0.779276	0.484461	0.101393	0.995100	0.085164	0.611426	0.030270	0.494982	0.426236	0.270225
0.095038	0.577943	0.186239	0.267852	0.786070	0.208937	0.184565	0.826397	0.256825	0.489034
0.011672	0.844846	0.443407	0.915087	0.275906	0.883009	0.243728	0.865552	0.796671	0.314429
0.215993	0.476035	0.354717	0.883172	0.840666	0.393867	0.374810	0.222167	0.114691	0.596046
0.982374	0.101973	0.683995	0.730612	0.548200	0.084302	0.145212	0.337680	0.566173	0.592776
0.860868	0.794380	0.819422	0.752871	0.158956	0.317468	0.062387	0.909843	0.779089	0.648967
0.718917	0.696798	0.463655	0.762408	0.823097	0.843209	0.368678	0.996266	0.542048	0.663842
0.800735	0.225556	0.398048	0.437067	0.642698	0.144068	0.104212	0.675095	0.318953	0.648478
0.915538	0.711742	0.232159	0.242961	0.327863	0.156608	0.260175	0.385141	0.681475	0.978186
0.975506	0.652654	0.928348	0.513444	0.744095	0.972031	0.527368	0.494287	0.602829	0.592834
0.435196	0.272807	0.452254	0.793464	0.817291	0.828245	0.407518	0.441518	0.358966	0.619741
0.692512	0.368151	0.821543	0.583707	0.802354	0.133831	0.569521	0.474516	0.437608	0.961559
0.678823	0.930602	0.657348	0.025057	0.294093	0.499623	0.006423	0.290613	0.325204	0.044439
0.642075	0.029842	0.289042	0.891009	0.813844	0.973093	0.952871	0.361623	0.709933	0.466955
0.174285	0.863244	0.133649	0.773819	0.891664	0.246417	0.272407	0.517658	0.132225	0.795514
0.951401	0.921291	0.210993	0.369411	0.196909	0.054389	0.364475	0.716718	0.096843	0.308418
0.186824	0.005407	0.310843	0.998118	0.725887	0.143171	0.293721	0.841304	0.661969	0.409622
0.105673	0.026338	0.878006	0.105936	0.612556	0.124601	0.922558	0.648985	0.896805	0.737256
0.801080	0.619461	0.933720	0.275881	0.637352	0.644996	0.713379	0.302687	0.904515	0.457172
0.101214	0.236405	0.945199	0.005975	0.893786	0.082317	0.648743	0.511871	0.298942	0.121573
0.177754	0.930066	0.390527	0.575622	0.390428	0.600575	0.460949	0.191600	0.910079	0.099444
0.846157	0.322467	0.156607	0.253388	0.739021	0.133498	0.293141	0.144834	0.626600	0.045169
0.812147	0.306383	0.201517	0.306651	0.827112	0.277716	0.660224	0.268538	0.518416	0.579216
0.691055	0.059046	0.104390	0.427038	0.148688	0.480788	0.026511	0.572705	0.745522	0.986078
0.483819	0.797573	0.174899	0.892670	0.118990	0.813221	0.857964	0.279164	0.883509	0.154562
0.165133	0.985134	0.214681	0.595309	0.741697	0.418602	0.301917	0.338913	0.680062	0.097350
0.281668	0.476899	0.839512	0.057760	0.474156	0.898409	0.482638	0.198725	0.888281	0.018872
0.554337	0.350955	0.942401	0.526759	0.509846	0.408165	0.800079	0.789263	0.564192	0.140684

Table I.6 1,000 Random Numbers Uniformly Distributed between Zero and One (continued)

0.873143	0.349662	0.238282	0.383195	0.568383	0.298471	0.490431	0.731405	0.339906	0.431645
0.401675	0.061151	0.771468	0.795760	0.365952	0.221234	0.947374	0.375686	0.828215	0.113060
0.574987	0.154831	0.808117	0.723544	0.134014	0.360957	0.166572	0.112314	0.242857	0.309290
0.745415	0.929459	0.425406	0.118845	0.386382	0.867386	0.808757	0.009573	0.229879	0.849242
0.613554	0.926550	0.857632	0.014438	0.004214	0.592513	0.280223	0.283447	0.943793	0.205750
0.880368	0.303741	0.247850	0.341580	0.867155	0.542130	0.473418	0.650251	0.326222	0.036285
0.567556	0.183534	0.696381	0.373333	0.716762	0.526636	0.306862	0.904790	0.151931	0.328792
0.280015	0.237361	0.336240	0.424191	0.192603	0.770194	0.284572	0.992475	0.308979	0.698329
0.502862	0.818555	0.238758	0.057148	0.461531	0.904929	0.521982	0.599127	0.239509	0.424858
0.738375	0.794328	0.305231	0.887161	0.021104	0.469779	0.913966	0.266514	0.647901	0.246223
0.366209	0.749763	0.634971	0.261038	0.869115	0.787951	0.678287	0.667142	0.216531	0.763214
0.739267	0.554299	0.979969	0.489597	0.545130	0.931869	0.096443	0.374089	0.140070	0.840563
0.375690	0.866922	0.256930	0.518074	0.217373	0.027043	0.801938	0.040364	0.624283	0.292810
0.894101	0.178824	0.443631	0.110614	0.556232	0.969563	0.291364	0.695764	0.306903	0.303885
0.668169	0.296926	0.324041	0.616290	0.799426	0.372555	0.070954	0.045748	0.505327	0.027722
0.470107	0.135634	0.271284	0.494071	0.485610	0.382772	0.418470	0.004082	0.298068	0.539847
0.047906	0.694949	0.309033	0.223989	0.008978	0.383695	0.479858	0.894958	0.597796	0.162072
0.917713	0.072793	0.107402	0.007328	0.176598	0.576809	0.052969	0.421803	0.737514	0.340966
0.839439	0.338565	0.254833	0.924413	0.871833	0.480599	0.172846	0.736102	0.471802	0.783451
0.488244	0.260352	0.129716	0.153558	0.305933	0.777100	0.111924	0.412930	0.601453	0.083217
0.488369	0.485094	0.322236	0.894264	0.781546	0.770237	0.707400	0.587451	0.571609	0.981580
0.311380	0.270400	0.807264	0.348433	0.172763	0.914856	0.011893	0.014317	0.820797	0.261767
0.028802	0.072165	0.944160	0.804761	0.770481	0.104256	0.112919	0.184068	0.940946	0.238087
0.466082	0.603884	0.959713	0.547834	0.487552	0.455150	0.240324	0.428921	0.648821	0.277620
0.720229	0.575779	0.939622	0.234554	0.767389	0.735335	0.941002	0.794021	0.291615	0.165732
0.861579	0.778039	0.331677	0.608231	0.646094	0.498720	0.140520	0.259197	0.782477	0.922273
0.849884	0.917789	0.816247	0.572502	0.753757	0.857324	0.988330	0.597085	0.186087	0.771997
0.989999	0.994007	0.349735	0.954437	0.741124	0.791852	0.986074	0.444554	0.177531	0.743725
0.337214	0.987184	0.344245	0.039033	0.549585	0.688526	0.225470	0.556251	0.157058	0.681447
0.706330	0.082994	0.299909	0.613361	0.031334	0.941102	0.772731	0.198070	0.460602	0.778659
0.417239	0.916556	0.707773	0.249767	0.169301	0.914420	0.732687	0.934912	0.985594	0.726957
0.653326	0.529996	0.305465	0.181747	0.153359	0.353168	0.673377	0.448970	0.546347	0.885438
0.099373	0.156385	0.067157	0.755573	0.689979	0.494021	0.996216	0.051811	0.049321	0.595525
0.860299	0.210143	0.026232	0.838499	0.108975	0.455260	0.320633	0.150619	0.445073	0.275619
0.067160	0.791992	0.363875	0.825052	0.047561	0.311194	0.447486	0.971659	0.876616	0.455018
0.944317	0.348844	0.210015	0.769274	0.253032	0.239894	0.208165	0.600014	0.945046	0.505316
0.917419	0.185575	0.743859	0.655124	0.185320	0.237660	0.271534	0.949825	0.441666	0.811135
0.365705	0.800723	0.116707	0.386073	0.837800	0.244896	0.337304	0.869528	0.845737	0.194553
0.911453	0.591254	0.920222	0.707522	0.782902	0.092884	0.426444	0.320336	0.226369	0.377845

Table I.6 1,000 Random Numbers Uniformly Distributed between Zero and One (continued)

0.027171	0.058193	0.726183	0.057705	0.935493	0.688071	0.752543	0.932781	0.048914	0.591035
0.768066	0.387888	0.655990	0.690208	0.746739	0.936409	0.685458	0.090931	0.242120	0.067899
0.052305	0.899285	0.092643	0.058916	0.826653	0.772790	0.785028	0.967761	0.588503	0.896590
0.623285	0.492051	0.644294	0.821341	0.600824	0.901289	0.774379	0.391874	0.810022	0.437879
0.624284	0.308522	0.208541	0.297156	0.576129	0.373705	0.370345	0.372748	0.965550	0.874416
0.853117	0.671602	0.018316	0.095780	0.871263	0.885420	0.919787	0.439594	0.460586	0.629443
0.967796	0.933631	0.397054	0.682343	0.505977	0.406611	0.539543	0.066152	0.885414	0.857606
0.759450	0.768853	0.115419	0.744466	0.607572	0.179839	0.413809	0.228607	0.362857	0.826932
0.514703	0.108915	0.864053	0.076280	0.352557	0.674917	0.572689	0.588574	0.596215	0.639101
0.826296	0.264540	0.255775	0.180449	0.405715	0.740170	0.423514	0.537793	0.877436	0.512284
0.354198	0.792775	0.051583	0.806962	0.385851	0.655314	0.046701	0.860466	0.848112	0.515684
0.744807	0.960789	0.123099	0.163569	0.621969	0.571558	0.482449	0.346358	0.795845	0.207558
0.642312	0.356643	0.797708	0.505570	0.418534	0.634642	0.033111	0.393330	0.105093	0.328848
0.824625	0.855876	0.770743	0.678619	0.927298	0.204828	0.831460	0.979875	0.566627	0.056160
0.755877	0.679791	0.442388	0.899944	0.563383	0.197074	0.679568	0.244433	0.786084	0.337991
0.625370	0.967123	0.321605	0.697578	0.122418	0.475395	0.068207	0.070374	0.353248	0.461960
0.124012	0.133851	0.761154	0.501578	0.204221	0.866481	0.925783	0.329001	0.327832	0.844681
0.825392	0.382001	0.847909	0.520741	0.404959	0.308849	0.418976	0.972838	0.452438	0.600528
0.999194	0.297058	0.617183	0.570478	0.875712	0.581618	0.284410	0.405575	0.362205	0.427077
0.536855	0.667083	0.636883	0.043774	0.113509	0.980045	0.237797	0.618925	0.670767	0.814902
0.361632	0.797162	0.136063	0.487575	0.682796	0.952708	0.759989	0.058556	0.292400	0.871674
0.923253	0.479871	0.022855	0.673915	0.733795	0.811955	0.417970	0.095675	0.831670	0.043950
0.845432	0.202336	0.348421	0.050704	0.171916	0.600557	0.284838	0.606715	0.758190	0.394811

I.7 Stem and Leaf Display

The construction of a **stem and leaf display** is a simple way to generate a crude histogram of the data quickly. The "stems" of such a display are the most significant digits of the data. Consider the sample data of Section 8.2.2.2:

90.7, 83.5, 86.4, 88.5, 84.4, 74.2, 84.1, 87.6, 78.2, 77.6,
86.4, 76.3, 86.5, 77.4, 90.3, 90.1, 79.1, 92.4, 75.5, 80.5.

Here the data span three decades, so one might consider using the stems 70, 80 and 90. However, three is too few stems to be informative, just as three intervals would be too few for constructing a histogram. Therefore, for this example, each decade is divided into two parts. This results in the six stems 70, 75, 80, 85, 90, 95. The leaves are the least significant digits, so 90.7 has the stem 90 and the leaf 0.7. 77.4 has the stem 75 and the leaf 7.4. Note that even though the stem is 75, the leaf is *not* 2.4. The leaf is kept as 7.4 so that the data can be read directly from the display without any calculations.

As shown in the top part of Figure I.1, simply arrange the leaves of the data into rows, one stem per row. The result is a quick histogram of the data. In order to ensure this, the same number of digits should be used for each leaf, so that each occupies the same amount of horizontal space.

If the stems are arranged in increasing order, as shown in the bottom half of Figure I.1, it is easy to pick out the minimum (74.2), the maximum (92.4), and the median (between 84.1 and 84.4).

A stem and leaf display (or histogram) with two peaks may indicate that residual radioactivity is distributed over only a portion of the survey unit. Further information on the construction and interpretation of data plots is given in EPA QA/G-9 (EPA 1996a).

Stem Leaves
70 4.2
75 8.2, 7.6, 6.3, 7.4, 9.1, 5.5
80 3.5, 4.4, 4.1, 0.5
85 6.4, 8.5, 7.6, 6.4, 6.5
90 0.7, 0.3, 0.1, 2.4
95

Stem Sorted Leaves
70 4.2
75 5.5, 6.3, 7.4, 7.6, 8.2, 9.1
80 0.5, 3.5, 4.1, 4.4
85 6.4, 6.4, 6.5, 7.6, 8.5
90 0.1, 0.3, 0.7, 2.4
95

Figure I.1 Example of a Stem and Leaf Display

I.8 Quantile Plots

A **Quantile plot** is constructed by first ranking the data from smallest to largest. Sorting the data is easy once the stem and leaf display has been constructed. Then, each data value is simply plotted against the percentage of the samples with that value or less. This percentage is computed from:

$$Percent = \frac{100\,(rank - 0.5)}{(number\ \ of\ \ data\ \ points)} \qquad \text{(I-3)}$$

The results for the example data of Section I.7 are shown in Table I.7. The Quantile plot for this example is shown in Figure I.2.

The slope of the curve in the Quantile plot is an indication of the amount of data in a given range of values. A small amount of data in a range will result in a large slope. A large amount of data in a range of values will result in a more horizonal slope. A sharp rise near the bottom or the top is an indication of asymmetry. Sudden changes in slope, or notably flat or notably steep areas may indicate peculiarities in the survey unit data needing further investigation.

Table I.7 Data for Quantile Plot

Data:	74.2	75.5	76.3	77.4	77.6	78.2	79.1	80.5	83.5	84.1
Rank:	1	2	3	4	5	6	7	8	9	10
Percent:	2.5	7.5	12.5	17.5	22.5	27.5	32.5	37.5	42.5	47.5
Data:	84.4	86.4	86.4	86.5	87.6	88.5	90.1	90.3	90.7	92.4
Rank:	11	12.5	12.5	14	15	16	17	18	19	20
Percent:	52.5	60.0	60.0	67.5	72.5	77.5	82.5	87.5	92.5	97.5

A useful aid to interpreting the quantile plot is the addition of boxes containing the middle 50% and middle 75% of the data. These are shown as the dashed lines in Figure I.2. The 50% box has its upper right corner at the 75th percentile and its lower left corner at the 25th percentile. These points are also called the Quartiles. These are ~78 and ~88, respectively, as indicated by the dashed lines. They bracket the middle half of the data values. The 75% box has its upper right corner at the 87.5th percentile and its lower left corner at the 12.5th percentile. A sharp increase within the 50% box can indicate two or more modes in the data. Outside the 75% box, sharp increases can indicate outliers. The median (50th percentile) is indicated by the heavy solid line at the value ~84, and can be used as an aid to judging the symmetry of the data distribution. There are no especially unusual features in the example Quantile plot shown in Figure I.2, other than the possibility of slight asymmetry around the median.

Another Quantile plot, for the example data of Section 8.3.3, is shown in Figure I.3.

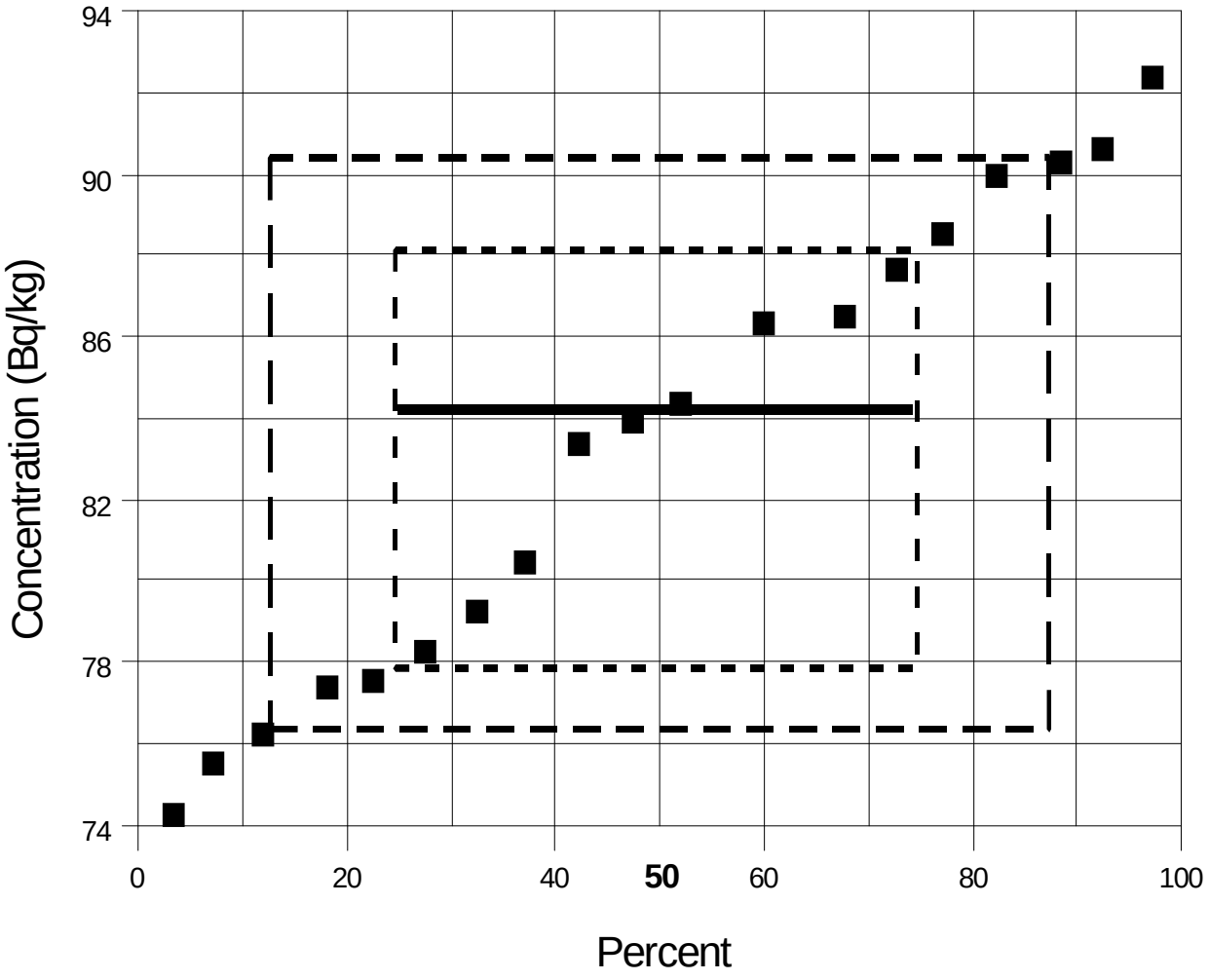


Figure I.2 Example of a Quantile Plot

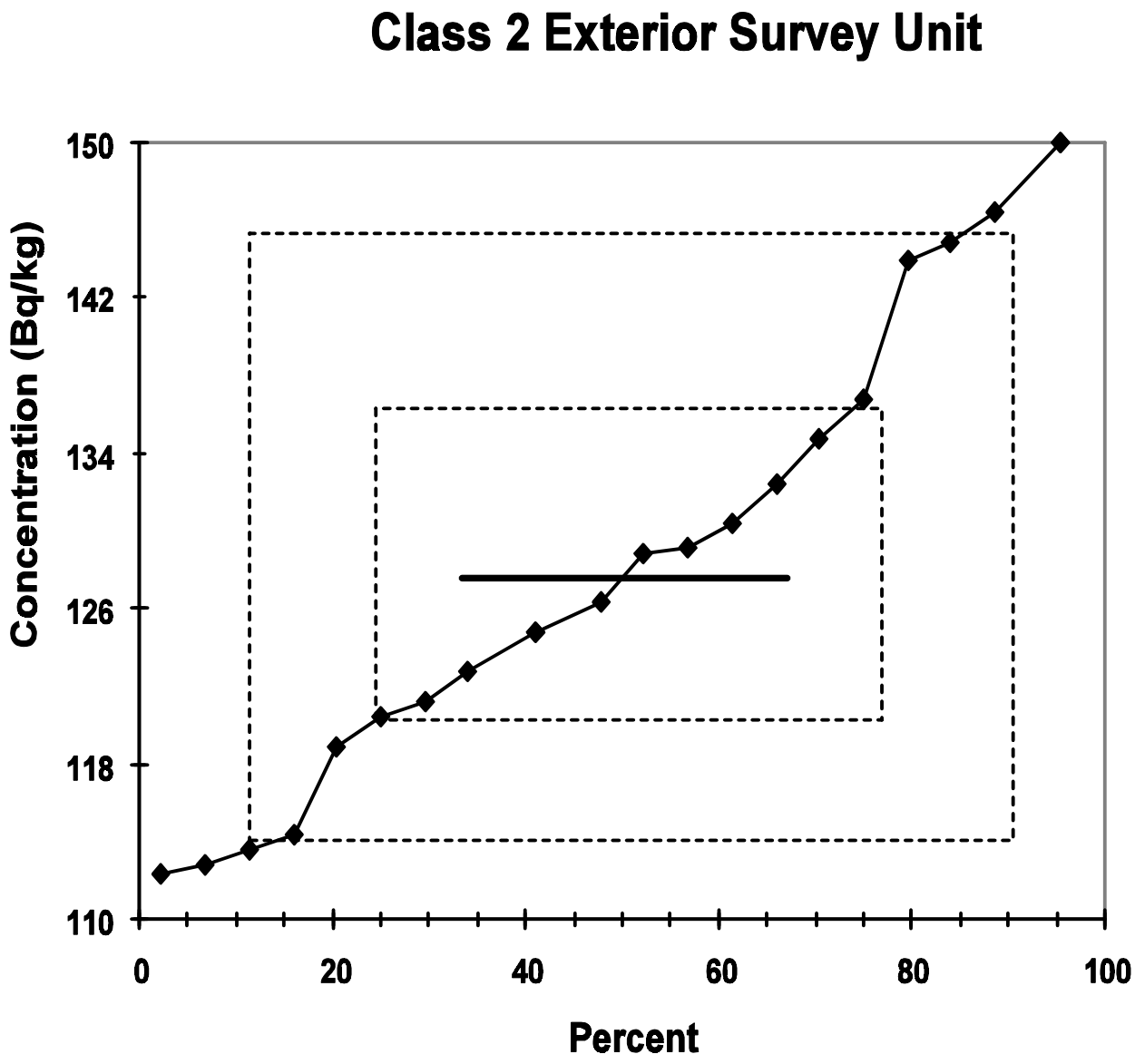


Figure I.3 Quantile Plot for Example Class 2 Exterior Survey Unit of Section 8.3.3.

A **Quantile-Quantile plot** is extremely useful for comparing two sets of data. Suppose the following 17 concentration values were obtained in a reference area corresponding to the example survey unit data of Section I.7:

92.1, 83.2, 81.7, 81.8, 88.5, 82.4, 81.5, 69.7, 82.4, 89.7,
81.4, 79.4, 82.0, 79.9, 81.1, 59.4, 75.3.

A Quantile-Quantile plot can be constructed to compare the distribution of the survey unit data, Y_j, j=1,...n, with the distribution of the reference area data X_i , i=1,... m. (If the reference area data set were the larger, the roles of X and Y would be reversed.) The data from each set are ranked separately from smallest to largest. This has already been done for the survey unit data in Table I.7. For the reference area data, we obtain the results in Table I.8.

Table I.8 Ranked Reference Area Concentrations

Data:	59.4	69.7	75.3	79.4	79.9	81.1	81.4	81.5	81.7	81.8
Rank:	1	2	3	4	5	6	7	8	9	10
Data:	82.0	82.4	82.4	83.2	88.5	89.7	92.1			
Rank:	11	12.5	12.5	14	15	16	17			

The median for the reference area data is 81.7, the sample mean is 80.7, and the sample standard deviation is 7.5.

For the larger data set, the data must be interpolated to match the number of points in the smaller data set. This is done by computing

$$\nu_1 = 0.5(n/m) + 0.5 \quad \textit{and} \quad \nu_{i+1} = \nu_i + (n/m) \quad \textit{for } i = 1,...m-1, \tag{I-4}$$

where m is the number of points in the smaller data set and n is the number of points in the larger data set. For each of the ranks, i, in the smaller data set, a corresponding value in the larger data set is found by first decomposing v_i into its integer part, j, and its fractional part, g.

Then the interpolated values are computed from the relationship:

$$Z_i = (1\text{-}g)\, Y_j + g\, Y_{j+1} . \qquad \text{(I-5)}$$

The results of these calculations are shown in Table I.9.

Table I.9 Interpolated Ranks for Survey Unit Concentrations

Rank	1	2	3	4	5	6	7	8	9	10
v_i	1.09	2.26	3.44	4.62	5.79	6.97	8.15	9.33	10.50	11.68
Z_i	74.3	75.7	76.8	77.5	78.1	79.1	80.9	83.7	84.3	85.8
X_i	59.4	69.7	75.3	79.4	79.7	81.1	81.4	81.5	81.7	81.8

Rank	11	12.5	12.5	14	15	16	17
v_i	12.85	14.03	15.21	16.38	17.56	18.74	19.91
Z_i	86.4	86.5	87.8	89.1	90.2	90.6	92.3
X_i	82.0	82.4	82.4	83.2	88.5	89.7	92.1

Finally, Z_i is plotted against X_i to obtain the Quantile-Quantile plot. This example is shown in Figure I.4.

The Quantile-Quantile Plot is valuable because it provides a direct visual comparison of the two data sets. If the two data distributions differ only in location (*e.g.* mean) or scale (*e.g.* standard deviation), the points will lie on a straight line. If the two data distributions being compared are identical, all of the plotted points will lie on the line $Y=X$. Any deviations from this would point to possible differences in these distributions. The middle data point plots the median of Y against the median of X. That this point lies above the line $Y=X$, in the example of Figure 8.4, shows that the median of Y is larger than the median of X. Indeed, the cluster of points above the line $Y = X$ in the region of the plot where the data points are dense, is an indication that the central portion of the survey unit distribution is shifted toward higher values than the reference area distribution. This could imply that there is residual radioactivity in the survey unit. This should be tested using the nonparametric statistical tests described in Chapter 8.

Another Quantile-Quantile plot, for the Class 1 Interior Survey Unit example data, is shown in Figure A.8.

Further information on the interpretation of Quantile and Quantile-Quantile plots are given in EPA QA/G-9 (EPA 1996a).

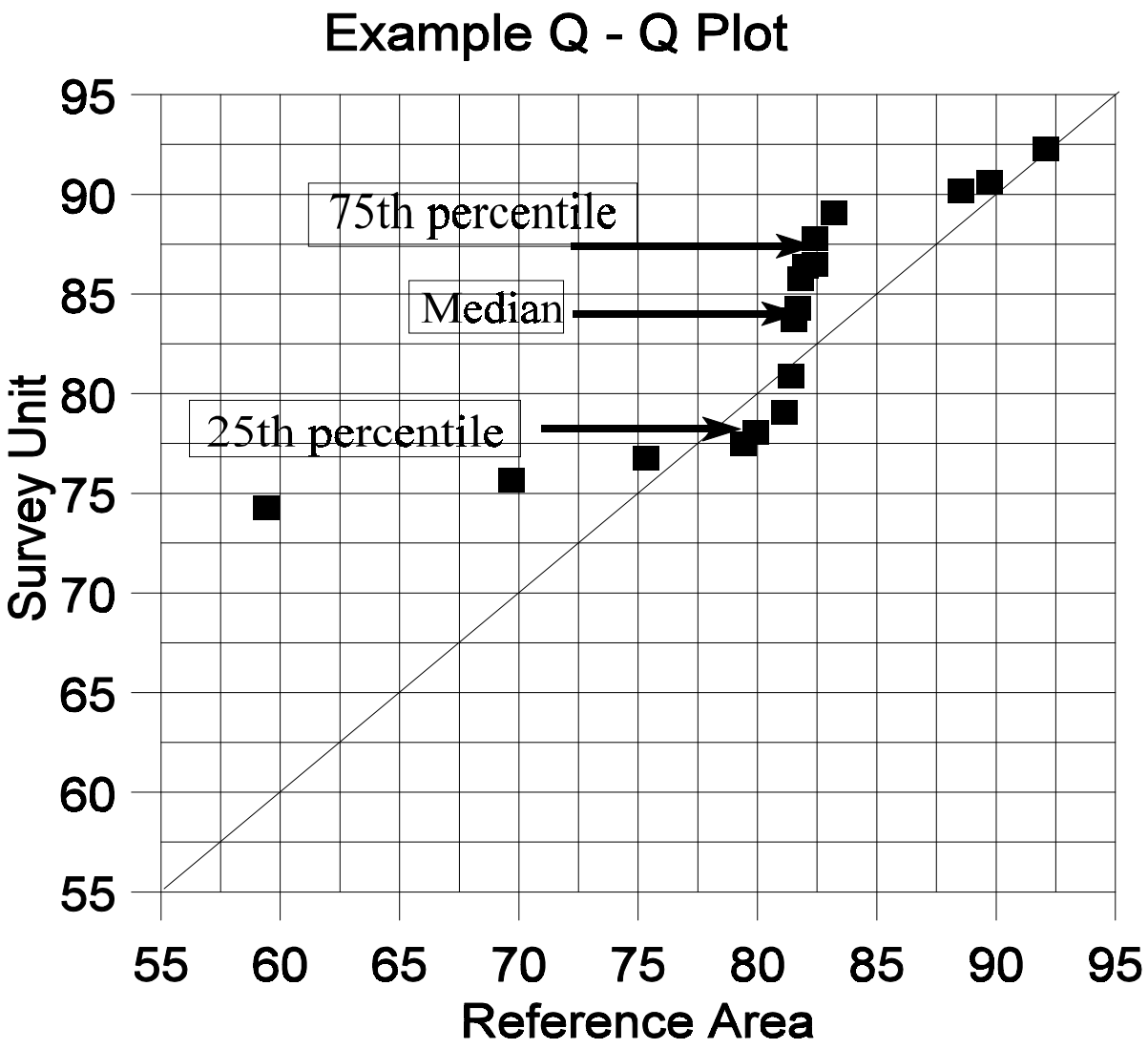


Figure I.4 Example Quantile-Quantile Plot

I.9 Power Calculations for the Statistical Tests

I.9.1 Power of the Sign Test

The power of the Sign test for detecting residual radioactivity at the concentration level LBGR = DGCL - Δ, may be found using equation I-6.

$$1 - \beta = 1 - \sum_{i=0}^{k} \binom{N}{i} [q^*]^i \cdot [1-q^*]^{N-i} \approx 1 - \Phi\left(\frac{k - Nq^*}{\sqrt{Nq^*(1-q^*)}}\right) \qquad \text{(I-6)}$$

with

$$q^* = \Phi(\Delta/\sigma) \qquad \text{(I-7)}$$

The function Φ(z) is the standard normal cumulative distribution function tabulated in Table I.1. Note that if Δ/σ is large, q^* approaches one, and the power also approaches one. This calculation can be performed for other values, Δ*, in order to construct a power curve for the test. These calculations can also be performed using the standard deviation of the actual measurement data, *s*, in order to construct a retrospective power curve for the test. This is an important step when the null hypothesis is not rejected, since it demonstrates whether the DQOs have been met.

The retrospective power curve for the Sign test can be constructed using Equations I-6 and I-7, together with the actual number of concentration measurements obtained, N. The power as a function of Δ/σ is calculated. The values of Δ/σ are converted to concentration using:

Concentration = $DCGL_W$ - (Δ/σ)(observed standard deviation).

The results for the Class 3 Exterior Survey Unit example of Section 8.3.4 are plotted in Figure I.5. This figure shows the probability that the survey unit would have passed the release criterion using the Sign test versus concentration of residual radioactivity. This curve shows that the data quality objectives were met, despite the fact that the actual standard deviation was larger than that used in designing the survey. This is primarily due to the additional 20% that was added to the sample size, and also that sample sizes were always rounded up. The curve shows that a survey unit with less than 135 Bq/kg would almost always pass, and that a survey unit with more than 145 Bq/kg would almost always fail.

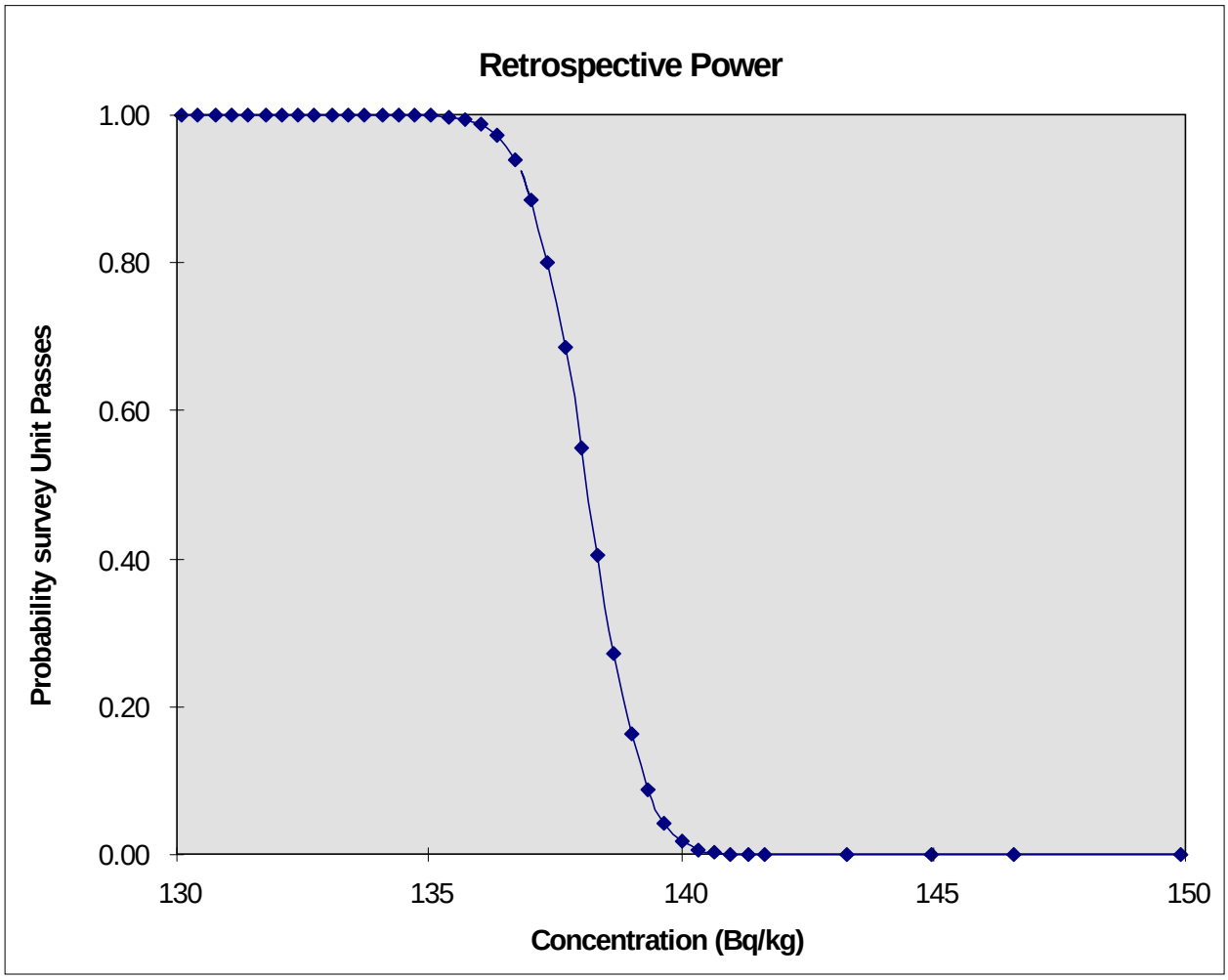


Figure I.5 Retrospective Power Curve for Class 3 Exterior Survey Unit

I.9.2 Power of the Wilcoxon Rank Sum Test

The power of the WRS test is computed from

$$Power = 1 - \Phi\left[\frac{W_c - 0.5 - 0.5m(m+1) - E(W_{MW})}{\sqrt{Var(W_{MW})}}\right] \quad \text{(I-8)}$$

where W_c is the critical value found in Table I.4 for the appropriate vales of α, n and m. Values of $\Phi(z)$, the standard normal cumulative distribution function, are given in Table I.1.

$W_{MW} = W_r - 0.5m(m+1)$ is the Mann-Whitney form of the WRS test statistic. Its mean is

$$E(W_{MW}) = mnP_r \quad \text{(I-9)}$$

and its variance is

$$\text{Var}(W_{MW}) = mnP_r(1-P_r) + mn(n+m-2)(p_2 - P_r^2) \quad \text{(I-10)}$$

Values of P_r and p_2 as a function of Δ/σ are given in Table I.10.

The power calculated in Equation I-8 is an approximation, but the results are generally accurate enough to be used to determine if the sample design achieves the DQOs.

The retrospective power curve for the WRS test can be constructed using Equations I-8, I-9, and I-10, together with the actual number of concentration measurements obtained, N. The power as a function of Δ/σ is calculated. The values of Δ/σ are converted to dpm/100 cm^2 using:

dpm/100 cm^2 = DCGL - (Δ/σ)(observed standard deviation).

The results for this example are plotted in Figure I.6, showing the probability that the survey unit would have passed the release criterion using the WRS test versus dpm of residual radioactivity. This curve shows that the data quality objectives were easily achieved. The curve shows that a survey unit with less than 4,500 dpm/100 cm^2 above background would almost always pass, and that one with more than 5,100 dpm/100 cm^2 above background would almost always fail.

Table I.10 Values of P_r and p_2 for Computing the Mean and Variance of W_{MW}

Δ/σ	P_r	p_2	Δ/σ	P_r	p_2
-6.0	1.11E-05	1.16E-07	0.7	0.689691	0.544073
-5.0	0.000204	6.14E-06	0.8	0.714196	0.574469
-4.0	0.002339	0.000174	0.9	0.737741	0.604402
-3.5	0.006664	0.000738	1.0	0.760250	0.633702
-3.0	0.016947	0.002690	1.1	0.781662	0.662216
-2.5	0.038550	0.008465	1.2	0.801928	0.689800
-2.0	0.078650	0.023066	1.3	0.821015	0.716331
-1.9	0.089555	0.027714	1.4	0.838901	0.741698
-1.8	0.101546	0.033114	1.5	0.855578	0.765812
-1.7	0.114666	0.039348	1.6	0.871050	0.788602
-1.6	0.128950	0.046501	1.7	0.885334	0.810016
-1.5	0.144422	0.054656	1.8	0.898454	0.830022
-1.4	0.161099	0.063897	1.9	0.910445	0.848605
-1.3	0.178985	0.074301	2.0	0.921350	0.865767
-1.2	0.198072	0.085944	2.1	0.931218	0.881527
-1.1	0.218338	0.098892	2.2	0.940103	0.895917
-1.0	0.239750	0.113202	2.3	0.948062	0.908982
-0.9	0.262259	0.128920	2.4	0.955157	0.920777
-0.8	0.285804	0.146077	2.5	0.961450	0.931365
-0.7	0.310309	0.164691	2.6	0.967004	0.940817
-0.6	0.335687	0.184760	2.7	0.971881	0.949208
-0.5	0.361837	0.206266	2.8	0.976143	0.956616
-0.4	0.388649	0.229172	2.9	0.979848	0.963118
-0.3	0.416002	0.253419	3.0	0.983053	0.968795
-0.2	0.443769	0.278930	3.1	0.985811	0.973725
-0.1	0.471814	0.305606	3.2	0.988174	0.977981
0.0	0.500000	0.333333	3.3	0.990188	0.981636
0.1	0.528186	0.361978	3.4	0.991895	0.984758
0.2	0.556231	0.391392	3.5	0.993336	0.987410
0.3	0.583998	0.421415	4.0	0.997661	0.995497
0.4	0.611351	0.451875	5.0	0.999796	0.999599
0.5	0.638163	0.482593	6.0	0.999989	0.999978
0.6	0.664313	0.513387			

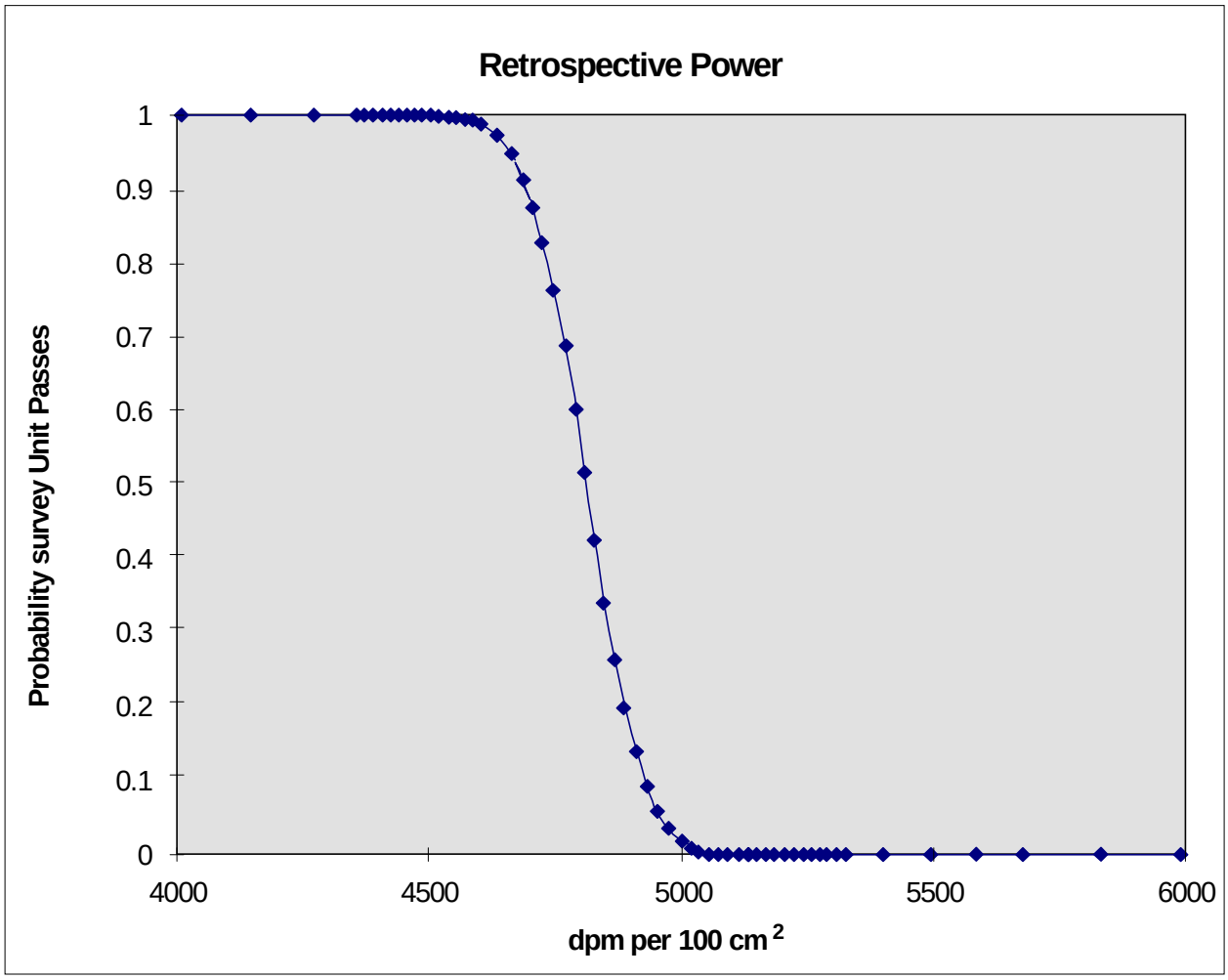


Figure I.6 Retrospective Power Curve for Class 2 Interior Drywall Survey Unit

I.10 Spreadsheet Formulas for the Wilcoxon Rank Sum Test

The analysis for the WRS test is very well suited for calculation on a spreadsheet. This is how the analysis discussed above was done. This particular example was constructed using Excel 5.0™. The formula sheet corresponding to Table 8.6 is given in Table I.11. The function in Column D of Table I.11 calculates the ranks of the data. The RANK function in Excel™ does not return tied ranks in the way needed for the WRS. The COUNTIF function is used to correct for this. Column E simply picks out the reference area ranks from Column D.

Table I.11 Spreadsheet Formulas Used in Table 8.6

	A	B	C	D	E
1	**Data**	**Area**	**Adjusted Data**	**Ranks**	**Reference Area Ranks**
2	49	R	=IF(B2="R",A2+160,A2)	=RANK(C2,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C2) - 1) / 2	=IF(B2="R",D2,0)
3	35	R	=IF(B3="R",A3+160,A3)	=RANK(C3,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C3) - 1) / 2	=IF(B3="R",D3,0)
4	45	R	=IF(B4="R",A4+160,A4)	=RANK(C4,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C4) - 1) / 2	=IF(B4="R",D4,0)
5	45	R	=IF(B5="R",A5+160,A5)	=RANK(C5,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C5) - 1) / 2	=IF(B5="R",D5,0)
6	41	R	=IF(B6="R",A6+160,A6)	=RANK(C6,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C6) - 1) / 2	=IF(B6="R",D6,0)
7	44	R	=IF(B7="R",A7+160,A7)	=RANK(C7,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C7) - 1) / 2	=IF(B7="R",D7,0)
8	48	R	=IF(B8="R",A8+160,A8)	=RANK(C8,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C8) - 1) / 2	=IF(B8="R",D8,0)
9	37	R	=IF(B9="R",A9+160,A9)	=RANK(C9,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C9) - 1) / 2	=IF(B9="R",D9,0)
10	46	R	=IF(B10="R",A10+160,A10)	=RANK(C10,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C10) - 1) / 2	=IF(B10="R",D10,0)
11	42	R	=IF(B11="R",A11+160,A11)	=RANK(C11,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C11) - 1) / 2	=IF(B11="R",D11,0)
12	47	R	=IF(B12="R",A12+160,A12)	=RANK(C12,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C12) - 1) / 2	=IF(B12="R",D12,0)
13	104	S	=IF(B13="R",A13+160,A13)	=RANK(C13,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C13) - 1) / 2	=IF(B13="R",D13,0)
14	94	S	=IF(B14="R",A14+160,A14)	=RANK(C14,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C14) - 1) / 2	=IF(B14="R",D14,0)
15	98	S	=IF(B15="R",A15+160,A15)	=RANK(C15,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C15) - 1) / 2	=IF(B15="R",D15,0)
16	99	S	=IF(B16="R",A16+160,A16)	=RANK(C16,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C16) - 1) / 2	=IF(B16="R",D16,0)
17	90	S	=IF(B17="R",A17+160,A17)	=RANK(C17,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C17) - 1) / 2	=IF(B17="R",D17,0)
18	104	S	=IF(B18="R",A18+160,A18)	=RANK(C18,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C18) - 1) / 2	=IF(B18="R",D18,0)
19	95	S	=IF(B19="R",A19+160,A19)	=RANK(C19,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C19) - 1) / 2	=IF(B19="R",D19,0)
20	105	S	=IF(B20="R",A20+160,A20)	=RANK(C20,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C20) - 1) / 2	=IF(B20="R",D20,0)
21	93	S	=IF(B21="R",A21+160,A21)	=RANK(C21,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C21) - 1) / 2	=IF(B21="R",D21,0)
22	101	S	=IF(B22="R",A22+160,A22)	=RANK(C22,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C22) - 1) / 2	=IF(B22="R",D22,0)
23	92	S	=IF(B23="R",A23+160,A23)	=RANK(C23,$C$2:$C$23,1)+(COUNTIF($C$2:$C$23,C23) - 1) / 2	=IF(B23="R",D23,0)
24			Sum=	=SUM(D2:D23)	=SUM(E2:E23)

I.11 Multiple Radionuclides

There are two cases to be considered when dealing with multiple radionuclides, namely 1) the radionuclide concentrations have a fairly constant ratio throughout the survey unit, or 2) the concentrations of the different radionuclides appear to be unrelated in the survey unit. In statistical terms, we are concerned about whether the concentrations of the different radionuclides are correlated or not. A simple way to judge this would be to make a scatter plot of the concentrations against each other, and see if the points appear to have an underlying linear pattern. The correlation coefficient can also be computed to see if it lies nearer to zero than to one. One could also perform a curve fit and test the significance of the result. Ultimately, however, sound judgement must be used in interpreting the results of such calculations. If there is no physical reason for the concentrations to be related, they probably are not. Conversely, if there is sound evidence that the radionuclide concentrations should be related because of how they were treated, processed or released, this information should be used.

I.11.1 Using the Unity Rule

In either of the two above cases, the unity rule described in Section 4.3.3 is applied. The difference is in how it is applied. Suppose there are *n* radionuclides. If the concentration of radionuclide *i* is denoted by C_i, and its $DCGL_W$ is denoted by D_i, then the unity rule for the *n* radionuclides states that:

$$C_1 / D_1 + C_2 / D_2 + C_3 / D_3 + \cdots + C_n / D_n \leq 1 \qquad \text{(I-11)}$$

This will ensure that the total dose or risk due to the sum of all the radionuclides does not exceed the release criterion. Note that if D_{min} is the smallest of the DCGLs, then

$$(C_1 + C_2 + C_3 + \cdots + C_n)/D_{min} \leq C_1 / D_1 + C_2 / D_2 + C_3 / D_3 + \cdots + C_n / D_n \qquad \text{(I-12)}$$

so that the smallest DCGL may be applied to the total activity concentration, rather than using the unity rule. While this option may be considered, in many cases it will be too conservative to be useful.

I.11.2 Radionuclide Concentrations with Fixed Ratios

If there is an established ratio among the concentrations of the *n* radionuclides in a survey unit, then the concentration of every radionuclide can be expressed in terms of any one of them, e.g., radionuclide #1. The measured radionuclide is often called a *surrogate* radionuclide for the others.

If $C_2 = R_2 C_1, C_3 = R_3 C_1, \ldots, C_i = R_i C_1, \ldots, C_n = R_n C_1$

then

$$\begin{aligned} & C_1 / D_1 + C_2 / D_2 + C_3 / D_3 + \cdots + C_n / D_n \\ & = C_1 / D_1 + R_2 C_1 / D_2 + R_3 C_1 / D_3 + \cdots + R_n C_1 / D_n \\ & = C_1 [1/ D_1 + R_2 / D_2 + R_3 / D_3 + \cdots + R_n / D_n] \\ & = C_1 / D_{total} \end{aligned} \quad \text{(I-13)}$$

where

$$D_{total} = 1/ [1/ D_1 + R_2 / D_2 + R_3 / D_3 + \cdots + R_n / D_n] \quad \text{(I-14)}$$

Thus, D_{total} is the $DCGL_W$ for the surrogate radionuclide when the concentration of that radionuclide represents all radionuclides that are present in the survey unit. Clearly, this scheme is applicable only when radionuclide specific measurements of the surrogate radionuclide are made. It is unlikely to apply in situations where the surrogate radionuclide appears in background, since background variations would tend to obscure the relationships between it and the other radionuclides.

Thus, in the case where there are constant ratios among radionuclide concentrations, the statistical tests are applied as if only the surrogate radionuclide were contributing to the residual radioactivity, with the $DCGL_W$ for that radionuclide replaced by D_{total}. For example, in planning the final status survey, only the expected standard deviation of the concentration measurements for the surrogate radionuclide is needed to calculate the sample size.

For the elevated measurement comparison, the $DCGL_{EMC}$ for the surrogate radionuclide is replaced by

$$E_{total} = 1/ [1/ E_1 + R_2 / E_2 + R_3 / E_3 + \cdots + R_n / E_n] \quad \text{(I-15)}$$

where E_i is the $DCGL_{EMC}$ for radionuclide *i*.

I.11.3 Unrelated Radionuclide Concentrations

If the concentrations of the different radionuclides appear to be unrelated in the survey unit, there is little alternative but to measure the concentration of each radionuclide and use the unity rule. The exception would be in applying the most restrictive $DCGL_W$ to all of the radionuclides, as mentioned later in this section.

Since the release criterion is

$$C_1 / D_1 + C_2 / D_2 + C_3 / D_3 + \cdots + C_n / D_n \leq 1 \quad \text{(I-16)}$$

the quantity to be measured is the *weighted sum*, $T = C_1 / D_1 + C_2 / D_2 + C_3 / D_3 + \cdots + C_n / D_n$. The $DCGL_W$ for T is one. In planning the final status survey, the measurement standard deviation of the weighted sum, T, is estimated by

$$\sigma^2(T) = [\sigma(C_1)/ D_1]^2 + [\sigma(C_2)/ D_2]^2 + [\sigma(C_3)/ D_3]^2 + \cdots + [\sigma(C_n)/ D_n]^2 \qquad \text{(I-17)}$$

since the measured concentrations of the various radionuclides are assumed to be uncorrelated.

For the elevated measurement comparison, the inequality

$$C_1 / E_1 + C_2 / E_2 + C_3 / E_3 + \cdots + C_n / E_n \leq 1 \qquad \text{(I-18)}$$

is used, where E_i is the $DCGL_{EMC}$ for radionuclide i. For scanning, the most restrictive $DCGL_{EMC}$ should generally be used.

When some of the radionuclides also appear in background, the quantity $T = C_1 / D_1 + C_2 / D_2 + C_3 / D_3 + \cdots + C_n / D_n$ must also be measured in an appropriate reference area. If radionuclide i does not appear in background, set $C_i = 0$ in the calculation of T for the reference area.

Note that if there is a fixed ratio between the concentrations of some radionuclides, but not others, a combination of the method of this section with that of the previous section may be used. The appropriate value of D_{total} with the concentration of the measured surrogate radionuclide should replace the corresponding terms in equation I-17.

I.11.4 Example Application of WRS Test to multiple radionuclides

This section contains an example application of the nonparametric statistical methods in this report to sites that have residual radioactivity from more than one radionuclide. Consider a site with both ^{60}Co and ^{137}Cs contamination. ^{137}Cs appears in background from global atmospheric weapons tests at a typical concentration of about 1 pCi/g. Assume that the $DCGL_W$ for ^{60}Co is 2 pCi/g and for ^{137}Cs is 1.4 pCi/g. In disturbed areas, the background concentration of ^{137}Cs can vary considerably. An estimated spatial standard deviation of 0.5 pCi/g for ^{137}Cs will be assumed. During remediation, it was found that the concentrations of the two radionuclides were not well correlated in the survey unit. ^{60}Co concentrations were more variable than the ^{137}Cs concentrations, and 0.7 pCi/g is estimated for its standard deviation. Measurement errors for both ^{60}Co and ^{137}Cs using gamma spectrometry will be small compared to this. For the comparison to the release criteria, the weighted sum of the concentrations of these radionuclides is computed from:

Weighted sum = (^{60}Co concentration)/(^{60}Co $DCGL_W$) + (^{137}Cs Concentration)/(^{137}Cs $DCGL_W$)
= (^{60}Co concentration)/(2) + (^{137}Cs Concentration)/(1.4)

The variance of the weighted sum, assuming that the ^{60}Co and ^{137}Cs concentrations are spatially unrelated is

$\sigma^2 = [(^{60}Co \text{ Standard deviation})/(^{60}Co \text{ DCGL}_W)]^2 + [(^{137}Cs \text{ Standard Deviation})/(^{137}Cs \text{ DCGL}_W)]^2$
$= [(0.7)/(2)]^2 + [(0.5)/(1.4)]^2 = 0.25.$

Thus $\sigma = 0.5$. The $DCGL_W$ for the weighted sum is one. The null hypothesis is that the survey unit exceeds the release criterion. During the DQO process, the LBGR was set at 0.5 for the weighted sum, so that $\Delta = DCGL_W$ - LBGR =1.0 -0.5 = 0.5, and $\Delta/\sigma = 0.5/0.5 = 1.0$. The acceptable error rates chosen were $\alpha = \beta = 0.05$. To achieve this, 32 samples each are required in the survey unit and the reference area.

The weighted sums are computed for each measurement location in both the reference area and the survey unit. The WRS test is then performed on the weighted sum. The calculations for this example are shown in Table I.12. The $DCGL_W$ (i.e., 1.0) is added to the weighted sum for each location in the reference area. The ranks of the combined survey unit and adjusted reference area weighted sums are then computed. The sum of the ranks of the adjusted reference area weighted sums is then compared to the critical value for $n = m = 32$, $\alpha = 0.05$, which is 1162 (see formula following Table I.4). In Table I.12, the sum of the ranks of the adjusted reference area weighted sums is 1281. This exceeds the critical value, so the null hypothesis is rejected. The survey unit meets the release criterion. The difference between the mean of the weighted sums in the survey unit and the reference area is 1.86 - 1.16 = 0.7. Thus, the estimated dose or risk due to residual radioactivity in the survey unit is 70% of the release criterion.

Table I.12 Example WRS Test for Two Radionuclides

	Reference Area		Survey Unit		Weighted Sum			Ranks	
	^{137}Cs	^{60}Co	^{137}Cs	^{60}Co	*Ref*	*Survey*	*Adj Ref*	*Survey*	*Adj Ref*
1	2.00	0	1.12	0.06	1.43	0.83	2.43	1	56
2	1.23	0	1.66	1.99	0.88	2.18	1.88	43	21
3	0.99	0	3.02	0.56	0.71	2.44	1.71	57	14
4	1.98	0	2.47	0.26	1.41	1.89	2.41	23	55
5	1.78	0	2.08	0.21	1.27	1.59	2.27	9	50
6	1.93	0	2.96	0.00	1.38	2.11	2.38	37	54
7	1.73	0	2.05	0.20	1.23	1.56	2.23	7	46
8	1.83	0	2.41	0.00	1.30	1.72	2.30	16	52
9	1.27	0	1.74	0.00	0.91	1.24	1.91	2	24
10	0.74	0	2.65	0.16	0.53	1.97	1.53	27	6
11	1.17	0	1.92	0.63	0.83	1.68	1.83	13	18
12	1.51	0	1.91	0.69	1.08	1.71	2.08	15	32
13	2.25	0	3.06	0.13	1.61	2.25	2.61	47	63
14	1.36	0	2.18	0.98	0.97	2.05	1.97	30	28
15	2.05	0	2.08	1.26	1.46	2.12	2.46	39	58
16	1.61	0	2.30	1.16	1.15	2.22	2.15	45	41
17	1.29	0	2.20	0.00	0.92	1.57	1.92	8	25
18	1.55	0	3.11	0.50	1.11	2.47	2.11	59	35
19	1.82	0	2.31	0.00	1.30	1.65	2.30	11	51
20	1.17	0	2.82	0.41	0.84	2.22	1.84	44	19
21	1.76	0	1.81	1.18	1.26	1.88	2.26	22	48
22	2.21	0	2.71	0.17	1.58	2.02	2.58	29	62
23	2.35	0	1.89	0.00	1.68	1.35	2.68	3	64
24	1.51	0	2.12	0.34	1.08	1.68	2.08	12	33
25	0.66	0	2.59	0.14	0.47	1.92	1.47	26	5
26	1.56	0	1.75	0.71	1.12	1.60	2.12	10	38
27	1.93	0	2.35	0.85	1.38	2.10	2.38	34	53
28	2.15	0	2.28	0.87	1.54	2.06	2.54	31	61
29	2.07	0	2.56	0.56	1.48	2.11	2.48	36	60
30	1.77	0	2.50	0.00	1.27	1.78	2.27	17	49
31	1.19	0	1.79	0.30	0.85	1.43	1.85	4	20
32	1.57	0	2.55	0.70	1.12	2.17	2.12	42	40
Avg	1.62	0	2.28	0.47	1.16	1.86	2.16	sum = 799	sum = 1281
Std Dev	0.43	0	0.46	0.48	0.31	0.36	0.31		

APPENDIX J

DERIVATION OF ALPHA SCANNING EQUATIONS PRESENTED IN SECTION 6.7.2.2

For alpha survey instrumentation with a background around one to three counts per minute, a single count will give a surveyor sufficient cause to stop and investigate further. Assuming this to be true, the probability of detecting given levels of alpha emitting radionuclides can be calculated by use of Poisson summation statistics.

Discussion

Experiments yielding numerical values for a random variable X, where X represents the number of events occurring during a given time interval or a specified region in space, are often called Poisson experiments (Walpole and Myers 1985). The probability distribution of the Poisson random variable X, representing the number of events occurring in a given time interval t, is given by:

$$P(x;\lambda t) = \frac{e^{-\lambda t}(\lambda t)^x}{x!}, \quad x = 0, 1, 2, ... \qquad \text{(J-1)}$$

where:

$P(x; \lambda t)$ =		probability of x events in time interval t
λ	=	Average number of events per unit time
λt	=	Average value expected

To define this distribution for an alpha scanning system, substitutions may be made giving:

$$P(n;m) = \frac{e^{-m} m^n}{n!} \qquad \text{(J-2)}$$

where:

P(n; m) =		probability of getting n counts when the average number expected is m
m	=	λt , average number of counts expected
n	=	x, number of counts actually detected

For a given detector size, source activity, and scanning rate, the probability of getting *n* counts while passing over the source activity with the detector can be written as:

$$P(n;m) = \frac{e^{\frac{-GEd}{60v}}\left[\frac{GEd}{60v}\right]^n}{n!} = \frac{e^{\frac{-GEt}{60}}\left[\frac{GEt}{60}\right]^n}{n!} \quad \text{(J-3)}$$

where:

G	=	source activity (dpm)
E	=	detector efficiency (4π)
d	=	width of the detector in the direction of scan (cm)
v	=	scan speed (cm/s)
t	=	d/v, dwell time over source (s)

If it is assumed that the detector background is equal to zero, then the probability of observing greater than or equal to 1 count, P(n≥1), within a time interval t is:

$$P(n \geq 1) = 1 - P(n = 0) \quad \text{(J-4)}$$

If it is also assumed that a single count is sufficient to cause a surveyor to stop and investigate further, then:

$$P(n \geq 1) = 1 - P(n = 0) = 1 - e^{-\frac{GEd}{60v}} \quad \text{(J-5)}$$

Figures J.1 through J.3 show this function plotted for three different detector sizes and four different source activity levels. Note that the source activity levels are given in terms of areal activity values (dpm per 100 cm^2), the probe sizes are the dimensions of the probes in line with the direction of scanning, and the detection efficiency has been assumed to be 15%. The assumption is made that the areal activity is contained within a 100 cm^2 area and that the detector completely passes over the area either in one or multiple passes.

Once a count has been recorded and the surveyor stops, the surveyor should wait a sufficient period of time such that if the guideline level of contamination is present, the probability of getting another count is at least 90%. This minimum time interval can be calculated for given contamination guideline values by substituting the following parameters into Equation J-5 and solving:

$P(\geq 1) = 0.9$

$d/v = t$

$G = \frac{CA}{100}$

where:

C = contamination guideline (dpm/100 cm^2)

A = Detector area (cm^2)

Giving:

$$t = \frac{13800}{CAE} \qquad \text{(J-6)}$$

Equation J-3 can be solved to give the probability of getting any number of counts while passing over the source area, although the solutions can become long and complex. Many portable proportional counters have background count rates on the order of 5 to 10 counts per minute and a single count will not give a surveyor cause to stop and investigate further. If a surveyor did stop for every count, and subsequently waited a sufficiently long period to make sure that the previous count either was or wasn't caused by an elevated contamination level, little or no progress would be made. For these types of instruments, the surveyor usually will need to get at least 2 counts while passing over the source area before stopping for further investigation. Assuming this to be a valid assumption, Equation J-3 can be solved for $n \geq 2$ as follows:

$$\begin{aligned} P(n \geq 2) &= 1 - P(n = 0) - P(n = 1) \\ &= 1 - e^{-\frac{(GE+B)t}{60}} - \frac{(GE+B)t}{60} e^{-\frac{(GE+B)t}{60}} \\ &= 1 - e^{-\frac{(GE+B)t}{60}} \left(1 + \frac{(GE+B)t}{60}\right) \end{aligned} \qquad \text{(J-7)}$$

Where:

P(n≥2) = probability of getting 2 or more counts during the time interval t

P(n=0) = probability of not getting any counts during the time interval t

P(n=1) = probability of getting 1 count during the time interval t

B = background count rate (cpm)

All other variables are the same as in Equation J-3.

Figures J-4 through J-7 show this function plotted for three different probe sizes and three different source activity levels. The same assumptions were made when calculating these curves as were made for Figures J-1 through J-3 except that the background was assumed to be 7 counts per minute.

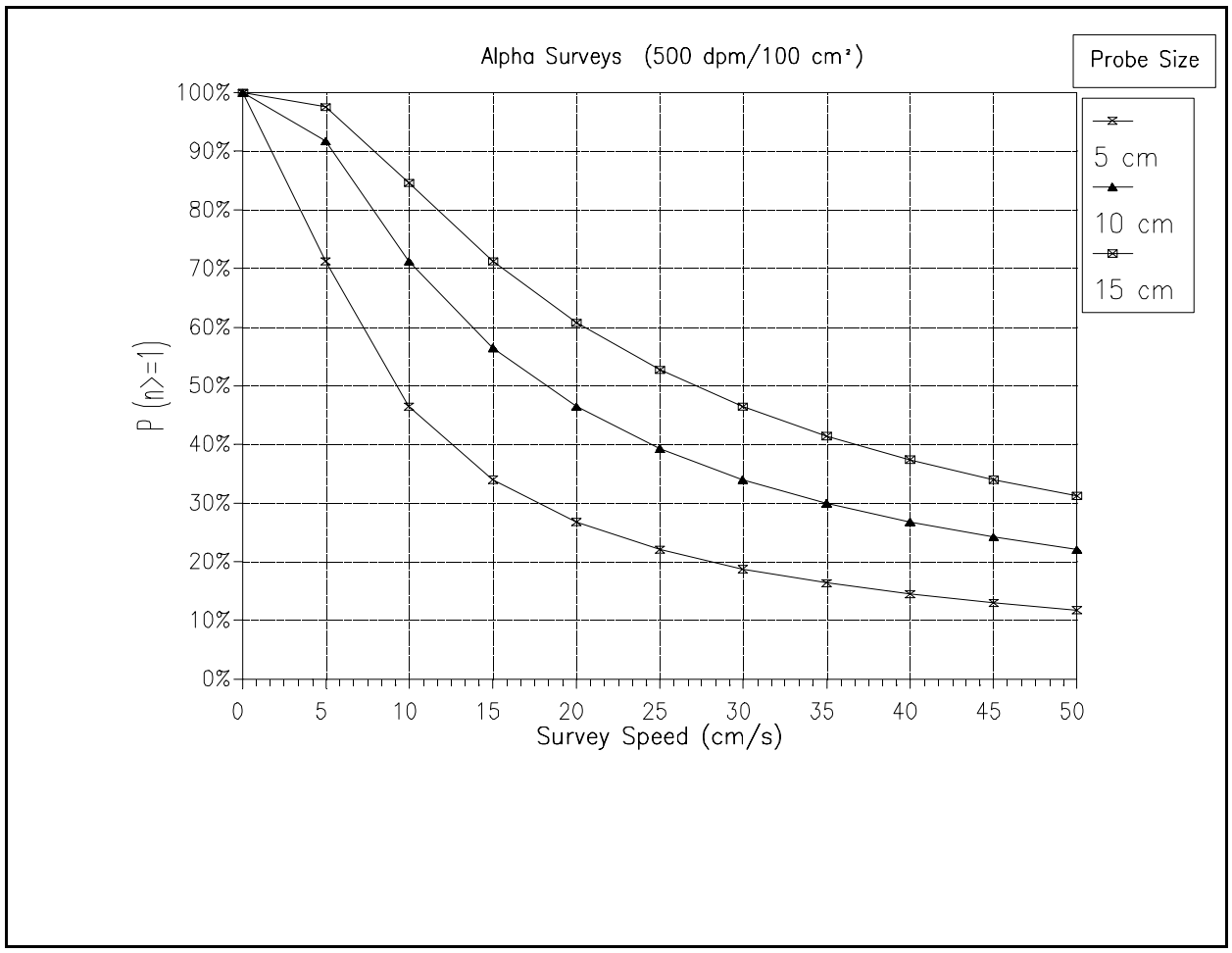


Figure J.1 Probability (P) of getting one or more counts when passing over a 100 cm^2 area contaminated at 500 dpm/100 cm^2 alpha. The chart shows the probability versus scanning speed for three different probe sizes. The probe size denotes the dimensions of the probes which are in line with the direction of scanning. A detection efficiency of 15% (4π) is assumed.

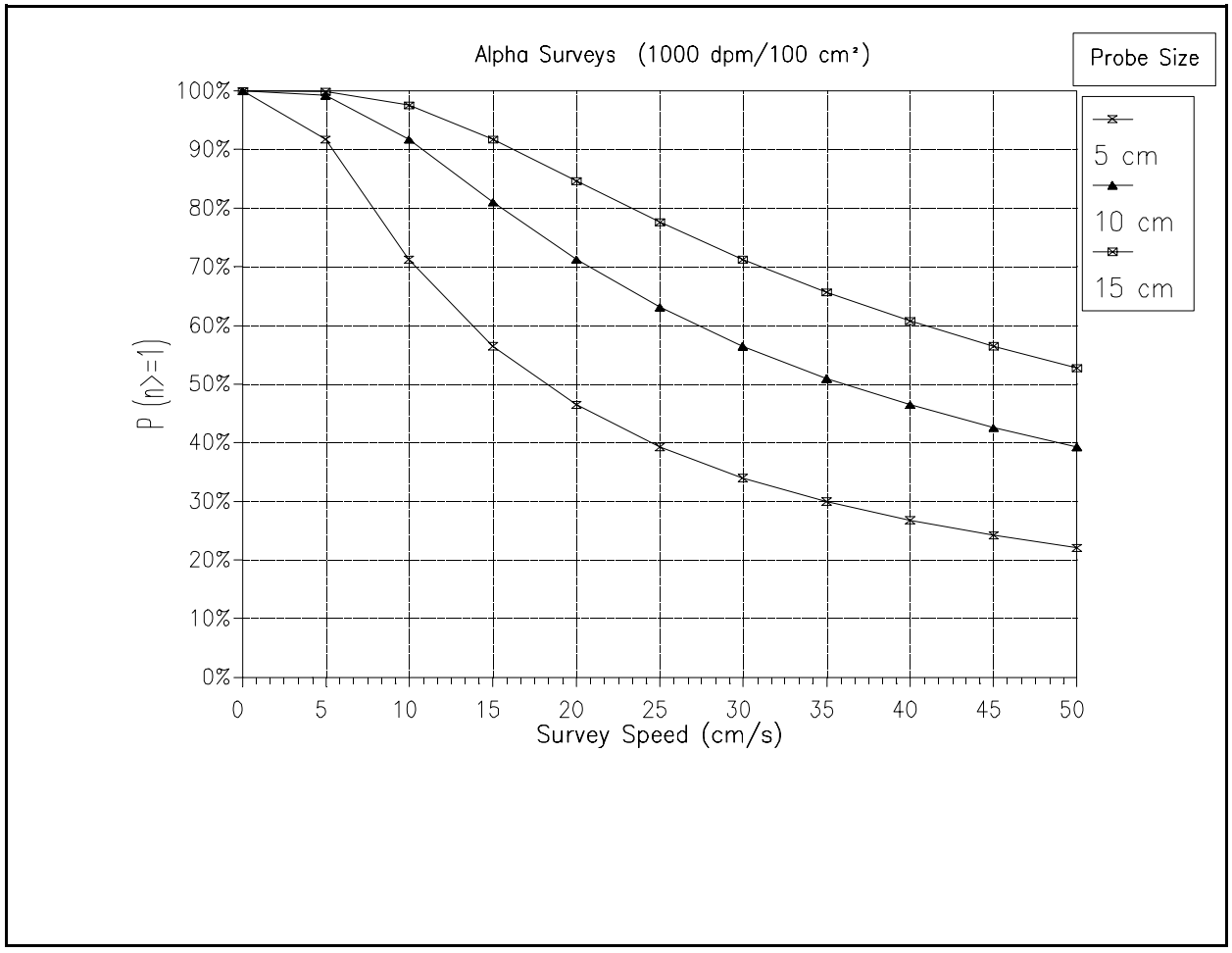


Figure J.2 Probability (P) of getting one or more counts when passing over a 100 cm^2 area contaminated at 1,000 dpm/100 cm^2 alpha. The chart shows the probability versus scanning speed for three different probe sizes. The probe size denotes the dimensions of the probes which are in line with the direction of scanning. A detection efficiency of 15% (4π) is assumed.

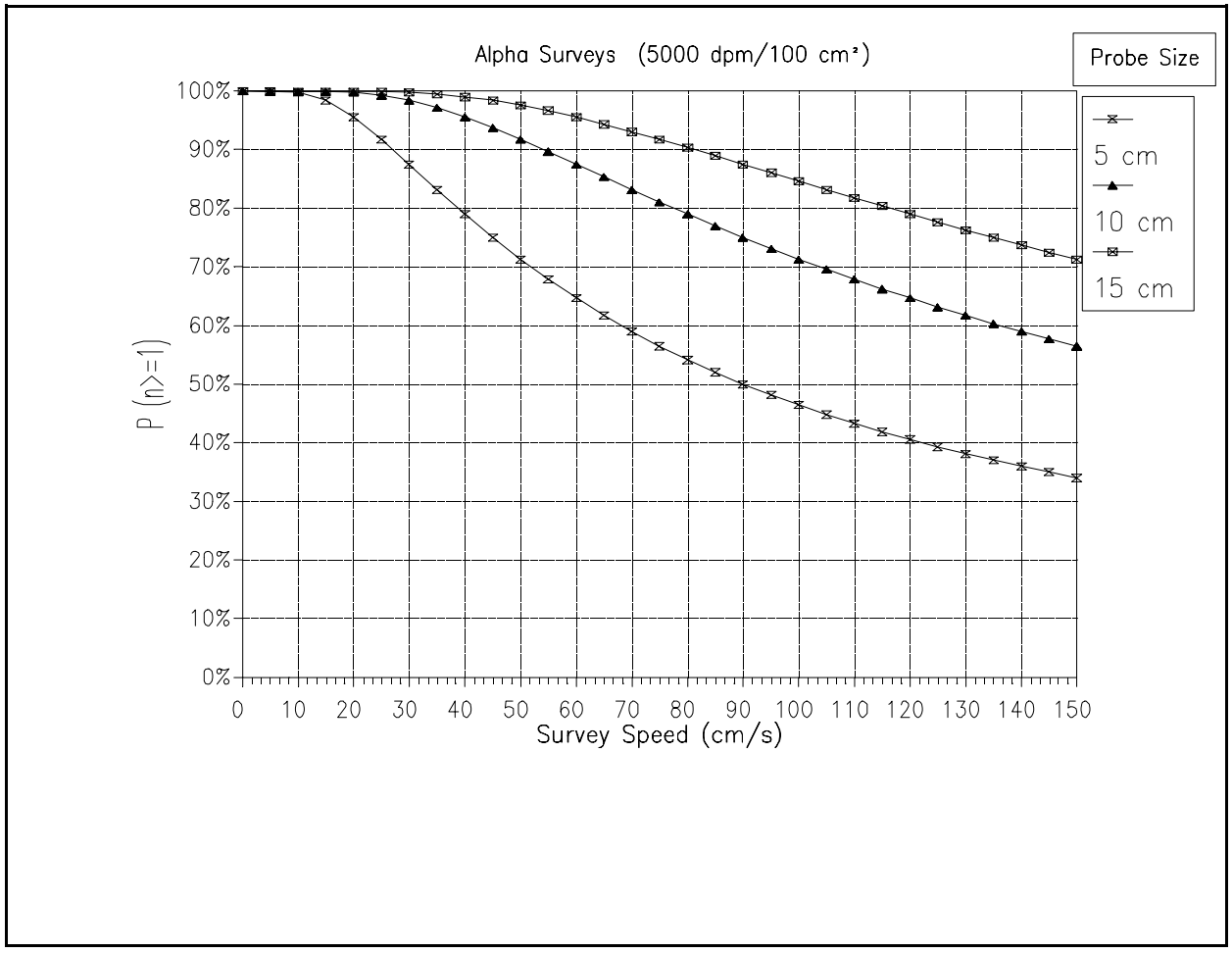


Figure J.3 Probability (P) of getting one or more counts when passing over a 100 cm^2 area contaminated at 5,000 dpm/100 cm^2 alpha. The chart shows the probability versus scanning speed for three different probe sizes. The probe size denotes the dimensions of the probes which are in line with the direction of scanning. A detection efficiency of 15% (4π) is assumed.

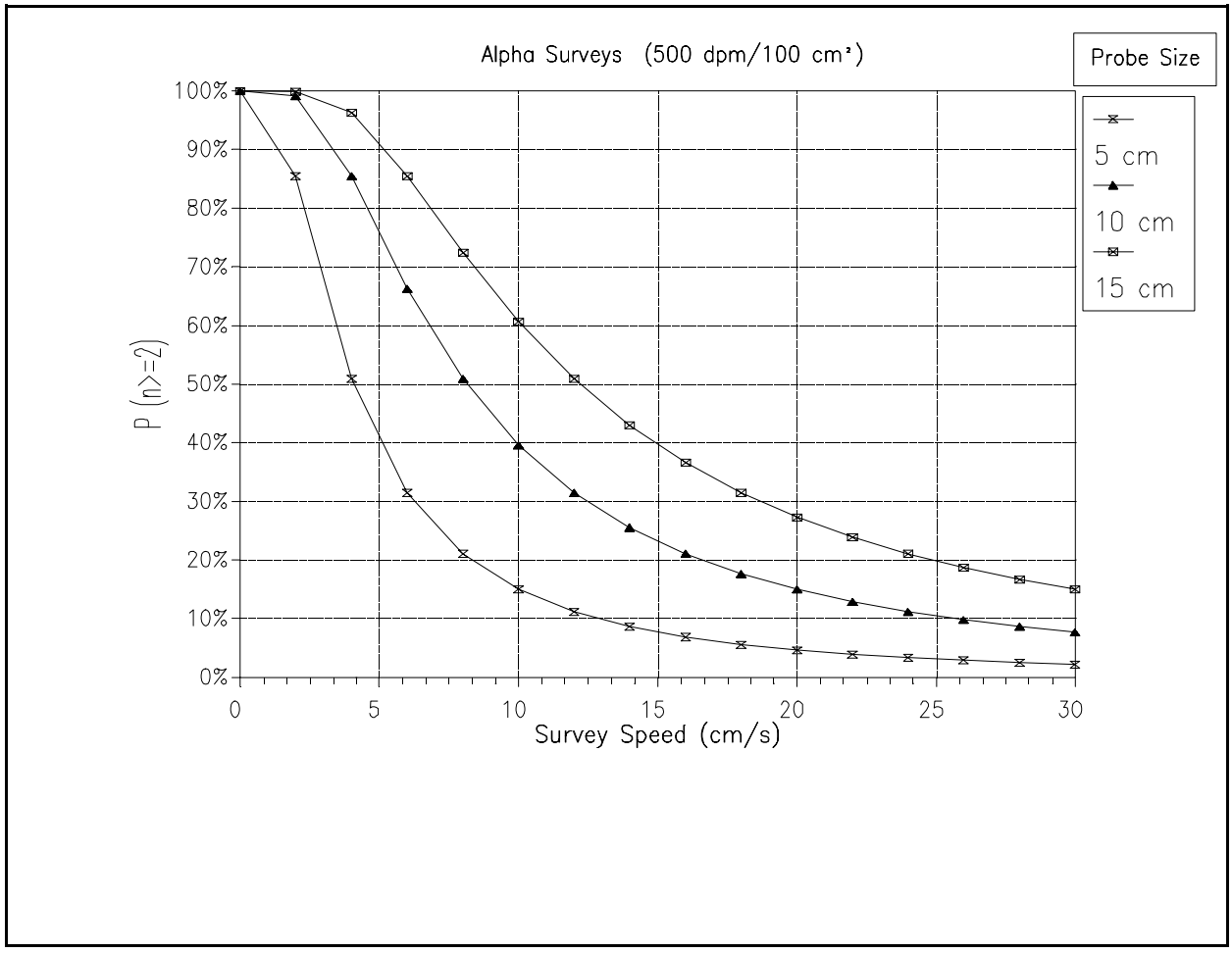


Figure J.4 Probability (P) of getting two or more counts when passing over a 100 cm^2 area contaminated at 500 dpm/100 cm^2 alpha. The chart shows the probability versus scanning speed for three different probe sizes. The probe size denotes the dimensions of the probes which are in line with the direction of scanning. A detection efficiency of 15% (4π) is assumed.

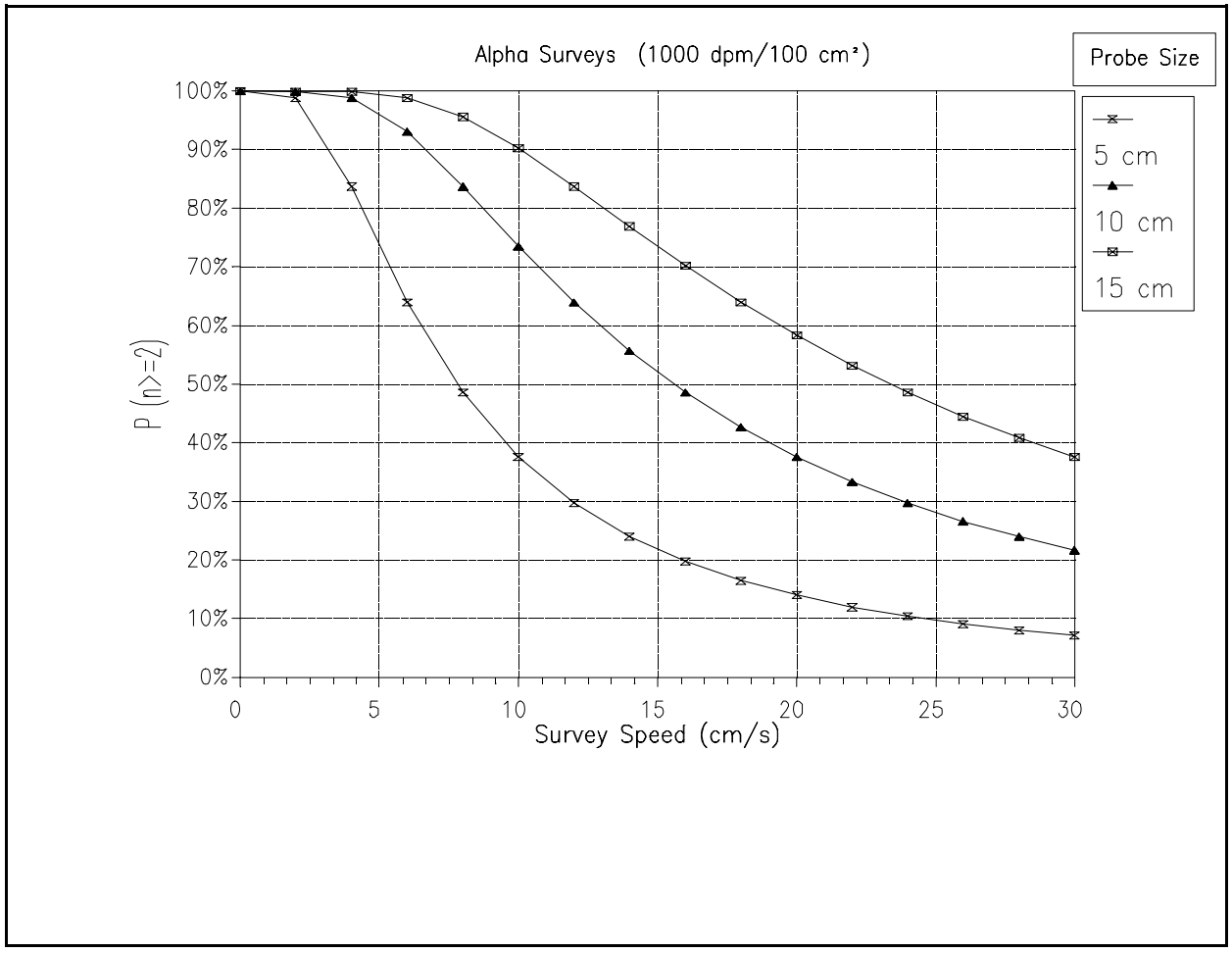


Figure J.5 Probability (P) of getting two or more counts when passing over a 100 cm^2 area contaminated at 1,000 dpm/100 cm^2 alpha. The chart shows the probability versus scanning speed for three different probe sizes. The probe size denotes the dimensions of the probes which are in line with the direction of scanning. A detection efficiency of 15% (4π) is assumed.

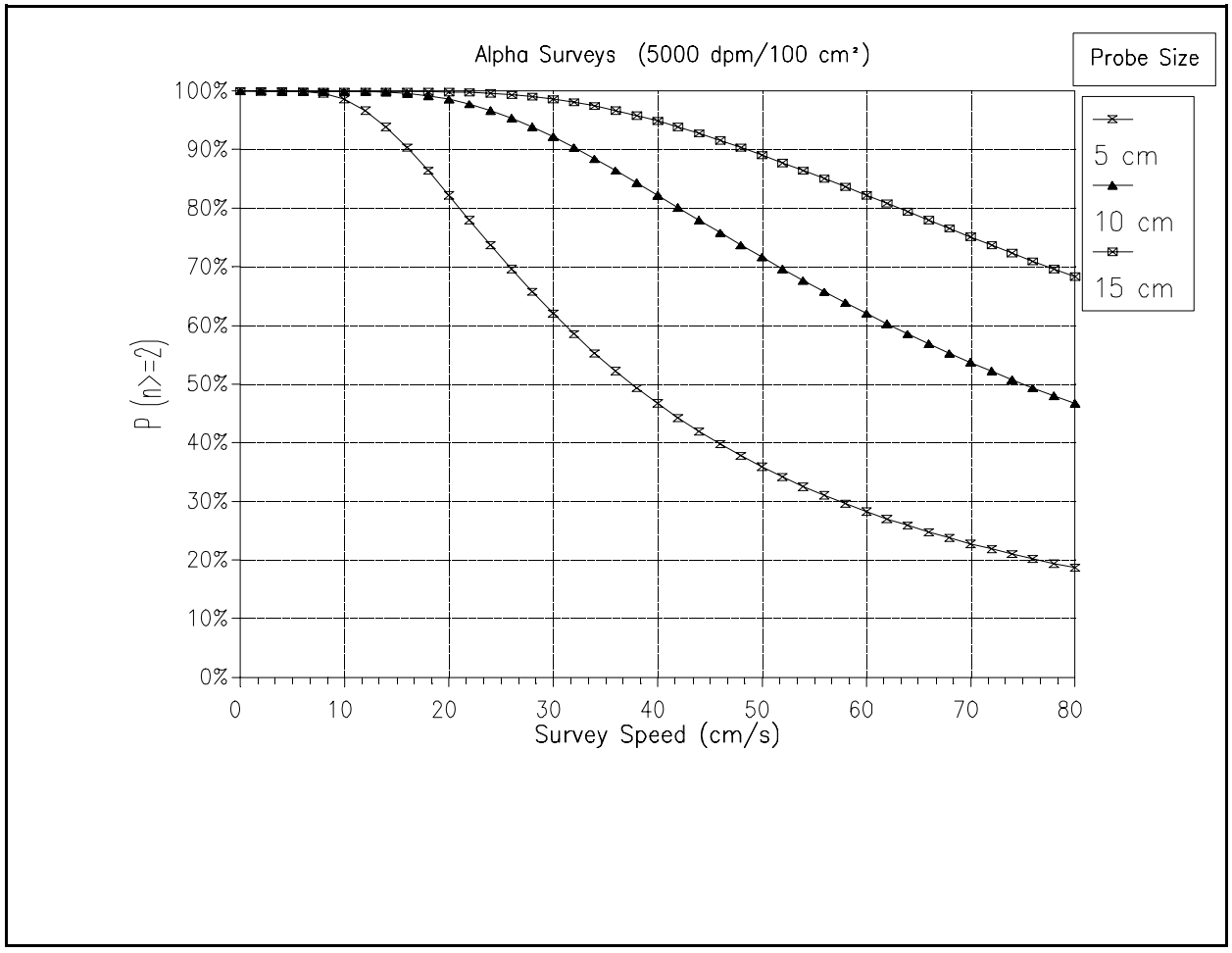


Figure J.6 Probability (P) of getting two or more counts when passing over a 100 cm^2 area contaminated at 5,000 dpm/100 cm^2 alpha. The chart shows the probability versus scanning speed for three different probe sizes. The probe size denotes the dimensions of the probes which are in line with the direction of scanning. A detection efficiency of 15% (4π) is assumed.

APPENDIX K

COMPARISON TABLES BETWEEN QUALITY ASSURANCE DOCUMENTS

The comparison tables in this appendix provide a reference for the MARSSIM user who may not be familiar with developing a QAPP based on EPA QA/R-5 (EPA 1994c). The tables relate the basic recommendations and requirements of EPA QA/R-5 and other quality assurance documents the reader may be more familiar with.

Each of the quality assurance documents compared in these tables was developed for a specific industry and scope. For this reason, there is not a direct comparison from one document to another. Rather, the tables are designed to show similarities between different quality assurance documents. In addition, there are topics specific to certain quality assurance documents that do not have a counterpart in these comparison tables.

If there is no section listed as being comparable with a section of EPA QA/R-5, this does not necessarily mean that the topic is not covered by the quality assurance document. In some cases the topic may have been divided up into several subtopics that are distributed between other sections of the particular document.

This appendix is not meant to provide a thorough cross-reference between different quality assurance documents. The purpose of these comparison tables is to demonstrate how the content of QAPPs might be arranged differently and show a user the location of important information concerning radiation surveys and site investigations. This might occur if the QAPP is developed using guidance the reviewer is unfamiliar with.

EPA QA/R-5 is compared with five quality assurance documents in the following tables:

- EPA QAMS-005/80 (EPA 1980d)
- ASME NQA-1 (ASME 1989)
- DOE Order 5700.6c (DOE 1991c)
- MIL-Q-9858A (DOD 1963)
- ISO 9000 (ISO 1987)

Table K.1 Comparison of EPA QA/R-5 and EPA QAMS-005/80

EPA QA/R-5 Elements		EPA QAMS-005/80	
A1	Title and Approval Sheet	1.0	Title Page with Provision for Approval Signatures
A2	Table of Contents	2.0	Table of Contents
A3	Distribution List		
A4	Project/Task Organization	4.0	Project Organization and Responsibility
A5	Problem Definition/Background	3.0	Project Description
A6	Project/Task Description	3.0	Project Description
A7	Quality Objectives and Criteria for Measurement Data	5.0	Quality Assurance Objectives for Measurement Data
A8	Project Narrative		
A9	Special Training Requirements/Certification		
A10	Documentation and Records		
B1	Sampling Process Design	6.0	Sampling Procedures
B2	Sampling Methods Requirements	6.0	Sampling Procedures
B3	Sample Handling and Custody Requirements	7.0	Sample Custody
B4	Analytical Methods Requirements	9.0	Analytical Methods
B5	Quality Control Requirements	11.0	Internal Quality Control Checks and Frequency
B6	Instrument/Equipment Testing, Inspection, and Maintenance Requirements	13.0	Preventive Maintenance Procedures and Schedules
B7	Instrument Calibration and Frequency	8.0	Calibration Procedures and Frequency
B8	Inspection/Acceptance Requirements for Supplies and Consumables		
B9	Data Acquisition Requirements		
B10	Data Quality Management		
C1	Assessments and Response Actions	12.0 15.0	Assessment and Response Actions Corrective Actions
C2	Reports to Management	16.0	Quality Assurance Reports to Management
D1	Data Review, Validation, and Verification Requirements	10.0	Data Reduction, Validation, and Reporting
D2	Validation and Verification Methods	10.0	Data Reduction, Validation, and Reporting
D3	Reconciliation with User Requirements		

Table K.2 Comparison of EPA QA/R-5 and ASME NQA-1

EPA QA/R-5 Elements		ASME NQA-1 Elements	
A1	Title and Approval Sheet		
A2	Table of Contents		
A3	Distribution List		
A4	Project/Task Organization	1.	Organization
A5	Problem Definition/Background		
A6	Project/Task Description	3.	Design Control
A7	Quality Objectives and Criteria for Measurement Data	2.	Quality Assurance Program
A8	Project Narrative	8.	Identification and Control of Items
A9	Special Training Requirements/Certification		
A10	Documentation and Records	4. 6.	Procurement Document Control Document Control
B1	Sampling Process Design	3.	Design Control
B2	Sampling Methods Requirements	5.	Instructions, Procedures, and Drawings
B3	Sample Handling and Custody Requirements	13.	Handling, Storage, and Shipping
B4	Analytical Methods Requirements	5.	Instructions, Procedures, and Drawings
B5	Quality Control Requirements	9. 11.	Control of Processes Test Control
B6	Instrument/Equipment Testing, Inspection, and Maintenance Requirements	10. 12.	Inspection Control of Measuring and Test Equipment
B7	Instrument Calibration and Frequency	14.	Inspection, Test, and Operating Status
B8	Inspection/Acceptance Requirements for Supplies and Consumables	7. 8.	Control of Purchased Items and Services Identification and Control of Items
B9	Data Acquisition Requirements		
B10	Data Quality Management		
C1	Assessments and Response Actions	15. 16. 18.	Control of Nonconforming Items Corrective Action Audits
C2	Reports to Management	17.	Quality Assurance Records
D1	Data Review, Validation, and Verification Requirements		
D2	Validation and Verification Methods		
D3	Reconciliation with User Requirements		

Table K.3 Comparison of EPA QA/R-5 and DOE Order 5700.6c

EPA QA/R-5 Elements		DOE Order 5700.6C Elements	
A1	Title and Approval Sheet		
A2	Table of Contents		
A3	Distribution List		
A4	Project/Task Organization	2	Personnel Training and Qualification
A5	Problem Definition/Background	1	Program
A6	Project/Task Description		
A7	Quality Objectives and Criteria for Measurement Data	1	Program
A8	Project Narrative		
A9	Special Training Requirements/Certification	2	Personnel Training and Qualification
A10	Documentation and Records	4	Documents and Records
B1	Sampling Process Design	6	Design
B2	Sampling Methods Requirements	5	Work Processes
B3	Sample Handling and Custody Requirements		
B4	Analytical Methods Requirements	5	Work Processes
B5	Quality Control Requirements		
B6	Instrument/Equipment Testing, Inspection, and Maintenance Requirements	8	Inspection and Acceptance Testing
B7	Instrument Calibration and Frequency		
B8	Inspection/Acceptance Requirements for Supplies and Consumables	7 8	Procurement Inspection and Acceptance Testing
B9	Data Acquisition Requirements		
B10	Data Quality Management		
C1	Assessments and Response Actions	10	Independent Assessment
C2	Reports to Management	9	Management Assessment
D1	Data Review, Validation, and Verification Requirements		
D2	Validation and Verification Methods		
D3	Reconciliation with User Requirements	3	Quality Improvement

Table K.4 Comparison of EPA QA/R-5 and MIL-Q-9858A

EPA QA/R-5 Elements		MIL-Q-9858A Elements	
A1	Title and Approval Sheet		
A2	Table of Contents		
A3	Distribution List		
A4	Project/Task Organization	3.1	Organization
A5	Problem Definition/Background		
A6	Project/Task Description		
A7	Quality Objectives and Criteria for Measurement Data	3.2	Initial Quality Planning
A8	Project Narrative		
A9	Special Training Requirements/Certification		
A10	Documentation and Records	3.4 4.1	Records Drawings, Documentation, and Changes
B1	Sampling Process Design		
B2	Sampling Methods Requirements	3.3	Work Instructions
B3	Sample Handling and Custody Requirements	6.4	Handling, Storage, and Delivery
B4	Analytical Methods Requirements	3.3	Work Instructions
B5	Quality Control Requirements	6.7	Identification of Inspection Status
B6	Instrument/Equipment Testing, Inspection, and Maintenance Requirements	4.2	Measuring and Test Equipment
B7	Instrument Calibration and Frequency	4.2	Measuring and Test Equipment
B8	Inspection/Acceptance Requirements for Supplies and Consumables	5.0 6.1	Control of Purchases Materials and Material Control
B9	Data Acquisition Requirements		
B10	Data Quality Management	3.4	Records
C1	Assessments and Response Actions	3.5 6.5	Corrective Action Nonconforming Material
C2	Reports to Management	3.6	Costs Related to Quality
D1	Data Review, Validation, and Verification Requirements		
D2	Validation and Verification Methods	6.6	Statistical Quality Control
D3	Reconciliation with User Requirements		
		6.2	Production Processing and Fabrication
		6.3	Completed Item Inspection and Test

Table K.5 Comparison of EPA QA/R-5 and ISO 9000

EPA QA/R-5 Elements		ISO 9000 Elements	
A1	Title and Approval Sheet		
A2	Table of Contents		
A3	Distribution List		
A4	Project/Task Organization	4	Management Responsibility
A5	Problem Definition/Background		
A6	Project/Task Description		
A7	Quality Objectives and Criteria for Measurement Data	5 5.2	Quality System Principles Structure of the Quality System
A8	Project Narrative		
A9	Special Training Requirements/Certification		
A10	Documentation and Records		
B1	Sampling Process Design	8	Quality in Specification and Design
B2	Sampling Methods Requirements	10	Quality in Production
B3	Sample Handling and Custody Requirements	16	Handling and Post Production Functions
B4	Analytical Methods Requirements	10	Quality in Production
B5	Quality Control Requirements	11	Control of Production
B6	Instrument/Equipment Testing, Inspection, and Maintenance Requirements	13	Control of Measuring and Test Equipment
B7	Instrument Calibration and Frequency		
B8	Inspection/Acceptance Requirements for Supplies and Consumables	9 11.2	Quality in Procurement Material Control and Traceability
B9	Data Acquisition Requirements		
B10	Data Quality Management		
C1	Assessments and Response Actions	5.4 14 15	Auditing the Quality System Nonconformity Corrective Action
C2	Reports to Management	5.3 6	Documentation of the Quality System Economics—Quality Related Costs
D1	Data Review, Validation, and Verification Requirements	11.7	Control of Verification Status
D2	Validation and Verification Methods	12	Verification Status
D3	Reconciliation with User Requirements		
		7	Quality in Marketing

APPENDIX L

REGIONAL RADIATION PROGRAM MANAGERS

The following is a directory list of regional program managers in Federal agencies who administer radiation control activities and have responsibility for certain radiation protection activities. The telephone numbers and addresses in this appendix are subject to change without notice. A more complete directory list of professional personnel in state and local government agencies is available from the Conference of Radiation Control Program Directors, Inc. (CRCPD). This directory is updated and distributed yearly. To obtain a copy of this annual publication please contact:

CRCPD
205 Capital Avenue
Frankfort, KY 40601
(502) 227-4543
http://www.crcpd.org
staff@crcpd.org

L.1 Department of Energy (DOE)

DOE Home Page http://www.doe.gov

Oak Ridge Operations Office
ORO Public Affairs Office
Post Office Box 2001
Oak Ridge, Tennessee 37831
Telephone: (865) 576-1005
http://www.oakridge.doe.gov/

Savannah River Operations Office
Department of Energy
Post Office Box A
Aiken, South Carolina 29808
Telephone: (803) 725-2889
http://www.srs.gov/

Albuquerque Operations Office
Department of Energy
Post Office Box 5400
Albuquerque, New Mexico 87185-5400
Telephone: (505) 845-6202
http://www.doeal.gov/

Chicago Operations Office
Department of Energy
9700 South Cass Avenue
Argonne, Illinois 60439
Telephone: (630) 252-2000
http://www.ch.doe.gov/

Idaho Operations Office
Department of Energy
Post Office Box 1625
Idaho Falls, Idaho 83401
Telephone: (208) 526-0833
http://www.id.doe.gov/doeid/index.html

Oakland Operations Office
Department of Energy
1301 Clay Street
Oakland, California 94612
Telephone: (510) 637-1762
http://www.oak.doe.gov/

Richland Operations Office
Department of Energy
Post Office Box 550, A7-75
Richland, Washington 99352
Telephone: (509) 376-7501
http://www.hanford.gov/

Nevada Operations Office
Department of Energy
PO Box 98518
Las Vegas, NV 89193-8518
Telephone: (702) 295-3521
http://www.nv.doe.gov/

L.2 Environmental Protection Agency (EPA)

EPA Home Page http://www.epa.gov

Region 1	(CT, MA, ME, NH, RI, VT)	
	U.S. Environmental Protection Agency	Telephone: (888) 372-7341
	Region 1	(617) 918-1111
	1 Congress Street	http://www.epa.gov/region01/
	Boston, Massachusetts 02114-2023	
Region 2	(NJ, NY, PR, VI)	
	U.S. Environmental Protection Agency	Telephone: (212) 637-3000
	Region 2	http://www.epa.gov/Region2/
	290 Broadway	
	New York, New York 10007-1866	
Region 3	(DC, DE, MD, PA, VA, WV)	
	U.S. Environmental Protection Agency	Telephone: (215) 597-9800
	Region 3 (3CG00)	(215) 814-5000
	1650 Arch Street	(800) 438-2474
	Philadelphia, Pennsylvania 19103-2029	http://www.epa.gov/region03/
Region 4	(AL, FL, GA, KY, MS, NC, SC, TN)	
	U.S. Environmental Protection Agency	Telephone: (404) 562-9900
	Region 4	(800) 241-1754
	Atlanta Federal Center	http://www.epa.gov/region4/
	61 Forsyth Street, SW	
	Atlanta, Georgia 30303-3104	
Region 5	(IL, IN, MI, MN, OH, WI)	
	U.S. Environmental Protection Agency	Telephone: (312) 353-2000
	Region 5	(800) 621-8431
	77 West Jackson Boulevard	http://www.epa.gov/region5/
	Chicago, Illinois 60604	

Region 6	(AR, LA, NM, OK, TX)	
	U.S. Environmental Protection Agency	Telephone: (214) 665-2200
	Region 6	(800) 887-6063
	1445 Ross Avenue, Suite 1200	http://www.epa.gov/earth1r6/index.htm
	Dallas, Texas 75202	
Region 7	(IA, KS, MO, NE)	
	U.S. Environmental Protection Agency	Telephone: (913) 551-7003
	Region 7	(800) 223-0425
	901 North 5th Street	http://www.epa.gov/rgytgrnj/
	Kansas City, Kansas 66101	
Region 8	(CO, MT, ND, SD, UT, WY)	
	U.S. Environmental Protection Agency	Telephone:(303) 312-6312
	Region 8	(800) 227-8917
	999 18th Street, Suite 500	http://www.epa.gov/unix0008/
	Denver, Colorado 80202-2466	
Region 9	(AZ, CA, HI, NV, American Samoa, and Guam)	
	U.S. Environmental Protection Agency	Telephone: (415) 947-8700
	Region 9	http://www.epa.gov/region09/
	75 Hawthorne Street	
	San Francisco, California 94105	
Region 10	(AK, ID, OR, WA)	
	U.S. Environmental Protection Agency	Telephone: (206) 553-1200
	Region 10	(800) 424-4372
	1200 Sixth Avenue	http://www.epa.gov/r10earth/
	Seattle, Washington 98101	

L.3 Nuclear Regulatory Commission (NRC)

NRC Home Page http://www.nrc.gov

Region I (CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT)
Administrator Telephone: (610) 337-5000
U.S. Nuclear Regulatory Commission (800) 432-1156
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Region II (AL, FL, GA, KY, MS, NC, PR, SC, TN, VA, VI, WV, Panama Canal)
Administrator Telephone: (404) 562-4400
U.S. Nuclear Regulatory Commission (800) 577-8510
Sam Nunn Atlanta Federal Center, 23 T85
61 Forsyth Street, SW
Atlanta, Georgia 30303-8931

Region III (IA, IL, IN, MI, MN, MO, OH, WI)
Administrator Telephone: (630) 829-9500
U.S. Nuclear Regulatory Commission (800) 522-3025
801 Warrenville Road
Lisle, Illinois 60532-4351

Region IV (AR, CO, ID, KS, LA, MT, NE, ND, NM, OK, SD, TX, UT, WY, AK, AZ, CA, HI, NV, OR, WA, Pacific Trust Territories)
Administrator Telephone: (817) 860-8100
U.S. Nuclear Regulatory Commission (800) 952-9677
Texas Health Resources Tower
611 Ryan Plaza Drive, Suite 400
Arlington, Texas 76011-8064

L.4 Department of the Army

The following is a list of key personnel within the Department of the Army who administer radiation control activities and have responsibilities for certain radiation protection activities.

Deputy for Environmental Safety & Occupational Health
Office of the Assistant Secretary of the Army
(Installations, Logistics, & Environment)
110 Army Pentagon
Washington, DC 20310-0110
Telephone: (703) 695-7824

Director of Army Radiation Safety
Army Safety Office
DACS-SF
Chief of Staff
200 Army Pentagon
Washington, DC 20310-0200
Telephone: (703) 695-7291

Radiological Hygiene Consultant
Office of The Surgeon General
Walter Reed Army Medical Center
Attn: MCHL-HP
Washington, DC 20307-5001
Telephone: (301) 295-0267

L.5 Department of the Navy

The following is a list of key personnel within the Department of the Navy who administer radiation control activities and have responsibilities for certain radiation protection activities.

Naval Radiation Safety Committee
Chief of Naval Operations (N455)
2211 S. Clark Place
Crystal Plaza #5, Room 680
Arlington, VA 22202-3735
Telephone: (703) 602-2582

Commander (SEA-07R)
Radiological Controls Program
Naval Sea Systems Command
2531 Jefferson Davis Highway
Arlington, VA 22242-5160
Telephone: (703) 602-1252

Officer in Charge
Radiological Affairs Support Office
P.O. Drawer 260
Yorktown, VA 23691-0260
Telephone: (757) 887-4692

L.6 Department of the Air Force

The following is a list of key personnel within the Department of the Air Force who administer radiation control activities and have responsibilities for certain radiation protection activities.

Chief, Materials Licensing
USAF Radioisotope Committee
AFMOA/SGOR
110 Luke Avenue, Room 405
Bolling AFB, DC 20332-7050
Telephone: (202) 767-4313

Chief, Consultant Branch
Radiation Services Division, Armstrong Laboratory
IERA/SDRH
2402 E Street
Brooks AFB, TX 78235-5114
Telephone: (210) 536-3486

APPENDIX M

SAMPLING METHODS: A LIST OF SOURCES

M.1 Introduction

Planning activities associated with field survey work include developing new and compiling or adopting existing sampling methods. The following listing includes documents that represent examples for the types of information one encounters when searching for sampling methods. This listing initially presents references that appear with brief annotations that characterize the information found in each document.

Journal articles and books may list references that lead to still other types of useful information. Depending on survey needs, media being sampled, or site-specific requirements, one may follow these references to resources that describe other types of methods found in original papers or documents that appeared even as specific sampling techniques were first introduced.

The present listing is not exhaustive. Other titles or resources for sampling methods are available through online literature databases; Federal, State, and university libraries; the internet; and other sources.

M.2 List of Sources

Department of Energy (DOE). 1987. *The Environmental Survey Manual*. DOE/EH-0053, Vol. 1 of 4. DOE, Office of the Assistant Secretary for Environment, Safety, and Health, Office of Environmental Audit, Washington, D.C.

- *General Description of Document*: Size: Approximately 188 pages (single sided)—This is the first of a four volume set that amounts to over 4 ins. (total thickness) of documentation related to environmental surveys. The first volume represents the main document, with the remaining three volumes contain eleven appendices.

- *Key Features of This Document*: Unlike a number of other references listed here, this document *does* include information related to radionuclides and considers biota (animal, plant, and related sample types). Flow charts, checklists, planning diagrams, and figures help the reader to visualize a number of topics described in the text of all four volumes. Section 2 of this volume entertains topics related to a survey team's activities and survey reports. Section 3 considers the use of existing data, followed by technical checklists in Section 4 and health and safety issues described in Section 5.

A quick review of this first volume reveals a limited amount of depth to the information presented. There is little descriptive *How To Sample* information given here. However, as an overview, the document is quite comprehensive and this may encourage a survey team to consider obtaining additional information relevant to a particular project need.

Department of Energy (DOE). 1987. *The Environmental Survey Manual: Appendices A, B, and C*. DOE/EH-0053, Vol. 2 of 4. DOE, Office of the Assistant Secretary for Environment, Safety, and Health, Office of Environmental Audit, Washington, D.C.

- *General Description of Document*: Size: Approximately 188 pages (double sided)—This second volume contains three of eleven appendices.

- *Key Features of This Document*: The appendices include: A) Criteria for Data Evaluation, B) Checklists and Lines of Inquiry, and C) Health and Safety Plan for On-Site Survey Activities.

Department of Energy (DOE). 1987. *The Environmental Survey Manual: Appendix D*. DOE/EH-0053, Vol. 3 of 4. DOE, Office of the Assistant Secretary for Environment, Safety, and Health, Office of Environmental Audit, Washington, D.C.

- *General Description of Document*: Size: Approximately 438 pages (double sided)—This single volume is the largest part of the four part set and contains only one appendix: Appendix D - Analytical Methods.

- *Key Features of This Document*: The topics presented here have little to do with sample collection and are mostly concerned with the types of compounds or constituents within a sample. A radiological section covers a number of radionuclides that one may encounter in a number of sample matrices—including in water, air, soil, and sediments. Again, this is an appendix dedicated to sample analysis.

Department of Energy (DOE). 1987. *The Environmental Survey Manual: Appendices E, F, G, H, I, J, and K*. DOE/EH-0053, Vol. 4 of 4. DOE, Office of the Assistant Secretary for Environment, Safety, and Health, Office of Environmental Audit, Washington, D.C.

- *General Description of Document*: Size: Approximately 312 pages (double sided)—This fourth and final volume includes seven appendices.

- *Key Features of This Document*: Appendix E is entitled *Field Sampling Protocols and Guidance*—which offers a number of site scenarios to describe an approach to sampling under varied conditions. Each scenario is followed by a set of sampling procedures appropriate for a particular sample matrix. This appendix is 216 pages in length making this the largest part of Volume 4. Diagrams are included to illustrate scenarios and the appearance of sampling equipment.

  The remaining appendices cover: F) guidelines for preparation of quality assurance plans, G) decontamination guidance, H) data management and analysis, I) sample and document management guidance, J) health and safety guidance for sampling and analysis teams, and K) documents for sampling and analysis program.

Department of Energy (DOE). 1991. *Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance*. DOE/EH-0173T, DOE, Assistant Secretary for Environment, Safety, and Health, Washington, D.C. (DE91-013607)

- *General Description of Document*: Size: approximately 90 pages— This guide covers a number of topics related to radiation and environmental surveillance.

- *Key Features of This Document*: To accomplish environmental surveillance, various sample types—from biotic (animal and plant) to abiotic (air, water, soil, *etc.*)—are considered in Chapter 5 (title: Environmental Surveillance). The basis for taking certain samples appears along with information on sample location and frequency. A brief statement on sampling methods completes each section but procedures or techniques are not given in detail. References to other guidance documents on sampling are cited. The reader is directed to other sources to obtain additional regulatory information or descriptions of specific procedures.

  Chapter 6 provides information on laboratory procedures. Other chapters cover: liquid effluent monitoring, airborne effluent monitoring, meteorological monitoring, data analysis and statistical treatment, dose calculations, records and reports, quality assurance (QA), and reports.

Department of Energy (DOE). 1994. *Decommissioning Handbook.* DOE/EM-0142P. DOE, Office of Environmental Restoration, Germantown, MD

- *General Description of Document*: Size: Approximately 312 pages—The manual is essentially written for those involved in decommissioning a nuclear power facility. While not specifically focused on radiation sampling methods, this document may play a role in

identifying activities or sampling needs related to survey work before or during remediation at some Federal facilities.

- *Key Features of This Document*: Chapter 6 presents information on final project configuration based on planning and as such speaks of site boundaries. Chapter 7 presents topics related to characterization including on-site measurements.

  This document includes discussion and illustrations of robotic devices used in sampling operations. Perhaps only appropriate in extreme situations, the use of a robot for obtaining a sample may apply where radiation levels are high, dust or air quality pose problems, or where technical staff cannot physically reach a sample location due to structural limitations.

Environmental Protection Agency (EPA). 1980. *Samplers and Sampling Procedures for Hazardous Waste Streams*. EPA-600/2-80-018, EPA, Municipal Environmental Research Laboratory, Cincinnati, OH.

- *General Description of Document*: Size: 67 pages—the procedures listed here cover different types of media and include helpful diagrams of sampling devices.

- *Key Features of This Document*: While not specifically geared to radioactive samples, this short manual outlines and presents information in a logical sequence—starting with descriptions of sampling devices, followed by discussion of selecting an appropriate device for various media (including samples taken from various sources; *e.g.*, drum, barrel, waste pile), container types, labels, seals, use of a log book, chain of custody, sample receipt and logging, preservation and storage of samples, and references. The document includes five appendices, covering development of the composite liquid waste sampler, parts for constructing the sampler, checklist of items required in the field for sampling hazardous waste, random sampling, and systematic errors in using the composite liquid waste sampler.

Environmental Protection Agency (EPA). 1982. *Test Methods For Evaluating Solid Waste, Physical / Chemical Methods, 2nd Edition.* EPA, Office of Solid Waste, Washington, D.C. (PB87-120291)

- *General Description of Document*: Size: Approximately 375 pages—composed of chapters and methods that update the first edition of this volume.

- *Key Features of This Document*: Chapter 1 of this manual pulls together information from the first three chapters of the first edition. This includes a Sampling Methodology section that addresses statistics, sampling strategies and examples, implementing a sampling plan, plus tables and figures of sampling devices, *etc.* The main focus is on solid waste including metals and organics. Methods are described with the same format as indicated above in reference 1. As above, the methods include some information relevant to the field component of sampling work, but the remainder of each method essentially is most useful to laboratory personnel.

Environmental Protection Agency (EPA). 1982. *Handbook for Sampling and Sample Preservation of Water and Wastewater.* EPA-600/4-82-029, EPA, Environmental Monitoring and Support Laboratory, Cincinnati, OH. (PB83-124503)

- *General Description of Document*: Size: Approximately 500 pages—composed of information specifically focused on sample collection and preservation. While the document concerns only water sampling, this volume is comprehensive and even includes a chapter on *Sampling Radioactive Materials*.

- *Key Features of This Document*: The handbook is geared to address sampling issues. The scope of the document covers all types or sources of water, including: municipal, industrial, surface, agricultural, ground, and drinking waters. Types of samples are defined and discussed, including grab and composite samples. Diagrams, tables, and forms are provided to illustrate key points raised in the text. Statistical methods and related tables are provided. Each topic is accompanied by references. The chapter on radioactive samples is brief but touches on: background, radioactive decay, detection capability, frequency of sampling, sampling location, sample volume, containers, filtration, preservation, general procedures, radiation safety, and references.

Environmental Protection Agency (EPA). 1984. *Soil Sampling Quality Assurance User's Guide*. EPA 600/4-84-043, EPA, Environmental Monitoring Systems Laboratory, Office of Research and Development, Las Vegas, NV.

- *General Description of Document*: Size: 102 pages—The introduction to this document starts with: "An adequate quality assurance/quality control (QA/QC) program requires the identification and quantification of all sources of error associated with each step of a monitoring program so that the resulting data will be of known quality. the components of error, or variance, include those associated with sampling, sample preparation, extraction, analysis, and residual error."

- *Key Features of This Document*: Because of potential inhomogeneity in soil samples, the authors state this QA/QC document is specifically concerned with soil sampling. The general outline of the document includes: objectives of QA/QC, statistics, exploratory studies, sample number and sample sites, sample collection, sample handling and documentation, analysis and interpretation of QA/QC data, and systems audits and training. References are provided followed by two appendices covering sample number precision and confidence plus tables for use in calculating confidence tolerance limits and judging validity of measurements.

  The sample collection chapter is very brief and does not specifically outline methods or types of equipment. This and the following chapter on sample handling and documentation mention relevant topics in light of QA/QC.

Environmental Protection Agency (EPA). 1986. *Engineering Support Branch Standard Operating Procedures and Quality Assurance Manual*. EPA, Region IV, Environmental Services Division, Athens, GA. (Sections 3 to 5 reviewed)

- *General Description of Document*: Size: approximately 90 pages (single sided)—The introduction states: "The objectives of this section are to present the Branch standard operating procedures for sample identification, sample control and chain of custody, maintenance of field records, and document control.

- *Key Features of This Document*: The basic format of the document is that of a compendium of standard operating procedures bound in one volume. Each Standard Operating Procedure (SOP) is several pages and is dedicated to a specific topic. A five page outline pertaining to sampling procedures presents a brief overview that is a relatively typical treatment of this topic. Sample preservation, for example, is summarized with five bullet points. The next section offers a three page listing of definitions covering grab, composite, split, duplicate, reference or control, and background samples, plus a very brief definition for sample aliquot.

  The document lacks figures but does include descriptive notes for equipment and methods related to taking samples of waste water, surface water (fresh and salt water), ground water, potable water supply, soil, samples from landfills and hazardous waste sites, followed by references. The last part of the guide include information on making flow measurements.

  The document does not appear to focus on radioactive materials, but as with other documents the information can in part be used in conjunction with obtaining radioactive samples.

Environmental Protection Agency (EPA). 1987. *A Compendium of Superfund Field Operations Methods*. EPA/540/P-87/001, EPA, Office of Emergency and Remedial Response, Washington, D.C.

- *General Description of Document*: Size: Approximately 375 pages—the size and title of this document is a clue to the comprehensive nature of this volume. In brief, the text of this document provides a potentially valuable resource to field workers involved with Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) surveys. While relatively complete—in that the document covers a broad range of topics—some readers may desire additional depth to the information provided here. Conversely, planners and field personnel might gain added insight by considering the broad range of topics included here before approaching the survey process.

- *Key Features of This Document*: Perhaps the best summary of this compendium is provided by a listing of sections, as follows: 1) Use of the Compendium, 2) Preparation of Project Description and Statement of Objectives, 3) Implementing Field Objectives, 4) Sample Control, Including Chain of Custody, 5) Laboratory Interface, 6) Sample Containers, Preservation, and Shipping, 7) Field Methods for Screening Hazardous Material, 8) Earth Sciences (*i.e.*, drilling, excavations, reconnaissance, geophysics, and ground water), 9) Earth Sciences Laboratory Procedures, 10) Surface Hydrology, 11) Meteorology and Air Quality, 12) Specialized Sampling Techniques (*e.g.*, wipes, human habitation sampling, TCDD, and container sampling), 14) Land Surveying, Aerial Photography, and Mapping, 15) Field Instrumentation (a comprehensive treatment including radiation monitors), 16) data handling, 17) Document Control, 18) Corrective Action, 19) QA Audit Procedures, and 20) QA Reporting.

  That this document serves objectives set forth by Superfund—and is not specifically focused on radionuclide sampling—in no way diminishes the importance of the compendium's complete overview of field sampling equipment and activities.

Environmental Protection Agency (EPA). 1989. *Test Methods For Evaluating Solid Waste Physical / Chemical Methods - Third Edition Proposed Update Package*. EPA, Office of Solid Waste, Washington, D.C. (PB89-148076)

- *General Description of Document*: Size Approximately 500 pages—composed of several updated chapters and 46 methods that are described by text and graphics. Only methods that are updated from 2nd Edition appear in this volume.

- *Key Features of This Document*: Chapters 1, 2, 4, and 7 describe QC, Choosing the Correct Procedure, Organic Analytes, and Regulatory Definitions, respectively. Of primary interest are the 46 methods that are described in what constitutes the bulk of this document. However, as is evident from some of the first methods listed for organics, sample collection techniques are only briefly touched on by a section of Chapter Four. This essentially makes the methods laboratory oriented protocols and the only reference to field methods appears in the text of a short chapter as opposed to part of each method. Some methods do list *Sample Collection, Preservation, and Handling* information with emphasis on use of containers, acidification or refrigeration, or a brief set of points to consider when preparing to go out to the field.

  Each method includes a method number and a title, plus the following information: 1) Scope and Application, 2) Summary of Method, 3) Interferences, 4) Apparatus and Materials, 5) Reagents, 6) Sample Collection, Preservation, and Handling, 7) Procedure, 8) QC, 9) Method Performance, and 10) References. Diagrams, flow charts, and tables follow the initial sequence of sections.

  The listing of methods include Method 9320 for Radium-228, Method 9310 for Gross Alpha & Gross Beta, and Method 9315 for Alpha-Emitting Radium Isotopes. These methods do not appear in the bound volume used for this review and thus no further comment is offered here.

Environmental Protection Agency (EPA). 1991. *Compendium of ERT Surface Water and Sediment Sampling Procedures*. OSWER Directive 9360.4-03, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB91-921274)

- *General Description of Document*: Size: 31 pages—this document includes three standard operating procedures (SOPs), the first of which is the same as the first SOP listed in the document described below.

- *Key Features of This Document*: The three SOPs included in this document include: 1) Sampling Equipment Decontamination, 2) Surface Water Sampling, and 3) Sediment Sampling. Each SOP is similar in content with sections that cover: scope, method summary, preservation, containers, equipment, apparatus, *etc*.

Environmental Protection Agency (EPA). 1991. *Compendium of ERT Ground water Sampling Procedures*. OSWER Directive 9360.4-06, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB91-921275)

- *General Description of Document*: Size: 71 pages—this document embodies eight standard operating procedures (SOPs) with a similar format as that described above.

- *Key Features of This Document*: The SOPs covered in this document include sampling equipment decontamination, ground water well sampling, soil gas samples, installing monitor wells, water level measurements, and other topics related to ground water and wells.

Environmental Protection Agency (EPA). 1991. *Compendium of ERT Soil Sampling and Surface Geophysics Procedures*. OSWER Directive 9360.4-02, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB91-921273)

- *General Description of Document*: Size: 39 pages—this document lists four standard operating procedures (SOPs) for soil sampling—with a similar format as that described above.

- *Key Features of This Document*: The SOPs covered in this document include sampling equipment decontamination, soil sampling, soil gas sampling, and soil sampling and surface geophysics. The SOP for soil sampling is five pages in length. This treatment essentially covers samples collected from the soil surface, to use of augers and tube samplers, a trier, split-spoon (barrel) sampler, and excavation techniques.

Environmental Protection Agency (EPA). 1991. *Environmental Compliance Branch Standard Operating Procedures and Quality Assurance Manual*. EPA, Region IV, Environmental Services Division, Athens, GA.

- *General Description of Document*: Size: Approximately 500 pages (single sided)—This document is presented with seven sections and eleven appendices. The main sections cover standard operating polices and procedures which relates to the Region IV laboratory's administrative functions to SOPs that are specifically focused on sampling activities.

- *Key Features of This Document*: Sections 3 and 4 are of primary importance when thinking of sample control, field record keeping, document control and sampling procedures. Section 4 on sampling procedures is descriptive—without diagrams or figures—and quite comprehensive in that this section touches on a multitude of topics not mentioned in a number of other guides, including: selection of parameters to be measured, holding time, cross contamination, and Data Quality Objectives (DQOs) (described as Level I to V). The sampling of soil, water, and air are covered in this

section with many of the subsections covering topics that are common to other documents reviewed here. A number of example forms are presented, including several that relate to State programs. Section 6 covers field analytical methods and Section 7 describes field physical measurements.

The appendices include helpful information relevant to sampling, including: A) sample containers, preservation, holding times, and permissible sample type, B) standard cleaning procedures, C) shipping procedures, D) standard field analytical methods, E) monitoring wells, F) pump operation procedures, G) air monitoring, H) wastewater field methods, I) saturation monitoring, and K) safety protocols.

Environmental Protection Agency (EPA). 1992. *Characterizing Heterogeneous Waste: Methods and Recommendations*. EPA/600/R92/033, EPA, Environmental Monitoring Systems Laboratory, Office of Research and Development, Las Vegas, NV. (PB92-216894)

- *General Description of Document*: Size: 144 pages—the focus of this document is on all types of waste materials that one might encounter. The base scenario appears to be one where a drum is encountered and the objective is to work to a point when the drum contents are understood. Because a drum may include more than one type of waste, this document provides a review of a wide variety of materials one might expect when surveying a site.

- *Key Features of This Document*: The table of contents reveals that the text attempts to provide a complete picture, from definitions of terms, to planning studies, QA/QC and data assessment, to sample acquisition, and steps that follow to the lab and what makes the characterization process a success. Radioactive waste materials, along with organics, solids, liquids, *etc*., are covered, but in a relatively brief fashion. The model scenario of dealing with wastes in a drum is incorporated into a hypothetical example in an appendix.

Environmental Protection Agency (EPA). 1992. *Preparation of Soil Sampling Protocols: Sampling Techniques and Strategies*. EPA/600/R92/128, EPA, Office of Research and Development, Washington, DC. (PB92-220532)

- *General Description of Document*: Size: 174 pages—this document summarizes various statistical and geostatistical concepts and procedures pertaining to the design, implementation, and data interpretation of appropriate sampling designs.

- *Key Features of This Document*: This document focuses on applying the concept of the Data Life Cycle to soil sampling. The document describes statistical concepts that apply to soil sampling, including particulate sampling theory. Types of samples, numbers of samples, and size of samples as well as methods for sampling soils from conveyor belts and stockpiles are also discussed. A bibliography is provided.

APPENDIX N

Data Validation Using Data Descriptors

Data validation is often defined by six data descriptors:

1) reports to decision maker
2) documentation
3) data sources
4) analytical method and detection limit
5) data review
6) data quality indicators

The decision maker or reviewer examines the data, documentation, and reports for each of the six data descriptors to determine if performance is within the limits specified in the DQOs developed during survey planning. The data validation process should be conducted according to procedures documented in the QAPP.

N.1 Reports to Decision Maker

Data and documentation supplied to the decision maker should be evaluated for completeness and appropriateness and to determine if any changes were made to the survey plan during the course of work. The survey plan discusses the surveying, sampling, and analytical design and contains the QAPP and DQOs. The decision maker should receive all data as collected plus preliminary and final data reports. The final decision on qualifying or rejecting data will be made during the assessment of environmental data. All data, including qualified or rejected data, should be documented and recorded even if the data are not included in the final report.

Preliminary analytical data reports allow the decision maker to begin the assessment process as soon as the surveying effort has begun. These initial reports have three functions.

1) For scoping or characterization survey data, they allow the decision maker to begin to characterize the site on the basis of actual data. Radionuclides of interest will be identified and the variability in concentration can be estimated.

2) They allow potential measurement problems to be identified and the need for corrective action can be assessed.

3) Schedules are more likely to be met if the planning of subsequent survey activities can begin before the final data reports are produced.

N.2 Documentation

Three types of documentation should be assessed: (1) field operation records; (2) laboratory records; and (3) data handling records (EPA 1997a).

N.2.1 Field Operation Records

The information contained in these records documents overall field operations and generally consists of the following:

- *Field measurement records*. These records show that the proper measurement protocol was performed in the field. At a minimum, this documentation should include the names of the persons conducting the activity, measurement identification, measurement locations, measurement results, maps and diagrams, equipment and SOP used, and unusual observations. Bound field notebooks are generally used to record raw data and make references to prescribed procedures and changes in planned activities. Data recording forms might also be used. A document control system should be used for these records to control attributes such as formatting to include pre-numbered pages with date and signature lines.

- *Sample tracking records*. Sample tracking records (*e.g.*, chain-of-custody) document the progression of samples as they travel from the original sampling location to the laboratory and finally to disposal (see Section 7.7).

- *QC measurement records*. QC measurement records document the performance of QC measurements in the field. These records should include calibration and standards' traceability documentation that can be used to provide a reproducible reference point to which all similar measurements can be correlated. QC measurement records should contain information on the frequency, conditions, level of standards, and instrument calibration history.

- *Personnel files*. Personnel files record the names and training certificates of the staff collecting the data.

- *General field procedures*. General field procedures (*e.g.*, SOPs) record the procedures used in the field to collect data and outline potential areas of difficulty in performing measurements.

- *Deficiency and problem identification reports*. These reports document problems and deficiencies encountered as well as suggestions for process improvement.

- *Corrective action reports*. Corrective action reports show what methods were used in cases where general field practices or other standard procedures were violated and include the methods used to resolve noncompliance.

N.2.2 Laboratory Records

The following list describes some of the laboratory-specific records that should be compiled if available and appropriate:

- *Laboratory measurement results and sample data.* These records contain information on the sample analysis used to verify that prescribed analytical methods were followed. The overall number of samples, sample identification, sample measurement results, any deviations from the SOPs, time of day, and date should be included. Sample location information might also be provided.

- *Sample management records*. Sample management records should document sample receipt, handling and storage, and scheduling of analyses. The records will verify that sample tracking requirements were maintained, reflect any anomalies in the samples (*e.g.*, receipt of damaged samples), and note proper log-in of samples into the laboratory.

- *Test methods*. Unless analyses were performed exactly as prescribed by SOPs, this documentation will describe how the analyses were carried out in the laboratory. This documentation includes sample preparation and analysis, instrument standardization, detection and reporting limits, and method-specific QC requirements. Documentation demonstrating laboratory proficiency with each method used could also be a part of the data reporting package, particularly for subcontracted work.

- *QC measurement records*. These include the general QC records, such as initial demonstration of capability, instrument calibration, routine monitoring of analytical performance, calibration verification, *etc.*, considered in Section 7.3 for selecting a radioanalytical laboratory. Project-specific information from the QC checks such as blanks, spikes, calibration check samples, replicates, splits, and so on should be included in these reports to facilitate data quality analysis.

- *Deficiency and problem identification reports*. These reports document problems and deficiencies encountered as well as suggestions for process improvement.

- *Corrective action reports*. Corrective action reports show what methods were used in cases where general laboratory practices or other standard procedures were violated and include the methods used to resolve noncompliance. Corrective action procedures to replace samples violating the SOP also should be noted.

N.2.3 Data Handling Records

Data handling records document protocols used in data reduction, verification, and validation. Data reduction addresses data transformation operations such as converting raw data into reportable quantities and units, using significant figures, calculating measurement uncertainties, *etc.* The records document procedures for handling data corrections.

N.3 Data Sources

Data source assessment involves the evaluation and use of historical analytical data. Historical analytical data should be evaluated according to data quality indicators and not the source of the data (*e.g.*, analytical protocols may have changed significantly over time). Data quality indicators are qualitative and quantitative descriptors used in interpreting the degree of acceptability or utility of data. Historical data sources are addressed during the Historical Site Assessment, and are discussed in Section 3.4.1.

N.4 Analytical Method and Detection Limit

The selection of appropriate analytical methods based on detection limits is important to survey planning. The detection limit of the method directly affects the usability of the data because results near the detection limit have a greater possibility of false negatives and false positives. Results near the detection limit have increased measurement uncertainty. When the measurement uncertainty becomes large compared to the variability in the radionuclide concentration, it becomes more difficult to demonstrate compliance using the guidance provided in MARSSIM.

The decision maker compares detection limits (*i.e.*, minimum detectable concentrations; MDCs) with radionuclide-specific results to determine their effectiveness in relation to the DCGL. Assessment of preliminary data reports provides an opportunity to review the detection limits early and resolve any detection sensitivity problems. When a radionuclide is reported as not detected, the result can only be used with confidence if the MDCs reported are lower than the DCGL.

If the DCGL is less than or equal to the MDC, and the radionuclide is not detected, report the actual result of the analysis. Do not report data as “less than the detection limit.” Even negative results and results with large uncertainties can be used in the statistical tests described in Chapter 8. Results reported as “<MDC” cannot be fully used and, for example, complicate even such simple analyses as calculating an average. When the MDC reported for a radionuclide is near the DCGL, the confidence in both identification and quantitation may be low. Information

concerning non-detects or detections at or near MDCs should be qualified according to the degree of acceptable uncertainty.

N.5 Data Review

Data review begins with an assessment of the quality of analytical results and is performed by a professional with knowledge of the analytical procedures. Only data that are reviewed according to a specified level or plan should be used in the quantitative site investigation. Any analytical errors, or limitations in the data that are identified by the review, should be noted. An explanation of data qualifiers should be included with the review report.

All data should receive some level of review. Data that have not been reviewed should be identified, because the lack of review increases the uncertainty in the data. Unreviewed data may lead to Type I and Type II decision errors, and may also contain transcription errors and calculation errors. Data may be used in the preliminary assessment before review, but should be reviewed at a predetermined level before use in the final survey report.

Depending on the survey objectives, the level and depth of the data review varies. The level and depth of the data review may be determined during the planning process and should include an examination of laboratory and method performance for the measurements and radionuclides involved. This examination includes

- evaluation of data completeness
- verification of instrument calibration
- measurement of precision using duplicates, replicates, or split samples
- measurement of bias using reference materials or spikes
- examination of blanks for contamination
- assessment of adherence to method specifications and QC limits
- evaluation of method performance in the sample matrix
- applicability and validation of analytical procedures for site-specific measurements
- assessment of external QC measurement results and QA assessments

A different level or depth of data review may be indicated by the results of this evaluation. Specific data review procedures are dependent upon the survey objectives and should be documented in the QAPP.

N.6 Data Quality Indicators

The assessment of data quality indicators presented in this section is significant to determine data usability. The principal data quality indicators are precision, bias, representativeness, comparability, and completeness (EPA 1997a). Other data quality indicators affecting the RSSI process include the selection and classification of survey units, Type I and Type II decision error rates, the variability in the radionuclide concentration measured within the survey unit, and the lower bound of the gray region (see Section 2.3.1).

Of the six principal data quality indicators, precision and bias are quantitative measures, representativeness and comparability are qualitative, completeness is a combination of both qualitative and quantitative measures, and accuracy is a combination of precision and bias. The selection and classification of survey units is qualitative, while decision error rates, variability, and the lower bound of the gray region are quantitative measures.

The major activity in determining the usability of data based on survey activities is assessing the effectiveness of measurements. Scanning and direct measurements taken during survey activities and samples collected for analysis should meet site-specific objectives based on scoping and planning decisions.

Determining the usability of analytical results begins with the review of QC measurements and qualifiers to assess the measurement result and the performance of the analytical method. If an error in the data is discovered, it is more important to evaluate the effect of the error on the data than to determine the source of the error. The documentation described in Section N.2 is reviewed as a whole for some criteria. Data are reviewed at the measurement level for other criteria.

Factors affecting the accuracy of identification and the precision and bias of quantitation of individual radionuclides, such as calibration and recoveries, should be examined radionuclide by radionuclide. Table N.1 presents a summary of the QC measurements and the data use implications.

N.6.1 Precision

Precision is a measure of agreement among replicate measurements of the same property under prescribed similar conditions. This agreement is calculated as either the range or the standard deviation. It may also be expressed as a percentage of the mean of the measurements such as relative range (for duplicates) or coefficient of variation.

Table N.1 Use of Quality Control Data

Quality Control Criterion	Effect on Identification When Criterion is Not Met	Quantitative Bias	Use
Spikes (Higher than expected result)	Potential for incorrectly deciding a survey unit does not meet the release criterion (Type II decision error)	High	Use data as upper limit
Spikes (Lower than expected result)	Potential for incorrectly deciding a survey unit does meet the release criterion[a] (Type I decision error)	Low	Use data as lower limit
Replicates (Inconsistent)	None, unless analyte found in one duplicate and not the other—then either Type I or Type II decision error	High or Low[b]	Use data as estimate—poor precision
Blanks (Contaminated)	Potential for incorrectly deciding a survey unit does not meet the release criterion (Type II decision error)	High	Check for gross contamination or instrument malfunction
Calibration (Bias)	Potential for Type I or Type II decision errors	High or Low[b]	Use data as estimate unless problem is extreme

[a] Only likely if recovery is near zero.
[b] Effect on bias determined by examination of data for each radionuclide.

For scanning and direct measurements, precision may be specified for a single person performing the measurement or as a comparison between people performing the same measurement. For laboratory analyses, precision may be specified as either intralaboratory (within a laboratory) or interlaboratory (between laboratories). Precision estimates based on a single surveyor or laboratory represent the agreement expected when the same person or laboratory uses the same method to perform multiple measurements of the same location. Precision estimates based on two or more surveyors or laboratories refer to the agreement expected when different people or laboratories perform the same measurement using the same method.

The two basic activities performed in the assessment of precision are estimating the radionuclide concentration variability from the measurement locations and estimating the measurement error attributable to the data collection process. The level for each of these performance measures

should be specified during development of DQOs. If the statistical performance objectives are not met, additional measurements should be taken or one (or more) of the performance parameters changed.

Measurement error is estimated using the results of replicate measurements, as discussed in Chapter 6 for field measurements and Chapter 7 for laboratory measurements. When collocated measurements are performed (in the field or in the laboratory) an estimate of total precision is obtained. When collocated samples are not available for laboratory analysis, a sample subdivided in the field and preserved separately can be used to assess the variability of sample handling, preservation, and storage along with the variability in the analytical process, but variability in sample acquisition is not included. When only variability in the analytical process is desired, a sample can be subdivided in the laboratory prior to analysis.

Summary statistics such as sample mean and sample variance can provide as assessment of the precision of a measurement system or component thereof for a project. These statistics may be used to estimate precision at discrete concentration levels, average estimated precision over applicable concentration ranges, or provide the basis for a continual assessment of precision for future measurements. Methods for calculating and reporting precision are provided in *EPA Guidance for Quality Assurance Project Plans* (EPA 1997a).

Table N.2 presents the minimum considerations, impacts if the considerations are not met, and corrective actions for precision.

N.6.2 Bias

Bias is the systematic or persistent distortion of a measurement process that causes errors in one direction. Bias assessments for radioanalytical measurements should be made using personnel, equipment, and spiking materials or reference materials as independent as possible from those used in the calibration of the measurement system. When possible, bias assessments should be based on certified reference materials rather than matrix spikes or water spikes so that the effect of the matrix and the chemical composition of the contamination is incorporated into the assessment. While matrix spikes include matrix effects, the addition of a small amount of liquid spike does not always reflect the chemical composition of the contamination in the sample matrix. Water spikes do not account for either matrix effects or chemical composition of the contamination. When spikes are used to assess bias, a documented spiking protocol and consistency in following that protocol are important to obtaining meaningful data quality estimates.

Table N.2 Minimum Considerations for Precision, Impact if Not Met, and Corrective Actions

Minimum Considerations for Precision	Impact When Minimum Considerations Are Not Met	Corrective Action
Confidence level as specified in DQOs. Power as specified in DQOs. Minimum detectable relative differences specified in the survey design and modified after analysis of background measurements if necessary One set of field duplicates or more as specified in the survey design. Analytical duplicates and splits as specified in the survey design. Measurement error specified.	Errors in decisions to act or not to act based on analytical data. Unacceptable level of uncertainty. Increased variability of quantitative results. Potential for incorrectly deciding a survey unit does meet the release criterion for measurements near the detection limits (Type I decision error).	For Surveying and Sampling: Add survey or sample locations based on information from available data that are known to be representative. Adjust performance objectives. For Analysis: Analysis of new duplicate samples. Review laboratory protocols to ensure comparability. Use precision measurements to determine confidence limits for the effects on the data. The investigator can use the maximum measurement results to set an upper bound on the uncertainty if there is too much variability in the analyses.

Activity levels for bias assessment measurements should cover the range of expected contaminant concentrations, although the minimum activity is usually at least five times the MDC. For many final status surveys, the expected contaminant concentration is zero or background, so the highest activity will be associated with the bias assessment measurements. The minimum and maximum concentrations allowable in bias assessment samples should be agreed on during survey planning activities to prevent accidental contamination of the environment or an environmental level radioanalytical laboratory.

For scanning and direct measurements there are a limited number of options available for performing bias assessment measurements. Perhaps the best estimate of bias for scanning and direct measurements is to collect samples from locations where scans or direct measurements were performed, analyze the samples in a laboratory, and compare the results. Problems associated with this method include the time required to obtain the results and the difficulty in

obtaining samples that are representative of the field measurement to provide comparable results. A simple method of demonstrating that analytical bias is not a significant problem for scanning or direct measurements is to use the instrument performance checks to demonstrate the lack of analytical bias. A control chart can be used to determine the variability of a specific instrument and track the instrument performance throughout the course of the survey. Field background measurements can also be plotted on a control chart to estimate bias caused by contamination of the instrument.

There are several types of bias assessment samples available for laboratory analyses as discussed in Chapter 7. Field blanks can be evaluated to estimate the potential bias caused by contamination from sample collection, preparation, shipping, and storage.

Table N.3 presents the minimum considerations, impacts if the considerations are not met, and corrective actions for bias.

Table N.3 Minimum Considerations for Bias, Impact if Not Met, and Corrective Actions

Minimum Considerations for Bias	Impact When Minimum Considerations Are Not Met	Corrective Action
Matrix spikes to assess bias of non-detects and positive sample results if specified in the survey design. Analytical spikes as specified in the survey design. Use analytical methods (routine methods whenever possible) that specify expected or required recovery ranges using spikes or other QC measures. No radionuclides of potential concern detected in the blanks.	Potential for incorrectly deciding a survey unit does meet the release criterion (Type I decision error): if spike recovery is low, it is probable that the method or analysis is biased low for that radionuclide and values of all related samples may underestimate the actual concentration. Potential for incorrectly deciding a survey unit does not meet the release criterion (Type II decision error): if spike recovery exceeds 100%, interferences may be present, and it is probable that the method or analysis is biased high. Analytical results overestimate the true concentration of the spiked radionuclide.	Consider resampling at affected locations. If recoveries are extremely low or extremely high, the investigator should consult with a radiochemist or health physicist to identify a more appropriate method for reanalysis of the samples.

N.6.3 Accuracy

Accuracy is a measure of the closeness of an individual measurement or the average of a number of measurements to the true value (EPA 1997a). Accuracy includes a combination of random error (precision) and systematic error (bias) components that result from performing measurements. Systematic and random uncertainties (or errors) are discussed in more detail in Section 6.8.1.

Accuracy is determined by analyzing a reference material of known contaminant concentration or by reanalyzing material to which a known concentration of contaminant has been added. To be accurate, data must be both precise and unbiased. Using the analogy of archery, to be accurate one's arrows must land close together and, on average, at the spot where they are aimed. That is, the arrows must all land near the bull's eye (see Figure N.1).

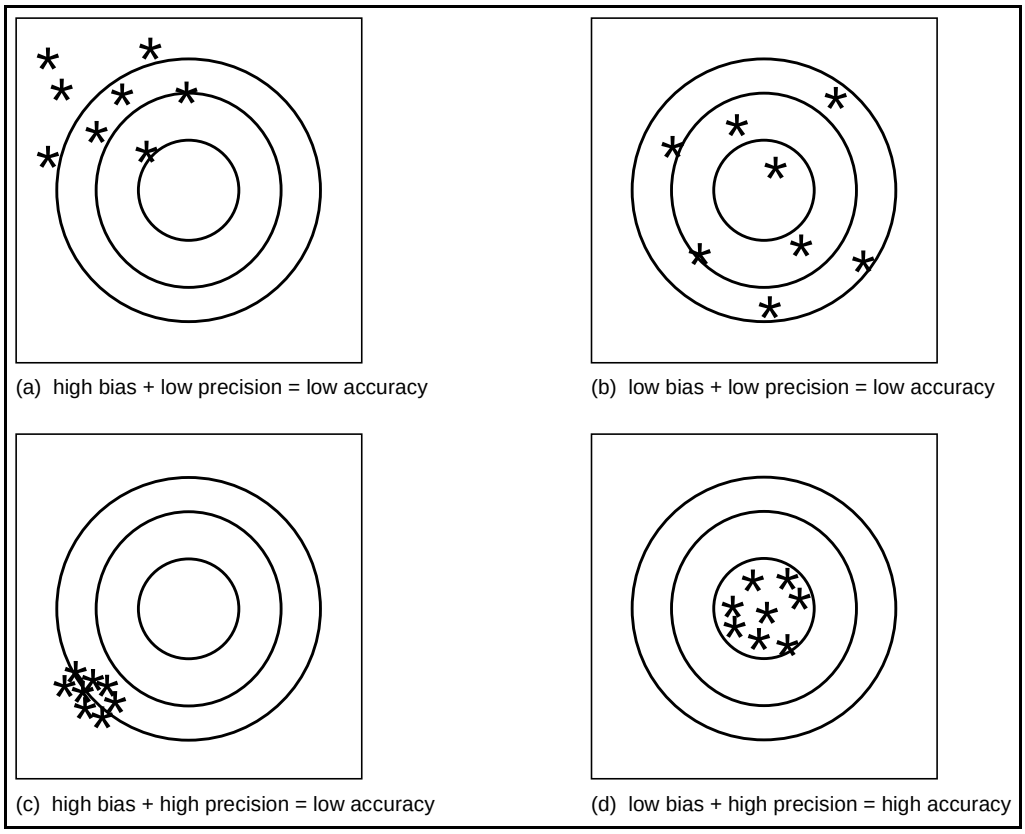


Figure N.1 Measurement Bias and Random Measurement Uncertainty

Accuracy is usually expressed either as a percent recovery or as a percent bias. Determination of accuracy always includes the effects of variability (precision); therefore, accuracy is used as a combination of bias and precision. The combination is known statistically as mean square error. Mean square error is the quantitative term for overall quality of individual measurements or estimators.

Mean square error is the sum of the variance plus the square of the bias. (The bias is squared to eliminate concern over whether the bias is positive or negative.) Frequently it is impossible to quantify all of the components of the mean square error—especially the biases—but it is important to attempt to quantify the magnitude of such potential biases, often by comparison with auxiliary data.

N.6.4 Representativeness

Representativeness is a measure of the degree to which data accurately and precisely represent a characteristic of a population parameter at a sampling point or for a process condition or environmental condition. Representativeness is a qualitative term that should be evaluated to determine whether *in situ* and other measurements are made and physical samples collected in such a manner that the resulting data appropriately reflect the media and contamination measured or studied.

Representativeness of data is critical to data usability assessments. The results of the environmental radiological survey will be biased to the degree that the data do not reflect the radionuclides and concentrations present at the site. Non-representative radionuclide identification may result in false negatives. Non-representative estimates of concentrations may be higher or lower than the true concentration. With few exceptions, non-representative measurements are only resolved by additional measurements.

Representativeness is primarily a planning concern. The solution to enhancing representativeness is in the design of the survey plan. Representativeness is determined by examining the survey plan. Analytical data quality affects representativeness since data of low quality may be rejected for use.

Table N.4 presents the minimum considerations, impacts if the considerations are not met, and corrective actions for representativeness.

N.6.5 Comparability

Comparability is the qualitative term that expresses the confidence that two data sets can contribute to a common analysis and interpolation. Comparability should be carefully evaluated to establish whether two data sets can be considered equivalent in regard to the measurement of a specific variable or groups of variables.

Table N.4 Minimum Considerations for Representativeness, Impact if Not Met, and Corrective Actions

Minimum Considerations for Representativeness	Impact When Minimum Considerations Are Not Met	Corrective Action
Survey data representative of survey unit. Documented sample preparation procedures. Filtering, compositing, and sample preservation may affect representativeness. Documented analytical data as specified in the survey design.	Bias high or low in estimate of extent and quantity of contaminated material. Potential for incorrectly deciding a survey unit does meet the release criterion (Type I decision error). Inaccurate identification or estimate of concentration of a radionuclide. Remaining data may no longer sufficiently represent the site if a large portion of the data are rejected, or if all data from measurements at a specific location are rejected.	Additional surveying or sampling. Examination of effects of sample preparation procedures. Reanalysis of samples, or resurveying or resampling of the affected site areas. If the resurveying, resampling, or reanalyses cannot be performed, document in the site environmental radiological survey report what areas of the site are not represented due to poor quality of analytical data.

Comparability is not compromised provided that the survey design is unbiased, and the survey design or analytical methods are not changed over time. Comparability is a very important qualitative data indicator for analytical assessment and is a critical parameter when considering the combination of data sets from different analyses for the same radionuclides. The assessment of data quality indicators determines if analytical results being reported are equivalent to data obtained from similar analyses. Only comparable data sets can be readily combined.

The use of routine methods (as defined in Section 7.6) simplifies the determination of comparability because all laboratories use the same standardized procedures and reporting parameters. In other cases, the decision maker may have to consult with a health physicist and/or radiochemist to evaluate whether different methods are sufficiently comparable to combine data sets.

There are a number of issues that can make two data sets comparable, and the presence of each of the following items enhances their comparability (EPA 1997a).

- two data sets should contain the same set of variables of interest.
- units in which these variables were measured should be convertible to a common metric.
- similar analytic procedures and quality assurance should be used to collect data for both data sets
- time of measurements of certain characteristics (variables) should be similar for both data sets
- measuring devices used for both data sets should have approximately similar detection levels
- rules for excluding certain types of observations from both samples should be similar
- samples within data sets should be selected in a similar manner
- sampling frames from which the samples were selected should be similar
- number of observations in both data sets should be of the same order of magnitude

These characteristics vary in importance depending on the final use of the data. The closer two data sets are with regard to these characteristics, the more appropriate it will be to compare them. Large differences between characteristics may be of only minor importance depending on the decision that is to be made from the data.

Table N.5 presents the minimum considerations, impacts if they are not met, and corrective actions for comparability.

N.6.6 Completeness

Completeness is a measure of the amount of valid data obtained from the measurement system, expressed as a percentage of the number of valid measurements that should have been collected (*i.e.*, measurements that were planned to be collected).

Completeness for measurements is calculated by the following formula:

$$\%Completeness = \frac{(Number\ of\ Valid\ Measurements)\ x\ 100}{Total\ Number\ of\ Measurements\ Planned}$$

Completeness is not intended to be a measure of representativeness; that is, it does not describe how closely the measured results reflect the actual concentration or distribution of the contaminant in the media being measured. A project could produce 100% data completeness (*i.e.*, all planned measurements were actually performed and found valid), but the results may not be representative of the actual contaminant concentration.

Table N.5 Minimum Considerations for Comparability, Impact if Not Met, and Corrective Actions

Minimum Considerations for Comparability	Impact When Minimum Considerations Are Not Met	Corrective Action
Unbiased survey design or documented reasons for selecting another survey design. The analytical methods used should have common analytical parameters. Same units of measure used in reporting. Similar detection limits. Equivalent sample preparation techniques. Analytical equipment with similar efficiencies or the efficiencies should be factored into the results.	Non-additivity of survey results. Reduced confidence, power, and ability to detect differences, given the number of measurements available. Increased overall error.	For Surveying and Sampling: Statistical analysis of effects of bias. For Analytical Data: Preferentially use those data that provide the most definitive identification and quantitation of the radionuclides of potential concern. For quantitation, examine the precision and accuracy data along with the reported detection limits. Reanalysis using comparable methods.

Alternatively, there could be only 70% data completeness (30% lost or found invalid), but, due to the nature of the survey design, the results could still be representative of the target population and yield valid estimates. The degree to which lack of completeness affects the outcome of the survey is a function of many variables ranging from deficiencies in the number of measurements to failure to analyze as many replications as deemed necessary by the QAPP and DQOs. The intensity of effect due to incompleteness of data is sometimes best expressed as a qualitative measure and not just as a quantitative percentage.

Completeness can have an effect on the DQO parameters. Lack of completeness may require reconsideration of the limits for decision error rates because insufficient completeness will decrease the power of the statistical tests described in Chapter 8.

For most final status surveys, the issue of completeness only arises when the survey unit demonstrates compliance with the release criterion and less than 100% of the measurements are determined to be acceptable. The question now becomes whether the number of measurements is sufficient to support the decision to release the survey unit. This question can be answered by constructing a power curve as described in Appendix I and evaluating the results. An alternative

method is to consider that the number of measurements estimated to demonstrate compliance in Chapter 5 was increased by 20% to account for lost or rejected data and uncertainty in the calculation of the number of measurements. This means a survey with 80% completeness may still have sufficient power to support a decision to release the survey unit.

Table N.6 presents the minimum considerations, impacts if the considerations are not met, and corrective actions for completeness.

Table N.6 Minimum Considerations for Completeness, Impact if Not Met, and Corrective Actions

Minimum Considerations for Completeness	Impact When Minimum Considerations Are Not Met	Corrective Action
Percentage of measurement completeness determined during planning to meet specified performance measures.	Higher potential for incorrectly deciding a survey unit does not meet the release criterion (Type II decision error). Reduction in power. A reduction in the number of measurements reduces site coverage and may affect representativeness. Reduced ability to differentiate site levels from background. Impact of incompleteness generally decreases as the number of measurements increases.	Resurveying, resampling, or reanalysis to fill data gaps. Additional analysis of samples already in laboratory. Determine whether the missing data are crucial to the survey.

N.6.7 Selection and Classification of Survey Units

Selection and classification of survey units is a qualitative measure of the assumptions used to develop the survey plan. The level of survey effort, measurement locations (*i.e.*, random vs. systematic and density of measurements), and the integrated survey design are based on the survey unit classification. The results of the survey should be reviewed to determine whether the classification used to plan the survey is supported by the results of the survey.

If a Class 3 survey unit is found to contain areas of contamination (even if the survey unit passes the statistical tests), the survey unit may be divided into several survey units with appropriate classifications, and additional surveys planned as necessary for these new survey units.

Class 3 areas may only require additional randomly located measurements to provide sufficient power to release the new survey units. Class 2 and Class 1 areas will usually require a new survey design based on systematic measurement locations, and Class 1 areas may require remediation before a new final status survey is performed.

If a Class 2 survey unit is determined to be a Class 1 survey unit following the final status survey and remediation is not required, it may not be necessary to plan a new survey. The scan MDC should be compared to the $DCGL_{EMC}$ to determine if the measurement spacing is adequate to meet the survey objectives. If the scan MDC is too high, a new scan survey using a more sensitive measurement technique may be available. Alternatively, a new survey may be planned using a new measurement spacing or a stratified survey design may be implemented to use as much of the existing data as possible.

N.6.8 Decision Error Rates

The decision error rates developed during survey planning are related to completeness. A low level of completeness will affect the power of the statistical test. It is recommended that a power curve be constructed as described in Appendix I, and the expected decision error rates compared to the actual decision error rates to determine if the survey objectives have been accomplished.

N.6.9 Variability in Contaminant Concentration

The variability in the contaminant concentration (both in the survey unit and the reference area) is a key parameter in survey planning, and is related to the precision of the measurements. Statistical simulations show that underestimating the value of σ (the standard deviation of the survey unit measurements) can greatly increase the probability that a survey unit will fail to demonstrate compliance with the release criterion.

If a survey unit fails to demonstrate compliance and the actual σ is greater than the σ used during survey planning, there are several options available to the project manager. If the major component of variability is measurement uncertainty, a new survey can be designed using a measurement technique with higher precision or a lower MDC to reduce variability. If samples were collected as part of the survey design, it may only be necessary to reanalyze the samples using a method with higher precision rather than collect additional samples. Alternatively, the number of measurements can be increased to reduce the variability.

If the variability is due to actual variations in the contaminant concentration, there are still options available. If there is a high variability in the reference area, it may be appropriate to demonstrate the survey unit is indistinguishable from background. NUREG 1505 (NRC 1997b) provides guidance on determining whether this test is appropriate and performing the statistical tests. If the variability is caused by different contaminant distributions in different parts of the site (*i.e.*, changing soil types influences contaminant concentrations), it may be appropriate to redefine the survey unit boundaries to provide a more homogeneous set of survey units.

N.6.10 Lower Bound of the Gray Region

The lower bound of the gray region (LBGR) is used to calculate the relative shift, which in turn is used to estimate the number of measurements required to demonstrate compliance. The LBGR is initially set arbitrarily to one half the $DCGL_W$. If this initial selection is used to design the survey, there is no technical basis for the selection of this value. This becomes important because the Type II decision error rate (β) is calculated at the LBGR.

For survey units that pass the statistical tests, the value selected for the LBGR is generally not a concern. If the survey unit fails to demonstrate compliance, it may be caused by improper selection of the LBGR. Because the number of measurements estimated during survey planning is based on the relative shift (which includes both σ and the LBGR), MARSSIM recommends that a power curve be constructed as described in Appendix I. If the survey unit failed to demonstrate compliance because of a lack of statistical power, an adjustment of the LBGR may be necessary when planning subsequent surveys.

GLOSSARY

91b material: Any material identified under Section 91b of the Atomic Energy Act of 1954 (42 U.S.C. Section 2121).

A_{min}: The smallest *area of elevated activity* identified using the DQO Process that is important to identify.

action level: The numerical value that will cause the *decision maker* to choose one of the alternative actions. It may be a regulatory threshold standard (*e.g.*, Maximum Contaminant Level for drinking water), a dose- or risk-based concentration level (*e.g.*, *DCGL*), or a reference-based standard. See *investigation level*.

activity: See *radioactivity*.

ALARA (acronym for As Low As Reasonably Achievable): A basic concept of radiation protection which specifies that exposure to ionizing radiation and releases of radioactive materials should be managed to reduce collective doses as far below regulatory limits as is reasonably achievable considering economic, technological, and societal factors, among others. Reducing exposure at a site to *ALARA* strikes a balance between what is possible through additional planning and management, remediation, and the use of additional resources to achieve a lower collective dose level. A determination of *ALARA* is a site-specific analysis that is open to interpretation, because it depends on approaches or circumstances that may differ between regulatory agencies. An *ALARA* recommendation should not be interpreted as a set limit or level.

alpha (α): The specified maximum probability of a *Type I error*. In other words, the maximum probability of rejecting the *null hypothesis* when it is true. *Alpha* is also referred to as the *size of the test*. *Alpha* reflects the amount of evidence the *decision maker* would like to see before abandoning the *null hypothesis*.

alpha particle: A positively charged particle emitted by some radioactive materials undergoing *radioactive decay*.

alternative hypothesis (H_a): See *hypothesis*.

area: A general term referring to any portion of a *site*, up to and including the entire *site*.

area of elevated activity: An *area* over which *residual radioactivity* exceeds a specified value $DCGL_{EMC}$.

area factor (A_m): A factor used to adjust $DCGL_W$ to estimate $DCGL_{EMC}$ and the *minimum detectable concentration* for scanning surveys in *Class 1* survey units—$DCGL_{EMC} = DCGL_W \bullet A_m$. A_m is the magnitude by which the *residual radioactivity* in a small *area of elevated activity* can exceed the $DCGL_W$ while maintaining compliance with the *release criterion*. Examples of *area factors* are provided in Chapter 5 of this manual.

arithmetic mean: The average value obtained when the sum of individual values is divided by the number of values.

arithmetic standard deviation: A statistic used to quantify the variability of a set of data. It is calculated in the following manner: 1) subtracting the arithmetic mean from each data value individually, 2) squaring the differences, 3) summing the squares of the differences, 4) dividing the sum of the squared differences by the total number of data values less one, and 5) taking the square root of the quotient. The calculation process produces the Root Mean Square Deviation (RMSD).

assessment: The evaluation process used to measure the performance or effectiveness of a system and its elements. As used in MARSSIM, assessment is an all-inclusive term used to denote any of the following: audit, performance evaluation, management systems review, peer review, inspection, or surveillance.

attainment objectives: Objectives that specify the design and scope of the sampling study including the radionuclides to be tested, the cleanup standards to be attained, the measure or parameter to be compared to the cleanup standard, and the *Type I* and *Type II* error rates for the selected statistical tests.

audit (quality): A systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives.

background reference area: See *reference area*.

background radiation: Radiation from cosmic sources, *naturally occurring radioactive material*, including radon (except as a decay product of *source* or *special nuclear material*), and global fallout as it exists in the environment from the testing of nuclear explosive devices or from nuclear accidents like Chernobyl which contribute to *background radiation* and are not under the control of the cognizant organization. *Background radiation* does not include radiation from *source*, *byproduct*, or *special nuclear materials* regulated by the cognizant Federal or State agency. Different definitions may exist for this term. The definition provided in regulations or regulatory program being used for a site release should always be used if it differs from the definition provided here.

Becquerel (Bq): The International System (SI) unit of activity equal to one nuclear transformation (disintegration) per second. 1 *Bq* = 2.7×10^{-11} *Curies (Ci)* = 27.03 picocuries (pCi).

beta (β): The probability of a *Type II error, i.e.*, the probability of accepting the null hypothesis when it is false. The complement of *beta* (1-β) is referred to as the *power* of the test.

beta particle: An electron emitted from the nucleus during *radioactive decay*.

bias: The systematic or persistent distortion of a measurement process which causes errors in one direction (*i.e.*, the expected sample measurement is different from the sample's true value).

biased sample or measurement: See *judgement measurement*.

byproduct material: Any radioactive material (except *special nuclear material*) yielded in or made radioactive by exposure to the radiation incident to the process of producing or utilizing *special nuclear material*.

calibration: Comparison of a measurement standard, instrument, or item with a standard or instrument of higher accuracy to detect and quantify inaccuracies and to report or eliminate those inaccuracies by adjustments.

CDE (committed dose equivalent): The *dose equivalent* calculated to be received by a tissue or organ over a 50-year period after the intake into the body. It dose not include contributions from radiation sources external to the body. CDE is expressed in units of Sv or rem.

CEDE (committed effective dose equivalent): The sum of the committed *dose equivalent* to various tissues in the body, each multiplied by the appropriate weighting factor (W_t). CEDE is expressed in units of Sv or rem. See *TEDE*.

chain of custody: An unbroken trail of accountability that ensures the physical security of samples, data, and records.

characterization survey: A type of *survey* that includes facility or *site* sampling, monitoring, and analysis activities to determine the extent and nature of contamination. *Characterization surveys* provide the basis for acquiring necessary technical information to develop, analyze, and select appropriate *cleanup* techniques.

Class 1 area: An *area* that is projected to require a *Class 1 final status survey*.

Class 1 survey: A type of *final status survey* that applies to *areas* with the highest potential for contamination, and meet the following criteria: (1) *impacted*; (2) potential for delivering a dose above the *release criterion*; (3) potential for small *areas of elevated activity*; and (4) insufficient evidence to support reclassification as *Class 2* or *Class 3*.

Class 2 area: An *area* that is projected to require a *Class 2 final status survey*.

Class 2 survey: A type of *final status survey* that applies to *areas* that meet the following criteria: (1) *impacted*; (2) low potential for delivering a dose above the *release criterion*; and (3) little or no potential for small *areas of elevated activity.*

Class 3 area: An *area* that is projected to require a *Class 3 final status survey*.

Class 3 survey: A type of *final status survey* that applies to *areas* that meet the following criteria: (1) *impacted*; (2) little or no potential for delivering a dose above the *release criterion*; and (3) little or no potential for small *areas of elevated activity.*

classification: The act or result of separating *areas* or *survey units* into one of three designated classes: *Class 1 area, Class 2 area,* or *Class 3 area*.

cleanup: Actions taken to deal with a release or threatened release of hazardous substances that could affect public health or the environment. The term is often used broadly to describe various Superfund response actions or phases of remedial responses, such as remedial investigation/ feasibility study. Cleanup is sometimes used interchangeably with the terms *remedial action,* response action, or *corrective action.*

cleanup standard: A numerical limit set by a regulatory agency as a requirement for releasing a *site* after *cleanup*. See *release criterion.*

cleanup (survey) unit: A geographical *area* of specified size and shape defined for the purpose of survey design and compliance testing.

coefficient of variation: A unitless measure that allows the comparison of dispersion across several sets of data. It is often used in environmental applications because variability (expressed as a standard deviation) is often proportional to the mean. See *relative standard deviation.*

comparability: A measure of the confidence with which one data set can be compared to another.

completeness: A measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under correct, normal conditions.

composite sample: A sample formed by collecting several samples and combining them (or selected portions of them) into a new sample which is then thoroughly mixed.

conceptual site model: A description of a site and its environs and presentation of hypotheses regarding the contaminants present, their routes of migration, and their potential impact on sensitive receptors.

confidence interval: A range of values for which there is a specified probability (*e.g.*, 80%, 90%, 95%) that this set contains the true value of an estimated parameter.

confirmatory survey: A type of *survey* that includes limited independent (third-party) measurements, sampling, and analyses to verify the findings of a *final status survey*.

consensus standard: A standard established by a group representing a cross section of a particular industry or trade, or a part thereof.

contamination: The presence of *residual radioactivity* in excess of levels which are acceptable for release of a *site* or facility for *unrestricted use*.

control chart: A graphic representation of a process, showing plotted values of some statistic gathered from that characteristic, and one or two control limits. It has two basic uses: 1) as a judgement to determine if a process was in control, and 2) as an aid in achieving and maintaining statistical control.

core sample: A soil sample taken by core drilling.

corrective action: An action taken to eliminate the causes of an existing nonconformance, deficiency, or other undesirable situation in order to prevent recurrence.

criterion: See *release criterion*.

critical group: The group of individuals reasonably expected to receive the greatest exposure to *residual radioactivity* for any applicable set of circumstances.

critical level (L_c): A fixed value of the *test statistic* corresponding to a given probability level, as determined from the sampling distribution of the *test statistic*. L_c is the level at which there is a statistical probability (with a predetermined confidence) of correctly identifying a background value as "greater than background."

critical value: The value of a statistic (t) corresponding to a given significance level as determined from its sampling distribution; e.g., if Pr ($t > t_o$) = 0.05, t_o is the critical value of t at the 5 percent level.

curie (Ci): The customary unit of radioactivity. One *curie* (Ci) is equal to 37 billion disintegrations per second (3.7×10^{10} dps = 3.7×10^{10} *Bq*), which is approximately equal to the decay rate of one gram of ^{226}Ra. Fractions of a *curie, e.g.* picocurie (pCi) or 10^{-12} Ci and microcurie (μCi) or 10^{-6} Ci, are levels typically encountered in *decommissioning*.

cyclotron: A device used to impart high energy to charged particles, of atomic weight one or greater, which can be used to initiate nuclear transformations upon collision with a suitable target.

D: The true, but unknown, value of the difference between the mean concentration of *residual radioactivity* in the *survey unit* and the *reference area*.

DQA (Data Quality Assessment): The scientific and statistical evaluation of data to determine if the data are of the right type, quality, and quantity to support their intended use.

DQOs (Data Quality Objectives): Qualitative and quantitative statements derived from the DQO process that clarify study technical and quality objectives, define the appropriate type of data, and specify tolerable levels of potential decision errors that will be used as the basis for establishing the quality and quantity of data needed to support decisions.

Data Quality Objectives Process: A systematic strategic planning tool based on the scientific method that identifies and defines the type, quality, and quantity of data needed to satisfy a specified use. The key elements of the process include:

- concisely defining the problem
- identifying the decision to be made
- identifying the inputs to that decision
- defining the boundaries of the study
- developing the decision rule
- specifying tolerate limits on potential decision errors
- selecting the most resource efficient data collection design

DQOs are the qualitative and quantitative outputs from the DQO process. The DQO process was developed originally by the U.S. Environmental Protection Agency, but has been adapted for use by other organizations to meet their specific planning requirement. See also *graded approach*.

data quality indicators: Measurable attributes of the attainment of the necessary quality for a particular decision. *Data quality indicators* include *precision, bias, completeness, representativeness, reproducibility, comparability,* and statistical confidence.

data usability: The process of ensuring or determining whether the quality of the data produced meets the intended use of the data.

DCGL (derived concentration guideline level): A derived, radionuclide-specific activity concentration within a *survey unit* corresponding to the *release criterion*. The *DCGL* is based on the spatial distribution of the contaminant and hence is derived differently for the *nonparametric* statistical test ($DCGL_W$) and the *Elevated Measurement Comparison* ($DCGL_{EMC}$). *DCGLs* are derived from activity/dose relationships through various *exposure pathway* scenarios.

decay: See *radioactive decay*.

decision maker: The person, team, board, or committee responsible for the final decision regarding disposition of the *survey unit*.

decision rule: A statement that describes a logical basis for choosing among alternative actions.

decommission: To remove a facility or *site* safely from service and reduce *residual radioactivity* to a level that permits release of the property and termination of the *license* and other authorization for site operation.

decommissioning: The process of removing a facility or *site* from operation, followed by *decontamination*, and license termination (or termination of authorization for operation) if appropriate. The objective of *decommissioning* is to reduce the *residual radioactivity* in structures, materials, soils, groundwater, and other media at the *site* so that the concentration of each radionuclide contaminant that contributes to *residual radioactivity* is indistinguishable from the *background radiation* concentration for that radionuclide.

decontamination: The removal of radiological contaminants from, or their neutralization on, a person, object or area to within levels established by governing regulatory agencies. *Decontamination* is sometimes used interchangeably with *remediation*, remedial action, and *cleanup*.

delta (δ): The amount that the distribution of measurements for a *survey unit* is shifted to the right of the distribution of measurements of the *reference area*.

delta (Δ): The width of the *gray region*. **Δ** divided by σ, the *arithmetic standard deviation* of the measurements, is the *relative shift* expressed in multiples of standard deviations. See *relative shift, gray region*.

derived concentration guideline level: See *DCGL*.

design specification process: The process of determining the sampling and analysis procedures that are needed to demonstrate that the attainment objectives are achieved.

detection limit: The net response level that can be expected to be seen with a detector with a fixed level of certainty.

detection sensitivity: The minimum level of ability to identify the presence of radiation or *radioactivity*.

direct measurement: Radioactivity measurement obtained by placing the detector near the surface or media being surveyed. An indication of the resulting radioactivity level is read out directly.

distribution coefficient (K_d): The ratio of elemental (*i.e.*, radionuclide) concentration in soil to that in water in a soil-water system at equilibrium. K_d is generally measured in terms of gram weights of soil and volumes of water (g/cm^3 or g/ml).

dose commitment: The dose that an organ or tissue would receive during a specified period of time (*e.g.*, 50 or 70 years) as a result of intake (as by ingestion or inhalation) of one or more radionuclides from a given release.

dose equivalent (dose): A quantity that expresses all radiations on a common scale for calculating the effective absorbed dose. This quantity is the product of absorbed dose (rads) multiplied by a quality factor and any other modifying factors. Dose is measured in *Sv* or *rem*.

double-blind measurement: Measurements that cannot be distinguished from routine measurements by the individual performing the measurement. See *non-blind measurement* and *single-blind measurement*.

effective probe area: The *physical probe area* corrected for the amount of the probe area covered by a protective screen.

elevated area: See *area of elevated activity*.

elevated measurement: A measurement that exceeds a specified value $DCGL_{EMC}$.

Elevated Measurement Comparison (EMC): This comparison is used in conjunction with the Wilcoxon test to determine if there are any measurements that exceed a specified value $DCGL_{EMC}$.

exposure pathway: The route by which radioactivity travels through the environment to eventually cause radiation exposure to a person or group.

exposure rate: The amount of ionization produced per unit time in air by X-rays or gamma rays. The unit of exposure rate is Roentgens/hour (R/h); for decommissioning activities the typical units are microRoentgens per hour (µR/h), *i.e.*, 10^{-6} R/h.

external radiation: Radiation from a source outside the body.

false negative decision error: The error that occurs when the null hypothesis (H_0) is not rejected when it is false. For example, the false negative decision error occurs when the decision maker concludes that the waste is hazardous when it truly is not hazardous. A statistician usually refers to a false negative error as a *Type II decision error*. The measure of the size of this error is called *beta*, and is also known as the complement of the power of a hypothesis test.

false positive decision error: A false positive decision error occurs when the null hypothesis (H_0) is rejected when it is true. Consider an example where the decision maker presumes that a certain waste is hazardous (*i.e.*, the null hypothesis or baseline condition is "the waste is hazardous"). If the decision maker concludes that there is insufficient evidence to classify the waste as hazardous when it truly is hazardous, the decision maker would make a false positive decision error. A statistician usually refers to the false positive error as a *Type I decision error*. The measure of the size of this error is called *alpha*, the level of significance, or the size of the critical region.

Field Sampling Plan: As defined for Superfund in the Code of Federal Regulations 40 CFR 300.430, a document which describes the number, type, and location of samples and the type of analyses to be performed. It is part of the *Sampling and Analysis Plan*.

final status survey: Measurements and sampling to describe the radiological conditions of a site, following completion of decontamination activities (if any) in preparation for release.

fluence rate: A fundamental parameter for assessing the level of radiation at a measurement site. In the case of *in situ* spectrometric measurements, a calibrated detector provides a measure of the *fluence rate* of primary photons at specific energies that are characteristic of a particular radionuclide.

gamma (γ) radiation: Penetrating high-energy, short-wavelength electromagnetic radiation (similar to X-rays) emitted during *radioactive decay*. Gamma rays are very penetrating and require dense materials (such as lead or steel) for shielding.

graded approach: The process of basing the level of application of managerial controls applied to an item or work according to the intended use of the results and the degree of confidence needed in the quality of the results. See *data quality objectives process*.

gray region: A range of values of the parameter of interest for a *survey unit* where the consequences of making a decision error are relatively minor. The upper bound of the gray region in MARSSIM is set equal to the $DCGL_W$, and the *lower bound of the gray region (LBGR)* is a site-specific variable.

grid: A network of parallel horizontal and vertical lines forming squares on a map that may be overlaid on a property parcel for the purpose of identification of exact locations. See *reference coordinate system*.

grid block: A square defined by two adjacent vertical and two adjacent horizontal reference grid lines.

half-life ($t_{1/2}$): The time required for one-half of the atoms of a particular radionuclide present to disintegrate.

Historical Site Assessment (HSA): A detailed investigation to collect existing information, primarily historical, on a *site* and its surroundings.

hot measurement: See *elevated measurement*.

hot spot: See *area of elevated activity*.

hypothesis: An assumption about a property or characteristic of a set of data under study. The goal of statistical inference is to decide which of two complementary hypotheses is likely to be true. The *null hypothesis* (H_0) describes what is assumed to be the true state of nature and the *alternative hypothesis* (H_a) describes the opposite situation.

impacted area: Any *area* that is not *classified* as *non-impacted*. Areas with a reasonable possibility of containing *residual radioactivity* in excess of natural background or fallout levels.

independent assessment: An assessment performed by a qualified individual, group, or organization that is not part of the organization directly performing and accountable for the work being assessed.

indistinguishable from background: The term indistinguishable from background means that the detectable concentration distribution of a radionuclide is not statistically different from the background concentration distribution of that radionuclide in the vicinity of the site or, in the case of structures, in similar materials using adequate measurement technology, survey, and statistical techniques.

infiltration rate: The rate at which a quantity of a hazardous substance moves from one environmental medium to another—*e.g.*, the rate at which a quantity of a radionuclide moves from a source into and through a volume of soil or solution.

inspection: An activity such as measuring, examining, testing, or gauging one or more characteristics of an entity and comparing the results with specified requirements in order to establish whether conformance is achieved for each characteristic.

inventory: Total residual quantity of formerly licensed radioactive material at a site.

investigation level: A derived media-specific, radionuclide-specific concentration or activity level of radioactivity that: 1) is based on the release criterion, and 2) triggers a response, such as further investigation or cleanup, if exceeded. See *action level*.

isopleth: A line drawn through points on a graph or plot at which a given quantity has the same numerical value or occurs with the same frequency.

judgment measurement: Measurements performed at locations selected using professional judgment based on unusual appearance, location relative to known contaminated areas, high potential for residual radioactivity, general supplemental information, *etc*. Judgment measurements are not included in the statistical evaluation of the survey unit data because they violate the assumption of randomly selected, independent measurements. Instead, judgment measurements are individually compared to the $DCGL_W$.

karst terrain: A kind of terrain with characteristics of relief and drainage arising from a high degree of rock solubility. The majority of karst conditions occur in limestone areas, but karst may also occur in areas of dolomite, gypsum, or salt deposits. Features associated with karst terrain may include irregular topography, abrupt ridges, sink holes, caverns, abundant springs, and disappearing streams. Well developed or well integrated drainage systems of streams and tributaries are generally not present.

klystron: An electron tube used in television, *etc*., for converting a stream of electrons into ultra high-frequency waves that are transmitted as a pencil-like radio beam.

less-than data: Measurements that are less than the *minimum detectable concentration*.

license: A license issued under the regulations in parts 30 through 35, 39, 40, 60, 61, 70 or part 72 of 10 CFR Chapter I.

licensee: The holder of a *license*.

license termination: Discontinuation of a *license*, the eventual conclusion to *decommissioning*.

lower bound of the gray region (LBGR): The minimum value of the gray region. The width of the *gray region* (*DCGL-LBGR*) is also referred to as the shift, Δ.

lower limit of detection (L_D): The smallest amount of radiation or radioactivity that statistically yields a net result above the method background. The critical detection level, L_C, is the lower bound of the 95% detection interval defined for L_D and is the level at which there is a 5% chance of calling a background value "greater than background." This value should be used when actually counting samples or making direct radiation measurements. Any response above this level should be considered as above background; *i.e.*, a net positive result. This will ensure 95% detection capability for L_D. A 95% confidence interval should be calculated for all responses greater than L_C.

m: The number of measurements from the reference area used to conduct a statistical test.

magnetron: A vacuum tube in which the flow of ions from the heated cathode to the anode is controlled by a magnetic field externally applied and perpendicular to the electric field by which they are propelled. Magnetrons are used to produce very short radio waves.

measurement: For the purpose of MARSSIM, it is used interchangeably to mean: 1) the act of using a detector to determine the level or quantity of radioactivity on a surface or in a sample of material removed from a media being evaluated, or 2) the quantity obtained by the act of measuring.

micrometeorology: The study of weather conditions in a local or very small area, such as immediately around a tree or building, that can affect meteorological conditions.

minimum detectable concentration (MDC): The minimum detectable concentration (MDC) is the *a priori* activity level that a specific instrument and technique can be expected to detect 95% of the time. When stating the detection capability of an instrument, this value should be used. The *MDC* is the detection limit, L_D, multiplied by an appropriate conversion factor to give units of activity.

minimum detectable count rate (MDCR): The minimum detectable count rate (MDCR) is the *a priori* count rate that a specific instrument and technique can be expected to detect.

missing or unusable data: Data (measurements) that are mislabeled, lost, or do not meet quality control standards. *Less-than data* are not considered to be missing or unusable data. See *R*.

munitions: Military supplies, especially weapons and ammunition.

N: $N = m + n$, is the total number of measurements required from the reference area and a *survey unit*. See *m* and *n*.

n: Number of measurements from a survey unit used to conduct a statistical test.

n_f: The number of samples that should be collected in an *area* to assure that the required number of measurements from that area for conducting statistical tests is obtained. $n_f = n/(1-R)$.

NARM: Naturally occurring or accelerator-produced radioactive material, such as radium, and not classified as *source material*.

naturally occurring radionuclides: Radionuclides and their associated progeny produced during the formation of the earth or by interactions of terrestrial matter with cosmic rays.

non-blind measurement: Non-blind measurements are measurements that have a concentration and origin that are known to the individual performing the measurement. See *single-blind measurement* and *double-blind measurement*.

nonconformance: A deficiency in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable or indeterminate; nonfulfillment of a specified requirements.

non-impacted area: Areas where there is no reasonable possibility (extremely low probability) of residual contamination. Non-impacted areas are typically located off-site and may be used as background *reference areas*.

nonparametric test: A test based on relatively few assumptions about the exact form of the underlying probability distributions of the measurements. As a consequence, nonparametric tests are generally valid for a fairly broad class of distributions. The *Wilcoxon Rank Sum test* and the *Sign test* are examples of nonparametric tests.

normal (gaussian) distribution: A family of bell shaped distributions described by the mean and variance.

organization: a company, corporation, firm, government unit, enterprise, facility, or institution, or part thereof, whether incorporated or not, public or private, that has its own functions and administration.

outlier: Measurements that are unusually large or small relative to the rest and therefore are suspected of misrepresenting the population from which they were collected.

p: The probability that a random measurement from the *survey unit* is less than Δ.

p′: The probability that the sum of two independent random measurements from the *survey unit* is less than 2Δ.

P_r: The probability that a measurement performed at a random location in the *survey unit* is greater than a measurement performed at a random location in the *reference area*.

peer review: A documented critical review of work generally beyond the state of the art or characterized by the existence of potential uncertainty. The peer review is conducted by qualified individuals (or organization) who are independent of those who performed the work, but are collectively equivalent in technical expertise (*i.e.*, peers) to those who performed the original work. The peer review is conducted to ensure that activities are technically adequate, competently performed, properly documented, and satisfy established technical and quality requirements. The peer review is an in-depth assessment of the assumptions, calculations, extrapolations, alternate interpretations, methodology, acceptance criteria, and conclusions pertaining to specific work and of the documentation that supports them. Peer reviews provide an evaluation of a subject where quantitative methods of analysis or measures of success are unavailable or undefined, such as in research and development.

performance evaluation: A type of audit in which the quantitative data generated in a measurement system are obtained independently and compared with routinely obtained data to evaluate the proficiency of an analyst or laboratory.

physical probe area: The physical surface area assessed by a detector. The physical probe area is used to make probe area corrections in the activity calculations.

Pitman efficiency: A measure of performance for statistical tests. It is equal to the reciprocal of the ratio of the sample sizes required by each of two tests to achieve the same power, as these sample sizes become large.

power (1-β): The probability of rejecting the *null hypothesis* when it is false. The power is equal to one minus the *Type II* error rate, *i.e.* (1-β).

precision: A measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions, expressed generally in terms of the *standard deviation*.

process: A combination of people, machine and equipment, methods, and the environment in which they operate to produce a given product or service.

professional judgement: An expression of opinion, based on technical knowledge and professional experience, assumptions, algorithms, and definitions, as stated by an expert in response to technical problems.

qualified data: Any data that have been modified or adjusted as part of statistical or mathematical evaluation, data *validation*, or data *verification* operations.

quality: The totality of features and characteristics of a product or service that bear on its ability to meet the stated or implied needs and expectations of the user.

quality assurance (QA): An integrated system of management activities involving planning, implementation, assessment, reporting, and quality improvement to ensure that a process, item, or service is of the type and quality needed and expected by the customer.

Quality Assurance Project Plan (QAPP): A formal document describing in comprehensive detail the necessary *QA*, *QC*, and other technical activities that must be implemented to ensure that the results of the work performed will satisfy the stated performance criteria. As defined for Superfund in the Code of Federal Regulations 40 CFR 300.430, the Quality Assurance Project Plan describes policy, organization, and functional activities and the Data Quality Objectives and measures necessary to achieve adequate data for use in selecting the appropriate remedy. The

QAPP is a plan that provides a process for obtaining data of sufficient quality and quantity to satisfy data needs. It is a part of the *Sampling and Analysis Plan*.

quality control (QC): The overall system of technical activities that measure the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated requirements established by the customer, operational techniques and activities that are used to fulfill requirements for *quality*.

quality indicators: Measurable attributes of the attainment of the necessary quality for a particular environmental decision. Indicators of quality include precision, bias, completeness, representativeness, reproducibility, comparability, and statistical confidence.

Quality Management Plan (QMP): A formal document that describes the quality system in terms of the organizational structure, functional responsibilities of management and staff, lines of authority, and required interfaces for those planning, implementing, and assessing all activities conducted.

quality system: A structured and documented management system describing the policies, objectives, principles, organizational authority, responsibilities, accountability, and implementation plan of an organization for ensuring quality in its work processes, products (items), and services. The quality system provides the framework for planning, implementing, and assessing work performed by the organization and for carrying out required QA and QC.

R: The rate of missing or unusable measurements expected to occur for samples collected in *reference areas* or *survey units*. See *missing or unusable data*. See n_f. (Not to be confused with the symbol for the radiation exposure unit Roentgen.)

R_A: The acceptable level of risk associated with not detecting an *area of elevated activity* of area A_{min}.

radiation survey: Measurements of radiation levels associated with a *site* together with appropriate documentation and data evaluation.

radioactive decay: The spontaneous transformation of an unstable atom into one or more different nuclides accompanied by either the emission of energy and/or particles from the nucleus, nuclear capture or ejection of orbital electrons, or fission. Unstable atoms decay into a more stable state, eventually reaching a form that does not decay further or has a very long *half-life*.

radioactivity: The mean number of nuclear transformations occurring in a given quantity of radioactive material per unit time. The International System (SI) unit of radioactivity is the *Becquerel (Bq)*. The customary unit is the *Curie (Ci)*.

radiological survey: Measurements of radiation levels and radioactivity associated with a *site* together with appropriate documentation and data evaluation.

radioluminescence: Light produced by the absorption of energy from ionizing radiation.

radionuclide: An unstable nuclide that undergoes *radioactive decay*.

random error: The deviation of an observed value from the true value is called the error of observation. If the error of observation behaves like a random variable (*i.e.*, its value occurs as though chosen at random from a probability distribution of such errors) it is called a *random error*. See *systematic error*.

readily removable: A qualitative statement of the extent to which a radionuclide can be removed from a surface or medium using non-destructive, common, housekeeping techniques (*e.g.*, washing with moderate amounts of detergent and water) that do not generate large volumes of radioactive waste requiring subsequent disposal or produce chemical wastes that are expected to adversely affect public health or the environment.

reference area: Geographical *area* from which representative reference measurements are performed for comparison with measurements performed in specific *survey units* at remediation site. A site radiological *reference area* (background area) is defined as an area that has similar physical, chemical, radiological, and biological characteristics as the site area being remediated, but which has not been contaminated by site activities. The distribution and concentration of *background radiation* in the *reference area* should be the same as that which would be expected on the *site* if that *site* had never been contaminated. More than one *reference area* may be necessary for valid comparisons if a *site* exhibits considerable physical, chemical, radiological, or biological variability.

reference coordinate system: A *grid* of intersecting lines referenced to a fixed site location or benchmark. Typically the lines are arranged in a perpendicular pattern dividing the survey location into squares or blocks of equal areas. Other patterns include three-dimensional and polar coordinate systems.

reference region: The geographical region from which *reference areas* will be selected for comparison with *survey units*.

regulation: A rule, law, order, or direction from federal or state governments regulating action or conduct. Regulations concerning radioisotopes in the environment in the United States are shared by the Environmental Protection Agency (EPA), the U.S. Nuclear Regulatory Commission (NRC), the U.S. Department of Energy (DOE), and many State governments. Federal regulations and certain directives issued by the U.S. Department of Defense(DOD) are enforced within the DOD.

relative shift (Δ/σ): Δ divided by σ, the *standard deviation* of the measurements. See *delta*.

relative standard deviation: See *coefficient of variation*.

release criterion: A regulatory limit expressed in terms of dose or risk.

rem (radiation equivalent man): The conventional unit of *dose equivalent*. The corresponding International System (SI) unit is the *Sievert (Sv)*: 1 Sv = 100 rem.

remedial action: Those actions that are consistent with a permanent remedy taken instead of, or in addition to, removal action in the event of a release or threatened release of a hazardous substance into the environment, to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment. See *remedy*.

remediation: Cleanup or other methods used to remove or contain a toxic spill or hazardous materials from a Superfund site.

remediation control survey: A type of survey that includes monitoring the progress of remedial action by real time measurement of areas being decontaminated to determine whether or not efforts are effective and to guide further *decontamination* activities.

remedy: See *remedial action*.

removable activity: Surface activity that is *readily removable* by wiping the surface with moderate pressure and can be assessed with standard radiation detectors. It is usually expressed in units of dpm/100 cm^2.

removal: The cleanup or removal of released hazardous substances, or pollutants or contaminants which may present an imminent and substantial danger; such actions as may be necessary taken in the event of the threat of release of hazardous substances into the environment; such actions as may be necessary to monitor, assess, and evaluate the threat of release of hazardous substances; the removal and disposal of material, or the taking of other such actions as may be necessary to prevent, minimize or mitigate damage to the public health or welfare or the environment.

replicate: A repeated analysis of the same sample or repeated measurement at the same location.

representative measurement: A measurement that is selected using a procedure in such a way that it, in combination with other representative measurements, will give an accurate representation of the phenomenon being studied.

representativeness: A measure of the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition.

reproducibility: The precision, usually expressed as a standard deviation, that measures the variability among the results of measurement of the same sample at different laboratories.

residual radioactivity: Radioactivity in structures, materials, soils, groundwater, and other media at a site resulting from activities under the cognizant organization's control. This includes radioactivity from all sources used by the cognizant organization, but excludes background radioactivity as specified by the applicable regulation or standard. It also includes radioactive materials remaining at the site as a result of routine or accidental releases of radioactive material at the site and previous burials at the site, even if those burials were made in accordance with the provisions of 10 CFR Part 20.

restoration: Actions to return a remediated area to a usable state following decontamination.

restricted use: A designation following *remediation* requiring radiological controls.

robust: A statistical test or method that is approximately valid under a wide range of conditions.

run chart: A chart used to visually represent data. Run charts are used to monitor a process to see whether or not the long range average is changing. Run charts are points plotted on a graph in the order in which they become available, such as parameters plotted versus time.

s: The *arithmetic standard deviation* of the mean.

S+: The *test statistic* used for the *Sign test*.

sample: (As used in MARSSIM) A part or selection from a medium located in a *survey unit* or *reference area* that represents the quality or quantity of a given parameter or nature of the whole area or unit; a portion serving as a specimen.

sample: (As used in statistics) A set of individual samples or measurements drawn from a population whose properties are studied to gain information about the entire population.

Sampling and Analysis Plan (SAP): As defined for Superfund in the Code of Federal Regulations 40 CFR 300.430, a plan that provide a process for obtaining data of sufficient quality and quantity to satisfy data needs. The sampling and analysis plans consists of two parts: 1) the *Field Sampling Plan*, which describes the number, type, and location of samples and the type of analyses; and 2) the *Quality Assurance Project Plan*, which describes policy, organization, functional activities, the Data Quality Objectives, and measures necessary to achieve adequate data for use in selecting the appropriate remedy.

scanning: An evaluation technique performed by moving a detection device over a surface at a specified speed and distance above the surface to detect radiation.

scoping survey: A type of *survey* that is conducted to identify: 1) radionuclide contaminants, 2) relative radionuclide ratios, and 3) general levels and extent of contamination.

self-assessment: Assessments of work conducted by individuals, groups, or organizations directly responsible for overseeing and/or performing the work.

shape parameter (S): For an elliptical area of elevated activity, the ratio of the semi-minor axis length to the semi-major axis length. For a circle, the shape parameter is one. A small shape parameter corresponds to a flat ellipse.

shift: See *delta (Δ)*.

Sievert (Sv): The special name for the International System (SI) unit of *dose equivalent*. 1 Sv = 100 *rem* = 1 Joule per kilogram.

Sign test: A *nonparametric* statistical test used to demonstrate compliance with the release criterion when the radionuclide of interest is not present in background and the distribution of data is not symmetric. See also *Wilcoxon Rank Sum test*.

single-blind measurement: A measurement that can be distinguished from routine measurements but are of unknown concentration. See *non-blind measurement* and *double-blind measurement*.

site: Any installation, facility, or discrete, physically separate parcel of land, or any building or structure or portion thereof, that is being considered for survey and investigation.

site reconnaissance: A visit to the *site* to gather sufficient information to support a site decision regarding the need for further action, or to verify existing site data. Site reconnaissance is not a study of the full extent of contamination at a facility or site, or a risk assessment.

size (of a test): See *alpha*.

soil: The top layer of the earth's surface, consisting of rock and mineral particles mixed with organic matter. A particular kind of earth or ground—*e.g.*, sandy soil.

soil activity (soil concentration): The level of radioactivity present in soil and expressed in units of activity per soil mass (typically Bq/kg or pCi/g).

source material: Uranium and/or Thorium other than that classified as *special nuclear material*.

source term: All residual radioactivity remaining at the *site*, including material released during normal operations, inadvertent releases, or accidents, and that which may have been buried at the site in accordance with 10 CFR Part 20.

special nuclear material: Plutonium, ^{233}U, and Uranium enriched in ^{235}U; material capable of undergoing a fission reaction.

split: A sample that has been homogenized and divided into two or more aliquots for subsequent analysis.

standard normal distribution: A *normal (Gaussian) distribution* with mean zero and variance one.

standard operating procedure (SOP): A written document that details the method for an operation, analysis, or action with thoroughly prescribed techniques and steps, and that is officially approved as the method for performing certain routine or repetitive tasks.

statistical control: The condition describing a process from which all special causes have been removed, evidenced on control chart by the absence of points beyond the control limits and by the absence of non-random patterns or trends within the control limits. A special cause is a source of variation that is intermittent, unpredictable, or unstable.

stratification: The act or result of separating an area into two or more sub-areas so as each sub-area has relatively homogeneous characteristics such as contamination level, topology, surface soil type, vegetation cover, *etc*.

subsurface soil sample: A soil sample that reflects the modeling assumptions used to develop the *DCGL* for subsurface soil activity. An example would be soil taken deeper than 15 cm below the soil surface to support surveys performed to demonstrate compliance with 40 CFR 192.

surface contamination: *Residual radioactivity* found on building or equipment surfaces and expressed in units of activity per surface area (Bq/m^2 or $dpm/100\ cm^2$).

surface soil sample: A soil sample that reflects the modeling assumptions used to develop the *DCGL* for surface soil activity. An example would be soil taken from the first 15 cm of surface soil to support surveys performed to demonstrate compliance with 40 CFR 192.

surveillance (quality): Continual or frequent monitoring and verification of the status of an entity and the analysis of records to ensure that specified requirements are being fulfilled.

survey: A systematic evaluation and documentation of radiological measurements with a correctly calibrated instrument or instruments that meet the sensitivity required by the objective of the evaluation.

survey plan: A plan for determining the radiological characteristics of a *site*.

survey unit: A geographical area consisting of structures or land areas of specified size and shape at a remediated site for which a separate decision will be made whether the unit attains the site-specific reference-based cleanup standard for the designated pollution parameter. *Survey units* are generally formed by grouping contiguous site areas with a similar use history and the same classification of contamination potential. Survey units are established to facilitate the survey process and the statistical analysis of survey data.

systematic error: An error of observation based on system faults which are biased in one or more ways, *e.g.*, tending to be on one side of the true value more than the other.

T+: The *test statistic* for the *Wilcoxon Signed Rank test*.

tandem testing: Two or more statistical tests conducted using the same data set.

technical review: A documented critical review of work that has been performed within the state of the art. The review is accomplished by one or more qualified reviewers who are independent of those who performed the work, but are collectively equivalent in technical expertise to those who performed the original work. The review is an in-depth analysis and evaluation of documents, activities, material, data, or items that require technical verification or validation for applicability, correctness, adequacy, completeness, and assurance that established requirements are satisfied.

technical systems audit (TSA): A thorough, systematic, on-site, qualitative audit of facilities, equipment, personnel, training, procedures, recordkeeping, data validation, data management, and reporting aspects of a system.

TEDE (total effective dose equivalent): The sum of the effective dose equivalent (for external exposure) and the committed effective dose equivalent (for internal exposure). TEDE is expressed in units of Sv or rem. See *CEDE*.

test statistic: A function of the measurements (or their ranks) that has a known distribution if the *null hypothesis* is true. This is compared to the *critical level* to determine if the *null hypothesis* should be accepted or rejected. See $S+$, $T+$, and W_r.

tied measurements: Two or more measurements that have the same value.

traceability: The ability to trace the history, application, or location of an entity by means of recorded identifications. In a calibration sense, traceability relates measuring equipment to national or international standards, primary standards, basic physical constants or properties, or reference materials. In a data collection sense, it relates calculations and data generated throughput the project back to the requirements for quality for the project.

triangular sampling grid: A grid of sampling locations that is arranged in a triangular pattern. See *grid*.

two-sample t test: A parametric statistical test used in place of the *Wilcoxon Rank Sum (WRS) test* if the *reference area* and *survey unit* measurements are known to be *normally (Gaussian) distributed* and there are no *less-than measurements* in either data set.

Type I decision error: A decision error that occurs when the *null hypothesis* is rejected when it is true. The probability of making a *Type I decision error* is called *alpha* (α).

Type II decision error: A decision error that occurs when the *null hypothesis* is accepted when it is false. The probability of making a *Type II decision error* is called *beta* (β).

unity rule (mixture rule): A rule applied when more than one radionuclide is present at a concentration that is distinguishable from background and where a single concentration comparison does not apply. In this case, the mixture of radionuclides is compared against default concentrations by applying the unity rule. This is accomplished by determining: 1) the ratio between the concentration of each radionuclide in the mixture, and 2) the concentration for that radionuclide in an appropriate listing of default values. The sum of the ratios for all radionuclides in the mixture should not exceed 1.

unrestricted area: Any *area* where access is not controlled by a *licensee* for purposes of protection of individuals from exposure to radiation and radioactive materials—including areas used for residential purposes.

unrestricted release: Release of a *site* from regulatory control without requirements for future radiological restrictions. Also known as unrestricted use.

validation: Confirmation by examination and provision of objective evidence that the particular requirements for a specific intended use are fulfilled. In design and development, validation concerns the process of examining a product or result to determine conformance to user needs.

verification: Confirmation by examination and provision of objective evidence that the specified requirements have been fulfilled. In design and development, verification concerns the process of examining a result of given activity to determine conformance to the stated requirements for that activity.

W_r: The sum of the ranks of the adjusted measurements from the reference area, used as the *test statistic* for the *Wilcoxon Rank Sum test*.

W_s: The sum of the ranks of the measurements from the survey unit, used with the *Wilcoxon Rank Sum test*.

weighting factor (W_t): The fraction of the overall health risk, resulting from uniform, whole-body radiation, attributable to specific tissue. The dose equivalent to tissue is multiplied by the appropriate weighting factor to obtain the effective dose equivalent to the tissue.

Wilcoxon Rank Sum (WRS) test: A *nonparametric* statistical test used to determine compliance with the *release criterion* when the radionuclide of concern is present in background. See also *Sign test*.

working level: A special unit of radon exposure defined as any combination of short-lived radon daughters in 1 liter of air that will result in the ultimate emission of 1.3×10^5 MeV of potential alpha energy. This value is approximately equal to the alpha energy released from the decay of progeny in equilibrium with 100 pCi of ^{222}Ra.

$Z_{1-\varphi}$: The value from the standard normal distribution that cuts off 100 φ % of the upper tail of the standard normal distribution. See *standard normal distribution.*

INDEX

α
see Type I decision error
β
see Type II decision error
91b material 3-5
A_{min}
area of elevated activity D-23
action level 2-14, 27; 4-34, 35; 7-3; D-6, 8, 9, 15, 16
activity 2-3; 3-11
activity concentration 4-1, 6
distribution 2-29, 30; 6-33, 34
ratios 4-4, 5
gross activity 4-8
units of activity 2-14; 4-1
see elevated activity
air 3-19; 5-10, 14, 18; 6-11, 13, 55 to 60; 7-13, 16, 27; App. M
ALARA 2-5; 5-52; 8-21, 27; C-8 to 10
alpha (α) radiation 4-6, 7; 7-15
analysis 7-22
detection sensitivity
direct measurement 6-32 to 37
scanning 2-14; 5-48; 6-47 to 49
detectors 6-15 to 17, 20
attenuation 4-23, 25
measurement 5-12, 13; 6-13, 14
radon 6-55 to 59
alternative hypothesis 2-39; 5-25; 8-11, 17
area
evaluation & HSA 3-11
classification 2-4, 5, 17, 28; 4-11
contaminated 2-3
land 4-26
reference coordinate system 4-27
scanning 2-31; 5-46 to 48
site 4-17
site diagram 3-21
structures 4-23, 25
survey unit 2-4; 4-15
area of elevated activity 2-3, 4, 27, 28, 30; 5-35 to 39; 6-42 to 45; 8-22, 23, 27
demonstrating compliance 2-27
determining data points 5-35
flagging 5-44
investigation level 5-44 to 46
final status survey design 2-29, 32; 5-46 to 52
area factor 2-27; 5-36 to 39; 8-16, 22, 24
arithmetic mean
see mean
arithmetic standard deviation
see standard deviation
background (radiation)
activity 5-10, 11
decommissioning 4-13
detection sensitivity 6-37, 39 to 49
ground water 5-13
indistinguishable from 2-39
samples 5-10, 11; 7-2, 5
statistical tests 2-26; 4-9; 5-28
see background reference area
background reference area 2-6, 28; 4-13 to 16; 7-5; 8-3 to 11, 17 to 21; A-5
background radiation 4-13
data points 5-25 to 31
P_r 5-27
relative shift
WRS test 5-26
survey 5-1, 2, 10
Becquerel (Bq)
see conversion table
beta (β) radiation 4-6
analysis 7-21, 22
detection sensitivity
direct measurement 6-32 to 37
scanning 2-14; 5-48; 6-37 to 47
detectors 6-15 to 17, 21
attenuation 4-23, 25
measurement 5-12, 13
radon 6-55, 58, 59
bias 2-11; 4-32 to 38
field measurements 6-4 to 6
laboratory measurements 7-4, 5

biased sample measurement
see judgement measurement
byproduct material C-15, 16
byproducts 3-5
calibration 4-17; 6-20 to 28; 7-4, 13; 9-5, 6
CEDE (committed effective dose equivalent) 2-2
CERCLA 2-22, 39; 3-1, 2; 5-1, 7
compared to MARSSIM App. F
Chain of Custody 5-3, 17; 7-23 to 25; 9-8
characterization survey 2-15, 16, 22, 23; 3-24; 4-21; 5-7 to 17; A-17
checklist 5-16, 17
DCGLs 4-4
checklist(s)
see survey checklist
Class 1 area 2-5; 4-11; 5-48; 8-24, 25
investigation level 5-45
scanning 2-32; 5-46
Class 2 area 2-5; 4-12; 5-49; 8-24
investigation level 5-45
scanning 2-32; 5-47
Class 3 area 2-5; 4-12; 5-49
investigation level 5-45
scanning 2-33; 5-48
classification 2-4, 10, 17, 28; 3-1, 12, 22; 4-11; 5-46 to 51; 7-7; 8-1, 2, 15, 16, 22, 24, 27; A-5; N-16
areas 2-5
HSA/scoping 2-23
see Class 1, 2, and 3 area
cleanup 1-1, 4; 5-18, 19
regulations 1-3
release criterion 2-2
cleanup standard 2-2
cleanup (survey) unit
see survey unit
coefficient of variation 5-26
comparability 2-11; 6-6; 7-6, 12; N-12 to 15
completeness 2-11; 6-6, 7; 7-6, 7; N-14 to 16
computer code
DEFT D-20, 21
ELIPGRID D-23
RESRAD 5-36
RESRAD-BUILD 5-36
conceptual site model 3-21, 22; 4-21; 5-8, 47; 7-11, 13, 15; A-10
confidence interval 6-53 to 55
alternate null hypothesis 2-36
confirmatory survey
survey design 5-21
see final status survey
contamination 1-1, 2, 3, 6
characterization survey 5-7 to 15
classification 2-4, 5, 28; 3-3; 4-11
DCGLs 2-2, 3; 4-3
decommissioning criteria 5-25
field measurements 6-5, 6
final status survey 5-25 to 52
HSA 2-22
historical data 3-7, 10
reconnaissance 3-9
identifying 3-11
in soil 3-13, 14
in water 3-15, 17
in structures 3-20
in air 3-19
remedial action 2-23; 5-18, 19
sampling 7-11 to 16; App. M
surrogate measurements 4-4
see area of elevated activity
see impacted area
control chart 4-33, 37; 6-5, 7, 8
corrective action 2-23; 6-28; 7-11; 9-8, 9
bias N-10
comparability N-15
completeness N-16
precision N-9
representativeness N-13

criterion
- alternate hypothesis 2-39
- compliance 2-25
- DCGLs 4-3
- FSS 2-24
- measurement 6-1
- QC 4-32 to 38
- release criterion 1-1 to 3; 3-24
- statistical tests 2-22, 34
- null hypothesis 2-9

critical level (L_c) 6-32 to 37

critical value 8-12, 13, 15, 18, 21; A-18; D-16, 17

curie (Ci)
- *see conversion table*

data
- conversion 6-28 to 31
- data interpretation checklist 8-27
- distribution 8-4, 5
- number of points needed 2-10
  - EMC 5-35 to 39
  - Sign test 5-31 to 35
  - WRS test 5-25 to 31
- preliminary review (DQA) E-3
- review N-5
- skewness 8-5
- spatial dependency 8-4
- *see mean, median, standard deviation*
- *see posting plot*
- *see ranked data*
- *see stem and leaf display*

Data Life Cycle 2-6 to 12; 4-35; 5-46; 9-2, 3, 5
- figure 2-7
- steps:
  - 1. planning 2-8; App. D
  - 2. implementation 2-11
  - 3. assessment 2-11; App. E
  - 4. decision making 2-7
- table 2-16

Data Quality Assessment (DQA) 1-4; 2-6; 5-46; 8-1, 2; 9-2, 5; App. E
- assessment phase 2-8, 11; App. E
- historical data 3-7

Data Quality Objectives (DQOs) 1-3, 4; 2-7, 9; 4-4, 19; 5-2, 8, 21, 52; 6-2; 7-1, 2; 8-1, 2; 9-2, 7, 8; App.D
- DQO Process 2-10; App. D
  - iterations (figure) D-3
  - state problem D-4
  - identify decision D-5
  - inputs D-5, 6
  - study boundaries D-6 to 8
  - develop decision rule D-8 to 13
  - decision errors D-13 to 28
  - optimize design D-28, 29
- HSA 3-2
- Planning 2-9
- preliminary review (DQA) E-1
- measurement uncertainty 6-50
- QAPP 9-2, 3

data quality indicators 2-11; 6-3, 7; 7-2, 7; 9-9; N-6 to 18

Derived Concentration Guideline Level (DCGL) 2-2, 11, 33; 4-3 to 11; 6-1, 2, 7, 19, 32, 50; 7-2, 7, 9; 8-2, 6, 11, 22, 26; 9-5
- $DCGL_W$ 2-3; A-2; D-9
- $DCGL_{EMC}$ 2-3
- HSA 3-1, 12
- gross activity 4-8
- sampling 7-2, 7, 9
- surveys 5-1

decay
- *see radioactive decay*

decision error D-13 to 17, 20 to 22, 26 to 29; N-17
- error chart D-27
- false positive D-14, 21, 26
  - *see Type I error*
- false negative D-15, 20
  - *see Type II error*
- feasibility trials
  - DEFT D-20, 21
- specifying limits D-15
- table D-15

decision maker 2-6; 4-14; 5-46; 6-27; 7-2, 18; 9-8
- alternate methods 2-32
- estimating uncertainty 2-11
- DQOs 3-2; 6-2

decision rule 1-2; 8-24
- one-sample case D-11
- power chart (example) D-25
- two-sample case D-12

decision statement 8-24; D-2, 5, 6

decommissioning 1-1; 2-3; 3-1
- Characterization Survey 2-23; 5-7, 8
- criteria 4-1
- documentation 5-52
- simplified procedure App. B
- site identification 2-16
- site investigation 4-1

delta (δ) 5-26 to 35; 8-12 to 15, 19, 23; A-11, 19; D-10, 13, 16, 17, 20, 21

delta (Δ) 2-9, 10, 31
- *see relative shift*

detection limit
- *see minimum detectable concentration*

detector(s) Chap. 6; 9-6; App. H
- alpha
  - field survey 6-15 to 18, 20; H-5 to 10
  - laboratory 7-20, 22; H-38 to 42
- beta
  - field survey 6-15 to 18, 21; H-11 to 14
  - laboratory 7-20, 21; H-43 to 45
- calibration 6-20 to 28
- *in situ* spectrometry 6-11, 12
- gamma
  - field survey 6-15 to 18, 22; H-15 to 24
  - laboratory 7-20, 21; H-46 to 48
  - low energy H-31 to 33
- radon 6-57; H-25 to 30
- sensitivity 6-31 to 49
- X-ray H-31 to 33

direct measurement 2-4; 4-17; Chap. 6
- background 6-7, 35
- description 6-10 to 13
- detectors 6-15 to 22; App. H
- instruments 4-16, 6-15 to 28
- methods 4-17
- QC 4-32 to 38
- radon 6-55 to 60
- replicates 6-3
- sensitivity 6-31 to 49
- surveys 5-45 to 51

distribution coefficient (K_d) 3-19

documentation N-2 to 4

dose equivalent (dose) 1-1, 3; 2-1, 2
- DCGL 2-3; 5-36 to 38
- release criterion 2-2

effective probe area 6-29, 37

elevated area
- *see area of elevated activity*

elevated measurement
- *see area of elevated activity*

Elevated Measurement Comparison (EMC) 2-3, 27, 32; 8-5, 9, 17, 18, 21 to 23
- $DCGL_{EMC}$ 2-3, 27
- number of data points 5-35 to 39
  - example 5-39; A-16
- *see area of elevated activity*

exposure pathway model 2-2, 15, 27; 5-38, 44; 8-9, 23

exposure rate 4-20; 5-9 to 11, 17, 51

field sampling plan 2-6; 9-3

field survey equipment H-5 to 37

final status survey 2-4, 24, 32; 3-24; 5-21 to 55; 8-1, 6, 10, 23 to 25; 9-5
- checklist 5-53 to 55
- classification 2-28; 4-11
- compliance 2-25
- DCGL 4-3
- example App. A
- figure 2-21

final status survey (continued)
health and safety 4-38
integrated design 2-32
investigation process 2-16
planning 2-9; 5-21 to 55
sampling 7-7 to 16; App. M
survey units 4-14
fluence rate 6-11, 12, 44
frequency plot 8-4, 5
gamma (γ) radiation
analysis 7-21
detection sensitivity 6-31
direct measurement 6-32 to 37
scanning 6-37 to 47
detectors 6-15 to 18, 22; 7-20, 21; H-15 to 24, 46 to 48
measurement 4-16
radon 6-55, 57, 60
scanning 6-14
spectrometry 4-16
surface measurement 6-11, 12
graded approach 1-5; 2-4, 5, 8; 3-1; 6-8; 8-1; 9-2, 3, 5
graphical data review 8-4; E-3
see frequency plot
see posting plot
see stem and leaf display
gray region 2-9, 31; 5-25 to 27, 32, 33; 6-7; 7-7, 8 to 12, 14, 19; D-16, 17, 20 to 22, 26, 28
example A-7, 11
see decision error
see lower bound (LBGR)
grid 2-31; 4-27 to 31; 5-3, 16, 40 to 43; 7-7
example A-7, 13, 14, 15
positioning systems 6-61, 62
random start example 5-40, 41; A-14
reference coordinate system 2-23; 4-27; 6-61, 66
example(s) 4-28, 29, 30

grid (continued)
sample/scan 2-32; 5-40
spacing 5-42
triangular grid 5-40 to 43
figure 5-43
half-life ($t_{1/2}$) 1-5; 4-6; 6-55; A-1; B-1
histogram
see frequency plot
see stem and leaf display
Historical Site Assessment (HSA) 1-3, 4; 2-16, 22; Chap. 3; 5-1, 16, 39; 6-14; 7-12; 8-9; A-1
data sources App. G
figure 2-18
information sources App. G
survey planning 4-11
hot measurement
see area of elevated activity
hot spot
see area of elevated activity
hypothesis 2-26; 8-8, 12, 18
alternative hypothesis 2-39; D-14, 15
null hypothesis 2-9, 26; 8-11, 15, 17, 23; D-14, 15
statistical testing 1-3; 2-13, 26
approach explained 2-26
Sign test 2-28; 8-11
WRS test 2-28; 8-17
impacted area 2-4
classification 4-11
DQO 3-2
HSA 2-23; Chap. 3
non-impacted 2-4
Scoping Survey 2-23
site diagram 3-23
survey design 2-25
see *residual radioactivity*
indistinguishable from background 2-39; D-19
infiltration rate 3-14, 16, 18
inventory 3-8; 4-26

investigation level 2-2, 32; 4-1; 5-18, 44 to 46; 6-14, 15; 8-9, 17, 21
- example (table) 5-45
- scanning 6-3
- survey strategy 5-46
- *see release criterion*
- *see action level*

judgment measurement 2-22, 23, 30, 33; 5-2, 3, 44, 48, 51, 55

karst terrain 3-19

laboratory equipment 4-16; H-38 to 48

less-than data 2-13

license 2-16; 3-4, 5, 7, 8; 7-11

license termination
- see *decommissioning*

lower bound of the gray region (LBGR) 2-9, 31; 5-25 to 27, 31 to 33; 6-7; 7-7; 8-12, 13, 15, 19; D-17, 20, 21, 28; N-18
- example A-11
- *see gray region*

m (number of data points in the reference area) 5-29, 39, 42; 8-18, 21

mean 2-27, 28; 4-33; 5-49, 50; 8-2, 3, 5 to 7, 12, 13, 15; D-9
- of data (example) 8-3

measurement techniques 1-2, 4; 2-4; 3-7; 4-16, 17; 7-20 to 22

median 2-28; 5-27, 32, 45; 8-2, 3, 5 to 7, 12, 13, 15; D-9

minimum detectable concentration (MDC) 2-10, 34; 4-16, 17, 34, 35; 5-36, 37, 48; 6-31 to 49; 8-15, 18, 22; 9-7 to 9
- direct measurement 6-32 to 37
- elevated activity 5-39
- reporting 2-13
- scan 6-37 to 49

minimum detectable count rate (MDCR) 6-40 to 45

missing or unusable data 5-29, 31, 33, 35

model(s)
- conceptual site model 3-3, 22; 5-8, 47
- defining study boundaries D-6, 7
- exposure pathway 1-4; 2-2, 15, 27; 6-10, 28
  - area factor (example) 5-36
  - determining DCGLs 4-3, 6

N (number of data points) 2-10; 5-25 to 39; 8-12, 13, 15, 18
- QC measurements 4-32 to 38
- Sign test 5-31 to 35
  - example 5-33, 35; B-2
  - table 5-34
- WRS test 5-25 to 31
  - example 5-29, 31; A-11; B-2
  - table 5-30

n (number of data points in survey unit) 5-29, 38, 42; 8-18, 21

NARM 3-4

naturally occurring radionuclides 1-4; 3-3; 6-5; 7-5

non-impacted area 2-4
- background (reference area) 4-13
- classification 2-28; 4-11
- DQO 3-2
- HSA 2-17; 3-10 to 12
- survey design 2-31

nonparametric test 2-26; 4-10, 11; 5-25; 8-6, 7, 22, 24, 25
- alternate methods 2-34 to 38
- one-sample test 2-28; 5-31; 8-11 to 16; D-10
- two-sample test 2-28; 5-25; 8-17 to 21; D-10
- *see Sign test*
- see *Wilcoxon Rank Sum test*
- *see Wilcoxon Signed Rank test*

normal (gaussian) distribution 2-28; 5-45; 6-54, 55; 8-6; I-1

one-sample test 2-28; 5-25, 31 to 35
- *see Sign test*

outlier 9-7

P_r 5-27, 28; I-27, 28

performance evaluation 4-35, 37; 6-4, 9; 7-4, 10

physical probe area 6-29, 30, 38, 48

posting plot 2-27; 8-4, 8, 13

power (1-β) 2-31, 34; 4-26; 5-27, 29, 33, 54; 6-15, 17; 8-2, 3, 5, 6, 8, 12, 15, 23, 27; D-15, 17 to 19, 25, 26
- Sign test I-25, 26
- WRS test I-27 to 29
- chart D-25
- power curve I-26, 29
- example A-7, 9, 11, 12

precision 2-11; 4-32 to 38; 9-9; N-6 to 8
- global positioning system 6-61, 62
- QC measurements 4-35, 37; 6-3, 4; 7-3, 4

probe area 6-20, 21, 24, 29, 30, 36, 37, 38, 43, 48

quality 2-6, 8, 9
- assessment data 2-11
- data quality needs 2-8
- HSA data 3-10
- professional judgment 3-22

quality assurance (QA) 2-6; 4-32; 8-1, 2, 4, 7; 9-1 to 4
- review of HSA 3-25
- document comparison tables App. K

Quality Assurance Project Plan (QAPP) 2-6; 4-31, 32; 5-5, 54, 55; 7-9; 9-2, 3, 6

quality control (QC) 2-6; 8-2; 9-1, 5, 7
- field measurement control 6-3 to 8
- laboratory control 7-2 to 7
- number of measurements 4-32 to 38

quality system 9-1 to 4

Quantile plot 8-4, 7, 8, 13; I-18 to 21

Quantile-Quantile plot A-16, 17; I-22 to 24

R 5-29, 31, 33, 35

R_A D-23

radiation program managers
- list by region App. L

radiation survey 1-1, 4;4-4, 21
- data life cycle 2-16
- HSA 2-22; 3-1, 8
- scoping survey 2-22; 5-1 to 6
- characterization survey 2-23; 5-7 to 17
- remedial action support survey 2-23; 5-18 to 20
- final status survey 2-24; 5-21 to 55
- planning 2-8 to 11; Chap. 4; Chap. 5
- process 2-14, 17 to 21

radioactive decay 3-12; 7-18, 20
- decay chain 4-6, 7
- half-life 4-5
- radon 6-55, 58, 59
- scan MDC 6-44 to 46
- survey design 5-5, 8, 16

radioactivity
- *see residual radioactivity*

radiological survey
- *see radiation survey*

radionuclide 2-2, 5
- compliance/dose 2-25
- *see unity rule*

radon 3-20; 5-14; 6-55 to 60
random uncertainty 2-14; 6-50 to 52
ranked data I-22
interpolated ranks I-23
RCRA 2-22, 23, 39; 3-1; 5-1, 7
compared to MARSSIM App. F
reference coordinate system
see grid
regulations & requirements App. C
DOD C-15 to 20
DOE C-4 to 12
EPA C-1 to 4
NRC C-12 to 15
States C-20, 21
relative shift (Δ/σ) 5-26 to 35, 40, 42; 8-12 to 15, 19; D-17, 20
calculate 5-26, 5-32
example 5-29, 5-33; A-11, 19
DQO process 2-9, 10, 31
number of data points 5-28, 33
P_r 5-27
Sign p 5-32
tables
N (Sign test) 5-34
N/2 (WRS test) 5-30
P_r 5-28
Sign p 5-32
release criterion 1-1, 2, 5; 2-2
alternate null hypothesis 2-39
compliance 2-25
DCGLs 4-3
final status survey 2-24
null hypothesis 2-9, 26
statistical tests 2-25
survey planning 5-1
rem (radiation equivalent man)
see conversion table
remedial action support survey 2-15, 23; 5-18 to 20; 6-12; 8-25
checklist 5-20
figure 2-20
table 2-16
remediation 1-1, 3, 4; 8-9, 11
see remedial action support survey
removable activity 5-17, 52; 6-20, 21
see surface contamination
removal 2-5; 5-2
criteria 2-23; App. F
of structures/equipment 4-24 to 26
Superfund App. F
HSA 3-1
scoping survey 5-2
replicate 4-35, 37
sample 7-3
measurement 6-3
representativeness 2-11, 24; 4-34; 6-6; 7-3; N-12, 13
reproducibility 4-27; 6-61
residual radioactivity 2-3, 26; 3-24; 4-1, 24
analytical procedures 7-17 to 23
characterization surveys
land areas 5-11
structures 5-10
final status survey
land areas 5-40, 50, 51
structures 5-44, 48 to 50
remedial action design 5-18
see surface contamination
restricted use 1-1; 5-7
see unrestricted release
robust 2-35, 37; 8-6
s 5-45, 49; 8-2
S+ 8-12 to 16
see test statistic
sample(s) 2-4
alternate survey design 2-33
background 4-13
blanks 7-5
Chain of Custody 7-23 to 25
characterization
land 5-11
structures 5-10
confirmation/verification 2-25
criteria 4-19, 21
DCGLs 4-4

sample(s) (continued)
documentation 5-52
final status survey
locations 5-40 to 44
number of data points 5-25 to 39
matrix spikes 7-4
packing/transport 7-25 to 28
preservation of 7-16, 17
QC 4-32 to 38
remedial action 5-19
sampling 2-4
scoping 5-2, 3
soil 7-11 to 14
surrogate 4-4
water & sediments 5-12, 13
Sampling and Analysis Plan 2-6; 9-3
scanning 2-4; 4-17
alpha 6-14
alpha scanning sensitivity
equations - derivations App. J
beta 6-15
demonstrating compliance 2-31
detectors 6-15 to 18, 20 to 22, 57; App. H
elevated activity 2-29
gamma 6-14
MDCs 6-37 to 49
pattern (example) A-6
sensitivity 6-37 to 49
survey techniques 4-17; 6-13 to 15
scanning surveys
scoping 5-3, 6
characterization
land areas 5-11
structures 5-10
remedial action 5-19
final status
Class 1 areas 2-32; 5-46
Class 2 areas 2-32; 5-47
Class 3 areas 2-33; 5-48
scoping survey 2-15, 22; 5-1 to 6
area classification 4-11
checklist 5-5, 6
figure 2-19
HSA & planning 3-1, 2
table 2-16
sealed source
final status survey example App. B
sigma (σ)
see standard deviation
Sievert (Sv)
see conversion table
Sign test 2-3, 27, 28; 5-25; 8-11 to 16
applying test 8-12
example(s) 8-12, 14
hypothesis 8-11
number of data points 5-31 to 35
example 5-33, 35
power I-25, 26
Sign p 5-32
site(s) Chap. 1
clearing for access 4-24
decommissioning 4-1
definition 2-3
historical assessment Chap. 3
identification 2-16; 3-4
investigation process 2-14
site preparation 4-22
site reconnaissance 3-9
identify contamination 3-13
site model 3-22
smear (swipe)
see removable activity
soil 3-13 to 15
analysis 7-17 to 23
background 4-13
sampling 7-11 to 14
surveys 5-33, 9 to 11, 19, 33, 47, 50, 51
survey coverage 2-32; 5-47
source term 4-21
split
regulatory verification 2-25
sample 4-35; 7-3, 14
standard deviation 2-9, 31; 4-16; 5-26, 29, 31, 32, 45, 49; 8-2, 10, 12 to 15, 19, 23; A-11, 19; N-17
standard operating procedure (SOP) 6-3, 51; 7-9, 19, 25

statistical tests 2-25; 4-11; 5-25; Chap. 8; App. I
- alternate methods 2-34 to 38
- documenting 8-25, 26
- interpreting results 8-21 to 25
- selecting a test 8-6, 7; E-4
- summary (table) 8-9
- verify assumptions 8-7, 8; E-4

stem & leaf display 8-5, 7; I-17, 18

structures 3-20
- access 4-25
- HSA site plots 3-8
- measurements 4-20
- reference coordinate system 4-27 to 31
- surface activity 5-10
- surveys 5-7 to 10, 46, 47
- survey coverage 5-47
- survey example App. A
- survey unit 2-4; 4-14, 15
- WRS test (example)
  - Class 1 8-21, App. A
  - Class 2 8-19

Student's t test 2-35, 37

subsurface soil (sample) 1-9; 4-24
- characterization survey 5-9, 5, 11
- HSA 3-11, 13, 14
- sampling 7-16; App. M

surface contamination 1-3, 4
- detectors
  - alpha 6-20
  - beta 6-21
  - gamma 6-22
- direct measurements 6-10 to 13
- identification 3-12
- *in situ* spectrometry 6-11, 12
- land areas 4-24
- scanning 6-13 to 15
- soil 3-14
- structures 4-23; 5-10
- surface activity DCGLs 4-4
- surrogates/DCGLs 4-4

surface soil 1-3, 1-4; 3-13
- background 4-13
- sampling 7-9, 12 to 14, 16, 17, 21; App. M

surrogate measurements 4-4 to 7; 5-12; 6-14; 9-7

survey
- approach Chap. 1
- DCGLs 4-3
- decommissioning criteria 4-1
- DQOs 2-9 to 11
- field measurements Chap. 6
- instruments/technique 4-16; App. H
- overview Chap. 2
- planning 2-8 to 11; Chap. 5
- QAPP 2-6
- sampling/preparation Chap. 7, App. M
- simplified procedure App. B
- site investigation process 2-14
- statistical tests 2-25; Chap. 8; App. I
- survey considerations Chap. 4
- using MARSSIM 1-6; Roadmap
- *see characterization* *5-7 to 16*
- *see final status* *5-20 to 53*
- *see HSA* *Chapter 3*
- *see remedial action* *5-17 to 19*
- *see scoping* *5-1 to 6*
- *see Data Life Cycle*
- *see survey unit*

survey checklist
- characterization 5-16, 17
- final status 5-53 to 55
- remedial action 5-20
- scoping 5-5, 6
- statistical tests 8-27

survey plan 1-5; 2-6; 5-54; 7-8, 18
- alternate designs 2-33 to 40
- design Chap. 4; Chap. 5
- DQOs 2-9; 3-3
- optimizing survey 2-30

survey unit 2-4; 4-14; 7-5; 9-6, 8; N-16
- area 4-15
- characterization 5-9 to 5-11
- characterize/DQOs 2-9
- classification 2-28; 4-11, 12
- classify/flowchart 2-17
- elevated activity 2-27
- HSA 3-1, 2, 4
- identifying 4-14
- investigation level 5-44 to 46
- statistics & final status survey 5-21 to 55
- uniform contamination 2-28

surveyor(s) 4-22, 31; 6-24, 37, 38, 40 to 48
selecting 6-8, 9
systematic uncertainty 6-50 to 52
systematic grid 2-31, 32; 5-46; 6-7, 12; 8-19, 22
test statistic 8-12, 13, 15; D-16 to 19
example (S+) 8-12 to 16
example (W_r, W_s) 8-18
see *critical level*
total effective dose equivalent (TEDE) 2-2
triangular sampling grid 5-35, 36, 42 to 44; 8-4, 13, 16, 19
see systematic grid
two-sample test 2-28; 5-25 to 31; D-10
alternate methods 2-37, 38
nonparametric test 4-9 to 11
see Wilcoxon Ranked Sign test
Type I decision error 5-25 to 35; 6-33, 34; 8-8, 10, 13 to 15, 18, 19, 21; 9-8, 9; D-14 to 17, 21, 26, 28
DQOs 2-9, 10, 31
examples 8-10; A-7, 11, 18; B-2
Type II decision error 5-25 to 35; 6-33, 34; 8-8, 10, 12 to 15, 19; 9-8, 9; D-14 to 18, 20, 21, 26, 28
DQOs 2-9, 10, 31
examples 8-10; A-7, 11; B-2
uncertainty 1-2; 2-25; 5-11, 14, 26, 29, 33, 35, 45, 46; 6-49 to 55; 7-3, 4, 8, 21; 8-17, 18; 9-7, 9
uncertainty (continued)
confidence intervals 6-53 to 55
decision making 2-7
DCGL 2-33
estimating 2-11
measurement 6-49 to 55
MDC 4-17
propagation 6-52, 53
QC 4-32 to 38
reporting 2-14
statistical counting 6-52
systematic/random 6-50 to 52
unity rule (mixture rule) 2-27; 4-8; 5-38; 8-21, 23
adjusting DCGLs 4-8 to 4-10
unrestricted release 3-22
validation 2-8, 11; 7-9; 9-2, 5, 7, 8; App. N
verification 2-15, 25; 5-21; 6-32; 7-9; 8-8; 9-2, 4 to 7
W_r 8-18
see test statistic
W_s 8-18
see test statistic
Wilcoxon Rank Sum (WRS) test 2-28; 5-25 to 31; 8-17 to 21
adjusted data 8-20
example 8-19, 21; A-10, 11, 18, 19
applying the test 8-18
Class 1 example 8-21
Class 2 example 8-19
power I-27 to 29
spreadsheet formulas I-30
see two-sample test
working level 6-56

REFERENCES, REGULATIONS, & U. S. CODE

General References

42 FR 60956. November 30, 1977. "Persons Exposed to Transuranium Elements in the Environment," *Federal Register*

46 FR 52601. October 1981. "Disposal or On-site Storage of Thorium or Uranium Wastes From Past Operations," NRC Branch Technical Position, *Federal Register*

57 FR 13389. April 16, 1992. "Action Plan to Ensure Timely Cleanup of Site Decommissioning Management Plan Sites," *Federal Register*

57 FR 6136. February 20, 1992. "Order Establishing Criteria and Schedule for Decommissioning the Bloomberg Site." *Federal Register*

Agency for Toxic Substances and Disease Registry (ATSDR). 1992. *ATSDR - Public Health Assessment Guidance Manual*. ATSDR, Atlanta, GA. (PB92-147164)

Altshuler, B., and B. Pasternak. 1963. Statistical Measures of the Lower Limit of Detection of a Radioactivity Counter. *Health Physics* 9:293-298.

American National Standards Institute (ANSI). 1996a. *Performance Criteria for Radiobioassay*, N13.30.

American National Standards Institute (ANSI). 1996b. *Radiation Protection Instrumentation Test and Calibration - Portable Survey Instruments*, N323A.

American Nuclear Society (ANS). 1994. Mobile In Situ Gamma-Ray Spectroscopy System. *Transactions of the American Nuclear Society* 70:47.

American Nuclear Society (ANS). 1994. Large Area Proportional Counter for In Situ Transuranic Measurements. *Transactions of the American Nuclear Society* 70:47.

American Public Health Association (APHA). 1995. *Standard Methods for the Examination of Water and Wastewater*. 19th Edition, APHA, Washington, DC.

American Society of Mechanical Engineers (ASME). 1989. *Quality Assurance Program Requirements for Nuclear Facilities*. NQA-1, ASME, New York, New York.

American Society for Quality Control (ASQC). 1995. *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs.* ANSI/ASQC E4-1994, ASQC, Milwaukee, Wisconsin.

American Society of Testing and Materials (ASTM). 1993. *Reducing Samples of Aggregate to Testing Size*, C702-93. ASTM, West Conshohocken, PA.

American Society of Testing and Materials (ASTM). 1995. *Soil Sample preparation for the Determination of Radionuclides*, C999-90 (1995) e1. ASTM, West Conshohocken, PA.

American Society of Testing and Materials (ASTM). 1997. *Annual Book of ASTM Standards, Water and Environmental Technology: Environmental Assessment; Hazardous Substances and Oil Spill Responses; Waste Management; Environmental Risk Assessment*. Volume 11.04, ASTM, West Conshohocken, PA.

Bernabee, R., D. Percival, and D. Martin. 1980. Fractionation of Radionuclides in Liquid Samples from Nuclear Power Facilities. *Health Physics* 39:57-67.

Berven, B. A., W. D. Cottrell, R. W. Leggett, C. A. Little, T. E. Myrick, W. A. Goldsmith, and F. F. Haywood. 1986. *Generic Radiological Characterization Protocol for Surveys Conducted for DOE Remedial Action Programs.* ORNL/TM-7850, Martin Marietta Energy Systems, Inc., Oak Ridge National Laboratory. (DE86-011747)

Berven, B. A., W. D. Cottrell, R. W. Leggett, C. A. Little, T. E. Myrick, W. A. Goldsmith, and F. F. Haywood. 1987. *Procedures Manual for the ORNL Radiological Survey Activities (RASA) Program.* ORNL/TM-8600, Martin Marietta Energy Systems, Inc., Oak Ridge National Laboratory. (DE87-009089)

Brodsky, A. 1992. "Exact Calculation of Probabilities of False Positives and False Negatives for Low Background Counting," *Health Physics* 63(2):198-204.

Committee on the Biological Effects of Ionizing Radiations (BEIR). 1990. *Health Effects of Exposure to Low Levels of Ionizing Radiation*. BEIR V. National Academy of Sciences, National Academy Press, Washington D.C.

Conover. W. J. 1980. *Practical Nonparametric Statistics, Second Edition.* John Wiley & Sons, New York.

Currie, L.A. 1968. Limits for Qualitative Detection and Quantitative Determination. *Analytical Chemistry* 40(3):586-693.

Davidson, J.R. 1995. *ELIPGRID-PC: Upgraded Version*. ORNL/TM-13103. Oak Ridge National Laboratory.

Department of the Army. 1993. *USAEHA Environmental Sampling Guide.* Technical Guide No. 155, U.S. Army Environmental Hygiene Agency, Aberdeen Proving Ground, MD.

Department of Defense (DOD). 1963. *Quality Program Requirements*. Military Specification MIL-Q-9858A. DOD, Washington, D.C.

Department of Energy (DOE). 1982. *Radiological and Environmental Sciences Laboratory Procedures, Analytical Chemistry Branch Procedures Manual*. DOE/IDO-12096, DOE, Idaho Operations Office, Idaho Falls.

Department of Energy (DOE). 1985. *Formerly Utilized Sites Remedial Action Program, Verification and Certification Protocol — Supplement No. 2 to the FUSRAP Summary Protocol, Revision 1.* DOE, Division of Facility and Site Decommissioning Projects, Office of Nuclear Energy.

Department of Energy (DOE). 1986a. *Formerly Utilized Sites Remedial Action Program, Summary Protocol, Identification – Characterization – Designation - Remedial Action - Certification.* DOE, Division of Facility and Site Decommissioning Projects, Office of Nuclear Energy.

Department of Energy (DOE). 1986b. *Formerly Utilized Sites Remedial Action Program, Designation/Elimination Protocol—Supplement No. 1 to the FUSRAP Summary Protocol.* DOE, Division of Facility and Site Decommissioning Projects, Office of Nuclear Energy.

Department of Energy (DOE). 1987. *The Environmental Survey Manual, Appendix A - Criteria for Data Evaluation*. DOE/EH-0053, DOE, Office of Environmental Audit, Washington, D.C. (DE88-000254)

Department of Energy (DOE). 1990a. *Environmental Protection, Safety, and Health Protection Information Reporting Requirements*. DOE Order 5484.1, Change 7, DOE, Washington, DC.

Department of Energy (DOE). 1990b. *EML Procedures Manual, HASL-300, 28th ed.* HASL-300-ED.27-Vol 1, DOE, Environmental Measurements Laboratory, New York. (DE91-010178)

Department of Energy (DOE). 1991a. Deleted.

Department of Energy (DOE). 1991c. *Quality Assurance*. U.S. DOE Order 5700.6c.

Department of Energy (DOE). 1992. *Environmental Implementation Guide for Radiological Survey Procedures Manual, DOE Report for Comment*. Martin Marietta Energy Systems, Oak Ridge National Laboratory.

Department of Energy (DOE). 1994. *Decommissioning Handbook*. DOE/EM-0142P, DOE, Washington, D.C.**.** (DE94-008981)

Department of Energy (DOE). 1995. *DOE Methods for Evaluating Environmental and Waste Management Samples*. DOE/EM-0089T, Rev. 2. Prepared for the U.S. Department of Energy by Pacific Northwest Laboratory, Richland, WA.

Department of Energy (DOE). 1996. *Statistical and Cost-Benefit Enhancements to the DQO Process for Characterization Decisions*. DOE/EM-0316, U.S. Department of Energy, Washington, D.C.

Department of Energy (DOE). 1997. *EML Procedures Manual, HASL-300, 28th ed*. HASL-300-ED.27-Vol 1, DOE, Environmental Measurements Laboratory, New York**.** (DE91-010178)

Environmental Protection Agency (EPA). 1974. *Methods for Chemical Analysis of Water and Wastes*. EPA 625/6-74-003, (revised), EPA, Washington, D.C.

Environmental Protection Agency (EPA). 1979. *Radiochemical Analytical Procedures for Analysis of Environmental Samples*, EMSL-LV-0539-17, EPA, Office of Radiation and Indoor Air, Las Vegas. (EMSL-LV-0539-17)

Environmental Protection Agency (EPA). 1980a. *Prescribed Procedures for Measurement of Radioactivity in Drinking Water*. EPA-600/4-80-032, EPA, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio. (PB80-224744)

Environmental Protection Agency (EPA). 1980b. *Samplers and Sampling Procedures for Hazardous Waste Streams.* EPA-600/2-80-018, EPA, Washington, D.C. (PB80-135353)

Environmental Protection Agency (EPA). 1980c. *Upgrading Environmental Radiation Data, Health Physics Society Committee Report HPSR-1*. EPA 520/1-80-012, EPA, Office of Radiation Programs, Washington, D.C. (PB81-100364)

Environmental Protection Agency (EPA). 1980d. *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans*. QAMS-005/80, EPA, Washington, D.C.

Environmental Protection Agency (EPA). 1982. *Handbook for Sampling and Sample Preservation of Water and Wastewater.* EPA 600/4-82-029, EPA, Washington, D.C. (PB83-124503)

Environmental Protection Agency (EPA). 1983. *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans.* EPA, Washington, D.C. (PB83-170514)

Environmental Protection Agency (EPA). 1984a. *Eastern Environmental Radiation Facility: Radiochemical Procedures Manual*. EPA 520/5-84-006, EPA, Office of Radiation Programs, Eastern Environmental Radiation Facility [renamed the National Air and Radiation Environmental Laboratory (NAREL) in 1989], Montgomery, Alabama. (PB84-215581)

Environmental Protection Agency (EPA). 1984b. *Soil Sampling Quality Assurance User's Guide.* EPA 600/4-84-0043, EPA**,** Washington, D.C. (PB84-198621)

Environmental Protection Agency (EPA). 1986. *Preliminary Assessment Petition*. Publication 9200.5-301FS, EPA, Office of Emergency and Remedial Response, Washington, D.C.

Environmental Protection Agency (EPA). 1987a. *A Compendium of Superfund Field Operations Methods.* EPA 540/P-87-001, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB88-181557)

Environmental Protection Agency (EPA). 1987b. *Data Quality Objectives for Remedial Response Activities-Development Process.* EPA/540/G-87/003, OSWER Directive 9355.07B, EPA, Washington, D.C. (PB88-131370)

Environmental Protection Agency (EPA). 1987c. *DQOs for Remedial Response Activities-Example Scenario: RI/FS Activities at a Site with Contaminated Soils and Groundwater.* EPA/540/G-87/004. OSWER Directive 9355.07B, EPA, Washington, D.C. (PB88-131388)

Environmental Protection Agency (EPA). 1987d. *Entry and Continued Access Under CERCLA.* EPA, Washington, D.C. (PB91-138867)

Environmental Protection Agency (EPA). 1988a. *Field Screening Methods Catalog - User's Guide*. EPA 540/2-88-005, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB89-134159)

Environmental Protection Agency (EPA). 1988b. *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*, Interim Final.. EPA/540/G-89/004, OSWER Directive 9355.3-01, EPA, Washington, D.C. (PB 89-184626)

Environmental Protection Agency (EPA). 1988c. *Superfund Removal Procedures*. OSWER Directive 9360.0-03B, EPA, Office of Emergency and Remedial Response, Washington, D.C.

Environmental Protection Agency (EPA). 1989a. *Methods for Evaluating the Attainment of Cleanup Standards, Volume 1: Soils and Solid Media.* EPA-230/02-89-042, EPA, Office of Policy, Planning, and Evaluation, Washington, D.C. (PB89-234959)

Environmental Protection Agency (EPA). 1989b. *Procedures for Completion And Deletion of National Priorities List Sites and (Update); Final Report.* OSWER Directive 9320.2-03B EPA, Office of Solid Waste and Emergency Response, Washington, D.C. (PB90-274556)

Environmental Protection Agency (EPA). 1989c. *Background Information Document on Procedures Approved for Demonstrating Compliance with 40 CFR Part 61, Subpart I.* EPA/520/1-89-001, EPA, Washington, D.C.

Environmental Protection Agency (EPA). 1990. *A Rationale for the Assessment of Errors in the Sampling of Soils*. EPA 600/4-90/013.

Environmental Protection Agency (EPA). 1991a. *Description and Sampling of Contaminated Soils.* EPA 625/12-91-002, EPA, Office**,** Washington, D.C.

Environmental Protection Agency (EPA). 1991b. *Compendium of ERT Soil Sampling and Surface Geophysics Procedures.* EPA 540/P-91-006, EPA, Office, Washington, D.C. (PB91-921273/CCE)

Environmental Protection Agency (EPA). 1991c. *Compendium of ERT Ground Water Sampling Procedures.* EPA 540/P-91-007, EPA, Office, Washington, D.C. (PB91-921275/CCE)

Environmental Protection Agency (EPA). 1991d. *Compendium of ERT Surface Water and Sediment Sampling Procedures*. EPA 540/P-91-005, EPA**,** Washington, D.C. (PB91-921274/CCE)

Environmental Protection Agency (EPA). 1991e. *Site Assessment Information Directory.* EPA, Office of Emergency and Remedial Response, Washington, D.C.

Environmental Protection Agency (EPA). 1991f. *Guidance for Performing Preliminary Assessments Under CERCLA.* EPA/540/G-91/013, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB92-963303)

Environmental Protection Agency (EPA). 1991g. *Removal Program Representative Sampling Guidance: Volume 1 - Soil*. Publication 9360.4-10, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB92-963408)

Environmental Protection Agency (EPA). 1991h. *Risk Assessment Guidance for Superfund. Volume 1, Human Health Evaluation Manual. Part B, Development of Risk Based Preliminary Remediation Goals*. Interim Report, EPA/540/R-92/003, OSWER 9285.7-01B, Office of Solid Waste and Emergency Response, Washington, D.C. (PB92-963333)

Environmental Protection Agency (EPA). 1992a. *Guidance for Data Useability in Risk Assessment, Part A.* OSWER Directive 9285.7-09A, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB92-963356)

Environmental Protection Agency (EPA). 1992b. *Guidance for Data Useability in Risk Assessment, Part B.* OSWER Directive 9285.7-09B, EPA, Office of Emergency and Remedial Response, Washington, D.C. (PB92-963362)

Environmental Protection Agency (EPA). 1992c. *Radon Measurement in Schools, Revised Edition.* EPA 402-R-92-014, EPA, Office of Air and Radiation, Washington, D.C.

Environmental Protection Agency (EPA). 1992d. *Indoor Radon and Radon Decay Product Measurement Device Protocols.* EPA 402-R-92-004, EPA, Office of Air and Radiation, Washington, D.C.

Environmental Protection Agency (EPA). 1992e. *Guidance for Performing Site Inspections Under CERCLA.* EPA/540-R-92-021, EPA, Office of Solid Waste and Emergency Response, Washington, D.C.

Environmental Protection Agency (EPA). 1992f. *Guidance on Implementation of the Superfund Accelerated Cleanup Model (SACM) under CERCLA and the NCP*. OSWER Directive 9203.1-03, EPA, Office of Solid Waste and Emergency Response, Washington, D.C.

Environmental Protection Agency (EPA). 1992g. *Supplemental Guidance to RAGS: Calculating the Concentration Term*. Publication 9285.7-081, EPA, Office of Solid Waste and Emergency Response, Washington, DC. (PB92-963373)

Environmental Protection Agency (EPA). 1993a. Deleted.

Environmental Protection Agency (EPA). 1993b. *RCRA Groundwater Monitoring: Draft Technical Guidance*. EPA/530-R-93-001. EPA Office of Solid Waste, Washington, D.C. (PB93-139350)

Environmental Protection Agency (EPA). 1993c. *Integrating Removal and Remedial Site Assessment Investigations*. OSWER Directive 9345.1-16FS, EPA, Office of Solid Waste and Emergency Response, Washington, D.C. (PB93-963341)

Environmental Protection Agency (EPA). 1993d. *Quality Assurance for Superfund Environmental Data Collection Activities*. Publication 9200.2-16FS, EPA, Office of Solid Waste and Emergency Response, Washington, D.C.

Environmental Protection Agency (EPA). 1993e. *Subsurface Characterization and Monitoring Techniques: A Desk Reference Guide, Volume 1.* EPA/625/R-93/003A, U.S. Environmental Protection Agency, Cincinnati, Ohio. (PB94-136272)

Environmental Protection Agency. 1993f. Description and Sampling of Contaminated Soils: A Field Pocket Guide, EPA/625/12-91/00.

Environmental Protection Agency (EPA). 1994a. *Guidance for the Data Quality Objectives Process.* EPA/600/R-96/055, EPA QA/G-4, Final, EPA, Quality Assurance Management Staff, Washington, D.C.

Environmental Protection Agency (EPA). 1994b. *Statistical Methods for Evaluating the Attainment of Cleanup Standards, Volume 3: Reference Based Standards for Soils and Solid Media.* EPA 230-R-94-004, EPA, Office of Policy, Planning, and Evaluation, Washington, D.C. (PB94-176831)

Environmental Protection Agency (EPA). 1994c. *EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations.* EPA QA/R-5, EPA, Draft Interim Final, Quality Assurance Management Staff, Washington, D.C.

Environmental Protection Agency (EPA). 1994d. *An SAB Report: Review of EPA's Approach to Screening for Radioactive Waste Materials at a Superfund Site in Uniontown, Ohio.* Prepared by the *ad hoc* Industrial Excess Landfill Panel of the Science Advisory Board (SAB). EPA-SAB-EC-94-010. EPA, SAB, Washington, D.C.

Environmental Protection Agency (EPA). 1994e. *Methods for Monitoring Pump-and-Treat Performance*. EPA/600/R-94/123, EPA, Office of Research and Development, Washington, D.C.

Environmental Protection Agency (EPA). 1994f. *EPA Requirements for Quality Management Plans*. EPA QA/R-2, Interim Draft. Quality Assurance Management Staff, Washington, D.C.

Environmental Protection Agency (EPA). 1995a. *DEFT Software for Data Quality Objectives.* EPA/600/R-96/056, EPA QA/G-4D. EPA, Washington, D.C.

Environmental Protection Agency (EPA). 1995b. *Guidance for the Preparation of Standard Operating Procedures (SOPs) for Quality Related Documents*. EPA QA/G-6, EPA, Quality Assurance Management Staff, Washington, D.C.

Environmental Protection Agency (EPA). 1996a. *Guidance for Data Quality Assessment: Practical Methods for Data Analysis.* EPA QA/G-9 QA96 Version, EPA/600/R-96/084, EPA, Quality Assurance Management Staff, Washington, D.C.

Environmental Protection Agency (EPA). 1996b. *Soil Screening Guidance: User's Guide*. EPA/540/R-96/018, EPA, Office of Emergency and Remedial Response, Washington, D.C.

Environmental Protection Agency (EPA). 1996c. *Soil Screening Guidance: Technical Background Document*. EPA/540/R-95/128, EPA, Office of Solid Waste and Emergency Response, Washington, D.C. (PB96-963502)

Environmental Protection Agency (EPA). 1997a. *EPA Guidance for Quality Assurance Project Plans*. Final, EPA QA/G-5, EPA, Office of Research and Development, Washington, D.C.

Environmental Protection Agency (EPA). 1997b. *Integrated Site Assessments may Expedite Cleanups.* GAO/RCED-97-181. GAO, Washington, D.C.

Egan, J.P. 1975. *Signal Detection Theory and ROC Analysis*. Academic Press, Inc., New York.

Eisenbud, M. 1987. *Environmental Radioactivity, 3rd ed.* Academic Press, Inc., New York.

Friedman, G.M. and J.L. Sanders. 1978. *Principles of Sedimentology*. John Wiley and Sons, New York, NY.

Fritzsche, A.E. 1987. *An Aerial Radiological Survey of the White Creek Floodplain, Oak Ridge Resrvation, Oak Ridge, Tennessee*. EGG-10282-1136, Remote Sensing Laboratory, EG&G/EM, Las Vegas, NV.

George, A.C. 1984. Passive, Integrated Measurement of Indoor Radon Using Activated Carbon. *Health Physics* 46:867.

Gilbert, R. O. 1987. *Statistical Methods for Environmental Pollution Monitoring*. Van Nostrand Reinhold, New York.

Hardin, J.W. and R.O. Gilbert. 1993. *Comparing Statistical tests for Detecting Soil Contamination Greater Than Background*. PNL-8989, Pacific Northwest Laboratory, Richland, WA.

Harnett, D. L. 1975. *Introduction to Statistical Methods, 2nd ed.* Addison-Wesley, Reading, Massachusetts.

Health Physics Society (HPS). 1994a. *Program handbook for the Accreditation of Calibration Laboratories by the Health Physics Society.* HPS, McLean, VA.

Health Physics Society (HPS). 1994b. *Criteria for Accreditation of Calibration Laboratories by the Health Physics Society*. HPS, McLean, VA.

Hora, S. C. and R. L. Iman. 1989. Expert Opinion in Risk Analysis: The NUREG-1150 Methodology. *Nuclear Science and Engineering.* 102 (4):323-331.

International Atomic Energy Agency (IAEA). 1971. *Handbook on Calibration of Radiation Protection Monitoring Instruments.* IAEA, Technical Report Series 133, Vienna.

International Organization for Standardization (ISO). 1987. ISO 9000/ASQC Q9000 Series. American Society for Quality Control, Milwaukee, Wisconsin.
ISO 9000-1, *Quality Management and Quality Assurance Standards - Guidelines for Selection and Use*.
ISO 9001-1, *Quality Systems - Model for Quality Assurance in Design/Development, Production, Installation and Servicing*.
ISO 9002, *Quality Systems - Model for Quality Assurance in Production and Installation, and Servicing*.
ISO 9003, *Quality Systems - Model for Quality Assurance in Final Inspection and Test.*
ISO 9004-1, *Quality Management and Quality System Elements - Guidelines*.

International Organization for Standardization (ISO). 1988. *Evaluation of Surface Contamination - Part 1: Beta Emitters and Alpha Emitters*. ISO-7503-1 (first edition), ISO, Geneva, Switzerland.

International Organization for Standardization (ISO). 1993. *International Vocabulary of Basic and General Terms in Metrology*. ISO, Geneva, Switzerland.

Jenkins, P .H. 1986. Radon Measurement Methods: An Overview. In *Proceedings of Health Physics Society Meeting*, 29 June 1986, Pittsburgh, PA. CONF-8606139-5, Monsanto Research Corporation, Miamisburg, Ohio, p. 38.

Kume, H. 1985. *Statistical Methods for Quality Improvement*. The Association of Overseas Technical Scholarship, Tokyo, Japan.

Lodge. J.P., Jr. (Ed). 1988. *Methods of Air Sampling and Analysis*. 3rd Edition, American Chemical Society, American Institute of Chemical Engineers, American Public Works Association, American Society of Mechanical Engineers, Association of Official Analytical Chemists, Air and Waste Management Association, Health Physics Society, Instrument Society of America. CRC Press, Inc. Boca Raton, FL.

Macmillan, N.A., and C.D. Creelman. 1991. *Detection Theory: A User's Guide*. Cambridge University Press, Cambridge, England.

Miller, K. M., P. Shebell and G. A. Klemic. 1994. In Situ Gamma-Ray Spectrometry for the Measurement of Uranium in Surface Soils. *Health Physics* 67, 140-150.

Myrick, T.E. et al. 1981. *State Background Radiation Levels: Results of Measurements Taken During 1975-1979*. ORNL/TM 7343, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

National Council on Radiation Protection and Measurements (NCRP). 1976a. *Environmental Radiation Measurements.* NCRP Report No. 50, NCRP, Bethesda, Maryland.

National Council on Radiation Protection and Measurements (NCRP). 1976b *Tritium Measurement Techniques.* NCRP Report 47, NCRP, Bethesda, Maryland.

National Council on Radiation Protection and Measurements (NCRP). 1978. *Instrumentation and Monitoring Methods for Radiation Protection*. NCRP Report 57, NCRP, Bethesda, Maryland.

National Council on Radiation Protection and Measurements (NCRP). 1985. *A Handbook of Radioactivity Measurement Procedures.* NCRP Report 58, 2nd ed, NCRP, Bethesda, Maryland.

National Council on Radiation Protection and Measurements (NCRP). 1987. *Exposure of the Population in the United States and Canada from Natural Radiation*. NCRP Report 94, NCRP, Bethesda, Maryland.

National Council on Radiation Protection and Measurements (NCRP). 1991. *Calibration of Survey Instruments used in Radiation Protection for the Assessment of Ionizing Radiation Fields and radioactive Surface Contamination*. NCRP Report 112, NCRP, Bethesda, Maryland.

Nuclear Regulatory Commission (NRC). 1974. *Termination of Operating Licenses for Nuclear Reactors*. Regulatory Guide 1.86, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1975. *Programs for Monitoring Radioactivity in the Environs of Nuclear Power Plants*. NRC Regulatory Guide 4.1, Rev. 1, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1979. *Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment*. Regulatory Guide 4.15, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1980. *Radiological Effluent and Environmental Monitoring at Uranium Mills*. NRC Regulatory Guide 4.14, Rev. 1, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1982. NRC, Office of Nuclear Reactor Regulation Letter to Stanford University, NRC Docket No. 50-401, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1984. *Lower Limit of Detection: Definition and Elaboration of a Proposed Position for Radiological Effluent and Environmental Measurements*. NUREG/CR-4007, U.S. Nuclear Regulatory Commission, Washington D.C.

Nuclear Regulatory Commission (NRC). 1990. *Severe Accident Risks: An Assessment for Five U.S. Nuclear Power Plants*. NUREG-1150, Volume 1. Office of Nuclear Regulatory Research, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1991. *Quality Assurance Guidance for a Low-Level Radioactive Waste Disposal Facility*. NUREG-1293, Revision 1. NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1992a. *Manual for Conducting Radiological Surveys in Support of License Termination*. NUREG/CR-5849, Draft Report for Comment, U.S. Nuclear Regulatory Commission, Washington, D.C. and Oak Ridge Associated Universities, Oak Ridge, TN.

Nuclear Regulatory Commission (NRC). 1992b. *Residual Radioactive Contamination from Decommissioning*. NUREG/CR-5512, Final Report. U.S. Nuclear Regulatory Commission, Washington, D.C. and Pacific Northwest Laboratory, Richland, WA.

Nuclear Regulatory Commission (NRC). 1994a. *Draft Branch Technical Position on Site Characterization for Decommissioning*. NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1994b. *Background as a Residual Radioactivity Criterion for Decommissioning, Draft Report.* NUREG-1501, U. S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1994c. *Working Draft Regulatory Guide on Release Criteria for Decommissioning: NRC Staff's Draft for Comment.* NUREG-1500, U. S. Nuclear Regulatory Commission, Office of Nuclear Regulatory Research, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1995. *Proposed Methodologies for Measuring Low Levels of Residual Radioactivity for Decommissioning.* NUREG-1506, Draft Report for Comment, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1997a. *A Proposed Nonparametric Statistical Methodology for the Design and Analysis of Final Status Decommissioning Surveys.* NUREG-1505, Final, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1997b. *Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions*. NUREG/CR-1507, Final, NRC, Washington, D.C.

Nuclear Regulatory Commission (NRC). 1997c. *NMSS Handbook for Decommissioning Fuel Cycle and Materials Licensees*. NUREG/BR-0241, NRC, Washington, D.C.

Perdue, P. A., R. W. Leggett, and F. F. Haywood. 1978. *A Technique for Evaluating Airborne Concentrations of Daughters of Radon Isotopes*. T. F. Gesell and W. M. Lowder, (eds). Third International Symposium on the Natural Radiation Environment, 23-28 April 1978, in Natural Radiation Environment III, Volume 1, pp. 347-356. CONF-780422, Houston, Texas.

Peter Gray & Associates (PGA). 2000. *The NORM Report*. (P.O. Box 11541, Fort Smith, Arkansas 72917). Fall 1999/Winter 2000, pp. 1-10.

Taylor, J.K. 1987. *Quality Assurance of Chemical Measurements.* Lewis Publishers, Inc., Chelsea, MI.

van der Leeden, F., F.L. Troise, and D.K. Todd. 1990. *The Water Encyclopedia*. 2nd Edition, Lewis Publishers, Chelsea, MI.

Wallo, A., M. Moscovitch, J.E. Rodgers, D. Duffey, and C. Soares. 1994. "Investigations of Natural Variations of Cesium-137 Concentrations in Residential Soils." *The Health Physics Society 39th Anual Meeting, June 28, 1994.* McLean, Virginia: The Health Physics Society.

Yu, C., A. J. Zidan, J.-J. Cheng, Y. C. Yuan, L. G. Jones, D. J. LePoire, Y. Y. Wang, C. O. Loureiro, E. Gnanaprgusan, E. Faillace, A. Wallo III, W. A. Williams, and H. Peterson. 1993. *Manual for Implementing Residual Radioactive Material Guidelines Using RESRAD, Version 5.0.* ANL/EAD/LD-2, Argonne National Laboratory, Argonne, Illinois. (DE94-015594)

Walpole, R.E. and R.H. Myers. 1985. *Probability and Statistics for Engineers and Scientists*. 3rd Edition, MacMillan Publishing Company, New York, NY.

U. S. Code of Federal Regulations

10 CFR, Chapter 1. 1995. U.S. Nuclear Regulatory Commission. "Nuclear Regulatory Commission."

10 CFR 20. 1995. U.S. Nuclear Regulatory Commission. "Standards for Protection Against Radiation."

10 CFR 20.1001. 1995. U.S. Nuclear Regulatory Commission. "Standards for Protection Against Radiation—Subpart A—General Provisions: Purpose."

10 CFR 20.1301. 1995. U.S. Nuclear Regulatory Commission. "Dose limits for individual members of the public—Subpart D—Occupational Dose Limits: Dose Limits for Individual Members of the Public."

10 CFR 20.2002. 1995. U.S. Nuclear Regulatory Commission. "Method for obtaining approval of proposed disposal procedures."

10 CFR 30. 1995. U.S. Nuclear Regulatory Commission. "Rules of General Applicability to Domestic Licensing of Byproducts and Material."

10 CFR 30.36. 1995. U.S. Nuclear Regulatory Commission. "Licenses: Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas."

10 CFR 40. 1995. U.S. Nuclear Regulatory Commission. "Domestic Licensing of Source Material."

10 CFR 40.42. 1995. U.S. Nuclear Regulatory Commission. "Licenses: Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas."

10 CFR 40.65. 1995. U.S. Nuclear Regulatory Commission. "Domestic Licensing of Source Material: Effluent Monitoring Reporting Requirements."

10 CFR 40, Appendix A. 1995. U.S. Nuclear Regulatory Commission. "Criteria Relating to the Operation of Uranium Mills and the Disposition of Tailings or Wastes Produced by the Extraction or Concentration of Source Material From Ores Processed Primarily for Their Source Material Content"

10 CFR Part 50. 1995. U.S. Nuclear Regulatory Commission. "Domestic Licensing of Production and Utilization Facilities."

10 CFR Part 50, Appendix I. 1995. U.S. Nuclear Regulatory Commission. "Numerical Guides for Design Objectives and Limiting Conditions for Operations to Meet the Criterion 'As Low as is Reasonably Achievable' For Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents."

10 CFR Part 50.82. 1995. U.S. Nuclear Regulatory Commission. "Domestic Licensing of Production and Utilization Facilities: US/IAEA Safeguards Agreement: Application for Termination of License."

10 CFR 70. 1995. U.S. Nuclear Regulatory Commission. "Domestic Licensing of Special Nuclear Material."

10 CFR 70.38. 1995. U.S. Nuclear Regulatory Commission. "Licenses: Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas."

10 CFR 70.59. 1995. U.S. Nuclear Regulatory Commission. "Special Nuclear Material Control, Records, Reports and Inspections: Effluent Monitoring Reporting Requirements."

10 CFR 71. 1996. U.S. Nuclear Regulatory Commission. "Packaging and Transportation of Radioactive Material."

10 CFR 71.4. 1996. U.S. Nuclear Regulatory Commission. "Packaging and Transportation of Radioactive Material—Subpart A—General Provisions: Definitions."

10 CFR 71.10. 1996. U.S. Nuclear Regulatory Commission. "Packaging and Transportation of Radioactive Material—Subpart B—Exemptions: Exemption for Low-level Materials."

10 CFR 71.88. 1996. U.S. Nuclear Regulatory Commission. "Packaging and Transportation of Radioactive Material—Subpart F—Operating Controls and Procedures: Air Transport of Plutonium."

10 CFR 72.54. 1995. U.S. Nuclear Regulatory Commission. "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-level Radioactive Waste—Subpart C—Issuance and Conditions of License: Expiration and Termination of Licenses and Decommissioning of Sites and Separate Buildings or Outdoor Areas."

40 CFR 141. 1994. U.S. Environmental Protection Agency. "National Primary Drinking Water Regulations."

40 CFR 141.15. 1994. U.S. Environmental Protection Agency. "National Primary Drinking Water Regulations—Subpart B—Maximum Contaminant Levels for Radium-226, Radium-228, and Gross Alpha Particle Radioactivity in Community Water Systems."

40 CFR 141.16. 1994. U.S. Environmental Protection Agency. "National Primary Drinking Water Regulations—Subpart C—Maximum Contaminant Levels for Beta Particle and Photon Radioactivity from Man-made Radionuclides in Community Water Systems."

40 CFR Part 190. 1995. U.S. Environmental Protection Agency. "Environmental Radiation Protection Standards for Nuclear Power Operations."

40 CFR 192, 30-34. 1994. U.S. Environmental Protection Agency. "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings—Subpart D—Standards for Management of Uranium Byproduct Materials Pursuant to Section 84 of the Atomic Energy Act of 1954, as Amended."

40 CFR 192, 40-43. 1994. U.S. Environmental Protection Agency. "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings—Subpart E—Standards for Management of Thorium Byproduct Materials Pursuant to Section 84 of the Atomic Energy Act of 1954, as Amended."

40 CFR 300. 1990. U.S. Environmental Protection Agency. "Hazard Ranking System."

49 CFR 107. 1996. U.S. Department of Transportation. "Registration of shipper/carrier—Subpart G—Registration of Persons Who Offer or Transport Hazardous Materials."

49 CFR 171. 1996. U.S. Department of Transportation. "Accident Reporting."

49 CFR 172. 1996. U.S. Department of Transportation. "Marking and Labeling Packages for Shipment."

49 CFR 173. 1996. U.S. Department of Transportation. "Packaging."

49 CFR 174. 1996. U.S. Department of Transportation. "Transport by Rail."

49 CFR 175. 1996. U.S. Department of Transportation. "Transport by Air."

49 CFR 176. 1996. U.S. Department of Transportation. "Transport by Vessel."

49 CFR 177. 1996. U.S. Department of Transportation. "Transport on Public Highway."

U.S. Federal Code

Atomic Energy Act of 1954 (AEA), as Amended.

Clean Air Act of 1955 (CAA).

Diplomatic Security and Anti-Terrorism Act of 1986.

Energy Reorganization Act of 1974, as Amended.

Executive Order 10831, "Federal Compliance With Pollution Control Standards."

Energy Policy Act of 1992.

Federal Water Pollution Control Act of 1948 (FWPCA).

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as Amended.

Low Level Radioactive Waste Policy Act (LLRWPA) of 1980, as amended.

Low-Level Radioactive Waste Policy Amendments Act of 1985.

Low-Level Radioactive Waste Policy Act of 1980.

Nuclear Non-Proliferation Act of 1982.

Nuclear Waste Policy Act of 1982 (NWPA).

Nuclear Waste Policy Amendments Act of 1987.

Resource Conservation and Recovery Act of 1976 (RCRA).

Safe Drinking Water Act of 1974 (SDWA).

Solar, Wind, Waste and Geothermal Power Production Incentives Act of 1990.

Toxic Substances Control Act of 1976 (TSCA).

Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), as Amended.

West Valley Demonstration Project Act of 1980.

HRA-0169

The Aerospace Maintenance and Regeneration Center

AMARC

The Air Force Material Command

RADIATION MATERIAL HANDBOOK

This handbook is meant to be a guide toward possible locations of radioactive materials found on aircraft and aircraft components. It covers aircraft, active and inactive, belonging to all DOD services. Each item will **NOT** be found on each aircraft due to previous maintenance and TCTO actions. Every attempt will be made to keep this handbook current. However, due to the amount of research required and lack of technical data available in some cases, incorrect information may be found. Correct or missing data which is forwarded to AMARC/SE will be entered during the next revision.

The technical order illustrations are for informational purposes only. They are **NOT** meant to be used as a T.O. for the purpose of maintenance.

The handbook is divided into 15 sections representing the various categories of aircraft such as attack, bomber, cargo, etc.

Please forward any comments regarding this handbook to the following:

AMARC/SE
Davis-Monthan AFB, Az
85707-6201

or call: Mr. William Emmer DSN 361-4363
Mr. Claude Wells DSN 361-4363
(602 750-4363)

WORK CONTROL DOCUMENT (MEDS)

1 DATE

PAGE __ OF __ PAGES

2 JOB ORDER NO	3 QUANTITY	4 PRODUCTION SEC/NCC	5 DATE SCHED	6 DATE COMPLETED

7 PART NUMBER	8 TECH DATA	9 ITEM SERIAL NO

10 MODEL-DESIGN-SERIES	11 STOCK NUMBER	12 OPTIONAL
C-130		

13 SERIAL NUMBER	14 NOUN
ALL	Radiation Hazard Handbook

15. DISPATCH STATION	16. PERF RCC/OP NO	17 WORK TO BE ACCOMPLISHED	18 DATE YYYYYY MMDDHC	19 P	20 O
	001	Circuit Breakers (4) Essential Bus and auto pilot on C/P lower breaker panel. Radium Fig 179, PN 371725-1	08/11/3		
	002	Exciter Assembly PN 10-85375-4 All engines 10-85375-1,2&3 Fig 18C-5 10-111150-1 Cesium 137 196C160G1	01/11/4		
	003	Indicator, Cabin Press Control. Fig 99-8 PN 102076-3 Radium	01/11/4		
	004	Regulators on Oxygen. Walk around bottle. Radium	01/11/4		
	005	ADF Radio Control on Naval Console Radium	27/02/5		
	006	Indicator, Cabin Alternate on Pilot's overhead panel. Radium	27/02/5		
	007	AC Generator Circuit Breaker Panel. Radium	27/02/5		
	008	Interior light circuit breaker panel on left aircraft of pilot seat. Radium	27/02/5		
	009	Pilot's and Co-pilot's signal outlet circuit breakers. Radium	28/02/5		
	010	#3 Oil cooler flap circuit breaker on right wing DC Bus. at rear of cockpit. Radium	28/02/5		

21 FINAL DESTINATION		22. COORDINATION/INITIATING RCC SIGNATURE/DATE		23. DOCUMENT/SN
DISPATCH	FUNCTIONAL CODE	A	C	PAGE C-35
		B	D	

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1 DATE

PAGE __ OF __ PAGES

2 JOB ORDER NO	3 QUANTITY	4 PRODUCTION SEC/RCC	5 DATE SCHED	6 DATE COMPLETED

7 PART NUMBER	8 TECH DATA	9 ITEM SERIAL NO
	1C130B-4, 1C130A-4, 00-110N-2, 3, 4	

10 MODEL-DESIGN-SERIES	11 STOCK NUMBER	12 OPTIONAL
C-130		

13 SERIAL NUMBER	14 NOUN
ALL	Radiation Hazard Handbook

15. DISPATCH STATION	16. PERF RCC/OP NO	17 WORK TO BE ACCOMPLISHED	18 DATE MMDDYY	19 P	20 Q
	011	Indicator, low approach PN 1D525ARN TO 1C130A-4 Fig 106 Index 10	24/09/6		
	012	Indicator, rate of climb PN MS28049-1 TO 1C130A-4 Fig 104 Index 17	24/09/6		
	013	Oxygen quanity indicator PN 802642 Fig 258 Index 72 Radium	14/01/87		
	014	Circuit breaker DC Interphone Fig 178 Radium	14/01/87		
	015	ADF radio control, co-pilots R/H console. TO 1C130A-4 Fig 105 Index 86 Radium PN 115-00073-9			
	016	AC/DC cir breaker for doppler radar (located lower flight station radio junction box) TO 1C130A-4 Fig 224 Index 124 PN MS 25017-5 Radium			
	017	DC cir breaker for doppler radar (located lower flight station radio junction box) TO 1C130A-4 Fig 224 Index 124 PN MS 25017-5 Radium			
	018	DC Generator Control Circuit Breaker			
	019	ADF Radio Control Center Console			
	020	Feather Motor Power Phase A Circuit Breaker			

21 FINAL DESTINATION		22. COORDINATION/INITIATING RCC SIGNATURE/DATE		23. DOCUMENT SN
DISPATCH	FUNCTIONAL CODE	A	C	
		B	D	

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WORK CONTROL DOCUMENT (MEDS)

1 DATE

PAGE __ OF __ PAGES

2 JOB ORDER NO	3 QUANTITY	4 PRODUCTION SEC RCC	5 DATE SCHED	6 DATE COMPLETED

7 PART NUMBER	8 TECH DATA	9 ITEM SERIAL NO
	1C130B-4, 1C130A-4, 00-110N-2, 3, 4	

10 MODEL-DESIGN-SERIES	11 STOCK NUMBER	12 OPTIONAL
C-130		

13 SERIAL NUMBER	14 NOUN
ALL	Radiation Hazard Handbook

15 DISPATCH STATION	16 PERF RCC/OP NO	17 WORK TO BE ACCOMPLISHED	18 FOUND MECHANIC	19 P	20 Q
	021	Control, Radar Set PN C1242 APN 59 Fig 108 Index 32			
	022	Circuit Breaker PN MS 25017-10 Fig 205 Index 56 DC Power			
	023	Circuit Breaker PN MS 25017-20 Fig 223 Index 90 DC Power			
	024	Circuit Breaker PN 346740-15-17 Fig 223 Index 5 DC Power			
	025	Exciter Assy GTC Fig 190 Index 104			
	026	Cir Breaker Air Conditioning Control Valve PN MS 25017-5 Fig 199 Index 7 Radium	17/03/88		
	027	Indicator Glide Slope ID-481 ARN Fig Radium	27/09/88		
	028	Circuit Breaker Thunderstorm Flight Deck Pilot CB Panel Radium	27/09/88		
	029	Feather Motor Power Phase A Circuit Breaker #2 Engine	3/2/89		
	030	Feather Motor Power Phase A Circuit Breaker #3 Engine	03/02/89		

21. FINAL DESTINATION		22. COORDINATION/INITIATING RCC SIGNATURE/DATE		23 DOCUMENT SN
DISPATCH	FUNCTIONAL CODE	A	C	PAGE 3
		B	D	Change 1

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☆ U.S. GOVT PRINTING OFFICE: 1988—548-163

WORK CONTROL DOCUMENT (MEDS)

PAGE __ OF __ PAGES

2 JOB ORDER NO	3 QUANTITY	4 PRODUCTION SEC RCC	5 DATE SCHED	6 DATE COMPLETED

7 PART NUMBER	8 TECH DATA	9 ITEM SERIAL NO
	1C130B-4, 1C130A-4, 00-110N-2, 3, 4 1C-130-B-1	

10 MODEL DESIGN SERIES	11 STOCK NUMBER	12 OPTIONAL
C-130		

13 SERIAL NUMBER	14 NOUN
ALL	Radiation Hazard Handbook

15 DISPATCH STATION	16 PERF RCC OP NO	17 WORK TO BE ACCOMPLISHED	18 FOUND	19 P	20
	031	Feather Motor Power Phase A Circuit Breaker #4 Engine	03/03/89		
	032	Landing Light C/B Fig 1-37, 1C-130-B-1 CoPilot's Lower C/B Panel Ra 226	03/02/9		
	033	Feather Motor Power C/B No. 1 and No. 4, Pilots side C/B Panel 1C-130-B-1, Fig 1-32 Ra 226	03/02/9		
	034	Fuel Qty Power C/B No. 1 Pilots Lower C/B Panel 1C-130-B-1, Fig 1-34 Ra 226	03/02/9		

21 FINAL DESTINATION		22 COORDINATION/INITIATING RCC SIGNATURE/DATE		23 DOCUMENT SN
DISPATCH	FUNCTIONAL CODE	A	C	PAGE C 4
		B	D	CHANGE 1

AFLC FORM 958 NOV. 80 PREVIOUS EDITION WILL BE USED

FUSELAGE CONTROLS

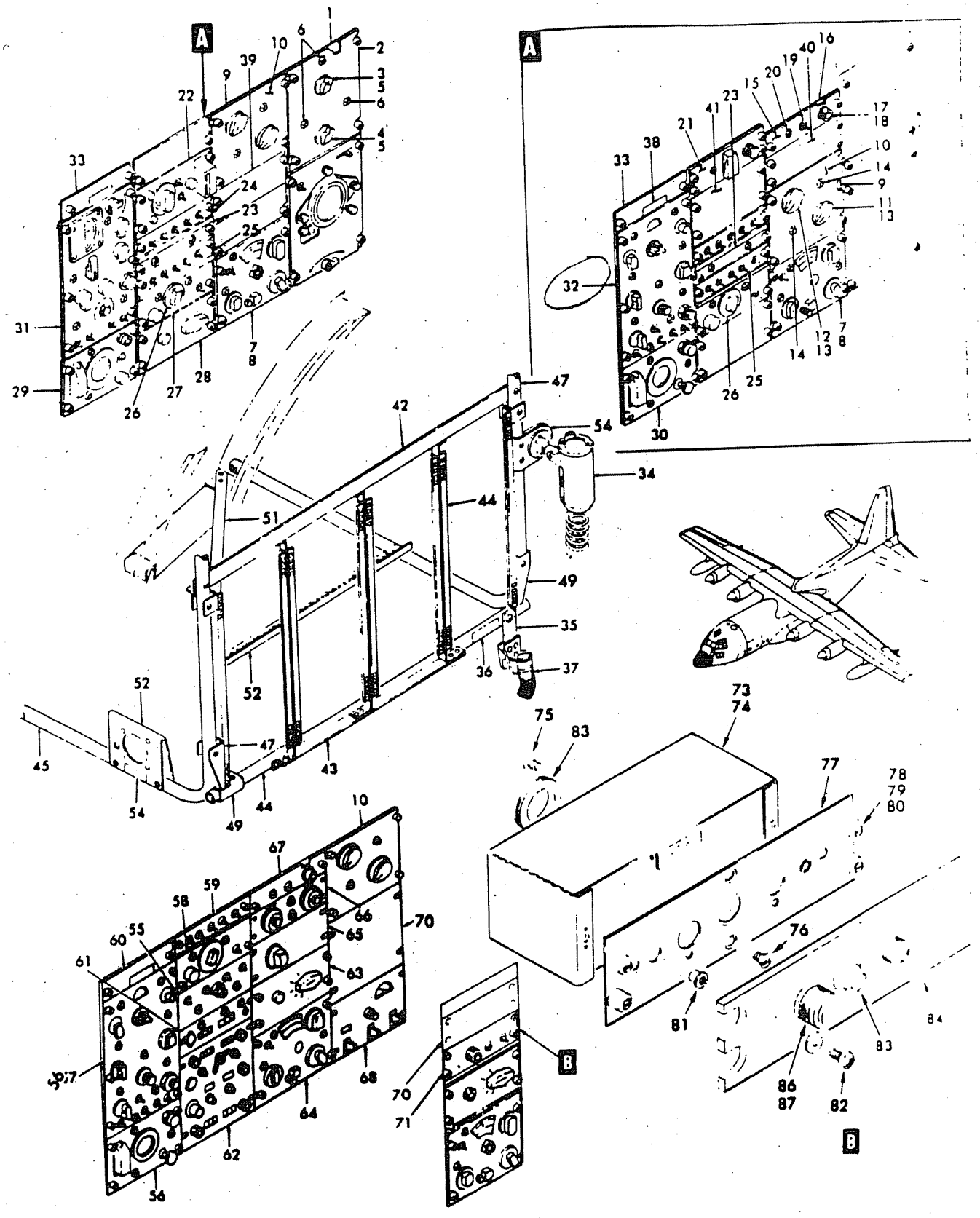


Figure 108. Navigator's Control Panel and Support Installation

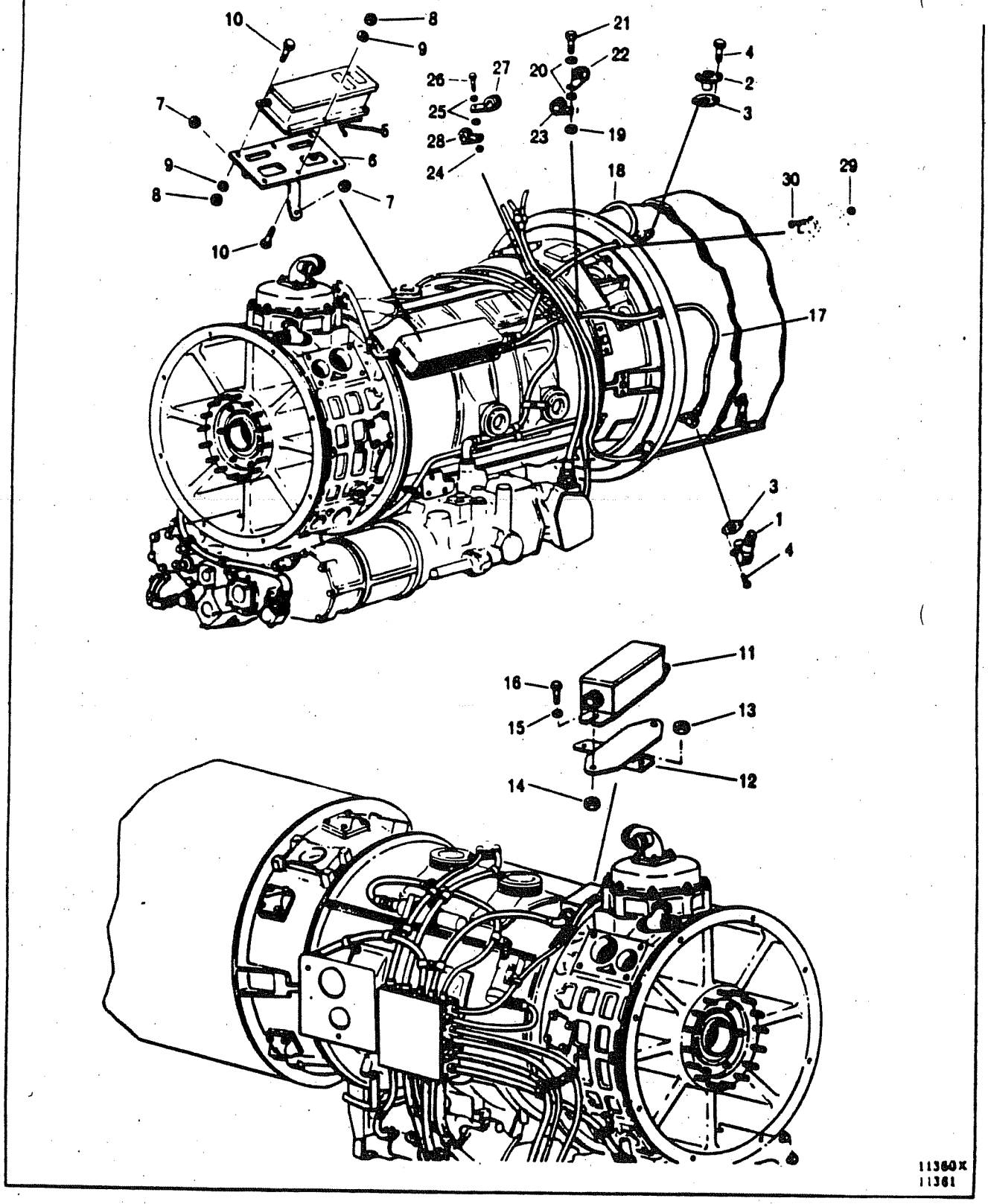


Figure 18C. Electrical System (Ignition) (Quad Compressor Case)

FUSELAGE CONTROLS

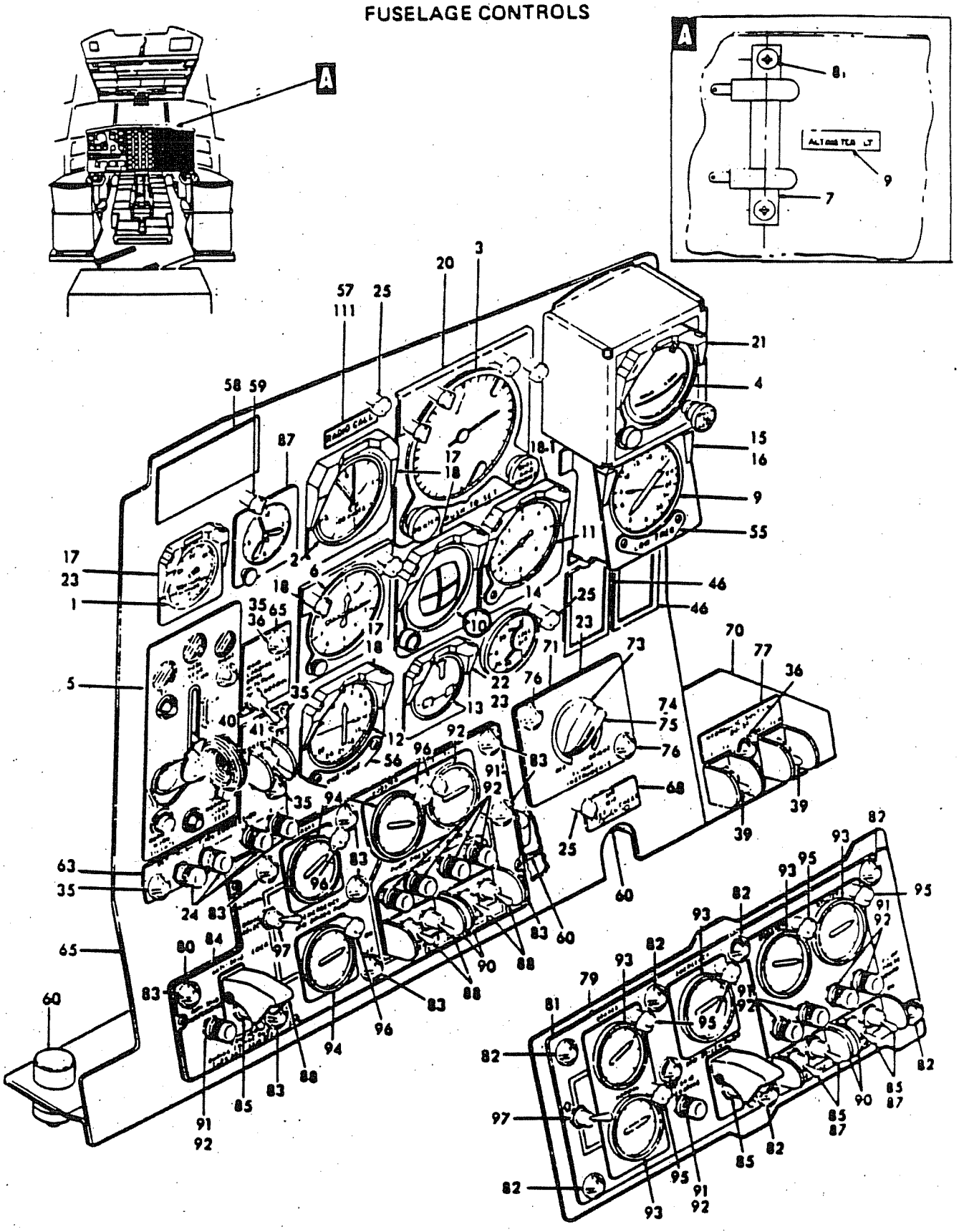


Figure 106. Copilot's Instrument Panel (Sheet 1 of 2)

FUSELAGE CONTROLS

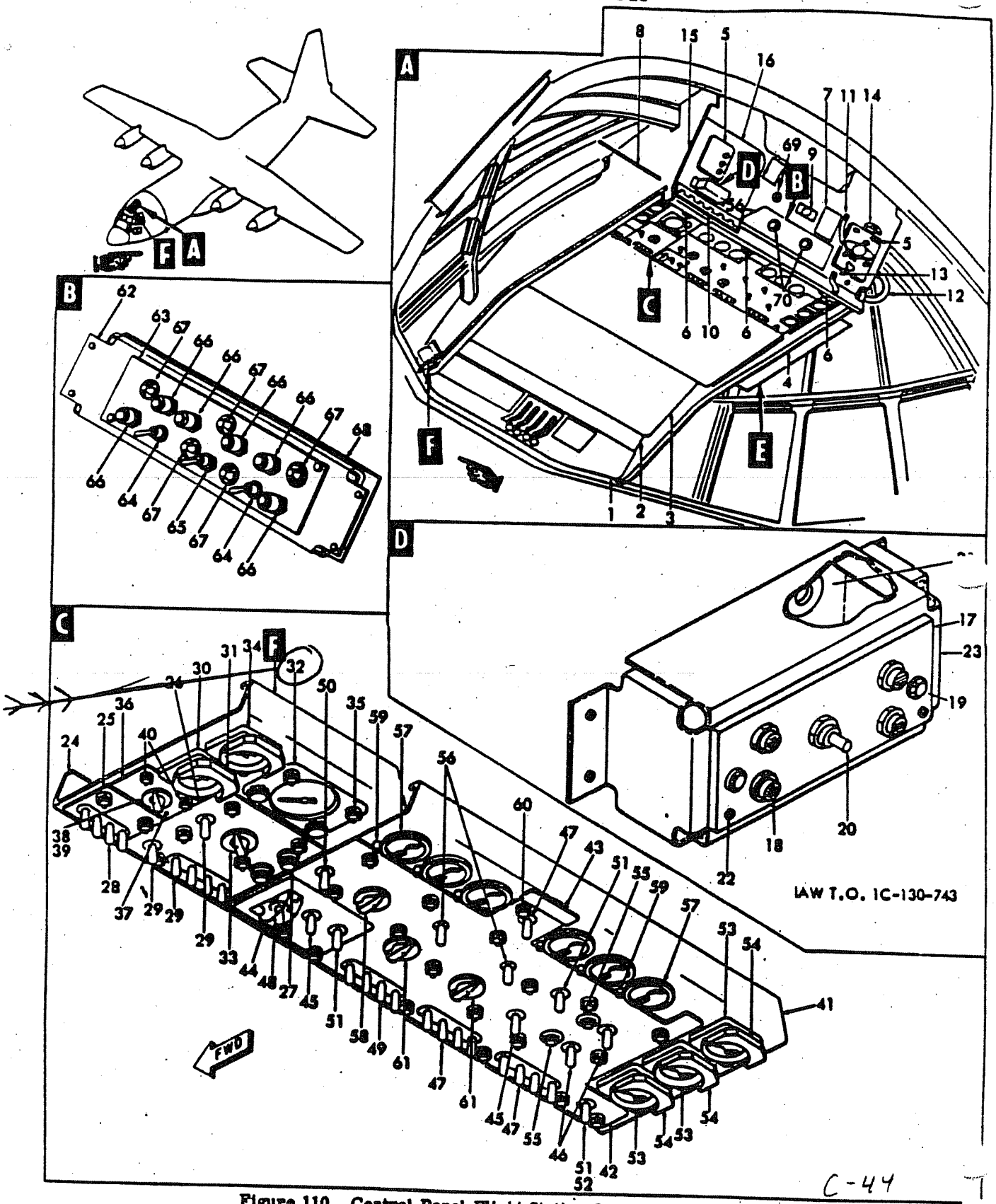


Figure 110. Control Panel Flight Station Overhead (Sheet 1 of 2)

1 30A-4-25-C

FUSELAGE CONTROLS

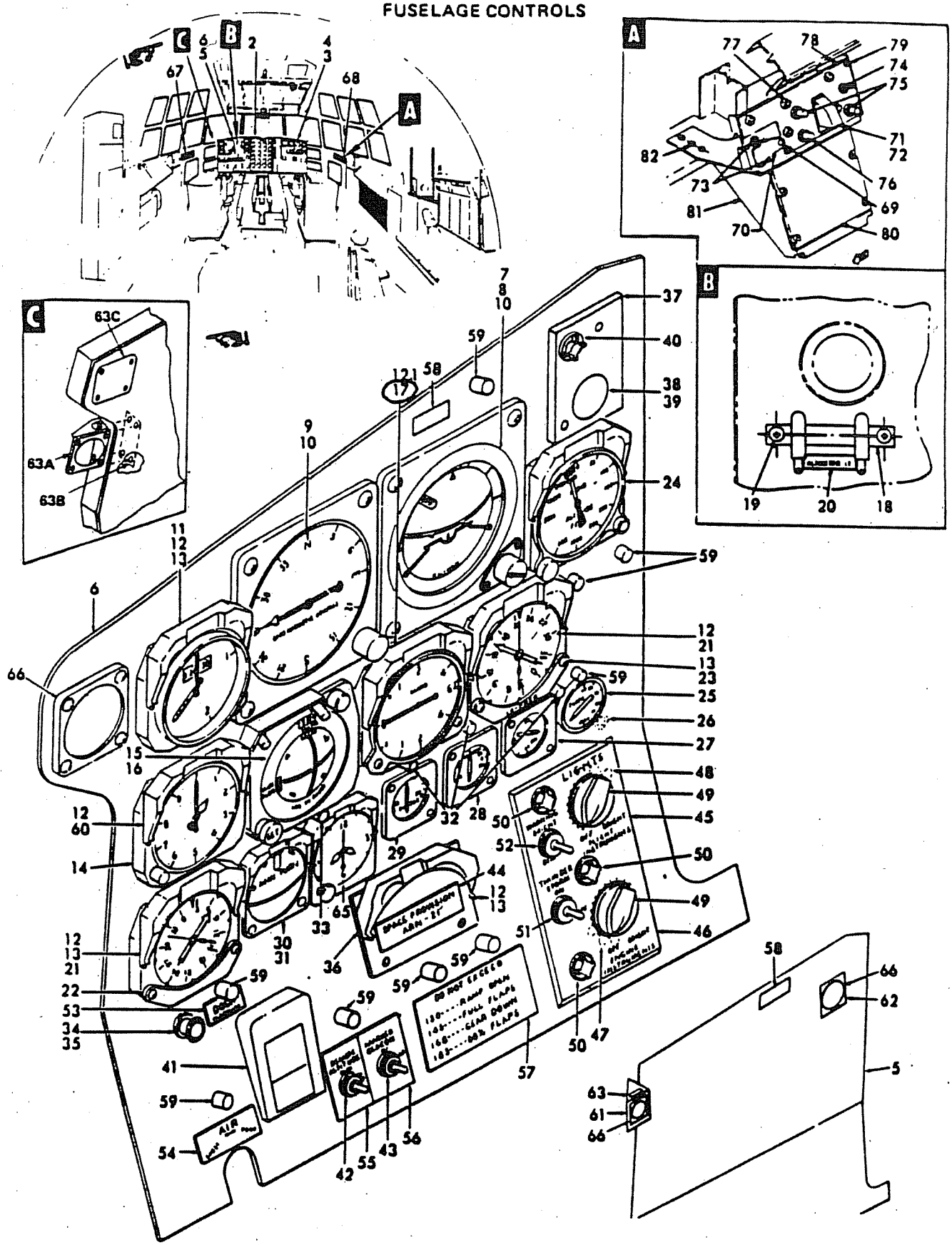


Figure 104. Pilot's Instrument Panel (Limited)

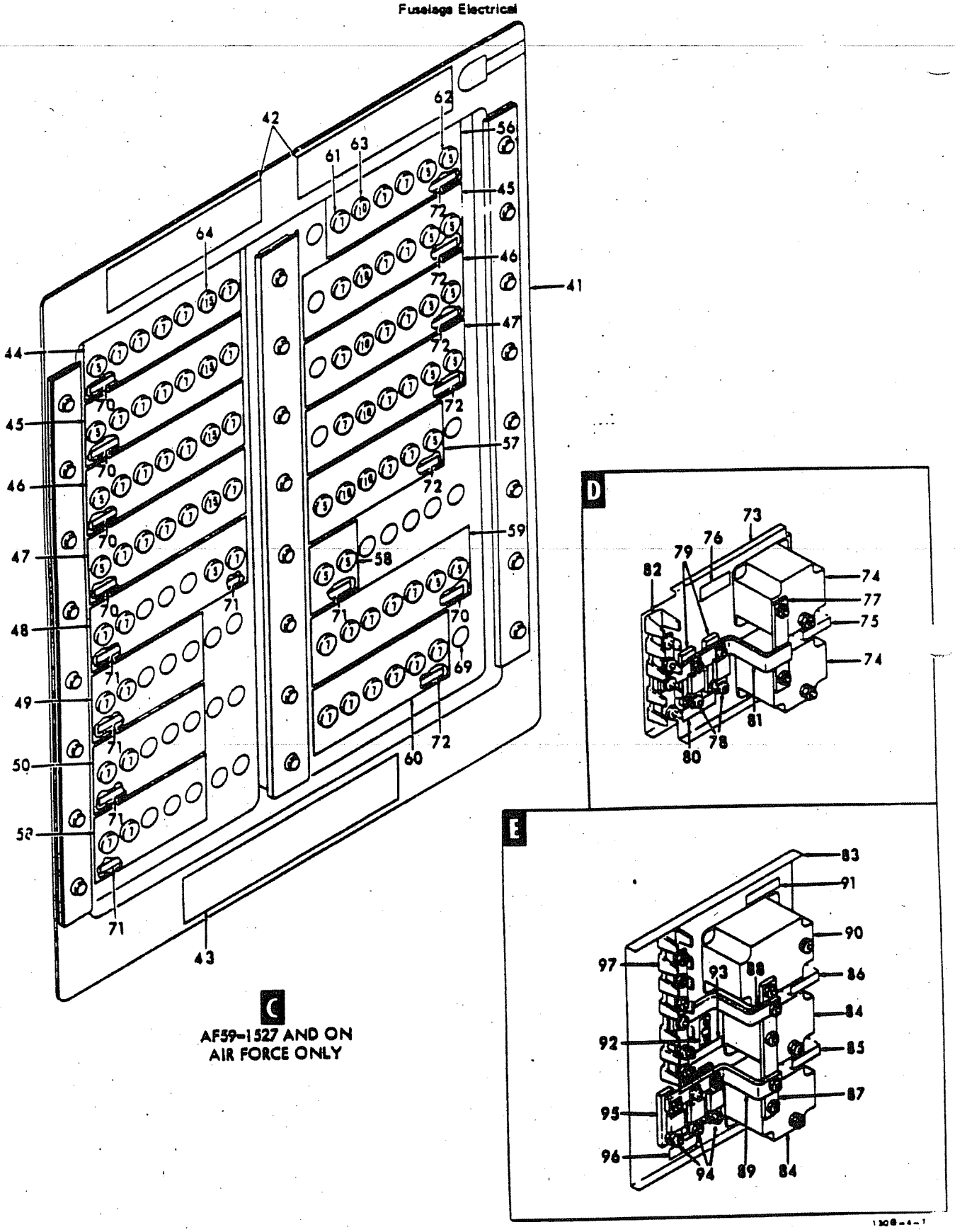


Figure 178. Copilot's Side Panel (Sheet 2 of 2)

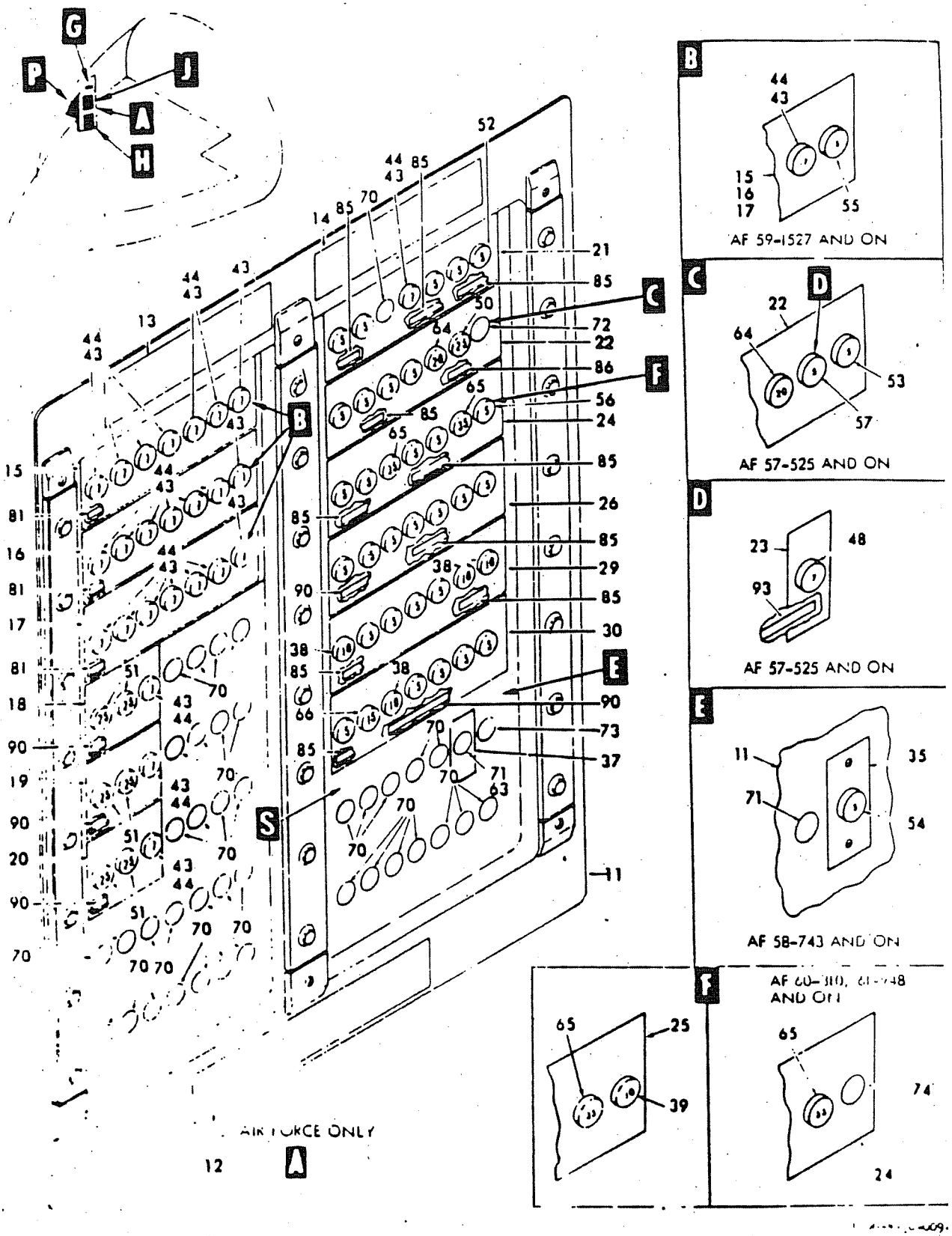


Figure 179. Copilot's Distribution Panels (Sheet 1 of 4)

RADIO

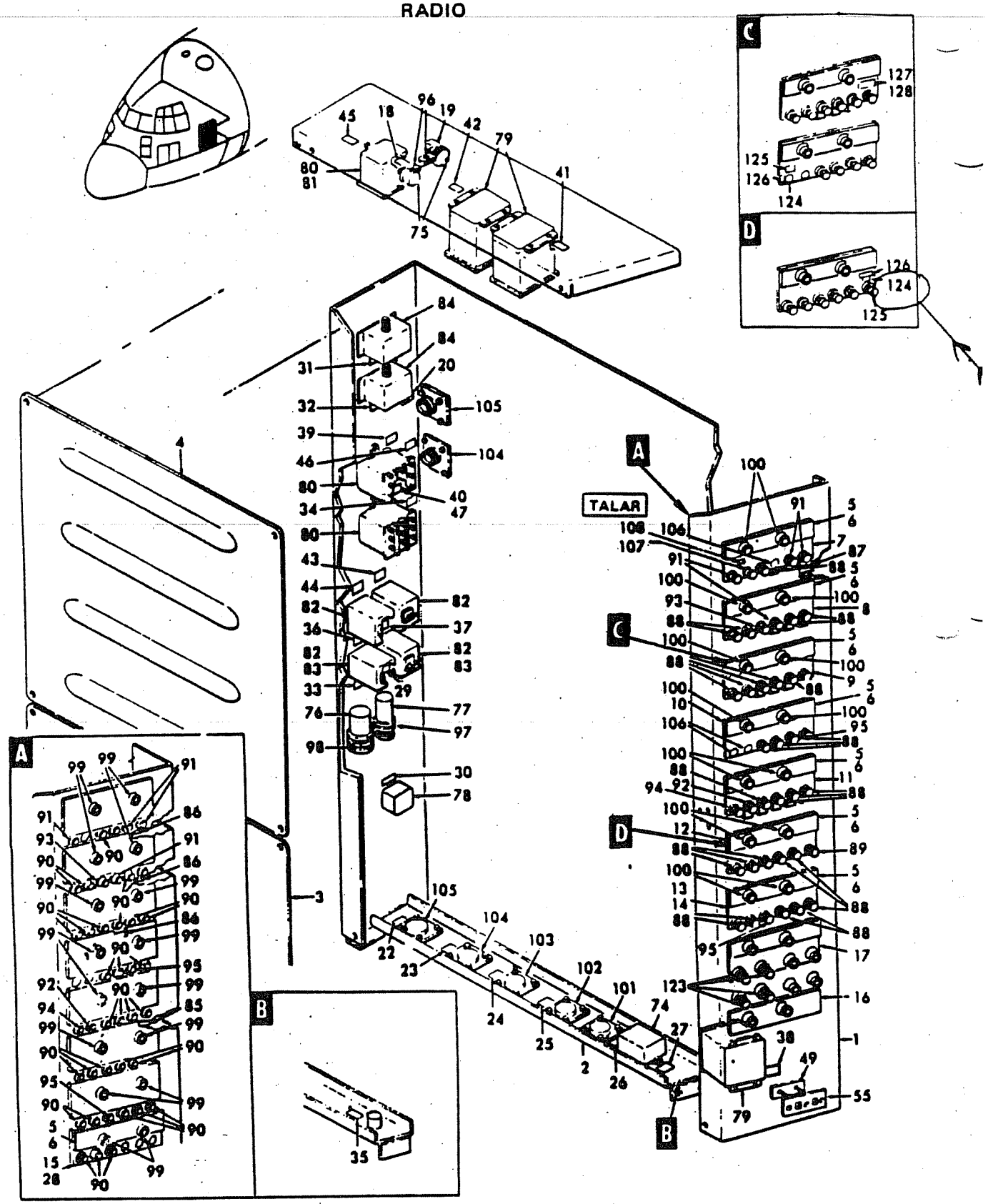
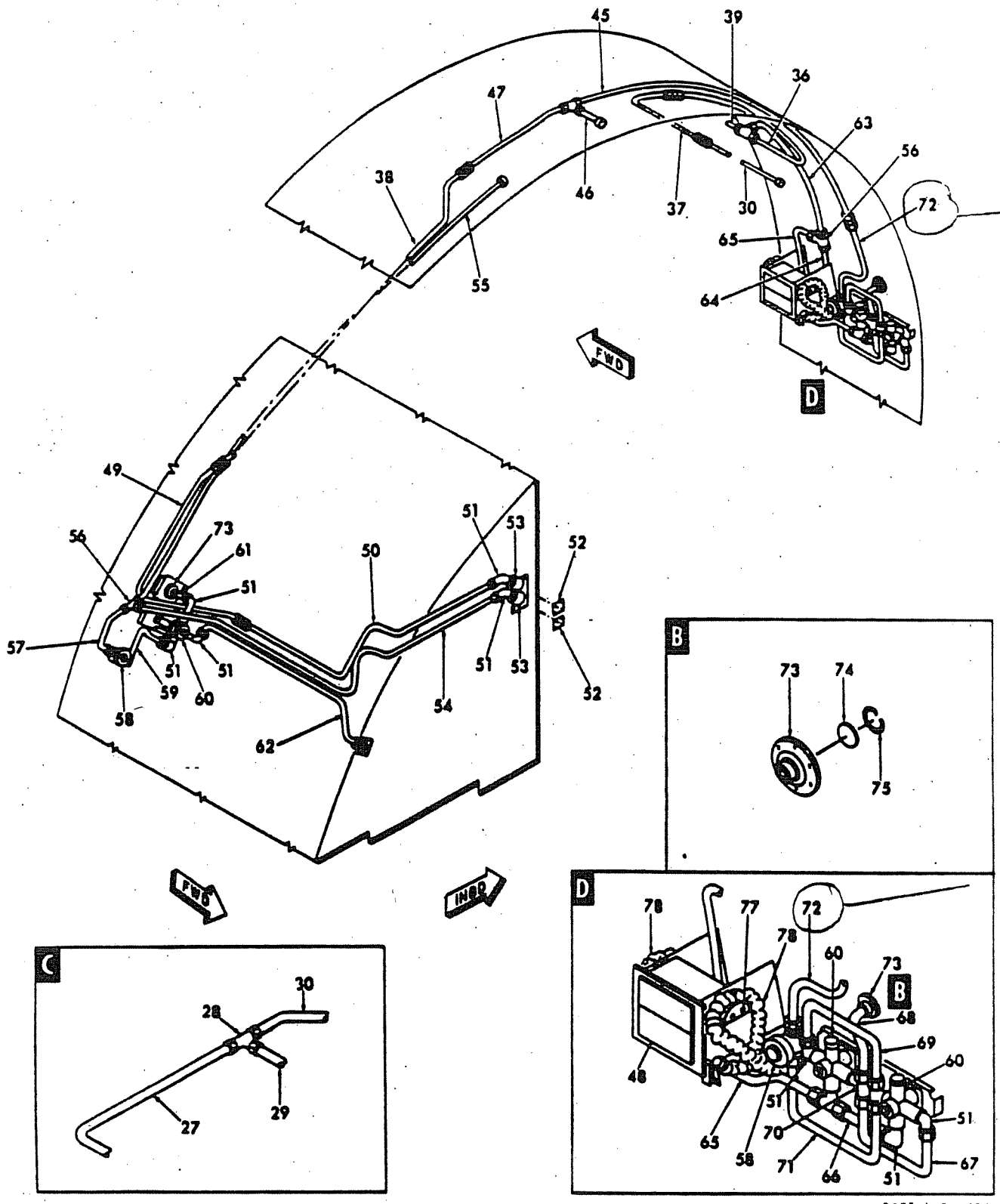


Figure 224. Flight Station Radio Junction Box (Sheet 1 of 2)



1306-4-13-012

Figure 258. Crew Oxygen System (Sheet 2 of 2)

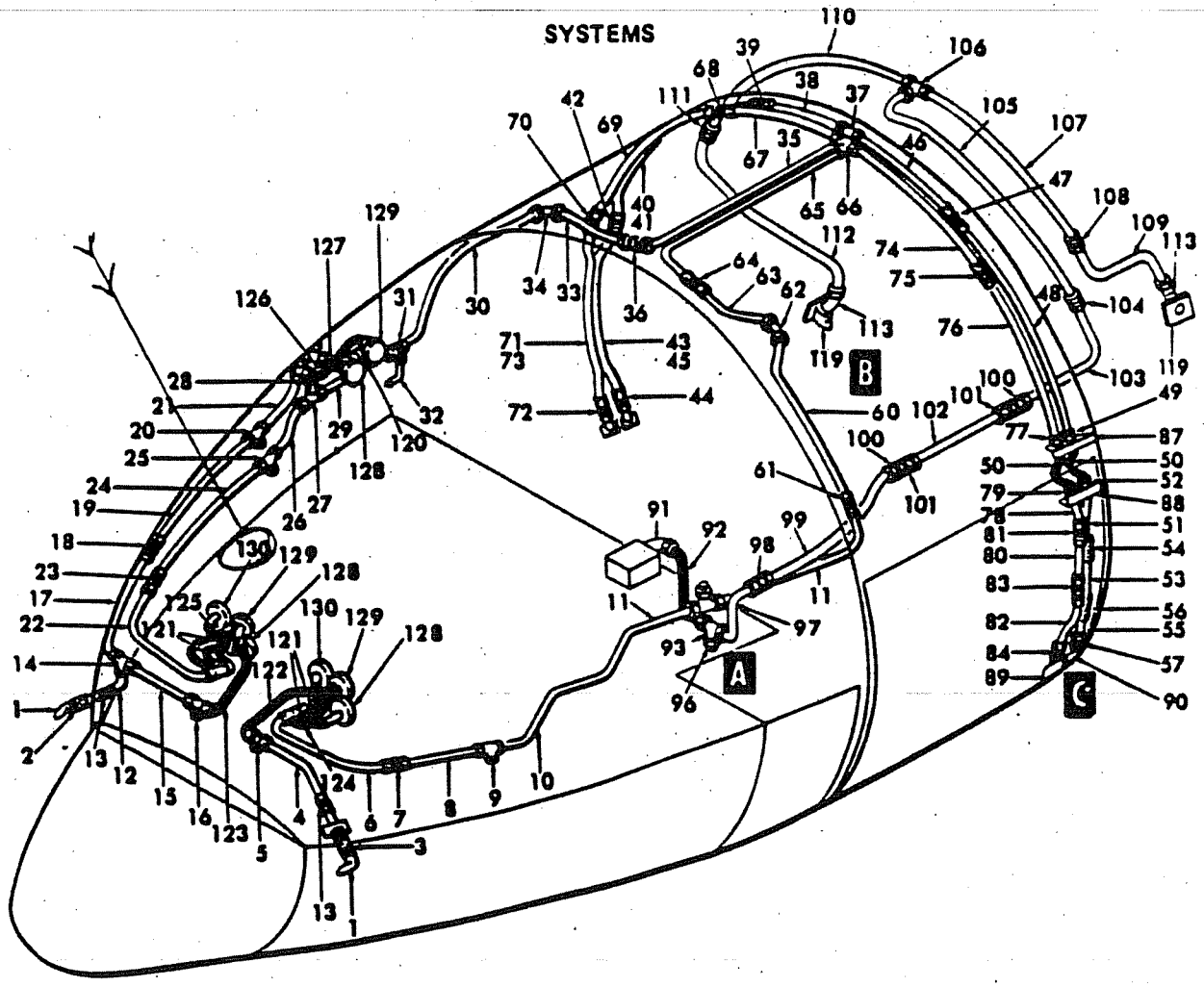
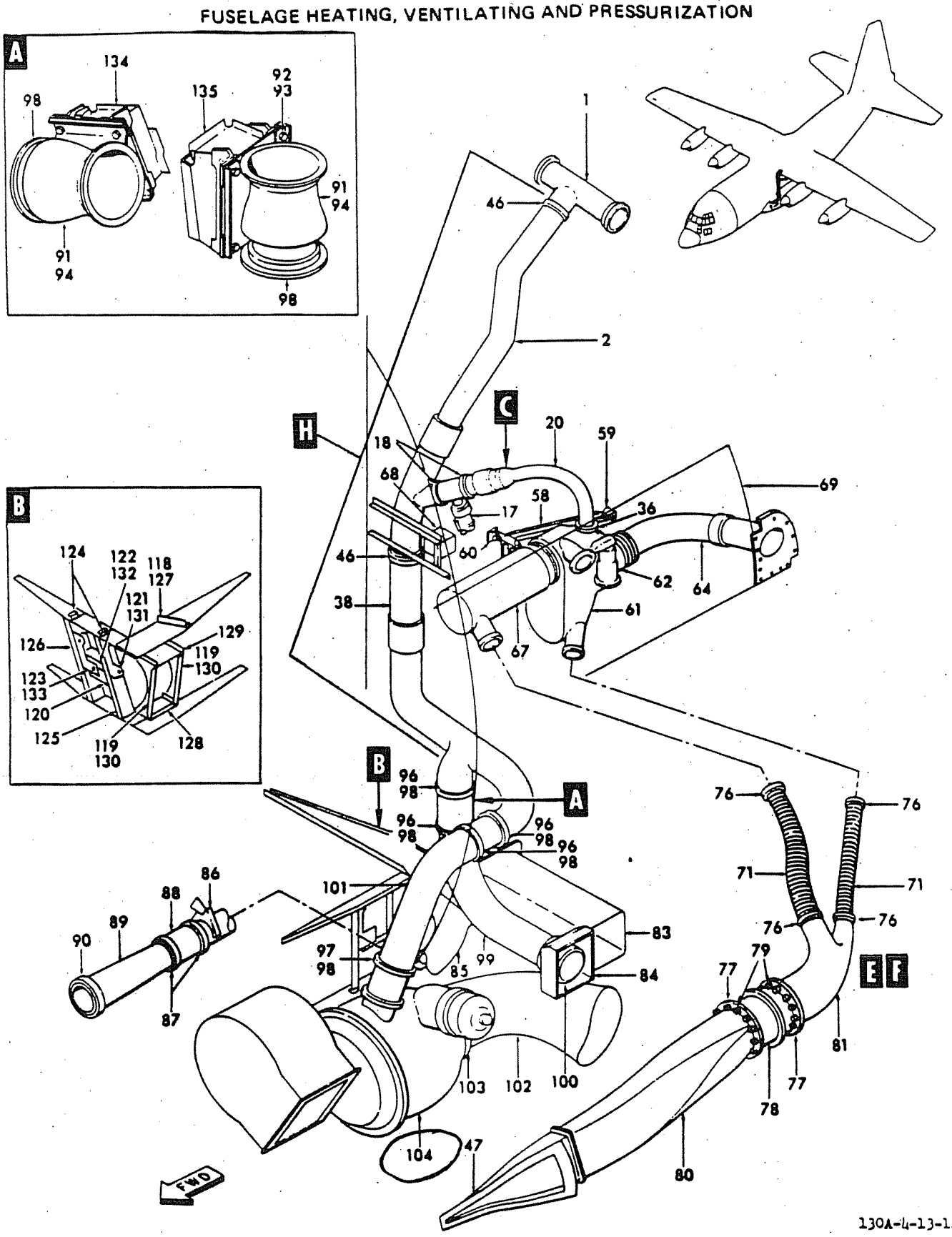


Figure 286. Pitot Static System

FUSELAGE HEATING, VENTILATING AND PRESSURIZATION



130A-4-13-127

Figure 190. GTC and ATM Ducting (Sheet 1 of 3)

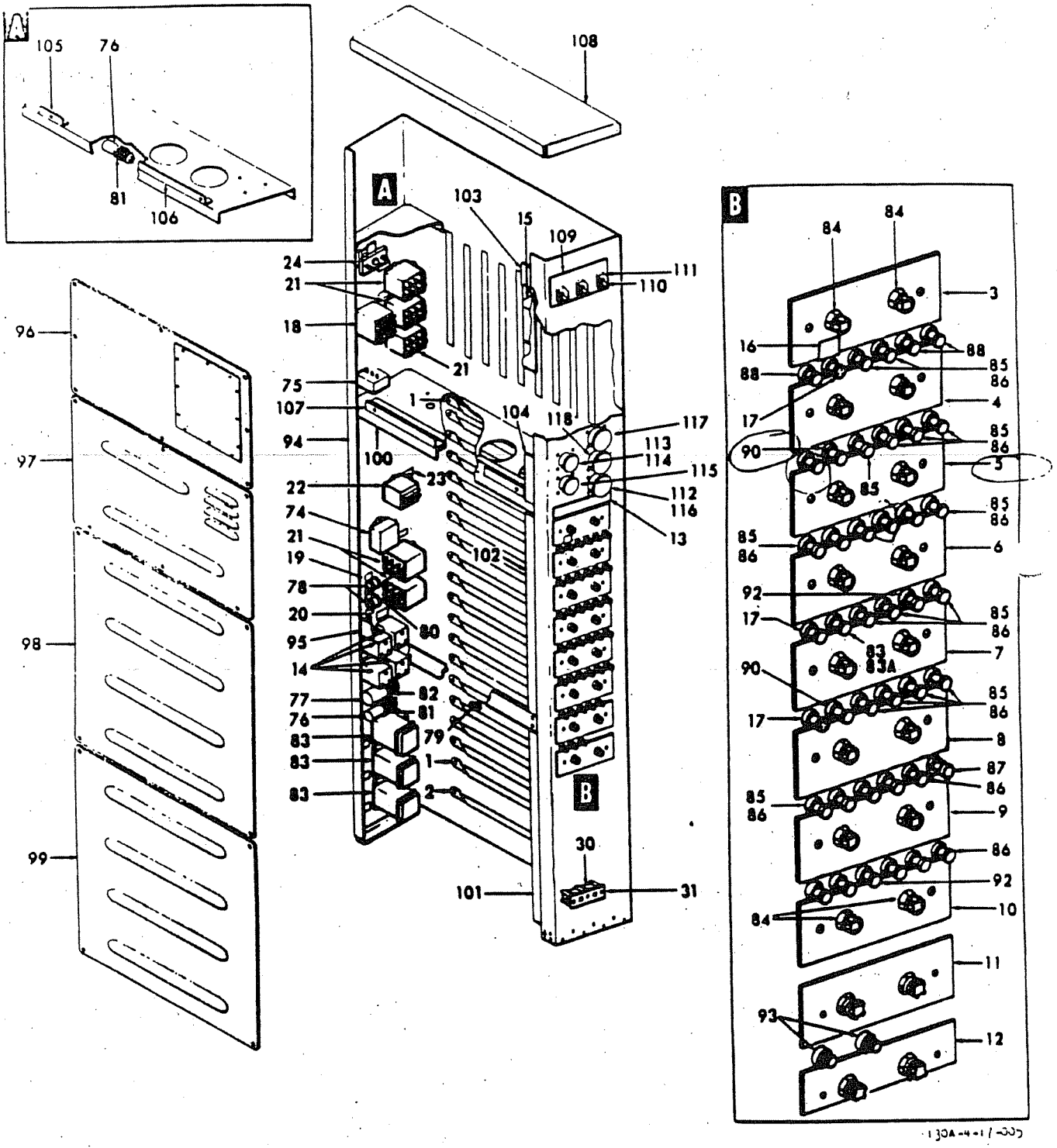


Figure 223. Flight Station Radio Junction Box (Sheet 1 of 2)

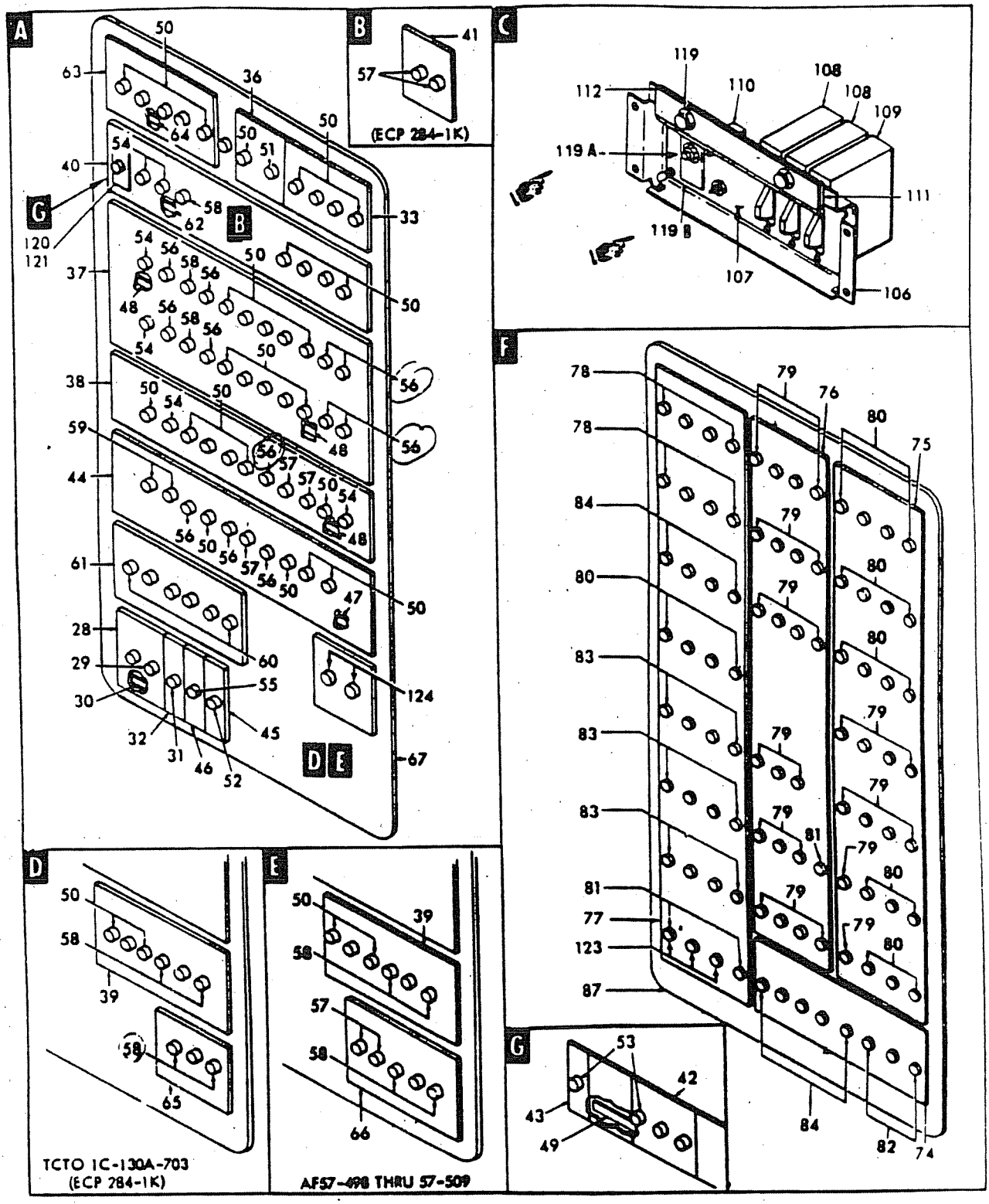


Figure 205. AC-DC Main Power Relay and Switch Panels (Sheet 2 of 2)

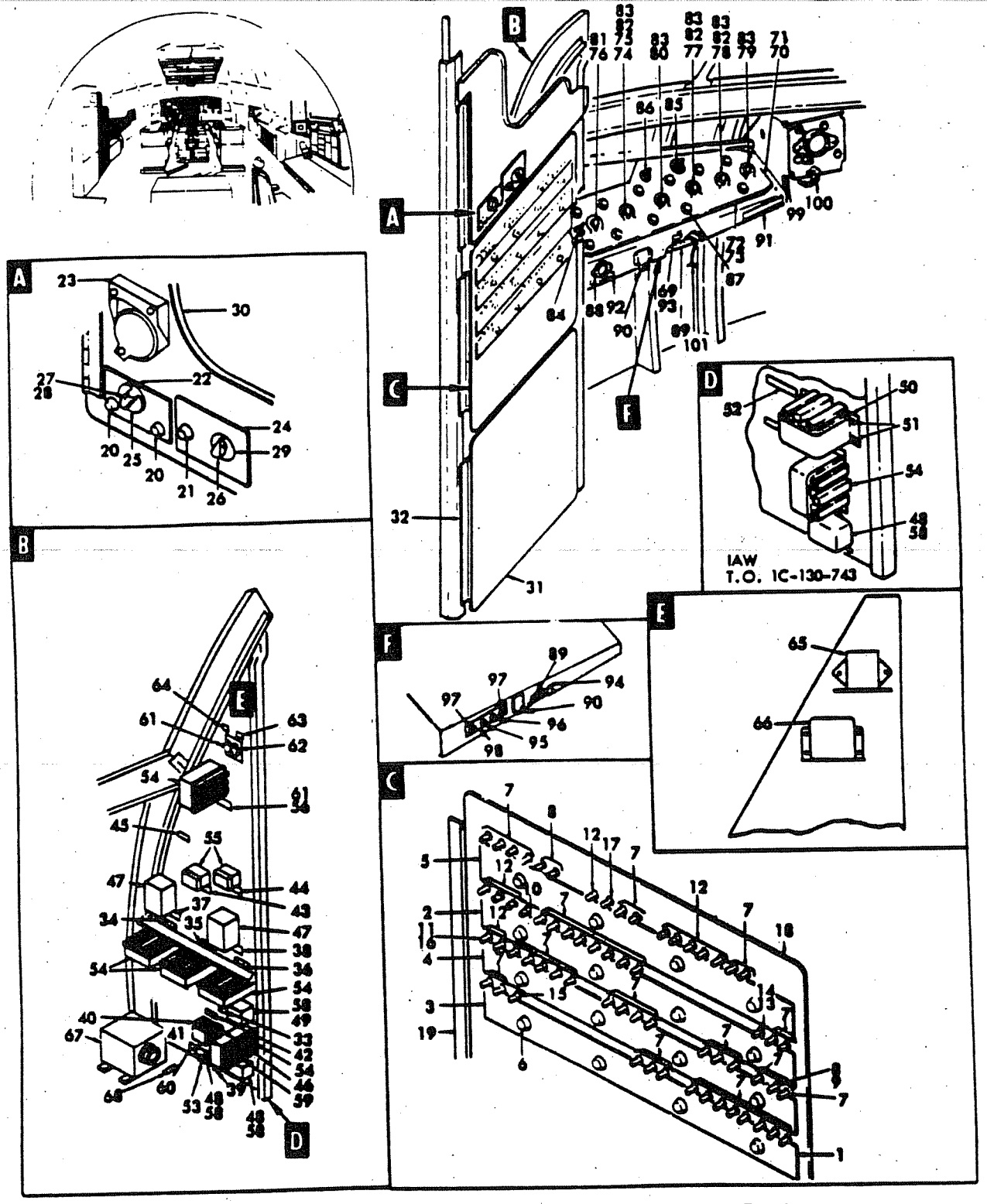


Figure 199. Flight Station Distribution Box and Pilot's Side Panel

E Airplane AF 63-7815

Copilot's Lower Circuit Breaker Panel

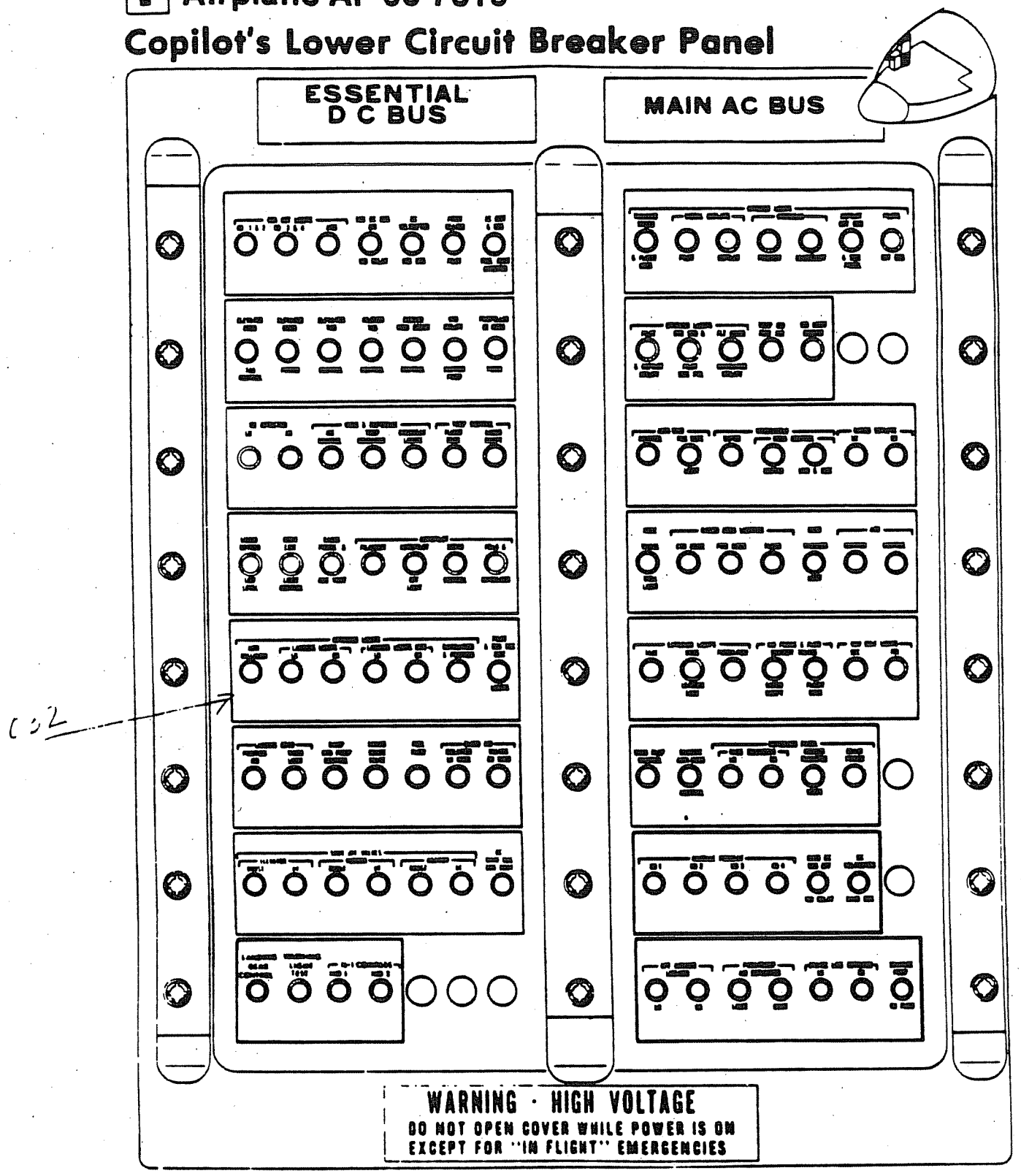
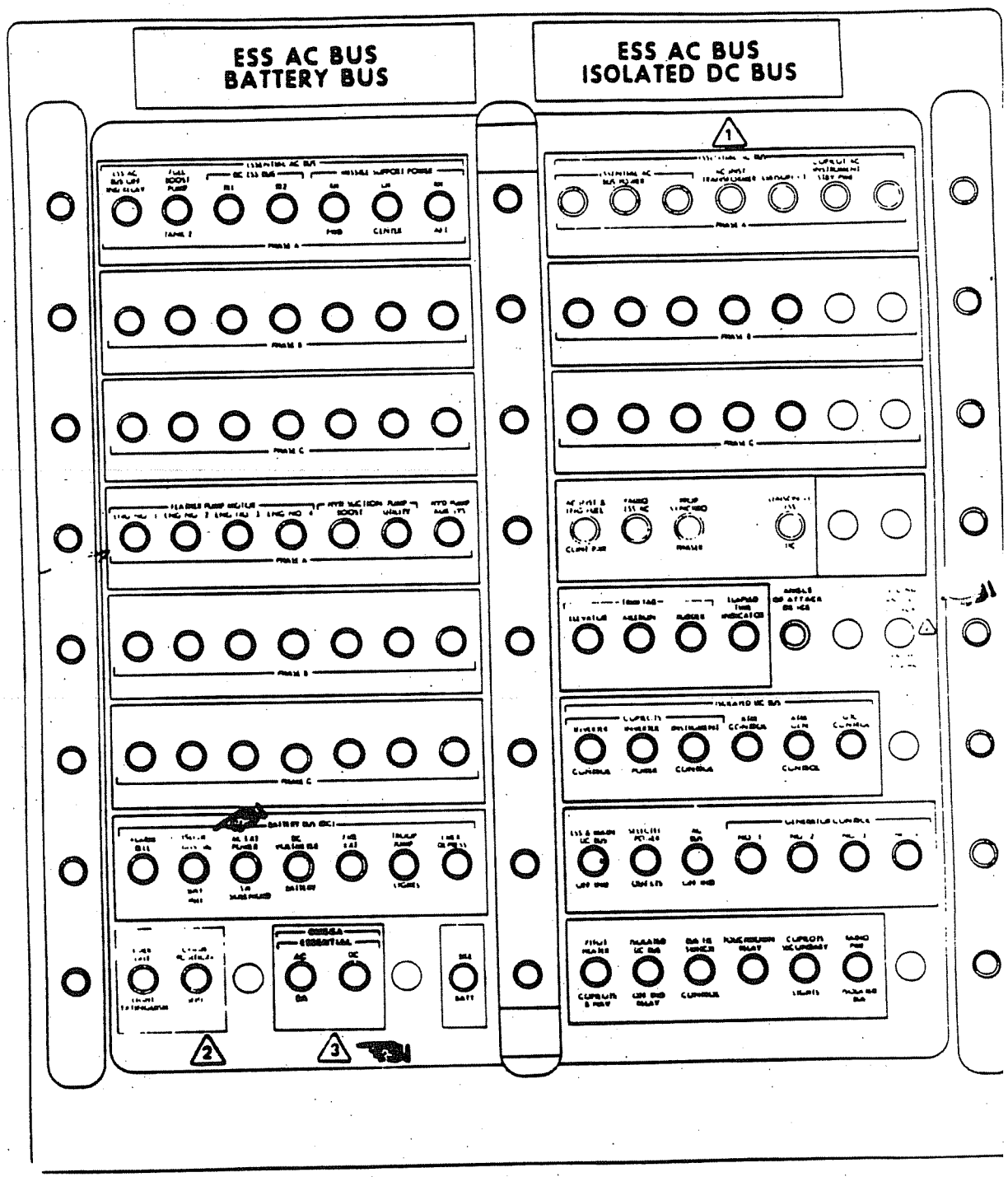


Figure 1-37. (Sheet 2 of 4)

Page C-54a
Change 1

E H AIRPLANES AF61-2358 AND UP AND H AIRPLANES



NOTE

1. AIRPLANES AF61-2358 THROUGH 63-9817.
2. EMER LOCR XMTR. AIRPLANES MODIFIED BY T.O. 1C-130-998.
3. NOT INSTALLED ON AIRPLANE AF63-7815
4. AIRPLANE AF63-7815

Figure 1-32. (Sheet 2 of 2)

H

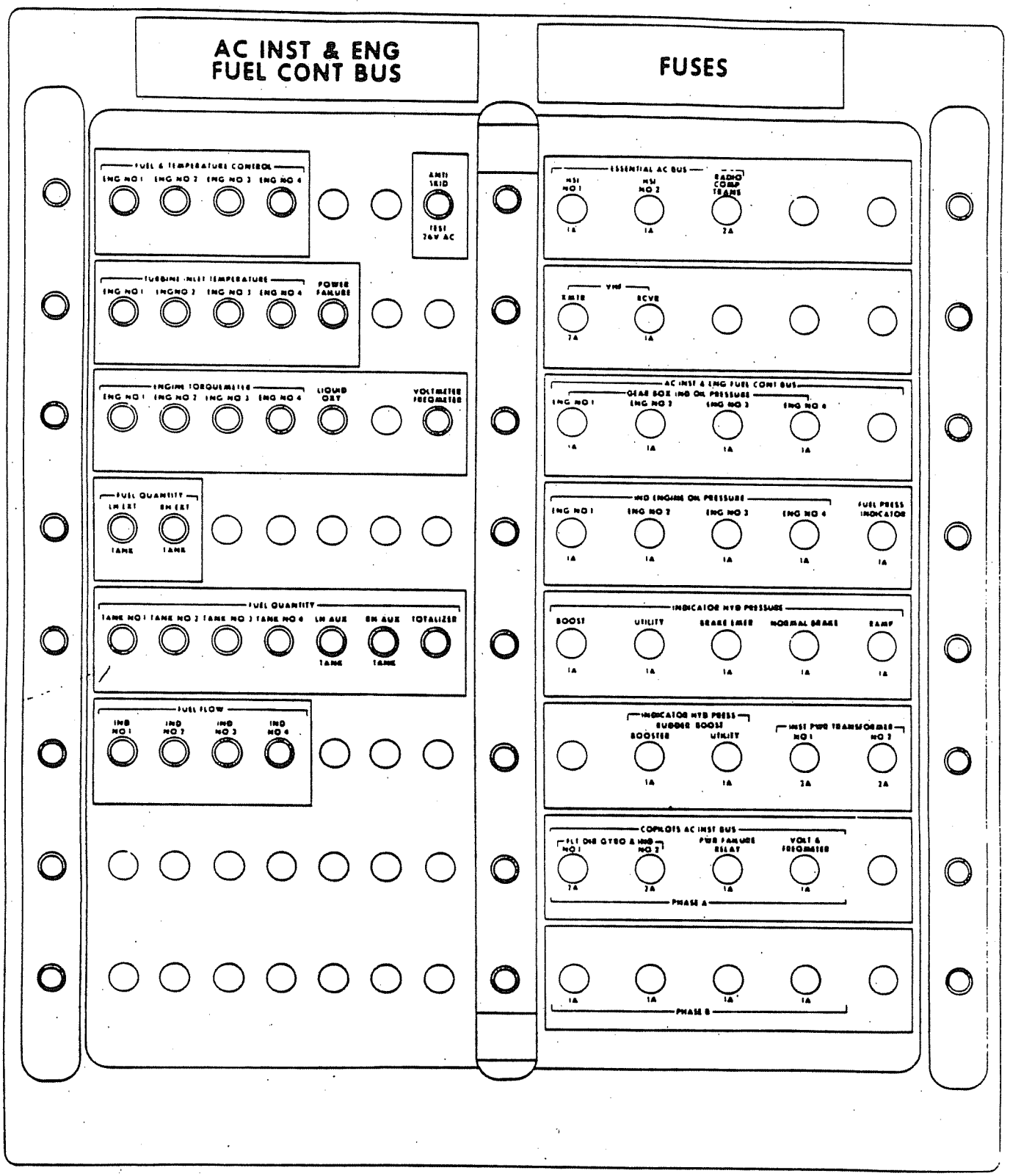


Figure 1-34. (Sheet 4 of 4)

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ACFT TYPE: H-1
All Models

REF: TM 55-2840-229-23P
NAVAIR 01-110HCA-4
1H-1(U)F-4

ITEM NO	NOMENCLATURE	DATE FOUND
001	NOMEN: Control, ADF PN: C2277/ARN NSN: FIG: 308 INDEX: 11 ISO: Ra 226 ACT: 0.017 uCi	
002	NOMEN: Exciter, Ignition (Spark Gap Tube) PN: 1-300-245 NSN: FIG: 11 INDEX: 18 ISO: Cs 137 ACT: 5 uCi (?)	
003	NOMEN: Reduction Housing, Engine(s) PN: 1-060-100-07 NSN: FIG: 43 INDEX: 1 ISO: Th 232 ACT:	
004	NOMEN: Compass, Standby PN: MS 17883-2 NSN: FIG: 72 INDEX: 62 ISO: Ra 226/H 3 ACT:	
005	NOMEN: Lamp Assembly, Blade Tip PN: 209-015-113-101 NSN: 6240-01-257-7885 FIG: INDEX: ISO: H 3 ACT: 1.92 Ci	15 Nov 90

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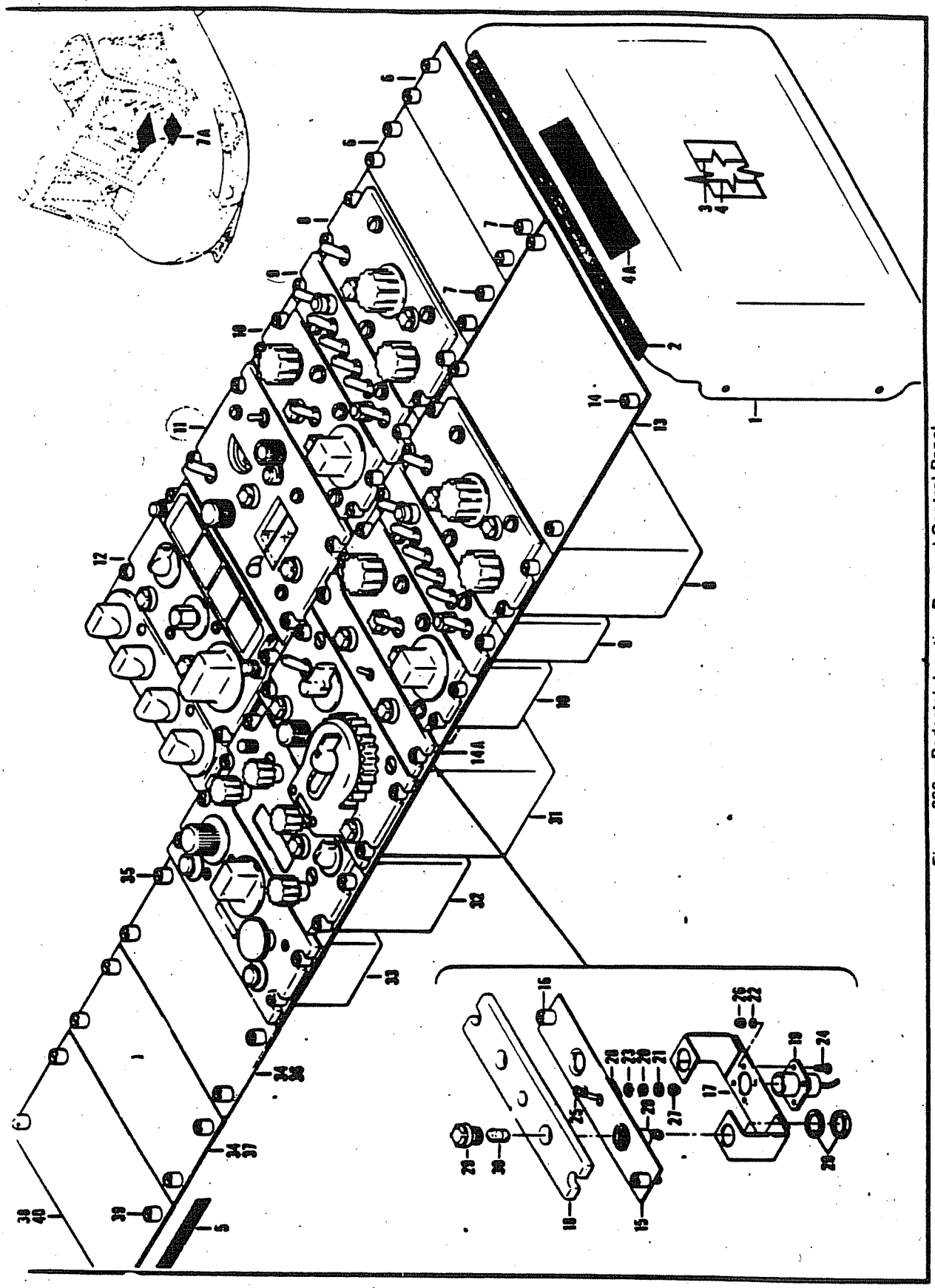

Figure 308. Pedestal Junction Box and Control Panel Communication Installation (Panel Section)

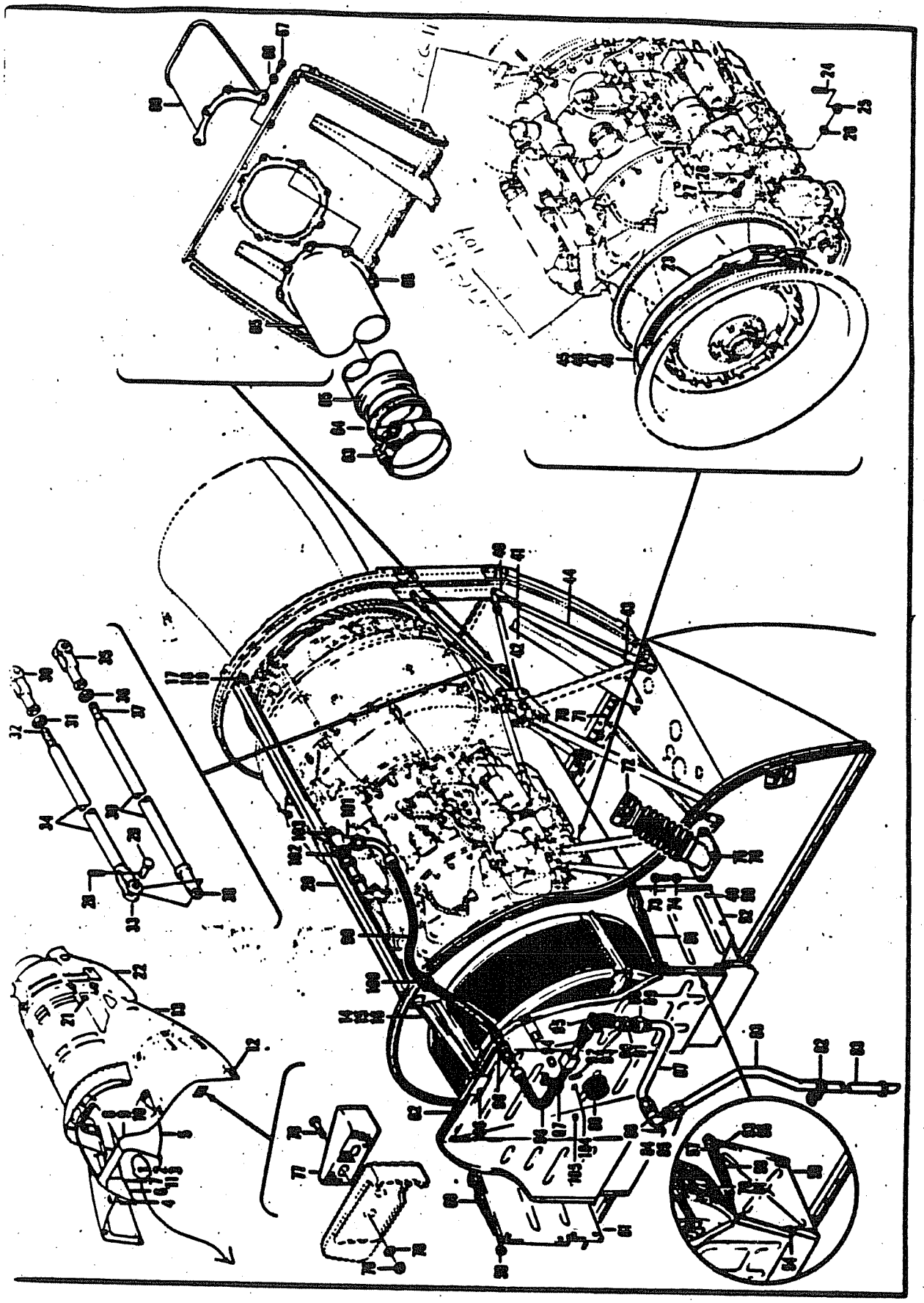

Figure 43. Power Plant Installation

H-5

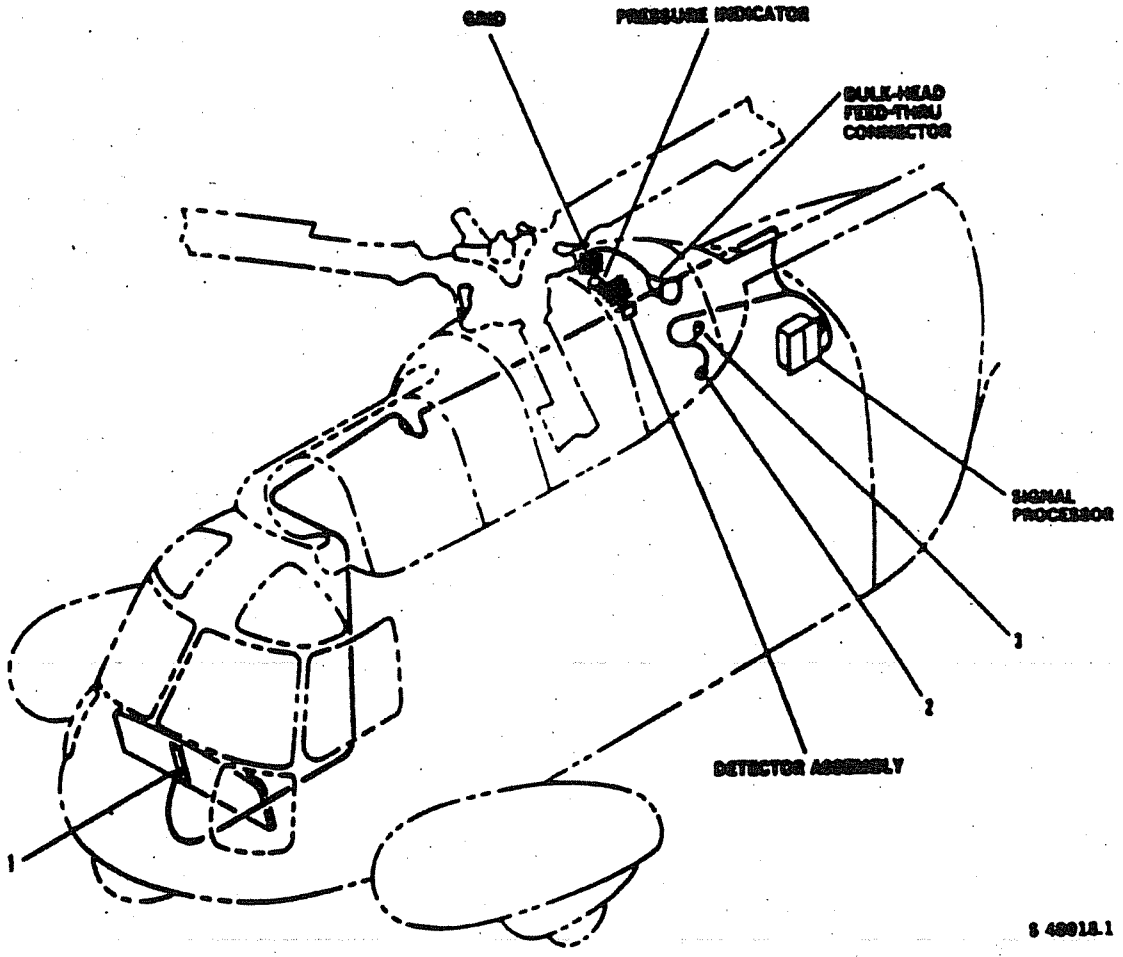

FIGURE 5A. IBIS INSTALLATION /SHEET 1/

FIGURE & INDEX NUMBER	PART NUMBER	NOMENCLATURE 1 2 3 4 5 6 7	UNITS PER ASSY
5A-	■12510-1	IBIS INSTALLATION, /V24494/	1
	12540-1	. SIGNAL PROCESSOR AND CIRCUIT BREAKER INSTALLATION, /V24494/	1
- 1	344-13748-042	. . CAPSULE, BLADE PRESS /AMBER//V96182/	1
	343-16328-314	. . CAPSULE, BLADE PRESS /AMBER//V96182//ALTERNATE/	1
- 2	MS25244-5	. . CIRCUIT BREAKER, AC ESS	1
- 3	MS25244-5	. . CIRCUIT BREAKER, DC ESS	1
- 4	12180-3	. . PROCESSOR ASSEMBLY, SIGNAL /V24494/ SEE FIGURE 39-58	1
		/ATTACHING PARTS/	
	MS51958-63	. . SCREW	4
- 5	12200-5	. INDICATOR, PRESSURE /V24494/	1
- 6	MS28778-6	. PACKING, PREFORMED	3
- 7	12200-1	. COVER, DUST /V24494/	3
- 8	12248-1	. COVER, SHIPPING /V24494/	3
	12603-1	. CABLE, TRANSMISSION BACK TO SIGNAL PROCESSOR INTERCONNECTING /V24494/	1
- 9	PT06CE10-6P/SR/	. . PLUG, /V77820/	1
- 10	PT06CE10-6S/SR/	. . RECEPTACLE, /V77820/	1
	12685-1	. CABLE, POWER TO SIGNAL PROCESSOR INTERCONNECTING /V24494/	1
- 11	PT06CE10-6P/SR/	. . PLUG, /V77820/	1
	12545-1	. PLATE INSTALLATION, CONNECTOR	1

■ INCORPORATED BY CGTO 1H-52A-509.

WORK CONTROL DOCUMENT

1. DATE	PAGE
6 Jun 87	1 OF 1 PAGES

2. JOB ORDER NUMBER	3. QUANTITY	4. PRODUCTION SECTION/RCC	5. DATE SCHED	6. DATE COMP

7. PART NUMBER	8. TECH DATA	9. ITEM SERIAL NUMBER
	TO 1H-3(C)E-4, 2J-T58-14, 00-110N-2, 3, 4	

10. MODEL - DESIGN - SERIES	11. STOCK NUMBER	12. OPTIONAL
H3		
13. SERIAL NUMBER	**14. NOUN**	
	Radiation Hazard Handbook	

15. DISPATCH STATION	16. PDN/OP NO.	17. WORK TO BE ACCOMPLISHED	18. Found [redacted]	19. "P"	20. "Q"
	001	Indicator Blade Pressure BIM IBIS PN 12200-1 Fig 10 Index 12; Fig. 34 Index 3 Strontium 90			
	002	Self Luminous Marker Tritium			
	003	Ignition Exciter PN 37D400347P101 TO 2J-T58-14 Fig. 22 Index 53	14 May 87		
	004	Control Box PN C2275()/ARN 59 Fig. 210 Index 11 Radium	14 May 87		

21. FINAL DESTINATION		22. COORDINATION INITIATING RCC SIGNATURE/DATE		23. DOCUMENT S N
DISPATCH	FUNCTIONAL CODE	a.	c.	Page 1
		b.	d.	

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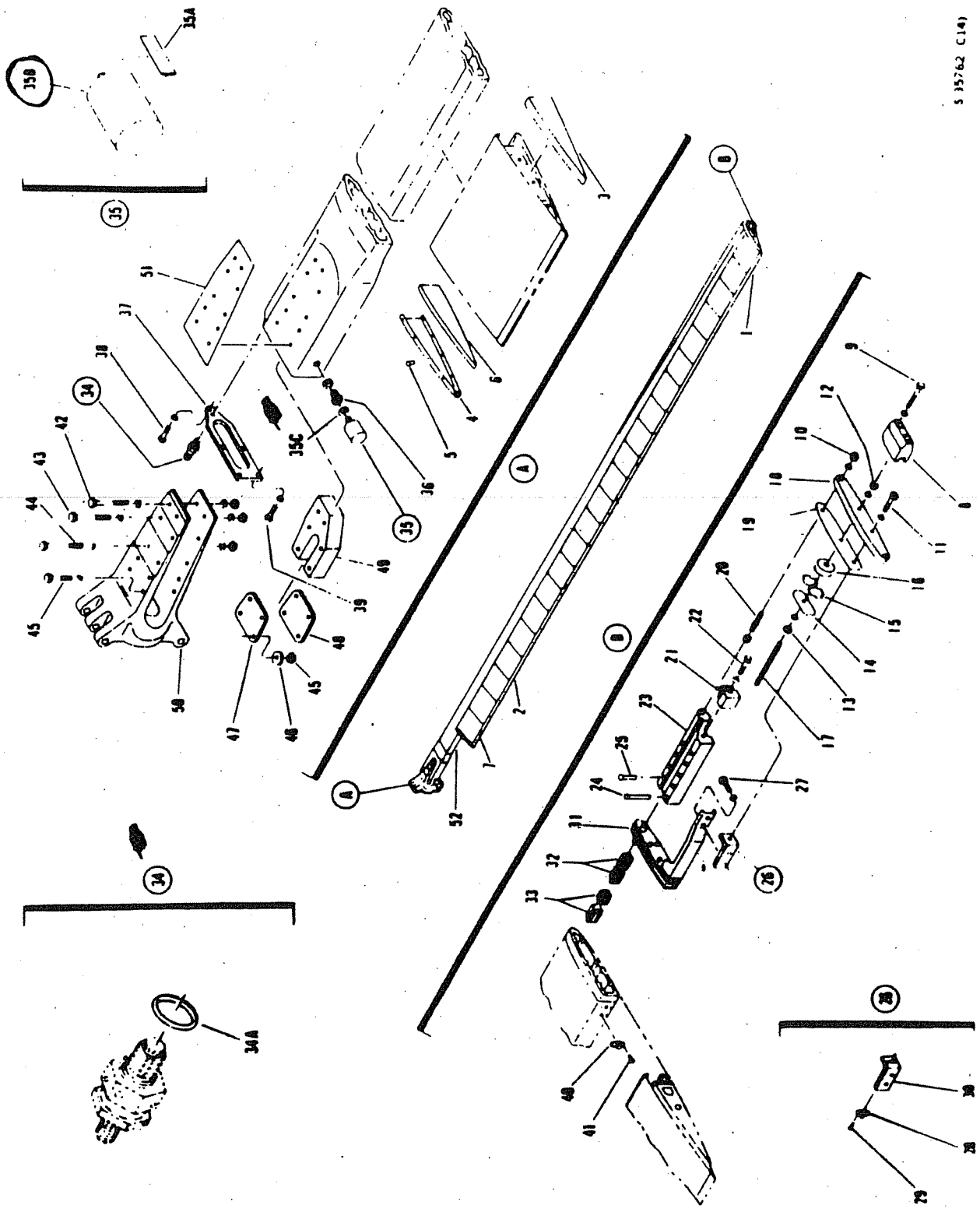


FIGURE 4. ROTARY WING PRESSURIZED BLADE SPAR AND PocKET ASSEMBLY

H-26

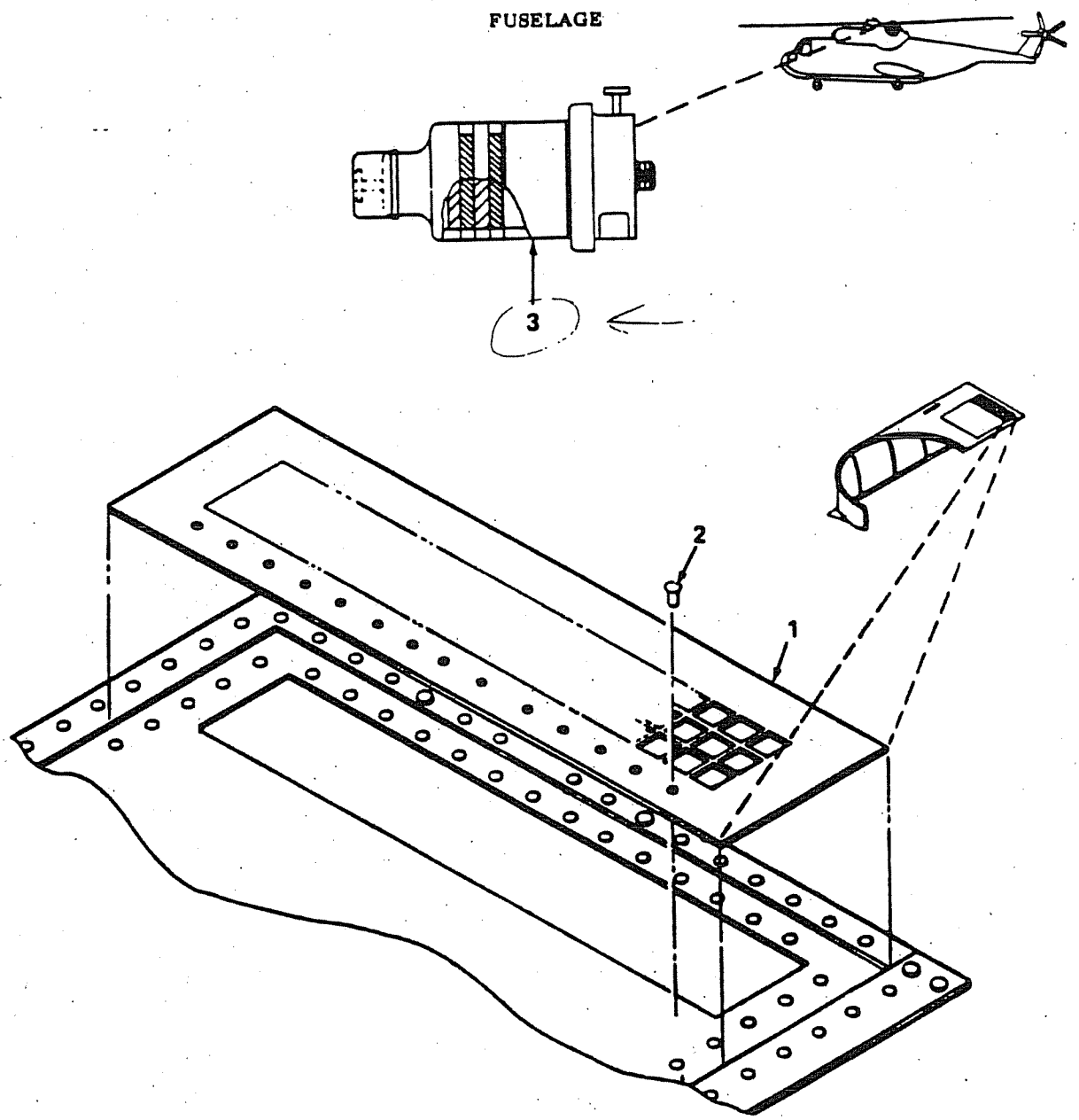
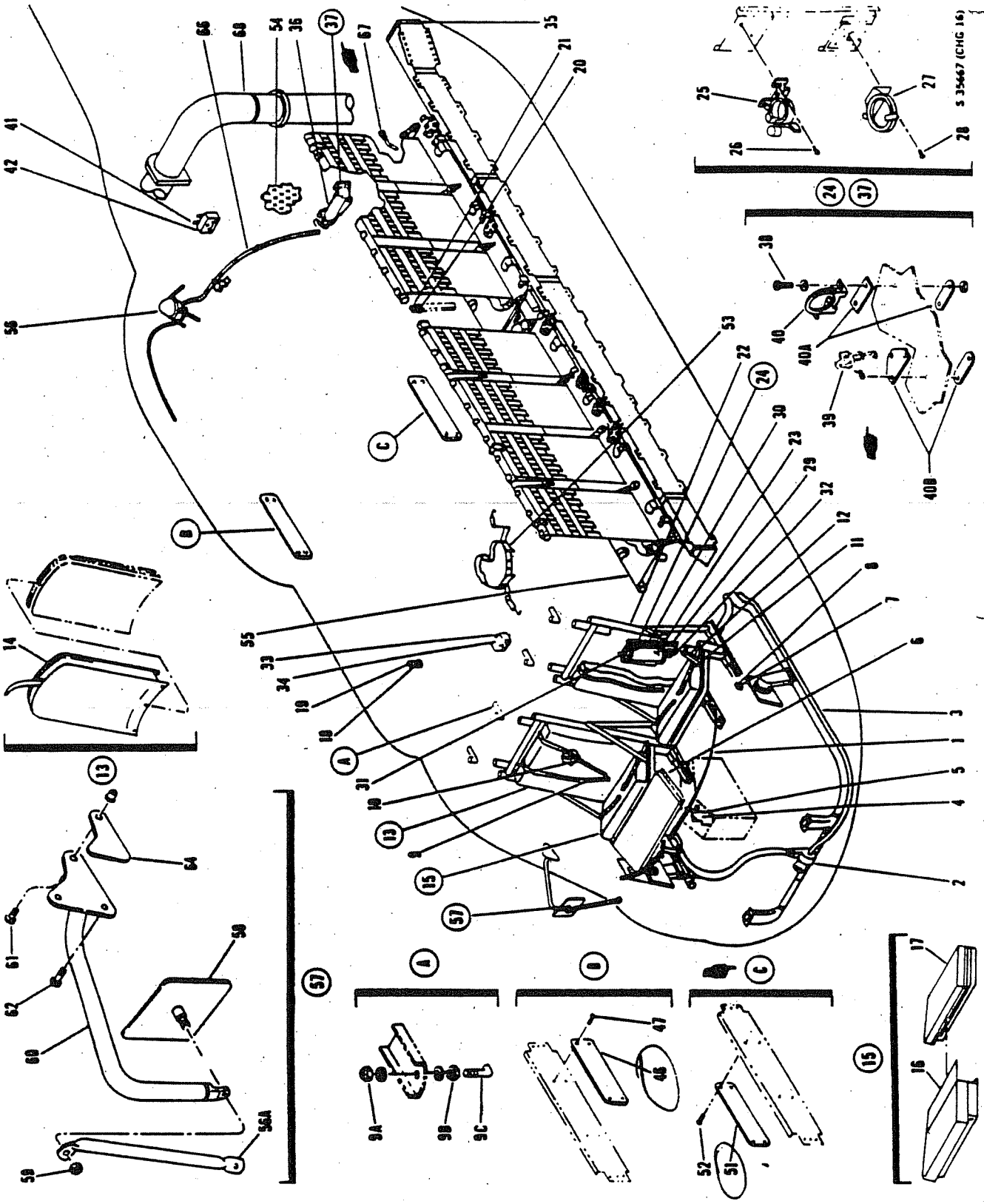


Figure 34. IBIS Detector Assembly Grid Installation/Indicator

FIGURE & INDEX NUMBER	PART NUMBER	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
34-	12618	IBIS DETECTOR ASSEMBLY GRID INSTALLATION/ INDICATOR . . .		
-1	12622-1	GRID, DET WINDOW (24494)	1	
-2	MS20470AD47	RIVET	40	
-3	12200-1	INDICATOR PRESS (IBIS) (24494).	5	

H-9



H-28

WORK CONTROL DOCUMENT

1. DATE	PAGE OF PAGES

2. [illegible] NUMBER	3. QUANTITY	4. PRODUCTION SECTION/RCC	5. DATE SCHED	6. DATE COMP

7. PART NUMBER	8. TECH DATA	9. ITEM SERIAL NUMBER

10. MODEL - DESIGN - SERIES	11. STOCK NUMBER	12. OPTIONAL
P-3		
13. SERIAL NUMBER	14. NOUN	
	RADIATION HAZARD HANDBOOK	

15. DISPATCH STATION	16. PDN/OP NO.	17. WORK TO BE ACCOMPLISHED	18. MECHANIC	19. "P"	20. "Q"
	001	Flow Indicator Portable Oxygen Bottles Radium			
	002	Emergency Placard (Occupant) Right Side Fuselage Observer's Station Radium			
	003	AN/H6 Transmitter (2 each) electronic bay sensor station 3			
	004	Bubble Indicator Observer's Position 5			
	005	Bubble Indicator Aft Right Wing Root Leveling Station			
	006	Emergency Exit marker Aft Door TRITIUM			

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ► 1

To Janet Mann	From Laurie Lowman
Dept./Agency	Phone #
Fax #	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

21. FINAL DESTINATION		22. COORDINATION INITIATING RCC SIGNATURE DATE		23. DOCUMENT S/N
DISPATCH	FUNCTIONAL CODE	a.	c.	PAGE P-3
		b.	d.	

AFLC FORM MAR 81 959 PREVIOUS EDITION WILL BE USED.

P-4 (BLANK)

WORK CONTROL DOCUMENT (MEDS)

1 DATE	PAGE __ OF __ PAGES

2 JOB ORDER NO	3 QUANTITY	4 PRODUCTION SEC RCC	5 DATE SCHED	6 DATE COMPLETED
				29 Apr 89

7 PART NUMBER	8 TECH DATA	9 ITEM SERIAL NO
	01-85SAD-4-6	

10 MODEL-DESIGN-SERIES	11 STOCK NUMBER	12 OPTIONAL
S-2		
13 SERIAL NUMBER	14 NOUN	
	Radiation Handbook	

15 DISPATCH STATION	16 PERF RCC/OP NO	17 WORK TO BE ACCOMPLISHED	18 FOUND XXXXXXX XXXXXXX	19 P	20 Q
	001	Indicator Rate of Climb Pilot P/N 1636-6H-B1 Fig 1 Index 56 Ra 226			
	002	Indicator Rate of Climb CoPilot P/N 1636-6H-B1 Fig 1 Index 25 Ra 226			
	003	Indicator Turn and Bank Pilot P/N MS 28096-1 Fig 6 Index 20 Ra 226	14/02/9		
	004	Indicator Turn and Bank CoPilot P/N MS28096-1 Fig 6 Index 53 Ra 226	14/02/9		
	005	Circuit Breaker Prop De-ice P/N Fig 5 Index B Ra			
	006	ARC 27 UHF Transceiver P/N RT 178 Fig Electronic Tubes	14/02/9		

21 FINAL DESTINATION		22. COORDINATION/INITIATING RCC SIGNATURE/DATE		23 DOCUMENT/SN
DISPATCH	FUNCTIONAL CODE	A	C	Page S-1
		B	D	Change 1

AFLC FORM 958 NOV. 80 PREVIOUS EDITION WILL BE USED

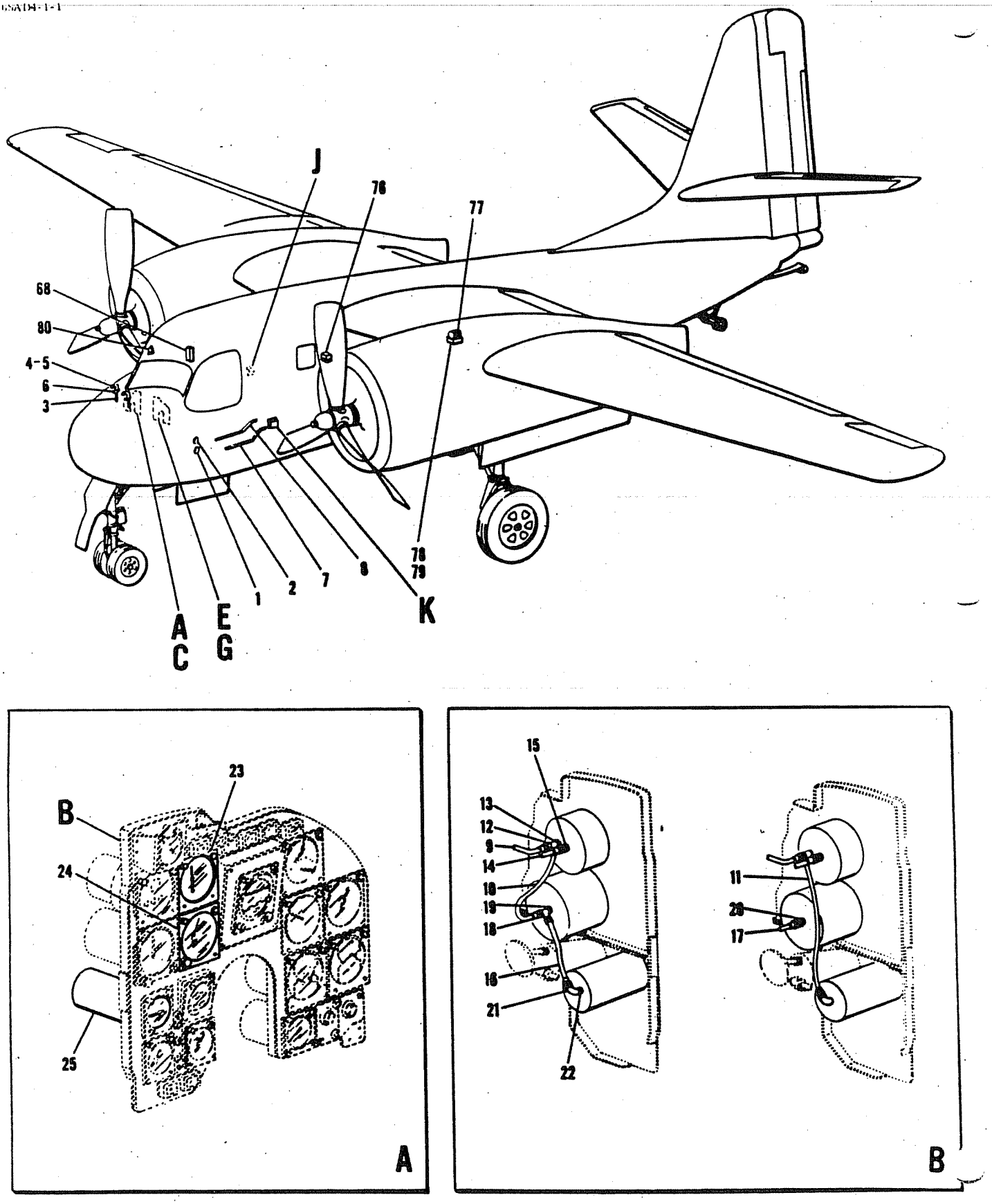


Figure 1. Pitot and Static Pressure Systems (Sheet 1)

B-6SAD4-1-2

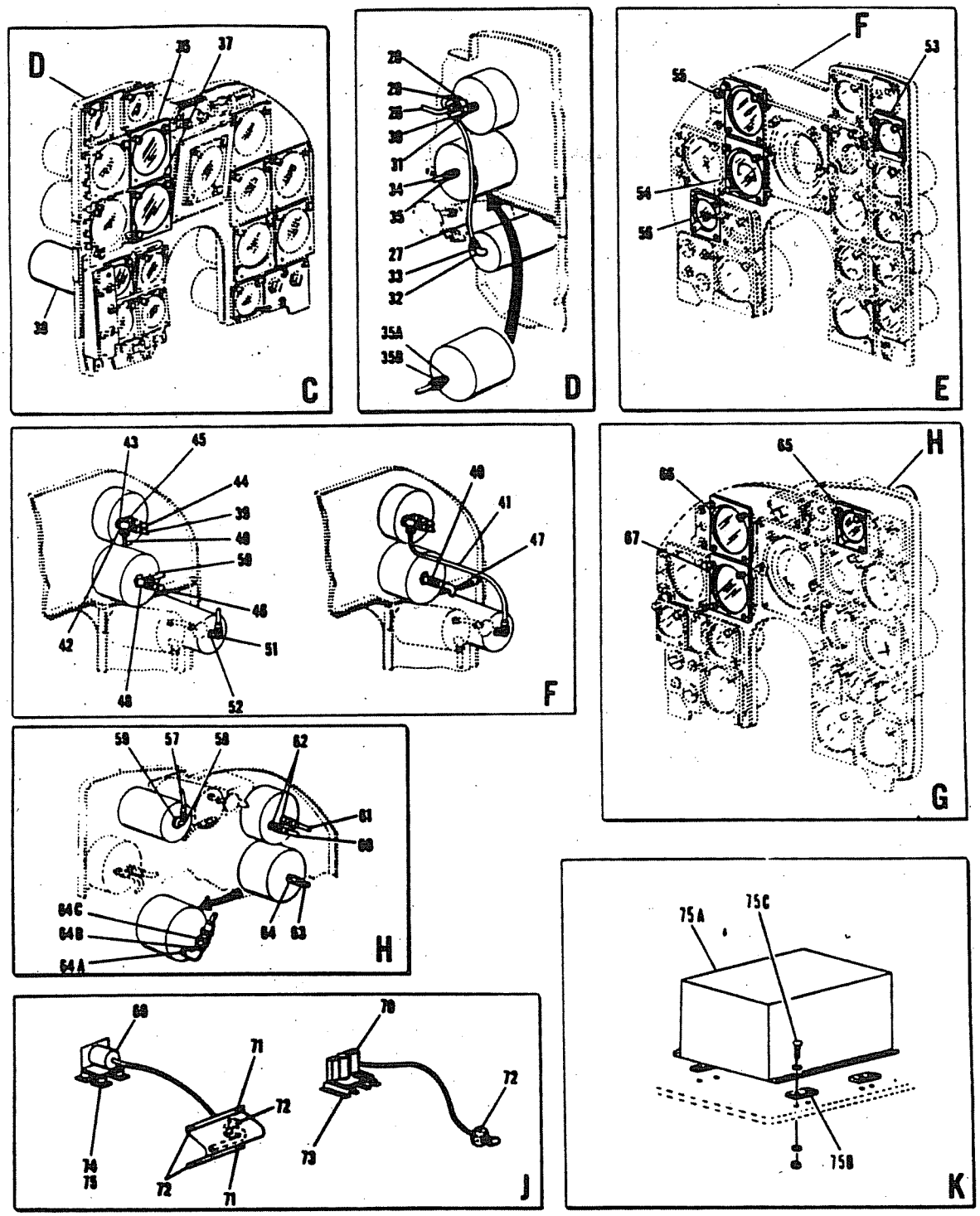
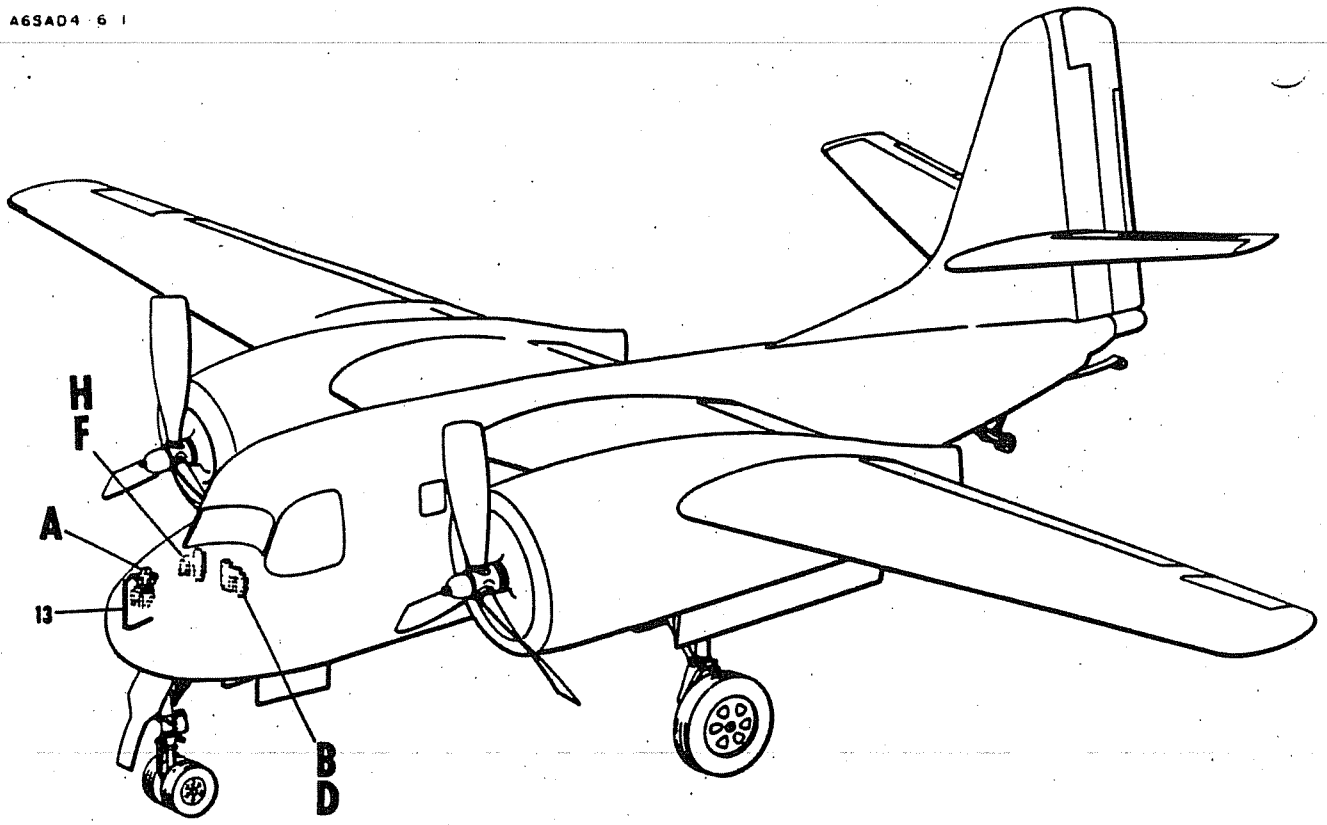


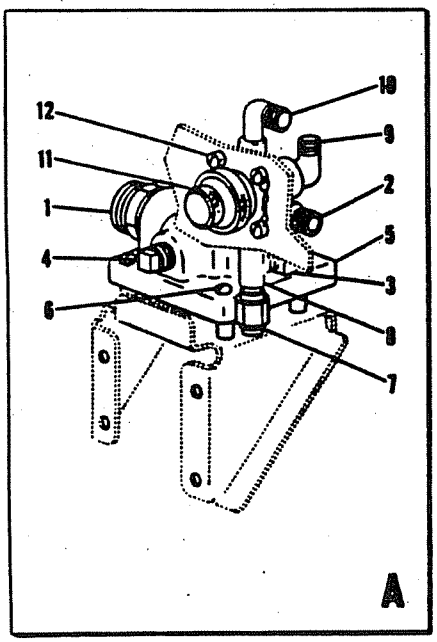
Figure 1. Pitot and Static Pressure Systems (Sheet 2)

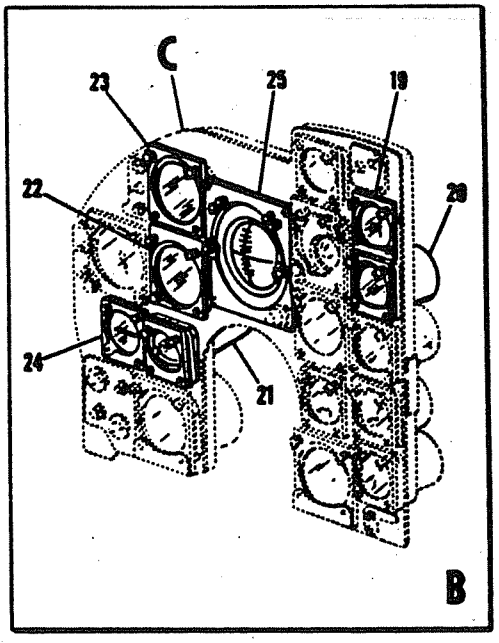
Page 5 2c.
Change 1.

INSTRUMENTS

A6SAD4-6-1







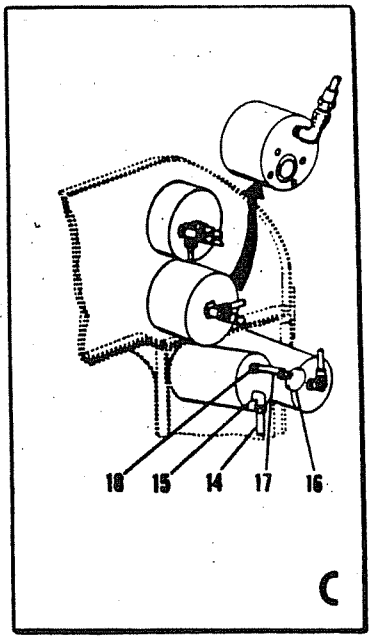


Figure 6. Flight Instruments System (Sheet 1)

PAGE 5-28
CHANGE 1

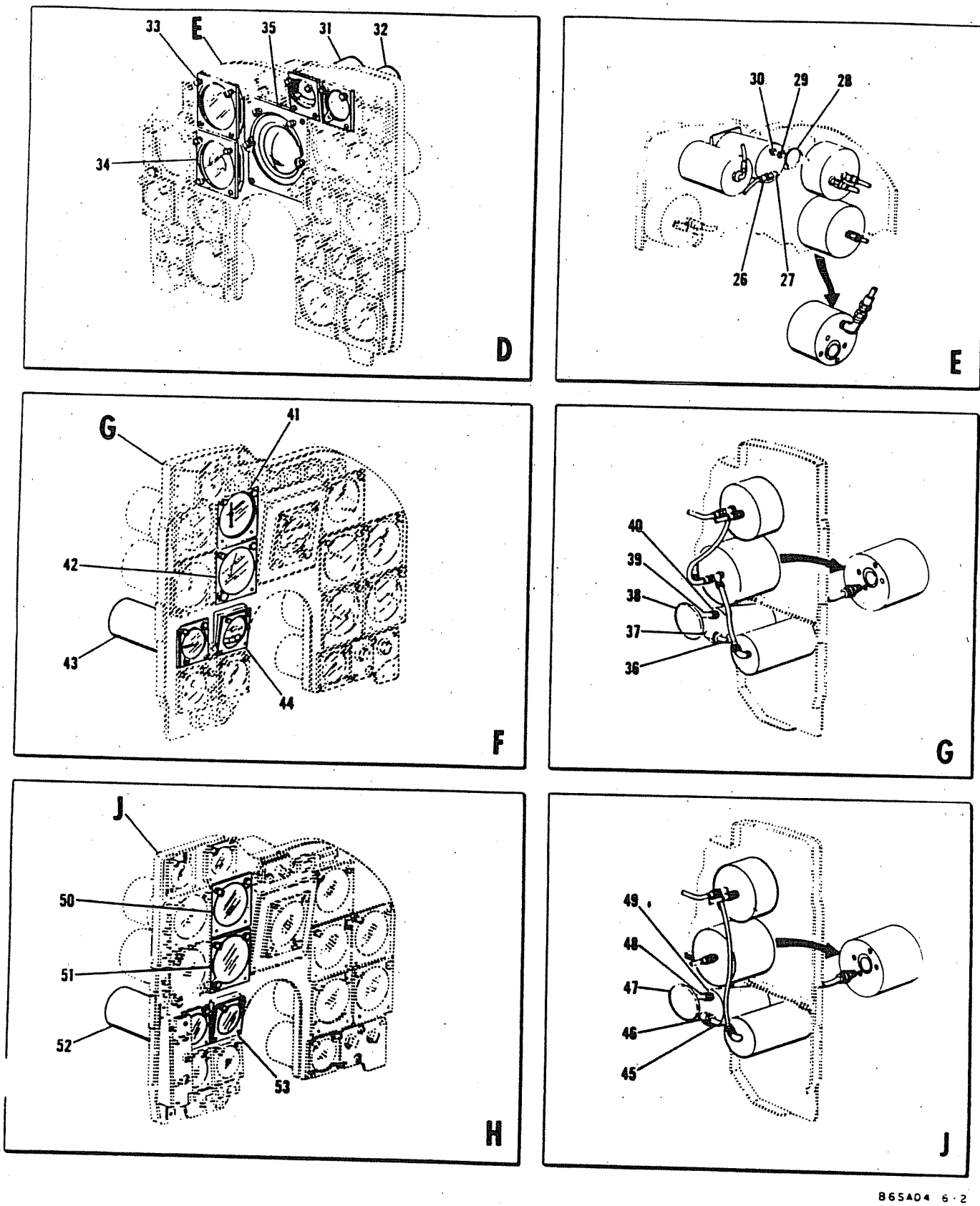
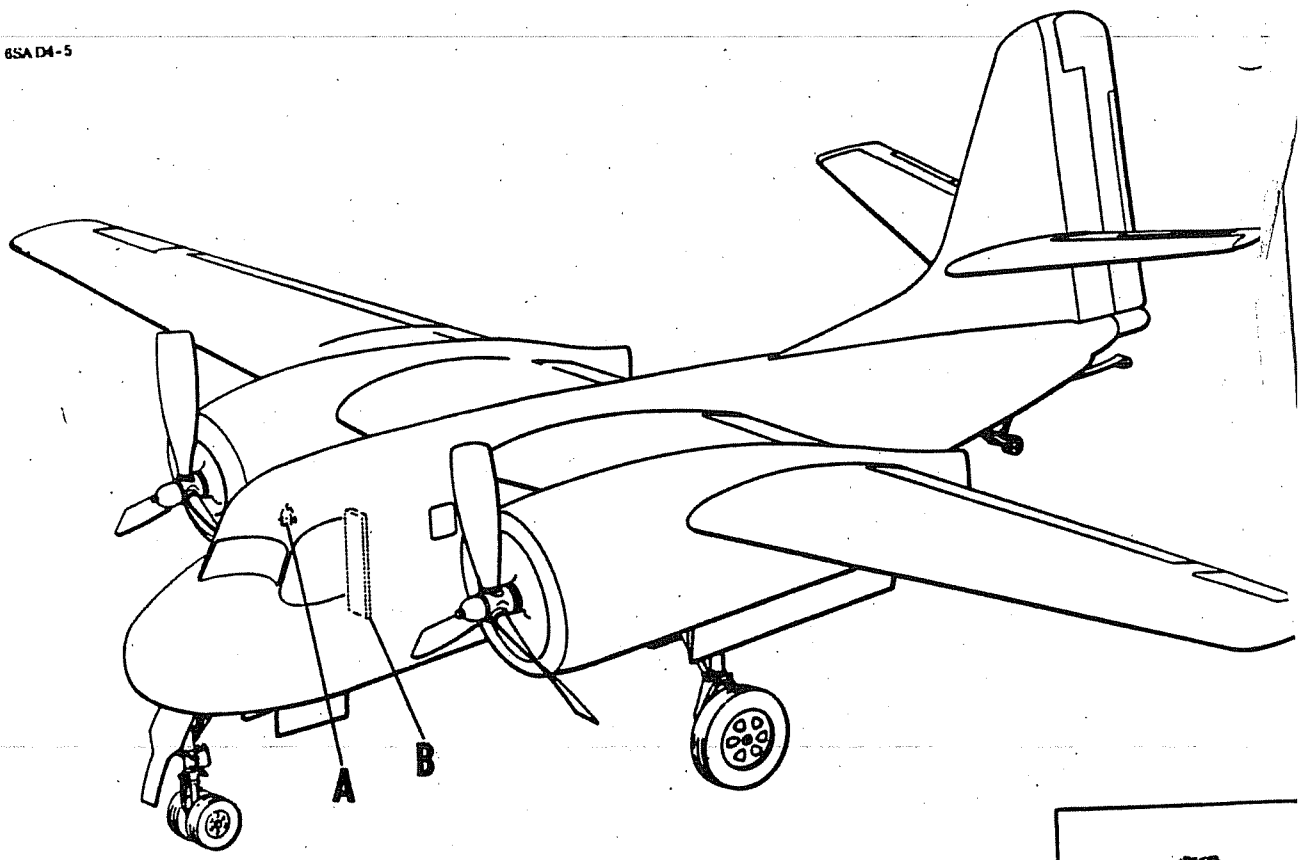
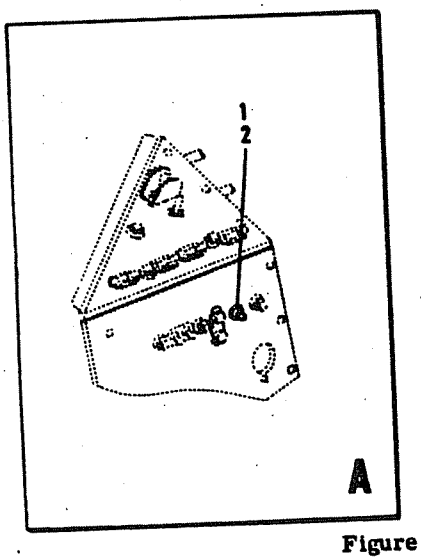


Figure 6. Flight Instruments System (Sheet 2)

Page 5 of 26
Change 1

6SAD4-5





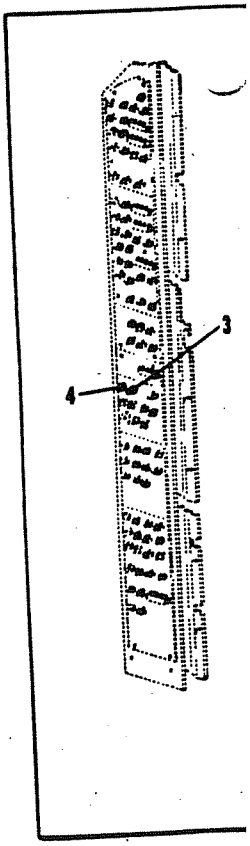


Figure 5. Pitot and Static Pressure Electrical System

HRA-0174

GCA file

2 (3220)

From: Johannesmeyer
To: Hendricks
Subj: GCA Radar Radiom Removal

Encl (1) Copy of brieting to O4N in April 78
(2) Phonecon record of 27 Sept 78
(3) Phonecon record of 19 Dec 78

1. As we discussed on 15 Dec 78 I'm enclosing information relative to deliberations regard the subject.

2. Enclosure(1) is a brieting sheet we put together for O4N in an early April 78 meeting here. A copy was handcarried back. Basically what we agreed to, in view of the developing Navy Wide Radiom Removal Program philosophy that existing material management programs should be otilized to the maximum extent possible, was that GCA radiom removal should be completed by NAVRLEX Vallejo personnel during the EFM cycle. Specifically this

approach was discussed further during our 18 May meeting at NAVFAC just prior to the RASC radium removal briefing on 24 May.

3. Subsequent to the RASC general agreement with the Radium Removal "Straw man" presented CDR Crane and I visited NAVELEX Vallejo on 6 June. In that meeting we presented Mr. Jacobson with the Radium Removal Briefing highlighting the need to achieve removal via existing programs and as such we must consider approaching GCA radium removal with NAVELEX personnel during scheduled EFMI's.

4. At that time Mr. Jacobson discussed in detail their planned replacement program and we viewed several new units awaiting installation. We concluded that replacement was a reasonable means to achieve removal in that the replacement program would effect removal in the same

time frame as the EFM cycle. We adjourned with an understanding that NAVELEX Vallejo would propose such to their headquarters. The draft letter and my comments were the understandings discussed in the June meeting. O4N was subsequently advised via phone con of this approach.

5. NAVELEX Vallejo completed the enclosure (2) draft proposal in August. We discussed it along with Cdr Crane and O4N in our August meeting concurrent with the DOE rocks brief. Subsequent to that meeting I passed editorial comments on the draft as indicated in enclosure (2).

6. Later I called Jacobson in late November to find out why no action yet. Enclosure (3) is the latest conversation with Jacobson.

7. As we discussed I'd recommend that upon receipt of the

proposal from NAVELEX that you use past delays to push for a detailed schedule and lay down reporting requirements to us requesting expeditious action for a change from NAVELEX.

"Salk"

TELEPHONE CONVERSATION RECORD
NAVSO-GEN-2305/11 (REV. 3-74) S/N 0190-LF-009-7901

☐ INCOMING	☒ OUTGOING	DATE
PERSON CALLING: Johannesmeyer	PHONE NUMBER: 4162	DATE: 19 Dec 78
PERSON CALLED: L.L. Jacobson	PHONE NUMBER: 253-4191	ACTIVITY: Navelex Vallejo

GENERAL SUBJECT: GCA Radium removal

TOPICS DISCUSSED AND ACTION TAKEN

Ref(a) Phone con btw above parties on 27 Sept 78

1. Advised Mr. Jacobson that we and our headquarters were concerned as to why the Vallejo proposal to remove radium via the current radar replacement program had not yet been formalized. Mr. Jacobson offered apologizies and noted that he had recently been out of the office for a three week period.
2. Current status is that signature is anticipated today - he will advise when he's received his signed copy.
3. Additional items discussed relative to the removal by replacement were discussed as follows:
   a. Mr. Jacobson was advised that NAVFAC to be satisfied that the replacement program would obviate the need for a specific removal program would probably require

FILE	DISTRIBUTION (Interested codes)	SIGNATURE

TELEPHONE CONVERSATION RECORD
NAVFAC-GEN-2305/11 (REV. 3-74) S/N 0190-LF-009-7901

☒ INCOMING	☐ OUTGOING	DATE /
PERSON CALLING	PHONE NUMBER	ACTIVITY
PERSON CALLED	PHONE NUMBER	ACTIVITY

GENERAL SUBJECT

TOPICS DISCUSSED AND ACTION TAKEN

c. Mr. Jacobson was advised that he could expect requirements to report removal actions as a provision to NAVFAC concurrance.

4. Mr. Jacobson did not anticipate any problems with implementation of disposal requirements nor reporting requirements as might be required.

FILE	DISTRIBUTION(Interested codes)	SIGNATURE

TELEPHONE CONVERSATION RECORD
NAVSEA-GEN-2305/11 (REV. 3-74) S/N 0190-LF-009-7901

☐ INCOMING	☐ OUTGOING	DATE
PERSON CALLING	PHONE NUMBER	ACTIVITY
PERSON CALLED	PHONE NUMBER	ACTIVITY

GENERAL SUBJECT

TOPICS DISCUSSED AND ACTION TAKEN

a schedule by activity for the replacement program. Mr Jacobson advised that such a schedule exists and was developed by NAVSEA headquarters - basically it will require that one activity a month receive replacement units.
b. Further in that the replacement units are housed in the current units' trailers all old units are returned to Vallejo upon replacement. The current Vallejo plan is to strip the old trailers store all components removed and to utilize Mare Island personnel, Mel Gray's shop, to screen the stripped trailers prior to rehab and to screen the removed components to segregate and dispose of radium bearing items.

FILE	DISTRIBUTION(Interested codes)	SIGNATURE

GCA RADIUM REMOVAL

I. In a 2 May 1975 letter the U.S. Army Electronics Command advised the Navy that the AN/FPN-36 radar contained radium in the compass rose and the various components. This unit is similar to the Army's FPN-40 which was programmed for removal of the radium bearing components at Tobyhana during scheduled maintenance.

II. In a 4 August 1975 letter NAVFAC, after surveys of two FPN-36 radar units at Cherry Point, advised NAVELEX that no immediate hazard to personnel results from the radium bearing components and proposed the following:

A. All components should be identified and labeled.

B. Smear all dials for leakage.

C. Replace radium bearing components at NAVELEX repair and maintenance facilities.

D. Remove radioactive components from surplus units prior to excessing.

III. In a 26 January 1976 letter NAVELEX advised all GCA users to survey all equipment and remove and dispose of all components exhibiting a reading greater than background. Replacements were to be obtained through normal supply channels.

2

IV. In a 19 March 1976 letter, drafted by NAVFAC, NAVELEX advised all GCA users to discontinue removal of components due to the possible spread of minor contamination. Additionally NAVELEX requested surveys and

provided survey instructions and packaging instructions for those components which had been removed.

V. Subsequently, survey reports of varying detail were received from field activities. Additionally BUMED Code 532 evaluated the hazards associated with bare knobs and recommended removal of all radium bearing knobs.

VI. After review of the activity survey reports, discussions with NAVELEX Vallejo, and concern for the bare knobs the following status existed as of 30 August 1976.

A. Class 5355 knobs in conjunction with the Defense Industrial Supply Center, Philadelphia, were surveyed at each stocking point and all radium bearing knobs were returned to NNPU.

B. Via informal discussions, NAVELEX Vallejo had requested that decontamination of knobs by RASO be examined further to reduce replacement costs and advised that NAVELEX personnel assets should not be considered for on site radium removal visits.

C. By letter NAVFAC advised NAVELEX that plans were being developed for RASO to visit each GCA site, remove radioluminescent items, decontaminate, and install replacement items. All to be accomplished as soon as replacement items were available.

D. Additionally procedures were provided to coat existing exposed surfaces with lacquer to reduce the potential for spread of surface contamination.

E. NAVELEX forwarded the above by letter on 28 September 1976.

VII. In a 1 October 1976 letter NAVFAC provided NAVELEX a summary listing of GCA users who forwarded survey results and advised that RASO would visit each activity to survey and supervise replacement of knobs and toggle switches. All other protected or covered items would be marked for replacement during maintenance. All removed items would be shipped to RASO for decontamination and subsequent shipment to Vallejo for use. Start of visits was contingent upon availability of spare parts, however all activities were scheduled for FY 77.

VIII. NAVFAC requested in a 28 December 1976 letter that NAVELEX direct GCA users to forward all knobs previously removed to RASO. Shipping instructions were provided. NAVELEX Vallejo published on 14 February 1977. Request was tendered in an attempt to augment NAVELEX Vallejo new procurements to establish initial replacement kits.

IX. In a 22 March 1977 letter NNPU requested NAVELEX Vallejo advise of delivery dates and quantities of replacement knobs ordered. Further advised the further delay in providing initial replacement kits would prevent completion of RASO surveys during FY 77.

X. In a 8 April 1977 letter NNPU detailed for NAVFAC the GCA radar removal plans summarized in October 1976.

XI. In a 1 June 1977 letter NNPU advised NAVELEX Vallejo that delivery dates for replacement items had not been provided, outlined other NAVELEX Vallejo

action items in accordance with the removal plan and forwarded a revised GCA schedule due to lack of replacement items. Additionally NAVELEX Vallejo was advised that a Navy-wide Radium Removal Program was being examined which could result in transfer of all GCA radium removal responsibilities to Vallejo.

XII. In July 1977 the NAVELEX Vallejo contract to provide initial replacement kits was cancelled.

XIII. In an 8 August 1977 letter NNPU provided NAVELEX Vallejo a revised GCA schedule for FY 78 and FY 79 due to delay in replacement parts and requested status of all action items noted in the NNPU 1 June 1977 letter. Note copy to NAVELEX.

XIV. In a 22 November 1977 message NAVELEX referenced our 8 August 1977 letter and requested NAVELEX Vallejo provide a status report.

XV. In a 02 December 1977 message NAVELEX Vallejo provided following status:

A. Replacement kits under procurement. Delivery scheduled for late December.

B. RASO begins visits in January 1978 and decontaminates removed items for use as replacement kits.

C. Sealed items to be labeled for replacement during normal maintenance.

D. Painted surfaces to be coated with lacquer to reduce spread and labelled.

E. Painted surfaces, i.e., panels to be replaced during BFM. Cost estimate for replacement to be provided at later date.

XVI. In view of the apparent availability of replacement kits, RASO completed, in January 1978, inventory of clean and dirty knobs on hand and inspected NAS Mugu facility to develop detailed survey procedures. As a result the following problem areas were noted:

A. Vallejo did not procure specific replacement kits but forwarded varying numbers of knob types. Further many so called replacement items were contained on excess chasis in Vallejo which were planned for shipment to RASO.

B. Each activity installation varied with different quantities of chasis and thus knobs.

C. Physical replacement of certain knobs could result in unacceptable adjustments to the GCA radar unit.

D. Survey of a GCA radar unit would require that the unit be in a down status.

E. GCA units are provided for aircraft safety and therefore have published two hour downtimes generally on weekends and in early mornings between 0000-0600 on weekdays. All other times will require NOTAMS and depending on weather may not be possible.

XVII. In late January Codes 10 and 40 visited NAVELEX Vallejo to address the noted problem areas, provide a more detailed plan for removal and establish a mutually agreeable time to resolve all problem areas and physically complete a removal survey at NAS, Point Mugu.

PHASE I

1. Activity submits an inventory of available chassis using standard JAN nomenclature. (i.e., Power Supply PP608/GPN)

2. Activity surveys spare parts with AN/PDR27J equipped with earphones and isolates and inventories those parts evidencing an audible increase in count rate.

PHASE II

1. Making use of tech manuals, RASO assembles a replacement parts kit (based on chassis inventory) containing only knobs and components that can be replaced without exposing electrical circuits or requiring time consuming or technically difficult procedures.

2. RASO surveys each chassis, replacing components identified in (1) above. Other items containing Ra-226 which are not removed are identified, coated when appropriate, tagged and inventoried.

3. RASO verifies Ra-226 contamination of previously segregated spare parts.

4. Report of findings submitted to NAVELEX and to activity.

PHASE III

1. NAVELEX replaces contaminated spare parts on a one-for-one basis.

2. NAVELEX issues replacement parts for components authorized for field change by NAS personnel.

3. NAVELEX establishes or contracts for a central decon and refurbishing facility for contaminated components.

PHASE IV

Items not covered in Phases I through III replaced by NAVELEX during depot maintenance.

In late March meeting held concurrent with NAS Mugu survey. Following summarizes conclusions made if program were to continue as a NAVFAC responsibility:

a. Based on knob replacements required at NAS Mugu, inventory of knobs on hand and knobs to be provided from Vallejo sufficient replacements will be available. Survey will commence upon receipt of final replacement items from Vallejo in June 1978.

b. The basic phased plan was ammended to include:

1. The requirement that each station provide a lead ET to physically remove and replace knobs.

2. That the surveys, estimated to be of four hours in length based on the NAS Mugu survey, be conducted about existing routine downtimes for each station.

3. That NAVELEX would notify activity of each specific survey and all activity responsibilities. Direct liaison with NAVELEX Vallejo and NNPU would be directed.

Major items of concern remaining were:

a. Ability to schedule GCA activities concurrent with RASO assistance visits in view of availability of downtimes for the units. Additionally the potential of completing a large number of GCA activities in relatively short time frames seemed remote in view of available downtimes.

b. Advisability of NAVELEX to incur potentially large expenditures for replacement of other radium bearing items in view of an ongoing program to replace all existing GCA units with newer units within the next five to seven years.

c. Advisability of inordinate travel expenditures required to complete the initial visits in a relatively short time when downtimes regularly occur during EFM's.

d. Advisability of using professional RASO assets for such nickel dime surveys when NAVELEX personnel could be trained to complete the surveys.

e. Finally why such attention to GCA radium removal with special NAVFAC attention when the problem exists Navy wide and no Navy wide program exists.

Recommendations;

a. That GCA radium removal surveys be completed concurrent with EFM.

b. That NAVFAC train NAVELEX Vallejo technicians to complete surveys and replace knobs.

C. That NAVFAC assist NAVELEX Vallejo in obtaining contractor decomtamination services for removed knobs.

d. That NAVFAC/NNPU emphasis be directed to overall radium removal program development and not in the execution of specific removal actions.

TELEPHONE CONVERSATION RECORD
TIND-GEN-2305/11 (REV. 3-74) S/N 0190-LF-009-7901

1

☐ INCOMING	☒ OUTGOING	DATE
		27 Sept 78
PERSON CALLING: Johannesmeyer	PHONE NUMBER: 4161	ACTIVITY:
PERSON CALLED: L-L. Jacobson	PHONE NUMBER: 253 4191	ACTIVITY: Navelex Vallejo

GENERAL SUBJECT
GCA radium removal
Encl: (1) Navelex Vallejo draft letter 10550/LJJ:4853 nodate

TOPICS DISCUSSED AND ACTION TAKEN

1. Mr Jacobson noted that Navelex Wash, D.C. was very receptive to proposal contain in enclosure (1). I offerred that NAVFAC felt it was a reasonable approach.

2. The following recommendations were made to Mr Jacobson concerning the enclosure(1) proposal.

a. In ¶ 3 recommended that it be noted the one time visit approach to removal would be restricted to times during the EFM cycle due to needed down times to complete visits and as such would be completed over a 3½ to 4 year period. Likewise removal during replacement would also be completed in a 4 year time frame based on current replacement program. (This highlights that new proposals complete object in about the same time frame).

E	DISTRIBUTION (Interested codes)	SIGNATURE

TELEPHONE CONVERSATION RECORD
11ND-GEN-2305/11 (REV. 3-74) S/N 0190-LF-009-7901

☐ INCOMING	☐ OUTGOING	DATE
PERSON CALLING	PHONE NUMBER	ACTIVITY
PERSON CALLED	PHONE NUMBER	ACTIVITY
GENERAL SUBJECT		

TOPICS DISCUSSED AND ACTION TAKEN

b. In ¶4 recommended that sub ¶ c be added noting that all replaced units would be returned to Vallejo, Surveyed and items removed for disposal all via contract and that status reports of removal effort would be forwarded to NAVPL.

c. In ¶5 removed NAVPO as NAVPAC approval would be required before NAVELEX could approve and as written implies NAVELEX has full A&R. Thought this might upset 04N2 as written.

Copy to 10
20
40
40T
41
43
40's file.

	DISTRIBUTION (Interested codes)	SIGNATURE

IN REPLY REFER TO:
10550
130:LJJ:kj:4853

om: Commanding Officer, Naval Electronic Systems Engineering Center, Vallejo
: Commander, Naval Electronic Systems Command (ELEX 520)

ıj: Radioluminescent Items Removal from AN/CPN-4 Family of Ground Controlled Approach (GCA) Radars; request concerning

ɔ: (a) Meeting among CDR Crane/LTCDR Johannesmeyer, NAVNUPWRU Port Hueneme, and L. Jacobsen, NAVELEXSYSENGCEN Vallejo of 8 Jun 78

The AN/CPN-4 family of GCA radars (including AN/MPN-11 and AN/FPN-16/47/48/49/50/52/57) contain radioluminescent materials in varying ıunts in the following areas:

a. etched panel lettering,

b. knobs, switches and circuit breaker markings,

c. panel meter markings and

d. CRT bezels.

: Naval Nuclear Power Unit (NAVNUPWRU) Port Hueneme has been preparing make one-time visits to operational GCA units world-wide to perform liation surveys and replace control knobs and other devices which lar operators and technicians touch during daily useage. NAVELEXSYSENGCEN lejo has been assisting in this effort.

NAVELEXSYSENGCEN Vallejo and NAVELEXSYSENGCEN Charleston are tasked NAVELEXSYSCOM to accomplish the installation of the next generation Air Traffic Control (ATC), Air Navaigational Aids (NAVAIDS) and GCA ıtems at Navy/USMC air stations. These efforts are underway now and ı result in the removal of the AN/CPN-4 family radars by FY-1984. : radars that are replaced are returned intact to NAVELEXSYSENGCEN lejo for stripping of all electronic equipment, decontamination/ ıposal of radioluminescent items/components and re-use of "clean" ıysteme (e.g. AN/TPX-42 equipment) as well as the van shell.

PRELIMINARY — FOR INFORMATION ONLY

—

addy will be @ NAVELEX wk of 18 Sept. Can reach
at Bill Raynor's office tele: 692-8238.

10550
1300:LJJ:kj:4053

. As discussed during reference (a), NAVSHIPYD Port Hueneme has ecommended to the CNO that a program be instituted for radium remova' rom equipments and facilities Navy wide including ship, shore and ircraft. This overall Navy program would make maximum use of existing emoval/replacement/repair programs wherever possible. The existing AVELEXSYSCOM ATC/NAVAIRDS/SCA replacement efforts are considered to be uch a program.*

. Therefore, it is recommended that:

a. no further action be taken to remove radioluminescent items from CA radars in the field on a piecemeal basis, and

b. the radar replacement efforts presently underway by NAVELEXSYSENGCEN allejo and NAVELEXSYSENGCEN Charleston be pursued as the only practical pproach to solve the radioluminescent item problem.
*

s discussed during reference (a), this concept is consistent with the pproach recommended by NAVSHIPYD Port Hueneme for the Navy-wide radium emoval program.

* It is requested that NAVELEXSYSCOM approve this plan and advise AVELEXSYSENGCEN Vallejo and NAVSHIPYD Port Hueneme accordingly.

opy to:
AVSHIPYD Port Hueneme CA
NAVFACENGCOM Alexandria VA (Code C4N2)
AVELEXSYSENGCEN Charleston SC

* reinforce removal at Vallejo. Status reports to NSPA
* removal achievement is the same.

PRELIMINARY - FOR INFORMATION ONLY

GCA RADIUM REMOVAL

I. In a 2 May 1975 letter the U.S. Army Electronics Command advised the Navy that the AN/FPN-36 radar contained radium in the compass rose and the various components. This unit is similar to the Army's FPN-40 which was programmed for removal of the radium bearing components at Tobyhana during scheduled maintenance.

II. In a 4 August 1975 letter NAVFAC, after surveys of two FPN-36 radar units at Cherry Point, advised NAVELEX that no immediate hazard to personnel results from the radium bearing components and proposed the following:

A. All components should be identified and labeled.

B. Smear all dials for leakage.

C. Replace radium bearing components at NAVELEX repair and maintenance facilities.

D. Remove radioactive components from surplus units prior to excessing.

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B. Via informal discussions, NAVELEX Vallejo had requested that decontamination of knobs by RASO be examined further to reduce replacement costs and advised that NAVELEX personnel assets should not be considered for on site radium removal visits.

C. By letter NAVFAC advised NAVELEX that plans were being developed for RASO to visit each GCA site, remove radioluminescent items, decontaminate, and install replacement items. All to be accomplished as soon as replacement items were available.

D. Additionally procedures were provided to coat existing exposed surfaces with lacquer to reduce the potential for spread of surface contamination.

E. NAVELEX forwarded the above by letter on 28 September 1976.

VII. In a 1 October 1976 letter NAVFAC provided NAVELEX a summary listing of GCA users who forwarded survey results and advised that RASO would visit each activity to survey and supervise replacement of knobs and toggle switches. All other protected or covered items would be marked for replacement during maintenance. All removed items would be shipped to RASO for decontamination and subsequent shipment to Vallejo for use. Start of visits was contingent upon availability of spare parts, however all activities were scheduled for FY 77.

VIII. NAVFAC requested in a 28 December 1976 letter that NAVELEX direct GCA users to forward all knobs previously removed to RASO. Shipping instructions were provided. NAVELEX Vallejo published on 14 February 1977. Request was tendered in an attempt to augment NAVELEX Vallejo new procurements to establish initial replacement kits.

IX. In a 22 March 1977 letter NNPU requested NAVELEX Vallejo advise of delivery dates and quantities of replacement knobs ordered. Further advised the further delay in providing initial replacement kits would prevent completion of RASO surveys during FY 77.

X. In a 8 April 1977 letter NNPU detailed for NAVFAC the GCA radar removal plans summarized in October 1976.

XI. In a 1 June 1977 letter NNPU advised NAVELEX Vallejo that delivery dates for replacement items had not been provided, outlined other NAVELEX Vallejo

action items in accordance with the removal plan and forwarded a revised GCA schedule due to lack of replacement items. Additionally NAVELEX Vallejo was advised that a Navy-wide Radium Removal Program was being examined which could result in transfer of all GCA radium removal responsibilities to Vallejo.

XII. In July 1977 the NAVELEX Vallejo contract to provide initial replacement kits was cancelled.

XIII. In an 8 August 1977 letter NNPU provided NAVELEX Vallejo a revised GCA schedule for FY 78 and FY 79 due to delay in replacement parts and requested status of all action items noted in the NNPU 1 June 1977 letter. Note copy to NAVELEX.

XIV. In a 22 November 1977 message NAVELEX referenced our 8 August 1977 letter and requested NAVELEX Vallejo provide a status report.

XV. In a 02 December 1977 message NAVELEX Vallejo provided following status:

A. Replacement kits under procurement. Delivery scheduled for late December.

B. RASO begins visits in January 1978 and decontaminates removed items for use as replacement kits.

C. Sealed items to be labeled for replacement during normal maintenance.

D. Painted surfaces to be coated with lacquer to reduce spread and labelled.

E. Painted surfaces, i.e., panels to be replaced during EFM. Cost estimate for replacement to be provided at later date.

XVI. In view of the apparent availability of replacement kits, RASO completed, in January 1978, inventory of clean and dirty knobs on hand and inspected NAS Mugu facility to develop detailed survey procedures. As a result the following problem areas were noted:

A. Vallejo did not procure specific replacement kits but forwarded varying numbers of knob types. Further many so called replacement items were contained on excess chasis in Vallejo which were planned for shipment to RASO.

B. Each activity installation varied with different quantities of chasis and thus knobs.

C. Physical replacement of certain knobs could result in unacceptable adjustments to the GCA radar unit.

D. Survey of a GCA radar unit would require that the unit be in a down status.

E. GCA units are provided for aircraft safety and therefore have published two hour downtimes generally on weekends and in early mornings between 0000-0600 on weekdays. All other times will require NOTAMS and depending on weather may not be possible.

XVII. In late January Codes 10 and 40 visited NAVELEX Vallejo to address the noted problem areas, provide a more detailed plan for removal and establish a mutually agreeable time to resolve all problem areas and physically complete a removal survey at NAS, Point Mugu.

PHASE I

1. Activity submits an inventory of available chassis using standard JAN nomenclature. (i.e., Power Supply PP608/GPN)

2. Activity surveys spare parts with AN/PDR27J equipped with earphones and isolates and inventories those parts evidencing an audible increase in count rate.

PHASE II

1. Making use of tech manuals, RASO assembles a replacement parts kit (based on chassis inventory) containing only knobs and components that can be replaced without exposing electrical circuits or requiring time consuming or technically difficult procedures.

2. RASO surveys each chassis, replacing components identified in (1) above. Other items containing Ra-226 which are not removed are identified, coated when appropriate, tagged and inventoried.

3. RASO verifies Ra-226 contamination of previously segregated spare parts.

4. Report of findings submitted to NAVELEX and to activity.

PHASE III

1. NAVELEX replaces contaminated spare parts on a one-for-one basis.

2. NAVELEX issues replacement parts for components authorized for field change by NAS personnel.

3. NAVELEX establishes or contracts for a central decon and refurbishing facility for contaminated components.

PHASE IV

Items not covered in Phases I through III replaced by NAVELEX during depot maintenance.

In late March meeting held concurrent with NAS Mugu survey. Following summarizes conclusions made if program were to continue as a NAVFAC responsibility:

a. Based on knob replacements required at NAS Mugu, inventory of knobs on hand and knobs to be provided from Vallejo sufficient replacements will be available. Survey will commence upon receipt of final replacement items from Vallejo in June 1978.

b. The basic phased plan was ammended to include:

1. The requirement that each station provide a lead ET to physically remove and replace knobs.

2. That the surveys, estimated to be of four hours in length based on the NAS Mugu survey, be conducted about existing routine downtimes for each station.

3. That NAVELEX would notify activity of each specific survey and all activity responsibilities. Direct liaison with NAVELEX Vallejo and NNPU would be directed.

Major items of concern remaining were:

a. Ability to schedule GCA activities concurrent with RASO assistance visits in view of availability of downtimes for the units. Additionally the potential of completing a large number of GCA activities in relatively short time frames seemed remote in view of available downtimes.

b. Advisability of NAVELEX to incur potentially large expenditures for replacement of other radium bearing items in view of an ongoing program to replace all existing GCA units with newer units within the next five to seven years.

c. Advisability of inordinate travel expenditures required to complete the initial visits in a relatively short time when downtimes regularly occur during EFM's.

d. Advisability of using professional RASO assets for such nickel dime surveys when NAVELEX personnel could be trained to complete the surveys.

e. Finally why such attention to GCA radium removal with special NAVFAC attention when the problem exists Navy wide and no Navy wide program exists.

Recommendations:

a. That GCA radium removal surveys be completed concurrent with EFM.

b. That NAVFAC train NAVELEX Vallejo technicians to complete surveys and replace knobs.

C. That NAVFAC assist NAVELEX Vallejo in obtaining contractor decomtamination services for removed knobs.

d. That NAVFAC/NNPU emphasis be directed to overall radium removal program development and not in the execution of specific removal actions.

HRA-0175

OVERHAUL AND REPAIR DEPARTMENT
U. S. NAVAL AIR STATION, PENSACOLA, FLORIDA

LESPEC 14008.38 CH-1
342/FPF
13 DEC 1966

LOCAL ENGINEERING SPECIFICATION 14008.38 CH-1

From: Overhaul and Repair Officer
To: Distribution List

Subj: Radioactivity decontamination of aircraft instruments and aircraft oxygen system components

Ref: (a) ORINST 5100.11C of 1 Mar 1963
(b) LESPEC 14008.24 of 11 Feb 1959
(c) LESPEC 14008.3 of 29 Apr 1957

1. Purpose. To provide instructions for the processing of aircraft instruments and aircraft oxygen system components suspected of being contaminated with radioactivity.

2. Cancellation. RES/ERs 5069-66, 5108-66, 5119-66A and 5176-66.

3. Application. Related compliance.

4. Procedure. The following instructions apply both to aircraft instruments and to aircraft oxygen system components. Throughout this specification, the word "instrument" is used to designate either an aircraft instrument or an aircraft oxygen system component.

a. Pre-overhaul testing for radioactivity.

(1) Preliminary test. Measure the radioactivity of each instrument with a closed-window Geiger-Muller tube (side on) at contact through the dial glass. If the count is greater than twice the background radiation, open the instrument in a ventilated hood, remove the dial and pointer, and store the instrument in a ventilated cabinet over night and until ready to decontaminate in accordance with following paragraph 4.b. If the count is less than twice the background, proceed in accordance with following paragraph 4.a.(2).

(2) Test for removable radioactivity. Open the instrument, and perform the wipe test as follows: Wipe all accessible surfaces with a circle of Whatman No. 40 filter paper 1 1/8 inches in diameter. Measure the radioactivity transferred to the paper, using an open-window Geiger-Muller tube (end on), and then proceed in accordance with following paragraph 4.a.(2)(a) or 4.a.(2)(b), as applicable.

(a) If the count is greater than 100 dpm/100 cm^2, decontaminate the instrument in accordance with following paragraph 4.b.

(b) If the count is less than 100 dpm/100 cm^2, measure the fixed beta-gamma radioactivity in accordance with following paragraph 4.a.(3).

(3) Test for fixed beta-gamma radioactivity. Measure the fixed beta-gamma radioactivity with an open-window Geiger-Muller tube (end on) at contact, and then proceed in accordance with following paragraph 4.a.(3)(a), 4.a.(3)(b) or 4.a.(3)(c), as applicable:

(a) If the radioactivity level is less than 0.1 mr/hr above background, proceed in accordance with following paragraphs 4.e, 4.f and 4.g.

(b) If the radioactivity is more than 3.5 mr/hr, decontaminate in accordance with following paragraph 4.b.

(c) If the radioactivity is between 0.1 and 3.5 mr/hr above background, measure the radioactivity at 1 inch in accordance with following paragraph 4.a.(4).

(4) Test for radioactivity at 1 inch. Measure the radioactivity at a distance of 1 inch with a closed-window Geiger-Muller tube (side on), and then proceed in accordance with following paragraph 4.a.(4)(a) or 4.a.(4)(b), as applicable:

(a) If the radioactivity is less than 0.1 mr/hr above background, proceed in accordance with following paragraphs 4.e, 4.f and 4.g.

(b) If the radioactivity is more than 0.1 mr/hr above background, decontaminate in accordance with following paragraph 4.b.

b. Preliminary decontamination procedure.

(1) Remove the case and bezel, and wash the instrument in MIL-C-16553 Type I watch cleaning solution, then rinse in MIL-C-16553 Type II watch rinsing solution, and allow to drain dry.

(2) Dry in an oven at 140-160°F.

(3) Measure the radioactivity level in accordance with following paragraph 4.d. If the instrument meets the requirements of paragraph 4.d, proceed in accordance with following paragraphs 4.e, 4.f and 4.g. If the instrument does not meet the requirements of paragraph 4.d, decontaminate it in accordance with following paragraph 4.c.

c. Decontamination procedure. Instruments not effectively decontaminated by the preliminary decontamination wash must be subjected to more powerful chemical treatment. Disassemble the instrument, and clean the parts in the following solutions, as applicable:

(1) Aluminum alloy parts:

(a) Strip any paint with MIL-R-8633 paint remover.

(b) Degrease by dipping in clean O-T-620a 1,1,1 trichloroethane.

(c) Immerse for 10-30 minutes in the following solution:

Chromic acid, tech (CrO_3) ..... 30 oz/gal
Hydrofluoric acid, tech (60% HF) ... 70 ml/gal

(d) Rinse with water.

(e) Remove smut by soaking for 30 minutes in a 50% solution of MIL-C-5410 Type II cleaning compound.

(f) Rinse with water.

(g) Scrub in one of the following detergent mixtures:

Ammonium hydroxide, tech ..... 2 quarts
Surgical cleaner,
S/N 9G27930-558-1111 ..... 4 liq. oz.
Water ..... 1 1/2 gal.

or

Detergents, liquid, nonionic
MIL-D-16791D, Type I ..... 1 liq. oz.
Water ..... 1 gal.

(h) Rinse with water.

(i) Surface treat in accordance with specification MIL-C-5541.

(j) Dry in an oven at 140-160°F.

(2) Stainless steel parts:

(a) Degrease by dipping in clean 1,1,1 trichloroethane.

(b) Soak in 10 percent (by volume) nitric acid for 30 minutes.

(c) Rinse with water.

(d) Dry in an oven at 140-160°F.

(3) Copper and brass parts:

(a) Degrease by dipping in clean 1,1,1 trichloroethane.

(b) Immerse for a few seconds in the chromic acid-hydrofluoric acid mixture specified for aluminum alloy parts in preceding paragraph 4.c.(1)(c).

(c) Rinse with water.

(d) Scrub with the detergent mixture specified for aluminum alloy parts in preceding paragraph 4.c.(1)(g).

(e) Rinse with water.

(f) Dry in an oven at 140-160°F.

(4) Electrical components:

(a) Degrease by dipping in clean 1,1,1 trichloroethane for 2-3 seconds.

(b) Dip in the detergent mixture specified for aluminum alloy parts in preceding paragraph 4.c.(1)(g). Scrub with a soft bristle brush, taking care not to damage the wiring.

(c) Rinse with water.

(d) Dry in an oven at 140-160°F.

d. Testing for radioactivity after decontamination. After the instruments have been processed for removal of radioactivity, recheck the radioactivity level as follows:

(1) Test for radioactivity removal: Perform the wipe test in accordance with preceding paragraph 4.a.(2).

(a) If the count is greater than 100 dpm/100 cm^2, either reprocess or dispose of as radioactive waste in accordance with reference (a).

(b) If the count is less than 100 dpm/100 cm^2, measure the fixed beta-gamma radioactivity in accordance with following paragraph 4.d.(2).

(2) Test for fixed beta-gamma radioactivity. Measure with an open-window Geiger-Muller tube (end on) at contact.

(a) If the count is less than 0.1 mr/hr above background, proceed directly to measure the fixed alpha activity in accordance with following paragraph 4.d.(4).

(b) If the count is between 0.1 and 3.5 mr/hr above background, proceed with the radioactivity measurement at 1 inch in accordance with following paragraph 4.d.(3).

(c) If the count is greater than 3.5 mr/hr, either reprocess or dispose of as radioactive waste.

(3) Test for radioactivity at 1 inch. Measure the radioactivity at 1 inch with a closed-window Geiger-Muller tube (side on).

(a) If the radioactivity at 1 inch is less than 0.1 mr/hr above background, measure the fixed alpha activity in accordance with the following paragraph 4.d.(4).

(b) If the radioactivity is greater than 0.1 mr/hr above background, either reprocess or dispose of as radioactive waste.

(4) Test for fixed alpha activity. Test for fixed alpha activity, using a closed-window Geiger-Muller tube (side on) at contact, and then proceed in accordance with paragraph 4.d.(4)(a), 4.d.(4)(b), 4.d.(4)(c) or 4.d.(4)(d), as applicable.

(a) If the fixed alpha activity is less than 300 cpm, apply a radioactivity-free decal in accordance with following paragraph 4.e.

(b) If the fixed alpha activity is between 300 and 10,000 cpm, remove all glass components, and then apply a radioactivity-free decal in accordance with following paragraph 4.e. Process the glass parts separately in accordance with following paragraph 4.d.(4)(d).

(c) If the fixed alpha activity is over 10,000 cpm, either reprocess or dispose of as radioactive waste.

(d) Measure the fixed alpha activity of the glass parts in accordance with preceding paragraph 4.d.(4). If the fixed alpha activity is less than 300 cpm, install the part in a radioactivity-free instrument. If the fixed alpha activity is over 300 cpm, either reprocess or dispose of as radioactive waste.

e. Marking of radioactivity-free instruments. Identify all instruments which have been tested and found to be free of radioactivity by applying a radioactivity-free decal (NASP dwg. No. A30700-1054) to the external surface of the case. Before applying the decal, punch the year date (the year in which the instrument is processed).

f. Corrosion prevention. Certain parts, such as steel pivots, springs and aluminum gimbals, are particularly susceptible to corrosion. After decontamination, apply MIL-C-81309 compound only to these parts.

g. Packaging. After decontamination, package instruments to which a radioactivity-free decal has been applied as follows, and then route them to overhaul. Place each instrument in its case, and fasten the dial glass and bezel in place with masking tape. If the instrument has been disassembled, place all of the parts, including the case, dial glass and bezel, in a 5 X 13-inch polyethylene bag (S/N 5G1-8105-680-0852), and tie the bag closed.

h. Final identification of radioactivity-free instruments. After overhaul and final assembly, further identify instruments carrying a radioactivity-free decal by applying JJJ-S-151 Type 1 Class 1 Grade A sealing wax, (S/N 7510-257-4934) to one screw head on each instrument case or bezel. Heat the wax with a soldering iron, and apply to screw head.

5. Safety Precautions. Many of the chemicals specified herein are corrosive and toxic. Consult paragraph 14 of reference (b) for information and instructions concerning the use of these chemicals. Chromic acid and materials conforming to specification MIL-C-5541, such as Alodine No. 1200 compound, are strong oxidizing agents and may cause fires if allowed to come in contact with combustible materials. Therefore, comply with paragraph 5.g of reference (c).

6. Log book entry. Not required.

H. YESNES
By direction

Distribution
LES-1 (105 copies - Shop 350)

HRA-0179

34300/TAH
Ser 4803
26 NOV 74

From: Commanding Officer, Naval Air Rework Facility, Naval Air Station, North Island, San Diego, California 92135
To: Director, Material Management, Symbol MMTTAB, Oklahoma City Air Logistics Center, Tinker Air Force Base, Oklahoma 73145

Subj: Model T58 Engine Ignition Exciter

Ref: (a) MIL-STD-1458 of 11 December 1972

1. As requested during a recent visit to NAVAIREWORKFAC NORIS, by Mr. Bill Wood of OCALC, radioactive marking requirements for subject exciters were investigated.

2. The sealed spark gaps of subject exciters contain .000005 CURIES 5 microcuries of Cesium-Barium 137 and items must be marked as radioactive in accordance with Figure 1 of reference (a). The Figure 1 "use and storage label" must also be applied to "unit", "intermediate", and "shipping" containers when shipping container is a unit package. Since the engine container is a unit container, the "use and storage" label requirement applies. The D.O.T. marking and labeling requirements do not apply to subject units since they meet the "exempt" criteria of paragraph 5.2.6.3 of reference (a).

3. It is noted that the spark-gaps contained in subject exciters are marked with the notation "Caution, radioactive material" including the magenta colored radiation symbol. The complete ignition units contain no radiation caution markings and none are required by the applicable drawings.

4. Action will be taken locally to bring this matter to the attention of the appropriate commodity specification office. Action will also be taken to install reference (a) radiation use-and-storage labels on subject units and shipping containers during rework.

5. The applicable technical manual, NAVAIR 03-5MA-38/T.O. 5E1-2-37-3 contains adequate instructions for safe handling of spark-gap units during ignition exciter rework.

DEPARTMENT OF THE NAVY
NAVAL SUPPLY SYSTEMS COMMAND
WASHINGTON, D.C. 20376

TELEPHONE NUMBER
COMMERCIAL
AUTOVON
IN REPLY REFER TO:
09H2/CTM

MAY 1 3 1981

From: Commander, Naval Supply Systems Command
To: Commander, Naval Air Systems Command

Subj: Identification of Radioactive Aircraft Components

Ref: (a) COMNAVAIRSYSCOM ltr AIR-4121B1/EAP Ser #80 of 28 April 1981
(b) NEESA ltr 1135:KR:lm 3255.14A, Ser:308 of 16 Mar 1981
(c) NRC Specific Licence No. 08-05970-03

1. In response to reference (a), this Command does not concur that it has lead action on recommendation 4a of reference (b) and considers the matter within the addressees cognizance.

2. The items listed in reference (c) were incorporated into a Nuclear Regulatory Commission (NRC) specific license at the request of COMNAVAIRSYSCOM to facilitate supply of aircraft part replacement. Originally, these items were under the cognizance of NAVAIRSYSCOM. The items listed in reference (c) required a "specific" NRC licence in order to be procured and distributed within the Navy. Since reference (c) items are only a small part of the problem addressed in paragraph 3a of reference (b), and this Headquarters does not have cognizance over aircraft, the Command is not in a position to address the overall problem identified in the paragraph.

3. In implementing a NAVAIRSYSCOM survey program, assistance within the Command can be provided by Aviation Supply Office (ASO) when information is desired on quantities issued, stock levels and locations, etc. of stock numbered items in the supply system that have been identified as radioactive. It should be noted such items may not be specifically licenced, reference (c) covers only those items listed therein, and no other NRC specific licences for aircraft items have been issued to this Command. When NAVAIR identifies a stock item in its survey, stock information may be directly requested from ASO.

4. Questions concerning this matter as they relate to reference (c) may be directed to Mr. Clint Maish, Safety Manager/Radiation Safety Officer, SUP 09H2, Autovon 225-3671.

JAMES S. ROBERTS
By direction

bcc:
NEESA (Code 113)

HRA-0182

5100.00/12.1
NNPU:NMJ:mh
3222
Ser: 146
30 AUG 1976

From: Commander, Naval Facilities Engineering Command
To: Commander, Naval Electronic Systems Command, Washington, D.C. 20360 (CODE 52011)

Subj: Radioluminescent Items in GCA Radar Units; interim safety precautions

Ref: (a) NAVELEXSYSCOM ltr 52011D:WVF:fc, 9420 Ser 49-5201 of 26 Jan 1976
(b) NAVELEXSYSCOM ltr 52011:JJS:Ec 9420 Ser 126-5201 of 19 Mar 1976
(c) Phonecons between Mr. P. Hahn (DISC) Defense Industrial Supply Center, Philadelphia and Mr. N. Jordan, (Radiological Affairs Support Office, Port Hueneme, CA)on 12 & 15 July 1976

Encl: (1) Knobs Identified as Containing Radioactive Material
(2) Interim Safety Procedures for Radioluminescent Items on GCA Radar Units

1. References (a) and (b) directed survey, removal and replacement of radioluminescent items in Ground Controlled Approach (GCA) Radar Units due to the presence of measurable radiation levels and spreadable contamination. Based on field survey results submitted in accordance with reference (b), a slight but unwarranted hazard to GCA operators exists with spreadable contamination from knobs with unsealed radium paint markings.

2. Surveys by the Radiological Affairs Support Office (RASO), Naval Nuclear Power Unit, Port Hueneme, indicate that some replacement items may also have radium paint markings. As discussed in reference (c), RASO and representatives from the Defense Industrial Supply Center, Philadelphia, are conducting a joint effort to identify and remove certain radium painted knobs from the supply system. Stock numbers for the knobs that are being investigated are listed in enclosure (1). In addition, RASO is investigating removal of other identified radioactive items and methods of radium paint removal.

5100.00/12.1
NNPU:NMJ:mh
3222
Ser 146

Subj: Radioluminescent Items in GCA Radar Units; interim safety precautions

3. All radioactive items have not been removed from the GCA radar units and some replacement items contained radium. RASO is making plans to solve the problem by sending out personnel to remove radioluminescent items, decontaminate where indicated, and install non-radioluminescent items. This plan will be carried out as soon as practical when non-radioluminescent replacement items are available. In the meantime, the slight hazard should be controlled by following the procedures in enclosure (2). No other precautions are necessary.

4. It is recommended that a copy of this letter with enclosures, or the information contained therein, be sent to the distribution list of reference (b).

GENE W. HENDRIX
By direction

Copy to:
BUMED (Code 53)
NAVNUPWRU, Port Hueneme (Code 40)
NAVELEXSYSCOM (Code 4805)

NNPU:NMJ:mh
3222
Ser: 146

Subj: Radioluminescent Items in GCA Radar Units; interim safety precautions

3. Until the availability of non-radioactive stock can be assured, all users of GCA equipment should follow the interim safety procedures forwarded as enclosure (2).

Copy to:
BUMED (Code 53)
NAVNUPWRU, Port Hueneme (Code 40)

CODE	INITIALS/DATE
ORIG. 42	8-3
43	8-4
40	8/4
10	
SIG.	

Knobs Identified as Containing Radioactive Material

(Ground Control Approach Radar)

5355-304-7874

5355-644-3899

5355-306-3378

5355-508-5798

5355-867-5800

5355-656-1026

5355-644-1073

5355-644-2306

5355-644-1314

5355-559-4434

5355-644-4027

5355-667-4780

Enclosure (1)

INTERIM SAFETY PROCEDURES

FOR RADIOLUMINESCENT ITEMS

ON GCA RADAR UNITS

I. SCOPE

This procedure provides safety precautions and sealing procedures for radioluminescent items with unsealed markings containing radium-activated luminous paint.

II. SURVEY RESULTS

Surveys conducted in accordance with NAVELEX ltr Ser 126-5201 dated 19 March 1976, and by RASO, indicate:

a. The external radiation levels (though measurable) are not a cause for deep concern. Radiation levels at the operator position are near background, and the operator is not usually present for long periods of time.

b. Residual contamination from radon and other daughter products decays rapidly and should not be detectable one day after removal of any radium containing devices. The number of unsealed radium containing devices and the operator occupancy time in the trailer are such that no inhalation hazard exists.

c. The most likely source of contamination is flaking or wearing of radium activated paint from unprotected or unsealed surfaces such as control knobs, certain toggle switches, and etched markings on chassis surfaces. There exists a possibility that an operator could accidentally ingest some radium from handling these objects. Adequate protection can be given to radium paint markings by applying clear protective coatings as described in the procedures below.

III. SEALING PROCEDURES

Tests by RASO with sample radioluminescent knobs and toggle switches have shown that four (4) coats of clear enamel, clear spray acrylic lacquer (FSN 8010-515-2487), or clear fingernail polish will effectively seal and protect radioluminescent markings until non-radioactive components are available. All radioactive knobs, toggle switches, and other items or surfaces which are routinely touched by the operator must be sealed with four (4) coats of sealer using the following procedures:

a. Surgical gloves or waterproof household gloves must be worn for all work involving handling of radioluminescent items.

b. The work area for application of sealing material must be covered with disposable plastic sheeting. If work is done carefully,

ENCLOSURE (2)

there should be no problem with flaking paint or spread of contamination.

c. All sealing materials are flammable, therefore, follow normal flammable material precautions. GCA equipment should be shut down if it is necessary to apply coatings on or near panel faces.

d. Coat all surfaces of removable knobs and toggle switches.

e. Allow each coat of sealer to dry thoroughly before applying the next one. Pay particular attention to slight softening of radioluminescent paint after the first coat. This is a temporary situation which will cease when the first coat is dry. In test samples, softening has not occurred in subsequent coats.

f. After work is completed, the work area must be smear surveyed for contamination. Any contaminated items must be sealed in a plastic bag and stored in a metal drum in a secure area. Disposal instructions will be provided in separate correspondence or given by personnel replacing the radioluminescent items.

IV. RADIATION & RADIOACTIVITY MEASUREMENTS

Procedures for identifying radioactive items and for conducting smear surveys are described in enclosure (1) to NAVELEX ltr 9420 Ser 126-5201 dated 19 March 1976.

ENCLOSURE (2)

HRA-0186

NNPU:NMJ:hk
3222
Ser: 166

1 OCT 1976

From: Commander, Naval Facilities Engineering Command
To: Commander, Naval Electronics Systems Command,
Washington, DC 20360 (CODE 52011)

Subj: Removal of Radium from GCA Radar Units

Ref: (a) COMNAVELEX ltr 52011:WVF:fc 9420 Ser 49-5201 of 26 Jan 76
(b) COMNAVELEX ltr 52011:JJS:fc 9420 Ser 126-5201 of 19 Mar 76
(c) NAVFAC ltr 5100.00/12.1 NNPU 3222 Ser 146 of 30 Aug 76

Encl: (1) Summary of Field Activities' Responses to GCA Radar Survey Request
(2) NAVNUPWRU ltr 3222 Ser 692 of 30 Aug 76

1. Responses to references (a) and (b) have been evaluated by the Radiological Affairs Support Office (RASO) of the Naval Nuclear Power Unit. A summary of these responses by activities is provided as enclosure (1). A description of the hazard potential and interim safety precautions were forwarded by reference (c).

2. During the week of 9 August 1976, RASO teams visited stock points for the class 5355 GCA radar knobs, which posed the greatest potential for contamination, and removed the radioluminescent items from supply. Enclosure (2) is a summary report of these visits.

3. In order to insure complete removal of all radioactive items from GCA radar units, RASO personnel will visit each of the activities in enclosure (1) in order to survey and supervise replacement of unsealed radioluminescent knobs and toggle switches. Items which contain protected or covered radioluminescent markings such as dials, meters, and compass roses will be marked for removal and replacement at the time of maintenance.

4. Radioluminescent items removed from GCA radar units will be shipped to RASO for decontamination if feasible. Shipping instructions will be provided during the visit. Decontaminated items will be returned to NAVELECSYSENGCEN, Vallejo for reuse.

5100.00/12.1
NNPU:NMJ:hk
3222
Ser: 166
1 OCT 1976

5. RASO will coordinate all scheduling of visits with NAVELECSYSENGCEN, Vallejo; and will advise the NAVELECSYSENGCEN of all radioluminescent items marked for removal during routine maintenance. Subject to the availability of spare parts, RASO plans to visit those activities reporting contamination during the first half of FY77. It is anticipated that all of the activities will be surveyed by the end of FY77.

GENE W. HENDRIX
By direction

Copy to:
NAVELECSYSENGCOM (018)
NAVNUPWRU (40)
NAVELEXSYSCOM (4805)

CODE		INITIALS/DATE
ORIG.	42	MMA 9-9
	43	WJM 9-13
	40	[illegible] 9/13
SIG.	04N2	JOSEPH A. 76

SUMMARY OF CLASS 5355 INVENTORY

TOTAL INVENTORY

Stock No.	DD Memphis	DCSC Columbus	DD Ogden	NSC Oakland	Radioactive Inventory Shipped To RASO	Net Total in Supply *
5355-304-7874	3	202	-	-	1m	204
306-3378	-	-	-	-		-
508-5798	-	-	-	-		-
559-4434	13	65	11	-		89
644-1073	1	867	-	19	17c	870
644-1314	94	-	90	-	26m	158
644-3899	-	23	-	-		23
644-2306	1	12	2	6		21
644-4027	-	-	-	12		12
656-1026	-	-	-	-		-
867-5800	-	-	93	-		93

NOTES: "m" indicates shipped from Memphis

"c" indicates shipped from Columbus

* Non-radioactive inventory available for issue

Enclosure (1)

SUMMARY OF FIELD ACTIVITIES' RESPONSES TO
GCA RADAR SURVEY REQUEST

ACTIVITY	RESPONSE (see key)	ACTIVITY	RESPONSE (see key)
MCAS BEAUFORT	N	NAS DALLAS	R
NAS BERMUDA	XX	NAS FALLON	R
MCAS CHERRY POINT	O	NAS GLENVIEW	R
NAS CECIL FIELD	S	MCAS KANEOHE BAY	XX
NAS CHASE FIELD	R	NAVSTA KEFLAVIK	XX
NAS CORPUS CHRISTI	S	NAS KEY WEST	N
NAS CUBI POINT	R	USCG KODIAK	O
MCAS EL TORO	N	NAS LAKEHURST	R
MCAS IWAKUNI	XX	NAS LOS ALAMITOS	O
NAS KINGSVILLE	N	NAS MEMPHIS	S
NAS LEMOORE	XX	NAVSTA MIDWAY IS	XX
NAS MERIDIAN	XX	NAS NORTH ISLAND	S
NAS MIRAMER	N	NAS NEW ORLEANS	N
NAS MOFFETT FIELD	O	MCAS NEW RIVER	O
NAS OCEANA	O	MCAS QUANTICO	N
NAS PATUXENT RIVER	R	NAVSTA ROOSEVELT RDS	N
NAS PENSACOLA	XX	NAVSTA ROTA	R
NAS POINT MUGU	R	NAS WHITING FIELD	N
NAS WHIDBEY ISLAND	O	NAS WILLOW GROVE	R
MCAS YUMA	O	MCAS FUTEMA	N
NAS BRUNSWICK	XX	NAVSTA ADAK	R
NAS JACKSONVILLE	XX	NALF SAN CLEMENTE	XX
NAS NORFOLK	XX	NALF SAN NICHOLAS	O
NATTC MEMPHIS	P	NALF IMPERIAL BEACH	O
NAS GTMO BAY	N	COMNAVSUPPFOR ANTARCTICA	N,P
NAS ALAMEDA	XX	NTC MOROCCO	N
NAS AGANA	O	NAF MISAWA	O
NAS BARBERS POINT	XX	NAS WOUTH WEYMOUTH	R

XX - Have smears in excess of contamination limits
R - No smears forwarded, but detectable radiation or radioactive items removed
S - Smears forwarded, removable radioactivity within limits or not detectable
N - Negative report (no detectable radiation or radioactivity)
P - Partial report
O - No report

ENCLOSURE (1)

NNPU:NMJ:mh
3222
Ser: 692

30 AUG 1976

From: Officer in Charge
To: Commanding Officer, Defense Industrial Supply Center, Philadelphia, PA 19111 Attn: Mr. Paul Hahn

Subj: Radiological Evaluation of Class 5355 Items in Defense Supply Depots; report of

Ref: (a) DISC Philadelphia msg 031900Z Aug 1976
(b) NAVMATINST 5100.8
(c) RASO msg 070003Z Aug 1976

Encl: (1) Summary of Class 5355 Inventory

1. As requested by reference (a), and in accordance with references (b) and (c), the Radiological Affairs Support Office, (RASO) conducted a radiological survey of Class 5355 items on Ground Controlled Approach (GCA) radar units. These items were held by the Defense Depot, Memphis Tenn., Defense Construction Supply Center, Columbus, Ohio; Defense Depot, Ogden Utah; and the Naval Supply Center, Oakland, CA.

2. Class 5355 items found with radioluminescent paint containing radium-226, were located at the Defense Depot, Memphis, Tenn., and Defense Construction Supply Center, Columbus, Ohio. Identified items have been cleared from stock and prepared for shipment to RASO for further evaluation. A summary of the Class 5355 inventory is provided as enclosure (1).

3. All remaining Class 5355 items surveyed by RASO have been determined to be non-radioactive and may be returned to a ready-for-issue status.

4. In light of the fact that these items are maintained for issue to both the Navy and Air Force, it is recommended that cognizant Air Force personnel be advised of the action taken.

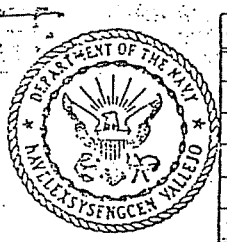
D. L. URBANI
By direction

Copy to: w/encl
NAVFAC (04N)
NAVELEXSYSENGCEN, Vallejo
Internal copy to:
R/F
3222

CODE	INITIALS/DATE
ORIG. 42 (1)	WMJ 8-30
SIG. 40	8/30

ENCLOSURE (2)

HRA-0191



CODE	SEQ	ACTION	UNIT
30	1	AFI	
19	2	AII	
0E	3	III	
111			

A - ACTION
F - COPY FURNISHED
I - INFORMATION

2005

GCA

NAVAL ELECTRONIC SYSTEMS
ENGINEERING CENTER
VALLEJO
VALLEJO, CALIFORNIA 94592

IN REPLY REFER TO:
10550/35Q
440:WT:tc:7469

FEB 14 1977

From: Commanding Officer, Naval Electronic Systems Engineering Center, Vallejo
To: Distribution List

Subj: Ground Control Approach (GCA) Equipment (AN/CPN-4 Family); safety hazard concerning

Ref: (a) COMNAVELEXSYSCOM ltr ser 49-5201 of 26 Jan 76
(b) COMNAVELEXSYSCOM ltr ser 126-5201 of 19 Mar 76
(c) COMNAVELEXSYSCOM ltr ser 410-5201 of 28 Sep 76
(d) COMNAVFACENGCOM Alexandria ltr ser 209 of 28 Dec 76 (NOTAL)

Encl: (1) Packaging and Shipping Procedures for Radioluminescent Devices

1. This command is assisting the Radiological Affairs Support Office (RASO), Naval Nuclear Power Unit, Port Hueneme, California, in an effort to remove the potential safety hazards due to radioluminescent items in all United States Navy and United States Marine Corps Ground Control Approach (GCA) radar systems (CPN-4 family). References (a), (b) and (c) refer.

2. As discussed in reference (d), RASO personnel will resurvey all CPN-4 radar units, remove radioluminescent items, decontaminate and install non-radioluminescent items. Their plan is to complete the above actions at approximately 40 activities during fiscal year 1977. Scheduling and other details pertaining to these visits will be the subject of future correspondence.

3. In the interim, RASO, by reference (d), has requested that activities on the Distribution List ship all radioluminescent knobs and toggle switch tips, previously removed and currently in temporary storage, to the following address for decontamination and possible

10550/35Q
440:WT:tc:7469

reuse. Procedure for proper preparation and shipment is contained in enclosure (1).

Officer in Charge
Naval Nuclear Power Unit*
Port Hueneme, CA 93043
U.I.C. 0537A
M/F GCA Components
ATTN: RASO

*Note: Do not ship to NAVELEXSYSENGCEN Vallejo

John M Bonsall

JOHN M. BONSALL
By direction

Distribution:

MCAS BEAUFORT	MCAS YUMA	NAVSTA MIDWAY ISLAND
NAS BERMUDA	NAS BRUNSWICK	NAS NORTH ISLAND
MCAS CHERRY POINT	NAS JACKSONVILLE	NAS NEW ORLEANS
NAS CECIL FIELD	NAS NORFOLK	MCAS NEW RIVER
NAS CHASE FIELD	NATTC MEMPHIS	MCAS QUANTICO
NAS CORPUS CHRISTI	NAS GUANTANAMO BAY	NAVSTA ROOSEVELT ROADS
NAS CUBI POINT	NAS ALAMEDA	NAVSTA ROTA
MCAS EL TORO	NAS AGANA	NAS WHITING FIELD
MCAS IWAKUNI	NAS BARBERS POINT	NAS WILLOW GROVE
NAS KINGSVILLE	NAS DALLAS	MCAS FUTEMA
NAS LEMOORE	NAS FALLON	NAVSTA ADAK
NAS MERIDIAN	NAS GLENVIEW	NALF SAN CLEMENTE ISLAND
NAS MIRAMAR	MCAS KANEOHE BAY	NALF SAN NICOLAS
NAS MOFFETT FIELD	NAVSTA KEFLAVIK	NALF IMPERIAL BEACH
NAS OCEANA	NAS KEY WEST	COMNAVSUPPFORANTARCTICA
NAS PATUXENT RIVER	NAS LAKEHURST	NAF MISAWA
NAS PENSACOLA	NAS LOS ALAMITOS	NAS SOUTH WEYMOUTH
NAS WHIDBEY ISLAND	NAS MEMPHIS	

Copy to: (w/encl)

NAVELEXSYSENGCEN CHARLESTON	NAVELEXSYSENGCEN SAN DIEGO
NAVSEEACT PAC	NAVELEXSYSENGCEN NEW ORLEANS
NAVSEEACT PHILIPPINES	NAVELEXSYSENGCEN GREAT LAKES
NAVELEXSYSENGCEN PHILADELPHIA	NAVELEXSYSENGCEN WASHINGTON D.C.
NAVELEXSYSENGCEN PORTSMOUTH	COMNAVFACENGCOM ALEXANDRIA
NESTED PATUXENT RIVER	NAVNUPWRU PORT HUENEME
COMNAVELEXSYSCOM	

HRA-0193

NNPU:NMJ:hk
3222
Ser: 434
8 APR 1977

From: Officer in Charge
To: Commander, Naval Facilities Engineering Command, 200 Stovall Street, Alexandria, VA 22332

Subj: Removal Plan for Radioluminescent Devices

Ref: (a) COMNAVFACENGCOM ltr 04N2/GWH 5100.00/12.1 Ser 5 of 19 Jan 77
(b) COMNAVFACENGCOM ltr NNPU:NMJ:hk, 3222 Ser 166 of 1 Oct 76
(c) FONECON 18 Feb 77 between Mr. L. Jacobson (NAVELSXENGCEN, Vallejo) and Mr. N. Jordan (NAVNUPWRU)

Encl: (1) Outline Removal Plans for Radioluminescent GCA Devices

1. Reference (a) requested plans and milestones for removal of all radioluminescent items, in addition to knobs and toggle switches, from GCA radar units. General plans for radium removal in GCA equipment have been provided in reference (b) and are further detailed in enclosure (1). Enclosure (1) has been coordinated via reference (c).

2. It is noted that plans for removal of radioluminescent GCA devices in the supply system required to insure total removal have been included.

T. C. CRANE

CODE	INITALS
70	
20	
10	

OUTLINE REMOVAL PLANS FOR RADIOLUMINESCENT GCA DEVICES

A. Removal of radioluminescent knobs and toggle switches.

1. RASO removes all radioluminescent GCA knobs and toggle switches from supply system:

Action: Complete.

2. RASO removes all radioluminescent GCA knobs and toggle switches from field units and replaces with clean items provided by NAVELEXENGCEN, Vallejo.

Action: Assuming sufficient replacement parts are available, RASO schedule includes, 34 GCA activities in FY77 and 21 remaining GCA activities in FY78.

3. RASO decontaminates knobs removed and forwards to NAVELEXENGCEN, Vallejo for rework and subsequent use during item 2 removal.

Action: Concurrent with item A2 above.

B. Removal of encased radioluminescent devices such as compass roses, dials and meters.

1. RASO surveys all GCA units and marks encased items requiring removal.

Action: Concurrent with item A2 above.

2. RASO removes all radioluminescent GCA encased items from the supply system as follows:

a. Survey all stocking points for radioluminescent GCA encased items.

Action: Concurrent with Supply Radium Removal Program during FY77 and early FY78.

b. If no radioluminescent material found proceed to item B3.

c. If radioluminescent material found only on items procured under old Mil-Specs and if current Mil-Specs preclude radioluminescent material with radium, coordinate removal of radioluminescent items with item manager. Proceed to Item B3.

d. If radioluminescent material found randomly, coordinate with specification manager to insure Mil-Spec precludes use of radium and coordinate with item manager removal of radioluminescent items in storage.

3. NAVELEXENGCEN Vallejo coordinates replacement of radioluminescent compass roses, meters and dials in field units.

Action: To commence FY78.

HRA-0209

7/3

43:EMC:sdr
3260B
Ser 0837

14 JUL 1978

U.S. Nuclear Regulatory Commission
Division of Fuel Cycle and Material
Safety
Radioisotopes Branch
Washington, DC 20555

Gentlemen:

The attached application by the Naval Supply Systems Command to renew U.S. Nuclear Regulatory Commission Material License No. 08-05970-03 is endorsed.

Sincerely,

C. A. JOHANNESMEYER
Lieutenant Commander, CEC, USN
Director, Radiological Affairs
Support Office

Attachment:
(1) NAVSUP ltr 09H2/CTM of 28 Jun 78

Copy to: (w/o attach)
NAVFACENGCOM (04N)
NAVSUP (09H2)

Internal copy to:
R/F
3260B

CODE	INITIALS/DATE
ORIG. 431	[illegible] 7/14
40T	S 7/14
SIG. 40	

DEPARTMENT OF THE NAVY
NAVAL AIR SYSTEMS COMMAND
and
NAVAL SUPPLY SYSTEMS COMMAND
WASHINGTON, D. C. 20390

IN REPLY REFER TO
NAVAIRINST 3400.1A
NAVSUPINST 3400.5
AIR-52023B
SUP-042Z
20 Oct 1971

NAVAIR INSTRUCTION 3400.1A
NAVSUP INSTRUCTION 3400.5

From: Commander, Naval Air Systems Command
Commander, Naval Supply Systems Command

Subj: U.S. Atomic Energy Commission licensed items installed on aircraft; requisitioning, possession, use, storage, and disposal of

Ref: (a) Radiation Health Protection Manual BUMED NMP 5055
(b) Radioactive Commodities in the DOD Supply Systems (NAVSUP Publication 5012 of 20 Dec 67)

Encl: (1) List of U.S. Atomic Energy Commission Licensed Items Installed on Aircraft

1. Purpose. To inform commanding officers of Naval Air Stations, Naval Air Rework Facilities, Naval Air Squadrons, Aviation Supply Office, Naval Supply Centers, and Naval Plant Representatives of the requirements for requisitioning, possession, use, storage, and disposal of the items listed in enclosure (1).

2. Cancellation. This instruction supersedes NAVAIRINST 3400.1 of 21 March 1968.

3. Scope. This instruction applies to all items in enclosure (1).

4. Background. Each item within the scope of this instruction contains radioactive by-product material and is licensed by the U.S. Atomic Energy Commission for distribution and use within the Department of the Navy by AEC License Number 08-05970-03. The license requires that Naval Activities possessing the items listed in enclosure (1) comply with the provisions of this instruction.

5. Procedures

a. Requisitioning. Requisitions for replacement items shall be forwarded through Supply Channels to the Commanding Officer, Naval Aviation Supply Office, 700 Robins Ave., Philadelphia, Pa. 19111. Requisitions will only be approved by the Aviation Supply Office on a one for one replacement basis.

b. Repair. These items are not repairable. Unserviceable items, not damaged or broken, shall not be opened and shall be returned to the stocking point.

c. Leak Testing. No radiological leak test on these items is required.

d. Use. Unbroken or undamaged items installed on aircraft or in the supply system present no radiological hazard to personnel during normal servicing or use. However, personnel working for extended periods of time in the immediate vicinity of item one of enclosure (1), the Ice Detector Probe, should shield the window of the detector. Broken or damaged items may have radioactive material exposed and shall be handled only by personnel wearing rubber gloves, and be immediately placed in hermetically double sealed containers for disposal.

e. Transfer. Items may not be transferred out of the U.S. Navy except to persons or firms authorized by the U.S. Atomic Energy Commission to receive them.

f. Shipment. Items shall not be shipped through the U. S. Postal Service. Items returned for disposal shall be marked in accordance with Hazardous Materials Regulations of the Department of Transportation (formerly I.C.C. Regulations).

g. Storage. Items stocked in storage activities shall be stored in areas to which access is restricted and which is marked with a sign bearing the radiation caution symbol and the words "Caution Radioactive Material."

h. Damaged Items. Damaged or broken items are hazardous. Broken parts shall be handled only by persons wearing rubber gloves and the parts shall be placed in hermetically double sealed containers pending disposal. Items damaged or broken due to aircraft accidents shall be recovered where practicable and disposed of in accordance with disposal procedures of this instruction.

i. Disposal. Items shall be disposed of only by transfer to the Receiving Officer, Naval Supply Center, Norfolk or Receiving Officer, Naval Supply Center, Oakland. Shipments shall be externally marked with the words "Radioactive Material for Disposal" in addition to any markings required by subparagraph 5f of this instruction. Shipments shall also be clearly marked with the nomenclature, quantity, and condition of the items contained in each container. Naval Supply Center, Norfolk and Oakland shall notify Aviation Supply Office (Code Tec-1), Philadelphia of the serial numbers and disposing company of items disposed of.

j. Losses. Aviation Supply Office (Code Tec-1), Philadelphia shall be notified in writing of the circumstances of the loss of any item. Items not recovered from accident scenes due to unpracticable situations shall be considered as losses and reported as such.

k. Records. Records of the purchase, transfer and disposal of all items shall be maintained by the Aviation Supply Office.

l. Labeling. Each item shall have a label containing the following information:

Radiation Caution Symbol

Contains (Radioisotope Used)

Activity of Radioisotope

AEC License No. 08-05970-03

Disposal per NAVAIR Instruction 3400.1A

If found return to the nearest Military Activity

Labels on items prior to the date of this instruction may have AEC License No. 08-05970-07 and will not have disposal instructions. Commands having such items should note that this instruction applies to those items and the label need not be changed.

m. Personnel Safety. References (a) and (b) shall be complied with in all matters relating to radiation health protection.

6. Action. The procedures listed in paragraph 5 of this instruction will be complied with by all Navy activities possessing the licensed items.

7. Reports

a. Report Symbol NAVAIR 3400-1 applies to the reporting requirement in subparagraph 5j above.

b. Report Symbol NAVAIR 3400-1A applies to the reporting requirement in subparagraph 5i above.

c. Reporting requirements contained herein have been approved by the Chief of Naval Operations.

K. R. WHEELER
Commander
Naval Supply Systems Command

D. K. WEITZENFELD
Vice Commander
Naval Air Systems Command

Distribution: (5 copies each)
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Atomic Energy Commission, Division of Materials Licensing, Isotopes Branch, Washington, D. C. 20545
Commander, Defense Logistics Services Center, Material Interservice Division, Battle Creek, Michigan

Stocked at COMNAVDIST WASH DC (Supply and Fiscal Department, Code 514.32), Washington Navy Yard, Washington, D. C. 20390

List of U.S. Atomic Energy Commission Licensed Items Installed on Aircraft

1. Ice Detector Probe - (FSN-RC1650-010-1421-XAEC) Contains 50 Microcuries of SR-90

   (FSN-RC1660-919-0419-XAEC) Contains 50 Microcuries of SR-90

   (FSN-RC1660-077-8473-XAEC) Contains 50 Microcuries of SR-90

2. Exit Marker-FSN RC9905-705-3765-XAEC-Contains 50 Millicuries of Tritium (H-3)

3. Exit Marker-FSN RC1560-022-9002-XAEC-Contains 90 Millicuries of Tritium (H-3)

4. Drouge Light-FSN RC1680-793-7994-XAEC-Contains 25 Millicuries of Krypton-85

5. Exit Marker-FSN CANRAD Precision Industries MODEL 352-Sealed Light Source-Contains 1 Curie of Tritium (H-3)

HRA-0214

DEPARTMENT OF THE NAVY
NAVAL SUPPLY SYSTEMS COMMAND
WASHINGTON, D.C. 20376

TELEPHONE NUMBER 202
COMMERCIAL 695-3655
AUTOVON 225-3655
IN REPLY REFER TO:

09H2/CTM

25 AUG 1978

MEMORANDUM

From: Commander, Naval Supply Systems Command (SUP 09H2)
To: Commander, Naval Facilities Engineering Command (FAC 04N)

TO: NAVPA(40)
Enclosure (2) to BUMED comments contained no significant comments. Done

Subj: Radium Removal Program

Ref: (a) RASC meeting of 24 May 1978
(b) COMNAVFACENGCOM ltr 04N2/GWH 5100.00/2 ser 45 of 25 July 1978

1. During reference (a), copies of a draft OPNAV instruction and outline NAVMAT instruction concerning subject program were distributed to RASC members and a request for review and comments was made. Subsequently, reference (b) established a 1 September due date for comments.

2. In accordance with the discussions during reference (a), copies of the instruction draft and outline were distributed to internal Headquarters codes and NAVSUP ICP's for review. Based on replies received, the following comments are submitted:

a. OPNAVINST Outline

(1) Reference (f) should be NAVSUPINST 4000.34A.

(2) The meaning of the second sentence of paragraph 4.b.(3) is unclear. Additionally, it is recommended the word "depot" not be used; a more appropriate term, such as activity, should be used in lieu thereof.

b. NAVMAT Instruction Outline

(1) General Comments

(a) The Fleet Material Support Office (FMSO) will ultimately be the central point of contact within NAVSUP for the radium elimination/substitution program. FMSO will act as it does in the asbestos elimination/substitution program to purge the supply system of stock numbered items identified for elimination/substitution.

(b) FMSO will initiate action when advised of a stock numbered item no longer to be issued. If a substitute item

has been identified, a separate stock number can be developed for the item and appropriate elimination/substitution listings can be published as in the asbestos program.

(c) The identification of items to be eliminated and substitutes rests with the cognizant hardware systems command (technical manager). In this program, NAVAIR and NAVSEA have (and should be assigned in the instruction) primary responsibility for identifying items no longer needed and substitutes (with assistance from ASO, SPCC, NCBC, FMAGs, and NARFs, as applicable/ necessary).

(d) Upon identification and notification, the cognizant ICP can withdraw Navy cataloging interest from items no longer to be used, and institute cataloging of substitute items (based on revised specifications from hardware systems command).

(e) Listings of items to be purged and replacement items should be provided (by FMSO based on hardware systems command input) to all Naval activities requesting removal from stock/service. Where removal from service is necessary, FMSO should be provided guidance on protective/control measures to be included with listings and followed by activities. (The approach should be as in defective material programs).

(f) If NNPU desires to be the intermediary between hardware systems commands and FMSO, then NNPU would accept responsibility for providing necessary imput for initiating purging/substitution action to FMSO.

(g) As part of the program, reports of quantities removed and disposal should be made to a designated activity for monitoring.

(h) Firm deadlines for identification action should be established.

(2) Procurement

(a) If a "no radium clause" is desired, a standard ASPR clause could be developed and placed in each solicitation or invitation to bid when a procurement exceeds $10,000 if the radium removal program is DoD wide. Otherwise, a Navy clause could be developed and included in the Navy Procurement Directive. Addition

of such a clause should be a NAVMAT action. Insuring no introduction of radium is applicable to all SYSCOMs, not solely NAVSUP.

(b) Since procurement activities react to design and requirement determinations developed by requiring activities, a given purchase agent or contracting officer is not necessarily always in a position to know that a particular item is to exclude/include radium. Even with a no radium clause "in the books" it is possible for a variety of reasons that radium may be introduced. Accordingly, the most practical place to locate a policy to restrict radium from procurements is in the design process. In light of this, any instruction should strongly emphasize hardware systems command action to restrict the use of radium. Applicable designs/specifications should be revised to specifically exclude the use of radium.

(c) If there cannot be a blanket "no radium clause" (in the case where some use of radium is found essential), then a clause could be developed and added by NAVMAT to the Navy Procurement Directive stating the following: "If this contract is for supplies, the supplies shall not contain radium unless required in specifications. If the contract is for services, the contractor shall not cause radium to be introduced to Navy fleet or shore activities as a result of the service, unless required in specifications."

(3) Specific Comments

(a) Paragraph 5.c.(3). Use of the word depot in this instruction is not recommended.

(b) Paragraph 5.c.(4). Action dependent on identifying items and substitutes, revising specifications, and no radium procurement clause.

(c) Paragraph 6.b. Not generally applicable to NAVSUP. NAVSUP has no survey capability and is probably not technical command for any of items.

(d) Paragraph 6.b.(3), 6.c.(2) and 6.d.(2). Disposal procedures should be compatible with the overall DoD disposal and demilitarization policies and standard procedures as set forth in DoD 4160.21M (Defense Disposal Manual) and DoD 4160.21M-1 (Defense Demilitarization Manual). Should changes to these manuals be necessary due to the program, they should be submitted to DLA via

NAVSUP (0422G). NAVSUP (0422G) is responsible for the introduction of Navy sponsored changes to the aforementioned manuals.

(e) Paragraph 6.f.(1). NAVSUPINST 4400.84 is incorrectly referenced. The instruction is concerned with the management of established repairables within the supply system and does not directly address rework or new procurement as implied. This paragraph should be deleted or revised. NAVSUP action is primarily in cataloging and stocking substitutes and terminating issue of radium items. NAVSUP (ICP's/FMSO) will have a limited role in repairables management. It will be necessary for the hardware systems commands (or their field engineering activities) to identify repairables having radium coated parts and to include removal of those parts in repair specifications.

(f) Paragraph 6.f.(2)(b). ICP's can accomplish procurement of replacement items and can fund for system stock. Funding direct replacement material for ships is properly a NAVSEA responsibility.

(g) Paragraph 6.f.(2)(e). The point outlined here is unclear. (See general comments. FMSO messages/reports such as "Defective Material Summaries" are the normal methods to get information out concerning items not to be issued, available substitutes, etc.)

(h) Paragraph 6.f.(3). This point needs qualification unless a "no radium clause" is desired in every contract. It is also applicable to all SYSCOMs (see general comments).

3. This reply should not be considered a command response to the proposed instruction although it is based on input received from codes/activities within the Command. Future drafts for official review/comment should be submitted from CHNAVMAT to COMNAVSUPSYSCOM without reference to RASC and not directed to RASC members.

CLINT THOMAS MARSH
Safety Manager

Copy to:
NNPU (Code 40)

HRA-0220

40T

DEPARTMENT OF THE NAVY
NAVAL ELECTRONIC SYSTEMS COMMAND
WASHINGTON, D.C. 20360

IN REPLY REFER TO
5204:KTS:mm
10550
Ser 93-5204
13 MAR 1979

FIRST ENDORSEMENT on NAVELEXSYSENGCEN Vallejo ltr 10550 180:LJJ:kj:4853 dtd 11 Jan 1979

From: Commander, Naval Electronic Systems Command
To: Commander, Naval Facilities Engineering Command (Code 04N2)

Subj: Radioluminescent Items Removal from AN/CPN-4 Family of Ground Controlled Approach (GCA) Radars; request concerning

Encl: (1) AN/FPN-63 Installation Schedule for Replacing AN/CPN-4 Family Radars

1. Readdressed and forwarded recommending approval.

2. Enclosure (1) is the replacement schedule for the radars having radioluminescent contamination.

3. Request all concerned be advised concurrence if the recommendations contained in the basic correspondence and the replacement time frame are satisfactory.

H.M. NORDENBERG
By direction

Copy to:
NAVNUPWRU Port Hueneme
NAVELEXSYSENGCEN Vallejo
NAVELEXSYSENGCEN Charleston

AN/FPN-63 Installation Schedule for
Replacing AN/CPN-4 Family Radars

STATION	AN/FPN-63 AVAIL	REPLACES
Brunswick	Complete	AN/FPN-52
Kingsville	Complete	AN/FPN-52
Cecil Field	Complete	AN/FPN-52
Jacksonville	Complete	AN/FPN-52
Lemoore	Complete	AN/FPN-52
Lemoore	Complete	AN/FPN-57
Moffett Field	Complete	AN/FPN-52
Whidbey Island	Complete	AN/FPN-52
Keflavik	May 79	AN/CPN-4
Point Mugu	Mar 79	AN/CPN-4
Patuxent River	Apr 79	AN/FPN-16
Bermuda	Jun 79	AN/FPN-16
Kaneohe	Sep 79	AN/CPN-4
Glenview	Oct 79	AN/CPN-4
Cubi Point	Nov 79	AN/CPN-4
North Island	Dec 79	AN/CPN-4
San Nicholas Island	Jan 80	AN/FPN-36
Adak	Feb 80	AN/CPN-4
Roosevelt Roads	Mar 80	AN/CPN-4
Key West	Apr 80	AN/MPN-14
Memphis	May 80	AN/CPN-4
Willow Grove	Jun 80	AN/CPN-4
Barbers Point	Jul 80	AN/CPN-4

STATION	AN/FPN-63 AVAIL	REPLACES
Rota	Aug 80	AN/CPN-4
New River	Sep 80	AN/CPN-4
Alameda	Oct 80	AN/CPN-4
San Clemente Island	Nov 80	AN/CPN-4
New Orleans	Dec 80	AN/CPN-4
School	Jan 81	AN/CPN-4
School	Feb 81	AN/CPN-4
School	Mar 81	AN/CPN-4
Meridian	Apr 81	AN/CPN-4
Meridian	May 81	AN/FPN-52
Miramar	Jun 81	AN/FPN-52
Oceana	Jul 81	AN/FPN-52
Cherry Point	Aug 81	AN/FPN-52
Pensacola	Sep 81	AN/FPN-52
Iwakuni	Oct 81	AN/FPN-57
Chase Field	Nov 81	AN/FPN-52
El Toro	Dec 81	AN/FPN-52
Beaufort	Jan 82	AN/FPN-52
Corpus Christi	Feb 82	AN/FPN-52
Fallon	Mar 82	AN/CPN-4
Futenma	Apr 82	AN/FPN-36
Agana	May 82	AN/CPN-4
Norfolk	Jun 82	AN/CPN-4
Dallas	Jul 82	AN/CPN-4
GTMO	Aug 82	AN/FPN-36
South Weymouth	Sep 82	AN/CPN-4

STATION	AN/FPN-63 AVAIL	REPLACES
Mayport	Oct 82	AN/CPN-4
Imperial Beach	Nov 82	AN/CPN-4
Whiting Field	Dec 82	AN/CPN-4
Santa Ana	Jan 83	—
Misawa	Feb 83	AN/FPN-16
Quantico	Mar 83	AN/FPN-36

HRA-0247

113:WJM:lm
3251.33C
Ser
871

1 MAY 1983

From: Commanding Officer
To: Assistant Resident Officer in Charge of Construction,
Naval Air Station, Brunswick, ME 04011

Subj: Design Review of X-Ray Radiography Vault in the Avionics Shop Addition, NAS Brunswick

Ref: (a) AROICC NAS Brunswick ltr 18010:DPK:tlm N624272-77-C-0452 ser 1573 of 14 Apr 83
(b) CO NAVENENVSA ltr 3251.33C ser 1456 of 31 Aug 82

1. Reference (a) requested an additional design review to determine if existing shielding meets Navy radiological standards. Reference (a) provided a consultant test report which stated that present shielding is sufficient and provided construction drawings and details of the x-ray radiography vault for information.

2. The existing shielding meets Navy radiological standards and is identical to the shielding recommended by reference (b).

WILLIAM J. MORRIS
By direction

Sig 1135 / Sig 871 5/3

OPNAV 5216/144 (REV. 6-70)
S/N 0107-LF-778-8099
DEPARTMENT OF THE NAVY

Memorandum

DATE: 4/30

FROM: 113S
VIA 113A
TO: File 3200 C

SUBJ: LESSONS LEARNED, NAS BRUNSWICK DESIGN REVIEW

REF (a) AROICC NAS BRUNSWICK ltr 18010:DPK Serial 1573 dtd 14 April 1983 See File 3251.33C

1. Apparent discrepancies referred to in reference (a) could have been avoided by:

a. Insuring that our point of contact was the AROICC design engineer

b. Insisting on a complete set of full-size drawings which show shielding details

c. Completing the above actions as early in the design process as possible.

d. Incorporating the consultant's suggestions into our design review SOP after RASO certification survey

2. Generic suggestion is to send letter to all ROICCs which explain design review process and RASO role in industrial radiation safety

William J. Morris

DEPARTMENT OF THE NAVY
NORTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
RESIDENT OFFICER IN CHARGE OF CONSTRUCTION
U. S. NAVAL AIR STATION
BRUNSWICK, MAINE 04011

IN REPLY REFER TO:
18010:DPK:tlm
N62472-77-C-0452
Serial: 1573
14 April 1983

From: LTjg Daniel P. King, Assistant Resident Officer in Charge of Construction, Naval Air Station, Brunswick, Maine
To: William J. Morris, Radiological Affairs Support Office, Navy Energy and Environmental Suport Office, Port Hueneme, CA

Subj: Contract N62472-77-C-0452 Avionics Shop Addition & Aircraft Maintenance Hangar at the Naval Air Station, Brunswick, Maine; Design Review of X-Ray Radiography Vault in the Avionics Shop Addition

Ref: (a) Memo from Officer in Charge, NEESA to Commanding Officer, AIMD, NAS Brunswick, serial 1945 dtd 3 Nov 82

Encl: (1) Radiological Test Report by E.V. Kennelly dtd 13 Dec 82
(2) Construction Drawings and Details of the X-Ray Room

1. As discussed in our telephone conversations last week, this office is attempting to determine if the existing shielding in the X-Ray room at the Avionics Shop meets Navy Radiological Standards. Reference (a) states that additional shielding is required in the X-Ray room. Enclosure (1) states that the present equivalent shielding is sufficient. Discussions with Mr. Kennelly and yourself seem to indicate that the different findings were the result of the different data used relative to the construction of the room. Mr. Kennelly tested and evaluated the room's shielding based on the combined total of the lead shielding, gypsum wallboard, and concrete block wall present. You had mentioned that your office's findings were based only on the lead shielding present, since you did not have any of the room construction details.

2. Since the user activity is reluctant to use the facility until the shielding problem is resolved, we request that another design review of the X-Ray room be conducted. Enclosure (2) contains the plans and details of the X-Ray room. With this information, it is requested that your office evaluate the equivalent shielding present and determine if it meets Navy Radiological Standards.

3. The additional discrepancies noted by Mr. Kennelly such as the lack of lead thresholds, door interlocks, and an egress from the control room are in the process of being resolved by this office.

18010:DPK:tlm
N62472-77-C-0452
Serial: 1573
14 April 1983

The shielding problem is the only one which requires additional design review. Your assistance in this matter is greatly appreciated.

Daniel P King

DANIEL P. KING, LTjg, CEC, USN

HRA-0260

5104/00158
Ser 02A/ 01132
14 NOV 1991

From: Officer in Charge, Naval Sea Systems Command Detachment, Radiological Affairs Support Office (RASO)
To: Commanding Officer, Naval Air Station, Willow Grove

Subj: INFORMATION ON THORIUM FLUORIDE 232

Ref: (a) NAS Willow Grove ltr 4792 Ser 40/168 of 21 Oct 91
(b) Title 10, Code of Federal Regulations

Encl: (1) NAVAIR 01-85ADF-2-22.2, Change 4 of 1 Feb 83
(2) COMNAVAIRSYSCOM WASHINGTON DC 092221Z SEP 81
(3) DOA COMELEXCOM Ft. Monmouth, Environmental Assessment and Finding of No Significant Impact, Renewal of Nuclear Regulatory Commission License No. SMB-1300 Governing Night Vision Systems

1. Enclosures (1) through (3) are forwarded in response to reference (a).

2. Adherence to the procedures described in enclosures (1) and (2) will ensure that exposure limits specified in reference (b) are not exceeded. Enclosure (3) provides a detailed assessment of hazards, including "worst case" accident scenarios.

3. NAVSEADET RASO point of contact is Lieutenant Commander Joseph L. Hosszu, AUTOVON 953-4692, commercial (804) 887-4692.

H. G. KNIGHT

02A 11/14 SHQ 11/13
03A
02
03 11/14
00 11/14

DEPARTMENT OF THE NAVY
NAVAL AIR STATION
WILLOW GROVE, PA 19090-5010

4792
Ser 40/168
OCT 21 1991

From: Commanding Officer, Naval Air Station, Willow Grove
To: Officer in Charge, Naval Sea Detachment, Radiological Affairs Service Office

Subj: INFORMATION ON THORIUM FLORIDE 232

Ref: (a) Phoncon AE1 Barber, Willow Grove/Mr. Joe Hosszu, NAVSEADET RASO of 11 Oct 91

1. As discussed in reference (a), this activity is requesting all information regarding the hazards and precautions in the use and handling of Thorium Fluoride. Thorium Fluoride is used as a coating on the lenses for the infra red detection system at this activity.

2. Point of contact for this subject is AE1 R. Barber. Autovon 991-6498/Commercial (215) 443-6498, Fax (215) 443-6132.

E. J. KORRON
By direction

ORGANIZATIONAL MAINTENANCE

RECEIVER GROUP WINDOW

CLEANING PROCEDURES

This subordinate work package supersedes SWP004 01, dated 1 January 1982.

Reference Material

General Information and Servicing.	NAVAIR 01-85ADF-2-1
Cockpit Safety Check Before Maintenance.	032 00
Servicing.	036 00
Detecting-Ranging Set AN/AAS-33A, Maintenance.	NAVAIR 01-85ADF-2-22.2
General Maintenance Procedures and Precautions	003 00

1. RECEIVER GROUP WINDOW CLEANING PROCEDURES.

Materials Required

Note

The Lens/Window Cleaning Kit, A-6E TRAM aircraft 128SME60170-1, shall be used to clean the windows (optical surfaces) of the receiver group. The lens/window cleaning kit consists of the following:

Specification or Part Number	Nomenclature
NNN-P-40 Type I, Class I	Lens Tissue
-	3/4-inch Flat Camel Hair Brush
GG-A-66 Type V, Class I	Applicator, Wood, Cotton Tipped
-	Solution of distilled water and biodegradable detergent (2% by volume; any commercially available source)
O-E-760, Grade I or Grade II, Class A or B	Ethyl Alcohol R R
-	Distilled Water (Any commercially available source)

R **CAUTION**

R To prevent damage to
R window, do not contact
R the receiver group
R window with vacuum
R cleaner or parts of the
R body.

R (2) Use vacuum cleaner and
R without touching window of receiver
R group with vacuum cleaner hose acces-
R sory, remove accumulations of thorium
R fluoride from window.

R (3) Upon completion of vacu-
R uming, remove vacuum bag and filter (if
R applicable) and dispose of radioactive
R wastes in suitable container/facility.

e. Spray window surface with distilled water and detergent solution. While portions of window surface are still wet, place lens tissue over entire window surface. Do not slide tissue on window surface. Wet entire surface of window through lens tissue. Window should be allowed to soak. Rewet tissue as soon as it starts to dry out. This soaking process should continue as long as necessary to loosen adhering particles.

CAUTION

Never rub or scrape the window (optical surface) with a cotton-tipped applicator. Use a blotting action only.

f. Peel, do not slide, lens tissue from window surface. Flush window surface with distilled water. Any particles that remain may be blotted off window surface by using cotton-tipped applicator that is wetted with distilled water and detergent solution. Discard cotton-tipped applicator after each usage.

g. Prepare fresh lens tissue as follows:

(1) Holding tissue lengthwise by two opposite edges, fold tissue several times to form strip.

(2) Fold tissue strip by bringing two ends together, being careful not to touch area near last fold.

(3) Thoroughly wet area of fold with distilled water and detergent solution.

(4) Spray window surface with distilled water and detergent solution.

CAUTION

Do not apply finger pressure through the lens tissue to the optical surface being cleaned.

h. With single, continuous swirling motion, gently pass wetted portion of folded tissue across window surface. Always make certain that thin film of distilled water and biodegradable detergent solution remains between window surface and folded tissue. If folded tissue becomes dry and begins to drag on surface, discard tissue. Make only one pass across window surface with each tissue.

i. Before window surface dries, flush surface with distilled water to remove any residual detergent solution.

WARNING

Ethyl alcohol, O-E-760, Type I or II, in addition to being toxic and flammable, is destructive to human tissue. Depending on the grade (A or B) it is between 94.9 and 99.8 percent pure. In contact with skin or tissue, it immediately removes all moisture in the form of water and oils, causing an injury similar to a burn. Damage to mucous tissue (eyes, nose, etc.) is immediate and severe. Protection: Chemical splashproof goggles and gloves, full clothing; good ventilation; keep sparks, flames, and heat away; keep ethyl alcohol off skin, eyes, and clothing; do not breathe vapors. Do not direct spray toward any personnel.

j. Before window surface dries, flush surface with ethyl alcohol to remove any residual distilled water.

k. Repeat steps g and h using ethyl alcohol applied to folded tissue and allow surface to air-dry.

CAUTION

Do not contact receiver group windows with fingers, hands, arms, or clothing; skin acids can etch the window.

Note

Repeat steps e through k, if required, until window (optical surface) is visually free of all contamination.

l. Manually rotate receiver group's lower ball assembly into normal stow position to protect window surfaces.

m. Remove tags and close both AC and DC DET RNG SET circuit breakers in bombardier/navigator's circuit breaker panel.

n. Close canopy. (Refer to NAVAIR 01-85ADF-2-1, WP032 00.)

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Back to me 11-9-81

ROUTINE

R 0922212 SEP 81

FM COMNAVAIRSYSCOM WASHINGTON DC

SUBJ: SMR CODE CHANGE FOR INFRARED WINDOWS/OPTICS INSTALLED IN FLIR

TO COMNAVAIRLANT NORFOLK VA
ASO PHILADELPHIA PA
NAVAIREWORKFAC CHERRY PT NC
NAVAIREWORKFAC NORFOLK VA
NAVAIREWORKFAC PENSACOLA FL
NAESU PHILADELPHIA PA
CNAVRES NEW ORLEANS LA
NAVAVNLOGCEN PATUXENT RIVER MD
NAVPRO BURBANK CA
AFPRO HUGHES ACFT CO CULVER CITY CA
NAVPRO BETHPAGE NY
CGFMFPAC
COMNAVAIRPAC SAN DIEGO CA
NAVAIREWORKFAC ALAMEDA CA
NAVAIREWORKFAC JACKSONVILLE FL
NAVAIREWORKFAC NORTH ISLAND CA
CNATRA CORPUS CHRISTI TX
NAVAVIONICCEN INDIANAPOLIS IN
NAVAIRTECHSERVFAC PHILADELPHIA PA
DCASPRO DALLAS TX
NAVPRO DALLAS TX
NAVPRO COLUMBUS OH
CGFMFLANT
MASDC DAVIS MONTHAN AFB TUCSON AZ

UNCLAS //N04410//

SUBJ: SMR CODE CHANGE FOR INFRARED WINDOWS/OPTICS INSTALLED IN FLIR EQUIPMENT USED ON OV-10, P-3, S-3, A-6 AND A-7 AIRCRAFT.

A. PHOCON BETWEEN W. T. NOEL, NAVAIR (AIR-54933C) AND T. FARINELLA NARF JAX (CODE 94463).

1. DURING REF A IT WAS DISCLOSED THAT GERMANIUM WINDOWS (A RELATIVELY SCARCE AND EXPENSIVE METAL), ARE ASSIGNED A CONSUMABLE SMR CODE AND ARE THROWN AWAY.

2. SUBJECT WINDOWS ARE ASSIGNED FOLLOWING SMR CODES AND NACNS.

OLD SMR	NEW SMR	P/N	NIIN	NACN
PAGZZ	PAGDD	708038-1	00-316-5050	4185
PAHZZ	PAGDD	201404-1	01-052-6992	4184
PAGDD	PAGDD	3375498	01-105-5899	
PADDD	PADDD	2000753-1	01-059-2858	

3. REQUEST AIMDS RETURN ALL BROKEN, DAMAGED OR FLAKED WINDOWS TO NARF JAX FOR RECOATING OR RECOVERY OF VALUABLE GERMANIUM METAL.

RECEIVED SEP 10 11 31 AM '81

94933C(1)...ORIG FOR COMNAVAIRSYSCOM WASH(8) /13/
411(1) 4112B(1) 412(1) 413(1) 04A2(1) 09E2(1) FC(1)

RTD:126-000/COPIES:0008

965025/252 1 OF 2 MATA0008 252/23:31Z 0922212 SEP 81
CSN:NCB 00318 COMNAVAIRSYSCO

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HRA-0272

DEPARTMENT OF THE NAVY
NAVAL AIR STATION
BRUNSWICK, MAINE 04011-5000

96508

IN REPLY REFER TO

5104
Ser 401
10 April 1999

From: Commanding Officer, Naval Air Station, Brunswick
To: Officer In Charge, Naval Sea System Command Detachment, Radiological Affairs Support Office, Yorktown, VA 23691

Subj: LOW LEVEL RADIOACTIVE WASTE INVENTORY

Ref: (a) NAVSEA SO420-AA-010 (RAD 10)

Encl: (1) Low Level Radioactive Waste Inventory

1. Requesting guidelines for disposal of items listed in enclosure (1), in accordance with reference (a).

2. Point of Contact is Mr. Donald P. Barter, Naval Air Station Brunswick Radiation Safety Officer at DSN 476-1676 or comm (207) 921-1676.

BOBBY NIEMANN
By direction

LOW LEVEL RADIOACTIVE WASTE INVENTORY

Item:	Customer Number:	Part Number:	Serial Number:	Manufacturer:	Source
Exciter, Ignition	99193SOCN36032 81-3 H 01-221-3553	10-381175-3 L	92372518	Unison Industries Jacksonville, FL	Cesium Barium 137 (No markings on unit indicating radiation source) Source indication came from tech manual. Kr-85
Exciter, Ignition	2925-00-402-5582 SPO500-94-M-GG68	10-387320-1 G	94469556	Unison Industries Jacksonville, FL	Cesium Barium 137 (No markings on unit indicating radiation source) Source indication came from tech manual. Kr-85
Exciter, Ignition	976099-1 E	10-387320-1 E	412332	Bendix Corporation Electrical Components Division Sidney, New York	Cesium Barium 137 (No markings on unit indicating radiation source) Source indication came from tech manual. 5uCi

00-402-5582 — "1G"?

00-908-9309 — "1E"? Unison

Unison
Amphenol
sub units

Encl: (1)

PROJECT: Naval air station Brunswick 26-May-99
NUMBER:
LOCATION: Maine
CONTRACTOR: CNCF

LABOR	HOURLY RATE	NUMBER PEOPLE	NUMBER DAYS	HOURS PER DAY	ITEM SUBTOTAL	SUBTOTAL
B.S.T.	$35.50	1	1	4	$142.00	
B.O.T	$36.40	0	0	0	$0.00	
Clerical	$12.50	0	0	1	$0.00	
Cost Tracking	$14.20	0	0	8	$0.00	
QA					$0.00	
TOTAL LABOR=					$142.00	
SUB-TOTAL PROJECT COST=					$142.00	
FRINGE BENEFITS (71.63%)					$101.71	
SUB-TOTAL =					$243.71	
G&A (13.10%)					$31.93	
SUB-TOTAL =					$275.64	
FEE (15.00%)					$41.35	
TOTAL					$316.99	**$316.99**

MI & E	QUANTITY	NO. OF DAYS/HR	COST PER	ITEM SUBTOTAL	SUBTOTAL
AIR FARE	0		$1,000.00	$0.00	
LODGING	1	1	$58.00	$58.00	
PER DIEM	1	1	$38.00	$38.00	
TOTAL				$96.00	**$96.00**

SUPPLIES	QUANTITY	COST PER	ITEM SUBTOTAL	SUBTOTAL
7A TYPE A DRUMS	0	$32.86	$0.00	
shipping drums to site			$0.00	
drum liners			$0.00	
GENERAL SUPPLIES (gas, instruments, etc)			$100.00	
permits			$0.00	
SUBTOTAL=			$100.00	

OVERHEAD (21.27%)	$21.27	
SUBTOTAL=	$121.27	
G&A (13.10%)	$15.89	
SUBTOTAL=	$137.16	
FEE (15%)	$20.57	
TOTAL	$157.73	**$157.73**

TRANSPORTATION	NO. OF TRIPS	MILEAGE	MILEAGE RATE	ITEM SUBTOTAL	SUBTOTAL
TRUCK TO CNCF	1	20	$2.50	$50.00	
DEMURRAGE	0		$50.00	$0.00	
TRUCK TO HANFORD	0	40	$2.50	$0.00	
SUBTOTAL=				$50.00	
G&A (13.10%)				$6.55	
SUBTOTAL=				$56.55	
FEE (15%)				$8.48	
TOTAL				$65.03	**$65.03**

TOTAL PROJECT COST= **$635.75**

ASSUMPTIONS:

1. Material will be sent to CNCF for processing.

2. Out of state surcharge prepaid by Army Lg Generator Status.
3. No regulatory or weather related delays.

DISPOSAL	VOLUME (FT3)	UNIT PRICE	NEW CHG	TAX	ITEM SUBTOTAL	SUBTOTAL
Hanford	0.0	$70.00			$0.00	
Barnwell	0.5	$350.00			$175.00	
CNCF Processing Chrg	4.0	$102.00			$408.00	
self powered lighting	0.0	$75.00			$0.00	
TOTAL DISPOSAL=					$583.00	$583.00

SUBTOTAL	$583.00
CNCF	635.75
SUBTOTAL	1,218.75
ADMIN FEE FOR LEVEL 1 PROJECT	3,229.00
TOTAL	4,447.75

AMSIO-SF (385-11e) 17 May 99

MEMORANDUM FOR AMSIO-ACE-D (Mr. Matthys)

SUBJECT: Small Purchase Order, Project Number USN 99-019 Naval Air Station, Brunswick, Maine Request for Proposal

1. Please forward the enclosed scope of work and inventory (encl.) to Chem-Nuclear Systems, Inc., (CNSI), for their proposal. We have also enclosed the independent Government estimate and ozone-depleting substance form.

2. We chose CNSI for this task since they have scheduled a commercial pickup in the area that includes a broker and transportation. It also meets the timeframe of our customer's request.

3. The POCs are Mr. Bill Huber and Ms. Melody Massa, AMSIO-SF, extensions 22966 and 21805 respectively, E-mail address Huber Bill, and Massa Melody respectively.

Encl.

KELLY W.CROOKS
Leader, Operations Team
Safety/Rad Waste Team

CF (w/encl):
AMSIO-SF/Ms. Melody Massa

Officer in Charge, Naval Sea Systems Command Detachment, Radiological Affairs Support Office, ATTN: Ms. Laurie Miller NWS PO Drawer 260, Yorktown, VA 23691-0260

CF (wo/IGE)
Naval Air Station
2 Seahawk Ave, ATTN: Mr. Donald P. Barter
Brunswick, Maine 04011-5000

.5 ft3 - 3 ignition exciters

11/1 - 6/30 58 + 30

PROJECT NUMBER USN 99-020
NAVAL AIR STATION, BRUNSWICK MAINE
SCOPE OF WORK

1. COORDINATION. The contractor shall coordinate all project activities with Mr. Bill Huber or Ms. Melody Massa of the U.S. Army Industrial Operations Command (IOC). The IOC address is as follows:

a. U.S. Army Industrial Operations Command
ATTN: AMSIO-SF (Mr. Bill Huber)
Rock Island, IL 61299-6000
Telephone: (309) 782-1805/2966
Datafax: (309) 782-2988

b. The U.S. Navy point of contact is:
Officer in Charge, Naval Sea Systems Command Detachment,
Radiological Affairs Support Office, ATTN: Ms. Laurie Miller
NWS PO Drawer 260, Yorktown, VA 23691-0260
Telephone; (757) 887-4692
Datafax: (757) 887 3235

c. The material location and point of contact is:

Naval Air Station
2 Seahawk Ave.
Brunswick, Maine 04011-5000
Mr. Donald P. Barter
Telephone: (207) 921-1676
Location of waste: Bldg. 292 (Fire Station)

1.1 At least 5 days before the start of this project, the contractor shall notify the point of contact and coordinate the following information:

a. Date and time for contractor arrival at the pickup site.

b. Number and names of contractor personnel.

c. Special instructions the contractor may need to complete the project.

2. REGULATORY CONCERNS: The contractor shall obtain and comply with authorizations from Federal, State, or municipal agencies as required.

2.1. According to the Defense Appropriations Act, the contractor, in doing the efforts as defined by this scope of work, shall in no way construe the Government direction as supporting, suggesting, or directing the use of ozone-depleting substances. The contractor shall specifically bid and do all contractual efforts according to this act.

3. FACILITIES, EQUIPMENT, AND SUPPLIES: The contractor shall supply all services, equipment, materials, and supplies required to complete the scope of work unless otherwise indicated. Naval Air Station, Brunswick, Maine will provide a work area.

4. ON-SITE: The contractor shall package (in shipping container's provided by the contractor) and ship the inventory of unwanted radioactive materials to the Chem-Nuclear Consolidation Facility, Highway 64, Snelling, SC. The contractor shall provide the site with a copy of the shipping papers and provide the IOC a site activity report and a copy of the shipping papers within 10 days of on-site work completion.

5. PERSONNEL: The contractor shall provide one broker for this shipment. The IOC may send one representative, if available.

6. SCHEDULE: The contractor shall schedule the pickup before 15 June 1999.

PROJECT: NAVAL AIR STATION 17 May 99
NUMBER: USN 99-020
LOCATION: 2 SEAHAWK AVE, BRUNSWICK, MAINE 04011-5000
CONTRACTOR: CHEM-NUCLEAR SYSTEMS INC.

LABOR	HOURLY RATE	NUMBER PEOPLE	NUMBER DAYS	HOURS PER DAY	ITEM SUBTOTAL	SUBTOTAL
B.S.T.	$35.50	1	1	3	$106.50	
T.S.T	$23.40	0	0	0	$0.00	
B.O.T.	$23.40	0	0	0	$0.00	
T.O.T	$23.40	0	0	0	$0.00	
TOTAL LABOR=					$106.50	
SUB-TOTAL PROJECT COST=					$106.50	
FRINGE BENEFITS (71.63%)					$76.29	
SUBTOTAL					$182.79	
OH (21.27%) NA					$0.00	
SUBTOTAL					$182.79	
G&A (13.10%)					$23.94	
SUBTOTAL					$206.73	
FEE (15%)					$31.01	
TOTAL					$237.74	$237.74

MI & E	QUANTITY	NO. OF DAYS/HR	COST PER	ITEM SUBTOTAL	SUBTOTAL
LODGING	1	1	~~$70.00~~ 58	$70.00	
PER DIEM	1	1	~~$35.00~~ 38	$35.00	
POV Mileage				$0.00	
SUBTOTAL				$105.00	
TOTAL					$105.00

Not Req - Covered by Bowdoin

TRAVEL AND EXPENSES	QUANTITY	NO. OF DAYS/HR	COST PER	ITEM SUBTOTAL	SUBTOTAL
RENTAL CAR	0	0	$0.00	$0.00	
GAS	0		$0.00	$0.00	
SUBTOTAL=				$0.00	
G&A (13.1%)				$0.00	
SUBTOTAL=				$0.00	
FEE (15%)				$0.00	

TOTAL			$0.00	**$0.00**

SUPPLIES & TRANSPORTATION	QUANTITY	COST PER	ITEM SUBTOTAL	SUBTOTAL
GENERAL SUPPLIES (gas, instruments, drum,etc)			$100.00	
OVERHEAD 21.27%			$21.27	
			$121.27	
Transportation to CNCF			$50.00	
Transport to Hanford			$0.00	
SUBTOTAL=			$292.54	
G&A (13.10%)			$38.32	
SUBTOTAL=			$330.86	
FEE (15%)			$49.63	
TOTAL			$380.49	**$380.49**
SUBTOTAL CNSI			**$723.23**	

PROCESSING	QUANTITY (FT3)	UNIT PRICE	NEW CHG	TAX	ITEM SUBTOTAL	SUBTOTAL
CNCF	0.5	$102.00			$51.00	**$51.00**

DISPOSAL	QUANTITY (FT3) *curies	UNIT PRICE	NEW CHG	TAX	ITEM SUBTOTAL	SUBTOTAL
U.S. Ecology	0.0	$67.77			$0.00	
Lawerance Liv*	0.0	$5.00			$0.00	
SURCHARGE	0.0	$0.00			$0.00	
Density rate	0.0	$0.00			$0.00	
Barnwell	0.5	$350.00			$175.00	
SUBTOTAL=					$175.00	
TOTAL DISPOSAL=					$175.00	**$175.00**

IOC COSTS	**$3,229.00**
TOTAL PROJECT COST=	**$4,178.23**

ASSUMPTIONS:

1. Material will be piggybacked on CNCF commerical run.
2. Material will process at CNCF.
3. Cs137 material will be burried at Barnwell SC..
4. No regulatory or weather related delays.

CHEM-NUCLEAR SYSTEMS, LLC
CONSOLIDATION FACILITY
16043 Dunbarton Boulevard • Barnwell, South Carolina 29812

June 29, 1999

Department Of The Army
HQ, US Army
Industrial Operations Command
AMSIO-SF(Kelly Crooks)
Rock Island, Illinois 61299-6000

Attention: Kelly Crooks

Reference: Radioactive Waste Shipment- USN 99-020
SCN-0062-99
Naval Air Station
2 Seahawk Avenue
Brunswick, Maine 04011-5000

Dear Mr. Crooks,

As required by 10CFR Part 20, South Carolina Title A, and Chem Nuclear Consolidation Facility Radioactive Material inventory and Control Procedure (DF-AD-010), you are hereby notified that the shipment referenced above has been received at the Chem Nuclear Consolidation Facility.

A signed copy of the Form 540 for this shipment is attached as acknowledgement of the acceptance of the waste shipment. This waste meets the requirements of Chem Nuclear Consolidation Facility acceptance criteria at the point of receipt inspection. You will notified by our facility if the waste is found to be in noncompliance during processing.

If you have any questions regarding this letter, please contact me at, phone (803) 541-5064, fax (803) 259-1797, or e-mail ren_black@wastemanagement.com.

Sincerely,

N. Reynolds Black
Chem Nuclear Consolidation Facility
Facility Broker

FORM 540 CHEM-NUCLEAR CONSOLIDATION FACILITY

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code)
(803) 259-6069

ORGANIZATION
Chem-Nuclear Systems, Inc. Barnwell Security

2. IS THIS AN "EXCLUSIVE USE SHIPMENT?" [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ⟹ 1

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number ⟹

EPA MANIFEST NUMBER
NA

6. SHIPPER – NAME AND FACILITY
Chem-Nuclear Systems, L. L. C.
Chem-Nuclear Consolidation Facility.
16043 Dunbarton Blvd
Barnwell, SC 29812

S.C. TRANSPORT PERMIT NUMBER: 0243-39-99-X
SHIPMENT NUMBER: USN 99-020

CONTACT: Renolds Black

TELEPHONE NUMBER (Include Area Code): (803) 258-1781

5. CARRIER – Name and Address
Chem-Nuclear Systems, L. L. C.
Chem-Nuclear Consolidation Facility.
16043 Dunbarton Blvd
Barnwell, SC 29812

CONTACT: Annette Trottie.

TELEPHONE NUMBER (Include Area Code): (803) 259-1781

SIGNATURE – Authorized carrier acknowledging waste receipt: D. Reynolds

DATE: 6/9/1999

SHIPMENT ID NUMBER: SCN-00[62]-99

[X] COLLECTOR
[ ] PROCESSOR
[ ] GENERATOR TYPE (Specify)

EPA I.D. NUMBER: NA

SHIPPING DATE: 6/9/1999

7. FORM 640 AND 640A — PAGE 1 OF 1 PAGE(S)
FORM 641 AND 641A — 1 PAGE(S)
FORM 642 AND 642A — 1 PAGE(S)
ADDITIONAL INFORMATION — 1 PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages)
SCN 00 62 -99

9. CONSIGNEE – Name and Facility Address
CHEM-NUCLEAR CONSOLIDATION FACILITY
16043 Dunbarton Blvd
Barnwell, SC 29812

CONTACT: INVENTORY CONTROL
TELEPHONE NUMBER (Include Area Code): 803-259-1119

SIGNATURE – Authorized CONSIGNEE representative upon receipt: D Reynolds

DATE: 6-22-99

10. CERTIFICATION

This is to certify that the hazardous materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: Michel PS

TITLE: Broker for CNS.

DATE: 6/9/1999

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES	16. TOTAL PACKAGE ACTIVITY MBq	16. TOTAL PACKAGE ACTIVITY Ci	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive Material, n.o.s., 7, UN2982 devices	Yellow II	0.3	Solid / Oxide	KR-85, Cs-137	0.1924740	0.0052020	NA	20lbs	BRUN-1
				Shipment Total	0.1924740	0.0052020			

FOR CONSIGNEE USE ONLY

20. "Certification is hereby made to the South Carolina Department of Health and Environmental Control that this shipment of low-level radioactive waste has been inspected in accordance with the requirements of South Carolina Radioactive Materials License No. 287-04 as amended, and the effective consolidation facility acceptance criteria, within 48 hours prior to shipment, and further certification is made that the inspection revealed no items of non-compliance with all applicable laws, rules and regulations."

Date 6/9/99 Signature Donald P. Baxter

Title and Organization Radiation Safety Officer NAS BRUNSWICK

Telephone No. (207) 921-1676

Michel PS agent for the United States Army D.C.

201 Pal SORT

R17106

FORM 540 (10-96)

DOT SHIPPING PAPERS
PAGE 1 OF 17

JUL-07-99 WED 10:49 P.05

HRA-0276

USN 2002/017

NAVAL AIR STATION NEW BRUNSWICK, ME
POC: Mr. Donald Barter
Commercial Telephone: (207) 921-1676
DSN: 476-1676
Waste Location: Building 555
Facilities Available: Restrooms, Fax, Telephone, Copy Machine, Forklift

SHIPPER INVENTORY, INSPECTION, AND SURVEY FORM

SHIPMENT NO.: USN 2002-017
DRUM ID.: _____
SURFACE: _____
WEIGHT:
CONTAMINATION_____

INSTALLATION: NAVAL AIR STATION
1 METER: _____
LABEL: _____
UNIT ID.: NAVAIR NEW BRUNSWICK, ME

NO.	NOMEN	STOCK NUMBER	QTY	ISOTOPE	ACTIVITY PER ITEM (mCi)	TOTAL ACTIVITY (mCi)	PERMIT/LICENSE NO.
1	SMOKE DET	N/A	7	Ni-63	0.01	0.07	N/A
2	EXIT SIGN	N/A	4	H-3	21,000	84,000.00	N/A

INSTRUMENT TYPE _____ CALIBRATION DATE _____
INSPECTED BY _____ LOADED _____

As installation Radiation Safety Officer or designee, I certify, based on direct observation or performance, that the listed inventory is accurate and correct to the best of my knowledge, and that no free standing liquids or hazardous materials (such as lead) are present.

_____ _____
Signature Date

DEPARTMENT OF THE NAVY
NAVAL AIR STATION
BRUNSWICK, MAINE 04011-5000

IN REPLY REFER TO

5104
Ser N52B/136
21 March 2002

From: Commanding Officer, Naval Air Station, Brunswick
To: Officer In Charge, Naval Sea System Command Detachment, Radiological Affairs Support Office, Yorktown, VA 23691

Subj: LOW LEVEL RADIOACTIVE WASTE INVENTORY

Ref: (a) OPNAVNOTE 5100
(b) NAVSEA SO420-AA-010 (RAD 10)

Encl: (1) Low Level Radioactive Waste Inventory

1. Requesting guidelines for disposal of items listed in enclosure (1), in accordance with references (a) and (b).

2. Point of contact is Mr. Donald P. Barter, Naval Air Station, Brunswick, Fire Protection Specialist at DSN 476-1676 or Comm (207) 921-1676.

Keith F. Koon
KEITH F. KOON

LOW LEVEL RADIOACTIVE WASTE INVENTORY

Item	Amount	Part Nbr	Serial Number:	Manufacturer:	Source & Amount
Self-luminous Exit Sign	4	Unknown	ST-8483 ST-8480 ST-8490 ST-8497	Saunders-Roe Developments, Inc. Winston-Salem, NC 27103	Tritium H3 21 curies each
Duct Smoke Detector	7	Model 30003	Unknown	Gamewell	NI63 10 microcuries each

Enclosure (1)

USN 2002-017 Naval Air Stn New Brunswick ME

FORM 540 — CHEM NUCLEAR CONSOLIDATION FACILITY

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 803 259-6069

ORGANIZATION: CHEM NUCLEAR SYSTEMS

2. IS THIS AN "EXCLUSIVE USE SHIPMENT? [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 2

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO
If "Yes," provide Manifest Number

EPA MANIFEST NUMBER: N/A

5. SHIPPER – NAME AND FACILITY
Naval Air Station
Building 555
New Brunswick, Maine 04011-5008

SHIPMENT ID NUMBER: 0007-03

[X] COLLECTOR [ ] PROCESSOR

S.C. TRANSPORT PERMIT NUMBER: 0138-00-03-E

SHIPMENT NUMBER: USN 2002-017

GENERATOR TYPE (Specify): [X] Gov

CONTACT: Kelly Crooks

TELEPHONE NUMBER (Include Area Code): (309) 782-0338

6. CARRIER - Name and Address
Hittman Transportation
740 Osborn Road
Barnwell, South Carolina 29812

EPA I.D. NUMBER: N/A

SHIPPING DATE: 03/06/2003

CONTACT: Roger Below

TELEPHONE NUMBER (Include Area Code): (803) 259-1781

SIGNATURE - Authorized carrier acknowledging waste receipt: Jim Ragsdale

DATE: 03/06/2003

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — 1 PAGE(S)
ADDITIONAL INFORMATION — 8 PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): USN 2002-017

9. CONSIGNEE – Name and Facility Address
Duratek Consolidation and Services Facility
16043 Dunbarton Blvd.
Barnwell, South Carolina 29812

CONTACT: Inventory Control

TELEPHONE NUMBER (Include Area Code): 803-2591781

SIGNATURE – Authorized consignee acknowledging waste receipt: G. Ryell Bell

DATE: 3-17-03

10. CERTIFICATION

This is to certify that the herin-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: G. Ryell Bell

TITLE: Agent for US Army OSC

DATE: 03/06/2003

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES	16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive Material, excepted package, instruments or articles, 7, UN2910	N/A	N/A	Solid/Oxide Gas Tritium	Ni63 H3	3108009.546	84000.258	N/A	68 kgs 150 lbs	NAS-1
				Am241					
(1 metal drum containing exit signs and smoke detectors)									
Radioactive Material, excepted package, instruments or articles, 7, UN2910	N/A	N/A	Solid/Oxide	Am241	0.555	0.015	N/A	4.53 kgs 10 lbs	NAS-2

FOR CONSIGNEE USE ONLY

"This package conforms to the conditions and limitations specified in 49CFR173.424 for radioactive material, excepted package, instruments or articles, UN2910"

County: Cumberland

R19710
201 Pad R19711
SORT

20. "Certification is hereby made to the South Carolina Department of Health and Environmental Control that this shipment of low-level radioactive waste has been prepared in accordance with a radioactive waste management program which has been approved by the Nuclear Regulatory Commission or an Agreement State regulatory agency and has been inspected in accordance with the requirements of South Carolina radioactive Materials License No. 287-04 as amended, and the effective Chem Nuclear Consolidation Facility Criteria within 48 hours prior to shipment, and further certification is made that the inspection revealed no items of non-compliance with all applicable laws, rules and regulations."

Date 3-6-03 Signature G. Ryell Bell

Title and Organization Agent for US Army, Broker

Telephone No. (803) 259-1119 EXT. 5064

FORM 540 (6-97)

DOT SHIPPING PAPERS
PAGE 1 OF 11

Michael Nicolett

FORM 541 — CHEM NUCLEAR CONSOLIDATION FACILITY

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
2	m³ 0.232 / ft³ 8.2	kg 72.600 / lb 160	NP	NP	NP	NP

ACTIVITY (MBq/mCi)	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE
MBq	3108010.101	3108000	NP	NP	NP	kg NP
mCi	84000.273	84000	NP	NP	NP	lb NP

2. MANIFEST NUMBER: USN 2002-017

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME: CHEM NUCLEAR CONSOLIDATION

SHIPMENT ID NUMBER: 0007-03

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER/ S.C. TRANSPORT PERMIT NUMBER	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME m³ / ft³	8. WASTE AND CONTAINER WEIGHT kg / lb	9. SURFACE RADIATION LEVEL mSv/hr / mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm² / dpm/100 cm² ALPHA	BETA-GAMMA	11. PHYSICAL DESCRIPTION: WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER m³ / ft³	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3 & Note 3A)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY AND CONTAINER TOTAL OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	MBq	mCi	16. WASTE CLASSIFICATION A/S-Class A Stable A/U-Class A Unstable B-Class B C-Class C
NAS-1	4	0.212	68.000	0.001	<3.67 E-6	<3.67 E-5	23,36	0.212	100	OXIDE/NA	N/A	Ni63	2.59	0.07	B
0138-00-03-E		7.5	150	0.1	<220	<2200	H,J	7.5				H3	3108000	84000	
												Am241	6.956	0.188	
										Package Total			3108009.546	84000.258	
NAS-2	4	0.020	4.530	0.001	<3.67 E-6	<3.67 E-5	36	0.020	100	OXIDE/NA	N/A	Ni63	0.555	0.015	AU
0138-00-03-E		0.7	10	0.1	<220	<2200	H,J	0.7							
										Package Total			0.555	0.015	
Shipment Total		0.232 / 8.2	72.575 / 160					0.232 / 8.2					3108010.101	84000.273	

DOT SHIPPING PAPERS PAGE 2 OF 11

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural overpacks, the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethylene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page

NOTE 1A: Barnwell Specific Container Description Codes. (Choose one code as may be applicable.)

A High Integrity Container - Poly
B High Integrity Container - Poly with Steel Shell
C High Integrity Drum Overpack - Poly
D High Integrity Container - Stainless Steel
E High Integrity Container - Fiberglass
F Liner - Steel

Note 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in Item 11, or additional page

Note 2A: Barnwell Specific Waste Descriptor Codes (Choose all applicable codes.)

G Dewatered
H Bold
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S". For all solidification media, the vendor and brand name must also be identified in Item 13. Code 100=None Required

Solidification
90. Cement
91. (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other. Describe in Item 13, or additional
100. None Required

Note 3A: Barnwell Specific Solidification and Stabilization media Code (Choose this code if applicable.)

M Wax Binder

FORM 541 (10-96)

FORM 542 — CHEM NUCLEAR CONSOLIDATION FACILITY

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

MANIFEST INDEX AND REGIONAL COMPACT TABULATION

List all original "PROCESSED Waste" generations (if any) before "COLLECTED WASTE" generators.

1. WASTE COLLECTOR/PROCESSOR

NAME: Naval Air Station

B. RADIOACTIVE WASTE TRANSPORT PERMIT NUMBER: 0138-00-03-E

SHIPPING DATE: 03/06/2003

SHIPPER USE ONLY

2. MANIFEST NUMBER: USN 2002-017 (9CN0007-03)

3. PAGE 1 OF 1 PAGE(S)

4. SC TRANSPORT PERMIT NUMBER	5. GENERATOR NAME AND TELEPHONE NUMBER	6. GENERATOR FACILITY ADRESS	6A. WASTE DESCRIPTION (NOMENCLATURE)	7. PREPROCESSED WASTE (OR MATERIAL) VOLUME (m^3)	PREPROCESSED WASTE (OR MATERIAL) VOLUME (ft³)	8. MANIFEST NUMBER (S) UNDER WHICH WASTE (OR MATERIAL) RECEIVED AND DATE OF RECEIPT	9. WASTE CODE P=PROCESSED C=COLLECTED	10. DESIGNATING COMPACT REGION OR STATE	11. AS PROCESSED/COLLECTED TOTAL A. SOURCE MATERIAL (kg)	A. SOURCE MATERIAL (g)	B. BNM (g)	C. ACTIVITY (MBq)	C. ACTIVITY (mCi)	D. VOLUME (m^3) 3-6-03	D. VOLUME (ft³) 28	E. WEIGHT (lb)	F. MAXIMUM PACKAGE RADIATION LEVEL (mrem/hr)
0138-00-03-E	US Navy (309) 782-0338	Naval Air Station POC: Donald Barker Building 555 New Brunswick, ME (207) 921-1676	Smoke Detector Exit Signs	0.232	8.2	N/A	C	ME	0.000000000000	0.0000000000	0	3108010.101	84000.273	~~0.110~~ 0.232	~~4.1~~ 8.2	160	0.1
			PAGE TOTALS														
TOTALS OF ALL PAGES (542 AND 542A)									0	0	0	3108010.101	84000.273	~~0.110~~ 0.232	~~4.100~~ 8.2	160	N/A

DOT SHIPPING PAPERS
PAGE 3 OF 11

SHIPMENT NO. SCN 0007-03 / MSN 02-019 PAGE NO. 1 OF 2

DRUM NO. NAS-1 CONTAINER WEIGHT (lbs)

RADIATION LEVEL ON CONTAINER SURFACE (mR/hr / mS/hr) 0.1 0.001

RADIATION LEVEL AT ONE METER (mR/hr / mS/hr) 0.1 / 0.001

RADIOACTIVE CONTAMINATION LEVEL ON CONTAINER SURFACE (dpm/100cm^2 / Bq/100cm^2) <220,<2200 /<3.67E-6, 3.67E-5

TYPE OF CONTAINER LABLES I/L

No.	Nomenclature	STOCK NUMBER	QTY	Isotope	ACTIVITY PER ITEM		TOTAL ACTIVITY	
					mCi	Mbq	mCi	Mbq
1	Smoke Detector		7	NI63	0.01	3.700E-01	0.07000	2.590000E+00
2	Exit Signs		4	H3	21000	7.770E+05	84000.00000	3.108000E+06
3						0.000E+00	0.00000	0.000000E+00
4						0.000E+00	0.00000	0.000000E+00
5						0.000E+00	0.00000	0.000000E+00
6						0.000E+00	0.00000	0.000000E+00
7						0.000E+00	0.00000	0.000000E+00
8						0.000E+00	0.00000	0.000000E+00
9						0.000E+00	0.00000	0.000000E+00
10						0.000E+00	0.00000	0.000000E+00
11						0.000E+00	0.00000	0.000000E+00
12						0.000E+00	0.00000	0.000000E+00
13						0.000E+00	0.00000	0.000000E+00
14						0.000E+00	0.00000	0.000000E+00
15						0.000E+00	0.00000	0.000000E+00
16						0.000E+00	0.00000	0.000000E+00
17						0.000E+00	0.00000	0.000000E+00
18						0.000E+00	0.00000	0.000000E+00
19						0.000E+00	0.00000	0.000000E+00
20						0.000E+00	0.00000	0.000000E+00
21						0.000E+00	0.00000	0.000000E+00
			Total		21000.01	777000.37000	84000.07000	3108002.59000

INSTRUMENT TYPE E-520 CALIBRATION DATE 10-29-02

INSPECTED BY N. Reynolds Black DATE LOADED 3-6-03

As installation Radiation Safety Officer or designee, I certify, based on direct observation or performance, that the listed inventory is accurate and correct to the best of my knowledge, and that no free standing liquids or hazardous materials (such as lead) are present.

Signature

3-6-03
Date

DOT SHIPPING PAPERS
PAGE 7 OF 11

SHIPMENT NO. _____ SCN 0007-03, MSN 2002-017 PAGE NO. 2 OF 2

DRUM NO. NAS-1 CONTAINER WEIGHT (lbs)

RADIATION LEVEL ON CONTAINER SURFACE (mR/hr / mS/hr) 0.1 / 0.001

RADIATION LEVEL AT ONE METER (mR/hr / mS/hr) 0.1 / 0.001

RADIOACTIVE CONTAMINATION LEVEL ON CONTAINER SURFACE (dpm/100cm^2 / Bq/100cm^2) <220,<2200 /<3.67E-6, 3.67E-5

TYPE OF CONTAINER LABLES I f A

No.	Nomenclature	STOCK NUMBER	QTY	Isotope	ACTIVITY PER ITEM mCi	ACTIVITY PER ITEM Mbq	TOTAL ACTIVITY mCi	TOTAL ACTIVITY Mbq
1	SMOKEDET	1275	100	Am241	.001	.037	0.145	~~5.92~~ 5.365
2		120-1072B	10				0.01	0.37
3		370LB	29				.029	1.073
4		B3R	3				.003	0.111
5		TC89B	1				.001	0.037
6								
7								
8								
9								
10								
11								
12						TOTAL	~~0.203~~	
13							0.188	
14								
15								
16								
17								
18								
19								
20								
21								
			Total					

RB 3-6-03

INSTRUMENT TYPE E-520 CALIBRATION DATE 10-29-02

INSPECTED BY N. Reynolds Black DATE LOADED 3-6-03

As installation Radiation Safety Officer or designee, I certify, based on direct observation or performance, that the listed inventory is accurate and correct to the best of my knowledge, and that no free standing liquids or hazardous materials (such as lead) are present.

R. Bell
Signature

3-6-03
Date

DOT SHIPPING PAPERS
PAGE 8 OF 11

SHIPMENT NO. SCN 0007-03 / USN 2002-017 PAGE NO. 1 OF 1

DRUM NO. NAS-2 CONTAINER WEIGHT (lbs)

RADIATION LEVEL ON CONTAINER SURFACE (mR/hr / mS/hr) 0.1 / 0.001

RADIATION LEVEL AT ONE METER (mR/hr / mS/hr) 0.1 / 0.001

RADIOACTIVE CONTAMINATION LEVEL ON CONTAINER SURFACE (dpm/100cm^2 / Bq/100cm^2) <220, <2200 / <3.67E-6, 3.67E-5

TYPE OF CONTAINER LABLES IFA

No.	Nomenclature	STOCK NUMBER	QTY	Isotope	ACTIVITY PER ITEM		TOTAL ACTIVITY	
					mCi	Mbq	mCi	Mbq
1	SMOKEDET	1275	15	Am241	0.008	.037	.015	0.555
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
			Total					

INSTRUMENT TYPE E-520 CALIBRATION DATE 10-29-02

INSPECTED BY N. Reynolds Black DATE LOADED 3-6-03

As installation Radiation Safety Officer or designee, I certify, based on direct observation or performance, that the listed inventory is accurate and correct to the best of my knowledge, and that no free standing liquids or hazardous materials (such as lead) are present.

G R Bell

Signature

3-6-03

Date

DOT SHIPPING PAPERS
PAGE 9 OF 11

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Radioactive Waste Shipment Prior Notification and Manifest Form

(Failure to Complete ALL Entries Will Result in Return of Form and Constitute Noncompliance)

See Reverse Side for Instructions

1. Name and Address of Shipper/Generator	2. Person Responsible for Waste Shipment:
HQ US Army Joint Munitions Command Rock Island, Illinois 61299-6000	a) Reynolds Black b) OSC Broker c) (803) 259-1119 (x5064)
3. Radioactive Waste Transport Permit No. 0138-00-03-E	**4. Shipment Identification No. :** USN 2002-017 (SCN-0007-03)
5. Location from which waste will be shipped: Naval Air Station Building 555 New Brunswick, Maine	**6. Name and Address of Consignee:** Duratek Consolidation and Services Facility 16043 Dunbarton Blvd. Barnwell, South Carolina 29812
7. Scheduled Date of Departure of Shipment: 3-6-03	**8. Estimated Date of Arrival of Shipment:** 3-19-03

9. Carrier:	10. Trailer No. & Owner: (if available)	11. Type Transport Vehicle:
Hittman	671-2 Hittman	Closed Truck

12. Routes shipment will follow in State of South Carolina: (Be specific)
I95 TO HWY 301 TO HWY 70 TO HWY 64

13. Type Package or Cask Model No. Metal Drums	14. Type Container in Cask:	15. Package or Cask Spec.:
	N/A	Strong Tight Package

16. Complete Waste Description (Be Specific) :
Smoke Detectors and exit signs

17. Physical & Chemical Form:	18. Total No. of Packages:	Prominent Radionuclides:
Gas/ Tritium-Solid/Oxide	1	Ni63, H3,Am241

19. Total Curies: 84.000273	21. Waste Class & Stability:	22. Total Cubic Feet:
	AU, B	8.2

23. DOT Sub Type	24. DOT Class & Hazard Class	25. Hwy. Route Controlled (Large Quantity)
Excepted Package	UN No.: Instrument or Article, 7, UN2910	[ ] Yes [X] No

CERTIFICATION

I hereby certify on behalf of the named shipper/generator to the South Carolina Department of Health and Environmental Control that the information provided herein is complete and correct to the best of my knowledge; and that the shipper/generator has complied with all the provisions as required by Act No. 429 of 1980, the South Carolina Radioactive Waste Transportation and Disposal Act, and Department Regulation 61-83.

Date: 3-6-2003

N. REYNOLDS BLACK Agent for US Army JMC
Typed Name

Signature of Consignor's Authorized Representative

CONSIGNEE ACKNOWLEDGMENT

This acknowledges to the South Carolina Department of Health and Environmental Control that the above - described radioactive waste shipment was received.

3-17-03
Date of Delivery

Signature of Consignee's Authorized Representative

N. Reynolds Black / Facility Coordinator
Type or Printed Name and Title

DHEC 802 (Rev. 10/84)

(Copies of this form may be reproduced locally as needed)

DO[illegible]APERS
PAGE 4 OF 11

7Form RHA - CT
(5/80)

South Carolina Department of Health and Environmental Control
Radioactive Waste Shipment Certification Form

General Instructions and Information: This is a two part form to be used by shippers and carriers of radioactive waste. The certifications contained herein satisfy the requirements of Section 13-7-150, of Act No. 499 of 1980, the South Carolina Radioactive Waste Transportation and Disposal Act. This certification along with a copy of the prior notification form shall accompany each shipment of radioactive waste into and within the State of South Carolina. The shipper is to complete his portion of the form and present it to the carrier as part of the shipping documents. Upon receipt, the carrier shall complete his portion of the form. Upon delivery of the shipment to the consignee, a copy of this certification form, and a copy of the Prior Notification and Manifest form with the consignee acknowledgment, shall be returned to the Department.

Part I: Shipper's Certificate of Compliance

1. Name of Shipper and Address:
HQ Joint Munitions Command(JMC)
(Attn: AMSOS-SF/Crooks)
Rock Island, Illinois 61299-6000

Attention: Kelly Crooks
Telephone No.: (309) 782-0338

2. Shipment Identification No.:
USN 2002-017 (SCN 0007-03)

3. Transport Permit No.:
0138-00-03-E

In compliance with Act No. 499 of 1980, the South Carolina Radioactive Waste Transportation and Disposal Act, I hereby certify on behalf of the above named shipper to the South Carolina Department of Health and Environmental Control that the above named shipper has complied with all provisions of Act No. 499 of 1980, and all applicable laws and administrative rules and regulations, both State and Federal, regarding the packaging, transportation, storage, disposal and delivery of such wastes. I further certify that this shipment of radioactive waste has been inspected within 48 hours of the time of departure and that no items of non-compliance with applicable laws, rules or regulations were found.

Date: 3-6-03

N. Reynolds Black Agent for US Army OSC
Typed Name and Title of Agent or Shipper

N Reynolds Black
Signature

Part II: Carrier's Certification

1. Name of Carrier and Address:
Hittman Transportation
Barnwell, SC 29812

Telephone No.: (803) 259-1119

2. Shipment Identification No.
USN 2002-017 (SCN- 0007-03)

3. Transport Trailer No.
671-02

4. Scheduled Date of Departure of Shipment:
3-6-03

5. Estimated Date of Arrival of Shipment:
3-19-03

Certification is hereby made to the South Carolina Department of Health and Environmental Control that: (a) the shipper has provided the carrier with a copy of the shipment manifest, the certificate of compliance, and the routing instructions; (b) the shipment of radioactive waste has been properly placarded for transport according to applicable U.S. Department of Transportation Regulations; (c) all shipping papers originated or reproduced by the carrier have been properly executed; (d) the transport vehicle has been inspected according to applicable State and Federal regulations within the prescribed intervals and that all safety and operational components are in good working order and meet the requirements of regulations; (e) all drivers who will operate the vehicle within the state of South Carolina are qualified to transport hazardous material as specified by applicable U.S. Department of Transportation regulations; (f) the Department shall be immediately notified of any variance, occurring after departure from the shipper's notification of primary routes in South Carolina and estimated date of arrival; (g) All applicable laws and administrative rules and regulations, both State and Federal, regarding the transportation of radioactive wastes will be complied with.

Date: 03-06-03

Tim Ragsdale, Driver.
Typed or Printed Name and Title

Tim Ragsdale
Signature

DHEC 803
(5/80)

(Copies of this form may be reproduced locally as needed)

Broker Trailer Survey

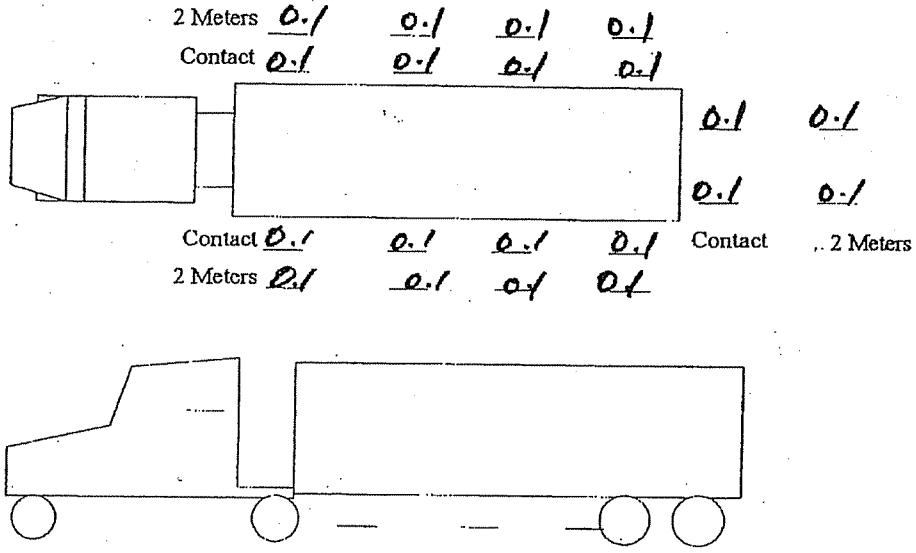
Shipment ID Number USN 2002-019 (SCN 0007-03)

Survey Performed by: Reynolds Black

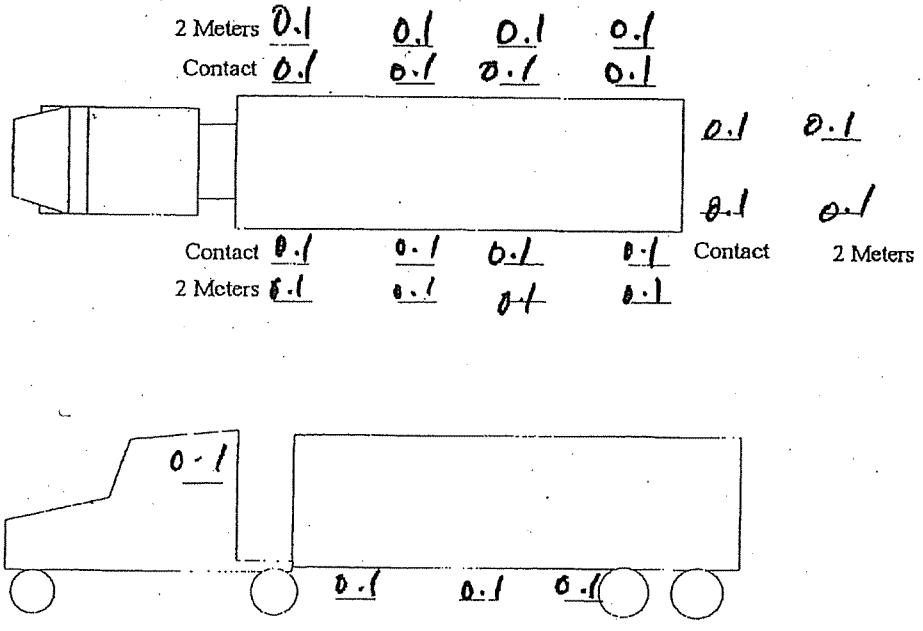
Instrument Used E-520

Date Calibrated 10-29-02

INCOMMING



OUTGOING



DOT SHIPPING PAPERS
PAGE 6 OF 11

____ Radioactive Material, excepted package - limited quantity of material, 7, UN2910

X Radioactive Material, excepted package - instruments or articles, 7, UN2910

____ Radioactive Material, excepted package - empty package, 7, UN2910

____ Radioactive Material, excepted package - articles manufactured from natural or depleted uranium or natural thorium, 7, UN2910

Radioactive Materials (Low-Level Radiation)

POTENTIAL HAZARDS

HEALTH

* Radiation presents minimal risk to transport workers, emergency response personnel, and the public during transportation accidents. Packaging durability is related to potential hazards of material.
* Low-Level radioactive material; very low radiation hazard to people
* Quantity of material presents low radiation hazard if released from package during accident.
* Some radioactive materials cannot be detected by commonly available instruments.
* Packages do not have RADIOACTIVE I, II, or III labels. Some may have EMPTY labels or may have the word "Radioactive" in the package marking.
* If any radioactive contamination occurs, it will be extremely low level.

FIRE OR EXPLOSION

* Some of these materials may burn, but most do not ignite readily.
* Radioactivity does not change flammability or other properties of materials.

PUBLIC SAFETY

* **CALL Emergency Response Telephone number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
* **Priorities for rescue, life-saving, first-aid and control of fire and other hazards are higher than the priorities for measuring radiation levels.**
* Radiation Authority must be notified of accident conditions, and is usually responsible for radiological decisions.
* Isolate spill or leak area immediately for at least 25 to 50 meters (80 to 160 feet) in all directions.
* Stay upwind.
* Keep unauthorized personnel away.
* Detain or isolate uninjured persons or equipment suspected to be contaminated, delay decontamination and cleanup until instructions are received from radiation authority.

PROTECTIVE CLOTHING

* Positive pressure self-contained breathing apparatus (SCBA) and structural firefighter's protective clothing will provide adequate protection.

EVACUATION

Large Spill

* Consider initial downwind evacuation for at least 100 meters (330 feet).

Fire

* When a large quantity of this material is involved in a major fire, consider an initial evacuation distance of 300 meters (1000 feet) in all directions.

EMERGENCY RESPONSE

FIRE

* Presence of radioactive material will not change effectiveness of fire control techniques.
* Move containers from fire area if you can do it without risk.
* Do not move damaged packages; move undamaged packages out of fire zone.

Small Fires

* Dry chemical, CO_2, water spray or regular foam.

Large Fires

* Water spray, fog (flooding amounts).

SPILL OR LEAK

* Do not touch damaged packages or spilled material.

Liquid Spills

* Cover with sand, earth or other non-combustible absorbent material.
* Cover powder spill with plastic sheet or tarp to minimize spreading.

FIRST AID

* Medical problems take priority over radiological concerns.
* Use first aid treatment according to the nature of the injury.
* Do not delay care and transport of a seriously injured person.
* Apply artificial respiration if victim is not breathing.
* Administer oxygen if breathing is difficult.
* In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
* Injured persons who contacted released material may be a minor contamination problem to contacted persons, equipment and facilities
* Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

DOT SHIPPING PAPERS PAGE 16 OF 17

CNS DRIVER'S INSTRUCTIONS FOR EXCLUSIVE USE VEHICLES.

DCSF

The Code of Federal Regulations, 49 CFR 173.403, 173.427, and 173.441 requires that specific instructions for maintenance of exclusive use shipments controls be provided by the shipper to the carrier. These instructions must be included with the shipment documents.

The following instructions shall be complied with for all exclusive use vehicles:

- Do not change out tractor before arrival at the radioactive burial site without notifying the shipper.
- Do not change the fifth wheel adjustment on the tractor without notifying the shipper.
- Do not move or transfer packages within the van or between vans while enroute to the burial site with notifying the shipper.
- The shipment must be loaded by the consignor and unloaded by the consignee from the transport in which originally loaded.
- Shipments must be braced so as to prevent leakage or shifting of load under conditions normally incident to transportation.
- The vehicle must be placarded "RADIOACTIVE" on all four sided when applicable until shipment is unloaded.

If the vehicle is involved in an accident or is required to make emergency braking which could shift the load and change the radiation levels, notify the shipper immediately.

In case of an accident, vehicle malfinction, or deviation from the above instructions immediately contact one of the following CNSI employees:

Cliff Bowers	(803) 541-5007 (office)
	(803) 793-5360 (home)
	(803) 707-2167 (cell)
Barnwell Security	(803) 259-6069
Corporate HP	(803) 758-1898 (office)
	(803) 345-1628 (home)

Any deviation from these instructions are violations of State and Federal laws and could result in carrier penalty.

Driver's Signature

03-06-03
Date

DOT SHIPPING PAPERS
PAGE 11 OF 11

Duratek™

Consolidation and Services Facility
16043 Dunbarton Boulevard
Barnwell, South Carolina 29812
803-259-1781 fax 803-541-7302
www.duratekinc.com

March 19, 2003

US Army; HQ, JMC
ATTN: AMSOS-SF(Kelly Crooks)
1 Rock Island Arsenal
Building 390, 4th Floor SE
Rock Island, Illinois 61299-6000

Attention: Kelly Crooks

Reference: Radioactive Waste Shipment- USN 2002-017
SCN- 0007-03
Naval Air Station
Building 555
New Brunswick, Maine 04011-5008

Dear Mr. Crooks,

As required by 10CFR Part 20, South Carolina Title A, and Duratek Consolidation and Services Facility Radioactive Material Inventory and Control Procedure (DF-AD-010), you are hereby notified that the shipment referenced above has been received at the Duratek Consolidation and Services Facility.

A signed copy of the Form 540 for this shipment is attached as acknowledgment of the acceptance of the waste shipment. This material meets all the requirements of the Duratek Consolidation and Services Facility acceptance criteria at the point of receipt inspection. You will be notified by our facility if the material is found to be in non-compliance during processing.

If you have any questions regarding this letter, please contact me at (803) 259-1119, ext. 5064, fax (803) 259-1797 or e-mail NRBLACK@DURATEKINC.COM.

Sincerely,

N. Reynolds Black
Duratek Consolidation and Services Facility
Facility Coordinator

waste receipt ✓

HRA-0277

NAVSEADET RASO Route Sheet

Raso Control No: 2002/1266 ***Date Received:*** 28 Oct 2002

Originator: NAS BRUNSWICK ME

SSIC: 5104

Serial: N52B/535

Date: 10/22/02

DTG:

Subject: Low Level Radioactive Waste Inventory

DueDate:

FileLocation:

Code	*Action*	*Initial*	*Date*
02H	Info to		
02	Info to	J	10/28/02
01	Info to		

Date	*Comment*
10/28/02 2:20:43	Smoke Detectors

DEPARTMENT OF THE NAVY
NAVAL AIR STATION
BRUNSWICK, MAINE 04011-5000

IN REPLY REFER TO
5104
Ser N52B/535
22 October 2002

From: Commanding Officer, Naval Air Station, Brunswick
To: Officer In Charge, Naval Sea System Command Detachment, Radiological Affairs Support Office, Yorktown, VA 23691

Subj: LOW LEVEL RADIOACTIVE WASTE INVENTORY

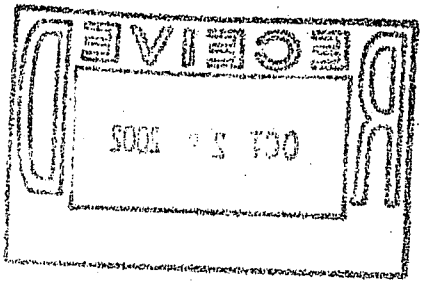
Ref: (a) OPNAVNOTE 5100
(b) NAVSEA SO420-AA-010 (RAD 10)

Encl: (1) Low Level Radioactive Waste Inventory

1. Request guidelines be provided for disposal of items listed in enclosure (1), in accordance with references (a) and (b).

2. Point of contact is Mr. Donald P. Barter, Naval Air Station, Brunswick, Fire Protection Specialist at DSN 476-1676 or Comm (207) 921-1676.

R. S. WINNEG



LOW LEVEL RADIOACTIVE WASTE INVENTORY

Item:	Amount	Model Nbr:	Serial Number:	Manufacturer:	Source & Amount
Smoke Detectors	160	1275		Lifesaver	Americium 241 0.9 mci
Smoke Detectors	10	120-1072B		Firex	Americium 241 1.0 mci
Smoke Detectors	29	370LB		Dicon	Americium 241 0.9 mci
Smoke Detectors	3	83R		Family Guard	Americium 241 1.0 mci
Smoke Detectors	1	TC89B		Honeywell	Americium 241 4.4 mci

Enclosure (1)

USN 2002-017 Naval Air Stn New Brunswick ME

FORM 540 — CHEM NUCLEAR CONSOLIDATION FACILITY

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (Include Area Code): 803 259-6069

ORGANIZATION: CHEM NUCLEAR SYSTEMS

2. IS THIS AN "EXCLUSIVE USE SHIPMENT?": [X] YES [ ] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 2

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? [ ] YES [X] NO — If "Yes," provide Manifest Number: N/A

5. SHIPPER – NAME AND FACILITY
Naval Air Station
Building 555
New Brunswick, Maine 04011-5008

S.C. TRANSPORT PERMIT NUMBER: 0138-00-03-E
SHIPMENT NUMBER: USN 2002-017
CONTACT: Kelly Crooks
TELEPHONE NUMBER (Include Area Code): (309) 782-0338

6. CARRIER - Name and Address
Hittman Transportation
740 Osborn Road
Barnwell, South Carolina 29812

EPA I.D. NUMBER: N/A
SHIPPING DATE: 03/06/2003
CONTACT: Roger Below
TELEPHONE NUMBER (Include Area Code): (803) 259-1781
SIGNATURE - Authorized carrier acknowledging waste receipt: Jim Kagadak
DATE: 03/06/2003

SHIPMENT ID NUMBER: 0007-03
[X] COLLECTOR [ ] PROCESSOR
GENERATOR TYPE (Specify): [X] Gov

7. FORM 540 AND 540A — PAGE 1 OF 1 PAGE(S)
FORM 541 AND 541A — 1 PAGE(S)
FORM 542 AND 542A — 1 PAGE(S)
ADDITIONAL INFORMATION — 8 PAGE(S)

8. MANIFEST NUMBER (Use this number on all continuation pages): USN 2002-017

9. CONSIGNEE – Name and Facility Address
Duratek Consolidation and Services Facility
16043 Dunbarton Blvd.
Barnwell, South Carolina 29812

CONTACT: Inventory Control
TELEPHONE NUMBER (Include Area Code): 803-2591781

SIGNATURE – Authorized consignee acknowledging waste receipt: G. Ryll BLL
DATE: 3-17-03

10. CERTIFICATION

This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.

AUTHORIZED SIGNATURE: G. Ryll BLL
TITLE: Agent for US Army OSC
DATE: 03/06/2003

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (including proper shipping name, hazard class, UN ID number, and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES	16. TOTAL PACKAGE ACTIVITY MBq	mCi	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive Material, excepted package, instruments or articles, 7, UN2910	N/A	N/A	Solid/Oxide	Ni63	3108009.546	84000.258	N/A	68 kgs	NAS-1
			Gas Tritium	H3				150 lbs	
				Am241					
(1 metal drum containing exit signs and smoke detectors)									
Radioactive Material, excepted package, instruments or articles, 7, UN2910	N/A	N/A	Solid/Oxide	Am241	0.555	0.015	N/A	4.53 kgs 10 lbs	NAS-2

FOR CONSIGNEE USE ONLY

"This package conforms to the conditions and limitations specified in 49CFR173.424 for radioactive material, excepted package, instruments or articles, UN2910"

County: Cumberland

R19710
201 Pad R19711
SORT

20. "Certification is hereby made to the South Carolina Department of Health and Environmental Control that this shipment of low-level radioactive waste has been prepared in accordance with a radioactive waste management program which has been approved by the Nuclear Regulatory Commission or an Agreement State regulatory agency and has been inspected in accordance with the requirements of South Carolina radioactive Materials License No. 287-04 as amended, and the effective Chem Nuclear Consolidation Facility Criteria within 48 hours prior to shipment, and further certification is made that the inspection revealed no items of non-compliance with all applicable laws, rules and regulations."

Date 3-6-03 Signature G. Ryll BLL

Title and Organization Agent for US Army, Broker

Telephone No. (803) 259-1119 EXT. 5064

FORM 540 (6-97)

DOT SHIPPING PAPERS PAGE 1 OF 11

Michael Nicolett

FORM 541 — CHEM NUCLEAR CONSOLIDATION FACILITY

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME	NET WASTE WEIGHT	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
2	m^3 0.232 / ft^3 8.2	kg 72.600 / lb 160	NP	NP	NP	NP

ACTIVITY (MBq/mCi)	ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE	
MBq	3108010.101	3108000	NP	NP	NP	kg	NP
mCi	84000.273	84000	NP	NP	NP	lb	NP

2. MANIFEST NUMBER: USN 2002-017

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME: CHEM NUCLEAR CONSOLIDATION

SHIPMENT ID NUMBER: 0007-03

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER/ S.C. TRANSPORT PERMIT NUMBER	6. CONTAINER DESCRIPTION (See Note 1 & Note 1A)	7. VOLUME m^3 / ft^3	8. WASTE AND CONTAINER WEIGHT kg / lb	9. SURFACE RADIATION LEVEL mSv/hr / mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm^2 / dpm/100 cm^2 ALPHA	BETA-GAMMA	11. PHYSICAL DESCRIPTION: WASTE DESCRIPTOR (See Note 2 & Note 2A)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER m^3 / ft^3	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3 & Note 3A)	14. CHEMICAL DESCRIPTION: CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION: INDIVIDUAL RADIONUCLIDES AND ACTIVITY AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT: RADIONUCLIDES	MBq	mCi	16. WASTE CLASSIFICATION A-Class A Stable AU-Class A Unstable B-Class B C-Class C
NAS-1	4	0.212	68.000	0.001	<3.67 E-6	<3.67 E-5	23,36	0.212	100	OXIDE/NA	N/A	Ni63	2.59	0.07	B
0138-00-03-E		7.5	150	0.1	<220	<2200	H,J	7.5				H3	3108000	84000	
												Am241	6.956	0.188	
										Package Total			3108009.546	84000.258	
NAS-2	4	0.020	4.530	0.001	<3.67 E-6	<3.67 E-5	36	0.020	100	OXIDE/NA	N/A	Ni63	0.555	0.015	AU
0138-00-03-E		0.7	10	0.1	<220	<2200	H,J	0.7							
										Package Total			0.555	0.015	
Shipment Total		0.232 / 8.2	72.575 / 160					0.232 / 8.2					3108010.101	84000.273	

DOT SHIPPING PAPERS PAGE 8 OF 11

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural overpacks, the numerical code must be followed by "-OP."

1. Wooden Box or Crate
2. Metal Box
3. Plastic Drum or Pail
4. Metal Drum or Pail
5. Metal Tank or Liner
6. Concrete Tank or Liner
7. Polyethylene Tank or Liner
8. Fiberglass Tank or Liner
9. Demineralizer
10. Gas Cylinder
11. Bulk, Unpackaged Waste
12. Unpackaged Components
13. High Integrity Container
19. Other. Describe in Item 6, or additional page

NOTE 1A: Barnwell Specific Container Description Codes. (Choose one code as may be applicable.)

A High Integrity Container - Poly
B High Integrity Container - Poly with Steel Shell
C High Integrity Drum Overpack - Poly
D High Integrity Container - Stainless Steel
E High Integrity Container - Fiberglass
F Liner - Steel

Note 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal
21. Incinerator Ash
22. Soil
23. Gas
24. Oil
25. Aqueous Liquid
26. Filter Media
27. Mechanical Filter
28. EPA or State Hazardous
29. Demolition Rubble
30. Cation Ion-exchange Media
31. Anion Ion-exchange Media
32. Mixed Bed Ion-exchange Media
33. Contaminated Equipment
34. Organic Liquid
35. Glassware or Labware
36. Sealed Source/Device
37. Paint or Plating
38. Evaporator Bottoms/Sludges/Concentrates
39. Compactible Trash
40. Noncompactible Trash
41. Animal Carcass
42. Biological Material (except animal carcass)
43. Activated Material
59. Other. Describe in Item 11, or additional page

Note 2A: Barnwell Specific Waste Descriptor Codes (Choose all applicable codes.)

G Dewatered
H Solid
I Combustible
J Non-combustible
K Air Filtration Filters
L Asbestos

Note 3: Solidification and Stabilization Media Codes. For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S". For all solidification media, the vendor and brand name must also be identified in Item 13. Code 100=None Required

Solidification
90. Cement
91. (encapsulation)
92. Bitumen
93. Vinyl Chloride
94. Vinyl Ester Styrene
99. Other, Describe in Item 13, or additional
100. None Required

Note 3A: Barnwell Specific Solidification and Stabilization media Codes (Choose this code if applicable.)

M Wax Binder

FORM 541 (10-96)

FORM 542 — CHEM NUCLEAR CONSOLIDATION FACILITY

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

MANIFEST INDEX AND REGIONAL COMPACT TABULATION

List all original "PROCESSED Waste" generations (if any) before "COLLECTED WASTE" generations.

1. WASTE COLLECTOR/PROCESSOR

NAME: Naval Air Station

B.C. RADIOACTIVE WASTE TRANSPORT PERMIT NUMBER: 0138-00-03-E

SHIPPING DATE: 03/06/2003

SHIPPER USE ONLY

2. MANIFEST NUMBER: USN 2002-017 (9CN0007-03)

3. PAGE 1 OF 1 PAGE(S)

4. SC TRANSPORT PERMIT NUMBER	5. GENERATOR NAME AND TELEPHONE NUMBER	6. GENERATOR FACILITY ADRESS	6A. WASTE DESCRIPTION (NOMENCLATURE)	7. PREPROCESSED WASTE (OR MATERIAL) VOLUME (m³)	(ft³)	8. MANIFEST NUMBER (S) UNDER WHICH WASTE (OR MATERIAL) RECEIVED AND DATE OF RECEIPT	9. WASTE CODE PROCESSED OR COLLECTED	10. ORIGINATING COMPACT REGION OR STATE	11. AS PROCESSED/COLLECTED TOTAL A. SOURCE MATERIAL (kg)	(lb)	B. SNM (g)	C. ACTIVITY (MBq)	(mCi)	D. VOLUME (m³) 3-6-03 LB	(ft³)	E. WEIGHT (kg)	F. MAXIMUM PACKAGE RADIATION LEVEL (mrem/hr)
0138-00-03-E	US Navy (309) 782-0338	Naval Air Station POC: Donald Barker Building 555 New Brunswick, ME (207) 921-1676	Smoke Detector Exit Signs	0.232	8.2	N/A	C	ME	0.000000000000	0.0000000000	0	3108010.101	84000.273	~~0.116~~ 0.232	~~4.1~~ 8.2	160	0.1
			PAGE TOTALS											KB 3/4/03			
								TOTALS OF ALL PAGES (542 AND 542A)	0	0	0	3108010.101	84000.273	~~0.116~~ 0.232	~~4.100~~ 8.2	160	N/A

DOT SHIPPING PAPERS
PAGE 3 OF IV

SHIPMENT NO. SCN 0007-03 / USN 02-019 PAGE NO. 1 OF 2

DRUM NO. NAS-1 CONTAINER WEIGHT (lbs)

RADIATION LEVEL ON CONTAINER SURFACE (mR/hr / mS/hr) 0.1 0.001

RADIATION LEVEL AT ONE METER (mR/hr / mS/hr) 0.1 /0.001

RADIOACTIVE CONTAMINATION LEVEL ON CONTAINER SURFACE (dpm/100cm^2 / Bq/100cm^2) <220,<2200 /<3.67E-6, 3.67E-5

TYPE OF CONTAINER LABLES I&L

No.	Nomenclature	STOCK NUMBER	QTY	Isotope	ACTIVITY PER ITEM		TOTAL ACTIVITY	
					mCi	Mbq	mCi	Mbq
1	Smoke Detector		7	NI63	0.01	3.700E-01	0.07000	2.590000E+00
2	Exit Signs		4	H3	21000	7.770E+05	84000.00000	3.108000E+06
3						0.000E+00	0.00000	0.000000E+00
4						0.000E+00	0.00000	0.000000E+00
5						0.000E+00	0.00000	0.000000E+00
6						0.000E+00	0.00000	0.000000E+00
7						0.000E+00	0.00000	0.000000E+00
8						0.000E+00	0.00000	0.000000E+00
9						0.000E+00	0.00000	0.000000E+00
10						0.000E+00	0.00000	0.000000E+00
11						0.000E+00	0.00000	0.000000E+00
12						0.000E+00	0.00000	0.000000E+00
13						0.000E+00	0.00000	0.000000E+00
14						0.000E+00	0.00000	0.000000E+00
15						0.000E+00	0.00000	0.000000E+00
16						0.000E+00	0.00000	0.000000E+00
17						0.000E+00	0.00000	0.000000E+00
18						0.000E+00	0.00000	0.000000E+00
19						0.000E+00	0.00000	0.000000E+00
20						0.000E+00	0.00000	0.000000E+00
21						0.000E+00	0.00000	0.000000E+00
			Total		21000.01	777000.37000	84000.07000	3108002.59000

INSTRUMENT TYPE E-520 CALIBRATION DATE 10-29-02

INSPECTED BY N. Reynolds Black DATE LOADED 3-6-03

As installation Radiation Safety Officer or designee, I certify, based on direct observation or performance, that the listed inventory is accurate and correct to the best of my knowledge, and that no free standing liquids or hazardous materials (such as lead) are present.

Signature

3-6-03
Date

DOT SHIPPING PAPERS
PAGE 7 OF 11

SHIPMENT NO. _____ SCN 0007-03 / MSN 2002-017 PAGE NO. 2 OF 2

DRUM NO. NAS-1 CONTAINER WEIGHT (lbs)

RADIATION LEVEL ON CONTAINER SURFACE (mR/hr / mS/hr) 0.1 / 0.001

RADIATION LEVEL AT ONE METER (mR/hr / mS/hr) 0.1 / 0.001

RADIOACTIVE CONTAMINATION LEVEL ON CONTAINER SURFACE (dpm/100cm^2 / Bq/100cm^2) <220, <2200 / <3.67E-6, 3.67E-5

TYPE OF CONTAINER LABLES IFA

No.	Nomenclature	STOCK NUMBER	QTY 3-6 145	Isotope RB	ACTIVITY PER ITEM mCi	ACTIVITY PER ITEM Mbq	TOTAL ACTIVITY mCi	TOTAL ACTIVITY Mbq RB 3-6-03
1	SMOKEDET	7275	~~100~~	Am241	.001	.037	0.145	~~5.92~~ 5.365
2		120-1072B	10				0.01	0.37
3		370LB	29				.029	1.073
4		B3R	3				.003	0.111
5		TC 89B	1				.001	0.037
6								
7								
8								
9								
10								
11								
12						TOTAL	~~0.203~~	RB 3/6-03
13							0.188	
14								
15								
16								
17								
18								
19								
20								
21								
			Total					

INSTRUMENT TYPE E-520 CALIBRATION DATE 10-29-02

INSPECTED BY N. Reynolds Black DATE LOADED 3-6-03

As installation Radiation Safety Officer or designee, I certify, based on direct observation or performance, that the listed inventory is accurate and correct to the best of my knowledge, and that no free standing liquids or hazardous materials (such as lead) are present.

R. Bell
Signature

3-6-03
Date

DOT SHIPPING PAPERS
PAGE 8 OF 11

SHIPMENT NO. SCN 0007-03 / USN 2002-017 PAGE NO. 1 OF 1

DRUM NO. NAS-2 CONTAINER WEIGHT (lbs)

RADIATION LEVEL ON CONTAINER SURFACE (mR/hr / mS/hr) 0.1 / 0.001

RADIATION LEVEL AT ONE METER (mR/hr / mS/hr) 0.1 / 0.001

RADIOACTIVE CONTAMINATION LEVEL ON CONTAINER SURFACE (dpm/100cm^2 / Bq/100cm^2) <220,<2200 /<3.67E-6, 3.67E-5

TYPE OF CONTAINER LABLES IPA

No.	Nomenclature	STOCK NUMBER	QTY	Isotope	ACTIVITY PER ITEM		TOTAL ACTIVITY	
					mCi	Mbq	mCi	Mbq
1	SMOKEDET	1275	15	Am241	0.008	.037	.015	0.555
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
			Total					

INSTRUMENT TYPE E-520 CALIBRATION DATE 10-29-02

INSPECTED BY N. Reynolds Black DATE LOADED 3-6-03

As installation Radiation Safety Officer or designee, I certify, based on direct observation or performance, that the listed inventory is accurate and correct to the best of my knowledge, and that no free standing liquids or hazardous materials (such as lead) are present.

G R Bell

Signature

3-6-03

Date

DOT SHIPPING PAPERS
PAGE 9 OF 11

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Radioactive Waste Shipment Prior Notification and Manifest Form

(Failure to Complete ALL Entries Will Result in Return of Form and Constitute Noncompliance)

See Reverse Side for Instructions

1. Name and Address of Shipper/Generator	2. Person Responsible for Waste Shipment:
HQ US Army Joint Munitions Command Rock Island, Illinois 61299-6000	a) Reynolds Black b) OSC Broker c) (803) 259-1119 (x5064)
3. Radioactive Waste Transport Permit No. 0138-00-03-E	**4. Shipment Identification No. :** USN 2002-017 (SCN-0007-03)
5. Location from which waste will be shipped: Naval Air Station Building 555 New Brunswick, Maine	**6. Name and Address of Consignee:** Duratek Consolidation and Services Facility 16043 Dunbarton Blvd. Barnwell, South Carolina 29812
7. Scheduled Date of Departure of Shipment: 3-6-03	**8. Estimated Date of Arrival of Shipment:** 3-19-03

9. Carrier:	10. Trailer No. & Owner: (if available)	11. Type Transport Vehicle:
Hittman	671-2 Hittman	Closed Truck

12. Routes shipment will follow in State of South Carolina: (Be specific)
I95 TO HWY 301 TO HWY 70 TO HWY 64

13. Type Package or Cask Model No. Metal Drums	14. Type Container in Cask:	15. Package or Cask Spec.:
	N/A	Strong Tight Package

16. Complete Waste Description (Be Specific) :
Smoke Detectors and exit signs

17. Physical & Chemical Form:	18. Total No. of Packages:	Prominent Radionuclides:
Gas/ Tritium-Solid/Oxide	1	Ni63, H3,Am241

19. Total Curies: 84.000273	21. Waste Class & Stability:	22. Total Cubic Feet:
	AU, B	8.2

23. DOT Sub Type	24. DOT Class & Hazard Class	25. Hwy. Route Controlled (Large Quantity)
Excepted Package	UN No.: Instrument or Article, 7, UN2910	[ ] Yes [X] No

CERTIFICATION

I hereby certify on behalf of the named shipper/generator to the South Carolina Department of Health and Environmental Control that the information provided herein is complete and correct to the best of my knowledge, and that the shipper/generator has complied with all the provisions as required by Act No. 429 of 1980, the South Carolina Radioactive Waste Transportation and Disposal Act, and Department Regulation 61-83.

Date: 3-6-2003

N. REYNOLDS BLACK Agent for US Army JMC
Typed Name

Signature of Consignor's Authorized Representative

CONSIGNEE ACKNOWLEDGMENT

This acknowledges to the South Carolina Department of Health and Environmental Control that the above - described radioactive waste shipment was received.

3-17-03
Date of Delivery

Signature of Consignee's Authorized Representative

N. Reynolds Black / Facility Coordinator
Type or Printed Name and Title

DOT [illegible] PAPERS

DHEC 802 (Rev. 10/84)

(Copies of this form may be reproduced locally as needed)

7Form RHA - CT
(5/80)

South Carolina Department of Health and Environmental Control
Radioactive Waste Shipment Certification Form

General Instructions and Information: This is a two part form to be used by shippers and carriers of radioactive waste. The certifications contained herein satisfy the requirements of Section 13-7-150, of Act No. 499 of 1980, the South Carolina Radioactive Waste Transportation and Disposal Act. This certification along with a copy of the prior notification form shall accompany each shipment of radioactive waste into and within the State of South Carolina. The shipper is to complete his portion of the form and present it to the carrier as part of the shipping documents. Upon receipt, the carrier shall complete his portion of the form. Upon delivery of the shipment to the consignee, a copy of this certification form, and a copy of the Prior Notification and Manifest form with the consignee acknowledgment, shall be returned to the Department.

Part I: Shipper's Certificate of Compliance

1. Name of Shipper and Address:
HQ Joint Munitions Command(JMC)
(Attn: AMSOS-SF/Crooks)
Rock Island, Illinois 61299-6000

Attention: Kelly Crooks
Telephone No.: (309) 782-0338

2. Shipment Identification No.:
USN 2002-017 (SCN 0007-03)

3. Transport Permit No.:
0138-00-03-E

In compliance with Act No. 499 of 1980, the South Carolina Radioactive Waste Transportation and Disposal Act, I hereby certify on behalf of the above named shipper to the South Carolina Department of Health and Environmental Control that the above named shipper has complied with all provisions of Act No. 499 of 1980, and all applicable laws and administrative rules and regulations, both State and Federal, regarding the packaging, transportation, storage, disposal and delivery of such wastes. I further certify that this shipment of radioactive waste has been inspected within 48 hours of the time of departure and that no items of non-compliance with applicable laws, rules or regulations were found.

Date: 3-6-03

N. Reynolds Black Agent for US Army OSC
Typed Name and Title of Agent or Shipper

N Reynolds Black
Signature

Part II: Carrier's Certification

1. Name of Carrier and Address:
Hittman Transportation
Barnwell, SC 29812

Telephone No.: (803) 259-1119

2. Shipment Identification No.
USN 2002-017 (SCN- 0007-03)

3. Transport Trailer No.
671-02

4. Scheduled Date of Departure of Shipment:
3-6-03

5. Estimated Date of Arrival of Shipment:
3-19-03

Certification is hereby made to the South Carolina Department of Health and Environmental Control that: (a) the shipper has provided the carrier with a copy of the shipment manifest, the certificate of compliance, and the routing instructions; (b) the shipment of radioactive waste has been properly placarded for transport according to applicable U.S. Department of Transportation Regulations; (c) all shipping papers originated or reproduced by the carrier have been properly executed; (d) the transport vehicle has been inspected according to applicable State and Federal regulations within the prescribed intervals and that all safety and operational components are in good working order and meet the requirements of regulations; (e) all drivers who will operate the vehicle within the state of South Carolina are qualified to transport hazardous material as specified by applicable U.S. Department of Transportation regulations; (f) the Department shall be immediately notified of any variance, occurring after departure from the shipper's notification of primary routes in South Carolina and estimated date of arrival; (g) All applicable laws and administrative rules and regulations, both State and Federal, regarding the transportation of radioactive wastes will be complied with.

Date: 03-06-03

Tim Ragsdale, Driver.
Typed or Printed Name and Title

Tim Ragsdale
Signature

DHEC 803
(5/80)

(Copies of this form may be reproduced locally as needed)

Broker Trailer Survey

Shipment ID Number USN 2002-019 (SCN 0007-05)

Survey Performed by: Reynolds Black

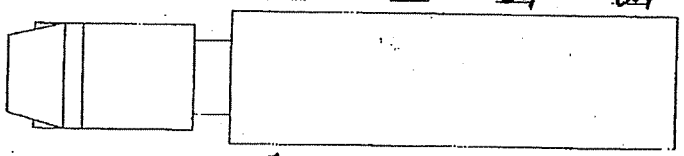
Instrument Used E-520

Date Calibrated 10-29-02

INCOMMING

2 Meters 0.1 0.1 0.1 0.1

Contact 0.1 0.1 0.1 0.1

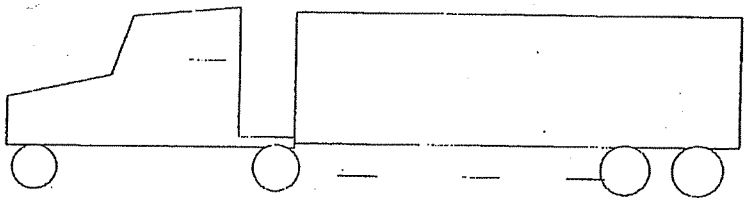


0.1 0.1

0.1 0.1

Contact 0.1 0.1 0.1 0.1 Contact 2 Meters

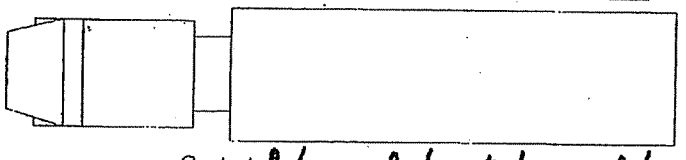
2 Meters 0.1 0.1 0.1 0.1



OUTGOING

2 Meters 0.1 0.1 0.1 0.1

Contact 0.1 0.1 0.1 0.1

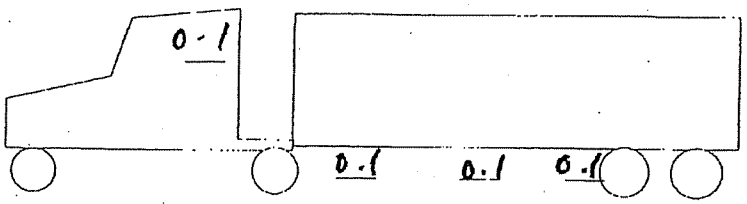


0.1 0.1

0.1 0.1

Contact 0.1 0.1 0.1 0.1 Contact 2 Meters

2 Meters 0.1 0.1 0.1 0.1



DOT SHIPPING PAPERS

PAGE 6 OF 11

___ Radioactive Material, excepted package - limited quantity of material, 7, UN2910

X Radioactive Material, excepted package - instruments or articles, 7, UN2910

___ Radioactive Material, excepted package - empty package, 7, UN2910

___ Radioactive Material, excepted package - articles manufactured from natural or depleted uranium or natural thorium, 7, UN2910

Radioactive Materials (Low-Level Radiation)

POTENTIAL HAZARDS

HEALTH

* Radiation presents minimal risk to transport workers, emergency response personnel, and the public during transportation accidents. Packaging durability is related to potential hazards of material.
* Low-Level radioactive material; very low radiation hazard to people
* Quantity of material presents low radiation hazard if released from package during accident.
* Some radioactive materials cannot be detected by commonly available instruments.
* Packages do not have RADIOACTIVE I, II, or III labels. Some may have EMPTY labels or may have the word "Radioactive" in the package marking.
* If any radioactive contamination occurs, it will be extremely low level.

FIRE OR EXPLOSION

* Some of these materials may burn, but most do not ignite readily.
* Radioactivity does not change flammability or other properties of materials.

PUBLIC SAFETY

* **CALL Emergency Response Telephone number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
* **Priorities for rescue, life-saving, first-aid and control of fire and other hazards are higher than the priorities for measuring radiation levels.**
* Radiation Authority must be notified of accident conditions, and is usually responsible for radiological decisions.
* Isolate spill or leak area immediately for at least 25 to 50 meters (80 to 160 feet) in all directions.
* Stay upwind.
* Keep unauthorized personnel away.
* Detain or isolate uninjured persons or equipment suspected to be contaminated, delay decontamination and cleanup until instructions are received from radiation authority.

PROTECTIVE CLOTHING

* Positive pressure self-contained breathing apparatus (SCBA) and structural firefighter's protective clothing will provide adequate protection.

EVACUATION

Large Spill

* Consider initial downwind evacuation for at least 100 meters (330 feet).

Fire

* When a large quantity of this material is involved in a major fire, consider an initial evacuation distance of 300 meters (1000 feet) in all directions.

EMERGENCY RESPONSE

FIRE

* Presence of radioactive material will not change effectiveness of fire control techniques.
* Move containers from fire area if you can do it without risk.
* Do not move damaged packages; move undamaged packages out of fire zone.

Small Fires

* Dry chemical, CO_2, water spray or regular foam.

Large Fires

* Water spray, fog (flooding amounts).

SPILL OR LEAK

* Do not touch damaged packages or spilled material.

Liquid Spills

* Cover with sand, earth or other non-combustible absorbent material.
* Cover powder spill with plastic sheet or tarp to minimize spreading.

FIRST AID

* Medical problems take priority over radiological concerns.
* Use first aid treatment according to the nature of the injury.
* Do not delay care and transport of a seriously injured person.
* Apply artificial respiration if victim is not breathing.
* Administer oxygen if breathing is difficult.
* In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
* Injured persons who contacted released material may be a minor contamination problem to contacted persons, equipment and facilities
* Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

DOT SHIPPING PAPERS
PAGE 10 OF 11

CNS DRIVER'S INSTRUCTIONS FOR EXCLUSIVE USE VEHICLES.

DCSF

The Code of Federal Regulations, 49 CFR 173.403, 173.427, and 173.441 requires that specific instructions for maintenance of exclusive use shipments controls be provided by the shipper to the carrier. These instructions must be included with the shipment documents.

The following instructions shall be complied with for all exclusive use vehicles:

- Do not change out tractor before arrival at the radioactive burial site without notifying the shipper.
- Do not change the fifth wheel adjustment on the tractor without notifying the shipper.
- Do not move or transfer packages within the van or between vans while enroute to the burial site with notifying the shipper.
- The shipment must be loaded by the consignor and unloaded by the consignee from the transport in which originally loaded.
- Shipments must be braced so as to prevent leakage or shifting of load under conditions normally incident to transportation.
- The vehicle must be placarded "RADIOACTIVE" on all four sided when applicable until shipment is unloaded.

If the vehicle is involved in an accident or is required to make emergency braking which could shift the load and change the radiation levels, notify the shipper immediately.

In case of an accident, vehicle malfinction, or deviation from the above instructions immediately contact one of the following CNSI employees:

Cliff Bowers	(803) 541-5007 (office)
	(803) 793-5360 (home)
	(803) 707-2167 (cell)
Barnwell Security	(803) 259-6069
Corporate HP	(803) 758-1898 (office)
	(803) 345-1628 (home)

Any deviation from these instructions are violations of State and Federal laws and could result in carrier penalty.

Driver's Signature

03-06-03
Date

DOT SHIPPING PAPERS
PAGE 11 OF 11

Duratek™

Consolidation and Services Facility
16043 Dunbarton Boulevard
Barnwell, South Carolina 29812
803-259-1781 fax 803-541-7302
www.duratekinc.com

March 19, 2003

US Army; HQ, JMC
ATTN: AMSOS-SF(Kelly Crooks)
1 Rock Island Arsenal
Building 390, 4th Floor SE
Rock Island, Illinois 61299-6000

Attention: Kelly Crooks

Reference: Radioactive Waste Shipment- USN 2002-017
SCN- 0007-03
Naval Air Station
Building 555
New Brunswick, Maine 04011-5008

Dear Mr. Crooks,

As required by 10CFR Part 20, South Carolina Title A, and Duratek Consolidation and Services Facility Radioactive Material Inventory and Control Procedure (DF-AD-010), you are hereby notified that the shipment referenced above has been received at the Duratek Consolidation and Services Facility.

A signed copy of the Form 540 for this shipment is attached as acknowledgment of the acceptance of the waste shipment. This material meets all the requirements of the Duratek Consolidation and Services Facility acceptance criteria at the point of receipt inspection. You will be notified by our facility if the material is found to be in non-compliance during processing.

If you have any questions regarding this letter, please contact me at (803) 259-1119, ext. 5064, fax (803) 259-1797 or e-mail NRBLACK@DURATEKINC.COM.

Sincerely,

N. Reynolds Black
Duratek Consolidation and Services Facility
Facility Coordinator

waste receipt ✓

HRA-0283

FOR OFFICIAL USE ONLY

RCC1.941116.021

ATOMIC ENERGY COMMISSION

AN AGREEMENT BETWEEN THE AEC AND THE DOD FOR THE DEVELOPMENT, PRODUCTION, AND STANDARDIZATION OF ATOMIC WEAPONS

PART I

MAR 21 1953

OBJECTIVE

The objective of this agreement is to delineate the responsibilities to be assumed by the AEC and the DOD respectively in connection with the determination of programs for proposed atomic weapons, their development, test, standardization, and production in accordance with military requirements.

PART II

GENERAL OUTLINE OF FUNCTIONS AND RESPONSIBILITIES

1. The functions, responsibilities, and procedures established by this agreement are based on the following premises:

a. That, unless otherwise provided by law or by agreement between the Atomic Energy Commission and the Department of Defense, the development and production of atomic weapons will be the complementary responsibilities of the AEC and the DOD;

b. That the development and production of nuclear systems are primary functions of the AEC;

c. That the division of responsibilities for the development and production of atomic weapons, exclusive of the nuclear systems, will be by joint agreement on each weapon or by classes of weapons between AEC and DOD; and

d. That the determination of military characteristics, suitability, and acceptability (standardization) is a primary function of the DOD.

2. It is fundamental to progress that both agencies pursue agressively the study of new and radical concepts for military application of atomic energy.

3. Liaison by DOD personnel at AEC field or other offices, as referred to in this paper, will be arranged by agreements covering the number of liaison personnel involved and the intent and scope of their proposed activity.

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4. For the purpose of this agreement, the functions to be performed by the AEC and the DOD in the conception, program study, development, production, and standardization of atomic weapons are described in six phases. This method of defining the problem permits a clear delineation of the various functions to be performed. It should be understood that in practice new weapon programs cannot be expected to develop precisely in accordance with these six phases or in the chronological order of steps described. The phases may merge with one another and, in some cases, with the full understanding of both parties, may be omitted or deferred as is appropriate. The agreement provides a means by which the progress or relative status of a weapon project may be ascertained.

PART III

A. SYNOPSIS OF FUNCTIONS AND PROCEDURES

Phase 1 - Weapon Conception

AEC	DOD
Continuing studies by AEC agencies. Studies may be informal and independent from DOD or may be conducted jointly with DOD. May result in the focusing of sufficient DOD interest in a modification of a present weapon or in the development of a new type weapon to warrant formal study.	Continuing studies by DOD agencies. May be independent of the AEC or may be conducted jointly with AEC. Sufficient attention may become focused on an item to warrant a formal program study. DOD requests AEC to make a program study on a new idea for a weapon or component or may initiate its own study.

Phase 2 - Program Study (Determination of Feasibility and Responsibilities)

AEC	DOD
Performs independent feasibility studies as desired. Based on DOD's request for feasibility study, makes a study to determine a weapon's feasibility, time scale, costs, and interprogram effects, etc., and reports results to the DOD.	Performs independent feasibility studies or asks assistance, as desired. Furnishes detailed guidance on weapons characteristics and probable requirements to AEC. Reviews AEC's feasibility study. Determines the required military characteristics for the weapon and furnishes to AEC.

If a review of the feasibility study indicates that a development program is desirable, the AEC and the DOD will reach a joint agreement on the division of responsibilities for development and procurement.

(From time to time agreements may be made covering items in a whole class of weapons.)

NOTE - Phases 3, 4, 5, and 6 which follow pertain to those weapons and components for which the AEC has the responsibility to develop and produce. They do not apply to weapons or components for which the DOD is responsible. (See note - at end of Part III B, Phase 2.)

Phase 3 - Development Engineering

AEC	DOD
Launches a development program based on required military characteristics. Produces prototypes for AEC and DOD evaluation Provides development specifications to DOD as they become available. Determines the developmental design release date and submits a final report of the developmental design to the DOD.	Maintains liaison with AEC field agencies and conducts independent evaluation of prototypes as considered necessary. Studies the development specifications of the weapon design and gives appropriate guidance to the AEC.

Phase 4 - Production Engineering

AEC	DOD
Proceeds with production engineering of weapon, tooling, and layout of manufacturing facilities, without waiting for formal comments of DOD on the developmental design which guidance is integrated when received. Further prototype evaluation is performed during this phase. Prepares product specifications for production release and furnishes these specifications to the DOD for review.	Reviews product specifications. Maintains liaison with appropriate AEC agencies on product design changes and specifications and gives appropriate guidance to AEC. Continues evaluation of prototypes as considered necessary.

Phase 5 - First Production

AEC	DOD
Initiates manufacture of weapons according to product specifications by production tools, without waiting for DOD's comments on product specifications. AEC performs own evaluation and on basis of preliminary evaluation releases weapons to DOD for testing, training, and other purposes. Makes final evaluation and approves weapon model as suitable for standardization.	Complete operational suitability tests and makes independent evaluation of production type weapons. If weapon as designed, produced, and approved by AEC is satisfactory, approves the weapon as standard.

Phase 6 - Quantity Production and Stockpile

AEC	DOD
Brings various production facilities up to full production pursuant to DOD requirements. Maintains production, inspection and quality control programs to ensure that each article produced meets specifications. Maintains quality assurance and functional surveillance programs to ensure the continued quality of weapons in stockpile, in accordance with current agreements with respect to stockpile operations. These programs and the data obtained therefrom will be made available to the DOD.	Maintains liaison with AEC agencies at production facilities. Continues appraisal of weapon performance. Maintains liaison with AEC to review performance and technical advances in anticipation of modernization changes. Reviews AEC's quality assurance and functional surveillance programs and results and submits appropriate comments and recommendations to the AEC. Maintains functional surveillance program in accordance with current agreements with respect to stockpile operations.

B. FUNCTIONS AND PROCEDURES

Introduction

The following paragraphs provide an elaboration of the functions and procedures which were previously outlined in Part III A.

Phase 1 - Weapon Conception

1. This phase consists of continuing studies by AEC laboratories, DOD agencies, and others. A continuous exchange of information, both

formal and informal, is conducted among individuals and groups. This results in the focusing of sufficient interest in an idea for a new weapon or component to warrant a program study.

2. Both agencies are free to develop such ideas through the stage of determination of feasibility except that:

a. Should the DOD wish to pursue an idea which would involve the modification of or the new development of nuclear systems, the DOD will ask the AEC to examine the practicability of at least that portion of the development.

b. Should the AEC pursue an idea which would require the development of new delivery or handling equipment, the AEC will ask the DOD to examine the practicability of at least that portion of the development.

Phase 2 - Program Study (Determination of Feasibility and Responsibilities)

1. This phase includes the determination of the feasibility and desirability of undertaking the development of a new weapon or component, the establishment of military characteristics for the article, and the determination of respective responsibilities between the AEC and the DOD for the various tasks involved in its development and procurement.

2. If the DOD desires the AEC to make a feasibility study, the Military Liaison Committee (MLC) will make that request to the AEC.

3. The feasibility studies which the AEC undertakes at the request of the DOD will include such items as the weapon's technical feasibility, probable times for design and production releases, costs, and inter-project influences.

4. Should the AEC determine the feasibility of a new weapon to its own satisfaction, and, having submitted appropriate information and recommendations to the DOD, receive either an indication of DOD's lack of interest or no expression of interest whatsoever from the DOD, the AEC has complete freedom of action either to drop the development or to continue it independently.

5. Should the DOD determine to its satisfaction the feasibility of a new weapon which utilizes already developed and proved nuclear systems, and, having submitted appropriate information and recommendations to the AEC, receive either an indication of AEC's lack of interest or no expression of interest whatsoever from the AEC, the DOD has complete freedom of action either to drop the development or to continue it independently.

6. The DOD furnishes detailed technical guidance on desired weapon characteristics to the AEC during the program study. In particular, the DOD furnishes to the AEC as early in the program as possible requirements for:

a. Prototype weapons for evaluation, training, etc.

b. Production weapons and appropriate spares required for operational suitability testing, research and development, training and evaluation, and war reserve stockpile.

c. Ancillary gear for testing, handling, etc.

7. The feasibility and desirability of undertaking the development of a new weapon having been determined, the DOD will establish desired military characteristics for it. The AEC will provide advice, as requested, in the preparation of these Military Characteristics (MC's). The MC's will be transmitted by the MLC to the AEC. Detailed technical guidance in elaboration of these approved MC's will be provided as necessary by the AFSWP or cognizant Service.

8. The DOD may assign AFSWP or one of the Services as the cognizant DOD agency for the weapon project. This cognizant DOD agency would then recommend a specific assignment of responsibilities to the MLC and the DMA would make a similar recommendation to the AEC. Insofar as is practicable, the prime proposed responsibilities of the AEC and the DOD for development and production should be determined by the DMA and the cognizant DOD agency. The MLC and the AEC then reach an agreement on the respective assignments. From time to time agreements may be made covering items in a class of weapons.

9. Designated representatives of the appropriate DOD agency and the AEC will coordinate efforts on the weapon project, and will report to the cognizant DOD agency and AEC as principals. These representatives will recommend resolution of interface problems, will recommend joint participation in weapons development tests, and will ensure such interchange of information as will permit each principal to make its own independent evaluation of the weapon.

NOTE - Components which are assigned to the DOD for development and production are excluded from further consideration in this paper. It is understood that both the AEC and the DOD must assure themselves that those components for which they have primary development and production assignment will function properly with the other's items. Both the DOD and the AEC must have the information necessary to evaluate independently the function of the products they produce.

Phase 3 - Development Engineering

1. This phase includes those events beginning with the launching of AEC's development program, through the determination of development

specifications, and culminating in the design release by the development agencies.

2. The AEC will write development specifications and will furnish copies of them to the DOD as these specifications become available.

3. The cognizant DOD agency will examine AEC development specifications and will furnish guidance either at the DMA or AEC Field Office level, as appropriate. Continuous liaison will be maintained by AFSWP or the cognizant Service.

4. DOD liaison concerning activities at AEC and AEC contractor facilities will be with the Operations or Field Offices concerned. Access by DOD liaison personnel to AEC or contracted plants will be permitted. Guidance resulting from such DOD liaison activities will be only at AEC Field Office or higher level.

5. The AEC, in addition to furnishing the DOD with the results of its own evaluation testing of components as the development proceeds, will furnish prototype components and complete articles to the DOD for use in tests by the cognizant Service or AFSWP as may be requested. The cost of the components and equipment furnished upon request will be borne by the DOD. Early DOD request for items for test purposes is essential.

6. When the DOD furnishes to the AEC its quantitative requirements, the AEC issues the authorization for procurement, and begins preliminary planning and scheduling for production rates and deliveries to the DOD.

Phase 4 - Production Engineering

1. This phase covers those activities which adapt the developmental design into a manufacturing system which can produce weapons and components on a p duction basis. omments from the DOD on the developmental design are not prerequisites to the initiation of production engineering. Comments on the developmental design are considered for integration when r eived. In the meantime, testing of developmental prototypes cond ed by both the AEC and the DOD and either jointly or separately wi l be continued. This phase culminates in the production release at which time the AEC furnishes the produce specifications to the DOD for comment. Throughout this phase AFSWP or the cognizant Service will maintain liaison with appropriate AEC activities.

2. The AEC production agencies release the design for production. This step follows the completion of production engineering, basic tooling, layout, and the adoption of fundamental assembly procedures. Formal comments by the DOD on the product specifications are not prerequisite for the production release. (Various DOD agencies responsible

for the training of weapons organizations, operational suitability testing, and other weapon evaluation projects utilize the production release date for planning purposes.)

Phase 5 - First Production

1. This phase comprises the delivery of the first weapons from production facilities. The production rate is limited, but increases as the various production facilities come into operation. These first weapons are evaluated by AEC and DOD agencies. During this phase, AEC makes a preliminary evaluation of the weapon pending its final evaluation and subsequent approval as to suitability for standardization. This phase terminates in the DOD's formal standardization action.

2. The preliminary evaluation does not constitute a finding that the weapons are suitable for standardization, or for operational use, except in emergency.

3. Should the DOD require weapons for test or training purposes prior to final approval by the AEC, then these weapons may be utilized with the understanding that the AEC final evaluation has not been made.

4. A final evaluation is made by AEC agencies after the completion of an engineering evaluation program for the weapon.

5. Based upon this final evaluation, the AEC advises the DOD that the production model is sutiable for standardization with limitations, if any.

6. The DOD will accomplish a standardization action, and through the MLC will inform the AEC as to whether the weapon meets the desired military characteristics and whether it should become a standard or limited stockpile item. (If the DOD needs, for its evaluation, information in addition to that already obtained from development, engineering, and operational suitability tests, the DOD will purchase the necessary material and perform appropriate tests.)

Phase 6 - Quantity Production of Mark Weapons for Stockpile

1. During this phase the AEC undertakes the necessary quantity production of Mark weapons for stockpile. This includes the phased production of components, spare parts and ancillary gear. Previously produced weapons are redesignated as Mark weapons if they meet the criteria for a standardized weapon. If not, an appropriate modification program may be undertaken.

2. The AEC will operate whatever inspection system it feels to be required in order to permit certification of each item as a Mark weapon as it is delivered to stockpile. The DOD will provide liaison with AEC Field Offices at production agencies. Liaison officer's

reports will be through military channels and comments or recommendations by DOD will be through military channels to the AEC at DMA or AEC Field Office level.

3. The AEC will maintain appropriate quality assurance programs. These the DOD will review, offering appropriate comment. In addition, data obtained during these programs will be made available to the DOD for review and comment.

4. A detailed division of stockpile responsibilities between the AEC and the DOD was agreed upon in 1951 and will continue to apply until changed by mutual agreement.

PART IV

DEFINITIONS

1. Nuclear System - The nuclear system is comprised of the fission and/or fusion material, together with those components required to convert the system from the safe condition to an explosion. This definition specifically excludes the fuzing system of the weapon.

2. Development Specifications - A description, sometimes including drawings, of the major considerations to be observed in the design and development of a new weapon or component.

3. Product Specifications - The document and drawings used in a production contract to describe what the contractor is to produce and the standards or tolerance which the pro[illegible] to meet.

4. First Production - First produ[illegible] that production in conformance with a product specification [illegible] AEC approval and DOD standardization.

5. Quantity Production - Quantity production is production in conformance with product specifications, occurring after AEC approval and DOD standardization.

6. Mark Weapon - A weapon which has been produced according to a standardized design.

HRA-0284

Simplified Surficial Geologic Map of Maine

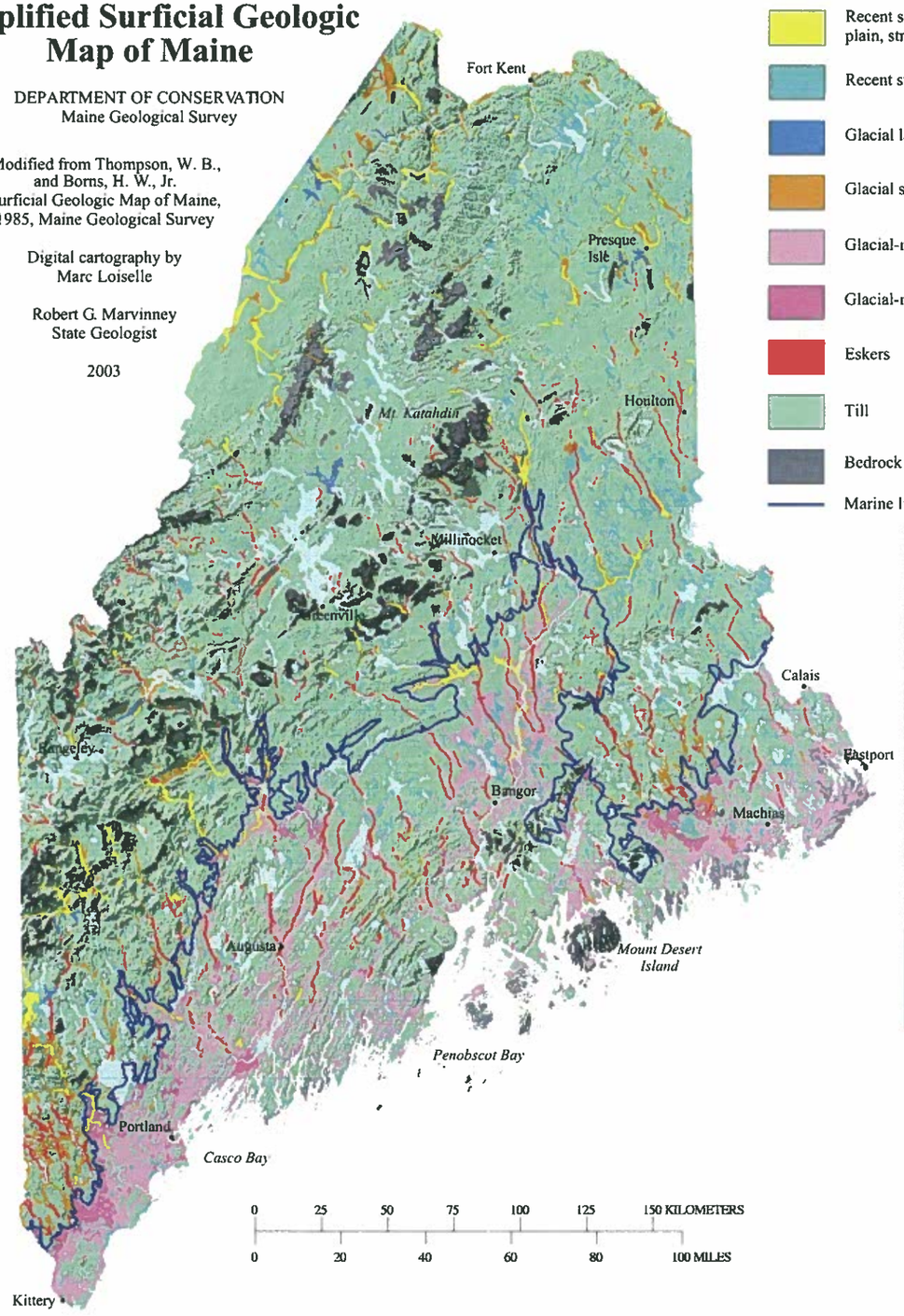
DEPARTMENT OF CONSERVATION
Maine Geological Survey

Modified from Thompson, W. B., and Borns, H. W., Jr. Surficial Geologic Map of Maine, 1985, Maine Geological Survey

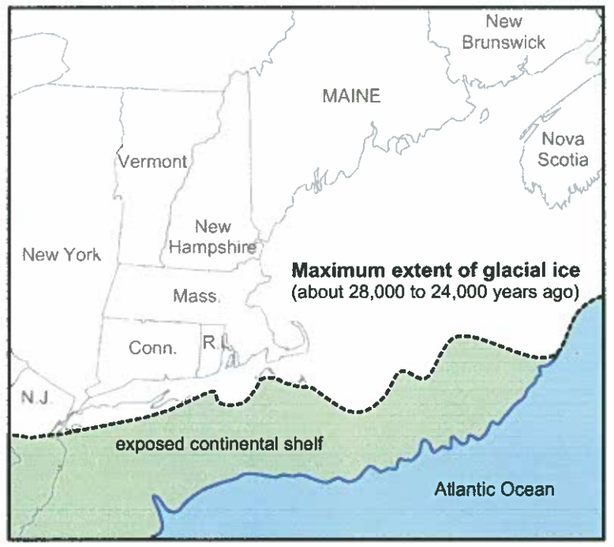
Digital cartography by Marc Loiselle

Robert G. Marvinney
State Geologist

2003



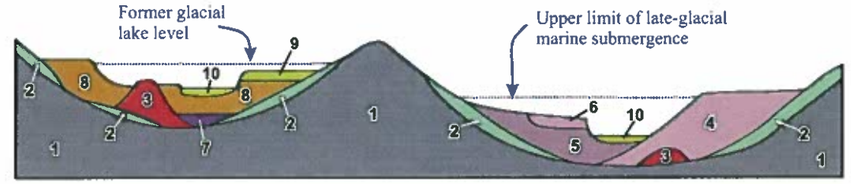
- Recent stream alluvium, including flood plain, stream terrace, and alluvial fan deposits.
- Recent swamp, marsh, and bog deposits
- Glacial lake-bottom deposits
- Glacial stream deposits and glacial-lake deltas.
- Glacial-marine deposits (silt and clay)
- Glacial-marine deposits (sand and gravel)
- Eskers
- Till
- Bedrock and thin glacial sediment cover
- Marine limit



The color map (at left) shows the principal types of sedimentary materials that cover the bedrock in Maine. Most of these materials were left by glacial ice during the Pleistocene "ice age". One of Maine's distinctive glacial legacies is the blanket of marine sediments across southern portions of the state. The last continental ice sheet was so thick and heavy that it depressed the Earth's bedrock crust several hundred feet. Even though global sea level was lower in glacial times, this depression enabled the sea to flood low areas of southern Maine as the glacier receded. The dark-blue line on the map shows the inland limit of marine submergence. Numerous islands existed in the flooded area but are not shown here. The recession of the ice sheet caused the land to rise above the ocean, and a wide variety of sedimentary deposits were released from the melting glacier. These include long esker ridges of sand and gravel formed in tunnels under the ice, shown by the red lines on the map. Maine's eskers and emerged marine features are world-class examples of glacial deposits.

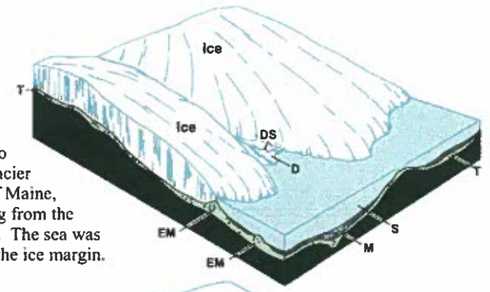
What will you find if you dig a hole?

This cross section shows common relationships of glacial and postglacial surficial sediments in valleys above (left) and below (right) the marine limit.

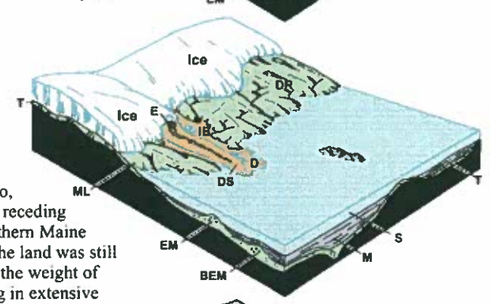


1- Bedrock
2- Till
3- Esker
4- Glacial-marine delta
5- Glacial-marine clay (Presumpscot Formation)
6- Marine sand plain
7- Fine-grained glacial lake-bottom sediments
8- Glacial-lake delta
9- Postglacial stream-terrace
10- Modern flood-plain

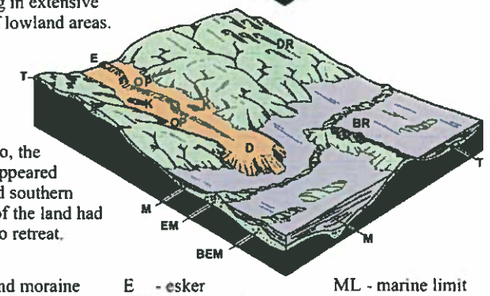
Glacial Recession in Southern Maine



16,000 years ago a continental glacier covered most of Maine, but was receding from the coastal lowland. The sea was in contact with the ice margin.



15,000 years ago, the glacier was receding rapidly and southern Maine was ice-free. The land was still depressed from the weight of the ice, resulting in extensive submergence of lowland areas.



13,000 years ago, the glacier had disappeared from central and southern Maine. Uplift of the land had caused the sea to retreat.

BEM - buried end moraine
BR - bedrock ridge
D - delta
DR - drumlins
DS - distributary stream
E - esker
EM - end moraine
IB - ice block
K - kettle
M - marine sediments
ML - marine limit
OP - outwash plain
S - seawater
T - till

HRA-0288

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Home > Explore! > Geologic Hazards > Landslides > Brunswick Landslide

Brunswick, Maine Patriots' Day 2007 Landslide

Introduction

On Monday, April 16, 2007, a landslide (Figure 1) and adjacent slope subsidence (Figure 2) occurred along the east shore of Buttermilk Cove in Brunswick, Maine. The slide occurred along a steep bluff (Bryant and others, 2002) adjacent to Route 24 (Gurnet Road) (Figure 3). The bluff top was about 30 feet above sea level (Figure 4). This shoreline has been mapped by the Maine Geological Survey as a "Potential Landslide Area" (Dickson, 2001; Figure 5).

Figure 1

Figure 2

Figure 3

Figure 4

Figure 5

Site Conditions

This site location has evidence of prior slope failure and subsidence. The basement and foundation walls show previous cracking due to ground subsidence (Figure 6 and Figure 7). The most prominent crack runs along the entire length of the basement floor and resulted in a slight separation in the cement. The floor section on the west side of the basement towards the water shows subsidence and also drastic sloping down toward the shoreline. The back yard, which is located west of the house towards the water, exhibits extensive subsidence and sloping from prior slope failure events (Figure 8). There is evidence of 2 to 3 old landslide scarps in this same area between the building and the bluff face. A cement patio, built in the early 1970's level to the ground, now exhibits a 20-degree slant towards the water (Figure 9). The patio slab is now completely broken up and cracked by previous ground movements.

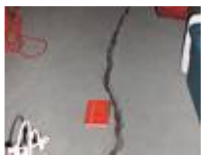
Figure 6

Figure 7

Figure 8

Figure 9

During a site visit by Maine Geological Survey geologists, two distinct areas of slope failures were observed (Figure 10). One, a large rotational landslide, occurred 90 feet north of the house in an area where runoff from both a cross-road culvert and the leach field drainage were focused. This rotational slide produced a distinct 30-foot long concave scarp with a tree-covered toe at the base. The landslide toe extended into the intertidal zone of Buttermilk Cove (Figure 11). The second area of slope movement extended from the southern edge of the main scarp, southward for approximately 90 feet. This is in the same area as the previous subsidence and slope failure on the west side of the house described above. This slope movement and subsidence consisted of fresh tension cracks and minor parallel scarps in the lawn. This movement caused the ground behind the house to slope more steeply toward the top of the bluff and water.

Figure 10

Figure 11

Upon observing the exterior and interior of the house foundation, extensive floor and wall cracks (fissures) were noted, along with a drastic sloping of the basement floor, as described above. Though some of the foundation cracks are relic in nature, many new cracks and foundation offsets appeared to be due to recent failure. Most of these cracks occur in the basement walls and corners along the waterside (west side) of the house. These features suggest an ongoing history of slope movement, subsidence, and site instability.

Figure 12

The site has been built up and out towards the water with artificial fill (Figure 12). The north end of the site appears to be filled with a medium to coarse-grained sand which the owner thought came from a local construction site. This area is also the location of a leach field for the home's septic system. The remainder of the site is filled with a mixture of material, the majority of which consists of old tires. These tires are loosely placed and prevalent on and within the oversteepened slope (bluff face) and appear to have been placed haphazardly and not in an engineered form. Other slope materials include metal, cement, bricks, shrubs, and trees.

Geologic Setting

The normal stratigraphic sequence (layering of earth materials) in this area is:

a. bedrock overlain by
b. a glacial till and then overlain by
c. a marine clayey silt known as the Presumpscot Formation.

Figure 13

Observation of the bluff toe suggests very little or no till present and Presumpscot Formation clay overlies bedrock at this site. Bedrock underlying the sediment is metamorphic rock of the Sebascodegan and Cape Elizabeth Formations (ancient rocks of Ordovician to Early Silurian age). These rocks crop out along the edge of Buttermilk Cove near the elevation of mean high tide (Figure 13). Outcrops are also located directly across Route 24 to the east of the slide area. The depth of overburden between these outcrops is indeterminate. Further geological studies would be needed to determine the subsurface bedrock contours and overburden thickness of the till and marine clay at the site.

Vulnerability of the Brunswick Landslide Site for Further Slope Failure

There are two basic principles to note in determining areas at risk for landslides:

1. It is likely that landslides will occur where they have occurred in the past
2. Landslides are likely to occur in similar geological, geomorphological, and hydrological conditions as in the past.

This location fits both of these tenets. A landslide has occurred at this site, and there have been other coastal landslides in Maine that have occurred within similar geological settings.

Landslide Precursors Found at this Location

1. ***Unstable soils*** - leaning trees exhibiting prior slope creep and movement. The presence of large leaning trees demonstrates that earth movement has been continual over time.
2. ***Foundation cracks*** - extensive wall and floor foundation cracks show both prior and recent subsidence since the building was constructed.
3. ***Tension cracks*** - landslide scarps begin as tension cracks. Field evidence exists of prior and new tension cracks and scarps extending for 90 feet across the back yard.
4. ***Slope oversteepening*** - slope behind house is extremely oversteepened - a primary cause/precursor for a landslide.
5. ***Overburden loading*** - the area has had extensive artificial fill brought in, which can only lead to an increase in overburden stress on the underlying marine clay, increasing the risk of slope failure.
6. ***Precipitation/drainage*** - heavy precipitation can trigger landslides. Heavy precipitation oversaturates the soil, increasing overburden pressure, and also increases pore pressure in the sediments and thus aids in lubricating the marine clay, increasing the risk of slope failure.
7. ***Bluff-toe erosion*** - tidal currents and waves erode sediments at the base of the slope. Active toe erosion is present across the entire base of slope at this site. This condition leads to slope oversteepening and less support for land at the top of the bluff.

Future Site Stability

This property exhibits all of the above factors of previous slope failure (e.g., oversteepened slope, overburden loading, unstable soils, and previous subsidence). The only change in the conditions since the landslide of April 16th is in the area of the rotational slide where the slide slope has stabilized and become less steep. Although we can say with certainty that another slide or slope failure will occur at this site, it is not possible to predict when that failure would occur. It is our judgment that this site is unstable and prime for further slope failure, possibly up to Route 24.

References

Bryant, M., Barnhardt, W. A., Dickson, S. M., and Kelley, J. T., 2002, Coastal bluffs in the Orrs Island quadrangle, Maine: Maine Geological Survey, Open-File Map 02-201 (4.4 Mg pdf format), scale 1:24,000.

Dickson, Stephen M., 2001, Coastal landslide hazards in the Orrs Island quadrangle, Maine: Maine Geological Survey, Open-File Map 01-530 (2.6 Mg pdf format), scale 1:24000.

Text and photos by Michael E. Foley.

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HRA-0290

ATSDR
AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY

Public Health Assessment for

NAVAL AIR STATION BRUNSWICK
BRUNSWICK, CUMBERLAND COUNTY, MAINE
EPA FACILITY ID: ME8170022018
MAY 16, 2005

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
Agency for Toxic Substances and Disease Registry

THE ATSDR PUBLIC HEALTH ASSESSMENT: A NOTE OF EXPLANATION

This Public Health Assessment was prepared by ATSDR pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) section 104 (i)(6) (42 U.S.C. 9604 (i)(6)), and in accordance with our implementing regulations (42 C.F.R. Part 90). In preparing this document, ATSDR has collected relevant health data, environmental data, and community health concerns from the Environmental Protection Agency (EPA), state and local health and environmental agencies, the community, and potentially responsible parties, where appropriate.

In addition, this document has previously been provided to EPA and the affected states in an initial release, as required by CERCLA section 104 (i)(6)(H) for their information and review. The revised document was released for a 30-day public comment period. Subsequent to the public comment period, ATSDR addressed all public comments and revised or appended the document as appropriate. The public health assessment has now been reissued. This concludes the public health assessment process for this site, unless additional information is obtained by ATSDR which, in the agency's opinion, indicates a need to revise or append the conclusions previously issued.

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PUBLIC HEALTH ASSESSMENT

NAVAL AIR STATION BRUNSWICK
BRUNSWICK, CUMBERLAND COUNTY, MAINE

EPA FACILITY ID: ME8170022018

Prepared by:

Federal Facilities Assessment Branch
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia

Foreword

The Agency for Toxic Substances and Disease Registry, ATSDR, is an agency of the U.S. Department of Health and Human Services. It was established by Congress in 1980 under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as the Superfund law. This law set up a fund to identify and clean up our country's hazardous waste areas. The U.S. Environmental Protection Agency (EPA) and the individual states regulate the investigation and clean up of the areas.

Since 1986, ATSDR has been required by law to conduct a public health assessment at each of the areas on the EPA National Priorities List. The aim of these evaluations is to find out if people are being exposed to hazardous substances and, if so, whether that exposure is harmful and should be stopped or reduced. If appropriate, ATSDR also conducts public health assessments when petitioned by concerned individuals. Public health assessments are carried out by environmental and health scientists from ATSDR and from the states with which ATSDR has cooperative agreements.

Exposure: As the first step in the evaluation, ATSDR scientists review environmental data to see how much contamination is at an area, where it is, and how people might come into contact with it. Generally, ATSDR does not collect its own environmental sampling data. Instead, it reviews information provided by EPA, other government agencies, businesses, and the public. When there is not enough environmental information available, the report will indicate what further sampling data is needed.

Health effects: If the review of the environmental data shows that people have or could come into contact with hazardous substances, ATSDR scientists then evaluate whether or not there will be any harmful effects from these exposures. The report focuses on public health, or the health impact on the community as a whole, rather than on individual risks. Again, ATSDR generally makes use of existing scientific information, which can include the results of medical, toxicologic, and epidemiologic studies and the data collected in disease registries. The science of environmental health is still developing, and occasionally scientific information on the health effects of certain substances is not available. When this is so, the report will suggest what further research studies are needed.

Conclusions: The report presents conclusions about the level of health threat, if any, posed by an area. In its public health action plan, the report recommends ways to stop or reduce exposure. ATSDR is primarily an advisory agency, so usually these reports identify what actions are appropriate to be undertaken by EPA, other responsible parties, or the research or education divisions of ATSDR. However, if there is an urgent health threat, ATSDR can issue a public health advisory to warn people of the danger. ATSDR can also authorize health education or pilot studies of health effects, full-scale epidemiology studies, disease registries, surveillance studies, or research on specific hazardous substances.

Interactive process: The health assessment is an interactive process. ATSDR solicits and evaluates information from numerous city, state, and federal agencies, the companies responsible for cleaning up the area, and the community. ATSDR then shares its conclusions with them. Agencies are asked to respond to an early version of the report to make sure that the data they provide is accurate and current. When informed of ATSDR's conclusions and recommendations, the agencies sometimes will begin to act on them before the final release of the report.

Community: ATSDR also needs to learn what people in the area know about the area and what concerns they may have about its impact on their health. Consequently, throughout the evaluation process, ATSDR actively gathers information and comments from the people who live or work near an area, including residents of the area, civic leaders, health professionals, and community groups. To ensure that the report responds to the community's health concerns, an early version is also distributed to the public for comment. All the comments received from the public are responded to in the final version of the report.

Comments: If, after reading this report, you have questions or comments, we encourage you to send them to us.

Letters should be addressed as follows:

Attention: Chief, Program Evaluation, Records, and Information Services Branch, Agency for Toxic Substances and Disease Registry, 1600 Clifton Road, NE (MS E-32), Atlanta, GA 30333.

Table of Contents

Foreword i

Table of Contents iii

List of Tables v

List of Figures v

List of Abbreviations vi

I. Summary 1

II. Background 3

II.A. Site Description and Operational History 3

II.B. Remedial History 4

II.C. ATSDR Activities 5

II.D. Demographics 6

II.E. Land Use 6

II.F. Quality Assurance and Quality Control 8

III. Evaluation of Environmental Contamination and Potential Exposure Pathways 9

III.A. Introduction 9

III.B. Contaminated Groundwater and Drinking Water Use 11

III.C. Possible Exposure to Contaminants in On-Site or Nearby Surface Water Bodies 18

III.D. Possible Exposure to Contaminants for Consumers of Venison 21

III.E. Possible Vapors in Buildings Above or Near Groundwater Contamination 22

IV. Community Health Concerns 27

V. Child Health Initiative 28

VI. Conclusions 29

VII. Public Health Action Plan 31

VIII. Preparer of the Report 33

IX. References 34

Tables 38

Figures 66

Appendix A. Glossary A-1

Appendix B. ATSDR Comparison Values B-1

Appendix C. ATSDR's Responses to Public Comments C-1

List of Tables

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick 39
Table 2. Evaluation of Exposure Pathways at NAS Brunswick 57
Table 3. Contaminant Concentrations in the Groundwater of the Eastern Plume 61
Table 4. Contaminant Concentrations in Surface Water Bodies 62
Table 5. Contaminant Concentrations in Indoor Air at Building 27, the Fleet and Family Support Center 64
Table 6. Estimated Contaminant Concentrations in Indoor Air at the Bachelor Enlisted Quarters (BEQs) 65

List of Figures

Figure 1. Area Map 67
Figure 2. Site Map 68
Figure 3. Demographics Statistics within a 1-Mile Buffer of NAS Brunswick 69
Figure 4. Exposure Pathway Figure 70
Figure 5. Extent of the Eastern Plume 71
Figure 6. Area of Groundwater Contamination from the NEX Gas Station 72
Figure 7. Area of Groundwater Contamination Near the Bachelor Enlisted Quarters 73

List of Abbreviations

ATSDR	Agency for Toxic Substances and Disease Registry
BEQ	Bachelor Enlisted Quarters
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and xylene
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CREG	ATSDR's cancer risk evaluation guide
CVs	comparison value
DCA	dichloroethane (1,1-;1.2-)
DCE	dichloroethene
EMEG	ATSDR's environmental media evaluation guide
EPA	U.S. Environmental Protection Agency
HVAC	heating, ventilation, and air conditioning
IRP	installation restoration program
LTMP	long-term monitoring program
MCL	EPA's maximum contaminant level
MEDEP	Maine Department of Environmental Protection
MEDHHS	Maine Department of Health and Human Services
MW	monitoring well
NAS	naval air station
NEX	Navy exchange
NFA	no further action
NPL	EPA's National Priorities List
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PCE	tetrachloroethylene (perc)
PHA	public health assessment
PHAP	Public Health Action Plan
ppb	parts per billion
ppm	parts per million
RAB	restoration advisory board
RBC	EPA Region III's risk-based concentration
RfD	EPA's reference dose
RI	remedial investigation
RMEG	ATSDR's reference dose media evaluation guide
ROD	record of decision
SVE	soil vapor extraction
SVOCs	semi-volatile organic compounds
1,1,1-TCA	1,1,1-trichloroethane
TCE	trichloroethylene
USTs	underground storage tanks
UV	ultraviolet
VOCs	volatile organic compounds

I. Summary

The Agency for Toxic Substances and Disease Registry (ATSDR) prepared this public health assessment (PHA) to evaluate potential health hazards from past, current, and future exposures to contaminants originating from Naval Air Station Brunswick (NAS Brunswick).

NAS Brunswick, in Brunswick, Maine, is an active air station that has provided military support services since 1943, when it served as an outpost for the operation and maintenance of the U.S. Navy's anti-submarine warfare operations. As a result of former site operations and waste disposal practices at the air station, various chemicals have spilled or have been released to the ground. Some of those chemicals have reached the underlying groundwater and on-site tributaries. In 1987, the U.S. Environmental Protection Agency (EPA) listed NAS Brunswick on its National Priorities List of sites to be investigated. The primary contaminants of concern are volatile organic compounds (VOCs), such as those in cleaning solvents, and petroleum hydrocarbons associated with fuels.

In 1989, ATSDR initiated the public health assessment process at NAS Brunswick to evaluate possible exposures to site contaminants. Through this process, ATSDR identifies populations who may have been exposed in the past, are currently exposed, or could be exposed in the future to hazardous substances and determines the public health implications of those exposures. From its initial evaluation, ATSDR prepared a preliminary PHA in 1989. That PHA determined that further environmental characterization and sampling of the site were needed to further assess environmental health hazards at the air station. After more information became available, ATSDR visited NAS Brunswick in 2003 to collect information for the public health assessment, and to identify public health issues and community health concerns related to environmental contamination at the air station.

Using information gathered during the site visit and findings of site investigations conducted at NAS Brunswick, ATSDR examined the nature and extent of contamination associated with the site. ATSDR considered past, current, and future potential exposure situations in its evaluation. ATSDR evaluated possible hazards associated with these exposures and concluded that they are not of health concern:

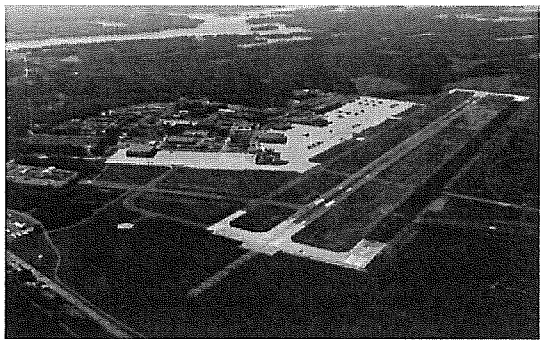
- ***Contaminated groundwater and drinking water use.*** *ATSDR determined that there is no exposure to harmful levels of contaminants in groundwater via municipal wells, private wells, the base golf course well, or the Dyer's Gate well.* VOCs are the primary contaminants of concern in groundwater beneath NAS Brunswick. There is no public exposure to these groundwater contaminants. Groundwater underlying NAS Brunswick has not been used as the main source of drinking water for base employees and residents, and is not expected to be used as a drinking water source in the future. NAS Brunswick and most of the surrounding community receive drinking water from municipal water sources that meet federal and state drinking water standards. Local private wells, the base golf course well, and the Dyer's Gate well are the only wells utilizing groundwater on or near NAS Brunswick. These wells are outside of the area

II. Background

II.A. Site Description and Operational History

The Naval Air Station (NAS) Brunswick is an active naval air station. It is located on 3,094 acres of land along the coast of Maine in Brunswick, about 27 miles northeast of Portland. The southern edge of the base extends to the estuary of Harpswell Cove, which is one of several elongated coves and inlets of the Casco Bay. Figure 1 illustrates the site and its surrounding area (NEESA 1983).

NAS Brunswick became active in 1943. During World War II, F4U-1 Corsairs were stationed at NAS Brunswick. P-2 Neptune aircraft flew at NAS Brunswick from 1952-1968. P-3 Orion aircraft arrived at NAS Brunswick in 1965 and have remained stationed at NAS Brunswick to date. For a period after the war, the air station was demobilized and rented out for non-military activities. From 1946 to 1949, the University of Maine and Bowdoin College used the air station for student housing and classroom space. The Brunswick Flying Service then took over the air station and used the hangars for a skating rink, a civilian flying school, and automobile servicing, among other activities. In 1951, the station was officially reinstated as a Naval Air Station (NAS Brunswick 2004a; PCS 2004).



This photo taken of the Naval Air Station Brunswick shows the runways (foreground) and the operational area (center). Harpswell Cove is in the background.

Source: NAS Brunswick 2004a

During the 1950s, the air station underwent a major expansion, with the construction of 222 structures and buildings. Included in this development was the construction of a fuel pier at Harpswell Neck in 1952, and bachelor housing and most of the on-station family housing, starting in 1954 (NEESA 1983). By the mid-1950s, outlying areas of the air station were developed, including the ordnance magazine area south of the runways and the communications and navigational components west of the runways.

Today, NAS Brunswick is the last active-duty Department of Defense airfield remaining in New England. It is home to five active-duty and two reserve squadrons. Among these is Patrol and Reconnaissance Wing 5, which uses Lockheed P-3 Orion long-range maritime patrol aircraft. About 20% of NAS Brunswick's activities, facilities, and services directly support the shipbuilding program at the nearby Bath Iron Works Corporation. The air station also supports the Navy's only cold weather Survival, Evasion, Resistance, and Escape School, which occupies 12,000 acres near Rangeley in northwestern Maine (NAS Brunswick 2004a). Recently, the air station gained aircraft and personnel from the recently closed South Weymouth Naval Air Station in Massachusetts (PCS 2004).

of groundwater contamination, and compounds have not been detected at levels of health concern. The Navy will continue to monitor groundwater movement from the site to identify and mitigate, if necessary, any potential future threats to drinking water supplies.

- ***Possible exposure to contaminants in on-site or nearby surface water.*** *ATSDR determined that there are no harmful exposures to site-related contamination associated with on-site or nearby surface water bodies.* Low levels of contaminants have been detected in on-site streams. Because people do not use the on-site streams as a source of drinking water or for recreational activities, any exposure is minimal and likely limited to infrequent, short-term skin contact. Incidental exposures to the low detected levels of contaminants are not expected to pose a public health hazard. Contaminant concentrations are expected to further decrease with continued remediation and natural degradation.

- ***Possible exposure to contaminants for consumers of venison.*** *ATSDR determined that consumption of locally caught deer poses no public health hazard related to NAS Brunswick activities.* Seasonal deer hunting is permitted at NAS Brunswick. Chemicals, such as those concentrated in soil in certain areas of NAS Brunswick, do not typically accumulate to harmful levels in deer tissue. ATSDR concludes that venison from NAS Brunswick is safe to eat.

- ***Possible vapors in buildings above or near groundwater contamination.*** *ATSDR determined that occupants of on-site buildings located near groundwater contamination would not have encountered harmful levels of indoor air contaminants.* The Fleet and Family Support Center and the footprints of two bachelor enlisted quarters (BEQ) sit above or near VOC groundwater contamination from former site releases. VOCs can travel upward from the groundwater through overlying soils, into building foundations, and possibly contaminate air inside the buildings. Using available indoor air monitoring data or reliable estimates of indoor air concentrations, ATSDR determined that no harmful levels of vapors have or did seep into the on-base buildings. Even though there is no current long-term health hazard associated with the air inside the Fleet and Family Support Center, ATSDR encourages the Navy to continue to track the groundwater contamination associated with the upgradient gasoline release and potential impact on the family center.

II.B. Remedial History

Routine activities and former waste disposal practices at NAS Brunswick have resulted in accidental spills or releases of chemicals to the environment. Examples of the former routine activities include on-site disposal of waste oil, food waste, pesticides, and solvents at Sites 1 and 3; incineration and disposal of solid waste at Site 2; disposal of asbestos pipes at Site 5; and disposal of construction debris at Site 6. Figure 2 shows the locations of these sites and others investigated by the Navy at NAS Brunswick. Contaminants released to surrounding soil as a result of these activities include heavy metals and petroleum hydrocarbons. Under certain circumstances, a portion of the contaminants released to the ground seeped through the soil, eventually reaching the underlying groundwater or being carried toward local tributaries.

In 1987, because of the contamination detected at NAS Brunswick, EPA added the site to the National Priorities List (NPL) of sites to be investigated. The NPL is part of EPA's Comprehensive Environmental Response, Compensation, and Liability Act, or CERCLA, which is commonly known as "Superfund." NAS Brunswick is responsible for conducting environmental investigations and completing remedial actions on NAS Brunswick property where hazardous materials might have been disposed of, spilled, or stored. EPA Region I and the Maine Department of Environmental Protection (MEDEP) provide review and guidance throughout the CERCLA process (EC Jordan 1991a; 1991b). In October 1990, the Navy entered into a Federal Facilities Agreement with EPA and MEDEP to outline the cleanup of environmental contamination at NAS Brunswick (EPA 1998).

Environmental investigations began at NAS Brunswick under the Department of Defense's Installation Restoration Program (IRP) in 1983 and 1984. At that time, the Navy initiated a Preliminary Assessment (then known as an Initial Assessment Study) and records review to identify background information on hazardous material use, historical operations, and waste disposal practices at the air station (EC Jordan 1991a; 1991b). The initial assessment identified 10 sites with hazardous releases. The Navy further evaluated seven of the sites considered to be most harmful to human health on the basis of a priority hazard ranking. It then conducted either a site inspection field investigation or a pollution abatement confirmation study for each. The Navy continued environmental investigations at NAS Brunswick in July and September 1988 with the start of a remedial investigation (RI) to determine the nature and extent of contamination at NAS Brunswick. Through the RI, the Navy conducted geophysical testing and sampled groundwater, soil, surface water, sediment, and leachate (EC Jordan 1991b). The investigations identified several contaminants at on-site locations, including solvents and metals in groundwater and/or soil. Data collected through this process were then used to evaluate potential risks to human health in a February 1989 risk assessment. In total, the IRP has identified 20 sites at NAS Brunswick. Table 1 describes the operational history, environmental contamination, and remedial measures at each of these sites.

During its investigations, the Navy identified a groundwater plume of volatile organic compounds (VOCs), called the "Eastern Plume," extending north to south along the eastern boundary of the base. The primary contaminants in the plume are the VOCs

1,1,1-trichloroethane (1,1,1-TCA), trichloroethylene (TCE), tetrachloroethylene (PCE or perc), and 1,2-dichloroethane (1,2-DCA). These contaminants, which primarily affect the deeper portion of the overburden groundwater beneath the site (between 40 feet and 80 feet below ground surface), have been traced to Sites 4 (an acid/caustic disposal pit), 11 (a former fire training area), and 13 (the Defense Reutilization and Marketing Office). See Table 3 for more information on the contaminants found in the groundwater of the Eastern Plume.

To address the contamination at NAS Brunswick, the Navy undertook measures to control the spread of contamination at certain IRP sites, including:

- Installed an extraction and treatment system in 1995 as an interim action to contain the Eastern Plume and prevent further migration toward Harpswell Cove.

- Constructed a slurry wall around the landfill waste at Sites 1 and 3 in 1996, and then installed a low-permeability Resource Conservation and Recovery Act (RCRA) compliant cap over the waste to extend beyond the top of the slurry wall and to divert clean water from the landfills.

- Removed soils at Sites 4, 11 and 13 that were considered the source of the Eastern Plume; removed asbestos-contaminated soil and pipes and other debris from Sites 5 and 6.

- Formally added institutional controls in 2000 to restrict the use of groundwater in the area of the Eastern Plume and at other sites on base.

II.C. ATSDR Activities

Through the public health assessment (PHA) process, ATSDR assesses conditions at a site from a public health perspective to determine whether people can be exposed to site-related contaminants through contact with the site's groundwater/drinking water, surface water, soil, biota, or air. ATSDR prepared a preliminary PHA in 1989 that determined that additional environmental characterization and sampling of the site were needed to further assess environmental health hazards at the air station (ATSDR 1989). After more information became available, ATSDR visited NAS Brunswick in 2003 to collect information necessary to conduct a public health assessment, to identify public health issues related to environmental contamination at the air station, and to identify community health concerns. During the visit, ATSDR met with NAS Brunswick personnel responsible for environmental clean-up, industrial hygiene, the lead program, and public works.

From those discussions, the site visit, and data reviews, ATSDR concluded at the time that there was little potential for immediate threats to human health. ATSDR did, however, identify several possible exposure pathways that required further evaluation, including ingestion of groundwater-supplied drinking water, contact with local surface water bodies, vapors in buildings above or near groundwater plumes, and indirect

exposure from consumption of venison that grazed at the air station. *ATSDR prepared this PHA to further evaluate these pathways.*

II.D. Demographics

ATSDR examines demographic information, or population information, to identify the presence of sensitive populations, such as young children (age 6 years and under), the elderly (age 65 years and older), and women of childbearing age (ages 15 to 44). Demographics also provide details on population mobility and residential history in a particular area. This information helps ATSDR evaluate how long residents might have been exposed to environmental contaminants.

As Maine's second largest employer, NAS Brunswick employs about 4,800 military and civilian personnel, including about 700 officers, 3,400 enlisted personnel, and 650 civilians. To accommodate its residents, the air station offers 140 officer-family housing units, 610 enlisted-family units, and 20 mobile home lots. On-site facilities for authorized personnel include a medium-size commissary, a large exchange, and two convenience stores. For medical care, a branch clinic is available for all active-duty personnel and dependants. School-age children attend public or private schools off base. A childcare facility accommodating 122 preschool children is available, although there is a waiting list (Brunswick 2004; PCS 2004). More than 1,600 Naval Reservists travel from throughout New England to drill at Naval Air Reserve Brunswick, SeaBee Battalion, and many other reserve commands. In addition to its own workforce, NAS Brunswick has 29 tenant commands, including a Reserve P-3 squadron and a Reserve Fleet Logistics Support Squadron flying C-130 "Hercules" transports (NAS Brunswick 2004a).

The town of Brunswick surrounds the perimeter of the base and is the largest of a tri-town area made up of Brunswick, Topsham, and Bath. The tri-town area has a population of 37,000 (PCS 2004). Figure 3 shows 2000 demographics information for the population near NAS Brunswick. As the figure indicates, about 10,322 people live within a 1-mile buffer of the site, including 909 children aged 6 years and younger and 1,317 adults aged 65 years and older.

II.E. Land Use

ATSDR examines land use to determine what activities might put people at risk for exposure to contaminants related to NAS Brunswick. Land at the air station is used primarily for operations to support the base's mission. Access to the base is restricted to military personnel, base residents, and civilian employees. A member of the general public may enter by passing security guard stations located at the main entrance and another site entrance, registering his or her vehicle, and obtaining a pass. Certain sites under CERCLA investigations are fenced to deter access.

Land at the air station is a mix of forested land (48 %), grassland (28 %), paved areas for flight ramps and runways (12 %), and the operations area (5 %) (EC Jordan 1990). The remaining 7 % of the air station consists of shrubland, marshes, and open water. The operations located east of the two parallel runways consist of office buildings, a fuel farm, recreational facilities, base housing, hangars, repair shops, and other facilities (A.

Williams, IRP manager, NAS Brunswick, personal correspondence, June 18, 2004). Groundwater underlying the site is described as a potential source of drinking water, but the majority of NAS Brunswick currently is serviced by a public water supply system (EPA 2004).

Land use controls have been in place and enforced at NAS Brunswick since 2000. The land use controls at the base include physical and administrative mechanisms to limit access to, and restrict the use of, property to prevent or reduce risks to human health. Physical controls include the controlled-entry gates mentioned above (which are manned 24 hours a day, 7 days a week), as well as fencing around the industrial area of the base and posted warning signs (e.g., No Fishing or Swimming at Picnic Pond). Administrative controls at NAS Brunswick include measures to prohibit use of groundwater on or near remaining contaminated sites on base. The RODs for NAS Brunswick contain language about specifying measures that will be taken in the event of transfer, leasing, or closure of the base property affected by site-related contamination. The language indicates that the Navy will notify EPA and MEDEP in accordance with the Federal Facility Agreement prior to the change. In cooperation with EPA and MEDEP, the Navy will include use restrictions, such as institutional controls, in all documents regarding the transfer or lease so as to prevent the use of and contact with site groundwater and soil.

The land use in the area surrounding the air station is predominantly suburban and rural residential, with some light industrial uses (EC Jordan 1990). The southern edge of the base borders coves and estuaries of Harpswell Cove (EPA 2004). The air station is located within the town of Brunswick. An elementary school, a hospital, and a college are located 1 mile west of the site boundary. During the 1950s and 1960s, the local population increased 50 % when the base was reactivated (EC Jordan 1990). Most of the residential growth at this time was located in the central part of Brunswick, about 2 miles north of the air station. Residents of the Brunswick community include military families and the Bowdoin College community. During recent years, residential and commercial land uses have expanded to the outlying areas of the town, in the vicinity of Cook's Corner just northeast of the base. Fewer residents live along the coves and coastal areas south of the air station, where zoning ordinances limit residential use (EC Jordan 1990). Undeveloped tracts of land border the site to the north. The Town of Brunswick has designated this land an aquifer protection zone and has restricted development (P. Kempf, water program manager, NAS Brunswick, personal correspondence, July 8, 2004). The towns of Brunswick and Topsham are considering a plan to develop a portion of this land for recreation and conservation.

NAS Brunswick lies within four major drainage basins: the Androscoggin River, Mere Brook, Middle Bay Cove, and Buttermilk Cove (NEESA 1983). None of the waterways that flow through the air station are suitable for a drinking water supply or recreation (e.g., swimming) (NEESA 1983). The Androscoggin River is one of the major rivers that empties into the Atlantic Ocean along the Maine coast. It flows east along the northern boundary of the town of Brunswick and about 3,000 feet north of the air station boundary. About 13 % of the air station sits within the Androscoggin watershed.

Most of the air station (about 74 %) sits within the Mere Brook watershed. Mere Brook enters the air station at the northwestern boundary and flows for about ½ mile in its natural streambed. The brook then travels under the operations area in an artificial conduit for about 0.6 miles (1 km) before joining a number of small intermittent streams to form the relatively narrow and deeply cut Merriconeag Stream. Eventually, this tide-influenced stream empties into Harpswell Cove, where it is bordered by extensive tidal flats. The Middle Cove watershed and the Buttermilk watershed account for only 4 % and 9 % of the air station area, respectively (NEESA 1983).

II.F. Quality Assurance and Quality Control

ATSDR reviewed and evaluated information provided in the referenced documents. Documents prepared for the CERCLA program must meet standards for quality assurance and control measures for chain of custody, laboratory procedures, and data reporting. The environmental data presented in this PHA come from Navy site and remedial investigations. ATSDR has determined that the data's quality is adequate for making public health decisions.

III. Evaluation of Environmental Contamination and Potential Exposure Pathways

III.A. Introduction

Identifying Exposure

ATSDR's PHA evaluations are exposure (or contact) driven. People who work or live in the area of an environmental release can only be exposed to a contaminant if they come in contact with it. Exposure might occur by breathing, eating, or drinking a substance containing the contaminant or by skin contact with a substance containing the contaminant. Therefore, *a release does not always result in exposure.*

ATSDR evaluates site conditions to determine if people could have been (a past scenario), are (a current scenario), or could be (a future scenario) exposed to site-related contaminants. When evaluating exposure pathways, ATSDR identifies whether exposure to contaminated media (soil, water, air, waste, or biota) has occurred, is occurring, or will occur through ingestion, dermal (skin) contact, or inhalation. ATSDR also identifies an exposure pathway as *completed* or *potential,* or *eliminates the pathway from further evaluation.* Completed exposure pathways exist if all elements of a human exposure are present. (See "Exposure Pathway" in Appendix A for a description of the elements of a completed exposure pathway.) A potential pathway is one in which one or more of the pathway elements cannot be definitely proven or disproved. A pathway is eliminated if at least one element is absent.

Interested persons can learn more about the ATSDR evaluation process by reading ATSDR's *Public Health Assessment Guidance Manual* (available at http://www.atsdr.cdc.gov/HAC/HAGM/) or by contacting ATSDR at 1-888-42ATSDR.

Exposure and Health Effects

Given sufficient exposure levels, chemical contaminants disposed of or otherwise released into the environment can cause adverse health effects. The type and severity of health effects caused by contact with a contaminant depend on the exposure concentration (how much), the frequency and/or duration of exposure (how long), the route or pathway of exposure (breathing, eating, drinking, or skin contact), and the multiplicity of exposure (the combination of contaminants). Once exposure occurs, characteristics of the exposed person—such as age, sex, nutritional status, genetics, lifestyle, and health status—influence how the person absorbs, distributes, metabolizes, and excretes the contaminant. Together, these factors and characteristics determine the health effects that might occur as a result of exposure to a contaminant in the environment.

ATSDR selects contaminants for further evaluation by comparing them against health-based screening values. Screening values are developed from the available scientific literature on exposure and health effects. They are derived for each of the different media, and each reflects an estimated contaminant concentration that is *not expected* to cause adverse health effects for a given chemical, assuming a standard daily contact rate (e.g.,

amount of water or soil consumed or amount of air breathed) and body weight. To be conservative and protective of public health, screening values are generally based on contaminant concentrations *many times lower than levels at which no effects were observed* in experimental animals or human epidemiologic studies. ATSDR does not use screening values to predict the occurrence of adverse health effects, but rather to serve as a protective screen and a first step in the evaluation of public health implications.

Screening values include ATSDR's comparison values (CVs): environmental media evaluation guides (EMEGs), reference dose media evaluation guides (RMEGs), and cancer risk evaluation guides (CREGs). CREGs, EMEGs, and RMEGs are non-enforceable, health-based CVs developed by ATSDR for screening environmental contamination for further evaluation. In addition, ATSDR uses EPA's maximum contaminant levels (MCLs). MCLs are enforceable drinking water regulations developed to protect public health. (See Appendix B for a further description of the CVs.)

If contaminant concentrations are above screening values, ATSDR analyzes exposure variables (for example, duration and frequency), the toxicology of the contaminant, and epidemiology studies for possible health effects. Figure 4 provides an overview of ATSDR's exposure evaluation process.

Possible Exposure Situations at NAS Brunswick

ATSDR reviewed data collected since 1985 for NAS Brunswick's 20 IRP sites to determine if the sites are associated with past, current, or future public health hazards.[1] (Table 1 describes each site and briefly summarizes the evaluation.) When evaluating these areas, ATSDR assessed the level of contamination present or degree of physical hazard, the extent to which individuals come into contact with the contamination or hazard, and whether this contact would result in a public health hazard. The review indicated that most sites at the air station are not associated with any known public health hazards because (1) no site-related contaminants are present, (2) contaminant concentrations detected are too low to pose a health hazard, or (3) past and current exposure to the general public has been reduced or eliminated through site remediation and safeguards, such as institutional controls.

In this review, however, ATSDR did identify the following four potential exposure situations at NAS Brunswick for further evaluation in this PHA:

- Contaminated groundwater and drinking water use,
- Possible exposure to contaminants in on-site and nearby surface water,

[1] The Navy collected environmental data between 1985 and 2003. Essentially no environmental data exist to describe site conditions before 1985. The lack of data before this time makes it challenging to fully assess past environmental effects of NAS Brunswick operations before 1985, when the landfills and operations associated with the IRP sites were active. In the absence of these data, ATSDR relies on the existing site data and knowledge of environmental toxicology and chemical fate and transport to predict the likelihood of past health hazards.

- Possible exposure to contaminants for consumers of venison,
- Possible vapors in buildings above or near groundwater contamination.

Exposure situations at NAS Brunswick are evaluated in detail in the following discussion and summarized in Table 2. To acquaint the reader with terminology and methods used in this PHA, Appendix A provides a glossary of environmental and health terms presented in the discussion and Appendix B describes the CVs ATSDR used in screening contaminants for further evaluation. Appendix C contains comments and ATSDR's responses to the comments received during the public comment review period (September 30 to January 27, 2005) of this public health assessment.

III.B. Contaminated Groundwater and Drinking Water Use

Summary

Groundwater beneath certain areas of the NAS Brunswick site has become contaminated with chemicals from former operations or disposal practices. Of the chemicals, volatile organic compounds, such as those from cleaning solvents, have been detected most frequently and in the highest concentrations. No exposures are occurring for base residents, employees, or community members who receive drinking water from the Brunswick and Topsham municipal water supply wells, the drinking water at the base golf course, or nearby private wells. These wells are located away from the sources releasing contaminants, and are unaffected by groundwater contamination. The Navy continues to monitor groundwater quality to ensure that implemented remedial measures control the source and limit migration of contaminated groundwater. Accordingly, ATSDR determined that there are no past, current, or future health hazards associated with the groundwater exposure pathway.

Discussion

This discussion addresses groundwater contamination around the NAS Brunswick site and how people might come in contact with this contamination. First, we address features of the underlying groundwater or hydrogeology that might influence exposure and groundwater uses at or near NAS Brunswick. Then, we present an overview of groundwater monitoring programs and discuss the results of these groundwater monitoring efforts. Finally, we evaluate possible exposure to contaminated groundwater from the NAS Brunswick site and the possibility of a resulting health hazard. ATSDR reviewed groundwater monitoring data associated with all the IRP sites. ATSDR's aim is, however, to determine whether and to what extent exposure occurs. ATSDR focused much of its attention on the Eastern Plume because it appears to be the only contaminant plume with the potential to threaten drinking water supplies, as it is moving toward site boundaries.

Groundwater Hydrogeology and Use at NAS Brunswick

> An **aquifer** is a subsurface geologic unit capable of storing and transmitting quantities of useable water.

Groundwater beneath NAS Brunswick is found in both the overburden and in the underlying bedrock *aquifers* (NEESA 1983; EA 2000a). The overburden is made up of three units (a sand layer, a transition layer, and a low permeable clay layer) that are capable of yielding more water than the bedrock aquifer. Groundwater in the overburden is encountered under unconfined conditions at about 10 to 80 feet below ground surface (bgs) and generally flows toward the Gulf of Maine. In most places on base, clay overlies bedrock and acts as a confining layer that greatly limits downward movement of groundwater (and contamination) into the bedrock. Shallow overburden groundwater might still enter the bedrock where the bedrock is close to the ground surface or where there is no clay layer (MEDEP 2004). Even so, the bedrock beneath the air station produces only limited amounts of groundwater. Groundwater movement within the bedrock unit is controlled by the presence of fractures and joints and is highly variable (NEESA 1983; EA 2000a).

Groundwater serves as the primary source of drinking water for NAS Brunswick and the surrounding community, as follows:

- **NAS Brunswick drinking water wells.** Two water wells are located at NAS Brunswick. One supplies drinking water to the golf course on the western side of the air station. The other is a bedrock well that supplies drinking water to the guardhouse facilities at the new Dyer's Gate. These wells are outside of the area of groundwater contamination at NAS Brunswick. Additionally, compounds have not been detected in these wells at levels of health concern. Most residents and employees of NAS Brunswick obtain their drinking water from an off-base municipal water supply (see below).

- **Municipal water supply.** NAS Brunswick, residences, and businesses to the north, northeast, and northwest of the air station obtain drinking water from the Brunswick/Topsham Water District municipal water supply (NEESA 1983). Groundwater used for the municipal water supply is drawn from the shallow or overburden aquifer (A. Frazier, engineer, Brunswick and Topsham water district, personal correspondence, September 21, 2004). Like all public drinking water suppliers, the Brunswick/Topsham Water District must ensure that the quality of its drinking water meets EPA standards (see the text box). Water that meets the standards is generally considered safe to drink. The closest public well field is the 138 well Jordan Avenue field operated by the Brunswick/Topsham Water District, less than ½ mile from the northern boundary of the air station (EPA 1987; P. Kempf, water program manager, NAS Brunswick, personal correspondence, July 8, 2004).

> Under the Safe Drinking Water Act, EPA set standards called maximum contaminant levels (MCLs) that limit the amount of certain contaminants in water provided by public water systems. MCLs are developed to protect individuals who could be exposed over a lifetime (70 years).

- **Private wells.** Some people living in the Brunswick community south of the air station rely on private wells for their drinking water. The most recent complete private well survey, conducted in 1990, identified 23 off-base private wells within a 1-mile radius of the site (EC Jordan 1991b). Since the survey, a new residence was built a couple of hundred feet from the plume's eastern extent, on Purington Road. This residence has a deep private well in the bedrock reportedly used for drinking water (MEDEP 2003, MEDEP 2004). This well has been tested, and no VOCs were detected. Sampling of these wells is described in greater detail in the next section. The Maine Geological Survey also maintains drilling information on private wells. Their database identified 12 private bedrock wells located south and east of the base boundary—including 5 private wells located on Coombs Road—but further from the plume than the well on Purington Road. According to the Maine Geological Survey, the database is not comprehensive and lacks information on other existing wells in the area (Maine Geological Survey 2005).

Nature and Extent of Groundwater Contamination at NAS Brunswick

On-Site: Eastern Plume

Site investigations identified a VOC groundwater contamination plume that extends approximately 4,000 feet along the eastern boundary of NAS Brunswick (MEDEP 2004). Contaminants detected within the groundwater include TCE, PCE, 1,1-dichloroethene (1,1-DCE), 1,1-dichloroethane (1,1-DCA), 1,2-DCA, and 1,1,1-trichloroethane (1,1,1-TCA) (EA 1997a). Former solvent disposal practices at Site 4 (an acid/caustic pit), Site 11 (a former fire training area), and Site 13 (the Defense Reutilization and Marketing Office) are the suspected sources of this contamination. Sites 4, 11, and 13 are located within several hundred feet of each other off Old Gurnet Road between the intersection of Orion Street and Sandy Road.

Because the magnitude and distribution of contamination differs at, and downgradient of, these source areas, each is discussed separately below.

- **Site 4.** The acid/caustic pit site, used for disposal of liquid waste from 1969 to 1974, was the likely source of contamination at Site 4. During RI field investigations, groundwater contamination at Site 4 was detected in only one well (MW-405), where TCE was measured in two of the four sampling rounds at 623 parts per billion (ppb). Downgradient wells did not contain VOC contamination. Soils surrounding the pit do not appear to be an ongoing source of groundwater contamination, and therefore Site 4 is no longer deemed a contributor of groundwater contamination to the Eastern Plume.

- **Site 11.** The ½ acre at Site 11 was contaminated with liquid waste (such as fuels, oils, and degreasing solvents) used in fire training exercises held at the site from 1960 to 1990. VOC concentrations in the shallow groundwater increased from 500 to 2,900 ppb from the fall of 1989 to the fall of 1990. These increased concentrations were associated with a 2-foot increase in water level, suggesting that the contaminated soil just above the water table acted as a source of groundwater contamination. Lower

concentrations of total VOCs (18 ppb) were detected in the bedrock at this source area. The Navy completed two soil removal actions at Site 11 after it conducted the RI field activities (EPA 1998). Table 1 describes these actions. Both the MEDEP and the Navy no longer consider this site to pose a concern. More recent investigations showing only trace levels of groundwater contaminants at Site 11 indicate that residual soils at the site no longer contribute to the contamination in the Eastern Plume. As of 2002, a large infiltration gallery (leach field) constructed over a portion of Site 11 has accepted clean treatment plant effluent without any detectable changes to the downgradient groundwater quality (MEDEP 2004).

- **Site 13.** VOC-contaminated groundwater was identified downgradient of three former underground storage tanks (USTs) that were used to store waste fuels, oils, and degreasing solvents. All three USTs were removed in the late 1980s, but no soil was excavated at the time of removal. VOC concentrations have decreased over time following the removal of the tanks. For example, the VOC 1,2-DCE (total) exceeded 700 ppb before the removal of the eastern UST, but fell to 63 ppb after the tank's removal (EPA 1998). As a result of the lower VOC concentrations, Site 13 is no longer a source of contamination to the plume (EPA 1998).

Contaminants have radiated to the northeast, east, and southeast of these source areas. Because of the influence of the Mere Brook and Merriconeag Stream, the contaminants tend to travel southeasterly as a plume along the eastern boundary of the site toward Harpswell Cove. Recent data suggest that the leading edge of the plume may be reaching the wetlands or adjacent surface waterways (MEDEP 2004). This plume is referred to as the "Eastern Plume."

Initial investigations (before any treatment) showed that concentrations of total VOCs in the plume varied from a high of 12,000 pbb in the center of the plume to very low concentrations along its edges (EPA 1998). VOCs did not contaminate the bedrock because of the presence of the clay confining layer overlying the bedrock throughout most of the plume's extent. Within the overburden, the highest VOC concentrations migrated into the semi-confined lower sand unit near the bottom of the transition layer (EA 2000a, MEDEP 2004). Since the source of contamination has been eliminated, much lower concentrations now exist in the upper sand unit (which is about 20 to 30 feet thick) (EA 2000a). Recent monitoring has identified VOCs in groundwater or groundwater springs near Mere Brook (just north New Gurnet Road), Merriconeag Stream, and Picnic Pond. These VOCs may be discharging from the groundwater to surface water, however, at such low concentrations, the VOCs are expected to dissipate quickly and become scarcely detectable in these waterways (A. Williams, IRP manager, NAS Brunswick, personal correspondence, June 18, 2004).

The Navy predicted in 1995 that, if left untreated, the plume would reach the tidal area of the cove by 1997 (EA 1997a). To prevent the plume's further advance toward and potential discharge into Harpswell Cove, the Navy established a pump and treat system in 1995 (EPA 1998). The system was also intended to reduce the amount of contamination in the groundwater plume. Originally, the system captured groundwater using five

extraction wells screened through the shallow and deep zones of the overburden (more shallow) aquifer—where most of the contamination had settled—and relied on ultraviolet (UV)/oxidation technology to treat VOCs in the contaminated groundwater (EA 1997a). The Navy added a sixth well in 1998 to extract groundwater from an area of high contaminant concentrations (monitoring well [MW]311) and replaced the UV/oxidation process with an air stripper and carbon polisher in 2000 (EPA 2003). Typically, four of the six wells described were operational in 2004 (BACSE 2005).

Through a long-term program, the Navy monitors the groundwater quality in the plume to check the effectiveness of the groundwater treatment system. Samples are collected from up to 49 groundwater monitoring wells in either the shallow overburden or the deeper overburden. The wells are situated in the center of the plume and along its perimeter. (Samples were also collected downgradient, which is discussed later in this section.) Groundwater samples are analyzed for VOCs. The most notable reduction in VOC concentrations since the start of the treatment system occurred in the vicinity of the extraction wells. VOC concentrations in other areas have decreased to a lesser extent; largely because of natural attenuation (MEDEP 2004). In the past few years, the extraction system has become much less effective. By late 2003, the total rate of remedial groundwater extraction at the Eastern Plume had declined to about a third of the mid-to-late 1990s rate of approximately 3 million gallons per month (MEDEP 2004).

Results of the Navy's long-term groundwater monitoring of the Eastern Plume show that VOCs are still present at some on-site locations, but generally at lower concentrations than were present before treatment. Of these VOCs, 1,1,1-TCA, TCE, and PCE were most frequently detected at concentrations above their ATSDR CV (EA 1997a; NAS Brunswick 2004a). The highest VOC concentration in the **shallow overburden** (upper stratified sand/silt and transition layer) was attributed to the 770 ppb of TCE detected in 1998 (EPA 2002).[2] Most of the individual VOC detections are, however, less than 3 ppb. Overall, total VOC concentrations were generally noted to be decreasing over time in the shallow overburden wells. As an example, total VOC concentrations in the center of the plume have declined from 300 ppb to 15 ppb at MW332 and from 50 ppb to 1 ppb at MW224 (MEDEP 2004).

Long-term monitoring also indicated that two areas in the **deep overburden** (lower semi-confined coarse sand) of the Eastern Plume still had VOC concentrations above ATSDR's CV for drinking water. One area is located along the north portion of the plume, near extraction well [EW]-5, and the other is located in the southern portion of the plume near extraction wells EW-1, EW-2, and EW-3. This later area of elevated VOC concentrations (total VOCs of 100 ppb and greater) seems to be located within the clay depression underlying the plume (EA 1997a). The concentration of 1,1,1 TCA detected at 11,000 ppb in MW311 during the June 1996 sampling was among the highest concentrations of any VOC detected (EA 1997a). According to MEDEP, more recent

[2] Total VOCs were detected at a maximum concentration of 12,000 ppb in a sample from MW101 collected during a December 1996 sampling event. More than 2,000 ppb were attributed to TCE. ATSDR does not have any other data for this well.

monitoring trends have highlighted the need for additional deep groundwater sampling of the plume in 2004 (MEDEP 2004).

The Navy conducted perimeter monitoring in wells placed along the southern and eastern boundaries of the air station property (MW230A, MW231A, MW313, MW318, MW309A, MW309B, MW303, and MW305). These wells are considered sentinel wells: they help to determine the location of the plume to ensure that it is not migrating off base. The wells along the southern perimeter (MW230A, MW231A, MW231B, MW313, and MW318) had low concentrations (generally less than 3 ppb), which were below ATSDR's CV for drinking water. On the basis of these findings, the southern limit of the plume is believed to be near New Gurnet Road on base property. Figure 5 depicts the current extent of the Eastern Plume. Groundwater from the Eastern Plume is not used for drinking water or other domestic purposes (EPA 1998).

Sentinel and Off-Site: Eastern Plume

The Navy collected groundwater samples between 1995 and 2002 from bedrock wells (MW308, MW309A, MW309B) at sentinel locations. Sentinel locations are outside the area of known contamination and are used to warn of the plume's migration. With the exception of sporadic occurrences of TCE, PCE, and 1,1-DCA at low levels (about 1 ppb), no other individual VOCs were reported (NAS Brunswick 2003a). The Navy also conducted a one-time groundwater sampling of wells (MW312, MW316A, MW316B, MW317A, and MW317B) located north of New Gurnet Road to assess possible off-site migration in that direction. Collected samples were analyzed for VOCs. Analytical results show that VOCs were either not detected or detected at levels below ATSDR's CVs for drinking water (EA 1997a).

MEDEP has also tested the water from a deep private well in the bedrock at the new residence on Purington Road, beyond the current Eastern Plume boundary. Site investigations have not yet established whether this well, which is located on the flank of a large west-facing ridge across Merriconeag Stream, is hydraulically downgradient—and in the path—of the Eastern Plume (MEDEP 2004). Samples were collected in October 2003 and analyzed for VOCs as a precautionary measure because the home is near the VOC plume. No VOCs have been detected in the well water (MEDEP 2003). Neither MEDEP or the Maine Geological Survey have monitoring data for wells located on Coombs Road.

On-Site: Golf Course Well

A water well located at the NAS Brunswick Golf Course supplies the golf course with drinking water. The golf course, located along the southwestern portion of the air station, is cross-gradient to and away from the groundwater contamination associated with the Eastern Plume. The well is located along the west bank of an unnamed stream in the golf course, and adjacent to Site 16, the Swampy Road debris site, where surface debris was visible (EA 2001). The well and a farmhouse that it originally served were acquired by the base in the late 1940s or early 1950s (A. Williams, IRP manager, NAS Brunswick, personal correspondence, June 18, 2004). Site investigations conducted in the early 1990s involved a magnetometer survey, drilling test pits, and collection of soil, surface water,

and sediment samples. Most of the domestic refuse and building demolition debris found during the survey was removed in 1990–2000, or otherwise assessed and left in place (EA 2001). Contaminant levels measured in the surface soil, surface water, and sediment samples were reportedly below levels of health concerns, prompting a "no further action" recommendation for this site. The Site 16 investigations revealed no significant environmental threats to the integrity of groundwater that supplies the golf course drinking water well. Additionally, the Navy has tested the golf course well for VOCs, PCBs, herbicides, pesticides, metals, and coliform. ATSDR reviewed sampling data from 2000–2004. Few compounds were found above detection limits. Of the few compounds that were detected in the golf course well, none were above available CVs (NAS Brunswick 2004d).

On-Site: Dyer's Gate Well

In 2003, the base drilled a new drinking water well near Dyer's Gate and the Site 2 landfill. The well is located about 80 to 100 feet from the institutional control boundary of the Site 2 and roughly 240 to 300 feet from the center of the landfill. The well water passed a standard residential analysis for drinking water. The well was also tested for VOCs, PCBs, pesticides, and total and dissolved metals. Toluene was the only organic compound found at detectable levels, which were below ATSDR's CV. Additionally, the toluene is considered to be a laboratory artifact because it was below method detection limits (P. Kempf, water program manager, NAS Brunswick, personal correspondence, July 8, 2004). This well is now in use and does not appear to pose a public health hazard.

Evaluation of Public Health Implications of Groundwater Contaminants

Groundwater in the overburden material beneath certain portions of NAS Brunswick is contaminated predominantly with VOCs. People have not come in contact with contaminated groundwater, nor are they likely to in the future, for several reasons.

First, groundwater in the area of the Eastern Plume has not been used as a source of domestic water, nor are there plans to use this groundwater for domestic water in the future. Second, NAS Brunswick and most residents of Brunswick obtain their water from the Brunswick/Topsham Water District. As required by EPA, the district routinely tests its water to comply with *Safe Drinking Water Act* standards. Drinking water that meets these standards is considered safe to drink.

Furthermore, contamination in the shallow aquifer has not and is not expected to migrate to the municipal or private wells in the area. Through long-term monitoring, the Navy, with EPA and MEDEP oversight, has shown that the plume is contained on site.

III.C. Possible Exposure to Contaminants in On-Site or Nearby Surface Water Bodies

Summary

Former activities at NAS Brunswick have resulted in contaminant releases to on-site sections of Mere Brook, Merriconeag Stream, and other tributaries. Only low levels of contaminants have been measured in surface water and sediment samples collected from the waterways that run through NAS Brunswick. No Fishing and No Swimming signs are posted at surface water bodies on-site, and people do not use the surface water on base for recreation or drinking water. Therefore, any exposure to contaminants in the waterways is minimal, and limited to infrequent, short-term dermal contact. This type of exposure is not expected to be of health concern.

Discussion

This section discusses surface water hydrology, surface water and sediment contamination in and around the NAS Brunswick site, and possible sources of contamination. It also considers how people might come in contact with these contaminants and the health implications of these exposures.

Surface Water Hydrology at NAS Brunswick

Mere Brook and Merriconeag Stream are the major natural surface water bodies that flow through NAS Brunswick. A number of other smaller tributaries empty into Mere Brook or flow north from the site into the Androscoggin River. The Androscoggin River flows east along the northern boundary of the town of Brunswick, about 1,800 feet north of the air station boundary. It is one of the major rivers that empties into the Atlantic Ocean along the Maine coast. None of the waterways that flow through the air station are used for a drinking water supply or recreation (e.g., swimming) (NEESA 1983; EC Jordan 1990).

Mere Brook enters the air station at the northwestern boundary and flows for about ½ mile in its natural streambed. (Refer to Figure 1 for the location of Mere Brook and other on-site waterways.) The brook then travels under the operations area in an artificial conduit for about 1.6 miles (EC Jordan 1990). Merriconeag Stream enters the base along the eastern boundary and flows south from Picnic Pond. As it meanders from the Picnic Pond, Merriconeag Stream eventually joins with Mere Brook just south of the Gatchell Cemetery. Mere Brook continues to flow south past the air station's southern boundary, eventually running into the tidal estuary of Harpswell Cove.

Nature and Extent of Surface Water and Sediment Contamination at NAS Brunswick

Mere Brook, Merriconeag Stream, and several of the smaller streams flow past installation restoration program (IRP) sites at NAS Brunswick. To illustrate, Mere Brook bisects the waste disposal areas of Sites 1 and 3, situated north of the brook, and the former landfill area at Site 2, south of the brook. Mere Brook joins Merriconeag Stream

downstream (USFWS 1997). Leachate seeps downgradient of Sites 1, 2, and 3 continue to release metals associated with former landfill activities (MEDEP 2004). Other unnamed streams are located just north of Site 8 and south of Site 9. As they flow across the site, these waterways receive surface runoff or shallow groundwater discharges from the contaminated areas. Note that Mere Brook and the Androscoggin River also receive contributions from other sources upstream of NAS Brunswick. Within a 1-mile radius of the site, land is used for commercial and industrial processes, which may release other contaminants via runoff to Mere Brook or the Androscoggin River.

The Navy conducts surface water monitoring in NAS Brunswick to study the effects of possible contaminant source areas on surface water quality. Samples were collected during the 1988–1989 RI activities and again during 1995–2002 environmental investigations. More than a hundred surface water and sediment samples were collected from along Mere Brook, Merriconeag Stream, and the unnamed tributaries near Site 8 and Site 9 (refer to Figure 1). Samples are analyzed for VOCs, semi-volatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs), and metals. Table 4 provides environmental concentrations at the surface water near on-site source areas. The Navy continues to monitor surface water as part of the long-term monitoring program for the Eastern Plume. A total of five surface water sampling locations are included in the long-term monitoring plan for the Eastern Plume: one location at the eastern limit of the plume along Merriconeag Stream and the other four sample locations along Mere Brook (two within the plume and two locations beyond the limit of the plume). All the long-term monitoring surface samples are analyzed for VOCs (EA 2002a).

VOCs, SVOCs, metals, and pesticides were detected in surface water and sediment at locations throughout the air station. ATSDR screened the surface water and sediment sampling data collected for NAS Brunswick by comparing the detected concentrations to health-based screening values.[3] Few chemicals were present at levels that exceeded ATDSR's CVs. Detections that did exceed CVs differed by less than an order of magnitude and mostly occurred in pre-1997 sampling rounds. Later sampling rounds show that the detected contaminant concentrations were generally lower—typically below the contaminants' CVs. Overall, the sampling results show little variation by type or extent of contamination between locations on site.

VOCs and metals were the most common contaminants in surface water samples. Polycyclic aromatic hydrocarbons (PAHs) and manganese slightly exceeded their CVs, while other VOCs and metals were reported at concentrations well below their respective CVs. Most of the tested analytes in sediment were also below ATSDR's CVs. Benzo(a)pyrene concentrations at Site 9 exceeded the ATSDR CV of 0.1 parts per million (ppm) in several rounds of early sampling. PAHs were measured in the early

[3] ATSDR does not have CVs for surface water or sediment. For comparison, ATSDR uses CVs for drinking water and soil when assessing surface water and sediment exposures, respectively. Using the drinking water and soil CVs is more protective because these CVs consider greater exposure to contaminants than people are likely to incur through incidental ingestion of surface water or contact with stream sediment.

sampling rounds at concentrations up to almost 400 ppm. Those concentrations, although still high at some sample locations, have generally decreased over time. Levels of benzo(a)pyrene and PAHs are considered to be by-products of aircraft engine combustion that are washed from aircraft flight line pavements and into surface water by storms (P. Kempf, water program manager, NAS Brunswick, personal correspondence, July 8, 2004).

Evaluation of Public Health Implications of Surface Water and Sediment Contamination

Low levels of contamination have been detected in Mere Brook and Merriconeag Stream, which run through NAS Brunswick. ATSDR examined whether anyone who lives near or frequents the NAS Brunswick facility has been or could be exposed to the contaminants in surface water or sediment of area water bodies. According to the Navy, waterways on the base are not used for any recreational purposes (e.g., fishing and swimming). Picnic Pond is located in a recreational area of the base; however, use of the pond for any recreational activity is prohibited because of historical contamination by PAHs. The Navy posts signs around the pond to warn visitors against swimming, fishing, and ice skating. Waterways are not used for drinking water, either. Therefore, little contact with surface water occurs.

People who could come in contact with Merriconeag Stream surface water include NAS Brunswick workers and residents who might occasionally visit the stream. Exposure to any contaminants in surface water would be limited to dermal contact (e.g., wading) and would likely be infrequent for most exposed people. Furthermore, surface water and sediment data collected since 1988 indicate that only low levels of contaminants were measured in the surface water and sediment samples on site. These levels are sufficiently low that they would not be expected to cause health effects following short-term contact. Therefore, ATSDR concludes limited use of the waterways, which might result in exposure to relatively low levels of contamination, is not likely to be a public health hazard. Ongoing groundwater and soil remediation activities described in site documentation should reduce or eliminate possible future sources of surface water and sediment contamination entering Mere Brook and Merriconeag Stream.

III.D. Possible Exposure to Contaminants for Consumers of Venison

Summary

NAS Brunswick supports a local white-tailed deer population. Contaminants have been detected in on-site soil where deer might graze. Bioaccumulation studies conducted at other military bases demonstrate that deer are unlikely to accumulate contaminants similar to those found at NAS Brunswick to levels that could be harmful to consumers of venison. Therefore, consumption of venison taken from the air station poses no harm to public health.

Discussion

NAS Brunswick supports a large white-tail deer population. People are allowed to bow hunt on the base itself, between noon and 4 p.m., from September through December each year. All bow hunters have restricted access—they are required to remain in hunting stands during their hunts. (No hunting stands exist in the enclosed weapons area where an albino deer population resides.) The base also conducts hunts to control the base's deer population. Deer meat from the controlled hunts is donated to local charities. About 40 deer were taken in 2003 (K. Moore, NAS Brunswick Natural Resources, personal correspondence, 2003).

No studies have been conducted to monitor accumulation of contaminants, if any, by the air station's grazing deer population. It is possible that the deer may have been exposed to contaminants in soil present at the site. These contaminants, according to site investigations, include asbestos at Site 5, PAHs and pesticides at Sites 7 and 8, and metals at Site 8. There is a concern that someone consuming venison that has accumulated site-related contaminants may be indirectly exposed to those contaminants. Most of the contaminated soil has been removed from those sites so that current and future exposure would be limited.

In the absence of these site-specific data, ATSDR reviewed the findings of studies that investigated whether grazing deer at other military sites had accumulated chemical contaminants similar to those found at NAS Brunswick (USACHPPM 1994; USAEHA 1994). The studies showed that the deer demonstrated limited ability to bioaccumulate the contaminants at these sites (USACHPPM 1994). The authors of these studies concluded that the health hazard from consuming muscle (and liver) from the deer was minimal (USAEHA 1994). As a result, ATSDR believes harmful levels of site-related contaminants are not likely to accumulate in deer that graze at the air station. Therefore, ATSDR believes that people who consume venison taken from NAS Brunswick are not likely to experience any harmful health effects. Potential future exposures to site contaminants via this indirect exposure pathway are being reduced, as the Navy has removed and continues to remove contaminated soils from the site. *ATSDR concludes that consumption of deer poses no apparent health hazard to hunters and those who eat venison taken from NAS Brunswick.*

III.E. Possible Vapors in Buildings Above or Near Groundwater Contamination

Summary

Contaminated groundwater from leaks and spills at the base has migrated near certain on-base buildings. The most common contaminants in the groundwater are VOCs. Under some conditions, these VOCs can travel from the groundwater through the soils, seeping into air inside buildings. Occupants of on-site buildings were most likely not exposed to indoor air vapors at high enough levels or for long enough periods to develop long-term health effects. Vapors possibly associated with the low level of groundwater contamination have not entered the buildings and adversely affected indoor air quality. Buildings above or near the groundwater contamination, therefore, are not expected to accumulate indoor air contaminants to levels that could pose harm to the occupants.

Discussion

Spills or releases of chemicals have occurred near the Fleet and Family Support Center and the BEQ on Neptune Drive. ATSDR assessed groundwater contamination in and around these buildings, considered whether vapors seeped into the buildings above the contamination, and assessed whether occupants of these buildings might have been exposed to harmful levels of air contaminants.

Fleet and Family Support Center and VOC Groundwater Contamination

Building 27, the Fleet and Family Support Center, was built at the base to provide transition assistance and other support services to families living at the air station. Activities conducted at the center are largely administrative. The center sits downgradient of the Navy Exchange (NEX) service station (Building 538), where—before the family center was built—gasoline started leaking into the subsurface soil (NAS Brunswick 2003b, EA 2004a). Figure 6 shows the location of the NEX service station and Building 27. Most of the gasoline releases at the site appear to be associated with the corroded piping in use from 1975 to 1992. The piping, or product lines, connected three underground storage tanks (USTs) to the pumping island at the service station. Initial indications of a release occurred in 1981, when gasoline odors in the area of the product were first reported. At that time, a leaking product line fitting was found and repaired following a surface soil removal action. Another incident of gasoline releases from a leaking piping was reported in 1992 during the removal of the former USTs.

Environmental investigations at the gas station, beginning in 1992 when the USTs were inactive, confirmed the presence of petroleum hydrocarbons and benzene, toluene, ethylbenzene, and xylene (BTEX) in the soils near the USTs (EA 2000b; EA 2004a). The most heavily affected area was located just southwest of the UST area. After removing the USTs, piping, and 40 tons of petroleum-contaminated soils in 1992, the Navy maintained a soil vapor extraction (SVE) system from 1993 to 2003 to treat residual contaminants in soil and groundwater at the gas station. In total, the system actively removed more than 1,800 gallons of gasoline from the subsurface soil in the area of contamination. Following use of the SVE remedial system, the vadose zone soil (from 0

to 6–8 feet below ground surface [bgs]) appears to be essentially free of petroleum contamination. The Navy installed three new 10,000-gallon fiberglass USTs in 1993 to continue petroleum storage and distribution operations at the service station. Information was not available, however, regarding potential gasoline releases associated with the existing fiberglass UST and product lines (EA 2004a).

Some residual soil contamination associated with weathered gasoline is still present from the groundwater interface (approximately 6–8 feet bgs) to the marine clay formation (approximately 16–20 feet bgs) in the fueling island and UST-related source areas. Soil in these areas exhibits petroleum hydrocarbon concentrations ranging from 500 ppm to greater than 8,000 ppm. Residual saturated soil contamination likely serves as an ongoing source of petroleum hydrocarbons in groundwater.

As noted, the Fleet and Family Support Center is downgradient of the NEX service station. Around 1983, employees at the center reported petroleum odors within the building (EA 2004a). Employees continued to periodically file complaints about the odors over time. The Navy installed a passive SVE vent (wind turbine) to the footing drain at the northern foundation wall of the center in 1989 as a means to divert and exhaust organic vapors into the atmosphere. An inspection of the exhaust stack and associated discharge point at the center indicated that the building could have been impacted by potential gasoline releases from the upgradient service station (EA 2004a).

In 1994, some center employees reported episodes of headaches, nausea, and burning eyes. In response, the Navy tested air quality and inspected the ventilation system. Indoor air samples were collected at the time to identify possible airborne contaminants that could produce the symptoms, and determine whether these contaminants could be linked to the upgradient fuel releases. Samples were analyzed for constituents of gasoline. Results of the air sampling showed no evidence of airborne contaminants inside the center—including benzene, a key component of gasoline. Results of the ventilation system investigation determined that the system was not working effectively. Employees' symptoms disappeared once the system was repaired (NAS Brunswick 2003b).

Starting in March 1995, the Navy began a quarterly monitoring program to test groundwater downgradient of the gas station. The highest levels of fuel-related constituents were measured in monitoring wells immediately south and downgradient of existing USTs or south of the pump island (EA 2000b). By 1999, the Navy started direct-push soil and groundwater sampling near Buildings 538 and 27 to better describe the source, extent, and concentration of contaminants near and downgradient of the former and existing USTs and to further assess the existing SVE system at Building 538.[4] Groundwater collection included samples taken at depths from 5 to 10 feet bgs west and southwest of the Fleet and Family Support Center. It appears that gasoline constituents, such as benzene, had sorbed to soil, therefore VOCs were not detected in groundwater samples.

[4] Direct-push sampling was used because it permitted frequent sampling with limited disruption to the site and ongoing service station activities.

The air in Building 27's work spaces was sampled again in July 2003 (with a deactivated heating, ventilation, and air conditioning [HVAC] system) and January 2004 (with an activated HVAC system) as part of the overall remedial action for the NEX site. The July samples were collected every 3 hours over an 18-hour period and the January samples were collected at various times over a 3-day period. Samples were analyzed for constituents of petroleum hydrocarbons, including benzene, toluene, ethylbenzene, total xylenes, n-hexanes, naphthalene, n-nonane, sec-butylbenzene, iso-propylbenzene, n-propylbenzene, 2-butonene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. Table 5 lists the results of this air sampling at Building 27. As noted in the table, toluene (1.2–1.8 ppb), 2-butanone (4.0 ppb), and naphthalene (1.5–3.5 ppb) were detected in the indoor air; however, only naphthalene was measured at concentrations above its ATSDR CV (0.7 ppb) (EA 2004b). No other petroleum compounds were detected in the air samples. One sample collected from the outside footing drain contained VOCs, including benzene at a concentration (8.2 ppb) above its ATSDR CV. As noted, no elevated concentrations of benzene were reported inside the building. Soil vapor concentrations beneath the building (0.54–1.78 ppm) were low and consistent with background (EA 2004b).

It is still unclear what triggered the Fleet and Family Support Center employees' symptoms. The effects reported (eye irritation, headaches, and nausea) are among the symptoms that some people experience shortly after breathing in air containing certain compounds in petroleum hydrocarbons. Even so, no contaminants were detected in the air inside the support center following the reports of symptoms in 1994. The VOCs detected more recently were at concentrations far lower than those known to cause immediate health effects. For example, the maximum detected concentration of toluene inside the building is more than 555 times lower than the ATSDR CV for acute (short-term) exposure. Exposure to concentrations of toluene at this level is not expected to result in health effects.

Whether an exposure to VOCs might cause long-term health effects varies greatly from one pollutant to another, and depends on many factors including level of exposure and length of time exposed. As Table 5 indicates, naphthalene was detected at concentrations above its ATSDR CV for chronic exposure. Concentrations of other VOCs in the indoor air were more than 44 times lower than ATSDR CVs. Potential background sources of naphthalene common to the indoor environment include industrial uses, moth repellents, and burning wood and tobacco (ATSDR 2003). These sources are especially likely given the low maximum reported concentration and the absence of other petroleum constituents in indoor air (NAS Brunswick 2003b, EA 2004b).

Currently, the base is assessing the potential effectiveness of *in situ* denitrification-based biodegradation to mitigate residual petroleum hydrocarbons remaining below the groundwater interface (EA 2004a). The preliminary results show that groundwater concentrations of petroleum hydrocarbons have recently increased by several orders of magnitude due to releases of contaminants from soils. As a result, petroleum hydrocarbons may migrate to downgradient locations and likewise increase in concentration in downgradient wells during future sampling rounds.

Symptoms reported by the Fleet and Family Support Center employees in 1994 disappeared once the ventilation system was repaired, and there appears to be no current threat to indoor air. Accordingly, ATSDR finds no long-term health hazard associated with the air inside the center, but encourages the Navy to continue to track the groundwater contamination associated with the upgradient gasoline release and potential impact on the family center.

Bachelor Enlisted Quarters

Three bachelor enlisted quarters (BEQ) facilities, Buildings 218, 219, and 220, are located along Neptune Drive, in what is now a portion of Site 9.[5] The barracks, which were constructed in 1953 to house single military personnel, are still in use but will be demolished in 2005. While these buildings lack basements, they have below-grade insulated crawl spaces and mechanical rooms (NAS Brunswick 2004b). Figure 7 shows the location of the barracks. Before being used for residential facilities, a portion of the land occupied by the barracks was reportedly used as a 125 x 75-foot ash landfill (underneath Building 219) in the 1940s and 50s and was the location of an incinerator (underneath the north corner of Barracks 220).

Site documents indicate that the incinerator operated at times between 1943 and 1953 to burn solid waste. Ash from the incinerator was disposed of in the landfill, as were other wastes, including solvents which were burned on the ground, paint sludges, and possibly waste from the Metal Shop (ABB 1994a, 1994b).

Groundwater in the area of the barracks varies in depth from 10 to 14 feet bgs and generally flows to the south and southeast (ABB 1994b). Groundwater sampling in 1988, 1990, and 1993, and before site remediation, at five wells in the area of the barracks 219 and 220 identified VOCs at concentrations above ATSDR's CVs for drinking water. Vinyl chloride (up to an estimated 10 ppb) was detected at concentrations above the ATSDR CV of 0.03 ppb in a groundwater monitoring well (MW915) located south and downgradient of the ash landfill area (ABB 1994b). The VOCs 1,1-DCA and 1,2-DCE were detected in the same well, but only at concentrations up to an estimated 1 ppb—below ATSDR's CVs. These compounds were not detected in the ash or soil samples from the disposal area. PAHs in the ash and soil at the disposal area were not, however, found in the groundwater (ABB 1994b).

Groundwater contamination in the vicinity of the barracks involved the shallow aquifer at depths less than 15 feet. The contaminants in the groundwater are VOCs that can volatilize into vapor. At such shallow depths, these vapors can, in turn, move from the groundwater through soil, and eventually seep into foundations and affect the indoor air. Indoor air sampling data were not available for the barracks situated in the area of the VOC groundwater contamination. To help determine whether vapor intrusion contributed

[5] Buildings 216 and 217 were also a part of the bachelor enlisted quarters (BEQs) located within the current Site 9 boundaries. Building 216 no longer exists and Building 217, now vacant, is scheduled for demolition in the fall of 2004. Other buildings (212–215) once part of the BEQ area were located upgradient to and away from the current Site 9 contamination.

to unhealthy levels of indoor air at the barracks, ATSDR applied an *attenuation factor* to the groundwater concentrations detected in the area of the barracks (see text box) to estimate air contaminant concentrations inside the BEQs. Factors such as foundation type, soil type, and depth to water will likely influence VOC migration. ATSDR believes that the median attenuation factor of 10^{-4} is protective for most situations.

Attenuation factors concentration to the groundwater concentration at some depth below the building foundation. Scientists have measured groundwater-to-indoor air attenuation factors ranging from 10^{-2} to 10^{-7}, with a median value around 10^{-4}. The median attenuation factor corresponds to a 10,000-fold decrease of indoor air concentrations relative to groundwater concentrations. Factors such as foundation type, soil type, and depth to water influence VOC migration.

ATSDR has no way of determining what the groundwater concentrations were over the entire time the barracks have been occupied. As a protective measure, ATSDR used the maximum contaminant concentrations detected in the groundwater collected in 1985, 1990, and 1993 (before the implementation of Site 9 clean-up measures) to estimate indoor air concentrations. Table 6 presents ATSDR's estimated indoor air concentrations for the barracks based on the maximum concentrations of VOCs detected in the groundwater near the BEQs. The maximum groundwater concentrations used by ATSDR to estimate indoor air concentrations are 10 ppb for vinyl chloride, 1 ppb for 1,1-DCA, and 1 ppb for 1,2-DCE. The indoor air concentrations that would result from applying the median attenuation factor of 10^{-4} to the maximum groundwater concentration are on the order of 0.001 to 0.0001 ppb and would be below ATSDR's CV for these compounds. ATSDR's estimates suggest that concentrations of vapors that possibly entered the barracks would have been much lower than the CVs and the concentrations at which we would expect to see adverse health effects. By comparing these estimated concentrations to ATSDR's CVs, which are based on a lifetime of exposure, we add a greater level of conservativism, because residents of the barracks would have been exposed at most for only a few years, the typical length of a military assignment.

IV. Community Health Concerns

Through the PHA process, ATSDR has gathered information about health concerns voiced by members of the community. In gathering this information, ATSDR interviewed base public affairs personnel who address community questions and concerns about NAS Brunswick, met with other base personnel (including the industrial hygienist, natural resources, public works, and housing) who also meet with the public, and reviewed the results of the base's survey of community concerns. The primary concern identified through these sources focused on the impact of Site 8 on the Jordan Wellfield. One individual also asked about the potential for site contamination to affect Mere Brook and Harpswell Cove. ATSDR has considered these issues in Section III of this PHA.

The Navy established a community relations plan in September 1988. This outlined the Navy's approach to address public concerns and keep citizens informed about and involved in remedial activities (EC Jordan 1988). As part of its community relations activities, NAS Brunswick formed a restoration advisory board (RAB). The RAB, made up largely of local community members, meets to periodically review base documents and comment on actions and proposed actions by NAS Brunswick.

V. Child Health Initiative

ATSDR recognizes that the unique vulnerabilities of infants and children demand special emphasis in communities faced with contamination of their water, soil, air, or food. Children are at greater risk than adults from certain exposures to hazardous substances emitted from waste sites and emergency events involving hazardous chemicals. In general, children are more likely to be exposed because they play outdoors, have more hand-to-mouth behavior, and often bring food into contaminated areas. They are shorter than adults, which means they breathe dust, soil, and heavy vapors that are close to the ground. Children are also smaller, so they receive higher doses of chemical exposures proportional to their body weight. The developing body systems of children can sustain permanent damage if toxic exposures occur during critical growth stages. Most importantly, children depend completely on adults for risk identification and management decisions, housing decisions, and access to medical care.

ATSDR has attempted to identify populations of children in the vicinity of NAS Brunswick and any public health hazards associated with the site that have threatened or could threaten these children. There are approximately 909 children aged 6 years and younger within a 1 mile radius of NAS Brunswick.

After carefully evaluating potential exposure pathways associated with NAS Brunswick, ATSDR determined that no harmful childhood exposures have occurred in the past, nor are they expected to occur now or in the future. Although contaminants have been detected at NAS Brunswick, ATSDR determined that children cannot access the site or locations of contamination at the site. Children could visit Mere Brook or Merriconeag Stream that flow through the site. Contaminants that have entered the surface water and sediment of the tributaries are below levels that could cause harmful health effects for these children. (Exposure pathways are discussed in the "Evaluation of Environmental Contamination and Potential Exposure Pathways" section of this public health assessment.)

VI. Conclusions

Conclusions regarding potential past, current, and future exposure situations on NAS Brunswick, and in the communities near NAS Brunswick, are based on a balanced evaluation of site investigation data and observations made during site visits. Conclusions about exposures are described below. (The public health hazard conclusion categories are described in Appendix A.)

- **Contaminated groundwater and drinking water use.** Contaminants from former site activities have leached into the groundwater beneath NAS Brunswick. No one has come in contact with contaminated groundwater, nor is anyone expected to in the future. The majority of NAS Brunswick and the surrounding community obtain their drinking water from the Brunswick and Topsham Water District. Testing required by EPA and Maine Department of Health and Human Services (MEDHHS) Bureau of Health indicates that the municipal drinking water meets safe drinking water standards. A few wells at or near the base that supply the golf course, gatehouse, and private residents with drinking water are not affected by site contamination. The groundwater will be monitored in the future, and deed restrictions will prevent any future use of contaminated water for drinking purposes. ATSDR concludes that *no apparent past, current, or future public health hazard is associated with groundwater contamination from NAS Brunswick and local private well use.*

- **Possible exposure to contaminants in on-site or nearby surface water bodies.** NAS Brunswick contaminants have reached local tributaries that run through the air station. These tributaries are not used for drinking water or for recreation. Incidental exposures (via skin contact) during occasional visits to the tributaries are the only types of exposures that are likely to occur. It is reasonable to expect that people will not contact contaminants in the tributaries' surface water and sediment often enough or at high enough levels for a health concern to exist. Moreover, the low contaminant concentrations are expected to further decrease through remediation and natural attenuation before the water reaches the downstream waterways. Thus, *past, current, and future exposures associated with on-site or nearby waterways pose no apparent public health hazard.*

- **Possible exposure to contaminants for consumers of venison.** NAS Brunswick supports a large population of deer that graze at some IRP sites where soil contamination has been detected. Deer hunting is permitted at the air station. Deer at the air station that have been consumed or might be consumed by humans do not appear to pose a public health hazard because the chemicals detected in the soil do not typically accumulate to harmful levels in deer tissue. Therefore, *past, current, and future consumption of venison poses no apparent public health hazard.*

- **Possible vapors in on-site buildings above or near groundwater contamination.** The Fleet and Family Support Center and the bachelor enlisted quarters (BEQ) at NAS Brunswick sit near or above groundwater contaminants released by former site activities. ATSDR believes that people who worked or lived in the buildings did not

encounter harmful levels of indoor air vapors from the underlying groundwater plumes. ATSDR concludes that there is *no apparent past public health hazard associated with vapor intrusion*. Likewise, *vapor intrusion poses no apparent current or future public health hazards* at the family center. Even though there is no current long-term health hazard associated with the air inside the center, ATSDR encourages the Navy to continue to track the groundwater contamination associated with the upgradient gasoline release and potential impact on the family center. The remaining BEQ buildings are scheduled to be demolished in 2005 and thus pose no future public health hazard.

VII. Public Health Action Plan

The public health action plan (PHAP) for NAS Brunswick describes actions taken and to be taken by the Navy, ATSDR, EPA, MEDEP, and MEDHHS Bureau of Health at and near the site after this PHA is completed. It provides a plan of action designed to mitigate and prevent adverse human health effects resulting from exposure to hazardous substances in the environment. The public health actions that are completed, ongoing/planned, or recommended are as follows:

Completed Actions

1. The Navy began an investigation of the environmental conditions at NAS Brunswick in 1983 and 1984 to identify possible contaminant sources. The initial assessment—and subsequent Navy investigations—did confirm the presence of contamination at the air station.

2. EPA placed NAS Brunswick on the NPL in 1987.

3. The remedial investigation/feasibility study process began in 1987 for seven sites. Through the various investigations, the Navy eventually identified and investigated 13 sites with hazardous releases.

4. In October 1990, the Navy entered into a Federal Facilities Agreement with EPA and MEDEP regarding the cleanup of the environmental contamination at NAS Brunwsick.

5. The Navy identified a VOC groundwater plume, called the Eastern Plume, extending north to south along the eastern boundary of the base. The VOCs in the plume, which primarily affect the deeper portion of the overburden groundwater beneath the site, have been traced to Sites 4 (an acid/caustic disposal pit), 11 (a former fire training area), and 13 (the Defense Reutilization and Marketing Office).

6. The Navy installed an extraction and treatment system in 1995 as an interim action to contain the Eastern Plume as a measure to prevent it from migrating further toward Harpswell Cove.

7. The Navy has instituted long-term monitoring plans that call for semi-annual sampling of various media (including surface water) at most IRP sites. To date, they have completed between 18 and 23 sampling events for groundwater, surface water, and stream sediment at Sites 1 and 3 (and the Eastern Plume), Site 7 (Building 95), and Site 9. They have also concluded eight monitoring events at Site 2.

8. The Navy has undertaken measures to reduce the sources of contamination at NAS Brunswick. These measures include the construction of a low-permeability RCRA cap over the landfills at Sites 1 and 3 in 1996, and a slurry wall around the waste to divert clean water from the landfills; the 1999 removal of soils from Sites 4 and 13 that were considered the source of the Eastern Plume; removal of asbestos-

contaminated soil and pipes and other debris from Sites 5 and 6; a limited soil removal at Site 7; and two soil removal actions at Site 11.

9. ATSDR visited NAS Brunswick in December 2003 to tour the site, meet with site representatives, and gather environmental and exposure information to complete the public health evaluation.

Ongoing and Planned Actions

1. The Navy plans to test a denitrification-based biodegradation process to accelerate cleanup at the NEX service station site to reduce gasoline range organic petroleum concentrations in soils beneath the water table to 500 mg/kg within the area of highest contamination.

2. The Navy has agreed to conduct routine groundwater monitoring along the Eastern Plume and at other sites (e.g., Site 1 and 3) where contamination in groundwater exceeds regulatory guidelines.

3. The Navy continues to operate the groundwater extraction system to control the migration of, and reduce the VOC concentrations in, contaminated groundwater on the site. The system has been most effective in reducing VOC groundwater concentrations in the vicinity of the extraction wells. In total, the system has removed 425 kilograms (or about 1,140 pounds) of VOCs since pumping began (MEDEP 2004).

4. The Navy plans to remove contaminated soil from Site 7, demolish the barracks and remove the landfill at Site 9, and conduct additional investigation at Site 2.

5. The Navy formally added institutional controls in 2000 as safeguard to restrict the use of groundwater from beneath specific areas on the air station. They are currently considering instituting base-wide controls for groundwater use restrictions.

Recommended Actions

1. If new information from site investigations identifies contaminants in site media above ATSDR's health-based CVs, and if requested, ATSDR will assess contaminant data and exposure situations to determine if any public health hazards exist. If requested, ATSDR also will re-evaluate the potential for public health hazards if changes in proposed land use, remedial activities, or risk management actions (e.g., institutional controls) might lead to future exposures.

VIII. Preparer of the Report

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IX. References

ABB Environmental Services, Inc.. 1993. Remedial design summary report Sites 1, 3, 5, 6, 8, and the Eastern Plume, NAS Brunswick, Brunswick, Maine. Portland, Maine. May 1993.

ABB Environmental Services, Inc.. 1994a. Draft final technical memorandum, Site 9: Neptune Drive disposal site. Portland, Maine. May 1994.

ABB Environmental Services, Inc.. 1994b. Proposed plan for Site 9: Neptune Drive disposal site. Portland, Maine. July 1994.

[ATSDR] Agency for Toxic Substances and Disease Registry. 1989. ATSDR's preliminary public health assessment for Brunswick Naval Air Station, Brunswick, Cumberland County, Maine. Atlanta: US Department of Health and Human Services.

[ATSDR] Agency for Toxic Substances and Disease Registry. 2003. Toxicological profile for naphthalene. Atlanta: US Department of Health and Human Services.

[BACSE] Brunswick Area Citizens for a Safe Environment. 2005. Comments on the Public Comment Release Public Health Assessment for NAS Brunswick. January 17, 2005.

Brunswick. 2004. The Town of Brunswick. Available at: http://www.brunswickme.org/fire/maine_map.html. Last accessed May 20, 2004.

Dawson, H. 2004. EPA seminar on air indoor vapor intrusion, Session 3. Seminar notes available at URL: http://www.epa.gov/ttbnrmrl/presentations.htm#session1. Last accessed May 11, 2004.

[DERP] Defense Environmental Restoration Program. 1995. Annual report to Congress for fiscal year 1995, vol. 2: Brunswick Naval Air Station. Available at: http://www.dtic.mil/envirodod/derpreport95/vol_2/nara023.html. Last accessed May 20, 2004.

[EA] EA Engineering, Science, and Technology.1997a. 1996 annual report. Monitoring events 5 through 7—Sites 1 and 3 and the Eastern Plume. Naval Air Station, Brunswick, Maine. Newburgh, New York. December 1997.

[EA] EA Engineering, Science, and Technology. 1997b. Monitoring event 7—November 1996, Building 95, Naval Air Station, Brunswick, Maine. Newburgh, New York. March 1997.

[EA] EA Engineering, Science, and Technology. 2000a. Geostatistical assessment of the Eastern Plume, Naval Air Station, Brunswick, Maine. Newburgh, New York. January 2000.

[EA] EA Engineering, Science, and Technology. 2000b. Direct-push soil and groundwater investigation at the Fleet and Family Support Center (Building 27) and the Navy Exchange service station (Building 538), Naval Air Station, Brunswick, Maine. Newburgh, New York. April 2000.

[EA] EA Engineering, Science, and Technology. 2000c. Monitoring event 1—April 2000, Site 2, Naval Air Station, Brunswick, Maine. Newburgh, New York. June 2000.

[EA] EA Engineering, Science, and Technology. 2000d. Long-term monitoring plan, Building 95, Naval Air Station, Brunswick, Maine. Newburgh, New York. May 2000.

[EA] EA Engineering, Science, and Technology. 2001. Post-field work magnetometer survey and debris removal action, Swampy Road debris site, Site 16. Newburgh, New York. January 21, 2001.

[EA] EA Engineering, Science, and Technology. 2002a. Monitoring event 19 report—October /November 2001, Sites 1 and 3 and Eastern Plume, Naval Air Station, Brunswick, Maine. Newburgh, New York. May 2002.

[EA] EA Engineering, Science, and Technology. 2002b. Summary report of the groundwater and soil investigations at Site 7 Naval Air Station, Brunswick, Maine. Newburgh, New York. Marc 2002.

[EA] EA Engineering, Science, and Technology. 2003. Monitoring event 20 report—April 2002 for Site 9: Neptune Drive disposal site, Naval Air Station, Brunswick, Maine. Newburgh, New York. January 2003.

[EA] EA Engineering, Science, and Technology. 2004a. Focused feasibility study for the Navy Exchange service station, Naval Air Station, Brunswick, Maine. Newburgh, New York. April 2004.

[EA] EA Engineering, Science, and Technology. 2004b. Memorandum from Alexander Easterday, EA Engineering, Science, and Technology, to Mr. Brian Helland, Engineering Field Activity Northeast, re: Indoor air monitoring at the Fleet and Family Support Center (Building 27), Naval Air Station, Brunswick, Maine. Newburgh, New York. March 22, 2004.

EC Jordan Co. 1988. Community relations plan for Naval Air Station Brunswick, National Priorities List sites. Portland, Maine. September 1988.

EC Jordan Co. 1990. Draft final remedial investigation report. RI/FS program, Naval Air Station Brunswick. Portland, Maine. August 1990.

EC Jordan Co. 1991a. Final draft supplemental feasibility study Sites 5, 6, and 12. Naval Air Station Brunswick, installation restoration program. Portland, Maine. July 1991.

EC Jordan Co. 1991b. Final draft supplemental remedial investigation. Naval Air Station Brunswick, installation restoration program. Portland, Maine. August 1991.

[EPA] US Environmental Protection Agency. 1987. Memorandum from Joan M. Coyle, water monitoring section, to Charlotte Head, Maine Superfund section, re: sampling at Jordan Avenue wellfield. Boston, Massachusetts. December 1987.

[EPA] US Environmental Protection Agency. 1992. EPA Superfund Record of Decision: Brunswick Naval Air Station. Abstract available at URL: http://cfpub.epa.gov/superrods/rodinfo.cfm?mRod=01010731992ROD065. Last accessed May 17, 2004.

[EPA] US Environmental Protection Agency. 1998. Department of the Navy Installation Restoration Program. Naval Air Station Brunswick, Brunswick, Maine. Record of decision for no further action at Sites 4, 11, and 13 and a remedial action for the Eastern Plume. Prepared by ABB Environmental Services, Inc., Portland, Maine. February 1998. Available at URL: www.epa.gov/superfund/sites/rods/fulltext/r0198004.pdf

[EPA] US Environmental Protection Agency. 2002. Preliminary close-out report, Naval Air Station Brunswick, Maine, National Priorities List sites. Boston, Massachusetts. September 2002.

[EPA] US Environmental Protection Agency. 2003. Waste site cleanup & reuse in New England. Brunswick Naval Air Station. Available through URL: http://www.epa.gov/region01/cleanup/index.html. Last accessed October 27, 2003.

Maine Geological Survey. 2005. Bedrock well listing for private bedrock wells drilled in the Brunswick near the NAS Brunswick. April 29, 2005.

[MEDEP] Maine Department of Environmental Protection. 2003. Letter from Claudia Sait, project manager-federal facilities, Bureau of Remediation & Waste Management, to private residents concerning residential sample results. October 1, 2003.

[MEDEP] Maine Department of Environmental Protection. 2004. Letter from Claudia Sait, project manager–federal facilities, Bureau of Remediation & Waste Management, Maine Department of Environmental Protection, to ATSDR. re: comments on ATSDR's data validation draft public health assessment, Brunswick Naval Air Station. August 31, 2004.

NAS Brunswick. 2003a. Data for long-term monitoring events. Naval Air Station Brunswick. 2003.

NAS Brunswick. 2003b. Personal communications between E. Leslie, NAS Brunswick, and ATSDR. 2003.

NAS Brunswick. 2004a. Naval Air Station Brunswick. Available at: http://www.nasb.navy.mil/. Last accessed May 19, 2004.

NAS Brunswick. 2004b. E-mail correspondence from Anthony Williams and Paul Kempf, Naval Air Station Brunswick, to ATSDR re: comments on ATSDR's data validation draft public health assessment, Brunswick Naval Air Station. August 9, 2004.

NAS Brunswick. 2004c. Figure of installation restoration program sites provided by Anthony Williams, IRP manager, NAS Brunswick. August 2004.

NAS Brunswick. 2004d. Results of 2000-2004 golf course well sampling provided by Anthony Williams, IRP manager, NAS Brunswick. August 2004.

[NEESA] Naval Energy and Environmental Support Activity. 1983. Initial assessment study of Naval Air Station, Brunswick, Maine. Prepared by Roy F. Weston, West Chester, Pennsylvania. June 1983.

PCS America. 2004. NAS Brunswick site information. Available at: http://www.pcsbrunswick.com/.

[USACHPPM] US Army Center for Health Promotion and Preventative Medicine. 1994. Draft field study, No. 75-23-YS50-94: health risk assessment of consumption of deer from Aberdeen Proving Ground, Maryland. Aberdeen Proving Ground, Maryland. October 1994.

[USAEHA] US Army Environmental Hygiene Agency. 1994. Draft final health risk assessment from consumption of deer muscle and liver from Joliet Army Ammunition Plant. Aberdeen Proving Ground, Maryland. January 14, 1994.

[USFWS] US Fish and Wildlife Service. 1997. Environmental contaminants in fish from Mere Brook. Old Town, Maine: US Fish and Wildlife Service, New England Field Office. Special Project Report: FY97-MEFO-3-EC. Available at URL: http://mainecontaminants.fws.gov/PDF%20files/BKT_study.PDF.

Tables

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Site 1 **Orion Street Landfill-North**	Site 1 covers about 60 acres in the restricted munitions area in the center of the of the air station. About 8½ acres of this site were used for disposal of garbage, refuse, waste oil, solvents, paint wastes, and aircraft and vehicle parts. The site was open from about 1955 to 1975.	**Groundwater:** Samples collected during the 1988-1989 remedial investigation (RI) field activities were analyzed for volatile organic compounds (VOCs), pesticides/ polychlorinated biphenyls (PCBs), and metals. One area of contamination near the Site 1 and 3 landfills contained vinyl chloride (up to 180 parts per billion [ppb]) and benzene (up to 7 ppb) at levels above ATSDR's comparison values (CVs). Another collection of VOCs was observed east of the Site 1 and 3 landfills and contained tetrachloroethylene (PCE) (up to 24 ppb), trichloroethylene (TCE) (up to 240 ppb), and 1,1,1-trichlorethane (TCA) (up to 530 ppb), but lacked benzene, toluene, ethylbenzene, and xylene (BTEX). Arsenic (up to 107 ppb) and manganese (up to 3,500 ppb) exceeded their ATSDR CVs. Pesticides and PCBs were not reported.	The Navy issued a record of decision (ROD) in 1992 to address containment of the buried wastes at Sites 1 and 3, and recovery of contaminated groundwater to prevent further migration. The selected remedy consisted of construction of a 12-acre double barrier landfill cap, a 2,220-foot slurry wall, and a groundwater extraction and treatment system. After 2½ years of groundwater extraction, the Navy shut down the extraction wells within the landfill in 1997. The groundwater table had dropped below the landfill waste except at one location. The selected remedy also included monitoring of groundwater, surface water, sediment, leachate, and leachate seep sediment, as well as land use and groundwater use restrictions.	After reviewing the site data and potential exposure scenarios, ATSDR anticipates no public health hazards at this site. There is no public access, groundwater beneath the site is not used for drinking purposes, and measures have been taken to reduce contaminant concentrations.

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Site 1 (continued)		**Surface water and sediment:** Samples were analyzed for VOCs, semi-volatile organic compounds (SVOCs), pesticides/PCBs, and metals. TCE was detected up to 31 ppb in surface water samples collected next to a spring near Mere Brook beaver marsh. SVOCs, metals, pesticides, and PCBs were either not detected or detected at concentrations below CVs in surface water samples. Total polycyclic aromatic hydrocarbons (PAHs) up to 18,060 ppb were detected in sediment. VOCs, pesticides/PCBs, and metals were either not detected or detected at concentrations below ATSDR's CVs. **Leachate seeps:** Seven seep locations were sampled during the 1988-1989 RI activities for VOCs, SVOCs, pesticides/PCBs, and metals. The seeps contained VOCs, metals, and in one case, pesticides. Some of the concentrations exceeded ATSDR's CVs. The detected compounds were consistent with those found in the landfill area groundwater.	Monitoring continues on a biannual basis. In 1994, the Navy—with EPA and MEDEP concurrence—used the excavated material from Sites 5, 6, 8 and 8 as subgrade material in the cap at Site 1. Wastes from Site 11 were also placed under the landfill cap at this site.	

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Site 2 **Orion Street Landfill-South**	Site 2 was reportedly used as the primary base landfill from 1945 to 1955. Although the base was closed from 1946 to 1951, the September 1998 ROD for Site 2 indicates that non-military tenants may have used the property during that time. The site is located south of Mere Brook, opposite Sites 1 and 3. The actual waste disposal area of the site covers about 2 acres and was used for the disposal of paints, solvents, oils, toluene, methyl ethyl ketone, and medical supplies. Solid waste was also reportedly incinerated at the site.	**Groundwater:** Groundwater was analyzed for VOCs, SVOCs, PCBs/pesticides, and metals during the 1988–1989 RI activities. No VOCs, SVOCs, or PCBs/pesticides were detected at concentrations above CVs. Arsenic (up to 15 ppb) was detected at levels above its CV. **Surface soil:** Three surface soil samples collected near a seep were analyzed for VOCs, SVOCs, pesticides, and metals. No VOCs or SVOCs were detected. Metals were detected but at concentrations below CVs. DDT (up to 23 ppb) exceeded ATSDR CVs. **Surface water:** Surface water samples collected from a tributary of Mere Brook were analyzed for VOCs, SVOCs, PCBs/pesticides, and metals during 1988–1989 RI activities and again between 1995 and 2002. VOCs, PCBs, and pesticides were either not detected or detected at concentrations below CVs. Cadmium (up to 15.4 ppb) and manganese (up to 3,100 ppb) exceeded ATSDR CVs for drinking water. Total PAHs ranged from 1,630 ppb to 1,670 ppb. (ATSDR has no CV for total PAHs.) **Sediment:** RI field work found no VOCs, SVOCs, or PCBs/pesticides. Metal concentrations exceeded levels typical of background sediments.	Visible metal debris was removed in 1999 and the landfill slope was stabilized and regraded. Because of the minimal risks at the site, the remedy selected in the 1998 ROD was long-term monitoring and institutional controls. Institutional controls were implemented in 1999. Long-term monitoring started in 2000 and was revised in 2001. Long-term monitoring program (LTMP) results show that groundwater, surface water, and sediment contaminant concentrations are below ATSDR's CVs.	After reviewing site data and potential exposure scenarios, ATSDR anticipates no public health hazards at this site. The site is surrounded by a chain-link fence to limit public access, groundwater beneath the site is not used for drinking purposes, and measures have been taken to reduce contaminant concentrations.

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
		Leachate Seeps: Metals (e.g., mercury and iron) were found at levels above background concentrations. Low levels of pesticides (less than 1.0 parts per million (ppm) and polycyclic aromatic hydrocarbon (PAH) compounds (maximum of 1.7 ppm) were also detected. These contaminants are consistent with the historical land use and disposal of incinerated wastes at this site. Buried ash would contribute to metal contamination in leachate downgradient of the landfill. The low levels of pesticides detected are assumed to be residual concentrations resulting from historical, basewide use of these compounds in the 1960s and 1970s.		
Site 3 **Hazardous Waste Burial Area**	Site 3, just southwest of Site 1, was operated from about 1960 to 1973 for disposal of waste. Waste disposed of in the area included solvents and paints. The site currently consists of a small knoll covered with grass and a pine grove.	*See Site 1.*	*See Site 1.*	*See Site 1.*

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Site 4 **Acid/Caustic Pit**	Site 4 reportedly consisted of a small open pit (4 square feet by 3 feet deep) that was used for liquid waste disposal during part of the 1960s and early 1970s. Waste disposed of in the pit included transformer oils, battery acids, caustics, paint thinners, TCE, and other solvents. This site is currently covered by the eastern end of Building 584 (at the Active Defense Reutilization and Marketing Office).	**Groundwater:** Groundwater samples collected during the 1989–1990 RI activities were analyzed for VOCs, SVOCs, PCBs/pesticides, and metals. TCE was detected at concentrations up to 23 ppb, above its CV. Metals were also detected, but at concentrations below ATSDR's CVs. SVOCs, PCBs, and pesticides were not detected.	A no further action (NFA) ROD for soils was signed in February 1998. The lack of contamination in subsurface soils, in conjunction with the low groundwater concentrations, suggests that the source area is no longer contaminated. Some site documentation questions whether the presence of Building 584 prevented the collection of the soil samples directly beneath the pit. If the building is ever removed, then additional investigations and remedial actions may be necessary.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no public health hazards at this site. The public has limited access, groundwater beneath the site is not used for drinking purposes, and measures have been taken to reduce contaminant concentrations.
Site 5 **Orion Street Asbestos Disposal**	Site 5 consists of two trenches reportedly used for a short period in 1979 to bury asbestos-lined pipes from a demolished building. The ¼-acre site was covered with 1 foot of soil and marked with two warning signs in 1980.	**Soil:** Four surface soil samples taken in the vicinity of the pipes did not contain asbestos.	An ROD addressing Sites 5 and 6 was completed in August 1993. The selected remedy included removal of soil, construction debris, and asbestos-containing materials; backfilling with clean soil; encapsulation of asbestos-containing pipes in two layers of polyethylene; and transportation of all materials to Sites 1 and 3 for use as part of the landfill cap. Cleanup activities were completed in mid-1995. No land use restrictions, monitoring, or 5-year reviews are necessary at this area, as all materials were removed.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no public health hazards at this site. The public has limited access and measures have been taken to remove debris and asbestos-contaminated material from the site.

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Site 6 **Sandy Road Rubble and Asbestos Disposal Site**	Site 6 is a semicircular zone about 300 feet long in the northern portion of the site. The Navy reportedly used this site until the late 1970s for general dumping of asbestos-lined pipes, construction rubble, and aircraft parts. Vehicle access to Sandy Road is restricted to site personnel by a locked gate.	**Groundwater:** Groundwater samples were analyzed for VOCs, SVOCs, and metals. Contaminants either were not detected or were detected at concentrations below ATSDR CVs. **Soil:** Asbestos contamination was confined to subsurface layers because surface soil samples taken in the vicinity of the pipes did not contain asbestos.	*See Site 5.*	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards at this site. The public has limited access, the groundwater is not used beneath the site, and measures have been taken to remove debris and asbestos-contaminated material from the site.

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Site 7 **Old Acid/Caustic Pit**	Site 7 consists of the old acid/caustic pit operated from 1952 to 1969 for disposal of liquid, including transformer oil, battery acids, caustics, and solvents. The site was also reportedly used as an outdoor storage and equipment area. The site is located in the northern portion of the base, west of the main entrance road, and abuts the northeast fuel farm.	**Groundwater:** Samples collected during the 1988–1989 RI were analyzed for VOCs, SVOCs, and metals. Cadmium levels (up to 23 ppb) exceeded the EPA maximum contaminant level (MCL) of 5 ppb. **Surface soil:** Soil samples were analyzed for VOCs, SVOCs, PCBs/pesticides, and metals. Total PAHs reached levels up to 21.5 part per million (ppm). All other analytes were below ATSDR's CVs. **Surface water:** Surface water collected between 1988 and 2002 were analyzed for VOCs, SVOCs, and metals. Cadmium was detected at a maximum concentration of 43.4 ppb, above the ATDSR CV for drinking water. Other analytes were either not detected or detected at concentrations below CVs.	In 2001, the Navy performed a limited removal of the source of cadmium in groundwater at levels slightly above EPA's MCL. Groundwater sampling after the removal indicated that it had not been successful: cadmium was still detected in groundwater above the MCL. A ROD implementing groundwater monitoring and institutional controls was signed in September 2002. Five-year reviews will also be required. It is expected that the cadmium MCL will be reached in 10 years time via natural flushing. The Navy plans to remove contaminated soil from Site 7. The EPA produced a "Preliminary Close-Out Report" in September 2002 to document that the milestone of construction completion had been reached with the signing of the Site 7 ROD. This milestone means that a ROD has been signed for each site and that all sites have remedies in place.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards at this site. The public has limited access, groundwater beneath the site is not used for drinking purposes, and measures have been taken to reduce contaminant concentrations.

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Site 8 **Perimeter Road Disposal Site**	Site 8 is an approximately 0.6-acre area located at the northern boundary of NAS Brunswick. Perimeter Road is adjacent to the southern edge of Site 8. North of Perimeter Road, the site is a flat, open area with steep, wooded embankments down to two small tributaries bordering the site on the northeast and northwest. Surface runoff from the northern 2,000 feet of NAS Brunswick drains into these tributaries, which flow north and discharge to the Androscoggin River. The Jordan Avenue Wellfield, used as a municipal drinking water supply for the town of Brunswick, is located north-northwest and upgradient of Site 8. The groundwater flow from Site 8 is not expected to impact the Jordan Wellfield. Seeps have been observed at the base of the slope of the embankment down to the northeastern tributary.	**Groundwater:** Samples collected during the 1988–1989 RI were analyzed for VOCs, SVOCs, pesticides, and metals. VOCs and most metals were detected, but at concentrations below ATDSR's CVs for drinking water. Manganese (up to 4,240 ppb) was detected at levels above its CV. **Surface soil:** Soil samples were analyzed for VOCs, SVOCs, PCBs/pesticides, and metals. Total PAHs reached levels up to 21.5 ppm. All other analytes were below ATSDR's CVs. **Surface water/sediment:** Samples collected from drainages on the south side of Perimeter Road during the 1988–1989 RI investigations were analyzed for VOCs, SVOCs, pesticides/PCBs, and metals. In surface water, lead (up to 1,500 ppb) and manganese (up to 910 ppb) exceeded ATSDR CVs for drinking water. Other analytes were either not detected (SVOCs, pesticides, and PCBs) or detected at levels below ATSDR's CVs. In sediment, total PAHs reached a maximum of 80.2 ppm in one sample.	The Navy, with community involvement, has completed the site remediation, as outlined in the 1993 ROD for Site 8. The selected remedy involved excavation and removal of PAH-contaminated soil, backfilling with clean soil, construction debris, and rubble, and transportation of the material to Sites 1 and 3 (where it was used as part of the landfill cap). Cleanup activities, including site restoration, were completed in the fall of 1995. No land use restrictions, monitoring, or 5-year reviews are necessary at this area, since all materials were removed.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards at this site. The public has limited access, groundwater beneath the site is not used for drinking purposes, and measures have been taken to reduce contaminant concentrations.

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Site 9 **Neptune Drive Disposal Site**	Site 9 was identified as having three areas of potential contamination: (1) the former location of an incinerator in the northeast corner of Building 220 (BEQ) and an inactive ash landfill/dump area in the current location of Buildings 218 and 219, (2) a reported disposal area behind Building 201, and (3) the streams adjacent to Site 9. The incinerator reportedly burned solid waste. Incinerator ash was dumped in the disposal area. Likewise, solid waste consisting of solvents, paint sludge, and possibly waste from the metal shop was dumped at the disposal area. Solvents and liquids were also burned on the ground. A septic system east of Building 201 is thought to be the source of VOCs in groundwater.	**Groundwater:** Samples collected during the 1988–1989 RI were analyzed for VOCs, SVOCs, pesticides, and metals. No SVOCs or pesticides were detected. VOCs and metals were detected, but at concentrations below ATDSR's CVs for drinking water. **Surface soil:** Soil samples were analyzed for VOCs, SVOCs, PCBs/pesticides, and metals. Total PAHs reached levels up to 24 ppm. DDT and DDE (up to 100 ppm) were detected at concentrations above ATSDR's CVs. All other analytes were below ATSDR's CVs. **Surface water/sediment:** Samples collected during the 1988–1989 RI and 1995–2002 LTMP investigations were analyzed for VOCs, SVOCs, pesticides/PCBs, and/or metals. In surface water, manganese (up to 1,300 ppb) exceeded its ATSDR CV for drinking water. Other analytes were either not detected (SVOCs, pesticides, and PCBs) or detected at levels below ATSDR's CVs. In sediment, total PAHs reached a maximum of 383 ppm in one sample. VOC concentrations are relatively low.	An interim ROD was issued for Site 9 groundwater in September 1994. As the selected remedy for Site 9, the Navy began long-term monitoring of groundwater, surface water, and sediments in early 1995. Additional source investigations in the fall of 1995 did not identify a particular source of the VOC groundwater contamination. A final ROD was signed in 1999 and initiated in 2000 for natural attenuation, long-term monitoring, institutional controls, and 5-year reviews as the final remedy. An additional groundwater investigation was performed in 2003. The Navy agreed to continue to investigate possible groundwater contamination to the south during 2004. Demolition of the remaining barracks and removal of the landfill material is planned for 2005.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards at this site. The public has limited access, groundwater beneath the site is not used for drinking purposes, and measures have been taken to reduce contaminant concentrations.

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Site 11 **Fire Training Area**	Site 11 is the Fire Training Area located on ½ acre in the central portion of the site. Liquid waste, such as fuels, oils, and degreasing solvents, were used in fire training exercises held at the site from 1960 to 1990.	**Groundwater:** Samples collected during the 1988–1989 RI were analyzed for VOCs, SVOCs, pesticides, and metals. PCE (up to 9 ppb), 1,1,1-TCA (up to 450 ppb), TCE (up to 10 ppb), and manganese (up to 733 ppb) were detected at concentrations above ATDSR's CVs for drinking water. Other analytes were either not detected or detected at concentrations below CVs. More recent investigations showing only trace levels of groundwater contaminants at Site 11 indicate that residual soils at the site no longer contribute to the contamination in the Eastern Plume.	Soils from Site 11 were removed in two separate removal actions. An NFA ROD for soils was signed in February 1998. The Navy continues to monitor groundwater at this site through its LTMP. According to the Preliminary Close-Out Report for the site, a supplemental investigation detected no remaining contamination at Site 11. As of 2002, a large infiltration gallery (leach field) constructed over a portion of Site 11 has accepted clean treatment plant effluent without any detectable changes to the downgradient groundwater quality.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards at this site. The public has limited access, groundwater beneath the site is not used for drinking purposes, and measures have been taken to reduce contaminant concentrations.

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Site 12 **Explosive Ordnance Demolition**	Site 12 consists of a bermed area of about 60 feet by 100 feet, with 5- to 6-foot berms. Located within the area are two small demolition craters and a dumpster. The dumpster was reportedly used for igniting small amounts of explosives and propellants. The pit was used from 1981–July 2004 and had a 25-pound explosive limit.	**Groundwater:** Not tested at this site. **Soil:** Soil samples were analyzed for explosive compounds and select metals. Low levels of mercury and nitrate/nitrite were measured in the surface soil samples, below background concentrations and ATSDR CVs. No explosive compounds were detected.	A risk assessment considering both worker and potential future residential exposure scenarios demonstrated that the concentrations in the surface soil were not of health concern. The Navy has proposed the closure of Site 12. EPA and MEDEP will assess closure documentation with the Navy in 2004. According to the Preliminary Close-Out Report, Site 12 was included in the Federal Facilities Agreement, but was deferred to the base compliance program due to continued occasional explosive ordnance disposal.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards at this site. The public has limited access because Site 12 is a remote and highly secured area where access is controlled. Furthermore, groundwater beneath the site is not used for drinking water.
Site 13 **Defense Reutilization and Marketing Office**	Site 13, the Defense Reutilization and Marketing Office, is a fenced enclosure of about 280 by 300 feet that borders Orion Street. Three USTs were first used at the site in the early 1970s. The USTs were used to store waste oils, fuels, and solvents. The three tanks were removed in the late 1980s.	**Groundwater:** Samples collected during the 1988–1989 RI were analyzed for VOCs, SVOCs, pesticides, and metals. The VOCs benzene (up to 16 ppb), 1,2-DCE (up to 770 ppb), and TCE (up to 15 ppb) were detected at concentrations above their ATSDR CVs. SVOCs, pesticides, and metals were either not detected or detected at concentrations below CVs.	The Navy removed the USTs from Site 13 in the late 1980s. An NFA ROD for soils was signed in 1998. The Navy continues to monitor groundwater at this site through its LTMP.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards at this site. The public has limited access, groundwater beneath the site is not used for drinking purposes, and measures have been taken to reduce contaminant concentrations.

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Site 14 **Old Dump No. 3**	Site 14 was shown as a former disposal area on a 1946 base map. The drawing showed an area labeled as Dump No. 3 at a location that is now surrounded by runway I-19 and taxiways A and D.	As part of the supplemental RI activities, a magnetometer survey was conducted in the area shown in the 1946 map. No anomalies were detected. Accordingly, no further investigations were conducted.	Site 14 was not included in the Federal Facilities Agreement, but was investigated with other sites under the NPL program. An NFA consensus statement was signed in July 2001 because Dump No. 3 either never existed or was removed during the construction of runway I-19 and taxiways A and D.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards at this site. No area of contamination was identified, the public has had limited access to the site, and the underlying groundwater is not used as a source of drinking water.
Site 15 **Merriconeag Extension Debris Site**	Site 15 consists of concrete rubble and a soil dam that creates a ¾-acre pond on a small unnamed stream. The Navy first identified the site in 1990, which is located southeast of the NAS Brunswick golf course near Harpswell Cove. Although there has been no documented use of the area for dumping, miscellaneous debris was observed on the face of the dam and the ground surface.	**Soil:** PAH, pesticide, and metal concentrations were below background concentrations. **Surface water:** Contaminant concentrations were below background concentrations. **Sediment:** Contaminant concentrations were below background concentrations in the unnamed stream and pond.	Site 15 was not included in the Federal Facilities Agreement, but was investigated with other sites under the NPL program. The Navy conducted a magnetometer survey as part of the 1992 site inspection. All asbestos cement pipe sections and scrap metal debris items found were removed from the site and disposed of in 1999. A handheld magnetometer survey in 1999 confirmed the removal of all metal from the area. An NFA consensus statement was signed in July 2001.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards at this site. The public has had limited access to the site and the underlying groundwater is not used as a source of drinking water.

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Site 16 **Swampy Road Debris Site**	Site 16 is located along the west bank of an unnamed stream in the NAS Brunswick golf course. The debris site was first noted by the Navy in 1990. Although no records on dumping exist, surface debris was visible along a 1,700-foot section of this stream.	**Soil:** PAH, pesticide, and metal concentrations were below background concentrations. **Surface water:** Contaminant concentrations were below background concentrations. **Sediment:** Contaminant concentrations were below background concentrations in the unnamed stream.	Site 16 was not included in the Federal Facilities Agreement, but was investigated with other sites under the NPL program. The Navy conduced a magnetometer survey as part of the 1992 site inspection. All debris items found were removed from the site and disposed of in 1999. Handheld magnetometer surveys in 1999 and 2000 confirmed the removal of all debris from the area. An NFA consensus statement was signed in 2001.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards at this site. No areas of contamination were identified, and all debris items found were removed from the site and disposed of in 1999. Drinking water drawn from the nearby golf course well has been tested and has been shown to be free of site contamination.

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Site 17 **Building 95**	Site 17, or Building 95, was used as the pesticide/herbicide storage area until 1985. The Navy has since demolished the building.	**Groundwater:** Groundwater samples collected since 1995 during the LTMP were analyzed for VOCs, SVOCs, pesticides, and metals. Manganese exceeded its ATSDR CV; all other parameters were generally below ATSDR's CVs for drinking water. **Surface soil:** Pre-soil removal samples collected in 1994–1995 were found to contain high concentrations of DDT. Low levels of pesticides and herbicides were detected after the 1998 soil removal action.	At the completion of the baseline risk assessment, the Navy excavated the upper 1–7 feet of soil in the area of contamination, added a permeable liner to the excavated area, and backfilled the area with clean fill. (The interim soil removal report was issued in August 1998.) The Navy initiated a LTMP in 1995 for groundwater to assess whether residual levels found in confirmatory sampling might affect the groundwater. They revised their LTMP for this site in May 2000. According to the Preliminary Close-Out Report, Site 17 was not within the Federal Facilities Agreement or NPL listing. The site is being closed by MEDEP as the lead, with EPA oversight.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards at this site. The public has limited access to the site, the Navy removed soil in the contaminated areas, and the underlying groundwater is not used as a source of drinking water.

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Site 18 **West Runway Study Area**	Site 18 is a seep located about 650 feet west of runway I-19 between Mere Brook and Ordnance Road No. 3. It was first observed in 1990. The seep is near the former location of an ordnance bunker that was dismantled some time in the mid-1970s. There are no records of historical dumping at this site and no evidence of a dump site in historical aerial photos.	**Soil:** PAH, pesticide, and metal concentrations were below background concentrations. **Surface water:** Contaminant concentrations were below background concentrations. **Sediment:** Contaminant concentrations were below background concentrations in Mere Brook.	Site 18 was not included in the Federal Facilities Agreement, but was investigated with other sites under the NPL program. The Navy conducted a geophysical survey as part of the August 1999 site inspection. It revealed a small number of anomalous areas that might contain buried debris. Further investigations found no sources of environmental contamination. An NFA consensus statement was signed in July 2001.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards at this site. Investigations found no areas of contamination, the public has had limited access to the site, and the underlying groundwater is not used as a source of drinking water.
Old Navy Fuel Farm	The old Navy fuel farm is located in the northeast portion of the NAS Brunswick site. Until 1993, the site was used as a petroleum bulk storage facility. It included two farms with a total of nine USTs. All USTs and associated piping were removed in 1993. Currently, the area is covered with grass. It contains a storm water sewer and components of a biosparging system installed after the facility was decommissioned.	**Groundwater:** Petroleum constituents have been detected in groundwater monitoring at this site from 1990–2001. For example, benzene (up to 1,300 ppb) and toluene (up to 12,000 ppb) were detected during a 1996 sampling.	The Navy activated a biosparging system in 1996 to treat the contaminated groundwater after the attempts to build a soil vapor extraction (SVE) system were unsuccessful. Following operation of the biosparging system, 14,678 tons of contaminated soil were excavated from the old Navy fuel farm and disposed of off site at an asphalt-batch facility. The current remedy in place is natural attenuation with long-term monitoring and land-use controls.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards at this site. The public has had limited access to the site and the underlying groundwater is not used as a source of drinking water.

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Navy Exchange (NEX) **Service Station**	The Navy Exchange service station (Building 538) is the site of a release of petroleum-based constituents. The Navy removed the UST and leaking piping in 1992.	**Groundwater:** In 1999, The Navy collected 37 direct push samples from the area of the NEX. Twenty of 37 ground-water samples contained reportable concentrations of total BTEX, ranging from 7.0 ppb to 20,000 ppb. The highest concentrations of total BTEX were reported in groundwater samples collected immediately downgradient of the existing USTs at Building 538. **Soil:** Three of 13 soil samples collected in 1999 contained detectable concentrations of total BTEX, ranging from 0.007 ppb to 28.3 ppm. The highest concentration of total BTEX was reported in a soil sample collected immediately downgradient of the existing UST, about 8 to 16 feet bgs and directly below the groundwater table.	The Navy began a SVE/aquifer air sparging (AAS) system operation in 1993. The 1999 direct push sampling indicated, however, that elevated concentrations of petroleum hydrocarbons in groundwater persisted. The Navy planned to initiate a denitrification-based biodegradation pilot test in late 2004.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards at this site. The public has had limited access to contaminated subsurface soils and the underlying groundwater is not used as a source of drinking water.

Table 1. Evaluation of Public Potential Health Hazards at NAS Brunswick

Site	Site Description/Waste Disposal History	Investigation Results/Environmental Monitoring Results	Corrective Activities and/or Current Status	Evaluation of Public Health Hazard
Eastern Plume	*See descriptions for Sites 4, 11 and 13, the suspected source areas of the Eastern Plume.*	**Groundwater:** Monitoring of the Eastern Plume during the 1988–1989 RI field activities and long-term monitoring starting in 1995 indicated that the groundwater was contaminated with VOCs. The plume extends south from Sites 4, 11, and 13 to about New Gurnet Road. Trichloroethylene (TCE) (up to 770 ppb) and PCE (up to 80 ppb) were detected in the shallow portion (30–40 feet bgs) of the overburden in the center of the plume. Lower concentrations, typically less than ATSDR's CVs, were measured along the boundaries of the plume. Lower concentrations have been reported during more recent sampling rounds.	An interim remedy was selected for the Eastern Plume in July 1992. The goal of the remedy was hydraulic containment of contaminated groundwater to prevent further migration and potential discharge into the Harpswell Cove estuary. Groundwater extraction and treatment and a LTMP began in 1995. An additional extraction well was added in 1998 to extract a hot spot of contaminated groundwater near MW311. The final ROD was signed in February 1998 and the LTMP was revised in 1998 to reduce monitoring to twice a year and improve the monitoring well network. In 1999, the Navy improved the treatment system with an air stripper and carbon polisher to improve contaminant removal efficiency from 50% to >90%. A 2000 explanation of significant difference (ESD) document also specified switching the plant effluent discharge to an infiltration gallery; construction of the gallery was completed in early 2002. Institutional controls to prevent use and exposure to the groundwater while it is being cleaned up were formally added as a remedy component by the ESD.	Having reviewed site data and potential exposure scenarios, ATSDR anticipates no potential public health hazards for groundwater. No drinking wells have been or are expected to be impacted by harmful levels of contaminants from the plume.

Sources: ABB 1993; DERP 2004; EA 1997b, 2000c, 2000d, 2001, 2002, 2003; EC Jordan 1990; 1991a, 1991b; EPA 2002.

Key:			
BTEX	benzene, toluene, ethylbenzene, and xylenes	PCB	polychlorinated biphenyl
CV	ATSDR's comparison value	PCE	tetrachloroethylene
1,2-DCA	1,2-dichloroethane	ppb	parts per billion
1,2-DCE	1,2-dichloroethene	ppm	parts per million
EPA	U.S. Environmental Protection Agency	RI	remedial investigation
ESD	explanation of significance difference	ROD	Record of Decision
LTMP	long-term monitoring program	SVOC	semi-volatile organic compound
MCL	EPA's maximum contaminant level	1,1,1-TCA	1,1,1-trichloroethane
MEDEP	Maine Department of Environmental Protection	TCE	trichloroethylene
NEX	Navy Exchange	UST	underground storage tank
NFA	no further action	VOC	volatile organic compound
PAH	polycyclic aromatic hydrocarbon		

Table 2. Evaluation of Exposure Pathways at NAS Brunswick

Pathway	Elements of an Exposure Pathway						Comment
	Source	Media	Point of Exposure	Route of Exposure	Time Frame	Exposed Population	
Potential Exposure Pathways							
On-Site and Off-Site Groundwater Private Wells Exposure of nearby visitors to the golf course, workers at Dyer's Gate, and residents to possible contaminants in off-site private wells.	Former NAS Brunswick activities	Groundwater	Area private well taps	Incidental ingestion, skin contact, and inhalation of vapors from water	Past, Current, Future	People who utilize the golf course, personnel working at Dyer's Gate, and private well owners located near NAS Brunswick	*Past, Current, and Future: No exposure to groundwater contaminants has occurred, is occurring, or is expected to occur.* The drinking water well at the golf course is available to the public while utilizing the golf course. The new Dyer's Gate well provides drinking water to personnel working at Dyer's Gate. The rest of the air station and the surrounding community obtain their drinking water from the Brunswick/Topsham Water District. The municipal water is tested to comply with S*afe Drinking Water Act* standards. The base golf course well, the Dyer's Gate well, and several private wells in the area have not been affected by site-related contamination. Routine testing of the nearest downgradient well to the Eastern Plume has not shown evidence of site contamination.

Table 2. Evaluation of Exposure Pathways at NAS Brunswick

Pathway	Elements of an Exposure Pathway						Comment
	Source	Media	Point of Exposure	Route of Exposure	Time Frame	Exposed Population	
Surface Water/Sediment Exposure of visitors to contaminants in on-site tributaries, Mere Brook, and Merriconeag Stream.	Former and current NAS Brunswick activities	Surface water and sediment	On-site tributaries Mere Brook Merriconeag Stream	Dermal contact	Past, Current, Future	Visitors to the waterways	*Past, Current, and Future: No harmful exposure to surface water/sediment contaminants has occurred, is occurring, or is expected to occur.* Low levels of contaminants were detected in surface water and sediment of the on-site tributaries, Mere Brook, and the Merriconeag Stream. These waterways are not used for drinking water or recreational activities. Consequently, exposures to surface water and sediment affected or potentially affected by NAS Brunswick are expected to be infrequent and incidental. The low levels of contaminants and limited exposures would not be expected to cause harm to visitors to the waterways.

Table 2. Evaluation of Exposure Pathways at NAS Brunswick

Pathway	Elements of an Exposure Pathway						Comment
	Source	Media	Point of Exposure	Route of Exposure	Time Frame	Exposed Population	
Indoor Air Exposure to vapors possibly inside buildings near or above groundwater plume.	VOCs in the groundwater plumes that possibly volatilized and seeped into buildings at NAS Brunswick	Indoor air	Fleet and Family Support Center Bachelor Enlisted Quarters	Inhalation	Past, Current, Future	Former residents of the bachelor enlisted quarters and employees at the Fleet and Family Support Center	*Past, Current, and Future: No exposure to harmful levels of indoor air contaminants occurred in the past.* Some on-site buildings were or are situated near groundwater contamination at NAS Brunswick. For the Fleet and Family Support Center, no air contamination has been detected that could be linked to groundwater sources. For the bachelor enlisted quarters, estimates suggest that the groundwater contaminant concentrations beneath the bachelor enlisted quarters would have been too low to produce harmful indoor air concentrations in the past.

Table 2. Evaluation of Exposure Pathways at NAS Brunswick

Pathway	Elements of an Exposure Pathway						Comment
	Source	Media	Point of Exposure	Route of Exposure	Time Frame	Exposed Population	
Consumption of Venison Exposure to contaminants that possibly accumulated in deer that graze at the air station.	Former NAS Brunswick activities	Deer meat		Consumption of venison	Past, Current, Future	Hunters and other consumers of venison	*Past, Current, and Future: No exposure to contaminants has occurred or is expected to occur for people who consume venison caught at NAS Brunswick.* Some contamination has been found in soil and surface water in areas of NAS Brunswick where deer might graze. However, studies conducted at other military bases show that deer that graze in contaminated areas do not accumulate harmful levels of toxins similar to those found in NAS Brunswick soil. The contaminants found in NAS Brunswick soil, VOCs and PAHs, are not expected to bioaccumulate in deer. Therefore, people are not likely to experience harmful health effects from eating venison from NAS Brunswick in a varied diet.

Table 3. Contaminant Concentrations in the Groundwater of the Eastern Plume

Chemical	Range of Concentrations in Groundwater (ppb) for Contaminants That Exceeded Screening Values		Comparison Values for Drinking Water (ppb)
	Shallow (Near Source)	Deep (Downgradient)	
1,1-Dichlorethene	ND-6	ND-1,810	7 MCL
1,1-Dichloroethane	ND-130	ND-170	800 RBC
Cis-1,2-Dichloroethene	63-680*	ND-98*	70 MCL
Trans-1,2-Dichloroethene	*	*	100 MCL
1,1,1-Trichloroethane	13-1,200	11-11,000	200 MCL
Trichloroethylene	5-770	6-2,800	5 MCL
Tetrachloroethylene	ND-42	ND-68	5 MCL

Source: EPA 2002

* 1,2-Dichloroethene was reported by the laboratory as total 1,2-DCE.

Key: MCL=EPA's maximum contaminant level; ND=non-detect; ppb=parts per billion; RBC=EPA's risk-based concentration.

Table 4. Contaminant Concentrations in Surface Water Bodies

Contaminant Concentration in Surface Water Bodies				
Surface Water	**Potential On-Site Source and Mechanism of Release**		**Historical Operations**	**Contaminant Concentrations Above Screening Values** [6]
Mere Brook	**Sites 1 and 3**	Mere Brook flows eastward across the southern edge of Sites 1 and 3. A minor tributary of Mere Brook beaver marsh borders Site 3 to the west.	Site 1 was used from 1955 to 1975 and Site 3 from 1960 to 1973 for disposal of industrial and domestic refuse.	Surface water: Volatile organic compounds (VOCs), polychlorinted biphenyls (PCBs), and pesticides were either not detected or detected at concentrations below ATSDR's comparison values (CVs) for drinking water. Cadmium (up to 15.4 parts per billion [ppb]) and manganese (up to 3,100 ppb) exceeded ATSDR's CVs for drinking water. Total polycyclic aromatic hydrocarbons (PAHs) ranged from 1,630 ppb to 1,670 ppb. (ATSDR does not have a CV for total PAHs.) Sediment: Arsenic and manganese were detected at concentrations above ATSDR CVs for soil.
	Site 2	A tributary of Mere Brook beaver marsh flows from Site 2. A shallow inorganic plume discharges to Mere Brook beaver marsh.	Site 2 was reportedly used as the main base disposal area for a few years between 1945 and 1955. It was also the site of an incinerator that generated a significant amount of ash.	Surface water: VOCs, PCBs, and pesticides were either not detected or detected at concentrations below CVs. Cadmium (up to 15.4 ppb) and manganese (up to 3,100 ppb) exceeded ATSDR's CVs for drinking water. Sediment: Only low levels of VOCs, SVOCs, metals, and pesticides were detected in sediment for soil.

[6] ATSDR does not have CVs for surface water or sediment. For comparison, ATSDR uses CVs for drinking water and soil when assessing surface water and sediment exposures, respectively. Using the drinking water and soil CVs is more protective since these CVs consider greater exposure to contaminants than people are likely to incur via incidental ingestion of surface water or contact with stream sediment.

Table 4. Contaminant Concentrations in Surface Water Bodies

Contaminant Concentration in Surface Water Bodies				
Surface Water	**Potential On-Site Source and Mechanism of Release**		**Historical Operations**	**Contaminant Concentrations Above Screening Values [6]**
	Site 9	A southern unnamed stream and a northern unnamed stream border Site 9. Leachate seeps have been observed along the northern stream. These streams may flow to Picnic Pond, 3,000 feet downstream of Site 9.	Site 9 is the location of a former incinerator used before 1946 and a disposal area used through the 1950s for solvents, paint sludges, waste from the metal shop, and possibly ash from the incinerator.	Surface water: Manganese was detected at concentrations up to 1,300 parts per billion (ppb), which is above its ATSDR CV for drinking water. Sediment: Total PAHs reached a maximum of 383 parts per million (ppm) in one sample.
Andro-scoggin River	**Site 8**	This site is located between two tributaries of a brook flowing north toward the Androscoggin River, about 1,800 feet north of the site. The Navy, with community involvement, has completed the site remediation, as outlined in the 1993 ROD for Site 8. The selected remedy involved excavation and removal of PAH-contaminated soil; backfilling with clean soil, construction debris, and rubble; and transportation of the contaminated material to Sites 1 and 3 (where it was used as part of the landfill cap). Cleanup activities, including site restoration, were completed in the fall of 1995. No land use restrictions, monitoring, or 5-year reviews are necessary at this area, since all materials were removed.	Site 8 was used between 1964 and 1974 for disposal of construction and demolition debris.	Surface water: Lead (up to 1,500 ppb) and manganese (up to 910 ppb) concentrations exceeded their CVs for drinking water. Sediment: Samples contained total PAHs up to 80.2 ppm.

Key: CVs= ATSDR comparison values; PAHs=polycyclic aromatic hydrocarbons; PCBs=polychlorinated biphenyls; ppb=parts per billion; ppm=parts per million; VOCs=volatile organic compound

Table 5. Contaminant Concentrations in Indoor Air at Building 27, the Fleet and Family Support Center

Chemical	Range of Concentrations in Indoor Air (ppb)*		Comparison Values for Air (ppb)	
	July 2003	January 2004	Acute	Long Term
Toluene	1.2–1.8	ND	1,000 Acute EMEG	80 Chronic EMEG
2-Butanone	ND–4.0	ND	No value	1,701 EPA RfC
Naphthalene	ND	1.5–3.5	No value	0.7 Chronic EMEG

Source: (NAS Brunswick 2003b, EA 2004b)

* The air samples were collected after the soil vapor extraction (SVE) system was installed at the Fleet and Family Support Center in 1989. The Navy collected these samples in July 2003 (with a deactivated heating system) and January 2004 (with an activated heating system) as part of the remedial action for the NEX site.

Key: EMEG=ATSDR's environmental media evaluation guide; ND=non-detect; ppb=parts per billion; RBC=EPA's risk-based concentration; RfC=EPA's reference concentration.

Table 6. Estimated Contaminant Concentrations in Indoor Air at the Bachelor Enlisted Quarters (BEQs)

Contaminant	Maximum Groundwater Concentration Near the BEQs (ppb)	Groundwater to Indoor Air Attenuation Factor	Estimated Indoor Air Concentration in the BEQs (ppb)	Comparison Value for Air (ppb)
Vinyl chloride	10	10^{-4}	0.001	30 Intermediate EMEG
1,1-Dichloroethane	1	10^{-4}	0.0001	126 EPA RBC
1,2-Dichlroethene	1	10^{-4}	0.0001	200 Intermediate EMEG (trans-1,2-dichloroethene)

Source: (NAS Brunswick 2003b, EA 2004b)

* The air samples were collected after the soil vapor extraction (SVE) system was installed at the Fleet and Family Support Center in 1993. The Navy collected these samples in July 2003 (with a deactivated heating system) and January 2004 (with an activated heating system) as part of the remedial action for the NEX site.

Key: BEQs=Bachelor Enlisted Quarters; EMEG=ATSDR's environmental media evaluation guide; ppb=parts per billion; RBC=EPA's risk-based concentration..

HRA-0291

Time Critical Munitions and Explosives of Concern Removal Action Work Plan
for
Site 12 Explosive Ordnance Disposal Area
and
Former Munitions Bunker West Area

Naval Air Station Brunswick
Brunswick, Maine

Naval Facilities Engineering Command Mid-Atlantic

Contract Number N62470-08-D-1001
Contract Task Order WE09

September 2009

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TIME CRITICAL MUNITIONS AND EXPLOSIVES OF CONCERN REMOVAL ACTION WORK PLAN FOR SITE 12 EXPLOSIVE ORDNANCE DISPOSAL AREA AND FORMER MUNITIONS BUNKER WEST AREA

NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Naval Facilities Engineering Command Mid-Atlantic
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TABLE OF CONTENTS

SECTION **PAGE NO.**

ACRONYMS vii

1.0 INTRODUCTION 1-1
1.1 WORK PLAN OVERVIEW 1-2
1.2 SITE DESCRIPTION 1-3
1.2.1 Site Location 1-3
1.2.2 Installation History 1-3
1.2.3 Munitions-Related Activities 1-5
1.3 PREVIOUS STUDIES OF EXTENT OF MEC CONTAMINATION 1-6
1.3.1 Site 12 EOD Area 1-6
1.3.2 Former Munitions Bunker West Area 1-8
1.4 TOPOGRAPHY 1-8
1.5 CLIMATE 1-9

2.0 TECHNICAL MANAGEMENT PLAN 2-1
2.1 APPLICABLE GUIDANCE AND REGULATIONS 2-1
2.2 DISCOVERY OF CWM OR HTRW 2-1
2.3 OFF-SITE MEC DISPOSAL/UNIDENTIFIED MEC 2-2
2.3.1 Off-Site MEC Disposal 2-2
2.3.2 Unidentified MEC 2-2
2.4 TECHNICAL SCOPE 2-2
2.4.1 Detection Equipment, Methods, and Standards 2-5
2.4.2 Navigational Equipment, Method, and Standards 2-6
2.4.3 Equipment Checkout and Calibration 2-7
2.4.4 Data Collection and Storage 2-7
2.5 CHANGED SITE CONDITIONS 2-7
2.6 PROJECT ORGANIZATION 2-7
2.6.1 Project Manager 2-7
2.6.2 Field Operations Leader 2-8
2.6.3 UXO Manager 2-8
2.6.4 Senior UXO Supervisor 2-8
2.6.5 UXOSO/UXOQC 2-9
2.6.6 UXO Team Leader-UXO Technician III 2-10
2.6.7 UXO Technician-UXO Escort 2-11
2.6.8 UXO Technician - UXO Technician II or I 2-11
2.7 MOBILIZATION, SET-UP, AND PRELIMINARY ACTIVITIES 2-11
2.8 INITIAL SITE PREPARATION 2-12
2.8.1 Site Accessibility and Traffic Control 2-12
2.8.2 Site Security 2-13
2.8.3 Vegetation Management 2-13
2.9 SURFACE SURVEY INVESTIGATION 2-14
2.10 INVESTIGATION TECHNIQUES 2-15
2.10.1 Low Density Anomaly Areas 2-15
2.10.2 High Density Anomaly Areas 2-16
2.11 QUALITY CONTROL 2-18
2.12 REPORTING AND DISPOSITION OF MEC 2-19
2.13 REPORTING AND DISPOSITION OF MPPEH 2-20
2.13.1 MPPEH Certification and Verification 2-22
2.13.2 Maintaining the Chain of Custody and Final Disposition 2-23
2.14 LESSONS LEARNED 2-23

TABLE OF CONTENTS (Continued)

SECTION **PAGE NO.**

3.0 EXPLOSIVE MANAGEMENT PLAN 3-1
3.1 GENERAL REQUIREMENTS AND LICENSING 3-1
3.2 EXPLOSIVES ACQUISITION AND MANAGEMENT 3-1
3.2.1 Acquisition 3-1
3.2.2 Initial Receipt 3-2
3.2.3 Storage 3-2
3.2.4 Transportation 3-2
3.2.5 Receipt Procedures 3-3
3.2.6 Inventory 3-3
3.2.7 Forms and Documents 3-4

4.0 EXPLOSIVES SITING PLAN 4-1
4.1 ORDNANCE AND EXPLOSIVES AREAS 4-1
4.2 PLANNED OR ESTABLISHED DEMOLITION AREAS 4-1
4.3 FOOTPRINT AREA 4-2
4.3.1 Blow-In-Place Operations 4-2
4.3.2 Collection Points 4-2
4.3.3 Consolidated Shots 4-2
4.4 EXPLOSIVES STORAGE MAGAZINES 4-2
4.5 SITE MAPS 4-2

5.0 SURFACE SURVEY INSTRUMENT TEST STRIP 5-1
5.1 OBJECTIVE 5-1
5.2 PERSONNEL QUALIFICATIONS 5-2
5.3 ITS SURVEY PROCEDURE 5-2
5.3.1 Test Strip Seeding 5-2
5.3.2 Equipment Standardization 5-3
5.3.3 Anomaly Avoidance 5-5
5.3.4 ITS Disassembly 5-5

6.0 GEOPHYSICAL INVESTIGATION PLAN 6-1
6.1 GENERAL 6-1
6.2 TARGET LIST DEVELOPMENT 6-1
6.3 ANOMALY REAQUISITION 6-1

7.0 GEOGRAPHICAL INFORMATION SYSTEM PLAN AND ELECTRONIC SUBMITTALS 7-1
7.1 GENERAL 7-1
7.2 LOCATION SURVEY AND MAPPING PLAN 7-1
7.3 MEC/MPPEH DOCUMENTATION 7-1
7.4 UNEXPLODED ORDNANCE SAFETY PROVISIONS 7-2

8.0 WORK, DATA, AND COST MANAGEMENT PLAN 8-1

9.0 PROPERTY MANAGEMENT PLAN 9-1

10.0 QUALITY CONTROL PLAN 10-1
10.1 PROJECT ORGANIZATION AND RESPONSIBILITIES 10-2
10.2 QUALITY REQUIREMENTS 10-3
10.3 FIELD DOCUMENTATION 10-4
10.4 AUDITS 10-4

TABLE OF CONTENTS (Continued)

SECTION **PAGE NO.**

11.0 ENVIRONMENTAL PROTECTION PLAN 11-1

12.0 INVESTIGATIVE-DERIVED WASTE PLAN 12-1

13.0 INTERIM HOLDING FACILITY SITING PLAN FOR RCWM 13-1

14.0 PHYSICAL SECURITY PLAN FOR RCWM PROJECT SITES 14-1

15.0 REFERENCES 15-1

APPENDICES

A TASK ORDER SCOPE OF WORK

B SITE MAPS

C PROJECT CONTACT INFORMATION
C-1 EMERGENCY REFERENCE LOCAL POINTS OF CONTACT
C-1 SITE SPECIFIC CONTACT INFORMATION
C-2 ORGANIZATION CHART

D HEALTH AND SAFETY PLAN/ACCIDENT PREVENTION PLAN

E MC SAMPLING PLAN

F STANDARD OPERATING PROCEDURES AND PROJECT FORMS
F-1 STANDARD OPERATING PROCEDURES
F-2 PROJECT FORMS

G MSD CALCULATION FORMS FROM EXPLOSIVE SAFETY SUBMISSION

H RESUMES OF FIELD PERSONNEL

I KEY TABLES FROM EXPLOSIVE SAFETY SUBMISSION

J OTHER ADDITIONAL INFORMATION
J-1 QC INFORMATION
J-2 MSDS FOR DONOR EXPLOSIVES
J-3 SI ANOMALY COORDINATES
J-4 MILITARY EOD INFORMATION

K RECORD OF CHANGE

L RESPONSES TO STAKEHOLDERS COMMENTS

TABLE

NUMBER

10-1 Quality Requirements for UXO Support to the Navy at NASB, Brunswick, Maine

ACRONYMS

ºF	degree Fahrenheit
APP	Accident Prevention Plan
ATF	Alcohol Tobacco and Firearms
ATFP	Alcohol Tobacco and Firearms Pamphlet
bgs	below ground surface
BIP	Blow-In-Place
BRAC	Base Realignment and Closure
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CLEAN	Comprehensive Long-Term Environmental Action Navy
CSM	Conceptual Site Model
CTO	Contract Task Order
CWM	chemical warfare material
CY	cubic yard
DDESB	Department of Defense Explosive Safety Board
DID	Data Item Description
DoD	Department of Defense
DoN	Department of Navy
DOT	Department of Transportation
EFT	Equipment Function Test
EGIS	Environmental Geographical Information System
EM	Engineering Manual
EOD	Explosives Ordnance Disposal
EODT	Explosives Ordnance Disposal Technology
ESQD	explosive safety quantity distance
ESS	Explosive Safety Submission
EZ	exclusion zone
FAR	Federal Acquisition Regulations
FMBW	Former Munitions Bunker West
FOL	Field Operations Leader
FUDS	Formerly Used Defense Sites
GIS	Geographical Information System
GPS	global positioning system
HASP	Health and Safety Plan
HDOP	Horizontal Dilution of Precision

HFD	Hazardous Fragmentation Distance
HTRW	hazardous, toxic, or radiological waste
IBD	Inhabited Building Distance
ITS	Instrument Test Strip
MC	Munitions Constituents
MD	munitions debris
MDAS	material documented as safe
MDEH	material documented as an explosive hazard
MEC	Munitions and Explosives of Concern
MEDEP	Maine Department of Environmental Protection
MGFD	Munition with the Greatest Fragmentation Distance
mm	millimeter
mph	miles per hour
MPPEH	Material Potentially Presenting an Explosive Hazard
MRP	Munitions Response Program
MRS	Munitions Response Site
MSDS	Material Safety Data Sheet
msl	mean sea level
NAD 83	North American Datum 1983
NASB	Naval Air Station Brunswick
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEW	net explosive weight
NFA	no further action
NOSSA	Navy Ordnance Safety and Security Activity
OE	Ordnance and Explosives
OP	Operations Pamphlet
OSHA	Occupations Safety and Health Administration
PA	Preliminary Assessment
PDOP	Position Dilution of Precision
PM	Project Manager
POC	Point of Contact
QA	quality assurance
QC	quality control
QCP	Quality Control Plan
RCWM	Recovered Chemical Warfare Material
RI	Remedial Investigation
RPM	Remedial Project Manager

SAP	Sampling and Analysis Plan
SDZ	Surface Danger Zone
SI	Site Inspection
SOP	Standard Operating Procedure
SOW	Scope of Work
SUXOS	Senior Unexploded Ordnance Supervisor
Tetra Tech	Tetra Tech NUS, Inc.
UFP	Uniform Federal Policy
USACE	United States Army Corps of Engineers
USAESCH	United States Army Engineering and Support Center, Huntsville
USEPA	United States Environmental Protection Agency
UXO	Unexploded Ordnance
UXOQC	Unexploded Ordnance Quality Control
UXOSO	Unexploded Ordnance Safety Officer

1.0 INTRODUCTION

This Time Critical Munitions and Explosives of Concern (MEC) Removal Action Work Plan describes the technical approach for performing MEC removal action activities to address the past use of MEC at Munitions Response Program (MRP) sites at Site 12 Explosive Ordnance Disposal (EOD) Area and Former Munitions Bunker West (FMBW) Area at Naval Air Station Brunswick (NASB), located in Brunswick, Maine. Tetra Tech NUS, Inc. (Tetra Tech) is performing this work under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract Number N62470-08-D-1001, Contract Task Order (CTO) WE09. This Work Plan was prepared in accordance with the CTO Scope of Work (SOW), identified in Appendix A. The SOW and activities addressed in this Work Plan and the Site-Specific Health and Safety Plan (HASP)/Accident Prevention Plan (APP), provided for Navy purposes as a separate internal document, will also be addressed in an Explosive Safety Submission (ESS), a separate internal document for Navy use and approval by Department of Defense Explosive Safety Board (DDESB), pending regulatory agency approval of this Time Critical MEC Removal Action Work Plan. Key MEC calculation sheets, explosive arc figures, and additional information associated with the pending ESS are contained in Appendices G and I.

The purpose of MEC removal action activities at Site 12 EOD Area and FMBW Area is to clear the surface from a munitions explosive hazard perspective, and to later proceed to munitions constituents (MC) sampling at these areas. The MEC removal action will mitigate the surface explosive safety hazard or risk to human health and the environment. Information and data gathered during the MEC investigation and removal action will be used, as appropriate, to update and/or revise the current Conceptual Site Models (CSM) for Site 12 EOD Area and FMBW Area and to plan future phases of investigation, including the Site Inspection (SI) for MC and the Remedial Investigation (RI) for MC and MEC.

At FMBW Area, this effort will also include subsurface clearance to allow for future unrestricted land use. Additional geophysical surveys are not necessary for FMBW Area. For FMBW Area, this investigation/clearance will provide a basis for a decision of no further action (NFA) or further limited response actions, and will allow the MC SI to proceed. At Site 12 EOD Area, as part of the Base Realignment and Closure (BRAC) property transfer process, construction of the Marine Corps Armed Forces Reserve Center, to be located north of the site (see Figure 8 of Appendix B), is scheduled to begin in Spring 2010, with various studies for the construction design to begin prior to that date. In order to ensure the safety of workers associated with the construction project, surface clearance will be performed to protect against potential exposure to MEC and other munitions-related items that may be on site at Site 12 EOD Area. For example, construction vehicles and foot traffic are expected in and around the construction effort associated with the proposed Marine Corps Armed Forces Reserve Center, and this

area may overlap Site 12 EOD Area. This effort will also aid in planning for follow-on geophysical surveys for areas outside of the historical/existing berm area [areas where MEC/material potentially presenting an explosive hazard (MPPEH) are discovered], intrusive investigation during a future RI [results of trenching activities will be used to gain a clear understanding of the type of subsurface MPPEH [material documented as safe (MDAS) and material documented as an explosive hazard (MDEH)], MEC, and non-MEC materials, soil characteristics, depth of burial of MEC, and general depths to bedrock and/or groundwater], and will allow the MC SI to later proceed at Site 12 EOD Area. Results of the MEC investigation, surface clearance, and trenching, such as types of MEC discovered, locations of discoveries, and physical condition and description of discoveries, will be used to focus MC sampling efforts in locations where MC are expected. MC sampling will be designed based on the results of the removal action and MEC SI results and will likely entail establishment of decision units (e.g., bermed area, area outside of berm area and within the perimeter road, pond) that will each be subject to a different sampling design to meet the specific data quality objectives. Multi-increment composite sampling is expected to be incorporated into part or all of the sampling design. A separate MC Uniform Federal Policy (UFP)-Sampling and Analysis Plan (SAP) will be developed with the Stakeholders involved during the planning process.

MEC removal action activities will be performed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Sections 104 and 121, Executive Order 12580, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). All activities conducted during this time-critical removal action involving work in areas potentially containing MEC hazards will be conducted with approval from Navy Ordnance Safety and Security Activity (NOSSA) and will be performed in accordance with local, state, and federal regulations to include OPNAVINST 8020.15, NAVSEA Operations Pamphlet (OP) 5, NOSSAINST 8020.15B, DOD 6055.9-Std., Engineer Pamphlet EP-75-1-2, and all other Department of Navy (DoN) and Department of Defense (DoD) requirements regarding personnel, equipment, and procedures.

1.1 WORK PLAN OVERVIEW

This Work Plan text and appendices were prepared following the format, content, and preparation instructions specified in the United States Army Corps of Engineers (USACE) Data Item Description (DID) OE-005-01-01 for a Type II Work Plan (USACE, 2002a). Sections referenced in the DID that are not applicable to this SOW are not included in this Work Plan.

1.2 SITE DESCRIPTION

NASB occupies approximately 3,200 acres in Brunswick, Cumberland County, Maine. NASB has been home to three active duty and two Reserve squadrons and 29 tenant commands (Malcolm Pirnie, 2007).

The facility was designated for closure by BRAC in 2005 with an operational closure date of September 15, 2011.

Site 12 EOD Area is an approximately 112-acre site located in the southeastern portion of the installation. The boundary was based on the 1,250-foot Inhabited Building Distance (IBD) established as the range limit, and the actual area where MEC is expected to be present is much smaller (i.e., bounded by the perimeter road).

FMBW Area is approximately 29 acres in size and is located west of the runways on the western half of the facility. The site has been part of the buffer area for the runways since 1943, with only minimal other uses over the years.

1.2.1 Site Location

The NASB Main Base is situated between the Androscoggin River and Casco Bay southeast of the Town of Brunswick and approximately 25 miles northeast of Portland, Maine. It is located approximately 5 miles inland from the Atlantic Ocean and is bordered by Route 123 and Route 1 on the western and northern sides, respectively, and is adjacent to Route 124 on the eastern side (see Figure 1 of Appendix B).

Site 12 EOD Area is located in a remote, open, upland area on Buttermilk Mountain (see Figure 2 of Appendix B).

FMBW Area is bordered by a section of the inner electronic deer fence that surrounds the runways to the east, Mere Brook to the north, the perimeter road (Ordnance Road) to the west, and munitions bunkers road to the south. The area is accessible via Ordnance Road located near the runways (see Figure 3 of Appendix B).

1.2.2 Installation History

NASB was first commissioned on April 15, 1943. The primary mission of the station at this time was the training of British Naval Command pilots. The station carried out a secondary mission of anti-submarine warfare during World War II. The first U.S. squadron to arrive at NASB was an air scouting squadron. When the squadron began operations, the station consisted of only one-half mile of runway and had no hangers or operations tower. Construction was still underway on the runways and various other parts of the station when Royal Canadian Air Force crews arrived. Over the next few years, the station experienced tremendous growth and expansion of facilities and infrastructure. At the height of its wartime operations, the station supported three auxiliary landing fields, in Sanford, Lewiston, and Rockland, Maine.

The base remained active for 4 years and was subsequently deactivated in 1947. The land and buildings were leased jointly to the University of Maine and Bowdoin College as annexes to ease overcrowding caused by the G.I. Bill student influx. The University of Maine and Bowdoin College terminated their leases in 1949, and the station was taken over by the Brunswick Flying Service. At this time, the buildings that had housed military personnel and equipment were put to other uses. Hanger one was converted to a skating rink, hanger two and the operations tower were used for a civilian flying school, hanger three housed automobiles, ammunitions magazines became mushroom farms, and shrubbery nurseries were located in the northern portion of the station.

Following this period, the station was selected by the Navy as a prime center for development. During the development period, the United States Air Force reached an agreement with the Navy authorizing the construction of an Air Force Control and Warning Facility at the station as a part of the continental circumferential radar screen.

On March 15, 1951, the dormant air station was recommissioned as a Naval Air Facility with the established mission of supporting three land-plane patrol squadrons, one Fleet Aircraft Service Squadron, and a planned future mission as a master jet air station. The station also retained the mission of anti-submarine warfare. In December 1950, the Navy requested funds from Congress to be used for this master jet project, which required dual 8,000-foot runways and two outlying fields, one for gunnery and one for carrier practice landings. In addition, the Secretary of Defense submitted a request to Congress for approximately $20,000,000 in June 1951 to be used for additional barracks, officers' quarters, and enlisted men's clubs; control tower, storage, and communication buildings; and new galleys and mess facilities.

Following the reactivation period, several new permanent facilities were erected to replace the World War II "temporary" buildings. New facilities included a modern operations tower, three-deck barracks, and a large mess hall. In addition to these facilities, a new enlisted men's club, Navy Exchange, and Bachelor Officers' Quarters were constructed.

During 1951, the designation of the facility was officially changed to Naval Air Station. The Arctic Survival Training School was established in September 1956 to train personnel deploying to the Arctic in north country survival.

To practice rocket and bombing training, in 1958, the Navy acquired by condemnation Seal Island, located south of the main facility. Bombing and rocket training continued through the early 1960s along with anti-submarine warfare training. Units trained at NASB served in action during the Lebanon crisis in

the fall of 1958, when squadrons of Fleet Air Wing Three provided anti-submarine protection for the Sixth Fleet, then operating in the Mediterranean Sea. Also in 1958, a small detachment of Marines of the 2nd Marine Division from Camp Lejeune, North Carolina, was assigned to NASB. In March 1959, the Marine detachment became the Marine Barracks of NASB. The Marine Barracks eventually assumed full surveillance of the entrances from the civilian security police.

The Navy declared Seal Island excess property in 1965 and began to transfer the island to the National Park Service (Department of Interior) through the General Services Administration. The transfer was completed sometime after 1972. Today, Seal Island is in the Formerly Used Defense Sites (FUDS) program managed by USACE.

On July 1, 1971, Commander Patrol Wings United States Atlantic Fleet/Commander Patrol Wing Five established its headquarters at NASB. In the late 1990s, base consolidation efforts resulted in the demolition of surplus buildings around the installation. For over 40 years, six squadrons (Patrol Squadrons 8, 10, 11, 23, 26, and 44) were based at NASB. The facility was designated for closure by BRAC in 2005 with an operational closure date of September 15, 2011.

1.2.3 Munitions-Related Activities

The Site 12 EOD Area (see Figure 2 in Appendix B) was used from 1981 through June 2004 for the disposal of small quantities of ordnance, pyrotechnics, privately manufactured explosive devices, and war souvenirs. The range was officially designated a Class “D” disposal site with a maximum limit of 25 pounds net explosive weight (NEW) on September 18, 1990. It was briefly redesignated as a training area with a maximum limit of 5 pounds NEW and bare charges only in June 2000. In October 2002, the site was restored to a Class “D” range with a limit of 25 pounds NEW and retained that status until June 1, 2004, when EOD activities at NASB were officially terminated. It was reported by E.C. Jordan Company (1991) that since 1984, EOD activity has consisted of six “burns” for training and destruction of ordnance/explosives.

FMBW Area (see Figure 3 in Appendix B) was used sporadically between 1980 and 2000 by United States Marines stationed at the installation to conduct munitions-related security training. Blank small arms ammunition, practice grenades, and limited pyrotechnics (simulators and smoke devices) were used during the training. Reportedly, clearance sweeps of the areas where training took place were conducted following each training exercise. The types of munitions used during the training had explosives safety quantity distances (ESQDs) in the range of a few yards and thereby would not pose an explosives safety hazard to runway operations, storage magazines south of the site, or nearby local populations. The area is no longer used to conduct security training. The area was never formally established as a range at

NASB; the close proximity of the site to the runways, residential and commercial buildings, and current magazines made the area impractical to use as a formal range for significant live-fire munitions training or related uses.

1.3 PREVIOUS STUDIES OF EXTENT OF MEC CONTAMINATION

Information from the Supplemental Feasibility Study Report, Preliminary Assessment (PA) Report, PA Addendum, and MEC SI Report were used in the development of this Time Critical MEC Removal Action Work Plan. These investigations and studies are discussed below.

1.3.1 Site 12 EOD Area

During a 1989 investigation of the Site 12 EOD Area, what appeared to be two small demolition craters and a dumpster were present within the existing berm area at the site, as documented in the Supplemental Feasibility Study Report (E.C. Jordan Company, 1991). Six burns were conducted as training exercises at the site to destroy ordnance and explosives between 1984 and 1989, according to the study. According to NASB personnel, the dumpster, which was used during burns, was removed from the site in the 1990s.

To clear the site for exploratory work (E.C. Jordan Company investigation), surface and subsurface surveys were conducted by EOD-certified personnel in 1990, including a detailed inspection of the EOD training area and adjacent terrain (inside and outside of the current berm area). Subsurface clearance at sample locations was conducted using a Forester MK-26 Ordnance Locator. The berm area was confirmed to contain MEC. After clearing the site, three test pits approximately 20 feet apart were excavated. Micaceous schist (bedrock) was encountered at 3 feet below ground surface (bgs) in two of the test pits; the third test pit was excavated to 6 feet bgs, bedrock was not encountered. During the excavations, an expended solid rocket-fuel booster ("JATO" bottle) was unearthed. Other similar devices were observed just outside the berm area.

A PA Addendum finalized by Malcolm Pirnie in July 2007 addressed the Site 12 EOD Area. The PA Addendum summarized the history of munitions use and provided the results of a visual survey, assessment of current conditions, and CSM. The PA Addendum concluded that the entire Site 12 EOD Area was an area suspected to contain MEC and MC and recommended a SI to determine the presence or absence of MEC and MC at the site. Based on information obtained during the PA data collection process, the Site 12 EOD Area was not suspected to contain chemical warfare material (CWM)-filled munitions or hazardous, toxic, or radiological waste (HTRW)-associated munitions. The PA Addendum reported that munitions were destroyed with explosives by certified EOD personnel. Munitions were not fired at the site; however, the possibility exists that kick-outs may have occurred during disposal

operations. Kick-outs result when munitions items are not consumed during explosive disposal operations but instead are thrown from the detonation area by the force of the explosion. The PA Addendum estimated that the maximum probable depth from kick-outs was approximately 1 foot bgs. A 4-foot bgs probable penetration depth was estimated for detonation areas within the berm site because disposal operations typically occurred within demolition pits where munitions may have been buried, prior to being treated with explosives, to reduce fragmentation distances and control noise. EOD activities at NASB were officially terminated on June 1, 2004. Research conducted as part of the PA data collection process indicated that the Site 12 EOD Area was used from 1981 through June 1, 2004. Historical aerial photographs of Site 12 EOD Area were reviewed. On two photographs dated May 1992 and November 1993, there appeared to be two areas surrounded by a berm: the existing berm area and one area located directly southeast sharing a portion of the existing berm structure as part of its embankment. In addition to the PA historical aerial photographs, the internet provided imagery dated April 28, 2001, which showed five pits located inside the existing berm area which were most likely related to demolition operations that took place during this time.

SI field work was conducted at the FMBW Area and Site 12 EOD Area in July and August 2008 (Tetra Tech, 2009). The SI Report confirmed historical and visual evidence that MEC may be present at Site 12 EOD Area inside and possibly outside of the historical and existing berm area. Suspect MEC items found on the ground surface in and near the detonation area included two smoke grenades, one cartridge case; an unidentified ordnance-related item (suspected to possibly be a JATO M8 rocket motor) was found just outside of the berm area and within the perimeter road. A gator mine was found in the detector-aided surface sweep transects outside of the berm area to the northwest. A munitions debris (MD) item, a rocket motor, and a frag item were also discovered during the detector-aided surface sweeps along with several areas of magnetic influence (response from the detector) outside of the berm area and within the perimeter road. Anomaly density around the berms was determined to be moderate to high during subsurface geophysical surveying and more extensive than anticipated. Several large high-amplitude anomalies were detected outside of the existing and historical berms and at the edges of the expanded SI geophysical survey boundary. Areas with several anomalies, located within close distance of one another, and also areas of general elevated response were identified during the geophysical survey, these areas could possibly include greater density of munitions-related metal, including MEC. However, without intrusive investigation, this cannot be determined. It may be that additional bermed areas were historically present and/or the area was disturbed when historical berms were knocked down at the end of their use.

1.3.2 Former Munitions Bunker West Area

A PA prepared by Malcolm Pirnie and finalized in February 2006 addressed the FMBW Area. Research indicated that between 1980 and 2000, United States Marines stationed at the installation used the FMBW Area sporadically to conduct munitions-related security training. Marines at NASB reported that sweeps of the area were conducted after each training exercise and that all debris was removed from the ground surface.

The potential for MEC was determined to be low due in part to the types of training conducted at the site and the reported procedure of clearing the area of debris after training activities. The entire 29 acre FMBW Area was designated a suspect MEC area based on the PA. All of the munitions reported to have been used at the site were deployed on the ground surface and were not designed to penetrate the ground surface.

SI field work was conducted at the FMBW Area and the Site 12 EOD Area in July and August 2008 (Tetra Tech, 2009). At FMBW Area, no munitions-related items were detected during the detector-aided surface sweeps. Several non-munitions-related scrap objects were detected, including a tire, rim, wire, steel fencing pile, etc. Also, several rocks were found to be naturally magnetic. In general, most of the surveyed area was found to be devoid of significant unexplained magnetic anomalies (e.g., underground utilities). During the subsurface geophysical survey, there were no large or high intensity anomalies that could not be explained by surficial non-munitions metallic debris. However, there can be no further determination of the causes of the anomalies unless further investigation such as excavations is performed.

1.4 TOPOGRAPHY

In the developed portion of the installation, the topography has been altered so that the area is relatively level. Elevations are in the range from 60 to 75 feet above mean sea level (msl). In undeveloped portions of NASB, slopes vary between 0 and 15 percent. Slopes between 3 and 8 percent are common in the southern and western margins of the installation. Steeper slopes occur primarily along stream banks and are isolated occurrences on hills that generally have more gentle slopes. The highest elevations at NASB occur in the southeastern and southwestern portions of the installation. A northeast-trending ridge with an elevation of approximately 120 feet above msl occurs near Dyer Corner. A more extensive ridge, Buttermilk Mountain, occurs northeast of Harpswell Cove. At the southern boundary of the installation at the Harpswell Cove shoreline, the elevation is at sea level. However, elevations rise rapidly to 60 feet above msl as one travels northward from Harpswell Cove.

The northern portion of the Site 12 EOD Area slopes slightly to the south with a 10-foot change in elevation. The northern half of the site is marked by undulating hills, and the southern half of the site is relatively flat. The topography of the FMBW Area is relatively flat to gently rolling. However, the northern border of the site (Mere Creek) has a relatively steep cut back.

1.5 CLIMATE

The State of Maine is divided into three major climatic divisions, NASB is located in the Coastal Division, which is strongly influenced by its proximity to the Atlantic Ocean to the east and the White Mountains to the northwest. The Atlantic Ocean moderates extremes in temperature and increases the amount of precipitation received by the area. The White Mountains keep considerable snow from reaching the area from the northwest and also moderate temperatures.

Information obtained from the National Climatic Data Center station in Portland, Maine (approximately 25 miles southwest of Brunswick) provides representative climatic data for the area in which the installation is located. Average temperatures range from 20.8 degrees Fahrenehit (°F) in January to 68.6°F in July, with an annual average of 45.4°F. Mean daily maximum and minimum temperatures of 78.8°F in July and 12.4°F in January have been recorded. During extreme conditions, a daily maximum of 99°F in July and a daily minimum of minus 26°F in January have been recorded. There are, on average, 13 days of zero or subzero temperatures per year.

The annual average precipitation is 44.34 inches, with monthly average peaks as high as 5.17 inches in the fall and as low as 2.87 inches in the summer. The annual average relative humidity ranges from 65 to 77 percent. The mean seasonal snowfall is 70.90 inches. Because of the proximity to the Atlantic Ocean, winter precipitation in southern midcoastal Maine is often in the form of rain or wet snow. Fog occurs frequently along the Maine coast at all times during the year except in winter. On average, there are 57 days with heavy fog, defined as visibility less than one-fourth of a mile. Days with the possibility of sunshine range from 48 percent in November to 64 percent in August; the annual percentage of days with sunshine is 57.

Prevailing winds are from the south from April to September, from the north in November and December, and from the west to northwest for the remainder of the year. The annual average wind speed is approximately 9 miles per hour (mph), with monthly average wind speeds not varying considerably (7.7 mph in the summer to 10.1 mph in the spring). Strong winds in the winter, generated by coastal storms, can produce abnormally high wind-driven tides. Regional diurnal and seasonal variations may moderately influence wind directions and wind speeds.

2.0 TECHNICAL MANAGEMENT PLAN

This Technical Management Plan was prepared to document the approach and procedures to be used to execute the tasks required under this SOW and follows the format, content, and preparation instructions specified in the USACE DID OE-005-02.01 (USACE, 2002b).

2.1 APPLICABLE GUIDANCE AND REGULATIONS

MEC represents a safety hazard and may constitute an imminent and substantial endangerment to personnel and the local population due to its explosive potential. All activities conducted during this time-critical removal action involving work in areas potentially containing MEC hazards will be conducted with approval from NOSSA and will be performed in accordance with local, state, and federal regulations to include OPNAVINST 8020.15, NAVSEA OP 5, NOSSAINST 8020.15B, DOD 6055.9-Std., Engineer Pamphlet EP-75-1-2, and all other DoN and DoD requirements regarding personnel, equipment, and procedures.

2.2 DISCOVERY OF CWM OR HTRW

Potential exposure to CWM at these sites is not anticipated. In the event that CWM is located or suspected, Tetra Tech personnel will evacuate the area immediately in an upwind direction, secure the site, and request assistance from the Navy Point of Contact (POC). Project-specific contact information and organizational chart is located in Appendix C.

Upon discovery of suspect materials, the responsible Unexploded Ordnance (UXO) Technician III will:

- Ensure that all personnel are clear of the area
- Maintain security of the area until relieved

After the area is clear and secured, the responsible UXO Technician III will:

- Notify the Tetra Tech UXO Manager
- Notify the Navy POC
- Stop all field operations
- Assemble the crew at a designated assembly point
- Standby to provide assistance as required

If directed, UXO personnel will take emergency non-invasive actions such as covering the item with plastic sheeting or placing sandbags around the item.

In the event that HTRW is encountered on site, the work site will be evacuated until the Tetra Tech CLEAN Health and Safety Manager, with concurrence of the Navy POC, identifies and implements appropriate protective measures.

2.3 OFF-SITE MEC DISPOSAL/UNIDENTIFIED MEC

2.3.1 Off-Site MEC Disposal

In the unlikely event that MEC is discovered on site that is beyond the capabilities of the UXO personnel, Tetra Tech personnel will notify the POC at NASB and the Navy RPM who will contact the nearest military EOD component in Rhode Island for treatment. All site operations will temporarily stop and the area will be under the control of the UXO Technician until relieved by the NASB POC or military EOD. Military EOD will make a determination of how to handle and dispose of these MEC items. Although transportation is not anticipated, if it is necessary MEC/MPPEH will be transported by EOD in accordance with facility procedures (to include the use of designated explosive laden routes), US Department of Transportation (DOT), Code of Federal Regulations (CFR) 49, and AFT licensing requirements. The ESS will be reviewed and amended as needed in these cases. If amended, operations will not resume until the ESS has been approved. It is not anticipated that the UXO Technicians will require routine EOD support for MEC findings during this investigation and removal action.

2.3.2 Unidentified MEC

If any MEC items are located that cannot be identified, Tetra Tech personnel will notify the Navy POC at NASB and the Navy RPM who will notify the nearest military EOD component in Rhode Island (Appendix J-4) and will request their assistance with proper identification of the suspect item(s). Items will not be moved until a positive identification is made.

2.4 TECHNICAL SCOPE

Munitions response site (MRS) characterization and investigation activities to support the time-critical MEC removal action are planned as follows (see Figures 4, 5, and 6 in Appendix B):

- Clearing and grubbing of site vegetation at both the Site 12 EOD Area and FMBW, as necessary, to conduct the task at hand.

- Detector-aided surface surveys of the Site 12 EOD Area within the perimeter road, 100 percent coverage, and meandering path detector-aided surface surveys within the FMBW wooded area, at approximately 100 foot spacing of paths.

- Surface investigation and surface MEC removal at the Site 12 EOD Area within the perimeter road and extension beyond the perimeter road, as necessary.

- Manual anomaly intrusive investigation to confirm the absence of MEC at the FMBW Area to an estimated maximum depth of 1 foot at targeted locations identified during the SI within the operational area and as necessary within the FMBW Area wooded area.

Certain assumptions have been made regarding the SOW and level of effort required to complete the proposed investigation/clearance activities. These assumptions are based on the results of the SI for each site and discussions with the Navy and regulators. The assumptions are as follows:

Site 12 EOD Area:

- The current boundary for the site is approximately 112 acres and is based on the surface danger zone (SDZ) provided in the PA report. Based on the SI results, the anticipated boundary for locating MEC is expected to be smaller. For the purposes of the proposed effort, it is assumed that approximately 23 acres (20 percent of the SDZ area) will be investigated and surface cleared of MEC. The SI investigated an area of approximately 1,000 feet by 1,000 feet via transect surveys. This SI investigation area used the perimeter road of the site as the boundary which will be the preliminary boundary for this surface MEC removal action, and should provide adequate coverage for the removal action. Coverage may be extended as necessary to establish a 100 foot buffer zone (100 feet in all directions, creating a box) in and around the area of the last MEC item discovered on site.

- During the SI for Site 12 EOD Area, brush cutting and detector-aided transect surface surveys were conducted in only part of the area outside of the existing and historical berms (transects spaced 50 to 100 feet apart in the non-wooded area). Moreover, no geophysical surveys were conducted in areas beyond 10 feet outside of the existing/former berm as part of the SI. During detector-aided surface sweeps, the SI identified a few MEC items at the ground surface and some areas of subsurface ferrous anomalies in the areas between the existing/former berm and the perimeter road. Therefore, it is planned to conduct brush cutting, and detector-aided surface investigation and removal activities across 100 percent of the area within the perimeter road of the site. Activities will extend across the road as necessary (in general, coverage will be extended horizontally 100 feet out from any MEC

finding outside the perimeter road boundary). Any surface MEC items found in the outer areas will be investigated and removed (MEC items discovered during the SI were not removed as part of the SI). It is estimated that up to 100 individual investigations/removals will be needed. Known subsurface anomalies within the existing/historical berm area and select transects in the outer area will not be investigated at this time, but will be investigated during a subsequent RI. Additionally, geophysics in the outer area will be completed during the RI; results of this MEC investigation and clearance will be used to aid in planning the RI geophysics investigation.

- The SI for Site 12 EOD Area identified several MEC items at the ground surface and 161 subsurface anomalies of varying sizes within the existing and historical berm areas. The anomalies were present over a more extensive area than expected prior to the SI because the anomalies were not only inside the existing berm area but between and outside the historical berm areas as well. The SI geophysical investigation area was expanded, but was still unable to determine the full extent of anomalies within the existing/historical berm areas within the SI scope; however, enough information was obtained during the SI to determine that additional investigation is needed to address MEC in this area. Trenching (12 total) will be needed to gain a clear understanding of the type of subsurface MPPEH (MDAS and MDEH), MEC, and non-MEC materials, soil characteristics, depth of burial, and general depths to bedrock and/or groundwater at Site 12 EOD Area. Figure 5 of Appendix B presents the proposed locations of the 12 trenches. If the water table or bedrock is encountered at a given location, trenching will be discontinued at depth. The trenching effort includes preparing the site prior to trenching and restoring the site, primarily associated with backfilling after trenching activities are complete.

- The pond will not be investigated at this time, but will be investigated during a subsequent RI.

- Non-MEC debris, for example, tire rims and shovel heads (non-MEC contaminated items), located during the detector-aided surface surveys will be moved to a nearby location; marshalling and off-site disposal of non-MEC debris will be deferred to the RI or addressed by NASB. After removal of the non-MEC debris, a detector-aided surface survey will be conducted to ensure that no surface MEC is now visible.

FMBW Area:

- The SI for FMBW identified no surface MEC and 111 subsurface anomalies during geophysical surveying. Based on the CSM presented in the MEC SI Report and the low intensity of subsurface anomalies encountered during geophysical surveying, it is assumed the anomalies are shallow, less than 1 foot bgs, and can be manually investigated using hand tools by the UXO Technicians.

Intrusive investigations are being conducted to confirm the absence of subsurface MEC at FMBW Area. Additional geophysical surveying is not necessary since previous geophysical surveying conducted during the SI is adequate. Global positioning system (GPS) units will be used to reacquire anomaly locations using dig sheet data developed during the SI. Limited brush cutting is anticipated for anomaly investigation/removal due to previous SI brush cutting efforts and the scope of the task.

- Wooded areas were not investigated during the SI because the focus was on potential source areas where munitions-related security training would have been conducted. A detector-aided surface survey of the wooded areas will be conducted during this MEC investigation and removal by UXO Technicians using meandering paths to confirm the absence of MEC. Little to no brush cutting and no tree removal are planned.

- Non-MEC debris, for example, tire rims and shovel heads (non-MEC contaminated items), will be moved to a nearby location prior to detector-aided survey operations and anomaly investigation/clearance operations occurring; marshalling and off-site disposal of non-MEC debris is deferred to the RI or addressed by NASB. A detector-aided survey of the cleared location(s) will be conducted to ensure that no anomalies underlie the non-MEC debris.

2.4.1 Detection Equipment, Methods, and Standards

A Schonstedt GA-52Cx, ferrous metal detector, or equivalent, will be used during the detector-aided surface surveys. The detector-aided surface survey at the Site 12 EOD Area will cover 100 percent of the accessible area within the perimeter road (see Figure 4 in Appendix B). The wooded areas of the FMBW Area not previously investigated during the SI will also be investigated during a detector-aided surface survey along meandering paths of approximate 100 foot spacing through accessible areas of the site. In addition to the Schonstedt, a White's Spectrum XLT all-metals detector, or equivalent, will be used during the surface surveys at the Site 12 EOD Area and FMBW Area to assist in the location of metal targets with little or no ferrous metal content. Each target on the dig sheet at FMBW Area will be reacquired with the Schonstedt and/or White's and then checked with both instruments before it is considered cleared of MEC hazards.

No additional geophysical surveys are planned during the MEC investigation and removal action at either site. However, anomaly targets identified on the geophysical dig sheets generated during the MEC SI at FMBW Area will be investigated as well as suspect shallow subsurface anomalies in the FMBW Area wooded area. The use of the detector-aided surface survey equipment, in conjunction with a visual survey for MEC, will be used to determine that each anomaly location at the FMBW area is cleared of all

MEC hazards and that no MEC remain at the site. The instruments described above are the best technology for this operation based on industry standards.

The selected detector-aided surface survey equipment is expected to detect the target items. The White's Spectrum XLT has reduced depth detection capabilities, but has the added capability of detection of nonferrous metals. Combined with the small size and thin-cased construction of the M204 Grenade Fuze (FMBW Area), the White's Spectrum XLT is estimated to detect target anomalies to approximately 8 to 12 inches.

To test the detector-aided surface survey instruments in accordance with the DID MR-005-05 standard, the UXO Quality Control (UXOQC) specialist will bury selected target items or surrogates in a location free from ferrous anomalies at depths up to 11 times the diameter of each item. The buried surrogates will be made of metal and have a similar diameter and aspect ratio as the selected target items. Inert grenade fuzes or surrogates will be buried at varying depths, up to 12 inches bgs, to test the capabilities of the White's Spectrum XLT and to refine field investigation techniques for the site conditions. The above will be conducted and tested in an Instrument Test Strip (ITS) discussed in Section 5.0. This ITS will be used to test equipment and procedures for both the FMBW investigation of anomalies on the dig sheets and investigation of anomalies discovered along the meandering paths in the woods, as well as supporting the Site 12 EOD Area detector-aided surface survey although no intrusive investigation will be conducted at Site 12 EOD Area at this time.

2.4.2 Navigational Equipment, Method, and Standards

A Trimble GPS, or equivalent, will be used for navigational data collection, corner grid stake location, and reacquisition of SI data, including target anomalies at FMBW and anomalies at Site 12 EOD Area where needed to aid in locating proposed trenches. Refer to Appendix J-3 for GPS coordinates. Depending on the amount of interference from the tree canopy, use of other navigational systems (e.g., tape measure and compass) may be necessary to assist GPS methods in meeting project objectives. Horizontal accuracy of reacquired anomalies (FMBW Area SI targets only) will be 95 percent of anomaly locations within a 1-meter radius of their original surface location as marked on the dig sheets generated during the SI. Horizontally, 95 percent of all items removed during the intrusive investigation will be within a 35-centimeter radius of their reacquired surface location as marked in the field after reacquisition. Sensor data will be correlated with navigational data based on a local "third-order" monument or survey marker. These standards were established using guidance from Engineering Manual (EM) 1110-1-4009 (USACE, 2007). If suspect MEC is encountered, its location will be recorded and/or marked using a GPS, tape measure, or other grid coordinate location system.

2.4.3 Equipment Checkout and Calibration

All UXO instruments used during this investigation and removal action operation will be checked at the start of each day and after each battery change, to ensure they are capable of detecting the buried target items/surrogates. If any instrument is found not to detect the target items/surrogates, that instrument will be removed from operation until repaired and retested. The UXOQC will record the results of the checks in the UXOQC logbook.

GPS instruments will be checked at the start of each day and midway through the work day by direct comparison to known monuments (per Standard Operating Procedure [SOP]-03 in Appendix F-1). Positional accuracy will be within 8 inches of the monument or survey marker.

The procedures presented in the SOPs will be conducted on a daily basis, checked for accuracy and repeatability, and archived by the field team leader. If abnormalities are discovered, corrections will be made and the process will be repeated.

2.4.4 Data Collection and Storage

Digitally recorded data collected at the sites will be transferred from the GPS/field storage unit to a computer each day. All maps will be oriented to a coordinate system designated by NASB to be consistent with existing map files for ease of interpretation.

2.5 CHANGED SITE CONDITIONS

Tetra Tech will keep the Navy POC updated on project status via daily reporting and frequent communication of on-site activities and conditions. In the event of extreme adverse weather conditions or a change in site conditions, Tetra Tech will notify the Navy POC immediately.

2.6 PROJECT ORGANIZATION

A project organizational chart, site-specific project personnel contact information, and local contact information is presented in Appendix C. The subsections below describe the responsibilities of site-specific personnel.

2.6.1 Project Manager

The Tetra Tech Project Manager (PM) shall have a minimum of 5 years of project management experience. The PM will have overall responsibility for management and completion of the project, which

includes at a minimum resource allocation, financial reporting, schedule control, review and approval of deliverables, invoice review and approval, and overall management of the project.

2.6.2 Field Operations Leader

The Field Operations Leader (FOL) (i.e., for this project, the Senior UXO Supervisor [SUXOS]) will act as a liaison for the PM to the on-site personnel and ensure that all responsibilities of on-site personnel are being met. Although direct communication between on-site personnel and the NASB POC is necessary, the FOL will keep the PM informed of all directives from the NASB POC. The FOL has immediate stop work authority. The SUXOS will function as the FOL for this project.

2.6.3 UXO Manager

The Tetra Tech UXO Manager will ensure that all UXO issues are addressed and resolved, including equipment, staffing, and administrative requirements. The UXO Manager will provide support off site throughout the project duration unless requested by the PM to be on site.

2.6.4 Senior UXO Supervisor

The SUXOS will direct daily implementation and enforcement of the SOW requirements as they apply to UXO support and safety during site activities. The SUXOS is the technical lead and will have overall responsibility for day-to-day UXO operations at the site and will direct subcontractors, the FOL (who will also be the SUXOS), and other personnel at the site on UXO support issues to ensure their safety. The SUXOS will be responsible for all site MEC documentation. The SUXOS will meet the qualifications stated in DDESB TP 18 (DDESB, 2004). Other responsibilities of the SUXOS include the following:

- Review of this Work Plan and initiate Field Change Requests as needed.
- Ensure that site activities are scheduled and executed with adequate personnel and equipment resources to perform each activity safely with the required quality and in a timely manner.
- Ensure adequate communications.
- Ensure that site personnel are trained in accordance with the HASP/APP.
- Ensure that all notifications are given prior to beginning work.
- Ensure that required exclusion zones are established and maintained.

- Ensure that all intrusive operations are conducted in accordance with this Work Plan and state and federal regulations.

- Implement the approved UXO safety program in compliance with all federal, state, and local regulations.

- Analyze UXO and explosives operational risks, hazards, and safety requirements.

- Enforce personnel limits and safety exclusion zones for UXO operations.

- Conduct safety inspections to ensure compliance with UXO safety standards/regulations.

- Implement QC requirements including QC inspections of all UXO-related work.

- Direct and approve corrective actions to ensure that UXO-related work complies with contractual requirements.

The SUXOS will have a minimum of 10 years of EOD/UXO experience including UXO clearance operations and supervision of personnel. The SUXOS will have the authority to stop site activities if an immediate/dangerous/hazardous situation exists. The situation will be immediately reviewed with the UXO Safety Officer [UXOSO]/UXOQC, and reported to the Tetra Tech PM and NASB POC.

2.6.5 UXOSO/UXOQC

The UXOSO/UXOQC will be on site at all times during UXO-related work and has immediate stop work authority. The UXOSO/UXOQC will meet the qualifications stated in DDESB TP 18 (DDESB, 2004). Other responsibilities of the UXOSO/UXOQC include the following:

- Ensure that site personnel are trained in accordance with the HASP/APP (separate internal Navy document).

- Ensure adequate communications.

- Ensure that required exclusion zones are established and maintained.

- Ensure that intrusive operations are conducted in accordance with this Work Plan.

- Implement the approved UXO safety program in compliance with all federal, state, and local regulations.

- Analyze UXO and explosives operational risks, hazards, and safety requirements.

- Enforce personnel limits and safety exclusion zones for UXO operations.

- Conduct safety inspections to ensure compliance with MEC safety standards/regulations.

- Conduct quality control (QC) inspections to ensure compliance with this Work Plan.

The UXOSO/UXOQC will have a minimum of 8 years of EOD/UXO experience in all phases of munitions response actions or range clearance activities, as appropriate for the contracted operations, and applicable safety standards.

2.6.6 UXO Team Leader-UXO Technician III

The UXO Team Leader (UXO Technician III) will have a minimum of 8 years of EOD/UXO experience including prior military EOD and/or commercial UXO experience in munitions response actions and/or range clearance activities. The UXO Team Leader may supervise up to six UXO Technicians and will conduct UXO activities as directed by the SUXOS or UXO Manager in his/her absence. The UXO Team Leader will meet the qualifications stated in DDESB TP 18 (DDESB, 2004) and be under the direct supervision of the SUXOS or UXO Manager in his/her absence.

The UXO Team Leader will direct implementation and enforcement of project requirements as they apply to UXO support and safety during site activities. The UXO Team Leader will be responsible for UXO Team operations at the team's work sites, and will direct other personnel resources at the team's work site on UXO issues to ensure their safety. The UXO Team Leader will be responsible for the team's work site MEC and MPPEH documentation and will submit all documentation to the SUXOS at the end of each work day. Other responsibilities of the UXO Team Leader include the following:

- Make all required notifications prior to beginning work.
- Establish required exclusion zones and ensure they are maintained.
- Ensure that all MEC operations are conducted in accordance with this Work Plan and state and federal regulations.
- Implement the approved HASP and APP in compliance with all federal, state, and local regulations.

- Analyze MEC and explosives operational risks, hazards, and safety requirements.
- Enforce personnel limits and safety exclusion zones for MEC operations.

The UXO Team Leader will have the authority to stop site activities if an immediate, dangerous/hazardous situation exists. The dangerous situation will be immediately reviewed and reported to the SUXOS, Tetra Tech PM, and NASB POC.

2.6.7 UXO Technician-UXO Escort

A UXO Technician will be assigned UXO escort/avoidance activities as needed to prevent accidental exposure to potentially hazardous ordnance items. The UXO Technician will ensure that areas of intrusive operation, to include the installation of survey stakes, are free of anomalies and UXO concerns and will conduct UXO escort duties for all non-UXO personnel. The UXO Technician will meet the qualifications of a UXO Technician II at a minimum and be under the supervision of the SUXOS or UXO Manager in his/her absence.

2.6.8 UXO Technician - UXO Technician II or I

A UXO Technician II will have prior military EOD experience or a minimum of 3 years experience in munitions response actions or range clearance activities. A UXO Technician I will have training as stated in DDESB TP 18 (DDESB, 2004) and have a valid UXO Training Certificate. These UXO Technicians will conduct UXO activities as directed by the UXO Team Leader and SUXOS. These UXO Technicians will conduct the anomaly investigation effort to clear all non-UXO items and to identify all UXO and munitions debris items. The UXO Technicians will meet the qualifications of a UXO Technician as stated in DDESB TP 18 (DDESB, 2004) and be under the direct supervision of the UXO Team Leader.

2.7 MOBILIZATION, SET-UP, AND PRELIMINARY ACTIVITIES

Tetra Tech will schedule the arrival of its workforce on site in a manner that is most effective and designed to allow for immediate productivity. All personnel mobilized to the site will meet the Occupational Safety and Health Administration (OSHA) training and medical surveillance requirements specified in the HASP/APP. All UXO Technicians will have the appropriate level of training and experience as stated in DDESB TP 18. As part of the mobilization process, site-specific training for all on-site personnel will be performed. The purpose of this training is to ensure that personnel fully understand the operational procedures and methods to be used at NASB, to include individual duties and responsibilities, and all safety and environmental concerns associated with these MEC operations. The training will include, but not be limited to, a review of this Work Plan and HASP/APP (separate

document). Any personnel arriving at the site after this initial training session will be trained when they arrive. Training will be conducted by a UXO Technician III.

Project equipment for the UXO survey will be allocated through Tetra Tech sources and/or procured through local leases/purchases. All equipment, regardless of source, will be checked to ensure its completeness and operational readiness. Any equipment found damaged or defective will be returned to the point of origin, and a replacement will be secured. All instruments and equipment that require routine maintenance and/or calibration will be checked initially upon arrival and then prior to use each day and according to the established schedules. This system of checks ensures that all equipment is functioning properly. If an equipment check indicates that any piece of equipment is not operating correctly and field repair cannot be made, the equipment will be tagged and removed from service, and a request for replacement equipment will be placed immediately. Replacement equipment will meet the same specifications for accuracy and precision as the equipment removed from service.

2.8 INITIAL SITE PREPARATION

During initial set-up at each site and prior to bringing non-UXO personnel or mechanized equipment on site, the UXO team will conduct visual and detector-aided surface surveys within the areas of operation, removing non-munitions-related metallic debris and flagging all munitions-related debris and suspect MEC/MPPEH. Non-mechanized vegetation removal will be conducted, as necessary, to facilitate the site set-up. After all surface non-munitions-related metallic debris has been removed and all munitions-related debris and suspect MEC/MPPEH have been treated or flagged for UXO avoidance, the SUXOS will allow non-UXO personnel and mechanized equipment on site in cleared areas, as necessary.

2.8.1 Site Accessibility and Traffic Control

Explosive safety requires an exclusion zone (EZ) be established and maintained before any UXO activities occur due to the potential for encountering live explosively configured munitions. An EZ is intended to keep non-essential personnel from being exposed to hazardous blast overpressure and fragments resulting from an unintentional detonation of the munition with the greatest fragmentation distance (MGFD). In late March 2009, the DDESB published Change 1 to DoD 6055.09-STD, which for the first time established separate rules for "high-input" and "low-input" mechanized MEC processing operations. In accordance with the change, the EZs for this project were selected so that, during low-input processing operations, non-essential personnel are provided protection for accidental (unintentional) detonations (greater of hazardous fragmentation distance [HFD] or K40, blast overpressure).

The size of the EZs around UXO operations described in this Work Plan is K-40 or the HFD, whichever is greater. The distances in Tables 6-2 and 6-3 (Appendix I) of the pending ESS for the selected MGFDs will define the dimensions of the EZs.

The EZ for the Site 12 EOD Area will be established at a minimum of 131 feet from the outer edge of the designated investigation area, (see Figure 4 in Appendix B).

The EZ for the FMBW Area will be established at a minimum of 6 feet from the outer edge of the designated investigation area (See Figure 6 in Appendix B).

Once established, the EZs will be controlled by barricades at each access point. Each barricade will be marked with the name and number of the person who can be contacted to request access.

Both routine and emergency response actions dictate the need for prevention of unauthorized site access and for the protection of vital records and equipment. All equipment will be secured and brought to a designated location at the end of each day. Protective barriers will be placed around open excavations/trench locations after duty hours to ensure that personnel do not accidentally encounter the excavations.

2.8.2 Site Security

Site security will be maintained to ensure that non-essential personnel do not access the area during MEC clearance operations.

2.8.3 Vegetation Management

Brush cutting will be required at the Site 12 EOD Area and FMBW Area to prepare for detector-aided surface surveys. Brush can hinder the performance of surface survey detectors which need to be in close proximity to the ground surface for proper operation. The degree of brush cutting will be site specific and based on the conditions at the time that the investigations are conducted. Vegetation must be cleared to a level no greater than 12 inches above the ground surface to permit the passage of the detection equipment. The following types of equipment/techniques that will be used for brush cutting, further detail is presented in SOP-04 (Appendix F-1).

- Hand-held brush cutters (string or blade) will be used to clear light vegetation and small grassy areas.
- Mechanized lawn mowers will be used to mow larger grassy areas.
- Chain saws will be used in heavier brush areas and to cut small trees up to 2 inches in diameter.

- Tractor-mounted brush hogs will be used in larger areas and heavier brush areas.
- Brush/vegetation cuttings will be left at the site of the area cleared. If this is impractical, a wood chipper will be utilized.

The UXO team will visually inspect as much of the work area as possible to identify any obvious MEC/MPPEH hazards prior to brush cutting activities. Any suspect MEC/MPPEH found during the surface inspection will be flagged by the UXO team and reported; the brush cutting team will avoid these areas. Brush will be cut to a height that allows clearance for UXO operations and geophysical equipment operation but no closer than 6 inches above the ground surface. The 6 inch clearance will minimize the likelihood of accidental contact with smaller MEC/MPPEH items on the surface or partially buried that were not located during the initial inspection. Additionally, an UXO Escort will be provided at all times during vegetation management activities. The UXO Escort will be utilized even when the UXO team performs vegetation management. This will provide a more focused observation of the work area for MEC/MPPEH and related hazards.

The general methods, techniques, and processes to be used include UXO team support, equipment standardization, anomaly reacquisition, Quality Assurance (QA)/QC measures, field reporting, and records management.

2.9 SURFACE SURVEY INVESTIGATION

Tetra Tech plans to use an analog hand-held detector (such as the Schonstedt fluxgate magnetometer and White's Spectrum all-metals detector) to complete the detector-aided surface surveys of the areas of concern.

A Trimble GPS unit, or other equivalent unit, will be used during data collection for precise navigation. Depending on the amount of interference from the tree canopy, use of other navigation systems (e.g., tape measure and compass) may be necessary to assist GPS methods in meeting project objectives. GPS accuracy will be checked by verifying position dilution of precision (PDOP) or horizontal dilution of precision (HDOP) and two known GPS points daily, before data collection. If the GPS reading is more than 2 feet from the point of known location, data will not be collected until more satellites are available and the accuracy is within 2 feet. This requirement has been modified so that the objectives of the Time-Critical MEC Removal Action can be accomplished but allows flexibility. If interference from the tree canopy is unacceptable, use of tape measures and a compass may be implemented.

The estimated daily lot of work for Site 12 EOD Area is eight grids, (two acres). The estimated daily lot of work for the wooded areas of the FMBW Area is ½ mile per UXO Technician conducting meandering path surveys.

All equipment tests, acceptance criteria, and test frequencies are the same as those for the ITS, as described in Section 5.0.

2.10 INVESTIGATION TECHNIQUES

2.10.1 Low Density Anomaly Areas

Portions of the Site 12 EOD Area that are outside of the existing/historic berm area and the entire FMBW Area are considered low density anomaly areas (see Figures 4 and 6 in Appendix B). Surface anomalies discovered during the detector aided surface survey will be investigated and cleared at the Site 12 EOD Area. Surface and subsurface anomalies designated for investigation based on the results of geophysical survey conducted during the SI at FMBW (see Figure 6 in Appendix B) will be cleared to an anticipated maximum depth of 1 foot bgs. A total of 111 targeted subsurface anomalies were identified (see Appendix J-3). Surface anomalies discovered during the meandering path detector aided survey of the wooded area at FMBW will also be cleared. The instrumentation for the surface survey has capabilities to detect items in the shallow subsurface; therefore, select subsurface anomalies in the woods at FMBW will be investigated if suspicious [e.g., if signature is similar to surrogate signature from the ITS (see Section 5.0)] or will be investigated to the extent necessary (e.g., recognizing that anomalies may be attributable to natural ferrous rock, as suspected during the SI of the open areas) with an anticipated maximum depth of 1 foot bgs. Excavations will be conducted using manual procedures until the sidewalls and bottom of each small excavation are clear of anomalies. Each intrusive “dig team” will consist of two qualified UXO personnel including at least one UXO Technician II. Dig teams will be supervised by a UXO Team Leader (UXO Technician III) who will be able to supervise up to three dig teams at one time as long as visual and verbal communications can be maintained between the UXO Team Leader and his assigned dig teams. Intrusive activities will not begin until the UXOSO has given a safety briefing, the UXO Team Leader has given a site-specific safety briefing to their team, communications are established, and all nonessential personnel are evacuated from the area. Surface anomalies only will be investigated at the Site 12 EOD Area. No subsurface investigation is planned at this time at the Site 12 EOD Area.

If a UXO team member discovers a suspect MEC/MPPEH item, he/she will: (1) call for a temporary work stoppage within the team separation distance of the item and (2) request that the SUXOS identify and/or verify the identity of the item and the hazards associated with it. The SUXOS will have ultimate responsibility for the proper identification of the item and its condition, and only the SUXOS can declare that an item is safe to move. Once identified, each MEC/MPPEH item will given a unique identification

number and all information and observations will be recorded in the field logbook and MEC Tracking Log (per SOP-02). Suspect MEC items that are not safe to move will be secured in place, and the SUXOS will coordinate for treatment of the item with a donor charge. Suspect MEC items determined by the SUXOS to be safe to move can be removed to a secure area at Site 12 EOD Area and the SUXOS will coordinate for treatment of the item before the end of the work day. This will allow site operations to continue. No item will be left untreated overnight. If an item cannot be treated on the same day it is discovered, the SUXOS will maintain security of the item and report its location and other information to the Tetra Tech UXO Manager, Tetra Tech PM and Navy POC. Security of the item will be maintained until it is treated or until responsibility for its security is transferred to the Navy POC. To ensure complete clearance, non-MEC debris will also be removed and a detector-aided surface survey will be performed over these areas to ensure there are no underlying anomalies.

2.10.2 High Density Anomaly Areas

No areas at the FMBW Area are considered high density anomaly areas. The existing/historic berm area within the Site 12 EOD Area is considered a high density anomaly area and will require mechanical means to investigate potential MEC/MPPEH. Upon completion of detector-aided surface surveys and surface MEC removal, limited trenching (12 total) is planned for intrusive investigations of selected anomalies in the Site 12 EOD area (see Figure 5 in Appendix B). The goal of the trenching is to acquire data on the type, depth and volume of MEC within the high density anomaly area, soil characteristics, and general depths to bedrock and/or groundwater. The trenching operation is an explosive operation and will follow all applicable explosive-related procedural and safety requirements. The trenching team will initially consist of, at a minimum, a UXO Team Leader, a heavy equipment operator, (will be UXO qualified), and two UXO Technicians to remove, investigate, and clear MEC/MPPEH from the excavated material.

Upon completion of detector-aided surface surveys and surface MEC removal, trenching activities at Site 12 EOD Area will begin with soil excavation with a hydraulic excavator with a blast shield attached by an equipment operator (see Table 6-1, Appendix I). A Caterpillar 314D hydraulic excavator or equivalent will be used for excavation operations. During excavation activities, a UXO Technician will be present to observe the excavation process and identify any visible MEC. Soil and debris contents of the excavator bucket will be spread on the ground near the excavation, investigated and cleared of MEC/MPPEH and other debris larger than 20 millimeter (mm) in size (size of smallest MEC item) by UXO Technicians. During investigation and removal operations, approximately 1 cubic yard (CY) of soil will be spread on the ground at a time. The UXO Technicians will perform a 100 percent detector-aided surface survey of the spread soil. Each UXO Technician will work with a dig team partner. Each of the UXO Technicians will perform survey and investigation of any targets within the spread soil. Once MEC/MPPEH/scrap metal is

removed, the remaining soil will then be placed in the cleared soil pile. A piece of poly sheeting will be placed on the ground prior to the establishment of cleared soil pile(s) in order to minimize the introduction of small metallic items and small arms (<20mm), and the unintentional surface spreading of potentially MC contaminated subsurface soil into already cleared surface soil. Trenching excavation operations will continue in batches as described above until the end of the work shift or until the trench has been characterized.

The trenching operation at Site 12 EOD Area is not intended to remove all MEC items, but to acquire data on the type, depth and volume of MEC/MPPEH with in the selected trench area. Trench operations will be observed by two UXO Technicians from behind a blast shield. If MEC/MPPEH are observed in the excavated trench, the operation temporarily will stop. The UXO Technicians will investigate the MEC/MPPEH item and determine if it is safe to move. Personnel will not enter a trench greater than four feet deep for health and safety purposes. The depth of the trench will be determined in the field with the purpose of determining the approximate depth of buried MEC. Unfuzed safe-to-move items will be consolidated for later explosive treatment. Items determined to be unsafe to move will be treated with Blow-In-Place (BIP) procedures.

Upon completion of the excavation, the cleared soil will then be backfilled and compacted within the trench area, and the areas will be seeded with grass.

Depending on the amount of potential MEC-related debris and/or metal fragments remaining, these items will be removed either by hand or by using a magnet and collected in plastic containers. Easily identifiable MPPEH will be segregated from other metal material during this collection process.

Metal debris collected and MPPEH identified will be brought to a separation area for segregation. Two UXO Technicians will separate the MPPEH from the other metal debris through visual inspection. MPPEH will be transported to a designated area for storage. In the event that MEC are discovered at this process area, the SUXOS and UXOQC will be called immediately for identification and disposition.

The UXO Team Leader will maintain a daily log recording, at a minimum, the length, width and depth of the excavated trench (and trench corners if possible), the location(s) excavated, and a description of the MEC/MPPEH removed along with the estimated weight and estimated number of other metallic debris. Estimated weight and number of expended cartridges and bullets (small arms MDAS) removed will also be documented (e.g., several hundred bullets were found in the eastern end of trench T3 from approximately 2 to 3 feet bgs). If it is not feasible to determine precisely where each item came from, the UXO Team Leader will make note with a general observation and description.

The trenching operation at Site 12 EOD Area will be self-performed by Tetra Tech with a team consisting of 6 personnel with responsibilities as follows:

- SUXOS will be responsible for general oversight of the entire operation.
- A UXOSO/UXOQC will be responsible for oversight of safety and QC.
- Two UXO Technicians (one Technician III and one Technician II or higher) will be responsible for conducting the detector-aided surface survey of the material and debris during excavation of the trench for the presence of MEC/MPPEH.
- One UXO Technician (Technician II or higher) will be responsible for observing the excavations for the presence of MEC/MPPEH.
- One UXO Technician (Technician II or higher with operator's certification) will be responsible for conducting excavator operations.

Essential personnel must be provided protection equal to that provided for an unintentional detonation, from both blast overpressure and fragments. The blast overpressure protection is provided by maintaining distances between the equipment operator and device contacting the MGFD, e.g., the excavator bucket, and between the UXO Technician observing the operation and the device contacting the MGFD. This distance must not be less than K24 (i.e., distance between the operator and excavator bucket striking a potential munitions item) for the selected MGFD (Appendix I, Table 6-3). The Caterpillar 314D hydraulic excavator planned for use at the site has a maximum reach of over 25 feet and can operate effectively at a reach beyond the K24 distance (14 feet) for the selected MGFD. The fragment protection is provided by placing equipment operators and UXO technicians observing the operation behind shields constructed of material with thicknesses not less than those shown in Table 6-1 of Appendix I for the selected MGFD. Shielding requirements only apply at the Site 12 EOD Area; mechanical operations are not planned for the FMBW Area.

2.11 QUALITY CONTROL

QC measures will be implemented to ensure that project objectives are met. The required equipment tests and frequency of testing are detailed in the ITS section (Section 5.0). In addition, blind seed items, (inert 20 mm projectiles, or surrogates) will be placed at the surface at locations throughout the Site 12 EOD Area prior to performance of the detector-aided surface survey. A 20mm item was selected because it is the smallest MEC item. At least one blind seed item, and no more than six, will be placed in

each estimated daily lot of work. The estimated daily lot of work for Site 12 EOD Area is eight grids, (2 acres).

The SUXOS, UXOQC, or UXO Team Leader will place the blind seed items. Blind seeds will be placed using the guidelines outlined in Chapter 9 of EM 1110-1-4009 (USACE, 2007). UXO avoidance, with the assistance of metal detectors, will be used to clear areas selected for the placement of blind seeds. All items placed in the study area will be clearly marked with an identifier so that the UXOQC and SUXOS can record their locations during both placement and reacquisition. This information will be recorded in accordance with the requirements noted in Section 10. Acceptance and failure criteria for blind seed areas are identified in Table 10-1.

All raw data files, final processed data files, hard copies, and field notes associated with the field activities will be maintained for the duration of the project. Tetra Tech will transmit data to NASB personnel following completion of the project. All raw files will be available on site for QC checks to assure field and data processing procedures during site activities.

2.12 REPORTING AND DISPOSITION OF MEC

Initial MEC identification will be the responsibility of the UXO Team. MEC will not be moved until a positive identification is made by a UXO Technician II or higher and the UXO Team Leader and the SUXOS concurs that the item(s) can be safely moved. If MEC are identified and deemed safe to move, the UXO team may transport the item(s) to a temporary holding area that will be established at the Site 12 EOD Area for recovered MEC/MPPEH that are determined safe to move and awaiting disposal. The temporary holding area will consist of 2 feet of sandbags placed on all four sides of each MEC/MPPEH item, with a plywood cover and 2 feet of sandbags on top. This area will be under the control of the UXO Team Leader until disposal operations have been completed. The ESQD arc created by the NEW for each temporary holding area will not extend beyond that established for the site. In order to prevent the spreading of MEC/MPPEH debris and related MC residues, items will be destroyed in “demolition areas” using engineering controls consisting of 2 feet of sandbags placed on all four sides of each MEC/MPPEH item, with a plywood cover and 2 feet of sandbags on top of the plywood. Demolition operations will be performed on the day the MEC item is discovered, if possible. NASB is a secure and guarded installation at this time. In the event that the item can not be disposed of on the day it is discovered, the item will be flagged, its location marked for disposal for the following day, and, NASB security personnel and the NASB POC will be informed of its location. The UXO Team will maintain security of the item until relieved by the NASB POC. Items encountered that are not safe to move will be treated by Tetra Tech using BIP procedures.

If the UXO team is unable to identify an MEC item, Tetra Tech personnel will notify the Navy POC at NASB and the Navy RPM who will request assistance from the nearest military EOD component in Rhode Island.

The UXO Team will identify all MEC items, and their original locations will be recorded by GPS or other means, such as compass and tape measure, in wooded areas where the GPS does not work. This information will be recorded on the MEC tracking log and all MEC items will be photographed. This information will be added to the data collected for the sites.

2.13 REPORTING AND DISPOSITION OF MPPEH

If MPPEH are encountered during the operation, a UXO Technician II or higher and the UXO Team Leader will inspect and separate the MPPEH into MDEH or MDAS. A UXO Technician II or higher will perform 100 percent inspection of each item as it is recovered and determine the following:

- Is the item MDEH or MDAS?
- Does the item contain explosives hazards or other dangerous fillers?
- Does the item require detonation?
- Does the item require demilitarization or venting to expose dangerous fillers?
- Does the item require draining of visible liquid HTRW material?

Items will then be segregated into items that require demilitarization or venting procedures from those items ready for certification. If any items are suspected to or found to contain HTRW, procedures described in Section 2.2 will be followed.

A UXO Technician III (Team Leader) will then:

- Re-inspect 100 percent of all recovered items to determine if free of explosives hazards and other visible liquid HTRW materials.

- Record the information that the recovered items are free of explosive hazards and other visible HTRW materials.

- The recovered items will then be considered MDAS.
  - Following the inspection and re-inspection, MDAS will be certified and verified and transported off-site by an approved subcontractor.

- Coordinate transfer of remaining MPPEH that cannot be fully inspected to a central processing work area established at Site 12 EOD Area.

The UXOQC will:

- Conduct daily audits of the procedures used by UXO teams and individual for processing MPPEH.

- Perform and document random sampling of all MPPEH collected from the various teams to ensure no items with explosive hazards and other visible liquid HTRW material are identified as MDAS.

- Ensure that specific procedures and responsibilities are followed while processing MPPEH for certification as MDAS.

- Conduct final 100 percent inspection of all MDAS prior to certification and transport off site.

The UXOSO will ensure all procedures for processing MPPEH are being performed safely and consistently.

The SUXOS will:

- Ensure all documentation is completed for all MDAS.
- Perform random checks to satisfy that the MDAS are free from explosive hazards.
- Conduct final 100 percent inspection of all MDAS prior to certification and transport off site.
- Maintain custody of the seal/key for all certified MDAS. If custody is lost on the sealed container, another 100 percent inspection of all MDAS will be conducted by the SUXOS and UXOQC.
- Certify all MDAS as free of explosive hazards and other visible liquid HTRW materials.
- Be responsible for ensuring that MDAS are secured in a locked, labeled, and sealed container.
    - The container will be closed and clearly labeled on the outside with a unique identification.

    - The container will be closed in such a manner that a seal must be broken in order to open the container. A seal will bear the same unique identification number as the container or the container will be clearly marked with the seal's identification if different from the container.

    - A documented description of the container will be provided with the following information for each container: contents, approximate weight of container, location where contents were obtained, contractor name, names of certifying and verifying individuals, unique container identification, and seal identification.

MDAS will be managed at all times in such a manner as to prevent it from being:

- Commingled with MPPEH or MDEH
- Misidentified as MPPEH or MDEH after it has been determined to be safe

A chain-of-custody form will be maintained for MDAS, and the proper documentation must be completed and signed by the responsible personnel before custody of MDAS is assumed by a certified contractor (in accordance with DoD 4160-21-M-1) for disposal or disposition. Detailed guidance on the policy and responsibilities for the management and disposition of MPPEH is located in EM 1110-1-4009, Chapter 14 (USACE, 2000b) and DoD Instruction 4140.62 (DoD, 2008).

An attempt will be made to identify all MPPEH items, and their original locations will be recorded by GPS equipment (or compass and tape measure if the GPS does not work). This information will be added to the data collected for the sites.

If MPPEH is determined to be MDEH, it will be disposed of similar to MEC and will be consolidated and treated with donor charges, if possible. In the unlikely event that an MDEH item cannot be treated with a donor charge (e.g., item encountered with NEW greater than 25 pounds) assistance from the nearest military EOD component in Rhode Island will be requested. If MPPEH is determined to be MDAS, it will be secured in a locked/sealed container. The locked and sealed containers will remain at the site until custody of the treated material is assumed by a certified subcontractor [in accordance with DoD 4160-21-M-1 (DoD, 1995)]. This certified contractor will be responsible for transportation of the MDAS material to an off-site facility for disposal or demilitarization.

2.13.1 MPPEH Certification and Verification

The SUXOS will certify that the MDAS has been 100 percent properly inspected and to the best of his/her knowledge and belief, is free of explosive hazards. The UXOQC will verify that the MPPEH inspection process has been followed in accordance with this work plan and has been 100 percent properly inspected and, to the best of his/her knowledge and belief, is free of explosive hazards. All certification/verification documentation will clearly show the printed names of the SUXOS and UXOQC, organization, signature, and phone numbers of the persons certifying and verifying the material as free of explosive hazards.

The following certification/verification will be entered on each form for turn over of MDAS and will be signed by the SUXOS and UXOQC:

"This certifies that the material listed has been 100% properly inspected and, to the best of our knowledge and belief, are free of explosive hazards and other visible liquid HTRW materials."

2.13.2 Maintaining the Chain of Custody and Final Disposition

The certified and verified MDAS will be released to the certified subcontractor, who will:

- Upon receiving the unopened labeled containers each with its unique identified and unbroken seal ensuring a continued chain of custody, and after reviewing and concurring with all the provided supporting documentation, sign for having received and agreeing with the provided documentation that the sealed containers contained no explosives when received.

- Perform shredding/cutting process capable of demilitarizing MDAS resembling military munitions.

- Perform 100 percent inspection of the shredded/cut scrap to ensure no resemblance to military munitions. Once this has been determined, the scrap will be transported to a qualified recycler and recycled.

- Provide an "End Use" certification confirming that the material has been recycled. End Use certifications will be included in the After Action Report.

If any organization breaks the MPPEH chain of custody, the affected MPPEH must undergo a second 100 percent inspection, a second 100 percent re-inspection, and be documented to verify its explosive safety status as described above.

2.14 LESSONS LEARNED

Lessons learned during the project will be captured and documented in accordance with the Tetra Tech Quality Assurance Program Manual, Paragraph 3.5.5, Lessons Learned. The Lessons Learned Report Form used for documentation is included in Appendix F-2. The UXOSO/UXOQC will attach the completed Lessons Learned Report Form(s) to daily and weekly QC reports. The UXOSO/UXOQC will recap all lessons learned at daily safety briefings or sooner, as necessary.

3.0 EXPLOSIVE MANAGEMENT PLAN

This Explosives Management Plan outlines the procedures that will be used for managing explosives required for the detonation of MEC/MPPEH for this SOW and was prepared following the format, content, and preparation instructions specified in the USACE DID OE-005-03.01 (USACE, 2002c).

3.1 GENERAL REQUIREMENTS AND LICENSING

The explosives used for this project will be managed in accordance with Federal Acquisition Regulations (FAR) 45.5, local and state laws and regulations, Alcohol Tobacco and Firearms Pamphlet (ATFP) 5400.7, DoD 6055.9-STD (DoD, 2008), Department of Transportation (DOT) regulations, and applicable NASB guidance documents.

Tetra Tech will have and, upon request, make available to any local, state, or federal authority a copy of the Alcohol, Tobacco and Firearms (ATF) license/permit authorizing the purchase, storage, transport, and use of explosives.

3.2 EXPLOSIVES ACQUISITION AND MANAGEMENT

3.2.1 Acquisition

The quantity of explosives to be used will be kept to a minimum determined by the storage capabilities of the NASB-supplied magazine (126-C or –D) and the anticipated needs of the UXO Team. Initially, sixteen blasting caps, one roll of Nonel, and 24 sticks of Helix binary explosives are planned for purchase for this project. Nonel is a non-explosive shock tube and the binary explosive is not explosive during storage, it becomes an explosive only after it is mixed when it is ready for use; therefore, the blasting caps are the only NEW that will be added to the bunker. No more than 100 pounds NEW of demolition explosives will be stored at any one time during MEC removal operations. This is an upper limit and the actual NEW will depend on the exact type of demolition explosives procured.

- Explosives will be purchased from a local vender such as:

  Austin Powder Company
  Hudson Hill Road
  Hudson, ME 04449
  TEL. 207-327-1390

- All explosives will be used and stored at NASB. Based on discussion with the Maine State Fire Marshal's Office, a State Explosives Permit/License is not required for explosives work on federal

property. The substantive requirements of the law established in ATF Publication 5400.7, ATF Federal Explosives Law and Regulations, will be following during this project.

Maine State Fire Marshall Office
Nelson Collins
Assistant State Fire Marshall
52 State House Station
Augusta, ME 04333-0052
nelson.e.collins@maine.gov
Tel. 207-626-3880
Fax 207-287-6251

3.2.2 Initial Receipt

The SUXOS and UXOSO/UXOQC will be responsible for receipt of explosives from the commercial vendor and will follow all applicable facility procedures. The SUXOS will coordinate the receipt and management of all explosives with the NASB POC before receipt and transportation of explosives to the site.

The NASB POC will provide Tetra Tech with a copy and an understanding of all facility explosives management requirements before the transportation of any explosives and will provide access to a NASB bunker for the storage of explosives required for this project.

The explosives delivered to the site will be inspected to the level necessary to confirm the content and quantity of the delivery. Discrepancies will be reconciled at the time of receipt with the SUXOS, vendor, UXO Manager, and Tetra Tech PM. Any discrepancies and their resolution will be documented.

3.2.3 Storage

NASB will provide explosives storage facilities and will also provide for physical security of explosives storage facilities. A magazine has been assigned for temporary storage of explosives within the Weapons Compound (126-C or –D).

3.2.4 Transportation

Transportation of explosives by a local vendor will comply with the use of designated explosive laden routes and US DOT, CFR 49, and AFT licensing requirements. Explosives will be issued by the SUXOS and will require two signatures from personnel designated by Tetra Tech as able to sign for and handle explosives to confirm the type and quantity of explosives issued. Explosives and MEC/MPPEH will be transported from either the storage facility or FMBW Area to disposal locations at the project sites in accordance with facility procedures (to include the use of designated explosive laden routes), US DOT,

CFR 49, and ATF licensing requirements. All MEC/MPPEH will be placed in containers or sandbagged to prevent movement during transportation. Incompatible explosive items will be separated by sandbags to prevent sympathetic detonation. The transportation vehicle will have a wooden bed liner and will be equipped to secure the containers in the vehicle. Additionally, the vehicle will be equipped with fire extinguishers and any other applicable safety equipment.

Transportation of explosives or MEC will be coordinated with the installation to ensure that the installation's existing explosive laden routes are followed. Delivery of explosives will be coordinated with the installation to ensure that explosive laden routes are followed and that an escort meets and guides the delivery truck along the correct route. Existing routes run from the FMBW Area to the Site 12 EOD Area from the south of the runway into the site. Delivery trucks will report to the back gate and be escorted by weapons storage personnel along the appropriate route to the ammunition magazine.

3.2.5 Receipt Procedures

Each item of explosives will be receipted from initial delivery to NASB until the item is expended. Tetra Tech will provide a list of individuals authorized to receive, issue, transport, and use explosives by position and title, and those individuals will assume accountability by signing the receipt documents. The end user of explosives (i.e., SUXOS) will certify in writing that the explosives were used for their intended purpose. Receipt documents will be reconciled at the time of delivery, issue and disposal and during each week's inventory. Any discrepancies will be documented by the SUXOS and reported to the Tetra Tech UXO Manager, Tetra Tech PM, NASB POC, and others as required by law.

3.2.6 Inventory

All explosives will be physically inventoried by the SUXOS and UXOSO/UXOQC. Any discrepancies will be documented by the SUXOS and reported to the Tetra Tech UXO Manager, Tetra Tech PM, NASB POC, and others as required by law. Inventories of explosives in stock will be conducted weekly, at a minimum.

The following procedures will be followed upon discovery of lost, stolen, or unauthorized use of explosives:

1. Immediately notify the Tetra Tech UXO Manager, Tetra Tech PM, NASB POC, and Navy Remedial Project Manager (RPM) by telephone and follow up with a written report within 24 hours.

2. Report within 24 hours of discover, by telephone, to ATF (toll free: 1-800-800-3855) and then to appropriate local authorities. Following telephone notification, a written report on ATF Form 5400.5

"Report of Theft of Loss – Explosives Materials" will be submitted to the nearest ATF Division Office (Portland ME, phone 207-780-3324) in accordance with the instructions on the form.

3. The NASB authorities will coordinate with local authorities and the State Fire Marshall as required.

Any explosives not expended during daily demolition operations will be returned to the storage facility and added to the receipt document.

All explosives remaining in storage at the end of the project will be issued and used during a final cleanup shot. The final cleanup shot will not exceed the 25-pound explosive limit for Site 12 EOD Area. There will be no excess explosive inventory to warehouse or ship. Documents will be completed showing final disposition of all explosives.

3.2.7 Forms and Documents

Project forms, including those related to explosives management, are located in Appendix F-2 of this Work Plan.

4.0 EXPLOSIVES SITING PLAN

This Explosives Siting Plan has been prepared to direct Tetra Tech activities in the performance of this SOW.

4.1 ORDNANCE AND EXPLOSIVES AREAS

The minimum separation distance for non-essential personnel during MEC operations (unintentional detonation) at the Site 12 EOD Area will be an arc of 131 feet from the outermost boundary of the area of operation as shown on Figure 4 of Appendix B (based on DDESB TP 16, 2005, and the known/suspected munitions). This separation distance will be maintained during all UXO operations, unless engineering controls are used.

The minimum separation distance for non-essential personnel during MEC operations (unintentional detonation) at the FMBW Area will be an arc of 6 feet from the outermost boundary of the area of operation as shown on Figure 6 of Appendix B (based on DDESB TP 16, 2005, and the known/suspected munitions). This separation distance will be maintained during all UXO operations, unless engineering controls are used.

If munitions with a greater HFD or K40, other than the 40 mm MK 2 projectile (Site 12 EOD Area) or the M204 Grenade Fuze (FMBW Area) anticipated are identified or encountered during operations, all work will cease and the Navy RPM and NASB POC will be notified. No further work will be conducted unless authorized by designated explosives safety personnel.

4.2 PLANNED OR ESTABLISHED DEMOLITION AREAS

The Site 12 EOD Area is the planned demolition area. MEC items from the FMBW Area that are acceptable to be handled will be transported and disposed of within the existing berm area of Site 12 EOD Area. The existing berm area was selected because contamination is already expected to exist at this location and future MC sampling will be conducted in any case at this location; note, however, that he donor explosives are expected to be completely consumed during detonation and not result in additional soil contamination. MEC items that are unacceptable to handle will be treated using BIP procedures. Future MC sampling will likely be conducted at BIP locations both to investigate a release at the location and to investigate whether the BIP detonation resulted in soil contamination. In all areas used for demolition operations, both BIP and items safe to move for consolidated explosive treatment, the location(s) will be recorded using a GPS and/or tape measure from a known point so that future MC sampling of these areas can take place as part of RI field investigations. Post demolition procedures will

include a check of the demolition location with a magnetometer and removal of large fragmentation to ensure that there are no remaining MEC/MPPEH debris or related residues, any MEC items, failing to be properly disposed of, which are discovered during the post demolition procedures, will be destroyed prior to the end of the day.

4.3 FOOTPRINT AREA

4.3.1 Blow-In-Place Operations

If BIP operations become necessary, the maximum fragmentation distance will be used to establish an EZ for intentional detonations. The intentional detonation EZ for the 40 mm MK 2 projectile is 1,095 feet. The intentional detonation EZ for the M204 Grenade Fuze is 78 feet. See Table 6-4, Appendix I.

4.3.2 Collection Points

No demolition explosives or recovered MEC/MPPEH will be stored on site, but will be addressed on a daily basis. A temporary holding area will be established to hold recovered MEC/MPPEH determined safe to move by UXO personnel and awaiting disposal. The ESQD arc created by the NEW for each temporary holding area will not extend beyond the EZ established for the site. These areas will be under the control of the UXO Technician unless relieved by military security.

4.3.3 Consolidated Shots

Consolidated shots consisting of multiple MEC/MPPEH items may be required (see Table 6-4, Appendix I). Consolidated shots will be performed in accordance with the United States Army Engineering and Support Center, Huntsville (USAESCH) publication titled Procedures for Demolition of Multiple Rounds (Consolidated Shots) on Ordnance and Explosives (OE) Sites, dated March 2000. A copy of this report will be available on site.

4.4 EXPLOSIVES STORAGE MAGAZINES

Demolition explosives (donor charges) will be stored in existing magazines at NASB using the established ESQD arcs for the appropriate operation.

4.5 SITE MAPS

See Appendix B for site maps.

5.0 SURFACE SURVEY INSTRUMENT TEST STRIP

5.1 OBJECTIVE

The UXO team will construct one ITS. The ITS will be performed prior to intrusive investigation at FMBW and will be used to establish and evaluate the techniques and personnel to be used for this investigation. The ITS will only need to be conducted prior to detector-aided surveying by each operator using his/her given equipment: in addition, the ITS will be used daily for FMBW Area surface/subsurface investigation in wooded areas conducted via detector-aided survey. If a new operator or new instrument is necessary, then that operator and equipment will be tested on the ITS. Figure 7 in Appendix B shows the location for the ITS. ITS will be seeded with inert munitions or surrogates that represent the expected MEC items at the sites, or with surrogates when inert items cannot be obtained, to test their detection.

The ITS will consist of an area along an individual survey line to search for seed items. Site-specific technical approaches and survey designs have been developed for each MEC area as presented in Section 2.0.

All UXO detector-aided surface survey and avoidance activities will be carried out in accordance with all local, state, and federal regulations including general guidance from applicable USACE DID requirements, including Engineer Pamphlet EP-75-1-2 (USACE, 2004b), Engineer Manual EM 1110-1-4009 (USACE, 2007c), DID MR-005-01.01 (USACE, 2002a), MR-005-05.01 (USACE, 2007a), and MR 005 07.01 (USACE, 2007b).

The specific objectives for the ITS will be as follows:

- System Operations: Demonstrate that the UXO detection instruments and navigational equipment are operating properly. Evaluate average speed to detecting the target items. Applicable to Site 12 EOD Area and FMBW Area.

- Detection of Known Objects: Provide a safe area with a known set of isolated objects (e.g., inert munitions or munitions surrogates) to evaluate equipment and operator performance under controlled conditions. Based on a review of available information, and to the extent practical, Tetra Tech will seed inert or surrogate items of similar size, shape, and mass to MEC items suspected at the sites. Applicable to Site 12 EOD Area and FMBW Area.

- Evaluate Instrument Sensitivity: Evaluate detection of seed items (20 mm diameter and larger) buried within the maximum detection depth determined using USACE's 11 times rule (maximum detection

depth is 11 times the diameter of the munition), The UXOQC will determine whether the ITS performance is acceptable. Applicable to FMBW Area only.

Additional details are located in Appendix J-1.

5.2 PERSONNEL QUALIFICATIONS

The ITS will be managed by the UXOQC. At least one UXO Technician II or higher will be present throughout the ITS installation to provide UXO avoidance support.

5.3 ITS SURVEY PROCEDURE

The operators and equipment used for detector-aided surface surveys at Site 12 EOD Area and the FMBW Area intrusive investigations must first be tested and approved based on the results of the ITS. The test area was chosen in cooperation with the Navy to avoid areas potentially containing clutter, utilities, or landfill materials. An area near the FMBW Area boundary will be used for the ITS (see Figure 7 in Appendix B). A utility mark-out request or dig permit will be requested from the base prior to this ITS survey to provide safety for the intrusive investigation and trenching activities.

The UXO team will perform a detector-aided surface survey of the selected test strip area using both a Schonstedt ferrous metal locator and a White's all-metals detector prior to seeding with the test items to further verify that the selected plot area is suitable for use (relatively free of metal).

A variety of seed items, inert MEC items, or surrogates suspected to be at the sites, will be buried blind to the UXO team in the test area. Seed items will be buried at various depths, not exceeding 11 times the diameter of each item, and in various orientations up to 1 foot bgs.

The location of the test strip, and test seed items will be accurately documented. Depths, orientations, and physical descriptions of each of the test seed items will also be noted and provided to the UXOQC. Photographs of the seed items will also be taken.

5.3.1 Test Strip Seeding

The test strip will be seeded by Tetra Tech. At least one UXO Technician II (or higher) will be on site during the seeding to perform anomaly avoidance. The UXO Technician(s) will utilize a Schonstedt GA-52Cx or similar equipment to provide MEC avoidance.

Individual seed items in the ITS anticipated at FMBW Area will be buried blind to the UXO team at various depths bgs, not exceeding 11 times the diameter of each item following guidance in the USACE EM 1110-1-4009 (USACE, 2007), which states that generally speaking, an intact munition can typically be detected to a maximum depth of 11 times the diameter of the munition. The planned items to be buried in the test strip in one straight line include the following:

Item and Burial Depth	11x depth	Ferrous/Non-ferrous
One 20 mm projectile at 2 inches bgs	11x D = 8.7 inches	ferrous object
One Grenade fuze at 6 inches bgs	NA	non-ferrous object
One 20 mm projectile at 8 inches bgs	11x D = 8.7 inches	ferrous object
Ten brass cartridge cases at 12 inches bgs	NA	non-ferrous object
One 20 mm projectile at 1 inch bgs	11x D = 8.7 inches	ferrous object
One 20 mm projectile at 4 inches bgs	11x D = 8.7 inches	Scored ferrous object

The seed items will be spaced at least 6 feet apart to distinguish each item's anomaly signature during survey interpretation. The locations of the test strips and seed items will be accurately measured and documented. Depths, orientations, and physical descriptions of each of the test seed items will also be noted and provided to the UXOQC to provide understanding of the seed items in relation to their anomaly signatures. Photographs of the seed items will also be taken.

5.3.2 Equipment Standardization

UXO detectors (Schonstedt and Whites), support equipment, navigation equipment, and operator performance will be tested at specific intervals and must meet the appropriate acceptance criteria. One of these tests will be a daily Equipment Function Test (EFT). The table presented below lists additional tests or checks, their required frequencies, and acceptance criteria. Initially, before the ITS is performed, out-of-box tests are planned as described in Section 5.4.3.2.

Data Type	Data Quality Indicator	QC Sample and/or Activity to Assess Measurement Performance	Measurement Performance Criteria	Frequency
GPS Positional Data	Real-time accuracy	HDOP and number of satellites	HDOP <3, number of satellites at least six	Ongoing
	Accuracy	GPS positioning - comparison with two known locations	Comparison to known coordinates	Daily

Data Type	Data Quality Indicator	QC Sample and/or Activity to Assess Measurement Performance	Measurement Performance Criteria	Frequency
ITS	Sensitivity	Detection capabilities test using representative seed items	Vertical Detection of individual inert munitions items or surrogates (20 mm diameter) within USACE 11x rule for maximum depth Horizontal Detected items positioned between 0 and 1 meter horizontal accuracy	Once at beginning of project and after change in equipment or operators and daily for FMBW Area surface/subsurface investigation in wooded areas conducted via detector-aided survey
EFT	Sensitivity	Instrument response to metallic targets	Anomalous response to all test targets response for each work site	Daily

5.3.2.1 Equipment Function Test

The EFT will be implemented on a daily basis after the ITS is completed to provide a simple test of equipment functionality over a few metallic targets representing suspected MEC items for the project. The primary objective is to demonstrate that the survey equipment is responding normally to a controlled set of objects (equipment is functioning properly); the objective is not to duplicate the ITS. To make the test practical three to six targets will be placed on the ground, spaced 10 feet apart and in the same orientation for each test. Site conditions (i.e., soil) may differ between areas of the site, and this could create differences in response. All tests should be conducted in an area free of metal. Field notes will be kept on each test and included in the After Action Report.

5.3.2.2 Out-of-Box Tests

The following out-of-box tests will be conducted before the survey of the ITS area and at the start of each day of surveying:

- Inventory and inspect all equipment to confirm that all components are present and in good condition
- Assemble the equipment and power up

5.3.3 Anomaly Avoidance

Anomaly avoidance will be practiced during the ITS. That is, the area will be pre-screened by UXO Technicians using hand-held magnetometers and areas where magnetic anomalies or surface objects are detected will be avoided during the ITS.

5.3.4 ITS Disassembly

The ITS will be seeded for the duration of the project. After project work is complete, the ITS items will be removed from the test strip area, and the holes will be backfilled and restored.

6.0 GEOPHYSICAL INVESTIGATION PLAN

6.1 GENERAL

Geophysical investigations are not planned at the Site 12 EOD Area or FMBW under this SOW. Geophysical investigations will be conducted as part of the RI to be conducted at Site 12 EOD Area after the Time-Critical MEC Removal Action has been completed. No future geophysical investigations are planned for FMBW Area.

6.2 TARGET LIST DEVELOPMENT

Target lists for FMBW Area were developed during the SI (Tetra Tech, June 2009) in accordance with DID MR-005-05.01 (USACE, 2007a).

6.3 ANOMALY REAQUISITION

Tetra Tech will perform anomaly reacquisition and verification at FMBW Area and Site 12 EOD Area (in support of trenching effort) with the Schonstedt and or the White's along with the same positioning and grid system used during SI data collection. The Trimble GPS unit, or equivalent, will be used. All measurements after reacquisition will be recorded on the target list sheet, see Section 2.4.2 for additional details. The GPS will be tested twice daily.

7.0 GEOGRAPHICAL INFORMATION SYSTEM PLAN AND ELECTRONIC SUBMITTALS

This Geographical Information System (GIS) Plan has been prepared to ensure that data collected as part of the proposed Time-Critical MEC Removal Action are consistent with the GIS maintained for NASB.

7.1 GENERAL

The recorded GPS information will be incorporated into the existing Environmental GIS (EGIS) established for NASB and will also be provided to MEDEP, and geo-referenced maps showing all coordinates and MEC/MPPEH findings will be included in the After Action Report.

7.2 LOCATION SURVEY AND MAPPING PLAN

This Location Survey and Mapping Plan has been prepared to direct all activities associated with locating, tracking, and documenting MEC occurrences within the areas of concern.

7.3 MEC/MPPEH DOCUMENTATION

Tetra Tech will establish a system to record MEC/MPPEH findings in the areas of concern (per SOP-02, MEC Management and Accountability). Locational information as well as information on type of MEC/MPPEH item, physical condition and appearance, whether fuzed or unfuzed, and additional observations and notes made by the field team will be entered into the field logbook and/or onto the MEC Tracking Log. The SUXOS will direct the establishment of this system for numbering and recording the coordinates for each MEC/MPPEH item. The location of each area for investigation and type/condition of discovered and disposed of MEC/MPPEH items that require follow-up MC sampling as part of any RI efforts will be established using the GPS or tape measure to determine the XYZ coordinates of the area. Each MEC/MPPEH item will be located using the GPS or tape measure to determine XYZ coordinates for the item. The anomalies identified on the dig sheet will be located using GPS or tape measure procedures, if required.

Field logbooks will be used during each phase of the operation to record significant findings and information using the established numbering and coordinate system. The After Action Report will present geo-referenced maps of the areas investigated, provide the northing and easting coordinates of the areas in a coordinate system consistent with the system used by NASB and will also be provided to MEDEP to record and manage areas of concern, and detail the location of each MEC/MPPEH item found/removed. Coordinate data recorded in the field will be converted, as necessary, to the Maine State Plane

Coordinate System, North American Datum 1983 (NAD 83), to be consistent with existing NASB and MEDEP mapping. The After Action Report will also provide observations made by the UXO Team and recommendations for future maintenance activities, if appropriate.

7.4 UNEXPLODED ORDNANCE SAFETY PROVISIONS

During all initial fieldwork and all intrusive activities, a UXO Technician II or higher will accompany the survey crew. The UXO Technician II will conduct visual surveys for surface ordnance prior to the survey crew entering a suspected area, and will conduct a magnetometer survey of each intrusive activity site to ensure that the sites are anomaly free prior to the surveying crew setting monuments or driving stakes. The UXO Technician II will not be assigned additional survey tasks that would interfere with the MEC safety aspects of area clearance for driving stakes, iron pins, establishing monuments or other survey controls, that will penetrate the surface in a potentially MEC contaminated area. The UXO Technician II may not be required on a full-time basis for non-intrusive activities.

8.0 WORK, DATA, AND COST MANAGEMENT PLAN

The technical reports and submittals under this SOW may include Project Work Plans, Corrective Action Reports, HASPs (separate document), permit applications, Regulatory Compliance Reports, and After Action Reports. Tetra Tech will use Microsoft Office software, specifically Word and Excel to prepare these documents, and PowerPoint to prepare formal and informal presentations.

9.0 PROPERTY MANAGEMENT PLAN

No government property will be purchased or acquired in the performance of this SOW. Tetra Tech and its subcontractors will not be authorized to acquire or control government property.

10.0 QUALITY CONTROL PLAN

This QC Plan (QCP) was developed to identify and implement quality requirements to ensure that overall project activities are accomplished using an acceptable level of internal controls and review procedures. The intent of such controls is to eliminate conflicts, errors, and omissions and to ensure the technical accuracy of all deliverables. Field work under this SOW has been divided into definable features of work and the tasks required to complete each definable feature of work have been identified. Procedures for these tasks, including recording data, forms and checklists, data generation, QC checks, data management, and information management, are defined in the SOPs located in Appendix F-1, the project forms located in Appendix F-2, and the QC and Assessment tables located in Appendix J-1.

Definable Feature of Work	Tasks
Mobilization/Site Preparation/Site Security	• Work Plan Preparation • Verify Personnel Qualifications • Setup Administrative Areas • Set up Exclusion Zones • Equipment Setup and Checkout • Installation of ITS • Detector Aided Surface Survey Layout • Vegetation Management • Surface Removal of Non-Munitions Related Debris, as applicable
UXO Escort/Avoidance to Identify Potential MEC and Warn Non-UXO Personnel of Hazards	• Detector Aided Surface Survey • Mark Paths of Entry • Mark MEC Hazards • Brief Non-UXO Personnel
Site-Specific Training/ITS Certification	• Initial Orientation and Training • ITS Review and Approval
Detector-Aided Surface Surveys	• Surface Surveys • Record Location (GPS and Photograph MEC) and Observations • Report MEC • Treat/Remove MEC/MPPEH • Remove Non-Munitions Metal Debris
Surface/Subsurface Clearance of FMBW	• Reacquire Targets • Investigate Targets • Record Location (GPS and Photograph MEC) and Observations • Report MEC • Treat/Remove MEC/MPPEH • Remove Non-Munitions Metal Debris

Definable Feature of Work	Tasks
Data Processing and Interpretation	• Provide Anomaly and MEC Location Mapping to Stakeholders to aid in MC Sampling Location Selection • Provide Target List to UXO Team
Disposal of MEC Discovered During the Removal Action Operations	• Establish EZ for Intentional Detonation • Position MEC • Apply Explosive Donor Charge • Initiate Detonation • Check Detonation Site
Staging of Non-MEC Metal Debris	• SUXOS Inspect Non-MEC Metal Debris • Release Non-MEC Metal Debris for Recycle
Demobilization	• Remove ITS • Remove Temporary Survey Markers • Complete all Field Forms • Close-Out Field Log Books • Return Equipment • Provide all Field Documentation to PM

The requirements presented in this QCP are intended as overall QA and QC requirements that are applicable to all administrative, engineering, and technical activities associated with the SOW. The requirements of this plan are applicable to all Tetra Tech personnel and their subcontractors unless an alternate QCP that is consistent with or exceeds the requirements of this document either in whole or in part is used.

10.1 PROJECT ORGANIZATION AND RESPONSIBILITIES

Under the direction of the Navy, Tetra Tech will provide a staff of experienced administrative and technical professionals to serve as key personnel responsible for implementing QC requirements associated with this project. These personnel will be selected for their management and technical abilities and will include the following core employees:

- PM
- UXO Manager
- SUXOS/FOL
- UXOSO/UXOQC
- UXO Team Leader
- UXO Technicians

10.2 QUALITY REQUIREMENTS

A summary of the quality requirements associated with field activities in support of this SOW are defined in Table 10-1, more detail is presented in Appendix J-1. These requirements apply to all field activities that affect the quality of work and work products. QC checks will be conducted as follows:

- Daily Briefings - The SUXOS/UXO Team Leader will ensure that daily safety and operational briefings are conducted.

- Communications - Communications with the NASB POC, Navy POC and site personnel will be maintained throughout the workday.

    - At a minimum, communication checks will be conducted each morning prior to starting work. Additional checks will be performed as necessary throughout the work day to monitor progress, safety, and/or QC.
    - Teams will not start operations until satisfactory checks have been achieved.
    - NASB Environmental Staff and Public Affairs Office will provide notifications as needed to the local community should demolition of MEC/MPPEH be required. This may include the local town manager, the local fire department, and the local police department, as necessary.

- Training - The SUXOS/UXOSO will ensure that initial site-specific training is performed for all field personnel prior to startup of field activities and that all safety control measures have been established. Training will be accomplished using only approved training materials. The UXOSO will ensure that all certifications for field personnel are filed on site and are available for Navy inspection.

- Documentation - The SUXOS/UXOQC will ensure the completion of all documentation listed in Section 10.3.

- Review - The SUXOS and/or FOL will be responsible for supervising all site activities including the following:

    - Supervision of Tetra Tech personnel and subcontractor staff.
    - Compliance with this Work Plan, QCP, and HASP/APP.
    - Adherence to the contract schedule.
    - Review and submission of all daily and job status reports and documentation.
    - Direct daily communication with the Tetra Tech PM.

The UXOQC has the overall responsibility of verifying compliance with the project requirements throughout the project through implementation of the three-phase control inspection process. This process ensures that project activities comply with the approved plans and procedures. Elements of the three-phase control inspection process are: (1) Preparatory Phase, (2) Initial Phase, and (3) Follow-Up Phase. Each control phase is important for obtaining a quality product.

10.3 FIELD DOCUMENTATION

All field activities affecting QC will be performed in accordance with documented procedures, instructions, or drawings identified in the SOW, this Work Plan, or applicable DIDs. During all field activities, Tetra Tech will use the following reporting forms:

- QC Daily Report
- QC Summary Report
- Field Logbooks
- Daily Equipment Checklist

The SUXOS will maintain a field logbook of all inspection and testing activities that will be used in preparing the QC Daily Report. All QC Reports generated during this effort will be submitted with the After Action Report. Reports will not be prepared for days on which no work is performed. At a minimum, one report will be submitted for every 7 days of no work and on the last day of a period of work stoppage. Daily Reports will be signed and dated by the SUXOS and/or FOL. After Action Reports will be signed by the Tetra Tech PM.

The QC Daily Reports and Summary Reports shall include summaries of the following:

- Tetra Tech personnel/subcontractors and responsibilities.
- Equipment used, with any idle or downtime noted.
- Location, personnel, and description of work.
- Safety evaluations including descriptions of inspections, results, and any corrective actions.

10.4 AUDITS

Field performance will be evaluated to ensure that the quality standards and objectives of this Work Plan are met. This evaluation will be accomplished through audits of the QC Daily Reports. Audits will be conducted and corrective actions will be implemented when non-conformances or deficiencies are identified. Additional audits will be conducted periodically and will be planned and conducted by the

Program or Project QA Manager. Procedures for auditing activities will be identified prior to implementation of the audits.

The audit process will involve identifying non-conformances or deficiencies, reporting and documenting them, initiating corrective actions through appropriate channels, and following up with a compliance review. Records will be kept of all auditing tasks and findings on the QA Audit Checklist and in audit notes. In addition, copies of the audit findings will be provided to the Navy POC within 1 week of completion of an audit.

All members of field teams involved with site work are responsible for reporting any suspected technical non-conformances or deficiencies to the Program QC Manager. The Program QA Manager is responsible for evaluation of the situation and taking action, if any is required, following the notification protocol.

EOD Technology (EODT) will provide oversight and audits directly for the Navy. EODT will be granted site access by appropriate personnel under the direct supervision of the Tetra Tech SUXOS or UXOQC. EODT will comply with all applicable training, safety briefings, and site security procedures. EODT will also be granted access to this Work Plan, site specific HASP/APP documentation, personnel training and qualification documentation and other site documentation as warranted.

TABLE 10-1

QUALITY REQUIREMENTS FOR UXO SUPPORT TO THE NAVY AT NASB, BRUNSWICK, MAINE

Objective	Activity	Activity Quality Requirement	Quality Control Verification
Prepare Site	Mobilization and Site Preparation	Mobilize equipment and personnel, and prepare site as described in this Work Plan.	• Daily Site Health and Safety Meeting Report • Field Logbooks
Site Work	Vegetation Clearance	UXO Technicians, supervised by the UXO Team Leader, will perform vegetation clearance and removal to allow access to areas for detector-aided surveys and anomaly reacquisition. Fail criteria will be any area with vegetation smaller than 2 inches in diameter and taller than 12 inches.	• QC Daily Report • Daily Site Health and Safety Meeting Report • Daily Equipment Checklist • QA Audit Checklist and Audit Form • Health and Safety Compliance Inspection • Field Logbooks • QC/observe vegetation clearance operations
Site Work	Surface/Subsurface UXO Clearance	UXO Technicians, supervised by the SUXOS, will remove MEC from the surface within the Site 12 EOD Area, targeted FMBW Area subsurface anomalies identified during the SI, surface MEC within the wooded FMBW Area, and selected FMBW Area subsurface anomalies in the wooded area. QC checks will be performed to ensure that the UXO Team removes all surface and subsurface MEC. Fail criteria will be any MEC discovered in cleared areas.	• QC Daily Report • Daily Site Health and Safety Meeting Report • Daily Equipment Checklist • QA Audit Checklist and Audit Form • Health and Safety Compliance Inspection • Field Logbooks • QC 10% of area cleared during surface clearance at Site 12 EOD Area. • QC 10% of target anomalies at FMBW Area. • QC 10% of transect meandering path at FMBW Area in woods.
Site Work	Trenching Operations	UXO Technicians, supervised by the SUXOS, will remove MEC from the excavated soil during trenching within the Site 12 EOD Area. QC checks will be performed to ensure that the UXO Team removes all MEC from the excavated soil. Fail criteria will be any MEC discovered in cleared areas.	• QC Daily Report • Daily Site Health and Safety Meeting Report • Daily Equipment Checklist • QA Audit Checklist and Audit Form • Health and Safety Compliance Inspection • Field Logbooks • QC 10% of excavated soil

TABLE 10-1

QUALITY REQUIREMENTS FOR UXO SUPPORT TO THE NAVY AT NASB, BRUNSWICK, MAINE

Objective	Activity	Activity Quality Requirement	Quality Control Verification
Site Work	UXO Escort/Avoidance Operations	UXO Technician will conduct avoidance while conducting UXO Escort Duties. QC checks will be performed to ensure that no anomalies are moved or disturbed during this phase of the project. Fail criteria will be any anomaly moved or disturbed.	• QC Daily Report • Daily Site Health and Safety Meeting Report • Daily Equipment Checklist • QA Audit Checklist and Audit Form • Health and Safety Compliance Inspection • Field Logbooks • QC/observe UXO Escort duties
Site Work	UXO Surface Survey Operations	UXO Technicians, supervised by the UXO Team Leader, will complete a grid/target inspection to collect data on the type and location of MEC at the sites. QC checks will be performed to ensure that MEC have been located, identified, and data collected and reported. Fail criteria will be any MEC discovered in a grid/target that was not reported in the data logs.	• QC Daily Report • Daily Site Health and Safety Meeting Report • Daily Equipment Checklist • QA Audit Checklist and Audit Form • Health and Safety Compliance Inspection • Field Logbooks • QC 10% of grids for MEC (Site 12 EOD Area) • QC 10% of targets for MEC (FMBW)
Site Work	Blind Seed of Survey Areas	The SUXOS, UXOQC, or UXO Team Leader will place blind seed items that are representative of target MEC items at various locations throughout the survey areas from the surface (Site 12 EOD Area only). Blind seed items will be clearly marked with identifiers so that the UXOQC and SUXOS can record their location during placement, reacquisition, and investigation. Failure criteria will be failure to detect the blind seed items during survey activities	• QC Daily Report • Daily Site Health and Safety Meeting Report • Daily Equipment Checklist • QA Audit Checklist and Audit Form • Health and Safety Compliance Inspection • Field Logbooks • QC/observe that all blind seed items are located and investigated during surveys activities

TABLE 10-1

QUALITY REQUIREMENTS FOR UXO SUPPORT TO THE NAVY AT NASB, BRUNSWICK, MAINE

Objective	Activity	Activity Quality Requirement	Quality Control Verification
Site Work	MEC Disposal	UXO Technicians supervised by the SUXOS will conduct MEC disposal/treatment operations. QC checks will be performed to ensure that MEC disposal is conducted in a safe and effective manner. Fail criteria will be any unsafe or ineffective MEC disposal operation.	• QC Daily Report • Daily Site Health and Safety Meeting Report • Daily Equipment Checklist • QA Audit Checklist and Audit Form • Health and Safety Compliance Inspection • Field Logbooks • QC/observe MEC disposal operation
Site Work	MPPEH Certification	UXO Technicians supervised by the SUXOS will conduct MPPEH segregation into MDAS and MDEH SUXOS will inspect 100% of all MDAS UXOQC will reinspect 100% of all MDAS SUXOS will prepare certification for MDAS. QC checks will be performed to ensure that no energetic material remains in the Certified MDAS. Fail criteria will be any energetic material discovered in certified MDAS.	• QC Daily Report • Daily Site Health and Safety Meeting Report • Daily Equipment Checklist • QA Audit Checklist and Audit Form • Health and Safety Compliance Inspection • Field Logbooks • QC/inspect MDAS during certification process
Site Work	Demobilization	Demobilize equipment and personnel according to schedule.	• Daily Site Health and Safety Meeting Report • Health and Safety Compliance Inspection • Field Logbooks

11.0 ENVIRONMENTAL PROTECTION PLAN

Soil Erosion and Sediment Control – Erosion controls are not anticipated to be necessary based on the short duration of excavation for a given trench (each trench will be backfilled before beginning excavation at another trench location) and the flat topography. Moreover, operations will not be conducted during a rain event. However, if warranted based on site conditions, a silt fence may be placed around the Site 12 trenching areas prior to commencing excavation activities or during excavation activities (i.e., unlikely event that MEC/MPPEH item finding delays trench backfilling at the end of the day). As the excavation progresses, temporary berms may also be constructed with existing soil around the perimeters of the excavations to control water flows. In addition, if necessary, in areas of high water flows, hay bales may be utilized to collect sediment as necessary. Each trench will be backfilled before beginning excavation at another trench location. At FMBW Area, the excavations are small and will not remain open for long. Therefore, erosion and sediment control is not warranted.

Stockpiled Soil - Stockpiled soil will be staged as close as possible to the work area without interfering with the investigation/clearance activities. Silt fence, temporary berms, or other erosion control measures are not anticipated but may be employed, as necessary (i.e., Site 12 EOD Area trenching) to control storm water runoff. Each trench will be backfilled before beginning excavation at another trench location. A piece of poly sheeting will be placed on the ground prior to the establishment of cleared soil pile(s) in order to minimize the introduction of small metallic items and small arms (<20mm), and the unintentional surface spreading of potentially MC contaminated subsurface soil into already cleared surface soil. Covering of stockpiles will not be required.

Pollution Prevention – All project site work methods and procedures will be conducted in a manner to minimize pollution and control dust within reasonable limits. All vehicles utilized for this project will be operated at low rates of speed to reduce the dust emitted. Dust emissions will be controlled through the use of administrative controls such as speed limits.

Chemicals On Site –Chemicals associated with the donor explosives for this project will be stored in existing magazines at NASB (126-C or –D). Procedures which will be followed during handling of these chemicals are addressed in Appendix F-1 (SOP-05). Material Safety Data Sheets (MSDS) are provided as Appendix J-2.

Vehicles designated to travel on roads will be fueled at commercial filling stations, this will prevent and control potential spills during refueling. Fuel for use in vehicles (excavator) not designated to travel on roads will be transported and dispensed from fuel cans designed to reduce the potential for spills. Fuels will be transported in small containers and fueling will be conducted in areas designated by the SUXOS.

Spill kits will be maintained in the same vicinity and will be on-site for any spills and/or leaks. Fuel will not be stored on site. Should any spill occur, notifications shall first go out to NASB Security Department and personnel from the Environmental Department. The Environmental Department shall contact both the MEDEP and Paul Burgio/Todd Bober of the Navy. The Environmental Department shall contact both the MEDEP [Public Safety (all hours) 800-482-0777 and Southern Maine Regional Office (normal working hours) 207-287-7800] and the Navy BRAC PMO project personnel. It will be reported to the NASB POC immediately and cleaned up as quickly as possible (additional details are provided in Section 9.0 of the HASP).

It is anticipated that the only significant waste generated during this project will be the ordnance related scrap recovered during the removal and trenching activities. As stated in Section 2.13.2, Maintaining the Chain of Custody and Final Disposition, ordnance related scrap that is certified and verified as MDAS will be released to a certified subcontractor. Additionally, Section 2.4, Technical Scope, states that non-MEC debris located during the detector-aided surface surveys will be moved to a nearby location (area designated by NASB); marshalling and off-site disposal of non-MEC debris will be deferred to the RI or addressed by NASB.

12.0 INVESTIGATIVE-DERIVED WASTE PLAN

An Investigative-Derived Waste Plan is not required for the performance of this SOW because the project team will not be generating investigation-derived waste. Scrap metal (non-MEC) removed from the site will be placed in an area designated by NASB for disposition by NASB. Non-MEC Debris handling requirements are described in Section 2.12 and 2.13.

13.0 INTERIM HOLDING FACILITY SITING PLAN FOR RCWM

No Recovered CWM (RCWM) is expected under this SOW, therefore, an RCWM Interim Holding Plan is not required.

14.0 PHYSICAL SECURITY PLAN FOR RCWM PROJECT SITES

No RCWM is anticipated under this SOW, therefore, an RCWM Security Plan is not required.

15.0 REFERENCES

Department of Defense (DoD), 1995. Defense Demilitarization Manual DoD 4160-21-M-1. Revision 1, February.

DoD, 2008a. DoD Ammunition and Explosive Safety Standards DoD 6055.9-STD. February.

DoD, 2008b. Material Potentially Presenting an Explosive Hazard. DoD Instruction 4140.62. November.

Department of Defense Explosives Safety Board (DDESB), 2004. Minimum Qualifications for Unexploded Ordnance (UXO) Technicians and Personnel, TP 18. December.

DDESB, 2005. Methodologies for Calculating Primary Fragment Characteristics, TP 16. Revision 2, October.

Director of Commander, Naval Sea Systems Command, Ammunition and Explosives Safety Ashore, NAVSEA OP 5 VOLUME 1, 15 January 2001, W/Change 7 - 1 June 2005.

E.C. Jordan Company, 1991. Final Draft Supplemental Feasibility Study, Sites 5, 6, and 12. Naval Air Station Brunswick, Brunswick, Maine.

Malcolm Pirnie, 2006. Preliminary Assessment, Naval Air Station Brunswick, Maine. February.

Malcolm Pirnie, 2007. Preliminary Assessment Addendum, Naval Air Station Brunswick, Maine. July.

Office of the Federal Register National Archives and Records Administration. Code of Federal Regulations, Part 1926, Revised as of 1 July 1999.

Office of Toxic Substances Guidance Document for the Preparation of Quality Assurance Project Plans Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans, 9 September 1987.

Tetra Tech, 2009. Munitions and Explosives of Concern Investigation Clearance Work Plan for the Site 12 Explosive Ordnance Disposal Area and the Former Munitions Bunker West Area. Naval Air Station Brunswick, Brunswick, Maine. Contract Task Order. 0069. June.

U.S. Army Corps of Engineering and Support Center, Huntsville, Alabama (USACE), 1996. Safety and Health Requirements Manual, EM 385-1-1,.September.

USACE, 2000. Monthly Status Report New Number OE-080. Revised March.

USACE, 2002a. Type ll Work Plan OE-005-01.01. Revised October.

USACE, 2002b. Technical Management Plan OE-005-02.01. Revised October.

USACE 2002c. Explosives Management Plan, OE-005-03.01. Revised October.

USACE, 2002d. Site Safety and Health Plan, OE-005-06.01. Revised October.

USACE, 2002e. Quality Control Plan USACE DID OE-005-11.01. Revised October.

USACE 2002f. Geographic Information System Plan OE-005-14.01. Revised October.

USACE, 2002g. Personnel and Work Standards DID OE-025.01.

USACE, 2003a. Geophysical Investigation Plan DID MR-005.05. December.

USACE, 2003b. Ordnance and Explosives Digital Geophysical Mapping Guidance – Operational Procedures and Quality Manual. December.

USACE, 2004a. Basic Safety Concepts and Considerations for Munitions and Explosives of Concern (MEC) Response Action Operations, EP 385-1-95a. August.

USACE, 2004b. Munitions and Explosives of Concern (MEC) Support During Hazardous, Toxic, and Radioactive Waste (HTRW) and Construction Activities, EP 75-1-2. August.

USACE, 2007a. Geophysics DID MR-005-05.01. December

USACE, 2007b. Geospatial Information and Electronic Submittals DID MR-005-07.01. December.

USACE, 2007c. Engineering and Design – Ordnance and Explosives Response EM 1110-1-4009. June.

HRA-0292

Brunswick Naval Air Station Reuse Master Plan

December 2007

Prepared for the Brunswick Local Redevelopment Authority
by Matrix Design Group

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Table of Contents

EXECUTIVE SUMMARY AND BACKGROUND

Section 1: Executive Summary 1

- Plan Vision and Intent 1
- Land Use and Transportation Framework 1
- Environmental Influences 7
- Plan Implementation Considerations 7
- Economic and Development Impacts 7
- Transportation and Infrastructure Impact Considerations 8
- Environmental Considerations 9
- Property Transfer Considerations 10
- Economic Feasibility and Public Benefit Analysis 11
- Management Considerations 12

Section 2: Background and Overview 13

- Property Setting and Description 13
- The Brunswick Local Redevelopment Authority 16
- The Federal Property Screening Process 19
- The Master Planning Process 25

EXISTING CONDITIONS AND PLANNING PROCESS

Section 3: Public Engagement Program 29

- Public Meetings and Events 29
- Community Survey 47
- Other Outreach Efforts 50

Section 4: Existing Conditions Assessment 53

- Market and Economic Analysis 53
- Community Planning Issues and Influences 67
- Transportation Issues and Influences 74
- Natural and Cultural Resources 82
- On-Base Conditions and Characteristics 87
- Buildings and Facilities 107
- Environmental Conditions 124
- Potential Suitability for Development 138

- Facilities Reuse Workshop 148
- Airport Feasibility Study Conclusions / Recommendations 148

Section 5: Reuse Alternatives and Plan Selection 163

- Reuse Concepts 163
- Plan Alternatives 173
- Plan Selection 178

REUSE MASTER PLAN AND IMPLEMENTATION

Section 6: The BNAS Reuse Master Plan 179

- Plan Vision and Intent 179
- Land Use and Transportation Framework 179
- Environmental Influences 193

Section 7: Plan Implementation Considerations 195

- Economic and Development Impacts 195
- Transportation and Infrastructure Impact Considerations 198
- Environmental Considerations 199
- Property Transfer Considerations 204
- Economic Feasibility and Public Benefit Analysis 212
- Management Considerations 213

Reuse Master Plan Consultant Team 227

Appendix A: Public Engagement

Appendix B: Market / Economic Data

Appendix C: BLRA Board Minutes and Actions

Appendix D: Building Assessments

Appendix E: Aviation Feasibility Study

Appendix F: State / Local / Homeless Screening

Appendix G: Environmental Supplemental Information

Appendices are available for public review at the Midcoast Regional Redevelopment Authority office, Town of Brunswick planning office, and at the Curtis Memorial Library.

Table of Exhibits

Exhibit 1: BNAS Reuse Master Plan Map 2
Exhibit 2: Land Use Program. 3
Exhibit 3: Regional Context Map 13
Exhibit 4: BNAS Vicinity Map. 15
Exhibit 5: Federal-to-Federal Requests for BNAS Property Map 20
Exhibit 6: Estimated Demand for Homeless Shelter and Supported Housing. 25
Exhibit 7: Planning Areas Map 35
Exhibit 8: Preferred Land Use by Planning Area - Airport Scenario 40
Exhibit 9: Preferred Land Use by Planning Area - Non-Airport Scenario 40
Exhibit 10: Visioning Results by Planning Area Map - Airport Scenario 41
Exhibit 11: Visioning Results by Planning Area Map - Non-Airport Scenario 42
Exhibit 12: Visioning Results by Planning Area Map - Transportation and Access 42
Exhibit 13: Population Table 56
Exhibit 14: Brunswick Regional 2020 Population Forecast 57
Exhibit 15: Midcoast Economic Clusters 58
Exhibit 16: Fastest Growing Sectors in Midcoast (2004-2020) 58
Exhibit 17: Change in Midcoast Clusters. 59
Exhibit 18: Town of Brunswick Land Use Map 69
Exhibit 19: Regulatory Zones Map 73
Exhibit 20: Regional and Community Transportation Systems Map 75
Exhibit 21: Baseline Traffic Figures 79
Exhibit 22: Future Trip Generation. 80
Exhibit 23: Wetland Conditions Map 84
Exhibit 24: Natural Habitats Map 86
Exhibit 25: Historic and Cultural Influences Map 88
Exhibit 26: Historic Bowdoin College and Town Common Parcels Map 89
Exhibit 27: On-Base Land Uses Map 90
Exhibit 28: Wastewater Collection System Map 97
Exhibit 29: Water Distribution Map 99
Exhibit 30: Natural Gas Distribution Map. 103
Exhibit 31: Points of Access Map 105
Exhibit 32: BNAS Build-out in 1940s 111
Exhibit 33: BNAS Build-out in 1950s 112
Exhibit 34: BNAS Build-out in 1960s 112
Exhibit 35: BNAS Build-out in 1970s 113
Exhibit 36: BNAS Build-out in 1980s 113
Exhibit 37: BNAS Build-out in 1990s 114
Exhibit 38: BNAS Build-out in 2000s 114
Exhibit 39: Environmental Constraints Related to Reuse 126
Exhibit 40: Known Environmental Sites 128

Exhibit 41: Potential Munitions and Explosives of Concern Sites Map 130
Exhibit 42: Restrictions on Groundwater Use and Activities Map 132
Exhibit 43: Potential Areas of Environmental Concern Map 134
Exhibit 44: Abandoned Utilities Map 136
Exhibit 45: Development Suitability Table 138
Exhibit 46: Areas Least Suitable for Development Map 140
Exhibit 47: Summary of Areas Least Suitable for Development Map 141
Exhibit 48: Areas Moderately Suitable for Development Map 143
Exhibit 49: Summary of Areas Moderately Suitable for Development Map 144
Exhibit 50: Areas Most Suitable for Development Map 146
Exhibit 51: Development Suitability and Environmental Constraints Map 147
Exhibit 52: Civilian Aviation Activities 150
Exhibit 53: Aviation Feasibility Study Process 152
Exhibit 54: Potential Brunswick Airport Civilian Employment 154
Exhibit 55: Potential Brunswick Airport Regional Economic Benefits 154
Exhibit 56: Noise Impact Map 155
Exhibit 57: Airport Break-Even Analysis 158
Exhibit 58: Based Aircraft Projected Growth Rate 160
Exhibit 59: Airport Concept A-1 Land Use Table and Map 165
Exhibit 60: Airport Concept A-2 Land Use Table and Map 167
Exhibit 61: Non-Airport Concept N-1 Land Use Table and Map 169
Exhibit 62: Non-Airport Concept N-2 Map and Land Use Table 171
Exhibit 63: Plan Alternative "A" Land Use Table and Map 175
Exhibit 64: Plan Alternative "B" Land Use Table and Map 177
Exhibit 65: Reuse Master Plan Map 180
Exhibit 66: Land Use Program 181
Exhibit 67: Airport Operations District Location Map 182
Exhibit 68: Aviation-Related Business District Location Map 183
Exhibit 69: Professional Office District Location Map 184
Exhibit 70: Community Mixed Use District Location Map 185
Exhibit 71: Business and Technology Industries District Location Map 186
Exhibit 72: Education District Location Map 187
Exhibit 73: Residential District Location Map 188
Exhibit 74: Recreation and Open Space District Location Map 189
Exhibit 75: Natural Areas District Location Map 190
Exhibit 76: Open Space System Map 193
Exhibit 77: BNAS Employment 196
Exhibit 78: Total Wages 197
Exhibit 79: State Income Tax 197
Exhibit 80: Local Property Tax 197
Exhibit 81: Recommended PBC Location Map 207
Exhibit 82: MRRA Estimated 2008 Budget 213

Section 1: Executive Summary

This section of the Brunswick Naval Air Station Reuse Master Plan report provides a brief overview of the reuse master plan, and introduces a variety of implementation issues and marketing strategies for further consideration. The Midcoast Regional Redevelopment Authority (MRRA), the entity charged with implementation of this plan, will rely on findings and recommendations of this report and move forward with more detailed financial, physical, and regulatory planning. This information, along with the background and findings of this extensive planning effort, is provided in subsequent sections of this report, and in the appendix that follows.

Plan Vision and Intent

The Reuse Master Plan for the Brunswick Naval Air Station (BNAS) represents a unique opportunity to establish a vibrant live, work, play and educate environment and centers of excellence for technology innovation, environmental sustainability, and "green" community development. Viewed from an economic development perspective, the plan provides a framework from which a variety of corporate, business, academic, recreational, and community services can flourish, and from a community development perspective, the plan promotes a strong sense of place based on smart growth principles that will serve as a model for future sustainable development throughout the region.

Land Use and Transportation Framework

The structure and relationship between future land uses and the transportation system proposed for redevelopment of the base is highlighted below and further described in **Section 6**. This includes a description and a diagrammatic illustration of the proposed land use program; a description and a diagrammatic illustration of each of the land use districts; a summary of transportation and open space elements; and a discussion of how environmental conditions influenced the Reuse Master Plan.

Land Use Program

The land use program shown in the following exhibits provides a summary of proposed land use districts with corresponding areas allocated for each land use type. As indicated on the exhibit, only 51% of the total base property has been allocated for development (approximately 1,630 acres); and, 49% (approximately 1,570 acres) of the base has been dedicated to a variety of active and passive areas for recreation, open space, and natural areas. This figure does not include parks, open space, and natural drainage or buffer areas that will be incorporated as part of the 1,630 acres planned for development. **Exhibit 2: Land Use Program Table** is color-coded to correspond with the land use districts shown on **Exhibit 1: BNAS Reuse Master Plan Map**.

Exhibit 1: BNAS Reuse Master Plan Map

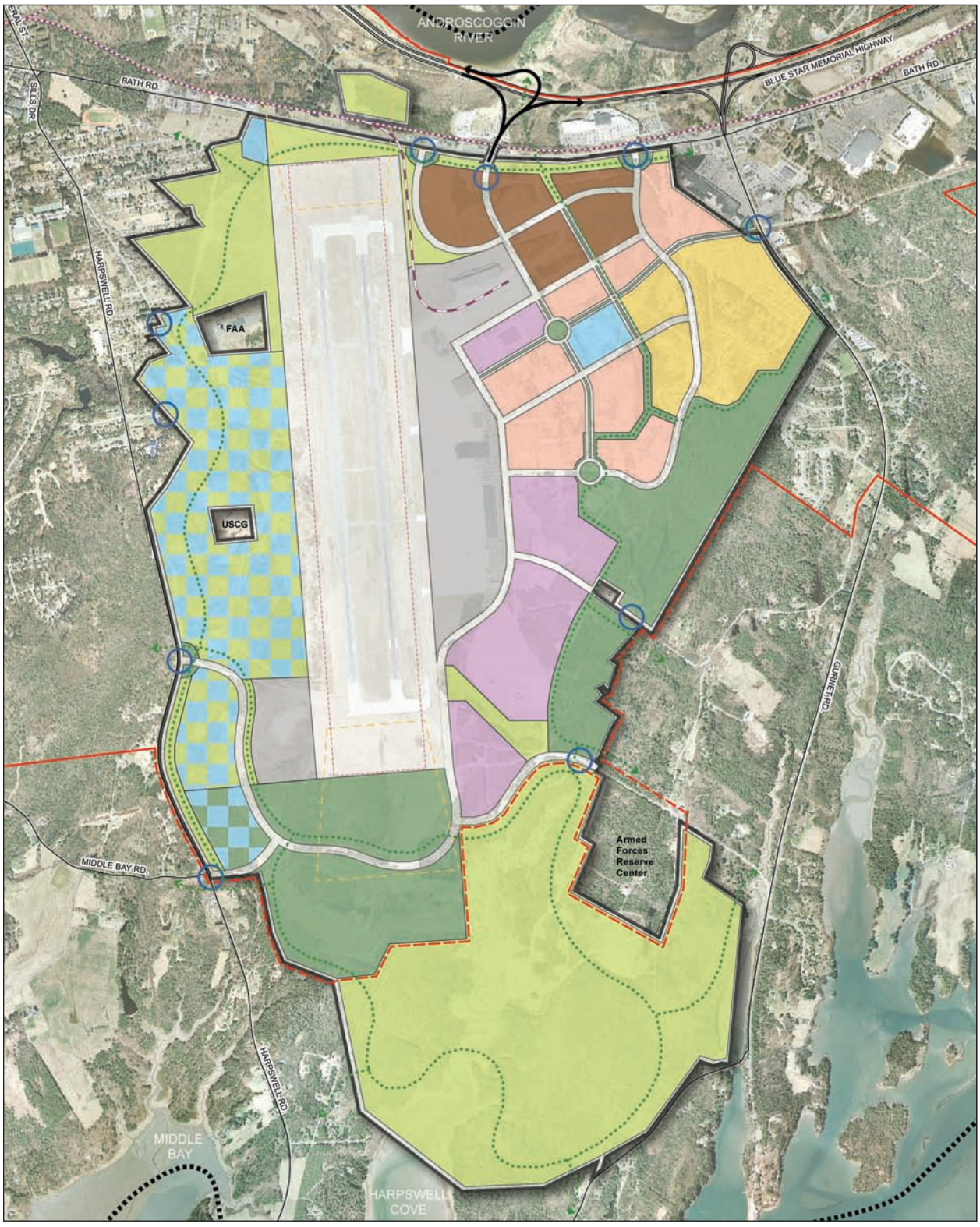


Exhibit 2: Land Use Program

Proposed Land Use Program

	LAND USE DISTRICTS	SURPLUS ACRES	PERCENT OF TOTAL
Land Development	Airport Operations	500	16%
	Aviation-Related Business	230	7%
	Professional Office	120	4%
	Community Mixed Use	175	5%
	Business and Technology Industries	190	6%
	Education	200	6%
	Residential	215	7%
	SUBTOTAL	1,630	51%
Open Space	Recreation / Open Space	510	16%
	Natural Areas	1,060	33%
	SUBTOTAL	1,570	49%
GRAND TOTAL		3,200	100%

Notes:

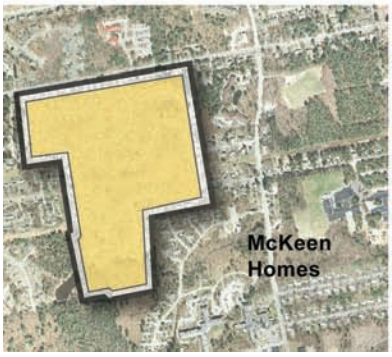
1. Checkered blue-light green area totals 320 acres, of which an undefined 175 acres have been assigned in the table above to Education and 145 acres to Natural Areas.
2. Checkered blue-dark green area totals 30 acres, all of which has been assigned in the table above to Recreation / Open Space; however, Education would be an allowed use, if needed.
3. Checkered light green-dark green (East Brunswick Transmitter Site) area totals 70 acres, of which an undefined 35 acres have been assigned in the table above to Recreation / Open Space and 35 acres to Natural Areas.
4. The Runway Object Free Area provides a 500-foot buffer to the east and west of the two runways. The Airport Operations land use district extends an additional 500 feet beyond the Runway Object Free Area, resulting in a 1,000-foot buffer parallel to the runways.

Legend

- B N A S Surplus Property
- Town of Brunswick
- State Highway
- Major Road
- Railroad
- Runway Protection Zone
- Runway Object Free Area
- Existing Town Growth Boundary
- Potential Town Growth Boundary
- Potential Pedestrian / Bike Trail
- Potential New Interchange
- Potential Railroad Spur
- Access Points

N

0 500 1,000 2,000 3,000 Feet



BLRA
BRUNSWICK LOCAL REDEVELOPMENT AUTHORITY

BRUNSWICK NAVAL AIR STATION
REUSE MASTER PLAN

Matrix Design Group Inc.
Integrated Design Solutions

PLANNING DECISIONS ECONOMIC RESEARCH ASSOCIATES
WRIGHT - PIERCE ENGINEERS WBRC ARCHITECTS + ENGINEERS

Land Use Districts

Based on the inventory and assessment of local, regional, and state market conditions, and influenced by the availability of existing on-base infrastructure and facility assets, the land use program illustrated above is described below:

Airport Operations District

The 500-acre Airport Operations District, shown in light gray on the plan, contains the two existing 8,000-foot long runways, taxiways and adjacent buffer zones surrounding the active airfield.

Aviation-Related Business District

The intent of the 230-acre Aviation-Related Business District, identified in dark gray on the plan, is to provide an area dedicated primarily to aviation-related business, industry, transportation and distribution, technology employment and other uses that rely on, or directly benefit from, proximity to airport facilities and operations. Such uses could include general and corporate aviation, aircraft maintenance / repair / overhaul, aviation-related manufacturing, and government and aerospace research and development.

Professional Office District

The intent of the 120-acre Professional Office District, identified in brown on the plan, is to provide an employment center serving corporate and professional office needs of the area. Some retail and community support uses (e.g. hotels, food service, and day care) could be integrated into this district. Primary uses in this district will include administrative, corporate, and professional offices (e.g. law, medical, insurance, architectural, engineering, finance, and real estate), and similar office uses. Uses could be accommodated within this district in stand-alone buildings, in a campus setting, or in a more compact office complex.

Community Mixed Use District

The intent of the 175-acre Community Mixed Use District, shown in light orange on the plan, is to provide a centralized area that encourages a compact pedestrian-oriented mix of community-related uses that will provide a variety of live, work, play and educate opportunities. Typical uses could include neighborhood-scale retail, professional offices, business and support services, restaurants, hotels and conference centers, health and fitness centers, day care centers, civic and cultural uses (e.g. churches, libraries, and museums), parks, and government buildings. A variety of higher-density attached housing types such as town homes, condominiums and apartments (including affordable rental and home ownership, and assisted / independent care senior housing) could also be included.

Business and Technology Industries District

The intent of the 190-acre Business and Technology Industries District, shown in purple on the plan, is to provide a high-tech employment center that will accommodate large-scale technology uses, such as technology-based research and development, energy parks, laboratories, light manufacturing, and warehouse and distribution uses. Facilities could be developed as stand-alone buildings on several acres or in a campus / corporate park setting. This district could also accommodate those activities that are normally considered industrial in nature, but which produce few, if any, external effects that may be adverse to nearby properties or to the community in general.

Education District

The intent of the 200-acre Education District, light blue on the plan, is to allow for university and college-level academic, administrative and support facilities. Typical uses will include college classrooms, administrative and support facilities, college athletic and sporting events, and student / faculty housing. More detailed studies are being conducted in the checkered areas on the plan to determine specific locations for educational versus natural area uses.

Residential District

The intent of the 215-acre Residential District, shown in yellow on the plan, is to provide for a variety of housing types in a compact, pedestrian-oriented setting. Typical uses will include single-family attached / detached, multi-family apartments, assisted / senior housing, and retirement / second homes. The proposed density of the McKeen Street housing area is five dwelling units per acre, and eight dwelling units per acre for the on-base housing areas. Residential uses in the Community Mixed Use District are proposed at a density of 24 dwelling units per acre.

Recreation and Open Space District

The intent of the 510-acre Recreation and Open Space District, identified on the plan in dark green, is to provide suitable areas for a variety of commercial and public outdoor active and passive recreational opportunities for the community. Recreational uses could include public parks, sports fields, golf courses, public gardens, bicycle trails, and equestrian facilities.

Natural Areas District

The intent of the 1,060-acre Natural Areas District, light green on the plan, is to preserve, maintain and enhance existing natural areas for the long-term benefit of area residents and the surrounding community; as such, only those uses that will not significantly alter the environment and/or will provide opportunities to experience the environment will be considered. Pedestrian trails, nature and interpretive centers,

environmental education, and other non-intrusive outdoor passive recreation and educational uses could also be included. More detailed studies are being conducted in the checkered areas to determine specific locations for natural versus educational uses.

Transportation System

The nature and magnitude of transportation demands associated with redevelopment of the facility, as well as the ability of the existing transportation systems to accommodate these demands, are paramount considerations addressed in the Reuse Master Plan. A recurring theme from the public was the desire to provide viable alternatives to single passenger automobile travel, and sensitivity to other uses in the vicinity of the base. The transportation framework plan element of the Reuse Master Plan addresses both off-site and on-site capacity-related improvements, including:

- The creation of a new connector spur and interchange that will connect to US Route 1 west of the present interchange at Cook's Corner
- New secondary points-of-access onto the adjacent street systems at Bath Road / Gurnet Road / Harpswell Road
- New east / west connector linking Gurnet and Harpswell Roads
- The widening of Bath Road
- The creation of a new network of pedestrian / bicycle trails

Rail Service Considerations and Access

The base has historically been served directly by rail, via an at-grade crossing of Bath Road. The rail spur once extended into the site roughly parallel to the main base entrance. While the re-creation of both passenger and freight rail access onto the site provides an incentive for certain future development, the reintroduction of a grade crossing on Bath Road would present a number of challenges. Initial evaluation suggests that creation of grade-separated rail access could be achieved through elevating Bath Road across the north end of the site, which would allow a new rail spur alignment further to the west.

Pedestrian Considerations

Significant public input has also indicated the need to create a facility characterized by "walkability." The improvements incorporated into the plan provide pedestrian access throughout the redevelopment, with a focus on connectivity with those types of land uses which tend to generate pedestrian traffic, or interface with other transportation modes. Proposed transit stops will be located to correspond with complementary land use elements and transportation nodes.

Open Space System

Over 1,500 acres (49%) of the site are dedicated to open space and natural areas, where wetlands, drainageways, wildlife corridors and other sensitive natural systems are prevalent. Urban parks and formal open spaces are envisioned in the more developed areas, with pedestrian linkages to ensure connectivity not only throughout the property, but also into the adjacent neighborhoods and community. This approach promotes the concept of conservation and preservation of site and area-wide natural systems, while also providing a variety of locations and conditions for both active and passive recreational activities.

Environmental Influences

A detailed opportunities and constraints analysis was performed with respect to environmental conditions to help guide the development of the Reuse Master Plan. The analysis produced an implementation strategy that will best position designated land use districts for redevelopment. As a result, specific recommendations have been incorporated into the land use master plan described in **Section 6** of this report.

Taking environmental conditions into consideration while developing the Reuse Master Plan facilitates a quick start to base redevelopment, which creates momentum, optimism, and decreases the community's anxiety over the closure of the historic military installation.

Plan Implementation Considerations

As the MRRA focuses on implementation of the Reuse Master Plan for redevelopment of the Brunswick Naval Air Station, more detailed planning, market and economic studies, building and environmental investigations, and other activities must be programmed. The following section provides a discussion of a variety of issues that will aid MRRA in making decisions related to future economic development, transportation and infrastructure, environmental cleanup, and property transfer.

Economic and Development Impacts

The following development impact estimates (in current dollars) represent the jobs, wages and taxes that could be generated, assuming full build-out of the BNAS site according to the Reuse Master Plan. All new development has been included, as well as the reuse of select existing buildings for education tenants. There will be additional public benefit conveyances (PBCs) which will result in the repositioning of select facilities, but such uses are not likely to contribute a level of jobs and wages comparable

to new development. Consequently, Economics Research Associates, Inc. (ERA) did not include them in this analysis. Neither construction labor nor short-term employment impacts generated by residential development have been included.

Current operations at BNAS generate:

- Total employment of 4,863
- Total annual wages of roughly $115,000,000
- An average annual wage of roughly $24,000

These figures assume full build-out of the entire site over a period of 20 years. The Reuse Master Plan could generate the following development impacts in current dollars:

- Total employment of 13,800 workers
- Total annual wages of $732,390,000
- An average annual wage of roughly $53,000
- Total annual income taxes of $40,849,000
- Total annual commercial and residential property taxes of $19,011,000, which could be a source of tax increment financing (TIF) to assist in funding reinvestment in public infrastructure and other base redevelopment activities; property valuation that is not sheltered in a TIF district would be subject to the impact of the state's school funding formula, county tax assessment and state municipal sharing formula

Transportation and Infrastructure Impact Considerations

Preliminary "order of magnitude" estimates were developed relative to the degree of public sector capital investment that will be necessary for implementation of the 20-year redevelopment plan. The majority of costs relate to the rehabilitation of existing facilities and the construction of new transportation and utility infrastructure. Primary components include:

- Arterial, collector and local streets
- Water and sewer systems
- Storm drainage
- Electrical transmission and distribution
- Telecommunications

The total projection for these costs (through build out) is estimated at approximately $240 million, which includes a contingency allowance of 25 percent and approximately 18 percent for "soft costs" such as engineering, permitting, and related items.

The time frames necessary for implementation of utility and transportation infrastructure improvements will be dictated to a large extent by the rate at which new businesses and residents occupy the facility; phasing may also be driven by the logistics of transfer-of-ownership and operations responsibility of any utility systems. The need for capacity-related improvements to the transportation network in the vicinity of the base will be dictated primarily by the rate at which existing facilities are reused, and new facilities are constructed.

Environmental Considerations

Numerous environmental issues must be considered prior to and during implementation of the plan. Environmentally-impacted sites on the property are at various stages of investigation, remediation, and closure; some potential areas of environmental concern have not been assessed at all. A number of known environmentally-impacted areas have not been adequately investigated to determine the nature and extent of contamination. Environmental investigation and site characterization for known and potential environmentally-impacted sites are critical elements to redevelopment because the extent of contamination must be defined prior to estimating costs for remediation to be protective of human health and the environment for the land use(s) described in the plan, and to adequately estimate and consider long term obligations (e.g., long term monitoring or land use controls). The environmental strategy for cleanup and redevelopment in accordance with the Reuse Master Plan includes filling identified data gaps while coordinating further site investigation, remediation, and closure of contaminated sites consistent with the redevelopment schedule and priorities. **Appendix G** contains details on the known and potential environmental issues, how they relate to the land uses described in this Reuse Master Plan, and the status of the Navy's investigation and planned cleanup.

Environmental Phasing

During the development of the Reuse Master Plan, certain areas have been identified as priorities in redevelopment phasing. The priority areas include property that may be transferred to the MRRA prior to 2011 base closure, areas that will be developed to include special activity centers or economic centers, and areas that will require significant cleanup time or areas that have not yet been investigated and may require a long lead time for investigation and remediation. Priorities related to environmental investigation and cleanup have been identified, along with the reasoning associated with the priorities, as reported in detail in **Section 7**.

Following investigation and the determination of the nature and extent of contamination at impacted sites, the environmental cleanup process will proceed to remedy selection and implementation to position properties for transfer with as few land use controls (LUCs) as possible. Schedules for cleanup of individual sites will be driven by redevelopment phasing and priorities.

Property Transfer Considerations

A number of property transfer mechanisms may be used to convey all or portions of the BNAS property to new owners. The Brunswick Local Redevelopment Authority (BLRA), the entity charged with developing this Reuse Master Plan, envisions that: (1) properties identified and approved by the BLRA Board of Directors through the Notice of Interest (NOI) process will be transferred via the appropriate public benefit conveyance authority; (2) the MRRA may seek to acquire portions of the property via an Economic Development Conveyance; and/or (3) the MRRA may negotiate with the Navy to acquire select parcels within the property via the Negotiated Sale transfer mechanism. It is also assumed that the Navy will likely make select parcels available to the highest bidder via Public Sales. Such transfers would require consistency with this Reuse Master Plan, and be subject to zoning and other land use controls and restrictions that may be placed on the property by the Town of Brunswick and/or the MRRA. Information related to potential property transfer mechanisms and recommendations made by the BLRA Board of Directors for implementation of the Plan are provided in **Section 7**; they include:

- Public Benefit Conveyances (PBCs) allow the transfer of surplus military property for a specified public purpose at up to a 100 percent discount, which may be conveyed to eligible public agencies and private not-for-profit organizations to provide for certain public goods and services.
- Homeless Assistance Provisions identify the unmet needs of the homeless in the vicinity of the base. Using information provided from area homeless service providers and the Maine State Housing Authority, a report entitled *Report on the Homeless in Midcoast Maine* was created to assist the BLRA in understanding the scope of homeless needs in the vicinity. Based upon the NOI evaluations and interviews, recent homeless studies, and recommendations from the BLRA's Homeless and Housing Committee, Tedford Housing's proposal was selected because it most closely addressed the identified needs of the homeless in the vicinity. The BLRA agreed to establish a homeless services trust fund to be capitalized by future base property sales / transfers or development exactions to support both housing and related services for homeless persons. Providing service funding also allows the homeless to integrate throughout the community and lessen the impact on municipal services in one area by spreading the demand over a wider area. More details regarding this approach are provided in **Section 7**.

- Economic Development Conveyances provide for the transfer of select properties within the base to the MRRA at a discounted price or at fair market value for the purpose of job creation.
- Negotiated Sales are available only to a public entity for a public purpose such as the provision of affordable housing. Negotiated sale authority requires the payment of fair market value.
- Public Sales (auctions to the highest bidder) may be used by the Navy for properties not conveyed via other mechanisms.

Economic Feasibility and Public Benefit Analysis

Economic Feasibility

The Reuse Master Plan, as presented in this overall study, supports the uses and industries targeted in Economics Research Associates' January 2007 report. In that report, ERA identified composite research and development and manufacturing, information technology, biomedical, radio frequency identification, open-source software and alternative energy as technology-based industries that should be targeted tenants for a Maine Center of Innovation. The Business and Technology Industries District, outlined in the Reuse Master Plan, would serve as the location for the Center. ERA has coordinated with aviation consultant Edwards and Kelcey in reviewing the potential for on-site airport operations. The Edwards and Kelcey Aviation Feasibility Study confirmed the potential for general and corporate aviation, government agencies, maintenance, repair and overhaul, and research and development activities. Consequently, the Reuse Master Plan designates 500 acres for airport operations and 230 acres for aviation-related businesses. In addition, ERA has underlined the demand for a hotel and conference center, linked to a golf course, as well as supportive retail, second homes, retirement homes, education and aviation. The Reuse Master Plan takes all of this into account and designates an appropriate mix of land-use districts providing for flexibility and expansion.

Public Benefit Analysis

There are several benefits likely to result from the proposed Public Benefit Conveyances at the base. ERA considered the following PBCs as likely to occur and generate significant benefits. The buildings and land to be occupied by Bowdoin College and Southern Maine Community College will result in:

- Access to advanced technology training and education
- Potential synergies with relevant firms and industries
- Pipeline of entry-level workers for targeted industries

Over 1,000 acres of open space and conservation land along with select community recreational facilities will be transferred to the Town of Brunswick. The land and existing buildings potentially provide:

- Walking, biking and cross-country skiing trails
- Access to green space for residential homeowners
- A marsh and bay water trail for recreational boaters
- Access for canoes and kayaks to promote low-impact exploration of the coastal habitat
- Commercial shellfish opportunities for local shellfish harvesters
- Facilities for gym use, and health and wellness programming
- Future athletic field space
- Recreational programming for area youths
- An attractive amenity to commercial residential and resort development
- A higher quality of life

Management Considerations

The Midcoast Regional Redevelopment Authority is a public municipal corporation chartered by the State Legislature with the responsibility to implement the Reuse Master Plan prepared for the BNAS property in Brunswick and the Topsham Annex in Topsham, Maine. Members of the Authority have been appointed by the governor and confirmed by the legislature. Presently, the proposed staffing model will include an executive director, a deputy director, a planning and environmental manager, a property manager, grants and communications coordinator and an executive administrative assistant. The estimated MRRA budget for 2008 is $858,911.

Section 7 of this report outlines how economic development at BNAS can best be accomplished by leveraging the assets of various regional, state and federal resources. The action plan is loosely based upon the phasing strategy outlined for facility development. The plan should be considered only as a basic guide for future planning, bearing in mind that an element of flexibility should be maintained as the project progresses.

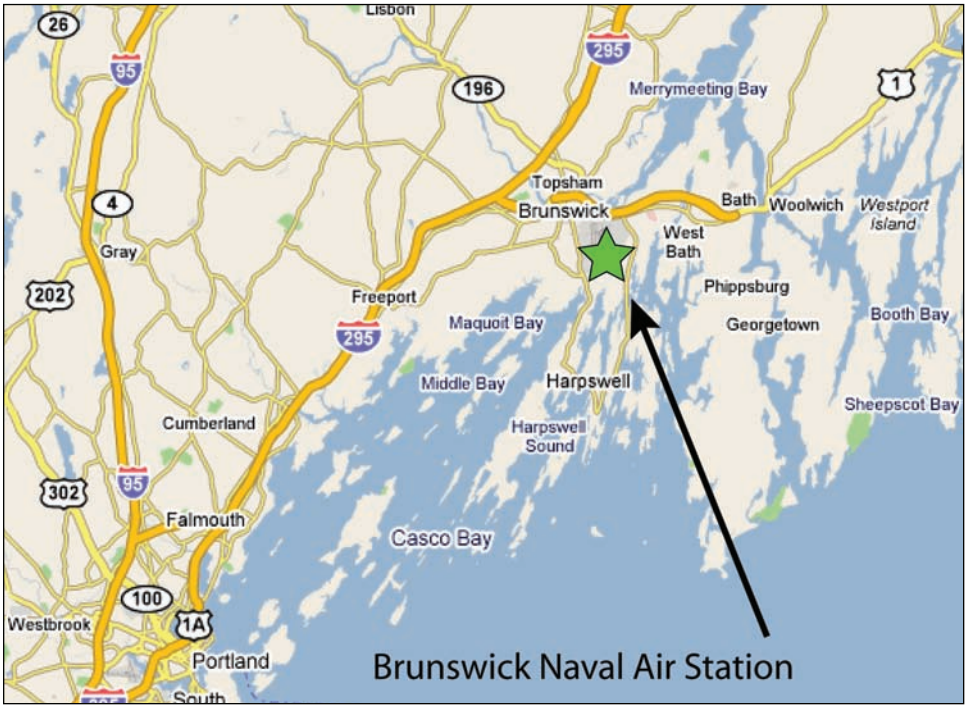
Section 2: Background and Overview

On August 24, 2005, the Federal Base Realignment and Closure (BRAC) Commission voted eight to one to close Naval Air Station Brunswick and move its aircraft operations to Jacksonville, Florida; on September 15, 2005, the final list was approved by the President. By law, the base must close before September 15, 2011. For the Town of Brunswick and the State of Maine, that decision was the culmination of an intense process and significant community effort to keep the base open to maintain an employment base of over 5,200 military and civilian personnel; and a regional economy exceeding $147 million.

Property Setting and Description

Locally known as Brunswick Naval Air Station, the base is a 3,300-acre military enclave within the jurisdictional limits of the Town of Brunswick, in Cumberland County, Maine, as illustrated on **Exhibit 3: Regional Context Map**. Primary vehicular access to the base is via US Route 1 at Cook's Corner (Gurnet Road), and from downtown Brunswick, east via Highway 24 (Bath Road). The property is bordered on the west by a variety of low to moderate-density residential neighborhoods east of Harpswell Road; Bowdoin College facilities are generally west of Harpswell Road; on the south predominately by

Exhibit 3: Regional Context Map



Source: Matrix Design Group

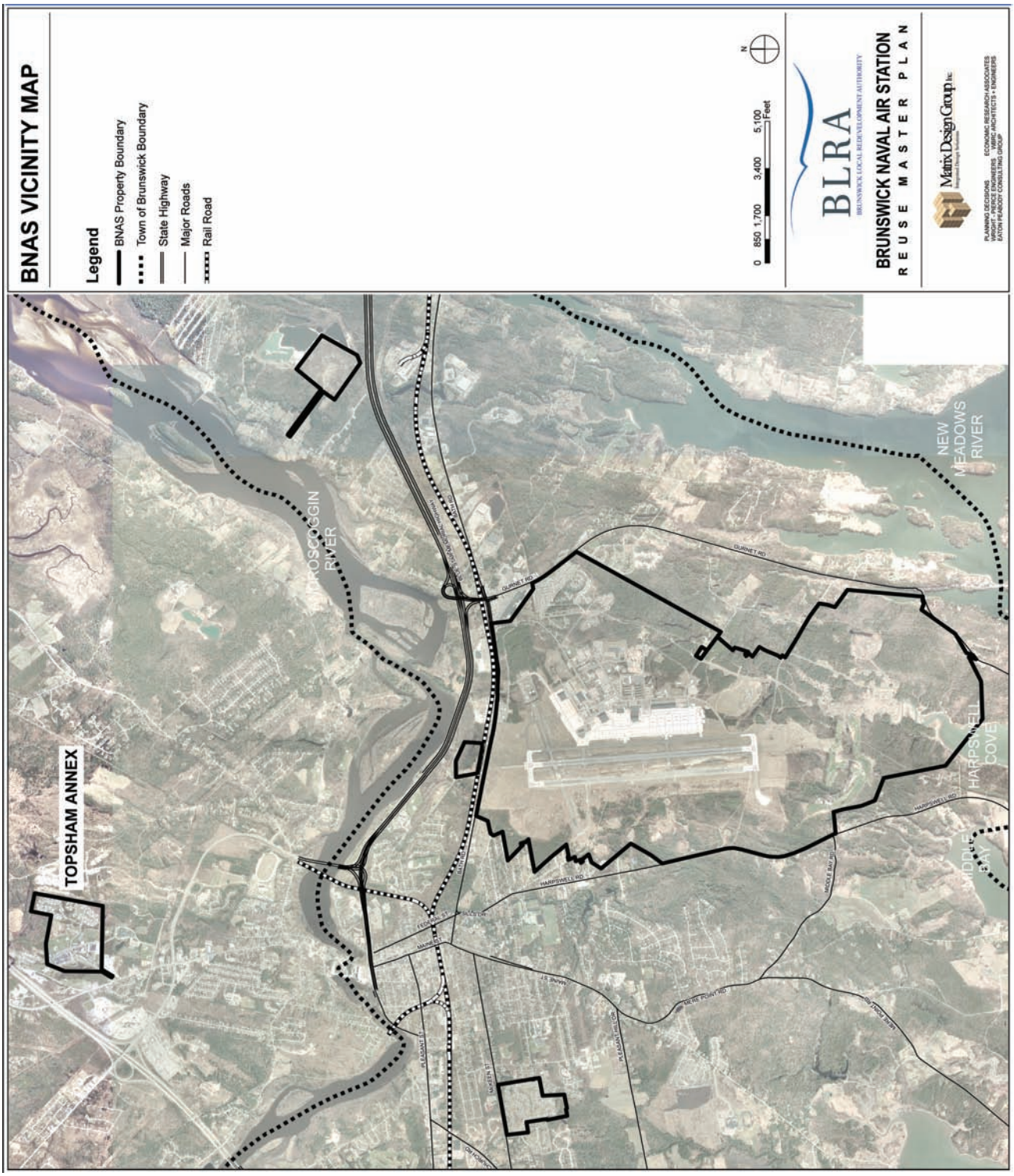
Harpswell Cove; on the east by commercial development associated with Cook's Corner, and residential development to the south, between the base and Gurnet Road; and on the north by highway commercial uses and undeveloped areas north of Bath Road.

The base is the last remaining active-duty Department of Defense airfield located in the Northeast, and is home to five active duty and two reserve squadrons. The base's two 8,000 foot runways and airside support infrastructure and systems (which encompass over 1,300 acres of the base) provide year-round airport services and support on a 24 hours a day, seven days a week. Flying Lockheed P-3 "Orion" long-range maritime patrol aircraft tasked by Patrol and Reconnaissance Wing Five, active duty squadrons regularly deploy overseas for six months at a time.

BNAS has 29 tenant commands, including a Reserve P-3 squadron and a Reserve Fleet Logistics Support Squadron flying C-130 "Hercules" transports. In addition, over 1,600 Naval Reservists travel from throughout New England to drill at Naval Air Reserve Brunswick, SeaBee Battalion and numerous other reserve commands. Approximately 20 percent of the activities, facilities and services at BNAS are in direct support of the AEGIS Destroyer shipbuilding program at nearby Supervisor of Shipbuilding, Bath and the Bath Iron Works Corporation. As Maine's second largest employer, BNAS employs 4,863 military and civilian personnel, including 713 officers, 3,493 enlisted personnel and 657 civilians. The air station provides over $187 million to the local economy, including $115 million in salaries, $38 million in contracts and material purchases and $34 million in medical purchases. Also, the Navy's only cold weather Survival, Evasion, Resistance and Escape (SERE) School is taught at Brunswick and on 12,000 acres near Rangeley in northwestern Maine, which is not considered part of this planning effort.

Three other isolated properties, however, are included: the 77-acre McKeen Housing site (McKeen), located about two miles west of the main base on McKeen Street southwest of downtown Brunswick; a 69-acre East Brunswick Transmitter Site (EBTS), located approximately two miles northeast of the main base, off Old Bath Road; and the 0.25-acre parcel in Phippsburg, a former transmitter site. **Exhibit 4: BNAS Vicinity Map** illustrates the location of the BNAS property being investigated as part of this study, including the McKeen and EBTS parcels.

Exhibit 4: BNAS Vicinity Map



Source: Matrix Design Group

The Brunswick Local Redevelopment Authority

After the BRAC decision to close BNAS was final, Governor John E. Baldacci, the local legislative delegation, and the Brunswick Town Council established the Brunswick Local Redevelopment Authority. The BLRA was recognized by the Department of Defense on December 1, 2005.

BLRA Members

Members of the Authority were appointed by the Governor, based on a review of outstanding civic and business leaders, state and local governmental representatives, academic, and institutional leaders. The following members represent the BLRA Board of Directors:

Brunswick Resident Appointees:

- Martin L. Wilk, Chair
- Carol Godfrey Warren, Vice Chair
- Robert B. Jarratt
- S. Catherine Longley
- Dana W. Totman

Brunswick Town Council Appointees:

- Joanne King
- Forrest Lowe

Town of Topsham Appointee:

- Sue Spann

State of Maine Appointees:

- John Richardson, Commissioner, DECD
- Honorable Stan Gerzofsky, Representative - District 66

Regional Appointees:

- Arthur F. Mayo III
- Major General John W. Libby, Maine National Guard
- Charles Spies

The BLRA also includes several staff members to help facilitate and manage the redevelopment process. Staff includes:

- Victoria Boundy, Senior Planner
- Jeffrey Jordan, Deputy Director
- Steve Levesque, Executive Director
- Alexis Mann, Grants Administrator
- Kathy Paradis, Executive Assistant
- Bob Rocheleau, Property Manager
- Clare Tosto, Communications Coordinator

As part of the BLRA, committees were formed to focus on specific aspects of the reuse planning process and issues. The BLRA Board adopted a specific mission statement for each committee.

- Executive Committee – Martin L. Wilk
  The mission of the Executive Committee is to monitor the progress and effectiveness of the BLRA Board, its committees, Executive Director, staff and consultants in achieving the goals and timelines established by the BRAC process, Department of Defense, and office of Economic Adjustment.
- Personnel and Contracts Screening Committee - S. Catherine Longley
  The mission of the Personnel and Contracts Screening Committee is to conduct Executive Director and consultant search processes and bring recommendations forward to the Board. The Screening Committee will also oversee the consultant contract process.

- State and Local Screening Committee - Stan Gerzofsky
  The mission of the State and Local Screening Committee is to provide information, analysis and recommendations to assist the BLRA in its deliberation on the development and implementation of a “state and local screening” process in accordance with the Federal Base Closure Community Redevelopment and State and Local Assistance Act.
- Aviation Committee – Martin L. Wilk
  The mission of the Aviation Committee is to provide information, analysis and recommendations to assist the BLRA in its deliberation on potential reuse alternatives for the aviation assets at BNAS.

- Environmental Committee – Carol Godfrey Warren
  The mission of the Environmental Committee is to provide information, analysis and recommendations to assist the BLRA Board on environmental issues and remediation efforts related to the Reuse Master Plan and property disposition and transfer.
- Homeless and Housing Committee – Dana W. Totman
  The mission of the Homeless and Housing Committee is to provide information, analysis and recommendations to assist the BLRA Board in its deliberation on the development and implementation of a "Homeless Screening" process in accordance with the Federal Base Realignment and Closure Act.

BLRA Guiding Principles

The Brunswick Local Redevelopment Authority is charged with the responsibility of preparing a reuse master plan for the Brunswick Naval Air Station. The following principles were adopted on May 17, 2006 to provide general guidance to it as it proceeds with the development of the Reuse Master Plan:

- The LRA Board will be actively engaged in all aspects of the reuse planning efforts and will complete the final Master Reuse Plan for BNAS by September 1, 2000.
- The planning process will include an extensive, open and inclusive public participation program, including numerous community-wide visioning sessions and other opportunities to provide meaningful input. The LRA will not pre-judge what the plan will be, but will consider all the studies, analysis and community views before making decisions about the Master Reuse Plan.
- The reuse plan will accommodate the needs and values of the community, the region and the State of Maine, and be consistent with the policies of the Brunswick Comprehensive Plan. Redevelopment of the base provides an opportunity to re-connect the base with the community, both geographically and economically.
- The reuse plan will have sufficient flexibility to accommodate both short term (less than ten years) and long term (ten to fifty years) needs and values.
- The reuse plan will consider "smart growth" strategies that promote sustainable development and balance economic development, environmental protection and the preservation or enhancement of the quality of life for Brunswick residents.
- The reuse plan will consider a mix of land uses, including, but not limited to, the following: businesses with potential for high employment growth, capital investment and tax revenue; open space and public recreation uses; academic and research facilities; governmental/public services; housing; and aviation.
- The reuse plan will make adequate provision for environmental clean-up and remediation, including a goal that base clean-up is to the standard necessary to support the proposed reuse of the land and facilities.

- The reuse plan will seek to develop local and regional economic and employment viability and sustainability similar to or better than the economic health of the region before the BRAC closure announcement.
- Development on the base should be integrated with the economic development of the Town, the region and the State of Maine.
- The reuse plan will attempt to optimize the use of existing facilities and infrastructure including the integration of a multi-modal transportation system with designated land uses.
- The reuse plan will recognize and optimize the skills of the available civilian workforce at BNAS and the region.

The Federal Property Screening Process

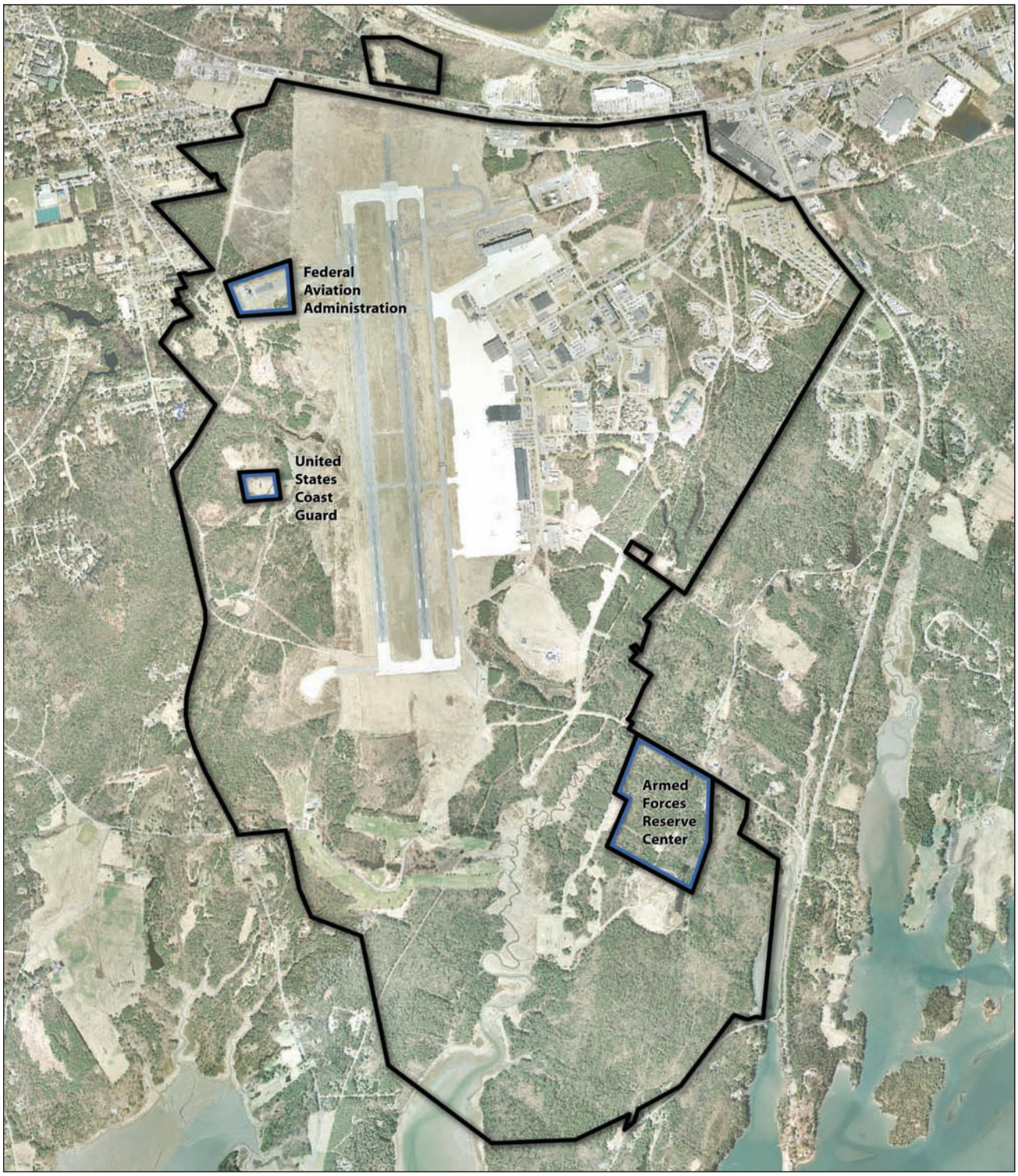
The BRAC process allows for various federal, state, and local agencies and other non-profit organizations to apply for and be considered for property within a closed military installation. There are two levels of screening, the first of which is the "federal to federal" screening, during which other Department of Defense (DoD) organizations are notified by the Department of the Navy (or other applicable Military Department) of the availability of "excess" property. After consideration by these components, other federal departments are then given the opportunity to request portions of the property. The parcels within the remaining installation that are not transferred to these agencies under this first level screening activity are considered "surplus" property.

The second level of screening is conducted by the BLRA and considers the surplus property, as defined above. During this process, the BLRA provides notice of the availability of surplus property to homeless provider organizations, state and local governments, and potential recipients of public benefit conveyances. The following sections of this report describe this process as it relates to the redevelopment of the 3,300-acre Brunswick Naval Air Station.

Federal Determination of Surplus Property

The federal government made its official determination of "surplus" property for BNAS on February 6, 2007. Prior to that time, the BLRA was aware of specific federal requests for property, and worked with the Navy to communicate the BLRA's position on those requests, in terms of how each request could potentially impact the future use of the property and the community's Reuse Master Plan. Based on those discussions, approximately 100 acres of land have been set aside for federal uses, and reflected accordingly in the Reuse Master Plan. **Exhibit 5: Federal to Federal Requests for BNAS Property Map** illustrates the locations of these requests which results in an overall surplus property of approximately 3,200 acres.

Exhibit 5: Federal-to-Federal Requests for BNAS Property Map



Source: Matrix Design Group

State and Local Screening Process

The Federal Base Closure Community Redevelopment and Homeless Assistance Act governs the process of how federal defense facilities are disposed. The Act was designed to accommodate the impacted communities' multiple interests in base reuse, including meeting the national priority to assist homeless individuals and families, and for economic development conveyances for business growth and expansion and Public Benefit Conveyances (PBC) to provide for reuse of land and building assets for a public purpose. The Act provides for a community-based process whereby government and not-for-profit organizations may propose the reuse of surplus military property to provide vital public services such as education, health care, open space or parks, parks and recreation related uses, law enforcement, prisons, transportation terminal facilities, aviation uses or other public buildings and facilities; the Act also provides for a community-based process whereby government and not-for-profit organizations serving homeless individuals or families participate in the local reuse planning process. The BLRA is responsible for developing a reuse plan for Brunswick Naval Air Station that appropriately balances the needs for economic redevelopment, certain public facilities and amenities, and homeless assistance.

The BLRA officially began its "state and local screening process" on February 9, 2007, after the federal determination of surplus property was made. Notices were sent to the State of Maine, local governments, and not-for-profit agencies in the vicinity of the base, and advertisements were placed in the *Portland Press Herald* and *Times Record* to solicit proposals. State and local government agencies and not-for-profit organizations that provide or propose to provide programs, services, or activities on the base were also contacted. The following process was followed to meet the federal requirements for state and local screening:

State and Local Screening Notice of Interest

The BLRA State and Local Screening Committee prepared its Notice of Interest for distribution to state and local governments and other interested parties, which was approved by the BLRA Board on June 21, 2006. Elements of the Notice of Interest included the following:

- Understanding the Base Realignment and Closure (BRAC) Process
- Eligibility for Pubic Benefit Conveyance
- State and Local Screening Process Description
- Evaluation Criteria
- Outreach and Education Process
- The Application Process
- Summary Matrix of Public Benefit Federal Partners
- Goals of the State and Local Screening Process

- Role of the BLRA Board, Screening Committee and Staff
- BLRA Guiding Principles

Workshops – State and local governments and other interested parties were invited to attend one of two workshops to learn more about the State and Local Screening process; to learn how public conveyances work with federal sponsoring agencies; to review the application, and to take a tour of BNAS.

Applicant Presentations – State and local governments and other interested parties were invited to make presentations to the BLRA Board.

Application Instructions – The BLRA, through its State and Local Screening Notice of Interest, directed interested parties to contact the respective federal sponsoring agency to discuss the potential for a public benefit conveyance, and to inquire about the federal sponsor's own application process.

Review Process – The BLRA and its Local Screening committee reviewed submitted applications, met with applicants, and made a set of recommendations to the full BLRA Board for its consideration.

BLRA Board Review – The BLRA Board reviewed recommendations made by the Screening Committee, and made recommendations for public benefit conveyance reuses for consideration in the Reuse Master Plan.

Homeless and Housing Assistance Screening Process

The BLRA officially began its six-month "homeless screening process" on February 9, 2007, when the federal determination of surplus property was made. Notices were sent to area homeless providers and advertisements were placed in local newspapers to solicit proposals from area homeless providers. State and local government agencies and not-for-profit organizations that provide assistance, programs or services that meet the needs of homeless persons and families in the communities in the "vicinity of the base" were also contacted. The communities in the "vicinity of the base" were determined to be the towns of Brunswick, Freeport, Durham, Harspwell, and the communities within Sagadahoc County (Arrowsic, Bath, Bowdoin, Bowdoinham, Georgetown, Phippsburg, Richmond, Topsham, West Bath, and Woolwich). The following process was followed to meet the federal requirements for state and local screening:

Homeless Agency Provider Notice of Interest

The BLRA State and Local Screening Committee prepared its Notice of Interest for distribution to state and local governments and other interested parties, which was approved by the BLRA Board on June 21, 2006. Elements of the Notice of Interest included the following:

- Understanding the Base Realignment and Closure (BRAC) Process
- Homeless Assistance and the Homeless Screening Process, including
  - Outreach and Education Process
  - Integration of Requests from Homeless Provider Organizations
  - Legally Binding commitments
- The Application, including:
  - Homeless Provider Application Questions
  - Application Contact Sheet and Certifications
  - The Application Checklist
  - Goals of the Homeless Screening Process
  - Role of the BLRA Board, Homeless Committee and Staff
  - Homeless Screening Process and Schedule

Workshops

Homeless agency providers were invited to attend one of two workshops to receive a briefing on the homeless screening process, a review of the Application, and to tour BNAS.

Applicant Submissions and Presentations

Homeless service providers were invited to submit and make presentations to the BLRA Board on May 16, 2007.

- Review Process – The BLRA and its Homeless and Housing Committee reviewed submitted applications, met with applicants and others to determine whether the agencies had sufficiently identified the availability of existing services to meet the needs of the homeless in the "vicinity of the base," and to determine how any unmet needs could be addressed by property and building assets on the base. The Homeless and Housing Committee then prepared its findings and forwarded a set of recommendations to the Board for its consideration.
- BLRA Board Review – The BLRA Board received a report from the Homeless and Housing Committee on June 20, 2007 with a set of recommendations on whether there is a suitable reuse of land or property to assist homeless providers

in the vicinity of the base to meet the unmet need of homeless individuals or families. The Board then considered those recommendations, and made recommendations accordingly for consideration into the Base Reuse Master Plan.

Analysis of Homeless Needs in Midcoast Maine

The BLRA and its Homeless and Housing Screening Committee recognized that it needed to better understand the issues related to the homeless in order to respond to applications from homeless providers, and to make informed and appropriate recommendations. An analysis, therefore, was conducted as part of the Matrix Design Group Planning Team's investigation of issues and existing conditions related to homeless needs in the Midcoast Maine area. The purpose of this report is to assist the BLRA in understanding the scope of needs in the area, so that it can more effectively engage with homeless providers in creating programs that will make a difference for the homeless in 2011. The analysis, along with supporting documentation, is provided in **Appendix F** of this report. In summary, the following conclusions and/or recommendations were made:

- There is only a modest demand, if any, for shelter beds for adults. There is some demand for family shelter beds, but if sufficient alternatives develop, and the average length of stay can be reduced to a couple of weeks, that demand nearly disappears. On the other hand, there does appear to be a need for four or five shelter beds for transient youth under any scenario.
- There is a much larger demand for supported housing apartments. The reason that this demand is so high, even though it is only for a portion of the homeless population, is that the length of stay is much longer. If seven single adults per month need supported housing, and each of the seven people stays in his or her apartment for a year, then this translates into a need for 49 beds.
- Assuming there are adequate resources in the system to enable people to move quickly from shelters to supported housing to the private housing market, then the overall need for apartments, both shelter and supported housing, is a little over 20 beds.
- The low demand for shelter beds, and the high demand for supported housing, is problematic in the base closing process. The base closing process is designed to provide physical units to nonprofit agencies, not ongoing service funds. A challenge for the process will be to find creative ways to help not-for-profit agencies find service funds.
- Along the same lines, the administrators and not-for-profit staff both emphasized the importance of a physical location from which "one-stop" and referral services could be provided to homeless people.

- A Tedford Housing official mentioned that, even if more shelter beds aren't needed, it may be more efficient to convert existing shelter structures into supported housing, and to seek new shelter beds at the base. This is one way to increase supported housing, even though shelter beds would be requested at the base.

Exhibit 6: Estimated Demand for Homeless Shelter and Supported Housing shows this analysis of homeless needs in Midcoast Maine.

Exhibit 6: Estimated Demand for Homeless Shelter and Supported Housing

Unmet need in 2011	Families	Single Adults	Single Youth	Total Apartments
Shelter	2 apartments	0 beds (0 apts)	4 beds (1 apt)	3 apartments
Supported Housing	4 apartments	34 beds (11 apts)	12 beds (3 apts)	18 apartments
Total Apartments	6	11	4	21 apartments

Under ideal circumstances, sufficient services are available so that people are not kept in shelters or transitional apartments for longer than necessary

Source: Market Decisions

The Master Planning Process

After soliciting proposals from national planning consultants in May 2006, the Brunswick Local Redevelopment Authority interviewed and selected Matrix Design Group, Inc. (Matrix), a Denver, Colorado-based consulting firm to help it prepare a reuse master plan for Brunswick Naval Air Station. Funded through a grant from the Office of Economic Adjustment (OEA), the Department of Defense, and the Maine Small Cities Community Development Block Grant Program, the Matrix Scope of Work developed for the project and approved by the BLRA Board was based, in part, on the following BLRA objectives:

- Use a forward-thinking and inclusive approach, establish initial community goals and objectives, respecting important community interests and values
- Provide for public outreach and identify the needs of the community
- Conduct a Strengths, Weaknesses, Opportunities and Threats analysis (SWOT) that will include an initial set of property disposition strategies
- Conduct a market study, addressing national, regional, and local potential for redevelopment

- Use existing documents, data, plans and other sources of information, and conduct a detailed facility survey of the property to include land area, buildings, infrastructure, and environmental conditions
- Collate known environmental issues, using existing and such other inventory and other information as may be needed and recommend a reuse master plan that is environmentally acceptable to the Navy, regulators, and the community at large
- Use broad planning principles to develop a series of alternative reuse master plans and property disposition strategies that the BLRA would utilize when working with the Navy in the future; develop the reuse master plan concurrently and in coordination with an airport feasibility analysis
- Identify when, how and what disposition methods should be used for property transfer from the Navy and alternatives for the completion of the environmental cleanup, including "early" transfer under CERCLA and privatization of the environmental cleanup
- Assist the community in the federal and state, local and homeless provider screening process
- Assist the community in reaching consensus around a final reuse master plan
- Develop an operational plan to describe how the redevelopment would occur and recommend the next steps for implementation

The Matrix Planning Team

In order to better understand and respond to local planning issues, community characteristics, and to ensure an understanding and compliance with local planning guidelines and regulations, Matrix Design Group included several local and regional planning and engineering firms as part of its BNAS Planning Team; and, to bring a broader perspective on market and economic opportunities for base redevelopment, a national market and economics firm was included. The Matrix Planning Team, along with project roles and responsibilities, are noted below:

- Planning Decisions - Hallowell, Maine / Public Engagement Programming and Homeless Housing Screening Assistance
- Wright-Pierce Engineers - Topsham, Maine / Transportation and Utilities Infrastructure
- WBRC Architects + Engineers, Inc. - Bangor, Maine / Facilities Assessment and Planning
- Eaton Peabody Consulting Group - Augusta, Maine / Redevelopment and Adaptive Reuse Strategies
- Economics Research Associates, Inc. – Chicago, Illinois / Market and Economic Analysis; Implementation and Operational Strategies

Components of the Planning Process

The final BLRA-approved Reuse Master Plan for the redevelopment of the Brunswick Naval Air Station, as described in **Section 6: The BNAS Reuse Master Plan** is based on a planning process that has considered a variety of significant data related to physical characteristics, environmental conditions of the property, market, economic and financial issues, and regulatory considerations; pertinent on-base, as well as off-base issues have been addressed. The Plan is also the product of an extensive public engagement program that has generated local, regional, and statewide public interest, serious comment and review, and active participation at many community levels, as described in **Section 3: The Public Engagement Program**, which follows this section. No one issue has dominated the process, and no one issue is the basis for the Plan. As with all large-scale, complex, and multi-faceted redevelopment projects, the BNAS Reuse Master Plan reflects the combination of conditions that best positions the property for successful long-term redevelopment, and balances that against community goals and objectives, environmental sustainability, and political / regulatory realities.

The 18-month planning study followed a three-phased process that included:

- Phase A: Pre-Planning Activities, which focused primarily around the formulation and implementation of the Public Engagement Program and the Homeless / State and Local Screening Process
- Phase B: Inventory and Analysis, a three-month period during which physical, market and economic, and facility data was collected and evaluated
- Phase C: Conceptual Master Plans, during which conceptual plan alternatives were formulated, evaluated and compared, and the Reuse Master Plan was finalized

Aviation Feasibility Study Process

As a naval air station, the aviation assets at Brunswick Naval Air Station are significant and represent the largest single component of the base. The BLRA, represented by the Aviation Sub-Committee chaired by Marty Wilk, in concert with the Maine Department of Transportation and the Federal Aviation Administration, retained Edwards and Kelcey of Boston, MA to conduct an Aviation Feasibility Study to evaluate opportunities and constraints to a civilian aviation use on the base. The study, funded by a grant from the Federal Aviation Administration (FAA), was conducted on parallel tracks with the reuse planning and public participation process described in this report. Public outreach conducted as part of the study included a public scoping workshop on June 29, 2006, a public visioning workshop on October 14, 2006, and a final public workshop / public hearing on February 13, 2007. The process described in **Section 5: Reuse Alternatives and Plan Selection** will reflect an aviation reuse scenario, as well as a non-aviation reuse scenario for consideration. The goals and objectives of the study were to:

- Provide a comprehensive update of the inventory of base features and significant community attributes that could influence future aviation redevelopment efforts
- Identify aviation reuse options
- Identify land use and aviation facility requirements for each aviation alternative
- Provide a preliminary analysis of the potential revenues, operating and maintenance costs, and necessary capital investment
- Provide an opportunity for public discussion of aviation reuse that includes a diverse mix of public, private, airport and non-airport perspectives

The results of the Edwards and Kelcey Aviation Feasibility Study are summarized in **Section 4: Existing Conditions Assessment**, and provided in its entirety in **Appendix E** of this report.

Section 3: Public Engagement Program

Understanding and considering community issues on growth and development is important to any public planning effort; learning the public's concerns and ideas about how to replace one of the community's largest employers and longest-standing economic engines in the community and the region makes this issue even more critical. The closure of BNAS for the Town of Brunswick, the Midcoast Region, and the State of Maine is no exception. The Public Engagement Plan undertaken for the BNAS Reuse Master Planning effort was designed to be open and inclusive, interactive and creative, informative and meaningful, and, most importantly, responsive. The following section highlights the components of this program, and describes some of the plan's major outcomes.

Public Meetings and Events

A number of major public meeting opportunities were provided as part of the overall planning process, including the following:

- BRAC to the Drawing Board (Public Meeting One): An introduction to the planning process and team
- Bus to Base Tours: Public tours inside BNAS property
- BRAC to Basics (Public Meeting Two): Four Community Visioning sessions
- Topical Issues Seminars: In-depth meetings exploring four key reuse topics
- BRAC to the Future (Public Meeting Three): Presentation and discussion of the four concept plans
- BRAC to the Future II (Public Meeting Four): Presentation and discussion of the two plan alternatives
- Smart Growth Workshops: Two public sessions exploring Smart Growth design possibilities under the Reuse Master Plan
- Final Public Hearing and Plan Adoption: Presentation and feedback on the final Reuse Master Plan and adoption by the BLRA

Each of these major meetings and events is described in more detail below. In addition to these meetings, the Aviation Committee hosted three of its own workshops to seek public involvement in the development of an Airport Feasibility Study. These workshops were held on June 29, 2006, October 14, 2006, and February 13, 2007.

BRAC to the Drawing Board (Public Meeting One)

On June 21, 2006 over 120 people attended this first of four public meetings at the Brunswick High School. The primary objectives of the session were (1) to introduce the Matrix Planning Team; (2) to describe the reuse planning process; (3) to describe case studies from previous military base closures; and (4) to obtain public input on a variety of issues. During the three-hour meeting, members of the BLRA staff, BLRA Board members, Town of Brunswick staff, and Matrix Planning Team members facilitated small group discussions around the following three major questions:

- What are your best hopes?
- What are your worst fears?
- What are your initial reuse visions?

Comments and responses for these major questions fell under the following common categories:

- Alternative Energy / Sustainability
- Aviation
- Community and Social Services / Institutional
- Community Planning and Design
- Cultural / Arts
- Commercial and Industrial
- Education

- Environment / Natural Resources
- Housing
- Jobs / Workforce
- Planning and Implementation Process
- Transportation
- Quality of Life / Community Connection

Bus to Base Tours

In order to maintain the significant interest in the base reuse planning process as evidenced by the positive results of the *BRAC to the Drawing Board* public meeting, the BLRA organized and initiated a series of weekly bus tours of the base. The tours gave residents the opportunity to go "inside the fence" and to see firsthand the existing facilities, airfield, infrastructure, and natural resources at BNAS and how those physical characteristics of the base could be reused in the future.

Over the course of July and August 2006, over 300 residents and other interested citizens toured the base with BLRA staff and members of the BNAS Base Transition Team. As part of each tour, participants completed surveys, all of which were added to comments from other sources for use and consideration later in the planning process.

BRAC to Basics (Public Meeting Two)

A major goal of the BLRA Board of Directors, as expressed in its Guiding Principles was to maximize participation of the general public in the planning process and to benefit from public comments prior to development of the redevelopment master plan alternatives. To that end, several interactive workshops and meetings were held during the week of September 28 – October 3, 2006 (collectively known as "*BRAC to Basics*") to engage the public in a visioning process. Over this six-day period, the Matrix Planning Team and the BLRA staff orchestrated a variety of presentations of findings, conducted three major public engagement visioning workshops, and created a fact-filled statistical summary of the public's vision for redevelopment of the property, including a computer-animated video "fly-over" presentation of public redevelopment ideas.

The three public visioning workshops described below each followed essentially the same format and agenda and were targeted to a different segment of the Brunswick community. The primary goal of each workshop was to:

- Present and discuss existing on-base and off-base conditions and characteristics
- Discuss base reuse planning principles, including the principles of Smart Growth
- Review preliminary market and economic considerations
- Engage the participants in an interactive visioning exercise
- Share the results from the visioning exercise

Workshop One - Thursday, September 28, 2006

Four teams participated in this workshop which sought to engage those local on-base military and civilian workers who, because of their day-to-day knowledge of the base, its mission, and its resources, could provide a unique insight into the potential future use of the base.

Workshop Two - Friday, September 29, 2006

This second workshop was restricted to a select group of students at Brunswick High School. Eight teams of students participated, totalling approximately 50 youths. Rick Wilson provided assistance with coordination as an instructor at Brunswick High School.

Workshop Three – Saturday, September 30, 2006

Fourteen teams participated in the third workshop, also held at Brunswick High School, which welcomed the public-at-large from the Brunswick area.

Collectively, approximately 200 people from a cross-section of the community participated in the three workshops described above. A total of 26 "visioning" teams, each consisting of approximately eight people, discussed a range of planning and development issues, built consensus among their group, and made suggestions

and recommendations for the future of the property. Public planning ideas and recommendations were focused on two potential future development scenarios: (1) redevelopment of the property based on the continuation of the existing airfield for some form of aviation use (the Airport Scenario); and (2) redevelopment of the property without some form of aviation use (the Non-Airport Scenario). A separate study by Edwards and Kelcey to determine the feasibility of an aviation use for the existing airfield and related facilities was conducted as part of the BLRA's overall planning strategy for the BNAS property. The executive report is provided in **Section 4** and the full Airport Feasibility Study is provided in **Appendix E**.

Planning Areas

As a basis for obtaining the public's general planning and land use recommendations for the 3,300-acre property, the base was divided into nine Planning Areas. The Planning Areas were devised for use only at the public visioning workshops and for the sole purpose of breaking the large, 3,300-acre BNAS property into smaller geographic units to make it easier for workshop participants to contemplate and express their vision for the reuse of the base. Planning Areas were established by considering a combination of natural resource characteristics, topographical features, existing land use characteristics, streets and other logical dividers that could separate and distinguish one Planning Area from another. The nine Planning Areas are shown in **Exhibit 7: Planning Areas Map**, and are briefly described below. A complete description of Planning Areas, along with photographs of existing physical characteristics is provided in **Appendix A** of this report.

- Planning Area 1: An undeveloped 433-acre area within the property, located west of the airfield, extending south from Bath Road to just north of the Mere Brook Golf Course
- Planning Area 2: The 875-acre BNAS airfield and adjacent aviation-related facilities to the north and east, including the adjacent fuel farm and other facilities along the south side of Bath Road
- Planning Area 3: The 117-acre predominantly wooded and undeveloped area immediately adjacent to and south of Bath Road, west of Fitch Boulevard
- Planning Area 4: The 394-acre cantonment area, where a large majority of the existing infrastructure and building inventory exists; and the residential and undeveloped areas north of Neptune Drive, east to the base boundary
- Planning Area 5: The 304-acre area south of Neptune Road and east of the airfield, south to Harpswell Cove estuary
- Planning Area 6: The 524-acre primarily undeveloped area south of the airfield, west of the Harpswell Cove estuary to the western boundary of the property, including the golf course
- Planning Area 7: The 545-acre undeveloped area east of the Harpswell Cove estuary, including the Weapons Compound

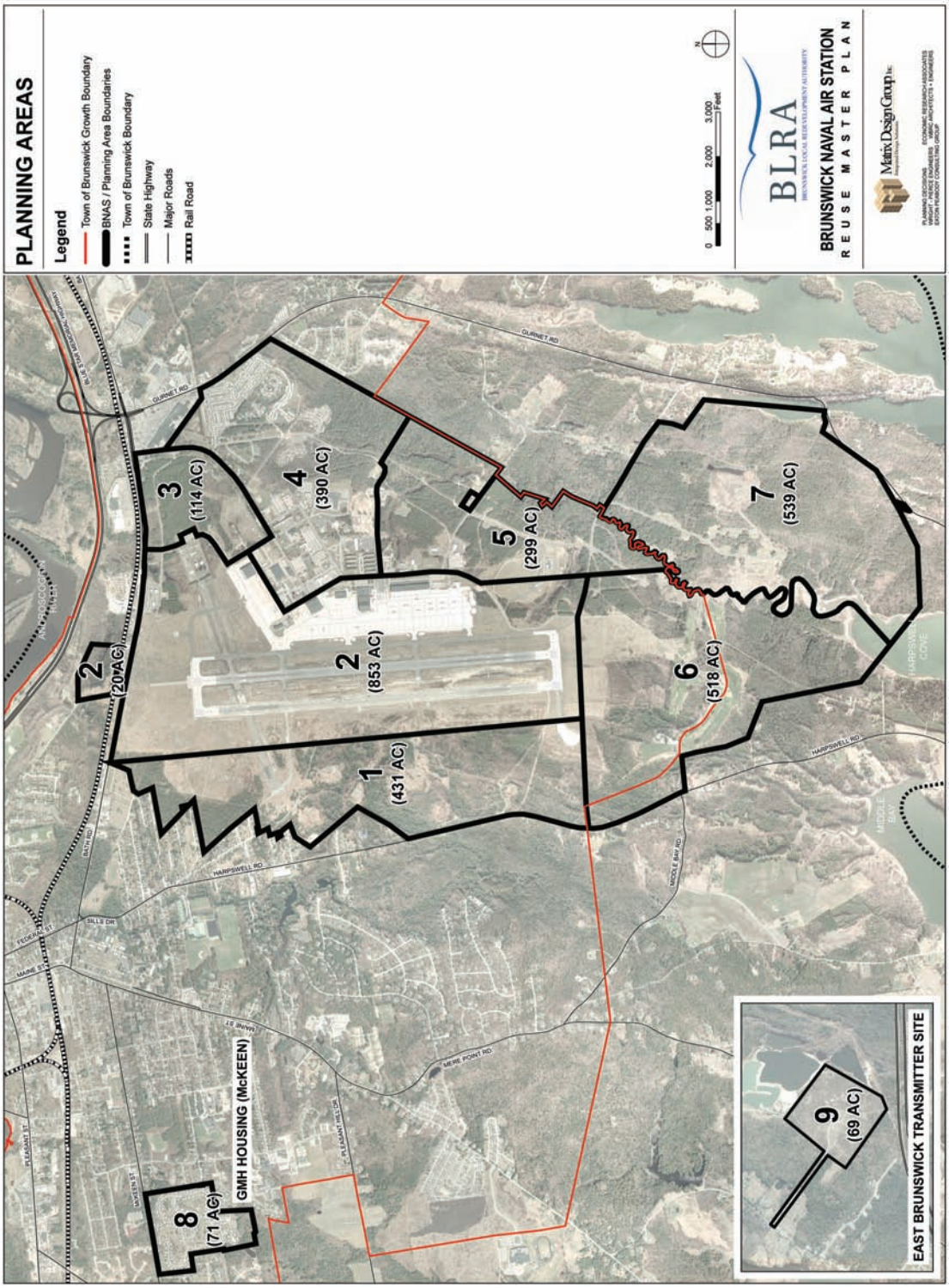
- Planning Area 8: The 79-acre McKeen Street residential area southwest of downtown Brunswick
- Planning Area 9: The 69-acre East Brunswick Transmitter site, located about two miles northeast of the main base on the north side of Route 1

The following section provides an overview of the visioning process and results of the three workshops. A complete description of the unique process used to solicit ideas and characterize future land use for each of the Planning Areas is provided in **Appendix A** of this report.

Planning Area Vision Statements

The first step involved the team identifying and writing down their collective vision for each of the nine Planning Areas. Their vision statements were intended to be conceptual in nature and reflect the future general character they envisioned for that area. These short and concise statements were recorded in bullet point format inside the "Vision Statement" box for each Planning Area on the Visioning Map (see **Appendix A** for a Visioning Map example).

Exhibit 7: Planning Areas Map



Source: Matrix Design Group

Community Preferred Land Uses / Market Sectors

Using a series of colored stickers and markers, each of the visioning teams indicated its team's desired land use(s) within each of the nine Planning Areas. By counting the number of teams that "voted" for a particular land use in a particular Planning Area (through the presence of a colored sticker or marking), a general indication of the popularity of the envisioned land use for that Planning Area could be tabulated across all teams. This count was determined for all nine Planning Areas for the Non-Airport scenario and, separately, the Airport scenario. The results for each scenario are presented from two different perspectives:

- The number of vision plans (teams) specifying different land use / market sector categories for each of the nine Planning Areas
- The number of vision plans (teams) specifying different Planning Areas for each of the land use / market sector categories

Summary of Unique Ideas

Each team was also encouraged to record any "Unique Ideas," special uses, special features, or unique attractions that they envisioned for each of the Planning Areas after base closure. Many unique ideas were suggested by the 26 visioning teams; the list below highlights some of the more frequently mentioned unique ideas:

- Town Common and Public Gardens
- Indoor / Outdoor Amphitheaters
- Expanded Golf Course
- Hotel / Convention Center
- Arts / Cultural Center
- Air Museum / P-3 Monument
- International Multi-Modal Tradeport
- Water Park / Olympic Pool
- IMAX / Festival Grounds
- Shopping Center
- Wind Farm / Solar Energy
- Orchards / Greenhouse
- Working Farm

Summary of Big Ideas

Each of the 26 teams was asked to identify its "Big Ideas" for redevelopment of each teams' Airport and Non-Airport scenario plans. Big ideas were limited to two statements that communicated the most important principles, features, or concepts for future development of BNAS. The 52 total Big Ideas statements were categorized and condensed into the following overarching Big Idea visions:

- Use what is there (buildings, facilities, and infrastructure)
- Maintain as a low-impact airport / capitalize on airport resources
- Integrate into the community
- Create cutting-edge technology and aviation innovation
- Balance ecological preservation with economic stability
- Adhere to sustainable, clean and green growth
- Provide targeted incentives for value-added jobs
- Preserve natural beauty and open space
- Provide more tourism opportunities
- Provide transportation connections (bikes, pedestrians, autos, etc.)
- Provide a college / higher education facility

The following section summarizes and graphically illustrates the results of the *BRAC to Basics* public visioning process.

Results by Planning Area

The following list represents a brief summary of the preferred land use and market sectors identified for each Planning Area by the visioning teams for both the Non-Airport and Airport scenarios. These results are also summarized in bar chart and map formats in **Appendix A**.

Planning Area 1

- Non-Airport: Clear preference for Parks / Natural Areas as the primary use, with Educational / Government as a secondary use
- Airport: Same as Non-Airport

Planning Area 2

- Non-Airport: A broad mix of uses with Business / Industrial and Technology / R&D essentially tied for most primary use, and Parks / Natural Areas and Educational / Government indicated as secondary uses
- Airport: Overwhelming preference for Aviation-Related uses

Planning Area 3

- Non-Airport: Preference for Parks / Natural Areas as the primary use, with Office / Retail and Business / Industrial as secondary uses
- Airport: Same as Non-Airport

Planning Area 4

- Non-Airport: Definitely the area with the greatest mix of uses, with strong support for all six land use / market sector categories
- Airport: Same as Non-Airport, but with Aviation-Related uses as an additional use

Planning Area 5

- Non-Airport: Clear preference for Parks / Natural Areas as the primary use, with strong support for Business / Industrial and, to a lesser degree, all other land use and market sector categories as secondary uses
- Airport: Same as Non-Airport, but with Aviation-Related uses as an additional use

Planning Area 6

- Non-Airport: Overwhelming preference for Parks / Natural Areas as the primary use, with minor support for most of the other land use/market sector categories as secondary uses
- Airport: Same as Non-Airport

Planning Area 7

- Non-Airport: Overwhelming preference for Parks / Natural Areas as the primary use, with minor support for Educational / Government as a secondary use
- Airport: Same as Non-Airport

Planning Area 8

- Non-Airport: Unanimous preference for Residential as the only use
- Airport: Same as Non-Airport

Planning Area 9

- Non-Airport: Overwhelming preference for Parks / Natural Areas as the primary use, with minor support for Business / Industrial as secondary uses
- Airport: Overwhelming preference for Parks / Natural Areas as the primary use, with minor support for Technology / R&D as a secondary use

Results by Land Use / Market Sector Category

The results of the visioning exercise were described in terms of those Planning Areas preferred as locations for each land use / market sector. These results are also summarized in bar chart and map format in **Appendix A**.

Parks / Natural Areas

- Non-Airport: Overwhelming preference for Planning Areas 1, 6, and 7; strong preference for Planning Areas 5 and 9, and moderate preference for Planning Areas 3 and 4
- Airport: Same as Non-Airport

Residential

- Non-Airport: Unanimous preference for Planning Areas 4 and 8, and minor preference for Planning Areas 5 and 6
- Airport: Same as Non-Airport

Business / Industrial

- Non-Airport: Strong preference for Planning Areas 2, 4, and 5, and minor preference for Planning Area 3
- Airport: Strong preference for Planning Areas 4 and 5, and minor preference for Planning Area 3

Office / Retail

- Non-Airport: Strong preference for Planning Area 4; moderate preference for Planning Areas 3 and 5; and minor preference for Planning Areas 2 and 6
- Airport: Strong preference for Planning Area 4; moderate preference for Planning Areas 3 and 5; minor preference for Planning Area 6

Educational / Government

- Non-Airport: Strong preference for Planning Areas 1, 2 and 4, and moderate to minor preference for all other areas except Planning Areas 8 and 9
- Airport: Same as Non-Airport except a significant decrease in preference for Planning Area 2

Technology / R&D

- Non-Airport: Strong preference for Planning Areas 2 and 4, and moderate preference for Planning Area 5
- Airport: Strong preference for Planning Area 4, and minor preference for Planning Areas 2, 5 and 9

Aviation-Related Uses

- Non-Airport: Not applicable
- Airport: Overwhelming preference for Planning Area 2, and minor preference for Planning Area 4

The following tables (**Exhibit 8: Preferred Land Use by Planning Area - Airport Scenario** and **Exhibit 9: Preferred Land Use by Planning Area - Non-Airport Scenario**) summarize the overall preferences that the visioning teams had for each Planning Area and land use and market sector category. Dark green cells indicate a strong consensus with more than 66% of the visioning teams choosing that Planning Area / land use combination; medium green indicates moderate consensus, with between 33%-66% of the teams choosing that combination; and pale green indicates anything lower than 33% preference. Please see the additional bar charts and histogram maps in **Appendix A** that present the teams' visions from a Planning Area and land use/market sector perspective in greater detail.

Exhibit 8: Preferred Land Use by Planning Area - Airport Scenario

Planning Area	Land Use Categories						
	Office / Retail	Residential	Business / Industrial	Educational / Government	Technology / R&D	Aviation-Related Businesses	Parks / Natural Areas
1	0%	8%	0%	50%	0%	8%	100%
2	0%	0%	12%	8%	19%	100%	15%
3	31%	8%	23%	12%	8%	4%	54%
4	77%	92%	73%	46%	65%	23%	58%
5	23%	15%	46%	19%	23%	12%	81%
6	12%	12%	0%	19%	4%	4%	100%
7	0%	4%	0%	23%	8%	0%	96%
8	0%	100%	0%	0%	0%	0%	0%
9	0%	4%	8%	0%	15%	0%	73%

Percentage of the 26 Airport Vision Plans specifying these Land Use Categories (columns) in these Planning Areas (rows)

Source: Matrix Design Group

Exhibit 9: Preferred Land Use by Planning Area - Non-Airport Scenario

Planning Area	Land Use Categories					
	Office / Retail	Residential	Business / Industrial	Educational / Government	Technology / R&D	Parks / Natural Areas
1	0%	8%	0%	58%	0%	100%
2	19%	12%	69%	31%	77%	46%
3	35%	12%	23%	12%	8%	58%
4	77%	100%	69%	46%	58%	62%
5	31%	23%	54%	15%	31%	81%
6	15%	27%	4%	23%	0%	100%
7	0%	4%	0%	23%	8%	96%
8	0%	100%	0%	0%	0%	0%
9	0%	4%	8%	0%	0%	73%

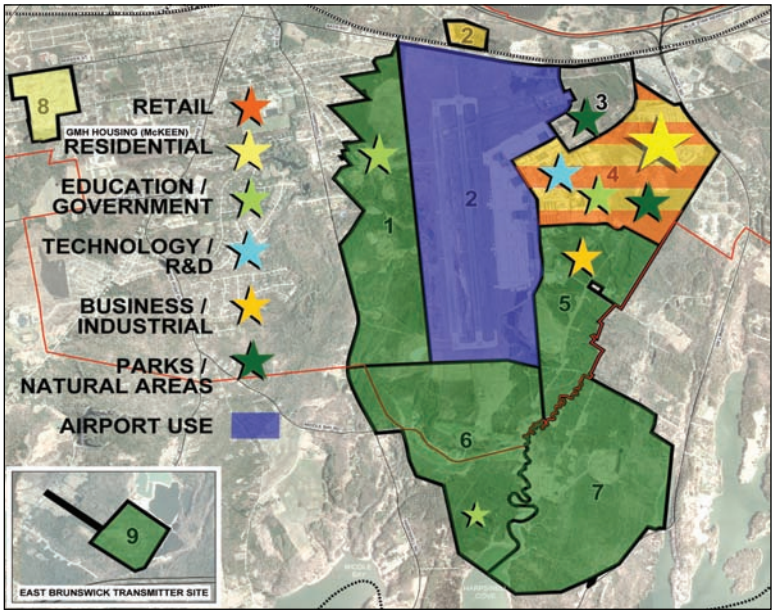
Percentage of the 26 Non-Airport Vision Plans specifying these Land Use Categories (columns) in these Planning Areas (rows)

Source: Matrix Design Group

In summary, the predominant land uses envisioned for five of the nine Planning Areas are parks, open space, and natural areas. The cantonment area (Planning Area 4) is envisioned as a mixed use area under both scenarios, with frequent mentions of most all other uses. The runway area (Planning Area 2) is envisioned primarily as a business and research location if there is no airport, and to continue aviation-related uses if it remains an airport. Planning Area 3 is a gateway to the base, and is envisioned as providing space for uses that need road access (office, business, government); but open space is a preferred use here as well. Planning Area 5 is also considered as a future expansion area for the mixed uses found in Planning Area 4, but in conjunction with open space uses. Planning Area 6 is envisioned as mostly open space, but several teams also envisioned it as a location for an expanded golf course, high-end retirement housing, and/or resort / convention facilities. Educational facilities are seen as possible uses in Planning Area 1, as well as in the cantonment area (Planning Area 4); an outdoor / nature education activity in Planning Area 7 was also suggested.

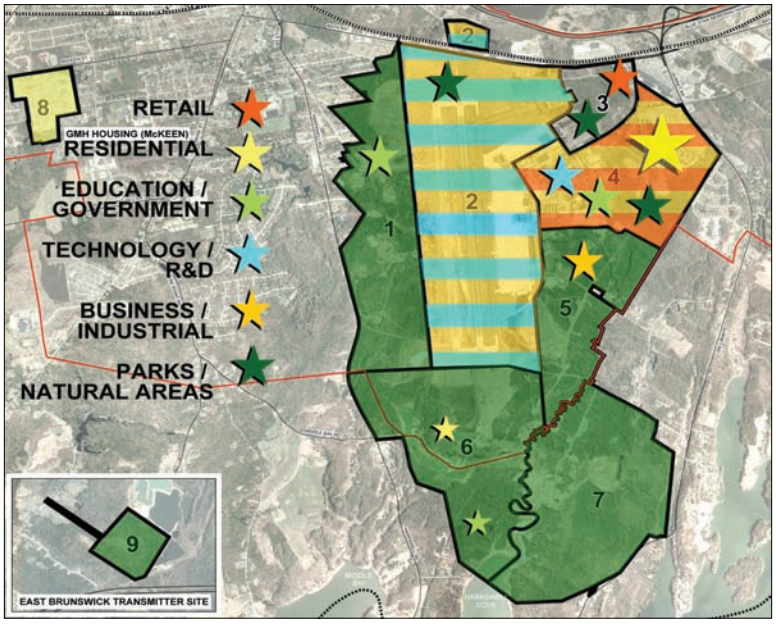
The following maps, **Exhibit 10: Visioning Results by Planning Area Map, Airport Scenario, Exhibit 11: Visioning Results by Planning Area Map, Non-Airport Scenario,** and **Exhibit 12: Visioning Results by Planning Area, Transportation and Access** reflect a geographic summary of the preferred land use and market sector results by Planning Area.

Exhibit 10: Visioning Results by Planning Area Map - Airport Scenario



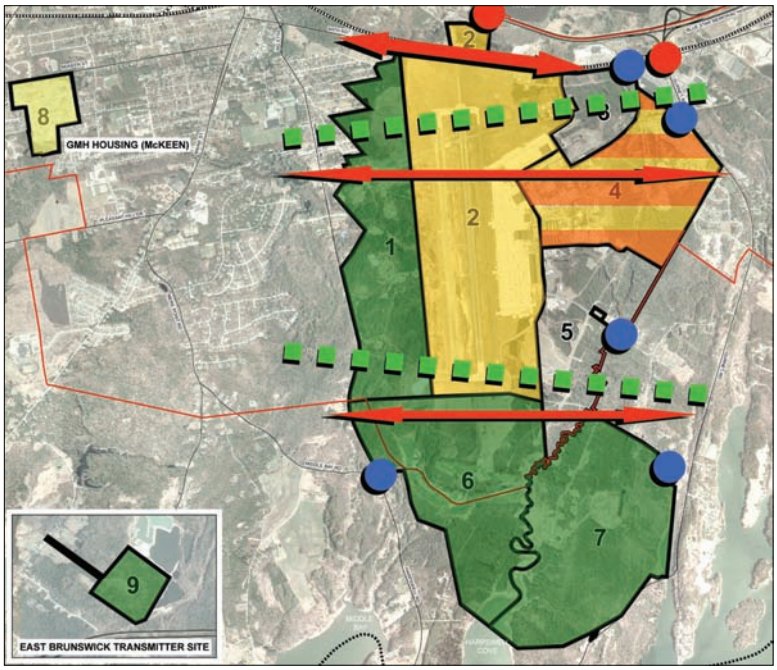
Source: Matrix Design Group

Exhibit 11: Visioning Results by Planning Area Map - Non-Airport Scenario



Source: Matrix Design Group

Exhibit 12: Visioning Results by Planning Area Map - Transportation and Access



Source: Matrix Design Group

Public Visioning Presentation / Open House

On Tuesday, October 3, 2006 the fourth and final element of *BRAC to Basics* was held, at which the results of the three public visioning workshops were presented to the public. During the intervening weekend, the Matrix Planning Team and BLRA staff tabulated the concepts expressed on the various vision maps prepared by the different teams, and summarized them in the form of maps, bar charts, and other exhibits. During the Tuesday Public Presentation / Open House, these summary exhibits were presented and explained to the public. In addition, an 11-minute video "fly-over" of the base was presented that illustrated not only the general layout and view of the base from 10,000 feet in the air, but also simulated five of the major "Big Ideas" and "Unique Ideas" generated by the public during the three visioning sessions. Following the presentation of the public's vision for the base, an open forum period was held, during which members of the public offered comments or observations about the visioning exercise results or asked questions about the next steps in the base reuse planning process. During the open house portion of the event, all of the many teams' vision maps were displayed for public review.

Over the months following the visioning workshops, public ideas and other land use recommendations were tested against the constraints of market viability, physical suitability, environmental cleanup impacts, development costs and phasing, property transfer considerations, BLRA guiding principles, and smart growth principles. The ideas that survived this screening process were then combined into four conceptual plan visions, as described and discussed in **Section 5: Reuse Alternatives and Plan Selection.**

One key result of the visioning process is the recommendation of revisions to the local zoning ordinance to allow the vision to happen. Listed in the **Appendix A** are all of the possible uses that have been suggested in the process so far, both in public sessions and through individual comments, with a comparison to what is actually allowed in the Town of Brunswick's current zoning ordinance.

Topical Issues Seminars

Four different Topical Issues Seminars were held during Spring 2007 that allowed participants to discuss several redevelopment planning topics in depth and to explore some of the fundamental issues surrounding the BNAS base closure that are important to area residents, businesses and others. The four seminars are described below:

Housing Seminar: February 27, 2007

The February seminar focused on housing issues and base closure. Panelists discussed housing-related topics such as:

- Base closing impacts on the regional economy and housing market
- The challenges faced in providing housing and which strategies were successful
- The current regional real estate market and future projections
- The structure and future plans of Northeast Housing LLC

Transportation Seminar: Tuesday, March 27, 2007

The March seminar focused on transportation impacts, access, and opportunities around the vicinity of the base. Panelists discussed topics such as:

- The importance of addressing transportation in land use planning
- Current transportation conditions on base and future projections
- Investment in community transportation
- What is "Gateway 1" and how the reuse master planning effort can be integrated
- Aviation uses and their potential impacts on transportation
- Transportation planning process and funding

Environmental Seminar: April 24, 2007

The April seminar focused on environmental issues and covered in-depth such topics as:

- The legal framework around base remediation
- Effective remediation strategies used in other base closures
- Unknown existing environmental conditions at BNAS

Energy Seminar: May 22, 2007

The final seminar, held in May, focused on energy issues and covered topics such as:

- An energy R&D program focused on distributed technologies
- Regional district energy and cogeneration programs
- Distributed energy technologies and its applications at BNAS
- Bowdoin College student project on developing an alternative energy park at BNAS
- Thinking about energy use in Maine
- Operating a District Energy System
- A cogeneration project for Loring Commerce Centre case study

BRAC to the Future (Public Meeting Three)

At the third major public meeting, *BRAC to the Future,* four conceptual plans were presented to relevant Town of Brunswick boards and committees on August 1, and the public on August 2 for their consideration and feedback (see **Section 5: Reuse Alternatives and Plan Selection**). Of the four concept plans, two maintained aviation uses and two did not. After a presentation on the characteristics of the four concept plans, public and Town representatives were asked to review the concept plan maps in detail and discuss the plan elements, ask questions, and provide verbal and written feedback. The meeting ended with a session to answer questions and gather public feedback on the four concept options and the preferred components of each.

BRAC to the Future II (Public Meeting Four)

BRAC to the Future II, the fourth major public meeting, was held on September 2, 2007. Soon after the third public meeting, based on recommendations in the Aviation Feasibility Study, the community survey, input from the public at previous public workshops, and from the existing conditions report, the BLRA Board recommended that aviation uses be incorporated into the final Reuse Master Plan. Consequently, the two non-aviation concept plans were eliminated and the two aviation concept options were further developed and refined (see **Section 5: Reuse Alternatives and Plan Selection**).

At BRAC to the Future II, the two plans were presented to the public as Plan Alternatives A and B. Similar in nature to the format used at *BRAC to the Future*, after an overview presentation of the two plan alternatives, the public gathered at plan map stations

where they discussed the alternatives in detail with the planning team and their fellow citizens. The meeting ended with a session to answer questions and gather public feedback on the two plan alternatives and the preferred components of each.

Smart Growth Design Workshops

Two Smart Growth Design Workshops were held in October 2007 and were sponsored by the US Environmental Protection Agency to solicit public input on applying "smart growth" strategies and community design features to the Reuse Master Plan. National smart growth experts Dover Kohl & Partners were hired to help lead this effort. Over 70 residents participated in the two design workshop events.

The BNAS Reuse Master Plan establishes the overall pattern of land use for the base, but it does not address how redevelopment could "look" or "feel" within the various land use districts. To begin looking at the physical form and character of future development and to inform the process of drafting the necessary zoning to implement the reuse plan, the Dover Kohl team helped define how development could occur within the framework of the reuse plan using the principles of Smart Growth. The Smart Growth workshop gave residents the opportunity to view renderings and sketches of the potential character of the base after redevelopment and Dover Kohl formulated recommendations on the specific design guidelines and standards that will need to be considered in the preparation of land use and zoning controls and other restrictions that will shape the future development of the site.

Final Public Hearing - November 28, 2007

On November 28, 2007 the draft Reuse Master Plan was presented to the BLRA Board of Directors by the Matrix Planning Team. Following the presentation, the BLRA Board opened a formal public hearing on the plan and invited members of the public present to comment.

Following the public hearing on the Reuse Master Plan, the Board convened a second public hearing specifically regarding the BLRA's recommendation to the Department of Housing and Urban Development that Tedford Housing implement the Homeless Services Provision component of the Reuse Master Plan. Following the public hearing, the BLRA Board of Directors voted to approve the homeless services provision recommendation.

Plan Adoption - December 19, 2007

On December 19, 2007, the Brunswick Local Redevelopment Authority Board of Directors voted unanimously to formally approve and adopt this Reuse Master Plan.

Community Survey

As part of the public engagement effort, the BLRA sponsored a statistically-valid telephone survey of over 400 randomly selected residents from Brunswick and surrounding towns. The survey was conducted in May 2007 by Portland-based consultant Market Decisions and focused on the public's familiarity with BNAS redevelopment activities, potential commercial and residential uses for the base, and potential open space uses and land banking opportunities.

The following summary has been taken from *Brunswick Naval Air Station Community Survey: Survey Report, May 2007* prepared by Market Decisions.

The Importance of Potential Future Uses for the Base

Brunswick Residents

Brunswick residents indicate that important uses for the base include developing new jobs and business and setting the land aside for recreational uses. Less than half see using the land to develop new housing as important. Other findings indicate:

- 96% of residents indicate it is important to use the land to bring new jobs into the area.
- 91% indicate it is important to use the land to bring new businesses into the area.
- Brunswick residents also feel it is important to use the land for recreational purposes.
- 83% indicate it is important to use some of the land on the base for active recreational purpose.
- 73% consider it important to use some of the land for land conservation, wildlife habitat, and passive recreational purposes.
- Only 48% of Brunswick residents indicate it is important to use the base for adding new housing to the area.

Residents in Surrounding Communities

As with Brunswick residents, the residents from surrounding communities indicate that important uses for the base include developing new jobs and business and setting the land aside for recreational uses. Other findings indicate:

- Again, less than half see using the land to develop new housing as important.

- 98% of residents from surrounding communities indicate it is important to use the land to bring new jobs into the area.
- 100% indicate it is important to use the land to bring new businesses into the area.
- Residents from surrounding communities also feel it is important to use the land for recreational purposes.
- 74% indicate it is important to use some of the land on the base for active recreational purposes.
- 76% consider it important to use some of the land for land conservation, wildlife habitat, and passive recreational purposes.
- Only 47% indicate it is important to use the base for adding new housing to the area.

Potential Business Uses for the Base

Brunswick Residents

Two-thirds of Brunswick residents agree that the base should be used to develop an economic engine for the larger Brunswick region.

- On average, Brunswick residents would like to see 44% of the base devoted to commercial and residential uses.
- Brunswick residents support a number of possible businesses uses for the base. A majority of Brunswick residents would support aircraft maintenance and repair (84% supporting), research and development (80%), professional office uses (67%), information technology such as data or call centers (62%), manufacturing (62%), warehousing and distribution (59%), and neighborhood or niche retail stores (50%).
- 61% of residents would support the development of a business park.
- For tourism related businesses, a majority of Brunswick residents would support a performing arts or cultural center (73% supporting), a conference or convention center (62%), and hotels (53%).
- 79% of Brunswick residents would support a facility for general aviation and 90% would support the development of an educational campus on the base.
- There is support among Brunswick residents for retaining the commissary and developing services for veterans. 80% would support keeping the commissary open. 83% of Brunswick residents would support the development of a cluster of veteran's services on the base in addition to the commissary.

Residents in Surrounding Communities

Over two-thirds of residents in surrounding towns also agree that the base should be used to develop an economic engine for the larger Brunswick region.

- On average, these residents would like to see 49% of the base devoted to commercial and residential uses.
- Like their Brunswick counterparts, residents from surrounding communities support a number of possible businesses uses for the base. A majority of residents from surrounding communities would support aircraft maintenance and repair (77% supporting), research and development (77%), professional office uses (68%), information technology such as data or call centers (59%), manufacturing (69%), and warehousing and distribution (51%).
- 61% of residents from surrounding communities would support the development of a business park.
- For tourism related businesses, a majority of Brunswick residents would support a performing arts or cultural center (59% supporting) and a conference or convention center (63%).
- 75% of residents from surrounding communities would support a facility for general aviation and 84% would support the development of an educational campus on the base.
- There is support among residents in surrounding communities for retaining the commissary and developing services for veterans. 75% would support keeping the commissary open. 82% of residents from surrounding communities would support the development of a cluster of veteran's services on the base in addition to the commissary.

Potential Open Space Uses and Land Banking

Brunswick Residents

On average, Brunswick residents would like to see 39% of the base devoted to open space and recreational uses.

- A majority of Brunswick residents support the development of walking, hiking, and biking trails (84% supporting), indoor recreation facilities (82%), playing fields for sports and recreational activities (82%), setting aside land for conservation or wildlife habitat (81%), and land used for farming or agricultural purposes (51%).
- 71% of Brunswick residents would support keeping the current nine hole golf course, though only 39% would like to see it expanded to an eighteen hole golf course.
- Two-thirds of Brunswick residents support setting aside a portion of the land and leaving it to future generations to decide on its use.

Residents in Surrounding Communities

On average, residents in surrounding communities would like to see 35% of the base devoted to open space and recreational uses.

- A majority of these residents support the development of walking, hiking, and biking trails (85% supporting), indoor recreation facilities (74%), playing fields for sports and recreational activities (66%), and setting aside land for conservation or wildlife habitat (85%).
- 70% of residents from surrounding communities would support keeping the current nine hole golf course, though only 39% would like to see it expanded to an eighteen hole golf course.
- 60% of residents from surrounding communities support setting aside a portion of the land and leaving it to future generations to decide on its use.

Potential Residential Uses for the Base

Brunswick Residents

A majority of Brunswick residents would support certain types of residential uses for the base. These include affordable housing for working families (78% supporting), seniors housing (76%), single family homes (71%), and special housing with services for youth and the homeless (71%).

Residents in Surrounding Communities

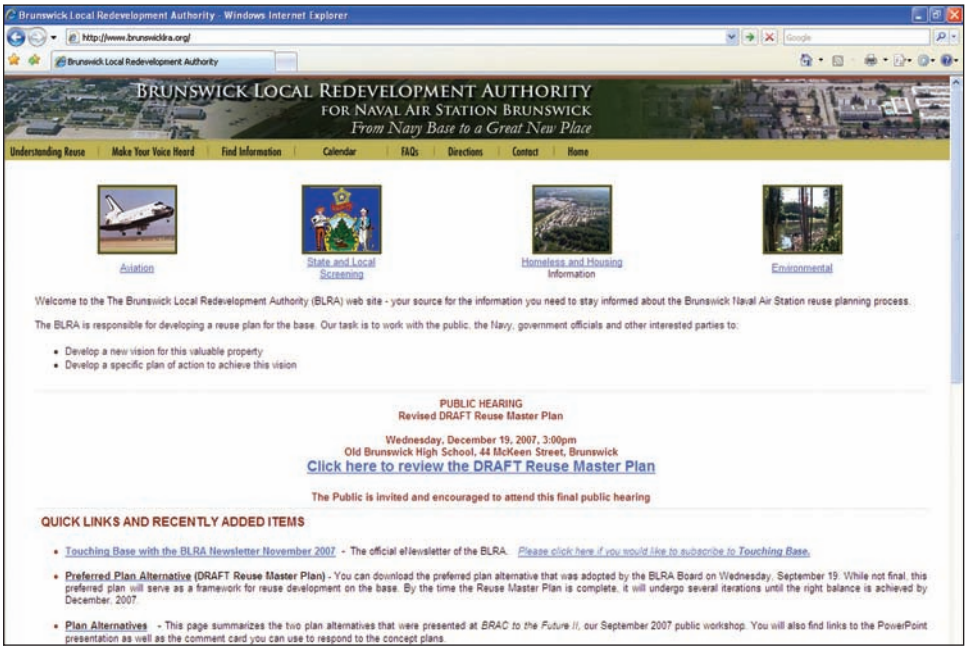
As with their Brunswick counterparts, residents from surrounding communities would also support certain types of residential uses for the base. These include affordable housing for working families (66% supporting), seniors housing (75%), single family homes (61%), and special housing with services for youth and the homeless (62%).

Other Outreach Efforts

In addition to the many workshops, public meetings, and events discussed in this section, the BLRA's public engagement plan also included a number of other public outreach efforts through the duration of the 18-month reuse planning process. Some of these additional efforts included:

- Articles and editorials in the local newspapers
- The BLRA e-newsletter
- Community and business group presentations
- A frequently updated website (www.brunswicklra.org)
- Press releases and newspaper inserts
- Bulletins and meeting coverage on cable TV channels
- Posters for shop windows announcing meetings and workshops
- Ongoing communication with local community organizations

- An “open door” policy at the BLRA office at the historic Fort Andross
- Meetings with student groups at Bowdoin, the USM Muskie School of Public Policy, and Brunswick High School



Section 4: Existing Conditions Assessment

The successful redevelopment of Brunswick Naval Air Station will depend, in part, on understanding and responding to a variety of existing market and economic opportunities and trends, such as composite manufacturing, research and development, and higher education. The redevelopment process must also consider applicable local community issues and policies, physical conditions and characteristics, and environmental conditions of the property. While it is not the intent of this report to provide a detailed and comprehensive inventory and assessment of these issues, it is important to understand the critical elements that can influence, or be influenced by private-sector development of the base. This approach will not only provide input into future land use programming for the base, but also provide valid preliminary costs to acquire, upgrade, and maintain base resources. In addition, this existing conditions assessment will begin to provide the Brunswick Local Redevelopment Authority and the MRRA with the ability to react to and make recommendations for specific reuse proposals that will be submitted by a variety of local, state, and federal agencies, as well as future private-sector interest groups.

While the following information presents an overview of existing market conditions, local community issues and influences, and base issues, conditions and characteristics, no one issue will dominate subsequent land use planning and phasing recommendations. As with any large-scale complex development project, the feasibility of future development will be based on a combination of impacts from physical, market, and political conditions and considerations. At the end of this section, therefore, a summary of redevelopment issues and a preliminary determination of potential suitability for development is provided that will help guide future redevelopment decisions.

Market and Economic Analysis

As part of the Matrix Planning Team, Economics Research Associates (ERA) provided an economic and market analysis for the overall reuse plan for BNAS. ERA's main tasks were to define the market niche and unique characteristics of the region, product, pricing, demand and market performance of likely targets for reuse that would help shape / define the ultimate Reuse Master Plan. These potentials for reuse are only part of the decision-making process; they represent targets that the market could likely absorb. Critical to the Plan is the assessment of the position the BNAS and the area hold in the business recruitment and development marketplace. This evaluation identifies strengths and weaknesses of the area as a business location, and evaluates an array of development options that could include business, transportation, tourism, resort and conference, and primary and secondary housing, among other uses.

This analysis culminates with a financial analysis that include a financial pro forma that addresses all conceptual reuse plan alternatives considered, and addressed in the Plan Evaluation and Comparison portion of **Section 5: Reuse Alternatives and Plan Selection**. That section also evaluates potential debt structures to finance the reuse concept and an analysis of public incentives and public financing vehicles available to the project.

As part of this overall market assessment, ERA conducted several interviews with professional contacts, elected officials and state employees and paid particular attention to the following:

- Regional demographic trends
- Local, regional and statewide economic base
- Real estate market and development potentials
- New technological initiatives
- Industries exhibiting above-average potential for growth

In short, this analysis and final Reuse Master Plan strives to:

- Use existing assets effectively
- Revitalize the local and the regional economy
- Present a vision for reuse that is consistent with community goals
- Stabilize area employment and attract investment

These goals are taken into account along with the guiding principles adopted by the Brunswick Local Redevelopment Authority, as described in **Section 2: Background and Overview**.

- This market and economic analysis study, which is provided in its entirety in **Appendix B**, begins with a brief description of the Midcoast region with special attention paid to the regional economy, including an early history and relevant demographic trends. The report evaluates local and regional real estate markets, contextualizing the Town of Brunswick. The report considers numerous reuse opportunities, including aviation, second homes and retirement housing, resort and conference center components, retail, education, alternative energy developments and cluster initiatives. These general areas represent reuse options that the market could likely absorb, but are only part of the decision process for the ultimate reuse of the BNAS site. The market section of the report concludes with a look at the current business climate and the factors that will affect Brunswick's ability to attract business to a redeveloped BNAS site.

Regional Profile

A key component of the Reuse Master Plan is a comprehensive understanding of the characteristics that make up the Midcoast region of Maine. This includes the region's history, recent population and economic trends and an objective assessment of the development issues that will guide its future.

Early History

According to the Southern Midcoast Maine Chamber, the history of the Bath-Brunswick Region is nearly as old as the nation. Native Americans of the Abnaki tribe are widely believed to have been the first settlers, including the Pejepscots of Brunswick, the Sagadahocs of the lower Kennebec and the Sheepscots of Wiscasset. In 1629, the Plymouth Proprietors were given a grant of land encompassing 15 miles on both sides of the Kennebec River and in 1632 an additional interest was granted to Thomas Purchase, who later obtained more land through dealings with the Native Americans. Later, locals became interested in establishing a substantial fur trade and were forced to compete with the French, leading to repeated wars between the French and the Native Americans through the early 1700s.

The Kennebec River provided the perfect environment for the growth of shipbuilding, and waterfalls between Topsham and Brunswick helped to drive other kinds of industry. Mills and factories appeared in the mid to late 1700s and both communities grew quickly during the period leading up to the American Revolution. On May 31, 1776, Brunswick endorsed, in advance, the Declaration of Independence. After the war of 1812, Brunswick and Topsham continued to become manufacturing centers while Bath emerged as the nation's fifth largest seaport. Immigrants soon arrived in Brunswick from Ireland and French-speaking Canada to spur continuous growth.

Population (Current Trends)

Population change from 1990 to 2000 for listed jurisdictions are detailed on **Exhibit 13: Population Table**. Brunswick grew at a rate slightly higher than the state, but well below the rate of the nation. If the Midcoast region is treated as the aggregate of Lincoln and Sagadahoc Counties and the Town of Brunswick, the region grew from 83,982 to 93,981 residents, at a compound annual growth rate of 0.8%, placing it also above the statewide rate of growth and below that of the nation.

Exhibit 13: Population Table

Jurisdiction	Population			CAGR* 1990 - 2004
	1990	2000	2004	
United States	248,709,873	281,421,906	285,691,501	1.00%
Maine	1,227,928	1,274,923	1,321,505	0.50%
Cumberland County	243,135	265,612	274,950	0.90%
Lincoln County	30,357	33,616	35,240	1.10%
Sagadahoc County	33,535	35,214	36,962	0.70%
Brunswick	20,090	21,172	21,779	0.60%

Source: US Census *Compound Annual Growth Rate

From 1990 to 2000, the Midcoast region grew by 6.1%, compared with a 3.8% increase in state population and a 13.2% increase in nationwide population. Most of the growth within the region took place outside of Brunswick, however. The town population increased by only 1.3% over the same period while Sagadahoc and Lincoln counties grew in size by 5.0% and 10.7%, respectively. In general, population growth in Midcoast Maine exceeds the state, but lags behind the nation. More importantly, the majority of this growth from 1990 to 2000 occurred outside the town center, in more rural communities. This trend is likely the result of relatively less expensive housing options outside of downtown Brunswick.

From 2000 to 2004, the rate of growth within the Midcoast Region has actually outpaced the state *and* nation, which reflects an emerging trend of population growth shifting from Cumberland County to Sagadahoc County, due to a relatively low supply of affordable housing and land for development in the greater Portland area. During the past four years, the Midcoast region has grown by 4.4%, the state by 3.3% and the nation by 4.3%.

The Maine State Planning Office projects the population of Maine towns to the year 2020. According to Planning Office estimates, by 2020, Maine will be home to 1,401,456 residents, Lincoln County 40,388 residents, Sagadahoc County 42,388 residents and Brunswick 23,424 residents. Should these estimates hold, they would result in 2004 to 2020 compound annual growth rates (CAGRs) very similar to the rates of growth achieved from 1990 to 2004, suggesting long-term growth above statewide levels but, again, lagging behind the nationwide rate of growth. See **Exhibit 14: Brunswick Regional 2020 Population Forecast** below.

Exhibit 14: Brunswick Regional 2020 Population Forecast

Jurisdiction	Population				Annual Average % Change		
	2000	2004	2010	2020	2000 - 2004	2001 - 2004	2002 - 2004
Maine	1,277,393	1,317,253	1,363,966	1,415,497	0.80%	0.60%	0.50%
Cumberland County	265,988	273,505	285,401	299,983	0.70%	0.70%	0.60%
Lincoln County	33,708	35,236	37,512	40,706	1.10%	1.00%	0.90%
Sagadahoc County	35,236	36,927	39,207	42,366	1.20%	1.00%	0.90%
Brunswick	21,172	21,688	22,501	23,424	0.60%	0.60%	0.40%

Source: Maine State Planning Office

Regional Economy

According to the Midcoast Economic Strategy Committee's recent Competitive Strategy Reports, the current economic climate in the Midcoast region is best characterized as apprehensive. From a macro standpoint, there has been a substantial decrease in manufacturing employment, with a shift towards more retail and service sector jobs, which has resulted in downward pressure on wages. Overall, however, unemployment remains low compared to that of the state.

Midcoast Economic Clusters

Analysis by the Muskie School of Public Policy at the University of Southern Maine reveals six clusters of economy activity within Midcoast Maine, which is treated as the aggregate of seven labor market areas (LMAs). The following LMAs are included in the analysis:

- Brunswick Micropolitan Area
- Boothbay LMA
- Waldoboro LMA
- Rockland Micropolitan Area
- Camden LMA
- Belfast LMA
- St. George LMA

Exhibit 15: Midcoast Economic Clusters shows the six predominant economic clusters in the Midcoast. In general, these clusters have higher location quotients than the state. In other words, the local economy supports more than its share of economic activity, in this case employment, for the industries within the cluster. Overall, the six clusters represent 45% of the total Midcoast economy, which is a clear indication of how much these industries drive the regional economy.

Exhibit 15: Midcoast Economic Clusters

Cluster	Employers	Employees	Proprietors	Total
Second Home & Retirement	1,113	11,035	4,000	16,148
Tourism & Arts	947	9,395	2,200	12,542
Defense	60	7,169	-	7,229
Science, Technology & Higher Education	138	2,536	-	2,674
Marine	328	1,906	3,000	5,234
Environment & Civic	38	664	-	702
Total	**2,624**	**32,704**	**32,704**	**32,704**
% of Mid Coast	**43%**	**48%**	**35%**	**45%**

Source: Evan Richert, Maine Dept. of Labor, Muskie School & US Bureau of Economic Analysis

In addition to understanding the current Midcoast economy, it is also important to understand its potential. The following table (**Exhibit 16: Fastest Growing Sectors in Midcoast 2004-2020**) shows the fastest growing sectors in the Midcoast from 2004 through 2005, as calculated by the Muskie School. Those sectors likely to experience a *decline* in employment over the same period include forestry and fishing (-45%), manufacturing (-13%) and wholesale trade (-6%).

Exhibit 16: Fastest Growing Sectors in Midcoast (2004-2020)

Sector	% Change	# Increase
Health care & social assistance	77%	6,900
Educational services	55%	800
Construction	40%	3,200
Administrative services	37%	1,300
Arts, entertainment & recreation	36%	1,000
Real estate, rental & leasing	35%	900
Professional & technical services	25%	1,000
Accommodations & restaurants	24%	1,500

Source: Charles Colgan, Muskie School of Public Service, University of Southern Maine

Exhibit 17: Change in Midcoast Clusters presents comparable data for the previously mentioned clusters. The tourism, arts, second homes and retirement clusters are likely to experience the largest increases in employment over the next 15 years. Defense is likely to experience the sharpest decline, in part, because of the closure of BNAS.

Exhibit 17: Change in Midcoast Clusters

Cluster	% Change	# Change
Tourism & arts	+ 25% to 30%	+ 2,900 - 3,500
Second homes & retirement	+ 45% to 50%	+ 6,750 - 7,500
Defense	- 50% to 60%	- 3,600 - 4,300
Marine	0%	0
Science, technology & higher education	+ 20% to 30%	-250
Environment & civic	+ 20% to 25%	-35

Source: Charles Colgan, Muskie School of Public Service, University of Southern Maine

Strengths and Weaknesses

Based in part on the summary of the Midcoast regional economy previously discussed, Brunswick presents a unique set of strengths and weaknesses that will play an important role in the redevelopment of Brunswick Naval Air Station.

Strengths

- Well-educated population as compared to the state and nation
- Proximity to Portland metropolitan area which benefits from low unemployment
- A second- and third-lowest unemployment rate ranking statewide for Lincoln and Sagadahoc Counties
- A strong educational base provided by Bowdoin College
- Competitive real estate costs as compared to other towns in Cumberland County
- A low crime rate
- A vast supply of natural resources
- A high quality of life
- Significant recreational opportunities
- A trend in attracting retirees

Weaknesses

- Relatively older population as compared to the state and nation
- Slow growth in central Brunswick housing
- Perceived lack of affordable and diverse housing options which can be corrected with BNAS residential redevelopment
- Relative geographic isolation

- Cold climate
- Rising housing prices
- Low wages in retail and service sector
- Possible over-reliance on large operations such as Bath Iron Works

Real Estate Markets

ERA's comparison of the Brunswick real estate market to surrounding counties and the state highlighted issues of affordability, demand for different housing types, and recent trends in housing construction across jurisdictions.

Residential Market

Signs point towards a Midcoast housing market that is increasingly beyond the reach of the median household income. Brunswick shows the largest difference between the 2005 median income and the 2005 income needed to afford a median home price, a disparity of roughly $33,000. Slightly more than half of Brunswick's households that rent cannot afford to pay the average rent for a two-bedroom apartment. This percentage is slightly lower than the state, Cumberland County and Lincoln County, but higher than nearby Sagadahoc County.

Commercial Lease Rates

Select brokers claim that the Brunswick market is too small to track with the same attention devoted to the Downtown Portland market; however, as a result of conversations with the brokerage community, ERA concluded that in the Brunswick market, medical office space ranges from about $15 to $20 per square foot and regular office space ranges from roughly $8 to $12 per square foot. Retail space starts at roughly $15 per square foot and is higher for some of the newest properties. There is little industrial inventory in Brunswick, but industrial space would likely sell between $6 and $8 per square foot. Though local and regional market lease rates are helpful in putting the BNAS site in context, it should be noted that there is the possibility of attracting national tenants to the base. These tenants are unlikely to be influenced by local market rates and so achievable rates at the base would not necessarily be bound by recent activity in the local marketplace.

Summary of Potential Land Use Opportunities

- Business Park Development
  Market analysis of area industrial and business park development shows a projected annual demand for such space to be at a rate between 8.3 and 16.5 acres per year. It is likely, then, that over the next 20 years there will be sufficient demand for more than one business park. ERA estimates that about 120 acres on the BNAS site could be slated for such development, which would result in

enough space to supply the market for roughly 10 years. The key to the success of this effort will likely be the packaging of incentives offered to potential business tenants. The exact scale of development will also depend on building activity between now and when the base is completely closed. There is also the opportunity to locate back office operations at the site.

- Composites and Information Technology Clusters
  ERA sees composites and information technology as two of the most promising industries that Maine currently supports. There are other growth sectors that the state has identified, such as biotechnology, forest products, and agriculture; however, ERA does not consider these sectors to be the highest and best use of the BNAS site. Biotechnology, for example, usually commands an immediate, established university presence, which Brunswick lacks. The forest products or agriculture sectors do not show the potential for growth and high-wage jobs that the composites or information technology industries clearly exhibit.
- Education
  ERA suggests allocating 200+ acres for educational initiatives. Educational activity could help to enhance the clustering effect of the composites and information technology redevelopment efforts. On a more pragmatic level, it could also help those colleges and universities in need of extra space such as Southern Maine Community College and Bowdoin College, both of which have already expressed interest in sizable portions of the projected available acreage. There is also the opportunity to house the center for an online degree program and take advantage of the impressive growth in that market.
- Biomedical
  Biomedical research and development is a promising field in which Maine already boasts several facilities and institutions. The success of recent funding initiatives and the work of existing facilities lead ERA to believe that this is a market worthy of further attention. Much like the composites industry, there is the opportunity to harness existing businesses and research efforts into a center for excellence positioned on the base.
- Radio Frequency Identification
  Recent estimates of market growth for Radio Frequency Identification technologies are impressive. The adoption of such technologies by a variety of users, including Wal-Mart and Target, sheds light on the retail application of the technology, but it is also relevant for the pharmaceutical, medical, aviation, military, security and automotive industries. Part of the attractiveness of RFID technologies is the diverse set of potential industry users. This lessens the exposure of the technology to regular business cycles.
- Maine Learning Technology Initiative
  Building on the existing Maine Learning Technology Initiative, ERA suggests leveraging the market potential of “Open Source” technologies instead of purchasing laptops from a company like Apple Inc. Training initiatives would

help to develop an "Open Source" savvy labor force, which could be an attractive asset to outside companies, particularly from Europe which is farther along in the adoption of "Open Source" than the US. The end result is that more of the economic benefit of the initiative is absorbed within the State of Maine through the education and manufacturing of the technology.

- Alternative Energy Development
  To build on existing efforts in alternative energy development and to position Maine as a market leader in this industry, ERA recommends pursuing alternative energy initiatives as part of a redevelopment plan. Currently, there are select efforts to develop energy production through wind and hydrogen initiatives; these are two processes that could prove viable. The opportunity to generate revenue by owning and operating the on-site grid is also an attractive option.
- Resort Hotel / Conference Center
  Though it attracts roughly 20 percent of Maine's tourism visits, the Midcoast region, specifically the greater Brunswick area, lacks a true destination resort with significant conference space. Regional comparables show extremely seasonal operating statistics. An indoor waterpark and an 18-hole golf course would help to flatten shoulder months and likely raise overall occupancies and average daily rates. Such a resort would also tap what is currently a largely untapped market in state associations, corporate meetings and SMERF events (social, military, educational, religious, and fraternal associations). ERA estimates that a resort of a sufficient scale, with an indoor waterpark, could even pull from nearby Canadian markets.
- Retail
  ERA pull factor analysis confirms that the current Brunswick and Midcoast markets are sufficiently supplied with existing retail space. However, with residential development, a hotel resort, business park space, etc there will be added on-site demand for retail and restaurant offerings. Development that is targeted only to meet this need is unlikely to compete with Cook's Corner or other Brunswick retail space.
- Second Homes / Retirement Housing
  Besides the fiscal benefit of additional taxes that help fund school, municipal, and county budgets, economic development of all types can accompany the influx of new second homeowners to an area. This holds true for both vacation and retirement housing; however, retirement housing has the added advantage of being occupied year-round as a principal residence. The economic benefits of vacation housing, besides the fiscal ones, are primarily those of tourism, with some additional retail activity associated with upkeep of the vacation home and the purchase of household supplies and furnishings. Some additional retail business can be expected, along with development of tourist attractions, restaurants, and services. The multiplier effect of one retirement household is significant and estimated by some studies to be roughly 3.7.

- Niche Hangar Reuse Considerations
  In conjunction with ERA's analysis of general reuse opportunities, ERA explored additional options specifically for hangar reuse. Based on public input and ERA's experience with other military redevelopments and emerging industries, ERA identified hangar reuse options that present opportunities to either harness emerging industries or meet local demand for select activities. ERA focused on business activities that would help in economic development efforts. There are other, non-business uses that could prove to be viable. Converting hangar space into a community arts center is an option that has worked in past military base redevelopments, and that would fit well into Maine's efforts to bolster their existing "Creative Economy." ERA focused analysis on the potential for a movie production facility and a community sports center. The former would take advantage of the increasing decentralization of the movie production industry with the potential for significant economic impacts for the Brunswick region, while the latter is in response to noted community desire for an on-site sports complex. There is potential for both, but movie production would require significant incentives and the economic impact of any sports complex is likely hinged on the ability to attract visitation from outside the State for tournament play.

Business Attraction

The closing of BNAS will lead to the loss of direct and indirect jobs in the local market, removing currently existing income and revenue. Clearly, in the post-BNAS economy, it is imperative to counter significant loss of jobs and revenues through business attraction. Such an effort will depend on the local tax climate and overall cost of doing business, the labor force, venture capital opportunities, available incentives and, potentially, the supply of business park space.

Tax Climate

While there has been a perception that Maine has an unfavorable business tax climate, the State of Maine has been very aggressive in recent years in creating a competitive business support structure that encourages sustainable business investment and quality jobs. Over the past decade, the state legislature has established a number of substantial business and tax incentive programs to provide Maine with a competitive edge, including:

- Elimination of the business equipment tax
- Development of Pine Tree Development Zones, which provide tax credits, tax exemptions, tax rebates, insurance premium reductions, electric rate reductions, and preferences on workforce training
- Employment Tax Increment Financing

Utility Cost

Any decision to locate to the redeveloped BNAS property is, in part, a function of energy costs. New England is home to some of the most expensive electricity in the nation. In Maine, utility bills are separated into a delivery cost and a supply cost. Delivery of electricity uses the poles, wires and meters on streets and buildings and remains a fully regulated monopoly service, provided by one of Maine's transmission and distribution utilities. Brunswick is currently served by Central Maine Power. According to Maine's Office of the Public Advocate, as of March 1st, 2000, electric power supply began to be priced under the forces of competition. There is a wholesale market in New England and throughout the Northeast, and many suppliers who operate in that market obtained licenses from the Maine Public Utilities Commission in order to sell power at retail in the state. Most residential customers' supply comes through the standard offer, but commercial customers are likely to test market rates. For residential and commercial end users, Maine shows average retail prices far higher than national averages. In 2006, the national average retail price for electricity over all sectors was $8.58 per kilowatt hour compared to Maine's average retail price of $10.98 per kilowatt hour.

Labor Skills

- Educational Attainment
  While not a direct determinant, the level of education is often a useful approximation of labor skills. Cumberland County shows the highest educated resident base. Lincoln and Sagadahoc Counties show a slightly less educated resident base, but both show a higher percentage of residents with college and graduate degrees as compared to the state and nation. Another method of estimating labor market skills is through an analysis of area wages. All things being equal, highly skilled jobs are relatively rare and command relatively high market wages. The Brunswick micropolitan area shows a proportionally large share of local area employment in construction, education and health services, leisure and hospitality services and local government compared to other jurisdictions. When compared with the state and the Portland MSA, it shows a relatively small presence of employment in information, financial activities and the professional and business services. This lower share will impact demand for office of tech space at BNAS.
- Educational and Training Resources
  The University of Maine and the community college system have both expressed strong interest in supporting the research, education, and training needs of the economic development of BNAS, as well as for the entire Midcoast region.
- Venture Capital and Entrepreneurship
  According to a recent study by Professor Michael E. Porter of Harvard Business School, Maine ranks 39th in the nation in regards to number of patents per 10,000 employees. The state generates roughly 3.0 patents for every 10,000 employees while the national average is nearly 8.0. Maine is lagging behind most

other states with regards to innovation. Maine is home to only a few large-scale firms that fund a significant share of the state's total research and development efforts.

- According to the 2004 National Venture Capital Association Yearbook, Maine ranked tenth in venture capital funds raised ($183,000,000), but only $13,000,000 was actually deployed in only three deals. The Brookings Institute submits that there is not so much a lack of funding as there is a lack of businesses that meet the criteria for significant investment. Maine's small size and relatively thin clusters may be responsible for the lack of "deal flow" or actual number of deals. Brookings also cites an apparent lack of funding of existing organizations whose original purpose was to provide "patent" venture capital to Maine firms. The Small Enterprise Growth Fund, part of the Finance Authority of Maine, was created with this task in mind. However, it is allocated a less than optimal annual budget, which prevents the hiring of substantial senior staff, and has capitalized only $9,000,000 over the past decade. As a result, deal activity suffers.

Summary and Overall Conclusions

The following observations and conclusions are made as a result of this study:

- Demographic trends and market data show Brunswick to be slightly above the state but below the nation in areas such as population growth, employment growth and per capita income. One category where the state is far above the nation is trends in aging, as Maine is currently the oldest state in the Northeast. The town boasts a relatively diverse economic base, as compared to the rest of the state, and has historically relied on activity from Bath Iron Works, Bowdoin College and, of course, BNAS. Market trends underline the fact that Cumberland County and the Midcoast continue to be the economic driver of the statewide economy, but that the State of Maine lags behind the nation in most economic measures. Since 2000, the state's population has grown at an increased rate.
- Tourism data reveals that the Midcoast area attracts roughly 5.7 million day visits and 1.3 million overnight visits each year. The area is one of the more popular regions of the state, generating about 20% of overall tourism visitation. Maine's tourism activity is highly seasonal and the majority of tourism activity occurs between July and September. Lodging properties in the greater Brunswick area are relatively old and poorly maintained. Smith Travel Research characterizes most of the existing nearby product within the Independent Lower status.
- Real estate market data shows that the Brunswick housing market is relatively less affordable for the median household income than it has been in the past. As a result, buyers are locating farther outside the town center, and development is increasingly spread out. Compared to Portland and other areas in Cumberland County, however, Brunswick offers better value.

- In general, Maine is not perceived as an affordable location to conduct business. Overall business taxes are near the highest in the nation, utilities are relatively expensive and indices of innovation (measured by patenting activity) are low. The state offers incentive schemes including the Pine Tree Development Zone designation.
- The feasibility of passenger aviation at BNAS has been preliminarily determined to be not realistic by Edwards and Kelcey under a contract with the state. Meanwhile, ERA identified alternative aviation uses that show potential for growth including maintenance and training. Regarding the cargo industry, ERA agrees with Edwards and Kelcey that the domestic market is rather limited. Most businesses currently utilize Logan International Airport or John F. Kennedy International Airport when transporting cargo from the northeast.
- ERA identified second homes and retirement housing as viable redevelopment opportunities at the BNAS site. Maine shows a proportionally high population of baby boomers and senior citizens, both of whom would be candidates for such housing in the near future. Historically, coastal Maine has attracted substantial second home construction and the Midcoast region is poised to absorb additional demand in future years. Demographic trends, industry surveys and recent successful senior housing developments, in Topsham and Falmouth, Maine, underline significant market potential for second homes and retirement housing. The potential for second homes at the site is likely to be around 300 units or more. Current demand for retirement housing is estimated in the range of 180-270 units and is expected to continue to grow each year. Units on-site could be at least 500 over a 10 year build-out.
- ERA sees potential in the development of a resort property as part of the overall reuse plan. Brunswick currently offers mostly low- to mid-market properties and lacks an up-market resort to leverage existing tourism activity. Moreover, across Maine, there is a current lack of conference space supply which forces associations, corporations, and SMERF groups to meet at poorly suited facilities. Business generated by these three meeting groups remains largely untapped. Part of what will determine the success of an on-site resort is how much peripheral development occurs, particularly in the form of business attraction. An indoor waterpark and golf course are two facilities that would help to establish year-round occupancy in an extremely seasonal market. It is ERA's preliminary conclusion that demand for a golf / conference / resort hotel would be derived from:
  - Existing tourism demand and golf play
  - Meeting activity (corporate, association, SMERF)
  - Water park

  The site could support at least 300 rooms.

- Based on modest economic growth throughout Cumberland County and a current lack of available space in local and regional business parks, there could be an opportunity to redevelop a portion of the BNAS as a business park. Recent patterns of growth show annual increases in business park space ranging from 36,000 to 76,000 SF and from 8.3 to 16.5 acres. Depending on development activity between now and 2011, there could be a need for more space in the local market. In that case, the BNAS site would be a logical location for business park development.
- Much of Brunswick's retail inventory is located at Cook's Corner. Pull factor analyses confirm that Brunswick and the Midcoast region, overall, are well served by existing retail space. The retail component of the Reuse Master Plan should be relatively moderate, complementing other facets of the plan rather than competing with existing retail offerings at Cook's Corner or other locations.
- There is the potential to designate a portion of the reuse plan for educational initiatives. The Advanced Engineered Woods Composite Center based at the University of Maine at Orono could prove to be a logical partner in efforts to create a cluster development in composites. Southern Maine Community College, rapidly expanding and in need of more space, has already submitted a grant seeking reuse of existing BNAS facilities for an Advanced Technology Center.
- ERA analysis showed that composites and information technology are appropriate sectors to target through clustering development initiatives at the base. These show relatively high wages, but more importantly, the potential to tap local, national and even global markets in the coming years.
- Finally, ERA identified biomedical research, Radio Frequency Identification and Open Source software as three target industries that show significant market potential in years to come. Maine is home to select companies already involved in these markets, but would likely benefit in future years by committing additional resources to develop centers for excellence, research and manufacturing facilities as part of a redeveloped BNAS.

Community Planning Issues and Influences

Brunswick Naval Air Station, as with most military installations located throughout the country, has developed haphazardly over time without sensitivity or direct consideration of local community issues, systems, or conditions. As a federal property, compliance with local land use and zoning, development, and other regulations do not generally apply. With the scheduled closure of BNAS in 2011, however, the military status of the property and subsequent development of the site will be under the jurisdiction of the MRRA, the Town of Brunswick, and other local, regional, and state regulatory agencies. As part of the overall planning process, therefore, it was important to identify, map, and respond to a variety of community issues and adjacent and nearby influences that could

impact, or be impacted by the property's redevelopment, including the issues described below. **Exhibit 2: BNAS Vicinity Map** illustrates the location of the 3,300-acre property and its immediate surrounding areas of influence.

Land Use and Zoning

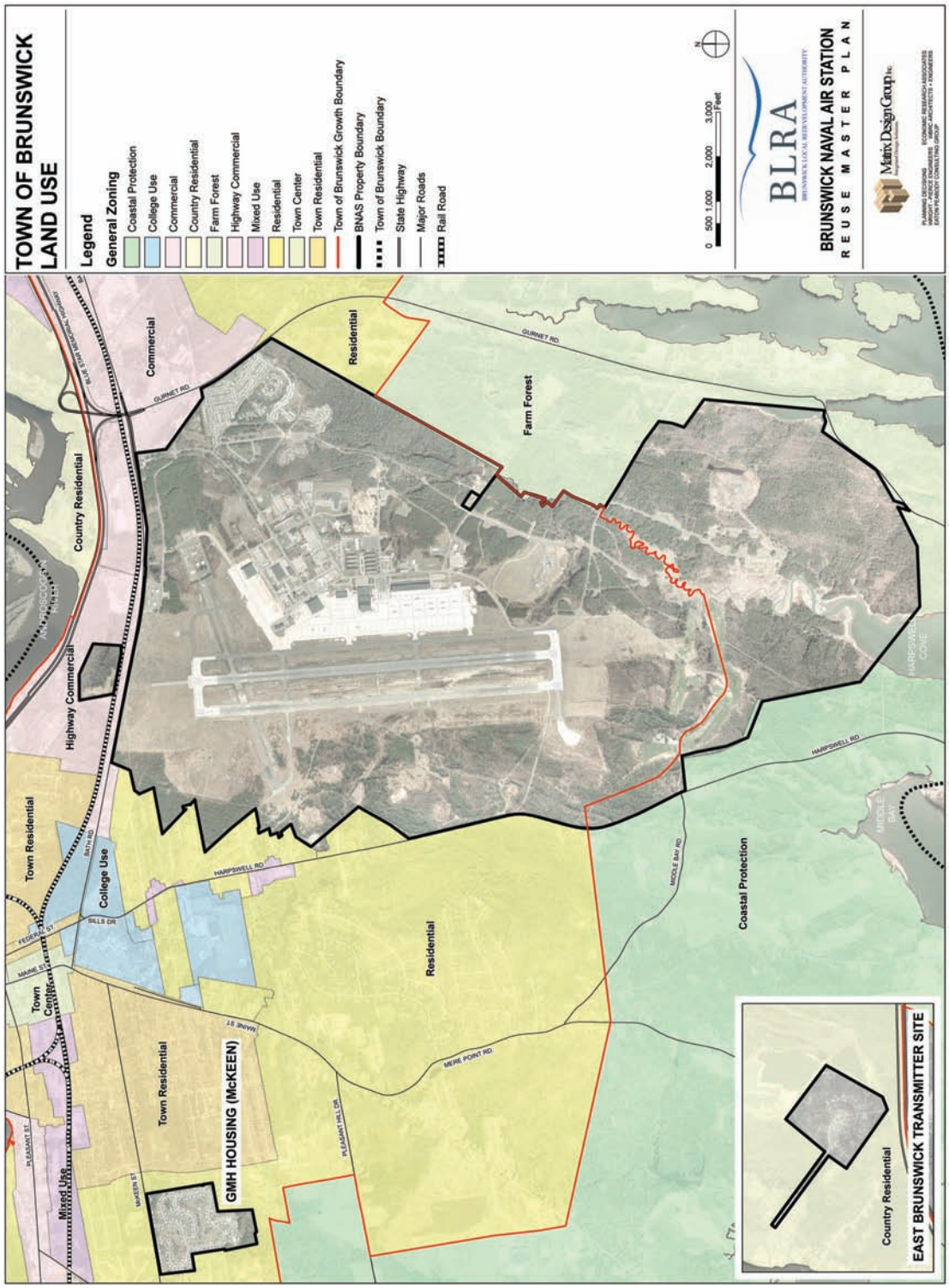
The existing land uses that surround Brunswick Naval Air Station have been derived, for the purposes of this Reuse Master Plan, from the general zoning district categories identified in the "Zoning Ordinance of the Town of Brunswick" and its accompanying "Town of Brunswick Zoning Map." This section discusses those different land use and zoning areas and their potential influences on future redevelopment of the base.

The town's various zoning districts are divided into two broad groups: Growth Districts and Rural Districts. This division into Growth and Rural groups reflects not only a conceptual organization of the town's zoning districts by the districts' predominant land use types and intensities, but a geographical division as well. Brunswick's "Growth / Rural Boundary" divides the Town into two geographic areas, with all the Growth zoning districts found inside the boundary, and all the Rural zoning districts found outside the boundary. The Brunswick growth boundary also transects Brunswick Naval Air Station, with the northern two-thirds of the main base and McKeen Homes located within the Growth area, and the southern one-third of the main base and the East Brunswick Transmitter site located outside of the boundary within the Rural area. **Exhibit 18: Town of Brunswick Land Use Map** delineates the location of the Town of Brunswick's growth boundary, as well as the location of the different zoning districts.

Growth Area Land Uses and Zoning

The areas immediately adjacent to BNAS and located inside the Town's growth boundary consist of two different Growth zoning district categories: Residential and Commercial. The following descriptions of allowed uses, densities, etc. have been summarized from the "Zoning Ordinance of the Town of Brunswick" and the "Town of Brunswick Zoning Map."

Exhibit 18: Town of Brunswick Land Use Map



Source: Matrix Design Group

Residential

Areas with a Residential land use and zoning classification adjacent to BNAS property include the land surrounding the McKeen Homes site; the land immediately abutting the western fence line of the main base from the town's growth boundary north almost to Bath Road; and the land at the far eastern end of the main base along Gurnet Road south of Cook's Corner. The portion of the Residential zoned area immediately north of the growth boundary along Harpswell Road, known as the Meadowbrook-Parkview neighborhood, is mostly undeveloped and heavily wooded; in fact, this is the location of the existing Town Common. Low density single-family residential uses become more common farther north, with a number of short subdivision streets—several dead-ending at the BNAS fence—branching off Harpswell Road. This area is known as the McClellan-Garrison neighborhood. The residential area south of Cook's Corner, known as the Cook's Corner neighborhood, is a mix of low-density residential homes along with several large areas of undeveloped wooded areas. The area surrounding the McKeen Homes is known as the Meredith Drive-West McKeen Street neighborhood, and features single-family residential and school uses.

Commercial

The area adjacent to the north side of the BNAS main base along Bath Road and extending south from Cook's Corner along Gurnet Road to about Antietam Street, is zoned Commercial. This area contains a mix of highway-oriented retail, primarily along Bath Road, several large shopping centers such as Merrymeeting Plaza and Cook's Corner Mall, and a mix of medium and small scale commercial enterprises such as pad restaurants, lodging, a movie theater, convenience retail, and gas stations. The portion of the Bath Road corridor directly north of the BNAS runway is mostly undeveloped and restricted by the BNAS Flight Path Zone and Aquifer Protection Zone overlay districts.

Other Nearby Uses

In addition to the land use and zone districts described above that are immediately adjacent to BNAS property, several other zone districts / land use types exist relatively near a BNAS boundary. Near the northwest corner of the main base is a small area with a Mixed-Use zone district along Harpswell Road, as well as College Use zones that comprises the Bowdoin College campus and athletic fields. Also, near the northwestern corner of the main base, as well as near the McKeen Homes, are areas zoned Town Residential, which provide for a mix of both residential and commercial land uses.

Rural Area Land Uses and Zoning

In the parts of the Town of Brunswick that are adjacent to BNAS and outside the growth boundary, there are three Rural Zoning Areas: Farm-Forest, Coastal Protection, and Country Residential.

Farm-Forest

The Farm-Forest Conservation Area is located to the south and east of the main base, from Harpswell Cove east to the New Meadows River, and along both sides of Gurnet Road north to the growth boundary. This area is characterized by large tracts of unfragmented forest areas, smaller patches of non-forested and agricultural lands, and limited rural residential properties found primarily along Coombs Road. The Farm-Forest Conservation Area permits low-density residential and farming uses, along with low-impact commercial and professional uses such as bed and breakfast establishments, veterinary offices, and greenhouses and florists.

Coastal Protection

The Coastal Protection Area is located to the south and west of the main base, from Harpswell Cove west and north to the growth boundary. The Coastal Protection area has a land use pattern similar to the Farm-Forest area, in that it features large blocks of natural areas such as forests and wetlands, and limited development found primarily in the form of scattered single-family residences on large-lot sites. The Coastal Protection Area permits low-density residential and farming uses and very limited commercial activities, along with an emphasis on regulating and managing water resources, non-point source pollution, and other uses and practices that potentially impact coastal areas.

Country Residential

The Country Residential Area completely surrounds the East Brunswick Transmitter site along Old Bath Road northeast of the main base. This area consists primarily of scattered single-family homes on 1.5-acre-or-larger lots fronting Old Bath Road or along several rural subdivision drives that branch off from Old Bath Road and dead-end after a few hundred yards. Immediately to the north of the EBT site is a large gravel-mining facility.

Other Regulatory Zones

Several areas near or adjacent to BNAS property are regulated through Overlay Districts developed by the Town that restrict development beyond that of the existing base zoning.

Aquifer Protection Zones 1 and 2

At the northwest corner of the BNAS main base along Bath Road are Aquifer Protection Zones 1 and 2. The purpose of the Aquifer Protection Zones is “to protect the quality and quantity of Brunswick’s present and future ground water resources by regulating activities and land use practices which are likely to affect those resources.” Please see Exhibit 16: Regulatory Zones Map for the location of Aquifer Protection Zones 1 and 2.

Immediately north of the BNAS main base, near the intersection of Bath Road and Jordan Avenue, is the more-restrictive Aquifer Protection Zone 1, which is "the area within which leachable materials disposed of or applied into or onto land or waterbodies can travel to the public water supply wells within 200 days." Aquifer Protection Zone 1 restricts uses to activities such as outdoor recreation, timber harvesting, and public water supply operation and maintenance.

Aquifer Protection Zone 2, which covers a larger area along Bath Road and onto BNAS property, is "the area within which leachable materials disposed of or applied into or onto land or waterbodies can travel to the public water supply wells in more than 200 days." Aquifer Protection Zone 2 prohibits activities that could potentially impact groundwater resources, such as the use, storage, or disposal of substances such as pesticides, fertilizers, petroleum products, or other hazardous materials, as well as activities such as dry cleaning, metal plating, surface mining, engine repair and maintenance, and furniture stripping and painting.

Natural Resource Protection Zone

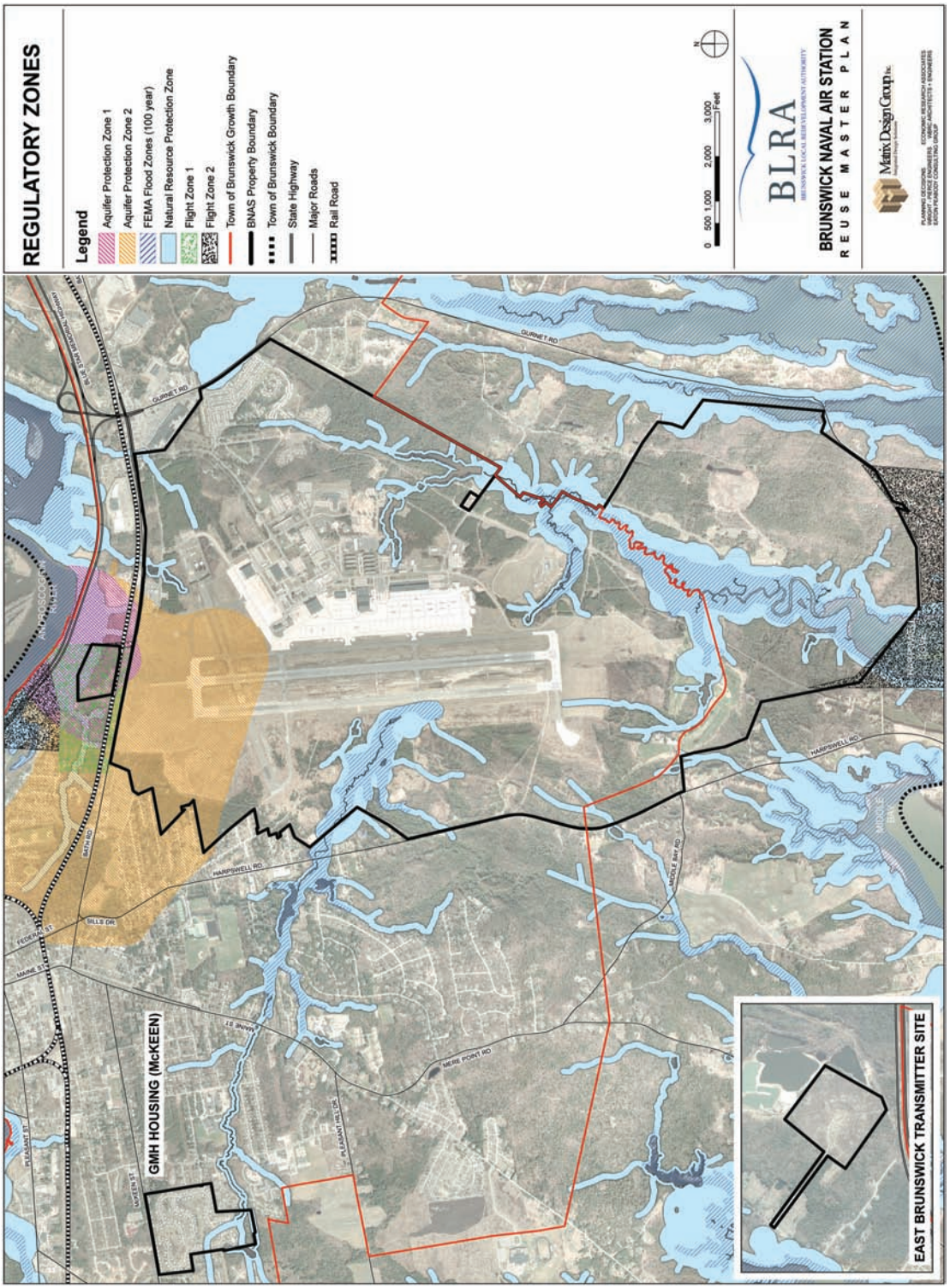
The Town of Brunswick maintains a Natural Resource Protection Zone overlay district that further regulates the location, type, and intensity of uses located within the following two environmentally sensitive areas: Shoreland Areas and Special Flood Hazard Areas. Shoreland Area is defined as "the land area located within two hundred and fifty (250) feet of the normal high-water line of any river or saltwater body; within two hundred and fifty (250) feet of the upland edge of a coastal or freshwater wetland; or within seventy-five (75) feet of the normal high water line of a stream." Special Flood Hazard Area is defined as "any land in the floodplain lying within the 100-year flood boundary as delineated on the Flood Insurance Rate Map of the Town as part of the National Flood Insurance Program." Please see Exhibit 16: Regulatory Zones Map for the location of the areas covered by the Natural Resource Protection Zone.

BNAS Flight Path Zones 1 and 2

The Town of Brunswick also maintains two Flight Path Zone overlay districts "to prevent development which is incompatible with the levels of noise and accident potential within the approaches to the Naval Air Station runways." These zones are located north of Bath Road at the northern end of the BNAS runway and around Harpswell Cove at the southern end of the BNAS runway. The boundaries of the Flight Path Zones are based on the Air Installation Compatible Use Zone (AICUZ) Study for BNAS from 1977, revised 1986.

Flight Path Zone 1 is the most restrictive and is the "clear zone" closest to the ends of the runway. All uses are prohibited in Flight Path Zone 1 except for certain agricultural uses, which are granted only through special permit with the Town. Flight Path Zone 2, the "noise / accident zone" allows limited low-density residential development as well as a number of other uses through special permit with the Town. Please see **Exhibit 19: Regulatory Zones Map** for the location of the areas covered by the Flight Path Zones.

Exhibit 19: Regulatory Zones Map



Source: Matrix Design Group

Transportation Issues and Influences

Direct, safe, and convenient vehicular access, along with reliable (and in some cases redundant) utility infrastructure services are requirements for the efficient operation of any military installation, regardless of property location or size. The successful redevelopment of the 3,300-acre Brunswick Naval Air Station, as with any other large-scale private-sector development will require that same (or expanded) level of transportation and utility infrastructure to meet future non-military and potentially increased growth and redevelopment needs of the Brunswick community. This section, therefore, summarizes the existing transportation and utility infrastructure systems that could influence, or be influenced by, redevelopment of the Brunswick Naval Air Station.

Transportation Systems

From a regional geographic perspective, Brunswick Naval Air Station is located 150 miles north of Boston, Massachusetts; midway between Portland, the state's largest metropolitan area, and Augusta, Maine's capital; Bangor is located 90 miles to the north. Although the 95 / 295 Interstate Highway system connects all of these urbanized areas, the Brunswick Naval Air Station is not directly accessible from this major vehicular corridor (located approximately five miles to the west of the site); the base is, however, located within proximity of several major state, regional, and community arterials that serve the region, including:

- US Route 1, which serves the towns of Brunswick and city of Bath, and communities north along the coast

- I – 295 / Highway 196 Coastal Connector, which connects US Route 1 with Interstate 295 through the Town of Topsham
- Bath Road, which serves the local Brunswick, Bath, and Harpswell communities

As part of the Matrix Planning Team's assessment of local and regional transportation systems, a review of traffic issues associated with the current operation of the Naval Air Station was conducted. The review included an assessment of traffic volumes with respect to the capacities of key intersections and trends in area land use that can be expected to impact level of service on the adjacent roadway network, as well as discussion of certain elements that may be implemented to mitigate congestion within the area. As illustrated on **Exhibit 20: Regional and Community Transportation Systems**, the most direct access to the BNAS property is via US Highway 1, at the Cook's Corner exit; the most direct access from downtown Brunswick is via Bath Road, which parallels the base on its northern border.

Exhibit 20: Regional and Community Transportation Systems Map

Source: Matrix Design Group

Local and community access to the base is provided from Bath Road, Harpswell Road, and Gurnet Road. Harpswell Road runs south of Bath Road on the western side of the base, and currently provides public access into the base. Currently referred to as the Dyer Gate, this two-lane roadway serves as the southern entrance into BNAS, and also serves the Mere Brook 9-hole golf course, open to the public. Gurnet Road runs north and south on the eastern side of the base, and connects directly to US Route 1 just north of the Cook's Corner / Bath Road intersection, and terminates at Harpswell Cove, approximately 10 miles south of the base. Although no current access is permitted into the base along Gurnet Road, there are several historic gates, now closed to public access. **Exhibit 31: Point of Access Map** illustrates these existing and historic access points. In general, recent trends indicate continued growth in traffic in the Cook's Corner area. Because Bath Road appears to be at or near capacity, most new traffic will enter the area via US Route 1. This condition will put additional pressure on the Cook's Corner intersection, which is probably physically as large as it can get (in terms of travel lanes).

Several bicycle and pedestrian trails are found within the vicinity of BNAS, but the presence of the base and its restricted access has prevented north-south and east-west connections across the community. Existing bicycle and pedestrian trails are located along US 1 and the Androscoggin River, in the Cook's Corner area, along Gurnet and Coombs Roads, and in the neighborhoods west of the base near Harpswell Road. An important consideration of the redevelopment of the base is to provide east-west connectivity for bicyclists and pedestrians across the base as well as north-south connections with existing trails.

Potential Community / Regional Transportation Improvements

One short-term improvement that has been identified to improve capacity of the Cook's Corner intersection is the addition of a through lane from New Gurnet Road to Wal-Mart, retaining the exclusive right-turn lane into Wal-Mart. Currently, the dual left turn lanes approaching the Cook's Corner intersection from Route 1 are unbalanced, with the inside left lane being used more heavily than the outside. This is because the two receiving lanes on Bath Road eastbound drop to a single lane at Thomas Point Road, a total distance of slightly over 300 feet and insufficient for weave / merge maneuvers by vehicles that have just maneuvered through a double left turn. Better balance in volume in the dual left-turn lanes from Route 1 could reduce the green time requirement for this movement and free up some capacity for other movements.

It has been noted that the poor operation of the signal system on Bath Road from Merrymeeting Plaza to Cook's Corner Mall have, in effect, limited the capacity of Bath Road west of Merrymeeting Plaza. This three signal system is controlled by a single traffic controller, which is a technique commonly used to guarantee coordination for closely spaced traffic signals (i.e. it can preclude traffic from backing up through an intersection and causing gridlock). In this case, a single lane on Bath Road eastbound at

Merrymeeting Plaza proceeds into three receiving lanes, two continuing eastbound on Bath Road and one serving as an exclusive right turn lane to BNAS. The outside (right) through lane tends to get overloaded, which blocks access to the inside through lane and causes traffic to back up through the Merrymeeting Plaza intersection. It is not unusual to see eastbound traffic on Bath Road backed up to, or beyond, the Fat Boy restaurant during the Christmas season.

A short term solution to this would be to convert the exclusive right turn lane into BNAS as a shared through-right turn lane. This would allow drivers traveling to the Cook's Corner Mall (which also has an exclusive right turn lane) to use this lane thus freeing up the other two lanes for through traffic (and likely minimizing the potential of back ups. For the longer term, two other actions are suggested. First, there must be two eastbound through lanes on Bath Road at Merrymeeting Plaza, plus the existing exclusive left into the Plaza. These two lanes need to extend westerly enough to store all the vehicles that can be moved for a typical peak hour green phase; a single lane cannot move enough traffic fast enough into a multiple lane section of roadway, thus it requires more green time (reducing the level of service for other movements) and can easily lead to the creation of long vehicle queues, which further reduces efficiency due to additional stopping and start-up delays. Second, it would be advisable to relocate the BNAS access road to be aligned with Merrymeeting Plaza. This would increase the distance between intersections and allow use of single controllers at each intersection, operating under coordinated control.

Additional Points of Access

With regard to additional access to BNAS, it would be desirable to provide an improved general access to the site from New Gurnet Road south of Cook's Corner Mall. In this area, New Gurnet Road is a four lane facility with no exclusive left or right turn lanes. An exclusive left turn lane (or alternately a two-way left-thru lane) would be desirable from the traffic signal at Cook's Corner Mall to at least just south of any new access. This new access would allow vehicles from Route 1 to travel straight through the Cook's Corner intersection and reduce the volume of left turns off Bath Road westbound into BNAS. Connection of the New Gurnet Road access to the Bath Road access would also be desirable; the connection should be kept as short as practical to maximize its use in the overall circulation of the Cook's Corner area. Given the extent of frontage on Bath Road, the provision of a new access point directly opposite to Jordan Avenue has been discussed in the past.

There are several dead end residential streets that extend from Route 125 and terminate near the boundary of the northwest corner of the base. Given the residential nature of this area, it may be appropriate to avoid through-connections from these streets.

Depending on the nature of land use proposed for the base, it may also be appropriate to develop enhanced access to Middle Bay Road, in the vicinity of the existing Dyers Road gate. A connection could be made between an access point in this location and New Gurnet Road, possibly via the Coombs Road.

Improved Access to Route 1 and Interstate 295

One final issue is the development of an additional connection between Bath Road and the adjacent four lane divided highway (Route 1) which serves at the primary transportation artery linking the Midcoast with Interstate Route 295. In the past (approximately mid-1980s), analysis was performed to gauge the viability of constructing a new connection west of the existing interchange. At that time it was not found to be cost-effective, and a major upgrade of Cook's Corner intersection was implemented. At this point, however, the issue warrants reexamination, as well as alternate mechanisms, including the potential for a new connection east of the existing Cook's Corner interchange, which would effectively free up capacity at the existing interchange.

Based on a review of mapping, as well as discussions with individuals involved with the earlier evaluation, it appears that there are several factors that would complicate the construction of a new Route 1 interchange between the present interchange at Cook's Corner and the Coastal Connector to the west. The most significant of these obstacles includes the lack of space between Route 1 and the Androscoggin River (for construction of embankments, ramps and overpass abutments); potential impacts to the Brunswick-Topsham Water District's wellhead protection area; and, the magnitude of capital cost required for construction (projected at $12 million to $17 million).

As noted above, a possible alternative mechanism for achieving additional interchange capacity would be the construction of a new interchange to the east of Cook's Corner. The relocation of Midcoast Hospital off Bath Road to the east of Cook's Corner, along with the recent opening of a Lowe's and an expansion of Wal-Mart, has increased traffic demand in this area. The hospital is likely to spur additional growth in this area in the form of medical office buildings, clinics, etc., thus it will be necessary to look carefully into the levels of traffic generation associated with the area east of Cook's Corner in addition to what might be projected as part of the redevelopment of BNAS.

A potential further area of concern relates to the addition of new traffic onto Pleasant Street in Brunswick and the Coastal Connector in Topsham, the two primary routes between the four-lane divided section of US Route 1 and Interstate 295. Both of these routes are subject to peak hour congestion. Creation of an additional link to the interstate has been suggested by some, although further evaluation would be necessary to identify likely routes and establish costs and a realistic schedule for implementation.

Baseline Traffic Numbers

The Parking and Traffic Master Plan, issued by Oak Point Associates / Casey & Godfrey in September of 2002 includes the results of traffic counts at several locations on the base. Based on all of the readily available materials, it appears that the data reflected in this report provides the best basis for establishing approximate baseline figures for traffic generation at the facility. Using existing peak hour figures from the intersection of Fitch Avenue and Forrestal Drive, the following summary of vehicle volumes entering and leaving the base at the main (Bath Road) gate for the AM, PM and mid-day peaks was developed.

Exhibit 21: Baseline Traffic Figures

Time	Entering Base	Leaving Base
AM Peak Hour	765	96
PM Peak Hour	192	642
Mid-Day Peak	331	329

Source: Wright-Pierce Engineers

Future Trip Generation

While it will not be possible to make any detailed projections relative to traffic generation until the master plan is further developed (i.e. specific uses are determined and space is allocated among them), it was determined that an "order of magnitude" projection of future traffic volumes would be useful. Based on an estimated 1.8 million SF of available office / light industrial space and 200 residential units we have developed the following projections:

Exhibit 22: Future Trip Generation

Time	Entering Base	Leaving Base
AM Peak Hour	1589	281
PM Peak Hour	350	1690

Source: Wright-Pierce Engineers

As noted, the future traffic generation could quite easily result in doubling of the Base-related traffic on the adjacent street system during the AM and PM peak hours. It is expected that traffic entering / exiting the base would be distributed over several points of access depending on origin / destination, and that there may be some "pass through" traffic across the base property that is simply taking advantage of the newly accessible base roadways as shortcuts within the area.

Rail Service

Rail access exists in proximity to the northern boundary of the base, in the form of an active line that runs just north of, and essentially parallel to, Bath Road. In the past, a rail siding once extended across Bath Road and onto the base; however, this has long since been discontinued and the rails removed. While activity on the main line has been very limited for a number of years, the Maine Department of Transportation has made significant investment in the track (primarily ties and ballast) over the past several years, and passenger rail activity has been active on a seasonal basis.

The ultimate attractiveness of rail as a mode of transportation to serve potential redevelopment of the base will depend largely on the nature of the redevelopment. Certainly, the use of the existing facilities for passenger service offers an attractive alternative to automobile traffic, particularly under redevelopment scenarios which create significant employment or tourism opportunities. It is possible that these elements could help provide the critical mass necessary for an economically viable passenger rail system in the region. However, the potential for use of freight rail by future occupants of the base will be largely a function of the nature of any businesses that locate on the property. It is important to note that the present geometry of the rail line and its location on the north side of Bath Road would require an at-grade rail crossing of Bath Road in order to serve the base. Given the current level of traffic congestion on Bath Road, this option would meet with some resistance.

Rail Crossing of Bath Road

A field review of topography and existing land use along the Bath Road was conducted in order to gauge the viability of crossing the road with a rail spur onto the base. The viability of such a crossing was based on the following assumptions:

- 18 feet vertical clearance over the rails
- 4-foot depth of the overpass superstructure
- 4% street grades to accomplish the elevation differential

This review suggested that a crossing would require 550-600 feet either side of the overpass, or a total length of not less than 1,200 feet. The logical location appears to fall slightly to the east of the present intersection with Jordan Avenue where the elevation of the rail line appears to be about 8 feet lower than the elevation of Bath Road. The connection to Jordan Avenue would need to be relocated to a point further west on Bath Road or to a future access roadway extended to connect to Route 1 in this area. Costs have been estimated to be on the order of $1.0 - $1.2 million for the roadway construction element. We have not estimated costs for the construction of the rail spur or certain “soft” costs such as acquisition of properties necessary to implement the improvements.

Note that this option would result in severe access impacts to several properties on Bath Road, including a gas station and a residence. Although no detailed engineering has been performed, it appears that the new Bath Road profile would match the existing profile in the vicinity of the Fat Boy restaurant. The rail spur would be placed in a fairly deep cut as it enters the base property. Clearly, these grading and access elements would need to be reviewed in the context of impacts to airport “clear zones” if aviation uses are retained at the base.

Natural and Cultural Resources

The lands surrounding Brunswick Naval Air Station property contain a variety of ecosystems, habitats, landforms, and other natural resources that not only serve as a tremendous asset to the town and its citizens, but also influence and affect the location, type, and intensity of development within the town. Brunswick is also home to a number of historic, archaeological, and cultural sites that also influence development in the community. This section reviews some of the important natural and cultural resources found within the Town of Brunswick and adjacent to BNAS property.

Wetland Conditions

There are several locations within the Town of Brunswick and near or adjacent to the BNAS property that contain wetlands or vernal pools. Information on the location and extent of vernal pools was obtained from the Town of Brunswick, and information related to the location and extent of wetlands was received from the State of Maine and the United States Navy. These sources used different methods to define and identify land considered to be wetlands. While there was geographic overlap between the areas identified as wetlands by these sources, there were also areas where each source had alone identified a particular area as consisting of wetland conditions. Consequently, since determining the accuracy and reliability of the wetlands data obtained from these sources is outside of the scope of this effort, all the land area identified as wetlands by any of these sources has been considered in this Reuse Master Plan process.

There are four primary areas of wetland conditions found within the town and located near or adjacent to BNAS property: (1) near the McKeen Street housing; (2) south of the BNAS main base around Middle Bay and Harpswell Cove; (3) east of the main base on either side of Gurnet Road around Buttermilk Cove and Woodward Cove; and, (4) to the west of the main base in the Town Common area west of Harpswell Road and north of Middle Bay Road. Smaller concentrations of wetland conditions can be found immediately south of the Cook's Corner commercial area east of Gurnet Road, and north of Bath Road in the vicinity of Merrymeeting Plaza and the Androscoggin River. **Exhibit 23: Wetland Conditions Map** illustrates the location of these wetland and vernal pool resources.

Natural Habitats

A number of natural habitats are found near and on the BNAS property in the Town of Brunswick. These natural habitats consist of five main categories, including (1) State of Maine Threatened or Endangered Species; (2) Rare Communities; (3) Deer Wintering Areas; (4) Unfragmented Areas; and (5) Wildlife Corridors.

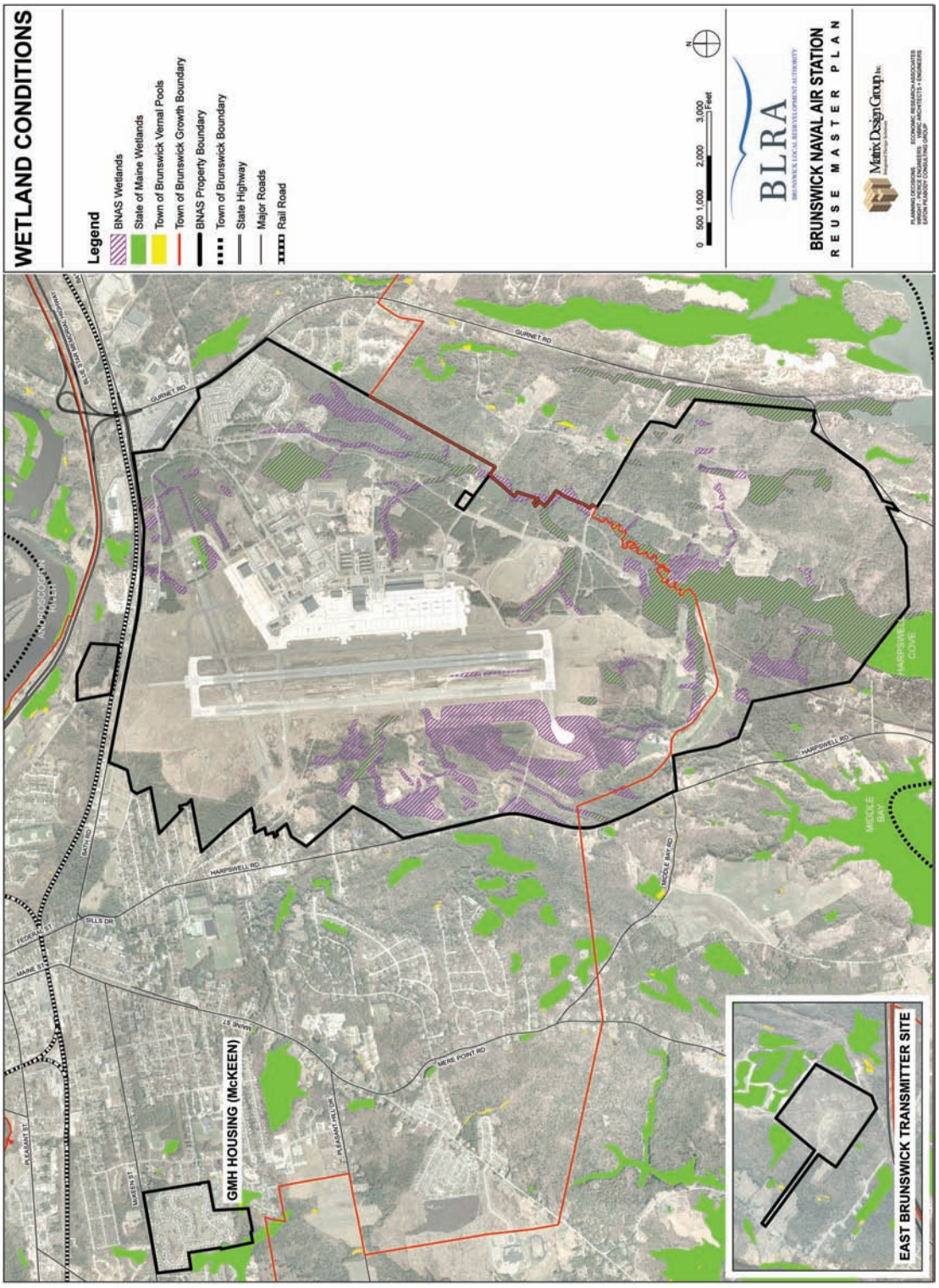
State of Maine Threatened or Endangered Species

The Maine Natural Areas Program has identified a number of plant and animal species that are threatened or endangered in the state that have been identified or observed in the vicinity of BNAS within the Town of Brunswick. These species include:

- Mountain Honeysuckle
- Acadian Swordgrass Moth
- Clothed Sedge
- Dry Land Sedge
- Vesper Sparrow

These and additional species are also found on BNAS property and are discussed in Section 4.3: On-Base Conditions and Characteristics. **Exhibit 24: Natural Habitats Map** illustrates the location of these State of Maine Threatened or Endangered Species using colored icons.

Exhibit 23: Wetland Conditions Map



Source: Matrix Design Group

Rare Communities

The Maine Natural Areas Program has also identified two "natural communities" that have been identified as having "rare" status within the state. According to the Maine Natural Areas Program, a rare natural community is one "critically imperiled in Maine because of extreme rarity (five or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation from the State of Maine." The two Rare Communities found near BNAS property within the Town of Brunswick are:

- Pitch Pine – Heath Barren
- Little Bluestem - Blueberry Sandplain Grassland

These communities are also found within BNAS property and are discussed in later in this Section.

Deer Wintering Areas

The Maine Department of Inland Fisheries and Wildlife has identified a large wooded area west of Coombs Road near Purinton Road, mostly just outside of BNAS property, that is a known deer wintering area. The protection of wildlife habitats, like Deer Wintering Areas, is a key principle in the Town of Brunswick Parks, Recreation, and Open Space Plan 2002. **Exhibit 24: Natural Habitats Map** illustrates the location of the Deer Wintering Area in blue.

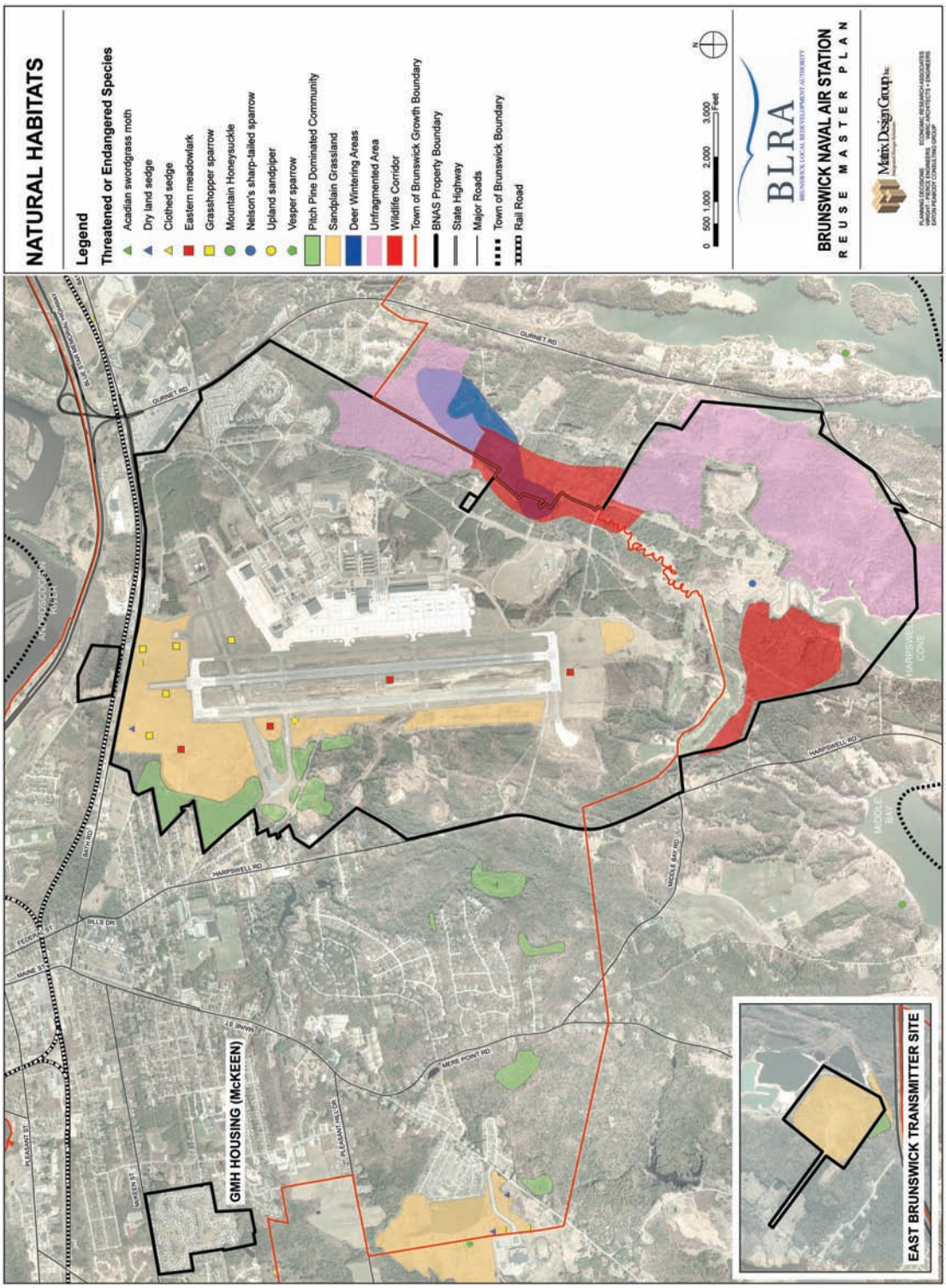
Unfragmented Areas

The Town of Brunswick has identified several large blocks of forested land that have not been fragmented by roads or development. These Unfragmented Areas provide significant habitats to a variety of flora and fauna, and both their protection and preservation are important elements of the *Town of Brunswick Parks, Recreation, and Open Space Plan 2002*. Several of these Unfragmented Areas are identified with purple shading in Exhibit 19; additional unfragmented areas west of the BNAS main base are currently being mapped by the town.

Wildlife Corridors

The Town of Brunswick has identified several areas known as Wildlife Corridors which are areas of habitat that serve as "avenues of connectivity for animal movement between larger habitats" according to the Brunswick Rural Smart Growth Study. These areas, important in maintaining the health of Brunswick's wildlife communities, are shown in red in **Exhibit 24**.

Exhibit 24: Natural Habitats Map



Source: Matrix Design Group

Cultural Resources

In addition to the natural resources described above, there are a number of cultural resources in the vicinity of BNAS, primarily in the form of historic / archaeological sites and cemeteries that could influence the location of land use recommendations for the base. Several historic sites are located immediately north of the main base along Bath Road near Jordan Avenue, and several cemeteries are found in this general area as well. **Exhibit 25: Historic and Cultural Influences Map** illustrates the location of these resources. Cemeteries are depicted as green triangles. Following that, **Exhibit 26: Historic Bowdoin College and Town Common Parcels Map**, shows the location of historic property boundaries associated with Bowdoin College and the Brunswick Town Common.

On-Base Conditions and Characteristics

Within the overall 3,300-acre BNAS property, and particularly within the more urbanized area of the base, a variety of conditions and characteristics exist that could influence or impact the ultimate successful transfer and redevelopment of the property. Understanding the characteristics of these conditions, and how to capitalize on existing assets and mitigate existing liabilities is critical to developing a reuse master plan and implementation strategy that has long-term potential for success. The following section describes a variety of on-base conditions and characteristics that provide a basic level of information required to prepare conceptual master plan alternatives for the base. The ultimate redevelopment and detailed implementation of the Reuse Master Plan will require more in-depth investigation and analysis.

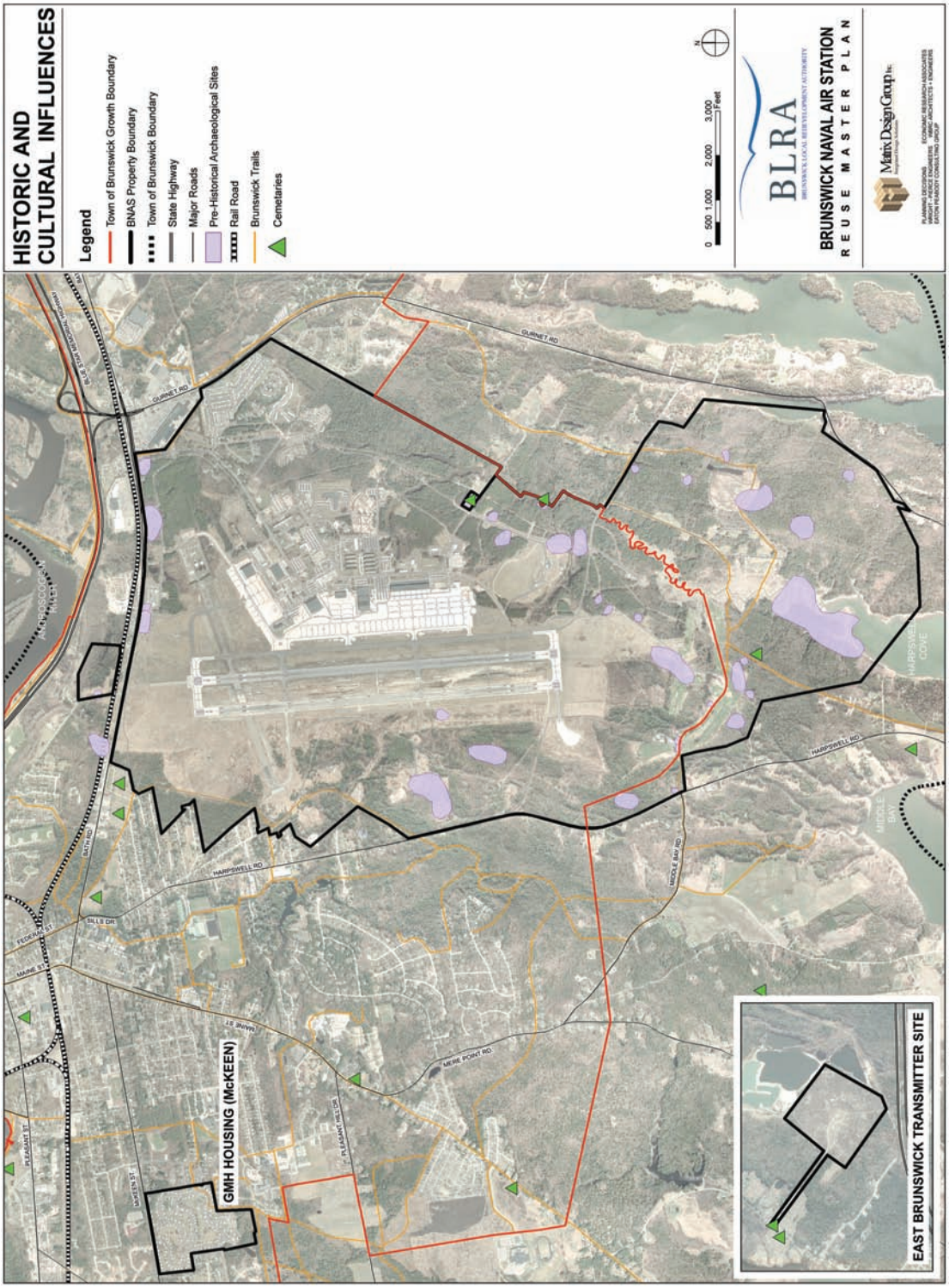
Land Use Patterns

For the purposes of better understanding existing conditions and the relationships among land uses within the Brunswick Naval Air Station property, the 3,300 acres, including McKeen Homes and East Brunswick Transmitter remote sites have been classified into six broad land use categories. These include the following:

- Mixed Use
- Industrial / Aviation
- Recreation
- Residential
- Weapons Storage
- Undeveloped / Open Space

The following sections describe these uses and their respective locations within BNAS property, as illustrated on **Exhibit 27: On-Base Land Uses Map.**

Exhibit 25: Historic and Cultural Influences Map



Source: Matrix Design Group

Exhibit 26: Historic Bowdoin College and Town Common Parcels Map

Source: Sitelines P.A. Engineering

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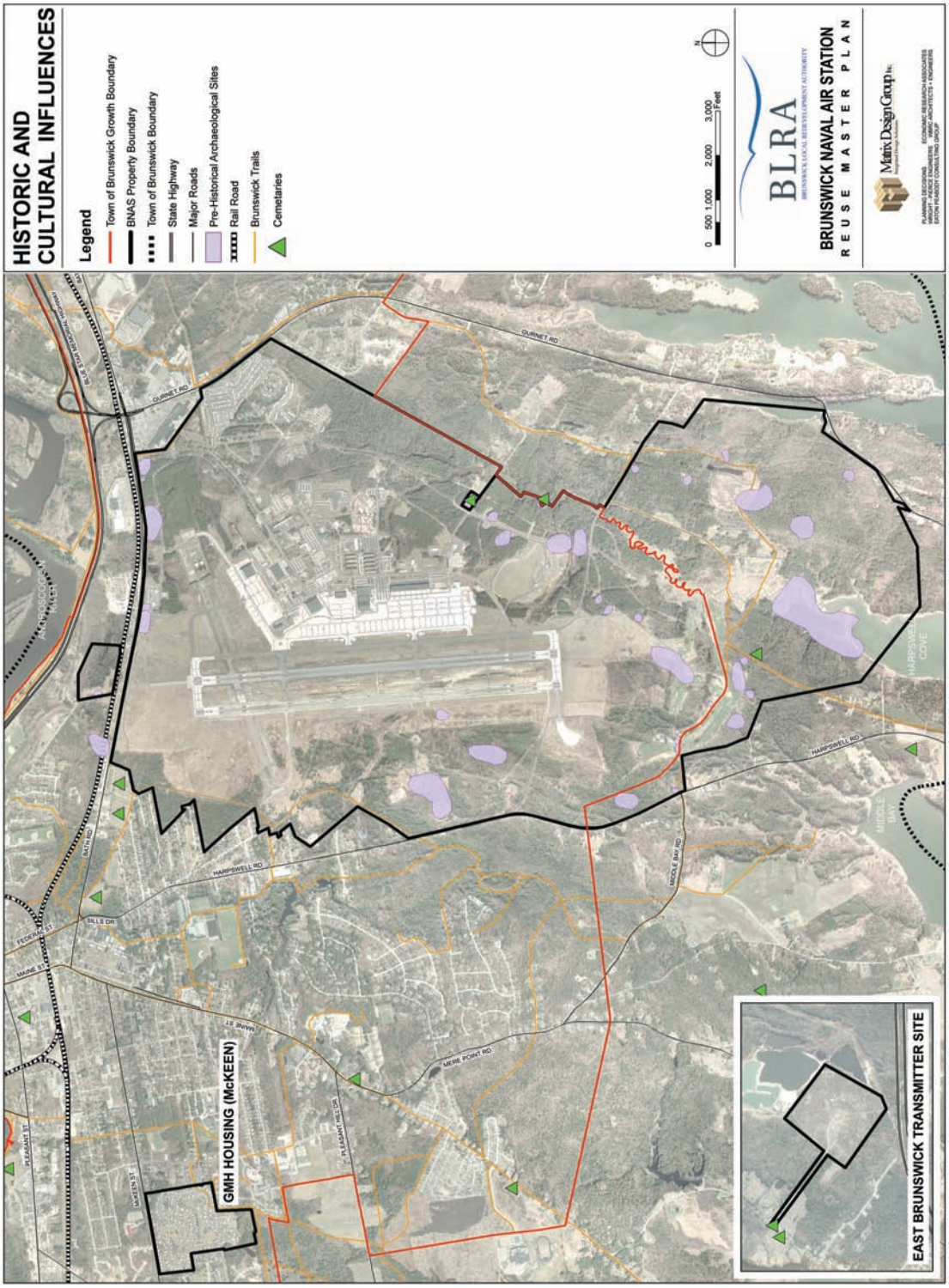

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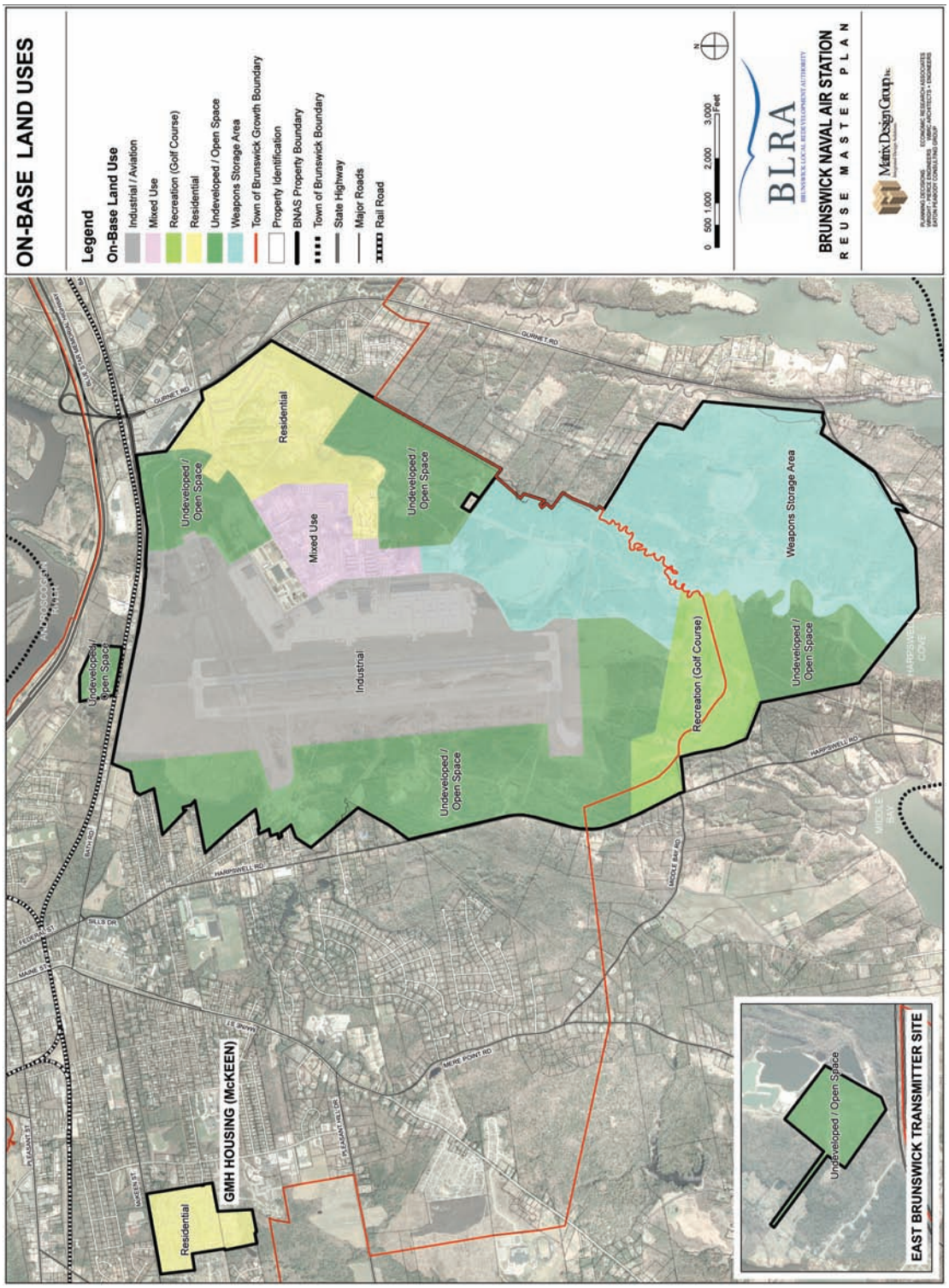


Source: Matrix Design Group

Mixed Use Areas

The Mixed Use area is found in the cantonment area of the main base south of Fitch Avenue and east of Orion Street. This area is characterized by the concentration of the air station's community and administrative functions, and includes facilities such as the Base Exchange, Wing Headquarters, and Medical Center. The area is also served by major water, sewer, electrical, gas and other major utilities, as well as major streets, roadways, and surface parking lots. The Mixed Use area measures approximately 114 acres.

Industrial / Aviation Areas

The Industrial / Aviation area includes all of the existing BNAS airfield, as well as the aviation-related facilities along the northwest side of Fitch Avenue, along the west side of Orion Street, and north of the airfield along Perimeter Road. In addition to the paved runway and taxiway areas, this area features several significant aircraft and maintenance hangars and other large industrial-type structures, as well as several smaller utility and operational / support facilities. The Industrial / Aviation area covers approximately 835 acres.

Recreation Area

The Recreation area consists of the Mere Brook Golf Course located in the southwest corner of the base. The golf course was assigned its own land use given the acreage that it occupies (approximately 181 acres) and to distinguish it from open space and other passive recreation areas nearby. Other smaller recreation uses, such as ball fields, are included within the Mixed Use area.

Residential

The Residential areas within the BNAS property are found in the northeast corner of the main base, as well as at the McKeen Homes remote site. The residential areas on the main base, located immediately southeast of the Cook's Corner commercial area, consists of several neighborhoods including Marina Landing, Brunswick Gardens, Midway Terrace, and Woodland Village, and covers approximately 231 acres. This area also includes the Permanent Party Quarters and Transient Party Quarters facilities south of the cantonment area. The McKeen Homes area covers approximately 77 acres and is entirely developed as residential with the exception of some small undeveloped drainage areas.

Undeveloped / Open Space

The Undeveloped / Open Space areas are found predominantly in five locations, which include the following:

- Approximately 556 acres along the western side of the runway and north of the golf course (including the small parcel on the north side of Bath Road at the end of the runway)
- Approximately 129 acres at the southwestern corner of the base, immediately south of the golf course and west of Harpswell Cove
- Approximately 159 acres along the eastern edge of the main base, immediately south of the residential and cantonment areas
- Approximately 110 acres at the northeastern corner of the base to the west of the main gate. This area is dominated by the natural landscape of forests, wetlands, or grasslands; the limited development within this area consists typically of small utility, security, or other minor structures
- The 69-acre East Brunswick Transmitter site, which is entirely undeveloped

Weapons Storage Area

The Weapons Storage area is centered at the southeast corner of the main base, from Harpswell Cove estuary east and north to approximately the center of the base. This area covers approximately 807 acres and consists of several sites where weapons are stored and/or tested; consequently, the remaining land is undeveloped natural areas that serves to buffer these potentially hazardous areas from other uses.

Utility Infrastructure Systems

General conditions and characteristics of infrastructure systems that serve the BNAS property are described below for stormwater, sanitary sewer, water supply, natural gas, electrical power supply and distribution, and telecommunication systems. At the onset of the implementation of the Reuse Master Plan, additional inventories and assessments will be necessary to establish the extent to which these systems will need to be improved, expanded and/or extended.

Review of the utility infrastructure systems considered not only historical and existing conditions, but also future needs related to the potential redevelopment of the base. The existing infrastructure on the base, with the exception of natural gas was developed, maintained, and operated by the Navy. Based on review of available reports, discussions with BNAS Public Works staff, and from on-site observations of visible system components, it appears that utility infrastructure systems are in generally good operational condition. The existing on-base wastewater collection, water supply, natural gas, electric power and roadway systems primarily serve the “cantonment” area, that portion of the base that has been developed on the east side of the airfield, in the northeastern quadrant of the base. There are several isolated facilities, particularly toward the southern end of the property, that rely on wells and septic systems (subsurface disposal fields), rather than connection to the water and wastewater utility systems. Issues related to required improvements, acquisition, operation and maintenance of the existing utility systems include the following:

- In most cases, the utility installations at Brunswick Naval Air Station were constructed by the US Navy as needed to serve existing, expanded and new development as the base grew over time; some of the systems, therefore, may presently exist at different standards from those deemed acceptable by certain municipal, quasi-municipal or other entities that may operate these systems in the future.
- Utility use at some locations and facilities within the base are not metered; it is anticipated that all future development will need to be provided with meters as a part of the infrastructure improvement program.
- There are no defined rights-of-way for the road and utility infrastructure.
- Utilities are not always located in the defined roadway corridors and may be impacted by land transfer and/or future development.
- Utility operations (gas, water, telecommunications and electrical) will be subject to certain rules and regulations by the Maine Public Utilities Commission (MPUC), after the property is transferred and the base is redeveloped.

The following information summarizes the issues related to the major utility systems that serve the base:

Stormwater Management Facilities

Stormwater management facilities on the base vary widely in nature, with more sophisticated systems serving the northern and eastern portions of the site, where uses have been more intensive and there has been a correspondingly higher potential for discharge of contaminants. According to the *Environmental Condition of Property Report (Revision 2)* for Naval Air Station, Brunswick, Maine (ECP Report) dated May 30, 2006, a National Pollutant Discharge Elimination System (NPDES) permit was applied for in 1992 and received from the United States Environmental Protection Agency (USEPA) Region 1. In 1995 the USEPA developed a system called Multi-Sector permitting, and in December of that year BNAS issued a Notice of Intent to apply for the permit. As required, in five years (2000) a Notice of Intent was submitted and the permit was approved in 2001. In October, 2005 (as required) a Notice of Intent was submitted and reissuance of the permit was pending as of the date of the ECP Report. Since existing stormwater detention facilities are licensed under MEDEP, that agency notified the Naval Air Station in July, 2006 that they were authorized to discharge stormwater associated Multi-Sector activity pursuant to the terms and conditions imposed by the DEP's Multi-Sector General Permit for stormwater associated with industrial activity. The facility permit number is MER05B247. The Multi-Sector General Permit for Stormwater must be transferred to any new operating entity of the BNAS property and renewed every five years thereafter. All future development will be required to meet requirements of Maine and federal stormwater regulations.

Wastewater Collection System

The existing wastewater collection system adequately serves the majority of the developed portion of the site. The system was constructed by the US Navy, which currently operates and maintains the system. Wastewater is discharged to the Brunswick Sewer District and is metered as it leaves the base along the Bath Road at the Main Gate. **Exhibit 28: Wastewater Collection System Map** illustrates the area served by this system. Records reviewed indicate that facilities were constructed as early as the 1940s. Materials vary depending on the time period within which they were constructed.

As part of the inventory and analysis of existing base conditions, a preliminary assessment of the existing wastewater collection system was conducted by the Matrix Planning Team, with support from representatives of the Brunswick Sewer District, the local service provider. The assessment included a review of available mapping and past assessment reports, as well as discussions with BNAS Public Works staff, and on-site observation of the ten wastewater pumping stations. On the basis of this assessment, it was estimated that the improvements necessary to bring the existing collection system up to local District standards could be as high as $6.4 million. This estimate includes limited improvements to only six of the ten pump stations examined; four of the pump stations were site-specific, serving a single area / facility. Improvements of these systems might best be the responsibility of the end user of each facility.

It is important to note that, from a wastewater treatment capacity perspective, the Brunswick Sewer District has indicated that it possesses the ability to accept average daily flows up to 0.3 million gallons per day (MGD). Future discharges in excess of this figure may require upgrade to the District's downstream pumping and treatment facilities. The licensed treatment capacity of the Brunswick Sewer District's treatment plant is 3.85 MGD. With the addition of a third secondary clarifier and a third trickling filter the Brunswick Sewer District has indicated that it may be able to increase the licensed treatment plant capacity to 5.7 MGD at a cost of approximately $ 8 million. According to BNAS Public Works staff, and as determined as part of the records review and site observation activity, it was also noted that the sewer system that serves Mariner Landing, the privatized residential housing area located on the west side of Route 24, adjacent to the Cook's Corner Shopping Center, experiences flooding of sewers from the manhole located in the low point of the roadway. Anecdotal evidence exists with respect to a problem with grease build up in a sewer line in the area of the galley. It also appears that infiltration / inflow could be a problem, based on flow meter readings.

Exhibit 28: Wastewater Collection System Map

Source: Wright-Pierce Engineers

Water Supply System

The existing water supply and distribution system adequately serves the majority of the developed portion of the site. The system was constructed by the US Navy, which currently operates and maintains the system. Water is provided by the Brunswick-Topsham Water District (BTWD) and is metered at two separate locations as it enters the base, as illustrated on **Exhibit 29: Water Distribution**. Records indicate that facilities were constructed as early as the 1940s. Construction materials varied, depending on the time period that they were constructed. The capacity of the water supply system is limited by two 10-inch metering points, located in the Bath Road and Pine Street area. Areas to the south of the cantonment area are not connected to the primary water distribution system, but are served by local wells and hydropneumatic systems.

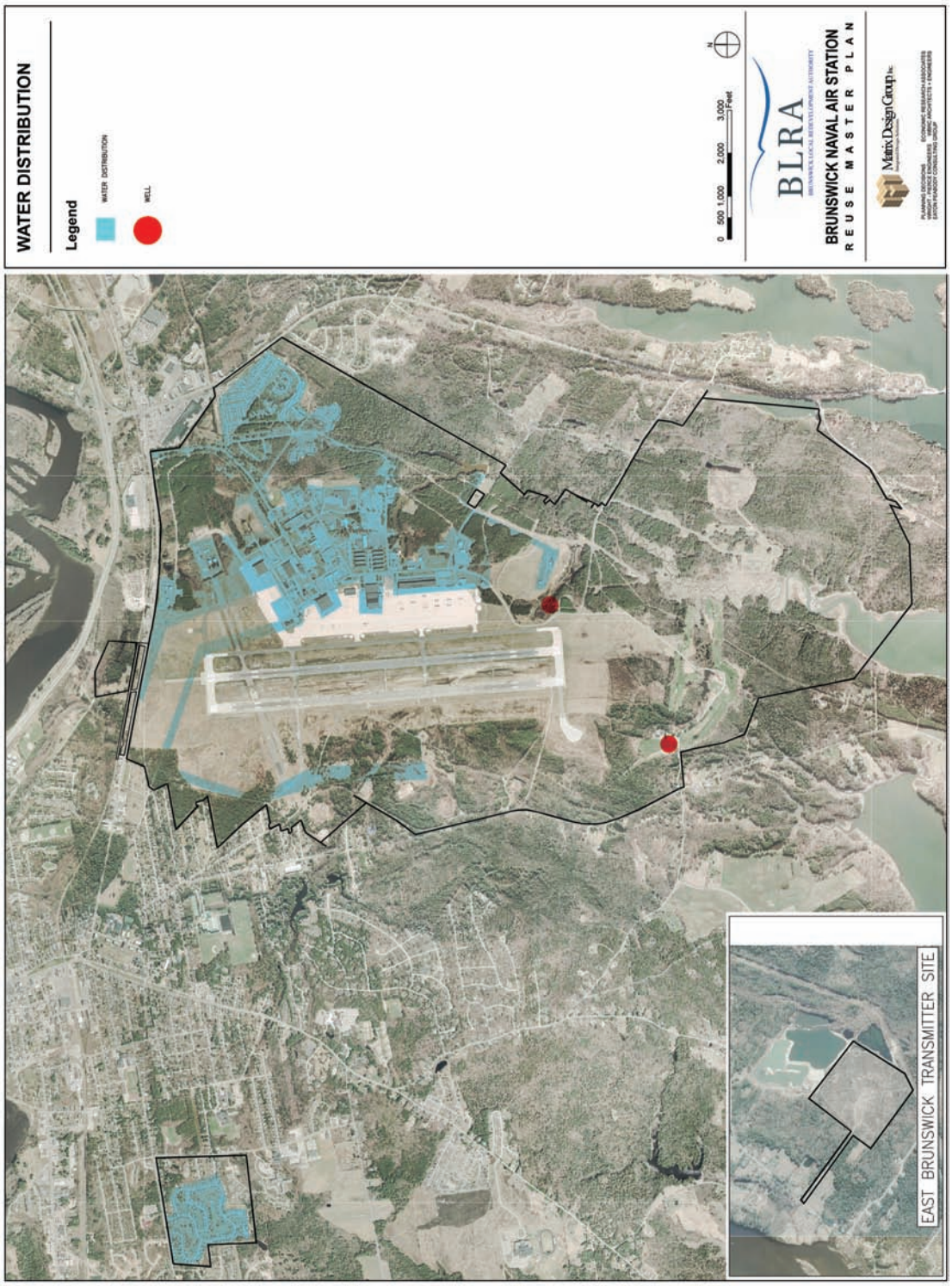
As part of the inventory and analysis of existing base conditions, a preliminary assessment of the existing water distribution system was conducted by the Matrix Planning Team, with support from representatives of the BTWD, the local service provider. The assessment included a review of available mapping and past assessment reports, as well as discussions with BNAS Public Works staff, and on-site observation of visible systems components. On the basis of this assessment, it was estimated that the improvements necessary to bring the existing system up to local District standards could be as high as $ 9.1 million.

It is important to note that, from a water supply capacity perspective, the BTWD has indicated that it has the ability to supply flows up to 90,000 gallons per day (GPD), the level historically used by the base, without negatively impacting its system. The BTWD has indicated that the current system has the capacity to provide an additional 1.5 million gallons per day (MGD) to the Brunswick-Topsham area. The District has further indicated that the reserve system capacity is allocated on a “first come, first served” basis. Future demand in excess of the allowed capacity may require upgrade to the District’s pumping and treatment facilities.

Water System Ownership and Operating Alternatives

The following discussion details potential ownership and operating alternatives for the existing base water distribution system. Each alternative brings with it varying degrees of regulatory, and operation and maintenance responsibilities. Each alternative also assumes that water would continue to be supplied by the BTWD in compliance with all State and Federal water quality requirements. BTWD is required to monitor, treat and remove source based contaminants from the drinking water supplied to its customers. Under current operating conditions, the US Navy is simply considered a “customer” of the BTWD, and is not subject to regulatory monitoring requirements.

Exhibit 29: Water Distribution Map



Source: Wright-Pierce Engineers

Status Quo Scenario

Under the status quo, the MRRA would simply replace the Navy as the bulk water "customer" of the BTWD, and existing BNAS distribution system assets would remain under the ownership and operation of the MRRA. It is assumed that the MRRA would be responsible for the purchase cost of all water-use on the base. The MRRA would also be responsible for the operation and maintenance of all mains, valves, hydrants and services. There would be no other changes or additional regulatory requirements of the MRRA under this scenario.

"For Profit" Operating Entity Scenario

Under a "for profit" scenario, the MRRA would retain ownership of the system and/or transfer the rights of the system to a "for profit" operating entity. It is assumed that water would continue to be provided and billed under a wholesale arrangement with the BTWD; however, the MRRA or "for profit" operating entity would pass along the costs to individual users. This assumes that this "for profit" entity would install individual meters on each service line or create user charge system. It would also be responsible for the operation and maintenance of all mains, valves and services. Currently, the BNAS is not subject to monitoring of distribution water quality. However, if future users were charged a fee for providing water, or if the Brunswick-Topsham Water District selected the base water system as one of its lead and copper or coliform monitoring sampling sites, the property would be considered a "consecutive water system." A consecutive water system is defined as a public water system that receives all of its water from a host or wholesale system that is also a public water system; where the consecutive water system does not provide treatment. The consecutive water system is not technically integral to the wholesale system. If deemed a Consecutive Water System, the MRRA would be required to monitor for contaminants which are generated in the distribution system following treatment by the wholesaler (i.e., lead and copper, coliform, etc.), as well as monitoring for disinfection by-products as defined in the 2005 Disinfectants / Disinfection By-Products Stage 2 rule. In addition, the MRRA would be required to comply with the Public Health Security and Bioterrorism Preparedness and Response Act of 2002. These rules would require the MRRA to develop a Vulnerability Assessment Certification and Emergency Response Plan in accordance with the Act.

Brunswick-Topsham Water District Ownership Scenario

Under this scenario, the MRRA would likely be required to satisfy a number of requirements of the BTWD, which could include the following:

- Documentation that mains have been constructed in accordance with the materials and construction standards of the BTWD

- Demonstration of minimum separation requirements between potable water and sewer mains as defined by the State of Maine (potable water mains must be separated from sewers by a minimum of 10 feet horizontally and 18 inches vertically. Where these requirements cannot be achieved, the owner of the system would be required to obtain a waiver from this requirement)
- Documentation of the location of all mains, fittings, valves and service connections
- Demonstration of compliance with the State of Maine Cross Connection Rules
- Provision of water service meters in compliance with the BTWD's standards
- Transfer of the BNAS assets to the BTWD in compliance with "Chapter 65 - Property Taken for Public Use and Assessment of Damages" of the Maine Public Utilities Commission rules
- Prohibition by BTWD of including assets in calculating the depreciation rate base (the BTWD would simply fold the assets into their system)

Electric Power Supply and Distribution System

The existing electric power distribution system adequately serves the majority of the developed portion of the site. The system was constructed by the US Navy, which currently operates the system. Power is provided by Central Maine Power Company and is metered as it enters the base from the east along Route 24 and from the west along Route 123. The westerly metering system serves only the facilities on the west side of the runway. Records indicate that facilities were constructed as early as the 1940s; materials varied, depending on the time period that they were constructed.

As part of the inventory and analysis of existing base conditions, a preliminary assessment of the existing electric power distribution system was conducted by the Matrix Planning Team, with support from representatives of Central Maine Power Company (CMP), the local service provider. The assessment included discussions with BNAS Public Works staff, and on-site observation of visible systems components. While it appears from initial observations that much of the system meets or exceeds Central Maine Power Company's standards, a more detailed review would be required to verify this assumption. On the basis of this more detailed assessment CMP is expected to identify improvements necessary to bring the existing system to bring the existing system up to local standards. CMP's review will also identify any regulatory and/or operational issues that will have to be addressed as part of any transfer of ownership. Once the system assessment has been completed, a cost estimate will be prepared for the improvements identified to make the electrical distribution system compliant with CMP requirements.

Natural Gas Distribution System

The existing natural gas distribution system adequately serves the majority of the developed portion of the site. The system was installed on the base in 2001-2002 and has been owned, maintained and operated by Maine Natural Gas (MNG) since that time. As a result, the system meets all required local standards, and will not require any substantive upgrade for continued operation by that utility. The system has been extended to serve the new Dyers Gate facility to the south, as well as the new Air Control Tower to the west. **Exhibit 30: Natural Gas Distribution Map** illustrates the area serviced by natural gas using an orange color.

Maine Natural Gas has indicated that sufficient reserve capacity exists to serve foreseeable additional development that may take place on the BNAS site, although the metering and regulation station located on BNAS property along the Bath Road may require modifications to meet the future natural gas demands. There is a master gas meter on base as well as meters located at some industrial / commercial facilities, and therefore all structures may not have a dedicated gas meter. The residential housing units are separately metered. The existing Maine Natural Gas metering and regulator station that serves the base, the Cook's Corner area, and East Brunswick, is located adjacent to Bath Road on BNAS property. Maine Natural Gas would continue to own and operate their existing facilities to serve future development.

Telecommunications Systems

There are presently at least two separate telecommunications systems serving the majority of the developed portion of the site. Verizon Communications provides service to the base, and the base then provides communication service to their facilities via fiber optic and cable lines. Verizon Communications has indicated that it will continue to provide service to BNAS and is willing to take ownership of the government-owned portions of the communications system.

Exhibit 30: Natural Gas Distribution Map

Source: Wright-Pierce Engineers

Vehicular Access and Street System

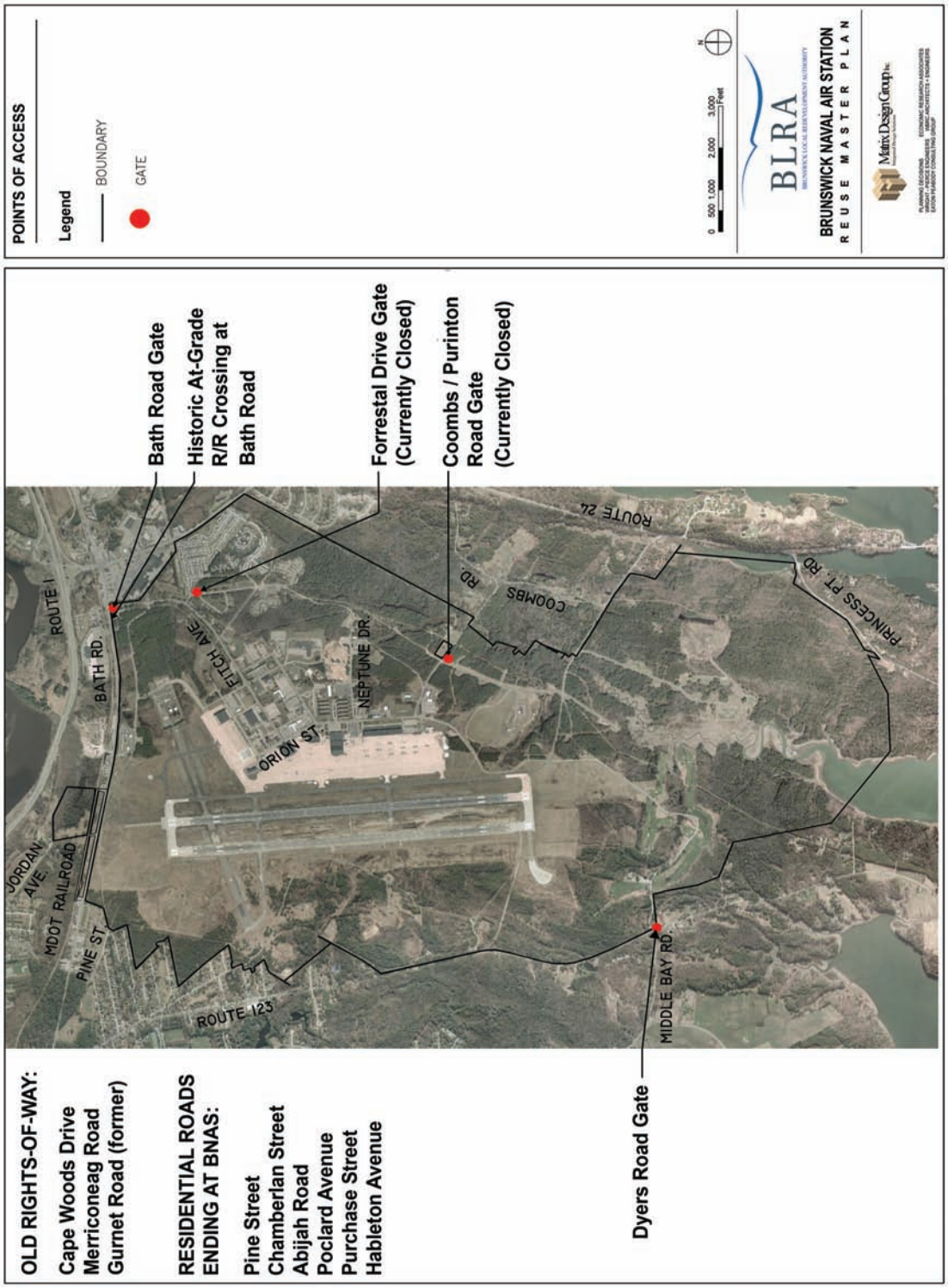
The Brunswick Naval Air Station property is presently served by a system of internal streets and roadways that provide access primarily to the cantonment area of the base, where a majority of the development exists. While vehicular access is provided to more remote areas of the base, such roadways are generally unimproved, and limited in terms of public access. Major portions of the base, located primarily in the southern portions of the property are not accessible by vehicle.

The Main Gate is located just off Bath Road, west of the Bath Road / US 24 intersection that serves the Cook's Corner commercial area. Fitch Boulevard, a four-lane facility serves as the main arterial roadway into the cantonment area. Currently, a security checkpoint is located approximately 500 feet from the entrance at Bath Road. For visitors without approved pass and decal badges, security checks must be processed at Building 38, a new facility constructed in 2004 on the west side of Fitch Boulevard; the former pass building on Bath Road is used for other security purposes.

Vehicular access from the south is limited to the Dyer Gate, located off Harpswell Road on the western side of the base. Dyer Road also provides access to BNAS's 9-hole Mere Brook Golf Course, which is open to the public. The security checkpoint for access into the main portion of the base from Dyer Road is located 1.4 miles east and north of the golf course. **Exhibit 31: Points of Access Map** illustrates the vehicular access points serving the property, only two of which are currently in use.

The existing network of streets and roadways within the base property varies in standard based on the purpose served. In general, streets within the cantonment area are bituminous-surfaced, with storm drainage and granite curbing. Sidewalks are present in many areas. In the more "rural" portions of the base property, particularly the areas to the south and the northwest, the roadways are not curbed and rely on open ditches and culverts for storm drainage. Sidewalks are generally not present within these areas. Given the present use of the site, the internal streets and adjacent street network provide adequate capacity. Some routine maintenance of the streets may be appropriate.

Exhibit 31: Points of Access Map



Source: Wright-Pierce Engineers

McKeen Street Housing Area

The following information on utilities is provided for the McKeen Street Housing Area:

- The wastewater system is connected to the public sewer system and disposed of by the Brunswick Sewer District. The condition of sewers is expected to be similar to those within the base cantonment area.
- The water supply system is connected to the public water system by the Brunswick-Topsham Water District. The condition of the water system is expected to be similar to that within the base cantonment area.
- Natural gas is provided to each residence within the housing complex by Maine Natural Gas.
- Electric power is provided to the property by Central Maine Power.
- Vehicular access is provided to the McKeen Street Housing Area via a private internal street network that connects to the municipal street system at several locations. The streets are bituminous surfaced with storm drainage, granite curbing, and sidewalks. Given the present nature of use of the site, the internal streets and adjacent street network provide adequate capacity. Some routine maintenance of the streets may be appropriate.

Potential Infrastructure Improvement Costs

While current infrastructure systems provide adequate service for operation of the BNAS facility, future private-sector redevelopment activities will likely require significant improvements to bring systems up to local standards, and to meet expectations of the market place. "Order of Magnitude" estimates of capital costs, therefore, have been provided. This level of information will enable area public service providers and/or other entities to make infrastructure acquisition and/or operational decisions as part of the formulation of future implementation strategies. It should be noted that such estimates do not include secondary and tertiary upgrades or site improvement costs that might be associated with specific building demolition or construction, parking and/or landscaping improvements, or other detailed cost estimates associated with specific future project development. As noted elsewhere in this document, the future use of the airport facilities remains undetermined at this point in the process; capital costs associated with its continued operation is addressed separately, by others.

The cost of utility and infrastructure upgrades include: (1) those that are needed simply for new distribution, such as new development areas that previously had no utilities or road access; and, (2) costs that are needed to upgrade an existing system based on substandard conditions and/or added demand. All projections of capital costs in this section of the report are "Order of Magnitude" and for budgetary purposes only; specific items have been identified as part of those opinions of probable costs. Assumptions

of size, type, materials and unit costs of components have been developed based on past experience in the region. No detailed design has been performed to support these opinions.

Current estimated costs to upgrade utility systems without any expansion to address any future land use changes are based on review of the nature and condition of existing sanitary sewer, water, and electric power distribution systems, as well as a review of local standards and requirements in order to operate, maintain, and/or acquire the systems by the Brunswick Sewer District, the Brunswick-Topsham Water District, and/or Central Maine Power, respectively. Estimated improvement costs for these systems include:

- Sanitary Sewer System $6.4 million
- Water System $9.1 million
- Electric Power Distribution System (to be determined)
- Steam Distribution System (Removal) $4.0 million
- Natural Gas System (n/a)

Regarding the Steam Distribution System Removal line item above, there are approximately 18,500 linear feet of steam lines and 78 steam pits that potentially contain asbestos insulation.

Buildings and Facilities

As a major part of the study's inventory and analysis of existing conditions, a Building and Facilities Assessment was conducted for the most significant of the BNAS building resources. The purpose of the study was threefold: (1) to identify and document significant buildings and facilities that might be considered for similar or adaptive reuse in the future; (2) to determine the extent of conditions and characteristics that might impact a building's cost-effective utilization or adaptive reuse; and, (3) to provide a standard method and format to document the data for use during this planning study, and for future marketing of the building and facility resources.

During the data collection and building and site inventory process, Matrix Design Group Planning Team members (specifically, representatives from Bangor-based WBRC Architects and Engineers), obtained in excess of six gigabytes of digital information, comprising over 5,000 record documents (drawings, databases, environmental reports) associated with the study area. The review of the data and resulting summaries are based in large part on data and information provided by the US Navy through the Computer Aided Design (CAD) and Geographic Information System (GIS) it maintains, as well as information obtained during a series of on-site Property Conditions Assessment (PCA) building walkthroughs. More detailed data on many individual facilities, such as

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Regarding the Steam Distribution System Removal line item above, there are approximately 18,500 linear feet of steam lines and 78 steam pits that potentially contain asbestos insulation.

Buildings and Facilities

As a major part of the study's inventory and analysis of existing conditions, a Building and Facilities Assessment was conducted for the most significant of the BNAS building resources. The purpose of the study was threefold: (1) to identify and document significant buildings and facilities that might be considered for similar or adaptive reuse in the future; (2) to determine the extent of conditions and characteristics that might impact a building's cost-effective utilization or adaptive reuse; and, (3) to provide a standard method and format to document the data for use during this planning study, and for future marketing of the building and facility resources.

During the data collection and building and site inventory process, Matrix Design Group Planning Team members (specifically, representatives from Bangor-based WBRC Architects and Engineers), obtained in excess of six gigabytes of digital information, comprising over 5,000 record documents (drawings, databases, environmental reports) associated with the study area. The review of the data and resulting summaries are based in large part on data and information provided by the US Navy through the Computer Aided Design (CAD) and Geographic Information System (GIS) it maintains, as well as information obtained during a series of on-site Property Conditions Assessment (PCA) building walkthroughs. More detailed data on many individual facilities, such as

building floor plans and land use data layers, is available in the CAD and GIS database provided by the Navy and contained digitally on DVD, all of which is provided in the appendix of this report. It should be noted that the data obtained may not include all facilities on the property.

Over the years, since the base was originally developed, facilities were sometimes built, added to or demolished by different Navy organizations, consistent with the Navy's Base Master Plan, the most recent of which was prepared in May 2002 by Prosser & Hallock. Consequently, not all of the information was necessarily recorded in the current database; however, it is believed that pertinent data is substantially complete and provides a reasonably adequate view of the built environment at BNAS. The primary source of this data, consisting of digital information downloaded from the BNAS Public Works Digital File Server located in Millington, Tennessee was made available to the Matrix Planning Team by BNAS Public Works personnel. Data was obtained in the following file formats, which has been provided to the BLRA in digital form on DVD in its entirety:

- TIF (Scans of record drawings, aerial imagery, site photography)
- PDF (Environmental reports, prior master planning efforts, project documentation)
- DWG (CAD files of buildings, either present on-site, or demolished)
- DWG (CAD files of various work efforts including asbestos removals, lead based paint abatement, and routing maintenance)
- XLS or .MDB (Work order summaries, project and infrastructure database, annual inspection summaries, and other related documents)
- JPG (Aerial photography, building interior photography, etc.)
- EOO (Arcview shape files for GIS based mapping)

One source of information that proved to be invaluable during the planning and evaluation process was the BNAS Buildings Database, which is maintained by Base Public Works civilian and military staff. Much of the information contained in this database references category codes and descriptors found within the Navy's NAVFAC P-72 manual entitled *Facility Category Codes*. Information categories include: year built, dimensional data, area, year accepted by government, cost to the government, programmed uses occupying the space, category code descriptions, and other information.

Evaluation Approach and Inventory Assumptions

Members of the Matrix Design Group Planning Team visited the base on several occasions with the assistance of Navy and civilian base personnel representing the Public Works and Public Affairs departments. The purpose of the field visits was to conduct a baseline property condition assessment to obtain readily available information from

site and building walkthroughs. The walkthroughs and data collection were performed generally in accordance with the standards outlined in *ASTM E 2018-01 Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process* to identify and communicate the presence of conspicuous defects or material deferred maintenance by non-intrusive visual observations.

Buildings Inventoried

To provide the maximum benefit to the BLRA for evaluation and implementation purposes, only structures that were considered "significant" to the reuse master planning process were included in the on-site building surveys. Of those buildings, ten were not inventoried or were inaccessible for one or more of the following reasons:

- Buildings with environmental hazards
- Buildings with boarded or blocked access points or windows
- Buildings identified as unsafe for access or in the process of demolition
- Buildings within the cantonment area national security access restrictions
- Buildings within the ordnance and weapons compound

Property Condition Assessment (PCA) Forms

Property Condition Assessment forms were completed for the 48 significant buildings. These forms documented general findings related to building architecture, structure, HVAC, mechanical, electrical, and site conditions. Opinions of probable cost for noted deficiencies and remedies were not provided as part of this process. A list of personnel resources and contacts who assisted the Planning Team in this evaluation, along with a list of current building occupants, are provided in **Appendix D** of this report.

Survey staff consisted of experienced / registered architects or professional engineers familiar with commercial, residential, institutional, and industrial building construction materials and methods. Site reviews documented and/or reviewed the following:

- Record drawing information
- General building information
- Year built, area in size, length, width, height, and number of stories
- Architectural, structural, and electrical characteristics
- Site accessibility
- HVAC, plumbing, fire alarm, and sprinkler systems
- Roofing, interior and exterior characteristics
- Noted deficiencies
- Photographic documentation

Historic Development of the Base

The BNAS cantonment area is a multi-purpose campus that has been built and changed over many years to serve a variety of purposes. It has been an airport since its initial development in the late 1930s, built on the site of a municipal airfield. Its primary mission has been to house and maintain various patrol aircraft and other Navy aviation and non-aviation activities. The base can be considered both an industrial facility where aircraft are hangared, maintained and flown, as well as a support facility with offices, housing and ancillary uses associated with a relatively self-contained operation.

The physical assets found at the base, including buildings, roads, runways, utilities and other infrastructure systems, are of various ages and condition. Some facilities serve very special purposes while others are relatively generic and could be reused for a variety of alternative activities. Because the base is so self contained, there is a wide range of facilities and land uses that are not directly attributable to the primary mission of the base, but support the resident employees and their families. These include retail stores, extensive recreational facilities and other resources.

The main base is divided into several distinct land uses including residential, industrial and administrative, aviation-dependent, recreational and open space. A large part of the open space that is located on the south side of the base consists of a protective buffer around the Navy's weapons storage facilities. With the exception of the industrial and administrative area, most of these areas are relatively distinct and separated from other uses. The central administrative core of the base includes a mix of office, shop and support space along with various public uses such as recreational facilities.

Summary of Base Development 1940-2000

- Maintenance Buildings 601 and 337
- Morale, Welfare, Recreation Buildings 357 and 339
- Bachelor Housing Buildings 205 and 947
- Operational Buildings 115 and 016
- Training Buildings 99 and 822
- General Storage Buildings 57 and 964
- Personnel Support Buildings 45 and 588
- Laboratories and clinics Buildings 33 and 180
- Facilities 21 and 101
- Communications & Navigation Buildings 16 and 785
- Fuel Related Facilities 7 and 479
- Weapons Storage Buildings 5 and 466
- Buildings 1,638, and 554

Exhibit 32 through **Exhibit 38** depict the transition of the base from the 1940s through the current configuration in ten year intervals. The source for these seven diagrams is the United States Navy.

Exhibit 32: BNAS Build-out in 1940s

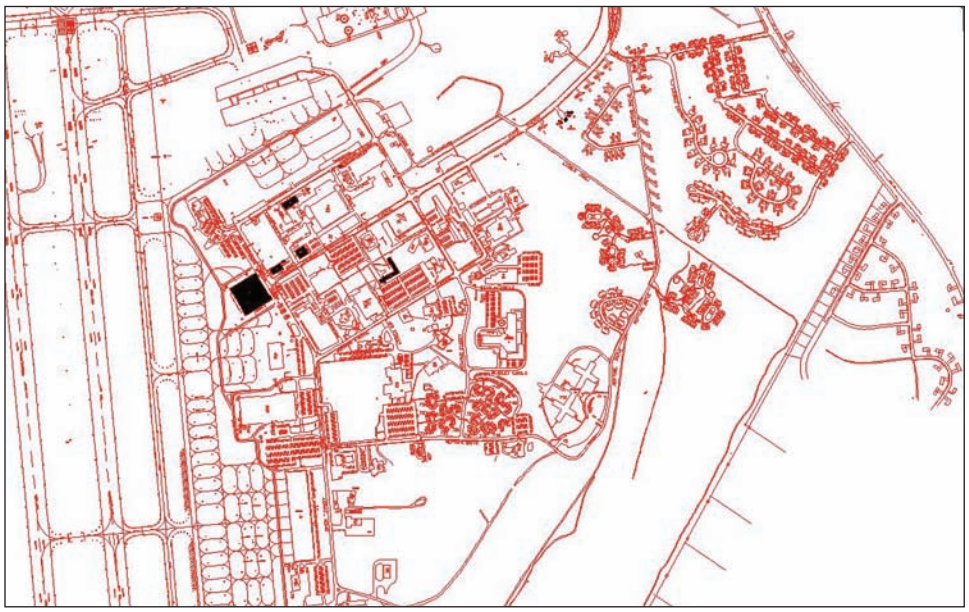


Exhibit 33: BNAS Build-out in 1950s

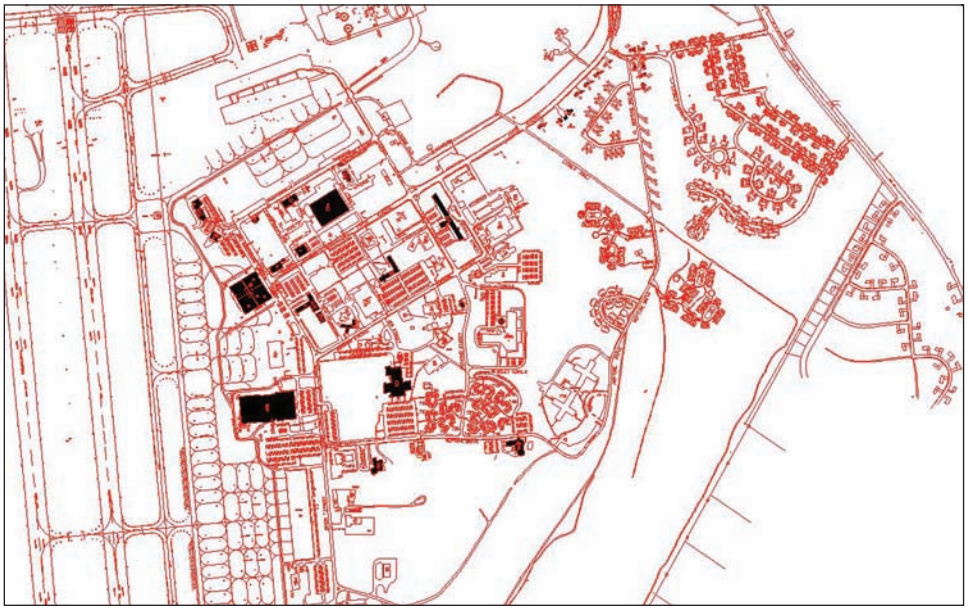


Exhibit 34: BNAS Build-out in 1960s

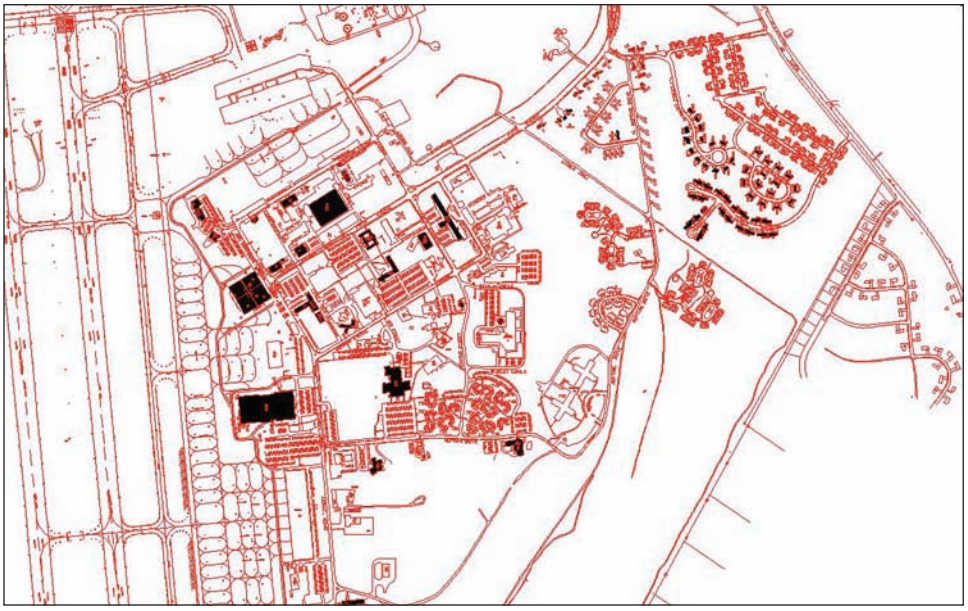


Exhibit 35: BNAS Build-out in 1970s

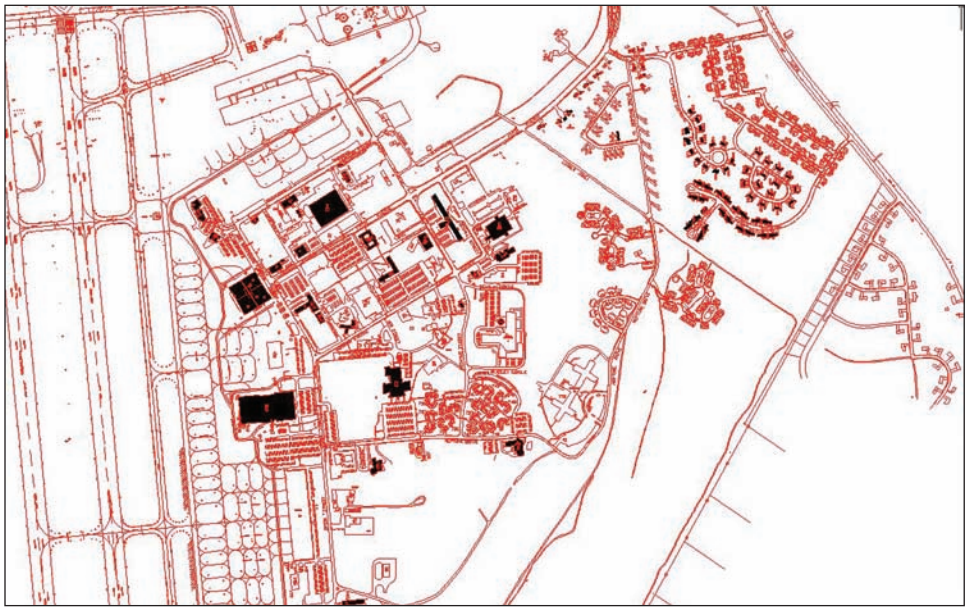


Exhibit 36: BNAS Build-out in 1980s

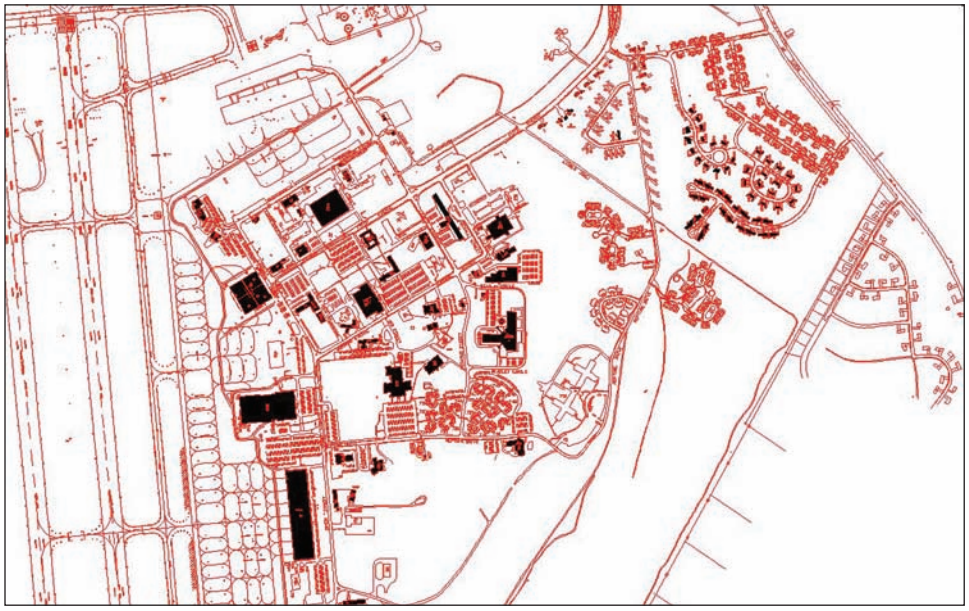


Exhibit 37: BNAS Build-out in 1990s

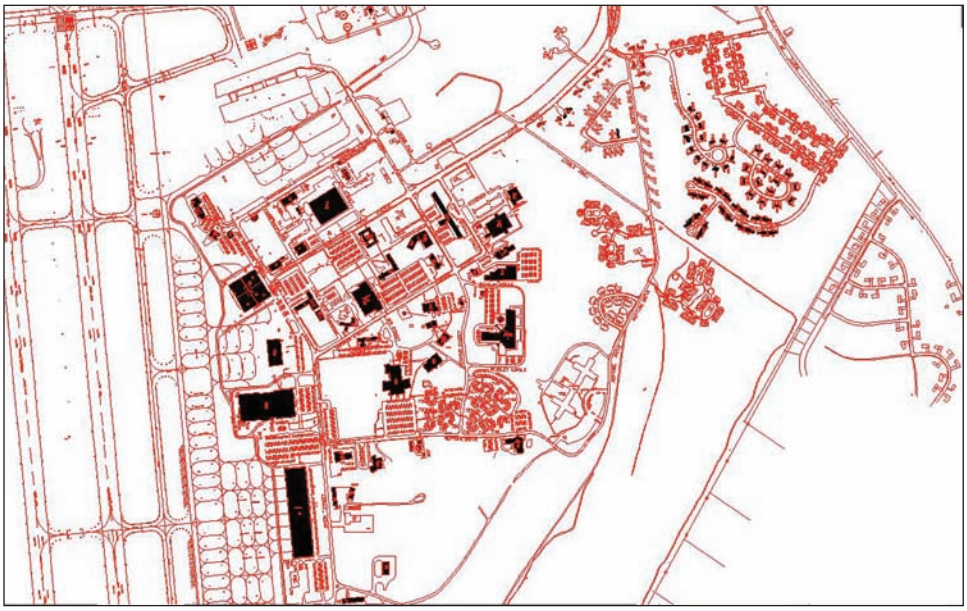
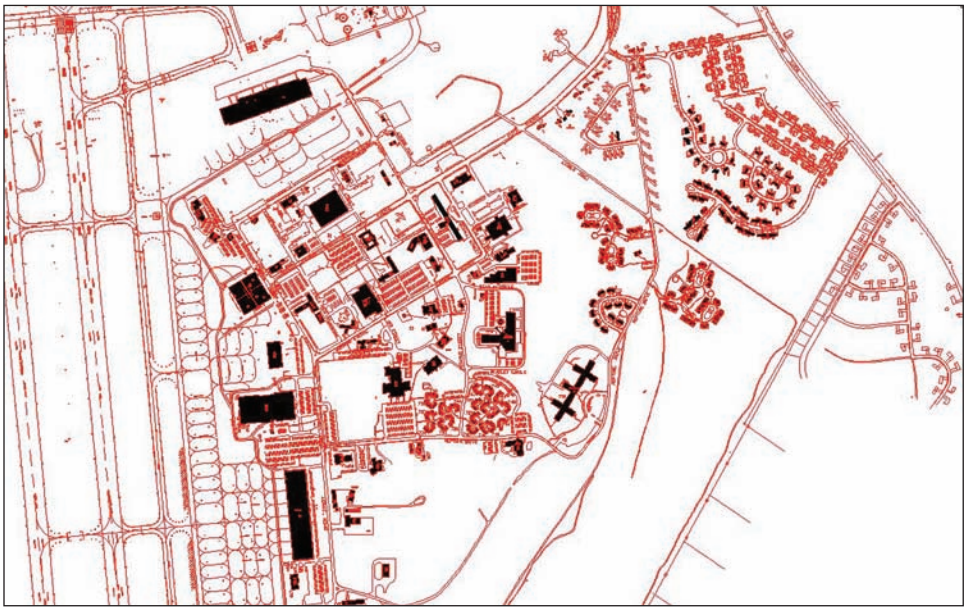


Exhibit 38: BNAS Build-out in 2000s



Summary of Significant Buildings and Facilities

General descriptions of some of the major facilities within the Brunswick Naval Air Station are listed below. The descriptions are provided in a general order from north to south through the central cantonment area of the base. For detailed maps and charts illustrating the facilities inventoried, please see **Appendix D**.

Main Gate Area

The Main Gate is located just off Bath Road west of the Bath Road / US 24 intersection that serves the Cook's Corner commercial area. Access to the base is via Fitch Boulevard, after passing the security checkpoint that is located approximately 500 feet from the entrance at Bath Road. For visitors without approved pass and decal badges, security checks must be processed at Building 38, a new facility constructed in 2004 on the west side of Fitch Boulevard; the former pass building on Bath Road is used for other security purposes.

Air Operations / Fire Station

Building 200 houses Air Operations for the base. With approximately 20,759 square feet, the facility is located at the intersection of Seahawk Avenue and Orion, on the north end of the aviation complex. The facility contains the air traffic control tower and passenger terminal area. A new control tower, which has replaced the functions of Building 200, is located on the west side of the airfield. Adjacent to Building 200 is the base Fire Department Building 292. This 10,665 square foot provides direct access to the airfield as well as access to local roadways. The Fire Department is responsible for responding to airfield emergencies, as well as structure emergencies. This area is also the site of Building 45, a 3,000 square foot warehouse-type structure used for hazardous waste storage and transfer. Building 200 is shown at left.

Naval Mobile Construction Battalion Cluster

Twelve small metal-frame buildings located adjacent to and south of Bath Road provide shop, storage, and office space for the Naval Mobile Construction Battalion. The complex is accessed from internal base roads serving the north end of the base.

Hangar 6

Located on Pegasus Street (extended), Hangar 6 is the newest of the base's hangar facilities. Constructed in 2004, this state-of-the-art hangar has a total of 174,217 square foot, and contains hangar, maintenance shop, and administration space. The hangar deck has six bays capable of handling both the P-3 aircraft, as well as 737-800 aircraft, proposed to replace the P-3 platform. While maintenance shops are located on the ground floor, administrative space is provided on the second floor; 294 vehicular parking spaces are included on the northwest side of the building, with the southeast side dedicated to airplane access associated maintenance activities.

Fuel Farm

Two large fuel tanks and associated facilities, including containment berms, are located in the northern part of the base, just east of the air-field and south of Bath Road. Access to this area is from internal base roads, with no direct access to Bath Road.

Supply Warehouse

The Station Supply Warehouse, also known as Building 294, is a single-story facility containing approximately 64,630 square feet of space. It has a concrete masonry unit exterior, truck loading docks on the northern side of the building, and is situated on Seahawk Avenue.

Public Works

The base Public Works are distributed among multiple buildings in a complex located at the south end of the flight line on Huey Drive near the south end of Orion. The Public Works recently were located off the flight line at the opposite end of Orion, but have since moved to their present location. Building 53 contains the 10,000 square foot administration office, while Building 584 contains 7,200 square feet of general warehouse space and Building 19 contains about 6,000 square feet of carpentry shop space. Additional structures make up the Operations and Maintenance facility, which is the former DPW located on Orion Street. This complex includes the 15,000 square foot Building 225 (1950s era) and the 7,200 square foot Building 252 (built in 2003). These facilities are used to repair heavy equipment. Building 53 is shown here.

Transient Visitor Quarters / Building 750

This two-story, 115,000 square foot military hotel was built in 2004 to serve transient enlisted base visitors. The building includes 248 double-occupancy hotel rooms, central lobby and reception area, administrative office, staff lounge, laundry facilities, and storage and vending areas. The building does not have an elevator, which would be necessary to meet ADA requirements.

Hangar 4 / Building 250

These two structures were constructed in the 1940s next to the airfield on Orion Street as part of the original base development. They contain a combined total of 178,963 square feet of space which is used to serve as hangar and administrative space as well as maintenance shops. The hangar deck, estimated at approximately 90,000 square feet, contains enough room for two aircraft. On the second floor lies administrative space, and next door in Building 250 is the 90,000 square foot base headquarters, which is mostly comprised of administrative space and shops.

AIMD Ground Support

Building 86, totaling 31,980 square feet, is accessible only by the airfield, and is located within the flight line. It is primarily used for the maintenance of ground support equipment for aircraft, including aircraft tugs and stairs for aircraft access. A separate structure of 18,000 square feet constructed in 2004 is also located within the flight line, but is accessible from Orion Street as well as the airfield. It stores equipment used to keep the airfield clear, such as snow removal vehicles.

Wing Headquarters

Building 87 (Wing Headquarters) was constructed in 1988, and at 52,513 square feet, remains the base's most substantial office building. The Commander Patrol and Reconnaissance Wing Five are headquartered at this structure, which is located on the eastern side of the core area off Pegasus Street.

Surface Naval Reserve Center

Building 151 (Surface Naval Reserve Center) is located on Fitch Avenue at the entrance to the cantonment area. This two story, 14,400 square foot pre-engineered metal building was constructed in 2001. Another structure located on Sewall Street is designated as Building 150, and is 13,196 square feet. It is primarily used for classrooms for the naval reserves and office space for the legal department and government workers union. Building 151 is shown below.

Hangar 5

This 163,454 square foot hangar dates from 1982 and is also located on Orion Street. It is used for aircraft maintenance and corrosion control, and has seven aircraft bays for that purpose. The ground floor of the hangar contains the maintenance shops, while the second floor contains some administrative space.

Other Facilities

Community Facilities

Located on Burbank Avenue, Building 20 houses a post office, a credit union, and educational organizations including the Navy College Learning Center, New Hampshire College, and Embry-Riddle University in 25,697 square feet of space. Other community facilities include Building 26, which houses a 6,500 square foot children's day care center, and Building 25, which contains a 10,000 square foot office building utilized by the base personnel office.

Lodging Facilities

Several facilities designed to provide short-term lodging are located on the base, given its role as a major Navy Reserve training center. These include the Navy Lodge, with a 26-room capacity available to military personnel and retirees, and the Orion Inn, located at Building 512, which is designed as a bachelor / transient quarters and contains 65 suites plus 10 executive suites. Also located in the same building are three barracks-type quarters, resulting in a structure totalling three floors and 61,432 square feet in size.

Residential Facilities

Long-term quarters exist within the core cantonment area, including eight buildings which each have three floors and total 22,174 square feet apiece. They are designated Buildings 212, 213, 214, 215, 217, 218, 219, and 220. Buildings also serving similar functions include 512 and two new BEQ complexes.

There are numerous other military housing developments, ranging in size, condition, and age. Most, with the exception of the McKeen Street housing development, are situated in the northeast corner of the base. These developments are operated and maintained by GMH, a private entity with a lease on various parcels of BNAS housing property that will last until 2054.

- Station Quarters, contains mostly 3-bedroom residences (12), plus four 4-bedroom houses along Fitch Street. All residences are single-family detached.
- Brunswick Gardens, built in 1960, almost exclusively contains 3-bedroom units as well, (40 units), with the exception of four 4-bedroom units.
- Midway Terrace, dating from 1982, has a heavy focus on 2- and 4-bedroom units (40 and 22 units, respectively).
- Woodland Village was built in 2001 and 2006 totaling 116 units in various duplex and quadplex configurations. Homes are either 3- or 4- bedroom residences.
- Mariners Landing, 2003, is heavily focused on smaller units, with the vast majority (122 units) being of the 2-bedroom variety. There are two each of the 4- and 5-bedroom types.
- McKeen Street, containing 188 3-bedroom residences as well as 43 4-bedroom residences, is situated to the west of the base, near downtown Brunswick.

Training Facilities

There are six training buildings on base totaling over 270,000 square feet. These structures include Building 54, (30,000 square feet), Building 644, which houses the P-3 aircraft training facilities and contains 10,100 square feet, and Buildings 16 and 82. There is also a small arms firing range on Pegasus Street, constructed in 2004, which is 4,242 square feet in size and contains five shooting lanes, a range master's control area, and storage.

Historic Bunker

This 1,258 square foot facility, classified as historic, is a small earth-bermed arms magazine. Its location at the intersection of Fitch Avenue and Pelican Street is outside the weapons area.

Weapons Storage and Operations

In the southeast portion of the base are located many storage structures and facilities totaling 204,215 square feet that are separated from other uses by a 3,000 foot woodlands buffer that extends clear to the southern border of the base. Ordnance storage facilities are comprised of Buildings 59, 60, 62, 63, 64, 69, 71, 76, 126, 127, and 128. Concrete bunkers with earth-bermed roofs (National Guard Magazines), are designated as Buildings 126, 127, and 128.

Medical Facilities

A 25,354 square foot building on Sewall Street houses medical and dental clinics that provides 24-hour emergency services for local military personnel and retirees. Local area hospitals handle inpatient services.

Recreational Facilities

An outdoor soccer field, baseball / softball fields, tennis courts, and picnic areas are located throughout the cantonment area, as well as other recreational facilities such as a recreation mall and bowling alley (Building 211), a 16,000 square foot fitness center and gymnasium (Building 25), and also an auto / hobby shop located in Building 29. Mere Brook Golf Course is a 9-hole facility in the southern portion of the base that includes a driving range, a 3,000 square foot clubhouse, and snack bar. This course is accessible from Harpswell Road and is open to both military and civilian users.

Environmental Conditions

Overview

This section presents a summary of known environmental conditions at BNAS that should be considered during reuse planning. Further details regarding existing environmental conditions and a data gap analysis are discussed in the comprehensive environmental review document presented in **Appendix G**.

This environmental analysis was prepared using limited data generated by other parties. The findings and conclusions are based on the consultants' professional opinions and on documents provided and produced by others. A complete list of references used during this analysis is presented in the comprehensive environmental review document in **Appendix G**. The potential exists for unreported and unknown environmental issues associated with the site or surrounding area that are not included in this document.

Background

Brunswick Naval Air Station has been the subject of environmental investigations, studies, and cleanup actions since the early 1980s. Aviation activities at BNAS during more than 70 years of operation generated petroleum hydrocarbons, waste oils, paint residues, hydraulic fluid, used batteries, and other wastes. Disposal of some wastes occurred on site. Later, recognition that these wastes might be harmful to human health and the environment resulted in laws and regulations governing their disposal and cleanup (e.g., the Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA] and the Resource Conservation and Recovery Act [RCRA]). The Installation Restoration Program (IRP) was developed by the Department of Defense (DoD) to comply with federal guidelines for managing and controlling past hazardous waste disposal actions. The IRP focuses on cleaning up contamination from past hazardous waste operations and past hazardous material spills (i.e., hazardous substances). However, it is not an all-encompassing program. The IRP is intended to address the cleanup of contamination and damage resulting from past, not current, activities.

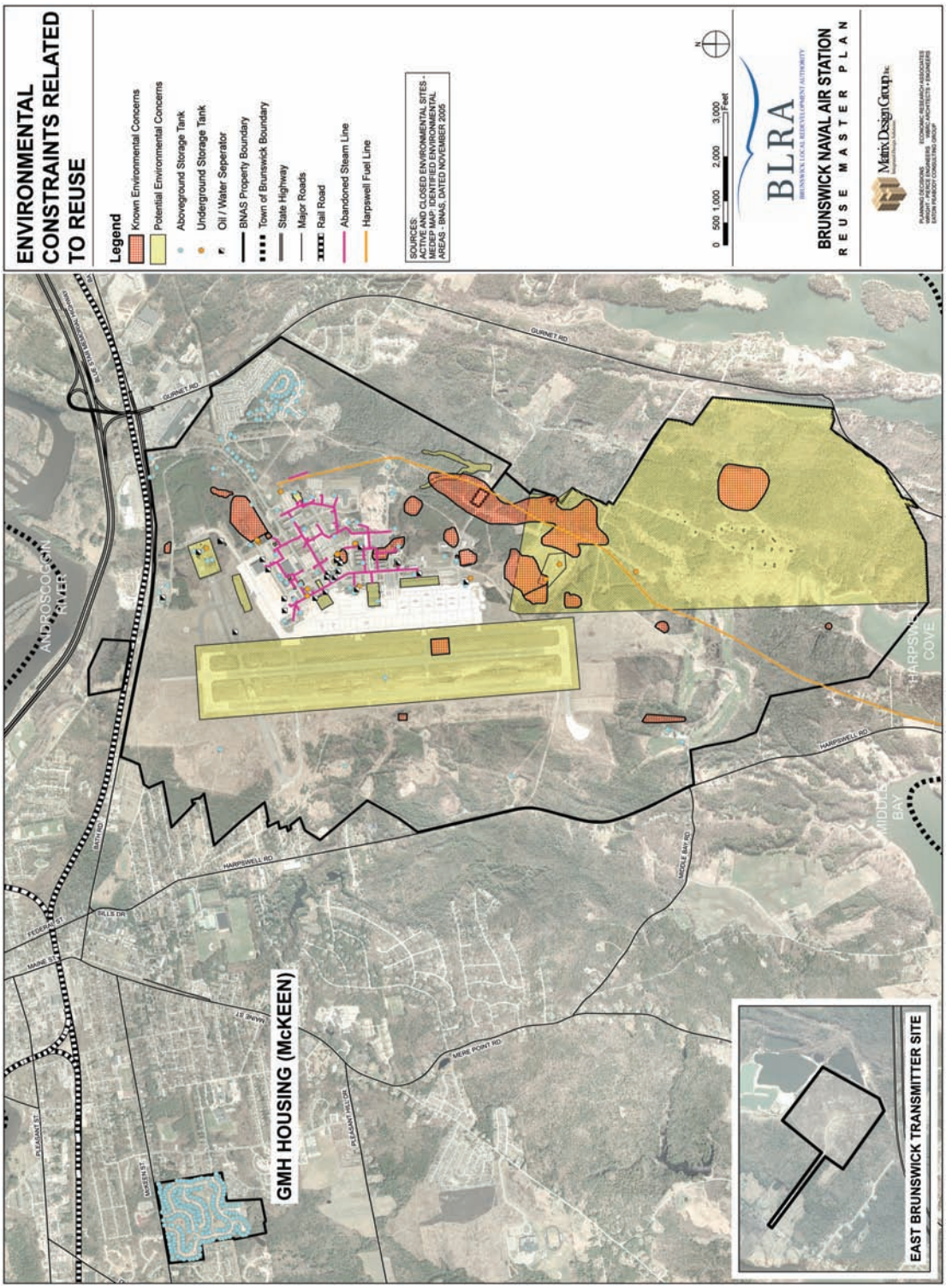
In 1987, BNAS was placed on the Environmental Protection Agency's (EPA's) National Priority List; therefore, the EPA is primarily responsible for overseeing the investigation and cleanup of BNAS, with assistance from Maine Department of Environmental Protection (MEDEP). In 1990, the Navy entered into a Federal Facilities Agreement (FFA) with the EPA and MEDEP. The FFA was the first step to ensuring the environmental impacts were thoroughly investigated and appropriate remediation actions taken. Additionally, the FFA established a procedural framework for developing and implementing Remedial Investigations, Feasibility Studies, Remedial Actions, and Operations and Maintenance at the site in accordance to Superfund policy and federal

and state hazardous waste laws and regulations. A copy of the complete FFA is attached in **Appendix G**. Underground storage tank (UST) and aboveground storage tank (AST) sites contaminated only with petroleum products are managed by MEDEP.

Known Areas of Environmental Concern

Historically, industrial operations were present at BNAS to support a variety of Air Force and Navy operations. Currently, there are known environmental sites in active and inactive phases of investigation and remediation at BNAS. These sites are being investigated and/or remediated by the Navy under the IRP and the Military Munitions Response Program (MMRP). A summary table of known information about each site and a cross reference table listing each of the known environmental sites by proposed land use are included in **Appendix G**. A map showing potential environmental constraints is provided as **Exhibit 39: Environmental Constraints Related to Reuse**.

Exhibit 39: Environmental Constraints Related to Reuse



Source: Matrix Design Group

Active and Conditionally Closed IRP Sites

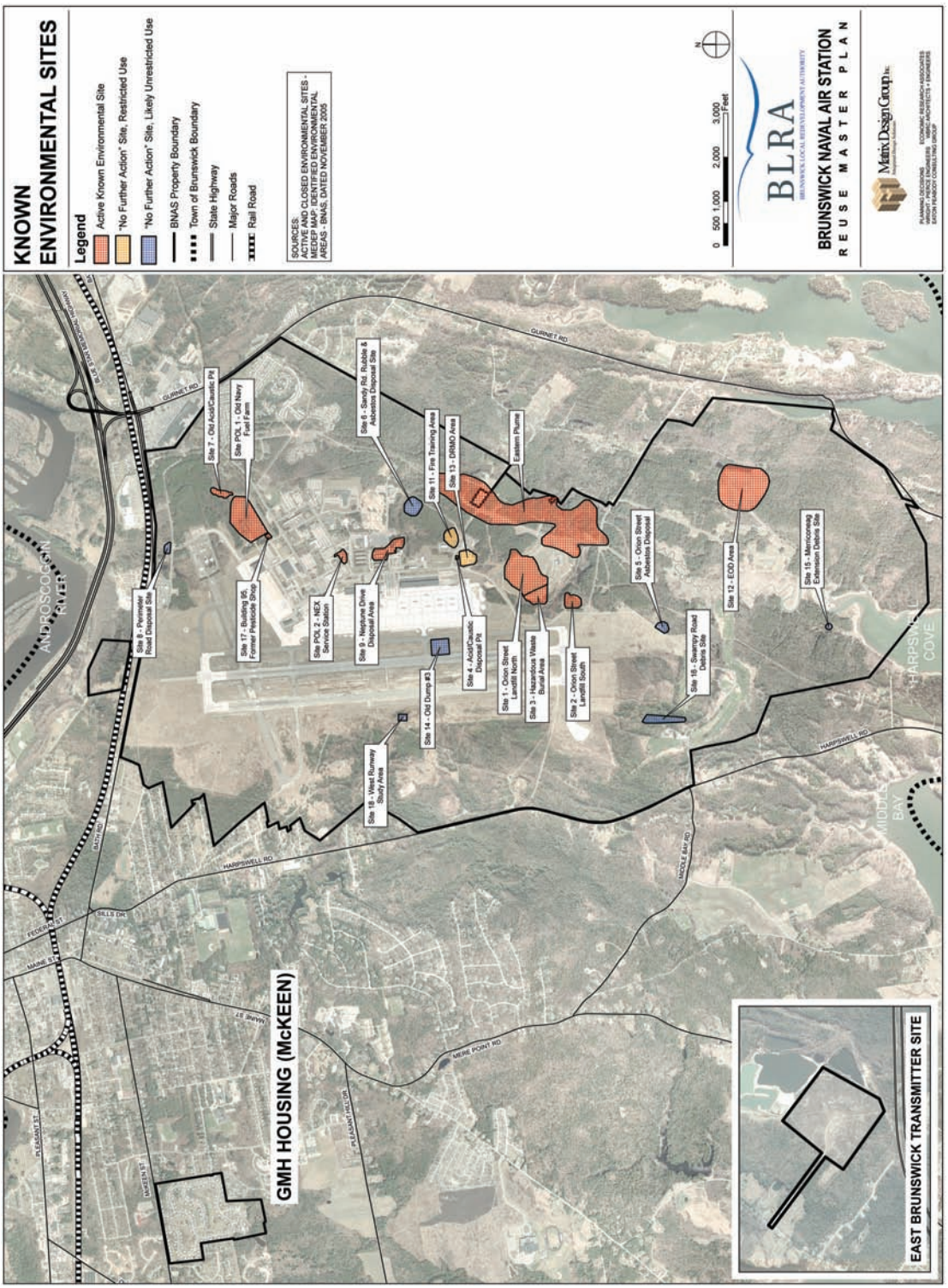
Since 1983, the Navy has identified 20 Installation Restoration Program (IRP) sites and an extensive groundwater contaminant plume at BNAS as summarized the comprehensive environmental review document presented in **Appendix G**. These sites are shown on **Exhibit 40: Known Environmental Sites**. Several source areas have been since addressed by remediation activities including excavation and source removal, and installation of a groundwater treatment system. There are presently 13 active IRP sites including:

- Site 1 – Orion Street Landfill North
- Site 2 – Orion Street Landfill South
- Site 3 - Hazardous Waste Burial Area
- Site 4 – Acid/Caustic Disposal Pit
- Site 7 – Old Acid/Caustic Pit
- Site 9 – Neptune Drive Disposal Area
- Site 10 – Harpswell Cove Fuel Depot (transferred to DESC)
- Site 11 – Fire Training Area
- Site 12 – Explosive Ordnance Disposal (EOD) Training Area
- Site 13 – Defense Reutilization and Marketing Office (DRMO) Area
- Site 17 – Former Pesticide Shop
- Site 19 – Petroleum, Oil, and Lubricants 1 (POL1) Old Navy Fuel Farm
- Site 20 – POL2 Navy Exchange Service Station
- The Eastern Groundwater Plume

The seven inactive sites include:

- Site 5 – Orion Street Asbestos Disposal Area
- Site 6 – Sandy Road Rubble and Asbestos Disposal Site
- Site 8 – Perimeter Road Disposal Site
- Site 14 – Old Dump #3
- Site 15 – Merriconeag Extension Debris Site
- Site 16 – Swampy Road Debris Site
- Site 18 – West Runway Study Area

Exhibit 40: Known Environmental Sites



Source: Matrix Design Group

Specific concerns for each active and inactive site are addressed in the comprehensive environmental review document presented in **Appendix G**, and include: potential need for further sampling / analysis for additional contaminants, some remedies not protective for the long term if land use changes, requirements for institutional controls, and groundwater plume migration off-site and into surface waters.

EPA Records of Decision (RODs) for No Further Action (NFA) are in place for soil at Sites 4, 5, 6, 8, 11, and 13. The NFAs for Sites 4, 11, and 13 were granted because no direct contact or incidental ingestion pathways currently exist. If redevelopment occurs on these sites, additional investigation and remediation may be required. A Draft Consensus Statement providing NFA for Sites 14, 15, 16, and 18 was submitted to the EPA and the EPA responded to the Navy with comments in February 2001. A signed Final Consensus Statement has not been located.

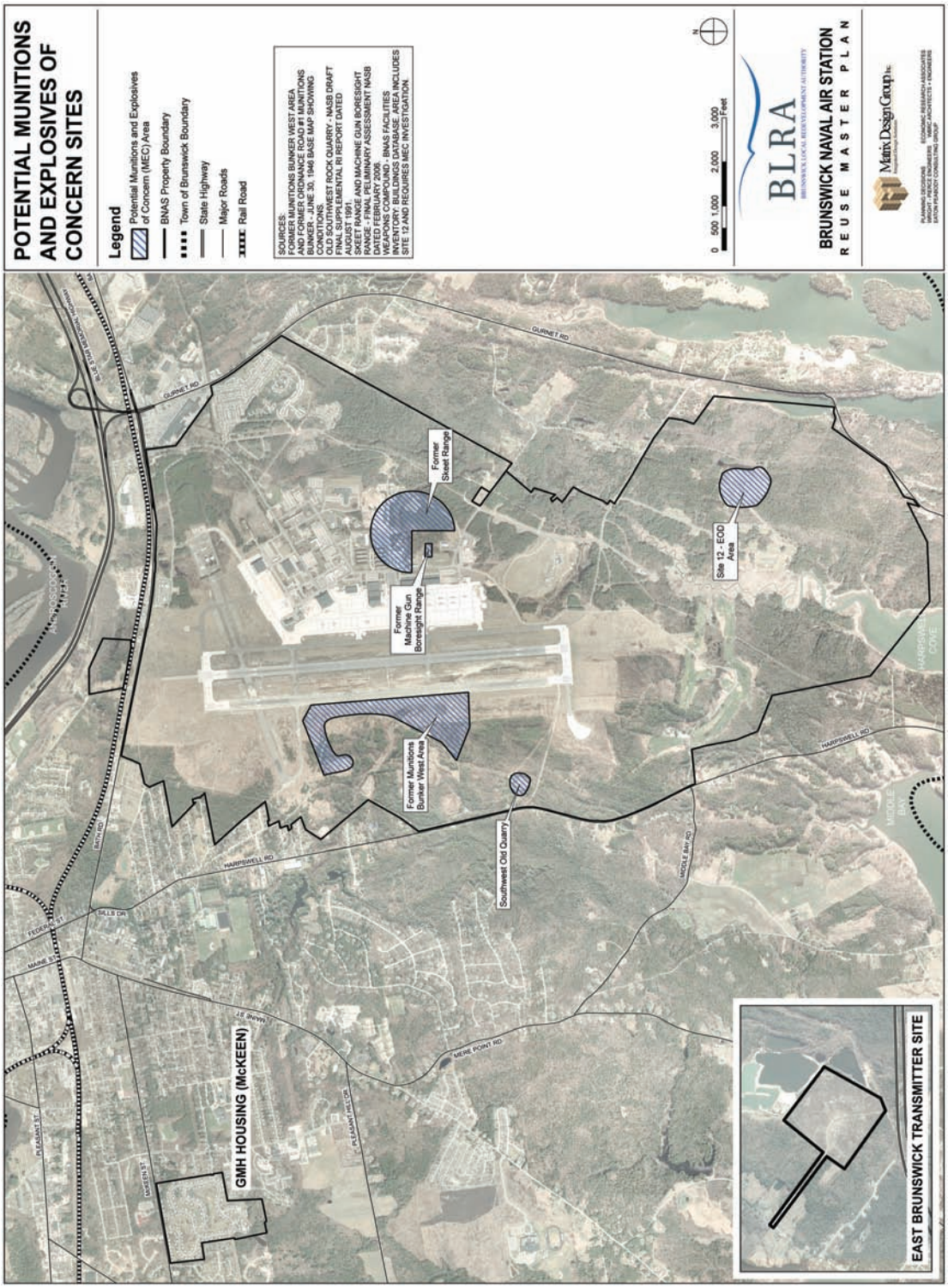
Military Munitions Response Sites

Five sites potentially containing Munitions and Explosives of Concern (MEC) have been identified for investigation under the MMRP as shown in **Exhibit 41: Potential Munitions and Explosives of Concern Sites Map**.

- UXO-1 – Former Munitions Bunker West Area
- UXO-2 – Machine Gun Boresight Range
- UXO-3 – Skeet Range
- Old Southwest Quarry Site
- Site 12 – EOD Area (This site is currently also under investigation in the IRP listed above)

A Preliminary Assessment (PA) has been conducted for the following identified MMRP sites: UXO-1, UXO-2, and UXO-3. An addendum to the PA is planned for the Old Quarry Site and Site 12 - EOD Area. The Navy is in the process of evaluating information obtained in the PA, and will be assessing which of the identified MMRP sites requires additional investigation. A summary of each of these sites is presented in **Appendix G**.

Exhibit 41: Potential Munitions and Explosives of Concern Sites Map



Source: Matrix Design Group

Potential Areas of Environmental Concern

The Navy has completed an extensive amount of investigation and remediation at BNAS. However, based on review of environmental information, historical uses of buildings, processes conducted at BNAS, and knowledge of other bases closed under BRAC, there are numerous data gaps related to environmental conditions at BNAS. Data gaps exist for the identified sites (i.e. IRP, MMRP, and Petroleum Sites), as well as for unknown or potential areas of concern. These data gaps are detailed in **Appendix G**, where the gaps are summarized by site wide concerns, and by land use areas presented in this Reuse Plan. A summary of the potential areas of environmental concern and data gaps is presented below.

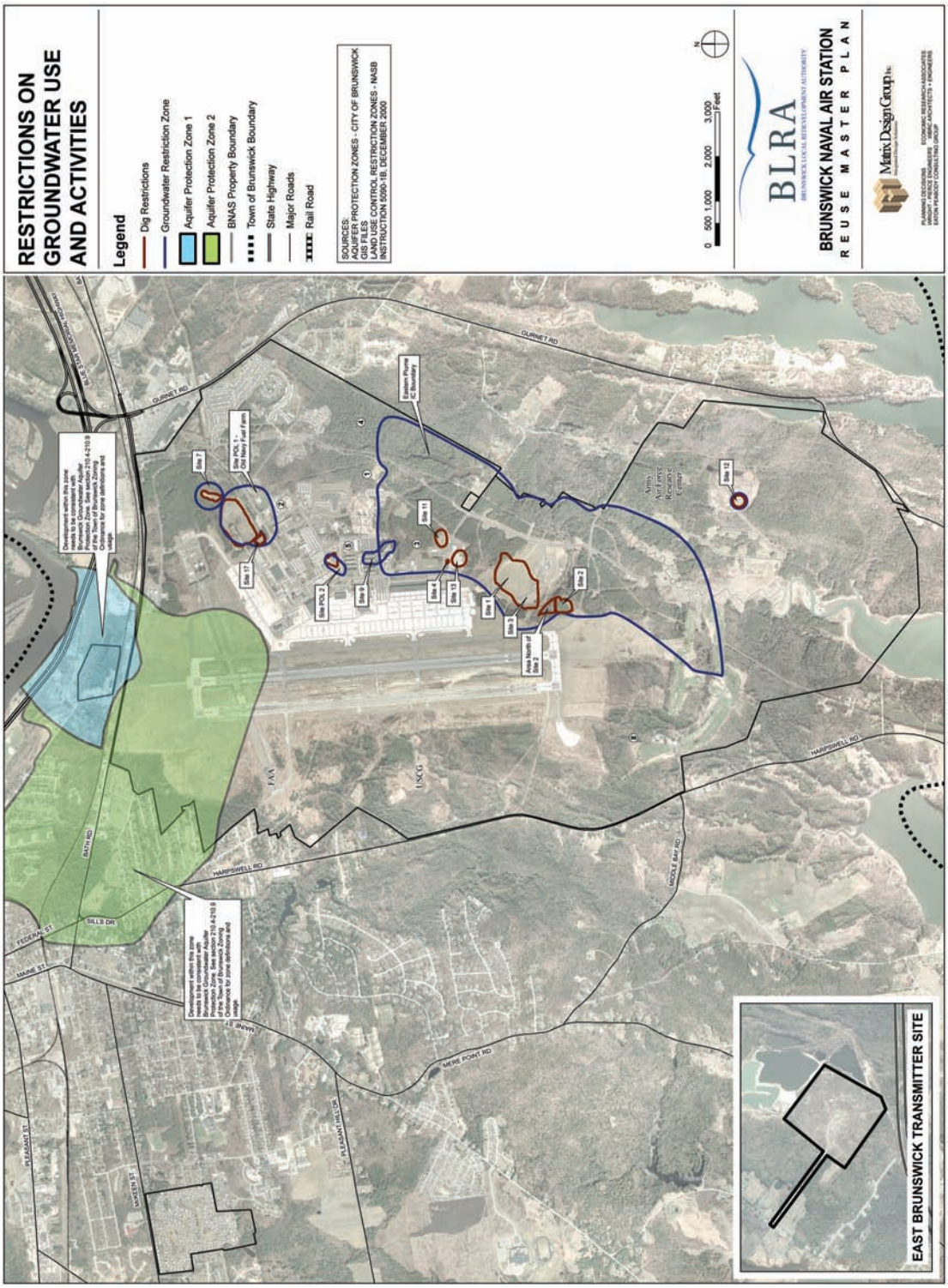
Existing Land Use Controls

The *Draft NAS Brunswick Instruction 5090.1C, Restriction on Excavation Activities and Groundwater Use* document outlines procedures to ensure proper review and coordination of proposed soil excavation and groundwater use. The document provides information on the location of hazardous waste and petroleum sites and enacts land use restrictions in the form of administrative controls on excavation and/or groundwater use activities at sites, as shown in **Exhibit 42: Restrictions on Groundwater Use and Activities** Map. Proposed land use changes during redevelopment may require changes to the LUCs in the event the contamination is not remediated. Where specific land use controls are not considered appropriate for the planned reuse, they are noted in **Appendix G**.

Base-wide Groundwater Model

One of the most significant data gaps is the lack of a base-wide groundwater model that evaluates existing IRP sites, their impact on the Eastern Plume, the nature and extent of groundwater contamination, and hydrologic interactions of surface water, alluvial groundwater, and bedrock groundwater. The EPA has imposed base-wide restrictions on groundwater use, and a model will help define areas appropriate for Land Use Controls.

Exhibit 42: Restrictions on Groundwater Use and Activities Map



Source: Matrix Design Group

Petroleum Hydrocarbon Sites

Twenty-four oil / water separators (OWS) either currently or historically existed at BNAS. Three discharge into the storm sewer system and the remainder discharge into the sanitary sewer system. Documentation regarding integrity testing of the oil / water separator containment systems has not yet been located. Currently, there are 138 active ASTs and 11 inactive ASTs that contain gasoline, diesel, #1 and #2 fuel oil, JP-8, hydraulic oil, waste oil, cooking grease, waste glycol, ethylene glycol, or lube oil. All ASTs are inspected annually in compliance with the BNAS' Spill Prevention, Control, and Countermeasures Plan. From interviews with base personnel and MEDEP, historical releases from ASTs are known to have occurred. There are also 17 active USTs, but the UST database indicates at one time there were 525 USTs on-site. Tanks have been removed and either replaced with an AST, or removed with no replacement due to building demo or conversion to natural gas. Specific locations of former tanks are not available in the database, only associated building numbers and street addresses. Limited to no investigation work was performed or documented during tank removals and/or replacements. Tables in the comprehensive environmental review document presented in **Appendix G** include lists of active ASTs, USTs, and OWSs.

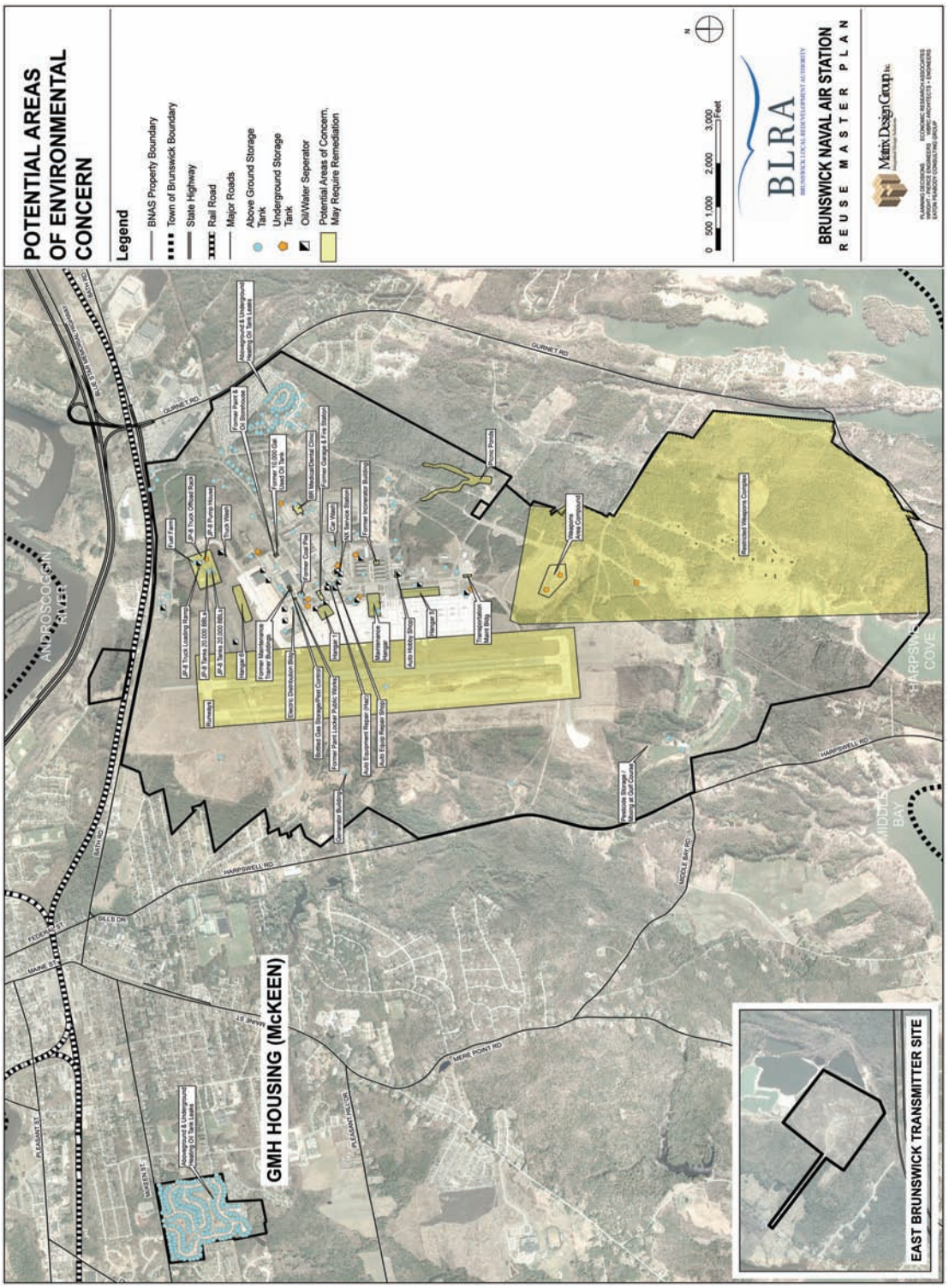
Potential Radiological Contamination

The historical presence of nuclear weapons at BNAS "can neither be confirmed nor denied," according to BNAS Public Affairs personnel. The EPA and MEDEP have requested that the Navy perform a radiological survey. However, as of the publication of this report, the Navy has not yet committed to perform the requested survey.

Light Industrial Operations

Additional potential environmental concerns at BNAS include releases from light industrial operations on the installation that have historically existed in support of BNAS' mission and are shown on **Exhibit 43: Potential Areas of Environmental Concern Map**. These concerns include potential environmental contamination from transformers, paint shops, auto repair shops, medical and dental facilities, maintenance shops, hazardous materials storage and transfer facilities, generator buildings, a gas station, and an incinerator. To date, the Navy has not investigated these areas, therefore potential impacts to redevelopment are unknown at this time.

Exhibit 43: Potential Areas of Environmental Concern Map



Source: Matrix Design Group

Underground Utilities

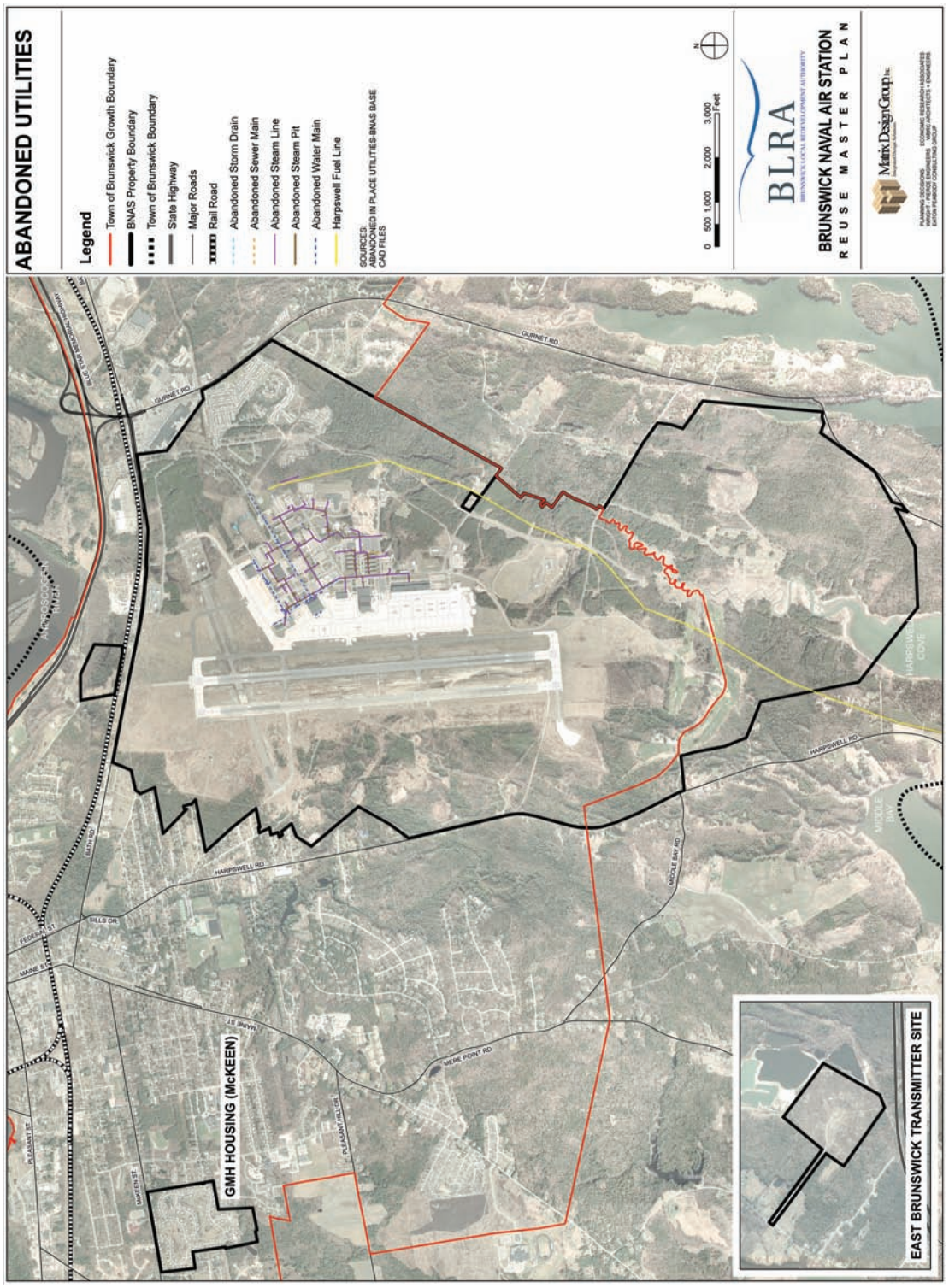
Throughout the base, several historic underground utilities have been abandoned in place. These abandoned utilities are shown on **Exhibit 44: Abandoned Utilities Map**. IRP Site 10 – Harpswell Fuel Line consists of two carbon steel pipelines of 8" and 12" diameters with welded joints, tar exterior coating, and an asbestos felt wrapping which run 12 miles from the US Naval Reserve in Harpswell to the Old Navy Fuel Farm on base. Three miles of pipeline exist on base, 0.5 miles exist in the Town of Brunswick, and 8.5 miles exist in the town of Harpswell. An Environmental Baseline Survey (EBS) was completed in 1997. According to the EBS, the pipeline has been inactive since 1991, at which time the two lines were drained, cleaned, and pressurized with nitrogen. Pressurization with nitrogen was reportedly maintained until August 1995, when the BNAS fuel farm was demolished and the pipeline valve stems were removed. The present integrity of the pipeline is unknown, and it appears that the Transient Quarters were constructed above a section of the fuel lines.

In addition to the fuel line, approximately 20,500 linear feet of up to 14" diameter asbestos-wrapped steam lines have been left in place in 2' x 2' concrete underground trenches throughout BNAS. The asbestos insulation around these pipes requires special handling procedures and off-site disposal if disturbed during redevelopment construction activities. Finally, due to the age of BNAS, many of the water supply lines are constructed of transite (an asbestos and concrete composite) pipe. If these pipes are not reused in the redevelopment plan or are disturbed during construction activities, they may require special handling procedures and offsite disposal as asbestos containing material (ACM).

Glycol Contamination and Methane Production

Prior to present RCRA regulations requiring the collection and proper disposal of hazardous materials, common practice at airports often involved the use of antifreeze compounds to de-ice planes directly on tarmacs prior to departure. The two most common deicers (ethylene glycol and propylene glycol) are known to biodegrade in anaerobic conditions and result in the production of methane. Methane is explosive at concentrations between 5 – 15%. Because methane is a gas, it can migrate through preferred pathways including utility corridors and collect in subsurface structures. This deicing practice may or may not have occurred at BNAS, but should be considered and the potential for methane be evaluated.

Exhibit 44: Abandoned Utilities Map



Source: Matrix Design Group

Asbestos and Lead-Based Paint

Due to the age of buildings at BNAS, asbestos and lead-based paint are likely present on-site. Comprehensive asbestos and lead-based paint surveys suitable for demolition purposes have not been performed on the majority of buildings. Several asbestos and lead-based paint surveys have been conducted at BNAS. This information should not be viewed as comprehensive and should be used with caution, because the surveys were only conducted on a representative number of buildings and did not always include walk through inspections of the units. Existing survey information is available in an inventory maintained by BNAS. Generally, the Navy does not pay for the abatement of asbestos and lead-based paint in buildings being transferred. Cost of abatement and proper disposal of these materials during redevelopment can be significant.

Pesticide and Herbicide Storage and Mixing Areas and Site-Wide Application

Historically, pesticides and herbicides have been stored, prepared, and applied throughout the base. IRP Site 17 is the location of former Building 95, where pesticides and herbicides were stored and mixed from 1955 to 1985. Soil samples collected from the area indicate DDE and DDT concentrations in excess of applicable state and federal standards. Several remedial actions have been conducted. In 1996, Building 95 was demolished and 1,260 cubic yards of contaminated soil were excavated and disposed at a permitted hazardous waste facility. In 1994, an additional 50 cubic yards of contaminated soil were excavated and removed. IRP Site 17 has a Long Term Monitoring Plan and is still under investigation. Pesticides are currently mixed and stored in Building 647 for the majority of the Main Station and Building 39 for the Golf Course. A site-wide assessment of potential pesticides and herbicides has not been conducted.

Building Drains, Drywells, and Combined Sewers with Potential Releases

BNAS does not have industrial operations generating an industrial wastewater stream. Small amounts of industrial-type wastes have been generated as off-specification waste chemicals and solvents. Historically, those wastes were disposed of in landfills, down drains, or transferred to the DRMO. BNAS discharges its sanitary wastes to Brunswick Wastewater Treatment Plant via Brunswick's partially combined storm and sanitary sewer system. Dumping waste chemicals down sanitary sewers contaminates sediment within the sewer and provides a pathway for potential release by sanitary sewer overflow during peak rainfall events. Sanitary sewer overflow can contribute to contamination at storm sewer discharge points. Storm sewers may transport environmental contaminants from their origin during rain events. Storm drainage from the central and southern runways, taxiways, and islands discharge to Mere Brook beaver marsh, while the outlying taxiways north of the operations area drain to the north into tributaries of the Androscoggin River. Storm drainage for the operations area discharges into the unnamed tributary bordering Site 9 that enters the northwestern branch of Picnic Area Pond. Storm sewer discharge points can be collection areas for contaminants and may require remedial investigation prior to redevelopment and property transfer.

Potential Suitability for Development

To provide an initial framework for the public visioning exercise, as well as provide the physical basis for the alternative master plan development process, an overall assessment of development suitability of the base was required. As part of this step, the natural resource, regulatory, and cultural factors identified during the existing conditions assessment were categorized as to the degree to which each factor would potentially impact the "suitability of development" of the land on which it is located. Three broad categories were created:

- Areas Least Suitable for Development
- Areas Moderately Suitable for Development
- Areas Most Suitable for Development

By understanding the potential impact on development each of these factors has, and by identifying the geographic areas covered by these factors as they are aggregated into one of the three categories above, a broad context for future land uses of BNAS property was determined. As a result of this effort, preliminary analysis indicates the following breakdown of physical suitability for potential development within the surplus property under consideration, as summarized below in **Exhibit 45: Development Suitability Table**. The paragraphs that follow discuss these three categories, the factors that contributed to each, and the geographic areas covered by each.

Exhibit 45: Development Suitability Table

Development Suitability	Planning Area									Total Acres	% of Total
	1	2	3	4	5	6	7	8	9		
Least Suitable	137	107	19	53	102	199	181	9	0	808	24%
Moderately Suitable	122	238	5	22	26	93	274	0	56	837	25%
Most Suitable	173	528	90	315	171	226	83	62	13	1,661	50%
Total Acres	**433**	**875**	**117**	**394**	**304**	**524**	**545**	**79**	**78**	**3,305**	**100%**

Source: Matrix Design Group

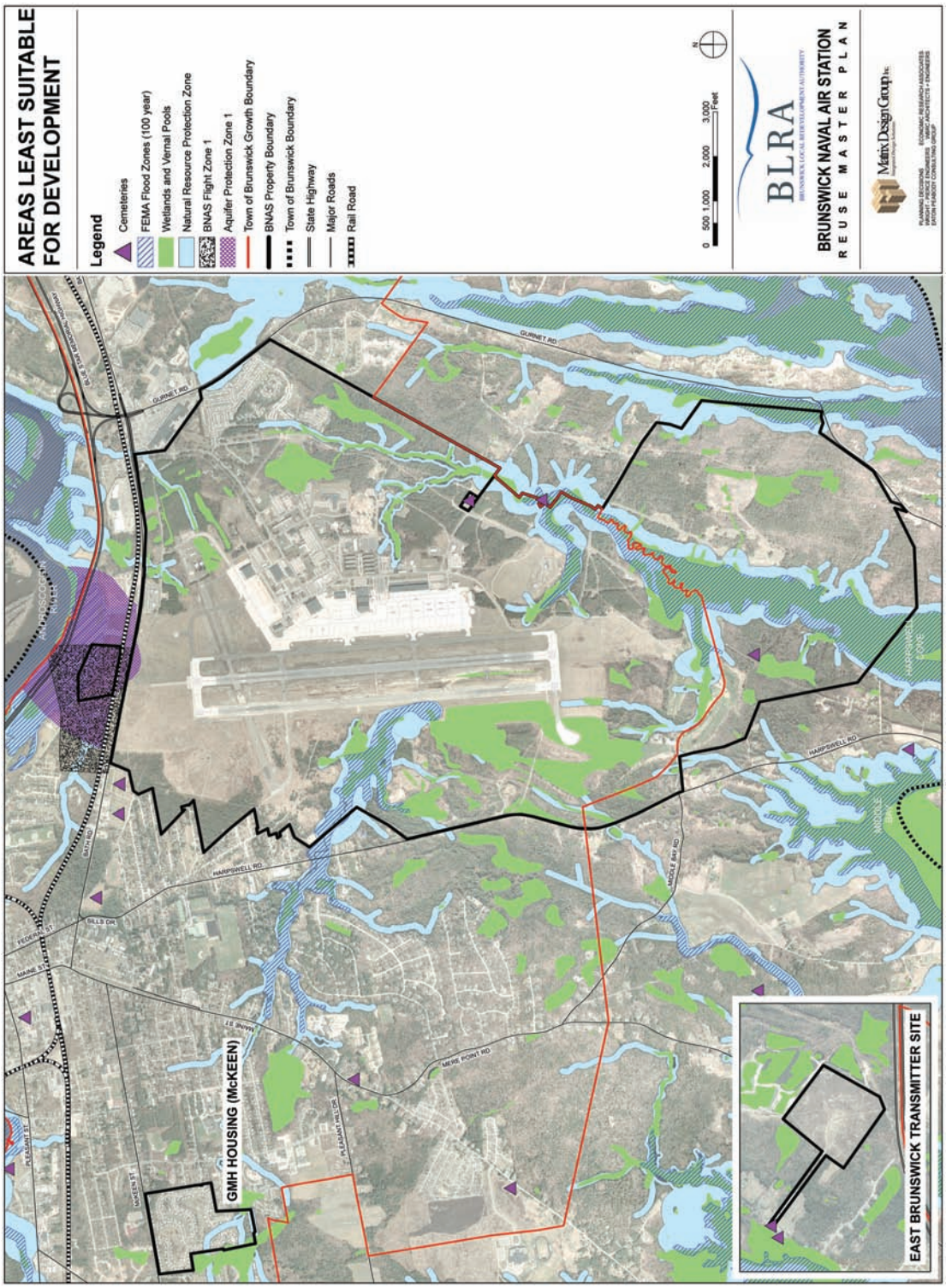
Areas Least Suitable for Development

The various natural resource, cultural, and regulatory factors described previously in this section that were identified as having attributes that severely restrict or prohibit future land uses or development are:

- FEMA Flood Zones
- Wetlands and Vernal Pools
- Natural Resource Protection Zone
- BNAS Flight Zone 1
- Aquifer Protection Zone 1
- Cemeteries

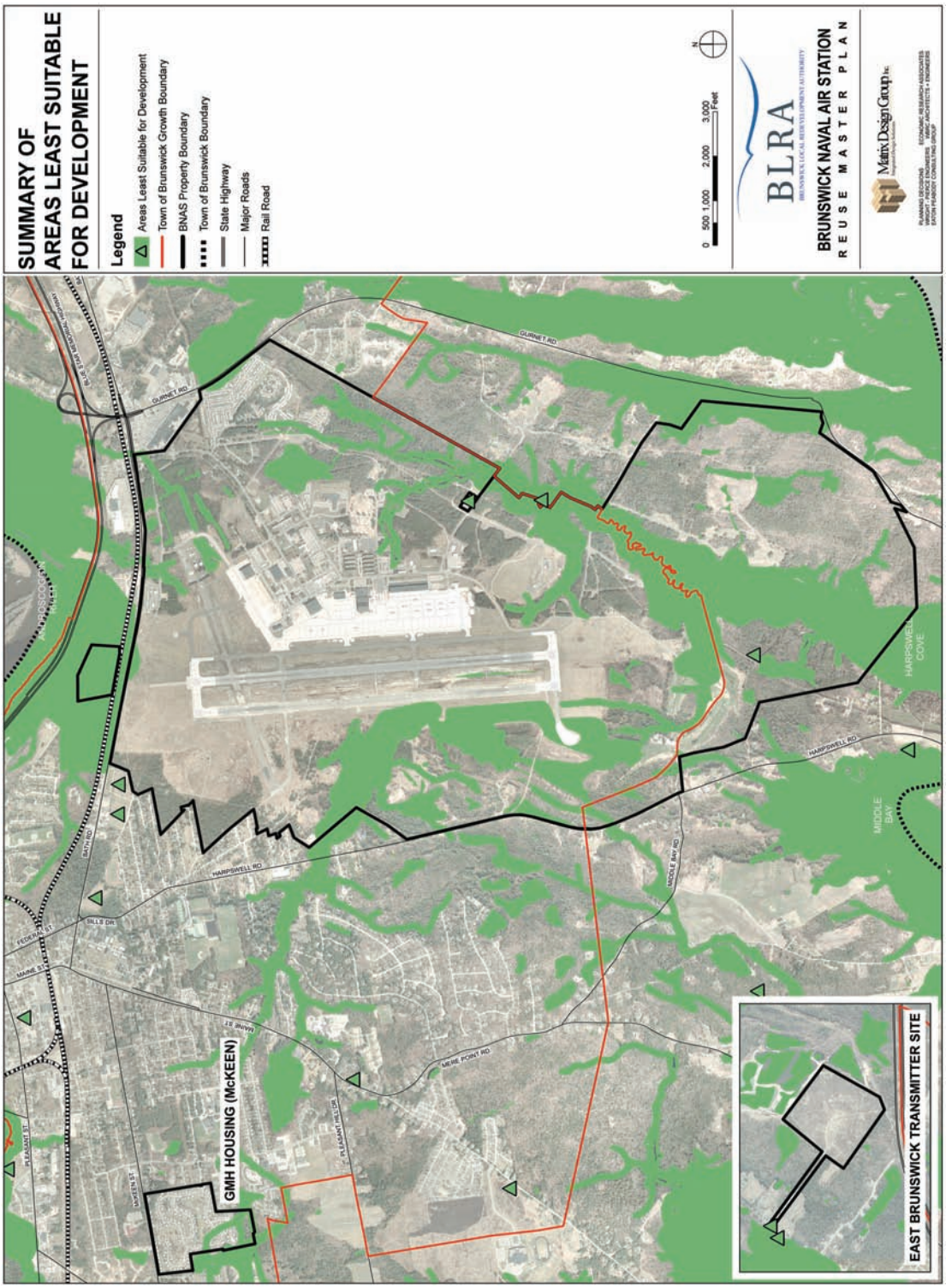
Due to the nature of these factors, land covered by one or more of these is considered to be generally undevelopable, or developable to a very limited degree. Depending upon the factor, development may be not permitted for legal, physical, or practical reasons, or permitted at very low densities, extremely restricted uses, or under special permit. **Exhibit 46: Areas Least Suitable for Development Map** shows the location or area covered by these six factors separately. **Exhibit 47: Summary of Areas Least Suitable for Development Map**, aggregates these factors into a single geographic coverage that represents the areas that should be considered as the least suitable for future development.

Exhibit 46: Areas Least Suitable for Development Map



Source: Matrix Design Group

Exhibit 47: Summary of Areas Least Suitable for Development Map



Source: Matrix Design Group

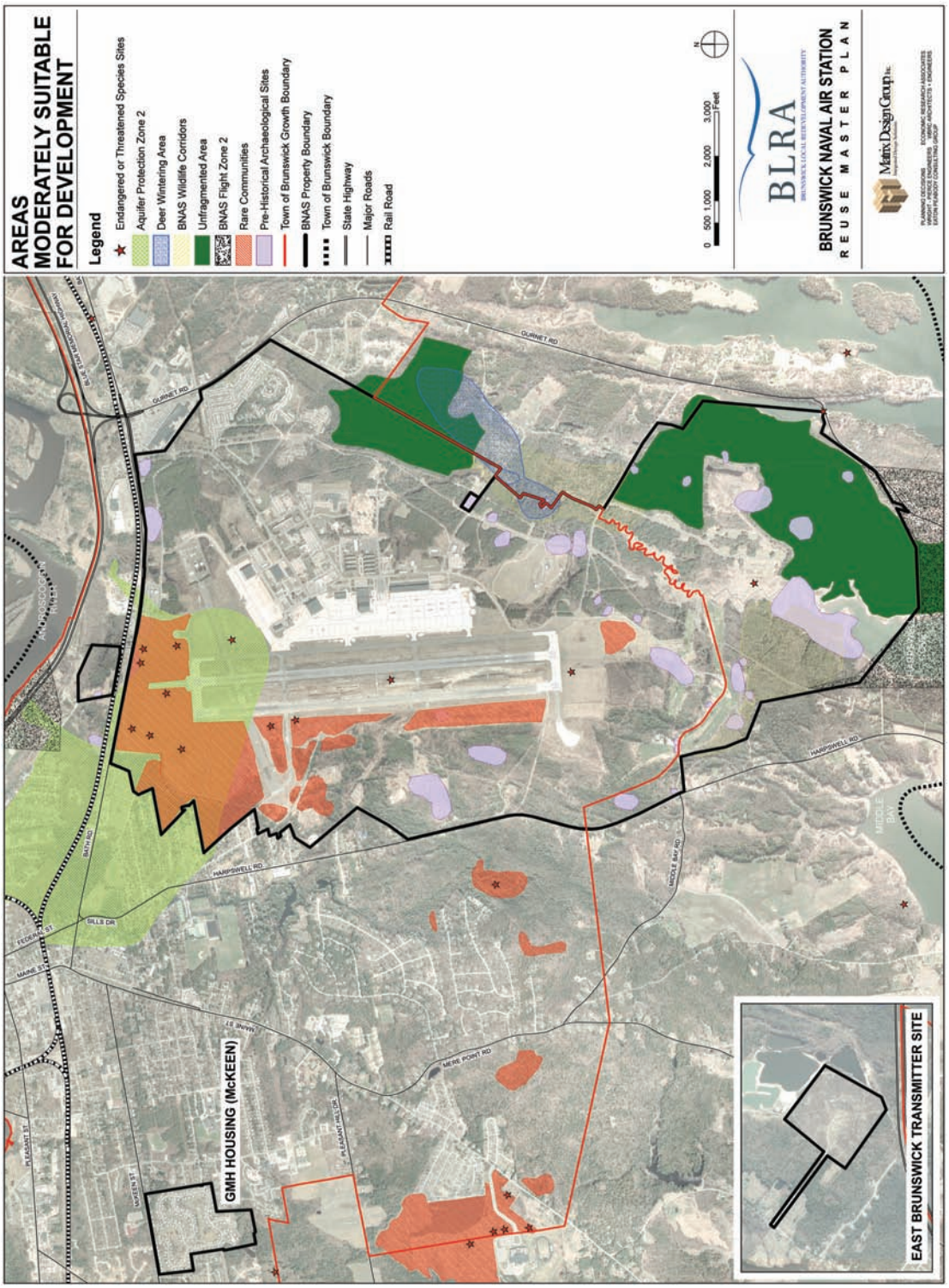
Areas Moderately Suitable for Development

The factors identified as having attributes that moderately restrict or limit future land uses or development include:

- State Endangered / Threatened Species Sites
- Aquifer Protection Zone 2
- Deer Wintering Areas
- Wildlife Corridors
- Unfragmented Areas
- BNAS Flight Zone 2
- Rare Communities
- Historical / Archaeological Sites

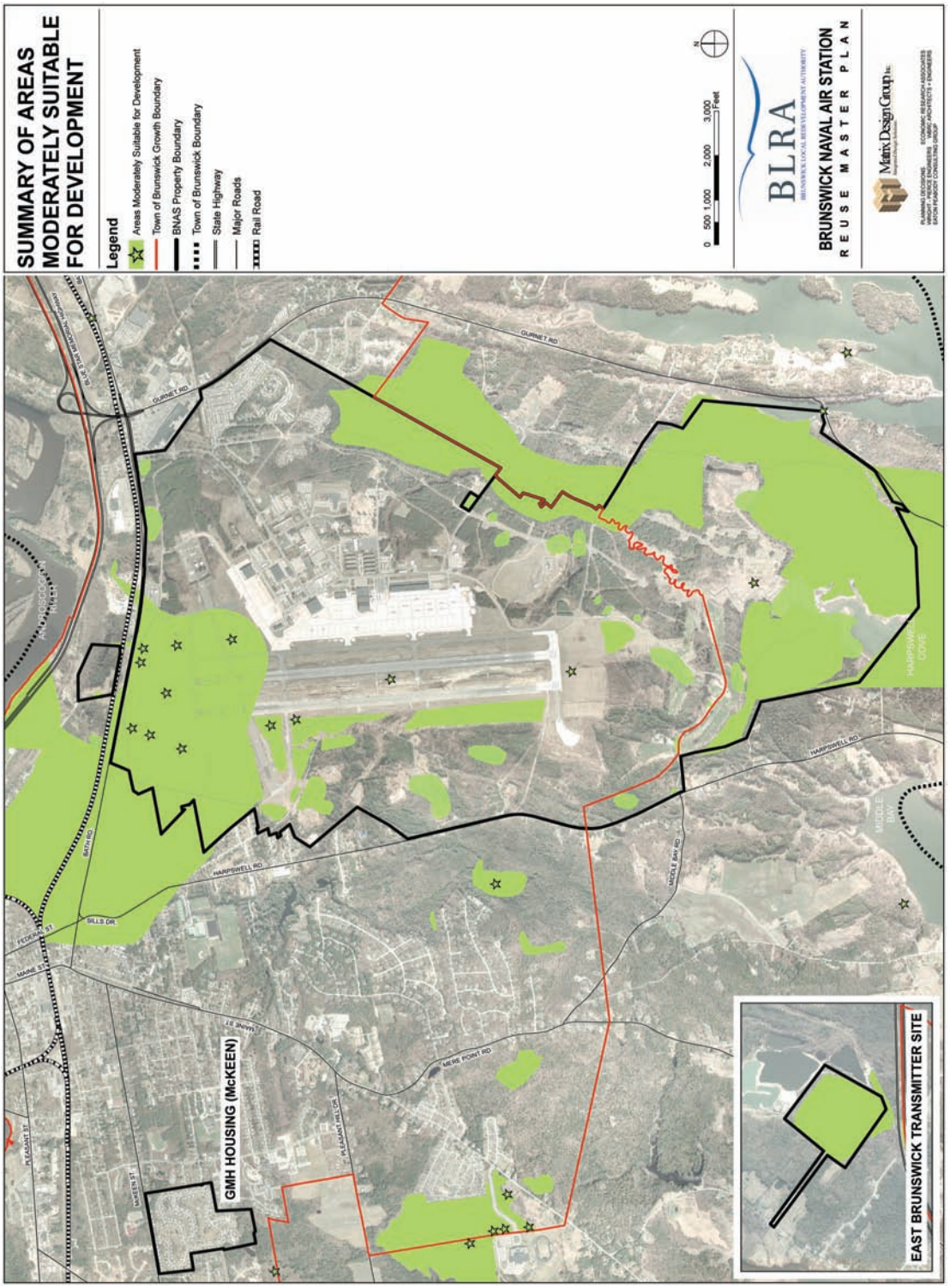
For the purpose of this study, land covered by one or more of these factors is considered to be developable in a limited manner, and typically only when certain land use, density, or other requirements are met. While these areas may be developable from a physical perspective, due to public policy or community goals and objectives, development is discouraged or constrained to some degree. **Exhibit 48: Areas Moderately Suitable for Development Map** shows the location or area covered by these eight factors separately. **Exhibit 49: Summary of Areas Moderately Suitable for Development Map** aggregates these factors into a single geographic coverage that represents the areas that should be considered as only moderately suitable for future development.

Exhibit 48: Areas Moderately Suitable for Development Map



Source: Matrix Design Group

Exhibit 49: Summary of Areas Moderately Suitable for Development Map



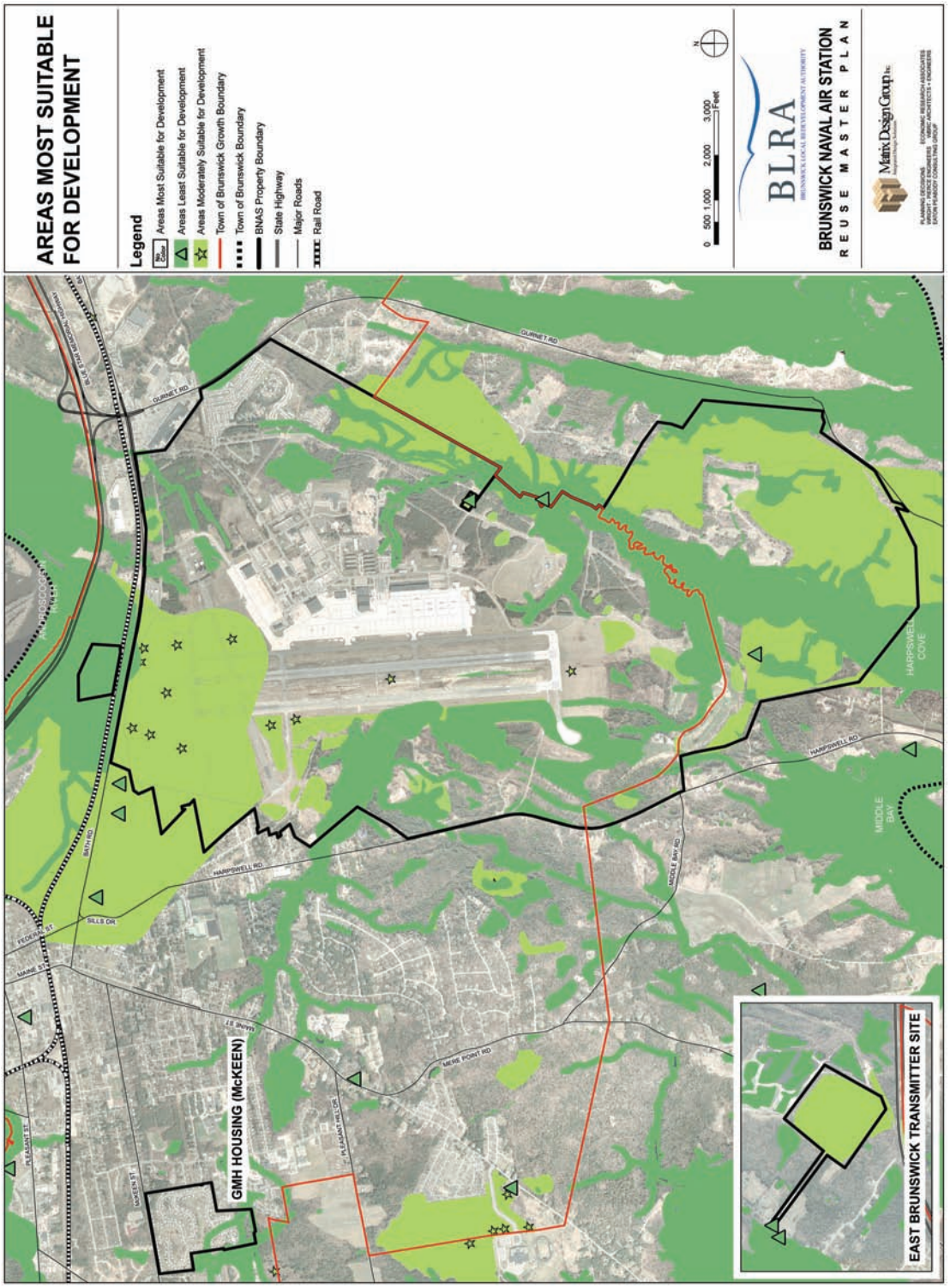
Source: Matrix Design Group

Areas Most Suitable for Development

Areas Most Suitable for Development are characterized as those areas where no factor is noted that qualifies under either the "Least Suitable" or "Moderately Suitable" categories above. Future development in these "Most Suitable" areas is certainly not a foregone conclusion; in fact, there may be environmental, market, and other reasons why some of this land will not be identified for future development. At this time, these areas simply represent the territory for which no major physical, regulatory, or other factors that specifically restrict or prohibit new development have been identified. **Exhibit 50: Areas Most Suitable for Development Map** identifies this land, which consists of those uncolored areas, or those areas not covered by the "Least Suitable" or "Moderately Suitable" category colors. These "Most Suitable" areas may still be restrained in their development potential to some degree by other issues, such as topography, zoning, or other local and/or state development regulations.

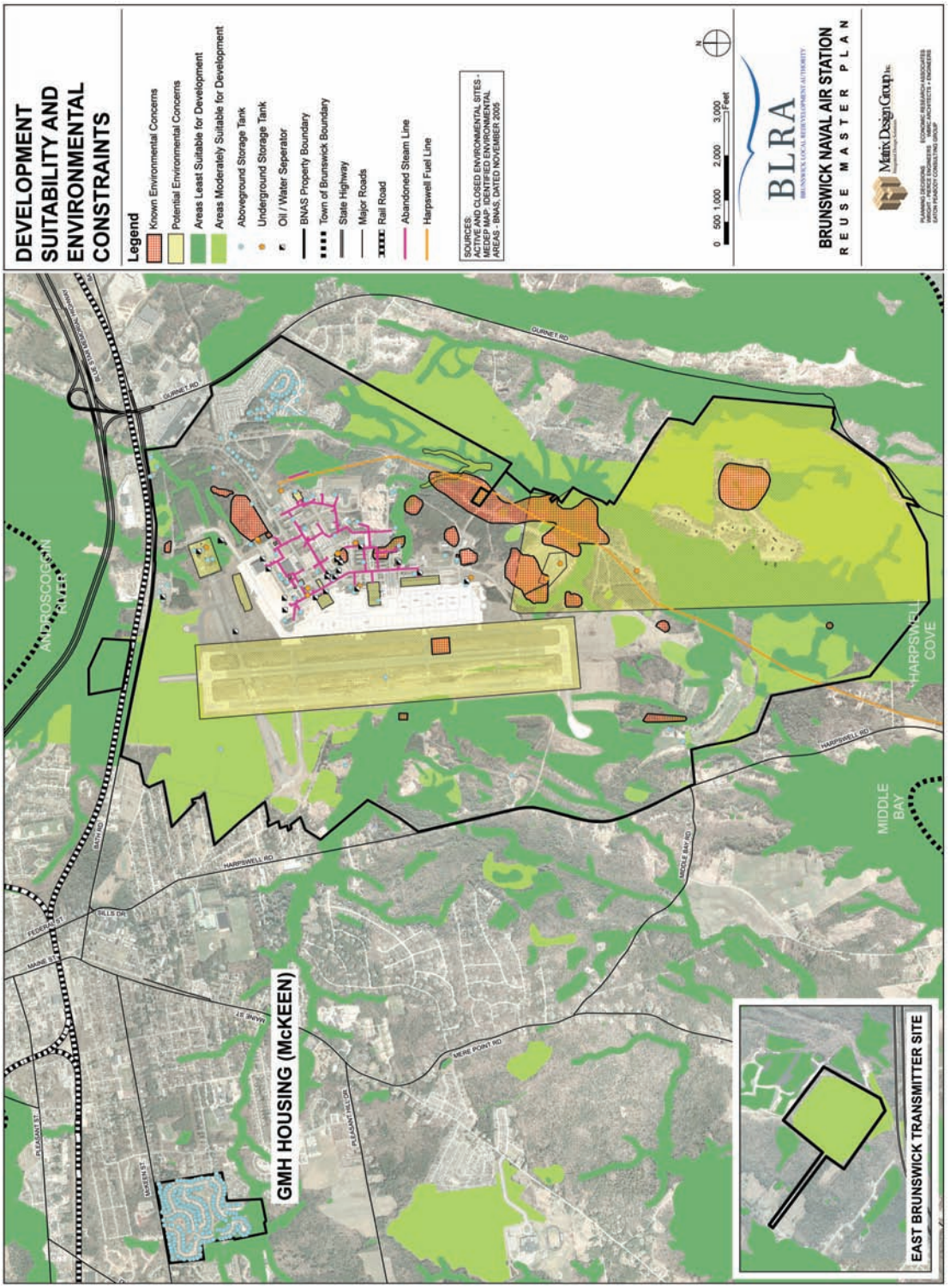
While the preliminary assessment of the property's overall physical development suitability has been determined, other constraints will need to be integrated into the overall analysis of where redevelopment could occur, to what extent it could occur, and at what cost. The most significant aspect of that more refined assessment is the potential environmental contamination of the site, including known areas of environmental concern, as well as those areas that need additional investigation, as shown on **Exhibit 43: Potential Areas of Environmental Concern Map**. The following map, **Exhibit 51: Development Suitability and Environmental Constraints Map**, illustrates this potential impact that existing and potential environmental constraints will have on the redevelopment of the property.

Exhibit 50: Areas Most Suitable for Development Map



Source: Matrix Design Group

Exhibit 51: Development Suitability and Environmental Constraints Map



Source: Matrix Design Group

Facilities Reuse Workshop

An assessment of significant buildings existing on the property was conducted as part of the Existing Conditions phase, and is described earlier in this section. Based on that information and an understanding of viable market opportunities for redevelopment, the BLRA staff and Matrix Planning Team members convened a half-day internal workshop that focused on potential future uses for 48 major buildings. Each facility was evaluated in terms of its adaptability for public / private-sector use in its existing capacity, or for other uses. Each building was ranked in terms of its potential requirements to adapt to meet the needs of the range of land uses anticipated for redevelopment as well as for land use preferences obtained from the Public Visioning process. Rankings were given for minimal, moderate, or significant adaptation needs; buildings considered not adaptable for specific uses were also noted. In addition, conclusions were reached related to the compatibility of potential uses for each building, based on the characteristics envisioned for the various planning areas established as part of the evaluation process. See **Appendix D** for facilities evaluation matrices detailing both airport and non-airport scenarios.

Airport Feasibility Study Conclusions / Recommendations

The Aviation Feasibility Study analyzed the potential for civilian aviation activity at Brunswick Naval Air Station after the US Navy is scheduled to leave in 2011, and concluded that civilian aviation activity at BNAS is feasible.

The Feasibility Study used a multi-phased screening process to identify and evaluate potential civilian aviation activities, the likelihood that they could occur at Brunswick Naval Air Station, the economic impact of those activities, as well as the potential regional benefits and environmental impacts of civil aviation activity. The primary objective of the Aviation Feasibility Study was to provide sufficient data for the Brunswick Local Redevelopment Authority to decide:

- Whether civilian aviation activity is potentially feasible at BNAS after the Navy leaves in 2011
- What portion of the Navy airfield should be used as a civilian airport, and which portion of the airfield should be transferred from the Navy to the BLRA through Public Benefit Conveyance
- If the financial and economic impact of operating a civilian airport, including potential employment, enhances its viability as well as regional benefits
- Whether environmental issues would impact the surrounding community or prevent civilian aviation activity at BNAS

It is important to note that if the BLRA decides to proceed with civilian aviation reuse, an airport master plan (AMP) will need to be prepared before the airfield is transferred by the Navy. The AMP would be partially funded by FAA and Maine DOT and would address those four issues, as well as others, in greater detail. This Aviation Feasibility Study is one of two planning studies being conducted by the BLRA, the other being the Master Reuse Plan. In making their decision about whether to proceed with aviation reuse and request a PBC for the airfield, the BRLA will consider not only the information presented in this aviation study but also the recommendations presented in the Master Reuse Plan that is being prepared separately, in addition to considering other sources of information, including extensive public input.

The Aviation Feasibility Study does not draw any conclusions or make any recommendations concerning the overall highest and best use of the airfield compared to possible non-aviation uses; its sole focus is the potential viability of civilian aviation reuse at BNAS. The Aviation Feasibility Study process can also be described as a filter, starting with large concepts and filtering the options to identify the most likely aviation scenarios, as described below.

Based on this analysis, it was concluded that a number of civilian aviation activities could potentially occur at BNAS, and that incentives provided by the State of Maine such as the Pine Tree and Military Redevelopment Zones, as well as the North Star Alliance among others, would make BNAS even more attractive to prospective tenants.

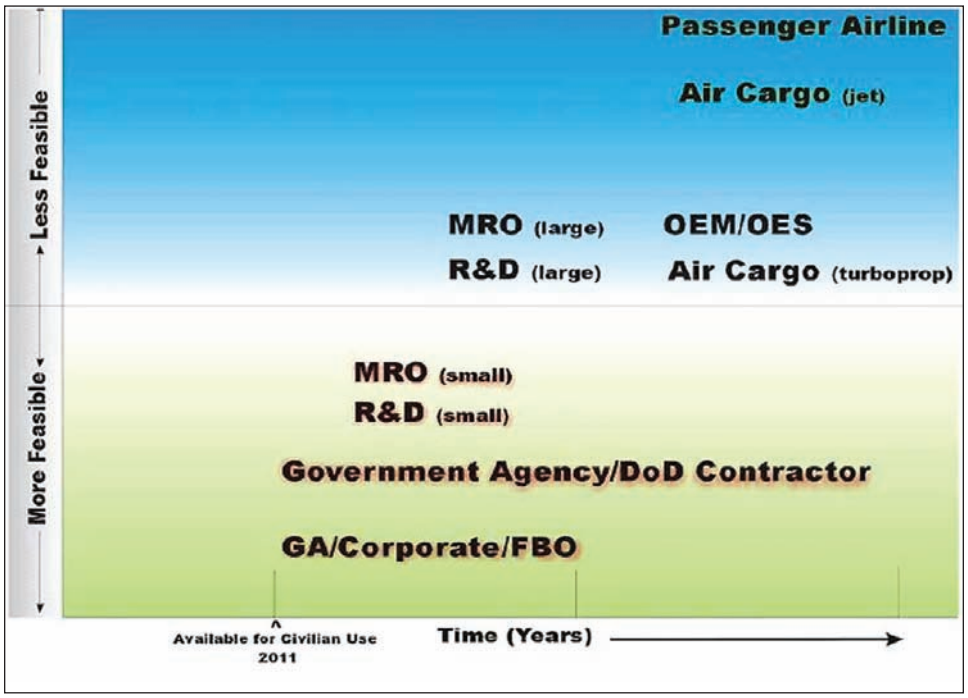
The likeliest civilian aviation activities that would occur at BNAS were identified as:

- Fixed Base Operator (FBO) - General and Corporate Aviation
  General and corporate aviation activities could include flight training, charter and air taxi service, corporate headquarters/flight department, fly-in communities, etc. FBO companies located in Maine have already expressed an interest in establishing an operation at Brunswick if it becomes a public-use airport.
- Aircraft Manufacturing and Maintenance, Repair and Overhaul (MRO)
  Both general aviation and air carrier aircraft are increasingly made with composite materials (such as Very Light Jets – VLJ), and could be manufactured and/or maintained at Brunswick.
- Government Agencies
  Agencies such as the Department of Homeland Security, NOAA, FAA, Department of Interior, etc., operate and maintain large fleets of aircraft. Department of Defense (DoD) contractors range from small local firms to international corporations, and large contractors such as General Dynamics and Pratt & Whitney have existing operations in Maine. They, as well as other large companies such as General Electric, Boeing, Lockheed Martin, etc., manufacture and maintain aircraft and engines for civilian and military agencies, and their business has grown significantly in the last six years.

- Aerospace Research and Development (R&D)
  Both small firms and large defense contractors conduct advanced R&D. The US Government is one of the largest sponsors of aeronautical research and development in the world, and has been rapidly increasing its investment in new technologies such as unmanned aerial vehicles (UAV), hypersonic flight, etc. BNAS has the facilities to accommodate that type of R&D activity, and local firms engaged in advanced R&D have expressed an interest in locating at BNAS if it becomes a public-use airport.

Exhibit 52 shows the relationship between time and the feasibility of different civilian uses for the BNAS airport.

Exhibit 52: Civilian Aviation Activities



Source: Edwards and Kelcey

The analysis concluded that scheduled passenger and cargo airline service would be much less likely to occur at BNAS, for a number of reasons:

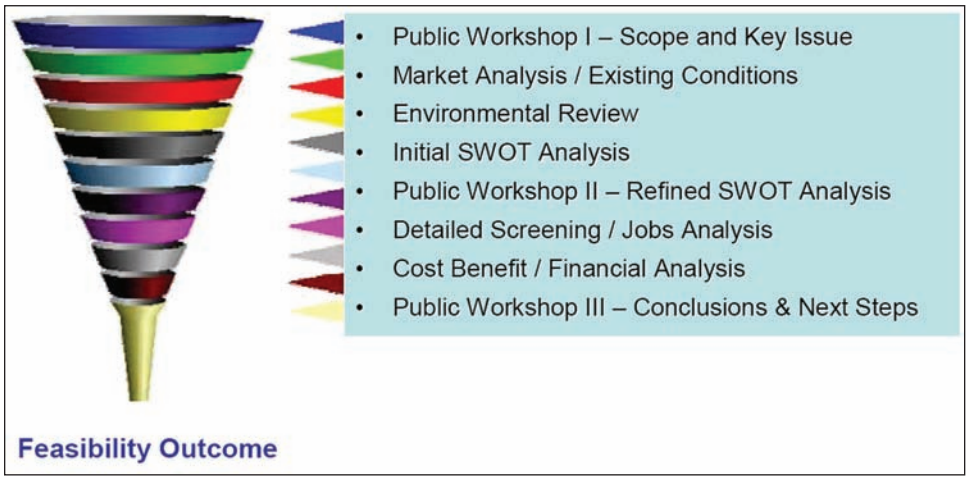
- The passenger market in the Midcoast Region is not large enough, by itself, to support service by a major airline. Discussions with both airline and trade industry representatives indicated that Brunswick is too close to Portland Jetport to support airline service at both airports. Airlines have made large investments at Portland Jetport, and because Portland does not have delays there are few incentives for airlines to provide service to BNAS as well.

- While BNAS has excellent airfield facilities, the terminal area was not designed for airline service. Additional terminal area facilities would need to be constructed, and such improvements would cost millions of dollars, only a portion of which would be eligible for federal and state grants.
- Several airports in the region, including Augusta State, Knox-County Rockland, and Hancock County-Bar Harbor have commuter airline service and are designated by US DOT as Essential Air Service (EAS) airports. As a result, airline service is subsidized by the federal government, and airport managers have indicated that if the subsidies were discontinued they would likely lose airline service. Under current DOT criteria, Brunswick is too close to Portland Jetport to qualify for EAS designation or DOT subsidies.
- Air cargo service at both Portland Jetport and Bangor Airport was examined. Most of the cargo generated at LL Bean is trucked to Boston and New York airports for air shipment, as is the seafood caught off the Maine coast. Air cargo companies such as FedEx, UPS, and DHL are primarily freight forwarders that decide how to ship packages. Those companies have established air hubs and mini-hub facilities at airports outside of Maine. As a result, although Brunswick offers excellent facilities for air cargo companies, current market trends indicate that freight forwarders will continue to truck large volumes of cargo generated in Maine to larger regional airports out of state. It is possible that Brunswick could be served by smaller cargo feeder carriers using single and multi-engine turboprop airplanes, as seen at Auburn-Lewiston Airport.

Study Process

The Aviation Feasibility Study used a screening process based on the SWOT analysis. The screening process involved a series of iterations examining a broad cross-section of aviation uses, and narrowing the potential aviation scenarios based on market trends and regional factors. An extensive public outreach program was also a key component of the study process, which included three public information meetings and workshops. **Exhibit 53**, shown below, reflects the study process followed.

Exhibit 53: Aviation Feasibility Study Process



Source: Edwards and Kelcey

The SWOT analysis was used to evaluate each alternative, and served as the primary basis for determining which of the aviation scenarios were considered to be the most feasible. Based on that analysis, a public-use airport was determined to be financially feasible at BNAS. Certain sectors of the civilian aviation market have been and are projected to continue growing very rapidly beyond 2011, when the US Navy is scheduled to leave BNAS. As a result, there are opportunities to attract those businesses to BNAS as future tenants.

BNAS as a Civilian Airport

Strengths

- The BNAS airfield facilities are rated in excellent to good condition and the Navy has committed to maintaining them in that condition until they are turned over to a civilian authority.
- The airfield could be obtained through PBC at little or no cost to a public authority.

- The composite industry cluster that is growing in Maine, particularly in the Midcoast Region, would be attractive to aircraft firms that manufacture and repair composite aircraft and parts.
- State incentives such as Pine Tree Zone, Military Redevelopment Zones, as well as the North Star Alliance, among others, will increase the attractiveness to locate at Brunswick.

Weaknesses

- It is possible that a civilian airport would require subsidies for a period of 5 to 10 years.
- Based on the current Navy redeployment schedule, the airfield will not be available for civilian use until 2011.
- Current military security requirements increase the difficulty to market the base to potential civilian tenants.

Opportunities

- Many sectors of the aviation industry are projected to continue to grow beyond 2015.
- BLRA has already received expressions of interest from aviation companies interested in locating on the base if it becomes a public-use airport.
- There will be a period of four years while the Navy will maintain and operate the base during which an on-going marketing and research campaign can determine if there is adequate demand from civilian aviation companies to operate a viable civilian airport.

Threats

- 24 former military airfields have been converted to civilian use since the early 1990s, many of which are targeting the same large civilian tenants that Brunswick would market.
- Of the 3,400 public-use airports in FAA's National Plan of Integrated Airport Systems (NPIAS), approximately 500 are former military airports, many of which are also marketing similar tenants.
- Rising fuel costs and other economic factors could decrease demand for aviation services and impact the anticipated growth rate of certain industry sectors.
- A number of states, particularly in the southern US, are offering large subsidies to aircraft manufacturing and repair firms, as well as defense contractors and R&D companies, to locate their facilities in their particular state. In addition, some states offer lower energy and labor costs, as well as lower business and personal income taxes, than Maine.

Economic Impact of a Civilian Airport

The Aviation Feasibility Study analyzed the potential economic impact of civilian aviation activity on the community, the Midcoast Region, and the state. In general, aviation-related businesses hire highly skilled and educated employees, pay higher salaries than non-aviation commercial and industrial sectors, and offer better benefits. Each aviation industry sector was examined in terms of potential employment, and a range of employment levels was identified based in part on actual companies located at former military bases around the country. **Exhibit 54** shows potential civilian employment at BNAS.

Exhibit 54: Potential Brunswick Airport Civilian Employment

	Low	High
Homeland Securtiy / Coast Guard	40	400
MRO / Manufacturer / DOD Contractor	200	2,500
Reasearch & Development / Space	20	200
VLJ / Composite Manufacturer	20	100
Fixed Base Operator (FBO)	5	50
Total Airfield Employment	**285**	**3,150**
Annual Payroll ($ Million)	**$26.7**	**$294.8**

Source: Edwards and Kelcey

Annual payroll was calculated based on an average salary of $45,000 per employee, which is considered conservative compared to some aviation companies that pay as much as $75,000 per employee. In addition, the secondary benefits to the community could also be significant. In **Exhibit 55**, the calculations were made based on the FAA's *Estimating the Regional Economic Significance of Airports*.

Exhibit 55: Potential Brunswick Airport Regional Economic Benefits

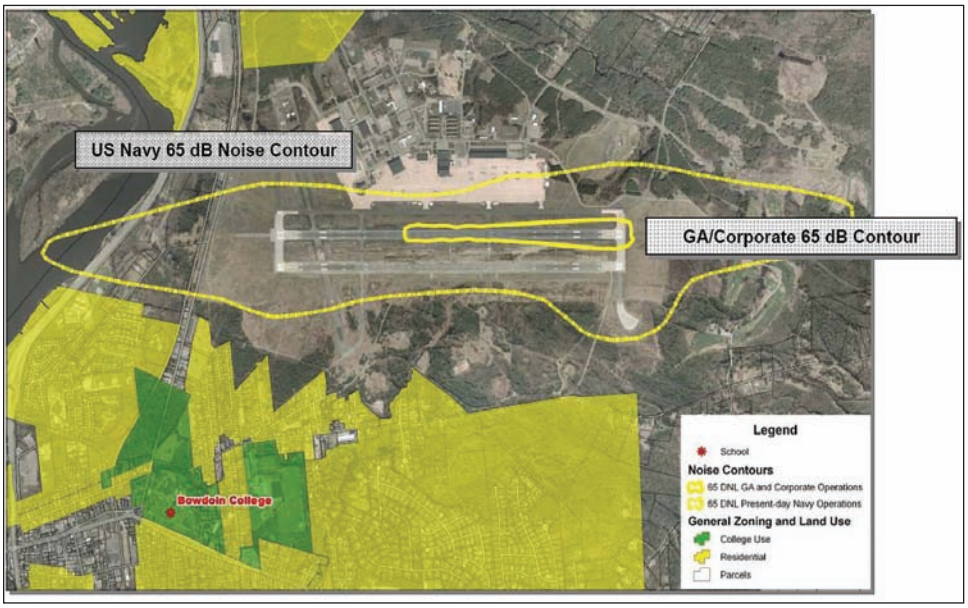
	Low	High
Potential Annual Payroll	$26.7	$294.8
Indirect Benefit (Visitor Spending)	$4.5	$13.3
Induced Benefit (Multiplier x .06)	$15.8	$176.9
Total Economic Benefit	**$47**	**$485**

Source: Edwards and Kelcey. All figures are in Dollars (Million)

Environmental Issues

The Aviation Feasibility Study examined three specific environmental issues: aircraft noise; stormwater runoff; and aircraft emissions. The Navy prepared a noise study in 1985 that included field measurements of military aircraft operations. The types of military aircraft operated in 1985 (such as P-3 Orions and C-130s, etc.), as well as the level of activity (annual operations) are very similar to what occurred at BNAS in 2006. For comparative purposes, the 65 dB noise contour from a very active general and corporate aviation airport (Beverly, MA) that has 50% more takeoffs and landings than occurred at Brunswick was overlaid on **Exhibit 56: Noise Impact Map**.

Exhibit 56: Noise Impact Map



Source: Edwards and Kelcey

The aircraft at Beverly Airport were single and multi-engine piston and turbine powered general aviation airplanes, including a large number of corporate jet aircraft. Based on this market analysis it is not anticipated that a civilian airport at Brunswick would generate 85,000 takeoffs and landings per year, however, forecasts of civilian aircraft operations would be examined in more detail in an airport master plan. For comparative purposes, the Maine Aviation Systems Plan Update estimated in 2006 that Auburn-Lewiston, Augusta, and Wiscasset Airports each had less than 40,000 operations per year.

65 decibels is a noise level that is used by a number of federal and state agencies, including FAA, Housing and Urban Development (HUD), EPA, etc., as a threshold for land use compatibility. The existing land uses in the vicinity of BNAS are primarily to the west

of the base, and outside of both the Navy and general aviation/corporate 65 dB noise contour. If the base is used as a civilian airport, it is recommended that the Town of Brunswick use land use controls, including zoning, to prevent noise sensitive land uses being developed closer to the airfield. In addition, it will be important to control the construction of towers, tall buildings, and growing vegetation close to the runways in order to comply with FAA's airspace criteria.

BNAS is located over the Mere Brook watershed. Mere Brook is classified by Maine DEP as an urban impaired stream and was placed on the Maine's 303(d) list for impairment to aquatic life because of industrial (military) and urban non-point source (NPS) pollution. Many waterbodies listed on the 303(d) list require a total maximum daily load (TMDL). A TMDL is a legal requirement under the Clean Water Act to designate sources of impairment, identify instream problems, and describe what is required to be done for a waterbody to meet water quality standards. A TMDL for Mere Brook is scheduled for 2008, therefore participation in the implementation of the TMDL (if developed) will likely be required as part of conversion to a civilian airport.

Maine DEP, Bureau of Land & Water Quality, and Stormwater Management Chapter 500 standards apply to Mere Brook. In terms of stormwater runoff, the Navy currently has a Site Law Permit from Maine DEP. Redevelopment resulting in alterations to any existing impervious surface (building, parking lot, runway, etc.) would require that the stormwater management systems be reconstructed to comply with the new general standards of Chapter 500 to an extent practicable as determined by Maine DEP. Any redevelopment of the Naval Air Station would also require the airport sponsor or developer to comply with the Urban Impaired Stream Standard of Chapter 500. To comply with this standard, the sponsor/developer would need to mitigate any adverse water quality impacts through an on-site or off-site project (for example by turning a parking lot or the outboard runway back into a meadow), or pay a compensation fee.

BNAS currently complies with federal and state stormwater regulations, and the existing aircraft deicing facilities used by the Navy exceeds current US EPA standards. Civilian aircraft operators could use the Navy's deicing facilities, and if no changes were made to the existing deicing storage, dispensing, or collection facilities, no changes to the Storm Water Pollution Prevention Plan (SWPPP) or state Site Permit would be required. US EPA is in the process of updating its glycol deicing management regulations, which may impact future civilian aircraft deicing activities at BNAS. If the BLRA decides to proceed with the civilian airport option, the Navy will need to include a review of aircraft noise and stormwater runoff in its NEPA Environmental Impact Statement (EIS).

Regarding aircraft emissions, there is rapidly growing momentum in the US, and particularly in Europe, to significantly decrease emissions and enhance the environmental compatibility of commercial aviation. At many airports in the US, ground vehicles have converted to natural gas and other alternative fuels.

The European Union, under its Joint Technology Initiative, has adopted very aggressive emission reduction targets over the next six years (shown below). A consortium of European aircraft manufacturers and government agencies have committed almost $2.3 billion towards the research and development to achieve these goals.

European Clean Sky Goals – 2013

- 80% cut in NOx emissions
- 50% cut in perceived aircraft noise
- 50% cut in CO2 emissions per passenger/mile
- A green design, manufacturing, maintenance and disposal product life cycle

The EU is proposing that the International Civil Aviation Organization (ICAO), of which the US is a member, adopt these goals as international standards. The British government is also adopting a plan to include commercial aircraft in their emissions trading scheme. In addition, a new organization formed by Richard Branson and former Vice President Al Gore, Virgin Earth, is offering a $10 million prize to any individual or company that can develop practical technology that will reduce carbon dioxide in the atmosphere by 100 million tons per year. Branson's airline, Virgin Atlantic, is adopting numerous emission reduction operating procedures, such as being towed to the runway versus using aircraft engines, etc. Simultaneously, aircraft engine manufacturers are actively testing alternative fuels, and the US Air Force has successfully tested alternative fuels in its aircraft and is working to make greater use of these fuels throughout its fleet.

In addition to enhancing the environmental compatibility of aircraft, these new green technologies are also presenting new opportunities for private industry and government agencies, and BNAS could serve as a location for some of these new R&D and production technologies, which are projected to increase significantly over the next decade.

Financial Viability

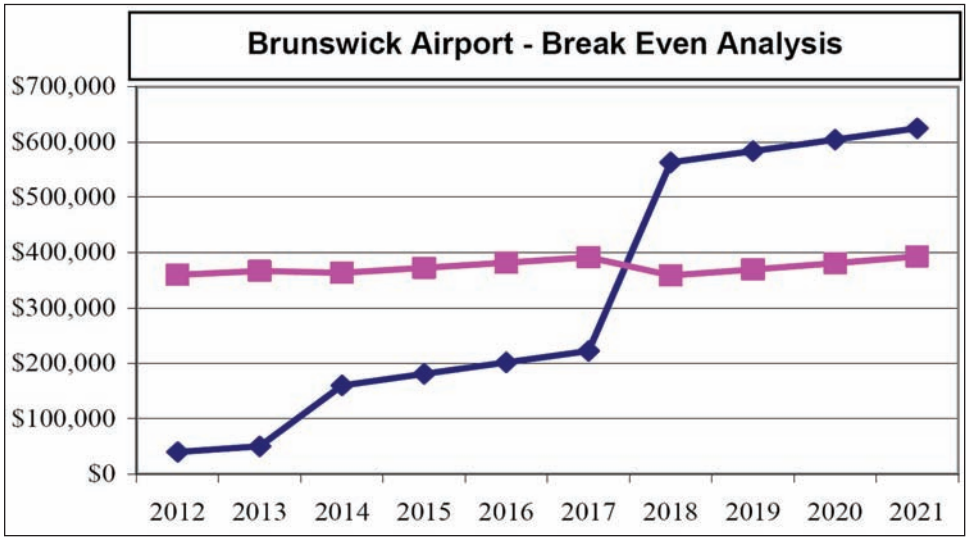
A key question concerning future civil aviation activity at BNAS is: would an airport be financially self supporting? Future airfield operating and maintenance (O&M) costs were analyzed, as well as potential revenues that could be generated by civilian tenants. The financial structure of existing airports in the region was also examined, as well as airport industry lease rates, charges and fees. The analysis considered the amount and type of space available in the airfield buildings at BNAS, and revenue projections were developed based on conservative estimates of industry rates and charges.

A key factor in terms of future operating and maintenance (O&M) costs is that the Navy has committed to maintaining the airfield in its current excellent to very good condition until it is turned over to another entity. As a result, the pavement should not need reconstruction for a period of 15 – 20 years after it becomes a civilian airport, and operating and maintenance costs will be relatively low.

Annual O&M costs for a fully functioning civilian airport was estimated to be approximately $520,000 (in 2006 dollars), which would include both airport personnel and equipment. Both FAA and Maine DOT offer grants for eligible airport capital improvement projects, but in general do not support O&M costs. Those costs would be offset by revenue generated by the airports tenants and users.

Using conservative lease rates, Building 250/Hangar 4 could generate an estimated $800,000 annually in revenue, which would more than cover annual O&M costs. Between all of the airfield buildings, including Hangars 4, 5 and 6 and Buildings 4 and 200, there is almost 500,000 S.F. of hangar, office, and shop space that would be available for lease to civilian tenants, which could generate as much as $1.5 million in revenue annually. Aircraft parking, tiedown, landing, and fuel flowage fees could generate an additional $300,000 annually, so the total potential revenue could equal almost $2 million annually. **Exhibit 57** shows the break-even analysis.

Exhibit 57: Airport Break-Even Analysis



Source: Edwards and Kelcey. Purple line represents costs over time; blue line represents revenue.

As with any start-up business, it is possible that a civilian airport could have an operating deficit for as much as five to ten years (as shown in the Break Even chart), which represents the worst-case scenario in terms of financial viability. Key factors in both the size and time frame of an operating deficit would be the ability to control O&M costs,

attract civilian tenants, and charge industry-standard lease rates and fees. The fact that the Navy will maintain and operate the base until 2011 would provide an opportunity for the BLRA to market the base and confirm if the demand for access to a civilian airport would in fact cover its operating costs. There are a number of potential sources of funding to support an operating deficit, including revenue from non-aviation commercial development on the base, general fund appropriation from the State of Maine, tax incremental financing (TIF), state income tax increment financing, as well as other sources.

Impact of a Civilian Brunswick Airport on Other Airports

If the BLRA decides to operate a civilian airport at BNAS, what impact would it have on the existing airports in the region? That question was analyzed in several ways:

- Individual airport master plans, the Maine State Aviation Systems Plan Update (MASPU), FAA's National Plan of Integrated Airport Systems (NPIAS), and FAA's New England Regional Airport System Plan (NERASP) were analyzed. Each plan projected that aviation activity in the region will continue to grow throughout the next decade. Based on the types of aviation services projected at each airport, BNAS could serve several niche markets that would not compete directly with the region's other airports, such as major aircraft manufacturing, maintenance, repair and overhaul (MRO), defense contracting, and aerospace research and development (R&D), etc.
- The MASPU recommended that Wiscasset Airport be upgraded to a Level I facility, and its runway be extended to 5,000 feet and a precision instrument approach be published. If BNAS were operated as a public-use airport, Maine DOT may reexamine those recommendations and determine whether BNAS adequately fills that role.
- Discussions were also held by Edwards and Kelcey with airport managers in the region. The managers acknowledged that a civilian airport at BNAS could draw some of their general aviation and corporate traffic, but that BNAS would not significantly impact the level of activity at their airport. Airport managers that had scheduled airline service did not anticipate that the airlines would move to Brunswick, which is consistent with other results in this study.
- Based on aircraft registration data maintained by Maine DOT, an analysis was prepared to assess approximately how many general aviation aircraft could be attracted to BNAS if it were a civilian airport. The BNAS catchment area was defined as the radius connecting the mid- points between BNAS and Portland Jetport, Auburn-Lewiston Airport, Augusta State Airport, and Knox County-Rockland Airport. Wiscasset Airport lies between BNAS and Rockland and was included in its catchment area.

- For the purposes of this analysis, it was assumed that there would be no access restrictions at BNAS as a civilian airport, that the airport operating rates and charges (such as landing, parking, and tiedown fees, etc.) would be equivalent to other airports, and that there would be a full service FBO in place at BNAS. Based on those assumptions, a Brunswick Airport could potentially attract a large share of the airplanes whose owners live within its catchment area.

There are three key factors in terms of attracting General Aviation traffic to an airport:

- Facilities - Brunswick would offer larger facilities and more capacity than the other airports in the region, and the 8,000 foot runway would be very attractive to high-performance general aviation and corporate airplanes in the area (and beyond). Maintaining the instrument landing system (ILS) on Runway 1R will be important for all-weather access for those airplanes.
- Services - a good FBO is essential because, a) they provide quality service (fuel, maintenance, flight training, supplies, etc.), and almost as importantly, b) can effectively market the airport and bring in new business quickly. A good FBO would also attract airplanes from outside the catchment area, in which case Brunswick would likely attract more based aircraft.
- Cost and convenience - are both very important factors for G.A. airplane owners. If tiedown and hangar lease rates, fuel prices, landing and parking fees are competitive with other airports in the region, Brunswick would be a very attractive airport. Since pilots typically lease their hangars and tiedowns, they can move to other airports very easily. It is also likely that Brunswick would attract new airplanes not currently registered in the state, such as new corporate jets and turboprops, particularly given the recent change in state tax law.

In terms of identifying the potential impact on surrounding airports, 73 based airplanes at Brunswick would indicate a 'worst-case' scenario for the other airports, but even then the region's other airports would still have more than 75% of their existing based airplanes left, which is consistent with what airport managers indicated. FBOs located at some regional airports have already expressed interest in establishing an operation at Brunswick if it becomes a public-use airport, and maintain their existing FBO as well. In other words, they anticipate there would be sufficient traffic to support both operations. **Exhibit 58** shows the projected based aircraft growth rate.

Exhibit 58: Based Aircraft Projected Growth Rate

Year	Based A/C - Brunswick Airport	Growth Rate *
2011	73	5.0% (2006-2011)
2021	80	9.5% (2011-2021)

*** Source: Maine Aviation Systems Plan Update, Chapter 4, Table 4-7**

Source: Edwards and Kelcey

- The projected growth rate of based aircraft presented in the Maine Aviation Systems Plan Update was applied to BNAS to identify potential growth (table above). That growth rate would be analyzed in more detail in an airport master plan.
- Experience at former military and joint-use bases, such as Pease and Westover Air Reserve Base in Chicopee, MA, for example, indicate that using a base as a civilian airport develops niche markets, and is not a zero-sum proposition – its growth doesn't come at the expense of the airports around it.

What Are the Next Steps?

Based on the conclusions and recommendations presented in the Aviation Feasibility Study and the Master Reuse Plan, as well as input from the public, the BLRA will decide whether to proceed with a civilian airport option. If the MRRA decides to operate a civilian airport at BNAS, then what are the next steps?

The first step would be to undertake a more detailed and extensive marketing program of potential aviation tenants. The initial focus should be on a wide range of aviation firms presently operating in Maine. Secondly, FAA has indicated that an airport master plan will need to be prepared, and both FAA and Maine DOT would provide financial support for the plan. Several key products would result from an airport master plan: an approved Airport Layout Plan (ALP); an Airport Capital Improvement Program (ACIP); and an environmental assessment (EA). A number of other products, such as a detailed financial and business plan, would also be developed as well. Airport marketing studies, however, are not eligible for FAA grants.

Airport marketing plans are not eligible for FAA funding, and need to be undertaken separately. In addition, both Maine DOT and FAA will need to include Brunswick in their respective system plans in order for the airport to be eligible for capital improvement grants. That would typically occur after the airport master plan was completed.

One of the key elements of the airport master plans would be the precise determination of the area of the airfield to be requested transferred via PBC. FAA has noted that the area identified for a public-use airport should include not only the facilities necessary for anticipated aviation activity, but also any facilities and/or property that could generate revenue to support the airport financially.

At some former military bases, the golf course was transferred as part of the PBC for the airfield, and the revenue generated by the course was used to support the airport until it was financially self sufficient. The analysis in the Aviation Feasibility Study indicated that a civilian airport could operate efficiently with a single runway (the inboard runway – 1R-19L). Such a facility would encompass approximately 600 acres.

The BLRA could also request both parallel runways through PBC, which encompasses approximately 800 acres, and use the additional property for non-aviation purposes, if it so chose. A civilian airport could operate with a single runway, and some of the airfield facilities such as Hangar 6 and the associated ramp and/or possibly the outboard runway, could be used for non-aviation purposes. A number of additional steps will also be required before the airfield would be transferred from the Navy to a public agency.

Any changes in the Navy's deployment schedule could impact the timing of the transfer of the airfield property, either moving the transfer point closer or farther out (beyond 2011), which could impact the civilian reuse schedule. One final consideration is that if the BLRA decides to proceed with a civilian airport option, the Authority can market the base and complete all but the very last step, outlined above, but will not be legally committed to operating a civilian airport until the Navy transfers the property and the Authority signs the deed.

Section 5: Reuse Alternatives and Plan Selection

Based on the results of the physical inventory and analysis of existing conditions, market and economic studies, the Airport Feasibility Study, and from input received as a result of the public engagement process, a series of redevelopment concepts were prepared. Although conceptual in nature, these plans illustrated the various broad land use categories that emerged from previous planning activities, public visioning workshops and meetings, from consideration of smart growth planning principles, potential regional transportation improvements, and from other information obtained as part of the overall planning study.

Reuse Concepts

Four initial reuse concepts were presented to the public and town representatives at the two *BRAC to the Future* meetings in August 2007. The concepts were designed to provide a variety of development strategies, density considerations, and land use and transportation configurations for redevelopment of the 3,200-acre property. Two airport scenarios and two non-airport scenarios were ultimately prepared for consideration.

Note: Matrix Design Group is the source of all exhibits in this Section.

Airport Concept A-1

The first airport concept, Airport Concept A-1, included these key themes and elements:

- Primary entries from (1) a new US 1 interchange / Bath Road "flyover" and (2) from Bath Road
- The existing airport and aviation facilities to support General Aviation uses
- A concentrated area for Business and Technology Industries near the airport
- A central transportation spine that separated Aviation and Business and Technology Industries uses from community-serving mixed uses
- Campus-oriented business and office parks
- Renewable Energy Park
- Mixed-Use district in the southwest portion of the property
- The existing 9-hole Mere Brook Golf Course
- A direct east-west collector from Gurnet Road to Harpswell Road

Exhibit 59: Airport Concept A-1 Land Use Table and Map illustrates the physical arrangement of the various land use and transportation elements of this plan, along with a breakdown of the conceptual land use program by acre:

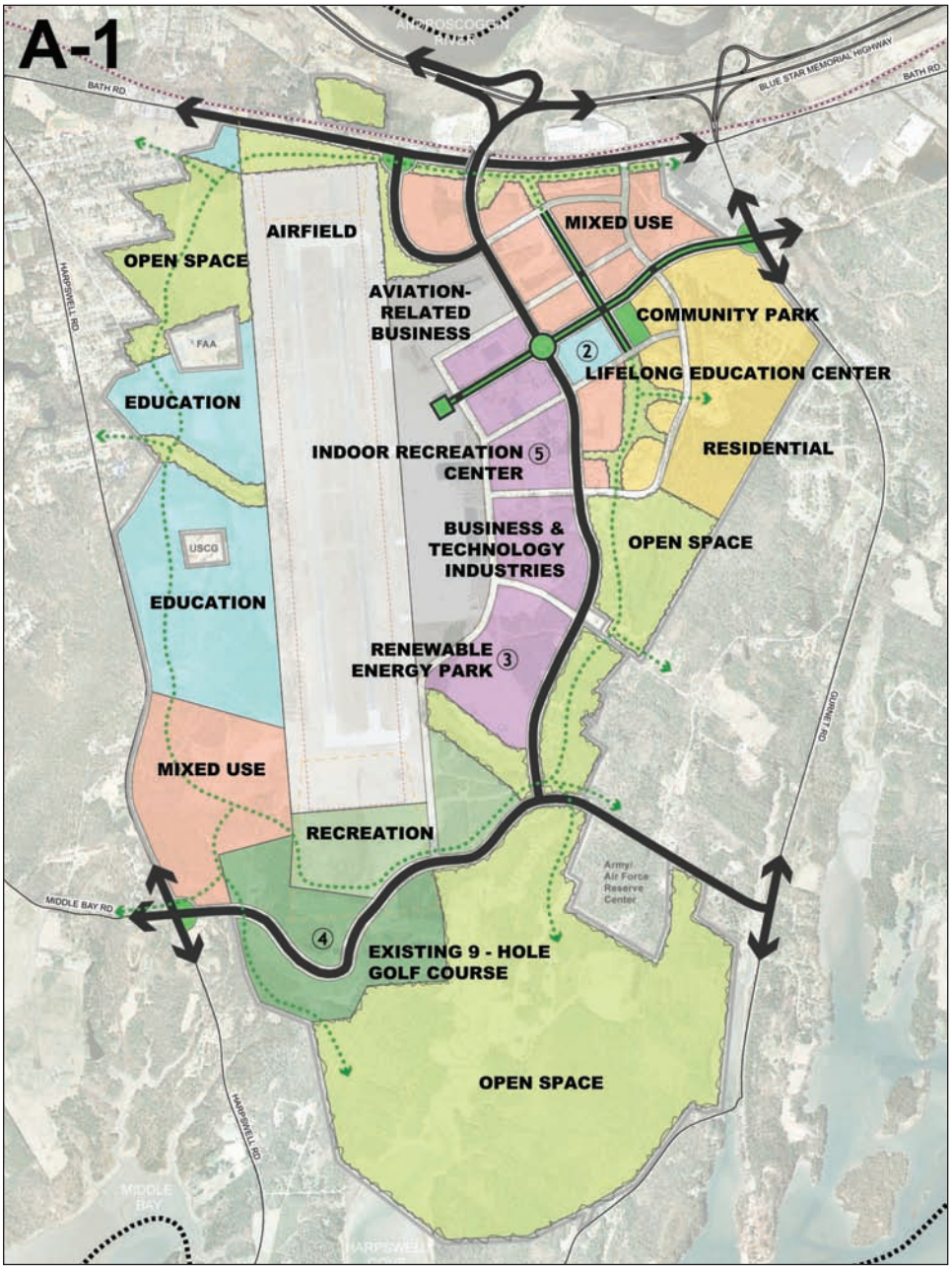
Airport Concept A1 - Potential Land Use Program

	Land Use Programs	Total Surplus Acres	% of Total Surplus Acres	Acres Not Suitable for Development	Net Acres Remaining [1]	% of Total Net Acres Remaining
Land Development	Airport Operations	505	16%	45	460	16%
	Aviation-Related Business	185	6%	0	185	6%
	Mixed Use	345	11%	85	260	9%
	Business and Technology Industries	230	7%	10	220	7%
	Education	280	9%	95	185	6%
	Residential	260	8%	30	230	8%
	Subtotal	1,805	56%	265	1,540	52%
Open Space	Park	10	< 1%	-	10	< 1%
	Golf Course	155	5%	-	155	5%
	Outdoor Recreation / Athletic Fields	110	3%	-	110	4%
	Natural Areas	1,145	36%	-	1,145	39%
	Subtotal	1,420	44%	-	1,420	48%
Grand Total		3,225	100%	265	2,960	100%

1 "Net Acres Remaining" includes transportation rights-of-way

Note: Percentages may not total due to rounding

Exhibit 59: Airport Concept A-1 Land Use Table and Map



Airport Concept A-2

Airport Concept Plan A-2 included these key themes and elements:

- Primary entry from Bath Road, but no new interchange with US 1
- Hotel and conference center (adaptive reuse of existing transient lodging facility)
- New 18-hole golf course along eastern edge
- Renewable Energy Park
- Recreation complex and public gardens
- Indirect east-west collector from Gurnet Road to Harpswell Road

Exhibit 60: Airport Concept A-2 Land Use Table and Map illustrates the physical arrangement of the various land use and transportation elements of this plan, along with a breakdown of the conceptual land use program by acre:

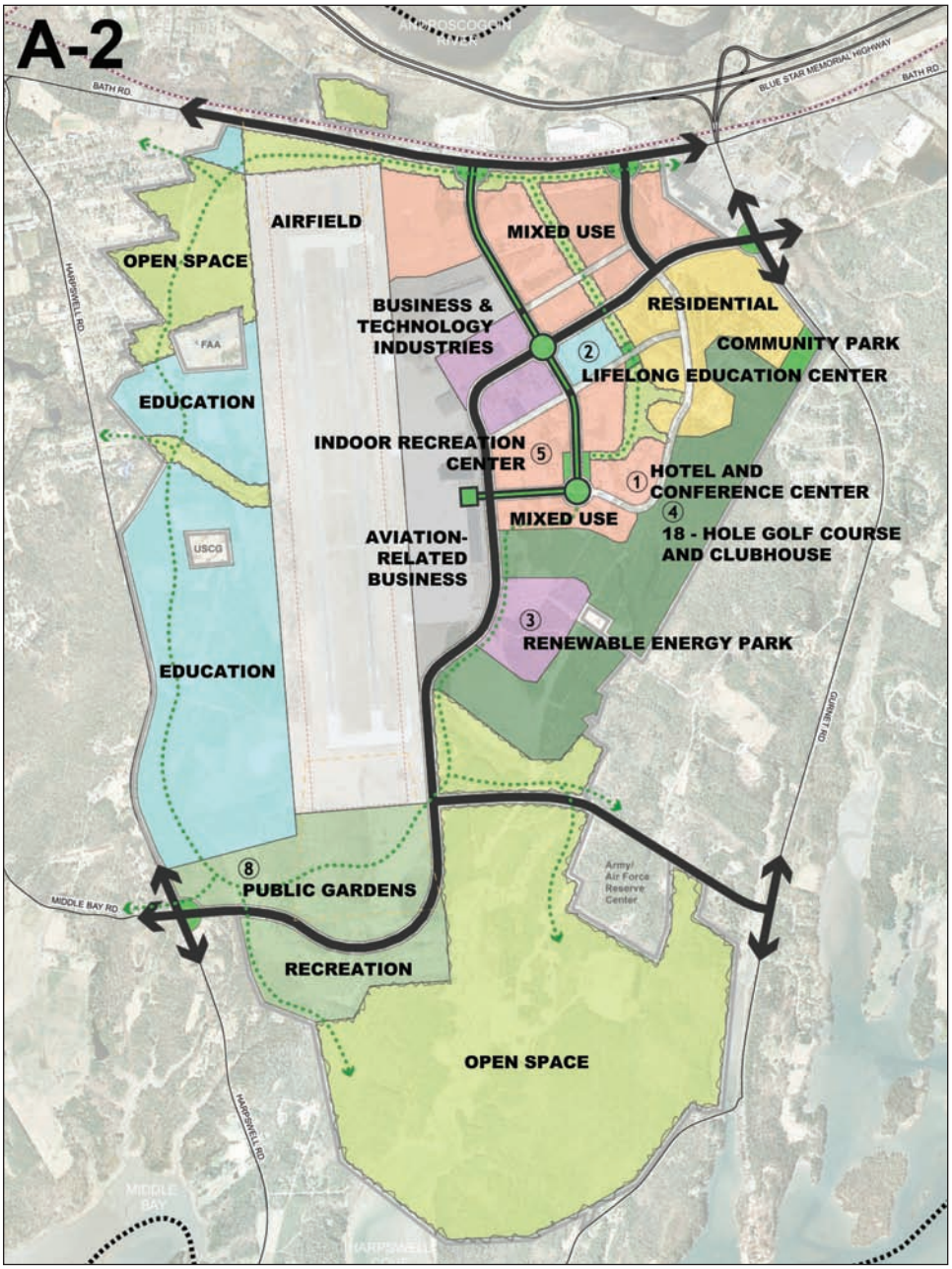
Airport Concept A2 - Potential Land Use Program

	Land Use Programs	Total Surplus Acres	% of Total Surplus Acres	Acres Not Suitable for Development	Net Acres Remaining [1]	% of Total Net Acres Remaining
Land Development	Airport Operations	505	16%	45	460	15%
	Aviation-Related Business	185	6%	0	185	6%
	Mixed Use	295	9%	35	260	9%
	Business and Technology Industries	105	3%	0	105	4%
	Education	405	13%	160	245	8%
	Residential	180	6%	15	165	6%
	Subtotal	1,675	52%	255	1,420	48%
Open Space	Park	15	< 1%	-	15	1%
	Golf Course	245	8%	-	245	8%
	Outdoor Recreation / Athletic Fields	230	7%	-	230	8%
	Natural Areas	1,055	33%	-	1,055	36%
	Subtotal	1,500	48%	-	1,550	52%
Grand Total		3,225	100%	255	2,970	100%

[1] "Net Acres Remaining" includes transportation rights-of-way

Note: Percentages may not total due to rounding

Exhibit 60: Airport Concept A-2 Land Use Table and Map



Non-Airport Concept N-1

The first non-airport concept plan map, identified as Non-Airport Concept N-1, included these key themes and elements:

- New US 1 interchange / bridge over Bath Road
- West-central transportation spine separates business and community-oriented uses from education and open space
- Primary east-west travel route helps connect community
- Rail-oriented Business and Technology Industries along Bath Road entry
- Expanded 18-hole golf course
- 2nd home / retirement development near golf course and Education
- Indirect east–west collector from Gurnet Road to Harpswell Road

Exhibit 61: Non-Airport Concept N-1 Land Use Table and Map illustrates the physical arrangement of the various land use and transportation elements of this plan, along with a breakdown of the conceptual land use program by acre:

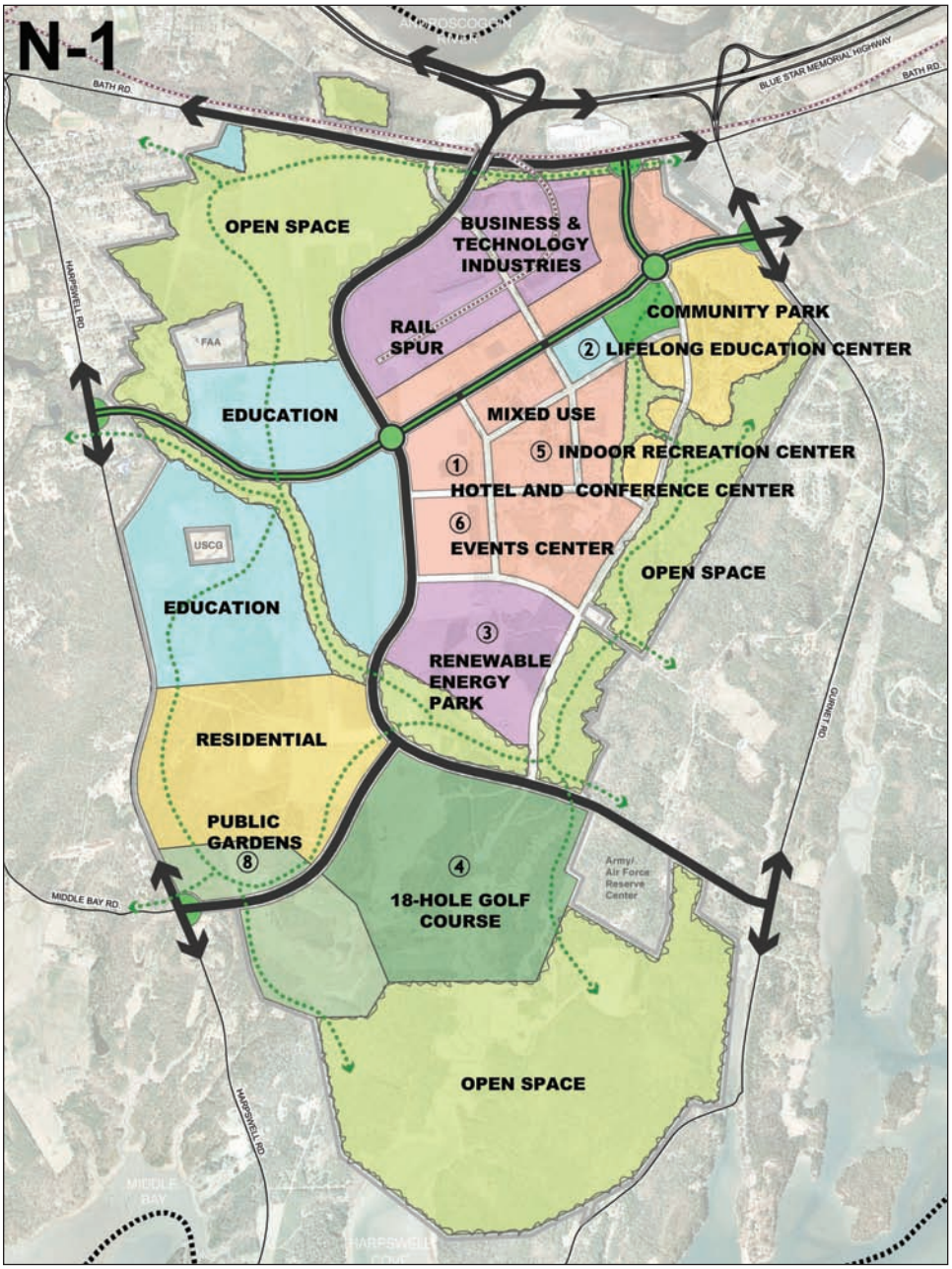
Non-Airport Concept N1 - Potential Land Use Program

	Land Use Programs	Total Surplus Acres	% of Total Surplus Acres	Acres Not Suitable for Development	Net Acres Remaining [1]	% of Total Net Acres Remaining
Land Development	Airport Operations	-	-	-	-	-
	Aviation-Related Business	-	-	-	-	-
	Mixed Use	375	12%	25	350	12%
	Business and Technology Industries	300	9%	20	280	9%
	Education	420	13%	105	315	11%
	Residential	400	12%	95	305	10%
	Subtotal	1,495	46%	245	1,250	42%
Open Space	Park	25	1%	-	25	1%
	Golf Course	295	9%	-	295	10%
	Outdoor Recreation / Athletic Fields	115	4%	-	115	4%
	Natural Areas	1,295	40%	-	1,295	43%
	Subtotal	1,730	54%	-	1,730	58%
Grand Total		3,225	100%	245	2,980	100%

[1] "Net Acres Remaining" includes transportation rights-of-way

Note: Percentages may not total due to rounding

Exhibit 61: Non-Airport Concept N-1 Land Use Table and Map



Non-Airport Concept N-2

Non-Airport Concept N-2 included the following key themes and elements:

- No US Route 1 interchange
- Central transportation loop separates higher-density Mixed Use and Business and Technology uses from surrounding lower-density uses
- Expanded 18-hole golf course
- Promotes strong mix of uses (hotel, conference, golf and education)
- Indirect east–west collector from Gurnet Road to Harpswell Road

Exhibit 62: Non-Airport Concept N-2 Land Use Table and Map illustrates the physical arrangement of the various land use and transportation elements of this plan, along with a breakdown of the conceptual land use program by acre:

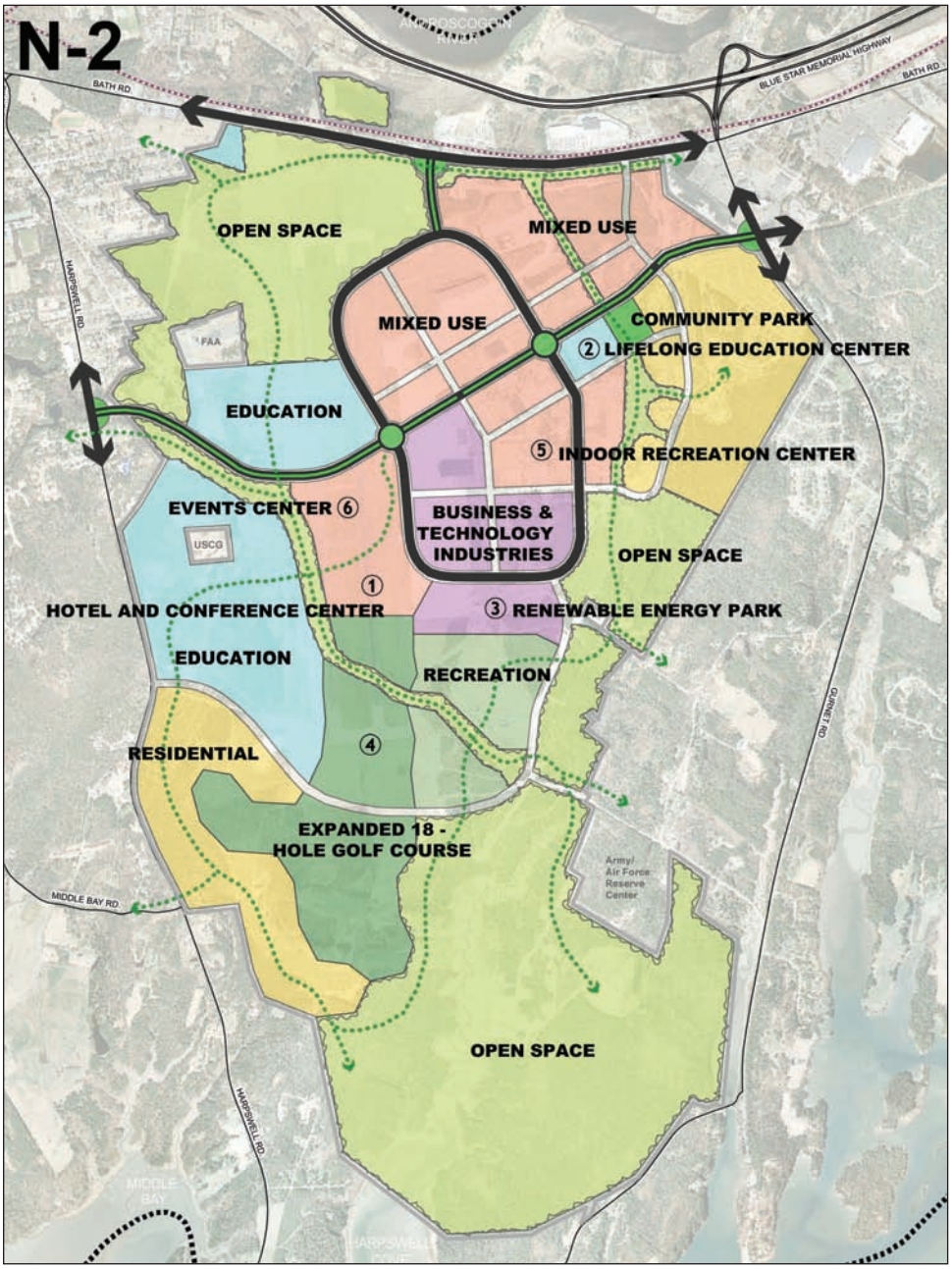
Non-Airport Concept N2 - Potential Land Use Program

	Land Use Programs	Total Surplus Acres	% of Total Surplus Acres	Acres Not Suitable for Development	Net Acres Remaining [1]	% of Total Net Acres Remaining
Land Development	Airport Operations	-	-	-	-	-
	Aviation-Related Business	-	-	-	-	-
	Mixed Use	490	15%	30	460	15%
	Business and Technology Industries	170	5%	10	160	5%
	Education	360	11%	120	240	8%
	Residential	445	14%	95	350	12%
	Subtotal	1,465	45%	255	1,210	41%
Open Space	Park	10	< 1%	-	10	< 1%
	Golf Course	230	7%	-	230	8%
	Outdoor Recreation / Athletic Fields	110	3%	-	110	4%
	Natural Areas	1,410	44%	-	1,410	47%
	Subtotal	1,760	55%	-	1,760	59%
Grand Total		3,225	100%	255	2,970	100%

[1] "Net Acres Remaining" includes transportation rights-of-way

Note: Percentages may not total due to rounding

Exhibit 62: Non-Airport Concept N-2 Map and Land Use Table



Planning Themes Common to All Concept Plans

Despite the differences in land use and transportation configurations among the four concept plans discussed above, various planning- and design-related themes are common, including:

Gateways and Entry Features:

- US Route 1, Bath Road, Gurnet and Harpswell Roads
- Natural Open Space and/or Parkways
- Architectural Theme and Character
- Monuments, Sculpture, Landscaping and Lighting
- Distinctive, Visually Attractive, Memorable
- Symbolic Extension of the "Mall" Found in Downtown Brunswick
- Promote "Sense of Place"

Mix of Land Use Types and Densities

- Aviation-Related Business and Industrial
- Business and Technology
- Mixed-Use Districts
- Professional Offices / Services
- Neighborhood / Niche Retail
- Range of Housing (Attached/Detached and Multi-Family)
- Civic and Cultural Facilities
- Special Uses
- Educational Campus and/or Facilities
- Parks, Recreation and Open Space
- Formal / Informal - Active / Passive - Natural Areas

Pedestrian-Friendly Transportation Solutions

- Landscaped Medians / Pedestrian Safety Zones
- Safe and Convenient Transit Stops
- Pedestrian Overpass / Underpass Potential
- Streetscaping, Furniture and Pedestrian Amenities
- Walkable Neighborhoods
- Separated Bicycle Lanes, Trails, and Pathways
- Direct Connections with Future Links to Midcoast Hospital

Recognize Existing Infrastructure and Resources

- Off-Base and On-Base Vehicular Circulation Patterns
- Adjacent Land Use Considerations
- Major Buildings and Facilities
- Existing Utility Systems
- Natural Systems and Drainage Patterns
- Environmental Conditions

Preserve Open Space and the Environment

- Harpswell Cove Estuary
- Mere Brook and Other Waterways
- Pitch Pine and Sand Plain Grassland Communities
- Aquifer Recharge Areas
- Unfragmented Forests
- Deer Wintering Areas
- Other Identified Sensitive Areas

Plan Alternatives

After review and consideration of the four concepts and their characteristics, the BLRA Board of Directors voted unanimously on August 15, 2007 to include an aviation component in the Reuse Master Plan. The decision was based on the recommendations of the Aviation Feasibility Study, as well as strong public support for the continued use of the existing aviation assets. Consequently, the two non-airport concept plans discussed above were eliminated for further consideration.

Following this decision, the planning team proceeded to refine the two airport concepts. With adjustments made to the transportation framework in response to community feedback from the *BRAC to the Future* public meeting, modifications were also made regarding land use districts, with the primary change being the introduction of a "Professional Office" land use category that was distinct from the Mixed Use category. The result was the transformation of the two airport concept maps into Plan Alternative A and Plan Alternative B. These two alternative plans were presented for public comment at the *BRAC to the Future II* meeting in September 2007.

Plan Alternatives A and B both capitalize on the extensive airport facilities that currently exist on the base. The following paragraphs describe and illustrate these two Plan Alternatives:

Plan Alternative A

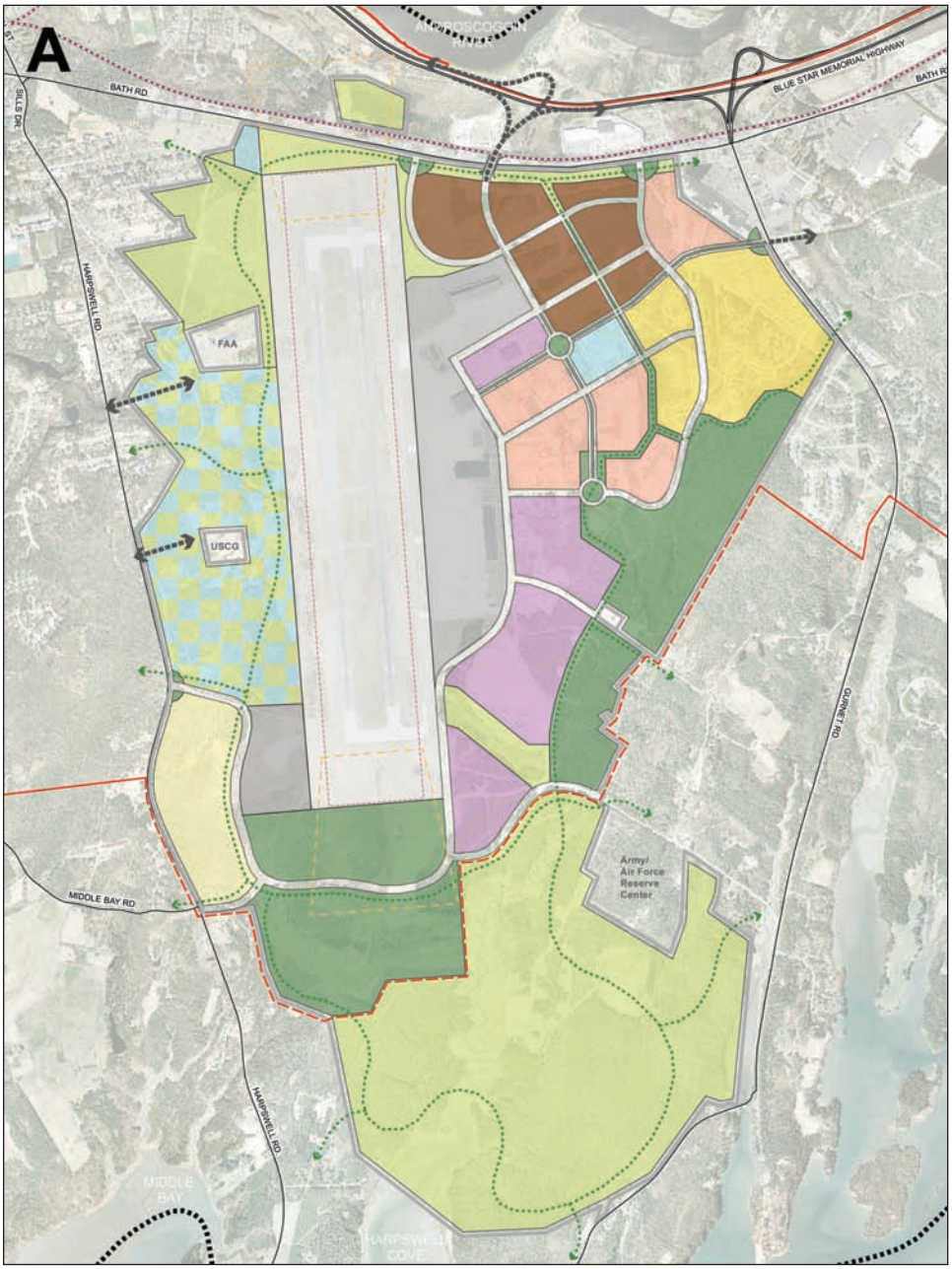
Plan Alternative A maximizes vehicular access to the property with both its proposed interchange at US 1 and additional entry points along Bath, Harpswell, and Gurnet Roads. The plan includes a Professional Office district at the Bath Road gateway, as well as a Mixed Use district adjacent to the Cook's Corner retail area. South of the Professional Office district, in the heart of the redevelopment, a mix of districts are planned, including Business and Technology Industries, Mixed Use, Education, and Residential uses. These districts are oriented to north-south greenbelts and parkways that lead to the area around the Transient Visitors Quarters, which is envisioned as a hotel and conference center. A new golf course is planned in the undeveloped area and adjacent to the hotel. Aviation-Related Business uses remain focused along the east side of the airfield, with additional Business and Technology Industry districts located adjacent to the Aviation-Related Business district. South of the runway, a large Recreation and Open Space district is proposed where the existing golf course is presently located. Adjacent to the southwest corner of the runway is a small Aviation-Related Business district. A low-density Residential district is near the intersection of Harpswell Road and Middle Bay Road. Education and Natural Areas occupy the remaining areas west of the airfield.

Exhibit 63: Plan Alternative "A" Land Use Table and Map illustrates the land use and transportation framework for Plan Alternative A, along with a breakdown of the conceptual land use program by acre:

Alternative A - Proposed Land Use Program

	LAND USE DISTRICTS	SURPLUS ACRES	PERCENT OF TOTAL
Land Development	Airport Operations	500	16%
	Aviation-Related Business	225	7%
	Professional Office	150	5%
	Community Mixed Use	145	4%
	Business and Technology Industries	195	6%
	Education	200	6%
	Residential (Moderate Density)	225	7%
	Residential (Low Density)	95	3%
	SUBTOTAL	1,735	54%
Open Space	Recreation / Open Space	470	15%
	Natural Areas	1,020	32%
	SUBTOTAL	1,490	46%
	GRAND TOTAL	3,225	100%

Exhibit 63: Plan Alternative "A" Land Use Table and Map



Plan Alternative B

Plan Alternative B also features Mixed Use and Business and Technology Industries districts along Bath Road. South of these districts, in the heart of the redevelopment, are additional Mixed Use and Business and Technology Industries districts, along with an Education district and expanded Residential districts adjacent to the existing housing. Natural Areas are retained along the eastern edge of the base, connecting to Harpswell Cove. As with Plan Alternative A, an Aviation-Related Business district and additional Business and Technology Industries districts form the eastern boundary to the airfield. South of the runway, a Recreation and Open Space district is proposed that includes the existing golf course. The remaining areas west of the runway are designated for Education and Natural Area uses.

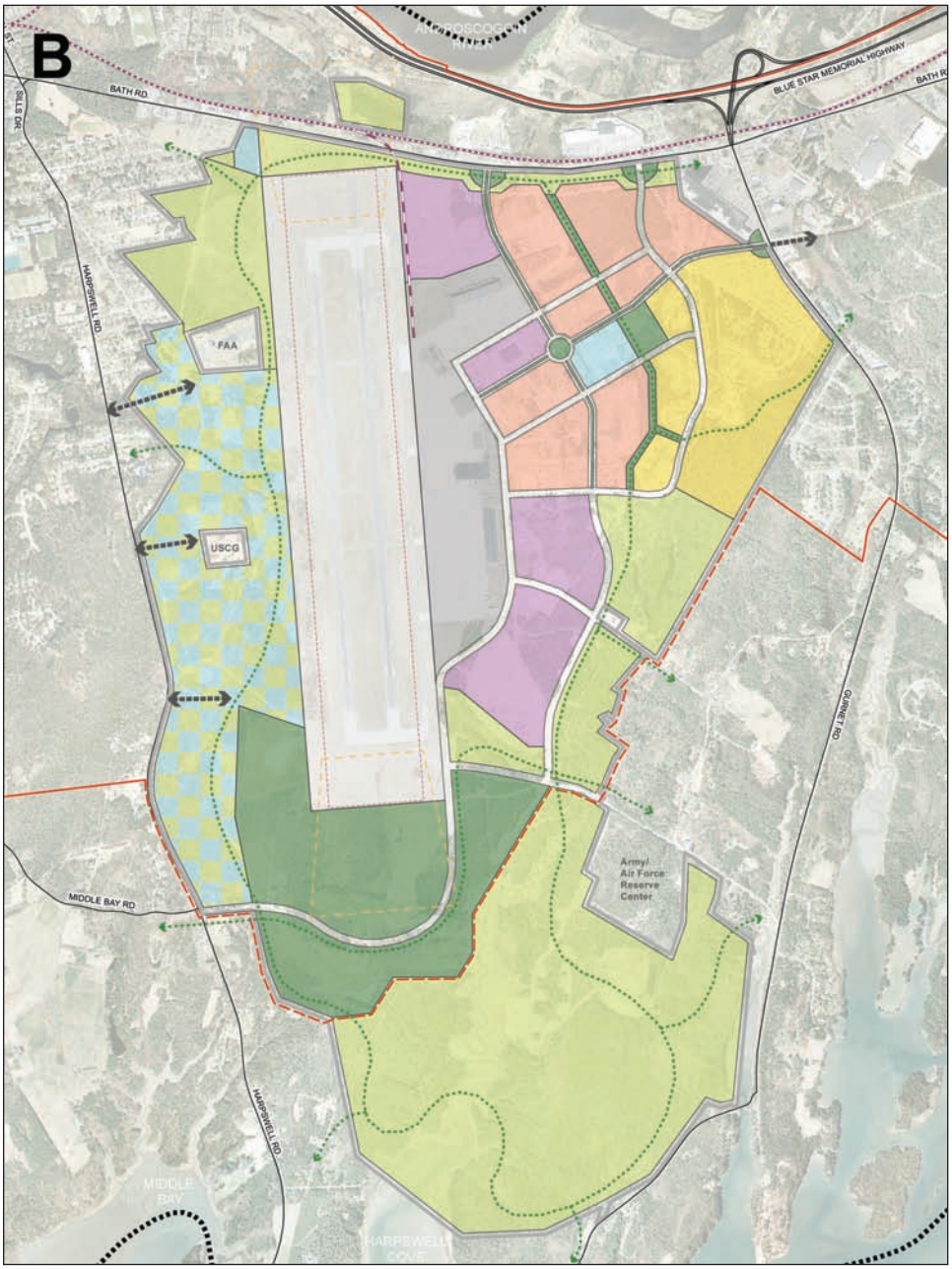
Exhibit 64: Plan Alternative "B" Land Use Table and Map illustrates the land use and transportation framework for Plan Alternative B, along with a breakdown of the conceptual land use program by acre:

Alternative B - Proposed Land Use Program

	LAND USE DISTRICTS	SURPLUS ACRES	PERCENT OF TOTAL
Land Development	Airport Operations	500	16%
	Aviation-Related Business	185	6%
	Professional Office	0	0%
	Community Mixed Use	240	7%
	Business and Technology Industries	205	6%
	Education	200	6%
	Residential (Moderate Density)	280	9%
	Residential (Low Density)	0	0%
	SUBTOTAL	1,610	50%
Open Space	Recreation / Open Space	375	12%
	Natural Areas	1,240	39%
	SUBTOTAL	1,615	50%
	GRAND TOTAL	3,225	100%

Notes: Percentages may not total due to rounding

Exhibit 64: Plan Alternative "B" Land Use Table and Map



Plan Selection

Based on public feedback as well as other market, economic, and physical factors, the BLRA Board of Directors voted on September 19, 2007 to adopt Plan Alternative A as the basis for the Reuse Master Plan. During September and October the planning team, in consultation with the BLRA staff and Board of Directors, continued to refine the preferred plan that resulted in the Reuse Master Plan map presented in **Section 6**.

Section 6: The BNAS Reuse Master Plan

This section of the BNAS Reuse Master Plan report describes and illustrates the specific land use, transportation, and open space elements that define the Plan, and that will establish the property as a unique asset within the greater Brunswick community and Midcoast Maine region.

Plan Vision and Intent

The Reuse Master Plan for the Brunswick Naval Air Station represents a unique opportunity to establish not only a vibrant live, work, play and educate environment, but also centers of excellence for technology innovation, environmental sustainability, and "green" community development. From an economic development perspective, the plan provides a framework within which a variety of corporate, business, academic, recreational, and community opportunities can flourish. From a community development perspective, the plan promotes a strong sense of place based on smart growth principles that will serve as a model for future sustainable development throughout the region.

Land Use and Transportation Framework

The structure and relationship between future land uses and the transportation system proposed for redevelopment of the base is described in this section. This includes a description of the proposed land use program; a description and a diagrammatic illustration of each of the land use districts; a summary of transportation and open space elements; and a discussion of how environmental conditions influenced the Reuse Master Plan.

Land Use Program

The land use program shown below provides a summary of proposed land use districts, with corresponding areas allocated for each land use type. As indicated on the exhibit, only 51% of the total base property has been allocated for development (approximately 1,630 acres); and, 49% (approximately 1,570 acres) of the base has been dedicated to a variety of active and passive areas for recreation, open space, and natural areas. This figure does not include parks, open space, and natural drainage or buffer areas that would be incorporated as part of the 1,630 acres planned for development. **Exhibit 66: Land Use Program Table** is color-coded to correspond with the land use districts shown on **Exhibit 65: Reuse Master Plan Map**.

Note: Matrix Design Group is the source of all exhibits in this Section.

Exhibit 65: Reuse Master Plan Map

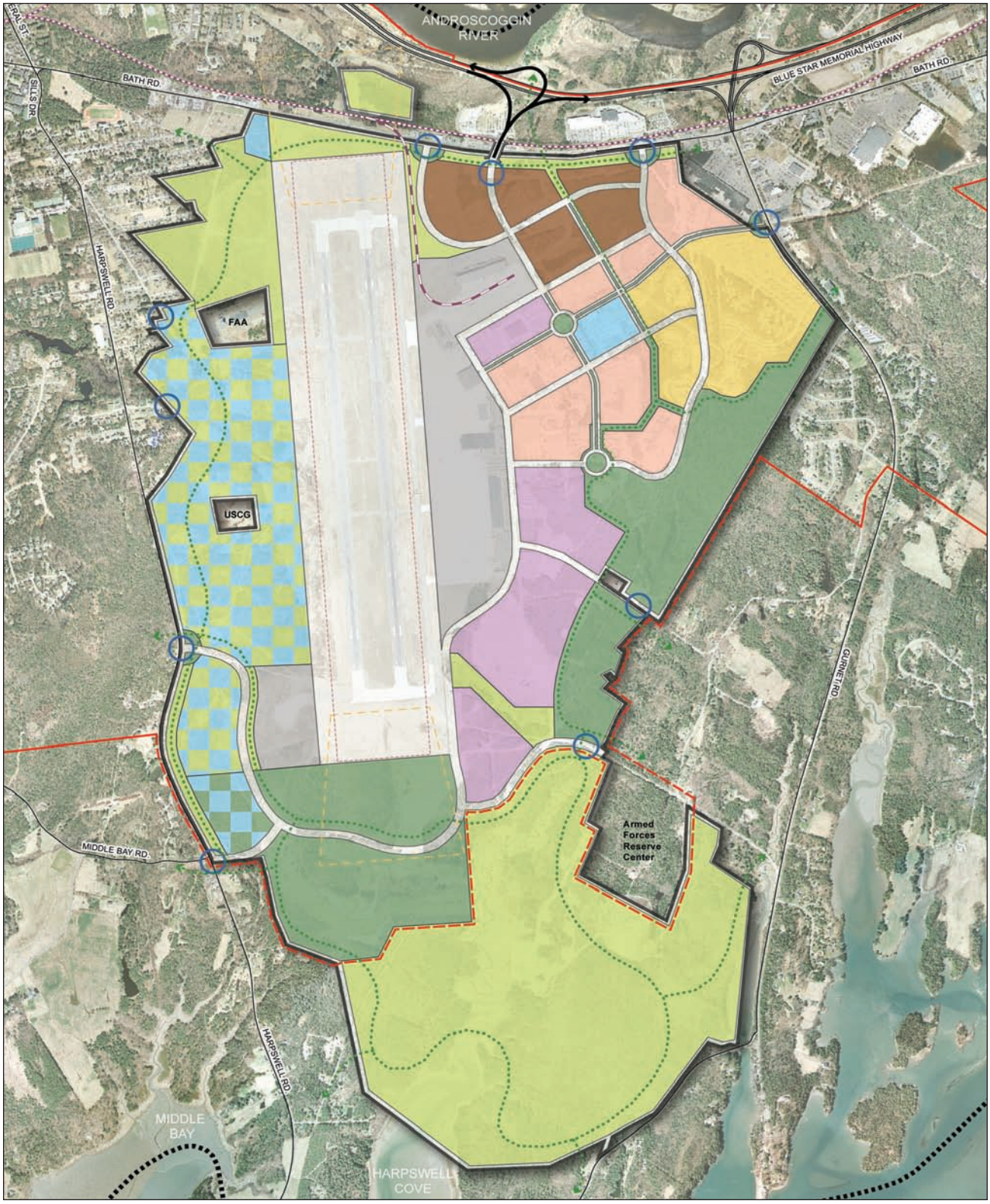


Exhibit 66: Land Use Program

Proposed Land Use Program

	LAND USE DISTRICTS	SURPLUS ACRES	PERCENT OF TOTAL
Land Development	Airport Operations	500	16%
	Aviation-Related Business	230	7%
	Professional Office	120	4%
	Community Mixed Use	175	5%
	Business and Technology Industries	190	6%
	Education	200	6%
	Residential	215	7%
	SUBTOTAL	1,630	51%
Open Space	Recreation / Open Space	510	16%
	Natural Areas	1,060	33%
	SUBTOTAL	1,570	49%
GRAND TOTAL		3,200	100%

Notes:

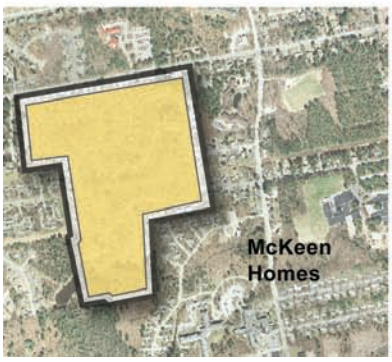
1. Checkered blue-light green area totals 320 acres, of which an undefined 175 acres have been assigned in the table above to Education and 145 acres to Natural Areas.
2. Checkered blue-dark green area totals 30 acres, all of which has been assigned in the table above to Recreation / Open Space; however, Education would be an allowed use, if needed.
3. Checkered light green-dark green (East Brunswick Transmitter Site) area totals 70 acres, of which an undefined 35 acres have been assigned in the table above to Recreation / Open Space and 35 acres to Natural Areas.
4. The Runway Object Free Area provides a 500-foot buffer to the east and west of the two runways. The Airport Operations land use district extends an additional 500 feet beyond the Runway Object Free Area, resulting in a 1,000-foot buffer parallel to the runways.

Legend

- B N A S Surplus Property
- Town of Brunswick
- State Highway
- Major Road
- Railroad
- Runway Protection Zone
- Runway Object Free Area
- Existing Town Growth Boundary
- Potential Town Growth Boundary
- Potential Pedestrian / Bike Trail
- Potential New Interchange
- Potential Railroad Spur
- Access Points

N

0 500 1,000 2,000 3,000 Feet



BLRA
BRUNSWICK LOCAL REDEVELOPMENT AUTHORITY

BRUNSWICK NAVAL AIR STATION
REUSE MASTER PLAN

Matrix Design Group Inc.
Integrated Design Solutions

PLANNING DECISIONS ECONOMIC RESEARCH ASSOCIATES
WRIGHT - PIERCE ENGINEERS WBRC ARCHITECTS + ENGINEERS

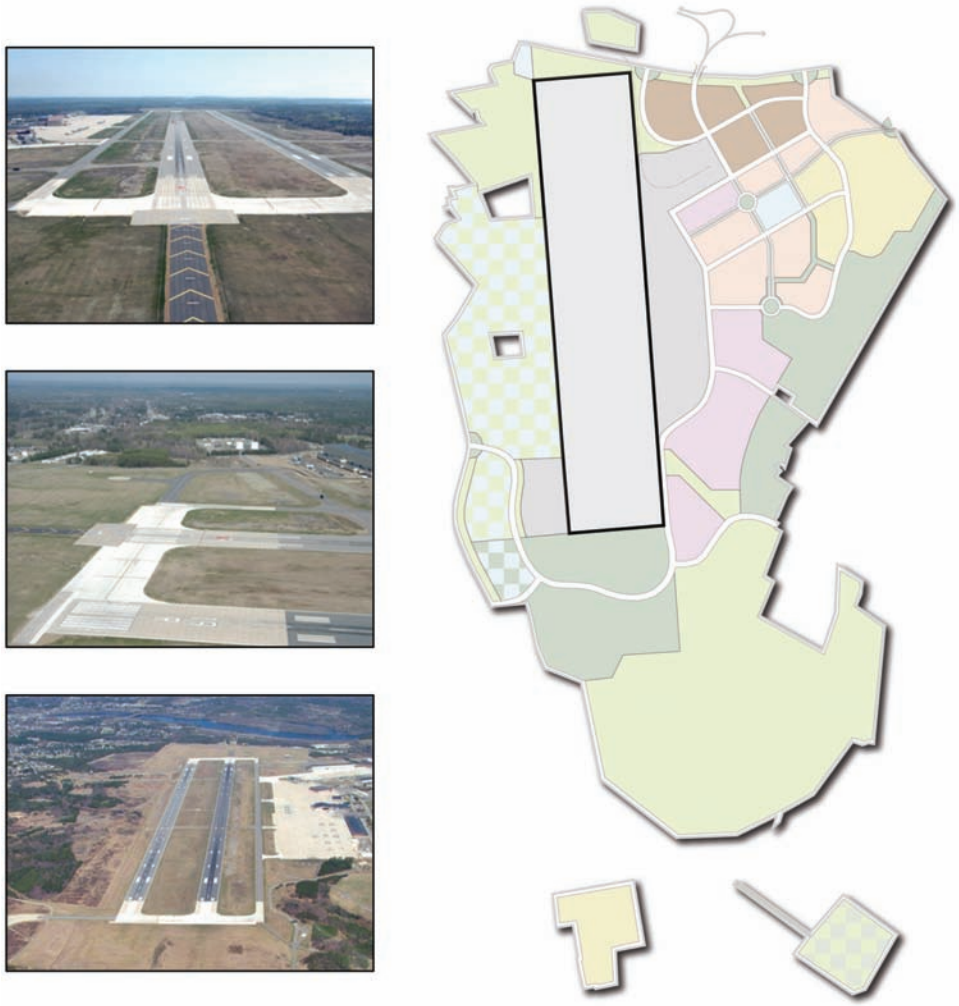
Land Use Districts

Based on the inventory and assessment of local, regional, and state market conditions, and influenced by the availability of existing on-base infrastructure and facility assets, the land use program described above is illustrated by the exhibits that follow.

Airport Operations District

The 500-acre Airport Operations district, shown in light gray on the plan, contains the two existing 8,000-foot long runways, taxiways and adjacent buffer zones surrounding the active airfield. **Exhibit 67: Airport Operations District Location Map** shows the location of this land use district.

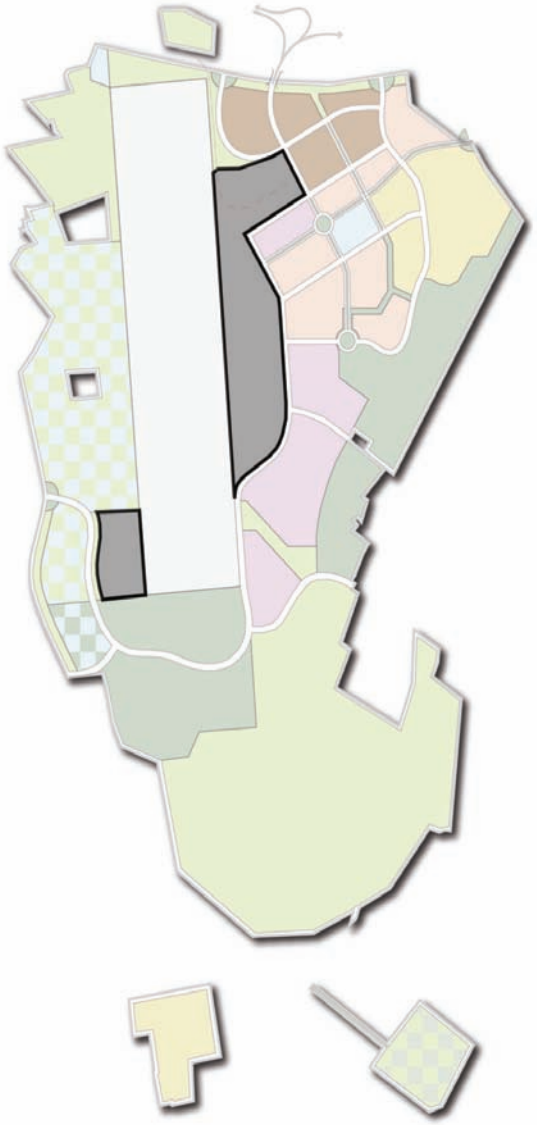
Exhibit 67: Airport Operations District Location Map



Aviation-Related Business District

The intent of the 230-acre Aviation-Related Business district, identified in dark gray on the plan, is to provide an area dedicated primarily to aviation-related business, industry, transportation and distribution, technology employment and other uses that rely on, or directly benefit from, proximity to airport facilities and operations. Such uses could include general and corporate aviation, aircraft maintenance / repair / overhaul, aviation-related manufacturing, and government and aerospace research and development. **Exhibit 68: Aviation-Related Business District Location Map** shows the locations of this land use district.

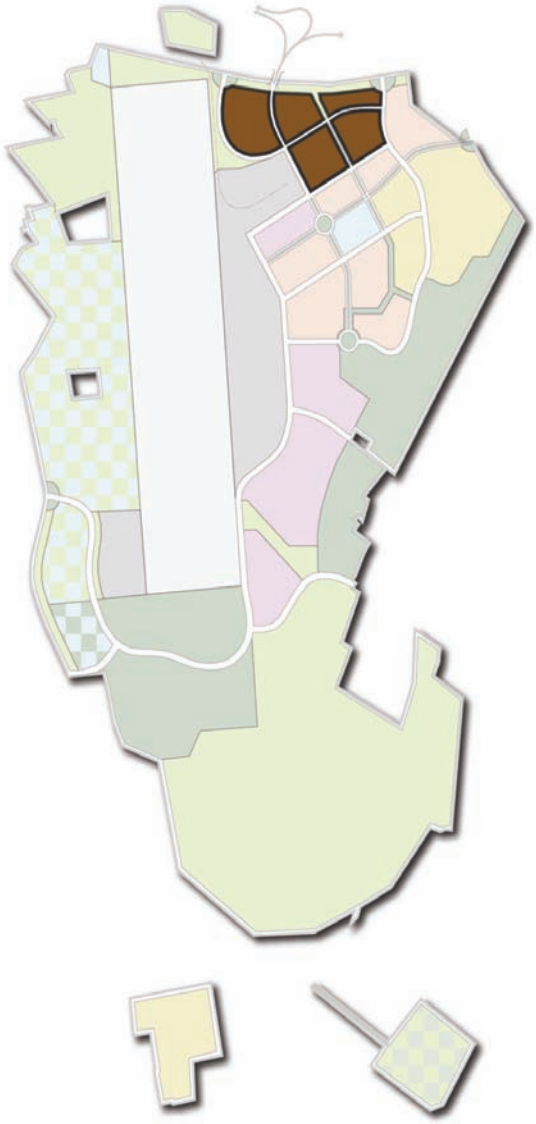
Exhibit 68: Aviation-Related Business District Location Map



Professional Office District

The intent of the 120-acre Professional Office district, identified in brown on the plan, is to provide an employment center serving corporate and professional office needs of the area. Although some retail and community support uses such as hotels, food service, and day care could be integrated into this district, primary uses would be administrative, corporate, or professional offices such as law, medical, insurance, architectural, engineering, finance, real estate, and similar office uses. Uses can be accommodated within this zone in stand alone buildings, in a campus setting, or in a more compact office complex. **Exhibit 69: Professional Office District Location Map** shows the locations of this land use district.

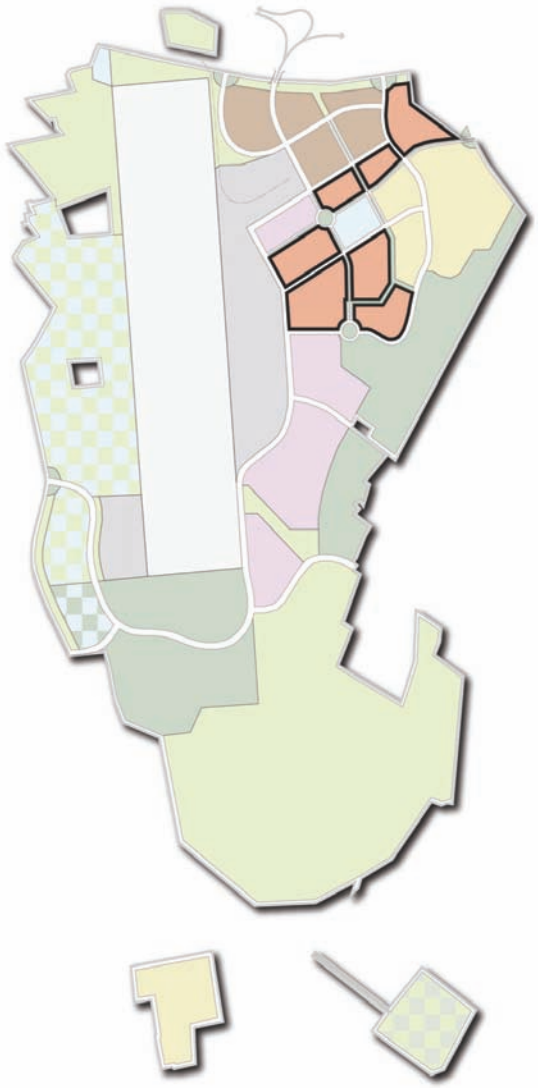
Exhibit 69: Professional Office District Location Map



Community Mixed Use District

The intent of the 175-acre Community Mixed Use district, shown in light orange on the plan, is to provide a compact pedestrian-oriented mix of uses that will provide a variety of live, work, play and educate opportunities. Typical uses could include neighborhood-scale retail, professional offices, business and support services, restaurants, hotels and conference centers, health and fitness centers, day care centers, civic and cultural uses (such as churches, libraries, and museums), parks and government buildings. Also included would be a variety of higher-density attached housing types, such as town homes, condominiums and apartments (including affordable rental and home ownership, and assisted/independent care senior housing). **Exhibit 70: Community Mixed Use District Location Map** shows the locations of this land use district.

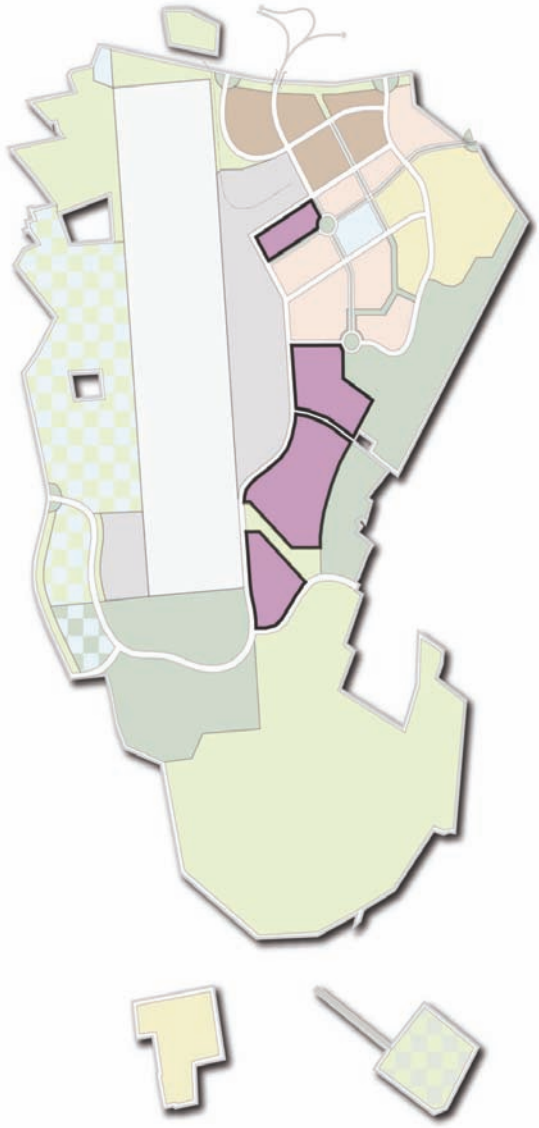
Exhibit 70: Community Mixed Use District Location Map



Business and Technology Industries District

The intent of the 190-acre Business and Technology Industries district, shown in purple on the plan, is to provide a high-tech employment center that would serve large-scale technology uses, such as technology-based research and development, energy park, laboratories, light manufacturing, and warehouse and distribution uses. Facilities could be developed as stand-alone buildings on several acres, or in a campus / corporate park setting. This district could also accommodate activities that are normally considered industrial in nature, but which produce few, if any, external effects that may be adverse to nearby properties or to the community in general. **Exhibit 71: Business and Technology Industries District Location Map** shows the locations of this land use district.

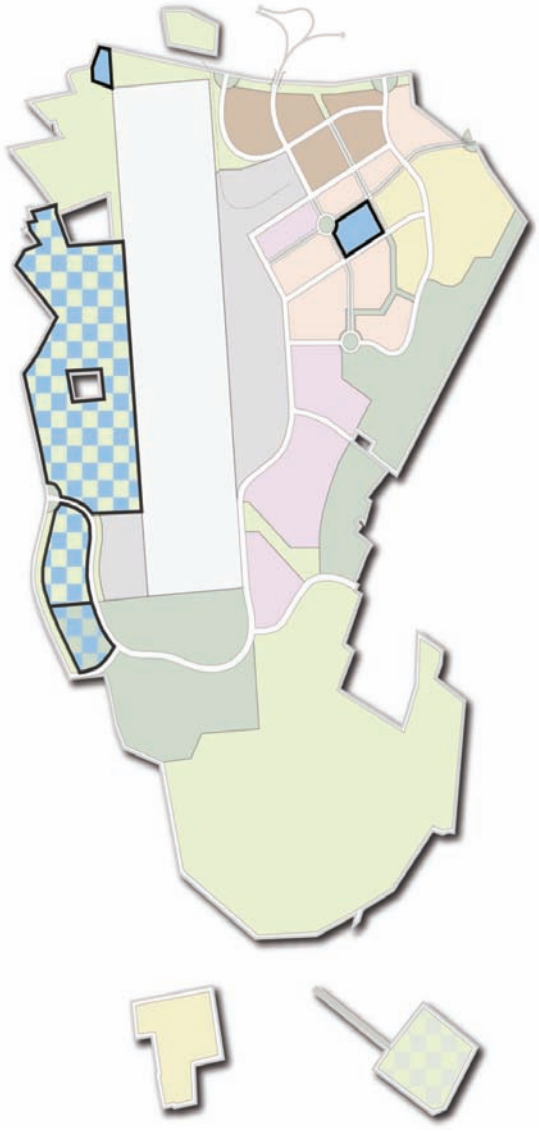
Exhibit 71: Business and Technology Industries District Location Map



Education District

The intent of the 200-acre Education district, light blue on the plan, is to allow for university and college-level academic, administrative and support facilities. Typical uses include college classrooms, administrative and support facilities, athletic and sporting events, and student / faculty housing. More detailed studies are being conducted in the checkered areas to determine specific locations for educational versus natural area uses. **Exhibit 72: Education District Location Map** shows the location of this land use district.

Exhibit 72: Education District Location Map



Residential District

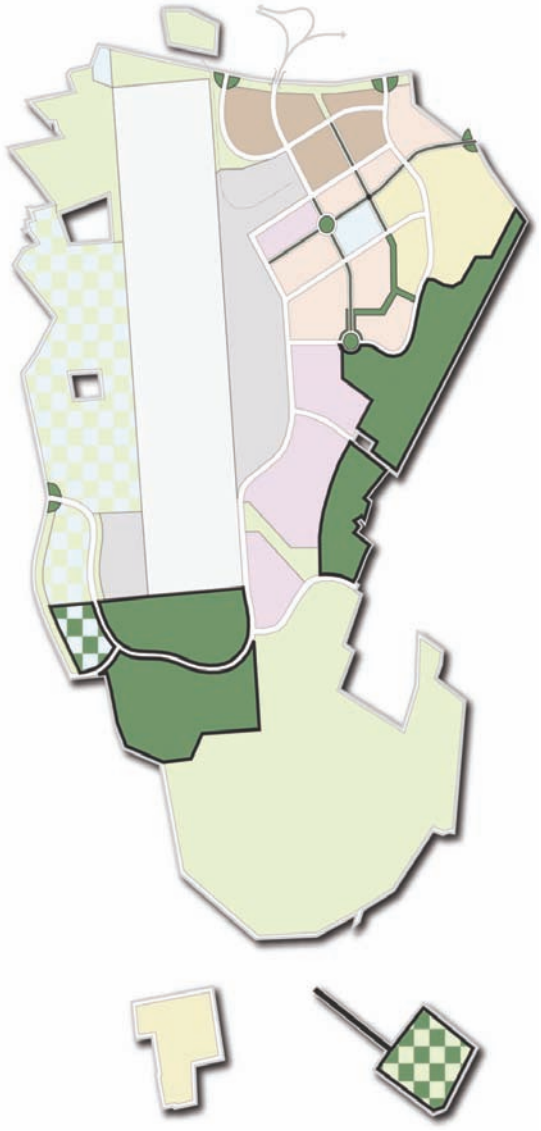
The intent of the 215-acre Residential district, shown in yellow on the plan, is to provide for a variety of housing types in a compact, pedestrian-oriented setting. Typical uses will include single-family attached or detached, multi-family apartments, assisted / senior housing, and retirement / second homes. The proposed density for the McKeen Street housing area is five dwelling units per acre and for the on-base housing areas eight dwelling units per acre. For residential uses in the Community Mixed Use districts, the proposed density is 24 dwelling units per acre. **Exhibit 73: Residential District Location Map** shows the locations of this land use district.

Exhibit 73: Residential District Location Map

Recreation and Open Space District

The intent of the 510-acre Recreation and Open Space district, identified on the plan in dark green, is to provide suitable areas for a variety of commercial and public active and passive outdoor recreational opportunities for the community. Recreational activities could include public parks, recreation fields, golf courses, public gardens, bicycle trails, and equestrian facilities. **Exhibit 74: Recreation and Open Space District Location Map** shows the locations of this land use district.

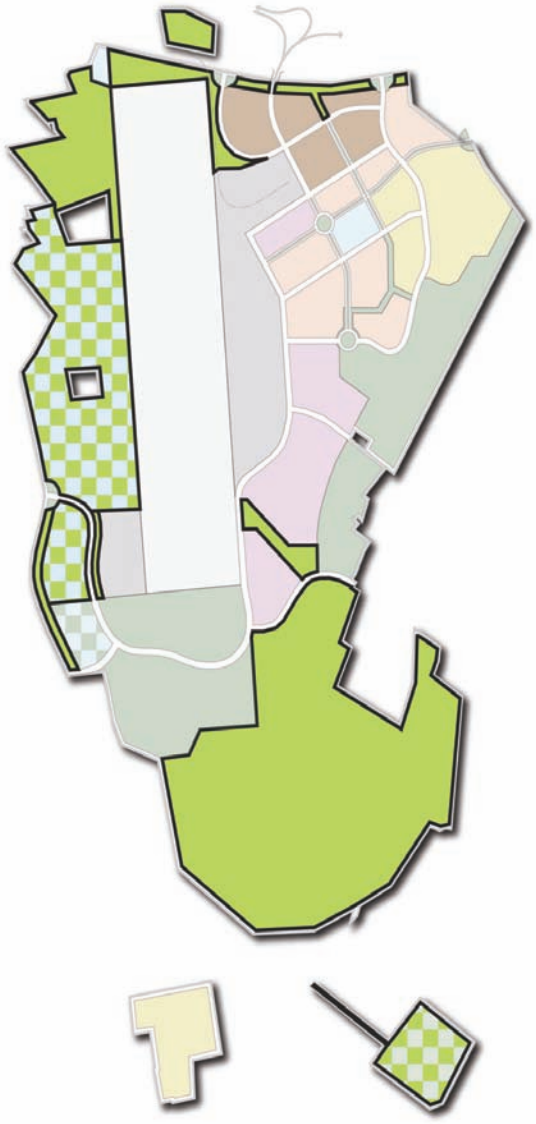
Exhibit 74: Recreation and Open Space District Location Map



Natural Areas District

The intent of the 1,060-acre Natural Areas district, light green on the plan, is to preserve, maintain and enhance existing natural areas for the long-term benefit of area residents and the natural environment. As such, only those uses that would not significantly alter the environment and/or would provide opportunities to experience the environment would be considered, including pedestrian trails, nature and interpretive centers, environmental education, and other non-intrusive passive outdoor recreation and educational uses. More detailed studies are being conducted in the checkered areas to determine specific locations for natural versus educational uses. **Exhibit 75: Natural Areas District Location Map** shows the location of this land use district.

Exhibit 75: Natural Areas District Location Map



Transportation System

Through the course of the development of the Reuse Master Plan, efforts were made to identify both the nature and magnitude of transportation demands likely to be associated with redevelopment of the facility and the ability of the existing transportation systems to accommodate these demands. A recurring theme from the public was the desire to accommodate viable alternatives to single passenger automobile travel and the need to be sensitive to other land uses in the vicinity of the base. The transportation framework plan element of the Reuse Master Plan addresses both off-site and on-site capacity-related improvements with consideration of these issues. Following are a number of the key components of the Plan:

Facility Access

With the change in use of the base property, there will no longer be a need to maintain only two points of access for security reasons. It is proposed that the Bath Road entrance to the base be relocated to create a four-way intersection with Merrymeeting Plaza and close the existing entrance. In addition to relocating the primary access / gateway to the facility to better coincide with the present pattern of signalization on Bath Road, several key elements are proposed:

- Creation of a new connector spur and interchange connecting to US Route 1 west of the present interchange at Cook's Corner
- New secondary points-of-access onto the adjacent street systems at Bath Road / Gurnet Road / Harpswell Road

Internal Street and Roadway Network

Within the base property, there will be a number of changes in the existing street and roadway network:

- With the change in use and creation of connection points to Harpswell Road on the west and Gurnet Road on the east, there will be a transition in terms of the proportion of east-west versus north-south traffic flow patterns.
- With the changes in traffic patterns and land use, it will be possible to implement a logical system of street hierarchy and character. It is envisioned that primary arterial routes extending through the base will assume the character of boulevards and will serve a number of local and/or collector streets which provide direct access to the individual parcels. The design of these streets will include appropriate consideration of pavement width / geometry, landscaping, lighting, pedestrian features and utility accommodation / access.

Rail Service Considerations and Access

Historically, the base was served directly by rail, via an at-grade crossing of Bath Road. The rail spur extended into the site roughly parallel to the main base entrance. While it has been determined that re-creation of both passenger and freight rail access onto the site would present a key incentive for certain future development, the reintroduction of a grade crossing on Bath Road would present a number of challenges. Initial evaluation suggests that creation of grade separated rail access could be achieved through elevating Bath Road across the north end of the site, which would allow a new rail spur alignment further to the west.

Pedestrian Circulation and Walkability

As noted, significant public input focused on the need to create a facility characterized by "walkability." The improvements contemplated within the plan will provide pedestrian access throughout, with a focus on connectivity with those types of land uses which tend to generate pedestrian traffic, or interface with other transportation modes. To ensure the development of a strong pedestrian and bicycle system as part of the base redevelopment, Town of Brunswick development standards and roadway transportation improvements must incorporate sufficient bicycle and pedestrian facilities.

Transit Interface

Plan development included a number of conversations with CoastalTrans, Inc., which serves as the primary local transit provider. It is proposed that transit stops will be located to correspond with complementary land use elements and transportation nodes.

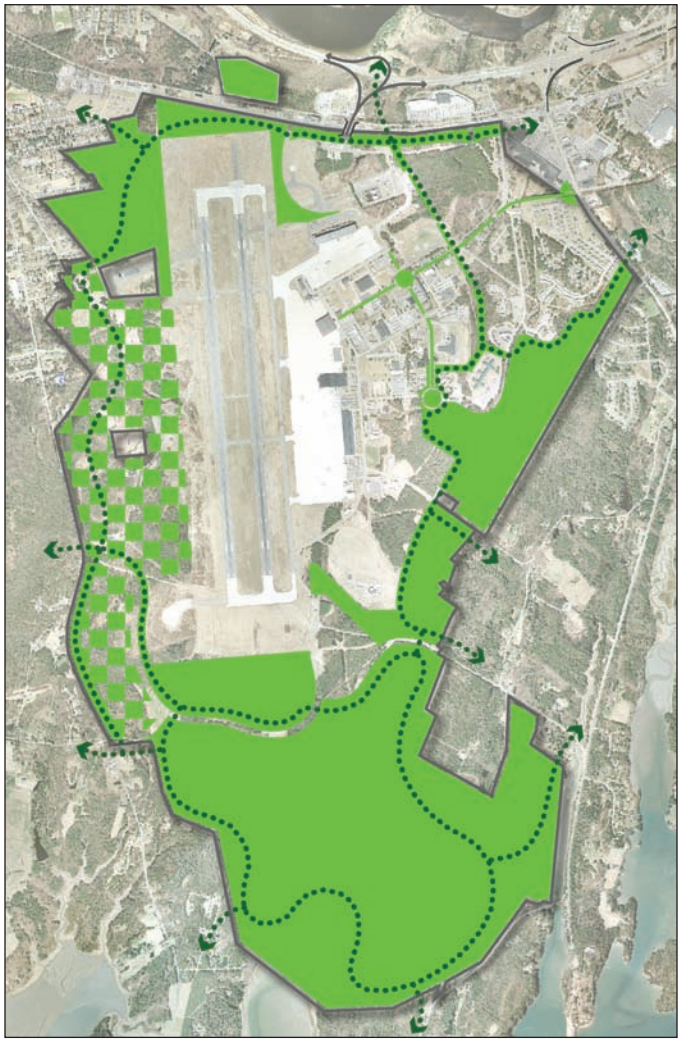
Other Environmentally Sustainable Transportation Modes

In addition to promoting pedestrian, transit and, potentially, passenger rail as key modes of transportation, the Reuse Master Plan has identified the desirability of facilities to support other environmentally sustainable elements, such as provision of bicycle racks and facilities necessary for operation of electric cars and buses.

Open Space System

Over 1,500 acres (49%) of the site are dedicated to open space and natural areas, where wetlands, drainageways, wildlife corridors and other sensitive natural systems are prevalent. Urban parks and formal open spaces are envisioned in the more developed areas, with pedestrian linkages to ensure connectivity not only throughout the property, but also into the adjacent neighborhoods and community. This approach promotes the concept of conservation and preservation of site and area-wide natural systems, while also providing a variety of locations and conditions for both active and passive recreational activities. **Exhibit 76: Open Space System Map** shows in green the areas designated in the Reuse Master Plan as either Recreation / Open Space or Natural Areas combined as a single Open Space system.

Exhibit 76: Open Space System Map



Source: Matrix Design Group

Environmental Influences

A detailed opportunities and constraints analysis was performed with respect to environmental conditions to help guide the development of the Reuse Master Plan. The analysis produced an implementation strategy that will best position designated land use districts for redevelopment. As a result, specific recommendations have been incorporated into the land use master plan, including:

- Minimization of residential development in areas with environmental contamination
- Location of the golf course over the Eastern Plume to provide recreational outdoor activities, while limiting potential for structures that may result in indoor air issues and elevated risk to human health
- Placement of golf course club house location off the Eastern Plume footprint to limit indoor air impacts
- Boundaries around the landfills have been modified where appropriate to avoid segregation of the landfill into several land uses (so as to not split any short or long term obligations)
- Zoning or long-term planning for the landfill areas will incorporate use designations with consideration of the landfills. For example, placement of a parking lot over the landfills may be appropriate with limited cap revisions, whereas placement of buildings would be more difficult given the existing conditions and long term monitoring requirements
- The Explosive Ordnance Disposal Training Area (Site 12) and other uninvestigated munitions areas have been designated as open space
- Like-use as an airport will result in a less stringent remediation (i.e., industrial cleanup standards) for this land use district as opposed to some other use, such as mixed use or residential use that would require additional remediation
- Reuse of the existing hangars as industrial uses results in less stringent cleanup standards
- Identifying the many data gaps for the environmentally impacted sites in the "Front Door" area has prioritized the additional investigation necessary for this area. This land use district is a proposed professional office campus and with attentive environmental planning, the redevelopment of this area can proceed smoothly and more quickly

Section 7: Plan Implementation Considerations

As the Midcoast Regional Redevelopment Authority (MRRA) focuses on implementation of the Reuse Master Plan for redevelopment of the Brunswick Naval Air Station, more detailed planning, market and economic studies, environmental investigations, building evaluations, and other activities will need to be programmed. The following section provides a discussion of a variety of issues that will aid MRRA in making decisions related to future economic development, transportation and infrastructure, environmental cleanup, and property transfer.

Economic and Development Impacts

The following development impact estimates (in current dollars) represent the jobs, wages and taxes that could be generated, assuming full build-out of the BNAS site according to the Reuse Master Plan. ERA includes all new development as well as the reuse of select existing buildings for education tenants. ERA does not include construction labor or short-term employment generated by residential development. Regarding the development of commercial space, ERA assumes:

- A floor-to-area ratio (FAR) of 0.25
- Usable square feet equal to 85% of gross square feet

When possible, ERA uses the jobs and wages projected by tenants themselves. Other assumptions include:

- 250 square feet per office per R&D employee
- 500 square feet of space per retail employee
- 1,000 square feet of space per warehousing / manufacturing employee

ERA applies reasonable distributions of types of uses and commercial space for each land-use district within the Reuse Master Plan and utilizes Maine Department of Labor industry data to estimate total wages and a combination of US Census and Maine Department of Revenue data to estimate income taxes. A more detailed description of the methodology used to calculate income taxes can be found on the Maine Department of Revenue website (www.maine.gov/revenue). To estimate commercial property taxes, ERA uses per square foot construction cost quotes from builders active in the local market to come to total construction costs, which are used as a proxy of market value. According to the Town of Brunswick Tax Assessor, assessed value is 60% of market value and tax liability is $22.00 for every $1,000.00 of assessed value. To estimate residential property taxes, ERA assumes a median housing unit value of $220,000 and calculates

the total market value of on-site housing units based on residential densities by land-use district. ERA assumes that no property tax is generated by airport operations or education tenants.

Current operations at BNAS generate:

- Total employment of 4,863
- Total annual wages of roughly $115,000,000
- An average annual wage of roughly $24,000

The following tables summarize development impacts (in current dollars) including total employment potential, annual wages, income and property taxes at BNAS by land-use district, assuming full build-out of the entire site in 20 years or more. The Reuse Master Plan could generate by the end of the redevelopment period:

- Total employment of 13,800 workers
- Total annual wages of $732,390,000
- An average annual wage of roughly $53,000
- Total annual income taxes of $40,849,000
- Total annual commercial and residential property taxes of $19,011,000. This potential property tax revenue could be a source of tax increment financing (TIF) to assist in funding reinvestment in public infrastructure and other base redevelopment activities. Property valuation that is not sheltered in a TIF district would be subject to the impact of the state's school funding formula, county tax assessment and state municipal sharing formula.

Exhibit 77: BNAS Employment

Uses	Percent Use	Employment Potential
Airport Operations and Aviation Related Businesses	23%	3,200
Education	7%	1,000
Professional Office	32%	4,400
Community Mixed Use	16%	2,200
Business and Technology Industries	19%	2,600
Resort / Conference Center / Golf	3%	400
Total	**100%**	**13,800**

Note: Numbers rounded to the nearest one hundredth

Source: US Census, Edwards & Kelcey, Bowdoin College, SMCC and ERA

Exhibit 78: Total Wages

Uses	Average Annual Wage	Total Annual Wages
Airport Operations and Aviation Related Businesses	$94,000	$295,800,000
Education	$50,000	$49,400,000
Professional Office	$43,000	$191,030,000
Community Mixed Use	$33,000	$71,520,000
Business and Technology Industries	$46,000	$119,200,000
Resort / Conference Center / Golf	$15,000	$54,400,000
Total	**$53,000**	**$732,390,000**

Note: Average annual wages rounded to the nearest one thousand and total annual wages to the nearest ten thousand

Exhibit 79: State Income Tax

Uses	Joint Filers Taxes	Separate Filers Taxes	Total Income Tax
Airport Operations and Aviation Related Businesses	$10,168,000	$9,895,000	$20,063,000
Education	$1,206,000	$1,425,000	$2,631,000
Professional Office	$4,041,000	$5,189,000	$9,230,000
Community Mixed Use	$1,153,000	$1,695,000	$2,848,000
Business and Technology Industries	$2,662,000	$3,335,000	$5,997,000
Resort / Conference Center / Golf	$25,000	$55,000	$80,000
Total	**$19,255,000**	**$21,594,000**	**$40,849,000**

Note: Numbers rounded to nearest ten thousand

Source: Maine Department of Revenue, US Census and ERA

Exhibit 80: Local Property Tax

Uses	Market Value	Assessed Value	Tax Liability
Aviation Related Businesses	$260,489,000	$156,293,000	$3,438,000
Residential (Moderate Density)	$387,200,000	$232,320,000	$5,111,000
Residential (Lower Density)	$35,200,000	$21,120,000	$465,000
Professional Office	$196,020,000	$117,612,000	$2,587,000
Community Mixed Use	$366,785,000	$220,071,000	$4,842,000
Business and Technology Industries	$144,534,000	$86,720,000	$1,908,000
Resort / Conference Center / Golf	$50,000,000	$30,000,000	$660,000
Total	**$1,440,228,000**	**$864,136,000**	**$19,011,000**

Note: Numbers rounded to nearest ten thousand

Source: Maine Department of Revenue, Town of Brunswick Tax Assessor, US Census & ERA

Transportation and Infrastructure Impact Considerations

As a part of the planning effort, preliminary "order of magnitude" estimates were developed relative to the degree of public sector capital investment that will be necessary for implementation of the 20-year redevelopment plan. The majority of the costs relate to rehabilitation of existing facilities and construction of new transportation and utility infrastructure. Primary cost components include:

- Arterial, collector and local streets
- Water and sewer systems
- Storm drainage
- Electrical transmission and distribution
- Telecommunications

The total projection for these costs (through build out) is estimated at approximately $240 million, which includes a contingency allowance of 25 percent and approximately 18 percent for "soft costs," such as engineering, permitting, and related items.

Based on recent analysis using ITE trip generation figures and proposed types and areas of land use, it appears likely that build out would be accompanied by increases in traffic generation associated with the facility during both AM and PM peak hours to at least twice their current levels. Clearly this has the potential to severely exacerbate congestion and delays at those intersections (such as Cook's Corner) that are presently

experiencing lower levels of service. While some of the impacts may be mitigated through creation of additional points of access to the adjacent street system, the Plan has identified certain off-site improvements, such as a direct connection from the facility to Route 1, as necessary to accommodate these increased traffic volumes and the widening of Bath Road.

The time frames necessary for implementation of utility and transportation infrastructure improvements will be dictated to a large extent by the rate at which new businesses and residents occupy the facility; phasing may also be driven by the logistics of transfer of ownership and operations responsibility of any utility systems. The need for capacity-related improvements to the transportation network in the vicinity of the base will be dictated primarily by the rate at which existing facilities are reused, and new facilities are constructed.

Due to the extremely long lead-time associated with major transportation improvements (driven in large part by the funding process), it is essential that this element be given a high priority. Given the time requirements associated with completion of an Environmental Assessment (EA) or Environmental Impact Statement (EIS), as required under the National Environmental Policy Act, it is quite conceivable that, even by starting the process now, the existing Cook's Corner intersection / interchange may be at an unacceptable level of service by the time the construction of a new connection to Route 1 is completed.

While several options remain relative to the logistics associated with future operation of existing utility systems on the base, it is clear that extensive rehabilitation of the existing systems and construction of new system components will be required. While, ideally, the market will allow the reuse of facilities which can receive improved utility service based on limited "up front" capital investment first, it is likely that significant infrastructure improvements will be necessary, particularly in the areas of water and sewer system rehabilitation, streets and roadways and communications infrastructure. At this stage of the planning effort, it is assumed that the capital investment in utility and transportation infrastructure will be spread over a 20 year period with weighting on the initial five years.

Environmental Considerations

There are numerous environmental issues that must be considered prior to, and during, implementation of the plan. Environmentally-impacted sites on the property are at various stages of investigation, remediation, and closure; some potential areas of environmental concern have not been assessed at all. A number of known environmentally-impacted areas have not been adequately investigated to determine the nature and extent of contamination. Environmental investigation and site characterization for known and potential environmentally-impacted sites are critical

elements to redevelopment because the extent of contamination must be defined prior to being able to adequately estimate costs for remediation to be protective of human health and the environment for the land use(s) described in the plan, and to adequately estimate and consider long term obligations (e.g. long-term monitoring or land use controls). The environmental strategy for proceeding with cleanup and redevelopment in accordance with the Reuse Master Plan should include filling identified data gaps while coordinating further site investigation, remediation, and closure of contaminated sites consistent with the redevelopment schedule and priorities. For details on the known and potential environmental issues, how they relate to the land uses described in this Reuse Master Plan, and the status of the Navy's investigation and planned cleanup, please refer to **Appendix G**.

Environmental Investigation

Because BNAS was included on the National Priority List (NPL) in 1987, EPA is the lead environmental regulatory agency, with input from Maine Department of Environmental Protection (MeDEP). Since BNAS is a Superfund site listed on the NPL, it is regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The CERCLA process can be time consuming, and therefore it is imperative that the Navy move through the process as quickly and expeditiously as possible to gain as much information and advance as far through the process as possible before transfer.

The goal of environmental investigation and remediation is the cleanup and delisting of the property from the NPL. Under CERCLA law, it is possible to delist portions of property from the NPL if the property is clean and suitable for intended reuse.

However, if long term obligations persist (such as long term groundwater monitoring), the property cannot be delisted until all cleanup goals are achieved. It is therefore imperative that the LRA work closely with the Navy and EPA to identify portions of property that are appropriate for delisting, so that property can be sold and developed without the stigma of being a Superfund site and still protect public health and safety and the environment.

Contaminated sites at BNAS are in various stages of the CERCLA process, and some potential areas of concern have not been assessed at all. For sites that have not been assessed at all, it is difficult to consider environmental constraints in the reuse process, and therefore, the Reuse Master Plan must be initially developed independently of potential environmental issues while still considering the known environmental issues. There are a number of known environmentally impacted areas at BNAS that have not been adequately investigated to determine nature and extent of contamination. Areas not sufficiently investigated for a determination of environmental impacts and if necessary, remediation include (see **Exhibit 40: Environmental IRP Sites Map**):

- Installation Restoration Program (IRP) Sites 1/3 – Orion Street Landfill North and Hazardous Waste Burial Area (evaluation of remedial action effectiveness including assessment of the slurry wall)
- IRP Site 2 – Orion Street Landfill South (evaluation of remedial action effectiveness and investigation of area North of Site 2)
- IRP Site 4 – Acid / Caustic Disposal Pit (investigation needed beneath Building 548)
- IRP Site 7 – Old Acid / Caustic Pit
- IRP Site 9 – Neptune Drive Disposal Area
- IRP Site 11 – Fire Training Area (present groundwater treatment system reinjection gallery)
- IRP Site 12 – Explosive Ordnance Disposal (EOD) Area
- IRP Site 13 – Defense Reutilization and Marketing Office (DRMO) Area (investigation needed beneath paved parking area)
- IRP Site 17 – Former Pesticide Storage Shop
- Petroleum, Oil, and Lubricant (POL) Site 2 – Navy Exchange Service Station
- Eastern Plume, including a groundwater model
- Potential environmental areas of concern including:
    - Base-wide groundwater impacts
    - Potential methane gas generation from glycol use near the runways
    - Existing fuel farm
    - Weapons area compound
    - Base-wide radiological survey to assess for potential contamination from possible nuclear weapon storage

- Former residential Underground Storage Tank (UST) locations with petroleum-contaminated soil from heating oil
- Picnic Ponds contamination
- Military Munitions Response Program (MMRP) Sites including: the Southwest Old Quarry, IRP Site 12 – EOD Area, and other potential MMRP sites including bunkers, ranges, etc.

In addition to the above investigations, a minimum of a Phase I Environmental Site Assessment (ESA) is recommended to identify potential environmental conditions on the base and to satisfy the All Appropriate Inquiry Rule to qualify for the innocent landowner defense, the bona fide prospective purchaser defense, or the contiguous landowner defense to liability under CERCLA and for the purpose of identifying potential development and liability considerations associated with the purchase and development of the base including identification of contaminants that exceed EPA or MEDEP standards.

Environmental Phasing

During the development of the Reuse Master Plan, certain areas have been identified as priorities in redevelopment phasing for the BLRA. The priority areas include property that may be transferred to the MRRA prior to 2011 base closure, areas that will be developed to include special activity centers or economic centers, and areas that will require significant cleanup time or areas that have not yet been investigated and may require a long lead time for investigation and remediation. At this planning stage, the following priorities related to environmental investigation and cleanup have been identified, along with the reasoning associated with the priorities:

- Currently, groundwater use base-wide is prohibited by the EPA unless groundwater modeling is performed. A base-wide groundwater model must be developed utilizing data from existing monitoring wells, as well as from additional wells in areas of potential concern to evaluate base-wide hydrology, contaminant plume nature and extent, and effects of groundwater extraction and re-injection on contaminant migration. This model would be useful in understanding the hydrogeology of the contaminated groundwater from the various IRP sites (or other sites not yet identified) and their relation to the Eastern Plume, and in minimizing the future land use controls (LUCs) that may be necessary to protect human health and the environment and/or minimizing the long-term restrictions on groundwater use. In addition, parcel delisting from the NPL will not be possible without completion of this groundwater model and close coordination with EPA.

- Property at, and adjacent to, the new “front door” slated for development as a high-end business park must be investigated so that potential remediation can be estimated and integrated into the development pro forma and schedule. The

following sites are included in the "front door" area: Site 7 – Old Acid / Caustic Pit, Site 17 – Former Pesticide Shop, and Site POL1 – Old Navy Fuel Farm. Since the Navy's existing fuel farm is also located in this area, it is possible the fuel farm may be closed and relocated to a property adjacent to the airfield. Therefore, it is recommended a soil and groundwater contamination study be performed on the area. To date, potential impacts to soil and groundwater in the area surrounding the existing fuel farm have not been assessed and will be required for site closure and redevelopment.

- Under the MMRP, the Navy intends to evaluate the following munitions sites: the explosive ordnance disposal (EOD) site (also known as IRP Site 12), the former munitions bunker (west area), the machine gun boresight range, the skeet range, and the quarry on the western perimeter of the base. However, a much larger area was or is currently used for munitions storage, including, but not limited to: the munitions compound (adjacent to Sites 1 and 3), and the magazine storage bunkers in the Weapons Complex near Site 12. These areas have not been identified by the Navy either under the installation IRP or MMRP program for assessment. The potential for Munitions and Explosives of Concern and Munitions Constituents must be assessed prior to base redevelopment.

- Anecdotal information suggests that the Navy stored and loaded nuclear weapons onto P3 and C130 aircraft at the base. The transportation and storage of nuclear and/or radioactive material could have resulted in radiological contamination on portions of the base. To help alleviate community, MRRA, and regulatory agency concerns, it is recommended that a base-wide radiological survey be performed.

- A survey and evaluation of the potential glycol contamination on the airfield and adjacent to former glycol underground storage tanks is also recommended. This soil gas survey would evaluate the potential for presence of explosive levels of methane gas. Historical use of glycol as a deicing fluid for aircraft may have resulted in glycol contamination in soil and groundwater. As glycol degrades, methane gas can be generated as a byproduct and is explosive at concentrations between five and fifteen percent. The methane gas can migrate along utility corridors, which can be very dangerous during base redevelopment as utilities are replaced or relocated.

- Potential investigation at areas identified as possible areas of environmental concern in the Phase I Environmental Impact Statement should be conducted prior to property transfer, including areas identified as potential Recognized Environmental Conditions or actual Recognized Environmental Conditions (i.e. areas identified during a Phase I site reconnaissance as areas that are or potentially are impacted by on-site or off-site environmental activities). A

Phase I/II ESA is required to qualify for the innocent landowner defense prior to property transfer, and to establish "baseline" environmental conditions before new ownership.

Following investigation and the determination of the nature and extent of contamination at impacted sites, the environmental cleanup process will remedy selection and implementation to provide properties for transfer with as few LUCs as possible. Schedules for cleanup of individual sites will be driven by redevelopment phasing and priorities.

Environmental cleanup of the 3,200-acre BNAS property is an issue of significant concern, not only because of potential impacts on quality of life and phasing of redevelopment, but also the significant costs associated with cleanup activities. It will be in the best interest of the redevelopment of BNAS, therefore, that financing mechanisms be flexible in the event that a privatized approach to cleanup is utilized in order to hasten redevelopment. At the same time, discussions and negotiations with the Navy need to establish an expedited timeframe for any necessary environmental remediation if alterative methods for cleanup do not materialize.

Property Transfer Considerations

After the final property disposition strategies have been agreed upon by the LRA and the Navy, a parcel by parcel implementation occurs until all the property has been conveyed. As part of this process, the DOD, MRRA and the State of Maine reach consensus on responsibility for completing remaining environmental restoration activities for each parcel, and environmental cleanup or remediation is implemented by either the DOD or the property recipient. If the property recipient accepts responsibility for environmental restoration activities, a covenant deferral request and a Finding of Suitability for Early Transfer (FOSET) is signed by the Governor, and other legal and regulatory documents identifying the responsible party, the terms of the transfer, and scope of work for environmental restoration must be prepared and finalized.

There are a number of property transfer mechanisms that could be used to convey all or portions of the BNAS property to new owners. The BLRA envisions that: (1) properties identified and approved by the Board through the Notice of Interest (NOI) process will be transferred via the appropriate public benefit conveyance authority; (2) the MRRA could seek to acquire portions of the property via an Economic Development Conveyance; and/or (3) the MRRA could negotiate with the Navy to acquire select parcels within the property via the Negotiated Sale transfer mechanism. It is also assumed that the Navy will make select parcels available to the highest bidder via Public Sales. Such transfers would require consistency with this Reuse Master Plan, and be subject to zoning and other land use controls and restrictions that might be placed

on the property by the Town of Brunswick and/or the MRRA. The following sections provide additional information related to potential property transfer mechanisms and recommendations made by the BLRA Board of Directors for implementation of the plan.

Public Benefit Conveyances

A Public Benefit Conveyance (PBC) is "the transfer of surplus military property for a specified public purpose at up to a 100 percent discount" (Department of Defense Base Redevelopment and Realignment Manual, 2006). Surplus military property may be conveyed to public agencies and not-for-profit organizations to provide public goods and services. PBC categories include: parks and recreation, historic monuments, airports, health, education, correctional facilities, highways, self-help housing, wildlife conservation and emergency management. For each of these public purposes, there is a sponsoring federal agency with regulations that determine applicant eligibility and need. Through the State and Local Screening process, the BLRA Board reviewed proposed uses to see how well they fit with the overall guiding principles and direction of the Master Reuse Plan.

Notice of Interest Applications

On or before May 14, 2007, fourteen NOIs were received from state, local and non-profit entities representing approximately 1,960 acres of land and eighteen buildings, comprising about 390,000 square feet. All entities that submitted an NOI were asked to make a brief presentation to the BLRA Board at the May 16, 2007 monthly board meeting.

The submitted NOIs were forwarded to the BLRA's State and Local Screening Committee for evaluation and recommendation to the BLRA Board. The Committee then held in-depth interviews and work sessions with each of the interested entities on May 17, 18, 24 and 31; June 25 and 29; and, July 6, 2007. The purpose of these sessions was to allow Committee members to gain a thorough understanding of each entity's specific proposal and determine how they fit into the base reuse master plan.

Recommendations

Based upon the NOI evaluations, interviews and work sessions, the State and Local Screening Committee recommended approval for the following (each item is numbered to correspond with its location on **Exhibit 81: Recommended PBC Location Map**):

#1 - Brunswick-Topsham Water District: Approximately twenty-six (26) acres of land located on the north side of Bath Road for aquifer protection purposes.

#2 - Bowdoin College: Six (6) acres of land in the extreme northwest corner of the BNAS property for educational support uses.

#3a - Bowdoin College: One hundred seventy (170) acres, plus or minus five (5) acres, of developable land located (where feasible) for educational uses along the westerly section of the base between the airport and Harpswell Road.

#3b - Bowdoin College: If sufficient developable acreage is not found within the area identified as #3a, developable acreage within #3b will be made available until the 170 acre target acreage has been met. Any land in #3a or #3b not developable or not required to meet Bowdoin's target acreage will be included as part of the Town of Brunswick's conservation area (see Town of Brunswick below).

#4 - Bowdoin College: Building 644 for educational uses related to technology support in cooperation with Southern Maine Community College and the Midcoast Regional Redevelopment Authority for a server farm / IT center.

#5a, #5b and #6 - Town of Brunswick: Approximately 1,100 acres of land located in the northwestern and southern parts of the base (labeled as #5a and #6) plus land that is not developable or not required for Bowdoin College in #3a and #3b, for conservation purposes. Area #5b is also included in the town's 1,100 acre conservation area but would be made available to Bowdoin if the college's target of 170 acres of developable land cannot be met in areas #3a or #3b.

#7 - Town of Brunswick: Building 102 and approximately one (1) adjacent acre for public safety indoor small arms range uses.

#8 - Town of Brunswick: Building 211 (former Neptune Hall) and approximately eighteen (18) adjacent acres for recreation purposes.

#9a - Town of Brunswick: Fifteen (15) acres located at the far eastern edge of the base for future active recreation uses (part of 65-acre conveyance with #9b).

#9b - Town of Brunswick: Fifty (50) acres of land located north of existing golf course for future active recreation uses (part of 65-acre conveyance with #9a).

#10 - Town of Brunswick: Approximately sixty-six (66) acres at the East Brunswick transmitter site for conservation purposes.

#11 - Maine State Museum: Building 585, approximately six (6) acres of adjacent land (Memorial Gardens), the two large static display aircraft and miscellaneous base-related historical artifacts for development of a naval air museum.

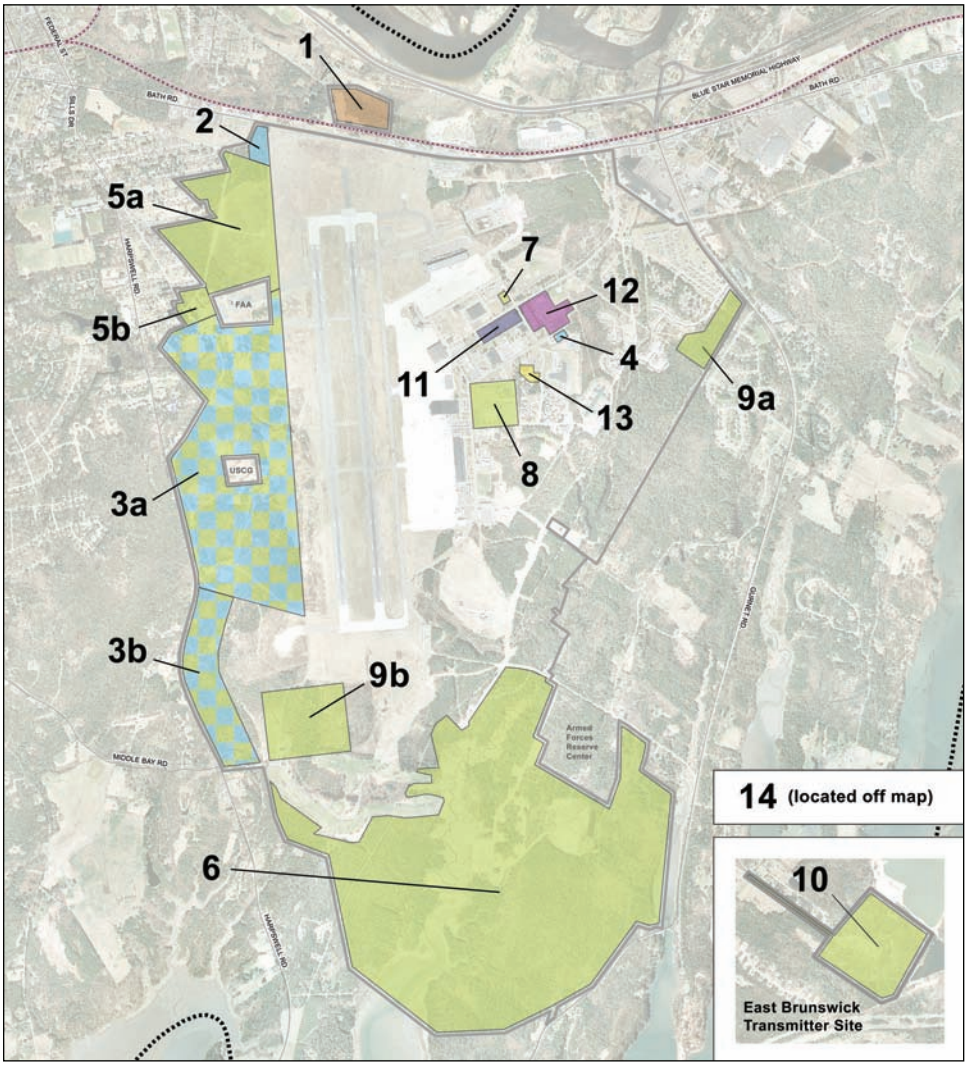
#12 - Southern Maine Community College: An approximately eleven (11) acre parcel of land containing Buildings 150, 151, 512 and 645 and parking areas for the establishment of a college campus in conjunction with University of Southern Maine.

#13 - Family Focus: Buildings 21 and 26 for general child care facilities of up to 100 children that support base redevelopment efforts.

#14 - Town of Phippsburg: Small 0.25-acre parcel (a former observation site located near Popham beach) for municipal purposes.

Additionally, the Town of Brunswick had also submitted a request for a five-acre parcel for a new police station. The Board approved the request and agreed to work with the Town to find a suitable location. However, the town withdrew its request on October 26, 2007.

Exhibit 81: Recommended PBC Location Map



Source: Matrix Design Group

Based upon the NOI evaluations, interviews and work sessions, the State and Local Screening Committee recommended not approving the following:

- **Coastal Economic Development**
  Buildings 21 and 26 for Head Start program: This applicant requested the same buildings as Family Focus for a Head Start program. The Committee felt that the Family Focus proposal for a general child care facility open to families of all income levels would provide greater value for the redevelopment of the base.

- **Coastal Humane Society**
  10-20 acres for animal facility: The Committee did not feel this proposal was a good fit with the land uses contemplated in the reuse plan.
- **Maine State Housing Authority**
  Approximately 22 acres (known as the former 28 pad mobile home park) and Buildings 730 and 731 of the Bachelor Enlisted Quarters for the purposes of providing self-help housing opportunities for low income homeownership.

  Based upon the upcoming availability of housing in the region as a result of the base closure, a unique opportunity is presenting itself to help insure home ownership opportunities for the same demographic group as well as other affordable housing opportunities. Accordingly, the Committee believes that the LRA should work with the Maine State Housing Authority and future housing developers to establish an affordable housing fund and ensure the long term availability of affordable units.
- **Town of Brunswick**
  - School Department's request for workshop (Building 19) and vehicle maintenance garage (Building 590)
  - Recreation Department's request for Auto Hobby Shop, Recreation Mall, and miscellaneous athletic fields and courts
  - Conservation Commission's request for 171 acres on the eastern side of base property

No action was recommended to the following requests because they were not eligible to receive a public benefit conveyance:

- Maine Veterans Authority: Navy Exchange and Navy Lodge - Veterans Service Center
- Sea Cadet Corps: Sea Cadet Building (Building 226)

Airport PBC

In addition, as a partial basis of the Reuse Master Plan, the BLRA commissioned an Aviation Feasibility Study, as referenced and summarized earlier in this report. It is the intent of the MRRA to prepare an Airport Master Plan as part of its Year 1 Work Plan, and subsequently apply for an Aviation Public Benefit Conveyance consistent with the intent of this Reuse Master Plan. The full Aviation Feasibility Study Report can be found in **Appendix E**.

Additional documents relating to Notices of Interest from state / local entities, as well as all information related to the homeless screening process can be found in **Appendix F**.

Homeless Assistance Provisions

As part of the planning process, the BLRA contracted with Planning Decisions (a local planning firm and member of the Matrix Design Group Planning Team) to work with area homeless service providers and state organizations to identify the unmet needs of the homeless in the vicinity of BNAS. The "vicinity of the base" has been defined as the towns of Brunswick, Harpswell, Freeport, and Durham and all of the communities in Sagadahoc County (Arrowsic, Bath, Bowdoin, Bowdoinham, Georgetown, Phippsburg, Richmond, Topsham, West Bath, and Woolwich). It should be noted that within this general area, the Topsham LRA is considered responsible for the homeless demand from Topsham, Bowdoin, and Bowdoinham.

Using information provided from both area homeless service providers and Maine State Housing Authority, a report entitled *Report on the Homeless in Midcoast Maine* was created to assist the BLRA in understanding the scope of homeless needs in the area of BNAS. The report estimated that the unmet homeless gap in the vicinity of the base is a range of four to 14 supportive housing units and access to supportive services. The reason for a supportive housing unit range is based on "existing" lengths of stay, and not "ideal" lengths of stay.

Three Notice of Interest applications were received from area homeless service providers in response to the BLRA's February 9, 2006 request to 164 area homeless service providers. On June 20, 2007, the BLRA Board authorized the Homeless and Housing Committee and staff to negotiate a Legally Binding Agreement (LBA) with Tedford Housing of Brunswick, Maine. Tedford Housing is the primary provider of shelter and services to the homeless in midcoast Maine and is located in Brunswick.

Based upon the NOI evaluations and interviews, recent homeless studies, and recommendations from the Homeless and Housing Committee, the BLRA selected Tedford Housing's NOI proposal because its proposed activities most closely addressed the needs of the homeless in the vicinity of base. In order to best address this issue, the BLRA agreed to establish a homeless services trust fund to be capitalized by future base property sales / transfers or development exactions to support both housing and related services for homeless persons. Providing service funding also allows the homeless to integrate throughout the community and lessen the impact on the municipal services in one area by spreading the demand over a wider area. Under the proposed Legally Binding Agreement, Tedford Housing would provide $600,000 of support services over a period of five years to homeless persons and families within the vicinity of the base for the following activities:

- Housing vouchers for homeless families
- The lease or purchase of permanent supportive housing units for up to eight homeless families

- Half of the wage and benefit costs of a case manager providing services to homeless families
- The wage and benefit costs of a housing attendant providing services to homeless families

Economic Development Conveyances

If approved by the Navy, transfer of select properties within the base via an economic development conveyance could be granted to the MRRA for the purpose of job creation. This type of conveyance may be at a discounted price or at fair market value.

Negotiated Sales

A Negotiated Sale option might be considered for the parcels not acquired via PBC or other type of conveyance from the Navy. Negotiated sales must be to a recognized redevelopment authority for a specified public purpose. Negotiated sale authority requires the payment of fair market value.

Public Sales

For those areas not considered for acquisition by the MRRA, the implementation LRA, the Navy is likely to dispose of the property via public sale. The Navy has disposed of numerous properties via online Internet auction sales over the past five years. In addition, the Navy has ongoing auctions for portions of several closed bases, including portions of the Orlando Naval Training Center and the Roosevelt Roads Naval Station in Puerto Rico. Information on the Navy's property sales can be seen at http://www.braclandsales.com.

Navy / Northeast Partners (GMH) Privatized Housing Issue

In an effort to accelerate the upgrading of existing housing and the creation of new housing, the Navy implemented a nationwide housing privatization program in the 1990s. In essence, this program resulted in the transfer of physical assets such as housing units and common areas (and the associated cash flow from sailors), to private companies in exchange for a commitment to construct and/or upgrade units; however, ownership of the land under the housing units remained with the Navy. The Navy's expectation was that all existing housing units would ultimately be demolished and new units constructed for Navy personnel. Under this program, Northeast Partners, LLC acquired the ownership interest in all family housing units on the base. Northeast Partners LLC includes GMH, the military housing division of GMH Communities Trust, which manages the properties for the partnership, and the Navy.

This housing privatization program is relatively new within the Navy. Furthermore, no prior BRAC round involved privatized housing. As such, BNAS properties represent a unique and new experience for BRAC in general, and for GMH and the Navy in particular.

Specifically, while the Navy has the ability to dispose of the land under procedures commonly used as part of BRAC, the improvements on that land are currently under the control of GMH. The issue is further complicated by the fact that the Navy's land is subject to a 50-year lease to GMH, of which approximately 47 years remain. The GMH lease envisioned that the property would be redeveloped at no cost to the Navy, for the primary benefit of Navy personnel. As such, the land lease does not require a lease payment to the Navy. This means that the Navy's land is encumbered by a lease without a source of revenue. Once the land passes from the control of the Federal government, any private sector user will be responsible for the payment of property taxes, meaning that the land could have expenses (taxes) without an ability to generate revenues (due to the GMH lease) throughout the remaining term of the lease.

The housing owned by GMH is also affected by the BRAC decision. As originally envisioned, GMH would have the ability to demolish the existing housing units and construct new units based on the strength of the cash flows associated with a 50-year income stream from Navy personnel. Today, GMH has an existing asset (the family housing units), with a limited life. The Navy is required by the BRAC law to complete the closure of the Brunswick Naval Air Station before 2011. Closure could occur sooner as functions and squadrons depart and facilities become available, possibly during 2008 when the first squadrons are relocated to Florida. At that point, GMH could opt to market the vacated housing units for rent to non-Navy personnel.

Since the BRAC announcement, GMH has indicated publicly that they do not want to continue to own and operate housing units after closure of the base. Given the expectation that the regional housing market will decline with the departure of Navy

personnel from the region, the GMH housing faces limited upside potential. The fact that the existing housing is leased by GMH makes that company the most likely buyer for the property. However, requirements of the Property and Administrative Services Act of 1949 discourage direct negotiations with a single private-sector buyer. As such, the Navy is expected to utilize the public sale process described above to dispose of the housing areas as well as other select parcels, in accordance with the Reuse Master Plan.

Economic Feasibility and Public Benefit Analysis

Economic Feasibility

The Reuse Master Plan supports the industries targeted in ERA's January, 2007 report. In that report, ERA identified composites, information technology, biomedical, radio frequency identification, Open Source software and alternative energy as technology-based industries that should be targeted tenants for a Maine Center of Innovation. The business and technology district(s), outlined in the Reuse Master Plan, would serve as the location for the Center. ERA also worked with Edwards and Kelcey in reviewing the potential for on-site airport operations. The Aviation Feasibility Study confirmed the potential for general and corporate aviation, government agencies, maintenance, repair and overhaul and research and development activities. Consequently, the Reuse Master Plan designates 500 acres for airport operations and 230 acres for aviation-related businesses. In addition, ERA underlined the demand for a resort and conference center, linked to a golf course, as well as supportive retail, second homes, retirement homes, education and aviation. The Reuse Master Plan takes all of this into account and designates an appropriate mix of land-use districts allowing for space to grow and expand over time.

Public Benefit Analysis

There are several benefits likely to result from the proposed PBCs at BNAS. ERA considered the following PBCs as likely to occur and generate significant benefits. The buildings and land to be occupied by Bowdoin College and Southern Maine Community College will result in:

- Access to advanced technology training and education
- Potential synergies with relevant firms and industries
- Pipeline of entry-level workers for targeted industries

Over 1,000 acres of open space and conservation land along with select community recreational facilities will be transferred to the Town of Brunswick. The land and the existing buildings have the potential to provide:

- Walking, biking and cross country skiing trails
- Access to green space for residential homeowners
- A marsh and bay water trail for recreational boaters
- Access for canoes and kayaks to promote low-impact exploration of the coastal habitat
- Commercial shellfish opportunities for local shellfish harvesters
- Facilities for gym use, and health and wellness programming
- Future athletic field space
- Recreational programming for area youths
- An attractive amenity to commercial residential and resort development
- A higher quality of life

Management Considerations

The Midcoast Regional Redevelopment Authority (MRRA) is a public municipal corporation chartered by the state legislature with the responsibility to implement the Reuse Master Plans for the BNAS facilities in Brunswick and Topsham. Members of the Authority have been appointed by the Governor and confirmed by the Legislature. At this time, the proposed staffing model will include an executive director, a deputy director, a planning and environmental manager, a property manager, grants and communications coordinator and an executive administrative assistant. The estimated MRRA budget for 2008 is $858,911.

Exhibit 82: MRRA Estimated 2008 Budget

Category	Cost
Personnel	$440,805
Fringe Benefits	$138,090
Travel	$30,493
Supplies	$4,188
Contractual	$87,100
Other	$158,235
Total	**$858,911**

Source: Midcoast Regional Redevelopment Authority

The following outline establishes how economic development at BNAS can best be accomplished by successful management and marketing activities and by leveraging the assets of various regional, state and federal resources. The action plan is loosely

based upon the phasing strategy outlined for facility development although should be considered only a basic guide for future planning bearing in mind that an element of flexibility should be maintained as the project progresses.

First Steps

Management

The following items should be addressed by the authority in the earliest stages of implementation prior to closure:

- Continue the working relationship with the Navy to ensure rapid successful reuse of the base.
- Solicit funding from the FAA for the development of an airport master plan.
- Work with the Maine Department of Transportation to develop a transportation improvement plan related to the redevelopment of BNAS in Brunswick and Topsham.
- Work with the Navy and sponsoring federal agencies on property transfer and conveyance issues.
- Work with the Navy on environmental studies including the Environmental Impact Statement for BNAS Brunswick and Environmental Assessment in Topsham and clean up activities.
- Work with the Navy in regards to aviation training and maintenance efforts as the Navy begins to significantly expand the privatization of its maintenance and repair for aviation assets.
- Establish economic development goals and benchmarks for measuring success.
- Conduct a feasibility study and develop a business plan for renewable energy generation and distribution.
- Develop an infrastructure management plan.
- Begin to plan for and secure financing for Phase 1 of redevelopment.
- Develop a real estate development strategy and business plan.
- Create an inventory and analysis of existing structures to ensure readiness of occupancy.

Marketing

The managerial body should begin working with the Navy in marketing BNAS by establishing a comprehensive strategy that incorporates benchmarks for measuring the strategy's success. These benchmarks can then be used as a means of reformulating the strategy to achieve the pre-determined goals. The following strategies and regional institutions should be regarded as instrumental to the marketing success of BNAS:

- Develop a comprehensive marketing plan that identifies a series of target companies and identify successful strategies to approach those companies and key location determinates for each industry cluster.
- Develop a website.
- Establish a dedicated staff person to manage business development and outreach efforts.
- Enter into an agreement with Bowdoin College, the Maine Community College System, the University of Maine System, Embry Riddle University and others to integrate higher education, continuing education, training, and research and development activities on the base.

Federal Incentives

The following state and federal incentives available to BNAS businesses should be aggressively marketed to prospective tenants:

Small Business Innovation Research Program (SBIR): SBIR is a program administered by the US Small Business Administration (SBA) and intended to encourage small business innovation and pursuits in R&D by providing incentive to profit from its commercialization. Through this program, funding allows small businesses to compete at the same level as large business, thereby helping small businesses to compete for federal research and development awards. In order to qualify for the SBIR program, a small business must meet the following criteria:

- American-owned and independently operated
- For-profit
- Principal researcher employed by business
- Maximum company size of 500 employees

Qualifying small businesses compete for an SBIR award based upon their degree of innovation, technical merit and future market potential. If successful, SBIR businesses begin a three-phase program:

- **Phase 1:** Awards of up to $100,000 for approximately 6 months to help support exploration of an idea of technology.
- **Phase 2:** Awards of up to $750,000 for as many as two years building upon the results of Phase 1 and pursuing R&D and commercialization.
- **Phase 3:** This is when innovation is intended to move to the marketplace. No SBIR funding is provided during this phase.

Small Business Technology Transfer (STTR) Program

Administered by the SBA, STTR is a program that aims to expand funding opportunities to small business and not-for-profit research institutions through joint venture opportunities in the areas of federal innovation research and development. Small businesses must meet the following criteria to be qualified to participate in this program:

- American-owned and independently-operated
- For-profit
- Principal researcher need not be employed by small business
- Maximum company size of 500 employees

Although there is no size limit for the not-for-profit research institution, it must be located in the US, and meet one of the following three definitions:

- Not-for-profit college or university
- Domestic not-for-profit research organization
- Federally funded R&D center (FFRDC)

Small businesses/nonprofit research institutions that receive an STTR award then begin a three-phase program:

- **Phase 1:** Awards of up to $100,000 for approximately 6 months to help support exploration of an idea of technology.
- Phase 2: Awards of up to $750,000 for as many as two years to build upon the results of Phase 1 and pursue R&D and commercialization potential.
- Phase 3: This is when innovation is intended to move to the marketplace. No SBIR funding is provided during this phase.

Small Business Administration HUB Zone Status: The HUB Zone Program stimulates economic development and creates jobs in urban and rural communities by providing federal contracting preferences to small businesses. These preferences go to small businesses that obtain HUB Zone (Historically Underutilized Business Zone) certification in part by employing staff who live in a HUB Zone. The company must also maintain a “principal office” in one of these specially designated areas. The program resulted from provisions contained in the Small Business Reauthorization Act of 1997. Congress determined that former military bases closed because of BRAC quality for HUB Zone status for a five-year period from the date of formal closure.

To qualify for the program, a business (except tribally-owned concerns) must meet the following criteria:

- It must be a small business by SBA standards.
- It must be owned and controlled by at least 51% US Citizens, or a Community Development Corporation, or an agricultural cooperative or an Indian tribe.
- Its principal office must be located with a 'Historically Underutilized Business Zone,' which includes lands considered Indian Country and military facilities closed by the Base Realignment and Closure Act.
- At least 35% of its employees must reside in a HUB Zone.

Existing businesses that choose to move to qualified areas are eligible. To fulfill the requirement that 35% of a HUB Zone firm's employees reside in the HUB Zone, an employee must live in a primary residence within that area for at least 180 days or be currently a registered voter in that area. There are four types of HUB Zone contract opportunities:

Competitive: Contracts set-aside for HUB Zone competition when the contracting officer has a reasonable expectation that at least two qualified HUB Zone small business concerns (SBCs) will submit offers and that the contract will be awarded at a fair market price.

Sole-Source: HUB Zone contracts can be awarded if the contracting officer determines that:

- Only one qualified HUB Zone SBC is responsible to perform the contract
- Two or more qualified HUB Zone SBCs are not likely to submit offers and the anticipated award price of the proposed contract, including options, will not exceed $5 million for a requirement within the North American Industry Classification System (NAICS) code for manufacturing; or, $3 million for a requirement within all other NAICS codes

Full and Open: Full and open competitive contracts can be awarded with price evaluation preferences. The offer of the HUB Zone small business must not be 10 percent higher than the offer of a non-small business.

Subcontracting: All subcontracting plans for large business federal contractors must include a HUB Zone subcontracting goal.

Free Trade Zone or Sub Zone Status: The US Foreign Trade Zones (FTZ) (also known as a free trade zone) program was created by the Foreign Trade Zones Act of 1934. The Foreign Trade Zones Act was created to "expedite and encourage foreign commerce" in the United States through the designation of geographical areas adjacent to customs ports of entry. In an FTZ, commercial merchandise receives the same customs treatment it would if it were outside the commerce of the United States. Therefore, goods entering

FTZs are not subject to customs tariffs until the goods leave the zone and formally enter US Customs territory. Merchandise that is shipped to foreign countries from FTZs is exempt from duty payments. This provision is especially useful to firms that import components in order to manufacture finished products for export.

Merchandise of every description may be held in the Zone without being subject to Customs duties and other ad valorem taxes. This allows firms to minimize their costs while their products are waiting to be shipped. In addition, quota restrictions are, in some cases, waived for items entering an FTZ. This tariff and tax relief is designed to lower the costs of US-based operations engaged in international trade and thereby create and retain the employment and capital investment opportunities that result from those operations.

The FTZ program has grown profoundly over the last 30 years. In 1970 there were eight Foreign Trade Zone projects (with a total of three subzones) in the United States. Today there are over 230 Foreign Trade Zone projects (with nearly 400 Subzones) in the United States.

Designation of a FTZ by the Federal Trade Zone Board within the Department of Commerce must first be authorized by state enabling legislation. The Maine Legislature passed enabling legislation in 2005 for MRRA to submit an application for Foreign Trade Zone status.

State Incentives

Management at BNAS should be kept aware of state-level programs that could benefit existing and prospective tenants. The following programs could be of significance to the economic development of BNAS during these early stages:

Military Redevelopment Zone (PTDZ)

Up to 1,000 acres at BNAS may be designated as a military redevelopment zone within seven years of the military facility's closure and may receive the benefits of Pine Tree Development Zone designation (PTDZ). According to Maine's Department of Community and Economic Development, depending on the level of new qualified business activity conducted in a PTDZ, starting with the statutory requirement for hiring a minimum of one net new qualified employee, the tax burden of qualified businesses may be reduced through the following exemptions, reimbursements, and credits:

- Corporate Income Tax Credit (100%, Years 1-5; 50%, Years 6-10): the tax credit benefit derives from net new PTDZ payroll and property as a percentage of all Maine payroll and property.
- Insurance Premiums Tax Credit (100%, Years 1-5; 50%, Years 6-10): the tax credit benefit derives from net new PTDZ payroll and property as a percentage of all Maine payroll and property.

- Income Tax Reimbursement (80%, Years 1-10): the tax reimbursement benefit derives from income taxes withheld for net new jobs created, i.e. those qualified employees hired above the "old" employment baseline that existed in Maine prior to the expansion may be eligible for Employment Tax Increment Financing.
- Sales and Use Tax (100% Personal Property Exemption, Years 1-10): the tax exemption benefit, effective the later of July 1, 2005 or date of certification, derives from the qualified business paying no tax on all new tangible personal property purchases for its qualified business activity.
- Sales and Use Tax (100% Real Property Reimbursement, Years 1-10): the tax reimbursement benefit, effective the later of July 1, 2005 or date of certification, derives from paying no tax on all new tangible property purchases that are to be physically incorporated in, and become a permanent part of, real property of a qualified business and used in its qualified business activity.
- Property Tax Reimbursement (up to 100% and 30 years): the tax reimbursement benefit derives from local incremental taxes on new real and personal property investments that may be returned to a business as Municipal Tax Increment Financing if approved by the host municipality; and access to reduced electricity rates as requested by Central Maine Power, Bangor Hydro Company and Maine Public Service and approved by the Public Utilities Commission.

North Star Alliance (NSAI)

According to the Maine State Government, NSAI is a revolutionary industry-led collaborative, synthesizing business, R&D, education, workforce, and economic development resources to re-skill a workforce and launch a new regional economy in coastal Maine. The strategy focuses on building capacity and addressing gaps in Workforce Development, Research and Development, Outreach and Market Development, and Capitalization and Infrastructure Development.

- The targeted industry sectors of Maine's North Star Alliance include a vast range of enterprises that make up or support the marine trades and those that utilize advanced composite materials, including boat building, marine / waterfront infrastructure, marine service and repair, building products, sporting goods, and ballistic armor. These industries represent the majority of the economic base of Maine's midcoast region.
- Maine's North Star Alliance Initiative will serve the eight counties that comprise Maine's coastal region (York, Cumberland, Sagadahoc, Lincoln, Knox, Hancock, Waldo, and Washington) as well as the additional four counties most affected by the impending closure of the Brunswick Naval Air Station: Androscoggin, Kennebec, Penobscot, and Piscataquis. This region also encompasses the four local areas authorized under the Workforce Investment Act and comprises 12

of Maine's 16 counties. The Initiative will address needs identified by targeted industries located within this region that are critical to their growth and expansion.

Funding

Phase 1 of development and redevelopment at BNAS involves new construction and redevelopment as well as infrastructure upgrades and extensions. To finance initial upgrades at BNAS, ERA recommends a financing strategy that combines State General Fund / Capital Outlay financing with the following sources:

Bonds

Special purpose districts are authorized by the enabling statute that created the Midcoast Regional Redevelopment Authority to issue and sell notes, bonds, certificates of indebtedness and other obligations to achieve its public or corporate purpose.

Earmarks

Based upon comparable military base economic development projects, BNAS could potentially receive finding through a Department of Commerce Economic Development Assistance bill, an amendment to a Defense Department appropriations bill, or Department of Housing and Urban Development appropriations or reauthorization bill. As a highly competitive process with limited funding, involvement by the Navy may improve chances for funding approval.

Small Cities Community Development Block Grant and Section 108 Loan Guarantee

The primary objective of the Community Development Block Grant (CDBG) program is to develop viable communities by expanding economic opportunities, principally for those of low to moderate income. According to officials at the US Department of Housing and Urban Development, CDBG funds could be applied towards the following upgrades at BNAS:

- Construction or reconstruction of streets, water and sewer facilities
- Demolition of existing structures
- Rehabilitation of existing structures
- Planning activities
- Assistance to private and non-profit entities to carry out economic development activities

The Section 108 Loan Guarantee is a provision of the CDBG program and provides financing to local governments for economic development including large scale physical development projects. Under the Section 108 Loan Guarantee, loans can be made up to $300 million for as much as 20 years. This federal loan program may be best suited for the following redevelopment activities:

- Long-term phased funding of the business park
- Short-term existing structure rehabilitation and modernization
- Major infrastructure work including road improvements and utility upgrades

Economic Adjustment Assistance Program

Administered through the Economic Development Administration, this grant program is intended to be part of a long-term strategy to promote a region's success in achieving a rising standard of living through the development of emerging industry clusters or the attraction of new regional economic drivers. Typically, applicants for this competitive grant are considered most seriously when a one to one funding match is provided by the state or local government. Appropriate projects for funding consideration under this program could include:

- Building rehabilitation
- Utility upgrades
- Road improvements

USDA Rural Development Community Programs

The United States Department of Agriculture (USDA) Rural Development Community Programs can make and guarantee loans to develop essential community facilities in rural areas and towns of up to 20,000 in population. Loans and guarantees are available to public entities such as municipalities, counties, and special-purpose districts, as well as to non-profit corporations and tribal governments.

Applications must have the legal authority to borrow and repay loans, to pledge security for loans and to construct, operate, and maintain the facilities. They must also be financially sound and able to organize and manage the facility effectively.

Repayment of the loan must be based on tax assessments, revenues, fees, or other sources of money sufficient for operation and maintenance, reserves, and debt retirement. Feasibility studies are normally required when loans are for start-up facilities or existing facilities when the project will significantly change the borrower's financial operations. The feasibility study should by prepared by an independent consultant with recognized expertise in the type of facility being financed.

Community Programs can guarantee loans made and serviced by lenders such as banks, savings and loans, mortgage companies which are part of bank holding companies, banks of the Farm Credit System, or insurance companies regulated by the National Association of Insurance Commissioners. Community Programs can also make direct loans to applicants who are unable to obtain commercial credit. Eligible community facilities include:

- Airport hangars
- Airports
- Bridges
- Sidewalks
- Street Improvements
- Infrastructure for Industrial Parks
- Railroads
- Low Head Hydro-Electric Facilities
- Natural Gas Distribution Systems

The amount of grant assistance for project costs depends upon the median household income and the population in the community where the project is located and the availability of grant funds. In most instances, projects that receive grant assistance have a high priority and are highly leveraged with other loan and grant awards. Grant assistance may be available for up to 75% of project costs. Grant funding limitations are based on population and income, economic feasibility, and availability of funds. Projects will be selected based on a priority point system. Projects that will receive priority are those that:

- Serve small communities – with the highest priority going to projects located in a community with a population of 5,000 or less
- Serve low-income communities – with the highest priority going to projects serving communities with median household incomes below the higher of the poverty line or 60% of the State non-metropolitan median household income
- Provide public safety, or public and community services

Grant funds cannot be used to:

- Pay any annual recurring costs, including purchases or rentals that are generally considered to be operating and maintenance expenses
- Construct or repair electric generating plants, electric transmission lines, or gas distribution lines to provide services for commercial sale
- Pay costs to construct facilities to be used for commercial rental where the applicant has no control over tenants and services offered
- Construct facilities primarily for the purpose of housing State, Federal or quasi-Federal agencies
- Finance recreational facilities or community antenna television services or facilities

Second Steps

Management

The Authority should continue to work closely with State officials and the Navy to maintain an effective line of communication that will allow development to occur smoothly at BNAS. Management should actively be monitoring conditions at the site regarding space demand and inquiries, and adjusting their marketing strategies accordingly. Establishing a realistic target for future absorption at the facility will help to inform near-term economic development goals for Phase 2 of construction:

- Develop realistic near-term economic development goals and milestones in conjunction with the Navy.
- Coordinate development plans for Phase 2 based upon refined goals.
- Help to develop funding sources through federal, state, local and private sector agencies to finance Phase 2 of development.
- Coordinate infrastructure development and operations to ensure business opportunities exist at BNAS.
- Seek outside expertise to improve development capacity.
- Negotiate deals with new tenants in existing/new business park areas.
- Monitor prospective tenant inquiries and refine future absorption expectations.
- Assess facility performance according to benchmarked economic development objectives.
- Seek outside expertise to financially assess the possibility of land ownership at the business park.
- Consider prospects for an incubator.
- Assess how existing tenant operations and business development can be enhanced through industrial outreach.

Marketing

The MRRA should continue to work closely with state officials and the Navy to maintain an effective line of communication that will ensure rapid and successful reuse of BNAS. Management should actively be monitoring conditions at the site regarding space demand and inquiries, and adjusting their marketing strategies accordingly. Establishing a realistic target for future absorption at the facility will help to inform near-term economic development goals for Phase 2 of construction:

- Develop realistic near-term economic development goals and milestones in conjunction with the Navy.
- Coordinate development plans for Phase 2 based upon refined goals.

- Help to develop funding sources through federal, state, local and private sector agencies to finance Phase 2 of development.
- Coordinate infrastructure development and operations to ensure business opportunities exist at BNAS.
- Seek outside expertise and/or partners to improve development capacity
- Negotiate deals with new tenants in existing / new business park areas.
- Monitor prospective tenant inquiries and refine future absorption expectations.
- Assess facility performance according to benchmarked economic development objectives.
- Assess the financial feasibility of land ownership at the business park.
- Identify business incubator opportunities and partners.
- Maintain an aggressive business development outreach program.

Funding

In conjunction with Economic Adjustment Assistance financing, State General Funds, bonds and CDBG dollars, ERA recommends a Phase 2 financing strategy that explores the possibility of economic development conveyances and subsequent land sales. As demand for space at BNAS evolves, land sales may become a more feasible means of developing cash flow. Moreover, the MRRA could apply for an EDA Public Works Program grant (as described below):

Public Works Program

Administered through the Economic Development Administration (EDA), this grant is intended to enhance regional competitiveness and promote economic development in regions of underinvestment to attract industry, generate jobs and stimulate economic growth. A grant intended primarily for construction, this money may be invested at BNAS towards the following:

- Phased industrial park construction
- Facility road improvements
- Public works improvements
- Existing facility upgrades

According to EDA officials, Public Works Program grant awards are typically in the range of $1.2 million although usually require a one to one funding match from a state or local government.

Third Steps

Management

The Authority should be maintaining regular contact with state officialsand the Navy to coordinate Phase 3 of the development strategy. The management team should continue to refine their marketing and management strategies to ensure business development meets the benchmarked economic development goals and objectives. The following actions are recommended to the managing body to further economic development at BNAS:

- Analyze the performance of site management assessing whether marketing and outreach strategies are meeting benchmarked economic development goals.
- Refine development plans for Phase 3 based upon anticipated absorption and development benchmarks.
- Refine the real estate development strategy and business plan.
- Pursue funding through federal, state, local and private sector agencies to finance Phase 3 of development.
- Coordinate infrastructure development and operations to ensure business development and rapid and successful reuse of BNAS.
- Evaluate how the incubator can support existing BNAS businesses, generate new business development and integrate research and development activities with nearby college and university partners.
- Develop a business incubator management strategy and define its near-term objectives.
- Work with the Maine Department of Economic and Community Development's Office of Innovation and Maine Technology Institute to secure funding for a technology business incubator.

Marketing

A central piece to the overall site development of BNAS will be the Business and Technology District(s). ERA sees these districts as critical to the successful redevelopment of BNAS. To reflect previous market findings and serve in the redevelopment of the base, the development of these districts should collectively represent a Maine Center for Innovation housing established tenants specialized in technology-based industries as defined in ERA's market report. The Center should also seek to play the role of a business incubator. Incubator development will require a separate marketing and outreach strategy, although it should complement overall business development strategies at BNAS. To effectively develop an incubator that meets the needs of area entrepreneurs and achieves long-term success, the follow steps should be taken:

- Develop a list of target business activities for the incubator
- Develop a business incubator marketing strategy
- Join state and national small business trade associations

Incubator management is critical to the success of these facilities and should combine expertise in industrial outreach, business development, tenant management and leasing.

Funding

Phase 3 of development at BNAS involves further investments in infrastructure, land assembly and real estate development. ERA recommends a financing strategy that combines state and federal funding sources, in conjunction with facility revenue. As density increases at BNAS, net operating income will increase and become a viable source of cash for these facility investments. Land sales will also become a more realistic source of revenue as demand at the facility increases.

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HRA-0293

Town of Brunswick

~~2006~~ 2008 Comprehensive Plan Update

Adopted by Brunswick Town Council on September 15, 2008

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With sincere thanks to
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Table of Contents

For Tracked Changes Version — Page

Introduction and Vision — ~~5~~46

Overview — 7~~6~~8

Part A. Background — 9~~8~~10

Chapter 1. Past Planning Activities — 9~~8~~10

Chapter 2. Recent Changes in the Community — 12~~10~~13

Chapter 3. Summary of the Updated Inventories — 13~~11~~14

Chapter 4. Implications for the Future of Brunswick — 14~~12~~15

Part B. Policies — 17~~15~~18

Chapter 5. Proposed Major Policies – Objectives – Actions — 17~~15~~18

Policy Area 1: Maintain and Financially Support a Quality Public Education System — 19~~17~~20

Policy Area 2: Require Long Range Planning for Municipal Facilities Including Replacement and Expansion — 23~~21~~24

Policy Area 3: Promote the Desired Growth/Rural Pattern of Development — 26~~24~~28

Policy Area 4: Support the Development and Maintenance of Infrastructure That Promotes Livable Neighborhoods and the Desired Pattern of Residential and Commercial Growth — 30~~28~~32

Policy Area 5: Encourage a Diversity of Housing Types in the Designated Growth Area and Facilitate the Preservation and Development of Affordable and Workforce Housing — 33~~31~~36

Policy Area 6: Protect Significant Open Space and Natural Resources and Provide Outdoor Recreational Facilities — 37~~35~~40

Policy Area 7: Promote an Economically Viable, Attractive Downtown 424045
Policy Area 8: Promote a Diverse and Healthy Local Economy 454349

Chapter 6. Other Policies and Actions 4904855

A. Treatment of Mobile Homes
B. Protection of Marine Resources
C. Preservation of Agriculture and Forest Resources
D. Protection of Historic and Archeological Resources

Chapter 7. Land Use Plan 5125057

A. Concept of Growth and Rural Areas
Map: 2006 Future Land Use Map Replaced with 2008
Follows page 5135057
Map: 2006 Proposed Change to Growth AreaReplaced with 2008 Follows page 5135057
B. General Pattern of Development
C.B. Reuse of Naval Air Station Brunswick
D.C. Rural Areas
E.D. Growth Areas
F.E. Overlay Districts

Part C. Implementation Strategy 7477792

Chapter 8. Implementation Strategy 7477792

A. Oversight of the Implementation Process
B. Implementation Strategy
Table A: Implementation Strategy 7698095

Chapter 9. Capital Investment Strategy 93695113

A. Current CIP Process
B. Most Recent CIP
C. Other Projects Necessary to Accommodate the Projected Growth

Chapter 10. Regional Coordination 95897116

A. Delivery of Municipal Services
B. Shared Facilities
C. Regional Economic Development
D. Reuse/Redevelopment of NASBBNAS
E. Natural Resource Management
F. Transportation
G. Affordable Housing

Appendices: see www.brunswickme.org/planning/compplan/compplan.htm

A. Population and Demographic Profile
B. Development Profile
C. Updated Inventories

D. Summary of the Community Survey Results
E. Capital Improvement Program (CIP)
F. Non-Profit Organizations that are Partners with the Town of Brunswick
~~G. Brunswick Naval Air Station Reuse Master Plan~~

Introduction and Vision

Updating the Comprehensive Plan presents a unique opportunity to look at Brunswick's values of over ten years ago, examine how the Town has changed since the last Plan, ask about the community's values now, and look at how the Town can work to guide the inevitable ongoing changes.

It is Brunswick's values and vision as a community that have guided this Plan's major initiatives. As it grows and changes, Brunswick should continue to be a highly desirable community that facilitates the work and play of its diverse people -- the young and old, the working and retired, the well-off and those of lesser means.

This vision resulted in the eight policy areas found in the Plan, highlighting the essential elements of the community that require continuing attention. Brunswick needs strong schools, a vibrant downtown, a robust economy providing good jobs, protected natural resources, quality public facilities, and affordable housing.

To implement these policies, the Plan establishes several goals. First, overall, the Plan strengthens the Town's growth boundary. This is in response to the pattern of recent development, in which approximately half of all residential units have been built in the Rural Area on relatively large lots. This has resulted in the incremental loss of some of the community's highly valued habitats and natural resources, as well as the aesthetic and recreational value of this land. This Plan encourages policies to avoid sprawl and limits total new residential building permits in the Rural Area. Within the Town's Growth Area, this Plan articulates changes in zoning that will allow greater density to occur. Overall, this will encourage future growth to concentrate in the Growth Area, while preserving the Town's highly valued rural character.

An essential component of Brunswick's character is its gateways. Like many Maine communities, Brunswick is fortunate to still have a distinct sense of arrival and departure from this town to the next. Protecting the identity of Brunswick means acknowledging and maintaining these visually attractive transitions. A recommendation for a new overlay district for these gateways is included in the Plan.

Brunswick's downtown, located between the Androscoggin River and Bowdoin College, is the heart of this community. The vision for Brunswick is to maintain, enhance, and invest in the downtown and the surrounding core, to strengthen its presence as the community's social and cultural hub.

The community's investment in public education comprises the single greatest annual budget expenditure. Maine has identified attracting and retaining young adults as an urgent need in growing the state's economy and creating a high quality of life. Providing a superior public education enhances Brunswick's ability to attract young adults and families, creating a balanced community.

Attracting young people is an essential element in Brunswick's future economic growth. As technology has allowed jobs to become more portable, communities offering a high quality of life benefit from the mobility of young entrepreneurs who create economic opportunities. The Plan includes support of Brunswick's growing "creative economy" along with other essential actions to ensure a diverse and healthy local economy.

A healthy local economy includes the resiliency to weather short-term economic impacts. The unexpected closure of the Brunswick Naval Air Station (~~NASB~~BNAS) creates substantial economic and social impacts, but also offers a tremendous opportunity to set the course for the community's future. As Brunswick will suffer the primary impacts from ~~this~~ the scheduled September 2011 closure, with ~~NASB~~BNAS occupying the center of the community, the more than 3200 acre ~~NASB~~BNAS site must be redeveloped with Brunswick's public benefit as the main priority.

~~The Plan includes goals and actions to work towards as the community begins the process of redevelopment.~~

The Comprehensive Planning process has provided an opportunity to evaluate the community's current needs in a changing environment, within which the ~~NASB~~BNAS closure is particularly significant. Given an environment of change, long range planning continues to allow the community to remain focused on its goals. Brunswick's investment in planning for its future will reap benefits in achieving its vision of the future. This Comprehensive Plan seeks to provide a clear list of strategies with associated actions and designated entities responsible to the Town for their implementation, and offers the opportunity to measure the community's progress in achieving these goals.

The Update builds on and refines the policy directions of the 1993 Comprehensive Plan and the subsequent planning that the Town has undertaken in response to that plan.

Overview

The Update is the result of a two-part planning process that began in early 2003. Part 1 of the process involved a systematic, formal review of the 1993 plan to determine what worked in that plan and what needed to be updated or changed. The review process was overseen by an ad hoc Comprehensive Plan Review Committee appointed by the Town Council. The members of the Review Committee included representatives of a wide range of interests including the Town Council, Planning Board, Conservation Commission, Open Space Task Force, developers, the business community, and the general public.

The Review Committee involved the Town's department heads, boards and commissions, five focus panels, and the general public in a comprehensive review of the plan and its subsequent implementation. The Review Committee submitted its assessment of the 1993 Comprehensive Plan to the Town Council in early 2004 together with its recommendations relating to the updating of the plan. Major recommendations of the committee included that the update needed to be more focused on the key issues facing Brunswick (the committee identified ~~six~~ six focus areas) and that it needed to be more realistic in terms of the ability of the Town to pay for and carry out the recommendations of the plan. The report of the Review Committee was accepted by the Town Council and served as the basis for the Update.

Part 2 of the process, the actual work of updating the plan, began in the spring of 2004. Work on this process was overseen by another ad hoc committee, the Comprehensive Plan Update Committee, appointed by the Town Council. The Committee included the same interests as the Review Committee (and many of the same members) but was expanded to include other interests including the School Board, Brunswick Economic Development Corporation, Brunswick Naval Air Station (~~NASB~~BNAS), and Bowdoin College.

During the process of updating the plan, the Update Committee reached out to the larger community for input on various aspects of the plan in addition to the formal public hearing on the final draft:

- The Committee held a Community Fair to get input on a draft of the policies, objectives, and actions. This was accompanied by an insert in the Times Record and various opportunities for feedback to the eCommittee.
- The Committee conducted a written survey of a sample of Brunswick households on key policy questions. The results of the survey are summarized in Appendix D.
- The Committee held a public "walk-in" comment session to collect feedback on an updated draft, including the land use policies. This session was accompanied by an insert in the Times Record and other publicity.

- Drafts of the various elements of the Update including the Policies, Objectives, and Actions chapter, the Land Use Plan, and the Implementation Strategy were provided to department heads, various boards and commissions, and the participants in the review focus panels for their review and feedback.

Near the end of the updating process, the U.S. Department of Defense released its list of recommended base closures and re-alignments. As a result of the Base Realignment and Closure (BRAC) Commission deliberations, the final proposal was to close the Brunswick Naval Air Station (~~NASB~~BNAS). This action became official in the fall of 2005. The Town ~~recognizes~~ recognized that the pending closure of ~~NASB~~BNAS will have significant impacts on the community. Planning for the reuse and redevelopment of the base was initiated through the establishment of the Brunswick Local Redevelopment Authority (BLRA) in December 2005. The thirteen-member Authority and seven staff~~-~~ members facilitated and managed the reuse planning process which culminated with the Authority's adoption of the BNAS Reuse Master Plan in December 2007. Base property is anticipated to be available for redevelopment upon its closure in September 2011.
~~has just begun. The timetable for property becoming available for non-NASB use is unknown but it is likely that this will not occur until late in the period covered by this Comprehensive Plan. Thus, recommendations made in this Plan do not and cannot presuppose that NASB property would be available for Town use or be under Town control through zoning. However, this Plan does contain comments throughout that are meant to ensure that the redevelopment of NASB, if and when NASB property is available, is consistent with the overall Town goals and policies presented in this Plan.~~

The Town believes that the policies and directions set out in this ~~Update of the~~ Comprehensive Plan Update are sound and will serve as a basis for reintegrating the BNAS property into the entire ~~serve the~~ community. ~~well regardless of the future of NASB. Over the next couple of years, a~~As the base closure process proceeds and planning for the future use of the ~~facility~~ site moves forward, the Town will continue to review, and revise if necessary, its long range plans including this Update.

The Town's discourse with the larger community of Brunswick should continue to be encouraged. Opportunities for communication include the ability for citizens to submit comments on the Town's website, as well as to participate within a formal process at various Town committee meetings. Appendix F. to the Comprehensive Plan lists non-profit groups that have partnered with the Town in the past. ~~and~~ T~~t~~he~~y~~ose, as well as ~~and~~ new entities ~~groups~~ will undoubtedly contribute to ongoing and future Town activities.

Part A. Background

Chapter 1. Past and Ongoing Planning Activities

The Town adopted its current Comprehensive Plan in 1993. A major focus of the plan was enhancing the livability of Brunswick. It also called for the creation of a "growth boundary" with the objective that most development would occur within this boundary in the designated "Growth Area" while development would be discouraged in the designated "Rural Area" outside of the growth boundary. Following the adoption of the 1993 plan, the Town undertook a comprehensive re-write of its Zoning Ordinance, consistent with ~~. This new ordinance is in conformance with~~ the adopted plan.

Since the adoption of the 1993 Comprehensive Plan and the related Zoning Ordinance amendments, the Town has had an active, ongoing planning program. The following summarizes a number of the Town's major planning initiatives over the past decade:

1997 Downtown Master Development Plan – This plan set forth recommendations for improving the physical environment in Downtown Brunswick. The Town has been carrying out the recommendations of the plan and has substantially completed the proposed improvement program.

1998 Cook's Corner Master Plan – This plan identified a comprehensive set of proposals for upgrading the Cook's Corner area as recommended in the 1993 Comprehensive Plan. These include recommendations for land use, transportation improvements, and public facilities. As a result of this plan, the Town adopted amendments to the Zoning Ordinance to implement some of the recommendations including the creation of design standards for commercial development. In addition, the Town has created impact fees to defray the cost of traffic improvements at Cook's Corner and the construction of a fire sub-station.

2001 Downtown Brunswick Parking Study – This project included a comprehensive evaluation of the parking situation throughout the downtown area and recommendations for improvements in the management of the existing parking supply as well as proposals for expanding the amount of available parking.

2002 Parks, Recreation, and Open Space Plan – This plan took a detailed look at the Town's natural and scenic resources as a follow-up to the 1993 Comprehensive Plan. The plan includes recommendations for managing these resources including acquisition/development of additional recreational facilities, the creation of a Land for Brunswick's Future program, and the provision of water access. The Town is working on implementing these recommendations as funding allows.

2003 Brunswick Housing Study –The Brunswick Community Housing Coalition conducted this study. The Town is a participant in the coalition, now expanded into a regional entity, the Mid Coast Community Housing Coalition, and financially supported the study. The study took a regional approach for looking at the affordable housing situation. The study assessed the need for affordable housing in Brunswick, established targets for the production of new affordable housing, and included recommendations for improving the climate for the development of affordable housing. As a result of the study, the Town adopted a set of "affordable housing" amendments to the Zoning Ordinance.

- ***2003 Rural Brunswick Smart Growth Study*** – This study followed-up on the recommendation in the 1993 Comprehensive Plan that the Town consider preserving areas with significant wildlife habitat value. Building on the work developed by the "Beginning with Habitat" project, the study identifies large blocks of unfragmented, forested wildlife habitat and connecting travel corridors. The study sets forth a comprehensive management strategy for protecting these resources while respecting property owners' rights. The Town has begun implementing the management program and zoning ordinance amendments were enacted by Town Council in March 2006. ~~Proposed land use regulatory amendments have been prepared and considered by the Town Council but have not been adopted.~~

2004 Brunswick Bicycle and Pedestrian Improvement Plan – This is an update of an earlier plan and establishes recommended improvements to enhance pedestrian and bicycle movement. This plan has been adopted by the Town and is used to guide the Town's investments in these improvements including projects included in the Capital Improvement Program (CIP).

2004 Review of the 1993 Comprehensive Plan – The Town conducted a comprehensive review and evaluation of the 1993 Plan to determine how well the community had done at implementing the plan and how the planned

update could be improved based upon the review of the old plan. Major findings of the review included a need to focus the Update on major policy areas and to assure that the recommendations were reasonable ~~vis-à-vis~~as to the Town's ability to pay for and implement them.

- ***2005 Transportation Study*** – This study ~~is being~~was conducted by the Midcoast Collaborative for Access to Transportation. The Town is a participant in the C~~c~~ollaborative and supports the project. The study ~~is~~ investigat~~inged~~ Brunswick-area transportation alternatives primarily for elderly and handicapped people and is looking at the feasibility of providing a limited public transportation route/system that would be available to everyone.

This Update of the Comprehensive Plan draws heavily on both the 1993 Plan and the various other studies and plans conducted since then including those listed above. The policies set forth in the Update for the most part represent a refinement of the evolving policy directions begun in the 1993 Plan. In a number of places, this Update references the policies and implementation proposals included in the other plans. The Update does take a stronger position than the current ordinances with respect to trying to influence the pattern of development by recommending higher density of development in some parts of the designated Growth Area and a limitation on the rate of residential development that will be allowed in the designated Rural Area.

Chapter 2. Recent Changes in the Community

Since 1990, the Town has experienced significant development. The Development Profile (see Appendix B) details this development. Between 1990 and April of 2004, 1,154 new housing units were built in Brunswick. Of these, about 54% occurred within the Growth Area designated in the 1993 Comprehensive Plan. Interestingly, the share of residential development occurring within the Growth Boundary decreased slightly after the adoption in 1997 of the zoning amendments designed to implement the plan. During this period, the Town saw the construction of a significant amount of retirement housing.

Nearly 1,800,000 square feet (SF) of new nonresidential development was created between 1992 and April of 2004 (see Appendix B). More than 1,100,000 SF of this space (62%) was built for commercial purposes. The remaining 689,000 SF of space was created at Bowdoin College (292,000 SF) or for public/nonprofit uses (397,000 SF) including the new high school. More than 87% of this development occurred within the designated Growth Area. The commercial development was concentrated in two corridors – the Pleasant Street/Industrial Park area and the Cook's Corner/Bath Road area.

In spite of this development, Brunswick's population grew slowly between 1990 and 2000 reaching 21,172 year-round residents in 2000. Over the past thirty years, smaller households and a decline in the "group quarters" population associated with the Brunswick Naval Air Station ~~Brunswick~~ (~~NASB~~BNAS) has somewhat offset the growth in the number of households living in Brunswick. Most of the household growth has occurred in single-person households – in 2000, 31% of Brunswick's households consisted of only one person.

The composition of the community is also changing. The population is becoming older, better educated, and more likely to work in a white-collar occupation. The number of children living in Brunswick is declining while the number of elderly residents is increasing significantly.

The pattern of growth and change in Brunswick and the larger region will change with the ~~im~~pending closure of ~~NASB~~BNAS. While the impact of the closure on Brunswick and the local economy has not yet been fully determined, it will affect future growth and development in the community for the next decade and beyond.

Chapter 3. Summary of the Updated Inventories

A key step in the process of developing this Update of the Comprehensive Plan was to review and revise/update the basic information about Brunswick and the region upon which the 1993 Plan was based. This includes information about the following areas:

Population and Demographics
Local Economy
Natural Resources
Marine Resources
Public Facilities and Services
Public Utilities
Transportation
Historic and Archaeological Resources
Recreation
Agriculture, Forestry, and Open Space
Housing
Recent Development Patterns and Trends

Appendix A contains the Population and Demographic Profile. Appendix B is the Brunswick Development Profile that documents the amount and location of both residential and nonresidential development between 1990 and 2004._-The remaining inventories can be found in Appendix C.

The updated inventories document the community's natural and built environment. Since 1993, the Town and other agencies have done a significant amount of work to better document and understand the Town's natural and marine resources, scenic character, wildlife habitats, and similar features. These are shown in the various inventories and related studies such as the Parks, Recreation, and Open Space Plan. The inventories suggest that the pattern of development that has occurred over the past decade with about half of new residential units located in the areas designated as "Rural" in the 1993 Plan continues to reduce the extent of these resources.

In terms of the built environment, the inventories document the increasing issue with housing affordability and the location and capacity of the community's infrastructure to support future growth and development. For example, some of the land available for development within the Growth Area is not currently served by the public sewer system. Similarly, the inventories document the continuing needs for improved public facilities to continue to provide effective and cost efficient services to our residents. The local economy inventory documents the limited supply of serviced land available to support economic growth.

Chapter 4. Implications for the Future of Brunswick

The inventory process is designed to help the community understand the opportunities and issues facing the community so that the comprehensive plan can address those topics. Each of the updated inventory sections contains an "issues and implications" section that synthesizes the findings of the inventory into a set of questions/statements about the topic and the future of the community. The following sets out the key findings from that process:

Population and Demographics

- The household population has grown slowly over the past 15 years as increases in the number of households have been offset by reduced household sizes;
- The population living in group-quarters will decrease with the closure of ~~NASB~~BNAS;
- The ~~NASB~~BNAS closure will result in an immediate loss of 4,400 area military households, and at least 5,000 jobs;
- While the indirect impacts of the ~~NASB~~BNAS~~'s~~ closure on employment and housing ~~are currently being~~continue to be assessed, they are expected to be significant;
- Although the losses from the ~~NASB~~BNAS~~'s~~ closure are not expected to be permanent, they will represent a major shift for the community with uncertain implications;
- Brunswick's population is becoming older, better educated, and more likely to work in a white-collar job than in the past; the growth of Brunswick as a "retirement destination" may change the character of the community.

Local Economy

- The local economy has been heavily dependent on defense-related jobs but this will change with the closure of ~~NASB~~BNAS. While the closure will bring substantial short-term defense-related job losses throughout the region, with appropriate planning resources, Brunswick's job market has a positive long-term outlook;
- Brunswick is the service and retail center for the S~~s~~outhern ~~m~~Mid-~~c~~Coast area but competition to this role continues to grow;
- There is little vacant, serviced land to support economic growth but sufficient land that can be serviced does exist.

Natural Resources

- Continuing growth in rural areas potentially threatens some natural resources;
- Encroachment on wetlands is an issue;
- The Town is just beginning to understand the location and importance of vernal pools;

- Scattered rural development is fragmenting forested blocks with significant wildlife habitat value.

Marine Resources

- In spite of extensive attention to the marine environment over the past decade, there are still significant threats to the long-term health of these areas including nutrient loading;
- New Meadows Lake is entropic and regional watershed management is needed;
- Shellfish management remains an on-going concern.

Public Facilities and Services

- In spite of significant investment in school facilities, there are still serious facility issues with school buildings especially with the elementary schools;
- The facilities for the public safety departments are not adequate for current needs;
- The facilities for general governmental functions are inadequate and outdated;
- The Town's indoor recreation facilities are limited and inadequate for current needs.

Public Utilities

- There are areas within the growth area that are not currently served by public sewerage;
- The sewer district may face the need to expand its treatment plant in the future;
- The water district is working to upgrade its supply system including upgrading its well and pumping capacity.

Transportation

- The Town experiences significant traffic issues including through traffic on U.S. Route ~~One~~1;
- In spite of significant investments in pedestrian and bicycle facilities, these remain a concern in the community;
- Parking in the downtown area is an issue;
- The community and region lack public transportation.

Historic and Archaeological Resources

- The Town lacks the tools to identify and protect historic and archeological resources;
- The ~~authority of the~~ Village Review Zone ~~Board~~ does not encompass all of the downtown area;
- Some activity that may impact historic resources and districts is not subject to review.

Recreation

- If the population of the community continues to grow, the Town will need to expand its supply of recreational facilities since those that exist are currently fully utilized;
- Residential growth in East Brunswick has created the need for recreational fields in that area.

Agriculture, Forestry, and Open Space

- There are limited agricultural and forestry activities in the community;
- Residential development in rural areas makes the continued existence of these activities more difficult.

Housing

- Affordability has been a growing concern in the community as housing costs have risen faster than incomes;
- The closure of ~~NASB~~BNAS may change current housing market conditions ~~the situation~~ with respect to ~~housing~~ availability and ~~costs~~affordability;
- There is limited outside funding available to subsidize housing costs for Brunswick residents.

Part B. Policies

Chapter 5. Proposed Major Policies, Objectives, and Actions

Introduction

The Town of Brunswick's ~~2005~~–2008 Comprehensive Plan Update is organized around eight key policy areas. These are the issues that are the most important in planning for the future of Brunswick so that our community continues to be a desirable place to live, work, and do business. While there are other issues and concerns facing our community, the intent is that these eight areas should be the community's priorities for action and investment.

Prior to starting this process, the Town undertook a review of the 1993 Comprehensive Plan. A key finding of that review was that the major policy directions did not stand out and, therefore, got lost in the enormous breadth of the material presented. Based upon this finding, the Review Committee recommended that this Update be organized around themes or key policy areas.

The Review Committee identified six themes as a possible organizational framework for this Update. As work on the Update has progressed, those six themes have evolved into the following eight key policy areas:

1. Maintain and financially support a quality public education system
2. Require long range planning for municipal facilities including replacement and expansion
3. Promote the desired Growth/Rural pattern of development
4. Support the development and maintenance of infrastructure that promotes livable neighborhoods and the desired pattern of residential and commercial growth
5. Encourage a diversity of housing types in the designated Growth Area and facilitate preservation and development of affordable and workforce housing
6. Provide clear mechanisms and incentives to protect significant open space and natural resources
7. Promote an economically viable, attractive downtown
8. Promote a diverse and healthy local economy

A number of these policy areas impact the use of land within Brunswick. In addition to the objectives and actions set out in the following sections, the Town's policies with respect to land use issues are further explained in the Future Land Use Plan.

Not every community includes schools as part of their comprehensive plan. Brunswick has chosen to do so to because of the central role that education plays in our community. The resources Brunswick invests in ~~-~~our schools require that the community engage in the same long range planning and examination of policies and priorities that all our Town-wide resources and services receive as part of the Comprehensive Plan review process. The School Board is an independent elected body responsible to the state. While this Plan sets objectives for the School Board, this is done with the understanding that it is an independent body.

Each of these ~~policies~~ policy areas is discussed in the following sections. For each policy area, there is a statement of the Community's Vision with respect to that topic and a brief overview of the current situation. These are followed by proposed objectives and specific actions that will be needed to achieve the objective. "Key" objectives and "key" actions are considered high priority items and have been highlighted. The final part of each policy section contains recommended performance targets for evaluating how well the community is doing in achieving the identified objectives.

These eight policy areas do not include all of the issues and ideas that face the Town of Brunswick. These are the priority or key issues facing the community at this time. The ~~im~~pending closure of ~~Naval Area Station Brunswick~~ BNAS may substantially impact the community and result in the need to re-evaluate our objectives. ~~. This will be addressed in the process of planning for the closure of the facility and its future use and redevelopment.~~ In addition, there are other areas that are of concern but do not rise to the level of priority areas. These areas are addressed in Chapter 6.

Policy Area 1: Maintain and Financially Support a Quality Public Education System

Vision (or Desired Future Condition)
The Town recognizes that an excellent public school system is essential to the overall health and vitality of the community. Our public education system is a profoundly influential value choice that provides an opportunity for us to nurture the well being of individual citizens and improve the community as a whole.

Our public schools also represent the single largest investment of Town resources, and it is therefore essential that the education system be integrated into long range Town planning efforts. Town leaders should make the financial commitment to address the space needs in the school system and support essential education initiatives, under the direction of the School Board. Sufficient space will be available to meet educational objectives such as the reduction of class size, basic enrichment programs, and to provide necessary program offerings as appropriate, and even as required, by state or federal law. These include implementing elementary school foreign language classes, all-day kindergarten, a fully implemented gifted and talented program, and preschool or after-school care programs as required by law or supported by the community.

What we currently have as of 2005
TThe Brunswick School system is a vibrant, thriving community of approximately 3,300 students (2005). Within the 2005 student population, approximately 22% are currently from military families, and 6% are tuition students from Durham who attend grades 9-12.

In addition to libraries within each school, the recently expanded and renovated public library, Curtis Memorial Library, is located in Brunswick.

Brunswick offers the traditional classroom setting in three of its elementary schools, and the "open hybrid concept" at its fourth elementary school, Jordan Acres. Space constraints are system-wide at the elementary level, and are currently addressed through the use of multiple, aging modular classrooms at Jordan Acres and Coffin schools.

Brunswick Junior High School, which serves grades 6-8, offers a mix of the middle school philosophy (team teaching) and the junior high school philosophy (department chair) in the implementation of its curriculum and teaching methods. Student life is supplemented with a variety of sports and clubs. Portable classrooms are also in use to meet space needs at the Junior High.

Brunswick High School serves grades 9-12. In addition to sports and clubs, it offers a variety of Honors and Advanced Placement courses. The SAT scores of Brunswick students have historically been above both the state and national averages. Drop out rates remain below the state average, while graduation rates remain well above

the state average. Recent data indicate that over 71% of graduates go on to higher education.

The Town's per pupil operating expenses, as compared to other districts statewide, have not kept pace. Brunswick now ranks in the bottom 10% of the state, with 90% of school systems spending more per pupil on education. Some of the comparatively lower costs in Brunswick can be attributed to the relatively large size of our system, and the economies of scale that result. However, Brunswick's school system also spends less per pupil due to a comparative lack of program offerings, attributable to a lack of space to support these programs.

650 students currently attend Brunswick schools from Navy families with a federal subsidy provided ~~and the Navy currently provides a subsidy~~ to the Town for those students. The school department does not anticipate a decrease in the number of students in the Brunswick school system long term once ~~NASB~~BNAS closes since families with school-age children will likely occupy homes in similar percentages as those currently occupied by Navy families with children.

Objectives and Related Actions

As part of a broad strategy for meeting the educational needs of Brunswick as set forth by the Brunswick School Board, the Town establishes the following objectives and sets forth the proposed actions for achieving each objective:

Key Objective #1 – Facilities: renovate, replace, or construct schools as necessary to meet the long-term space and program needs identified by the School Board.

Key Action 1: Build new school facilities, end the use of modular classrooms, and consolidate and/or close outdated facilities to meet educational, program, health, and safety needs in a cost-effective way.

Key Action 2: Continue to fund preventive maintenance and building improvements to continuously maintain the public investment in school facilities.

Key Objective #2 – Programming: ensure that existing and new academic programs meet or exceed state requirements and support students at all academic levels in the Brunswick public education system.

Key Action 1: Implement all state-mandated programs. In addition, implement programs comparable to and competitive with those offered in surrounding communities or comparably sized school systems.

Key Action 2: Ensure class sizes that are appropriate for the grade level and the successful implementation of the desired teaching methodology.

Action 3: Financially support the summer Reading, Writing, and Mathematics Camp Program.

Additional Objective #3 – Equity: ensure that Brunswick's public schools provide an equal opportunity to learn, an equitable environment, and appropriate expectations for students at all academic levels and aspirations.

Action 1: Work toward a balanced socioeconomic environment within each school. This includes equity in the programs, facilities and mix of students, as well as a learning environment that maximizes the ability of students of all socioeconomic backgrounds to reach their highest potential.

Action 2: Strongly support programs at the Vocational Region 10 School and recognize that these programs are a desirable and appropriate option for those students for whom college is not a goal.

Action 3: Provide access to new technology for all students within the learning environment. An equitable school system provides all students with current technology training.

Action 4: Continue to support programs such as Alternative Education and Merrymeeting Adult Education that offer the ability to obtain a high school degree for nontraditional students as well as programs focused on life-long learning.

Performance Targets

The success of our Town's public education system, and initiatives to fulfill the long-term vision stated above, can be measured in both quantitative and qualitative terms. However, as almost all educational offerings beyond those in place in the Brunswick schools require additional space, resolving the space needs in the school system for the long term is required for many of the other educational actions listed above.

1. Complete and implement the long-range facilities plan to address space needs as outlined by the School Board.

2. Class sizes are established for each grade and reduced as necessary to achieve educational goals.

3. Program offerings meet or exceed state requirements.

4. Program offerings are comparable, where appropriate, to similarly sized as well as nearby school districts.

5. The graduation rate, high school drop out rate, ~~and~~ college/technical school acceptance rate, and the performance of Brunswick students on standardized tests all continue to meet or exceed the current levels.

6. Employee/teacher job satisfaction, parent satisfaction, and student satisfaction are benchmarked and examined regularly by the School Board.

7. The rate of job placements from vocational education increases.

Policy Area 2: Require Long Range Planning for Municipal Facilities Including Replacement and Expansion

Vision (or Desired Future Condition)

The Town maintains and efficiently utilizes existing capital facilities and equipment while planning the space, location, and financial needs of new or expanded facilities. Before ~~building~~ constructing new buildings or providing new services to be funded by property tax revenue, the Town will explore the possibility of regional partnerships and creative financing as solutions. The Town funds needed maintenance and improvements to its capital facilities, including needed new or expanded facilities, on an on-going and timely basis. Even with a stable population, new technology and expectations pressure Brunswick to provide additional services to its citizens as well as ~~in addition to~~ maintaining~~ing~~ existing levels of service.

What We Currently Have as of 2005

Brunswick has a Capital ~~Investment~~ Improvement P~~lan~~rogram (CIP) that proceeds along with the annual budget planning process to prioritize the capital facilities and equipment expenditure needs over a 5-year period based upon current requirements of the community. The CIP includes plans for payment for those items based upon the current budget realities. Annually, the CIP ~~—~~Ceommittee makes recommendations to the Town Council for the expenditures recommended for that year and updates the 5 year horizon of the CIP to show anticipated expenditures over those next 4 years. As part of the annual budget deliberations ~~annually~~, the Town Council authorizes the capital expenditures for the upcoming fiscal year. There is currently a backlog of municipal capital needs that have been deferred over past years. In light of the closure of BNAS and its pending public and private reuse, t~~T~~here ~~is a~~may be a need for a longer-range priority setting process. ~~The closure of NASB means substantial uncertainty about the future availability of land on the base for municipal, commercial, residential and other purposes. It likewise presents opportunities for incorporating municipal facilities into the long-term planning for re-use.~~

Objectives and Related Actions

The Town establishes the following objectives and sets forth the proposed actions for achieving each objective:

Key Objective #1 – Through strong local leadership and collaboration, ensure that all opportunities for municipal facilities at the ~~NASB~~BNAS property are fully explored and that associated impacts of redevelopment on municipal facilities are considered

Key Action 1: Elected officials and staff of Town continue to participate in ~~Local~~ Midc~~-C~~oast Regional Redevelopment Authority (~~LRA~~MRRA) planning and implementation process.

Key Action 2: Identify opportunities for municipal facilities on ~~NASB~~BNAS property.

Key Action 3: Identify and prioritize long and short-term actions Brunswick can take to ensure incorporation of needed municipal facilities in the re-~~development~~use plan.

Action 4: Explore cross-town public transportation options.

Key Objective #2 – Require the development of a comprehensive 10-year strategic facilities plan that identifies known future needs beyond the 10 – year plan and that addresses the use, reuse, maintenance and/or disposition of all municipal buildings and facilities (including landfill) and anticipates additional new facilities required due to replacement, expansion or other known future needs. Implement this plan by closely linking it to the CIP ~~process~~.

Key Action 1: Determine the optimal use of all municipal buildings and facilities including currently underutilized facilities such as the old High School.

Action 2: Consolidate all studies of current and future building~~s~~ and ~~facilities~~ facility needs including maintenance, renovation, replacement and expansion along with associated timelines and costs.

Action 3: ~~Solid Waste: I~~increase recycling efforts throughout the Town including construction debris recycling in order to extend the life of the landfill.

Action 4: The Town will explore all options to ~~a~~ ensure a smooth transition to the next solid waste disposal solution.

Action 5: Establish special accounts to reserve funds for specific future capital needs funded annually at a percentage of the anticipated cost.

Action 6: Once annual CIP expenditures are authorized, complete the purchases or projects approved.

Action 7: Modify the CIP process so that new projects can be added if new opportunities for funding arise.

Action 8: Implement the specific priority recommendations of the 2002 Parks, Recreation, and Open Space Plan for the improvement and expansion of indoor recreation facilities.

Key Objective #3 – Ensure that, before new buildings or facilities are built and funded by local property taxes, alternative space solutions and financing options, such as regional partnerships, use of underutilized facilities, impact fees, and Tax Increment Financing (TIFs), have been fully explored.

Key Action 1: Adopt a procedure that requires staff and committees reviewing ~~facilities~~ facility needs to investigate the feasibility of regional partnerships.

Action 2: Adopt a procedure that requires staff and committees reviewing ~~facilities~~ facility needs to investigate the feasibility of using impact fees, grants, Tax Increment Financing (TIFs) or other creative financing methods.

Additional Objective #4 – Educate the public about long range planning for community facilities including the backlog of needs, facility replacement and expansion and future needs due to growth.

Action 1: Publicize the prioritized 10-year capital needs budget and rationale/funding for future projects in an on-going effective public forum.

Performance Targets

Success in accomplishing these objectives will be determined based upon the following performance targets:

1. The Town will have a comprehensive 10-year strategic facilities plan, which reflects the uncertainty created by the closure of ~~NASB~~BNAS.

2. The percentage of funding for new capital facilities from public-private partnerships and other non-property tax sources will increase.

3. At least 5% of the 10-year projected cost of facilities maintenance, renovation and replacement will be authorized and spent annually.

4. The backlog of facilities maintenance, renovation and replacement projects as determined in ~~2006-07~~2008-09 will be 75% completed by 20~~16-17~~18-19.

5. The useful life of the landfill will be extended by at least five years over current estimates.

6. ~~A~~ The publicly supported ~~re-development~~reuse plan for BNAS, which incorporates potential municipal uses of ~~NASB~~BNAS property, is ~~created~~ implemented.~~prior to the closure of NASB.~~

7. The Town creates and implements a public education plan in support of additional objective 4 above prior to the redevelopment of ~~NASB~~BNAS.

Policy Area 3: Promote the Desired Growth/Rural Pattern of Development

Vision (or Desired Future Condition)

Development is directed to designated growth areas and guided away from designated rural areas. The Growth/Rural Area boundary is located so that the majority of future residential and commercial development can occur in the Growth Area. The future land use patterns and character of Brunswick will be determined by how we direct development to the Growth Area and away from the Rural Area. The Town's zoning ordinance and policies support higher density development in the Growth Area and lower density development and protection of open space and natural resources in the Rural Area. By focusing higher density development in the Growth Area and limiting development in the Rural Area (lower density, oOpen sSpace dDevelopments, etc.), future residential and commercial development is accommodated and the character of the Rural Area (open space, farming, etc.) is maintained. Zoning and Growth/Rural Area boundaries are established on ~~NASB~~BNAS property after a collaborative process fully explores opportunities for base re-use and evaluates associated impacts.

What We Currently Have as of 2005

While the 1993 Comprehensive Plan supports directing development to designated growth areas and guiding development away from designated rural areas, it lacks specific policies and strategies to do so.

This becomes clear considering the following three points:

- Since the Growth/Rural Area boundary was adopted in 1997, approximately one-half of the new housing units were built in the Rural Area.

- Between 1990 and July 2004, 37% of the total acreage in residential subdivisions ~~projects~~ was dedicated as open space – less than ~~n~~10% in the Growth Area and more than 90% in the Rural Area. Open Space Developments (OSD's) in the Rural Area dedicated 54% of the total acreage as open space while conventional developments dedicated 11%.

- While most of the identified unfragmented wildlife habitat blocks and connecting corridors are located in areas designated as rural (12 of 15), there are a few (3 of 15) that extend into the Growth Area.

Brunswick has a Growth/Rural Area Boundary in place pursuant to the 1993 Comprehensive Plan. Its limits are indicated on the 2002 Zoning Map and are broken down as follows:

Growth Areas:	*Rural Areas:*
Maine Street Central	Rural Residential
Maine Street Neighborhood	Rural Farm and Forest
Extended Neighborhood	Rural Coastal Protection
Cook's Corner	
Large Scale Business/Institutional	

Since the original boundary was drawn, numerous reports and information have been generated concerning development limitations, natural resources, demand for and suitability of land for non-residential development, growth patterns, un-fragmented habitats, etc. This information was not available when the Growth/Rural Area boundary was established.

The ~~NASB~~BNAS land is zoned I-5 but the Town has no current control over land use on that site. Given the area of land that will need to be rezoned, opportunities for reuse ~~re-development~~ will ~~need to~~ be placed in the context of the accepted Base Reuse Plan and subsequent zoning developed in accordance with the federally-mandated reuse plan. ~~newly created zoning boundaries and standards.~~

Objectives and Related Actions

The following objectives and related actions deal with key policy areas related to land use in Brunswick. These policies are addressed in more detail in the Future Land Use Plan section of this Update.

In order to be effective in achieving its goals, it will be important to educate the general public, municipal officials, the real estate development community, and, most importantly, landowners about the importance of the Growth/Rural Area Boundary in controlling sprawl and protecting the interests of Brunswick citizens. To this end, it will be helpful to prepare educational materials, hold public forums, and generally maintain a dialogue between appointed and elected ~~groups~~ bodies (including the Conservation Commission and the Planning Board) and all interested citizens.

The Town establishes the following objectives and sets forth the proposed actions for achieving each objective:

Key Objective #1 – Ensure that ~~NASB~~BNAS re-ezoning occurs through the evaluation of potential opportunities as well as on and off-site impacts of redevelopment that integrates new and existing uses.

Key Action 1: Elected officials and Town staff ~~of Town~~ continue to participate in the ~~Local~~ Midc-Coast Regional Redevelopment Authority (MR~~L~~RA) planning and implementation ~~ing~~ process.

Key Action 2: Obtain natural resource inventories that exist for BNAS land. Identify and plan to ensure protection of significant natural resources and open space.

Key Action 3: Participate in the evaluation of infrastructure needs for redevelopment of roads, storm water, sewer and water and other services.

Key Action 4: Using the information gathered from Key Actions 2 and 3 above confirm the proposed Rural/Growth Boundary and develop associated zoning consistent with Brunswick overall development policies.

Key Objective #2 – Encourage dense new development in the Growth Area and limit development in the Rural Area.

Key Action 1: Allow denser development in designated G~~g~~rowth ~~a~~Areas (particularly where water, sewer, and storm water systems exist) by drafting and adopting zoning ordinance amendments to permit increased housing density at all price levels. Denser development should be compatible with the existing, livable neighborhoods in the Growth Area.

Key Action 2: Limit the number of residential building permits issued for new dwelling units in the Rural Area to no more than one-third of total permits issued each year.

Key Objective #3 – Maintain the character of the Rural Area.

Key Action 1: Continue ~~to work toward the~~ implementation of the management strategies recommended in the 2003 Rural Brunswick Smart Growth Study as adopted by the Town Council.

Key Action 2: Continue to work toward the implementation of the strategies recommended in the 2002 Parks, Recreation and Open Space Plan as adopted by the Town Council.

Key Action 3: Promote ways to protect important open space and habitats in the Rural Area through Open Space Developments, Rural

Brunswick Smart Growth developments or other mechanisms that protect important open space and habitat.

Action 4: Work with private landowners who are interested in conserving the habitat, natural resource, and agricultural value of their property on a voluntary basis.

Action 5: Work with local and regional land trusts and conservation organizations to identify important parcels of land in the Rural Area for acquisition.

Action 6: Coordinate future decisions regarding train service, maintenance, and operations to minimize noise and other negative impacts to surrounding neighborhoods.

Performance Targets

Success in accomplishing these objectives will be determined based upon the following performance targets:

1. Not more than one-third of new residential dwelling units shall be built outside the Growth Boundary by ~~2010~~ 2015 and not more than one-quarter of the total between ~~2010~~ 2015 and 20~~15~~20.

2. Fragmentation of identified unfragmented habitat blocks in the Rural Area will not exceed 2% (based on Rural Area fragmentation experienced in the last decade).

3. The density of new residential development within the Growth Area will be greater than the density of development that occurred between 1990 and 2005.

4. The percentage of developed acreage that is developed as a Rural Brunswick Smart Growth development, Open Space Development or by some other mechanism that protects important open space or habitat will increase.

5. A mechanism exists to allow a willing private landowner to conserve their property by placing conservation easements on the property, which offset offsite development impacts.

Policy Area 4: Support the Development and Maintenance of Infrastructure That Promotes Livable Neighborhoods and the Desired Pattern of Residential and Commercial Growth

Vision (or Desired Future Condition)

Infrastructure development is completed in such a way that it minimizes and discourages sprawl. Specifically, sewer, water, storm water systems, roads, sidewalks and pathways are developed in such a way that they support Brunswick's growth primarily in the Growth Area, both retaining livable neighborhoods and providing necessary environmental controls. On ~~NASB~~BNAS property, infrastructure used in connection with, or created as part of new development, shall be consistent with goals established for the Growth/Rural Area development for the rest of Brunswick.

What We Currently Have as of 2005

The Brunswick and Topsham Water District (BTWD) and Brunswick Sewer District (BSD) are not municipally operated and are strictly user-supported. Both the water and sewer infrastructure are well maintained and have available capacity; an expansion is designed for the sewer plant and is expected to be implemented before 2020. Given their independent status, both the BTWD and the BSD are somewhat disconnected from the Town's planning process and needs. The Public Works Department is responsible for maintaining public roads, sidewalks, and the storm water collection system. Since 1993 there has been a disproportionate amount of residential growth in the Town's Rural Area ~~of town~~, causing growing concern with sprawl and its results: increased traffic, declining pedestrian and bicycle safety, increased road and related facilities maintenance, and potential environmental concerns. Inventories of infrastructure on ~~NASB~~BNAS property will be needed for future planning. Substantial uncertainty exists about future traffic patterns that will develop with the closure and redevelopment of ~~NASB~~BNAS. ~~.~~

Objectives and Related Actions

The Town establishes the following objectives and sets forth the proposed actions for achieving each objective:

Key Objective #1 – Utilize the water, sewer, and storm water systems to promote the desired pattern of growth.

Key Action 1: Align BTWD and BSD and Town planning efforts to achieve the Town's broad planning objectives.

Key Action 2: Actively plan for, and explore the capitalization of, water and sewer extensions into areas where the Town is particularly encouraging development (as defined in the Future Land Use Plan).

Key Action 3: Implement zoning changes that encourage denser, infill development in the Growth Area where water, sewer and storm water systems exist.

Key Action 4: Implement zoning on ~~NASB~~BNAS property that is consistent with overall Town policies encouraging denser development in Growth Areas with appropriate infrastructure, and preserving the rural character outside of Growth Areas.

Key Objective #2 – Use initiatives in dealing with the Town's roads, sidewalks, pathways, and public transportation to promote Brunswick's desired pattern of growth and safely carry automobile, pedestrian and bicycle traffic.

Key Action 1: Develop a Master Traffic Plan and prioritize solutions for the most congested and least safe areas. In particular, plan for changes required by the ~~redevelopment~~ reuse of ~~NASB~~BNAS.

Action 2: Explore state and regional collaboration and funding to complete the Action item noted above.

Action 3: Work with MDOT on the Gateway 1 Corridor study to seek Pleasant Street and Mill Street improvements.

Action 4: Continue to improve existing roads and sidewalks, per the 2004 Bicycle and Pedestrian Improvement Plan, to make them fully accessible and safe. Consideration should be given to traffic calming measures (such as curb extensions, gateways, landscaping and specific paving treatments) to maintain and improve the character of neighborhoods.

Action 5: Adopt new road standards for new streets within the Growth Area that require interconnectivity and sidewalks as appropriate.

Action 6: Support the efforts of the Midcoast Collaborative for Access to Transportation to determine ~~study (with funding from a Maine DOT grant and local sources)~~ the feasibility of a limited fixed/flex public transportation route/system in Brunswick.

Action 7: Have Town officials meet with neighboring community officials to coordinate regional projects and planning.

Additional Objective #3 – Reduce the environmental impacts from existing development as well as new growth.

Action 1: Plan and incorporate storm water management systems that are consistent with achieving the Town's water quality goals into Brunswick's CIP.

Action 2: Work with the Sewer District to provide incentives to encourage current septic system users within the Growth Area to connect to the ~~—~~Sewer District where the sewer line is reasonably close and particularly when an existing septic system is failing.

Action 3: Explore the impact of requiring sizable new Growth Area developments to connect to sewer lines beyond current connection requirements. Town land use regulations and planning should be used to minimize the impact on individual developers.

Action 4: Coordinate infrastructure improvements between the water~~,~~ and sewer districts, and public works department~~s~~.

Action 5: Coordinate with the ~~s~~Sewer ~~d~~District to segregate storm water from sewer effluent.

Performance Targets

Success in accomplishing these objectives will be determined based upon the following performance targets:

1. The number of existing households in the Growth Area that are currently not served by public water and sewer will decrease by 5% by ~~2010~~2015.

2. The percentage of new residential units served by public water and sewer will increase to two-thirds of the town-wide total by ~~2010~~ 2015 and to three-quarters after ~~2010~~2015.

3. Reduce the number of pedestrian and vehicular accidents by 50% at the eight "Highest Accident and I~~i~~njury L~~l~~ocations" currently identified by the Brunswick Police Department. ~~(updated March 2004).~~

4. Decrease the average length of road frontage for new residential units by 20%.

5. Reduce inflow of unpolluted water that is intentionally introduced to the sanitary sewer system by 5% annually.

Policy Area 5: Encourage a Diversity of Housing Types in the Designated Growth Area and Facilitate the Preservation and Development of Affordable and Workforce Housing.

Vision (or Desired Future Condition)

The traditional diversity of people residing in Brunswick will be preserved by meeting the housing needs of people with a broad range of incomes and living situations. Housing in general will be more affordable for Brunswick residents. An adequate supply of housing will be available for very low, low, and moderate income households, integrated throughout the Growth Area. The community will offer a diversity of housing including rental housing and multifamily housing. The elderly will be able to live in the community regardless of their income, in housing that is appropriate for their needs. Fewer families will be homeless. ~~NASB~~BNAS residential units available after the closing of the base will provide a diversity of housing options, including affordable and workforce housing options.

What We Currently Have as of 2005

Housing trends in Brunswick have not been favorable to achieving the stated vision. New housing consists predominately of single-family residences on large lots, targeting upper income households. Fewer people who work in Brunswick are able to afford to live here. In addition, Brunswick is entering a climate of extreme uncertainty with the closing of ~~NASB~~BNAS.

These issues are highlighted in the following findings, excerpted from recent studies of the Brunswick housing market:

- One in three Brunswick renters pay over a third of their household's income for rent. One in six homeowners pay over a third of the household income for mortgage and taxes. The average family pays 6% of its income for property taxes, up from 5% in 1990. These figures are similar to the figures for the communities surrounding Brunswick and for the state as a whole, so this is not a peculiarly local problem.

- In 2001, 58% of existing households in Brunswick would not be able to afford the median cost of a home and 45% of renters could not afford median rent.

- The average sales price for existing housing in Brunswick has increased from $117,500 in 1990 to $161,000 in 2001. The average sales price for a newly constructed single family home increased from $172,500 in 1999 to $242,000 in 2002.

- Vacancy rates for rental housing showed vacancies holding steady from 1990 to 2000 at around 3.5%. Rents, however, have been rising steeply in the last few years. Median rent for a 2-bedroom apartment increased 37% from 2001 to 2002.

- In 2002, the average sale price of a mobile home was $58,000 in Brunswick. Household income needed to pay for such a home was $31,500 annually. Local figures are not available, but nationwide, the median mobile home renter earned $27,950 annually, but 46% of renter households earned less than $25,000/year.

- 45% of Brunswick's renter-occupied housing units are 50 years old or older. 129 new rental units have been built here in the last 10 years. In the towns surrounding Brunswick and Harpswell, 500 rental units were built in the 1990s and more than half of rental units there are less than 20 years old.

- Brunswick's affordability index was .88 in 2001, meaning that the average family can afford about 88% of the price of the average sales price of a house in Brunswick. Statewide, the affordability index is between .94 and .98. In the Brunswick area, the communities closer to the ocean have lower affordability indexes.

- Five out of six young families in the Brunswick market area look outside of Brunswick to buy their first home.

- The number of homeless people seeking shelter at the Tedford Shelter has doubled ~~since~~ between 2000 and 2005. 75% of these homeless are from Brunswick or surrounding towns. Many are young, some have mental health and substance abuse issues, and many need help with living skills and job preparation.

- Retirees from the military and from out-of-state are contributing to reduced household size and older household growth. Out-of-state buyers pay more for their housing than local purchasers and contribute to housing inflation.

- In the 1990s, 1,200 owner occupied units were built in Brunswick and 71 multifamily rental units were built.

- Regionally, Brunswick has a higher ~~mil~~ millage rate – higher tax burden – than surrounding communities.

- In Ceensus ~~t~~Tract 112.02, which includes downtown Brunswick, 55.6% of the occupied housing units in 2000 were renter-occupied. Those 1,585 units represent two-thirds of all occupied rental units in Brunswick.

~~Preliminary studies of housing at NASB suggest the following:~~Current BNAS housing studies indicate:

- 700 units owned privately by GMH on Navy-leased land, 900 barracks beds, and 1,500 to 2,000 units of private housing will be vacated by military personnel when the ~~NASB~~BNAS closes.

- Most of the private housing is currently rental housing.

Objectives and Related Actions

As part of a broad strategy for meeting the housing needs of Brunswick as set forth by the Brunswick Community Housing Coalition (currently known as the Mid Coast Community Housing Coalition) in the Action Plan for Housing in Brunswick, the Town establishes the following objectives and sets forth the proposed actions for achieving each objective:

Key Objective #1 – Support the transition of ~~NASB~~BNAS associated housing to meet the workforce and affordable housing needs of the community.

Key Action 1: Research federal regulations relating to affordable housing of decommissioned Navy housing and position Town to ensure the availability and affordability of those units.

Key Action 2: Create zoning for ~~NASB~~BNAS property that allows for increased density and flexibility to promote private development of affordable and workforce housing.

Key Objective #2 – Preserve the current stock of affordable and rental housing.

Key Action 1: Actively pursue state and federal housing subsidy programs, such as Community Development Block Grant (CDBG) housing rehabilitation funds, Federal Home Loan Bank subsidies, and Maine State Housing Authority Home Rehabilitation program funds. Explore reuse of no-longer needed municipal and school facilities as sites for redevelopment.

Action 2: Partner with funders where possible to encourage owner-occupied multi-unit housing.

Key Objective #3 – Create an environment that supports the development of new affordable housing by both the public and private sectors.

Key Action 1: Allow denser development in the Growth Area by drafting and adopting zoning ordinance revisions to permit increased housing density at all price levels. This same action appears in Policy 3, Objective 2, Action 1, serving both objectives.

Additional Objective #4 – Facilitate the development of affordable housing.

Action 1: Use the new Affordable Housing Tax Increment Financing (TIF) program to encourage suitable projects.

Action 2: Identify partners to work collaboratively with the Town on housing projects that are focused on rental apartments, moderately priced workforce housing, and low to moderate-income elderly housing.

Action 3: Support development of workforce housing for Town employees.

Additional Objective #5 – Educate the public about housing issues.

Action 1: Support informational and educational efforts of the Mid Coast Community Housing Coalition.

Action 2: Prepare education materials and programs that help residents visualize denser development patterns.

Action 3: Distribute education and program materials with property tax bills.

Performance Targets

Success in accomplishing the Town's objectives for housing will be determined based upon the following performance targets:

1. At least 5% of new housing units constructed in each five year period (~~2005~~2010-20~~09~~15, ~~2010~~2015-20~~1~~420, etc.) will be affordable to lower income households with incomes of less than 80% of the median area-wide household income.

2. At least 10% of new housing units constructed in each five year period (~~2005~~2010-20~~09~~15, 201~~5~~0-20~~1~~420, etc.) will be affordable to moderate income households with incomes of less than 150% of the median area-wide household income.

3. The ratio of the median single-family home sales price to the median household income (or affordability index) will be lower in ~~2010~~ 2015 than it is today and will continue to decrease.

4. Not more than 80% of new housing units constructed in each five-year period (~~2005~~2010-20~~09~~15, 201~~5~~0-20~~1~~420, etc.) will be single-family homes.

5. At least 20% of new housing units constructed in each five-year period (~~2005~~2010-20~~09~~15, 20~~1~~015-20~~1~~420, etc.) will be rental housing.

6. The number of affordable and rental housing units available will not decrease below the number available in 2005.

Policy Area 6: Protect Significant Open Space and Natural Resources and Provide Outdoor Recreational Opportunities

Vision (or Desired Future Condition)

The Town recognizes the ecological, cultural, and economic importance of natural resources and open space. Open space remains one of the essential hallmarks of the town. In order to ensure that this essential character of Brunswick is preserved, future development occurs in a manner that preserves or enhances the Town's high value open space. The high priority that the community places on natural resources should be reflected in all plans for the ~~redevelopment~~ reuse of ~~NASB~~BNAS. As residential development occurs in the Rural Area, a substantial portion of the land involved in these developments is permanently preserved as open space. The Town will conserve and protect significant natural resources, including unfragmented forested blocks, habitat for endangered and threatened wildlife species, rivers, streams, coastal waters, wetlands, aquifers, and scenic areas. Additionally, outdoor recreation areas are valued by the community as places for learning, wellness, and play, adding to citizens' shared experiences and quality of life.

What We Currently Have as of 2005

While the significant natural, open space and habitat resources that exist on the ~~NASB~~BNAS site are not included in the 2002 Parks, Recreation and Open Space Plan, the 2002 Parks, Recreation and Open Space Plan does document and begin to prioritize the Town's other significant natural, open space and habitat resources:

> ***Brunswick's Open Space and Recreation Areas:*** Brunswick enjoys extensive riverine and coastal shorelines as well as significant field and forested regions. In addition, Brunswick has diverse cultural open spaces that include parks; playgrounds; a system of trails and pathways; gateways to the town as it is approached from major roadways; viable farms; water access points; historic, archaeological and burial sites; and outdoor recreation facilities.
>
> ***Brunswick's Natural Resources:*** The Town has a wide range of natural resources: large areas of unfragmented forest that provide habitat for the full array of indigenous species; open fields that provide habitat for threatened species; freshwater wetlands and vernal pools that provide habitat for amphibians; the Androscoggin R~~r~~iver and its tributaries that are regaining their recreation value due to continually improving water quality and fisheries; aquifers that provide drinking water to a large portion of the population; and coastal waters that provide recreational opportunities and the sustainable harvest of marine species.

There is increasing pressure on these areas as the residential development continues to occur.

The Town has a natural resource planner who works with various town boards and commissions, and continues to identify important natural resources. This position has been vital in the ongoing protection of resources, and will continue to be needed ~~to~~ as the ~~NASB~~BNAS site becomes available, and as additional growth pressures ~~need to be~~are balanced with natural resource protection throughout the Towns.

There is currently no funding to acquire titles or easements to protect priority areas. In addition, ~~and~~ protecting priority resources through mitigation is difficult with current Town ordinances.

The Brunswick Topsham Land Trust focuses on protecting open space and supports the Town efforts to protect natural resources.

Objectives and Related Actions

The Town establishes the following objectives and sets forth the proposed actions for achieving each objective:

Key Objective #1 –Ensure that ~~the redevelopment~~the reuse of ~~NASB~~BNAS is consistent with Brunswick's overall natural resource values.

Key Action 1: Work with Redevelopment Authority and Navy-hired environmental consultants to identify and inventory ~~Conservation Commission inventories~~ natural resources on ~~NASB~~BNAS property to coordinate the protection of ~~and consults during the LRA planning process to coordinate natural resource protection on NASB with plans for protection of~~ significant local and regional natural resources.

Key Objective #2 – Limit growth outside the growth boundary relative to growth inside the boundary.

Key Action 1: Limit the number of residential building permits issued for new dwelling units in the Rural Area to one-third of total permits issued town-wide. This same action appears in Policy 3, Objective 1, Action 2, serving both objectives.

Key Objective #3 – Improve mechanisms for protecting high value open space and natural resources.

Key Action 1: Provide assistance to the newly ~~E~~established ~~a~~ Land for Brunswick's Future Board to oversee identification and prioritization of high value open space and natural resources to be protected.

Key Action 2: Promote ways to protect important open space and habitats in the Rural Area through Open Space Developments, Rural Brunswick Smart Growth developments or other mechanisms that protect important open space and habitat.

Key Action 3: Revise the zoning ordinance to ensure that land with high resource value is preserved in development process.

Action 4: Obtain funding for the Land for Brunswick's Future Board ~~obtains funding~~ to protect priority high value parcels.

Action 5: Enact an open space impact fee that reflects the impact of new development and the associated need ~~f~~for protected open space.

Action 6: Plan for open space and parks in both the G~~g~~rowth and ~~r~~Rural areas.

Key Objective #4 – Protect natural resources from harmful development activities.

Key Action 1: Continue to monitor the quality of waters – rivers, streams, coastal, and aquifers. ~~and c~~ Consider adding additional water quality monitoring as necessary to assess ~~t~~the drinking water and marine resource condition of these waters and adopt policies to ensure their protection.

Action 2: Continue to protect un-fragmented forested blocks from development through a comprehensive effort to work with landowners on a voluntary basis and by adopting ordinance standards for mitigation as needed.

Action 3: Consider adopting ordinance provisions stricter than current state regulations to protect vernal pools and wetlands including provisions that require in-kind or fee-based mitigation as part of the development process where these resources are harmed.

Action 4: Require long-term protection of streams, wetlands and vernal pools, ~~that are~~ contiguous to new development, as part of the development process by requiring effective notification of protected status of these resources to homeowners through deed and covenant provisions.

Action 5: Include the cumulative effects of light pollution along with the other factors considered as part of the development process.

Key Objective #5 – Provide adequate recreational facilities for current and future needs.

Key Action 1: ~~Enact a~~Amend the existing recreation impact fee ~~for~~ methodology for new residential development that reflects the impact of such development and costs associated with providing additional recreational facilities.

Key Action 2: Identify and obtain facilities for recreation on ~~NASB~~BNAS property that can best meet the needs of the community. Update the 2004 Brunswick Bicycle and Pedestrian Improvement Plan to incorporate access to ~~NASB~~BNAS. ~~as its future uses become clearer.~~

Action 3: Implement the specific priority recommendations of the 2002 Parks, Recreation and Open Space Plan for the expansion of recreational facilities.

Action 4: Support and ~~begin to~~ implement the 2004 Bicycle and Pedestrian Improvement Plan for a system of interconnected trails and pathways through public/private partnerships.

Additional Objective #6 – Protect and maintain our cultural and scenic open space resources.

Key Action 1: ~~Preservation~~ Preserve ~~of~~ the historic, archaeological and burial sites identified in the 2002 Parks, Recreation and Open Space Plan ~~are ma~~as ~~de~~ part of development process. Develop process to identify additional perishable assets impacted by development.

Action 2: Identify and preserve scenic assets including gateways to Brunswick.

Action 3: Maintain existing public water access points and acquire new water access when feasible.

Action 4: Prepare a concept plan for the Androscoggin River Corridor for recreational purposes.

Additional Objective #7 – Set protection goals for identified significant natural resources.

Action 1: Continue to inventory these resources so as ~~so that it is~~to be scientifically accurate and appropriate for long-term planning with appropriate public review.

Action 2: Cooperate with adjoining towns to place prioritization process in a regional context.

Action 3: Inform the public about these resources using the Town website and other means.

Action 4: Develop management standards for each significant resource.

Action 5: Continue to monitor populations of indicator wildlife species for the significant terrestrial and aquatic habitats.

Action 6: Continue to actively manage town-owned forest and other natural resources.

Performance Targets

Success in accomplishing these objectives will be determined based upon the following performance targets:

1. A website or publication is available to identify all Town high value open space areas ~~by 2007~~by 2009.

2. All new subdivisions in the Rural Area are Open Space or Rural Smart Growth Developments or use some other mechanism that protects important open space or habitat by 2012.

3. Not more than one-third of new residential dwelling units shall be built outside the Growth Boundary by ~~2010~~ 2015 and not more than one-quarter of the total between 201~~5~~0 and 2020. ~~15.~~

4. The number of miles of public, interconnected trails will increase by 20% by ~~2010~~2015.

5. Wildlife surveys will show positive gains or will remain the same when compared to base-line data.

6. Water quality in streams, rivers, and coastal waters will remain the same or improve.

7. The Land for Brunswick's Future Board will have secured acreage and/or easements to protect resources.

Policy Area 7: Promote an Economically Viable, Attractive Downtown

Vision (or Desired Future Condition)
Our vision is to preserve and maintain the essential character of the existing downtown. It must continue to be the social and arts center of the community as well as the home for a variety of small businesses. Extension of the Village Review Zone and some physical enhancements and improvements contribute to a robust, pedestrian friendly, creative economy/village area along the Maine Street corridor complete with adequate parking, access to a variety of transportation modes (including passenger rail service by Amtrak and Maine Eastern Railroad) and a diversity of residential housing options.

What We Currently Have as of 2005
Downtown currently has a diversity of residences, businesses and land uses, including retail, professional offices, art galleries, a movie theater, restaurants, museums and churches. Brunswick also has the centrally located Curtis Memorial Library that has been a significant partner with many community organizations. It is a service center for the region and it supports a growing creative economy. Brunswick has a large number of non-profit institutions and most of its multi-family rental housing is located in the downtown. The downtown is centered between Bowdoin College and the Joshua L. Chamberlain Museum to the South and Fort Andross and the Androscoggin River, with a small adjacent park, to the North. Downtown has a significant green space, the Mall, that is used for a variety of community purposes. Recreational opportunities are increasingly important along the Androscoggin River corridor. The recreation building, town offices, and fire and police stations are all downtown. However, traffic, ~~-~~pedestrian safety, and parking have been increasing problems. The Maine Street Station site, for which the Town prepared a Master Plan, provides an excellent opportunity for development of a multi-modal transportation center, including passenger rail service by Amtrak and Maine Eastern Railroad. Increases in area unemployment related to the ~~NASB~~BNAS closure may negatively affect the smaller downtown retail and service businesses. Also, the diversity of housing options downtown is dwindling, despite many opportunities for mixed residential use in existing space.

Objectives and Related Actions
The Town establishes the following objectives and sets forth the proposed actions for achieving each objective:

Key Objective #1 – Use the redevelopment of the Maine Street Station site as a catalyst for Downtown improvements.

Key Action 1: Ensure that the design of the Maine Street Station site and the proposed uses, including passenger rail service by Amtrak and Maine Eastern Railroad, complement the mixed-use nature of the existing downtown~~.~~.

Key Objective #2 – Make the Downtown District safer and more pedestrian friendly.

Key Action 1: Evaluate and implement measures and physical improvements, including traffic calming mechanisms, for improving pedestrian safety and comfort on Maine Street

Key Action 2: Continue implementing the improvements listed in the 2004 Brunswick Bicycle and Pedestrian Improvement Plan relating to Downtown, particularly regarding crosswalks and sidewalks, on a regular basis.

Key Objective #3 – Increase the number of housing options in the Downtown District.

Key Action 1: Re-evaluate dimensional standards and conduct an inventory of neighborhood features as part of a revision of the Town's zoning ordinance to allow denser residential infill development throughout the downtown while preserving valued features.

Action 2: Coordinate the development of a building rehabilitation code to facilitate renovations of existing downtown building with the Town's building code, the State's Life Safety Code, and other state efforts to accomplish the same.

Key Objective #4 –In partnership with local ~~–~~organizations, make the Downtown more attractive, inviting and the "hub" of community activity.

Key Action 1: Develop a new Master Plan for the downtown relating economic,
housing and infrastructure improvements. Considerations for such a plan include traffic, bicycle and pedestrian patterns, alternatives to diverting thru-traffic away from Maine Street, enhancing use of upper story space, preserving historic architecture, and making new construction and renovations fit the character of the historic downtown.

Key Action 2: Expand the geographic limits of the Village Review ~~Board's~~ Zone ~~jurisdiction~~ to include an area west ~~side~~ of Maine Street to Union Street (and possibly the Cedar Street area) from the Androscoggin River to the Joshua L. Chamberlain Museum. Consider the development and application of commercial design standards.

Action 3: Install benches, information kiosks, trash receptacles, public restrooms and other amenities as needed.

Action 4: Encourage development on the side streets off Maine Street to attract pedestrian traffic and new businesses.

Action 5: Support the concept of the north end of Brunswick's downtown as a recreational "hub" along the Androscoggin River corridor, including the bike/path walkway to Cook's Corner, the canoe/kayak portage area, the swinging bridge, the waterfront park, the fish way, the boat launch site on Water Street, and the rowing club.

Action 6: Support efforts to develop and promote a local creative economy.

Action 7: Continue to support the Village Review Board's ongoing efforts to work with landlords who voluntarily want to maintain the historic character of the Downtown. Support the VRB's recent efforts to establish a non-regulatory Brunswick Town Landmark and Landmark District Designation Program.

Additional Objective #5 – Increase both the public's awareness of and the supply of public parking in the Downtown.

Action 1: Follow the downtown parking committee's recommendations and ~~-implementing~~ the 2001 Brunswick Downtown Parking Study.

Performance Targets

The community's success in accomplishing these objectives will be determined based upon the following performance targets:

1. Complete the planning and design of Maine Street Station by 2010.

2. Substantially reduce the number of pedestrian accidents in Downtown each year.

3. Increase the number of residential units in the Downtown area by 50 units by ~~2010~~2015.

4. The Town partners in various events designed to promote a creative economy.

5. Increase the number of all types of parking spaces available for customer use in Downtown by 10% by ~~2010~~2015.

Policy Area 8: Promote a Diverse and Healthy Local Economy

Vision (or Desired Future Condition)

The Town of Brunswick has a robust local economy and a diverse commercial tax base. Brunswick is a regional service center for retail, health, education, and consumer services. We develop and attract businesses and jobs that pay at least a livable wage, from the large corporate business to the home office. The Town's economy is increasingly a part of a creative economy that nurtures enterprises that are part of knowledge-based, artistic, and cultural activities. Clusters of complementary businesses stimulate job growth. The Town manages its resources to sustain natural resource-based businesses that depend on them. The major employers grow, including Bowdoin College and the health care sector. The economic opportunities available in Brunswick are attractive to the new generation and increase the role of younger people in our community.

The closure of the Brunswick Naval Air Station ~~Brunswick~~ presents an unprecedented opportunity for the community as a site for non-residential development. Given its location between the Town's primary commercial centers, the northern portion of the ~~NASB~~BNAS site remains in the growth area, with appropriate zoning. The acreage within the growth area is large enough to accommodate considerable non-residential development for the long term, and should be the priority location for a business park in the short term through an early conveyance if at all possible.

The Town actively pursues infill development that redevelops underutilized, abandoned, and/or brownfield/grayfield land and buildings within the growth zone. Infill can satisfy Brunswick's need for some economic development while maintaining the community's commitment to compact development. Beyond the disposition of ~~NASB~~BNAS, infill is the priority in creating economic opportunities in order to avoid sprawl.

The closure of ~~NASB~~BNAS results in significant short-term economic impacts. A business park positions the community to offset some of these impacts. If the Town is unable to obtain an adequately early ~~NASB~~BNAS conveyance, and infill is determined to be inadequate to give the community needed economic development prior to the ~~NASB~~BNAS closure, then Brunswick sites a business park elsewhere. A new business park maximizes the use of non-Town public resources to provide infrastructure and other improvements. A comprehensive analysis of the costs and benefits to the public ~~is presented~~ would be completed as part of the development plan for the park. Public ownership of the property is the preferred method of creating a new business park.

If a business park is developed that necessitates the expansion of the existing growth area, the new park meets the development standards specifically created to buffer and respect the character of the immediate community.

What We Currently Have as of 2005

Brunswick is one of the state's largest service centers with a wide range of retail and service options including a strong health care sector. It is also a highly desirable community in which to live and offers its residents and businesses a high quality of life. We have an existing Town-owned business park that is nearing capacity. There is adequate infrastructure capacity (sewer, water, highway access etc.) to support additional commercial and industrial growth. Local businesses have access to an adequate, qualified workforce. The upcoming closure of ~~NASB~~BNAS will have a substantial impact on the local economy with the potential for short-term loss of businesses and jobs and then the longer-term opportunities for economic activity related to the redevelopment of the base property.

Our community actively supports economic growth. The Town has a full-time Economic Development Director to co-ordinate economic activities with Brunswick's many civic, business, and public-private organizations. The Economic Development Director has determined that available sites for a business park within the current growth zone, ~~—~~excluding a possible ~~NASB~~BNAS conveyance, ~~—~~are inadequate to meet the community's short-term economic development needs. A preferred site just outside of the current growth area has been identified.

Infill opportunities for business growth exist within the current growth area. Developed on a~~However, other than on a~~ case by case basis, business infill opportunities have ~~not~~ been planned for and ~~or~~ pursued comprehensively in the context of the closure of ~~NASB~~BNAS.

Objectives and Related Actions

The Town establishes the following objectives and sets forth the proposed actions for achieving each objective. ~~Key Objectives 1, 2, and 3 *must be explored simultaneously and not sequentially* due to the urgency of planning for job and business loss given the closure of NASB.~~

Key Objective #1 – Re-develop in-fill sites within the Growth Area.

Key Action 1: Prepare and implement a feasibility analysis of all potential in-fill sites ~~——~~that includes a fiscal analysis, details the costs necessary to make the sites attractive to prospective businesses, outlines anticipated business interest, and models an analysis of the number and types of jobs potentially created.

Key Action 2: Explore and actively pursue 3rd party funding and/or transitional funding made available through ~~NASB~~BNAS closure process to support in-fill.

Key Action 3: Promote development of in-fill sites that are financially feasible, beneficial to the community, and have the potential to

bring commercial development and jobs paying a living wage to a currently underutilized site. Identify the needs of specifically targeted businesses and provide incentives to attract them to Brunswick.

Key Objective #2- Ensure that ~~NASB~~BNAS re-zoning occurs through the evaluation of potential opportunities as well as on and off-site impacts of redevelopment that integrates new and existing uses.~~.

Key Action 1: Elected officials and staff of Town participate in ~~LRA~~MRRA planning process.

Key Action 2: The Town encourages MRRA to~~Town~~ actively explore_~~s~~ the potential for early transfer of ~~NASB~~BNAS land suitable for ~~a~~ business~~es park, and~~ develop~~sed a park that is~~ cost effectively to the Town and attracts the types of business and jobs identified as being beneficial to the Town as in Key Objectives 1 ~~and 2~~ above.

Key Objective #3- ~~In the interim period before~~Prior to the closure of ~~NASB~~BNAS, the Town shall develop and implement opportunities to attract businesses to Brunswick that will provide jobs paying a livable wage to help offset the anticipated loss of jobs leading up to the closure of the base.

Key Action 1: Identify the types and number of jobs the Town wants to attract and use available zoning, tax incentives, and third-party mechanisms to draw identified businesses and jobs.

~~Key Action 2: Prepare a feasibility analysis evaluating in fill opportunities and build-out in MU5 under existing zoning to determine if sites are available to meet projected commercial growth space needs prior to the base closure in ways that are cost effective to the Town and that can be developed within the next 3 years.~~

~~Key Action 3: Only if development of in fill sites, early conveyance at the NASB site, plus development of MU5 sites are inadequate or unavailable to meet the Town's need to provide space for the identified business types, shall the Town consider a new business park on Rt. 1 South. In considering a new business park, the Town shall prepare a second feasibility analysis which must address the following~~Any feasibility analysis for a business park must address the following:

~~a. Is it cost effective for the Town?~~

~~b. Will it be substantially occupied within six years?~~

~~c. Will it provide jobs that support the Town's vision?~~
~~d. Steps necessary to limit speculation purchase of sites without intent to develop?~~
~~e. Could the new business park detract from future commercial development at the NASB site?~~
~~f. Could future commercial development at NASB detract from the long-term occupancy of a new business park?~~
~~g. Have transportation safety issues been addressed?~~

~~Key Action 4: If a new business park is both necessary and feasible under Key actions 1-3 above, the growth area may be expanded to include the needed acreage for the business park.~~

~~Key Action 5: If the growth area is expanded to accommodate the business park on the private land located on Rte.1 the Town shall condition this change in the growth zone boundary and rezoning on adequately protecting nearby residential neighborhoods as articulated in the development standards contained in the Future Land Use Plan, Chapter 7, section E.9.(b) below.~~

Key Objective #4 – Ensure that as Bowdoin College grows and changes, its facilities fit into the community.

Key Action 1: Facilitate communication between the College and town citizens and businesses especially when the College needs to add new buildings, parking areas or other improvements.

Key Objective #5 – Enhance the economic viability of small, locally owned businesses.

Key Action 1: Develop a marketing plan and strategy for "new economy" businesses to encourage locating in Brunswick.

Action 2: Work with regional economic development organizations to provide funding for local businesses for expansion, modernization, and working capital.

Action 3: Develop an on-going business assistance program in coordination with regional organizations to enhance the skills of local business people and improve their ability to compete.

Action 4: Support Brunswick's natural resources economy, including marine harvesting and farming.

Objective #6 - Promote expansion of passenger and freight rail service in Brunswick.

Action 1: Coordinate with MDOT, the Northern New England Passenger Rail Authority and federal authorities to implement the ~~advocate for~~ infrastructure improvements needed for rail service.

Performance Targets as of 2005 and updated June 2008

Success in accomplishing any single economic objective will be challenging given the unprecedented economic impact that will occur due to the ~~NASB~~BNAS closure. However, the following initial performance targets are suggested:

1. Feasibility study for in-fill sites completed in 2006. (Completed 2007)

2. Feasibility study for the business park completed in 2006. (Completed 2007)

3. Feasibility study of early conveyance of ~~NASB~~BNAS transfer completed in 2006. (Completed, but ongoing monitoring encouraged.)

4. Initial application made for grants to finance infill and potential business park site by end of 2006. (Completed, ongoing)

~~5.If deemed necessary and feasible, infrastructure for in-fill or new business park completed by 2008.~~

~~6.~~5. Complete marketing plan for attraction of creative economy businesses by 20~~0~~12~~7~~.

~~7.~~6. Substantially fill sites at existing business park and growth area sites before transfer of ~~NASB~~BNAS site in 2011.

~~8.~~7. 500 jobs are created in Brunswick in the categories of jobs identified in Key Objective 3, Key Action 1 above.

Note: In response to the vision statements contained in this Policy section of the Plan, the Town of Brunswick commissioned an independent review of the need for a business park in West Brunswick. In addition, this study also reviewed the potential job creation that could result from in-fill development of

vacant parcels properly zoned and located in the designated growth area. Finally, the study considered the potential for early conveyance of property on BNAS.

The results of the study concluded that a business park in West Brunswick would be needed in order to replace jobs lost through the closing of BNAS. In-fill development alone was deemed inadequate and early conveyance was seen as an unlikely possibility. The report identified two potential locations and the Town Council attempted to bring forward a project that was feasible financially as well as logistically. Due to primarily financial challenges, the project was not brought to adoption by the Council.

Chapter 6. Other Policies and Actions

The Update of the Comprehensive Plan focuses on eight policy areas that are the most important to the community. These topics are addressed in Chapter 5 and in the Land Use Plan in Chapter 7. While these two sections address most of the issues that are identified in the State Growth Management law that establishes the standards for municipal comprehensive plans, there are a few areas that are not adequately addressed. This section addresses those areas.

A. Treatment of Mobile Homes

Mobile homes make up a significant portion of the Town's existing housing stock. According to the 2000 Census, Brunswick had 1,384 mobile homes that were 15.9% of the housing stock. As of 2005, aApproximately 1,220 of these units are located in ten mobile home parks in the community, ranging in size from 5 to 491 units. The Town currently allows mobile homes to be placed on individual lots in the designated Rural Areas and proposes to continue this policy. The Town allows mobile home parks in designated Mobile Home Park Overlay Zones. The development standards for mobile home parks are consistent with the provisions of state law. The zoning requirements allow for the expansion of existing mobile home parks on land that is outside of the designated overlay zones. The Town proposes to continue this treatment of mobile home parks.

B. Protection of Marine Resources

The Town has an active program of protecting its coastal environment and its marine resources. The Town has established "Coastal Protection Zones" in the areas that are tributary to the Town's principal marine resource areas. These areas are designated on the Land Use Plan. These zones include standards to protect water quality and preserve the marine environment. The Land Use Plan proposes creating an additional coastal protection zone for the area adjacent to the New Meadows River. The development regulations encourage new residential developments in these areas to be Open Space Developments in which a significant portion of the site is permanently set aside as open space.

In addition to these land use measures, the Town has an extensive program of marine resource management activities. The Town has a full time Natural Resources Planner and Marine Resources Warden on staff ~~who~~ charged with overseeing the Town's marine resources. The Town is currently involved in a regional effort to address issues related to the New Meadows watershed. There is an active shellfish management program. The Town intends to maintain its focus on protecting and preserving the coastal environment and marine resources.

C. Preservation of Agriculture and Forest Resources

The Town has a limited amount of commercial agriculture. Some of this land has been purchased by land trusts and other conservation organizations. The Town's Parks, Recreation, and Open Space Plan sets out a comprehensive strategy for working with the owners of agricultural land to maintain it in production if possible. The Town is moving forward with the implementation of this strategy.

The Town has some significant areas of forest. As part of the Rural Brunswick Smart Growth Study, the Town developed a management strategy for maintaining significant blocks of forested, wildlife habitat. While the focus of this effort was on habitat preservation, it has the additional benefit of retaining the forest resource. In addition, the Town's Natural Resources Planner works with ~~the~~ landowners ~~of this land~~ on an ongoing basis.

D. Protection of Historic and Archeological Resources

The Town currently provides a level of protection for identified historic resources and, to a lesser degree, known archeological resources. The Town has a Village Review Zone that ~~requires~~provides for ~~that~~ development proposals in the downtown area be reviewed and approved by the Village Review Board or staff. The standards of approval require that projects involving or impacting historic buildings or structures maintain the historical aspects of those buildings. In addition all development proposals are required to provide information on identified historic features on the site and to mitigate the impact of the development on those features. The submission requirements also provide that known archeological resources be identified in an application for development review.

In Chapter 5, under the downtown policies, there is a recommended action to expand the geographic area within the Village Review Zone. This will provide additional protection for historic resources in that area. To further enhance the protection of historic and archeological resources, the Town should:

1. Work with the Pejepscot Historical Society to assure that there is a full inventory of potential historic and archeological resources in the community,

2. Include consideration and protection of archeological resources, in addition to historic resources, in the development review process, and

3. Explore expanding the authority of the Village Review Board to include the review of activities involving identified historic buildings, structures, or sites anywhere in the community.

Chapter 7: Land Use Plan

The 1993 Comprehensive Plan included a Land Use Plan that established the basic concept of directing growth to designated Growth Areas and away from designated Rural Areas. While the policy set forth in that plan was sound, the implementation was only partially effective. Therefore, the updated Land Use Plan set forth below builds on the former Land Use Plan and the Town's current land use ordinances and is essentially a fine-tuning of the earlier policies. The update attempts to expand the opportunities for development, especially residential and business ~~park~~ park type development, within the designated Growth Areas, which have been revised slightly. The update also incorporates the ongoing work of the Town to manage growth in the designated Rural Areas including the 2003 Rural Brunswick Smart Growth Plan recommendations.

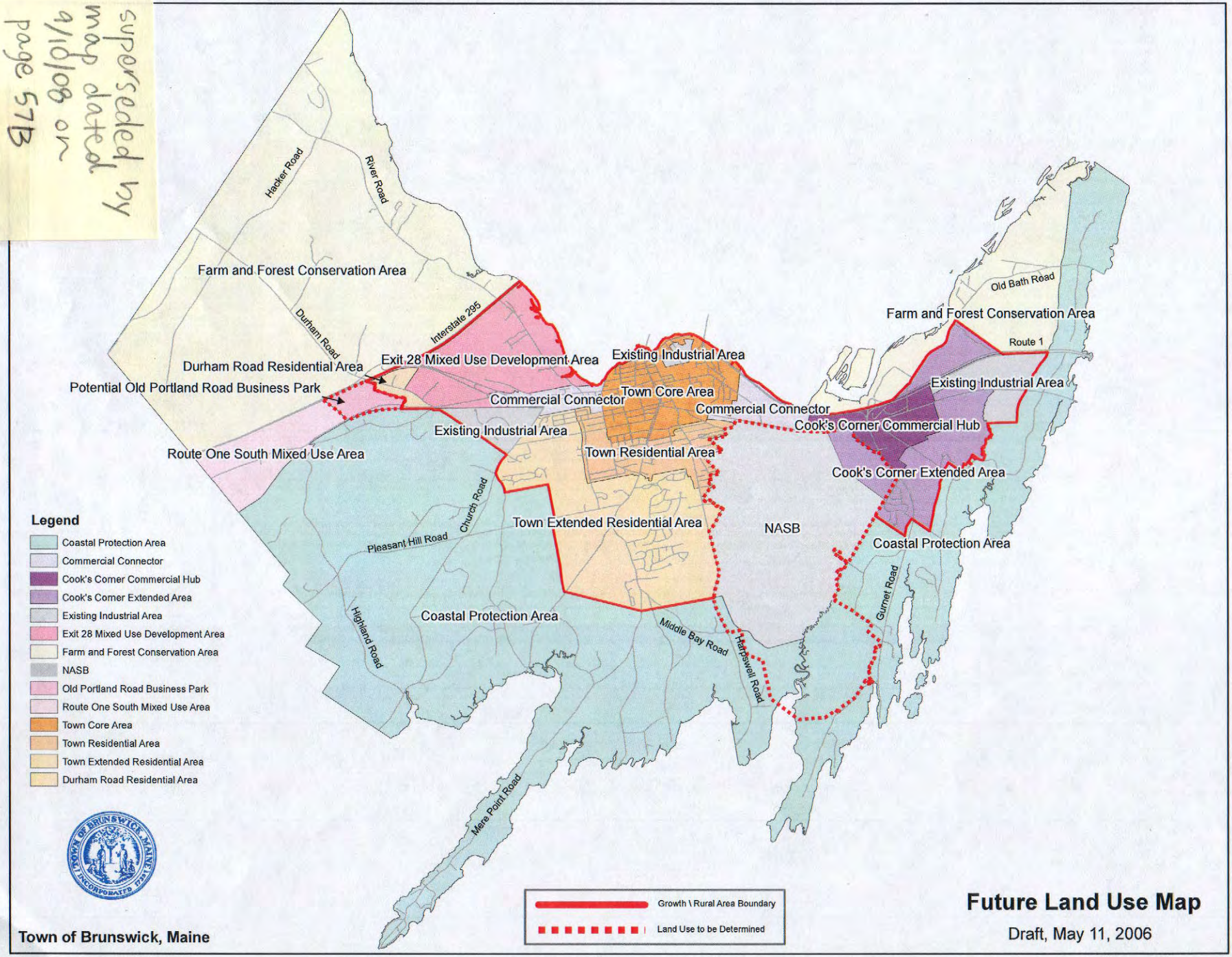
The Land Use Map shows graphically how the Town's land use policies apply to the land area of the Town of Brunswick and where growth should and should not be accommodated over the next decade. The Land Use Map is not a zoning map. It is intended to show, in a general sense, the desired pattern of future land use and development. The intention is that this Land Use Plan will guide a review of the Town's zoning ordinance and maps to assure that those land use regulations are consistent with the policies set forth in this Comprehensive Plan. The boundaries shown on the Land Use Map are intended to be general. The allowed uses and development standards set out for each land use designation should serve as guidelines, not absolute or final standards, as the zoning ordinance is reviewed and revised. Any references made to current zoning districts is done in order to provide a geographic context for recommendations and should not be construed to imply all zoning districts will remain as is. The Land Use Plan envisions that the number of separate zones will be reduced as appropriate to clarify and simplify the regulatory process.

A. Concept of Growth and Rural Areas

The Land Use Plan embodies the concept that the Town should continue to identify and designate "**growth areas**" or areas in which the anticipated nonresidential and residential growth will be accommodated and "**rural areas**" or areas in which intensive development will be discouraged (See Land Use Map). This concept was a fundamental principle of the 1993 Comprehensive Plan and is reflected in the Town's current land use regulations.

"Rural areas" typically include areas with significant natural resource value or constraints to development or use, areas with large amounts of agriculture or commercial forestry, areas that lack public utilities, and areas that are distant from public services. **"Growth areas"** typically include those areas that are or can be conveniently served by public facilities and services, are physically suited for development, and promote a compact rather than sprawling pattern of development. In addition, the Plan includes a category of "Overlays" that includes the Town's

superseded by map dated 9/10/08 or page 57B



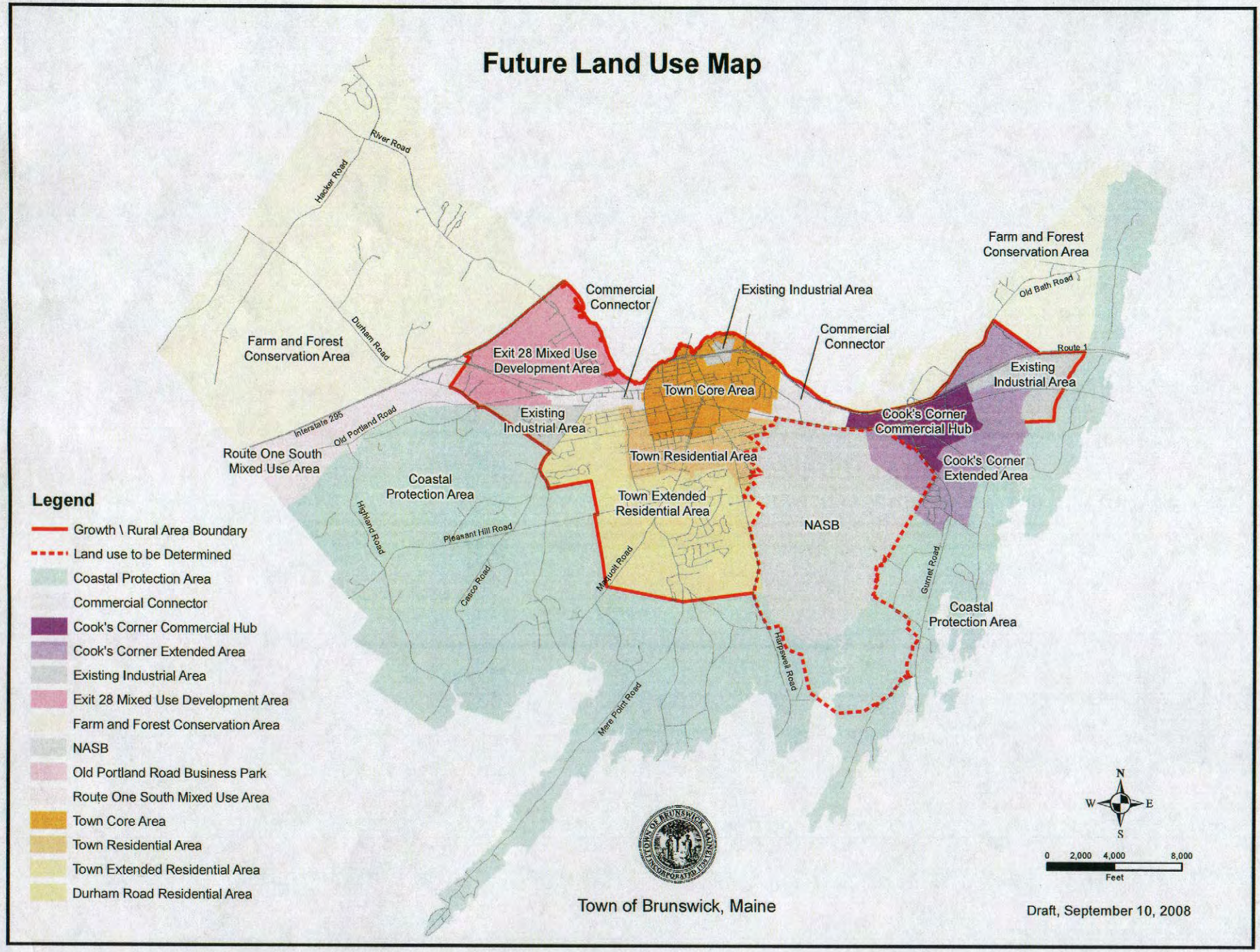
Future Land Use Map

Draft, May 11, 2006

Town of Brunswick, Maine

57A

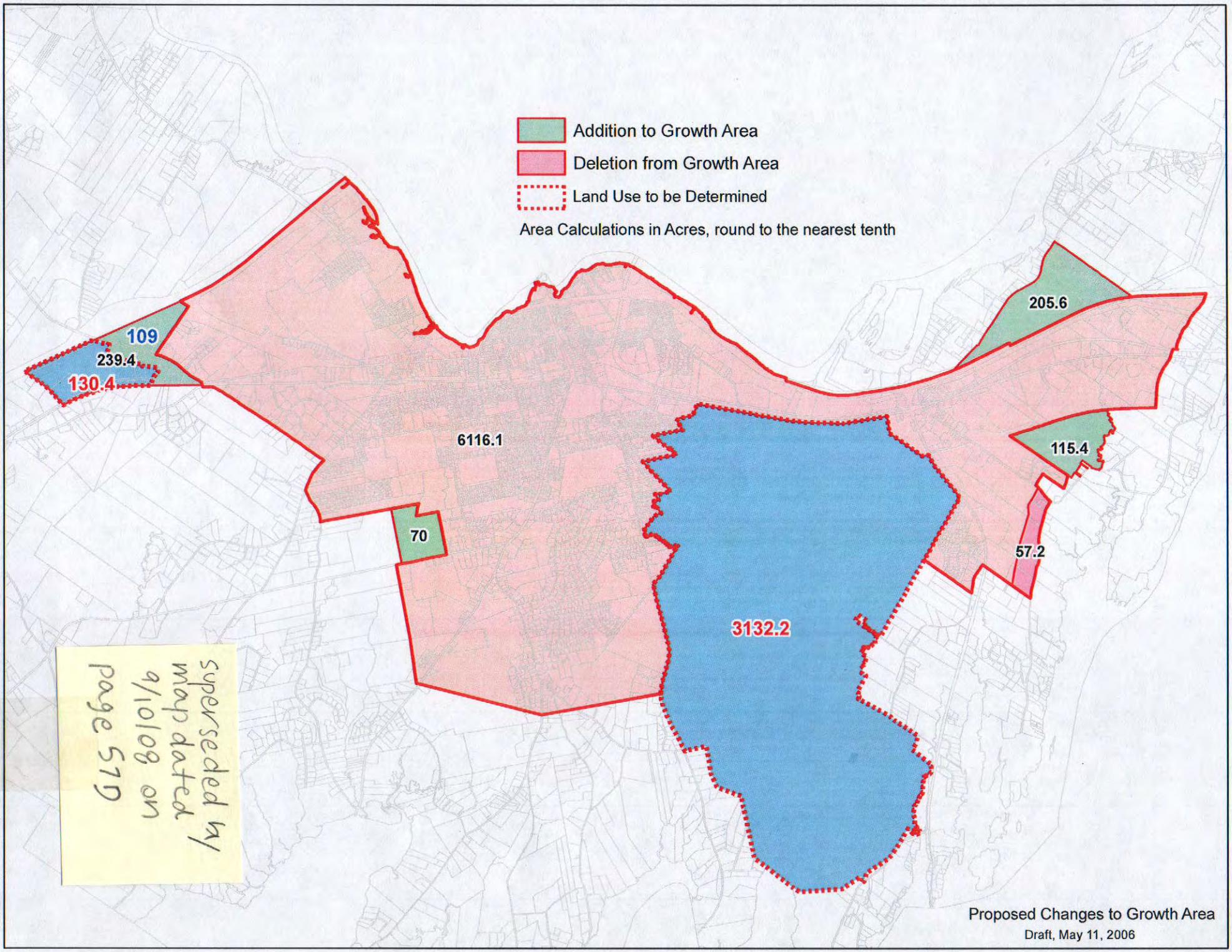
Future Land Use Map



Town of Brunswick, Maine

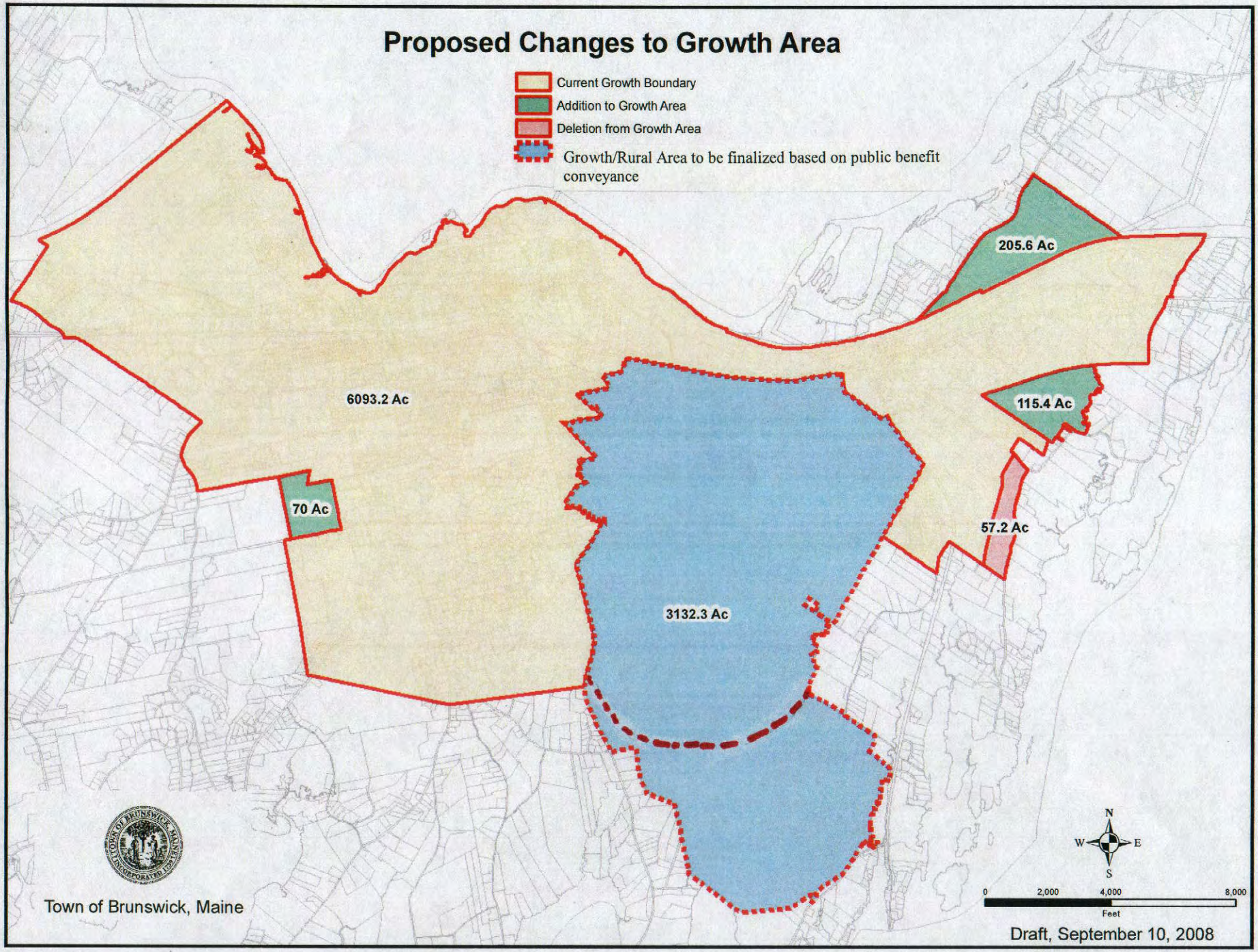
Draft, September 10, 2008

S7B



GIS page 519 superseded by map dated 9/10/08 on page 520

OLS


Proposed Changes to Growth Area
Current Growth Boundary
Addition to Growth Area
Deletion from Growth Area
Growth/Rural Area to be finalized based on public benefit conveyance
205.6 Ac
6093.2 Ac
115.4 Ac
70 Ac
57.2 Ac
3132.3 Ac
Town of Brunswick, Maine
N
W
E
S
0
2,000
4,000
8,000
Feet
Draft, September 10, 2008

575

Natural Resource Protection District and other provisions designed to address special situations or geographic considerations.

B. General Pattern of Development

The Town of Brunswick's Land Use Plan reflects the following guiding principles with respect to the general pattern of development:

1. The downtown area is considered a centrally located, dense, mixed use area where civic services, retail, businesses, services and higher density residential uses are situated. Around this area are residential neighborhoods with less density. Around these areas, at the edge of the growth area, are additional residential areas with still less density. The general conceptual framework is one of concentric circles around the downtown core and Cook's Corner core.

2. The outlying areas of the community where it is more difficult to provide public services, that lack public utilities such as sewer and water, ~~that~~ have significant natural resource and habitat value, and/or ~~that~~ support natural resource industries should continue to be "rural". Within these areas, development should be discouraged and the rural character retained. Not more than a third of the new residential units built in Brunswick should be located in this "Rural Area" and the development that does occur should maintain the character of the area while preserving significant natural resources. While the overall density of new development should be low, development should be "clustered" to minimize the impact on natural resources and habitat.

3. The majority of new residential development and virtually all non-residential development (except natural resource-based activities and local uses intended to serve the vicinity) should be located within the "Growth Area". To accomplish this, the Town should encourage higher density/intensity of use within these growth areas.

4. New residential development should be accommodated in a variety of ways within the "Growth Area". In general, new residential uses should take fuller advantage of the development potential that is available. Therefore, the density of development should generally be higher than some recent development. As residential development occurs, the objective should be to create varied living environments that can accommodate people with different housing needs or desires.

All of these environments should offer a high degree of livability and encourage pedestrian and bicycle use.

Within the core of the community, infill residential development, expansions, and redevelopment should be encouraged to increase the intensity of use in this part of the community. Within older established residential neighborhoods, new residential development should be encouraged to take advantage of available development opportunities while respecting the existing scale of the neighborhood. In the developing areas on the fringe of the built-up area, new development should be encouraged that creates neighborhoods with relatively high densities that are safe and accessible for pedestrians and cyclists. In commercial areas, residential development should be encouraged to create a more mixed-use environment.

5. The livability of Brunswick's established, intact neighborhoods should be enhanced. Residential and non-residential development should be accommodated within these neighborhoods but should be of an appropriate scale and design to minimize the impacts on the existing neighborhood. Any impacts of development should be mitigated through a variety of methods. The impacts to the areas immediately surrounding proposed new development must be balanced against the overall benefits of a project to the community including efficient municipal services, the need for compact growth to protect open rural landscapes, and its economic contribution to the community.

6. Retail uses and development should be carefully managed. The downtown should remain the heart of the community and should include a strong commercial/retail base. New retail development should also be accommodated at Cook's Corner – Brunswick's second retail center. Limited retail development should be allowed along the existing commercial corridors that link the various parts of the community. Creation of additional retail centers outside of these areas should not be allowed although limited scale retail uses serving future businesses and residences would be appropriate.

7. Growth of other types of economic activities should be encouraged and an adequate supply of land provided that is designated for these types of uses. Economic growth and development should be accommodated in the downtown, Cook's Corner, the commercial corridors, and in well planned

business/industrial areas that are served by public water and sewer.

8. There should be an adequate supply of recreational facilities, open space, civic spaces, and schools near existing residential areas.

9. Brunswick should strive for new development that exemplifies good design and fits into the existing built environment. Good design is "thoughtful and well mannered" and is about "comfort" and "details." The Town should strive to create walkable, pedestrian-oriented neighborhoods. New buildings should respect their neighbors regarding size, proportion, scale, and orientation.

   For example, in guiding the transformation of the Cook's Corner area, the Town has articulated its design expectations for that area through a set of *Cook's Corner Design Standards*. Elements of these standards may serve as useful models for application elsewhere in Brunswick. They address such issues as streetscape, building placement, parking, bicycle and pedestrian circulation, building materials, roof and façade design, and landscaping. In addition, Brunswick should seek to support sustainable building principles, including sharing educational materials.

~~C. Reuse of Naval Air Station Brunswick~~

~~The pending closure of Naval Air Station Brunswick (NASB) has land use implications for the Brunswick community. The land owned by the federal government as part of NASB consists of a mix of developed and undeveloped areas including areas with significant development potential and areas with significant natural resource value. Much of the property was public land prior to its being acquired for the base. Most of the base is currently zoned industrial and located within the designated Growth Area. With closure of the base, the entire land use planning for the area currently owned by the government will need to be redone. A Local Redevelopment Authority has been charged with developing and implementing a reuse plan on behalf of the Town. The Town expects that any redevelopment will occur with respect to this Comprehensive Plan and be consistent with its goals. The schedule for and details of such a plan falls outside the scope of this Comprehensive Plan Update.~~

~~The Town envisions being involved as a key player in the redevelopment of NASB. Issues to be addressed in planning for the reuse of the base may include:~~

- ~~Providing for significant public outreach to determine the support of the community for possible reuse and redevelopment options;~~
- ~~Exploring the public airport potential of the facility;~~
- ~~Exploring joint use projects, such as use of the runway or other facilities;~~
- ~~Providing for zoning of the base that is consistent with the goals of this Comprehensive Plan that will determine and impact any future development plans;~~
- ~~Restoring the Town's ownership and unique relationship to the approximately 900 1,000 acres that constitute the Town Commons, "given to the Selectmen and their successors (...)... in trust for the use and improvement of the inhabitants of Brunswick."~~
- ~~Working with the U.S. Department of Defense (DoD), NASBBNAS, the Congressional Delegation, and others to define the possible reuse and leasing of any on-site existing facilities to generate well-paying jobs;~~
- ~~Providing places of employment, such as business and industrial development, to replace the economic and employment loss of base closure;~~
- ~~Providing for new, walkable residential areas;~~
- ~~Asking for a partnership role in the disposition of the Privatized Housing;~~
- ~~Requesting that the DoD and NASBBNAS declare the former radar site off Old Bath Road surplus so it can be considered by the Town for recreation and/or conservation purposes;~~
- ~~Working with DoD, NASBBNAS, the Congressional Delegation, and others to explore the use of on-site recreational facilities;~~
- ~~Expanding recreational opportunities and land conservation including protecting significant natural resources;~~
- ~~Working to gain public access to on-site cemeteries; and~~
- ~~Exploring cross-town transportation opportunities.~~

~~D~~C. Rural Areas

The community's primary objectives for the areas designated as "Rural" are to maintain the rural character of these areas while protecting the significant natural resource and scenic values that characterize these areas. Within these areas, the Town should discourage large-scale or intensive development. Not more than one-third of new residential units should be located in these "Rural Aareas". The development that does occur should be sited and designed to minimize its impact on natural and scenic resources and unfragmented wildlife habitats.

1. Farm and Forest Conservation Areas

The area designated as Farm and Forest Conservation includes most of the areas that were formerly designated as Farm and Forest Conservation and Country Residential. The Farm and Forest Conservation areas are located west of I-295, between Route One and Pleasant Hill Road, and north of Route One in East Brunswick (see Land Use Map). The former Farm and Forest area along the New

Meadows River south of Route One is proposed to be changed to the Coastal Protection designation.

Vision

The Farm and Forest Conservation areas continue to be rural areas in which the environmental systems are preserved and rural resources maintained. Natural resource based uses are active. The limited development that does occur maintains the "rural character" and protects the areas' natural resource and scenic values including unfragmented wildlife habitats.

Allowed Uses

The following general types of uses are appropriate in the Farm and Forest Conservation areas:

- Rural and natural resource based uses including agriculture and forestry;
- Rural businesses that support or are based on rural and natural resource-based uses;
- Single and two-family homes;
- Small-scale multifamily housing; and
- Low-intensity non-residential uses and businesses.

Development Standards

The basic residential density in Farm and Forest areas should be 1 dwelling unit per 2 acres for all types of residential uses. In the former Country Residential District where the minimum lot size is proposed to be increased, small lot density provisions similar to those in the current Coastal Protection districts shall be included.

A major focus of the development standards in the Farm and Forest Conservation areas should be to assure that any development or intensive use maintains the "rural character" and protects natural and scenic resources. Open Space subdivisions in which the development is clustered on a portion of the site should continue to be the desired form of residential development and the zoning provisions should include incentives to encourage this type of development.

In addition, the land use regulations should include the following:

- Standards for non-residential uses to assure that they are compatible with the rural character, protect natural and scenic resources, and minimize the impact on residential uses;
- Standards to maintain the character of scenic roads identified in the Parks, Recreation, and Open Space Plan including the retention of roadside buffers and controls on the creation and location of driveways;
- Standards to protect unfragmented wildlife habitats and travel corridors linking these blocks as set forth in the Rural Brunswick Smart Growth Study ~~report~~ including incentives to encourage landowners to minimize the encroachment on these habitat blocks and corridors; and
- Standards to protect other significant natural resources, including wetlands, and to minimize the impact of development on these resources.

2. Coastal Protection Areas

The areas designated Coastal Protection include the areas that are generally tributary to Maquoit Bay, Mere Point Bay, and Middle Bay as well as the areas adjacent to the New Meadows River south of Route 1 that were previously designated as Farm and Forest excluding the area currently in the Mmedical ~~u~~Use ~~o~~Overlay ~~z~~Zone (see Land Use Map).

Vision

The Coastal Protection areas continue to be rural areas in which the environmental systems are preserved and rural resources maintained. Land use and development in these coastal watersheds are well managed to protect the embayments from the impacts of storm water, nutrient loading, and other non-point source pollutants. Natural resource based uses especially those that rely on the coastal waters are active and productive. The limited development that does occur maintains the "rural character" and protects the areas' natural resource and scenic values including unfragmented wildlife habitats. Access to the water for public use is maintained and enhanced at an appropriate scale.

Allowed Uses

The following general types of uses are appropriate in the Coastal Protection areas:

- Rural and natural resource based uses including agriculture, forestry, and marine activities;
- Marine and water-dependent uses;
- Rural businesses that support or are based on rural and natural resource-based uses;
- Single and two-family homes;
- Small-scale multifamily housing in areas that are not adjacent to the coast; and
- Low-intensity non-residential uses and businesses.

Development Standards

The basic residential density in existing Coastal Protection areas should continue to be 1 dwelling unit per 3.5 to 5 acres for all types of residential uses. The residential density in the new Coastal Protection area along the New Meadows River should continue to be 1 dwelling unit per 2 acres unless new information or further study suggests otherwise. Ideally the management provisions should encompass a regional approach that includes the other communities in the New Meadows watershed area. If the allowed density in the prior Farm and Forest Conservation District along the New

Meadows River is ever reduced, small lot density provisions similar to those in the current Coastal Protection districts should be part of the change.

A major focus of the development standards in the Coastal Protection areas should be to protect the water quality in the coastal bays as well as assuring that any development or intensive use maintains the "rural character" and protects natural and scenic resources. Open Space subdivisions in which the development is clustered on a portion of the site should continue to be the desired form of residential development and the zoning provisions should include incentives to encourage this type of development.

In addition, the land use regulations should include the following:

- Standards to protect the coastal embayments including enhanced management of storm water, limits on the amount of lawn area and impervious surface, maintenance of sub-surface waste disposal systems, management of agricultural practices, and controls on other potential non-point source pollutants;
- Standards for non-residential uses to assure that they are compatible with the rural character, protect natural and scenic resources, and minimize the impact on residential uses;
- Standards to protect scenic roads identified in the Parks, Recreation, and Open Space Plan including the retention of roadside buffers and controls on the creation and location of driveways;
- Standards to protect unfragmented wildlife habitats and travel corridors connecting these blocks as set forth in the Rural Brunswick Smart Growth Study ~~report~~ including incentives to encourage landowners to minimize the encroachment on these habitat blocks and corridors; and
- Standards to protect other significant natural resources, including wetlands, and to minimize the impact of development on these resources.

3. Route One South Mixed Use Area

The area designated as Route One South Mixed Use includes the area on both sides of Route One from the railroad tracks to I-295, extending northward from the Freeport town line to the existing boundary of the designated growth area.~~new Durham Road Residential Area R-9 zone north of Route One.~~

Vision

The Route One corridor is an attractive gateway to Brunswick from the south. The road corridor ~~is~~ consists of ~~a~~ primarily wooded roadside ~~containing~~ with a range of small, low-intensity residential and non-residential uses that do not require public sewerage. The limited development that does occur maintains the "rural character" of the corridor

and protects the area's natural resource and scenic values including unfragmented wildlife habitats.

Allowed Uses

The following general types of uses are appropriate in the Route One South Mixed Use area:

- Rural and natural resource based uses including agriculture and forestry activities;
- Rural businesses that support or are based on rural and natural resource based uses;
- Single and two-family homes;
- Small-scale multifamily housing; and
- A wide range of small, low-intensity non-residential uses and businesses.

Development Standards

The basic residential density in the Route One South Mixed Use area should be 1 dwelling unit per 2 acres for all types of residential uses. Non-residential uses should be limited to a maximum of ten thousand square feet of floor area per use.

A major focus of the development standards in the Route One South area should be to assure that any development or non-residential use maintains the "rural character", enhances the scenic character of the Route One corridor, and protects natural and scenic resources. Open Space ~~s~~subdivisions in which the development is clustered on a portion of the site should continue to be the desired form of residential development and the zoning provisions should include incentives to encourage this type of development.

In addition, the land use regulations should include the following:

- Standards for non-residential uses to assure ~~that they are~~ compatibil~~ity~~e with the rural character, protect natural and scenic resources, and minimize the impact on residential uses;
- Standards to maintain/enhance the scenic character of the Route One corridor including the retention/creation of primarily wooded roadside buffers and controls on the creation and location of driveways;
- Standards to protect unfragmented wildlife habitats and the travel corridors that connect these blocks as set forth in the Rural Brunswick Smart Growth Study ~~report~~ including incentives to encourage landowners to minimize the encroachment on these habitat blocks and corridors; and
- Standards to protect other significant natural resources, including wetlands, and to minimize the impact of development on these resources.

In addition, supplemental development standards should apply to maintain or enhance this corridor as a gateway to Brunswick (see Overlay section).

ED. Growth Areas

The designated Growth Areas are intended to accommodate most of the residential and non-residential development that occurs in our community over the next decade. These areas are served or can be served by public sewerage and water, and are generally close to public services. The objective is that at least two-thirds of new residential development, together with virtually all non-residential development, will occur within these areas. At the same time, the intention is that new development occurs in a way that respects the existing character of developed neighborhoods.

Development within these designated Growth Aareas should allow for the efficient delivery of public services and should foster pedestrian and bicycle movement though connectivity. Residential development should occur at a range of densities that create a variety of housing options. Public and private green space should be provided within these areas at a scale appropriate ~~scales~~ for the intended use.

The Land Use Plan for the Growth Area embodies the following basic concepts:

1. Future growth and development should reinforce the evolving pattern of two separate but inter-related commercial centers (Town Core area and Cook's Corner).

2. While the character of the two centers will be somewhat different, the basic land use pattern should be similar. Each center should have a dense, mixed-use core that is surrounded by a somewhat lower density extended area that is primarily residential in character.

3. Within these two centers, the community should encourage development and redevelopment that somewhat increases the intensity of use and density of development while protecting established neighborhoods.

4. New residential development should be accommodated in the extended areas of these centers. This development should be more compact with a "village" character including smaller lots, an interconnected street network, facilities for pedestrian and bicycle movement, and green space rather than a "suburban" character centered on automobile movement.

5. The major corridors that link and provide access to the centers should become the "gateways" to the community with more efficient traffic flow and enhanced safety and a more attractive visual appearance.

6. Given it's location between the two centers, the northern portion of the BNAS site remains in the growth area, with appropriate planned mixed use zoning.

7~~6~~. Major economic and employment activities including a potential new business park should be accommodated in well-planned areas designated for this purpose.

8~~7~~. The Exit 28 area adjacent to the I-295 interchange should develop as a dense, mixed-use area with residential, office, and service uses.

9~~8~~. Affordable housing should be encouraged through the provision of density bonuses.

The following sections and the Land Use Map translate these concepts into more specific land use designations.

1. Town Core

The Town Core is the center of the community. It is where the greatest density of commercial and residential use occurs. The Town Core encompasses the Downtown and immediately adjacent neighborhoods including part of the Bowdoin College campus (see Land Use Map). The area includes the current TC and TR zones (except part of the TR 5 zone), part of Water Street, the CU 1, 3, 4, and 6 zones and the in-town portion of the MU 2 zone.

Vision

The Town Core continues to be the center of our community and, therefore, it is where the greatest density of residential and commercial uses occurs. It is an inviting, vibrant commercial, cultural, educational, recreational and residential center. Fort Andross and the riverfront anchor one end of the Town Core and increasingly become integral parts of the Core. Bowdoin College anchors the southern end of the Core and provides a transition between the Core and adjacent residential neighborhoods. The college is an important institution in the community offering cultural, educational, and open space opportunities for the entire community as well as significant economic benefits. The linkage between the Town Core and downtown Topsham is strengthened and the two sides of the river increasingly function as a single area.

The Town's primary municipal service facilities are located within the Town Core. The Town Core maintains its pedestrian scale and orientation. Pedestrians move easily and safely through the Town Core. Existing green spaces and recreational assets are maintained and additional public green space is planned and protected where appropriate. Continuing infill development and redevelopment increase the overall density of the Core while maintaining its attractiveness and livability. The Maine Street Station site and railroad corridor are redeveloped into a compact mixed-use area with dense commercial and residential uses. The amount of commercial use

in the Core continues to expand where current zoning allows. New residential units are added throughout the area to increase the level of activity in the Core.

Allowed Uses

The allowed uses generally reflect the established pattern of development and current zoning and vary in different parts of the Town Core. In general, the following types of uses are appropriate in the Town Core:

- A wide range of residential uses, including multifamily housing and residential units as part of mixed use buildings, as well as retirement housing and other eldercare facilities;
- A wide range of small to moderate scale non-residential, commercial, municipal, and community services uses; and
- College related residential and non-residential uses.

Development Standards

The focus of the development standards in the Town Core should be on allowing infill development and redevelopment as well as expansions to existing buildings that maintain the overall character of the Core while allowing for intensification of use. New development, including significant enlargements or modifications of existing buildings, located in a potentially expanded Village Review Zone should be subject to design review to ensure its compatibility with the objectives for the Town Core.

The objective of the Town is to allow for a range in ~~the maximum~~ density of development that is consistent with maintaining the mature ~~neighborhood~~ character of the Town Core.~~—~~ neighborhoods and Downtown area. ~~Therefore,~~ Zoning provisions within this area should be developed to protect and enhance existing development patterns of established neighborhoods, such as the mass and scale of buildings, average density, lot size, setbacks, impervious coverage and parking. ~~the land use regulations should not establish minimum or maximum density requirements in this area, but should focus on how new development is done. Lot size requirements, where they currently exist, should be reduced (see Table A). Other dimensional requirements, such as setbacks, building heights, and impervious surface, should be evaluated and made compatible with the existing conditions in the neighborhood.~~ The creation of more accessory dwelling units is encouraged. Any redevelopment should blend well and complement these established areas.

Development should be required to provide pedestrian and bicycle facilities as part of the project. The land use regulations should provide some flexibility in meeting parking requirements. The use of drive-through facilities should be limited and should be strictly controlled. All development should be subject to stringent landscaping standards including the planting of trees consistent with Tree City USA standards.

2. Town Residential

The Town Residential area includes the older neighborhoods adjacent to the Town Core and the newer portion of the Bowdoin campus ~~that are~~and is typically within a five to ten minute walk of the edge of the Town Core (see Land Use Map). The area includes the current R 1, 7, and 8 zones, parts of the TR 5 zone, the CU 2 and 5 zones, and the MU 3 and 6 zones.

Vision

The Town Residential area is primarily a residential and educational area of the community. Historically, the old high school is within this area and is a prime civic-use site, including its current recreational facilities. The residential neighborhoods provide a living environment within an easy walk of the Town Core. Bowdoin College grows, is a good neighbor, communicates its long term planning efforts, and works to minimize its impacts on the surrounding neighborhoods. The area maintains its pedestrian scale and orientation. Pedestrians move easily and safely through the area. The streets are interconnected. The existing public green spaces are maintained and additional green space is added where appropriate. Existing single-family neighborhoods are maintained while allowing limited infill development and the creation of accessory apartments to increase the overall density of the area. All new development respects adjacent uses, and is buffered by vegetation. Existing small-scale commercial uses provide neighborhood services but commercial uses are limited.

Allowed Uses

The allowed uses generally reflect the established pattern of development and vary somewhat in different parts of the Town Residential area. In general, the following types of uses are appropriate in the area:

- A range of residential uses including small-scale multifamily housing and accessory apartments;
- Very limited, small-scale commercial uses and home based businesses that are compatible with the neighborhoods;
- College related residential and non-residential uses; and
- A wider range of non-residential uses in the existing mixed use areas.

Development Standards

The focus of the development standards in the Town Residential neighborhoods should be on maintaining the single-family character of those streets that are currently predominately single-family while allowing infill development at reasonably high density where feasible. New residential uses should be allowed at 3 to 24 units per acre depending on the location within the area ~~(see Table A)~~. Lot size requirements should be reduced or eliminated. Other dimensional requirements such as setbacks, building

heights, and impervious surface should be evaluated and made compatible with the existing conditions in the neighborhood. New multifamily development should provide on-site green space and be buffered from existing residences. The development standards in the Mixed Use and College Use zones should be the same as the current standards.

3. Town Extended Residential

The Town Extended Residential area includes the Meadowbrook-Parkview, Maquoit Road, Merrdedith-McKeen and River Road neighborhoods that are beyond normal walking distance to the Town Core including the areas around the Mmedical Use Ooverlay zZones as well as an area north of Pleasant Hill Road (see Land Use Map). The area encompasses the current R 2, 3, and 4 zones, the Medical Use Overlay s Zones around the hospitals, as well as an area currently zoned Coastal Protection along Pleasant Hill Road.

Vision

The established residential neighborhoods continue to be attractive places to live and are protected from new multi-family development by effective buffers. The existing mobile home parks are served by pubic water and sewerage. New development is compatible with the larger neighborhood. This development creates relatively dense, tight-knit, pedestrian-oriented neighborhoods. Pedestrians and bicyclists move easily and safely through the area. New streets are interconnected and, when feasible, pedestrian and bicycle connections are created within established neighborhoods. Existing public green spaces are maintained and additional green spaces, including larger recreational facilities for intensive use, are added where appropriate through the development process, by— public purchase, and private conservation efforts. Significant natural resources and wildlife habitat are protected in the development process. Non-residential uses are limited and are small-scale to be compatible with the residential neighborhoods except around hospitals where medical services, professional offices, and similar uses are accommodated. Home occupations and small service businesses are accommodated.

Allowed Uses

In general, the following types of uses are appropriate in the Town Extended Residential area:

- A range of residential uses including multifamily housing and accessory apartments;
- Elderly and retirement housing, assisted living facilities, nursing homes, staff housing and similar uses in the Mmedical Use Ooverlay zZones;

- Very limited, small-scale non-residential uses and home-based businesses that are compatible with the neighborhoods;
- A limited range of non-residential uses in the immediate vicinity of the hospital sites, such as medical facilities, professional offices, out-patient treatment facilities, research and laboratory facilities, and small scale retail and service uses that serve the occupants of uses within the area; and
- Recreational facilities.

Development Standards

The focus of the development standards in the Town Extended Residential neighborhoods should be on maintaining the livability of established neighborhoods while accommodating residential development at moderate density where feasible, as well as limited non-residential use adjacent to the existing and former hospitals.

Since much of the vacant, developable land suitable for single-family development is located in the Town Extended Residential area, the development standards should maximize the use of these areas for residential development. To this end, the development standards should establish both maximum and minimum development densities for new planned development. New residential uses should be allowed at a minimum of 1.5 to 2 units per acre to a maximum of 8 units per acre for single-family development ~~(see Table A)~~. Multi-family housing should be allowed at a maximum of 12 units per acre. Lot sizes should be reduced significantly in these districts ~~(see Table A)~~. Setbacks for new residential development should be compatible with the existing conditions in the neighborhood.

Development of larger parcels should be required to be "planned developments" based upon a master development plan that establishes the basic pattern of utilization of the site including land use, circulation (vehicular and pedestrian), infrastructure, and open space. New development should continue to be required to provide for pedestrian and bicycle facilities as well as open space within the development or the neighborhood. New multifamily development should provide for on-site green space, and be buffered from existing residences.

4. Cook's Corner Commercial Hub

The Cook's Corner Commercial Hub includes the area around the intersection of the Bath and Gurnet Roads and ~~extending~~ extends about one-half mile from the intersection (see Land Use Map). The area encompasses part of the area currently zoned CC (Commercial/Cook's Corner).

Vision

The Cook's Corner Commercial Hub evolves into a vibrant, mixed-use area as envisioned in the Cook's Corner Master Plan. The area is a regional commercial center with additional retail development. New development expands the range of non-residential uses in the area as well as adding residential uses. Pedestrian and bicycle movement within the Hub as well as connections to adjacent neighborhoods is enhanced. Public space is created as proposed in the Cook's Corner Master Plan.

Allowed Uses

The following uses are generally appropriate in the Cook's Corner Commercial Hub:

- A range of residential uses including multifamily housing and residential uses as part of a mixed use building; and
- A wide range of non-residential uses including retail and consumer uses, services, offices, and public and community uses.

Development Standards

The focus of the development standards should be on encouraging development that maximizes the available development potential within the Hub area. The maximum density for residential development in this area should continue to be 15 units per acre but the minimum lot size should be reduced to 7,500 square feet. The other standards should be similar to the current Cook's Corner Center District including the design standards. New development should be required to improve the pedestrian and bicycle facilities to enhance movement within the Hub and between the Hub and adjacent areas of Cook's Corner. In addition, supplemental development standards should apply to maintain or enhance the Bath Road corridor as a gateway to Brunswick (see Overlay section).

5. Cook's Corner Extended Area

The Cook's Corner Extended Area includes the Cook's Corner area outside of Hub (see Land Use Map). The area encompasses the eastern part of the area currently zoned CC outside of the Hub, the current R 6 (excluding an area along Meadow Road) and MU 1 zones, the area along the Old Bath Road north of Route One and the area around the Mid Coast ~~h~~Hospital, including areas currently zoned Farm and Forest but covered by the M~~m~~edical ~~u~~Use O~~o~~verlay Zone.

Vision

The Cook's Corner Extended Area evolves into a vibrant, mixed-use area as envisioned in the Cook's Corner Master Plan. The area is a regional commercial center with additional retail development in the current Cook's Corner ~~zone~~area. New office and research uses around the hospital, together with other development, expand the range of non-residential uses in the

area. A planned residential neighborhood offering a range of housing, including affordable housing, emerges in the area between the Gurnet Road and the hospital campus. The existing mobile home parks are served by public water and sewerage. A new connector road exists linking the Gurnet Road to the Bath Road east of Cook's Corner. Pedestrian and bicycle movement within the Extended Area as well as connections to adjacent neighborhoods is enhanced. Significant natural resources and wildlife habitat is protected in the development process. Public space is created as proposed in the Cook's Corner Master Plan.

Allowed Uses

The following uses are generally appropriate in the Cook's Corner Extended Area:

- A range of residential uses including multifamily housing and residential uses as part of mixed use buildings; and
- Elderly and retirement housing, assisted living facilities, nursing homes, staff housing and similar uses in the vicinity of the hospital.
- Professional and medical office and research facilities in proximity to the hospital.
- Limited, small-scale, low-intensity non-residential uses including mixed-use buildings along the major roads south of the Bath Road (Gurnet, Thomas Point).

Development Standards

The focus of the development standards should be on encouraging development that maximizes the available development potential within the Extended Area. To this end, the development standards should establish both minimum and maximum development densities. New residential uses should be allowed at a minimum of 2 units per acre to a maximum of 15 units per acre ~~(see Table A)~~. Lot sizes should be reduced to 7,500 square feet. Lot sizes and setbacks for non-residential development around the hospitals should be similar to the current standards for the overlay districts.

Re-development on ~~NASB~~BNAS will accommodate most development in this area. Development of larger parcels east of Gurnet Road and s~~S~~outh of Bath Road should be "planned developments" based upon a master development plan that establishes the basic pattern of utilization of the site including land use, circulation (vehicular and pedestrian), infrastructure, and open space.

New development should be required to provide for appropriate amenities with substantial landscaping and ~~to provide~~ pedestrian and bicycle facilities to enhance ~~movement~~ connectivity within the Extended Area and between the area, ~~and the~~ Hub and adjacent areas of Cook's Corner. In addition, supplemental development standards should apply to maintain or enhance the Bath Road corridor as a gateway to Brunswick (see Overlay section).

6. Reuse of Brunswick Naval Air Station

The pending closure of Brunswick Naval Air Station (BNAS) has land use implications for the Brunswick community. The land owned by the federal government as part of BNAS consists of a mix of developed and undeveloped areas, including areas with significant development potential and areas with significant natural resource value. Much of the property was public land prior to its being acquired for the base. Most of the base is currently zoned industrial and located within the designated "Growth Area". However, current zoning is unenforceable as this is a military installation owned by the federal government. With the closure of the base, this area will be re-integrated into the Town. ~~should be the entire land use planning for the area currently owned by the government will need to be redone.~~

Vision

Upon federal conveyance, the Brunswick Naval Air Station will continue to be a vibrant and integral part of Brunswick as a thriving mixed use community. The BNAS redevelopment will be guided by a community-influenced and accepted master reuse plan containing a variety of corporate, business, academic, recreational, community services, as well as the preservation of important natural areas and habitats, and the continuation of its strong residential neighborhoods. Redevelopment will promote a strong sense of place with connectivity returned to abutting neighborhoods, commercial areas, and natural areas such as the abutting Town Commons. It will serve as a regional model for sustainable smart growth development in the Midcoast Region.

Allowed Uses

The Base will be redeveloped as a mixed use planned community within the Town's Growth Area. Those lands outside the Growth Area Boundary, shall remain as conservation areas, now currently contained within the Farm and Forest Conservation Area designation.

Generalized uses within the Growth Area will include:

- Walkable live-work neighborhoods,
- Educational institutions,
- Business and professional offices,
- Business and technology industries,
- Aviation operations,
- Community mixed uses, and
- Indoor and outdoor recreational facilities.

Development Standards

Redevelopment shall be based upon a Master Reuse Plan and accompanying design and development standards. In order to maintain flexibility, the Town should provide for one planned reuse zoning district with development standards for each generalized land use area, as part of the Town's comprehensive zoning ordinance update, following the adoption of the Comprehensive Plan Update.

The development standards should be flexible in design to accommodate changes in market conditions. The standards shall also be consistent with smart growth guiding principles and the stated goals of the Comprehensive Plan Update. Buffering of natural areas and habitats further identified through the completion of the federally-mandated Environment Impact Statement, shall be required. The existing Natural Resource Protection Zone (NRPZ) and Aquifer Protection Zones (APZ) will be enforced.

The Midcoast Regional Redevelopment Authority will oversee the implementation of the Master Reuse Plan and work with the Town in the site plan review and approval process.

7~~6~~. Commercial Connectors

The Commercial Connectors include the major road corridors leading to and linking the centers of the community including Pleasant Street between the I-295 interchange and the edge of the Town Core and the existing developed portions of Bath Road between the Town Core and Cook's Corner ~~not including the air station~~excluding BNAS ~~land~~ (see Land Use Map). These are the areas currently zoned HC 1 & 2 and a portion of the MU 2 district west of Stanwood Street.

Vision

The existing Commercial Connectors function as safe, efficient routes for traffic to move through the community. These corridors are attractive gateways to the community. In addition, they serve as locations for commercial development. The land that is currently part of ~~NASB~~BNAS does not develop as part of the strip commercial corridor along Bath Road. New commercial development in this area maintains or improves the quality of the streetscape, provides for controlled access to the Bath Road, and accommodates pedestrian and bicycle movement. The corridors become safer and more attractive as redevelopment and improvement occurs. Residential uses are not encouraged in these corridors except in the ~~CC District in the~~ Cook's Corner area. The development of new commercial corridors similar to Pleasant Street is not desired and is controlled. An alternative connector road is explored along the railroad right-of-way from Church Road to Stanwood Street and, if developed, is subject to use limitations, design standards, and access controls to prevent it from becoming another commercial strip.

Allowed Uses

The following types of uses are generally appropriate within the Commercial Connectors:

- A wide range of non-residential uses including retail and consumer uses, services, offices, public and community uses; and
- Industrial uses that are allowed by the current zoning.

New residential use should not be allowed within the Commercial Connectors except as part of a mixed-use development.

Development Standards

The development standards in the Commercial Connectors should focus on upgrading the function and appearance of development in these areas. This should include improved site design and landscaping requirements including provisions for shared access and ~~interconnected~~ parking where feasible. The maximum density for residential development in the highway commercial districts should continue to be 5 units per acre but the minimum lot size should be reduced to 7,500 square feet ~~(see Table A)~~. Within the current CC District at Cook's Corner, the current design and performance standards should continue to apply. In addition, supplemental development standards should apply to maintain or enhance these corridors as the gateways to Brunswick (see Overlay section). ~~If~~ When the ~~NASB~~BNAS land becomes available for development, standards should be created to maintain/enhance the scenic character of the Bath Road corridor including the retention/creation of vegetated/landscaped roadside buffers and controls on the creation and location of driveways.

~~**7. Potential New Durham Road Mixed-Use Area (MU-7)**~~

~~This area will only be created if the Old Portland Road Business I-6 zone is approved. The area newly designated Durham Road Mixed Use (MU-7) includes the area north of the railroad tracks just south of Route One and south of I-295, between the boundary of the existing I-4 zone and up to and including both the residential lots south of Durham Road in the area that Durham Road is south of I-295 and the lots between Route One and the railroad tracks west of Durham Road.~~

~~Vision~~

~~This Mixed Use Area is an attractive gateway to Brunswick from the north and west. It is a mixed residential and wooded area containing a range of small, low-intensity residential and non-residential uses. The limited development that does occur maintains the character of the corridor and protects the area's aquifer resources.~~

~~Allowed Uses~~

~~The following general types of uses are appropriate in the Mixed Use 7 area:~~

- ~~Single and two family homes; and~~
- ~~Small scale multifamily housing;~~
- ~~Rural and natural resource based uses including agriculture and forestry activities;~~
- ~~Rural businesses that support or are based on rural and natural resource based uses;~~
- ~~A wide range of small, low intensity non residential uses and businesses.~~

~~Development Standards~~

~~The maximum residential density in the MU 7 area should be 1 dwelling unit per 2 acres for all types of residential uses. Non residential uses should be limited to a maximum of ten thousand square feet of floor area per use. A major focus of the development standards in the MU 7 area should be to ensure that any development or non residential use protects the aquifer.~~

~~In addition, the land use regulations should include the following:~~

- ~~Standards for non residential uses to ensure that they are compatible with the character of the area, protect the aquifer, and minimize the impact on residential uses.~~
- ~~Supplemental development standards should apply to maintain or enhance this area as a gateway to Brunswick (see Overlay section).~~

~~8.~~8. Exit 28-Mixed Use Development Area

The Exit 28 Mixed Use Development ~~District~~ Area encompasses ~~the area~~lands bordered by the Androscoggin R~~r~~iver, Pleasant Street, and I-295, ~~and~~ extending easterly to the Durham Road, but ~~not in~~excluding the frontage along Pleasant Street ~~that is~~ located within the Commercial Connector designation (see Land Use Map). This includes the areas currently zoned MU 4, R 5, and I 4.

Vision

The Exit 28 Mixed Use Development ~~District~~ Area is characterized by a mix of "business-park" type development and a range of moderate to higher density housing. Vehicle access to the area is provided by an upgraded road network including connections to River Road, Pleasant Street, I-295, or the I-295 Ceonnector. The residential uses provide a variety of housing types that are affordable to a mixed income range of households ~~with a range of incomes~~ and are designed to provide a pedestrian friendly environment. Pedestrian and bicycle access is provided to adjacent areas. A substantial natural buffer is retained along the edges of the ~~district~~ area ~~that~~ abutting residential areas.

Allowed Uses

The following general types of uses are appropriate in the Exit 28 Mixed Use Development ~~District~~area:

- Business and professional offices
- Research facilities
- Financial services and institutions
- Business services
- Light assembly and manufacturing
- Places of assembly and entertainment
- Restaurants (excluding drive through service)
- Community and government uses
- Residential uses including multifamily housing and dwelling units as part of mixed-use buildings
- Outdoor recreation facilities

Large-scale retail uses such as shopping centers and big box retail stores are not appropriate in the ~~district~~ area but small-scale stores should be included as part of a mixed-use development, or to provide services to nearby residents or workers. ~~within the district are.~~

Development Standards

Master development plans should be required for the development of all larger parcels of land. These plans should establish the overall development pattern, circulation system, utility systems, and open space or protected areas before any development occurs. The overall development scheme must provide for a mix of non-residential and residential uses. All uses should be required to be served by public water and sewerage.

Development near I-295 should be allowed to be reasonably intense with building heights permitted to a maximum of 60 feet as currently allowed but should be required to be less intense with a smaller scale and lower height closer to ~~as it moves toward~~ the River Road, Pleasant Street, and the I-295 Connector. Development in proximity to the River Road ~~district boundary~~ should be limited to smaller-scale, residential uses and small-scale retail/service uses.

The minimum density of residential development should be 1.5 to 2 units per acre with a maximum or 5 to 15 units per acre depending on the location ~~(see Table A)~~. The minimum lot size should be reduced to 7,500 square feet. Retail uses should be limited to a maximum building footprint of 5,000 square feet.

A natural buffer should provide a visual transition from this ~~district~~ area to the lower intensity areas. An undisturbed fifty foot wide buffer of conifers must be maintained along I-295 where it exists and sign standards shall be developed to prohibit signs that promote goods and services that can be seen

from the interstate. Business identification and directional signage shall be permitted.

All development in this ~~district~~ area should be required to conform to stringent site design standards. Natural resource areas should be required to be protected and buffers provided as appropriate.

~~9~~9. Industrial ~~Districts~~Areas

The Industrial ~~Districts~~ Areas include ~~the areas~~ lands ~~that are~~ appropriate for industrial and other types of more intensive, non-residential uses (excluding large retail uses). This includes ~~four separate areas,~~ the three ~~existing~~ current industrial districts (I1, 2, and 3)~~: and a potential new business/industrial park area as shown on Land Use Map:~~

- The Industry Road Industrial Park (I 1)
- The Church Road Industrial Area (I 2)
- East Bath Road Industrial Area (I 3)
- ~~Old Portland Road Business Park (west of Durham Road)~~

The ~~existing~~ current I 4 industrial area on the Old Portland Road adjacent to Exit 28 should be merged ~~into~~ with the current MU 4 District that is part of the proposed Exit 28 Mixed Use Development Area. The ~~existing~~ current I 5 industrial district that encompasses ~~NASB~~BNAS is proposed for planned mixed use and is discussed in subsection ~~C~~6.

(a) Existing Industrial Areas

Vision

The existing industrial areas provide locations for light industrial, office, service, and similar uses. As development, expansions, and redevelopment occur within these areas, the environmental and visual quality of the areas is improved.

Allowed Uses

The following general types of uses are appropriate in the e~~E~~xisting ~~Industrial~~ industrial a~~A~~reas:

- A limited range of non-residential uses including light industrial, service, and office uses but not including retail or consumer oriented activities (service and office uses are not appropriate in the Church Road area)

New residential uses are not appropriate in these areas and should be prohibited.

Development Standards

The development standards in the ~~Existing~~ existing ~~i~~Industrial ~~A~~areas should be similar to the current I 1, 2, and 3 zoning requirements. In addition, supplemental development standards should apply to maintain or enhance the Old Portland Road and Bath Road corridors as the gateways to Brunswick (see Overlay section).

(b) Old Portland Road Business Park (Potential new I-6)

Vision

The Old Portland Road Business Park develops as a public-private partnership that creates a high quality business park that attracts high value occupants. The park maintains/creates attractive corridors along Route One and Durham Road. Access to the existing roads is limited to specified access points off Route One. Development within the park is well planned and visually attractive. Uses are served by public water and sewerage. A natural buffer is retained along the edges of the district that abut residential areas. Noise and light concerns are addressed.

Allowed Uses

The following general types of uses are appropriate in the Old Portland Road Business Park:

- A limited range of non-residential uses including light industrial, service, and office uses, and warehousing that incorporates office uses, distribution facilities, and light manufacturing into the structure. Retail or consumer oriented activities would not be permitted.

New residential uses are not appropriate in this area and should be prohibited.

Development Standards

Master development plans should be required for the development of all larger parcels of land. These plans should establish the overall development pattern, circulation system, utility systems, and open space or protected areas before any development occurs. All uses should be required to be served by public water and sewerage.

All development in this district should be required to conform to site design standards. New development should be required to provide appropriate amenities with substantial landscaping. Natural resource areas should be required to be protected and buffers provided, as appropriate. In addition, the following specific site standards shall apply:

1. There will be no entrance to the proposed park from Durham Road.
2. There will be no additional ramp to I-295.
3. The Town will maintain a visual gateway to Brunswick from Freeport that is a clear, attractive and rural entrance to the community.
4. Coniferous landscape buffers around the proposed business park function to protect neighboring residences and to keep Route 1 an attractive artery.

5. Coniferous landscape buffers along I-295 need not make buildings invisible from I-295 but shall protect the traveling public from views of parking and commercial signage.
6. Sign standards are developed to prohibit signs that promote goods and services that are visible from I-295 or Route 1 by limiting signage to the height of buildings or below the height of the landscape buffers. Business identification and directional signage shall be permitted.
7. Standards are developed for the types of businesses accepted by the Town for inclusion in the business park to attract businesses that provide a living wage and benefits to their employees.
8. Noise standards are included when considering the types of businesses that are appropriate at this site.
9. Traffic issues are safely resolved at the Route 1/Durham Road intersection and at the intersection of Route 1 and Pleasant Street.
10. There are functional setbacks from current residences.
11. Setbacks will be enhanced to a minimum of 200 feet from existing residences.
12. Limited, ambient lighting will be allowed during regular nighttime hours and there will be zero lumens lighting at the buffer as measured in summer.
13. Specific outdoor task lighting should be designed to have minimal off-site impact. There will be no off-site water quality environmental impacts. An efficient use of impervious surface is designed to adequately provide for business needs.
14. Building height and footprint standards are developed to balance commercial uses and neighborhood scale.

In addition, supplemental development standards should apply to maintain or enhance the Old Portland Road corridor as a gateway to Brunswick (see Overlay section).

Table A

Recommended Residential Densities And Minimum Lot Sizes

District	Net Residential Density			Minimum Lot Size	
	Town Core				
	Current Maximum Units/Acre	Proposed Maximum Units/Acre	Proposed Minimum Units/Acre	Current	Proposed

~~TC-1 & 2~~	~~None~~	~~None~~	~~None~~	~~None~~	~~None~~
~~TC-3~~	~~5~~	~~None~~	~~None~~	~~10,000 SF~~	~~7,500 SF~~
~~TR-1~~	~~10~~	~~None~~	~~None~~	~~7,500 SF~~	~~7,500 SF~~
~~TR-2~~	~~4~~	~~None~~	~~None~~	~~10,000 SF~~	~~7,500 SF~~
~~TR-3, 4, & 5~~	~~5~~	~~None~~	~~None~~	~~10,000 SF~~	~~7,500 SF~~
~~CU-1~~	~~12~~	~~None~~	~~None~~	~~10,000 SF~~	~~7,500 SF~~
~~CU-3~~	~~10~~	~~None~~	~~None~~	~~10,000 SF~~	~~7,500 SF~~
~~CU-4~~	~~5~~	~~None~~	~~None~~	~~10,000 SF~~	~~7,500 SF~~
~~CU-6~~	~~8~~	~~None~~	~~None~~	~~10,000 SF~~	~~7,500 SF~~

District	Net Residential Density			Minimum Lot Size	
Town Residential					
	Current Maximum Units/Acre	Proposed Maximum Units/Acre	Proposed Minimum Units/Acre	Current	Proposed
R-1	3	3	None	10,000 SF	7,500 SF
R-7	7	Single-family – 8 Multi-family – 10	None	12,000 SF	7,500 SF
R-8	3	5	None	10,000 SF	7,500 SF
TR-5	5	5	None	10,000 SF	7,500 SF
CU-2	10	10	None	10,000 SF	None
CU-5	24	24	None	20,000 SF	None
MU-2	4.5	5	None	10,000 SF	7,500 SF
MU-6	10	10	None	20,000 SF	7,500 SF
Town Extended Residential					
	Current Maximum Units/Acre	Proposed Maximum Units/Acre	Proposed Minimum Units/Acre	Current	Proposed
R-2	5 (1.45 with septic)	8	2	15,000 SF	7,500 SF
R-3 & 4	5 (1.45 with septic)	Single-family – 8 Multi-family – 12	1.5	15,000 SF	7,500 SF
MU-3	7	Single-family – 8 Multi-family – 12	2	10,000	10,000
Potential MU-7	1 unit/2 acres	1 unit/2 acres	None	2 acres	2 acres

District		Net Residential Density		Minimum Lot Size	
Cook's Corner Commercial Hub					
	Current Maximum Units/Acre	Proposed Maximum Units/Acre	Proposed Minimum Units/Acre	Current	Proposed
CC	15	15	None	15,000 SF	7,500 SF
Cook's Corner Extended					
	Current Maximum Units/Acre	Proposed Maximum Units/Acre	Proposed Minimum Units/Acre	Current	Proposed
CC	15	15	2	15,000 SF	7,500 SF
R-6	8	15	2	12,000 SF	7,500 SF
MU-1	0.66	15	2	1.5 Ac	7,500 SF
Commercial Connectors					
	Current Maximum Units/Acre	Proposed Maximum Units/Acre	Proposed Minimum Units/Acre	Current	Proposed
HC1 & 2	5	5	None	20,000 SF	7,500 SF
MU-4, incl. current I-4	10	15	2	40,000 SF	7,500 SF
R-5	5	12	1.5	15,000 SF	7,500 SF
Industrial					
	Current Maximum Units/Acre	Proposed Maximum Units/Acre	Proposed Minimum Units/Acre	Current	Proposed
I-1	12	Not allowed	Not allowed	80,000 SF	80,000 SF
I-2 & 3	Not allowed	Not allowed	Not allowed	20,000 SF	20,000 SF

~~District~~		~~Net Residential Density~~		~~Minimum Lot Size~~	
~~I-4 (merged into MU-4 above)~~					
~~Potential I-6~~	~~0.5~~	~~Not allowed~~	~~Not allowed~~	~~2 Ac~~	~~20,000 SF~~
~~Naval Air Station – Brunswick~~					
	~~Current Maximum Units/Acre~~	~~Proposed Maximum Units/Acre~~	~~Proposed Minimum Units/Acre~~	~~Current~~	~~Proposed~~
~~I-5~~	~~N/A~~	~~TBD~~	~~TBD~~	~~N/A~~	~~TBD~~

~~F~~E. Overlay Districts

The Town's land use regulations include a number of overlay districts that impose additional requirements on specific geographic areas to address specific issues or concerns. The intention of the Land Use Plan is that these overlays continue in their current form with minor revisions as noted below. The ~~six~~ seven existing overlay districts are:

1. Natural Resource Protection District -- This district should remain essentially as it currently is with the following three additions:

- Standards to maintain or enhance the visual character of the shoreline as seen from the water while allowing the maintenance and enhancement of scenic views consistent with Shoreland Zoning;
- Standards to regulate the construction of new docks as well as requirements for advance planning particularly within subdivisions to encourage communal use of new docks; and
- Standards to control the incremental encroachment on "protected lands" such as wetlands and stream corridors.

The Town should also study the adequacy of wetland and vernal pool regulations to determine if there is a need for additional local regulation of these resources.

2. Aquifer Protection District – The Town should review the adequacy of the current regulations dealing with individual homeowners within the ~~APZ~~ Aquifer Protection Zone, as well as the information that is provided to property owners and residents within the district.

3. Mobile Home Park District -- This district should remain essentially as it currently is.

4. ~~NASB~~BNAS Flight Path Zone -- This district should remain essentially as it currently is as long as ~~NASB~~BNAS is open. When the base closes, ~~so long as redevelopment does not include retaining an active airstrip,~~ the overlay ~~should~~ will be reexamined. The Town should create redevelopment standards for the area north of Bath Road to minimize strip development. Controlling access to Bath Road will also ensure safety for autos, bicycles and pedestrians in this area. Design standards based upon the Cook's Corner Design Standards would guide development along Bath Road to complement and connect Downtown, Cook's Corner, and the newly redeveloped ~~NASB~~BNAS land.

5. Village Review Zone -- This district should be expanded to extend on the west of Maine Street to ~~Noble~~ Page Street on the south and Union Street on the west, unless further study determines expansion to McKeen Street may be appropriate. ~~.~~

6. ~~6.~~ Telecommunications Zone -- This district should remain essentially as it currently is.

7. Rural Brunswick Smart Growth District – As this overlay district was just established in 2006, it is recommended that its overall workability be evaluated as part of the zoning ordinance update, and be enhanced as needed.

~~The Land Use Plan includes the creation of a new overlay district as proposed in the 2003 Rural Brunswick Smart Growth Plan to establish additional standards to protect identified unfragmented habitat blocks from activities that reduce the value of the core habitat area.~~

Gateway Corridor District --

A new overlay district, a Gateway Corridor Overlay, should also be created. This overlay shall identify both gateways to Brunswick and gateway corridors ~~-~~in Town including Pleasant Street, Bath Road, Old Portland Road and I-295.

Development standards for gateways should create a sense of arrival in Brunswick and may include natural plantings and consistent signage. Transitional gateways highlight, ~~–~~ maintain and enhance the rural character of Brunswick outside the growth area, as well as areas shifting between incompatible zoning districts, e.g. high intensity commercial to low density residential. There are also internal gateways that should be identified and enhanced. The 2002 Parks, Recreation and Open Space Plan has identified some of these gateways.

Development of standards for gateway corridors include:

- Design changes so that routes continue to evolve as safe and efficient traffic arteries with appropriate access controls;
- Design standards for both new and re-development projects that require natural plantings between the roadways and buildings, and require both building finishes and styles that improve the visual appeal of the corridors; and
- Design standards to prohibit commercial signage aimed at passing travelers on I-295.

Part C. Implementation Strategy

Chapter 8. Implementation Strategy

This update of the Town's Comprehensive Plan identifies eight key policy areas that need to be addressed as the Town moves forward over the next decade. For each policy area, the update sets forth objectives and actions that need to be taken to accomplish each objective. The update also includes a Land Use Plan that includes proposals for the Town's land use regulations. In addition, the plan identifies other actions that the Town will need to take to carry out the recommendations. For this Update to be successful, the Town needs to systematically and comprehensively implement these recommendations. This chapter sets out an implementation strategy to guide that process.

A. Oversight of the Implementation Process

Successful implementation of the recommendations of this update will require that there be on-going oversight of, and responsibility for, the implementation of the Comprehensive Plan. In simple terms, some body or group must "own" the plan and be accountable for the progress in implementing the Update. While the ultimate responsibility for implementing the plan's recommendations lies with the Town Council, it is unreasonable to expect that it will manage the day-to-day implementation of the various proposals. The School Board is an independent elected body responsible to the state. While the strategy "assigns" certain responsibilities to the School Board, this is done with the understanding that it is an independent body.

The Planning Board ~~could~~ should be assigned the overall implementation oversight responsibility by the Town Council and, together with Council, develop a realistic timeline for plan implementation. ~~, but given its ongoing workload in reviewing development proposals, it is unrealistic to expect that the Board can assume this responsibility. Therefore, the key implementation strategy is for the Town Council to formally divide the Town's planning function into two areas – "short range planning" including development review, and "long range planning" including implementation of this Update of the Comprehensive Plan. Under this format, the Planning Board would continue to have the responsibility for the short range planning function.~~ It is also recommended that the Town Council be given the flexibility to appoint ad hoc committees to complete specific implementation tasks, with input from the Planning Board. The Town Council should provide for staff support and funding for plan implementation through the Planning and Development Department.~~To handle the long range planning function, the Town Council will need to create a formal "Long Range Planning Committee" or LRPC and charge the committee with the responsibility for the long range planning for the community including overseeing the implementation of the Update's recommendations.~~

~~In terms of the Update, the LRPC should play two roles – on one hand, it should be the coordinator where the implementation strategy designates another body as responsible for an action. In this role, the LRPC should encourage these groups to work on the various proposals. The LRPC's second role should be to take on those aspects of planning for implementation where there is not another existing group or body to work on a specific task.~~

~~The Long Range Planning Committee should be a small working committee that is appointed by and responsible directly to the Town Council. The Town Council retains ultimate authority to approve LRPC recommendations for policy as well as actions. The composition of the LRPC should be determined by the Council but should be representative of the various interests that were involved in the preparation of the Update. The LRPC should prepare an annual work plan that sets out it objectives for each year and should submit an annual report to the Council documenting the community's progress on implementing the plan. The Town Council should provide for staff support and funding for the LRPC through the Planning and Development Department.~~

B. Implementation Strategy

The various sections of the Update, including the Land Use Plan, propose that the Town undertake a variety of actions to implement the various objectives. ~~–~~The implementation strategy in Table ~~B~~ A organizes all of the recommended activities into a ~~n organized,~~ comprehensive approach. The strategy recognizes that some of the actions are more important than others so the implementation activities are organized into three groups – high priority actions, priority actions, and other actions. Actions that are identified as "key actions" that implement a "key objective" in the policy section are designated as "High Priority Actions" in the strategy. Actions that implement a "key objective" but ~~that~~ are not identified as "key actions" are designated as "Priority Actions". Actions that implement an objective that is not identified as a "key objective" in the policies are designated as "Other Actions".

The strategy also recognizes that implementation of these recommendations will take time ~~both because of~~due to limited resources and the nature of many of the activities. Therefore each activity is assigned a time frame for proposed completion – short term (within two years of adoption of the Update), mid term (within five years of adoption), long term (more than five years), or ongoing (activities that require continuing involvement or funding). For each activity, a lead committee or board is identified. While it is understood that other groups or people will be involved, this ~~–~~lead group will be tasked with oversight responsibilities. ~~the responsible party for seeing that the activity occurs as proposed.~~ The strategy recognizes that, while much of the actual work in implementing the Update will be done by Town staff, the responsibility for the various activities must rest with the various official bodies of the Town, and that the role of the staff is to assist these groups in accomplishing these tasks.

Table ~~B~~A
Implementation Strategy
Recommended Actions, Priorities, Responsibilities, and Timing
(See text for detailed discussion)
(A more detailed, updated strategy/timeline will be developed consistent with this document).

Policy Reference	Activity	Primary Responsibility	Timing
High Priority Actions			
LAND USE PLAN			
LUP	Revise Zoning Map to reflect designations on the Land Use Plan including adjustment of the Growth Area boundary	~~Long Range Planning Committee (LRPC)~~Planning Board (PB)	Short
LUP	Revise the zoning ordinance requirements to reflect the designations in the Land Use Plan	~~LRPC~~PB	Short
ZONING			
3-2-1 & 5-3-1	Allow denser development in designated growth areas (particularly where water, sewer, and storm water systems exist) by drafting and adopting zoning ordinance amendments to permit increased housing density.	PB~~LRPC~~	Short
4-1-3	Implement zoning changes that encourage denser, infill development in the Growth Area where water, sewer and storm water systems exist.	~~LRPC~~PB	Short
6-3-3	Revise zoning ordinance to ensure that land with high resource value is preserved in development process.	PB~~LRPC~~	Short

Policy Reference	Activity	Primary Responsibility	Timing
7-3-1	Re-evaluate dimensional standards and conduct inventory of neighborhood features; then revise the Town zoning ordinance to allow denser residential infill development throughout the downtown while preserving features.	PB~~LRPC~~	Short
8-2-1	Review and revise the zoning ordinance to reflect the Future Land Use Plan.	PB~~LRPC~~	Short
MUNICIPAL FACILITIES			
2-1-1	Elected officials and staff of Town participate in ~~LRA~~ MRRA planning process.	Town Council	Short
2-1-2	Identify opportunities for municipal facilities on ~~NASB~~BNAS property.	Town Council	Short
2-2-1	Determine the optimal use of all municipal buildings and facilities including currently underutilized facilities such as the old High School.	Town Council	Short
2-3-1	Adopt a procedure that requires staff and committees reviewing facilities needs to investigate the feasibility of regional partnerships.	Town Council	Short
GROWTH-RURAL PATTERN			
3-1-1	Elected officials and staff of Town participate in ~~LRA~~ MRRA planning process.	Town Council	Short
3-1-2	Obtain natural resource inventories that exist for ~~NASB~~BNAS land. Identify and plan to ensure protection of significant natural resources and open space.	Conservation Commission	Short

Policy Reference	Activity	Primary Responsibility	Timing
3-1-3	Evaluate infrastructure needs for redevelopment for roads, storm water, sewer and water and other services.	Town Council	Short
3-1-4	Using the information gathered from 3-1-2 and 3-1-~~1~~-3 above, appropriately site a Rural/Growth Boundary and ~~d~~ develop associated zoning consistent with Brunswick's overall development policies.	~~LRPC~~PB	Short
3-2-1 & 5-3-1	Allow denser development in the Growth Area by drafting and adopting zoning ordinance revisions to permit increased housing density at all price levels.	P~~lanning Board~~B	Short
3-2-2 & 6-2-1	Limit the number of residential building permits issued for new dwelling units in the Rural Area to no more than one-third of total permits issued town-wide.	~~LRPC~~PB	Short
3-3-1	Continue to work toward the implementation of the management strategies recommended in the 2003 Rural Brunswick Smart Growth Study as adopted by the Town Council.	Planning Board/Conservation Commission	Short
3-3-3	Promote w~~W~~ays to protect important open space and habitats in the Rural Area through OS Developments, RBSG developments or other mechanisms.	~~LRPC~~PB	Short
3-3-6	Coordinate future decisions regarding train service, maintenance & operations to minimize noise & other negative impacts	Town Council	Short

Policy Reference	Activity	Primary Responsibility	Timing
HOUSING			
5-1-1	Research federal regulations relating to affordable housing of decommissioned Navy housing and position the Town to ensure affordability of those units	~~Local Redevelopment Authority~~MRRA	Short
OPEN SPACE, NATURAL RESOURCES, AND RECREATION			
6-3-1	Establish a Land for Brunswick's Future Board to oversee identification and prioritization of high value open space and natural resources to be protected.	Town Council	Short
6-5-1	Enact a recreation impact fee for new residential development that reflects the impact of such development and costs associated with providing additional recreational facilities.	P~~lanning Board~~B	Short
DOWNTOWN			
7-1-1	Ensure that the design of the Maine Street Station site and the proposed uses complement the mixed-use nature of existing downtown.	~~LRPC~~PB	Short
7-4-2	Expand the geographic limits of the Village Review Board's jurisdiction to include an area west ~~side~~ of Maine Street to Union Street (and possibly Cedar Street) from the Androscoggin River to the Chamberlain Museum.	Village Review Board	Short

Policy Reference	Activity	Primary Responsibility	Timing
LOCAL ECONOMY			
8-1-1	Prepare a feasibility analysis of all potential in-fill sites.	Town Council	Short
8-1-2	Explore and actively pursue 3rd party funding and/or transitional funding made available through ~~NASB~~BNAS closure process to support in-fill.	Town Council	Short
8-1-3	Develop feasible in-fill sites.	Town Council	Short
8-2-1	Elected officials and staff participate in ~~LRA~~ MRRA planning process.	Town Council	Short
8-2-2	Town actively explores potential for early transfer of ~~NASB~~BNAS land suitable for ~~a~~ business ~~park~~ interests.	Town Council	Short
8-3-1	Identify types of jobs desired by the Town and use mechanisms to draw those businesses and jobs.	Town Council	Short
~~8-3-2~~	~~Prepare feasibility analysis of in-fill sites and build out under existing zoning to determine if sites can be developed within the next 2-3 years~~	~~Town Council~~	~~Short~~
~~8-3-3~~	~~Consider a new business park if infill, NASB conveyance or build out under existing zoning will not meet projected immediate need~~	~~Town Council~~	~~Short~~
~~8-3-4~~	~~Expand growth area if business park is found both necessary and feasible~~	~~Planning Board~~	~~Short~~
~~8-3-5~~	~~If growth area is expanded to accommodate business park, condition expansion on neighborhood protections~~	~~Town Council~~	~~Short~~
EDUCATION			

Policy Reference	Activity	Primary Responsibility	Timing
1-2-1	Implement state-mandated programs and programs comparable to and competitive with those offered in surrounding communities or comparably sized school systems.	School Board	Mid
1-2-2	Ensure class sizes that are appropriate for the grade level and the successful implementation of the desired teaching methodology.	School Board	Mid
1-3-1	Work toward a balanced socioeconomic environment within each school.	School Board	Mid
MUNICIPAL FACILITIES			
2-1-3	Identify and prioritize long and short-term actions Brunswick can take to ensure incorporation of needed municipal facilities in the redevelopment plan.	Town Council	Mid
INFRASTRUCTURE			
4-1-1	Align BTWD and BSD and Town planning efforts to achieve the Town's broad planning objectives.	~~LRPC~~PB	Mid
4-1-2	Actively plan for, and explore the capitalization of, water and sewer extensions into areas where the Town is particularly encouraging development (as defined in the Future Land Use Plan).	~~LRPCC~~PB	Mid

Policy Reference	Activity	Primary Responsibility	Timing
4-1-3	Implement zoning changes that encourage denser, infill development in the Growth Area where water, sewer and storm water systems exist.	PBlanning Board	Mid
4-1-4	Implement zoning on NASBBNAS property that is consistent with with overall Town policies encouraging denser development in Growth Areas with appropriate infrastructure, and preserving the rural character outside of Growth Areas.	PBlanning Board	Mid
4-2-1	Develop a Master Traffic Plan and prioritize solutions for the most congested and least safe areas. In particular, plan for changes required by the redevelopment of NASBBNAS.	LRPCPB	Mid
HOUSING			
5-1-2	Create zoning for BNAS property, consistent with the Base Reuse Plan that allows for increased density and flexibility to promote private development of affordable and workforce housing.	PB	Mid
OPEN SPACE, NATURAL RESOURCES, AND RECREATION			
6-5-2	Identify and obtain facilities for recreation on NASBBNAS property that can best meet the needs of the community. Update the 2004 Brunswick Bicycle and Pedestrian Improvement Plan to incorporate access to NASBBNAS as its future uses become clearer.	Recreation -Commission	Mid

Policy Reference	Activity	Primary Responsibility	Timing
DOWNTOWN			
7-2-1	Evaluate and implement measures and physical improvements for improving pedestrian safety and comfort on Maine Street.	~~LRPC~~PB	Mid
7-4-1	Develop a new Master Plan for downtown relating economic, housing and infrastructure improvements. Considerations for such a plan include traffic, bicycle and pedestrian patterns, alternatives to diverting thru-traffic away from Maine Street, enhancing use of upper story space, preserving historic architecture, and making new construction and renovations fit the character of the historic downtown.	Town Council	Mid
EDUCATION			
1-1-1	Build new school facilities, end the use of modular classrooms and/or close outdated facilities to meet educational, program, health, and safety needs in a cost-effective way.	School Board	Long
1-1-2	Continue to fund preventive maintenance and building improvements to continuously maintain school facilities.	School Board	Ongoing
GROWTH-RURAL PATTERN			
3-3-2	Continue to work toward the implementation of the strategies recommended in the 2002 Parks, Recreation and Open Space Plan as adopted by the Town Council.	Conservation and Recreation Commissions	Ongoing

Policy Reference	Activity	Primary Responsibility	Timing
HOUSING			
5-2-1	Actively pursue state and federal housing subsidy programs, such as Community Development Block Grant (CDBG) housing rehabilitation funds, Federal Home Loan Bank subsidies, and Maine State Housing Authority Home Rehabilitation program funds. Explore reuse of no-longer needed municipal and school facilities as sites for redevelopment.	~~LRPC~~PB	Ongoing
OPEN SPACE, NATURAL RESOURCES, AND RECREATION			
6-1-1	~~Conservation Commission~~ MRRA/Consultants ~~inventories~~ inventory natural resources on ~~NASB~~BNAS property and consults during the ~~LRA~~ MRRA planning process to coordinate ~~the natural resource protection on NASB with plans for~~ protection of significant local and regional natural resources.	Conservation Commission	Ongoing
6-3-2	Promote ways to protect important open space and habitats in the Rural Area through OS developments, RBSG developments or other mechanisms.	Conservation Commission	Ongoing
6-4-1	Continue to monitor quality of waters – rivers, streams, coastal, and aquifers and consider adding additional water quality monitoring as necessary to access the drinking water and marine resource condition of these waters.	~~Brunswick~~ Marine Resources Committee	Ongoing
DOWNTOWN			

Policy Reference	Activity	Primary Responsibility	Timing
7-2-2	Continue implementing the improvements listed in the 2004 Brunswick Bicycle and Pedestrian Improvement Plan relating to Downtown, particularly regarding crosswalks and sidewalks, on a regular basis.	~~Ped and Bike~~ Bicycle and Pedestrian Advisory Committee	Ongoing
LOCAL ECONOMY			
8-4-1	Facilitate communication between ~~the~~ Bowdoin College and town citizens and businesses especially when the College needs to add new buildings, parking areas or other improvements.	~~LRPC~~CPB	Ongoing
8-5-2	Work with regional economic development organizations to provide funding for local businesses for expansion, modernization, and working capital.	Town Council	Ongoing
Priority Actions			
EDUCATION			
1-2-3	Financially support the summer Reading, Writing, and Mathematics Camp Program.	School Board	Ongoing
1-3-2	Strongly support programs at the Vocational Region 10 school.	School Board	Ongoing
1-3-3	Provide access to new technology for all students within the learning environment.	School Board	Mid

Policy Reference	Activity	Primary Responsibility	Timing
1-3-4	Continue to support programs such as Alternative Education and Merrymeeting Adult Education.	School Board	Ongoing
MUNICIPAL FACILITIES			
2-1-4	Explore cross-town public transportation options.	~~LRPC~~PB	Mid
2-2-2	Consolidate all studies of current and future buildings and facilities needs including maintenance, renovation, replacement and expansion along with associated timelines and costs.	Town Council	Short
2-2-3	Increase recycling efforts throughout the Town including construction debris recycling.	Recycling Committee	Mid
2-2-5	Reserve funds for specific future capital needs funded annually at a percentage of the anticipated cost.	Town Council	Ongoing
2-2-6	Once annual CIP expenditures are authorized, complete the purchases or projects approved.	Town Council	Ongoing
2-2-7	Modify the CIP process so that new projects can be added if new opportunities for funding arise.	CIP Committee	Short
2-2-8	Implement the specific priority recommendations of the 2002 Parks, Recreation, and Open Space Plan for the improvement and expansion of indoor recreation facilities.	Recreation Commission	Mid
2-3-2	Adopt a procedure that requires staff and committees reviewing facilities needs to investigate the feasibility of using impact fees, grants, Tax Increment Financing (TIFs) or other creative financing methods.	Town Council	Short
GROWTH-RURAL PATTERN			

Policy Reference	Activity	Primary Responsibility	Timing
3-3-4	Work with private landowners who are interested in conserving the habitat, natural resource, and agricultural value of their property on a voluntary basis.	Conservation Commission	Ongoing
3-3-5	Work with local and regional land trusts and conservation organizations to identify important parcels of land in the Rural Area for acquisition.	Conservation Commission	Ongoing
INFRASTRUCTURE			
4-2-2	Explore state and regional collaboration and funding to complete identified traffic improvements.	~~LRPC~~PB	Ongoing
4-2-3	Work with MDOT on the Gateway 1 Corridor study to seek Pleasant Street & Mill Street improvements.	Gateway ~~One~~ 1 Corridor Steering Committee	Ongoing
4-2-4	Continue to improve existing roads and sidewalks, per the 2004 Bicycle and Pedestrian Improvement Plan, to make them fully accessible and safe.	~~Ped and Bike~~ Bicycle and Pedestrian Advisory Committee	Ongoing
4-2-5	Adopt new road standards for new streets within the Growth Area that require interconnectivity and sidewalks as appropriate.	PB~~lanning Board~~	Short
4-2-6	Support the efforts of the Midcoast Collaborative for Access to Transportation to study the feasibility of a limited fixed/flex public transportation route/system in Brunswick.	Town Council	Ongoing
4-2-7	Have Town officials meet with neighboring community officials to coordinate regional transportation projects and planning.	~~LRPC~~PB	Ongoing
HOUSING			

Policy Reference	Activity	Primary Responsibility	Timing
5-2-2	Partner with funders where possible to encourage owner-occupied multi-unit housing.	~~Brunswick~~ Mid Coast Community Housing Coalition	Mid
OPEN SPACE, NATURAL RESOURCES, AND RECREATION			
6-3-4	Land for Brunswick's Future Board obtains funding to protect priority high value parcels.	LF~~f~~BF Board	Mid
6-3-5	Enact an open space impact fee that reflects the impact of new development and the associated need for protected open space.	PB~~lanning Board~~	Short
6-3-6	Plan for open space and parks in both the growth and rural areas.	Conservation Commission	Short
6-4-2	Continue to protect unfragmented forested blocks from development through comprehensive effort to work with landowners and developers on a voluntary basis and by adopting ordinance standards for mitigation as needed.	Conservation Commission	Short
6-4-3	Consider adopting ordinance provisions stricter than current state regulations to protect vernal pools and wetlands including provisions that require in-kind or fee-based mitigation as part of the development process where these resources are harmed.	Conservation Commission	Short
6-4-4	Require long-term protection of streams, wetlands and vernal pools that are contiguous to new development as part of the development process by requiring effective notification of protected status of these resources to homeowners through deed and covenant provisions.	PB~~lanning Board~~	Short

Policy Reference	Activity	Primary Responsibility	Timing
6-4-5	Include the cumulative effects of light pollution along with the other factors considered as part of the development process.	PB~~lanning Board~~	Mid
6-5-3	Implement the specific priority recommendations of the ~~2003~~ 2002 Parks, Recreation and Open Space Plan for the expansion of recreational facilities.	Conservation Commission/Recreation Commission	Mid
6-5-4	Support and begin to implement the 2004 Bicycle and Pedestrian Improvement Plan for a system of interconnected trails and pathways through public/private partnerships.	~~Rec Commission~~Bicycle and Pedestrian Advisory Committee	Mid
6-6-1	Preservation of the historic, archaeological and burial sites identified in the 2002 Parks, Recreation and Open Space Plan are made part of development process. Develop process to identify additional perishable assets impacted by development.	~~LRPC~~PB	Mid
DOWNTOWN			
7-3-2	Coordinate the development of a building rehabilitation code to facilitate renovations of existing downtown building with the Town's building code, the State's Life Safety Code, and other state efforts to accomplish the same.	~~LRPC~~PB	Mid
7-4-3	Install benches, information kiosks, trash receptacles, and public toilets.	~~LRPC~~PB	Mid
7-4-4	Encourage development on the side streets off Maine Street to attract pedestrian traffic and new businesses.	~~LRPC~~PB	Long

Policy Reference	Activity	Primary Responsibility	Timing
7-4-5	Support the concept of Brunswick's north end as a recreational hub.	~~LRPC~~PB	Mid
7-4-6	Support efforts to develop and promote a local creative economy.	Town Council	Short
7-4-7	Continue to support the Village Review Board's ongoing efforts to work with landlords who voluntarily want to maintain the historic character of the Downtown. Support the VRB's recent efforts to establish a non-regulatory Brunswick Town Landmark and Landmark District Designation Program.	Village Review Board	Ongoing
Other Actions			
MUNICIPAL FACILITIES			
2-4-1	Publicize the prioritized 10-year capital needs budget and rationale/funding for future projects in an on-going effective public forum.	CIP Committee	Ongoing
INFRASTRUCTURE			
4-3-1	Plan and incorporate storm water management systems that are consistent with achieving the Town's water quality goals into Brunswick's CIP.	CIP Committee	Mid
4-3-2	Work with Sewer District to provide incentives to encourage current septic system users within the Growth Area to connect to the Sewer District where the sewer line is reasonably close and particularly when existing septic is failing.	~~LRPC~~PB	Mid

Policy Reference	Activity	Primary Responsibility	Timing
4-3-3	Explore the impact of requiring sizable new Growth Area developments to connect to sewer lines beyond current connection requirements.	~~LRPC~~PB	Short
4-3-4	Coordinate infrastructure improvements between water, sewer, and public works departments.	Town Council	Ongoing
4-3-5	Coordinate with the sewer district to segregate storm water from sewer effluent.	Town Council	Ongoing
HOUSING			
5-4-1	Use the new Affordable Housing Tax Increment Financing (TIF) program to encourage suitable projects.	~~Brunswick~~ Mid Coast Community Housing Coalition	Ongoing
5-4-2	Identify partners to work collaboratively with the Town on housing projects that are focused on rental apartments, moderately priced workforce housing, and low to moderate-income elderly housing.	~~Brunswick~~ Mid Coast Community Housing Coalition	Mid
5-4-3	Support development of workforce housing for Town employees.	~~Brunswick~~ Mid Coast Community Housing Coalition	Long
5-5-1	Support informational and educational efforts of the Mid Coast Community Housing Coalition.	~~Brunswick~~ Mid Coast Community Housing Coalition	Ongoing
5-5-2	Prepare education materials and programs that help residents visualize denser development patterns.	~~Brunswick~~ Mid Coast Community Housing Coalition	Short
5-5-3	Distribute education and program materials with property tax bills.	~~Brunswick~~ Mid Coast Community Housing Coalition	Short
OPEN SPACE, NATURAL RESOURCES, AND RECREATION			
6-6-2	Identify and preserve scenic assets including gateways to Brunswick.	Conservation Commission	Mid

Policy Reference	Activity	Primary Responsibility	Timing
6-6-3	Maintain existing public water access points and acquire new water access when feasible.	Conservation Commission	Ongoing
6-6-4	Prepare a concept plan for the Androscoggin River Corridor for recreational purposes.	Recreation Commission	Mid
6-7-1	Continue to inventory ~~these~~ natural resources so as ~~so that it is~~to be scientifically accurate and appropriate for long-term planning with appropriate public review.	Conservation Commission	Ongoing
6-7-2	Cooperate with adjoining towns to place prioritization process in a regional context.	Conservation Commission	Short
6-7-3	Inform the public about natural and scenic resources using the Town website and other means.	Conservation Commission	Mid
6-7-4	Develop management standards for each significant resource.	Conservation Commission	Long
6-7-5	Continue to monitor populations of indicator wildlife species for the significant terrestrial and aquatic habitats.	Conservation Commission	Ongoing
6-7-6	Continue to actively manage town-owned forest and other natural resources.	Conservation Commission	Ongoing
DOWNTOWN			
7-5-1	Follow the downtown parking committee's recommendations implementing the 2001 Downtown Parking Study.	~~LRPC~~PB	Mid
LOCAL ECONOMY			
8-5-2	Work with regional economic development organizations such as Midcoast Council for Business Development and Planning and Coastal Enterprises, Inc. to provide funding for local businesses for expansion, modernization, and working capital.	Town Council	Ongoing

Policy Reference	Activity	Primary Responsibility	Timing
8-5-3	Develop an on-going businesses assistance program in coordination with regional organizations to enhance the business skills of local business people and improve their ability to compete.	Town Council	Short
8-5-4	Support Brunswick's natural resources economy, including marine harvesting and farming.	Marine Resources Committee	Ongoing
8-6-1	Coordinate with MDOT and federal authorities to advocate for infrastructure improvements needed for rail service.	Town Council	Ongoing

Chapter 9. Capital Investment Strategy as of 2006

The capital investment strategy is intended to assist the Town in planning for the capital facilities needed to service the future growth and development in the community. The Town of Brunswick has an ongoing capital planning and budgeting system that addresses the community's on-going needs for capital facilities. The results of that process have been incorporated into this Update.

A. Current CIP Process

The Town conducts an annual capital planning process that occurs on a parallel track to the Town's operating budget development. A committee prepares the Town's Capital Improvement Program (CIP) annually. Each year, the committee solicits proposed capital projects from operating departments and boards and commissions. The capital needs are evaluated, projects are given a priority and a plan of proposed capital spending prepared. The annual CIP looks at the Town's capital needs for a five-year time frame including a proposed capital budget for the current year that is incorporated into the budget deliberations on the operating budget. The CIP is reviewed and adopted by the Town Council. The CIP attempts to balance the Town's needs for investment in capital facilities with the Town's ability/desire to pay for these investments.

B. Most Recent CIP

The Town Council adopted the most recent Capital Improvement Program (CIP) covering the Fiscal Years Ending 2006-2011 in June of 2006. This CIP proposed that the Town undertake over $45 million in capital expenditures during the five-year planning period including the construction of a new elementary school. A copy of the 2006-2011 CIP is in appendix D.

The current CIP addresses most of capital expenditures envisioned in the policy objectives and actions of this plan including the Future Land Use Plan. These include funding for a new central fire station, construction of a Cook's Corner Fire sub-station to service growth in that area of the community, provision of new administrative space for the municipal offices, upgrading of school facilities, landfill closure, sidewalk construction, and business park development. These investments, if made in accordance with the current CIP, will address virtually all of the community's needs for facilities to accommodate anticipated growth in Brunswick.

C. Other Projects Necessary to Accommodate the Projected Growth

The Capital Improvement Program attempts to balance the capital investment needs of the community with the community's ability/willingness to pay for these improvements. As a result not all projects are able to be accommodated in the current CIP and must be deferred. Other projects are funded through alternative funding sources such as impact fees.

1. Recreation and Open Space Facilities – Various proposed actions call for the development of additional recreational facilities and the protection of open space in accordance with the Parks, Recreation, and Open Space Plan and the creation of a Land for Brunswick's Future Board. The Town currently has in place an impact fee that is charged to new residential development that provides funding for expanded recreational facilities. This is proposed to be expanded to include a fee for open space acquisition. If major improvements are proposed, they will need to be addressed in future CIP's.

2. Utility Expansion Within the Growth Area –Infrastructure policies envision that the Town may need to be involved with the capitalization of utility extensions within the Growth Area to facilitate the desired pattern of growth. No particular project has been identified. If Town involvement in utility extensions is contemplated in the future, this will need to be programmed through the CIP.

3. Transportation/Traffic Improvements – Infrastructure policies call for the development and implementation of a regional transportation plan. If this plan results in proposed traffic improvement projects that will require local funding, they will need to be incorporated into the CIP process.

4. Downtown Improvements – Various actions propose pedestrian and parking improvements in the Downtown. If these projects develop end require significant local funding, they will need to be considered through the CIP process.

Chapter 10. Regional Coordination as of 2006

Brunswick is the service center for the southern mid-coast region. This role as a regional service center has resulted in Brunswick taking the lead in looking for regional approaches to the issues facing the community. Regional cooperation may offer new opportunities for better municipal services to be provided or for services to be provided more efficiently. Some issues facing Brunswick extend beyond the boundaries of the Town. To address these issues successfully will require cooperation and coordination among municipalities and regional interests. This section briefly discusses the key regional issues facing Brunswick and actions the Town should take to address them.

A. Delivery of Municipal Services

1. Description of the Issue

The Town is under increasing fiscal pressure to find ways to hold down the costs of providing municipal services. This pressure may increase with the closure of ~~NASB~~BNAS in the foreseeable future. The provision of some municipal services on a "greater-than-town" basis may make sense both operationally and financially. The Town should explore the opportunities for multi-town or regional approaches for service delivery.

2. Current Regional Activities

The Town is currently involved in a number of efforts involving regional service delivery. Fire and EMS personnel work on a regional basis daily. The Town is exploring regional dispatching for public safety through the Enhanced 911 system. Town recreation programs are open to people in the surrounding communities. For the past two years, Brunswick has worked with Topsham, Harpswell, West Bath, Bowdoin, and Bath in a Household Hazardous Waste Collection event hosted by the Brunswick and Bath Public Works Departments. Brunswick participates in the Greater Portland Council of Governments joint purchasing program for services and materials including heating oil, road stripping, paving, traffic signs, road salt, catch basin cleaning, etc. The Town has explored possible regional approaches for some other aspects of municipal services including public safety operations.

The Brunswick Topsham Water District operates on a multi-municipality basis and the Brunswick Sewer District provides service to Topsham on a contract basis. The water district cooperates with the Bath Water District relative to emergency water distribution interconnections and has worked with other districts on shared concerns. The water district is exploring the potential benefits of joint bidding for the purchase of equipment and/or construction materials.

3. Proposed Actions

As a matter of policy, the Town should look at regional approaches to service delivery before it adds new functions or services and as an alternative to the Town providing the service. The Town should continue to explore the potential for regional public safety services including regional dispatching in conjunction with Freeport and Yarmouth. Recycling may offer an opportunity to use the expertise that the Town has developed to provide this service on a regional basis. The Town is interested in improved recycling of demolition debris. The Town's Recycling Committee has initiated discussions with the appropriate bodies in surrounding communities to explore the possibilities for this and should continue this effort.

B. Shared Facilities

1. Description of the Issue

Brunswick's role as a service center means that residents of the larger region already come to town for many activities. Residents of other communities use Brunswick facilities for access to various water bodies. There may be other opportunities for shared facilities that serve more than Brunswick. For example, Brunswick as well as a number of surrounding communities is developing bicycle and pedestrian facilities with only limited consideration of potential for the creation of a regional network.

2. Current Regional Activities

The Town of Harpswell supports the town library. The Police Departments in Brunswick and Topsham have worked together on the development of a shared shooting range in Topsham.

3. Proposed Actions

As with municipal services, the Town should explore the feasibility of regional facilities before it develops new or expanded municipal facilities. The Town of Brunswick in conjunction with MCBDP should play the lead in working with surrounding towns to explore how the Town's bicycle and pedestrian facilities can be better integrated into a regional network of these facilities.

C. Regional Economic Development

1. Description of the Issue

Brunswick functions as the hub of an economic region. Increasingly, the community is evolving as a center for the "creative economy" including knowledge creation and the arts and culture. Since Brunswick is a service and

employment center, many people who live in surrounding communities commute to Brunswick to work. Improvements in the Brunswick economy influence the well being of the entire region.

2. Current Regional Activities

The Town works through MCBDP to promote economic growth on a regional basis. MCBDP provides assistance to businesses as well as access to financing. The Brunswick Downtown Association is exploring joint marketing and promotion activities with representatives from Topsham. The Town participates in regional economic planning efforts such as Coastal Counties Workforce. The REACH coordinates and promotes arts and cultural activities on a regional basis.

3. Proposed Actions

The Town should pursue a collaborative approach to regional economic development similar to that used by Lewiston/Auburn including the sharing of information, joint marketing of the region, the creation of non-competitive policies with respect to business recruitment and the use of financing tools such as TIF's, and the joint development of economic activities such as business parks.

D. Reuse/Redevelopment of ~~NASB~~BNAS

1. Description of the Issue

The pending closure of ~~NASB~~BNAS may significantly impact the regional economy. Planning for the reuse and redevelopment of the base will need to involve the larger region to be successful.

2. Current Regional Activities

The Governor, by executive order, has established an advisory council that includes both state and local representatives to focus on issues such as business retention and attraction and workforce retraining. The Memorandum of Understanding between the Governor and the Towns of Brunswick and Topsham that is part of this process requires agreement that the redevelopment effort will not "steal" businesses from other regional communities.

3. Proposed Actions

The local redevelopment authority (LRA) in Brunswick, that includes regional representatives, has just begun its work. The Town Council has charged the LRA with developing a master plan for the reuse and redevelopment of the site including a comprehensive rezoning plan. This plan should be developed with consideration of the principles articulated in this comprehensive plan as well as

the implications of reuse on the regional economy and other communities. The plan will then be submitted to the Town Council for its consideration. Following development and adoption of the reuse plan, an implementation agency will be charged with the responsibility of carrying out the plan.

E. Natural Resource Management

1. Description of the Issue

Natural resources do not recognize nor respect municipal boundary lines. A number of the Town's significant natural resources are shared with or extend into other jurisdictions. Unfragmented habitat blocks extend into Freeport and Durham. The watershed of the New Meadows River encompasses a number of communities. The Town's marine resources and clam-flats are part of a larger regional system and influence and are influenced by activities in adjacent municipalities. Management of these resources on a regional basis may be desirable.

2. Current Regional Activities

The Town currently participates in a regional study to look at the New Meadows watershed and issues related to New Meadows Lake. In addition, the Town is involved in the Sagadahoc Regional Rural Resources Initiative that is trying to address open space and wildlife habitat issues on a regional basis. The local land trust is discussing the possible creation of a farmland corridor and expanded trail network with the Freeport Land Trust. The Friends of Casco Bay operates a regional program to monitor and improve the water quality in the bay.

3. Proposed Actions

The Town should encourage regional approaches for resource management. This should include exploring compatible zoning along municipal boundaries including the coordination of shoreland zoning including enforcement, implementation and staffing. The Town should explore how the Town's staff expertise in these areas can be used to provide technical assistance to encourage landowner compliances with these regulations.

F. Transportation

1. Description of the Issue

The Town is crossed by I-295 and US Route 1 putting Brunswick in the middle of the region's highway network. In addition to local and regional traffic coming to and from Brunswick destinations, the community also experiences significant pass through traffic. Brunswick is the functional southern terminus of coastal Route One extending Downeast to the Canadian border. As such, the community

experiences a number of major traffic issues that relate to regional transportation. Unlike comparable communities, Brunswick lacks the facilities, such as a designated parking lot, to encourage carpooling.

2. Current Regional Activities

Brunswick participates in the Midcoast Collaborative for Access to Transportation (MCAT) that is exploring ways to provide a level of public transportation to the region. The Town is also a participant in the Maine Department of Transportation's Gateway 1 project looking at improvements in the Route One Corridor.

3. Proposed Actions

The Town should work with the Maine Department of Transportation, MCBDP, and the communities in the region to use the Gateway 1 project to develop a regional transportation plan. The Town should continue to support MCAT and the development of a program of regional mass transportation. The Town should also continue to support efforts to bring rail services to Brunswick and should actively seek an appropriate location to site a commuter parking facility.

G. Affordable Housing

1. Description of the Issue

Brunswick is the center of a regional housing market. Much of the region's affordable housing and most of the area's rental housing and subsidized housing are located in Brunswick. The Town has taken a leadership role in addressing the issue of affordable housing. The Town supported and played an active role in the Brunswick Community Housing Coalition and has endorsed the recommendations contained in the Coalition's 2003 Action Plan for Housing in Brunswick. This study took a regional perspective on housing issues but it is important that this issue continue to be addressed on a regional basis in which all communities equitably share the burden of providing affordable housing.

2. Current Regional Activities

MCBDP has organized a committee that has begun to look at affordable housing on a regional basis. The Town is represented on that committee.

3. Proposed Actions

The Town should continue to support efforts to address affordable housing on a regional basis. This should include encouraging other communities to supply affordable housing as well as looking at how Brunswick could be "compensated" by other communities in the region for being the supplier of more than our "fair

share" of the region's affordable housing stock. This "compensation" could include cost sharing for the additional costs incurred by the Town in servicing affordable housing.

Appendix A

POPULATION AND DEMOGRAPHIC ANALYSIS

Comprehensive Plan Update

Town of Brunswick, Maine

July 23, 2004

Note: This analysis of Brunswick's population and demographic characteristics was prepared before the closure of Naval Air Station Brunswick was announced. Therefore, projections about future population growth will need to be re-evaluated as part of the process of planning for the closure of the Base and the reuse/redevelopment of the site. – May, 2006

Executive Summary A2

Population Changes A4

Demographic Changes A17

Issues and Implications A21

Prepared by:
Planning Decisions & Town of Brunswick Staff

Note: This analysis of Brunswick's population and demographic characteristics was prepared before the closure of Naval Air Station Brunswick was announced. Therefore, projections about future population growth will need to be re-evaluated as part of the process of planning for the closure of the Base and the reuse/redevelopment of the site. – May, 2006

EXECUTIVE SUMMARY

Brunswick has grown and changed significantly. This summary presents the highlights of these changes and projects how the town will continue to change in the future.

1940 to 1990

- ***Brunswick's population grew by 140% between 1940 and 1990.*** In 1940, the town's population totaled 8,658 people. By 1990 it had reached 20,906. Much of this growth occurred between 1940 and 1960 when the population doubled to 16,000. A growth spurt in the 1980s added another 3,500 residents.

- ***The town's household population has been growing faster than the group quarters population.*** The household population accounts for 90% of the town's residents. Between 1970 and 1990, it grew by more than 30% while the group quarters population increased by less than 12%. The group quarters population includes those living in group situations such as dorms, assisted living facilities, and group navy housing.

1990 to 2000

- ***The composition of the group quarters population is changing.*** The number of military personnel living in barracks at the Naval Air Station Brunswick has decreased between 1990 and 2000, while the number of students living in dormitories and the number of seniors living in assisted living situations is increasing.

- ***Growth in the household population has slowed but housing unit growth remains strong.*** Between 1990 and 2000, the household population increased by fewer than 100 residents while more than 500 housing units were built in town. This discrepancy is explained by a decline in the average number of people living in each housing unit. While this trend is occurring nation-wide, Brunswick's increasing role as a retirement community is exerting additional downward influence on the average number of people in each housing unit. In addition, the increasing cost of housing is discouraging many younger families from moving into the community.

- ***The number of housing units built each year is increasing.*** Approximately 45 new housing units were built in Brunswick each year in the early 1990s. By the late 1990s, approximately 70 new housing units were being built each year.
- ***While Brunswick has a large percentage of rental units, most new housing units that are built are owner-occupied.***

- ***Populations in rural parts of Brunswick are increasing much faster than populations in more urban areas.*** While 145 new housing units were added in the more urban areas, more than 650 fewer residents lived in these areas between 1990 and 2000. Alternatively, rural areas added 381 new housing units and 711 additional residents. Two major trends explain these figures: (1) households with children are moving to the town's rural areas; and (2) seniors are settling in town for its convenience and proximity to services.

- ***Surrounding communities are growing faster than Brunswick.*** In 1970, Brunswick accounted for 31% of the region's population. By 2015, Brunswick is projected to have just 26% of the region's population.

2000 to 2003

- ***The average number of new housing units built each year in Brunswick continues to grow.*** In the early 1990s Brunswick averaged 46 new housing units each year. In the late 1990s it averaged 60 new units per year. In the early 2000s, it averaged more than 110 new units per year.

2000 to 2020

- ***Brunswick's household population is projected to increase between 2000 and 2020.*** The household population is projected to reach 20,800 in 2010 (9% increase from 2000) and 22,874 in 2020 (8% increase from 2010).

- ***The group quarters population is projected to increase by 15%.*** An increase in the number of Bowdoin students and seniors in assisted-living facilities are largely responsible for this growth. The status of BNAS is, as always, uncertain and scenarios could include both substantial decreases and increases in their group quarters' needs.

- ***Rapid housing unit growth is projected to continue through 2020.*** New housing unit construction, which has been at 110 new units per year, is projected to moderate to 100 new units per year. Most of these new units will be built in the rural areas of town, particularly West Brunswick, Pleasant Hill, and the New Meadows Shore where there are large undeveloped parcels as well as good soils and slopes for development. Likewise, household population growth is projected to concentrate in these three rural areas. The population in the urban area will continue to stagnate.

Demographic Changes, 2000

- ***Brunswick residents are getting older.*** Between 1970 and 2000, the median age of Brunswick residents increased from 24.3 years to 35.5 years. This follows national trends and the increasing median age trend is expected to continue. Since 1970, Brunswick has 437 fewer residents below the age of 18 and 1,900 more residents over the age of 64.

- ***Brunswick residents are better educated and more likely to work in managerial/professional positions.*** More than 40% of residents over 25 years old have attended some college and 15% have a graduate or professional degree. The percent of residents employed in managerial or professional occupations increased to 40% while the percentage of residents employed in natural resource based occupations, construction, maintenance, and transportation has decreased.

- ***Brunswick households earn on average more than the state as a whole.*** Between 1970 and 2000, the median income of households in Brunswick has consistently been 5% to 10% above the state median income. The number of lower income households has decreased in Brunswick and inflation-adjusted incomes have generally remained stable.

POPULATION CHANGES

A half-century of growth has transformed Brunswick from a town of 8,656 in 1940 to one of 21,172 in 2000.

1. Population Growth, 1940 - 1990

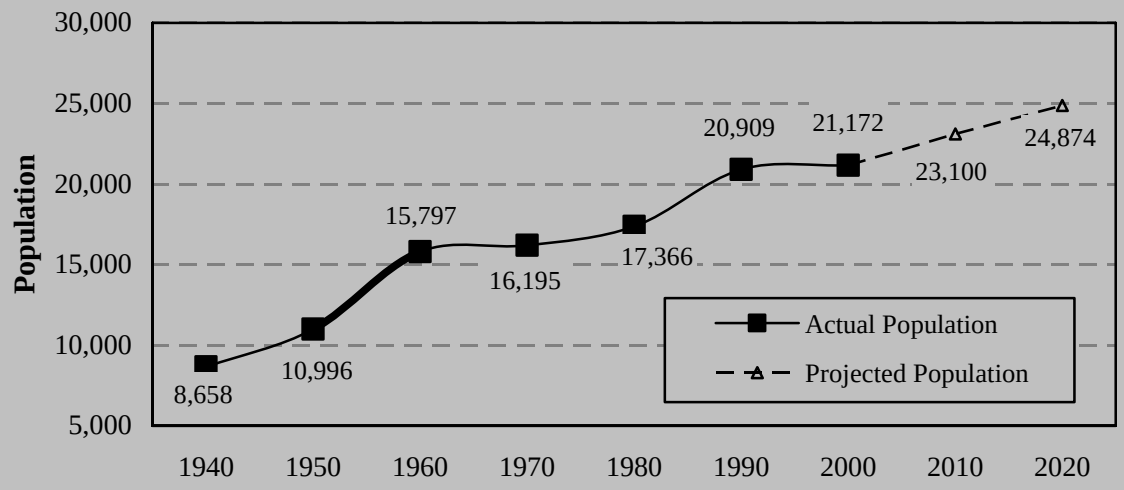
Two decades of rapid population growth in Brunswick was sparked by the creation of Naval Air Station Brunswick in 1943. While the base closed in 1948 after World War II ended, the onset of the Cold War prompted its reopening in 1951. By the end of the 1950s, Brunswick's population had nearly doubled from 8,656 in 1940 to 15,797 in 1960[1] (Figure A).

Growth moderated in the 1960s and 1970s, but rebounded in the 1980s as a real estate boom fueled an increase from 17,366 residents in 1980 to 20,909 in 1990 (a 20% increase in 10 years).

The United States Census divides population into two segments – household population and group quarters population.

- Brunswick's ***group quarters*** population is unusually large. It includes students living in dormitories at Bowdoin College and military personnel living in barracks at Naval Air Station Brunswick. Between 1970 and 1990, this group quarters population increased from 1,659 to 1,862 residents (Table A). Most of this growth occurred in the 1970s, and

Figure A. Brunswick Population Change 1940 – 2020



Source: US Census; Planning Decisions, Inc.

[1] The number of military personnel stationed at NASB has remained relatively consistent at around 4,500 to 5,000 personnel since the base reopened in 1951. Although a restructuring of the armed forces in the 1990s reduced the number of active squadrons from six to three, this reduction was offset by the relocation to NASB of three reserve squadrons from an anti-submarine warfare base in South Weymouth, Massachusetts.

nearly all of it was the result of growth in the number of students living in dormitories at Bowdoin College.[2]

- Brunswick's ***household population*** is more than 90% of the town's total population and accounted for the majority of the population change between 1970 and 1990 (Table A). Within this time frame, the household population increased from 14,536 to 19,044 (or 31%). Most of this growth occurred during the real estate boom of the 1980s, when the household population grew by more than 3,500 residents (23%).

Table A. Components of Population Growth, 1970 – 1990

		Change '70 – '80			Change '80 – '90		
	1970	#	%	1980	#	%	1990
Household pop.	14,536	976	6.7%	15,512	3,532	22.8%	19,044
Group quarters pop.	1,659	195	11.8%	1,854	8	0.4%	1,862
Total pop.	16,195	1,171	7.2%	17,366	3,540	20.4%	20,906

Source: US Census

2. Household Population, 1990 - 2000

According to the US Census, the household population reached 19,107 by 2000, an increase of less than one percent in ten years. New housing units, a stable occupancy rate, and a significant decrease in the household size combine to account for this negligible household population growth.

a. Housing Unit Change

Brunswick had a 523 unit net increase in housing units between 1990 and 2000 to total 8,720. Planning Decisions estimates that 528 new housing units were constructed in Brunswick and 5 housing units were removed and not reconstructed (demolition, fire, etc). According to the US Census, 220 of the 8,720 total housing units were used seasonally.[3]

Housing development grew steadily throughout the 1990s as regional economic conditions and the interest rate environment improved (Figure B). Single family houses accounted for an estimated net increase of 356 units and mobile homes/others accounted for 104 units (Table B). More than one-half of the 63 new duplexes or multi-family units were added at the Thornton Oaks retirement community on Baribeau Drive.

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[2] Through a reporting loophole, the US Census figures from 1990 undercounted the number of Bowdoin College students living on campus. The Census reported 933 residents living on campus in 1990 (including fraternities) while the College reports 1,147 students living on campus in 1990 (including fraternities). For the sake of consistency, this population analysis uses the number of students living in group quarters as reported by the US Census.

[3] The increase in seasonal housing units can be explained by the construction of new seasonal housing units as well as the conversion of year-round housing units into seasonal housing units as aging owners become "snow-birds and choose to spend the winter months (and the April Census count) in warmer climates.

Table B. Housing Unit Growth by Type, 1980 - 2000

	1980 Units	% change 1980 – 1990	1990 Units	% change 1990 – 2000	2000 Units (est.)
Single family	3,806	20.4%	4,585	7.8%	4,941
Two units or more	1,579	49.1%	2,355	2.7%	2,418
Mobile/other	698	80.1%	1,257	8.3%	1,361
Total	6,241	31.3%	8,197	6.4%	8,720

Source: US Census; Planning Decisions, Inc; Town Staff

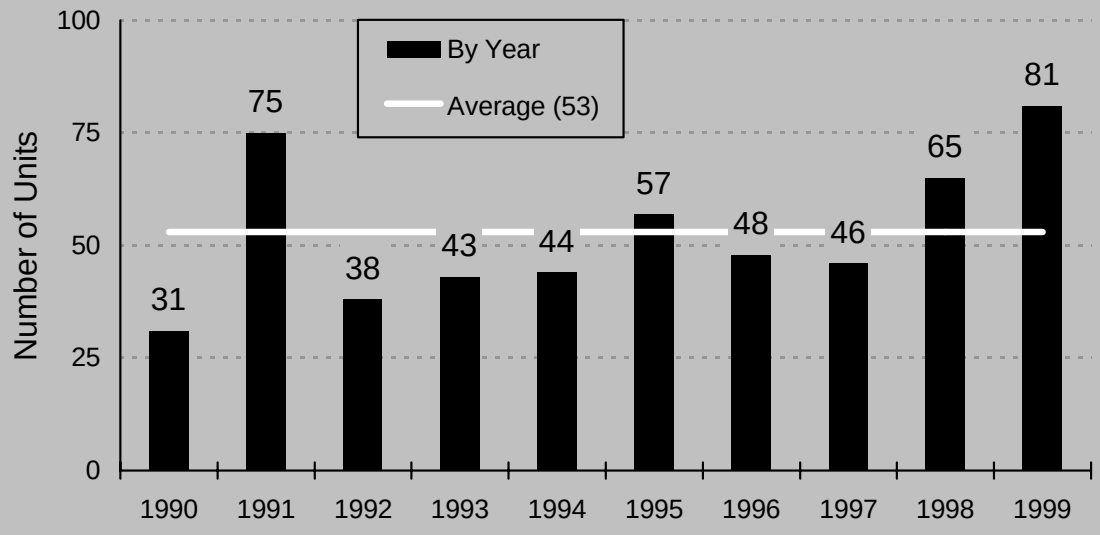
b. Occupancy Rate Change

The occupancy rate did not change between 1990 and 2000; it remained at 96%. The combination of the strong economy, tight housing market, and more new homeowner units than rental units (homeowner units have higher occupancy rates) have been upward influences on Brunswick's occupancy rate. Mitigating these upward influences are the timing of the Census count (April 1st excludes the growing "snowbird" population) and an aging housing stock (older units are more likely to be functionally obsolete, yet still counted by the Census).

c. Household Size Change

Tempering the upward influence of new housing units is the trend towards smaller household sizes. Nationwide, this trend is explained by a tendency towards smaller families in the baby boom generation, the increased longevity and independence of seniors living alone, and increased divorce rates.

Figure B. New Housing Units by Year, 1990 - 1999



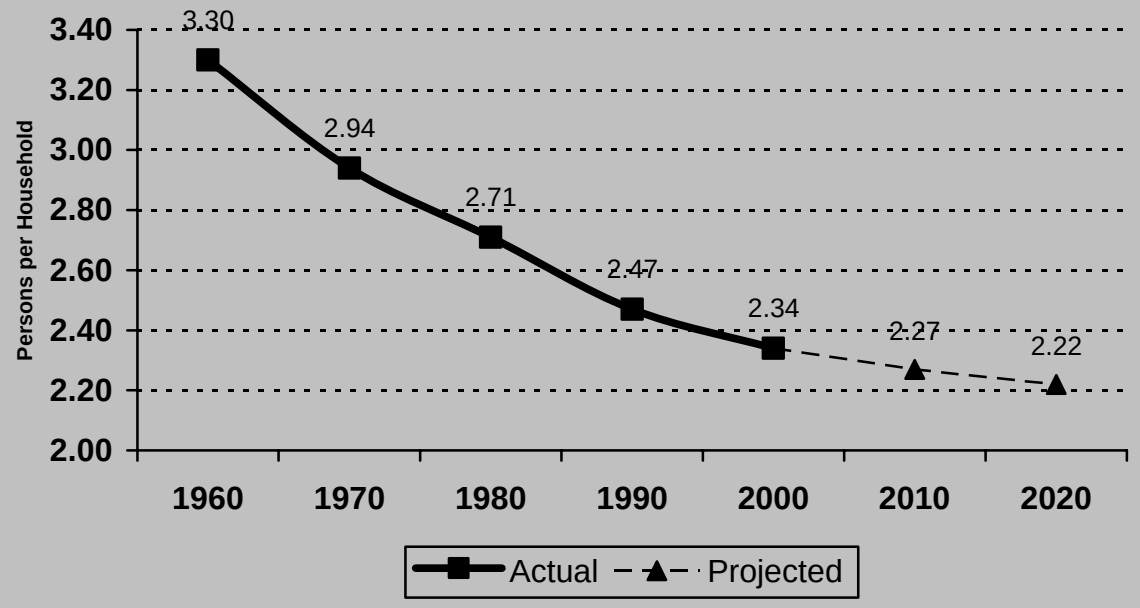
Source: Town Staff, Planning Decisions, Inc.
Note: the decennial Census records April 1990 to April 2000. Planning Decisions' estimates include January 1990 through December 1999.

These national trends are compounded by local trends. Brunswick's growing role as a senior-living center will continue to push down household sizes as more retirees and "empty-nesters" settle in town. High real estate values are a barrier for younger families looking to live in the region. In addition, the State's strong economy and low unemployment rate tends to reduce the number of extended families living together. All of these trends exert downward pressure on the town's average household size.

In 1960, Brunswick averaged 3.30 persons per housing unit (Figure C). By 2000, this number had fallen to 2.34, and by 2020 this number is projected to reach 2.22 persons per housing unit.

Table C illustrates the interrelationship of new housing units, occupancy rates, and a decreasing household size. The 486 net increase in year-round housing units increased the town's year-round housing stock to 8,500. With an occupancy rate of 96%, the number of households was 8,160. Household sizes have decreased to 2.34 persons per housing unit, which results in a household population of 19,107.

Figure C. Persons per Household, 1960 - 2020



Source: US Census; Planning Decisions, Inc

Table C. Household Population, 2000

1990 total housing units	8,197
(minus) 1990 seasonal units	183
(equals) 1990 year-round units	8,014
(plus) net new year-round units, 1990 – 2000	486
(equals) 2000 year round units	8,500
(multiplied by) estimated occupancy rate	0.96
(equals) 2000 estimated households	8,160
(multiplied by) 2000 estimated household size	2.34
(equals) 2000 household population	19,107

Source: US Census; Planning Decisions, Inc.

3. Group Quarters Population, 1990 – 2000

The group quarters population is estimated to have increased from 1,862 in 1990 to 2,065 in 2000. This represents an increase of 11%, or 203 residents. Underlying this number is a dramatic shift from military personnel living in barracks to retirees living in assisted living and college students living in dormitories. Military personnel living in group quarters has decreased from 724 in 1990 to 361[4] in 2000. Most of this occurred as the military downsized its personnel after the end of the Cold War. Offsetting this decrease is an increasing number of Bowdoin College students living on campus (from 933 in 1990 to 1,380 in 2000). Other group quarters populations are estimated to have increased dramatically from 196 residents in 1990 to 324 residents in 2000. Nearly all of this increase comes from the assisted living facility at Thornton Oaks.

4. Geographic Distribution of Growth 1990 - 2000

The geographic distribution of housing-unit growth varies across town. The town's rural areas (West Brunswick, Pleasant Hill, Pennellville/Mere Point, New Meadows Shore, and East Brunswick) (Figure D) grew by a total of 381 new housing units (78% of new housing unit growth). East Brunswick alone accounted for more than one-third of all housing unit growth in town (new mobile homes accounted for much of this growth). Meanwhile, the urban areas (Downtown, Downtown Fringe, and BNAS/Cook's Corner) grew by 105 units (22% of the total) (Table D).

[4] A transient population—including precommissioning crews for Bath Iron Works vessels, survival training candidates, reservists, and others—lives in group quarters but aren't counted in the US Census as residents and don't participate in the community as year-round residents would.

Table D. Year-Round Housing Unit Growth, 1990 - 2000

	1990 Housing Units	New Housing Units	% Total Growth	% Relative Growth	2000 Housing Units
West Brunswick	269	65	13.4%	24.2%	334
Pleasant Hill	291	46	9.5%	15.8%	337
Pennellville/Mere Point	743	39	8.0%	5.2%	782
New Meadows Shore	254	66	13.6%	26.0%	320
East Brunswick	797	165	34.0%	20.7%	962
BNAS/Cooks Corner	717	-40	-8.2%	-5.6%	677
Downtown	2,939	40	8.2%	1.4%	2,979
Downtown Fringe	2,004	105	21.6%	5.2%	2,109
Total	8,014	486	100.1%	6.1%	8,500

Source: US Census, Planning Decisions, Inc.

Comparing the relative growth between these areas reinforces the demands for new housing in the town's rural areas. In relative terms, the rural areas grew by 16% while the urban areas grew by 2%.

The geographic distribution of population growth during the 1990s was more dramatic than the trends in housing unit development. Brunswick's urban areas lost 5% of their household population (Table E) while rural household populations grew by nearly 13%. The Downtown, BNAS/Cook's Corner, the Downtown Fringe, and Pennellville/Mere Point neighborhoods lost population. The Downtown lost 298 residents. Meanwhile, East Brunswick added nearly 300 residents, and the New Meadows Shore added 214 residents.

The distribution of growth between 1990 and 2000 suggests two major trends are at work in Brunswick. First, the data suggests that households with children are moving into the town's rural areas. The average household size in the town's rural areas was 2.43 persons per household, which is significantly above the urban area's 2.30 persons per household. Further evidence of this trend is in the age distribution between the rural and urban areas of town. Between 1990 and 2000, the number of Brunswick residents under 18 years of age increased from 4,845 to 4,871 (Table F). The number of residents under 18 in urban areas decreased by 8% while those in rural areas grew by 22%.

Figure D. Brunswick Neighborhoods, Housing Unit Growth 1990 - 1999

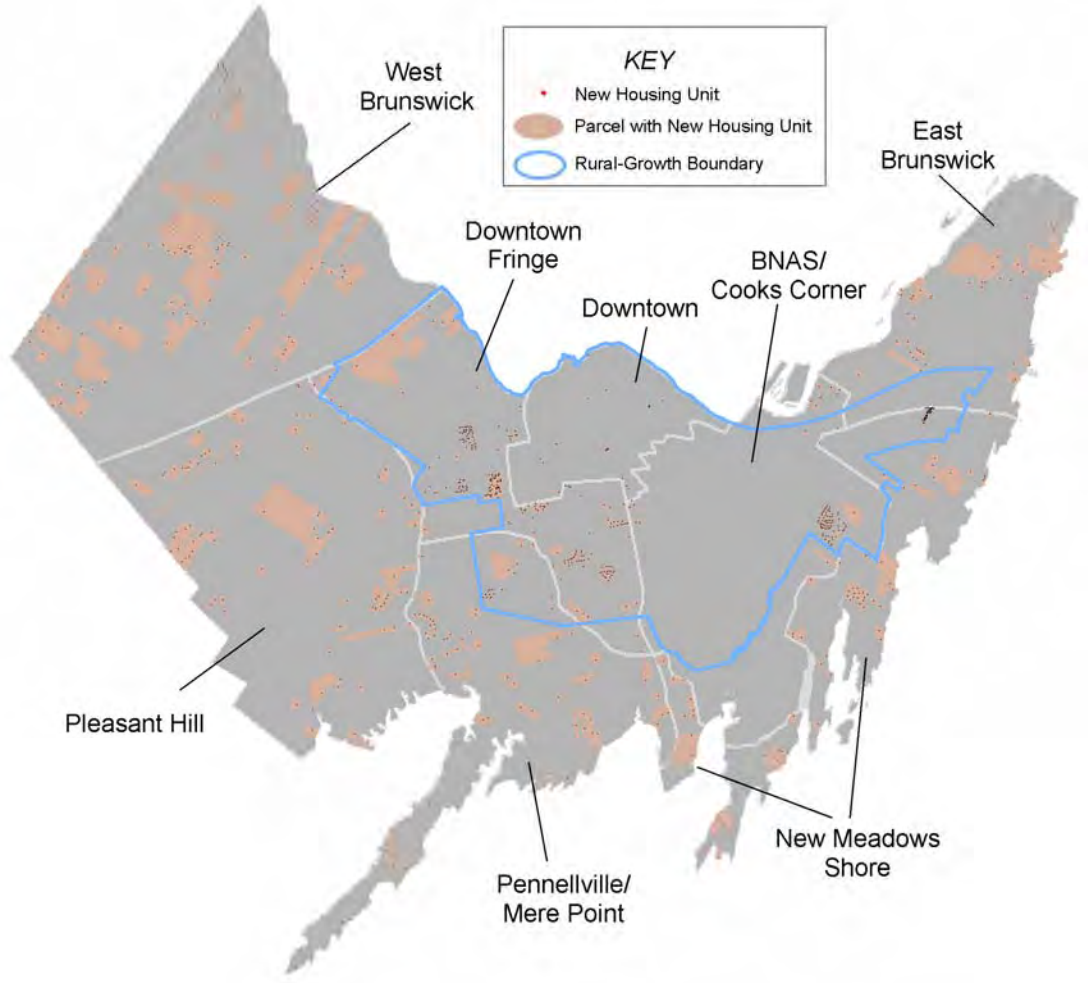


Table E. Household Population Growth by Geography, 1990 - 2000

	1990			2000			Change 90 – 00		
	Hshld	Hshld Size	Pop	Hshld	Hshld Size	Pop	Hshld	Hshld Pop Δ #	Hshld Pop Δ %
West Brunswick	257	2.95	759	330	2.71	893	73	134	18%
Pleasant Hill	282	2.87	808	333	2.85	949	51	141	18%
P.ville/Mere Point	729	2.25	1,642	723	2.20	1,592	-6	-50	-3%
New Meadows Sh.	229	2.53	580	302	2.63	794	73	214	37%
East Brunswick	771	2.45	1,892	897	2.41	2,164	126	272	14%
NASB/Cooks Crnr	689	3.01	2,077	651	2.90	1,891	-38	-186	-9%
Downtown	2,822	2.16	6,096	2850	2.03	5,798	28	-298	-5%
Downtown Fringe	1,932	2.69	5,193	2064	2.44	5,026	132	-167	-3%
Total	7,711	2.47	19,047	8150	2.34	19,107	439	60	0%

Source: US Census; Planning Decisions, Inc.

The second major trend is Brunswick's growing role as a senior-living center in Midcoast Maine. The inconsistency between 105 new year-round housing units in the urban areas and 657 fewer household residents is in part explained by a dramatic contraction in the average number of persons per housing unit (from 2.46 in 1990 to 2.30 in 2000). The primary variable driving down the household population is the urban area's aging population and its growing role as a senior-living center. These numbers do not include an additional 200 seniors living in the main building at the Thornton Oaks retirement community (these residents are considered part of the group quarter population). This role is projected to continue, as elder residents are attracted to the convenience, services, and community in Brunswick's urban areas.

Table F. Population Under 18 Years of Age, 1990 – 2000

	1990		2000		Change: 90 – 00	
	#	% of Hshld Pop	#	% of Hshld Pop	#	% of Hshld Pop
West Brunswick	222	29.2%	253	28.3%	31	14.0%
Pleasant Hill	218	27.0%	286	30.1%	68	31.2%
P.ville / Mere Point	307	18.7%	298	18.7%	-9	-2.9%
New Meadows Shore	126	21.7%	207	26.1%	81	64.3%
East Brunswick	443	23.4%	561	25.9%	118	26.6%
BNAS / Cooks Corner	759	36.5%	702	37.1%	-57	-7.5%
Downtown	1,295	21.2%	1,199	20.7%	-96	-7.4%
Downtown Fringe	1,475	28.4%	1,365	27.2%	-110	-7.5%
Total	4,845	25.4%	4,871	26.0%	26	0.5%

Source: US Census

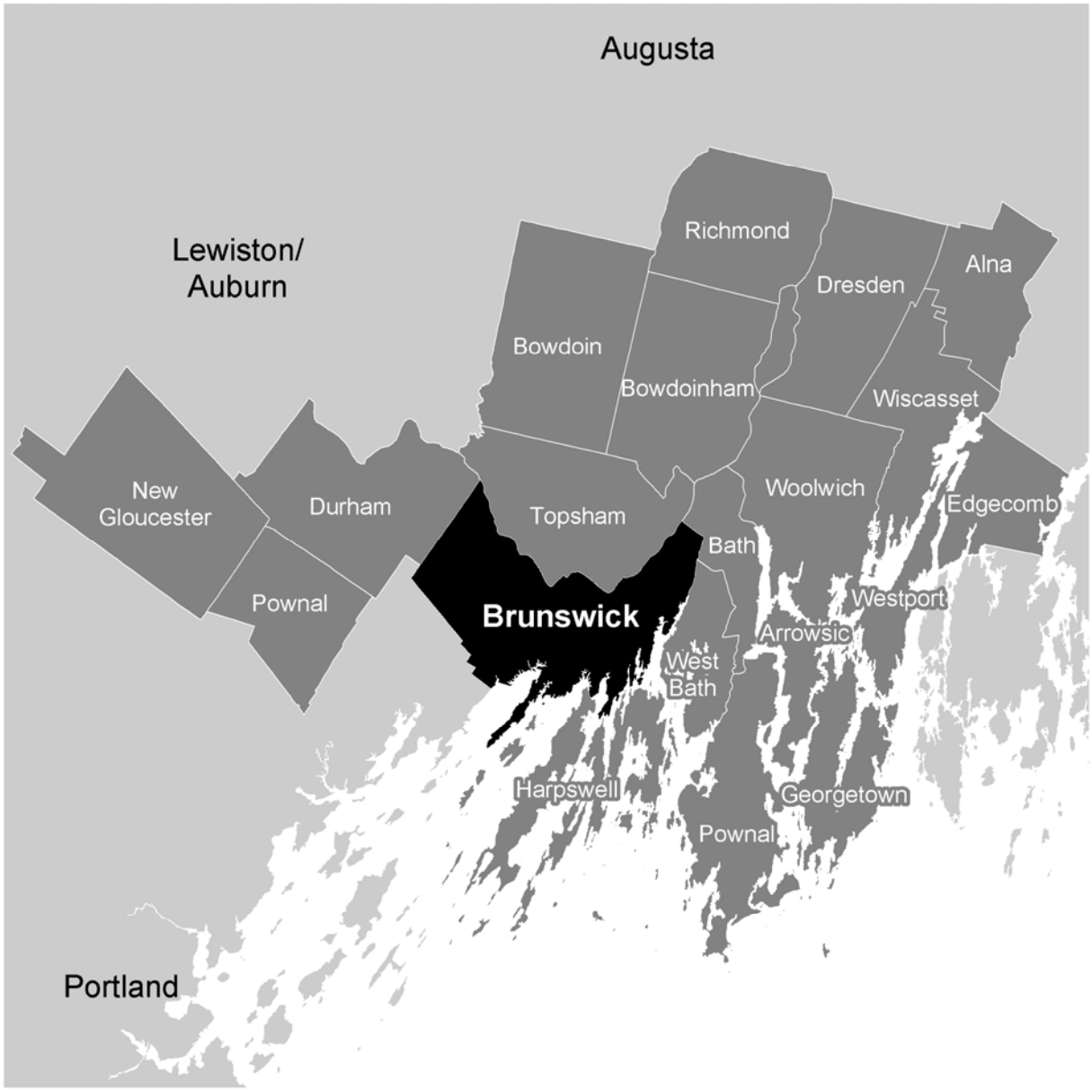
5. Regional Population Change, 1970 – 2000

The surrounding region is growing faster than Brunswick. In 1970, Brunswick accounted for more than 31% of the region's population[5] (Figure E). By 2000, Brunswick accounted for 27% of the region's population. In general, the larger and denser communities in the region (Brunswick, Bath, and Richmond) did not grow as quickly as the more rural and coastal communities.

This trend towards faster growth in surrounding communities is projected to continue into the future. According to projections made by the Maine State Planning Office, Brunswick's share of the regional population will be 26% in 2015.

[5] Brunswick's region includes all of the communities in the Bath-Brunswick Labor Market Area. A Labor Market Area is defined by the Maine Department of Labor as an economically integrated geographical unit within which workers may readily change jobs without changing their place of residence. The Bath-Brunswick Labor Market Area includes Alna, Arrowsic, Bath, Bowdoin, Bowdoinham, Brunswick, Dresden, Durham, Edgecomb, Georgetown, Harpswell, New Gloucester, Phippsburg, Pownal, Richmond, Topsham, West Bath, Westport, Wiscasset, and Woolwich.

Figure E. Brunswick Region and Labor Market Area

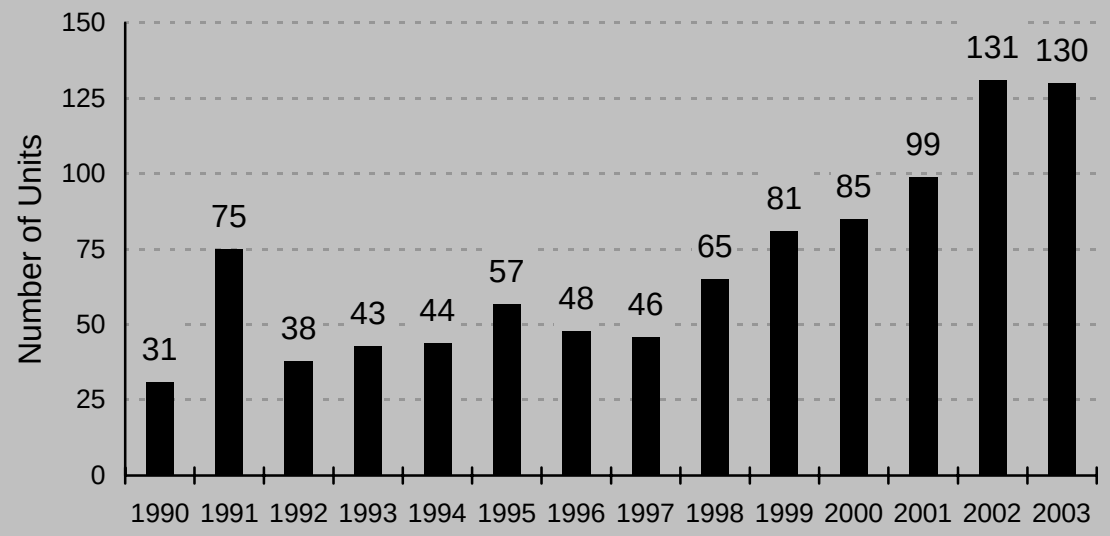


6. Residential Development, 2000 - 2003

Since the 2000 US Census, residential development has continued in Brunswick at an accelerated rate. Between 2000 and 2003, nearly 450 building permits for residential units have been approved (Figure F)[6]. Despite this increase, it remains unclear how much of this residential

[6] Note: housing unit data between 1990 and 1999 came from the codes enforcement department and was double-checked with data in the assessing department. This check uncovered an error rate in the building permit log of approximately 10%. Housing unit data between 2000 and 2003 is primarily from the codes enforcement office. While it is reasonable to expect some level of error in this more recent data set (due to unexecuted permits, operator

Figure F. New Housing Units by Year, 1990 - 2003



Source: Town Staff, Planning Decisions, Inc.
Note: Planning Decisions' estimates include January 1990 through December 2003.

development boom has been driven by favorable development conditions (low interest rates and changing lending practices, etc) and how much of it is being driven by larger shifts in the housing market (demographic pressures and community appeal).

7. Population Projections, 2000 - 2020

Planning Decisions projects that Brunswick's population will reach 23,100 by 2010 and 24,874 by 2020 (Figure A, Table G). Except for a projected moderate increase in the student population living in dormitories at Bowdoin College, the majority of this growth is projected to be in the household population in rural areas of town.

a. Household Population Change, 2000 - 2020

An upward influence on household population is the continued addition of new housing units to the town's housing stock. An average 110 new housing units per year has been added to the town's housing stock between 2000 and 2003. This rate is projected to moderate slightly through 2010. Between 2010 and 2020, the growth rate of new housing units is projected to continue at 100 new units per year. This decrease is the result of a projected stagnant population statewide and the increasing attractiveness of communities surrounding Brunswick. These rates of development are projected to net a total of 9,545 housing units in 2010 and 10,545 housing units in 2020 (Table G).

Occupancy rates and declining average household sizes will put downward pressure on population growth. The large number of rental units in Brunswick will hold occupancy rates

error, etc), a recent change to a more accurate building permit log book has minimized these occurrences. This margin of error alone is not enough to account for the elevated level of residential development recently observed.

around 96% through 2020. Average household sizes are projected to continue falling to 2.27 by 2010 and to 2.22 by 2020 (Table G), as Brunswick's growing role as a senior-living center and the aging of the baby boom generation continues to exert downward pressure on household sizes.

Combined, these variables result in household population projections of 20,800 in 2010 (9% increase from 2000) and 22,474 in 2020 (8% increase from 2010).

b. Group Quarters Population Change, 2000 - 2020

The large number of group quarters residents decreases the accuracy of projections because their numbers depend largely on policy decisions and are independent of established development patterns. National defense considerations or an expansion of the Bowdoin student population could significantly affect this component of Brunswick's population. This analysis projects that the group quarter population will increase to 2,300 residents by 2010 (11% increase) and will reach 2,400 residents by 2020 (4% increase) (Table G). These projected increases will be driven by an increasing student population at Bowdoin College (College projects 70 additional students by 2020) and more elder-care facilities in Brunswick.

Table G. Population Projections, 2000 - 2020

	2000	2010 (proj.)	2020 (proj.)
Year Round Housing Units	8,500	9,545	10,545
Occupancy Rate	0.96	0.96	0.96
Households	8,150	9,163	10,123
Persons per Household	2.34	2.27	2.22
Household Population	19,107	20,800	22,474
Group Quarter Population	2,065	2,300	2,400
Total Population	21,172	23,100	24,874

Source: Planning Decisions, Inc.

However, the Base Closure and Realignment Process beginning in 2005 could result in the closing of Naval Air Station Brunswick. Should this occur, the town's group quarters population would decrease by one-third. Another repercussion of this Department of Defense initiative could be an expansion of the mission of Naval Air Station Brunswick to include other branches of the armed forces. This scenario could increase the town's group quarters population.

8. Geographic Distribution of Housing and Population, 2000 - 2020

Rural areas of town are projected to drive Brunswick's growth through 2020. Housing unit growth is projected to remain robust – although slightly lower than current levels – and household growth is projected to grow by more than 10% in each of the next two decades (Table H). Areas that are projected to receive most of Brunswick's future household growth include West Brunswick, Pleasant Hill, and the New Meadows Shore.[7] These areas both contain large undeveloped parcels that have good environmental conditions for development (soils and

[7] Projections assume no significant changes in land use ordinances.

slopes). Growth in the New Meadows Shore and East Brunswick will be stronger if the Cooks Corner Master Plan is successful in its attempt to reorient development around pedestrians.

The Downtown Fringe has had a significant amount of new development in the early 2000s. This growth is projected to continue. These new units will be modestly offset by existing units becoming obsolete as housing units (do to the area's older housing stock). Many of these new units are smaller and are marketed towards empty-nesters and the elderly, which will hold down the average number of persons per housing unit.

Between 2000 and 2020, development trends are projected to continue to reallocate Brunswick's population from the urban areas of town to the rural areas (Table I). The most robust household population growth is projected to occur in West Brunswick, Pleasant Hill, and the New Meadows Shore. Household populations in Brunswick's urban areas are projected to increase modestly as the added population from new housing units is offset by continued declining average household sizes.

Table H. Projected Housing Unit Growth by Neighborhood, 2000 - 2020

		Change 2000 – 2010			Change 2010 – 2020		
	2000	#	%	2010	#	%	2020
West Brunswick	334	282	84%	616	271	44%	887
Pleasant Hill	337	94	28%	431	89	21%	520
P.ville/Mere Point	782	146	19%	928	142	15%	1,070
N Meadows Shore	320	115	36%	435	103	24%	538
East Brunswick	962	63	7%	1,025	61	6%	1,086
BNAS/Cooks Crnr8	677	63	9%	740	54	7%	794
Downtown	2,979	203	7%	3,182	206	6%	3,388
Downtown Fringe	2,109	79	4%	2,188	74	3%	2,262
Total	8,500	1,045	12%	9,545	1,000	10%	10,545

Source: Planning Decisions, Inc.

[8] BNAS is beginning a housing renovation project that will add an additional 16 housing units to its stock. This project will be complete by 2006. Due to jurisdiction, these additional 16 units do not show up in the town's records but have been accounted for in this analysis.

Table I. Projected Household Population Growth by Geographic Region, 2000 - 2020

	2000	Change 2000 – 2010		Proj. Pop. 2010	Change 2010 – 2020		Proj. Pop. 2020
		#	%		#	%	
West Brunswick	893	677	76%	1,570	790	50%	2,360
Pleasant Hill	949	290	31%	1,239	183	15%	1,422
P.ville/Mere Point	1,592	308	19%	1,900	296	16%	2,196
N Meadows Shore	794	273	34%	1,067	255	24%	1,322
East Brunswick	2,164	59	3%	2,223	67	3%	2,290
BNAS/Cooks Crnr	1,891	24	1%	1,915	19	1%	1,934
Downtown	5,798	-74	-1%	5,724	-59	-1%	5,665
Downtown Fringe	5,026	136	3%	5,162	123	2%	5,285
Total	19,107	1,693	9%	20,800	1,674	8%	22,474

Source: Planning Decisions, Inc.

DEMOGRAPHIC CHANGES

Beyond the simple population growth, the characteristics of Brunswick's residents continue to change. This section surveys the major changes in the town's demographic profile in recent decades.

1. Age

Brunswick's population is getting older. In 1970 the median age of Brunswick residents was 24.3 years (Table J). By 2000 the median age had reached 35.5 years. This is a national trend that has been driven by increasing life expectancies and decreasing family sizes. The older age profile of the town's residents is projected to continue as life expectancies increase, the baby boom generation ages, and Brunswick develops its role as a major senior-living center for Midcoast Maine.

Table J. Persons by Age, 1970 - 2000

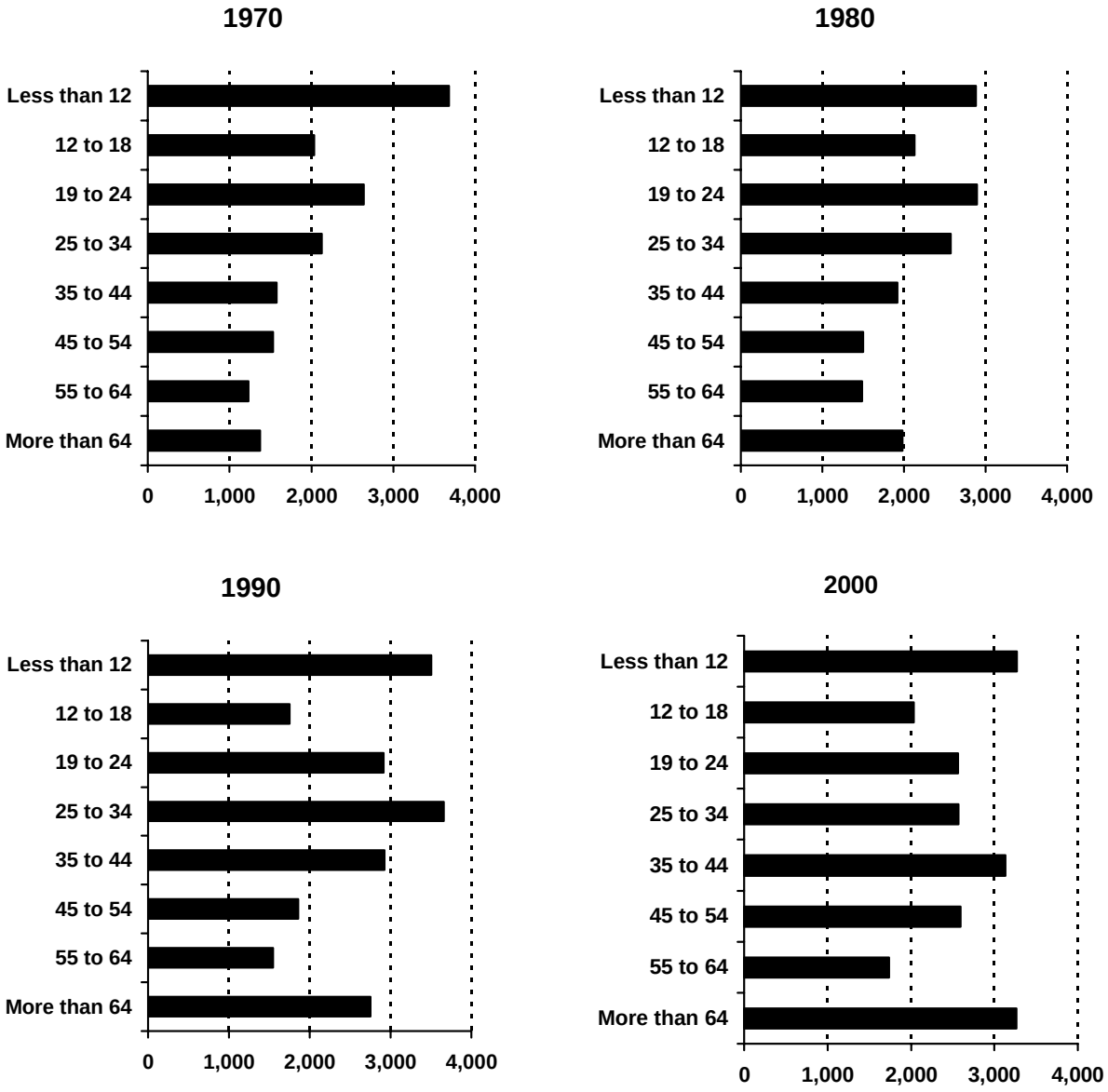
	1970		1980		1990		2000	
	#	%	#	%	#	%	#	%
Under 6	1,801	11.1%	1,347	7.8%	1,847	8.8%	1,586	7.5%
6 – 11	1,879	11.6%	1,537	8.9%	1,657	7.9%	1,682	7.9%
12 – 14	864	5.3%	794	4.6%	640	3.1%	839	4.0%
15 – 18	1,169	7.2%	1,333	7.7%	1,109	5.3%	1,192	5.6%
19 – 24	2,640	16.3%	2,892	16.7%	2,912	13.9%	2,565	12.1%
25 – 34	2,125	13.1%	2,571	14.8%	3,661	17.5%	2,571	12.1%
35 – 44	1,577	9.7%	1,921	11.1%	2,928	14.0%	3,131	14.8%
45 – 54	1,534	9.5%	1,499	8.6%	1,857	8.9%	2,597	12.3%
55 – 64	1,234	7.6%	1,489	8.6%	1,545	7.4%	1,737	8.2%
65 – 74	814	5.0%	1,132	6.5%	1,554	7.4%	1,493	7.1%
75 – 84	439	2.7%	639	3.7%	894	4.3%	1,307	6.2%
Over 84	119	0.7%	212	1.2%	302	1.4%	472	2.2%
Total	16,195	100.0%	17,366	100.0%	20,906	100.0%	21,172	100.0%
Median	24.3		27.5		31.0		35.5	

Source: US Census; Claritas

Between 1970 and 2000, the number of persons under 18 in Brunswick decreased by more than 450 residents (from 4,544 to 4,107). This decrease is due in part to the aging of the Baby Boom generation, which in 1970 was between the ages of 5 and 25. As this generation grew out of the under 18 age cohort, the number of residents in this cohort fell (Figure G). Also note that age cohorts in other decades peaked as the Baby Boom generation moved through – those 19 to 35 in 1980, those 25 to 44 in 1990, and those 35 to 54 in 2000.

Highlighting Brunswick's role as a retirement center has been the large increase in residents over 64 years of age. Between 1970 and 2000, those over 64 years increased from 1,372 to 3,272 residents (Figure G).

Figure G. Age Cohort as a % of the Total Population, 1970 – 2000



Source: US Census

2. Education

Brunswick's residents are becoming better educated. Between 1980 and 2000, the number of residents that received a high school degree (or its equivalent) increased to 88% from 70% (Table K). Similarly, the percent of residents with some college education doubled, from 21% in 1980 to 41% in 2000.

Table K. Educational Attainment, 1980 - 2000

	1980		1990		2000	
Persons 25 years and older	#	%	#	%	#	%
Less than 9th grade	1,493	15.8%	735	5.8%	608	4.6%
9th to 12th grade, no diploma	1,267	13.4%	1,364	10.7%	995	7.5%
High school graduate	3,262	34.5%	3,975	31.2%	3,602	27.1%
Some college, no degree	1,454	15.4%	2,497	19.6%	2,693	20.3%
Bachelor's/associate degree	1,987	21.0%	2,911	22.9%	3,402	25.6%
Graduate/profess. degree			1,256	9.9%	1,974	14.9%
Total	9,463	100%	12,738	100%	13,274	100%

Source: US Census

These trends towards a better-educated population match those for the region and the state as a whole.

3. Occupation

Brunswick residents are becoming more white collar. The percent of residents that are employed in managerial or professional occupations increased to 40% from 23% between 1980 and 2000 (Table L). Offsetting this increase were decreases in natural resource occupations and traditional blue collar occupations (construction, maintenance, production, and transportation). These blue collar jobs accounted for 28% of the occupations for Brunswick residents in 1980, but only 18% in 2000.

This trend from natural resource-based industries to information and service-based industries is projected to continue.

Table L. Occupation, 1980 – 2000

	1980		1990		2000	
Employed persons over 24	#	%	#	%	#	%
Management, Professional	1,540	23.4%	2,989	33.0%	3,723	40.0%
Sales, Office	1,992	30.3%	2,593	28.7%	2,380	25.6%
Service	1,118	17.0%	1,355	15.0%	1,517	16.3%
Farming, Fishing, Forestry	103	1.6%	124	1.4%	66	0.7%
Construction, Maintenance	745	11.3%	962	10.6%	781	8.4%
Production, Transportation	1,087	16.5%	1,026	11.3%	845	9.1%
Total	6,585	100.1%	9,049	100.0%	9,312	100.1%

Source: US Census
Note: The method used to classify occupations was altered in the 2000 Census. The names of each classification were altered, for example "technical, sales, and administrative support" became "sales and office occupations."

4. Income

Median incomes for Brunswick residents have increased (Table M). In 1969, median household incomes were $8,584. By 1999, median Incomes had risen to $40,402. After adjusting for inflation, median incomes have fluctuated between $36,000 and $43,000 per year.

Table M. Median Household Income, 1969 - 1999

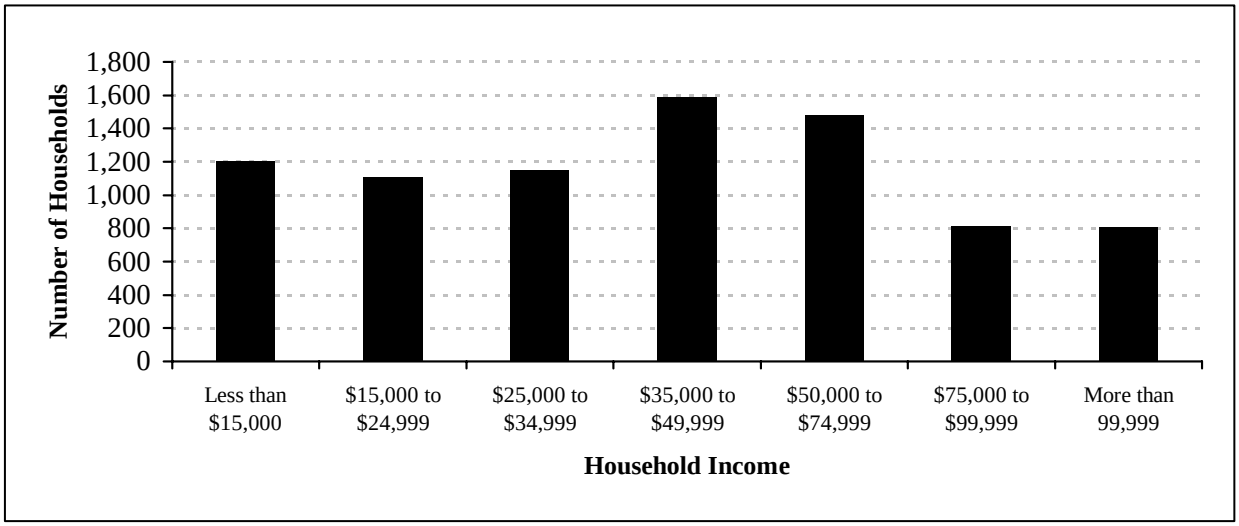
Year	Median Household Income	Adjusted for Inflation[1]	as % of Maine Median Income
1969	$8,584	$41,066	105%
1979	$14,697	$36,218	106%
1989	$30,896	$43,101	111%
1999	$40,402	$40,402	108%

Source: US Census
[1] Adjusted to CPI-Urban for All Items in New England, 1982–1984 =100

Brunswick's median household income has consistently been higher than the state as a whole. Brunswick median incomes as a percent of the state peaked in 1989, but remain 8% higher than the state.

Between 1989 and 1999, the range of incomes in Brunswick has become more homogenous. What were roughly equal numbers of residents in lower income brackets have become more concentrated in the $50,000 to $74,999 income bracket (Figure H). The number of upper income households has increased, and the number of lower income households has decreased.

Figure H. Distribution of Estimated Household Income, 1999



Source: Planning Decisions, Inc, Claritas, Inc.

ISSUES AND IMPLICATIONS

1. Populations in outlying areas have been growing much more rapidly than populations in more urban areas. This pattern of residential development and population migration could affect where the demand for facilities is located and what types of services are provided by the Town.

2. Projections suggest that Brunswick's household population will continue to grow modestly. Much of this growth will likely be located in more rural areas of the community.

3. Household sizes are projected to continue declining. If this occurs, residential development will have to increase at a faster rate than the town's population growth just to maintain the same household population. Where and how should this residential development be accommodated?

4. People living in group quarters are a significant part of the Town's population. Different types of group quarters' populations place different demands on the Town. How should the Town plan for the changes in the group quarters population and what types of services and/or facilities should it provide?

5. The percent of the town's population that is older than 62 years is projected to continue growing. How will this impact the Town and the need for services? How should additional growth in senior housing and/or facilities be addressed? Should growth in this population be encouraged?

6. As surrounding communities continue to grow rapidly, Brunswick's role as the region's service center will likely expand. This could bring with it added benefits (business, recreation, etc) as well as costs (traffic congestion and safety).

7. The potential change of mission for Naval Air Station Brunswick could have a large impact on the character and health of the community. Its mission could be expanded, or the base could close altogether. Closing Naval Air Station Brunswick would have a significant impact on the community as well as the entire region. How should the Town plan for this potential change?

8. The community's median household income is consistently above the state's median household income. While the 1990s experienced a modest decline relative the to state, Brunswick's incomes remain strong. What does this mean in terms of being able to provide the services desired by the community?

9. The number of children has remained relatively stable but has been spreading out across the landscape. What are the implications of this for schools, recreation, etc.?

10. Given the trend toward an older population with more seniors and fewer children, how will the town have to adjust to ensure that adequate services are provided to all of its residents? In addition, what will be the housing needs of this older population?

Appendix B

BRUNSWICK DEVELOPMENT PROFILE

Comprehensive Plan Update

Town of Brunswick, Maine

July 23, 2004

Residential Development B2

Nonresidential Development..... B10

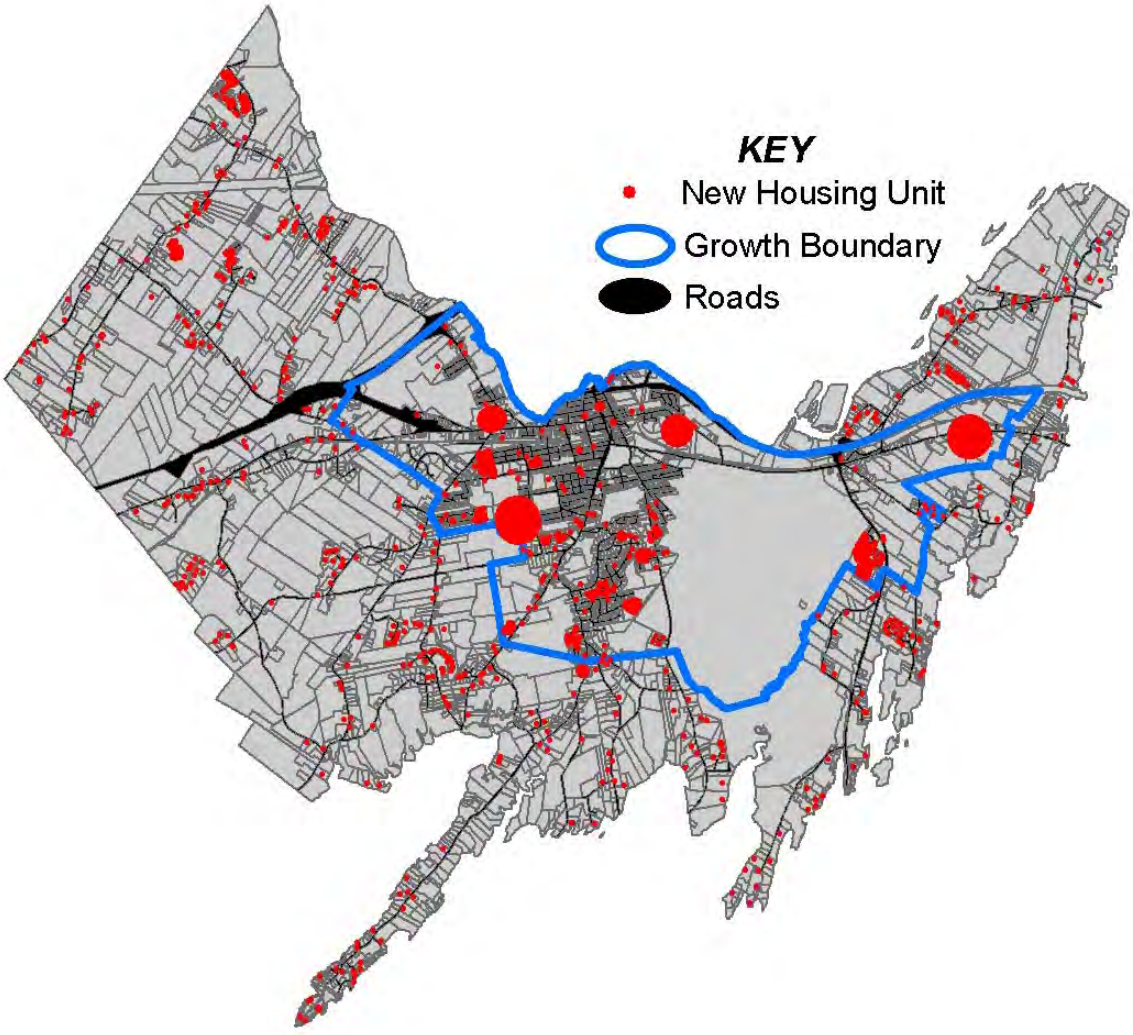
Prepared by:
Planning Decisions & Town of Brunswick Staff

RESIDENTIAL DEVELOPMENT

New Housing Units

- An estimated 1,154 new housing units were built between 1990 and April of 2004.[1]

Figure 1. New Housing Units, 1990 – 2003 (Feb)



[1] This analysis relies on data from two sources. Housing unit data between 1990 and 1999 came from the codes enforcement department and was cross-checked with data in the assessing department. This check uncovered an error rate in the building permit log of approximately 10%. Housing unit data between 2000 and 2003 is primarily from the codes enforcement office. While it is reasonable to expect some level of error in this more recent data set (due to unexecuted permits, operator error, etc), a recent change to a more accurate building permit log book has minimized these occurrences. This margin of error alone is not enough to account for the elevated level of residential development recently observed.

Table 1. New Housing Units, 1990 – 2004 (April)

	Growth Area	Rural Area	Total
New Units 1990 – 1996	268	175	443
New Units 1997 – 2004 (April)	355	356	711
Total New Units	623	531	1,154

Note: this table includes the 106 assisted living units in the main building at Thorton Oaks and the 51 assisted living units at Sunnybrook Village. These 107 units were not included in the population and demographic analysis.

- Development activity increased later in the study period. More than 60% of the new housing units were built between 1997 and 2004 (April).

- Of the 711 housing units built since the growth/rural area boundary was adopted, approximately one-half were built in the growth area. Before the growth/rural boundary was adopted, more development occurred in the growth area, mostly due to the 106 units of retirement living at Thornton Oaks.

- Development in the growth area was more likely to be concentrated in larger projects (e.g. Thornton Oaks and Sunnybrook, two retirement complexes with a total of 204 units) and subdivisions (Wildwoods, Baxter Lane, and Westwood), while rural area development was less organized.

Subdivision Activity

- A total of 39 subdivisions were approved between 1990 and 2004 (July). In addition, three projects (Otter Trace II, Edgefield Apartments, and Heritage Apartments) were pending as of July 2004 and have been included in this analysis.[2] In total, the 42 projects encompassed 1,243 acres.

- 543 new residential lots (and 25 apartments) were created in these projects. The lots averaged 1.4 acres in size, while the average gross density of all projects was 2.6 acres (see note attached to Table 2).

- More than 37% of the total acreage in these projects was dedicated as open space (462 acres).

[2] An additional three projects were pending as of July 2004 but were not included in this analysis. The 63 unit Midway Terrace is located at Naval Air Station Brunswick and is replacing a 62 unit subdivision that is being demolished. Because the net addition totaled 1 unit, it is excluded from this analysis. The Sandelin (Moody) Subdivision (15 lots) and the Labbe Pit (80 lots) projects are under review as of July 2004, but there is not enough data on these projects yet to include in this analysis.

Table 2. Subdivision Activity, 1990 – 2004 (July)

	# of Projects*	Total Acres	# of Lots	Average Lot Size (acres)†	Gross Density (acres/unit) †	Dedicated Open Space
Growth Area	15	226	338	0.6	0.7	15%
Rural Area	27	1,017	230	2.6	4.4	42%
(Open Space)	*14*	*721*	*153*	*1.4*	*4.7*	*54%*
(Conventional)	*13*	*296*	*77*	*3.4*	*3.8*	*11%*
Total	42	1,243	568+	1.4	1.8	37%

Includes all approved projects, as well as one pending subdivision and two pending apartment projects

† Average Lot Size calculates the average size of each residential lot. Gross Density calculates the average number of acres each housing unit uses per development (includes land dedicated to roads, utilities, natural resource constraints, common land, and open space)

+ Includes 25 pending apartments

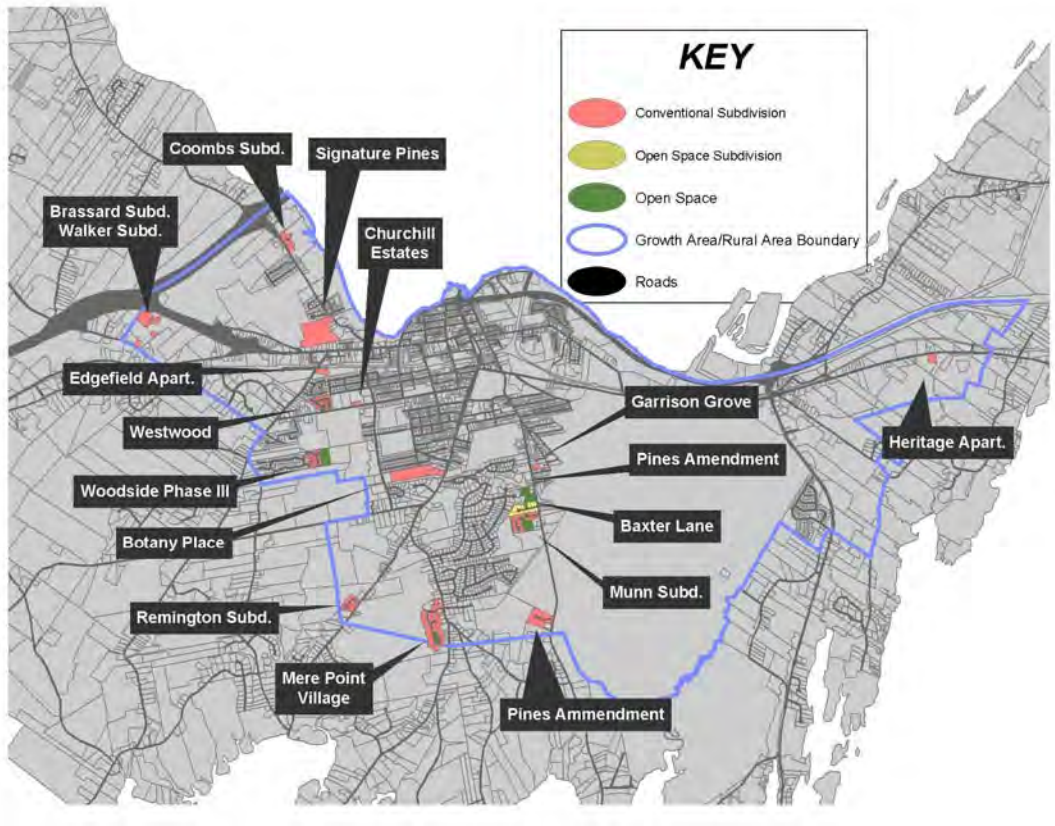
Growth Area Subdivision Activity

- There were 15 approved subdivisions and one pending subdivision between 1990 and 2004 (July)

- These subdivisions dedicated little open space. Of the 226 total acres subdivided, 15% (36 acres) were dedicated to open space. This represents less than 10% of the 461 total acres dedicated to open space.

- These subdivisions are dense. The average residential lot size was 0.6 acres. The smallest lot size was 0.1 acres (Garrison Grove). Gross Densities averaged 0.7 acres per unit.

Figure 2. Growth Area Subdivision Activity, 1990 – 2004 (July)



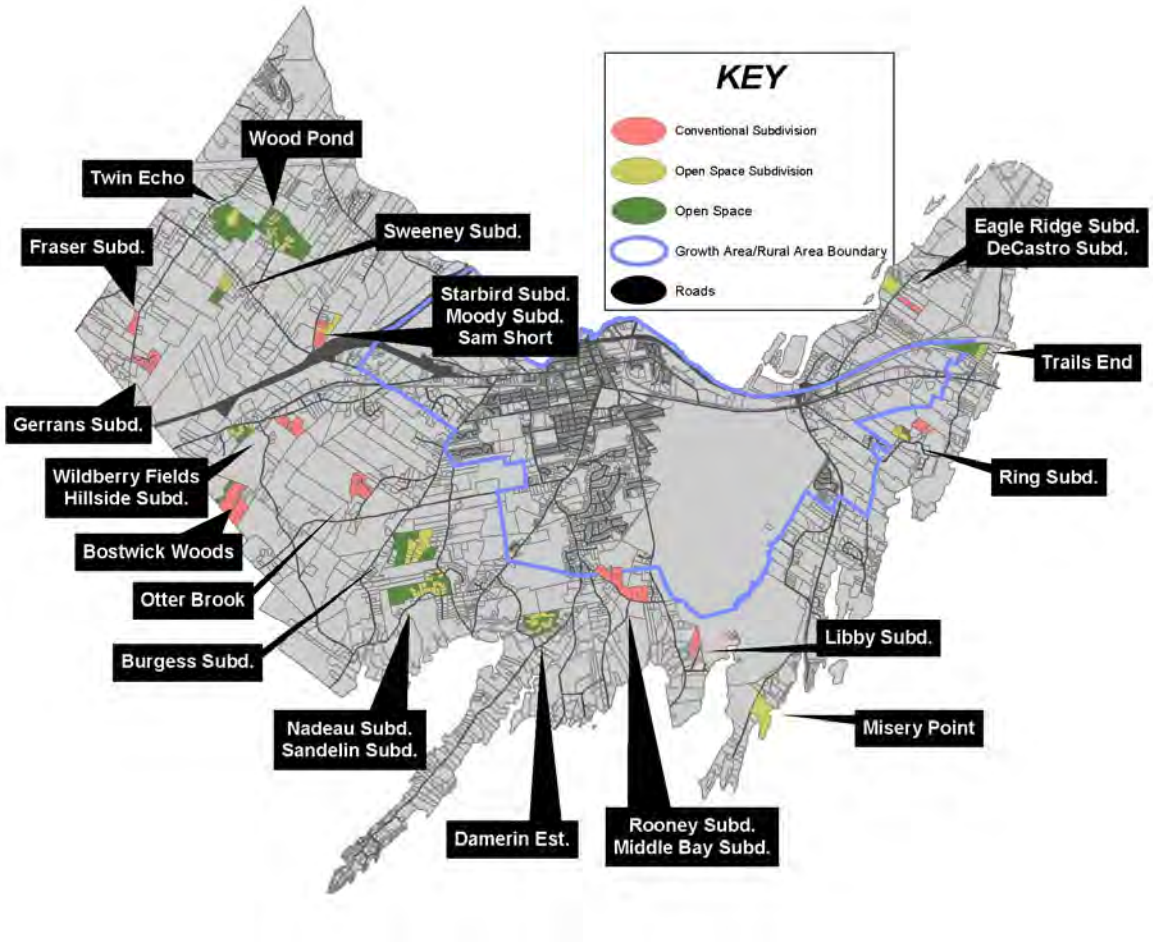
Rural Area Subdivision Activity

- There were 26 approved subdivisions and one pending subdivision between 1990 and 2004 (July).

- These subdivisions dedicated much open space. Of the 1,017 acres subdivided, 426 acres (42%) were dedicated to open space. This represents more than 90% of all dedicated open space during the study period.

- These subdivision developments were less dense than those in the growth areas. The 230 new lots averaged 2.6 acres each, although sizes ranged from less than ¼ acre to more than 10 acres. Gross densities averaged 4.4 acres per unit.

Figure 3. Rural Area Subdivision Activity, 1990 – 2004 (April)



Recent Demand for New Building Permits

- Between 2003 and March of 2004, a total of 169 building permits were taken out for housing units in Brunswick (Table 1). This analysis relies on building permit data for recent development activity, and not all of the building permits will yield new housing units.

- More than 40% of these new units are located in the growth area (approximated by the Downtown, Downtown Fringe, and Cooks Corner/BNAS).

- The Downtown Fringe was the most active of Brunswick's 8 neighborhoods, with more than 50 building permits. This neighborhood includes the Signature Pines, Chuchill Estates, Westwood, and Munn developments, which together combined for 43 of these permits.

- West Brunswick was the second most active neighborhood with 43 new permits. Building activity in West Brunswick was more spread out than in the Downtown Fringe –

nearly one-half the new building permits were for parcels not associated with subdivisions.

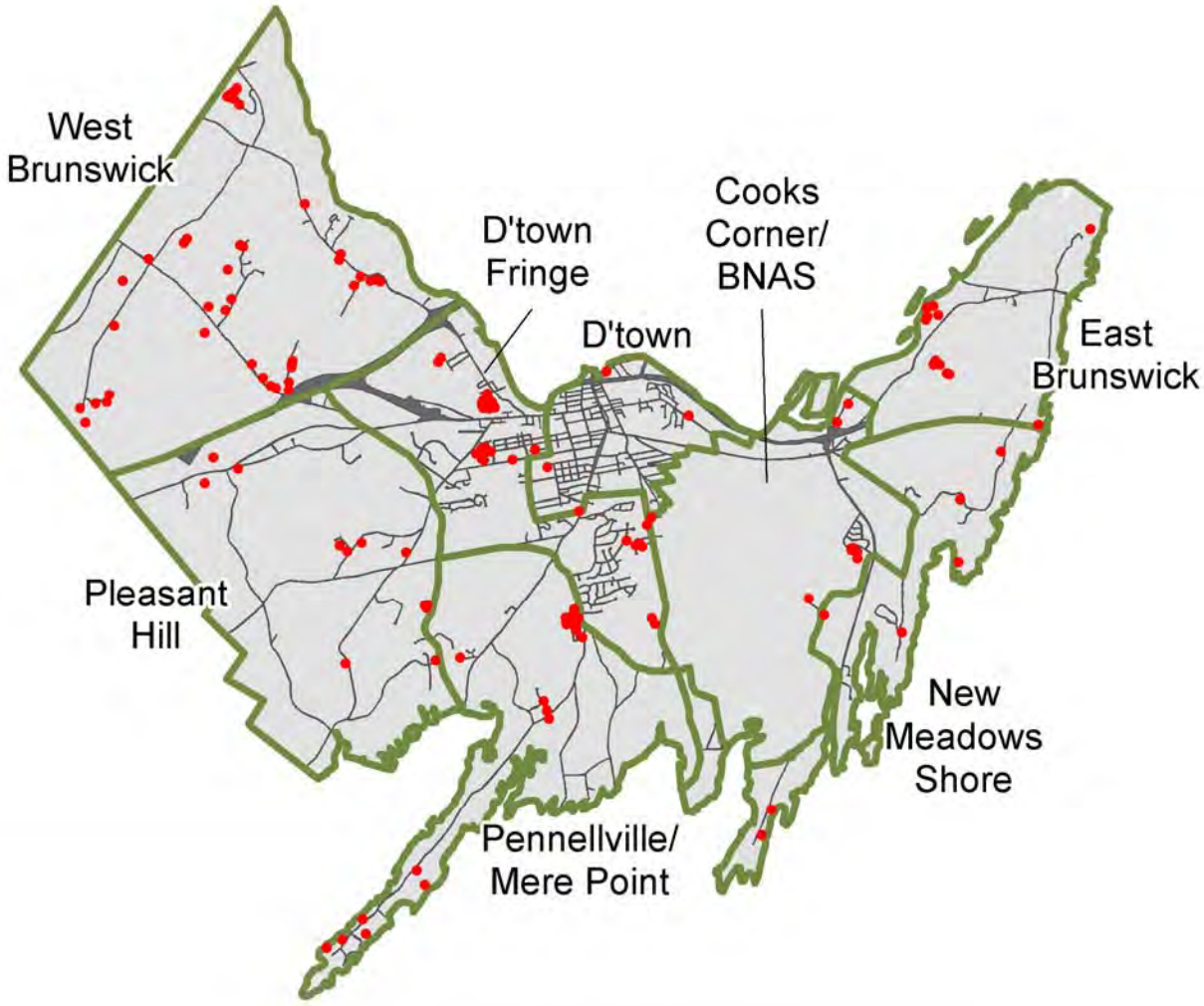
- Pennellville/Mere Point accounted for 16% of the new permits. Most of this activity was concentrated in the Mere Point Village subdivision.

Table 3. Building Permit Activity, January 2003 to March 2004

	Building Permits for New Units*	
	#	%
West Brunswick	43	25%
Downtown Fringe	51	30%
Downtown	10	6%
Cooks Corner/BNAS	9	5%
East Brunswick	12	7%
New Meadows Shore	5	3%
Pennellville/Mere Point	27	16%
Pleasant Hill	12	7%
Total	169	100%

* in subdivions and not in subdivisions, also includes ground truthing in select subdivisions
Source: Town of Brunswick

Figure 4. Building Permits for New Units, January 2003 to March 2004



Vacant Lots/Potential Units Available in Subdivisions

- As of July 2004, there are potential 414 lots in projects started between 1990 and 2004 (July). This includes subdivisions that are under review, including 95 potential lots in West Brunswick that were submitted to the planning department in July of 2004 (Sandelin and Labbe Pit). This also includes condominium units and apartments that have not been built in developments that have been approved (Signature Pines, Botany Place, Edgefield Apartments, and Heritage Apartments).

    - Note that this figure includes Botany Place (89 approved but unbuilt condominium units), Signature Pines (55 approved but unbuilt units), Edgefield Apartments (9 apartments currently under review), Heritage Properties (16 apartments currently under review), the J Sears Subdivision (3 lot subdivision currently under review), the Labbe Pit (80 lot subdivision that is under review), and the Sandelin subdivision (15 lot subdivision htat is under review).

- West Brunswick has the most vacant lots. Of the 119 lots, 95 have yet to be approved. The remaining 24 lots are spread among several subdivisions.

- The Downtown has 25% of the vacant lots. However, most of these are located in Botany Place development on Maine Street. The remaining 14 lots in the Downtown are located in the Garrison Grove subdivision that is being developed by the Brunswick Housing Authority.

Table 4. Vacant Lots in Subdivisions, July 2004

	Vacant Lots-Unbuilt Units in Subdivisions*	
	#	%
West Brunswick	119	29%
Downtown Fringe	101	24%
Downtown	103	25%
Cooks Corner/BNAS	0	0%
East Brunswick	13	3%
New Meadows Shore	40	10%
Pennellville/Mere Point	28	7%
Pleasant Hill	20	5%
Total	414	100%

* includes subdivisions approved between 1990 and 2004, as well as three pending proposed subdivisions/apartment developments as of July 2004
Source: Town of Brunswick

- The Downtown Fringe has 24% of the vacant lots. The Signature Pines development on the River Road has 55 of the vacant lots (of the 88 unit project, only 33 have been started). The Munn subdivisions accounts for 20 of the remaining 46 lots. The remaining lots are spread out across a handful of subdivisions including Bressard (5), Walker (2), Coombs (1), Westwood (6), Churchill Estates (1), and Baxter Lane (1). A 9-unit apartment development has been proposed along Church Road (Edgefield Apartments) and has not yet been approved but is included in this analysis.

- The New Meadows Shore has 10% of the vacant subdivision lots-unbuilt units. This includes the recently approved 13 lots at Misery Point, as well as a 14 unit apartment development that is currently in the review provess. The Ring (6) and Libby (1) subdivisions have the remaining vacant lots in the New Meadows Shore neighborhood.

- Pennellville/Mere Point has 16 vacant lots remaining in Mere Point Village, and the remaining lots are spread among several developments.

- Pleasant Hill has 13 lots remaining in the Sandelin development, and the remaining lots are spread among several developments.

- East Brunswick has 7 lots in Eagle Ridge, and 6 in Trails End.

NONRESIDENTIAL DEVELOPMENT

- Nearly 1,800,000 square feet of new nonresidential space was created in Brunswick between 1992 and April of 2004. More than 1,100,000 SF of this space (62%) was built for commercial purposes. The remaining 689,000 SF of space was created at Bowdoin College (16% of total) and for public/nonprofit purposes (22% of total).

- More than 87% of the new nonresidential space was created the town's growth area. Of the 239,103 SF created in the rural area, 172,000 SF was in the new Brunswick High School.

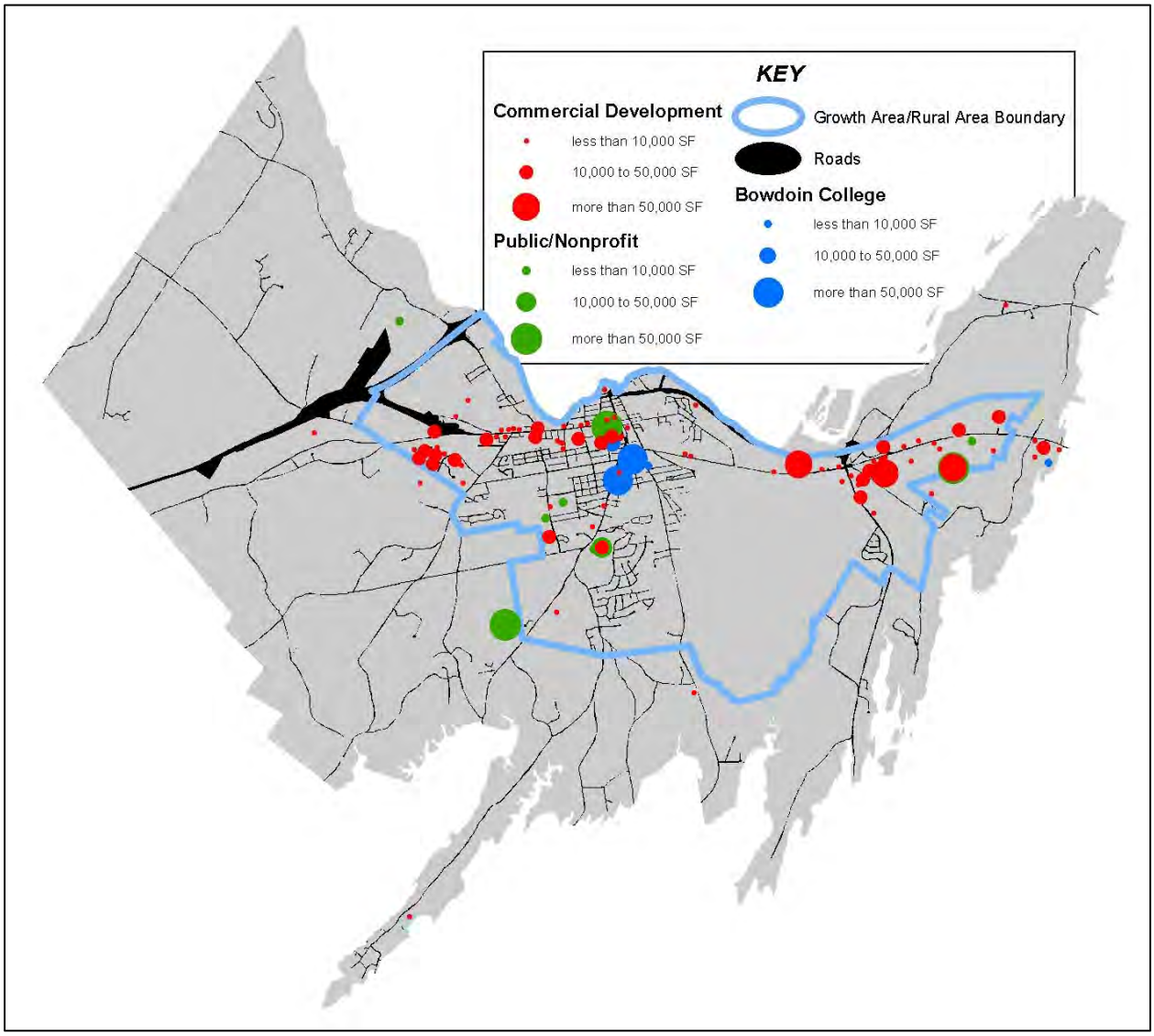
- The new Midcoast Hospital (and related medical office complex) was the single largest new nonresidential building. It accounted for 210,000 SF of space. Other large developments include the Brunswick High School (172,000 SF), Merrymeeting Plaza (146,000 SF), and Walmart (116,000 SF).

Table 5. Nonresidential Development (square feet), 1992 – 2004 (April)

	Rural Area	Growth Area	Total
Commercial Development	63,914 SF	1,037,570 SF	1,101,484 SF
Bowdoin College Development	3,000 SF	288,865 SF	291,865 SF
Public/Nonprofit Development	172,189 SF	225,179 SF	397,368 SF
Total Nonresidential Development	239,103 SF	1,551,614 SF	1,790,717 SF

- Commercial development was concentrated in two corridors. The Pleasant Street/Industrial Park corridor accounted for 408,590 SF of new space. This new space tended to be spread out in many smaller expansions to existing businesses. The Cooks Corner/Bath Road corridor accounted for approximately 593,178 SF of new space in fewer but larger buildings (Merrymeeting Plaza, medical offices at the new Midcoast Hospital, and Walmart).

Figure 5. Nonresidential Development, 1992 – 2004 (April)



- Bowdoin College added nearly 300,000 SF of new space. All of this new space was built on its central campus, with the exception of the boat house along the New Meadows River.

- Public/Nonprofit development accounted for 397,368 SF of new space. This new space was concentrated at the Brunswick High School (172,000 SF), the new Midcoast Hospital (136,000 SF), and the addition to the Curtis Memorial Library (51,000 SF)

Appendix C

INVENTORY AND ANALYSIS

Comprehensive Plan Update

Town of Brunswick, Maine

Introduction C2
Population and Demographics C4
Local Economy..... C9
Housing C15
Transportation C19
Public Utilities..... C25
Public Facilities and Services..... C29
Recreation..... C34
Agriculture, Forest, and Open Space C39
Natural Resources..... C42
Marine Resources..... C55
Historic and Archaeological Resources C61
Fiscal Capacity C65

Prepared by:
Planning Decisions & Town of Brunswick Staff

Introduction

The Town of Brunswick's ***1993 Comprehensive Plan*** includes detailed inventories of the Town's natural resources and built-environment. This appendix updates those inventories and serves as the foundation for this Comprehensive Plan Update.

These inventories were completed in December 2004. Since they were completed, the Department of Defense announced the closing of the Naval Air Station, Brunswick. Most of the information remains relevant to Brunswick's future. As the planning for the reuse of the Naval Air Station Brunswick continues, the population and housing projections in this inventory should be updated.

The following eleven sections summarize the relevant inventory and background information from the 1993 Comprehensive Plan, the other studies that have been conducted since the Plan was adopted, and the demographic and development studies. In addition, the summaries fill in the gaps where necessary data was out-of-date or not covered in the other work. The summaries are intended to provide an overview of the key aspects of the topic that relate to the future of the community.

The Town of Brunswick conducted two mini-studies as part of the update process to provide information on recent demographic and development trends in Brunswick.

- Appendix A is a detailed analysis of the population and demographic trends of the community and the region.

- Appendix B is a detailed analysis of development trends and patterns between 1990 and 2004.

In addition, the Town of Brunswick has completed a large number of major planning studies that provide extensive information about the town, its natural and scenic resources, and its built-environment and community facilities. These studies include:

- ***1997 Downtown Master Development Plan*** – This project inventoried existing infrastructure and recommended infrastructure improvements to Intown Brunswick.

- ***1998 Cook's Corner Master Plan*** – This study included a detailed analysis of the community's vision for Cooks Corner, and recommended steps to create a more pedestrian-oriented village using the existing infrastructure of the area.

- ***2000 Mall Study*** – This included a detailed analysis of demands on the Mall and recommendations for improvements and uses to keep the Mall vibrant in the future.

- ***2001 Facilities Study*** – The facilities study was a detailed analysis of existing town facilities, town services, and town needs..

- ***2001 Downtown Brunswick Parking Study*** – This project evaluated parking demand and supply in Downtown, and inventoried residential and nonresidential space in Intown Brunswick. The Town subsequently updated the space inventory in 2005 to track occupancy changes in the downtown area.

- ***2002 Parks, Recreation, and Open Space Plan*** – This study includes a detailed inventory of the community's recreation facilities, parks, and natural and open space resources including agricultural and forestry land and scenic resources.

- ***2003 Brunswick Housing Study*** – This study includes a detailed market analysis of housing supply/demand and affordability in Brunswick and the region.

- ***2003 Rural Brunswick Smart Growth Strategy*** – This project included a detailed inventory of the community's unfragmented, forested wildlife habitat and .wildlife travel corridors as while as a strategy for managing these resources.

Note: This analysis of Brunswick's population and demographic characteristics was prepared before the closure of Naval Air Station Brunswick was announced. Therefore, projections about future population growth will need to be re-evaluated as part of the process of planning for the closure of the Base and the reuse/redevelopment of the site. – May, 2006

Population and Demographics

Communities change. Change is easy to recognize when it is fast or large in scale. Change is more difficult to detect when it is subtle. Both types of change can have lasting impacts on our community, and it is important that we understand the trends creating change so that we can provide adequate facilities and services to the entire community.

Population and Demographic Profile

In 2000, Brunswick's population reached 21,172 year-round residents. More than 90% of these residents lived in housing units throughout town. The remaining 10% lived in various group quarters (dormitories, assisted living facilities, and military barracks). Compared with many towns in the region, this is a relatively large group-quarters population. Our town has a very small seasonal population.

Our population is not spread evenly across town. Group quarters populations live entirely in the more urban areas of Brunswick, and more than half of the household population lives in the denser Downtown and its fringes. The Pleasant Hill and West Brunswick areas have the lowest population densities.

The median age of our residents is 35.5 years. The age cohorts are evenly

Current Reports and Documents

- The *Population and Demographics Analysis* was prepared for the Open Space, Parks, and Recreation Task Force in 2002 and then updated by the Brunswick Comprehensive Plan Update Committee in 2004 (see Appendix B). This analysis demographic and development trends affecting the community. It also projects the town's population and housing growth.

- The *Brunswick Development Profile* was prepared by the Brunswick Comprehensive Plan Update Committee in 2004 (see Appendix A). This report details development patterns in residential and nonresidential development between 1990 and 2004.

distributed into quarters. One-quarter of the town is 18 years and under. Another quarter is between 19 and 35 years old (driven largely by Bowdoin College and the Naval Air Station). The Baby Boom generation (those born between 1945 and 1965) account for another quarter. And one-quarter is older than 55 years.

Brunswick residents are largely white collar workers. Two out of every five employed residents more than 24 years old are professionals or managers, and another one-quarter work in sales or office positions. Service jobs account for 16% of the town's workforce. The more traditional blue collar jobs – construction, maintenance, production, and transportation – account for 17% of our town's workforce. Farming, forestry, and fishing account for less than 1% of the workforce.

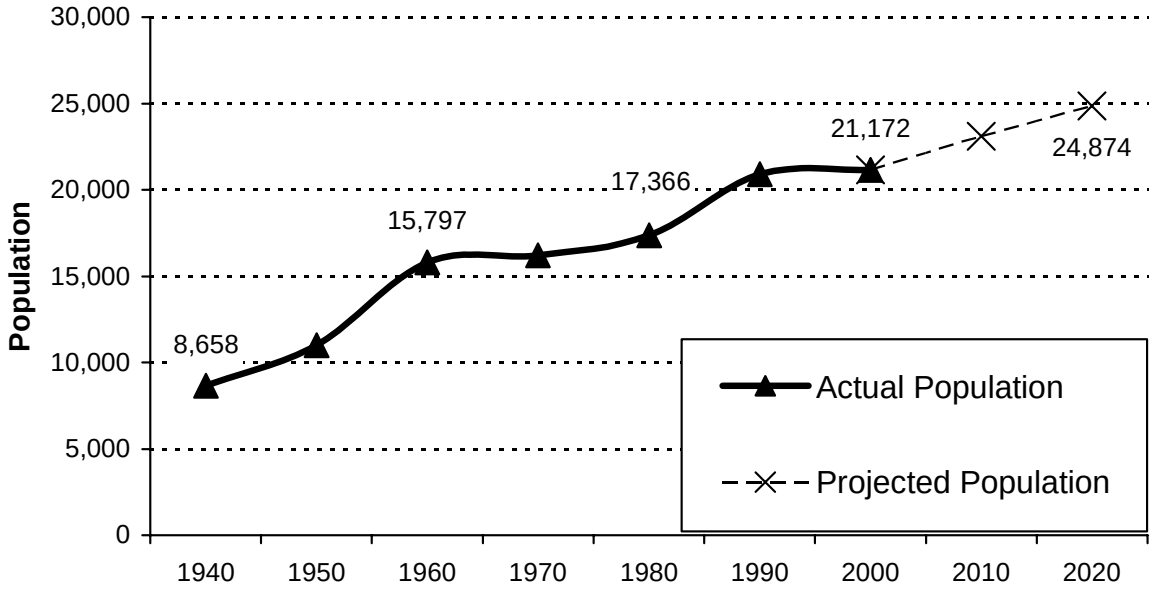
Compared with the rest of Cumberland County and the state as a whole, our town's residents are more likely to be white collar.

In 1999, the median household in our town earned $40,000. This was modestly higher than the state as a whole, but less than the rest of Cumberland County.

Population and Demographic Trends

Brunswick's population is projected to keep growing at a rate that is faster than our growth rate in the 1990s. By 2020, our population is projected to reach nearly 25,000. Many factors influence this projection, the largest of which are the number of new housing units built, the average number of people in each housing unit, and the size of our group quarters population.

Figure 1. Actual and Projected Population Change, Brunswick



Source: US Census, *Brunswick Population and Demographic Analysis*

- The ***number of new housing units built*** each year in Brunswick continues to grow. In the early 1990s we averaged less than 50 new housing units each year. In the early 2000s, we grew by more than 100 new units per year.

- The ***number of people living in each household*** in our town is decreasing. In 1960, 3.30 persons lived in each household. By 2000, this statistic had dropped to 2.34 persons. By 2020, this is projected to fall further to 2.22 persons. Because the number of persons in each unit is decreasing, modest increases in population hides even larger increases in residential development.

  For example, between 1990 and 2000 our household population increased by fewer than 100 while more than 500 housing units were built. While this trend towards declining household sizes is occurring nation-wide, Brunswick's increasing role as a retirement community is exerting additional downward pressure on the average number of persons in each housing unit. In addition, the increasing cost of housing has discouraged younger families (which tend to be larger households) from moving into the community.

- The ***group quarters population*** is changing and is not growing as fast as the household population. Military personnel living in barracks at the Naval Air Station Brunswick is decreasing while students at Bowdoin College and seniors in assisted living situations are increasing. Between 1970 and 1990, our household population grew by more than 30% while the group quarters population increased by less than 12%.

Surrounding communities are growing faster than we are**.** In 1970, Brunswick accounted for 31% of the region's population. By 2000, this statistic had fallen to 27%. The availability of land and low purchase costs are projected to continue driving most of the region's growth to the more rural communities. By 2015, Brunswick is projected to have just 26% of the region's population.

This same dynamic is occurring with our community as well. Populations in rural parts of Brunswick are growing much quicker than the more urban areas.

- Between 1990 and 2000, 145 new housing units were added in the urban areas of town. Because the average household size has been decreasing (and exacerbated by the movement of seniors closer to the town's services), this translated into a net loss of 650 residents in these areas.

- Between 1990 and 2000, 381 new housing units were built in the more rural areas of town. Young families with children are more likely to live in these areas of the community, which helped to offset the decreases in average household size. Therefore, these 381 new housing units translated into 711 additional residents in the rural areas of town.

Our town's residents are growing older. Between 1970 and 2000, our median age increased from 24 years to 36 years. Between 1970 and 2000, our community lost 437 residents below the age of 18 and added 1,900 residents over the age of 64. This trend is not unique to our community, but is exacerbated by our role as an attractive community to seniors and the high

cost of housing – especially to younger families. Despite the presence of Bowdoin College and the Naval Air Station, the trend towards an older population is likely to continue.

The number of families in town has remained steady, while the number of people living alone has increased dramatically. In 2000, families accounted for 63% of the households in town. This statistic fell from 1990, when families accounted for 67% of the households (the actual number of families remained stable). At the same time, the number of one-person households increased from 27% to 31% of all households. The number of one-person elderly households increased by 20%, or 175 people.

Our town's residents are completing more education and are more likely to work in white collar jobs than in the past. Residents are increasingly likely to have graduated from high school and college than ever before. Increases in the number of residents working in professional, management, office, sales, and service jobs are growing quickly, while manufacturing jobs in particular are steadily decreasing.

While households in our town earn more than the state as a whole, our household earnings have not been steadily increasing. After adjusting for inflation to 1999 dollars, our town's median household income peaked in 1989 at $43,000 and fell back to $40,000 in 1999. At the same time, the number of lower income households in our town has decreased and the number of moderate income households has increased.

Issues

1. Populations in outlying areas have been growing much more rapidly than populations in more urban areas. This pattern of residential development and population migration could affect where the demand for facilities is located and what types of services are provided by the Town.

2. Projections suggest that Brunswick's household population will continue to grow modestly. Much of this growth will likely be located in more rural areas of the community.

3. Household sizes are projected to continue declining. If this occurs, residential development will have to increase at a faster rate than the town's population growth just to maintain the same household population. Where and how should this residential development be accommodated?

4. People living in group quarters are a significant part of the Town's population. Different types of group quarters' populations place different demands on the Town. How should the Town plan for the changes in the group quarters population and what types of services and/or facilities should it provide?

5. The percent of the town's population that is older than 62 years is projected to continue growing. How will this impact the Town and the need for services? How should additional growth in senior housing and/or facilities be addressed? Should growth in this population be encouraged?

6. As surrounding communities continue to grow rapidly, Brunswick's role as the region's service center will likely expand. This could bring with it added benefits (business, recreation, etc) as well as costs (traffic congestion and safety).

7. The potential change of mission for Naval Air Station Brunswick could have a large impact on the character and health of the community. Its mission could be expanded, or the base could close altogether. Closing Naval Air Station Brunswick would have a significant impact on the community as well as the entire region. How should the Town plan for this potential change?

8. The community's median household income is consistently above the state's median household income. While the 1990s experienced a modest decline relative the to state, Brunswick's incomes remain strong. What does this mean in terms of being able to provide the services desired by the community?

9. The number of children has remained relatively stable but has been spreading out across the landscape. What are the implications of this for schools, recreation, etc.?

10. Given the trend toward an older population with more seniors and fewer children, how will the town have to adjust to ensure that adequate services are provided to all of its residents? In addition, what will be the housing needs of this older population?

Local Economy

Since Europeans first settled our shores in 1628, we have been a service center. At various times our economies strength came from fur trading, shipping, manufacturing, farming, defense, and education. Today, the diversity of our economy and the services it provides to residents and businesses are crucial to the health of the entire region.

Employment and Service Center

Brunswick is a service center. Our economy meets most of the local needs of residents and businesses as well as the regional banking, health care, education, arts/entertainment, manufacturing, and business/professional service needs from Edgecomb to Richmond to Pownal.

One-third of the jobs in the region are located in Brunswick, as are two-thirds of all taxable sales. More than 800 individual businesses are located in town, as is one of the state's largest clusters of nonprofit organizations.

There are an estimated 16,000 jobs located in our town. Of these, 3,000 are entrepreneurs, 4,400 are active-duty military personnel, and the remaining 8,500 are wage and salary jobs.

Of the 8,500 jobs in Brunswick reported by the Maine Department of Labor, two-thirds are private sector jobs, 15% are nonprofit sector jobs, and 12% are jobs with various government agencies.

Between 1994 and 2003, the number of wage and salary jobs in Brunswick decreased by 160, or less than 2%. This rate of change is impressive considering the replacement that must have occurred after large employment decreases in the region's defense-oriented jobs in the 1990s.

The rest of the labor market area has been adding jobs faster than Brunswick in the last decade. In 1994, our town accounted

Current Reports and Documents

- An *Economic Development Analysis* was prepared for this update by the Brunswick Economic Development Corporation. This report was updated in 2004, and includes detailed discussions of the sectors of our town's economy.
- An *Economic Development Action Plan* was created by the Merrymeeting Council of Governments to help coordinate regional economic development activity.
- Brunswick's *Downtown Parking Study* has a detailed inventory of the types of businesses that are located in the downtown and how much space each business type occupies. This database has been updated by the Planning Department for this Comprehensive Plan Update.
- The *Cook's Corner Master Plan* details how this area can become a more vibrant economic center.
- *2004 Report to Defense Base Closure and Realignment Commission* describes the economic impact the base has on the region as well as the infrastructure available in Brunswick to support the base.

for 26% of the jobs in the region, and by 2003 this had fallen to 25%.

The type of jobs available in our town has changed dramatically. Manufacturing lost almost 400 jobs and now account for 10% of the labor force (down from 16%). Similarly, retail declined to 15% of the jobs available. These jobs were replaced by those in arts/food/accommodations (600 new jobs), health care (200 new jobs), and professional/management/administration.

Unemployment Rate

Our town's unemployment rate – the number of residents without jobs that are actively searching for work – has been slowly rising from a low of 2.7% in 2000 to 3.5% in 2003. Brunswick's unemployment rate is generally lower than the rest of the Bath-Brunswick Labor Market Area, but higher than Cumberland County as a whole.

This low unemployment rate has meant that while the town's economy grew, it has increasingly relied on workers from other areas to fill new positions. In addition, new employees in the Brunswick region have had to compete with the growing retirement community for new housing.

Employed Labor Force Trends

A profile of Brunswick's employed residents creates a picture what types of jobs our neighbors seek.

According to the 2000 Census, Brunswick residents are largely white collar workers. Two out of every five employed residents are professionals or managers, and another one-quarter work in sales or office positions. Service jobs account for 16% of the local workforce. The more traditional blue collar jobs – construction, maintenance, production, and transportation – account for 17% of our town's workforce. Farming, forestry, and fishing account for less than 1% of the local workforce.

While direct comparison between the 1990 Census and the 2000 Census is difficult (due to definition changes), the data suggest that our residents are more white collar than they were in 1990. Service, sales, and manager/professional occupations increased, while the blue collar and natural resource occupations decreased.

Brunswick residents largely mirror the occupation profile of residents in Cumberland County. Notable differences in finance/insurance/real estate (more in the Cumberland County) and the arts/entertainment/education/health/social science/public administration (more in Brunswick).

The number of manufacturing jobs is down. Also down was the retail sector, signifying more the way retail sales service is provided as opposed to a decline in the retail industry. Increases were seen in the educational, health field, finance and insurance areas, and other professional services and public administration.

One of the largest increases is in the area of arts, entertainment and recreation services. All of these growth areas suggest a shift into the service center/creative economy mode and away from traditional manufacturing.

Major Employers

Only 3 of our 14 major employers in Brunswick are manufacturing businesses. The rest provide services to a variety of customers from education to finance to construction. Healthcare totals more than 1,000 jobs in our two hospitals and retail employers total 750 jobs.

Employer	Industry Sector	Average Employees
Bath Iron Works	Manufacturing	1,100
Naval Air Station, Brunswick (civilian)	Military	817
Bowdoin College	Education	742
Mid Coast Health Services	Healthcare	702
Town of Brunswick	Government	655
L.L. Bean	Retail	387
Parkview Hospital	Healthcare	366
MBNA	Finance	350
Wal-Mart	Retail	264
Cooper Industries (Arrowhart)	Manufacturing	200
Hannaford Bros	Retail	192
Downeast Energy	Construction, Business	175
Shaw's	Retail	130
Brunswick Publishing	Manufacturing	128
Source: BEDC		

The recently completed *2004 Report to Defense Base Closure and Realignment Commission* by the NAS Brunswick Task Force details the economic impact the base has on the region. In addition to the civilian labor force mentioned in the table above, currently nearly 4,500 military personnel are stationed at the air station. In 2004, the base contributed more than $330 million to the region's economy, including $147 million in salaries and $62 million in construction contracts. In addition, there is a significant military retiree presence in the region that are benefit from the base's resources.

Taxable Retail Sales

Brunswick as a whole is a service center, and there are three distinct economic areas within the community that each fulfills a different need.

- Cooks Corner is a large, regional commercial center that services a market of up to 100,000 people. It is many larger big-box stores, chain stores, hotel/motel accommodations, healthcare services, and a range of other businesses that support the Naval Air Station.

- Downtown Brunswick is a traditional town center. Most of the businesses are pedestrian-oriented, and provide entertainment, food, and specialty retail in smaller stores. There is also a significant amount of office space in the downtown.

- Outer Pleasant Street is a more traditional strip center that has many chain stores and automobile dealerships.

In 2003, there were more than $340 million in taxable sales in our community. General merchandise accounted for 30%, auto/transport (22%), building supply (15%), restaurant/lodging (13%), food store (8%), and other retail (11%) of total sales.

Since 1999, total taxable sales have increased by 14% - higher than the consumer price index's increase of 11%. Building supply and other retail sales increased by more than 40% each, while restaurant and food stores sales declined by 5% and 2%, respectively.

Brunswick accounts for two-thirds of the region's taxable sales. Brunswick's share of the region's sales have declined modestly, from 65% in 1999 to 64% in 2003. This decline is likely to continue as surrounding communities increase their amount of taxable sales, especially the regional center that is developing in Topsham. However, recent expansion of larger retail sales operations in Brunswick might lessen the impact of this trend.

Overall, Brunswick businesses dominate many of the taxable sales categories. Brunswick has nearly 90% of the region's general merchandize sales, 70% of building supply and other retail sales, and more than 50% of auto/transportation and restaurant sales. Food store sales in Brunswick account for almost half of the region's sales, and lodging sales in town account for 40% of the region.

Taxable retail sales do not vary much from season to season. While the 1st quarter (January to March) is consistently slower, the remaining quarters are relatively consistent. This stands in stark contrast to the seasonal economies that exist further up the Midcoast and highlights our town's role as a service center for the neighboring year-round communities.

Commuting Patterns

In 2000, more than one-third of the jobs in Brunswick were filled by Brunswick residents. Commuters tend to travel to Brunswick from surrounding communities (Topsham, Bath, Harpswell), Portland, and towns to our north and east.

On the other hand, one-half of Brunswick's employed residents work in town. Nearly 11% work in Bath and 4% work in Topsham. The rest tend to commute to the south for work, including Portland (6%), Freeport (5%), South Portland (2%), and Falmouth (1%).

Economic Development Organizations

Numerous organizations promote business retention and development in our town and the region. The Brunswick Economic Development Corporation, Midcoast Council for Business Development and Planning, Bath-Brunswick Region Chamber of Commerce, and the Brunswick Downtown Association assist with everything from planning to development to retention to advocacy to technical support. In the past, these organizations have worked well together on a wide range of issues, and these is increasingly more regional cooperation with economic development organizations from neighboring communities.

Issues

1. Brunswick is a service center. As such, our town's economy must fulfill the local needs of our residents as well as the needs of residents in the surrounding region. This creates benefits and costs to the town. Our challenge is to ensure that the benefits of being a service center outweigh the costs.

2. The largest trend in the region's economy is diversification. Employee reductions at Bath Iron Works and the Naval Air Station Brunswick have reduced the dependence the region has on these major employers. These lost jobs are being replaced by jobs in health care and other services. This diversification will help stabilize the region's long term stability.

3. Despite this diversification, the health of a large part of the region's economy is still tied to national security (Bath Iron Works, Naval Air Station Brunswick). As the Department of Defense continues to realign its forces to a post-Cold War world, future employment at these job centers is uncertain.

4. Much of the town's sense of character is tied to the distinct economic roles fulfilled by Cooks Corner, the Downtown, and Outer Pleasant Street. Our town must work hard to ensure that these roles remain distinct. Of particular concern is the health of the retail environment in the Downtown.

5. The Brunswick region is a center for senior and elderly services. Amenities in the area include two hospitals, rural lifestyle, and quick access to urban areas and the coast. The success of The Highlands in Topsham and Thornton Oaks in Brunswick has spawned numerous smaller senior-living developments in the area. This growing critical mass projects creates many economic opportunities in the region.

6. Our town has one of the largest concentrations of jobs in creative industries, including education, art, entertainment, and creative professional positions. The impact by these jobs on our economy and quality of life is hard to quantify, but even harder to overestimate.

7. While the amount of taxable retail sales in Brunswick remains strong, our share in the region is decreasing. This is largely the result of the growing strength of other retail opportunities in the region, most notably the Topsham Fair Mall. Recent redevelopment projects in Brunswick will help slow this decrease down, but outlying communities will continue to increase their retail sales faster than those in our town.

8. When Brunswick residents commute out of town to work, they tend to head to jobs closer to Portland. Meanwhile, those commuting into Brunswick to work tend to come from communities to the north.

Housing

A home, rented or owned, is more than a roof over one's head. Place of residence guarantees basic rights like public education and a place to vote. It is a place of family. It gathers friends. It is a repository of memories. It is the building block of our community.

Housing Profile

Brunswick is a population center. In the 2000 Census, our town had 8,720 housing units. This is twice as many units than in any surrounding community. The majority of these units are located in the more urban areas of the Downtown and East Brunswick. These areas account for more than half of the housing units in the community. *(For more detailed discussion, see **Population and Demographic Analysis**).*

As a population and economic center, our town has a relatively large number of rental housing units (one-third of occupied units). While Bath has a larger percentage of rental units (45%), most surrounding communities have fewer than 25% of their homes occupied by renters.

The majority of the housing units in Brunswick are single-family units. Of the 8,720 housing units, 56% were single-family, while 28% were duplexes or multi-family units, and another 16% were mobile homes. Our town has a larger percentage of mobile homes, duplexes, and multi-family units than the state as a whole.

The condition of housing in Brunswick is very good. According to the 2000 Census, only 2% of the housing stock by 2000 lacked adequate indoor plumbing, and despite the relatively old housing stock, crowding is not a large concern.

Not all of Brunswick's residents live in housing units. Assisted living facilities, military barracks, dormitories, and other facilities house approximately 10% of our

Current Reports and Documents

- The *Brunswick Housing Study* was prepared by the Brunswick Community Housing Coalition in 2003. Identified trends in the region, focused on trends in the affordability of housing, proposed policies and recommended actions that have been adopted by the Town Council.
- The *Population and Demographics Analysis* was prepared for the Open Space, Parks, and Recreation Task Force in 2002 and then updated by the Brunswick Comprehensive Plan Update Committee in 2004 (see Appendix B). Identifies demographic and development trends affecting the community.
- The *Housing Facts for Brunswick Report* is updated annually by the Maine State Housing Authority. Details housing trends and figures for Brunswick, the region, and the state.
- The *Brunswick Development Profile* was prepared by the Brunswick Comprehensive Plan Update Committee in 2004 (see Appendix A). This report details development patterns in residential and nonresidential development between 1990 and 2004.

town's population.

Housing Trends

The pace of residential development in Brunswick has been increasing rapidly. While the 1980s were a period of rapid growth, much of the 1990s was a period of modest growth. Between 1990 and 2000, our town's housing stock increased by 523 units (or 6%). This rate of growth was faster than the state as a whole, but slower than the rest of Cumberland County.

However, much of this growth occurred in the late 1990s, and the increasing rate of growth has continued since the turn of the century. In the early 1990s, an average of fewer than 50 units were built each year. Since 2000, more than 100 units have been built each year. This rate of housing unit growth is projected to continue.

By 2004, there were an estimated 9,170 housing units in our town. This increased rate of development is projected to continue. By 2010, the number of units is projected to reach 9,545, and then reach 10,545 by 2020. For more detailed discussion, see ***Population and Demographic Analysis (see Appendix B)*** and ***Brunswick Development Profile*** *(see Appendix A).*

Not all neighborhoods in our town are growing at the same rate. Between 2000 and 2010, the more urban areas of the town (Downtown, Downtown Fringe, and Cooks Corner) are projected to grow by 6% while the more rural areas of town are projected to grow by more than 25%.

Housing Affordability

Affordability is becoming a greater issue for residents in our town. After a decade of moderate increases, housing costs have increased dramatically – both for home owners and renters. More than one-in-three of the renters and one-in-six of the homeowners pay more than a third of their income to housing costs – a common threshold for housing to be considered affordable.

An Action Plan for Housing in Brunswick: 2003 examined affordability in detail. Their findings suggest that:

- Housing values are increasing rapidly, and new housing values are well out of the range of the median home-buyer.
- Rents are becoming more costly.
- Five-in-six young families in Brunswick's housing market area look elsewhere to buy their first home.
- The number of homeless seeking shelter has doubled between 2000 and 2002.
- The number of elderly residents has increased, and is projected to continue increasing.

In addition, the Maine State Housing Authority calculates an affordability index based on whether a community's median household income can afford to purchase that community's median housing unit. Using this analysis, Brunswick's median housing unit (which was valued at 167,000 in 2002) would be affordable to a household that made $60,500. Brunswick's median household income in 2002 was $43,000. Therefore, MSHA does not consider Brunswick to be affordable.

Using this same analysis, Brunswick is considered to be less affordable than Cumberland County, the Bath/Brunswick Housing Market, and the state as a whole. *(For more detailed discussion, see **Housing Facts for Brunswick.**)*

Subsidized Housing

Brunswick is a regional center for various subsidized housing opportunities. Currently, 775 subsidized/affordable housing units are available in our town. Of these, 481 are projected-based and operated by the Brunswick Housing Authority.

Land Use Management

Brunswick relies on a detailed land use ordinance to help manage residential development throughout our community. Densities (units per acre) are at their lowest in the more rural areas (Coastal Protection district, Farm and Forest district). Allowable densities increase with proximity to the Downtown (residential districts) and are at their highest in the Town Center and Town Residential districts.

Development hooked into public water and public sewer can be built at higher densities than those not connected to the system. The service areas for these public utilities generally follow the Growth/Rural boundary established in the land use management ordinance.

The type of housing allowed in the various districts increases with proximity to the more urban areas. Dense multi-unit developments are allowed in the growth areas, while the rural areas place more limitations on the type of development allowed there.

Issues

1. Our town is a regional educational, economic, housing, and service center. These centers tend to attract a wide range of individuals with a wide range of needs. From Bowdoin College to the Naval Air Station to the cluster of health care facilities, Brunswick will always need to provide a wide range of housing options for its residents.

2. Partly due to its relatively older housing stock and partly due to its role as a regional center, our town has a relatively large number of rental housing units. Rental housing allows for more flexibility meeting the needs of the economy and adds to our community's diversity.

3. The pace of residential development in our town is increasing, especially in more rural areas of the community. Special attention to this development can help ensure that the new development complements our community's character rather than erases it.

4. As the median age of Brunswick residents increases, the demand for senior housing is projected to increase.

5. The more urban areas of our community have a significant amount of infrastructure and services than can accommodate new residential development. Yet, in some cases our land use management program discourages residential development in these areas and encourages it in the more rural areas of town.

6. Affordability is a growing concern for most of our town's residents. The lack of affordable housing can dramatically change the composition of our community. Affordability is also a regional concern, and the Town of Brunswick has not worked closely with neighboring communities in the past to address this issue.

Transportation

While transportation in Brunswick is predominantly vehicular, there are a variety of transportation options and issues in our community.

Vehicular Transportation

There are more than 150 miles of roads in our town. The types of roads (from interstate highway to private dirt road) vary as much as their uses (cargo transportation, commuting, local travel). The major road classifications include:

- *Arterial roads* are high speed travel corridors used largely by regional traffic. Examples in our town include Route 1, Interstate-95, and Route 123. These roads total more than 13 miles.

- *Collector roads* include the major local roads that move vehicles from the local road network to arterials. Examples of these roads in Brunswick include Bath Road, River Road, and Old Portland Road. These roads total 27 miles.

- *Local roads* are intended for low speed, local transportation. In 2004, this classification totaled 107 miles, including 5.8 miles of new roads accepted since 1993. These new roads are largely in residential developments.

Traffic volumes on our town's major roads are very high. More than 28,000 trips daily pass the churches on Pleasant Street, and nearly as many use Mill Street in the Downtown. More than 23,000 vehicles pass the Lower Mall on Maine Street. I-295 has more than 20,000 average trips per day, of which approximately 10,000 get off onto Outer Pleasant Street. Nearly 18,000 vehicles use Bath Road each day, and approximately 17,000 cross the Frank Wood Bridge into Topsham. Between

Current Reports and Documents

- The *Transportation Section* of this Comprehensive Plan Update details each aspect of the town's transportation network as well as the transportation issues throughout the community.

- The *Parks, Recreation, and Open Space Plan* details the existing pedestrian, bicycle, and trail networks throughout our community.
  - See *2002 Bicycle and Pedestrian Improvements Plan*

- The *2002 Town of Brunswick Sidewalk Inventory Rating* details the location of every sidewalk in town and rates its condition.

- Brunswick's *Downtown Parking Study* has a detailed inventory of the types of businesses that are located in the downtown and how much space each business type occupies. This database has been updated by the Planning Department for this Comprehensive Plan Update.

- The *Cook's Corner Master Plan* was created over the course of several years and details the transportation improvements that can be made to decrease traffic congestion and increase pedestrian safety.

11,000 and 13,000 travel Route 1 along the Androscoggin River..

These volumes have largely been increasing. The I-295 interchange had on average 3,000 more vehicles per day in 2002 than in 1998. Pleasant Street, Maine Street, and Bath Road's traffic volumes have increased steadily. Traffic volumes along Route 1 and at the Frank Wood Bridge have decreased significantly, largely the result of the Coastal Connector diverting this traffic.

Local traffic and commuter traffic is increasingly looking for alternatives to the congestion on the primary transportation network. McKeen Street, Merepoint Road, and Middle Bay Road are increasingly being used to get around Downtown. The Naval Air Station has moved its commercial entrance to Harpswell Road permanently, which requires deliveries to traverse Downtown in order to reach Harpwell Road. These added heavy vehicles could strain the condition of the road network.

Cooks Corner continues to develop commercially, especially the corridor along Bath Road. All of the traffic to this corridor must pass through the crossroads, which has put enormous strain on the intersection. This area is a pedestrian "no mans land," but the Cooks Corner Master Plan and the Cooks Corner design standards spell out how it can be made more pedestrian friendly as the area is redeveloped.

Traffic safety is monitored by the Brunswick Police Department. The department considers Cooks Corner and Maine Street in the Downtown as the two most dangerous sections of the transportation network. Between 2002 and 2003 the number of crashes reported to the department increased by 100 and is on pace to increase even more between 2003 and 2004.

January 1999 – March 2004

Location	# Accidents	# Injuries
Route 1	398	148
Bath Road	744	263
Gurnet Road	235	102
Harpswell Road	126	42
Maine Street	635	182
Mill Street	160	58
Pleasant Street	695	224
River Road	114	34
Source: Brunswick Police Department		

Several traffic improvement projects have been identified by the town and the DOT. The following table identifies the location of these potential improvements, the likely outcome of study, and other issues:

Location	Study/date	Likely outcome	Comments/issues
Route 1 N. from Freeport where it meets I-295 off ramp	MDOT studying in 2004	MDOT makes improvement	
River Road Bridge over I-295		In MDOT's 6-year plan	What are they doing to the bridge?
Mill Street	2002 Mill Street Streetscape Project	Improvements included in CIP	
Maine St and Route 1 westbound	MDOT looking into whether left turns could be allowed		1999 Gorrill Palmer study concluded left turns with no light would be ok
Frank Wood Bridge		In MDOT's 6-year plan	What are they doing to the bridge?
Maine Street		Downtown signal improvements planned	
Bath Rd. and Maine St.	MDOT studying in 2004		
McKeen and Maine	Date of study? Roundabout studied	No action planned	Roundabout would be expensive and use land; traffic signal not approved by Town Council
Bath Road		MDOT building 3rd lane at Bowdoin Pines	
Cooks Corner	Cooks Corner Master Plan, 1998 Proposes perimeter road		
Bath Road between Thomas Pt. Rd. and Old Bath Road	Gorrill-Palmer studying in 2004 to improve traffic flow	Improvements will be made and paid for with impact fees	
All around town	Road standards zoning changes	Adoption by Town Council	Will require growth area streets to be interconnected and have sidewalks and bike facilities

Parking, especially in the downtown area, has been a perpetual concern in Brunswick. Since the last comprehensive plan, several improvements have been made including expanded facilities, improved signage, parking restrictions adjusted, and a comprehensive parking analysis completed.

The 2001 Downtown Parking Study identified 4,200 private and public parking spaces in the Downtown. Three-quarters of these are private and the rest are provided in a mix of on-street and off-street public parking. Utilization is approximately 50%, although areas closer to Maine Street are more heavily utilized than those around Federal and Union Streets.

Bicycle and Pedestrian Facilities

Brunswick has a large number of bicycle and pedestrian facilities, and the ability to get around town without a car has long been important to our residents. In fact, the 2000 Census suggests that 12% of those living and working in working in Brunswick walk to work, which is three times the national average. Our town has also been designated a "Bike Friendly Community" by the League of American Bicyclists.

The Brunswick Bicycle and Pedestrian Advisory Committee created a plan in 1998 (updated in 2004) that provides a template for on-going improvements to the town's bicycle and pedestrian networks.

The town has made many investments in recent years to make its streets and public places safer for biking and walking. Probably the most visible improvement is the Androscoggin River Bike Path, opened in 1998. A detailed inventory of the town's bicycle and pedestrian can be found in the *Parks, Recreation, and Open Space Report* and the *Bicycle and Pedestrian Plan.*

Public Transit

We have no local public transit services in town. However, there are a variety of regional transit alternatives.

Coastal Trans is the primary provider of transportation to people who otherwise are not able or cannot afford to get around. They run ten buses out of both Brunswick and Rockland and operate on a reservation basis largely serving people through contracts with Medicaid and Department of Health Services. Public clients can pay a fare of $0.35/mile for transportation.

Inter-city private and subsidized buses and vans run by the Regional Transit Program (RTP) that serve Bath Iron Works workers as well as those commuting to Portland and Augusta. There is a designated Park'n Ride lot for carpooling at the Topsham Fair Mall.

Regular commercial bus service between Maine cities and Boston is provided by Concord Trailways and Vermont Transit. Limos and taxis provide rides around town, the region, and to the airport.

A 1999 Cumberland County Commuter Bus Study recommended implementing Bath/Brunswick commuter bus express service. The study projects ridership and operating costs under different service scenarios. It also recommends promoting the use of Park'n Ride lots.

During 2003-2004 fifteen local organizations joined together as the Mid-Coast Collaborative for Access to Transportation to assess available resources and consumer needs for transportation for

seniors, people with disabilities and people with limited financial resources in Brunswick and Topsham. From the surveys of service providers and users, the report makes recommendations for providing an attractive public transit service.

Rail

We have several rail lines in Brunswick, totaling about twelve miles of track which connect to Portland, Lewiston, Augusta and Bath/Rockland. In summer/fall 2004 a weekend excursion train ran between Brunswick and Rockland. There is also occasional freight use. Talk continues about extending the route of Amtrak's Boston to Portland Downeaster train. In anticipation of the return of passenger train service the town purchased the Maine Street station site in 1998. The excursion trains have been loading from a temporary rail platform on state-owned land on Cedar St. behind Hannaford.

Airports

Commercial air service is absent, although the Naval Air Station is the size of a large regional airport. The potential closing of the Naval Air Station could open up the reuse potential of the facility to private businesses.

Water Transportation

While there is only private water transportation in Brunswick, the town maintains several water access points throughout the community. For more information, see the *Parks, Recreation, and Open Space Plan*.

Issues

1. Brunswick is a crossroads. New development, both in Brunswick and in surrounding communities, will add new demand to our transportation network. What steps can the Town of Brunswick take to mitigate the effect of the growing demand?

2. The Cooks Corner Master Plan envisions transforming this major crossroads to an integrated commercial and residential destination to mitigate traffic problems. The Town of Brunswick will have to be creative and work with developers to realize this vision.

3. Brunswick has made numerous investments to improve the convenience and safety of pedestrians and cyclists. Continuing to make such improvements enhances the desirability of Brunswick as a place to live and may help mitigate traffic congestion.

4. What is the Town's responsibility to provide transportation services for people who cannot afford it or are not capable of moving on their own. This issue can be very expensive, but it helps to maintain the diversity of our community. Collaboration with surrounding communities could be an opportunity to provide this service efficiently.

5. Finding parking in Downtown Brunswick can be challenging for visitors, business owners, and residents. This can be an even greater concern in the winter months. The Downtown Parking Study includes many recommendations that could improve parking efficiency and/or reallocate parking demand.

Public Utilities

Within the denser areas of Brunswick, public water and sewer service are available. For the rest of the town outside of these areas, water generation and sewage disposal are an individual responsibility. This chapter provides an overview of the public water and sewer services in the more built up areas of Brunswick.

Brunswick-Topsham Water District

Municipal water in Brunswick is provided by the Brunswick and Topsham Water District. The District was established in 1903 and serves both Topsham and Brunswick. The District is directed by a 6-member Board of Trustees, with 4 members appointed by the Brunswick Town Council and 2 members appointed by the Topsham Board of Selectmen. All appointments are for 3 year terms with 2 terms expiring each year.

The District is a self-supporting organization procuring its operating funds from user fees. The District's charter area includes the geographical boundaries of Topsham and Brunswick.

The District's source of supply is from groundwater with several wells and/or well fields located at various locations:

- Off of Jordan Avenue in Brunswick are 160 2.5" wells approximately 20 to 26 feet deep with a current pumping capacity of 950 gallons per minute (1.37 million gallons per day). The quality of the water pumped from this well is very food – it requires minimal treatment to adjust the water's Ph levels. Chlorine and fluoride are added for public safety and corrosion inhibitor is added to maintain the water distribution system.

- At Williams Farm in Brunswick is a 12" well with a current pumping capacity of 450 gallons per minute (0.65 MGD). The water quality from this well is excellent – no water quality treatment is needed at all. Chlorine and fluoride are added for public safety and corrosion inhibitor is added to maintain the water distribution system.

- Two wells are located at Taylor Farm in Brunswick. One is a 12" well 156 feet deep with a pumping capacity of 1,000 gallons per minute (1.43 MGD). The other is an 8" well 108 feet deep with a capacity of 400 gallons per minute (0.57 MGD). An ion exchange treatment for these wells is improves water quality by removing trace amounts of iron and manganese. Chlorine and fluoride are added for public safety and corrosion inhibitor is added to maintain the water distribution system.

- At Jackson Station in Topsham is an 18" well with a pumping capacity of 2,500 gallons per minute (3.57 MGD). The water from this well is treated for trace amounts of iron and manganese. Chlorine and fluoride are added for public safety and corrosion inhibitor is added to maintain the water distribution system.

As some of these wells are getting old, the District is in the process of development a backup and replacement well system. This involves replacing the existing pump at the Taylor Station with a new pump capable of producing 3.0 MGD and developing a backup well at the Jackson Station capable of producing 10.0 MGD.

A study completed in the early 1990s suggests that the large sand and gravel aquifer supplying the Jackson, Taylor, and Williams wells has an estimated safe yield of 12.4 MGD. Pumping capacity from this aquifer along totals 4.8 MGD, or approximately one-third of the aquifer's safe yield.

According to an Aquifer Protection Study completed in 1986, the aquifers serving the District wells are recharges from direct precipitation, from an adjacent permeable material, or from induced infiltration from the Androscoggin River. The Androscoggin River is the largest and most reliable source of recharge to the District.

The District has an interconnecting line with the Bath Water District for mutual emergency use.

The District closely monitors and provides comments as necessary on proposed new drinking water rules by state and federal regulators. Although these new regulations have not been finalized, there is broad professional consensus that at least some new regulations will affect the Water District and its cost to supply customers with potable water in the near future. Since federal funding is not available for these improvements, the burden of these improvements will be borne by District ratepayers.

Once water has been drawn into the wells and brought to the surface, the District moves the water into water tanks for storage. Three water tanks store a combined 6,300,000 gallons, or enough for three days of normal demand.

- A steel standpipe off of the River Road in Brunswick is the oldest of the three structures. The standpipe or water tower was constructed in 1939. It is 103 feet tall and 40 feet in diameter. These dimensions create a storage capacity of 900,000 gallons. This tower was resurfaced inside and out in the early 1990s.

- A new concrete storage tank is located off of the Church Road in Brunswick. It was built in 1988 and while it only measures 40 feet high, it is 112 feet in diameter (creating storage for 3,000,000 gallons).

- A concrete storage tank off of Oak Street in Topsham was built in the early 1900s. This tank measures 100 feet in diameter and is 43 feet high and holds 2,500,000 gallons.

The District's distribution network consists of 105 miles of water mains ranging in size from 1" to 20". These mains typically run underneath roadways and deliver the water from the storage tanks to each user's water service line. Because much of the distribution network is built in sandy soils, the system is in excellent condition.

Approximately 6,300 service lines supply water from the mains to the customer's home or business and another 600 fire hydrants are connected to the mains.

Because the system is pressured by gravity, there is an elevation limit to how high water will flow to homes and businesses. Using the existing infrastructure, the effective limit is 150 feet above sea level. These physical barriers in the west of town include Rocky Hill, Oak Hill, and Deep Cut.

In 2002, the District's water consumption averages 2.14 MGD. This fluctuates on a seasonal basis, as the seasonal demand for water typically increased in the summer. Daily water demand peaks in the early morning hours and tapers off throughout the day.

In 1994, the District completed a hydrogeologic study that suggested areas around the wells be preserved from the adverse impacts of certain land uses that can be detrimental to water quality. Both Brunswick and Topsham responded by creating wellhead protection zones to help protect the quality of the public water system.

Brunswick's aquifer protection zones get progressively stricter with travel time to the wellheads. One of the two aquifer protection zones is located between Durham Road, Bracket Roads, the Interstate, and the river. The other is in the area of Jordan Road, Bath Road, and the river.

Expansions to the public water system are built to the specifications of the Water District and paid for by the developer requesting access to the system. The developer then deeds the expansion to the District for operation and maintenance.

Brunswick Sewer District

While wastewater collection services go back well into the previous century, the Brunswick Sewer District has existed as a wastewater utility since its original charter was approved by the state legislature in 1948. The District is governed by a 5-person Board of Trustees, appointed by the Town Council.

The District's service boundaries match the Town's growth-rural boundary, and most of the properties within the service area have access to the sewer system. There are four sections of the service area that do not have ready access to the sewer system. These include Portland Street (Route 1 south of Pleasant Street), the Fox Run property between Outer Pleasant Street and Interstate 95, Cook's Corner, and the neighborhoods around the High School.

The sewer collection system includes approximately 50 miles of gravity and pressure mains. Seventeen pump stations located throughout the district pump sewer to the Jordan Avenue treatment center. All of the storm sewers were separated from the sanitary sewers in the 1950s, so there are no concerns about overboard discharge from CSOs during storm events.

The wastewater treatment plant provides primary and secondary treatment. The system was designed to handle an average of 3.85 million gallons per day (mgd). Currently, an average of

2.5 to 3.0 mgd pass through the system. The system can handle up to 11.1 mgd in peak flow for short periods of time before the system is overwhelmed.

Highest daily volumes generally occur in the spring when the water table is high (which encourages infiltration) and lowest during the summer and fall.

In addition to wastewater from the district, Brunswick Sewer District also has contract agreements with the Town of Topsham and the Naval Air Station to receive and treat their wastes. These users pay a fee depending on the volume of waste they generate.

The Brunswick Sewer District also provides treatment for pumped septic system waste from septic tanks in Brunswick, Harpswell, and Topsham. While the volume of these wastes is relatively low, these wastes are much more concentrated than the waste that comes through the collection system.

Primary treatment removes most of the sludge in the wastewater. Secondary treatment removes additional sludge and treats the wastewater so that it meets the discharge requirements determined by the Department of Environmental Protection and the United States Environmental Protection Agency. The wastewater is discharged into the Androscoggin River.

The sludge that is collected during the treatment processes is stored, thickened chemically and mechanically, and treated again before being shipped out for land application or disposal at a secure landfill. The District creates more than 2,500 wet tons of class B sludge annually.

The District has an ongoing program to upgrade sewer mains when needed. Parts of the system are more than 200 years old, an replacing these components can significantly decrease the amount of infiltration into the system, thereby offsetting increased amounts of demand placed on the system by new development.

The District is on schedule to pay off its debt burden by 2010.

Issues

1. A large portion of our community still relies on on-site septic systems. These systems are prone to failure and can be a source of pollution to our community's marine and natural resources.

2. Expanding public water and sewer services into unserved areas can be a very valuable growth management tool. Are there any criteria under which the Town of Brunswick should subsidize the cost of these expansions?

3. While the Brunswick Sewer District has space capacity at its facilities, long-term planning requires that the District consider expanding its treatment capacity. Initial estimates suggest that a 5.4 mgd expansion will cost approximately $8 million. This expansion could be timed to coincide with the retirement of existing debt in the year 2010.

Public Facilities and Services

Our town is a service center. We offer a range of facilities and services to meet the varied needs of our community. This chapter provides a summary of the public facilities and services available to the community.

General Government

The Municipal Building on Federal Street is the heart of the town's government. It was constructed in the early 1970s and was expanded in 1984. The following departments and offices are located in this building:

- The Town Manager's office,
- Town Clerk and Elections Office,
- Assessing Department,
- Planning and Development Department (including Codes Enforcement), and
- Finance Department.

These offices and departments provide all of the general administrative needs of our town's government.

As the level of service provided by the town has increased, the space available in the Municipal Building has become inadequate. The Human Services Department was moved off site because of the lack of adequate space, as were the community meeting facilities. Storage for general operations is very limited – many of the town's records are located at a different location because there is not adequate space in the Municipal Building.

Other concerns, including deteriorating physical conditions, indoor air quality

Current Reports and Documents

- The *Brunswick Facility Study* completed by SMRT inventories available space for Town operations as well as the demand for this space, and also includes a re-use analysis of the Old Brunswick High School for municipal purposes.
- Workbook for Planning Committee, Capital Improvement Plan
- The *Brunswick School Department* report was prepared by the School Department for the Comprehensive Plan Review Committee in 2004.
- A *Site Location Analysis* was completed in 2003 to provide solutions for the town's public safety needs. This analysis includes detailed inventories of demands placed on public safety services, the quality of services provided, and trends that will affect the provision of services in the future.
- Mitchell Ross Associates completed a study in 2002 on the *Proposed New Fire Stations: Headquarters and Cooks Corner*. This study includes a financial analysis of the proposed public safety buildings, as well as detailed specifications on the new buildings.
- The *Town of Brunswick Capital Improvement Planning Workbook* in 2003 evaluates the Town's financial capacity for new capital improvement projects and summarizes past capital improvement projects.

concerns, and inadequate parking facilities, also hamper the government's operations at this site.

Recently, there has been much discussion about possible alternatives to moving the general government to a different facility with more appropriate space. Suggestions have included the Old High School, the Times Record Building on Industry Way, a new Town Hall at Maine Street Station, and rehabilitating and expanding the existing municipal building.

Police Department

The Police Department provides 24-hour police protection to our town. Its station is in the basement of the Municipal Building, a space it has occupied since 1984 when the building was expanded and renovated.

The Department has a total of 51 employees. Of these, 35 are sworn police officers, nine are communications officers, and the balance are non-sworn special enforcement positions (animal control and parking enforcement) and staff support positions. Personnel policies allow the department to retain a highly skilled and educated work force.

The Department has 18 vehicles. In addition to the 6 marked cruisers are 2 trucks (animal control and marine warden), 2 school resource vehicles, a D.A.R.E. vehicle, 2 detective vehicles, 3 administrative vehicles, a mobile command center, a parking safety vehicle, an equipment trailer, and an air-boat.

The Department handles approximately 28,000 calls for service each year. Of these service calls, approximately 1,100 are motor vehicle accidents, 1,400 are arrests, 1,400 are offense reports, 1,700 are Emergency Medical Service calls, and 2,400 are fire response calls. As our community has grown and developed, this number has increased and is projected to continue increasing in the future.

Due to increases in the number of personnel in the department and its mission, the space in the Municipal Building has become severely overcrowded. According to a recent facilities study by the town, the department occupies dangerous work spaces that are not conducive to police operations. Storage for department equipment is severely limited, and indoor air quality is a concern. Parking space for the department's cruisers is limited.

Current plans are to move the Police Department into the newly acquired Times Record building on Industry Road. The space available to the department would expand from the current 6,000 square feet to between 20,000 and 25,000 square feet. This amount of space would satisfy the department's needs for the near future.

The Police Department is relatively small for a town the size of Brunswick. According to the Federal Bureau of Investigations, a New England town the size of our town should have 1.8 sworn officers for every 1,000 residents. The department currently has 1.6 officers per 1,000 residents.

Demands on the department are exacerbated because of our town's role as a service center. Tourists, commuters, night life, health care facilities, regional retail stores – the number of reasons for people to travel to or through our town are numerous, and the Police Department provides public safety services to all.

Continued residential and commercial development will continue to increase the demands on the department.

Finally, the Navy is turning over 400 to 500 housing units to a private management company. Once this happens, the Police Department will be in charge of public safety for these housing units (this service used to be provided by the Department of Defense). By early 2005, an additional 1,500 residents will need public safety services from the Police Department.

Fire Department (and EMS)

The Brunswick Fire Department provides 24-hour fire and emergency medical services to the entire community. The fire station was built in 1919 and is located on Town Hall Place.

The department operates with a combination of 27 firefighters, 1 support person, and 30 on-call firefighters that respond to emergencies on an as-needed basis.

The Fire Station is too small and outdated for a modern fire department. The station was originally built for horse-drawn firefighting apparatus, and despite upgrades, the department has outgrown its space. Some apparatus are stored outside and the ladder truck cannot be replaced because a new truck would be too large for the station. Storage space is in short supply – some equipment has to be stored outside and has been vandalized in the past – and the living quarters are inadequate. The fire station is not ADA compliant.

Apparatus include three active engines, one ladder, one tanker, three rescue ambulances, three special-use cars, two brush trucks, a hazardous material trailer, a boat, and two vintage fire fighting apparatus.

Response times to service calls varies throughout town. The closest thing to a national standard on response times is to have an 8-minute response time to 90% of life-threatening calls. In Brunswick, 90% of the calls have a 9-minute response time, which is considered good. East Brunswick has the longest response times in the community, and is an area that is experiencing significant residential development and large-scale commercial development.

In the 2003 calendar year, the department had nearly 3,000 service calls. Of these, 28% were for fire services and 72% were for emergency medical services. Types of calls ranged from structure fires (52) to vehicle fires (18) to rescue assistance-extraction (206) to hazardous conditions (132). More than 160 of the calls were false alarms, the vast majority of which were not malicious. The department has mutual aid agreements with surrounding communities, and in 2003 it responded to 24 mutual aid calls (it received approximately the same number of assists from surrounding communities).

The number of calls the department receives each year has increased steadily since 1992. In that year, there were under 500 fire and other non-EMS calls. By 2003, this had increased to 846 calls. Data suggests there has been a steady increase in the number of calls for most of the last decade.

The number of service calls on the fire department is projected to continue in the future. Recent trends suggest that we are asking more of our fire department – the 0.023 service calls per Brunswick resident in 1992 has steadily increased to 0.040 service calls per Brunswick residents. The number of EMS calls has increased from 0.041 calls per resident in 1992 to 0.100 calls per resident in 2003. On top of these increasing per-capita call rates has been an increasing population. These two trends are projected to continue, which suggests that the number of service calls per year is going to continue to increase.

The department also provides emergency medical service to the entire community. In the 2003 calendar year, EMS services received more than 1,700 service calls. In the 03-04 budget year there were 2,108 service calls. For these, the town was reimbursed more than $700,000.

Fire service to the community is generally good. Those in the downtown area have excellent response times, while those in the more rural areas have good response times. Response times to East Brunswick and Cooks Corner are not as good for the type and volumes of fire services that must be provided to these areas.

To address the service issues in East Brunswick and the poor space at the fire station, the town has examined several solutions. One of these includes a public safety substation on town-owned land in Cooks Corner. Discussions about potential solutions to these issues are continuing in the community.

Brunswick School Department

Our public education system is administered by the Brunswick School Department. The policy making body of the Department is the Brunswick School Board. This Board has nine members.

Public school is provided to all students from Kindergarten to 12th grade. There are currently 3,300 students in our town, of which approximately 180 are tuition students from neighboring communities. Enrollment projections suggest there will be between 2,900 and 3,300 students enrolled in our schools by 2017. For a community our size, this is an impressive retention of school enrollments.

The School Department operates six schools. Detailed analysis of each school and its role in the department's future plans are addressed in the ***Brunswick School Department*** report for the Comprehensive Plan Update Committee.

- Coffin Elementary School was built in 1955 and has approximately 450 students. Portable classrooms are used because of the overcrowding of the rest of the facility. The long-range plan for Coffin School aims to reduce this school population to 350 students in grades K – 5.

- Hawthorne Elementary School was built in 1893 as the original Brunswick High School. It has approximately 190 students in grades K – 2. The buildings many physical shortcomings have led the School Department to recommend its closing in the long range plan to be reused for other educational or municipal uses.

- Jordan Acres Elementary School was built in 1972 and has approximately 490 students in grades K – 5. Portable classrooms on site help ease the overcrowding burden.

- Longfellow Elementary School was built in 1924, but has had additions as recently as 1998. Overcrowding at the school is a concern. The school serves students in grades K – 5.

- Brunswick Junior High School serves grades 6, 7, and 8. This school shares space with the Coffin Elementary School, and with the Bus Garage, Facilities Office, and Food Service. Congestion around the facility is an issue, as is overcrowding in the classrooms (the Department currently relies on several portable classrooms to create enough space).

- The Brunswick High School was built in 1995 for grades 9 – 12. There is adequate space to meet the needs of the School Department for the foreseeable future. Current enrollments of 1,137 students (including tuition students) is below the school's designed capacity of 1,200.

Brunswick students perform well compared to the rest of the state. Overall Maine Education Assessment results in 2004 are at or above the state averages for each grade level (except Grade 11 writing). High school SAT scores are consistently above state averages and national averages. Graduation rates are higher than state averages and dropout rates are lower than surrounding schools and the state as a whole.

District-wide, the Brunswick School Department has relatively low per-pupil operating costs. In the 02-03 school year, the department spent $6,266 per pupil. This was below the $7,088 spent per pupil by the median school, and considerably lower than Bath ($8,500), Freeport ($8,000), and S.A.D. 75 (includes Harpswell, Topsham, Bowdoinham, Bowdoin) ($7,250).

The Brunswick School Department report to the Comprehensive Plan Review Committee in 2004 contains a long range plan for the school system. Major expenditures in the future include a new 500 student elementary school, renovations and additions to Coffin, Longfellow, and Jordan Acres elementary schools, and additions and renovations to the Brunswick Junior High School. The space provided by the new elementary school would allow the department to close the Hawthorne Elementary School and provide it for other education or municipal uses.

Recreation Department

The Recreation Building does not meet standards for any of its assigned uses. The day care program is operated in space that is below grade, office space is limited, and the gymnasium

does not meet functional standards for many of its intended uses. The building is not fully ADA compliant. Parking for staff and the public is very difficult to find.

The People Plus Center is located on Maine Street across from the First Congregational Church. The buildings that comprise the People Plus Center is an old church and rectory. Space demands limit the type and range of programming that can be offered, and parking and access are major issues.

Public Works Department

The Public Works Department is located on Industry Way. The garage is worn and damaged from heavy use, is not ADA compliant, and has only an estimated 30% of the recommended space it needs to operate. The adjacent recycling center is also worn out and has insufficient space. The parking lot for these two buildings is rutted and needs resurfacing.

Facility Needs

In the last 10 years, Brunswick has spent more than $45,000,000 on capital improvements to its facilities. Education expenses account for nearly one-half of this total, most of which went for the new High School built in 1995. Public works expenditures on improving roads and sidewalks and purchasing new equipment have accounted for 29% of the total ($13,000,000). Recreation expenses (Androscoggin Bike Path, Coffin Pond Chlorination System, Sawyer Park, etc) accounted for 7% ($3,000,000). Public safety (3%), economic development (2%), and general government (less than 1%) totaled $2,400,000. Other expenses totaled $6,000,000, which includes the Curtis Memorial Library, underground storage tank removal, and other projects.

Issues

1. The Town of Brunswick has conducted several studies to determine what to do with the space needs of its public facilities. On the one hand, the Town has significant overcapacity at the Times Record building and Old High School. On the other hand, existing facilities at Town Hall are overutilized.

2. The potential closing of Naval Air Station Brunswick could be an opportunity for the Town to fill some of its public facility needs and wants. At the same time, the Town still has significant overcapacity now, and adding new facilities will have to be examined thoroughly.

3. As the demographic composition of our community's population changes, the types of demands placed on our public facilities and services is changing. How can the public facilities and services react to and anticipate the changing type of demand?

Recreation

Our town's recreation needs are met by an impressive range of public and private resources. The Town provides a variety of recreation programs and facilities open to everyone in the community. The Naval Air Station and Bowdoin College have facilities and programs available to those who work or study there. Private recreation facilities are available where the market makes their operation feasible.

Refer to our town's recently completed *Parks, Recreation, and Open Space Report* for a more detailed inventory of our town's recreation resources.

Public Recreation Resources

Our town's residents have a variety of public recreation facilities available. The Recreation Department sponsors organized team sports, individual sports, education programs, field trips, nursery school, and a range of other activities for all residents. The School Department provides organized sports and recreation programs for students from Kindergarten through secondary school. The People Plus Center is expanding its services to provide opportunities to residents of all ages.

The Town of Brunswick operates a variety of recreation facilities throughout the community:

- *Outdoor recreation facilities* include parks, ball fields, courts, gardens, a swimming hole, and playgrounds. These facilities tend to be centered in the more developed areas in Brunswick's Downtown.

- *Trails and bicycle/pedestrian facilities* are spread throughout our town. These range from sidewalks (which total more than 32 miles and are clustered in developed areas), to the Androscoggin bike path, to the College-Commons-Bay trail, to numerous other less-formal trail systems. While public access to much

Current Reports and Documents

- The *Parks Recreation, and Open Space Report* is a comprehensive study that includes inventories, a public opinion survey, and an implementation strategy. Topics addressed include:
  - Water Access Subcommittee Report
  - Trails & Greenways Subcommittee Report
  - Parks, Playgrounds, Outdoor Athletics & Community Gardens Subcommittee Report
  - Indoor Recreation Facilities Subcommittee Report
  - Indoor Recreation Facilities Analysis

- The *Town of Brunswick Facilities Study* (2001) by SMRT details the public indoor recreation facilities in Brunswick.

- The *Mall Management Plan* (2000) studies how the Lower and Upper Malls are used and details strategies that can maintain their health in the future.

- The *Shore Access Report (*1995) details all of the legal public access points to water bodies in our town.

of this networks is guaranteed, the trail network is dramatically larger when those using private trails is included.

- *Indoor recreation facilities* include the Brunswick Recreation Center, Brunswick School Department (six school buildings), the Old Brunswick High School, People Plus Center (technically a nonprofit but funded by the Town), and the Brunswick Naval Air Station (access is limited to Department of Defense personnel)

- *Water access points* in our town are spread from the upper reaches of the Androscoggin River to Wharton Point on Mere Bay. Of the 39 known access points, 12 have established legal access for the public. For more detail, see the 1995 Shore Access Report and the 2002 Public Water Access Inventory. In total, there are five sites where tailored-access is available, although several of these are limited by tides and/or poor ramp conditions. A public boat ramp is being built on Mere Point be the State that will have all-tide access to northern Casco Bay.

For a detailed inventory on all of these facilities, see the recently completed *Parks, Recreation, and Open Space Report.*

Brunswick's Recreation Department oversees the coordination of these activities and maintains our outdoor recreation resources and recreation center.

Recreation Committee oversees the activities of the Recreation Department. In addition, there are several other community organizations that support recreation programs (Rotary Club, Little League, People Plus Center, etc).

Trails and Pedestrian Connections

Trail and pedestrian connections are important components of our town's recreation facilities. These are located on both public and private land. For more information on these facilities, see the Transportation summary of this plan, the *Brunswick Bicycle and Pedestrian Plan,* and the *Town of Brunswick Sidewalk Inventory Rating*.

Water Access Points

The *Public Water Access Inventory* in the *Parks, Recreation, and Open Space* report describes all 12 public access points to water bodies in town. These include five access points for trailored boats, and the rest for pedestrian/canoe/kayak access. The Shore Access Report in 1995 inventoried these sites, but also identified many historic access points to water bodies where the public's right of way is in dispute.

Brunswick Naval Air Station

The Naval Air Station has several recreation facilities available to active duty personnel, their families, and retired service personnel. Some guest usage is allowed, but only if accompanied by

military personnel. Their sports and recreation facilities include a fieldhouse, recreation mall, fitness center, rental/hobby shop, golf course, courts, playgrounds, and other outdoor facilities.

Bowdoin College

Bowdoin's recreation facilities are available to students, staff, and faculty. Limited public access is available to some of Bowdoin's facilities. These facilities include Pickard Theater, Dayton Arena, Greason Pool, Farley Fieldhouse, Morrell Gym/Sargent Gym, the squash bulding, and the Watson Fitness Center.

Private Recreation Resources

There is a large number of private recreation facilities in and around our town. These include several indoor fitness centers (fitness, aquatic facilities, tennis, and other racquet sports), an indoor skating rink, an indoor ice arena, golf courses, studios (dance, martial arts, gymnastics, etc), indoor soccer, arts and crafts, and the performing arts.

There are two YMCA's in communities surrounding Brunswick. The Bath YMCA is a new facility and includes an indoor pool, gym, track, weight and cardio fitness center, racquetball court, and multi-purpose classrooms. The Casco Bay YMCA in Freeport is also new and has an indoor pool, teen center, wellness center, childcare area, and an outdoor court facility. An estimated 5% of the membership of the Casco Bay YMCA are Brunswick residents.

Issues

1. As our town continues to grow and change, the recreation needs of the community will continue to change.

2. The demand for indoor recreation space is high, especially in the gymnasiums. This demand is projected to remain high.

3. The People Plus Center as recently expanded its mission beyond seniors to the entire community. The amount of space available at this facility is limited.

4. Indoor and outdoor recreation facilities at the Naval Air Station and Bowdoin College provide limited access for organized recreation opportunities by the Town or the School Department.

5. Community recreation space east of Cooks Corner does not exist, despite this area's fast growth and the location of many families in this section of town.

6. Impact fees for new developments can skip the recreation component of the program if they donate conservation land – often a less expensive alternative for the developer and of no help with the town's need for recreation facilities.

7. Athletic fields are currently being used to the limit. There is not enough space during certain times of the year, and there is not enough time to rest fields to ensure optimum playing conditions.

8. Brunswick has leased land owned by other organizations and provided public recreation areas on the leased land. Owners of some of this land can decide to discontinue the leases, which will deprive the town of some recreation facilities.

9. Some facilities are not adequately maintained, ranging from landscaping improvements to playgrounds not meeting the Standard Consumer Safety Performance Specifications.

10. Bicycle linkages throughout the community are not adequate or consistent.

11. Links between trail networks often cross property that will likely be developed. The Brunswick Planning Board has limited ability to encourage trail allowances

12. Public use of private land has been traditional for decades, but many landowners are expressing concerns about allowing public access to their private land. Restricting this public access is their right. Are there ways the Town of Brunswick could help mitigate this conflict and help retain access to the landscape?

13. Despite miles of waterfront, Brunswick residents have limited access to the shore for swimming, fishing, canoeing, kayaking, etc. As the interests of waterfront landowners have changed over time, many of what were traditional water access points have been lost. This trend is likely to continue. In addition, several of our current water access points need physical improvements and/or additional parking. Not all of these access points are ADA accessible.

Agricultural, Forest, and Open Space

Natural resources were once the foundation of our town's economic and social structure. While that has long passed, they still retain an important role in our community's character.

Agricultural Resources

Agriculture always has played a central role in the life of Brunswick, so much so it seems that chroniclers of town life seldom refer to it except in passing. Hard data is hard to come by – it's as if farming was so prevalent and so basic that the activity didn't warrant comment. The large farms that to this day dominate our rural landscape are testament to this component of our history.

In the 1950s and 1960s, agriculture in Brunswick began to decline as it did in many rural Maine towns. In 1950, there were an estimated 50 working farms. By 2002, this had declined to close to 10 working farms. Rising land values, fewer markets for local products, and competition from around the globe have conspired to pinch our local farms.

Today, farms in our town sell a wide range of products, from vegetables to meats to dairy products to hay to horticultural plants. These products are largely sold within Maine, but many of the products – especially meats – are sold throughout New England.

There is a limited correlation between the soils which are ranked as prime agricultural and the actual sites of working farms. Indeed a large percentage of the best soils for croplands in underneath the developed areas of town. It is unlikely that a large percentage of new farmland is going to be created from the forests, and the town will likely continue to see a net loss of farmland.

Current Reports and Documents

- The Parks Recreation and Open Space Report studied our town's farms and forests in detail. For more detail, see the
  - Farmland Subcommittee Report
  - Woodlands Subcommittee Report
  - Community Forest and Street Trees Subcommittee Report
- A *Farmland Preservation Case Study: Brunswick* was prepared by Kristin Awsumb. This case study inventory the history of farming in our town and details various preservation tools available to protect valuable farmland.
- *Farmland and Forestland* was prepared by Joan Hoppe of Brunswick for the 1994 Comprehensive Plan. This report is a history and comprehensive inventory of the farms and forests in our community.
- *Town Woodlot Report* was prepared for the Conservation Commission by Woodlot Associates. This report inventories each woodlot parcel owned by the Town.
- *Scenic Inventory, Brunswick Maine* was created as a component of the Parks, Recreation, and Open Space plan. This report is a detailed inventory of scenic areas and gateways in our community.

Forest Resources

The majority of the land area in Brunswick is forested. The Town has an interest in the health of this forest on two levels. First, the Town owns seven woodland parcels that are managed by the Conservation Commission. Second, the rest of the community is heavily forested and this forest provides important wildlife habitat and forestry opportunities for many private landowners in town.

Our town's seven woodland parcels are managed by the Conservation Commission. These parcels are spread throughout the community and include:

- Cox Pinnacle parcel, West Brunswick
- Senter parcel, interior parcel off of Durham Road and Bagatelle Lane
- Kennedy parcel, interior parcel adjacent to Interstate 95
- Pleasant Hill Road Landfill parcel, Pleasant Hill Road
- Haywood Lane parcels, two interior parcels adjacent to Twin Echo development in West Brunswick
- Coombs Road parcel, East Brunswick adjacent to Naval Air Station
- Androscoggin Islands between Topsham and Brunswick

Privately-owned forests provide economic opportunity, wildlife protection, and recreation opportunities across town. Forests cover more than 16,000 acres in town.

Open Space and Scenic Resources

Our town's landscape is characterized by a variety of scenic views. These range from working farms to deep forests to historic buildings to traditional neighborhoods, streetscapes, and gateways. These resources have been catalogued in the *Scenic Inventory, Brunswick Maine*.

Current Use Taxation

Landowners in our town rely on three voluntary tax programs in order to reduce their property tax obligation and help keep areas of Brunswick as a working farm, working forest, or open space. Lands that are enrolled in the programs are assessed for their current use, as opposed to their potential fair market value for more intensive uses. The property owners receive a reduced tax bill from the Town so long as they are enrolled in the program. If they remove their land from the program, they might have to pay a penalty so that the Town recoups some of the lost tax revenue.

In 2004, more than 1,400 acres were enrolled in the Farmland Tax Program, 1,500 acres were enrolled in the Tree Growth Program, and 1,600 acres were enrolled in the Open Space Program. Participation in the program has generally been increasing – the number of parcels enrolled and the total acreage enrolled as farmland and forestland has steadily increased between 1994 and 2004.

Between 2000 and 2004 the amount of Open Space enrolled in the program declined by 300 acres. In general a few larger parcels were removed from the program and were replaced by an equal number of smaller parcels.

Right-to-Farm Ordinance

Brunswick has adopted a Right-To-Farm Ordinance. This ordinance mimics the state's Right To Farm law (Title 17, section 2805) that seeks to protect farm operations from nuisance claims.

Issues

1. Residential development, which is projected to continue at a rapid pace, can threaten the scenic character of the more rural areas of our community.

2. Rising land values increase the financial equity many rural landowners have invested in their property.

3. The Town of Brunswick is rich with working farms, forests, and landscapes. These add immeasurable value to the community. Keeping these farms and forests working is the most efficient way to preserve the community's rural areas. At the same time, unless there is a new generation of farmers that are willing and able to purchase farms in Brunswick, the long-term protection of these resources cannot be assured. What can the Town of Brunswick do to support these working farms and forests?

Natural Resources

Our community's natural resources are both widespread and finite. Topography, soils, water resources, wetlands, open spaces, and wildlife create a rich tapestry that falls from the ridges in West Brunswick to the peninsulas reaching into Casco Bay. Recent development patterns have threatened the health of these natural resources.

For more information on the town's natural resources, refer to the many studies and reports that have been compiled on this subject identified below.

Topography

All of the rock underlying our town is millions of years old. Large folds in these rocks – the peaks of which include the ridges in West Brunswick and the peninsulas that reach into the bay – were exposed during the last ice age. As the glaciers retreated 10,000 years ago, a large, flat outwash plain deposited sand and gravel across the central portion of Brunswick.

This outwash plain is the aquifer for the public water system in our community and is mined for sand and gravel in many locations in Brunswick and Topsham. The supply of water in this aquifer far exceeds demand – a resource that could become of regional importance in the future. These alluvial deposits are also mined for sand and gravel in many locations in Brunswick and Topsham.

Soils

There are two major soil associations in our town.

One is the Suffield-Buxton-Hollis, found on the eastern and western border areas of the town and along the frontage on the bays. These soils are related to marine deposits on gentle lower slopes and glacial till on the ridges in the western areas of town. These soils are particularly suitable for farming and tree growth. Their residential use is limited be slow and very slow permeability and shallowness to bedrock – which affects subsurface sewage disposal.

The second association, the Windsor-Hinckley-Deerfield, occurs in the central portion of the town. This originated from the relatively flat outwash deposits of

Current Reports and Documents

- The *Flora and Fauna Subcommittee Report* contains a detailed inventory of locally and regionally significant biological features.
- ***2002 Parks, Recreation, and Open Space Plan*** – This study includes a detailed inventory of the community's recreation facilities, parks, and natural and open space resources including agricultural and forestry land and scenic resources.
- ***2003 Rural Brunswick Smart Growth Strategy*** – This project included a detailed inventory of the community's unfragmented, forested wildlife habitat and .wildlife travel corridors as while as a strategy for managing these resources.

marine and alluvial origin. These soils are suited for tree growth, but not as well suited for farming. Ground water contamination is of particular concern on these soils because of the high water table and good permeability of the soil.

Surface Water

While being largely surrounded by surface water, there is very little surface water that is entirely within the borders of our town. The Androscoggin River is our northern boundary, the New Meadows River is our western boundary, and Casco Bay to the south. Beyond these water surfaces, there are numerous smaller farm ponds, flooded gravel pits, and impoundments in the community, however there are no great ponds (10 acres or larger).

There are four larger watersheds in our community:

- The Androscoggin watershed extends along the northerly border of the community. Simpson Brook and a number of unnamed streams flow northerly into the Androscoggin. In this watershed is most of the town's public water supply and aquifer protection districts. Land use in the watershed varies from farm and forest to industrial and commercial. A mixture of on-site wastewater disposal and public sewer serve this watershed.

- The Royal River watershed flows south out of West Brunswick and into Freeport. Approximately 2.5 square miles of watershed, including Collins Brook and numerous smaller tributaries, flow into the Royal River. Land use in the watershed is forest and residential with on-site wastewater disposal.

- The New Meadows watershed is very narrow and is characterized by numerous rocky outcroppings. Land use in the watershed is largely residential and uses on-site wastewater disposal.

- A large portion of Brunswick drains directly to the Bays in relatively small streams, including Mill Stream, Kelsey Brook, Bunganuc Brook, Miller Creek, and Mere Brook. The lower portions of these streams tend to be tidal. Land use in this watershed is forest, farm, and residential. Most of the areas rely on on-site wastewater disposal.

The most productive ecosystems in our community are the estuarine systems that are located where streams and the oceans meet. These estuaries are very valuable for both ecological and economic reasons. The quality of the freshwater entering the bays can have enormous impacts on the ecological and economic health of our shellfishing flats. Merrymeeting Bay is one of the nation's more significant breeding grounds for fisheries and a haven for migrating birds.

Other potential threats to surface water include:

- An old municipal landfill in Bunganuc Stream's watershed,

- Rapid residential development – especially that which has on-site wastewater disposal and is on marginal soils or near a water body,

- The New Meadows Lake, which has a slow turnover rate that creates more opportunities for eutorphication,

- The active municipal landfill on Graham Road, although its discharges are closely monitored,

- The unnamed stream that overlies the aquifer that provides most of the town's public drinking water has Interstate 95 in its watershed. A spill along the Interstate could affect this source of drinking water.

- While the Androscoggin River's water quality is degraded before it reaches Brunswick, our community has a responsibility to protect this water body for communities downstream of us.

Ground Water

Our town is underlain by two types of aquifers. Sand and gravel aquifers, underneath the more developed portions of the community, largely supply the public water system in Brunswick and Topsham. Bedrock aquifers, which account for most of the individual water supply systems in the community, are generally located in the more rural areas of the community.

The aquifer protection overlay zone protects the quality and quantity of the town's public water supply by regulating the land uses that could affect the resources. One APZ is located west of Interstate 95, and the other is in the Jordan Avenue neighborhood. Each APZ has two levels of protection. A higher level of protection is required for land uses within 200 days of travel time from the public wells, and a lower level of protection exists in the rest of each aquifer.

Threats to groundwater fall into five categories:

- Underground tanks are located throughout the community and were identified in detail in the ***1994 Comprehensive Plan***. These typically stored oil, gas, kerosene, or other products and could leak their contents into the water supply.

- Floor drains collect water and spilled substances and discharge to soul, groundwater, or septic systems. These sites have been identified by the Maine Department of Environmental Protection.

- Hazardous waste generators are businesses or other activities whose actions produce hazardous waste. These businesses range from hospitals to manufacturers and are required to register with the Maine Department of Environmental Protection.

- Overboard discharges include septic systems that discharge directly into surface waters.

- Miscellaneous potential threats include active and inactive landfills, dumps, junkyards, inappropriate agricultural practices and road maintenance, clearing on steep slopes, and other types of pollutant discharges.

Wetlands

Wetlands are transitional areas between open water and dry land. Such areas include fresh and saltwater marshes, swamps, and wet meadows.

Wetlands provide many benefits to our town, including sediment retention, floodflow alteration, plant and animal habitat, finfish and shellfish habitat, and educational/cultural benefits. The Maine Natural Areas Program characterizes wetlands based on these five values to determine which ones are highest in value.

Our town has several high value wetlands, most of which are located along our southern shore at the head of the bays and estuaries, along the New Meadows River, and the tidal stretches of the Androscoggin River. Wetlands in West Brunswick are generally of moderate to low value, although there are some wetlands that are moderate-high value wetlands.

Wetlands are some of the most important and vulnerable natural resources in the community. Land use activities such as draining, clearing, filling, and waste disposal can significantly alter or destroy the value of these wetlands.

Wetlands are currently protected by our town's Natural Resource Protection Zone. This zone regulates land use activities within 250 feet of coastal and upland wetlands which were identified as moderate of high value by the Maine Department of Inland Fisheries and Wildlife. Wetlands under 1 acre in size are not included in the NRPZ.

Vernal Pools

Vernal pools are typically smaller than wetlands, although some vernal pools are large enough to be protected by Maine's Natural Resource Protection Act. These polls are typically created as winter runoff and spring rains collect in depressions in the landscape. Often the collection of water has dried up by summer or fall.

Despite its temporary nature, these vernal pools are important habitat for wood frogs, salamanders, shrimp, and many threatened or endangered species.

Vernal pools have been mapped in Brunswick, but there are no explicit protections for these habitats from changes in land use.

Hazard Areas

Hazard areas are those portions of the town that are subject to natural hazards which can potentially cause damage to structures, or conditions which present major difficulties to the sighting of structures. These areas include:

- Areas subject to sea level rise, which is projected to rise several inches over the next century. Bluffs (increased erosion) and coastal marshes (migrating inland) are the areas most threatened by sea level rise.

- Steep slopes tend to be susceptible to erosion and are difficult areas in which to site roads and/or buildings. Steep slopes are often characterized by thin soils over bedrock, and these soils can erode quickly once exposed and create sedimentation problems downstream.

- Floodplains are areas susceptible to severe flooding. Existing structures and facilities located within the areas mapped are vulnerable to flood events, most recently in 1987.

Significant Wildlife Habitats

Our town has a range of important wildlife and habitats. Some of these areas are large and represent typical forests in our region. Others are small and have unique characteristics that are seldom replicated anywhere else.

- *Deer wintering areas* typically consist of softwood or mixed forests which have a winter use by deer. In Brunswick, these areas may only be used in winters with exceptionally heavy snowfall, but during those years they may be critical for deer survival.

- U*nfragmented habitat blocks* are large forested areas with little or no human disturbance. These blocks are essential for maintaining a diverse wildlife population. The health and diversity of these blocks typically increases with the size of the block. Development can fragment these blocks and reduce their value. As blocks disappear, not only are we left with a suite of species indistinguishable from those in suburban communities, but we lose a part of who we are as well.

  The Town's planning staff identified and mapped fifteen unfragmented habitat blocks containing 7,300 acres based on April 2001 aerial photography (ranging from 165 acres to more than 1,700 acres). Some blocks extend into surrounding communities. These blocks are geographically dispersed throughout the rural areas of the community.

- *Wildlife travel corridors* are essential to connect blocks of unfragmented lands together, thereby expanding the effective size, health, diversity, and stability of our wildlife resources when once on the verge of being isolated. Town staff refined the location of the wildlife corridors throughout our community's rural areas. For more information, see ***Brunswick Rural Smart Growth***.

- *Riparian corridors,* which include the wooded parcels that border streams that meander through our community, are important travel corridors for wildlife and are important wildlife habitats all by themselves. The Conservation Commission, with the assistance of Town staff, have identified the most important riparian corridors in the ***Parks, Recreation, and Open Space Report***.

- Town staff have identified and mapped several rare natural communities in our town. These include pitch pine barrens/woodlands, sandplain grasslands, and hemlock pocket swamps.

    - Pitch pine - heath barrens are supported by very sandy soils and provide habitat for many rare plants and butterflies. The Town Commons is an example of this habitat and is actively being managed to preserve this important natural community.

    - Sandplain grasslands support several rare plant and animal communities, and are located throughout our town. The Upland Sandpiper (threatened) and Grasshopper Sparrow (endangered) have both been documented on the runway apron of the Naval Air Station and several other species are in decline across the northeast as older farm fields are converted to development.

    - Hemlock-hardwood pocket swamps are rare in our community, but have been documented in Western Brunswick. These areas support a wide range of species, including many species dependent on vernal pools.

Significant Wildlife Species

Several significant species have been identified in our town. Some of these are listed and of statewide importance, while others are locally important. For more information, see the ***Flora and Fauna Subcommittee Report***.

Significant fauna include three listed species (Upland Sandpiper, Grasshopper Sparrow, and Bald Eagle). These have been documented by the Inland Fisheries and Wildlife and their natural habitats are protected by the Endangered Species Act. Cooper's Hawk, Northern Goshawk, eastern meadowlark, and vesper sparrows are birds of special concern. Amphibians of special concern include northern leopard frog, and four-toed salamander. In addition, there are several watch list species that occur throughout the region and likely depend on habitats in our town.

Significant flora include unicorn root, estuarine beggar ticks, river bulrush, upright bindweed, sea-beach sedge, dry land sedge, clothed sedge, American chestnut, pitseed goosefoot, marsh orach, showy lady's slipper, spike-rush, wild honeysuckle, trumpet honeysuckle, climbing hempweed, sassafras, and southern sea-blite.

Mapped Resources

The Town of Brunswick has created a series of natural resource maps that illustrate the levels of protection for various natural resources. This series of maps are displayed on the following pages. More detailed versions of these maps are available at Town Hall.

Development Limitations of Resources

	RESOURCE	LOCAL	STATE	FEDERAL	COMMENT
	Non-forested Freshwater Wetland (>10 acres)	NRPZ	NRPA; potentially Wetland of Special Significance	Joint NRPA review	
	Coastal Wetland	MDEP Shoreland Zoning Guidelines	NRPA Wetland of Special Significance	Joint NRPA review	Most towns require 75-foot setback, Brunswick requires 125-foot setback
	Floodplains	NRPZ	NRPA	FEMA	
	Steep Slopes	NRPZ	Best Management Practices; Site Law NAEER standard	None	
	Streams	NRPA Definition & Setback	NRPA Definition & Setback	NRPA Definition	
	Aquifer	APZ Zone 1	Site Law NAEER standard	None	
	Peatlands	Treated as forested wetland; when identified are considered under 411.2 Preservation of Natural Features	NRPA Wetland of Special Significance	Joint NRPA review	
	Rare, Threatened, Endangered Organism	411.2 Preservation of Natural Features; 411.10 Aesthetic, Cultural and Natural Values	IF&W Significant Wildlife Habitat and/or Essential Habitat; MNAP Rare Plants (only advisory); Site Law NAEER standard[1]	USFWS Endangered Species Act	Only species on list published by the agencies, or areas mapped by the agencies receive protection.
	Rare, Threatened, or Endangered Community	411.2 Preservation of Natural Features; 411.10 Aesthetic, Cultural and Natural Values	NRPA if S1 or S2 community in a wetland; MNAP advisory only under Site Review; Site Law NAEER standard	None	
	Forested Wetland (non-shoreland zone)	Subtract from density calculation; 411.2 Preservation of Natural Features	NRPA Regulate impacts over 4,300 sq ft	Joint NRPA review through USACOE	
	Vernal Pools	Treated as forested wetland; when identified are considered under 411.2 Preservation of Natural Features	NRPA Regulate impacts over 4,300 sq ft unless in mapped Significant Wildlife Habitat or Shoreland Zone	May be considered "Special Aquatic Site" if identified	No clear cut regulations at any level.
	Aquifer	APZ Zone 1A and Zone 2	Site Law NAEER standard	None	
	Deer Yards	411.2 Preservation of Natural Features; 411.10 Aesthetic, Cultural and Natural Values	NRPA if in wetland; IF&W; Site Law NAEER standard	None	
	Habitat Blocks and Corridors	Rural Brunswick Smart Growth	Site Law NAEER standard	None	Regulatory details to be worked out Summer 2004
	Commercial Farms	None	None	None	
	Commercial Forest Lands	None	None	None	
	Trails	None	None	None	
	Water Access Points	None	None	None	
	Cemeteries	None	None	None	
	Scenic Vantage Points	None	None	None	

Strong regulations and physical limitations for development

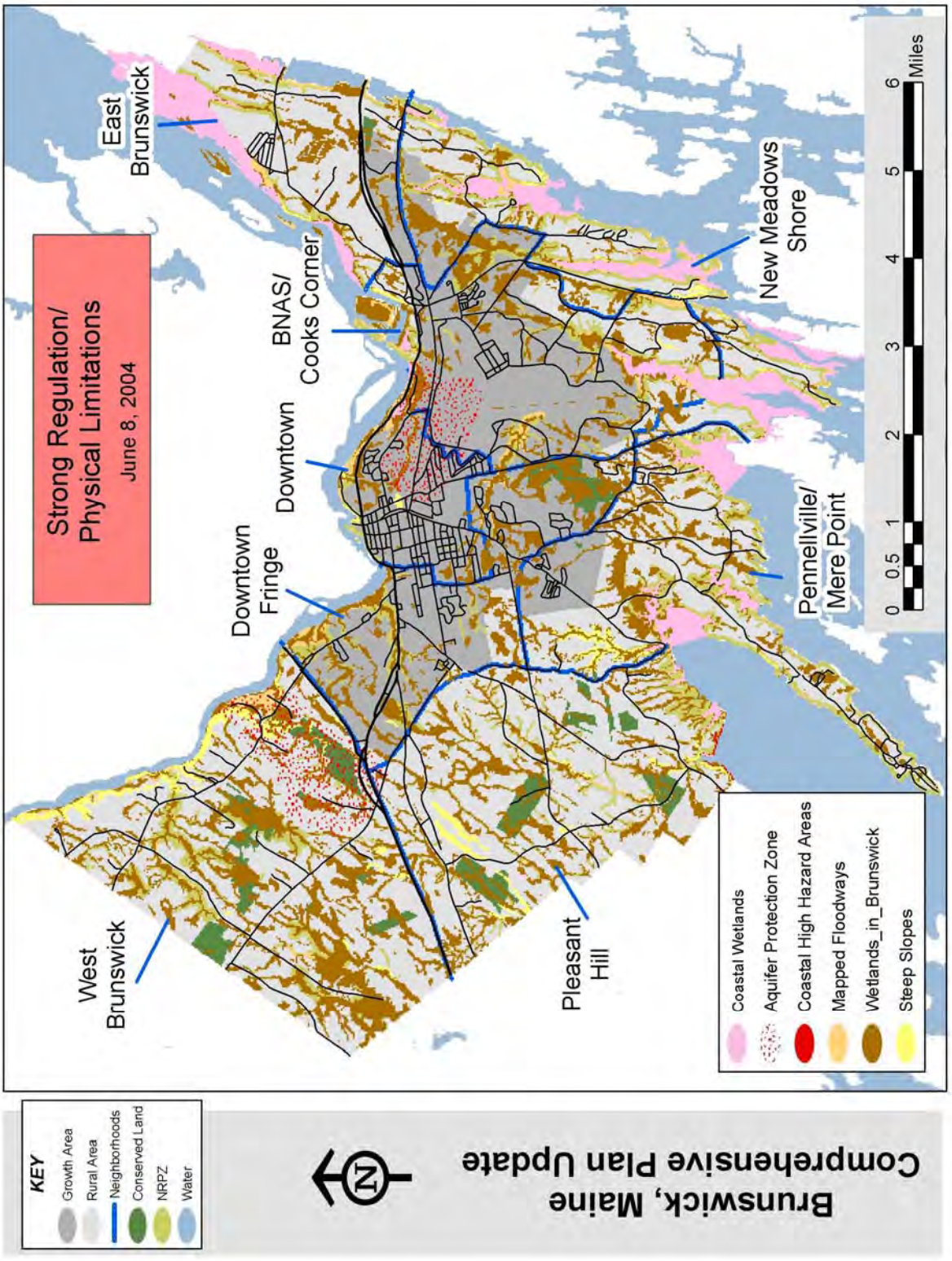
Development limitations if regulations are enforced and resources are properly identified in the field

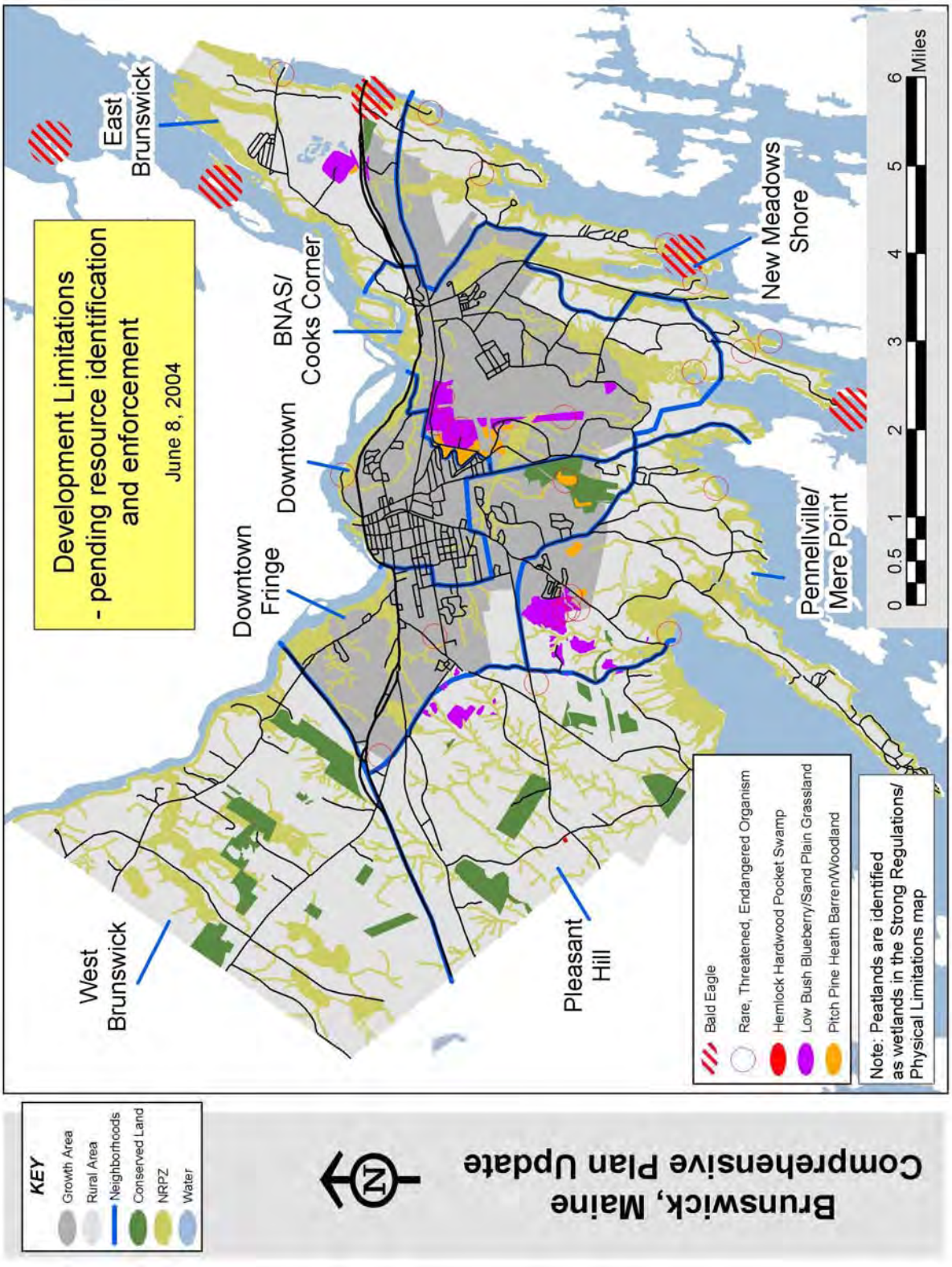
Regulations in place, but do not pose significant development restriction

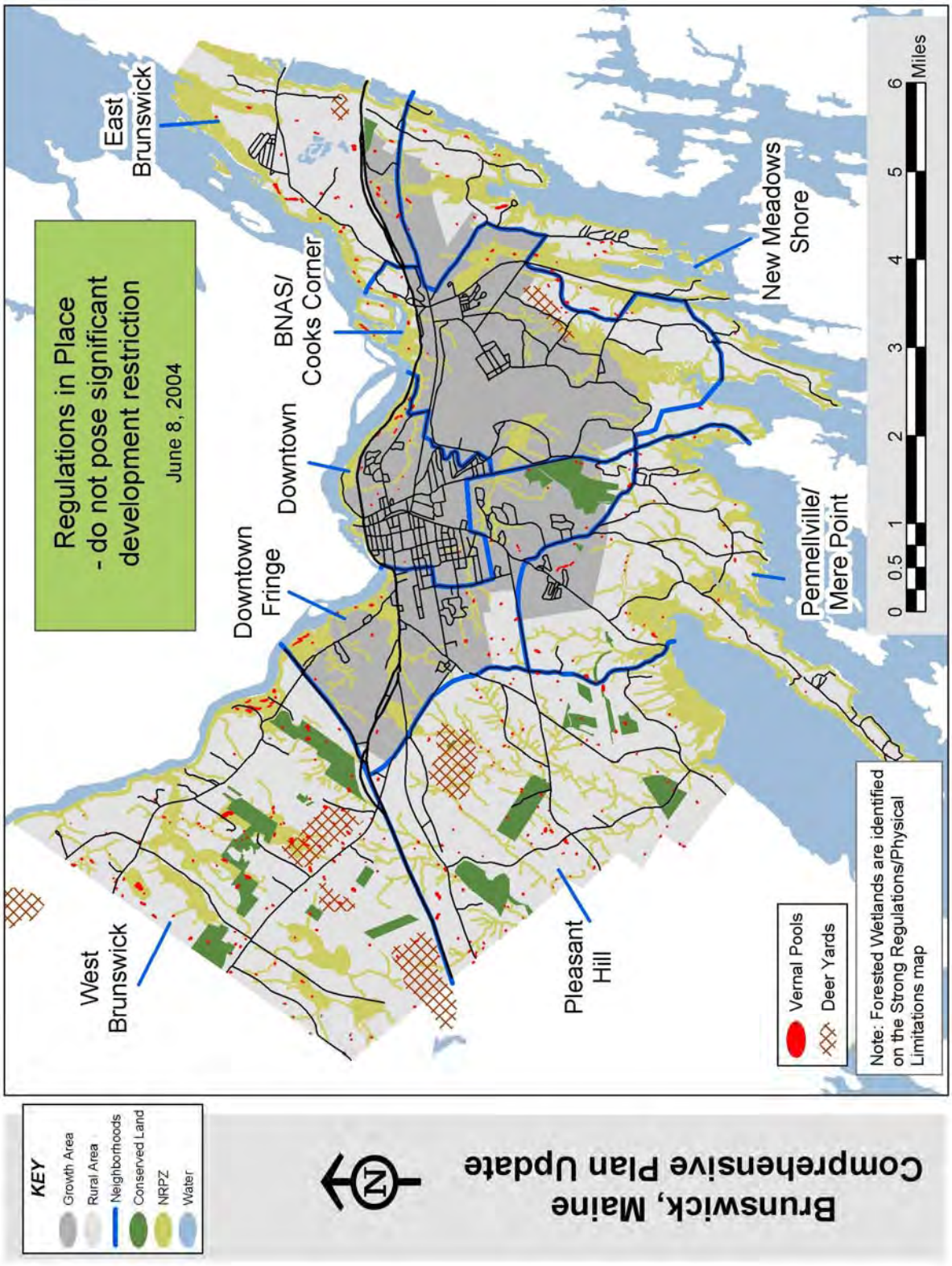
Pending Further Review

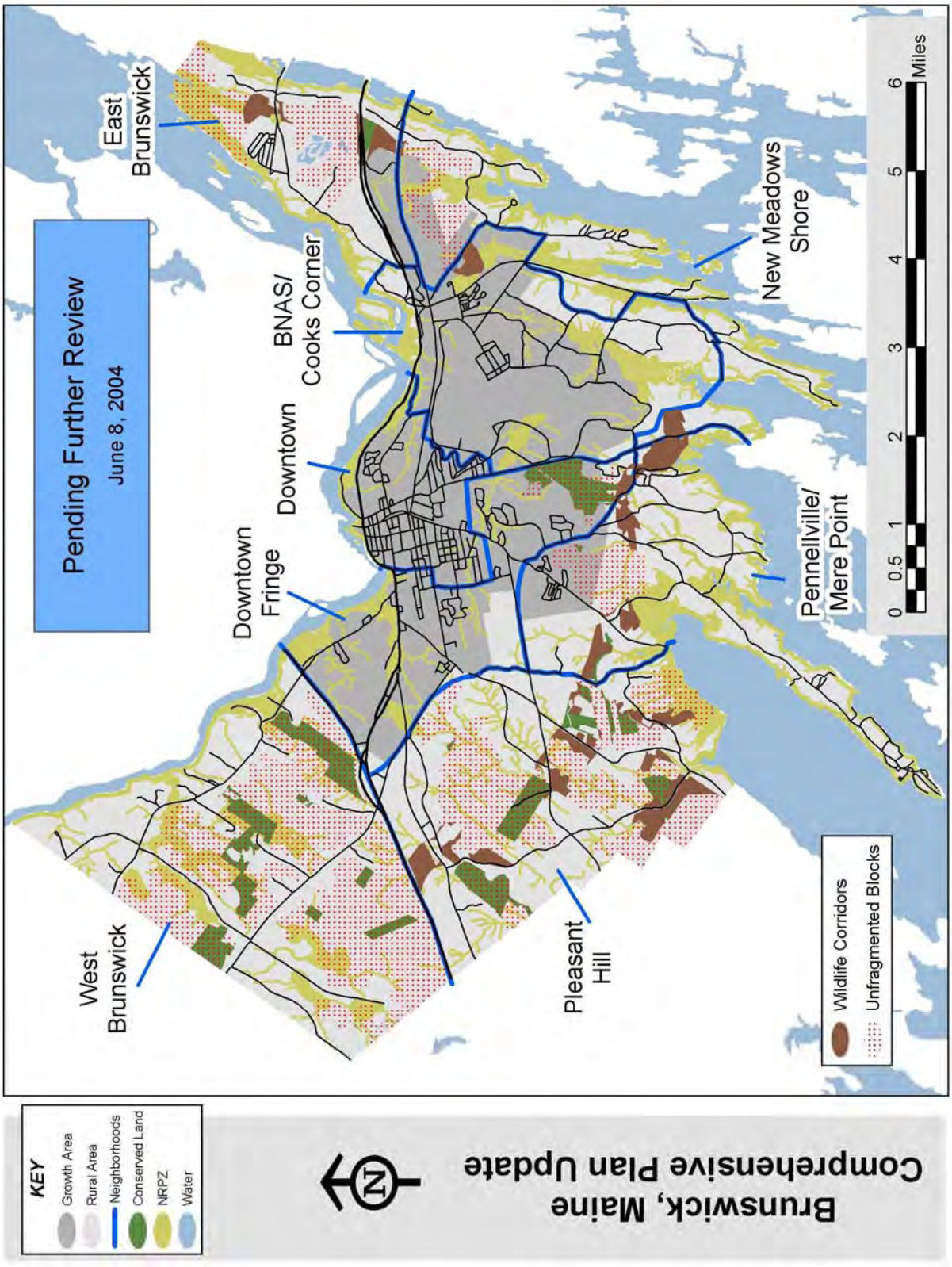
No Limitations

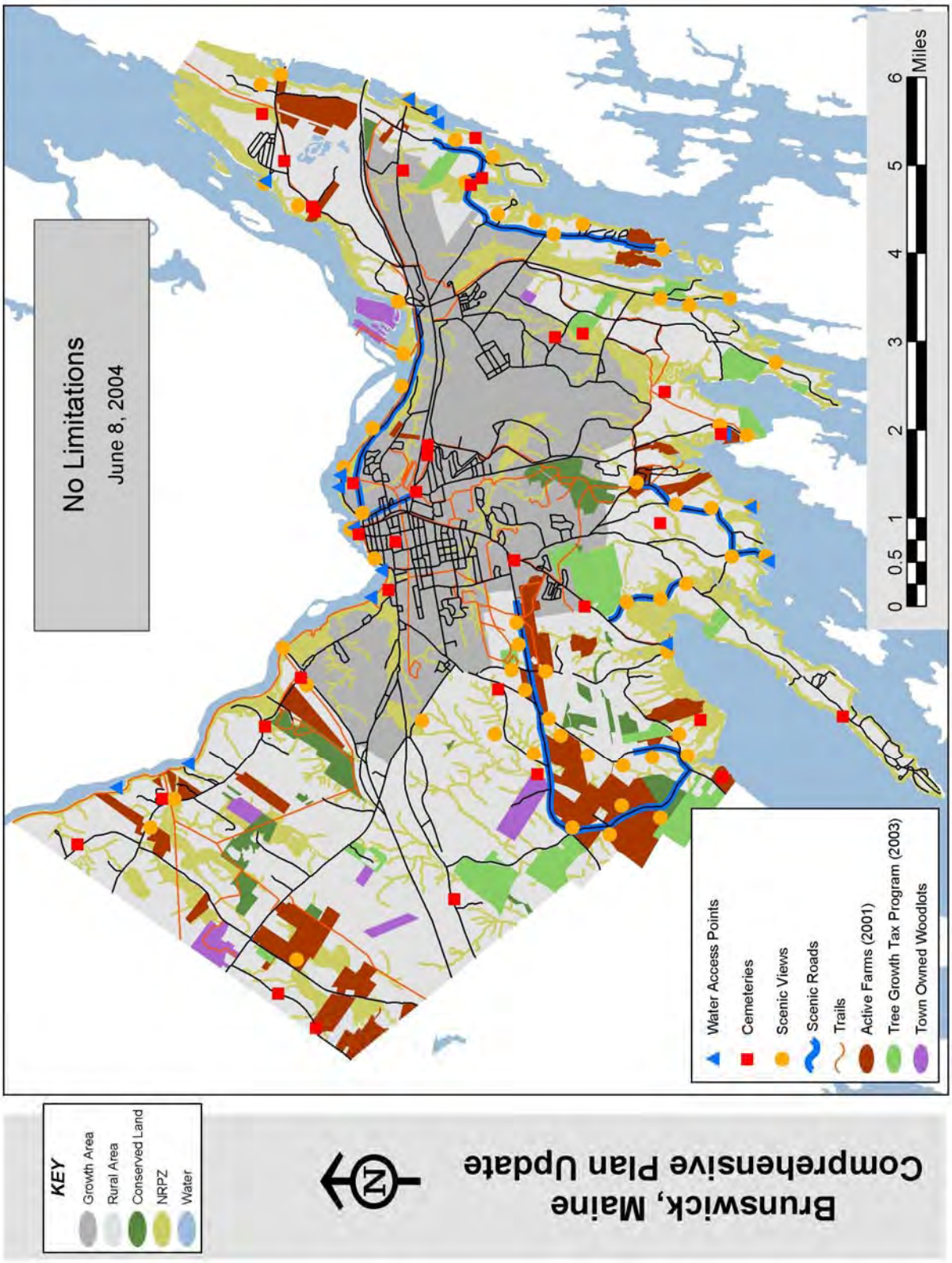
[1] The Town of Brunswick has been determined to have Site Law review capacity which raises the threshold for MDEP involvement.


Brunswick, Maine
Comprehensive Plan Update
KEY
Growth Area
Rural Area
Neighborhoods
Conserved Land
NRPZ
Water
Strong Regulation/
Physical Limitations
June 8, 2004
East Brunswick
BNAS/
Cooks Corner
Downtown
Downtown
Fringe
New Meadows
Shore
Pennellville/
Mere Point
West
Brunswick
Pleasant
Hill
Coastal Wetlands
Aquifer Protection Zone
Coastal High Hazard Areas
Mapped Floodways
Wetlands_in_Brunswick
Steep Slopes
0
0.5
1
2
3
4
5
6
Miles


Brunswick, Maine
Comprehensive Plan Update
KEY
Growth Area
Rural Area
Neighborhoods
Conserved Land
NRPZ
Water
Development Limitations
- pending resource identification
and enforcement
June 8, 2004
East Brunswick
BNAS/
Cooks Corner
Downtown
Downtown
Fringe
West
Brunswick
Pleasant
Hill
New Meadows
Shore
Pennellville/
Mere Point
Bald Eagle
Rare, Threatened, Endangered Organism
Hemlock Hardwood Pocket Swamp
Low Bush Blueberry/Sand Plain Grassland
Pitch Pine Heath Barren/Woodland
Note: Peatlands are identified
as wetlands in the Strong Regulations/
Physical Limitations map
0 0.5 1 2 3 4 5 6 Miles


Brunswick, Maine
Comprehensive Plan Update
KEY
Growth Area
Rural Area
Neighborhoods
Conserved Land
NRPZ
Water
Regulations in Place
- do not pose significant development restriction
June 8, 2004
East Brunswick
West Brunswick
Downtown Fringe
Downtown
BNAS/ Cooks Corner
New Meadows Shore
Pennellville/ Mere Point
Pleasant Hill
Vernal Pools
Deer Yards
Note: Forested Wetlands are identified on the Strong Regulations/Physical Limitations map
0 0.5 1 2 3 4 5 6 Miles


Brunswick, Maine
Comprehensive Plan Update
N
KEY
Growth Area
Rural Area
Neighborhoods
Conserved Land
NRPZ
Water
Pending Further Review
June 8, 2004
East Brunswick
BNAS/ Cooks Corner
Downtown
Downtown Fringe
West Brunswick
Pleasant Hill
New Meadows Shore
Pennellville/ Mere Point
Wildlife Corridors
Unfragmented Blocks
0 0.5 1 2 3 4 5 6 Miles


Brunswick, Maine
Comprehensive Plan Update
No Limitations
June 8, 2004
0 0.5 1 2 3 4 5 6 Miles
Water Access Points
Cemeteries
Scenic Views
Scenic Roads
Trails
Active Farms (2001)
Tree Growth Tax Program (2003)
Town Owned Woodlots
KEY
Growth Area
Rural Area
Conserved Land
NRPZ
Water

Issues

1. Soils in our town, especially the sandy soils in the central part of the town, are vulnerable to ground water pollution. These soils are also the source of Brunswick and Topsham's drinking water. The aquifer protection zone is designed to protect this important resource, but chronic low level and acute threats persist.

2. Brunswick has one of the longest coastlines in the state – we are surrounded by water bodies on three sides. Despite this, there are relatively few water bodies that are entirely within our town's borders. Therefore, the protection of our town's water resources depends on cooperation with surrounding communities.

3. The Town of Brunswick employs a natural resources planner. Continuation of this position helps ensure that the public is fully aware of the extent of our community's valuable habitats and gives the Planning Department the resources to craft creative solutions to pressing environmental issues.

4. Naval Air Station Brunswick is home to rare and endangered species. If NASB were to be closed by the Department of Defense and subsequently redeveloped, the redevelopment must consider the health of these species' habitat.

Marine Resources

Brunswick is a waterfront community. We are virtually surrounded by water – the Androscoggin to the north, the New Meadows to the east, and Casco Bay to the south. These waterbodies, while not commonly associated with Brunswick, support a wide range of recreation, economic activity, and wildlife habitat. Preserving the viability of these water resources is important to our community.

Our water resources can be grouped in three categories.

- ***The Bays*** of Maquoit, Merepoint and Middle form our southern coastline. All three bays are shallow with extensive mudflats that make some of the best shellfishing beds in the state of Maine. With the exception of the tidal flats and adjacent marshes, the other shores are either rock or ledge and rise steeply from the high water mark.

  Three quarters of Maquoit Bay is within our borders (Freeport has the rest). Merepoint Bay and Upper Middle Bay are shared with the Town of Harpswell.

  Fresh water arrives into the bays by way of numerous streams, brooks and creeks, accounting for the rather convoluted nature of the upper marsh zones. The Bays' watersheds cover most of Brunswick and only modestly extend into neighboring Freeport.

  The Bays' shorelines are generally susceptible to erosion caused by a mixture of wave action, abutting land uses, and potentially sea level rise. Managing erosion must walk a fine line between starving the mudflats of slumped material while not allowing too much turbidity from rapid erosion.

- The ***New Meadows*** system forms our eastern boundary with West Bath. This system of a tidal inlet (the New Meadows River) and brackish lake (New Meadows Lake) is approximately 4 miles long and is surrounded by waterfront residences.

Recent Studies

- The *Annual Shellfish Management Review* is prepared by the Town every year. It includes detailed statistics on licenses and the state of the clam flats.
- The *Water Access Subcommittee Report* contains a detailed inventory of all of the water access points in Brunswick.
- ***2002 Parks, Recreation, and Open Space Plan*** – This study includes a detailed inventory of the community's recreation facilities, parks, and natural and open space resources including agricultural and forestry land and scenic resources.
- ***2003 Rural Brunswick Smart Growth Strategy*** – This project included a detailed inventory of the community's unfragmented, forested wildlife habitat and .wildlife travel corridors as while as a strategy for managing these resources.

The New Meadows lake was separated from the rest of the New Meadows River in 1937 with the construction of an approach causeway, bridge and spillway on former Route 1. The lake has a drainage area of only 1.6 square miles in both Brunswick and West Bath. Its maximum depth is 30 feet, but most of the lake is considerably shallower. The northern basin has been plagued with eutrophication (too many nutrients), but the southern basin does not have these odor problems.

- The ***Androscoggin River*** is our "window" on a 3,460 square mile watershed that extends into New Hampshire as well as Merrymeeting Bay. Brunswick borders 12 miles of the river – half below the Florida Light & Power dam and half above it. The river is the third largest river that empties into the coastal waters of Maine. From its headwaters at Lake Umbagog, N.H. the river falls an average of 7.7 feet per mile along its 161 mile long course to tide water at Brunswick.

Marine Resources

Our marine resources include shellfish, marine worms, crab/lobster, and fish.

Between 1997 and 2002, Brunswick's commercial softshell clam landings averaged 585,000 pounds of shellstock. Only three towns in the state had higher averages – Harpswell, Machiasport, and Waldoboro.

In recent years, Brunswick has had a rapidly expanding catch. In 2002, more than 1,000,000 pounds of shellstock were harvested on Brunswick's flats. The seeding of the flats and the absence of closures helped keep this harvest so high.

Brunswick limits the number of licenses to harvest shellfish in the community. Eighty-five commercial licenses are allocated for a cost ranging from $50 to $400. Two types of recreational licenses are available for recreation use with no limit on the number of licenses available for residents of Brunswick. Town-issued shellfish licenses have been decreased in recent years, by the Marine Resources Committee, from 105 in 1987 to 72 in 1991. Decreases are due to overharvesting and expanded pollution closure areas.

Brunswick marine warden patrols the use of the shellfish flats, and occasionally closes sections of the flats for seeding and due to red tides.

No statistics are available for the amount of fish that are taken from Brunswick's waters, but the Department of Marine Resources keeps track of the number of marine resource licenses by town of residence. In general, the number of commercial fishers from Brunswick has declined steadily from 1998 to 2002. The number of dealers has decreased from 40 to 25 in five years, while the number of harvesters has declined from 334 to 252. While the number of lobster traps has decreased from more than 31,000 in 1998 to 26,000 in 2000, it has rebounded to more than 27,000 by 2002.

The Department of Marine Resources issued 300 licenses in 1989 with 137 for lobster and crab, 97 for shellfish, 93 for commercial fishing, and 24 for non commercial scalloping. The

remainder of the licenses were issued for scallop boats, seaweed and mussels harvesting and worm digging.

Maquoit Bay has historically been recognized as one of the most productive shellfish areas in the State of Maine with an annual harvest in recent years of $1 million. In 1990, due to pollution and environmental stress, this figure plummeted 80% to $200,000.

Most clams are found northerly and easterly of Bunganuc Point, except for the lower mid-portion of the bay where quahogs and mussels are found in limited abundance.

Clams can be a barometer of the health of marine resources. Two decades ago, the health of the clam flats in the Bays was in increasingly vulnerable condition. As recently as 1990, pollution and environmental stresses had caused the clam flats to lose 80% of their harvest. Nowadays, these harvests are increasingly in better condition.

Brunswick has maintained a shellfish management program since 1964. The program accelerated in 1976. Working with the State Department of Marine Resources, a total of hundreds of bushels of clams are transplanted from the Thomas Point Beach conservation area to Brunswick and surrounding towns. Towns as far away as Scarborough receive clams from Brunswick.

The New Meadows and Androscoggin River

Clean water in the New Meadows River depends on the combined efforts of West Bath, Harpswell and even Bath. Mackerel, stripped bass, bluefish, flounder, alewives, smelts, even lobster and crab are fished there. Seals can be see observing the view of the shore from the river.

In 1973, a 5 year aquaculture study of the New Meadows Lake was completed. The results of the investigation showed promise for oyster culture. Eutrophication in New Meadows Lake contributed to a serious foam problem in the upper New Meadows River. The foam is a detraction for local marinas operating in the area.

The Androscoggin River has been the focus of an Anadromous Fish Restoration Project since 1983. As part of CMP's hydropower program, a fishway and viewing room were constructed on the River and a total of 20 species have been observed by the Town's Marine Resource personnel. Alewives total 601 fish in 1983 and had reached 95,483 by 1990. Atlantic Salmon have risen from 94 in 1984 to 185 in 1990.

Recreation

Brunswick has steadily worked to increase the number of public access points to the town’s waterways. The Androscoggin River Bike Path, the College, Commons, Bay trail, and other efforts underscore this effort. More recently, the Department of Inland Fisheries and Wildlife has undertaken an all-tide boat launch on Mere Point.

A detailed inventory of the town's access points was completed by the Parks, Recreation, and Open Space Task Force.

Private boating facilities are found on the New Meadows River and in Middle Bay. Paul's Marina and the New Meadows Marina are heavily used and at capacity. Many of the facilities in the region – in Freeport, Falmouth, and Yarmouth – are at capacity.

Pollution

There are 4 basic sources of pollution to Brunswick fresh and saltwater resources. They are:

- ***Freshwater runoff*** enters the bays from a number of streams, creeks, and tributaries, the largest being Bunganuc Brook in Maquoit Bay. The brook drains the western section of Brunswick including the old town dump. Bunganuc has been suggested as a major source of ammonia and fecal coliform levels as high as 600+/100ml.

  BNAS, while making every effort to comply with EPA regulations, may be a source of pollution to the Harpswell Cove area. All stormwater and surface run-off from the airstrip is discharged into this watershed. BNAS and the Town of Brunswick have much to gain by joining efforts to identify and resolve any run-off problems that could pollute coastal waters.

  Bowdoin College has been heavily involved with studies of Maquoit Bay. They have identified Miller Creek, Wharton Point streams draining the Rossmore Road area and agricultural activity on the southern side of Middle Bay Road as potential sources of pollution.

  In Middle Bay Cove there is considerable agricultural activity at Dyers Corner as well as horticultural and commercial greenhouse activity.

- ***Overboard discharges*** are another form of pollution. In 1986 the Town Council prohibited overboard discharges in Brunswick. Existing systems may remain in place so long as they comply with all State regulations. In 1987 and 1988 State laws were passed outlawing new overboard discharges and providing for the removal of all existing systems as State bond money becomes available.

  The Town has taken steps to reduce overboard discharges. (In 1988, using State and Federal grant monies, the Town began a project to replace the majority of its overboard systems. This project, located at the head of Merepoint, will use private and EPA funds to install a series of seven cluster septic systems for 33 owners. The project is a demonstration project and was to be completed in the early summer of 1992.)

- ***Leaching*** comes from a variety of sources. Brunswick has mapped all known underground fuel tanks, and other potential hazardous waste sites. The BNAS has

identified several known sites of hazardous waste leakages. A plan is now in process to monitor and clean-up these sites.

- The overboard discharge by ***commercial and recreational boaters*** of any substance into ocean waters is regulated by the US. Coast Guard. In anchorage, discharges of concern are: sewage from on-board toilets, and fuel and oil discharged through bilge pumps. Overboard toilets have been outlawed, and all vessels must have holding tanks for sewage. However, there is still threat from "live aboard" vessels that have filled their holding tanks and are forced to discharge overboard. Accurate knowledge of how many vessels are operating in the way in Brunswick is lacking.

  Fuel and oil come from both bilge and outboard motor operation. Pollution of this kind varies with the size of engines, boat maintenance and the conscientiousness of owners when changing engine fluids. Both types of pollution need more specialized study to determine their impact on Brunswick's waters.

CHRONOLOGY OF BRUNSWICK'S COMMITMENT TO "THE BAYS"

Year	Action
1947	Committee established, transplant seed quahogs to Casco Bay. Established Casco Bay Shellfish Management Council (area communities)
1950s	Clam Committee formally arm of Town Council. Worked with state to establish State Conservation area at Thomas Point for seed management plan. Closed to commercial fishermen
1964	Surveyed Pollution points at Mere Point; worked with Codes Enforcement for rest of Town.
1976	Hired Marine Resource Warden. Commitment to management and enforcement became part of Town Budget. Began harvest and conservation program which is practiced today.
1980s	Established reciprocating management program with Harpswell, West Bath and Phippsburg. Incudes cooperative transplanting and enforcement.
1982	Comprehensive Plan called for improved programs to protect marine environment.
1986	Established Overboard Discharge prohibitor
1986	Purchased airboat to improve management and enforcement.
1988	Town applies for and is awarded $10,000 coastal zone grant. With 5,000 local match, work has begun on a "Comprehensive Plan for Middle Bay and Maquoit Bay".
1988	Town Manager appoints the "Bays Committee".
1989	Bays Committee completes "Maquoit and Middle Bays Comprehensive Plan Revision: part I Issues and Recommendations and Part II Inventory and Assessment". Recommendations include: establishment of a Coastal Watershed Protection Zone that would address minimum lot size, mandatory clustering, setbacks, impermeable surface coverage, and stormwater run-off. Also recommended further study on nutrient loading capacity of the Bays to determine optimum density of the watershed area.
1990	Town applies for and is awarded 205J Water Quality Grant to continue the Bays Committee work. The final product is to be an ordinance based on the recommendations of the plan revision. The grant amount is $13,880. Town wide

	commitment is high for the project as evidenced by a $1000 private match from the concerned citizens for the Bays Environment as well as a $1000 anonymous donation. Town matches $500.00
1991	Bays Committee completes the final draft of a Coastal Watershed Zone recommending a 5 acre minimum lot size, no direct discharge of stormwater from development and an open space incentive development option. Planning Board approves Final Draft. Bays Committee begins public education and input on proposed ordinance
1992	Bays Committee completes Homeowners Manuel for residents of the CPZ. The Manuel is a simple, explanation about the CPZ and how those who live in the bays watershed can help protect Marine Resources
1992	Town wins NOAA award for its outstanding efforts to protect coastal waters. The Bays Committee travels to Washington D.C. to accept the award
1993	Town receives $35,000 grant from EPZ through the Casco Bay Estuary Program to develop a pilot wastewater management district program

Issues

1. There is a critical need to continue to update and refine the Town's shellfish management program to continue more consistent and optimum use of the Town and region's shellfish resources. These resources produce important jobs and income for the area. In a time of economic downturn, this "self-employment" opportunity becomes critical.

2. Because eelgrass is a barometer of conditions in coastal waters, Brunswick should work to establish a program to monitor and assess eelgrass growth in Brunswick embayments.

3. Environmental stress is increased by some fishing methods (ie mussel dragging) and gear. More information is needed to assess the impact on Brunswick waters.

4. A rise in sea level and intertidal habitat from higher global water temperatures will bring about ecological changes in habitat and waters. Shellfish growth may be improved. New bluff erosion may begin. Valuable land can be lost as a result of this erosion with concurrent siltation of both salt and freshwater. Such erosion may be beneficial to some intertidal species. Also, warm water species, such as quahogs, may increase in abundance. Rising sea levels, seaward migrations of sediments and current changes may create inhospitable environments for some species, and better environments for others.

5. The community should consider improving its data base on bluff erosion rates.

6. Development in the watershed is sedimenting upland streams and tributaries. The Town is losing freshwater habitat through poor construction practices and ignorance of proper sedimentation and erosion control methods.

7. The Androscoggin River and Merrymeeting Bay are untapped resources for fishing, recreation and boating. With improved water quality we could improve these uses and assure clean water for industrial uses.

8. The nutrient loading in our Bays (and all other coastal waters) could be increased by irresponsible development and land use in the watershed. These nutrients may stress coastal ecosystems and result in algal blooms, oxygen and light depravation that subsequently kills shellfish and other marine life. The increase in impervious surfaces and runoff from development in the watershed could cause the streams, tributaries and groundwater to receive additional salt, sand, fertilizers, herbicides, and petrochemicals among others.

9. Non-point source pollution includes improper use of fertilizers and pesticides. There is a direct correlation between shellfish closures and fecal coliform levels. More work should be done to determine where fecal coliforms are coming from and to eliminate their presence so that additional shellfish areas can be opened.

Historic and Archaeological Resources

History is central to our town's identity. Historic and archaeological resources are a common foundation for our community and serve as benchmarks for our future. The value these resources provide to our community's livability and economy is difficult to understate.

Historic Settlement Chronology

Native Americans were the first inhabitants of the Pejepscot region, which includes Brunswick, Topsham, and Harpswell. They used the region's many waterways as transportation corridors – that they left numerous archaeological sites along our waterways should be no surprise. While it is difficult to 'see' these sites the same way we see historic buildings, a properly excavated archaeological site will speak volumes about our town's earliest residents.

Europeans settled along the shores of the Androscoggin in 1628. The Androscoggin and Kennebec Rivers were the region's first highways to the interior, and became lively avenues for a burgeoning trade. Fort Andros was built along the falls near the current Maine Street location to facilitate this trade.

Brunswick was incorporated in 1739 and has been an employment center ever since. Fur trading, shipbuilding, and shipping were the town's first economic engines, and the power of the Androscoggin Falls powered the textile mills in the 19th and 20th centuries. In the second half of the 20th century, Bowdoin College, health care facilities, and the defense industry drove the region's economy.

Prehistoric Archaeological Sites

The Maine Historic Preservation Commission has identified 33 known prehistoric archaeological sites in Brunswick. Prehistoric refers to those sites predating European settlement. Of these sites, 25 may be eligible for the National Register of Historic Places – the nation's official list of places worthy of preservation.

In addition to these sites, the Maine Historic Preservation Commission has identified several areas that are likely to produce additional archaeological resources. These areas are located along Androscoggin River near Cooks Corner and north of Old Bath Road, and along the waterfront areas of

Current Reports and Documents

- The *1993 Brunswick Comprehensive Plan Update* contains a detailed history of our community since European settlement. Relevant parts from this plan have been excerpted and included in the appendix.
- The *Parks, Recreation, and Open Space Plan* details our community's historic cemeteries throughout the community.
- The Pejepscot Historic Society maintains many of the town's archives and artifacts, and operates three museums. More information can be found on their website at www.curtislibrary.com/pejepscot.htm.

Mere Point Bay and Middle Bay. These waterfront areas have not been professionally surveyed.

Historic Archaeological Sites

The Maine Historic Preservation Commission has identified nine sites in Brunswick that are historic archaeological sites – or archaeological sites that post-date European settlement. A comprehensive professional survey has not been completed for these sites:

Site	Type	Date
Wharton	farmstead	17th century
Thomas Stevens	trading post	17th century
Pejepscot Settlement	English settlement	17th and 18th centuries
Maquoit Fort	English fort	17th and 18th centuries
Reverend Woodside House	domestic site	18th century
Humphrey's Shipyard	shipyard	19th century
"Swanville Raymond"	shipwreck	19th century
Unidentified cellar hole	Domestic site	19th and 20th century
"Kanawha"	shipwreck	20th century

Source: Maine Historic Preservation Commission

Historic Buildings, Sites, and Districts

There are 10 historic buildings and three historic districts in our town that are registered with the National Register of Historic Places – a program run by the United States Department of the Interior that recognizes historic sites of national significance. These sites include:

Site	**Location**	**Period of Importance**	**Year Listed**
Massachusetts Hall	Bowdoin College	18th to 19th century	1971
John Dunlap House	Oak Street	18th to 19th centuries	1979
First Parish Church	Maine Street	mid-19th century	1969
Henry Boody House	Maine Street	19th century	1975
Richardson House	Lincoln Street	mid-19th century	1974
St. Paul's Episcopal Church	Pleasant Street	mid-19th century	1978
Harriet Beecher Stowe House	Federal Street	mid-19th century	1966
Parker Cleaveland House	Federal Street	N/A	2000
Crystal Spring Farm	Pleasant Hill Road	N/A	2004
Androscoggin Swinging Bridge	Downtown Brunswick	N/A	2004
Pennelville Historic District		18th to 19th centuries	1985
Lincoln Street Historic District		18th to 19th centuries	1976
Federal Street Historic District		18th to 20th centuries	1976

N/A – not available
Source: United States Department of the Interior, National Park Service

In addition to occasional federal and state grant money for preservation efforts, one benefit of National Register status includes special consideration when federal money is spent on a project that affects the property or district.

Most of the historic buildings on the list are located in Brunswick's downtown area. These buildings' historic settings are not threatened by new development – largely because their surroundings have already been developed.

The Lincoln Street Historic District and the Federal Street Historic District largely fall under the purview of the Village Review Board. This Board reviews all development and renovation in Brunswick's downtown to ensure the historic accuracy of the proposed changes. Development that does not satisfy the Board's standards can be refused a building permit. The Bowdoin College portion of the Federal Street Historic District is not part of the Town's Village Review District.

Development in the Pennellville Historic District falls under the purview of the Planning Board. If a subdivision occurs in this historic district, the Planning Board will review the project and could determine whether historic considerations should be required. If future development changes the original character of this historic district, the area's listing on the register of historic places could be revoked.

Historic and Archaeological Protection Efforts

Brunswick's ***Planning Board*** reviews every subdivision and development that needs a site plan review in town. The subdivision ordinance includes provisions to encourage the protection of historic and archaeological resources. In addition, the Town's site plan review ordinance requires that a Phase I survey be completed on all developments reviewed by the Planning Board. When a proposed development is located in an area of archaeological resource potential, the Planning Board can ask for a more detailed survey.

Brunswick's ***Village Review Board*** has the authority to monitor the external appearance of structures in the Village Review District. The Board places an emphasis on ensuring new construction reflects the traditional patterns that exist in the village and ensuring that new construction meets design standards to ensure that the downtown remains an attractive and vibrant.

The ***Pejepscot Historic Society*** is very active in the community. The society has ongoing education programs, three museums, and extensive archives and collections of the town's artifacts. The society maintains an archive that details the history of each historic building in Brunswick's downtown.

Issues

1. Brunswick's rapid pace of development could threaten historic and archaeological resources, especially those in more rural areas that have not been professionally surveyed.

2. The Village Review District encompasses much of the downtown, but ends abruptly without including areas that are widely considered to be integral to the Downtown (Maine Street along the Mall, Bowdoin College, and Pleasant Street). The areas are widely recognized as an integral part of the downtown, and could benefit from a consistent set of development criteria.

3. The Lincoln Street and Federal Street Historic Districts largely fall under the purview of the Village Review Board. These districts have been built-out, and new development is not a threat to their viability. The Pennelville Historic District could be threatened by new development. If new development damages the historic integrity of the neighborhood, then the District's status could be revoked.

4. Despite Brunswick's large number of historic resources, it has not leveraged outside assistance with the preservation of historic resources well. Other communities are using the Certified Local Government program sponsored by the Maine Historic Preservation Commission to maximize its efforts to protect historic and resources.

Fiscal Capacity

Understanding our town's ability to fund new and ongoing projects is crucial when planning for the community's growth and changing needs. This section examines Brunswick's fiscal capacity and its ability to fund new and existing services and facilities.

Commitment, Assessed Valuation, and Tax Rate

Commitment, or the amount of property taxes levied to fund local government, has been steadily growing. In 2004, the Town collected more than $26,000,000 in property taxes. This is 60% more property tax revenue than was collected in 1994. However, after adjusting for inflation[1] the increase in commitment is a more modest 31%.

Assessed valuations are the basis on which local property taxes are raised. Examining assessed valuations is one way to track the fiscal health of the community. A rising valuation is a sign of fiscal strength – smaller tax rates are needed to raise a given sum of money.

In 2004, our town's assessed valuation had reach $1,195,041,700, an increase of $91,000,000 since our last revaluation in 2000. The largest increases in assessed valuation have been in 2003 and 2004 as new development dramatically increased the tax base.

Current Reports and Documents

- Town of Brunswick Adopted Budget for Fiscal Year 2004 – 2005.
- Town of Brunswick Capital Improvement Plan for Fiscal Years Ending 2005 – 2009.

Year	Assessed Valuation	Tax Rate (mils)	Commitment	Commitment % increase
1994	$879,158,700	18.25	$16,044,665	not applicable
1995	$894,075,100	18.90	$16,898,019	5.3%
1996	$915,482,200	19.40	$17,760,355	5.1%
1997	$927,127,500	20.00	$18,542,550	4.4%
1998	$919,975,600	20.90	$19,227,490	3.7%
1999	$932,545,800	21.20	$19,769,971	2.8%
2000	$1,103,868,200	18.80	$20,752,722	5.0%
2001	$1,108,939,600	20.50	$22,733,274	9.5%
2002	$1,122,861,200	21.00	$23,580,085	3.7%
2003	$1,160,064,950	21.50	$24,941,415	5.8%
2004	$1,195,041,700	21.90	$26,171,413	4.9%

Source: Town of Brunswick, Assessing Department

[1] Using the Consumer Price Index for urban consumers, which is a common index for Maine wages, rentals, and price contracts. This data is published by the Maine State Planning Office.

The Tax Rate is the levy placed on taxable property (assessed value) in order to raise the amount of commitment approved annually in the Town Budget. The tax rate is expressed in mils (the number of dollars a property owner owes for every $1,000 in assessed value)[2].

Our town's tax rate has steadily increased. Between 1994 and 1999, the tax rate increased by between 1% and 5% each year. Between 2000 and 2001 the tax rate increased by 9%, and since then has increased by about 2.5% per year.

Revenues

Local taxes were the largest source of revenue for our Town in 2003, but nearly 40% of the $44,421,000 in total revenues came from other sources. Since 1999, total revenues have increased by 22%.

Taxes, which include both property taxes and excise taxes, are the single largest source of revenue, accounting for 60% of total revenue. Tax revenue totaled nearly $27,000,000 in 2003. Tax revenue increased by 23% since 1999.

Intergovernmental revenue includes state revenue sharing funds, education funding, and a variety of other grants and funding programs. These revenue streams accounted for 32% of 2003 revenues (the majority of which comes through school funding assistance). Since 1999, intergovernmental revenue has increased by 15%.

Charges for services include revenue from public works, ambulance, and public safety services rendered. These accounted for 5% of revenues in 2003. Since 1999, these revenues have increased by more than 70%.

Licenses, fees, and permits include revenues from building permits, registrations, and dog licenses. In 2003, these accounted for nearly $300,000, or less than 1% of total revenues. These revenues have increased by 14% since 1999.

Investment income includes proceeds made by the town on its investments. In 2003, this totaled approximately $100,000, or less than 1% of total revenue. Since 1999, investment income has increased by more than 50%.

Other revenue includes revenues not classified above. In 2003, these revenues accounted for 2% of total revenues. Since 1999 other revenues have increased by 85%.

In the last decade, the burden of funding local government has shifted toward local taxes. Local taxes paid 57% of total revenues in 1991, and now pay 60%. Intergovernmental transfers have decreased relative to total revenue from 34% in 1991 to 32% in 2003.

[2] A tax rate of 21.90 means that a property will be taxed $21.90 for every $1,000 in assessed value. At this tax rate, a property valued at $200,000 will have to pay $4,380 in property taxes each year.

Expenditures

In 2003, Brunswick spent $41,774,764 to provide services and facilities for its citizens. This is nearly $6,000,000 more than in 1999, or an increase of 14%.

Education expenses pay for our public school system. These expenses totaled $26,581,005 in 2003, or nearly two-thirds of the town's entire budget. (Note that in 2003, more than $11,000,00 of these expenses were offset by state and federal school subsidies, tuitions, and other revenues). Since 1999, education expenses have increased by 15%.

Public safety includes police services, fire protection, and ambulance services. In 2003, these expenses total $4,343,672, or 10% of all expenditures. Since 1999, public safety expenditures have increased by more than 27%.

General government expenditures pay to administer the local government, including administration, tax collection, assessing, and insurance. In 2003, these expenses amounted to $3,537,848, or 8% of expenditures. This represents an increase of 26% since 1999.

Public works pays to maintain our roadways and sidewalks and run the landfill and recycling centers. In 2003, these expenses totaled $2,814,828, or 7% of total expenses. Since 1999, public works expenditures have decreased by 7%.

Debt service expenditures totaled $1,289,650 in 2003. (Note that this excludes debt service on education facilities, which are accounted for under education). This accounted for 3% of all expenses. Since 1999, debt service has more than tripled.

Human service expenditures include general assistance, health services, library service, and funding for the People Plus Center. In 2003, these expenses totaled $1,048,351, or 3% of expenses. Since 1999, these expenses have increased by more than 40%.

Recreation expenses totaled $763,087 in 2003. This accounted for 2% of all expenses. Since 1999, recreation expenses have increased by 25%.

Unclassified expenses includes funding to maintain the Old High School, cemeteries, and a range of other services. In 2003, these expenses totaled $1,396,323, or 3%. Since 1999, these expenses have decreased by 25%.

County taxes totaled just under $1,000,000 in 2003.

Tax Increment Financing

Tax increment financing (TIF) is a tool used by communities to promote economic development. Since 1977, the state has allowed communities to exclude the added valuation of economic development projects from the community's assessed valuation, so long as the sheltered property taxes garnered from the new development are used for economic development purposes. This

allows the community to maintain its level of intergovernmental funding (much of which is based on the assessed valuation of the community).

Brunswick has two active TIFs. The first one is on Bath Road and extends from the Super 8 motel to the Harding Plant. The sheltered revenue from this TIF is used to finance a bond whose proceeds paid for a sewer extension to service new economic development. The sewer extension has allowed several new developments to be created along Bath Road, including Walmart and the Midcoast Hospital.

The second TIF is used to finance a bond whose proceeds built the Brunswick Technologies, Inc. building in the Industrial Park. The bond capitalized the Brunswick Development Corporation (a quasi-governmental entity) to build the new structure.

Long Term Debt

The Town of Brunswick is currently financing two long term bonds. The first is a general obligation bond that was floated in 2000. The Town pays $980,000 annually to finance this bond. The expansion of the Curtis Memorial Library accounts for most of this bond, but it also paid for road improvements, the improvements to the wood and masonry landfill, improvements made in the Downtown, and other causes. This bond is projected to be paid off by 2010.

The second long-term bond was for the new High School. This bond will be paid off in 2013 and, for budget purposes, is accounted for in Education Expenses.

The Town of Brunswick has a AA rating for long-term debt, the second highest rating available. This is a measure of the Town's fiscal health and allows it to finance long-term debt at good interest rates.

Capital Improvement Plan

By town charter, Brunswick is required to have a Capital Improvement Plan (CIP) that is updated annually. The CIP helps prioritize major capital expenditures and formalize the decision-making process.

In the Capital Improvement Plan for Fiscal Years Ending in 2005 to 2009, the town is projected to spend nearly $48,000,000 on capital improvements. The largest items in this plan are $15,000,000 in new education facilities and $6,000,000 for a new fire station and substation. Other items include technology upgrades, road improvements, maintenance equipment, and land protection efforts.

It is projected that three-quarters of these capital improvements – or $34,385,000 – will be bonded. General fund accounts are projected to pay for nearly $10,000,000 of these improvements. The State of Maine, enterprise fund revenues, impacts fees, and other sources will pay for the remaining improvements.

Issues

1. The Town of Brunswick has not revalued property recently. The recent rapid increase in real estate values has created an opportunity for the Town to revalue to ensure that all landowners are paying their fair share of the property tax burden.

2. The Town has increasingly assessed fees for services (such as building permit applications, ambulance services, and landfill fees). In these cases, the fees are directly related to a service that is provided by the town. The Town should consider more fee-based services where appropriate (for example, a pay-per-bag residential trash removal system).

3. The Town has used Tax Increment Financing to facilitate development in the community. The Bath Road TIF has already fulfilled its mission – to pay for the utility extensions in the corridor to accommodate new development. The Town could restructure this TIF in order to free up acreage that could be used elsewhere in the community for TIFs.

4. Several of the Town's impact fees have unintended consequences. For example, the recreation impact fee might discourage development within the growth zone and encourage it in rural areas. The Town should reexamine the impact fee structures to ensure they effectively support the stated goals and policies of this comprehensive plan.

5. The Town of Brunswick is in a strong position vis-à-vis long-term debt. However, upcoming investments (schools, fire stations, town hall, police station, etc) in addition to the uncertainty about the potential closing of the Naval Air Station Brunswick requires that the Town issue new debt prudently.

Community Survey Results
Update of the Comprehensive Plan
Brunswick, Maine

Prepared by:

The Comprehensive Plan Update Committee

with assistance from:

Market Decisions, Inc. and
Planning Decisions, Inc.

July 2005

Community Survey Results
Update of the Comprehensive Plan
Brunswick, Maine

Introduction

As part of the process of updating the Town's Comprehensive Plan, the Comprehensive Plan Update Committee felt that it was important to provide the citizens of our community with a variety of opportunities to have their views considered. One method used to gather this input was through a mail survey of a sample of the Town's households. This report presents the results of the community survey.

The community survey provides a snapshot of the opinions of residents at a point in time. No effort was made in the questionnaire to "educate" the respondents to the issues facing our community nor the possible merits of various approaches for addressing these issues. Therefore, the responses represent the current opinions and perceptions of the respondents without additional information.

The results of the survey need to be interpreted and used in this context. In some cases, respondents may have had considerable knowledge about the subject of a question as a result of recent public discussions while, in other cases, respondents may have had little or no prior familiarity with the topic. This disparity needs to be considered in interpreting the results.

In particular, the survey shows that where the town has discussed capital or other municipal needs, respondents are generally supportive of addressing those needs. However, where needs have not been presented to the public or widely discussed, support for addressing those needs appears to be lacking.

Methodology

The Comprehensive Plan Update Committee identified the topics to be covered in the survey. Market Decisions then worked with the committee to develop the questionnaire that was used in the survey.

The Comprehensive Plan Update Committee decided that a mail survey of a sample of Brunswick households provided the best balance between the reliability of the results and the cost of doing the survey. Market Decisions collected the data via multi stage mailings of a survey booklet and computerized scanning of survey results.

Market Decisions mailed the survey booklet to a sample of Brunswick households. A list of all Brunswick residential addresses was obtained from a commercial mail firm. Market Decisions randomly selected 1500 addresses from this list to receive survey mailings. Each address was first mailed a package consisting of a survey booklet with an introductory letter, instructions and a business reply envelope. One week after the initial mailing, a postcard reminder was sent to all addresses. Two weeks after the initial mailing, a second survey package with all elements of the first package was sent to all addresses that had not yet returned a survey.

Market Decisions scanned all survey data was using in-house scanners and the data was automatically tabulated. Any surveys that had multiple responses to questions or had unclear markings had responses visually validated. Since all surveys were marked with unique codes, only one response per residence was tabulated.

In total, 116 surveys of the original 1,500 were returned due to bad addresses. This resulted in a usable sample of 1,384 households. Of these, 523 households returned questionnaires with responses, resulting in an overall response rate for the survey of 38%. Response rates for similar surveys conducted by Market Decisions in other Maine communities have ranged from 25% to 36%.

The results presented in this report have been weighted to reflect the actual distribution of Brunswick residents with respect to their age, education, and annual household income. Other differences between the population and the characteristics of those who returned surveys were not significantly different.

The weights were calculated by dividing the percentage of the actual Brunswick population (based on the 2000 US Census) in a given group by the percentage of the sample belonging to the same group. Because percentages have been rounded to the nearest whole number, they do not always sum exactly to 100%.

The overall precision (sampling error) of the weighted results is plus or minus 4.3%. Therefore we can say with 95% confidence that the answers from the entire population would be within plus or minus 4.3% of the survey results. A 95% confidence level means that if the survey were repeated, the results would be within the margin of error 95% of the time.

Executive Summary

The Update Committee focused the community survey on a number of major topics that are being addressed in the Update of the Comprehensive Plan. These included the rate of growth in the community, the desired pattern of future residential and economic development and possible ways for achieving it, affordable housing, open space, public facilities, and the school system. The following section provides an overview of the results. The final section of the report provides the detailed, weighted responses for each question.

1. Rate of Growth

A sizable group of respondents feel that the community is growing too fast from a residential perspective (see Question 2) while a slightly smaller group feels that the rate of residential growth is about right. About 45% felt residential development is too fast, 40% felt it is about right, and 15% felt residential growth was too slow.

In contrast, respondents felt that commercial and industrial growth and development has been somewhat too slow (see Question 9). About 38% felt commercial and industrial development was too slow, 44% felt it is about right, and 18% felt it was too fast.

2. Pattern of Development

More than half of the respondents (53%) indicated support for the Town's policy of encouraging growth in "growth areas" and discouraging growth in "rural areas" (see Question 3). About 25% of respondents opposed this policy while 22% were neutral, neither supporting nor opposing the policy.

3. Support for Residential Growth Management Actions

The survey asked respondents to indicate their support or opposition for a range of possible activities that could be used to manage how Brunswick grows and develops residentially (see Question 5). The highest levels of support were for the options that limit the number of new units that can be built either anywhere in town (59%) or in the rural area (58%). Just over half of the respondents supported providing financial incentives for the extension of sewer and water service (53%), allowing townhouses to be built in growth areas now limited to single-family homes (51%), and allowing property owners in the growth area to build more units in return for preserving natural areas (51%). About 43% of respondents supported the concept of requiring developers to build at least a certain minimum number of units on a property. Only a third of respondents supported allowing owners within the growth area to develop a higher density than currently allowed by the zoning.

4. Affordable Housing

Four out of every five respondents (80%) agreed with the statement that "There is a lack of housing in Brunswick that lower and middle income families can afford" (see Question 6). In terms of priorities among age groups for providing affordable housing, all groups were rated similarly (see Question 8) with over 80% of respondents supporting providing adequate affordable housing for all ages (82%), young families (84%), and elderly households (88%).

When asked about the Town's role with respect to providing affordable housing, just over half (51%) of respondents felt that the town should support affordable housing but should not spend local tax money on it (see Question 7). About 20% felt the Town should not be

involved in the issue while almost 30% felt that the Town should support affordable housing by using local tax money.

5. Commercial and Economic Development

The survey asked respondents to indicate their support or opposition for various policies dealing with how Brunswick grows and develops from an economic perspective (see Question 10). The highest level of support was for the option that called for support for efforts to maintain the economic vitality of downtown (85%) followed by supporting a wider diversity of activity at Cook's Corner (64%). Over half (55%) supported limiting retail growth to existing commercial areas. Opinion about providing financial assistance for extending water and sewer service had 44% supporting and 32% opposing.

When ask about what types of businesses should be able to locate in a new business park if one were developed (see Question 12), more than half (54%) of the respondents selected the option that limited occupancy to businesses that create quality jobs. About a quarter (24%) felt any business should be allowed to move into the park while 14% supported limiting occupancy to businesses that pay significant taxes.

6. Support for Economic Development Activities

The survey asked respondents to indicate their support or opposition for a range of possible activities that could be used to encourage economic growth (see Question 11). The highest levels of support were for the options supporting farming (73%) and natural resource based businesses (73%). Over 2/3's (69%) supported the construction of a "perimeter road" at Cook's Corner. The remaining possible actions (developing an incubator building, providing tax rebates for start-ups, building a parking garage downtown, and developing a new business park) were supported by 43% to 47% of respondents.

7. Open Space Preservation

Between two-thirds and three-quarters of respondents supported various options for preserving additional natural and scenic areas and trails in both rural and growth areas (see Question 13). At the same time, there were low levels of support for most options suggested for doing this. While over half (53%) supported expanded property tax rebates for the protection of these areas, support for other actions was lower – 35% for requiring property owners to set aside part of their land as open space if they develop it, 28% for buying development rights from rural land owners, 26% for acquiring the land with property taxes, and 23% for regulation.

8. Consolidated Services

Just over half of respondents supported consolidating or coordinating services or facilities with other communities to reduce costs.

9. Facility Priorities

Respondents were asked to rank the relative priority of a number of possible new or improved facilities (see Question 16). Renovation of the Central Fire Station and construction of a fire sub-station at Cook's Corner received the highest priority. Expansion of police facilities and improved sidewalks were the next highest priorities followed by building a new elementary school and developing a multipurpose community/recreation center. Other possible projects including a recreation area in East Brunswick, expanded bicycle facilities, developing a business park, creating a "Land for Brunswick's Future" fund, building a parking garage, and developing playing fields ranked lower. Modernizing Town Hall was the lowest priority project.

10. Schools

Only 24% of respondents have children attending Brunswick schools (see Question19). Most respondents gave the school system a grade of 3 or 4 on a scale of 1 to 5 where 5 is excellent on the quality of school facilities and quality of school programming and offerings (see Question 18). About one in five respondents gave the system an excellent rating on these factors. Almost a half of the respondents with children in Brunswick schools said they were very satisfied with the overall quality of their child's educational experience while an additional 32% indicated they were somewhat satisfied. Over one in five indicated a level of dissatisfaction with the experience.

Detailed Results

The following tables and charts show the weighted total response to each question in the survey.

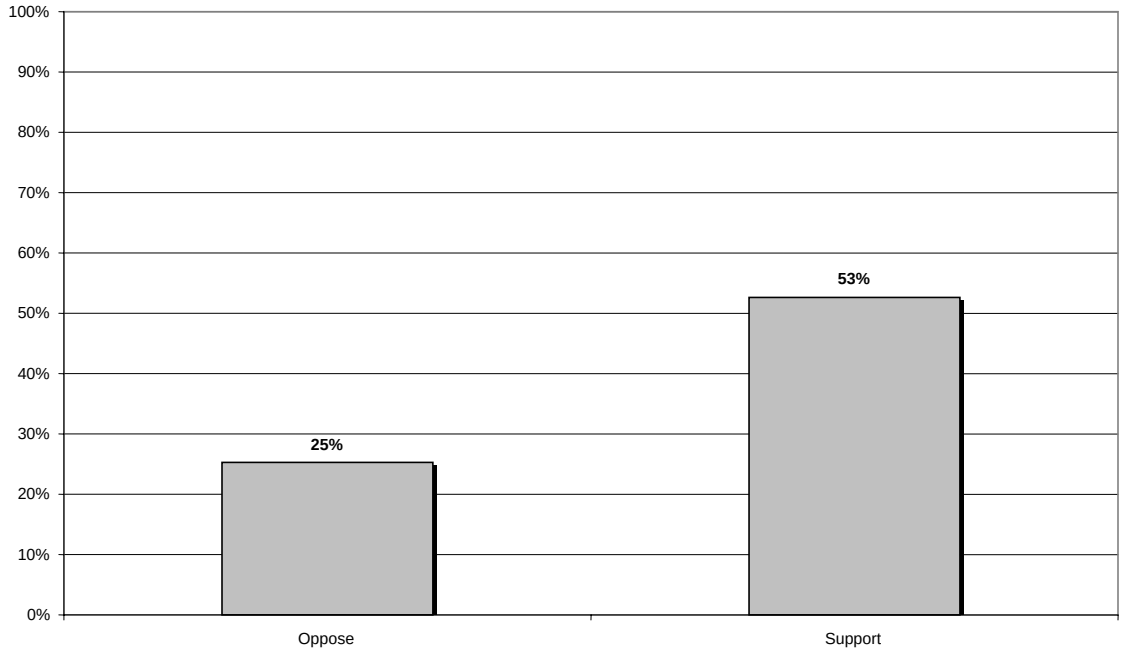
Q02. Thinking about residential growth in Brunswick over the past five to ten years, how would you describe the rate of residential development in our community?

Response	Count	%
Much too fast	93	19%
Somewhat too fast	124	26%
About right	192	40%
Somewhat too slow	42	9%
Much too slow	30	6%
Total	481	100%

Q03. Please indicate your support or opposition to the policy of encouraging growth in 'growth areas' and discouraging growth in rural areas.

Response	Count	%
Strongly Oppose	40	8%
Somewhat Oppose	83	17%
Neither Support nor Oppose	108	22%
Somewhat Support	122	25%
Strongly Support	135	28%
Total	487	100%

Q03. Please indicate your support or opposition to the policy of encouraging growth in growth areas' and discouraging growth in rural areas.



Q05. Please indicate your support or opposition to the following potential possible actions:

a. Limiting the number of new units that can be built anywhere in Brunswick in any year

Response	Count	%
Strongly Oppose	74	15%
Somewhat Oppose	73	15%
Neither Support nor Oppose	56	11%
Somewhat Support	187	38%
Strongly Support	102	21%
Total	493	100%

b. Limiting the number of new units that can be built in the rural area in any year

Response	Count	%
Strongly Oppose	70	14%
Somewhat Oppose	67	14%
Neither Support nor Oppose	71	15%
Somewhat Support	125	26%
Strongly Support	156	32%
Total	489	100%

c. Allowing property owners within the designated growth area to build more units on their land than zoning restrictions currently allow

Response	Count	%
Strongly Oppose	162	33%
Somewhat Oppose	76	16%
Neither Support nor Oppose	92	19%
Somewhat Support	76	16%
Strongly Support	80	16%
Total	486	100%

d. Allowing townhouse style units to be built in areas within the growth area that are now limited to single-family homes

Response	Count	%
Strongly Oppose	105	22%
Somewhat Oppose	75	15%
Neither Support nor Oppose	59	12%
Somewhat Support	155	32%
Strongly Support	95	19%
Total	489	100%

e. Allowing property owners within the growth area to build more units on their land than zoning restrictions currently allow in return for preserving natural areas

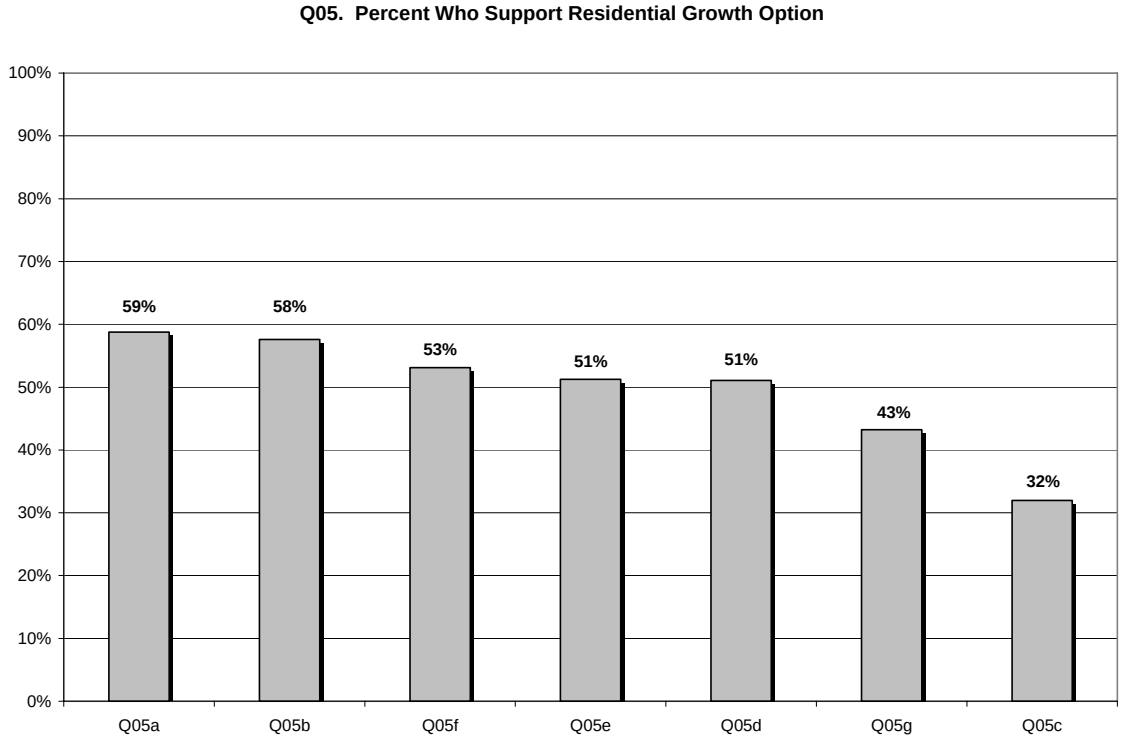
Response	Count	%
Strongly Oppose	109	22%
Somewhat Oppose	63	13%
Neither Support nor Oppose	71	14%
Somewhat Support	134	27%
Strongly Support	121	24%
Total	497	100%

f. Providing financial assistance in extending water and sewer service to residential development within the growth area

Response	Count	%
Strongly Oppose	80	16%
Somewhat Oppose	57	12%
Neither Support nor Oppose	94	19%
Somewhat Support	135	27%
Strongly Support	127	26%
Total	494	100%

g. Requiring developers in the growth area to build at least a certain number of units on the property (minimum density)

Response	Count	%
Strongly Oppose	62	13%
Somewhat Oppose	75	15%
Neither Support nor Oppose	143	29%
Somewhat Support	134	27%
Strongly Support	79	16%
Total	493	100%



Q05a. Limiting the number of new units that can be built anywhere in Brunswick in any year

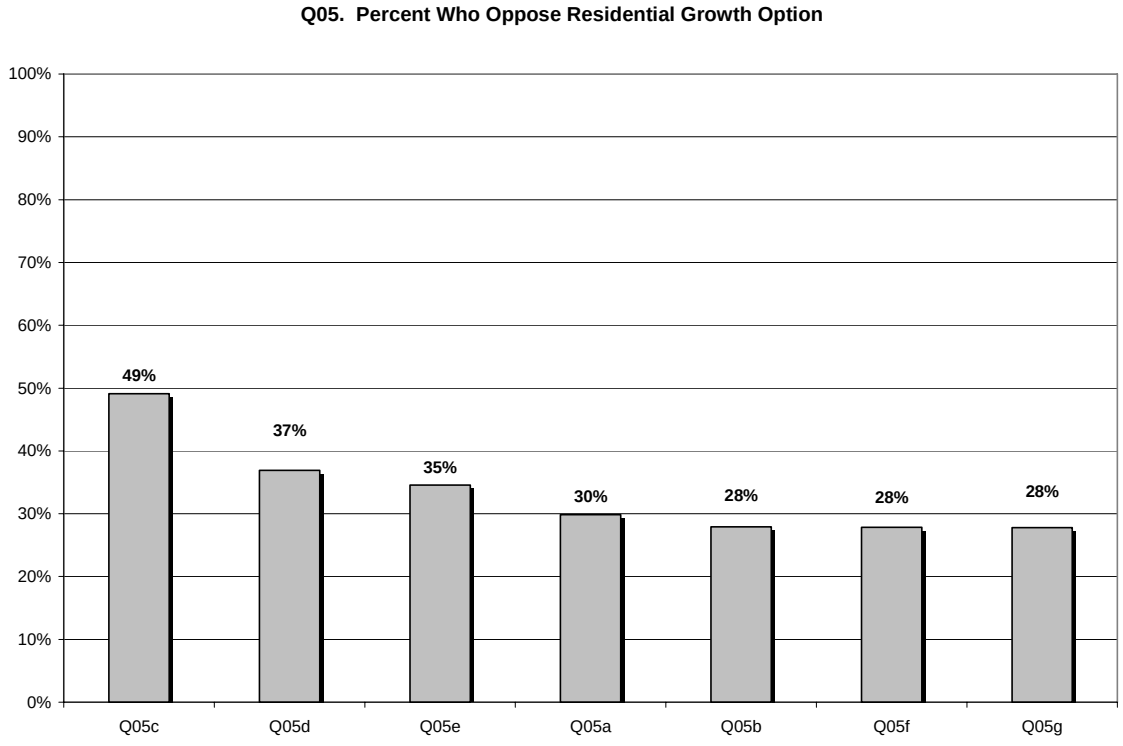
Q05b. Limiting the number of new units that can be built in the rural area in any year

Q05c. Allowing property owners within the designated growth area to build more units on their land than zoning restrictions currently allow

Q05d. Allowing townhouse style units to be built in areas within the growth area that are now limited to single-family homes

Q05e. Allowing property owners within the growth area to build more units on their land than zoning restrictions currently allow in return for preserving natural areas elsewhere

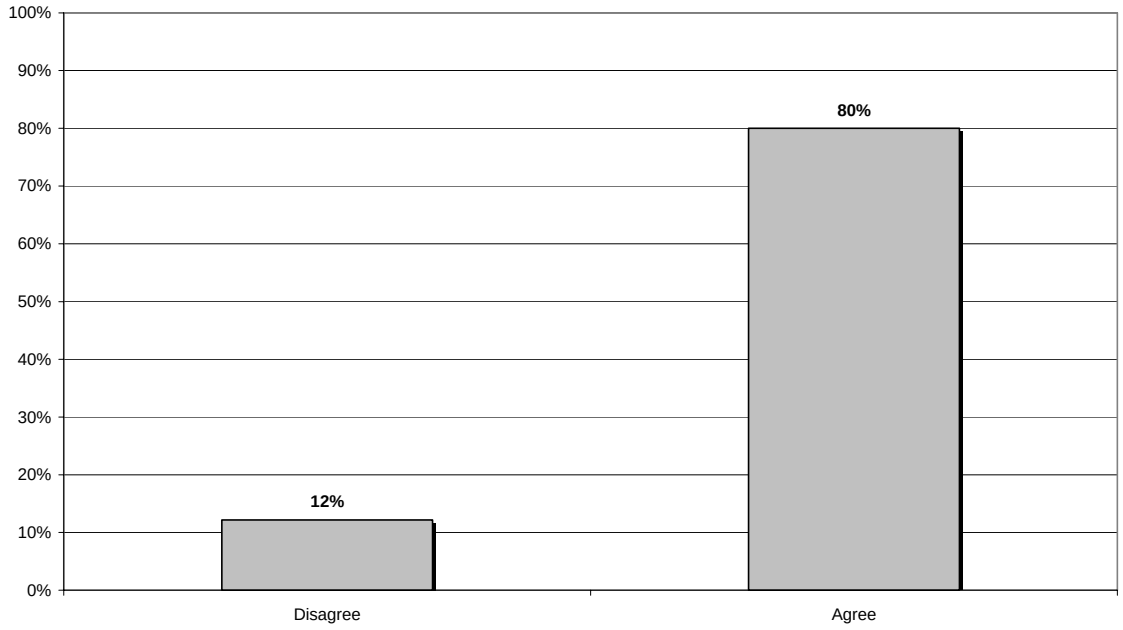
Q05f. Providing financial assistance in extending water and sewer service to residential development within the growth area



Q06. How strongly do you agree or disagree with the following statement? 'There is a lack of housing in Brunswick that lower and middle income families can afford.' Note: A middle income family of four in Cumberland County can have a household income of

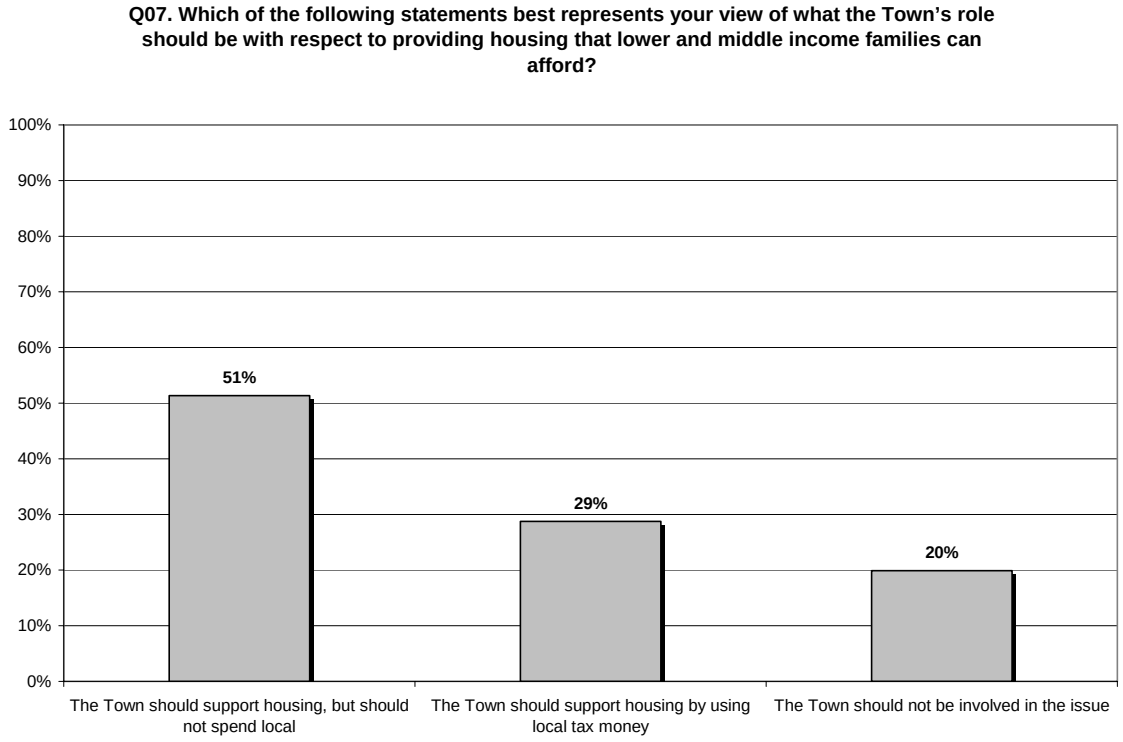
Response	Count	%
Strongly Disagree	26	5%
Somewhat Disagree	35	7%
Neither Agree nor Disagree	39	8%
Somewhat Agree	107	22%
Strongly Agree	288	58%
Total	494	100%

Q06. How strongly do you agree or disagree with the following statement? 'There is a lack of housing in Brunswick that lower and middle income families can afford.' Note: A middle income family of four in Cumberland County can have a household income of



Q07. Which of the following statements best represents your view of what the Towns role should be with respect to providing housing that lower and middle income families can afford?

Response	Count	%
The Town should not be involved in the issue	97	20%
The Town should support housing, but should not spend local tax money	250	51%
The Town should support housing by using local tax money	140	29%
Total	488	100%



Q08. Please indicate your support or opposition to possible lower and middle income housing priorities for the Town:

a. Assuring adequate affordable housing for lower and middle income households of any age

Response	Count	%
Strongly Oppose	14	3%
Somewhat Oppose	30	7%
Neither Support nor Oppose	32	7%
Somewhat Support	129	30%
Strongly Support	220	52%
Total	426	100%

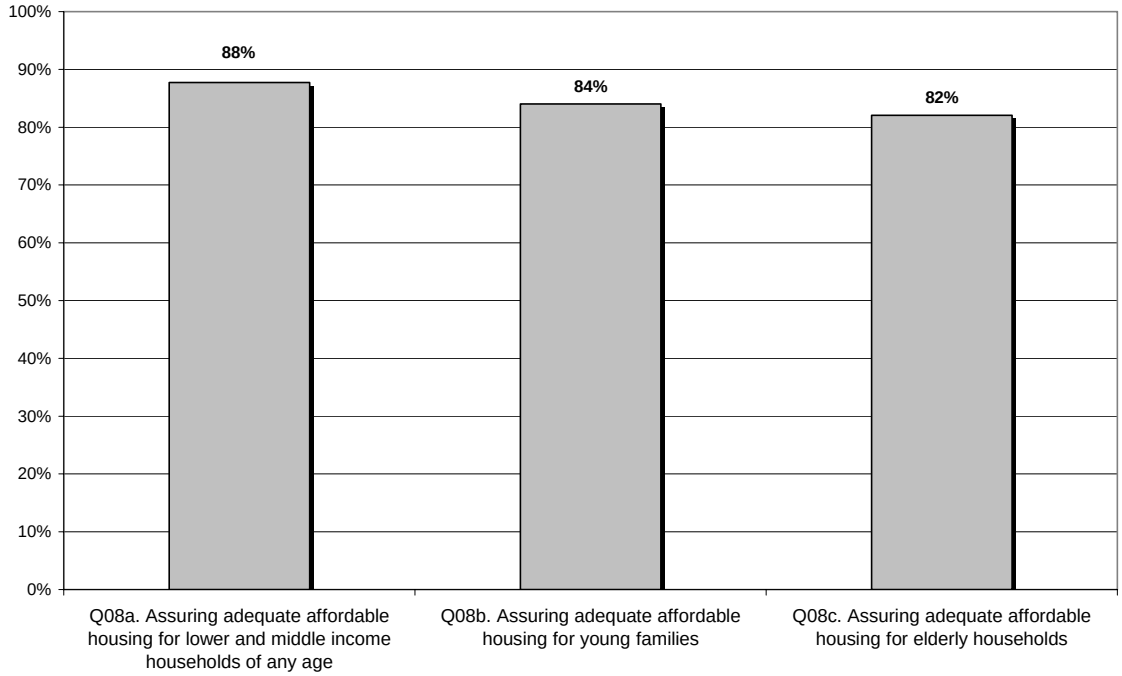
b. Assuring adequate affordable housing for young families

Response	Count	%
Strongly Oppose	10	3%
Somewhat Oppose	18	5%
Neither Support nor Oppose	36	9%
Somewhat Support	130	32%
Strongly Support	209	52%
Total	404	100%

c. Assuring adequate affordable housing for elderly households

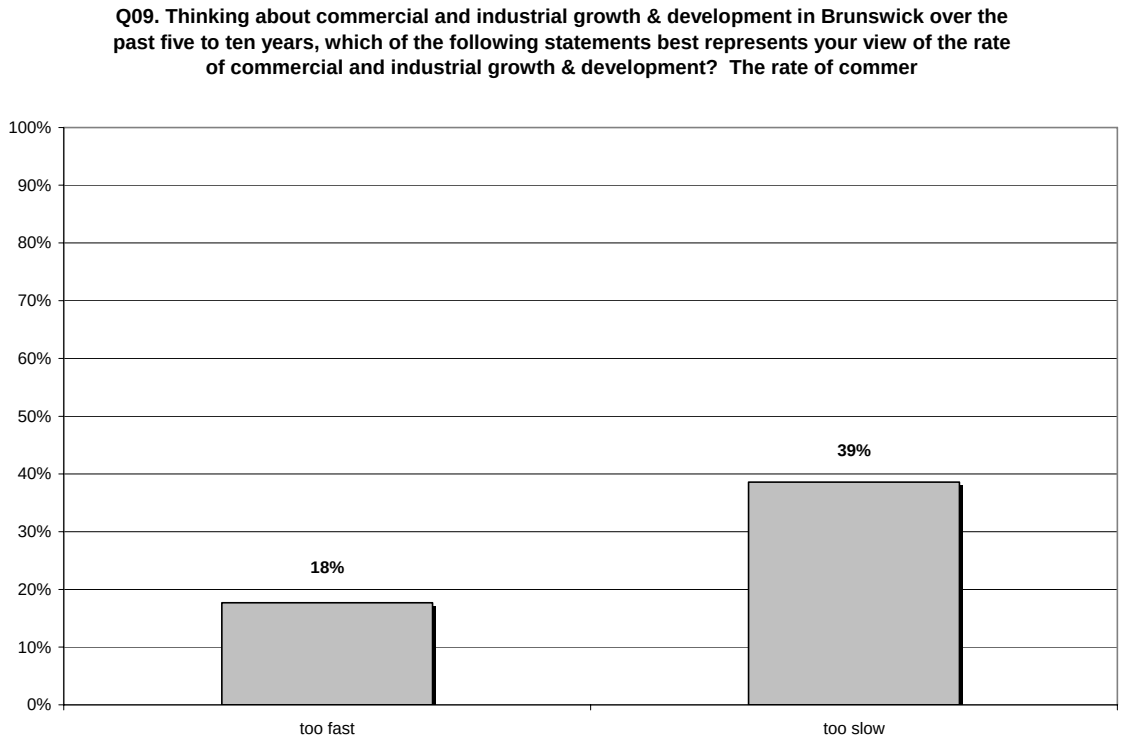
Response	Count	%
Strongly Oppose	8	2%
Somewhat Oppose	9	2%
Neither Support nor Oppose	34	8%
Somewhat Support	101	25%
Strongly Support	260	63%
Total	411	100%

Q08. Percent Supporting Possible Lower and Middle Income Housing Priorities for the Town



Q09. Thinking about commercial and industrial growth & development in Brunswick over the past five to ten years, which of the following statements best represents your view of the rate of commercial and industrial growth & development?

Response	Count	%
Much too fast	37	9%
Somewhat too fast	39	9%
About right	189	44%
Somewhat too slow	88	20%
Much too slow	78	18%
Total	432	100%



Q10. Please indicate your support or opposition to the following potential actions:

a. Limiting retail growth to existing areas such as downtown, Pleasant Street, Bath Road or Cooks Corner

Response	Count	%
Strongly Oppose	93	19%
Somewhat Oppose	66	13%
Neither Support nor Oppose	66	13%
Somewhat Support	146	29%
Strongly Support	128	26%
Total	498	100%

b. Supporting efforts to maintain the economic vitality of downtown Brunswick

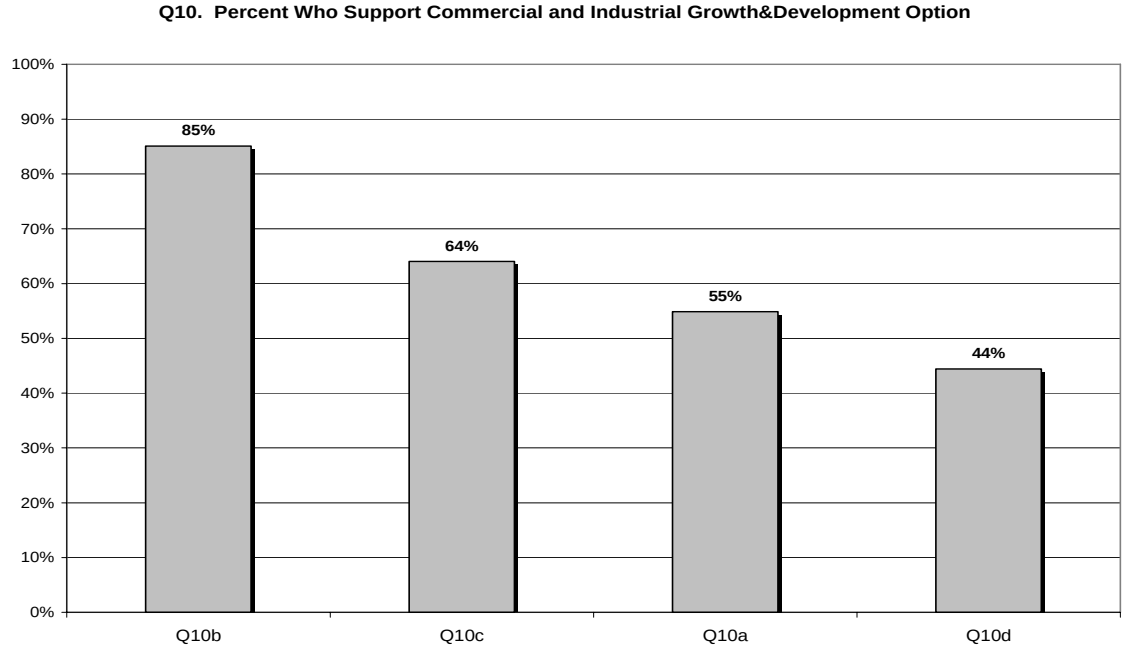
Response	Count	%
Strongly Oppose	23	5%
Somewhat Oppose	8	2%
Neither Support nor Oppose	44	9%
Somewhat Support	136	27%
Strongly Support	290	58%
Total	500	100%

c. Supporting development of a wider diversity of activity at Cooks Corner including more office and residential uses

Response	Count	%
Strongly Oppose	30	6%
Somewhat Oppose	51	10%
Neither Support nor Oppose	98	20%
Somewhat Support	168	34%
Strongly Support	151	30%
Total	498	100%

d. Providing financial assistance in extending water and sewer service to commercial and industrial development within the growth area

Response	Count	%
Strongly Oppose	75	15%
Somewhat Oppose	84	17%
Neither Support nor Oppose	116	23%
Somewhat Support	106	21%
Strongly Support	114	23%
Total	495	100%



Q10b. Supporting efforts to maintain the economic vitality of downtown Brunswick
Q10c. Supporting development of a wider diversity of activity at Cook's Corner including more office and residential uses
Q10a. Limiting retail growth to existing areas such as downtown, Pleasant Street, Bath Road or Cook's Corner
Q10d. Providing financial assistance in extending water and sewer service to commercial and industrial development within the growth area

Q11. Please indicate your support or opposition to the following potential actions:

a. Building a new business park

Response	Count	%
Strongly Oppose	67	14%
Somewhat Oppose	70	14%
Neither Support nor Oppose	121	25%
Somewhat Support	126	26%
Strongly Support	101	21%
Total	485	100%

b. Constructing a perimeter road at Cooks Corner to relieve traffic congestion

Response	Count	%
Strongly Oppose	37	7%
Somewhat Oppose	54	11%
Neither Support nor Oppose	60	12%
Somewhat Support	149	30%
Strongly Support	193	39%
Total	493	100%

c. Developing an 'incubator' building with subsidized space to assist start-up businesses

Response	Count	%
Strongly Oppose	73	15%
Somewhat Oppose	58	12%
Neither Support nor Oppose	145	29%
Somewhat Support	138	28%
Strongly Support	84	17%
Total	497	100%

d. Providing property tax rebates for start-up businesses

Response	Count	%
Strongly Oppose	84	17%
Somewhat Oppose	81	16%
Neither Support nor Oppose	115	23%
Somewhat Support	123	25%
Strongly Support	93	19%
Total	495	100%

e. Building a parking garage in downtown

Response	Count	%
Strongly Oppose	137	27%
Somewhat Oppose	90	18%
Neither Support nor Oppose	59	12%
Somewhat Support	114	23%
Strongly Support	102	20%
Total	502	100%

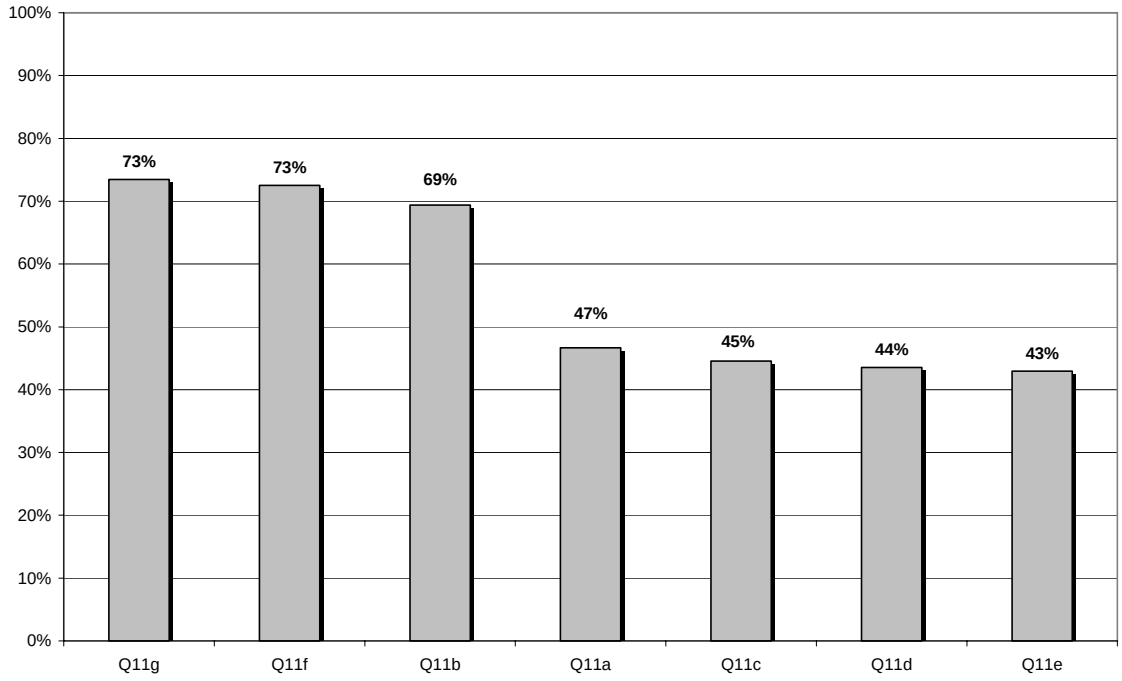
f. Expanding support to natural resource-based businesses such as clamming and fishing,

Response	Count	%
Strongly Oppose	19	4%
Somewhat Oppose	28	6%
Neither Support nor Oppose	90	18%
Somewhat Support	177	35%
Strongly Support	186	37%
Total	500	100%

g. Expanding support to farming.

Response	Count	%
Strongly Oppose	26	5%
Somewhat Oppose	20	4%
Neither Support nor Oppose	87	17%
Somewhat Support	162	32%
Strongly Support	206	41%
Total	500	100%

Q11. Percent Who Support Option to Encourage Economic Development



Q11a. Building a new business park
Q11b. Constructing a perimeter road at Cook's Corner to relieve traffic congestion
Q11c. Developing an 'incubator' building with subsidized space to assist start-up businesses
Q11d. Providing property tax rebates for start-up businesses
Q11e. Building a parking garage in downtown
Q11f. Expanding support to natural resource-based businesses such as clamming and fishing,
Q11g. Expanding support to farming.

Q12. If the Town and economic development corporation were to develop a new business park, which of the following statements best represents your view of what businesses should be able to locate in the park?

Response	Count	%
Any business willing to move into park	114	24%
Only businesses that pay significant taxes	68	14%
Only businesses that create quality jobs	264	54%
Other	40	8%
Total	486	100%

Q13a. Please indicate your support or opposition to the following potential actions:

a. Preserving additional natural and scenic areas and trails

Response	Count	%
Strongly Oppose	26	5%
Somewhat Oppose	36	7%
Neither Support nor Oppose	56	11%
Somewhat Support	115	23%
Strongly Support	267	53%
Total	501	100%

b. Focusing conservation efforts for natural and scenic areas and trails in rural areas

Response	Count	%
Strongly Oppose	26	5%
Somewhat Oppose	48	10%
Neither Support nor Oppose	85	17%
Somewhat Support	158	32%
Strongly Support	181	36%
Total	498	100%

c. Focusing conservation efforts for natural and scenic areas and trails in both growth areas and rural areas

Response	Count	%
Strongly Oppose	28	6%
Somewhat Oppose	27	5%
Neither Support nor Oppose	89	18%
Somewhat Support	145	29%
Strongly Support	204	41%
Total	493	100%

d. Acquiring additional for natural and scenic areas and trails with Town funds even if this raises property taxes

Response	Count	%
Strongly Oppose	216	43%
Somewhat Oppose	98	20%
Neither Support nor Oppose	56	11%
Somewhat Support	69	14%
Strongly Support	60	12%
Total	499	100%

e. Preserving natural and scenic areas and trails by regulating uses of land- even if this restricts owner's use of the land

Response	Count	%
Strongly Oppose	202	42%
Somewhat Oppose	110	23%
Neither Support nor Oppose	64	13%
Somewhat Support	67	14%
Strongly Support	43	9%
Total	485	100%

f. Buying the right to develop property from rural land owners

Response	Count	%
Strongly Oppose	148	30%
Somewhat Oppose	74	15%
Neither Support nor Oppose	133	27%
Somewhat Support	82	17%
Strongly Support	56	11%
Total	493	100%

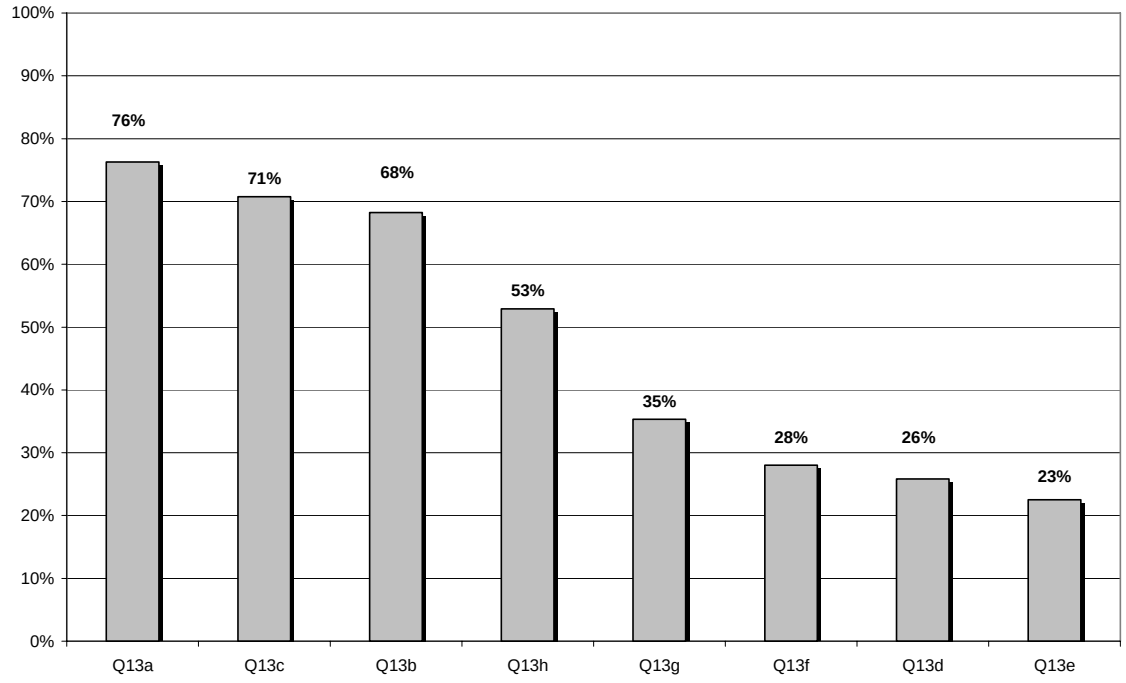
g. Requiring rural property owners to set aside part of their land for natural and scenic areas and trails if they develop it

Response	Count	%
Strongly Oppose	179	36%
Somewhat Oppose	56	11%
Neither Support nor Oppose	88	18%
Somewhat Support	79	16%
Strongly Support	97	19%
Total	500	100%

h. Expanding property tax rebates for protection of natural and scenic areas and trails

Response	Count	%
Strongly Oppose	86	17%
Somewhat Oppose	39	8%
Neither Support nor Oppose	107	22%
Somewhat Support	142	29%
Strongly Support	119	24%
Total	493	100%

Q13. Percent Who Support Natural and Scenic Areas and Trails Option



Q13a. Preserving additional natural and scenic areas and trails

Q13b. Focusing conservation efforts for natural and scenic areas and trails in rural areas

Q13c. Focusing conservation efforts for natural and scenic areas and trails in both growth areas and rural areas

Q13d. Acquiring additional for natural and scenic areas and trails with Town funds even if this raises property taxes

Q13e. Preserving natural and scenic areas and trails by regulating uses of land- even if this restricts owner's use of the land

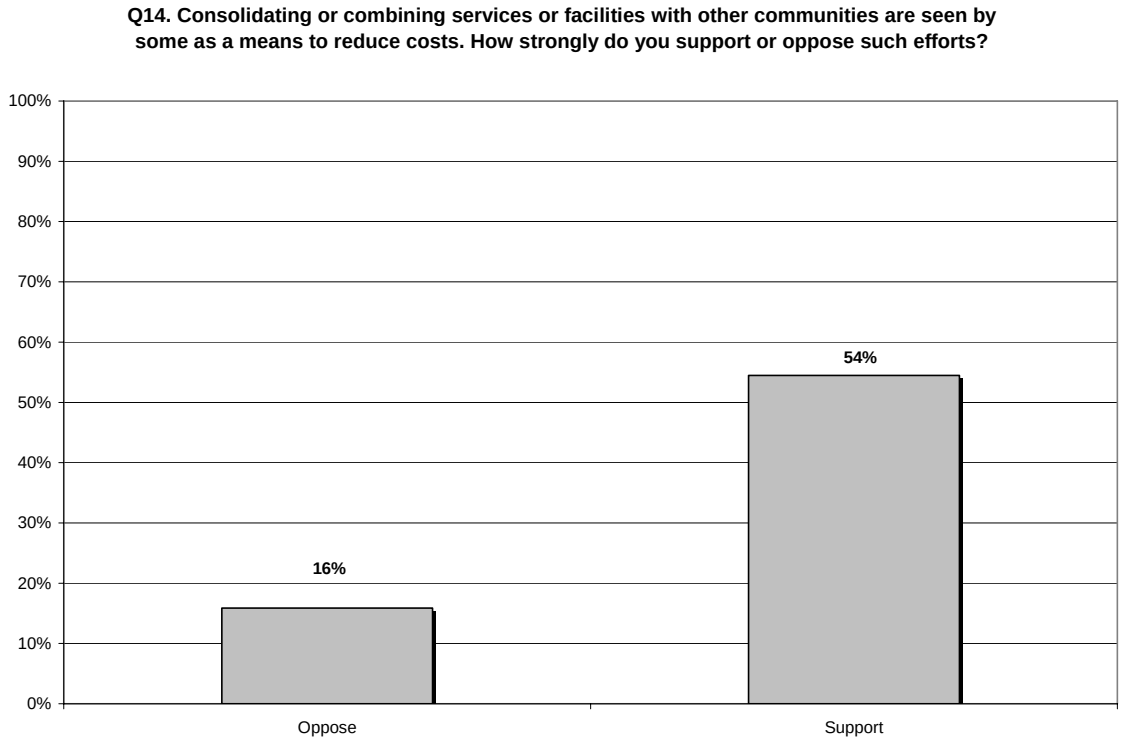
Q13f. Buying the right to develop property from rural land owners

Q13g. Requiring rural property owners to set aside part of their land for natural and scenic areas and trails if they develop it

Q13h. Expanding property tax rebates for protection of natural and scenic areas and trails

Q14. Consolidating or combining services or facilities with other communities are seen by some as a means to reduce costs. How strongly do you support or oppose such efforts?

Response	Count	%
Strongly Oppose	35	7%
Somewhat Oppose	42	9%
Neither Support nor Oppose	143	30%
Somewhat Support	148	31%
Strongly Support	115	24%
Total	482	100%



Q16. Please indicate your view of the priority of each of the following potential new facilities or facility improvements, some of which the Town Council has already agreed to proceed with:

a. Renovating the Central Fire Station

Response	Count	%
Lowest Priority	43	9%
Low Priority	114	24%
High Priority	208	43%
Highest Priority	117	24%
Total	486	100%

b. Expanding police facilities

Response	Count	%
Lowest Priority	59	12%
Low Priority	142	30%
High Priority	208	44%
Highest Priority	68	14%
Total	477	100%

c. Developing a multipurpose community/recreation center

Response	Count	%
Lowest Priority	98	20%
Low Priority	183	38%
High Priority	123	26%
Highest Priority	78	16%
Total	482	100%

d. Modernizing Town Hall

Response	Count	%
Lowest Priority	124	27%
Low Priority	256	55%
High Priority	77	16%
Highest Priority	11	2%
Total	468	100%

e. Creating a 'Land for Brunswick's Future' fund to help buy natural areas

Response	Count	%
Lowest Priority	141	29%
Low Priority	185	38%
High Priority	89	18%
Highest Priority	75	15%
Total	490	100%

f. Developing a recreation area in East Brunswick with playing fields

Response	Count	%
Lowest Priority	93	19%
Low Priority	210	43%
High Priority	135	28%
Highest Priority	49	10%
Total	487	100%

g. Developing playing fields in other areas of town

Response	Count	%
Lowest Priority	91	19%
Low Priority	243	50%
High Priority	117	24%
Highest Priority	33	7%
Total	484	100%

h. Building a fire substation at Cooks Corner

Response	Count	%
Lowest Priority	49	10%
Low Priority	113	23%
High Priority	178	37%
Highest Priority	141	29%
Total	482	100%

i. Building a parking garage in Downtown

Response	Count	%
Lowest Priority	215	45%
Low Priority	110	23%
High Priority	105	22%
Highest Priority	52	11%
Total	482	100%

j. Building a new elementary school

Response	Count	%
Lowest Priority	117	25%
Low Priority	148	32%
High Priority	136	29%
Highest Priority	62	13%
Total	464	100%

k. Developing a new business park

Response	Count	%
Lowest Priority	127	27%
Low Priority	190	40%
High Priority	104	22%
Highest Priority	57	12%
Total	478	100%

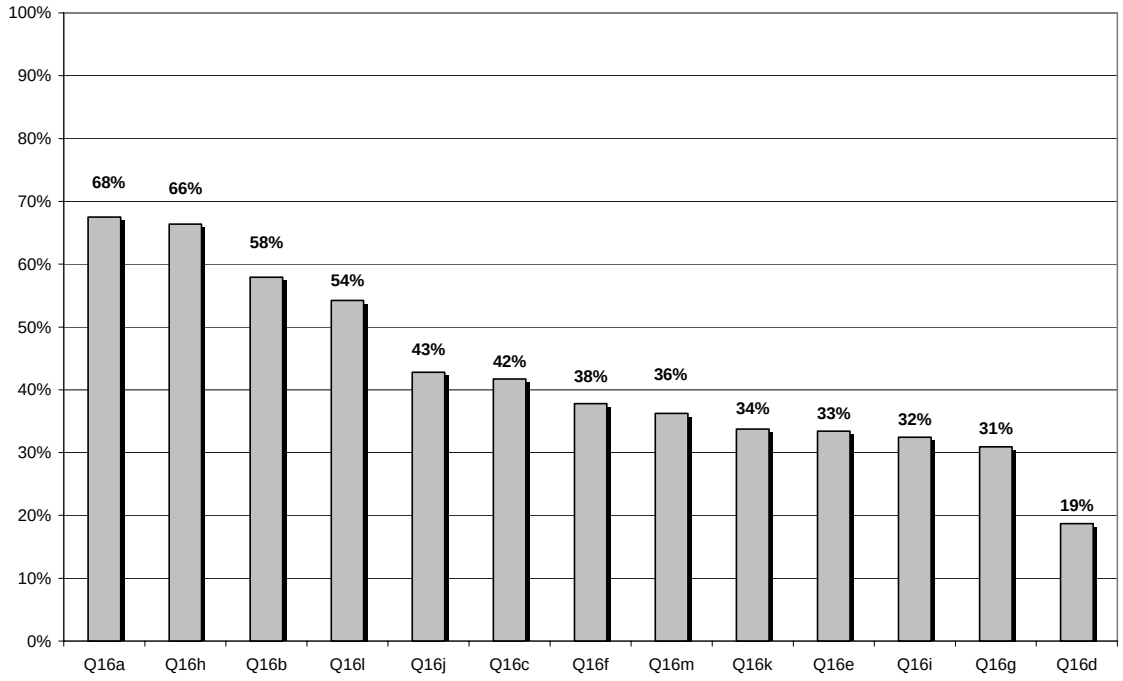
l. Repairing and expanding sidewalks

Response	Count	%
Lowest Priority	58	12%
Low Priority	165	34%
High Priority	135	28%
Highest Priority	129	26%
Total	487	100%

m. Expanding bicycle facilities

Response	Count	%
Lowest Priority	161	33%
Low Priority	147	30%
High Priority	115	24%
Highest Priority	60	12%
Total	483	100%

Q16. Percent Indicating Potential New Facilities or Improvement Improvement Is High Priority



Q16a. Renovating the Central Fire Station
Q16b. Expanding police facilities
Q16c. Developing a multipurpose community/recreation center
Q16d. Modernizing Town Hall
Q16e. Creating a 'Land for Brunswick's Future' fund to help buy natural and scenic areas and recreational land
Q16f. Developing a recreation area in East Brunswick with playing fields in East Brunswick
Q16g. Developing playing fields in other areas of town
Q16h. Building a fire substation at Cook's Corner
Q16i. Building a parking garage in Downtown
Q16j. Building a new elementary school
Q16k. Developing a new business park
Q16l. Repairing and expanding sidewalks
Q16m. Expanding bicycle facilities

Q18. On a scale of one to five, where 5 is excellent and 1 is very poor please rate the following aspects of school quality.

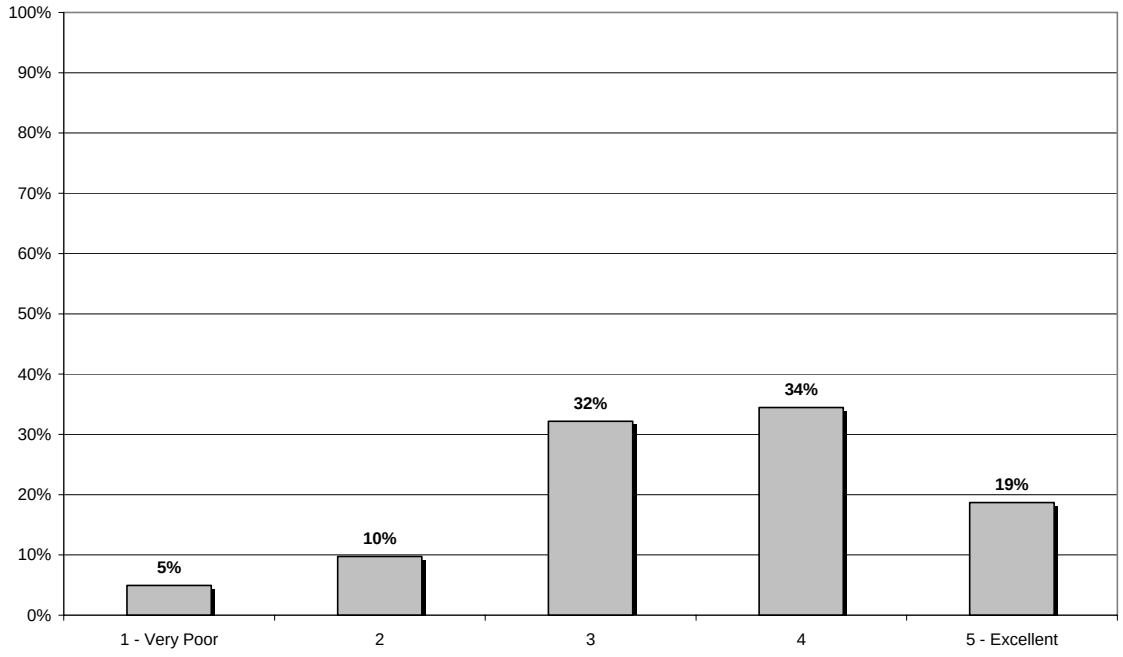
a. The quality of school facilities?

Response	Count	%
1 - Very Poor	20	5%
2	40	10%
3	132	32%
4	142	34%
5 - Excellent	77	19%
Total	411	100%

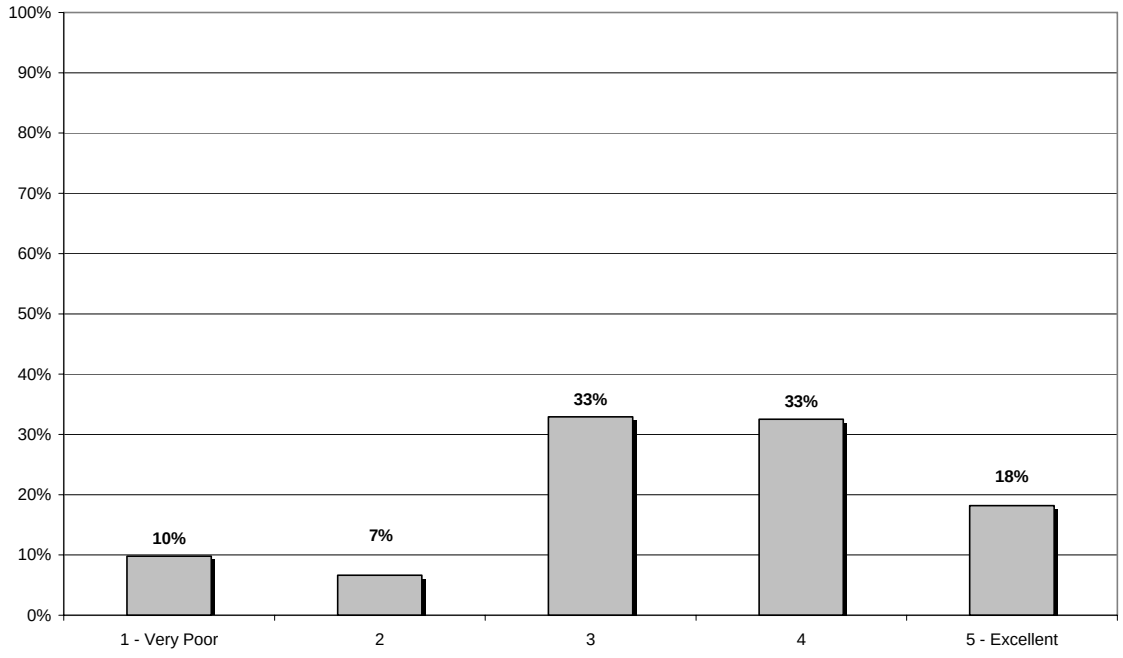
b. The quality of the school programming and offerings?

Response	Count	%
1 - Very Poor	39	10%
2	27	7%
3	133	33%
4	131	33%
5 - Excellent	73	18%
Total	403	100%

Q18a. On a scale of one to five, where 5 is excellent and 1 is very poor please rate the following aspects of school quality. a. The quality of school facilities?



Q18b. On a scale of one to five, where 5 is excellent and 1 is very poor please rate the following aspects of school quality. b. The quality of the school programming and offerings?



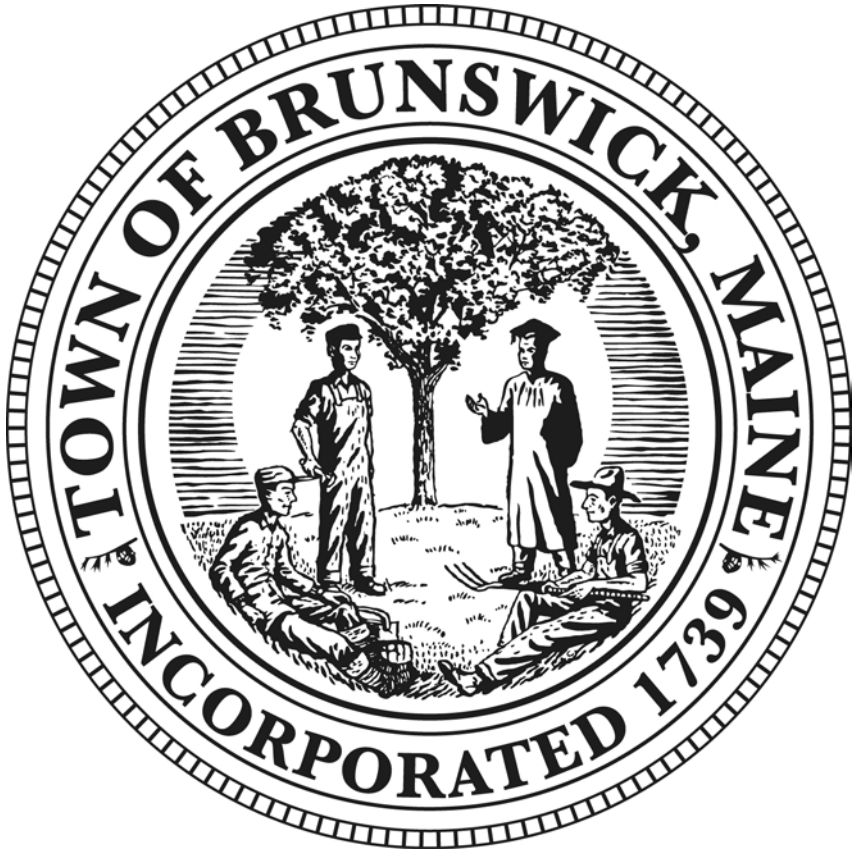
Q19. Do you have school-age children that attend any of Brunswick's public schools?

Response	Count	%
Yes	113	24%
No	362	76%
Total	403	100%

Q20. How satisfied are you with the overall quality of the educational experience your children receive in the Brunswick public school system?

Response	Count	%
Very Satisfied	74	47%
Somewhat Satisfied	50	32%
Somewhat Dissatisfied	21	14%
Very Dissatisfied	11	7%
Very Satisfied	74	47%
Total	156	100%

Town of Brunswick, Maine



Capital Improvement Program
Fiscal Years Ending 2006-2010

Proposed to Town Council – May 12, 2005
Adopted – June 13, 2005

Town of Brunswick, Maine

Explanation of the Capital Improvement Program (CIP) Process

Article VI, Section 601 of the Charter of the Town of Brunswick requires the Town Manager to prepare a five-year capital improvement program (CIP). It is also referred to as a capital improvement plan. The CIP must be submitted at the same time as the annual budget is submitted. It is to include a list of all capital improvements proposed over the next five fiscal years. The CIP is also to include cost estimates, methods of financing, and recommended time schedules for each such improvement. Finally, the CIP is to include the estimated annual cost of operating and maintaining the facilities to be constructed and acquired.

After receipt of the Town Manager's proposed CIP, the Town Council is required to review the program. The Council shall then hold a public hearing on the proposed CIP. The Council may adopt the CIP with or without amendment after the public hearing. However, the Council is not prevented from authorizing bonds or notes of the Town to finance a capital improvement not included in the CIP. While it is the Town's intent to bring all capital requests through the CIP process, projects not included in the CIP may ultimately be funded and the source of that funding may be general obligation, or other, bonds of the Town.

The CIP is a planning document. The projects contemplated by the CIP must be formally authorized and funded in order for them to proceed. Authorization and funding may take several forms such as inclusion in the annual Town budget, an ordinance, or an appropriation resolve. Upon adoption, the first year of the CIP is usually considered the capital budget for the ensuing fiscal year, meaning that the Town intends to formally authorize and fund those projects during the year.

Additional details regarding the non-school expenditures proposed in this document may be obtained from the Town Manager's Office at 28 Federal Street, Brunswick, Maine 04011 or by calling 207-725-6659. Additional details regarding the proposed school related expenditures may be obtained from the Superintendent of Schools, 35 Union Street, Brunswick, Maine 04011 or by calling 207-729-4148.

Town of Brunswick, Maine
Capital Improvement Plan
For Fiscal Years Ending 2006-2010

CAPITAL IMPROVEMENTS	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	TOTAL	FUNDING SOURCE
Major Facilities							
Central Fire Station							
Design	$ -	$ 100,000	$ -	$ -	$ -	**$ 100,000**	Gen. Fund Balance
Site		500,000				**500,000**	G.O. Bonds
Construction			4,000,000			**4,000,000**	G.O. Bonds
Fire Substation (East)							
Site and Construction	2,500,000					**2,500,000**	G.O. Bonds
Fire Substation (West)							
Site Acquisition		100,000				**100,000**	Gen. Fund Balance
Times Record							
Acquisition	1,275,000					**1,275,000**	G.O. Bonds
Rennovations		3,500,000				**3,500,000**	G.O. Bonds
Municipal Building Renovations							
Renovations		400,000				**400,000**	G.O. Bonds
Old High School							
Demolotion		1,000,000				**1,000,000**	G.O. Bonds
Elementary School							
Site, Design, Construction			14,400,000			**14,400,000**	G.O. Bonds/State
Brunswick Junior High Addition							
Site, Design, Construction			1,300,000			**1,300,000**	G.O. Bonds
Elementary School Renovations							
Longfellow School				600,000		**600,000**	G.O. Bonds
Jordan Acres School				600,000		**600,000**	G.O. Bonds
Coffin School				700,000		**700,000**	G.O. Bonds
Mere Point Boat Launch	-	-	-	1,000,000	-	**1,000,000**	State of Maine
Total Major Facilities	**$ 3,775,000**	**$ 5,600,000**	**$ 19,700,000**	**$ 2,900,000**	**$ -**	**$ 31,975,000**	

CAPITAL IMPROVEMENTS	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	TOTAL	FUNDING SOURCE
Departments/Functions							
School Department							
Junior High Air Quality	$ -	$ 200,000	$ 200,000	$ 200,000	$ -	**$ 600,000**	Gen. Fund Advance
Longfellow Air Quality	375,000					**375,000**	Gen. Fund Advance
BHS Egress Road				315,000		**315,000**	G.O. Bonds
BHS Tennis Courts				130,000		**130,000**	G.O. Bonds
BHS Carpet & Tile				150,000	150,000	**300,000**	Gen. Fund Revenue
School Buses	180,000	125,000	126,000	127,000	128,000	**686,000**	Gen. Fund Revenue
Annual Work Program	356,338	356,000	337,000	344,000	350,000	**1,743,338**	Gen. Fund Revenue
Total School Department	$ 911,338	$ 681,000	$ 663,000	$ 1,266,000	$ 628,000	**$ 4,149,338**	
General Government							
Voting Machines	$ -	$ 62,400	$ -	$ -	$ -	**$ 62,400**	Gen. Fund Balance
Municipal Network		50,000				**50,000**	Gen. Fund Balance
Municipal Network		200,000				**200,000**	Other
Municipal Computer System	265,000	-	-	-	-	**265,000**	Gen. Fund Balance
Total General Government	$ 265,000	$ 312,400	$ -	$ -	$ -	**$ 577,400**	
Public Safety							
Ambulance and Equipment	$ -	$ -	$ -	$ -	$ 160,000	**$ 160,000**	Gen. Fund Balance
Aerial Platform Fire Truck		800,000				**800,000**	G.O. Bonds
Engine One Fire Truck	-	-	-	390,000	-	**390,000**	G.O. Bonds
9-12 Pickup			33,000			**33,000**	Gen. Fund Balance
Utility Pickup	-	-	-	34,000	-	**34,000**	Gen. Fund Balance
Total Public Safety	$ -	$ 800,000	$ 33,000	$ 424,000	$ 160,000	**$ 1,417,000**	
Public Works							
Solid Waste							
W&M Landfill Closure	$ 775,000	$ -	$ -	$ -	$ -	**$ 775,000**	Gen. Fund Advance
Storm Sewer							
Maine Street/Park Row		355,000				**355,000**	Gen. Fund Balance
Maine Street/Park Row		355,000				**355,000**	Other

CAPITAL IMPROVEMENTS	2005-2006	2006-2007	2007-2008	2008-2009	2090-2010	TOTAL	FUNDING SOURCE
Street and Road Improvements							
Bath Road (portion)	750,000					**750,000**	Impact Fees
Bath Road (portion)	750,000					**750,000**	Other
Jordan Avenue (portion)	1,465,000					**1,465,000**	Gen. Fund Balance
Mere Point Rd. (portion)			1,010,000			**1,010,000**	G.O. Bonds
Annual Work Program	200,000	200,000	200,000	200,000	200,000	**1,000,000**	Gen. Fund Revenue
Street Resurfacing Program	350,000	360,000	370,000	380,000	390,000	**1,850,000**	Gen. Fund Revenue
Sidewalk Program							
Annual Work Program	90,000	100,000	100,000	100,000	100,000	**490,000**	Gen. Fund Revenue
Traffic Improvements							
Route 24 (portion)	300,000					**300,000**	State of Maine
Bridge Improvements							
Frank Wood Bridge	1,000,000					**1,000,000**	State of Maine
Facilities							
Salt/Sand Storage Building	250,000					**250,000**	Gen. Fund Balance
Times Record Building			250,000			**250,000**	Gen. Fund Balance
Vehicles and Equipment							
Annual Replacement Program	220,000	200,000	200,000	200,000	200,000	**1,020,000**	Gen. Fund Revenue
Landfill Compactor	-	350,000	-	-	-	**350,000**	Enterprise Fund
Total Public Works	$ 6,150,000	$ 1,920,000	$ 2,130,000	$ 880,000	$ 890,000	**$ 11,970,000**	
Parks and Recreation							
ADA Improvements	$ -	$ 33,000	$ -	$ -	$ -	**$ 33,000**	Gen. Fund Balance
Stake Body Truck					40,000	**40,000**	Gen. Fund Balance
Edwards Field Irrigation	40,000					**40,000**	Gen. Fund Revenue
Stanwood Street Tennis Courts	-	-	-	198,000	-	**198,000**	G.O. Bonds
Total Parks and Recreation	$ 40,000	$ 33,000	$ -	$ 198,000	$ 40,000	**$ 311,000**	
Community Development							
Business Park Development		1,000,000				**1,000,000**	Other
Thomas Point Rd. Connections			200,000			**200,000**	G.O. Bonds
Total Development	$ -	$ 1,000,000	$ 200,000	$ -	$ -	**$ 1,200,000**	
Total Departments/Functions	**$ 7,366,338**	**$ 4,746,400**	**$ 3,026,000**	**$ 2,768,000**	**$ 1,718,000**	**$ 19,624,738**	
TOTAL CAPITAL IMPROVEMENTS	**$ 11,141,338**	**$ 10,346,400**	**$ 22,726,000**	**$ 5,668,000**	**$ 1,718,000**	**$ 51,599,738**	

CAPITAL IMPROVEMENTS	2005-2006	2006-2007	2007-2008	2008-2009	2090-2010	TOTAL
General Obligation Bonds	$ 3,775,000	$ 6,200,000	$ 20,910,000	$ 2,933,000	$ -	**$ 33,818,000**
General Fund Revenues	1,436,338	1,341,000	1,333,000	1,501,000	1,518,000	**7,129,338**
General Fund Balance	1,980,000	700,400	283,000	34,000	200,000	**3,197,400**
General Fund Advance	1,150,000	200,000	200,000	200,000	-	**1,750,000**
State of Maine	1,300,000	-	-	1,000,000	-	**2,300,000**
Enterprise Funds	-	350,000	-	-	-	**350,000**
Impact Fees	750,000	-	-	-	-	**750,000**
Other	750,000	1,555,000	-	-	-	**2,305,000**
TOTAL FUNDING SOURCES	**$ 11,141,338**	**$ 10,346,400**	**$ 22,726,000**	**$ 5,668,000**	**$ 1,718,000**	**$ 51,599,738**

TAX RATE IMPACTS (Estimated)	2005-2006	2006-2007	2007-2008	2008-2009	2090-2010
Debt Service					
Existing Debt Service	$ 2,636,255	$ 2,541,276	$ 1,880,113	$ 1,700,980	$ 1,633,510
TIF Subsidy	(230,568)	(226,358)	(221,750)	(216,755)	(211,385)
School Subsidy (estimated)	(996,397)	(963,916)	(926,908)	(889,138)	(853,087)
Net Existing Debt Service	**1,409,290**	**1,351,003**	**731,454**	**595,087**	**569,038**
Proposed Debt Service (in total)	396,375	1,291,544	3,497,038	3,824,546	3,713,572
School Subsidy (estimated)	-	-	(1,058,400)	(1,030,680)	(1,002,960)
Net Existing and Proposed Debt Service	**1,805,665**	**2,642,546**	**3,170,092**	**3,388,954**	**3,279,650**
Change from Previous Year	337,182	836,881	527,545	218,862	(109,304)
Tax Rate Impact - Debt Service	**1.30%**	**3.22%**	**2.03%**	**0.84%**	**-0.42%**
Operating Costs Related to New Debt					
Operating Costs	$ 553,000	$ 394,590	$ 478,045	$ 512,386	$ 527,758
Change from Previous Year	553,000	(158,410)	83,455	34,341	15,372
Tax Rate Impact - Operating Costs	**2.13%**	**-0.61%**	**0.32%**	**0.13%**	**0.06%**
Total Change Debt Service & Operating Cost	**890,182**	**678,471**	**611,000**	**253,203**	**(93,932)**
Tax Rate Impact - Total D.S & Op.	**3.42%**	**2.61%**	**2.35%**	**0.97%**	**-0.36%**
General Revenues Non-Debt Projects					
General Revenues	1,436,338	1,341,000	1,333,000	1,501,000	1,518,000
Change from Previous Year	85,522	(95,338)	(8,000)	168,000	17,000
Tax Rate Impact - Non-Debt Projects	**0.33%**	**-0.37%**	**-0.03%**	**0.65%**	**0.07%**
Total Change - All tax-supported projects	**975,704**	**583,133**	**603,000**	**421,203**	**(76,932)**
Tax Rate Impact - All tax-supported projects	**3.75%**	**2.24%**	**2.32%**	**1.62%**	**-0.30%**

Above assumes 1% tax increase is equal to: $ 260,000

Cost Estimates - The above costs represent an estimate of the impact on debt service and operating costs should the capital projects be undertaken. The estimated cost impact is also displayed as a percentage change in the tax rate.

State School Construction Debt Service Subsidy - School construction debt service subsidy is estimated based on the new Essential Programs and Services (EPS) funding model. The EPS model uses a number of variables that will change annually. Further, the model is subject to change by actions of the State Legislature and the Department of Education (DOE). The funding level for EPS is a product of the State's budget. The DOE is currently subsidizing the debt service on Brunswick High School and the subsidy shown above is an estimate. The DOE has not agreed to subsidize the Elementary School project and has not given any assurance that the project might qualify for subsidy. However, the estimate above assumes the DOE will include 70% of that project's debt service in the subsidy formula. Again, there is no assurance that DOE will ultimately agree to subsidize any portion of the project. In summary, all school subsidy estimates are highly speculative and are subject to constant revision. The estimates are intended only for planning purposes. Future estimates may be materially different.

Project	Estimated Project Cost	Assumed Bond Years Years	Assumed Interest Rate	Projected First Year Debt Service (a)	Estimated First Yr Tax Rate Impact (b)	Estimated Total Debt Service (c)
Cook's Corner Substation 05-06	$ 2,500,000	20	5.50%	$ 262,500	1.01%	3,943,750
Times Record Property 05-06	1,275,000	20	5.50%	133,875	0.51%	2,011,313
Central Station Site 06-07	500,000	5	4.25%	121,500	0.47%	563,750
Times Record Building 06-07	3,500,000	20	5.50%	367,500	1.41%	5,521,250
Municipal Building 06-07	400,000	10	4.50%	58,000	0.22%	499,000
Old High School Demolition 06-07	1,000,000	5	4.25%	242,500	0.93%	1,127,500
Aerial Platform 06-07	800,000	10	4.50%	116,000	0.45%	998,000
Fire Station 07-08	4,000,000	20	5.50%	420,000	1.62%	6,310,000
Elementary School 07-08 (d)	14,400,000	20	5.50%	1,512,000	5.82%	22,716,000
Junior High School 07-08	1,300,000	20	5.50%	136,500	0.53%	2,050,750
Mere Point Road 07-08	1,010,000	10	4.50%	146,450	0.56%	1,259,975
Thomas Point Road 07-08	200,000	10	4.50%	29,000	0.11%	249,500
Longfellow School 08-09	600,000	10	4.50%	87,000	0.33%	748,500
Jordan Acres School 08-09	600,000	10	4.50%	87,000	0.33%	748,500
Coffin School 08-09	700,000	10	4.50%	101,500	0.39%	873,250
BHS Egress Road 08-09	315,000	10	4.50%	45,675	0.18%	392,963
BHS Tennis Courts 08-09	130,000	10	4.50%	18,850	0.07%	162,175
Engine One Bonds 08-09	390,000	10	4.50%	56,550	0.22%	486,525
Stanwood Street Tennis Courts 08-09	198,000	10	4.50%	28,710	0.11%	247,005
	$ 33,818,000			**$ 3,971,110**		**$ 50,909,705**

(a) The first year debt service payment is an estimate assuming level principal payments. It assumes the rates and terms shown. The actual rates and terms will be determined if and when the bonds are issued.

(b) Assumes a 1% Tax Rate increase equals: $260,000

(c) This is the estimated debt total debt service over the life of the bonds. It assumes the rates and terms shown.

(d) If this project qualifies for State school construction debt service subsidy, the estimated impact on taxes will be lower by the amount of that subsidy.

State School Construction Debt Service Subsidy - School construction debt service subsidy is estimated based on the new Essential Programs and Services (EPS) funding model. The EPS model uses a number of variables that will change annually. Further, the model is subject to change by actions of the State Legislature and the Department of Education (DOE). The funding level for EPS is a product of the State's budget. The DOE is currently subsidizing the debt service on Brunswick High School and the subsidy shown above is an estimate. The DOE has not agreed to subsidize the Elementary School project and has not given any assurance that the project might qualify for subsidy. However, the estimate above assumes the DOE will include 70% of that project's debt service in the subsidy formula. Again, there is no assurance that DOE will ultimately agree to subsidize any portion of the project. In summary, all school subsidy estimates are highly speculative and are subject to constant revision. The estimates are intended only for planning purposes. Future estimates may be materially different.

Estimated Tax Rate Impacts

Assumption That 1% Tax Increase Raises: $ 260,000

	2005-2006		2006-2007		2007-2008		2008-2009		2009-2010	
Existing Debt Service										
Existing Debt Service	2,636,255	10.14%	2,541,276	9.77%	1,880,113	7.23%	1,700,980	6.54%	1,633,510	6.28%
TIF Subsidy	(230,568)	-0.89%	(226,358)	-0.87%	(221,750)	-0.85%	(216,755)	-0.83%	(211,385)	-0.81%
School Subsidy (estimated)	(996,397)	-3.83%	(963,916)	-3.71%	(926,908)	-3.57%	(889,138)	-3.42%	(853,087)	-3.28%
	1,409,290	**5.42%**	**1,351,003**	**5.20%**	**731,454**	**2.81%**	**595,087**	**2.29%**	**569,038**	**2.19%**
Change from Previous Year	**(59,193)**	**-0.23%**	**(58,288)**	**-0.22%**	**(619,548)**	**-2.38%**	**(136,367)**	**-0.52%**	**(26,049)**	**-0.10%**
New Debt Service										
Cook's Corner Substation 05-06	262,500	1.01%	255,625	0.98%	248,750	0.96%	241,875	0.93%	235,000	0.90%
Times Record Property 05-06	133,875	0.51%	130,369	0.50%	126,863	0.49%	123,356	0.47%	119,850	0.46%
Central Station Site 06-07	-	0.00%	121,550	0.47%	117,000	0.45%	112,750	0.43%	108,500	0.42%
Times Record Building 06-07	-	0.00%	367,500	1.41%	357,875	1.38%	348,250	1.34%	338,625	1.30%
Municipal Building 06-07	-	0.00%	58,000	0.22%	56,200	0.22%	54,400	0.21%	52,600	0.20%
Old High School Demolition 06-07	-	0.00%	242,500	0.93%	234,000	0.90%	225,500	0.87%	217,000	0.83%
Aerial Platform 06-07	-	0.00%	116,000	0.45%	112,400	0.43%	108,800	0.42%	105,200	0.40%
Fire Station 07-08	-	0.00%	-	0.00%	420,000	1.62%	409,000	1.57%	398,000	1.53%
Elementary School 07-08	-	0.00%	-	0.00%	1,512,000	5.82%	1,472,400	5.66%	1,432,800	5.51%
Junior High School 07-08	-	0.00%	-	0.00%	136,500	0.53%	132,925	0.51%	129,350	0.50%
Mere Point Road 07-08	-	0.00%	-	0.00%	146,450	0.56%	141,905	0.55%	137,360	0.53%
Thomas Point Road 07-08	-	0.00%	-	0.00%	29,000	0.11%	28,100	0.11%	27,200	0.10%
Longfellow School 08-09	-	0.00%	-	0.00%	-	0.00%	87,000	0.33%	84,300	0.32%
Jordan Acres School 08-09	-	0.00%	-	0.00%	-	0.00%	87,000	0.33%	84,300	0.32%
Coffin School 08-09	-	0.00%	-	0.00%	-	0.00%	101,500	0.39%	98,350	0.38%
BHS Egress Road 08-09	-	0.00%	-	0.00%	-	0.00%	45,675	0.18%	44,258	0.17%
BHS Tennis Courts 08-09	-	0.00%	-	0.00%	-	0.00%	18,850	0.07%	18,265	0.07%
Engine One Bonds 08-09	-	0.00%	-	0.00%	-	0.00%	56,550	0.22%	54,795	0.21%
Stanwood Street Tennis Courts 08-09	-	0.00%	-	0.00%	-	0.00%	28,710	0.11%	27,819	0.11%
Elementary School Subsidy (estimated)	-	0.00%	-	0.00%	(1,058,400)	-4.07%	(1,030,680)	-3.96%	(1,002,960)	-3.86%
	396,375	**1.52%**	**1,291,544**	**4.97%**	**2,438,638**	**9.38%**	**2,793,866**	**10.75%**	**2,710,612**	**10.43%**
Change from Previous Year	**396,375**	**1.52%**	**895,169**	**3.44%**	**1,147,094**	**4.41%**	**355,229**	**1.37%**	**(83,255)**	**-0.32%**
Sum of Changes from Previous Year	**337,182**	**1.30%**	**836,881**	**3.22%**	**527,545**	**2.03%**	**218,862**	**0.84%**	**(109,304)**	**-0.42%**

Debt Service Costs - The new debt service costs are estimates. The actual costs will be determined by project costs, structure of the bond issues, and prevailing interest rates at the time the bonds are issued.

State School Construction Debt Service Subsidy - School construction debt service subsidy is estimated based on the new Essential Programs and Services (EPS) funding

model. The EPS model uses a number of variables that will change annually. Further, the model is subject to change by actions of the State Legislature and the Department of Education (DOE). The funding level for EPS is a product of the State's budget. The DOE is currently subsidizing the debt service on Brunswick High School and the subsidy shown above is an estimate. The DOE has not agreed to subsidize the Elementary School project and has not given any assurance that the project might qualify for subsidy. However, the estimate above assumes the DOE will include 70% of that project's debt service in the subsidy formula. Again, there is no assurance that DOE will ultimately agree to subsidize any portion of the project. In summary, all school subsidy estimates are highly speculative and are subject to constant revision. The estimates are intended only for planning purposes. Future estimates may be materially different.

	2005-2006		2006-2007		2007-2008		2008-2009		2009-2010	
Estimated Operating Cost Impacts										
Municipal Network & Computer System	75,000	0.29%	77,250	0.30%	79,568	0.31%	81,955	0.32%	84,413	0.32%
Cook's Corner Fire Substation	360,000	1.38%	370,800	1.43%	381,924	1.47%	393,382	1.51%	405,183	1.56%
Central Fire Station	-	0.00%	-	0.00%	13,505	0.05%	13,910	0.05%	14,327	0.06%
Times Record Project	118,000	0.45%	121,540	0.47%	125,186	0.48%	128,942	0.50%	132,810	0.51%
Elementary School	-	0.00%	-	0.00%	53,463	0.21%	55,067	0.21%	56,719	0.22%
Junior High School	-	0.00%	-	0.00%	4,649	0.02%	4,788	0.02%	4,932	0.02%
Mere Point Boat Launch	-	0.00%	-	0.00%	-	0.00%	20,000	0.08%	20,600	0.08%
Old High School Demolition	-	0.00%	(175,000)	-0.67%	(180,250)	-0.69%	(185,658)	-0.71%	(191,227)	-0.74%
	553,000	**2.13%**	**394,590**	**1.52%**	**478,045**	**1.84%**	**512,386**	**1.97%**	**527,758**	**2.03%**
Change from Previous Year	**553,000**	**2.13%**	**(158,410)**	**-0.61%**	**83,455**	**0.32%**	**34,341**	**0.13%**	**15,372**	**0.06%**

The above costs represent an estimate of the impact on operating costs should the capital projects be undertaken. The estimated operating cost impact is also displayed as a percentage change in the tax rate.

Appendix F

Non-Profit Organizations that are Partners With the Town of Brunswick

Note: This list is not all-inclusive of the organizations that the Town may partner with.

Quasi-Public Organization

- Brunswick Economic Development Corporation
- Brunswick Housing Authority
- Brunswick Local Redevelopment Authority

Private Organizations:

- Merrymeeting Adult Education
- Brunswick-Topsham Land Trust
- Friends of Casco Bay
- Friends of Merrymeeting Bay
- Brunswick Downtown Association
- Brunswick Community Housing Coalition
- Pejepscot Historical Society
- Bowdoin College
- Midcoast Collaborative for Access to Transportation
- Five Rivers Arts Alliance
- Midcoast Council for Business Development and Planning
- Habitat for Humanity Bath/Brunswick Area
- Southern Midcoast Chamber of Commerce
- United Way of Midcoast Maine

HRA-0294

Topsham Annex Reuse Master Plan

December 2007

Prepared for the Topsham Local Redevelopment Authority
by Matrix Design Group

This study was prepared under contract with the Topsham Local Redevelopment Authority with financial support from the Office of Economic Adjustment, Department of Defense. The content reflects the views of the Topsham Local Redevelopment Authority and does not necessarily reflect the views of the Office of Economic Adjustment.

Table of Contents

EXECUTIVE SUMMARY AND BACKGROUND

Section 1: Executive Summary 1

Background and Overview 1
The Public Engagement Process 2
Existing Conditions Assessment 3
Reuse Alternatives and Plan Selection 7
Topsham Annex Reuse Master Plan 8
Impacts & Implementation Considerations 9

Section 2: Background and Overview 13

Property Setting and Description 13
The Topsham Local Redevelopment Authority 14
The Federal Property Screening Process 16
The Master Planning Process 22

PUBLIC ENGAGEMENT AND EXISTING CONDITIONS

Section 3: The Public Engagement Process 25

General Approach to Public Participation 25
Public Meetings and Workshops 25
Themes and Issues 42

Section 4: Existing Conditions Assessment 43

Market and Economic Analysis 43
Real Estate Market Analysis 65
Community Planning Issues and Influences 75
Transportation and Infrastructure Issues and Influences 78

Natural and Cultural Resources. 81
On-Base Conditions and Characteristics. 84
Buildings and Facilities. 97
Environmental Conditions. 103

PLAN ALTERNATIVES AND REUSE MASTER PLAN

Section 5: Reuse Alternatives and Plan Selection 113
Overview of Reuse Alternatives 113
Evaluation of Reuse Plan Alternatives 125
Alternative Plan Selection 126

Section 6: The Topsham Annex Reuse Master Plan 129
Description of the Reuse Master Plan 129
Reuse Master Plan Potential Impacts 131
Implementation and Property Disposition. 142

Reuse Master Plan Consultant Team 151

Appendix A: Public Engagement
Appendix B: Market / Economic Data
Appendix C: TLRA Board of Directors Meeting Minutes
Appendix D: Facility Assessments
Appendix E: State / Local / Homeless Screening

Appendices are available for public review at the Midcoast Regional Redevelopment Authority office, Town of Topsham planning office, and at the Topsham Library.

Table of Exhibits

Exhibit 1: Regional Context Map 13
Exhibit 2: Historic Changes 15
Exhibit 3: Homeless Shelter and Supported Housing Demand 21
Exhibit 4: Visioning Exercise Map 27
Exhibit 5: Planning Area A Preferences 28
Exhibit 6: Planning Area B Preferences 29
Exhibit 7: Key Residential Concepts 30
Exhibit 8: Educational and Civic Preferences 31
Exhibit 9: Planning Area A Preferences (High School Session) 32
Exhibit 10: Planning Area B Preferences (High School Session) 33
Exhibit 11: Annex Planning Consideration Area 35
Exhibit 12: Distribution of PCA by Land Use 36
Exhibit 13: Distribution of Vacant Parcels by Size 37
Exhibit 14: Development Capacity of Vacant Land in the PCA 38
Exhibit 15: Historic and Projected Population 44
Exhibit 16: Historic and Projected Median Income 45
Exhibit 17: Population Trends - 1990 to 2011 49
Exhibit 18: Change in Households and Housing Units 50
Exhibit 19: Trends in Median Household Income 51
Exhibit 20: Income Distribution Trends 52
Exhibit 21: Employment Trends, Sagadahoc County 53
Exhibit 22: Employment Trends, Town of Topsham, 2001 and 2005 54
Exhibit 23: Sagadahoc County Private Business Establishment Trends 55
Exhibit 24: Growth Sectors in Sagadahoc County, 2001 to 2005 56
Exhibit 25: Major Regional Employers, Over 100 Employees 57
Exhibit 26: Distribution of Large Employers by Industry 58
Exhibit 27: 2004 Wage Levels, Sagadahoc County 59
Exhibit 28: Top 15 Occupational Wage Categories, Sagadahoc County 60
Exhibit 29: Lowest Occupational Wage Categories, Sagadahoc County 60
Exhibit 30: Trends in Average Weekly Wages, State and Sagadahoc County 61
Exhibit 31: Labor Force Trends, 2000 to 2005 62

Exhibit 32: Trends in Unemployment Rates, 2000 to 2005 63
Exhibit 33: Educational Attainment, 1990 and 2000 64
Exhibit 34: Home Sales Statistics for Topsham and Brunswick 68
Exhibit 35: Days on the Market for Single Family Homes in Topsham and Brunswick 69
Exhibit 36: Condominium Activity in Topsham and Brunswick 70
Exhibit 37: Building Permit Activity, 2001 to 2005 71
Exhibit 38: Median Rent Levels 71
Exhibit 39: Retail Gap Analysis, Topsham, Maine 73
Exhibit 40: Land Use / Zoning Map 77
Exhibit 41: Transportation Map 80
Exhibit 42: Natural Resources 83
Exhibit 43: Stormwater Infrastructure 87
Exhibit 44: Wastewater Infrastructure 89
Exhibit 45: Water Infrastructure 91
Exhibit 46: Natural Gas Infrastructure 95
Exhibit 47: Points of Access 96
Exhibit 48: Documents Reviewed 104
Exhibit 49: Environmental Land Use Controls 105
Exhibit 50: Areas of Investigation 108
Exhibit 51: Existing Aboveground Storage Tanks 109
Exhibit 52: Alternative Plan 1 115
Exhibit 53: Alternative Plan 2 118
Exhibit 54: Alternative Plan 3 121
Exhibit 55: Alternative Plan 4 123
Exhibit 56: Topsham Annex Reuse Master Plan Map 130
Exhibit 57: Estimated Construction Employment 133
Exhibit 58: Projected Employment at Topsham Annex 134
Exhibit 59: Projected Residential Tax Base 135
Exhibit 60: Redevelopment of Existing Buildings in Military Triangle 136
Exhibit 61: Roadway Segment Lengths 137
Exhibit 62: NOI Requests 143

Section 1: Executive Summary

The Topsham Reuse Master Plan, as presented and described in the following six Sections, reflects the significant involvement of the Town of Topsham and the Topsham Local Redevelopment Authority over a 16-month planning period. While public interaction and comment played a key role in the development of the Plan, the Authority's overarching vision for redevelopment and its community-driven Guiding Principles focused the effort and the results described herein.

Background and Overview

Property Setting and Description

On August 24, 2005, the federal Base Realignment and Closure (BRAC) Commission voted 8 to 1 to close the Topsham Annex, a 74-acre property associated with Brunswick Naval Air Station (BNAS), which was also recommended for closure. On September 15, 2005, the final list was approved by the President. By law, the base must be closed before September 15, 2011.

The facility opened in 1957 as the Topsham Air Force Station. It initially operated as an early type of radar system. When the Air Force closed the radar facility, BNAS obtained use and responsibility for the property. Most recently, the Annex functioned as a general support facility for BNAS and included 177 units of base housing, a commissary, a training facility, office space, and a fire station. In addition to Navy facilities, the Annex provided operational facilities such as a reserve and recruiting center for the Air Force, Marines, Army and other branches of the Department of Defense serving the Midcoast Maine region.

The Property Screening Process

The BRAC process allows for various federal, state, and local agencies and other non-profit organizations to apply for and be considered for property within a closed military installation. First, the Department of Defense is given the option of requesting property, and then other federal departments and agencies are given that same option. Since no federal agency or department requested any facilities or parcels, all 74 acres within the boundary of the Topsham Annex were considered surplus.

Within the 74 acres, 46 acres include all of the family housing units that are part of a privatized housing agreement between the Navy and GMH Partners LLC. These residential structures are not included in the surplus designation and, therefore, are not available for consideration as part of the planning process. The impact of this incumberance on the Topsham Annex reuse process is discussed in the implementation section of this report.

The federal Base Closure Community Redevelopment and Homeless Assistance Act provides for a community-based process whereby government and not-for-profit organizations may propose the reuse of surplus military property. The proposed reuses must provide vital public services such as education, health care, open space, parks and recreation related uses, law enforcement, prisons, transportation terminal facilities, aviation uses, homeless facilities, or other public buildings. The Topsham Local Redevelopment Authority (TLRA) is responsible for developing a reuse plan for the Annex that appropriately balances the community's needs for economic redevelopment and public facilities and amenities against the needs of the homeless.

The Master Planning Process

After soliciting proposals from national planning consultants, the Topsham Local Redevelopment Authority interviewed and selected Matrix Design Group, Inc. (Matrix) in August, 2006 to help it prepare a reuse master plan for the Topsham Annex. Matrix was selected in part because its proposed process followed important criteria, including:

- A forward-thinking and inclusive approach, respecting important community interests and values
- A public outreach and identification of needs
- An existing conditions assessment including a detailed survey of the property's land, buildings, infrastructure, and environmental conditions
- A market study and financial assessment for plan implementation
- Identification of known environmental issues using existing inventory and other information as may be needed to recommend a base reuse master plan that is environmentally acceptable to the Navy, regulators, and the community at large

The successful redevelopment of the Topsham Annex will depend, in part, on understanding and responding to a variety of existing local community issues and policies, physical conditions and characteristics, environmental conditions of the property, and market and economic considerations and trends.

The Public Engagement Process

The public participation program in Topsham was designed to allow people to engage in the reuse planning process in a variety of ways and to demonstrate a concerted outreach effort to Topsham citizens. In addition to the public meetings described below, the TLRA's public engagement program included meetings and interviews with stakeholders; a project website; frequent communication with citizens by email, letter, or telephone; displays at the Topsham Public Library; TLRA meetings shown on local cable TV; and presentations to community organizations.

The keystones of the process were four major public meeting opportunities that coincide with decision-making points in the process. They included a review of existing conditions, visioning, alternative plan review, and final plan presentation and adoption.

The Planning Considerations Workshops

The Matrix Design Group consultant team worked with the Topsham municipal staff to establish the boundary for the Annex Planning Consideration Area (PCA). The PCA boundaries, which extend well beyond the borders of the Annex itself, were established in recognition that development in surrounding properties will influence and be influenced by redevelopment in the Annex.

A series of five workshops were held to obtain input regarding possible future plans to upgrade public infrastructure (water, sewer, roads), electrical and telecommunication systems, and other land development considerations for the area surrounding the Annex. These five meetings included a joint planning board and comprehensive planning committee meeting, a Topsham Main Street Committee, a meeting with local developers, a meeting with interested citizens, and finally, a meeting with Topsham Development, Inc. board members.

These workshops allowed the Matrix team to gather and present information regarding the types of land uses and possible development activity surrounding the Annex property in order to ensure the compatibility, connectivity, and market feasibility of the site under various reuse scenarios.

Existing Conditions Assessment

Community Planning Issues and Influences

Zoning districts within the Town of Topsham include five categories: village, mixed-use, commercial, industrial, and residential. These districts provide a framework for the overall layout of the town that is based on both the underlying character and predominant land uses. The Topsham Annex is located in the “Upper Village” zone which is one of the three village zones that generally make up the core of Topsham along Main Street (Route 201). The overall goal of the village zones is to provide, enhance, and maintain a dense, mixed-use pedestrian-scaled village “feel” that incorporates a mix of housing types, small retail establishments, and strict parking, design and landscaping guidelines.

The Annex lies in a designated growth area, with most adjacent land to the north and south zoned as Upper Village, which is designed to mirror the character and density of the Lower and Middle villages. Currently, the area is sparsely developed, with the majority of development clustered along Main Street. There is, however, some urban

residential development nestled in this zone that is indicative of what the Town of Topsham would like to see in and around the Annex. East and north of the Annex is a primarily rural and residential area, and to the west and south lies Topsham's commercial corridor, which transitions into large scale retail closer to the I-295 / Route 196 interchange.

Off-Base Transportation Issues

Direct, safe, and convenient vehicular access is required for the efficient operation of any military installation, regardless of property location or size. The successful redevelopment of the 74-acre Topsham Annex, as with any other large-scale private-sector development, will require that same (or expanded) level of transportation infrastructure to meet future non-military uses, as well as potential increased growth and redevelopment needs of the Topsham community.

The Matrix Planning Team conducted a review of traffic issues associated with the current operation of the Annex. This included an assessment of traffic volumes with respect to capacities at key intersections and trends in area land use. Among the findings are that Route 201, the main access road to the Annex, is continuing to experience increasing traffic levels, and the intersection with Route 196 is at or near capacity. Numerous other intersections nearby are projected to be strained during peak hours by the year 2009. Potential improvements to address these issues could include adjusting signal timing and increasing the length of stacking lanes at Route 196 & Main Street, adjusting Eagle's Way to a one way street at Main Street, installing traffic signals at Can Am and Main, and/or connecting Can Am Drive through to the Highland Green development. Also, a connector road from Eagle's Way to Village Drive should be considered to help alleviate congestion during afternoon peak hour traffic volumes associated with nearby Mount Ararat High School.

Natural and Cultural Resources

Natural and cultural resources within the Town of Topsham and adjacent to the Topsham Annex are a tremendous asset to the community. The town is home to numerous ecosystems, wildlife habitats, wetlands, and other natural resources that are protected by the state and the community, and that influence the location, type, and intensity of future development. In addition, Topsham is an historic New England community with a variety of significant historic, archeological, and cultural sites that also influence the type and location of development in the community. Part of the planning process involved gathering data on these resources and identifying corresponding geographic locations so that any redevelopment plans would minimize impact.

On-Base Conditions and Characteristics

As the basis for the preparation of conceptual master plan alternatives for the Annex, a comprehensive survey of the existing conditions of the site was conducted. The Matrix Team reviewed information such as current land use patterns on the Annex and utility systems, including stormwater, sanitary sewer, water supply, natural gas, electrical power supply and distribution, and telecommunication systems. Further analysis of the extent to which these systems will need improvement will be undertaken as redevelopment progresses. However, it is generally considered that the existing water and sewer systems, particularly in the housing area, do not meet local standards and will require significant upgrade or replacement. Also reviewed as part of this inventory was the internal street system, which was found to be adequate in serving its current role, especially in the more intensely developed portions of the Annex, where it contained pedestrian amenities such as sidewalks.

Buildings and Facilities

A comprehensive assessment of the non-residential buildings on the property was conducted for the purpose of determining the feasibility, extent, and appropriateness of the various reuse options for the structures. Eight significant buildings were analyzed and inventoried to assist in developing possible reuse scenarios, including a former base security building, a former headquarters building, the commissary, vehicle storage and maintenance facility, fire station, and the Marine Reserve Center. The space inside these buildings was found to be generally suitable for office, storage, and retail uses, with office space accounting for about one third of the total, and warehouse / retail contributing the rest. The buildings are in generally good condition and would be suitable for reuse as offices, commercial space, and community uses with a moderate level of reinvestment.

Environmental Conditions

Historically, industrial operations were present at Topsham Annex to support Air Force and Navy operations. The Matrix team reviewed numerous Naval environmental surveys along with various assessments previously conducted by others and found a few potential issues, including the limited presence of petroleum hydrocarbons, possible underground steam utilities with asbestos insulation, and asbestos and lead-based paint. Although additional investigations may be required, these environmental conditions are not generally considered to be significant barriers to redevelopment or reuse of the property.

Market / Economic Analysis

The redevelopment of the Topsham Annex will be affected by the environment within which it operates. Specifically, the existing demographic make-up of the region's populations, as well as the existing economic climate, will influence the redevelopment potential for the property.

Key findings of the market and economic analysis conducted during the Topsham Annex Reuse Master Plan planning process include the following considerations:

- Topsham is expected to grow by 811 households between 2000 and 2011, and a similar number of housing units will be constructed. The rate of growth in the county and especially the town of Topsham are expected outpace the state of Maine as a whole.
- Income growth in Maine has exceeded inflation throughout the 1990s and 2000s, and income growth in Topsham has been even more impressive, exceeding that of the state as a whole.
- Since 2000, the county has lost around 600 government, manufacturing, and service jobs, but Topsham itself has experienced a 20 percent increase in the number of jobs. Retail trade, health care, social assistance, real estate and financial services, management and consulting jobs, and child care showed the strongest growth.
- Topsham is generally more highly educated than the County or state, and that disparity actually widened between 1990 and 2000. In 2000, 38.3 percent of Topsham's population had a college degree, versus 30.2 percent for Maine as a whole.
- Topsham has only 12 percent of households earning less than $25,000, while for Maine, that number is a significantly higher 32 percent. At the other end of the spectrum, Topsham has 25.5 percent of households with incomes over $75,000, while statewide that figure is only 15.5 percent.

Real Estate Market Analysis

The redevelopment of the Topsham Annex will, to some extent, compete within the regional real estate market. However, because of the generally small size of the property available for redevelopment, as well as the complexities associated with the existing housing on the site, the Annex property will primarily compete with other small-scale development sites in the local market. Key findings of this portion of the study included:

- Between 2002 and 2006, Topsham experienced significant single-family residential construction, primarily in the Highlands development. Since the end of 2006, however, the pace of residential construction in Topsham has slowed significantly.
- The Topsham housing market is relatively affordable, with a median housing price of $209,000 in 2006. However, this price represents a 54 percent increase since 2000.
- Due to Topsham's accessibility and proximity to I-295, significant retail construction has occurred since 2000, resulting in Topsham's becoming a regional commercial center, with total sales exceeding local demand by $38 million.

- Several significant office and retail projects have been constructed recently in Topsham, but currently there no new speculative office or retail projects under development. This is likely due to the large size of recent projects and concern over the closure of the BNAS.

The Annex site is best suited for residential use and/or neighborhood-scale retail, office, or civic uses, especially given its location near two schools. The property could also support industrial, due to the limited amount in the surrounding community, but the nearby schools aren't highly compatible with this type of development. Office or commercial uses could also work at the site, but utility and transportation infrastructure improvements would likely be needed to increase accessibility and visibility.

Reuse Alternatives and Plan Selection

Reuse Master Plan Alternatives Overview

The irregular shape of the property at the Topsham Annex creates essentially two separate reuse areas, as can be seen in the accompanying graphics. One area contains the commissary and various military offices and other structures (referred to as the "Military Triangle"), and the other contains a privatized housing area and adjacent undeveloped land (referred to as the "Housing Area"). Four Plan Alternatives were developed for consideration by the TLRA, based on the existing physical conditions at the Annex, neighboring uses, market and economic findings, and input received as part of the public engagement process. The alternatives, discussed in detail in **Section 5** included:

Alternative 1

Site A - Military Triangle: Community Service Center; Site B - Housing Area: Renovation of Existing Housing

Alternative 2

Site A - Military Triangle: Community Service Center; Site B - Housing Area: New Higher Density Housing

Alternative 3

Site A - Military Triangle: Recreation / Athletic Fields; Site B - Housing Area: Renovate Existing Housing

Alternative 4

Site A - Military Triangle: Office Park; Site B - Housing Area: Office Park

Alternative Plan Evaluation and Selection

In order to assess the four alternatives, Matrix and the TLRA developed a set of evaluation criteria that included the TLRA's Guiding Principles and additional factors such as public input preferences, transportation impacts, environmental clean-up costs, ease and predictability of implementation, among others. Additionally, the TLRA identified goals for the Military Triangle and Housing Area and subareas within them. These goals were:

- Promote economic development and focus on commercial uses that generate tax revenues and create good-paying jobs
- Support existing local businesses
- Support a youthful population
- Focus on professional, commercial, and community services
- Focus on recreational uses with a buffer for residential uses to the east
- Provide market-rate housing of moderate density
- Provide workforce housing at a higher density

Based on these criteria, the alternative plans were evaluated and the preferred plan determined by the TLRA at a special TLRA board workshop held on June 9, 2007. Rather than selecting a specific alternative, elements were borrowed from multiple alternatives to create the resulting Topsham Annex Reuse Master Plan Map, which was formally adopted by the TLRA at their August 15, 2007 meeting.

Topsham Annex Reuse Master Plan

Plan Description

The Reuse Master Plan establishes the land use preferences for the Annex. It was designed to be compatible with adjacent uses and utilize the existing facilities and infrastructure, while at the same time providing the framework for a potential redevelopment of the site into a more intensive addition to Topsham's urban landscape.

The spirit of the Reuse Master Plan is based on connecting the Annex to the rest of the community--both physically, in terms of integrating the site's future land uses with the adjacent educational and residential areas and providing good connectivity between them, and culturally, by providing an environment in which students, seniors, and Topsham citizens of all ages can interact.

The plan divides the Annex into four distinct areas—the Military Triangle, the undeveloped portion on the western side of the Housing Area, the existing residential area south of Can Am Drive, and the existing residential area north of Can Am Drive. Each of the four subareas has a separate land use: Business & Community, Parks & Recreation, Medium Density Residential, and Higher Density Residential.

Business & Community uses are planned for the 14-acre Military Triangle area that are envisioned to include a mix of office, commercial, retail, light industrial, and other similar activities that are consistent with adjacent uses, as well as community and civic uses, such as governmental, cultural, human services, and educational functions that take advantage of the proximity of the two schools and nearby residential neighborhoods. The Parks & Recreation area is intended to provide a mix of active and/or passive recreation and open space uses that are coordinated with and complement the adjacent athletic facilities owned by SAD 75.

The Housing Area provides for two types of residential density:

- Medium Density Residential: The northern part of the Housing Area, the area north of Can Am Drive, has been designated for medium-density residential uses. The density allowed in this area would include up to four residential units-per-acre, whether those units be renovated existing units or new construction. The housing in this area is envisioned as single-family detached dwellings and/or two-family (duplex) attached homes.
- Higher Density Residential: The southern part of the Housing Area, the area south of Can Am Drive, has been designated for higher-density residential uses. This preferred density would accommodate housing up to eight units-per-acre, whether those units be renovated existing units or new construction. The housing in this area is envisioned as multi-family attached housing such as apartments, townhomes, or condominiums.

In summary, the Plan maintains compatibility with existing adjacent uses while allowing for the introduction of new office, commercial, light industrial, civic, and community activities to enliven the area and help integrate the site with the rest of Topsham. Whether through the reuse of existing buildings or through the development of a new generation of facilities, the Reuse Master Plan sets the stage for a new chapter for Topsham Annex.

Impacts & Implementation Considerations

As part of the TLRA's preparation of the Topsham Annex Reuse Master Plan, consideration was given not only to the site's physical conditions and facility characteristics, but also to the overall impact from redevelopment of the Topsham

property, including the associated investment in infrastructure and other costs and fiscal impacts. While the planning of the redevelopment was conducted by the LRA, the responsibility for the implementation of the plans will belong to the Midcoast Regional Redevelopment Authority (MRRA). The town itself will also be involved, due to the need to implement zoning policy on the property that is consistent with the Reuse Master Plan.

Transportation and Infrastructure Impacts

Future growth at the Annex and along Route 201 will require the upgrade of surrounding intersections to meet a projected 30 percent increase in traffic volume along roads that connect the Annex to Topsham and the rest of the region. Roadways in the Annex will either have to be resurfaced or rebuilt. The Brunswick-Topsham Water District and the Topsham Sewer District have determined that the water and sewer systems will need to be brought up to local standards, particularly in the Housing Area. These improvements would include replacement of non-standard hydrants, new water mains and shut-off valves, and overhaul / replacement of the water tank, and replacement of sewer lines. Given enough growth at the Annex, off-site improvements to the sewer system may also be necessary. Finally, new stormwater infrastructure may be needed, as growth at the Annex will likely result in increased amounts of impervious surfaces and runoff. The electrical system servicing the Annex is considered adequate, except that upgrades in its metering system would be necessary. The natural gas system is in excellent condition, but would need an upgraded metering system, and could require realignment depending on the final development scheme.

Socioeconomic Impacts

Reuse of the non-residential buildings at the site could create between 121 and 187 permanent jobs. In general, the redevelopment of the Annex could require between $18 million and $40 million worth of investment. Overall, the business and commercial properties are expected to require $3.7 million in investment, or about $53 per square foot. The tax base generated by these facilities is expected to be between $70 and $100 per square foot, for an estimated $4.7 million - $7 million addition to the existing tax base. The projected tax revenue from residential redevelopment at the Annex is expected to be between $28.1 and $46.7 million. This will depend on the overall value of the units created, which will likely be worth between $125,000 and $250,000 each. Redevelopment of the residential area in the Annex will also result in an increased permanent population in the Topsham community. Topsham averages 2.6 people per household, so using a reasonable estimate of 245 new housing units, the town's population could increase by 636.

Notices of Interest / Public Benefit Conveyance Requests

The BRAC process allows for various federal, state, and local entities to request all or portions of the base from the Navy if the requests meet certain criteria. No federal agencies made any requests for parcels or facilities within the Annex; however, there were several requests from local entities and potential recipients of public benefit conveyances (PBCs). These requests were carefully considered by the TLRA in terms of how well each request fit with the redevelopment plan, and how each would comply with the LRA's guiding principles for redevelopment. **Section 6** provides a detailed summary of the requests disapproved by the Board.

The TLRA approved the following requests, based on the TLRA's guiding principles and the Reuse Master Plan:

The TLRA determined that School Administrative District (SAD) 75's request for approximately 15 acres of land for athletic fields would comply with the US Department of Education's PBC criteria and that it also conforms to the intent of the Reuse Master Plan. The District demonstrated the ability to develop the property into usable fields and has shown a conceptual plan that would allow for these uses to take place. Based on these factors, the TLRA voted to endorse SAD 75's request for this PBC.

The TLRA determined that the Topsham Sewer District's request for land and two small buildings conforms to the intent of the Reuse Master Plan; however, the Legal Counsel for the TLRA advised that the proposed use, District Administrative Offices, was not a typical PBC granted by the US Department of Health and Human Services (HHS), but a successful argument of the case could be made to HHS. Understanding the potential difficulties in securing HHS support for the proposal, the TLRA voted to partially approve the District's request, and support the District's request for the two structures, and approximately 20,000 SF of land in order to make a viable parcel.

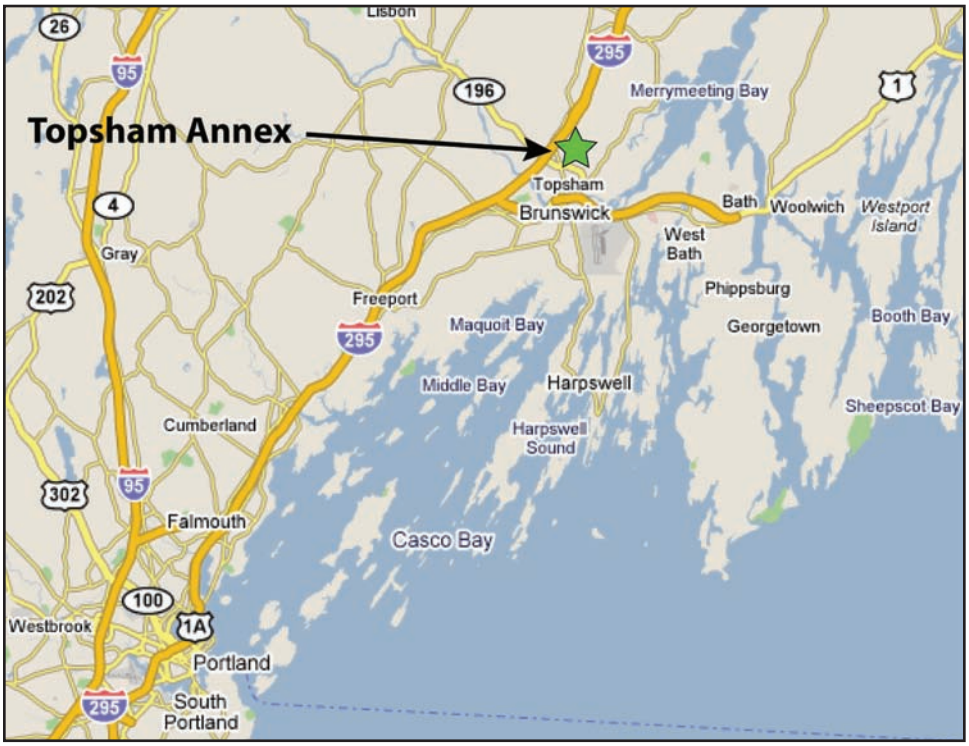
The TLRA also endorsed the establishment of a trust fund operated by the Midcoast Regional Redevelopment Authority. This fund would be financed through a yet-to-be-negotiated fee from every acre sold at the Annex for the operation of a teen counseling center or other service provided by Tedford Housing to meet homeless needs in the vicinity. A similar need for domestic abuse victim housing was identified, and negotiations have resulted in a plan to use money from the trust fund to house domestic abuse victims in housing throughout the Brunswick-Topsham area.

Section 2: Background and Overview

Property Setting and Description

On August 24, 2005, the Federal Base Realignment and Closure (BRAC) Commission voted eight to one to close the Topsham Annex, a separate 74-acre property associated with Brunswick Naval Air Station (BNAS), which was also closed as part of this decision; on September 15, 2005, the final list was approved by the President. By law, the base must be closed before September 15, 2011. The Topsham Annex is located within the Town of Topsham, in Sagadahoc County Maine, as shown in **Exhibit 1: Regional Context Map**. The site is accessible via State Route 201 (Main Street), and is located 1.5 miles from downtown Topsham (via Main Street) and approximately six miles northwest of BNAS (via Brunswick-Topsham Bypass and Route 1).

Exhibit 1: Regional Context Map



Source: Matrix Design Group

The property is adjacent to and between two local schools: Mount Ararat High School to the south and Mount Ararat Middle School to the west. Although the Annex is generally characterized by low-intensity development, it does include a moderately-high density residential neighborhood, a retirement community, several industrial facilities (including a gravel processing facility), and highway office and retail businesses along

Main Street (Route 201); the northern portion of the site is bounded by rural farm land. The Annex is connected to the town's extensive pedestrian / bike trails as well as all public utilities. The facility opened in 1957 as the Topsham Air Force Station, initially operated as an early type of radar system. When the Air Force closed the radar facility, BNAS obtained use and responsibility for the property. Most recently, the Annex has functioned as a general support facility for BNAS and has included 177 units of base housing, a commissary, a training facility, office space, and a fire station. In addition to Navy facilities, the Annex provided operational facilities such as a reserve center and recruiting station for the Air Force, Marines, Army and other branches of the Department of Defense (DoD) serving the entire Midcoast region.

The multi-family housing located on the eastern two thirds of the site is owned by a private entity, GMH Partners (GMH), under a privatization contract with the Navy. GMH has demolished a portion of the housing units in an attempt to remodel and improve a smaller number of new homes on the site; this plan has been placed on hold due to the BRAC process. In addition, a portion of the Annex was conveyed to the local SAD 75 school district for the construction of the new Mount Ararat Middle School. **Exhibit 2: Historic Changes** shows the location of the current Annex property as well as the significant changes over time.

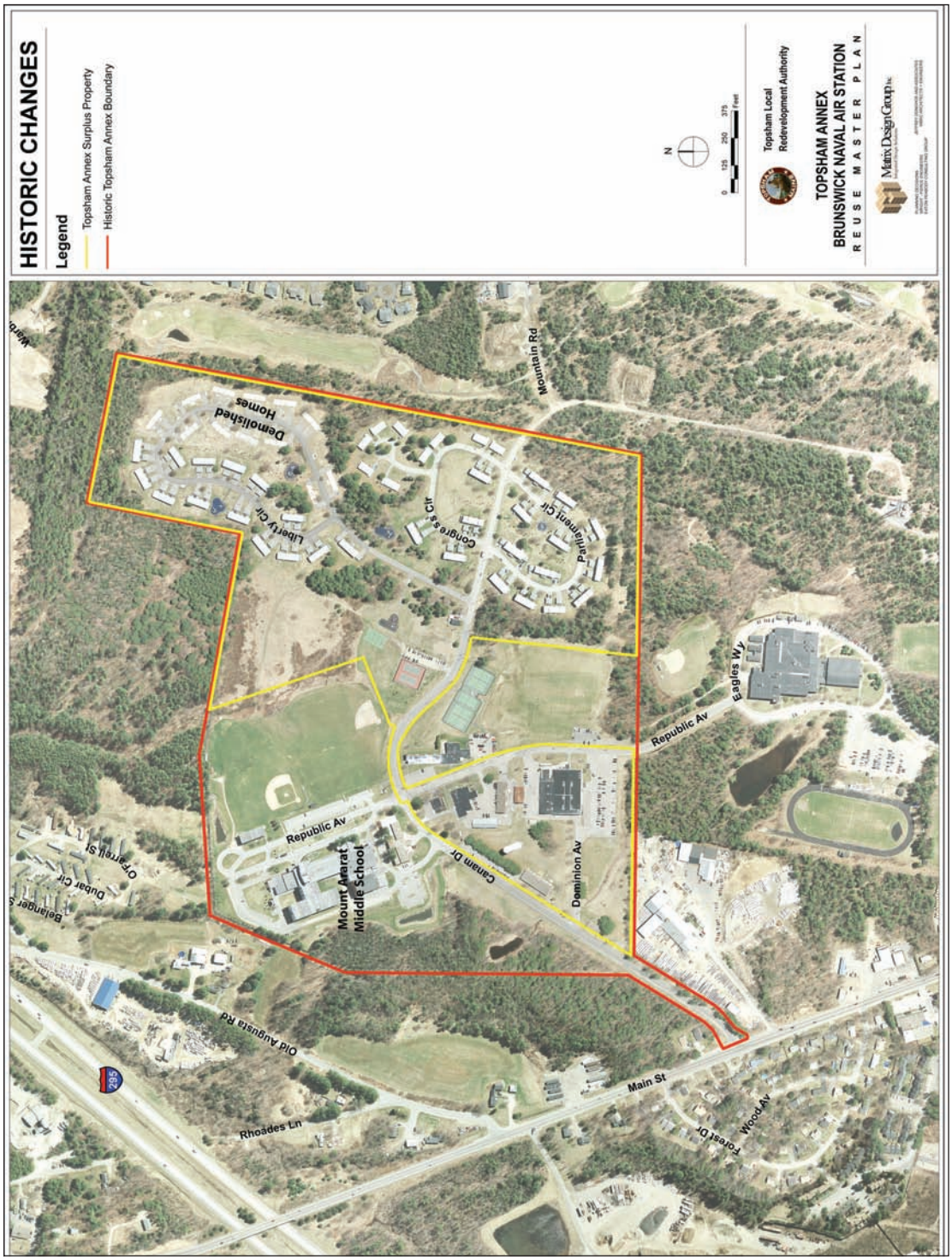
The Topsham Local Redevelopment Authority

The Topsham Local Redevelopment Authority Board of Directors consists of nine members appointed by the Topsham Board of Selectmen; a tenth member was appointed by the Brunswick Town Council. The current membership is as follows:

- Bruce Van Note, Chairperson, and Topsham Resident
- Sue Spann, Vice Chair and Topsham Resident
- Jane Scease, Topsham Selectperson
- Tad Hunter, Topsham Selectperson
- Don Russell, Topsham Planning Board
- Cyndi Burne, Topsham Resident
- Gary Fogg, Topsham Planning Board
- Bob Hill, Topsham Resident and SAD 75 Representative
- David Whittlesey, Bowdoinham Representative
- Ryan Ewing, Brunswick Representative

The TLRA's Base Redevelopment Manager is Richard Roedner, Topsham's Director of Planning.

Exhibit 2: Historic Changes



Source: Matrix Design Group

The red outline shows the boundary of the Annex property as it existed before being partially acquired by the school district; the yellow boundary delineates the boundary of the Annex as it exists today.

The Federal Property Screening Process

The BRAC process allows for various federal, state, and local agencies and other non-profit organizations to apply for and be considered for property within a closed military installation. There are two levels of screening, the first of which is the "federal to federal" screening, during which other DoD organizations are notified by the Department of the Navy (or other applicable Military Department) of the availability of "excess" property. After consideration by these components, other federal departments are then given the opportunity to request portions of the property. The parcels within the installation remaining that are not transferred to these agencies under this first level screening activity are considered "surplus" property.

The second level of screening is conducted by the Local Redevelopment Authority, and considers the surplus property, as defined above. During this process, the LRA provides notice of the availability of surplus property to homeless provider organizations, state and local governments, and potential recipients of public benefit conveyances, or "PBCs." The following sections of this Report describe this process as it relates to the redevelopment of the 74-acre Topsham Annex.

Federal Determination of Surplus Property

Part of the BRAC process is the identification of surplus property at the installation being closed. The federal government screens requests for buildings, land and equipment from other federal agencies and, once the government determines which properties will be set aside for federal agencies, the remaining properties are deemed as "surplus." These surplus properties are then available to be considered by state and local entities as well as homeless providers to determine their requests for surplus property at Topsham Annex. Since there were no facilities or parcels identified on the Annex for use by any federal agency or department, all 74 acres within the boundary of the Topsham Annex were considered surplus.

There are 129 military family housing units currently remaining at the Topsham Annex, located at the eastern portion of the site; 48 units of the original 177 have been demolished or identified for demolition. These units (along with over 4,000 other Navy housing units located at eight installations throughout the northeastern portion of the United States) were transferred to Northeast Partners, LLC, a limited-liability company owned by the U. S. Navy and GMH Military Housing, a division of GMH Communities Trust, a large privately held real estate construction and management company. The Navy has transferred the units to the partnership under a 50-year lease, while retaining ownership of the land, all of which has been included as part of the designated "surplus" property to be considered as part of the BRAC closure process. The partnership's original proposal included the demolition of all 177 housing units at the Topsham Annex and the construction of a smaller number of new homes. As of February of 2007, 48 of the units have been demolished, and 56 are "off-line," unoccupied and fenced off from other

portions of the base. Of the 73 remaining, 72 are occupied, and one is vacant. No new homes have been built (or will be built) as a result of the BRAC decision to close the base.

GMH (the primary representative of Northeast Partners) currently manages the property and leases the remaining units to Navy personnel, rents for which are paid by the Navy from the Basic Allowance for Housing (BAH) provided to military personnel. GMH pays the Town of Topsham an annual service fee for police and fire protection, based on the number of available housing units, regardless of whether or not they are occupied; GMH also purchases water and sewer services from local utility providers, although the Navy owns the underlying distribution infrastructure. While the initial intent of GMH was to demolish, construct and/or upgrade the housing units on the Topsham Annex, improvement plans changed significantly after the decision was made to close the base. At that time, all demolition activities ceased at the Annex, and plans were made to relocate all personnel from units at the Topsham Annex to BNAS in the Town of Brunswick, over time as space became available. The contract with the Navy allows leasing in the open market if the Navy, its primary tenant, cannot make use of the units; GMH has indicated, however, that it is not interested in maintaining its operations at the base once the Navy's need's evaporate, and consequently, it will be pursuing strategies for divesting its interests in the area.

State and Local Screening Process

The Federal Base Closure Community Redevelopment and Homeless Assistance Act governs the process of how federal defense facilities are disposed. The Redevelopment Act was designed to accommodate the impacted communities' multiple interests in base reuse, including meeting the national priority to assist homeless individuals and families, and for economic development conveyances for business growth and expansion and Public Benefit Conveyances (PBC) to provide for reuse of land and building assets for a public purpose. The Act provides for a community-based process whereby government and not-for-profit organizations may propose the reuse of surplus military property to provide vital public services such as education, health care, open space or parks, parks and recreation related uses, law enforcement, prisons, transportation terminal facilities, aviation uses or other public buildings and facilities; the Act also provides for a community-based process whereby government and not-for-profit organizations serving homeless individuals or families participate in the local reuse planning process. The TLRA is responsible for developing a reuse plan for the Topsham Annex that appropriately balances the needs for economic redevelopment, certain public facilities and amenities, and homeless assistance.

The TLRA officially began its "state and local screening process" on January 3, 2007, after the federal determination of surplus. Notices were sent to the State of Maine, local governments, and not-for-profit agencies in the vicinity of the base, and advertisements were placed in local newspapers to solicit proposals. State and local government

agencies and not-for-profit organizations that provide or propose to provide programs, services, or activities on the base were also contacted. The following process was followed to meet the federal requirements for state and local screening:

State and Local Screening Notice of Interest

The TLRA was notified by the US Navy on January 3, 2007 that the Topsham Annex was being placed on the surplus property list, along with Naval Air Station Brunswick in Brunswick, ME. The TLRA was required to begin the screening process for homeless providers and state / local agencies and eligible non-profits within 30 days of the official notice **(see Appendix E)**. The TLRA prepared its Notice of Interest for distribution to state and local governments and other interested parties, which was approved by the TLRA Board on January 17, 2007. Elements of the Notice of Interest included the following:

- Application Timetable and Requirements
- State and Local Screening Notice of Interest and Background Information
- State and Local Screening Process Description
- The Application
- Contact Sheet and Certifications
- Application Checklist

On January 23, 2007, the TLRA requested an extension from the Deptartment of Defense Office of Economic Adjustment, to allow the screening process to begin on a time frame similar to the Brunswick LRA's timeframe. This request was granted by OEA.

On February 6, 2007, the TRLA published in the Times Record and the Portland Press Herald notices regarding the screening process for interested parties. The notices included the applicable deadlines for Notices of Interest (NOIs) to be submitted to the TLRA, as well as scheduled information meetings for interested parties. In addition, notices were mailed to a wide range of entities that had either expressed an interest in receiving notice, or who in the opinion of the TLRA staff might have an interest **(see Appendix E)**.

On March 7, 2007, the TLRA hosted an informational meeting for state / Local and eligible non-profits regarding the areas of the Annex that were available through the surplus process. On March 14, a similar meeting was held for providers of services to homeless populations.

Finally, all Notices of Interest were required to be submitted to the TLRA no later than May 30, 2007.

Workshops

State and local governments and other interested parties were invited to attend a workshop held on March 7, 2007 to learn more about the state and Local Screening process; how public conveyances work with federal sponsoring agencies; to review the application, and to take a tour of the Topsham Annex.

Applicant Presentations

State and local governments and other interested parties were invited to make presentations to the TLRA Board.

Application Instructions

The TLRA, through its state and Local Screening Notice of Interest, directed interested parties to contact the respective federal sponsoring agency to discuss the potential for a public benefit conveyance, and to inquire about the federal sponsor's own application process; **Appendix A** of the Notice of Interest provided a list of federal sponsoring agencies for Public Benefit Conveyance.

Review Process

The TLRA Board and staff reviewed submitted applications, met with applicants, and made a set of recommendations for public benefit conveyance reuses for consideration in the Base Reuse Master Plan. A description of the specific requests received and how such uses might impact the Reuse Master Plan is provided in **Section 6** of this Report.

Homeless and Housing Assistance Screening Process

The TLRA officially began its six-month "homeless screening process" on January 3, 2007, after the federal determination of surplus property was made. Notices were sent to area homeless providers and advertisements were placed in local newspapers to solicit proposals from area homeless providers. State and local government agencies and not-for-profit organizations that provide or propose to provide assistance, programs or services that are not currently adequately meeting the need of homeless persons and families in the communities in the "vicinity of the base" were also contacted. The communities in the "vicinity of the base" were determined to be the towns of Topsham, Bowdoin, and Bowdoinham. The following process was followed to meet the federal requirements for state and local screening:

Homeless Agency Provider Notice of Interest

The TLRA prepared its Notice of Interest for distribution to state and local governments and other interested parties, which was approved by the TLRA Board on January 17, 2007. Elements of the Notice of Interest included the following:

- Understanding the Base Realignment and Closure (BRAC) Process
- Homeless Assistance and the Homeless Screening Process, including

- Outreach and Education Process
- Integration of Requests from Homeless Provider Organizations
- Legally Binding commitments

► The Application, including:

- Homeless Provider Application Questions
- Application Contact Sheet and Certifications
- The Application Checklist
- Goals of the Homeless Screening Process
- Role of the Topsham LRA Board, Homeless Committee and Staff
- Homeless Screening Process and Schedule

Workshops

Homeless agency providers were invited to attend a workshop held on March 14, 2007 to receive a briefing on the homeless screening process, a review of the Application, and to tour the Topsham Annex.

Applicant Submissions and Presentations

Homeless service providers were invited to submit and make presentations to the TLRA Board on June 20, 2007.

► Review Process – The TLRA reviewed submitted applications, and met with applicants and others to determine whether the agencies have sufficiently identified the availability of existing services to meet the needs of the homeless in the "vicinity of the base," and how any unmet need could be addressed by property and building assets on the base. The TLRA then prepared its findings for incorporating into the master planning process.

Analysis of Homeless Needs in Midcoast Maine

The TLRA Board of Directors understood that it needed to better understand the issues related to the homeless in order to respond to applications from Homeless Providers, and to make informed and appropriate recommendations. The TLRA Board reviewed, therefore, a study prepared by the Matrix Design Group Planning Team that investigated issues and existing conditions related to homeless needs in the Midcoast Maine area. The purpose of this report was to provide a better understanding of the scope of needs in the area, so that it can more effectively engage with homeless providers in creating programs that will make a difference for the homeless in 2011. The analysis, along with supporting documentation, is provided in **Appendix E** of this Report. In summary, the following conclusions and/or recommendations from that study were made:

► Of the total users of the Tedford Shelter, 6 percent are from the Topsham service area of Topsham, Bowdoin, and Bowdoinham.

- There is only a modest demand, if any, for shelter beds for adults. There is some demand for family shelter beds, but if sufficient alternatives develop, and the average length of stay can be reduced to a few weeks, that demand nearly disappears. On the other hand, there does appear to be a need for 4-5 shelter beds for transient youth under any scenario;
- There is a much larger demand for supported housing apartments. The reason that this demand is so high, even though it is only for a portion of the homeless population, is that the length of stay is much longer. If seven single adults each month need supported housing, and each of the seven people stays in his or her apartment for a year, then this translates into a need for 49 beds.

Assuming there are adequate resources in the system to enable people to move quickly from shelters to supported housing to the private housing market, then the overall need for apartments, both shelter and supported housing, within the catchment area of both the Brunswick LRA and the Topsham LRA is a little over 20. **Exhibit 3: Estimated Range of Demand for Homeless Shelter and Supported Housing** shows this information.

Exhibit 3: Homeless Shelter and Supported Housing Demand*

Unmet need in 2011	Families	Single Adults	Single Youth	Total Apartments
Shelter	2 apartments	0 beds (0 apts)	4 beds (1 apt)	3 apartments
Supported Housing	4 apartments	34 beds (11 apts)	12 beds (3 apts)	18 apartments
Total Apartments	6	11	4	21 apartments

*under ideal circumstances - sufficient services are available so that people are not stuck in shelters or transitional apartments for longer than necessary

Source: Town of Topsham

- The low demand for shelter beds, and the high demand for supported housing, is problematic in the base closing process. The base closing process is designed to provide physical units to nonprofit agencies, not ongoing service funds. A challenge for the process will be to find creative ways to help nonprofit agencies find service funds.
- Along the same lines, the GA administrators and nonprofit staff both emphasized the importance of a physical location from which “one-stop” and referral services could be provided to homeless people.

- An official working with Tedford Housing, a nonprofit dedicated to ending homelessness in Midcoast Maine, mentioned that even if more shelter beds aren't needed, it may be more efficient to convert existing shelter structures into supported housing, and to seek new shelter beds at the base. This is one way to increase supported housing, even though shelter beds would be what were requested at the base.

A description of the specific requests received and how such uses might impact the Reuse Master Plan is provided in **Section 6** of this Report.

The Master Planning Process

After soliciting proposals from national planning consultants, the Topsham Local Redevelopment Authority (TLRA) interviewed and selected Matrix Design Group, Inc. (Matrix) in August, 2006 to help it prepare a reuse master plan for Topsham Annex. Funded through a grant from the Office of Economic Adjustment (OEA), Department of Defense (DoD), the Matrix Scope of Work developed for the project and approved by the TLRA Board was based, in part, on the following TLRA study parameters:

- A forward-thinking and inclusive approach, respecting important community interests and values
- A public outreach process to identify the needs of the community
- A detailed site and facility survey of the property to include land area, buildings, infrastructure, and environmental conditions
- A market study and identification of financial needs to implement the plans
- Identification of known environmental issues, using existing inventory and other information as may be needed to recommend a base reuse master plan that is environmentally acceptable to the Navy, regulators, and the community at large
- Development of a series of alternative reuse master plans and property disposition strategies using broad planning principles that the TLRA would utilize when working with the Navy in the future
- Identification of when, how and what disposition methods should be used for property transfer from the Navy
- Assistance to the community in the federal and state, local and homeless provider screening process

The Matrix Planning Team

In order to better understand and respond to local planning issues, community characteristics, and to ensure an understanding and compliance with local planning guidelines and regulations, Matrix included several local and regional planning and

engineering firms as part of its Planning Team; and, to bring a broader perspective on market and economic opportunities for base redevelopment, a national market and economics firm was included. The Matrix Planning Team, along with project roles and responsibilities, are noted below:

- Planning Decisions - Hallowell, Maine / Public Engagement Programming and Homeless Housing Screening Assistance
- Wright-Pierce Engineers - Topsham, Maine / Transportation and Utilities Infrastructure
- WBRC Architects + Engineers, Inc. - Bangor, Maine / Facilities Assessment and Land Planning
- Eaton Peabody Consulting Group - Augusta, Maine / Redevelopment Strategies
- Jeffrey Donohoe and Associates, LLC – Manchester, New Hampshire / Market and Economic Analysis; Implementation and Operational Strategies

The following sections of this Report, and the accompanying related Appendices provide (1) a summary of the Public Engagement Program and the results of this significant and highly successful community-driven process; (2) a summary of a broad range of readily available data inventoried, evaluated, and integrated into the planning process (including information related to local community issues and influences; local and on-base transportation and utility infrastructure; and an assessment of existing Topsham Annex buildings and facilities; natural systems; and environmental conditions and cleanup issues); (3) a description of the conceptual plan alternatives and plan refinement process, including alternative reuse master plans and results of comparative evaluations; and (4) a description of the Reuse Master Plan and strategy for implementation.

Components of the Planning Process

The ultimate Topsham Annex Reuse Master Plan for the redevelopment of the property, as described in **Section 6: The Topsham Annex Reuse Master Plan** is based on a planning process that has considered a variety of significant data related to physical characteristics, environmental conditions of the property, market, economic and financial issues, and regulatory considerations; pertinent on-base, as well as off-base issues have been addressed. The Plan is also the product of an extensive public engagement program that has generated local and regional public interest, serious comment and review, and active participation at many community levels, as described in **Section 3: The Public Engagement Process**, which follows this Section. No one issue has dominated the process, and no one issue is the basis for the Plan. As with all large-scale, complex, and multi-faceted redevelopment projects, the Topsham Annex Reuse Master Plan reflects the combination of conditions that best positions the property for successful long-term redevelopment, and balances that against community goals and objectives, environmental sustainability, and political / regulatory realities.

The 16-month planning study followed a three-phased process that included:

- Phase A: Pre-Planning Activities, which focused primarily around the formulation and implementation of the Public Engagement Program and the Homeless / State and Local Screening Process
- Phase B: Inventory and Analysis, a three-month period during which physical, market and economic, and facility data was collected and evaluated
- Phase C: Conceptual Master Plans, during which conceptual plan alternatives were formulated, evaluated and compared, and the Topsham Annex Base Reuse Master Plan was finalized

Section 3: The Public Engagement Process

The planning for the reuse of the Topsham Annex required not only technical analysis and understanding of local and site issues, but also a sense of the community's issues, concerns, and concepts for redevelopment. The public engagement plan undertaken for the Topsham Annex was designed to be open and inclusive, interactive and creative, informative and meaningful and, most importantly, responsive.

General Approach to Public Participation

The public participation program in Topsham was designed to allow people to engage in a variety of ways: by coming to evening or weekend meetings, by responding to a website, by participating in school events, and/or by learning of issues through the media. Monthly TLRA meetings were open to the public and televised on local cable television. The keystone of the process were four major public meeting opportunities that coincided with decision-making points in the process. They included:

- Meeting One – Introduction to the Process (held on November 14, 2006)
- Meeting Two – Visioning (held on March 3rd, 2007)
- Meeting Three – Presentation and Discussion of the Topsham Annex Reuse Master Plan Alternatives (held on August 1, 2007)

Other opportunities for the public to participate in the planning process include a series of workshops on area economic development issues that was held in February; two discussion sessions in February with Topsham high school and middle school students, as well as a public visioning session in March; and, a new dedicated website that features an e-mail response capability **(http://www.topshamlra.org/feedback.htm)**. In addition, displays were set up at various times throughout the planning process at the Topsham Library for public review and comment.

Public Meetings and Workshops

Public Meeting One – Introduction

On November 14, 2006, Topsham residents and others interested in the process attended an evening meeting at the Orion Center, located at Mount Ararat Middle School, adjacent to the Annex property (attendance sign-in sheets are provided in the Appendix). The program provided an introduction to the consultant team and planning process; an opportunity to comment on guiding principles developed by the Topsham Local Redevelopment Authority Board of Directors; and opportunities to raise issues and

concerns at this first of three public meetings. Questionnaires and feedback from the group indicated general agreement with the guiding principles listed below, which were developed and approved by the TLRA Board:

- Community Development - The use should become a landmark, a special place in Topsham; and should enhance the quality of living, working, learning, and playing for everyone in the community.
- Consistency - The uses should be consistent with the goals and policies of relevant local plans, including the Comprehensive Plan, the Main Street Plan, the Route 196 / I-295 Interchange Study, and other transportation and economic development studies.
- Realism - The uses should be achievable for two-parcel 74-acre site.
- Compatibility - The uses should be complementary to neighboring activities, including education, retirement living, office work, retail shopping, and year-round residences.
- Environmental Quality - The uses should include strategies to preserve land, protect the environment, reduce energy use, promote quality design, and encourage walking.

Then, working in several small groups, participants identified 47 major concerns and 26 additional concerns. Some key ideas coming out of the session included:

- Using the parcel's development as an opportunity to improve pedestrian and traffic connections throughout the town.
- Expanding youth recreational activities, both indoor and outdoor.
- Creating affordable housing for the workforce and for families with children.
- Enhancing economic development, consider white collar uses, such as research and development, professional offices and related uses in order to be compatible with the neighboring schools.
- Using green sustainable technologies, ensure proper clean-up.
- Maintaining friendly feel, community character.

Public Meeting Two - Community Visioning Session

On Saturday, March 3, 2007, 20 residents of Topsham participated in a visioning session regarding redevelopment of the Topsham Annex. An open house format enabled the participants to review a variety of technical maps assembled by the consultant team; a PowerPoint show highlighted the key findings related to off-base and on-base conditions; and, several interactive exercises designed by the consultant team allowed the public to provide input related to land use and other planning visions for the property. The visioning exercise was designed to provide the TLRA and the Matrix

Planning Team with an understanding of potential future uses and characteristics preferred by the community for redevelopment of the Annex. The exercise included a survey, and the visioning exercise map provided a visual resource to help the participants visualize the Annex and surrounding properties in terms of existing buildings and vacant land areas. The results are summarized below.

Planning Areas

As a basis for obtaining the public's general planning and land use recommendations for the 74-acre property, the site was divided into two Planning Areas; an aerial photograph and **Exhibit 4: Visioning Exercise Map** illustrate the location and configuration of these planning areas. A larger version of the same map can be found in **Appendix A**.

- Planning Area A: Approximately 14 acres directly south of Mount Ararat Middle School. It contains a number of buildings that support Brunswick Naval Air Station, including a recruitment building and the commissary.
- Planning Area B: Approximately 60 acres east of the Mount Ararat Middle School and Planning Area A. It is currently the site of approximately 129 units of housing, and a fenced off area where 48 units have been demolished), under the ownership and management of GMH; the Navy maintains control of the land under these units.

Exhibit 4: Visioning Exercise Map

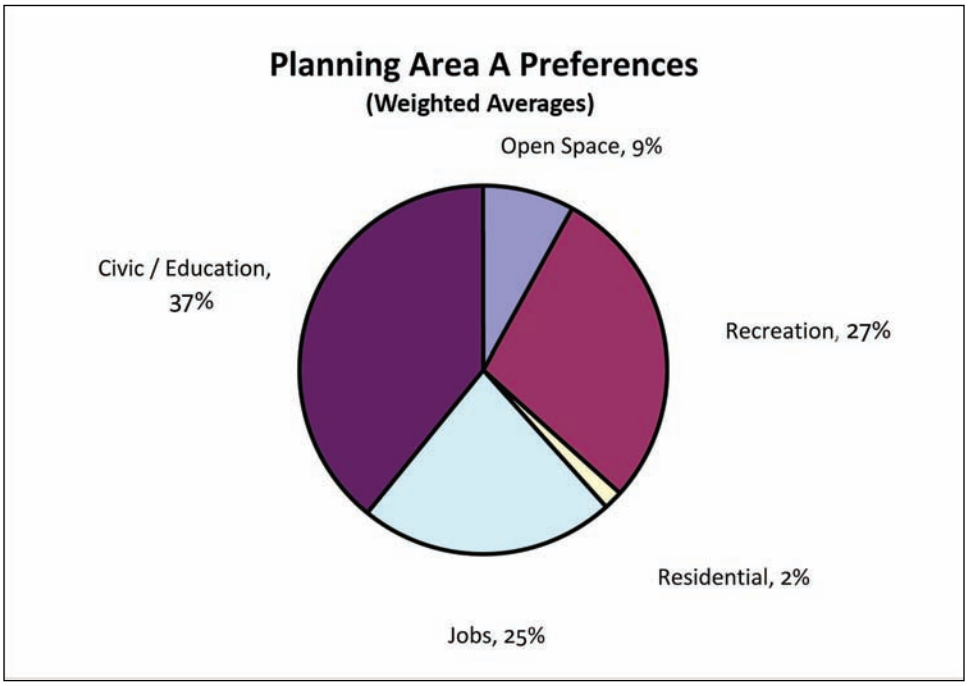
Source: Matrix Design Group

General Land Use Preferences

As part of the workshop, participants were asked to allocate a percentage to each proposed land use on both Planning Areas A and B. The average results of their 20 allocations provide a clear picture of priorities, as summarized below:

Planning Area A is seen a mixed-use area focused on recreational, civic, educational, and job-related uses. Only 15 percent of respondents identified residential as an appropriate future land use. **Exhibit 5: Planning Area A Preferences** displays participants' responses graphically.

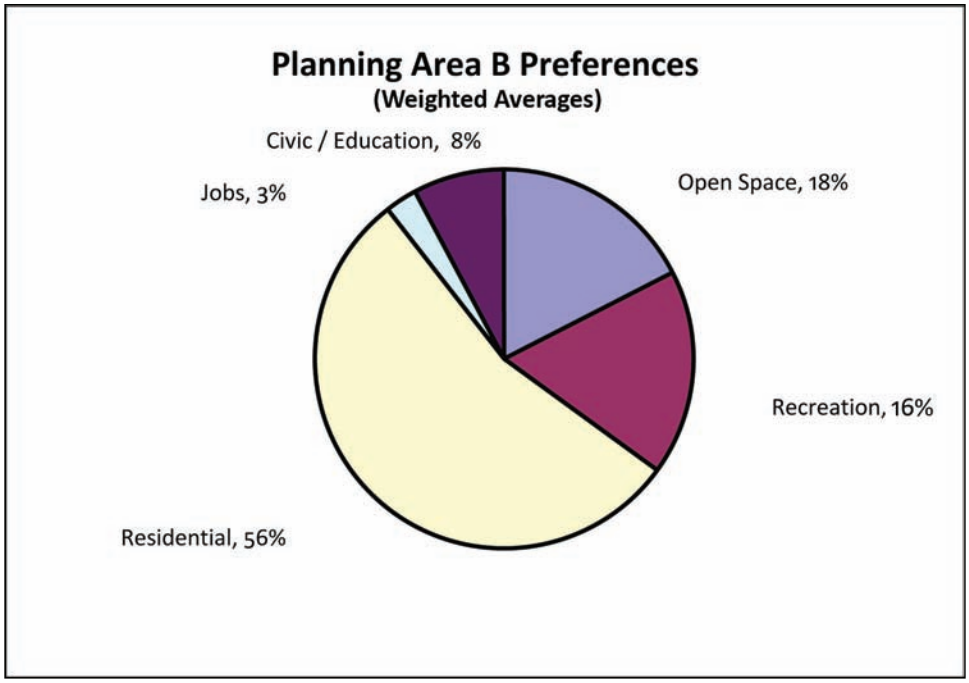
Exhibit 5: Planning Area A Preferences



Source: Planning Decisions

Planning Area B, on the other hand, is seen as primarily residential, with supporting recreational and open space uses. Economic, civic, and educational uses average only 11 percent. **Exhibit 6: Planning Area B Preferences** shows this.

Exhibit 6: Planning Area B Preferences



Source: Planning Decisions

Preferences for Land Use Types

A survey, which displayed photographs of a variety of residential, economic, civic and educational, and recreational land uses for the site as a whole was completed by each of the attendees. Based on the survey, the following conclusions were made:

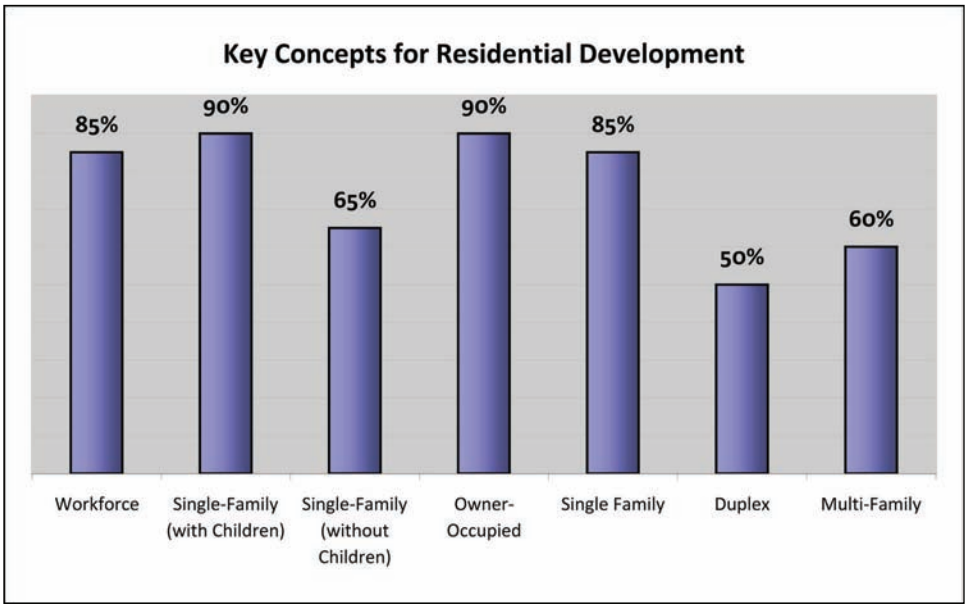
Residential

While high-end residential uses were not envisioned by the participants, affordable workforce housing (85%), mid-range housing (55%), and subsidized housing (60%) all received strong support. Generally, public comment indicated that there is an overwhelming need for affordable housing in Topsham, and that the existing Annex housing would be ideal for meeting such a need; housing for service workers, police officers, fire fighters, teachers, and municipal employees was also considered important.

In part because of the proximity of the schools, respondents strongly favored housing that would be suitable for families with children (90%), although there was also broad support for housing for singles (65%). Based on the results of the survey, the site is not seen as appropriate for assisted living (5%), and few respondents saw it as appropriate for retiree housing.

The predominant land use preference of the public at the visioning session was for single family (85%) and owner-occupied (90%) housing; there was strong support for multi-family uses (60%) and duplex (50%) housing, and some support for rental housing (40%). Architectural standards, walkability, and open space were also mentioned as important considerations in redevelopment of the Annex. **Exhibit 7: Key Residential Concepts** gives a graphical overview of respondents' housing preferences.

Exhibit 7: Key Residential Concepts



Source: Planning Decisions

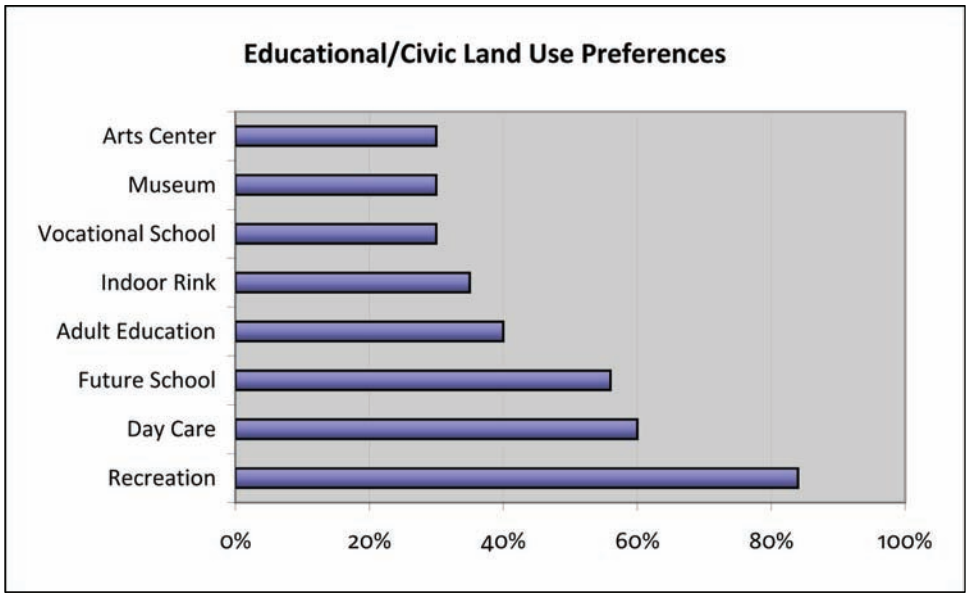
Jobs and Services

While job growth was considered important, participants preferred non-industrial uses, including corporate (70%), professional (65%), and medical (55%); there was also support for small scale retail (40%); nursery (40%) and research and development labs (25%) including medical-related land uses.

Civic and Educational

Participants overwhelmingly supported the development of a recreational center (85%) on the site. Other preferences included educational / recreational uses such as day care / preschool (60%), a future public school (55%), and adult education (40%). From an economic development perspective, community college and adult educational uses were promoted to better serve workforce needs. Land uses that would compliment existing SAD 75 facilities were also desired.

Exhibit 8: Educational and Civic Preferences



Source: Planning Decisions

Parks and Recreation

Preferences for park and recreational land uses such as a town park (75%) and playground (65%) were the strongest among participants. Other suggested uses included an outdoor ice rink (45%), tennis courts (40%), athletic fields (40%), a skate park (35%), and basketball courts (15%).

High School and Middle School Student Visioning Sessions

As a supplement to the community workshop, the Topsham Planning staff conducted visioning sessions with students at the Mount Ararat Middle and High Schools.

Mount Ararat High School - February 2007

The TLRA's Redevelopment Manager met with the Interact Club on February 13, 2007 at Mount Ararat High School, adjacent to the Topsham Annex. Fourteen people participated, half of whom were students and the other half teachers. The group expressed two major reuse preferences: (1) a reuse that would provide services for students and young people, such as a homeless teen facility, a teen center, or an indoor sports center; and (2) a reuse focused on career preparation, such as a cooperative learning center, community college, and/or businesses providing apprenticeship opportunities.

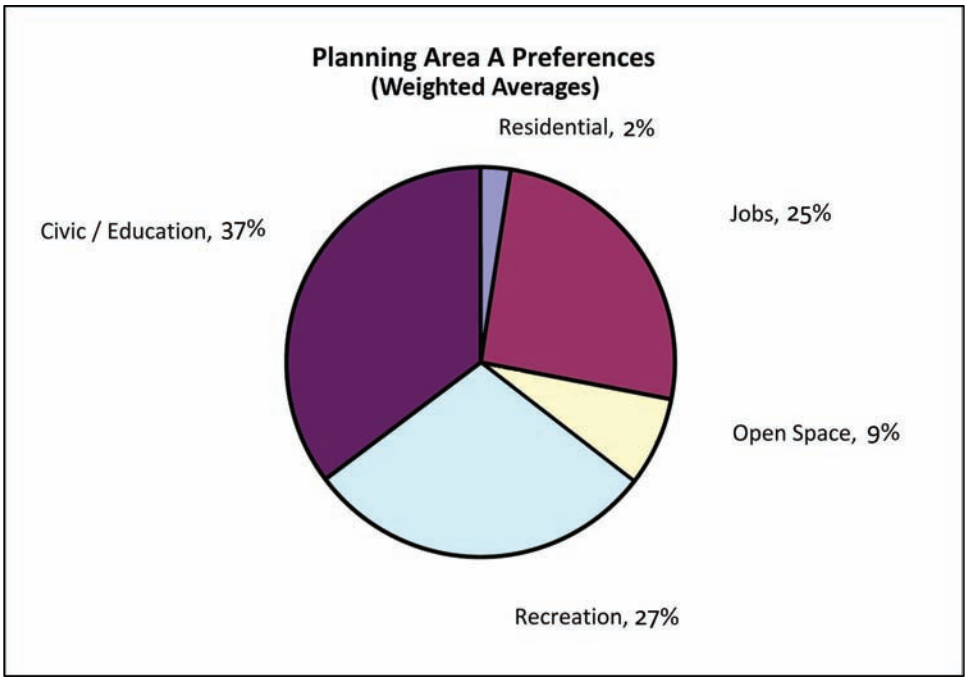
Mount Ararat Middle School - February 2007

At the Mount Ararat Middle School, the TLRA's Redevelopment Manager met with the Student Council on February 27, 2007. One teacher / advisor and a dozen students participated. Students echoed some of the same themes as the high school group: services for young people, such as a homeless teen facility, teen center, indoor sports facility; and also educational / career uses, such as a Sylvan Learning Center, volunteer opportunities center, teen jobs, counseling and study space, tutoring, educational cable TV, special education facilities, and technical education facilities. The Middle School students' ideas also included a space center, a museum, a court room , bookstore, arcade, fast-food restaurant and other related types of uses.

Mount Ararat High School Visioning Workshop - March 2007

On March 19, 2007, the TLRA's Redevelopment Manager (along with staff from Matrix Design Group team member Planning Decisions) conducted an abbreviated form of the Public Visioning session with nine high school students and eleven middle school students. The students had similar land allocation preferences as the adults in the Public Visioning Session on March 3rd with regard to recreation, open space, and civic / school uses. The one major difference was that students allocated much more land to jobs and services than the adults (41 percent compared to the adults' 25 percent for Area A; and, 33 percent compared to 3 percent for Area B); and much less land for housing (31 percent compared to the adults' 55 percent for Area B).

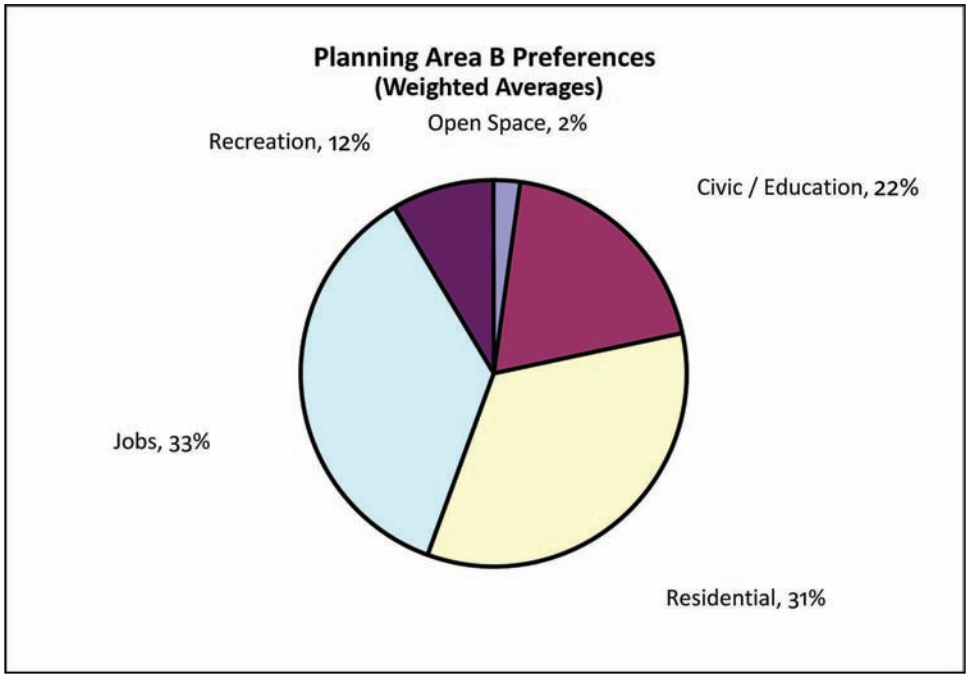
Exhibit 9: Planning Area A Preferences (High School Session)



Source: Planning Decisions

Student recommendations for Planning Area B included redevelopment of the site as a medical center and/or a campus-type post-secondary center for higher learning, combining college level and vocational institutions in a joint venture to train or re-train people for careers in practical arts of wellness, construction trades, business, environmental sciences, local governance, and related educational uses.

Exhibit 10: Planning Area B Preferences (High School Session)



Source: Planning Decisions

The Planning Considerations Workshops

As part of the Topsham Annex study, it was important to understand the issues related to previous, recent, and current planning and development activities within the general area of the property. This broad overview of surrounding development issues allowed the planning team to better coordinate potential Annex reuse opportunities with future area-wide Topsham planning efforts, considering not only land use and market considerations, but also infrastructure and other service-related investments. Recent and on-going separate planning and development studies undertaken by the Town of Topsham were reviewed to ensure coordination with potential Annex redevelopment. Planning studies reviewed included:

- Route 196 / Interstate 295 Interchange Study and required public infrastructure improvements
- Main Street Village Plan goals and objectives
- Relocation of the town office and associated public infrastructure improvements;

- Topsham Development Inc. community and economic development plans
- Topsham Comprehensive Plan and zoning updates

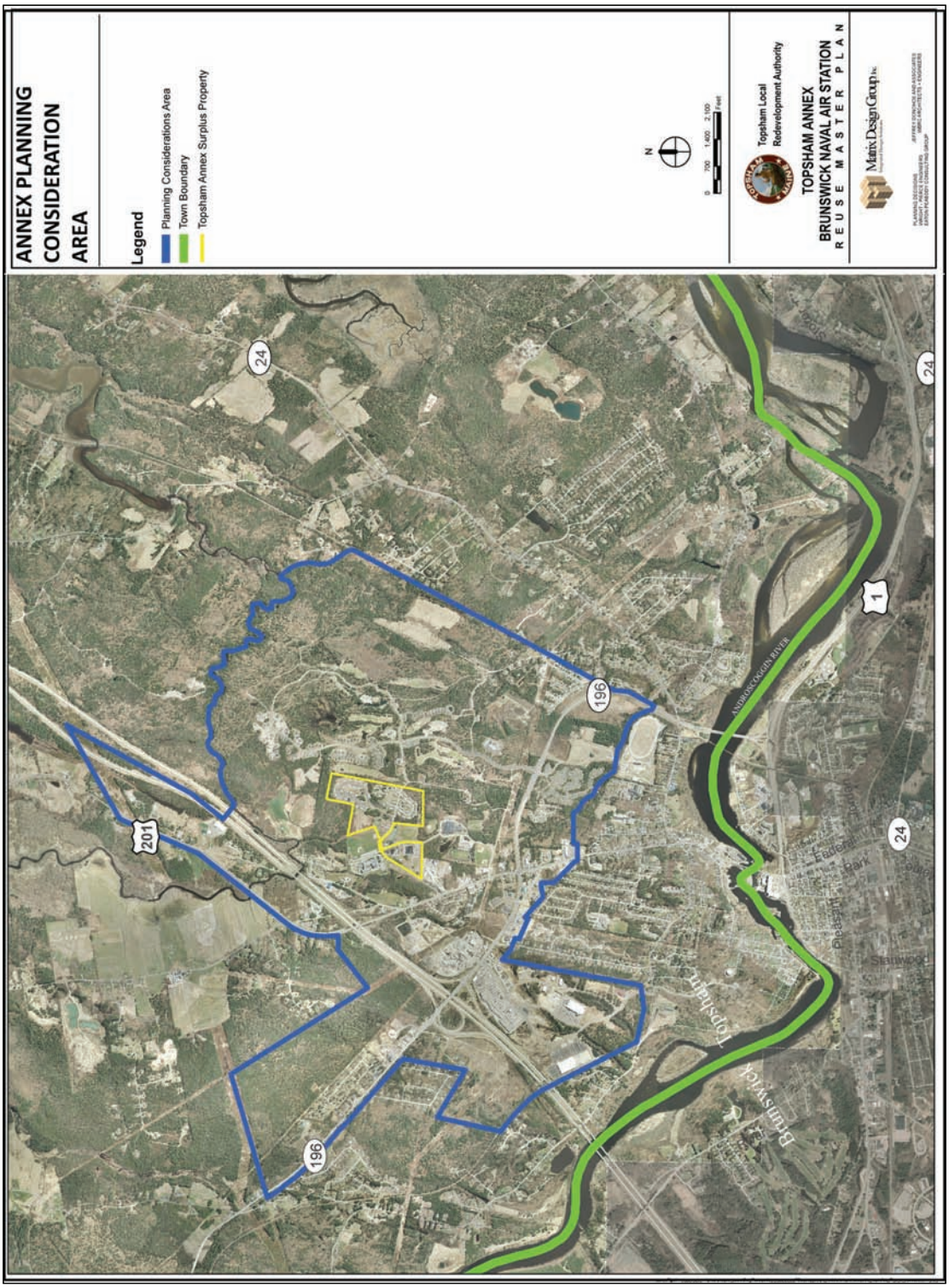
It is recognized that redevelopment of the Annex can influence (and be influenced by) development occurring in surrounding properties. Therefore, interest in new and expanded development opportunities surrounding the site were discussed including existing adjacent commercial / industrial uses, the Highlands, Topsham Fair Mall, the "Crooker site," and southwest and northwest quadrants located west of the I-295 / Route 196 Interchange. Vacant land was inventoried and estimates regarding the amount of future development were developed in order to provide context regarding the magnitude of the development potential within the Planning Consideration Area.

The Planning Consideration Area Defined

The Matrix Design Group consultant team worked with the Topsham municipal staff to establish the boundary for the Annex Planning Consideration Area (PCA). **Exhibit 11: Annex Planning Consideration Area** shows the PCA boundaries visually. A series of five workshops were held to obtain input regarding future plans and possible investments in public infrastructure (water, sewer, and roads), electric service and telecommunication, zoning revisions, and other land development considerations for the area surrounding the Annex. The five meetings included:

- Joint Planning Board and Comprehensive Plan Committee meeting
- Topsham Main Street Committee
- Local developers
- Interested Citizens
- Topsham Development Inc. Board Members

Exhibit 11: Annex Planning Consideration Area



Source: Matrix Design Group

Workshop Information

Information presented at the workshops included Topsham land use / zoning classifications; Annex public infrastructure locations / capacity / conditions; and transportation patterns along with existing development patterns and the development potential of vacant land. In order to gain an understanding of real estate issues within the Planning Consideration Area (PCA), as well as existing uses, the Topsham Assessor provided the assessment database for the town. An evaluation of this information provided information on the size, developability, and current uses of properties in the PCA. Among the findings are:

The PCA includes almost 2,700 acres in total. This includes 717 lots, with an assessed value of more than $153 million, excluding exempt properties. Vacant land is the largest land use category in terms of acreage, at 969 acres, or nearly 36 percent of the PCA. Rural residential is the largest developed use in terms of acreage at more than 660 acres, or approximately 25 percent of the PCA. Commercial uses, which account for more than 530 acres of the PCA, have the highest assessed value, at more than $74 million.

Commercial leased land, mixed residential / commercial, industrial and urban residential are the smallest uses in terms of acreage. Refer to **Exhibit 12: Distribution of PCA by Land Use** for a table of this information.

Exhibit 12: Distribution of PCA by Land Use

Land Use	Lots	Total Acres	% of PCA	Total Assessed Value
Commercial Leased Land	8	9.6	0.36%	$1,756,500
Commercial	83	531.3	19.68%	$74,062,300
Exempt	21	302.6	11.21%	$0
Industrial	9	14.7	0.54%	$5,409,000
Utility	8	109.1	4.04%	$1,292,800
Mobile Home	162	72.7	2.69%	$3,152,150
Residential and Commercial	1	0.7	0.03%	$226,000
Rural Residential	251	661.9	24.51%	$47,123,650
Urban Residential	51	13.7	0.51%	$5,882,000
Vacant Land	123	969	35.89%	$14,889,100
Total	**717**	**2685.3**	**~100%**	**$153,793,500**

Source: Topsham Assessor's Office

Within the context of the PCA, it is important to understand the characteristics of the available vacant land, since the Annex may compete against these properties for new development. The table below, **Exhibit 13: Distribution of Vacant Parcels by Size**, provides an overview of vacant land parcels within the PCA, according to the size of the parcel. As shown in the table, there are 123 vacant parcels within the PCA, totaling 969 acres. The combined assessed value of these properties is almost $15 million. It is significant to note that almost 90 percent of the vacant acreage is contained in parcels

of five acres or more. This is significant because parcels of this size are more likely to be either subdivided to create more development sites, or to be developed more intensively in terms of square footage.

Exhibit 13: Distribution of Vacant Parcels by Size

Acreage	Lots	Total Acres	Total Assessed Value
<1 acre	41	13.5	$1,852,700
1 to 2.99 acres	29	58.5	$3,888,600
3 to 4.99 acres	10	37.1	$568,700
5 to 9.99 acres	23	158.2	$2,925,700
Over 10 acres	20	701.7	$5,653,400
Total	**123**	**969**	**$14,889,100**

Source: Topsham Assessor's Office

As a final step in evaluating the competing real estate within the PCA, the development potential of the vacant properties was evaluated. This was developed based on the existing zoning for these properties, according to the Topsham zoning code. For each land use category, the allowable floor-area-ratio (FAR) was used to estimate development potential. Since many sites can not be developed to their maximum FAR, a range of potential development was included, which assumes development at 50 percent of the maximum FAR as the low end of the range and 100 percent of the maximum FAR as the high end of the range. For residential uses, a range of 1.5 to 3 acres per home site was used.

As shown in the table below, **Exhibit 14: Development Capacity of Vacant Land in the PCA**, approximately 425 acres of the vacant land in the PCA are zoned for commercial, industrial and mixed uses. The Mixed-Use Limited and Mixed-Use Commercial Districts account for 75 percent of the available vacant non-residential land. In total, it is estimated that the vacant land within the PCA could support between 3.9 million square feet and 7.9 million square feet of new development.

Within the PCA, almost 550 acres are zoned for residential uses. Assuming an average of 1.5 to 3.0 acres for each home, this vacant land in the PCA could support development of 182 to 364 new housing units. Preliminary issues regarding zoning, public utility capacity / condition and transportation issues were presented to generate discussion.

Exhibit 14: Development Capacity of Vacant Land in the PCA

Vacant Properties	Lots	Total Acres	FAR	Development Potential Low	Development Potential High
Commercial Corridor	5	24.9	0.5	270,834	541,669
Mixed-use Limited	58	212.9	0.4	1,854,349	3,708,698
Mixed-use Commercial	25	112.7	0.5	1,227,739	2,455,477
Rural Commercial	10	54.2	0.4	472,539	945,078
Upper Village	4	18.8	0.3	123,035	246,070
Total	**102**	**423.5**		**3,948,496**	**7,896,992**

Vacant Properties	Lots	Total Acres	Acres/Unit	Development Potential Low	Development Potential High
Rural Residential	21	545.5	1.5	182	364

Source: JDA

The major themes or outcomes from the workshops included the following:

Parcel Availability

It was stated several times that the Annex does not include large sites and its reuse therefore is not the most important issue facing Topsham. These comments revealed that the retail sales, entertainment and hospitality (restaurant and/or hotel) structures moratorium for Quadrants 1 and 2 located west of I-295 was at the forefront of peoples' thinking.

Compatibility

Mount Ararat Middle and High Schools were noted as two dominate influences affecting reuse of the Annex. Safety of the children and compatibility with educational and recreation activities were noted. Although the school superintendent attended one of the workshops, separate meetings were planned with the school board to discuss compatibility issues and plans for constructing a new high school.

Also, it was recognized that adjacent and nearby industrial uses may be problematic regarding the future development direction for the Annex and PCA. The Topsham Main Street Committee is in the process of preparing recommendations related to zoning district regulations revisions and development parameters for the Upper Village Area located north of the Route 196 / Route 201 intersection.

Connectivity

Workshop attendees felt that there should be improved pedestrian and transportation connections to support Annex reuse. Reuse of the Annex should not proceed in a vacuum. Large vacant land parcels surrounding the Annex and east and west of I-295 have the potential to place significant impacts upon the Route 201 and 196 transportation corridors. New pedestrian and transportation connections need to be coordinated with development plans for large vacant parcels located within the PCA to address the future transportation needs for the entire PCA.

Transportation Access and Improvements

The majority of commercial and industrial development located in Topsham is located along Routes 201 and 196. The Annex has one primary means of vehicular access via Can Am Drive; the Annex has no road frontage which affects its reuse potential. To better support Annex reuse and future economic growth within the PCA, workshop attendees discussed potential transportation improvement needs, including:

- New Secondary Roadway Connection - A secondary entrance to the Annex from Highland Green may need to be opened in the future to provide improved traffic flow to Route 196, versus sending those trips through the Route 196 / 201 intersection
- New I-295 Interchange - A direct connection from Route 201 to I-295 to address traffic congestion along Route 201 and to support future economic growth in the entire PCA

Water and Sewer Utilities

It is estimated that the vacant land located within the PCA could support between 3.9 million and 7.9 million square feet of new commercial development along with 182 to 364 new housing units. This scale of development requires long range planning to design, construct and invest in a coordinated public water and sewer system.

Public Meeting 3 - Preferred Reuse Master Plan

On Wednesday, August 1, 2007, the third public meeting in the Topsham Annex reuse master planning process was held at the Topsham Public Library. Six Topsham residents were in attendance, in addition to representatives from several organizations submitting Notices of Interest during the state-local-homeless screening period, town staff, TLRA board members, Matrix Design Group planning team members, US Navy representatives, and other state and local government officials. The purpose of Public Meeting 3 was to present to the public the Preferred Reuse Master Plan. For a review of the alternative plan development and preferred alternative selection process, please see Section 5: Conceptual Master Planning.

The meeting began with a PowerPoint presentation which provided an overview of the Annex reuse planning process, the project schedule and progress made to date, a description of the several Notices of Interest received, and the preferred reuse master plan map. After the PowerPoint presentation, the Topsham citizens in attendance were divided into two groups where they were given large-scale maps of the preferred reuse master plan map to review and were given the opportunity to ask questions and discuss the plan map with Matrix Design Group team members and other meeting participants. After the plan map review discussions, all Public Meeting 3 attendees were reconvened into a single group where citizens were then encouraged to provide feedback on the preferred plan and, in particular, their thoughts on the following:

- Is the Plan Consistent with the TLRA's Goals?
- What Plan Elements Do You Support?
- What Plan Elements Do You Not Support?
- What Are Your Thoughts About the NOIs?
- How Do You Feel About Proposed Densities?
- Do You Feel the Plan Strikes the Right Balance?
- What Are Your Thoughts About the Existing Buildings?
- What Are Your Thoughts About the Housing Area?

Specific comments / questions voiced by the citizens in attendance included:

- Existing housing should stay as housing.
- Land uses are compatible with neighboring school uses.
- Affordable housing should be provided if possible.
- There's a lack of school parking. Possible sharing of parking.
- Have economic development opportunities been explored at the Housing area?
- Have a sufficient number of citizens provided feedback on the plan?
- What does the town have in mind for SW parcel in the Military Triangle?
- Not supportive of a "land swap" in SW parcel in the Military Triangle
- Are apartments suitable / desirable for the Housing area?
- Don't exclude apartments as housing option.
- What's the impact on the schools of different housing types / densities?
- Support proposed park / recreation uses
- School district is opposed to heavy industrial uses in Military Triangle.
- What will happen to the water tower?

The Preferred Reuse Master Plan map, NOI map, and other materials were also published on the Topsham Annex Reuse Master Plan project website, where citizens unable to attend Public Meeting 3 were encouraged to submit their comments about the preferred reuse master plan to the TLRA.

Public Meeting 4 - Public Hearing and Plan Adoption

On November 28, 2007, the draft Reuse Master Plan was presented to the TLRA Board of Directors by the Matrix Planning Team. Following the presentation, the TLRA Board opened a formal public hearing on the plan and invited members of the public present to comment.

Following the public hearing on the Reuses Master Plan, the Board convened a second public hearing specifically regarding the TLRA's recommendation to the Department of Housing and Urban Development that Tedford Housing implement the Homeless Services Provision component of the Reuse Master Plan. Following the public hearing, the TLRA Board of Directors voted to approve the Homeless Services Provision recommendation.

Plan Adoption - December 19, 2007

On December 19, 2007, the Topsham Local Redevelopment Authority Board of Directors voted unanimously to formally approve and adopt this Reuse Master Plan.

Other Public Input Received

The Topsham LRA website was activated in March 2007. It provides access to all documents and news related to planning, and also provides a comment function for the general public's use.

While it is important to the planning process that the TLRA and its consultants understand the physical, economic, and environmental conditions that could influence redevelopment of the Topsham Annex, it is also important to understand

the community's issues, concerns, and land use recommendations for the site. And, although meetings have been held specifically to address public issues and ideas, the website has provided an outlet for those who have not attended these meetings.

Themes and Issues

Throughout the public engagement process, several common themes have emerged, including the following:

Compatibility - Future uses should complement or enhance the school sites, including such uses as recreational, or after-school, or day care, or services to homeless teens, or other supplementary educational and career services. Housing for families with children and for workers was also considered as being desirable on Planning Area B, with buffering from other business or commercial uses considered an important aspect.

Transportation - The site should have good pedestrian, bicycle, and car connections internally, and to the rest of the community. It must be a safe place to move about. It must not funnel more traffic into the crowded 201 / 196 intersection.

In general, unresolved public issues and concern remained around the reuse of the existing buildings, including the Commissary; the type of housing most desirable; the type of recreation and open space; and, the type of community facilities most appropriate for the site and the community.

Section 4: Existing Conditions Assessment

The successful redevelopment of the Topsham Annex will depend, in part, on understanding and responding to a variety of existing market and economic considerations and trends, applicable local community issues and policies, physical conditions and characteristics, and environmental conditions of the property. While it is not the intent of this report to provide a detailed and comprehensive inventory and assessment of these issues, it is important to understand the critical elements that can influence, or be influenced by private-sector development of the base. This approach will not only provide input into future land use programming for the base, but also provide a valid preliminary cost to acquire, upgrade, and maintain base resources. In addition, this existing conditions assessment will begin to provide the Topsham Redevelopment Authority with the ability to react to and make recommendations for specific potential reuse proposals that could be submitted by a variety of local, state, and federal agencies, as well as future private-sector interest groups.

While the following information presents an overview of existing market conditions, local community issues and influences, and base issues, conditions and characteristics, no one issue will dominate subsequent land use planning and phasing recommendations. As with any large-scale complex development project, the feasibility of future development will be based on a combination of impacts from physical, market, and political conditions and considerations. At the end of this session, therefore, a summary of redevelopment issues and a preliminary determination of potential suitability for development is provided that will help guide future redevelopment decisions.

Market and Economic Analysis

Regional Demographic and Economic Conditions

The redevelopment of the Topsham Annex will be affected by the environment within which it operates. Specifically, the existing demographic make-up of the region's populations, as well as the existing economic base, will influence the redevelopment potential for the property. This chapter provides an overview of demographic trends for the State of Maine, Sagadahoc County and the Town of Topsham. Demographic factors, such as population, households, housing units, and income are considered within this chapter.

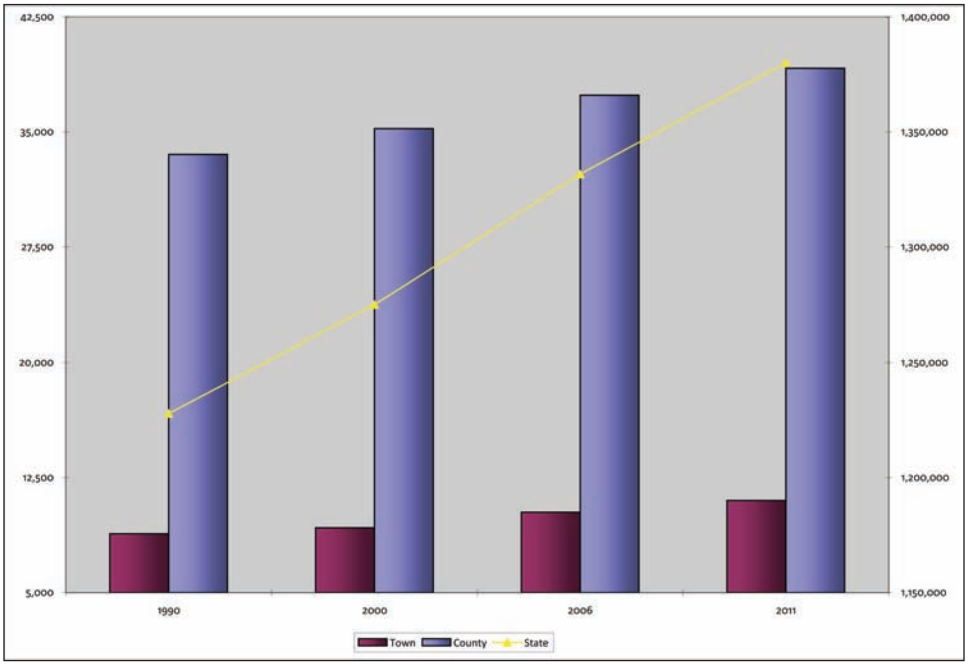
In addition, the economic environment within which the Annex will be redeveloped is also evaluated. Economic factors considered in this analysis include employment trends, trends in business establishments, employment growth sectors, and major

employers. In addition, wage levels are evaluated by industry and occupation for the town. Workforce trends, including labor force growth, employment, unemployment, educational attainment and occupational outlook for the region, are also reviewed.

Summary of Major Findings and Conclusions

The population of the town experienced slight growth during the 1990s, increasing from 8,843 in 1990 to 9,227 in 2000, or 4.3 percent. Over the same period, the State of Maine grew at a slower rate, increasing by 3.8 percent. Both the town and the state grew slower than the County of Sagadahoc. Population estimates for 2006 indicate an increase in growth between 2000 and 2006 for all regions, with the town showing the largest growth, 10.9 percent. Forecasts through 2011 indicate that the county's population will exceed 39,000, while the town's population will approach 11,000.

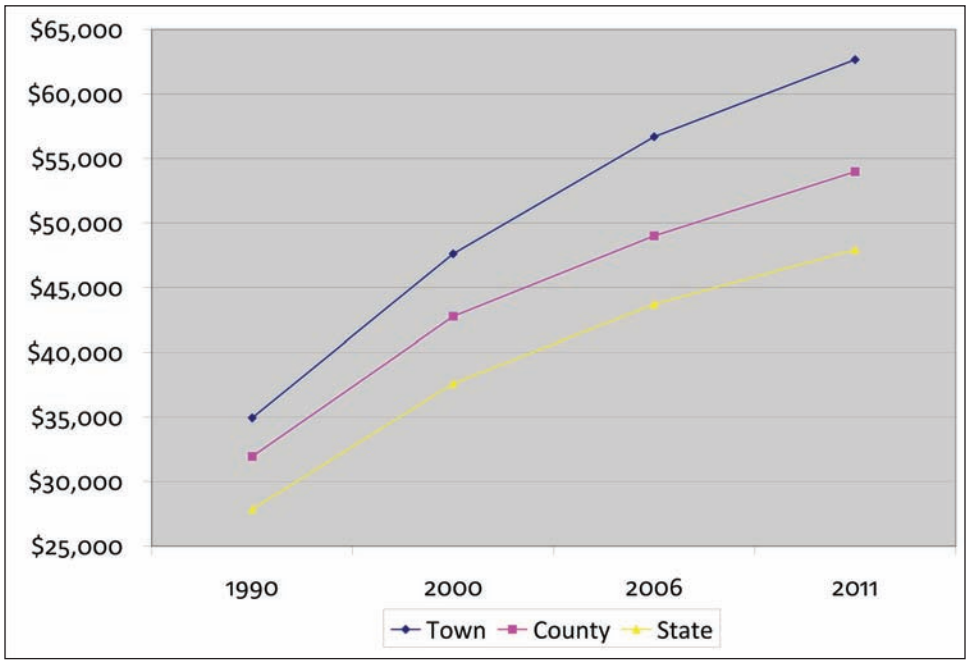
Exhibit 15: Historic and Projected Population



Source: JDA

In the town, an increase of 818 households is forecast between 2000 and 2011, an increase of 23.6 percent. Over the same time period, the increase in the number of housing units is projected to be just slightly more, 837 units, an increase of 23.1 percent. In Sagadahoc County, the number of households is projected to increase by 2,131 (15.1%) between 2000 and 2011, while the number of housing units is projected to increase by 2,204 (13.4%). The growth in the number of households and housing units at the state level is projected to be smaller than both the county and the town.

Exhibit 16: Historic and Projected Median Income



Source: JDA

Median household incomes at the state, county and town level grew substantially during the 1990s. The statewide median income grew by 35 percent between 1990 and 2000, while the town experienced an increase in median income of 36.3 percent and the county median income grew by 33.9 percent. These increases were above the rate of inflation, indicating some real growth in incomes during the 1990s. Since 2000, it is estimated that the median household income level in the town has increased faster than the county and the state. Forecasts through 2011 indicate that median household income in the town will continue to grow faster than both the state and county.

In 2000, 43.6 percent of households in the town had incomes of less than $50,000, while both the county and the state had a larger concentration of households earning less than $50,000 in 2000, 55.3 percent and 65.1 percent, respectively. The town had 25.5 percent of households earning more than $75,000 in 2000, which again was more than both the county, 17.4 percent, and the state, 15.5 percent. Projections through 2011 indicate consistent growth in incomes, and therefore a movement to upper income brackets, though the State of Maine is expected to continue to have the highest concentration of households earning less than $25,000 annually (24.4%).

In Sagadahoc County, the number of jobs declined by 4.2 percent between 2001 and 2005, from 15,879 in 2001 to 15,217 in 2005. This represents a loss of more than 660 jobs over the period. Included in this number are losses in both the goods-producing sector (933) and the government sector (48), though the service-sector gained 271 jobs.

The Town of Topsham outperformed the county in terms of job growth of more than 20 percent between 2001 and 2005, increasing from 2,903 in 2001 to 3,508 in 2005. Perhaps more importantly, the town saw growth in employment in both the goods-producing sector (14.1%) and the service-providing sector (22.2%). In terms of specific growth sectors, the retail trade sector saw the largest growth in terms of the number of jobs (212), followed by the health care and social assistance sector (106). In percentage terms, the real estate sector showed the strongest growth (88.2%), followed by the finance and insurance sector (64.7%). However, both of these sectors started with a very low base employment in 2001.

A review of North American Industrial Classification System (NAICS) codes indicates that there are segments of the larger (two-digit) sectors that showed significant growth in Sagadahoc County between 2001 and 2005. Of particular note is the growth in the management and technical consulting segment and the child care segment. These two segments combined to create almost 150 jobs between 2001 and 2005. In addition, key components of the construction sectors added more than 110 jobs between 2001 and 2005, an increase of almost 50 percent.

The Bath-Brunswick-Topsham area is home to a wide variety of employers across numerous industries. In addition to the region's small business base, the area is home to a number of large employers. According to the Southern Midcoast Maine Chamber of Commerce, the region is home to 24 employers which employ 100 or more people. The three largest employers are Bath Iron Works, Bowdoin College, and the Brunswick Naval Air Station, which is reported to be the second largest employer in the state.

It is also important to note that the region's largest employers are evenly distributed across a variety of industries. The manufacturing sector accounts for 25 percent of the employers with 100 employees or more, with six firms out of the total of 24. The retail sector includes five firms, followed by the government sector and the education sector, which each account for three of the top employers.

Average wages across Sagadahoc County for all industries were $34,632 in 2004, the equivalent of $666 per week. The professional, scientific and technical sector had the highest average wage, at $45,968, or almost one-third above the average for the region. Other sectors which had wages which were above the county average wage for all industries included the construction sector and state government. However, these sectors were less than 5 percent higher than the overall average. The accommodation and food service sector had the lowest average wage of $13,208, or $254 per week, more than 60 percent less than the overall average wage for the county. The agriculture, forestry and fishing sector was also well below the county average, at $14,352, almost 60 percent below the average. Other sectors which were below the county average included the arts and entertainment sector, the administrative and waste management sector, the retail sector and the information sector, all of which were at least 35 percent below the county average wage.

In terms of occupational wages in Sagadahoc County, the average (mean) wage for all occupational categories was $17.90 per hour, which equates to an annual income of just over $37,000. Chief executives and construction managers had the highest average wages in the county in 2005. These positions had an average wage in excess of $51 per hour, which is equivalent to an average salary of more than $106,000. Legal and management-related positions accounted for the majority of the remaining occupations in the top 15. It is interesting to note that health care professions are not represented in the top 15 occupational wage categories. According to the Maine Department of Labor, health care practitioners and technical occupations had an average wage of $22.41 per hour, or just over $46,000 annually.

Between 2000 and 2005, the labor force in the Town of Topsham increased by 3.0 percent, from 4,586 in 2000 to 4,724 in 2005. Over the same period, the Sagadahoc County labor force increased marginally (one-half of one percent), from 18,795 to 18,899. The state's labor force increased by almost 40,000 between 2000 and 2005. This represents an increase of 5.9 percent, bringing the total labor force to more than 711,000. Between 2000 and 2005, the state's labor force grew much more rapidly than either the county or the town.

The expansion of the labor force has resulted in increases in both the number of employed individuals and the number of unemployed individuals in the state and the town. However, Sagadahoc County actually experienced a reduction in the number of employed individuals between 2000 and 2005.

Unemployment rates generally trended upwards between 2000 and 2005. In general, the unemployment rate in the town has been lower than either the state or the county, typically by almost a full percentage point under the state, and less than one-half of a percentage point under the county. Unemployment rates in 2005 ranged from 3.7 percent in Topsham to 4.8 percent at the state level, with the county at 4.3 percent.

A key measure of workforce abilities is the level of educational attainment. The U.S. Census tracks educational attainment for persons age 25 and over. The state, county and town each experienced a reduction in the percentage of the population that had not completed high school. In 1990 the town had by far the smallest percentage, 16.3 percent, while the county had 18.9 percent and the state had over 21 percent. By 2000, the gap had narrowed slightly, and the town had 10.0 percent, the county had 12.0 percent and the state had 14.6 percent. This is considered to be a significant reduction for all regions.

The town also continued to show a substantially higher percentage of college graduates than the county and the state. In fact, the disparity grew from 1990 to 2000. The town had 32.5 percent college graduates in 1990, which had increased to 38.3 percent by 2000. In contrast, the county and state had just 27.8 percent and 25.7 percent respectively in 1990, and 32.9 percent and 30.2 percent respectively in 2000.

The Maine Department of Labor evaluated skills of employees at the Brunswick Naval Air Station, within the context of the projected occupational outlook for the state and region. While many of the strongest job growth categories (in percentage terms) are consistent with uses desired for the Annex, such as technical, business operations analysts and systems analysts, the job categories with the highest projected growth in absolute terms are mostly related to the food service and retail industries. These are labor market sectors which the community has indicated are not desirable for the Annex site.

Demographic Trends

This section provides an overview of recent demographic trends in the State of Maine, Sagadahoc County and the Town of Topsham. The primary data source for this analysis is the Decennial U.S. Census. In addition, estimates for 2006 and projections for 2011 were acquired from Claritas, a private sector demographic forecasting service. Among the factors evaluated are population, households, housing units, median income and income distribution.

It should be noted that geographic restrictions of projections prepared by Claritas do not allow for a direct comparison with the 2000 U.S. Census. Claritas has data available for Topsham as a "Census Designated Place" (CDP), but not for the Town of Topsham. The population of the Topsham CDP in 2000 was 6,271, as compared to the Census 2000 population for the town, which was 9,100. However, Claritas does provide projections based on the zip code for the town (04086). Claritas' population estimate using zip code-based geography is 9,277, less than 2 percent higher than the population of the town as provided by the 2000 U.S. Census. For purposes of this analysis, Claritas' data and projections for zip code-based geography will be used as a proxy for the town. Since Claritas' zip code-based data is not available for 1990, the 1990 Census data has been increased by 1.9 percent as a baseline.

Population Trends

The population of the town experienced slight growth during the 1990s. During that time, the town's population grew by 4.3 percent, increasing from an estimated 8,843 in 1990 to 9,227 in 2000. Over the same period, the State of Maine grew at a slightly slower rate, increasing by 3.8 percent. However, both the town and the state grew slower than Sagadahoc County, which grew by 5 percent during the 1990s, with the population increasing from 33,535 to 35,214.

Population estimates for 2006, provided by Claritas, indicate an increase in growth between 2000 and 2006 for all regions. Again, the county's estimated growth rate between 2000 and 2006 of 6.2 percent is higher that the state's estimated growth rate of 4.5 percent. However, between 2000 and 2006, it is estimated that the Town of Topsham has grown at the fastest rate, 10.9 percent. Forecasts through 2011 indicate

that the county's population will exceed 39,000, while the state will approach a population of 1.4 million. However, both the county and the state are forecast to lag the town's growth rate, which is projected to be 7.5 percent between 2006 and 2011. Claritas projects the town's population will be 11,006 in 2011.

Exhibit 17: Population Trends - 1990 to 2011

Town of Topsham

	Count	Change	% Change
1990	8,843	-	-
2000	9,227	384	4.3%
2006	10,236	1,009	10.9%
2011	11,006	770	7.5%
Change 00-11		**1,779**	**19.3%**

Sagadahoc County, Maine

	Count	Change	% Change
1990	33,535	-	-
2000	35,214	1,679	5.0%
2006	37,396	2,182	6.2%
2011	39,146	1,750	4.7%
Change 00-11		**3,932**	**11.2%**

State of Maine

	Count	Change	% Change
1990	1,227,928	-	-
2000	1,274,923	46,995	3.8%
2006	1,331,692	56,769	4.5%
2011	1,380,020	48,328	3.6%
Change 00-11		**105,097**	**8.2%**

Source: US Census and Claritas

Households and Housing Units

In both the Town of Topsham and Sagadahoc County, there has been significant growth in the number of housing units and the number of households. Households are distinguished from housing units in that households are occupied housing units. The universe of housing units includes vacant for-sale and for-rent units, as well as seasonal and vacation homes. In the town, an increase of 818 households is forecast between 2000 and 2011, an increase of 23.6 percent. Over the same time period, the increase in the number of housing units is projected to be 837 units, an increase of 23.6 percent. This indicates a slight increase in the number of vacant housing units, as the difference between the number of housing units and households is projected to increase from 152

in 2000 to 171 in 2011, though the vacancy rate is projected to decline from 4.1 percent to 3.8 percent. However, the reader is reminded that the Census considers seasonal and vacation homes to be vacant units.

Exhibit 18: Change in Households and Housing Units

Town of Topsham

	Households	Change	Housing Units	Change
1990	3,060	-	3,299	-
2000	3,472	412	3,624	325
2006	3,942	470	4,099	475
2011	4,290	348	4,461	362
Change 00-11	**818**	**23.6%**	**837**	**23.1%**

Sagadahoc County, Maine

	Households	Change	Housing Units	Change
1990	12,544	-	14,633	-
2000	14,117	1,573	16,489	1,856
2006	15,340	1,223	17,648	1,159
2011	16,248	908	18,693	1,045
Change 00-11	**2,131**	**15.1%**	**2,204**	**13.4%**

State of Maine

	Households	Change	Housing Units	Change
1990	465,729	-	587,045	-
2000	518,200	52,471	651,901	64,856
2006	555,597	37,397	692,292	40,391
2011	583,553	27,956	727,101	34,809
Change 00-11	**65,353**	**12.6%**	**75,200**	**11.5%**

Source: JDA

In Sagadahoc County, the number of new housing units is projected to exceed the formation of households. Between 2000 and 2011, the number of households is projected to increase by 2,131 (15.1%), while the number of housing units is projected to increase by 2,204 (13.4%). The number of vacant and seasonal units is projected to increase from approximately 2,370 in 2000 to 2,440 in 2011.

The percentage growth in the number of households and housing units at the state level is projected to be smaller than both the county and the town. The state is projected to experience an increase in the number of households of 12.6% between 2000 and 2011, below the county increase (15.1%) and well below the town increase (21.3%). Similarly, the state's growth in the number of housing units is projected to dramatically lag the town.

Median Income

Median household incomes at the state, county and town level grew substantially during the 1990s. The statewide median income grew by 35 percent between 1990 and 2000, slightly above the rate of inflation, which was estimated to be 31.7 percent during the 1990s, according the Bureau of Labor Statistics. The town experienced an increase in median income of 36.3 percent during the 1990s, while the increase at the county level was 33.9 percent. These increases were also slightly more than the rate of inflation, indicating some real growth in incomes during the 1990s. The disparity between the town and the state and county increased, as incomes in the town grew faster than either the state or county. The town's median income remained well above the state and above the county. In 1990, the town's median income level was 25.4 percent higher than the state, and 9.4 percent higher than the county median. By 2000, the difference had increased such that the town's median household income was 29.7 percent higher than the state and 15.6 percent higher than the county.

Exhibit 19: Trends in Median Household Income

Town of Topsham

		Count		Change	% Change
1990	$	34,938		-	-
2000	$	47,611	$	12,673	36.3%
2006	$	56,685	$	9,074	19.1%
2011	$	62,667	$	5,982	10.6%
Change 00-11			**$**	**15,056**	**31.6%**

Sagadahoc County, Maine

		Count		Change	% Change
1990	$	31,948		-	-
2000	$	42,769	$	10,821	33.9%
2006	$	49,003	$	6,234	14.6%
2011	$	53,978	$	4,975	10.2%
Change 00-11			**$**	**11,209**	**26.2%**

State of Maine

		Count		Change	% Change
1990	$	27,854		-	-
2000	$	37,601	$	9,747	35.0%
2006	$	43,701	$	6,100	16.2%
2011	$	47,936	$	4,235	9.7%
Change 00-11			**$**	**10,335**	**27.5%**

Source: JDA

Since 2000, Claritas estimates that median household income levels in the town have continued to increase slightly faster than the state and county. However, forecasts through 2011 indicate that median household income growth rates in the state and county will slightly lag behind the growth rate of the town.

Income Distribution

Along with the substantially higher median income at the town level as compared to the county and state, the stratification of income in 2000 shows similar results. For example, in 2000, 43.6 percent of households in the town had incomes of less than $50,000, compared to 55.3 percent at the county level and 65.1 percent at the state level. In fact, while the town had only 12.8 percent of households with incomes below $25,000 in 2000, the state had 32.6 percent.

At the higher end of the income scale, the town had 25.5 percent of households earning more than $75,000 in 2000. This figure was more than the county, which had 17.4 percent of households in this range. The state lagged both the town and the county, with just 15.5 percent of households earning more than $75,000 in 2000.

Exhibit 20: Income Distribution Trends

Town of Topsham

	Under $25,000	$25,000 to $49,999	$50,000 - $74,999	Over $75,000
1990	31.8%	41.5%	22.1%	4.6%
2000	12.8%	30.8%	30.9%	25.5%
2006	9.4%	26.1%	27.0%	37.5%
2011	7.9%	23.1%	22.5%	46.5%
Change 00-11	**-4.8%**	**-7.7%**	**-8.4%**	**21.0%**

Sagadahoc County, Maine

	Under $25,000	$25,000 to $49,999	$50,000 - $74,999	Over $75,000
1990	36.1%	42.6%	16.2%	5.1%
2000	21.7%	33.6%	23.3%	17.4%
2006	21.7%	29.5%	23.3%	25.5%
2011	19.6%	26.8%	22.5%	31.1%
Change 00-11	**-2.1%**	**-6.8%**	**-0.8%**	**13.7%**

State of Maine

	Under $25,000	$25,000 to $49,999	$50,000 - $74,999	Over $75,000
1990	44.6%	37.1%	12.8%	5.5%
2000	32.6%	32.5%	19.4%	15.5%
2006	27.3%	29.9%	20.5%	22.3%
2011	24.4%	27.8%	20.5%	27.3%
Change 00-11	**-8.2%**	**-4.7%**	**1.1%**	**11.8%**

Source: U.S. Census and Claritas

Projections through 2011 indicate consistent growth in incomes, and therefore a movement to upper income brackets. However, the State of Maine is expected to continue to have the highest concentration of households earning less than $25,000 annually (24.4%), and the lowest concentration of households earning more than $75,000 annually (27.3%).

State and Regional Economic Trends

In order to understand the reuse and redevelopment potential of the Topsham Annex, it is important to have an understanding of the external economic factors which affect the region. This section provides an overview of recent employment trends and average wages in the region, and provides information on major employers and growth sectors within the region. Information on employment and establishments was gathered from the Bureau of Labor Statistics and the Maine Department of Labor.

It should be noted that this section focuses on the town of Topsham and Sagadahoc County. Some data is also presented for the larger region, particularly for areas of Brunswick, which is in Cumberland County.

Employment Trends

In Sagadahoc County, the number of jobs declined between 2001 and 2005. Sagadahoc County experienced employment losses of 4.2 percent between 2001 and 2005. Employment in Sagadahoc County declined from 15,879 in 2001 to 15,217 in 2005, according to the Bureau of Labor Statistics. This represents a loss of more than 660 jobs over the period. Included in this number are losses in both the goods-producing sector (933) and the government sector (48), though the service sector gained 271 jobs.

Exhibit 21: Employment Trends, Sagadahoc County

Sagadahoc County, Maine	2001	2002	2003	2004	2005	Change 01 - 05	Change 01 - 05
Total Nonfarm	15,879	15,354	15,517	15,891	15,217	-662	-4.2%
Goods Producing	7,901	7,571	7,537	7,738	6,968	-933	-11.8%
Natural Resources, Mining							
Construction	804	757	795	825	862	58	7.2%
Manufacturing							
Service Providing	7,978	7,783	7,980	8,153	8,249	271	3.4%
Private Service Providing	6,063	5,774	5,957	6,345	6,382	319	5.3%
Trade, Transportation, Utilities	1,704	1,702	1,826	1,974	2,002	298	17.5%
Information	57	59	60	66	68	11	19.3%
Financial Activities	317	336	356	379	405	88	27.8%
Professional and Business Services	1,219	917	877	848	884	-335	-27.5%
Educational and Health Services	1,114	1,094	1,181	1,312	1,326	212	19.0%
Leisure and Hospitality	1,229	1,195	1,206	1,295	1,245	16	1.3%
Other Services	424	470	451	471	450	26	6.1%
Unclassified							
Government	1,915	2,009	2,023	1,808	1,867	-48	-2.5%

Source: Bureau of Labor Statistics

The goods-producing sector in the county had a net loss of 933 jobs between 2001 and 2005, despite an increase in the construction sector. However, this gain was more than offset by losses in the natural resources and manufacturing sectors. Within the service sector, the largest percentage loss (and in jobs lost) was in the professional and business services sector (27.5%, 335 jobs). The largest percentage gain was in financial activities (27.8%), while the largest gain in jobs was in the trade, transportation and utilities sector (298 jobs).

The Town of Topsham outperformed the county in terms of job growth between 2001 and 2005. Data for the fourth quarter of 2001 and 2005 was provided by the Maine Department of Labor, as annual data was not available. As shown in the Table below, Topsham experienced job growth of more than 20 percent between 2001 and 2005. The number of jobs in Topsham increased from 2,903 in 2001 to 3,508 in 2005. Perhaps more importantly, the town saw growth in employment in both the goods-producing sector (14.1%) and the service-providing sector (22.2%).

Exhibit 22: Employment Trends, Town of Topsham, 2001 and 2005

Town of Topsham	2001	2005	Change	% Change
Total, All Industries	**2,903**	**3,508**	**605**	**20.8%**
Goods-Producing Industries	**482**	**550**	**68**	**14.1%**
Construction	320	347	27	8.4%
Manufacturing	162	203	41	25.3%
Service-Providing Industries	**2,421**	**2,958**	**537**	**22.2%**
Trade, Transportation, and Utilities	550	744	194	35.3%
Wholesale Trade	60	31	-29	-48.3%
Retail Trade	444	656	212	47.7%
Transportation and Warehousing	23	26	3	13.0%
Utilities				
Information				
Financial Activities	33	60	27	81.8%
Finance and Insurance	17	28	11	64.7%
Real Estate and Rental and Leasing	17	32	15	88.2%
Professional and Business Services	402	423	21	5.2%
Professional, Scientific and Tech Services	230	266	36	15.7%
Admin & Support & Waste Mgnt. & Remediation Serv.	172	157	-15	-8.7%
Education and Health Services	853	1,125	272	31.9%
Educational Services				
Health Care and Social Assistance	333	439	106	31.8%
Leisure and Hospitality	389	427	38	9.8%
Arts, Entertainment, and Recreation	66	65	-1	-1.5%
Accommodation and Food Services	323	362	39	12.1%
Other Services (Except Public Administration)	116	102	-14	-12.1%
Public Administration	72	70	-2	-2.8%

Source: Maine Department of Labor

In terms of specific growth sectors, the retail trade sector saw the largest growth in terms of the number of jobs (212), followed by the health care and social assistance sector (106). In percentage terms, the real estate sector showed the strongest growth (88.2%), followed by the finance and insurance sector (64.7%). However, both of these sectors started with a very low base employment in 2001.

Establishment Trends

Although data for the number of establishments in the Town of Topsham was not available, Sagadahoc County experienced strong growth in the number of private business establishments between 2001 and 2005, according to data from the Bureau of Labor Statistics. Overall, the number of private establishments increased by 12.7 percent between 2001 and 2005, increasing from 790 to 890. The construction sector showed

the largest gain in terms of establishments, and represented 41 percent of the overall net gain. The real estate sector, the education sector and the wholesale trade sector also showed significant percentage increases in the number of establishments.

Exhibit 23: Sagadahoc County Private Business Establishment Trends

NAICS	Description	2001	2002	2003	2004	2005	Change 01 - 05 Number	Change 01 - 05 Percent
11	Agriculture, forestry, fishing and hunting	(ND)	(ND)	(ND)	5	7	N/A	N/A
22	Utilities	(ND)	(ND)	(ND)	1	1	N/A	N/A
23	Construction	125	127	138	165	166	41	32.8%
31-33	Manufacturing	(ND)	(ND)	(ND)	39	38	N/A	N/A
42	Wholesale trade	32	(ND)	38	43	43	11	34.4%
44-45	Retail trade	131	134	133	137	133	2	1.5%
48-49	Transportation and warehousing	(ND)	(ND)	(ND)	20	19	N/A	N/A
51	Information	9	9	9	8	9	0	0.0%
52	Finance and insurance	28	30	29	28	28	0	0.0%
53	Real estate and rental and leasing	26	26	27	35	38	12	46.2%
54	Professional and technical services	(ND)	83	84	92	95	N/A	N/A
55	Management of companies and enterprises	(ND)	(ND)	(ND)	2	2	N/A	N/A
56	Administrative and waste services	(ND)	(ND)	(ND)	43	48	N/A	N/A
61	Educational services	7	6	8	11	10	3	42.9%
62	Health care and social assistance	74	79	79	82	83	9	12.2%
71	Arts, entertainment, and recreation	17	15	12	16	17	0	0.0%
72	Accommodation and food services	65	64	65	71	73	8	12.3%
81	Other services, except public administration	87	87	83	86	84	-3	-3.4%
	Total	**790**	**791**	**810**	**884**	**890**	**100**	**12.7%**

(ND) Not Disclosable - Data do not meet BLS or state agency c

Source: Bureau of Labor Statistics

Growth Sectors

The information presented earlier in this section indicates that Sagadahoc County experienced job losses of more than four percent between 2001 and 2005, while the town experienced employment growth of more than 20 percent over the same period. A more detailed review of North American Industrial Classification System (NAICS) codes indicates that there are segments of the larger (two-digit) sectors that showed significant growth within the county between 2000 and 2005 . Each of the sectors shown below experienced growth significantly above the county average. Of particular note is the growth in the management and technical consulting segment and the child care segment. These two segments combined to create almost 150 jobs between 2001 and 2005. In addition, the six construction sectors identified below added more than 145 jobs between 2001 and 2005, an increase of more than 20 percent.

Exhibit 24: Growth Sectors in Sagadahoc County, 2001 to 2005

				Change	
		2001	2005	Number	Percent
2361	New single-family general contractors	91	115	24	26.4%
2373	Highway	379	396	17	4.5%
2381	Building foundation and exterior contractors	65	84	19	29.2%
2382	Building equipment contractors	51	78	27	52.9%
2383	Building finishing contractors	46	81	35	76.1%
2389	Other specialty trade contractors	56	79	23	41.1%
3270	Nonmetallic mineral product manufacturing	66	80	14	21.2%
4540	Nonstore retailers	60	78	18	30.0%
5242	Insurance agencies, brokerages, and related	25	39	14	56.0%
5415	Computer systems design and related services	23	32	9	39.1%
5416	Mangement and technical consulting services	34	90	56	164.7%
5617	Services to buildings and dwellings	149	194	45	30.2%
6110	Educational services	168	205	37	22.0%
6233	Community care facilities for the elderly	273	334	61	22.3%
6244	Child day care services	82	173	91	111.0%
7130	Amusements, gambling, and recreation	71	111	40	56.3%
7221	Full-services restaurants	484	538	54	11.2%
7222	Snack and nonalcoholic bevarage bars	55	79	24	43.6%
8121	Personal care services	53	80	27	50.9%
8134	Civic and social organizations	94	148	54	57.4%
	Total	**2325**	**3014**	**689**	**29.60%**

Source: Bureau of Labor Statistics

The majority of uses in NAICS codes between 2300 and 4600, as shown in the Table above, are more consistent with "industrial real estate." These uses typically require warehouse, shop and/or garage space for their operations, consistent with the type of space offered in the Motor Pool buildings at the Annex. These uses created 177 jobs in the county between 2001 and 2005. At an average space requirement of 750 square feet per employee, this indicates potential demand for 132,750 square feet of space across the county over the four year period. This equates to an annual average of 33,000 square feet.

The majority of uses in NAICS codes between 5200 and 6100, as shown in the Table above, are more consistent with "office real estate." Jobs of this type are typically performed in an office environment, and typically are more "dense," which is to say that there are more employees in less space. This space is consistent with the type of space available at the Army recruiting center at the Annex (Building 333). These uses created 161 jobs in the county between 2001 and 2005. At an average space requirement of 300 square feet per employee, this indicates potential demand for 48,300 square feet of space across the county over the four year period, or an average of just over 12,000 square feet annually.

The majority of uses in NAICS codes between 6200 and 8300, as shown in the Table above, are more consistent with "retail real estate." These uses are more typically located in retailing areas, though some are also found in and around business parks. Uses of this type are more consistent with Buildings 339 and 363 at the Annex. These uses created 351 jobs in the county between 2001 and 2005. At an average space

requirement of 400 square feet per employee, this indicates potential demand for 140,400 square feet of space across the county over the four year period, or an average of just over 35,000 square feet per year.

Top Regional Employers

The Bath-Brunswick-Topsham area is home to a wide variety of employers across numerous industries. In addition to the region's small business base, the area is home to a number of large employers. According to the Southern Midcoast Maine Chamber of Commerce, the region is home to 24 employers which employ 100 or more people. The three largest employers are Bath Iron Works, Bowdoin College, and the Brunswick Naval Air Station, which is the second largest employer in the state.

Exhibit 25: Major Regional Employers, Over 100 Employees

Employer	Industry
Bath Iron Works, Bath	Shipbuilding
Bowdoin College, Brunswick	Post-secondary Education
BrunswickVillage Candle, Topsham	Manufacturer of Candles
Cooper Wiring Devices, Brunswick	Manufacturer of Wiring Devices
Downeast Energy & Building Supplies, Brunswick	Fuel and Building Materials
Hannaford Brothers, Brunswick and Topsham	Supermarkets
Harry Crooker & Sons, Topsham	Civil Construction
Home Depot, Topsham	Building Materials
Hyde School, Bath	Secondary Education
L.L. Bean Manufacturing Plant, Brunswick	Manufacturer of Apparel
Lowe's, Brunswick	Building Materials
MBNA, Brunswick	Credit Cards
Mid Coast Health Services, Brunswick	General Medical Hospital
MSAD 75, Topsham, Bowdoin, Bowdoinham and Harpswell	Primary and Secondary Education
Naval Air Station, Brunswick	Military Base
Parkview Adventist Medical Center, Brunswick	General Medical Hospital
Reed & Reed, Woolwich	Civil and Non-residential Construction
Saint-Gobain Technical Fabrics, Brunswick	Manufacturer of Textiles
Sears, Brunswick	Department Store
Super Wal-Mart, Brunswick	Department Store
Supervisor of Shipbuilding, Bath	Supervisor of Shipbuilding
The City of Bath	General Government
The Town of Brunswick	General Government
Wright Pierce Engineers, Topsham	Civil Engineers

Source: Southern Midcoast Maine Chamber of Comerce

It is also important to note that the region's largest employers are evenly distributed across a variety of industries. As shown in the table below, the manufacturing sector accounts for 25 percent of the employers with 100 employees or more, with six firms out of the total of 24. The retail sector includes five firms, followed by the government sector and the education sector, which each account for three of the top employers.

Exhibit 26: Distribution of Large Employers by Industry

Sector	Firms
Manufacturing	6
Retail	5
Government	3
Education	3
Health Care	2
Construction	2
Wholesale Trade	1
Financial Services	1
Professional Services	1
Total	**24**

Source: JDA

Average Wages

Average wages across the county for all industries were $34,632 in 2004, the equivalent of $666 per week. The professional, scientific and technical sector had the highest average wage, at $45,968, or almost one-third above the average for the region. Other sectors which had wages which were above the county average wage for all industries included the construction sector and state government, though these sectors were less than 5 percent higher than the overall average.

The accommodation and food service sector had the lowest average wage of $13,208, or $254 per week, more than 60 percent less than the overall average wage for the county. The agriculture, forestry and fishing sector was also well below the county average, at $14,352, almost 60 percent below the average. Other sectors which were below the county average included the arts and entertainment sector, the administrative and waste management sector, the retail sector and the information sector, all of which were at least 35 percent below the county average wage.

Exhibit 27: 2004 Wage Levels, Sagadahoc County

North American Industry Classification System S	Employers at Year End	Average Employment	Total Wages Annual Total	Average Weekly
Total, All Industries	**939**	**15,556**	**539,054,536**	**$ 666**
Agriculture, Forestry, Fishing and	6	30	430,394	$ 276
Construction	161	822	29,743,023	$ 696
Trade, Transportation, and Utilities	197	1,967	47,075,531	$ 460
Wholesale Trade	43	272	8,635,679	$ 611
Retail Trade	135	1,509	32,476,893	$ 414
Transportation and Warehousing	18	184	5,847,601	$ 611
Information	8	66	1,478,557	$ 431
Financial Activities	62	378	12,054,008	$ 613
Professional, Scientific and Tech	92	520	23,894,015	$ 884
Admin & Support & Waste Mgnt. & Remediation Serv.	41	333	6,389,759	$ 369
Educational Services	10	198	5,001,698	$ 486
Health Care and Social Assistance	86	1,098	28,055,227	$ 491
Arts, Entertainment, and Recreation	16	151	2,900,410	$ 369
Accommodation and Food Services	69	1,152	15,243,468	$ 254
Other Services	86	467	10,496,180	$ 432
State Government	9	29	1,047,772	$ 695
Local Government	56	1,677	50,445,104	$ 578

Source: Maine Department of Labor

In terms of occupational wages in Sagadahoc County, the average (mean) wage for all occupational categories was $17.90 per hour, which equates to an annual income of just over $37,000. Chief executives and construction managers had the highest average wages in the county in 2005. These positions had an average wage in excess of $51 per hour, which is equivalent to an average salary of more than $106,000. Legal and management-related positions accounted for the majority of the remaining occupations in the top 15. It is interesting to note that health care professions are not represented in the top 15 occupational wage categories. According to the Maine Department of Labor, health care practitioners and technical occupations had an average wage of $22.41 per hour, or just over $46,000 annually.

Exhibit 28: Top 15 Occupational Wage Categories, Sagadahoc County

Occupation Title	Entry Level	Mean	Median	Experienced
Chief Executives	$35.69	$51.37	$46.96	$59.20
Construction Managers	$47.62	$51.02	$50.98	$52.71
Lawyers	$30.83	$41.22	$42.12	$46.41
Engineering Managers	$29.92	$38.80	$38.36	$43.23
Financial Managers	$26.08	$38.09	$37.61	$44.10
General and Operations Managers	$20.67	$37.76	$35.01	$46.30
Managers, All Other	$24.75	$35.97	$33.16	$41.58
Management Occupations	$21.79	$34.97	$32.43	$41.57
First-Line Supervisors/Managers of Mechanics, Inst	$22.47	$30.72	$30.70	$34.84
First-Line Supervisors/Managers of Non-Retail Sale	$23.42	$30.03	$29.65	$33.33
Architecture and Engineering Occupations	$21.14	$28.17	$26.61	$31.68
Legal Occupations	$16.48	$28.09	$20.81	$33.90
Computer Systems Analysts	$20.14	$27.34	$27.48	$30.94
Cost Estimators	$20.91	$27.28	$26.11	$30.46
Median - All Occupations	**$9.51**	**$17.90**	**$17.86**	**$22.09**

Source: Maine Department of Labor

Many of the lowest paid occupational categories in Sagadahoc County are within the food service industry. As shown in the table below, the four lowest paying occupational categories are in the food service industry, and 10 of the 15 lowest wages groups are food service-related. While gratuities might "justify" occupations such as bartenders, waiters and waitresses being included on the list, it would not affect food preparers, cooks and dishwashers. Other occupational categories which are among the lowest paid are laborers, retail salespersons and health care support occupations.

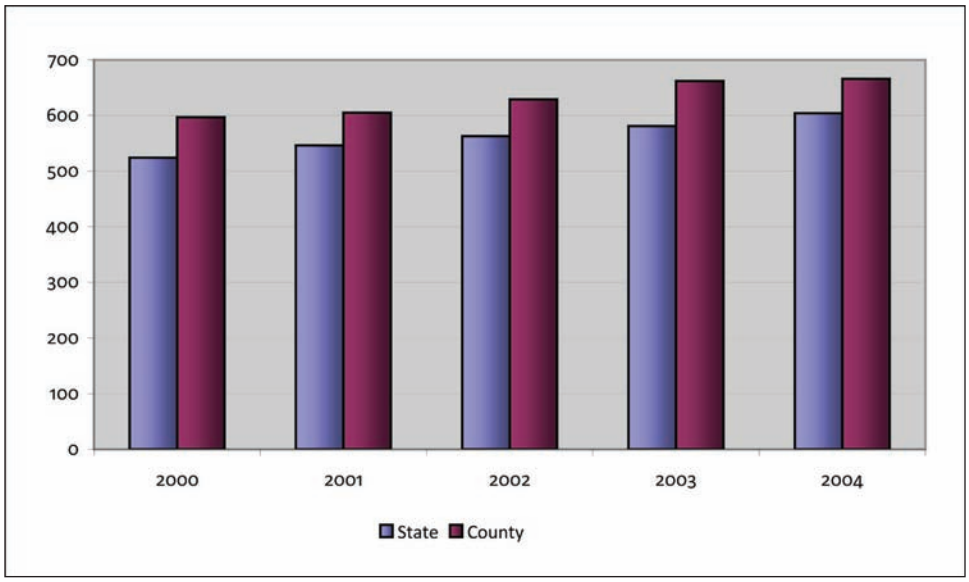
Exhibit 29: Lowest Occupational Wage Categories, Sagadahoc County

Occupation Title	Entry Level	Mean	Median	Experienced
Healthcare Support Occupations	$7.17	$10.12	$10.03	$11.59
Retail Salespersons	$7.48	$9.86	$9.29	$11.05
Laborers and Freight, Stock, and Material	$7.77	$9.76	$9.65	$10.76
Cooks, Short Order	$9.45	$9.64	$9.74	$9.74
Maids and Housekeeping Cleaners	$8.60	$9.41	$9.52	$9.81
Food Preparation Workers	$7.50	$9.08	$8.49	$9.86
Dining Room and Cafeteria Attendants	$6.58	$8.95	$9.00	$10.13
Bartenders	$7.09	$8.89	$7.94	$9.79
Food Preparation and Serving Related	$6.66	$8.67	$8.00	$9.67
Cashiers	$7.51	$8.16	$7.93	$8.49
Packers and Packagers, Hand	$6.60	$7.71	$7.42	$8.27
Waiters and Waitresses	$6.58	$7.53	$6.66	$8.00
Hosts and Hostesses, Restaurant, Lounge,	$6.68	$7.45	$6.94	$7.84
Combined Food Preparation and Serving	$6.59	$7.45	$7.26	$7.88
Dishwashers	$6.60	$7.28	$7.04	$7.62
Median - All Occupations	**$9.51**	**$17.90**	**$17.86**	**$22.09**

Source: Maine Department of Labor

The wages for occupations in these categories are all well below the county wide median. These positions earn between 45 percent and 60 percent less that the county wide median.

Exhibit 30: Trends in Average Weekly Wages, State and Sagadahoc County



Source: JDA

Workforce

In order for the redevelopment of the Topsham Annex to be successful, it will be important for the Reuse Authority to understand the characteristics and availability of the workforce in the region. This section provides an overview of historic trends in the region's workforce, including the size of the labor force, employment trends, unemployment trends and the educational attainment levels of the workforce.

Civilian Labor Force Trends

Between 2000 and 2005, the labor force in the Town of Topsham increased by 3.0 percent, from 4,586 in 2000 to 4,724 in 2005. Over the same period, the Sagadahoc County labor force increased marginally (one-half of one percent), from 18,795 to 18,899.

The state's labor force increased by almost 40,000 between 2000 and 2005. This represents an increase of 5.9 percent, bringing the total labor force to more than 711,000. Between 2000 and 2005, the state's labor force grew much more rapidly than either the county or the town.

Exhibit 31: Labor Force Trends, 2000 to 2005

Town of Topsham

	Labor Force	Employment	Unemployment	Rate
2000	4,586	4,478	108	2.4%
2001	4,541	4,413	128	2.8%
2002	4,540	4,389	151	3.3%
2003	4,581	4,415	166	3.6%
2004	4,737	4,574	163	3.4%
2005	4,724	4,549	175	3.7%

Sagadahoc County

	Labor Force	Employment	Unemployment	Rate
2000	18,795	18,305	490	2.6%
2001	18,500	17,932	568	3.1%
2002	18,311	17,670	641	3.5%
2003	18,582	17,867	715	3.8%
2004	18,874	18,185	689	3.7%
2005	18,899	18,084	815	4.3%

State of Maine

	Labor Force	Employment	Unemployment	Rate
2000	672,440	650,385	22,055	3.3%
2001	675,981	650,699	25,282	3.7%
2002	684,531	654,743	29,788	4.4%
2003	685,115	660,415	24,700	3.6%
2004	699,524	667,212	32,312	4.6%
2005	711,885	677,429	34,456	4.8%

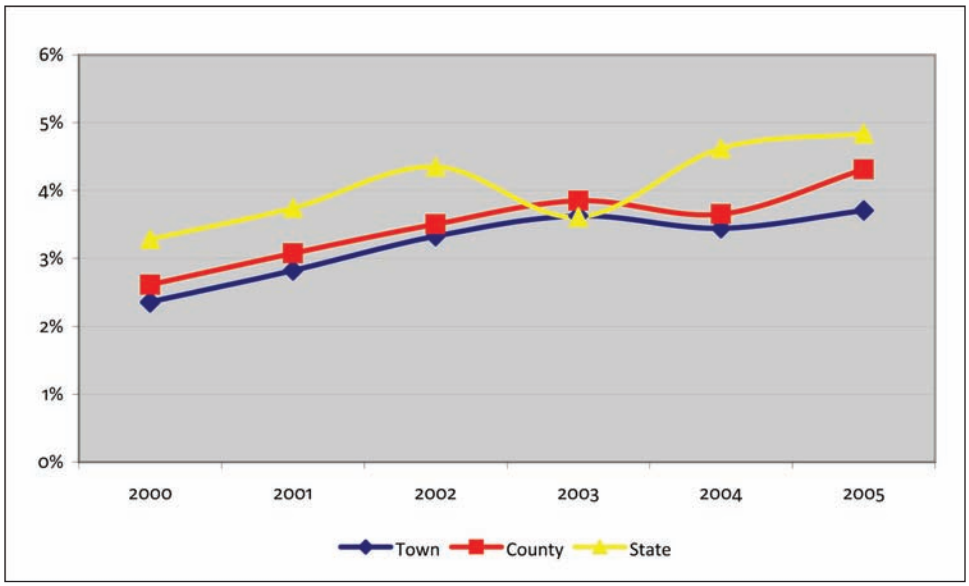
Source: Bureau of Labor Statisti

Employment and Unemployment Trends

The expansion of the labor force has resulted in increases in both the number of employed individuals and the number of unemployed individuals in the state and the town. However, Sagadahoc County actually experienced a reduction in the number of employed individuals between 2000 and 2005. The town experienced a 1.6 percent increase in the number of employed persons between 2000 and 2005, and an increase of 62 percent in the number of unemployed persons. Total employment in the town was 4,549 at the end of 2005, and total unemployment was 175. The county experienced a reduction of 1.2 percent in the number of employed persons and a 66 percent increase in the number of unemployed persons over the same period. Employment in the county was 18,084 in 2005, while the number of unemployed persons was 815. While the state experienced the largest increase in employment (4.2%), the increase in unemployment was below the county and the town, at 56 percent. More than 677,000 people were employed in the state in 2005, as compared to almost 34,500 unemployed.

Unemployment rates generally trended upwards between 2000 and 2005. In general, the unemployment rate in the town has been lower than either the state or the county, typically by almost a full percentage point under the state, and less than one-half of a percentage point under the county. Unemployment rates in 2005 ranged from 3.7 percent in Topsham to 4.8 percent at the state level, with the county at 4.3 percent.

Exhibit 32: Trends in Unemployment Rates, 2000 to 2005



Source: JDA

Education Attainment Levels

A key measure of workforce abilities is the level of educational attainment. The U.S. Census tracks educational attainment for persons age 25 and over. The Table below provides an overview of the educational attainment levels for the State of Maine, Sagadahoc County and the Town of Topsham. All of the geographic regions experienced a reduction in the percentage of the population that had not completed high school. In 1990 the town had by far the smallest percentage, 16.3 percent, while the county had 18.9 percent and the state had over 21 percent. By 2000, the gap had narrowed, and the town had 10.0 percent, the county had 12.0 percent and the state had 14.6 percent. This is considered to be a significant reduction for all regions.

The town also continued to show a substantially higher percentage of college graduates than the county and the state. In fact, the disparity grew from 1990 to 2000. The town had 32.5 percent college graduates in 1990, which had increased to 38.3 percent by 2000. In contrast, the county and state had just 27.8 percent and 25.7 percent respectively in 1990, and 32.9 percent and 30.2 percent respectively in 2000.

Exhibit 33: Educational Attainment, 1990 and 2000

	State		County		Town	
	1990	2000	1990	2000	1990	2000
Less than 9th grade	8.8%	5.4%	6.2%	3.7%	6.7%	3.6%
9th to 12th grade, no diploma	12.4%	9.2%	12.7%	8.3%	7.4%	5.6%
High school graduate (incl. equivalency	37.1%	36.2%	35.3%	35.8%	30.3%	30.1%
Some college, no degree	16.1%	19.0%	18.0%	19.3%	21.7%	20.3%
Associate degree	6.9%	7.3%	6.2%	7.9%	7.9%	7.5%
Bachelor's degree	12.7%	14.9%	15.4%	16.4%	20.3%	22.7%
Graduate or professional degree	6.1%	7.9%	6.1%	8.6%	5.7%	10.1%
College Degrees	**25.7%**	**30.2%**	**27.8%**	**32.9%**	**33.9%**	**40.4%**

Source: U.S.Census

When those holding bachelor's, graduate or professional degrees are considered, the difference is similar. The town had 24.7 percent of its population holding at least a Bachelor's degree or higher in 1990, which increased to 29.6 percent by 2000. The county had 21.5 percent of its population holding bachelor's degrees or higher in 1990, which increased to 25.0 percent in 2000. The state lagged both the town and county, with just 18.8 percent holding a Bachelor's degree or higher in 1990, which increased to 22.8 percent in 2000.

Occupational Outlook

In April of 2006, the Maine Department of Labor prepared the *Skills Transferability Analysis and Occupational Profiles for Brunswick Naval Air Station*. The report was prepared under the direction of Gerard Dennison, Director of Regional Workforce Analysis, and Glenn Mills, Senior Economic Research Analyst. The assessment was intended to assist workers at the Naval Air Station in evaluating their skills, and understanding how their skills relate to other industries in the region. The assessment indicates:

> *According to our "Maine Employment Outlook Projections to 2012," employment is expected to grow by 10.3 percent between 2002 and 2012. The projections for the Base Economic Impact Area are more promising. The forecast for Coastal Maine (Sagadahoc, Lincoln, Knox, & Waldo Counties) call for an employment increase of 10,873 and a growth rate of 17.2 percent. The forecasted growth rate for Southern Maine (Cumberland & York Counties) is projected to be 15.0 percent with an employment increase of 38,932 between 2002 and 2012. It should be noted that these projections were developed before the announced closing of BNAS.*
>
> *The good news is 36 of the largest 41 employing occupations have positive employment forecasts through 2012. Of the 41 largest occupations, 25 are projected to grow by at least 11 percent.*

Fastest growing occupations are amusement and recreation attendants (34.1 percent); police and sheriff's patrol officers (33.2 percent); firefighters (29.6 percent); environmental science and protection technicians, including health (29.5 percent); recreation workers (27.3 percent); and business operations specialists, all other (26.8 percent). Following are computer systems analysts (21.7 percent); first-line supervisors / managers of police and detectives (21.3 percent); combined food preparation and serving workers, including fast food (21.2 percent); and hotel, motel, and resort desk clerks (19.8 per-cent).

The most job growth is forecasted for cashiers (2,401); combined food preparation and serving workers, including fast food (2,274); and general operations managers (1,630). The next best forecasts are for retail salespersons (1,489); first-line supervisors / managers of retail sales workers (1,431); janitors and custodial workers (1,239); child care workers (1,188); and maids and housekeeping cleaners (1,077).

Five occupations are expected to experience job losses through 2012. These occupations are word processors and typists (-701); stock clerks and freight stock material movers, hand (-436); laborers and freight stock and material movers, hand (-346); butchers and meat cutters (-21); and industrial truck and tractor operators (-19).

As indicated above, while many of the strongest job growth categories (in percentage terms) are consistent with uses desired for the Annex, such as technical, business operations analysts and systems analysts, the job categories with the highest projected growth in absolute terms are mostly related to the food service and retail industries. These are labor market sectors which the community has indicated are not desirable for the Annex site.

Real Estate Market Analysis

The redevelopment of the Topsham Annex will, to some extent, compete within the regional real estate market. The redevelopment will compete for potential users from a variety of commercial, industrial and residential sectors. However, because of the generally small size of the property available for redevelopment, as well as the complexities associated with the existing housing on the site, the Annex property will compete with other small-scale development sites in the local market.

This chapter provides overview information on the various sectors of the real estate market. Data is presented for the Topsham and Brunswick areas as appropriate and available. The residential housing market is reviewed, as well as retail, office and industrial / warehouse.

Summary of Major Findings and Conclusions

Residential Real Estate

The Topsham housing market is considered to be relatively affordable. A review of data from the Multiple Listing Service (MLS) indicates that the average price for a home in Topsham was just over $215,000 in 2006. In comparison, the average price of a single family home in Brunswick was more than $268,000 in 2006. The median price in Topsham was $209,000 in 2006, as compared to $244,450 in Brunswick. Since 2000, the median price in Brunswick has been between 15 percent and 22 percent higher than the Topsham median. Between 2000 and 2006, the median price in Topsham increased by 54 percent, while the Brunswick median increased by 57 percent.

Sales volumes in Brunswick have been at least double the number of sales in Topsham in each of the last four years. Homes in Topsham appear to sell more rapidly than homes in Brunswick - the average number of days to sell a home in Topsham was significantly less than the Days on Market (DOM) in Brunswick from 2001 through 2005.

In terms of building permit activity, Topsham has been experiencing a "building boom" over the past several years. According to information provided by the town, more than 360 single-family homes have been permitted since 2002. This represents a substantial increase (10%) over the 3,624 housing units that the town had at the time of the 2000 Census.

According to the U.S. Census, the median gross rent in Topsham in 1990 was $498 per month. By 2000, the median had increased to $551 per month. This increase equates to an increase of 10.6 percent, well below the rate of inflation (approximately 31%) over the period.

Industrial / Warehouse Activity

Although the Town of Topsham experienced growth in jobs in the industrial and warehousing sector between 2001 and 2005, the majority of this growth was housed in existing real estate, as there has been minimal construction of new industrial and/or warehouse facilities in the past five years. Published rental rates for industrial and warehouse properties are typically in the range of $3.00 to $4.00 per square foot per year for the larger market, though no available properties were identified in Topsham.

Retail Real Estate

The retail market in Topsham has been growing dramatically over the past several years. The community's excellent access and visibility off I-295 has led to significant new construction of retail and food-service properties. According to data from the Topsham Assessor's office, land values in proximity to I-295 for retail and commercial development have gotten as high as $500,000 per acre.

The Town of Topsham has become a major retailing center beyond the boundaries of the community. According to data from Claritas, the town had estimated consumer demand from residents of $111 million in 2005, but that total retail sales for the community were $149 million, indicating that the region "imported" more than $38 million in retail sales dollars in 2005.

Office Market

The Topsham office market has seen some significant activity in the past several years. Two major projects in the community's Lower Village area have added significant new supply to the local office market, including the Border Trust Business Center and the Red Mill. In addition to these facilities, a local developer is also expected to construct a 15,000 square foot medical office building as a build-to-suit project.

With the exception of the Red Mill property, there does not appear to be any speculative office development in Topsham. Local developers and real estate professionals attribute this to a combination of factors, including concern over the closure of the Brunswick Naval Air Station, and the large size of the Red Mill in the context of the Topsham market, which may require an extended lease-up period.

Implications for the Topsham Annex

The site is considered a viable location for residential uses. Portions of the property have historically been used for residential purposes, and the location between the middle school and high school is considered to be conducive to residential development. The primary issue is whether the existing structures can be rehabilitated and reused, or whether the costs of renovation and upgrade are beyond the ability of a developer to earn a reasonable return. However, the related issue of the costs associated with demolition of the remaining structures and infrastructure in order to create a development site must be considered in evaluating residential reuse for all or a portion of the site.

The property could have appeal as an industrial site, due to the limited amount of industrially zoned land in the community. However, use of all or a portion of the Annex site for industrial uses could be difficult in terms of the interaction between truck traffic and existing educational uses. In addition, the costs of converting the site from its existing uses to industrial uses could be a financial concern, in terms of the relative land costs.

The property could also have appeal as a retail site, particularly if the existing residential component was eliminated, and the property was redeveloped as a mixed-use, lifestyle-type center. However, the property has limited visibility, and access is considered marginal in terms of retail development.

The property could also support office-related development. Assuming the entire site was developed for office uses, as much as 400,000 square feet of office space could be developed on the 74-acre site. Office use for the entire site would require a significant upgrade in access to the property. Further, traffic interaction with existing educational uses would continue to be a concern relative to intensive development of the property.

Real Estate Market Conditions

The Topsham and Brunswick areas have an active real estate market. In particular, the Town of Topsham has seen significant recent growth in terms of retail development, with some additional office development, primarily related to financial services uses. This section provides overview information regarding key sectors of the real estate market in the region.

Single-Family and Multi-Family Residential

The Topsham housing market is considered to be relatively affordable. A review of data from the Multiple Listing Service (MLS) indicates that the average price for a home in Topsham was just over $215,000 in 2006. In comparison, the average price of a single family home in Brunswick was more than $268,000 in 2006. The median price in Topsham was $209,000 in 2006, as compared to $244,450 in Brunswick. Since 2000, the median price in Brunswick has been between 15 percent and 22 percent higher than the Topsham median. While specific data is not available, this is believed to be related to a more active new construction market in Brunswick than in Topsham.

Exhibit 34: Home Sales Statistics for Topsham and Brunswick below provides an overview of the number of sales, median price, average price and DOM for Topsham and Brunswick since 2006. As shown in the table, the average and median prices for single family homes have increased steadily since 2000 in both Topsham and Brunswick. Between 2000 and 2006, the median price in Topsham increased by 54 percent, while the Brunswick median increased by 57 percent.

Exhibit 34: Home Sales Statistics for Topsham and Brunswick

Topsham Single Family

	Units Sold	Median Price	Average Price	Median DOM
2000	92	$ 135,500	$ 139,302	51
2001	76	$ 139,000	$ 147,471	28
2002	81	$ 150,000	$ 159,974	27
2003	91	$ 165,000	$ 175,008	25
2004	92	$ 192,000	$ 207,803	28
2005	92	$ 201,500	$ 214,609	44
2006	94	$ 209,000	$ 215,428	66

As part of this analysis, current listings in the MLS for Topsham were reviewed. The MLS indicates that 46 homes are presently available in Topsham. Asking prices range from a low of $85,000 to a high of $985,000. The average current listing price is $310,550, and the median asking price is $275,000. (Exhibit 34 continues in the table below).

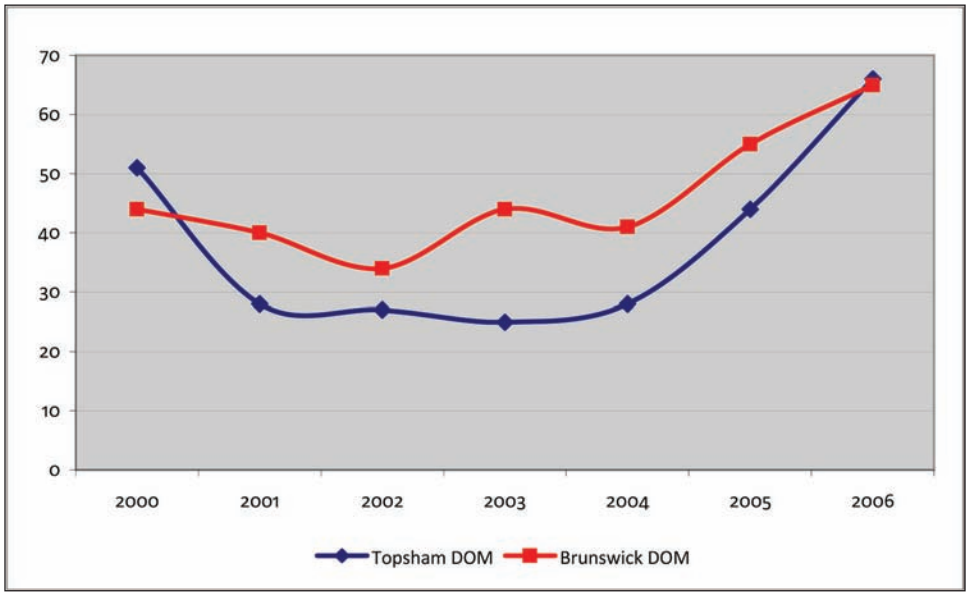
Brunswick Single Family

	Units Sold	Median Price	Average Price	Median DOM
2000	157	$ 156,000	$ 192,855	44
2001	152	$ 161,750	$ 179,482	40
2002	151	$ 182,000	$ 192,795	34
2003	183	$ 210,000	$ 226,874	44
2004	206	$ 235,750	$ 261,751	41
2005	211	$ 253,000	$ 266,922	55
2006	188	$ 244,450	$ 268,467	65

Source: Multiple Listing Service

Sales volumes in Brunswick have been at least double the number of sales in Topsham in each of the last four years. As can be seen below in **Exhibit 35: Days on the Market for Single Family Homes in Topsham and Brunswick**, it is also interesting to note that homes in Topsham appear to sell more rapidly than homes in Brunswick. Although the DOM was similar for each community in 2006, the DOM in Topsham was significantly less than DOM in Brunswick from 2001 through 2005.

Exhibit 35: Days on the Market for Single Family Homes in Topsham and Brunswick



Source: JDA

In general, condominium units appear to sell even faster than single family homes in both Brunswick and Topsham. In Topsham, condominiums sell roughly one week faster than single family homes. In Brunswick, the difference is more pronounced – condominiums sell in approximately half the time it takes to sell a single family home.

While the number of sales in Topsham has been somewhat stable (generally between 16 and 21 units annually), the number of sales in Brunswick has increased dramatically in the past three to four years. **Exhibit 36: Condominium Activity in Topsham and Brunswick**, below, details condominium sales in the Brunswick / Topsham area.

Exhibit 36: Condominium Activity in Topsham and Brunswick

Topsham Condominiums

	Units Sold	Median Price	Average Price	Median DOM
2000	10	$ 73,500	$ 82,062	41
2001	19	$ 79,900	$ 115,999	64
2002	16	$ 157,885	$ 143,314	7
2003	19	$ 98,000	$ 124,118	22
2004	16	$ 162,950	$ 162,484	21
2005	17	$ 158,900	$ 167,882	23
2006	21	$ 134,000	$ 165,874	44

Brunswick Condominiums

	Units Sold	Median Price	Average Price	Median DOM
2000	18	$ 135,000	$ 133,389	38
2001	19	$ 110,100	$ 124,363	27
2002	22	$ 122,500	$ 134,752	15
2003	36	$ 162,950	$ 181,167	9
2004	47	$ 219,745	$ 220,188	9
2005	46	$ 242,500	$ 252,813	23
2006	60	$ 208,700	$ 228,187	35

Source: Multiple Listing Servi

In terms of building permit activity, Topsham has been experiencing a "building boom" over the past several years. According to information provided by the town, more than 360 single-family homes have been permitted since 2002. This represents a substantial increase (10%) over the 3,264 housing units that the town had at the time of the 2000 Census. This indicates an average rate of expansion of almost 3 percent per year for single family homes.

While specific information is not available regarding the number of homes constructed in multi-unit buildings, it is believed that the town has been adding approximately 80 housing units annually. **Exhibit 37: Building Permit Activity** shows this construction information.

Exhibit 37: Building Permit Activity, 2001 to 2005

	Single Family		Mobile Home		Duplex		Multi-unit		Commercial	
	#	Value	#	Value	#	Value	#	Value	#	Value
2002	40	$ 7,389,900	12	$ 640,000					1	$ 700,000
2003	80	$ 23,863,278	8	$ 491,400	4	$ 630,000	2	$ 496,000	4	$ 2,504,000
2004	87	$ 19,596,083	20	$ 937,793	1	$ 286,000	4	$ 395,000	8	$ 1,178,200
2005	93	$ 23,502,587	4	$ 88,000	1	$ 95,000	1	$ 95,000	14	$ 10,628,248
2006	62	$ 14,148,376	13	$ 415,925	4	$ 480,000			13	$ 24,068,000
Total	362	$ 88,500,224	57	$ 2,573,118	10	$ 1,491,000	7	$ 986,000	40	$ 39,078,448

Source: Town of Topsham

According to the U.S. Census, the median gross rent in Topsham in 1990 was $498 per month. By 2000, the median had increased to $551 per month. This increase of $53 per month equates to an increase of 10.6 percent, well below the rate of inflation (approximately 31%) over the period. Rent levels in the county are higher than in the Town of Topsham. As shown in the accompanying figure, **Exhibit 38: Median Rent Levels**, according to the Census, rents in Sagadahoc County were $539 in 1990, and increased by 18 percent to $636 in 2000. Despite this increase in median rent, the rate of growth lagged the rate of inflation, indicating that property owners were not making real gains in rent levels.

Exhibit 38: Median Rent Levels

	Town	County
1990	$498	$539
2000	$551	$636
Change	$53	$97
% Change	10.60%	18.00%

Source: US Census

Industrial / Warehouse

Although the Town of Topsham experienced growth in jobs in the industrial and warehousing sector between 2001 and 2005, the majority of this growth was housed in existing real estate. Although the goods-producing sector experienced an increase of 68 jobs between 2001 and 2005, these gains were partially offset by job losses (29) in the wholesale trade and distribution category. It is anticipated that many of these jobs were accommodated in existing space, as there has been minimal construction of new industrial and/or warehouse facilities in the past five years.

Occupancy of the available space in the market seems good, as no significant vacancy was identified during visits to the community. Published rental rates for industrial and warehouse properties are typically in the range of $3.00 to $4.00 per square foot per year for the larger market, though no available properties were identified in Topsham. This equates to an approximate sale value of $30 to $40 per square foot.

There has not been any new construction of warehouse or industrial-type facilities in Topsham in recent years. This is due, in part, to a limited supply or industrially zoned land in the community. However, some existing industrial users have indicated a desire to expand their existing operations.

Retail

The retail market in Topsham has been growing dramatically over the past several years. The community's excellent access and visibility off I-295 has led to significant new construction of retail and food-service properties. According to data from the Topsham Assessor's office, land values in proximity to I-295 for retail and commercial development have gotten as high as $500,000 per acre. Though this value is considered "high" for the market, there have been transactions in the range of $275,000 to $375,000 per acre for retail development sites.

Sagadahoc County has seen strong growth in retail sales in recent years. According to data from the Maine State Planning Office, retail sales in Sagadahoc County increased by more than 42 percent between 2000 and 2006. Retail sales were estimated to be more than $260 million in 2006, as compared to $184 million in 2000. This is a result of significant expansion of the retail base over the past several years, particularly "big-box retailers," which have spurred large-scale development particularly along the Interstate 295 corridor. Major new developments have added an estimated 1.5 to 2 million square feet to the retail market over the past six years.

The Town of Topsham has become a major retailing center beyond the boundaries of the community. According to data from Claritas, the town had estimated consumer demand from residents of $111 million in 2005. However, Claritas estimates that total retail sales for the community were $149 million, indicating that the region "imported" more than $38 million in retail sales dollars in 2005. For a breakdown of this data by retail sector, refer to **Exhibit 39: Retail Gap Analysis**.

Exhibit 39: Retail Gap Analysis, Topsham, Maine

Retail Stores	Demand (Consumer Expenditures	Supply (Retail Sales)	Opportunity Gap/Surplus
Total Retail Sales Incl Eating and Drinking Places	**111,318,781**	**148,898,415**	**(37,579,634)**
Motor Vehicle and Parts Dealers-441	23,930,595	38,558,635	(14,628,040)
Furniture and Home Furnishings Stores-442	2,791,106	1,867,769	923,337
Electronics and Appliance Stores-443	2,579,924	1,279,889	1,300,035
Building Material, Garden Equip Stores -444	11,853,994	7,157,675	4,696,319
Food and Beverage Stores-445	13,113,692	31,722,874	(18,609,182)
Health and Personal Care Stores-446	4,696,472	2,771,940	1,924,532
Gasoline Stations-447	11,710,809	33,468,647	(21,757,838)
Clothing and Clothing Accessories Stores-448	5,128,442	23,428	5,105,014
Sporting Goods, Hobby, Book, Music Stores-451	2,183,619	2,694,078	(510,459)
General Merchandise Stores-452	13,565,687	1,679,302	11,886,385
Miscellaneous Store Retailers-453	2,955,255	2,709,143	246,112
Non-Store Retailers-454	7,734,459	9,567,324	(1,832,865)

Source: Claritas, Inc.

The area's strong performance as a retail location has resulted in significant new development in the region, including Home Depot, Target, and Best Buy in Topsham, and others such as Lowe's and Super Wal-Mart in Brunswick. It is interesting to note that the table above indicates that some retailing categories are still "under-served" locally, including electronics, home furnishings, clothing and general merchandise, as well as building materials and health / personal care stores. Since the sales estimates are for 2005, they likely do not reflect some of the recently completed new development in Topsham.

Office

The Topsham office market has seen some significant activity in the past several years. Two major projects in the community's Lower Village area have added significant new supply to the local office market. These new facilities are considered to be good to excellent in terms of quality, and consistent with the existing properties in the Lower Village in terms of their architecture.

First, the Border Trust Business Center was developed. The facility is a two-story office building, which includes a bank and conference facilities on the ground floor, and a group of office suites on the upper floor. The building, which is reportedly 10,000 square feet in size, provides shared office services for its tenants, including telephone services, receptionist services, conference spaces and kitchen facilities. Tenants pay between $1,500 and $1,800 monthly for use of a private office and other amenities of the Center.

In addition, the town has recently seen the development of a new 35,000 square foot office building along the riverfront. The property, known as the Red Mill, is a four-story brick office building, designed to emulate older mill-style buildings, which are prevalent in riverfront areas throughout New England. The property has a reported asking price of $17 to $22 per square foot on a triple net basis. The facility is in the initial stages of its marketing. At full occupancy, the Red Mill could house between 100 and 150 employees.

In addition to these facilities, a local developer is also expected to construct a 15,000 square foot medical office building as a build-to-suit project. The facility will be located west of Main Street, in proximity to the Tim Horton's Restaurant property. The reported lease rate for this property is in the range of $18 to $22 per square foot on a triple net basis.

With the exception of the Red Mill property, there does not appear to be any speculative office development in Topsham. Local developers and real estate professionals attribute this to a combination of factors, including concern over the closure of the Brunswick Naval Air Station, and the large size of the Red Mill in the context of the Topsham market, which may require an extended lease-up period.

Implications for the Topsham Annex

The existing market conditions described in this chapter have implications for the redevelopment of the Topsham Annex. Specific issues for the TLRA's consideration include the following:

- The site is considered a viable location for residential uses. Portions of the property have historically been used for military residential purposes, and the location between the middle school and high school is considered to be conducive to residential development. The primary issue is whether the existing structures can be rehabilitated and reused, or whether the costs of renovation and upgrade are beyond the ability of a developer to earn a reasonable return. However, the related issue of the costs associated with demolition of the remaining structures and infrastructure in order to create an economically viable development site must be considered in evaluating residential reuse for all or a portion of the site.
- The property could have appeal as a light industrial site, due to the limited amount of industrially zoned land in the community. It is estimated that the town has less than 310 acres of industrial land in total, and that the industrially zoned land is essentially built-out. However, use of all or a portion of the Annex site for industrial uses could be difficult in terms of the interaction between truck traffic and existing educational uses. In addition, the costs of converting the site from its existing uses to industrial uses would likely be too costly, in terms of the relative land costs. Typically, industrial land costs are at the lower end of the value range, due to the limited value of many industrial facilities.

- The property could also have appeal as a retail site, particularly if the existing residential component was eliminated, and the property was redeveloped as a mixed-use, lifestyle-type center. However, the property has no visibility from Main Street, and access is considered marginal in terms of retail development. In particular, the property is located a significant distance from I-295. Further, the creation of a retail and/or mixed-use center on the Annex site would create significant traffic issues, and the interaction between retail traffic and existing education traffic could be difficult to resolve.
- The property could also support office-related development. Assuming the entire site was developed for office uses, as much as 400,000 square feet of office space could be developed on the 74-acre site. However, this level of development would generate as many as 2,000 employees on-site, which is considered to be beyond what the roadway system in the area could reasonably support. To put this level of office development in perspective, 2,000 employees is approximately equal to the level of employment in Topsham (2005) in the financial services, professional / business services, education services, health care services and leisure / hospitality sectors combined. In essence, Topsham's employment base in these industries would have to double to support this level of development. In addition, the development would have to recognize existing competitive office projects (Red Mill), and the impact that existing office space could have on absorption.
- Office use for the entire site would require a significant upgrade in access to the property. Further, traffic interaction with existing educational uses would continue to be a concern relative to intensive development of the property. If the office-related development was confined to the 14-acre "military triangle" site, as much as 60,000 square feet of office space could be supported. This almost twice as big as the Red Mill development, and could require substantial marketing time to achieve the necessary absorption to justify development of the project.

Community Planning Issues and Influences

Land Use and Zoning

The existing land uses in the area around Topsham Annex and its surrounding areas have been derived, for the purposes of the Topsham Annex Reuse Master Plan, from the zoning districts classified in the "Zoning Ordinance of the Town of Topsham" and its associated "Town of Topsham Zoning Map." This section looks at the current land uses and zoning areas and their potential influences on future redevelopment of the Annex.

The Town of Topsham's zoning is divided into four categories: village, mixed-use, commercial, and residential. The division of the zoning districts into these groups provides a framework for the overall layout of the town that is based on both the underlying character and predominant land uses. The Topsham Annex is located in the "Upper Village" zone which is part of the three village zones that make up the core of the Topsham along Main Street (Route 201) – excluding the southern portion of the Route 196 / Route 201 interchange which is part of the commercial corridor. The overall goal of the village zones is to provide, enhance, and maintain a dense, mixed-use pedestrian-scaled village "feel" that incorporates a mix of housing types, small retail establishments, and strict parking, design and landscaping guidelines. **Exhibit 40: Land Use / Zoning Map** outlines the location of the zoning districts and their relationship to the Annex.

Surrounding Land Uses and Zoning

The Annex lies within the part of Topsham that is designated as a growth area. The Annex and the majority of adjacent land to the north and south of the complex are included in Upper Village Zone, whose character is designed to mirror the uses and densities of the Lower and Middle Villages. Currently, this area is sparsely developed with the majority of homes and development clustered along Main Street. Nestled within this zone is an urban residential enclave that is indicative of the type of continued residential development the town would like to see in and around the Annex. The area to the east of the Annex is predominantly rural in character with only a few housing developments and limited access points from Route 196. Development in this area is designed to protect the rural nature of the area, while promoting mixed-use residential and commercial developments. The major development in this area is Highland Green, an expansion of Highlands North retirement community located south of Route 196 in downtown Topsham.

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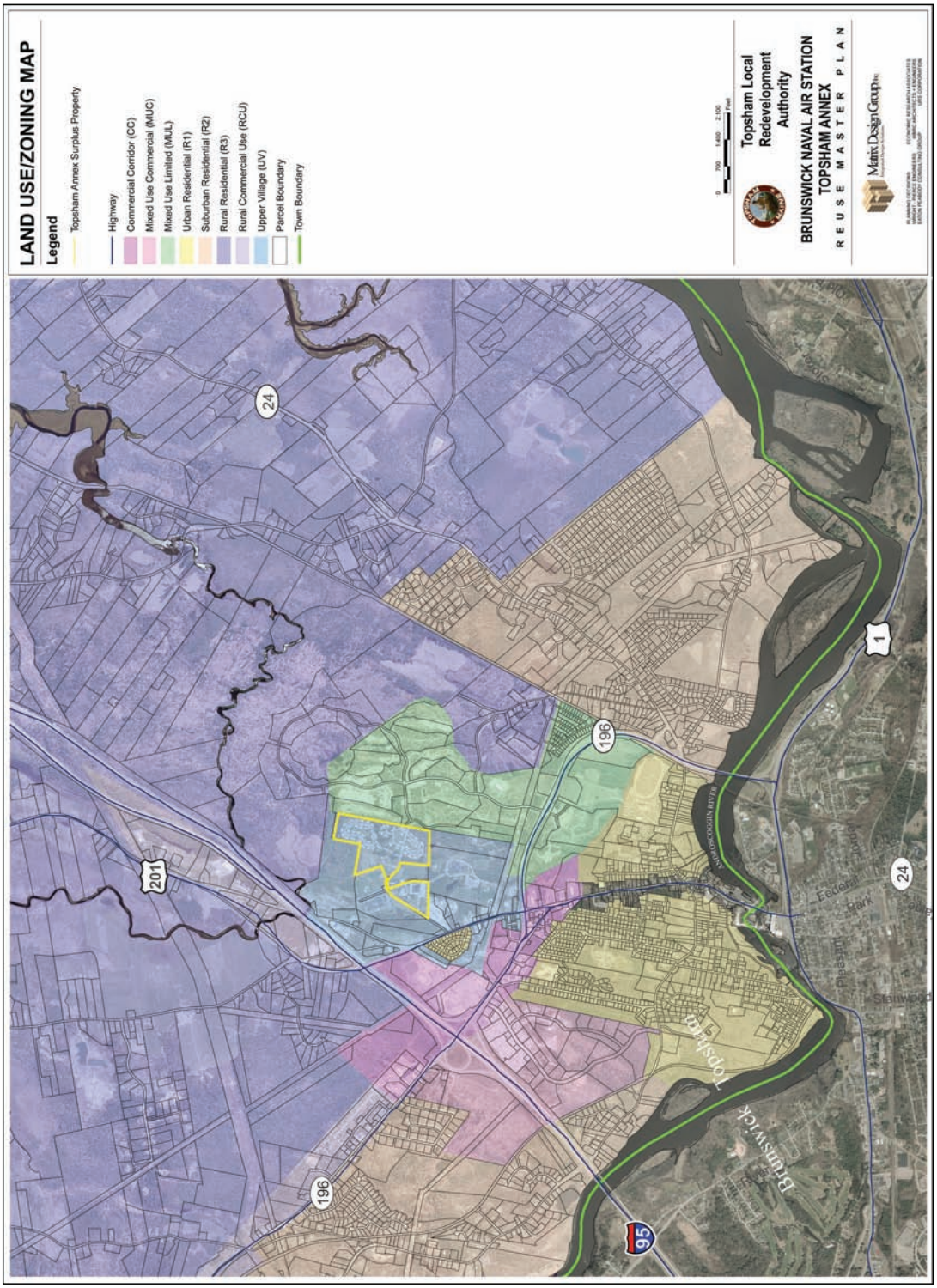
Exhibit 40: Land Use / Zoning Map



Souce: Matrix Design Group

The land to the northeast and northwest of the Annex is rural in character. Development is sporadic and predominantly clustered along major travel corridors, though some limited subdivision development can be found as well. The zones in this area promote low-density development with the intention of preserving valuable open space such as agricultural and forest lands, recreation lands and viewsheds. Where commercial development does occur, the goal is to limit its visual impact by providing high levels of screening from roadways and limited signage and lighting.

To the west and south of the Annex lies the commercial corridor of Topsham. This area transitions into larger scale retail and commercial activity, including the Topsham Fair Mall located along the I-295 / Route 196 interchange, and the smaller scale commercial developments of the village and mixed-use areas. Industrial businesses are located adjacent to the annex on its southern boundary, as well as along the south side of Main Street, a portion of which extends to Route 196. Architectural and landscape design guidelines in this area focus on the establishment of a tree-lined, higher-quality development area, intended to blend in with the style of the historic village, and promote the overall image of the town.

Transportation and Infrastructure Issues and Influences

Direct, safe, and convenient vehicular access, along with reliable utility infrastructure services are requirements for the efficient operation of any military installation, regardless of property location or size. The successful redevelopment of the 74-acre Topsham Annex, as with any other large-scale private-sector development will require that same (or expanded) level of transportation and utility infrastructure to meet future non-military uses, as well as potential increased growth and redevelopment needs of the Topsham community. This section, therefore, summarizes the existing transportation and utility infrastructure systems that could influence, or be influenced by redevelopment of the Topsham Annex.

Transportation Systems

From a regional geographic perspective, Topsham Annex is located approximately 130 miles north Boston, MA; midway between Portland, the state's largest metropolitan area, and Augusta, Maine's capital; Bangor is located approximately 100 miles to the north. The 95 / 295 Interstate Highway system connects the Annex to all of these urbanized areas, and the Annex falls within proximity of several major state, regional, and community arterials that serve the region, including:

- U.S. Route 1, which serves the towns of Brunswick, and Bath, and communities north along the coast
- I – 295 / Highway 196 Coastal Connector, which connects U.S. Route 1 with Interstate 295 through the Town of Topsham

- U.S. Route 201, which serves as Main Street in Topsham and provides a direct link to the outlying communities to the north

As part of the Matrix Planning Team's assessment of local and regional transportation systems, a review of traffic issues associated with the current operation of the Topsham Annex was conducted. The review included an assessment of traffic volumes with respect to the capacities of key intersections and trends in area land use that can be expected to impact level of service on the adjacent roadway network, as well as discussion of certain elements that may be implemented to mitigate congestion within the area. Of significant value is a comprehensive transportation plan prepared by Gorrill Palmer Consulting Engineers for the Town of Topsham and dated August 2005.

As illustrated on **Exhibit 41: Transportation Map**, the most direct access to the Topsham Annex property is via U.S. Highway 201 (Main Street) to State Route 196 (the Coastal Connector) which provides direct connections to both Interstate Route 295 to the west and U.S. Route 1 to the east.

Local and community access to the Annex is provided from both Route 201 and Route 196. Route 201 is Topsham's Main Street and a primary artery through the village area and across the Androscoggin River to the Town of Brunswick. To the north, Route 201 connects to the adjacent community of Bowdoin. The Topsham Annex presently has two points of public vehicular access, and a third is under consideration (through the adjacent Highlands development). The primary access road, however, is via Route 201 and is shared with Mount Ararat Middle School (serving 6th, 7th and 8th graders from Topsham as well as the neighboring towns of Bowdoin, Bowdoinham and Harpswell). A secondary access is also located on Route 201, at the access drive to the Mount Ararat High School. In general, recent trends indicate continued growth in traffic on Route 201. Because the intersection of Route 201 with Route 196 appears to be at or near capacity, the town has been reviewing mechanisms to address congestion (particularly that tied to school-related traffic).

The 2005 Transportation Plan includes capacity analyses for a number of major intersections in the vicinity of the project, with traffic volumes adjusted to 2009. Of particular note are the analyses associated with the intersection of Route 196 and Main Street, Eagles Way and Main Street and Can Am Drive & Main Street. All intersections include one or more movements operating at level of service (LOS) F under the 2009 peak hour conditions.

Exhibit 41: Transportation Map

Source: Matrix Design Group

Potential Community / Regional Transportation Improvements

In addition to providing a summary of intersection level of service under existing conditions, the *2005 Transportation Plan* includes discussion of a number of transportation system improvements, aimed at mitigation of delay and other capacity-related operational problems. The mitigation projects identified in the report include:

- Route 196 and Main Street: Increased length of stacking lanes, adjustment of signal timing, improved pavement markings
- Eagles Way and Main Street: Adjust Eagles Way to a one way street (entering only)
- Can Am Drive and Main Street: Install a traffic signal and separate right and left turn lanes
- Connection of Can Am Drive through to the Highlands
- In addition to these potential projects, a connector road from Eagles Way to Village Drive could reduce traffic congestion by allowing traffic from Mount Ararat High School to enter the Coastal Connector in an easterly direction from this location (reducing left turns from Main Street onto the Coastal Connector, particularly during the afternoon peak hour)

Rail Service

Rail access does not presently exist in close proximity to the Topsham Annex. While the Maine Department of Transportation has made significant investment in the rehabilitation of area rail infrastructure (primarily ties and ballast) over the past several years, it is unlikely that rail service could be provided to the site in a cost-effective fashion.

Natural and Cultural Resources

Natural and cultural resources within the Town of Topsham and adjacent to the Topsham Annex are of a tremendous asset to the community. The town is home to numerous ecosystems, wildlife habitats, wetlands, and other natural resources which are protected by the state and the community and influence the location, type, and intensity of future development. In addition, Topsham is an historic New England community with a variety of significant historic, archeological, and cultural sites that also influence the type and location of development in the community. This section reviews some of the important natural and cultural resources found within the area.

Natural Features and Habitats

There are a number of significant natural habitats in the Town of Topsham including wetlands, Maine Threatened or Endangered Species, and Undeveloped Blocks. The following is brief synopsis of these features and habitats as they relate to the Topsham Annex.

Wetlands

A number of significant wetlands and vernal pools can be found throughout the Town of Topsham, adjacent to the Topsham Annex property. Information about the location and extent of these natural resources was obtained from the Town of Topsham, and the State of Maine. The map provided shows all wetlands surrounding the annex that have been mapped by the National Wetlands Inventory (NWI) and provided for this project by the Maine Office of Geographic Information Systems (M-OGIS).

The Topsham Annex is located near the Cathance River which runs near the northern border of the property. This river is part of the larger state-significant Cathance corridor wetland which includes a large wetlands complex that extends west from the Route 201 corridor to Meadow Cross Road and includes Bradley Pond. Though no state designated significant wetlands are located within or surrounding the Annex, there are a number of smaller wetlands as shown on **Exhibit 42: Natural Resources**.

State of Maine Threatened or Endangered Species

The Maine Natural Areas Program has listed a number of plant and animal species in and around the Town of Topsham and the Topsham Annex that are considered threatened or endangered in the state. To the east of the Topsham Annex in the Highlands Green development there are inland waterfowl and wading bird habitats. Other areas of significance near the site include an additional waterfowl habitat along the Cathance River the northwest of the site.

Undeveloped Blocks

Large and small undeveloped blocks of land in Topsham provide continuous habitat areas for both large and small animal habitats. They provide areas of for wildlife corridors as well as home ranges for animals such as bear, fisher, moose, deer, as well as raccoons, skunks, squirrels and songbirds. To the east and north of the Topsham Annex lies a significant series of undeveloped blocks that reaches to the northern boundary of the town. In addition to being home to wildlife populations the area also includes significant undisturbed grasslands and upland forest areas.

Exhibit 42: Natural Resources

Source: Matrix Design Group

On-Base Conditions and Characteristics

Cultural Resources

Along with the natural resources presented above, there are some cultural resources in the vicinity of the Topsham Annex. Of particular interest is the heath located to the east of the annex in the Highland Green Development Area. As the Annex is in a mainly rural part of town few other significant archeological or historic sites are adjacent to the property.

Within the overall 74-acre Topsham Annex property, a variety of conditions and characteristics exist that could influence or impact the ultimate successful transfer and redevelopment of the property. Understanding the characteristics of these conditions, and how to capitalize on existing assets and mitigate existing liabilities is critical to developing a reuse plan and implementation strategy that has long-term potential for success. The following section describes a variety of on-base conditions and characteristics that provide a basic level of information required to prepare conceptual master plan alternatives for the facility. The ultimate redevelopment and detailed implementation of the approved master plan will require more in-depth investigation and analysis.

Land Use Patterns

General land use on Topsham Annex property consists of two primary types: office / mixed-use, and residential. The residential portion occupies the eastern three-quarters of the Annex and consists of the GMH privatized housing area previously described. Included in this housing area is open space / park land that includes two tennis courts and a playground. The office / mixed-use area is located on the western one-quarter of the Annex where the existing military uses are found. Several of the eleven buildings and structures provide office functions, with the rest consisting of the retail commissary and various maintenance, storage, and utility uses.

Utility Infrastructure Systems

General conditions and characteristics of infrastructure systems that serve the Topsham Annex property are described below for stormwater, sanitary sewer, water supply, natural gas, electrical power supply and distribution, and telecommunication systems. As the redevelopment effort progresses, additional inventories and assessments will be necessary to establish the extent to which these systems will need to be improved, expanded and/or extended to better meet reuse needs on the property.

Review of the utility infrastructure systems considered not only historical and existing conditions, but also future needs related to the potential redevelopment of the Topsham Annex. The existing infrastructure on the Annex property, with the exception of natural gas was developed, maintained, and operated by the Navy. Based on review of available reports, discussions with Navy Public Works staff, and from on-site observations of visible system components, it appears that utility infrastructure systems are in generally good operational condition; this condition does not necessarily mean, however, that the systems meet local utility district standards to serve the general public. The existing wastewater collection, water supply, natural gas, electric power and roadway systems serve the developed portions of the Annex property. Issues related to required improvements, acquisition, operation and maintenance of the existing utility systems include the following:

- In most cases, the utility installations at the Topsham Annex were constructed and/or abandoned by the U.S. Navy as needed to serve expanded, new or abandoned development as the facility evolved over time; some of the systems, therefore, may presently exist at different standards from those deemed acceptable by certain municipal, quasi-municipal or other entities that may be considered to operate these systems in the future.
- Utility use at some locations and facilities within the Annex are not metered; it is anticipated that all future development will need to be provided with meters as a part of the infrastructure improvement program.
- There are no defined rights-of-way for the road and utility infrastructure. The local water and sewer utilities will require that their facilities be located within public rights-of-way or dedicated easements.
- Utilities are not always located in the defined roadway corridors and may be impacted by land transfer and/or future development.
- Utility operations (gas, water, telecommunications and electrical) will generally be subject to certain rules and regulations as overseen by the Maine Public Utilities Commission (MPUC), after the property is transferred and the Annex is redeveloped.

The following information summarizes the issues related to the major utility systems that serve the Topsham Annex.

Stormwater Management Facilities

Stormwater management facilities on the Topsham Annex vary widely in quality. According to the final *Environmental Condition of Property Report (Revision 2)* for the Naval Air Station, Brunswick, Maine dated May 30, 2006, a National Pollutant Discharge Elimination System (NPDES) permit was applied for in 1992 and received from the United States Environmental Protection Agency (USEPA) Region 1. In 1995 the USEPA developed a system called Multi-Sector permitting. In December, 1995 Naval Air Station Brunswick

issued a Notice of Intent to apply for the permit, which covers stormwater infrastructure at the Topsham Annex as well. As required, five years subsequently (2000) a second Notice of Intent was submitted and the permit was approved in 2001. In October 2005 (as required) a third Notice of Intent was submitted and the permit was pending as of the date of the "Environmental Condition of Property Report." Since existing stormwater detention facilities are licensed by MEDEP, that agency notified the Navy in July, 2006 that they were authorized to discharge stormwater associated with Multi-Sector activity pursuant to the terms and conditions imposed by the DEP's Multi-Sector General Permit for stormwater associated with industrial activity. The facility permit number is MER05B247. The Multi-Sector General Permit for Stormwater must be transferred to any new operating entity of the Annex property and renewed every five years thereafter. All future development will be required to meet requirements of Maine Stormwater regulations at the time of development. **Exhibit 43: Stormwater Infrastructure** shows the location of stormwater infrastructure at the Annex.

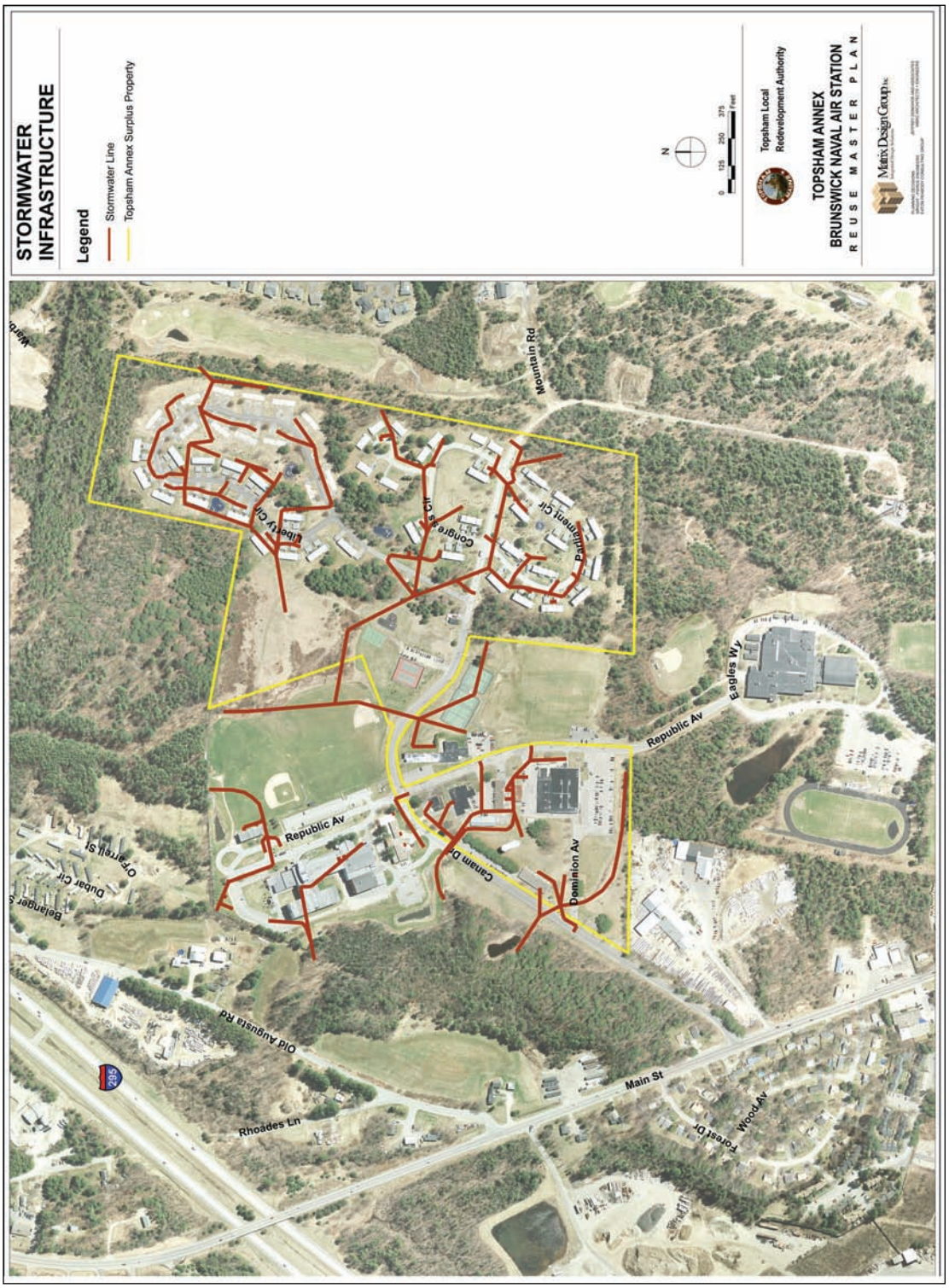
Wastewater Collection System

The existing wastewater collection system serves the majority of the developed portion of the Topsham Annex. The original collection system and pumping station were constructed and owned by the U.S. Navy. The collection system consists primarily of clay pipe with pipe joints every three feet, which is typically susceptible to infiltration (groundwater entering the pipe). In the 1970s, the force main from the Navy's pump station was connected to the collection system on Main Street (Rte 201) owned by the Topsham Sewer District.

In 1998, much of the sewer on Republic Avenue was cleaned and inspected with a closed-circuit television camera in preparation of the construction of the Mount Ararat Middle School. The inspection showed that the original clay pipe was in poor condition with poor alignment, root intrusion and significant infiltration of groundwater. Some of the clay pipe had been replaced with PVC pipe in the 1980s. Although some of this PVC was found to be in good condition, much of it had settled and contained sections with dips in excess of 5-inches. It is the general understanding of the Topsham Sewer District that the remainder of the existing clay sewer piping servicing the residential housing on the Annex and the buildings west of Republic Avenue is also in poor condition with the same general problems as those identified on Republic Avenue.

As part of the construction of the Mount Ararat Middle School in 2000, the original pump station was replaced with a new pump station meeting the requirements of the Topsham Sewer District. The force main from the new pump station was connected to the existing force main that runs along Can Am Drive and Main Street. Also as part of this project, the existing gravity sewer in Republic Avenue, that runs from the Mount Ararat High School to the new pump station, was replaced with new 8-inch PVC sewer. New 8-inch PVC gravity sewer was also installed from the pump station to the Mount Ararat Middle School and a new 10-inch PVC sewer was installed across the Middle

Exhibit 43: Stormwater Infrastructure



Source: Wright-Pierce Engineers

School's athletic fields to a point where it connects to the existing clay sewer serving the area east of Republic Avenue. At the completion of the Middle School project, the Topsham Sewer District accepted ownership of the new Annex Pump Station, the force main from the pump station to Main Street, the new gravity sewer in Republic Avenue, and the new sewer across the athletic fields. The remainder of the sewer system on the Annex is still owned by the Navy. As a result of the Middle School Project, the Topsham Sewer District's position on the Annex sewers is that they will not accept ownership of the remaining existing gravity sewer pipe, unless the pipe is replaced with new pipe meeting their standards. **Exhibit 44: Wastewater Infrastructure** illustrates the sewer system infrastructure.

As part of the inventory and analysis of existing base conditions, a preliminary assessment of the existing wastewater collection system was conducted by the Matrix Planning Team, with support from representatives of the Topsham Sewer District (TSD), the local service provider. The assessment included a review of available mapping and past assessment reports, and on-site observation of the wastewater pumping station. On the basis of this assessment, it was estimated that the improvements necessary to bring the existing gravity collection system up to local District standards could be as high as $2.5 million.

Wastewater from the Annex Pump Station discharges to a 12-inch gravity interceptor sewer on Main Street, which continues in the interceptor sewer to the Pinewood Drive Pump Station. This pump station pumps all of the wastewater in the Topsham Sewer District's system to the wastewater treatment facility in Brunswick.

The Topsham Sewer District has conducted facilities planning over the past several years to determine the scope of improvements needed in its collection system to accommodate potential growth in the area of the Topsham Fair Mall, the area west of I-295, and the Topsham Annex. The interceptor sewer on Main Street, Pleasant Street, and Elm Street does not have sufficient remaining capacity to accept all the potential future flows from these areas. The facilities plan recommends redirecting the force main from the Annex Pump Station to the new 15-inch interceptor sewer on Mountain Road in the Highland Green development. This project would include modifications to the existing pumps and electrical equipment in the Annex Pump Station, installation of approximately 1900 linear feet (LF) of new force main pipe along Can Am Drive, and the extension of approximately 600 LF to the existing gravity interceptor pipe on Mountain Road. The cost for this project is estimated to be $350,000. The District is also considering an upgrade to the Pinewood Drive pump station to update equipment and increase capacity to accommodate projected future flows for the next 20 to 25 years; upgrade costs are estimated to range from $550,000 to $760,000 depending on the options selected.

Exhibit 44: Wastewater Infrastructure

Source: Wright-Pierce Engineers

The Topsham Sewer District has an agreement through the year 2023 with the Brunswick Sewer District (BSD) for treatment of wastewater generated in Topsham. The agreement does not contain a flow limit for Topsham. The licensed treatment capacity of the Brunswick Sewer District's treatment plant is 3.85 million gallons per day (MGD). The Topsham Sewer District is responsible for its share, based on the percentage of Topsham's flow to the total flow to the Brunswick plant, for any capital improvement projects at the treatment plant. With the addition of a third secondary clarifier and a third trickling filter the BSD has indicated that it may be able to increase the licensed treatment plant capacity to 5.7 MGD at a cost of approximately $8 million.

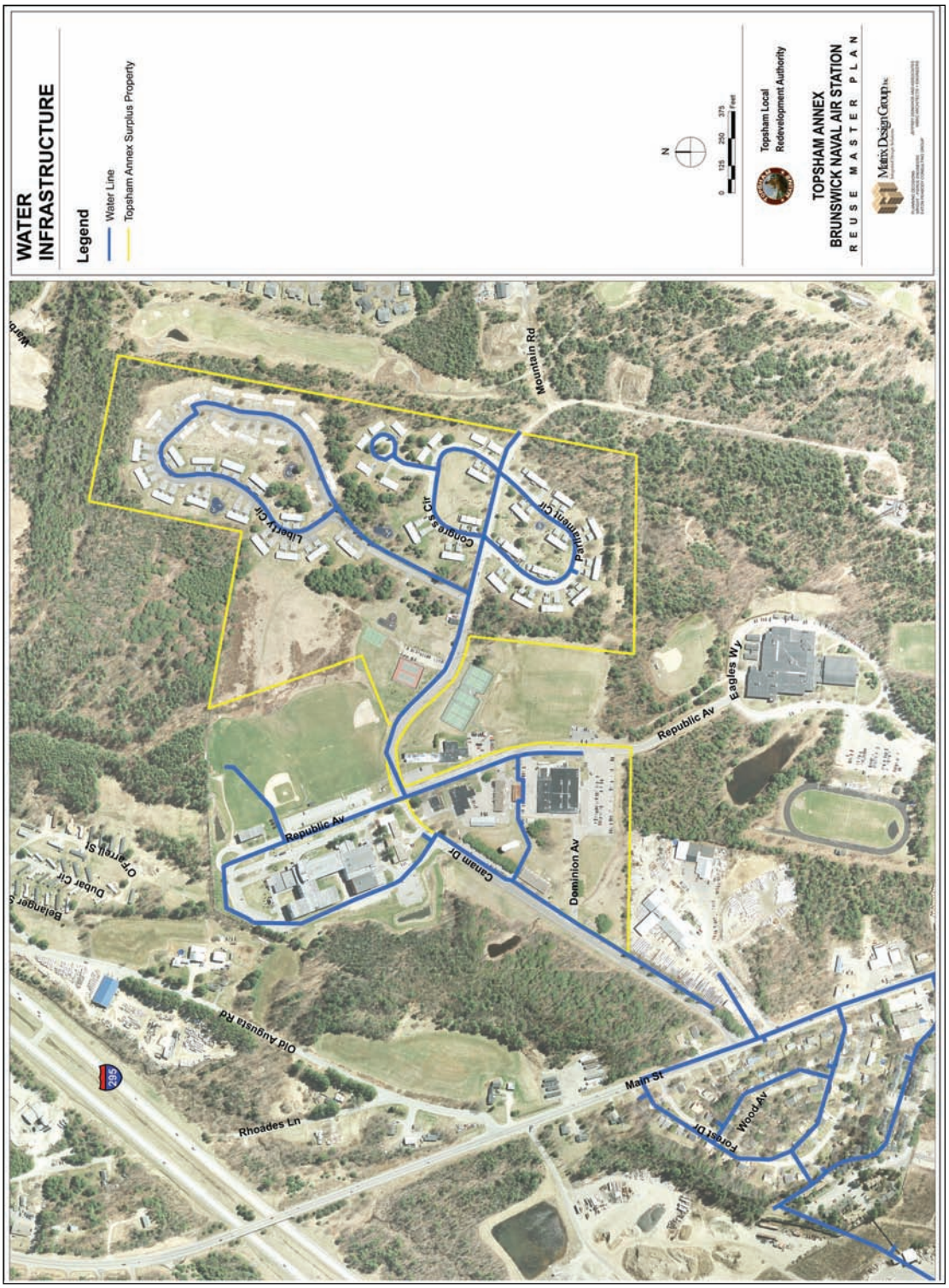
Water Supply System

The existing water supply and distribution system adequately serves the majority of the developed portion of the site. The system was constructed by the U.S. Navy, which currently operates and maintains the system. Water is provided by the Brunswick & Topsham Water District (BTWD) off of a 12-inch transmission main located in Main Street / Route 201 and is fed through a connection located along Can Am Drive. Water service is metered at a meter house located on Can Am Drive as it enters the Annex, as illustrated below on **Exhibit 45: Water Infrastructure**.

The Annex water system consists of approximately 8,700 linear feet of eight-, ten- and twelve-inch mains, and a 586,000 gallon water storage tank. The mains consist primarily of asbestos cement (AC) and a small amount of cast iron. The tank is located at the entrance of the Annex water system and is filled from the BTWD system. Water is pumped from the storage tank by a booster pumping station to the Annex distribution system. The booster station includes a fire pump which is reported to provide upwards of 1,500 gallons per minute. This condition would have to be confirmed under a future analysis.

Records indicate that facilities were constructed as early as the 1940s with the majority of the distribution system and standpipe being constructed in the mid 1950s. The booster pump station was constructed in the early 1990s. Construction materials varied, depending on the time period that they were constructed. The capacity of the water supply system is limited by the ability of the BTWD system to provide flow and pressure. Previous studies and analysis performed by the BTWD indicate that sufficient supply is available to the Annex as well as pressure required to fill the tank; the existing BTWD hydraulic grade line can sustain 35 pounds per square inch to approximately elevation 156 feet under average flow conditions.

Exhibit 45: Water Infrastructure



Source: Wright-Pierce Engineers

As part of the inventory and analysis of existing conditions on the Annex property, a preliminary assessment of the existing water distribution system was conducted by the Matrix Planning Team, with support from representatives of the BTWD. The assessment included a review of available mapping and past assessment reports, as well as discussions with Navy Public Works staff, and on-site observation of visible systems components. On the basis of this assessment, it was estimated that the improvements necessary to bring the existing system up to local District standards could be as high as $2.5 million.

It is important to note that, from a water supply capacity perspective, the BTWD has indicated that it presently has the ability to supply flows up to the level historically used by Navy facilities at the Annex, without negatively impacting its system. The BTWD has indicated that the current system has excess capacity to serve the Brunswick-Topsham area. The District has further indicated that the reserve system capacity is allocated on a "first come, first served" basis. Future demand in excess of the District's available capacity may require upgrade to the District's pumping and treatment facilities.

Water System Ownership and Operating Requirements

The following discussion details the likely issues associated with various ownership scenarios and operation of the existing water distribution system on the Annex. Under current operating conditions, the U.S. Navy is simply considered a "customer" of the BTWD, and is not subject to regulatory monitoring requirements.

Brunswick-Topsham Water District Ownership

In 1998, the BTWD conducted an evaluation and prepared a report for Maine School Administrative District No. 75 which assessed the physical condition of the water system at the BNAS Topsham Annex. The District concluded that the existing system did not meet their standards and that, generally, complete system replacement would be required in order for the District to assume ownership of the system. Specific limitations of the system included: substandard piping materials, location of piping outside rights-of-way, condition of hydrants, location and condition of service shutoffs and maintenance aspects of the tank. As a result, the Topsham LRA would need to satisfy the following in order for the District to consider assuming ownership of system elements:

- Documentation that system components have been constructed in accordance with the materials and construction standards of the BTWD
- Demonstration of minimum separation requirements between potable water and sewer mains exist, as required by the State of Maine (potable water mains must be separated from sewers by a minimum of 10 feet horizontally and 18 inches vertically. Where these requirements cannot be achieved, the owner of the system would be required to obtain a wavier from this requirement)
- Documenting the location of all mains, fittings, valves and service connections

- Demonstration of compliance with the State of Maine Cross Connection Rules;
- Provide individual water service meters and backflow preventers in compliance with the BTWD's standards
- Easements must be conveyed which would afford access and maintenance rights to the BTWD
- Transfer of the Navy assets to the BTWD must be made in compliance with "Chapter 65 - Property Taken for Public Use and Assessment of Damages", of the Maine Public Utilities Commission rules
- The BTWD would not be able to include the assets in the depreciation rate base
- If approved, the BTWD would simply fold the assets into their system

Electric Power Supply and Distribution System

The existing electric power distribution system adequately serves the majority of the developed portion of the site. The system was constructed by the U.S. Navy, which currently operates the system. Power is provided by Central Maine Power Company and is metered as it enters the base from the west along Route 201. Records indicate that facilities were constructed as early as the 1940s; materials varied, depending on the time period that they were constructed.

As part of the inventory and analysis of existing base conditions, a preliminary assessment of the existing electric power distribution system was conducted by the Matrix Planning Team, with support from representatives of Central Maine Power Company (CMP), the local service provider. The assessment included discussions with Navy Public Works staff, and on-site observation of visible systems components. While it appears from initial observations that much of the system meets or exceeds Central Maine Power Company's standards, a more detailed review will be conducted based on information provided by Navy personnel. On the basis of this more detailed assessment CMP is expected to identify improvements necessary to bring the existing system up to local standards. CMP's review will also identify any regulatory and/or operational issues that will have to be addressed as part of any transfer of ownership. Once the system assessment has been completed, a cost estimate can be prepared for the improvements identified to make the electrical distribution system compliant with CMP requirements.

Natural Gas Distribution System

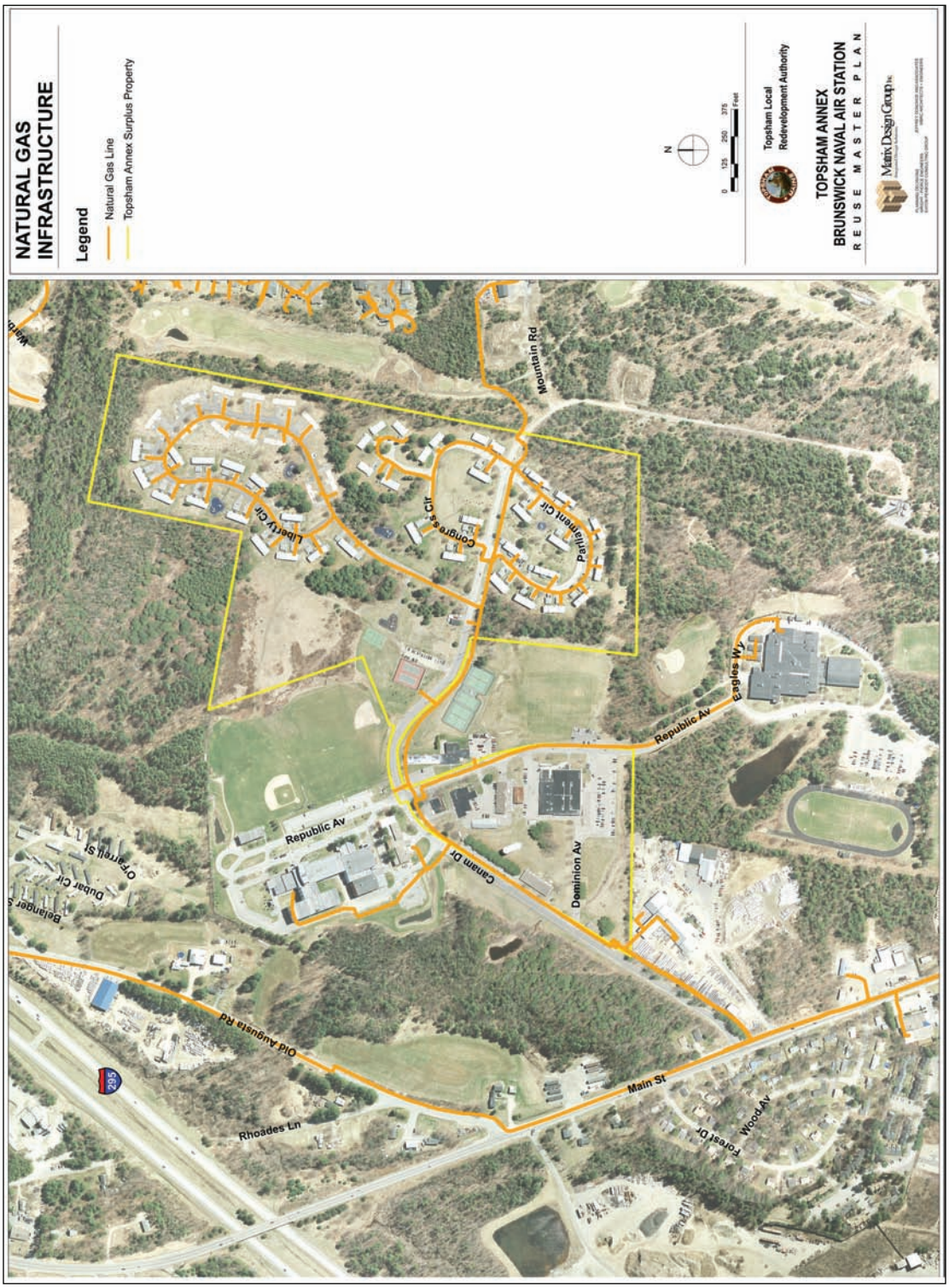
The existing natural gas distribution system adequately serves the majority of the developed portion of the site. The system was installed on the Topsham Annex in 2001-2002 and has been owned, maintained and operated by Maine Natural Gas (MNG) since that time. As a result, the system meets all required local standards, and will not require any substantive upgrade for continued operation by that utility. **Exhibit 46: Natural Gas Infrastructure** illustrates natural gas pipes serving Topsham Annex.

Maine Natural Gas has indicated that sufficient reserve capacity exists to serve foreseeable additional development that may take place on the Topsham Annex site, although the metering and regulation station located on the property along the access road may require modifications to meet the future natural gas demands. There is a master gas meter on base as well as meters located at some industrial / commercial facilities, and therefore all structures may not have a dedicated gas meter. The residential housing units are separately metered. Maine Natural Gas would continue to own and operate their existing facilities to serve future development.

Telecommunication Systems

There are presently at least two separate telecommunications systems serving the majority of the developed portion of the site. It is our understanding that Verizon Communications provides service to the Topsham Annex, and the Navy then provides communication service to their facilities via fiber optic and cable lines. Verizon Communications has indicated that it would continue to provide service to the Topsham Annex and would be willing to take ownership of the government-owned portions of the communications system.

Exhibit 46: Natural Gas Infrastructure

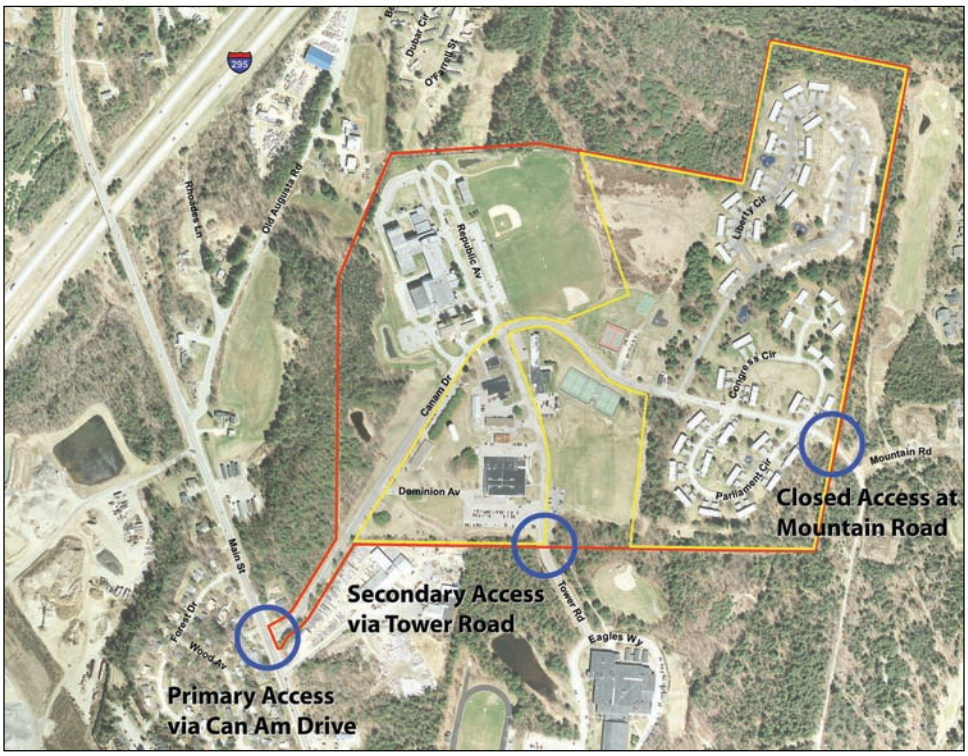


Source: Wright-Pierce Engineers

Vehicular Access and Street System

The Topsham Annex property is presently served by a system of internal streets and roadways that provide access to much of the base, where a majority of the development exists. Vehicular access is limited to the primary drive off Route 201 (Main Street) and the secondary access through the Mount Ararat High School (also to Main Street). **Exhibit 47: Points of Access** illustrates the vehicular access points serving the property.

Exhibit 47: Points of Access



The existing network of streets and roadways within the base property varies in standard based on the purpose served. In general, streets within the cantonment area are bituminous-surfaced, with storm drainage and granite curbing. Sidewalks are present in many areas. In the more undeveloped portions of the base property, particularly the areas to the south and the northwest, the roadways are not curbed and rely on open ditches and culverts for storm drainage. Sidewalks are generally not present within these areas. Given the present use of the site, the internal streets and adjacent street network provide adequate capacity. Some routine maintenance of the streets may be appropriate.

Potential Infrastructure Improvement Costs

While current infrastructure systems provide adequate service for operation of the Topsham Annex, future private-sector redevelopment activities will likely require significant improvements to bring systems up to local standards, and to meet expectations of the market place. “Order of Magnitude” estimates of capital costs, therefore, have been provided. This level of information will enable area public service providers and/or other entities to make infrastructure acquisition and/or operational decisions as part of implementation strategies to be considered as part of this planning effort. It should be noted that such estimates do not include secondary and tertiary upgrades or site improvement costs that might be associated with specific building demolition or construction, parking and/or landscaping improvements, or other detailed cost estimates associated with specific future project development.

Costs for utility and infrastructure upgrades are of two types: (1) those that are needed simply for new distribution, such as new development areas that previously had no utilities or road access; and, (2) costs that are needed to upgrade an existing system based on substandard conditions and/or added demand. All projections of capital costs in this section of the report are “Order of Magnitude” and for budgetary purposes only; specific items have been identified as part of those opinions of probable costs. Assumptions of size, type, materials and unit costs of components have been developed based on past experience in the region. No detailed design has been performed to support these opinions.

Estimated costs to upgrade utility systems are based on review of the nature and condition of existing sanitary sewer, water, and electric power distribution systems, as well as a review of local standards and requirements in order to operate, maintain, and/or acquire the systems by the Topsham Sewer District; the Brunswick-Topsham Water District; and/or Central Maine Power, respectively. Estimated improvement costs for these systems include:

- Sanitary Sewer System — $ 2.5 million
- Water System — $ 3.3 million
- Electric Power Distribution System — $ 1.1 million (power)
- Natural Gas System — NA (owned by the utility)

Buildings and Facilities

As a major part of the study’s inventory and analysis of existing conditions, a Building and Facilities Assessment was conducted for the limited number of non-residential building resources on the Topsham Annex. The purpose of the study was threefold: (1) to identify and document significant buildings and facilities that might be considered

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for similar or adaptive reuse in the future; (2) to determine the extent of conditions and characteristics that might impact a building's cost-effective utilization or adaptive reuse; and, (3) to provide a standard method and format to document the data for use during this planning study, and for future marketing of the building and facility resources.

During the data collection and building and site inventory process, Matrix Design Group Planning Team members (specifically, representatives from Bangor-based WBRC Architects and Engineers), obtained in excess of 300 MB of digital information, comprising nearly 300 record documents (drawings, databases, environmental reports) associated with the study area. The review of the data and resulting summaries are based in large part on data and information provided by the U.S. Navy through the Computer Aided Design (CAD) and Geographic Information System (GIS) it maintains, as well as information obtained during a series of on-site Property Conditions Assessment (PCA) building walkthroughs. More detailed data on many individual facilities, such as building floor plans and land use data layers, is available in the CAD and GIS database provided by the Navy and contained digitally on DVD, all of which is provided in **Appendix D** of this report. It should be noted that the data obtained may not include all facilities on the property.

Over the years since the base was originally developed, facilities were sometimes built, added to, or demolished by different Navy organizations. Consequently, not all of the information was necessarily recorded in the current database. However, it is believed that pertinent data is substantially complete and provides a reasonably adequate view of the built environment at the Annex. The primary source of this data, consisting of digital information downloaded from the BNAS Public Works Digital File Server located in Millington, Tennessee was made available to the Matrix Planning Team by BNAS Public Works personnel. Data was obtained in the following file formats, which has been provided to the TLRA in digital form on DVD in its entirety:

- TIF (Scans of record drawings, aerial imagery, site photography)
- PDF (Environmental reports, prior master planning efforts, project documentation)
- DWG (CAD files of buildings, either present on-site, or demolished)
- DWG (CAD files of various work efforts including asbestos removals, lead based paint abatement, and routing maintenance)
- XLS or MDB (Work order summaries, project and infrastructure database, annual inspection summaries, etc.)
- JPG (Aerial photography, building interior photography, etc.)
- EOO (Arcview shape files for GIS based mapping)

Evaluation Approach and Inventory Assumptions

Members of the Matrix Design Group Planning Team staff visited the Annex on several occasions with the assistance of Navy and civilian base personnel representing the Public Works and Public Affairs departments. The purpose of the field visits was to conduct a baseline property condition assessment to obtain readily available information from site and building walkthroughs. The walkthroughs and data collection were performed generally in accordance with the standards outlined in ASTM E 2018-01 *Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process* to identify and communicate the presence of conspicuous defects or material deferred maintenance by non-intrusive visual observations.

As described earlier in this report, the family housing units on the Annex are part of a privatization agreement between the Navy and Northeast Partners, LLC (GMH) and not included as part of the designated surplus property; only non-residentail buildings, therefore, were included in this analysis.

Property Condition Assessment Booklets

Property Condition Assessment (PCA) reports were generated for nine individual buildings, providing general findings related to building architecture, structure, HVAC, Mechanical, Electrical, and the Site. Record drawings (scanned building and site plans) and site visit photographs were included within an appendix for each report. Opinions of probable cost for noted deficiencies and remedies were not provided as part of this process, however, a facility "Factored Present Value (FPV)" form was developed using mean square foot cost estimating as a guide. The FPV represents the approximate percentage of present value of the building compared to new construction of similar type. Of the 11 buildings or structures that currently occupy the BNAS property ranging in size from 1,248 s.f. to 33,700 s.f., 9 were physically reviewed and reported on in the manner described above. Three consisted of utility support structures (water tower, two pump buildings), and were reported on within the utilities infrastructure portion of this report. A list of personnel resources and contacts provided to assist the Planning Team in this evaluation, along with a list of current building occupants are provided in the **Appendix D** of this report.

Buildings Inventoried

To provide the maximum benefit to the TLRA for evaluation and implementation purposes, all "significant" structures (non-utility use) were included in the on-site building surveys. Of the nine buildings classified, the following represents the current usage breakdown:

- Office : 32% (23,688 s.f.)
- Retail / Warehouse: 62% (46,288 s.f.)
- Specialty (Fire Station): 6% (4,284 s.f.)

Field personnel conducting the PCA assessments consisted of experienced / registered architects or professional engineers familiar with commercial, residential, institutional, and industrial building construction materials and methods. Site reviews documented and/or reviewed the following:

- Record drawing information
- General building information
- Year built, area in size, length, width, height, number of stories
- Architectural, structural, electrical characteristics
- Site accessibility
- HVAC, plumbing, fire alarm, sprinkler systems
- Roofing, interiors, exterior characteristics
- Noted deficiencies
- Photographic documentation

Summary of Significant Buildings and Facilities

General descriptions of the most significant facilities within the Topsham Annex are listed below, provided in a general order from north to south through the central part of the base. More detailed information for each building inventoried as part of this analysis is provided in the PCA Reports included in **Appendix D**, along with any applicable maps and charts.

Former Base Security Central Control

Building 332 is a small military office building that is typical of late 1950s and 1960s era base architecture containing approximately 1,248 square feet of space. The building is a single story, flat roofed structure on a flat slab on grade situated on Can Am Drive. There is no basement.

Exterior walls are constructed of brick masonry with no details or adornments of any kind. Building 332 was constructed as a single project, with no apparent major additions occurring over time. Minor changes to the building have included relocation of an exterior door and an exterior window, as well as the addition and removal of various exterior utility connections. Currently, the building is unoccupied, and its interior rooms have been used for the storage of surplus computer and office equipment. Presumably, the interior space of the building has been heated for this purpose.

Former Headquarters Building

Building 333 is a small military office building that is typical of 1950s-era base architecture containing approximately 13,240 square feet of space. The building is a rectangular two story building with a flat roof situated on Can Am Drive. The majority

of the building foundations are slab-on-grade construction, although the building does have a small basement which serves as a mechanical / electrical room. Exterior building walls are primarily brick and block masonry, with some wood-framed and wood-sided accents. Small, roofed but unenclosed porches are provided at each entrance to the building to allow building users to get out of the weather before entering the facility. There is a minimal level of architectural detailing or decoration used in the building's design.

This building was designed and created to be a military office building, and it has continued on in this capacity to the present day. Building 333 was initially constructed at its present size in a single phase, and has not had a significant expansion or addition during its useful life. The internal arrangement of the building has been modified several times as the needs of the occupants and the Topsham base have changed. Modifications have included the addition of a post office, the modification of the commander's suite, a significant mechanical and electrical systems upgrade and the addition of an intrusion alarm system. Currently, Building 333 is used as office and recruiting space for the Army Reserve. The building is occupied on a regular basis and mechanical, electrical, and plumbing (MEP) systems are powered and operational.

Commissary

Building 335 consists of a cold-storage warehouse situated on Dominion Avenue that was constructed in 1958, along with a 1972 addition for a total building area of approximately 33,700 s.f. Due to poor bearing soils, both portions of the building are supported on pile foundations. The cold-storage warehouse is a steel framed building with Concrete Masonry Unit (CMU) infill walls that provide the building's exterior envelope. The commissary portion of the building is a prefab metal "butler" building, supported by rigid steel frames and enclosed with insulated metal panel walls supported by metal girts.

The commissary has been renovated several times to revise its interior layout to meet changes in the programmatic needs in the facility. Apart from the original construction of the cold-storage warehouse and the addition of the commissary portion of the building, renovation efforts at Building 335 have included various maintenance projects to upgrade the appearance of the building, landscaping revisions, bathroom upgrades, sprinkler system revisions, new roof installations, the addition of an employee lounge and additional sales floor area, lighting systems and mechanical systems upgrades and interior finishes changes. Currently, Building 335 continues in its capacity as a military commissary store. The building is occupied on a regular basis and MEP systems are powered and operational.

Former Auto Storage Facility

Building 336 is a small metal storage building originally designed to garage military vehicles consisting of approximately 2,986 s.f. It is located immediately north of the Commissary, west of Dominion Avenue. The building is a prefabricated "butler" building, supported by rigid steel frames and enclosed with corrugated metal panels.

Building 336 was designed for the purpose of storing vehicles. The building was constructed in one phase, and does not appear to have been renovated or changed since it was constructed. Currently the building is no longer used for vehicle storage. Instead, Building 336 provides auxiliary dry-goods storage for the commissary store.

Former Fire Station and Auto Maintenance

Building 337 is a small storage building that is typical of 1950s-era base architecture comprising approximately 5,282 s.f. The building is a single story, flat roofed rectangular shaped structure on a flat slab on grade situated within the fenced in Marine Reserve Center. There is no basement. Exterior walls are constructed of brick masonry with minimal architectural detailing. Building 337 was originally designed to be a fire station and auto maintenance facility for the Topsham base. The basic structure and envelope of the building was constructed in a single phase.

The building has not been enlarged since its original construction, but it has had several renovations to address the building's conversion to a storage space after a separate fire station was constructed in 1961. Modifications to the building include the installation of a vehicle lift, a new HVAC system with record drawings dated August 1999, the addition of an oil-fired boiler, the enclosure and elimination of the building's windows, the addition of a condensate receiver, and the addition of two new suspended furnaces in the storage bays. Currently, the building is used for miscellaneous storage at the base. It is occupied on a regular basis, and MEP systems are powered and operational.

Vehicle Maintenance Warehouse

Building 338 is a metal building originally designed to provide storage space comprising approximately 4,320 s.f. The building is a prefabricated "butler" building, supported by rigid steel frames and enclosed with corrugated metal panels situated within the fenced in Marine Reserve Center.

Building 336 was designed for the purpose of storing Pavement and Grounds vehicles and materials. The building was constructed in one phase, and does not appear to have been expanded since it was constructed. A hot-air furnace was added in 1983 and the HVAC system was replaced in 1999. Currently the building is no longer used for vehicle storage. Instead, Building 338 provides auxiliary storage, collection, work and sorting space for temporary military projects such as Toys for Tots.

Marine Reserve Center

Building 339 is a small workshop building that is typical of 1950s-era base architecture comprising approximately 9,200 s.f. The building is a single story, flat roofed, irregularly shaped structure on a flat slab on grade situated within the fenced in Marine Reserve Center. There is no basement, although there are some utility trenches in the building's floor slab. Exterior walls are constructed of brick masonry with minimal architectural detailing. The building was built out to its current configuration in two phases. In addition the building has had a repair and refit in 1984. The building began life in 1958 as a shop facility. In 1964, the size of the building was nearly tripled when it was converted into a civil engineering Maintenance Shop. When the building was renovated in 1984, it received a new single ply membrane roof as well as some improvements to its exterior walls. Currently, Building 339 is used to house a Marine Reserve unit, providing administrative, training and preparation space for military personnel.

Fire Station

Building 363 is a small fire station facility for the Topsham base comprising approximately 4,284 s.f. The building is typical of early 1960s-era base architecture. The building is a single story, flat roofed, roughly square structure on a flat slab on grade located at the intersection of Can Am Drive and Republic Avenue, immediately to the North of the Marine Reserve Center. Exterior walls are constructed of brick masonry with minimal architectural detailing. The building was designed for the purpose of housing fire fighting apparatus and public safety personnel. The building was constructed in one phase. There is some evidence that the building envelope and some interior finishes were renovated at some point, but there are no drawings that document this work. Currently, Building 363 continues in its capacity as a fire station. Although town staff do not appear to be present in the building on a regular basis any more, fire trucks are stored and serviced in the building, and MEP systems are powered and operational.

Environmental Conditions

This section presents a summary of known environmental conditions at Topsham Annex that should be considered during reuse planning. This environmental analysis was prepared using limited data generated by other parties. The findings and conclusions are based on our professional opinion and are based on documents provided and produced by others. The potential exists for unreported and unknown environmental issues associated with the site or surrounding area that are not included in this document.

Historically, industrial operations were present at Topsham Annex to support Air Force and Navy operations. Potential environmental concerns identified during review of the documents in **Exhibit 48: Documents Reviewed** include:

- Areas of Investigation
- Petroleum hydrocarbon releases from oil / water separators (OWSs), above ground storage tanks (ASTs), and underground storage tanks (USTs)
- Munitions and Explosives of Concern (MEC)
- Underground utilities
- Asbestos and lead-based paint
- Existing Land Use Controls (LUCs)

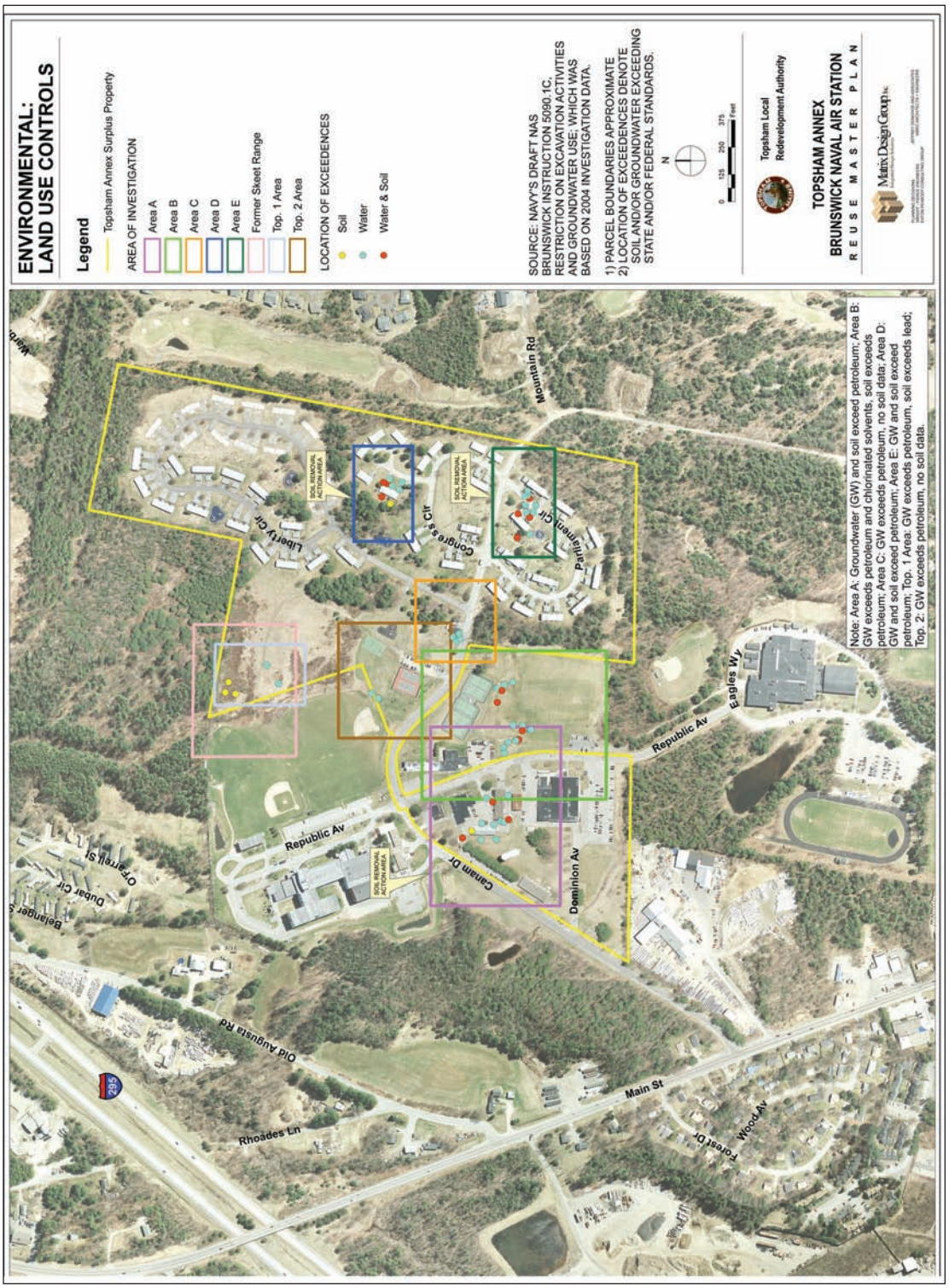
A map showing potential environmental constraints related to potential reuse is provided as **Exhibit 49: Environmental Land Use Controls**. Information regarding the existing environmental conditions at Topsham Annex was obtained through a review of historical literature cited in **Exhibit 48: Documents Reviewed**, as well as interviews with Claudia Sait of Maine Department of Environmental Protection (MEDEP) and Mike Braun of BNAS Administrative.

Exhibit 48: Documents Reviewed

Ref	Documents
1	Department of the Navy Northern Division. Addendum Environemental Baseline Survey, Topsham Annex, Naval Air Station Brunswick, Maine. Department of the Navy Northern Division. February 1999.
2	Department of the Navy. Final (Revision 2) Environmental Condition of Property Report for the Naval Air Station Brunswick, Maine. Department of the Navy. May 2006.
3	HRP Associates, Inc. Environmental Baseline Survey Topsham Annex, Naval Air Station Brunswick. HRP Associates, Inc. November 1996.
4	Malcolm Pirnie, Inc. Final Preliminary Assessment Naval Air Station Brunswick, Topsham Annex, Maine. Malcolm Pirnie. September 2005.
5	ECC and EA. 2004 Investigation Report Topsham Annex, Naval Air Station Brunswick, Topsham, Maine. ECC and EA Science and Technology. February 2006.
6	Malcolm Pirnie, Inc. Environmental Site Assessment Report, Topsham Annex, Maine. Malcolm Pirnie. September 2001.
7	Malcolm Pirnie, Inc. Liberty Circle Housing Area Topsham Annex, Topsham, Maine. Malcolm Pirnie, Inc. February 2006.
8	R.W. Gillespie & Associates, Inc. Phase II Environmental Site Assessment and Remedial Action Report, Topsham Annex - Parcel I. R.W. Gillespie & Associates, Inc. October 1999.
9	Summit Environmental Consultants, Inc. Phase II Environmental Site Assessment Topsham Annex Parcel 2, Topsham, Maine. Summit Environmental Consultants, Inc. August 2002.
10	Tetra Tech EC, Inc. Final Work Plan (R1) for TPH Soil Remediation and Investigation Activities Topsham Annex Naval Air Station Brunswick, Topsham, Maine. Tetra Tech EC, Inc. July 2006.
11	Tetra Tech EC, Inc. Draft Closeout Report for TPH Soil Remediation and Investigation Activities Topsham Annex Naval Air Station Brunswick, Topsham, Maine. Tetra Tech EC, Inc. January 2007.

Source: WBRC Architects & Engineers

Exhibit 49: Environmental Land Use Controls



Source: Matrix Design Group

Areas of Concern

Since 1996, the Navy has performed several environmental investigations and corrective actions as outlined below:

November 1996

HRP Associates, Inc. completed an Environmental Baseline Survey (EBS) of Topsham Annex, which identified 14 potential areas of environmental concern (PAOECs) on or near Parcel 1. HRP recommended further investigation of these areas.
April 1997 - Foster Wheeler Environmental Corporation completed decontamination of the former small arms pistol range at Building 382 and a soil removal action. The building's interior was decontaminated in accordance with the approved work plan. Approximately 14 cubic yards of lead-contaminated soil was removed from the building's exterior, which was based on a delineated area of contamination from previous soil sampling.

October 1999

R.W. Gillespie & Associates, Inc. completed a Phase II Environmental Site Assessment and Remedial Action Report for Parcel 1. Based on that assessment, it was concluded that groundwater and surface water impacts within Parcel 1 appeared to be minimal and did not require further action. Recommended actions included further evaluation of the storm drain system to minimize potential for future contaminant releases.
June 2000 - GZA GeoEnvironmental, Inc. conducted a Phase II Environmental Site Assessment for Parcel 2. That Phase II investigation included the completion of 11 direct-push borings, installation of 11 temporary wells, groundwater sampling at 11 temporary wells, and groundwater sampling at three permanent monitoring wells.

October-November 2000

Foster Wheeler Environmental Corporation completed a removal action that consisted of excavating petroleum impacted soil from three areas located within Parcel 2 at former Building 369. A total of 1,453 cubic yards of petroleum-impacted soil was excavated and recycled at Commercial Recycling Systems' licensed asphalt batching facility in Scarborough, Maine.

September 2001

Malcolm Pirnie, Inc. conducted an environmental assessment of eight of 14 PAOECs identified in the 1996 EBS report by HRP. This additional investigation effort included collection and analysis of six groundwater and 14 soil samples using a direct-push drill rig. The environmental assessment report recommended additional action be taken at three of eight PAOECs (Buildings 337 and 338, Building 1108, and Building 1114).

November 2001

Summit Environmental Consultants, Inc. conducted a Phase II Environmental Assessment at Parcel 2 area at the Annex. That investigation included completion of 25 direct-push borings, installation of 19 temporary wells, groundwater sampling at 19 temporary wells, and collection of two surface water samples from two seep locations at the former Building 369 area.

July 2004

EA Science and Technology performed an investigation to address data gaps identified by MEDEP from their review of previous site investigations. The investigation was performed to obtain necessary data to resolve outstanding concerns identified by MEDEP, assess whether soil and/or groundwater contamination exists, and determine the extent of contamination, if present. Investigation activities were conducted at the following Areas of Investigation shown on **Exhibit 49: Environmental Land Use Controls**:

- Area A (Buildings 337 and 338)
- Area B (Former Building 369)
- Area C (Building 378)
- Area D (Building 1108)
- Area E (Buildings 1099 and 1114)
- TOP-01 (Filled Area)
- TOP-02 (Former Oil / Water Separator)
- Building 380 (Former skeet range)

Specific concerns and remediation activities performed at each Area of Investigation are addressed in **Exhibit 50: Areas of Investigation**, and include: potential need for further investigation, remediation, long-term monitoring, and land use control requirements

September 2006

Tetra Tech performed contaminated soil excavation and removal at Buildings 337, 338, 1108, 1099, and 1114 to address petroleum contamination. In addition, test trenching was performed in the area around former Building 369. Tetra Tech also advanced five direct push soil borings and installed three monitoring wells to investigate the Top-01 Area.

Exhibit 50: Areas of Investigation

	Buildings within the Area of Investigation	Potential Concerns	Status as of Environmental Baseline Survey	2004 Status from Investigation	2006 Removal/Investigation Actions	Remaining Concerns
Area A	337 - Former Fire Station, Auto Service Station, Auto Hobby Shop, and Car Wash 338 - Former Auto Storage and Repair Shop	1 Former UST and Pump Island 1 Former Lift Pit - Contains contaminated groundwater 2 ASTs - Bldg 338 AST had a historical leak	Remediation Work Plan Prepared Building 335 had PCB-contaminated soil removed Building 337 had former lift pit pumped due to presence of contaminated groundwater seeping into pit. Pit recharged with contaminated groundwater Building 338 AST developed leak in 1996	Southwest of Building 337 - DRO in soil and groundwater (likely source: lift pit, UST, and OWS) North of Building 337 - DRO in soil (likely source: pump Island) and groundwater (likely source: lift pit and pump island) North of Building 338 - DRO in soil (likely source: overfilling AST)	Soil removal around Buildings 337 and 38 (area around previous samples Bldg-337-06, Bldg-337-02, and Bldg-338-03) DRO in soil is a non-risk to human health when concentrations are compared to Maine TPH in Soil Decision Tree for BL-2 classification.	Petroleum-impacted groundwater. Maintain groundwater restrictions for potable and non-potable uses.
Area B*	366 - Former Fuel Oil Pump Station 369 - Former Operations/Central Heating Steam Plant (Demolished in early 80s with rubble buried onsite	3 - 50,000 gallon USTs (removed) 2 - 30,000 gallon USTs (removed) 1 - 12,000 gallon UST (removed) Solvents potentially in sewer lines Historical detects of chlorinated solvents in groundwater	Additional Investigation Work Plan Prepared	TCE, DCE, and VC in groundwater SVOC (4-methylphenol) in surface water at SEEP-01 exceeded Maine MEG. DRO in soil and groundwater.	3 test trenches were excavated for additional soil investigation north of Former Building 369. Petroleum-impacted soil was not encountered in trenches.	Petroleum-impacted groundwater. Possible petroleum-impacted soil under Former Building 369 foundation. Maintain groundwater restrictions for potable and non-potable uses.
Area C	378 - Housing Maintenance Shop/Material Storage	Building may have had a UST to fuel gasoline pump (Building was also used as former pump house for water line pressure.)	No Info available from Environmental Baseline Survey	DRO in soil (likely source: UST) DRO/GRO in groundwater (likely source: UST)	None	Maintain groundwater restrictions for potable and non-potable uses.
Area D	1108 - Residential Housing	1 AST located cross-gradient (of regional groundwater flow) to soil detections	Remediation Work Plan Prepared Remediation includes removal of 1,000 tons soil	DRO/Xylenes in soil (likely source: UST north of Building 1108) Likely TPH soils beneath slab foundation DRO in groundwater	Soil removal around Building 1108 (area around previous samples 1108-03-GWI and 1108-04-GWI)	Petroleum-impacted groundwater. Maintain groundwater restrictions for potable and non-potable uses.
Area E	1099 - Residential Housing 1114 - Residential Housing	1 AST adjacent to Building 1114 1 UST adjacent to Building 1114	Remediation Work Plan Prepared Buildings 1099 and 1100 had USTs and contaminated soil removed	Northwest of Building 1099 - DRO in soil and groundwater (likely source: UST) East and West of Building 1114 - DRO/xylenes in soil and groundwater; likely TPH soils beneath slab foundation	Soil removal around Buildings 1099 and 1114 (area around previous samples 1099-03-GWI, 1114-02-GWI, and 1114-04-GWI)	Petroleum-impacted groundwater. Maintain groundwater restrictions for potable and non-potable uses.
TOP-01	77 - Former sewage treatment plant 380 - Former Skeet Range Facilities	Former Skeet Range - 29 acres, of which 27 acres are located off property Shotfall area of range has not been investigated	Additional Investigation Work Plan Prepared	DRO/GRO in soil (primarily in non-native fill areas)	5 additional borings were advanced around perimeter of the fill area and 10 soil samples collected for analysis. 3 temporary groundwater wells installed for groundwater sample collection and directional flow determination (to southeast).	Petroleum-impacted groundwater. Possible petroleum-impacted soil within the fill area. Further investigation of lead in soil in skeet shotfall area. Maintain groundwater restrictions for potable and non-potable uses.
TOP-02	No Info available from Environmental Baseline Survey	Former Oil/Water Separator	Only approximate location noted on a figure of the Final Work Plan for TPH Soil Remediation and Investigation Activities	DRO in groundwater	None	Petroleum-impacted groundwater. Maintain groundwater restrictions for potable and non-potable uses.

Notes: Area B is located on previously transferred Parcel 1. AST - Aboveground Storage Tank, DRO - Diesel Range Organics, GRO - Gasoline Range Organics, SVOC - Semi-Volatile Organic Compounds, TCE - Trichloroethene, TPH - Total Petroleum Hydrocarbons, OWS - Oil/Water Separator, UST - Underground Storage Tank

Source: Matrix Design Group

Other Environmental Conditions

Other environmental conditions that have been identified include:

Petroleum Hydrocarbon Releases

The former OWS in area Top-02 was identified in the 1996 EBS; which noted that no closure documentation was found, but it appeared to have been filled with gravel. The 2004 investigation noted groundwater concentrations for diesel range petroleum hydrocarbons slightly above Maine Maximum Exposure Guidelines (MEGs). No concentrations of petroleum hydrocarbons were detected in the soil greater than the MEGs.

Currently, there are seven active ASTs (as shown in **Exhibit 51: Existing Above ground Storage Tanks**) and records indicate there have been 66 ASTs historically that contained gasoline, diesel, or #2 fuel oil. ASTs are inspected annually in compliance with the BNAS's Spill Prevention, Control, and Countermeasures Plan. There are no active USTs on site, but the UST database indicates at one time there were 91 USTs present. Specific locations of former tanks are not available in the database, only associated building numbers and street addresses. Limited to no investigation work was performed or documented during tank removals and/or replacements.

From interviews with base personnel and MEDEP, historical releases from ASTs are known to have occurred. In the 1996 EBS, two adjacent or nearby sites were identified on the MEDEP listing for USTs: one leaking UST at the Mount Ararat High School and a registered UST at Tri-Sports Honda. Both properties are located south of the Annex and potentially up-gradient to portions of the Annex.

Exhibit 51: Existing Aboveground Storage Tanks

Building Number	Location	Size (Gallons)	Contents	Date of Installation
A333.0	ARMY RECRUITERS	2000	#1 OIL	1995
A335.0	COMMISSARY	6000	#1 OIL	1994
A335.1	COMMISSARY	50	DIESEL	Not Known
A337.0	MARINES	2000	#1 OIL	1995
A338.2	MARINES	500	#1 OIL	1996
A339.0	MARINES	2000	#1 OIL	1995
A338.3	MARINES	300	#1 OIL	2000

Source: Matrix Design Group

Munitions and Explosives of Concern

There is no record of munitions storage at Topsham Annex. Archival records indicate only small arms were used on site. Small arms were used at the former skeet range and at the indoor pistol range formerly located in Building 382.

The Topsham Annex Skeet Range is located in the northern portion of the Annex along the Navy property line and east of the Mount Ararat Middle School athletic field. The former 29 acre skeet range was used during the Air Force's occupation of the Annex. The direction of fire was to the north and the majority of the shotfall area extends off-base onto private property. Evidence of the range (clay targets, wooden posts, and concrete pads) still remains. Lead shot from expended shotgun ammunition is not considered MEC because there is no explosives safety hazard. The primary environmental concern is metals in soil.

Three composite surface soil samples were collected from the former skeet range in 2004. Samples were taken at the firing point and not within the likely shotfall area; therefore, the samples were not likely representative of the entire former skeet range. Lead was detected in all three samples at concentrations was less than Maine Risk Assessment Guidelines dictate.

Underground Utilities

Underground utilities are present throughout Topsham Annex. Former Building 369 was the Annex's power (steam) plant and defense control center. The building was demolished in the early 1980s. Matrix Environmental Services has not been able to locate reports that reference the existence or removal of steam lines on the base during the building demolition. Therefore, if the lines existed they may have been abandoned in place. The steam lines on the BNAS main base are asbestos-wrapped and were left in place in 2' x 2' concrete underground trenches. If the pipes are present and have an asbestos insulation covering, the pipes will require special handling procedures and off site disposal if disturbed during redevelopment construction activities. The presence or absence of steam lines is a data gap that will need to be addressed during a subsequent planning phase. Additionally, due to the age of Topsham Annex, many of the water supply lines are constructed of transite (an asbestos and concrete composite) pipe. If these pipes are not reused in the redevelopment plan or are disturbed during construction activities, they may require special handling procedures and off site disposal as asbestos containing material (ACM).

Asbestos and Lead-Based Paint

Due to the age of the buildings at Topsham Annex, asbestos and lead-based paint are likely present in buildings on site. Comprehensive asbestos and lead-based paint surveys suitable for demolition purposes have not been performed on the majority of buildings. Several asbestos and lead-based paint surveys have been conducted at the Annex. This

information should not be viewed as comprehensive and should be used with caution, because the surveys were only conducted on a representative number of buildings and did not always include walk through inspections of the units. Existing survey information is available in an inventory maintained by Brunswick Naval Air Station. Generally, the Navy does not pay for the abatement of asbestos and lead-based paint in buildings being transferred. The cost of abatement and proper disposal of these materials during redevelopment can be significant.

Existing Land Use Controls

The Draft NAS Brunswick Instruction 5090.1C, Restriction on Excavation Activities and Groundwater Use document outlines procedures to ensure proper review and coordination of proposed soil excavation and groundwater use at Topsham Annex. The document provides information on the location of soil and groundwater exceedences at Areas of Investigation and enacts land use restrictions in the form of administrative controls on excavation and/or groundwater use activities, as shown in **Exhibit 49: Environmental Land Use Controls**. In 2006, focused soil removal actions were conducted for the Buildings 337 and 338 area (Area A) as well as for the Building 1108 and 1099 / 1114 areas (Areas D and E). Further investigation was also performed in 2006 on the Building 369 area (Area B) and the TOP-01 area. Although soil removal actions were performed and confirmation samples collected for these areas, the revised Instruction 5090.1C document was prepared before the data was received and validated, and therefore does not reflect those most recent remedial activities.

Petroleum-related and inorganics are the primary contaminants of concern at most of these sites. Proposed land use changes during redevelopment may require changes to the existing LUCs in the event the contamination is not remediated.

Preliminary Conclusions

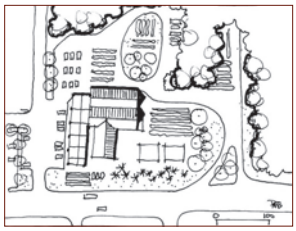
Continued evaluation of potential environmental concerns at Topsham Annex will be essential in the reuse planning stages. Many of the potential environmental concerns identified in this report may not result in environmental constraints; however, field investigation, including the sampling of soil, sediment, surface water, or groundwater, may be necessary to make this determination. Within Parcel 2, six Areas of Investigation require further investigation, remediation, or long-term monitoring actions:

- Area A – Groundwater exceeds Diesel Range Organics (DRO) standards
- Area C – Groundwater exceeds DRO and Gasoline Range Organics standards
- Area D – Groundwater exceeds DRO standards
- Area E – Groundwater exceeds DRO standards
- TOP-01 – Groundwater exceeds DRO standards, Soil exceeds lead standards
- TOP-02 – Groundwater exceeds DRO standards

Final remediation requirements will be determined after ongoing investigation data is obtained. Should economic studies and market analyses indicate a contaminated area is a prime location for development, then administrative controls, engineering controls, and additional investigation may be used to mitigate contamination or reduce environmental constraints in the event full-scale remediation is not cost-effective. The Navy ultimately remains responsible in the chain of liability for all costs associated with remediation.

Due to the potential for unknown environmental contamination to exist throughout the Annex, use of a Materials Management Plan and a Health and Safety Plan during construction activities is strongly recommended. If contaminated soil, sediment, or water is observed during construction or renovation activities, the procedures outlined in the Materials Management Plan can then be followed.

Section 5: Reuse Alternatives and Plan Selection



Based on the results of the existing conditions assessment and public visioning process, a series of alternative reuse concepts were developed and evaluated, and the Reuse Master Plan was selected by the TLRA. As part of that process, Notices of Interest for public benefit conveyance requests were evaluated, with TLRA support and approval given to those requests that would best support the intent of the Reuse Master Plan.

The following section describes the process and events that led to the development of the plan alternatives, and ultimately to the Reuse Master Plan.

Overview of Reuse Alternatives

Following Public Meeting #2 (Community Visioning), the student visioning sessions, and the Planning Considerations workshops, the project team continued to interact with various stakeholders in beginning the alternative reuse master plan development process. During this time, meetings were held with organizations such as the Maine State Housing Authority, School Administrative District 75 (SAD 75), the Town of Topsham's Interchange Study committee, the Topsham Board of Selectmen, homeless providers, Annex neighbors, the Chamber of Commerce, and others to receive additional input regarding the character of potential reuse master plan alternatives. Concurrently, and as a separate effort, the town also conducted a Townwide Market Study; the results of which helped inform the Reuse Master Plan alternatives, described in the following section.

Formulation of Reuse Master Plan Alternatives

The irregular shape of the surplus property at the Topsham Annex creates essentially two separate reuse areas: (1) the 14-acre triangle-shaped area located west of Republic Avenue and south of Can Am Drive that includes the commissary and various military office functions (hereafter known as the "Military Triangle"); and (2) the 60-acre area east of the school district's ball fields and tennis courts that includes existing housing and undeveloped land (hereafter known as the "Housing Area").

It should be noted, as reported in previous sections of this report that the family housing area includes housing units currently owned and maintained by GMH under a long-term housing privatization agreement with the Department of the Navy; as such, only the underlying land has been surplused as part of this BRAC process, not the housing units on the land. Land use alternatives considered by the TLRA include designations that would allow for a continuation of those residential uses, as well as for other land uses and densities, depending on ultimate disposition options considered by the Navy.

Given the different character of existing uses and facilities within the two identified planning areas and different transportation and land use attributes found outside the Annex adjacent to these two areas, the first alternative reuse planning stage consisted of identifying those land uses that would be most suitable for each area. The range of potential alternative uses for both the Military Triangle and the Housing Area were identified based on numerous factors that included:

- Citizen input
- Market demand
- Development costs
- Infrastructure costs
- Community benefits
- Fiscal impacts
- Job creation
- Traffic impacts

For the Military Triangle, land use alternatives initially considered the following uses:

- Community Service Center
- High School (for expansion of the existing school or for a new school)
- Recreation / Athletic Fields / Open Space
- Office Park

Subsequent to the formation of these alternatives, several meetings and discussions were held with stakeholders from the community in order to identify areas of concern and to gauge support for individual redevelopment concepts. For example, discussions with SAD 75 indicated minimal interest in developing a new high school on the Military Triangle, although SAD 75 did express an interest in the possibility of additional recreational and athletic fields in this location. Consequently, the list of conceptual land use alternatives for the Military Triangle was refined as:

- Community Service Center
- Recreation / Athletic Fields
- Office Park

For the Housing Area, the conceptual land use alternatives were initially identified as:

- Renovation of Existing Housing
- Higher Density New Housing
- Office Park

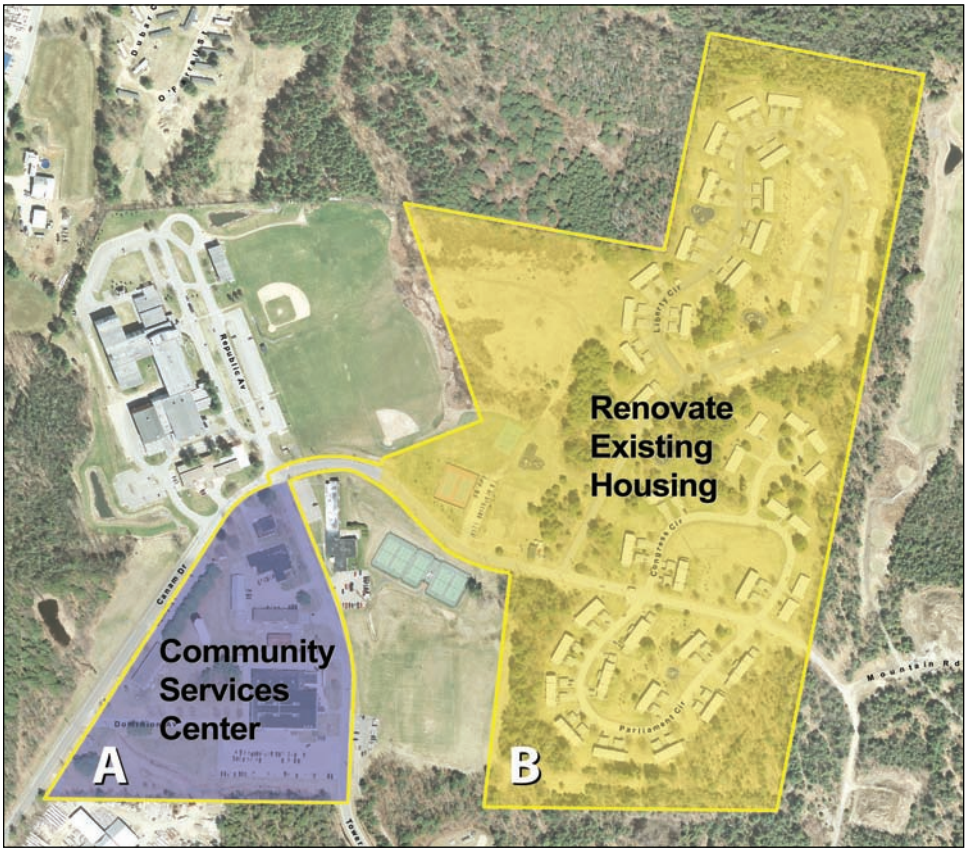
These various alternative uses for the Military Triangle and Housing Area were paired to create the following four Reuse Master Plan alternatives:

Alternative 1

Military Triangle: Community Service Center
Housing Area: Renovation Existing Housing

Alternative 1 provided for the development of a Community Services Center (CSC) on the Military Triangle to include a variety of potential uses, such as a recreation center, teen center, senior center, community theater, skating rink, or other necessary facilities to support the needs of the community. Given the size of the Military Triangle parcel, this area could support up to 120,000 square feet of floor space to support uses of this type. There are a number of existing facilities on the Military Triangle parcel which could be considered for reuse. As an alternative, existing facilities could be demolished, and newer, more efficient facilities could be constructed.

Exhibit 52: Alternative Plan 1



Source: Matrix Design Group

Alternative 1 also assumed that the existing housing units on the Housing Area could be renovated and reused. The Matrix Planning Team did not have the opportunity to sufficiently inspect the existing housing units at the Topsham Annex; consequently, the consideration of renovating these units is based primarily on the prior experience of the Matrix planning team in evaluating military housing. The purpose of this consideration was based on the possibility that the town could acquire the property from the Navy.

Specifically, Alternative 1 assumes that the existing 129 units of housing remaining on the property would be renovated and updated, and 48 new units would be developed on the concrete slabs where some units have already been demolished. In order to reuse the existing housing units, the local water and sewer districts have indicated that the systems would have to be updated. However, upgrading infrastructure is considered a common requirement for any redevelopment of the Housing Area.

Alternative 1 Analysis:

Development Program:

- Renovate 129 existing housing units
- Replace 48 previously demolished housing units
- Develop up to 120,000 square feet of community services facilities

Tax Base:

- Housing units add to tax base – possibly as much as $23 million
- No tax base from Community Services Center – tax exempt

Permanent Jobs:

- Minimal permanent job creation in the housing
- Job creation in CSC would be dependent upon type and amount of services developed

Fiscal Impacts:

- Property tax revenues from housing, offset by costs for municipal services and education costs
- Developing age-restricted housing could help reduce education costs
- Operating costs for CSC likely to be tax funded, partially offset by potential fees for services

Market Desirability:

- Renovation of housing units as workforce housing (lower price points) could be attractive
- Need to evaluate likely renovation and acquisition costs against potential sale values
- Absorption of housing could require up to four years
- Public has expressed an interest in developing additional community services, though cost issues have not necessarily been considered thoroughly

Infrastructure Investment:

- Housing Area likely to require replacement or upgrade of water / sewer infrastructure, potential cost of up to $5 million. Some utility infrastructure investments in the Military Triangle area may be necessary depending on the intensity of future development.
- No changes in roadway system expected

Need for Public Investment:

- Developer likely to fund infrastructure upgrades as part of the redevelopment project, need to ensure via development agreement
- Public funding likely to be required for CSC, possibly in the range of $12 to $24 million

Population Impacts:

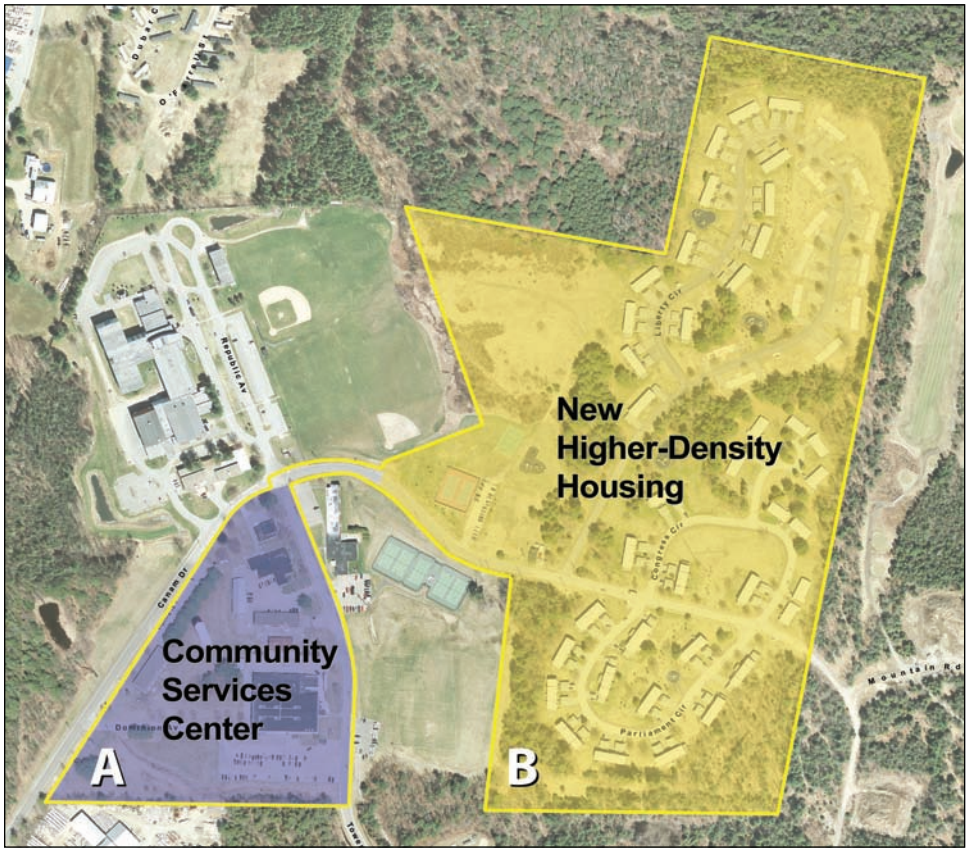
- Housing could generate 350 to 400 residents

Alternative 2

Military Triangle: Community Service Center
Housing Area: Higher Density New Housing

Alternative 2 also provided for the development of a Community Services Center on the Military Triangle site to include a variety of potential uses, such as a recreation center, teen center, senior center, community theater, skating rink, or other necessary facilities to support the needs of the community. Given the size of the Military Triangle parcel, this portion of the Annex could support up to 120,000 square feet of floor space to support uses of this type. There are a number of existing facilities in this area which could be considered for reuse. As an alternative, existing facilities could be demolished, and newer, more efficient facilities could be constructed.

Exhibit 53: Alternative Plan 2



Source: Matrix Design Group

Alternative 2 also anticipated that all of the existing housing units in the Housing Area would be demolished, and that the site would be redeveloped for housing uses at a higher density than what presently exists on the site. Historically, the site has supported 177 housing units. Under a higher density redevelopment, it is envisioned that the

density on the site could double, to approximately 350 units. This increased density would be required in order to economically justify the costs associated with replacement of infrastructure systems, as well as the costs of demolishing existing housing units.

Alternative 2 Analysis:

Development Program:

- Demolish 129 existing housing units, as well as slabs from 48 previously demolished housing units
- Construct up to 350 new high density housing units
- Develop up to 120,000 square feet of community services facilities

Tax Base:

- Housing units add to tax base – possibly as much as $30 million
- No tax base from Community Services Center – tax exempt

Permanent Jobs:

- Only permanent job creation in the housing would be property management, if high density housing was apartment complex
- Job creation in CSC would be dependent upon type and amount of services developed

Fiscal Impacts:

- Property tax revenues from housing, offset by costs for municipal services and education costs
- Developing age-restricted housing could help reduce education costs
- Operating costs for CSC likely to be tax funded, partially offset by potential fees for services

Market Desirability:

- Development of a high density product is somewhat untested locally, could be difficult to market
- Absorption of new housing could require up to six years

- Public has expressed an interest in developing additional community services, though cost issues have not necessarily been considered thoroughly

Infrastructure Investment:

- Housing Area likely to require replacement or upgrade of water / sewer infrastructure, potential cost of up to $5 million. Some utility infrastructure investments in the Military Triangle area may be necessary depending on the intensity of future development.
- No changes in roadway system expected
- Demolition costs for housing could be $1.5 to $3.1 million

Need for Public Investment:

- Developer likely to fund infrastructure upgrades as part of construction of high density residential project on-site, need to ensure via development agreement
- Public funding likely to be required for CSC, possibly in the range of $12 to $24 million

Population Impacts:

- Housing could generate 700 to 800 residents

Alternative 3

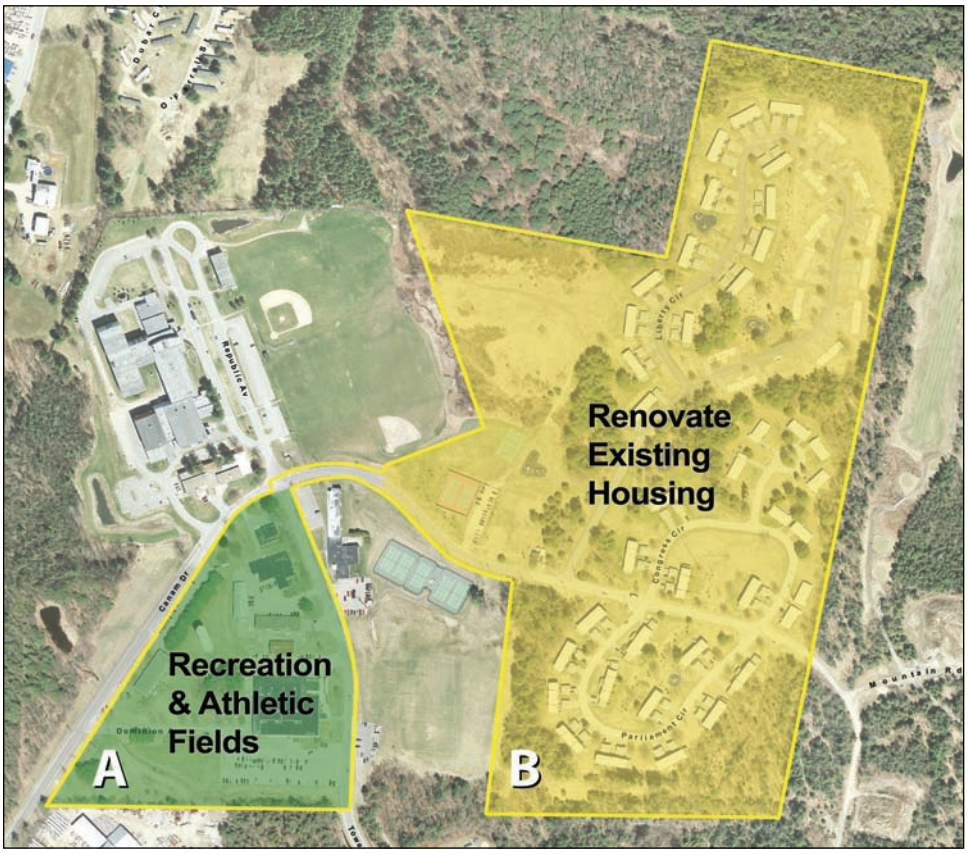
Military Triangle: Recreation / Athletic Fields
Housing Area: Renovate Existing Housing

Alternative 3 provided for the development of new athletic and recreational fields on the Military Triangle site, such as baseball fields, basketball courts, softball fields, tennis courts, soccer fields and/or a football field. Given the size of the Military Triangle parcel, a wide variety of development programs could be used. Typical playing fields are in the range of two to three acres each (excluding grandstands and other support facilities), such that the Military Triangle could support development of four to six fields. Basketball and tennis courts require less land area.

Alternative 3 also anticipated that the existing housing units on the Housing Area would be renovated and reused. Specifically, the remaining 129 units of housing on the property would be renovated and updated, and 48 new units would be developed on the concrete slabs where some existing units have already been demolished. In order to

reuse the existing housing units, the local water and sewer districts have indicated that the systems would have to be updated. However, upgrading infrastructure is considered a common requirement for any redevelopment of the Housing Area.

Exhibit 54: Alternative Plan 3



Source: Matrix Design Group

Alternative 3 Analysis:

Development Program:

- Renovate 129 existing housing units
- Replace 48 previously demolished housing units
- Develop three to six new playing fields and associated support facilities and parking

Tax Base:

- Housing units add to tax base – possibly as much as $23 million
- No tax base from Recreation Fields – tax exempt

Permanent Jobs:

- Minimal permanent job creation in the housing
- Minimal job creation from Recreational Fields

Fiscal Impacts:

- Property tax revenues from housing, offset by costs for municipal services and education costs
- Developing age-restricted housing could help reduce education costs
- Operating costs for Recreational Fields likely to be tax funded, partially offset by potential fees for services and/or usage fees

Market Desirability:

- Renovation of housing units as workforce housing (lower price points) could be attractive
- Need to evaluate likely renovation and acquisition costs against potential sale values
- Absorption of housing could require up to four years
- Public has expressed an interest in developing additional community services, though cost issues have not necessarily been considered thoroughly

Infrastructure Investment:

- Housing Area likely to require replacement or upgrade of water / sewer infrastructure, potential cost of up to $5 million. Utility infrastructure investments would be very limited in the Military Triangle area given the proposed use as athletic fields
- No changes in roadway system expected

Need for Public Investment:

- Developer likely to fund infrastructure upgrades as part of the redevelopment project, need to ensure via development agreement
- Public funding likely to be required for development of new recreational fields, possibly in the range of $5 to $10 million if fields are lighted

Population Impacts:

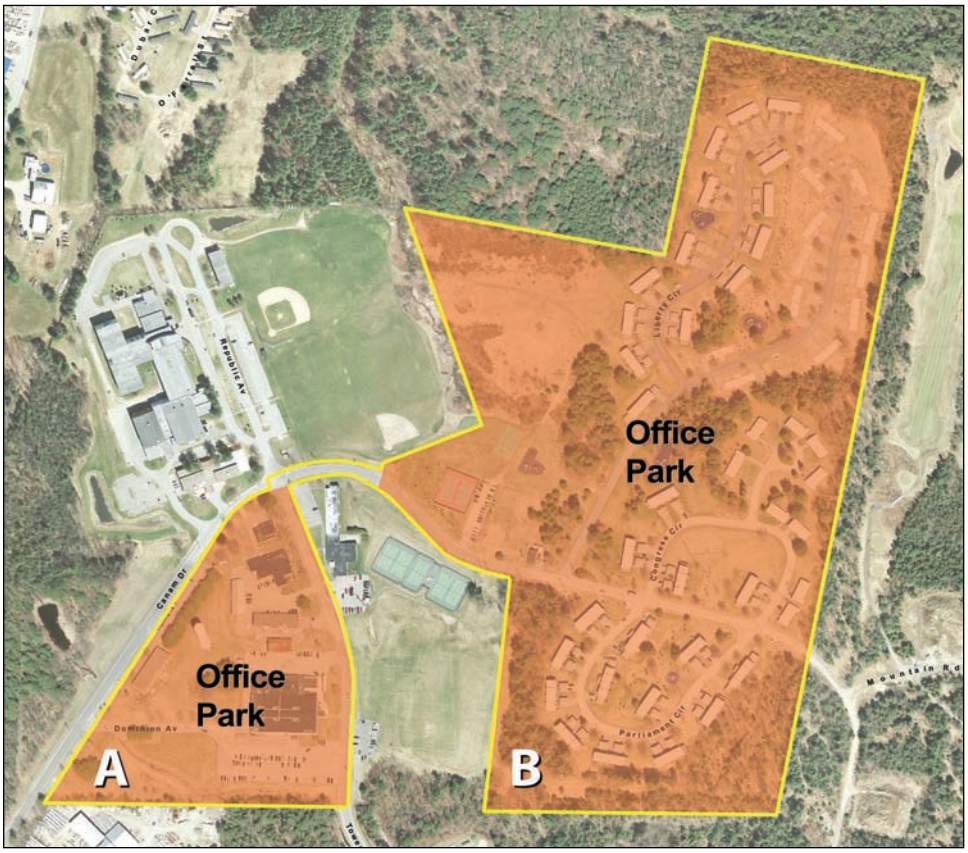
- Housing could generate 350 to 400 residents

Alternative 4

Military Triangle: Office Park
Housing Area: Office Park

Alternative 4 provided for the creation of an office / business park on both the Military Triangle and Housing Area sites. Given the size of the combined parcels, as much as 500,000 square feet of office and commercial uses (including flex space) could be developed on the site. Water and sewer service would have to be replaced on the Housing Area site. While the infrastructure on the Military Triangle portion of the property was reportedly upgraded when the Middle School was constructed, some additional utility infrastructure investments in the Military Triangle area may be necessary depending on the intensity of future development.

Exhibit 55: Alternative Plan 4



Source: Matrix Design Group

Alternative 4 Analysis:

Development Program:

- Demolish 129 existing housing units, as well as slabs from 48 previously demolished housing units
- Develop up to 500,000 square feet of new office and non-retail commercial facilities

Tax Base:

- Office / Business Park development could add $40 to $60 million to tax base

Permanent Jobs:

- Office / Business Park of 500,000 square feet could employ 1,000 to 2,000 at build-out and full occupancy

Fiscal Impacts:

- Tax revenues for office and commercial uses, offset by fees for services for employees
- Fiscal benefit or cost will be dependent on number of employees and mix of uses

Market Desirability:

- Town has experienced new development of office and other non-retail uses in the recent past
- Length of time to develop large scale park may be considerable – could require up to 10 years or more
- Distance from Interstate and complex access may inhibit marketability
- Red Mill absorption has been slow for 36,000 square feet

Infrastructure Investment:

- Housing Area likely to require replacement of water / sewer infrastructure, potential cost of up to $5 million. Some utility infrastructure investments in the Military Triangle area may be necessary depending on the intensity of future development
- Some changes in roadway system may be required to make an office park use more user friendly

Need for Public Investment:

- Developer may request financial assistance with infrastructure costs

Population Impacts:

- No direct population impacts expected

Evaluation of Reuse Plan Alternatives

In order to evaluate the four alternative reuse plans presented above, the Matrix planning team, along with the TLRA board, developed a list of criteria against which the alternatives were evaluated to assist in identifying the preferred reuse plan. These evaluation criteria were as follows:

Topsham LRA Guiding Principles

- Becomes a Landmark / Special Place in town
- Enhances Quality of Living, Working, Learning, Playing in Topsham
- Is Consistent with Goals and Policies of Comprehensive Plan
- Is Consistent with Goals and Policies of Main Street Plan
- Is Consistent with Goals and Policies of Interchange Study
- Is Realistic and Achievable for a Small Site
- Is Complementary and Compatible with Adjacent Land Uses / Activities
- Preserves and Protects the Environment
- Is Sustainable and Energy Efficient
- Promotes Walking and Good Design

Other Guiding Principles

- Public Input Preferences
- Mix of Land Uses
- Capitalizes on Existing Infrastructure
- Takes Advantage of Compact Building Design
- Transportation Access, Connectivity Impacts
- Positive Impact on Tax Base
- Job Creation

- Consistent with Neighborhood Schools
- Environmental Clean-up Impact / Costs
- Ease and Predictability of Implementation

Alternative Plan Selection

On Saturday, June 9, 2007, the Topsham LRA board met at a special board workshop to evaluate the four alternatives against the criteria described above, and to select a preferred reuse strategy. In evaluating and discussing the alternative plans and subsequently formulating a viable reuse plan for the Topsham Annex, the TLRA Board of Directors considered not only the site's physical and natural assets, but also its strategic location and proximity to existing educational facilities, nearby businesses, retirement communities, and open space. The Board also revisited the overarching intent of its Guiding Principles, "...to encourage redevelopment of the property as a special place within the town – one that would enhance the live, work, learn, and play environment."

The Reuse Master Plan, therefore, reflects more than simply the identification of specific land uses for future redevelopment ; it incorporates the TLRA Board's vision for the Topsham Annex Reuse Master Plan that is grounded by the following broad concepts and potential elements:

- An educational and training complex to support not only middle and high school needs, but also adult education, arts and crafts, and other life-enhancing activities
- A variety of community support facilities and services addressing the needs of all segments of the Topsham population
- Expanded external connectivity and internal pedestrian linkages to encourage community-wide use, and safe and convenient pedestrian access among office, commercial, educational, and residential uses, as well as from adjacent and nearby neighborhoods
- A compatible mix of uses and synergistic relationships that will promote creative and productive interaction among the business and education institutions, expand training and research interests, and establish a healthy and safe interactive, shared environment for children, teens, and adults in the community

As a result of that workshop, and based on the vision expressed above, the board selected the following alternative as its preferred reuse plan from those evaluated:

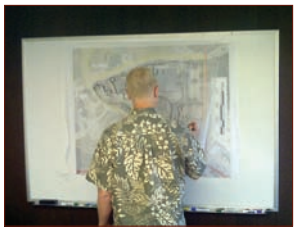
Military Triangle: Office Park - Business & Community
Housing Area: Parks & Recreation and Residential Uses

While the land use for Alternative 4 for the Military Triangle, Office Park, was the closest of the four alternatives in describing the vision, character, and use for the Military Triangle chosen by the TLRA board, the board modified the use from strictly office uses to a broader mix of commercial and community uses. Thus, the term “Business & Community” was assigned as the preferred land use designated for the entire Military Triangle.

For the majority of the Housing Area, the board recommended a continuation of residential land uses, which would support its overall future vision for the Annex. While the Board understands the redevelopment constraints placed on the parcel as a result of the existing long-term nature of the Navy / GMH housing privatization agreement, it also recognizes that the Navy could ultimately dispose of the property through a public sale to GMH or other private-sector developer. The designated residential land use and associated mix of densities, therefore, will ensure the Board’s vision, regardless of the ultimate disposition of the property. Densities recommended by the Board for the housing area include “Medium Density Residential” (up to four units per acre) proposed for the area north of Can Am Drive, and “Higher Density Residential” (up to eight units per acre) proposed for the area south of Can Am Drive. For the undeveloped portion of the Housing Area, the board identified Parks & Recreation as the most suitable land use for this area.

Based on these identified land uses, the consultant team prepared a preliminary draft reuse plan map and presented it to the board at their June 20, 2007 regular meeting. At that meeting, the board agreed to present the draft reuse plan map to Topsham citizens at Public Meeting 3 held on August 1, 2007. As a result of the public support for the Plan, as presented, and after further consideration by the TLRA board, the board voted unanimously at their August 15, 2007 regular meeting to approve the draft reuse plan map as the basis for the final Topsham Annex Reuse Master Plan.

Section 6: The Topsham Annex Reuse Master Plan



The Topsham Annex Reuse Master Plan establishes the town's vision for redevelopment of the area, designates land use preferences for specific portions of the property, and makes recommendations for disposition strategies. The plan was developed to capitalize on the existing infrastructure and facilities at the Annex, while not precluding the future replacement of some (or all) of those facilities with new construction consistent with Reuse Master Plan.

As described in the previous section, the configuration of the surplus land at the Annex consists of two primary areas—the Military Triangle and the Housing Area. The Military Triangle consists of approximately 14 acres, with several one and two story offices, maintenance, and service-related buildings, along with surface parking. The Housing Area consists of approximately 60 acres of land, with three subareas, including the undeveloped property on the western side; existing residential housing north of Can Am Drive on the eastern side; and, existing residential housing south of Can Am Drive, also on the eastern side. Given this distinct arrangement of the existing uses, the preferred land use plan is similarly divided into four distinct areas.

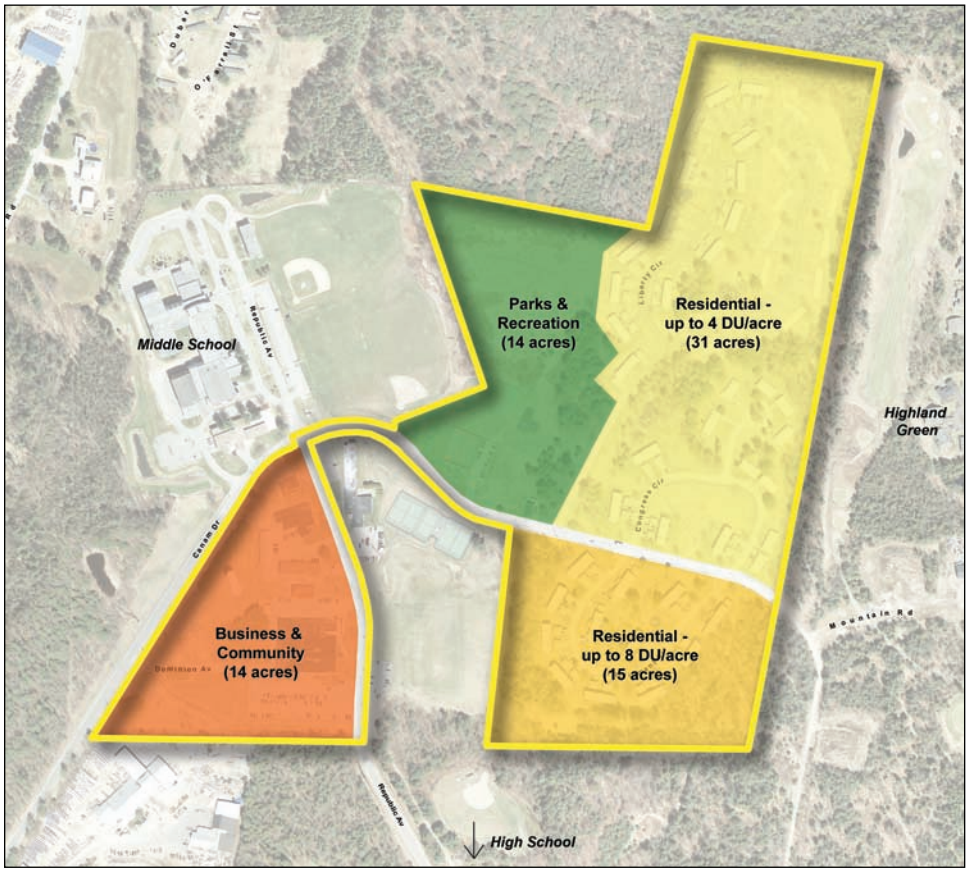
Description of the Reuse Master Plan

The Reuse Master Plan for the Topsham Annex consists of four specific land uses, each found in one of the four subareas described above:

- Business & Community
- Parks & Recreation
- Medium Density Residential (up to four dwelling units / acre)
- Higher Density Residential (up to eight dwelling units / acre)

The location of these preferred land uses that constitute the Topsham Annex Reuse Master Plan is shown below in **Exhibit 56: Topsham Annex Reuse Master Plan Map**, and also at the end of this report in large format. The sections below describe the location and nature of these preferred uses.

Exhibit 56: Topsham Annex Reuse Master Plan Map



Source: Matrix Design Group

Business & Community

The Business & Community use has been designated for the 14-acre Military Triangle and is envisioned to include a mix of office, commercial, retail, light industrial, and other similar uses that are consistent with adjacent residential and educational uses. Several of the existing facilities in the Military Triangle lend themselves to civilian commercial uses. As military facilities, they are currently being used for office, training, retail, storage, and similar functions that have adaptability to similar private-sector uses. A small portion of the Military Triangle currently undeveloped is available for new construction of Business & Community uses, in addition to the potential for one or more of the existing facilities to be razed at some point in the future, creating additional development sites for new commercial construction. The Business & Community use would also allow non-commercial community and civic uses, such as governmental, cultural, human services, and parks / open space functions as a complement to commercial functions.

Parks & Recreation

The Parks and Recreation uses envisioned for the Topsham Annex will be located to the east of SAD 75's existing ball fields and tennis courts on undeveloped land considered part of the GMH Housing Area. This land covers approximately 13 acres and could include formal park space, natural open areas, indoor and outdoor recreation facilities, sports facilities, fields, courts, and other related recreational uses.

Medium-Density Residential

The northern part of the existing GMH Housing Area (the area north of Can Am Drive) has been identified as future medium-density residential uses. The density allowed in this area would include up to four residential units per acre.

Higher-Density Residential

The southern part of the existing GMH Housing Area (the area south of Can Am Drive) has been identified as future higher-density residential uses. This preferred density would accommodate housing up to eight units per acre.

Both Medium-Density and Higher-Density Residential land use designations would allow for continued use of the area by GMH for market-rate housing, and/or for demolition and redevelopment by other private interests at an economically-viable density.

Reuse Master Plan Potential Impacts

This section provides an overview of the potential impacts associated with the Topsham Annex Reuse Master Plan. Consideration is given to the potential costs for redevelopment of the property, as well as the anticipated fiscal impacts of the property. Issues associated with the infrastructure to support the redevelopment are also summarized. In addition, an overview of the housing plan for the property is provided, including the potential preliminary costs for redevelopment. This section also evaluates the financial feasibility of the plan, in terms of expected costs for redevelopment and the potential for local municipal revenues. It should be noted that the analysis of redevelopment costs related to demolition and/or renovation of existing family housing units is provided only for discussion purposes.

Implementation Entity

While the planning for the redevelopment of the Topsham Annex was completed by the Topsham Local Redevelopment Authority (TLRA), the implementation of the Reuse Master Plan will be led by the Midcoast Regional Redevelopment Authority (MRRA). The MRRA is a state-created entity, created in 2005. According to its enabling legislation, "The authority is governed by a board of trustees composed of 11 voting members appointed by the governor and subject to review by the joint standing committee of the

legislature having jurisdiction over economic development matters and to confirmation by the Senate." According to a published report, the MRRA was established in September of 2007, and will be chaired by former state legislator Arthur Mayo.

In terms of the Topsham Annex, the MRRA will have responsibility for implementing the Reuse Master Plan. As discussed below, the TLRA Board identified a number of NOI proposals it supported, and it is anticipated that the appropriate entities will file the necessary documents to complete those recommended property transfers. It is also anticipated that all remaining portions of the Topsham Annex will be sold by the Navy to end users and/or developers through a Public Sale.

It is considered important for the Town of Topsham to review its zoning ordinance, to ensure that the existing zoning on the Annex property is consistent with the concepts outlined in the Reuse Master Plan, such that the Reuse Master Plan can realistically be implemented. This is considered a vital step in moving the Reuse Master Plan forward – although the property was exempt from local zoning under federal control, new buyers will be subject to local zoning.

In terms of timing for property transfers, it is anticipated that the Topsham Annex property could be available well before the remainder of the Naval Air Station Brunswick. The Base Closure law requires that all BRAC properties be closed not later than 2011, six years after the closures were approved in 2005. However, the military has the option of closing sites when missions are transferred to receiving bases before 2011. The functions currently located at the Topsham Annex, since they are not mission critical, could be relocated well before 2011.

Socioeconomic Impacts

The redevelopment of the Annex property is expected to result in a number of positive benefits for the community. Included among these benefits are new employment opportunities for the community, an increased tax base, expanded housing opportunities, and increased population.

Employment Opportunities

The redevelopment of the Topsham Annex is expected to result in a number of employment opportunities. This section provides an overview of the expected construction employment that could be generated on-site, as well as permanent employment opportunities that could be supported in the existing facilities, which are expected to be reused.

Construction Employment

In order to estimate the potential construction employment that could be generated from the redevelopment of the Topsham Annex properties, the redevelopment budgets outlined above are used.

It has been the consultants' experience on prior projects that approximately 40 percent of the costs associated with redevelopment projects are related to construction labor, with the remainder being associated with materials, overhead, general conditions and profit. As shown in the table below, the allocation of 40 percent of construction costs to labor indicates a range of $7.16 million to $16.24 million.

Exhibit 57: Estimated Construction Employment

	Low Estimate	High Estimate
Commercial and Business Zone	$3,700,000	$3,700,000
Medium Density Residential	$12,000,000	$22,800,000
High Density Residential	$2,200,000	$14,100,000
Subtotal	**$17,900,000**	**$40,600,000**
40% Allocation to Labor	$7,160,000	$16,240,000
Average Construction Wage	$31,356	$31,356
Person-Yeares of Employment	**228**	**518**

Source: JDA

According to the Maine Department of Labor, the average construction wage in Sagadahoc County was $603 per week, or $31,356 annually. Using this average wage indicates that the redevelopment activities at the Topsham Annex could generate between 228 and 518 person-years of construction employment.

Permanent Employment

The redevelopment of facilities at the Topsham Annex is also expected to result in permanent employment opportunities, as existing buildings are redeveloped for private- and public-sector use. Given that specific users for the Topsham Annex properties have not been identified, it is difficult to project the number of permanent employees which could work on-site. However, given the style and previous uses of the buildings, some estimates can be prepared.

Published data can be used to estimate the number of employees that each facility can support. For example, manufacturing uses typically require 600 to 1,100 square feet per employee, while warehouse and distribution uses can require 900 to 1,500 square feet per employee.

The table below provides a summary of the projected employment in each of the facilities which is expected to be reused, based on published averages. Office uses are included at an average of 250 to 400 square feet per employee, while shop / garage uses are included in the range of 400 to 600 square feet per employee. The commissary, the largest facility on the site, has been included at an average of 500 to 750 square feet per employee, though no specific use for this facility has been identified.

Exhibit 58: Projected Employment at Topsham Annex

		SF Per Employee		Supportable Employees	
Facility	**SF**	**Low**	**High**	**Low**	**High**
Former Headquarters	13,240	250	400	33	53
Commissary	33,700	500	750	45	67
Auto Maintenance	5,282	400	600	9	13
Warehouse	4,320	750	1,000	4	6
Marine Reserve	9,200	250	400	23	37
Fire Station	4,284	400	600	7	11
Total/Average	**70,026**	**375**	**577**	**121**	**187**

Source: JDA

In total, it is anticipated that the redevelopment of the Topsham Annex could support between 121 and 187 permanent jobs in the existing facilities. Any new facilities, or expansions of existing facilities, would increase these estimates.

Tax Base

As summarized earlier, the redevelopment of the Topsham Annex could require $18 to $40 million in investment. Overall, the business and commercial properties are expected to require an investment of $3.7 million, or approximately $53 per square foot. In terms of the tax base these facilities will generate, it is estimated that the average valuation will be in the range of $70 to $100 per square foot, or $4.9 million to $7.0 million in total tax base.

The residential facilities are expected to have a broader range of values, depending on the "target market" for the units. Though there was significant discussion during the reuse planning process regarding the need for affordable housing, the likelihood of this product being built without a community-based organization taking the lead is somewhat low. The Navy will likely auction the property, which means that acquisition by a profit-motivated developer of housing is more likely.

As discussed earlier in this chapter, the primary issue for the housing stock revolves around the extent to which existing buildings and foundations will be reused. This is likely to affect the potential value of the units, both in terms of the regional real estate market and in terms of their assessed valuation.

The Table below provides a summary of the projected value of residential units at the Topsham Annex. As shown below, assuming values ranging from as low as $125,000 to as high as $250,000 for various unit types, the total tax base is estimated to be in the range of $28.1 million to $46.7 million.

Exhibit 59: Projected Residential Tax Base

		Value per Unit		Overall Tax Base	
Facility	**Units**	**Low**	**High**	**Low**	**High**
Single Family Homes	9	$150,000	$250,000	$1,350,000	$2,250,000
Medium Density Townhomes	126	$125,000	$200,000	$15,750,000	$25,200,000
High Density Townhomes	110	$100,000	$175,000	$11,000,000	$19,250,000
Total / Average	**245**	**$114,694**	**$190,612**	**$28,100,000**	**$46,700,000**

Source: JDA

Adding these estimates to the non-residential estimates developed above indicates a range of total tax base of between $33.0 million and $53.7 million.

Population

The redevelopment of the Topsham Annex will also result in an increased population base for the community. As discussed earlier in the Reuse Master Plan, the current estimated population of the community is 10,236, and there are 3,942 households in the community. This translates to an average household size of 2.6 persons per household. Assuming that the 245 units of housing anticipated for the site are reflective of the broader community, the town's population would increase by 636.

The specific product type and style could affect the estimated population of the units. For example, age-restricted products rarely generate more than 2.0 persons per household. In contrast, a four-bedroom unit could generate an average household size of more than 4.0 persons per household. However, given the uncertainty associated with the style and type of development which will be created on-site, the town wide average is considered a reasonable proxy.

Financial Investment and Construction Activity

The Topsham Annex Reuse Master Plan envisions renovation and reuse of the existing non-residential structures on the property, a strategy that will require an investment of funds by new owners in order to make existing buildings both habitable and marketable. It is possible, however, that future owners of the site could demolish some (or all) of the existing structures in favor of new construction. Given the availability of existing development sites in the area with access to existing infrastructure, that approach is considered to be a low probability outcome, unless portions of the redevelopment project are subsidized by outside funding. This section, therefore, provides an overview of the projected costs associated with redevelopment of the property.

Non-Residential Areas

The redevelopment of the Military Triangle parcel, which includes the office / industrial and mixed-use commercial land use categories, is expected to require a somewhat low level of investment. The majority of existing buildings are expected to be reused, with only minimal structural demolition. A budget of $50,000 has been included for demolition of small structures, fences, and some site features.
Demolition of larger structures is expected to be more costly. In particular, demolition of internal features within the Commissary, in order to prepare the building for redevelopment, are estimated to cost $168,500. The only other building expected to incur significant demolition costs is Building 336, the former auto storage facility. Due to the poor condition of this facility, and its location between two larger existing buildings, it is anticipated that this facility will be completely demolished. The estimated cost for demolition of the auto storage facility is just over $22,000.

Beyond demolition, it is anticipated that most buildings will require some form of upgrades / renovations in order to make them usable and marketable. Most of the facilities suffer from some form of physical, functional and/or economic obsolescence. For warehouse and shop-type buildings (337 and 338), a budget of $15 per square foot of building area has been established. This is intended to include minor modifications to wiring, updating of bathroom areas, and cosmetic improvements. No allowance for structural changes is included in this estimate. Costs associated with bringing the facilities up to current building and life safety codes are also excluded from this estimate. The budget for the office facilities is similar in its intent – the anticipated budget is intended to support primarily cosmetic upgrades, including painting and carpeting, as well as some limited upgrades to building systems on an as-needed basis. No allowance for structural changes is included in this estimate. Costs associated with bringing the facilities up to current building and life safety codes are also excluded from this estimate. A budget of $30 per square foot has been included for office-type facilities (Buildings 333 and 339).

Exhibit 60: Redevelopment of Existing Buildings in Military Triangle

Number	Name	Square Footage	Demolition	Renovation	Total
333	Former Headquarters	13,240		397,200	397,200
335	Commissary	33,700	168,500	2,696,000	2,864,500
336	Former Auto Storage	2,986	22,395		22,395
337	Auto Maintenance	5,282		79,230	79,230
338	Warehouse	4,320		64,800	64,800
339	Marine Reserve	9,200		276,000	276,000
363	Fire Station	4,284		-	-
	Total	**73,012**	**190,895**	**3,513,230**	**3,704,125**

Source: JDA

The most significant renovation budget has been included for the existing Commissary (Building 335). A budget of $5 per square foot (net of salvage) has been assumed for removal of existing interior items which are inconsistent with the redevelopment of the building. In addition, a conceptual budget estimate of $80 per square foot has been included for renovation of the existing space.

Residential Areas

The Reuse Master Plan for the Topsham Annex includes two distinct housing areas. The larger of the two housing areas, north of Can Am Drive, is proposed for medium-density residential uses, consistent with the existing level of density on the site. Some of the housing units in this area have been demolished or partially demolished, and some of the units are currently occupied. This gives rise to the question of whether it is reasonable to rebuild new structures on the foundations of the unoccupied structures, or whether it is prudent to simply demolish all of the structures in this area and develop new products on-site. An analysis of these issues, included as part of the appendix, was prepared to assist the TLRA and the Town of Topsham in its early consideration of potential disposition strategies for these parcels. Since the areas are encumbered by the existing 50-year Navy / GMH privatized housing agreement, limited acquisition and/or implementation options exist for the town, except those available through land use and zoning controls.

Roadways

As part of the redevelopment of the Topsham Annex, it is anticipated that the on-site roadways will be upgraded, either through a pavement overlay or through a complete reconstruction of roadways. Information supplied by Wright Pierce indicates an estimated cost of $200,000 per mile for pavement overlay, and $400,000 per mile for reconstruction. The estimated length of roadway segments is 7,450 feet, or 1.4 miles. The estimated cost for overlaying the roadways is $280,000, while the estimated cost for reconstruction is $560,000.

Exhibit 61: Roadway Segment Lengths

Roadway	Length
Congress	1,000
Liberty	2,650
Parliament	1,050
Portion of Tower Roaad	1,000
Portion of Canam	1,750
Total	**7,450**

Source: JDA

Infrastructure and Transportation Issues

Infrastructure Systems Overview

An analysis of the infrastructure that serves the Topsham Annex of the Brunswick Naval Air Station was performed to determine system needs and opportunities to support the Reuse Master Plan for the Topsham Annex. The Reuse Master Plan consists of a Business & Community zone of approximately 14 acres; a Residential Zone of 15 acres with a proposed density of up to eight dwelling units per acre; a Residential Zone of approximately 31 acres with a proposed density of up to four dwelling units per acre, and 14 acres of Parks and Recreation space. The various elements of the infrastructure system reviewed included transportation, water, wastewater collection, stormwater, electric and telecommunications, and natural gas. Each infrastructure system was evaluated based on the available information, current condition, and its capability and capacity to serve the Reuse Master Plan. Each system is discussed in more detail below.

Transportation

Presently, the most direct assess to the Topsham Annex property is via U.S. Highway 201 (Main Street) to State Route 196 (the Coastal Connector) which provides direct connections to both Interstate Route 295 to the west and U.S. Route 1 to the east. Can Am Drive connects U.S. Highway 201 with the Topsham Annex. Can Am Drive also provides direct access from U.S. Highway 201 to Mt. Ararat Middle School and indirect access via Republic Avenue to Mount Ararat High School. Future growth within the Annex and along Route 201 will require upgrades to several of the existing intersections located near the Annex. The 2005 Transportation Plan indicated that the intersections with U.S. Highway 201 and Eagles Way, Can Am Drive, and with State Route 196 would be operating at level of service (LOS) F under the 2009 peak hour conditions. As development within the Annex progresses, traffic mitigation measures will likely need to be implemented.

The proposed development plan presented provides for a more intense development of the residential areas than exists today. Current development exists at four dwelling units per acre. The proposed plan contemplates development of 31 acres at up to four dwelling units / acre with development of another 15 acre area up to eight dwelling units / acre. The average dwelling units per acre under the proposed plan is approximately 5.3 units / acre. The proposed number of dwelling units in the residential area equates to approximately 244 units which is 37 percent higher than the historic 177 units that existed prior to the demolition of units over the past couple of years by GMH.

The traffic volume impact on the Route 201 and Can Am Drive intersection could be increased by a corresponding 37 percent. Based on full occupancy, the existing units would contribute about 119 trips during the morning peak hour, which has been determined to be the critical period of time for considering congestion on the adjacent

street system due to the presence of the Middle and High Schools. The proposed level of residential development would correspond to approximately 163 trips during the morning peak hour.

Existing non-residential development within the Military Triangle includes the Commissary and office / administration facilities. Assuming full occupancy of the existing facilities, morning peak hour traffic generation associated with these elements is estimated at 24 vehicles for the retail and warehouse facilities plus 37 vehicles for the office / administration facilities.

Proposed development of the 14-acre Military Triangle parcel is targeted to include a potential mix of business, office, and light industrial uses. Based on an assumed floor area ratio of 0.3, the morning peak hour traffic generated has been projected at 33 for the light industrial development and 231 for the business / office component.

Note that the Town of Topsham has indicated that development resulting in increases in trip generation in excess of that associated with current development will likely require developer contribution to the cost of off-site measures to mitigate congestion. In order to determine whether a traffic signal is warranted after the redevelopment of the Annex, a traffic study should be conducted. The traffic study should include consideration of traffic associated with the Middle and High Schools.

Water

Water is supplied to the Topsham Annex through its connection to the Brunswick Topsham Water District (BTWD) system located in U.S. Highway 201. Much of the water infrastructure within the Annex was constructed in the 1940s and 1950s. Currently, the BTWD has excess capacity to serve the Brunswick Topsham area, however, this capacity is allocated on a "first come first served" basis. In 1998, the BTWD conducted an evaluation of the water system serving the Annex and the schools in the area. The BTWD concluded that the existing system was substandard and generally would require complete replacement of the water distribution system for the BTWD to consider taking ownership of the water infrastructure. Some of the required improvements to the water distribution system identified as part of that evaluation included:

- Water mains constructed of inferior materials and would need to be located in future right-of-way corridors.
- Hydrants are not District standard and would require replacement.
- Shut-off valves are inferior quality and would need to be relocated to the edge of proposed right-of-way.
- The tank is lacking sufficient space for proper maintenance.

Replacement of the water distribution system would need to follow BTWD standards including:

- Utilization of District standard materials.
- Maintain vertical and horizontal separation to adjacent sewer mains of at least 10-feet horizontal and 18-inches vertical.
- Provision of individual water services, meters, and backflow preventers.
- Provision of easements where water infrastructure is located outside of proposed right-of-way.
- Demonstration of compliance with the the *State of Maine Cross Connection Rules*.

Transfer of the Navy assets to the BTWD must be completed in compliance with *Chapter 65 - Property Taken for Public Use and Assessment of Damages*, of the Maine Public Utility Commission rules. This chapter requires that water mains be located within public right-of-way, or have established easements in place for District operators. This chapter also provides districts the power of eminent domain to take property for operation of their water system.

Wastewater Collection System

The existing wastewater collection system consists primarily of clay pipe with pipe joints every three feet, which is typically susceptible to infiltration (groundwater entering the pipe). In the 1970s, the force main from the Navy's pump station was connected to the collection system on Main Street (Rte 201) owned by the Topsham Sewer District. Some limited improvements have been made to the wastewater collection system within the Annex, however it still is a major source of inflow and infiltration to the sewer system. According to Topsham Sewer District records, wet weather flows from the Topsham Annex can be as much as three to four times flows during dry periods. Other problems have been noted with the existing system including misaligned or non-uniform grades between structures which results in build up of materials and blockage of flow.

Due to its condition, much of the existing wastewater collection system would need to be replaced prior to transferring ownership to the Topsham Sewer District. With a new wastewater collection system constructed to District standards, the flows from the Topsham Annex should be reduced from typical wet weather flows now being experienced at the facility. Actual build out plans would need to be reviewed with the District to determine if additional off-site improvements to the wastewater collection system would be warranted.

Flows from Business and Community uses can vary significantly depending on the use. Typical business flows are approximately 500 gallons per day per acre. Light industrial uses with process waters tend to produce much higher wastewater generation rates. Significant increases in flows from the facility may trigger various off site improvements as noted previously in this report.

Stormwater

Modifications to the existing stormwater system are dependent on the extent of redevelopment and project phasing. It appears that the Annex is covered under the BNAS National Pollution Discharge Elimination System permit as issued by the Environmental Protection Agency. Future development on the Annex property would need to be completed in accordance with Maine Department of Environmental Protection Stormwater Management regulations. The stormwater management plans developed for the improvements would consider quality and quantity issues associated with the new impervious areas. Installation of new stormwater infrastructure will likely be needed as new roadways and housing units are constructed as part of the Reuse Master Plan.

Electric and Telecommunications

As noted previously, the existing electric distribution system provides satisfactory service to the developed portion of the Annex. Central Maine Power Company (CMP) provides power to the site and it is metered as power distribution enters the site from Route 201. CMP will likely require upgrades to the metering system rather than relying on the current single meter tracking electrical use on the entire Annex complex. In addition, depending on the development scheme, the existing overhead distribution system would need to be relocated to coincide with the proposed roadway right-of-way. The development scheme may also desire underground power distribution to improve overall property aesthetics. Verizon and Time Warner Cable operate the telephone and cable networks within the Annex complex. Where these lines are pole mounted, much of this infrastructure would need to be replaced as noted above for the power distribution network.

Natural Gas

Maine Natural Gas supplies gas service to the Topsham Annex. Much of this infrastructure was installed in 2001-2002 so it is in excellent operating condition. The development scheme could affect the natural gas system if it requires relocation of existing gas mains. As with the electrical service a master gas meter exists at the entrance to the Annex. This main meter would likely need to be replaced with smaller individual meters under the Reuse Master Plan.

Implementation and Property Disposition

Property Transfer Considerations

There are a number of property transfer mechanisms that could be used to convey portions of the Annex site to new owners. The TLRA does not envision the acquisition of any Annex parcels as part of any redevelopment strategy. Instead, it expects that (1) properties identified and approved by the Board through the NOI process will be transferred via the appropriate public benefit conveyance authority; and, (2) that the remaining land and buildings will be sold directly by the Navy via public sale, consistent with the vision set forth in the Reuse Master Plan, and subject to any subsequent zoning or other development restrictions put in place by the Town of Topsham.

Public Benefit Conveyances

Notice of Interest Applications

As a result of the outreach process outlined in Section 2 for solicitation of interest from local and state entities and designated homeless providers, applications were received for consideration by the TLRA. By the deadline for Notices of Interest to be submitted to the TLRA, nine NOIs from interested parties had been received, as outlined below and identified on the Map that follows:

#1: The Town of Topsham requested the Commissary building / parking lot for reuse as a community / indoor recreation facility under a Recreation PBC.

#2: The Town of Topsham requested 2.6 acres of land in the southwest corner of the Military Triangle for office / industrial use, under an Economic Development Conveyance.

#3: The Town of Topsham requested the fire station and associated parking for use by the Fire and Police departments for storage, training, and ancillary uses, under a Public Safety PBC.

#4: The Town of Topsham requested the land in the Housing Area to place the town in a stronger position when control of the GMH privatized housing is assumed by another entity in the future. The type of PBC was not specified.

#5: The SAD 75 requested the parking area associated with the Commissary to provide additional parking for the adjacent Mount Ararat High School via an Educational PBC.

#6: The SAD 75 requested approximately 15 acres of vacant land adjacent to the Housing Area for the expansion of the ball fields associated with the adjacent Mount Ararat Middle School via an Educational PBC.

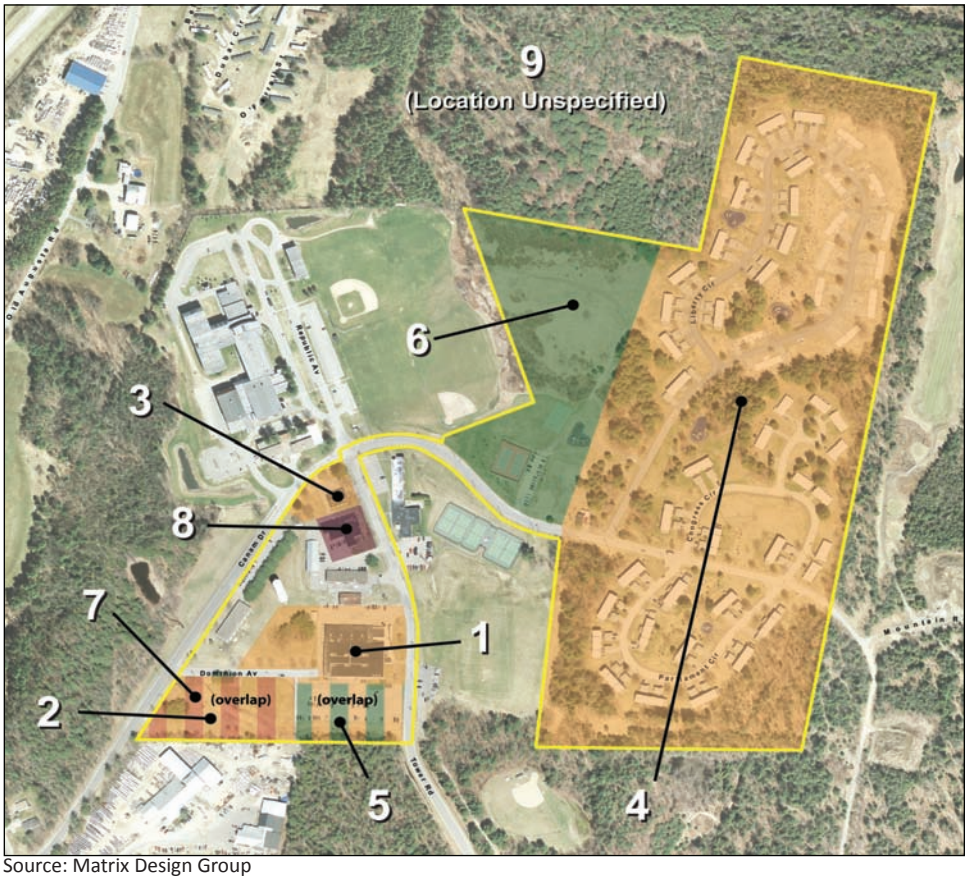
#7: The Topsham Sewer District requested 2.6 acres of land (including two small structures) in the southwest corner of the Military Triangle for use as the administrative offices of the district and for the construction of future maintenance / storage facilities.

#8: Tedford Housing requested part of the Marine Barracks for use as a counseling center for homeless teens under a Homeless Assistance submission.

#9: Tedford Housing requested land (location unspecified) for the construction of six dwelling units for use by those made homeless due to domestic abuse, under a Homeless Assistance submission.

After receipt of the NOIs, the TLRA heard presentations from each of the requesting agencies at a public meeting on June 20, 2007, and followed up with each agency with specific questions. Answers to these questions were provided to a subcommittee of the TLRA at a public meeting held on July 25.

Exhibit 62: NOI Requests



Source: Matrix Design Group

Notice of Interest Recommendations

During its September 2007 Meeting, the TLRA Board of Directors reviewed and discussed all of the submitted Notices of Interest, with the following recommendations made:

NOI Requests Not Recommended for Approval:

#1: The Town of Topsham requested the Commissary Building (#335) and associated parking for reuse as a future community center, with the possibility of additional uses in the form of indoor recreation. The TLRA reviewed the anticipated redevelopment costs, and determined that the town had not proposed a likely financing scenario to pay for the redevelopment. Therefore, while the reuse proposal was compatible with the Reuse Master Plan, the lack of a sound financing plan was seen as problematic.

#3: The Town of Topsham requested the existing fire station at the corner of Can Am Drive and Republic Drive for use as an ancillary fire department facility. The intended uses would include storage related to emergency management and fire operations, off-site training, and associated uses.

The proposed uses are compatible with the Homeland Security Department regulations for a PBC, and also compatible with the Reuse Master Plan. But while costs of operation are anticipated to be relatively minor, and not a significant impediment, the TLRA expressed concern over the willingness of the town to accept a second fire facility after having just recently constructed its facility at the new town Hall. In addition, the TLRA determined that the location of the fire station at the junction of three roads interior to the Annex was too valuable to devote to a storage facility.

#4: The town determined that it is in the public interest to assure that the Reuse Master Plan is implemented as proposed. Consequently, the town requested the 60 acres of land lying underneath the GMH leasehold in an effort to ensure the property redevelops as proposed.

The TLRA determined that the request does not fit any of the PBC criteria established by the federal government. Although the TLRA disapproved the request for that reason, the Board supported the town's efforts to acquire the property directly from the US Navy via a negotiated sale.

#5: SAD 75 requested the parking lot adjacent to and part of the existing Commissary (Building 335) to accommodate its growing need for surface parking. The TLRA expressed concern over the negative impact on redevelopment of the Commissary if its associated parking spaces were eliminated. A structure the size of the Commissary, reused in its entirety at four parking spaces per 1,000 square feet would require approximately 160 parking spaces under ideal conditions. Currently, there are 130-135 spaces provided for use by the Commissary. The Reuse Master Plan recommends that this area be redeveloped into business and community uses. By permanently dedicating this parking to the schools, redeveloping these types of uses would be very difficult, if not impossible.

NOI Requests Recommended for Approval:

#2: The Town of Topsham requested approximately 2.6 acres of land along the southern boundary of the Annex, adjacent to Can Am Drive for future economic development and job creation purposes.

The TLRA determined that use of the requested parcel would be consistent with the Reuse Master Plan and suitable for economic development and job creation purposes; however, due to the pending request of the Topsham Sewer District for a portion of that same area (described above), the town's Notice of Interest for an Economic Development Conveyance was modified and reduced to approximately 2.2 acres. Should the Sewer District's request to the Department of Health and Human Services be denied, the District's request for land overlapping this EDC request would be included in the town's EDC.

#6: SAD 75 requested approximately 15 acres of open space located between the existing GMH housing area and the existing District playing fields to support recreational needs of the adjacent Middle and High Schools.

The TLRA determined that SAD 75's request was consistent with the intent of the Reuse Master Plan and that the District demonstrated the ability to develop the property into usable athletic and recreational fields; and, that the District's request complied with the federal criteria for an educational PBC transfer. Consequently, the TLRA approved an educational Public Benefit Conveyance, sponsored by the U.S. Department of Education.

#7: The Topsham Sewer District requested two buildings at the entrance to the Annex, along Can Am Drive to be used to meet administrative and maintenance needs, along with 22,000 square feet of land for future expansion. While the TLRA determined that the request conformed to the proposed land uses for that part of the Annex, the amount of land sought by the District for future expansion is part of the same acreage proposed by the Town of Topsham for economic development (as described below). Legal Counsel for the TLRA advised that the proposed use was not a typical PBC granted by the Department of Health and Human Services, but that it may be possible to make a successful case to HHS. Understanding this, the TLRA voted to approve the Sewer District's request for the two structures, but modified the land request to approximately 20,000 square feet. Should the Sewer District's request be granted by HHS, this area would be removed from the town's EDC request for economic development and job creation, described below.

#8 and #9: Tedford Housing (TH), a qualified non-profit organization providing homeless services in the Midcoast region identified two specific needs: (1) a need in the community for services to homeless teens, including both shelter beds as well as counseling services; and (2) a need in the community for up to six units of housing for victims of domestic abuse. Tedford's NOI requested a building and land to meet the identified needs.

After numerous discussions with TH about both proposals, TH withdrew the emergency shelter portion of the request due to the inherent difficulties of operating, managing, and financing such a facility for such a small population (four or five beds), and instead concentrated on the development of a counseling facility. As a result, TH requested space to operate a counseling center as a portion of a municipal or school based facility, preferably in the marine barracks building. However, based on the fact that neither the town nor the School District is pursuing acquisition of the barracks, and the recommendation of the TLRA to disapprove the town's request for the Commissary, Tedford Housing's request could not be considered.

TH also amended its proposal for land on the Annex to build housing for victims of domestic abuse, instead deciding to seek financial assistance to allow placement of victims of domestic abuse in existing housing units in the Topsham / Brunswick area.

Homeless Assistance Provisions: Consistent with the program put forth by the Brunswick LRA, the Topsham LRA has also indicated support for a funding mechanism - a trust fund that would provide financial resources for Tedford Housing's identified needs within the designated vicinity of the Topsham Annex, an area that includes the towns of Topsham, Bowdoin, and Bowdoinham. the trust fund amount of $86,605 would be financed through a fee per acre contribution, raised from the sale of property by the Navy at the Topsham Annex. The trust fund would be accessible by TH on an as needed basis to support both housing and related services for homeless persons, specifically, counseling services for homeless teens and at-risk youth, as well as rent assistance for victims of domestic abuse. Providing service funding also allows the homeless to integrate throughout the community and lessen the impact on the municipal services in one area by spreading the demand over a wider area. Funds would be spent by TH based on the terms set forth in the Legally Binding Agreement. A draft of the Legally Binding Agreement related to the terms and conditions required to meet homeless assistance needs is provided in Appendix E.

Other Public Conveyance Mechanisms

Economic Development Conveyances

If approved by the Navy, transfer of select properties within the base via an economic development conveyance could be granted to the MRRA for the purpose of job creation. This type of conveyances may be at a discounted price or at fair market value. It is anticipated that the conveyance of the 2.2-acre Military Triangle parcel requested by the town (2.6 acres if the Sewer District's request is not approved) would be considered for this type of property transfer, given the job creation opportunities and the potential to provide for significant economic development within the region from such an activity.

Negotiated Sale

An option that might be considered for the parcels encumbered by the GMH housing is the conveyance via a negotiated sale with the Navy. Negotiated sales must be to a public entity for a public purpose. MRRA, the Implementation LRA qualifies as a public entity and the public purpose would be to ensure that a portion of the housing units become "workforce" housing, as called for in the Reuse Master Plan. Negotiated sale authority requires the payment of fair market value. Given the encumbrance of the GMH lease on these parcels, the fair market value for the GMH housing parcels should be minimal.

Public Sale

As stated earlier, the TLRA Board has not requested any of the remaining parcels at the Topsham Annex. As such, the Navy is likely to dispose of the property via public sale. The Navy has disposed of numerous properties via online Internet auction sales over the past five years. In addition, the Navy has ongoing auctions for portions of several closed bases, including portions of the Orlando Naval Training Center and the Roosevelt Roads Naval Station in Puerto Rico. Information on the Navy's property sales can be seen at http://www.braclandsales.com.

As discussed elsewhere in the Reuse Master Plan, the fact that the land underlying the existing housing units is encumbered by the Navy / GMH privatization agreement could make the transfer of the property to another entity problematic. At the present time, the terms of the lease do not require direct payment to the landowner, meaning that a new landowner would not be able to generate revenue from the property. In addition, when the property is transferred, it will become subject to taxation. This may have the effect of limiting competition for the property, as the property would have direct annual costs associated with it, without a commensurate ability to generate revenue. The fact that the existing housing is leased by GMH makes that company the most likely buyer for the property. However, requirements of the Property and Administrative Services Act of 1949 discourage direct negotiations with a single private-sector buyer. As such, the Navy is expected to utilize the public sale process to dispose of the housing areas.

Since public sale of the remaining land and facilities at the Topsham Annex will be subject to existing zoning on the site (and any other subsequent conditions the town might want to establish), it is recommended that the community review its zoning for the parcels that comprise the Topsham Annex, and consider zoning changes which are consistent with the Reuse Master Plan and the community's vision for redevelopment.

The Navy / Northeast Partners, LLC (GMH) Privatized Housing Issue

In an effort to accelerate the upgrading of existing housing and the creation of new housing, the Navy implemented a nationwide housing privatization program in the 1990s. In essence, this program resulted in the transfer of physical assets such as

housing units and common areas (and the associates cash flows from sailors), to private companies in exchange for a commitment to construct and/or upgrade units. However, ownership of the land under the housing units remained with the Navy. The Navy's expectation was that existing housing units would ultimately be demolished and new units constructed for Navy personnel. Under this program, Northeast Partners, LLC acquired the ownership interest in all family housing units in both the Topsham Annex the Brunswick Naval Air Station (BNAS) in 2004. Northeast Partners LLC includes GMH, the military housing division of GMH Communities Trust, which manages the properties for the partnership.

This housing privatization program is relatively new within the Navy. Furthermore, no prior BRAC round involved privatized housing. As such, the Topsham Annex and BNAS properties represent a unique and new experience for BRAC in general, and for GMH and the Navy in particular. Specifically, while the Navy has the ability to dispose of the land under procedures commonly used as part of BRAC, the improvements on that land are currently under the control of GMH. The issue is further complicated by the fact that the Navy's land is subject to a 50-year lease to GMH, of which approximately 47 years remain. The GMH lease envisioned that the property would be redeveloped at no cost to the Navy, for the primary benefit of Navy personnel. As such, the land lease does not require a lease payment to the Navy. This means that the Navy's land is encumbered by a lease without a source of revenue. Once the land passes from the control of the Federal government, any private sector user will be responsible for the payment of property taxes to the Town of Topsham, meaning that the land could have expenses (taxes) without an ability to generate revenues (due to the GMH lease) throughout the remaining term of the lease.

The housing owned by GMH is also affected by the BRAC decision. As originally envisioned, GMH would have the ability to demolish the existing housing units and construct new units based on the strength of the cash flows associated with a 50-year income stream from Navy personnel. In fact, GMH began demolition of a portion of the housing units at the Topsham Annex prior to the BRAC announcement, in anticipation of replacing those units.

Today, GMH has an existing asset (the housing units at the Topsham Annex) with a limited life. The Navy is required by the BRAC law to complete the closure of the Brunswick Naval Air Station and the Topsham Annex before 2011. Closure could occur sooner, particularly for the Topsham Annex, as residents and functions presently at the Annex could be relocated to the main base as squadrons depart and facilities become available. In practice, it is likely that the housing at the Topsham Annex will be available for redevelopment prior to the closure of BNAS, possibly during 2008 when the first squadrons are relocated to Florida. Given that the Annex is in a remote location from the main base, it is also likely that GMH will relocate Navy personnel to BNAS housing at

that time in order to reduce operating costs and maximize returns. At that point, GMH could opt to market the vacated Topsham Annex housing units for rent to non-Navy personnel.

Since the BRAC announcement, GMH has indicated publicly that they do not want to continue to own and operate housing units at either the Annex or BNAS after closure of the base. Given the expectation that the regional housing market will decline with the departure of Navy personnel from the region, the GMH housing faces limited upside potential. Further, the cash flow potential for the properties, in terms of revenues from the Navy is limited, indicating that the value of the property will decline steadily through 2011 unless market tenants can be attracted to the properties.

Unfortunately, the separation of the housing units from the underlying land presents an additional layer of complexity in terms of redeveloping the Topsham Annex. The terms of the land lease (which do not require an annual lease payment but could be taxed) devalue the land. The limited cash flows for the housing units from Navy personnel, and the limited life of that cash flow, also negatively affect the value of the housing. Further, GMH's partial demolition of the site also affects the value of the property. In order to redevelop the property, it is considered critical for the land and buildings to be joined together. Unfortunately, the Property and Administrative Services Act of 1949, which regulates the Federal property disposal process, discourages the Navy from selling the land directly to GMH (or any other private sector buyer) in a sole source negotiation. GMH could acquire the land directly through an auction sale, and in fact would be the most likely buyer of the land, given their leasehold interest. However, based on GMH's public statements that the firm would like to divest itself of the housing in Brunswick and Topsham, it is not clear whether GMH would actually seek to acquire the underlying land at the Topsham Annex.

Reuse Master Plan Consultant Team

Matrix Design Group - Denver, Colorado

- Dan Schnepf, Disposition / Implementation Strategies
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- Jon Edgerton, Transportation and Infrastructure Assessment
- Doug Rice, Transportation and Infrastructure Assessment
- Travis Pryor, Transportation and Infrastructure Assessment

WBRC Architects & Engineers - Bangor, Maine

- Rob Frank, Facilities Assessment

Planning Decisions - Hallowell, Maine

- Frank O'Hara, Public Engagement Facilitation
- Antje Kablitz, Public Engagement Facilitation

Eaton Peabody Consulting Group - Augusta, Maine

- Greg Mitchell, Economic Development Strategies

Jeffrey Donohoe and Associates, LLC - Manchester, New Hampshire

- Jeff Donohoe, Market and Economic Assessment

Supplemental Information: January 2008

After the adoption of the Topsham Reuse Master Plan in December 2007, the information described below was developed which provides clarification to an issue that was unresolved as the reuse master plan report's publication:

Topsham Sewer District Notice of Interest

On page 145 of the Topsham Annex Reuse Master Plan report document, in the section describing the Notices of Interest Recommended for Approval, is the following text:

#7: The Topsham Sewer District requested two buildings at the entrance to the Annex, along Can Am Drive to be used to meet administrative and maintenance needs, along with 22,000 square feet of land for future expansion. While the TLRA determined that the request conformed to the proposed land uses for that part of the Annex, the amount of land sought by the District for future expansion is part of the same acreage proposed by the Town of Topsham for economic development (as described below). Legal Counsel for the TLRA advised that the proposed use was not a typical PBC granted by the Department of Health and Human Services, but that it may be possible to make a successful case to HHS. Understanding this, the TLRA voted to approve the Sewer District's request for the two structures, but modified the land request to approximately 20,000 square feet. Should the Sewer District's request be granted by HHS, this area would be removed from the town's EDC request for economic development and job creation, described below.

Since the publication of this paragraph, the US Department of Health and Human Services ruled that the Topsham Sewer District's proposed request for buildings and land at the Topsham Annex would qualify as a public benefit conveyance. Consequently, the Recommended Notices of Interest that will be considered for approval by HHS will include the Topsham Sewer District's request for the two buildings at the entrance to the Annex and 22,000 square feet of land.

Topsham Annex - Naval Air Station Brunswick

Homeless Assistance Submission

Background

In late 2005, Congress approved the Department of Defense 2005 Base Realignment and Closure (BRAC) Recommendations, which included the closure of the Topsham Annex - Naval Air Station Brunswick, an approximately 74-acre facility located in Topsham, Maine.

In preparation for closure, the Topsham Local Redevelopment Authority (TLRA) has been created to complete a reuse and redevelopment plan. Naval Air Station Brunswick is Maine's second largest employer, with 5,227 military and civilian personnel, contributing more than $336 million to the regional economy. Employment includes 573 officers, 3,837 enlisted personnel and 817 civilians. With $147 million in military and civilian salaries, the base plays a major role in the regional economy. The Topsham Annex - Naval Air Station Brunswick is located adjacent to downtown Topsham, which is undergoing active redevelopment. The Annex is currently operating as a general support facility for the Naval Air Station Brunswick main base in Brunswick, and includes 177 units of base housing, a commissary, a training facility, office space, and a fire station. In addition to the Navy, other branches of the Department of Defense (DoD) are housed on the Annex property including the Marines, and Army operating facilities including a reserve center and recruiting station.

The Topsham Annex - Naval Air Station Brunswick is scheduled to be closed in 2011.

Information About Homelessness

In a January 8, 2007 report, Planning Decisions, Inc., working under contract to the Brunswick LRA, completed a report entitled "Report on Homelessness in MidCoast Maine". The findings of this report can be summarized as follows (the full report is attached as Appendix A):

2011 Demand Estimates

Using the calculations and assumptions described in Appendices B and C, the following are demand estimates for homeless shelter and services in the Brunswick and Topsham demand areas:

- There is only a modest demand for shelter beds for adults. There is some demand for family shelter beds, but if sufficient alternatives develop, and the average length of stay can be reduced to a couple of weeks, that demand nearly disappears.

- On the other hand, there does appear to be a demand for 4-5 shelter beds for transient youth under any scenario.

- There is a much larger demand for supported housing apartments. The reason that this demand is so high, even though it is only for a portion of the homeless population, is that the length of stay is much longer. If seven single adults a month need supported housing, and each of the seven people stays in his or her apartment for a year, then 84 apartments overall will be needed to provide housing for this segment.

Figure 4: Estimated range[1] of demand for homeless shelter and supported housing in the Brunswick and Topsham LRA service areas in 2011

Unmet need in 2011	Families	Single adults	Single youth
Shelter	**2-12 apartments**	**0 beds**	**4-5 beds**
Supported housing	**4 – 14 apartments**	**34-75 beds**	**12-24 beds**

The report continues to note that of these totals, only about 6% come from the Bowdoin, Bowdoinham and Topsham areas.

Based on the findings of this report, the 2011 unmet need for homeless assistance in the Topsham, Bowdoin and Bowdoinham areas would total 1 apartment for families, 5-6 beds for single adults, and 1 to beds for single youths.

Notices of Interest

[1] The lower figures are based on "ideal" occupancy rates, assuming that services are available to move people out of shelters and supported housing in a timely way; the higher figures are based on recent experiences, reflecting a condition where such services are not always available.

The TLRA received two requests (see Appendix B) for homeless assistance during the homeless screening process. Both requests were received from Tedford Housing, a local non-profit agency that operates shelter space in Brunswick, and supportive housing units the general vicinity.

NOI #1

The first request from Tedford Housing was for a portion of an existing facility, the Marine Barracks, as a resource/service center for homeless and at-risk teens, serving the Maine School Administrative District 75 communities of Topsham, Harpswell, Bowdoin and Bowdoinham, as well as other communities in the general region, including Durham, Pownal, Lisbon, Freeport and communities in Lincoln County.

The specifics of the request were for office space and up to 2,000 s.f. of classroom space. Support was also sought for renovations of the existing space, totaling approximately $400,000. Operation support was the third component, totaling $144,900 over a three year period.

Through discussions with Tedford, a desire was expressed to be part of a municipal facility in an effort to reduce facility costs. However, no municipal facility was planned for the Annex. After further discussions with representatives of Tedford Housing, and various refinements to the proposal, the Topsham LRA voted to endorse the request from Tedford Housing on a partial basis, to include financial support through a Trust Fund, to help subsidize the operational cost associated with providing counseling services to homeless and at-risk teens. The total budget was calculated over a five year period, with the knowledge that the drawdown may extend beyond five years.

Understanding the limited value of the facilities at the Annex, a reduced proposal was negotiated and agreed to by all parties, which includes partial support counseling services for homeless and at-risk youths, on a sliding scale, starting in Year One at $17,500, and decreasing each year based on the following schedule:

Year 1	$17,500
Year 2	$12,500
Year 3	$7,500
Year 4	$5,000
Year 5	$2,500

The understanding is that Tedford will continue to seek additional financial support outside the BRAC process. It is also understood that these funds, while calculated to support counseling services, can be used for other purposes related to assisting homeless teens and at risk-youths, as may be needed, and determined by Tedford Housing.

Because the TLRA and Tedford Housing have agreed to financial support rather that a new facility, the negative impact on the surrounding neighborhoods will be negligible.

The positive impact on the larger community could be substantial if the underlying assumption proves correct that reaching homeless teens with the appropriate counseling support will help them secure safe housing, either at home, or in another venue.

The counseling services will cause no changes in general housing patterns or distribution of low-income or minority populations.

Tedford Housing is pursuing discussions with MSAD 75 officials about the potential of utilizing existing school facilities for counseling purposes. This has the advantage of working with teens where they are, at school, and will not create additional demands on public infrastructure or services.

NOI #2

Tedford Housing – Victims of Domestic Abuse

Tedford Housing initially requested land and financial support to construct and operate 6 units of housing for those made homeless through domestic abuse. After discussions with Tedford Housing, the application was amended provide financial assistance to Tedford Housing for issues related to persons made homeless through domestic violence. The amount approved $80,600, based on rent subsidies and security deposits. However, the funds could be used for other purposes related to serving persons made homeless through domestic violence, including counseling services. This proposal has been endorsed by the TLRA.

It was further decided that the funds to support this request would be placed in a Trust Fund, administered by the Midcoast Regional Redevelopment Authority, and available only to Tedford Housing for this purpose. The subsidy sought was calculated based on security deposits and rent subsidies of up to 10% of actual rent. However, the use of the funds would also cover counseling and support to this population, as needed and determined by Tedford Housing.

This request from Tedford Housing will have a positive impact on the community by providing safe housing for victims of domestic abuse, thereby reducing the cost of services that the community may have to provide to this population. Any potential negative impacts that would stem from consolidating these units in a single location will be mitigated by providing housing through out the community. This will avoid any stigma attached to the need for the housing.

Legally Binding Agreements

Since the two Notices of Interest that the TLRA received with respect to homelessness are from the same entity, which is the same entity that has received approval from the Brunswick LRA, the LBAs needed to serve these functions have been consolidated into a single LBA. This LBA will be between Tedford Housing and the MidCoast Regional

Redevelopment Authority, the successor redevelopment authority to both the Topsham LRA and the Brunswick LRA.

The LBA will create a Trust Fund, that will be capitalized from the sale of land on the Annex. These monies will be used to fund the agreed upon programs administered by Tedford Housing. Similarly, the LBA will provide for Trust Fund monies to fund the project accepted by the Brunswick LRA. A copy of the draft LBA is located in Appendix C.

The monies necessary to fund the projects approved by the TLRA will be internally segregated from those monies earmarked for support of projects that were approved by the Brunswick LRA.

The format of the LBA is currently under review by both the TLRA and Tedford Housing.

Balance

Achieving a balance between the needs of the homeless populations in the Topsham area, and the ability of the Annex to support those needs has been a difficult effort. The TLRA has a strong desire to support both homeless NOIs put forward by Tedford Housing, and feels that both proposals address specific needs in the greater community. However, to fully fund both requests is much beyond the capacity of the Annex to sustain.

Currently, the Annex consists of 74 acres of land, 45 of which are subject to a 47-year housing lease to GMH. The remaining 14 acres include approximately 2.7 acres of vacant land, a 40,000 s.f. commissary, an Army recruiting building, an old fire station, a Marine Barracks, and several storage facilities.

All facilities on the Annex date to the late 50's, with some renovations and expansions over the years. None of the facilities are ADA compliant, and all are subject to substantial costs for renovation into modern commercial/office/light industrial space. To expect the sale of these facilities to generate sufficient funds to fully fund the requests from Tedford Housing will result in no redevelopment at the Annex. The reduced funding model will translate to approximately $1,100 per acre of property. This "added cost" to the sale price will have somewhat of a negative impact on the marketability of the properties, but the TLRA feels the impacts are justified in order to address as much of the identified homeless issues as possible.

Because the requests from Tedford Housing were revised to seek financial support, not physical property, there will be no affect on the redevelopment potential of the Annex from supporting these programs, with the noted exception of a somewhat negative impact on the sale of property due to the per acre fee.

The programs proposed by Tedford Housing are in line with both the Annex Reuse Plan, as well as other plans adopted by the Town of Topsham. Both have recognized the need

for housing and services for the most vulnerable segments of the local population, and the programs proposed by Tedford Housing will serve to address two such instances.

Outreach

Because the Naval Air Station Brunswick consists of two main parcels, each located entirely within different communities, the decision was made, in consultation with OEA, to create two LRAs to service the two facilities. The Brunswick LRA served the Main Base, consisting of 3200 acres, and the Topsham LRA addressed the issues surrounding the Annex, an area of approximately 74 acres. Similarly, after discussions with between TLRA, BLRA, HUD, and OEA, the region was addressed in its entirety, but proportionally by the two LRAs. The Topsham LRA area consists of the Towns of Topsham, Bowdoin and Bowdoinham, while the Brunswick LRA consists of the Towns of Bath, Brunswick, Harpswell, Freeport and the remainder of Sagadahoc County.

Based on this division, the TRLA membership consists of representatives from Topsham and Bowdoinham, and a courtesy representative from the Town of Brunswick. Similarly, a courtesy representative from Topsham sits on the BLRA. This cross-membership was designed to facilitate discussion and to keep the two LRAs appraised of the others activities.

The Topsham LRA placed advertisements in the Times Record, serving the Topsham/Brunswick/Midcoast region, and the Portland Press Herald, on February 22, 2007. Photo copies of the ads, and a full size copy, are found in Appendix D. At the same time, a notice was mailed to homeless service providers announcing the surplus determination. The letter and mailing list are also found in Appendix D.

In addition to the letter to homeless providers, and the ads in the Times Record and Press Herald, the TLRA established a web page (www.topshamlra.org) with all of the pertinent information regarding the surplus property listing and established an application package with directions for NOI applicants to follow. On March 14, the TLRA held a workshop for interested homeless service providers. The workshop consisted of a presentation by TLRA staff as to the features of the Annex, then proceeded to a question/answer session. Following this meeting, there was as site walk for those interested parties to actually see the facilities, both inside and out, where possible.

Appendix A

Homeless Need Assessment

Planning Decisions, Inc.

Research & Planning

REPORT ON THE HOMELESS IN MIDCOAST MAINE

January 8, 2007

For the Brunswick Local Redevelopment Authority

Table of Contents

Section		Page
Part I	Introduction	1
Part II	General Facts about homelessness in the Midcoast	2
Part III	2011 Demand Estimates	8
Appendix A: Brunswick Homelessness Process		9
Appendix B: Worksheets		11
Appendix C: Assumptions of demand estimates		13

Part I: Introduction

A. Purpose of report

Planning for the re-use of the Brunswick Naval Air Station is governed by the Federal Base Closure Community Redevelopment and Homeless Assistance Act. Under this Act, the local redevelopment authority must work with homeless providers to accommodate the interests of homeless people in the larger scheme of base redevelopment. The Brunswick Local Redevelopment Authority (LRA) and Topsham LRA were invited to and have attended on-going meetings organized by a committee of homeless providers interested in the homeless screening process. The Brunswick LRA plan for meeting the homeless requirements is described in Appendix A.

Under the proposed process, upon the official notification by the Navy of the availability of surplus property on the Base, the Brunswick LRA will send out a letter to a very wide list of potential homeless service providers in Maine inviting proposals for homeless services that would utilize parts of the available surplus property. The LRA will then screen the proposals and work with submitting agencies to create realistic and effective program ideas that could be implemented upon the closing of the Base in 2011.

The purpose of this report is to assist the Brunswick LRA in understanding the scope of needs in the area, so that it can more effectively engage with homeless providers in creating programs that will make a difference for the homeless in 2011. It should also be of use to the Topsham LRA.

Planning Decisions staff was provided with invaluable advice and assistance on this report by many people who are knowledgeable about the needs of homeless in the midcoast. Among these were Julia Wilcox and Pat Murtaugh of the Volunteers of America; Cindy Namer and Bob King of the Maine State Housing Authority; Don Kniseley and Giff Jamison of Tedford Shelter; Cyndy Carney of CEI; Jim Pierce of Independence Association; and Jane Scease of Topsham Municipal Government. Responsibility for the conclusions of this report, however, lay with the consultant alone.

B. Definitions

A homeless person is defined as someone who lacks a fixed and regular night-time residence, or who is in a temporary shelter, or who is staying in a place not normally used as sleeping accommodations.

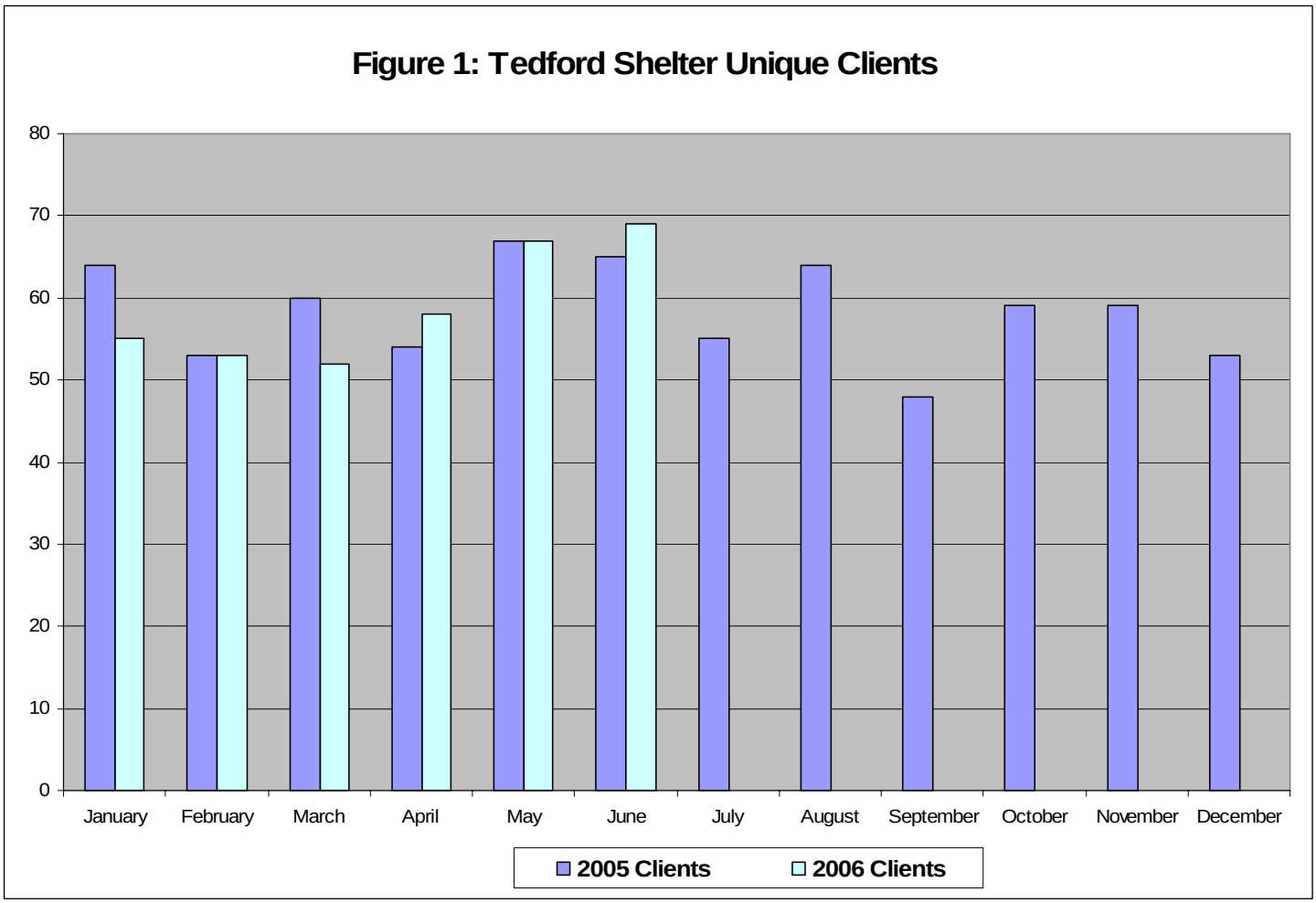
Homeless people living in the "vicinity of the base" are eligible for consideration for services. For the purposes of the Brunswick Naval Air Station, the vicinity has been defined as the towns of Brunswick, Harpswell, Freeport, and Durham; and all of the communities in Sagadahoc County. Within this general area, the Topsham LRA is considered responsible for the homeless demand from Topsham, Bowdoin, and Bowdoinham.

Part II: General Facts about Homelessness in the Midcoast

A. Modest decline in homelessness in last 5 years

As a prelude to the discussion which follows, it must be kept in mind that "counting" the homeless, by definition, is very difficult, and that numbers must be viewed with caution. It is easy to count "shelter bed nights" – the number of occupied beds over a series of nights in a given period of time. It is difficult to count those who are not in official shelters, but rather doubling up in a friend's living room, or in a car, or in a tent. One study found that actual homeless were 75% greater than those who showed up in a shelter[1].

With this as background, here are some general numbers. Clients in homeless shelters in Maine increased significantly in the 1990s[2], but has declined by 12% in the last five years, an annual reduction of 3.2%. Within the midcoast region, the major shelter provider, Tedford, has had little change between 2005 and 2006, either in total numbers or in seasonal variations (see Figure 1).



[1] Helping America's Homeless: Emergency Shelter or Affordable Housing?, Aron, Lee, Urban Institute Press, 2001
[2] State of Maine Action Plan to End Homelessness, January 2005, page 12

B. Experience of town general assistance offices

Jane Scease, Selectperson from Topsham, coordinated an effort to interview General Assistance providers in Topsham, Woolwich, Bowdoinham, and Bowdoin. This provided a unique look at the homeless in rural areas who do not always show up in shelters.

The interviews identified the following people showing up at town offices in need of housing help:

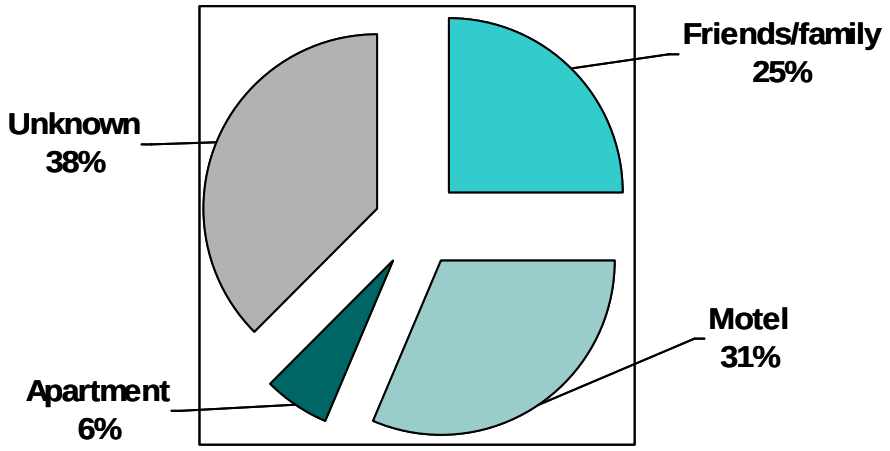
- 2 teen-agers (17 and 15), moving from friend to friend, can't go home because of substance abuse of parent;
- Single adult woman, disabled, living in camper
- Single mother with 9-year old, living in car
- Single woman with mental illness, lost home in town, living in car
- Single divorced woman, living in car
- Two parent, two child family, just moved back to town, staying with family members temporarily
- Married adult man, disabled, unable to work, can't pay heating bills
- Young unemployed woman with two children, living in motel
- Young woman with children, leaving abusive husband
- Young woman with children, left abusive boyfriend to live with mother, mother wants her out
- Young woman with children, saving money for car to get to job, can't pay rent
- Single man, overdue on child support, state took drivers' and clamming licenses, living with friends
- Single mother living boyfriend and 6 children in mother's trailer, mom wants her to move
- Young man with mental disability, living in tent in parents' backyard
- Single woman in 30s with substance abuse problem, husband in jail, child taken by state

The examples also make clear that many homeless people need help that goes well beyond affordable housing alone.

Interestingly, none of the GA administrators reported that the clients had gone to Tedford. As many of them were in flux and moving about, probably most ended up at some point checking with or staying at Tedford. But the immediate destinations for many of these people included families or friends, or motels, or other apartments.

The GA administrators, as well as nonprofit agencies meeting for the purpose of discussing homelessness, made a point of emphasizing that it would be helpful to have one point of contact, one source of information, one place for referrals, for homeless issues.

Figure 2: Outcomes for 16 GA clients in Topsham, Bowdoinham, Woolwich, Bowdoin 2006



C. General balance of homeless moving into and out of the region

The Maine State Housing Authority conducts a periodic "point in time" study asking every shelter in Maine to report on its service for that month. The last such study was in July of 2006.

The study showed that 67 homeless people showed up at shelters who had originated within the "base vicinity" as is identified above. Of these, 50 stayed at Tedford, and another 17 went to shelters outside of the area. On the other side of the coin, Tedford served 20 people who came to the midcoast from outside the region.

Of the total of 70 people who stayed at the Tedford Shelter in July of 2005, 6% were from Topsham, Bowdoin, or Bowdoinham (the service area of the Topsham LRA); 70% from Brunswick, Bath, and the rest of the service area; and 24% from outside the region.

In short, there is a rough balance of homeless moving into and out of the region.

D. Three distinct populations of homeless

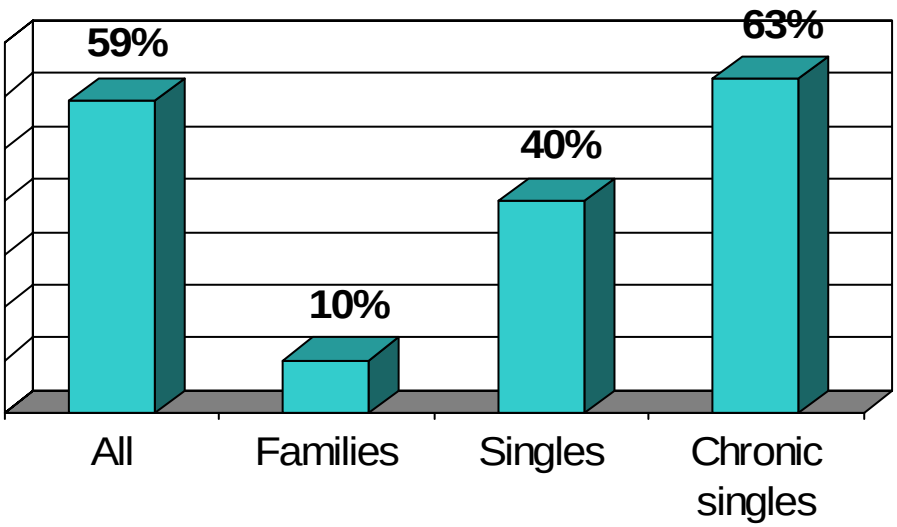
According to local providers, there are three distinct populations of homeless people, each with different housing needs. The first kind is families with children. The second is single adults. The third group are young people between the ages of 15 and 21. The issues of each are described below.

Families tend to be young, single mothers. According to a Maine State Housing Authority report on families staying at Tedford in July of 2005, six of 13 were high school dropouts, and two more had only a GED degree. All were unemployed. A third had unmet service needs for life skills, meals help, transportation, and mental health. According to a year-long study by Tedford, only 10% of families reported that substance abuse or mental health issues were their primary reason for homelessness. The average length of stay for families was 32 days in fiscal year 2005, and 46 days in fiscal year 2006. The increase in length of stay reflects a lack of subsidized assistance, and a tight area housing market, rather than a change in the types of families coming for help. Over the past four years, the Tedford Shelter has consistently turned away about 20 families a month due to an inability to provide housing for them.

Single adults age 22 and over are more likely to be male (71% in July 2005 MSHA records), single, evenly distributed by age up through 60 years. One in seven are veterans. Education levels range from drop out (42%) to a high school degree only (31%) to some college (27%). This group, however, is more likely to have psychological or physical problems – chronic mental illness (40%), alcohol dependence (20%); drug dependence (15%); physical disability (10%).

Tedford's long-term research indicates that substance abuse or mental health problems are a major cause of homelessness for adult singles, and the major cause of chronic homelessness (see Table 3 below).

Figure 3: Substance abuse or mental health major contributors to homelessness (Tedford 2005-6)



Part of this population includes adults with developmental disabilities or mental retardation. The Independence Association of Brunswick serves the housing needs of this group in the midcoast. The Association operates 24 homes serving 48 individuals. In 2006, a typical year, 15 people were referred to the agency for housing; of these, 10 were served, and 5 were not. The agency director estimates that demand grows over the long term by about 2-3 people per year.

The third major group of homeless is young people under 22 years of age. The Maine Department of Labor reported that 18% of young people between the ages of 18 and 24 were not in school, were not working, and had no degree beyond a high school diploma in 2002[3]. These are the young people who tend to drift from couch to couch, have issues with substance abuse, don't know how to handle money, etc. In Sagadahoc County, only 83% of students who enter high school as a freshman get their diploma (Cumberland County is 88%).[4] The State's population under the age of 18 is projected by the United States Census to decline by 4% over the next twenty years. However, there seems to be no reduction in the numbers of youth with issues related to homelessness. The Maine Corrections system, for example, released 519 Cumberland and Sagadahoc County juveniles in 2005, up from 441 juveniles in 2004; young people released from institutions are extremely vulnerable to homelessness.[5]

There were nine young single people at Tedford in July of 2005, according to the Maine State Housing Authority; of these, four had physical disabilities, one was developmentally disabled, one had chronic mental illness, and one had a substance abuse problem. For every ten young persons in a general family shelter like Tedford, there are 8 in specialized youth shelters in Maine. [6]

E. Two types of housing assistance

As is clear from the above, some homeless people have only a housing problem. Others have multiple problems which contribute to chronic homelessness.

For the former group, a shelter stay alone is enough. Once someone with only a housing problem gets on his or her feet, gets help finding a regular apartment, he or she is on their way. For those with chronic and multiple issues, however, a shelter is not enough If they go back into the private housing market without dealing with their underlying problems, they are likely to recycle back into another shelter. These people often need some sort of transitional or supported housing. The form that such housing can take varies according to the kinds of people who use the housing, the kinds of issues they face, and the funding availability. People can stay in this kind of housing for as short a time as a few months, or for many years. The analysis in the next section addresses (in broad terms) both types of issues.

F. Additional considerations

Beyond the strict issue of "need," there are three other considerations that the Brunswick LRA must keep in mind as it evaluates homeless service proposals.

1) Housing will not be a scarce commodity in Greater Brunswick in 2011, as over 2,000 units of housing on and off the Base are expected to be freed by the departure of military families.[7] This means that the homelessness in the midcoast related strictly to housing

[3] Trends and Implications for the Maine Workforce, 2005; Maine Department of Labor; page 10.
[4] Maine Kids Count 2006, County data foldout, page 19.
[5] Email from Pat Murtagh to Cindy Namer, June 2006
[6] Point in Time Survey; Homelessness in Maine on April 24, 2004, Maine State Housing Authority, page 3
[7] The Impact of the BRAC Ordered Closure of the Brunswick Naval Air Station: A Regional Community Audit, 2006, page 20.

shortages and low vacancy rates will be eased. However, the availability of housing will not solve the problems of homeless people with other issues such as substance abuse, mental illness, or physical disability. These populations will need services as well as housing, and such services cost money. The base closure process is designed to provide buildings to homeless providers, but not service funds. In fact the LRA will be asking for guarantees from service providers seeking buildings that they will have funds in 2011 in order to operate their programs, and these too are hard to provide. Avesta Housing in Portland, for example, has built housing in the past with the understanding that state funds for services would be provided on an ongoing basis, only to find that the state funds have been cut after a few years. The problem of coordinating services, funding, and housing, will be a challenge going forward.

2) The general experience of family housing providers over the years is that low and moderate-income people are better off when they are integrated into the community, and not living in "projects" that are easily identified as "low-income." Thus, a strategy of obtaining a visible and clearly-delineated block of apartments on the Base to serve homeless people may be counterproductive to current "best practices" for helping this group. Tedford Shelter is considering one strategy to deal with this problem, namely, to get a building on the Base to use for administrative purposes, and converting the administrative offices in the community into shelter – thus adding new housing that more easily blends into existing neighborhoods.

3) The subject of how best to provide services to the homeless has been a steady topic at the meetings of the homeless service providers sponsored by the Brunswick and Topsham LRAs. Area general assistance administrators, schools, and other people who encounter people with housing and social needs do not know where to turn to find help. One idea discussed at length is to create a "one-stop" service center on the redeveloped Base that includes housing, employment, training, counseling, and other services under one roof. While the impetus for doing this would be to better serve the homeless, such services would logically serve a much broader group. This idea confronts the same funding issues as those described in point one above.

With this as background, the following section provides estimates of the general level of demand for homeless shelter and services in the Brunswick-Topsham area.

Part III: 2011 Demand Estimates

Using the calculations and assumptions described in Appendices B and C, the following are demand estimates for homeless shelter and services in the Brunswick and Topsham demand areas:

- There is only a modest demand for shelter beds for adults. There is some demand for family shelter beds, but if sufficient alternatives develop, and the average length of stay can be reduced to a couple of weeks, this demand nearly disappears.

- On the other hand, there does appear to be a demand for 4-5 shelter beds for transient youth under any scenario.

- There is a much larger demand for supported housing apartments. The reason that this demand is so high, even though it is only for a portion of the homeless population, is that the length of stay is much longer. If seven single adults a month need supported housing, and each of the seven people stays in his or her apartment for a year, then 84 apartments overall will be needed to provide housing for this segment.

Figure 4: Estimated range[8] of demand for homeless shelter and supported housing in the Brunswick and Topsham LRA service areas in 2011

Unmet need in 2011	Families	Single adults	Single youth
Shelter	**2-12 apartments**	**0 beds**	**4-5 beds**
Supported housing	**4 – 14 apartments**	**34-75 beds**	**12-24 beds**

Of this demand, only a small portion[9] is from the communities of Topsham, Bowdoin, and Bowdoinham. These demand estimates are one of the pieces that the LRAs must consider in evaluating proposals (others include funding availability for services, integrating homeless into the community, and the capability of the proposing agency) – but they do give a general sense of the order of magnitude of need, and show the greatest gap is for supported housing for single adults and youth.

[8] The lower figures are based on "ideal" occupancy rates, assuming that services are available to move people out of shelters and supported housing in a timely way; the higher figures are based on recent experiences, reflecting a condition where such services are not always available.

[9] Six percent – see Section C on page 4.

Appendix A – Brunswick LRA Homeless Screening Process

Homeless Provider Screening Information

Understanding the Base Realignment And Closure (BRAC) Process

In November of 2005, the Department of Defense announced the closure of Brunswick Naval Air Station (BNAS). The base will close in 2011. For more than four decades, the U.S. Department of Defense (DoD) has closed or realigned military installations to reduce overhead, enhance readiness and modernization, and adjust to the realities of changing international relations. The resulting impact on surrounding communities is often dramatic. Many communities, however, have successfully converted these former installations to civilian uses such as parks and other recreational facilities, business centers, market-rate housing, affordable housing, and transitional housing for homeless persons.

The Federal Base Closure Community Redevelopment and Homeless Assistance Act governs the process of how federal defense facilities are disposed. The Redevelopment Act was designed to accommodate the impacted communities' multiple interests in base reuse and to meet the national priority to assist homeless individuals and families. The Act provides for a community-based process where governmental and not-for-profit organizations serving homeless individuals or families participate in the local reuse planning process.

The Redevelopment Act places responsibility for base reuse planning in the hands of a Local Redevelopment Authority (LRA), which represents all the local jurisdictions affected by a closing or realigning installation. The Town of Brunswick and the State of Maine established the Brunswick Local Redevelopment Authority (BLRA). The BLRA is responsible for developing a reuse plan for Brunswick Naval Air Station (BNAS) that appropriately balances the needs for economic redevelopment, certain public facilities and amenities, and homeless assistance.

Homeless Assistance and the Homeless Screening

The BLRA will begin a six-month "homeless screening process" shortly after the federal determination of surplus property is announced. The BRLA will send notices to area homeless providers and advertise in local newspapers soliciting proposals from area homeless providers. The BLRA will work with State and local government agencies, and private nonprofit organizations that provide, or propose to provide assistance, programs or services that are not currently adequately meeting the need of homeless persons and families in the communities in the "vicinity of the base." The communities in the "vicinity of the base" have been determined to be the **Towns of Brunswick, Harpswell, Freeport, Durham, and Sagadahoc County.**

Under the terms of the Act related to "homeless screening" the term "homeless" or "homeless individual or homeless person" means:

(1) An individual who lacks a fixed, regular, and adequate nighttime residence; and

(2) An individual who has a primary nighttime residence that is—

(a) A supervised publicly or privately operated shelter designed to provide temporary living accommodations (including welfare hotels, congregate shelters, and

transitional housing for the mentally ill);
(b) An institution that provides a temporary residence for individuals intended to be institutionalized; or
(c) A public or private place not designed for, or ordinarily used as, a regular sleeping accommodation for human beings.

It does not include any individual imprisoned or otherwise detained pursuant to an Act of the Congress or a State law. Neither does it include people living in overcrowded or substandard housing.

Homeless service organizations may seek buildings and properties that provide supportive services, job and skills training, employment programs, shelter, transitional housing, permanent housing, food and clothing banks, treatment facilities, or any other activity that clearly meets an identified need of the homeless and fills a gap in the local "continuum of care." This approach assesses needs, inventories resources, identifies gaps, and coordinates public and private resources to fill in the gaps and avoid duplication. Sections in the Maine State Housing Authority's (MSHA) Consolidated Housing and Community Development Plan (Consolidated Plan) are devoted to the needs, inventory of resources, and gaps in the homeless continuum of care in the various labor market areas of the State (available on-line at www.mainehousing.org). The Consolidated Plan may be of assistance to organizations to identify gaps in needs for the homeless.

The BLRA will submit the proposed reuse plan to the federal Department of Housing and Urban Development (HUD), who will determine consistency with the Redevelopment Act for the "homeless screening" portion of the plan. HUD's review will determine whether:

1. The LRA has followed the process required by the Redevelopment Act and the regulations (24 CFR 586) when preparing the plan and homeless assistance submission.
2. The plan takes into consideration the size and nature of the homeless population in the vicinity of the installation.
3. The plan takes into consideration the availability of existing services to meet the needs of the homeless.
4. The plan takes into consideration the suitability of the buildings and property on the installation for use and needs of the homeless.
5. The plan takes into consideration the economic impact of proposed homeless assistance on communities in the vicinity of the installation, including whether the plan is feasible, and whether the selected letters of interest are consistent with the Consolidated Plan (available at www.mainehousing.org) or other housing, social service, community, or development plans.
6. The legally binding agreements specify the manner in which property will be made available, include all documents necessary to complete the transaction, include all appropriate terms and conditions, address environmental contingencies, stipulate timely transfer, and are accompanied by legal opinion.
7. The plan appropriately balances the needs for economic and other redevelopment with the needs of the homeless for the communities within the vicinity of the installation.
8. The plan was developed in consultation with homeless service providers.

Appendix B: Worksheets

	Existing Situation Estimate -- Brunswick/Topsham Homeless Model							
	November 5, 2006		*italic is a calculation;* **bold is an input; large bold = gap**					
A	B		C		D	E		G
			Families		Singles	Youth		Comment
			(2+HH)		(22+)	(<22)		
	2011 SHELTER DEMAND							
1	**Number in shelter (month)**	*hh*	**13**	*Indvs*	**28**	**9**		2005 MSHA report; youth doubled
2	**Number turned away or go elsewhere**		**19**		**0**	**7**		2005 Tedford records; youth adjusted 0.8
3	*Total demand*		*32*		*28*	*16*		*admitted + turned away*
4	**Average length of stay (days)**		**32**		**11**	**12**		2005 Tedford-families, MSHA other
8	**Ajustment for trends**		**-17.9%**		**-17.9%**	**-17.9%**		MSHA 2001-05 rate of change
9	**Adjustment for newly vacant 2011 housing**		**-30.0%**		**-20.0%**	**-25.9%**		1/3 not needing supported hsg (l 16)
10	*Total bed-apt/nights per month*	*apts*	*533.5*	*beds*	*191.3*	*109.2*		*demand x ALOS x HH size*
11	*Total capacity needed*	*apts*	*17.5*	*beds*	*6.3*	*3.6*		
	2011 SHELTER SUPPLY							
12	**current shelter**		**6**		**20**	**0**		Tedford + local providers
13	**planned**		**0**		**0**	**0**		Tedford + local providers
14	*Total to be available*		*6*		*20*	*0*		*existing and planned*
15	***2011 SHELTER GAP***	***apts***	***11.5***	***beds***	***-13.7***	***3.6***		*monthly demand less existing/planned*
	2011 SUPPORTED HOUSING DEMAND							
16	**%needing supported housing**		**10.0%**		**40.0%**	**22.2%**		Tedford C+D; MSHA E
17	*number per month*		*1.7*		*7.0*	*2.0*		*total demand x % in need*
18	**average length of stay (months)**		**12**		**12**	**12**		Tedford estimates
19	*total supported units needed*	*apts*	*20.0*	*beds*	*83.5*	*24.3*		*mnth demand x ALOS (mos)*
	2011 SUPPORTED HOUSING SUPPLY							
20	**supported units available**	*apts*	**6**		**8**	**0**		Tedford + local providers
13	**planned**		**0**		**0**	**0**		Tedford + local providers
14	*Total to be available*		*6*		*8*	*0*		*existing and planned*
22	***2011 SUPPORTED HOUSING GAP***		***14.0***		***75.5***	***24.3***		*net need * adjustment for 2011*

	Ideal Situation Estimate -- Brunswick/Topsham Homeless Model							
	November 5, 2006		*italic is a calculation;* **bold is an input; large bold = gap**					
A	**B**		**C**		**D**	**E**		**G**
			Families		**Singles**	**Youth**		Comment
			(2+HH)		**(22+)**	**(<22)**		
	2011 SHELTER DEMAND							
1	**Number in shelter (month)**	*hh*	**13**	*Indvs*	**28**	**9**		2005 MSHA report; youth doubled
2	**Number turned away or go elsewhere**		**19**		**0**	**7**		2005 Tedford records; youth adjusted 0.8
3	*Total demand*		*32*		*28*	*16*		*admitted + turned away*
4	**Average length of stay (days)**		**14**		**14**	**14**		2005 Tedford-families, MSHA other
8	**Ajustment for trends**		**-17.9%**		**-17.9%**	**-17.9%**		MSHA 2001-05 rate of change
9	**Adjustment for newly vacant 2011 housing**		**-30.0%**		**-20.0%**	**-25.9%**		1/3 not needing supported hsg (I 16)
10	*Total bed-apt/nights per month*	*apts*	*233.4*	*beds*	*243.4*	*127.4*		*demand x ALOS x HH size*
11	*Total capacity needed*	*apts*	*7.7*	*beds*	*8.0*	*4.2*		
	2011 SHELTER SUPPLY							
12	**current shelter**		**6**		**20**	**0**		Tedford + local providers
13	**planned**		**0**		**0**	**0**		Tedford + local providers
14	*Total to be available*		*6*		*20*	*0*		*existing and planned*
15	***2011 SHELTER GAP***	***apts***	***1.7***	***beds***	***-12.0***	***4.2***		*monthly demand less existing/planned*
	2011 SUPPORTED HOUSING DEMAND							
16	**%needing supported housing**		**10.0%**		**40.0%**	**22.2%**		Tedford C+D; MSHA E
17	*number per month*		*1.7*		*7.0*	*2.0*		*total demand x % in need*
18	**average length of stay (months)**		**6**		**6**	**6**		Tedford estimates
19	*total supported units needed*	*apts*	*10.0*	*beds*	*41.7*	*12.1*		*mnth demand x ALOS (mos)*
	2011 SUPPORTED HOUSING SUPPLY							
20	**supported units available**	*apts*	**6**		**8**	**0**		Tedford + local providers
13	**planned**		**0**		**0**	**0**		Tedford + local providers
14	*Total to be available*		*6*		*8*	*0*		*existing and planned*
22	***2011 SUPPORTED HOUSING GAP***		***4.0***		***33.7***	***12.1***		*net need * adjustment for 2011*

Appendix C: Assumptions of demand estimates

1) The July, 2005 data about Tedford residents provided by the Maine State Housing Authority is used as the basis of the monthly demand figures; this is considered reasonable since Tedford records show little difference by season or year.

2) Unmet demand is estimated by Tedford family turnaway data, and MSHA records about the ratio of youth in youth shelters to youth in family shelters

3) Existing average length of stay information for 2005 is from MSHA for singles and from Tedford shelter for families.

4) In anticipating 2011, the trends of the last five years are projected to continue – namely, that homeless bed-days have gone down at a rate of 3.2% per year from 2001 to 2005 statewide, and applying this trend line to 2006 to 2011, a reduction of 17.9% is derived.

5) In 2011, the closure of the Base will bring up to 2,000 housing units onto the local market – enough to raise the vacancy rate to over 10%[10] The analysis assumes that one-third of the homeless *whose only issue is lack of housing* will be able to find affordable housing in the new environment; two-thirds of those for whom housing is the only issue, and all who have other issues contributing to homelessness, are assumed to continue to need housing.

6) People with substance abuse and mental illness issues, and other related problems, are assumed to be appropriate referrals for supported housing. Tedford data indicates that 10% of families and 40% of singles have such issues; MSHA data indicates that 2 in 9 (22%) youth have such issues.

7) Two kinds of estimates are made. One is based on existing residence lengths of stay, for example, 32 days in a shelter for families in 2005. Part of the reason that stays are so long is because there are no other alternatives available. A second estimate is, therefore, based on an "ideal" length of stay, assuming that supported housing alternatives and private housing alternatives are available. The "ideal" length of stay in a shelter is defined as 2 weeks, enough to help a person or family get their act together before moving on to another more permanent form of housing. For supported housing, the "existing" estimate is 12 months, the "ideal" is 6 months, which assumes that people get intensive help and then can move on.

[10] The Impact of the BRAC-ordered closure of the Brunswick Naval Air Station, 2006, Planning Decisions, page 20.

APPENDIX B

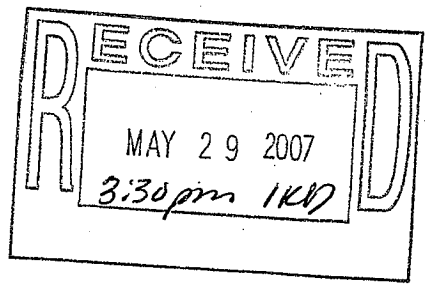
Notices of Interest

The Application Checklist:

TEDFORD HOUSING
PO Box 958
Brunswick, ME 04011

Did you:

- ☑ Attend the scheduled workshop?
- ☑ Answer all six application questions completely (page 9)?
- ☑ Complete the contact information sheet (page 10)?
- ☑ Sign the Certifications (page 11)?
- ☑ Provide one original and 12 copies (question responses, contact information sheet, and certification form)?
- ☑ Meet the May 30, 2007, 2:00 pm filing deadline?



TOPSHAM LOCAL REDEVELOPMENT AUTHORITY
HOMELESS AGENCY PROVIDER NOTICE OF INTEREST
APPLICATION
CONTACT SHEET AND CERTIFICATIONS

A. Applicant Identification:

Homeless Agency Provider:	TEDFORD HOUSING
Contact Person: (Name and Title)	DON L. KNISELEY, EXEC. DIR.
Address:	P.O. BOX 958 BRUNSWICK, ME 04011
County:	CUMBERLAND
Phone Number:	207-729-1161
Chief Executive Officer:	DON L. KNISELEY
E-Mail:	don@tedfordshelter.org
Type of Property Needed for Program:	portion of Marine building for resource/service center for homeless + at-risk youth
Service Area of Current Programs, if applicable:	Sagadahoc + Lincoln counties; Brunswick, Harpswell, Freeport, Durham, Pownal, Lisbon

informal group of organizations and interested individuals that have assessed the scope of the homeless and at-risk youth problem and have considered strategies to address the problem.

We envision that planning and implementing this program will be a collaborative among Tedford Housing, Sweetser, SAD 75, Brunswick and Bath School Departments, the Merrymeeting Project, and the Topsham Rotary Club.

4. Information about the physical requirements necessary to carry out the program, including a description of the buildings and property at the installation that are necessary to carry out the program.

For this request we require office and classroom space totaling approximately 2,000 square feet. It would also need to be within short distance of schools and handicapped accessible. The Marine Reserve Offices building, or portions of it, may be appropriate.

5. A description of the financial plan, the organization, and the organizational and financial capacity of the representative of the homeless to carry out the program:

a) Estimate the total funds needed to renovate or construct the facility(ies) necessary to carry out the program;

A rough estimate of total rehabilitation costs to address accessibility issues, etc. at the Marine Reserve Offices building is $400,000.

Estimated funds needed for services to this group of youth for a 3-year period is $144,900. This is for a full-time case manager, benefits, and 20% overhead totaling $48,300 per year. During the 3-year funding period, the collaborative would explore other service funding options.

Thus total funds of $448,300 are needed to carry out the program

b) Describe the source of funds for the renovation or construction;

Funds for the rehabilitation of the building might come from a CDBG block grant, private foundations, private donations or other combinations of foundation and matching funds.

c) Estimate when needed funds will be available for renovation and construction;

If awarded the property, we would expect to secure funds for rehabilitation well in advance of its availability in 2011.

d) Describe the process and timetable to obtain the needed funds for renovation and construction; and

Tedford Housing, in collaboration with the other organizations cited above in #3, would apply for needed funding from appropriate sources beginning as soon as our request is approved. We anticipate that we would obtain necessary funds within one or two years.

e) Describe estimated funds needed to operate the proposed program or activity and the anticipated source of funds.

Estimated annual operating costs are $24,000. This would cover maintenance, cleaning, utilities, etc.
Funds would come from organizations that maintain office/service space at the facility.

6. An assessment of the time needed to begin carrying out the program.

Tedford Housing, in collaboration with the participating organizations, would likely be able to implement this program in its totality within 1 year of closure of the base.

B. The Applicant Certifies That:

a. To the best of my knowledge and belief, the information in this application is true and correct;

b. The governing body of the applicant has duly endorsed the document;

c. It will work with the Topsham Local Redevelopment Authority to develop a detailed project if it is awarded federal surplus property.

d. It will comply with all applicable State and local laws and regulations.

Applicant

	TEDFORD HOUSING	5/29/2007
Signature of Chief Executive Officer	Name of Organization	Date

Signature of Each Participating Applicant in a Multi-Organizational Application

Signature of Chief Executive Officer	Name of Organization	Date

Signature of Chief Executive Officer	Name of Organization	Date

Signature of Chief Executive Officer	Name of Organization	Date

The Application Checklist:

TEDFORD HOUSING
PO Box 958
Brunswick, ME 04011

Did you:

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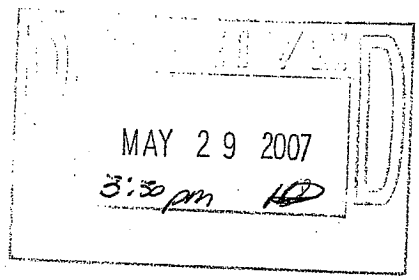
- ☑ Answer all six application questions completely (page 9)?
- ☑ Complete the contact information sheet (page 10)?
- ☑ Sign the Certifications (page 11)?
- ☑ Provide one original and 12 copies (question responses, contact information sheet, and certification form)?
- ☑ Meet the May 30, 2007, 2:00 pm filing deadline?



TOPSHAM LOCAL REDEVELOPMENT AUTHORITY
HOMELESS AGENCY PROVIDER NOTICE OF INTEREST
APPLICATION
CONTACT SHEET AND CERTIFICATIONS

A. Applicant Identification:

Homeless Agency Provider:	TEDFORD HOUSING
Contact Person: (Name and Title)	DON L. KNISELEY, EXEC. DIR.
Address:	P.O. BOX 958 BRUNSWICK, ME 04011
County:	CUMBERLAND
Phone Number:	207-729-1161
Chief Executive Officer:	DON L. KNISELEY
E-Mail:	don@Tedfordshelter.org
Type of Property Needed for Program:	BUILDING LOT & SERVICES funds for Domestic Violence housing
Service Area of Current Programs, if applicable:	SAGADAHOC & LINCOLN COUNTIES, BRUNSWICK, HARPSWELL, FREEPORT, DURHAM, POWNAL, LISBON

Tedford Housing
May 30, 2007

Topsham Local Redevelopment Authority
Homeless Provider Application Questions:

1) Provide a description of the homeless assistance program proposed, including the purpose to which the property or facility will be put to use, which may include uses such as supportive service, job and skill straining, employment programs, shelters, transitional housing or housing with no established limitation on the amount of time of residence, food and clothing banks, treatment facilities, or any other activity which clearly meets an identified need of the homeless and fills a gap in the continuum of care.

- Tedford Housing seeks to acquire suitable land for construction of a six-unit apartment building to serve as both transitional and permanent, supportive housing for victims of domestic violence and their families (4 units would serve as transitional housing with a 2-year residency limit and 2 units would serve as permanent housing).
- We also request services funds for these families for a five-year period.

2) Description of the need for the program. Please describe how your organization was able to determine unmet needs that you intend to provide for homeless individuals or families.

While the Report on the Homeless in Midcoast Maine prepared by Planning Decisions, Inc. for the BLRA in early 2007 does not specifically address homelessness related to domestic violence, it is an important unmet need. There are no residential facilities—shelters, transitional, or permanent housing—for DV victims between Portland and Rockland.

The Planning Decisions report does call for 4 to 14 supported housing apartments for families in 2011. Tedford Housing consistently turns away 15 to 20 families from our emergency shelter each month because we are full. While we do not accept those in imminent danger from domestic violence, we frequently get requests for shelter from DV victims with children. They must seek shelter or housing in another area. At least some of these families will be better served in permanent, supportive housing here in the mid coast area. To make supported housing work requires case management and support services.

3) A description of the extent to which the program is or will be coordinated with other homeless assistance programs in the communities in the vicinity of the installation.

Tedford Housing has a long history and practice of collaboration on programs and services with other organizations. We have formal and informal working relationships with Family Crisis, Brunswick Housing Authority, Mid Coast Hunger Prevention, Sweetser, Salvation Army, and Coastal Economic Development. We currently operate supportive housing with these partners and would do so in future efforts related to resources acquired from the base closure. Should our proposal be successful, we would develop and operate family supportive housing for domestic violence victims in cooperation with Family Crisis.

4. Information about the physical requirements necessary to carry out the program, including a description of the buildings and property at the installation that are necessary to carry out the program.

For this request we require land appropriate and sufficient for a 6-unit apartment building with office and common area. It would need to be in an appropriate zone and large enough for required setbacks, parking, etc. It would also need to be within short distance of utilities.

5. A description of the financial plan, the organization, and the organizational and financial capacity of the representative of the homeless to carry out the program:

a) Estimate the total funds needed to renovate or construct the facility(ies) necessary to carry out the program;

A rough estimate of total development costs for a six-unit transitional and permanent supportive housing apartment building is $1.2 million in 2011.

Estimated funds needed for services to these families residing in these apartments in 2011 for a five-year period are $644,180. This is for a full-time case manager and 6 hours of on-site housing attendant each day, plus 25% benefits and 20% overhead expense.

Thus, the total funds needed to carry out our proposed program are estimated to be approximately $1.85 million.

b) Describe the source of funds for the renovation or construction;

Funds for the apartment building would be available from HUD, MaineHousing, and the Federal Home Loan Bank of Boston under competitive grant award. In addition, Tedford Housing would secure private donations and/or loans as necessary. Owning the property for the project will make any proposal for construction more likely to be funded.

c) Estimate when needed funds will be available for renovation and construction;

HUD, MaineHousing, and the Federal Home Loan Bank of Boston grant awards are made annually.

d) Describe the process and timetable to obtain the needed funds for renovation and construction; and

Tedford Housing would apply for needed funding from HUD, MaineHousing, and/or the Federal Home Loan Bank of Boston in the year prior to NASB closure. HUD and MaineHousing awards are normally made within one year of successful application.

e) Describe estimated funds needed to operate the proposed program or activity and the anticipated source of funds.

Estimated annual operating costs are $40,000. Revenue to cover operating costs would come from rent, typically subsidized from one of several sources: HUD Housing Choice vouchers, Shelter Pus Care vouchers, Rental Assistance Coupon (RAC+), or Bridging Rental Assistance Program (BRAP). This does not include estimated annual services costs of $128,836.

As indicated above, the chief unmet need for homeless adults and families is funding for services. While Tedford Housing will seek services funds from any likely public and private source including MaineCare and other DHHS programs, we anticipate that families living in these apartments will require services of greater quantity and quality than we can pay for. Accordingly, we are requesting services funds from the BRAC homeless screening process to provide these services for a 5-year period, during which we will explore other alternatives. Estimated funds needed for services to these families residing in these apartments in 2011 for a five-year period are $644,180. This is for a full-time case manager and 6 hours of on-site housing attendant each day, plus 25% benefits and 20% overhead expense.

An option that the TLRA may want to consider is a homeless services trust fund that might become a source of services funding to meet the needs of homeless people from the BLRA&TLRA designated towns over a period of time.

6. An assessment of the time needed to begin carrying out the program.

Tedford Housing would likely be able to implement this program in its totality within 1 year of closure of the base.

B. The Applicant Certifies That:

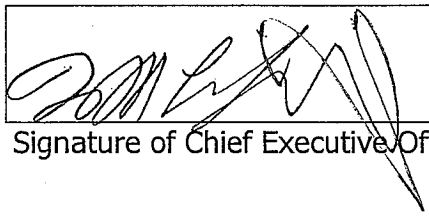
a. To the best of my knowledge and belief, the information in this application is true and correct;

b. The governing body of the applicant has duly endorsed the document;

c. It will work with the Topsham Local Redevelopment Authority to develop a detailed project if it is awarded federal surplus property.

d. It will comply with all applicable State and local laws and regulations.

Applicant

	TEDFORD HOUSING	5/29/2007
Signature of Chief Executive Officer	Name of Organization	Date

Signature of Each Participating Applicant in a Multi-Organizational Application

Signature of Chief Executive Officer	Name of Organization	Date

Signature of Chief Executive Officer	Name of Organization	Date

Signature of Chief Executive Officer	Name of Organization	Date

APPENDIX C

Draft Legally Binding Agreement

Not Yet Completed

APPENDIX D

Public Hearing Notices
Surplus Notice
Homeless Provider List
Letter to Homeless Providers

HAM
RIVE

04086 US

Phone: 207-791-6100 / 1-800-894-0041
In Person: 390 Congress Street, Portland M-F 8-5p.m.
Email: classified@pressherald.com
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10 DATE	11 NEWSPAPER REFERENCE	12 13 14 DESCRIPTION-OTHER COMMENTS/CHARGES	15 16 SAU SIZE BILLED UNITS	17 18 TIMES RUN RATE	19 GROSS AMOUNT	20 NET AMOUNT
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52-30-10

23 TOTAL AMOUNT DUE
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Duties include recomm recruitment and recogni the home delivery kio IC-related budgets; recor sales and service initiati newsletter and assistin orientations, as needed.

MINIMUM REQUIREM

) PLACE AN AD 24 HOURS A DAY / 7 DAYS A WEEK: CALL 791-6100
R VISIT US ONLINE AT www.pressherald.com/placeanad

)N WITH YOUR REMITTANCE

	15/16 SAU SIZE BILLED UNITS	17/18 TIMES RUN RATE	19 GROSS AMOUNT	20 NET AMOUNT
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		TOTAL	DUE	464. 10

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NFORMATION

ADVERTISER/CLIENT NUMBER	2 ADVERTISER/CLIENT NAME
00007973	TOPSHAM, TOWN-LG

recruitment and recognition programs, including the home delivery kiosk program; managing IC-related budgets; recommending home delivery sales and service initiatives; producing a carrier newsletter and assisting route manager with IC orientations, as needed.

MINIMUM REQUIREMENTS:

I. The Village at Ocean Gate; 112 Newbury Street; The Village at Ocean Gate, LLC., Applicant. (5:30 - 4:30 p.m. - estimated time)

II. Maine Turnpike Authority Offices; 2360

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LIC NOTICES

PUBLIC NOTICE PUBLIC NOTICE PUBLIC NOTICE

Availability of Surplus Federal Property to State and Local Eligible Parties, Including Homeless Service Providers Topsham Local Redevelopment Authority (TLRA)

As required by the Base Closure Community Redevelopment and Homeless Assistance Act of 1994, as amended (the Redevelopment Act) and its implementing regulations, the Topsham Local Redevelopment Authority (TLRA) for the Topsham Annex of Naval Air Station Brunswick is seeking Notices of Interest (NOIs) for surplus property at the installation.

State and local governments, homeless service providers and other interested parties may submit NOIs no later than 2:00 pm on May 30, 2007. Applicants will be required to make presentations to the TLRA Board of June 20, 2007 at 7:00 pm.

The following is a list of the land and facilities at Topsham Annex, Naval Air Station Brunswick.

Land

Topsham Annex consists of approximately 74 acres of improved and unimproved fee simple land located within Sagadahoc County and the City of Topsham; however, approximately 44 acres of this land is improved with 177 units of housing formerly known as "Capehart Housing" and a maintenance building, which are currently outleased to Northeast Housing LLC. Lease expires October 31, 2054. In general, the area will be available when the installation closes in September 2011.

Buildings

The following is a summary of the buildings and other improvements located on the above-described land that will also be available when the installation closes. Property numbers are available on request:

(1) Administrative/office facility (6 structures). Comments: Approximately 34,435 square feet.
(2) Miscellaneous facilities (4 structures). Comments: Approximately 41,281 square feet. Includes commissary store, fire station, storage, etc.
(3) Paved areas (roads and surface areas). Comments: Approximately 52,220 square yards consisting of roads and other similar pavements. Approximately 35,916 square yards consisting of other surface areas, i.e., parking areas and sidewalks.
(4) Utility facilities (approximately 3 structures) Comments: Measuring systems vary; combined storm drainage and water.

Not included in this notice of surplus are the Housing Quarters, formerly known as "Capehart Housing" (51 structures, 177 units) and a maintenance building (pumping station, 529 square feet). These facilities are owned by Northeast Housing LLC.

NOIs for homeless assistance may be submitted by the State of Maine, local government agencies or eligible private nonprofit organizations that provide or propose to provide services to homeless persons and/or families in the Towns of Topsham, Bowdoin and Bowdoinham (the communities in the "vicinity of the Annex").

NOIs may also be submitted by the State of Maine or local government agencies or eligible private nonprofit organizations that provide or propose to provide a public benefit or services in the following areas: education, health care, parks and recreation, law enforcement, emergency management, wildlife conservation, and correctional facilities, among others, in the communities in the vicinity of the base.

Workshops for State and local and other interested parties and homeless service providers will be held at the Topsham Public Library, 25 Foreside Road, Topsham, ME. Workshops for State and Local government agencies and other interested parties will take place on Wednesday, March 7, 2007 at 1:00 p.m. Workshops for homeless agency providers will take place on Wednesday, March 14, 2007 at 1:00 pm. Tours of the facilities are scheduled immediately following the workshops for eligible parties. To register for the workshops and tours, please call the TLRA and (207) 725-1724 by March 2, 2007.

The purpose of these workshops is to give eligible agencies the opportunity to learn about the base reuse planning process, including: the closure/realignment and disposal process, information on the NOI process, the schedule for receiving NOIs, and to learn about any known land use constraints affecting the available properties. The intent of the workshops and tours is to present the available federal surplus properties as they may relate to the needs of eligible agencies

and Excel.
- Excellent organization and communication skills.
- Problem-solver, analytical, detail-oriented, people and customer-driven.
- Reliable vehicle and valid license to operate motor vehicles.

Interested applicants should submit a letter of interest and resume referencing "Field Support Manager Search" to: Portland Press Herald and Maine Sunday Telegram, Human Resources Department, 390 Congress Street, Portland, ME 04101,or via e-mail to: humanresources@pressherald.com and. Note: We are unable to accept zip file attachments. Pre-Employment Drug Screening Required. EOE

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PUBLIC HEARING - 7:30 p.m.

Unfinished Business

I. R-6 Design Principles and Standards Guidelines (7:30 - 8:00 p.m. - estimated time)

New Business

II. Sign Appeal; Waldron Way; Enpro Corporation, Applicant. (8:00 - 8:45 p.m. - estimated time)

EVENING WORKSHOP - 8:45 p.m.

I. University Credit Union; Change of Use/Minor Site Plan Review; Vicinity of 1071 Brighton Avenue; University Credit Union, Applicant.

MICHAEL J. PATTERSON, CHAIR
PORTLAND PLANNING BOARD
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PUBLIC NOTICE

PUBLIC NOTICE: NOTICE OF INTENT TO FILE

Please take notice that Dana Lampron of 129 Westerlea Way Standish, Maine tel# 207- 310-0035

is intending to file a Minor Amended Site Location of Development Act permit application with the Maine Department of Environmental Protection pursuant to the provisions of 38 M.R.S.A. §§ 481 thru 490 on or about February 20, 2007

The application is for The construction of a 40' X 48' storage building and 9 parking spaces at the following location: Pit Stop Fuels Route 25

A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

The application will be filed for public inspection at the Department of Environmental Protection's office in Portland, during normal working hours. A copy of the application may also be seen at the municipal offices in Standish, Maine.

Written public comments may be sent to the regional office in Portland, where the application is filed for public inspection:

MDEP, Southern Maine Regional Office, 312 Canco Road, Portland, Maine 04103

2746274

description of the financial plan, the organization, and the organizational and financial capacity of the homeless provider to carry out the program; 6) an estimate of the total funds needed to renovate or construct the facility(ies) necessary to carry out the program; 7) a description of the source of funds for renovation or construction; 8) a description of the process and timetable to obtain the needed funds for renovation and construction; 9) a description of the estimated funds needed to operate the proposed program or activity and the anticipated source of funds; and 10) an assessment of the time needed to begin carrying out the program.

NOIs from state or local government agencies or eligible private nonprofit organizations interested in obtaining property through a public benefit conveyance (PBC), other than a homeless assistance conveyance, must include: 1) a description of the governmental agency or nonprofit organization seeking a public benefit conveyance and the federal partnering agency; 2) a description of the specific land, building or facility of interest to the organization; 3) a description of the purpose to which the property or facility will be put; 4) a description of the need for the program; 5) description of the benefit to the community for such a proposed use, including the number of jobs the use would create; 6) information about the physical requirements necessary to carry out the program, including a description of the buildings and property at the installation that are necessary to carry out the program and the expected alterations to reuse the facilities; 7) a description of the financial plan, the organization, and the organizational capacity of the government agency or organization to carry out the proposed plan and facility reuse; and 8) an assessment of the timeline for occupation of the property or facilities.

State and local government agencies or eligible private nonprofit organizations interested in obtaining property through a PBC are invited to contact the following Sponsoring Federal Agencies to find out more about each agency's PBC program and to discuss with the agency the entity's potential for qualifying for a conveyance of property:

For Park and Recreation Uses:
Elyse LaForest
National Park Service, Northeast Region
15 State Street
Boston, MA 02109
617 223 5190

For Educational Uses:
Peter Wieczorek, Director
U.S. Department of Education
Real Property Group
33 Arch Street, Suite 1140
Boston, MA 02110
617 289 0172

For Health Care:
Heather Ransom, Director
Dept. of Health and Human Services
Division of Property Management
Program Support Ctr., Room 5B-17
Parklawn Bldg., 5600 Fishers Lane
Rockville, MD 20857
301 443 2265

For Prisons:
Maria Pressley, Bureau of Justice Assistance
U.S. Department of Justice
Special Programs Division
810 Seventh Street, NW, Room 4413
Washington, DC 20531
202 353 8643

For Emergency Management:
Bill (Cheri) A. Smith, Program Manager
Excess Federal Real Property Program
Facilities Management and Services Div.
Federal Emergency Management Agency
500 C Street, SW, Room 505D
Washington, DC 20412
202-646-3383
Philadelphia, PA 19106
215 597 0651

For Self-help Housing:
Janet Golrick, Assistant Deputy
Office of Multi-Family Housing
Dept. of Housing and Urban Development
451 Seventh Street, SW, room 6110
Washington, DC 20410
202 708 2495 x3992

For Airports:
Donna Witte
Federal Aviation Administration
New England Region, ANE-600
12 New England Executive Park
Burlington, MA 01803
781-238 7624

For Law Enforcement:
Maria Pressley
Bureau of Justice Assistance
U.S. Department of Justice
Special Programs Division
810 Seventh Street, NW, Room 4413
Washington, DC 20531
202 353 8643

For Historic Monuments:
Lisa McCann
National Park Service
Northeast Region - Philadelphia Office
US Custom House, 3rd Floor
200 Chestnut Street

For Wildlife Conservation (Only State may apply)
Eric Alverez, Chief, Division of Realty
U.S. Fish & Wildlife Service
4401 North Fairfax Drive, Room 622
Arlington, VA 22203
703 358 1713

The Sponsoring Federal Agencies have their own application requirements.

For additional information or to register for the workshops, contact the **Topsham LRA, 22 Elm Street, Topsham, ME 04086. Telephone: (207) 725-1724 or e-mail: rroedner@topshamlra.org**

Turn to **Wheels** in Friday's Portland Press Herald.

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Salesperson: VALERIE OUELLETTE Printed at 11/14/07 11:07

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TOPSHAM ME 04086
Contact: SELECTMEN OFFIC
Phone: (207)725-1724
Fax#: (207)725-1737
Email:

Agency:

Ad#: 59280 Status: E
Start: 02/22/07 Stop: 02/22/07
Times Ord: 1 Times Run: 1
PUB 3.00 X 14.00 Words: 1386
Rate: LEG Cost: 585.90
Class: 401 PUBLIC NOTICES
Descript: NOTICE AVAILABILITY OF SU
Given by: *
Created: vouel 02/20/07 15:37
Last Changed: sodel 02/21/07 11:40

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THE TIMES RECORD
AD AUTHORIZATION
(CONTINUED)

Salesperson: VALERIE OUELLETTE Printed at 11/14/07 11:07

Acct#: 359 Ad#: 59280 Status: E

NOTICE

Availability of Surplus Federal Property to State and Local Eligible Parties, Including Homeless Service Providers Topsham Local Redevelopment Authority (TLRA)

As required by the Base Closure Community Redevelopment and Homeless Assistance Act of 1994, as amended (the Redevelopment Act) and its implementing regulations, the Topsham Local Redevelopment Authority (TLRA) for the Topsham Annex of Naval Air Station Brunswick is seeking Notices of Interest (NOIs) for surplus property at the installation.

State and local governments, homeless service providers and other interested parties may submit NOIs no later than 2:00 pm on May 30, 2007. Applicants will be required to make presentations to the TLRA Board on June, 20, 2007 at 7:00 pm.

The following is a list of the land and facilities at Topsham Annex, Naval Air Station Brunswick.

Land

Topsham Annex consists of approximately 74 acres of improved and unimproved fee simple land located within Sagadahoc County and the Town of Topsham, however, approximately 44 acres of this land is improved with 177 units of housing formerly known as "Capehart Housing" and a maintenance building, which are currently outleased to Northeast Housing LLC. Lease expires October 31, 2054. In general, the area will be available when the installation closes in September 2011.

Buildings

The following is a summary of the buildings and other improvements located on the above-described land that will also be available when the installation closes. Property numbers are available on request:

(1) Administrative/office facility (6 structures). Comments: Approximately 64,435 square feet.

(2) Miscellaneous facilities (4 structures). Comments: Approximately 41,251 square feet. Includes commissary store, fire station, storage, etc.

(3) Paved areas (roads and surface areas). Comments: Approximately 52,226 square yards consisting of roads and other similar pavements. Approximately 35,916 square yards consisting of other surface areas, i.e., parking areas and sidewalks.

(4) Utility facilities (approximately 8 structures) Comments: Measuring systems vary combined storm drainage and water.

Not included in this notice of surplus are the Housing Quarters, formerly known as "Capehart Housing" (51 structures, 177 units) and a maintenance building (pumping station, 829 square feet). These facilities are owned by Northeast Housing LLC.

NOIs for homeless assistance may be submitted by the State of Maine, local government agencies or eligible private nonprofit organizations that provide or propose to provide services to homeless persons and/or families in the Towns of Topsham, Bowdoin and Bowdoinham (the communities in the "vicinity of the Annex").

NOIs may also be submitted by the State of Maine or local government agencies or eligible private nonprofit organizations that provide or propose to provide a public benefit or services in the following areas, education, health care, parks and recreation, law enforcement, emergency management, wildlife conservation, and correctional facilities, among others, in the communities in the vicinity of the base.

Workshops for State and local and other interested parties and homeless service providers will be held at the Topsham Public Library, 25 Foreside Road, Topsham, ME. Workshops for State and Local government agencies and other interested parties will take place on Wednesday, March 7, 2007 at 1:00 p.m. Workshops for homeless agency providers will take place on Wednesday, March 14, 2007 at 1:00 pm. Tours of the facilities are scheduled immediately following the workshops for eligible parties. To register for the workshops and tours, please call the TLRA at (207) 725-1724 by March 2, 2007.

The purpose of these workshops is to give eligible agencies the opportunity to learn about the base reuse planning process, including: the closure realignment and disposal process, information on the NOI process, the schedule for receiving NOIs, and to learn about any known land use constraints affecting the available properties. The intent of the workshops and tours is to present the available federal surplus properties as they may relate to the needs of eligible agencies.

NOIs from homeless service providers must include: 1) a description of the homeless assistance program proposed, including the purpose to which the property or facility will be put to use; 2) a description of the need for the program, including how the organization was able to determine the unmet needs that it intends to provide for homeless individuals or families; 3) a description of the extent to which the program is or will be coordinated with other homeless assistance programs in the communities in the vicinity of the base; 4) information about the physical requirements necessary to carry out the program, including a description of the buildings and property at the installation that are necessary to carry out the program; 5) a description of the financial plan, the organization, and the organizational and financial capacity of the homeless provider to carry out the program; 6) an estimate of the total funds needed to renovate or construct the facility(ies) necessary to carry out the program; 7) a description of the source of funds for renovation or construction; 8) a description of the process and timetable to obtain the needed funds for renovation and construction; 9) a description of the estimated funds needed to operate the proposed program or activity and the anticipated source of funds; and 10) an assessment of the time needed to begin carrying out the program.

NOIs from state or local government agencies or eligible private nonprofit organizations interested in obtaining property through a public benefit conveyance (PBC), other than a homeless assistance conveyance, must include: 1) a description of the governmental agency or nonprofit organization seeking a public benefit conveyance and the federal partnering agency; 2) a description of the specific land, building or facility of interest to the organization; 3) a description of the purpose to which the property or facility will be put; 4) a description of the need for the program; 5) description of the benefit to the community for such a proposed use, including the number of jobs the use would create; 6) information about the physical requirements necessary to carry out the program, including a description of the buildings and property at the installation that are necessary to carry out the program and the expected alterations to reuse the facilities; 7) a description of the financial plan, the organization, and the organizational capacity of the government agency or organization to carry out the proposed plan and facility reuse; and 8) an assessment of the timeline for occupation of the property or facilities.

State and local government agencies or eligible private nonprofit organizations interested in obtaining property through a PBC are invited to contact the following Sponsoring Federal Agencies to find out more about each agency's PBC program and to discuss with the agency the entity's potential for qualifying for a conveyance of property:

For Park and Recreation uses: Elyse La Fauci, National Park Service, Northeast Region, 15 State Street, Boston, MA 02109 617-223-5190

For Educational Uses: Peter Wiecenek, Director, US Department of Education, Real Property Group, 33 Arch Street, Suite 1140, Boston, MA 02110, 617-289-0172

For Health Care: Heather Ransom, Director, Dept. of Health and Human Services, Division of Property Management, Program Support Ctr., Room 5E-17, Parklawn Bldg., 5600 Fishers Lane, Rockville, MD 20857, 301-443-2265

For Prisons: Maila Pressley, Bureau of Justice Assistance, US Department of Justice, Special Programs Division, 810 Seventh Street, NW, Room 4413, Washington, DC 20531, 202-353-8643

For Self-help Housing: Janet Golrick, Assistant Deputy, Office of Multi-Family Housing, Dept. of Housing and Urban Development, 451 Seventh Street, SW, Room 6130, Washington, DC 20410, 202-708-3495 x 3992

For Airports: Donna Witte, Federal Aviation Administration, New England Region, ANE-900, 12 New England Executive Park, Burlington, MA 01803, 781-238-7624

For Law Enforcement: Maila Pressley, Bureau of Justice Assistance, US Department of Justice, Special Programs Division, 810 Seventh Street, NW, Room 4413, Washington, DC 20531, 202-353-8643

For Historic Monuments: Lisa McCann, National Park Service, Northeast Region Philadelphia Office, US Custom House, 2nd Floor, 200 Chestnut Street.

For Emergency Management: Bill (Chet), A. Smith, Program Manager, Excess Federal Real Property Program, Facilities Management and Services Div., Federal Emergency Management Agency, 500 C Street, SW, Room 505D, Washington, DC 20472, 202-646-3368 Philadelphia, PA 19106, 215-597-9651

For Wildlife Conservation (Only State may apply) Eric Alvarez, Chief, Division of Realty, US Fish & Wildlife Service, 4401 North Fairfax Drive, Room 622, Arlington, VA 22203, 703-358-1713

The Sponsoring Federal Agencies have their own application requirements.

For additional information or to register for the workshops, contact the Topsham LRA, 22 Elm Street, Topsham, ME 04086. Telephone: (207) 725-1724 or e-mail: rroedner@topshamlra.org

22 - 59280

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Including Homeless Service Providers
Topsham Local Redevelopment Authority (TLRA)

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The following is a list of the land and facilities at Topsham Annex, Naval Air Station Brunswick.

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(1) Administrative/office facility (6 structures). Comments: Approximately 34,435 square feet.

(2) Miscellaneous facilities (4 structures). Comments: Approximately 41,281 square feet. Includes commissary store, fire station, storage, etc.

(3) Paved areas (roads and surface areas). Comments: Approximately 52,220 square yards consisting of roads and other similar pavements. Approximately 35,916 square yards consisting of other surface areas, i.e., parking areas and sidewalks.

(4) Utility facilities (approximately 3 structures) Comments: Measuring systems vary; combined storm drainage and water.

Not included in this notice of surplus are the Housing Quarters, formerly know as "Capehart Housing" (51 structures, 177 units) and a maintenance building (pumping station, 529 square feet). These facilities are owned by Northeast Housing LLC.

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The purpose of these workshops is to give eligible agencies the opportunity to learn about the base reuse planning process, including: the closure/realignment and disposal process, information on the NOI process, the schedule for receiving NOIs, and to learn about any known land use constraints affecting the available properties. The intent of the workshops and tours is to present the available federal surplus properties as they may relate to the needs of eligible agencies.

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to reuse the facilities; 7) a description of the financial plan, the organization, and the organizational capacity of the government agency or organization to carry out the proposed plan and facility reuse; and 8) an assessment of the timeline for occupation of the property or facilities.

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For Park and Recreation Uses:
Elyse LaForest
National Park Service, Northeast Region
15 State Street
Boston, MA 02109
617 223 5190

For Self-help Housing:
Janet Golrick, Assistant Deputy
Office of Multi-Family Housing
Dept. of Housing and Urban Development
451 Seventh Street, SW, Room 6110
Washington, DC 20410
202 708 2495 x3992

For Educational Uses:
Peter Wieczorek, Director
U.S. Department of Education
Real Property Group
33 Arch Street, Suite 1140
Boston, MA 02110
617 289 0172

For Airports:
Donna Witte
Federal Aviation Administration
New England Region, ANE-600
12 New England Executive Park
Burlington, MA 01803
781 238 7624

For Health Care:
Heather Ransom, Director
Dept. of Health and Human Services
Division of Property Management
Program Support Ctr., Room 5B-17
Parklawn Bldg., 5600 Fishers Lane
Rockville, MD 20857
301 443 2265

For Law Enforcement:
Maria Pressley
Bureau of Justice Assistance
U.S. Department of Justice
Special Programs Division
810 Seventh Street, NW, Room 4413
Washington, DC 20531
202 353 8643

For Prisons:
Maria Pressley, Bureau of Justice Assistance
U.S. Department of Justice
Special Programs Division
810 Seventh Street, NW, Room 4413
Washington, DC 20531
202 353 8643

For Historic Monuments:
Lisa McCann
National Park Service
Northeast Region – Philadelphia Office
US Custom House, 3rd Floor
200 Chestnut Street

For Emergency Management:
Bill (Cheri) A. Smith, Program Manager
Excess Federal Real Property Program
Facilities Management and Services Div.
Federal Emergency Management Agency
500 C Street, SW, Room 505D
Washington, DC 20412
202-646-3383
Philadelphia, PA 19106
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For Wildlife Conservation (Only State may apply)
Eric Alverez, Chief, Division of Realty
U.S. Fish & Wildlife Service
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56 Elm St. Assisted Living	56 Elm Street	Topsham	ME	04086	725-1134	Ms.	Jill	Wallace
Abused Women's Advocacy	PO Box 713	Auburn	ME	04212	207-795-6744	Ms.	Cindy	Pare
Acadia Recovery Community	179 Indiana Avenue	Bangor	ME	04401	207-973-6420	Mr.	Stephen	James
Addiction Resource Center	66 Baribeau Drive	Brunswick	ME	04011	(207)373-6950, 1-800-244-3805	Ms.	Roxanne	Leino
Avesta Housing	307 Cumberland Avenue	Portland	ME	04101	553-7780x250	Mr.	Dana	Totman
Bangor Area Homeless Shelter	PO Box 1754	Bangor	ME	04402-1754	207-947-0045	Mr.	Dennis	Marble
Bangor Men's and Women's Shelter	103 Texas Avenue	Bangor	ME	04401	207-992-4531	Ms.	Shawn	Yardley
Bath Area Family Y.M.C.A.	303 Centre Street	Bath	ME	04530	443-4112	Mr.	Phil	Krummel
Bath Area Food Bank	P.O. Box 65	Bath	ME	04530	837-8832			
Bath Area Food Bank - Pantry	151 Congress St., PO Box 65	Bath	ME	04530	(207) 443-6516	Mr.	Sally	Gray
Bath Area Senior Citizens, Inc.	45 Floral St., PO Box 995	Bath	ME	04530	443-4937	Mr.	Neal	Hagerthy
Bath Housing Authority	80 Congress Avenue	Bath	ME	04530	443-3116	Ms.	Joanne	Marco
Battered Women's Project	421 Main Street Suite 2	Presque Isle	ME	04769	207-764-2977	Ms.	Donna	Baietti
Big Brothers/Big Sisters of Bath-Brunswick	85 Maine Street	Brunswick	ME	04011	729-7736	Ms.	Karen	Faiman
Bread of Life Shelter	157 Water Street	Augusta	ME	04330	207-626-3479 shelter 207-626-3434	Mr.	John	Applin
Breakwater Teen Shelter	359 Main Street	Rockland	ME	04841	207-596-0359	Mr.	Paul	LeCompte
Brunswick General Assistance Office	54 Cumberland Street	Brunswick	ME	04011	725-6661	Ms.	Mary	Reindl
Brunswick Housing Authority	12 Stone St., PO Box A	Brunswick	ME	04011	725-8711	Mr.	John	Hodge
C & L Properties	21 Maverick Street	Rockland	ME	04851	594-8035	Mr.	Stanley	Carleton
Carenet	90 Union St., PO Box 969	Brunswick	ME	04011	725-LIFE; 1-800-395-HELP	Ms.	Susan	Morley
Caring Unlimited	PO Box 590	Sanford	ME	04073	207-490-3227 101	Ms.	Cindy	Peoples
Catholic Charities of Maine	PO Box 10660	Portland	ME	04104	1-800-781-8550	Mr.	Steve	Letourneau
Child Development Services (CDS)	35A Gurnet Road	Brunswick	ME	04011	(207) 725-6365	Ms.	Id	Goscinski
City of Bath	55 Front Street	Bath	ME	04530-0246	443-8332	Mr.	William	Giroux
Coastal Economic Development	34 Wing Farm Parkway	Bath	ME	04530	442-7963	Ms.	Jessica	Tysen
Coastal Economic Development	34 Wing Farm Parkway	Bath	ME	04530	442-7963	Ms.	Catherine	McConnell
Coastal Enterprises, Inc. (CEI)	36 Water St., PO Box 268	Wiscasset	ME	04578	(207) 882-7552 or 1-877-340-2649	Mr.	Ron	Phillips
Coastal Enterprises, Inc. (CEI)	36 Water St., PO Box 268	Wiscasset	ME	04578	(207) 882-7552 or 1-877-340-2649	Ms.	Jill	Lorum
Coastal Trans, Inc.	46 Summer Street	Rockland	ME	04841	596-6477	Mr.	Lee	Karker
Coastal Workshop	PO Box 637	Camden	ME	04843-0637		Mr.	Joe	Curll
Common Ties Mental Health	PO Box 1319	Lewiston	ME	04240-1319		Ms.	Karen	Bates-Pelletier
Community Housing of Maine	309 Cumberland Avenue - Suite 203	Portland	ME	04101		Mr.	Cullen	Ryan
Counseling Services, Inc.	PO Box 1010	Saco	ME	04072		Ms.	Sherry	Sabo
County of Sagadahoc	752 High St., PO Box 246	Bath	ME	04530-0246	443-8200		County	Commissioners
County of Cumberland	142 Federal Street	Portland	ME	04101			County	Commissioners
Creative Housing for Maine People	% Sanford Housing Authority	Sanford	ME	04073-1008		Mr.	Paul	McElhinney
Creative Work Systems	443 Congress Street	Portland	ME	04101		Ms.	Kelly	Ray
Day One	PO Box 231	Cape Elizabeth	ME	04107		Ms.	Lisa	Munderback
Dept. of Human Services	360 Old County Road	Rockland	ME	04841	1-800-432-7802			
Dept. of Human Services	161 Marginal Way	Portland	ME	04101	1-800-482-7520			
Dirigo Housing Association	103 Winthrop St., P.O. Box 2388	Augusta	ME	04338	1-800-540-1428			

Downeast Horizons	34 East Maple Street	Ellsworth	ME	04605		Mr.	Steve	McLean
Elmhurst, Inc.	400 Center Street	Bath	ME	04530	443-9783	Ms.	Darlene	MacKinnon
Family Crisis Services	PO Box 704	Portland	ME	04104	712-2474 or 767-4952 or 1-800-537-6066	Ms.	Lois	Reckitt
Family Crisis Services	PO Box 704	Portland	ME	04104	712-2474 or 767-4952 or 1-800-537-6066	Ms.	Lindsay	Rancourt
Family Focus	2 Davenport Circle	Bath	ME	04530	386-1662	Mr.	Lee	Parker
Family Focus	2 Davenport Circle	Bath	ME	04530	386-1662	Ms.	Jill	Standish
Family Violence Assistance Project	PO Box 304	Augusta	ME	04332-0303	207-623-8637 Ext. 300 623-3560 residence	Ms.	Deborah	Shepard
Flying Changes Center for Therapeutic Riding	P.O. Box 127	Topsham	ME	04086	729-0168	Ms.	Barbara	Doughty
Galilee House	25 Deering Street	Norway	ME	04268	207-744-0936	Ms.	Maria	Whitney
Genesis Fund	PO Box 609	Damariscotta	ME	04543-0609		Ms.	Beth	McPherson
Girl Scouts of Kennebec Council	P O Box 9421	So. Portland	ME	04106	772-1177	Ms.	Joanne	McDonald
Goodwill Industries of Northern New England	353 Cumberland Avenue	Portland	ME	04101		Mr.	Kevin	Black
Head Start/CED	34 Wing Farm Parkway	Bath	ME	04530		Mr.	Chris	Rallis
Home Counselors Inc.	359 Main Street	Rockland	ME	04841		Mr.	Robert	Garcia
HOME Inc.	PO Box 10	Orland	ME	04472	207-469-7961	Ms.	Lucy	Poulin
HOME Inc. Emmaus	PO Box 223	E. Orland	ME	04431	207-469-6771	Sister	Lucille	McDonald
Home to Home	PO Box 263	Brunswick	ME	04011	837-4894	Ms.	Pamela	Lively
Hope Haven Gospel Mission	209 Lincoln Street	Lewiston	ME	04240	207-783-6086	Mr.	Paul	McLaughlin
Hospice Volunteers in Mid Coast Maine	45 Baribeau Drive	Brunswick	ME	04011	729-3602	Ms.	Marie	Badger
House of Peace	PO Box 174	New Vineyard	ME	04956	207-652-2130	Ms.	Sharon	Walker
Housing Initiatives of New England	415 Congress Street - Suite 204	Portland	ME	04101-		Ms.	Karen	Zacharias
Independence Association, Inc.	PO Box 642	Brunswick	ME	04011	725-4371	Mr.	James	Pierce
Ingraham	PO Box 1868	Portland	ME	04104-		Mr.	Peter	Dietz
Ingraham/ The Bridge	PO Box 1869	Portland	ME	04105	207-874-1056	Ms.	Jane	Morrison
Jessie Albert Memorial Dental Center	171 Congress Avenue	Bath	ME	04530	443-9721			
Kilun Kikin Emergency Shelter	RR#1 Box 339	Perry	ME	04667	207-853-6021	Mr.	Clayton	Cleaves
Lighthouse-Preble Street	PO Box 1459	Portland	ME	04104	207-775-0026	Mr.	Mark	Swann
M.S.A.D. 75 School Based Health Center	50 Republic Avenue	Topsham	ME	04086	725-0143	Ms.	Robin	Baltramini
M.S.A.D. 75 School Based Health Center	50 Republic Avenue	Topsham	ME	04086	725-0143	Ms.	Nancy	Greindel
Maine Affordable Housing Network (MAHN)	41 Water St., PO Box 268	Wiscasset	ME	04578	207-882-7552 X168	Ms.	Holly	Baldwin
Maine Association of Nonprofits	565 Congress St, Suite 301	Portland	ME	04101	(207) 871-1885			
Maine Balance of State CoC	353 Water Street	Augusta	ME	04330	626-4671			
Maine Ctrs. for Women, Work, and Community	University College, 9 Park St.	Bath	ME	04530	(207) 386-1664; In Maine: 1-800-442-2092	Ms.	Shelly	Taylor
Maine State Housing Authority	353 Water Street	Augusta	ME	04330	626-4610			
Maine State Housing Authority	353 Water Street	Augusta	ME	04330	626-4600			
Merrymeeting AIDS Support Services (M.A.S.S.)	PO Box 57	Brunswick	ME	04011	725-4955	Ms.	Gloria	Leach
Merrymeeting Homeless Project	15 Centre St, Suites 4 & 6	Bath	ME	04530	Office: (207) 443-5473; 1-877-833-9003	Mr.	Rob	Ellis
Mid Coast Chapter American Red Cross	16 Community Way	Topsham	ME	04086	729-6779	Mr.	John	Franham
Mid Coast Elder Services	66 Baribeau Drive	Brunswick	ME	04011	373-6975	Ms.	Rhode Ann	Jones
Mid Coast Health Care	123 Medical Center Drive	Brunswick	ME	04011				
Mid Coast Hospitality House	PO Box 155	Rockport	ME	04856	207-594-1422	Mr.	Gordon	Mank

Mid Coast Hunger Prevention Program	84 A Union Street	Brunswick	ME	04011	725-1151			
Mid Coast Hunger Prevention Program	84A Union Street	Brunswick	ME	04011	725-2716	Mr.	Terry	Howell
Mid Maine Shelter	PO Box 2612	Waterville	ME	04903	207-872-6550	Ms.	Sue	Goss
Midcoast Council for Business Dev. and Planning	7 Park Street	Bath	ME	04530	443-5790			
Mid-Coast Mental Health Center	PO Box 526	Rockland	ME	04841-		Mr.	Andy	Finch
Milestone	65 India Street	Portland	ME	04101	207-934-5231 (OOB) 775-4790 Portland	Mr.	Paul	McDonnell
My Choice-Bangor	181 State Street	Bangor	ME	04401	207-941-9500	Ms.	Kristen	Hirsch
My Choice-Portland	306 Congress Street	Portland	ME	04101	207-772-3678	Ms.	Gayle	Knee
New Beginnings Inc.	436 Main Street	Lewiston	ME	04240	207-795-4077	Mr.	Robert	Rowe
New Hope for Women, Inc.	PO Box A	Rockland	ME	04841-0733	207-594-2128	Ms.	Kathleen	Morgan
New Hope for Women, Inc.	PO Box A	Rockland	ME	04841-0733	207-594-2128	Ms.	Dianne	Darling
The Next Step - Milbridge	PO Box 1465	Ellsworth	ME	04605	207-667-0176 or 207-255-4934	Ms.	Laurie	Fogelman
NFI North, Inc. - Oliver Place	55 Oliver St	Bath	ME	04530	(207) 442-7146	Ms.	Mariette	St. Pierre
NFI, Inc.	PO Box 417	Contoocook	ME	03229-0417		Mr.	Paul	Dann
Northern New England Housing Investment Fund	183 Middle Street	Portland	ME	04101-		Mr.	Bill	Shanahan
Oasis Health Clinic	66 Baribeau Dr., Box 20	Brunswick	ME	04011	721-9277	Dr.	Peter	McGuire
Oasis Health Clinic	66 Baribeau Dr., Box 20	Brunswick	ME	04011	721-9277	Mr.	John	Peters
Organization for Transformative Farming, Inc.	89 Auburn St., Box 1140	Portland	ME	04103	247-5727; Cell- 838-0964	Mr.	Bob	Murray
Oxford Hills Family Shelter	PO Box 278	So. Paris	ME	04281	207-739-6502	Ms.	Koriene	Low
Oxford Street Shelter	196 Lancaster Street	Portland	ME	04101	207-775-7912 Ext. 224	Mr.	Robert	Duranleau
Parkview Adventist Medical Center	329 Maine Street	Brunswick	ME	04011	(207) 373-2000 x1289	Mr.	Ted	Lewis
Pathways, Inc.	589 Minot Avenue	Auburn	ME	04210-		Mr.	Jack	Packer
Peabody House, Inc.	14 Orchard Street	Portland	ME	04102-		Ms.	Mary	Beyer
Penquis CAP	PO Box 1162	Bangor	ME	04402		Mr.	Steve	Moors
People Plus Center	6 Noble Street	Brunswick	ME	04011	729-0757	Mr.	Sigurd	Knudsen
Pine Tree Legal	88 Federal Street	Portland	ME	04112	774-8211 X1215	Ms.	Lindsay	Cadwallader
Pine Tree Society	149 Front St., PO Box 518	Bath	ME	04530	443-3341	Ms.	Erin	Rice
Pine Tree Society	149 Front St., PO Box 518	Bath	ME	04530	443-3341	Mr.	Jeremy	Lucas
Planned Parenthood of Northern N.E.	51 US Rte 1 Ste C, Nonesuch Riv Plz	Scarborough	ME	04074	510-2201	Ms.	Sonya	Solberg
Planned Parenthood of Northern N.E.	51 US Rte 1 Ste C, Nonesuch Riv Plz	Scarborough	ME	04074	510-2201	Ms.	Mary	Hillery
Port Resources	175 Lancaster St., Suite 217	Portland	ME	04101-		Ms.	Karen	MacDonald
Portland Family Shelter	196 Lancaster Street	Portland	ME	04101	207-775-7912 Ext. 224	Mr.	Robert	Duranleau
Portland West Neighborhood Planning	181 Brackett Street	Portland	ME	04102-		Mr.	Larry	Davis
Preble Street Resource Center	PO Box 1459	Portland	ME	04104-1459	207-775-0026	Mr.	Mark	Swann
Project for Supported Living	PO Box 4036	Portland	ME	04101-		Mr.	Michael	Faust
Providence Service Corporation of Maine, Inc.	14 Maine St., Suite 203, Box 50	Brunswick	ME	04011	1-888-450-9550, (207) 373-0620	Ms.	Mary	Haynes-Rodgers
RDD	66 Pearl Street	Portland	ME	04104-		Mr.	Patrick	McGrath
Realty Resources	247 Commercial Street	Rockport	ME	04856		Mr.	Joe	Cloutier
Respite Care	PO Box 402	Brunswick	ME	04011	729-8571	Ms.	Nancy	Herk-Bott
Richmond Area Health Center	24 Gardiner Road	Richmond	ME	04357	737-4359			
Rumford Group Homes	160 Lincoln Avenue	Rumford	ME	04276	207-364-2886 Brenda 207-364-3551	Mr.	Al	Monier

Rural Community Action Ministries	81 Church Hill Rd., Suite 2	Leeds	ME	04263	207-524-5095	Mr.	Gil	Ward
Salvation Army	P.O. Box 574	Bath	ME	04530	443-3611			
Senior Spectrum	PO Box 2589	Augusta	ME	04330	1-800-282-0764	Ms.	Muriel	Scott
Serenity House	30 Mellen Street	Portland	ME	04101-		Mr.	Timothy	McBrady
Sexual Assault Support Services of Midcoast Maine	PO Box 990	Brunswick	ME	04011	725-2181	Ms.	Susan	Hall Dreher
Shalom House, Inc.	PO Box 560	Portland	ME	04112-		Mr.	Bill	Floyd
Shaw House	136 Union Street	Bangor	ME	04401	207-941-2882	Mr.	John	Costello
Shepherd of Faith Food Bank	16 Beech Street	Richmond	ME	04357	737-2902			
Sister Mary O'Donnell Shelter	PO Box 1753	Presque Isle	ME	04769-1753	207-764-5114	Ms.	Susan	Mitchell
SMART	PO Box 560	South Windham	ME	04082-		Ms.	Debbie	Gross
Spruce Run Association	PO Box 653	Bangor	ME	04401	207-945-5102	Ms.	Rebecca	Hobbs
Spurwink School	899 Riverside Street	Portland	ME	04103-		Ms.	Dawn	Stiles
Spurwink School	899 Riverside Street	Portland	ME	04103-		Ms.	Amy	Pow
St. Martin de Porres Residence	PO Box 7227	Lewiston	ME	04243-7227	207-786-4690	Brother	Irenee	Richard
Strathglass Family Shelter	PO Box 278	S Paris	ME	04281	207-739-6500	Ms.	Koriene	Low
Support Solutions	124 Canal Street, Suite B	Lewiston	ME	04240-		Mr.	Arthur	Lerman
Sweetser	14 Maine Street	Brunswick	ME	04011-		Ms.	Rita	DeFio
Sweetser	50 Moody Street	Saco	ME	04072	294-4482 (Carlton – 294-4400) or 1-800-434-3000	Mr.	Carlton	Pendleton
Sweetser	50 Moody Street	Saco	ME	04072	294-4482 (Carlton – 294-4400) or 1-800-434-3000	Mr.	Todd	Henry
Sweetser Community Mental Health	329 Bath Road, Suite 1	Brunswick	ME	04011	721-3177			
Tedford Shelter	PO Box 958	Brunswick	ME	04011	729-1161; shelter- 725-4871	Mr.	Don	Kniseley
Telesis Housing Corporation	PO Box 1123	Portland	ME	04104-		Mr.	Brian	Goldberg
The Housing Partnership	1555 Islington Street	Portsmouth	ME	03801-		Mr.	Bryan	Wyatt
The Salvation Army	PO Box 574	Bath	ME	04530	443-3611	Mr.	Steve	Dansereau
Topsham Housing Authority	12 Stone St., PO Box A	Brunswick	ME	04011	725-8711	Mr.	John	Hodge
Town of Arrowsic	340 Arrowsic Road	Arrowsic	ME	04530-9403	443-4609	Mr.	Larry	Wilson
Town of Bowdoin	23 Cornish Dr., PO Box 35	Bowdoin	ME	04287-0035	353-6949	Ms.	Debora	Avery
Town of Bowdoinham	13 School Street	Bowdoinham	ME	04008	666-5531	Ms.	Kathy	Durgin-Leighton
Town of Brunswick	28 Federal Street	Brunswick	ME	04011-1583	725-6659	Mr.	Donald	Gerrish
Town of Durham	630 Hallowell Road	Durham	ME	04222	353-2561	Mr.	John	White
Town of Freeport	30 Main Street	Freeport	ME	04032	865-4744	Ms.	Johanna	Hanselman
Town of Freeport	30 Main Street	Freeport	ME	04032	865-4744	Mr.	Dale	Olmstead
Town of Georgetown	50 Bay Point Road., PO Box 436	Georgetown	ME	04548	371-2820	Mr.	Charles	Collins
Town of Harpswell	263 Mountain Road	Harpswell	ME	04079	833-5771	Ms.	Kristi	Eiane
Town of Phippsburg	1042 Main Road	Phippsburg	ME	04562	389-2653	Mr.	Michael	Young
Town of Richmond	26 Gardiner St., PO Box 159	Richmond	ME	04357-0159	737-4305	Mr.	David	Peppard
Town of Topsham	22 Elm Street	Topsham	ME	04086-1496	725-1724 or 725-5821	Mr.	Richard	Roedner
Town of West Bath	219 Fosters Point Road	West Bath	ME	04530	443-4342	Ms.	Pam	Hile
Town of Woolwich	13 Nequasset Road	Woolwich	ME	04579	442-7094	Mr.	Lloyd	Coombs
Tri County Literacy Volunteers	2 Sheridan Road	Bath	ME	04530	443-6384	Ms.	Darlene	Marciniak
Volunteers of America Northern New England, Inc.	14 Maine Street	Brunswick	ME	04011	207-373-1140	Ms.	Julia	Wilcock

Womancare/Aegis	PO Box 192	Dover-Foxcroft	ME	04426	207-564-8165	Ms.	Cynthia	Freeman-Cyr
Women, Work, and Community	9 Park Street	Bath	ME	04530		Ms.	Shelly	Taylor
Woodfords Family Services	PO Box 1768	Portland	ME	04104-1768		Mr.	Dick	Farnsworth
YANA, Inc.	PO Box 328	Saco	ME	04072	207-283-0069	Ms.	Kyn	Tobin
York County Shelters, Inc.	PO Box 820	Alfred	ME	04002	207-324-1137	Mr.	Don	Gean
Youth & Family Services	5 Commerce Drive	Skowhegan	ME	04976	207-474-8311	Ms.	Lynn	Duby
Youth Alternatives	PO Box 596	Portland	ME	04112-0596	207-874-1175	Mr.	Michael	Tarpinian
Youth Alternatives	PO Box 596	Portland	ME	04112-0596	207-874-1175	Mr.	Kane	Loukas
Youth Alternatives-Girls Transitional	137 Gray Road	Falmouth	ME	04105-2029	207-874-1175	Mr.	Michael	Tarpinian
YWCA of Portland	87 Spring Street	Portland	ME	04101	207-874-1130 Ext. 3003	Ms.	Pam	McNally
Zenith Alternative Education Program	PO Box 1267	Camden	ME	04843		Mr.	Jeffrey	Brawn
Habitat for Humanity	108 Centre Street	Bath	ME	04530	386-5081	Mr.	Timothy	Meleen

February 22, 2007

Re: **Notice of Interest Applications – Homeless Agency Providers**

Dear «Prefix» «Salutation»:

The Topsham LRA received the U.S. Department of Navy's Notice of Surplus Property on January 3, 2007, indentifying all available real and personal surplus property located on the Topsham Annex, Naval Air Station Brunswick (Annex). A 30-day extension for advertising has been approved by the Department of Defense, Office of Economic Adjustment.

Your organization has been identified as either providing services to the homeless in the "vicinity" of the Annex, or that may have an interest in providing such services. The "vicinity" of the Annex has been defined as **the Towns of Topsham, Bowdoin, and Bowdoinham.** As such, your organization is eligible to submit a Notice of Interest ("NOI") Application for surplus property under the homeless screening process pursuant to the McKinney-Vento Homeless Assistance Act of 1987 and the Base Closure Community Redevelopment and Homeless Assistance Act of 1994, as amended, its implementing regulations, and other applicable laws. The required public notice regarding the surplus property was published today in the Times Record and Portland Press Herald newspapers. A copy of the information contained in the notice is enclosed for your reference. NOI Applications must be received in our offices no later than **2:00 p.m. on May 30, 2007**.

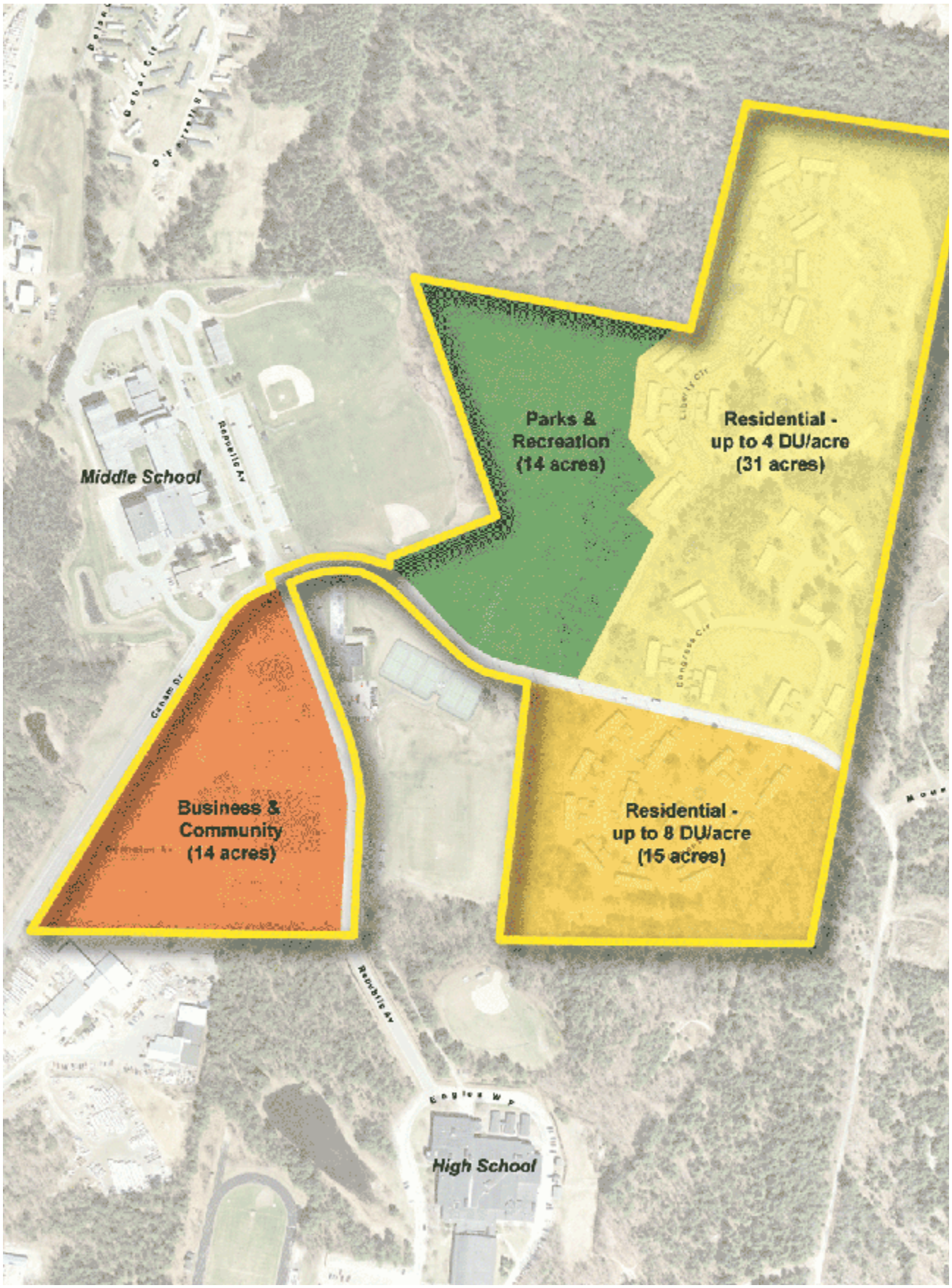
To better familiarize you with this process, our website (www.topshamlra.org) contains valuable information, including a document entitled "Homeless Screening Process" that outlines our goals, the role of the TLRA, and the schedule concerning this screening process. NOI Applications may be obtained by either contacting me at the address below, or by downloading it from our website.

Workshops for the homeless agency providers will be held at the Topsham Public Library, 25 Foreside Road, Topsham, Maine on **March 14, 2007** at 1:00 p.m. Following the workshop, a tour of the Annex is scheduled. To register for a workshop and tour, please call me at (207) 725-1724 by March 2, 2007.

We look forward to working with you on this important component of the base reuse planning process. If you have any questions or comments whatsoever, please do not hesitate to contact me.

Sincerely,

Richard J. Roedner
Base Redevelopment Manager


Parks &
Recreation
(14 acres)
Residential -
up to 4 DU/acre
(31 acres)
Middle School
Business &
Community
(14 acres)
Residential -
up to 8 DU/acre
(15 acres)
High School

TOPSHAM ANNEX REUSE MASTER PLAN

Legend

Topsham Annex Surplus Property

Military Triangle Land Uses:

The overriding goals of development in the Military Triangle are to support a youthful population and economic development.

Economic Development

- Land specifically for economic development, perhaps via an Economic Development Conveyance (2.7 acres)
- Area intended to:
  - Generate tax revenues
  - Support existing businesses
  - Create good paying positions
  - Limit noxious uses through zoning
  - Office/light industrial type uses
  - Appropriate and adequate screening

Support for youthful population

- General land uses would include professional and community services, could include light industrial
  - Non-profits, supportive facilities
  - Support uses adjacent to housing/schools
  - Small shops
  - Medical/professional offices
  - Teen/Community center
  - Professional center
  - Community uses

Development Standards

- Limit impacts on adjacent homes and schools
- Site access and traffic generation
- Exterior appearance of buildings
- Time of day impacts
- Additional Site Plan review standards

N

Midcoast Regional Redevelopment Authority (MRRA)
5450 Fitch Avenue ▫ Brunswick, ME 04011 ▫ Tel: 207-798-6512 Fax: 207-798-6510 ▫ Email: info@mrra

From Navy Base to a Great New Place!

HRA-0295

A Short History of Nuclear Regulation, 1946-1999

TABLE OF CONTENTS

CHAPTER 1: THE FORMATIVE YEARS OF NUCLEAR POWER REGULATION, 1946-62

- The Dawn of the Atomic Age
- The 1954 Atomic Energy Act
- The AEC and the Development of Commercial Nuclear Power
- The AEC's Regulatory Program
- The Licensing Process
- The Power Reactor Development Company Controversy
- The Price Anderson Act
- The Growth of Nuclear Power
- Radiation Protection
- The Fallout Controversy

CHAPTER 2: THE NUCLEAR POWER DEBATE, 1963-75

- The "Great Bandwagon Market"
- Burdens of the Bandwagon Market
- Engineered Safeguards
- The Problem of Core Meltdown
- The Emergency Core Cooling Controversy
- Nuclear Power and the Environment
- Thermal Pollution
- The Radiation Debate
- NEPA and Calvert Cliffs
- Schlesinger's Response to Calvert Cliffs
- The ECCS Hearings
- Radioactive Waste Disposal
- The End of the AEC

CHAPTER 3: THE NUCLEAR REGULATORY COMMISSION AND THREE MILE ISLAND

- The Mandate of the NRC
- The Browns Ferry Fire
- The Reactor Safety Study
- Three Mile Island
- The NRC's Response to Three Mile Island
- Chernobyl
- Licensing New Plants
- Emergency Planning
- One-Step Licensing
- Radiation Standards
- Below Regulatory Concern

CHAPTER 4: NEW ISSUES, NEW APPROACHES

- Plant Maintenance
- Decommissioning
- License Renewal
- Risk Assessment and Nuclear Safety
- The Millstone Controversy

- Nuclear Materials Safety and Safeguards

History, automobile maker Henry Ford once said, "is more or less . . . bunk." Philosopher George Santayana was more charitable in his assessment of the discipline when he declared that "those who fail to study the past are condemned to repeat it." In a sense, both Ford and Santayana were right. Much of the past has little meaning or importance for the present and deservedly remains forgotten in the dustbins of history. But other parts of the past need to be remembered and studied in order to make sense out of the present. Today's events are a direct outgrowth of yesterday's, and understanding the history of any given problem is essential to approaching it knowledgeably. It is the task of the historian to gather evidence, to separate what is important from what is not, and to explain key events and decisions of the past.

This short history of nuclear regulation provides a brief overview of the most significant events in the agency's past. Space limitations prevent discussion of all the important occurrences, and even the subjects that are included cannot be covered in full detail. The first chapter of this account is drawn from the first volume of the NRC's history, *Controlling the Atom: The Beginnings of Nuclear Regulation, 1946-1962* (University of California Press, 1984). The second chapter is largely based on the second volume of the NRC's history, *Containing the Atom: Nuclear Regulation in a Changing Environment, 1963-1971* (University of California Press, 1992). The findings and conclusions on events that occurred after 1971 should be regarded as preliminary and tentative; they are not based on extensive research in primary sources. It is my hope, however, that this overview will help explain how the past has shaped the present and illuminate the considerations that have influenced regulatory decisions and procedures over the years. It is also my hope that this outline will suggest that history should be viewed as something more valuable than "bunk."

CHAPTER 1 -- THE FORMATIVE YEARS OF NUCLEAR REGULATION, 1946-62

The Dawn of the Atomic Age

The use of atomic bombs against the Japanese cities of Hiroshima and Nagasaki in August 1945 ushered in a new historical epoch, breathlessly labeled in countless news reports, magazine articles, films, and radio broadcasts as the "Atomic Age." Within a short time after the end of World War II, politicians, journalists, scientists, and business leaders were suggesting that peaceful applications of nuclear power could be as dramatic in their benefits as nuclear weapons were awesome in their destructive power. Nuclear physicist Alvin M. Weinberg told the Senate's Special Committee on Atomic Energy in December 1945: "Atomic power can cure as well as kill. It can fertilize and enrich a region as well as devastate it. It can widen man's horizons as well as force him back into the cave." *Newsweek* reported that "even the most conservative scientists and industrialists [are] willing to outline a civilization which would make the comic-strip prophecies of Buck Rogers look obsolete." Observing that ideas for the civilian uses of atomic energy ranged "from the practical to the fantastic," it cited a few examples: atomic-powered airplanes, rockets, and automobiles, large electrical generating stations, small "home power plants" to provide heat and electricity in individual homes, and tiny atomic generators wired to clothing to keep a person cool in summer and warm in winter.

Developing nuclear energy for civilian purposes, as even the most enthusiastic proponents recognized, would take many years. The government's first priority was to maintain strict control over atomic technology and to exploit it further for military purposes. The Atomic Energy Act of 1946, passed as tensions with the Soviet Union were developing into the cold war, acknowledged in passing the potential peaceful benefits of atomic power. But it emphasized the military aspects of nuclear energy and underscored the need for secrecy, raw materials, and production of new weapons. The 1946 law did not allow for private, commercial application of atomic energy; rather, it created a virtual government monopoly of the technology. To manage the nation's atomic energy programs, the act established the five-member Atomic Energy Commission (AEC).

The 1954 Atomic Energy Act

In 1954, Congress passed new legislation that for the first time permitted the wide use of atomic energy for peaceful purposes. The 1954 Atomic Energy Act redefined the atomic energy program by ending the government monopoly on technical data and making the growth of a private commercial nuclear industry an urgent national goal. The measure directed the AEC "to encourage widespread participation in the development and utilization of atomic energy for peaceful purposes." At the same time, it instructed the agency to prepare regulations that would protect public health and safety from radiation hazards. Thus, the 1954 act assigned the AEC three major roles: to continue its weapons program, to promote the private use of atomic energy for peaceful applications, and to protect public health and safety from the hazards of commercial nuclear power. Those functions were in many respects inseparable and incompatible, especially when combined in a single agency. The competing responsibilities and the precedence that the AEC gave to its military and promotional duties gradually damaged the agency's credibility on regulatory issues and undermined public confidence in its safety program.

The AEC's regulatory program was most directly affected by the agency's commitment to encouraging the rapid growth of civilian nuclear power. The initial impetus for peaceful atomic development came mostly from considerations other than meeting America's energy demands. In the early 1950s, projections of future energy requirements predicted that atomic power would eventually play an important role in the nation's energy supplies, but they did not suggest an immediate need

to construct atomic power reactors. The prevailing sense of urgency, at least among government leaders, that led to the 1954 Atomic Energy Act and to the growth of commercial nuclear power derived instead largely from the fear of falling behind other nations in fostering peaceful atomic progress. The strides that Great Britain was making in the field seemed disturbing enough, but the possibility that the Soviet Union might surpass the United States in civilian power development was even more ominous. AEC commissioner Thomas E. Murray described a "nuclear power race" in a 1953 speech and warned that the "stakes are high." He added: "Once we become fully conscious of the possibility that power hungry countries will gravitate toward the USSR if it wins the nuclear power race, . . . it will be quite clear that this power race is no Everest-climbing, kudos-providing contest." Like Murray, many government officials emphasized that surrendering America's lead in expanding the peaceful applications of atomic energy would deal a severe blow to its international prestige and world scientific dominance.

The eagerness to push for rapid civilian nuclear development was intensified by an impulse to show that atomic technology could serve constructive purposes as well as destructive ones. The assertions made shortly after World War II that atomic energy could provide spectacular advances that would raise living standards throughout the world remained unproven and largely untested. As the nuclear arms race took on more terrifying proportions with the development of thermonuclear bombs, the desire to demonstrate the benefits of atomic energy became more acute. President Dwight D. Eisenhower, spurred by the detonation of the Soviet Union's first hydrogen device, starkly depicted the horror of nuclear warfare in a widely publicized address to the United Nations in December 1953. At the same time, he emphasized that "this greatest of all destructive forces can be developed into a great boon, for the benefit of all mankind." Eisenhower's appeal for peaceful nuclear progress and his affirmation of the potential blessings of civilian atomic energy were echoed by many other high government officials.

By 1954, a broad political consensus viewed the development of nuclear energy for civilian purposes as a vital goal. The Atomic Energy Act of that year resulted partly from perceptions of the long-range need for new energy sources, but mostly from the immediate commitment to maintain America's world leadership in nuclear technology, enhance its international prestige, and demonstrate the benefits of peaceful atomic energy. It infused the atomic power program with a sense of urgency, and in that atmosphere, the AEC established its developmental and regulatory policies. The 1954 act gave the AEC wide discretion on how to proceed. Despite the general agreement on ultimate objectives, the means by which they should be accomplished soon created sharp differences.

The AEC and the Development of Commercial Nuclear Power

The AEC favored a partnership between government and industry in which private firms would play an integral role in demonstrating and expanding the use of atomic power. "The Commission's program," AEC chairman Lewis L. Strauss explained, "is directed toward encouraging development of the uses of atomic energy in the framework of the American free enterprise system." It was the AEC's conviction, he added, "that competitive economic nuclear power . . . would be most quickly achieved by construction and operation of full-scale plants by industry itself." To accomplish its objectives, the AEC announced a "power demonstration reactor program" in January 1955. The agency offered to perform research and development on power reactors in its national laboratories, to subsidize additional research undertaken by industry under fixed-sum contracts, and to waive for seven years the established fuel use charges for the loan of fissionable materials (which the government would continue to own). For their part, private utilities and vendors would supply the capital for construction of nuclear plants and pay operating expenses other than fuel charges. The purpose of the demonstration program was to stimulate private participation and investment in exploring the technical and economic feasibility of different reactor designs. At that time, no single reactor type had clearly emerged as the most promising of the several that had been proposed.

The AEC's incentives received a mixed response from private industry. For several years, some utility executives had shown a keen interest in investigating the use of nuclear fission for generating electricity. But commercial applications of atomic energy had been thwarted by the severe limitations on access to technical information dictated by the 1946 Atomic Energy Act. In 1953, when the Joint Committee on Atomic Energy, created by the 1946 act to carry out congressional oversight of the AEC, conducted public hearings on peaceful atomic development, spokesmen for private firms emphasized that industrial progress was possible only if the restrictions on obtaining data were eased. By opening nuclear technology to commercial applications, the 1954 Atomic Energy Act largely satisfied those complaints. From the perspective of utility companies, the act offered an opportunity to participate in nuclear development and gain experience in a technology that promised to help meet long-term energy demands. Vendors of reactor components welcomed the prospects of expanding their markets, not only in the United States but also in foreign countries where the need for new sources of power was more immediate.

The enthusiasm of the private utility industry for nuclear power development, however, was tempered by other considerations. Although experiments with AEC-owned reactors had established the technical feasibility of using nuclear fission to produce electricity, many scientific and engineering questions remained to be answered. Despite the financial inducements the AEC offered through its power demonstration reactor program, the capital and operating costs of atomic power were certain to be much higher than those of fossil fuel plants, at least in the early stages of development. Across the industry, the prospects of realizing short-term profits from nuclear power were dim. An American Management Association symposium in 1957 concluded: "The atomic industry has not been--and is not likely to be for a decade--attractive as far as quick profits are concerned." When Lewis Strauss made his oft-quoted statement in 1954 that nuclear

power could provide electricity "too cheap to meter," he was referring to long-term (and far-fetched) hopes rather than to immediate realities. He knew as well as industry analysts that the heavy investments required were a major impediment to the growth of nuclear power.

In addition to financial considerations, recognition of the hazards of the technology intensified industry's reservations about nuclear power. Based on experience with government test reactors and the prevailing faith in the ability of scientists and engineers to solve technological problems, the AEC and industry leaders regarded the chances of a disastrous atomic accident as remote. But they did not dismiss the possibility entirely. Francis K. McCune, general manager of the Atomic Products Division of General Electric, told the Joint Committee in 1954 that "no matter how careful anyone in the atomic energy business may try to be, it is possible that accidents may occur."

Mindful of both the costs and the risks of atomic power, the electric utility industry responded to the 1954 Atomic Energy Act and the AEC's demonstration program with restraint. Although many utilities were interested in exploring the potential of nuclear power, few were willing to press ahead rapidly in the face of existing uncertainties. The AEC was gratified, and rather surprised, that by August 1955 five power companies--either as individual utilities or as consortiums--had announced plans to build nuclear plants. Two decided to proceed without government assistance and three others submitted proposals for projects under the AEC's power demonstration program.

The Joint Committee on Atomic Energy was less impressed with the response of private industry to the 1954 act and the AEC's incentives. The Democratic majority on the committee favored a larger government role in accelerating nuclear development, which conflicted with the AEC's commitment to encouraging maximum private participation. The issue became a major source of contention between the AEC and the Joint Committee, contributing a philosophical dispute to relations that were already strained by political differences and a bitter personal feud between Strauss and Joint Committee chairman Clinton P. Anderson.

In 1956, two Democratic members of the Joint Committee, Representative Chet Holifield and Senator Albert Gore, introduced legislation directing the AEC to construct six pilot nuclear plants, each of a different design, in order to "advance the art of generation of electrical energy from nuclear energy at the maximum possible rate." Supporters of the bill contended that the United States was falling behind Great Britain and the Soviet Union in the quest for practical and economical nuclear power. Opponents of the measure denied that the United States had surrendered its lead in atomic technology and insisted that private industry was best able to expedite further development. Strauss declared that "we have a civilian program that is presently accomplishing far more than we had reason to expect in 1954." The Gore-Holifield bill was defeated by a narrow margin in Congress, but the views it embodied and the impatience of the Joint Committee for rapid development placed a great deal of pressure on the AEC to show that its reactor programs were producing results.

The AEC's Regulatory Program

The AEC's determination to push nuclear development through a partnership in which private industry played a vital role had a major impact on the agency's regulatory policies. The AEC's fundamental objective in drafting regulations was to ensure that public health and safety were protected without imposing overly burdensome requirements that would impede industrial growth. Commissioner Willard F. Libby articulated an opinion common among AEC officials when he remarked in 1955: "Our great hazard is that this great benefit to mankind will be killed aborning by unnecessary regulation." Other proponents of nuclear development shared those views. They realized that safety was indispensable to progress; an accident could destroy the fledgling industry or at least set it back many years. At the same time, they worried that regulations that were too restrictive or inflexible would discourage private participation and investment in nuclear technology.

The inherent difficulty the AEC faced in distinguishing between essential and excessive regulations was compounded by technical uncertainties and limited operating experience with power reactors. The safety record of the AEC's own experimental reactors engendered confidence that safety problems could be resolved and the possibility of accidents kept to "an acceptable calculated risk." But experience to that time offered little definitive guidance on some important technical and safety questions, such as the effect of radiation on the properties of reactor materials, the durability of steel and other metals under stress in a reactor, the ways in which water reacted with uranium, thorium, aluminum, and other elements in a reactor, and the measures needed to minimize radiation exposure in the event of a large accident.

The Licensing Process

The AEC's regulatory staff, created soon after the passage of the 1954 Atomic Energy Act, confronted the task of writing regulations and devising licensing procedures rigorous enough to assure safety but flexible enough to allow for new findings and rapid changes in atomic technology. Within a short time the staff drafted rules and definitions on radiation protection standards, distribution and safeguarding of fissionable materials, and reactor operators' qualifications. It also established procedures for licensing privately-owned reactors. The 1954 act outlined a two-step procedure for granting licenses. If the AEC found the safety analysis submitted by a utility for a proposed reactor to be acceptable, it would issue a construction permit. After construction was completed and the AEC determined that the plant fully met safety requirements, the applicant would receive a license to load fuel and begin operation.

Because of the uncertainties in technical knowledge and the AEC's goal of encouraging different reactor designs, the agency had to judge license applications on a case-by-case basis. The early state of the technology precluded the possibility of formulating universal standards for all aspects of reactor engineering. The regulatory staff reviewed the information that applicants supplied on the suitability of the proposed site, construction specifications, a detailed plan of operation, and safety features. The proposal received further scrutiny from a panel of outside experts, the Advisory Committee on Reactor Safeguards (ACRS). The ACRS, composed of part-time consultants who were recognized authorities on various aspects of reactor technology, conducted its own independent review of the application. The recommendations of the staff and the ACRS went to the commissioners, who made the final decision on whether or not to approve a construction permit or operating license. (Later, the Commission delegated consideration of regulatory staff and ACRS judgments to panels drawn from the "Atomic Safety and Licensing Board" while retaining final jurisdiction in licensing cases if it chose to review a board ruling).

The AEC did not require that a prospective power reactor owner submit finalized technical data on the safety of a facility to receive a construction permit. The agency was willing to grant a conditional permit as long as the application provided "reasonable assurance" that the projected plant could be constructed and operated at the proposed site "without undue risk to the health and safety of the public." The two-step licensing system enabled the AEC to authorize construction of nuclear plants while allowing time to investigate any outstanding safety questions and prescribe modifications in initial plans. Agency officials recognized that the wisdom of permitting construction to proceed without first resolving all potential safety problems was disputable, but they saw no alternatives in light of the existing state of the technology and the commitment to rapid development of atomic power. They were confident that regulatory requirements were adequate to guard against the hazards of nuclear generating systems. The AEC acknowledged, however, that it could not eliminate all risks. C. Rogers McCullough, chairman of the ACRS, informed the Joint Committee in 1956 that because of technical uncertainties and limited operating experience, "the determination that the hazard is acceptably low is a matter of competent judgment."

The Power Reactor Development Company Controversy

It soon became apparent how the AEC's judgment on safety issues could be influenced by its ambition to promote the private development of nuclear power. The Commission's actions in granting a construction permit for a commercial fast breeder reactor, despite the reservations of the ACRS, ignited an acrimonious controversy with the Joint Committee and raised questions about the AEC's regulatory program. In January 1956, the Power Reactor Development Company (PRDC), a consortium of utilities led by Detroit Edison, applied for a permit to build a fast breeder in Lagoona Beach, Michigan, located on Lake Erie within thirty miles of both Detroit and Toledo, Ohio. The AEC had already received applications for two privately-financed light-water reactors, but the PRDC proposal was the first to come in under the power demonstration program.

The fast breeder reactor that the PRDC planned was far more advanced in its technological complexity than light-water models, with which scientists and engineers had greater experience and familiarity. After review of the PRDC's application and discussions with company representatives, the ACRS concluded in an internal report to the Commission that "there is insufficient information available at this time to give assurance that the PRDC reactor can be operated at this site without public hazard." The ACRS also expressed uncertainty that its questions about the reactor's safety could be resolved within the PRDC's proposed schedule for obtaining an operating license. The ACRS urged that the AEC expand its experimental programs with fast breeders to seek more complete data on the issues the PRDC application raised.

The public dispute over the PRDC case was triggered by statements of Chairman Strauss and Commissioner Murray in congressional budget hearings. After the AEC requested a supplemental appropriation for the civilian power program, the commissioners were subjected to sharp criticism by Clarence Cannon, chairman of the House Appropriations Committee, when they appeared to testify in June 1956 on the need for the expenditures. Cannon, a strong public power advocate, badgered Strauss about private industry's lack of progress in atomic development and suggested that the PRDC had no "intention of building this reactor at any time in the determinable future." Strauss, anxious to show that industry was making good headway, replied: "They [PRDC] have already spent eight million dollars of their own money to date on this project. I told you they were breaking ground on August 8. I have been invited to attend the ceremony; I intend to do so." Inadvertently, he had revealed that he planned to attend the ground breaking ceremony for a reactor whose construction permit was still being evaluated by the AEC.

During hearings the following day, Commissioner Murray, in an effort to demonstrate the need for research and development funds, disclosed the conclusions of the ACRS on the PRDC application. Murray was so uneasy about the safety implications of the committee's report that he went to see Joint Committee Chairman Anderson and outlined its contents.

Members of the Joint Committee were angered and disturbed by the revelations of Strauss and Murray, not only because of safety concerns but also because the AEC had failed to inform them officially about the reservations of the ACRS. The AEC was obliged by the 1954 Atomic Energy Act to keep the Joint Committee "fully and currently informed" about its activities, and committee members believed that in the case of the ACRS report the agency had failed to carry out its charge. The Joint Committee immediately requested a copy of the ACRS document. The AEC was reluctant to agree, and after long deliberation, offered to deliver a copy only if the Joint Committee would keep it "administratively confidential." The committee refused to accept the report under those conditions. The AEC was even less accommodating with the state of Michigan. When Governor G. Mennen Williams, who learned of the ACRS report from Senator Anderson, asked the AEC for a

copy, it refused on the grounds that "it would be inappropriate to disclose the contents of internal documents."

Meanwhile, the AEC's regulatory staff was completing its review of the PRDC's application. The staff took a more optimistic view of the safety of the proposed reactor than had the ACRS. Since the company had agreed to perform tests on the questions raised by the committee, the staff recommended that it be granted a construction permit. On August 2, 1956, the Commission decided to issue the permit by a vote of three to one (Murray was the dissenter). It acknowledged the concerns of the ACRS by inserting the word "conditional" in the construction permit to emphasize that the company would have to settle the uncertainties about safety before receiving an operating license. Commissioner Harold S. Vance summarized the majority's reasoning during discussion of the application. "We are doing something that we ordinarily would not do," he said, "in that we would not ordinarily issue a construction permit unless we were satisfied that reasonable safety requirements had been met." But he added: "It may be some time before reasonable assurance can be obtained. If we were to delay the construction permit until then, it might delay a very important program. If we didn't think that the chances were very good that all these questions would be resolved, we would not issue the permit."

The AEC's decision elicited angry protests from the Joint Committee. Congressman Holifield, citing Strauss's earlier announcement of his plans to attend the groundbreaking ceremonies for the plant, charged that the AEC chairman was acting in a "reckless and arrogant manner." Anderson accused the agency of conducting "star chamber" proceedings and pledged that the Joint Committee would "ascertain the full facts involved in this precipitate action."

The Price Anderson Act

The Joint Committee soon acted to prevent a recurrence of the AEC's conduct in the PRDC case. Anderson ordered the committee staff to prepare a study of the AEC's licensing procedures and regulatory organization, including consideration of whether regulatory and promotional responsibilities should be carried out by separate agencies. The staff concluded that the creation of separate agencies was inadvisable at the time, principally because of the difficulty of recruiting qualified personnel for purely regulatory functions. It did, however, suggest other reforms in the AEC's regulatory structure and procedures. Anderson implemented his staff's proposals by introducing legislation to establish the ACRS as a statutory body, direct that its reports on licensing cases be made public, and require public hearings on all reactor applications. The AEC opposed all three measures, but muted its objections because Anderson presented them as amendments to a bill to provide indemnity insurance for reactor owners, which the agency strongly favored.

The AEC regarded indemnity legislation as essential for stimulating private investment in nuclear power, a view that industry spokesmen and the Joint Committee on Atomic Energy shared. Since they recognized that the chances of a severe reactor accident could not be reduced to zero, even the most enthusiastic industry proponents of atomic power were reluctant to push ahead without adequate liability insurance. Private insurance companies would offer up to $60 million of coverage per reactor, an amount that far exceeded what was available to any other industry in the United States. But in the event of a serious accident, it seemed insufficient to pay claims for deaths, injuries, and property damages in areas surrounding the malfunctioning plant.

Therefore, industry executives sought a government program to provide additional insurance protection. H. R. Searing, chairman of the board of Consolidated Edison, declared that although his company would proceed with the construction of its Indian Point plant near New York City it would not load fuel and begin operation unless the insurance question were resolved. General Electric's Francis McCune went even further by telling the Joint Committee in 1957 that if Congress did not enact indemnity legislation, his company would stop work on Commonwealth Edison's Dresden station, then under construction. He suggested that without a government insurance plan, the market for civilian atomic energy would collapse and vendors would withdraw from the field.

Spurred by the industry's concerns, both the AEC and the Joint Committee considered methods by which the government could provide additional liability insurance for reactor owners. Their efforts culminated in legislation introduced by Senator Anderson and Congressman Melvin Price, which proposed that the government underwrite $500 million of insurance beyond the $60 million available from private companies. The AEC initially opposed setting a specific upper limit on the amount because there was no reliable way to estimate the possible damages from a reactor accident. But Anderson, wanting to avoid a "blank check" for industry, rather arbitrarily decided on the $500 million figure. The bill stipulated that Congress could authorize additional payments if necessary and also required that reactor owners contribute funds to the insurance pool as their plants were licensed. With strong support from the AEC and the industry, Congress passed the Price-Anderson bill in August 1957. In final form, the measure included Anderson's reforms of the AEC's licensing procedure. Although the agency disliked Anderson's amendments, it accepted them to avoid jeopardizing or retarding approval of the indemnity bill. The Price-Anderson Act was a regulatory measure in effect because it provided insurance protection to victims of a nuclear accident, but it was largely promotional in motivation. Industry, the AEC, and the Joint Committee believed that it would remove a serious obstacle to private atomic development.

The Growth of Nuclear Power

The PRDC case and the Price-Anderson Act clearly illustrated the AEC's emphasis on developmental rather than regulatory efforts. The precedence that the AEC gave to promoting the growth of nuclear power resulted from a number of

considerations. The 1954 Atomic Energy Act made it a national goal to encourage the widespread use of atomic energy for peaceful purposes, but private industry was often hesitant to assume the costs and risks of development. Therefore, the AEC sought to persuade or induce private interests to invest in nuclear power. This seemed particularly urgent because of the intense pressure the Joint Committee placed on the agency to speed progress and its persistent threat to require the AEC to construct prototype plants if private firms failed to act promptly. One important way that the AEC pursued its objective of private development was to write regulations designed to protect public safety without being overly burdensome to industry.

Safety questions were largely a matter of judgment rather than something concrete or quantifiable, and AEC officials found it easier to assume that such issues had been or would be satisfactorily resolved than to assume that reactors would be built. When it issued a construction permit for the PRDC fast breeder reactor, for example, the Commission's vision of an advanced technology plant that showed the effectiveness of its power demonstration reactor program outweighed the reservations of the ACRS. Though aware of the implications that safety questions posed for the development of the technology, the AEC believed that nuclear science, in due time, would provide the answers to any outstanding problems. In short, the desire for tangible signs of promise was more compelling than first resolving more ethereal safety issues.

The AEC's emphasis on stimulating atomic development did not mean that it was inattentive to safety issues. The regulations that the staff drafted shortly after passage of the 1954 Atomic Energy Act reflected careful consideration of the best scientific information and judgment available at the time. The AEC recognized and publicly acknowledged the possibility of accidents in such a new and rapidly changing technology; it never offered absolute assurances that accidents would not occur. Nevertheless, it believed that compliance with its regulations would make the chances of a serious accident very small. The agency did not view its developmental efforts as more important than regulatory policies, but it clearly viewed the need to encourage industrial growth as more immediate.

By 1962, the AEC's efforts to stimulate private participation in nuclear power development had produced some encouraging results. In a report to President Kennedy, the agency proudly pointed out that in the short time since atomic technology had been opened to private enterprise, six "sizeable" power reactors had begun operation, and two of those had been built without government subsidies. Despite industry's lingering concerns about the costs of nuclear power relative to fossil fuels, the AEC's developmental and regulatory programs had fostered the initial growth of commercial nuclear power. The agency predicted that by the year 2000 nuclear plants might provide up to fifty percent of the nation's electrical generating capacity. Despite the AEC's claims, the future of the nuclear industry remained precarious. The fourteen reactors in operation or under construction were still far from being commercially competitive or technologically proven, and interest in further development among utilities appeared to be flagging. Both the AEC and Joint Committee were acutely aware of and deeply disturbed about those uncertainties.

To make matters worse from the perspective of nuclear proponents, there were signs of increasing public opposition to, or at least concern about, nuclear power hazards. In the early days of nuclear power development, public attitudes toward the technology were highly favorable, as the few opinion polls on the subject revealed. Press coverage of nuclear power was also overwhelmingly positive. An article in *National Geographic* in 1958, for example, concluded that "abundant energy released from the hearts of atoms promises a vastly different and better tomorrow for all mankind." In the late 1950s and early 1960s, however, the public became more alert to and anxious about the hazards of radiation, largely as a result of a major controversy over radioactive fallout from nuclear weapons testing. One result was that the public became increasingly troubled about the risks of exposure to radioactivity from many sources, including nuclear power.

Radiation Protection

Before World War II, the dangers of radiation were a matter of interest and concern mostly to a relatively small group of scientists and physicians. Within a short time after the discovery of x-rays and natural radioactivity in the 1890s, scientific investigators concluded that exposure to radiation could cause serious health problems, ranging from loss of hair and skin irritations to sterility and cancer. Ignorance of the hazards of x-rays and radium and use of them for frivolous purposes led to tragic consequences for people who received large doses of radiation. As experience with and experimental data on the effects of radiation gradually accumulated, professionals developed guidelines to protect x-ray technicians and other radiation workers from excessive exposure.

In 1934, a recently formed American committee representing professional societies and x-ray equipment manufacturers recommended for the first time a quantitative "tolerance dose" of radiation, 0.1 roentgen per day of whole-body exposure from external sources. Committee members believed that levels of radiation below the tolerance dose were generally safe and unlikely to cause injury "in the average individual." The following year, an international radiation protection committee composed of experts from five nations took similar action. Neither body regarded its recommended tolerance dose as definitive because empirical evidence remained fragmentary and inconclusive. They were confident, however, that available information made their proposals reasonable and provided an adequate margin of safety for the relatively small number of individuals exposed to radiation in their jobs.

Then came Hiroshima. The dawn of the atomic age made radiation safety a vastly more complex task for two reasons. First, nuclear fission created many radioactive isotopes that did not exist in nature. This meant that instead of considering only x-rays and radium, professionals in the field of radiation protection had to evaluate the hazards of new radioactive substances

about which even less was known. Second, the problem of radiation safety extended to significantly larger segments of the population who might be exposed to radiation from the development of new applications of atomic energy. Radiation protection broadened from a medical issue of limited proportions to a public health question of, potentially at least, major dimensions.

As a result of the drastically altered circumstances, scientific authorities reassessed their recommendations on radiation protection. They modified their philosophy of radiological safety by abandoning the concept of "tolerance dose," which assumed that exposure to radiation below the specified limits was generally harmless. Experiments in genetics indicated that reproductive cells were highly susceptible to damage from even small amounts of radiation. By the early 1940s, most scientists had rejected the idea that exposure to radiation below a certain threshold was inconsequential, at least for genetic effects. The American committee of radiation experts, named the National Committee on Radiation Protection (NCRP) in 1946, took action that reflected the consensus of opinion by replacing the terminology of "tolerance dose" with "maximum permissible dose," which it thought better conveyed the principle that no quantity of radiation was certifiably safe. It defined the permissible dose as that which "in the light of present knowledge, is not expected to cause appreciable bodily injury to a person at any time during his lifetime." While acknowledging the possibility of suffering harmful effects from radiation in amounts below the allowable limits, the NCRP emphasized that the permissible dose was based on the belief that "the *probability* of the occurrence of such injuries must be so low that the risk should be readily acceptable to the average individual."

Because of the growth of atomic energy programs and the substantial increase in the number of individuals working with radiation sources, the NCRP decided by 1948 to reduce its recommended occupational exposure limits to fifty percent of the 1934 level. Its international counterpart, named the International Commission on Radiological Protection (ICRP) after World War II, adopted the same maximum permissible dose. The new maximum permissible whole body dose that the NCRP and ICRP recommended was 0.3 roentgens per six-day work week, measured by exposure of the"most critical" tissue in blood-forming organs, gonads, and lens of the eye. Higher limits applied for less sensitive areas of the body. In addition to the levels established for exposure to x-rays or gamma rays, the NCRP and ICRP also issued maximum permissible concentrations in air and water of a list of radioactive isotopes that give off alpha or beta particles, known as "internal emitters." Alpha and beta particles cannot penetrate into vital human tissue from outside the body, but if they enter the body by consumption of contaminated food or water or by breathing of contaminated air, they can pose a serious health hazard.

The allowable limits established by both groups applied only to radiation workers, but because of the genetic effects of radiation and the possibility that other people could be exposed in an accident or an emergency, each also issued guidelines for larger segments of the population. In view of the greater sensitivity of young persons to radiation, the NCRP recommended that the occupational maximum permissible dose be reduced by a factor of ten for anyone under age eighteen. The ICRP went further by proposing a limit of one-tenth the occupational level for the general population. Neither committee had any legal authority or official standing, but since their recommendations reflected the findings and opinions of leading experts in the field of radiation protection, they exercised decisive influence on government agencies concerned with radiological safety. The AEC used the NCRP's occupational limits in its own installations, and after passage of the 1954 Atomic Energy Act, in its regulations for licensees. The agency's radiation protection regulations, which were first issued for public comment in 1955 and became effective in 1957, followed the NCRP's recommendations for radiation workers and set a permissible dose of one-tenth the occupational level for members of the general population potentially affected by the operations of licensees.

The Fallout Controversy

In the immediate postwar period, deliberations over the risks of radiation and permissible exposure levels were confined mostly to scientific circles. Concern about radiation moved from the rarified realms of scientific and medical discourse to the front page as a result of the fallout controversy. The testing of nuclear weapons in the atmosphere by the United States, the Soviet Union, and Great Britain produced radioactive fallout that spread to populated areas far from the sites of the explosions. The fallout debate made radiation hazards a bitterly contested political issue for the first time. Scientists disagreed sharply about how serious a risk fallout presented to the population, and the question became a prominent subject in news reports, magazine stories, political campaigns, congressional hearings, and scientific studies. This not only called public attention to the potential health hazards of relatively small amounts of radiation (as opposed to acute exposure), but also made clear that scientists did not know a great deal about the effects of low-level radiation.

The fallout controversy affected the AEC's regulatory program in two important ways. First, it led to a tightening of the agency's radiation standards. In response to increasing public concern and the findings of scientific groups, the NCRP and the ICRP both lowered their recommended permissible levels of exposure. They acted to provide a larger margin of safety but emphasized that there was no evidence that the previous levels had been dangerously high. They reduced their limits for occupational exposure to an average of 5 rem per year after age eighteen while continuing to suggest that population levels be restricted to ten percent of occupational levels (0.5 rem per year) for individuals. They added a new stipulation that, for genetic reasons, the average level for large population groups should not exceed one-thirtieth of the occupational limit, or 0.17 rem per year. The AEC promptly adopted the new recommendations as a part of its regulations; it issued them for comments in 1959 and made them effective on January 1, 1961.

The fallout debate further influenced the AEC's regulatory program by arousing public anxieties about the health effects of low-level radiation. This was evident, for example, in citizen protests against the dumping of low-level radioactive wastes in ocean waters. The AEC had authorized the dumping of such wastes under prescribed conditions for over a decade, but it became a subject of controversy only after the fallout issue sensitized public opinion to radiation hazards. In a similar manner, the first widespread objections to the construction of proposed nuclear power plants arose in the wake of the fallout debate. Citizen protests against the construction of the Ravenswood plant in the heart of New York City in 1963 and the Bodega Bay plant on the coast of California near the boundary of the San Andreas fault in 1963-64 played a vital role in aborting both projects.

At the end of the first decade that followed passage of the 1954 Atomic Energy Act, the prospects for rapid nuclear power development were mixed. Impressive strides had been taken, to be sure, but many uncertainties remained. Public support for the technology appeared to be strong but, as Ravenswood and Bodega Bay had shown, it could not be taken for granted. Beginning in the mid-1960s, however, a variety of considerations fueled an unanticipated boom in the nuclear power industry that resolved some of the unknowns about nuclear progress while raising a host of new questions for the AEC's regulatory staff.

CHAPTER 2 -- THE NUCLEAR POWER DEBATE, 1963-75

The "Great Bandwagon Market"

During the late 1950s and early 1960s the use of nuclear power to generate electricity was a novel and developing technology. Since relatively few plants were operating, under construction, or on order, the scope of the AEC's regulatory functions such as reactor siting, licensing, and inspection was still limited. During the later 1960s, however, the nation's utilities rapidly increased their orders for nuclear power stations, participating in what Philip Sporn, past president of the American Electric Power Service Corporation, described in 1967 as the "great bandwagon market." At the same time, the size of plants being built also expanded dramatically. The sudden arrival of commercially competitive nuclear power placed unprecedented demands on the AEC's regulatory staff and raised new safety problems that reactor experts had not considered previously. The surge in reactor orders and the growth in the size of individual reactors also spurred new concerns about the environmental impact of nuclear power and intensified public uneasiness about the safety of the technology.

The bandwagon market was an outgrowth of several developments that enhanced the appeal of nuclear power to utilities in the mid- and late 1960s. One was the intense competition between the two leading vendors of nuclear plants, General Electric and Westinghouse. In 1963, General Electric made a daring move to increase its reactor sales and to convince utilities that nuclear power had arrived as a safe, reliable, and cost-competitive alternative to fossil fuel. It offered a "turnkey" contract to Jersey Central Power and Light Company to build the 515 electrical megawatt Oyster Creek plant near Toms River, New Jersey. For a fixed cost of $66 million, General Electric agreed to supply the entire plant to the utility (the term "turnkey" suggested that the utility would merely have to turn a key to start operating the facility). The company's bid was successful, winning out not only over Westinghouse but also over manufacturers of coal-fired units. General Electric expected to lose money on the Oyster Creek contract, but hoped that the plant would help to stimulate the market for nuclear power.

The Oyster Creek contract opened the "turnkey era" of commercial nuclear power and came to symbolize the competitive debut of the technology. Glenn T. Seaborg, chairman of the AEC, told President Johnson that it represented an "economic breakthrough" for nuclear electricity. Westinghouse followed General Electric's lead in offering turnkey contracts for nuclear plants, setting off a fierce corporate battle. The turnkey plants were a financial blow for both companies; their losses ran into the hundreds of millions of dollars before they stopped making turnkey arrangements. One General Electric official commented: "It's going to take a long time to restore to the treasury the demands we put on it to establish ourselves in the nuclear business." But the turnkey contracts fulfilled General Electric's hopes of stirring interest among and orders from utilities. They played a major role in triggering the bandwagon market.

There were other important considerations that convinced a growing number of utilities to buy nuclear plants. One was the spread of power pooling arrangements among utilities, which encouraged the construction of larger generating stations by easing fears of excess capacity and over- expansion. A utility with extra or reserve power could sell it to other companies through interconnections. The desirability and feasibility of using larger individual plants worked to the benefit of nuclear vendors. They emphasized that bigger plants would produce "economies of scale" that would cut capital costs per unit of power and improve efficiency. This helped to overcome a major disadvantage of nuclear power relative to fossil fuel--the heavy capital requirements for building atomic plants. During the late 1960s designs for nuclear facilities leapfrogged from the 500 to the 800 to the 1000 electrical megawatt range even though operating experience was still limited to units in the range of 200 megawatts or less. The practice of "design by extrapolation" had been employed for fossil-fuel units since the early 1950s. Before the mid-1960s this approach appeared to work well, and it was natural that vendors extended it to nuclear units.

In addition to turnkey contracts, system interconnections, and increasing unit size, growing national concern about air pollution in the 1960s made nuclear power more attractive to utilities. Coal plants were major contributors to the

deterioration of air quality and were obvious targets for clean-up efforts. As the campaign to improve the environment gained strength, the electric utility industry became more mindful of the cost of pollution control in fossil-fuel plants. They increasingly viewed nuclear power as a good alternative to paying the expenses of pollution abatement in coal-fired units.

The bandwagon market for nuclear power reached its peak during 1966 and 1967, exceeding, in the words of a General Electric official, "even the most optimistic estimates." In 1965, the year before the reactor boom gathered momentum, nuclear vendors sold four nuclear plants with a total of 17 percent of the capacity that utilities purchased that year. In 1966, by contrast, utilities bought 20 nuclear units that made up 36 percent of the electrical capacity committed. The following year nuclear vendors sold 31 units that represented 49 percent of the capacity ordered. In 1968, the number of reactor orders dropped to 17, but the percentage of the capacity filled with nuclear plants remained high at 47 percent.

The bandwagon market orders were large facilities that far exceeded the size of operating reactors. Between 1963, when the 515 electrical megawatt Oyster Creek reactor was ordered, and 1969, when the plant began operation, the AEC issued 38 construction permits for units that were larger than Oyster Creek. Of those plants, 28 were in the range of 800 to 1100 megawatts. The degree of extrapolation from small plants to mammoth ones was a matter of concern even to some strong nuclear advocates. By the late 1960s, it was apparent that design by extrapolation was not as successful as anticipated earlier. "We hoped the new machines would run just like the old ones we're familiar with," complained one utility executive about his huge coal-burning stations. But, he added, "they sure as hell don't."

Burdens of the Bandwagon Market

The rapid increase in the number of reactor applications and in the size of proposed plants placed enormous burdens on the AEC's regulatory staff. The flood of applications inevitably caused licensing delays because the staff lacked enough qualified professionals. Between 1965 and 1970, the size of the regulatory staff increased by about 50 percent, but its licensing and inspection case load increased by about 600 percent. The average time required to process a construction permit application stretched from about a year in 1965 to over 18 months by 1970. The growing backlog drew bitter complaints from utilities applying to build plants and from nuclear vendors. One utility executive predicted that if delays became commonplace, "it can safely be asserted that the splendid promise of nuclear power will have had a very short life." Another was even more critical, calling the licensing process "a modern day Spanish Inquisition" carried out by "AEC engineers, scientists, and consultants {who} have no serious economic discipline." The AEC attempted to streamline its licensing procedures but found it impossible to reduce review time or to satisfy the demands of the industry.

The licensing process lengthened not only because of the number of applications that the AEC had to evaluate but also because of the complexity of the proposals it received. The growth in the size of reactors and the practice of design by extrapolation raised many complex safety issues that could not be easily resolved. The exercise of careful judgment in assessing reactor applications was always critical, but it became even more so as utilities campaigned to build plants closer to populated regions. Although the AEC adopted an informal prohibition against "metropolitan siting" in urban locations (such as the proposed Ravenswood plant in downtown New York), it was more receptive to "suburban siting" fairly close to urban populations. This reduced the emphasis on one traditional means of protecting the public from the consequences of a nuclear accident--"remote siting." It placed greater dependence on the other general method of shielding the public from the effects of an accident--engineered safeguards (a term later superseded by "engineered safety features") that were built into the plant. Even as the relative importance of engineered safeguards increased in the 1960s, questions arose about their reliability in preventing a massive release of radioactivity to the environment in the event of a severe accident.

Engineered Safeguards

The engineered safeguards in nuclear plants differed in design and operation, but they served the same basic functions. A number of systems were placed in reactors to remove heat and reduce excessive pressure if an accident occurred. They included, for example, passive core sprays and pressure suppression pools, "safety injection" systems that would shoot large volumes of water into the reactor vessel, and combinations of filters, vents, scrubbers, and air circulators that would collect and retain radioactive gases and particles released by an accident. The final line of defense if the engineered safeguards failed was the containment building, a large, often dome-shaped structure that surrounded the reactor and associated steam-producing equipment as well as the safety systems.

Reactor experts were confident that in almost any situation the engineered safety features built into a plant and the containment structure would protect the public from the effects of an accident. But they were troubled by the possibility that a chain of events could conceivably take place that would bypass or override the safety systems, and in the worst case, breach containment. "No one is in a position to demonstrate that a reactor accident with consequent escape of fission products to the environment will never happen," Clifford K. Beck, the AEC's deputy director of regulation, told the Joint Committee in 1967. "No one really expects such an accident, but no one is in a position to say with full certainty that it will not occur."

The AEC strived to reduce the likelihood of an accident to a minimum. It based its decisions on the safety of reactor designs and plant applications on operating experience, engineering judgment, and experiments with test reactors. Experience with the first commercial reactors had been encouraging; it had provided a great deal of information that was useful in

understanding reactor science. But it was of limited application to the newer and larger reactors that utilities were building by the late 1960s. The rapid growth in reactor design placed a premium on the careful use of engineering judgment. In order to decrease the chances of a major accident that could threaten public health, the AEC required multiple back-up equipment and redundancies in safety designs. It also employed conservative assumptions about the ways in which an accident might damage or incapacitate safety systems in its evaluation of reactor proposals.

The Problem of Core Meltdown

The regulatory staff sought to gain as much experimental data as possible to enrich its knowledge and inform its collective engineering judgment. This was especially vital in light of the many unanswered questions about reactor behavior. The AEC had sponsored hundreds of small-scale experiments since the early 1950s that had yielded key information about a variety of reactor safety problems. But they provided little guidance on the issue of greatest concern to the AEC and the ACRS by the late 1960s--a core meltdown caused by a loss-of-coolant accident.

Reactor experts had long recognized that a core melt was a plausible, if unlikely, occurrence. A massive loss of coolant could happen, for example, if a large pipe that fed cooling water to the core broke. If the plant's emergency cooling system also failed, the build-up of "decay heat" (which resulted from continuing radioactive decay after the reactor shut down) could cause the core to melt. In older and smaller reactors, the experts were confident that even under the worst conditions--an accident in which the loss of coolant melted the core and it, in turn, melted through the pressure vessel that held the core--the containment structure would prevent a massive release of radioactivity to the environment. As proposed plants increased significantly in size, however, they began to worry that a core melt could lead to a breach of containment. This became their primary focus partly because of the greater decay heat the larger plants would produce and partly because nuclear vendors did not add to the size of containment buildings in corresponding proportions to the size of reactors.

The greatest source of concern about a loss-of-coolant accident in large reactors was that the molten fuel would melt through not only the pressure vessel but also through the thick layer of concrete at the foundation of the containment building. The intensely radioactive fuel would then continue on its downward path into the ground. This scenario became known as the "China syndrome," because the melted core would presumably be heading through the earth toward China. Other possible dangers of a core meltdown were that the molten fuel would breach containment by reacting with water to cause a steam explosion or by releasing elements that could combine to cause a chemical explosion. The precise effects of a large core melt were uncertain, but it was clear that the results of spewing radioactivity into the atmosphere could be disastrous. The ACRS and the regulatory staff regarded the chances of such an accident as low; they believed that it would occur only if the emergency core cooling system (ECCS), made up of redundant equipment that would rapidly feed water into the core, failed to function properly. But they acknowledged the possibility that the ECCS might not work as designed. Without containment as a fail-safe final line of defense against any conceivable accident, they sought other means to provide safeguards against the China syndrome.

The Emergency Core Cooling Controversy

At the prodding of the ACRS, which first sounded the alarm about the China syndrome, the AEC established a special task force to look into the problem of core melting in 1966. The committee, chaired by William K. Ergen, a reactor safety expert and former ACRS member from Oak Ridge National Laboratory, submitted its findings to the AEC in October 1967. The report offered assurances about the improbability of a core meltdown and the reliability of emergency core cooling designs, but it also acknowledged that a loss-of-coolant accident could cause a breach of containment if ECCS failed to perform. Therefore, containment could no longer be regarded as an inviolable barrier to the escape of radioactivity. This represented a milestone in the evolution of reactor regulation. In effect, it imposed a modified approach to reactor safety. Previously, the AEC had viewed the containment building as the final independent line of defense against the release of radiation; even if a serious accident took place the damage it caused would be restricted to the plant. Once it became apparent that under some circumstances the containment building might not hold, however, the key to protecting the public from a large release of radiation was to prevent accidents severe enough to threaten containment. And this depended heavily on a properly designed and functioning ECCS.

The problem facing the AEC regulatory staff was that experimental work and experience with emergency cooling was very limited. Finding a way to test and to provide empirical support for the reliability of emergency cooling became the central concern of the AEC's safety research program. Plans had been underway since the early 1960s to build an experimental reactor, known as the Loss-of-Fluid-Tests (LOFT) facility, at the AEC's reactor testing station in Idaho. Its purpose was to provide data about the effects of a loss of coolant accident. For a variety of reasons, including weak management of the test program, a change of design, and reduced funding, progress on the LOFT reactor and the preliminary tests that were essential for its success were chronically delayed. Despite the complaints of the ACRS and the regulatory staff, the AEC diverted money from LOFT and other safety research projects on existing light-water reactor design to work in the development of fast-breeder reactors. A proven fast breeder was an urgent objective for the AEC and the Joint Committee; Seaborg described it as "a priority national goal" that could assure "an essentially unlimited energy supply, free from problems of fuel resources and atmospheric contamination."

To the consternation of the AEC, experiments run at the Idaho test site in late 1970 and early 1971 suggested that the

ECCS in light-water reactors might not work as designed. As a part of the preliminary experiments that were used to design the LOFT reactor, researchers ran a series of "semiscale" tests on a core that was only nine inches long (compared with l44 inches on a power reactor). The experiments were run by heating a simulated core electrically, allowing the cooling water to escape, and then injecting the emergency coolant. To the surprise of the investigators, the high steam pressure that was created in the vessel by the loss of coolant blocked the flow of water from the ECCS. Without even reaching the core, about 90 percent of the emergency coolant flowed out of the same break that had caused the loss of coolant in the first place.

In many ways the semiscale experiments were not accurate simulations of designs or conditions in power reactors. Not only the size, scale, and design but also the channels that directed the flow of coolant in the test model were markedly different than those in an actual reactor. Nevertheless, the results of the tests were disquieting. They introduced a new element of uncertainty into assessing the performance of ECCS. The outcome of the tests had not been anticipated and called into question the analytical methods used to predict what would happen in a loss-of-coolant accident. The results were hardly conclusive but their implications for the effectiveness of ECCS were troubling.

The semiscale tests caught the AEC unprepared and uncertain of how to respond. Harold Price, the director of regulation, directed a special task force he had recently formed to focus on the ECCS question and to draft a "white paper" within a month. Seaborg, for the first time, called the Office of Management and Budget to plead for more funds for safety research on light-water reactors. While waiting for the task force to finish its work, the AEC tried to keep information about the semiscale tests from getting out to the public, even to the extent of withholding information about them from the Joint Committee. The results of the tests came at a very awkward time for the AEC. It was under renewed pressure from utilities facing power shortages and from the Joint Committee to streamline the licensing process and eliminate excessive delays. At the same time, Seaborg was appealing--successfully--to President Nixon for support of the breeder reactor, and controversy over the semiscale tests and reactor safety could undermine White House backing for the program. By the spring of 1971, nuclear critics were expressing opposition to the licensing of several proposed reactors, and news of the semiscale experiments seemed likely to spur their efforts.

For those reasons, the AEC sought to resolve the ECCS issue as promptly and quietly as possible. It wanted to settle the uncertainties about safety without arousing a public debate that could place hurdles in the way of the bandwagon market. Even before the task force that Price established completed its study of the ECCS problem, the Commission decided to publish "interim acceptance criteria" for emergency cooling systems that licensees would have to meet. It imposed a series of requirements that it believed would ensure that the ECCS in a plant would prevent a core melt after a loss-of-coolant accident. The AEC did not prescribe methods of meeting the interim criteria, but in effect, it mandated that manufacturers and utilities set an upper limit on the amount of heat generated by reactors. In some cases, this would force utilities to reduce the peak operating temperatures (and hence, the power) of their plants. Price told a press conference on June 19, 1971 that although the AEC thought it impossible "to guarantee absolute safety," he was "confident that these criteria will assure that the emergency core cooling systems will perform adequately to protect the temperature of the core from getting out of hand."

The interim ECCS criteria failed to achieve the AEC's objectives. News about the semiscale experiments triggered complaints about the AEC's handling of the issue even from friendly observers. It also prompted calls from nuclear critics for a licensing moratorium and a shutdown of the eleven plants then operating. Criticism expressed by the Union of Concerned Scientists (UCS), an organization established in 1969 to protest misuse of technology that had recently turned its attention to nuclear power, received wide publicity. The UCS took a considerably less sanguine view of ECCS reliability than that of the AEC. It sharply questioned the adequacy of the interim criteria, charging, among other things, that they were "operationally vague and meaningless." Scientists at the AEC's national laboratories, without endorsing the alarmist language that the UCS used, shared some of the same reservations. As a result of the uncertainties about ECCS and the interim criteria, the AEC decided to hold public hearings that it hoped would help resolve the technical issues. It wanted to prevent the ECCS question from becoming a major impediment to the licensing of individual plants.

The AEC insisted that its critics had exaggerated the severity of the ECCS problem. The regulatory staff viewed the results of the failed semiscale tests as serious but believed that the technical issues the experiments raised would be resolved within a short time. It did not regard the tests as indications that existing designs were fundamentally flawed and it emphasized the conservative engineering judgment it applied in evaluating plant applications. But the ECCS controversy damaged the AEC's credibility and played into the hands of its critics. Instead of frankly acknowledging the potential significance of the ECCS problem and taking time to fully evaluate the technical uncertainties, the AEC acted hastily to prevent the issue from undermining public confidence in reactor safety or causing licensing delays. This gave credence to the allegations of its critics that it was so determined to promote nuclear power and develop the breeder reactor that it was inattentive to safety concerns.

Nuclear Power and the Environment

By the time that the ECCS issue hit the headlines, other questions about the environmental effects of nuclear power had eroded public support for the technology. The problem of industrial pollution and the deteriorating quality of the natural environment took on growing urgency as a public policy issue during the 1960s. The increasing public and political concern with environmental protection, occurring at the same time that demand for electricity was doubling every ten years or so, placed utilities in a quandary. As an article in *Fortune* magazine put it: "Americans do not seem willing to let the utilities

continue devouring...ever increasing quantities of water, air, and land. And yet clearly they also are not willing to contemplate doing without all the electricity they want. These two wishes are incompatible. That is the dilemma faced by the utilities.

Utilities increasingly viewed nuclear power as the answer to that dilemma. It promised the means to meet demand for power without causing air pollution, and environmental concerns were a major spur to the growth of the great bandwagon market. Environmentalists recognized the benefits of nuclear power compared to fossil fuel, but they were more equivocal in their attitudes toward the technology than were industry representatives. Their ambivalence was perhaps best summarized by the statement of a leading environmental spokesman in 1967: "I think most conservationists may welcome the coming of nuclear plants, though we are sure they have their own parameters of difficulty."

Officials of the AEC actively promoted the idea that nuclear power provided the answer to both the environmental crisis and the energy crisis. Seaborg was especially outspoken on this point. Although he acknowledged that nuclear power had some adverse impact on the environment, he insisted that its effects were much less harmful than those of fossil fuel. In comparison with coal, he once declared, "there can be no doubt that nuclear power comes out looking like Mr. Clean."

Thermal Pollution

The view of nuclear power as beneficial to the environment relative to conventional fuels was undermined in the late 1960s by a major controversy over the effects of waste heat from nuclear plants on water quality, widely known as "thermal pollution." Thermal pollution resulted from cooling the steam that drove the turbines to produce electricity in either a fossil fuel or nuclear plant. The steam was condensed by the circulation of large amounts of water, and in the process the cooling water was heated, usually by 10 to 20 degrees fahrenheit, before being returned to the body of water from which it came. This problem was not unique to nuclear plants but it was more acute in them, largely because fossil plants used steam heat more efficiently than nuclear ones. The problem of thermal pollution created more anxiety than previously during the 1960s because of the growing number of plants, the larger size of those plants, and the increasing inclination of utilities to order nuclear units.

Thermal pollution caused concern because it was potentially harmful to many species of fish. It could also disrupt the ecological balance in rivers and streams, allowing plants to thrive that made water look, taste, and smell unpleasant. Technical solutions to deal with thermal pollution were available, but they required extra costs in the construction and operation of steam-electric plants. Cooling towers of different designs or cooling ponds, for example, would greatly alleviate the release of waste heat to the source body of water. Utilities resisted adding cooling apparatus to the plants they planned to build, however, because of the expense and an appreciable loss of generating capacity.

Advocates of stronger federal action to protect the environment in the news media, Congress, and state and federal agencies urged the AEC to require its licensees to guard against the effects of thermal pollution. The AEC refused on the grounds that it lacked the statutory authority to impose regulations on hazards other than radiation. It argued that the 1954 Atomic Energy Act restricted its regulatory jurisdiction to radiological dangers, a view the Department of Justice and federal courts upheld. This did not placate the AEC's critics, who accused it of ignoring a serious problem that nuclear plants exacerbated. Several members of Congress introduced legislation to grant the AEC authority over thermal pollution but the agency opposed those measures unless fossil fuel plants had to meet the same conditions. The AEC feared that nuclear power would be placed at a competitive disadvantage if plant owners had to provide cooling equipment that was not required in fossil-burning facilities.

The AEC came under increasing criticism for its position. The most prominent attack appeared in a *Sports Illustrated* article in January 1969. It assailed the AEC for failing to regulate against thermal pollution and attributed its inaction to a fear of the "financial investment that power companies would have to make...to stop nuclear plants from frying fish or cooking waterways wholesale." The article was a distorted and exaggerated presentation, but it contributed to a growing perception that instead of being a solution to the dilemma of producing electricity without causing serious environmental damage, nuclear power was a part of the problem.

Eventually the controversy over thermal pollution died out. One reason was that Congress passed legislation that gave the AEC authority to regulate against thermal pollution and that applied to most fossil fuel plants as well. A more important reason was that utilities increasingly took action to curb the consequences of discharging waste heat. Although they initially resisted the calls for cooling equipment, they soon found that the costs of responding to litigation, enduring postponements in the construction or operation of new plants, or suffering a loss of public esteem were less tolerable than those of building cooling towers or ponds. By 1971, most nuclear plants being built or planned for inland waterways (where the problem was most acute) included cooling systems. But the legacy of the thermal pollution debate lingered on. It undermined confidence in the AEC and wakened public doubts about the environmental impact of nuclear power. It played a vital role in transforming the ambivalence that environmentalists had demonstrated toward the technology into strong and vocal opposition. As a result of the thermal pollution issue, the AEC and the nuclear industry frequently found themselves included among the ranks of enemies of the environment.

The Radiation Debate

The thermal pollution question was the first but not the only debate over the effects of nuclear power that aroused widespread public concern in the late 1960s and early 1970s. A major controversy that arose over the effects of low-level radiation from the routine operation of nuclear plants also fed fears about the expanding use of the technology. Drawing on the recommendations of the National Committee on Radiation Protection, the AEC had established limits for public exposure to radiation from nuclear plants of 0.5 rem per year for individuals. To determine the allowable release of radioactive effluents from a plant, it assumed that a person stood outdoors at the boundary of the facility 24 hours a day, 365 days a year. Licensees generally met the requirements easily. In 1968, for example, releases from most plants measured less than three percent of the permissible levels for liquid effluents and less than one percent for gaseous effluents.

The conservative assumptions of the AEC and the performance of operating plants did not prevent criticism of the AEC's radiation standards. A number of observers suggested that, in light of the uncertainties about the effects of low-level radiation, the AEC's regulations were insufficiently rigorous and should be substantially revised. This first emerged as a widely-publicized issue when the state of Minnesota, responding to questions raised by environmentalists, stipulated in May l969 that a plant under construction must restrict its radioactive effluents to a level of about three percent of that allowed by the AEC.

The adequacy of the AEC's radiation standards became even more contentious in the fall of 1969, when two prominent scientists, John W. Gofman and Arthur R. Tamplin, suggested that if everyone in the United States received the permissible population dose of radiation, it would cause 17,000 (later revised to 32,000) additional cases of cancer annually. Gofman and Tamplin worked at Livermore National Laboratory, funded by the AEC, and their position as insiders gave their claims special credibility. They initially proposed that the AEC lower its limits by a factor of ten and later urged that it require zero releases of radioactivity.

Gofman and Tamplin not only argued that the existing standards of the AEC and other radiation-protection organizations were inadequate but also challenged the prevailing consensus that the benefits of nuclear power were worth the risks. Gofman was especially harsh in his analysis; he insisted that in its radiation protection regulations, "the AEC is stating that there is a risk and their hope that the benefits outweigh the number of deaths." He added: "This is legalized murder, the only question is how many murders."

The AEC denied Gofman's and Tamplin's assertions on the grounds that they extrapolated from high doses to estimate the hazards of low-level exposure, and that, furthermore, it was impossible for the entire nation to receive the levels of radiation that applied at plant boundaries. Most authorities in the field of radiation protection agreed with the AEC that the risks of effluents from nuclear power were far smaller than Gofman and Tamplin maintained. Nevertheless, in an effort to provide an extra measure of protection, reassure the public, and undercut the appeal of its critics, in June 1971 the AEC issued for public comment new "design objectives" for nuclear plants that would, in effect, reduce the permissible levels of effluents by a factor of about one hundred. This action elicited protests from industry representatives and from radiation-protection professionals, but it did not impress many critics, who expressed doubt that the AEC would enforce the new guidelines. The controversy focused public attention, once again, on the effects of low-level radiation, but it did little to clarify a complex and ambiguous issue.

NEPA and Calvert Cliffs

In addition to the objections that its positions on thermal pollution and radiation standards stirred, the AEC provoked sharp criticism for its response to the National Environmental Policy Act (NEPA). The law, passed by Congress in December 1969 and signed by President Nixon on January 1, 1970, required federal agencies to consider the environmental impact of their activities. The measure was in many ways vague and confusing and it gave federal agencies broad discretion in deciding how to carry out its mandate. The AEC acted promptly to comply with NEPA, but its procedures for doing so brought protests from environmentalists. The agency took a narrow view of its responsibilities under NEPA. In a proposed regulation that it issued in December 1970, it included, for the first time, non-radiological issues in its regulatory jurisdiction. But it also stipulated that it intended to rely on the environmental assessments of other federal and state agencies (rather than conducting its own), it agreed to consider environmental issues in licensing board hearings only if raised by a party to the proceeding, and it postponed any review of NEPA issues in licensing cases until March 1971.

The AEC declined to take an expansive view of its responsibilities under NEPA for several reasons. One was the conviction that the routine operation of nuclear plants was not a serious threat to the environment and, indeed, was beneficial compared to burning fossil fuel. The major products of nuclear power generation that affected the environment, radiation releases and thermal discharges, were covered by other legislation. Furthermore, implementation of NEPA might divert the AEC's limited human resources from tasks that were more central to its mission. The regulatory staff was "all but overwhelmed" by the flood of reactor applications and did not relish the idea of having to spend large amounts of time on environmental reviews. Most importantly, the AEC feared that weighing environmental issues other than radiation and thermal releases would cause unwarranted delays in licensing plants. The time required for evaluating applications was already increasing and the AEC worried that NEPA could force a "quantum leap" in the length of the process. It sought to strike a balance between environmental concerns and the need for electrical power in framing its regulations.

Environmentalists complained that the AEC had failed to fulfill the purposes of NEPA and took the agency to federal court over the application of AEC's regulations to the Calvert Cliffs nuclear units, then under construction on the Chesapeake Bay

in rural Maryland. On July 23, 1971, the United States Court of Appeals for the District of Columbia handed down a ruling that was a crushing defeat for the AEC. The court sternly rebuked the agency in its most widely-quoted statement: "We believe that the Commission's crabbed interpretation of NEPA makes a mockery of the Act." The Calvert Cliffs decision was, in the words of *Nucleonics Week,* a "stunning body blow" to the AEC and the nuclear industry.

The Calvert Cliffs decision was another in a series of setbacks for the AEC and nuclear power. It was apparent by the summer of 1971 that public distrust of the AEC was growing and support for nuclear power was declining. The cumulative effect of controversies over ECCS, thermal pollution, radiation standards, NEPA, and other issues eroded public confidence in the AEC's commitment to safety and raised doubts about the benefits of nuclear power. Antinuclear activists capitalized on growing uneasiness about the health and environmental effects of the technology. Some of the critics were well-informed and responsible in their arguments, but others were one-sided and inaccurate. Attempts by nuclear proponents to correct a plethora of misleading and exaggerated stories, advertisements, speeches, and other presentations inevitably failed to win as much attention or produce the same effect. To make matters worse for the AEC, it suffered from the general disillusionment with the government, established institutions, and science that prevailed by the late 1960s, largely as a result of the Vietnam war. One college student summarized the situation after listening to a debate between Victor Bond, a radiation expert from Brookhaven National Laboratory, and a vocal AEC critic: "Dr. Bond sounds good but we can't believe him. He works for the government."

Schlesinger's Response to Calvert Cliffs

By the summer of 1971, the AEC was an embattled agency, largely though not exclusively because of regulatory issues. Seaborg, after serving as chairman for ten years, resigned his post in July 1971 and Nixon appointed James R. Schlesinger, assistant director of the Office of Management and Budget, to take his place. Schlesinger was determined to make the AEC more responsive to environmental concerns and to improve its tarnished public image. As an important first step in those efforts, he and William O. Doub, who took a seat on the Commission at the same time that Schlesinger assumed the chairmanship, concluded that the AEC should not appeal the Calvert Cliffs ruling, and, after considering the alternatives, their colleagues agreed. The AEC announced its decision on August 26, 1971.

The AEC's response to the Calvert Cliffs decision brought a storm of protests from utilities who feared long delays in the licensing of plants that were nearly ready for operation. Schlesinger explained the AEC's new position in a speech he delivered to a meeting of industry groups in Bal Harbour, Florida on October 20, 1971. He told his audience that although the long-term outlook for nuclear power appeared "bullish," the pace of development depended on two variables: "first, the provision of a safe, reliable product; second, achievement of public confidence in that product." Schlesinger declared that the AEC's policy of promoting and protecting the industry had been justified to help nuclear power get started, but since the industry was "rapidly approaching mature growth," the AEC must redefine its responsibilities. "You should not expect the AEC," he announced, "to fight the industry's political, social, and commercial battles." Rather, he added, the agency's role was "primarily to perform as a referee serving the public interest." The message of Schlesinger's speech was unprecedented; it proclaimed a sharp break with the AEC's history and a new direction in the agency's approach to its regulatory duties.

Schlesinger's efforts to narrow the divisions between nuclear proponents and critics and to recover the AEC's regulatory credibility produced, at best, mixed results. Many environmentalists were pleased with the AEC's acceptance of the Calvert Cliffs ruling and with Schlesinger's Bal Harbour speech. Their guarded optimism about Schlesinger's attitudes was perhaps best summarized by the title of an article about him in *National Wildlife* magazine: "There's a *Bird Watcher* Running the Atomic Energy Commission." But major differences between the AEC and environmentalists remained; many of the same issues that had aroused concern before Schlesinger's arrival continued to generate controversy.

The ECCS Hearings

One of those issues was the reliability of emergency core cooling systems. In light of the objections to the interim acceptance criteria for ECCS that the AEC had published in June 1971, the agency decided to hold a rulemaking hearing on the issue that would apply to all licensing cases. It hoped that this would avoid repeating the same procedures and deliberating over the same questions in case- by-case hearings and that generic hearings would provide a means to resolve issues common to all plants. The ECCS hearings got underway in early 1972 and stretched into 135 days over a period of a year and a half. When they ended, the transcripts of the proceedings filled more than 22,000 pages. The ECCS hearings led to a final rule that made some small but important revisions in the interim criteria. They also produced acrimonious testimony and front-page headlines that often reflected unfavorably on the AEC's safety programs and that further damaged its credibility.

Radioactive Waste Disposal

Another issue that undermined confidence in the AEC in the early 1970s was its approach to high-level radioactive waste disposal. The growth of the nuclear power industry made the safe disposal of intensely radioactive spent fuel rods and other waste materials an increasingly urgent matter. The AEC had investigated means of dealing with reactor wastes for years, but had not found a solution to the problem. As early as 1957, a scientific consensus had concluded that deep underground

salt beds were the best repositories for long-lived and highly radioactive wastes. In 1970, in response to increasing expressions of concern about the lack of a policy for high-level waste disposal from scientific authorities, members of Congress, and the press, the AEC announced that it would develop a permanent repository for nuclear wastes in an abandoned salt mine near Lyons, Kansas. It aired its plans without conducting thorough geologic and hydrologic investigations, and the suitability of the site was soon challenged by the state geologist of Kansas and other scientists. The uncertainties about the site generated a bitter dispute between the AEC on the one side and members of Congress and state officials from Kansas on the other. It ended in 1972 in great embarrassment for the AEC when the reservations of those who opposed the Lyons location proved to be well-founded.

The End of the AEC

In addition to debates over ECCS and high-level waste disposal, questions over reactor design and safety, quality assurance, the probability of a major reactor accident, and other issues fueled the controversy over nuclear power. The number of contested hearings for plant licenses steadily grew. The ongoing controversy frustrated Schlesinger's hopes of increasing public confidence in the AEC and of defusing the conflicts between opposing views. By highlighting the issues on which the AEC's performance was suspect, it also obscured the requirements that the regulatory staff imposed over the protests and against the wishes of the nuclear industry, the high standards that it demanded in the design and construction of nuclear plants, and the conservative assumptions that it applied in evaluating plant applications and formulating radiation- protection regulations.

As the nuclear power debate continued, the AEC came under increasing attacks for its dual responsibilities for developing and regulating the technology. This became a major argument that nuclear critics cited in their indictments of the AEC; it was, said one, "like letting the fox guard the henhouse." The question of creating separate agencies to promote and to regulate the civilian uses of nuclear energy had arisen within a short time after passage of the 1954 Atomic Energy Act, but in the early stages of nuclear development it had seemed premature and unwarranted. It gained greater support as both the industry and antinuclear sentiment grew, and it took on greater urgency after the Arab oil embargo and the energy crisis of 1973-74. One of President Nixon's responses to the energy crisis was to ask Congress to create a new agency that could focus on, and presumably speed up, the licensing of nuclear plants. After much debate, Congress divided the AEC into the Energy Research and Development Administration and the Nuclear Regulatory Commission in legislation it passed in 1974. The Energy Reorganization Act, coupled with the 1954 Atomic Energy Act, constituted the statutory basis for the NRC. The new agency inherited a mixed legacy from its predecessor, marked both by 20 years of conscientious regulation and by unresolved safety questions, substantial antinuclear activism, and growing public doubts about nuclear power.

CHAPTER 3 -- THE NUCLEAR REGULATORY COMMISSION AND THREE MILE ISLAND

The Mandate of the NRC

The Nuclear Regulatory Commission began its operations as a separate agency in January 1975. In many ways, it carried on the legacy inherited from the AEC. It performed the same licensing and rulemaking functions that the regulatory staff had discharged for two decades. It also assumed some new administrative and regulatory duties. The NRC, unlike the AEC's regulatory staff, was the final arbiter of regulatory issues; its judgment on safety questions was less susceptible to being overridden by developmental priorities. This did not mean that the NRC acted without regard to industry concerns or that its officials always agreed on policy matters, but it did mean that the agency's statutory mandate was clearly focused on ensuring the safety of nuclear power.

The NRC devoted a great deal of attention during its first few months to organizational tasks. At the same time it carried out a variety of regulatory responsibilities. It continued to review plant applications and to issue construction permits and operating licenses for new units. The NRC deliberated over a number of pressing problems shortly after its establishment. One issue that received particular notice, both within and outside of the NRC, was the safeguarding of nuclear materials. The term "safeguards" applied to the prevention of theft, loss, or diversion of nuclear fuel or other materials or the sabotage of nuclear plants. This question took on greatly increased importance and visibility in the early 1970s because of growing apprehension about the activities and intentions of terrorist groups. There was a wave of terrorist bombings, assassinations, hijackings, and murders at that time, perhaps the most shocking of which was the murder of Israeli athletes at the 1972 Olympics.

The increase in such attacks around the world raised new concerns that terrorists would be able to build an atomic bomb, which was underscored by the well-publicized warnings of some nuclear experts that making a bomb was not terribly difficult for anyone who obtained the necessary materials. As a result, the AEC, and after its abolition, the NRC, substantially strengthened regulatory requirements for the transportation of nuclear materials and for nuclear plant security. The NRC also devoted considerable attention to the export of nuclear materials to foreign countries. The United States was by far the leading supplier of nuclear fuel and other materials for the production of nuclear power abroad, and the NRC exercised important responsibilities for ensuring that nuclear exports did not encourage the proliferation of nuclear weapons or make them available to terrorists.

The Browns Ferry Fire

Despite the prominence of safeguards problems, the central issue for the NRC at the time of its creation remained reactor safety. There were two events in the early months of the NRC's existence that commanded the particular attention of the agency and the public. The first was a major fire at TVA's Browns Ferry nuclear plants near Decatur, Alabama in March 1975. In the process of looking for air leaks in an area containing trays of electrical cables that operated the plants' control room and safety systems, a technician set off the fire. He used a lighted candle to conduct the search, and the open flame ignited the insulation around the cables. The fire raged for over seven hours and nearly disabled the safety equipment of one of the two affected units. The accident was a blow to the public image of nuclear power and the recently- established NRC. It focused new attention on preventing fires from threatening plant safety and on the possibility of "common-mode failures," in which a single cause could initiate a chain of events that incapacitated even redundant safety features.

The Reactor Safety Study

The second source of unusually extensive discussion and considerable controversy shortly after the NRC began operations was the publication of the final version of the "Reactor Safety Study" that the AEC had commissioned in 1972. The purpose of the study was to estimate the probability of a severe reactor accident, an issue that the AEC had never found a satisfactory means of addressing. To direct the study the AEC had recruited Norman C. Rasmussen, a professor of nuclear engineering at MIT. Rasmussen, assisted by AEC staff members, applied new methodologies and sophisticated "fault-tree" analyses to project the likelihood of a serious nuclear accident. The final Rasmussen report, released in October 1975, concluded that in comparison to other risks, including fires, explosions, toxic chemicals, dam failures, airplane crashes, earthquakes, tornadoes, and hurricanes, those from nuclear power were very small.

The Rasmussen report, while hailed as a pioneering effort that enlightened a complex subject, also drew criticism from both inside and outside the NRC. Some authorities suggested that the study failed to account for the many paths that could lead to major accidents. Others complained that the data in the report did not support its executive summary's conclusions about the relative risks of nuclear power. After considering the arguments on both sides of the issue, the Commission in January 1979 issued a policy statement that withdrew its full endorsement of the study's executive summary.

Three Mile Island

Within a short time, discussion of severe nuclear accidents ceased to be strictly a matter of theoretical projections. On March 28, 1979, an accident at Unit 2 of the Three Mile Island nuclear station near Harrisburg, Pennsylvania made the issue starkly and alarmingly real. As a result of a series of mechanical failures and human errors, the accident (researchers later determined) uncovered the reactor's core and melted about half of it. The immediate cause of the accident was a pressure relief valve that stuck open and allowed large volumes of reactor coolant to escape. The reactor operators misread the signs of a loss-of-coolant accident and, for several hours, failed to take action to cool the core. Although the plant's emergency cooling systems began to work according to design, the operating crew decided to reduce the flow from them to a trickle. By the time that the nature of the accident was recognized and the core was flooded with coolant, the reactor had suffered irreparable damage.

The credibility of the nuclear industry and the NRC fared almost as badly. Uncertainty about the causes of the problem, confusion about how to deal with it, conflicting information from government and industry experts, and contradictory appraisals about the level of danger in the days following the accident often made the authorities appear inept, deceptive, or both. Press accounts fed public fears and fostered a deepening perception of a technology that was out of control. Walter Cronkite told television viewers that as a result of the accident, "the danger faced by man for tampering with natural forces, a theme from the myths of Prometheus to the story of Frankenstein, moved closer to fact from fancy." Newspapers ran headlines warning, for example of a "RACE WITH NUCLEAR DISASTER" and "RISK OF MELTDOWN." Long after the technological dangers had subsided, the psychological effects of the TMI accident lingered on.

In some ways, the TMI accident produced reassuring, or at least encouraging, information for reactor experts about the design and operation of the safety systems in a large nuclear plant. Despite the substantial degree of core melting that occurred, containment was not breached. From all indications, the amount of radioactivity released into the environment as a result of the accident was very low. One estimate suggested that of 66 million curies of iodine-131 in the reactor at the time of the accident, only 14 or 15 curies escaped. Further, the emergency core cooling systems worked effectively once plant operators allowed them to run according to design.

Those findings were overshadowed by the unsettling disclosures of TMI. It focused attention on possible causes of accidents that the AEC/NRC and the nuclear industry had not considered extensively. Their working assumption had been that the most likely cause of a loss-of-coolant accident was a break in a large pipe that fed coolant to the core. But the destruction of the core at TMI had resulted not from a large pipe break but from a relatively minor mechanical failure that operator errors had drastically compounded.

Perhaps the most distressing revelation of TMI was that an accident so severe could occur at all. Neither the AEC/NRC or the industry had ever claimed that a major reactor accident was impossible, despite multiple and redundant safety features built into nuclear plants. But they had regarded it as highly unlikely, to the point of being nearly incredible. The TMI accident demonstrated graphically that serious consequences could arise form unanticipated events. This enhanced the

credibility of nuclear critics who had argued for years that no facility as complex as a nuclear plant could be made fool-proof. Public opinion polls taken after TMI showed a significant erosion in support for nuclear power. One survey found for the first time that the number of respondents who opposed building more nuclear units exceeded those who favored new plants. At the same time, the polls indicated that the public did not want to abandon nuclear power or close existing plants.

The NRC's Response to Three Mile Island

The NRC responded to TMI by re-examining the adequacy of its safety requirements and imposing new regulations to correct deficiencies. It placed much greater emphasis on "human factors" in plant performance in an effort to avoid a repeat of the operator errors that had exacerbated the accident. The agency developed new requirements for operator training, testing and licensing, and for shift scheduling and overtime. In cooperation with industry groups, it promoted the increased use of reactor simulators and the careful assessment of control rooms and instrumentation. In addition, the agency expanded its resident inspector program to station at least two of its inspectors at each plant site.

The NRC devoted greater attention to other problems that had received limited consideration before TMI. They included the possible effects of small failures that could lead to major consequences, such as happened at Three Mile Island. The agency sponsored a series of studies on the ways in which "small breaks and transients" could threaten plant safety. A second area on which the NRC focused was the evaluation of operational data from licensees. It established a new Office for Analysis and Evaluation of Operational Data to systematically review information from and the performance of operating plants. This action reflected the belated recognition that malfunctions similar to those at TMI had occurred at other plants, but the information had never been assimilated or disseminated.

The NRC undertook other initiatives as a result of TMI. It decided to survey radiation protection procedures at operating plants in order to assess their adequacy and to look for ways to improve existing regulations. It expanded research programs on problems that TMI had highlighted, including fuel damage, fission-product release, and hydrogen generation and control. In light of the confusion and uncertainty over evacuation of the areas surrounding TMI during the accident, the NRC also sought to upgrade emergency preparedness and planning. Those and other steps it took in the wake of the accident were intended to reduce the likelihood of a major accident, and, in the event one occurred, to enhance the ability of the NRC, the utility, and the public to cope with it.

Chernobyl

While the NRC was still deliberating over and revising its requirements in the aftermath of TMI, another event shook the industry and further undercut public support for nuclear power. This time, the NRC was a distant though interested observer rather than a direct participant. On April 26, 1986, unit 4 of the nuclear power station at Chernobyl in the USSR underwent a violent explosion that destroyed the reactor and blew the top off it. The explosion and subsequent fire in the graphite core spewed massive amounts of radioactivity into the environment. The accident occurred during a test in which operators had turned off the plant's safety systems and then lost control of the reactivity in the reactor. Without emergency cooling or a containment building to stop or at least slow the escape of radiation, the areas around the plant quickly became seriously contaminated and a radioactive plume spread far into other parts of the Soviet Union and Europe. Although the radiation did not pose a threat to the United States, one measure of its intensity in the Soviet Union was that levels of iodine-131 around Three Mile Island were three times as high after Chernobyl than they were after the TMI accident.

The design of the Chernobyl reactor was entirely different than that of U.S. plants, and the series of operator blunders that led to the accident defied belief. Supporters of nuclear power emphasized that a Chernobyl-type accident could not occur in commercial plants in the United States (or other nations) and that American reactors featured safety systems and containment to prevent the release of radioactivity. But nuclear critics pointed to Chernobyl as the prime example of the hazards of nuclear power. A representative of the Union of Concerned Scientists remarked: "The accident at Chernobyl makes it clear. Nuclear power is inherently dangerous." A popular slogan that quickly appeared on the placards of European environmentalists was: CHERNOBYL IS EVERYWHERE. The Chernobyl tragedy was a major setback to the hopes of nuclear proponents to win public support for the technology and to spur orders for new reactors. U.S. utilities had not ordered any new plants since 1978 and the number of cancellations of planned units was growing. "We're in trouble," conceded a spokesman for the Atomic Industrial Forum. "If the calls I have received from people in the industry are a good indication, they are all very worried."

Licensing New Plants

The Chernobyl accident added a new source of concern to long- standing controversies over the licensing of several reactors in the United States. In the aftermath of Three Mile Island, the NRC had suspended the granting of operating licenses for plants that were in the pipeline. The "licensing pause" for fuel loading and low-power testing ended in February 1980. In August 1980 the NRC issued the first full-power operating license (to North Anna-2 in Virginia) since TMI. In the following nine years it granted full-power licenses to over forty other reactors, most of which had received construction permits in the mid-1970s. In 1985 it authorized the undamaged Three Mile Island Unit 1, which had been shut down for refueling at the time of the TMI-2 accident, to resume operation.

Emergency Planning

Although many of the licensing actions aroused little opposition, others triggered major controversies. The two licensing cases that precipitated what were perhaps the most bitter, protracted, and widely publicized debates were Seabrook in New Hampshire and Shoreham on Long Island, New York. The key, though hardly the sole, issue in both cases was emergency planning. The Three Mile Island accident had vividly demonstrated the deficiencies in existing procedures for coping with an off-site nuclear emergency. The lack of effective preparation had produced confusion, uncertainty, and panic among members of the public faced with the prospect of exposure to radiation releases from the plant. After the accident, the NRC, prodded by Congress to improve emergency planning, adopted a rule that required each nuclear utility to come up with a plan for evacuating the population within a ten mile radius of its plant(s) in the event of a reactor accident. The rule applied to plants in operation and under construction. It called for plant owners to work with state and local police, fire, and civil defense authorities to put together an emergency plan that would be tested and evaluated by the NRC and the Federal Emergency Management Agency (FEMA). The NRC expected cooperation between federal, state and local government officials to upgrade emergency plans and provide better protection for the public if a serious nuclear accident occurred.

The NRC did not, however, anticipate that state and local governments would try to prevent the operation of nuclear plants by refusing to participate in emergency preparations. That was precisely what the states of New York and Massachusetts sought to do in the cases of Shoreham and Seabrook. In New York, Governor Mario M. Cuomo and other state officials claimed that it would be impossible to evacuate Long Island if Shoreham suffered a major accident. Although plant proponents pointed out that emergency plans did not require the evacuation of all of Long Island if a serious accident occurred, the state refused to join in emergency planning procedures or drills. The NRC granted Shoreham a low-power operating license, but the state and utility, Long Island Lighting, eventually reached a settlement in which the company agreed not to operate the plant in return for concessions from the state.

A similar issue arose at Seabrook, though the outcome was different. The plant is located in the state of New Hampshire, but the ten mile emergency planning zone extended across the state line into Massachusetts. By the time that construction of the plant was completed, Massachusetts governor Michael S. Dukakis, largely as a result of Chernobyl, had decided that he would not cooperate with emergency planning efforts for Seabrook. New Hampshire officials worked with federal agencies to prepare an emergency plan, but Massachusetts, arguing that crowded beaches near the Seabrook plant could not be evacuated in the event of an accident, refused. As a result of the positions of New York regarding Shoreham and Massachusetts regarding Seabrook, in 1988 the NRC adopted a "realism rule," which was grounded on the premise that in an actual emergency state and local governments would make every effort to protect public health and safety. Therefore, in cases in which state and/or local officials declined to participate in emergency planning, the NRC and FEMA would review and evaluate plans developed by the utility. On that basis, the NRC issued an operating license for the Seabrook plant. The arguments that raged over emergency planning and other issues at Shoreham and Seabrook attracted a great deal of attention, spawned heated controversy, and raised anew an old question of the relative authority of federal, state, and local governments in licensing and regulating nuclear plants.

One-Step Licensing

The lengthy and laborious licensing procedures that applicants had to undergo in the cases of Shoreham (which had received a construction permit in 1973), Seabrook (which had received a construction permit in 1977), and other reactors stirred new interest in simplifying and streamlining the regulatory process. It seemed apparent that the complexity of the licensing process was a major deterrent to utilities who might consider building nuclear plants. By the late 1980s, the nuclear option looked more appealing to some observers, including some environmentalists, because of growing concern about the consequences of burning fossil fuel, especially acid rain and global warming. Furthermore, nuclear vendors were advancing new designs for plants that greatly reduced the chances of TMI-type and other severe accidents.

One way that the NRC proposed to facilitate licensing procedures was to replace the traditional two-step process with a one-step system. This would ease the burden on applicants, but it raised a vitally important question: what level of detail would the NRC require in applications for advanced plants in order to satisfy its concerns about their safety? The agency had never required the detailed technical information in construction permit proposals that it expected in operating license applications, but in a one-step licensing process it was unclear how much data would be needed to evaluate and certify safety designs.

After long discussions that reflected differing views among commissioners, staff, and nuclear vendors, the NRC reached a decision on what constituted an "essentially complete design." It established a "graded approach" in which the level of detail that an applicant would be required to submit varied according to the system's, structure's, or component's relationship to plant safety. The objective of the NRC's action was to ensure safety while providing flexibility for the development of new designs.

Radiation Standards

While the NRC was deliberating over a number of new regulatory procedures and problems, it was also reviewing some old issues. The most prominent of those questions was radiation standards. The NRC had begun work on revising its radiation

protection regulations in the aftermath of Three Mile Island. Although the AEC had issued "design objectives" that in effect reduced the permissible levels of radioactive effluents from nuclear plants in the 1970s, the basic regulations for occupational and population exposure had remained unchanged since 1961 (an average of 5 rem per year for radiation workers and 0.5 rem annually for individuals in the general population). Based upon new recommendations of the NCRP and the ICRP and upon new research findings, the NRC tightened its regulations in several regards, the most prominent of which was to restrict population exposure to 100 (rather than 500) millirem per year.

Despite new scientific information and epidemiological studies, the health effects of low-level radiation remained a source of uncertainty and controversy. Some studies provided results that were very reassuring about the hazards of radiation emissions from nuclear plants. A major survey conducted by the National Cancer Institute, for example, found no increased risk of cancer in 107 counties of the United States located near 62 nuclear power plants. But other evidence was more disquieting, such as a cluster of cancer cases near the Pilgrim reactor in Massachusetts and a high incidence of leukemia in children around the Sellafield reprocessing plant in Britain.

Below Regulatory Concern

None of the studies on the effects of low-level radiation was, or claimed, to be, definitive. The subject continued to be a source of interest to and debate among scientists. It also continued to be a source of considerable anxiety to the public. The most graphic evidence of public apprehension about radiation was the reaction to the NRC's announcement of a new policy on radiation levels that were "below regulatory concern" (BRC). In June 1990, the NRC published a policy statement outlining its plans to establish rules and procedures by which small quantities of low-level radioactive materials could be largely exempted from regulatory controls. The agency proposed that if radioactive materials did not expose individuals to more than 1 millirem per year or a population group to more than 1000 person-rem per year, they could be eligible for the exemption from full-scale regulatory control. This would not be granted automatically; the NRC would consider requests for exemptions for sites that met the dose criteria through its rulemaking or licensing processes. It intended that the BRC policy would apply to consumer products, landfills, and other sources of very low levels of radiation. The NRC explained that the BRC policy would enable it to devote more time and resources to major regulatory issues and thereby better protect public health and safety.

The NRC's announcement of its intentions on BRC was greeted with a firestorm of protest from the public, Congress, the news media, and antinuclear activists. Some critics suggested that the agency was defaulting on its responsibility for public health and that BRC would allow the nuclear industry to discard dangerously radioactive wastes in public trash dumps. It was, alleged one antinuclear group, "a trade-off of people's lives in favor of the financial interests of the nuclear industry." In public meetings that the NRC held to explain BRC, aroused citizens called repeatedly for the resignation of the commissioners or their indictment under criminal charges. Eventually, the Commission decided to defer any action on the BRC issue. The outcry over BRC underscored the difficulty of even attempting to sponsor a calm and reasoned discussion on the subject of radiation hazards.

The uproar over BRC was one of several indications of how the regulatory environment had changed since the passage of the 1954 Atomic Energy Act made possible the development of nuclear power for electrical generation. A public that had welcomed the growth of nuclear power in the 1950s had become skeptical of the technology and suspicious of those responsible for its safety. Nuclear plants had become larger, more complicated, and more costly to build. The longest running nuclear plant until its closure in 1992, Yankee Rowe in Massachusetts, had a capacity of 175 electrical megawatts and was constructed for about $39 million. By comparison, for example, Seabrook had a capacity of 1150 electrical megawatts and cost over $6 billion to build. The length and complexity of the licensing process had grown commensurately. The owners of Yankee Rowe applied for a construction permit in 1956 and received an operating license in 1960 without a murmur of protest. Seabrook's owners applied for a construction permit in 1973 and received an operating license in 1990 after long legal proceedings and many angry demonstrations. The contrasts between Yankee Rowe and Seabrook were results of a series of inter-related technological, administrative, and political developments that shaped the history of nuclear regulation.

CHAPTER 4 -- NEW ISSUES, NEW APPROACHES

The focus of the NRC's activities gradually shifted away from licensing requirements for new plants to overseeing the safety of operating plants. Since it received no applications for construction permits after 1978 and had completed work on most operating license applications a decade later, it devoted much less attention and fewer resources to its licensing responsibilities. During the first half of the 1980s, the NRC's deliberations and policy decisions were in large measure a response to Three Mile Island. By the latter part of the decade, however, the agency was addressing a wide range of new questions relating to the safety of the about 100 plants in operation. Not surprisingly, the issues it considered often raised difficult and divisive questions for which there were no ready answers.

Plant Maintenance

One of the first and most important issues that the NRC tackled as it turned its attention to the regulation of operating nuclear plants was maintenance. It estimated in 1985 that more than 35 percent of the "abnormal occurrences" that it had

reported to Congress over the previous ten years were directly attributable to maintenance deficiencies. Many of the problems arose from human errors, such as failing to follow procedures, installing equipment incorrectly, or using the wrong parts to make repairs. The need for improvements in maintenance was underscored when an incident at the Davis-Besse plant in Ohio resulted in the loss of all feedwater in 1985. Failures in feedwater pumps, including auxiliary pumps that had not been tested or maintained, caused what could have produced a major accident.

The nuclear industry was well aware of shortcomings in maintenance programs and took steps to make improvements. The NRC applauded the efforts of the industry but insisted that licenses still "had a long way to go in the maintenance area." Therefore, in June 1988 the Commission directed the NRC staff to draft a maintenance rule as a matter of "HIGHEST priority." In June 1991, despite industry objections that a rule was not necessary, the Commission voted to issue a regulation that required adequate maintenance programs of all commercial nuclear plants. It acknowledged the substantial improvements that many licensees had made, but it concluded that an industry-wide regulation was still necessary. The NRC worked with the industry to establish procedures for monitoring the effectiveness of maintenance programs.

Decommissioning

Another key issue that the NRC considered was the decommissioning of plants, the final step of the life cycle for operating facilities. Between 1947 and 1975, a total of 50 nuclear plants, including five small experimental power reactors, were decommissioned. In the late 1970s, this experience gave the NRC confidence that decommissioning of nuclear plants would not present major problems when their licenses expired. In response to an investigation by the U.S. General Accounting Office, congressional hearings, and a petition from environmental organizations, however, the NRC took a closer look at the subject. In 1984, the staff reported to the Commission that existing regulations covered decommissioning in a "limited, vague, or inappropriate way and are not fully adequate." As a result, the NRC drafted a rule that required licensees to specify how they planned to ensure that sufficient funding was available to clean up the sites on which their plants were located and to make certain that radiation levels at decommissioned sites were low enough to allow the land to be used for other purposes. After soliciting public comments and making modest revisions in the draft, the NRC published a final rule in 1988.

The decommissioning rule was much more comprehensive than earlier NRC regulations but it did not resolve all of the issues that arose on the subject. Within a short time after the rule became final, the agency faced an unprecedented and unanticipated question--what to do about funding for "prematurely shut down reactors." Three plants, including Shoreham, closed well before their operating licenses expired, which raised questions about how to pay for costs of decommissioning reactors that had not operated long enough to accumulate adequate funding. This issue was underscored by the costs of decommissioning the Yankee Rowe plant, which ran much higher than projected. While the NRC wrestled with this question, it also deliberated over the level of radiation that should be permitted at the sites of decommissioned plants. This issue generated opposing views and sometimes sharp differences between the NRC and the Environmental Protection Agency.

License Renewal

As decommissioning issues were debated, the NRC devoted considerable attention and resources to the question of license renewal. While some utilities were closing reactors long before their 40-year operating licenses expired, others were weighing the possibility of extending the lives of plants beyond 40 years. The 40-year licensing period for nuclear plants was a rather arbitrary compromise written into the 1954 Atomic Energy Act that was not based on technical grounds or operating experience. In the late 1970s, industry groups closely examined the issue of plant life extension for the first time. The Electric Power Research Institute, for example, concluded that reconditioning of old plants offered potentially major benefits, but it cautioned that the benefits depended on financial considerations as well as on technical assessments, environmental issues, and projections of power availability. Those uncertainties were compounded by industry's concern that the NRC was not prepared to address the issues surrounding license renewal promptly and knowledgeably.

In 1985, the NRC, prodded by Chairman Nunzio J. Palladino, undertook a careful analysis of license renewal. The agency had sponsored research on the critical question of the safety effects of plant aging for years, but many technical questions remained to be answered. License renewal also raised complex legal and policy issues. The NRC staff cited the "central regulatory question" that plant life extension presented: "What is an adequate licensing basis for renewing the operating license of a nuclear power plant?"

The NRC deliberated over this issue and its corollaries for several years. Eventually, it decided that the maximum length of an extended license would be 20 years. It also concluded that using the existing regulatory requirements governing a plant would offer reasonable assurance of adequate protection if its license were renewed, provided that the "current licensing basis" was modified to account for age-related safety issues. In 1991, the Commission approved a regulation on the technical requirements for license renewal. After considering ways to evaluate the environmental consequences of license renewal, the NRC elected to develop a generic environmental impact statement that covered effects that were common to all or most nuclear plants. In April 1998, Baltimore Gas and Electric became the first utility to apply for license renewal for its Calvert Cliffs plants on the Chesapeake Bay. Duke Energy Corporation followed suit in July 1998 when it sought license extensions for its Oconee nuclear units in South Carolina.

Risk Assessment and Nuclear Safety

As the NRC considered its policies on license renewal, representatives of the nuclear industry expressed concern that the costs and uncertainties of the regulatory process would negate the potential advantages of plant life extension. This was consistent with strong industry criticism of the NRC's regulations or the ways in which they were implemented. A report prepared for an industry group, for example, concluded in 1994 that the NRC's policies and practices represented a "serious threat to America's nuclear energy resource" by distracting plant management, undermining public trust in nuclear power, and "pricing nuclear power out of the competitive energy marketplace." Industry protests about regulatory burdens were nothing new, of course, but they had taken on increased urgency and intensity by the early part of the 1990s. Industry officials complained that NRC regulations were in many cases intrusive, excessive, and potentially counterproductive. They particularly objected to the agency's numerical ratings of plant performance, which they found to be arbitrary and inconsistent. In September 1998, the Commission indefinitely suspended the "Systematic Assessment of Licensee Performance" program, which the agency had created in the wake of the Three Mile Island accident to evaluate and score management practices in several different categories of plant operation. In June 1999, it began a pilot program to test methods of providing more consistent and predictable plant evaluations.

As a part of its reexamination of the regulatory process, the NRC evaluated the role of risk assessment and performance indicators. The benefits of risk assessment had been debated since the Rasmussen report without making a major impact on the formulation or enforcement of the NRC's rules. Nuclear industry representatives complained that the NRC relied too heavily on "prescriptive" regulations. They urged the agency to place greater emphasis on non-prescriptive performance-based assessments that would recognize the significant improvements that industry had achieved since Three Mile Island. This would allow licensees greater leeway to determine how to accomplish regulatory goals and presumably cut costs without sacrificing safety. In 1991, the Commission instructed the agency staff to investigate the feasibility of using more performance-based regulations that focused on a "result to be obtained, rather than prescribing to the licensee how the objective is to be obtained." This initiative received strong support from Ivan Selin, chairman of the NRC from 1992 to 1995, from his successor, Shirley Ann Jackson, chairman from 1995 to 1999, and from their colleagues on the Commission.

The effective employment of performance-based regulation was closely tied to informed analyses of risk. In 1995, the Commission unanimously approved a policy statement that encouraged the application of probabilistic risk assessment "as an extension and enhancement of traditional regulation." The agency believed that risk analysis would enable it to "focus on those regulated activities that pose the greatest risk to the public" and to ease "unnecessary burdens on licensees." The industry and the NRC agreed on this general objective, but many uncertainties about how to apply the concept of risk assessment in practice had not been resolved. The industry was concerned that the NRC gave unwarranted emphasis to the redundant "defense-in-depth" approach that had been applied since the earliest days of the nuclear power industry. Those concerns were magnified in 1997 when the Commission voted to require a containment spray system in a new Westinghouse plant design even though risk assessments indicated that the design was "safe enough" without the spray system. Despite this affirmation of the importance of defense-in-depth, the NRC continued to search for ways to use probabilistic risk assessment to improve the regulatory process.

The Millstone Controversy

Although risk-informed regulation offered many potential benefits for evaluating the technical performance of nuclear plants, it was not a reliable way to detect safety issues that could generate acute public concern. In that regard, it was not necessarily a useful means of building public confidence in nuclear power technology or the NRC. This was amply demonstrated when a series of problems arose at the Millstone nuclear station, which included three plants located on the northern side of Long Island Sound in Connecticut. The safety issues at Millstone required attention, but they were not so serious that risk analysis was likely to identify them as priority matters. As Commissioner Nils J. Diaz commented in 1997, of the many issues raised about Millstone, "only a handful appear to have been safety-significant." Nevertheless, the failures at Millstone created a great deal of controversy and a barrage of criticism of the NRC.

The uproar over Millstone began in the early 1990s when several plant employees claimed that they were harassed, intimidated, and/or dismissed from their jobs by the owner of the plants, Northeast Utilities, for calling attention to safety problems and violations of NRC regulations. The NRC investigated the concerns raised by the "whistle-blowers" and determined that the safety issues they raised were not of major significance and had been corrected. But the agency also concluded that the utility had harassed employees and assessed it a fine of $100,000, the maximum amount allowed by law. This did not satisfy the dissidents at Millstone and elsewhere, who insisted that the NRC was neither prompt nor firm in dealing with the issues they cited or in protecting them from retaliation by their employers. As a result of the complaints from Millstone and other plants, the agency reexamined and eventually tightened its policies in order to provide better protection to whistle-blowers who contacted it about safety issues.

Meanwhile, new revelations at Millstone generated increasing NRC scrutiny. It also commanded growing media attention, much of which was sharply critical of the NRC. In 1993 and again in 1994 the NRC fined Northeast Utilities for procedural violations that the agency viewed as serious lapses in the management of the Millstone units. The utility pledged to improve its performance and "to resolve issues raised by [its] employees." Nevertheless, another issue raised by company employees soon triggered new reservations about safety at Millstone and the effectiveness of the NRC's enforcement policies. In this case, the whistle-blowers objected to the company's practice of placing the entire nuclear core into the

spent fuel pool at Millstone Unit 1 during refueling operations. The plant's "final safety analysis report," which provided the basis for the its operating license, specified that only one-third of the spent fuel rods would be moved into the pool. But Millstone-1 had performed "full-core off-loads" for years as an "emergency" procedure with the knowledge of the NRC. Finally, after employees questioned the practice, Northeast Utilities applied for a license amendment that expressly permitted full-core off-loading, and in November 1995 the NRC granted its approval.

By that time, the utility and the NRC were the subjects of extensive and unflattering coverage in the local media. In March 1996, the criticism reached a new level of visibility when Time magazine ran a cover story on the whistle-blowers who had "caught the Nuclear Regulatory Commission at a dangerous game." It suggested that an accident in a spent fuel pool posed the hazard of "releasing massive amounts of radiation and rendering hundreds of square miles uninhabitable." It charged that the NRC "may be more concerned with propping up an embattled, economically straitened industry than with ensuring public safety." NRC chairman Jackson conceded that the Time article demonstrated that "not all aspects of nuclear regulation or nuclear operations in certain places are as they should be," but she strongly denied the implication that "the Millstone situation borders on an impending TMI- or Chernobyl-type disaster."

Amid the growing criticism, the NRC conducted its own reviews to identify and correct errors that the Millstone experience brought to light. An internal task force reported in September 1996 that the "safety significance of Millstone's refueling practices was low." Nevertheless, it recommended a series of procedural, informational, and management improvements. The agency also undertook a careful study of a frequently-used provision in its regulations that allowed licensees to make changes in their plants without NRC permission under certain conditions. In 1999, after considerable debate over the threshold for permitting such changes, the Commission approved revisions designed to clarify the rule and provide guidance on when NRC consent was necessary within a risk-informed framework.

While the NRC examined its own regulations and procedures, it conducted an expanding probe of the Millstone plants. In May 1996 the NRC's inspector general faulted the agency for failing to recognize the problems at Millstone and impose corrective actions much earlier. When the NRC's investigations, along with those conducted by the utility, turned up hundreds of performance and procedural deficiencies, the agency took the unusual step of stipulating that the three plants, all of which had been shut down, would not be allowed to restart without a formal vote of the Commission. Eventually, after the utility made management changes, took a series of steps to address its shortcomings, and decided to permanently close Millstone-1, the Commission authorized the restart of units 2 (in 1999) and 3 (in 1998). The series of problems at Millstone underscored the general difficulties that the NRC had encountered with plants that did not perform up to standards and did not correct their deficiencies promptly or effectively. The Commission devoted a great deal of energy to dealing with the many aspects of encouraging or forcing improvements in plants that did not fully meet its requirements.

Nuclear Materials Safety and Safeguards

Although reactor safety issues captured a lion's share of public notice, the NRC also devoted substantial resources to a variety of complex matters in the area of nuclear materials safety and safeguards. The protection of nuclear materials from theft or diversion remained a major agency concern, though it did not command the level of public attention it had received in the 1970s. In cooperation and sometimes in conflict with other government agencies, the NRC evaluated the safety problems involved in building and operating repositories for high-level and low-level radioactive waste. Despite federal legislation that attempted to provide the means for establishing permanent waste sites and the efforts of federal and state officials, scientists, engineers, and other professionals, the disposal of radioactive wastes remained a source of intense public concern and bitter political controversy. The NRC also considered its role in regulating certain medical uses of radioactive materials. Although it exercised only limited responsibilities in the field of "radiation medicine," it sought to ensure that patients received the proper doses of radiation from procedures under its regulatory authority. Its rules elicited protests from medical practitioners and organizations who complained about regulatory overkill that intruded into physician-patient relationships.

The issues surrounding the regulation of nuclear materials, the problems at Millstone, and the use of risk assessment underscored patterns in the history of nuclear regulation over a period of four decades. The nuclear industry and materials licensees often asserted that regulatory requirements were too burdensome, too inflexible, and too strict. Nuclear critics, on the other hand, frequently lamented that regulatory requirements were too lax, too sympathetic to industry concerns, and too inattentive to public safety. The NRC, and the AEC before it, attempted to find a proper balance between essential and excessive regulation, but this was a difficult and uncertain task that usually elicited complaints from one side or all sides of regulatory issues. The NRC sought to separate valid criticisms from those that were exaggerated or ill-informed, but this process won few plaudits from its different (and frequently competing) constituencies. "The bane of the regulator," a senior agency official remarked in 1998, "is to feel unloved." The ongoing effort to promote the safe use of nuclear materials and the safe operation of nuclear power plants without imposing undue burdens on licensees ensured that nuclear regulation would remain a complex and controversial public policy issue.